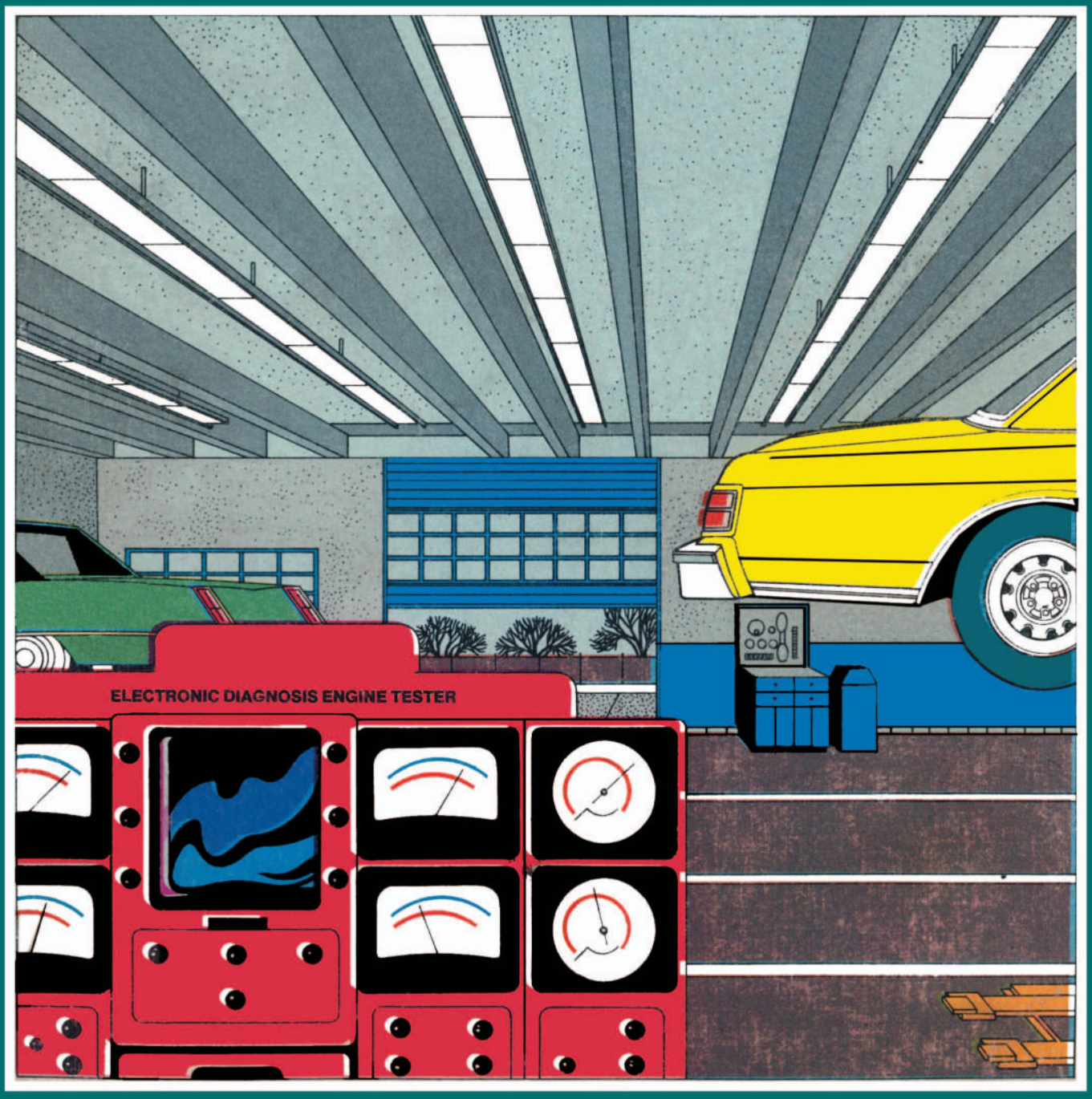
1978 CHRYSLER PLYMOUTH DODGE



Electrical Service Manual

CHRYSLER CORPORATION

1978 Passenger Car Service Manual

FOREWORD

This Chrysler Corporation Service Manual has been prepared with the latest service information available for use on 1978 models. Diagnosis, disassembly, repair, assembly and installation procedures coupled with complete specifications and tightening references can be found in each group. This publication is one of the most important "tools" available to the service technician. It will prove an invaluable aid in properly performing any phase of service necessary to maintain or restore the fine performance and reliability characteristics designed, engineered and manufactured into these outstanding automobiles.

CHRYSLER

Dodge

Plymouth

For information relative to ordering the special service tools used and illustrated, or for additional copies of this manual, please refer to the instructions on inside back cover.

CHRYSLER CORPORATION

Litho in U. S. A. 65M877

QUICK REFERENCE INDEX. To use, move either the hand or selection tool directly over the section you desire to reference. Simply click once with the mouse button and the manual will automatically jump to that section.

8 ELECTRICAL TAB INDEX

INTRODUCTION

This publication contains the essential removal, installation, adjustment and maintenance procedures for servicing all Body Styles. This information is current as of time of publication.

TAB INDEX

The preceding page lists the group number and title of each main group. The first page in each main group has an index of the subjects included in that group. **An alphabetical index is found at the rear of the Service Manual to aid in locating specific subject and components.**

PAGE NUMBERS

All page numbers consist of two sets of digits separated by a dash. The digits preceding the dash identify the group. The digits following the dash represent the consecutive page number within the particular group. The page numbers are found on the upper left or right of each page.

TEXT

Unless otherwise specified, each service procedure covers all body styles. Procedures covering specific styles are identified by the carline letter or body type.

VEHICLE AND COMPONENT IDENTIFICATION

VEHICLE NUMBER: The vehicle number (VIN number) is embossed on a plate (Fig. 1) which is attached to the upper left-hand corner of the instrument panel between the left windshield wiper pivot and the left "A" post. It can easily be seen by looking through the windshield from the outside.

All vehicle numbers contain thirteen digits. The vehicle number is a code (refer to Vehicle Identification Code Chart in this section) which tells the carline (1st digit), price class (2nd digit), body type (3rd and 4th digit) engine displacement (5th digit), model year (6th digit), assembly plant (7th digit), and vehicle sequence number (last six digits).

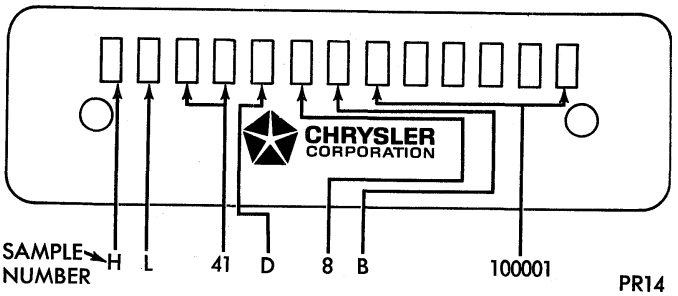


Fig. 1—Vehicle Identification Plate (V.I.N.) (Instrument Panel Mounted)

This vehicle number is also stamped on the engine block and the transmission housing in abbreviated form. On six cylinder engine blocks it is on a pad located below the number six spark plug (Fig. 2).

On all eight cylinder engine blocks it is on a pad located to the rear of the right engine mount (Fig. 3). On all manual and automatic transmissions it is on a pad located on the right side of the transmission (Figs. 4, 5 and 6).

ENGINE NUMBERS: Engine serial numbers can contain as many as fifteen characters and digits. On 225, 400 and 440 cubic inch engines the first letter will designate series (model year), the next three numerals will designate cubic inch displacement, the next one or two letters (depending on type of engine) will designate model, the following four numerals designate build date, the next numeral indicates shift on which engine was built. On 318 and 360 cubic inch engines the first letter will designate series (model year), the next letter will designate manufacturing plant, the next three numerals will indicate cubic inch displacement, the next one or two letters (depending on type of engine) will designate model, the following four numerals designate build date, and the last four numerals designate the engine sequence number.

On all engines, information identifying undersized crankshaft, oversized tappets, low compression, oversized cylinder bores, engine built that day, and the

VEHICLE IDENTIFICATION CODE CHART

1st Digit Carline	2nd Digit Series (Price Class)	3rd & 4th Digits Body Type	5th Digit Eng. Displacement Cu. In.	6th Digit Model Year	7th Digit Assembly Plant	Sequence Number
H-Volaré	H	22-2 Dr.	C-225-1 BBL. (3.7L)	8-1978	A-Lynch Road	100001
N-Aspen	L	Pillared Hardtop	D-225-2 BBL. (3.7L)		B-Hamtramck	
R-Fury	M	23-2 Dr. Hardtop	G-318-2 BBL. (5.2L)		C-Jefferson	
W-Monaco	P	29-2 Dr.	H-318-4 BBL. (5.2L)		D-Belvidere	
*B-Caravelle	S	Special Hardtop	J-360-4 BBL. (5.9L)		F-Newark	
F-LeBaron		41-4 Dr. Sedan	K-360-2 BBL. (5.9L)		G-St. Louis	
G-Diplomat		43-4 Dr. Hardtop	L-360-4 BBL. (5.9L)		R-Windsor	
S-Cordoba		45-2 Seat Station	N-400-4 BBL. (6.6L)			
X-Charger/Magnum		Wagon	P-400-4 BBL. (6.6L)			
C-Chrysler		46-3 Seat Station	T-440-4 BBL. (7.2L)			
		Wagon	U-440-4 BBL. (7.2L)			

*—Canada Only—For service refer to F and G Carlines.

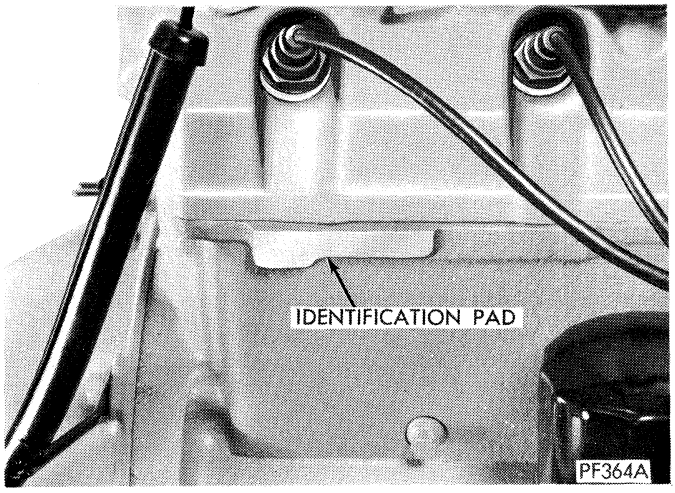


Fig. 2—225 Cubic Inch Engine—Vehicle Number Pad Location

shift is stamped on the cylinder block at various locations depending on engine. 225 cubic inch engines are stamped on the joint face at the right corner, adjacent to number one cylinder bore. 318 and 360 cubic inch engines are stamped on the front of the block just below the left cylinder head (Fig. 7). 400 cubic inch engines are stamped on the cylinder block just forward of the number two cylinder bore adjacent to the distributor (Fig. 8). 440 cubic inch engines are stamped on the left bank pad, adjacent to front tappet rail (Fig. 9). For additional information on engines see **Group 9 in the Chassis Service Manual.**

TRANSMISSION NUMBERS: All manual transmission numbers will be stamped on a pad provided on the right side of the case. All TorqueFlite transmission numbers will be stamped on a pad provided on the left side of the case oil pan flange.

BODY CODE PLATE: Located on the left front fender side shield, wheelhousing or left side of upper radiator support, includes schedule date body type,

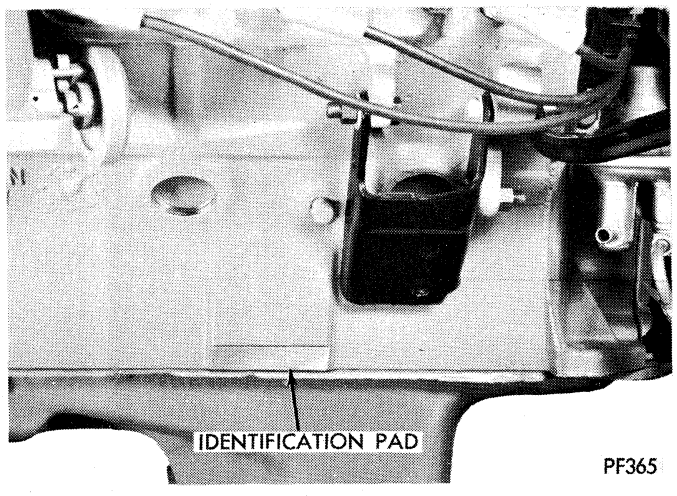


Fig. 3—Eight Cylinder Engines—Vehicle Number Pad Location

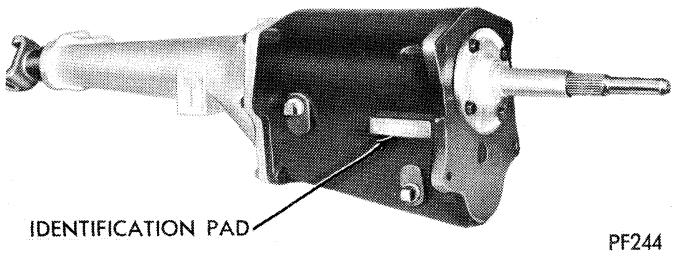


Fig. 4—A-230 Transmission—Vehicle Number Pad Location

engine code, transmission code, time code, trim code and paint codes (Fig. 10).

To understand the Code Plate shown in (Fig. 10) notice six (6) rows of digits are on the plate. Starting with Line #1 (the bottom line on the plate). The information reads from left to right.

LINE #1—1st 3 digits ..... engine code
4th ..... open space
5th thru 7th ..... transmission code
8th ..... open space
remaining digits .. Vehicle Identification Number (VIN)

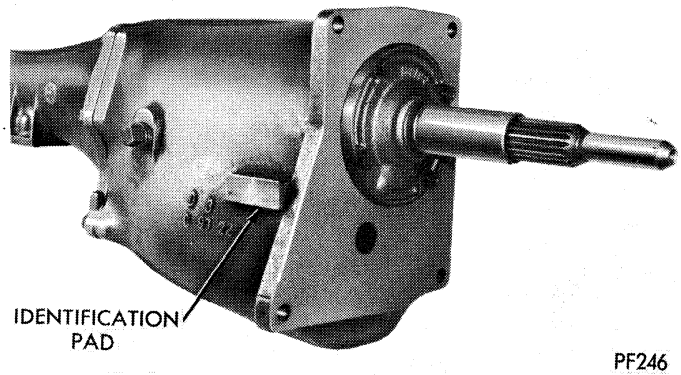


Fig. 5—Overdrive-4 Manual Transmission Vehicle Pad Location

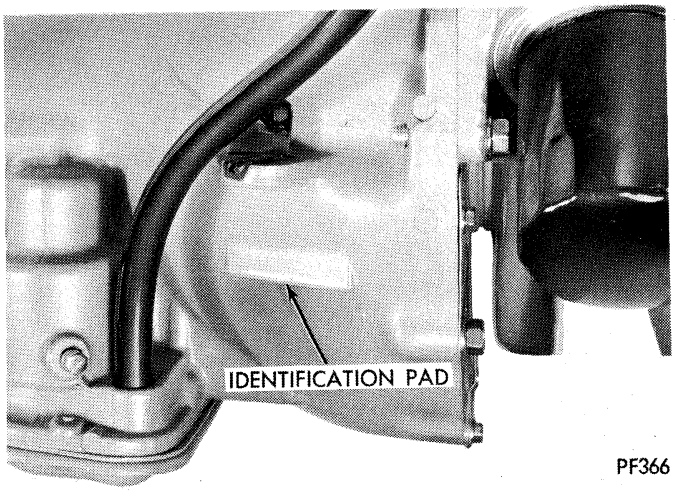


Fig. 6—Torqueflite Transmission—Vehicle Number Pad Location

ENGINE AND ENGINE PARTS IDENTIFICATION

Figures 2 and 3 show engine identification number; figures 8, 9, and 10 show parts replacement information.

No. Cyl.	Displacement	Engine VIN Number Location	Parts Replacement Information Location
6	225 cu. in.	Right side of block below #6 spark plug	Right side of block below #1 spark plug
8	318 cu. in.	Right side of block to the rear of the engine mount	Left front of block with engine number
8	360 cu. in.		
8	400 cu. in.	Right side of block to the rear of the engine mount	Right side of block adjacent to the distributor
8	440 cu. in.	Right side of block to the rear of the engine mount	Top of block adjacent to front tappet rail

Line #2—1st 3 digits ..... lower body paint color code or fleet or special order paint codes
4th ..... open space
5th thru 8th ..... trim code
9th ..... open space
10th thru 12th .... interior paint colors and build code
13th ..... open space
14th thru 23rd .... vehicle sales order number

Example:
14th digit ..... month code
15th & 16th ..... day of month
17th ..... open space
18th thru 23rd .. vehicle order number

LINE #3—1st 3 digits ..... upper body color code or two tone color code
4th ..... open space
5th thru 7th ..... vinyl roof code
8th & 9th ..... open space
10th ..... order code: U=U.S.
C=Canada
I=International
remaining digits .. open spaces

LINES #4 thru #6 ..... For factory use only

VEHICLE SAFETY CERTIFICATION LABELS

A vehicle safety certification label (Fig. 11) is attached to the rear facing of the driver's door on all 1978 Chrysler built passenger cars. This label reflects the date of manufacture numerically month and year in the upper right hand corner, Gross Vehicle Weight Rating (GVWR), Gross Axle Weight Rating (GAWR) front, Gross Axle Weight Rating (GAWR) rear and Vehicle Identification Number (VIN). A Month-Day-Hour (MDH) number is included on this label in the lower left hand corner which indicates a Month, Day and Hour manufacturing control point.

This label when applied, verifies vehicle confirma-

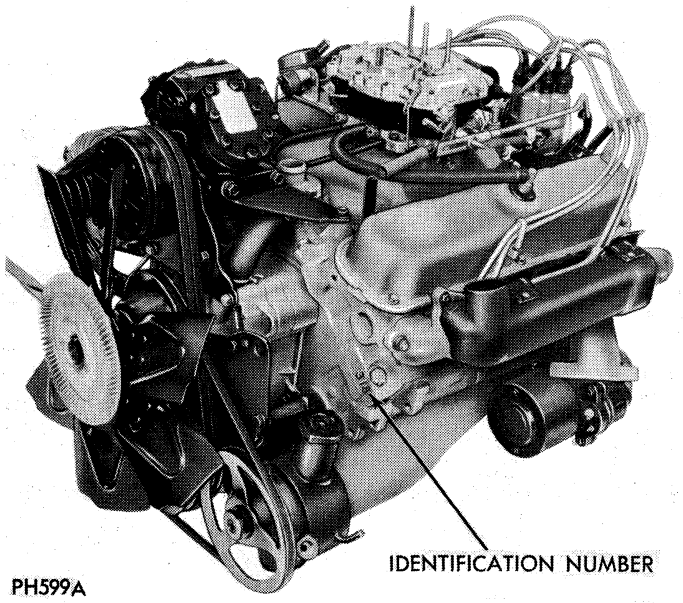


Fig. 7—318 and 360 Cubic Inch Engine—Identification Number Location

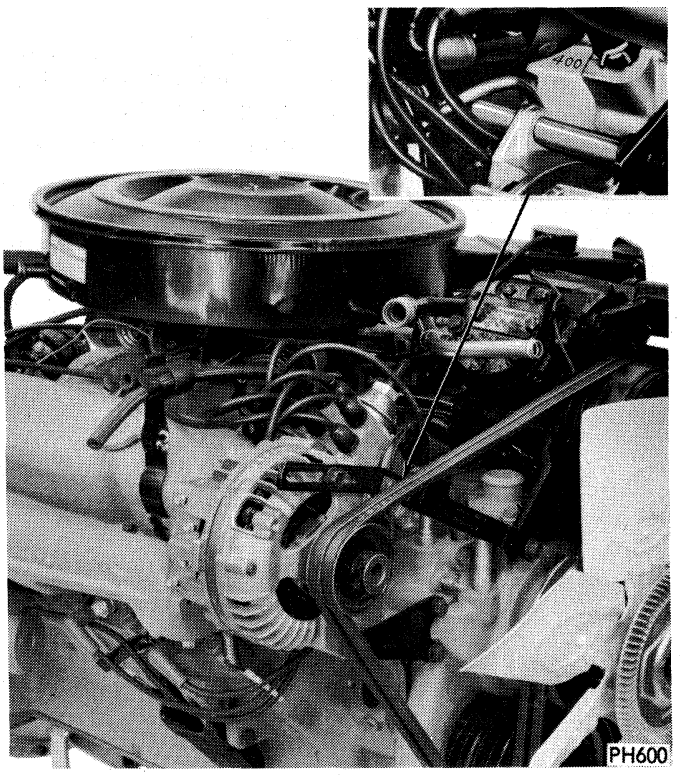


Fig. 8—400 Cubic Inch Engine—Identification Number Location

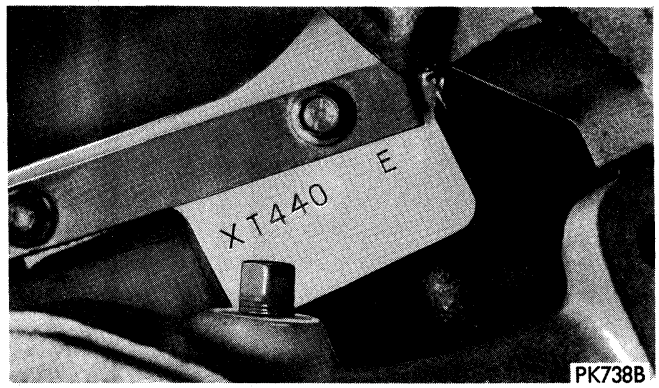


Fig. 9—440 Cubic Inch Engine—Identification Number Location

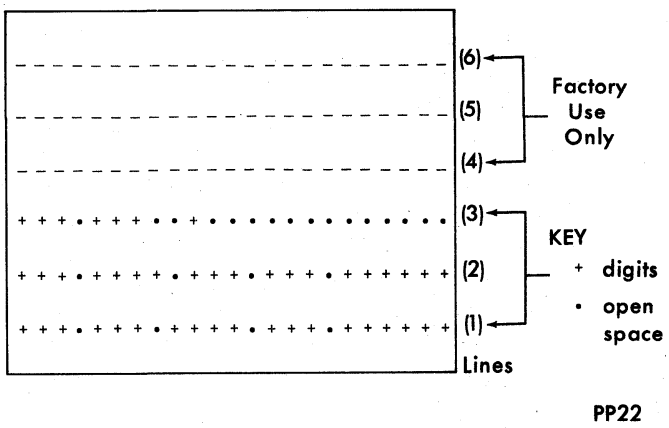


Fig. 10—Body Code Plate

tion to all applicable Federal Motor Vehicle Safety Standards in effect on the date of manufacture.

The National Safety Mark located in the center of (Fig. 11) is applied adjacent to the vehicle safety certification label on all vehicles sold in Canada regardless of location of manufacturing plant. The 972 in the center is a number designation assigned by the Canadian Ministry of Transport authorizing Chrysler to apply these marks to these vehicles.

All communications or inquiries regarding vehicle should include the Month-Day-Hour and Vehicle Identification Number.

TORQUE REFERENCES

HEAD MARKINGS—Head marking identification shall consist of radial lines on the top of the bolt head (Fig. 12).

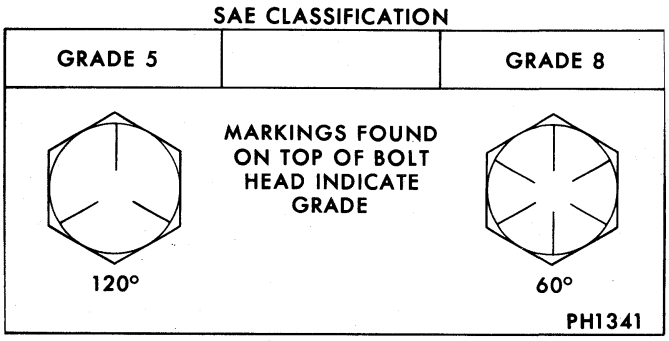
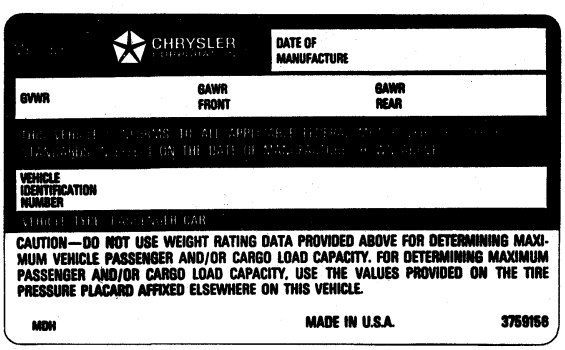


Fig. 12—Bolt Head Identification

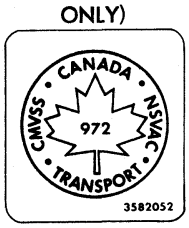
BOLT TORQUE

Size	GRADE 5 Ft. Lbs.	GRADE 5 newton metres	GRADE 8 Ft. Lbs.	GRADE 8 newton metres
1/4-20	95 In. Lbs.	10.7	125 In. Lbs.	14.1
1/4-28	95 In. Lbs.	10.7	150 In. Lbs.	16.9
5/16-18	200 In. Lbs.	22.6	270 In. Lbs.	31.2
5/16-24	20	27.1	25	33.9
3/8-16	30	40.7	40	54.2
3/8-24	35	47.5	45	61.0
7/16-14	50	67.8	65	88.1
7/16-20	55	74.6	70	95.0
1/2-13	75	101.7	100	135.6
1/2-20	85	115.2	110	149.1
9/16-12	105	142.4	135	183.0
9/16-18	150	156.0	150	203.4
5/8-11	115	203.4	195	264.4
5/8-18	160	217.0	210	284.7
3/4-16	175	237.3	225	305.1

(UNITED STATES)



(CANADA SALES ONLY)



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(CANADA)

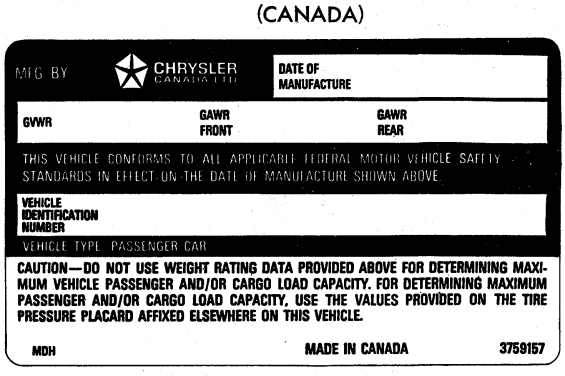

Fig. 11—Vehicle Safety Certification Labels

GENERAL DATA AND SPECIFICATIONS

VOLARÉ AND ASPEN

ITEM	VOLARÉ	ASPEN
Wheelbase	(29)-108.7″-2761 mm (41)-(45)-112.7″-2863 mm	(29)-108.7″-2761 mm (41)-(45)-112.7″-2863 mm
Track—Front	(All)-60.0″-1524 mm	(All)-60.0″-1524 mm
Rear	(All)-58.5″-1486 mm	(All)-58.5″-1486 mm
Length (Includes Bumper Guards)	(29)-197.2″-5003 mm (41)-(45)-201.2″-5110 mm	(29)-197.2″-5003 mm (41)-(45)-201.2″-5110 mm
Width	(All)-73.3″-1861 mm	(All)-73.3″-1861 mm
Height	(29)-53.3″-1354 mm (41)-55.3″-1405 mm (45)-55.7″-1415 mm	(29)-53.3″-1354 mm (41)-55.3″-1405 mm (45)-55.7″-1415 mm

KEY: (29) 2-Dr. Special Hardtop (41)—4 Door Sedan (45)—2 Seat Wagon

CHARGER, MAGNUM AND CORDOBA

ITEM	CHARGER	MAGNUM	CORDOBA
Wheelbase	(22)-114.9″-2919 mm	(22)-114.9″-2919 mm	(22)-114.9″-2919 mm
Track—Front	(22)- 61.9″-1572 mm	(22)- 61.9″-1572 mm	(22)- 61.9″-1572 mm
Rear	(22)- 62.0″-1575 mm	(22)- 62.0″-1575 mm	(22)- 62.0″-1575 mm
Length	(22)-215.8″-5469 mm	(22)-215.8″-5469 mm	(22)-215.8″-5469 mm
Width	(22)- 77.1″-1958 mm	(22)- 77.1″-1958 mm	(22)- 77.1″-1958 mm
Height	(22)- 52.9″-1344 mm	(22)- 53.1″-1349 mm	(22)- 53.1″-1349 mm

KEY: (22)—2 Door Pillared Hardtop

LeBARON AND DIPLOMAT

ITEM	LeBARON	DIPLOMAT
Wheelbase	(All)-112.7″-2862 mm	(All)-112.7″-2862 mm
Track—Front	(All)-60.0″-1524 mm	(All)-60.0″-1524 mm
Rear	(All)-58.5″-1486 mm	(All)-58.5″-1486 mm
Length (Includes Bumper Guards)	(22)-204.1″-5184 mm (41)-206-1″-5235 mm (45)-202.8″-5200 mm	(22)-204.1″-5184 mm (41)-206-1″-5235 mm (45)-202.8″-5200 mm
Width	(22)-73.5″-1867 mm (41)-(45)-73.3″-1862 mm	(22)-73.5″-1867 mm (41)-(45)-73.3″-1862 mm
Height	(22)-53.3″-1354 mm (41)-55.3″-1405 mm (45)-55.7″-1415 mm	(22)-53.3″-1354 mm (41)-55.3″-1405 mm (45)-55.7″-1415 mm

KEY: (22)—2 Door Pillared Hardtop (41)—4 Door Sedan (45)—2 Seat Wagon

NEWPORT AND NEW YORKER BROUGHAM

ITEM	NEWPORT	NEW YORKER BROUGHAM
Wheelbase	(All)-123.9″-3147 mm	(All)-123.9″-3147 mm
Track—Front	(All)-64.0″-1626 mm	(All)-64.0″-1626 mm
Rear	(All)-63.4″-1610 mm	(All)-63.4″-1610 mm
Length	(23)-227.1″-5768 mm	(43)-231.0″-5867 mm
Width	(23)-79.7″-2024 mm	(43)-79.5″-2019 mm
Height	(All)-54.7″-1389 mm	(All)-54.7″-1389 mm

KEY: (23)—2 Door Hardtop (43)—4 Door Hardtop

DIMENSIONAL AND TEMPERATURE CONVERSION CHART

INCHES	DECIMALS	MILLI-METRES	INCHES TO MILLIMETRES		MILLIMETRES TO INCHES		FAHRENHEIT & CELSIUS			
			Inches	mm	mm	Inches	°F	°C	°C	°F
1/64	.015625	.3969	.0001	.00254	0.001	.000039	-20	-28.9	-30	-22
1/32	.03125	.7937	.0002	.00508	0.002	.000079	-15	-26.1	-28	-18.4
3/64	.046875	1.1906	.0003	.00762	0.003	.000118	-10	-23.3	-26	-14.8
1/16	.0625	1.5875	.0004	.01016	0.004	.000157	-5	-20.6	-24	-11.2
5/64	.078125	1.9844	.0005	.01270	0.005	.000197	0	-17.8	-22	-7.6
3/32	.09375	2.3812	.0006	.01524	0.006	.000236	1	-17.2	-20	-4
7/64	.109375	2.7781	.0007	.01778	0.007	.000276	2	-16.7	-18	-0.4
1/8	.125	3.1750	.0008	.02032	0.008	.000315	3	-16.1	-16	3.2
9/64	.140625	3.5719	.0009	.02286	0.009	.000354	4	-15.6	-14	6.8
5/32	.15625	3.9687	.001	.0254	0.01	.00039	5	-15.0	-12	10.4
11/64	.171875	4.3656	.002	.0508	0.02	.00079	10	-12.2	-10	14
3/16	.1875	4.7625	.003	.0762	0.03	.00118	15	-9.4	-8	17.6
13/64	.203125	5.1594	.004	.1016	0.04	.00157	20	-6.7	-6	21.2
7/32	.21875	5.5562	.005	.1270	0.05	.00197	25	-3.9	-4	24.8
15/64	.234375	5.9531	.006	.1524	0.06	.00236	30	-1.1	-2	28.4
1/4	.25	6.3500	.007	.1778	0.07	.00276	35	1.7	0	32
17/64	.265625	6.7469	.008	.2032	0.08	.00315	40	4.4	2	35.6
9/32	.28125	7.1437	.009	.2286	0.09	.00354	45	7.2	4	39.2
19/64	.296875	7.5406	.01	.254	0.1	.00394	50	10.0	6	42.8
5/16	.3125	7.9375	.02	.508	0.2	.00787	55	12.8	8	46.4
21/64	.328125	8.3344	.03	.762	0.3	.01181	60	15.6	10	50
11/32	.34375	8.7312	.04	1.016	0.4	.01575	65	18.3	12	53.6
23/64	.359375	9.1281	.05	1.270	0.5	.01969	70	21.1	14	57.2
3/8	.375	9.5250	.06	1.524	0.6	.02362	75	23.9	16	60.8
25/64	.390625	9.9219	.07	1.778	0.7	.02756	80	26.7	18	64.4
13/32	.40625	10.3187	.08	2.032	0.8	.03150	85	29.4	20	68
27/64	.421875	10.7156	.09	2.286	0.9	.03543	90	32.2	22	71.6
7/16	.4375	11.1125	.1	2.54	1	.03937	95	35.0	24	75.2
29/64	.453125	11.5094	.2	5.08	2	.07874	100	37.8	26	78.8
15/32	.46875	11.9062	.3	7.62	3	.11811	105	40.6	28	82.4
31/64	.484375	12.3031	.4	10.16	4	.15748	110	43.3	30	86
1/2	.5	12.7000	.5	12.70	5	.19685	115	46.1	32	89.6
33/64	.515625	13.0969	.6	15.24	6	.23622	120	48.9	34	93.2
17/32	.53125	13.4937	.7	17.78	7	.27559	125	51.7	36	96.8
35/64	.546875	13.8906	.8	20.32	8	.31496	130	54.4	38	100.4
9/16	.5625	14.2875	.9	22.86	9	.35433	135	57.2	40	104
37/64	.578125	14.6844	1	25.4	10	.39370	140	60.0	42	107.6
19/32	.59375	15.0812	2	50.8	11	.43307	145	62.8	44	112.2
39/64	.609375	15.4781	3	76.2	12	.47244	150	65.6	46	114.8
5/8	.625	15.8750	4	101.6	13	.51181	155	68.3	48	118.4
41/64	.640625	16.2719	5	127.0	14	.55118	160	71.1	50	122
21/32	.65625	16.6687	6	152.4	15	.59055	165	73.9	52	125.6
43/64	.671875	17.0656	7	177.8	16	.62992	170	76.7	54	129.2
11/16	.6875	17.4625	8	203.2	17	.66929	175	79.4	56	132.8
45/64	.703125	17.8594	9	228.6	18	.70866	180	82.2	58	136.4
23/32	.71875	18.2562	10	254.0	19	.74803	185	85.0	60	140
47/64	.734375	18.6531	11	279.4	20	.78740	190	87.8	62	143.6
3/4	.75	19.0500	12	304.8	21	.82677	195	90.6	64	147.2
49/64	.765625	19.4469	13	330.2	22	.86614	200	93.3	66	150.8
25/32	.78125	19.8437	14	355.6	23	.90551	205	96.1	68	154.4
51/64	.796875	20.2406	15	381.0	24	.94488	210	98.9	70	158
13/16	.8125	20.6375	16	406.4	25	.98425	212	100.0	75	167
53/64	.828125	21.0344	17	431.8	26	1.02362	215	101.7	80	176
27/32	.84375	21.4312	18	457.2	27	1.06299	220	104.4	85	185
55/64	.859375	21.8281	19	482.6	28	1.10236	225	107.2	90	194
7/8	.875	22.2250	20	508.0	29	1.14173	230	110.0	95	203
57/64	.890625	22.6219	21	533.4	30	1.18110	235	112.8	100	212
29/32	.90625	23.0187	22	558.8	31	1.22047	240	115.6	105	221
59/64	.921875	23.4156	23	584.2	32	1.25984	245	118.3	110	230
15/16	.9375	23.8125	24	609.6	33	1.29921	250	121.1	115	239
61/64	.953125	24.2094	25	635.0	34	1.33858	255	123.9	120	248
31/32	.96875	24.6062	26	660.4	35	1.37795	260	126.6	125	257
63/64	.984375	25.0031	27	690.6	36	1.41732	265	129.4	130	266

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Fig. 13—Dimensional and Temperature Conversion Chart

GALLON CAPACITY CONVERSION TABLE (Approximate)

U.S.	Imperial	U.S.	Imperial	U.S.	Imperial
1/4	1/4	7	5-3/4	15	12-1/2
1/2	3/8	7-1/4	6	15-1/2	13
3/4	5/8	7-1/2	6-1/4	16	13-1/4
		7-3/4	6-1/2	16-1/2	13-3/4
1	3/4			16-3/4	14
1-1/4	1	8	6-3/4		
1-1/2	1-1/4	8-1/4	6-3/4	17	14-1/4
1-3/4	1-1/2	8-1/2	7	17-1/2	14-1/2
		8-3/4	7-1/4	18	15
2	1-3/4	9	7-1/2	18-1/2	15-1/2
2-1/4	1-3/4	9-1/4	7-3/4	19	15-3/4
2-1/2	2	9-1/2	8	19-1/2	16-1/4
2-3/4	2-1/4	9-3/4	8	20	16-3/4
				20-1/2	17
3	2-1/2	10	8-1/4		
3-1/4	2-3/4	10-1/4	8-1/2	21	17-1/2
3-1/2	3	10-1/2	8-3/4	21-1/2	18
3-3/4	3	10-3/4	9	22	18-1/4
				22-1/2	18-3/4
4	3-1/4	11	9-1/4	23	19-1/4
4-1/4	3-1/2	11-1/4	9-1/4	23-1/2	19-1/2
4-1/2	3-3/4	11-1/2	9-1/2	24	20
4-3/4	4	11-3/4	9-3/4	24-1/2	20-1/2
5	4-1/4	12	10	25	20-3/4
5-1/4	4-1/4	12-1/4	10-1/4	25-1/2	21-1/4
5-1/2	4-1/2	12-1/2	10-1/2	26	21-3/4
5-3/4	4-3/4	12-3/4	10-1/2	26-1/2	22
				27	22-1/2
6	5	13	10-3/4	27-1/2	23
6-1/4	5-1/4	13-1/2	11-1/4	28	23-1/4
6-1/2	5-1/2	14	11-3/4	29	24-1/4
6-3/4	5-1/2	14-1/2	12	30	25

CAPACITY CONVERSION U.S. GALLONS TO LITRES

Gallons	0	1	2	3	4	5
	Litres	Litres	Litres	Litres	Litres	Litres
0	00.0000	3,7853	7.5707	11.3560	15.1413	18.9267
10	37.8533	41.6387	45.4240	49.2098	52.9947	56.7800
20	75.7066	79.4920	83.2773	87.0626	90.8480	94.6333
30	113.5600	117.3453	121.1306	124.9160	128.7013	132.4866
40	151.4133	155.1986	158.9840	162.7693	166.5546	170.3400

ELECTRICAL

CONTENTS

BATTERY

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GENERAL INFORMATION

The battery is the heart of the vehicles electrical system. So it is very important that it is capable of delivering the necessary electricity when called for and capable of accepting electricity when it is in a low state of charge.

Another important feature of the battery is that it acts as a giant capacitor (shock absorber) in the vehicles electrical system. It absorbs many abnormal and transient voltages that are created by the various electrical components of the system.

If a battery is not up to specifications it will not deliver the necessary electricity, will not accept electricity and will not act as a capacitor. Consequently, the vehicles entire electrical system will be effected when this happens.

The Long Life Low Maintenance Battery (Fig. 1), has three piece plastic polypropylene container, heavy duty plates, premium separators and separator protectors. The electrolyte in this battery should be checked every 12 months or 10,000 miles whichever occurs first and distilled water added if necessary.

An insulated plastic battery heat shield (Fig. 2 and 3) is used on all models, to reduce battery tempera-

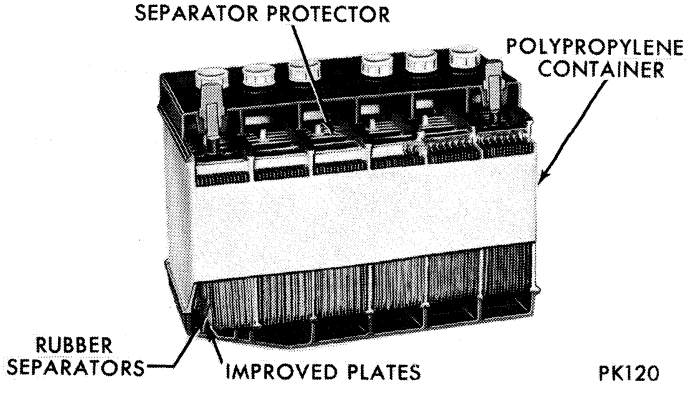

Fig. 1—Long Life Low Maintenance Battery

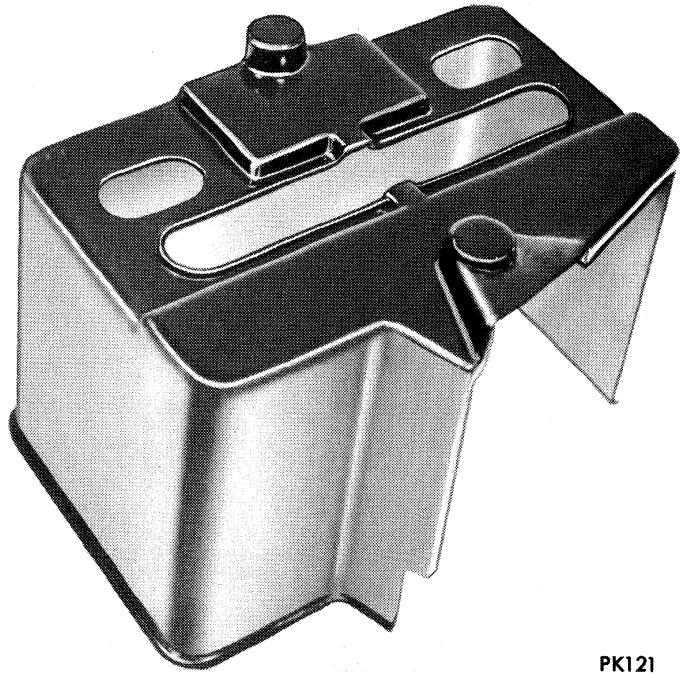

Fig. 2—Battery Heat Shield Typical Except "B" Body

ture. The shield is made of a one piece blow moulded polyproplene plastic. Outside cooling air enters the cover through an opening in the yoke flows around the battery and exits through openings in the top and around the bottom of the cover.

On "C" body models, the shield slides over the clamped down battery and butts against the radiator yoke panel; it is held in place by the battery cable terminal clamps.

On all other models the heat shield has a built-in battery hold-down clamp. Removal and installation procedures are specified under "Battery Visual Inspection," "B" body models have a built-in windshield washer reservoir.

SERVICE PROCEDURES

BATTERY VISUAL INSPECTION

(1) Make sure ignition switch is in "OFF" position and all battery feed accessories are OFF.

(2) Disconnect battery cables at battery (negative first).

(3) On all models remove heat shield as follows:

RWXSC—lift heat shield straight up from battery.

HNFG—remove hold down nuts and then lift heat shield and hold down assembly from battery and remove battery from vehicle.

(4) On all models except H-N-F-G remove battery hold down clamp and remove battery from vehicle. **WARNING: Care, should be taken, in the event battery case is cracked or leaking, to protect hands from the electrolyte. A suitable pair of rubber gloves (not the household type) should be worn when removing battery by hand.**

(5) Inspect battery carrier for damage caused by loss of acid from battery. If acid damage is present it will be necessary to clean area with a solution of clean warm water and baking soda. Scrub area with a stiff bristle brush and wipe off with a cloth moistened with ammonia or baking soda in water.

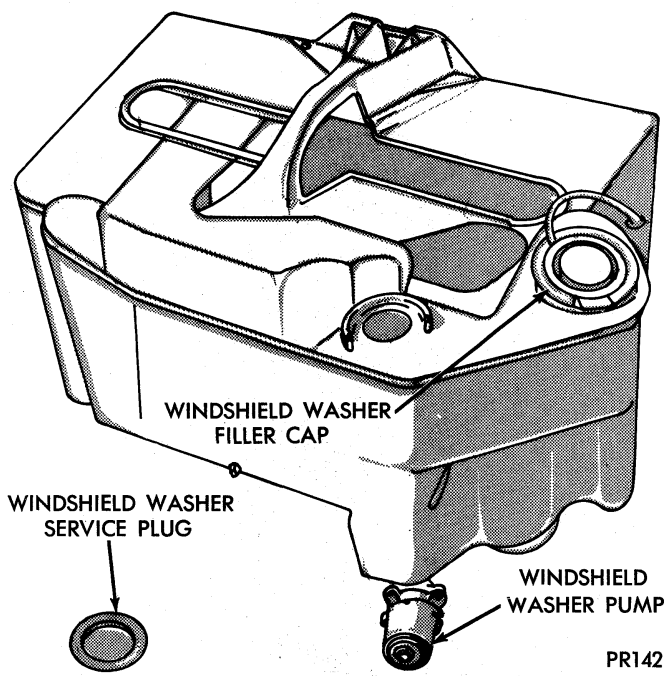

Fig. 3—"B" Body Battery Heat Shield with Windshield Washer Reservoir

(6) Clean top of battery with same solutions as described in Step (3).

CAUTION: Keep cleaning solution out of battery cells because it will weaken the electrolyte.

(7) Inspect battery case and cover for cracks. If cracks are present battery must be replaced.

(8) Clean battery post with a suitable battery post cleaning tool.

(9) Clean the inside surfaces of the terminal clamps with a suitable battery terminal cleaning tool. Replace damage or frayed cables and broken terminal clamps.

(10) Install battery in vehicle.

(11) On all models except H-N-F-G, install hold down clamp assembly making sure "J" bolts are in position in battery carrier. Bolts are properly positioned when "J" is facing away from battery case. Install hold down nuts and tighten to 36 inch pounds torque. **Do not over tighten because damage to battery case and/or cover will occur.**

On H-N models, install battery heat shield and hold down assembly making sure "J" bolts are in position in battery carrier. Bolts are properly positioned when "J" is facing away from battery case. Also, make sure heat shield rests on top of battery after installation. Install hold down nuts and tighten to 36 inch pounds torque. **Do not over tighten because damage to battery case and/or cover will occur.**

(12) On all models except H-N-F-G, install battery heat shield making sure it rests on top of battery after installation.

(13) Connect cable clamps to battery post making sure top of clamp is flush with top of post.

(14) Tighten clamp nut securely.

(15) Coat all connections with light mineral grease **after tightening.**

(16) If electrolyte level is low, fill to recommended level with distilled water.

TESTING SPECIFIC GRAVITY

Hydrometer

The hydrometer is used to measure the specific gravity of the electrolyte in the battery cells. This will give an indication of how much unused sulphuric acid

remains in the solution, which determines the state of charge the battery is in. A hydrometer should be graduated to read from 1.160 to 1.320. In graduations of .005 specific gravity. Graduated markings should be accurate to within .002 specific gravity.

In reading a hydrometer, the gauge barrel must be held vertically and just right amount of fluid be drawn up into gauge barrel, with pressure bulb fully expanded, to lift float freely so it does not touch the sides, top or bottom of the barrel. Take a reading with eye on level with liquid level in the gauge barrel. **DO NOT TILT** hydrometer.

Electrolyte

Liquid level of each battery cell should be up to the bottom of each vent plug hole. Add distilled water when necessary, to obtain proper electrolyte level. Electrolyte should be thoroughly mixed with any water which may have just been added to the battery by charging the battery before taking hydrometer readings.

Specific gravity of battery electrolyte strength or density varies not only with the quantity of the acid in solution but also with temperature. As temperature increases, the density of the electrolyte decreases and specific gravity decreases. As temperature decreases the density of the electrolyte increases and the specific gravity increases.

Specific gravity variations caused by temperatures must be considered and corrected to 80°F. in the analysis of the battery, otherwise specific gravity readings will not give a true indication of state of charge.

Test

Draw electrolyte in and out of the hydrometer barrel several times to bring the temperature of the hydrometer float to that of the acid in the cell and then measure the electrolyte temperature in the cell.

If the hydrometer is equipped with a thermometer, electrolyte temperature may be read from it. If the hydrometer is not equipped with a thermometer, use a battery immersion type thermometer of the mercury-in-glass type, having a scale reading as high as 125°F, or if not available a suitable dairy type thermometer may be used to obtain the electrolyte temperature.

The electrolyte temperature correction in specific gravity reading at 80°Fahrenheit is zero. Add .004 specific gravity points for every 10 degrees over 80°F and subtract .004 specific gravity points for every 10 degrees under 80°F. All readings must be corrected to 80 degrees Fahrenheit. Refer to Figure 4 and examples one and two as follows:

Example 1—
Hydrometer Reading 1.260
Electrolyte Temperature ....20 degrees Fahrenheit
Subtract Specific Gravity .....−.024
Corrected Specific Gravity is 1.236

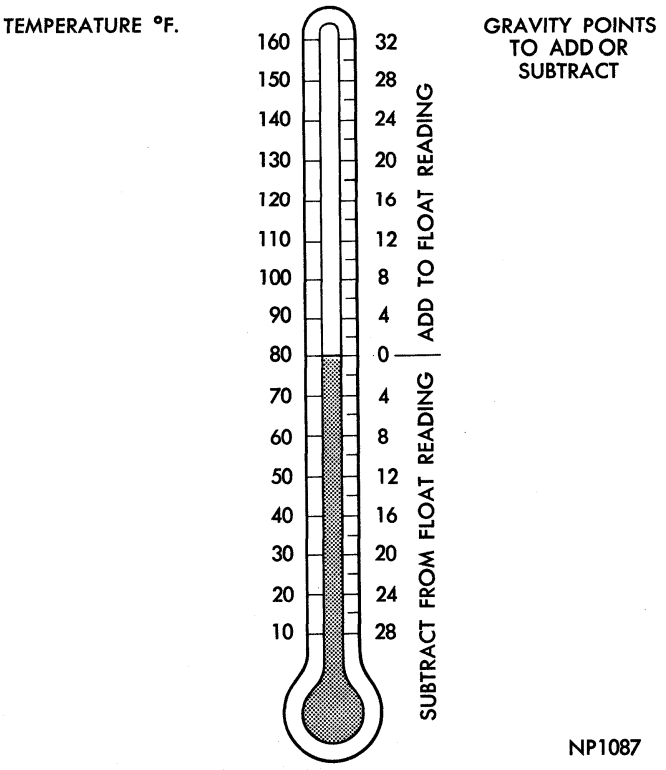

Fig. 4—Hydrometer Reading Correction Chart

Example 2—
Hydrometer Reading 1.225
Electrolyte Temperature ...100 degrees Fahrenheit
Add Specific Gravity .....+.008
Corrected Specific Gravity is 1.233

A fully charged relatively new battery has a specific gravity reading of 1.265 plus or minus .010 for the long life battery and 1.275 plus or minus .010 for the standard battery.

Test Conclusions

(a) Battery specific gravity is less than 1.220, battery should be recharged.

(b) **Cells show more than 25 points (.025 Specific Gravity) Variation,**—Short circuit, low cell, or loss of electrolyte by leakage or excessive overcharge; try to recharge battery. See "Charging the Battery." See "Adjustment of Acid Gravity".

(c) Battery specific gravity is above 1.220 and all cells are even. Battery state of charge may be satisfactory. Test by making "High Rate Discharge Test of Battery Capacity". Make sure all electrical connections are clean and tight.

HIGH RATE DISCHARGE TEST OF BATTERY CAPACITY

Satisfactory capacity tests can be made only when battery equals or exceeds 1.220 specific gravity temperature corrected. If the reading is below 1.220, the battery should be slow charged until fully charged in order to obtain proper test results. If charging fails to

bring the specific gravity up in any one or all of the cells, the battery is defective and must be replaced. Also before proceeding with test, battery electrolyte should be at room temperature 70° ± 10°.

Test Procedure

(1) Turn control knob of Battery-Starter-Tester to OFF position.

(2) Turn Voltmeter Selector Switch to the 16 Volt position on test units so equipped.

(3) Connect test ammeter and voltmeter positive leads to battery positive terminal. Connect ammeter and voltmeter negative leads to battery negative terminal (Fig. 5). Voltmeter clips must contact battery posts or cable clamps and not ammeter lead clips.

(4) Turn control knob clockwise until ammeter reading is equal to three times ampere hour rating of battery.

(5) Maintain the load for 15 seconds and note reading of the voltmeter.

Test Results

(a) If the volmeter reading is 9.5 volts or more and the specific gravity was 1.220 or more before testing, the battery is in good condition and can be placed back into service. However, if it was necessary to charge the battery before testing thoroughly check the electrical system for short circuits, loose connections and corroded terminals.

(b) If the voltmeter reading is less than 9.5 volts, this indicates a possible defective condition and the battery should be given the three minute charge test.

Three Minute Charge Test (Fig. 6)

This test should not be used if battery temperature is below 60 degree F. **Do not perform this test on the battery unless it has failed the capacity test.**

(1) Connect Battery Charger positive lead to battery positive terminal and negative lead to battery negative terminal. IMPORTANT: Be sure of correct polarity during this test.

(2) Turn the Battery Charger Power Switch to ON position. Turn timer switch past three minute mark then back to the three minute mark.

(3) Adjust Battery Charger Switch to highest possible rate not exceeding 40 amperes.

(4) When timer switch cuts off at the end of 3 minutes, turn timer switch back to Fast Charge.

(5) Use the 16 Volt scale of the Battery Starter Tester and measure total voltage of battery posts while battery is being fast charged, and note the voltmeter reading.

Test Results

If total voltage during charge exceeds 15.5 volts, battery is sulphated and should be cycled and slow-charged until specific gravity reaches 1.265 (See "Slow Charging"). **A slow charge is preferable to bring the battery up to a full charge.**

If specific gravity remains constant after testing battery at one hour intervals for three hours, battery is at its highest state of charge.

(6) Make another capacity test. If capacity test does not meet specifications, replace battery.

CHARGING THE BATTERY

WARNING: When batteries are being charged an explosive gas mixture forms beneath the cover of each cell. Do not smoke near batteries on charge or which have recently been charged. Do not break live circuits at the terminals of the batteries on charge. A spark will occur where the live circuit is broken. Keep all open flames away from the battery.

Slow Charging Batteries

If adequate time is available, the slow charging method should be used in recharging a discharged battery.

There are many types of battery charging equipment available. **Be sure to follow the instruction of the equipment manufacturer for the necessary**

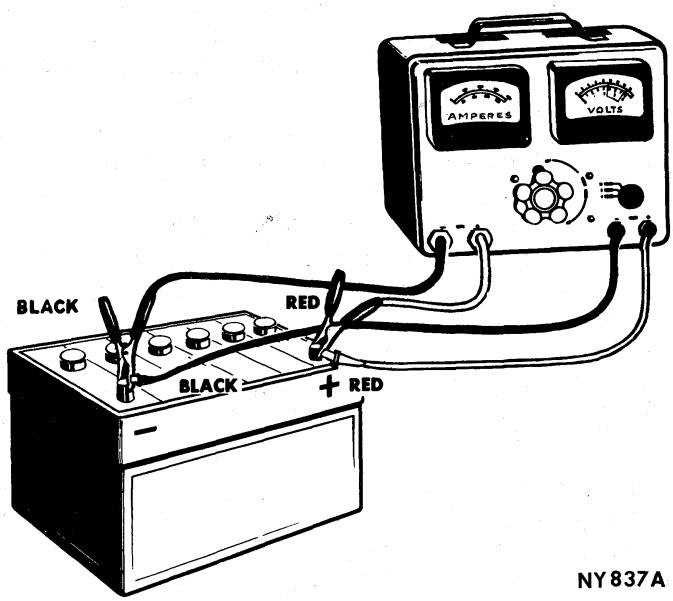

Fig. 5—High Rate Discharge Test

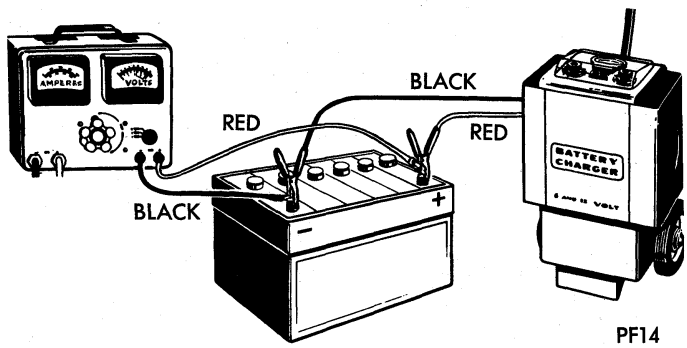

Fig. 6—Three Minute Charge Test

preparations and precautions. However, the following items should be observed when slow charging the battery with any type of equipment:

(1) If the battery is to remain in the vehicle, disconnect the cables at the battery, to prevent damage to the electrical system, during charging.

(2) Thoroughly clean the battery. Refer to "Battery Visual Inspection".

(3) Make sure the electrolyte level is at the normal level. Refer to "Testing Specific Gravity".

(4) The battery is to be charged at a rate (amps) of 1/20 of its ampere hour capacity.

(5) The average length of time necessary to charge a battery by the slow charge method at normal rates is from 12 to 16 hours, however, when a battery continues to show an increase in specific gravity, battery charge should be continued even if it takes 24 hours or more. Watch the temperature of the electrolyte and if the temperature of the cells reaches 110F°; lower the charging rate.

Battery will be fully charged when it is gassing freely and when there is no further rise in specific gravity after three successive readings taken at hourly intervals. Make sure hydrometer readings are corrected for temperature.

Sulphated Batteries

Many sulphated batteries can be brought back to good condition by slow charging.

The rate of charge for a sulphated battery should be no more than 1/2 the normal slow charge rate and the charging time should be from 60 to 100 hours. This long charging cycle is necessary to reconvert crystalline lead sulphate into active materials.

Fast Charging Battery

If adequate time for a slow charge is not available a high rate (FAST) charge is permissible and will give a sufficient charge in one hour enabling the battery and alternator to continue to carry the electrical load. If the battery is to remain in the vehicle, disconnect the cables at the battery to prevent damage to the electrical system during charging. The manufacturers of high rate charging equipment generally outline the necessary precautions and some models have thermostatic temperature limiting and time limiting controls. **Make sure their instructions are followed.**

CAUTION: The battery can be damaged beyond repair unless the following precautions are taken:

(1) Make sure electrolyte level is at normal level. Refer to "Testing Specific Gravity".

(2) Battery electrolyte temperature must NEVER exceed 125 degrees Fahrenheit.

If this temperature is reached, battery should be cooled by reducing charging rate or remove battery from the circuit.

(3) As battery approaches full charge electrolyte in each cell will begin to gas or bubble. Excessive gassing must not be allowed.

(4) Do not fast charge longer than one hour. If battery does not show a significant change in specific gravity after one hour of "FAST" charge, the slow charge method should be used.

Remember to use temperature correction when checking specific gravity.

ADJUSTMENT OF ACID GRAVITY

Hydrometer floats usually are not calibrated below 1.160 specific gravity and cannot indicate the condition of a battery in a very low state of charge. Therefore, it may be necessary to give the battery several hours charge before a hydrometer reading will indicate that the battery is taking a charge.

If the specific gravity of all cells are not within .015 points of specified value, corrected to 80 degrees F, at the end of a full charge, remove some of the electrolyte with a hydrometer and add a like amount of distilled water to reduce the gravity if too high, or add 1.400 Specific Gravity acid to raise specific gravity, if too low. Continue the charge so as to give the electrolyte a chance to mix and then read the gravity after another hour of charge to note the effect of the additions. Continue this adjusting procedure until gravity is brought to the desired value by charging for one hour after each adjustment.

ASSIST (JUMP) STARTING WITH A BOOSTER BATTERY

If it becomes necessary to use a booster battery, with jumper cables, to start a vehicle's engine because its battery is discharged, the following procedure should be followed:

CAUTION: TO PREVENT PERSONAL INJURY OR DAMAGE TO CLOTHING, DO NOT ALLOW BATTERY FLUID TO CONTACT EYES, SKIN OR FABRICS. DO NOT LEAN OVER BATTERY WHEN CONNECTING JUMPER CABLES OR ALLOW CABLE CLAMPS TO TOUCH EACH OTHER. KEEP OPEN FLAMES OR SPARKS AWAY FROM BATTERY FILLER HOLES. ALWAYS WEAR EYE PROTECTION WHEN WORKING WITH BATTERIES.

(1) Turn ignition switch and headlights off.

(2) Remove vent caps of both booster battery and discharged battery.

(3) Make sure electrolyte is at proper level.

CAUTION: DURING COLD WEATHER WHEN TEMPERATURES ARE BELOW FREEZING POINT, ELECTROLYTE IN A DISCHARGED BATTERY MAY FREEZE. IF ELECTROLYTE IS NOT VISIBLE IN BATTERY OR IT APPEARS FROZEN, DO NOT ATTEMPT JUMP STARTING BECAUSE BATTERY COULD RUPTURE OR EXPLODE. BATTERY TEMPERATURE MUST BE BROUGHT UP ABOVE

FREEZING POINT AND WATER ADDED (IF NECESSARY) BEFORE ATTEMPTING JUMP STARTING.

(4) Cover vent cap openings of both batteries with a cloth.

(5) Connect one jumper cable between POSITIVE (+) POST of both batteries.

(6) Connect ONE end of other jumper cable to NEGATIVE (−) POST of booster battery. Connect OTHER end of cable to alternator mounting bracket of vehicle with discharged battery, making sure a good connection is made. **DO NOT CONNECT TO NEGATIVE POST OF DISCHARGED BATTERY.**

(7) After engine is started or if engine fails to start, cables must be disconnected in following order;

(a) negative cable at alternator bracket,

(b) negative cable at negative post on booster battery,

(c) cable between positive post of both batteries.

(8) Remove cloths from both batteries.

CAUTION: CLOTHS HAVE BEEN EXPOSED TO SULFURIC ACID FUMES AND SHOULD BE THROWN AWAY.

(9) Install vent caps on batteries.

ASSIST (JUMP) STARTING WITH PORTABLE STARTING UNIT

There are many types of these units available. Follow instructions of their manufacturer for necessary precautions and operation. However, it is very important that their operating voltage does not exceed **16** volts because damage to battery, starter motor, alternator or electrical systems may occur.

STARTER MOTOR

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GENERAL INFORMATION

Two starter motors are used on the 1978 models. Vehicles equipped with the 225 (except M body) or 318 CID engines have a 1.5 horse power, 3.5 to 1 gear reduction motor; those equipped with the 225 M body only, 360, 400 or 440 CID engines have a 1.8 horse power 2 to 1 gear reduction motor.

The two motors look identical but are not the same. The Field Frame Assembly (Fig. 1), Armature (Fig. 2) and Shifter Fork (Fig. 3) are larger in the 1.8 H.P. motor.

Also the 1.5 H.P. and 1.8 H.P. motor is equipped with a shock absorber clutch drive unit (Fig. 4) which absorbs the initial shock of cranking and protects the clutch unit in case the engine backfires during cranking.

The reduction gear sets and solenoid shift devices of both starter motors are enclosed in a aluminum die cast housing which is part of the starter assembly (Fig. 5).

The starter system consists of two separate circuits, the supply circuit which supplies heavy current to power the starter motor and the control circuit which controls the starter solenoid. **Service procedures are the same for both starter motors.**

TESTING STARTER SYSTEM

SUPPLY CIRCUIT

The supply circuit consists of the battery, battery cables, clamps, and connectors. In checking this circuit always begin with a visual inspection of the battery post and cable clamps.

Test the battery to make sure it is in good condition, minimum specific gravity reading of 1.220, temperature corrected and see that the battery passes the "High Rate Discharge Test" shown in the "Battery" section of this group.

If the connections and battery are good, proceed as follows in checking the supply circuit:

Starter Current Draw Test

Engine should be up to operating temperature before performing this test. Extremely heavy oil or a tight engine will increase starter amperage draw.

(1) Connect a reliable Battery-Starter Tester per instructions of its manufacturer.

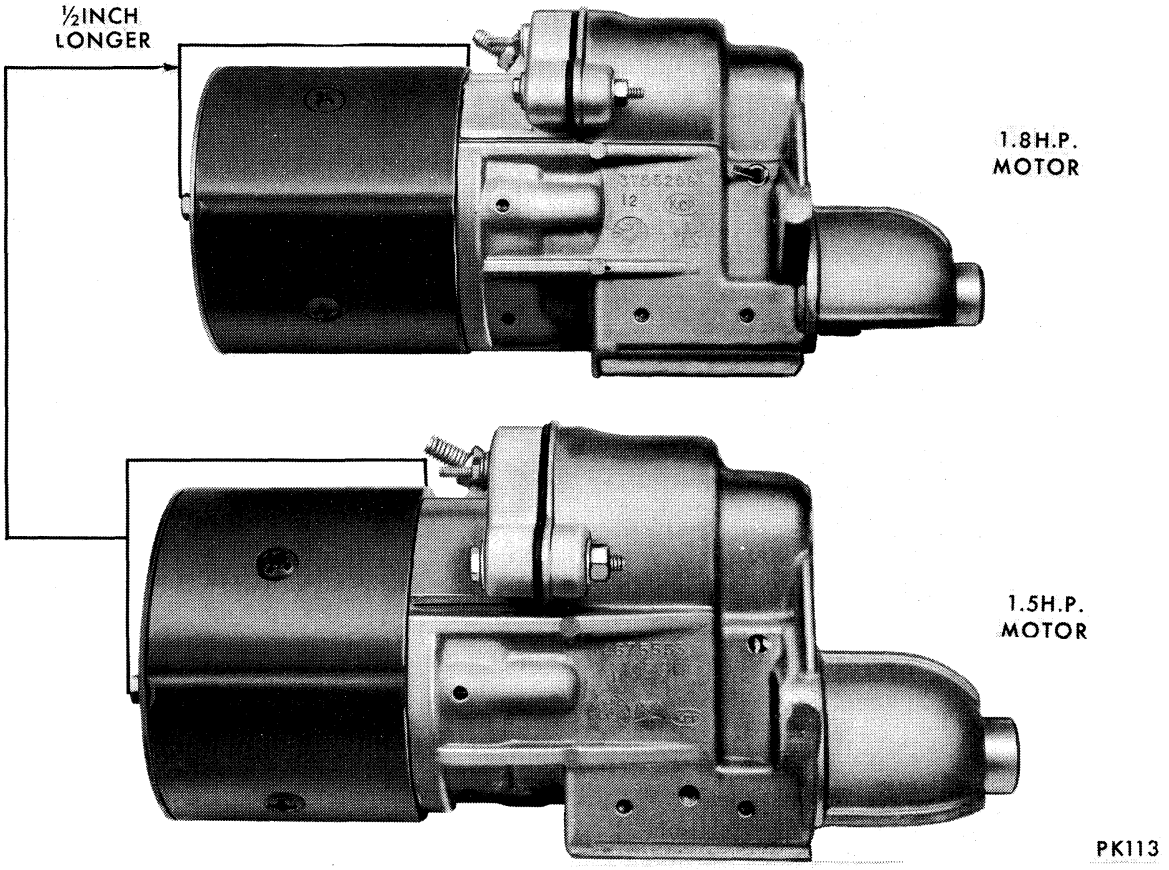


Fig. 1—Starter Motors

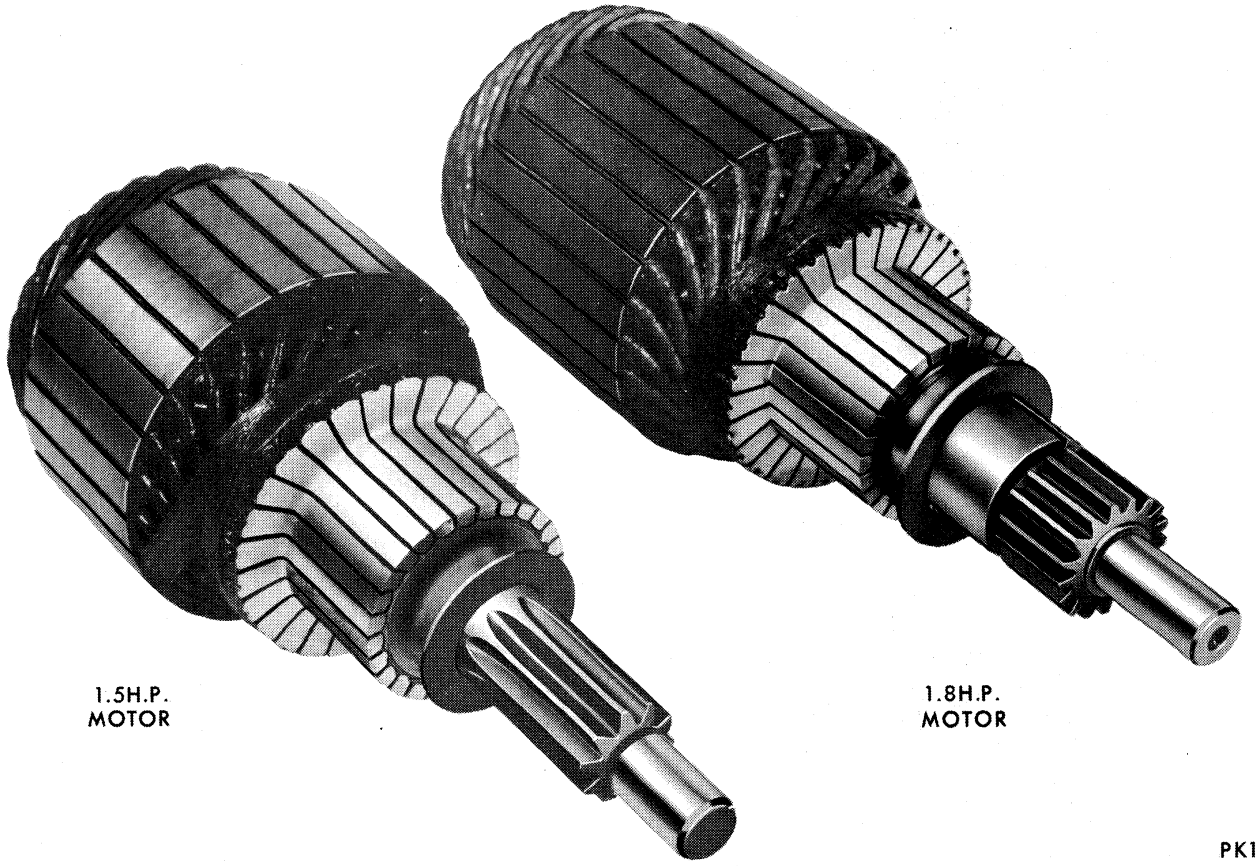


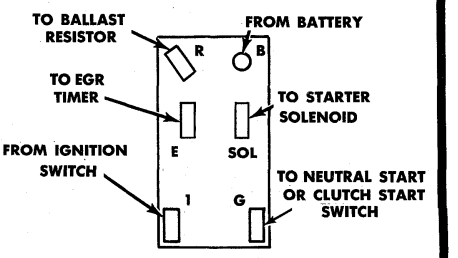
Fig. 2—Armatures

STARTER MOTOR DIAGNOSIS

CAUTION
BEFORE TESTING STARTER, PLACE TRANSMISSION IN PARK OR NEUTRAL POSITION. SET BRAKES AND DISCONNECT COIL WIRE FROM DISTRIBUTOR AND SECURE TO A GOOD GROUND TO PREVENT ENGINE FROM STARTING

TEST BATTERY.
(SPECIFIC GRAVITY MUST BE AT LEAST 1:220)

DIAGRAM OF STARTER RELAY:



CONDITION 1
STARTER FAILS TO OPERATE
(NO STARTER RELAY CLICK)

TEST SOLENOID AND STARTER. CONNECT REMOTE STARTER SWITCH BETWEEN RELAY TERMINALS "B" AND "SOL" ACTUATE SWITCH (STARTER SHOULD OPERATE)

STARTER DOES NOT OPERATE

SOLENOID DOES NOT OPERATE

MAIN FUSIBLE LINK BURNED (APPLIES TO CARLINES C ONLY)

LOOSE OR CORRODED BATTERY TERMINALS, CABLES, OR CONNECTIONS

LOOSE OR DISCONNECTED WIRE FROM RELAY "SOL" TERMINAL TO SOLENOID

FAULTY SOLENOID

SOLENOID OPERATES OR CHATTERS STARTER MOTOR DOES NOT OPERATE

LOOSE OR CORRODED BATTERY TERMINALS, CABLES, OR CONNECTIONS

SOLENOID SWITCH CONTACTS BURNED

FAULTY STARTER*,

STARTER OPERATION NORMAL

TEST RELAY CIRCUIT. CONNECT REMOTE STARTER SWITCH BETWEEN RELAY TERMINALS "B" AND "I". ACTUATE SWITCH. (STARTER SHOULD OPERATE)

STARTER OPERATION NORMAL

LOOSE BULKHEAD CONNECTOR (ALL EXCEPT C)

C MODELS LOOSE TERMINAL BLOCK CONNECTOR

OPEN WIRE FROM RELAY "B" TERMINAL TO IGNITION SWITCH "BAT" TERMINAL

OPEN WIRE FROM IGNITION SWITCH TO RELAY "I" TERMINAL

IGNITION SWITCH CONTACTS BURNED OR CORRODED

STARTER DOES NOT OPERATE

CONNECT JUMPER WIRE BETWEEN RELAY "G" TERMINAL AND GROUND

REPEAT RELAY CIRCUIT TEST (STARTER SHOULD OPERATE)

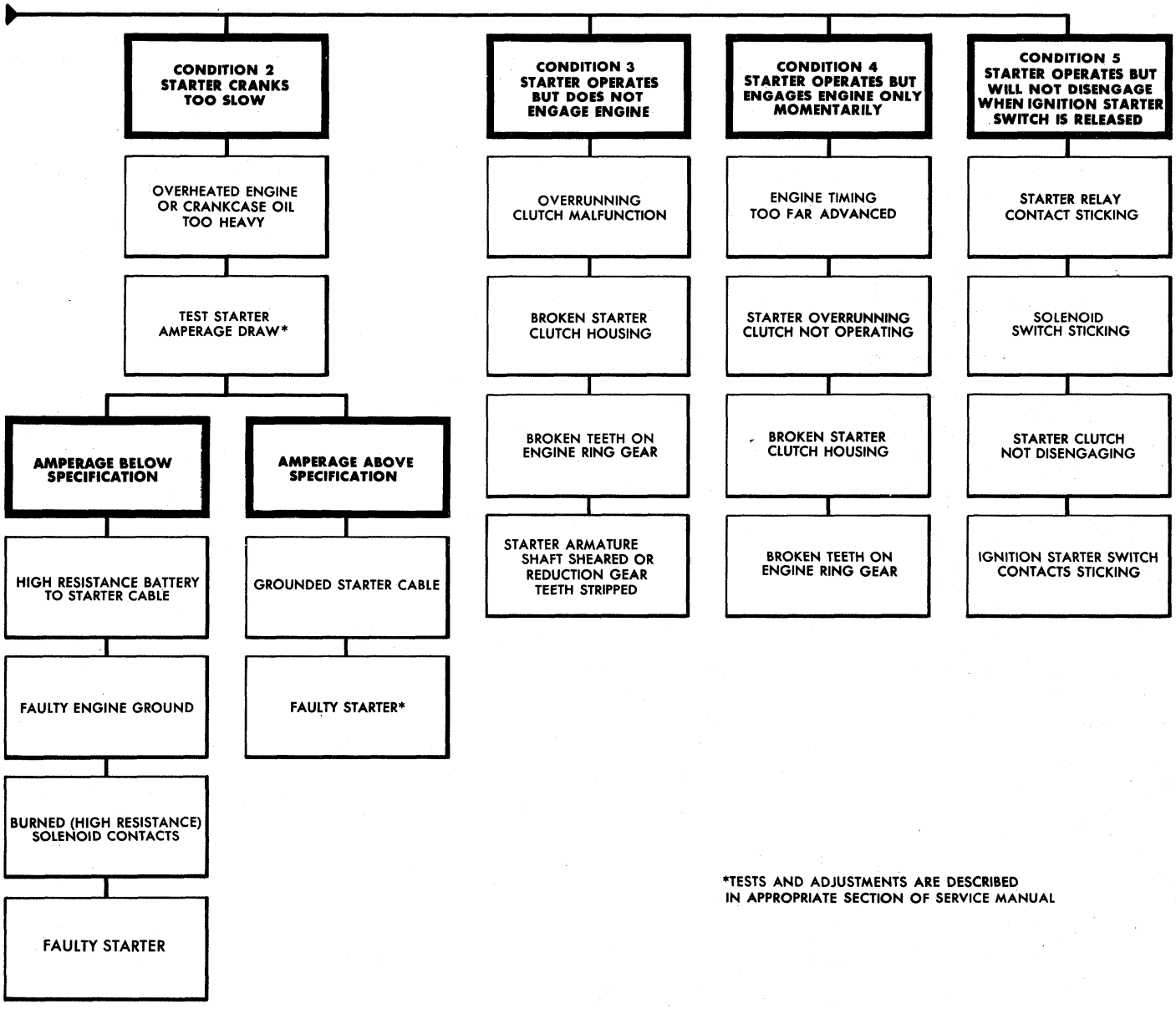
STARTER DOES NOT OPERATE

FAULTY RELAY

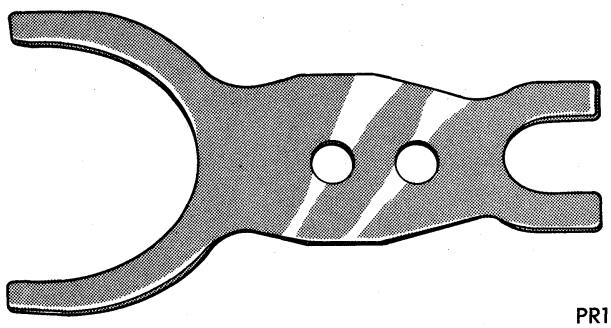
STARTER OPERATES

MANUAL TRANSMISSION: FAULTY CLUTCH START SWITCH, ADJUSTMENT OR WIRING

AUTOMATIC TRANSMISSION: FAULTY TRANSMISSION LINKAGE ADJUSTMENT, FAULTY NEUTRAL START SWITCH OR WIRING

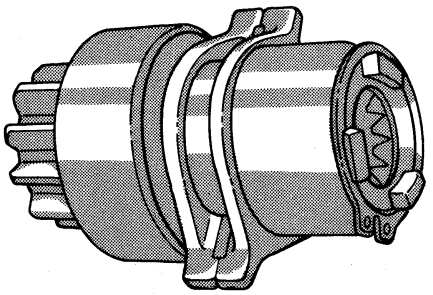


*TESTS AND ADJUSTMENTS ARE DESCRIBED IN APPROPRIATE SECTION OF SERVICE MANUAL



PR143

Fig. 3—Shifter Fork



PR144

Fig. 4—Starter Clutch

(2) Turn the variable resistor control knob tester to the off or zero position.

(3) Connect a remote starter jumper per instructions of its manufacturer.

(4) Crank the engine long enough to read the cranking voltage on voltmeter and note.

CAUTION: Do not crank engine excessively or the starter may overheat and damage will occur.

(5) Without cranking the engine; turn the variable resistor control knob on the tester until the voltmeter reads the cranking voltage previously noted. When this point is reached you can read the equivalent of the starter current draw on the ammeter. Refer to "Specifications" for current draw limits.

Circuit Resistance Test

High resistance in the supply circuit wiring or connections will cause the starter motor to crank the engine at a slower rate than normal. These connections can be tested for high resistance with the use of a reliable voltmeter which will indicate tenths of a volt. **Also, all tests are made without separating or disconnecting any connection. Voltmeter leads are to be connected across each of the connections shown in the Circuit Resistance Chart. While the engine is being cranked note the reading of the voltmeter. If any of the readings are higher than the specified limits there is high resistance in that connection and it must be cleaned or repaired. After doing so repeat test at the connection.**

CONTROL CIRCUIT

The starter control circuit consists of the starter solenoid, starter relay, ignition switch, safety neutral switch (automatic transmission) clutch start switch

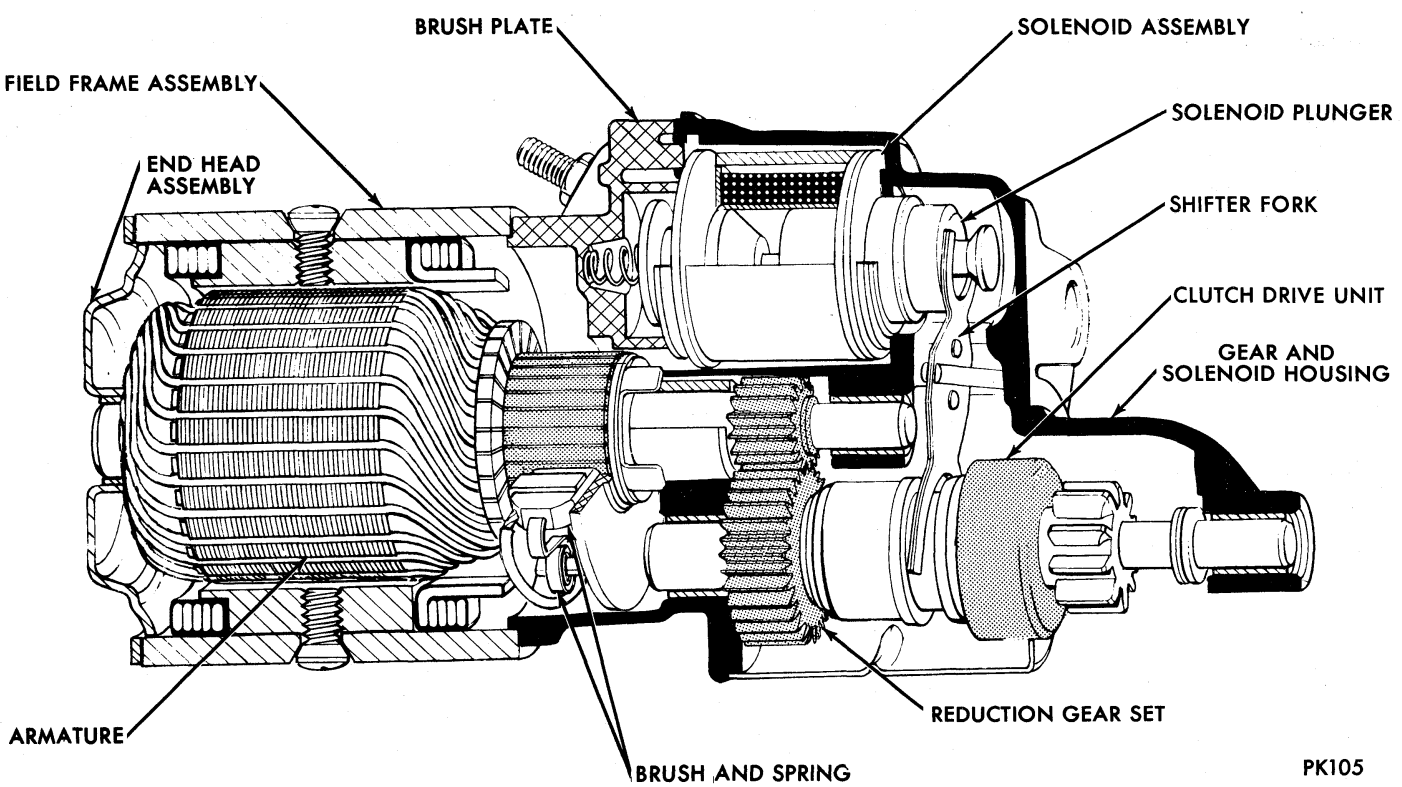


Fig. 5—Starter Motor (Inside View)

(manual transmission), and all their wiring and connections.

Testing procedures for these components are as follows and should be followed in order as described.

CAUTION: Before performing any test disconnect coil wire from distributor cap and secure to a good ground to prevent engine from starting.

Starter Solenoid Test

Connect a heavy jumper wire on the starter relay between the battery and solenoid terminals. If the engine cranks the starter solenoid is good. Proceed to the starter relay test.

If the engine does not crank or solenoid chatters check the wiring and connectors from the relay to the starter for loose or corroded connections, particularly at the starter terminals. Repeat test and if the engine still fails to crank properly the trouble is within the starter and it must be removed for repairs.

Starter Relay Test (After starter solenoid test)

Automatic Transmission

Position transmission gear selector in neutral or park position. Connect a jumper wire on the starter relay between the battery and ignition terminals. If the engine cranks the starter relay is good.

If the engine does not crank connect a second jumper wire on the starter relay between the ground terminal and to a good ground. Repeat test and if engine cranks the starter relay is good, however, the transmission linkage is out of adjustment or the safety neutral switch is defective. If the engine does not crank the starter relay is defective and must be replaced.

Manual Transmission

Have a helper depress clutch pedal. Connect a jumper wire on the starter relay between the battery and ignition terminals. If the engine cranks the starter relay is good.

If the engine does not crank connect a second jumper wire on the starter relay between the ground terminal and to a good ground. Repeat test and if engine cranks the starter relay is good, however, the clutch neutral start switch is defective or out of adjustment. If the engine does not crank the starter relay is defective and must be replaced.

Ignition Switch Test

After testing the starter solenoid and relay and they check out okay, the trouble is probably with the ignition switch or its wiring.

Check all wiring for opens and shorts and connections for being loose or corroded.

REMOVING THE STARTER

(1) Disconnect ground cable at battery.

(2) Remove cable at starter.

(3) Disconnect solenoid lead wires at solenoid terminals.

(4) Remove one stud nut and one bolt attaching starter to flywheel housing, slide automatic transmission oil cooler tube bracket off the stud (if so equipped) and remove the starter. **Do not damage flywheel housing seal.**

TESTING THE STARTER (Bench Test)

Free Running Test

(1) Place starter in a vise and connect a fully charged, 12 volt battery to starter as follows:

(a) Connect a test ammeter (100 amperes scale) and a carbon pile rheostat in series with battery positive post and starter terminal.

CIRCUIT RESISTANCE CHART

Connection	Voltmeter Lead Connection		Voltmeter Reading
	Positive	Negative	
Positive post on battery to cable clamp	To post	To clamp	0
Negative post on battery to cable clamp	To post	To clamp	0
Battery ground cable to engine block	To bolt	To cable connector	Not to exceed 0.2 volts
Battery Cable to Starter	To Battery Positive Post	To Battery Terminal on Starter	Not to exceed 0.2 volts
Starter housing to ground	To starter housing	To negative post on battery	Not to exceed 0.2 volts

(b) Connect a voltmeter (15 volt scale) across starter.

(c) Rotate carbon pile to full-resistance position.

(d) Connect battery cable from battery negative post to starter frame.

(e) Adjust the rheostat until battery voltage shown on voltmeter reads 11 volts. Amperage draw should be as shown in specifications.

Locked-Resistance Test

(1) Install starter in a test bench.

(2) Follow instructions of test equipment manufacturers and test starter against following specifications. With applied battery voltage adjusted to 4 volts amperage draw should be as shown in specifications.

DISASSEMBLING THE STARTER

(1) Remove through bolts and end head assembly, (Fig. 6).

(2) Carefully remove armature from gear housing and field frame assembly, by pulling outwards, (Fig. 7).

(3) Carefully pull field frame assembly from gear housing far enough to expose terminal screw.

(4) Remove terminal screw. It may be necessary to support terminal by placing finger behind it, (Fig. 8).

(5) Remove field frame assembly.

(6) Remove nuts attaching solenoid and brush holder plate assembly to gear housing, (Fig. 9).

(7) Remove solenoid and brush plate assembly from gear housing, (Fig. 10).

(8) Remove nut, steelwasher, and sealing washer from solenoid terminal, (Fig. 11).

(9) Unwind solenoid lead wire from brush terminal, (Fig. 12).

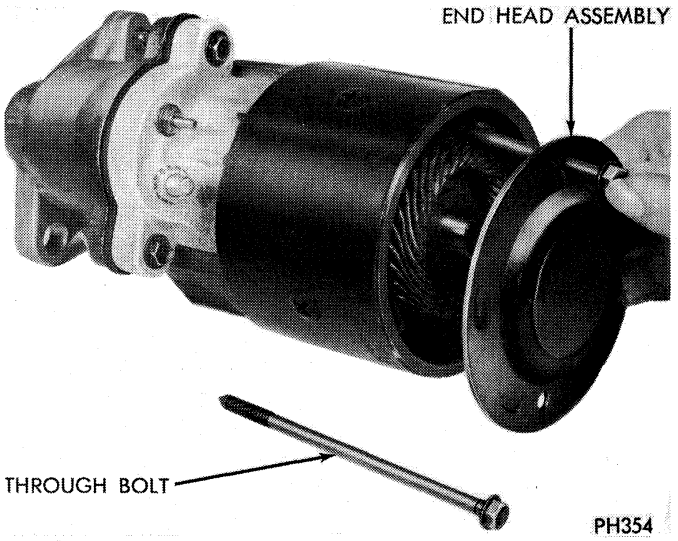


Fig. 6—Removing Through Bolts and End Head Plate

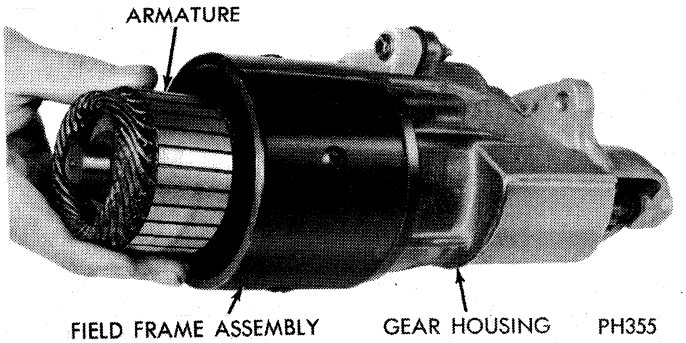


Fig. 7—Removing Armature

(10) Remove screws attaching solenoid to brush plate, (Fig. 13).

(11) Remove solenoid from brush plate. (Fig. 14.)

(12) On brush plate remove nut from battery terminal and remove terminal, (Fig. 15).

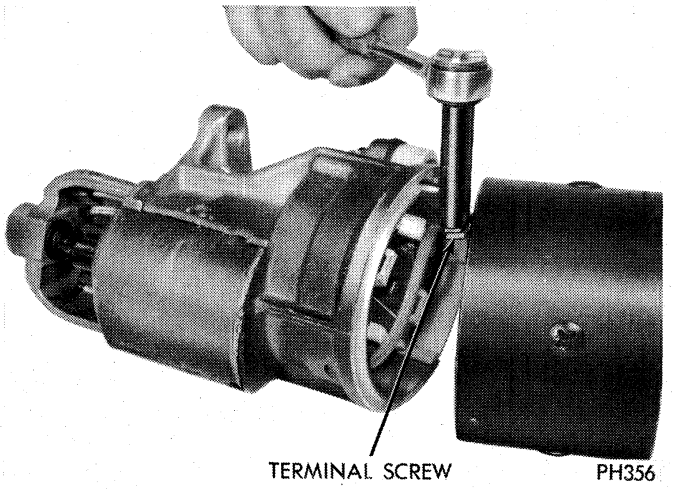


Fig. 8—Removing Terminal Screw

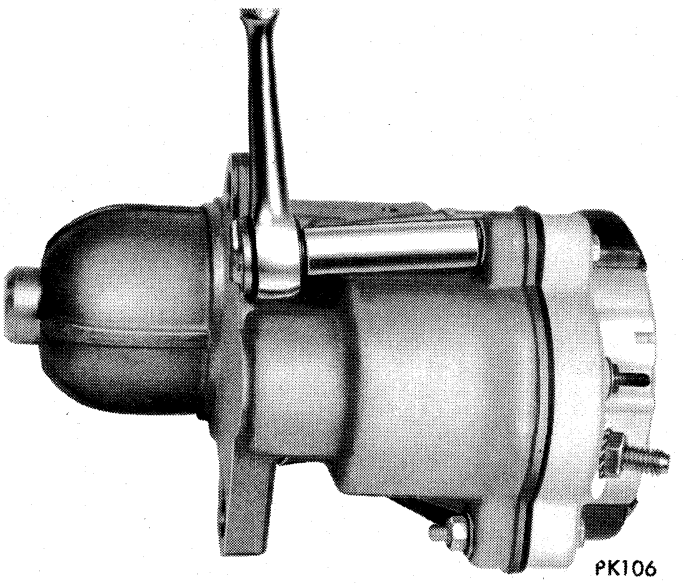


Fig. 9—Removing Solenoid and Brush Plate Attaching Nuts

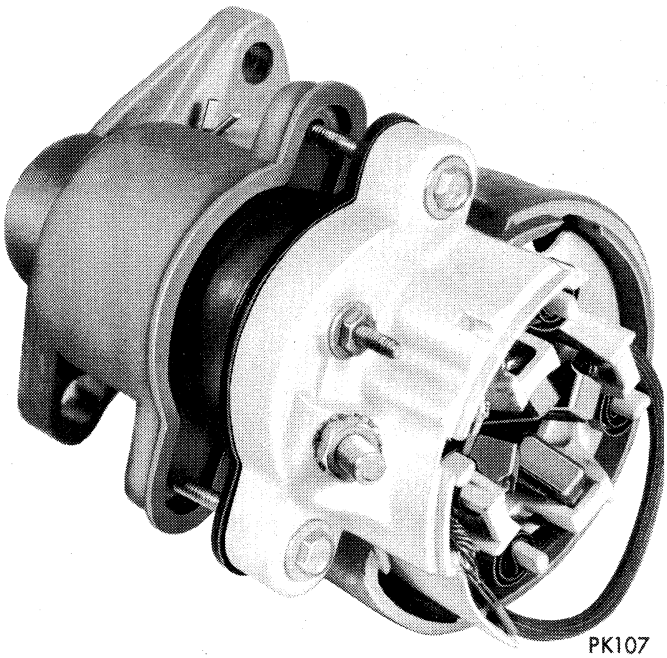


Fig. 10—Removing Solenoid and Brush Plate Assembly from Gear Housing

(13) Remove solenoid contact and plunger assembly from solenoid, (Fig. 16).

(14) Remove return spring from inside of solenoid moving core, (Fig. 17.)

(15) Remove dust cover from gear housing (Fig. 18).

(16) Release retainer clip that positions driven gear on pinion shaft (Fig. 19).

CAUTION: Retainer is under tension and a cloth should be placed over the retainer to prevent it from springing away after removal.

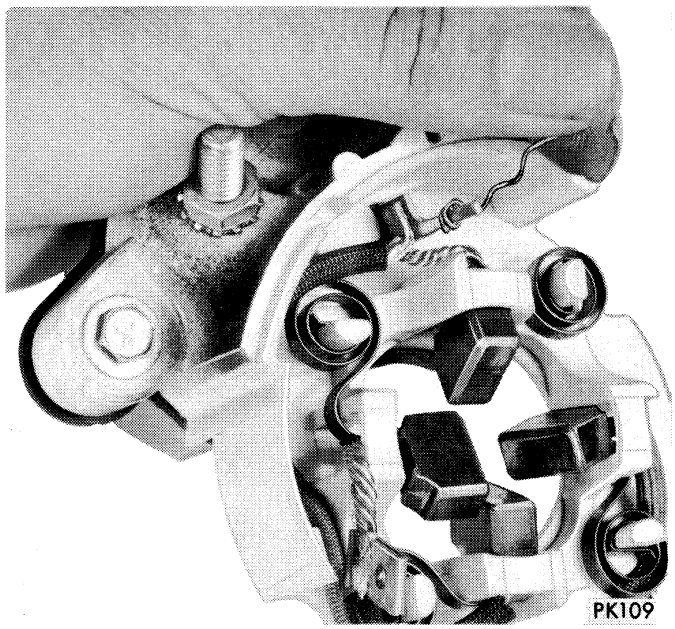


Fig. 12—Unwinding Solenoid Lead Wire

(17) Remove pinion shaft "C" clip, (Fig. 20).

(18) Push pinion shaft towards rear of housing (Fig. 21) and remove retainer ring and thrust washers, clutch and pinion assembly, with the two shift fork nylon actuators as an assembly (Fig. 22).

(19) Remove driven gear and friction washer.

(20) Pull shifting fork forward and remove solenoid moving core (Fig. 23).

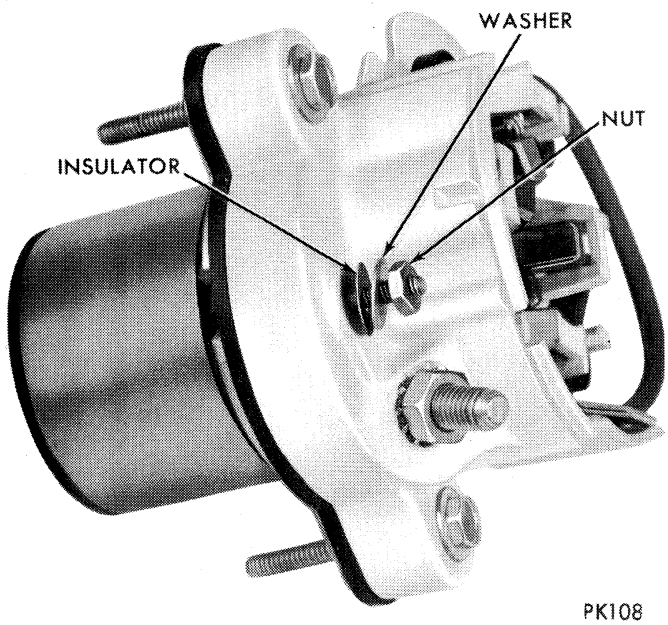


Fig. 11—Removing Nuts and Washers from Solenoid Terminal

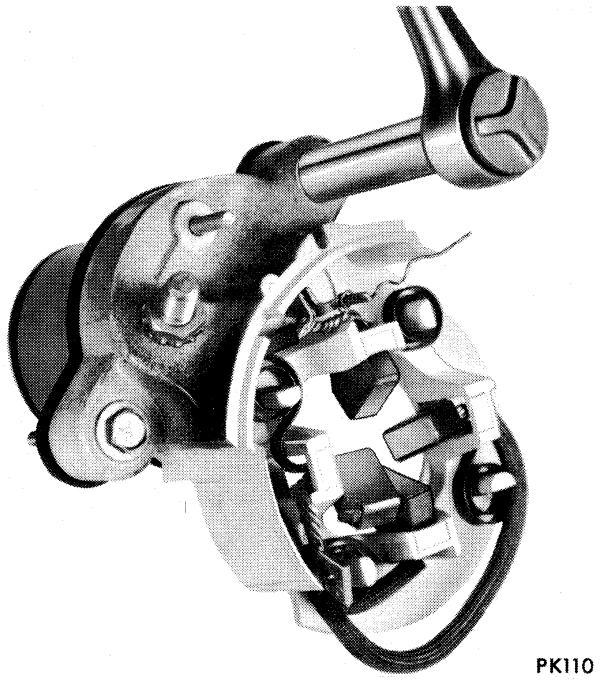


Fig. 13—Removing Solenoid Attaching Screws

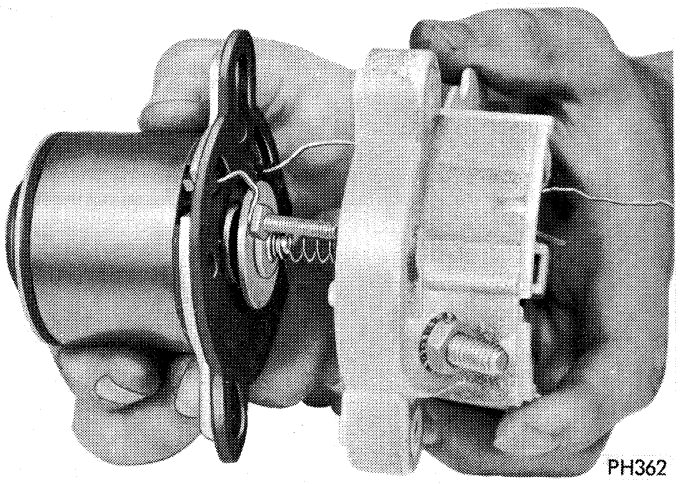


Fig. 14—Removing Solenoid

(21) Remove shifting fork retainer pin (Fig. 24) and remove clutch shifting fork assembly.

CLEANING THE STARTER PARTS

(1) Do not immerse parts in cleaning solvent. Immersing field frame and coil assembly and/or armature will damage insulation. Wipe these parts with a clean cloth **only.**

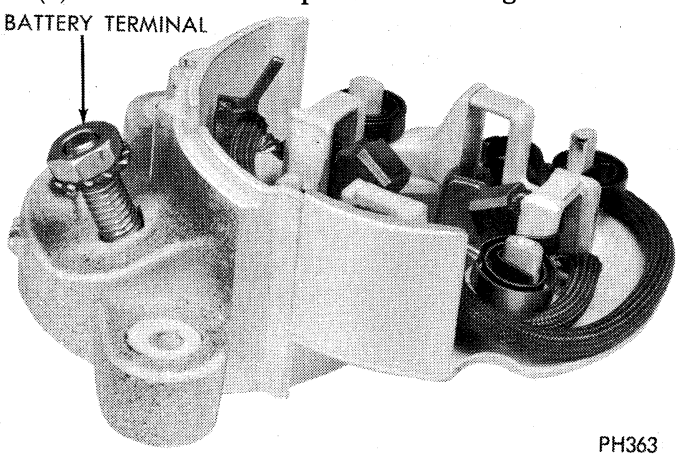


Fig. 15—Removing Battery Terminal Nut and Washer

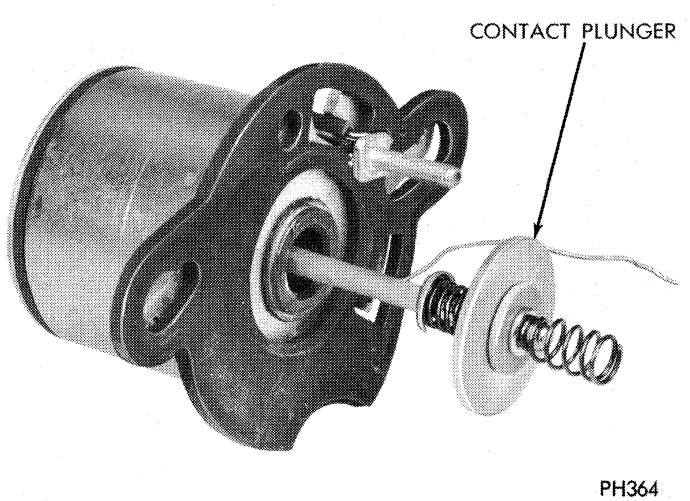


Fig. 16—Removing Contact and Plunger

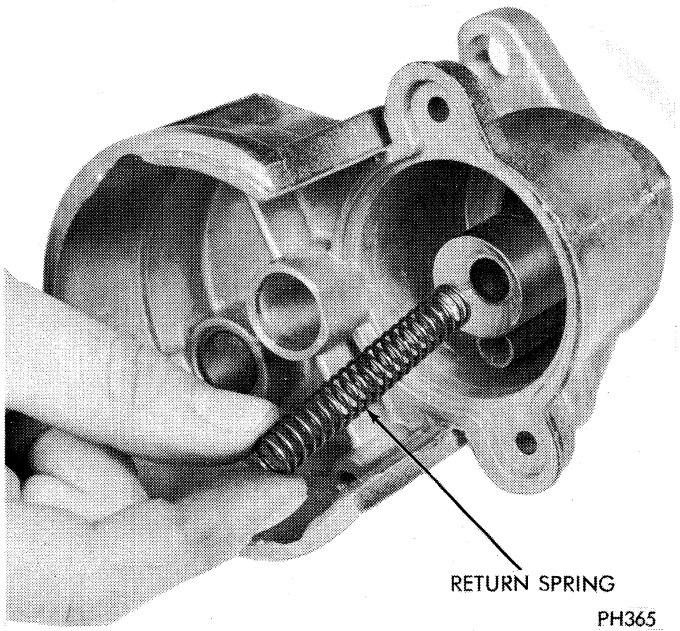


Fig. 17—Removing Return Spring

(2) Do not immerse clutch unit in cleaning solvent. The clutch is pre-lubricated at the factory and solvent will wash lubricant from the clutch.

(3) The starter-clutch outer housing and pinion gear may be cleaned with a cloth moistened with cleaning solvent and wiped dry with a clean dry cloth.

(4) Clean terminal contacts and contactor with crocus cloth.

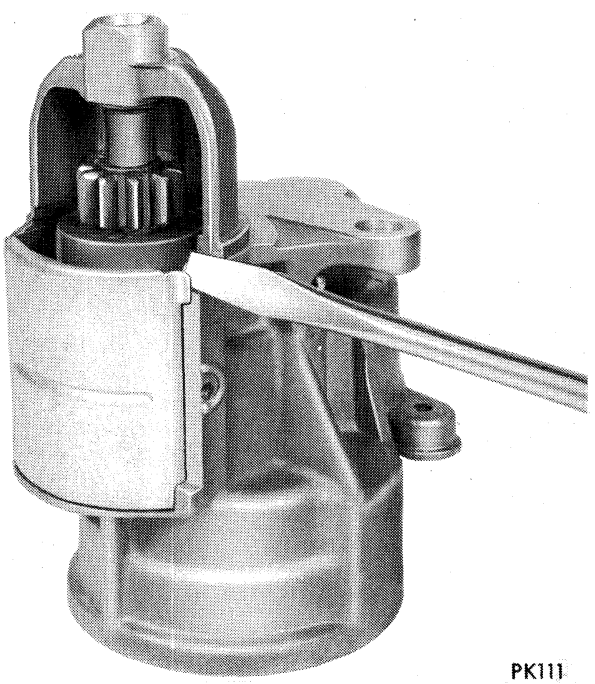


Fig. 18—Removing Dust Cover

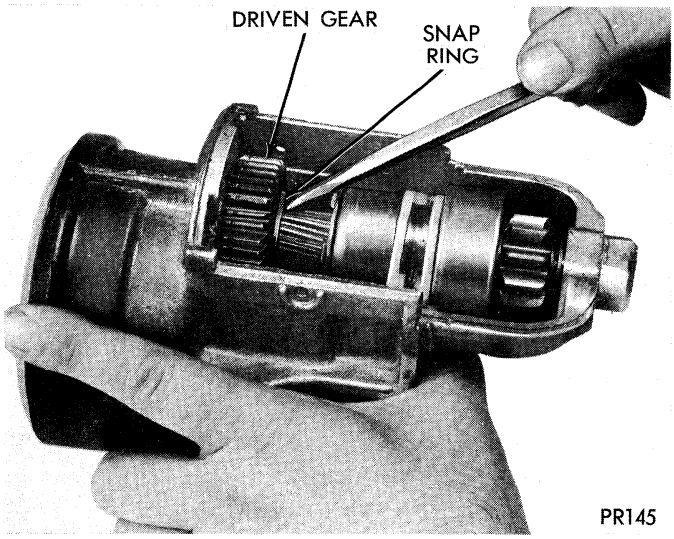


Fig. 19—Removing Driven Gear Snap Ring

(5) Thoroughly clean outside area of brush plate to remove all oil and dirt.

REPLACEMENT OF BRUSHES AND SPRINGS

(1) Brushes that are worn more than 1/2 the length of new brushes, or are oil-soaked, should be replaced.

(2) When **soldering** the solenoid lead, make a strong low resistance connection using a high temperature solder and resin flux. **Do not use acid** or acid core solder.

(3) Measure brush spring tension with a spring scale hooked under the spring near the end. Pull scale on a line parallel to the edge of brush and take a reading just as spring leaves brush. Spring tension should be 32 to 36 ounces. Replace springs that do not meet specifications.

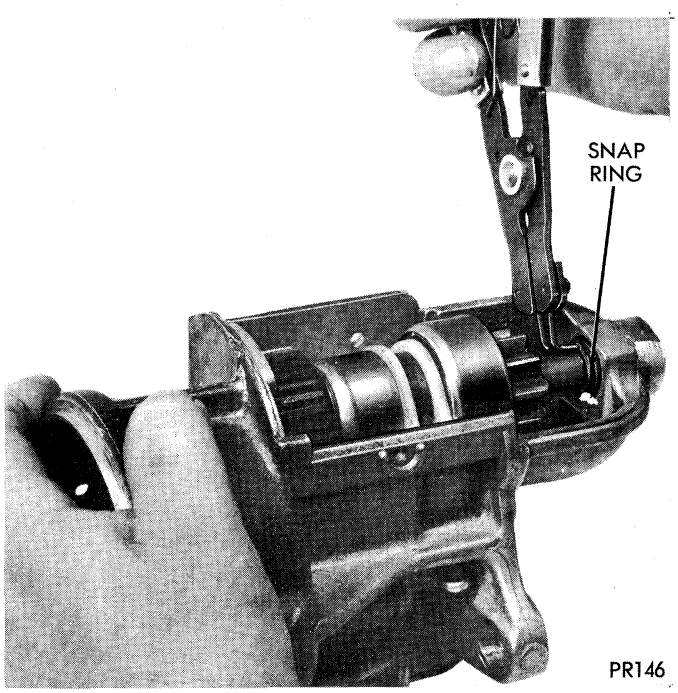


Fig. 20—Removing Pinion Shaft Snap Ring

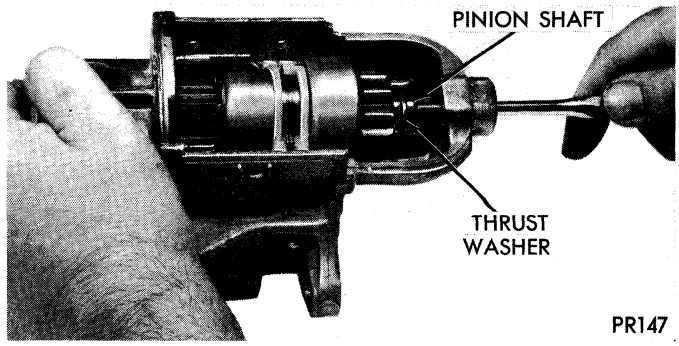


Fig. 21—Removing Pinion Shaft

TESTING ARMATURE

Testing Armature for Short Circuit

Place armature in growler and hold a thin steel blade parallel to the core and just above it, while slowly rotating armature in growler. A shorted armature will cause blade to vibrate and be attracted to the core. Replace armature if shorted.

Testing Armature for Ground

Contact armature shaft and each of the commutator riser bars with a pair of test lamp test probes. If lamp lights, it indicates a grounded armature. Replace grounded armature.

Testing Commutator Run-Out, and Refacing

Place armature in pair of "V" blocks and measure runout with dial indicator. Measure both shaft and commutator. A bent shaft requires replacement of armature. When commutator runout exceeds .004 inch, commutator should be refaced. Remove only a

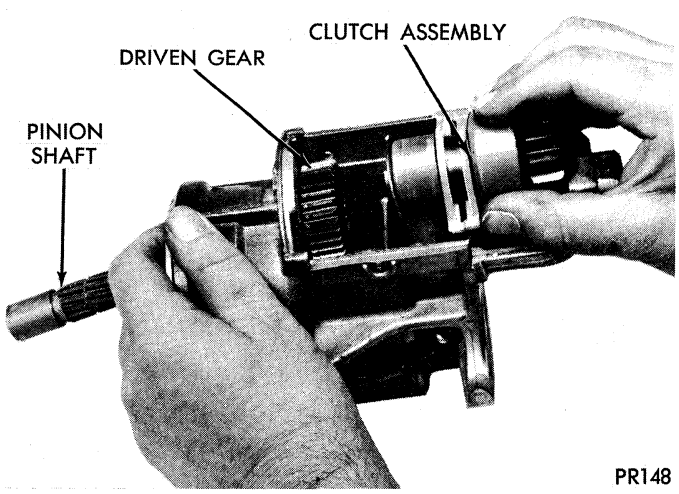


Fig. 22—Removing Clutch Assembly

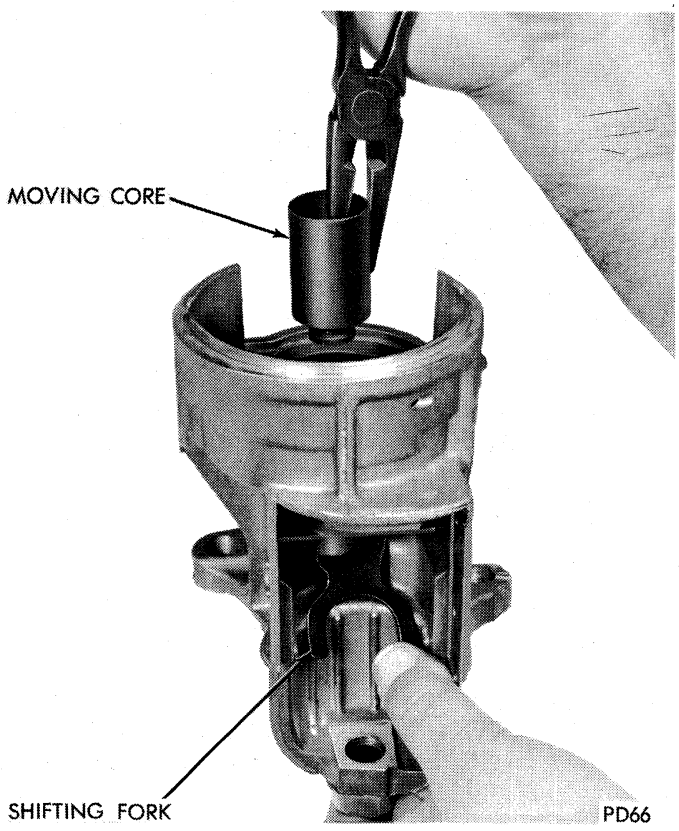


Fig. 23—Removing Solenoid Core

sufficient amount of metal to provide a smooth, even surface.

TESTING FIELD COILS FOR GROUND

(1) Remove field frame assembly from starter.

(2) Carefully drill out the rivet attaching the field coil ground leads to field frame.

(3) Insulate field coil leads from field frame.

(4) Test for ground using a 110 volt test lamp. Touch one probe of test lamp to field coil lead and other probe to field frame. Lamp should not light.

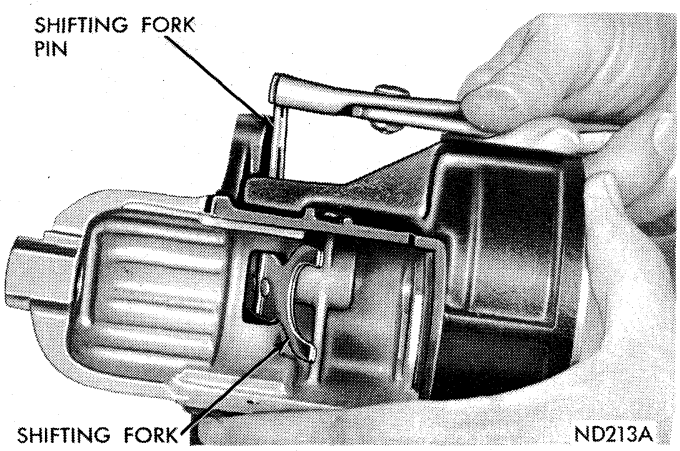


Fig. 24—Removing Shifter Fork Pin

If lamp lights, it indicates that field coils are grounded and require replacement.

REPLACING THE FIELD COILS

The field coils are not serviced as a separate item. They are serviced in the Field Frame Assembly.

SERVICING THE STARTER BUSHINGS

Inspect armature shaft bearing, pinion shaft surfaces and bushings for wear. Try the bushings for wear by inserting the shafts and test for side play. **Pre-sized starting motor bushings are available as service bushings. Use Tool C-3944 to remove old bushings and install the new. No burnishing or reaming is required to fit pre-sized bushings.**

The C-3944 Tool and its adaptors are designed to service all of the gear reduction motor bushings with the exception of the end head bushing. End head bushing and end head are serviced as an assembly.

Remove and install bushings (Figs. 25, 26, and 27).

SERVICING THE STARTER CLUTCH UNIT

Do not immerse starter clutch unit in a cleaning solvent. Starter clutch is pre-lubricated at the factory and a solvent will wash lubricant from the clutch.

The starter clutch outer housing and pinion gear may be cleaned with a cloth moistened with a cleaning solvent and wiped dry with a clean dry cloth.

Rotate the pinion. Pinion gear should rotate smoothly in one direction (not necessarily easily), but

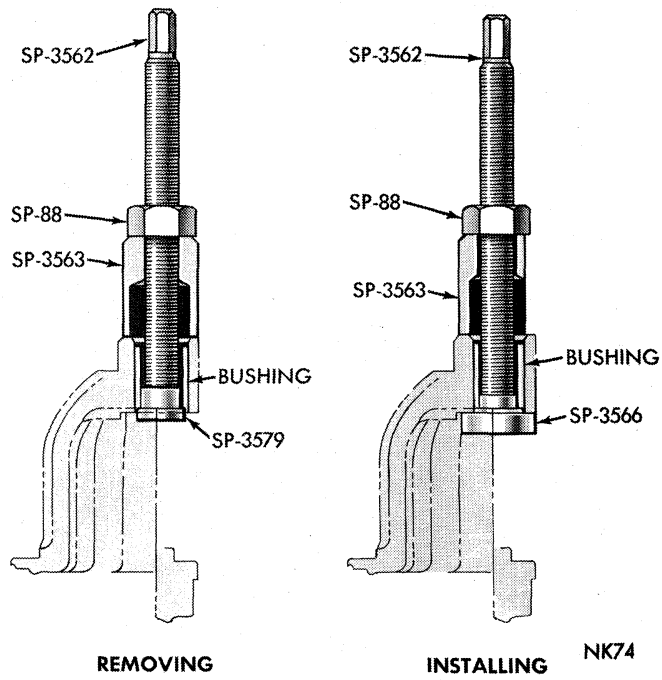


Fig. 25—Replacing Pinion Housing End Bushing

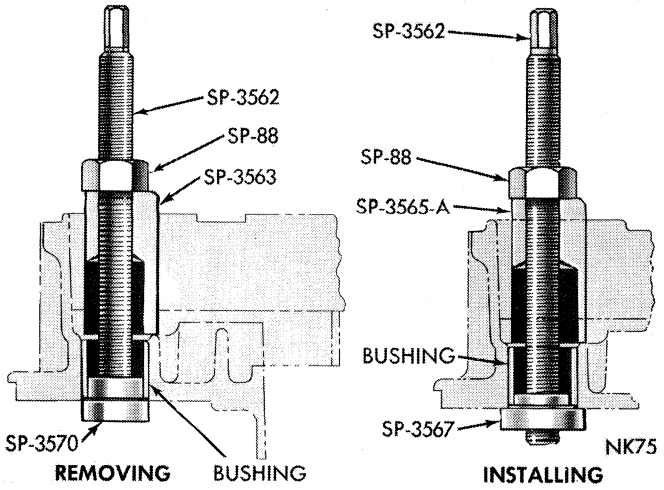


Fig. 26—Replacing Pinion Housing Drive Shaft Bushing

should not rotate in opposite direction. If starter clutch unit does not function properly, or pinion is worn, chipped or burred, replace starter clutch unit.

ASSEMBLING THE STARTER (Fig. 28)

The shifter fork consists of two spring steel plates assembled with two rivets. There should be approximately 1/16 inch side movement as shown in Figure 25 to insure proper pinion gear engagement. Lubricate between the plates sparingly with SAE 10 engine oil.

(1) Position shifter fork in drive housing and install shifting fork retainer pin. One tip of pin should be straight, other tip should be bent at a 15 degree angle away from the housing. The fork and retainer pin should operate freely after bending tip of pin.

(2) Install solenoid moving core and engage shifting fork (Fig. 23).

(3) Enter pinion shaft into drive housing and install friction washer and drive gear.

(4) Install clutch and pinion assembly, thrust washer, retaining and thrust washer (Fig. 22).

(5) Complete installation of pinion shaft, engaging shifting fork with clutch actuators. Figures 29 and 30 show correct relation of parts at assembly. **The friction washer must be positioned on shoulder of splines of the pinion shaft before driven gear is positioned.**

(6) Install driven gear snap ring (Fig. 19).

(7) Install pinion shaft "C" clip (Fig. 20).

(8) Install starter solenoid return spring into bore of movable core.

Inspect condition of starter solenoid switch contacting washer, if top of washer is burned from arcing, disassemble contact switch plunger assembly and reverse the washer.

(9) Install solenoid contact plunger assembly into solenoid.

Make sure contact spring is positioned on the shaft of the solenoid contact plunger assembly.

(10) Assemble battery terminal stud in brush holder.

Inspect condition of the contacts in brush holder plate. If contacts are badly burned, replace brush holder with brushes and contacts as an assembly.

(11) Position seal on brush holder plate.

(12) Enter solenoid lead wire through hole in brush holder (Fig. 31) and install solenoid stud, insulating washer, flat washer and nut.

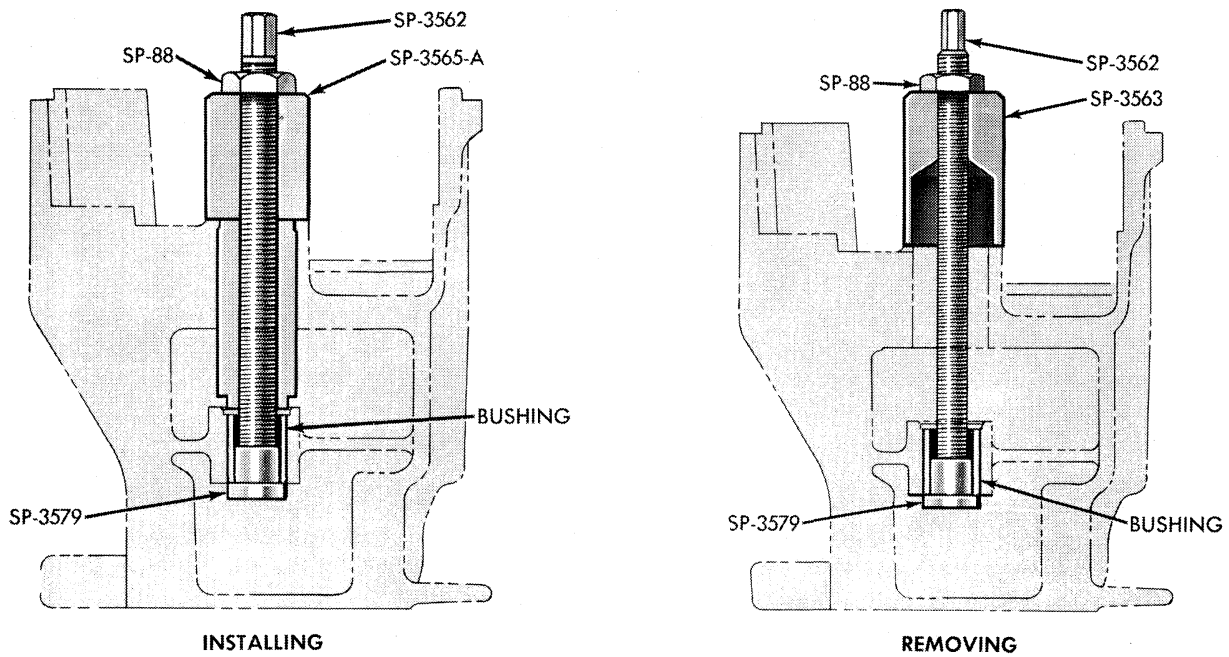


Fig. 27—Replacing Pinion Housing Armature Shaft Bushing

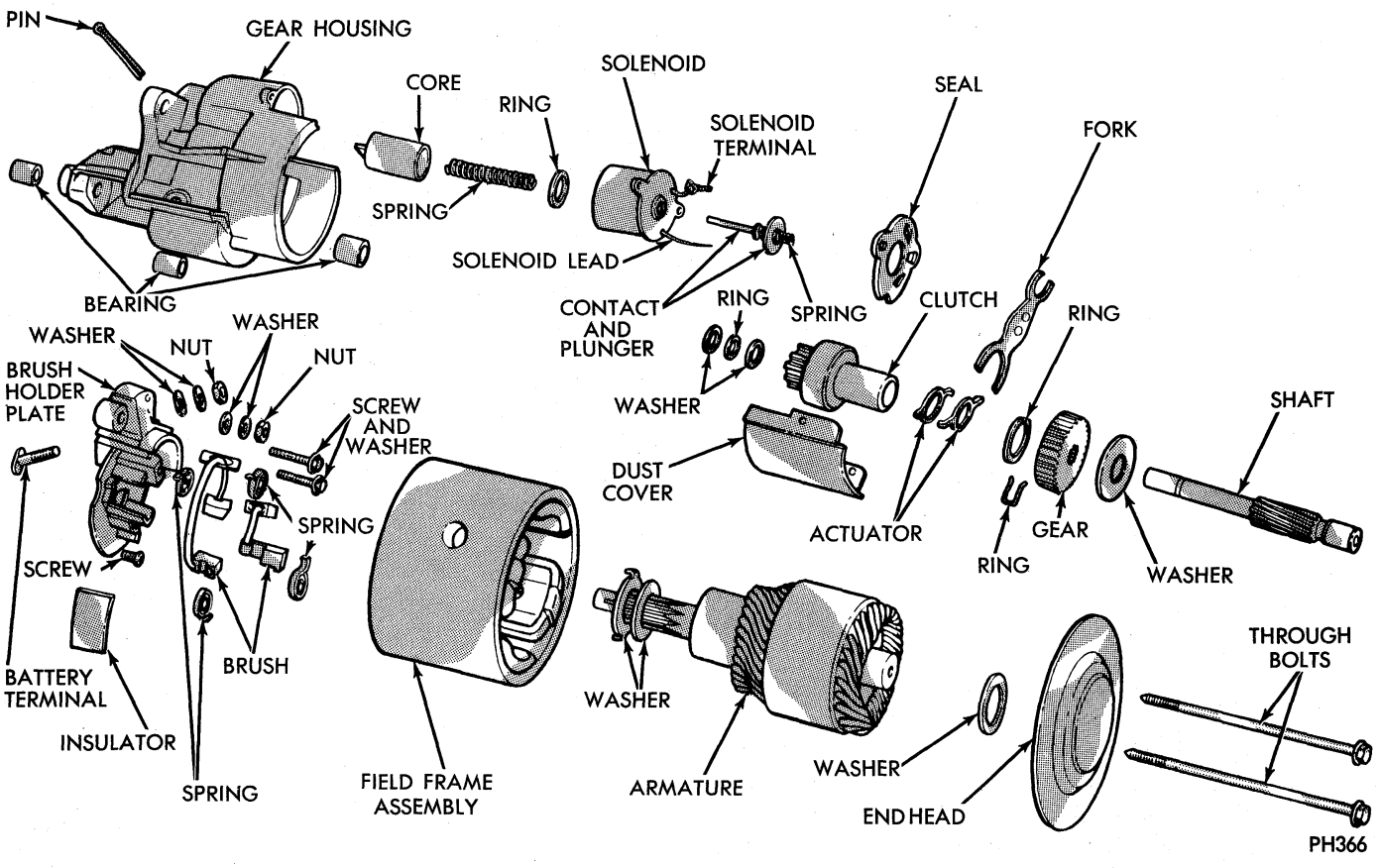


Fig. 28—Starter Motor (Exploded View)

(13) Wrap solenoid lead wire tightly around brush terminal post as shown in (Fig. 32) and solder securely with a high temperature resin core solder and resin flux.

(14) Install brush holder to solenoid attaching screws.

(15) Carefully enter solenoid coil and brush plate assembly into bore of gear housing and position brush plate assembly into starter gear housing (Fig. 33) and install housing attaching nuts. Tighten securely.

(16) Position brushes with armature thrust washer as shown in Figure 34. This will hold brushes out and facilitate proper installation of armature.

(17) Install brush terminal screw (Fig. 8).

(18) Position field frame to the exact position on gear housing and enter armature into field frame and starter gear housing (Fig. 35) carefully engaging splines of shaft with reduction gear by rotating armature slightly to engage the splines.

(19) Install thrust washer on armature shaft.

(20) Position starter end head assembly and install through bolts. Tighten through bolts securely.

INSTALLING THE STARTER

(1) Before installing the starter, make sure starter and flywheel housing mounting surfaces are free

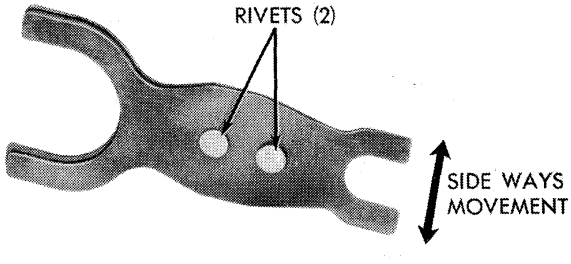


Fig. 29—Shifter Fork

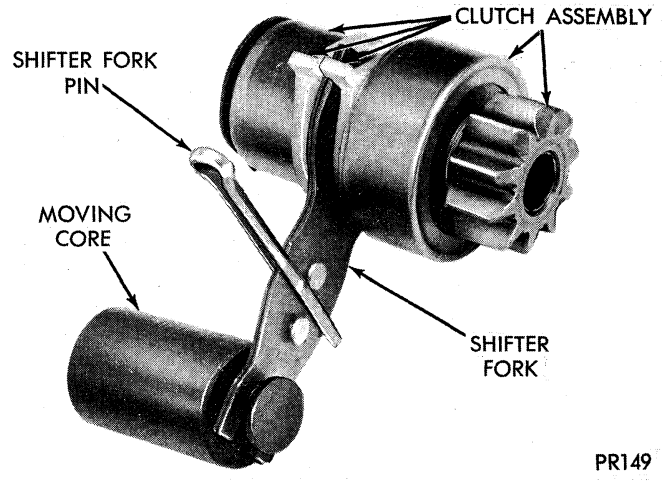


Fig. 30—Shifter Fork and Clutch Arrangement

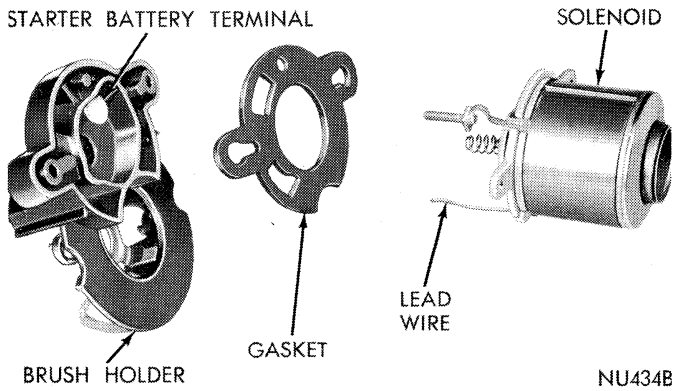


Fig. 31—Assembling Solenoid to Brush Holder Plate

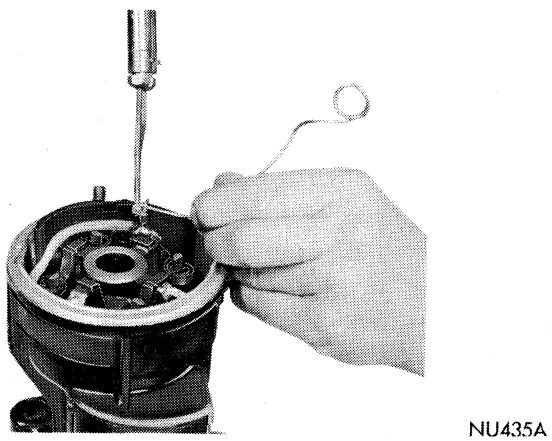


Fig. 32—Soldering Solenoid Lead to Brush Terminal

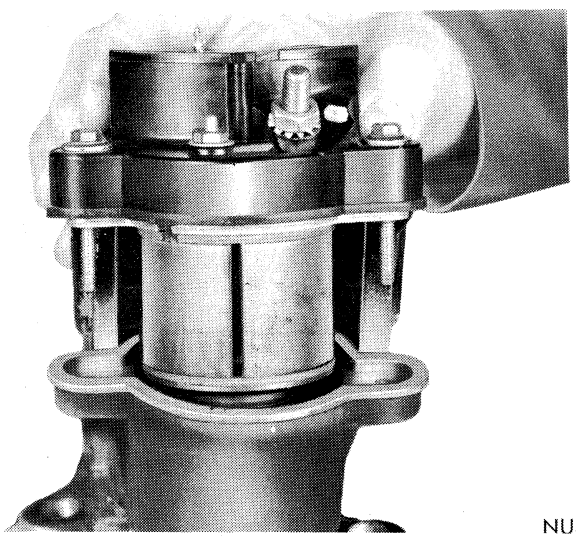


Fig. 33—Installing Solenoid and Brush Plate Assembly

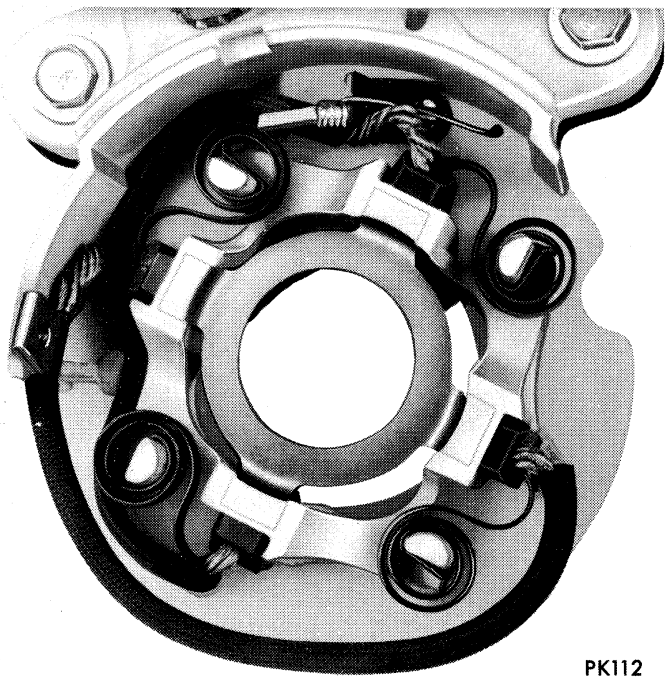


Fig. 34—Positioning Armature Thrust Washers to Brushes

of dirt and oil, to insure a good electrical contact.

(2) Position starter to flywheel housing **removable seal** (if removed).

(3) Install the starter, washer and bolt, the automatic transmission oil cooler tube bracket (if so equipped) and washer and nut. **When tightening attaching bolt and nut be sure to hold the starter pulled away from the engine to insure proper alignment.**

(4) Attach wire at solenoid switch terminal, and cable to starter terminal.

(5) Connect battery ground cable and test operation of the starter for proper engine cranking.

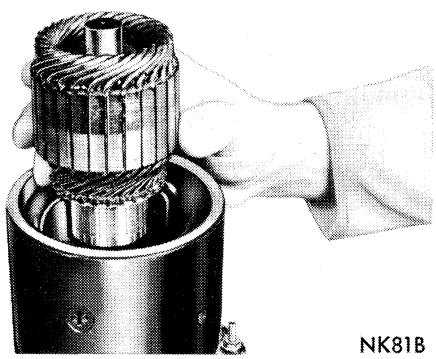


Fig. 35—Installing Armature

ALTERNATOR AND ELECTRONIC VOLTAGE REGULATOR

INDEX

GENERAL INFORMATION

Conventional Alternator

The alternator (Figs. 1 and 2) has six (6) built-in silicon rectifiers, that convert A.C. current into D.C. current. Current at the "output" terminal is D.C.

The main components of the alternator are the rotor, stator, rectifiers, the end shields and the drive pulley.

100 Amp High Capacity Alternator

This alternator (Fig. 3) has twelve (12) built in silicon rectifiers, that convert AC current into DC current. Current at the "Output" terminal is DC.

The main components are the rotor, stator, rectifiers, end shields and pulley.

The alternator is Chrysler designed and manufactured and is capable of supplying 100 amperes. The alternator is installed with three polypropylene oxide rubber isolation mounts. This type of rubber has good heat resistance and low temperature qualities combined with good sound and vibration characteristics.

Regulator Operation

The electronic voltage regulator is a device that regulates the vehicle electrical system voltage by limiting the output voltage that is generated by the alternator. This is accomplished by controlling the amount of current that is allowed to pass through the alternator field winding. The electronic voltage regulator has no moving parts and requires no adjustment after it is set internally at the factory. There are several semiconductor components, transistors and diodes, in the regulator plus some resistors and a capacitor. Basically the electronic regulator operates as a voltage sensitive switch. There is a large transistor which is placed in series with the alternator field winding and a control circuit that senses the system voltage and turns the large transistor on and off as load conditions change, the control circuit is turning the transistor on and off many times per second most of the time that the vehicle is in operation. The only time that the transistor is not turning on and off rapidly is during low engine speed operation when high electrical loads are present and require that the alternator field be in the on state continuously. One other important feature of the electronic regulator is the ability of its control circuit to vary the regulated system voltage up or down as the temperature changes. This provides the best charging conditions for the battery throughout the seasons of the year.

CHARGING CIRCUIT RESISTANCE TEST (Fig. 4)

The charging circuit resistance test will show the amount of "voltage drop" between the alternator output terminal wire and battery. For the charging circuit resistance test:

Preparation

(1) Disconnect the battery ground cable.

(2) Disconnect the "BAT" lead at the alternator output terminal.

(3) Connect a 0-100 ampere scale D.C. ammeter in series between the alternator "BAT" terminal and the disconnected "Bat" lead wire.

(4) Connect the positive lead of a test voltmeter to the disconnected "BAT" lead wire. Connect the negative lead of the test voltmeter to battery positive post.

(5) Disconnect the green (Regulator) field lead wire from the alternator.

(6) Connect a "jumper" lead from the alternator field terminal to ground.

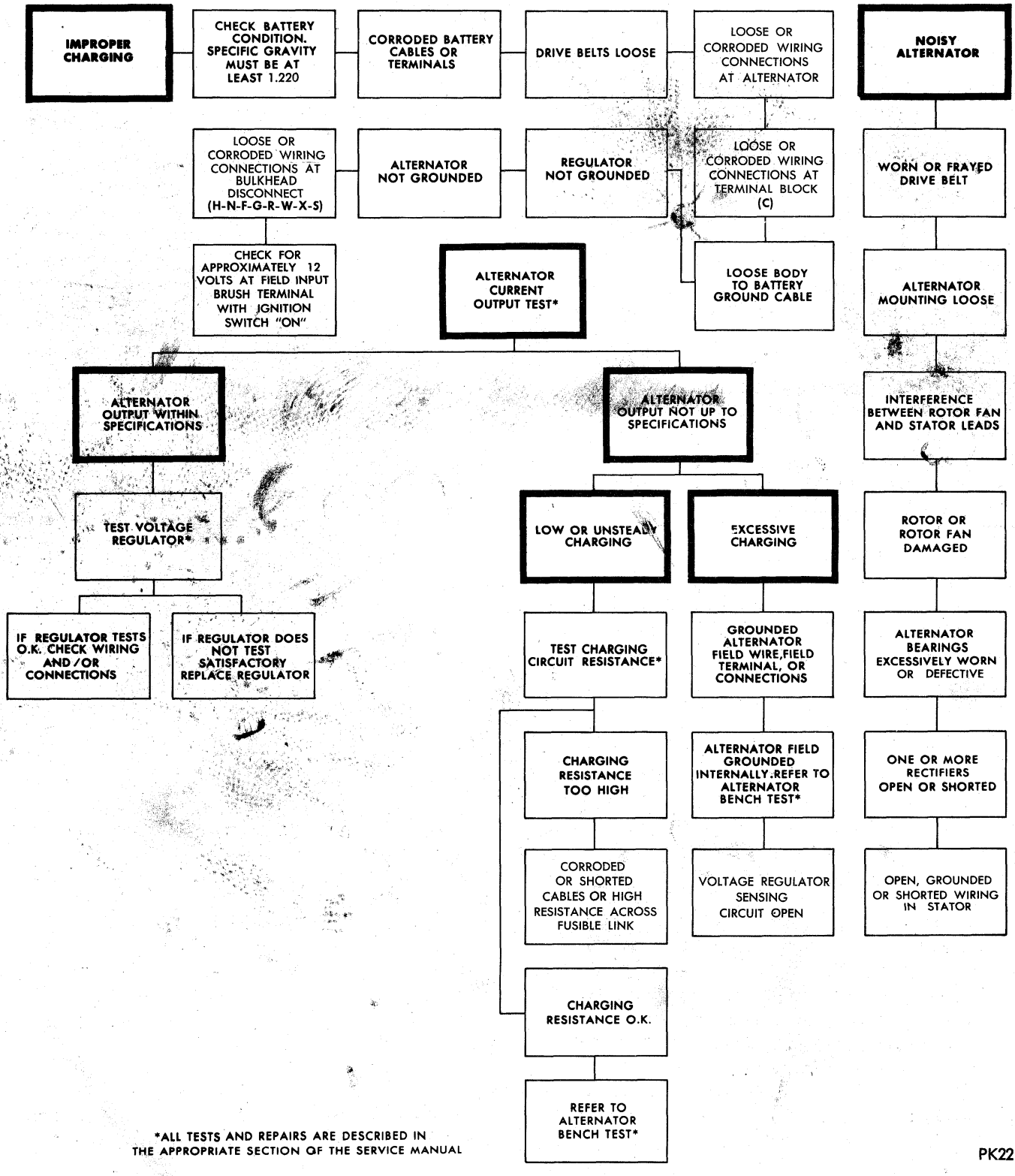
(7) Connect an engine tachometer and reconnect the battery ground cable.

(8) Connect a variable carbon pile rheostat to the battery terminals. **Be sure the carbon pile is in the "OPEN" or "OFF" position before connecting the leads.**

Test

(1) Start and operate the engine at idle. **Immediately after starting, reduce engine speed to idle.**

ALTERNATOR AND ELECTRONIC VOLTAGE REGULATOR DIAGNOSIS



*ALL TESTS AND REPAIRS ARE DESCRIBED IN THE APPROPRIATE SECTION OF THE SERVICE MANUAL

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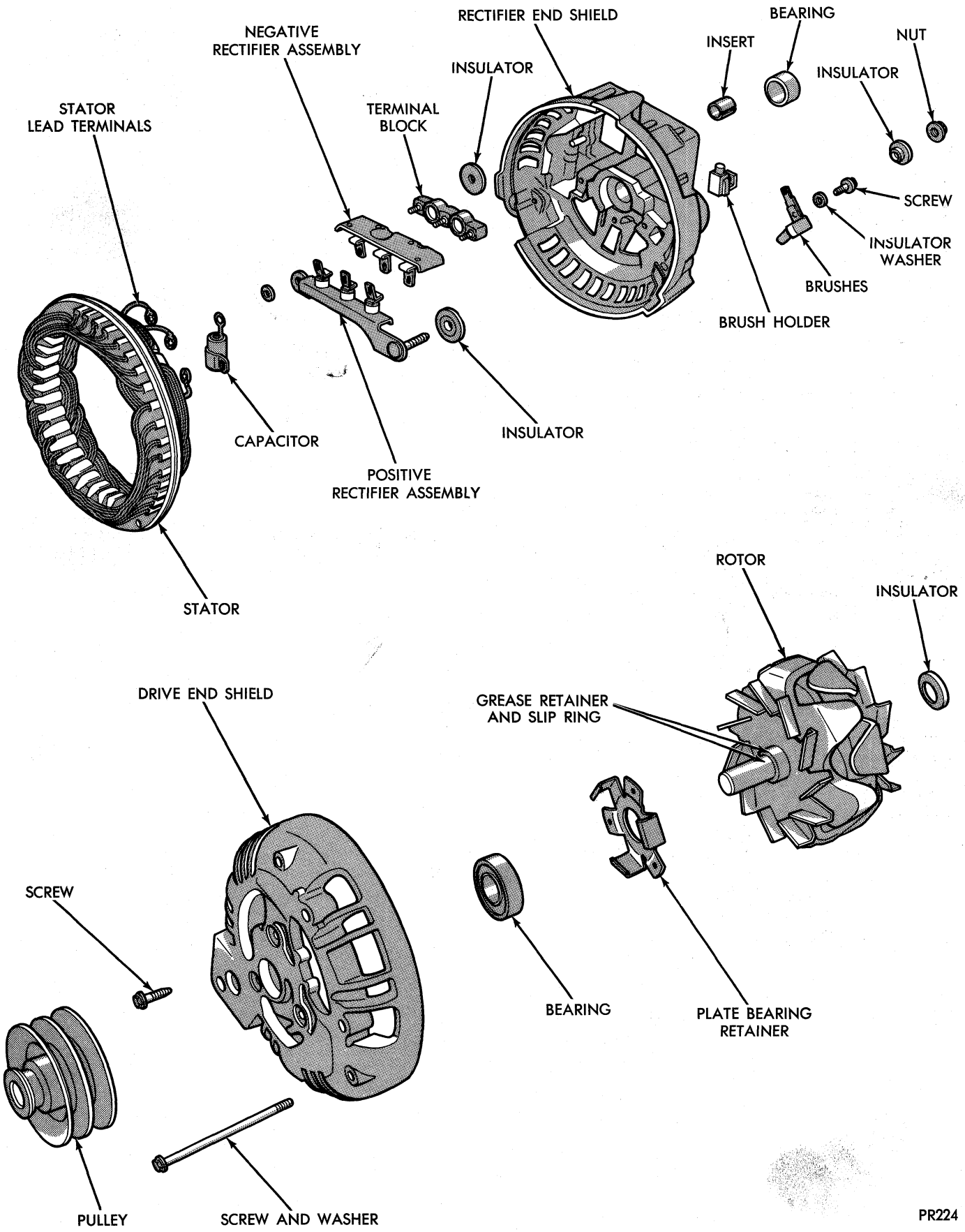

Fig. 1—Alternator Exploded View

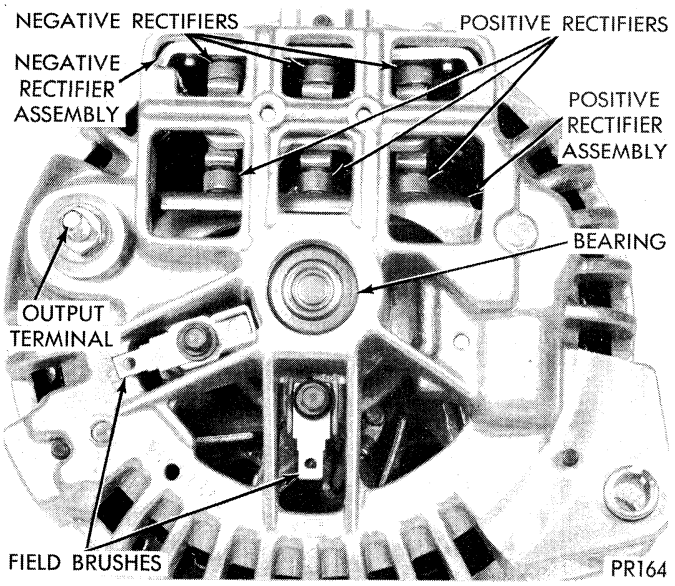

Fig. 2—Alternator Assembly

(2) Adjust the engine speed and carbon pile to maintain 20 amperes flowing in the circuit. Observe the voltmeter reading. The voltmeter reading should not exceed .7 volts.

Results

If a higher voltage drop is indicated, inspect, clean and tighten all connections in the charging circuit. A voltage drop test may be performed at each connection to locate the connection with excessive resistance. If the charging circuit resistance tested satisfactorily, reduce engine speed, turn off carbon pile and turn off ignition switch.

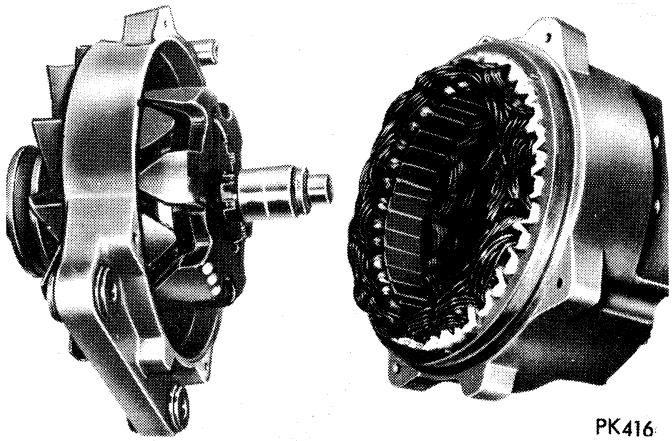

Fig. 3—Alternator Assembly (100 Amp)

(1) Disconnect battery ground cable.

(2) Remove test ammeter, voltmeter and carbon pile.

(3) Remove "jumper wire" between alternator field terminal and ground. Connect the green field wire to the alternator field terminal.

(4) Reconnect the battery ground cable.

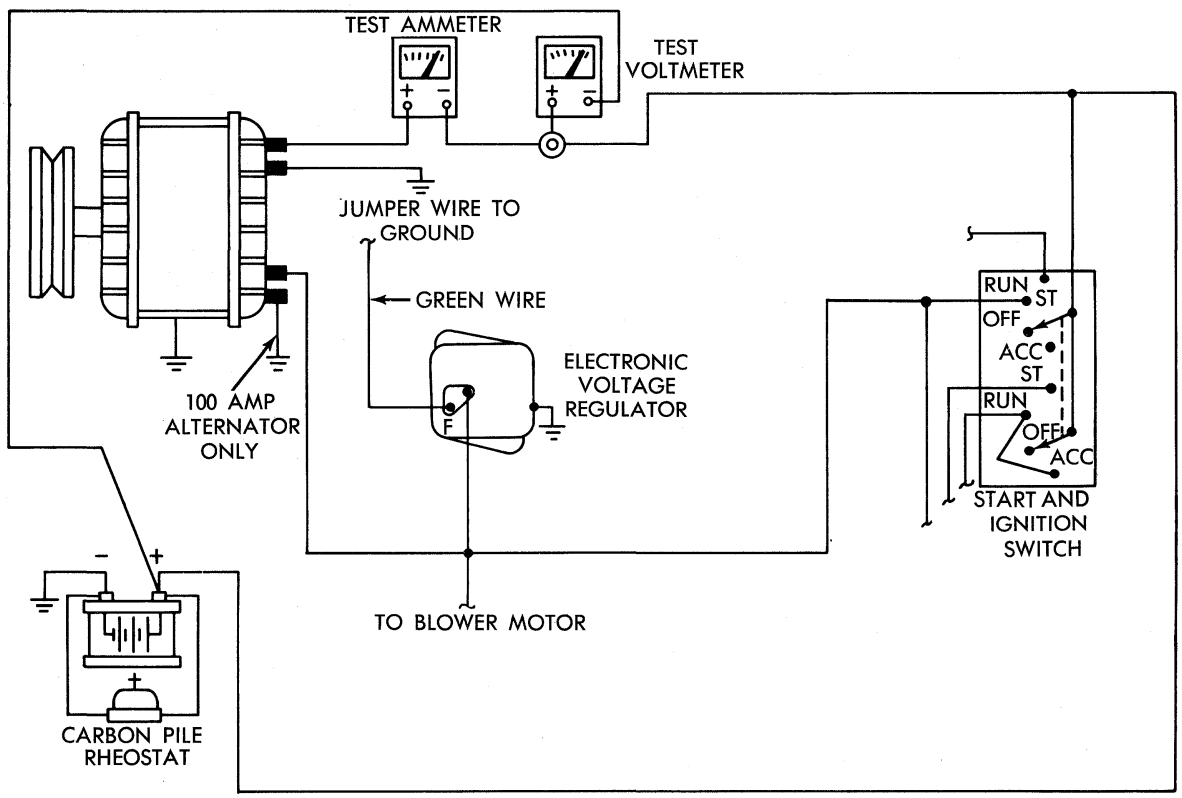

Fig. 4—Charging Circuit Resistance Test All Models

CURRENT OUTPUT TEST (Fig. 5)

The current output test determines whether or not the alternator is capable of delivering its rated current output.

Preparation

(1) Disconnect the battery ground cable.

(2) Disconnect the "BAT" lead wire at the alternator output terminal.

(3) Connect an ammeter (range 0-100 amps minimum) in series between the alternator "BAT" terminal and the disconnected "BAT" lead wire.

(4) Connect the positive lead of a voltmeter (range 0-15 volts minimum) to the "BAT" terminal of the alternator.

(5) Connect the negative lead of the voltmeter to a good ground.

(6) Disconnect the green field wire (to voltage regulator) at the alternator.

(7) Connect a "jumper wire" from the alternator field terminal to ground.

(8) Connect an engine tachometer and reconnect the battery ground cable.

(9) Connect a variable carbon pile rheostat between the battery terminals. (Be sure the carbon pile is in the "open" or "off" position before connecting leads.)

Test

(1) Start the engine and operate at idle. **Immediately after** starting **reduce engine speed to idle.**

(2) Adjust carbon pile and engine speed in increments until a speed of 1250 RPM (900 RPM for 100 amp alternator) and voltmeter reading of 15 volts (13 volts 100 amp alternator) is obtained.

CAUTION: Do not allow voltage meter to read above 16 volts.

(3) The ammeter reading must be within the limits shown in the "alternator specification chart" for that size of alternator being tested.

Results

(1) If the reading is less than specified the alternator should be removed from vehicle and "bench tested".

(2) After current output test is completed reduce engine speed, turn off carbon pile and turn off ignition switch.

(3) Disconnect battery ground cable.

(4) Remove test ammeter, voltmeter and carbon pile.

(5) Remove "jumper wire" between alternator field terminal and ground. Connect the green field wire to the alternator field terminal.

(6) Reconnect the battery ground cable.

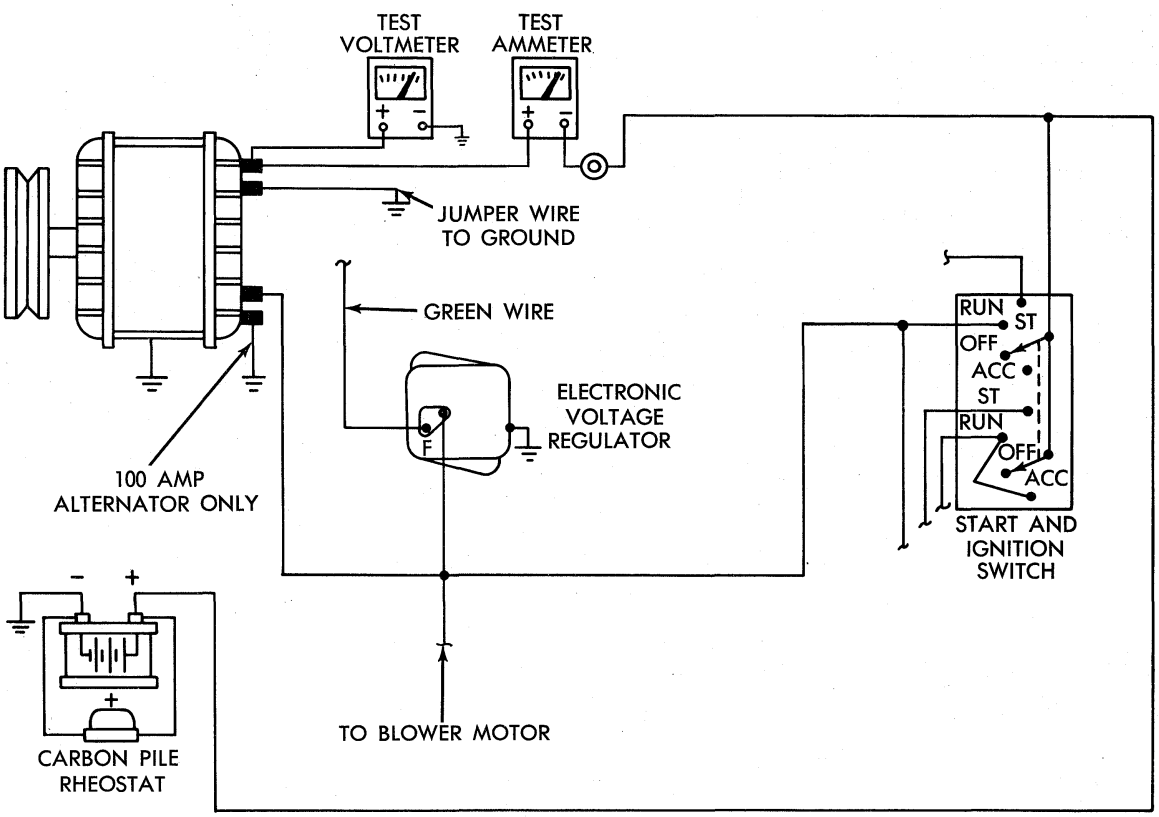

Fig. 5—Current Output Test All Models

VOLTAGE REGULATOR TEST (When Tester C-4133 is Not Available) (Fig. 6)

Preparation

(1) Clean the battery terminals and check the specific gravity. It should be above 1.200 to allow a properly regulated voltage check.

If the specific gravity is below 1.200, charge or use another battery and do not leave the uncharged battery in the circuit.

(2) Connect positive lead of voltmeter to positive post on battery.

(3) Connect the negative lead from the voltmeter to a good vehicle body ground.

Test

(1) Start and operate engine at 1250 rpm with all lights and accessories turned off. Check voltmeter, the regulator is working properly if the voltage readings are in accordance with the following chart.

AMBIENT TEMPERATURE NEAR VOLTAGE REGULATOR	VOLTAGE RANGE
−20°F	14.9 to 15.9
80°F	13.9 to 14.6
140°F	13.3 to 13.9
Above 140°F	Less than 13.60

It is normal for the car ammeter to show an immediate charge and then gradually return to normal position. The duration the ammeter hand remains to the right will be dependent on the length of cranking time.

Results

(1) If the voltage is below limits or is fluctuating, proceed as follows:

(a) Check for a good voltage regulator ground. Voltage regulator ground is obtained through regulator case, to mounting screws and to sheet metal of vehicle. This is ground circuit that is to be checked for opens.

(b) Turn off ignition switch and disconnect voltage regulator connector. Be sure terminals of connector have not spread open to cause an open or intermittant connection.

(c) **Do not start engine or distort terminals with voltmeter probe:** turn on ignition switch, check for battery voltage at the wiring harness terminal. Both blue and green leads should read battery voltage. Turn off ignition switch.

(d) If previous steps 1a through 1c tested satisfactory, then replace regulator and repeat test.

(2) If the voltage is above the limits shown on the chart, proceed as follows:

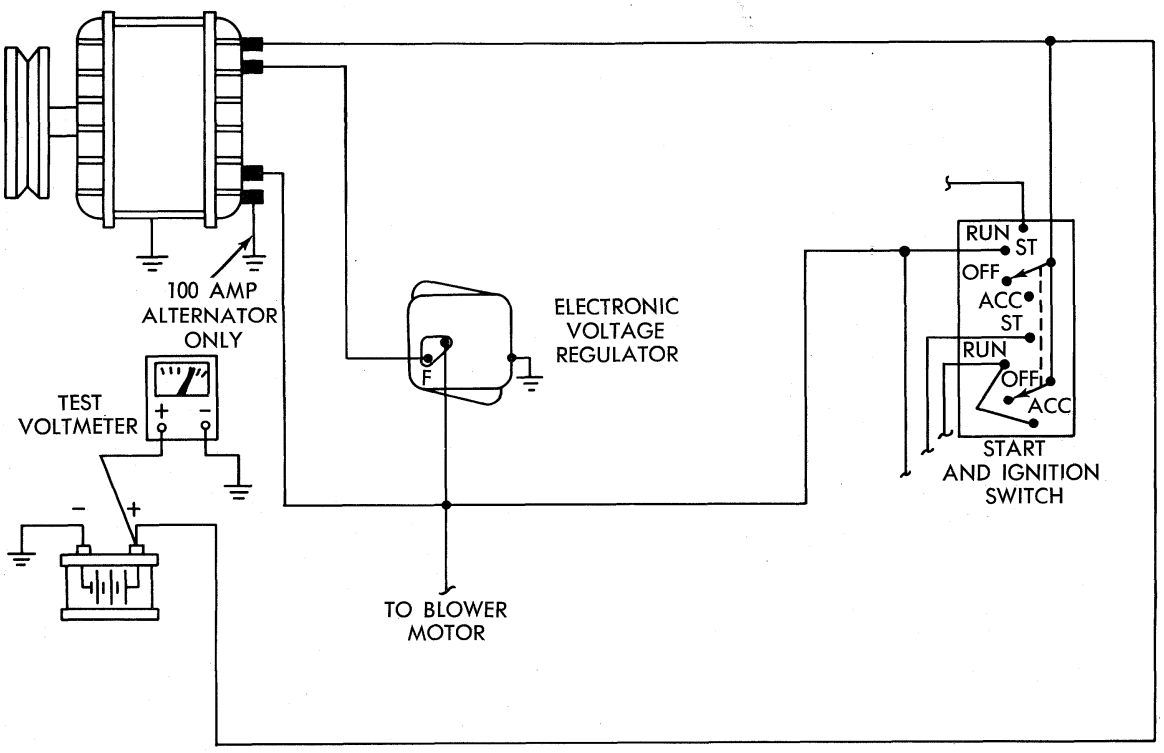

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Fig. 6—Voltage Regulator Test All Models

(a) Turn off the ignition switch and disconnect voltage regulator connector. Be sure terminals on the connector have not spread open.

(b) **Do not start engine or distort terminals with voltmeter probe:** turn on ignition switch, check for battery voltage at the wiring harness terminal. Both blue and green leads should read battery voltage. Turn off ignition switch.

(c) If previous steps 2a and 2b tested satisfactory, then replace regulator and repeat test.

(3) Remove the test voltmeter.

ELECTRONIC VOLTAGE REGULATOR TEST (With Tester Tool C-4133 and Adapter C-4341)

In order to test voltage regulators, Adapter C-4341 (Fig. 7), must be installed to tester C-4133 at it's voltage regulator connector lead (Fig. 8). Once installed, it will not be necessary to remove it to test prior model year regulators.

This is made possible by putting a three way switch in adapter, which can be moved to select correct type of regulator being tested. To determine right position of switch, look at part number printed on face of regulator (Fig. 9) and set switch on adapter to same number.

(1) Remove connector from Electronic Voltage Regulator on vehicle.

(2) Plug in power cord of Voltage Regulator Tester to 110 Volt A.C. 60 cycle source.

(3) Connect ground wire from voltage regulator tester to a good body ground near regulator, (A place free of paint).

(4) Plug connector of voltage regulator tester into voltage regulator on vehicle.

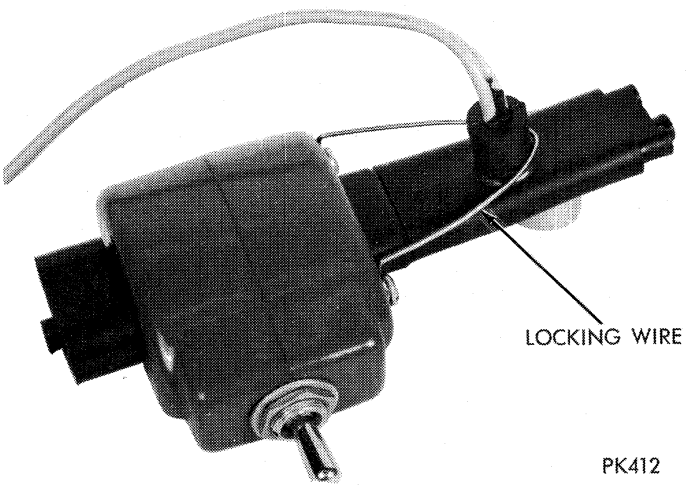


Fig. 8—Adapter Installed

(5) Place knob on the tester to the regulator test position.

(6) Press the test button on the voltage regulator tester. The voltage reading should be in accordance with the following:

(a) If the voltage regulator temperature is at room temperature (80 degrees F.) or above, the meter reading should be in the green or yellow range.

(b) If the voltage regulator is at room temperature (80 degrees F.) or below, the meter reading should be in the green or blue range.

(7) While holding the test button in, depress **Black Button** (A) (Fig. 10), the meter reading should remain within the limits of step (6).

(8) While holding the test button in, depress **Red Button** (B) (Fig. 11), the meter should read above 0.7 volts.

(9) If all tests remain within limits the voltage regulator is good.

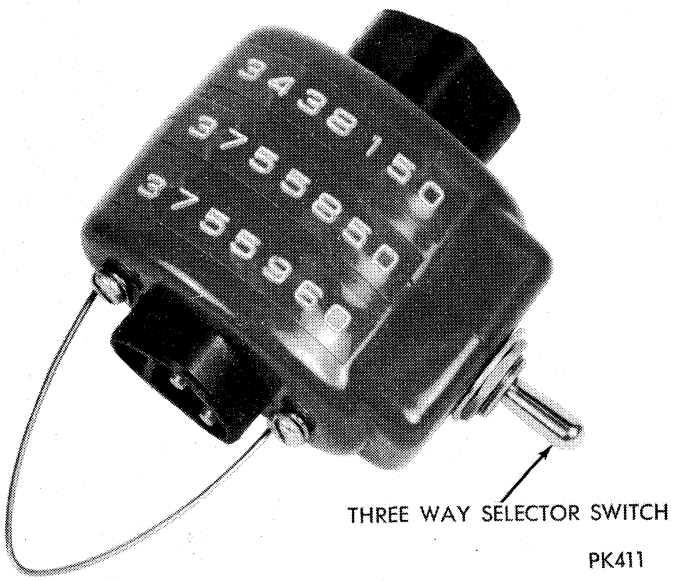


Fig. 7—Adapter C-4341

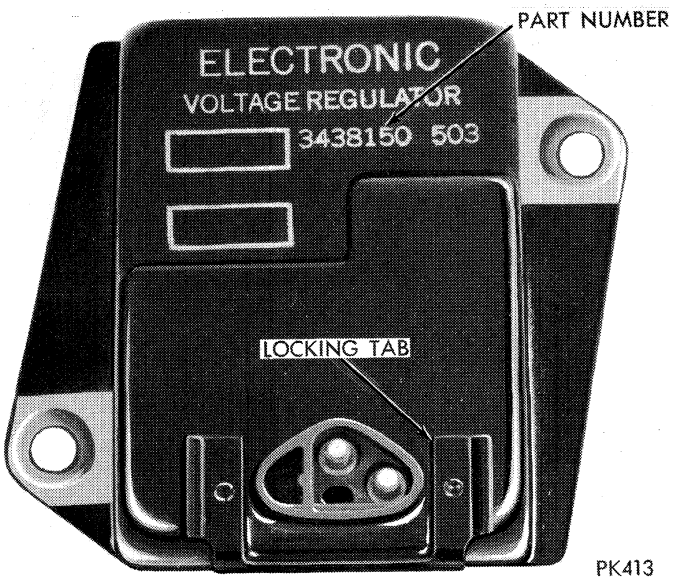


Fig. 9—Voltage Regulator Identification

(10) If regulator tests defective by this procedure, do not replace it until ground circuit of regulator has been checked.

This is done by moving ground lead of tester from body ground and connecting it to connector locking bracket of regulator. Scrape paint from bracket to insure good ground connection.

Repeat test procedure and if regulator now test good this indicates an open ground circuit between regulator case and mounting surface. If regulator does not test okay, replace.

Remove regulator and clean all dirt and corrosion from regulator cover, mounting screws and mounting surface including threaded holes.

The tester may be used as a D.C. Voltmeter by placing tester knob in either the 18 volt or 1.8 volt position. Use the red probe and black clip leads for testing.

ALTERNATOR SERVICE PROCEDURES (All Except 100 Amp Alternator)

If alternator performance does not meet current output specifications limits, it will have to be removed and disassembled for further test and servicing.

(1) Disconnect battery ground cable at battery negative terminal.

(2) Disconnect alternator output "BAT" and field "FLD" leads and disconnect ground wire.

(3) Remove alternator mounting bolts and remove alternator.

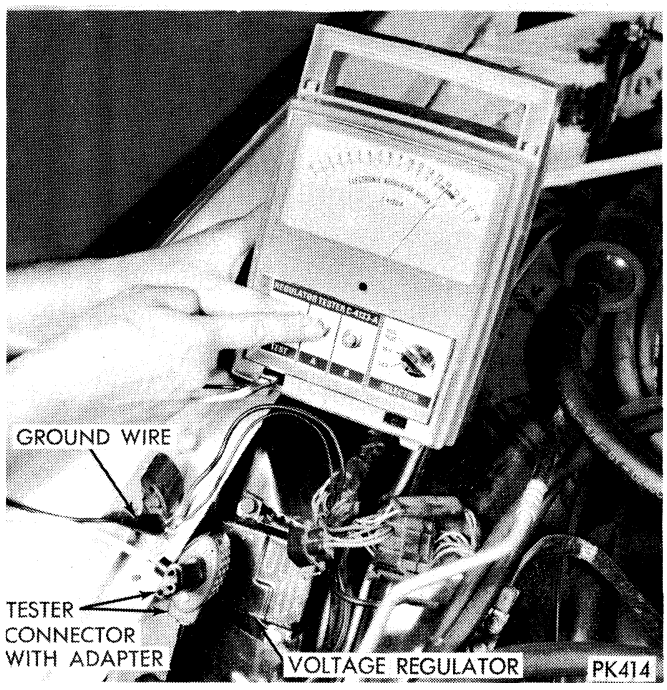


Fig. 10—Voltage Regulator Test (Depressing Test Button "A")

BENCH TESTS

Rotor Field Coil Current Draw Test

If alternator field coil draw has not been tested on vehicle it may be tested on test bench as follows:

Preparation

Connect a jumper wire between one field terminal of the alternator and the positive terminal of a fully charged battery. Connect test ammeter positive lead to the other field terminal of the alternator and the negative lead to the battery negative terminal.

Test

Slowly rotate alternator rotor by hand. Observe ammeter reading.

Results

Field coil draw should be 4.5 amperes to 6.5 amperes at 12 volts. **A low rotor coil draw is an indication of high resistance in field coil circuit, (brushes, slip rings, or rotor coil). A higher rotor coil draw indicates possible shorted rotor coil or grounded rotor.**

No reading indicates an open rotor or defective brushes.

ALTERNATOR DISASSEMBLY AND TESTING

Separating Alternator End Shields

To prevent possible damage to brush assemblies, they should be removed before separating the end shields. The field brushes are mounted in plastic holders that position the brushes against the slip rings of the rotor.

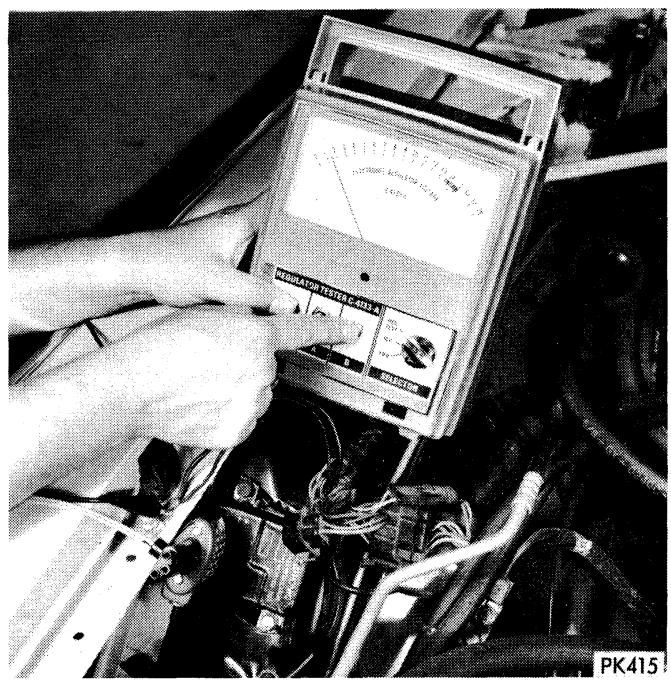


Fig. 11—Voltage Regulator Test (Depressing Test Button "B")

(1) Remove the brush screws, insulating washers and lift brush assemblies from end shield (Fig. 12).
CAUTION: Stator is laminated, do not burr stator or end shield.

(2) Remove through bolts and pry between the stator and drive end shield with blade of a screwdriver (Fig. 13). Carefully separate drive end shield, pulley and rotor assembly away from stator and rectifier end shield assembly.

Testing Rectifiers With Tester Tool C-3829

The Rectifier Tester Tool C-3829 provides a quick, simple and accurate test of the alternator rectifiers without the necessity of disconnecting the stator phase leads. With alternator rectifier end shield separated from drive end housing proceed with rectifier test as follows:

Positive Rectifier Test (Fig. 14)

CAUTION: Do not break the plastic cases of the rectifiers. The cases are for protection against corrosion. Always touch test probe to metal strap nearest rectifier.

Preparation

(1) Place rear end shield and stator assembly on an insulated surface. Connect test lead clip to the alternator (BAT) output terminal.

(2) Plug in Tool C-3829 power source lead into a 110 volt A.C. power supply.

Test

Touch the metal strap of each of the positive rectifiers, with test probe.

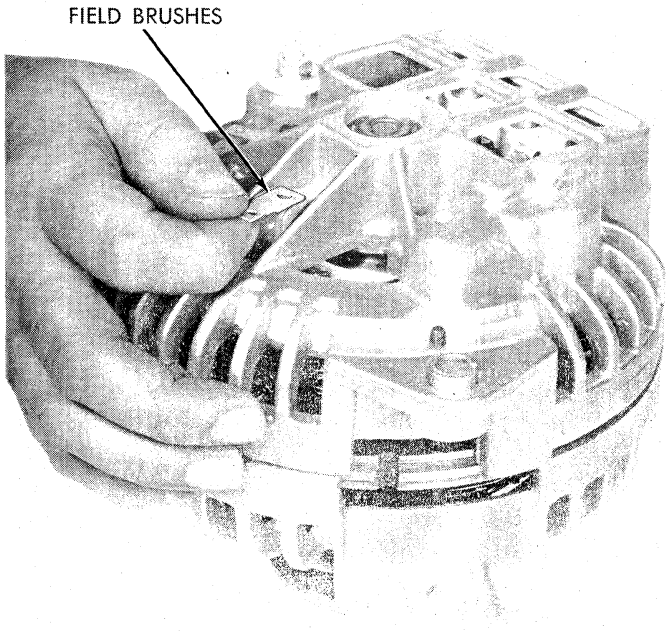


Fig. 12—Removing Field Brushes

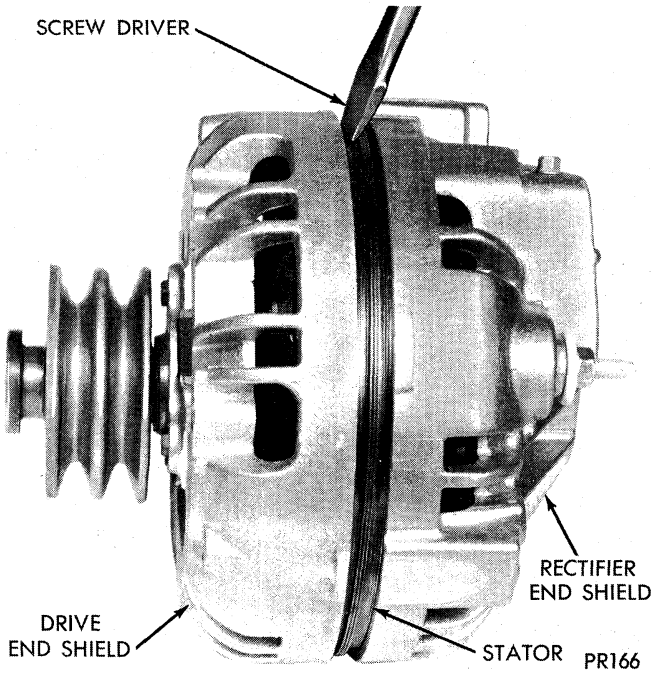


Fig. 13—Separating Drive End Shield from Stator

Results

(1) The reading for satisfactory rectifiers will be 1-3/4 amperes or more. Reading should be approximately the same and the meter needle must move in the same direction for all three rectifiers.

(2) When two rectifiers are good and one is shorted, reading taken at the good rectifier will be low, and reading at shorted rectifier will be zero. Disconnect lead to the rectifier reading zero and retest. The reading of the good rectifiers will now be within satisfactory range.

(3) When one rectifier is open it will read approximately one ampere, and two good rectifiers will read within satisfactory range.

Negative Rectifier Test (Fig. 15)

CAUTION: Do not break the plastic cases of the diodes. The cases are for protection against corrosion. Always touch test probe to metal strap nearest rectifier.

Preparation

Connect test lead clip to rectifier end housing.

Test

Touch the metal strap of each of the negative rectifiers with test probe.

Results

Test specifications are the same, and test results will be approximately the same as for positive case rectifiers, except meter will read on opposite side of scale.

NOTE: If a negative rectifier shows shorted isolate the stator from the rectifier end shield and retest. It

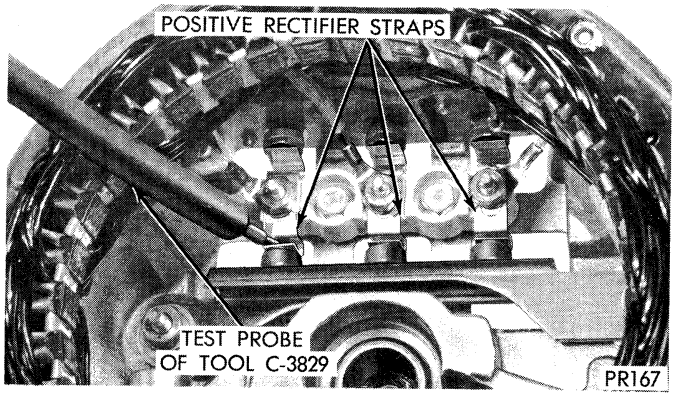


Fig. 14—Testing Positive Rectifiers

is possible that a stator winding could be grounded to the stator laminations or rectifier end shield which would indicate a shorted negative rectifier.

When Tool C-3829 is not available

Preparation

(1) Remove nuts from studs on terminal block securing stator windings, positive, and negative rectifier straps to block, (Fig. 16).

(2) Lift off stator winding terminals and carefully pry stator assembly from end shield.

(3) Test rectifiers with a 12 volt battery and a test lamp equipped with a number 67 bulb (4 candle power) by connecting one side of test lamp to positive battery post; other side of test lamp to a test probe with other test probe connected to the negative battery post.

Test

(1) Contact the heat sink of rectifier with one test probe and other test probe to strap on the top of rectifier (Fig. 17).

(2) Reverse the probes, moving probe from rectifier heat sink to rectifier strap and the probe from rectifier strap to rectifier heat sink, (Fig. 18).

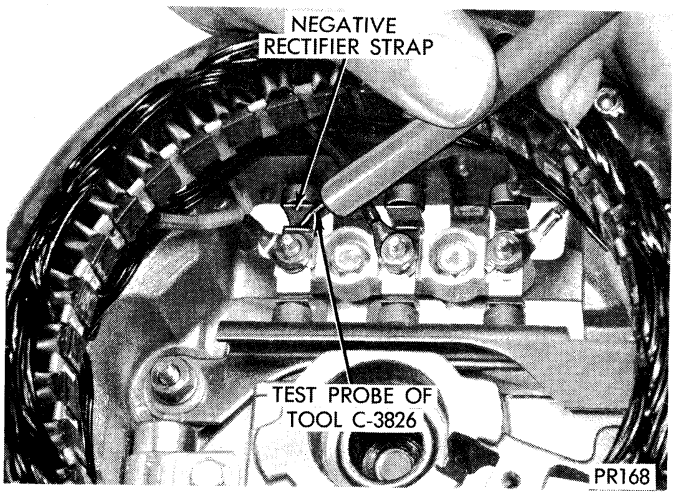


Fig. 15—Testing Negative Rectifiers

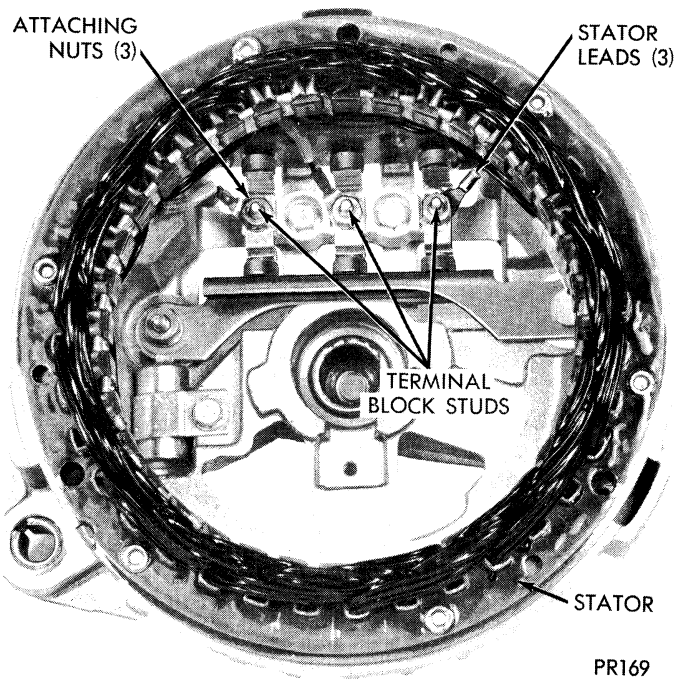


Fig. 16—Rectifier End Shield and Stator Assembly

Results

If test lamp "lights" in one direction but does "not light" in other direction, rectifier is satisfactory. If lamp lights in "both directions," **rectifier** is "shorted". If test lamp does "not light" in either direction, rectifier is "open".

Repeat the above procedure for all rectifiers in both assemblies; change rectifier and heat sink assemblies which have shorted or open rectifiers. The lamp should light in the same direction for all rectifiers on each assembly.

Rectifier and Heat Sink Assembly Removal (Fig. 19)

If negative heat sink rectifier straps are under positive heat sink straps proceed to step 2, otherwise proceed as follows:

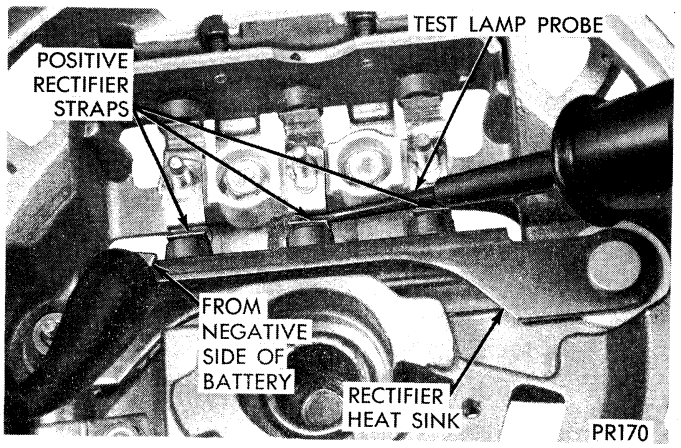


Fig. 17—Testing Positive Rectifiers With Test Lamp

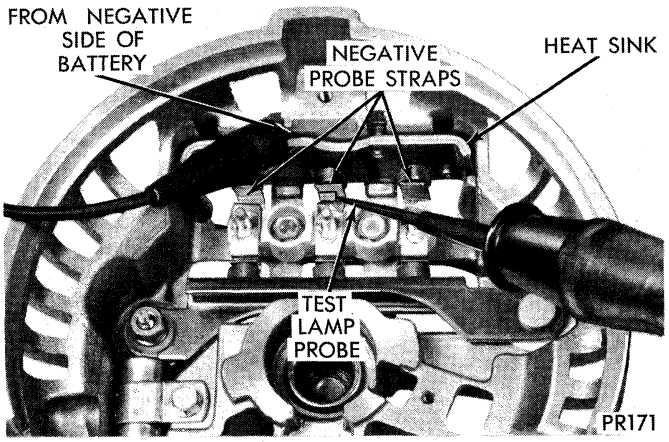


Fig. 18—Testing Negative Rectifiers With Test Lamp

(1) Remove four hexagon-head screws, (Fig. 19) securing negative rectifier and heat sink assembly to rectifier end shield and lift heat sink assembly out of end shield.

(2) Remove nut and washer assembly, (Fig. 19) from alternator output ("BAT") terminal (located on outside of rectifier end shield). Remove round plastic insulator.

(3) Turn end shield over and remove nut and washer assembly from end shield stud (attaching capacitor) Remove screw that attaches capacitor to case, (Fig. 20).

(4) Lift out capacitor and insulated washer and heat sink assembly. Remove round plastic insulator from "BAT" terminal hole.

(5) Remove mica insulator from end shield stud. If negative heat sink diode straps were under positive heat sink diode straps perform step 1.

Testing the Stator

(1) Remove varnish from a spot on stator frame.

(2) Press test probe firmly onto any pin on the stator frame. Be sure the varnish has been removed so that the pin is bare (Fig. 21).

(3) Press test probe firmly to each of the three phase (stator) lead terminals one at atime. If the lamp lights, the stator lead is "grounded."

(4) Press test probe firmly on one phase terminal lead and contact firmly each of the other two stator leads. Test lamp should light when prod contacts each of the terminals. If lamp does not light, stator winding is "open".

(5) Install new stator if stator tested is "grounded" or "open".

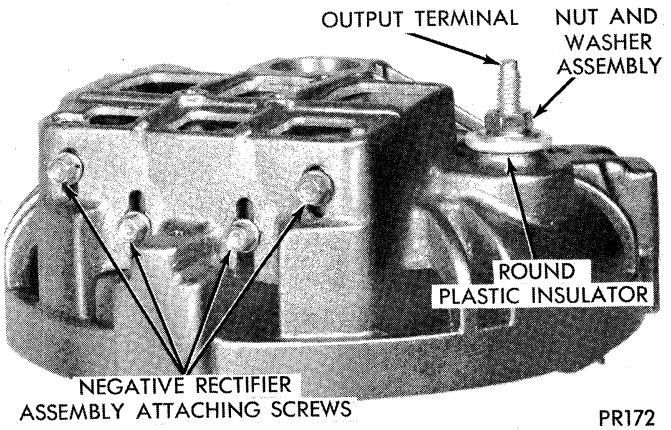


Fig. 19—Removing Negative Rectifier Assembly and Output Terminal Nut

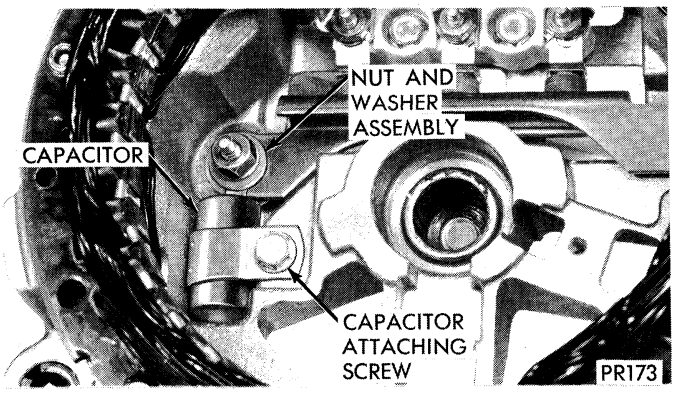


Fig. 20—Removing Capacitor

Pulley and Bearing Removal

(1) The pulley is an interference fit on rotor shaft. Remove pulley with Puller Tool C-4068 (Fig. 22).

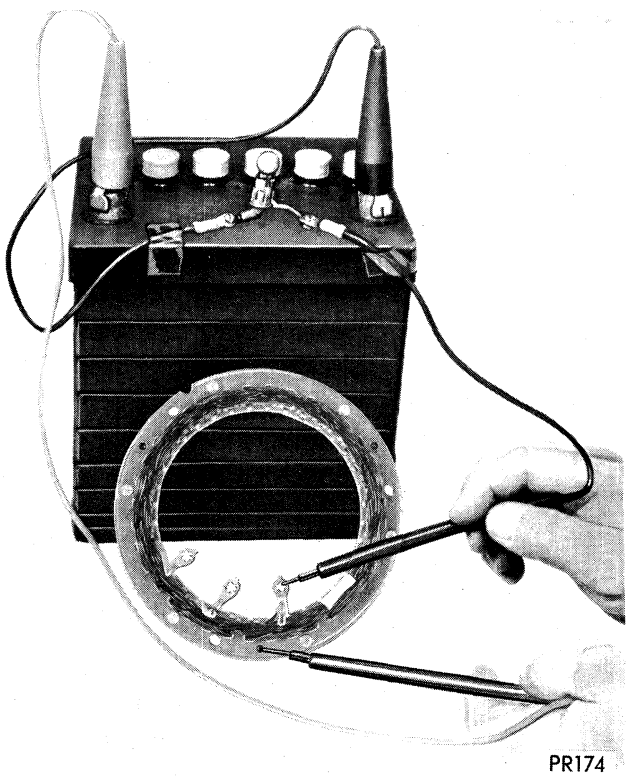


Fig. 21—Testing Stator For Ground

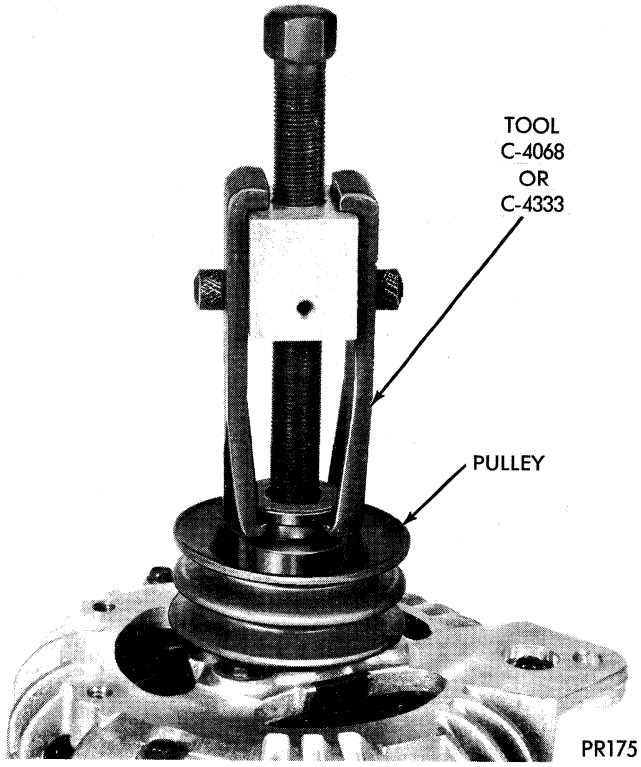


Fig. 22—Removing Pulley

(2) Pry drive end bearing retainer from end shield with a screwdriver (Fig. 23).

(3) Support end shield and tap rotor shaft with a plastic hammer to separate rotor from end shield.

(4) The drive end ball bearing is an interference fit with the rotor shaft. Remove bearing with Puller Tool C-4068, (Fig. 24).

(5) The needle roller bearing in rectifier end shield is a press fit. If necessary to remove rectifier end shield needle bearing, protect end shield by supporting shield with Tool C-3925 when pressing bearing out with Tool C-3770A (Fig. 25).

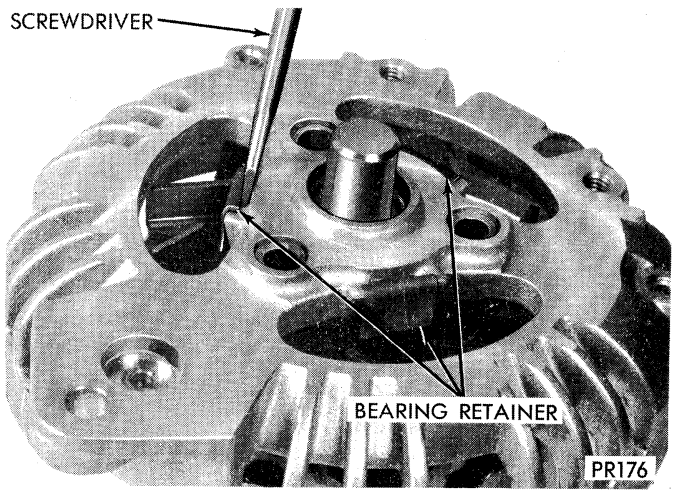


Fig. 23—Disengaging Bearing Retainer From End Shield

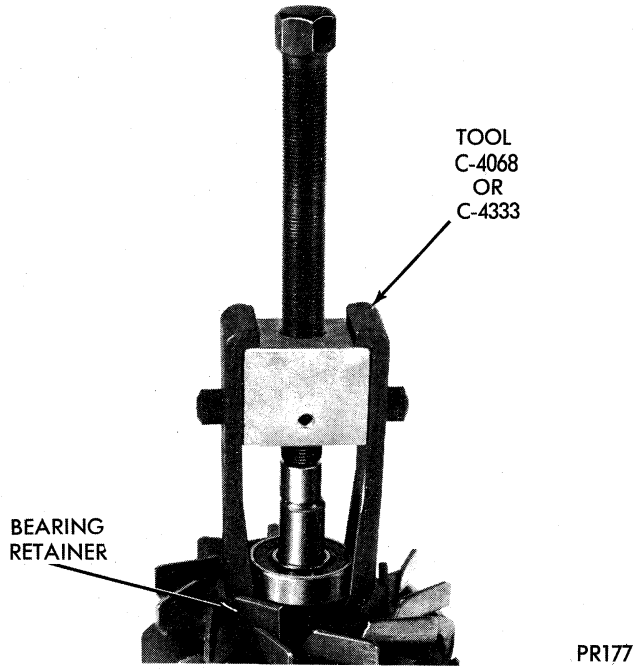


Fig. 24—Removing Bearing From Rotor Shaft

Rotor Test

The rotor assembly may be checked electrically for grounded, open or shorted field coils.

To check for a "grounded" field coil; connect an ohmmeter from each slip ring to the rotor shaft (Fig. 26). **Note:** Ohmmeter should be set for "infinite" reading when probes are apart and zero when probes are shorted. The ohmmeter should read "infinite". If the reading is zero or higher, the rotor is grounded.

To check for an "open" field coil, connect an ohmmeter to the slip rings (Fig. 27). The ohmmeter reading should be between 1.5 and 2 ohms on rotor coils at room ambient conditions. Resistance between 2.5 and 3.0 ohms would result from alternator rotors that have been operated on the vehicle at higher engine compartment temperatures. Readings above 3.5 ohms

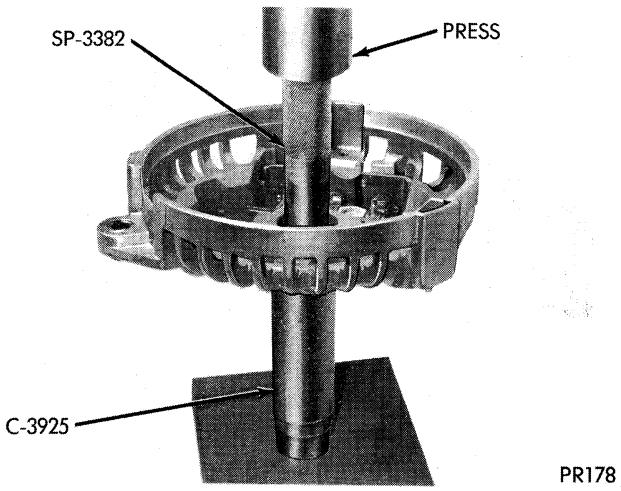


Fig. 25—Removing Rectifier End Shield Bearing

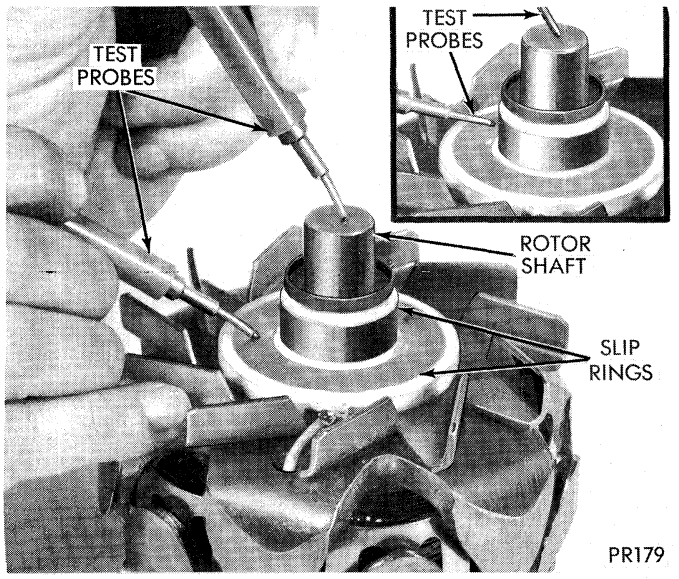


Fig. 26—Rotor Test For Ground

would indicate high resistance rotor coils and further testing or replacement may be required.

To check for a "shorted" field coil, connect an ohmmeter to the two slip rings (Fig. 27). If the reading is below 1.5 ohms, the field coil is shorted.

Replacing Slip Rings

Slip rings are not serviced as a separate item. They are serviced with the rotor assembly.

ASSEMBLING THE ALTERNATOR

(1) Position grease retainer on rotor shaft and press retainer on shaft with installer Tool C-3921 (Fig. 28). The plastic retainer is properly positioned when the inner bore of the installer tool bottoms on the rotor shaft.

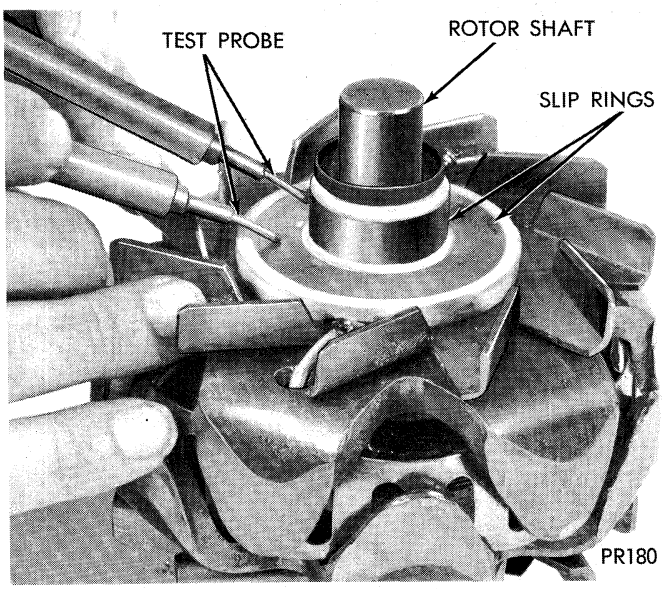


Fig. 27—Rotor Test For Opens or Shorts

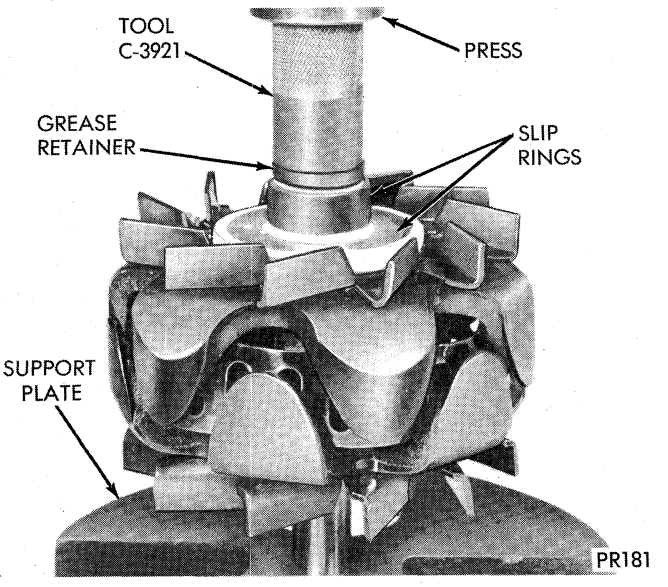


Fig. 28—Installing Grease Retainer

(2) Position rectifier end shield bearing on base of Tool C-4201. Place alternator end shield on top of bearing so that it is properly aligned. With top part of Tool C-4201 placed on end shield, press into place until it bottoms against it. (Fig. 29). **New bearings are prelubricated, additional lubrication is not required.**

(3) Insert drive end bearing in drive end shield and install bearing retainer plate to hold bearing in place.

(4) Position bearing and drive end shield on rotor shaft and, while supporting base of rotor shaft, press bearing end shield into position on rotor shaft with arbor press and Tool C-3858 (Fig. 30).

CAUTION: Make sure bearing is installed squarely at installation; otherwise, damage to bearing will result. Press bearing on rotor shaft until bearing contacts shoulder on rotor shaft fan hub.

(5) Install pulley on rotor shaft. Shaft of rotor must be supported in a manner so all pressing force is on pulley hub and rotor shaft (Fig. 31). **Press**

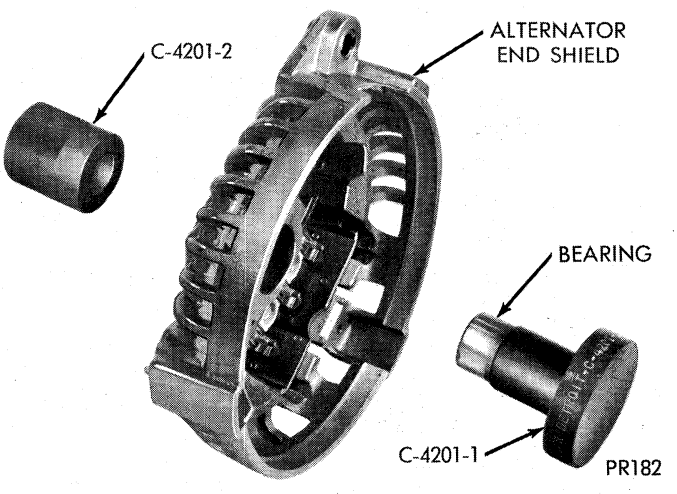


Fig. 29—Installing Rectifier End Shield Bearing

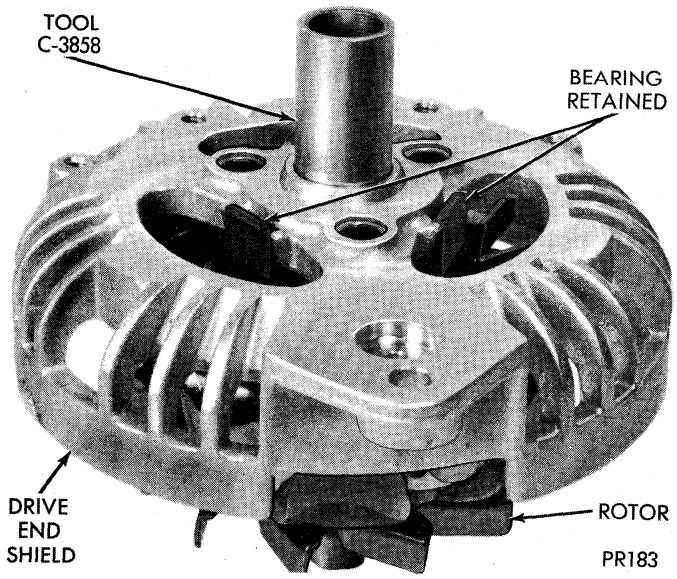


Fig. 30—Installing Drive End Shield Bearing

pulley on rotor shaft until pulley contacts inner race of drive and bearing. Do not exceed 6800 pounds, pressure. Do not hammer.

(6) Install mica insulator on heat sink mounting stud in end shield. Install round plastic insulator flat face up in battery stud hold in end shield, (Fig. 32).

(7) Install positive heat sink assembly, (Fig. 33) by placing battery terminal through round plastic insulator and capacitor end over heat sink mounting stud; guide three diode straps over studs on terminal block, (Fig. 34).

(8) Install capacitor terminal over heat sink stud, (Fig. 35). Install capacitor insulator (be sure it seats properly in capacitor terminal and heat sink hole). Attach capacitor bracket to end shield with metal screw. Tighten to 30 to 40 in.-lbs. torque. Complete capacitor end assembly by installing positive heat sink nut and lock washer assembly. Tighten to 20 to 30 in.-lbs. torque.

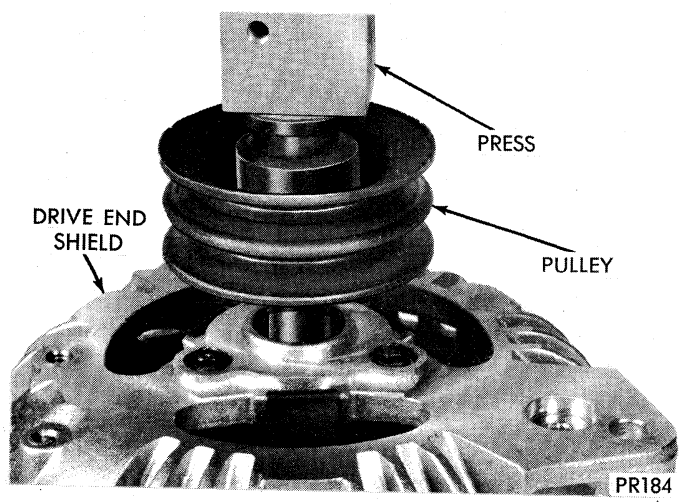


Fig. 31—Installing Pulley

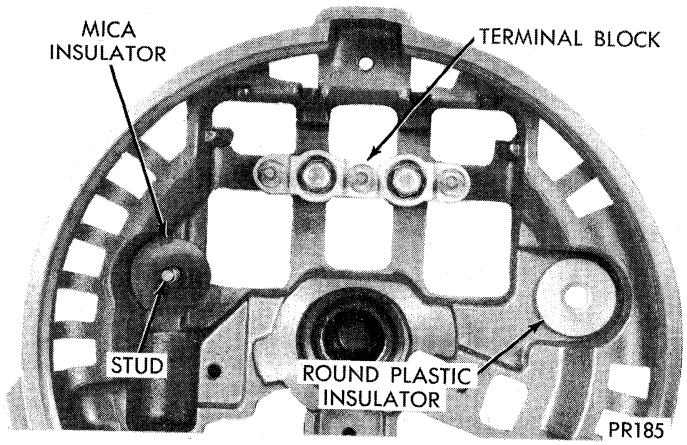


Fig. 32—Installing Insulators

(9) Turn end shield over and install round plastic insulator over the battery terminal (flat side up). Install nut and washer assembly and tighten to 30 to 50 in.-lbs. torque, (Fig. 36).

CAUTION: Be sure all nuts are properly torqued or failure is likely to occur.

(10) Slide negative rectifier and heat sink assembly, (Fig. 37) into place in end shield. Position three diode straps on terminal block studs. Install hexagon-head metal screws through end shield and into negative

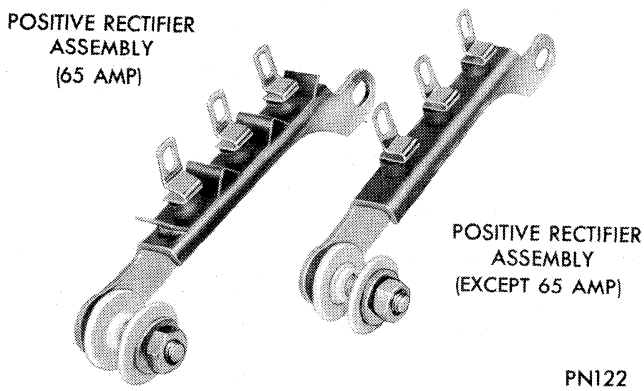


Fig. 33—Positive Rectifier Assembly

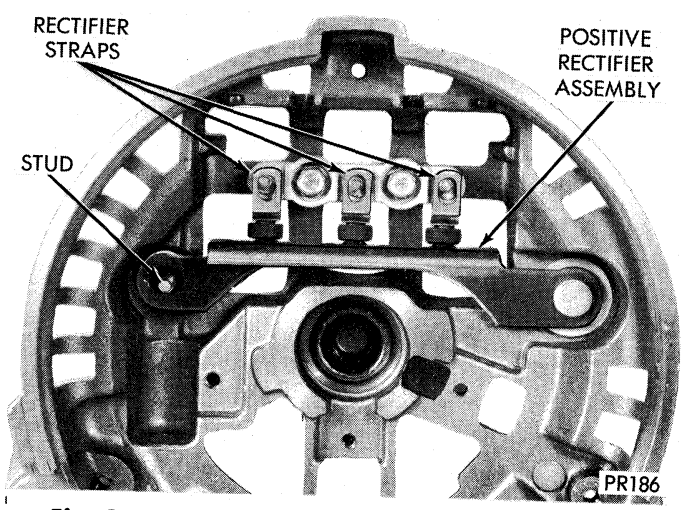


Fig. 34—Installing Positive Rectifier Assembly

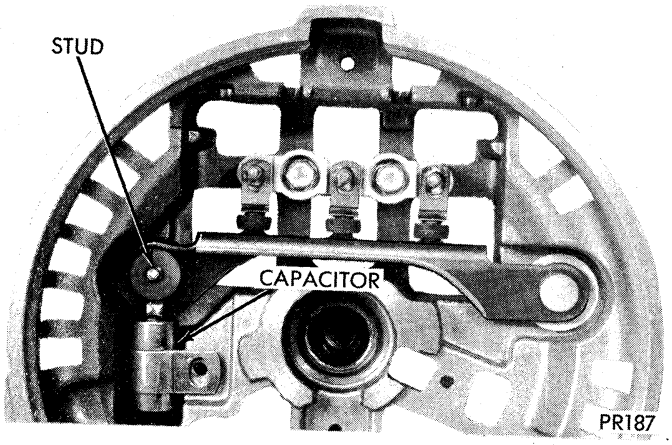


Fig. 35—Installing Capacitor

heat sink and tighten securely (19 to 29 in.-lbs. torque), (Fig. 38).

(11) Position stator over rectifier end shield and install winding terminals on terminal block press stator pins into end shield and install and tighten winding terminal nuts. Tighten to 11-17 in.-lbs. torque. Route leads so that they cannot contact rotor or sharp edge of negative heat sink, (Fig. 39).

(12) Position rotor and drive end shield assembly over stator and rectifier end shield assembly. Align through bolt holes in stator, rectifier end shield and drive end shield.

(13) Compress stator and both end shields manually and install through bolts and washers. Tighten through bolts evenly to 25-55 inch-pounds.

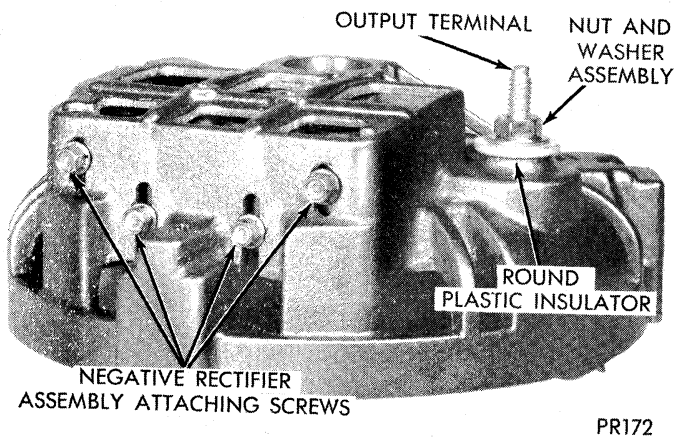


Fig. 36—Installing Battery Output Insulator and Nut

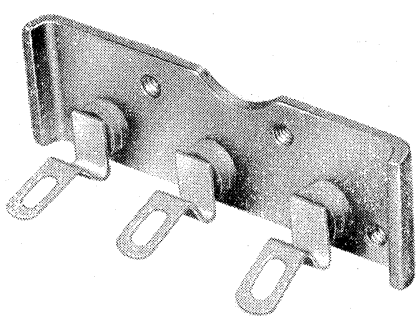


Fig. 37—Negative Rectifier Assembly

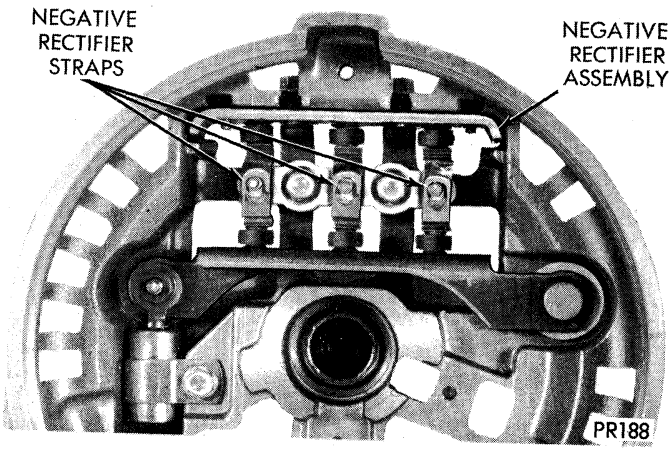


Fig. 38—Installing Negative Rectifier Assembly

(14) Install field brushes in insulated holders. Position vertical and horizontal field brushes in proper location in rectifier end shield, (Fig. 40).

(15) Place insulating washer on each field brush terminal and install lockwashers and attaching screws. **Be sure that the brushes are not grounded.** Tighten attaching screws. Tighten to 15-35 in.-lbs. torque.

(16) Rotate pulley slowly by hand to be sure that rotor fan blades do not hit stator winding leads.

(17) Install alternator and adjust drive belt to specifications.

CAUTION: DO NOT ADJUST DRIVE BELTS WITH ENGINE RUNNING.

(18) Connect alternator output (BAT) and two field (FLD) leads. Connect battery ground cable.

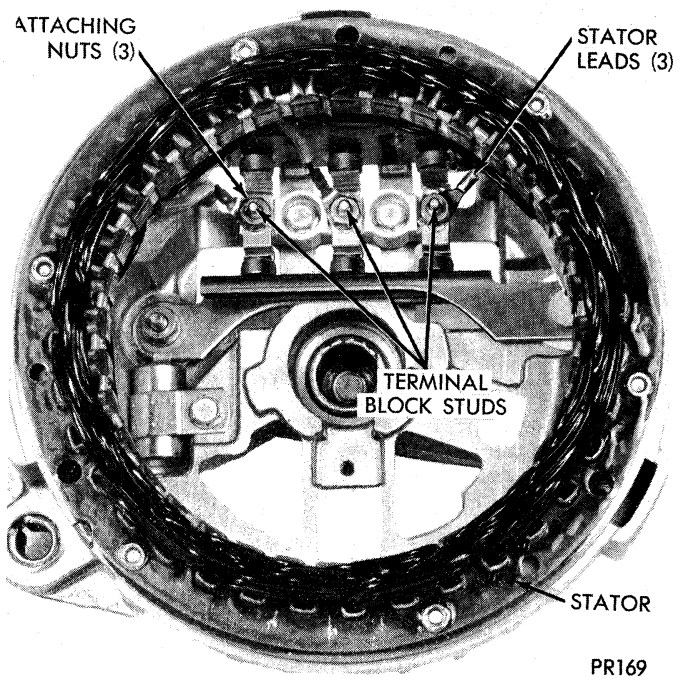


Fig. 39—Installing Stator

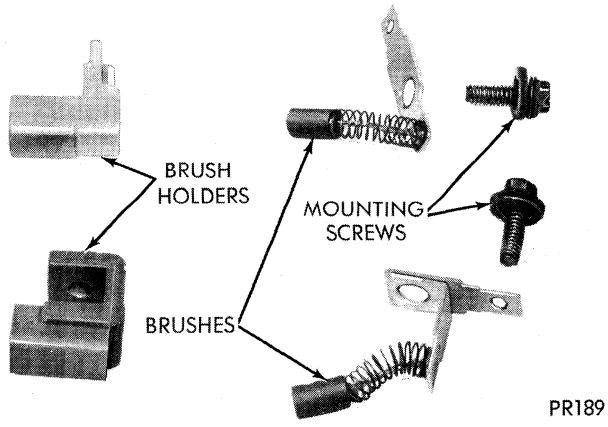


Fig. 40—Field Brushes

(19) Start and operate engine. Observe alternator operation.

(20) Test current output.

ALTERNATOR SERVICE PROCEDURES (100 Amp Alternator)

If alternator performance does not meet current output specifications limits, it will have to be removed and disassembled for further test and servicing.

(1) Disconnect battery ground cable at battery negative terminal.

(2) Disconnect battery "BAT", fields "FLD" and ground "GND" leads from alternator (Fig. 41).

(3) Remove alternator mounting bolts and remove alternator.

BENCH TESTS

Rotor Field Coil Current Draw Test

If alternator field coil draw has not been tested on vehicle it may be tested on test bench as follows:

Preparation

Connect a jumper wire between one field terminal of alternator and positive terminal of a fully charged battery. Connect test ammeter positive lead to other field terminal of alternator and negative lead to the battery negative terminal.

Test

Slowly rotate alternator rotor by hand. Observe ammeter reading.

Results

Field coil draw should be 4.75 amperes to 6.0 amperes at 12 volts. **A low rotor coil draw is an indication of high resistance in field coil circuit. (Brushes, slip rings or rotor coil). A higher rotor coil draw indicates possible shorted rotor coil or grounded rotor.**

No reading indicates an open rotor or defective brushes.

ALTERNATOR DISASSEMBLY AND TESTING

Separating Alternator End Shields

To prevent possible damage to brush assembly it must be removed before separating end shields. Field brushes are mounted in a plastic holder that position brushes against slip rings of rotor.

(1) Remove brush holder screw, insulating washer and lift brush assembly from end shield (Fig. 42).

(2) Remove through bolts and pry between stator and drive end shield with blade of a screwdriver in slot provided (Fig. 43). Carefully separate drive end shield, pulley and rotor assembly away from stator and rectifier end shield assembly.

CAUTION: STATOR IS LAMINATED, DO NOT BURR STATOR OR END SHIELD.

Testing Rectifiers With Tester Tool C-3829

The Rectifier Tester Tool C-3829 provides a quick,

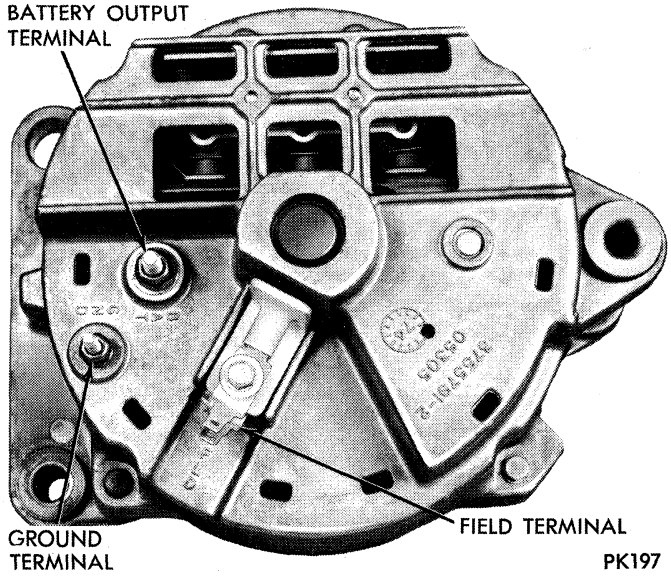


Fig. 41—Alternator Terminals

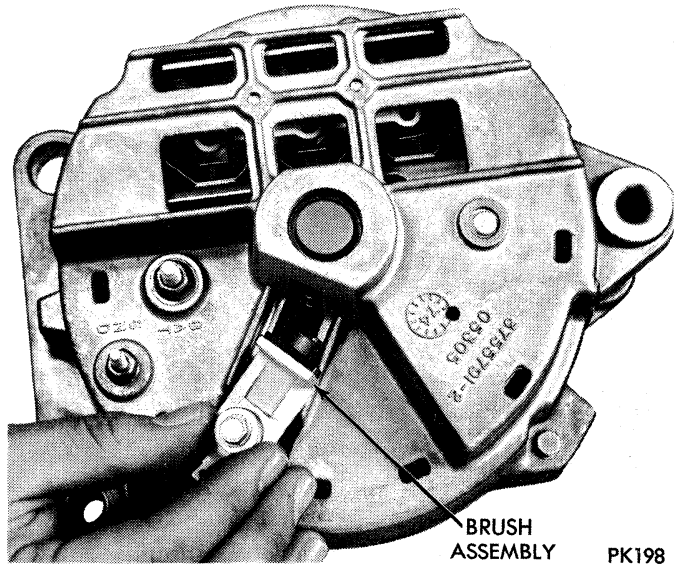


Fig. 42—Removing Brush Assembly

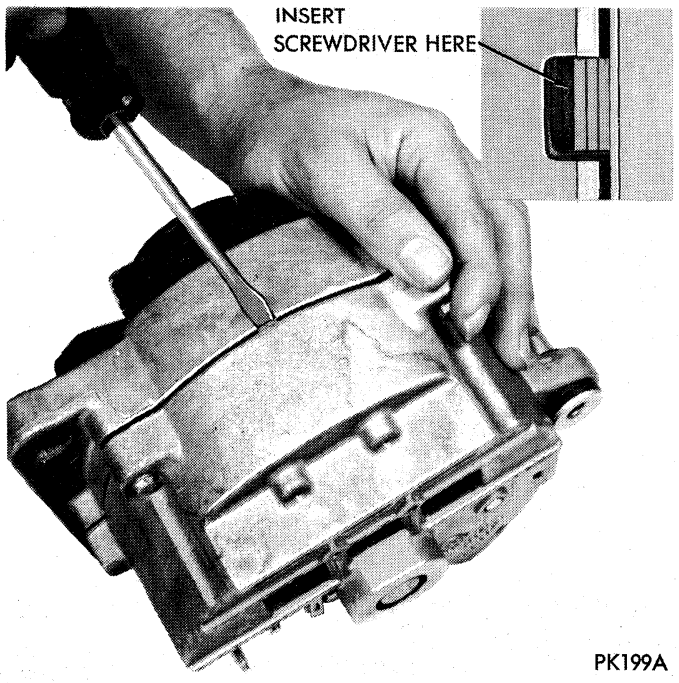


Fig. 43—Separating End Shields

simple and accurate test of the alternator rectifiers without the necessity of disconnecting the stator phase leads. With alternator rectifier end shield separated from drive end housing proceed with rectifier test as follows:

Positive Rectifier Test

CAUTION: DO NOT BREAK PLASTIC CASES OF DIODES. CASES ARE FOR PROTECTION AGAINST CORROSION. ALWAYS TOUCH TEST PROBE TO METAL STRAP NEAREST RECTIFIER.

Preparation

(1) Place rear end shield and stator assembly on an insulated surface. Connect test lead clip to alternator (BAT) output terminal.

(2) Plug in Tool C-3829 power source lead into a 110 volt A.C. power supply.

Test

Touch metal strap of each of positive rectifiers, with test probe and observe reading of meter (Fig. 44).

Results

(1) Reading for satisfactory rectifiers will be 1-3/4 amperes or more. Reading should be approximately same and meter needle must move in the same direction for all three rectifiers.

(2) When two rectifiers are good and one is shorted, reading taken at good rectifier will be low and reading at shorted rectifier will be zero. Disconnect lead to rectifier reading zero and retest. Reading of good rectifiers will now be within satisfactory range.

Negative Rectifier Test

CAUTION: DO NOT BREAK PLASTIC CASES OF DIODES. CASES ARE FOR PROTECTION AGAINST CORROSION. ALWAYS TOUCH TEST PROBE TO METAL STRAP NEAREST RECTIFIER.

Preparation

Connect test lead clip to rectifier end housing.

Test

Touch metal strap of each of negative rectifiers with test probe (Fig. 45).

Results

Test specifications are same and test results will be approximately same as for positive case rectifiers, except meter will read on opposite side of scale.

NOTE: If a negative rectifier shows shorted isolate

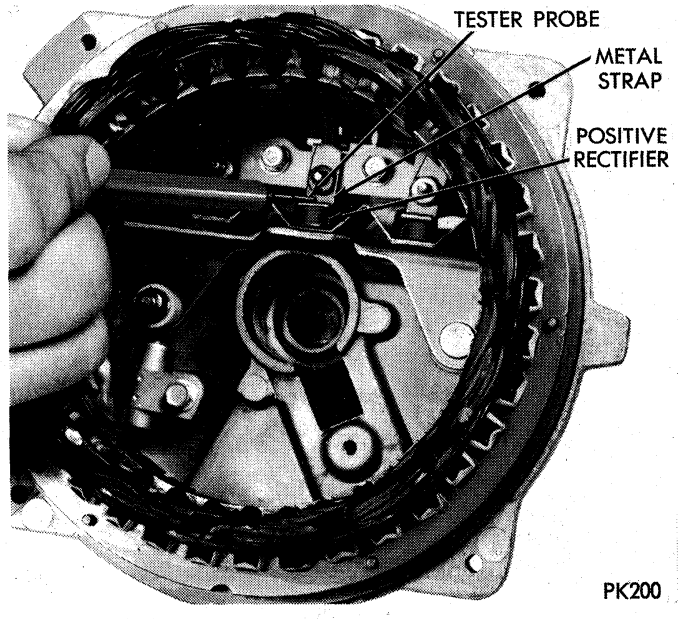


Fig. 44—Testing Positive Rectifiers

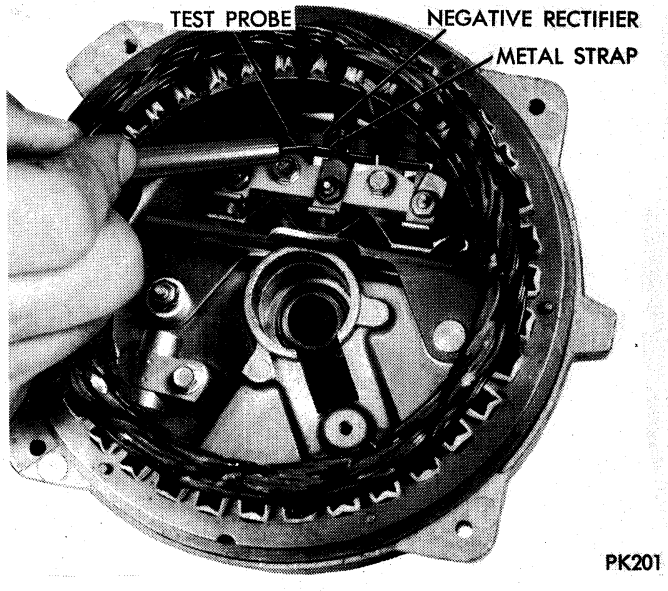


Fig. 45—Testing Negative Rectifiers

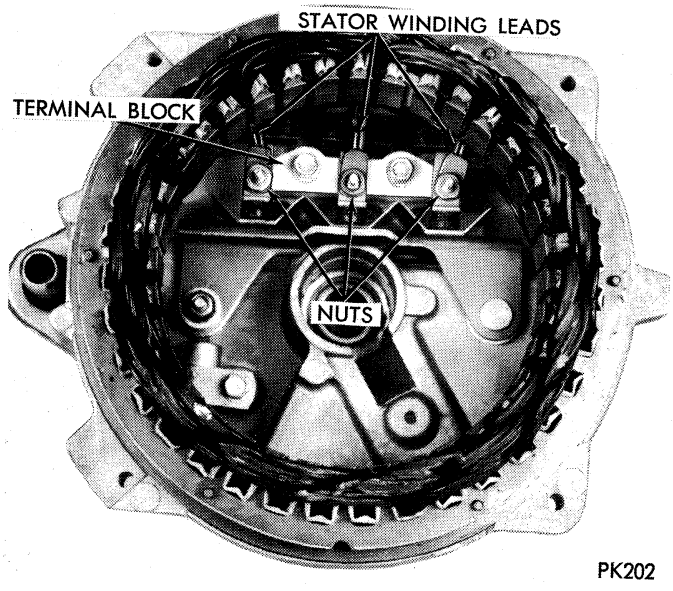


Fig. 46—Removing Stator Winding Leads

the stator from the rectifier end shield and retest. It is possible that a stator winding could be grounded to the stator laminations or rectifier end shield which would indicate a shorted negative rectifier.

When Tool C-3829 is not available

Preparation

(1) Remove nuts from studs securing stator windings lead to terminal block (Fig. 46).

(2) Lift off stator winding terminals and **carefully** pry stator assembly from end shield.

(3) Test rectifiers with a 12 volt battery and a test lamp equipped with a number 67 bulb (4 candle power) by connecting one side of test lamp to positive battery post; other side of test lamp to a test probe with other test probe connected to the negative battery post.

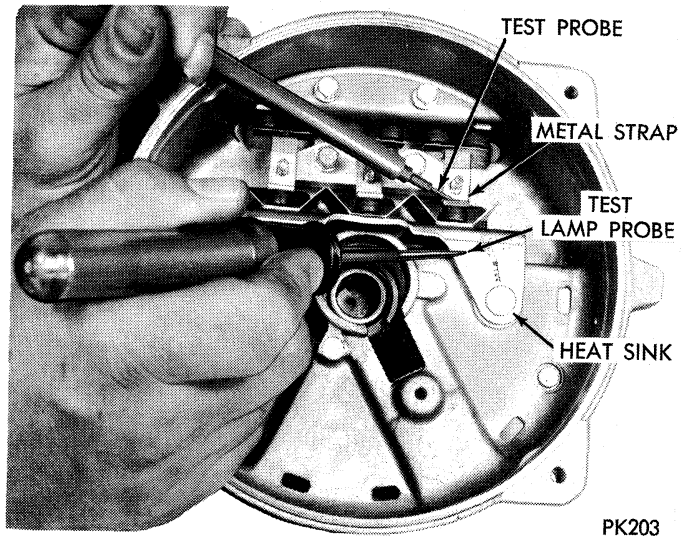


Fig. 47—Testing Rectifiers With Test Lamp

Test

(1) Contact heat sink of rectifier with test lamp probe and other test probe to metal strap on top of rectifier (Fig. 47).

(2) Reverse probes, moving test lamp probe from rectifier heat sink to rectifier metal strap and probe from rectifier strap to rectifier heat sink.

Results

If test lamp "lights" in one direction but does "not light" in other direction, rectifier is satisfactory. If lamp lights in "both directions" **rectifier** is "shorted". If test lamp does "not light" in either direction, rectifier is "open".

Repeat above procedure for all rectifiers in both assemblies, change rectifier and heat sink assemblies which have shorted or open rectifiers. Lamp should light in same direction for all rectifiers on each assembly.

Rectifier and Heat Sink Assembly Removal (Refer to Figure 48)

(1) From inside of rectifier end shield remove nut and insulator attaching positive heat sink assembly to end shield stud.

(2) Remove screw attaching capacitor to end shield.

(3) From outside of rectifier end shield remove nut and insulator attaching positive heat sink assembly stud to end shield.

(4) Remove positive heat sink assembly and note location of all insulators (Fig. 49).

(5) Remove two screws attaching negative heat sink assembly to rectifier end shield.

(6) Remove negative heat sink assembly (Fig. 50).

(7) Remove two screws attaching terminal block to end shield.

(8) Remove terminal block.

(9) Remove capacitor and insulator.

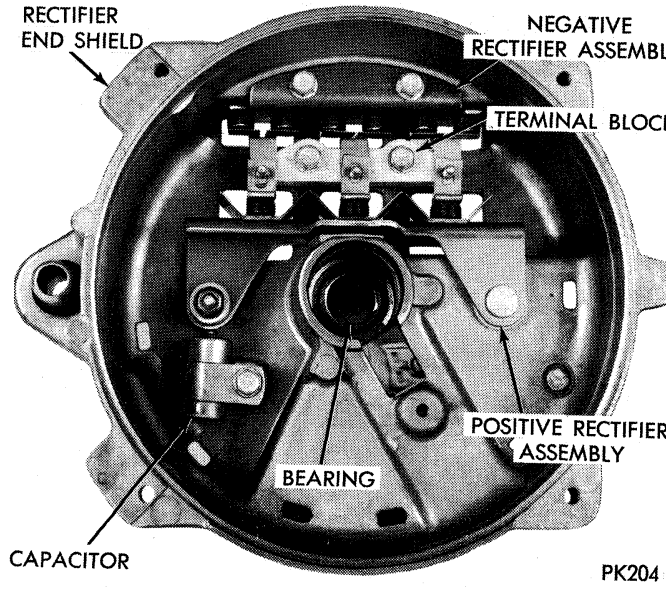


Fig. 48—Rectifier End Shield Assembly

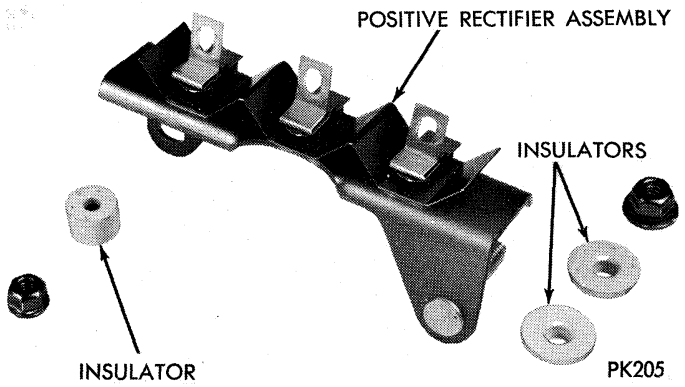


Fig. 49—Positive Rectifier Assembly and Insulators

Stator Test for Ground

(1) Remove varnish from a spot on stator frame.

(2) Press test probe firmly on unvarnished spot outer diameter of stator frame (Fig. 51).

(3) Press test probe firmly to each of three phase (stator) lead terminals, one at a time. If lamp lights, stator lead is "grounded".

(4) Install new stator if stator tested is "grounded".

The stator windings are Delta Wound. Therefore, they cannot be tested for opens or shorts with a test lamp. They can only be tested for these items with test equipment **not common** to automotive service test equipment.

If stator is not grounded, and all other electrical circuits and components of alternator test okay, it can be suspected that stator could possibly be open or shorted and must be replaced.

Pulley and Bearing Removal

(1) The pulley is an interference fit on rotor shaft. Remove pulley with Puller Tool C-4467-1.

(2) Insert tool into hub of pulley and rotate to lock into place (Fig. 52).

(3) While holding base of tool, turn bolt clockwise until pulley is free of shaft (Figure 53).

(4) Remove screws attaching bearing retainer to drive end shield (Fig. 54).

(5) Support end shield and tap rotor shaft with a plastic hammer to separate rotor from end shield.

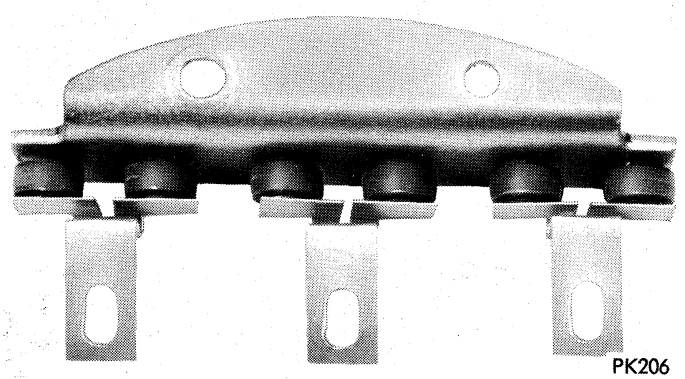


Fig. 50—Negative Rectifier Assembly Removed

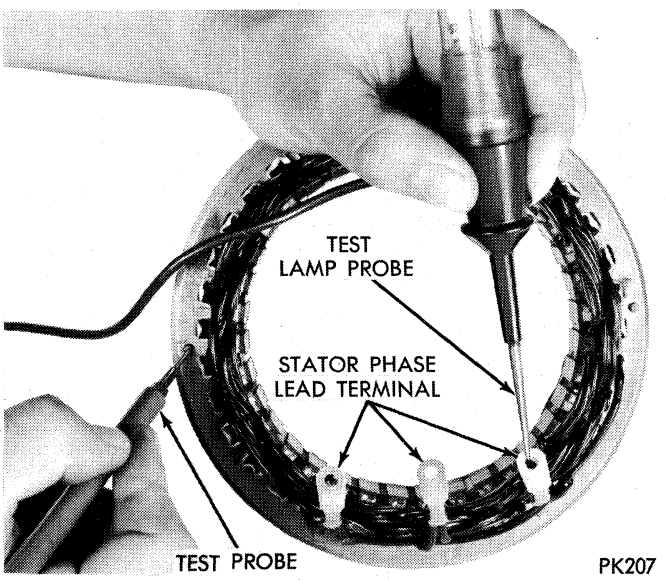


Fig. 51—Stator Test

(6) The drive end shield bearing is an interference fit with the rotor shaft. Remove bearing with Puller Tool C-4333 (Fig. 55). Position spacer block of tool in widest position.

(7) The needle roller bearing in rectifier end shield is a press fit. If necessary to remove bearing, refer to (Fig. 56) for correct positioning of tool C-4330.

Rotor Test

The rotor assembly may be checked electrically for grounded, open or shorted field coils and high resistance.

To check for a "grounded" field coil; connect test lamp between each slip ring to rotor shaft (Fig. 57). Test lamp should not light. If it does rotor is grounded and must be replaced.

To check for an "open" field coil, connect test lamp between slip rings (Fig. 58). Test lamp should light. If it does not rotor is open and must be replaced.

To check for high resistance connect an ohmmeter between slip rings. Reading should be 1.7 ohms to 2.1 ohms at 80°F ± 10°. Rotors that are still warm from operation on vehicle may check slightly higher. If in

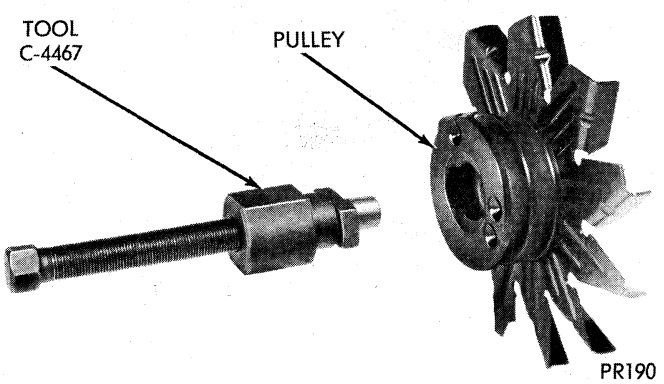


Fig. 52—Pulley Removing Tool

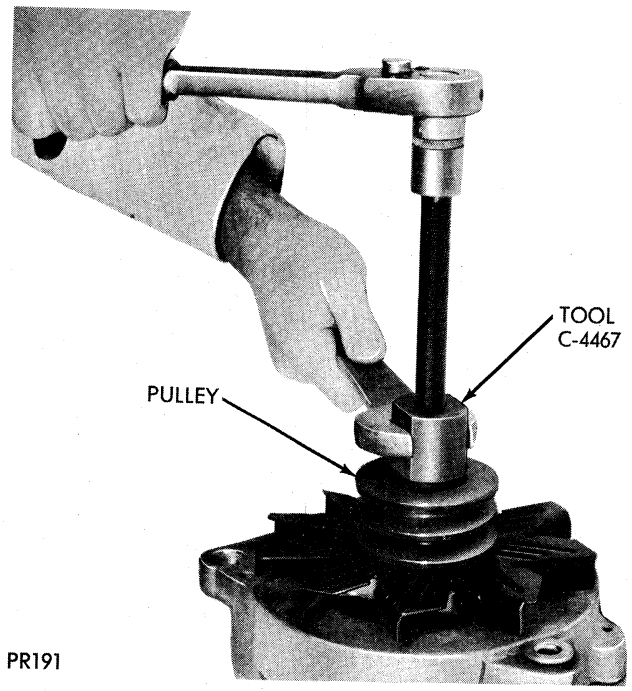


Fig. 53—Removing Pulley

doubt, allow rotor to cool down and repeat test. Replace rotor if resistance is not within specified limits.

To check for a "shorted" rotor connect an ohmmeter between slip rings. If reading is below 1.7 ohms, rotor is shorted.

Replacing Slip Rings

Slip rings are not serviced as a separate item. They are replaced with the rotor assembly.

ASSEMBLING THE ALTERNATOR

(1) Position rectifier end shield bearing on base of Tool C-4330-1. Place alternator end shield on top of bearing so that it is properly aligned. With Tool C-4330-2 placed on end shield, press into place until end shield touches base of press (Fig. 59). **New bearings are prelubricated, additional lubrication is not required.**

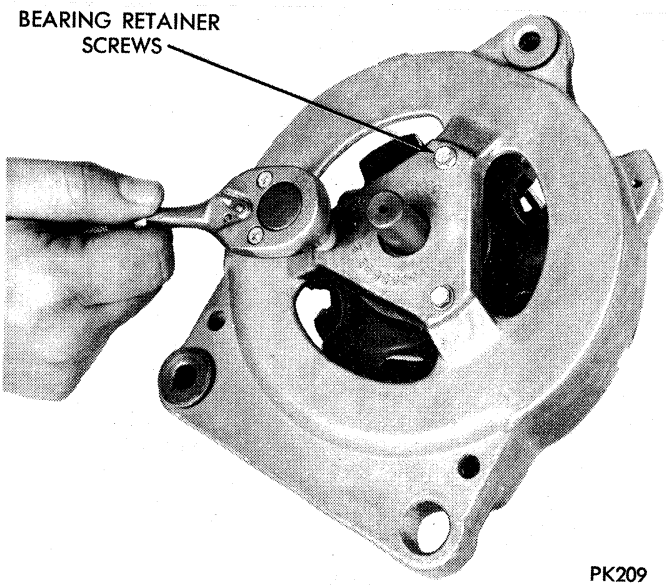


Fig. 54—Removing Bearing Retaining Screws

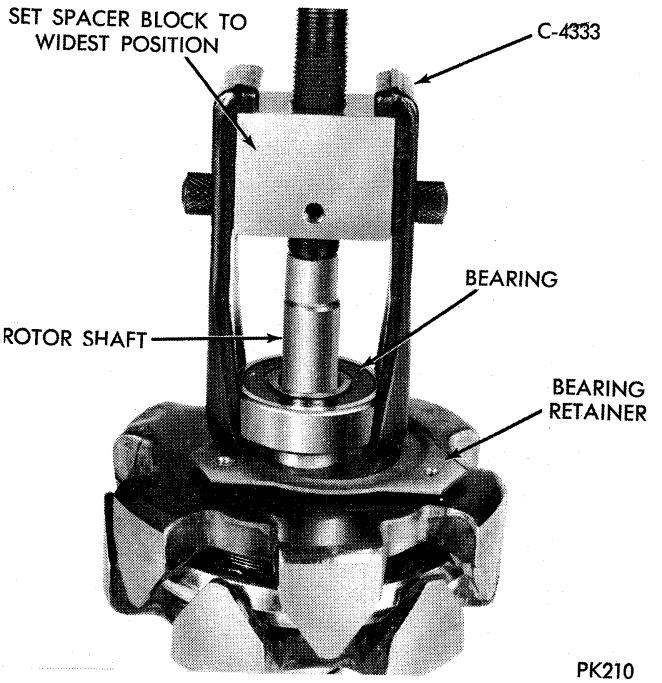


Fig. 55—Removing Drive End Shield Bearing

(2) Insert drive end bearing in drive end shield, position retainer into place, install mounting screws and tighten to 19-29 in.-lbs.

CAUTION: MAKE SURE ROTOR SPACER IS IN POSITION BEFORE PRESSING BEARING ON SHAFT.

(3) Position bearing and drive end shield on rotor

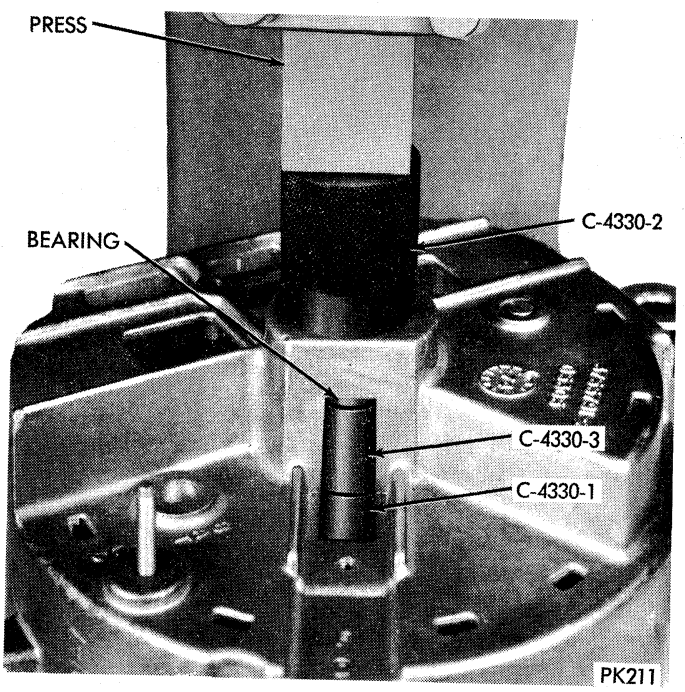


Fig. 56—Removing Rectifier End Shield Bearing

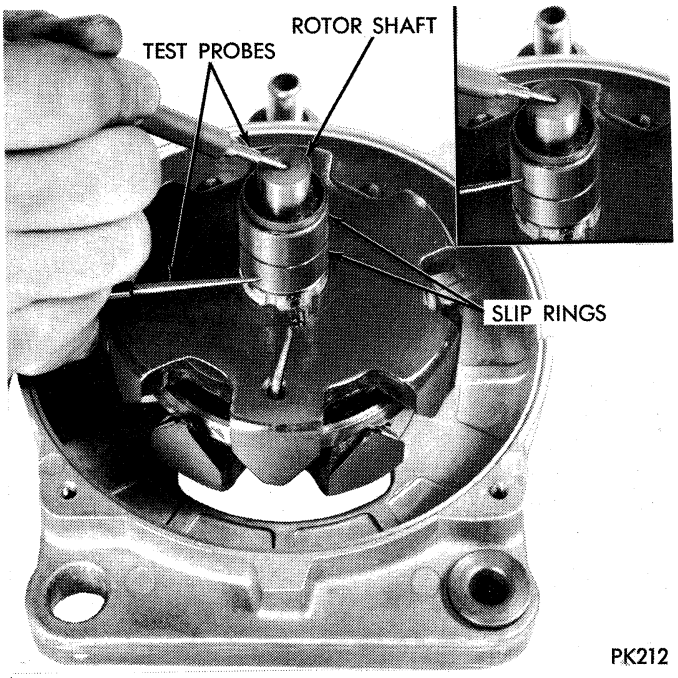


Fig. 57—Testing Rotor For Ground

shaft and while supporting base of rotor shaft press bearing end shield into position on rotor shaft with arbor press and Tool C-3858 (Fig. 60).

CAUTION: MAKE SURE BEARING IS INSTALLED SQUARELY AT INSTALLATION: OTHERWISE, DAMAGE TO BEARING WILL RESULT. PRESS BEARING ON ROTOR SHAFT UNTIL BEARING CONTACTS ROTOR SPACER.

(4) Install pulley on rotor shaft. Shaft of rotor must be supported in a manner so all pressing force is

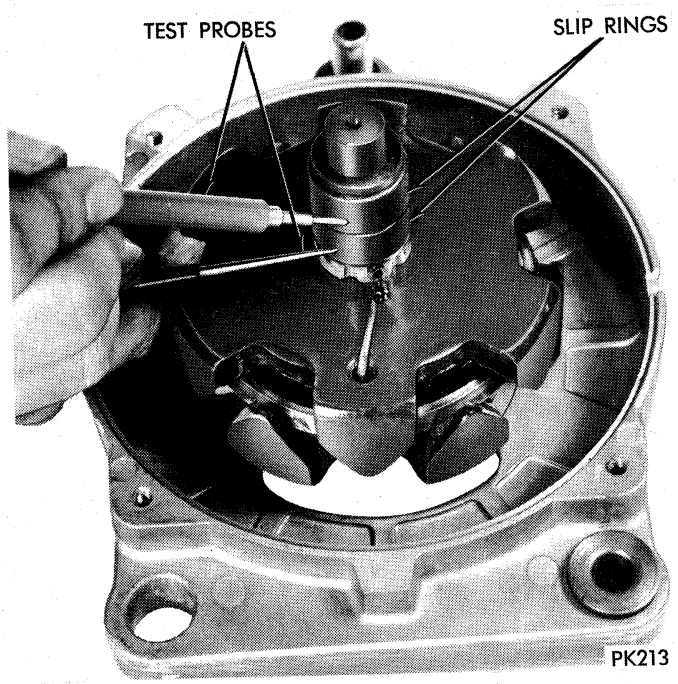


Fig. 58—Testing Rotor For Shorts Or Opens

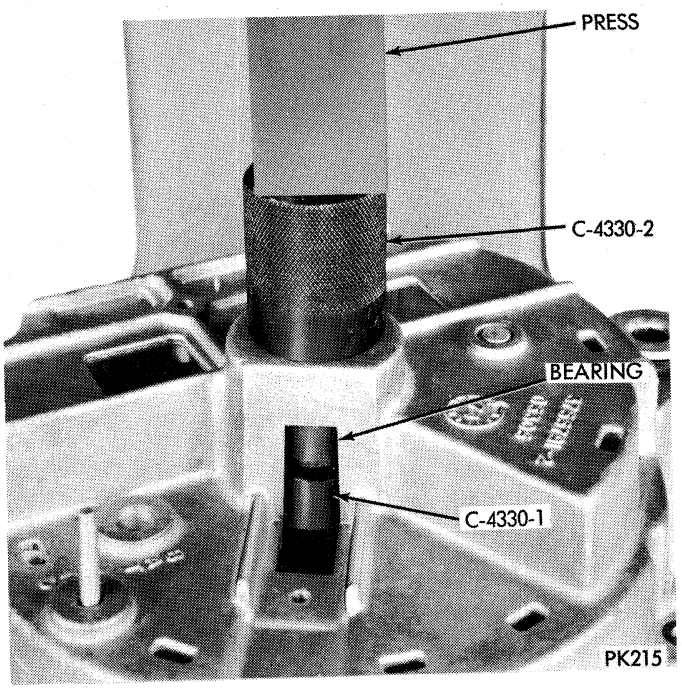


Fig. 59—Installing Rectifier End Shield Bearing

on pulley hub and rotor shaft (Fig. 61). **Press pulley on rotor shaft until pulley contacts inner race of drive end bearing. Do not exceed 6800 pounds pressure. Do not hammer.**

(5) Position insulator and then capacitor on positive heat sink mounting stud, install capacitor mounting screw and tighten to 30-40 in.-lbs. (Fig. 62).

(6) Position terminal block into place in rectifier end shield, install mounting screws and tighten 30-40 in.-lbs. (Fig. 63).

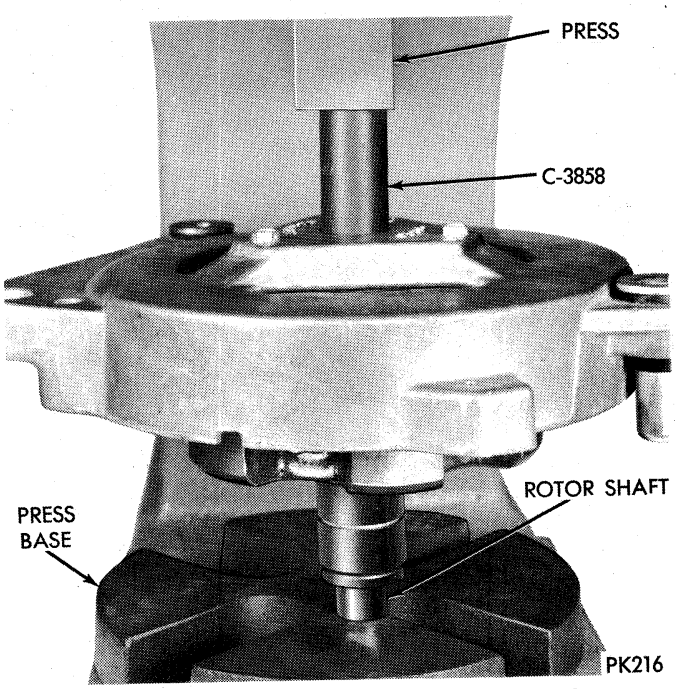


Fig. 60—Installing Drive End Shield Bearing

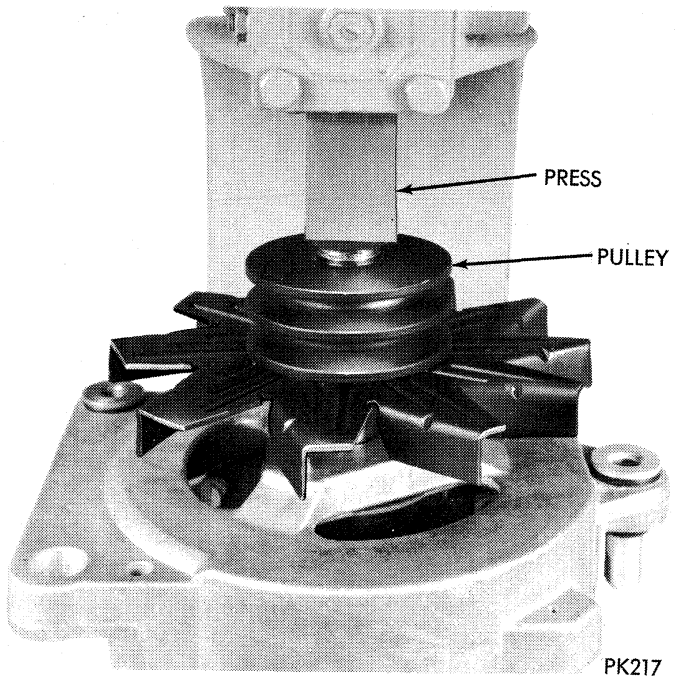


Fig. 61—Installing Drive Pulley

(7) Position negative heat sink assembly into place in end shield making sure metal straps properly position over studs on terminal block (Fig. 64).

(8) Install negative heat sink mounting screws and tighten to 30-40 in.-lbs.

(9) Install insulator on positive heat sink stud, position assembly into place in end shield making sure metal straps properly position over studs on terminal block (Fig. 65).

(10) From inside of end shield install insulator on positive heat sink attaching stud and then install mounting nut and tighten to 20-30 in.-lbs.

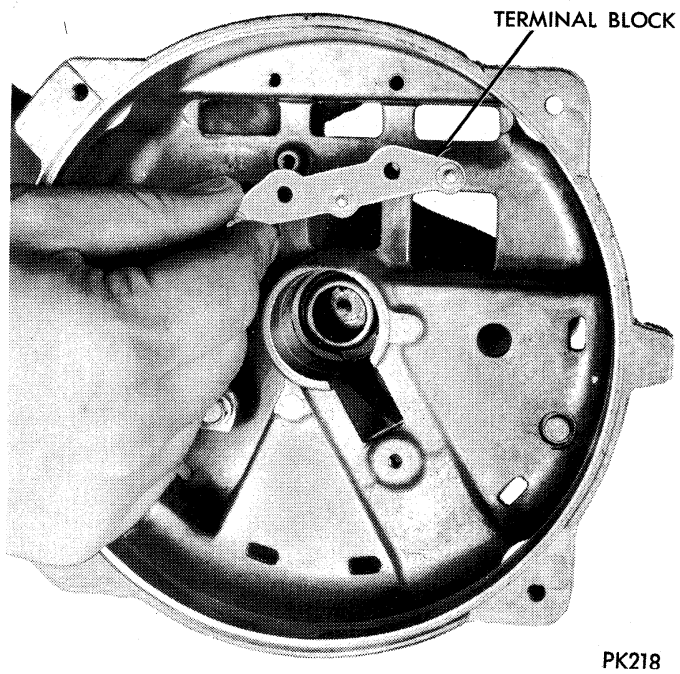


Fig. 63—Installing Terminal Block

(11) From outside of end shield install insulator on positive heat sink stud and then install mounting nut and tighten to 30-50 in.-lbs.

(12) Position stator over rectifier end shield and install terminals on terminal block, install and tighten terminal nuts to 11-17 in.-lbs. Route leads so that they cannot contact rotor or sharp edge of negative heat sink.

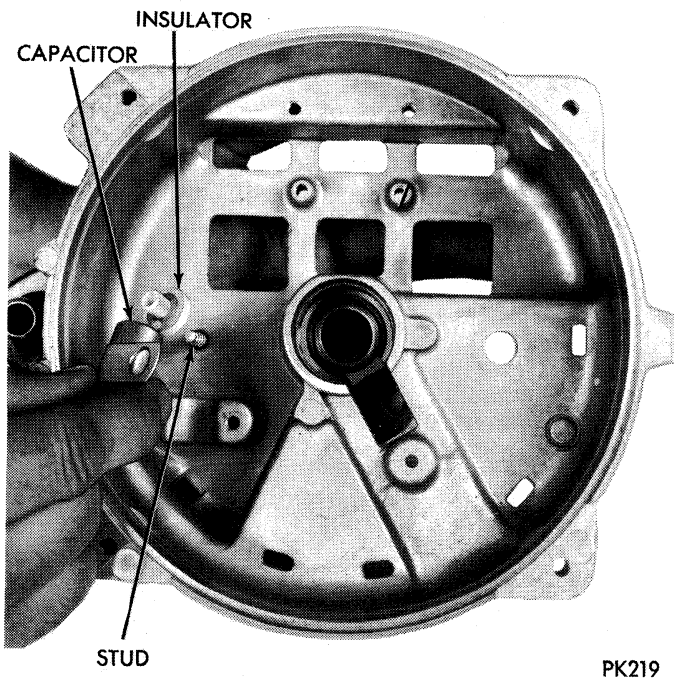


Fig. 62—Installing Capacitor

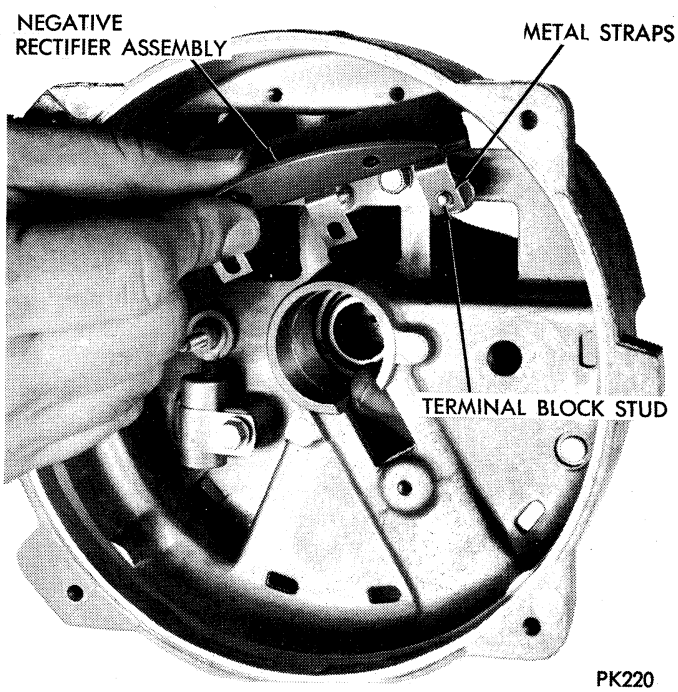


Fig. 64—Installing Negative Rectifier Assembly

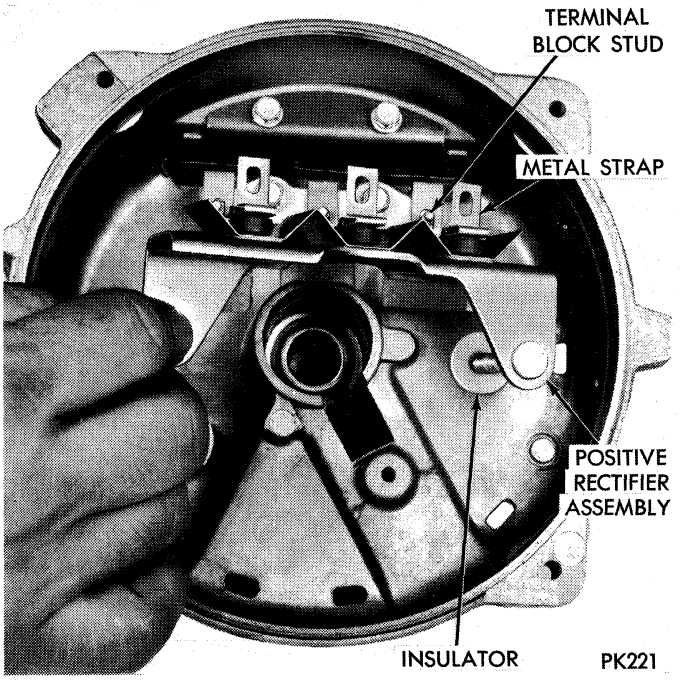


Fig. 65—Installing Positive Rectifier Assembly

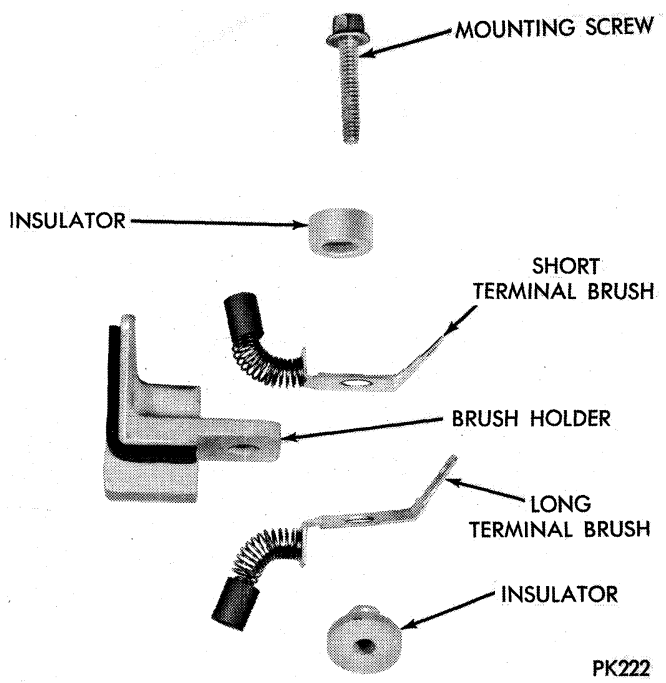


Fig. 66—Assembling Field Brushes

(13) Position rotor and drive end shield assembly over stator and rectifier end shield assembly. Align through bolt holes in rectifier end shield and drive end shield.

(14) Compress stator and both end shields manually and install through bolts. Tighten through bolts evenly to 40-60 inch-pounds torque.

(15) Install field brushes into brush holder, long terminal on bottom, short terminal on top and then install insulators and mounting screw (Fig. 66).

(16) Position brush holder assembly to end shield making sure it is properly seated and tighten mounting screw to 30-40 in.-lbs.

(17) Rotate pulley slowly by hand to be sure that rotor poles do not hit stator winding leads.

(18) Install alternator and adjust drive belt to specifications.

CAUTION: DO NOT ADJUST DRIVE BELT WITH ENGINE RUNNING.

(19) Connect alternator output (BAT), two field (FLD), and ground (GND) leads. Connect battery ground cable.

(20) Start and operate engine. Observe alternator operation.

(21) Test current output.

ELECTRONIC IGNITION SYSTEM

INDEX

GENERAL INFORMATION

The Electronic Ignition System (Fig. 1) consists of the Battery, Ignition Switch, Dual Ballast Resistor (Fig. 2), Control Unit (Fig. 3), Coil, Distributor (Fig. 4), Spark Plugs and all their Wiring, Insulators and Connectors.

The primary circuit consists of the battery, ignition

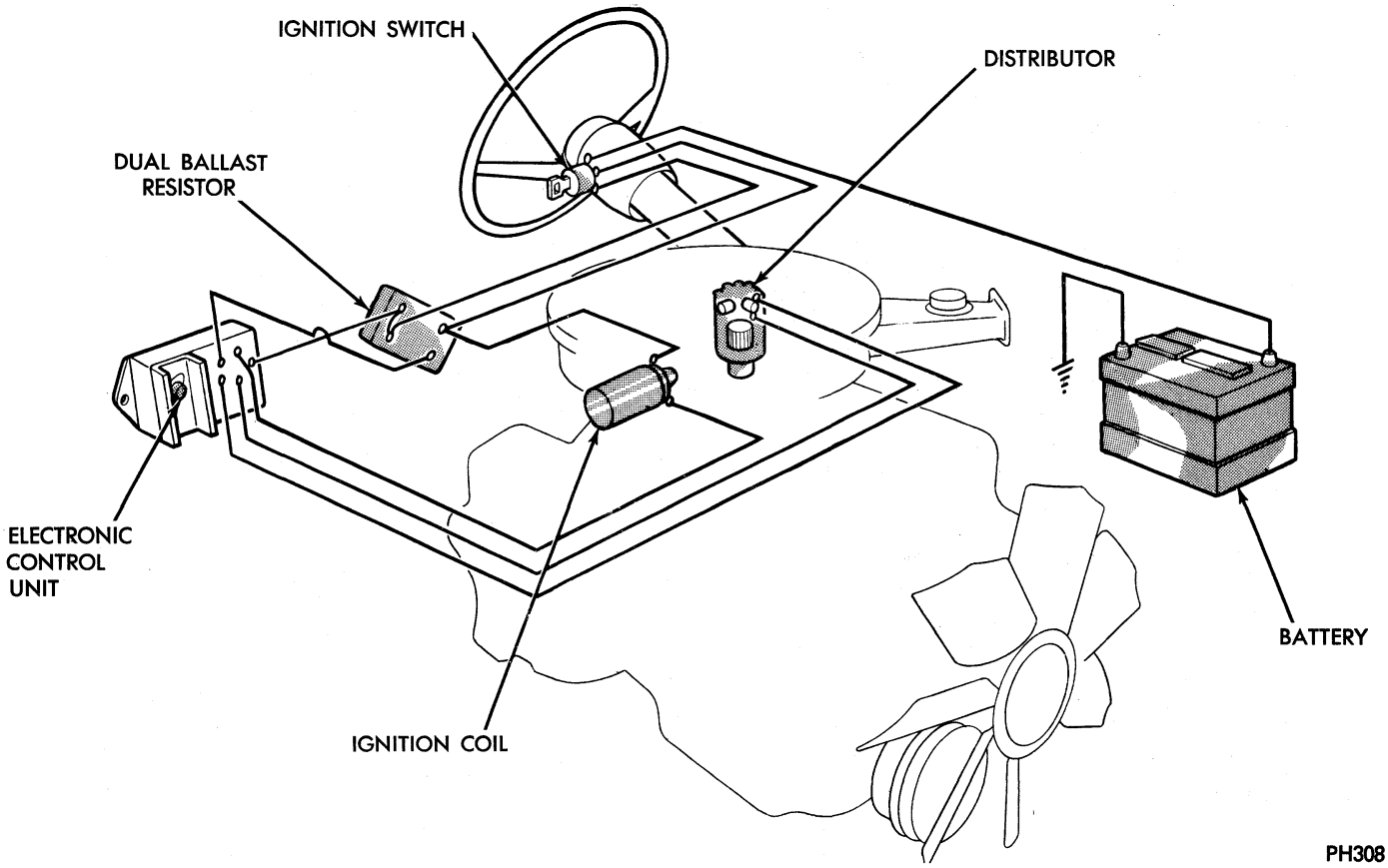


Fig. 1—Electronic Ignition System

switch, compensating (0.5 ohm) side of the ballast resistor, primary windings of the ignition coil, power switching transistor of the control unit, and the vehicle frame.

The secondary circuit consists of the coil secondary windings, distributor cap and rotor, spark plug wires, spark plugs, and vehicle frame.

The compensating resistance maintains constant primary current with variation in engine speed. During starting this resistance is by-passed, applying full battery voltage to the ignition coil.

In addition to the two basic circuits there are three other circuits. They are the pick up coil circuit, control unit feed circuit, and auxiliary ballast circuit.

Two circuits are used to operate the circuitry of the control unit. These are the auxiliary ballast circuit which uses the 5 ohm section of the dual ballast resistor and the control unit feed circuit.

The pick up circuit is used to sense the proper timing for the control unit switching transistor.

The reluctor rotating with the distributor shaft produces a voltage pulse in the magnetic pickup each time a spark plug should be fired. This pulse is trans-

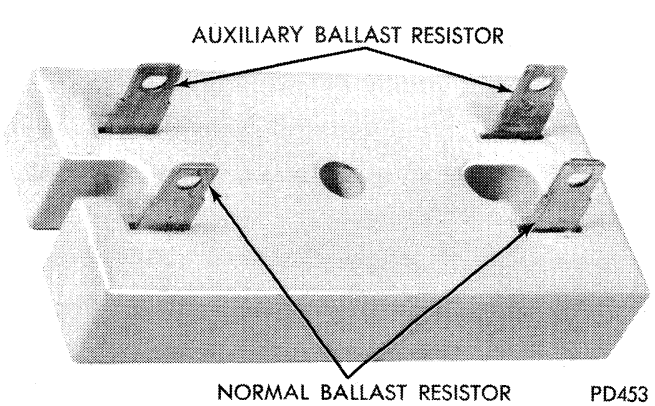


Fig. 2—Dual Ballast Resistor

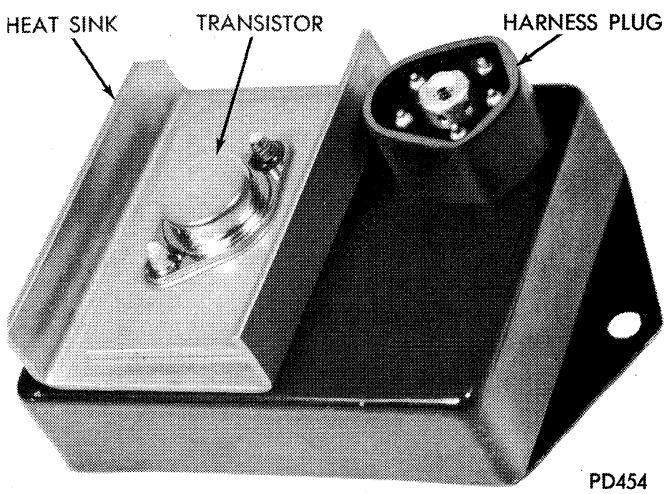
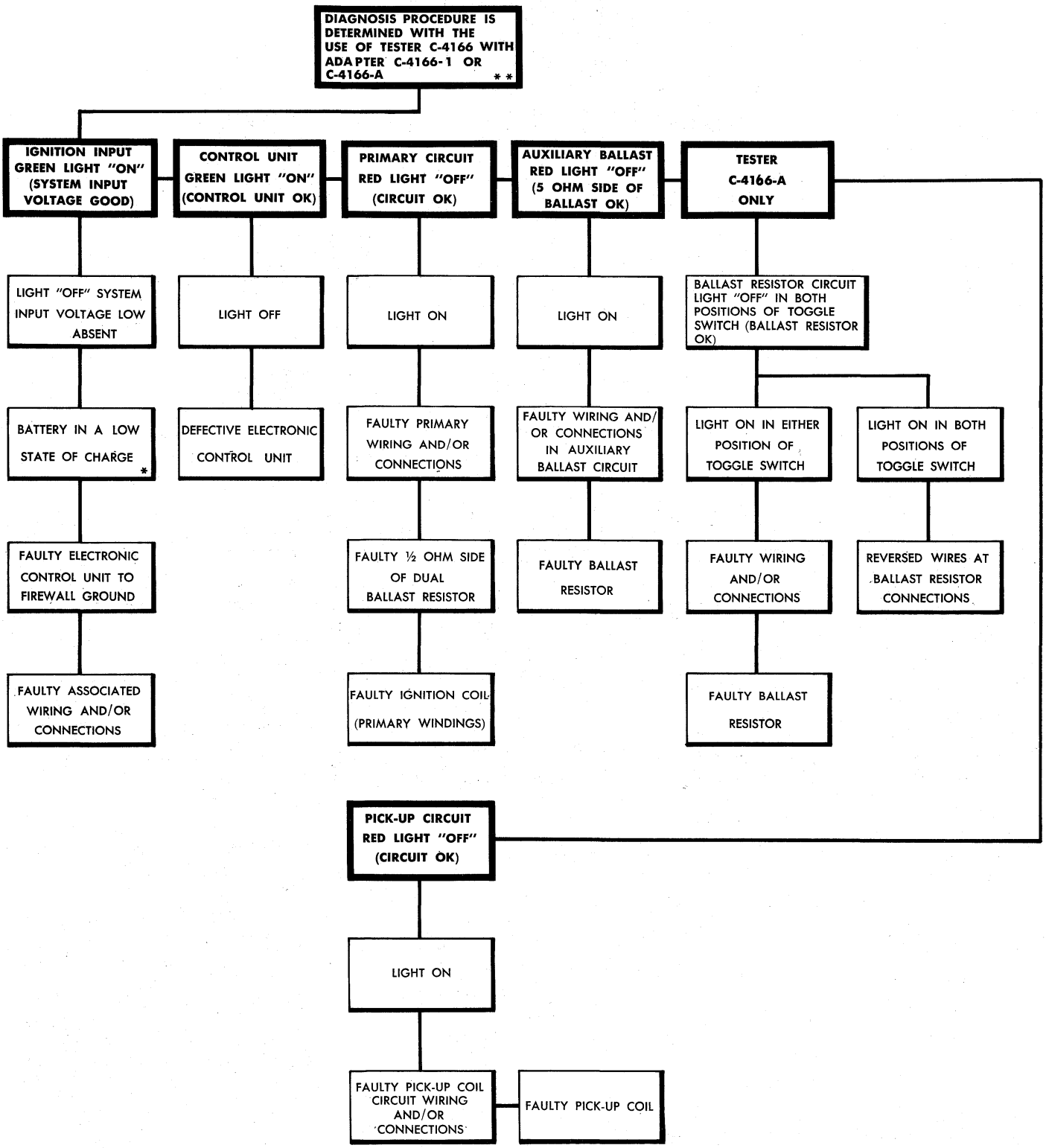


Fig. 3—Electronic Control Unit

ELECTRONIC IGNITION SYSTEM PRIMARY CIRCUIT DIAGNOSIS



*ALL TESTS AND REPAIRS ARE DESCRIBED IN APPROPRIATE SECTION OF SERVICE MANUAL
** REFER TO "TESTING IGNITION SYSTEM" FOR INSTALLING TESTERS

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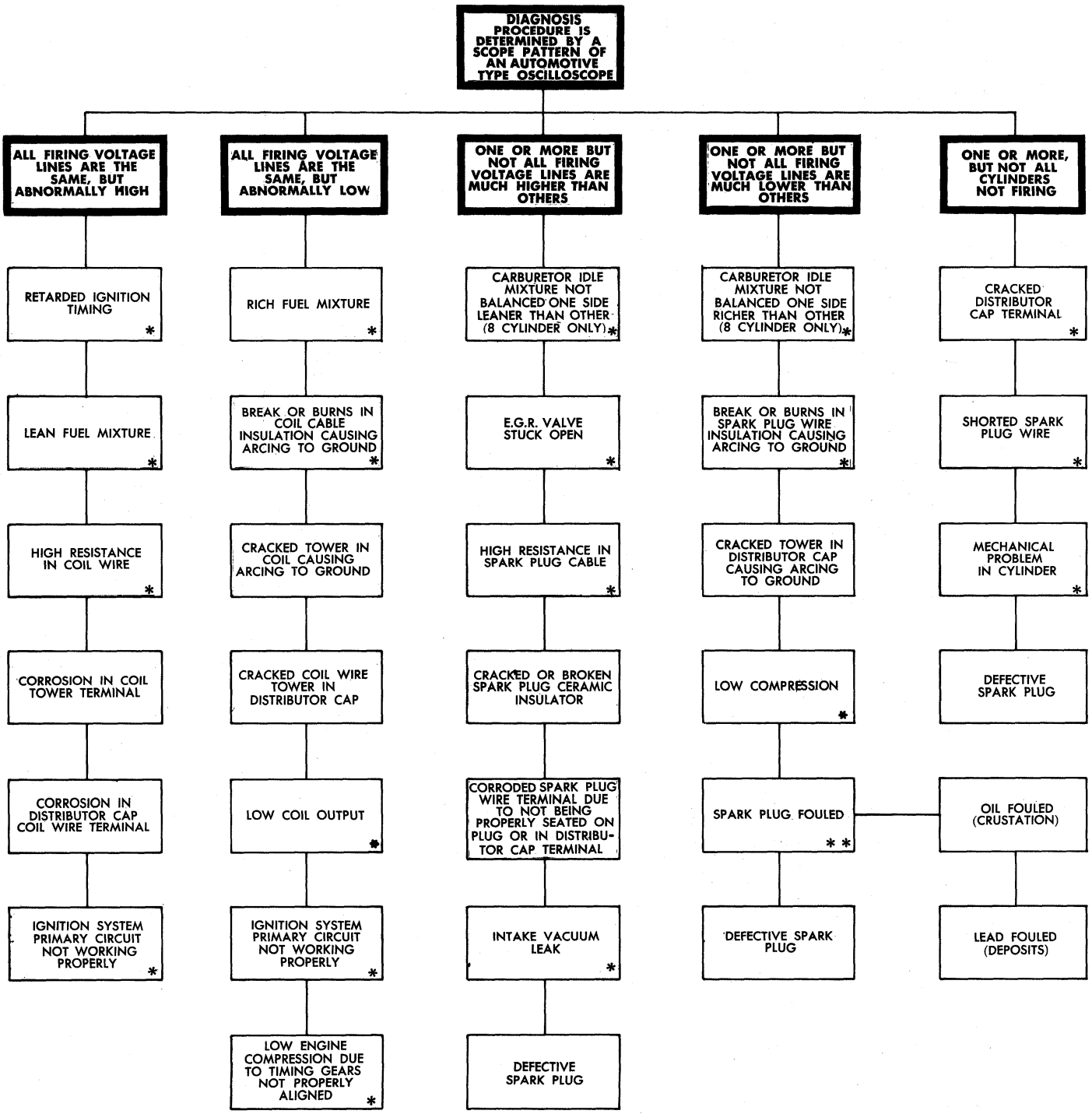
ELECTRONIC IGNITION SYSTEM SECONDARY CIRCUIT DIAGNOSIS



* ALL TESTS AND REPAIRS ARE DESCRIBED IN APPROPRIATE SECTION OF SERVICE MANUAL.

* * SPARK PLUGS (DO NOT FOUL BY THEMSELVES.) CHECK FOR WHAT CAUSED PLUG TO FOUL. INSTALLING NEW SPARK PLUGS WILL NOT CORRECT FOULING CONDITION.

PK398A

mitted through the pickup coil to the power switching transistor in the control unit and causes the transistor to interrupt the current flow through the primary circuit. This break in the primary circuit induces a high voltage in the secondary coil circuit and fires a spark plug.

The length of time that the switching transistor allows the flow of current in the primary circuit is determined by the electronic circuitry in the control unit. **THIS DETERMINES "DWELL". DWELL IS NOT ADJUSTABLE. THERE IS NO MEANS PROVIDED TO CHANGE IT BECAUSE CHANGES ARE NOT NECESSARY.**

THE READING OBTAINED WITH A DWELL METER HAS NO SIGNIFICANCE IN DIAGNOSING OR SERVICING THE IGNITION SYSTEM. SINCE DWELL AFFECTS IGNITION TIMING, PERIODIC CHECKS OF TIMING BECOME UNNECESSARY AFTER BASIC IGNITION TIMING IS SET.

Ignition maintenance is reduced to inspection of the distributor cap, rotor, wiring, and the cleaning and changing of spark plugs as needed.

ELECTRONIC IGNITION TESTS (With Tester Tools)

The ignition system can be tested with either of the following tester tools:

C-4166 with C-4166-1 (Fig. 5)

When using tester C-4166 the adapter C-4166-1 **must be used.**

C-4166-A (Fig. 6)

Tester C-4166-A has the adapter circuit built into it. **Do not connect adapter C-4166-1 to it.** Also this tester has one additional red light and toggle switch for testing the dual ballast resistor when performing on the vehicle system test. It can not be used for off the vehicle, component test.

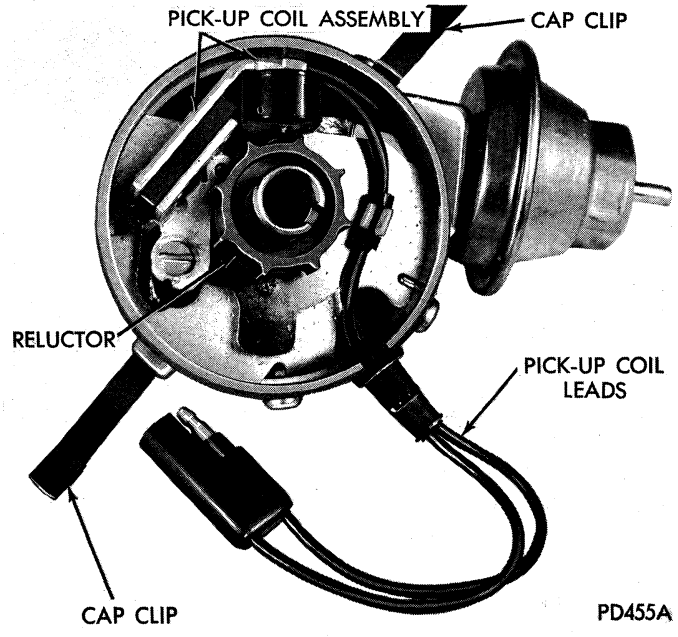


Fig. 4—Electronic Distributor

On the Vehicle System Test

Test Preparation

Caution: The vehicle must have a fully charged 12 volt battery (minimum specific gravity 1.220 temperature corrected), for the tester to accurately analyze the ignition system. **Do not proceed with test unless battery meets specifications.**

(1) With the ignition switch in "OFF" position, remove screw attaching wiring harness connector to control unit.

(2) Connect female lead of tester wiring harness to control unit and male lead of tester to disconnected lead from control unit. This puts tester into vehicle ignition system.

CAUTION: DO NOT CONNECT THE BATTERY CLIPS OF TESTER TO VEHICLE OR ANY OTHER BATTERY. DO NOT CONNECT DISTRIBUTOR CONNECTOR OF TESTER TO DISTRIBUTOR LEAD ON VEHICLE. THE BATTERY CLIPS AND DISTRIBUTOR CONNECTOR OF TESTER ARE USED ONLY WHEN TESTING COMPONENTS OFF THE VEHICLE.

(3) Turn ignition switch to "ON" position.

Warning: Do not touch transistor on control unit while ignition switch is on for electrical shock will be obtained.

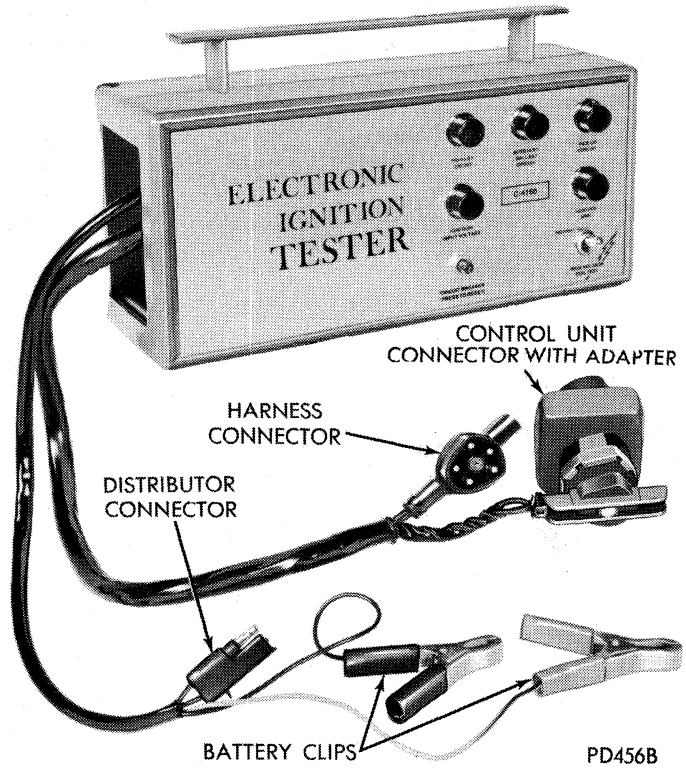


Fig. 5—Tester C-4166 With Adapter C-4166-1

Ignition Input Voltage Light

The green ignition input voltage light **must come on before any further tests can be made.** If the light does not come on the ignition system input voltage is low or absent. Check vehicle battery, ignition switch, the control unit for a good ground, and the associated wiring and connections until the fault is found, corrected, and the green light comes on.

Control Unit Light

The control unit green light must come on to indicate the control unit is functioning properly and that it is properly grounded. If the light does not come on, first check the connector pins on control unit for corrosion, or foreign matter. Then check control unit for a poor ground. If none of these conditions exists and the light still remains off, the control unit is malfunctioning and must be replaced.

High Voltage Coil Test

The high voltage coil test must be performed to completely test the ignition system. Proceed only if the ignition input and control unit green lights are both on, and all the red lights are off.

Disconnect ignition coil secondary wire from distributor cap tower. Hold the end of the wire with insulated pliers about 1/4 inch from engine and then actuate the High Voltage Coil Test switch. A good spark should be observed between the wire and the engine. While still holding the coil test switch pull wire away from engine till the spark stops. Closely observe the coil tower during the movement to be sure that no arcing occurs.

Primary Circuit Light

The primary circuit red light must be off to indicate that the primary circuit is functioning properly. If the light is on check coil primary windings for continuity or shorts, suppression capacitor for shorts, dual ballast resistor compensating side (1/2 ohm), wiring, and for open or incorrect connections, until fault is found, corrected, and light goes out.

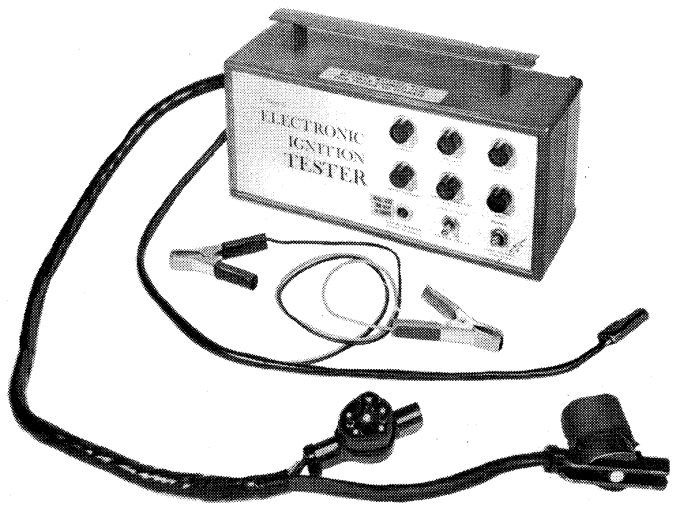


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Fig. 6—Tester C-4166-A

Auxiliary Ballast Circuit Light

The auxiliary ballast circuit red light must be off to indicate that the auxiliary ballast circuit is functioning properly. If the light is on first check the wiring, and connections for continuity, corrosion, or shorts. If none of these conditions exists and the light is still on, the dual ballast resistor (auxiliary side) is malfunctioning and must be replaced.

Pick Up Circuit Light

CAUTION: THE PICK UP COIL CAN BE CHECKED, WITH THE TESTER AT ROOM TEMPERATURE ONLY, 70°-80°F.

IF PICK UP COIL MUST BE TESTED WHEN ENGINE IS AT OPERATING TEMPERATURE, REFER TO "ELECTRONIC IGNITION TEST WITHOUT TESTER", STEP 3A, FOR CORRECT TESTING PROCEDURE.

The pick up circuit red light must be off to indicate that the pick up circuit is functioning properly. If the light is on first check the wiring and connections for continuity, corrosion, or shorts. If none of the conditions exists and the light is still on, the pick up coil is malfunctioning and must be replaced.

Ballast Resistor Circuit Light (Tester C-4166-A Only)

The ballast resistor circuit red light must be off when the toggle switch is moved to either the 5 ohm or 1/2 ohm position to indicate that the ballast resistor circuit is functioning properly. If the light comes on in either position, first check wiring and connections for continuity, corrosion or shorts. If none of these conditions exists and the light is still on the dual ballast resistor is malfunctioning and must be replaced. **Note:** If lights come on in both positions, first check for reversed wires at ballast resistor terminals, (1/2 ohm connected to 5 ohm or 5 ohm connected to 1/2 ohm) before replacing ballast resistor.

Circuit Breaker Switch

The circuit breaker will protect the tester against damage due to testing a shorted control unit and if the tester is left connected for a period of time in excess of what it takes to test the system. Wait 60 seconds before attempting to reset a popped circuit breaker. Also do not replace control unit unless green control unit light was off **BEFORE** circuit breaker popped.

Component Tests Off the Vehicle

Connect battery clips of tester to a fully charged battery. The green ignition input voltage light will

come on if the battery is supplying sufficient voltage for testing. If the light does not come on **DO NOT PROCEED WITH TEST** until battery is charged enough to turn on the light.

Control Unit (Fig. 7)

The control unit should be tested as a component **OFF THE VEHICLE.** However, in the event it is tested as a component on the vehicle, **MAKE SURE THE CORRECT POLARITY IS FOLLOWED WHEN CONNECTING THE BATTERY LEADS OF TESTER TO BATTERY, BLACK TO NEGATIVE, RED TO POSITIVE. REVERSING THE POLARITY WILL DAMAGE THE TESTER AND CONTROL UNIT.**

Only the ignition input voltage and the control unit lights apply on this test. **Disregard any red lights that may light.**

Connect the wiring harness connector of tester to the control unit. Control unit does not need to be grounded for this test. The control unit green light must come on to indicate a good control unit. If light does not come on check all connector pins for corrosion and security. Check all plug holes to be sure they are clean. If light still does not come on the control unit is defective.

Pick-Up Coil (Fig. 8)

The pick-up coil may be tested while assembled in distributor or as a separate unit. Disregard all other lights on the tester except the ignition input circuit light and the pick-up circuit light.

(1) Connect clips to battery and connect the pick-up lead to the proper tester lead. Red pick-up light will be "off" if pick-up is good. Check pick-up lead by flexing it to be sure that there are no intermittant faults in the lead. If pick-up light blinks during flexing the pick-up coil assembly is malfunctioning and must be replaced.

(2) If pick-up light comes "on" replace the pick-up coil assembly.

ELECTRONIC IGNITION TEST (WITHOUT TESTER)

NOTE: DO NOT SUBSTITUTE THIS TEST IF TESTERS ARE AVAILABLE.

To properly test the Electronic Ignition System (Fig. 9), the testers C-4166 with adaptor, C-4166-1 or C-4166-A should be used. But in the event they are not available, the system, (Fig. 11) may be tested using a voltmeter with a 20,000 ohm/volt rating and an ohmmeter which uses a 1-1/2 volt battery for its operation. Both meters should be in calibration. When Ignition System problems are suspected, the following procedure should be followed:

(1) Visually inspect all secondary cables at the coil, distributor and spark plugs for cracks and tightness.

(2) To check wiring harness and connections.

(a) Check primary wire at the ignition coil and ballast resistor for tightness. If the above checks do not determine the problem, the following steps will determine if a **component** is faulty.

(b) Check and note battery voltage reading using voltmeter. Battery voltage should be at least 12 volts.

(c) Remove the multi-wiring connector from the control unit.

CAUTION: Whenever removing or installing the wiring harness connector to the control unit, the ignition switch must be in the "Off" position.

(d) Turn the ignition switch "On".

(e) Connect the negative lead of a voltmeter to a good ground.

(f) Connect the positive lead of the voltmeter to the wiring harness connector cavity #1. Available voltage at cavity # 1 (Fig. 10) should be within 1 volt of battery voltage with all accessories off. If there is more than a 1 volt difference, Figure 9 shows the circuit that must be checked.

(g) Connect the positive lead of the voltmeter to the wiring harness connector cavity #2. Available voltage at cavity #2 (Fig. 11) should be within 1 volt of battery voltage with all accessories off. If there is

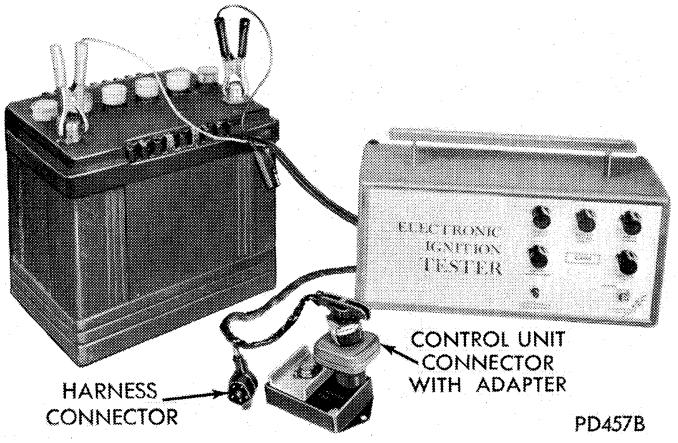

Fig. 7—Testing Control Unit Off Vehicle

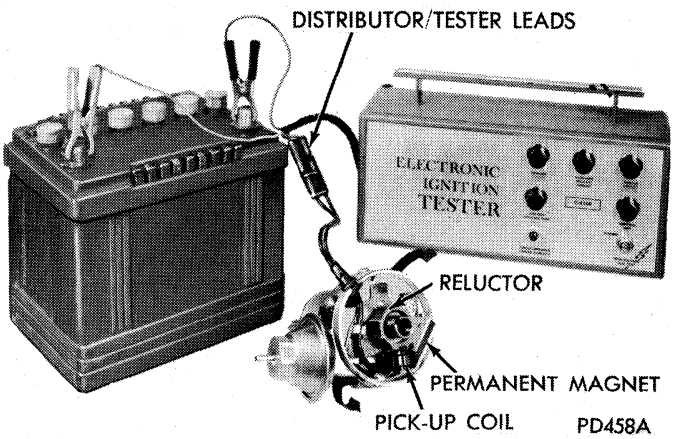

Fig. 8—Testing Pick Up Coil Off Vehicle

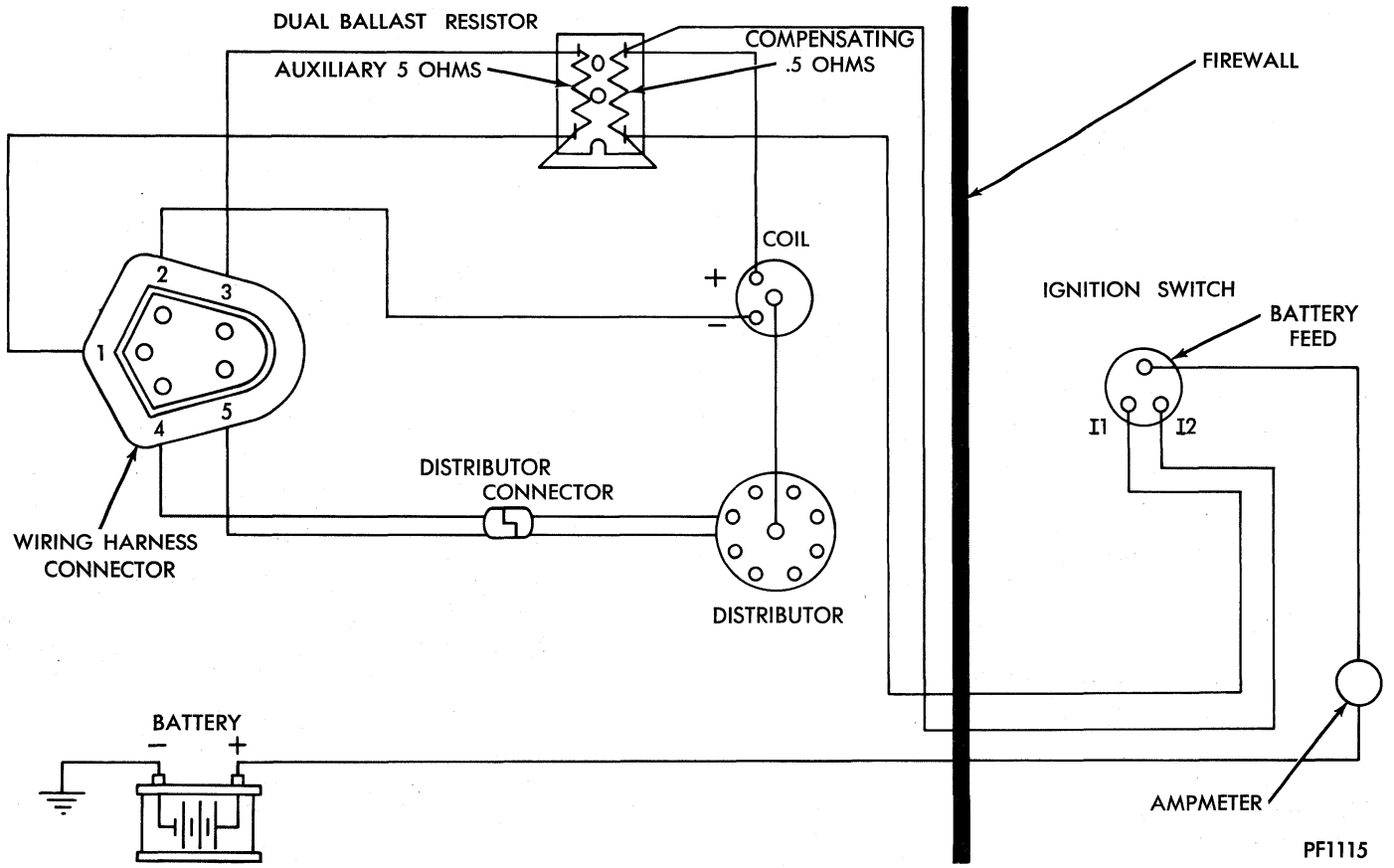

Fig. 9—Electronic Ignition System

more than a 1 volt difference, Figure 11 shows the circuit that must be checked.

(h) Connect the positive lead of the voltmeter to the wiring harness connector cavity #3. Available voltage at cavity #3 (Fig. 12) should be within 1 volt of battery voltage with all accessories off. If there is more than a 1 volt difference, (Fig. 12) shows the circuit that must be checked.

(i) Turn ignition switch "Off".

(3) To check distributor pickup coil

(a) Connect an ohmmeter to wiring harness connector cavity #4 and #5 (Fig. 13). The ohmmeter resistance should be between 150 and 900 ohms.

If the readings are higher or lower than specified, disconnect the dual lead connector coming from the distributor (Fig. 14). Using the ohmmeter, check the resistance at the dual lead connector. If the reading is not between the prementioned resistance values, replace the pickup coil assembly in the distributor.

(b) Connect one ohmmeter lead to a good

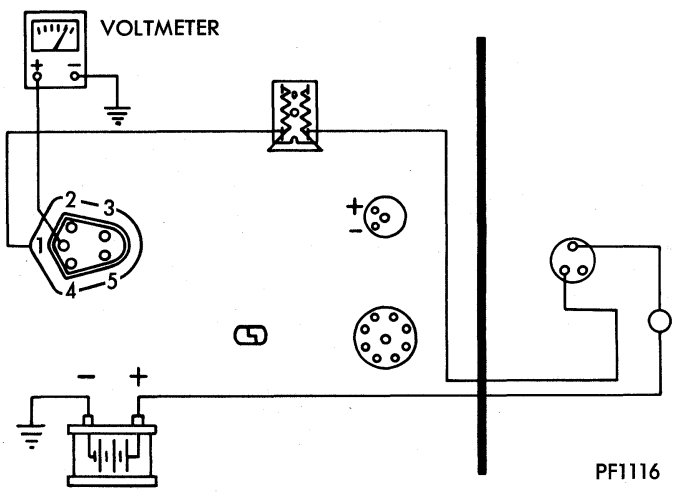

Fig. 10—Testing Cavity Number One

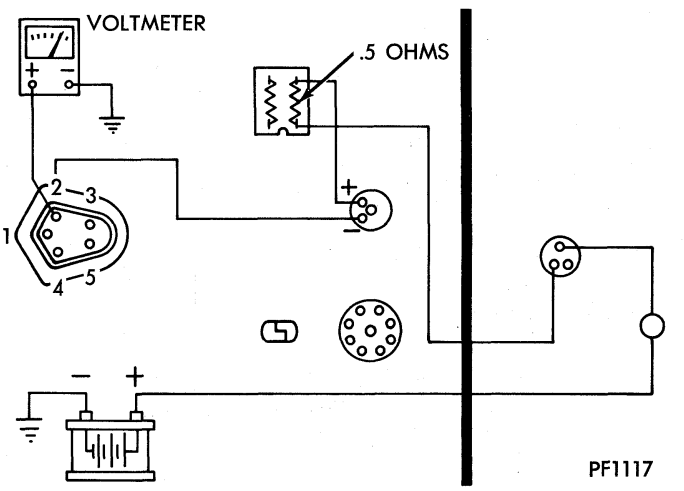

Fig. 11—Testing Cavity Number Two

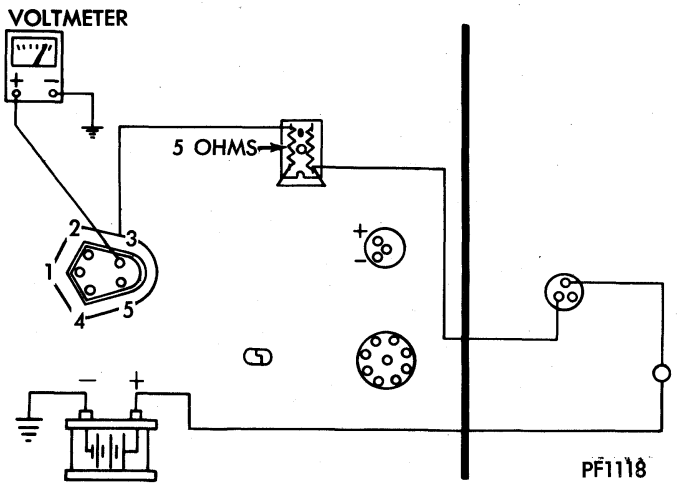

Fig. 12—Testing Cavity Number Three

ground and the other lead to either connector of the distributor. Ohmmeter should show an open circuit. If the ohmmeter does show a reading, the pick up coil in the distributor must be replaced.

(4) To check electronic control unit ground circuit

(a) Connect one ohmmeter lead to a good ground and the other lead to the control unit connector pin #5 (Fig. 15). The ohmmeter should show continuity between the ground and the connector pin. If continuity does not exist, tighten the bolts holding the control unit to the fire wall. Then recheck. If continuity does still not exist, control unit must be replaced.

(5) Reconnect wiring harness at control unit and distributor. **NOTE: Whenever removing or installing the wiring harness connector to the control unit, the ignition switch must be in the "Off" position.**

(6) Check air gap between reluctor tooth and pick up coil. To set the gap (Fig. 16), refer to "Air Gap Adjustment" under "Service Procedures."

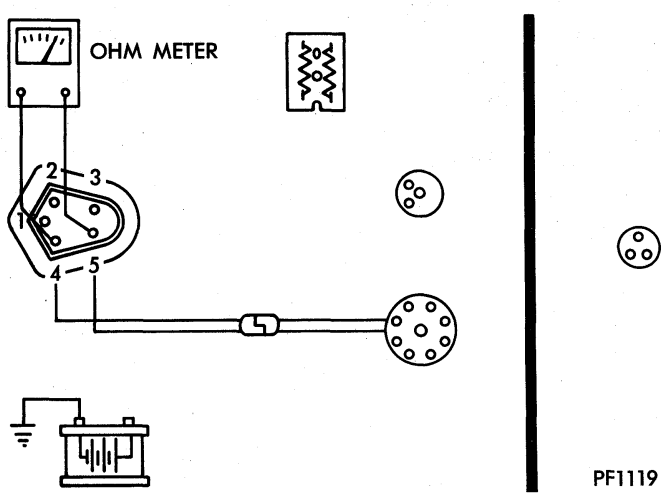

Fig. 13—Testing Pick Up Coil At Wiring Harness Connector, Cavities Four and Five

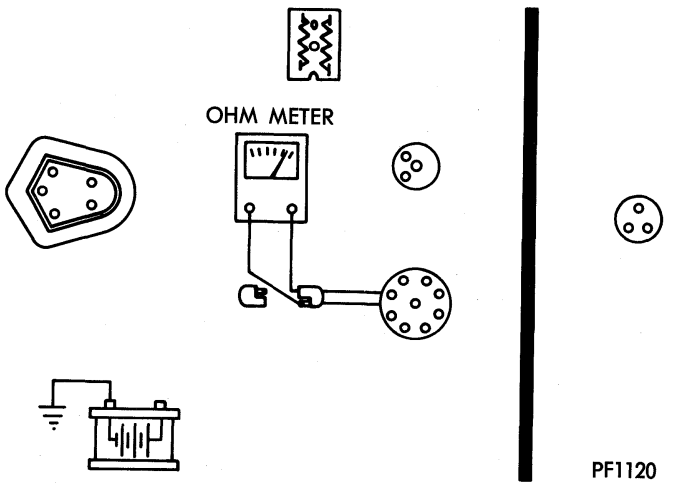

Fig. 14—Testing Pick Up Coil At Distributor Lead Connector

(7) Check ignition secondary

(a) Remove the high voltage cable from the center tower of the distributor. Hold the cable approximately 3/16 inch from engine. Crank engine.

(b) If arcing does not occur, replace the control unit.

(c) Crank the engine again. If arcing still does not occur, replace the ignition coil.

(8) SUMMARY

Remember: The electronic ignition tester does a complete job of testing **circuits and components.** If a problem **does not** show up when making the voltage checks, coil resistance checks, or ground continuity checks it is likely the control unit or coil is faulty. It is unlikely that both units would fail simultaneously. However, before replacing the control unit make sure no foreign matter is lodged in or blocking the female terminal cavities in the harness connector. If clear, try replacing control unit or coil to see which one restores secondary ignition voltage.

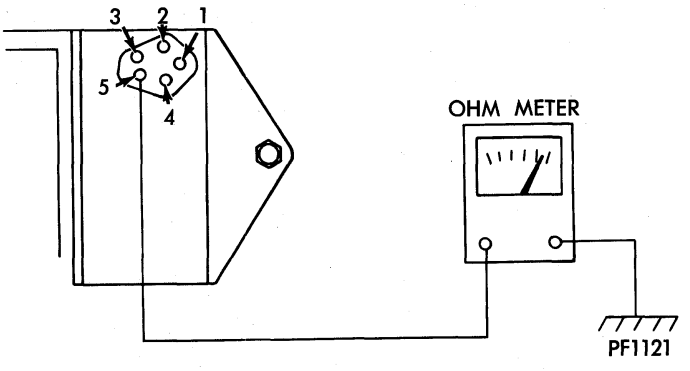

Fig. 15—Testing Ground Circuit

SERVICE PROCEDURES

NOTE: ALL PROCEDURES APPLY TO BOTH 6 and 8 CYLINDER ENGINES, EXCEPT WHERE NOTED

SECONDARY CIRCUIT INSPECTION

Distributor Cap

Remove distributor cap and inspect the inside for flashover, cracking of carbon button, cracking of cap, and burned, worn or grooved terminals. If any of these conditions are present the distributor cap should be replaced.

Light scaling of the terminals, caused by the arching of the spark from the rotor can be cleaned with a sharp knife. If heavy scaling of the terminals is present, the distributor cap should be replaced.

A cap that is greasy or dirty or has a powdered like substance on the inside should be cleaned with a solution of warm water and a mild detergent. Scrub with a soft brush, thoroughly rinse, and dry with a clean soft cloth.

Rotor

Inspect the rotor for cracks, excessive burning of the tip, and proper tension of the spring terminal. If any of these conditions are present the rotor should be replaced.

CAUTION: Presence of silicone grease on the metal portion of the rotor is normal and should not be removed.

Light scaling of the tip can be cleaned with a sharp knife, however, if heavy scaling is present the rotor should be replaced.

Spark Plug Wires

Check the high tension cable connections for good contact at the coil and distributor cap towers and at the spark plugs. Terminals should be fully seated. The nipples and spark plug covers should be in good condition. Nipples should fit tightly on the coil cap towers and spark plug cover should fit tight around spark plug insulators. Cable connections that are loose will corrode and increase the resistance and permit water to enter the towers causing ignition malfunction. **To maintain proper sealing between the towers and nipples, cable and nipple assemblies should not be removed from the distributor or coil towers unless nipples are damaged or cable testing indicates high resistance or broken insulation.**

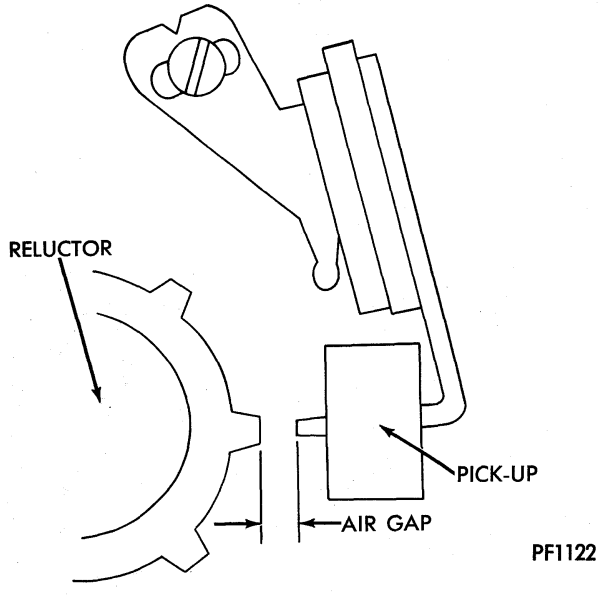

Fig. 16—Air Gap Adjustment

Clean high tension cables with a cloth moistened with a non-flammable solvent and wipe dry. Check for brittle or cracked insulation.

When testing secondary cables for punctures and cracks with an oscilloscope follow the instructions of the equipment manufacturers.

If an oscilloscope is not available, secondary cables can be tested as follows:

CAUTION: DO NOT LEAVE ANY ONE SPARK PLUG WIRE DISCONNECTED ANY LONGER THAN NECESSARY DURING TEST OR POSSIBLE HEAT DAMAGE TO CATALYTIC CONVERTER WILL OCCUR. TOTAL TEST TIME MUST NOT EXCEED TEN MINUTES.

(a) Engine not running, connect one end of a test probe to a good ground, other end free for probing.

(b) Disconnect cable at spark plug end. Insulate cable end from grounding.

(c) With engine running, move test probe along entire length of wire. If punctures or cracks are present there will be a noticeable spark jump from the faulty area to the probe. Secondary coil wire may be checked in the same manner, be sure one spark plug cable is disconnected from spark plug while running probe along coil wire secondary cable. Cracked, leaking or faulty cables should be replaced.

When installing new cable assemblies, install new high tension cable and nipple assembly over cap or coil tower, entering the terminal into the tower, push lightly, then pinch the large diameter of nipple (Fig. 17) to release trapped air between the nipple and tower. Continue pushing on the cable and nipple until cables are properly seated in the cap towers. Use the same procedure to install cable in coil tower (Fig. 18). Wipe the spark plug insulator clean before reinstalling cable and cover.

Use the following procedure when removing the high tension cable from the spark plug. First, remove the cable from the retaining bracket. Then grasp the terminal as close as possible to the spark plug rotate slightly and use a straight and steady pull. **Do not use pliers and do not pull the cable at an angle.** Doing so

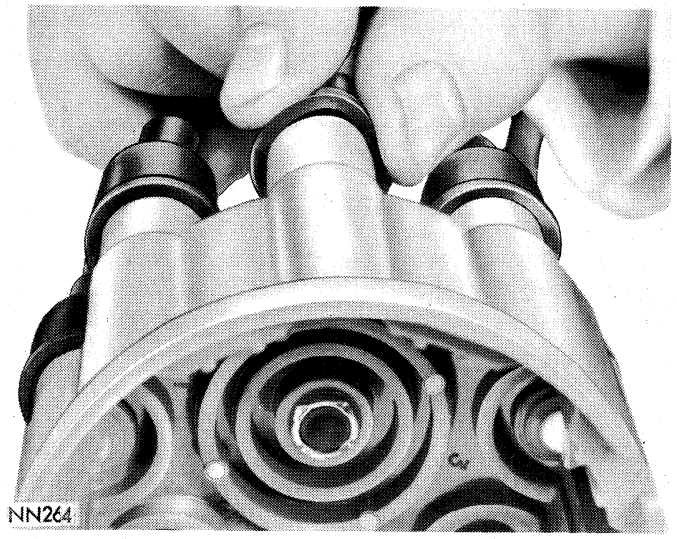

Fig. 17—Installing Secondary Cable and Nipple At Distributor Cap

will damage the insulation, cable terminal or the spark plug insulator. **Wipe spark plug insulator clean before reinstalling cable and cover.**

Resistance type cable is identified by the words "Electronic Suppression" printed on the cable jacket.

Use an ohmmeter to check resistance type cable for open circuits, loose terminals or high resistance as follows:

(a) Remove cable from spark plug.

(b) Lift distributor cap from distributor with cables intact. **Do not remove cables from cap.**

(c) Connect the ohmmeter between spark plug end terminal and the corresponding electrode inside the cap, making sure ohmmeter probes are in good contact. If resistance is more than 50,000 ohms, remove cable at cap tower and check the cable resistance. If resistance is more than 50,000 ohms, replace cable assembly. Test all spark plug cables in same manner.

To test coil to distributor cap high tension cable, remove distributor cap with the cable intact. **Do not remove cable from the coil or cap.** Connect the ohmmeter between center contact in the cap and either primary terminal at coil. If the combined resistance of coil and cable is more than 25,000 ohms, remove the cable at coil tower and check cable resistance. If resistance is more than 15,000 ohms, replace the cable. If resistance is less, check for a loose connection at the tower or for a faulty coil.

Inspect coil tower for cracks, carbon tracking or oil leaks.

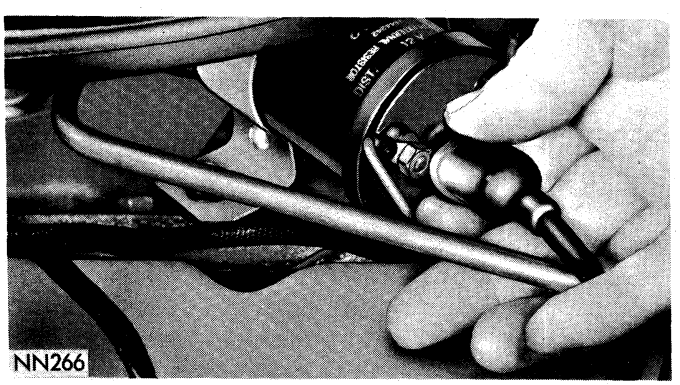

Fig. 18—Installing Secondary Cable and Nipple At Coil Tower

SPARK PLUGS

Resistor spark plugs are used in all engines, 225, 318, 360 engines have resistance valves of 7,500 to 15,000 ohms. 400 and 440 engines have resistance of 4000 to 6000 ohms.

Spark Plug Conditions

Spark plug appearance or conditions can reflect a wide variety of engine conditions as follows:

Normal Conditions

Normal conditions (Fig. 19 left). This plug has been running at the correct temperature in a "healthy" engine. The few deposits present will probably be light tan or gray in color with most regular grades of commercial gasoline. Electrode burning will not be in evidence; gap growth will average not more than about .001 in./1000 miles. Chances are the plug, as pictured, could be cleaned, the gap electrodes filed, regapped and reinstalled with good results.

Cold Fouling

Cold fouling or carbon deposits (Fig. 19 right). This dry black appearance is fuel carbon and can be due to over rich fuel-air mixture, possibly resulting from a faulty choke, clogged air cleaner, improper carburetor idle adjustment, or dirty carburetor. However, if only one or two plugs in a set are fouled like this it is a good idea to check for worn or improperly installed valve guide seals, or faulty ignition cables. This condition also results from prolonged operation at idle.

Wet Fouling

Wet fouling (Fig. 20 left) tells you that the plug has drowned in excess oil. In an old engine, suspect worn

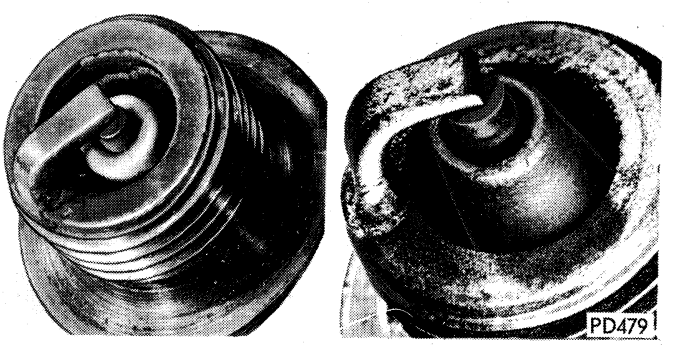

Fig. 19—Normal and Cold Fouling

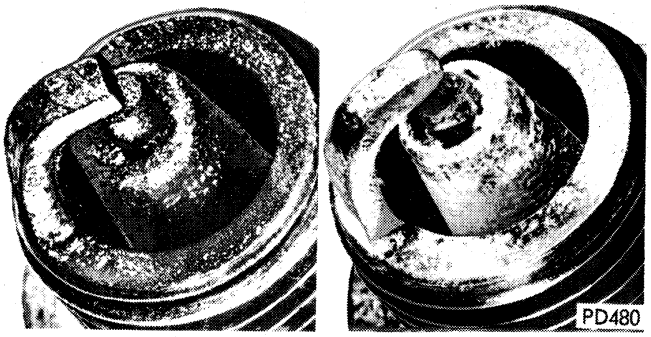

Fig. 20—Wet Fouling and Overheating

rings or excessive cylinder wear. **Remember that "break-in" fouling of new engines may occur before normal oil control is achieved. In new or recently overhauled jobs, such fouled plugs can be cleaned and reinstalled.**

Overheating

Overheating (Fig. 20 right) is indicated by a white or light gray insulator which appears "blistered". Electrode wear rate will be considerably in excess of .001 in./1000 miles. Over-advanced ignition timing, detonation and cooling system stoppages can overheat the spark plug.

Oil or Oil Ash Incrusted (Fig. 21)

If one or more plugs are oil or oil ash incrusted, the engine should be evaluated for the true cause of oil entry into the combustion chamber.

Lead Deposits

Lead deposits are the result of using leaded gasoline.

High Speed Miss

When replacing spark plugs because of a high speed miss condition; **wide open throttle operation must be avoided for approximately 50 miles after installation of new plugs.**

This will allow deposit shifting in the combustion chamber to take place gradually and avoid plug destroying splash fouling shortly after the plug change.

Cleaning and Regapping

Carefully clean the spark plugs in an abrasive type cleaner. Use a pin type feeler gauge to check spark plug gap. Reset gaps to Specifications. **Before setting spark plug gap, file center electrode flat, make adjustment by bending ground (side) electrode, never bend the center electrode.**

When installing spark plugs, first clean dirt and grit from spark plug seats, tighten to 30 foot-pounds, except RBL16Y plugs on 225 C.I.D. engines. Tighten to 10 foot pounds.

IDLE RPM TEST

Engine idle rpm setting should be **tested and recorded as it is when the vehicle is first brought into the shop** for testing. This will assist in diagnosing complaints of engine stalling, creeping and hard shifting on vehicles equipped with automatic transmissions.

Test procedures are as follows:

SPARK PLUG REPLACEMENT

400-440 Engine with the wide range of equipment availability, time will be saved by the following procedure for spark plug replacement:

R-W With Heat Shield on Fender Apron

Plug No.	Removal	Tool (Socket +)	Caution
1	Top	Ratchet	
3	Top or Bottom	Box Wrench	
5	Top or Bottom	Ratchet	Sharp edge on lower steering coupling
7	Bottom	Box Wrench	Disconnect Battery (live starter terminal)
2	Bottom	Box Wrench	
4	Bottom	Ratchet	
6	Bottom	Ratchet	
8	Bottom	Ratchet	

C With Heat Shield on Fender Apron

1	Top	Ratchet	
3	Bottom	Box Wrench	
5	Bottom	Box Wrench	
7	Bottom	Box Wrench	Disconnect Battery (live starter terminal)
2	Top or Bottom	Ratchet	
4	Top or Bottom	Ratchet	
6	Bottom	Ratchet	
8	Bottom	Ratchet	

Use a hoist to obtain working room under the engine. The models have slightly more handroom than the R-W models.

(1) Connect red lead of the test tachometer unit to the negative primary terminal of the coil and the black lead to a good ground.

(2) Turn selector switch to the appropriate cylinder position of engine being tested (6 or 8 cylinder).

(3) Turn tachometer rpm switch to the 1000 rpm position.

(4) With engine at normal operating temperature (off fast idle), momentarily open the throttle and release to make sure there is no bind in the linkage and that idle speed screw is against its stop.

(5) Note engine rpm on 1000 rpm scale and adjust curb idle speed to specifications. See "Fuel System" specifications.

On engines equipped with idle speed solenoids, the solenoid must be energized. Adjust curb idle speeds with the curb idle adjusting screw resting on the solenoid plunger.

IGNITION TIMING

To obtain maximum engine performance, the distributor must be correctly positioned on the engine to give proper ignition timing.

The ignition timing test will indicate timing of the spark at number one cylinder.

Test procedures are as follows:

(1) Connect a suitable Power Timing Light to number one cylinder (refer to the equipment manufacturer's instructions for correct connecting procedures). **Do not puncture cables, boots or nipples with test probes. Always use proper adapters. Puncturing the spark plug cables with a probe will damage the cables. The probe can separate the conductor and cause high resistance. In addition breaking the rubber insulation may permit secondary current to arc to ground.**

Fig. 21—Oil or Oil Ash Incrusted

(2) Start engine and run until operating temperature is obtained.

(3) Set hot idle engine speed. (refer to Specifications under Fuel Systems).

(4) Disconnect vacuum hose **at distributor** and plug vacuum hose.

(5) Loosen distributor hold-down arm screw just enough so the distributor housing can be rotated in its mounting.

(6) Aim Power Timing Light at timing plate on chain case cover. If light flash occurs when timing mark on vibration damper is located before specified degree mark on timing plate in the direction of engine rotation, timing is advanced. To adjust, turn distributor housing in direction of rotor rotation.

If flash occurs when the vibration timing mark is located after specified degree mark in the direction of engine rotation, timing is retarded. To adjust turn distributor housing against direction of rotor rotation. Refer to "Specification." (Moving the distributor housing against shaft rotation advances timing and with shaft rotation retards timing).

Caution: Do not use distributor vacuum advance chamber as a turning handle when turning distributor.

(7) Tighten distributor hold-down arm screw after timing has been set and recheck timing adjustment with a Power Timing Light.

(8) When ignition timing is correct, reconnect vacuum hose to distributor.

(9) If engine idle speed has changed, readjust curb idle. **DO NOT RESET TIMING.**

DISTRIBUTOR REMOVAL

6 Cylinder

(1) Disconnect vacuum hose at distributor.

(2) Disconnect distributor pickup lead wire at wiring harness connector.

(3) Unfasten distributor cap retaining clips and lift off distributor cap.

(4) Rotate engine crankshaft until the distributor rotor is pointing toward the cylinder block, scribe a mark on block at this point to indicate position of the rotor as reference when reinstalling distributor.

(5) Remove distributor hold down screw.

(6) Carefully lift the distributor from the engine. The shaft will rotate slightly as the distributor gear is disengaged from the camshaft gear.

8 Cylinder

(1) Disconnect vacuum hose at distributor.

(2) Disconnect distributor pickup lead wire at wiring harness connector.

(3) Unfasten distributor. cap retaining clips and lift off distributor cap.

(4) Scribe a mark on the edge of distributor hous-

ing to indicate position of the rotor as reference when reinstalling distributor.

(5) Remove distributor hold down clamp screw and clamp.

(6) Carefully lift distributor from engine.

DISTRIBUTOR INSTALLATION

6 Cylinder

(1) Position distributor in engine. Make certain the rubber O-ring seal is in the groove of distributor shank.

(2) Carefully engage distributor drive gear with camshaft drive gear so that when distributor is installed properly, rotor will be in line with previously scribed line on cylinder block. **If engine has been cranked while distributor is removed, it will be necessary to establish proper relationship between the distributor shaft and Number 1 piston position as follows:**

(a) Rotate the crankshaft until number one piston is at top of compression stroke. Mark on inner edge of crankshaft pulley should be in line with the "O" (TDC) mark on timing chain case cover.

(b) Rotate rotor to a position just ahead of the number one distributor cap terminal.

(c) Lower the distributor into the opening, engaging distributor gear with drive gear on camshaft. With distributor fully seated on engine, rotor should be under the cap number 1 tower.

(3) Install the distributor cap (make sure all high tension wires "snap" firmly in the cap towers).

(4) Install hold-down arm screw and tighten finger tight.

(5) Connect distributor pickup lead wire at wiring harness connector.

(6) Adjust engine timing to Specification (refer to "Ignition Timing").

8 Cylinder

(1) Position distributor in engine. Make sure the rubber O-ring seal is in the groove of distributor housing. Align rotor with marks previously scribed on distributor housing. **Clean top of cylinder block to insure a good seal between distributor base and block.**

(2) Engage tongue of distributor shaft with slot in distributor oil pump drive gear. **If engine has been cranked while distributor is removed, it will be necessary to establish the proper relationship between distributor shaft and No. 1 piston position as follows:**

(a) Rotate crankshaft until number one piston is at top of compression stroke. Mark on crankshaft vibration dampner should be in line with the "O" TDC mark on timing chain case cover.

(b) Rotate rotor to the position of number one distributor cap terminal.

(c) Lower distributor into the opening, connect pick-up coil leads and install distributor cap. Make sure all high tension wires "snap" firm in cap towers. Install distributor hold-down clamp screw. Tighten screw finger tight.

(3) Connect distributor pickup lead wire at wiring harness connector.

(4) Adjust engine timing to Specification (refer to "Ignition Timing").

SHAFT AND BUSHING WEAR TEST

(1) Remove distributor (refer to "Distributor Removal").

(2) Remove distributor rotor. Use two screwdrivers under upper part of rotor to pry off.

(3) Clamp distributor is a vise equipped with soft jaws and apply only enough pressure to restrict any movement of the distributor during the test.

(4) Attach a dial indicator to distributor housing so indicator plunger arm rests against reluctor.

(5) Place one end of a wire loop around the reluctor sleeve just above the reluctor.

(6) Hook a spring scale in the other end of the wire loop.

Note: The wire loop must be down against the top of the reluctor to insure a straight pull; also be sure that the wire loop does not interfere with the indicator or indicator holding bracket.

(7) Apply a one pound pull toward the dial indicator and a one pound pull away from the indicator and read the total movement of the plunger on the indicator dial. If the total indicator plunger movement exceeds .006 inch, replace the distributor housing or shaft assembly, (refer to "Distributor Disassembly").

DISTRIBUTOR DISASSEMBLY

6 Cylinder (Fig. 22)

(1) Remove distributor rotor use two screwdrivers under upper part of rotor to pry off.

(2) Remove the two screws and lockwashers attaching the vacuum control unit to distributor housing, disconnect the vacuum control arm from upper plate, and remove control.

(3) Remove reluctor by prying up from the bottom of the reluctor with two pry bars, or screwdrivers (maximum width 7/16 inch). Be careful not to distort or damage the teeth on the reluctor.

(4) Remove two screws and lockwashers attaching the lower plate to the housing and lift out the lower plate, upper plate, and pick-up coil as an assembly. **Distributor cap clamp springs are held in place by peened metal around the openings and should not be removed.**

(5) If the side play exceeds .006 inch in "Shaft and Bushing Wear Test", replace distributor housing assembly or shaft and governor assembly as follows:

(a) Remove distributor drive gear retaining pin and slide gear off end of shaft. If gear is worn or damaged see "Assembling-Distributor" step 5.

CAUTION: Support hub of gear in a manner that pin

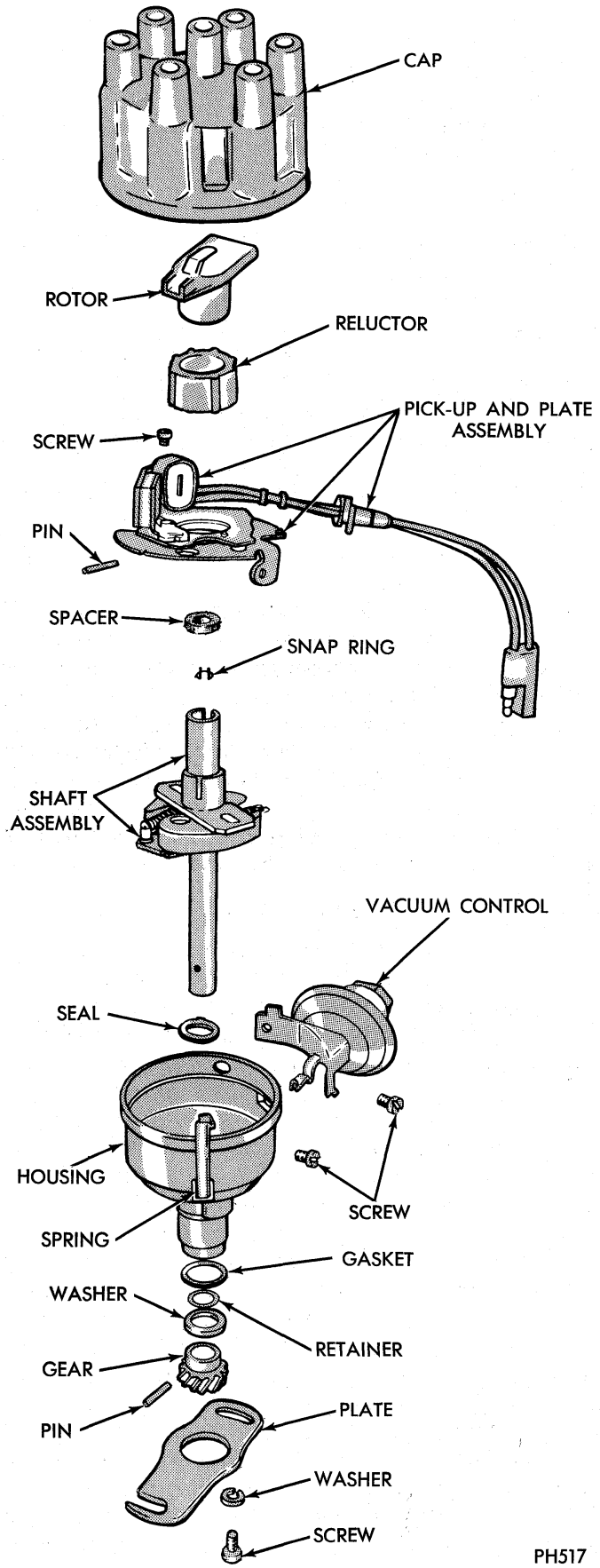

Fig. 22—6 Cylinder Distributor (Exploded View)

can be driven out of gear and shaft without damaging gear teeth.

(b) Use a file to clean burrs, from around pin hole in the shaft and remove the lower thrust washer.

(c) Push shaft up and remove shaft through top of distributor body.

8 Cylinder (Fig. 23)

(1) Remove distributor rotor. Use two screwdrivers under upper part of rotor to pry off.

(2) Remove the two screws and lockwashers attaching the vacuum control unit to distributor housing, disconnect the vacuum control arm from upper plate, and remove control.

(3) Remove reluctor by prying up from the bottom of the reluctor with two pry bars, or screwdrivers (maximum width 7/16 inch). Be careful not to distort or damage the teeth on the reluctor.

(4) Remove two screws and lockwashers attaching the lower plate to the housing and lift out the lower plate, upper plate, and pick-up coil as an assembly.

Distributor cap clamp springs are held in place by peened metal around the openings and should not be removed.

If side play exceeded .006 inch in "Shaft and Bushing Wear Test," replace housing or shaft, reluctor sleeve, and governor weights as an assembly as follows:

(a) Remove distributor shaft retaining pin and slide retainer off end of shaft.

(b) Use a file to clean burrs, from around pin hole in the shaft and remove the lower thrust washer.

(c) Push shaft up and remove shaft through top of distributor body.

ASSEMBLING THE DISTRIBUTOR

6 Cylinder (Refer to Fig. 22)

(1) Test operation of governor weights and inspect weight springs for distortion.

(2) Lubricate governor weights.

(3) Inspect all bearing surfaces and pivot pins for roughness, binding or excessive looseness.

(4) Lubricate and install upper thrust washer (or washers) on the shaft and slide the shaft into the distributor body.

(5) If gear is worn or damaged, replace as follows:

(a) Install lower thrust washer and old gear on lower end of shaft and temporarily install rollpin.

(b) Scribe a line on the end of the shaft from center to edge, so line is centered between two gear teeth as shown in (Fig. 24). **Do not Scribe completely across the shaft.**

(c) Remove rollpin and gear. Use a fine file to clean burrs from around pin hole.

(d) Install new gear with thrust washer in place. Drill hole in gear and shaft approximately 90 degrees

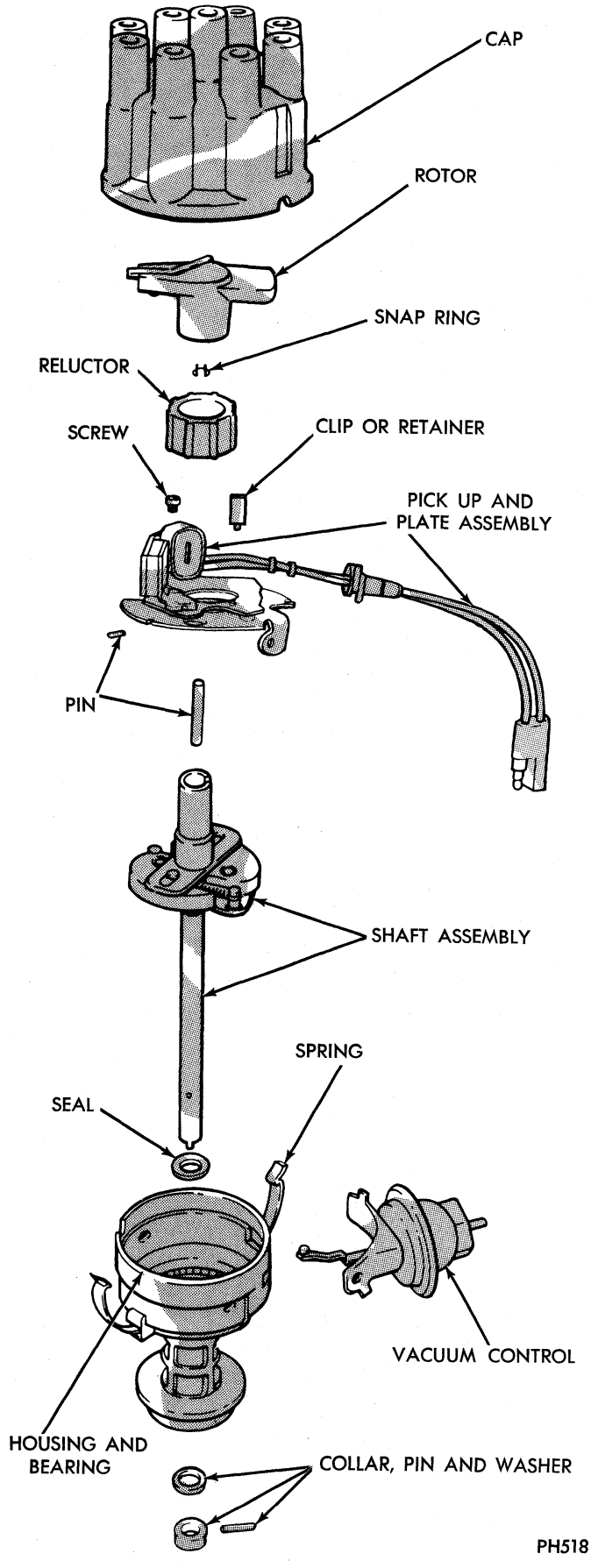

Fig. 23—8 Cylinder Distributor (Exploded View)

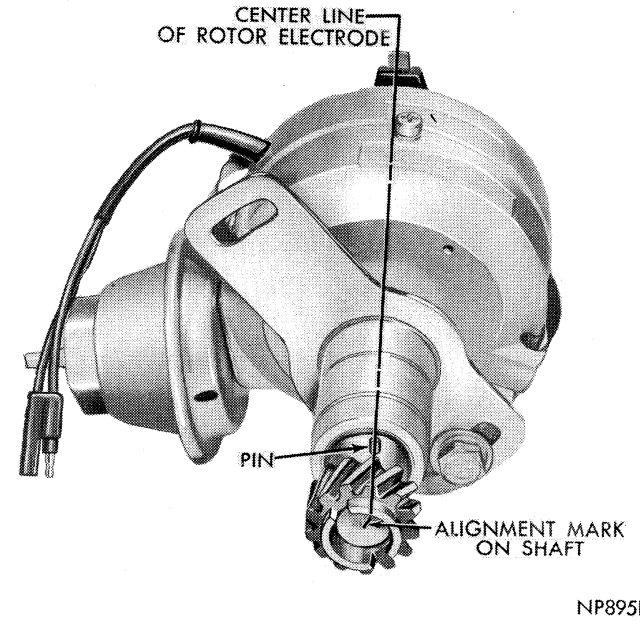

Fig. 24—Scribe Line on Distributor Shaft

from old hole in shaft and with scribed line centered between the two gear teeth as shown.

(e) Before drilling through shaft and gear, place a .007 feeler gauge between gear and thrust washer and after again observing that the centerline between two of the gear teeth is in line with centerline of rotor electrode (Fig. 25) drill a .124-.129 inch hole and install the rollpin.

CAUTION: Support hub of gear when installing roll pin so that gear teeth will not be damaged.

(6) Install lower plate, upper plate and pick-up coil assembly and install attaching screws.

(7) Attach vacuum advance unit arm to the pick-up plate.

(8) Install vacuum unit attaching screws and washers.

(9) Position reluctor keeper pin into place on reluctor sleeve.

(10) Slide reluctor down reluctor sleeve and press firmly into place.

(11) Lubricate the felt pad in top of reluctor sleeve with 1 drop of light engine oil and install the rotor.

8 Cylinder
(Refer to Fig. 23)

(1) Test operation of governor weights and inspect weight springs for distortion.

(2) Lubricate governor weights.

(3) Inspect all bearing surfaces and pivot pins for roughness, binding or excessive looseness.

(4) Lubricate and install upper thrust washer (or washers) on the shaft and slide the shaft into the distributor body.

(5) Install distributor shaft retainer and pin.

(6) Install lower plate, upper plate and pick-up coil assembly and install attaching screws.

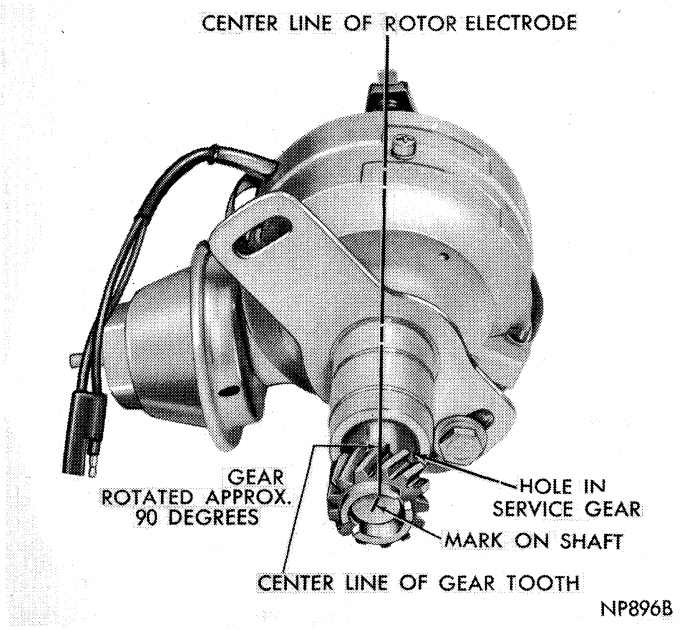

Fig. 25—Aligning Gear Teeth With Centerline of Rotor Electrode

(7) Attach vacuum advance unit arm to the pick-up plate.

(8) Install vacuum unit attaching screws and washers.

(9) Position reluctor keeper pin into place on reluctor sleeve.

(10) Slide reluctor down reluctor sleeve and press firmly into place.

Install reluctor so that the two arrows are on top. In a clockwise distributor, the arrow at the keeper pin that holds the reluctor in place should point clockwise. In a counterclockwise distributor, the arrow at the keeper pin should point counterclockwise. If the arrow at the keeper does not point in the direction of the distributor rotation, remove the reluctor, turn it one hundred-eighty degrees (180°) and reinstall it. When removing the reluctor, be careful not to lose the keeper pin.

CAUTION: Some reluctors may have only one arrow which points in a clockwise direction. On a clockwise rotation distributor the arrow should be next to the keeper pin. In a counter clockwise rotation distributor the arrow should be opposite or 180° away from the keeper pin.

(11) Lubricate the felt pad in top of reluctor sleeve with 1 drop of light engine oil and install the rotor.

PICK UP COIL REPLACEMENT

Removal

(1) Remove distributor.

(2) Remove reluctor by prying up from bottom with two pry bars or screw drivers (maximum width 7/16 inch).

CAUTION: BE CAREFUL NOT TO DAMAGE RELUCTOR TEETH.

(3) Remove two screws attaching vacuum control unit to distributor housing.

(4) Disconnect vacuum control arm from upper plate and remove control unit.

(5) Remove pick up coil leads from distributor housing.

(6) Remove two screws attaching lower plate to distributor housing.

(7) Lift out lower plate, upper plate, and pick up as an assembly from housing.

(8) Remove upper plate and pick up coil assembly from lower plate by depressing retainer clip on underside of lower plate and moving it away from attaching stud.

Note: Pick up coil is not removable from upper plate. They are serviced as an assembly.

Installation

(1) Place a small amount of distributor cam lubricant on upper plate support pins located on lower plate.

(2) Position upper plate on lower plate, install retainer clip, depress and lock into place.

(3) Position lower plate, upper plate and pick up coil assembly in distributor housing, install mounting screws and tighten securely.

(4) Attach vacuum control arm to upper plate, position control into place on distributor housing, install mounting screws and tighten securely.

(5) Install pick up coil leads to distributor housing.

(6) Install reluctor. Refer to "Assembling the Distributor" for correct installation procedures.

(7) Install distributor.

AIR GAP ADJUSTMENT (Fig. 26)

(1) Align one reluctor tooth with pick up coil tooth.

(2) Loosen pick up coil hold down screw.

(3) Insert .006 **non-magnetic** feeler gauge between reluctor tooth and pick up coil tooth.

(4) Adjust air gap so that **contact** is made between reluctor tooth, feeler gauge, and pick up coil tooth.

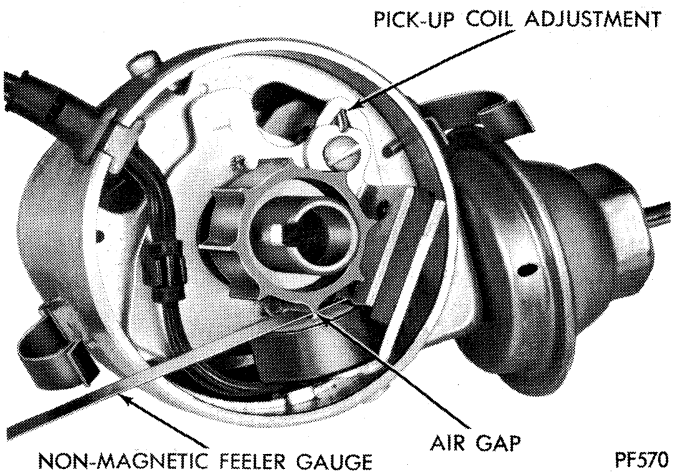

Fig. 26—Air Gap Adjustment

(5) Tighten hold down screw.

(6) Remove feeler gauge. **Note: No force should be required** in removing feeler gauge.

(7) Check air gap with .008 feeler gauge. A .008 feeler gauge should not fit into air gap. **Caution:** A .008 feeler gauge can be forced into air gap. **DO NOT FORCE FEELER GAUGE INTO AIR GAP.**

(8) Apply vacuum to vacuum unit and rotate governor shaft. Pickup pole should not hit reluctor teeth. Gap was not properly adjusted if hitting occurs. If hitting occurs on only one side of reluctor the distributor shaft is probably bent. Replace governor and shaft assembly.

Centrifugal Advance Curve

Carefully mount distributor assembly (less cap and rotor) in a reliable stroboscope-type distributor tester.

It is important that the **appropriate adapter** for checking electronic type distributors is connected to the distributor stand and that the instructions for its usage are followed. After this is done proceed with test as follows:

(1) Turn the selector switch to the 6 or 8 cylinder position and motor switch to the correct direction of rotation. Refer to Distributor Specifications for proper rotation.

(2) Regulate tester speed control to operate distributor at 200 distributor rpm.

(3) Align the "O" of distributor tester degree with any of the arrow flashes.

(4) Adjust tester speed control to operate distributor at speeds called for under "Specifications" and observe arrow flashes opposite tester degree ring to determine degrees of advance.

(5) If advance is not according to specifications, replace with correct distributor shaft assembly (shaft, reluctor sleeve, governor weights as a complete assembly).

VACUUM DIAPHRAGM LEAK TEST

With distributor mounted in distributor tester with vacuum unit attached to distributor, proceed as follows:

(1) Place thumb over end of vacuum pump and hose and adjust regulator control knob to give a reading of 20 inches with hose closed off to be sure tester hose does not leak.

(2) Attach tester vacuum pump hose to the tube on the distributor vacuum unit. The vacuum gauge should hold on maximum vacuum obtainable if no leak exists.

(3) Observe contact plate while performing leak test to test response of contact plate. There should be instant response to the pull of the diaphragm, moving the plate without a drag or bind.

(4) If leakage is indicated, replace vacuum unit assembly.

Vacuum Advance Curve

Connect tester vacuum pump hose to the distributor vacuum advance unit and perform operations 1 through 3 under "Centrifugal Advance Curve." Then proceed as follows:

(1) Turn tester vacuum pump **"ON."** Adjust vacuum pump regulator to vacuum test specifications. See "Specifications" and observe arrow flashes on tester degree ring to determine degrees of advance.

(2) If vacuum advance is above or below specifications, replace vacuum advance unit. Retest vacuum advance curve.

IGNITION COIL

The ignition coil is designed to operate with an external ballast resistor. When testing the coil for output, include resistor in tests. Inspect the coil for external leaks and arcing.

Test coil according to coil tester Manufacturer's instructions. Test coil primary resistance. Test ballast resistor resistance. Test coil secondary resistance. Replace any coil or ballast resistor that does not meet specifications.

Every time an ignition coil is replaced because of a burned tower, carbon tracking, or any evidence of arcing at the tower, the nipple or boot on the coil end of the secondary cable, replace cable. Any arcing at the tower will carbonize the nipple so that placing it on a new coil will invariably cause another coil failure.

If secondary cable shows any signs of damage, cable should be replaced with a new cable with a neoprene nipple since the old cable can cause arcing, and therefore, ruin a new coil.

DUAL BALLAST RESISTOR

The normal side of the dual ballast resistor is a compensating resistance in the ignition primary circuit. During low speed operation current is maintained in this side of the ballast resistor for a longer period of time, causing it to heat up, and resistance to increase. This action reduces voltage in the ignition primary circuit, thereby, protects the coil from high voltage during low speed operation. As engine speed is increased the amount of time in which current is maintained in this side of the ballast resistor is shortened, causing it to cool off, and resistance to decrease. This action raises voltage in the ignition primary circuit, which is required for high speed operation. During starter operation the normal side of the dual ballast resistor is bypassed, allowing full battery voltage to the ignition primary circuit. The auxiliary side of this dual unit protects the control unit by limiting voltage to the electronic part of the ignition primary circuit.

ELECTRONIC LEAN BURN SYSTEM

INDEX

GENERAL INFORMATION

The "Electronic Lean Burn System" (Fig. 1) consist of a "Spark Control Computer," various engine sensors, and a specially calibrated carburetor. The function of the system is to provide a way for the engine to burn a lean air fuel mixture.

Spark Control Computer

The "Spark Control Computer" (Fig. 2) is the heart of the entire system. It gives that capability of igniting a lean fuel mixture according to different modes of engine operation by delivering an infinite amount of variable advance curves. The computer consist of one electronic printed circuit board, which simultaneously receives signals from all the sensors and within milliseconds computes them to determine how the engine is operating and then advances or retards the ignition timing.

In other words, the computer determines the exact instant when ignition is required; and then feeds the ignition coil to produce the electrical impulses which fire the spark plugs. It must be understood that this advancing and retarding of the ignition timing is not based on a constant curve. As mentioned before, the curves can be infinite and variable.

Sensors

There are six sensors on the engine which supply the "Spark Control Computer" with the necessary information needed to fire the spark plugs at the right time. They, and their functions, are as follows:

Pick Up Coil

Located in the distributor, it supplies the basic timing signal to the computer. Except during cranking this signal will tell the computer to create the maximum amount of timing advance available for any engine rpm. Also, the computer can determine from this signal engine speed and when each piston is coming up on its compression stroke.

Coolant Temperature Sensor (Fig. 3)

Located on the intake manifold housing, its signal tells the computer when engine coolant temperature is below 150°.

Throttle Position Transducer (Fig. 4)

Located on the carburetor, its signal tells the computer the position and the rate of change of the throttle plates. Additional spark advance will be given by the computer when the throttle plates start to open, and in every position to full throttle.

Carburetor Switch Sensor (Fig. 4)

Located on right side of carburetor, its signal tells the computer if the engine is at idle or off idle.

Vacuum Transducer (Fig. 2)

Located on the computer, its signal tells the computer what engine manifold vacuum is. The higher the vacuum, the more additional advance will be given. The lower, the less amount of advance. In order to obtain the maximum amount of advance for any inch of vacuum, the "Carburetor Switch Sensor" must remain open for a specified amount of time. During that time the advance will not happen quickly but will build up at a slow rate. If the carb switch closes before the predetermined time period, the build up of advance at that time will be cancelled in the ignition system, however, the computer will put it into memory and slowly return it to 0. If the switch is reopened before the advance is returned to 0, the build up of advance starts at the point where the computer still has it in memory. If the switch is reopened after the advance is returned to 0, the build up of advance must start all over again.

System Operation

There are two functional modes of the spark control computer. They are start and run. The start mode will only function during engine cranking and starting. The run mode will only function after the engine starts and during engine operation. The two will never operate together at the same time.

For cranking and starting the pickup coil in the

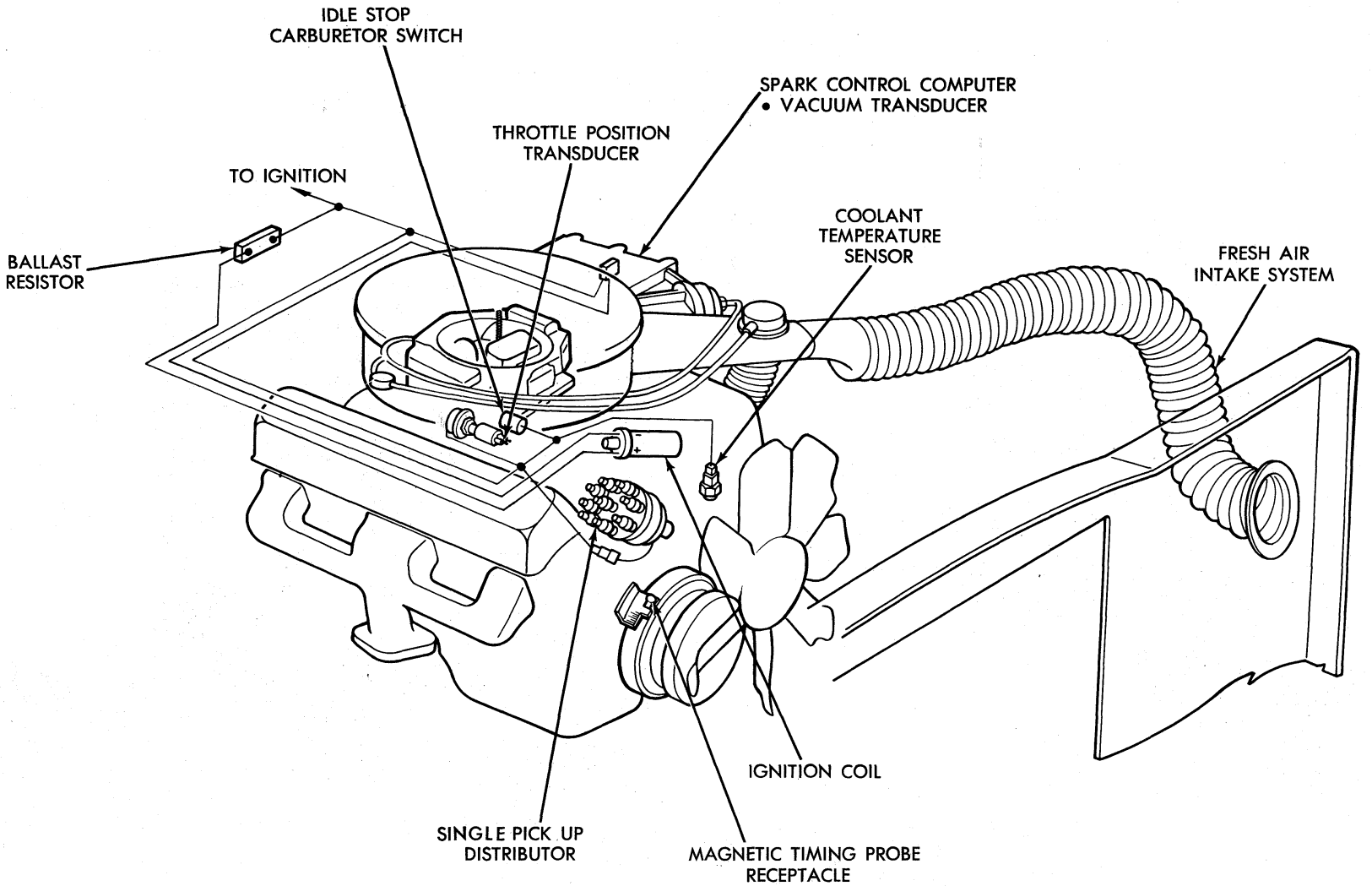

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Fig. 1—Electronic Lean Burn System

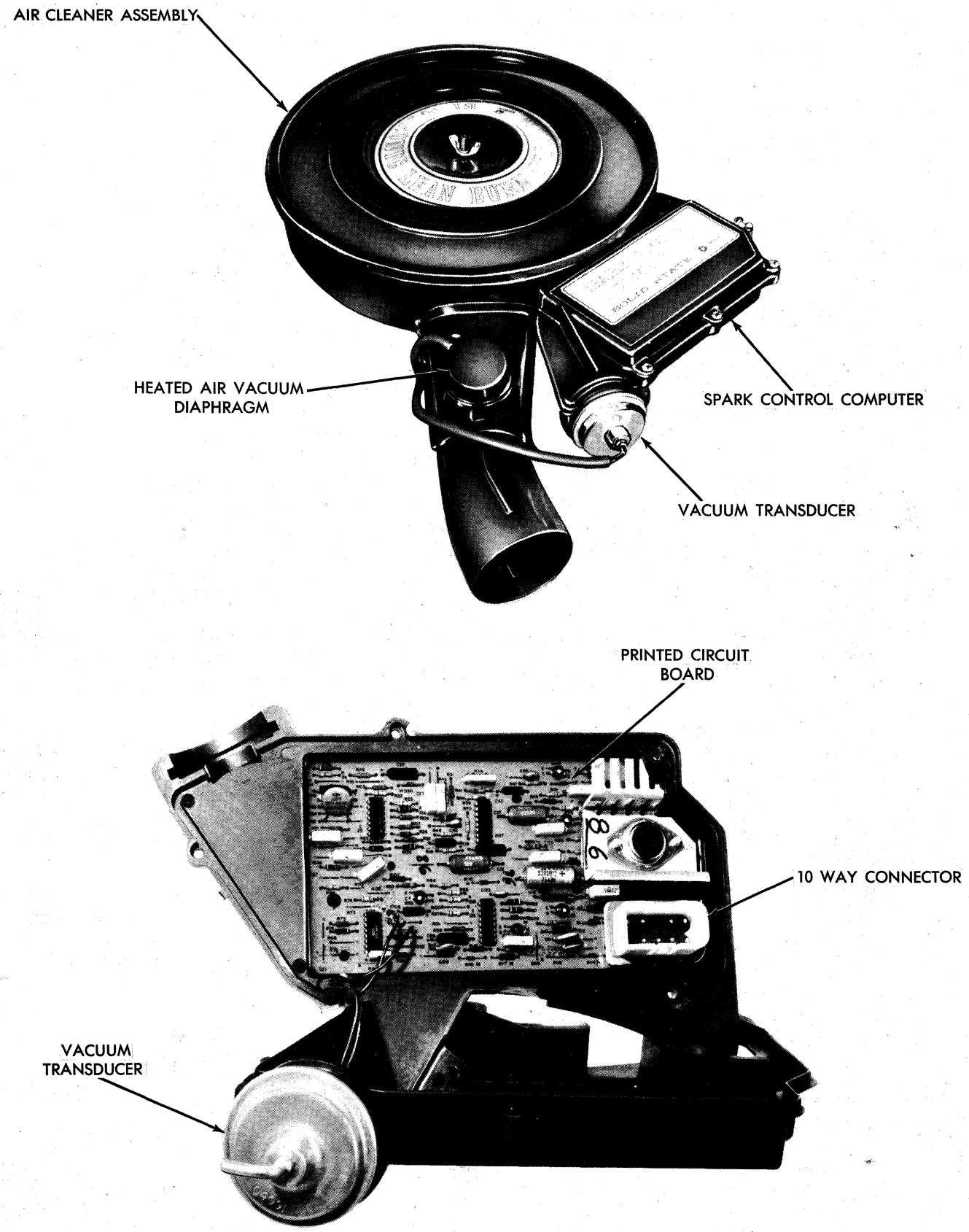


Fig. 2—Spark Control Computer

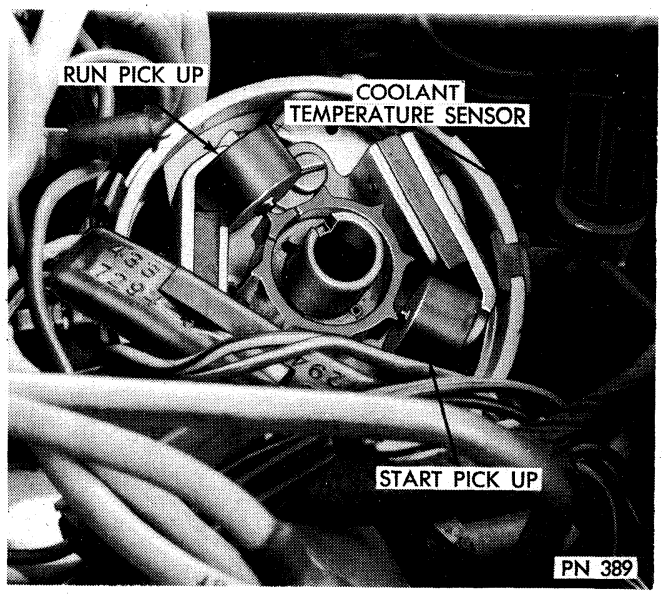


Fig. 3—Engine Sensors

distributor feeds its signal to the computor. During this time the start mode is functioning and the run mode is bypassed. A fixed quantity of advance will be established in the ignition system because of the permanent position of the pickup coil. The amount of advance in this mode will be determined by the position of the distributor.

After the engine starts and during engine operation the pickup coil signal continues to feed into the computer. Now the run mode is functioning and the start mode is bypassed. The amount of advance will now be determined by the computer based on information received from all the sensors. Another point to remember is that the start mode will take over in the event of a run mode failure. The engine will keep running but since the start mode timing remains fixed, performance will be below standard.

Also after starting the computer will create additional advance and will maintain it for approximately one minute. However, during that time period that additional advance will slowly be eliminated. With the engine running and if the engine coolant temperature is below 150°, the "Coolant Temperature Sensor" will signal the computer of this to prevent any additional spark advance to occur from the "Vacuum Transducer" signal. After the engine reaches operating temperature, normal system operation will begin.

The pickup coil signal is a reference signal. When it is received by the computer, the maximum amount of timing advance is made available. Now based on the data from all the sensors the computer determines how much of this maximum advance is needed at that instant.

Finally, if for some reason, there is a failure of the computer, the system will go into what is called the limp-in mode. This will enable the driver to continue to drive the vehicle until it can be repaired. However, while in this mode, very poor performance and fuel economy will be given by the system. If there is a failure of the pickup coil or start mode of the computer, the engine will not start or run.

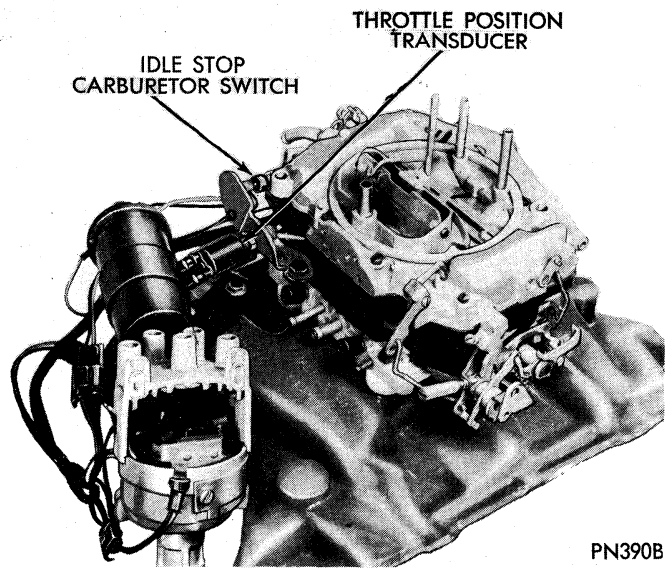


Fig. 4—Carburetor Sensors

IGNITION SYSTEM STARTING TEST

Remove coil wire from distributor cap. Hold end of wire about 1/4-inch away from a good engine ground (Fig. 5). Have a helper crank the engine while you look for a spark at coil wire.

If there is a spark at coil wire it must be constant and bright blue in color. If it is, have helper continue to crank engine and while slowly moving coil wire away from ground, look for arcing at the coil tower (Fig. 6). If arcing occurs replace coil. If spark is weak or not constant **or** there is no spark, proceed to the "Failure To Start Test."

If spark is good or there is no arcing at the coil tower the ignition system is producing the necessary high secondary voltage. However make sure that this voltage is getting to the spark plugs by checking the distributor rotor, cap, spark plug wires, and spark plugs. If they are okay then the ignition system is not the reason why the engine will not start. It will be necessary to check the fuel system and engine mechanical items.

FAILURE TO START TEST

Before proceeding with this test make sure "Ignition System Starting Test" has been performed. Failure to do this may lead to unnecessary diagnostic time and wrong test results.

(1) With a voltmeter measure voltage at battery and note it somewhere. Battery specific gravity must be at least 1.220 temperature corrected in order that it

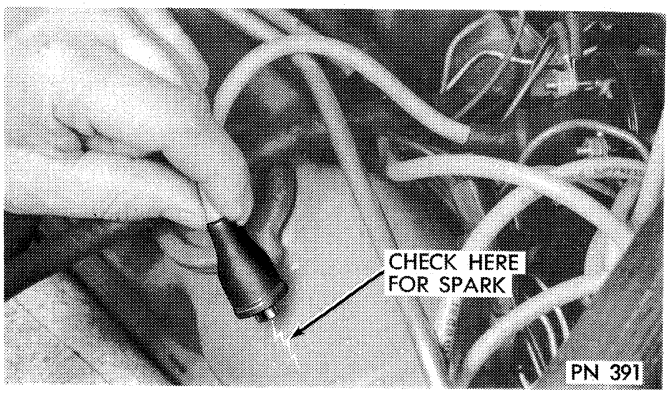


Fig. 5—Checking for Spark During Cranking

can deliver the necessary voltage to operate the cranking and ignition systems properly.

(2) Disconnect wiring harness connector from "Coolant Switch."

(3) Place a thin insulator (piece of paper) (Fig. 7) between curb idle adjusting screw and carb switch or make sure curb idle adjusting screw is not touching carb switch.

(4) Connect negative lead of a voltmeter to a good engine ground.

(5) Turn ignition switch to "Run" position and measure voltage at carb switch terminal (Fig. 8). If voltage is greater than 5 volts but less than 10 volts proceed to Step 7. If voltage is greater than 10 volts check to insure continuity between terminal 10 of dual connector and ground (Fig. 11).

If voltage is not at least 5 volts turn ignition switch to the "OFF" position and disconnect connector from bottom of "Spark Control Computer." Turn ignition switch back to the "Run" position and measure the voltage at terminal 2 (Fig. 9) of connector. Voltage should be within 1 volt of previously noted battery voltage. If voltage is correct, proceed to Step 6. If it isn't check the wiring between terminal 2 of connector and ignition switch for opens, shorts or poor connections.

(6) Turn ignition switch to the "OFF" position and disconnect connector from bottom of "Spark Control

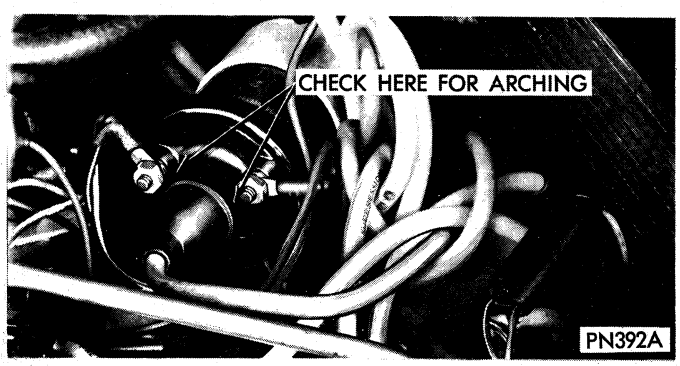


Fig. 6—Checking for Arcing at Coil Tower

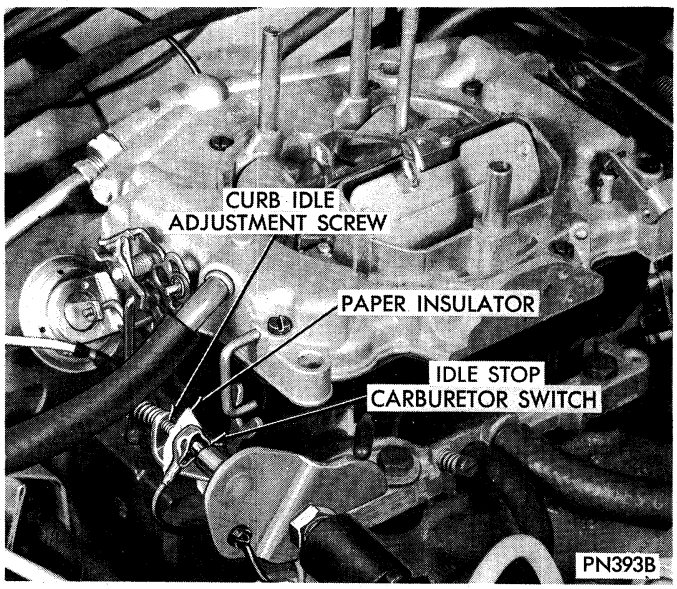


Fig. 7—Preparing for Power Check

Computer." Check with an ohmmeter for continuity between terminal 7 of connector (Fig. 10) and carb switch terminal. There should be continuity between these two points. If not check wire between them for opens, shorts or poor connections. If there is check for continuity between terminal 10 of connector (Fig.

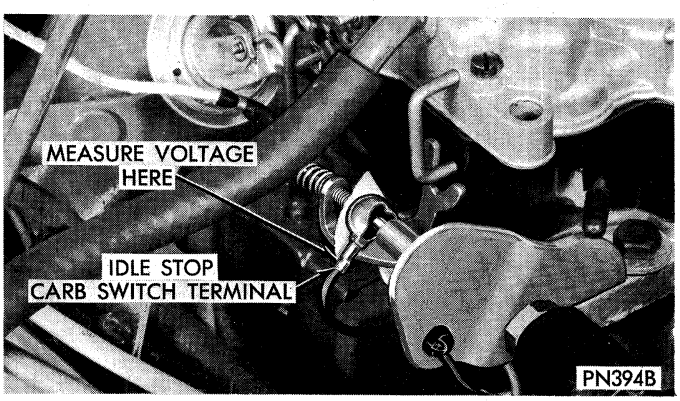


Fig. 8—Power Check

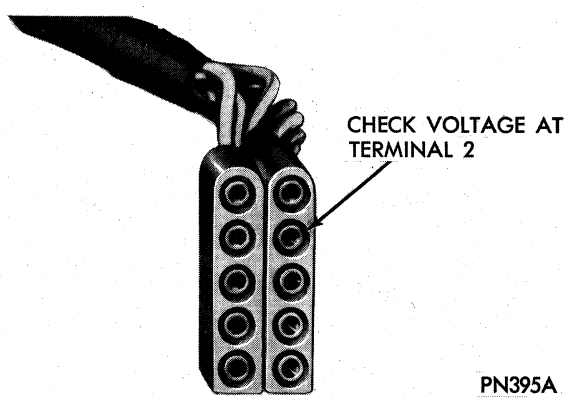


Fig. 9—Connector test (power check)

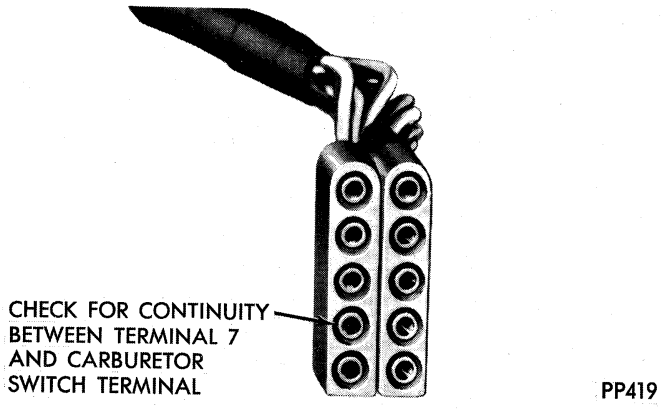


Fig. 10—Connector test (power check)

11) and ground. If there is continuity replace "Spark Control Computer." If there isn't check wire for opens or poor connections and only proceed to Step 7 if engine still fails to start.

(7) Turn ignition switch to the "Run" position and with positive lead of voltmeter measure voltage from terminal 1 to ground of disconnected lead from computer (Fig. 12). Voltage at each should be within 1 volt of previously noted battery voltage if it is proceed to Step 8. If it is not proceed as follows:

For terminal 1—Check wiring and connections between connector and ignition switch.

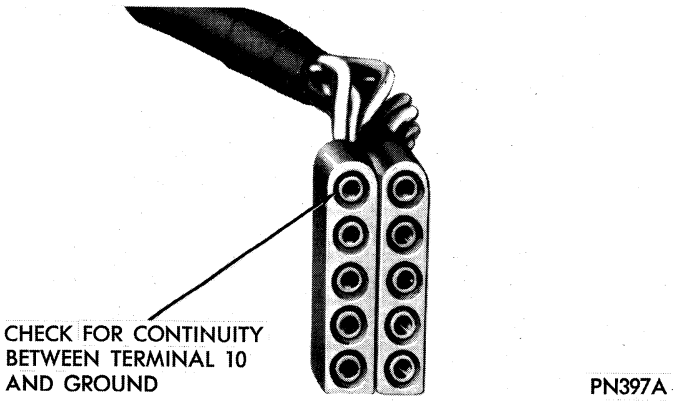


Fig. 11—Connector test (power check)

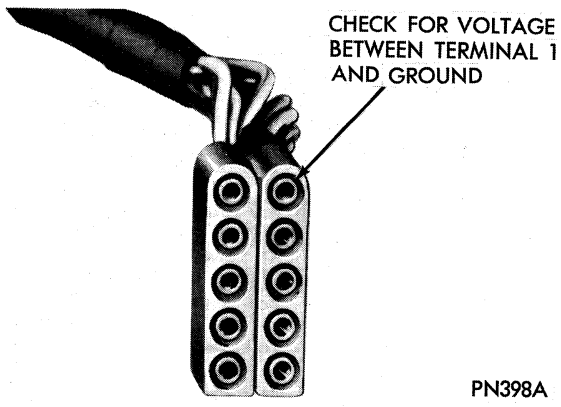


Fig. 12—Connector test (primary circuit)

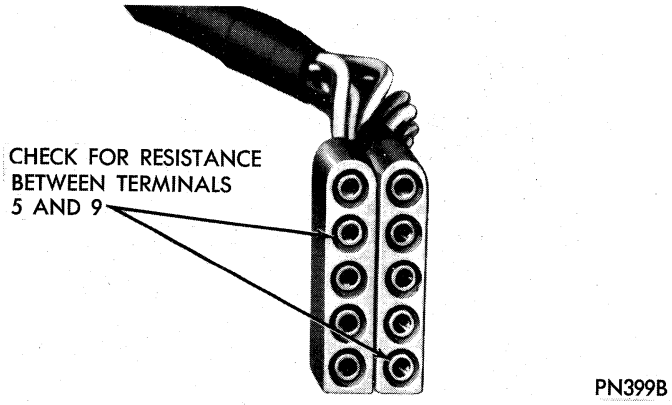


Fig. 13—Connector test (pick up coil)

(8) Turn ignition switch to the "OFF" position and with an ohmmeter measure resistance between terminals 5 and 9 of dual connector (Fig. 13). Resistance should be between 150 and 900 ohms. If resistance is 150 to 900 ohms proceed to Step 9. If it is not, disconnect "Pick Up" coil leads from distributor (Fig. 14). Measure resistance at lead going into distributor (Fig. 15). If resistance is now between 150 and 900 ohms,

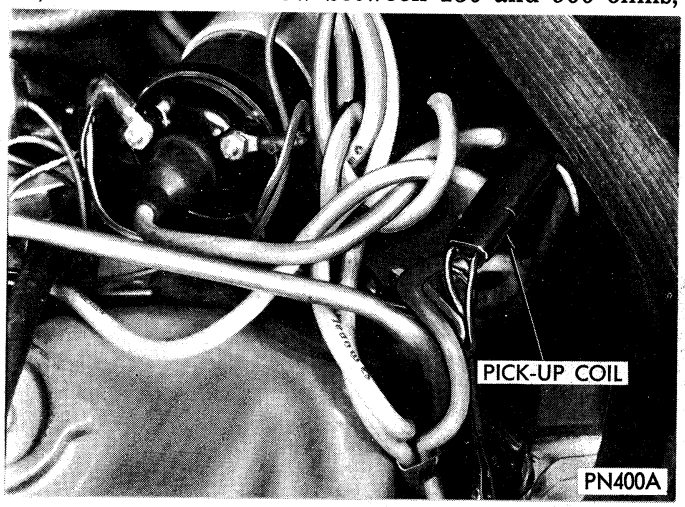


Fig. 14—Pick Up Coil Connector Identification

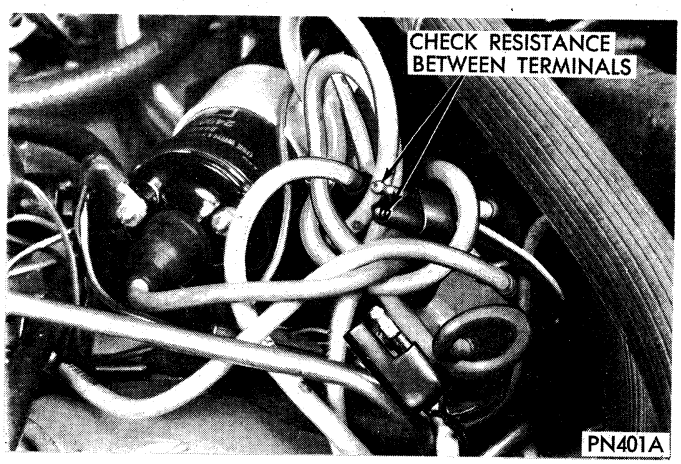


Fig. 15—Checking Pick Up at Distributor Leads

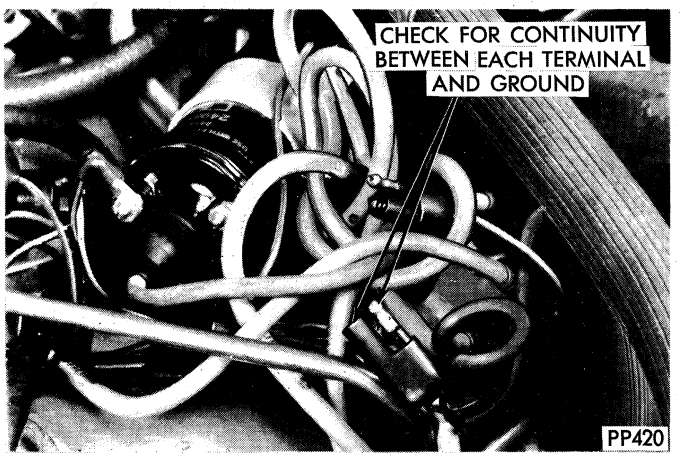


Fig. 16—Checking pickup for ground

this means there is an open, shorted, or poor, connection between distributor connector and terminals 5 and 9 of dual connector. If resistance is still out of specifications, the "Pick Up" coil is bad.

(9) Connect one lead of ohmmeter to engine ground and with other lead check for continuity at each terminal of lead going into distributor (Fig. 16). There should be no continuity. Reconnect distributor lead and proceed to Step 10. If there is continuity, replace "Pick Up" coil.

(10) Remove distributor cap and check air gap of "Pick Up" coil (Fig. 17). If it is not within specifications adjust. If it is proceed to next step.

(11) Install distributor cap, reconnect all wiring and try to start engine. If engine still fails to start replace "Spark Control Computer."

(12) After installing new computer and engine still fails to start, reinstall original one and repeat test procedure because more than likely one of the test procedures was not done correctly.

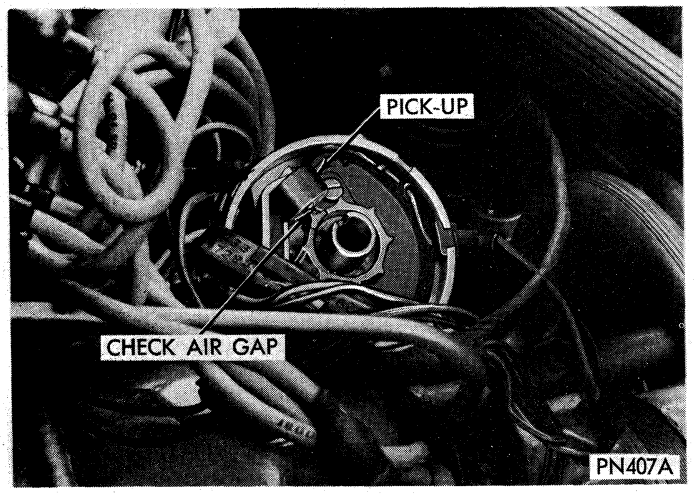


Fig. 17—Checking pickup air gap

TESTING FOR POOR PERFORMANCE

Start Up Advance Timing Test

(1) Connect an adjustable timing light (Fig. 18) to engine so that total timing advance at crankshaft can be checked.

(2) Connect a jumper wire between the carburetor switch and a good ground.

Look at timing mark on crankshaft damper immediately after vehicle is started and adjust timing light so the basic timing signal is seen at the timing plate. The meter on the timing light should show amount of advance as indicated under specifications. Continue to observe timing for 90 seconds while adjusting timing light to maintain basic timing signal. The additional advance should slowly reduce to the basic timing signal after approximately one minute. If timing did not increase and/or did not return to basic, replace "Spark Control Computer." If it checked out okay proceed to "Throttle Advance Schedule Test."

Note: Do not remove timing light or jumper wire because it is to be used for further testing.

SPEED ADVANCE SCHEDULE

Before proceeding with this test, make sure that the basic timing and hot curb idle are within specifications. Disconnect the wiring harness connector from the throttle position transducer.

Start and run the engine for two minutes. Raise the rpm to specified test level and adjust timing light so that basic timing is seen at the timing indicator. The additional advance seen on the timing light meter should be as specified. If not, replace computer and repeat this test. If it is as specified, proceed to the next test.

Throttle Advance Schedule Test

Note: Before proceeding with test make sure

Fig. 18—Adjustable timing light

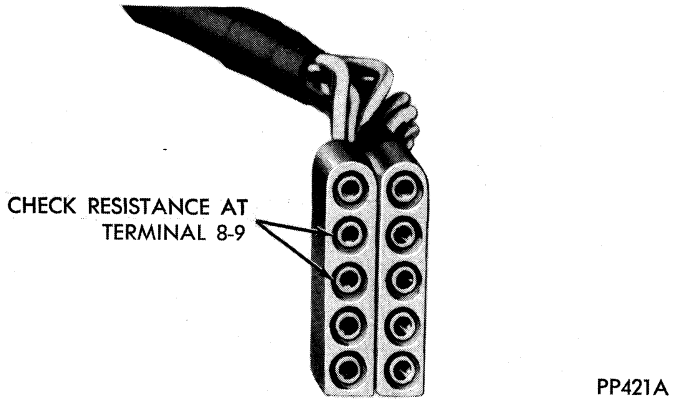


Fig. 19—Connector test (throttle transducer)

"Throttle Position Transducer" is adjusted properly. Refer to adjustment procedure.

(1) Make sure ignition switch is in the "OFF" position and then disconnect single connector from bottom of "Spark Control Computer."

(2) With an ohmmeter measure resistance between terminals 8 and 9 of connector (Fig. 19). Resistance should be between 60 and 90 ohms. If it is reconnect single connector and proceed to Step 3. If it isn't remove connector from "Throttle Position Transducer" and measure resistance at transducer terminals (Fig. 20). If resistance is now between 50 and 90 ohms, this means there is an open, short, or poor connection of the wires between terminals 8 and 9 of connector and terminals that connect to the transducer. If resistance is not within specifications replace "Throttle Position Transducer".

(3) Position throttle linkage on fast idle cam, ground the carb switch with a jumper wire, disconnect wiring harness connector from "Throttle Position Transducer," and connect it to a known good transducer of the same type that can be used for testing.

(4) Move core of test transducer in so that it is

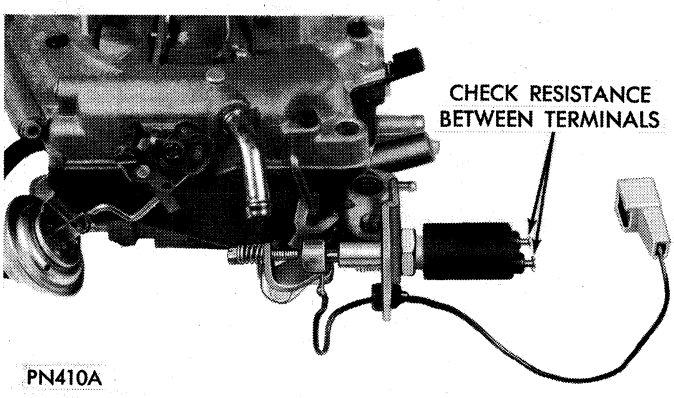


Fig. 20—Check for resistance at throttle transducer terminals

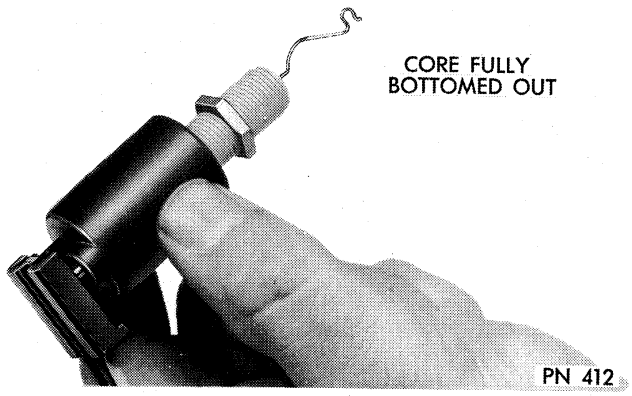


Fig. 21—Checking with Test Transducer

fully bottomed out (Fig. 21), start engine, wait 90 seconds and then move core out about 1 inch (Fig. 22).

(5) Adjust timing light so the basic timing signal is seen at the timing plate. The meter on the timing light should show additional amount of advance as indicated under specifications. If it is within specifications move core back into transducer and timing should return to basic setting. If timing advanced and returned proceed to Step 7. If timing did not advance and/or did not return replace "Spark Control Computer." Also after replacing computer recheck "Throttle Position Transducer".

TESTING FOR POOR FUEL ECONOMY AND UNUSUALLY HIGH IDLE SPEED

Coolant Switch Test

(1) Connect one lead of ohmmeter to a good ground on engine.

(2) Connect other lead of ohmmeter to terminal of coolant switch and check for continuity. The ohmmeter readings should be as follows:

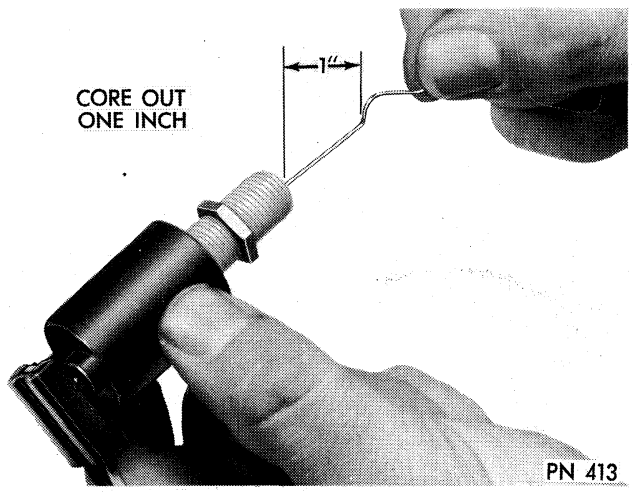


Fig. 22—Checking with Test Transducer

For Engine Cold Below 150°

(1) Continuity should be present on terminal that black wire with tracer is connected to. If not replace coolant switch.

For Engine Above 150° Or At Operating Temperature (Thermostat Open)

Terminal reading should show no continuity, if it does, replace coolant switch.

Vacuum Advance Schedule Test

(1) Connect and adjust timing light to engine so total timing advance at crankshaft can be checked.

Start engine and if it is not at operating temperature wait a few minutes until it is. Also make sure transmission is in neutral and parking brake is on.

(2) Place a thin insulator (piece of paper) (Fig. 23) between carb switch and curb idle adjustment screw. If curb idle adjustment screw is not touching carb switch make sure fast idle cam is not on or is binding, linkage is not binding, or throttle stop screw is not over adjusted. Adjust timing light so basic timing signal is seen at the timing plate. Let engine run at least 9 minutes and make sure there is a minimum of 16 inches of vacuum at transducer. The meter on the timing light should show additional amount of advance as indicated under specifications. If advance is not within specifications replace "Spark Control Computer."

(3) Remove insulator that was installed at carb switch and timing should return to basic setting. If timing does not return make sure curb idle adjustment screw is touching carb switch. Then turn engine off and check the wire between terminal 7 (Fig. 24) of connector at bottom of computer and carb switch terminal for opens, shorts or poor connections. If check

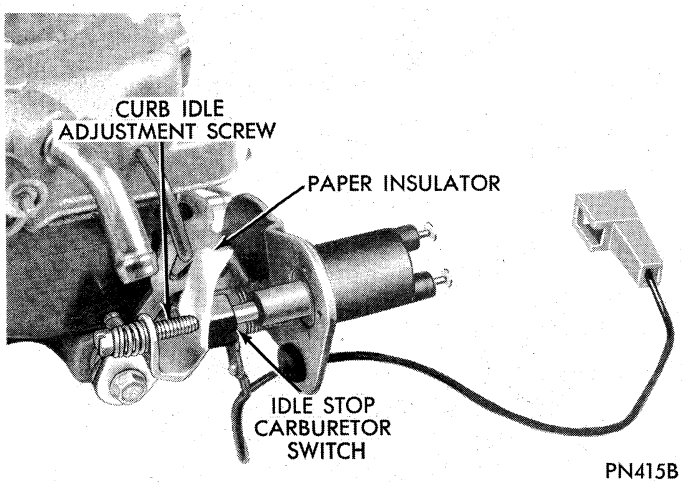


Fig. 23—Preparing for Vacuum Transducer Test

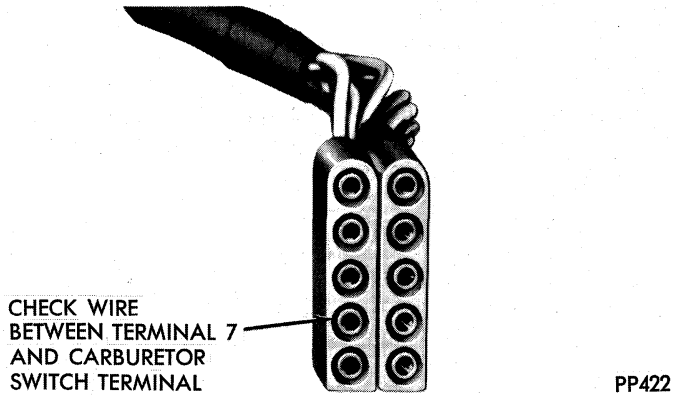


Fig. 24—Connector test (Vacuum transducer test)

out is okay repeat test and if timing still will not return, replace "Spark Control Computer."

ADJUSTING THROTTLE POSITION TRANSDUCER

(1) Disconnect wiring from throttle position transducer.

(2) Loosen lock nut.

(3) Place special tool C-4522 between outer portion of transducer and transducer mounting bracket (Fig. 25).

(4) Adjust transducer by turning clockwise or counterclockwise until a clearance fit is obtained.

(5) Tighten lock nut securely.

REPAIR PROCEDURES

Service procedures are the same as described under Ignition System for the following items:

(a) distributor, cap and rotor
(b) coil
(c) ballast resistor
(d) spark plug wires and spark plugs
(e) pick up coil.

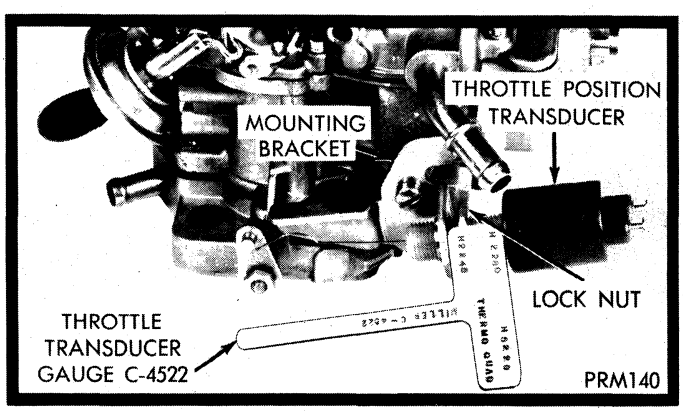


Fig. 25—Adjusting Throttle Position Transducer Typical

Spark Control Computer

When it becomes necessary to replace the computer, remove mounting screws from inside of air cleaner. **DO NOT TAKE APART COMPUTER FOR ANY REASON. IT IS NOT SERVICEABLE AND IS TO BE REPLACED AS AN ASSEMBLY.**

Throttle Position Transducer

When it becomes necessary to replace the transducer remove wire connector, loosen lock nut and unscrew from mounting bracket. Unsnap core from carburetor linkage. Install new core and transducer, then adjust. Refer to Adjustment Procedures.

Vacuum Transducer

When it becomes necessary to replace the transducer, replace the Spark Control Computer.

Carburetor Switch

When it becomes necessary to replace the carb switch, replace bracket and switch assembly.

Coolant Switch

Service is same as coolant temperature sending unit.

Carburetor

Service procedures are the same as described under Group 14 of the Service Manual.

ELECTRONIC SPARK ADVANCE SYSTEM ANALYZER

GENERAL INFORMATION

The Chrysler Huntsville Electronics Division Model II Electronics Spark Advance (ESA) System Analyzer has been specifically designed for simplified operation in field servicing (Fig. 1). The Analyzer is rugged, portable and essentially maintenance free.

In addition to checking out the Spark Control Computer (SCC) and associated Sensors, the Analyzer checks the Ignition Coil, Ballast Resistor, Ignition Switch Contacts, and Battery Voltage. The Analyzer is also used to set the basic ignition timing and idle speed, both of which are shown in digital readouts on the front panel.

The Analyzer is "programmed" by dialing a test code for the engine being tested. Test code is located

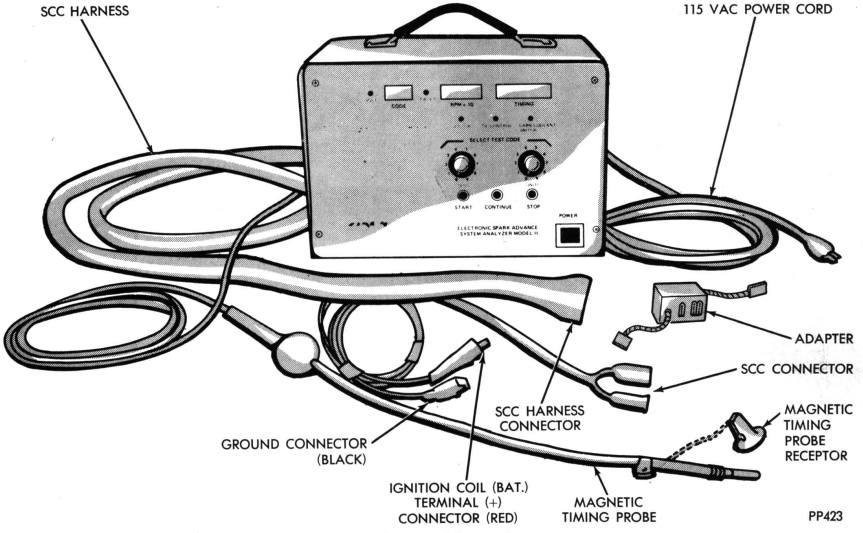


Fig. 1—ESA analyzer cables and connectors

on the side of the SCC (Fig. 2). The test code is the last two digits of the SCC part number. A selected test code allows the Analyzer to select the correct program for the vehicle being tested. The test begins when the START button is depressed. The Analyzer automatically performs a pre-set sequence of tests by receiving signals from the sensors and determines if they are operating properly. When an instruction code is displayed during the course of the tests, the mechanic is required to perform the function as defined on the front panel.

In the event a component fails, a fault light on the front panel illuminates and the nature of the fault is indicated by a code number. The Analyzer will not proceed until the fault is corrected, then the test MUST be restarted. If one of the Fault Codes, 21 through 29 is displayed during the testing sequence, the probable cause of the problem is a fault in the Analyzer.

The Analyzer is normally mounted on a two-wheel cart. However, the Analyzer may easily be removed from the cart for bench top use. Cart configuration consists of a bottom compartment and a centrally located drawer which provides storage space for documentation and accessories, such as the hand held vacuum pump.

OPERATING INSTRUCTIONS

Preparation for Operation

Perform the following steps to prepare the Analyzer for operation.

(1) Connect adapter (Fig. 1, 3 and 4) (P/N 3840677) to analyzer.

(2) Verify that the vehicle battery is fully charged (minimum specific gravity 1.220, temperature corrected).

(3) Make sure the ignition switch is in the OFF position.

Connection of the ESA Analyzer

(1) From underneath Spark Control Computer, disconnect wiring harness connector.

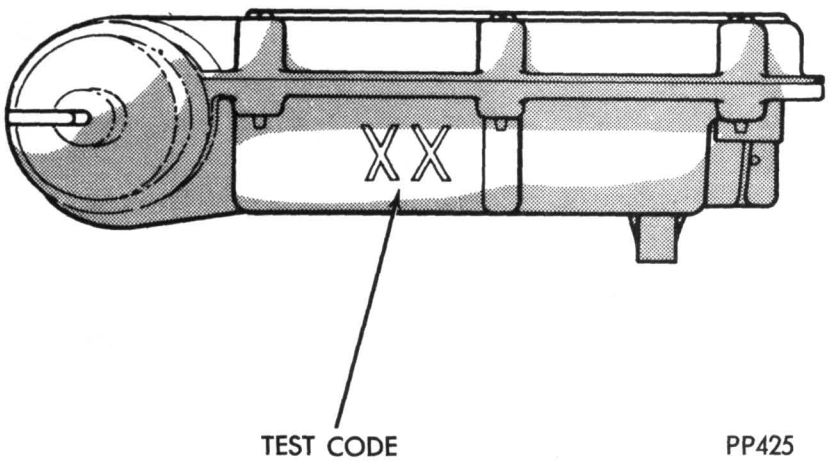


Fig. 2—Spark control computer test code (typical)

(2) Connect main Analyzer connectors as follows:

(a) Connect female 10 way connector from analyzer adapter into spark control computer.

(b) Connect male 10 way connector from analyzer adapter to spark control computer wiring harness.

(3) Connect Analyzer **RED** alligator clip lead to **Bat** (+) terminal of the engine ignition **COIL.**

CAUTION: DO NOT CONNECT **RED** CLIP TO **NEG** (−) TERMINAL TO COIL: MAY CAUSE INTERNAL ANALYZER DAMAGE.

(4) Connect Analyzer **BLACK** ground lead to alternator housing or suitable engine ground.

(5) Attach magnetic timing probe receptacle to timing plate holder by positioning the receptacle to holder so that it will slide into position over the holder fingers. Slide into position and install timing pick-up probe into receptacle until it bottoms out on vibration damper.

(6) Do **NOT** connect Analyzer coil tower plug to ignition coil tower until instructed to do so in testing sequence.

(7) Plug the power cord into a 115 VAC grounded outlet.

WARNING: The Analyzer will not operate properly and damage to components may result if operated from a power source other than 115 + 10% VAC, 60 Hz.

Operation of the ESA Analyzer

The following steps describe the normal sequence of operation for the Analyzer.

NOTE: Disregard T.I.C. indicator lamp.

(1) Refer to (Fig. 7) for all front panel controls and indicators.

(2) Depress the POWER switch.

(3) Set SELECT TEST CODE switches to test code stamped on side of SCC (Fig. 2).

(4) Refer to CARB/COOLANT LAMP indications.

(5) Depress the START swtch.

NOTE: If Fault Code 20 appears, the SELECT TEST CODE switches are set to an invalid code. To clear Fault Code 20, select the test code stamped on side of SCC, press the STOP switch, then press the START switch.

(6) When Instruction Code 01 is displayed, the operator should proceed with step (a) Timing and RPM Display Mode or (b) Diagnostic Mode. If no action is taken within one minute, the test will time out and MUST be restarted.

(a) Initiate the Timing and RPM Display Mode by starting the engine and pressing the CONTINUE switch while the engine is running at idle RPM.

NOTE: The engine will **NOT** start unless Code 01 is displayed, and the coil tower is connected to the distributor.

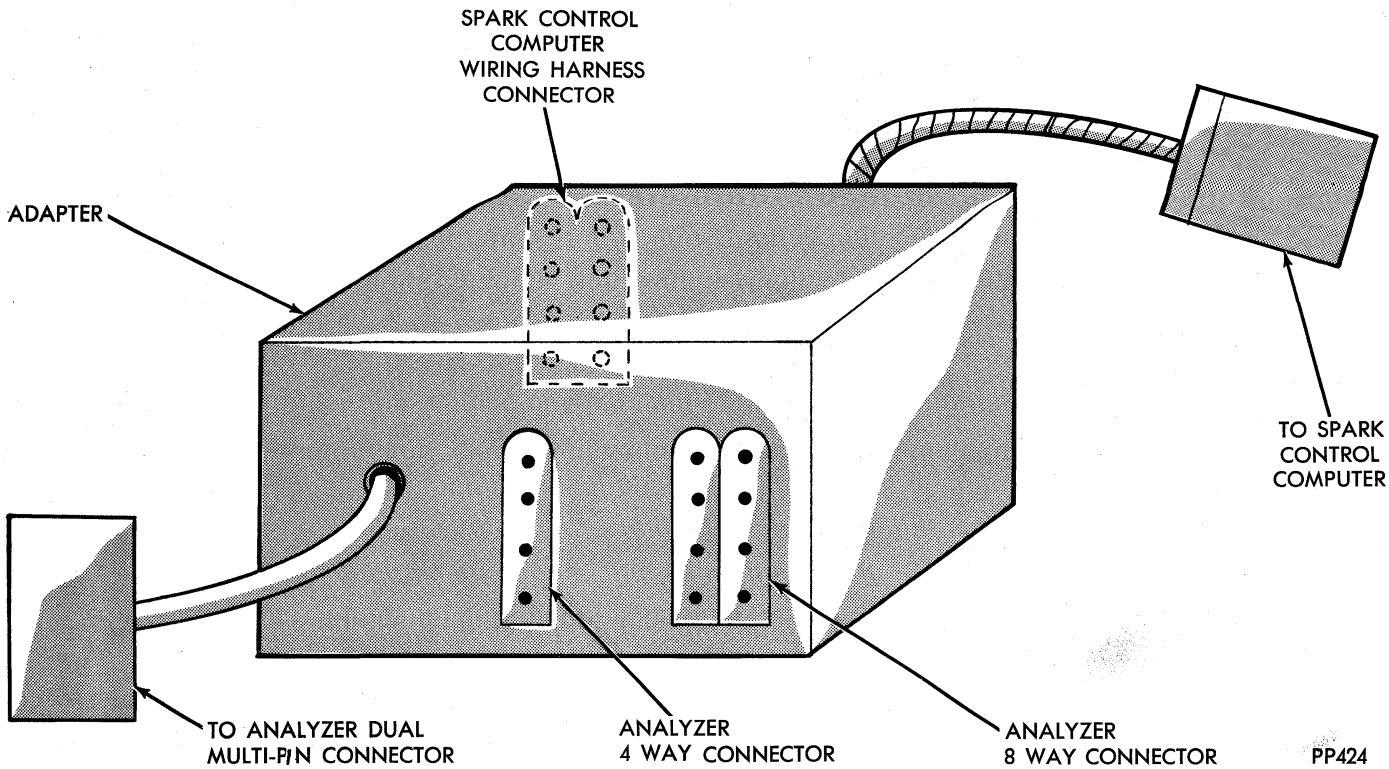


Fig. 3—ESA Analyzer Adapters

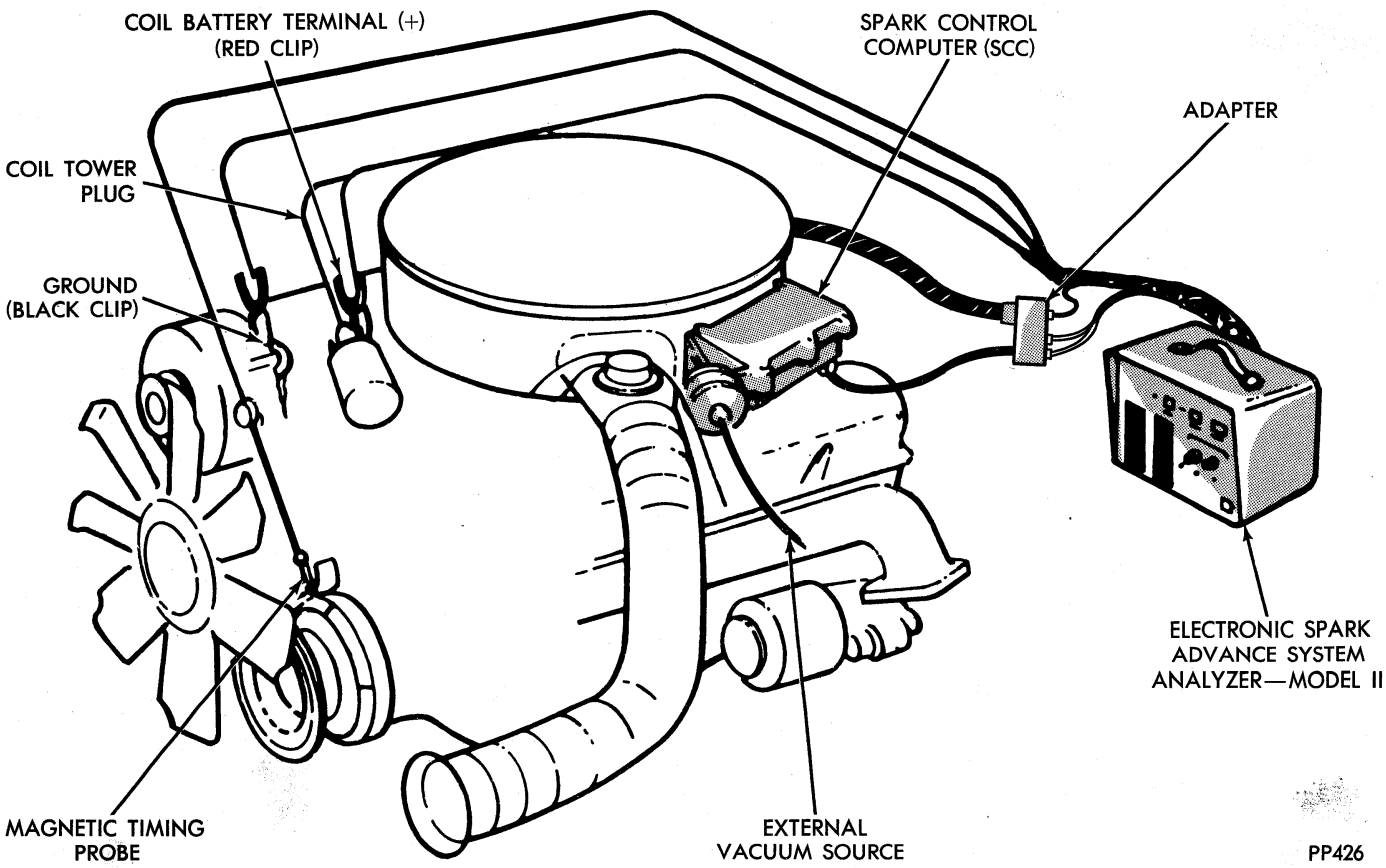


Fig. 4—ESA Analyzer Connections

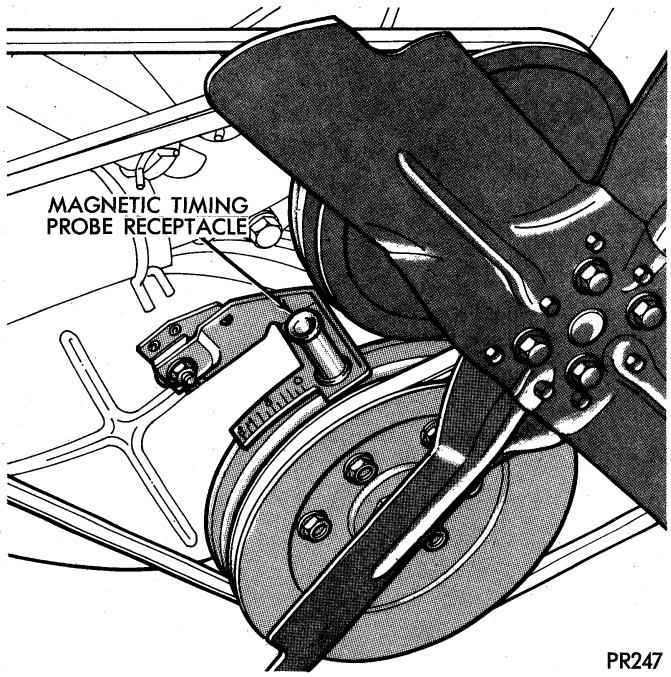


Fig. 5—Magnetic Timing Probe Receptacle Six Cylinder Engine

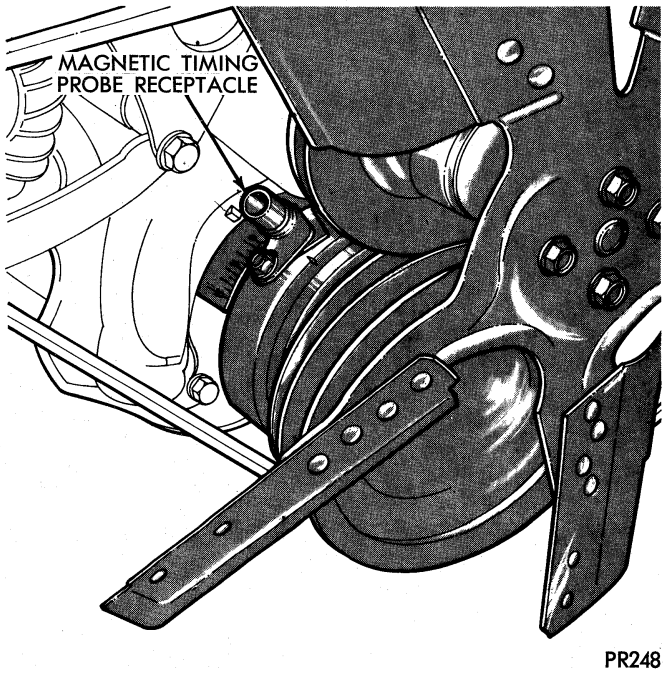


Fig. 6—Magnetic Timing Probe Receptacle Eight Cylinder Engine (Typical)

This causes the ESA Analyzer to check the relationship between the Start and Run pickups in the distributor and continue to measure and display engine timing and RPM until either the engine is stopped or the STOP switch is depressed. If a Fault Code appears, refer to Table 2.

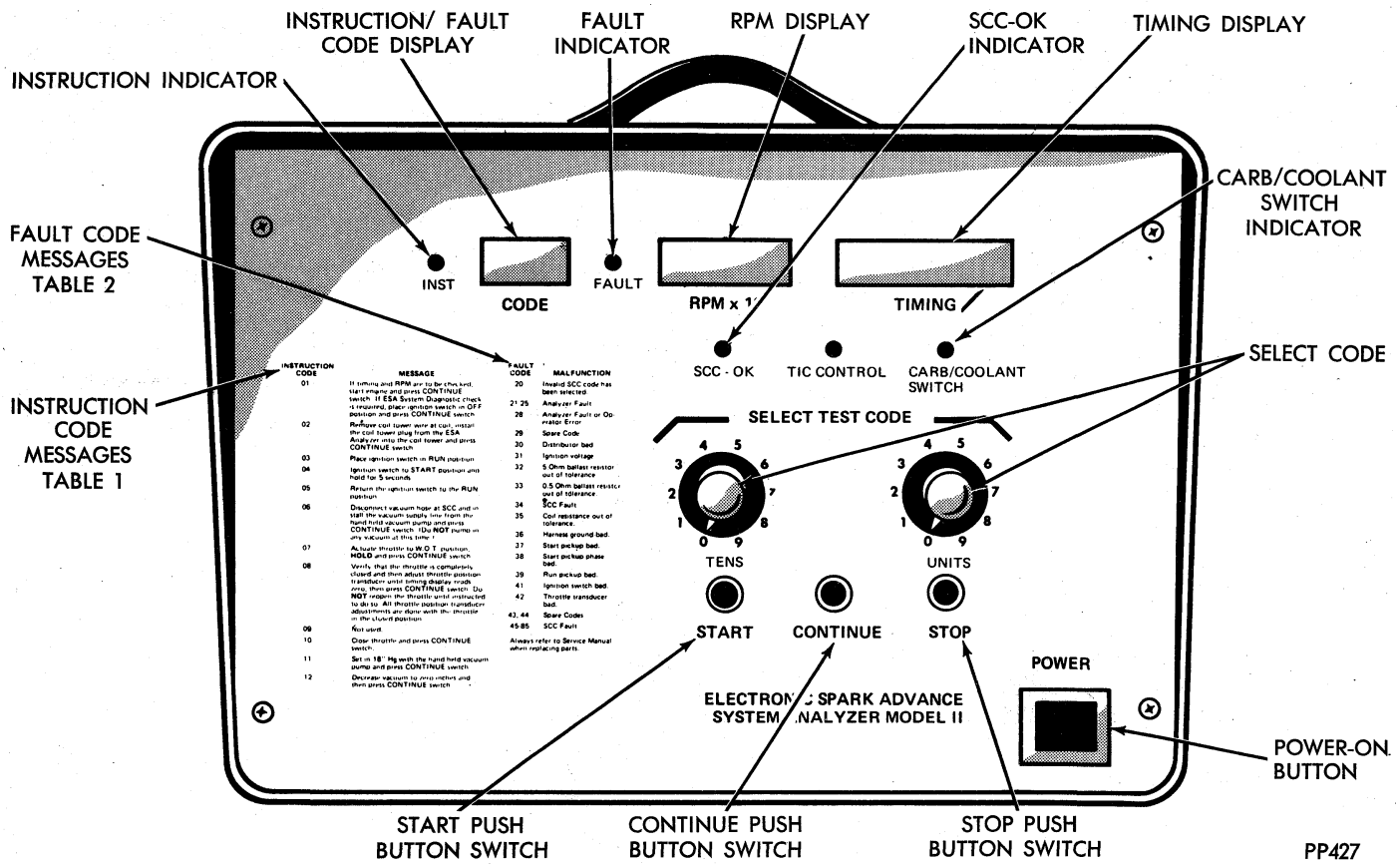


Fig. 7—Front Panel Controls and Indicators

NOTE: This test cannot be performed or may be erratic if the magnetic timing probe is not properly attached.

(b) Initiate the Diagnostic Mode by pressing the CONTINUE switch while the engine is **NOT** running. This causes the ESA Analyzer to begin its diagnostic program on the SCC and other components of the primary ignition system.

(7) When Instructon Code 02 appears, verify that the ignition switch is in the OFF position. Remove the coil tower wire from the coil, and connect the Analyzer coil tower plug to the coil tower (Fig. 4) then press the CONTINUE switch.

(8) When Instruction Code 03 appears, turn the ignition switch to the RUN position.

NOTE: If Code 03 does not appear the ignition switch was already in the RUN position.

If the Analyzer does NOT continue when the ignition switch is turned ON, proceed by pressing the CONTINUE switch. If a Fault Code appears, refer to Table 2.

NOTE: After a fault is detected and corrective action is taken the test MUST be restarted. To do so, press the STOP switch, recheck ESA Analyzer connections and return to paragraph C-5.

(9) When Instruction Code 04 appears, turn the ignition switch to the START position and HOLD until the Instruction Code changes. The Code should change within 5 seconds to the next Instruction Code. If a Fault Code appears, refer to Table 2.

NOTE: If Code 04 will not change the Analyzer cannot sense a signal from either pickup in the distributor. The test will time out in one minute and the test MUST be restarted after corrective action is taken as explained in both Fault Codes 37 and 39 in Table 2.

(10) When Instruction Code 05 appears, simply release the ignition switch from the START position and allow it to return to the RUN position.

(11) When Instruction Code 06 appears, disconnect the vacuum hose at the vacuum transducer of the SCC and connect the hand held vacuum pump to the transducer.

NOTE: Do **NOT** apply any vacuum at this time, and verify that the throttle linkage is **OFF** the fast idle cam.

Press the CONTINUE switch and Code 99 (Test in Progress) normally will flash for the next 90 seconds. During this time if a Fault Code appears, see Table 2.

(12) Instruction Code 08 may appear before or after Instruction Code 07, depending upon the condition of the throttle position transducer.

(a) When Instruction Code 07 appears, open the throttle all the way and HOLD, then press the CONTINUE switch. Continue holding the throttle open until the code changes.

(b) If Instruction Code 08 appears, close the throttle completely and adjust the throttle position transducer by turning the transducer until the TIMING display reads zero. If a zero reading cannot be obtained, then proceed by pressing the CONTINUE switch. If a Fault Code appears, refer to Table 2.

NOTE: Do **NOT** reopen the throttle until instructed to do so.

(13) When Instruction Code 10 appears, release the throttle and allow it to close completely, then press the CONTINUE switch. If a Fault Code appears, refer to Table 2.

(14) When Code 11 appears, set in 18 inches of vacuum with the hand held vacuum pump and then press the CONTINUE switch. If a Fault Code appears, refer to Table 2.

(15) When Code 12 appears release the vacuum pump release valve, and then press the CONTINUE switch. If a Fault Code appears, refer to Table 2.

(16) When the SCC OK lamp lights, this indicates that the SCC and all components of the Primary Ignition circuit are functioning properly.

(17) Turn the ignition switch OFF before disconnecting the ESA System Analyzer.

INSTRUCTION CODE SUMMARY

Table 1 contains the Instruction Codes and Messages that appear on the ESA Analyzer front panel.

FAULT CODE SUMMARY

Table 2 contains the Fault Codes and malfunctions that appear on the ESA Analyzer front panel.

TABLE 1
INSTRUCTION CODE LISTING AND MESSAGE

INSTRUCTION CODE	MESSAGE
01	If timing and RPM are to be checked, start engine and press CONTINUE switch. If ESA System Diagnostic check is required, place ignition switch in OFF position and press CONTINUE switch.
02	Remove coil tower wire at coil, install the coil tower plug from the ESA Analyzer into the coil tower and press CONTINUE switch.
03	Place ignition switch in RUN position.
04	Ignition switch to START position and hold for 5 seconds.
05	Return the ignition switch to the RUN position.
06	Disconnect vacuum hose at SCC and install the vacuum supply line from the hand held vacuum pump and press CONTINUE switch. (Do **NOT** pump in any vacuum at this time.)
07	Actuate throttle to W.O.T. position, **HOLD** and press CONTINUE switch.
08	Verify that the throttle is completely closed and then adjust throttle position transducer until timing display reads zero, then press CONTINUE switch. Do **NOT** reopen the throttle until instructed to do so. All throttle position transducer adjustments are done with the throttle in the closed position.
09	Not used.
10	Close throttle and press CONTINUE switch.
11	Set in 18" Hg with the hand held vacuum pump and press CONTINUE switch.
12	Decrease vacuum to zero inches and then press CONTINUE switch.

TABLE 2
FAULT CODE LISTING AND TROUBLESHOOTING GUIDE

FAULT CODE	MALFUNCTION	REMARKS
20	Invalid SCC code has been selected.	Test Code is stamped on side of SCC.
21-25	Analyzer Fault	Rerun the test; if Fault Code continues, contact Authorized Service Center.
28	Analyzer Fault or Operator Error	Code 28 appears if the **RED** clip it not making proper contact at coil **BAT** (+) terminal.
29	Spare Code	
30	Distributor bad	The relationship between the start and run pickups is incorrect. Replace pickup coils assembly.
31	Ignition voltage	Check all harness connections, battery, ignition switch and wiring.
32	5 Ohm ballast resistor out of tolerance	Check for continuity from ballast resistor to SCC connector. If okay replace the ballast resistor.
33	0.5 Ohm ballast resistor out of tolerance.	Check for continuity from ballast resistor to coil (+). If okay replace the ballast resistor.
34	SCC Fault	Power or ground connections, SCC open, or SCC bad.
35	Coil resistance out of tolerance.	Check connections to coil and wiring. If okay replace the coil.
36	Harness ground bad.	Engine harness connector not grounded properly.
37	Start pickup bad.	Check the pickup gap, wiring and connections. If okay replace the pickup.
38	Start pickup phase bad.	Wiring is reversed to start pickup. Check the wiring.
39	Run pickup bad.	Check the pickup gap, wiring and connections. If okay replace the pickup.
40	Run pickup phase bad.	Wiring to run pickup is reversed; correct the wiring.
41	Ignition switch bad.	Ignition switch is bad in the START position. Check the ignition bypass circuit wiring. If okay replace the switch.
42	Throttle transducer bad.	Check wiring to transducer; if okay replace the transducer.
43, 44	Spare Codes	
45-85	SCC Fault	Record this code and attach to failed SCC.

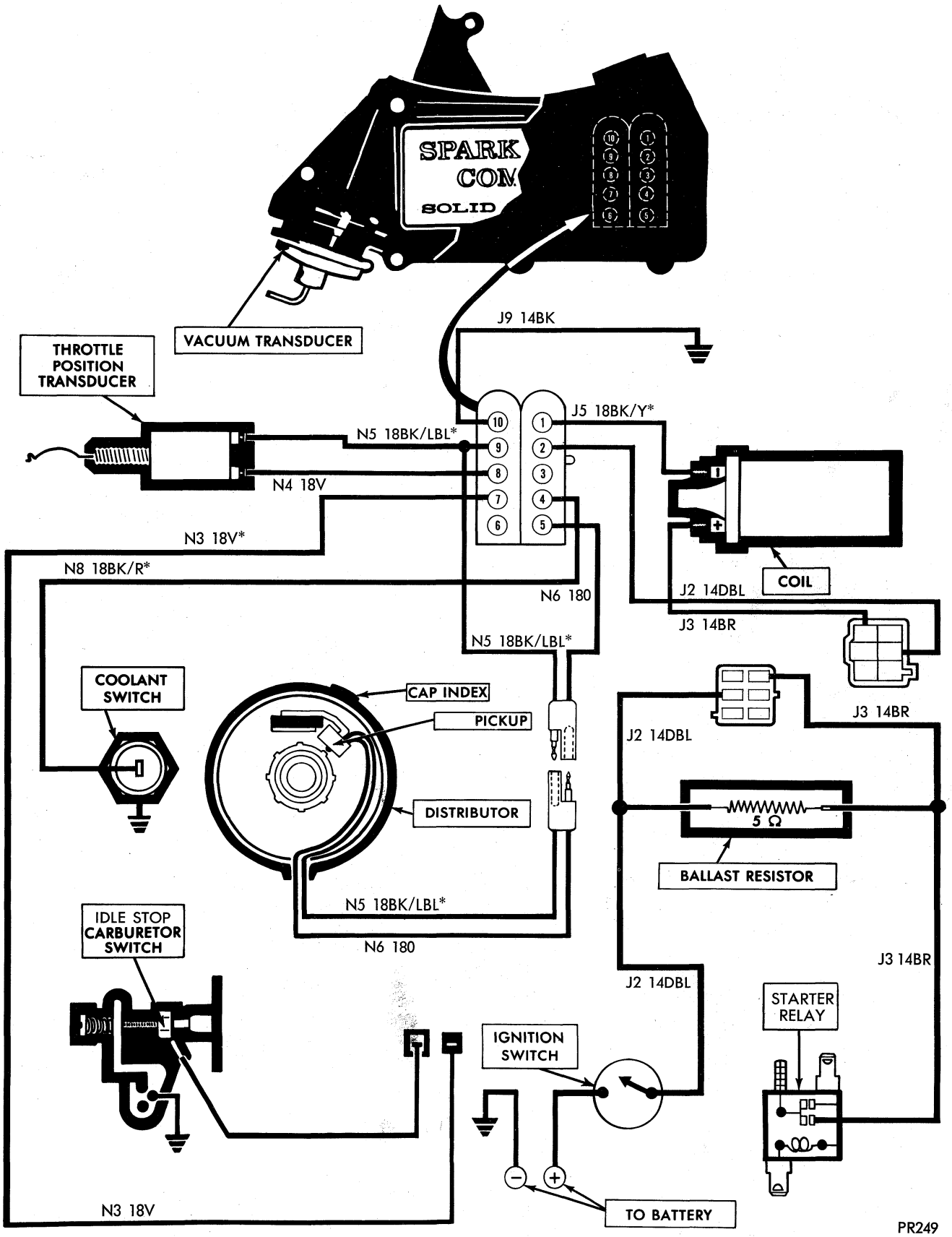


Fig. 8—Electronic Lean Burn Wiring and Schematic

INSTRUMENT PANELS AND GAUGES

INDEX

GENERAL INFORMATION

The fuel, temperature, and oil pressure gauges operate on the constant voltage principle through a common voltage limiter which pulses to provide intermittant current to the gauge system.

Fuel Level Indicating System

A hinged float arm in the fuel tank raises or lowers dependent on the fuel level. The float arm contacts a variable resistor in the gauge sending unit that

provides a change of resistance in the fuel gauge circuit with any up or down movement of the float. This resistance registers on the instrument panel gauge, metered to the capacity of the tank.

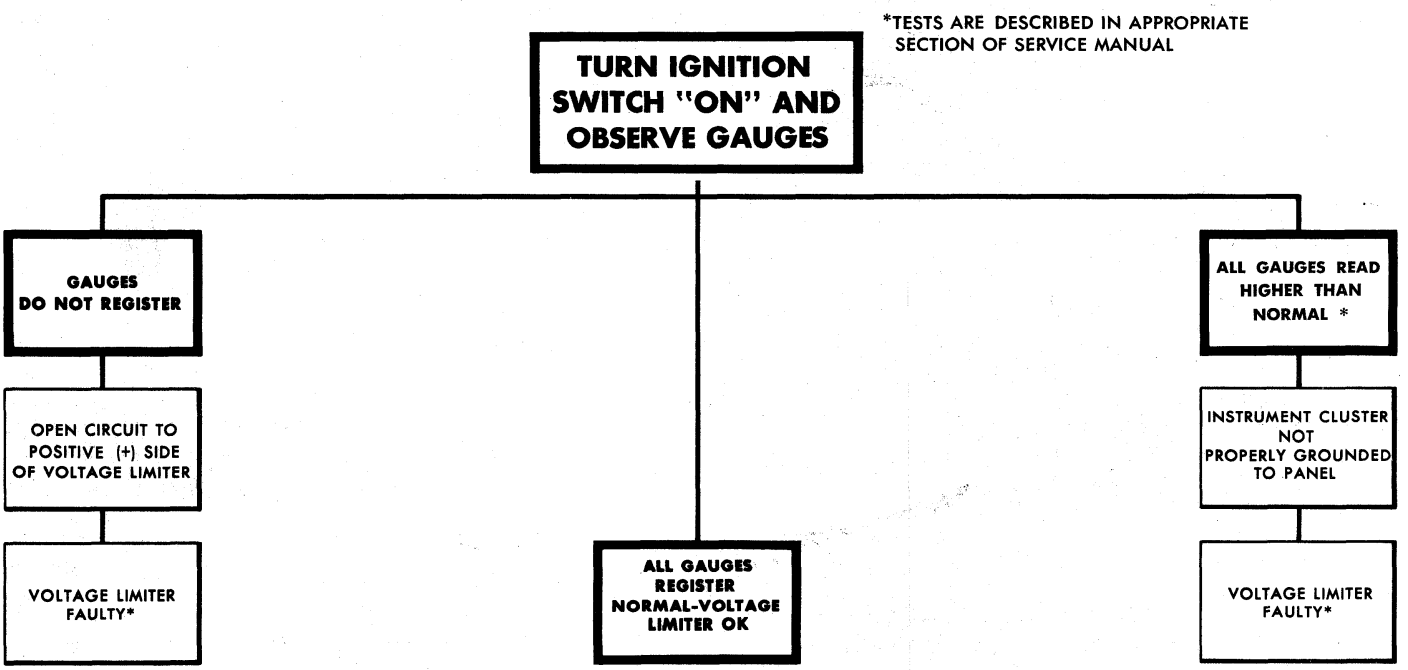
When the fuel level in the tank is low, the resistance of the circuit is increased restricting current flow and consequently positions the instrument panel gauge pointer to low.

Resistance in the circuit is at a minimum when the tank is full and the float arm is raised. With resistance at a minimum, current flow is high registering full on the instrument panel gauge.

Temperature and Oil Indicating System

The operation of the temperature and oil pressure indicating system are identical in operation with the

VOLTAGE LIMITER DIAGNOSIS



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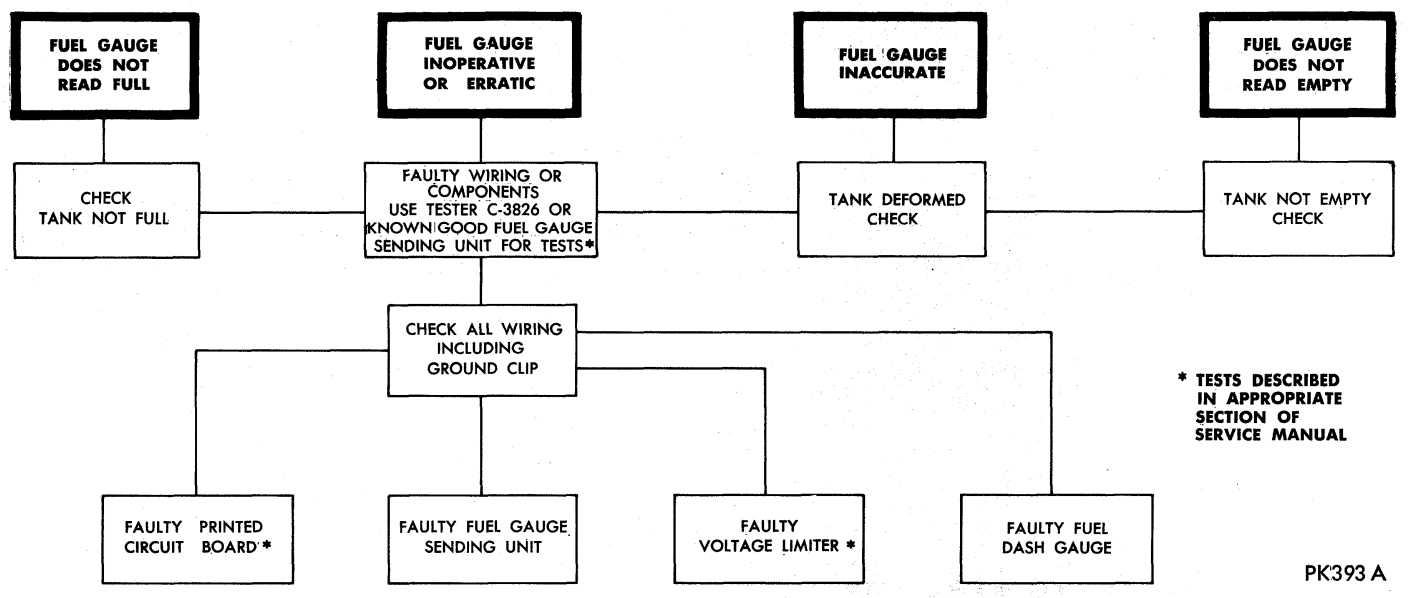
FUEL GAUGE SYSTEM DIAGNOSIS



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fuel system with the exception of the method of varying the resistance of the sending unit. In the temperature system the sending unit resistance varies in direct relation to the temperature of the coolant.

When the engine is cold the resistance of the disc in the temperature sending unit is high and a low temperature will be indicated on the gauge.

In the oil pressure indicating system the sending unit resistance is actuated by a diaphragm as the oil pressure increases or decreases, which will be indicated on the gauge.

Alternator Indicating System

The alternator gauge is an ammeter which senses the direction and rate of flow of electrical current to or from the battery to indicate whether the battery is being charged or discharged.

Oil Pressure Warning Lamp

The oil pressure warning switch, mounted on the engine, is controlled by engine oil pressure.

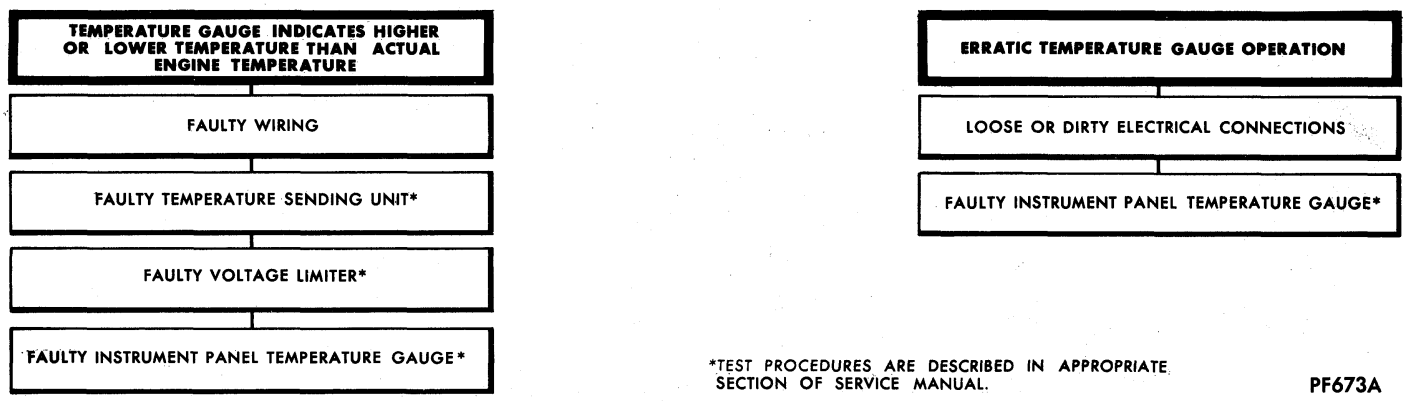
When engine oil pressure is high (normal operating condition of the engine) the switch is held in the **"OFF"** or **"OPEN"** position allowing no current to flow to the oil pressure warning lamp on instrument panel.

When engine oil pressure is low the switch is in the **"ON"** or **"CLOSED"** position allowing current to flow to the oil pressure warning lamp on the instrument panel causing the warning lamp to be illuminated.

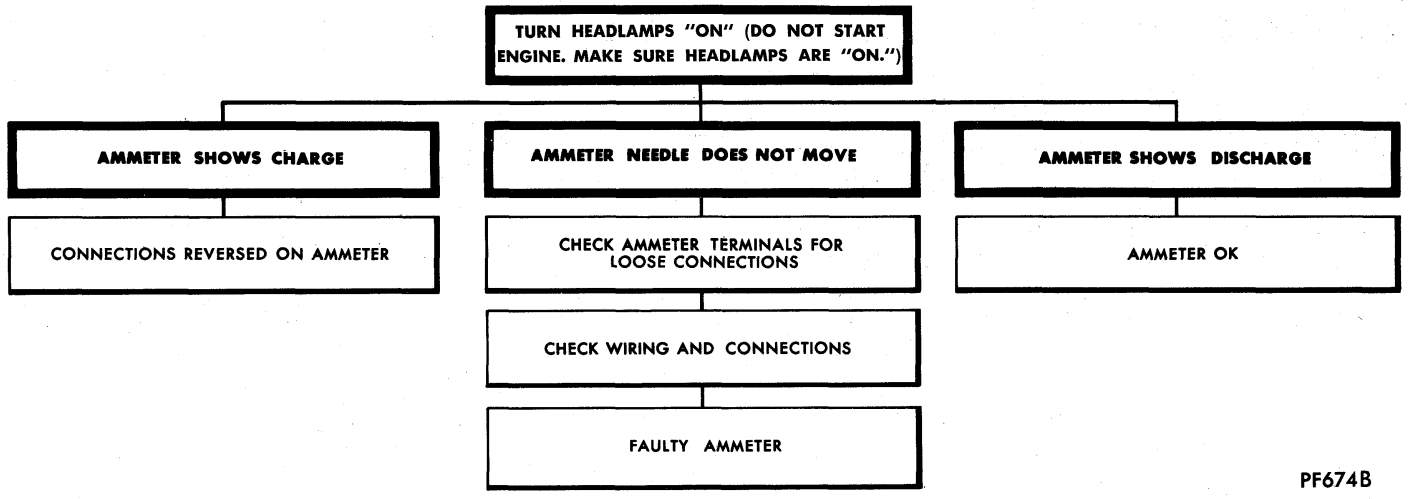
Gauge Alert System (Figure 1)

The fuel, temperature, and ammeter gauges have a small L.E.D. (Light Emitting Diode) mounted in the gauge dial. It will illuminate and alert the driver that the system the gauge is monitoring is in a situation other than normal. The electronic sensor circuit is mounted on the gauge housing. The printed circuit board is permanently attached and can not be serviced as a separate item. If replacement becomes necessary the gauge and printed circuit board must be replaced as an assembly. Care should be taken

TEMPERATURE GAUGE DIAGNOSIS



AMMETER DIAGNOSIS



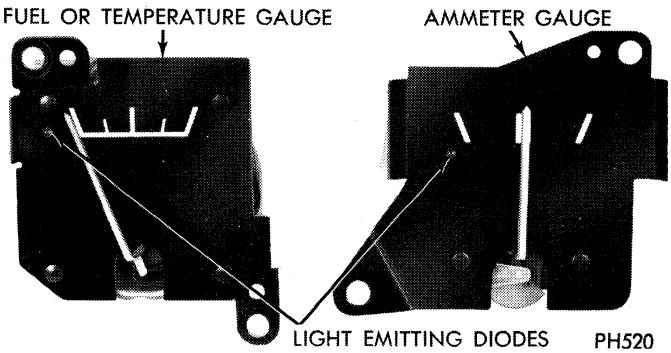


Fig. 1—Gauges with Alert System

when ordering new gauges; **With the alert system or Without the alert system.**

The fuel gauge L.E.D. works in conjunction with the fuel gauge indicator. When the indicator moves into a position that represent approximately 1/8 of a tank of fuel remaining, the L.E.D. will illuminate and alert the driver of a low fuel situation. The L.E.D. will stay illuminated until the fuel tank is replenished to above approximately 1/8 of a tank capacity.

The temperature gauge L.E.D. works in conjunction with the temperature gauge indicator. When the indicator moves into a position that represents approximately 240° to 260° engine temperature the L.E.D. will illuminate and alert the driver of an overheating condition. The L.E.D. will stay illuminated until engine temperature returns to normal.

The ammeter L.E.D. works independent of the ammeter indicator. It monitors system voltage. When the system voltage drops to a predetermined point, indicated by the ammeter pointer in the discharge area, the L.E.D. will illuminate and alert the driver to one of the following situations:

(1) A discharged condition because of heavy electrical load at engine idle rpm.

L.E.D. should stop illuminating when engine rpm is increased or the heavy electrical load is reduced. If not this indicates a malfunction in the charging system.

(2) A weak or defective battery when the ignition switch is turned to the "on" position **before** moving it to the start position.

(3) A weak or defective battery with an intermittant illumination of the L.E.D. with minimum electrical load in stop and go driving.

The L.E.D. will stay illuminated until these conditions are corrected.

TESTING PROCEDURES

Voltage Limiter—All Models

The voltage limiter can be tested in the vehicle or with the instrument cluster removed. To quickly test the voltage limiter in the vehicle, connect one lead of a voltmeter to the temperature sending unit and the other lead to a good ground. Leave the sending unit lead wire attached to the sending unit.

Turn the ignition switch to the "ON" position. A fluctuating voltmeter indicates the voltage limiter is operating.

Fuel Gauge System Test
Preparation (Using Tester Tool C-3826)

(1) Disconnect wire from terminal on fuel tank sending unit.

(2) Connect one lead of tester to disconnected wire and other lead to a good ground.

Preparation (When Tester Tool C-3826 is not available)

(1) Disconnect wire from terminal on fuel tank sending unit.

(2) Connect wire to a **known good** sending unit.

(3) Connect a jumper wire between sending unit fuel pick up tube and a good ground.

Test (Using Tester Tool C-3826)

(1) Check fuel gauge as described in following steps. Allow at least two minutes at each test point for gauge to settle. Tapping instrument panel will help position pointer.

(2) Turn ignition key to "On" position, turn tester knob to "L" position and observe gauge. Gauge should read "Empty", plus one pointer width, minus two pointer widths.

(3) Turn tester knob to "M", gauge should read "1-2 Full" plus or minus two pointer widths.

(4) Turn tester knob to "H", gauge should read "Full", plus two pointer widths minus one pointer width.

Test (When Tester Tool C-3826 is not available)

(1) Check fuel gauge as described in following steps. Allow at least two minutes at each test point for gauge to settle. Tapping instrument panel will help position pointer.

(2) Clip float arm of sending unit to its empty stop and turn ignition key to "On" position.

(3) The gauge should read "Empty", plus one pointer width, minus two pointer widths.

(4) Move and clip sending units float arm to full stop. The gauge should read "Full", plus two pointer widths, minus one pointer width.

Results (Both Methods)

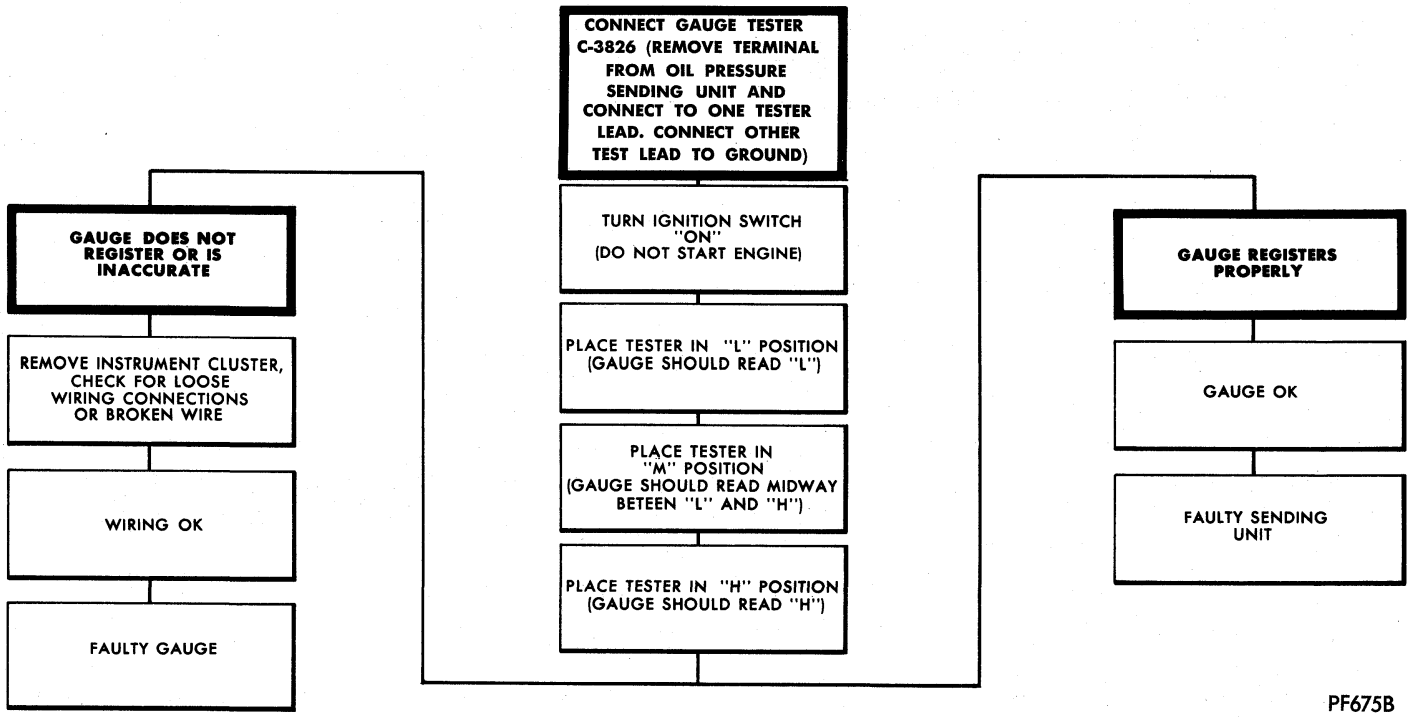
(1) If fuel gauge does not meet specifications, check following items as possible causes;

(a) Wiring and connections between gauge sending unit and multiple connector behind left cowl kick pad.

(b) Wiring and connections between multiple connector behind left cowl kick pad and printed circuit board terminals.

(c) Circuit continuity between printed circuit board terminals and gauge terminals.

OIL PRESSURE GAUGE WARNING SYSTEM DIAGNOSIS



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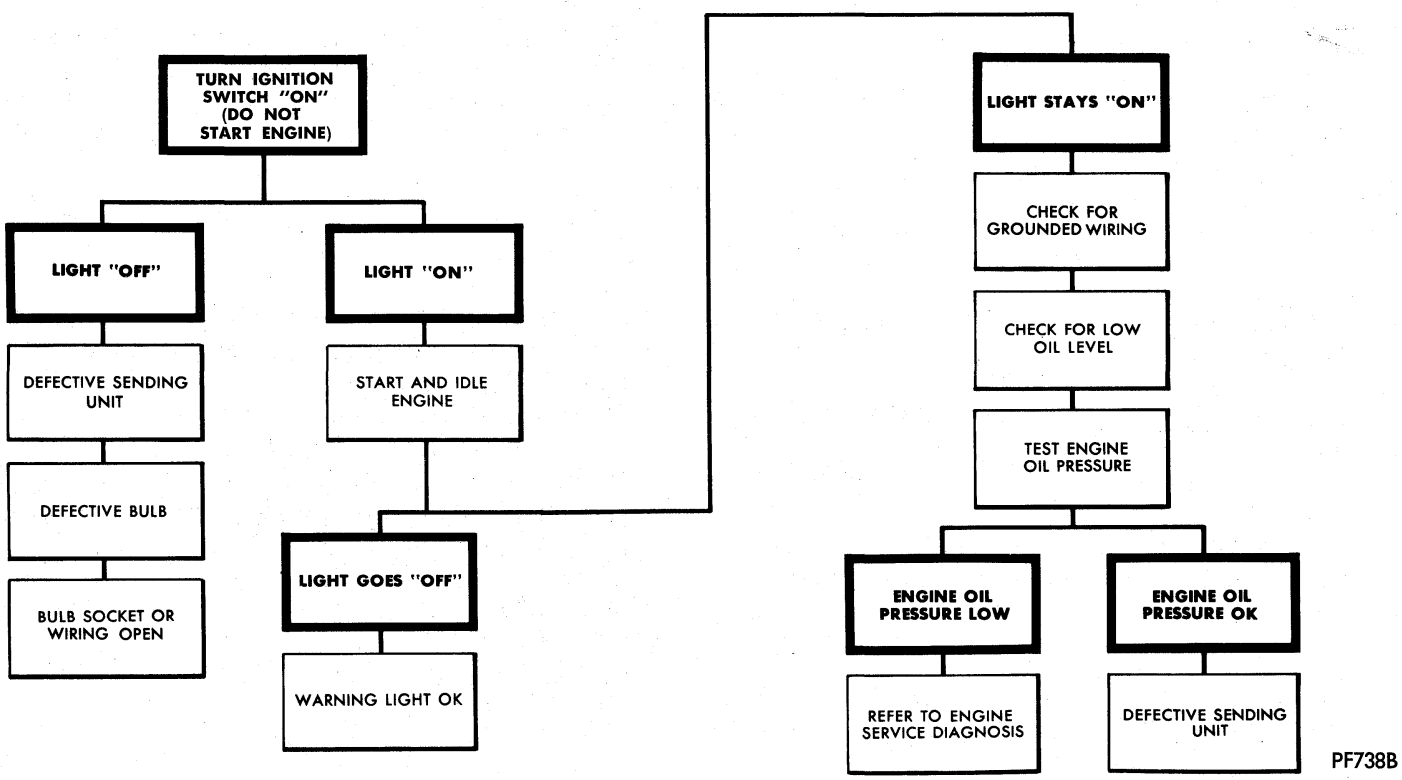
LOW OIL PRESSURE WARNING LIGHT DIAGNOSIS



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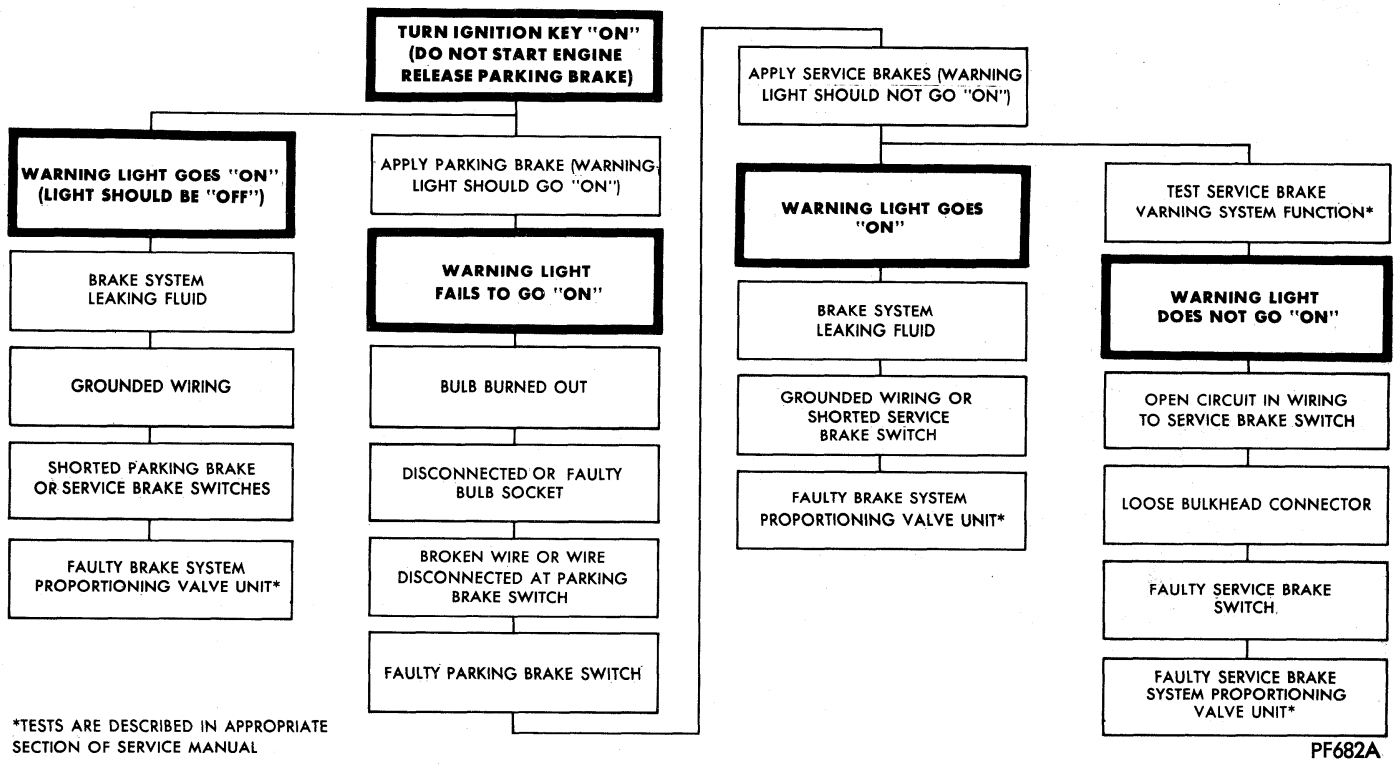
BRAKE SYSTEM WARNING LIGHT DIAGNOSIS



(d) Voltage limiter performance.

If these items check okay, fuel gauge is defective and must be replaced.

(2) If fuel gauge meets specifications with tool C-3846 or known good sending unit, check fuel tank and original, installed fuel gauge sending unit as follows:

(a) Carefully remove fuel gauge sending unit from tank. Connect sending unit wire and jumper wire as outlined in "Preparation (When Tester Tool C-3826 is not Available)".

(3) If fuel gauge now checks within specifications, original installed sending unit is electrically okay, check following as possible cause:

(a) ground strap from sending unit to fuel line for continuity,

(b) sending unit deformed. Make sure sending unit float arm moves freely, pick up tube is not bent upwards so that there is not an interference fit with bottom of tank and inspect float.

(c) sending unit improperly installed, install properly.

(d) mounting flange on fuel tank for sending unit deformed, feel for interference fit of sending unit to bottom of tank. It is permissable to bend pick up tube down **a little** near mounting flange to gain interference fit.

(e) fuel tank bottom deformed causing improper positioning of sending unit pick up tube, replace or repair tank and recheck sending unit.

Fuel Tank Sending Unit

Removal

NOTE: On models where the muffler and tailpipe are located so that access to the sending unit is blocked, it will be necessary to loosen them and allow the assembly to drop out of the fuel tank area.

(1) Remove hose ground strap or wire and electrical connector (Fig. 2).

(2) Remove sending unit lock ring using special tool C-3582 (Fig. 3).

(3) Remove sending unit as follows:

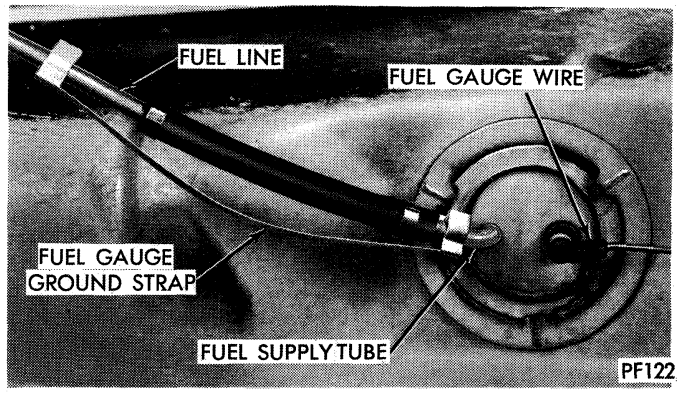


Fig. 2—Fuel Gauge Ground Strap and Electrical Lead

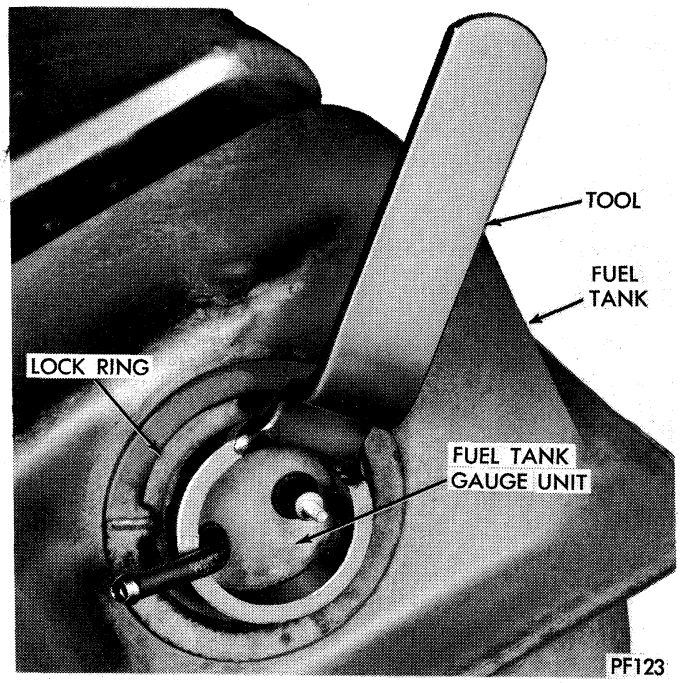


Fig. 3—Removing or Installing Fuel Tank Gauge Sending Unit

(a) (H-N, F, G, R, W) Carefully remove sending unit from fuel tank.

(b) (C) From between tank and frame rail remove sending unit by pulling out of fuel tank with a twisting motion downwards and towards front of vehicle. After removal note position of sending unit between fuel tank and frame rail.

Installation

(1) Install new gasket onto sending unit.

(2) Install sending unit as follows:

(a) (H-N, F, G, R, W) Carefully install sending unit into fuel tank and properly position into place.

(b) (C) Hold sending unit in position noted previously between tank and frame rail. Install sending unit into tank with a twisting motion upwards and towards rear of vehicle.

(3) Install lock ring with special tool C-3582.

(4) Install hose ground strap or wire and connector.

NOTE: On models where applicable raise muffler and tailpipe into position and tighten securely.

CAUTION: REFER TO GROUP 11, EXHAUST SYSTEM FOR PROPER POSITION OF EXHAUST SYSTEM SO CORRECT CLEARANCE BETWEEN CATALYST AND FLOOR PAN IS OBTAINED.

Temperature Gauge Test

Disconnect the terminal from the temperature sending unit on the engine. Connect one test lead of tester C-3826 to the terminal and the other test lead to a good ground. Place the pointer of the gauge tester on the **"L"** position and turn the ignition switch to "on." The temperature gauge should show "C" plus or minus 1/8 inch.

Place the pointer of the tester on the **"M"** position and the temperature gauge should advance to the driving range left of 1/2 position of the dial. Place the pointer of the tester in the **"H"** position and the gauge should advance to the "H" position of the dial. Should the gauge respond to the above tests but not operate when the terminal is attached to the sending unit, indications are of a defective sending unit and it should be replaced.

Should the gauge fail to respond to the above tests, indications are of possible loose connections, broken wire, open printed circuit, or faulty gauge. The instrument cluster should be removed for further inspection. See "Instrument Cluster Removal."

Ammeter Test

Turn the headlight on (do not start engine). The ammeter needle should move toward the "D" or discharge scale. If no movement of the needle is observed, check the terminals for loose wires. If the terminals are secure, the ammeter is defective. If the needle moves toward "C" or charge, the connections are reversed.

With the shunt type ammeter, the main car current is in a separate lead located in the engine compartment wiring. A small portion of the current is tapped off to supply the ammeter.

CAUTION: Do not connect any accessories to the ammeter terminals.

Oil Pressure Warning Lamp

To check the low oil pressure warning light system, turn ignition key to "ON" position and observe if oil pressure light comes on. If light comes on proceed and start engine. **If the light remains on immediately turn engine off and check engine oil pressure according to procedures as outlined in the engine section of this manual.** If it is determined that oil pressure is according to specifications, check for a grounded wire and/or replace oil pressure sending unit. When turning ignition key to the on position and the oil pressure light does not come on, disconnect lead at sending unit and touch it to ground. If the light bulb comes on replace the sending unit. If the light bulb does not come on the light bulb is burned out or the bulb socket, wiring and connections are faulty.

Oil Pressure Gauge—(If so equipped)

Disconnect wire from the oil pressure sending unit on the engine. Connect one test lead of Tester Tool C-3826 to the removed wire terminal the other test lead to a good ground. Place the pointer of the gauge tester on the "L" position and turn the ignition switch to "on." Do not start engine. The oil pressure gauge should show "L" plus or minus 1/8 inch.

Place the pointer on the tester on the "M" position and the oil pressure gauge should advance to the 1/2 position of the dial. Place the pointer of the tester in the "H" position and the gauge should advance to the "H" position of the dial.

Should the gauge respond to the above tests, but not operate when the wire is attached to the sending unit, the sending unit is defective. Should the gauge fail to respond to the above tests indications are of possible loose connections, broken wire, or faulty gauge. The instrument cluster should be removed for further tests. See "Instrument Cluster."

Brake System Warning Light

The brake warning light flashes only when the parking brake is applied with the ignition key turned "ON". The same light will also illuminate should one of the two service brake systems fail when the brake pedal is applied. To test the system turn the ignition key "ON", and apply the parking brake. If the light fails to light, inspect for a burned out bulb, disconnected socket, a broken or disconnected wire at the switch.

To test the service brake warning system, raise the car on a hoist and open a wheel cylinder bleeder while a helper depresses the brake pedal and observes the warning light. If the light fails to light, inspect for a burned out bulb, disconnected socket, a broken or disconnected wire at the switch. If the bulb is not burned out and the wire continuity is proven, replace the brake warning switch in the brake line "Tee" fitting mounted on the frame rail in the engine compartment below the master cylinder.

Tachometer

The tachometer that is available in Chrysler Corporation vehicles is a self contained electronic tachometer. It is connected to the ignition coil on the negative (distributor) post. Through this connection the tachometer senses ignition firings and counts their number. This is shown by a pointer on the face of the instrument that is marked off in rpm so that the driver reads rpm.

Gauge Alert System Test

The alert system L.E.D. (Light Emitting Diode) is built into the gauge it is monitoring. If either the alert system or gauge malfunctions, they are serviced as an assembly.

Fuel Gauge Alert System

Disconnect electrical lead from fuel tank sending unit, connect it to one lead of tester C-3826, and connect remaining lead of tester to a good ground.

Turn ignition switch to "ON" position. If the gauge alert is functioning properly, L.E.D. will illuminate when the selector on tester is in the "L" position and will not illuminate when in the "M" position. If not functioning properly the gauge alert system must be replaced.

Temperature Gauge Alert System

Disconnect electrical lead from temperature gauge sending unit, connect it to one lead of tester C-3826, and connect remaining lead of tester to a good ground.

Turn ignition key to "ON" position. If the gauge alert is functioning properly, L.E.D. will illuminate when the selector on tester is in the "H" position and will not illuminate when in the "M" position. If not functioning properly the gauge alert system must be replaced.

Ammeter Gauge Alert System

The ammeter gauge alert system is an electronic voltmeter, pre-set at a specified voltage. Since it monitors system voltage, make sure battery is fully charged and charging system is functioning properly, before proceeding with test.

Testing ammeter gauge alert system for correct operation can only be done when L.E.D. is not illuminated. If before testing it is illuminated check to see if battery is fully charged and charging system is functioning properly. If so and L.E.D. continues to illuminate, gauge alert system is malfunctioning and must be replaced.

Only when battery and charging system are known to be good can testing of gauge alert system be done in following manner:

Turn ignition switch to "ON" position and create heavy electrical load by turning on headlights, windshield wipers, and stoplights. L.E.D. should illuminate immediately or within approximately one minute. If not there is a malfunction in system and it must be replaced. If L.E.D. illuminates start engine and maintain an engine speed of approximately 2000 rpm. L.E.D. should stop illuminating. If not, there is a malfunction in system and it must be replaced.

Speedometer System

The speedometer system consists of the speedometer, a cable from the speedometer to the transmission, and the adapter and pinion in the transmission. Two speedometer cables are used on cars equipped with speed control; one from the speedometer to the speed control servo unit, and one from the servo unit to the transmission. Refer to the transmission section of the Body and Chassis Manual for disconnecting and attaching the cable at the transmission, selecting the proper pinion, and selecting and indexing the proper adapter.

Careful handling of all components of the speedometer system is necessary to assure smooth, quiet operation of the speedometer. The cables must

not be kinked or incorrectly routed, and all fittings must be securely fastened. When installing a new speedometer cable, follow the routing of the cable being removed. Refer to the speedometer and cable diagnosis chart for an aid in isolating the causes of speedometer system malfunctions.

Cable Connection at Speedometer

The speedometer cables are connected to the speedometer in two different ways, depending on carline. The RWXS, C, and HN models use a snap-on plastic ferrule. This type ferrule attaches directly to the speedometer head and must be disconnected before the speedometer or cluster can be removed. On RWXS models this is accomplished by reaching under the instrument panel, depressing the tab on the ferrule, and pulling the cable back. On C models, access is gained to the speedometer cable connection by first removing the instrument panel upper cover, then reaching through the access hole to disconnect the cable. On HN models, it is necessary to remove the cluster bezel, remove the cluster mounting screws, and pull the cluster out far enough to reach in behind it and disconnect the speedometer cable. (On HN models with speed control, it may be necessary to disconnect the cable at the speed control servo in order to gain enough slack for pulling the cluster out.)

The F and G models use a plastic ferrule which is attached to the cluster carrier or panel, and is held in place by a metal spring clip. This permits servicing of the speedometer and cluster without having to disconnect the cable. On F and G models, without air conditioning, disconnecting the cable at the speedometer is accomplished by reaching under the instrument panel, depressing the spring clip, and pulling the cable back.

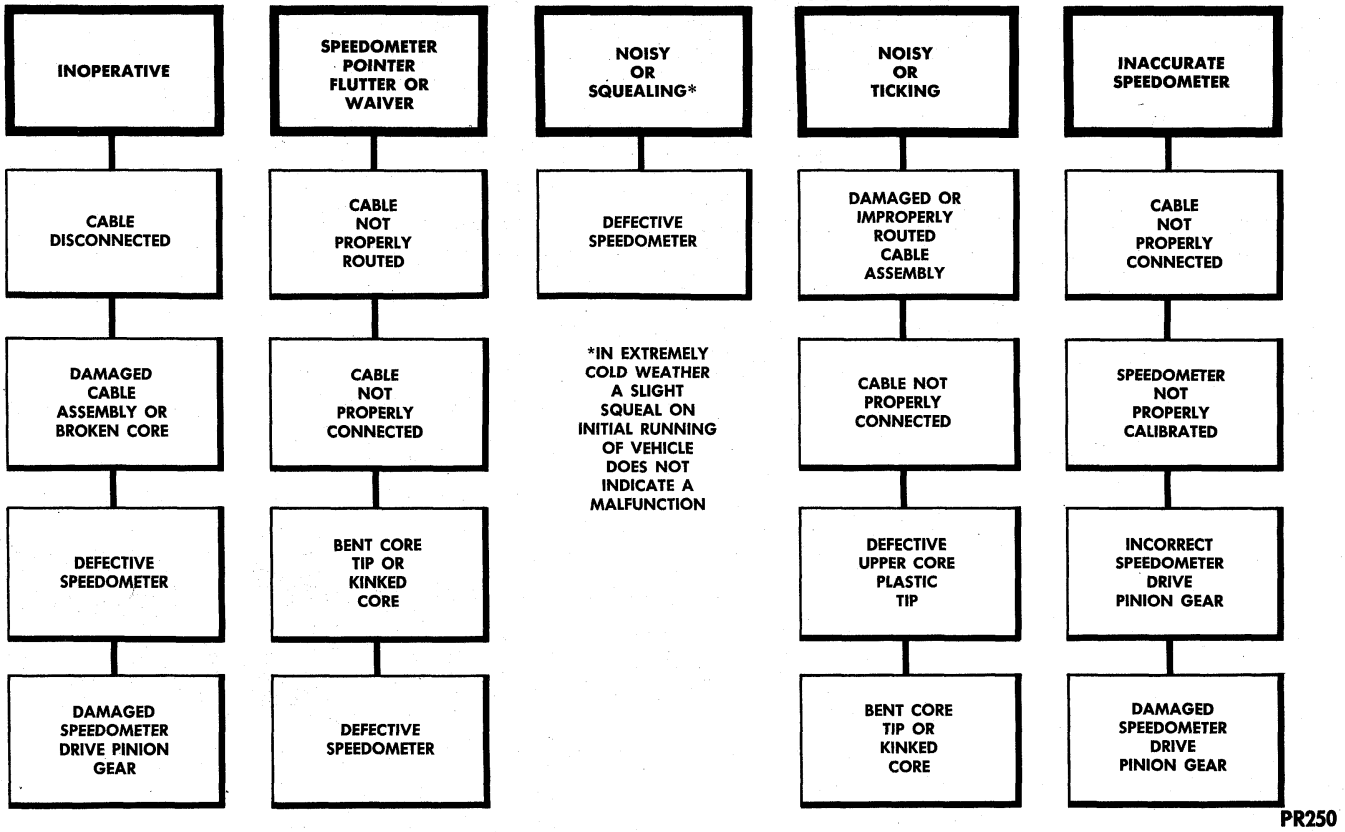
Cable Core Replacement

NOTE: FOLLOW THE INSTRUCTIONS ON THE CORE SERVICE KIT FOR PROPER CONSTRUCTION OF THE REPLACEMENT CORE.

To replace the standard cable core and upper cable core (speedometer to servo unit) on speed control equipped cars, it is not necessary to remove the entire cable assembly. On RWXS and C models, first disconnect the cable at the speedometer. Then, using a needlenose plier, pull the core out of the assembly. On HNF and G models, first remove the instrument cluster, which exposes the core tip, then pull the core out of the assembly. Be sure the replacement core is properly seated in the cable assembly before reconnecting to the speedometer.

To replace the lower cable core (servo unit to transmission) on all car models equipped with speed control, disconnect the cable at the servo unit, and pull the core out of the assembly. Be sure the replacement core is properly seated in the cable assembly before reconnecting to the servo unit.

SPEEDOMETER AND CABLE DIAGNOSIS



PR250

STEERING COLUMN LOWERING AND RAISING

When servicing the instrument panel and the **Lowering** and **Raising** of the steering column is required, the following is the procedure for doing so:

NOTE: THIS PROCEDURE IS NOT FOR REMOVING AND REPLACING THE STEERING COLUMN. REFER TO GROUP (19) OF THIS MANUAL FOR THE REMOVAL AND REPLACEMENT PROCEDURES.

Lowering Steering Column

(1) Disconnect fusible link.
(2) Remove three toe plate bolts.
(3) Remove nut attaching horn ground strap to stud on instrument panel.
(4) Remove horn ground strap from stud.
(5) Remove gear shift pointer (H-N-F-G-C only).
(6) Remove nuts and washers attaching steering column bracket to instrument panel steering column support bracket.
(7) Allow column to lower and rest on seat.

Raising Steering Column

(1) Raise steering column assembly against the instrument panel support bracket.
(2) Install two steering column bracket washers and nuts (Finger Tighten Only).

CAUTION: Check that all wiring is clear and not pinched.

(3) Tighten the two bracket nuts to 110 inch-pounds torque.
(4) Slide toe plate into position, install attaching bolts, and tighten to 200 inch-pounds torque.
(5) Install horn ground strap.
(6) Install gear shift pointer (H-N-F-G-C only).
(7) Adjust gear shift linkage. Refer to Transmission Section for proper adjustment procedures.
(8) Connect fusible link.

(CARLINES H-N-F-G)

CAUTION: DISCONNECT NEGATIVE BATTERY CABLE IN ENGINE COMPARTMENT BEFORE SERVICING INSTRUMENT PANEL.

COWL TOP COVER AND TRIM PAD ASSEMBLY (H-N Figure 4)

Removal

(1) Remove eleven (11) mounting screws located as follows:
a) two (2) at top inner surface of glove box.
b) three (3) at trim pad brow above cluster.
c) one (1) at left end cap mounting.
d) one (1) at right side of trim pad brow.
e) four (4) at cowl top in defroster openings.
(2) Remove assembly from instrument panel.

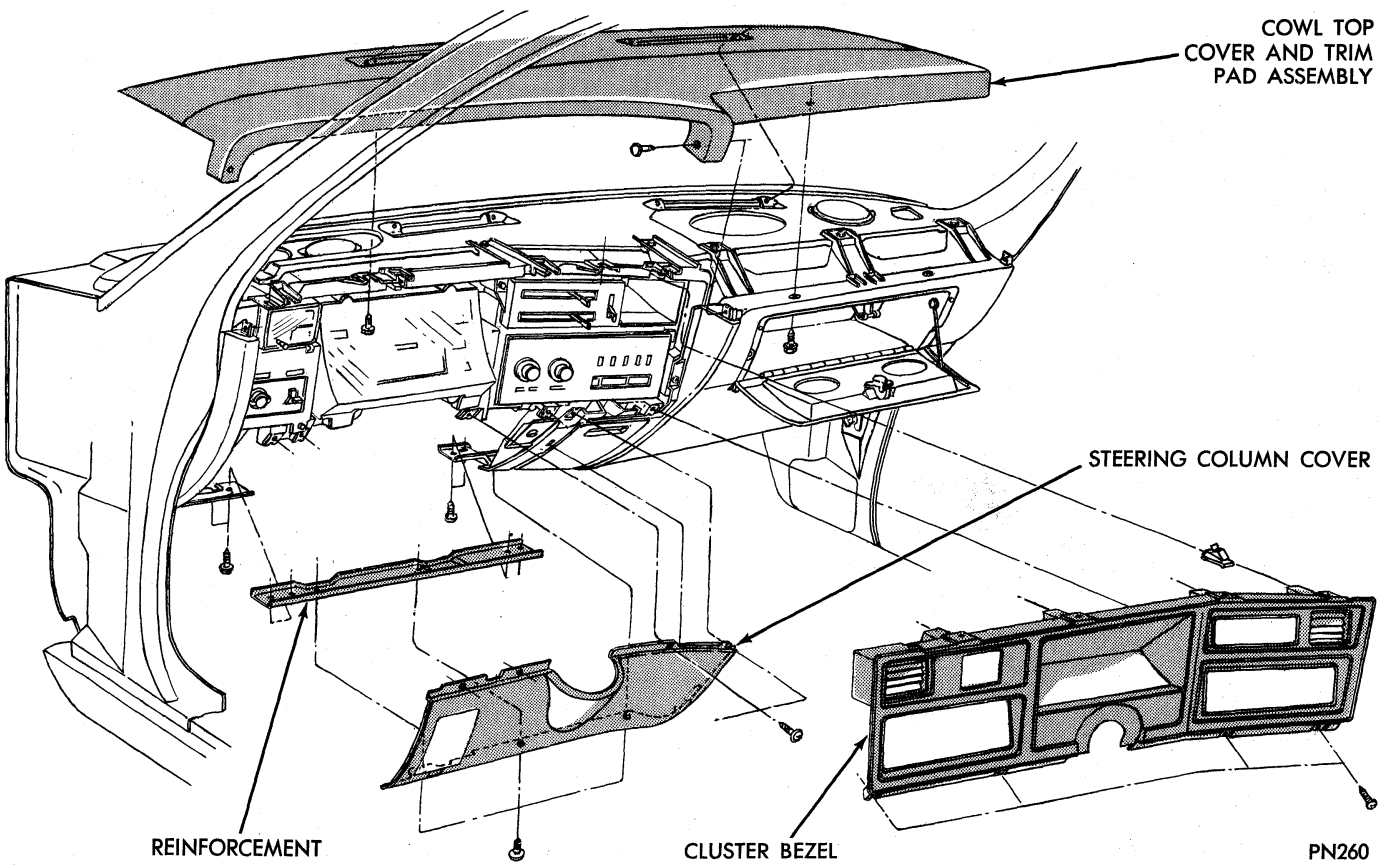


Fig. 4—Instrument Panel H and N Models

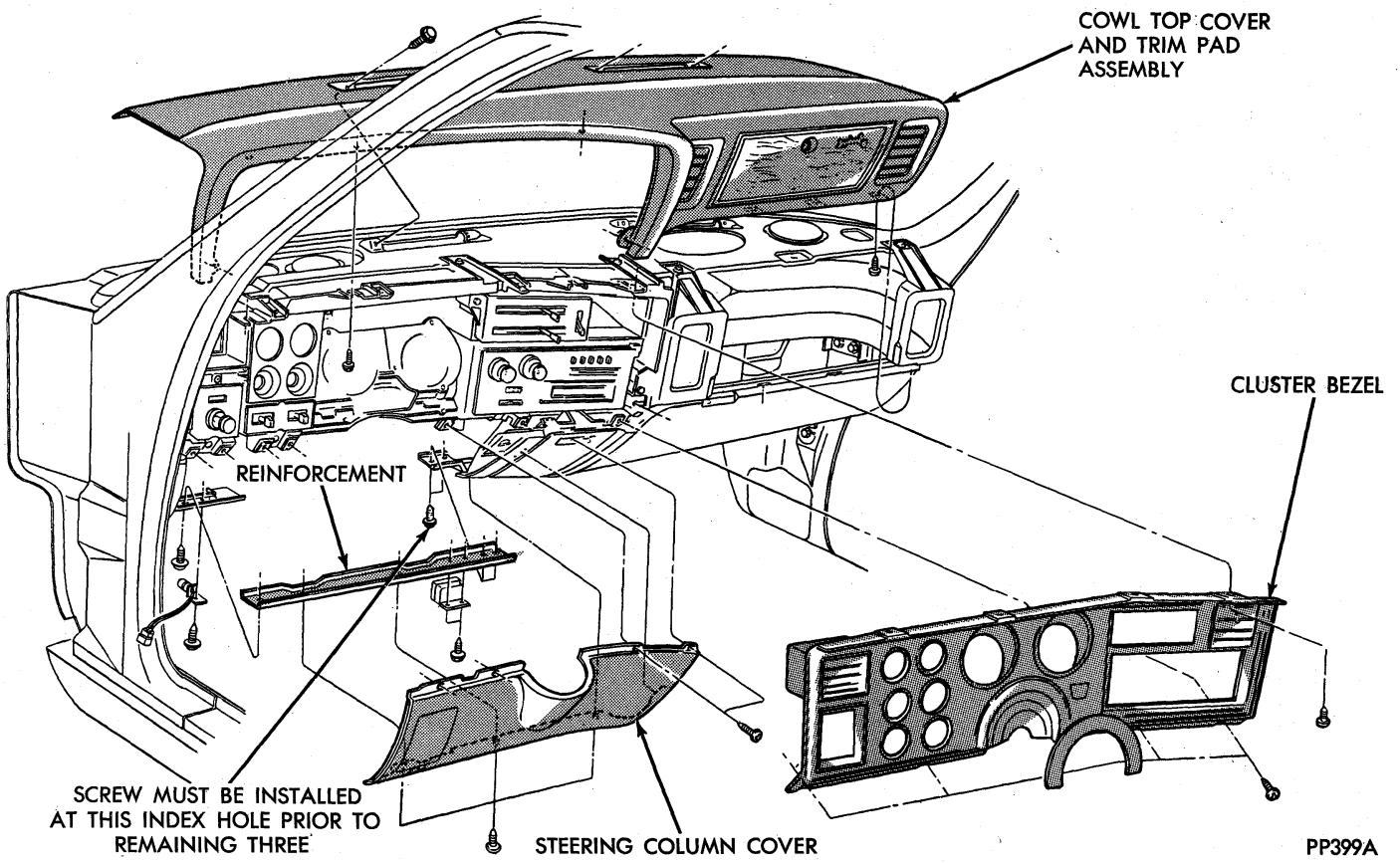


Fig. 5—Instrument Panel F and G Models

Installation

(1) Position cowl top cover and trim pad assembly into place on instrument panel, install mounting screws, and tighten securely.

COWL TOP OR TRIM PAD ASSEMBLY (H-N Figure 6)

Removal

(1) Remove cowl top and trim pad assembly.

(2) Remove four (4) nuts attaching cowl top and trim pad together.

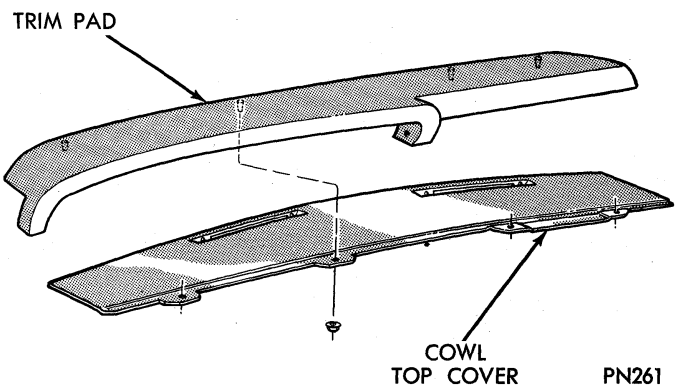


Fig. 6—Cowl Top Cover and Trim Pad H and N Models

Installation

(1) Position cowl top and trim pad together, install attaching nuts and tighten securely.

(2) Install cowl top and trim pad assembly.

COWL TOP COVER AND TRIM PAD ASSEMBLY (F-G Figure 5)

Removal

(1) Remove cluster bezel.

(2) Remove twelve (12) mounting screws located as follows:

(a) Three (3) at lower right side of trim pad.

(b) One (1) at lower right side of instrument cluster.

(c) One (1) at lower left side of instrument cluster.

(d) three (3) at trim pad brow above cluster.

(e) Four (4) at cowl top in defroster openings.

(3) Disconnect wiring for light, clock, and deck lid release switch if so equipped.

(4) Remove assembly from instrument panel.

Installation

(1) Position cowl top cover and trim pad assembly into place on instrument panel, install mounting screws, and tighten securely.

STEERING COLUMN COVER (H-N-F-G Figures 4 and 5)

Removal

(1) Remove seven (7) mounting screws located as follows:

a) four (4) at top of cover.

b) three (3) at bottom of cover.

(2) Remove cover.

Installation

(1) Position cover into place indexing to lower instrument panel, install mounting screws, and tighten securely.

CLUSTER BEZEL (H-N Figure 4)

Removal

(1) Remove four (4) mounting screws located along lower edge of bezel.

(2) Position gearshift indicator in number one (1) position.

(3) Remove bezel by pulling rearward in such a manner that disengage four (4) retaining clips located along top edge of bezel.

Installation

(1) Position top edge of bezel into place on cluster housing and snap retaining clips into place.

(2) Install lower mounting screws and tighten securely.

CLUSTER BEZEL (F-G Figure 5)

Removal

(1) Remove eight (8) mounting screws located along upper and lower edge of bezel.

(2) Position gearshift indicator in number one (1) position.

(3) Remove bezel by pulling rearward.

Installation

(1) Position bezel into place on cluster.

(2) Install upper and lower mounting screws and tighten securely.

INSTRUMENT PANEL END CAP (H-N Figure 7)

Removal

(1) Remove cluster bezel.

(2) Remove trim pad to end cap mounting screw.

(3) Remove end cap mounting screws. One at bottom and one in middle.

(4) Lift corner of trim pad and remove end cap.

Installation

(1) Lift corner of trim pad and position end cap into place.

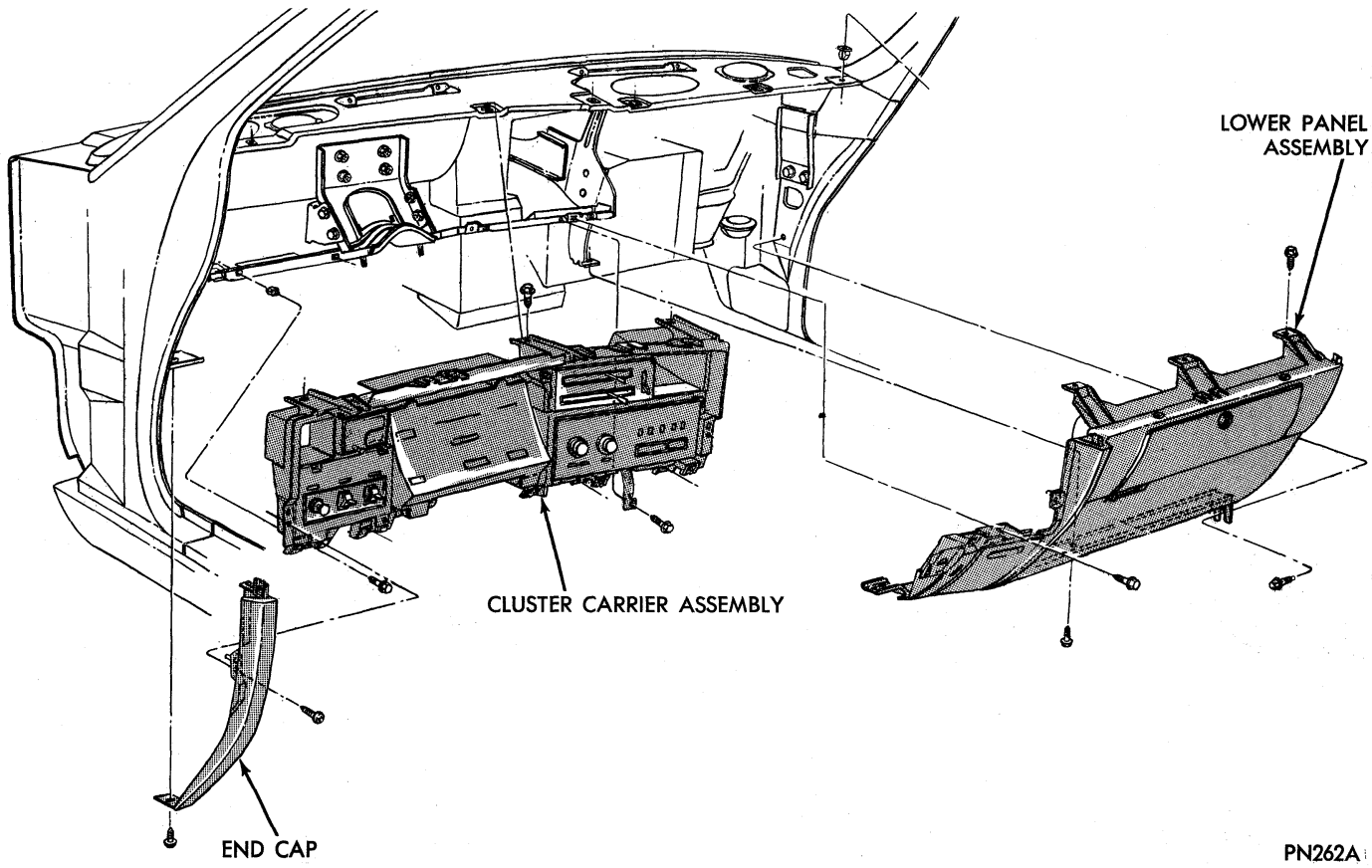


Fig. 7—Instrument Panel H and N Models

(2) Install mounting screws and tighten securely.
(3) Install cluster bezel.

Lift Gate Release Switch (Located in Glove Box) (Fig. 6)

Removal

(1) Loosen mounting nut.
(2) Slide switch and bezel assembly toward rear of glove box and pull assembly into the glove box.
(3) Disconnect wiring from switch and remove bezel and nut.

Installation

(1) Connect wiring to switch, insert bezel and apply nut loosely.
(2) Insert switch assembly through slot in ceiling of glove box.
(3) Slide switch toward opening of glove box and tighten nut.

GLOVE BOX (H-N Figure 8)

Glove Box Door Assembly

Removal

(1) Remove three (3) hinge mounting screws.
(2) Remove check strap retainer clip by cutting off head. **Note:** Clip is not reusable, a new one must be used during installation.
(3) Remove glove box door.

Installation

(1) Position door into place in panel, install mounting screws, and before tightening make sure door is properly aligned in opening.
(2) Install check strap with new retainer clip.

Glove Box Catch (Figure 8)

Replacement

(1) Remove two (2) mounting screws.

Glove Box Lock Assembly (Figure 8)

Removal

(1) Remove glove box door assembly.
(2) Turn lock into locked position.
(3) Insert a stiff wire in rear slot of lock mechanism and depress retaining tumbler into cylinder.
(4) While holding tumbler down with wire in lock cylinder, insert key.
(5) Remove wire and pull out lock cylinder.
(6) Remove two (2) latch mounting screws and remove assembly.

Installation

(1) Position latch assembly into place on glove box

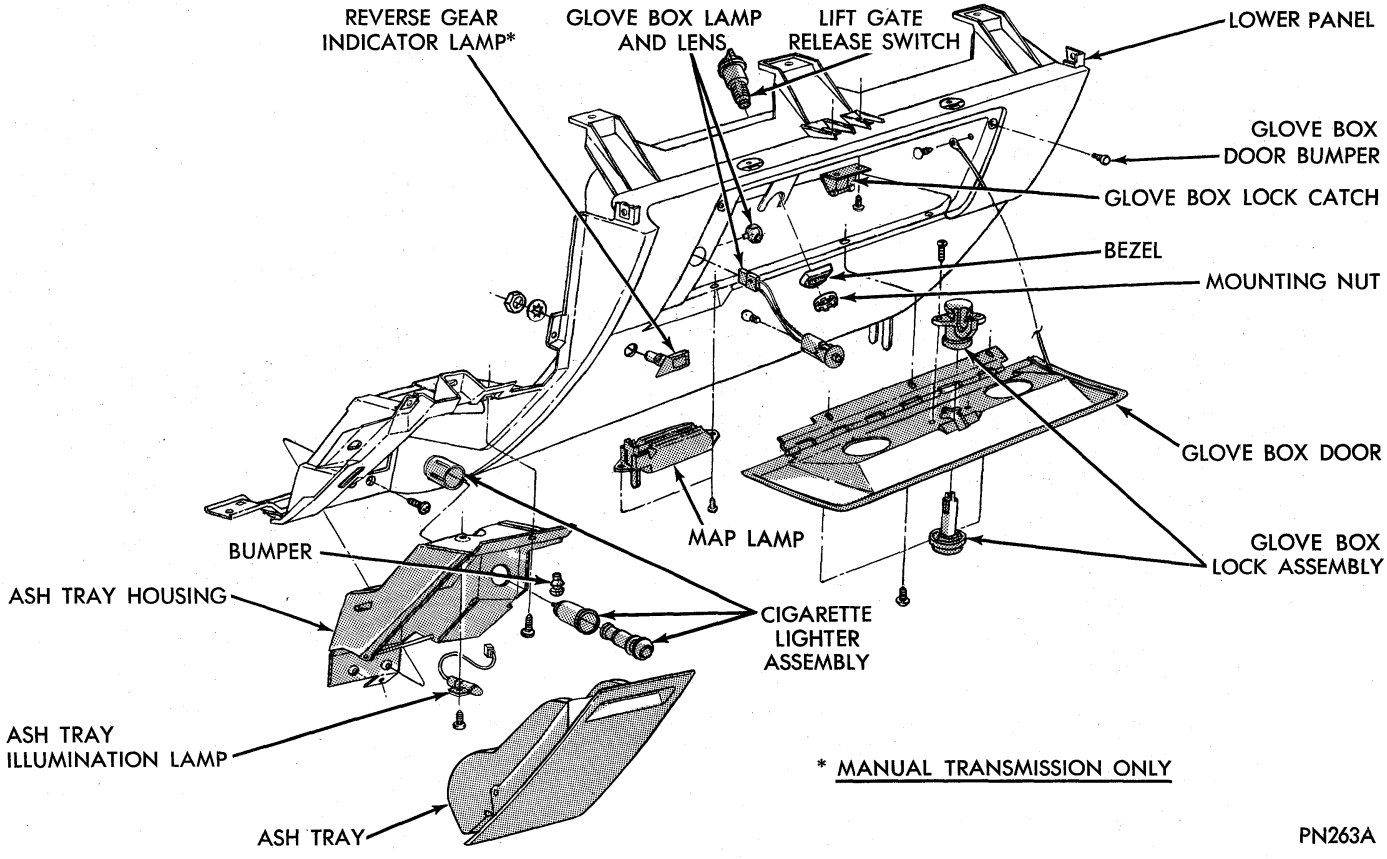


Fig. 8—Lower Instrument Panel H and N Models

door, install mounting screws and tighten securely.

(2) Depress retaining tumbler into lock cylinder and insert key.

(3) Position assembly so that it will be in the closed position when installed.

(4) Push lock cylinder into latch assembly, and remove key.

GLOVE BOX (F-G Figure 9)

Glove Door Assembly

Removal

(1) Remove three (3) hinge mounting screws.

(2) Remove check strap retainer clip by cutting off head. **Note:** Clip is not reusable, a new one must be used during installation.

(3) Remove glove box door.

Installation

(1) Position door into place in panel, install mounting screws, and before tightening make sure door is properly aligned in opening.

(2) Install check strap with new retainer clip.

Glove Box Lock Assembly

Removal

(1) Remove glove box door assembly.

(2) Turn lock into locked position.

(3) Insert a stiff wire in rear slot of lock mechanism and depress retaining tumbler into cylinder.

(4) While holding tumbler down with wire in lock cylinder, insert key.

(5) Remove wire and pull out lock cylinder.

(6) Remove latch mounting screws and remove assembly.

Installation

(1) Position latch assembly into place on glove box door, install mounting screws and tighten securely.

(2) Depress retaining tumbler into lock cylinder and insert key.

(3) Position assembly so that it will be in the closed position when installed.

(4) Push lock cylinder into latch assembly, and remove key.

CLOCK (H-N Figure 10)

Removal

(1 Remove cluster bezel.

(2) Remove clock mounting screws.

(3) Pull clock from panel and disconnect wiring.

Installation

(1) Connect wires to clock.

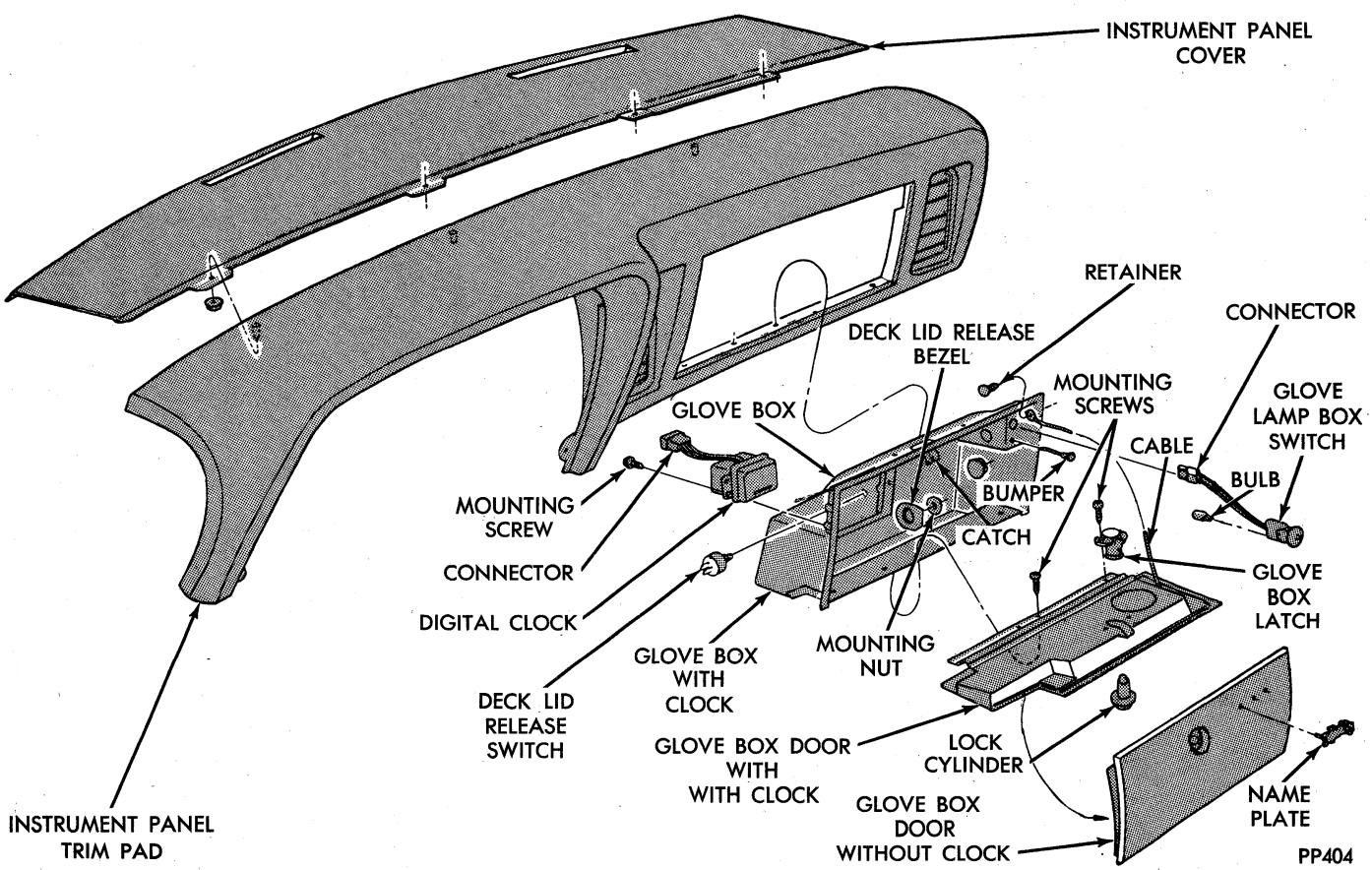


Fig. 9—Instrument Panel Cowl Top, Trim Pad and Glove Box Assembly F and G Models

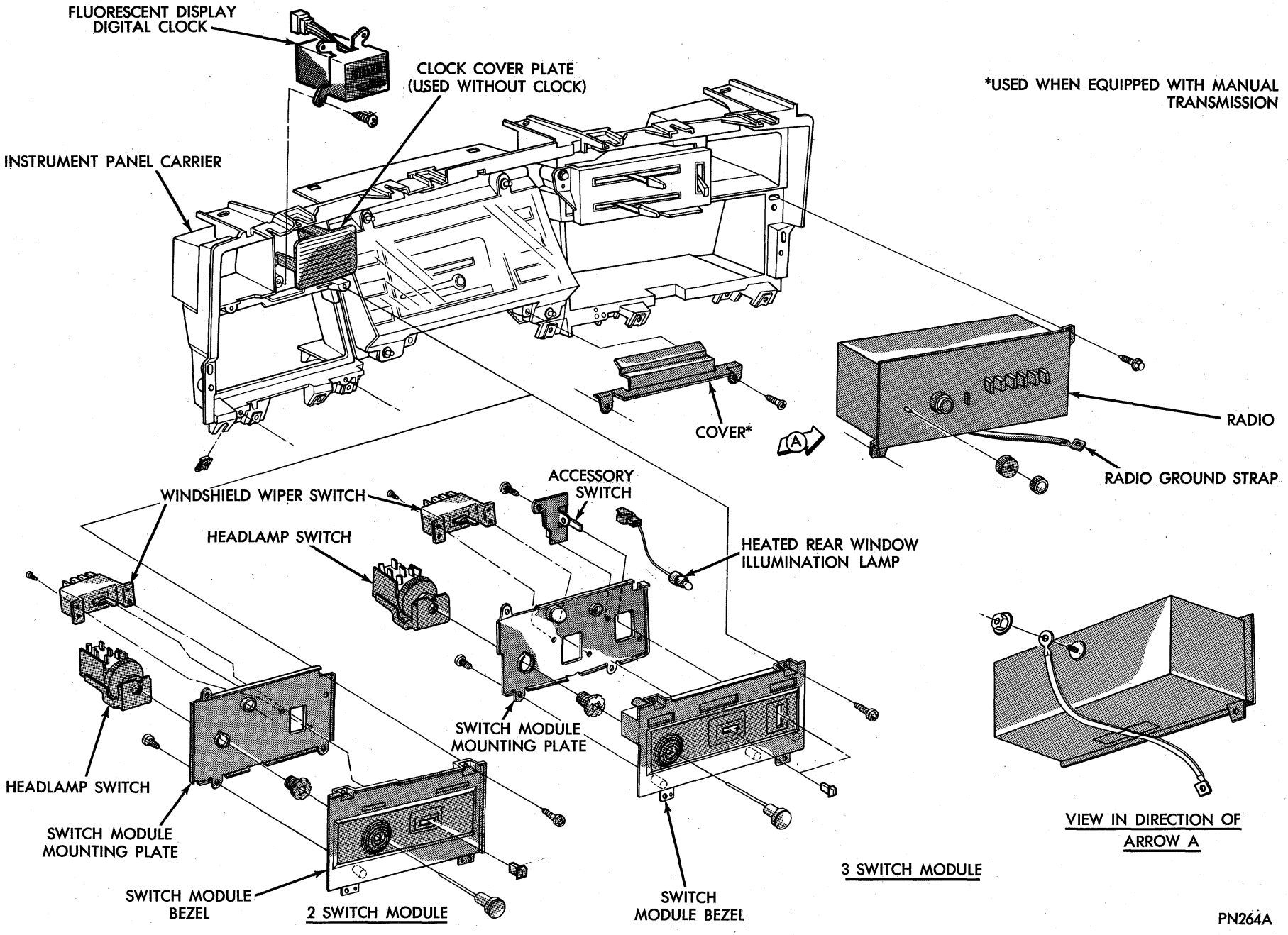


Fig. 10—Instrument Panel H and N Models

(2) Position clock into place in panel, install mounting screws and tighten securely.
(3) Install cluster.

CLOCK (F-G Figure 9)

Removal

(1) Remove glove box door and glove box.
(2) Disconnect trunk switch, glove box light, and clock wiring.
(3) Remove three (3) mounting screws and remove clock from glove box.

Installation

(1) Position clock and install three (3) mounting screws.
(2) Connect trunk switch, glove box light, and clock wiring.
(3) Install glove box and glove box door.

ASH TRAY ASSEMBLY (H-N-F-G)

Removal

(1) Remove ash tray.
(2) Remove four (4) ash tray housing mounting screws.
(3) Pull housing out and disconnect wiring.
(4) Remove housing.

Installation

(1) Connect wiring to housing.
(2) Position housing into place in panel, install mounting screws, and tighten securely.
(3) Install ash tray.

LOWER PANEL ASSEMBLY (H-N Figure 8)

Removal

(1) Remove cluster bezel.
(2) Remove cowl top and trim pad assembly.
(3) Remove steering column cover.
(4) Remove right vent control mounting screws and let hang loose (models equipped with heater only).
(5) Remove right upper cowl kick pad mounting screw and remove pad.
(6) If so equipped, remove right remote control mirror adjusting lever spanner mounting nut.
(7) Loosen right pivot mounting screw located at lower right side of panel.
(8) Remove six (6) mounting screws and one cap nut located as follows:
a) two (2) screws at left end of right lower reinforcement.
b) one (1) cap nut at center of right lower reinforcement.
c) one (1) screw at top of ash tray.
d) one (1) screw at left side of panel by cluster carrier.
e) three (3) screws at top of panel.
(9 Pull panel out far enough to gain access to disconnect all wiring and if so equipped retaining clip for cable of right remote control mirror.
(10) Remove lower panel assembly.

Installation

(1) Position panel in such a manner that all wiring can be connected and if so equipped retaining clip for cable of right remote control mirror.
(2) Position panel into place, install all mounting screws and capnut, and tighten securely.
(3) Tighten right pivot mounting screw and tighten securely.
(4) If so equipped, install right remote control mirror adjusting lever mounting nut and tighten securely.
(5) Position right upper cowl kick pad into place, install mounting nut and tighten securely.
(6) If required, position right vent control into place, install mounting screws and tighten securely.
(7) Install steering column cover.
(8) Install cowl top and trim pad assembly.
(9) Install cluster bezel.

CLUSTER ASSEMBLY (H-N-F-G Figures 10 and 11)

Removal

(1) Remove cluster bezel.
(2) Loosen gearshift pointer and rotate with set screw to allow clearance for cluster removal.
(3) Remove cluster mounting screws.
(4) Remove cluster from carrier.

Installation

(1) Position cluster into place in carrier, install mounting screws and tighten securely.
(2) Position gearshift pointer into place and tighten set screw.
(3) Install cluster bezel.

GAUGES (H-N-F-G)

Speedometer

Removal

(1) Remove cluster bezel.
(2) Remove cluster assembly.
(3) Remove lens mounting pins and remove lens.
(4) Remove speedometer assembly mounting screws.
(5) Remove speedometer assembly.

Installation

(1) Position speedometer assembly into place in cluster housing, install mounting screws and tighten securely.

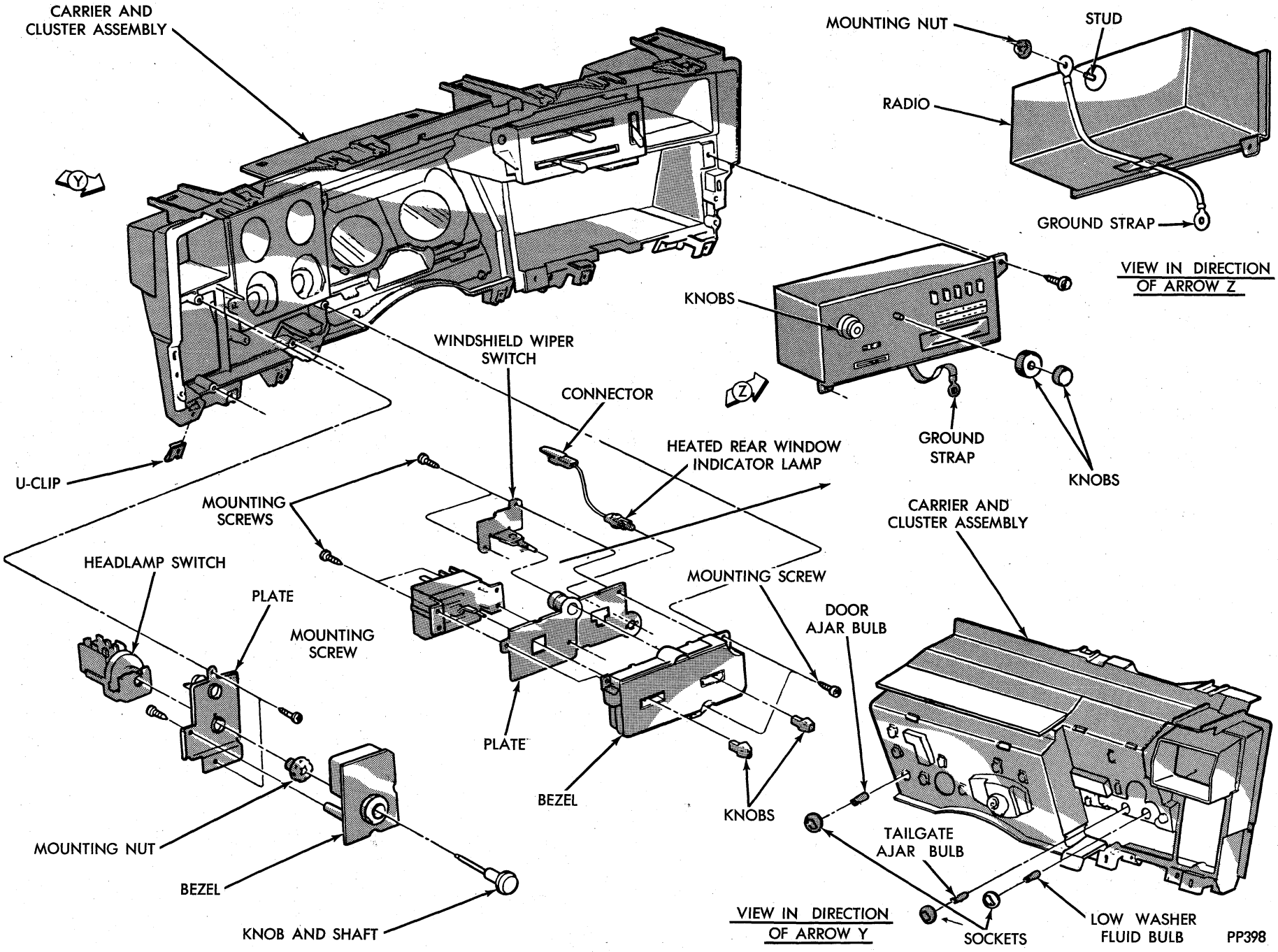


Fig. 11—Instrument Panel Cluster F and G Models

(2) Position cluster lens in place and install mounting pins.
(3) Install cluster assembly.
(4) Install cluster bezel.

Fuel Gauge
Temperature Gauge
Alternator Gauge

Removal
(1) Remove speedometer assembly.
(2) Remove gauge mounting screw.
(3) Remove gauge from cluster housing.

Installation
(1) Position gauge into place in cluster housing, install mounting screw, and tighten securely.
(2) Install speedometer.

PRINTED CIRCUIT BOARD OR VOLTAGE LIMITER (H-N-F-G)

Removal
(1) Remove cluster bezel.
(2) Remove cluster assembly.
(3) Remove voltage limiter.
(4) Remove printed circuit board mounting screws.
(5) Pull printed circuit board out far enough to gain access to wiring and disconnect.
(6) Remove printed circuit board.

Installation
(1) Connect wiring to printed circuit board.
(2) Position board into place in carrier, install mounting screws, and tighten securely.
(3) Install voltage limiter.
(4) Install cluster assembly.
(5) Install cluster bezel.

SWITCHES (H-N-F-G Figures 10 and 11)

Accessory Switch

Removal
(1) Remove cluster bezel.
(2) Remove switch module bezel mounting screws.
(3) Pull module out far enough and disconnect wiring harness.
(4) Remove module from panel.
(5) Remove knob from switch stem.
(6) Remove accessory switch mounting screws.
(7) Remove switch from module.

Installation
(1) Position switch into place in module, install mounting screws and tighten securely.
(2) Install knob on switch stem.
(3) Connect module wiring harnesses.
(4) Position module assembly into place in panel, install mounting screws and tighten securely.
(5) Install cluster bezel.

Headlight Switch

Removal
(1) Remove cluster bezel.
(2) Remove switch module assembly mounting screws, pull assembly out and let hang loose in order to gain access to headlight switch.
(3) While depressing headlight switch stem, release button, pull knob and stem from switch bezel.
(4) Insert Phillips head screwdriver through stem opening in switch bezel and remove headlight switch mounting nut.
(5) Disconnect wiring harness connector from switch.
(6) Remove switch.

Installation
(1) Position switch to module, install mounting nut, and tighten securely.
(2) Connect wiring harness.
(3) Install knob and stem into switch making sure it locks into place.
(4) Position switch module assembly into place in panel, install mounting screws, and tighten securely.
(5) Install cluster bezel.

Windshield Wiper/Washer Switch

Removal
(1) Remove cluster bezel.
(2) Remove switch module assembly mounting screws, pull assembly out and let hang loose in order to gain access to switch.
(3) Pull and remove knob from switch stem.
(4) Remove switch mounting screws.
(5) Remove switch and disconnect wiring.

Installation
(1) Position switch to module, install mounting screws and tighten securely.
(2) Install knob on stem.
(3) Connect wiring to switch.
(4) Position switch module assembly into place in panel, install mounting screws and tighten securely.
(5) Install cluster bezel.

LIFT GATE RELEASE SWITCH (Located in Glove Box Figure 8)

Removal
(1) Loosen mounting nut.
(2) Slide switch and bezel assembly rearward and down into glove box.
(3) Disconnect wiring from switch, remove nut and bezel.

Installation

(1) Position bezel on switch, install nut loosely and connect wiring.
(2) Insert switch assembly through slot in top of glove box.
(3) Slide switch in opening towards front of glove box and tighten nut.

AIR CONDITIONER AND/OR HEATER CONTROL ASSEMBLY (H-N-F-G)

Removal

(1) Remove cluster bezel.
(2) Remove control mounting screws.
(3) Pull control from panel and disconnect all control cables, electrical leads, and if so equipped vacuum harness.
(4) Remove control.

Installation

(1) Connect all electrical leads, and if required vacuum harness to control.
(2) Connect cables to control and adjust. Refer to Group 24, Heaters and Air Conditioners.
(3) Position control into place in panel, install mounting screws and tighten securely.

CLUSTER CARRIER ASSEMBLY (H-N Figure 10)

Removal

(1) Remove lower panel assembly.
(2) Remove instrument panel end cap.
(3) Remove left lower reinforcement by removing 2 screws located at left end of part.
(4) Remove gearshift indicator.
(5) Remove steering column toe plate mounting bolts.
(6) Remove 2 upper steering column mounting nuts and lower column.
(7) Remove left side cowl mouldings.
(8) Disconnect speedometer cable.
(9) Disconnect fuse box module from mid reinforcement by removing two bolts.
(10) Remove 8 carrier mounting screws located as follows:
a) 1 attaching radio to mid-reinforcement.
b) 4 at bottom of carrier.
c) 3 at top of carrier.
(11) Pull carrier out from panel and disconnect all wiring, control cables, and if so equipped, vacuum harness.
(12) Remove cluster carrier assembly.

Installation

(1) Position carrier to panel, install and connect all wiring making sure of proper routing.
(2) Install control cables and adjust. Refer to Group 24, Heaters and Air Conditioners.
(3) If required, install vacuum harness.
(4) Position carrier into place in panel, install mounting screws and tighten securely.
(5) Connect speedometer cable.
(6) Install fuse box module.
(7) Position steering column in place, install mounting nuts and tighten to 110 inch pounds torque.
(8) Install toe plate bolts and tighten to 200 inch pounds torque.
(9) Install gearshift indicator.
(10) Attach lower reinforcement to left side of panel, with mounting screws, and tighten securely.
(11) Install end cap.
(12) Install lower panel assembly.
(13) Install side cowl mouldings.

CLUSTER CARRIER ASSEMBLY (F-G Figure 11)

Removal

(1) Remove lower panel assembly.
(2) Remove left lower reinforcement by removing 2 screws located at left end of part.
(3) Remove gearshift indicator.
(4) Remove steering column toe plate mounting bolts.
(5) Remove 2 upper steering column mounting nuts and lower column.
(6) Disconnect speedometer cable.
(7) Disconnect fuse box module from mid reinforcement by removing two bolts.
(8) Remove 8 carrier mounting screws located as follows:
(a) 1 attaching radio to mid-reinforcement.
(b) 4 at bottom of carrier.
(c) 4 at top of carrier.
(9) Pull carrier out from panel and disconnect all wiring, control cables, and if so equipped, vacuum harness.
(10) Remove cluster carrier assembly.

Installation

(1) Position carrier to panel, install and connect all wiring making sure of proper routing.
(2) Install control cables and adjust. Refer to Group 24, Heaters and Air Conditioners.
(3) If required, install vacuum harness.
(4) Position carrier into place in panel, install mounting screws and tighten securely.
(5) Connect speedometer cable.
(6) Install fuse box module.
(7) Position steering column in place, install mounting nuts and tighten to 110 inch pounds torque.
(8) Install toe plate bolts and tighten to 200 inch pounds torque.
(9) Install gearshift indicator.
(10) Attach lower reinforcement to left side of panel, with mounting screws, and tighten securely.
(11) Install lower panel assembly.

AIR CONDITIONER AIR OUTLETS (H-N-F-G Figure 12)

Removal

(1) Depress top indexing tab and pull outlet rearward from opening.

Installation

(1) Position bottom of outlet into the opening, then top, and snap into place.

AIR CONDITIONER DISTRIBUTION DUCTS (Fig. 12)

Right

Removal

(1) Remove lower panel.
(2) Remove duct mounting screws.
(3) Remove duct from lower panel.

Installation

(1) Position duct into place on lower panel, install mounting screws, and tighten securely.
(2) Install lower panel.

Left

Removal

(1) Remove cluster carrier.
(2) Remove duct mounting screws.
(3) Remove duct.

Installation

(1) Position duct into place, install mounting screws, and tighten securely.
(2) Install cluster carrier.

Center

Removal

(1) Remove cluster carrier assembly.
(2) Remove left distribution duct.
(3) Remove wiring where necessary to allow clearance to remove ducts.
(4) Remove 4 defroster duct mounting screws and 2 center duct mounting screws.
(5) To remove ducts, slide around left side of center instrument panel support.

Installation

(1) Maneuver ducts into place (center first then defroster), install mounting screws and tighten securely.
(2) Install wiring.
(3) Install left distribution duct.
(4) Install cluster assembly.

LIGHT BULB REPLACEMENT (H-N-F-G Figures 13 and 14)

Glove Box

(1) Pull light switch assembly rearward to replace bulb.

Ash Tray

(1) Remove ash tray.
(2) Remove lamp mounting screw.
(3) Pull lamp assembly from housing to replace bulb.

Map Lamp

(1) Remove lamp mounting screws.
(2) Pull assembly from panel, and remove lens with tip of screwdriver to replace bulb.

Reverse Gear Indicator

(1) Reach under panel and remove lamp assembly mounting nut with pliers.
(2) Pull assembly from panel to replace bulb.

Cluster Lamps

(1) Remove cluster bezel.
(2) Remove cluster assembly.
(3) Replace bulbs as required.

Switch Module Lamps

(1) Remove cluster bezel.
(2) Remove module bezel mounting screws.
(3) Pull assembly from panel to replace bulbs.

Radio Illumination Lamp (Monaural)

(1) Remove cluster bezel.
(2) Remove lamp assembly from bottom of radio to replace bulb.

Radio Illumination Lamp (Stereo Radio H-N-F-G)

Removal

(1) Remove lower cluster bezel.
(2) Remove radio knobs, by pulling outwards.
(3) Remove radio lens mounting clips taking care not to damage lens overlay.
(4) Remove lens carefully.
(5) Remove lamp heat shield mounting screw and remove.
(6) Remove bulb from socket.

Installation

(1) Install bulb into socket.
(2) Position lamp heat shield into place, install mounting screw and tighten securely.
(3) Carefully position lens into place and carefully install mounting clips.
(4) Install radio knobs.
(5) Install lower cluster bezel.

Radio Illumination Lamp (Stereo with 8 Track Tape Player and CB)

Removal

(1) Remove instrument cluster bezel.
(2) Remove radio to panel mounting screws.

(3) Pull radio from panel far enough to expose lamp socket assembly on top of radio.
(4) Remove lighting retainer button with a sharp bladed tool.
(5) Lift lighting assembly out of radio to gain access to dial lamp.
(6) Remove bulb from socket.

Installation
(1) Install bulb into socket.
(2) Install lamp assembly in top of radio and push in retainer button.
(3) Position radio into place, install mounting screws, and tighten securely.
(4) Install instrument cluster bezel.

Heater and/or Air Conditioner Control
(1) Remove cluster bezel.
(2) Remove control assembly mounting screws.
(3) Pull assembly from panel to replace bulb.

Clock
(1) Remove clock assembly to replace bulb.

(CARLINES R-W-X-S)

CAUTION: DISCONNECT NEGATIVE BATTERY CABLE BEFORE SERVICING INSTRUMENT PANEL.

DEFROSTER/RADIO SPEAKER/PLATE (Figure 15)

Removal
(1) Remove plate mounting screws and lift from top of panel.

Installation
(1) Position plate into place on panel, install mounting screws and tighten securely.

GLOVE BOX (Figures 13 and 14)

Door

Removal
(1) Remove screw attaching door check strap to instrument panel.
(2) Remove screws mounting door and hinge assembly to panel.
(3) Remove door.

Installation
(1) Position door into place on panel, install mounting screws and before tightening make sure door is properly aligned in opening.
(2) Position check strap into place, install attaching screw and tighten securely.

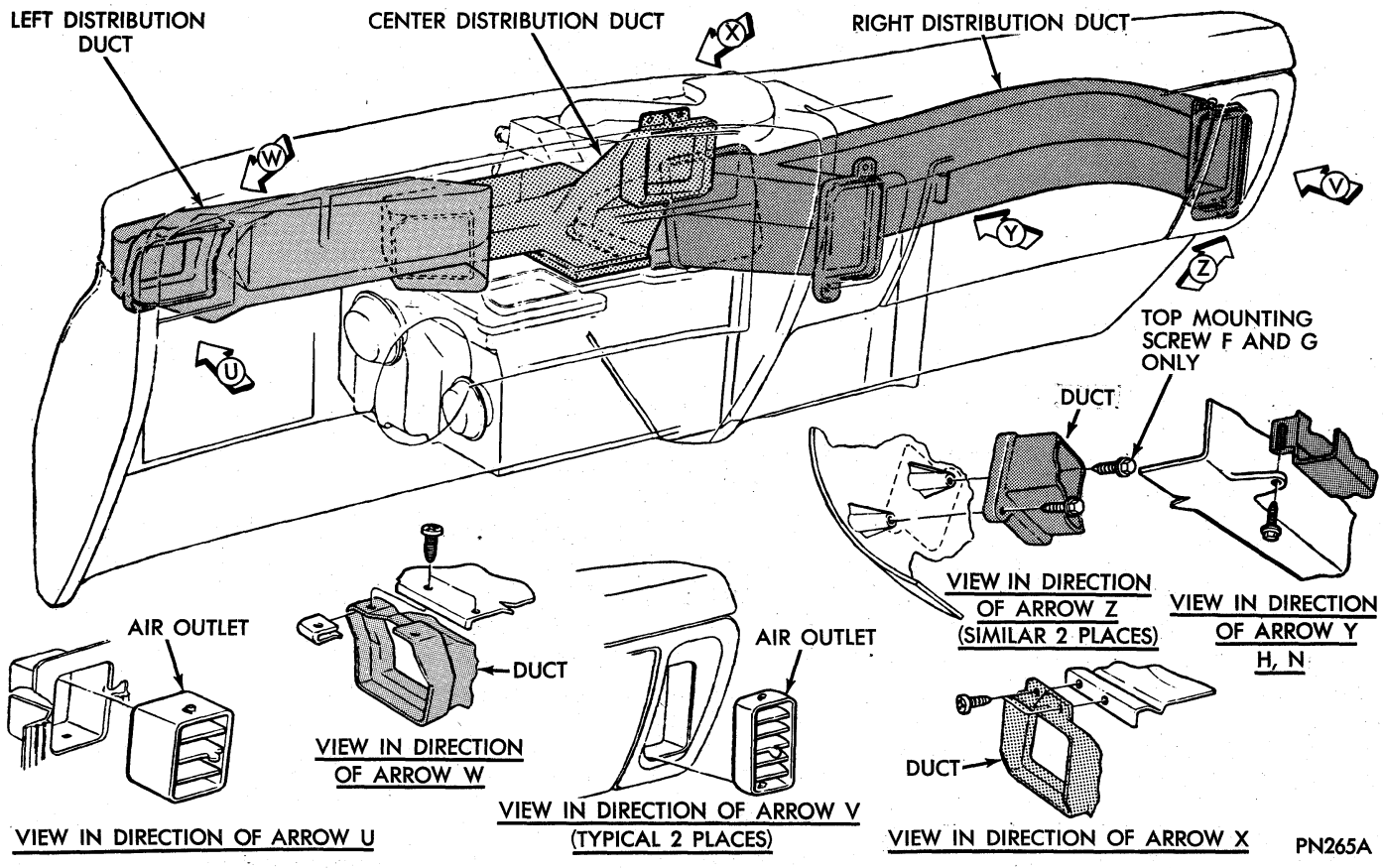


Fig. 12—Air Conditioning Air Outlets and Distribution Ducts H,N,F, and G Models

Box

Removal

(1) Remove glove box door.
(2) Remove deck lid release switch, if so equipped.
(3) Remove screws mounting box to instrument panel.
(4) Remove glove box from front of panel by pulling outwards.

Installation

(1) Position box into place in panel, install mounting screws and tighten securely.
(2) Install deck lid release switch, if so equipped.
(3) Install glove box door.

ASH TRAY (Refer to Figure 18)

Removal

(1) Remove ash tray receptacle from housing by depressing spring and moving downwards and out.
(2) Remove seat belt warning buzzer relay.
(3) Remove screws mounting ash tray housing to instrument panel.
(4) Pull housing out from panel far enough to gain access to remove all electrical leads from housing.
(5) Remove housing.

Installation

(1) Install all electrical leads to rear of housing.
(2) Position housing into place in panel making sure no wires are pinched, install mounting screws and tighten securely.
(3) Install seat belt warning buzzer relay.
(4) Install ash tray receptacle.

HEATED REAR WINDOW RELAY (Refer to Figure 14)

Removal

(1) Remove screw mounting relay to instrument panel.
(2) Remove electrical leads from relay.

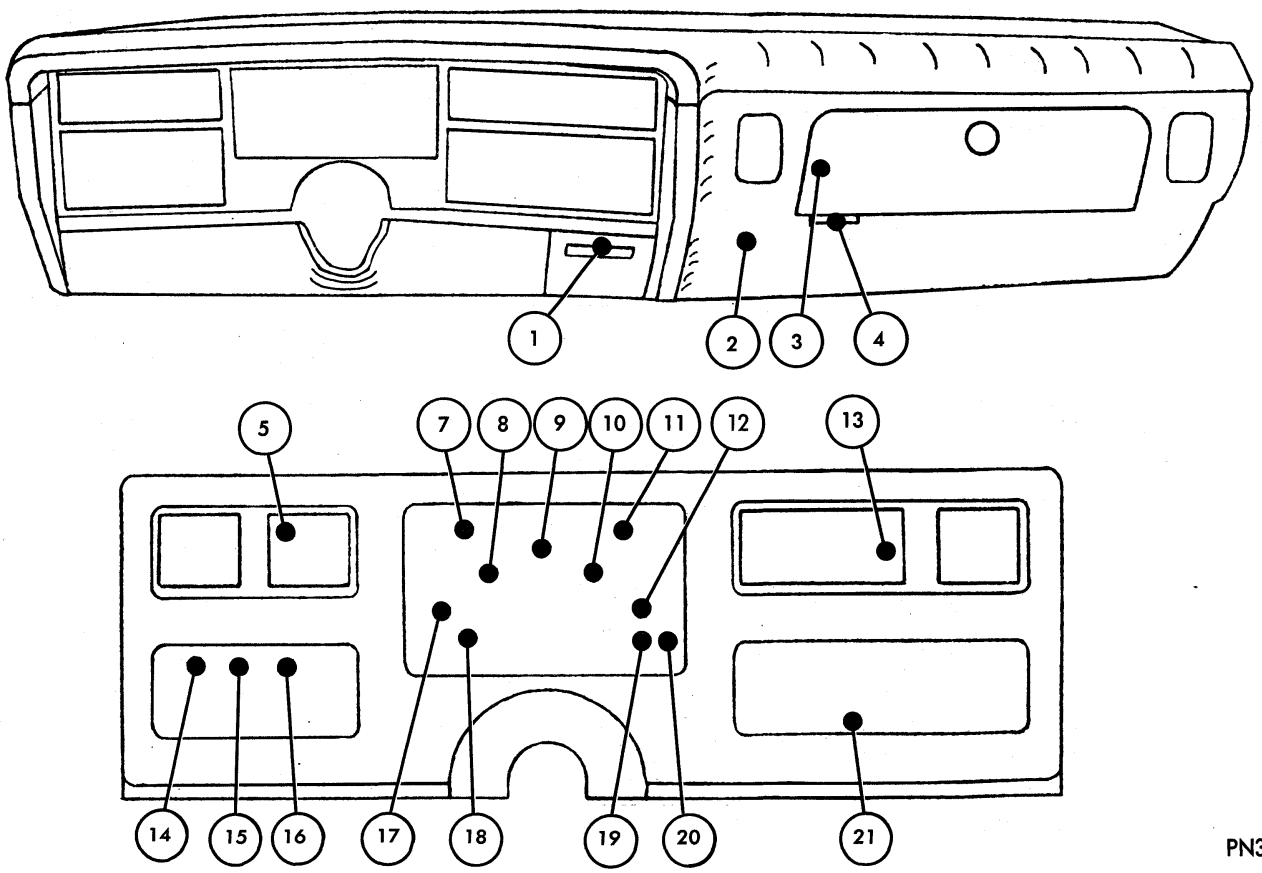


Fig. 13—Light Bulb Location H and N Models

LEGEND

1. Ash Tray Illumination
2. Reverse Gear Indicator
3. Glove Box Illumination
4. Map Illumination
5. Clock Flourescent Digital Read-out
7. Instrument Cluster Illumination
8. Left Turn Signal Indicator
9. Hi Beam Indicator
10. Right Turn Signal Indicator
11. Instrument Cluster Illumination
12. Tailgate Open Warning Indicator
13. AC—Heater Control Illumination
14. Switch Title Illumination
15. Switch Title Illumination
16. Switch Title Illumination
17. Seat Belt Warning Indicator
18. Instrument Cluster Illumination
19. Brake System Warning Indicator
20. Oil Pressure Warning Indicator
21. Radio Illumination

Installation

(1) Install electrical leads to relay.

(2) Position relay into place on instrument panel, install mounting screw and tighten securely.

TRIM PAD (Refer to Figure 16)

With Heater or Air Conditioning

Removal

(1) Remove defroster/radio speaker plate.

(2) If so equipped, remove stereo speakers.

(3) Remove trim pad mounting screws.

(4) Pull trim pad towards rear of vehicle and remove. If equipped with digital clock it will be necessary to disconnect digital clock wiring before removing pad.

Installation

(1) If required, connect digital clock wiring.

(2) Position trim pad into place on instrument panel, install mounting screws and tighten securely.

(3) If required, install stereo speakers.

(4) Install defroster/radio speaker plate.

With Upper Level Ventilation (ULV)

Removal

(1) Remove defroster/radio speaker plate.

(2) If so equipped, remove stereo speakers.

(3) From under panel remove screw mounting U.L.V. duct to heater housing.

(4) Remove trim pad mounting screws.

(5) Pull trim pad towards rear of vehicle far enough to gain access to pin securing duct to top of air outlet.

(6) Remove pin.

(7) If so equipped, disconnect electrical leads from digital clock.

(8) Remove trim pad.

Installation

(1) Position trim pad to panel.

(2) If required, connect digital clock wiring.

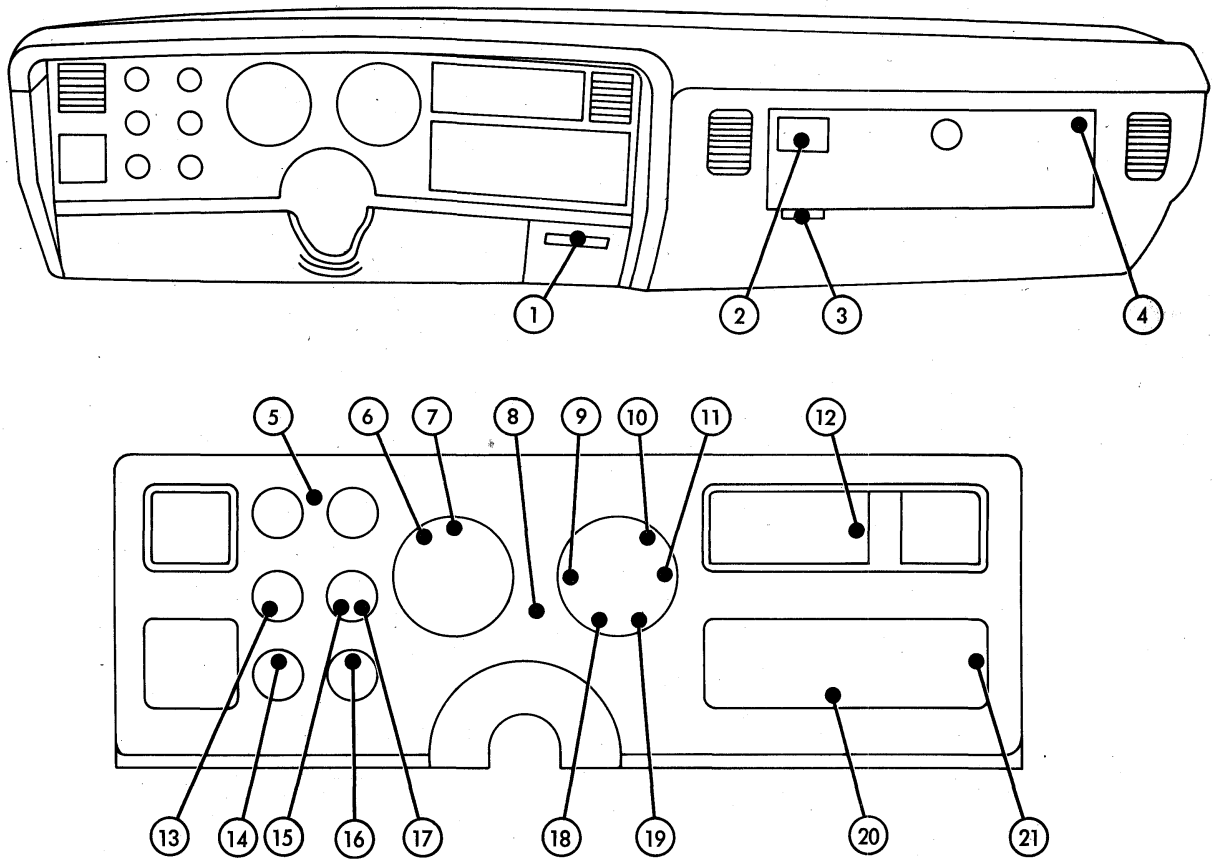


Fig. 14—Light Bulb Location F and G Models

1. Ash Tray Illumination
2. Clock Flourescent Digital Read-Out
3. Map Illumination
4. Glove Box Illumination
5. Instrument Cluster Illumination
6. Instrument Cluster Illumination
7. Hi-Beam Indicator
8. Instrument Cluster Illumination
9. Left Turn Indicator
10. Instrument Cluster Illumination
11. Right Turn Indicator
12. A/C Heater Control Illumination
13. Windshield Washer Low Fluid Level Indicator
14. Switch Title Illumination
15. Brake System Warning Lamp Indicator
16. Switch Title Illumination
17. Oil Pressure Indicator
18. Seat Belt Reminder Indicator
19. Door Ajar Warning Indicator
20. Radio Illumination
21. Stereo Indicator

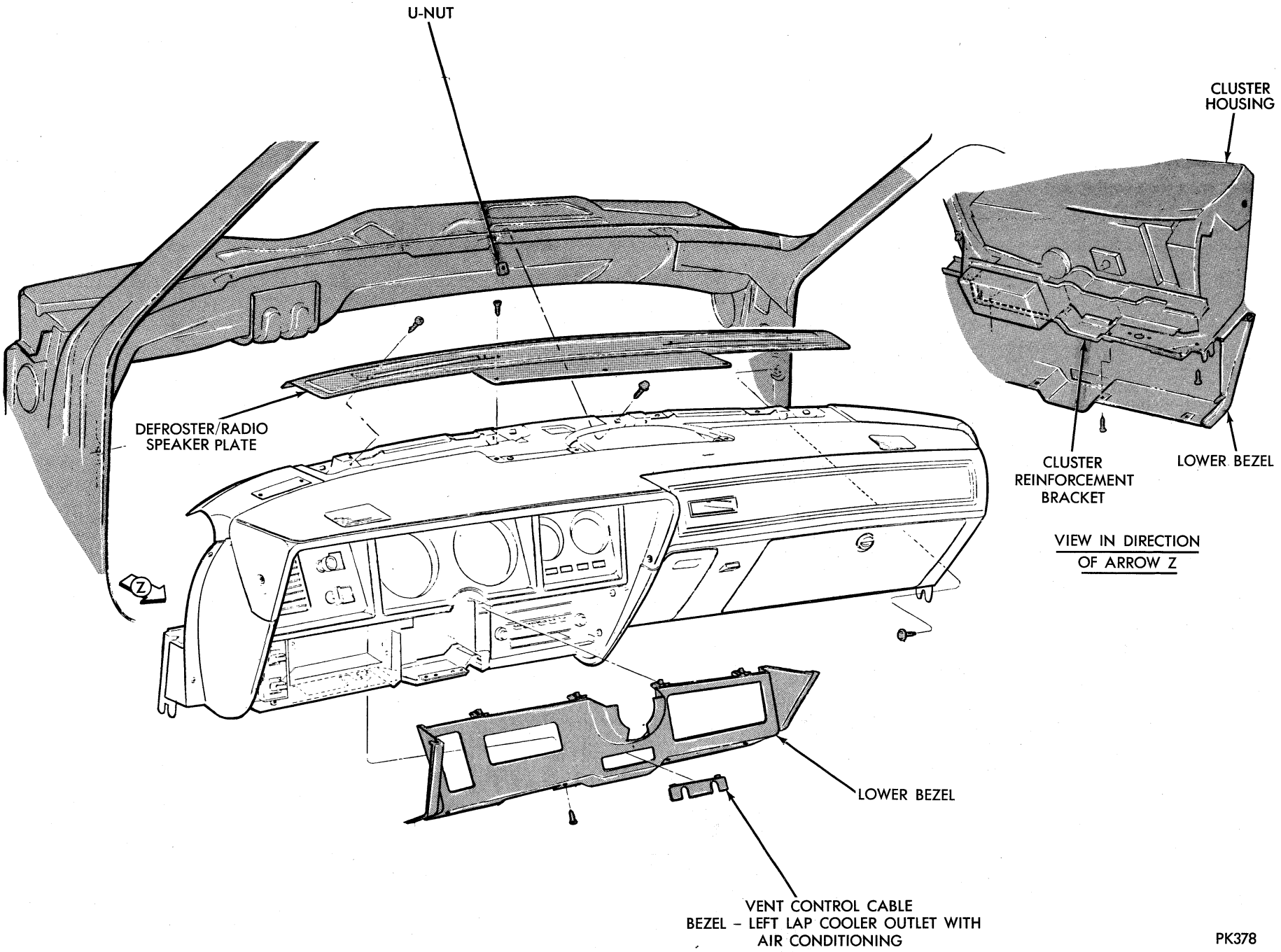


Fig. 15—Instrument Panel R,W,S, and X Models

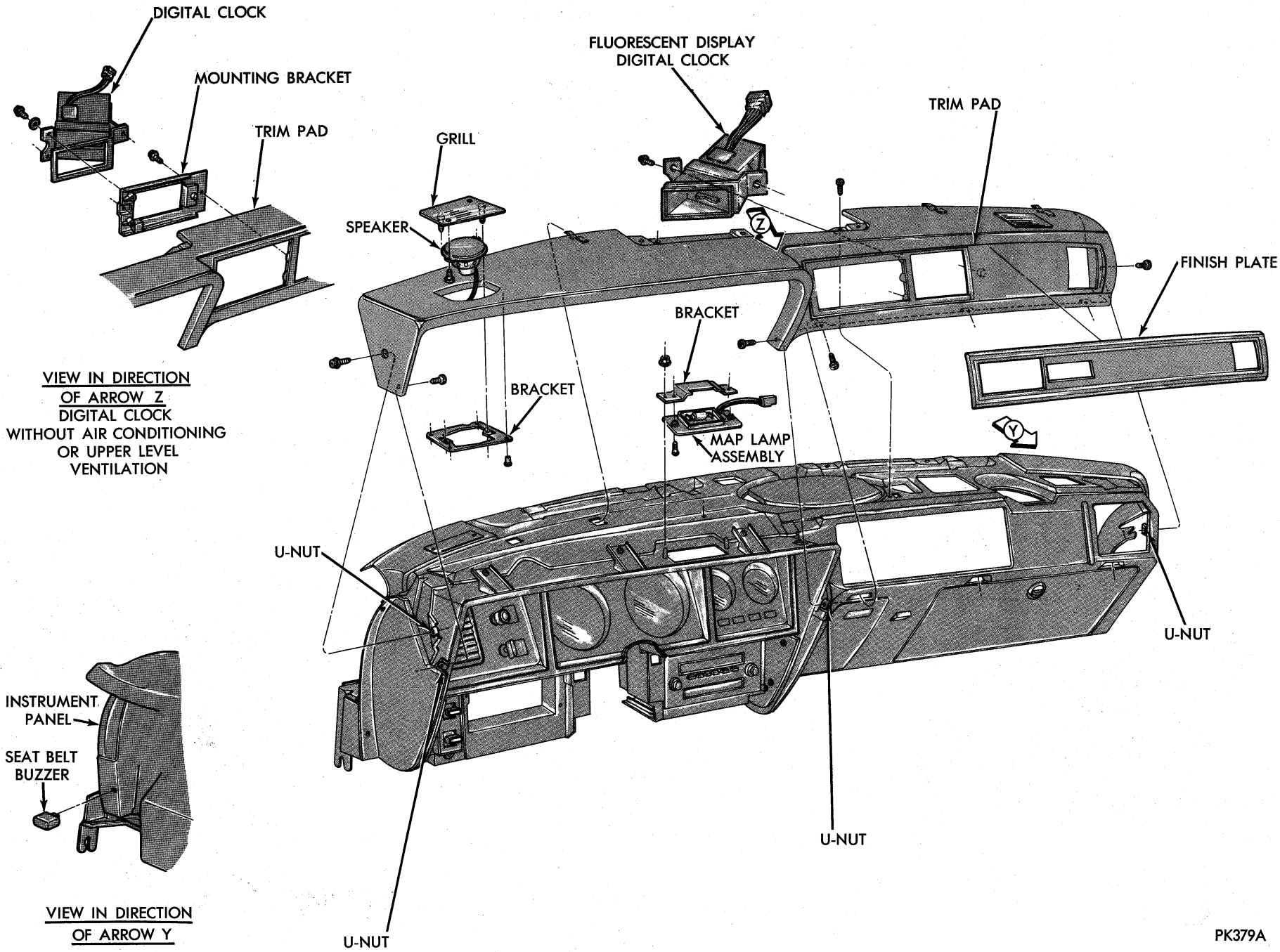


Fig. 16—Instrument Panel R,W,S, and X Models

(3) Install pin attaching duct to air outlet.
(4) Position trim pad into place on panel, install mounting screws and tighten securely.
(5) Install U.L.V. to heater housing mounting screw.
(6) If required, install stereo speakers.
(7) Install defroster/radio speaker plate.

TRIM PAD FINISH PLATE (Refer to Figure 16)

Removal
(1) Remove trim pad and place face down on padded work bench.
(2) If so equipped, remove air conditioner or upper level ventilation air outlet assemblies, and digital clock.
(3) From rear of trim pad, push finish plate to disengage from trim pad and remove.

Installation
(1) Position finish plate into place on trim pad.
(2) If required, install air conditioner or upper level ventilation air outlets and digital clock.
(3) Install trim pad.

FUSE BOX (Refer to Figure 19)

The fuse box is located to the left of steering column and is attached to mounting bracket.

RELAY BANK (Refer to Figure 19)

The relay bank is located inside the vehicle on the bulkhead disconnect. Figure 19 identifies the various relays and circuit breakers.

INSTRUMENT CLUSTER

Lower Bezel (Refer to Figure 17)

Removal
(1) If so equipped, remove right remote control mirror control mounting nut.
(2) Remove screws mounting lower edge of bezel to lower panel reinforcement and upper edge of bezel to cluster housing.
(3) Pull bezel towards rear of vehicle to disengage mounting clips and remove. If equipped with A/C, remove lap cooler hose.

For instrument panels having vent controls, it will be necessary to remove control bezel by reaching under panel and pushing bezel towards rear of vehicle; then pull vent control to the open position and remove lower bezel by lifting over vent controls.

Installation
(1) If required, position bezel over vent control and install vent control bezel and if required install lap cooler hose.
(2) Position lower bezel to panel making sure mounting clips snap into place.
(3) Install upper and lower mounting screws and tighten securely.
(4) If required install remote control mirror mounting nut.

Upper Bezel (Refer to Figure 17)

Removal
(1) Remove mounting screws on lower edge of upper bezel.
(2) Pull bezel towards rear of vehicle to disengage upper mounting clips from cluster housing.
(3) Tilt bottom of bezel away from panel and maneuver bezel past switch knobs and remove.

Installation
(1) Maneuver bezel past switch knobs and position into place on cluster housing making sure upper mounting clips snap into place.
(2) Install mounting screws and tighten securely.

Lens and Mask Assembly (Refer to Figure 17)

Removal
(1) Remove instrument cluster upper bezel.
(2) If so equipped, remove clock reset knob.
(3) Remove nylon pins mounting lens and mask assembly to cluster housing.
(4) Remove lens and mask assembly.

Installation
(1) Position lens and mask assembly into place on cluster housing and install mounting pins.
(2) If required, install clock reset knob.
(3) Install upper bezel.

Cluster Housing Reinforcement Bracket (Refer to Figure 15)

Removal
(1) Remove lower bezel.
(2) If instrument panel is equipped with vent controls, remove screws that mount controls to cluster housing reinforcement bracket and maneuver away from panel.
(3) Remove two screws mounting reinforcement bracket to instrument panel.
(4) Remove bracket from panel.

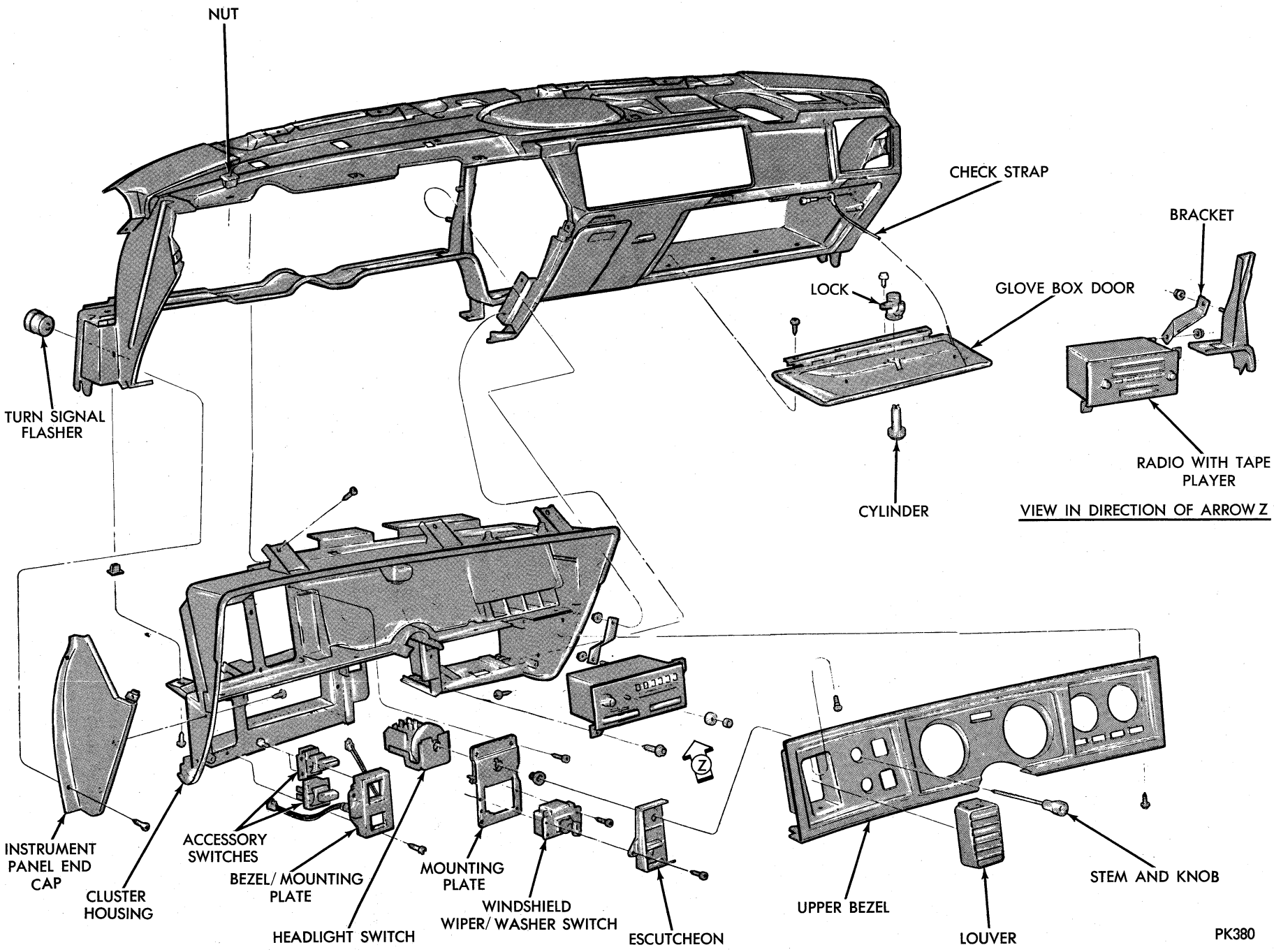


Fig. 17—Instrument Panel R,W,S, and X Models

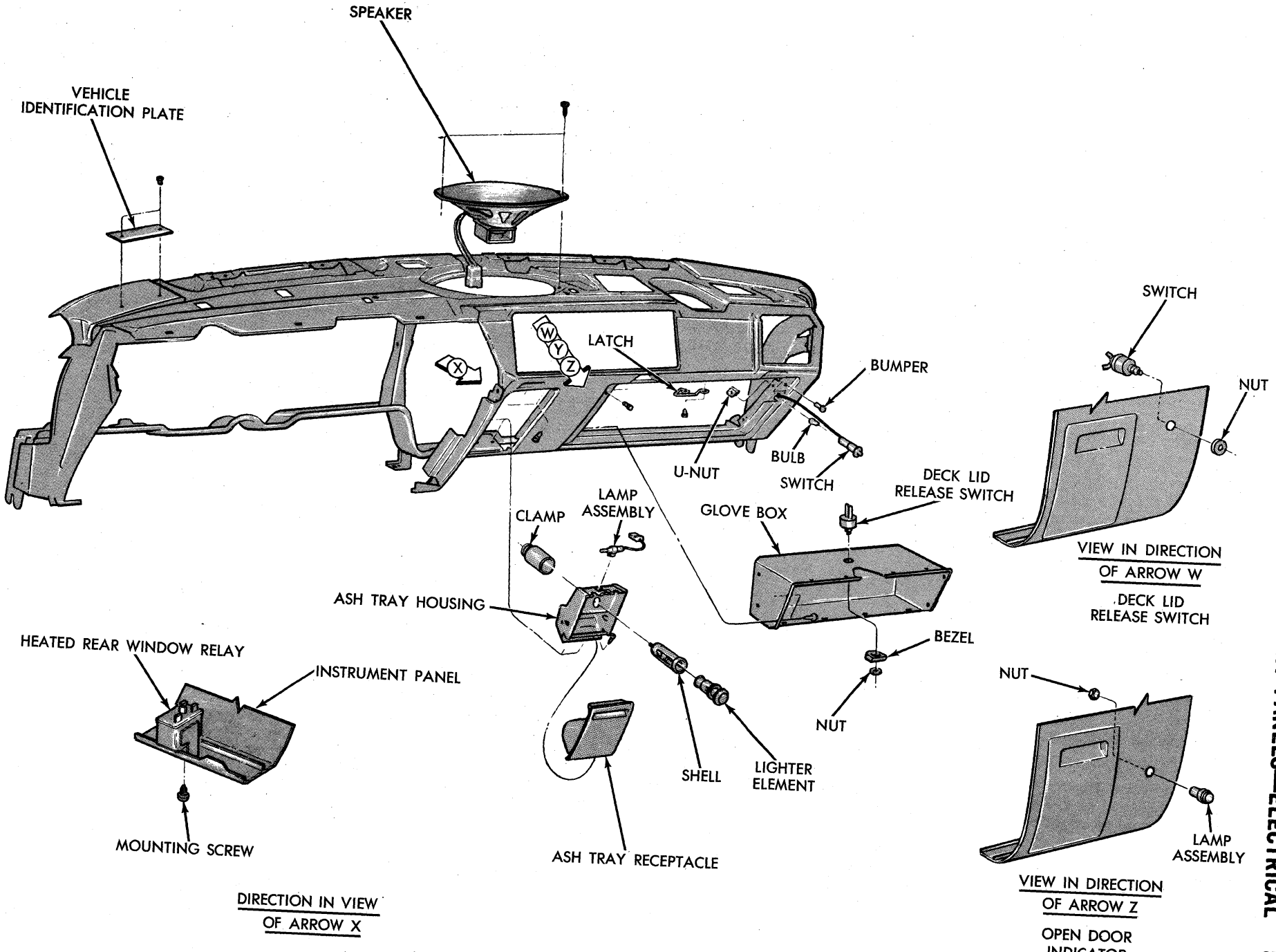


Fig. 18—Instrument Panel R,W,S, and X Models

Installation

(1) Position reinforcement to instrument panel, install mounting screws and tighten securely.

(2) If required, install vent controls into position on cluster housing reinforcement, install mounting screws and tighten securely.

(3) Install lower bezel.

Cluster Housing (Refer to Figure 17)

Removal

(1) Remove trim pad.

(2) Remove radio.

(3) Remove heater or heater and air conditioner controls.

(4) Remove cluster housing reinforcement bracket.

(5) From under instrument panel disconnect;

(a) speedometer cable,

(b) electrical leads from printed circuit board,

(c) electrical leads from headlight switch,

(d) electrical leads from wiper/washer switch,

(e) electrical leads from accessory switches,

(f) electrical leads from clock and map lamp,

(g) three wiring trough clips.

(6) Remove upper cluster bezel.

(7) Remove instrument panel end cap.

(8) Remove nuts mounting steering column to support bracket.

(9) Remove eleven screws mounting cluster housing to instrument panel and remove housing.

Installation

(1) Position cluster housing to instrument panel, install mounting screws and tighten securely.

(2) Position steering column to mounting bracket, install mounting nuts and tighten to 110 inch-pounds torque.

(3) Install instrument panel end cap.

(4) Install upper cluster bezel.

(5) Connect all wiring leads to rear of cluster, speedometer cable and wiring trough clips.

(6) Install cluster housing reinforcement bracket.

(7) Install heater or heater and air conditioner controls.

(8) Install radio.

(9) Install trim pad.

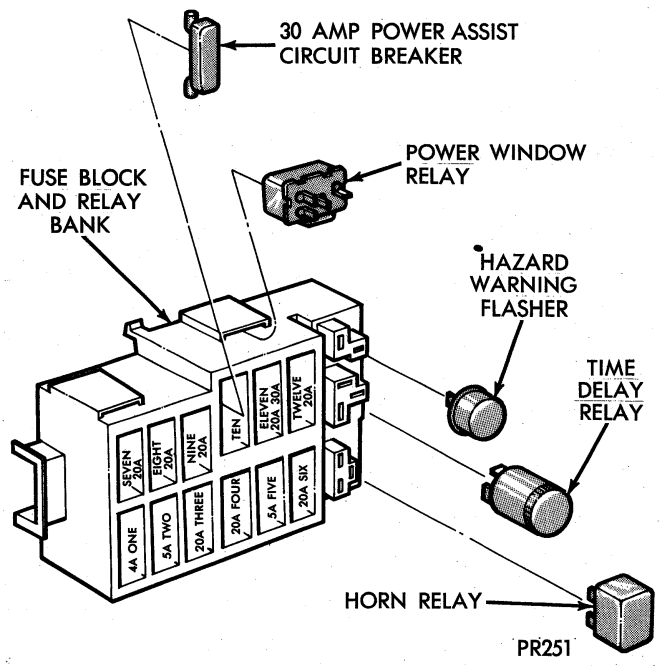


Fig. 19—Fuse Block and Relay Bank R,W,S, and X Models

Printed Circuit Board

Removal

(1) Remove cluster housing.

(2) Remove all gauges except speedometer.

(3) Remove all illumination and indicator lamps.

(4) Remove printed circuit board.

Installation

(1) Position printed circuit board to cluster housing and install lamps.

(2) Install gauges.

(3) Install cluster housing.

VOLTAGE LIMITER

Removal

(1) Remove fuel and oil gauges.

(2) If so equipped, remove conventional clock.

(3) Remove voltage limiter by pulling from cluster housing.

Installation

(1) Install voltage limiter.

(2) Install gauges.

(3) If required, install clock.

GAUGES

Speedometer

Removal

(1) Remove lens and mask assembly.

(2) From under panel disconnect speedometer cable from speedometer.

(3) From front of panel, remove screws mounting speedometer to cluster housing.

(4) Pull and remove speedometer from cluster housing.

Installation

(1) Position speedometer into place in cluster housing, install mounting screws and tighten securely.

(2) From under panel, connect speedometer cable.

(3) Install lens and mask assembly.

Fuel Gauge
Oil Pressure Gauge
Temperature Gauge
Alternator Gauge

Removal

(1) Remove lens and mask assembly.
(2) From front of panel, remove screw mounting gauge to cluster housing.
(3) Pull and remove gauge from cluster housing.

Installation

(1) Position gauge into place in cluster housing making sure gauge terminals properly insert into printed circuit board.
(2) Install gauge mounting screws and tighten securely.
(3) Install lens and mask assembly.

Tachometer

Removal

(1) Remove lens and mask assembly.
(2) Remove screws mounting tachometer to cluster housing.
(3) Remove tachometer from cluster.

Installation

(1) Position tachometer into place in cluster housing, making sure gage terminals engage properly into printed circuit board.
(2) Install mounting screws and tighten securely.
(3) Install lens and mask assembly.

CLOCK
(Refer to Figure 16)

Conventional

Removal

(1) Remove lens and mask assembly.
(2) Remove screws mounting clock to cluster housing.
(3) Pull clock from housing and disconnect electrical leads.
(4) Remove clock.

Installation

(1) Connect electrical leads to clock.
(2) Position clock into place in cluster housing, install mounting screws and tighten securely.
(3) Install lens and mask assembly.

Digital

Removal

(1) Remove trim pad.
(2) Lay trim pad face down on padded work bench, remove screws attaching clock to pad.
(3) Remove clock.

Installation

(1) Position clock into place on trim pad, install mounting screws and tighten securely.
(2) Install trim pad.

MAP LAMP ASSEMBLY
(Refer to Figure 16)

Removal

(1) Remove screws mounting lamp assembly to cluster housing.
(2) **Lower** assembly **down,** disconnect electrical leads and remove.

Installation

(1) Connect electrical leads to lamp assembly.
(2) Position assembly into place in cluster housing, install mounting screws and tighten securely.

SWITCHES
(Refer to Figure 17)

Headlight Switch

Removal

(1) Remove instrument cluster upper bezel.
(2) Remove escutcheon mounting screw.
(3) Remove screws attaching switch mounting plate to cluster housing.
(4) Pull switch assembly from cluster housing and disconnect electrical leads.
(5) While depressing headlight switch stem release button, pull knob and stem from switch.
(6) Remove escutcheon.
(7) Remove switch mounting nut.
(8) Remove switch from mounting plate.

Installation

(1) Position switch to mounting plate, install mounting nut and tighten securely.
(2) Position escutcheon to plate and install knob and stem into switch making sure it locks into place.
(3) Connect electrical leads to switch, position into place in cluster housing, install mounting screws and tighten securely.
(4) Install escutcheon mounting screw and tighten securely.
(5) Install instrument panel upper bezel.

Windshield Wiper/Washer Switch

Removal

(1) Remove instrument cluster upper bezel.
(2) Remove escutcheon mounting screw.
(3) Remove screws mounting wiper switch to cluster housing.
(4) Pull headlight switch to "On" position.
(5) Slide escutcheon along shaft towards rear of ve-

hicle and rotate upwards to gain clearance for switch removal.

(6) Pull switch from cluster housing, disconnect electrical leads and remove.

Installation

(1) Connect electrical leads to switch.

(2) Position switch into place in cluster housing, install mounting screws and tighten securely.

(3) Position escutcheon into place, install mounting screws and tighten securely.

(4) Turn headlight switch off.

(5) Install instrument panel upper bezel.

Accessory Switches

Removal

(1) Remove instrument cluster lower bezel.

(2) Remove screws mounting accessory switch and bezel plate assembly to cluster housing.

(3) Pull switch and bezel/plate assembly from cluster housing and disconnect wiring.

(4) Remove screws mounting switch to bezel/plate assembly.

(5) Remove switch.

Installation

(1) Position switch to bezel/plate assembly, install mounting screws and tighten securely.

(2) Connect electrical leads to switch, position switch and bezel/plate assembly into place in cluster housing, install mounting screws and tighten securely.

(3) Install instrument cluster lower bezel.

Trunk Release Switch (Refer to Figure 18)

Removal

(1) Open glove box door.

(2) Remove screws from top of glove box.

(3) Remove spanner nut mounting switch to top of glove box.

(4) Remove switch bezel.

(5) Bend top of glove box downward and maneuver switch through opening.

(6) Remove switch.

Installation

(1) Connect electrical leads to switch.

(2) Maneuver switch into place on top of glove box; install bezel, spanner nut and tighten securely.

(3) Install screws to top of glove box.

Glove Box Lamp Switch (Refer to Figure 18)

Removal

(1) Open glove box door.

(2) Carefully pry switch from its mounting surface with tip of a small screw driver.

(3) Pull switch from panel and disconnect electrical lead.

(4) Remove switch.

Installation

(1) Connect electrical leads to switch.

(2) Insert switch into its opening in panel and snap into place.

(3) Close glove box door.

Heater Controls
Heater and Air Conditioning Controls
Heater and Upper Level Ventilation Controls (Refer to Figure 20)

Removal

(1) Remove instrument cluster lower bezel.

(2) Remove screws mounting control to cluster housing.

(3) Pull control from cluster housing until electrical leads, control cables, or vacuum lines become accessible and disconnect them.

(4) If vehicle is equipped with upper level ventilation or A/C, it will be necessary to reach under panel and disconnect vacuum line.

(5) Remove control.

Installation

(1) Connect all electrical leads and vacuum lines to control.

(2) Install control cables and adjust. Refer to Group 24, Heaters and Air Conditioning for adjustment procedure.

(3) Position control into place in cluster making sure retainer clip on rear of control properly engages into opening in cluster housing.

(4) Install mounting screws and tighten securely.

(5) Install instrument cluster lower bezel.

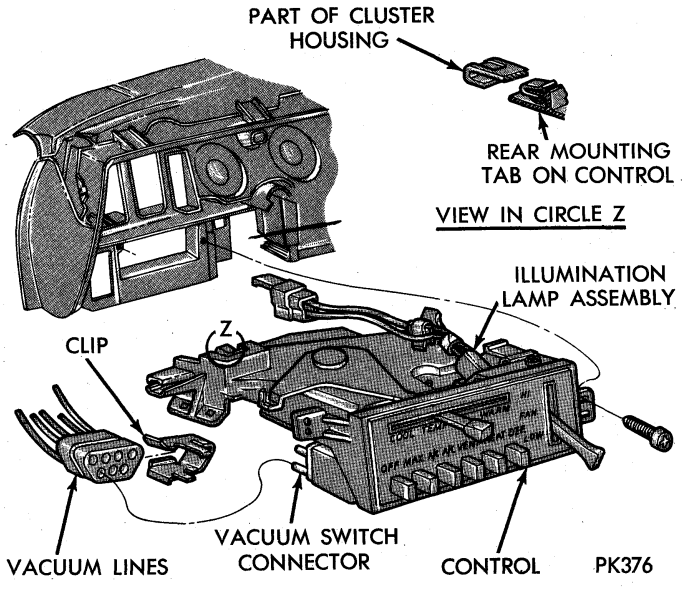


Fig. 20—Controls

INSTRUMENT PANEL END CAP (Refer to Figure 18)

Removal

(1) Remove instrument cluster lower bezel.
(2) Remove "A" pillar garnish moulding.
(3) Remove screws mounting end cap to instrument panel and cluster housing.
(4) Remove end cap.

Installation

(1) Position end cap into place on panel, install mounting screws and tighten securely.
(2) Install "A" pillar garnish moulding.
(3) Install instrument cluster lower bezel.

UPPER LEVEL VENTILATION (U.L.V.) DISTRIBUTION DUCT (Fig. 21)

Removal

(1) From under panel, remove screw mounting U.L.V duct to heater housing.
(2) Remove trim pad mounting screws and pull trim pad towards rear of vehicle until pin attaching U.L.V. duct to air outlet assembly becomes accessible and remove pin.
(3) Remove duct from bottom of panel.

Installation

(1) Position duct into place in panel and install attaching pin to air outlet assembly.
(2) Install trim pad.
(3) Install duct to heater housing mounting screw and tighten securely.

AIR CONDITIONER AIR OUTLETS (Fig. 22)

Removal

(1) Remove trim pad.
(2) Lay trim pad face down on padded work bench.
(3) Remove screws mounting outlet to trim pad.
(4) Remove outlet.

Installation

(1) Position air outlet into place on trim pad, install mounting screws and tighten securely.
(2) Install trim pad.

LOUVERS

Removal

(1) Place tip of a small screw driver between bottom of louver assembly and outlet housing.
(2) Depress locking tab into louver assembly.
(3) Tilt lower end towards rear of vehicle and remove.

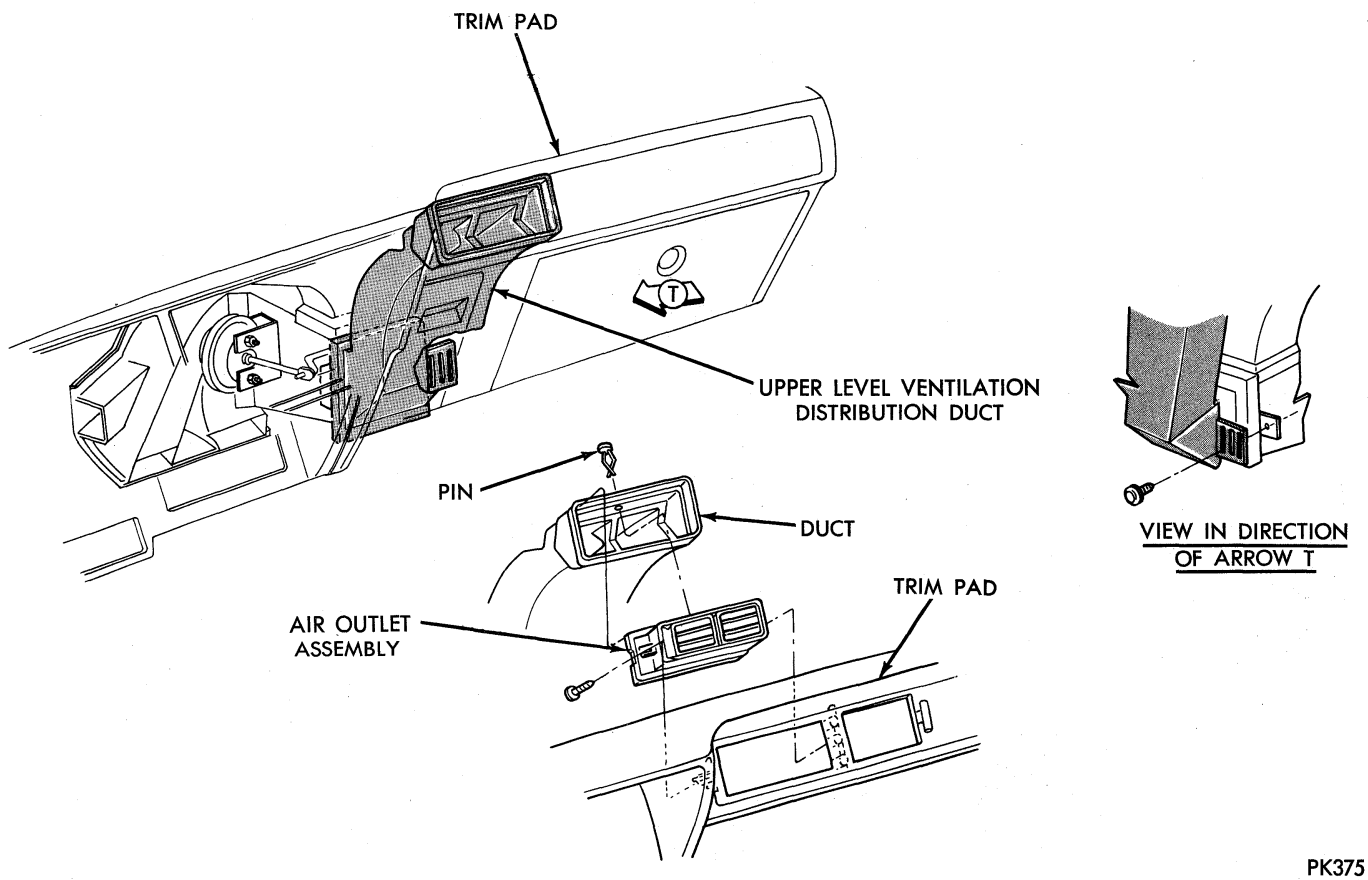


Fig. 21—U.V.L. Distribution Duct and Air Outlets

Installation

(1) Insert louver assembly into outlet housing making sure lock tabs snap into place.

AIR CONDITIONER DISTRIBUTION DUCTS (Fig. 23)

Center

Removal

(1) Remove trim pad.
(2) Remove ash tray assembly.
(3) Remove right lap cooler assembly.
(4) From under panel remove screws mounting air distribution housing to air conditioner housing.
(5) From top of panel remove screws mounting center duct to panel.
(6) Remove screw mounting center duct to lower panel reinforcement.
(7) Maneuver center duct down and remove from under panel.

Installation

(1) Maneuver duct into place making sure proper connection is made between right and left ducts.
(2) Install duct mounting screws.
(3) Position air distribution housing into place, install mounting screws and tighten securely.
(4) Install trim pad.
(5) Install lap cooler.
(6) Install ash tray assembly.

Right

Removal

(1) Remove glove box.
(2) Remove trim pad.
(3) Remove screw mounting right duct to instrument panel.
(4) Maneuver duct down and remove through glove box opening.

Installation

(1) Position duct into place in panel, making sure proper connection is made to center duct, install mounting screw and tighten securely.
(2) Install trim pad.
(3) Install glove box.

Left

Removal

(1) Remove instrument cluster housing.
(2) Remove screw mounting duct to panel.
(3) Remove duct through cluster opening.

Installation

(1) Position duct into place in panel making sure

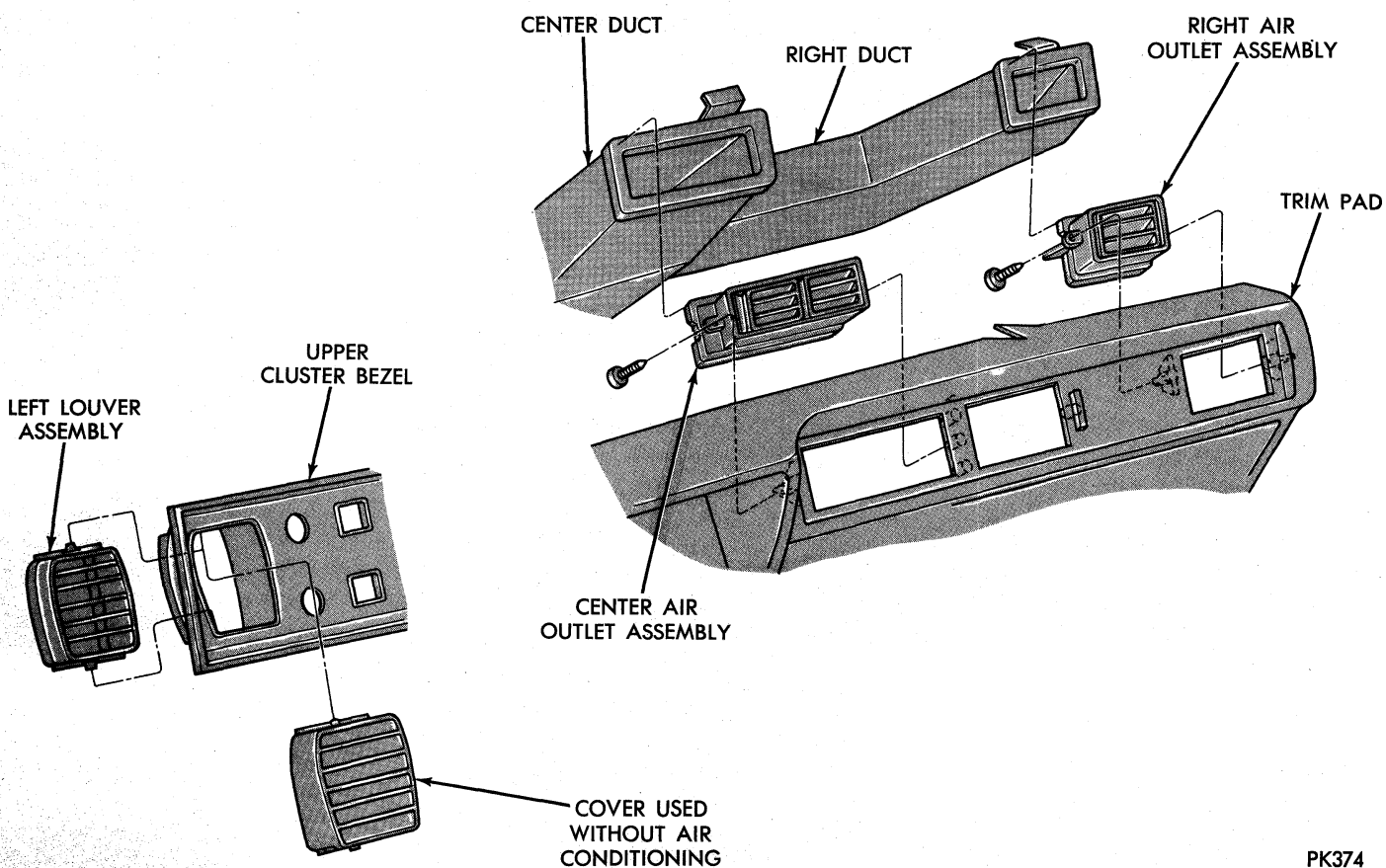


Fig. 22—Air Conditioning Air Outlets

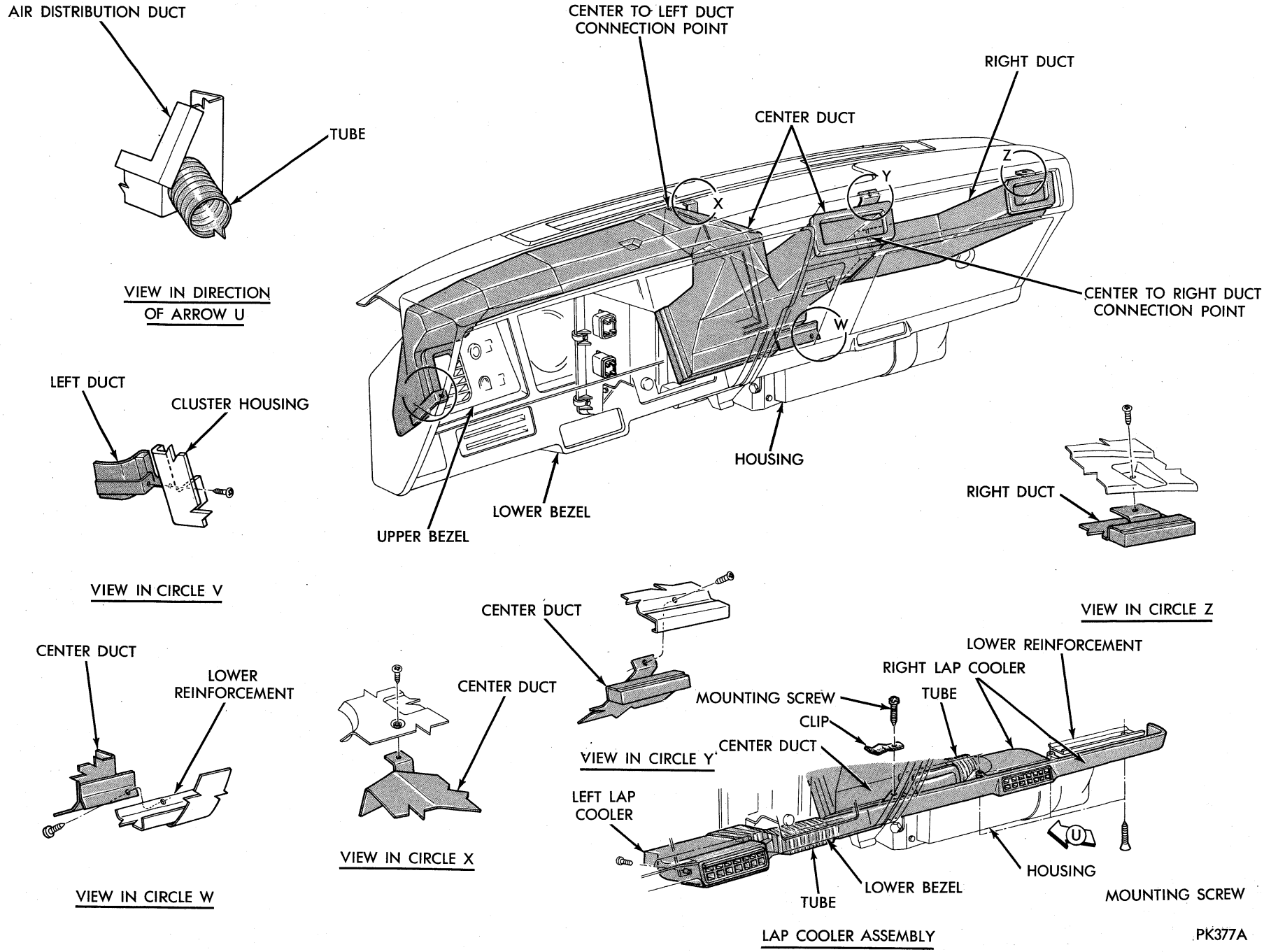


Fig. 23—Air Conditioning Distribution Ducts

proper connection is made to center duct, install mounting screw and tighten securely.

(2) Install instrument cluster housing.

Right Lap Cooler

Removal

(1) Remove glove box.
(2) Remove ash tray.
(3) Working through glove box opening;
(a) remove distribution tube from lap cooler,
(b) remove nuts mounting lap cooler to lower reinforcement.
(4) Remove lap cooler.

Installation

(1) Position lap cooler into place on bottom of panel, install mounting nuts and tighten securely.
(2) Install distribution tube.
(3) Install ash tray.
(4) Install glove box.

Left Lap Cooler

The left lap cooler is part of the instrument cluster lower bezel. To remove it will be necessary to remove lower bezel and remove screws mounting cooler to it.

LIGHT BULB REPLACEMENT (Refer to Figure 24 for Location)

Instrument Cluster Lamps

Replacement

All instrument cluster illumination and indicator lamps are accessible from under instrument panel by reaching behind cluster housing and twisting lamp socket assembly from printed circuit board.

Heater Control Illumination Lamp
Heater and Air Conditioner Control Illumination Lamp
Heater and Upper Level Ventilation Control Illumination Lamp

Removal

(1) Remove lower bezel.
(2) Remove control mounting screws.
(3) Pull control from housing far enough to gain access to socket assembly.
(4) Remove socket assembly from control.
(5) Remove bulb from socket.

Installation

(1) Install bulb into socket.
(2) Install socket assembly into control.
(3) Position control into place in cluster housing, install mounting screws and tighten securely.
(4) Install bezel.

Radio Illumination Lamp (AM/FM Monaural)

Removal

(1) Remove lower bezel.
(2) Remove socket assembly from bottom front of radio.
(3) Remove bulb from socket.

Installation

(1) Install bulb into socket.

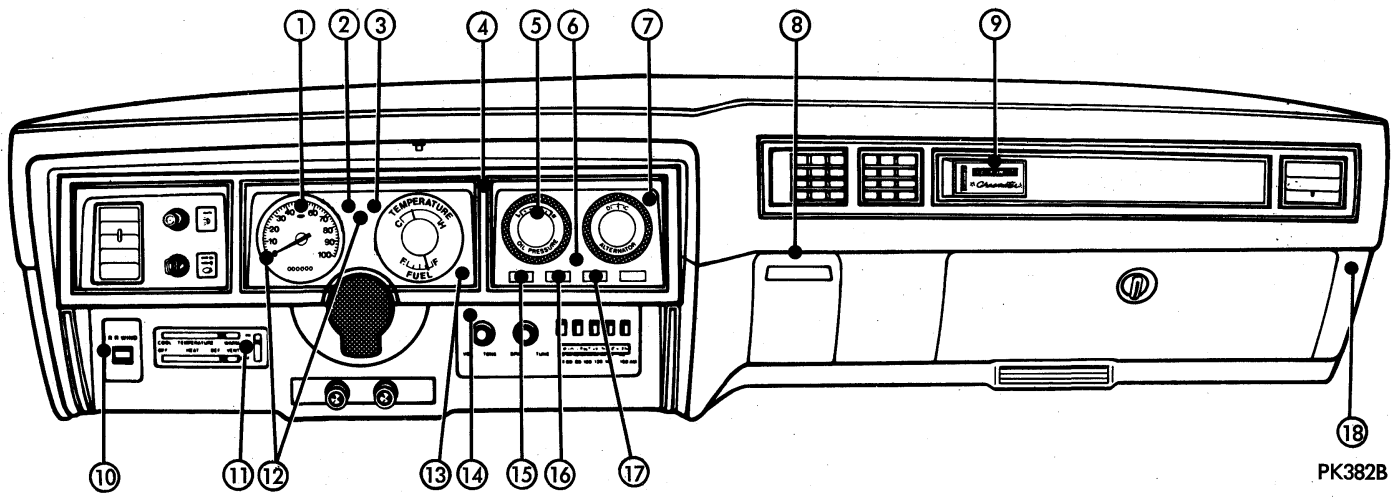


Fig. 24—Light Bulb Location R,W,S, and X Models

LEGEND

1. High Beam Indicator
2. Left Turn Signal Indicator
3. Right Turn Signal Indicator
4. Cluster Illumination
5. Oil Pressure Indicator
6. Cluster Illumination
7. Cluster Illumination
8. Ash Tray Illumination
9. Digital Clock Illumination
10. Accessory Switch Illumination
11. Heater Air Conditioner Control Illumination
12. Cluster Illumination
13. Cluster Illumination
14. Radio Illumination
15. Fasten Seat Belts Indicator
16. Brake Warning Indicator
17. Tailgate Ajar Indicator (Wagons Only)
18. Glove Box Illumination

(2) Install socket assembly into radio.
(3) Install bezel.

Radio Illumination Lamp (Stereo Radio With or Without CB)

Removal

(1) Remove lower cluster bezel.
(2) Remove radio knobs, by pulling outwards.
(3) Remove radio lens mounting clips taking care not to damage lens overlay.
(4) Remove lens carefully.
(5) Remove lamp heat shield mounting screw and remove.
(6) Remove bulb from socket.

Installation

(1) Install bulb into socket.
(2) Position lamp heat shield into place, install mounting screw and tighten securely.
(3) Carefully position lens into place and carefully install mounting clips.
(4) Install radio knobs.
(5) Install lower cluster bezel.

Radio Illumination Lamp (Stereo With Tape Player)

Removal

(1) Remove lower cluster bezel.
(2) Remove radio mounting screws.
(3) From under panel remove rear support bracket mounting nut located on right side of radio.
(4) Pull radio out from cluster housing far enough to gain access to lamp assembly on top of radio.
(5) Remove screw holding socket assembly and remove assembly from radio.

Installation

(1) Install bulb into socket.
(2) Install socket assembly into top of radio and install mounting screw.
(3) Position radio into place in panel, install mounting screws and tighten securely.
(4) Install rear support bracket mounting nut and tighten securely.
(5) Install lower bezel.

Digital Clock Illumination Lamp

Removal

(1) Remove trim pad.
(2) Remove socket assembly from top of clock.
(3) Remove bulb from socket.

Installation

(1) Install bulb into socket.
(2) Install socket assembly into clock.
(3) Install trim pad.

Glove Box Lamp

From under instrument panel and to right of glove box remove bulb from socket.

Map Lamp

Removal

(1) Remove map lamp assembly.
(2) Remove bulb from socket.

Installation

(1) Install bulb into socket.
(2) Install map lamp assembly.

Accessory Switches Illumination Lamps

Removal

(1) Reach under instrument panel and remove socket assembly from switch.
(2) Remove bulb from socket.

Installation

(1) Install bulb into socket.
(2) Install socket assembly to switch.

Ash Tray Illumination Lamp

Removal

(1) Remove ash tray assembly.
(2) Remove bulb from socket.

Installation

(1) Install bulb into socket.
(2) Install ash tray assembly.

CARLINE (C)

DISCONNECT NEGATIVE BATTERY CABLE IN ENGINE COMPARTMENT BEFORE SERVICING INSTRUMENT PANEL.

INSTRUMENT PANEL UPPER COVER (C)
Figure 25

Removal

(1) Lift rearward edge of cover to free mounting clips.
(2) Lift cover rearward and up.

CAUTION: Care must be taken to make sure clips clear trim pad surface while removing cover.

Installation

(1) Insert forward clips of cover into their openings in panel.

CAUTION: Care must be taken as to not tear speaker dust cover and trim pad.

(2) Snap rear clips of cover into place in panel.

TRIM PAD (C)
Figure 26

Removal

(1) Remove instrument panel upper cover.
(2) Remove screw on left side of trim pad by "A" pillar.
(3) Remove lower trim pad mounting screws.
(4) Remove upper trim pad mounting screws.
(5) Remove trim pad.

Installation

(1) Position trim pad to panel.
(2) Install upper trim pad mounting screws and tighten securely.
(3) Install lower trim pad mounting screws and tighten securely.
(4) Install mounting screw on left side of trim pad by "A" pillar and tighten securely.
(5) Install instrument panel upper cover.

COLUMN COVER (C)

Removal

(1) Remove mounting screws.
(2) Remove cover.
(3) On vehicles without air conditioning it will be necessary to remove vent control cables.

Installation

(1) Install vent control cables (if required).
(2) Position cover into place, install mounting screws, and tighten.

PARKING BRAKE RELEASE HANDLE BEZEL

Removal

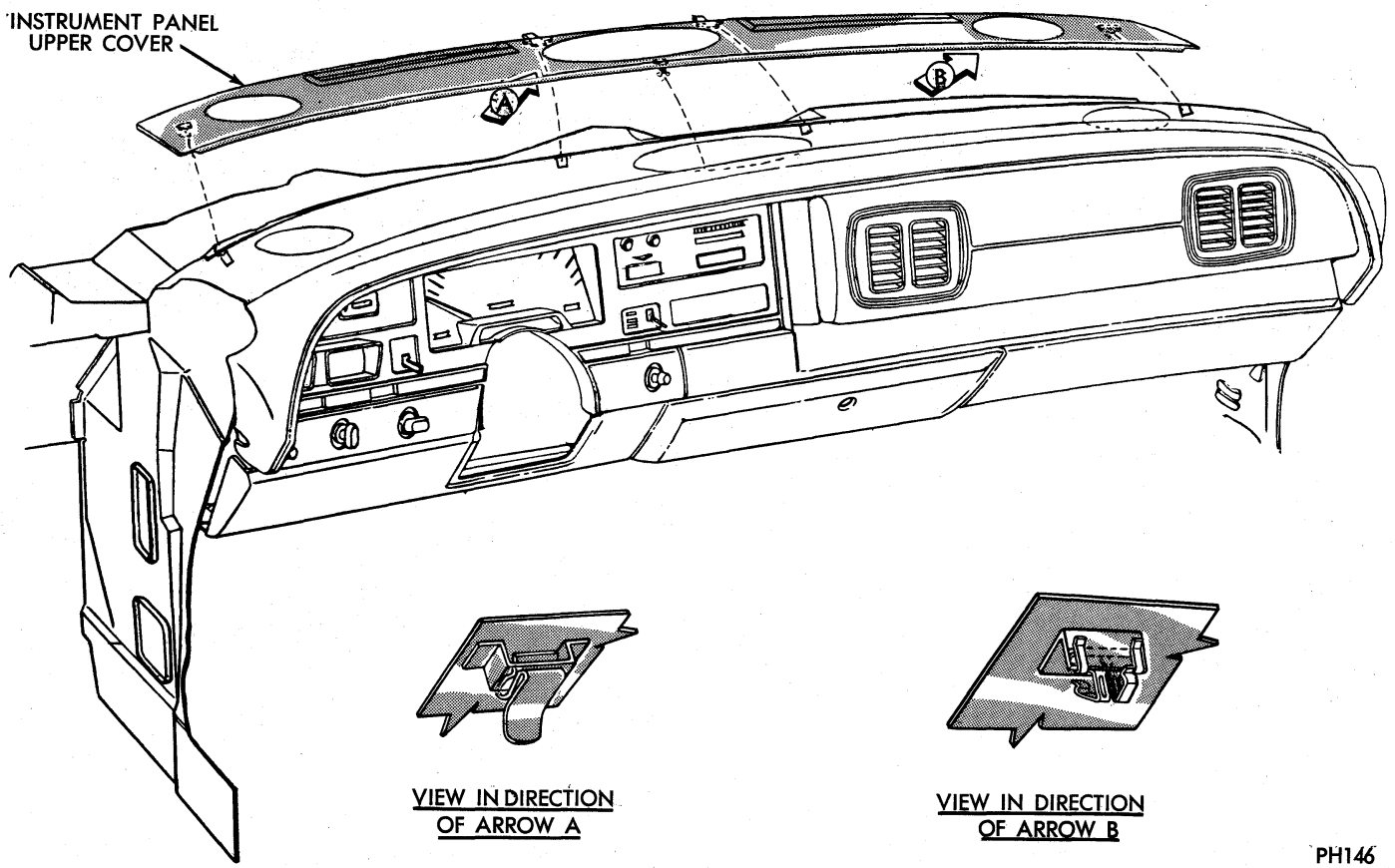
(1) Reach under instrument panel, rotate retaining clip on brake release handle, and pull outwards.
(2) Remove bezel mounting screws.
(3) Remove bezel and handle assembly.

Installation

(1) Insert handle through opening in bezel.
(2) Reach under instrument panel and insert handle on brake release. Make sure handle snaps into place.
(3) Position bezel and handle assembly into place on lower instrument panel.
(4) Install mounting screws, and tighten securely.

FUSE BOX
Figure 27

The fuse box is located to the left of the steering column and is mounted on the lower instrument panel bottom edge, (Fig. 27).



Fg. 25—Instrument Panel Upper Cover Carline C

RELAY BANK
Figure 27

The relay bank is located directly above the fuse box. To remove, lower fuse box and pull bank from its mounting bracket. Figure 27 identifies the various relays and circuit breakers.

VOLTAGE LIMITER

Removal

(1) Remove upper panel cover.
(2) Reach through opening and pull voltage limiter from printed circuit board.

Installation

(1) Install voltage limiter.
(2) Install upper panel cover.

INSTRUMENT PANEL LOWER ASSEMBLY
Figure 28

Removal

(1) Remove three screws mounting lap cooler to lower panel and remove lap cooler, if so equipped.
(2) Remove fuse box.
(3) Remove parking brake release handle bezel, if so equipped.
(4) Through access hole in right kick pad loosen lower panel pivot screw.
(5) Remove four mounting screws attaching panel to lower cluster bezel area.
(6) Remove center and right mounting screws along top of panel below trim pad. Leave left screw in.
(7) Remove two nuts attaching left extension to lower panel reinforcement area.
(8) While holding panel, remove left screw along top of panel below trim pad.
(9) Lower panel and disconnect all electrical leads and cables.
(10) Raise panel off right pivot and remove.

Installation

(1) Position panel on right pivot.
(2) Connect all electrical leads and cables.
(3) Position panel up into place, install left mounting screw along top of panel below trim pad.
(4) Install mounting nuts attaching left extension to lower panel reinforcement area, and tighten securely.
(5) Install remaining mounting screws along upper edge of panel below trim pad and tighten securely.
(6) Install mounting screws in lower cluster bezel area, and tighten securely.
(7) Tighten right pivot screw.
(8) Install parking brake release handle bezel, if so equipped.

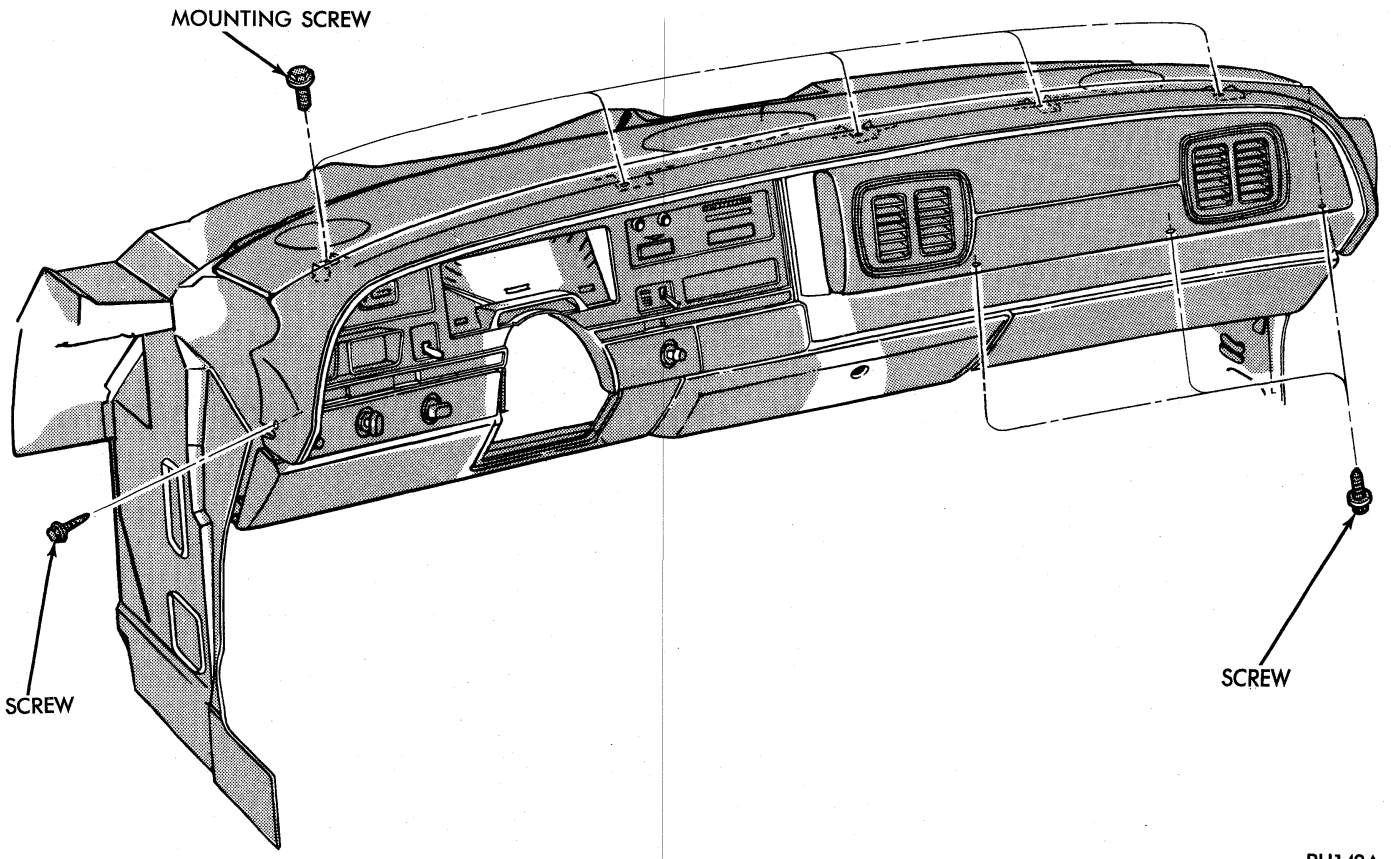


Fig. 26—Trim Pad Carline C

(9) Install lap cooler assembly, if so equipped.
(10) Install fuse box.

LOWER INSTRUMENT PANEL ASSEMBLY FINISH PLATE

Removal

(1) Remove lower instrument panel assembly.
(2) Remove finish plate mounting nuts.
(3) Remove finish plate.

Installation

(1) Position finish plate to lower panel, install mounting nuts and tighten securely.
(2) Install lower panel assembly.

GLOVE BOX
Figure 28

Glove Box and Door Assembly

Removal

(1) Remove lap cooler, if so equipped.
(2) Remove glove box door hinge mounting screws.
(3) Open glove box door and slide assembly to left.
(4) Pull right side of assembly outwards and remove.

Installation

(1) Insert left side of assembly into position.
(2) Push right side of assembly inwards.
(3) Move assembly to right, install hinge mounting screws, and tighten securely. Adjustment may be necessary.
(4) Install lap cooler, if so equipped.

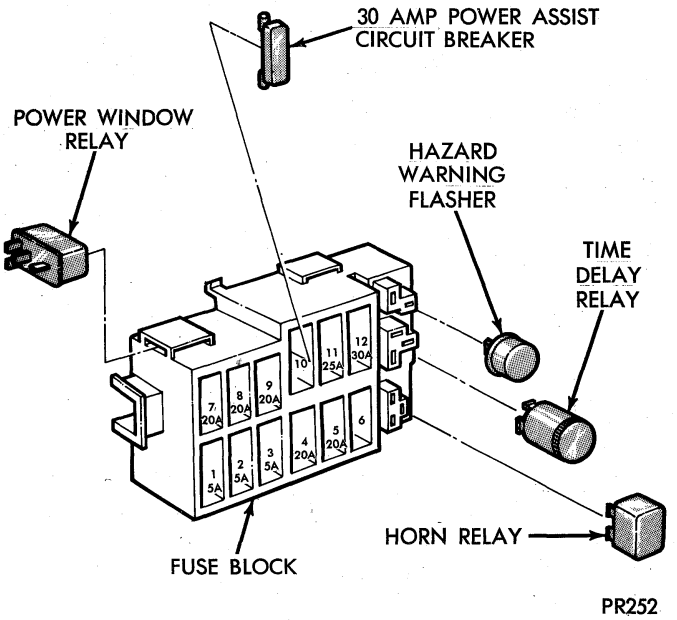


Fig. 27—Fuse Block and Relay Bank Carline C

Glove Box Lock

Removal

(1) Remove glove box and door assembly.
(2) Put glove box lock in closed position.
(3) Position glove box and door assembly with hinge towards you and box up.
(4) Insert stiff wire in right side slot of lock mechanism and depress release tab into cylinder.
(5) While holding release tab down in lock cylinder, insert key.
(6) Remove wire and pull out lock cylinder.
(7) Remove latch mounting screws.
(8) Remove latch.

Installation

(1) Position latch on glove box door, install mounting screws, and tighten securely.
(2) Depress gray tab into lock cylinder and insert key.
(3) Position lock cylinder so that it will be in closed position when installed.
(4) Push lock cylinder into latch mechanism.
(5) Remove key.
(6) Install glove box and door assembly.

Glove Box

Removal

(1) Remove glove box and door assembly.
(2) Remove glove box lock.
(3) Remove glove box mounting screws.
(4) Remove glove box from glove box door.

Installation

(1) Position glove box to glove box door, install mounting screws and tighten securely.
(2) Install glove box lock.
(3) Install glove box and door assembly.

MAP LAMP ASSEMBLY

Removal

(1) Remove map lamp assembly mounting screws.
(2) Pull assembly out far enough to disconnect electrical leads.
(3) Remove map light assembly.

Installation

(1) Connect electrical leads to assembly.
(2) Position assembly into place making sure electrical wires are not pinched.
(3) Install map light assembly mounting screw and tighten securely.

GEAR SHIFT INDICATOR POINTER

With Tilt and Telescopic Steering Wheel

Removal

(1) Remove column cover.

(2) Remove nut and washer mounting pointer to steering column.
(3) Remove pointer.

Installation

(1) Position pointer in place on column, install mounting nut and washer, and tighten securely.
(2) Make sure pointer coincides with position of gear selector lever.

With Standard Steering Column

(1) Remove column cover.
(2) Loosen set screw on column and remove pointer.

Installation

(1) Position pointer in place on column, tighten set screw, and make sure pointer coincides with position of gear selector lever.
(2) Install column cover.

CIGARETTE LIGHTER
Figure 29

Removal

(1) Remove instrument cluster bezel.
(2) Remove lighter element.
(3) Disconnect wire.
(4) Remove shell and clamp from bezel by unscrewing shell from clamp.

Installation

(1) Install shell and clamp to bezel by screwing shell onto clamp.
(2) Connect wire.
(3) Install lighter element.
(4) Install instrument cluster bezel.

INSTRUMENT CLUSTER
Figure 26

Gear Selector and Warning Lamp Bezel (CS Model)

Removal

(1) Place gear selector lever in the "L" position.
(2) Using needle nose pliers to hold trip odometer reset shaft, remove knob.
(3) Remove screws at bottom of bezel.
(4) Remove bezel by pulling from panel to release upper spring clips.

Installation

(1) Position bezel to panel and snap into place.
(2) Install screws at bottom of bezel.
(3) Install odometer knob.
(4) Place gear selector in the "P" position.

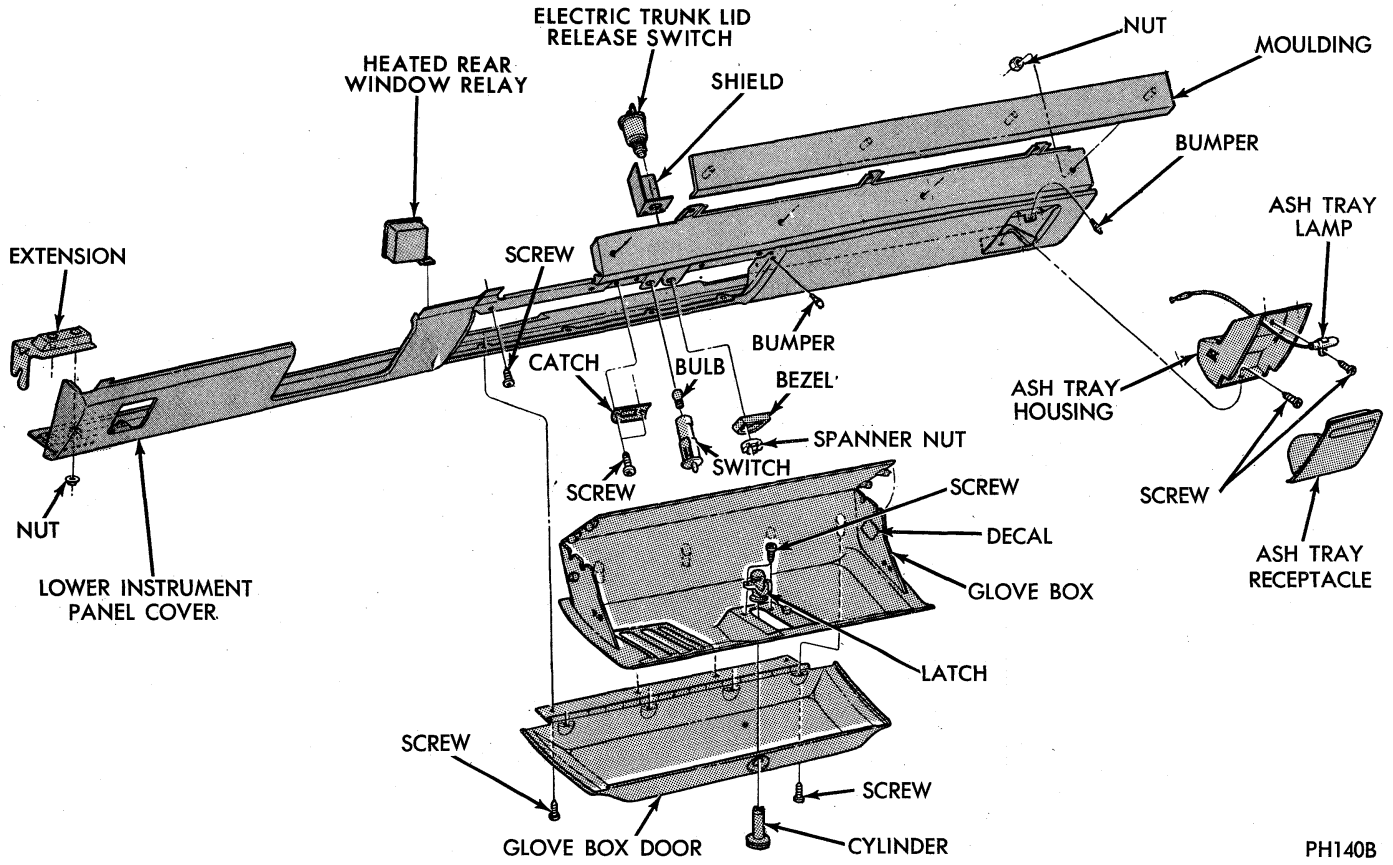


Fig. 28—Instrument Panel Lower Assembly Carline C

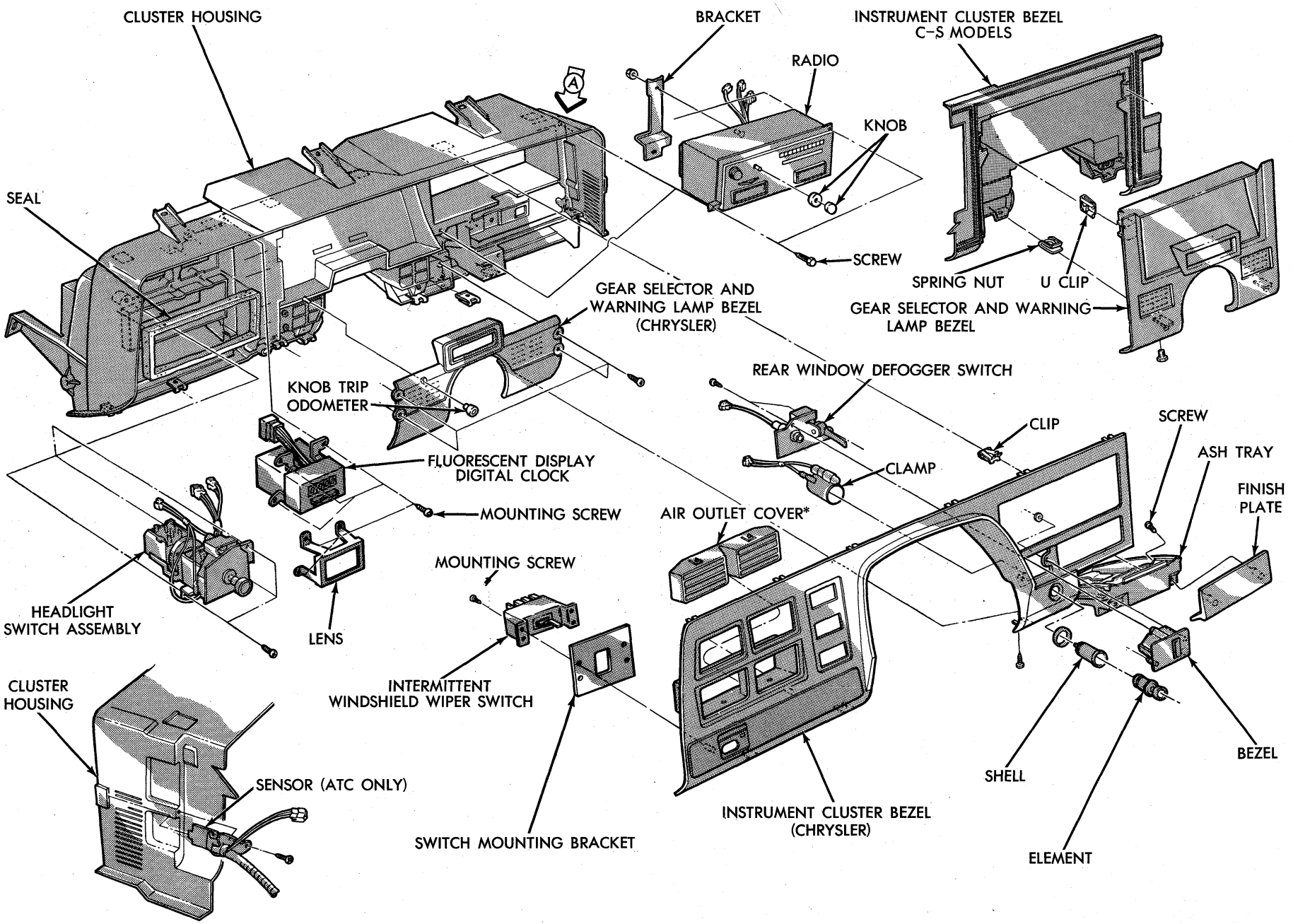


Fig. 29—Instrument Cluster Carline C

Cluster Bezel

Removal

(1) Place gear selector lever in the "L" position.
(2) Remove ash tray receptacle from ash tray housing.
(3) Remove gear selector and warning lamps bezel (CS model only).
(4) Remove mounting screws at bottom edge of instrument cluster bezel.
(5) Disengage mounting clips along top of cluster bezel by pulling bezel outwards.
(6) Disconnect all electrical leads.
(7) Remove bezel.

Installation

(1) Connect all electrical leads.
(2) Position bezel into place and push top inwards to engage mounting clips.
(3) Install mounting screws at bottom edge of bezel and tighten securely.
(4) Install gear selector and warning lamps bezel (CS model only).
(5) Install ash tray receptacle into ash tray housing.
(6) Place gear selector in "P" position.

Gear Selector and Warning Lamp Bezel (C)

Removal

(1) Remove instrument cluster bezel.
(2) Using needle nose pliers to hold trip odometer reset shaft, remove knob.
(3) Remove bezel mounting screws.
(4) Remove bezel.

Installation

(1) Position bezel into place, install bezel mounting screws, and tighten securely.
(2) Install odometer, reset shaft, knob.
(3) Install instrument cluster bezel.

Cluster Lens

Removal

(1) Remove instrument cluster bezel.
(2) Remove gear selector and warning lamp bezel (C only).
(3) Remove gear shift indicator pointer.
(4) Remove nylon pins securing instrument lens to cluster housing.
(5) Roll lens out from top and remove carefully.

Installation

(1) Carefully roll lens into position in cluster housing.
(2) Install nylon pins to secure lens to housing.
(3) Install gearshift indicator.
(4) Install gear selector and warning lamp bezel (C only).
(5) Install instrument cluster bezel.

GAUGES

Fuel Gauge
Temperature Gauge

Removal

(1) Remove instrument cluster bezel.
(2) Remove gear selector and warning lamp bezel (CS model only).
(3) Remove instrument cluster lens.
(4) Remove gauge mounting screws.
(5) Pull gauge carefully out of slip terminals on printed circuit board.

Installation

(1) Carefully insert gauge into slip terminals.
(2) Install gauge mounting screws and tighten securely.
(3) Install instrument cluster lens.
(4) Install gear selector and warning lamp bezel (CS model only).
(5) Install instrument cluster bezel.

Ammeter Gauge

Removal

(1) Remove fuel gauge.
(2) Remove temperature gauge.
(3) Pull ammeter gauge carefully out of slip terminals on printed circuit board.

Installation

(1) Carefully insert gauge into slip terminals on printed circuit board.
(2) Install fuel and temperature gauges.

Speedometer Assembly

Removal

(1) Remove instrument cluster bezel.
(2) Remove gear selector and warning lamp bezel.
(3) Remove instrument cluster lens.
(4) Remove instrument panel upper cover.
(5) Working through access hole in top of panel, disconnect speedometer cable.
(6) Remove speedometer to cluster housing mounting screws.
(7) Remove speedometer assembly.

Installation

(1) Position speedometer assembly into cluster housing, install mounting screws and tighten securely.
(2) Connect speedometer cable.
(3) Install instrument panel upper cover.

(4) Install instrument cluster lens.
(5) Install gear selector and warning lamp bezel.
(6) Install instrument cluster bezel.

INSTRUMENT CLUSTER ASSEMBLY

Removal

(1) Remove instrument panel upper cover.
(2) Working through access hole in top of panel, disconnect speedometer cable and round printed circuit board multiple connector.
(3) Remove instrument cluster bezel.
(4) Remove gear selector and warning lamps bezel.
(5) Remove instrument cluster lens.
(6) Remove cluster housing to cluster carrier mounting screws.
(7) Pull cluster out far enough and disconnect two illumination lamps and two warning lamp modules, and remaining electrical leads.
(8) Remove instrument cluster assembly.

Installation

(1) Position cluster assembly up to cluster carrier, connect illumination lamps, warning lamp modules, and electrical leads.
(2) Position cluster assembly into place in cluster carrier, install mounting screws and tighten securely.
(3) Install instrument cluster lens.
(4) Install gear selector and warning lamps bezel.
(5) Install instrument cluster bezel.
(6) Connect speedometer cable and round printed circuit board multiple connector.
(7) Install instrument panel upper cover.

PRINTED CIRCUIT BOARD

Illumination and Turn Signal Lamp Board

Removal

(1) Remove instrument cluster assembly.
(2) Remove all lamp socket assemblies.
(3) Remove printed circuit board mounting screws.
(4) Carefully remove printed circuit board.

Installation

(1) Position printed circuit board into place, install mounting screws and tighten. **Do not over tighten for damage to the printed circuit board will occur.**
(2) Install lamp socket assemblies.
(3) Install instrument cluster assembly.

Gauges and Illumination Board

Removal

(1) Remove instrument cluster assembly.
(2) Remove voltage limiter.
(3) Remove printed circuit board mounting screws.
(4) Carefully remove printed circuit board.

Installation

(1) Position printed circuit board into place, install mounting screws, and tighten. **Do not over tighten for damage to the printed circuit board will occur.**
(2) Install voltage limiter.
(3) Install instrument cluster assembly.

SWITCHES
Refer to Figure 29

Windshield Wiper Switch
Rear Window Defogger Switch (If So Equipped)

Removal

(1) Remove instrument cluster bezel.
(2) Remove switch mounting screws.
(3) Remove switch from bezel.

Installation

(1) Position switch to bezel, install mounting screws, and tighten securely.
(2) Install instrument cluster bezel.

Headlight Switch Lens (Figure 33)

Removal

(1) Remove instrument cluster bezel.
(2) Pull air conditioner outlet housing seal loose at top to allow access to lower switch bracket mounting screws.
(3) Remove switch bracket mounting screws.
(4) Pull assembly outwards from carrier housing and disconnect all electrical leads.
(5) Pull headlight switch knob to "On" position, depress release button on side of switch, and pull knob and stem from switch.
(6) Remove illumination lamp assembly mounting screw.
(7) Remove lamp assembly.

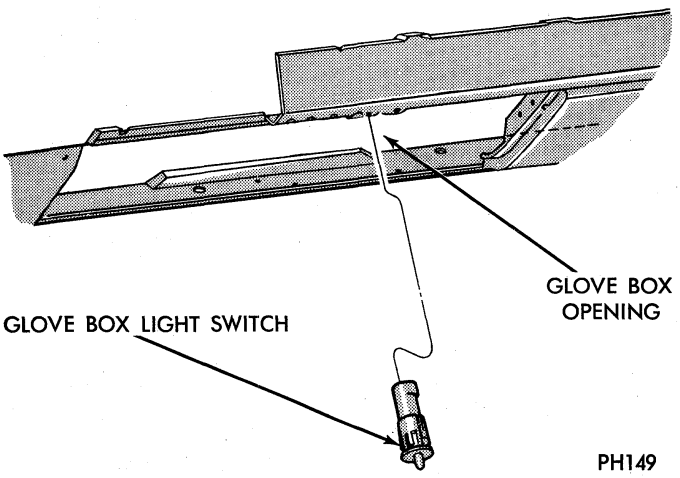


Fig. 30—Glove Box Light Switch

(8) Remove lens mounting clips.
(9) Remove lens.

Installation

(1) Position lens into position on switch assembly and install mounting clips.
(2) Position illumination lamp assembly to switch assembly, install mounting screw, and tighten securely.
(3) Insert switch knob and stem into switch and snap into place.
(4) Connect all electrical leads to switch assembly.
(5) Position switch assembly into place in carrier housing, install mounting screws, and tighten securely.
(6) Attach air conditioner outlet housing seal.
(7) Install instrument cluster bezel.

Headlight Switch

Removal

(1) Remove headlight switch lens.
(2) Remove headlight switch to mounting plate retaining nut.
(3) Remove switch.

Heater and Upper Ventilation Controls
Heater and Air Conditioning Controls (If So Equipped)
Automatic Temperature Controls (If So Equipped)
Refer to Figure 31

Removal

(1) Remove instrument cluster bezel.
(2) Remove control mounting screws.
(3) Pull control out far enough to disconnect wiring, vacuum hoses, and temperature control cable.
(4) Remove control.

Installation

(1) Connect wiring, vacuum hoses, and temperature control cable to control. (Refer to "Heater and Air Conditioning Section" for cable adjustment).
(2) Position control into place making sure all wires hoses or cables are not pinched.

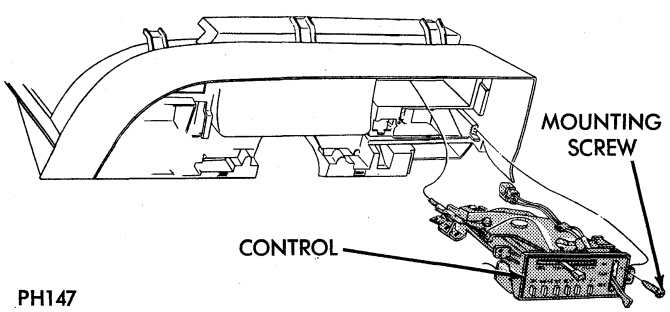


Fig. 31—Controls

(3) Install control mounting screws and tighten securely.
(4) Install instrument cluster bezel.

Glove Box Light Switch (Figure 30)

Removal

(1) Open glove box door.
(2) Reach through opening and disconnect electrical leads, then push switch out of lower panel cover.

Installation

(1) Press switch into position into lower panel cover.
(2) Reach through opening and connect electrical leads.
(3) Close glove box door.

Electric Trunk Lid Release Switch (Figure 28)

Removal

(1) Open glove box door.
(2) Remove spanner nut securing switch and bezel to lower instrument panel cover.
(3) Reach through opening and remove security shield and switch.
(4) Disconnect electrical leads from switch.
(5) Remove switch.

Installation

(1) Connect electrical leads to switch.
(2) Insert security shield and switch through opening and install switch into position in lower instrument panel cover.
(3) Install spanner nut and tighten securely.
(4) Close glove box door.

Rear Window Defogger Switch Bezel

Removal

(1) Remove instrument cluster bezel.
(2) Remove defogger switch.
(3) Remove bezel mounting nuts.
(4) Remove bezel.

Installation

(1) Position bezel into place, install mounting nuts and tighten securely.
(2) Install switch.
(3) Install instrument cluster bezel.

ASH TRAY

Cluster Ash Tray (Figure 32)

Removal

(1) Remove instrument cluster bezel.

(2) Remove ash tray housing to carrier mounting screws.
(3) Remove ash tray housing.

Installation

(1) Position ash tray housing into carrier housing, install mounting screws, and tighten securely.
(2) Install instrument cluster bezel.

Lower Instrument Panel Ash Tray Refer to Figure 28

Removal

(1) Remove ash tray receptacle.
(2) Remove housing assembly mounting screws.
(3) Push housing forward, rotate, and remove through opening in panel.
(4) Disconnect electrical lead from housing.

Installation

(1) Connect electrical lead to housing.
(2) Insert housing through opening in panel, rotate, and pull back into position. Adjustment may be necessary.
(3) Install mounting screws and tighten securely.
(4) Install ash tray receptacle.

CLOCK (C) Refer to Figure 29

Removal

(1) Remove instrument cluster bezel.
(2) Pull air conditioner outlet housing seal loose at top to allow access to lower clock mounting screws, if so equipped.
(3) Remove clock mounting screws.
(4) Pull clock outwards and disconnect electrical leads.
(5) Remove clock.

Installation

(1) Connect electrical leads to clock.
(2) Position clock into place, install mounting screws, and tighten securely.
(3) Attach air conditioner outlet housing seal, if so equipped.
(4) Install instrument cluster bezel.

Clock Cover Plate (When vehicle is not equipped with clock)

Removal

(1) Remove instrument cluster bezel.
(2) Remove cover plate mounting screws.
(3) Remove cover plate.

Installation

(1) Position cover plate into position, install mounting screws and tighten securely.
(2) Install instrument cluster bezel.

LIGHT BULB REPLACEMENT Figure 34

Windshield Wiper Switch, Rear Window Defogger Switch, Cigarette Light, and Illumination Lamp

Removal

(1) Place gear selector in "L" position.
(2) Remove ash tray receptacle from ash tray housing.
(3) Remove gear selector and warning lamps bezel. (New Yorker Brougham)
(4) Remove mounting screws at bottom edge of instrument cluster bezel.
(5) Center temperature control lever.
(6) Disengage top of instrument cluster bezel by pulling outwards, and let bezel hang loose.

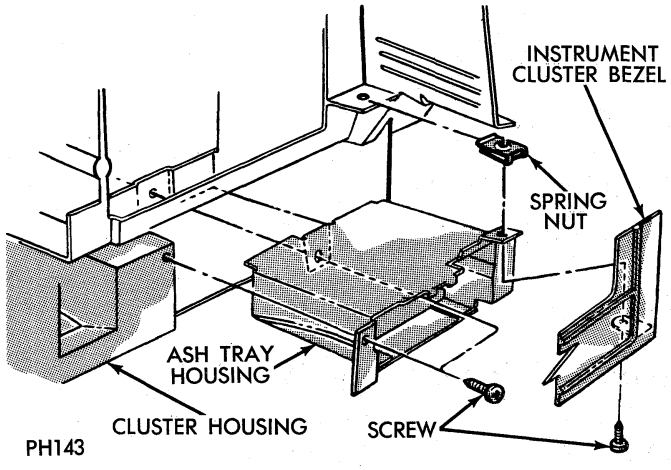


Fig. 32—Cluster Ash Receiver

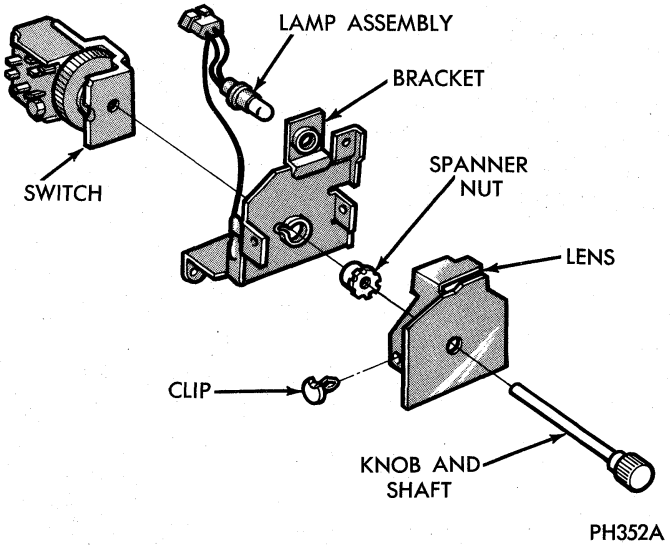


Fig. 33—Headlamp Switch

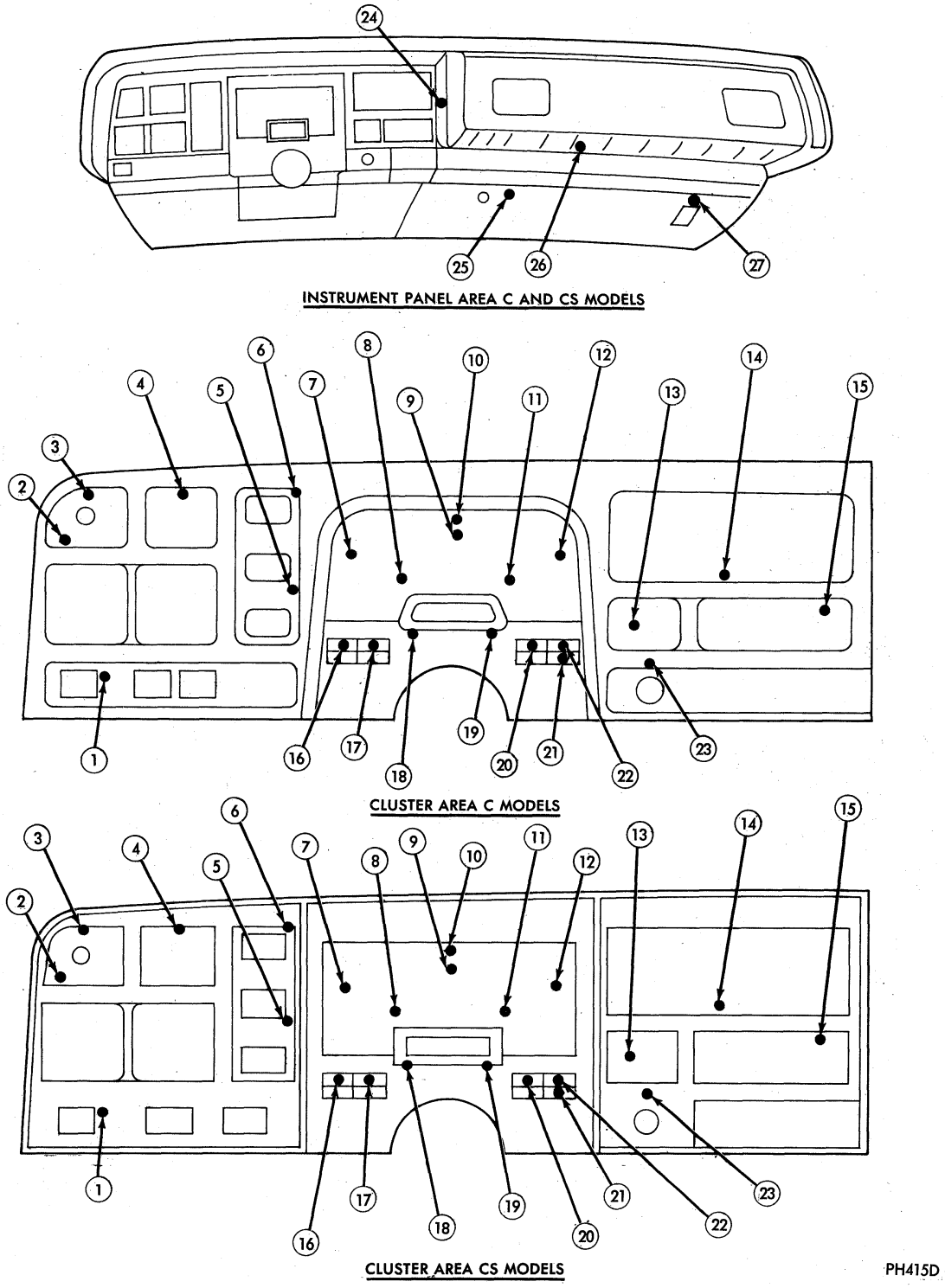


Fig. 34—Light Bulb Location Carline C

LEGEND

1. Wiper Washer Switch Illumination
2. Headlight Switch Illumination
3. Headlight Switch Illumination
4. Clock Fluorescent Digital Read-out
5. Gauge Illumination
6. Gauge Illumination
7. Speedometer Illumination
8. Left Turn Signal Indicator
9. Speedometer Illumination
10. High Beam Indicator
11. Right Turn Signal Indicator
12. Speedometer Illumination
13. Rear Defogger Switch Illumination
14. Radio Illumination
15. Control and Ash Tray Illumination
16. Brake Warning Indicator
17. Oil Pressure Indicator
18. PRND21 Illumination
19. PRND21 Illumination
20. Door Ajar Indicator
21. Washer Fluid Indicator
22. Fasten Belts Indicator
23. Cigarette Lighter Illumination
24. Power Antenna Switch Illumination
25. Glove Box Illumination
26. Map Lamp
27. Right Side Ash Tray Illumination (C-Only)

(7) Pull lamp socket assembly out of switch mounting bracket.
(8) Remove bulb from socket.

Installation

(1) Install bulb into socket.
(2) Install socket assembly into switch mounting bracket.
(3) Position bezel into place and push inwards to engage mounting clips.
(4) Install mounting screws at bottom edge of bezel and tighten securely.
(5) Install gear selector and warning lamps bezel. (New Yorker Brougham)
(6) Install ash tray.
(7) Place gear selector in "P" position.

Headlight Switch Illumination Lamp

Removal

(1) Remove upper panel cover.
(2) Remove left stero speaker, if so equipped.
(3) Reach through speaker opening and remove socket assembly from headlight switch mounting bracket.
(4) Remove bulb from socket.

Installation

(1) Install bulb into socket.
(2) Install socket assembly into mounting bracket.
(3) Install speaker, if so equipped.
(4) Install upper panel cover.

Heater and Upper Ventilation Control Illumination Lamp
Heater and Air Conditioning Control Illumination Lamp
Automatic Temperature Control Illumination Lamp

Removal

(1) Remove instrument cluster bezel.
(2) Remove control assembly mounting screws.
(3) Pull control out slightly, remove socket assembly from control.
(4) Remove bulb from socket.

Installation

(1) Install bulb into socket.
(2) Install socket assembly into control.
(3) Position control assembly into place, install mounting screws, and tighten securely.
(4) Install instrument cluster bezel.

Map Lamp

Removal

(1) Remove map lamp assembly mounting screws.
(2) Lower map lamp assembly and remove bulb.

Installation

(1) Install bulb and position assembly into place.
(2) Install mounting screws and tighten securely.

Glove Box Illumination Lamp

Removal

(1) Open glove box door.
(2) Working through opening in glove box shroud, remove bulb.

Installation

(1) Working through opening in glove box shroud, install bulb.
(2) Close glove box door.

Radio Illumination Lamp Stereo Radio (With or Without CB)

Removal

(1) Remove instrument cluster bezel.
(2) Remove radio knobs by pulling outwards.
(3) Remove radio lens mounting clips, taking care not to mar lens overlay.
(4) Remove lens carefully.
(5) Remove screw mounting heat shield and remove heat shield.
(6) Remove bulb from socket in radio.

Installation

(1) Install bulb into socket.
(2) Install heat shield.
(3) Position lens on radio and carefully install.
(4) Install radio knobs.
(5) Install instrument cluster bezel.

Radio Illumination Lamp (Monarual Radio)

Removal

(1) Place gear selector in "L" position.
(2) Remove ash tray receptacle from ash tray housing.
(3) Remove gear selector and warning lamps bezel. (New Yorker Brougham)
(4) Remove mounting screws at bottom edge of instrument cluster bezel.
(5) Center temperature control lever.
(6) Disengage top of instrument duster bezel by pulling outwards, and let bezel hang loose.
(7) Pull light socket assembly out of bottom of radio.
(8) Remove bulb from socket.

Installation

(1) Install bulb into socket.
(2) Install socket assembly into bottom of radio.
(3) Position bezel into place and push inwards to engage mounting clips.
(4) Install mounting screws at bottom edge of bezel and tighten securely.

(5) Install gear selector and warning lamps bezel. (New Yorker Brougham)
(6) Install ash tray.
(7) Place gear selector in "P" position.

Radio Illumination Lamp (Monarual or Stereo with 8 Track Tape Player)

Removal

(1) Remove instrument cluster bezel.
(2) Remove sub bezel.
(3) Remove radio to panel mounting screws.
(4) Pull radio from panel far enough to expose lamp socket assembly on top of radio.
(5) Remove screw holding socket assembly and remove assembly from radio.
(6) Remove bulb from socket.

Installation

(1) Install bulb into socket.
(2) Install lamp assembly in top of radio and install mounting screw.
(3) Position radio into place, install mounting screws, and tighten securely.
(4) Install sub bezel.
(5) Install instrument cluster bezel.

Instrument Cluster Lamps
High Beam Indicator Lamp
Right Turn Signal Indicator Lamp
Left Turn Signal Indicator Lamp
Gauge Illumination Lamps

Removal

(1) Remove instrument panel upper cover.
(2) Working through access hole in top of panel, remove socket assembly of bulb to be serviced by turning assembly. **Note:** On gauge illumination lamps pull socket assembly from cluster housing.
(3) Make sure correct bulb has been removed by inserting a pen light into hole of removed socket assembly and observe where illumination is, from front of instrument panel.
(4) Remove bulb from socket.

Installation

(1) Install bulb into socket.
(2) Working through access hole in top of panel, install socket assembly into place.
(3) Install instrument panel upper cover.

Indicator Lamps

Brake Warning Indicator Lamp
Oil Pressure Indicator Lamp
Door Ajar Indicator Lamp
Fasten Belts Indicator Lamp

Removal

(1) Remove column cover.
(2) Reach through opening and remove socket assembly.
(3) Remove bulb from socket.

Installation

(1) Install bulb into socket.
(2) Install socket assembly.
(3) Install column cover.

Power Antenna Switch Illumination Lamp

Removal

(1) Carefully pry switch assembly from right side of cluster.
(2) Remove socket assembly from switch.
(3) Remove bulb from socket.

Installation

(1) Install bulb in socket.
(2) Install socket assembly.
(3) Snap switch assembly in place.

Lower Panel Ash Tray Illumination Lamp

(1) Remove ash tray receptacle from ash tray housing.
(2) Remove screw mounting lamp assembly to ash tray housing.
(3) Remove socket assembly from shield.
(4) Remove bulb from socket.

Installation

(1) Install bulb in socket.
(2) Install socket in shield.
(3) Install lamp assembly to ash tray housing, install mounting screw and tighten securely.
(4) Install ash tray receptacle.

AIR OUTLET COVER PLATE
When vehicle is not equipped with air conditioning

Right Cover Plate

Removal

(1) Remove instrument panel upper cover.
(2) Remove trim pad assembly.
(3) Remove cover mounting nuts.
(4) Remove cover through front of trim pad.

Installation

(1) Insert cover through front of trim pad and position into place.
(2) Install cover mounting nuts and tighten securely.
(3) Install trim pad assembly.
(4) Install panel upper cover.

Left Cover Plate

Removal

(1) Remove instrument cluster bezel.
(2) Depress top and bottom locking tabs into cover plate.
(3) Remove cover plate by pushing away from cluster bezel.

Installation

(1) Insert cover plate into cluster bezel making sure top and bottom locking tabs snap into place.
(2) Install cluster bezel.

UPPER LEVEL VENTILATION DISTRIBUTION DUCT AND AIR OUTLET

Duct (Figure 35)

Removal

(1) Remove lower instrument panel assembly.
(2) Remove screws attaching duct to heater housing.
(3) Remove screw mounting duct to reinforcement.
(4) Remove duct by pulling outwards from bottom.

Installation

(1) Position duct into place on heater housing, install mounting screws, and tighten securely.
(2) Install lower panel assembly.

Air Outlet Housing

Removal

(1) Remove instrument panel trim pad.
(2) Remove housing mounting nuts.
(3) Remove housing through front of trim pad.

Installation

(1) Insert housing through front of trim pad and position into place.

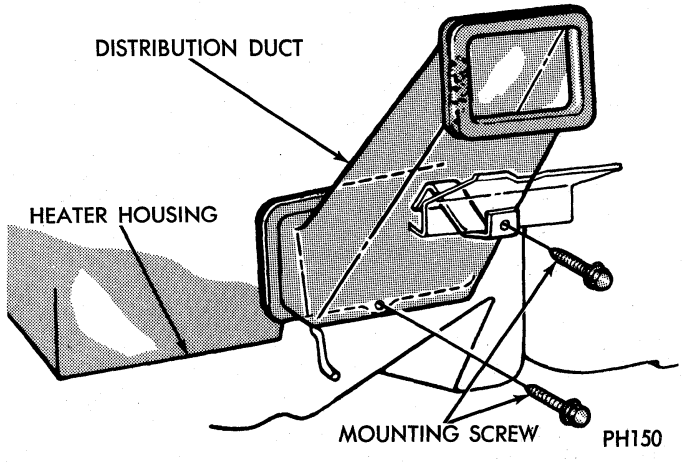


Fig. 35—U.L.V. Distribution Duct

(2) Install housing mounting nuts and tighten.
(3) Install trim pad.

Air Outlet Louver Assembly

Removal

(1) Place tip of small screw driver between top of louver assembly and outlet housing.
(2) Depress locking tab into louver assembly.
(3) Tilt louver outwards and remove.

Installation

(1) Insert louver assembly into outlet housing making sure locking tabs snap into place.

AIR CONDITIONER DISTRIBUTION DUCTS AND AIR OUTLETS
Figure 36

Lap Cooler Assembly

Removal

(1) Remove lap cooler mounting screws. One in center and at each end.
(2) Remove lap cooler.

Installation

(1) Position lap cooler into place, install mounting screws, and tighten securely. **Caution:** Longest screw must go in center.

Air Outlet Louver Assemblies (All)

Removal

(1) Place tip of small screw driver between top of louver assembly and outlet housing until pivots are disengaged.
(2) Depress locking tab into outlet assembly. (Tilt louver outwards and remove).

Installation

(1) Insert louver assembly into outlet housing, making sure locking tabs snap into place.

Center and Right Air Conditioner Outlet Housings

Removal

(1) Remove trim pad assembly.
(2) Remove air conditioner duct cover plate mounting screws.
(3) Remove plate.
(4) Remove housing mounting nuts.
(5) Remove housing through front of trim pad.

Installation

(1) Insert housing through front of trim pad, install mounting nuts, and tighten.

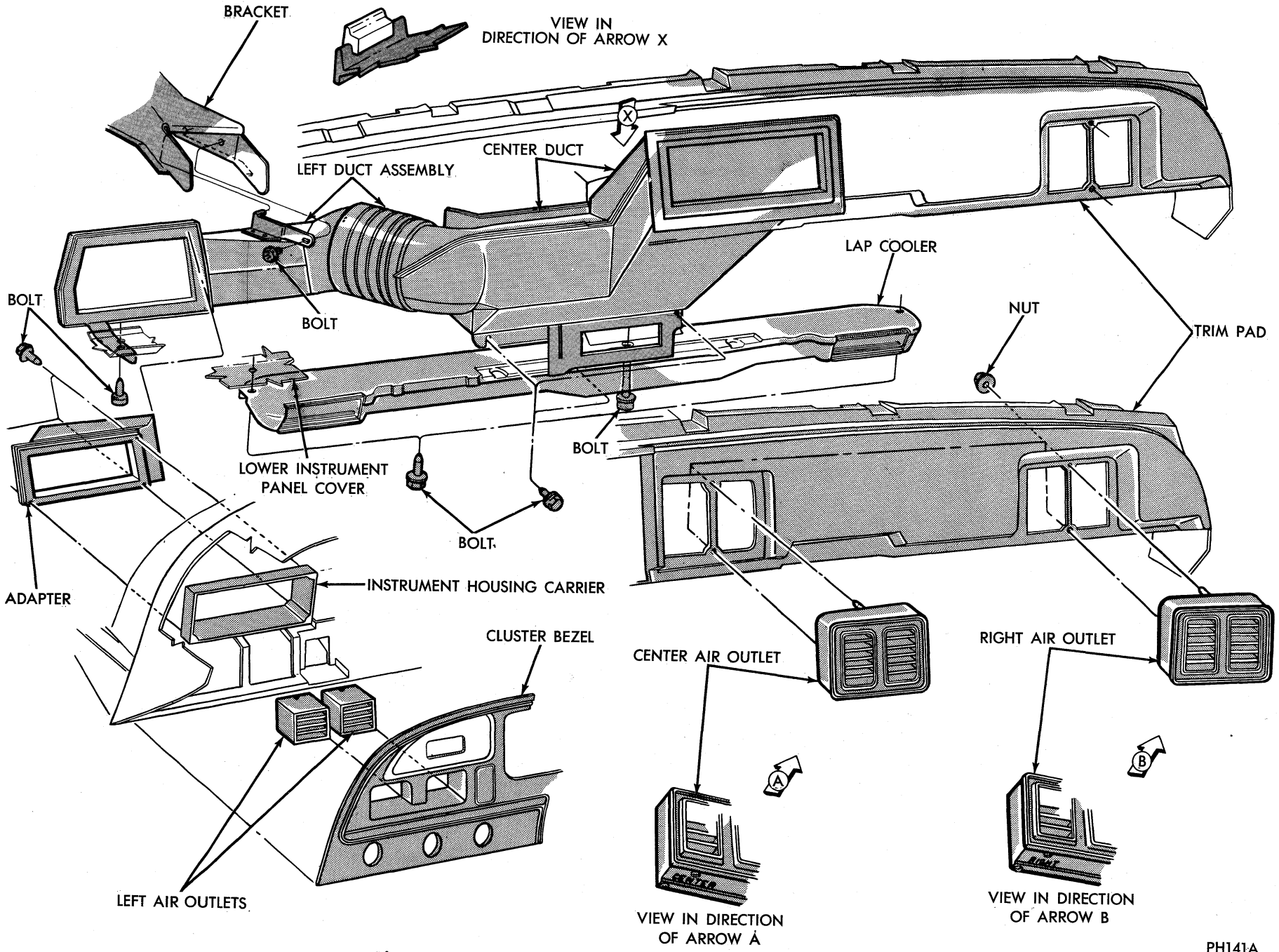


Fig. 36—Air Conditioning Distribution Ducts and Air Outlets

(2) Position air conditioner duct cover plate to trim pad, install mounting screws and tighten.
(3) Install trim pad assembly.

Left Air Conditioner Distribution Duct

(1) Remove instrument panel lower assembly.
(2) Lower steering column.
(3) Remove relay bank.
(4) Unlatch flexible duct clamp and disengage duct from center distribution duct.
(5) Remove duct mounting screws.
(6) Remove duct.

Installation

(1) Position duct into place, install mounting screws and tighten securely.
(2) Position flexible clamp on duct and latch.
(3) Move relay bank back into place.
(4) Raise steering column.
(5) Install instrument panel lower assembly.

Center Air Conditioner Distribution Duct

Removal

(1) Remove instrument panel lower assembly.
(2) Unlatch flexible duct clamp and disengage from center distribution duct.
(3) Remove duct to housing mounting screws.
(4) Remove duct with a downward and rearward motion to lower end.

Installation

(1) Install duct and mounting screws.
(2) Position flexible clamp on duct and latch.
(3) Install instrument panel lower assembly.

Trim Pad Air Conditioner Duct Cover Plate (Figure 37)

Removal

(1) Remove instrument panel upper cover.
(2) Remove trim pad.
(3) Remove plate mounting screws.
(4) Remove plate.

Installation

(1) Position plate to trim pad, install mounting screws, and tighten.
(2) Install trim pad.
(3) Install instrument panel upper cover.

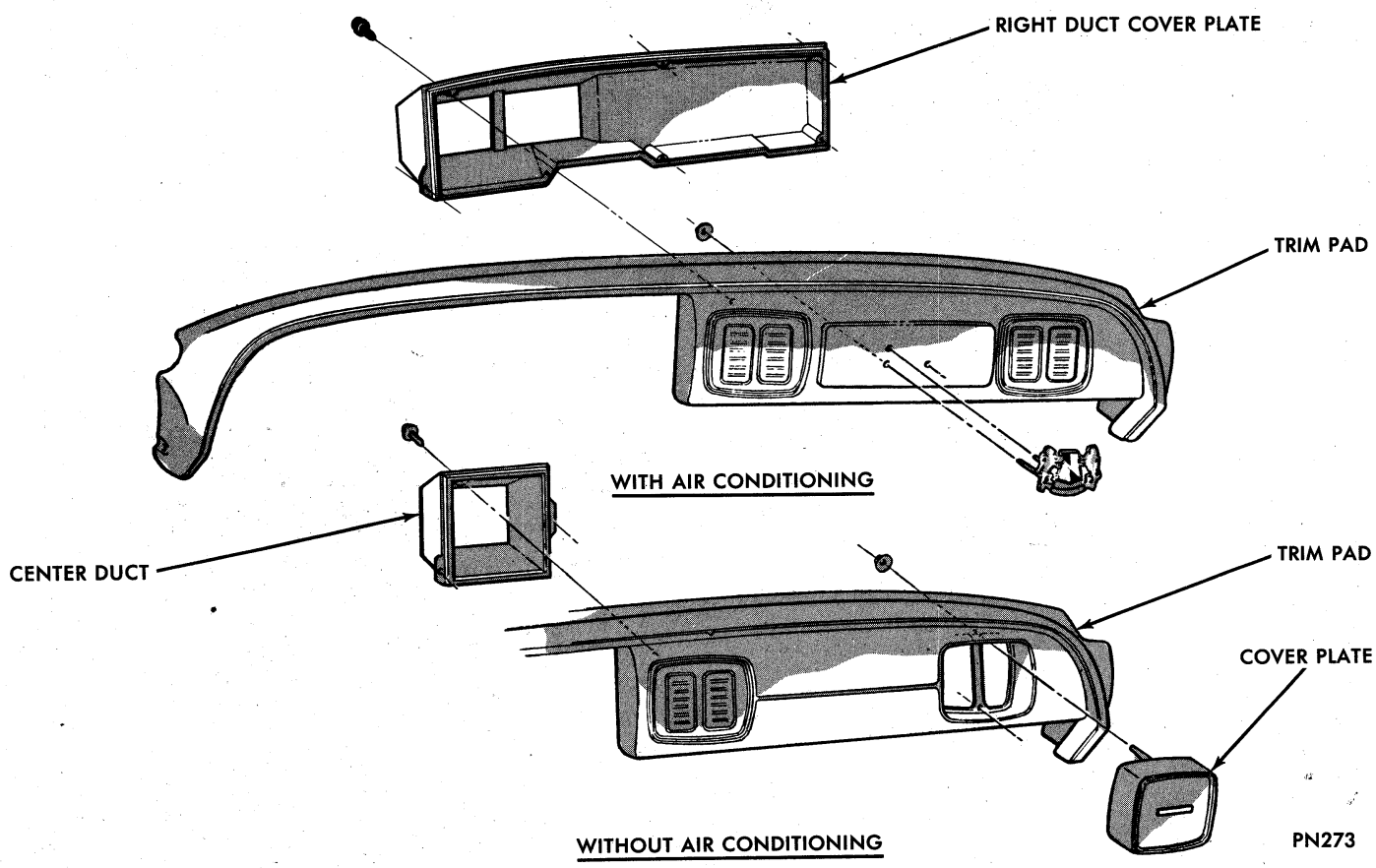


Fig. 37—Right Duct Cover Plate

RADIO, ANTENNA AND TAPE PLAYER

INDEX

GENERAL INFORMATION

AM Reception

AM is an abbreviation for Amplitude Modulation. The audio is super-imposed upon a carrier signal in such a way as to vary the amplitude or strength of the signal. Due to the carrier, frequencies used, 550 KHz to 1600 KHz long range is easily achieved. At night the signals travel further than during the day and station mixing becomes a problem. Many stations are required to go off the air or reduce their power at dusk. AM radio waves are reflected by the atmosphere which provides the long range reception.

The AM method of transmitting is subject to noise, and elimination of noise is possible by listening to strong stations. Most electrical disturbances will enter an AM radio, and weak stations will suffer the most interference.

An Automatic Gain Control (AGC) Circuit is used on AM, which responds very well to changes in signal strength and keeps the volume at a constant level. Although radio reception on AM is not generally good when passing under bridges, the AGC tends to maintain the same volume level.

FM Reception

FM is the abbreviation for Frequency Modulation, which is a method of varying the frequency of a carrier wave in such a manner as to represent the audio signal. The FM band is from 88 to 108 Megahertz and each station is assigned a frequency in this band. With no audio signal present, the station is exactly on its assigned frequency. The audio information is then applied and it shifts the frequency slightly from one side to the other of the center of assigned frequency. The amplitude or strength remains constant and only the frequency changes.

Since the operating frequencies are high, 88 to 108 Megahertz, the FM wave is not usually reflected by the atmosphere. The range is limited due to this fact, similar to television broadcasts. This type of wave is often called "Line of Sight" since the receiver antenna must see the transmitting antenna. This is particularly true in the fringe areas where the signals are very weak. A building or hill can very easily blank out the FM wave. In the metropolitan areas where the signal is very strong, the waves can bounce off buildings and reception is possible even though the transmitter is not in line of sight. In metropolitan areas reception is possible in tunnels due to the reflectability of the FM wave, whereas AM reception is impossible.

FM reception is usually noise-free due to the fact that the receiver responds to frequency changes rather than amplitude changes, which can contain noise. This factor alone makes FM reception very desirable. An FM radio will have more noise than AM when not tuned to a station but this noise completely disappears when a station is tuned in. Under certain conditions (weak signals) the FM radio will pick up noise. The noise cancelling features of an FM radio require a certain signal strength before they can perform their function. An FM radio operated in the fringe area where signals are weak will pick up motor noise from cars and other electrical disturbances.

The household FM radio has a decided advantage over the FM automobile radio. Once the radio is placed in motion, the problems multiply. For this reason it is very important that the customer understands what to expect from FM reception.

The factors governing FM automobile reception are listed below with a brief description of the design features which minimize reception difficulties. These reception difficulties are restricted primarily to the fringe area and metropolitan reception is excellent.

Range

Normal range for AM-FM radio is approximately 35 miles. There are naturally exceptions to this. On flat terrain, and with powerful transmitters, the

range could be considerably extended. Educational stations that are generally weak may be listenable only at a distance of from a few blocks to a few miles. If the automobile is not moving, reception can be very satisfactory at distances over 25 miles. Once the automobile is set into motion, it is possible to drive past hills or buildings in the fringe area and momentarily lose the station.

Reception under 25 miles is reliable on practically all commercial stations and "flutter" due to hills and buildings will not be troublesome.

Flutter

Flutter is produced in the fringe area when objects come between the station and the receiver. The signal will be lost momentarily then it will return. The rate which the flutter occurs is dependent upon the car's speed in passing objects. The effect is very simiuar to the way a television set flutters in the fringe area when an airplane passes between it and the station.

Flutter is kept at an absolute minimum in the AM-FM radio due to its high gain.

Automatic Frequency Control (AFC)

Due to the higher frequencies used in FM reception, it is imperative that the receiver does not drift off station. A home radio has constant voltage and is rarely subjected to wide variations in temperature. The FM car radio operates under more severe conditions. The temperatures may range from below freezing to well over 100 degrees fahrenheit. The supply voltage of 12 volts may go as high as 14.5 volts with the alternator charging.

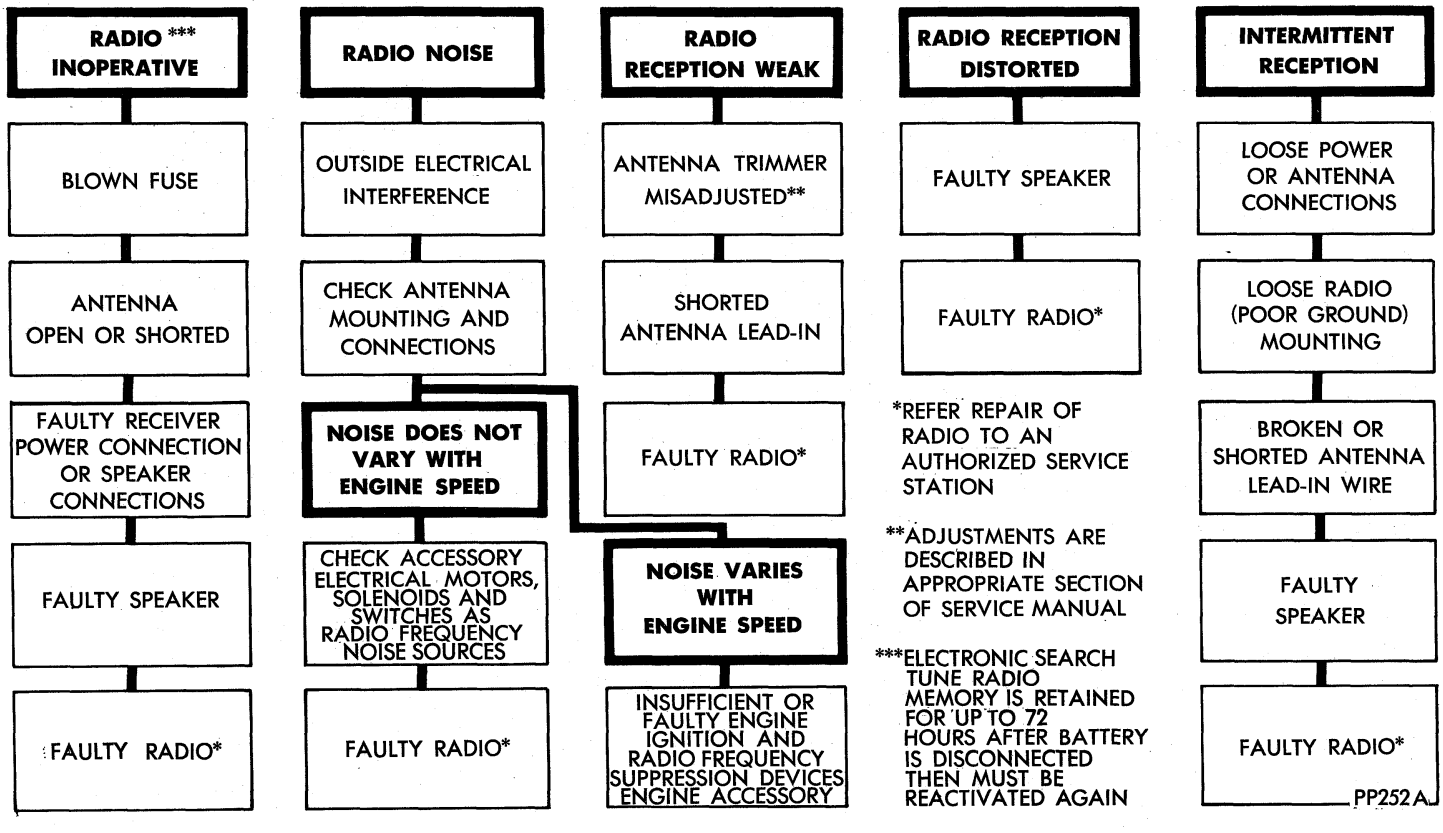
The easiest method of combatting these variables is to build a strong AFC system which can draw the receiver oscillator back on frequency even though the oscillator wants to drift off frequency. This was thought to be undesirable for several reasons. With a strong AFC circuit, station tuning becomes very broad and the "capture effect" is very bad. (See the section on "Capture Effect.")

Rather than design an overpowering AFC circuit, the FM tuner was designed to operate from a zener diode-controlled power supply. The zener diode maintains the same voltage on the FM tuner under all driving conditions. An AFC circuit was then designed to provide excellent "holding" on frequency without the disadvantages of broad tuning and the "capture effect".

Capture Effect

The capture effect is noticed when driving in the downtown area of large cities with the radio tuned to a distant station. The AFC circuit will attach itself to, or "capture" the strongest station located where the dial pointer is set. If you are listening to a station which is not located in the downtown area and you pass the transmitter of a station close to the one you are tuned to, the AFC may possibly attach itself to, or "capture" the stronger signal. Each time you drive

RADIO DIAGNOSIS



past a building or other object which can cause the station to which you are tuned to become weak, it is possible for the AFC to jump to a strong local station close to the same point on the dial.

FM receivers are unlike AM receivers in this respect, since they do not mix the two stations but decide which is the stronger of the two and shift to it.

The "capture effect" is kept at a minimum in the Chrysler AM-FM receivers by using a zener diode power supply for the FM tuner and an AFC system of sufficient strength to keep the receiver on frequency. Receivers with strong AFC circuits (due to unregulated power supplies) are troubled by the "capture effect."

Motor Noise

Noise in general is no problem in FM receivers, provided sufficient signal is available from the station. FM receivers, however, are only immune to noise under signal conditions. With no signal, or a very weak one, motor noise can be received from passing cars and trucks. This is particularly true of passing cars that do not use TVRS suppression spark plug wires. As the station signal strength increases the FM circuit rejects the noise and it disappears.

OPERATION

Setting Push Button To Station (All Except AM-FM Electronic Search Tune Radio)

(1) Extend antenna fully (power antenna only) and turn radio on for five minutes.

(2) Unlock push button by pulling it out and manually tune in desired station.

(3) Push button back into position to lock adjustment.

(4) Repeat operation on the other push buttons.

The radio push button adjustment for FM is the same as for the standard AM radio.

Schematic Wiring Diagrams

Radio repair service and schematic wiring diagrams are available through Chrysler Huntsville Division authorized radio repair stations.

RADIOS (Fig. 1)

AM Pushbutton Radio

To operate the radio the ignition switch must be in the **ON** or **Accessory** position. Operation is by two rotary controls and five push buttons.

Left Center Knob—On-Off and Volume
Left Outer (Ring) Knob—Tone Control
Right Center—Manual Tune
Knob or Push Buttons—Station Selection
Right Outer (Ring)—Speaker (Rear)

AM/FM Radio

To operate the radio the ignition switch must be in the **ON** or **Accessory** position. Turn the left hand knob clockwise to "On" position. This same knob adjusts the volume level. The ring behind the left knob, provides selection of tone quality.

AM or FM can be selected by moving the slide switch adjacent to the push buttons up or down.

Station selection is accomplished manually either by pressing the push buttons fully in, or by turning knob at right.

Fader Control (Optional AM & FM Monaural)

The fader control located behind the tuning control is used only when the vehicle is equipped with a rear seat speaker. Fully rotated one way allows operation of the front speaker. Fully rotated in the opposite direction the control allows operation of the rear seat speakers. Partial rotation of the control blends the volume of the speakers.

AM/FM—Multiplex

To operate: Ignition switch must be at "On" or "Acc" position.

Turn the left hand knob clockwise to "On" position. This same knob adjusts the volume level. The ring behind left knob, provides selection of tone quality. The right knob is for station selection. The right ring is the fader control used to balance or proportion the sound levels between front and rear speakers. The selection of AM or FM is accomplished by the AM-FM mode selector slide switch located just below the knob controls. The balance slide control, also located below the knob controls, serves to proportion the sound levels between the right and left output channels.

AM-Radio with 8 Track Stereo Tape Player AM/FM-Multiplex Radio with 8 Track Stereo Tape Player

To operate: Ignition switch must be at "On" or "Acc" position.

The operating controls consist of two knobs with outer rings. The left knob turns on the radio and controls the volume. The volume control knob also serves as the tape program selector button. The right knob is for station selection. The left ring controls tone quality and the right ring controls front to rear speaker balance.

A slide control located to the left of the tape cartridge door is used for adjusting the sound level balance between the left and right channel speakers. The balance control will equally affect the left to right sound levels of AM, FM and tape audio.

The four program—eight-track stereo tape player provides full stereo reproduction.

To operate, insert the tape cartridge, label side up, into the tape chamber. The door will swing inward and the tape player will begin to play when the cartridge is in position. The tape player unit will play all four programs automatically and in sequence unless manually changed.

Depressing the volume control knob will manually override the automatic sequence of the tape player and allow the driver to change programs at will.

Tape Cartridge (8 Track)

(1) Stereophonic tape players are designed to use a pre-recorded, four program (eight-track) stereophonic tape contained in a special tape cartridge. **Do Not Use Four-Track Cartridges.**

(2) Protect open end of the cartridge from damage, dirt, water, oil, grease, etc.

(3) Do not attempt to pull out the tape from the cartridge.

(4) Do not attempt to open up the cartridge.

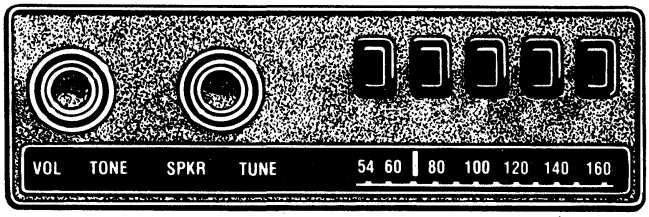
(5) To assure maximum life, tape cartridges should be stored in a cool, clean and dry place, with the open (tape) end down to keep dust out of the cartridge.

(6) Do not expose cartridge to direct sunlight or other temperature extremes.

Do not store tape cartridges in high temperature areas, such as on top of the instrument panel or the rear package shelf. Do not leave tape cartridge engaged in player while not in use.

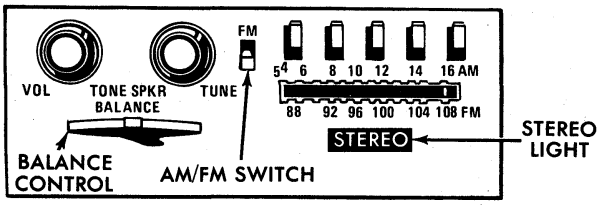
Playback Head and Capstan Cleaning

The playback head and capstan in your tape player may accumulate tape coating residue (oxide) as the tape passes over the head. This accumulation should be periodically removed, as part of normal maintenance. Clean the playback head with a cotton swab, slightly moistened with alcohol while holding the player cartridge door open. To clean the capstan, hold the player cartridge door open and swab the surface of the capstan with alcohol. **Do not use carbon tetrachloride.** Dry parts with a clean cotton swab.

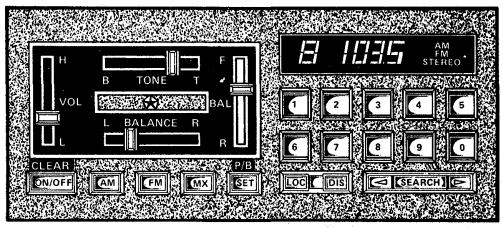


AM
(ALL CAR LINES)

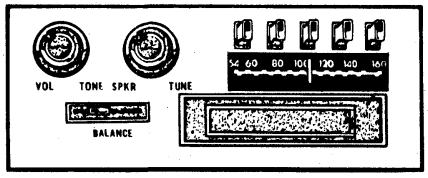
AM-FM
(ALL CAR LINES)



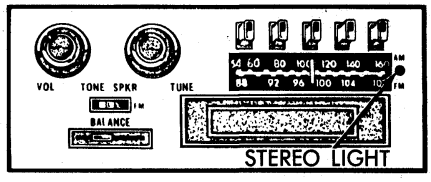
AM-FM STEREO
(H-N-F-G-R-W-X-S)



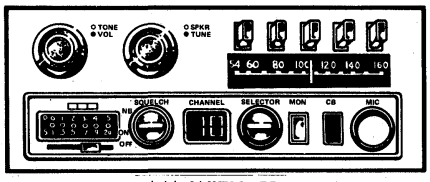
AM-FM STEREO
WITH SEARCH TUNER
(F-G-X-S-C)



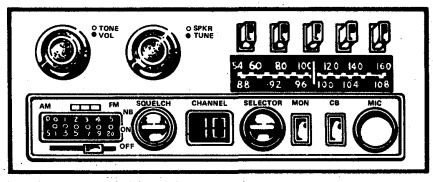
AM —WITH 8 TRACK
STEREO TAPE PLAYER
(H-N-F-G-R-W-S-X-C)



AM-FM STEREO WITH
8 TRACK STEREO TAPE PLAYER
(H-N-F-G-R-W-S-X-C)



AM WITH CB
(ALL CAR LINES)



AM-FM-MX WITH CB
(ALL CAR LINES)

PR300

Fig. 1—Radio Tape Player and CB—All Models

AM-FM STEREO ELECTRONIC SEARCH TUNE RADIO

GENERAL DESCRIPTION AND FEATURES

Precision solid state tuning, digital display and 10-station memory . . . plus bi-directional search tuning or direct station selection by simply "keying-in" the frequency by number, make this the most advanced radio available in an automobile today. Solid state tuning provides frequency selection with the accuracy and stability of a quartz crystal, so there is no drift, fading, distortion or possibility of push button inaccuracy due to mis-tuning. The digital display features light emitting diodes (LED) with dual day/night brightness levels. The night time intensity (dim) is automatically activated by turning on the parking lights or headlights. The memory bank can store up to 10 stations in any mix of AM, FM or FM stereo. A foolproof micro-processor circuit makes it virtually impossible to make a wrong entry.

"BASIC" OPERATING INSTRUCTIONS

NOTE: Power to operate the radio is supplied through the ignition switch. It must be in the **"ON"** or **"ACCESSORY"** position to operate the radio.

(1) Turn on the radio by pushing the **"CLEAR-OFF/ON"** button.

(2) Push the AM, FM or MX button.

(3) Momentarily push a Search button or foot switch to select a station.

(4) Adjust tone, volume and speaker balance as desired.

NOTE: The electronic memory must be activated when the radio is first placed in service. See "Initial Operation" instructions.

FUNCTION AND OPERATION OF CONTROLS

Audio Controls

Volume Control—Slide control to adjust audio volume on both channels simultaneously. Upward movement increases volume, downward movement decreases volume.

Tone Control—Slide control to adjust tone of both channels simultaneously: left to emphasize bass frequencies, right to emphasize treble frequencies, center is full range "Music" position.

Speaker Balance Controls

Left-to-Right Control—Adjusts side-to-side balance of stereo channels.

Front-to-Rear Control—Adjusts front-to-rear balance of speakers.

MODE SELECTION BUTTONS

These controls are arranged from left to right in the logical sequence of usage.

On/Off/Clear (Power Switch)—Turn on the radio . . . and is used to clear unwanted or incomplete selections.

AM Button—Push to select AM band.

FM Button—Push to select FM band.

MX Button—Push to select FM stereo only station during search operation.

Set Button—Push prior to entering displayed station into memory. Must be followed by pressing desired push button number.

Local/Distance Buttons—Push to select sensitivity level before pushing search button.

Search Buttons—Push ► to search "up" the AM or FM bands. Push ◄ to search "down."

Search Foot Switch—Located near headlight dimmer switch, which conveniently allows you to tune the radio without taking your hands off the steering wheel or eyes off the road. Push to search in the "up" direction only.

FUNCTION AND OPERATION OF CONTROLS

Digital Display

(1) PROGRAM INDICATOR—Displays number of keyboard button used to select station—or—

Displays a "guide" letter to indicate mode of operation:

"E"—for ENTER a frequency (either search or direct entry).

"A"—for AUTOMATIC search selected station.

"P"—for PUSH BUTTON "set" is activated and radio is ready to receive displayed frequency into memory.

(2) STATION FREQUENCY—Displays frequency of AM or FM station tuned.

(3) RECEPTION MODE—Displays receiver mode of operation—AM or FM and word "Stereo" when FM stereo station is received.

Keyboard Buttons (1 thru 0)

The ten keyboard buttons are used in two ways:

(1) To select stations from memory.

(2) To "key-in" the desired frequency, as you would operate a calculator.

OPERATING INSTRUCTIONS

General Information

(1) Power to operate the radio is supplied by the ignition switch. It must be in the "ON" or "ACCESSORY" position to operate the radio.

(2) Power to operate the station memory is supplied by a separate wire that is directly connected to the battery, and thus will provide unlimited memory retention when the radio and ignition switch are **"OFF."** Memory retention will be provided for about 72 hours after the battery is disconnected or the ra-

dio is removed from the car . . . after which the memory must be reactivated again (see Activating the Memory).

SELECTING A STATION (TUNING)

Push the "ON-OFF" button to turn on the radio. A station may be tuned in by three methods: (1) Search (i.e. ◄►) (2) Direct Frequency Entry (i.e., FM, 104.3) or (3) Programmed Memory Selection (i.e., buttons 1 through 0.)

Search Tuning

NOTE: The radio search tunes the frequency by 10 kHz increments on the AM band, and 200 mHz increments on the FM band. The search sensitivity depends on whether the Local or Distant switch button is activated.

(1) Push AM or FM button (AM or FM will appear in display window). For FM stereo only, push the MX button (FM STEREO will be displayed).

(2) Push "LOC" or "DIS" button for search sensitivity desired.

(3) Push the UP ► or DOWN ◄ arrow for the desired search direction. The letter "A" will be displayed indicating Automatic Search Tuning. The frequency display will count up or down until a station is located.

(4) The frequency of the station being received will be displayed. For example: A 96.3 FM STEREO

(5) If you hold the search button down, the radio will continue to search until the button is released.

(6) If the search foot switch is used, it will search in the UP direction only. Hold down to pass undesired stations.

Direct Frequency Entry

This method is convenient if you know the frequency of the station. These may be found in your local newspaper.

AM Stations

(1) Push the AM mode button. AM will be displayed, as will the letter "E," followed by four dashes E— — — —AM indicating that the radio is ready to receive a station with a maximum of four digits.

(2) Enter the desired station frequency by pushing the numbers on the keyboard in the proper sequence (left to right). For example, if you desired 950 kHz, enter 9 (E 9— —AM then 5 E 95—AM and finally 0, E 950 AM. The radio is now tuned to 950 kHz.

(3) The station will not play until the entry is completed. The radio will accept all legal frequencies, even though you may not have a station at that frequency in your listening area.

FM Stations

(1) Push the FM mode button. FM will be displayed, as will the letter "E," followed by four dashes and an automatically positioned decimal E— — —. —FM indicating that the radio is ready to receive a station with a maximum of four digits.

(2) Enter the desired station frequency by pushing the numbers on the keyboard in the proper sequence (left to right). For example, if you desire 93.9 mHz, first enter 9 E 9—.—FM then 3 E 93.—FM and finally 9 E 93.9FM.

(3) The station will not play until the entry is completed. The radio will accept all legal frequencies, even though you may not have a station at that frequency in your listening area.

(4) If an FM stereo station is being received, "FM Stereo" will be displayed. E 93.9 FM STEREO.

Programmed Memory Selection (Pushbuttons 1 thru 0)

Up to ten stations (one for each of the ten keyboard buttons) can be programmed into memory. They may be any combination of AM or FM stations. To program the memory:

(1) Select a station by either the Search or Direct Frequency Entry methods as previously described. For example: 1270 AM.

(2) Push the Set button and the letter "P" will be displayed P 1270 AM, indicating that the Set button has been "pushed," and pushbutton memory is ready to receive the station.

(3) Press the desired keyboard button. For example: 1. This number will appear in the program window in place of "P."

(4) That keyboard button is now programmed for that station, and its number and the frequency of the station will be displayed 1 1270 AM.

(5) Repeat procedure for remaining keyboard buttons.

HINT: It may be convenient to divide the upper and lower rows of keyboard buttons for AM and FM, or "his" and "her" usage.

Using the Memory to Recall a Station

(1) Press any one of the ten keyboard buttons. Its number, the frequency and mode of reception (AM, FM or FM stereo) will be displayed.

(2) To change to another station in the memory bank, simply push another keyboard number button.

Improper Operation

A foolproof logic system makes erroneous entries or operations virtually impossible. However, unwanted entries are possible. For example, no reception on frequency selected because the station is too far away.

(1) When the radio is on AM it receives signals from 540 kHz to 1600 kHz and the frequency number always ends in ZERO. Thus, in the direct entry mode, the radio will not accept numbers for the AM band

that begin with 2, 3, 4 or 0 . . . or last digits that are other than zero.

(2) When the radio is on FM it receives signals from 88.1 mHz to 107.9 mHz and the frequency always ends in an ODD number. Thus, the radio will not accept numbers for the FM band that begin with 2, 3, 4, 5, 6, 7, or 0 . . . or last digits that are an **even** number.

(3) If an entry sequence is not completed, the radio will remain silent until completed, and one or more dashes will show in the display window.

(4) If you start an entry, then change your mind . . . simply push the "CLEAR" button "OFF", then "ON" again, which will return the radio to the last tuned station . . . then start over again with your entry.

Initial Operation

When first placed in service, or if the radio has been without power for more than 72 hours, the memory may cause the radio to "freeze" on a setting and the digital display to read a series of random numbers and/or letters. To correct this condition, the memory must be activated (or re-activated).

Activating the Memory

(1) With ignition switch "OFF," depress the up-search button or foot switch. While **holding the search button or foot switch down,** turn the ignition switch "ON," then release the search button or foot switch. The radio will automatically search and stop on a station.

(2) Program this station into each one of the ten push button positions. (If this is not done on all 10 push buttons, it may be necessary to repeat Steps 1 and 2 if an unprogrammed button is pushed.)

AM AND FM STEREO RADIOS WITH C.B.

OPERATING INSTRUCTIONS (AM, AM-FM and AM-FM STEREO)

NOTE: Power to operate the radio is supplied through the ignition switch. It must be in the "On" or "Accessory" position to operate the radio.

(1) Turn radio ON with ON-OFF knob.

(2) On AM-FM radios, select AM or FM band with selector switch.

(3) Tune to desired station with manual tuning knob or with push buttons.

(4) Adjust tone, volume and speaker balance (if applicable) as desired.

CITIZENS BAND RADIO RECEPTION

Your CB radio was designed using the latest "state-of-the-art" circuitry to provide quality communications. Under mobile operating conditions, however, many of the same limitations affecting AM and —FM indicating that the radio is ready to receive a FM performance also affect CB performance. CB radios are particularly subject to signal interference and distortion from other stations and noise sources. Since the power output it limited by law to 4 watts, strong signals are usually received from 1 to 5 miles. Up to twenty miles (or more) may be experienced in the open country under ideal conditions.

GENERAL DESCRIPTION AND FEATURES

Both radios with integral 40-channel CB transceiver provide four modes of operation . . . including the ability to monitor a selected CB channel while listening to AM or FM broadcasts. When a CB station broadcasts on the channel being monitored, the radio automatically switches to the CB station . . . and returns to the regular broadcast when the CB station stops transmitting.

Other features include: squelch, noise blanker and an automatic noise limiter (ANL), large channel display, phase-lock-loop (PLL) circuitry for precise frequency control and solid state (LED) display meter to indicate relative transmitter power output and received signal strength.

FUNCTION AND OPERATION OF CONTROLS

Channel Selector Switch—Turn 40-position rotary switch to select desired channel.

Channel Indicator—Vacuum fluorescent display provides large digital indication of channel selected, with day/night brightness levels.

Monitor Switch—Push in to detent position to monitor selected CB channel, while listening to AM or FM station. Push again to release to out position (monitor OFF).

CB Switch—Push in to detent position for CB transceiver operation, or to provide transmit capability in the monitor mode.

Noise Blanker/Squelch Control—Only affects received signal, not transmitted signal.

- **Noise Blanker**—Pull knob out to minimize electrical interference caused by electrical lines, ignition systems and other noise sources.
- **Squelch**—Turn knob to vary the level of audio muting. Full counterclockwise position provides **minimum** squelch. Full clockwise position provides **maximum** squelch.

LED Signal Level Display—These six LED's serve a dual purpose. They indicate the relative strength of the received signals . . . and the relative power of

the transmitted signal. The first LED always lights when the CB section is "ON."

Microphone Switch—"Push-to-talk" design. Depress switch to transmit on CB and release to receive CB signals.

OPERATING INSTRUCTIONS

To Receive AM or FM Broadcasts

(1) Use radio controls in the standard manner.

(2) Both the monitor and CB switches must be in the "OUT" position for AM or FM reception only.

To Monitor CB While Listening to AM or FM

(1) Tune in AM or FM station.

(2) Push monitor switch in to detent position.

(3) Select desired CB channel.

(4) Adjust squelch control for desired CB interrupt level. In full clockwise position, only very strong CB signals will break in. In full counterclockwise position, very weak signals will break in.

To Transmit While in the Monitor Mode

(1) Same procedure as above, except push in both the CB and monitor switches to the detent position.

(2) To transmit, depress the button on the microphone.

To Transmit and Receive CB Only

(1) Push CB switch in to detent position.

(2) The monitor switch must be in the "out" position.

(3) Turn channel selector to the desired channel.

(4) Adjust squelch control for desired level.

(5) Depress the microphone switch to transmit and release to receive.

MICROPHONE STORAGE

The microphone plug has been designed for easy removal from the radio. Simply depress the locking tab and pull.

For convenience, when not in use, store the microphone in the glove box . . . out of sight.

Service and Adjustment of CB Radios

U.S.A.—CB servicing and adjustment MUST be performed by an FCC 1st or 2nd Class Radio Telephone licensed individual.

Canada—CB servicing and adjustments must be performed by an individual holding a department of communications (DOC) License Permitting Repair to Radio Transmitting Equipment.

SERVICE PROCEDURES

INTERFERENCE ELIMINATION

Capacitors are used to suppress engine interference. The alternator is equipped with an internal capacitor integral with the output stud. A second capacitor is mounted internal to the instrument cluster. A third capacitor is installed on the ignition coil with the lead connected to the positive primary terminal of the coil (Fig. 2). A fourth capacitor is mounted on the voltage regulator. Vehicles equipped with radio and a 100 Amp alternator will also have a filter choke installed in series with the radio power lead (Fig. 3).

Radio resistance type wires in the high tension circuit of the ignition system complete the interference suppression.

If radio noises are evident, be sure the capacitor lead wires are making good contact on their respective terminals and are securely mounted. Faulty or deteriorated spark plug wires should be replaced.

CB SYSTEM DIAGNOSIS WITH MTSE TESTER MODEL AFCE 386 OR EQUIVALENT

When trouble shooting any CB system complaint first make certain that AM and/or FM modes are operating properly. If any of these are also erratic the problem may be due to a system component common to all modes.

The CB system itself can be checked with the MTSE tester model AFCE 386 or equivalent (Fig. 5). Connect radio, antenna, and power hook ups and proceed with the step by step instructions printed on the inside cover of the test instrument. The tester has provisions for the following checks.

(1) Vehicle battery

(2) Instrument self test

(3) CB power output

(4) CB channel frequency check

(5) CB receiver sensitivity

(6) CB transmitter modulation

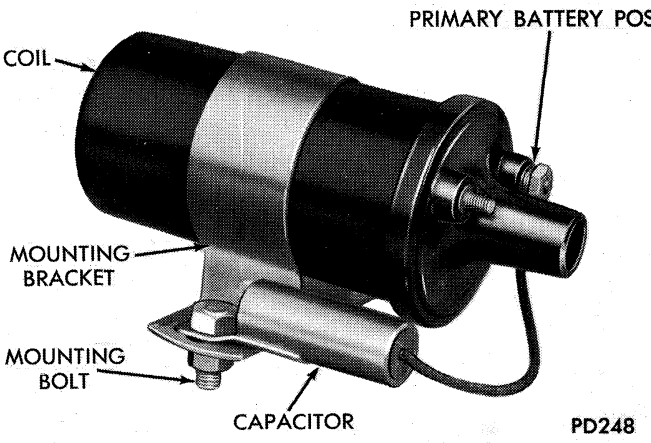


Fig. 2—Ignition Coil Capacitor

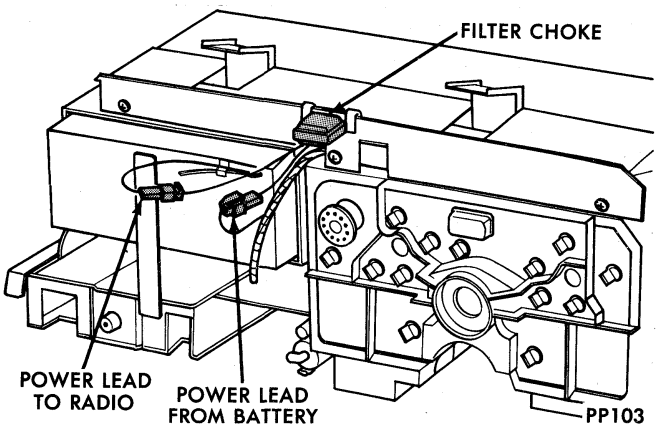


Fig. 3—Radio Filter Choke with 100 Amp Alternator (Typical)

(7) Receiver selectivity
(8) CB antenna system

When a defective component is suspected substitution of a known good component can be used to verify and correct the condition.

ANTENNA TRIMMING (Fig. 5)

All radios are trimmed at the factory and should require no further trimmer adjustment. However, whenever a radio is being installed after repair, or if verification of trimmer adjustment is desired, proceed as follows:

(1) Turn radio "On".
(2) Extend antenna to the usually maintained height. (Power antennas only).
(3) Manually tune radio to a weak signal between 1400 and 1600 KHz on AM.
(4) Increase radio volume and set tone control to maximum treble (fully clockwise).

Adjust antenna trimmer by carefully turning back and forth until position is found that gives peak loudness. Maximum output indicates proper point of antenna trimmer adjustment. The trimmer screw is located on the right side of the radio of most models.

CAUTION: THE ELECTRONIC SEARCH TUNE RADIO HAS CIRCUITRY WHICH ELIMINATES ANY NEED FOR TRIMMING.

ANTENNAS (Manual)

Testing

Antenna performance may be tested by substituting a known good antenna. It is also possible to check short or open circuits with an ohmmeter or continuity light once the antenna cable is disconnected from the radio as follows:

(1) Continuity should be observed between the tip of the mast and radio end pin.
(2) No continuity should be observed or a very high resistance of several megohms between the ground shell of the connector and radio end pin.

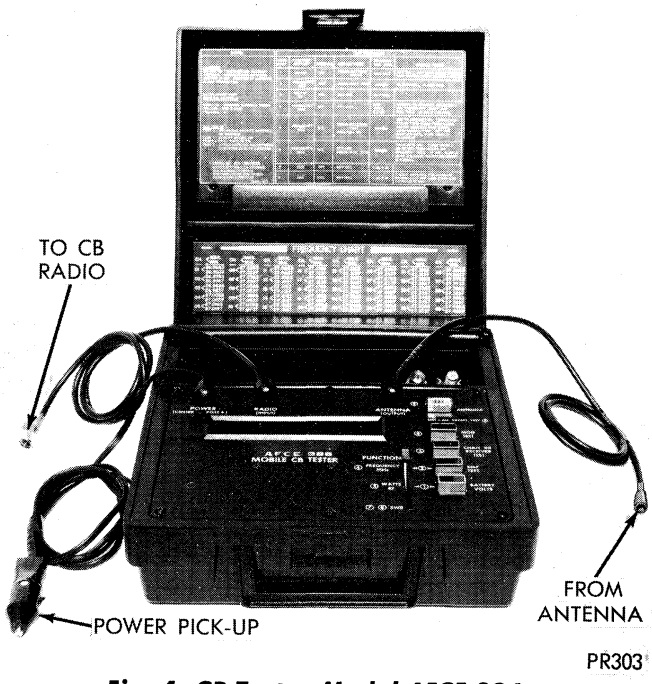


Fig. 4—CB Tester Model AFCE 386

(3) Continuity should be observed between the ground shell of the connector and the mounting hardware on the fender.

Removal—All Models

(1) Unplug antenna lead from radio receiver.
(2) Remove antenna mast by unscrewing mast from antenna body (Fig. 6).
(3) Remove capnut (Fig. 7).
(4) Remove antenna adapter and gasket.
(5) From under fender remove antenna lead and body assembly.

Installation—All Models

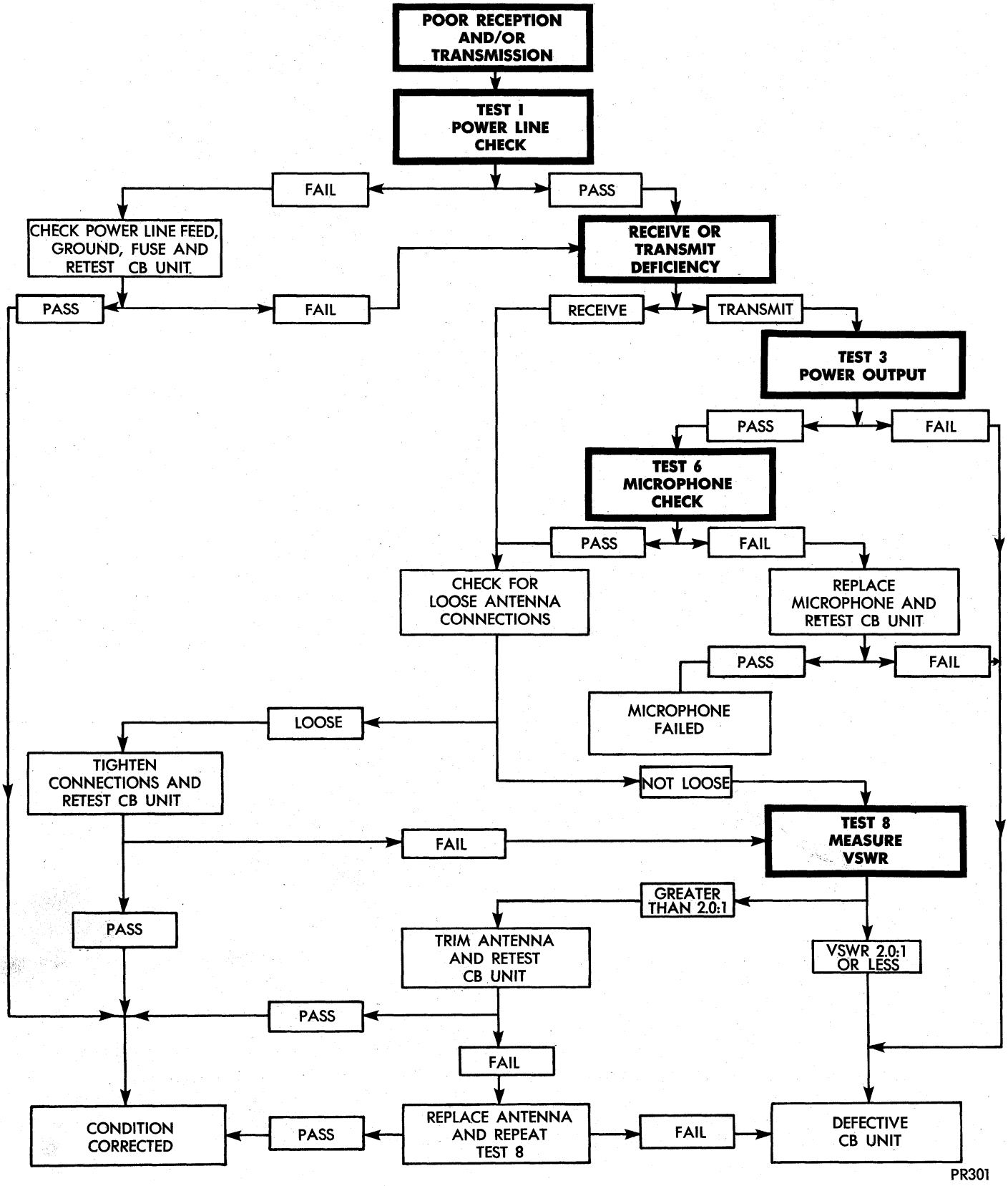
(1) Install antenna body and cable from underneath fender.
(2) Install gasket, adapter and capnut. Tighten capnut to 125 inch-pounds, plus or minus 25 inch-pounds with Tool C-4227 (Fig. 7 and 8).
(3) Install antenna mast into antenna body until sleeve bottoms on antenna body (Fig. 6).
(4) Route cable to radio.

ANTENNAS (Power)

The power operated radio antenna (Fig. 9 and 13) is a telescoping type antenna, extended and retracted by a coiled nylon cord actuated by a reversible electric motor.

Power antennas consists of three categorys: Conventional, Automatic, and Automatic Triband (AM-FM-CB). The Conventional Power Antenna is controlled by a manually actuated switch on the instrument panel. The Automatic and Automatic Triband Power Antennas are controlled by a com-

CB RADIO SYSTEM DIAGNOSIS WITH MTSE TESTER MODEL AFCE 386



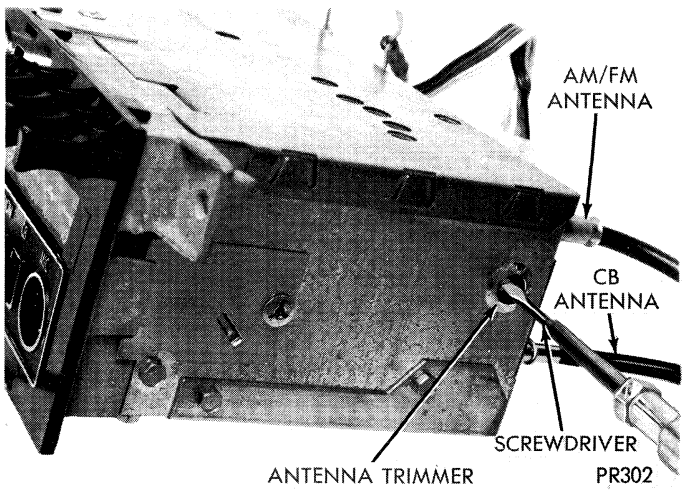


Fig. 5—Antenna Trimmer Location (Typical)

bination of an external electronic controller device (Fig. 9) (which senses radio power lead current) and limit switches which are built into the antenna motor housing. These antennas are actuated when the radio is switched "on" or "off" (with the ignition switch in "accessory" or "run" positions) or when the ignition switch is turned "on" or "off" (when the radio switch is left in the "on" position). The antenna mast should extend and retract fully and declutch.

The Triband Antenna incorporates a loading coil between the top and second mast sections and an in-line splitter/coupler for operation on AM, FM or CB bands (Fig. 9).

Many antenna problems may be avoided by frequent cleaning of the antenna mast telescoping sections. This may be performed when the vehicle is being washed by cleaning the antenna mast sections with a clean soft cloth. In the winter, wipe the clean antenna sections with a cloth moistened with light oil.

Before an antenna is removed, the antenna performance should be tested to determine whether it is a reception problem or an operational problem.

Power Antenna Test

Clean antenna mast exterior before test.

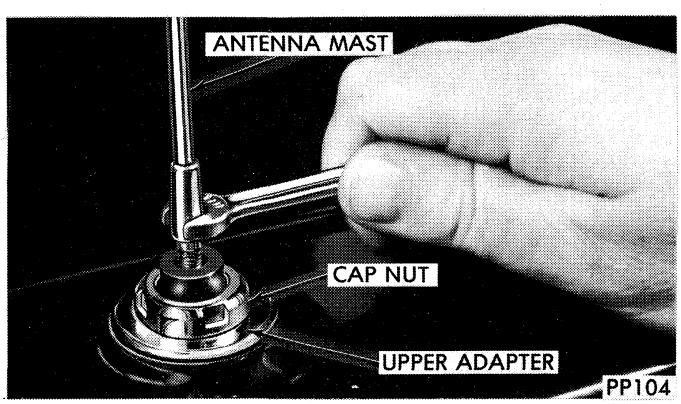


Fig. 6—Antenna Mast Removal and Installation

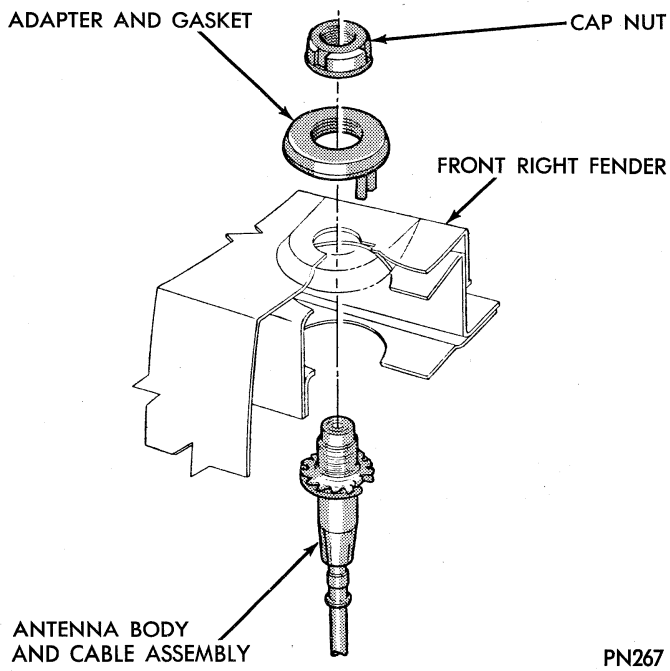


Fig. 7—Antenna Mounting

(1) With a source of 12 volt (D.C.) power, test the operation of the drive mechanism by grounding the negative (—) lead to the drive housing and with the positive (+) lead, contact the "yellow" (up) lead terminal to extend the antenna, and contact the "brown" (down) lead terminal to retract the antenna.

If the motor will not operate, replace the antenna assembly. If the motor runs freely and the antenna does not extend or retract, mast or drive assembly is at fault and should be replaced by a new antenna assembly. If the motor labors and the antenna extends and retracts very slowly, it may be caused by excessive dirt on the telescoping sections or bent tele-

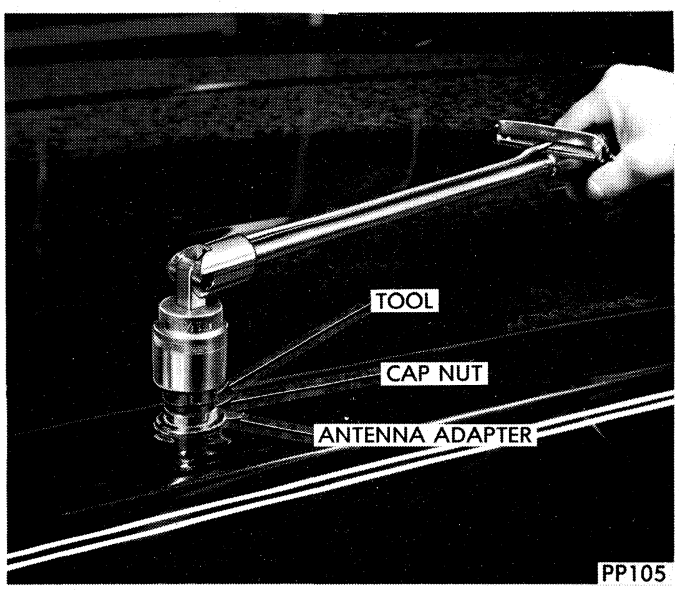


Fig. 8—Tightening Antenna Cap Nut

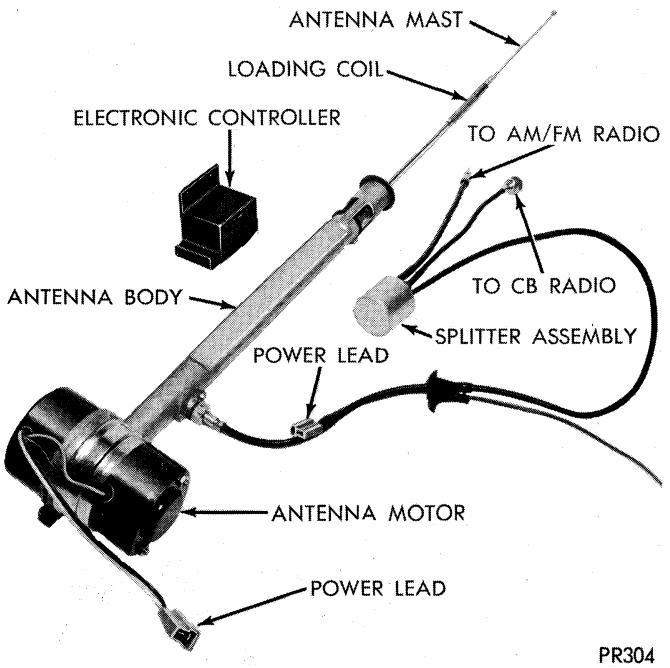


Fig. 9—Power Antenna Components

scoping mast rods. Clean and straighten the telescoping mast rods.

(2) Occasionally poor reception can be corrected by proper adjustment of radio antenna trimmer. If this fails to produce desired results, a substitute antenna known to be satisfactory may be plugged into radio with extended mast held out of car window. (Do not ground mast.)

Upon establishing that the fault is in antenna assembly, it may be traced to one or more of the following conditions:

(a) Broken lead-in wire or shielding.

(b) Grounded lead-in wire or mast assembly.

(c) Moisture in support tube or lead-in assembly.

(3) Poor connection (antenna lead-in assembly or shielding ground).

TESTING AND ADJUSTING C.B. ANTENNA VSWR

Before performing any tests check all cable connections and the tightness of antenna to the fender.

(1) Check VSWR on channel 19 using MTSE tester model AFCE 386 or equivalent (Fig. 10 Test number 8) with the antenna button set in the external position. Use a known good CB transmitter to eliminate possibility of a bad transmitter when trouble shooting antenna. If the VSWR is greater than 2.0:1 adjust mast section for minimum VSWR (approximately 1.2:1) as follows on all models except R and W.

(a) Disconnect antenna lead from controller harness and apply 12 volts DC to the yellow motor lead until the antenna is fully extended.

(b) Apply 12 volts DC to the brown motor lead, hold antenna at collet and lower top mast section 2 inches (Fig. 11).

(c) Loosen collect assembly (Fig. 11).

(d) Slide mast section held by collect in or out in increments of 1/16 inch to lower VSWR.

(e) Retighten collet. Apply 12 volts DC to brown motor lead, run antenna all the way down to recycle antenna, then apply 12 volts DC to the yellow lead and run antenna all the way up. Recheck VSWR reading. If VSWR is still too high repeat steps (a) through (d).

(2) Adjusting VSWR on R and W models.

(a) Turn on radio and place ignition switch in accessory position to extend antenna all the way up.

(b) Check VSWR with MTSE tester model AFCE 386 or equivalent (Fig. 10).

(c) Loosen allen head screw on top of mast ball and turn ball with fingers in or out to lower VSWR.

(d) Retighten allen head screw and recheck VSWR reading. If reading is still too high repeat steps 3 and 4.

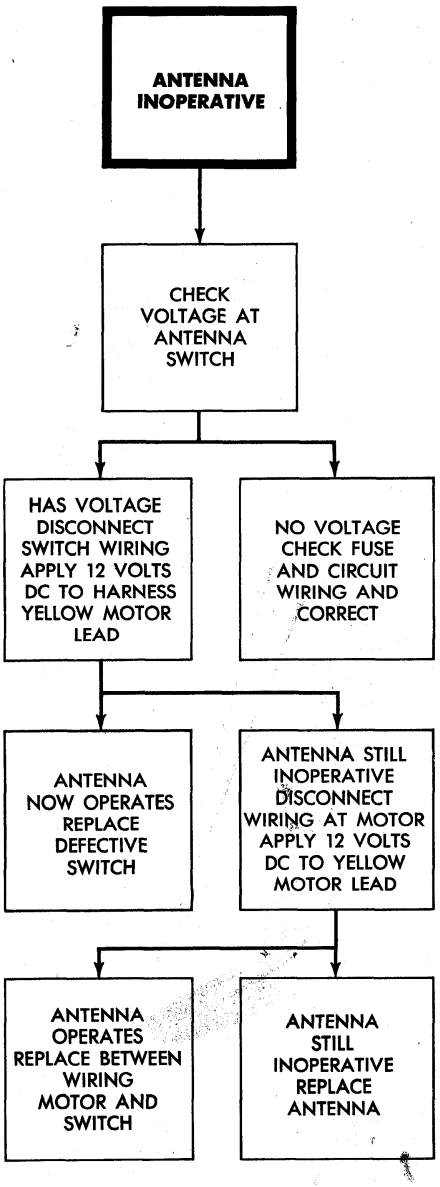
Should VSWR remain excessive above 2.0:1 after above adjustment, perform the following tests.

(1) Unplug main cable from splitter housing. With an ohmmeter check continuity between mast ball tip and main cable pin (3 ohms or less). With ohmmeter still connected sway mast and wiggle cable and plug to check for intermittents or open circuits. If an inter-

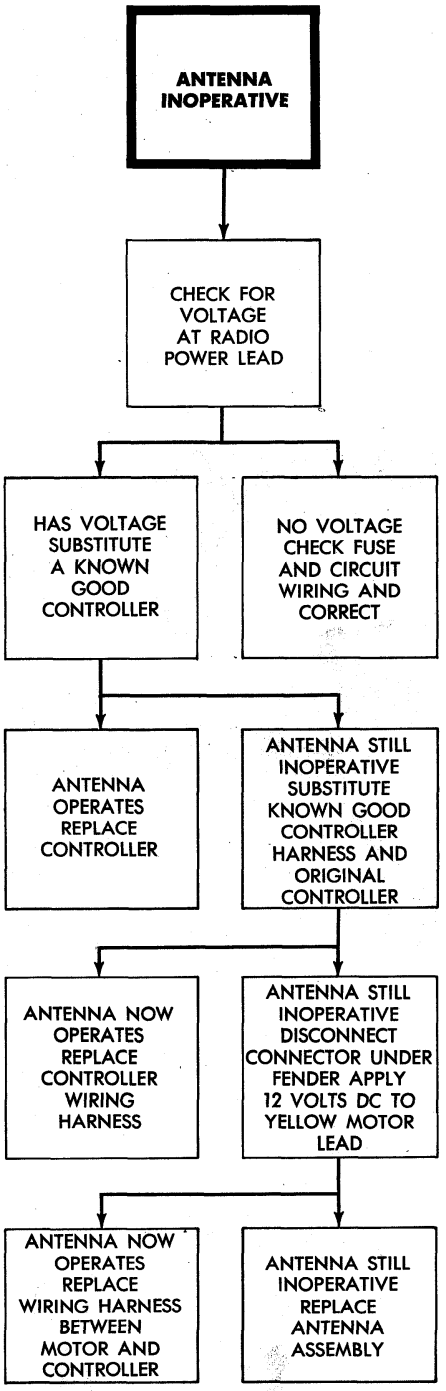
Fig. 10—AFCE Tester Model 386

POWER ANTENNA DIAGNOSIS

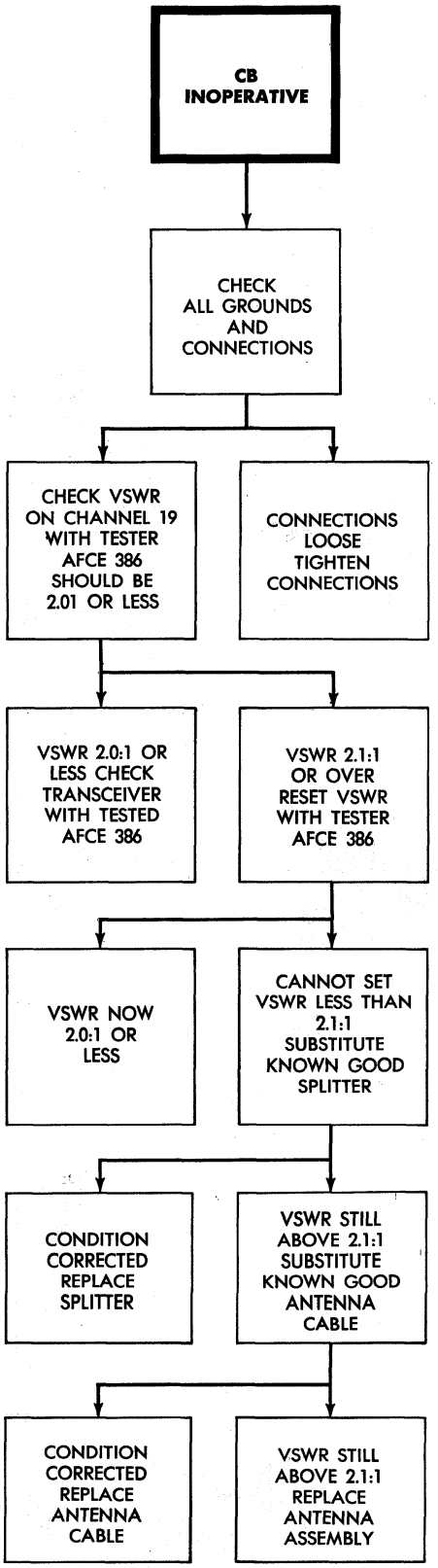
CONVENTIONAL POWER ANTENNA ELECTRICAL SYSTEM



ALL AUTOMATIC POWER ANTENNA ELECTRICAL SYSTEM



TRI-BAND POWER ANTENNA C.B. SYSTEM



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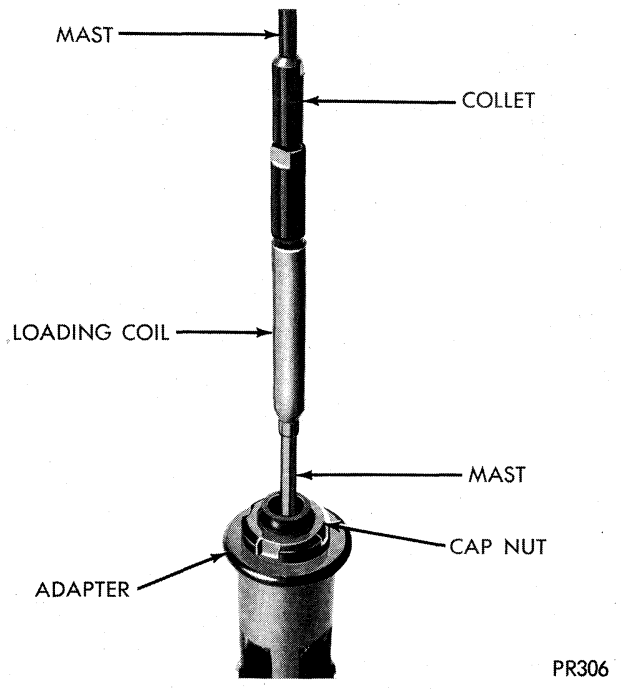


Fig. 11—Power Antenna

mittent or open circuit is detected replace antenna and cable assembly.

(2) Connect an ohmmeter between antenna cable pin and cable sleeve. Check for intermittents or short circuits in the body, mast or cable. Sway antenna mast, wiggle cable and plug. If an intermittent or short shows up replace the antenna and cable assembly.

(3) If antenna passes above tests place a known good splitter (Fig. 12) in the circuit and reconnect main antenna cable. (Use only the proper splitter). If VSWR is satisfactory after adjustment (see above) then replace the splitter.

CAUTION: Do not attempt to check the splitter for continuity or shorts as the complex circuitry inside the housing will cause a false indication.

Removal (Refer to Figure 13)

(1) Fully lower antenna.

(2) Disconnect battery cable at battery negative post.

(3) Remove right front wheel.

(4) Remove the right front fender splash shield screws and pull shield away from the wheel housing.

(5) Disconnect motor leads at the connector.

(6) Remove antenna lead ferrule nut at antenna mast and disconnect lead.

(7) Remove one screw attaching antenna to antenna brace.

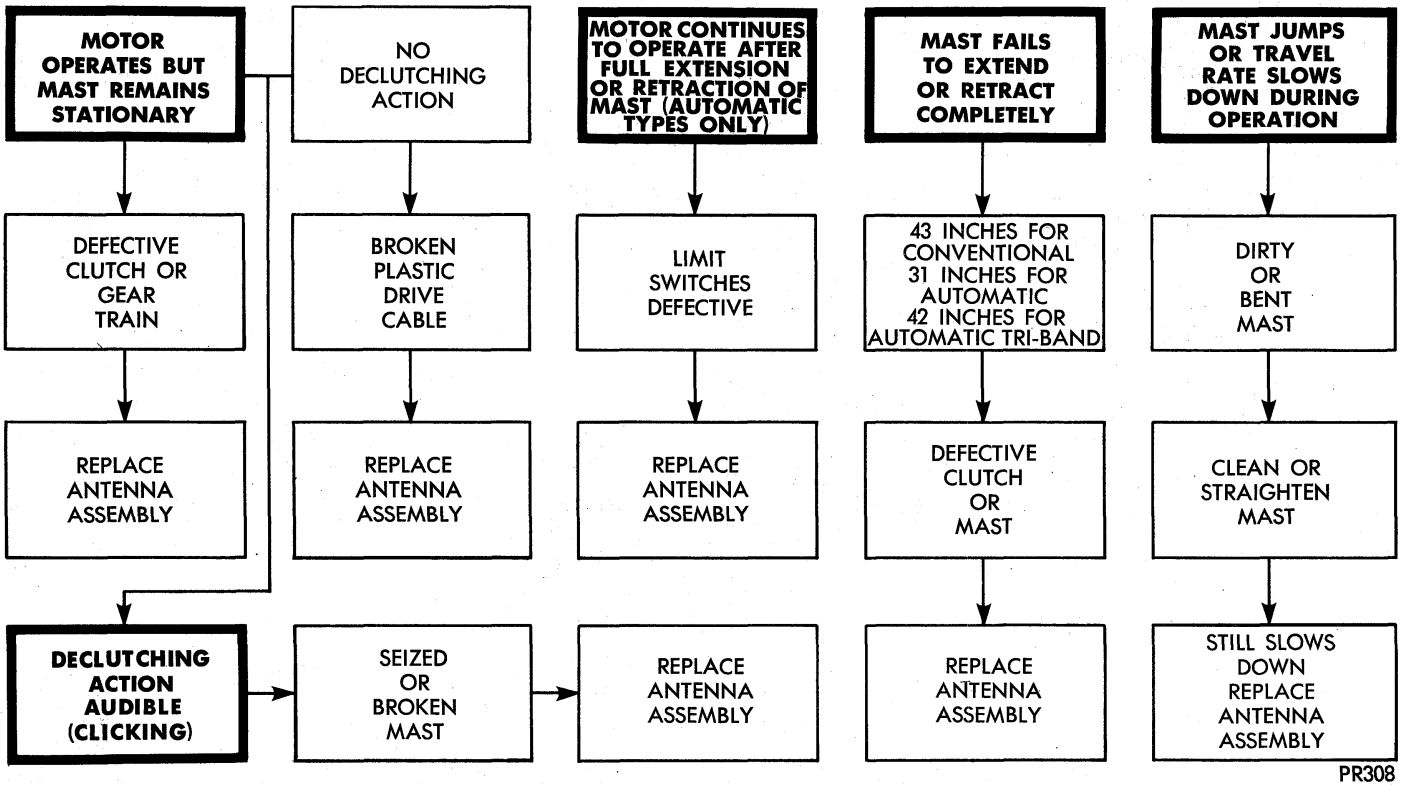
(8) Remove cap nut on fender surface.

(9) Remove antenna from under fender being careful not to bend antenna mast.

Installation

(1) Position antenna from under fender and through fender adapter.

POWER ANTENNA DIAGNOSIS
MECHANICAL SYSTEM



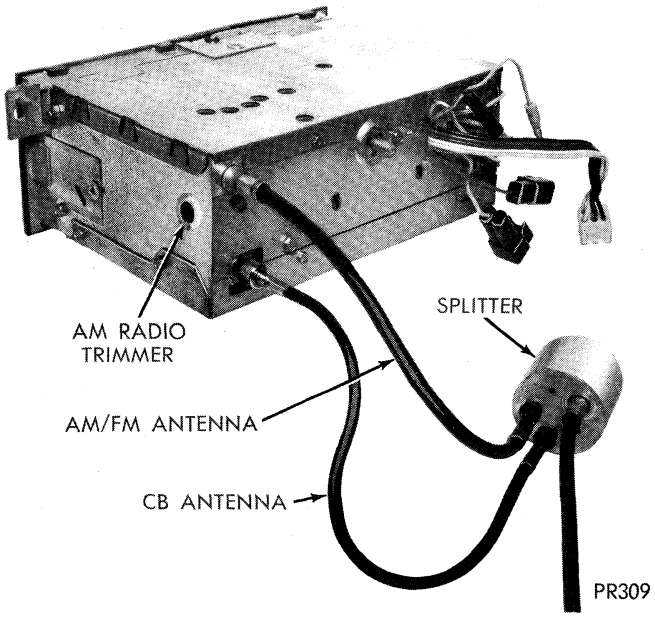


Fig. 12—Splitter Assembly

(2) Replace and tighten capnut to 125 inch pounds plus or minus 25 inch pounds.

(3) Position antenna on antenna brace and install attaching screw. Tighten to 40 inch pounds plus or minus 10 inch pounds.

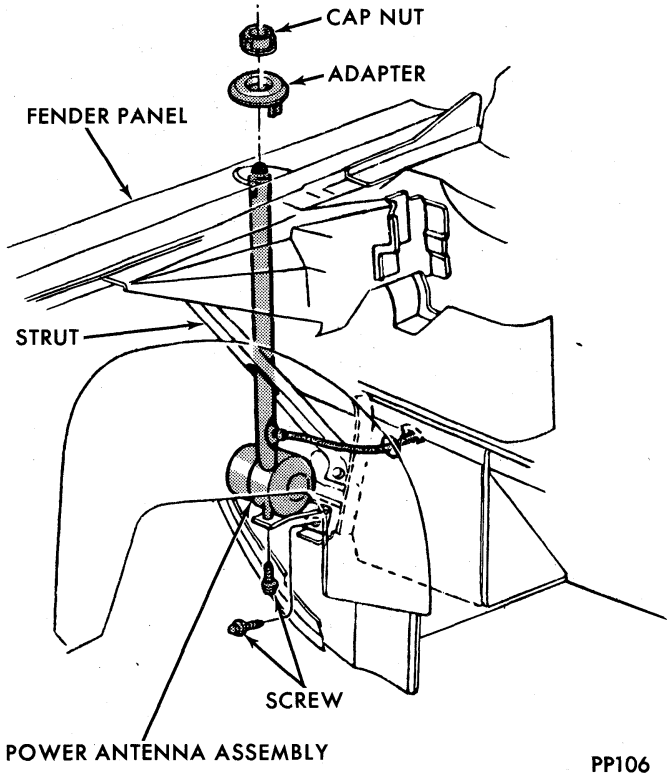


Fig. 13—Power Antenna

(4) Connect antenna lead to antenna housing. Tighten antenna lead ferrule nut to 20 to 60 inch pounds.

(5) Connect motor leads at connector.

(6) Position right front fender splash shield and install attaching screws.

(7) Connect battery cable at battery and test operation of antenna.

Bench Test for Reception Malfunction Manual or Power

(1) With test lamp and battery in circuit attach one test lead to concentric pin on "lead-in" connector and other test lead to tip of mast. The lamp should "light" indicating Continuity.

(2) Keeping one lead on connector pin, clip other lead on antenna body assembly. The lamp should "not light." If it does, look for a short circuit in the body or in the cable probably at the connector.

(3) Remove clip lead from connector pin and clip on outer shell of connector. Connect other clip lead to antenna body assembly. The lamp should "light" again. If it does not "light," antenna shielding has an open circuit.

NOTE: Wiggle cable over its entire length to reveal intermittent short or open circuits during steps 1, 2 and 3.

RADIO REPLACEMENT

Caution: Do not operate the radio with speaker leads detached since damage to the transistors may result.

RADIO

(H-N-F-G)

Removal

(1) Remove cluster bezel.

(2) Remove radio mounting screws.

(3) Pull radio from panel and disconnect wiring, ground strap and antenna lead from radio.

(4) Remove radio.

Installation

(1) Connect wiring, ground strap and antenna to radio.

(2) Position radio into place in panel, install mounting screws and tighten securely.

(3) Install cluster bezel.

(R-W-X-S)

Removal

(1) Remove instrument cluster lower bezel.

(2) From under panel, disconnect electrical, speaker, and antenna leads.

(3) From under panel remove nut attaching radio to support bracket. Nut is located at rear of all radios

except those equipped with tape players where it is located on the side of radio.

(4) From front of panel, remove screws mounting radio to cluster housing.

(5) Remove radio from front of panel.

Installation

(1) Position radio into place in cluster housing, install mounting screws and tighten securely.

(2) Install rear radio mounting bracket nut and tighten securely.

(3) Install all leads to radio.

(4) Install lower cluster bezel.

(C)

Removal

(1) Remove instrument cluster bezel.

(2) Remove lamp assembly from front of radio. (Monaural Only).

(3) Remove radio to panel mounting screws.

(4) Remove instrument panel upper cover.

(5) Working through access hole in top of panel:

(a) Disconnect antenna lead from radio.

(b) Remove radio bracket mounting nut.

(c) Remove speaker wires from speaker. (Monaural Only)

(d) Disconnect speaker leads from radio. (Stereo Only)

(6) Pull Radio out from panel and disconnect electrical lead.

Installation

(1) Connect electrical lead and position radio into panel.

(2) Working through access hole in top of panel:

(a) Connect speaker leads to radio. (Stereo Only)

(b) Install speaker leads to speaker. (Monaural Only)

(c) Install radio bracket mounting nut and tighten securely.

(d) Connect antenna lead to radio.

(3) Install instrument panel upper cover.

(4) Install radio to panel mounting screws and tighten securely.

(5) Trim radio to antenna as specified under antenna trimming.

(6) Install lamp assembly to front of radio. (Monaural Only)

(7) Install instrument cluster bezel.

FRONT SPEAKERS

(H-N-F-G)

Monaural or Stereo

Removal

(1) Remove cowl top/trim pad assembly.

(2) Remove speaker mounting screws.

(3) Lift speaker from panel and disconnect wiring.

(4) Remove speaker.

Installation

(1) Connect wires to speaker.

(2) Position speaker into place in panel, install mounting screws and tighten securely.

(3) Install cowl top/trim pad assembly.

(R-W-X-S) Monaural Radio

Removal

(1) Remove defroster/radio speaker plate.

(2) Remove screws mounting speaker to panel.

(3) From under panel, disconnect speaker leads from radio.

(4) Remove speaker from top of panel.

Installation

(1) Position speaker into place in panel, install mounting screws and tighten securely.

(2) Connect speaker leads to radio.

(3) Install defroster/radio speaker plate.

(R-W-X-S) Stereo Radio

Removal

(1) Pull up speaker assembly from trip pad.

(2) Disconnect speaker leads.

(3) Remove screws mounting speaker to grill.

Installation

(1) Position speaker to grille, install mounting screws and tighten securely.

(2) Connect speaker leads.

(3) Position speaker assembly to trim pad and push down into place.

(C)

Removal

(1) Remove instrument panel upper cover.

(2) Remove speaker mounting screws.

(3) Lift speaker out and disconnect leads.

Installation

(1) Connect leads to speaker.

(2) Position speaker into place in panel, install mounting screws and tighten securely.

CAUTION: Stereo speaker must be positioned so that index notches are properly aligned or damage to speaker terminals will occur.

(3) Install instrument panel upper cover.

REAR SEAT SPEAKERS

Removal

(1) Working through trunk compartment, disconnect speaker leads.

(2) Remove the four sheet metal screws holding speaker to shelf panel.

(3) Remove speaker.

HORNS

INDEX

GENERAL INFORMATION

The horn circuit consists of a horn switch, horn relay, and horns. On all models the relay plugs into the relay bank.

The horn circuit feed is from the fuse box to the number 1 terminal on the horn relay. When the horn switch is depressed, this completes the ground circuit to the horn relay coil, closing a set of contacts in the relay and allowing current to flow to the horns which are grounded to the sheet metal of the vehicle.

SERVICE PROCEDURES

TESTING

Horns Will Not Sound

If the horns do not sound, release the parking brake and shift transmission into Park. While **starting** the car, observe the "Brake" light. If it fails to light, the steering column grounding clip is missing or the column is not properly fastened to the instrument panel resulting in loss of ground to the horn switch. If the "Brake" light comes on but the horns still do not sound, check for a blown 20-ampere horn fuse in the fuse block. If the fuse is blown, replace it with the same fuse type. In case the horns fail to sound, and the newly replaced fuse blows when depressing the horn switch, a short circuit in the horn or the horn wiring between the fuse terminal and the horn is responsible.

If the fuse is intact, disconnect wire connector at horn and connect one lead of a test light to the wire connector and the other lead to a good body ground. Depress the horn switch. Should test light illuminate the horn is ungrounded or faulty and should be adjusted. If adjustment fails to restore proper sound, replace the horn.

If the light fails to illuminate, check for a defective horn relay by substituting a known good horn relay in the circuit. If the light illuminates when depressing the horn switch, the original relay is defective. If the light fails to illuminate with a known good relay, unplug that relay and connect a jumper wire from the battery terminal to the horn terminal on the relay terminal board. If the light, which is connected in place of the horns, fails to illuminate inspect for an open circuit between the horn fuse and the horn terminal on the relay terminal board and between relay terminal board and the horn terminals. Should the light illuminate, a defective horn switch or an open circuit in the wiring between the relay terminal and the horn switch is at fault.

CAUTION: Continuous sounding of horns may cause relay to fail.

Horns Sound Continuously

Should the horns sound continuously, unplug the horn relay from the terminal board inside the passenger compartment. Plug in a known-good relay. If the horns stop blowing, relay is defective and must be replaced. Should the horns still sound, proceed as follows: Connect one lead of test light to terminal "1" on the relay plug-in board and the other lead to terminal "2." Should the light illuminate, either the wire is shorted to ground or the horn switch is defective.

Remove steering wheel trim and disconnect wire from horn switch. Repeat the above test and if the test light still illuminates, wire is shorted and should be repaired. If test light does not illuminate, horn switch is defective and must be replaced.

ADJUSTING

(1) Disconnect wires at each horn, one at a time, to determine which horn is not operating.

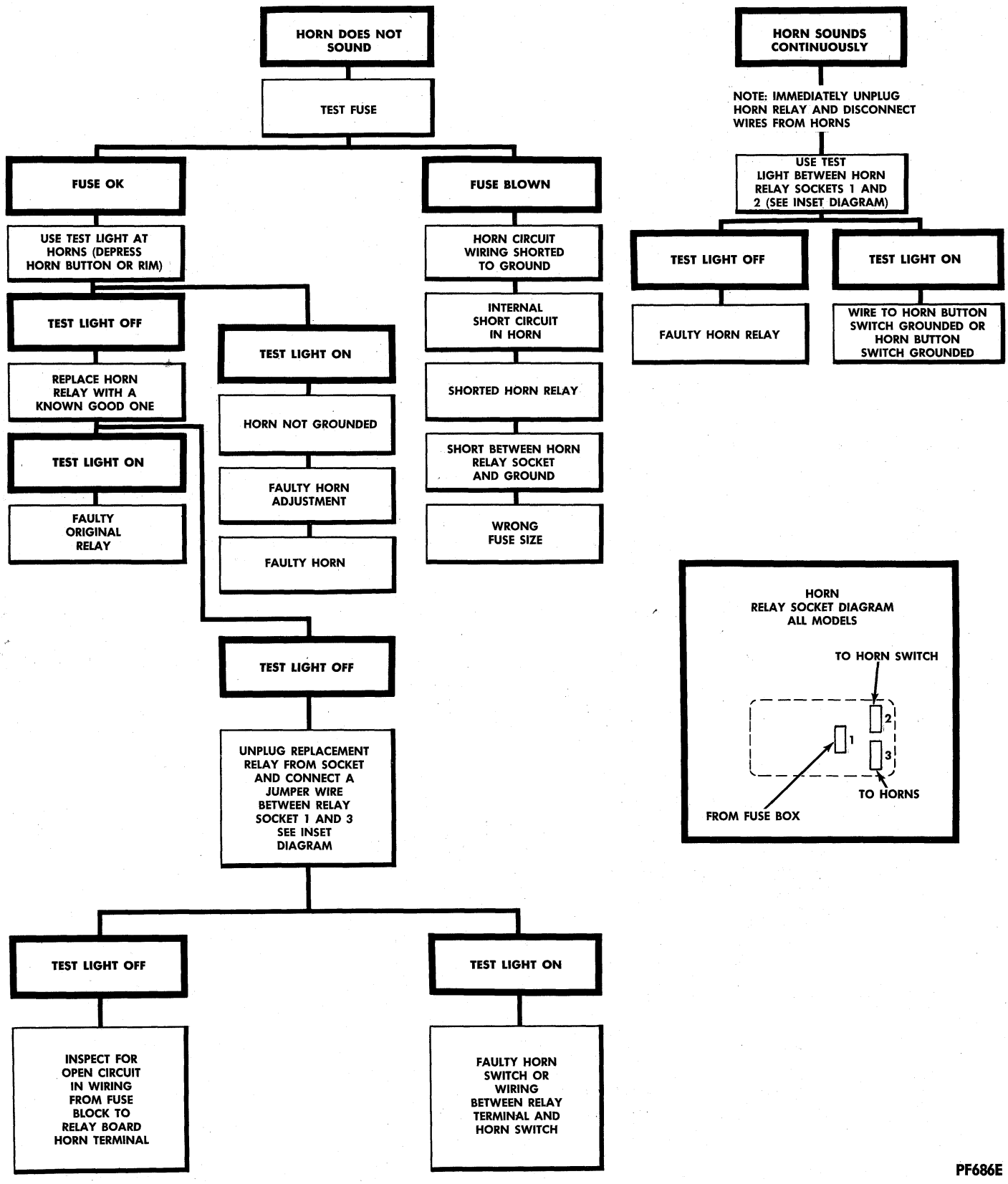
(2) Connect test ammeter between horn terminal and horn feed wire.

(3) Have someone depress the horn switch while you read the ammeter. The reading should read somewhere between 4.3 and 5 amperes. If the horn needs adjustment turn the horn adjusting screw (Fig. 1) a fraction of a turn at a time and check for proper current draw and for horn sound quality after each adjustment.

NOTE: Disconnect horn which operates properly before adjusting horn under test.

WARNING: Adjustment will only clear up the sound; it cannot change the horn frequency.

HORN DIAGNOSIS



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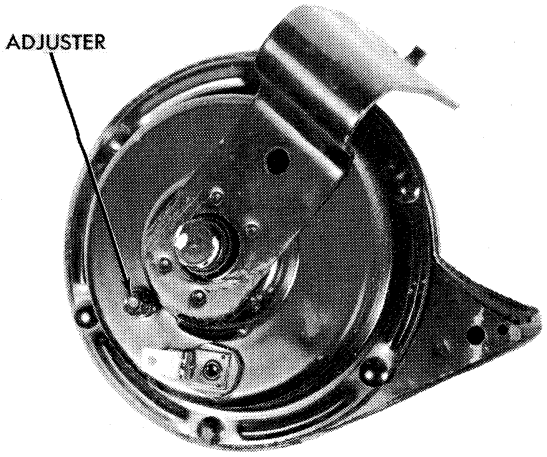


Fig. 1—Horn Adjustment

HORN SWITCH

Three Spoke Wheel with Center Horn Button (Fig. 2)
"Tuffy" Wheel (Fig. 3)
Deluxe Three Spoke Wheel (Fig. 4)

Removal

(1) Remove horn button by pulling outwards.

(2) Remove electrical lead from terminal on horn switch.

(3) Remove screws mounting horn switch assembly to steering wheel.

(4) Remove horn switch assembly.

(5) Remove screws mounting retainer to horn switch.

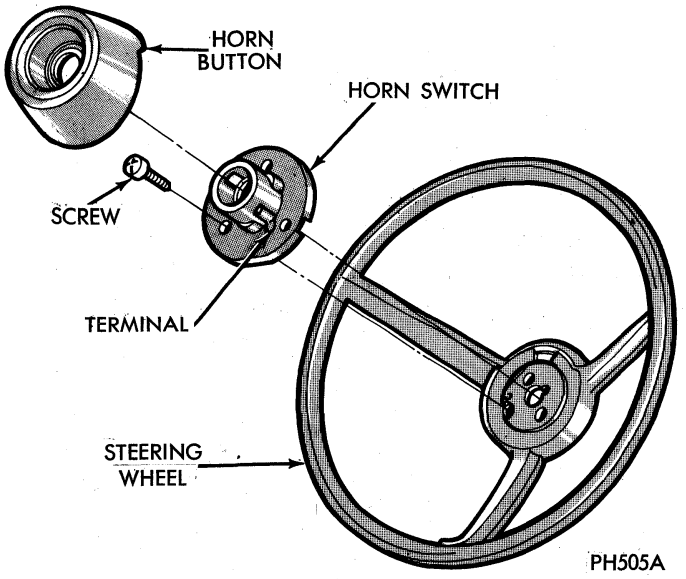


Fig. 2—Three Spoke Wheel With Center Horn Button

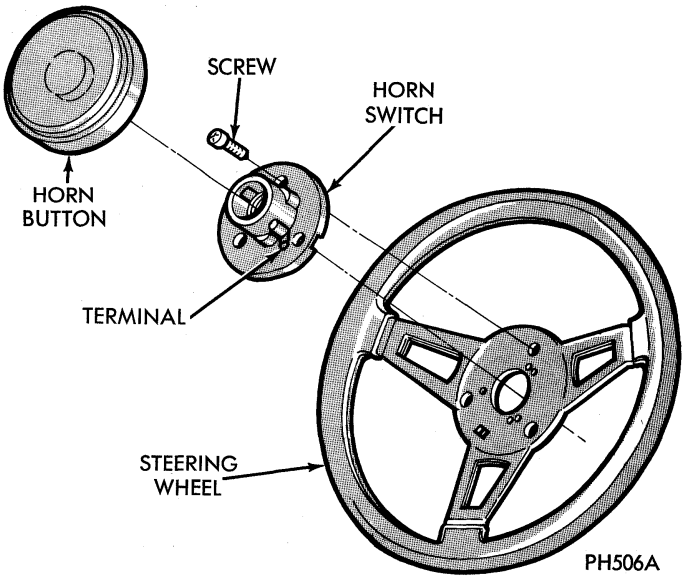


Fig. 3—"Tuffy" Steering Wheel

Installation

(1) Position retainer to switch, install mounting screws and tighten.

(2) Position assembly to steering wheel, install mounting screws and tighten.

(3) Install electrical lead to terminal.

(4) Install horn button by snapping into place.

Two Spoke Steering Wheel with Pressure Sensitive Horn Switch Pad (Fig. 5)

Removal

(1) From underside of steering wheel, remove two pad mounting screws.

(2) Pull pad up from wheel and disconnect electrical leads.

(3) Remove pad.

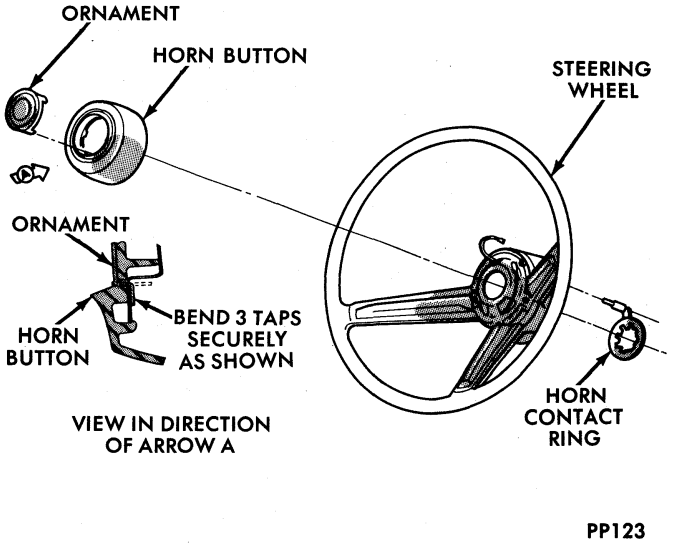


Fig. 4—Deluxe Three Spoke Steering Wheel

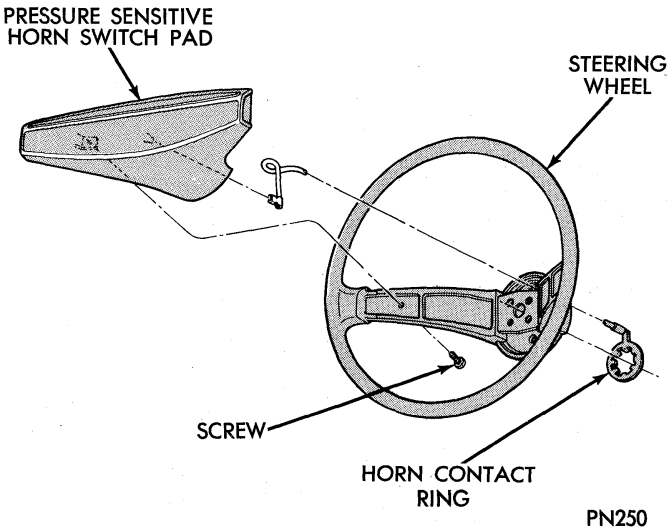


Fig. 5—Pressure Sensitive Horn Switch Pad

Installation

(1) Connect electrical leads to pad terminals.

(2) Position pad into place on steering wheel, install mounting screws, and tighten to 17 inch pounds torque.

HORN CONTACT RING

Note: All steering wheels except those shown in Figures 2 and 4 are equipped with a new style horn contact ring. It is very important that the following procedure be used when it becomes necessary to replace it.

Removal

(1) Remove horn switch pad.

(2) Disconnect electrical lead from horn switch.

(3) Remove steering wheel.

(4) With tip of a blade screwdriver, bend up locking tabs of contact ring and remove from steering wheel noting which hole wire goes through.

Installation

(1) Position new ring on steering wheel while properly routing wire up through correct hole in wheel.

(2) With your fingers, press ring down as far as you can.

(3) Obtain a suitable round cylinder approximately 1-3/4 inches inside diameter, with at least a 1/8 inch thickness and about 3 inches long.

(4) Position cylinder on top of contact ring and place assembly into an arbor press.

(5) Apply pressure very carefully so that cylinder presses down on round surface of contact ring.

(6) Continue to press until all of the round surface of contact ring is flush with bottom of steering wheel. It is very important that this be done because if it is not, damage to contact roller on turn signal switch will occur.

(7) Install steering wheel.

(8) Connect electrical lead to horn switch.

(9) Install horn switch pad.

SPEED CONTROL SYSTEM

INDEX

GENERAL INFORMATION

The speed control system (Fig. 1, 2 and 3) is electrically actuated and vacuum operated. The turn signal lever on the steering column incorporates a slide switch which has three positions "OFF", "ON" or "RESUME" speed. A speed "SET" button is located in the end of the lever. The system is designed to operate at speeds above approximately 30 M.P.H.

WARNING: The use of "Speed Control" is not recommended when driving conditions do not permit maintaining a constant speed, such as in heavy traffic or on roads that are winding, icy, snow covered or slippery.

TO ENGAGE: Move slide switch to the "ON" position, attain desired speed, then momentarily depress and release speed "SET" button establishing speed memory and engaging system. Remove foot from accelerator. Speed will be maintained at this level. Moving the slide switch from "OFF" to "ON" while the vehicle is in motion establishes memory without system engagement at that speed.

TO DISENGAGE: Normal brake application or a soft tap on the brake pedal will disengage control unit without erasing speed memory. Moving the slide switch to the "OFF" position or turning the ignition "OFF" also disengages the system and in addition erases the speed memory.

TO RESUME AFTER BRAKING: Momentarily move

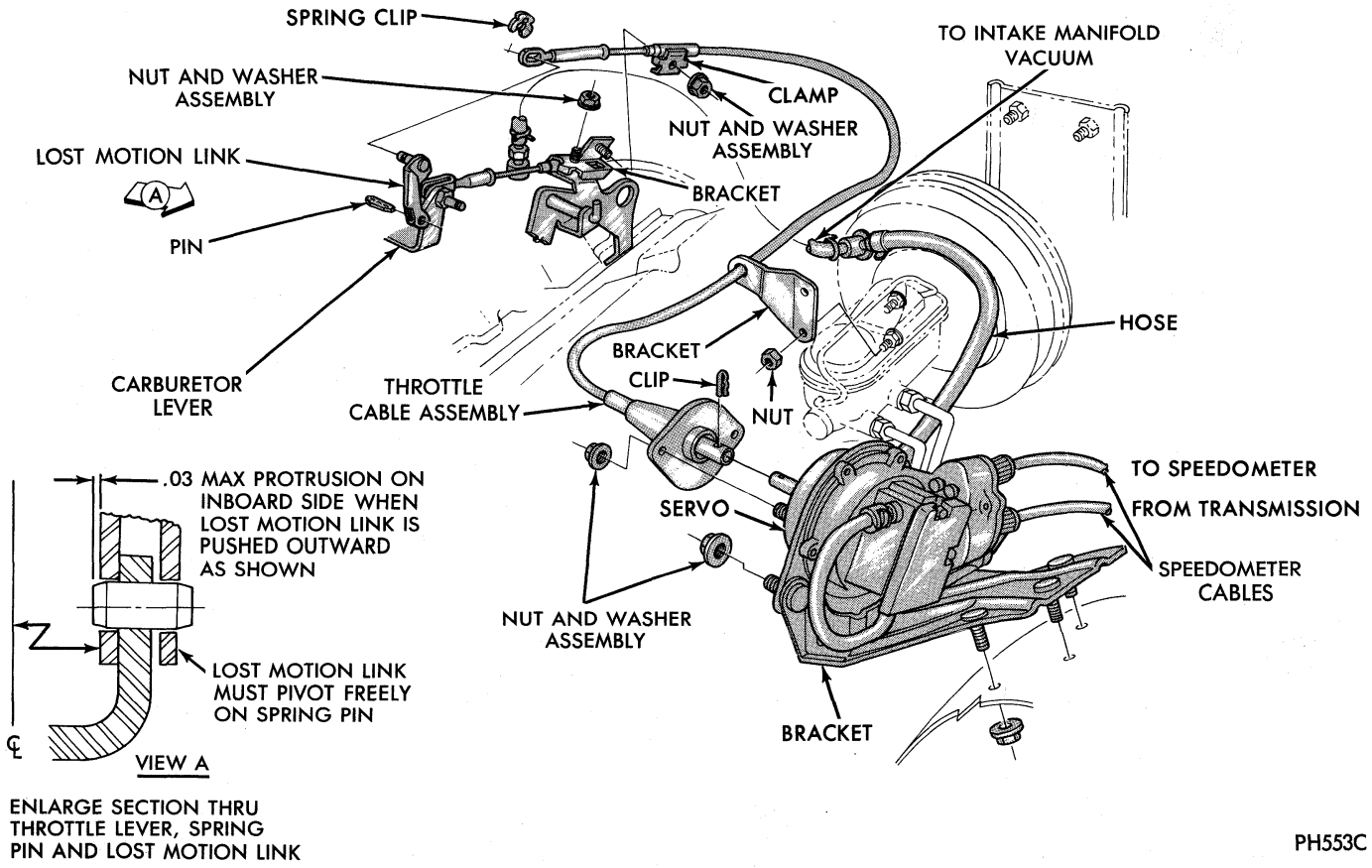


Fig. 1—Speed Control System R,W,S and X

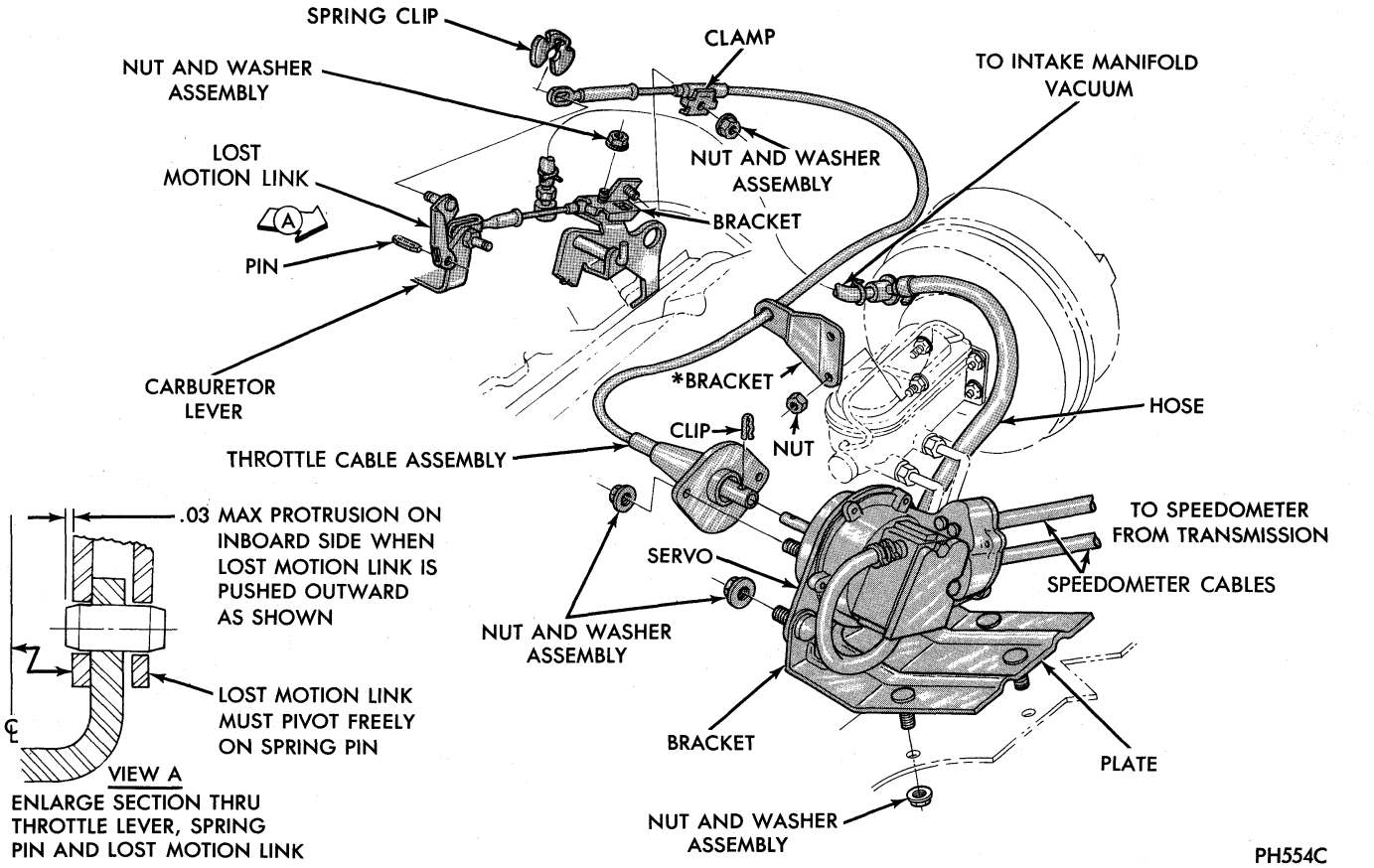
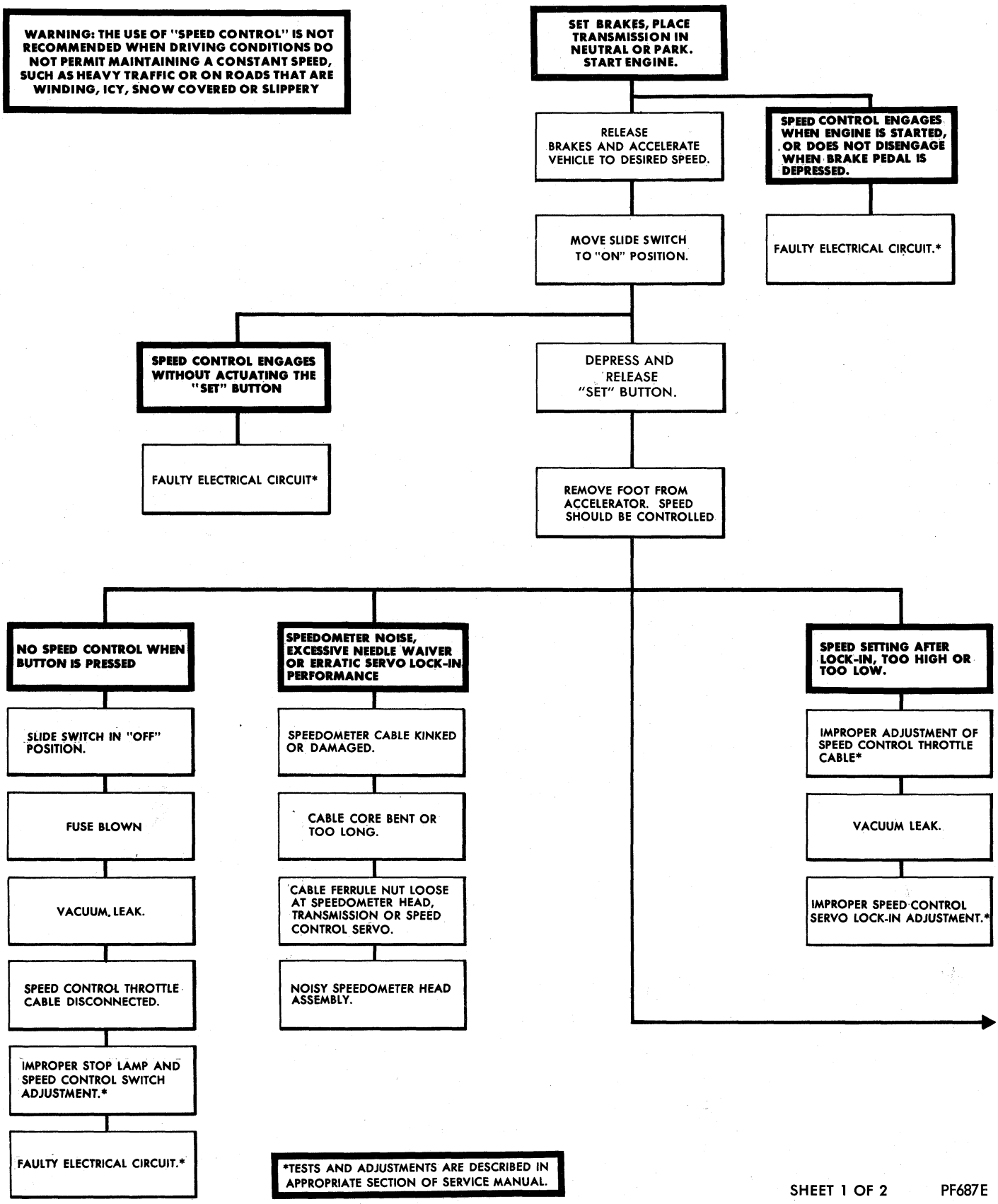
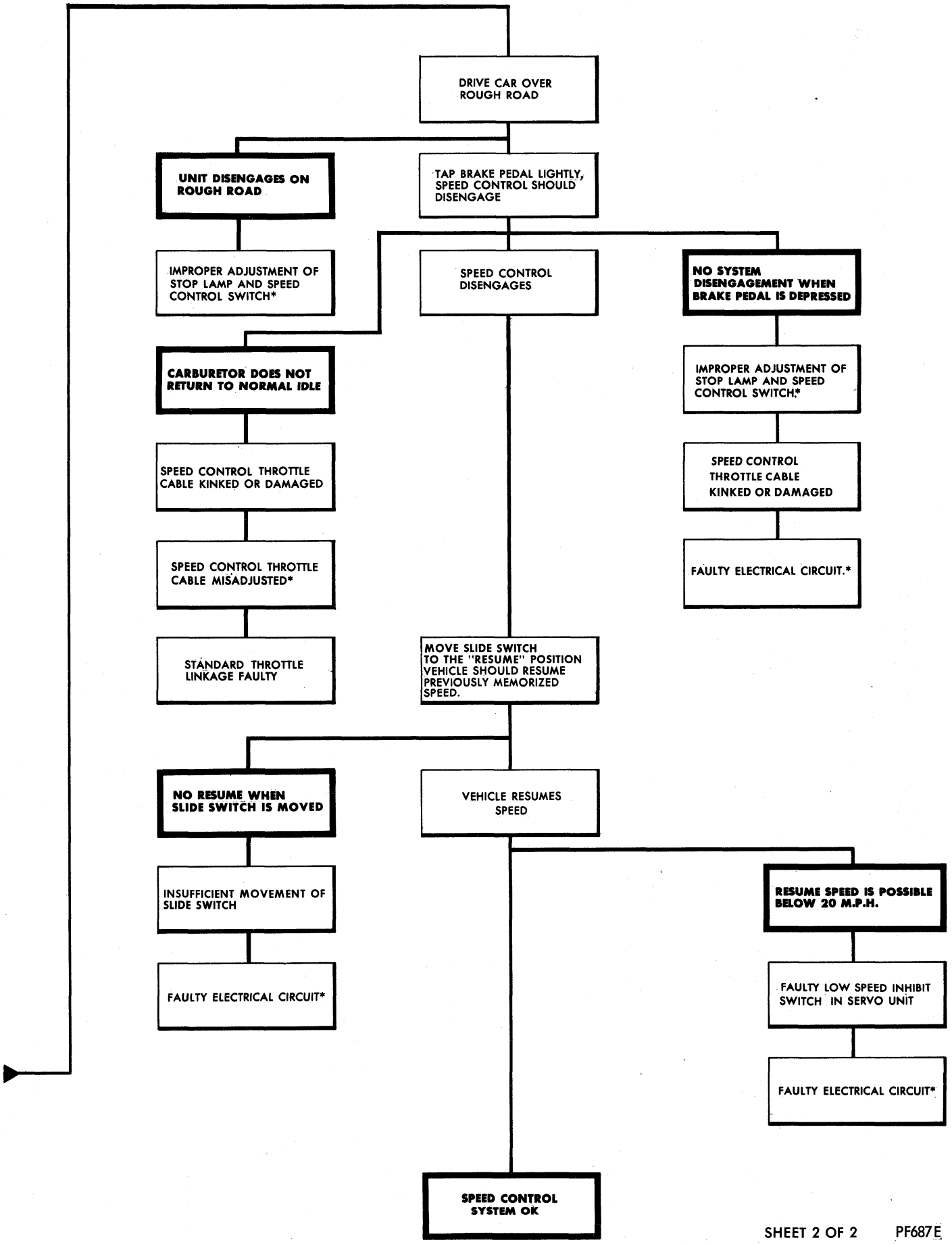


Fig. 2—Speed Control System C

SPEED CONTROL SYSTEM DIAGNOSIS




DRIVE CAR OVER ROUGH ROAD
UNIT DISENGAGES ON ROUGH ROAD
TAP BRAKE PEDAL LIGHTLY, SPEED CONTROL SHOULD DISENGAGE
IMPROPER ADJUSTMENT OF STOP LAMP AND SPEED CONTROL SWITCH*
SPEED CONTROL DISENGAGES
NO SYSTEM DISENGAGEMENT WHEN BRAKE PEDAL IS DEPRESSED
CARBURETOR DOES NOT RETURN TO NORMAL IDLE
IMPROPER ADJUSTMENT OF STOP LAMP AND SPEED CONTROL SWITCH.*
SPEED CONTROL THROTTLE CABLE KINKED OR DAMAGED
SPEED CONTROL THROTTLE CABLE KINKED OR DAMAGED
SPEED CONTROL THROTTLE CABLE MISADJUSTED*
FAULTY ELECTRICAL CIRCUIT.*
STANDARD THROTTLE LINKAGE FAULTY
MOVE SLIDE SWITCH TO THE "RESUME" POSITION VEHICLE SHOULD RESUME PREVIOUSLY MEMORIZED SPEED.
NO RESUME WHEN SLIDE SWITCH IS MOVED
VEHICLE RESUMES SPEED
INSUFFICIENT MOVEMENT OF SLIDE SWITCH
RESUME SPEED IS POSSIBLE BELOW 20 M.P.H.
FAULTY ELECTRICAL CIRCUIT*
FAULTY LOW SPEED INHIBIT SWITCH IN SERVO UNIT
FAULTY ELECTRICAL CIRCUIT*
SPEED CONTROL SYSTEM OK

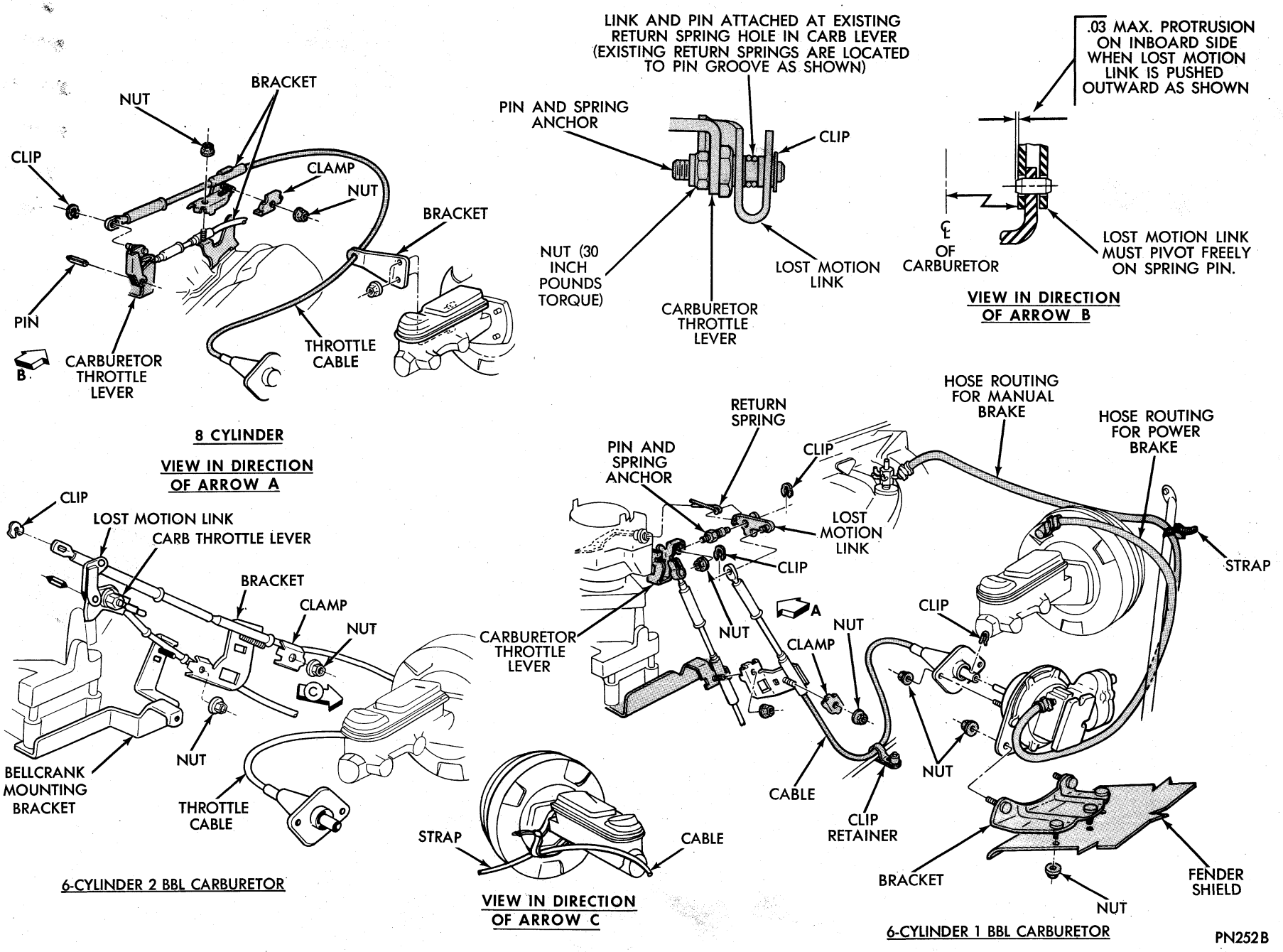


Fig. 3—Speed Control System H, N, F, and G

slide switch to "RESUME". Vehicle will resume to the previously memorized speed.

TO VARY SPEED SETTING: To increase speed, depress accelerator to desired speed and momentarily depress and release speed "SET" button.

When speed control units is engaged, tapping speed "SET" button may increase speed setting incrementally.

To decrease speed, tap brake pedal lightly disengaging system. When desired speed has been obtained depress and release speed "SET" button. Decrease in speed can also be attained by holding "SET" button depressed until desired speed is attained. Releasing the button engages the system at that speed.

TO ACCELERATE FOR PASSING: Depress accelerator as needed. When passing is completed, release accelerator and vehicle will return to previous speed setting.

SERVICE PROCEDURES

SERVO LOCK-IN SCREW ADJUSTMENT

The Lock-in Screw Adjustment (Fig. 4) controls the accuracy of the speed control unit. When the speed "SET" button is depressed and released at speeds above approximately 30 M.P.H.; the speed control system is activated, the system "locks in" and should hold the vehicle at virtually the same speed at which it is traveling.

IMPORTANT: Lock-in accuracy will be affected by:

(a) **Poor engine performance (need for tune-up etc.)**

(b) **Power to weight ratio (loaded gross weight of car; trailering).**

(c) **Improper slack in throttle control cable, (See "Throttle Control Cable Adjustment").**

This screw should never be adjusted indiscriminately. Need for adjustment can be determined only after accurate diagnosis of the Speed Control System operation.

After the steps (a) (b) and (c) have been considered and speed "sags" (drops) more than 2 to 3 M.P.H. when speed control is activated, the lock-in adjusting screw should be turned counter-clockwise (approximately 1/4 turn per one M.P.H. correction required). If "Pull-up" (speed increase) of more than 2 to 3 M.P.H. occurs, the lock-in adjusting screw should be turned clockwise (approximately 1/4 turn per one M.P.H. correction required. If the screw is loose, stake side of servo housing adjacent to screw to INSURE a snug fit.

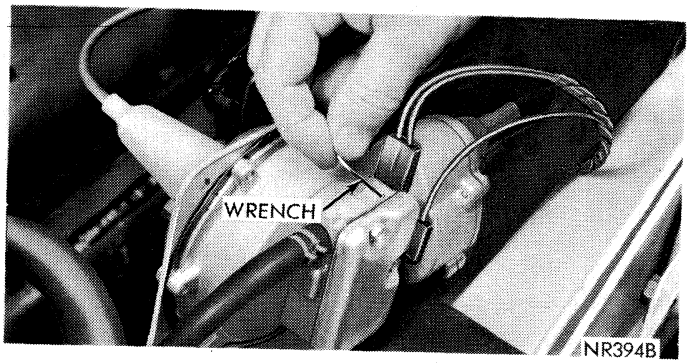


Fig. 4—Lock in Screw Adjustment

CAUTION: This adjustment must not exceed two turns in either direction or damage to unit may occur.

SPEED CONTROL THROTTLE CABLE ADJUSTMENT

Optimum servo performance is obtained with a given amount of free play in the throttle control cable. To obtain proper free play, remove spring clip and insert a 1/16 inch diameter pin between forward end of slot in cable and carburetor linkage pin. (Fig. 5). With choke in full open position and carburetor at curb idle, pull back on cable (toward dash panel) without moving carburetor linkage until all free play is removed. Tighten cable clamp nut to 45 inch-pounds, remove 1/16 inch diameter pin and install spring clip.

STOP LAMP AND SPEED CONTROL SWITCH ADJUSTMENT

Refer to Group 5, Brakes, Stop Lamp Switch Adjustment.

ELECTRICAL TESTS

Refer to "Speed Control Wiring Diagram", (Fig. 6). It is suggested that the electrical tests be made in the following sequence:

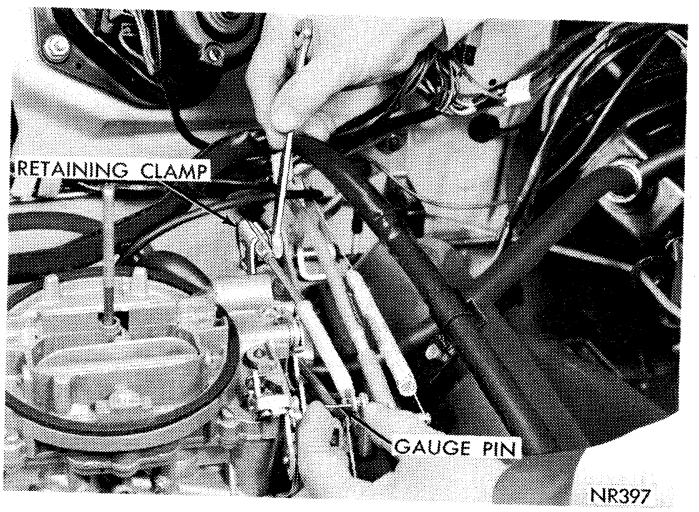


Fig. 5—Servo Throttle Cable Adjustment

(1) **Check accessory fuse for continuity.**

(2) **Speed control switch (turn signal lever) test.**

(a) Disconnect the four wire electrical connector at the steering column.

(b) Connect a twelve volt positive source to the black wire terminal in the speed control harness connector (male).

(c) With the slide switch in the **ON** position, attach one lead of a test lamp to the connector yellow wire, other lead to a good ground; test lamp should light and should go off when the speed "Set" button is depressed.

(d) Move the test lamp lead to the connector blue wire; test lamp should light and should go off when the slide switch is turned to the **OFF** position.

(e) With the slide switch in the **ON** position, move test lamp lead to the connector white wire; test lamp should light by either depressing the Speed Set button or by moving the slide switch toward the "Resume" position.

(f) Reconnect speed control lever harness connector to wiring harness connector.

(3) **Stop lamp and speed control switch test:**

(a) Disconnect the double connector at the switch pigtail and connect a twelve volt source to either terminal and connect a test lamp from other terminal to a good ground: test lamp should light when brake pedal is in the normal position and should go off when the brake pedal is depressed to a maximum of approximately one half inch after proper adjustment as outlined under "Stop Lamp and Speed Control Switch Adjustment".

(b) Remove test lamp and reconnect pigtail connector to harness connector.

(4) **Servo unit tests:**

(a) **Locking coil test;** turn ignition to the **Accessory** or **ON** position and move the slide switch to the **ON** position.

(b) Momentarily disconnecting and connecting the double connector at the servo terminals should produce a clicking sound in the servo. Replace the servo if no clicking sound is heard.

(c) **Holding coil and Low Speed switch test;** without removing either connector at servo, place a test lamp probe to the black (with tracer) wire terminal of servo, other probe to a good ground. Block front wheels; raise rear wheels and drive rear wheels to 35 miles per hour; with speed control slide switch in the ON position, depress and release speed "Set" button. The speed should increase above 35 miles per hour and the test lamp should remain **ON** until the brake pedal is depressed to disengage the system and test light should go **off,** when brake pedal is depressed.

(d) Remove test lamp.

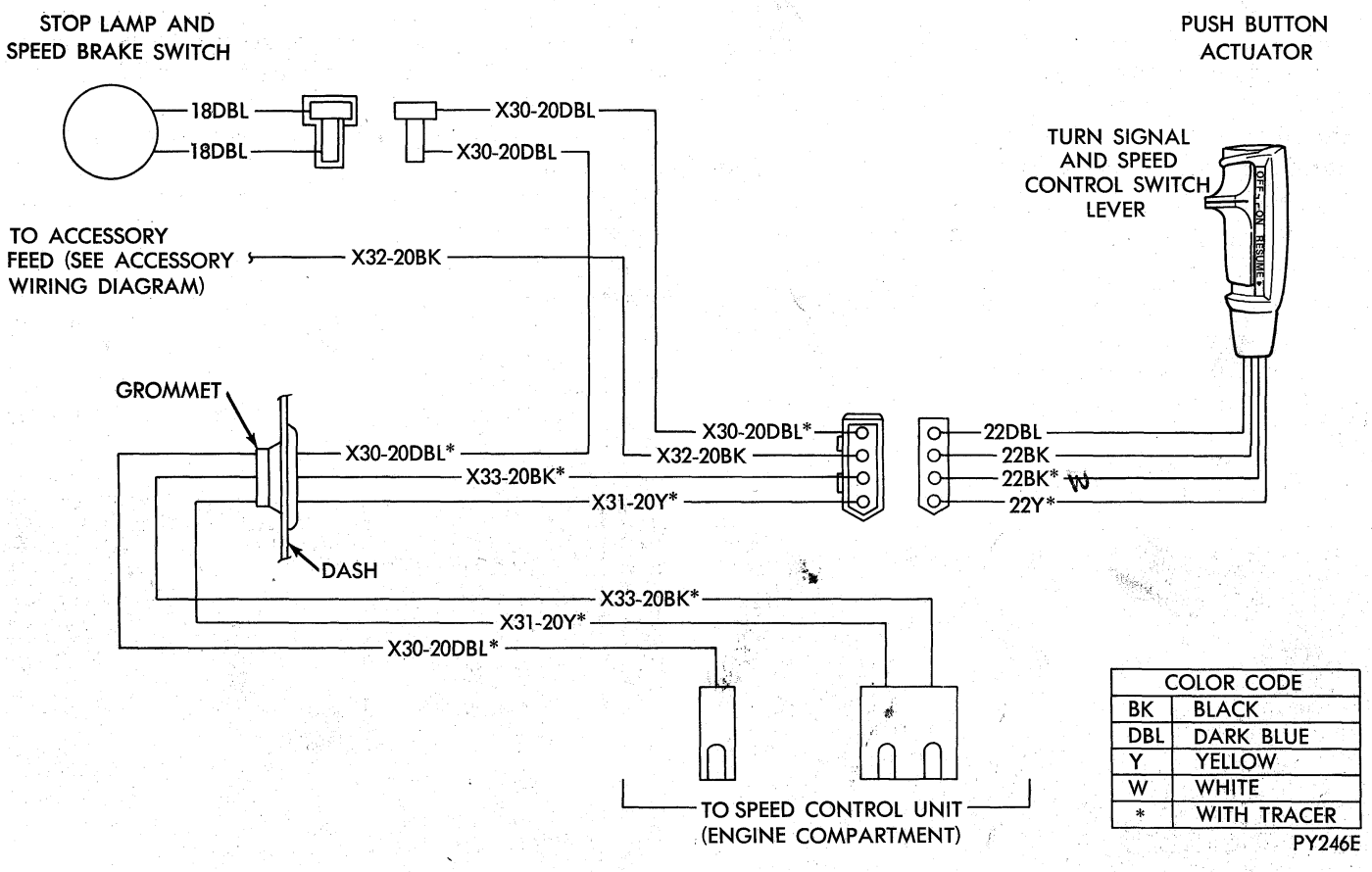


Fig. 6—Speed Control Wiring Diagram

SPEED CONTROL SERVO (Figs. 1, 2 and 3)

Removal

(1) Remove two nut and washer assemblies attaching the servo cable cover to servo housing. Pull cover away from servo to expose cable retaining clip (Fig. 7) and remove clip attaching cable to servo diaphragm pin.

(2) Disconnect speedometer cables at the servo housing.

(3) Disconnect the vacuum hose at servo housing (Fig. 8) and electrical connectors.

(4) Remove servo from mounting bracket (two nut and washer assemblies).

Installation

(1) Position servo on mounting bracket studs and install attaching nuts. Tighten to 110 inch-pounds.

(2) Install vacuum hose and clamp. Make sure the hose clamp is locked securely.

(3) Connect speedometer cables at servo.

(4) With throttle in full open position, align throttle cable to servo pin and install retaining clip.

(5) Install cable cover on servo studs and install attaching nuts. Tighten to 32 inch-pounds torque.

(6) Install electrical connectors at servo.

SERVO THROTTLE CABLE ASSEMBLY (Servo to Carburetor)

Removal

(1) Remove air cleaner.

(2) Disconnect cable at retaining clamp, and at carburetor lost motion link by removing spring clip.

(3) Disconnect cable at servo (Fig. 7) and remove cable assembly.

Installation

(1) Route cable (Figs. 1, 2 and 3) as applicable.

(2) Connect cable at servo housing; tighten nuts to 32 inch-pounds torque.

(3) Route cable through retaining clamp, leave nut loose and connect at carburetor lost motion link lever pin.

(4) Adjust cable free play as described under "Speed Control Throttle Cable Adjustment".

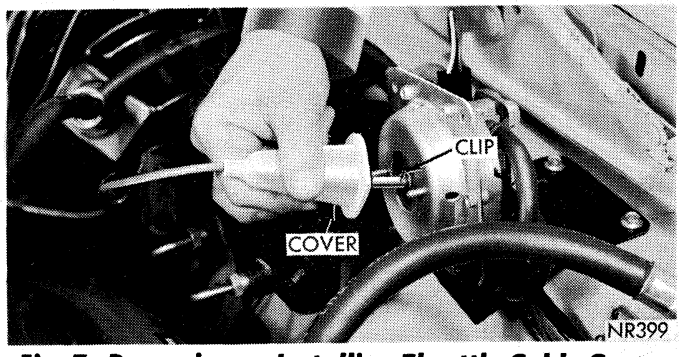


Fig. 7—Removing or Installing Throttle Cable Cover

SPEED CONTROL SWITCH (Turn Signal Lever)

Removal

(1) Disconnect main fusible link in engine compartment.

(2) Remove steering wheel. Refer to Group 19, Steering.

(3) Remove steering column cover. On H-N-F-G-R-W-X-S models it will be necessary to remove lower instrument panel bezel. Refer to Instrument Panels and Gauge Section of this Group.

(4) The following steps apply only to those models which are equipped with Tilt and Telescopic steering column and H-N-F-G models equipped with Tilt steering column. All others, proceed to Step 5.

(a) Remove gearshift indicator H-N-F-G-C models only.

(b) Remove two nuts mounting column to lower panel reinforcement.

(c) Remove mounting bracket from steering column by removing four attaching bolts.

(d) Remove wiring trough from column by removing two attaching screws.

(e) Proceed to Step 6.

(5) Remove wiring trough from steering column by unsnapping retainer clips.

(6) Position gearshift lever to its full clockwise position and if equipped with Tilt steering column position it at its mid-point.

(7) Disconnect speed control switch wiring harness connector and remove terminals from insulator with Tool C-4135, (Fig. 9).

(8) Remove turn signal lever attaching screw.

(9) Gently remove lever and harness from column, taking care not to damage any wires, while pulling wires up through column.

Installation

(1) A guide wire will be required to install wiring harness of new speed control switch down through steering column opening. Wire should be flexible, 1/16 inch in diameter and approximately 12 inches long.

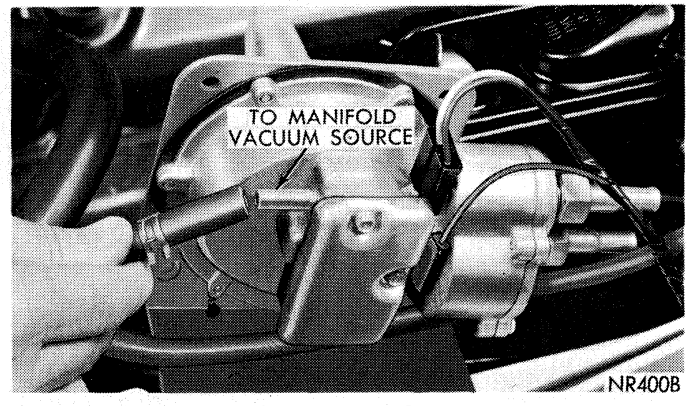


Fig. 8—Removing or Installing Servo Hose

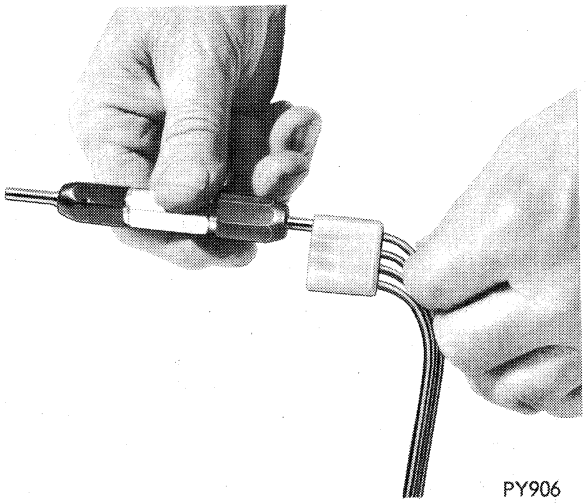


Fig. 9—Removing Wire Terminals

(2) For Standard and Tilt and Telescopic steering columns, insert guide wire through turn signal lever opening in column, down through opening in column, and out lower end. Then attach new switch wiring harness to upper end of guide wire and gently pull downward through column opening taking care not to damage any wires.

(2A) For Tilt steering columns, insert guide wire through one of lock plate notches at a position between 8 and 9 o'clock, down through opening in column and out lower end. Feed new switch wiring harness through turn signal lever opening in column and up through a notch in lock plate, so that entire harness extends through top of column. Attach wire harness to upper end of guide wire and gently pull downward through column opening taking care not to damage any wires.

(3) Install wire harness terminals in proper cavity of insulator. Refer to Fig. 7 for proper location. Connect wiring harness connector.

(4) Position speed control switch (turn signal lever) into place in column, install attaching screw and tighten securely.

(5) The following steps apply only to those models which are equipped with Tilt and Telescopic steering column and H-N-F-G models with Tilt steering column. All others proceed to Step 6.

(a) Install wiring trough to column with mounting screws and tighten securely.

(b) Install mounting bracket to steering column and tighten bolts to 120 inch pounds torque.

(c) Position steering column into place in lower reinforcement, install mounting nuts and tighten to 110 inch pounds torque.

(d) Install gearshift indicator, H-N-F-G-C models only.

(e) Proceed to step 7.

(6) Install wiring harness trough.

(7) Install steering column cover or if applicable lower instrument panel bezel.

(8) Install steering wheel.

(9) Connect fusible link.

(10) Test operation of speed control system.

TURN SIGNALS AND HAZARD WARNING FLASHER

INDEX

GENERAL INFORMATION

Turn Signals

The turn signals are actuated with a lever on the left side of the steering column just below the steering wheel. When the driver wishes to signal his intensions to change direction of travel, he moves the lever upward to cause the right signals to flash and downward to cause the left signals to flash.

After completion of a turn the system is deactivated automatically. As the steering wheel returns to the straight ahead position, a canceling cam mounted to the underside of the steering wheel comes in contact with one of two canceling fingers of the turn signal switch mounted in the steering column upper bearing. The cam pushing on the switch canceling finger returns the switch to the off position.

If only momentary signaling such as indication of a lane change is desired, the switch is actuated to a left or right intermediate detent position. In this position the signal lights flash as described above, but the switch returns to the off position as soon as the the lever is released.

When the system is activated, one of two indicator lights mounted in the instrument cluster or on the front fender flashes in unison with the turn signal lights, indicating to the driver that the system is operating.

Hazard Warning System

The hazard warning system is actuated by a switch knob on the right side of the steering column just below the steering wheel. On standard columns the knob is pulled out (away from the column) to operate

the hazard warning system, and on the Tilt-A-Scope column it is pushed in. When the switch is actuated all turn signal lights and turn signal indicators flash simultaneously.

When the hazard warning switch on standard columns is actuated, the turn signal switch should be in the off position to avoid a characteristic feed back through the accessory circuit which might cause intermittent operation of any accessories left with switches turned on.

SERVICE DIAGNOSIS

(1) Since the turn signal switch and hazard warning switch are part of the same assembly, they must be replaced as a unit.

(2) Since the turn signal switch and hazard warning switch operate the same lamps, and therefore, have much common wiring, analyzing both systems when there is a fault can often lead to more rapid identification of the fault.

(3) The turn signal flasher and the hazard warning flasher are two separate plug-in type units located in different places under the instrument panel of each carline.

(a) **The turn signal flasher is located as follows;**

(H-N-F-G) On relay bank.

(R-W-X-S) Mounted to lower left corner of instrument cluster housing.

(C) Mounted to left side of steering column mounting bracket reinforcement.

(b) **The hazard warning flasher is located as follows;**

(H-N-F-G-R-W-S-X-C) On relay bank.

(4) Since the stop lamp circuitry feeds through both the turn signal switch and the hazard warning switch on standard steering column cars, these switches should be given consideration when there is a failure in the stop lamp circuit.

TURN SIGNAL/HAZARD WARNING SWITCH

Removal

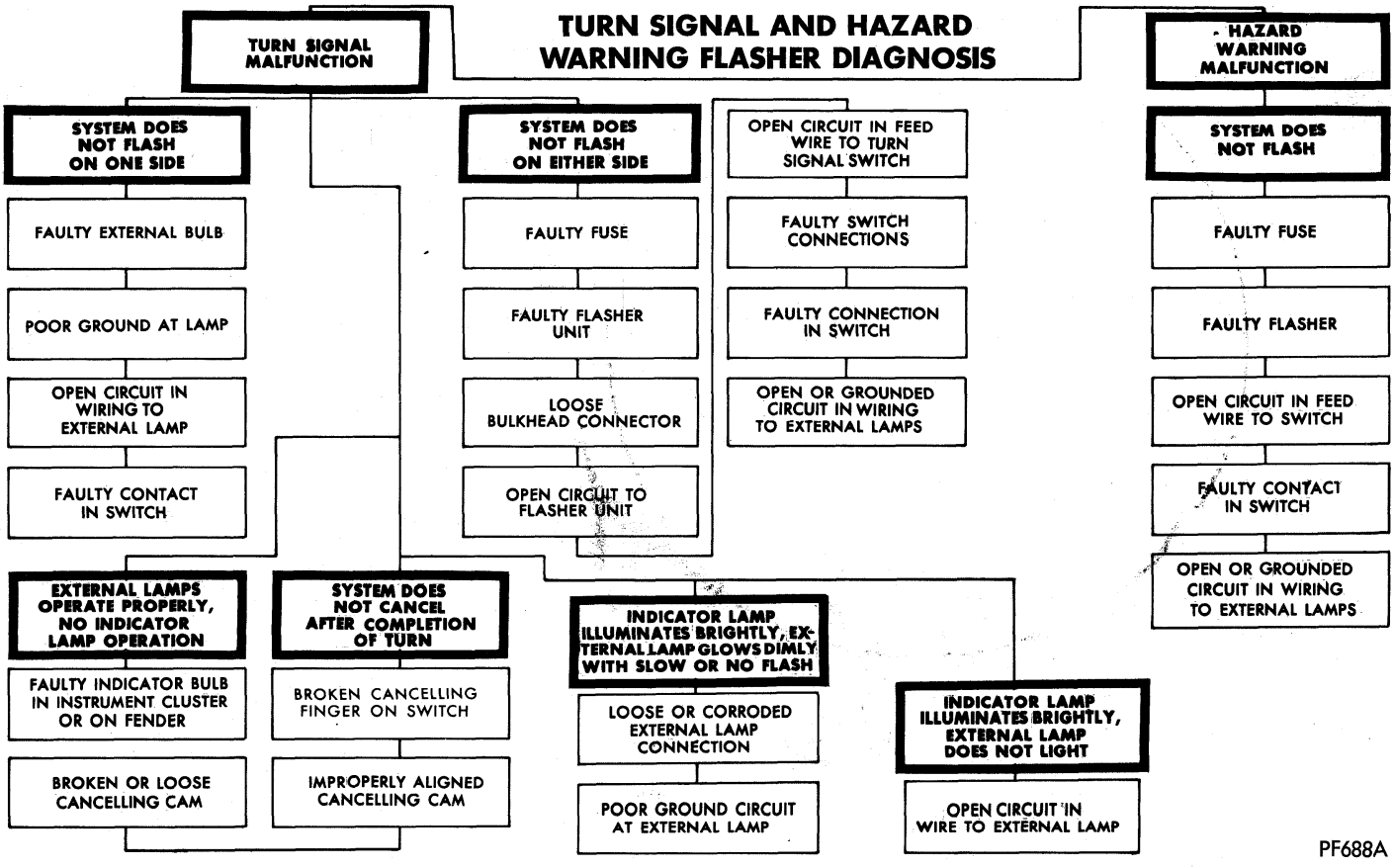
(1) Disconnect main fusible link in engine compartment.

(2) Remove steering wheel. Refer to Group 19, Steering.

(3) Remove steering column cover. On R-W-X-S models it will be necessary to remove lower instrument panel bezel. Refer to Instrument Panels and Gauge Section of this Group.

(4) The following steps apply only to those models which are equipped with Tilt and Telescopic steering column and H-N-F-G models equipped with Tilt steering column. All others, proceed to Step 5.

(a) Remove gearshift indicator H-N-F-G-C models only.



(b) Remove two nuts mounting column to lower panel reinforcement.

(c) Remove mounting bracket from steering column by removing four attaching bolts.

(d) Remove wiring trough from column by removing two attaching screws.

(e) Proceed to Step 6.

(5) Remove wiring trough from steering column by unsnapping retainer clips.

(6) Position gearshift lever to its full clockwise position and if equipped with Tilt steering column position it at its mid-point.

(7) Disconnect light blue wiring harness connector.

(8) Remove turn signal lever attaching screw.

(9) Remove lever from column. **CAUTION: On models equipped with speed control, do not remove lever but let it hang loose.**

(10) Remove turn signal/hazard warning switch and upper bearing retainer mounting screws.

(11) Gently pull switch up from column while straightening and guiding wires up through column opening.

Installation

(1) Maneuver connector through opening in steering column, then carefully guide wires down through column until switch is properly positioned in place.

(2) Position upper switch and bearing retainer into place on switch, install mounting screws and tighten securely.

(3) Connect wiring harness connector.

(4) Position turn signal lever into place in column, install attaching screw and tighten securely.

(5) The following steps apply only to those models which are equipped with Tilt and Telescopic steering column. All other proceed to Step 6.

(a) Install wiring trough to column with mounting screws and tighten securely.

(b) Install mounting bracket to steering column and tighten bolts to 120 inch pounds torque.

(c) Position steering column into place in lower reinforcement, install mounting nuts and tighten to 110 inch pounds torque.

(d) Install gearshift indicator, H-N-F-G-C models only.

(e) Proceed to Step 7.

(6) Install wiring harness trough.

(7) Install steering column cover or if applicable lower instrument panel bezel.

(8) Install steering wheel.

(9) Connect fusible link.

(10) Test operation of turn signal and hazard warning system.

WINDSHIELD WIPER AND WASHER SYSTEMS

INDEX

GENERAL INFORMATION

The windshield wipers can be operated with the windshield wiper switch only when the ignition switch is in the **Accessory** or **Ignition** position. A circuit breaker, integral with the wiper switch protects the circuitry of the wiper system and the vehicle.

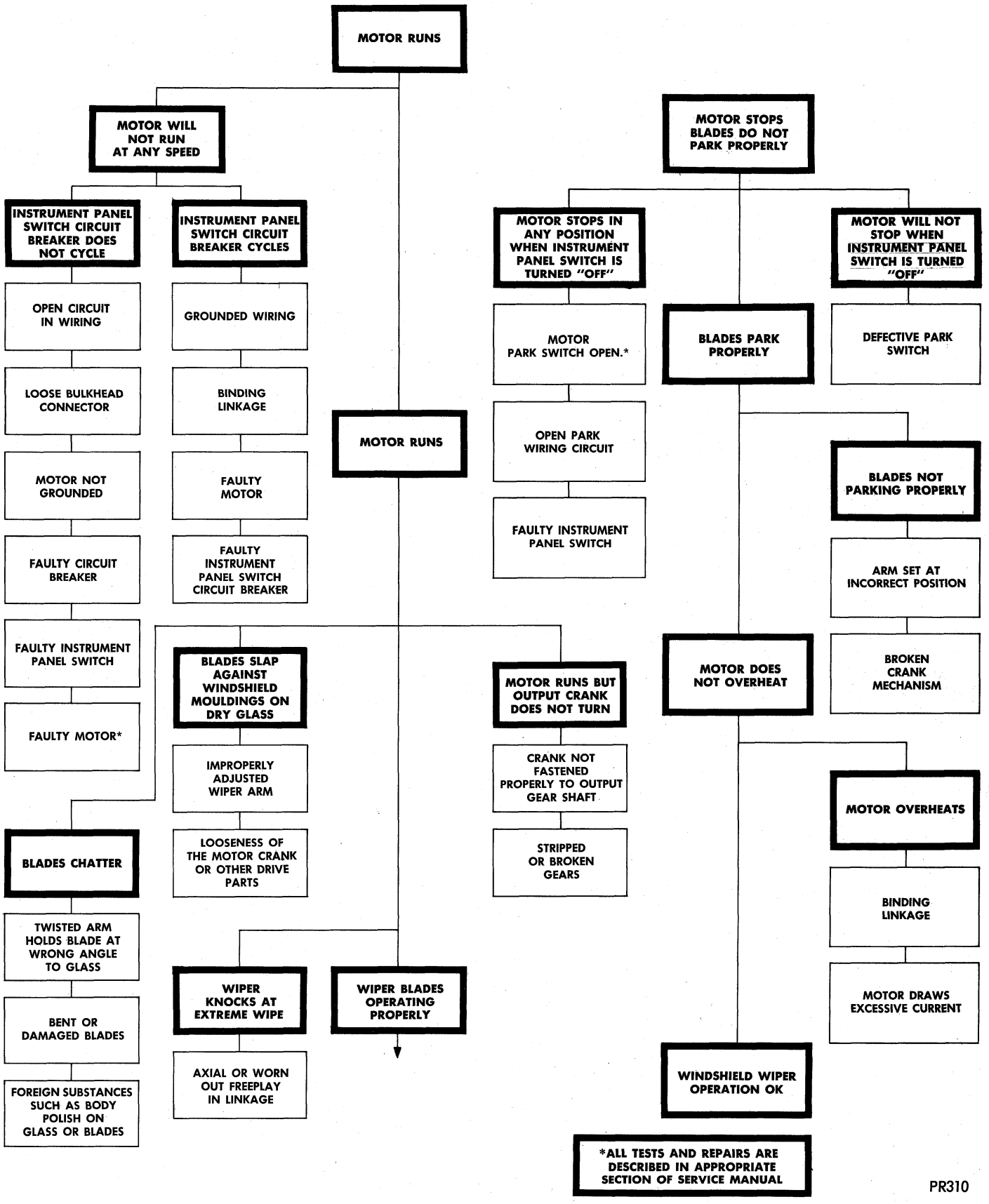
The two speed wiper system is standard equipment an intermittent wipe system is offered as optional equipment.

Both wiper motors have permanent magnet fields. The speeds are determined by current flow to the appropriate set of brushes. A torque limiting resistor is used in the low speed circuit of the two speed motor.

Both wiper systems depress park when the wiper switch is turned "Off". The motor direction is reversed to rotate the parking cam 180 degrees, changing the length of the drive link/crank to park the blades in a depressed position. Motor operation in the wipe direction returns the cam to "run" position to restore the normal link and wipe pattern.

The intermittent wipe system in addition to low and high speed, has a delay mode. The delay mode has a range of 2 to 15 seconds. This is accomplished by a variable resistor in the panel switch and is controlled electrically by a relay.

WINDSHIELD WIPER DIAGNOSIS



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The intermittent wipe system has the following features: the high speed is higher than on the standard system, an extra wipe after wash during delay mode, and an anti-streak park system.

WINDSHIELD WIPER BLADES (All Models)

Wiper blades exposed to the weather for a long period of time tend to lose their wiping effectiveness. Periodic cleaning of the wiper blade is suggested to remove the accumulation of salt and road film. The wiper blades, arms and windshield should be cleaned with a sponge or cloth and a mild detergent or non-abrasive cleaner. If the blades continue to streak or smear, they should be replaced.

Wiping Element Change (All Models)

(1) Turn wiper switch "On", position blades to a convenient place by turning the ignition switch "On" and "Off".

(2) Lift wiper arm to raise blade off of glass.

(3) Depress release lever on center bridge and remove blade from arm (Fig. 1).

(4) **NOTE:** Three wiper blade element retaining methods are used (depending on car line). See Figure 1 and following instructions for particular blade type.

Type A—Pinch lock on end of blade reinforcement bar and withdraw wiping element from bridge claws. After reinstallation, insure that filler assembly is positioned and locked in bridge claws.

Type B—Lift tab and pinch end bridge to release from center bridge. Slide end bridge from wiper blade assembly and wiper blade from opposite end bridge. After reassembly, insure that tab on end bridge is "down" to lock wiping element to center bridge.

Type C—Depress release button on end bridge to release from center bridge, then withdraw wiping element. When replacing rubber wiping element, insure that all four bridge claws are engaged and properly positioned on filler assembly.

(5) Check each release point for positive locking when installing blade and blade assembly.

WIPER ARM

Removal

(1) Lift the arm to permit the latch (Fig. 2 and 3) to be pulled out to the holding position and remove the arm from the pivot using a rocking motion.

Installation

For proper installation of wiper arm refer to "Windshield Wiper Arm Adjustment."

CAUTION: The use of a screwdriver or other prying tool to remove an arm may distort it in a manner that will allow it to come off the pivot shaft in the future, regardless of how carefully it is installed.

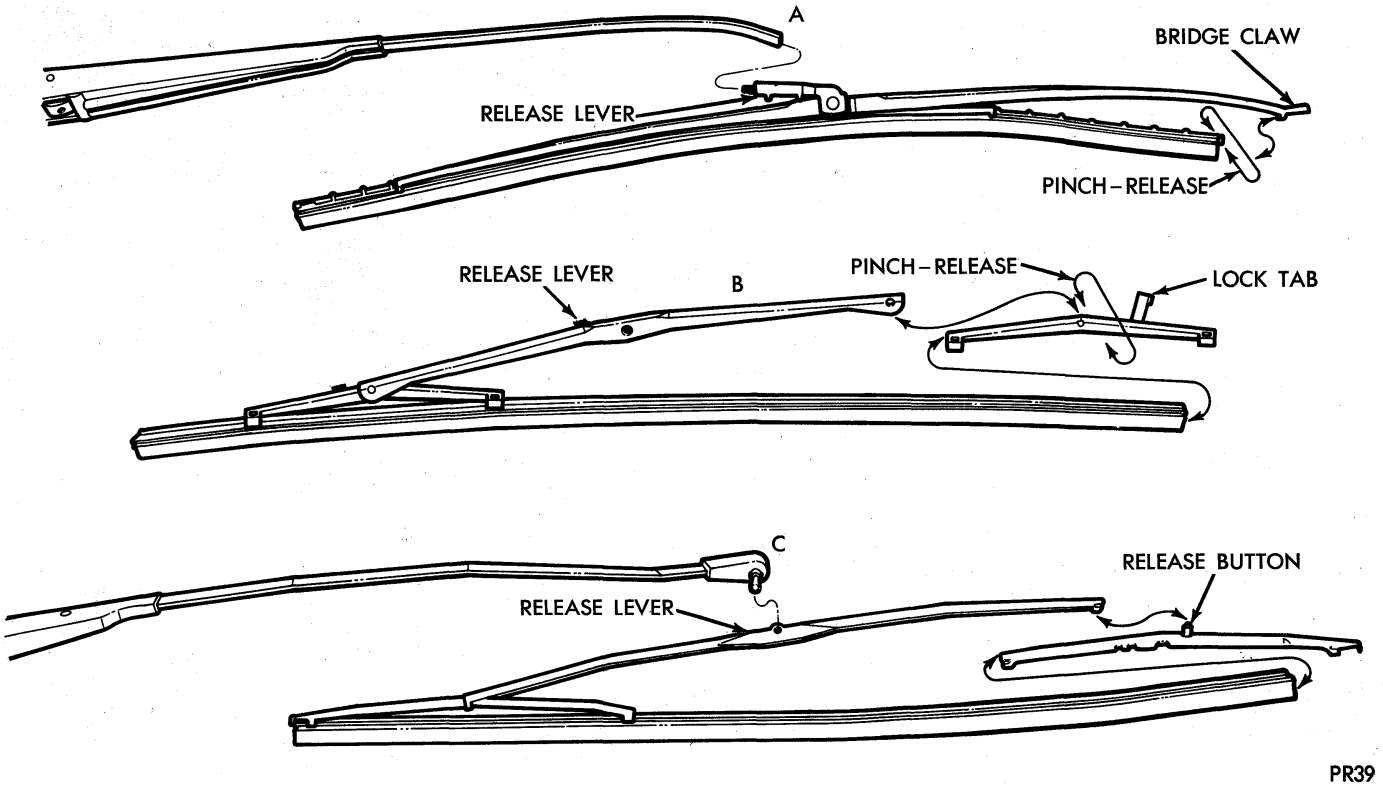


Fig. 1—Windshield Wiper Blade Replacement

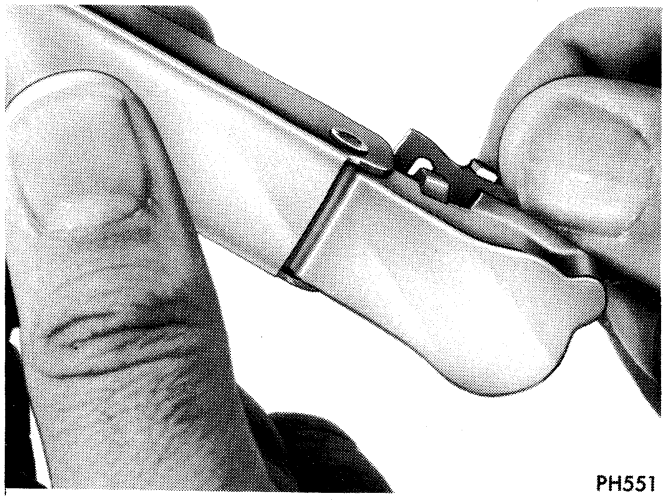


Fig. 2—Removing Wiper Arm, F, G, H, and N Models

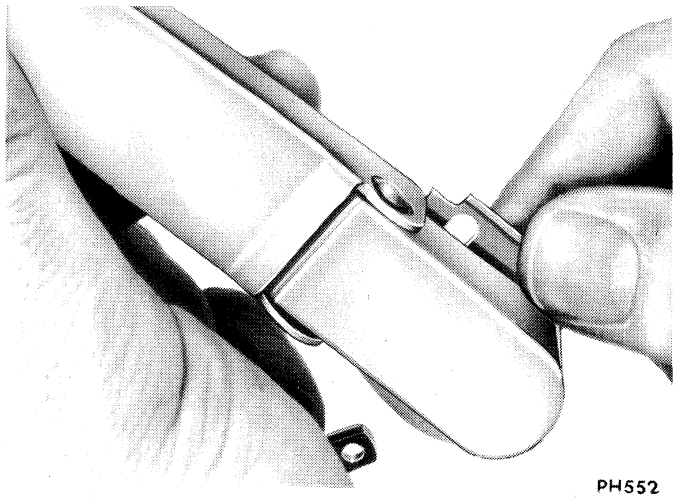


Fig. 3—Removing Wiper Arm (R, W, S, X, C Models)

MOTOR REMOVAL (H-N-F-G-R-W-X-S-C MODELS)

(1) Disconnect battery ground cable.
(2) Remove cowl screen.
(3) Hold the motor crank with a wrench while removing the crank arm nut (to prevent overloading the gears) to remove the crank arm from the motor. Disconnect wiring to motor.
(4) Remove the three wiper motor mounting nuts and remove motor.

SERVICE PARTS PACKAGE - WIPER MOTOR

1. Motor Mounting Grommets, Spacers, Mounting seal and Output Seal Package 2. Motor Housing Assembly Package	All Two Speed
1. Armature Package 2. Gear Box Assembly Package 3. Resistor Assembly Package	All Two Speed with Concealed Wipers
1. Gear Box Assembly Package 2. Armature Package 3. Resistor Assembly Package	All Two Speed with Non-Concealed Wipers

MOTOR INSTALLATION (H-N-F-G-R-W-X-S-C MODELS)

(1) Position motor on the three studs on dash panel. Make certain rubber gasket and spacers between motor and dash panel are properly positioned.
(2) Install the three nuts that mount motor to dash panel and connect wiring to motor. Make sure ground strap is installed under one nut.
(3) Index the flats on the crank arm to mate with flats on the motor shaft. Start the crank arm nut being careful that the crank arm remains indexed. Hold the crank arm with a second wrench (to prevent overloading the motor gears) and tighten the nut to 95 inch-pounds.
(4) Connect battery ground cable and test operation of wiper motor.
(5) Install cowl screen, making sure washer hoses are not pinched by cowl screen.
(6) Operate system and verify correct operation.

TWO SPEED WINDSHIELD WIPER MOTOR SERVICE PROCEDURES

TWO-SPEED WINDSHIELD WIPER MOTOR SYSTEM TEST

The following is a list of general wiper motor system problems, the tests that are to be performed to locate the faulty part, and the corrective action to be taken. Refer to proper section of service manual, if problem is diagnosed at the instrument panel switch or wiring.

Condition

MOTOR WILL NOT RUN IN ANY SWITCH POSITION.

Procedure

(1) Place panel switch in low speed position.

(2) Listen to motor. If you cannot hear it running, proceed to Step No. 3. If you can hear it running, check motor output shaft. If output shaft is not turning, replace gearbox assembly. If it is turning, drive link to output shaft or linkage is not connected properly. Replace worn parts and reconnect.

(3) Connect a voltmeter or a test lamp between motor Terminal L and ground (See Fig. 4). If there is approximately 12 volts at Terminal L or test lamp lights and panel switch circuit breaker is not cycling, problem is:

(a) An open ground circuit. On H-N-F-G models make sure the ground strap is making good contact. On R-W-X-S-C models connect a jumper wire from P_2 to ground (See Fig. 4). If motor runs, panel switch is not grounded, panel switch is faulty or there is an open in wiring.

(b) Brushes are not making a good contact with commutator. Remove motor housing and free-up or reposition spring on brush. Refer to motor repair section for disassembly and reassembly procedures.

(c) Armature has an open circuit. Remove motor housing and replace armature. Refer to motor repair section for motor disassembly and reassembly procedures.

(4) If circuit breaker is cycling so that 12 volts are observed or test lamp lights at Terminal L only part of time, problem is:

(a) There is a short in wiring, motor, or panel switch, or circuit breaker is faulty. Disconnect wiring harness connector at motor. Remove wiper arms and blades. Connect an ammeter between battery and Terminal L on motor. On R-W-X-S-C models also connect a jumper between Terminal P_2 and ground. If motor now runs and average ammeter reading is less than 6 amps., motor is okay and problem is in panel switch or wiring.

If motor does not run or it runs and draws more than 6 amps, check to see if wiper linkage or pivots are binding or caught. Disconnect drive link from motor. Reconnect jumper wire. If motor now runs and draws less than 3 amps., repair linkage system.

(b) If motor does not run or it draws more than 3 amps., check to see if motor or gearbox are jammed internally. Remove motor housing and inspect for loose magnets or magnet retainer against armature, frozen or loose bearings, or a loose bearing retainer. With linkage disconnected, turn armature in gearbox to determine if gears are jammed. Replace faulty gearbox or housing. Also, replace armature if blackened. Refer to motor repair section for disassembly and reassembly procedures.

(c) If motor is not jammed internally, check to see if there is a short in motor. Remove motor housing. Check brush leads for signs of shorts to housing. Check armature for burned or blackened windings which could mean internal shorts. Replace armature, if it is burned. Refer to motor repair section for motor disassembly and re-assembly procedure.

(5) If after several minutes no voltage has appeared or test lamp has not turned on at Terminal L to indicate a cycling circuit breaker, disconnect wiring harness and connect a jumper from battery to Terminal L. On R-W-X-S-C models also connect a jumper from Terminal P_2 to ground. If motor now runs, wiring or panel switch is faulty.

Condition

MOTOR WILL RUN AT HIGH SPEED, BUT NOT AT LOW SPEED. MOTOR WILL RUN AT LOW SPEED, BUT NOT AT HIGH SPEED.

Procedure

(1) If motor will not run on high speed, put panel switch in high position and connect a test lamp between motor Terminal H and ground (See Fig. 4). If motor will not run on low speed, put panel switch in low position and connect a test lamp between motor Terminal L and ground (See Fig. 4).

(2) If test lamp does light at motor terminal, there is an open in wiring or switch. If test lamp lights at motor terminal, brush is not making contact with armature. Remove motor housing and free-up brush or seat brush spring properly (See motor repair section).

Condition

(H-N-F-G MODELS) MOTOR WILL KEEP RUNNING WITH PANEL SWITCH IN PARK OR OFF POSITION.

Procedure

Remove wiring harness. Connect jumper from Terminal P_2 to Terminal L (See Fig. 4).

Connect second jumper from Terminal P_1 to battery. If motor runs to park position and stops, panel switch is faulty. If motor keeps running and does not park, replace gearbox assembly. Refer to motor repair section for disassembly and re-assembly procedures.

Condition

(R-W-X-S-C MODELS) MOTOR WILL KEEP RUN-

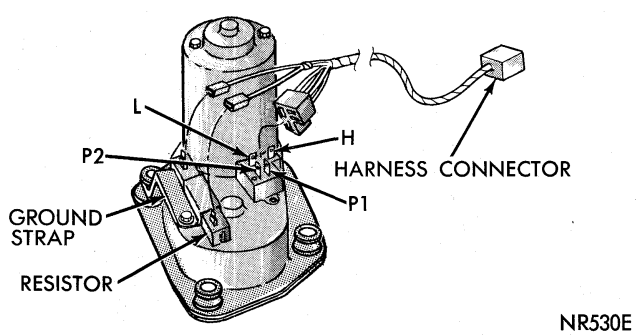


Fig. 4—Two Speed Motor Terminal Identification

NING WITH PANEL SWITCH IN PARK OR OFF POSITION.

Procedure

Remove wiring harness. Connect jumper from terminal P_1 to battery. Connect second jumper from terminal L to ground. If motor runs to park position and stops, panel switch is faulty. If motor keeps running and does not park, replace gearbox assembly. Refer to motor repair section for disassembly and reassembly procedure.

Condition

MOTOR WILL STOP WHEREVER IT IS AT WHEN PANEL SWITCH IS PUT IN OFF POSITION. (WIPERS DO NOT CONTINUE RUNNING TO PARK POSITION.)

Procedure

(1) Remove motor wiring connector and clean terminals. Reconnect connector and test motor. If problem persists, proceed to Step No. 2.

(2) Put panel switch in park position.

(3) Connect a voltmeter or test lamp between Terminal P1, and L.

If there is 12 volts or test lamp lights at Terminal P_1, check the voltage at Terminal P_2. If voltage at Terminal P_2 is 0 or test lamp does not light motor park switch is faulty and gearbox assembly must be replaced (Refer to motor repair section for motor disassembly and re-assembly procedures). If there is 12 volts at Terminal P_2, or test lamp comes on, there is an open in the panel switch or the wiring.

TWO SPEED PANEL SWITCH TESTS (Figs. 5 and 6)

To test the switch, disconnect the wiring and remove from the instrument panel. For removal and installation of the wiper switch see "Instrument Panels".

Using a continuity tester or an ohmmeter, test for continuity (no resistance) between the contact terminals of the switch as shown in the following chart. For test purposes, the first position is the "Off" position. The "Low" position is the first detent past the "Off" position. The "High" position is the second detent of the switch. The bench test of the switch does not require the use of a twelve volt battery. "Ground" is the case of the switch.

SWITCH CONTINUITY CHART
Two Speed Motor
(With Non-Concealed Wipers)

Off	Low	High
B to B/U.	B to B/U.	B to B/U.
B to P1.	B to P1.	B to P1.
A to P2.	B to A.	B to H.
H-open	P-2 open	P2-open
	H-open	A-open

SWITCH CONTINUITY CHART
Two Speed Motor
(With Concealed Wipers)

Off	Low	High
B to P.	B to A.	B to H.
A to Ground	F2 to Ground	F2 to Ground
F2-Open	P-Open	P-Open
H-Open	H-Open	A-Open

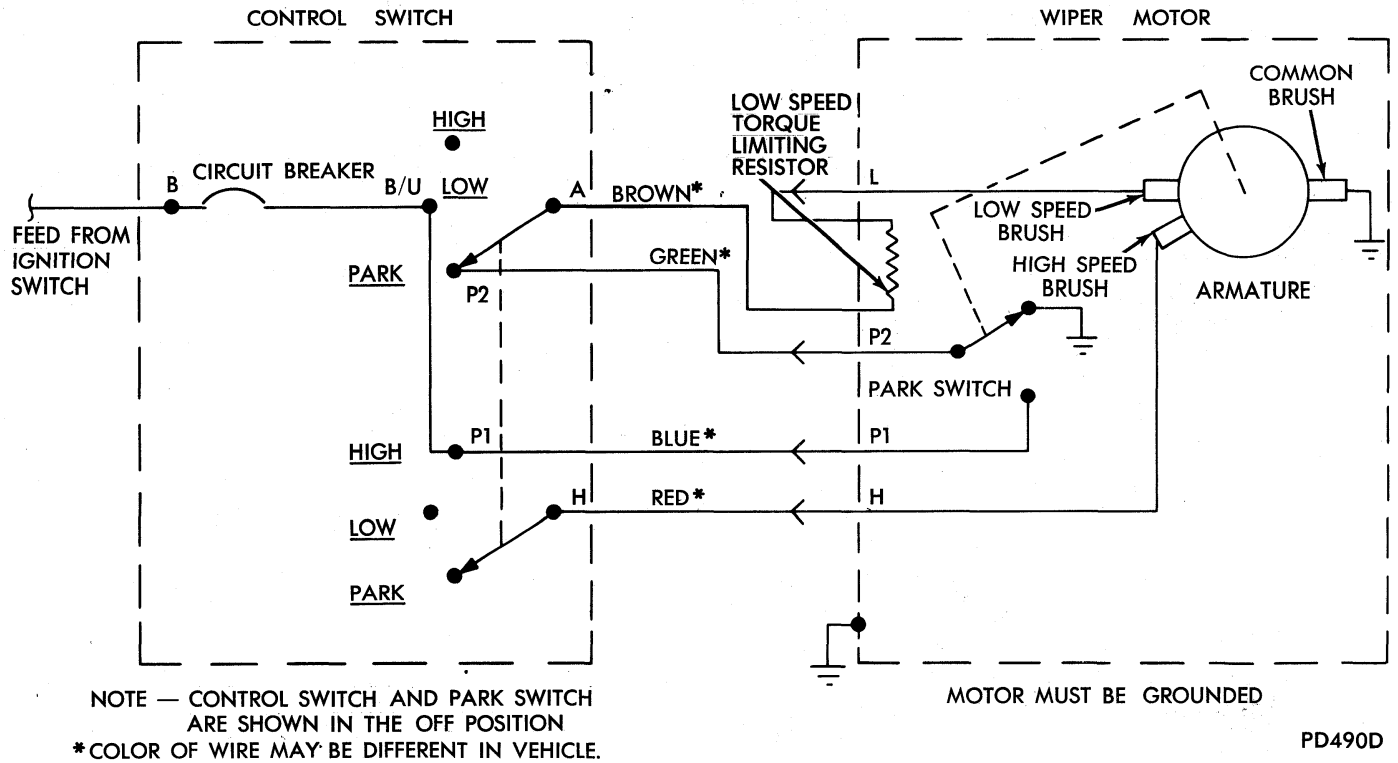


Fig. 5—Two Speed Wiper Motor Wiring Schematic (Non Concealed Wipers, H & N Models)

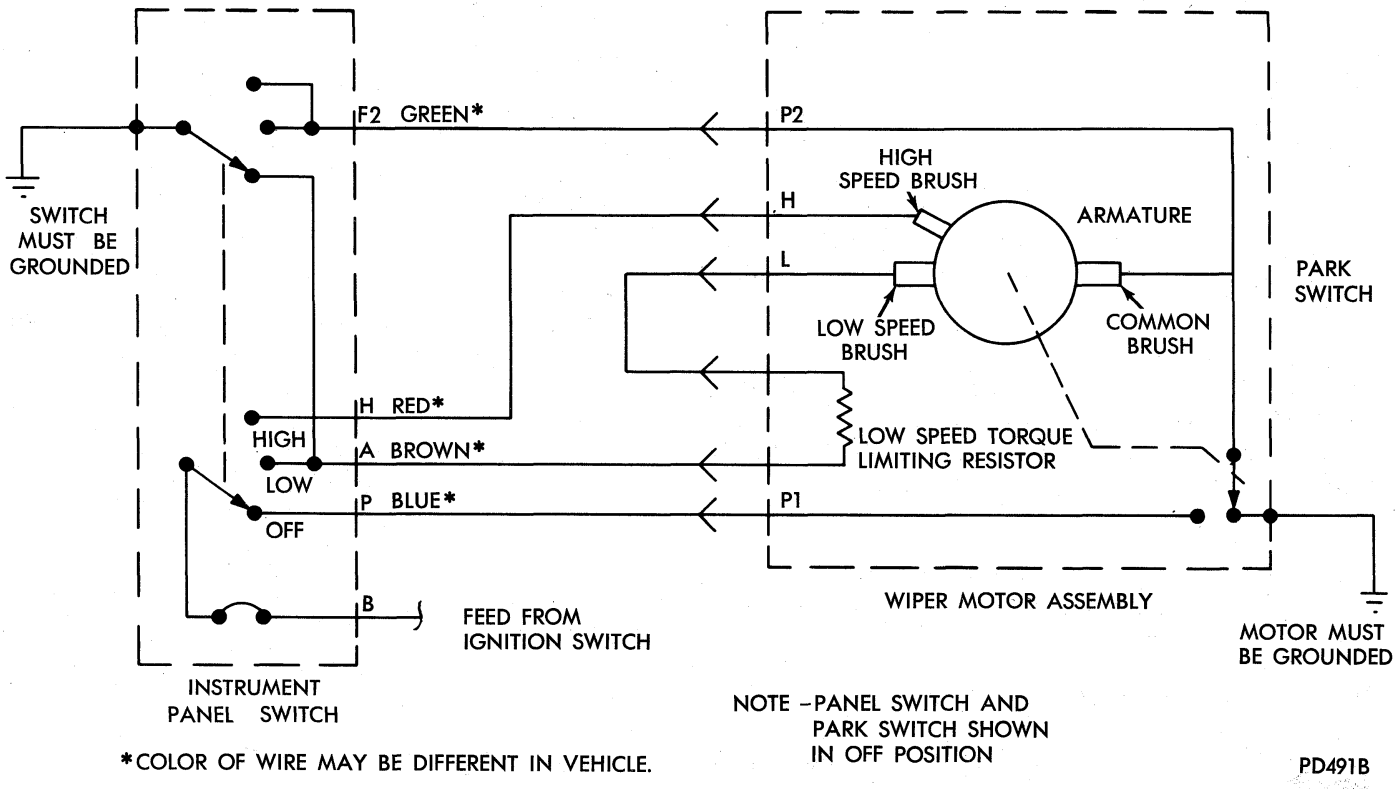


Fig. 6—Two Speed Wiper Motor Wiring Schematic (Concealed Wipers F, G, R, W, S, X, and C Models)

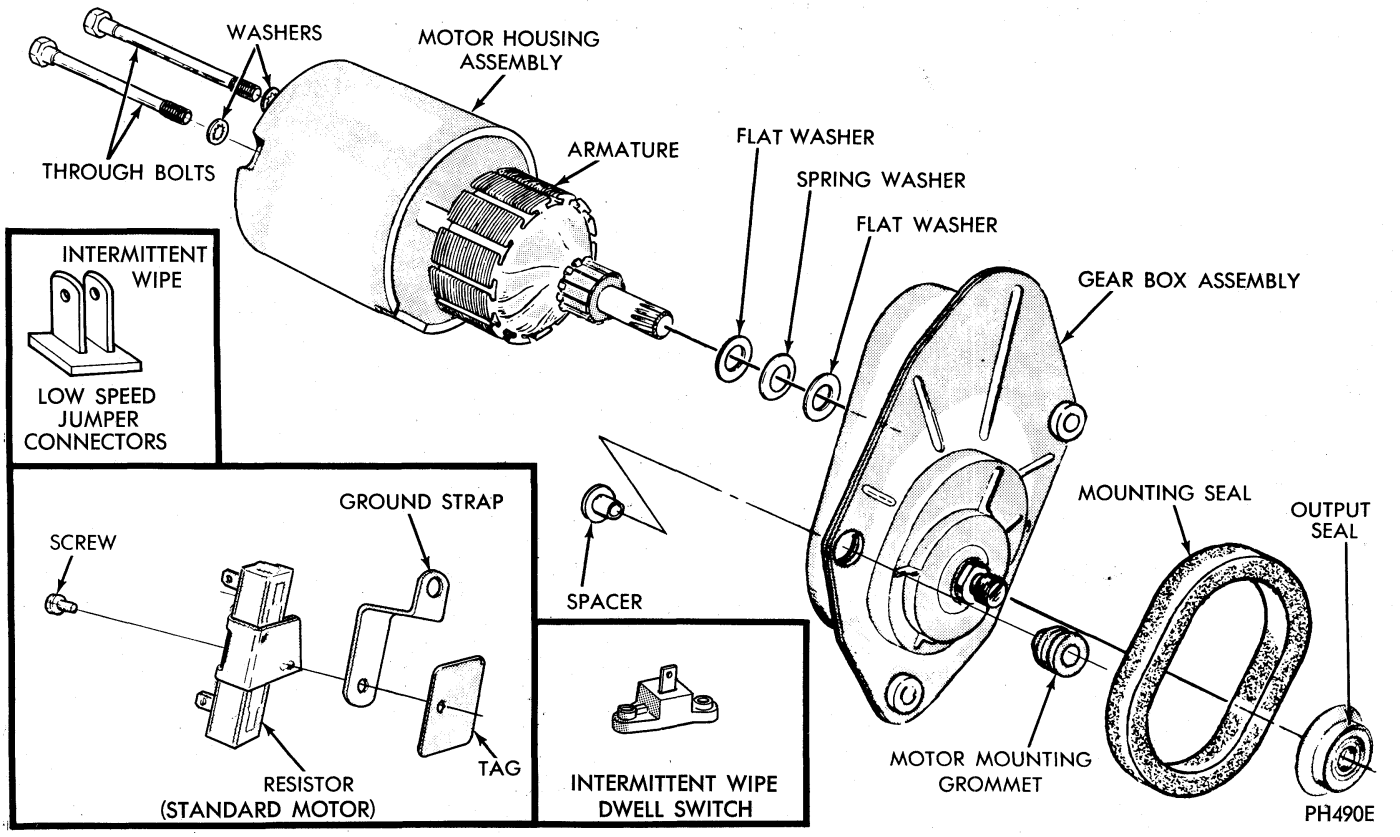


Fig. 7—Two Speed Wiper Motor (Exploded View)

INTERMITTENT WINDSHIELD WIPER MOTOR

SERVICE PROCEDURES

INTERMITTENT WINDSHIELD WIPER MOTOR SYSTEM TEST

The following is a list of general wiper motor system problems, the tests that are to be performed to locate the faulty part, and the corrective action to be taken. Refer to proper section of service manual, if problem is diagnosed at the instrument panel switch or wiring.

Condition

MOTOR WILL NOT RUN IN LOW AND HIGH SWITCH POSITION.

Procedure

(1) Place panel switch in low speed position.

(2) Listen to motor. If you cannot hear it running, proceed to Step No. 3. If you can hear it running, check motor output shaft. If output shaft is not turning, replace gearbox assembly. If it is turning, drive link to output shaft or linkage is not connected properly. Replace worn parts and reconnect.

(3) Connect a voltmeter or a test lamp between motor Terminal L and ground (See Fig. 8). If there is approximately 12 volts at Terminal L or test lamp lights and panel switch circuit breaker is not cycling, problem is:

(a) An open ground circuit. Connect a jumper wire from P_2 to ground (See Fig. 8). If motor runs, panel switch is not grounded, panel switch is faulty or there is an open in wiring.

(b) Brushes are not making a good contact with commutator. Remove motor housing and free-up or reposition spring on brushes. Refer to motor repair section for disassembly and reassembly procedures.

(c) Armature has an open circuit. Remove motor housing and replace armature. Refer to motor repair section for motor dsassembly and reassembly procedures.

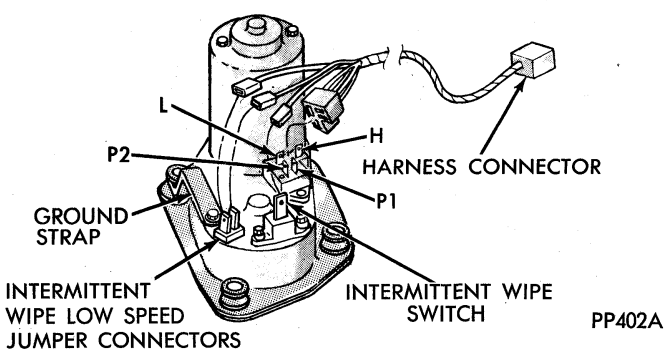


Fig. 8—Intermittent Wiper Motor Terminal Identification

(4) If circuit breaker is cycling so that 12 volts are observed or test lamp lights at Terminal L only part of time, problem is:

(a) There is a short in wiring, motor, or panel switch, or circuit breaker is faulty. Disconnect wiring harness connector at motor. Remove wiper arms and blades. Connect an ammeter between battery and Terminal L on motor. Also connect a jumper between Terminal P_2 and ground. If motor now runs and average ammeter reading is less than 6 amps., motor is okay and problem is in panel switch or wiring.

If motor does not run or it runs and draws more than 6 amps, check to see if wiper linkage or pivots are binding or caught. Disconnect drive link from motor. Reconnect jumper wire. If motor now runs and draws less than 3 amps., repair linkage system.

(b) If motor does not run or it draws more than 3 amps., check to see if motor or gearbox are jammed internally. Remove motor housing and inspect for loose magnets or magnet retainer against armature, frozen or loose bearings, or a loose bearing retainer. With linkage disconnected, turn armature in gearbox to determine if gears are jammed. Replace faulty gearbox or housing. Also, replace armature if blackened. Refer to motor repair section for disassembly and reassembly procedures.

(c) If motor is not jammed internally, check to see if there is a short in motor. Remove motor housing. Check brush leads for signs of shorts to housing. Check armature for burned or blackened windings which could mean internal shorts. Replace armature, if it is burned. Refer to motor repair section for motor disassembly and re-assembly procedure.

(5) If after several minutes no voltage has appeared or test lamp has not turned on at Terminal L to indicate a cycling circuit breaker, disconnect wiring harness and connect a jumper from battery to Terminal L. Also connect a jumper from Terminal P_2 to ground. If motor now runs, wiring or panel switch is faulty.

Condition

MOTOR WILL RUN AT HIGH SPEED, BUT NOT AT LOW SPEED. MOTOR WILL RUN AT LOW SPEED, BUT NOT AT HIGH SPEED.

Procedure

(1) If motor will not run on high speed, put panel switch in high position and connect a test lamp between motor Terminal H and L (See Fig. 8). If motor will not run on low speed, put panel switch in low

position and connect a test lamp between motor Terminal L and P_2 (See Fig. 8).

(2) If test lamp does not light at motor terminal, there is an open in wiring or switch. If test lamp lights at motor terminal, brush is not making contact with armature. Remove motor housing and free-up brush or seat brush spring properly (See motor repair section).

Condition
MOTOR WILL KEEP RUNNING WITH PANEL SWITCH IN PARK OR OFF POSITION.

Procedure
Remove wiring harness. Connect jumper from terminal P_1 to battery. Connect second jumper from terminal L to ground. If motor runs to park position and stops, panel switch is faulty. If motor keeps runing and does not park, replace gearbox assembly. Refer to motor repair section for disassembly and reassembly procedure.

Condition
MOTOR WILL STOP WHEREVER IT IS AT WHEN PANEL SWITCH IS PUT IN OFF POSITION. (WIPERS DO NOT CONTINUE RUNNING TO PARK POSITION.)

Procedure
(1) Remove motor wiring connector and clean terminals. Reconnect connector and test motor. If problem persists, proceed to Step No. 2.

(2) Put panel switch in park position.

(3) Connect a voltmeter or test lamp between Terminal P_1, and L.

If there is 12 volts or test lamp lights at Terminal P_1, check the voltage at Terminal P_2. If voltage at Terminal P_2 is 0 or test lamp does not light motor park switch is faulty and gearbox assembly must be replaced (Refer to motor repair section for motor disassembly and re-assembly procedures). If there is 12 volts at Terminal P_2, or test lamp comes on, there is an open in the panel switch or the wiring.

Condition
WIPERS DO NOT STOP (CONTINUE RUNNING WITHOUT DELAY) WHEN THE PANEL SWITCH IS IN DELAY POSITION.

Procedure
Place panel switch in low speed position. Remove wiring connector from intermittant wipe switch terminal on wiper motor (Fig. 7), check continuity between the switch terminal and ground. Once in every wipe cycle there should be continuity. Constant continuity or constant open shows a faulty gear switch.

Remove switch and bend ground contact which is inside the motor, outward for constant ground, inward for constant open. Reinstall switch and check for continuity once every cycle. Reconnect wiring.

If wipers do not delay and there is continuity once every circle, the electronic control unit is faulty and should be replaced.

Condition
WIPERS DO NOT COME ON WHEN THE PANEL SWITCH IS IN DELAY POSITION.

Procedure
(1) Disconnect connector from intermittent wipe control unit.

(2) Place panel switch in maximum delay (dwell) position.

(3) Connect volt meter between cavity 4 and cavity 6 (Fig. 9).

(4) If volt meter reads zero check panel switch and wiring.

(5) If volt meter reads 10 to 15 volts the control unit is faulty and should be replaced.

Condition
WIPERS IMMEDIATELY GIVE FIRST WIPE BUT DO NOT OPERATE IN INTERMITTENT MODE WHEN SWITCH IS TURNED ON

Procedure
(1) Disconnect connector from intermittent wipe control unit. Inspect connector contacts for bent or deformed contacts.

(2) Place panel switch in maximum delay (dwell) position.

(3) Connect volt meter between cavity 4 and 8. (Fig. 10).

(4) If volt meter reads zero check panel switch and wiring.

(5) If volt meter reads 10 to 15 volts the control unit is faulty and should be replaced.

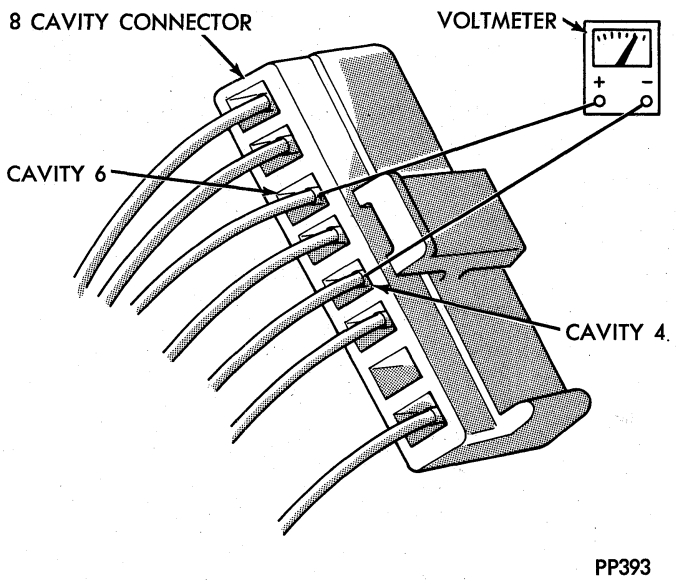


Fig. 9—Volt Meter Connected to Cavity 4 and 6

Condition

EXCESSIVE DELAY (MORE THAN 30 SECONDS) OR INADEQUATE VARIATION IN DELAY.

Procedure

Variations in delay should be as follows:

(1) Minimum delay (delay control to extreme right before first detent) one half to two seconds.

(2) Maximum delay (delay control to extreme left before off detent) ten to thirty seconds.

(3) If there is excessive delay or no variations in delay replace the panel switch.

Condition

WIPERS DO NOT RUN CONTINUALLY WHEN WASH CONTROL IS OPERATED DURING DELAY MODE.

Procedure

(1) Disconnect connector from intermittent wipe control unit.

(2) Connect volt meter between cavity 4 and 7 (Fig. 11).

(3) Depress wash switch.

(4) If voltage reads zero check panel switch and wiring.

(5) If voltage is 10 to 15 volts the control unit is faulty and should be replaced.

Condition

IN DELAY MODE WIPERS RUN CONTINUALLY WHEN WASH IS OPERATED BUT DO NOT PROVIDE AN EXTRA WIPE WHEN THE WASH CONTROL IS RELEASED.

Procedure

Replace the control unit.

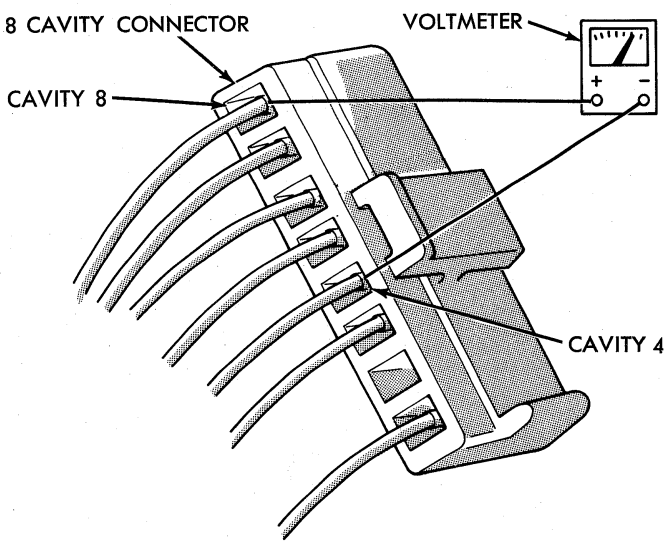


Fig. 10—Volt Meter Connected to Cavity 4 and 8

INTERMITTENT WIPE PANEL SWITCH TEST (Fig. 12)

To test switch, disconnect the wiring and remove switch from instrument panel. For removal and installation of the wiper switch see "Instrument Panels."

Using an ohmmeter, test for continuity (no resistance) as shown on the switch continuity chart. The first position is the "off" position, next is slide for delay wipe, first detent is "low" and second detent is "high" position. The bench test of the switch does not require a twelve volt battery. "Ground" is the case of the switch.

INTERMITTENT WIPE SWITCH CONTINUITY CHART

Off	Delay	Low	High
$B\text{-}P_1$	$B\text{-}I_1$	B-A	B-A
A-G	*R-Through Variable Resistor I_1	P_2-G	†P_2-Through Diode—G
	P_2-G		H-G

*Resistance at maximum delay position should be between 270,000 ohms and 330,000 ohms.

†Resistance at minimum delay position should be zero with ohmmeter set on the high ohm scale and positive of ohmmeter connected to P_2 and negative connected to G should show low resistance.

Negative of ohmmeter connected to P_2 and positive connected to G should show an open circuit or very high resistance.

The same reading in both tests indicates a defective switch.

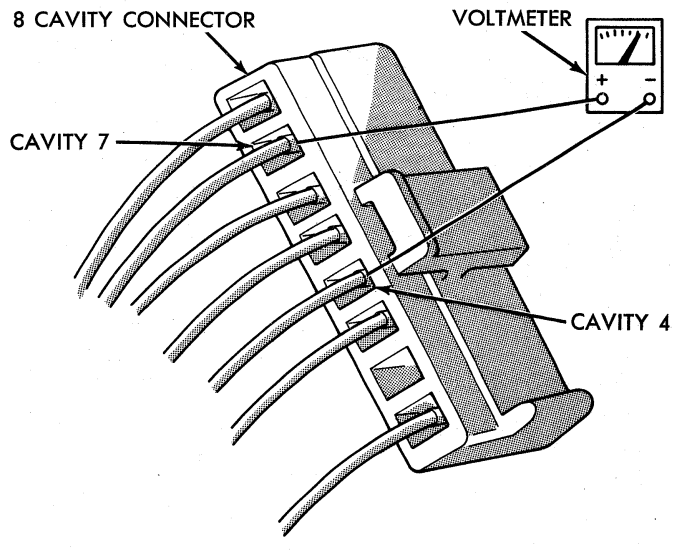


Fig. 11—Volt Meter Connected to Cavity 4 and 7

MOTOR REPAIR TWO SPEED AND INTERMITTENT WIPE (Fig. 7)

If the motor is found to be defective after tests, disassemble the motor as follows:

Disassembly

(1) Remove wiper motor.
(2) Mount motor assembly in a vise.
(3) Remove motor housing through bolts.
(4) Remove motor housing and armature assembly.
(5) Remove flat washers and spring washer.

Repair

(1) Inspect motor housing for following items:
(a) Foreign material,
(b) magnets, retaining clips or bearing retainers are loose or broken,
(c) plastic thrust bearing missing or damaged. Thrust bearing can be seen by looking through center of bearing in bottom of motor housing.
If any of these conditions exist replace housing.
(2) Test Armature as follows:

Testing Armature for Short Circuit

Place armature in growler and hold a thin steel blade parallel to the core and just above it, while slowly rotating armature in growler. A shorted armature will cause blade to vibrate and be attracted to the core. Replace armature if shorted.

Testing Armature for Ground

Contact armature shaft and each of the commutator riser bars with a pair of test lamp probes. If lamp lights, it indicates a grounded armature. Replace grounded armature.

Checking for Open Commutator Bars

Contact adjacent commutator riser bars with a pair of test lamp probes. The lamp should light on each bar. If the lamp fails to light the wire to bar junction is open. Replace open armature.

Inspection of Armature Shaft Gear Teeth

Visually inspect armature shaft gear teeth. Replace both the armature and the gear box if armature gear has nicks or burrs.
(3) Reposition any brush springs not properly assembled behind brushes.
(4) File sides of any brushes that may be stuck in slots.

Assembly

(1) Lock gear box in bench vise by the flange—brush holder up.

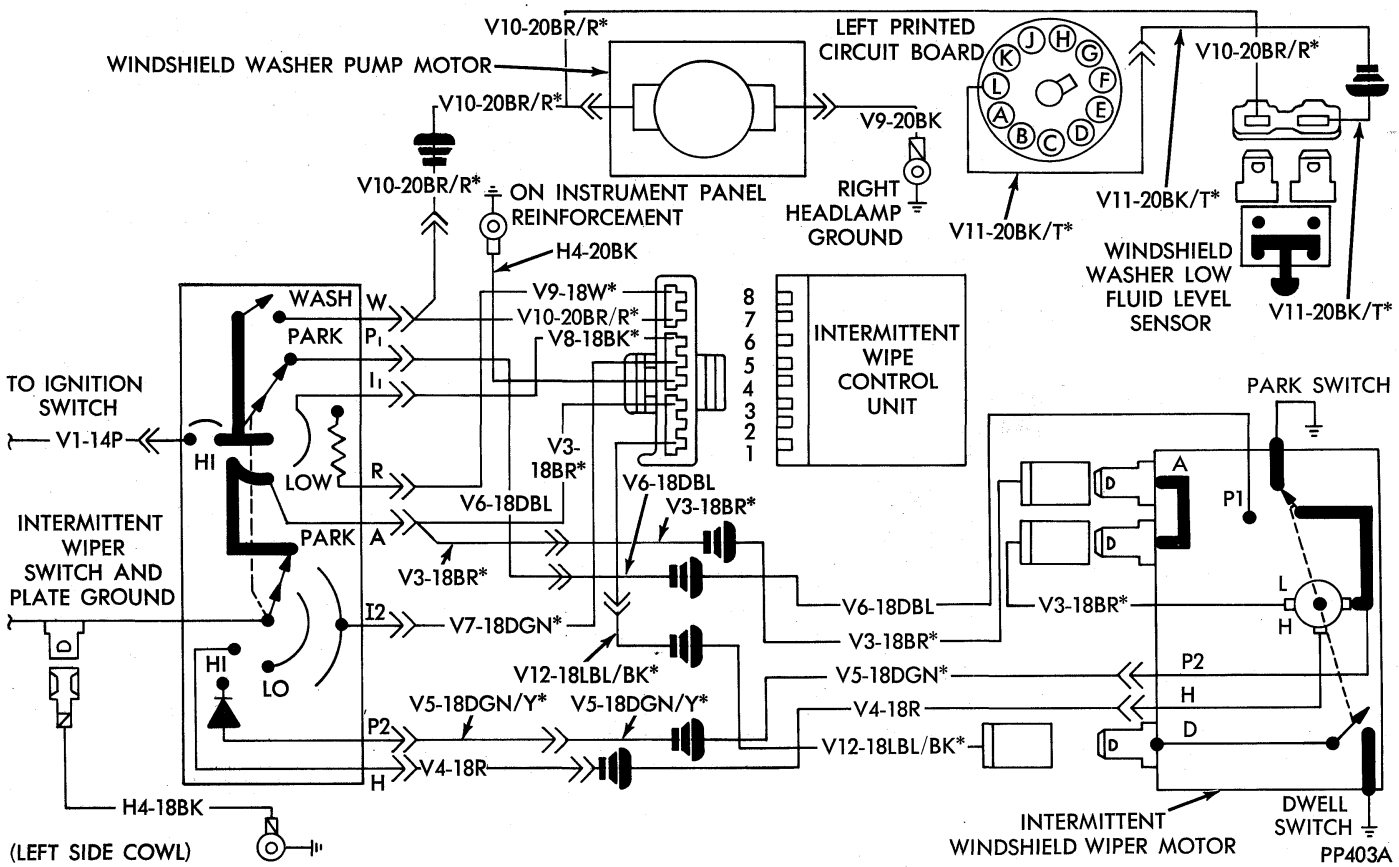


Fig. 12—Intermittent Wiper Motor Wiring Schematic

(2) Pull brushes back in brush slots and push brush lead into holding notch.

(3) Clean commutator with ink eraser, install a flat washer, spring washer and flat washer on armature shaft. Place armature in brush holder assembly.

(4) Release brush leads from brush holder notches (check to see brushes are spring loaded against the commutator).

(5) Align the window in the motor housing with the brush holder and install it quickly over the armature so the magnets in the motor housing do not pull the armature out of the brush holder. Make sure that the motor housing is flush with the gear housing and over the four detents.

(6) Install motor housing through bolts.

(7) Install resistor assembly and part number tag. Secure with screw (install tag atop resistor bracket with screw head against ground strap).

(8) Bench test wiper motor assembly by connecting a 12 volt power source positive lead in series with an ammeter to terminal "L" and the negative lead to terminal "P2" on B, C, and M body standard wiper systems and B, C, F, and M intermittent wiper systems (Fig. 12). For "F" body standard wiper system connect positive lead to terminal "L" and negative lead to motor housing. Tap the assembly gently with a mallet to align bearings in the motor housing and gear housing during the run period. Watch ammeter and stop tapping when meter reads less than 2-1/2 amps.

(9) Install bulkhead seal.

WINDSHIELD WIPER ARM ADJUSTMENT

SERVICE PROCEDURES

Non-Concealed Wiper Systems (Fig. 13)

(1) With the motor in the park position, mount the arms on the pivot shafts, choosing a serration engagement that locates the tips of the blades as follows.

Locate right blade tip 0± .9 inch from lower moulding.

(2) Install left arm so that blade is flush with or slightly behind stop on moulding, then lift blade over stop and place on windshield.

(3) Operate the wipers on low speed and dry glass with the engine off. The wipe pattern must comply with the maximum A-distance and the minimum B-distance shown in the chart.

(4) Park the wipers. The distance from the right blade tip to the lower windshield moulding must be within 3.4". The left arm should be within 0.5 inch of the stop.

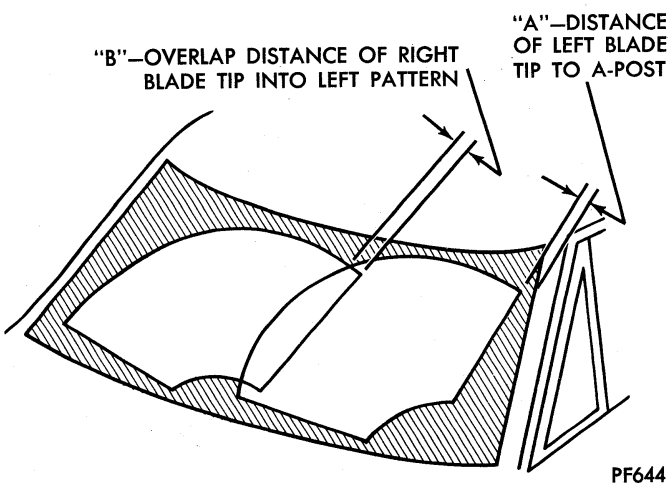


Fig. 13—Windshield Wiper Arm Adjustment

(5) If the requirements for the "A" and "B" dimensions and park position are not met, remove the arm(s) and repeat with a corrected setting.

Concealed Wiper Systems

(1) With the motor in the park position, mount the arms on the pivot shafts, choosing a serration engagement that locates the blades against the blade stops.

(2) Operate the wipers on low speed and dry glass with the engine off. The wipe pattern must comply with the maximum A-distance and the minimum B-distance shown in the chart and (Fig. 13.)

(3) Park the wipers. The arms and blades must be forward of an imaginary surface which is tangent to the hood edge and normal to the glass (i.e. concealed by the hood).

(4) If these requirements for "A" and "B" dimensions and concealment are not met, remove the arm(s) and repeat with a corrected setting.

LOW SPEED WIPERS—DRY GLASS—ENGINE OFF

Model	Maximum "A"	Minimum "B"
H-N	3.5"	−2.7"
F-G22	4.0"	−1.5"
F-G41	5.0"	−1.5"
R-W-X-S	4.9"	−3.0"
C	5.1"*	−2.0"

NOTE: The minus values for "B" indicate a lack of overlap.

*The left wiper blade tip must not touch the "A" post moulding under high speed wiper operation on wet glass, engine at fast idle.

WINDSHIELD WIPER LINKAGE

SERVICE PROCEDURES

LINKAGE-PIVOT REMOVAL AND INSTALLATION (Figs. 14, 15 and 16) (H-N-R-W-X-S-C Models)

Drive Crank

(1) Disconnect the battery ground cable.

(2) Remove the cowl top plastic screen and on all models except H-N disconnect washer hose to gain access to the drive crank.

(3) Remove the drive crank from the wiper motor by removing the attaching nut with a 3/8" wrench.

(4) Remove the drive crank from the drive link.

(5) Install the replacement drive crank to the drive link.

(6) Index the flats on the replacement drive crank to mate with the flats on the motor shaft. Tighten the attaching nut to 95 inch-pounds.

(7) Reconnect the battery ground cable.

(8) Operate the wiper system to verify correct operation.

(9) Replace the cowl top plastic screen, making sure washer hoses are not pinched by cowl screen.

(10) Connect washer hose.

Drive Link and Crank Assembly, Connecting Link and Pivots

(1) Disconnect the battery ground cable.

(2) Remove the cowl top plastic screen and on all models except H-N disconnect washer hose to gain access to the linkage assembly.

(3) Remove the arm-blade assemblies.

(4) Remove the drive crank from the wiper motor by removing the attaching nut with a 3/8" wrench.

(5) All models except H-N remove the six pivot mounting screws with a 3/8" wrench. On H-N models remove pivot mounting nut and washer.

(6) Remove linkage assembly from the plenum chamber.

(7) Replace the defective part.

(8) Position the linkage assembly back in the plenum chamber.

(9) Install six pivot mounting screws. Torque to 35 inch-pounds. H-N models, install mounting nuts and washers. Torque to 200 inch pounds.

(10) Index the flats on the drive crank to mate with the flats on the motor shaft. Tighten the at-

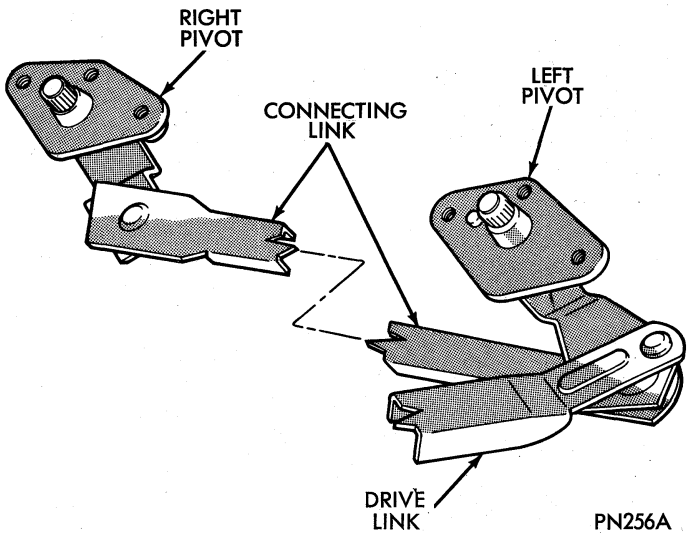


Fig. 15—Windshield Wiper Linkage R, W, X, and S Models

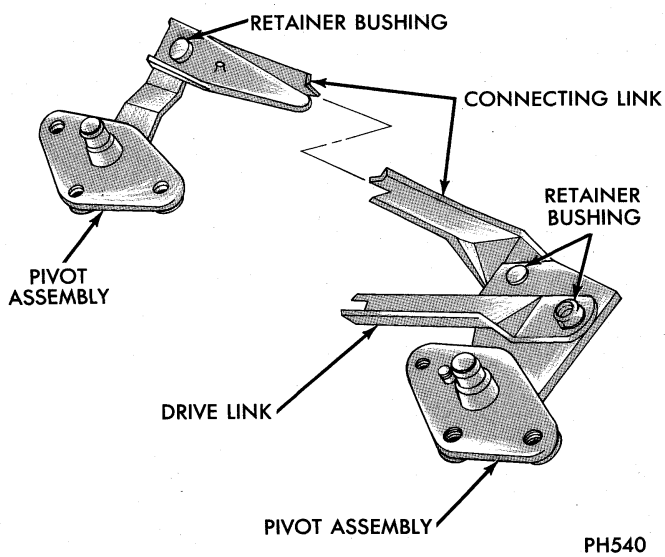


Fig. 14—Windshield Wiper Linkage C Model

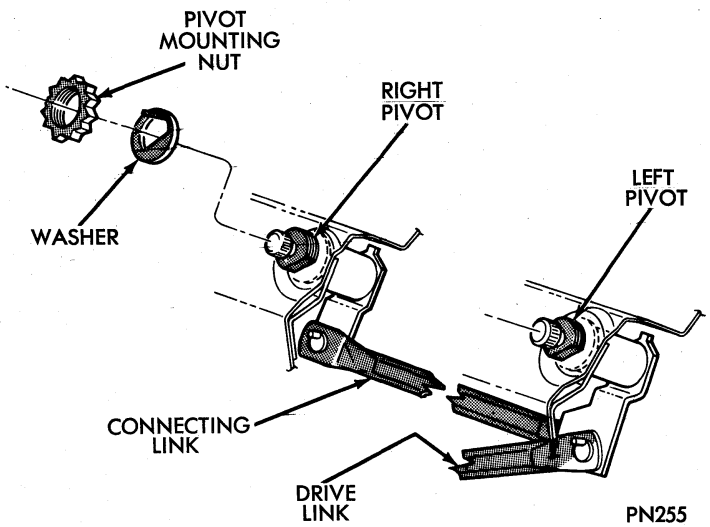


Fig. 16—Windshield Wiper Linkage H and N Models

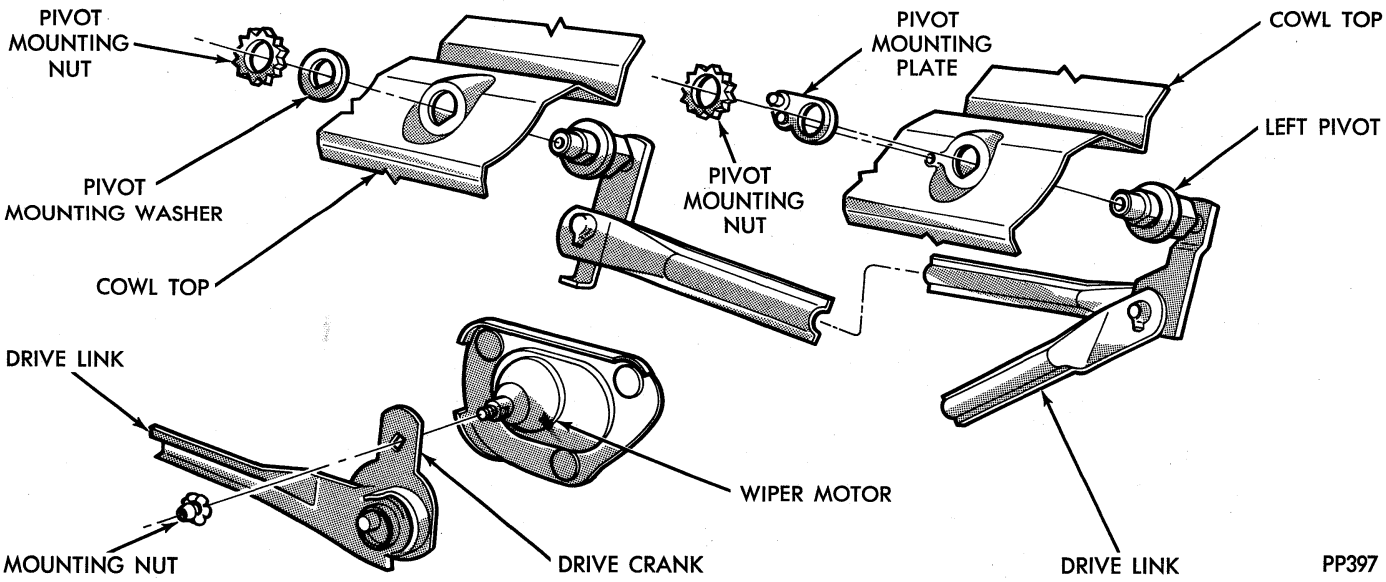


Fig. 17—Windshield Wiper Linkage F and G

taching nut to 95 inch-pounds.

(11) Reconnect the battery ground cable.

(12) Operate the wiper linkage to verify correct function. Reinstall the arm-blade assemblies. Verify correct operation of the wiper system.

(13) Replace the cowl top plastic screen, making sure washer hoses are not pinched by cowl screen.

(14) Connect washer hose.

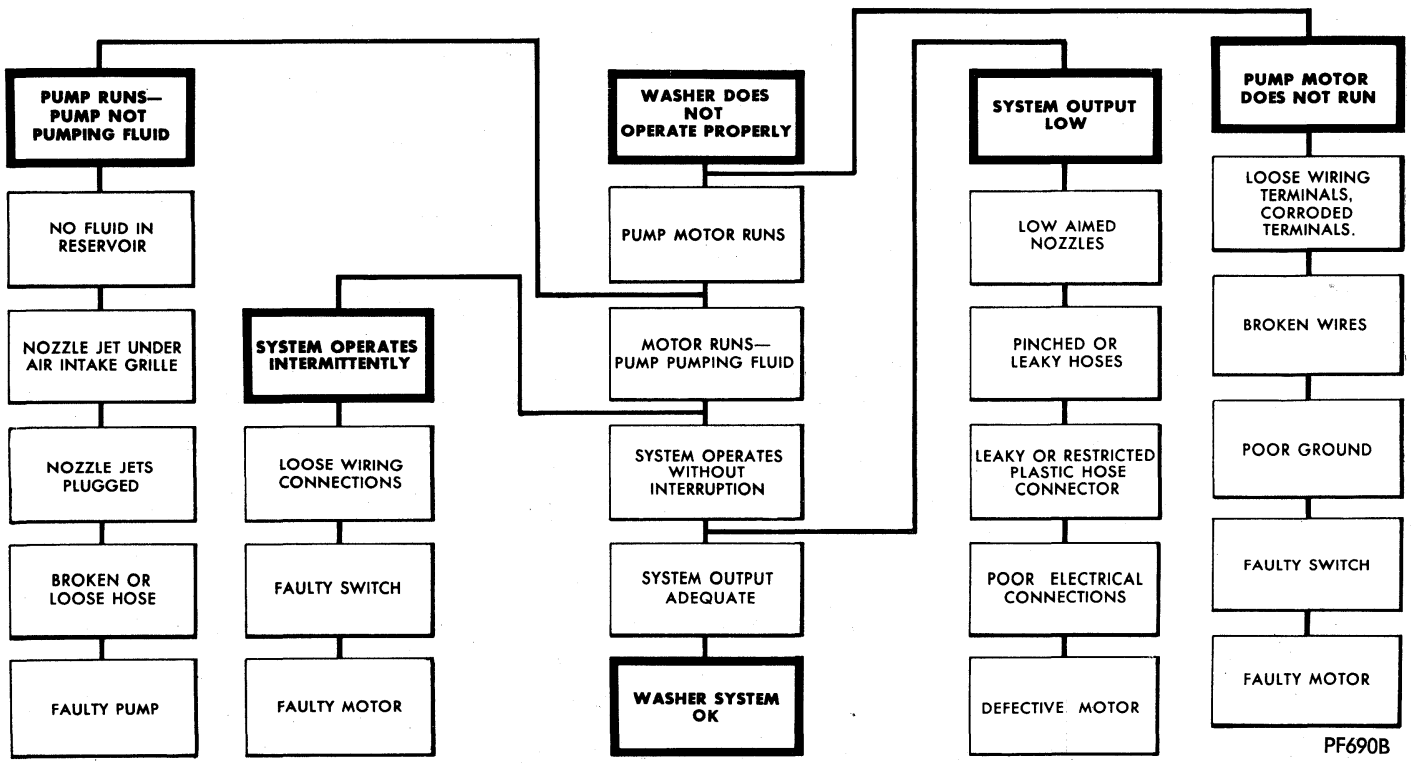
LINKAGE—PIVOT REMOVAL AND INSTALLATION (Fig. 17) (F and G Models)

Removal

(1) Disconnect the battery ground cable.

(2) Remove the cowl top plastic screen to gain access to the linkage assembly.

WINDSHIELD WASHER DIAGNOSIS



(3) Remove the arm-blade assemblies.

(4) Remove the drive crank from the wiper motor by removing the attaching nut with a 3/8" wrench.

(5) Remove pivot mounting nut washer, and pivot mounting plate.

(6) Remove linkage assembly from the plenum chamber.

Installation

(1) Replace the defective part.

(2) Position the linkage assembly back in the plenum chamber.

(3) Install pivot mounting plate nuts and washer. Torque to 200 inch pounds.

(4) Index the flats on the drive crank to mate with the flats on the motor shaft. Tighten the attaching nut to 95 inch-pounds.

(5) Reconnect the battery ground cable.

(6) Operate the wiper linkage to verify correct function. Reinstall the arm-blade assemblies. Verify correct operation of the wiper system.

(7) Replace the cowl top plastic screen.

DRIVE LINK AND CRANK ASSEMBLY REPLACEMENT

Removal

(1) Remove linkage and pivots as described in linkage-pivot removal.

(2) Remove drive link from left pivot.

Installation

(1) Connect new drive link to left pivot.

(2) Reinstall linkage and pivots as described in linkage pivot installation.

PIVOT REPLACEMENT

Removal

(1) Remove linkage and pivots as described in linkage-pivot removal.

(2) Remove links from pivots taking care not to bend link.

Installation

(1) Lubricate bushings on link with MOPAR Lubricant part number 2932524 or equivalent.

(2) Connect links to pivots.

(3) Reinstall linkage and pivots as described in linkage and pivot installation.

CONNECTING LINK REPLACEMENT

Removal

(1) Remove linkage and pivots as described in linkage and pivot removal.

(2) Remove connecting link from pivots.

Installation

(1) Connect new connecting link to pivots.

(2) Reinstall linkage and pivots as described in linkage and pivot installation.

WINDSHIELD WIPER MOULDING STOP REPLACEMENT

Removal

(1) Remove lower windshield moulding using the procedure outlined in Group 23 of the Service Manual.

(2) Remove wiper blade stop.

Installation

(1) Install new stop on moulding.

(2) Install push nut part number over boss of stop.

(3) Press pushnut down against moulding until stop is securely mounted.

WINDSHIELD WASHERS

GENERAL INFORMATION

All models are equipped with electric operated windshield washer pumps with either two or three speed windshield wiper motors. (Figs. 18, 19 and 20).

The electric pump assembly is mounted directly to the reservoir. A permanently lubricated sealed motor is coupled to a rotor type pump. Fluid, gravity fed from the reservoir, is forced by the pump through rubber hoses to the nozzles which direct the streams to the windshield.

The pump and reservoir are serviced as separate assemblies.

NOZZLE ADJUSTMENT—(H-N)

For lateral adjustment loosen the mounting screws and move the nozzle and bracket assembly until the nozzle is centered between the grille louvers. Vertical nozzle adjustment is made by bending the nozzle mounting bracket up or down.

Adjust nozzles so that the impact point of the upper stream contacts the windshield glass as shown in Figure 23. The lower stream should impact the glass in the wiper pattern area, when the upper stream is aimed properly. If not the nozzle is defective and should be replaced.

(R-W-X-S-P-D-C)

These models are equipped with the washer nozzles attached to the wiper arms. They emit four streams per nozzle across the wiper pattern, (Fig. 21). No adjustment is required. If nozzle performance is unsatisfactory they should be replaced. The right and left nozzles attach differently and are not interchangeable.

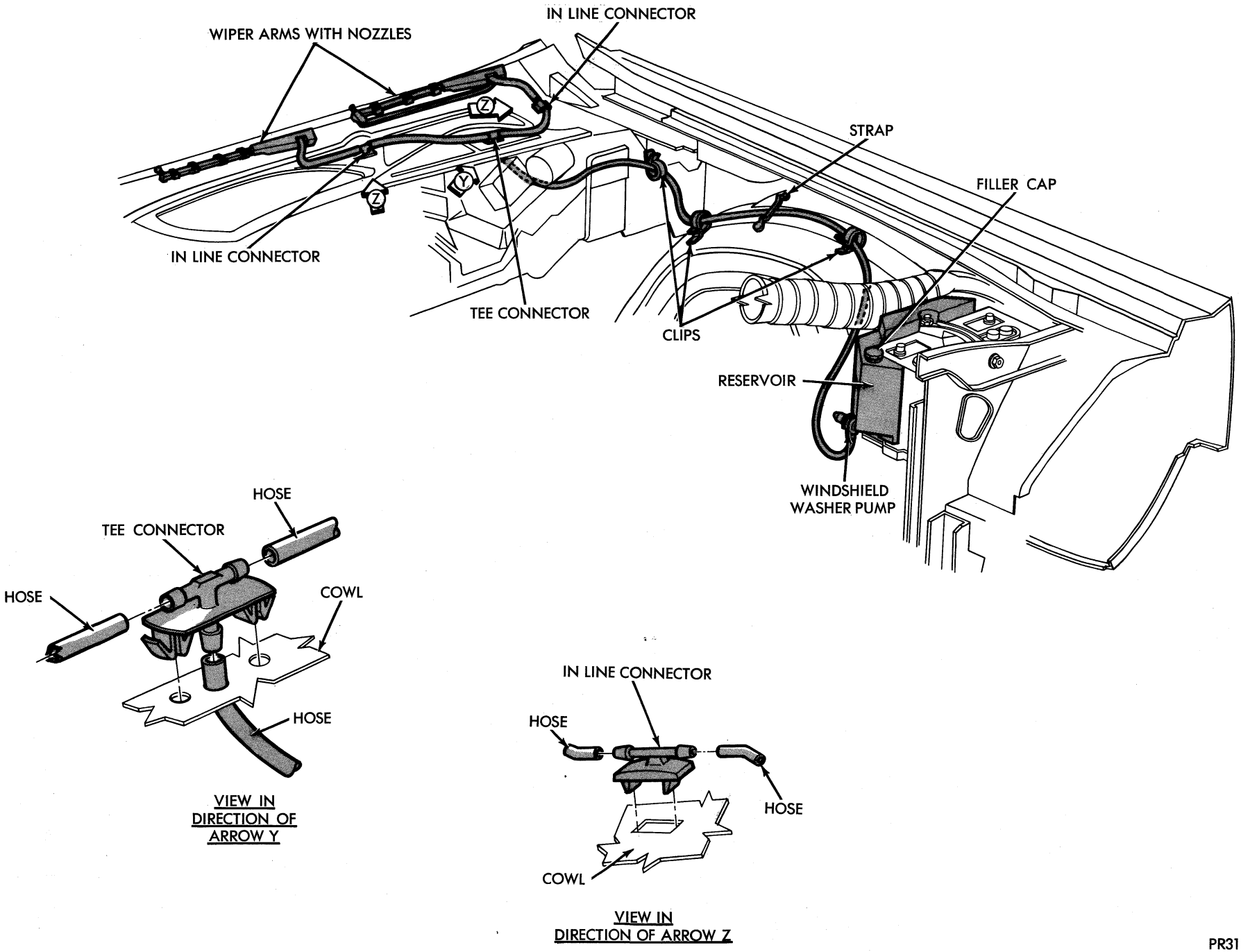


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Fig. 18—Windshield Washer R, W, S, and X

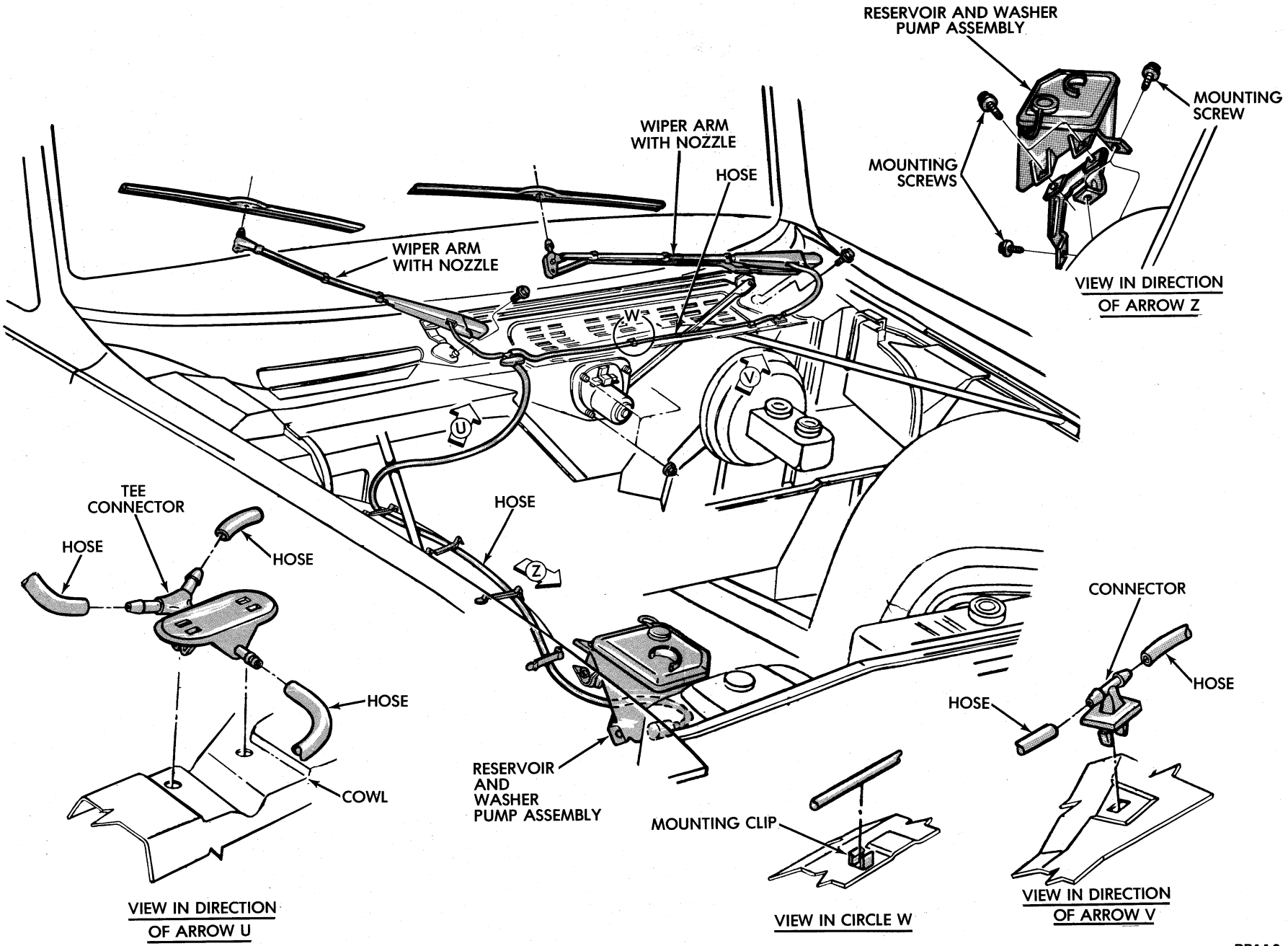


Fig. 19—Windshield Washer Carline C

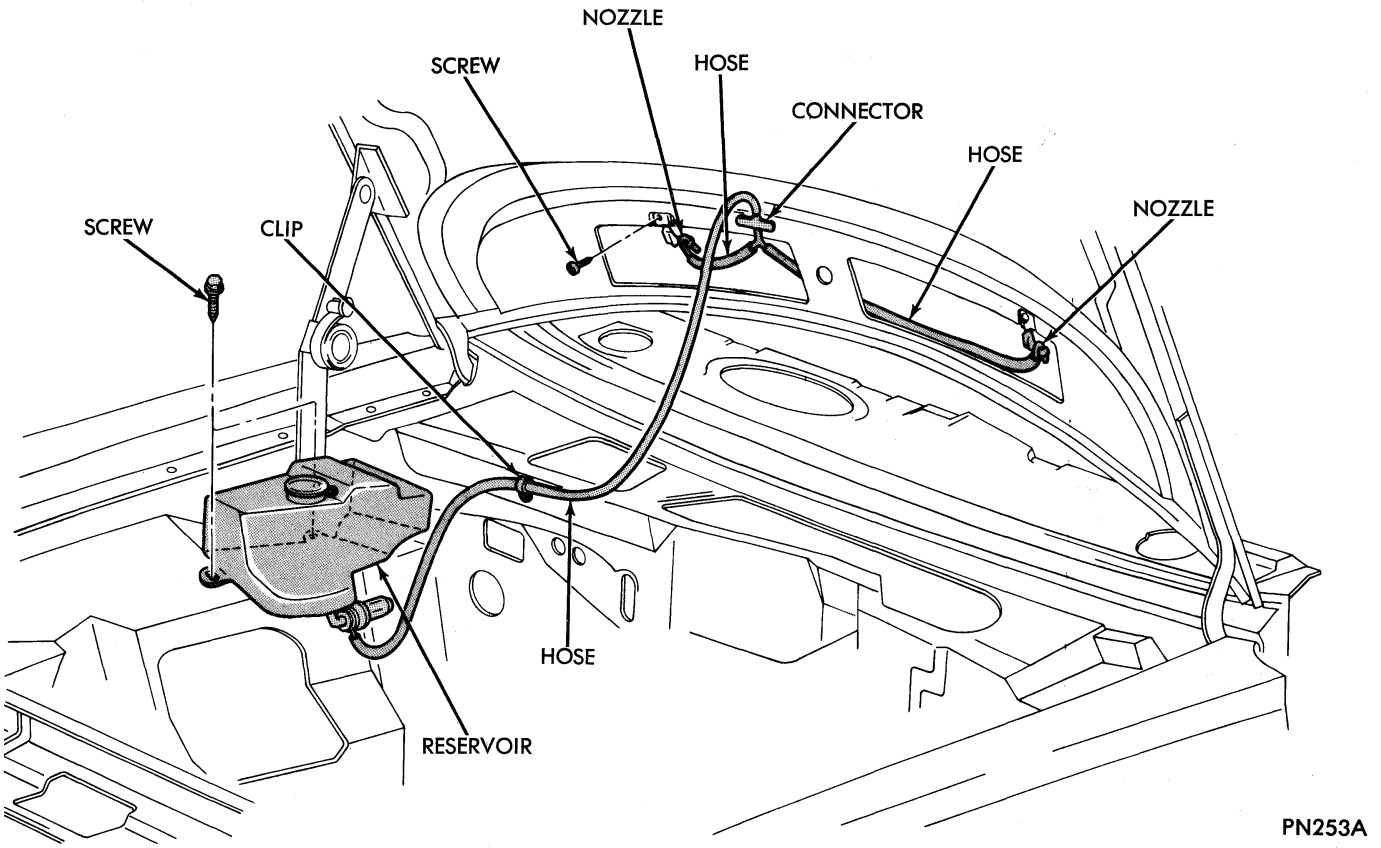


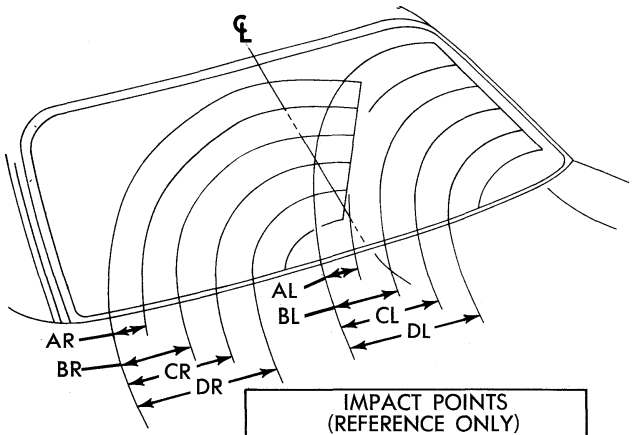
Fig. 20—Windshield Washer H-N-F and G

To replace unsnap nozzle from wiper arm and disconnect hose. When installing make sure nozzle is securely snapped into position.

WINDSHIELD WASHER PUMP

Service Parts Package

The service package for all models contains pump with two electrical terminals and rubber grommet, (Fig. 22). The service parts package for R, W, S, and X also contain a reservoir body plug.



IMPACT POINTS (REFERENCE ONLY)			
AL	1.3 – 3.5	AR	1.5 – 3.5
BL	5.5 – 7	BR	6.5 – 8
CL	8.5 – 10	CR	9.5 – 11
DL	11.5 – 14.5	DR	13 – 16

Fig. 21—Windshield Reference Points R-W-S-X and C

Removal

(1) If so equipped disconnect electrical leads from washer fluid sensor.

(2) Remove screws mounting reservoir to wheel housing or bracket.

(3) While holding reservoir, disconnect electrical leads from pump.

(4) Carefully remove hose from pump and empty fluid from reservoir.

(5) On "C" models carefully pry apart lid from reservoir with a large blade screwdriver.

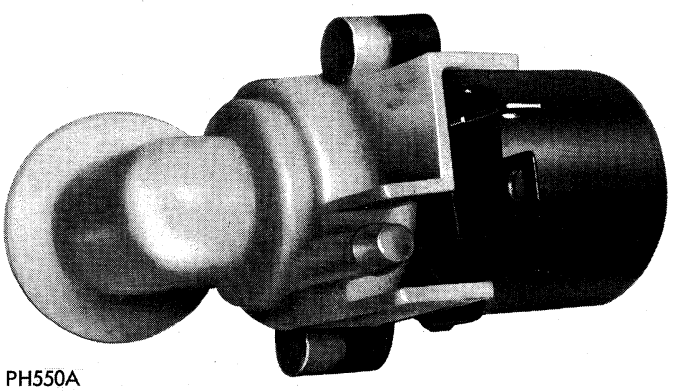


Fig. 22—Washer Pump All Models

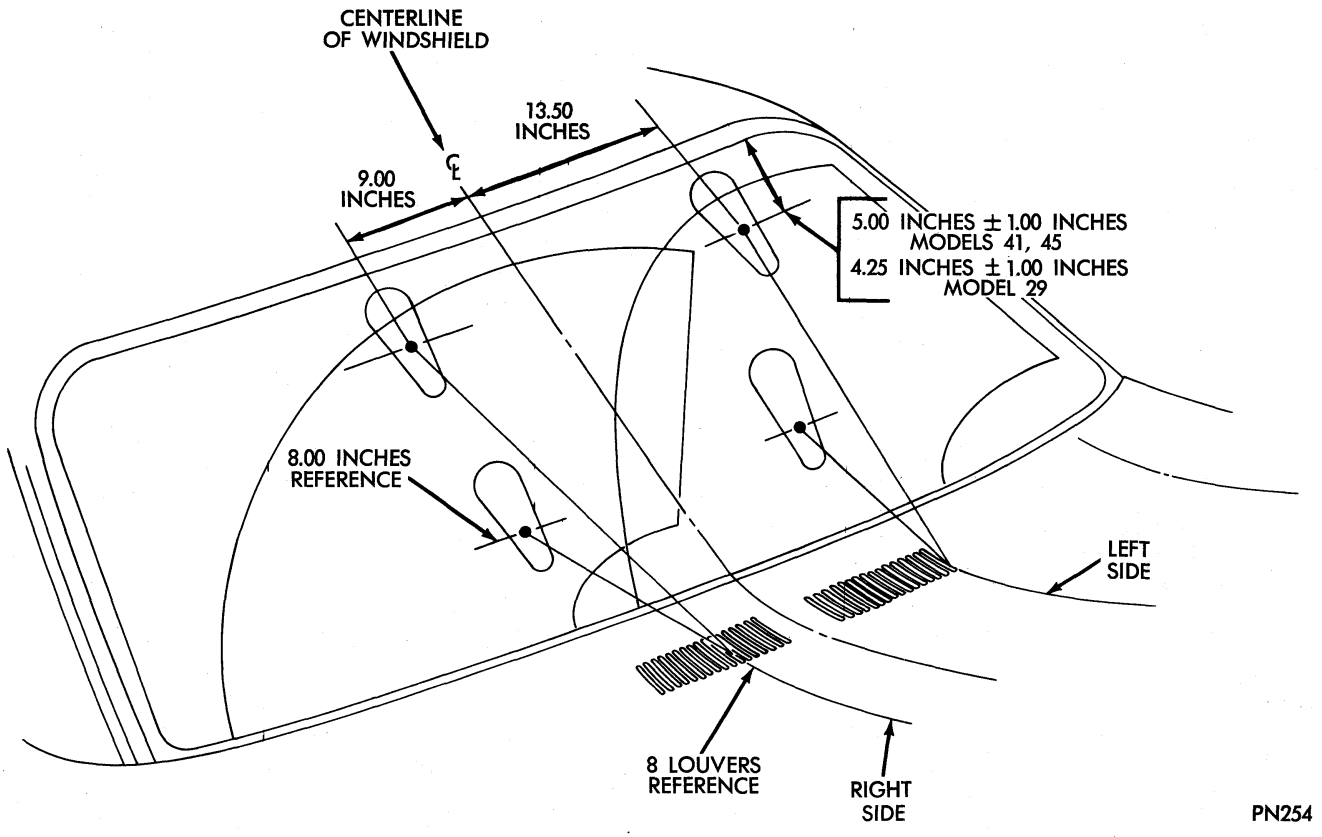


Fig. 23—Washer Aiming H-N-F and G

(6) On R, W, X, S models cut out circular depression on top of reservoir.

(7) Remove pump mounting nut and plastic washer from reservoir. On H-N models access to nut and washer can be obtained through filler cap opening.

(8) Remove pump from bottom of reservoir and throw away rubber grommet.

Installation

(1) Install new rubber grommet into place in bottom of reservoir.

(2) Position pump into place in reservoir install plastic washer then mounting nut, and tighten to 20 inch pounds torque. **DO NOT OVERTIGHTEN.**

(3) Snap lid into place on reservoir body making sure proper seal is obtained.

(4) Connect electrical leads and hose to pump, position reservoir into place on wheel housing, install mounting screws and tighten securely.

(5) If required, connect electrical leads to washer fluid sensor.

(6) Fill reservoir with water and/or washer fluid, inspect for leaks and test system.

EXTERIOR LIGHTING

INDEX

GENERAL INFORMATION

A good ground is mandatory for proper light operation. This is provided through the lamp socket to housing to vehicle in some cases. However, in most installations the housing is a plastic part so that an added ground wire is necessary. It is important to have this wire securely connected to a good ground.

When changing bulbs check socket for corrosion. If corrosion is present clean it off with a wire brush and coat socket lightly with any good multi-purpose grease or petroleum jelly.

Bulb identification and application information for exterior and interior lighting can be found in the specification section of this group.

SERVICE PROCEDURES

FRONT PARK AND TURN SIGNAL LAMPS

CARLINE H AND N

Front Park and Turn Signal Lamp (Fig. 1)

To replace bulb, twist out socket. Lamp housing is molded as part of grille.

Removal

(1) With a small screwdriver release two upper locking tabs while carefully prying out top of lens.

(2) Release two lower locking tabs and finish removing lens.

Installation

(1) Clean housing gasket track and apply butyl tape adhesive. Fit tape into all corners and overlap ends approximately 1/2 inch.

(2) Press lens into adhesive until lens tabs snap into locking tabs on grille.

CARLINES F and G

Front Park and Turn Signal Lamp (Fig. 2)

(1) To replace bulb remove 5 headlamp bezel attaching screws and remove bezel.

(2) Twist out socket.

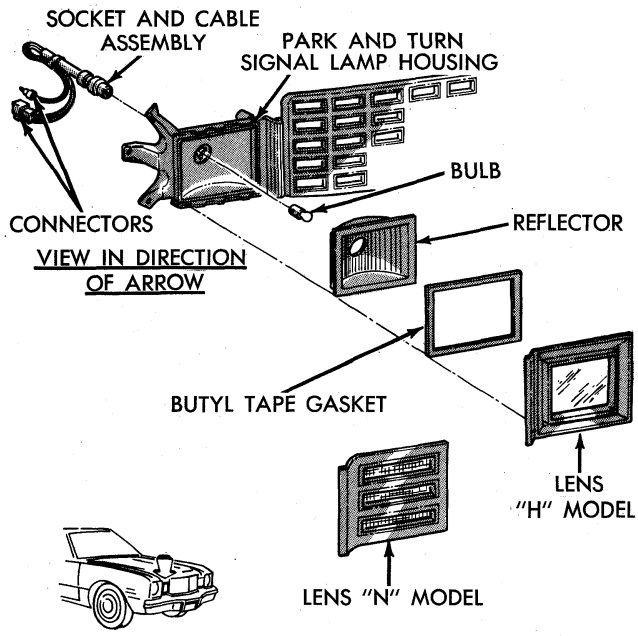


Fig. 1—Front Park and Turn Signal Lamps—Carline H and N

Removal

(1) Remove 5 headlamp bezel attaching screws and remove bezel.

(2) Twist out sockets from rear of park, turn, and sidemarker lamp.

(3) Remove 3 screws attaching lamp to bezel.

(4) To remove lens, extend a wood dowel through housing socket holes and push against lens with a steady force until lens is free from housing, making sure to bend the snaps on the housing out of the way of the tabs on the lens.

Installation

(1) Clean housing gasket track and apply Butyl tape adhesive.

(2) Clean lens leg, press lens into position making sure the tabs engage into the snaps.

(3) Position lamp assembly to headlamp bezel and install 3 attaching screws.

(4) Twist in park, turn and sidemarker sockets.

(5) Position headlamp bezel and lamp assembly to moulded front end panel and install 5 attaching screws.

CARLINES R AND W

Front Park and Turn Signal Lamp (Fig. 3)

To replace bulb, remove lens by removing lens attaching screws.

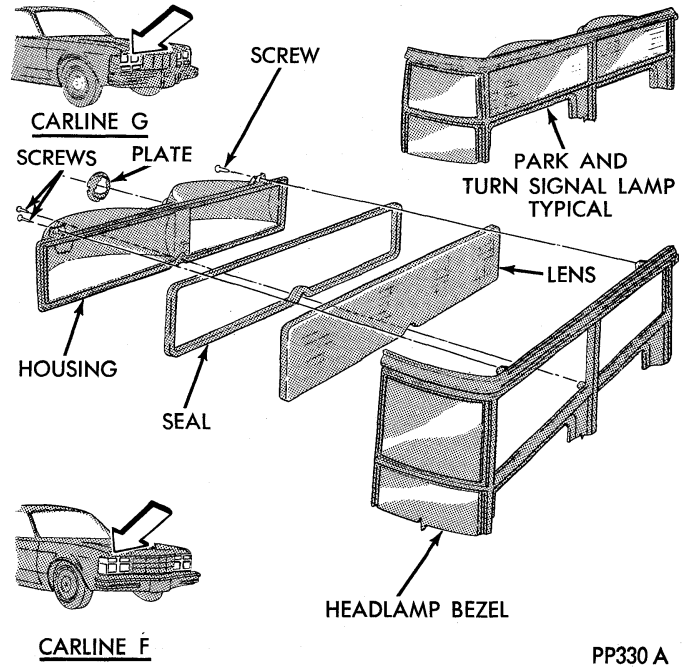


Fig. 2—Front Park and Turn Signal Lamps—Carline F and G

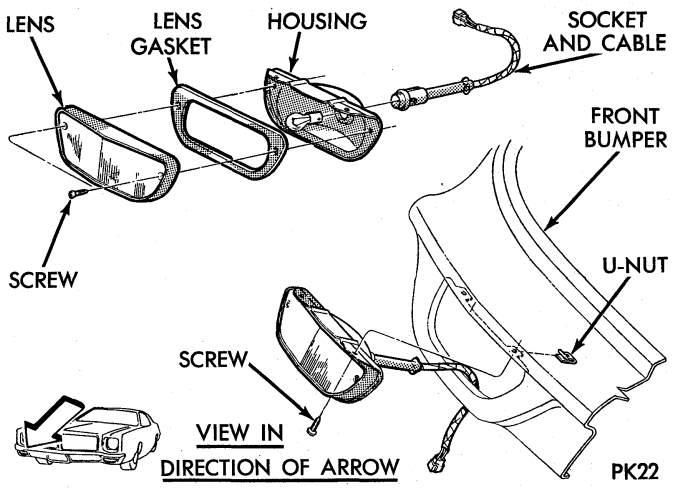


Fig. 3—Park and Turn Signal Lamps—R and W

Removal

(1) Remove assembly attachment screws and pull lamp through bumper opening.

(2) Disconnect wiring harness.

Installation

(1) Connect wiring harness.

(2) Position lamp in bumper opening and attach with assembly mounting screws.

CARLINE S

Front Park, Turn Signal, Cornering, and Side Marker Lamp (Fig. 4)

To replace bulbs, it is necessary to remove lamp assembly—see below.

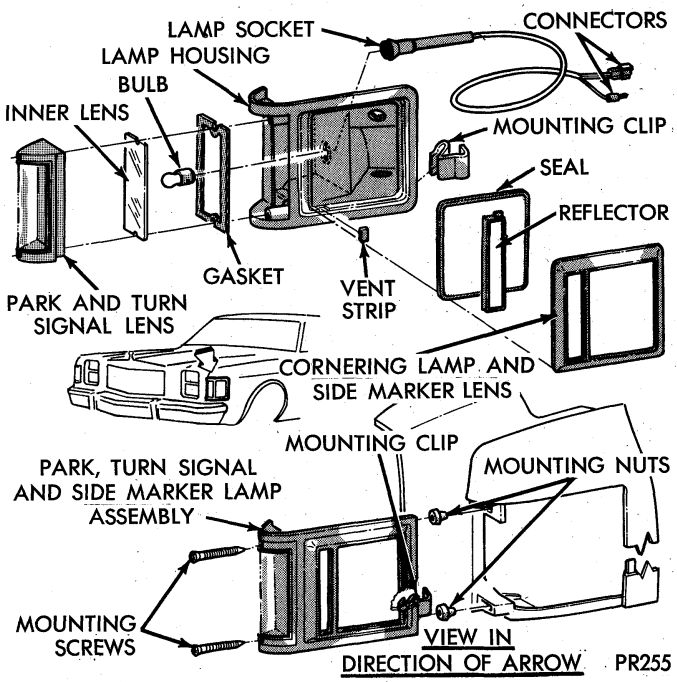


Fig. 4—Front Park, Turn Signal, Cornering, and Side Marker Lamp—Carline S

Removal

(1) Disconnect turn signal wiring harness.

(2) Remove mounting screws and remove park and turn signal lens and housing.

(3) Twist out cornering lamp and side marker lamp sockets.

(4) Replace necessary bulbs.

Installation

(1) Twist in cornering lamp and side marker lamp sockets.

(2) Position housing to front closure panel.

(3) Install park and turn signal lens and secure with attaching screws.

(4) Connect turn signal wiring harness.

CARLINE X (CHARGER)

Front Park and Turn Signal Lamp (Fig. 5)

Twist out socket to replace bulb.

Removal

(1) Twist out socket.

(2) Remove lamp attaching nuts and remove lamp assembly and bezel.

Installation

(1) Place lamp in bezel, position in front end extension and attach with nuts.

(2) Twist in socket.

CARLINE X (CHARGER XE)

Park, Turn, and Side Marker Lamp (Fig. 6)

To replace bulb, it is necessary to remove lamp assembly—see below.

Removal

(1) Open headlamp doors.

(2) Remove lamp attaching screws and remove lamp assembly.

(3) Twist out socket.

Installation

(1) Twist in socket.

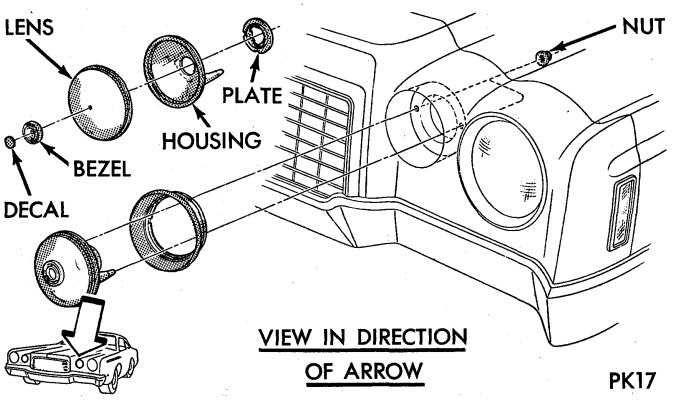


Fig. 5—Front Park and Turn Signal Lamp—Carline X (Charger)

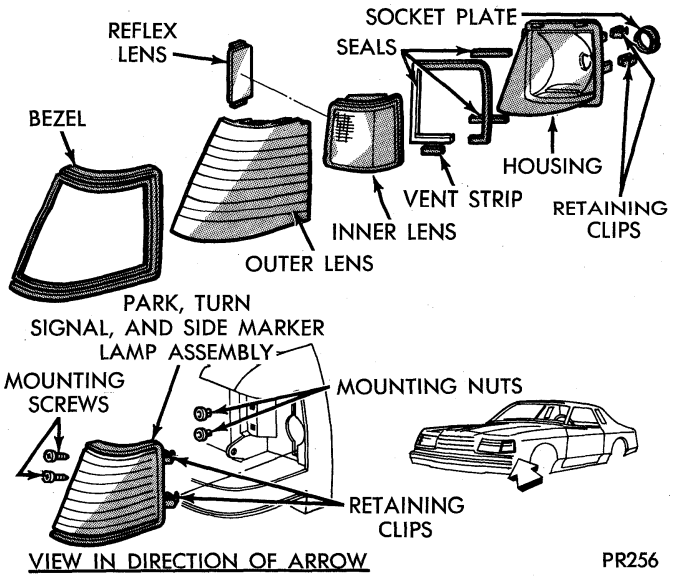


Fig. 6—Front Park, Turn, and Side Marker Lamp—Carline X (Charger XE)

(2) Position lamp assembly in front closure panel and install attaching screws.

(3) Close headlamp doors.

CARLINE C—Newport

Fender Extension Park, Turn Signal, and Side Marker Lamp (Fig. 7)

Remove lens to replace bulbs.

Removal

(1) Disconnect the wiring harness.

(2) Remove the housing attaching nuts and remove housing.

(3) To remove lens, take out attaching screws.

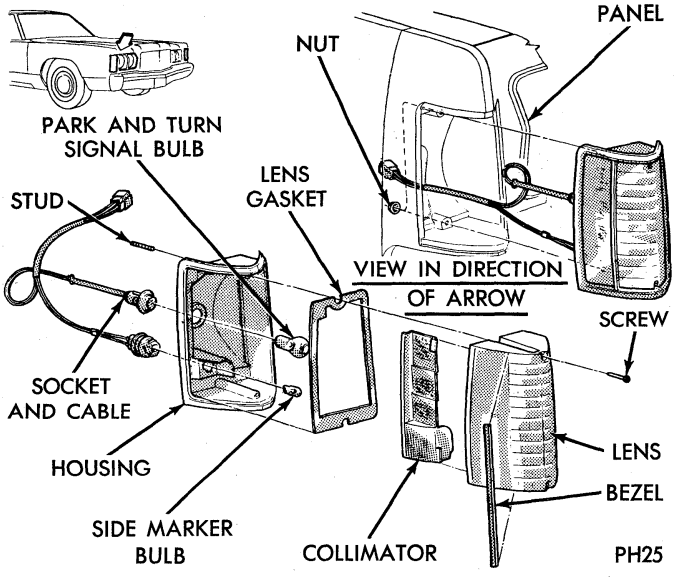


Fig. 7—Fender Extension, Turn Signal, and Side Marker Lamp—Carline C (Newport)

Installation

(1) Position the lamp in the front fender extension and secure with housing attaching nuts.

(2) Connect the wiring harness and install lens.

CARLINE C—New Yorker Brougham

Fender Park and Turn Signal Lamp (Fig. 8)

Remove lens to replace bulbs.

Removal

(1) Disconnect the wiring harness.

(2) Remove the housing attaching nuts and remove assembly.

Installation

(1) Position the lamp in the front fender extension and secure with housing attaching nuts.

(2) Connect the wiring harness.

FENDER TURN SIGNAL INDICATOR LAMPS

CARLINES H, N, F, G, R, W, S, X and C (Figs. 9 and 10)

Fender Turn Indicator Lamp

To replace bulb, remove cover (step 1) then pull bulb from socket.

Removal

(1) Remove screw from top of lamp and lift cover from fender.

(2) Disconnect lamp wiring from harness and lift socket assembly off.

Installation

(1) Pass lamp wiring through fender and position lamp on fender.

(2) Install screw and connect lamp wiring to harness.

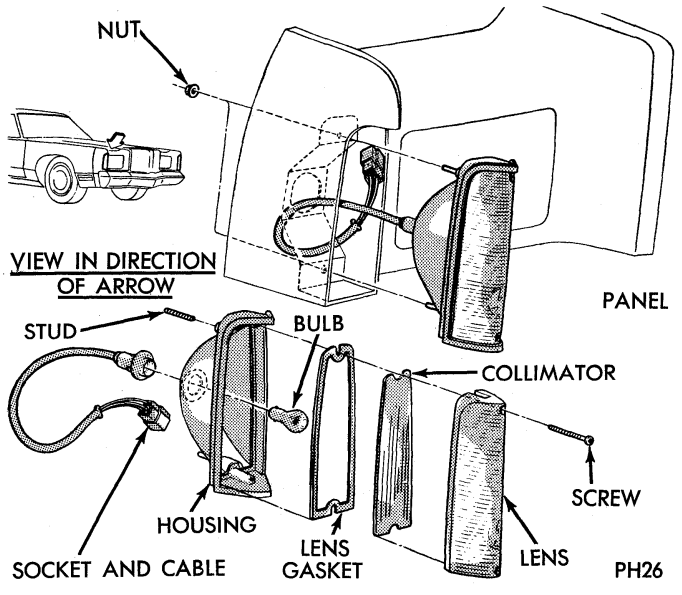


Fig. 8—Fender Park and Turn Signal Lamp—Carline C (New Yorker Brougham)

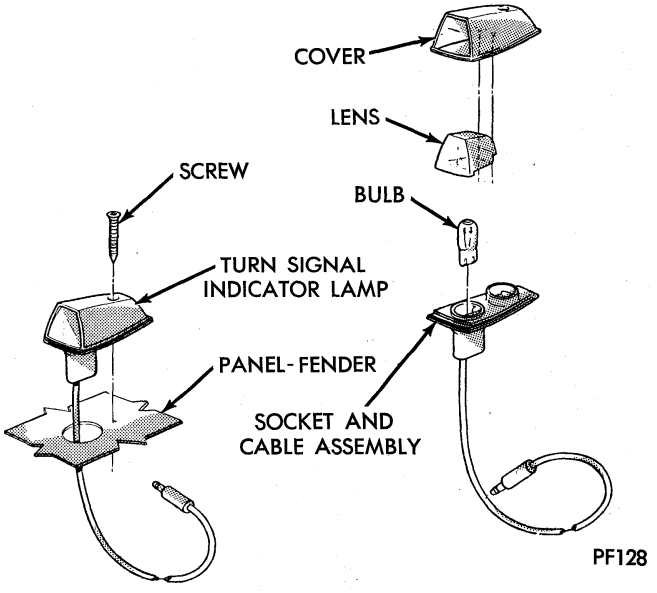


Fig. 9—Fender Turn Indicator Lamp Except Carlines X and S

FRONT FENDER SIDE MARKER AND CORNERING LAMPS

CARLINES H AND N

Front Fender Side Marker and Reflector Lamp (Fig. 11)

To replace bulb, twist out socket from back of housing.

Removal

(1) Twist out socket from back of housing.

(2) Remove nuts attaching lamp assembly to fender.

(3) Lift lamp assembly away from outside of fender.

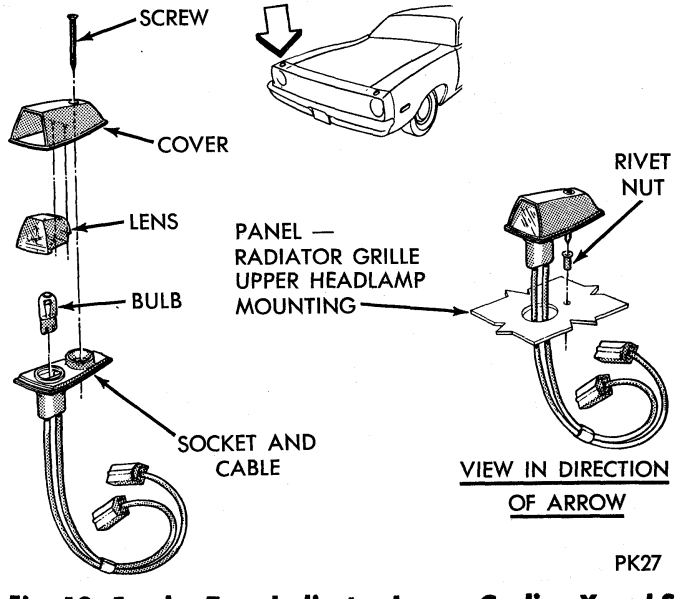


Fig. 10—Fender Turn Indicator Lamp—Carline X and S

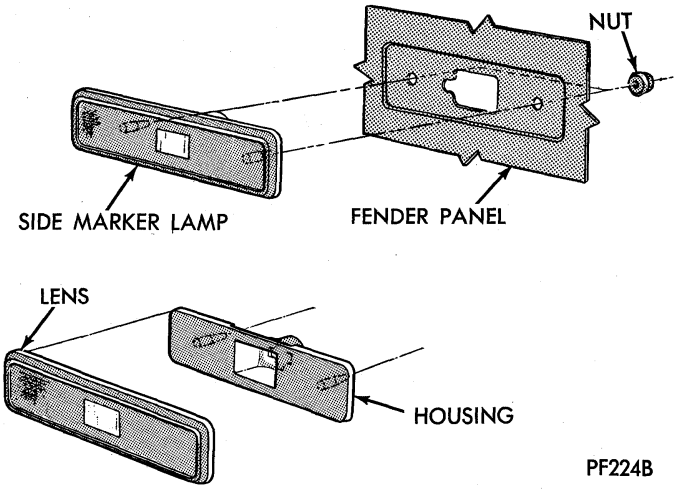


Fig. 11—Front Fender Side Marker and Reflector Lamp—Carlines H,N,R and W

Installation

(1) Position lamp assembly in fender opening, and install nuts.

(2) Twist in socket.

CARLINES F and G

Side Marker Lamps (Fig. 12)

(1) To replace bulb remove 5 headlamp bezel attaching screws and remove bezel.

(2) Twist out socket.

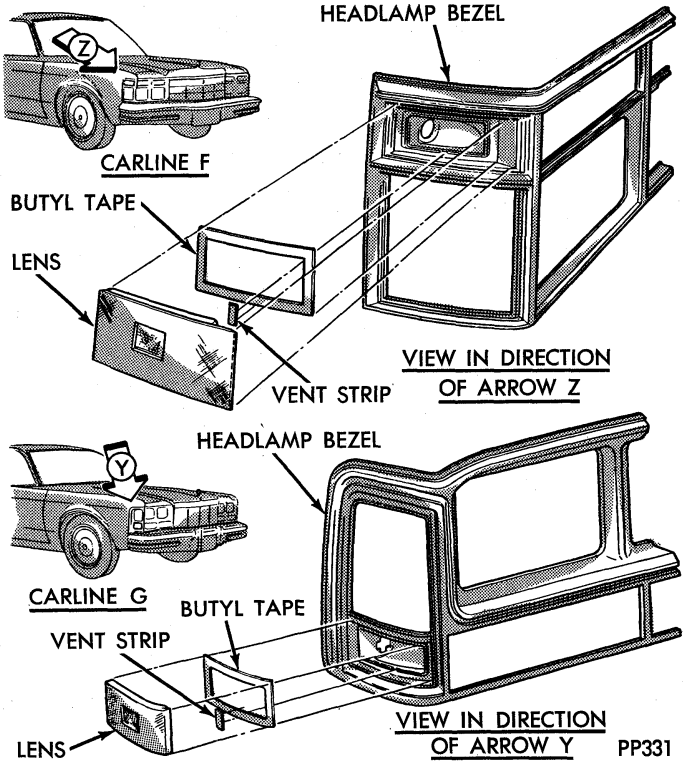


Fig. 12—Side Marker Lamps—Carlines F and G

Removal

(1) Remove 5 headlamp bezel attaching screws and remove bezel.

(2) Twist out sockets from rear of park, turn and sidemarker lamp.

(3) Place a small flat blade screwdriver under front of lens and pry off with a steady force.

Installation

(1) Clean housing gasket track and apply Butyl tape adhesive.

(2) Install vent strip; clean lens leg and press lens into position.

(3) Twist in park, turn and sidemarker sockets.

(4) Position bezel and lamp assembly to molded front end panel and attach with 5 screws.

CARLINES F and G

Cornering Lamps (Figs. 13 and 14)

To replace bulb remove lamp (see below).

Removal

(1) Remove 5 headlamp bezel attaching screws and remove bezel.

(2) Twist out sockets from rear of park, turn, and sidemarker lamp.

(3) Remove 2 screws attaching cornering lamp to molded front end panel.

(4) Twist out socket from bottom of cornering lamp.

Installation

(1) Twist socket into housing.

(2) Attach cornering lamp with 2 screws.

(3) Twist in sockets to park, turn, and sidemarker.

(4) Position headlamp bezel and lamp assembly to molded front end panel and attach with 5 screws.

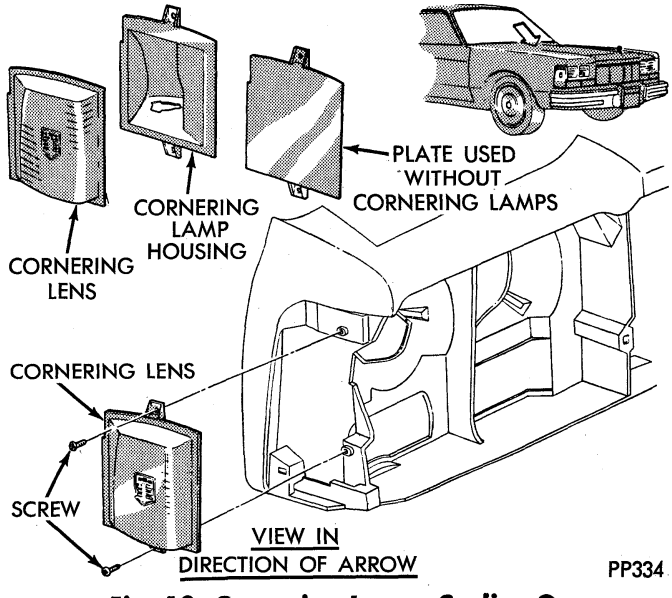


Fig. 13—Cornering Lamp—Carline G

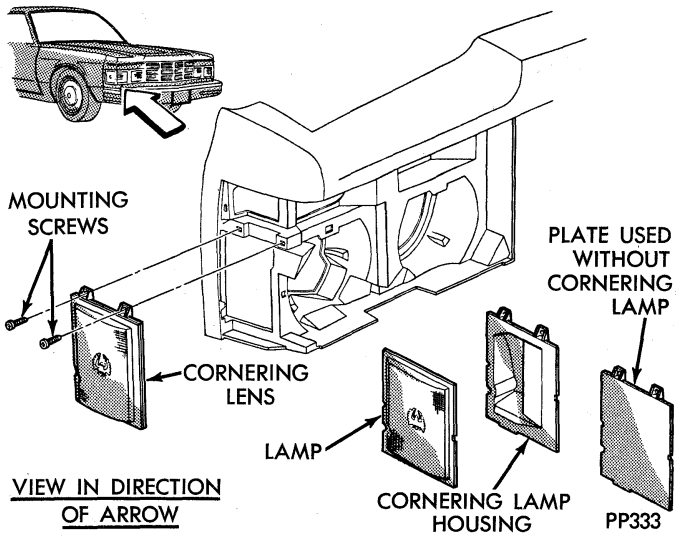


Fig. 14—Cornering Lamp—Carline F

CARLINES R AND W

Front Fender Sidemarker and Reflector Lamp (Fig. 11)

To replace bulb, remove screw and access cover from inside wheelhouse opening, twist out socket and replace bulb.

Removal

(1) Remove screw and access cover from inside wheelhouse opening.

(2) Reach through access hole and twist out socket from back of housing.

(3) Remove nuts attaching lamp assembly to fender.

(4) Lift lamp assembly away from outside of fender.

Installation

(1) Position lamp assembly in fender opening and install attaching nuts.

(2) Twist in lamp socket.

(3) Install access hole cover and screw.

CARLINE X, CHARGER

Front Fender Side Marker Lamp (Fig. 15)

To replace bulb, remove lamp and twist out socket.

Removal

(1) Remove assembly mounting screws.

(2) Twist out socket.

Installation

(1) Twist in socket.

(2) Position the lamp and install assembly mounting screws.

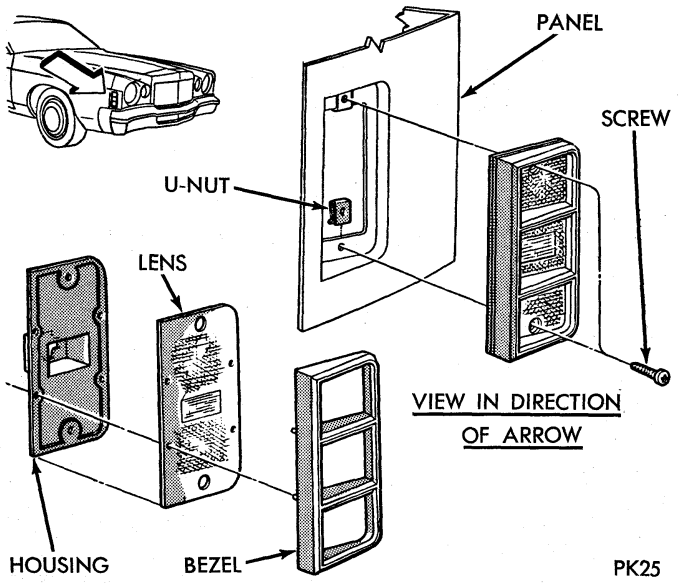


Fig. 15—Front Fender Side Marker Lamp—Carline S and X

CARLINE C

Front Fender Cornering and Side Marker Lamp (Figs. 16 and 17)

To replace bulbs, twist out sockets.

Removal

(1) Twist out sockets.

(2) Remove the lamp attaching nuts and remove lamp assembly.

Installation

(1) Position the lamp over the bezel studs and install the lamp attaching nuts.

(2) Twist in sockets.

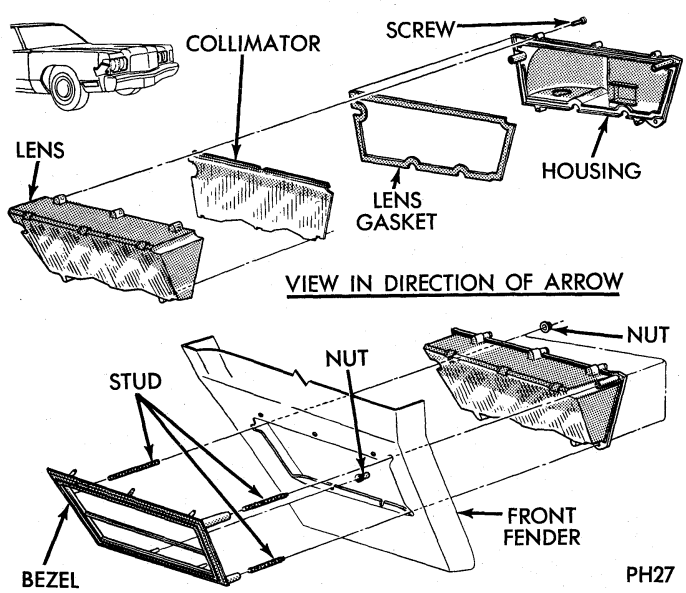


Fig. 16—Front Fender Cornering Lamp—Carline C Except New Yorker Brougham

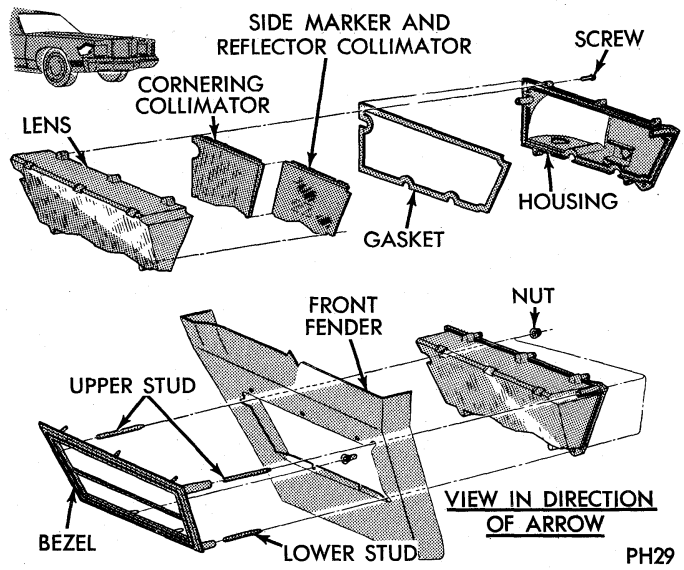


Fig. 17—Front Fender Cornering and Side Marker Lamp—Carline C (New Yorker Brougham)

OPERA LAMP

CARLINE F (Without Halo Moulding)

Opera Lamp (Fig. 18)

To replace bulb remove bezel attaching screw and remove bezel and lens.

Removal

(1) Remove bezel screw and remove bezel and lens.

(2) Remove housing attaching screws and remove housing.

(3) In order to gain access to the wiring harness,

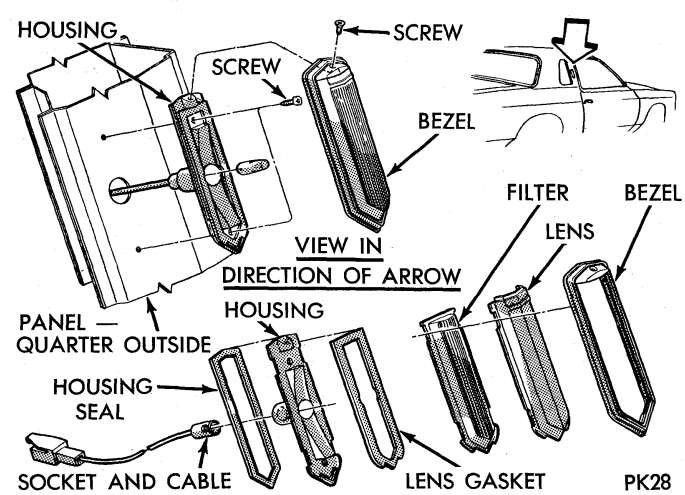


Fig. 18—"B" Post Opera Lamp—Carlines S and F without Halo Moulding

remove interior trim panel by removing courtesy lamp lens and attaching screws.

(4) Disconnect opera lamp wiring harness.

Installation

(1) Connect wiring harness.

(2) Position interior quarter trim panel, install attaching screws and replace courtesy lamp lens.

(3) Place housing in position and attach with screws.

(4) Position bezel and lens over housing and attach with screw.

CARLINE F (With Halo Moulding)

Opera Lamp (Fig. 19)

To replace bulb, apply prying tool between bezel cap and lens, remove bezel cap and lens attaching screw.

Removal

(1) Apply prying tool between bezel cap and lens and remove bezel cap.

(2) Remove lens attaching screw and remove lens.

(3) Remove housing attaching screw and remove housing.

(4) Disconnect wiring harness.

Installation

(1) Connect wiring harness.

(2) Place housing in position and attach with screws.

(3) Position lens over housing and attach with screws.

(4) Position bezel cap over lens and snap into place.

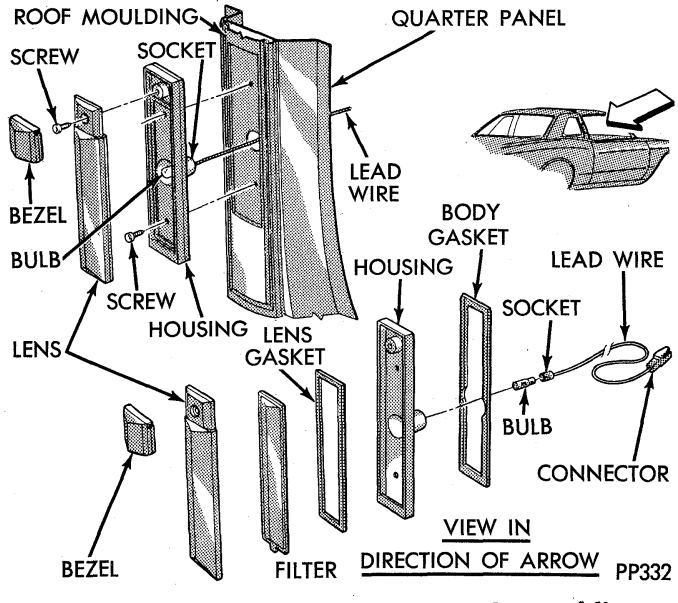


Fig. 19—"B" Post Opera Lamp with Halo Moulding—Carline F

CARLINE S (Fig. 18)

To replace bulb remove bezel attaching screw and remove bezel and lens.

Removal

(1) Remove bezel screw and remove bezel and lens.

(2) Remove housing attaching screws and remove housing.

(3) In order to gain access to the wiring harness, remove interior trim panel by removing courtesy lamp lens and attaching screws.

(4) Disconnect opera lamp wiring harness.

Installation

(1) Connect wiring harness.

(2) Position interior quarter trim panel, install attaching screws and replace courtesy lamp lens.

(3) Place housing in position and attach with screws.

(4) Position bezel and lens over housing and attach with screw.

REAR SIDE MARKER REFLECTOR

CARLINE F

Rear Side Marker Reflector (Fig. 20)

Removal

(1) Remove rear side moulding.

(2) Apply a steady pressure to the back of reflector while supporting moulding.

Installation

(1) Clean moulding gasket surface and apply Butyl tape adhesive.

(2) Position reflector and press into position.

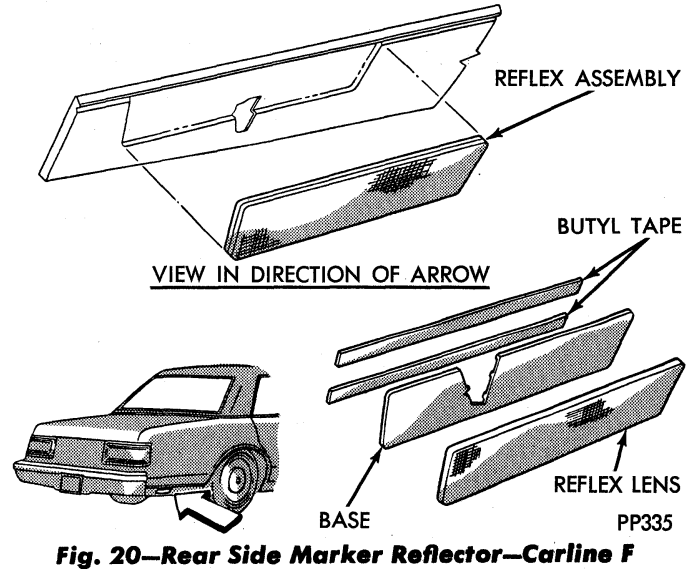


Fig. 20—Rear Side Marker Reflector—Carline F

REAR SIDE MARKER LAMPS

CARLINES H, N, R, and W SEDANS

Rear Side Marker and Reflector Lamp (Fig. 21)

To replace bulb, turn socket counterclockwise and pull out.

Removal

(1) Working in trunk compartment remove nuts attaching lamp to quarter panel.
(2) Twist out socket.

Installation

(1) Position lamp on quarter panel.
(2) Install capnuts.
(3) Twist in socket.

CARLINE S

Rear Side Marker Lamp (Fig. 22)

Twist out socket to replace bulb.

Removal

(1) Snap out tail lamp sockets.
(2) Remove tail lamp attaching nuts and remove tail lamp assembly.
(3) Twist out sidemarker socket.
(4) Remove clip from tab on sidemarker lamp and remove assembly.

Installation

(1) Twist in sidemarker socket.
(2) Position sidemarker in quarter panel opening and install clip.

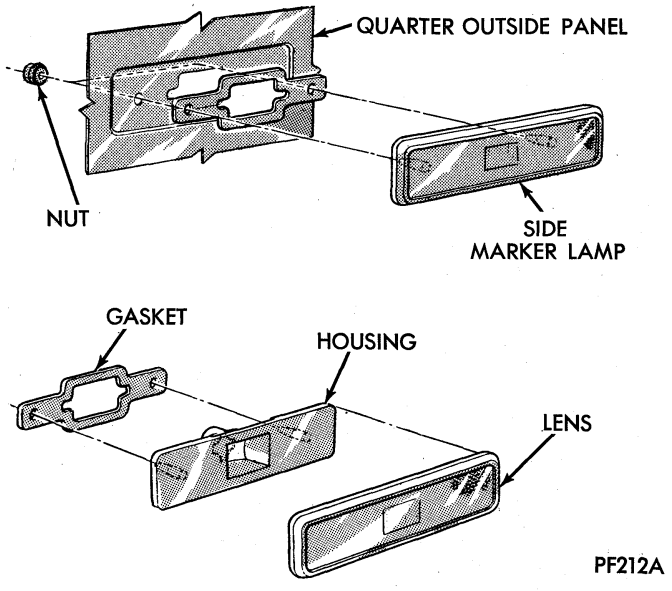


Fig. 21—Rear Side Marker and Reflector Lamp—Carlines H,N,R, and W Except Station Wagon

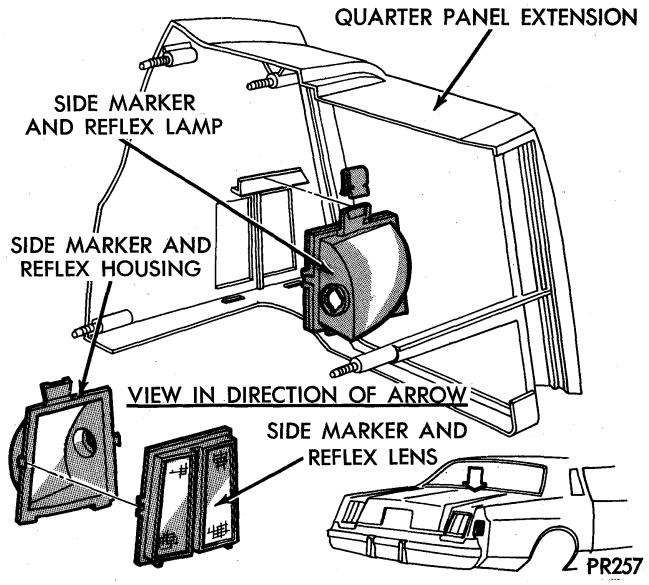


Fig. 22—Rear Side Marker Lamp—Carline S

(3) Position tail lamp assembly in quarter panel opening and install attaching nuts.
(4) Snap in tail lamp sockets.

CARLINE C (Fig. 23)

Rear Side Marker and Reflector Lamp

Remove lamp and twist out socket to replace bulb.

Removal

(1) Remove assembly mounting screws.
(2) Twist out socket.

Installation

(1) Twist in socket.
(2) Position lamp in the quarter panel opening and install the assembly mounting screws.

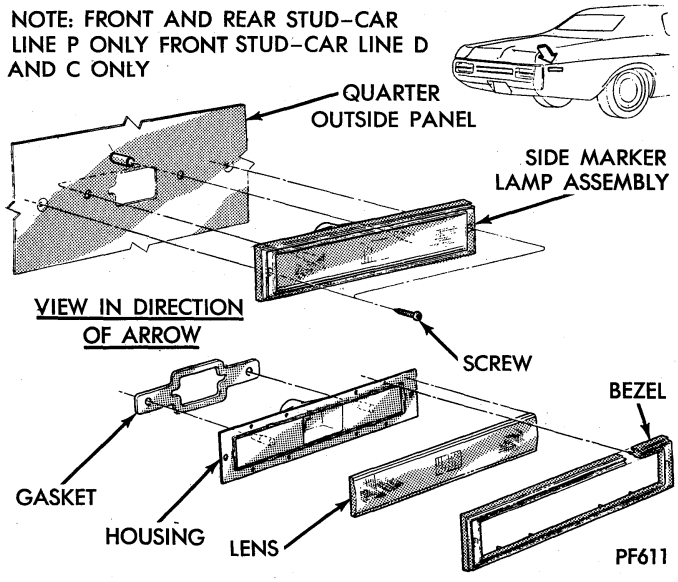


Fig. 23—Rear Side Marker Lamp—Carline C

TAIL, STOP AND TURN SIGNAL LAMPS

CARLINES H and N—TWO DOOR HARDTOP AND FOUR DOOR SEDAN (Figs. 24 and 25)

Tail, Stop, Turn Signal, and Back-Up Lamp

To replace bulbs, snap out sockets.

Removal

(1) Snap out sockets.
(2) Remove lamp attaching nuts.
(3) Remove lamp assembly from outside of lower deck panel.
(4) Remove two lens attaching screws.
(5) Remove lens by extending a wooden dowel through housing socket hole and push against lens with a steady force until lens is free from housing.

Installation

(1) Clean housing gasket track and apply butyl tape. Fit tape into all corners and overlap ends approximately 1/2 inch.
(2) Position lens and press into place.
(3) Install two lens attaching screws.
(4) Position lamp to lower deck panel and install attaching screws.
(5) Snap in sockets.

CARLINES H and N—STATION WAGON

Tail, Stop, Turn Signal, and Back-Up Lamp (Figs. 26 and 27)

To replace bulbs, remove lamp and snap out socket. Twist out back-up socket.

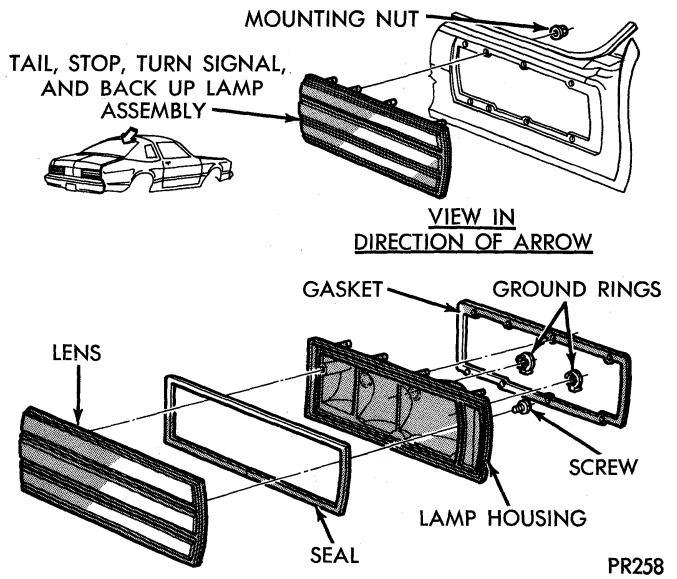


Fig. 24—Tail, Stop, Turn Signal, and Back-Up Lamp 2-Dr. HT and 4-Dr. Sedan—Carline H

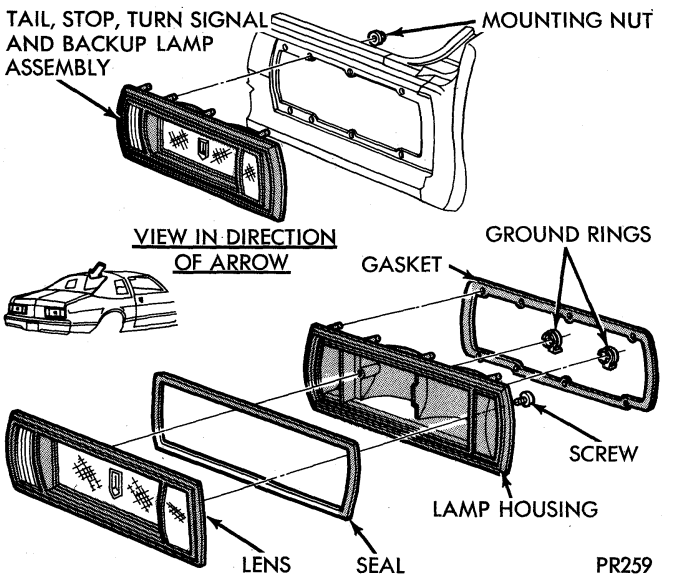


Fig. 25—Tail, Stop, Turn Signal and Back-Up Lamp 2-Dr. HT and 4-Dr. Sedan—Carline N

Removal

(1) Remove lamp attaching screws and remove lamp.
(2) Remove sockets.
(3) To remove lens, extend a wood dowel through housing socket holes and push against lens with a steady force until lens is free from housing.

Installation

(1) Clean housing gasket track and apply butyl tape adhesive.
(2) Press lens into position.
(3) Twist and snap in sockets.
(4) Position lamp assembly in quarter panel opening and install housing attaching nuts.

TURN, STOP, TURN SIGNAL, AND SIDE MARKER LAMPS

CARLINE F

Lower Deck Panel Tail, Stop, Turn Signal, and Side Marker Lamp (Fig. 28)

To replace bulbs, from inside trunk pull out sockets.

Removal

(1) From inside trunk pull out sockets.
(2) From under bumper remove 4 bumper filler attaching screws.
(3) Remove 4 housing attaching nuts and remove housing.
(4) To remove lens pry along outer edge with screwdriver until lens is free from housing.
(5) Carefully remove inner lens.

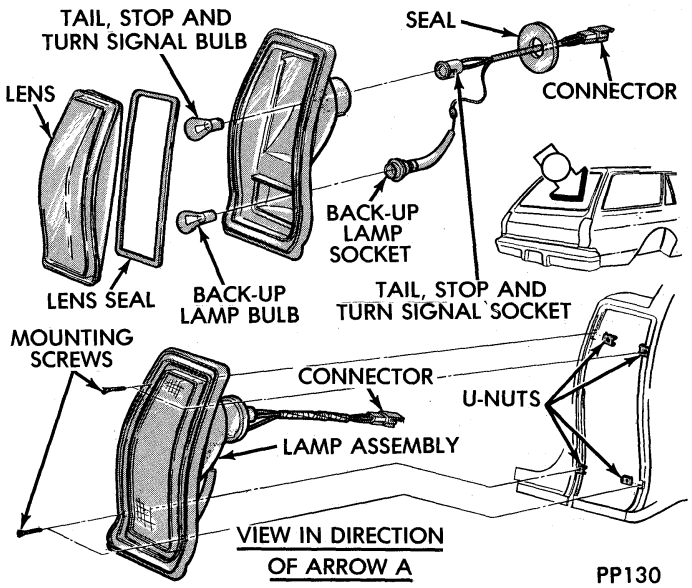


Fig. 26—Tail, Stop, Turn Signal, and Back-Up Lamps, Station Wagon—Carline H

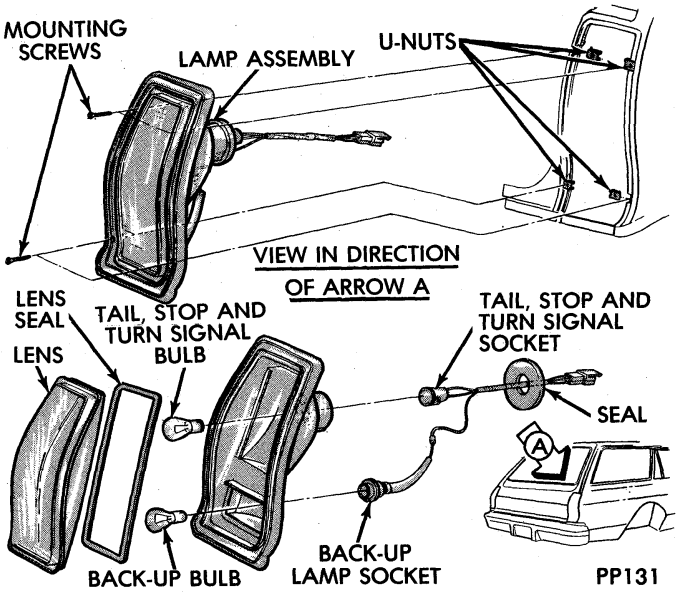


Fig. 27—Tail, Stop, Turn Signal, and Back-Up Lamps—Station Wagon—Carline N

Installation

(1) Clean housing gasket track and apply Butyl tape adhesive.

(2) Position inner lens and press into place.

(3) Position outer lens and press into place.

(4) Position lamp in lower deck panel and attach with 4 nuts.

(5) Position bumper filler and attach with 4 screws.

(6) Push sockets into proper openings.

CARLINE G

Lower Deck Panel Tail, Stop, Turn Signal, and Side Marker Lamp (Fig. 29)

To replace bulbs, from inside trunk pull out sockets.

Removal

(1) From inside trunk pull out sockets.

(2) From under bumper remove 4 bumper filler attaching screws.

(3) Remove 4 housing attaching nuts and remove housing.

(4) To remove lens extend a wooden dowel through housing socket hole and push against lens with a steady force until lens is free from housing.

Installation

(1) Clean housing gasket track and apply Butyl tape.

(2) Position lens and press into place.

(3) Position lamp into lower deck panel and attach with 4 nuts.

(4) Position bumper filler and attach with 4 screws.

(5) Push sockets into proper openings.

CARLINES R and W—FOUR DOOR SEDAN

Tail, Stop, Turn Signal, and Back-Up Lamp (Figs. 30 and 31)

To replace bulb, twist out socket from back of housing.

Removal

(1) Disconnect wiring harness.

(2) Remove rear bumper.

(3) Remove assembly mounting screws.

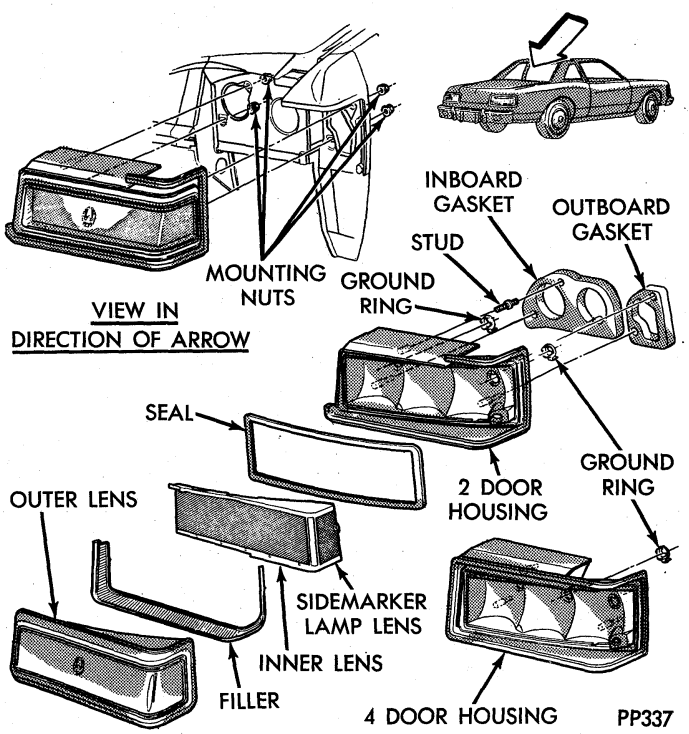


Fig. 28—Tail, Stop, Turn Signal, and Side Marker Lamp—Carline F

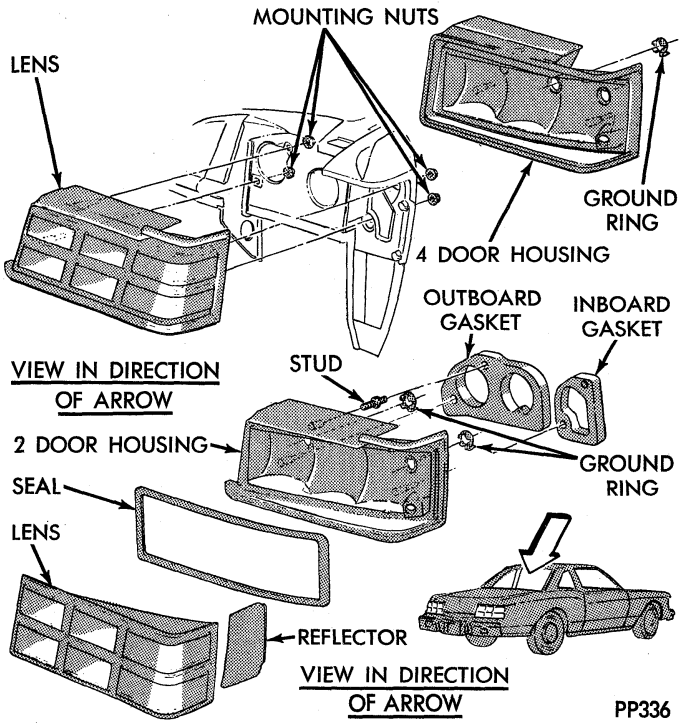


Fig. 29—Tail, Stop, Turn Signal, and Side Marker Lamp—Carline G

(4) To remove lens, release eight snaps, extend a wood dowel through housing socket holes and push against the lens with a steady force until lens is free from housing.

Installation

(1) Clean housing gasket track and apply butyl tape adhesive.

(2) Press lens into position until housing tabs snap over lens.

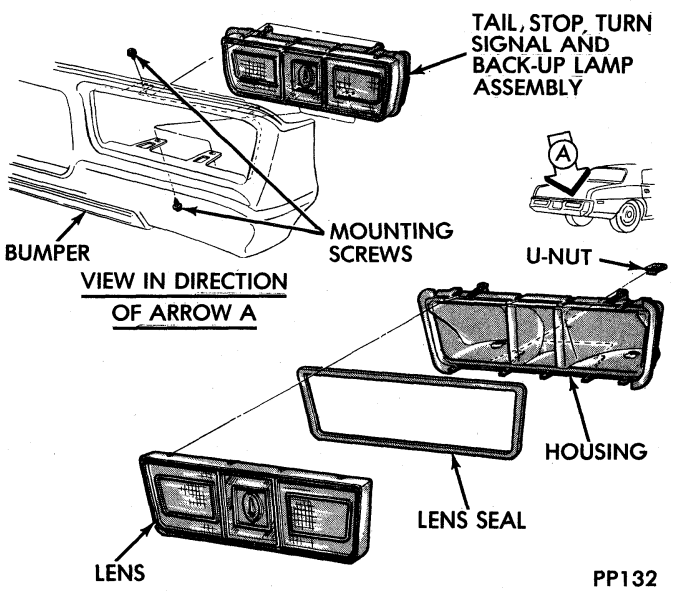


Fig. 30—Tail, Stop, Turn Signal, and Back-Up Lamps—Carline R—4-Dr. Sedan

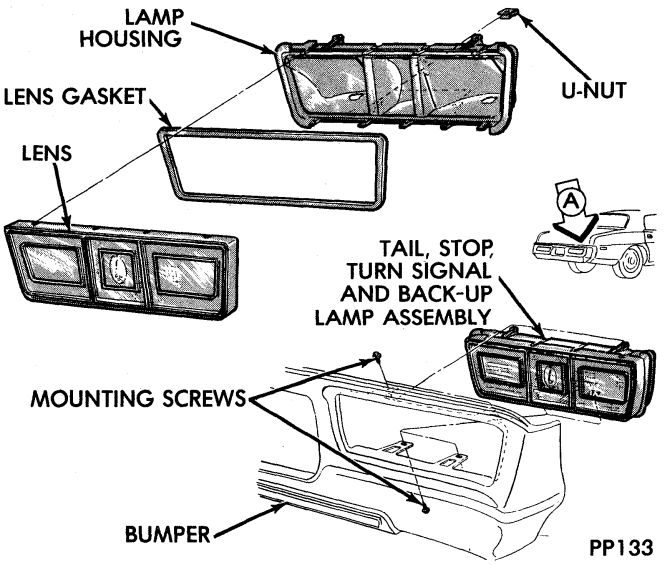


Fig. 31—Tail, Stop, Turn Signal and Back-Up Lamp—Carline W—4-Dr. Sedan

(3) Position lamp in bumper opening and attach assembly mounting screws.

(4) Install rear bumper.

(5) Connect the wiring harness.

CARLINE R and W—TWO DOOR HARD TOP

Tail, Stop, Turn Signal, and Back-Up Lamp (Figs. 32 and 33)

Snap out sockets to replace bulbs.

Removal

(1) Snap out sockets.

(2) Remove housing attaching nuts and remove lamp assembly.

(3) To remove lens, extend a wood dowel through

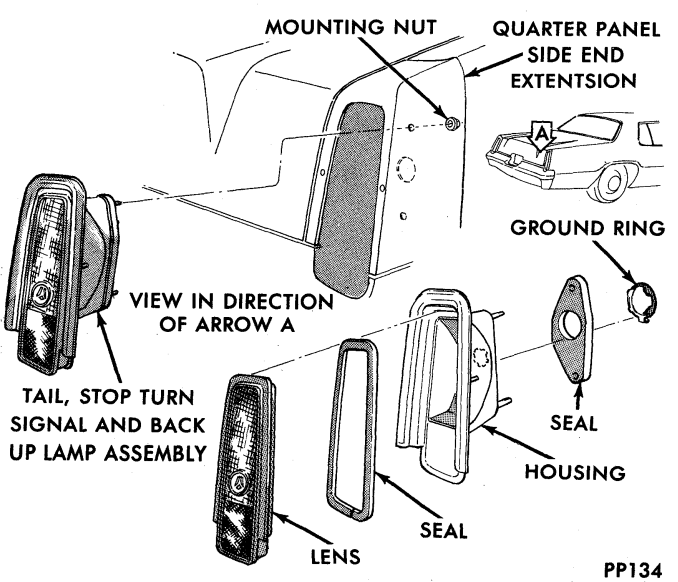


Fig. 32—Tail, Stop, Turn Signal, and Back-Up Lamp—Carline R—2-Dr. HT

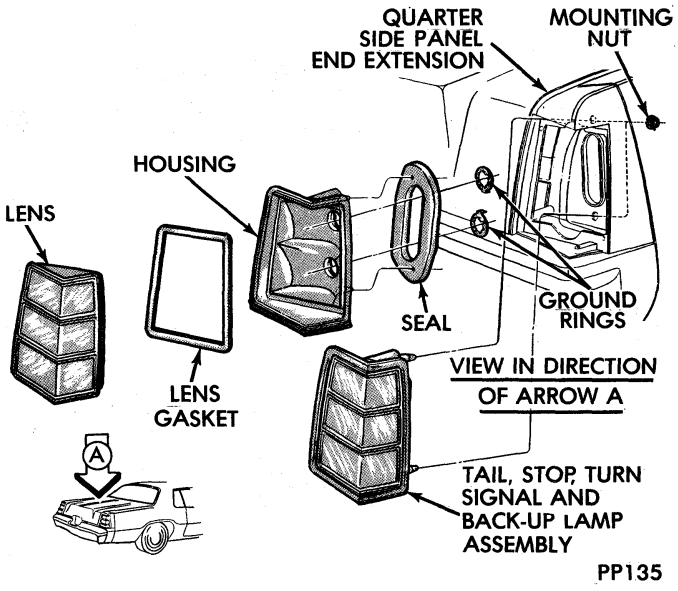


Fig. 33—Tail, Stop, Turn Signal, and Back-Up Lamp—Carline W—2-Dr. HT

housing socket holes and push against lens with a steady force until lens is free from housing.

Installation

(1) Clean housing gasket track and apply butyl tape adhesive.

(2) Press lens into position.

(3) Position lamp assembly in quarter panel opening and install housing attaching nuts.

(4) Snap in sockets.

CARLINES R and W—STATION WAGON

Tail, Stop, Turn Signal, Side Marker, and Back-Up Lamp (Fig. 34)

To replace bulbs, remove lens. To remove lens, remove lens mounting screws and lift off.

Removal

(1) Remove the tail, stop, and turn signal lens, and remove the housing attaching screws.

(2) Push aside the bumper filler and remove the two housing attaching bolts.

(3) Disconnect the wiring harness.

Installation

(1) Connect the wiring harness.

(2) Position the assembly in the quarter panel and with the lens off, install the two housing attaching screws.

(3) Install the two lower housing attaching bolts.

(4) Replace the lens.

CARLINE S

Tail, Stop, and Turn Signal Lamp (Fig. 35)

Snap out sockets to replace bulbs.

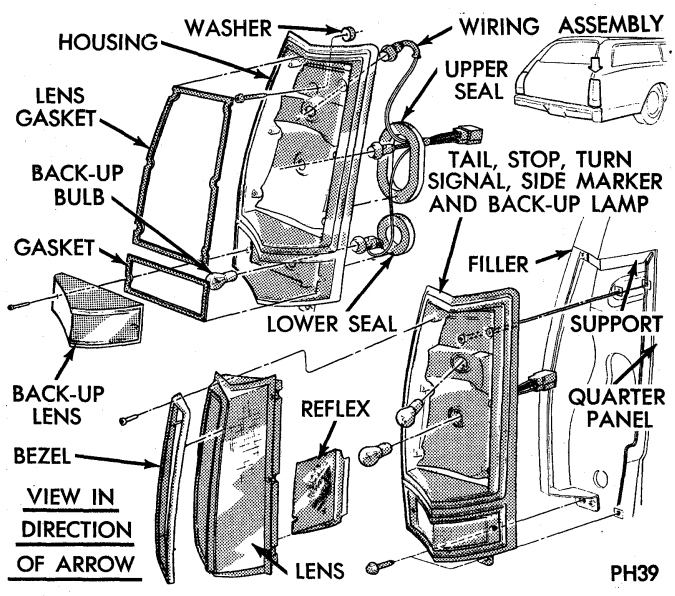


Fig. 34—Tail, Stop, Turn Signal, Side Marker, and Back-Up Lamp—Carline R and W—Station Wagon

Removal

(1) Snap out sockets.

(2) Remove housing attaching nuts and remove lamp assembly.

(3) To remove lens extend a wood dowel through housing socket holes and push against lens with a steady force until lens is free from housing.

Installation

(1) Clean housing gasket track and apply butyl tape adhesive.

(2) Position lens and press into place.

(3) Position lamp assembly in quarter panel and attach with nuts.

(4) Snap in sockets.

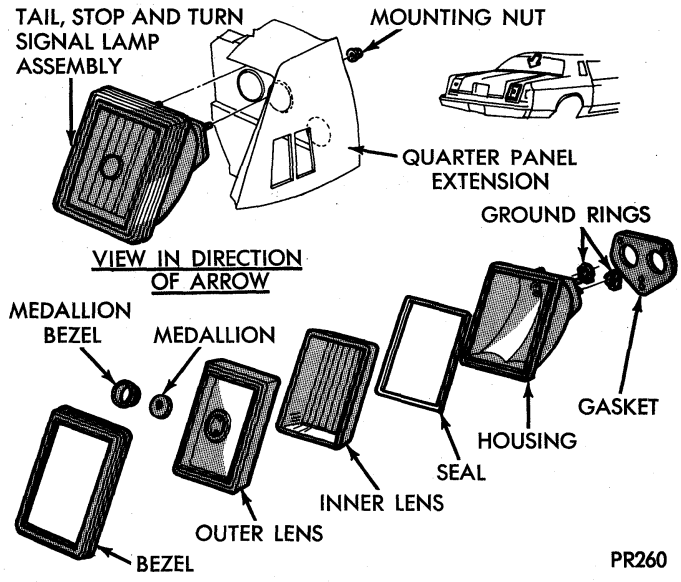


Fig. 35—Tail, Stop, and Turn Signal Lamp—Carline S

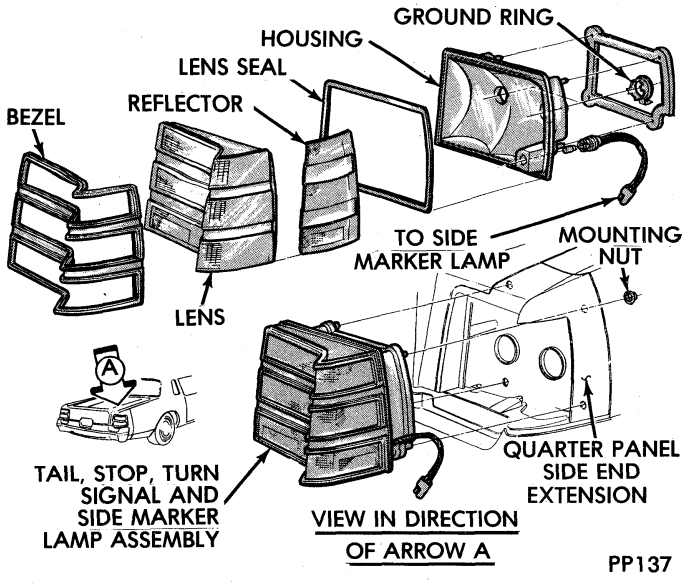


Fig. 36—Tail, Stop, Turn Signal, and Side Marker Lamp—Carline X—Charger XE

CARLINE X CHARGER SE, MAGNUM XE

Tail, Stop, Turn Signal, and Side Marker Lamp (Figs. 36 and 37)

To replace tail, stop and turn signal bulbs snap out sockets. To replace side marker bulb, remove lamp and twist out socket and cable assembly.

Removal

(1) Snap out sockets.
(2) Remove attaching nuts.
(3) Disconnect side marker socket and cable assembly.

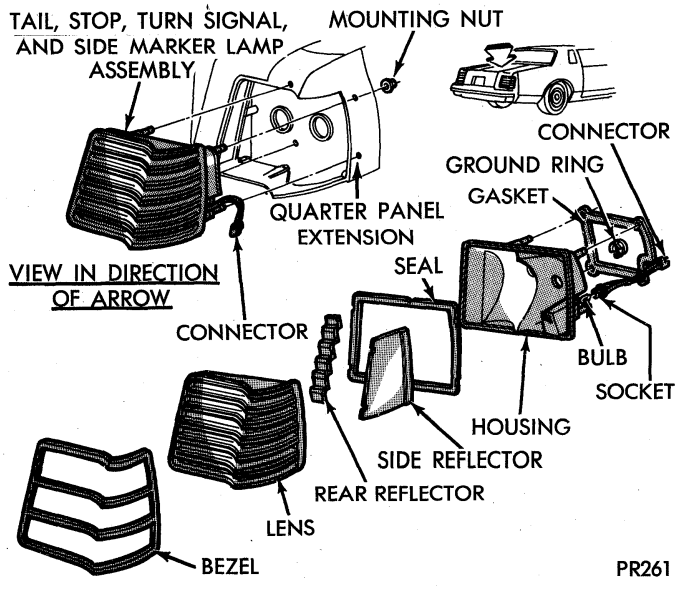


Fig. 37—Tail, Stop, Turn Signal, and Side Marker Lamp—Carline X (Magnum XE)

(4) To remove lens, extend a wood dowel through housing socket holes and push against the lens with a steady force until lens is free from housing.

Installation

(1) Clean housing gasket track and apply butyl tape adhesive.
(2) Press lens into position.
(3) Push in side marker socket and cable assembly.
(4) Position lamp in quarter panel opening and install attaching nuts.
(5) Snap in sockets.

CARLINE C—NEWPORT

Tail, Stop, Turn Signal, and Back-Up Lamp (Fig. 38)

Snap out sockets to replace bulbs.

Removal

(1) Snap out sockets.
(2) Remove seven (7) housing attaching nuts and remove housing.
(3) To remove lens, remove ten (10) bezel attaching screws.

NOTE: The left hand lamp must be removed to remove right hand lamp.

Installation

(1) Position lens and gasket to housing and attach bezel with ten (10) screws.
(2) Position lamp in the lower deck panel and attach with seven (7) nuts.
(3) Snap sockets into proper openings.

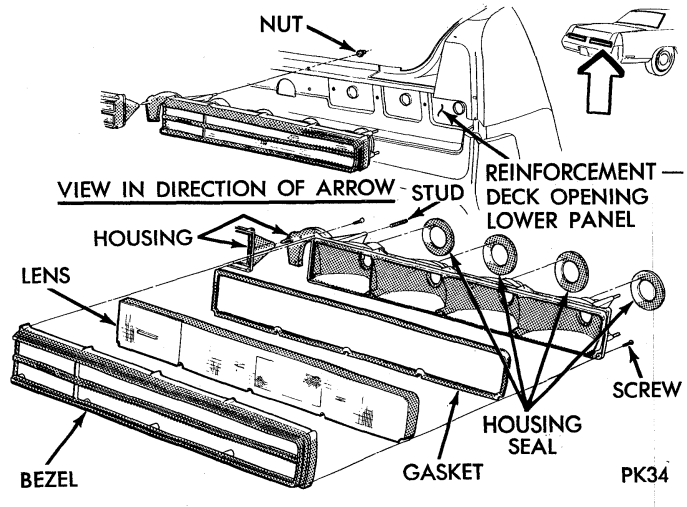


Fig. 38—Tail, Stop, Turn Signal, and Back-Up Lamp—Carline C (Newport)

CARLINE C—NEW YORKER BROUGHAM

Tail, Stop, and Turn Signal Lamp—Upper (Fig. 39)

To replace bulb, remove lamp assembly and twist out socket.

Removal

(1) Remove the lamp mounting screws and remove lamp.

(2) Twist out socket.

Installation

(1) Twist in socket.

(2) Position the lamp assembly in the quarter panel extension and install the mounting screws.

Tail, Stop, and Turn Signal Lamp—Lower (Fig. 40)

Remove the lens to replace bulbs.

Removal

(1) Disconnect the wiring harness.

(2) Remove the lamp attaching nuts and remove lamp.

Installation

(1) Position the lamp assembly in the bumper opening and install the housing attaching nuts.

(2) Connect wiring harness.

BACK-UP LAMPS AND REAR REFLECTORS

CARLINE R and W—TWO DOOR HARD TOP

Back-Up Lamp (Fig. 41)

To replace bulb, remove lens by removing attaching screws.

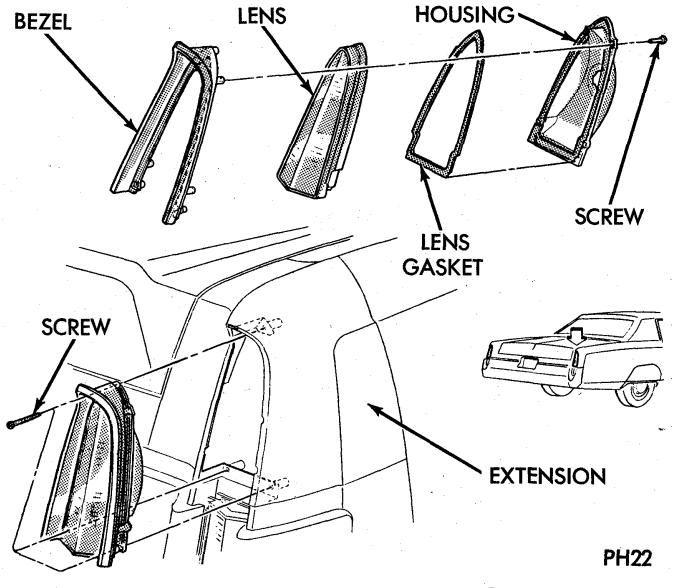


Fig. 39—Tail, Stop, and Turn Signal—Upper—Carline C (New Yorker Brougham)

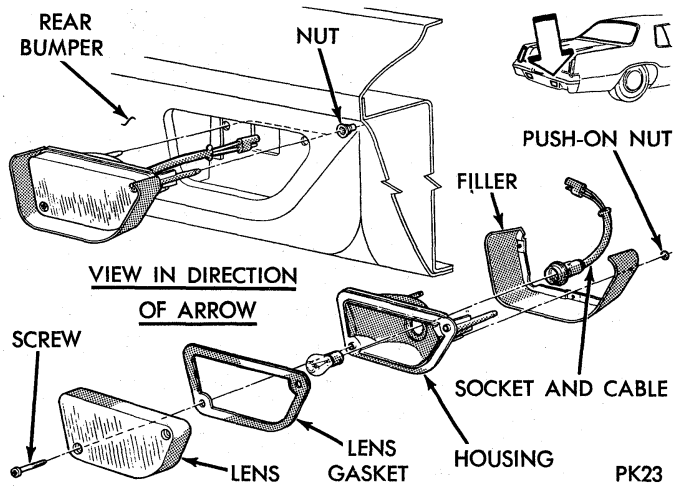


Fig. 40—Tail, Stop, and Turn Signal Lamp—Lower—Carline C (New Yorker Brougham)

Removal

(1) Remove assembly attachment nuts and pull lamp through bumper opening.

(2) Disconnect wiring harness.

Installation

(1) Connect wiring harness.

(2) Position lamp in bumper opening and attach assembly mounting nuts.

CARLINES R AND W—STATION WAGON

Rear Reflector Lamp (Fig. 42)

Removal

(1) Remove rear bumper.

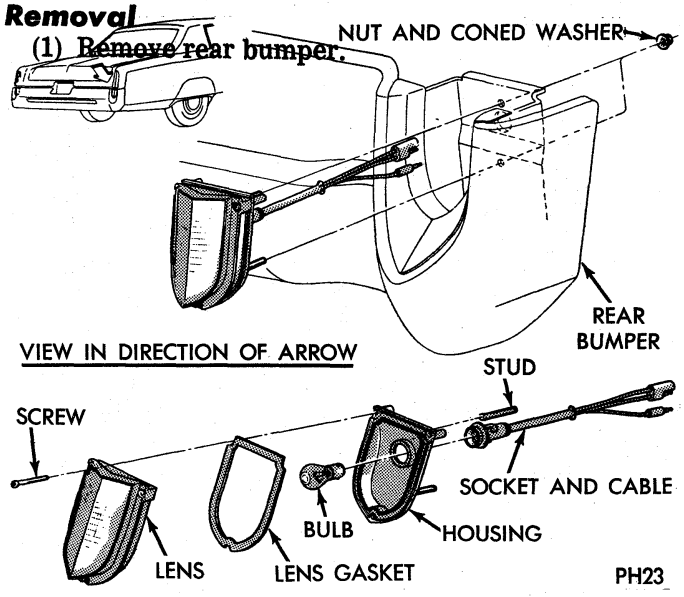


Fig. 41—Back-Up Lamps—Carline R and W—2-Dr. HT

(2) Compress the attaching tabs and snap out of the bumper holes.

Installation
(1) With bumper installed snap reflex into place.

CARLINES F, G, S, AND X

Back-Up Lamp (Figs. 43 and 44)
To replace bulb, remove lamp and twist out socket.

Removal
(1) Remove assembly attachment screws and pull lamp through bumper opening.
(2) Twist out socket.

Installation
(1) Twist in socket.
(2) Position lamp in bumper opening and attach the assembly mounting screws.

CARLINE C—NEW YORKER BROUGHAM

Back-Up Lamp (Fig. 45)
Twist out sockets to replace bulbs.

Removal
(1) Twist out sockets.
(2) Remove the housing mounting screws and pull through the bumper opening.

Installation
(1) Position the housing in the bumper opening and install the housing attaching screws.
(2) Twist in the sockets.

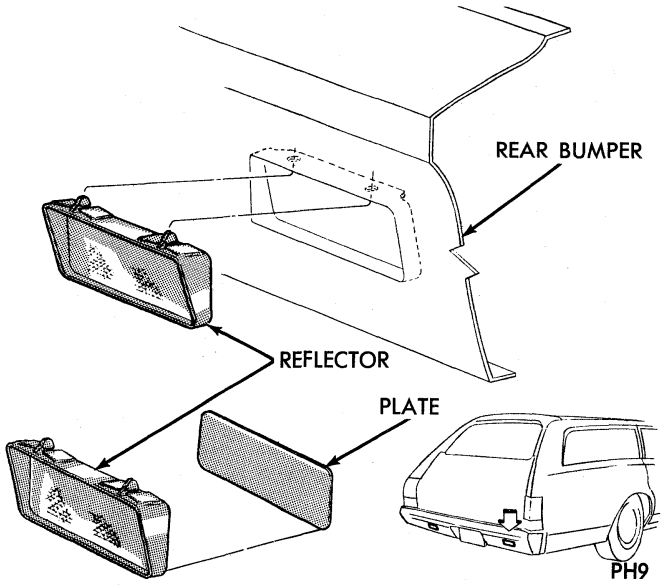


Fig. 42—Rear Reflector Lamp—Carline R and W—Station Wagon

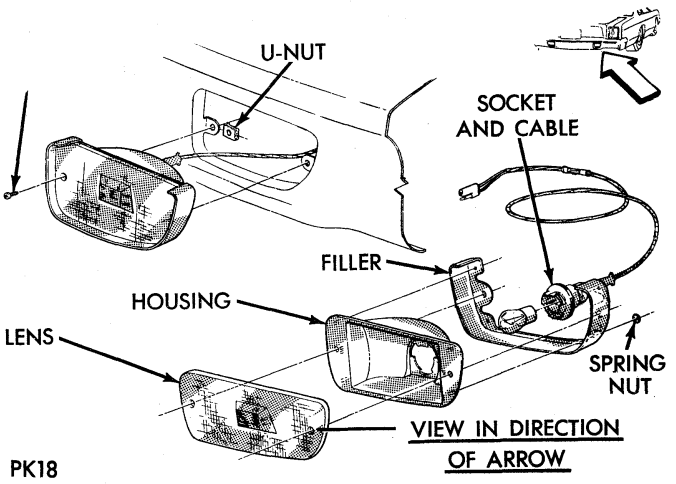


Fig. 43—Back-Up Lamp—Carline X (Charger SE)

Rear Bumper Reflex Reflector Lamp (Fig. 46)

Removal
(1) Snap reflex reflector assembly out.

Installation
(1) Snap reflex reflector assembly in.

LICENSE LAMPS

CARLINES H, N, F, G, R, and W STA. WAGONS AND C NEWPORT ONLY

Bumper License Lamp (Fig. 47)
To replace bulb, remove license lamp assembly and twist out socket.

Removal
(1) Remove license plate.

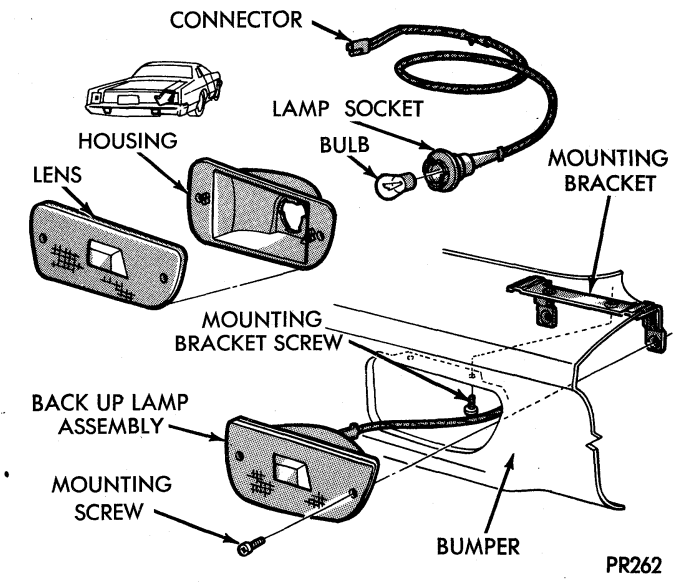


Fig. 44—Back-Up Lamps—Carlines S and X—Charger XE

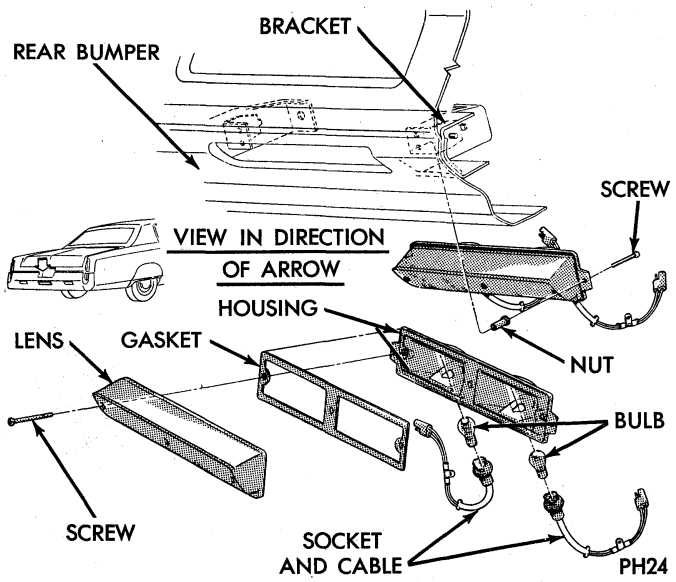


Fig. 45—Back-Up Lamp, Carline C (New Yorker Brougham)

(2) Remove screws securing lamp assembly to bumper. The mounting screws are a special type to be used with the acrylic plastic lamp.

(3) Remove lamp housing from bumper.

(4) Twist socket and pull to release from lamp housing.

Installation

(1) Insert wedge base bulb in socket.

(2) Push socket in housing and twist socket to lock in position.

(3) Position lamp housing to bumper.

(4) Attach lamp assembly to bumper using attaching screws.

(5) Install license plate.

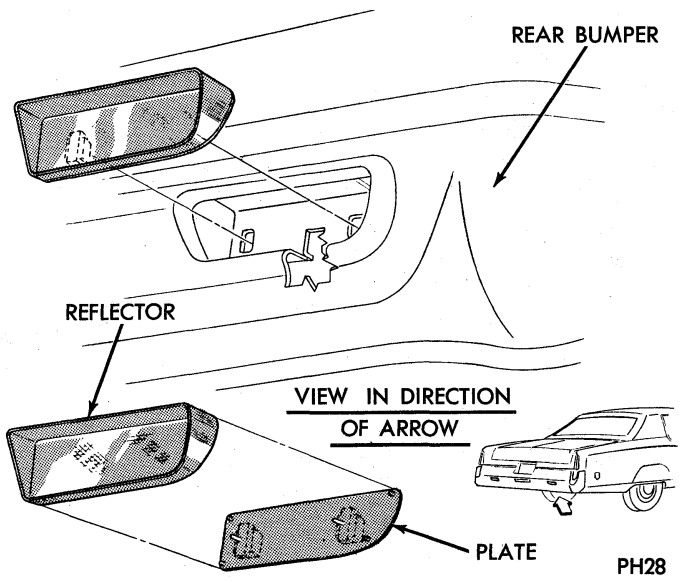


Fig. 46—Rear Bumper Reflex Lamp, Carline C (New Yorker Brougham)

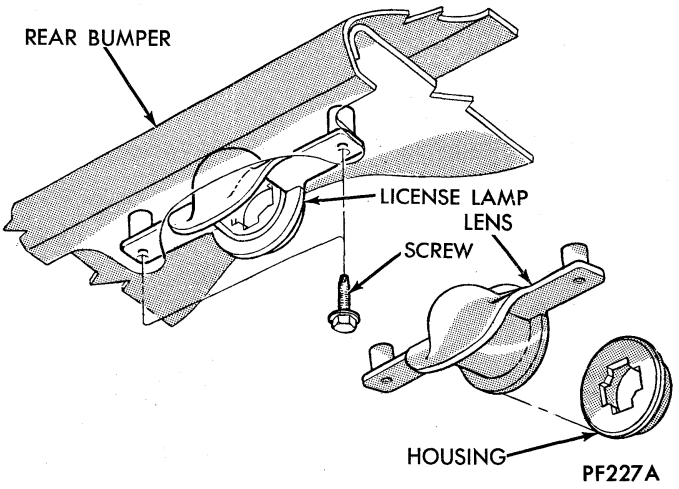


Fig. 47—License Lamp, Carlines H,N,F,G,R and W—Station Wagon and C Newport

CARLINES R and W—FOUR DOOR SEDAN

License Lamp (Fig. 48)

To remove bulb, remove license lamp assembly and twist out socket.

Removal

(1) Remove license plate.

(2) Remove screws securing lamp and bracket assembly to bumper.

(3) Twist socket and pull to release from lamp housing.

(4) Remove screws securing lamp to bracket. The mounting screws are a special type to be used with the acrylic plastic lamp.

Installation

(1) Insert wedge base bulb in socket.

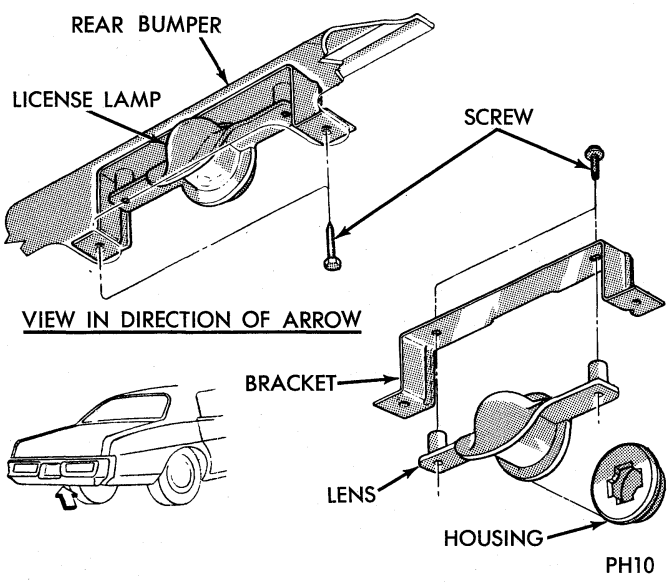


Fig. 48—License Lamp—Carline R and W—4-Door Sedan

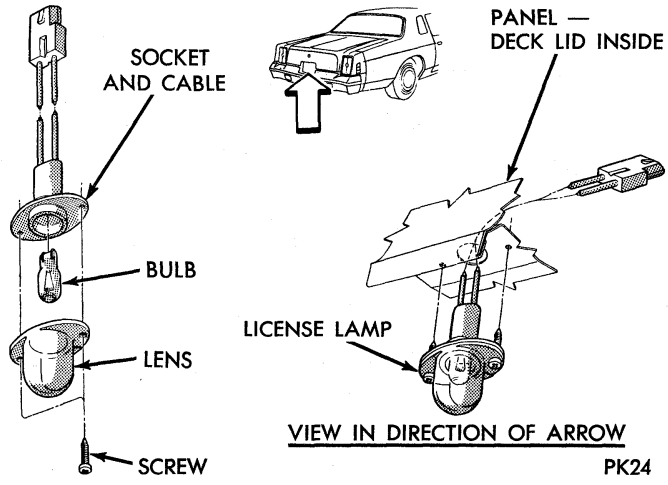


Fig. 49—License Lamp—Carline R and W—2-Door S and X

(2) Push socket in housing and twist socket to lock in position.

(3) Attach lamp to bracket using special plastic tapping screws.

(4) Position lamp and bracket assembly to bumper.

(5) Attach lamp assembly to bumper using attaching screws.

(6) Install license plate.

CARLINES R and W TWO DOOR, S and X

License Lamp (Fig. 49)

To replace bulb remove lens by removing two attaching screws.

Removal

(1) Disconnect wiring harness at deck lid hinge.

(2) Remove two lens attaching screws and pull socket and cable assembly through deck lid.

Installation

(1) Install socket and cable assembly in deck lid.

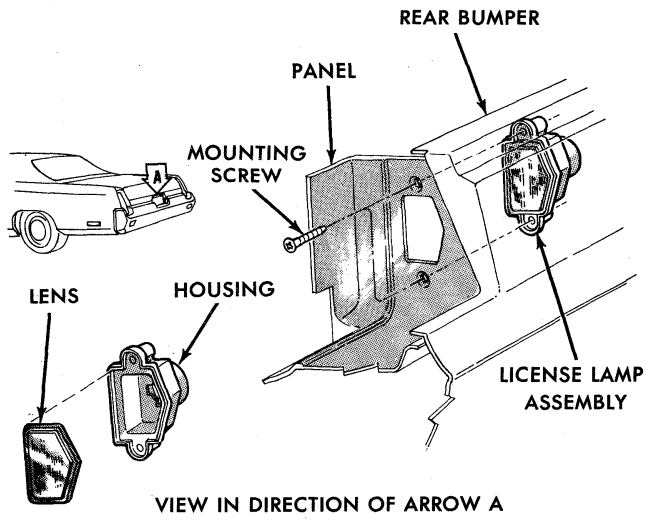


Fig. 50—License Lamp, Carline C (New Yorker Brougham)

(2) Position socket and lens in deck lid opening and attach lens mounting screws.

(3) Connect wiring harness at deck lid hinge.

CARLINE C—NEW YORKER BROUGHAM

License Lamp (Fig. 50)

Twist out sockets to replace bulbs.

Removal

(1) Twist out socket.

(2) Remove the housing attaching screws and remove housing.

Installation

(1) Twist in socket.

(2) Position the lamp in the opening from the inside of bumper and install housing mounting screws.

HEADLIGHTS

GENERAL INFORMATION

Dual Headlight System

The dual headlight system consists of four sealed beam bulbs. The two outboard or upper bulbs are of the two filament type for low and high beam. These bulbs are identified by a numeral (2) molded in the lens. The two inboard or lower bulbs have only one filament and are marked by a number (1) molded in the glass.

The bulbs cannot be installed wrong as the mounting lugs for the number one (1) and number two (2) bulbs are offset at different angles or corners.

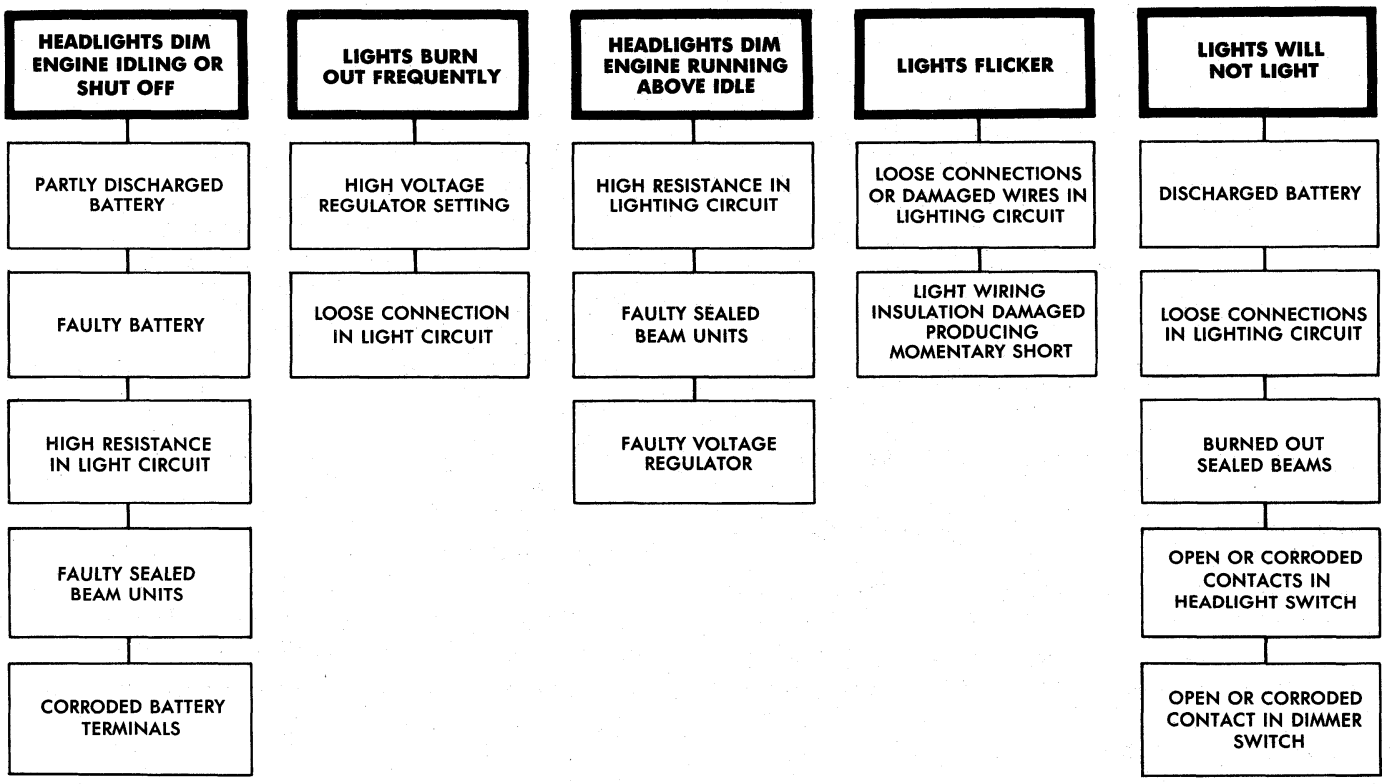
On high beam, the number 1 bulbs provide the high intensity "reach" down the highway and the off focus filament in the number 2 light provides the "body" light which illuminates the side of the road, ditches, etc. On low beam, only the number two (2) bulbs operate.

Single Headlight System

The single beam system consists of two sealed beam bulbs. The bulbs are the two filament type for low and high beam and are marked by a number 2 molded in the lens.

The low beam is intended for use in congested ar-

HEADLAMP DIAGNOSIS



eas and on highways when meeting other vehicles within a distance of 500 feet. The high beam is intended primarily for distant illumination and for use on the open highway when not meeting other vehicles.

Manual on and off operation is controlled by a switch mounted on the instrument panel while manual operation of the high-low beam is controlled with a foot operated dimmer switch mounted on the left side of the floor pan.

SERVICE PROCEDURES

PRE-AIMING INSTRUCTIONS

(1) Test dimmer switch operation.

(2) Observe operation of high beam indicator light mounted in instrument cluster.

(3) Inspect for badly rusted or faulty headlight assemblies. These conditions must be corrected before a satisfactory adjustment can be made.

(4) Place vehicle on a level floor.

(5) Adjust front suspension height as necessary.

(6) Jounce front suspension through three (3) oscillations by applying body weight to hood or bumper.

(7) Inspect tire inflation.

(8) Rock vehicle sideways to allow vehicle to assume its normal position.

(9) If gasoline tank is not full, place a weight in trunk of vehicle to simulate weight of a full tank (6-1/2 pounds per gallon).

(10) There should be no other load in vehicle other than driver or substituted weight of approximately 150 pounds placed in driver's position.

(11) Remove each headlight trim panel. Do not remove sealed beam retainer rims.

(12) Thoroughly clean headlight lenses.

COMPENSATING THE AIMERS FOR FLOOR SLOPE

The floor level offset dial must coincide with the floor slope for accurate aiming. Calibration fixtures are included with the aimers.

(1) Attach one calibration fixture to each aimer. Fixtures will easily snap into position on aimer when properly positioned (Fig. 1).

(2) Place aimers at centerline of each wheel on one side of vehicle (Fig. 1). Unit A must be placed at rear wheel with target facing forward. Unit B must be placed at front wheel with target facing rearward.

(3) Adjust thumb adjusting screw on each calibration fixture by turning either clockwise or counter-

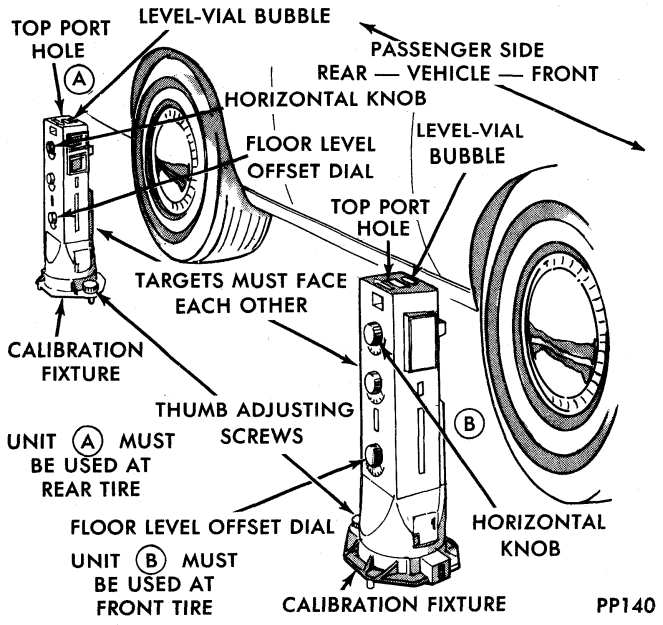


Fig. 1—Determining Floor Slope

clockwise until level vial bubble registers in a centered, level position (Fig. 1).

(4) Look into top port hole of Unit A. Turn horizontal knob until split image is aligned (Fig. 2 and 3).

(5) Transfer plus or minus reading indicated on horizontal dial to floor level offset dial on each aimer. Press floor level dial inward to set reading (Fig. 3).

(6) Remove calibration fixtures from both units.

TESTING AIMER CALIBRATION

Calibration of the aimers may be lost due to extended use. Calibration fixtures used in conjunction with aimers can be used to check and adjust aimers.

(1) Turn thumb adjusting screw on each calibration fixture until it is approximately the same distance as the supporting posts (Fig. 4).

(2) Attach calibration fixtures to each unit with level vials on top (Fig. 4).

(3) Locate a true vertical plate glass window or smooth surface and secure aimers three to five feet apart so split image targets can be located in viewing ports (Fig. 5).

(4) Set floor level dial at zero (Fig. 1).

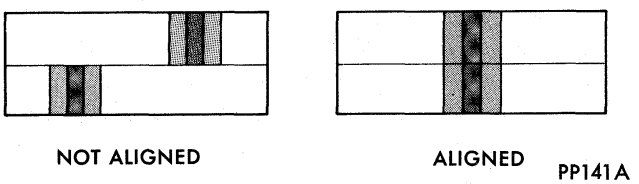


Fig. 2—Split Image Alignment

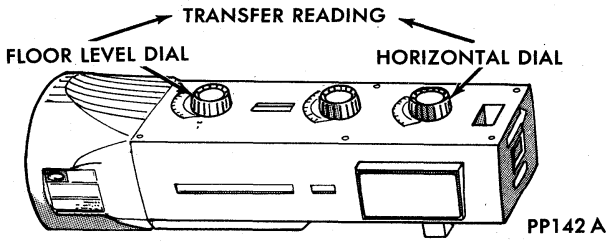


Fig. 3—Floor Level Compensating Adjustment

(5) Rotate thumb adjusting screws on each calibration fixture until level vials on fixtures are centered (Fig. 4).

(6) With both calibration level vials centered turn vertical dial knobs on each aimer until aimer level vials are centered. If aimer vertical dial pointers read between 1/2 up and 1/2 down, aimers are within allowable vertical tolerance. Re-calibrate units if beyond these limits (Fig. 6).

(7) Adjust horizontal dial knob on each aimer until split image targets align. If aimer horizontal dial pointers read between 1 left and 1 right, the aimers are within allowable tolerance limits. Re-calibrate units if beyond these limits (Fig. 3).

MOUNTING AIMERS

(1) If necessary to expose adjusting screws remove headlamp trim rings.

(2) Snap proper adaptor into position on each aimer (Fig. 7).

(3) Position aimers on headlamps by pushing piston handle forward, engaging rubber suction cup. Immediately pull back piston handle until it locks in place (Fig. 8).

NOTE: Steel inserts are moulded into position on all adaptors to insure accuracy. These inserts must be in contact with the three guide points on the lamps when the aimers are properly positioned.

HORIZONTAL ADJUSTMENT

(1) Set horizontal dial to zero (Fig. 3).

(2) Check to see that the split image target lines are visible in the viewing port. If necessary, rotate each

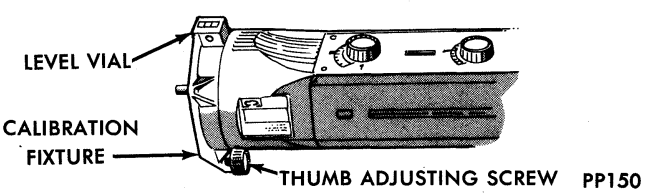


Fig. 4—Calibration Fixture

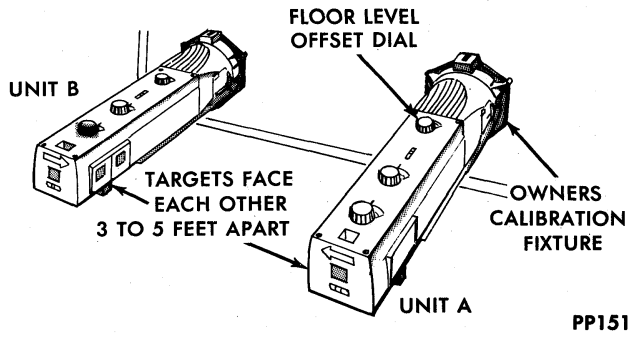


Fig. 5—Checking Aimer Calibration

aimer slightly to locate the target (Fig. 9).

(3) Turn horizontal screw on side of headlamp until split image of target line appears in mirrors as one solid line (Fig. 9). To remove "backlash," make final adjustment by turning adjusting screw in a clockwise direction.

(4) Repeat the last three steps on opposite headlamp.

(1) The vertical dial should be set at zero. (For passenger vehicles, an "0" setting is generally required. For special settings, consult local state laws.)

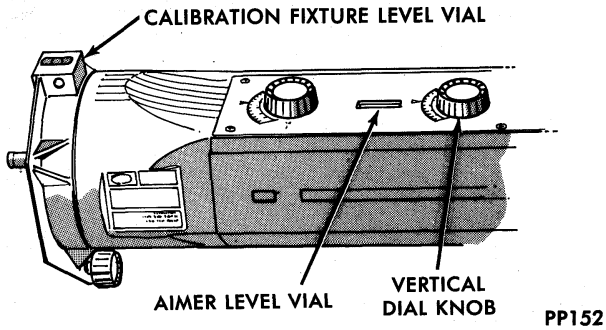


Fig. 6—Checking Vertical Aim Calibration

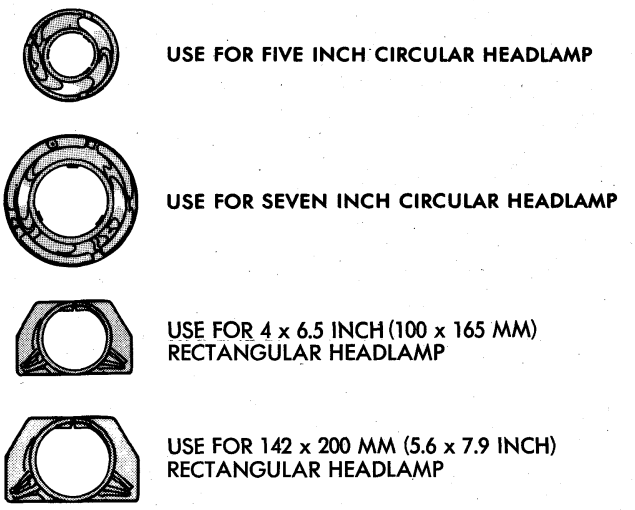


Fig. 7—Head Lamp Adaptors

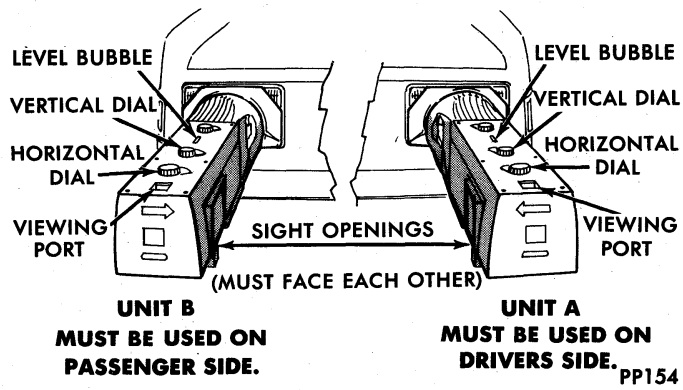


Fig. 8—Head Lamp Aimers in Position

VERTICAL ADJUSTMENT

(2) Turn vertical adjusting screw (Fig. 6) until the level bubble is centered between the lines (Fig. 9).

(3) Repeat the last two steps on the opposite headlamp.

(4) Re-check target alignment on both aimers and readjust horizontal aim if necessary.

(5) Repeat aiming process for a four headlamp system on the second pair of lamps.

(6) Remove aimers by pressing "vacuum release" button located on piston handle.

(7) Install headlamp trim rings if removed.

SEALED BEAM REPLACEMENT (ALL MODELS)

The lens, filament and reflector are sealed into one unit which can be removed as follows:

(1) Remove screws from headlight bezel and remove bezel.

(2) Remove screws from interior retaining ring, and remove ring. **Do not disturb headlight aimer screws.**

(3) Pull out sealed beam unit and unplug connector, pulling straight off.

(4) Install new sealed beam unit.

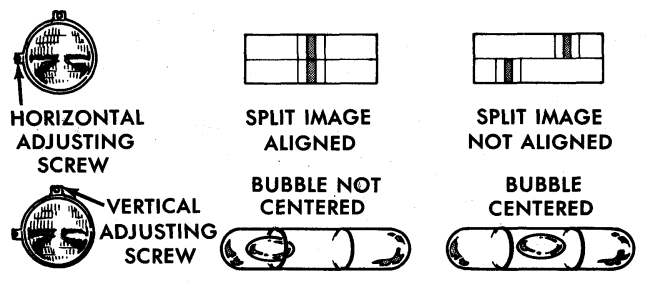


Fig. 9—Split Image and Bubble Alignment and Head Lamp Adjusting Points

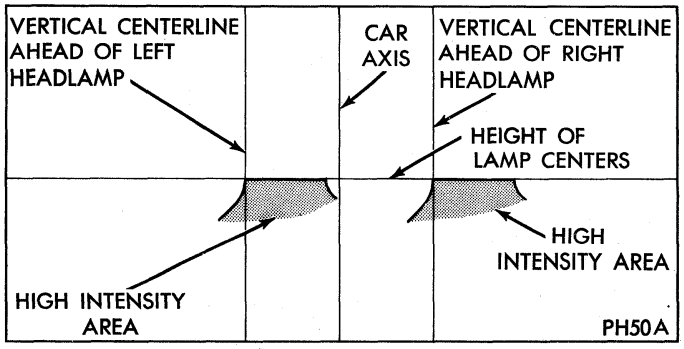


Fig. 10—Low Beam Adjust Pattern

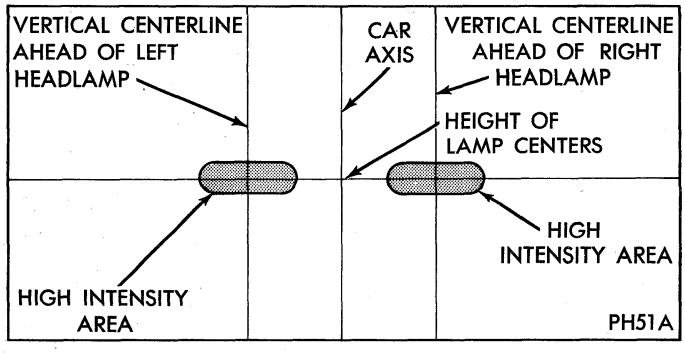


Fig. 11—High Beam Adjust Pattern

(5) Install unit retaining ring.
(6) Aim the headlight and install headlight bezel.

HEADLAMP AIM PREPARATION AND ADJUSTMENT

Place vehicle on a known level floor 25 feet from aiming screen or other light colored area. Prepare aiming screen as follows:

(1) Position a vertical tape so that it is aligned with the vehicle centerline.

(2) Position a horizontal tape with reference to centerline of headlamp.

(3) Position a vertical tape on the screen with reference to the centerline of each headlamp. A four headlamp system will have four vertical tapes plus the vehicle centerline tape. A two headlamp system will have two vertical tapes plus the vehicle centerline tape.

(4) Open headlamp doors if so equipped. Adjust top adjusting screw for veritcal adjustment, adjust side screw for horizontal adjustment.

Low Beam Type No. 2 Bulb

(1) A properly aimed lower beam of 5-3/4 and 7 inch round or 4 x 6.5 inch (100 x 165 mm) rectangular (Type 2 marked "2" on lens) or 142 x 200 mm (5.6 x 7.9 inch Type 2B marked "2B" on lens) rectangular sealed beam will appear on the aiming screen 25 feet in front of the vehicle. The shaded area as shown in Figure 10 indicates high intensity zone.

(2) Adjust low beam of headlamps to match the low beam patterns of the right and left headlamps.

NOTE: Type 2 or type 2B sealed beam should be aimed according to low beam procedure only.

Upper Beam Type No. 1 Bulb

(1) A properly aimed upper beam of 5-3/4 round (Type 1, marked "1" on lens) or 4 x 6.5 inch (100 x 165 mm) rectangular sealed beam (Type 1A marked "1A" on lens) will appear on the aiming screen 25 feet in front of vehicle. The shaded area as shown in Figure 11 indicates high intensity zone.

(2) Adjust high beam of headlamps to match the high beam patterns of right and left headlamps in Figure 11.

CONCEALED HEADLIGHTS

GENERAL INFORMATION

The concealed headlamp doors, where applicable, are electrically operated by a single electric motor mounted behind the center grille. The motor is series-wound with two field windings and has a worn gear drive and internal limit switches.

The relay and circuit breaker assembly is mounted on the right side of the steering column support.

To open headlamp doors in the event of an electrical failure, first disconnect the motor leads, then rotate the hand wheel located at the lower end of motor clockwise, as indicated by the decal on radiator yoke, until headlamp doors are fully opened. See Figure 1 for location of motor on carline D and Figure 2 on carline C. Rotating the hand wheel after the doors reach end of travel will damage motor.

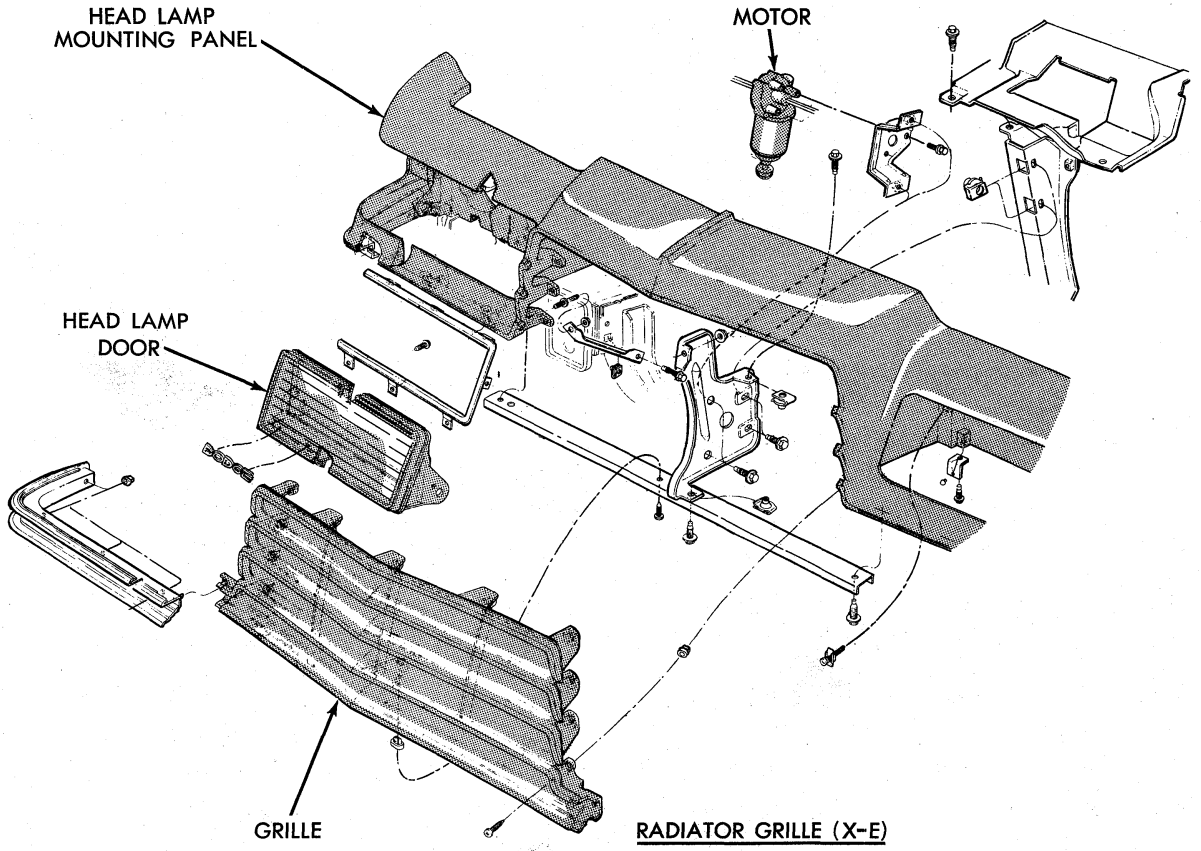


Fig. 1—Headlamp Door—Carline X

CONCEALED HEADLAMP DOOR DIAGNOSIS

HEADLIGHT DOORS INOPERATIVE	HEADLIGHT DOORS UNEVEN — ONE DOESN'T COMPLETELY OPEN OR CLOSE	NOISE IN PASSENGER COMPARTMENT CYCLING CIRCUIT BREAKER	HEADLIGHT DOORS OPERATE WITH EXCESSIVE NOISE
IGNITION SWITCH IN WRONG POSITION	TORSION BAR TWISTED	MOTOR LIMIT SWITCH MALFUNCTION	MOTOR PLASTIC DRIVE GEAR STRIPPED
FAULTY MOTOR	ONE CRANK SCREW MISSING	CIRCUIT BREAKER FAILURE	RUBBER BUMPER(S) WORN OR MISSING
FAULTY WIRING TO MOTOR			DOOR PIVOT BUSHINGS WORN MISSING OR DRY
TORSION BAR DISCONNECTED	CRANK SCREWS MISSING	FAULTY HEADLAMP SWITCH OR RELAY	DOOR RUBBING AGAINST GRILLE

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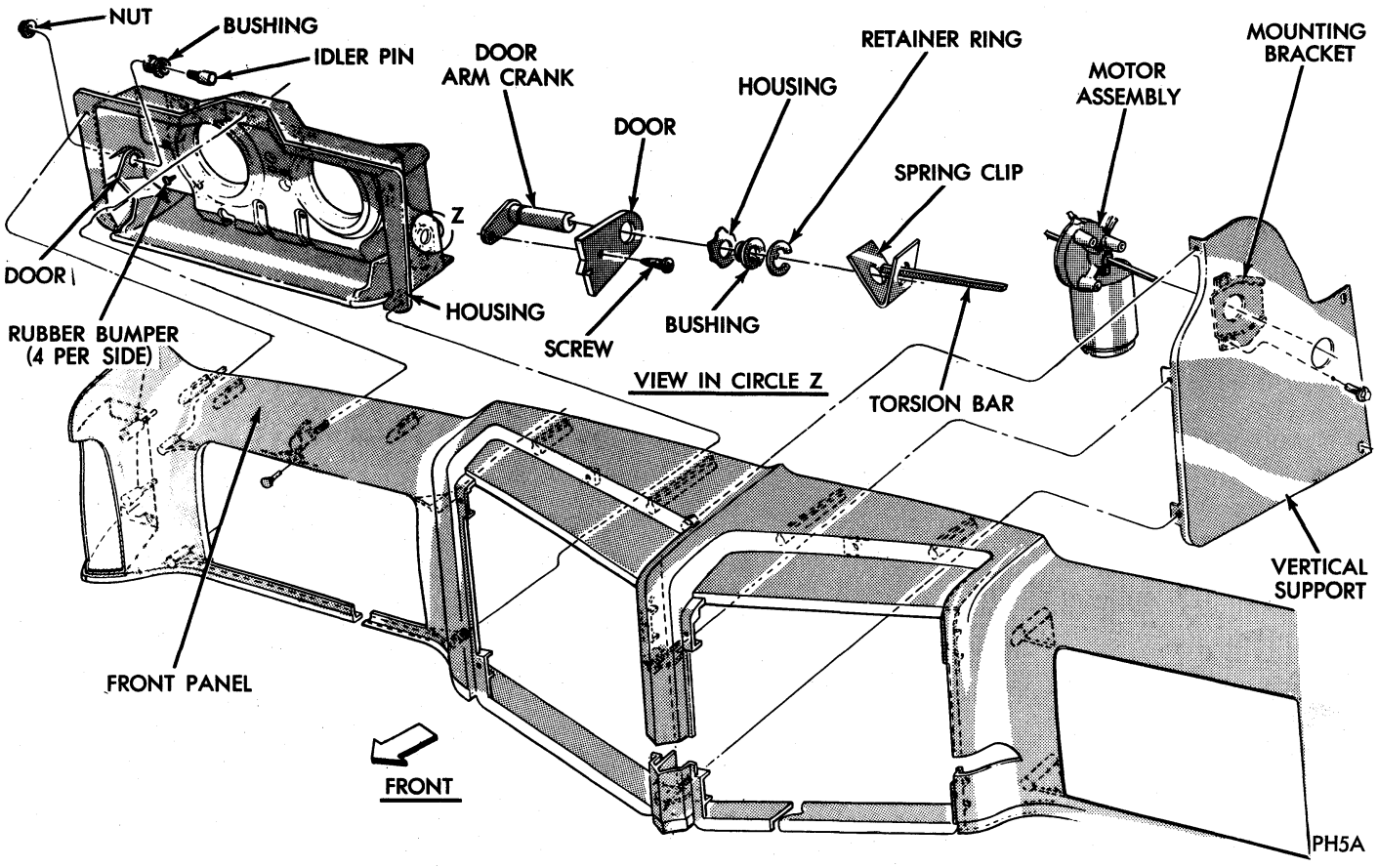

Fig. 2—Headlamp Door (Carline C)

SERVICE PROCEDURES

MOTOR AND WIRING TESTS

(1) In the event headlamp doors do not operate and headlights and ignition switch are on (not accessory position) and before starting any tests:

- Check for good ground continuity terminals fully seated.
- Connectors free of dirt and corrosion.
- Wire from the motor ground terminal is connected to a good body ground.

Do not operate motor with headlamp doors disconnected as operating the motor without load will damage motor.

This next test bypasses the limit switches so power should be applied only momentarily to avoid system damage.

(2) Using jumper wires test motor operation by using the car battery as a source of power. Apply power to motor terminals after limit switch and check motor operation in both directions (Fig. 3).

(3) If motor draws current but does not operate in either direction, motor has an internal short circuit or a locked armature condition and should be replaced. If motor draws no current, then there is an open circuit and motor should be replaced.

(4) If motor operates, test limit switches by applying power to motor terminals before limit switch. If motor operates in both directions the limit switches are functional.

(5) If the limit switches are not functional, perform the gear and limit switch test as detailed in Service Procedures below.

(6) Use jumper wires at bulkhead disconnect, to see if there is voltage at the terminal for both lights on and off. If there is no voltage for either door position, perform Step (7).

(7) Test for loose wire at "H" terminal of headlamp switch, headlamp motor relay and for faulty circuit breaker.

TORSION BAR AND MOTOR

Removal (As An Assembly)

(1) Disconnect battery ground strap and motor leads including ground wire from harness.

(2) Rotate hand wheel on motor COUNTER-CLOCKWISE if doors are open. Rotate CLOCKWISE if doors are closed. Rotate until headlamp doors are at halfway open position (Fig. 3).

(3) Compress and remove clips from crank assemblies.

(4) Remove torsion bar from slotted areas in cranks as described in headlamp door removal.

(5) Remove motor mounting bracket (2 bolts) from vertical lock support and remove torsion bar from motor.

Installation

Do not bench test new motor. Otherwise motor will be damaged if operated without a load.

(1) Position motor on mounting bracket and install mounting screws. Verify that motor is in halfway open position (Fig. 3). Tighten attaching screws to 60 inch pounds, plus or minus 15 inch pounds.

(2) Insert torsion bar in motor and position clips on bar. The torsion bar and the hole in the motor are rectangular and can be assembled only one way.

(3) Position motor mounting bracket on vertical lock support and tighten attaching bolts to 220 inch pounds.

(4) Position and seat torsion bar in slotted areas of cranks. Compress clips. Position over cranks and torsion bar.

(5) Connect motor to harness, connect battery ground strap and test operate.

GEAR AND LIMIT SWITCH TESTS

Removal

(1) After removing torsion bar and motor, remove screws from switch plate. Be sure that indicator lugs are accurately lined up.

(2) Hold gear in place by pushing the output (drive), as shown in Figure 3. Carefully remove switch plate.

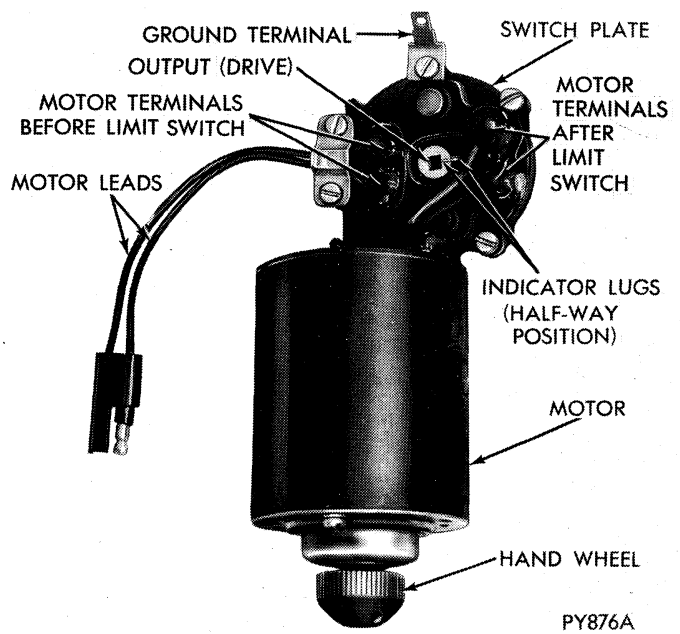

Fig. 3—Aligning Indicator Lugs

Gear Evaluation

Remove the gear and examine for stripped or worn teeth. If no damage is observed, perform Limit switch evaluation. If gear damage is observed replace gear assembly with parts from service kit, as detailed below:

(1) Position a new cam, of same color as original cam, in locator slot of new gear.

(2) Install "O" rings, from original gear, at each end of the shaft of new gear.

(3) Remove all chipped gear particles from gearbox and switch assembly.

Limit Switch Evaluation

(1) Position switch cams and verify that the switch blade profile is shown in Figure 4 (both switches open).

(2) Inspect switch blade contact surfaces and clean if necessary.

(3) Position switch cams as shown in Figure 5 and verify that both switches are now closed.

(4) Test switch operation by inserting cam side of gear assembly into switch plate as shown in Figures 6 and 7. Rotate gear assembly while pressing it against switch plate to open and close limit switches and observe operation.

Do not over rotate since cam can hit and damage limit switch. Return assembly to Figure 5 condition (both switches closed) and remove gear assembly.

(5) If limit switches are not operating correctly, replace switch plate using Switch Plate and Gasket kit to remove sealant for all motor terminals.

(6) Unsolder wires.

(7) Solder wires on new switch plate and reseal with starter brush plate sealer MOPAR Part No. 2421838 or equivalent.

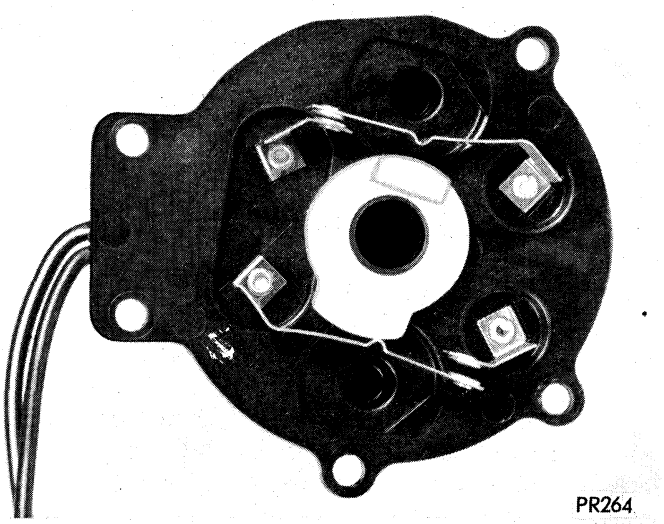

Fig. 4—Switches Open

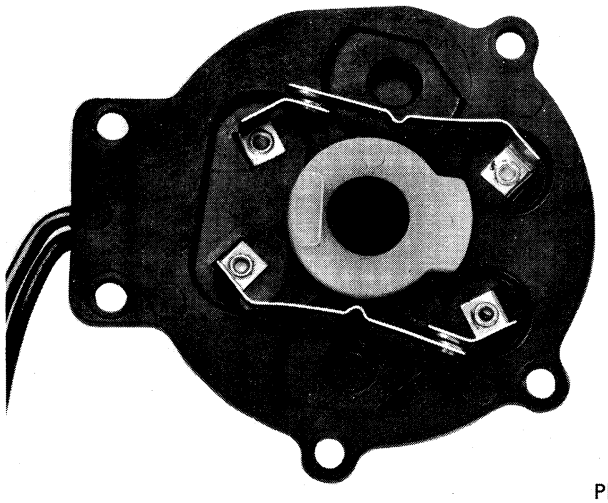

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Fig. 5—Switches Closed

Installation

(1) Fill the teeth of armature gear with lubricant per Section 0 of Service Manual.

(2) Install gear assembly in gearbox, taking care to position it so that indicator lugs will line up when switch plate is installed.

(3) Install switch plate (with gasket) on gearbox, taking care not to dislodge switch blades from their closed positions. Replace screws.

(4) Install torsion bar and motor (see Service Procedures).

(5) Test system operation. Do not operate motor with headlamp doors disconnected as operating motor without load will damage motor.

HEADLAMP DOORS (CARLINE C)

Removal

(1) Disconnect motor leads at harness connector.

(2) Rotate motor hand wheel clockwise if doors are closed; or counterclockwise if doors are open; until headlamp doors are at halfway open position (indicator lug on motor switch plate and lug on gear near rectangular hole are in alignment.

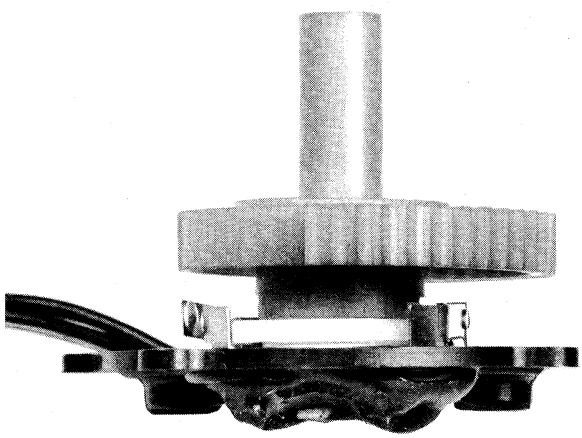

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Fig. 6—Testing Switch Operation

(3) Compress torsion bar to headlamp door crank clip and slide clip from crank.

(4) Force torsion bar from crank arm slot by wiggling door up and down with one hand while pulling bar out from slot with your other hand (Fig. 8).

(5) Disconnect headlamp wiring.

(6) Remove the inboard sealed beam unit.

(7) Remove retainer clip from crank assembly.

(8) Remove screw holding the crank assembly to the door arm at the inboard side of door.

(9) Remove crank assembly from headlamp door.

(10) Remove idler pin from the housing (secured by a 1/2″ nut). The door is now loose within the housing.

(11) In order to get enough clearance to pull the door out, remove the four (4) 1/2″ nuts that hold the housing to the front panel, remove the brace that holds the housing to the yoke (2-3/8″ screws forward and 2-7/16″ screws rearward), and slide the housing rearward off of its mounting studs.

(12) With housing rearward, the door can now be removed through its opening in the front panel.

Installation

(1) Pass the door through its opening in the front panel.

(2) Position door in headlamp housing.

(3) With door in position, slide the housing back on its four (4) mounting studs and tighten mounting nuts to 60 in-lbs.

(4) Check that crank arm and idler pin bushings are in place.

(5) Align crank assembly holes and insert crank.

(6) Install retainer on crank.

(7) Install screw on side of door, attaching the crank assembly to the door, and tighten to 35 in. lbs.

(8) Align idler pin holes and install idler pin. Tighten nut to 60 in-lbs.

(9) Install brace between housing and yoke. Tighten 3/8″ screws to 35 in-lbs. and 7/16″ screws to 95 in-lbs.

(10) Install inboard sealed beam unit.

(11) Position and fully seat torsion bar in slotted area of crank. (Check that the motor is in halfway open position.)

(12) Compress and position clip over crank and torsion bar.

(13) Connect motor leads at harness connector and connect headlamp wiring.

(14) Check that the door does not interfere with the front panel by turning the headlamps on and off several times. If an interference occurs, loosen the headlamp housing assembly mounting nuts and readjust the assembly until the interference is eliminated.

(15) Re-aim headlamps.

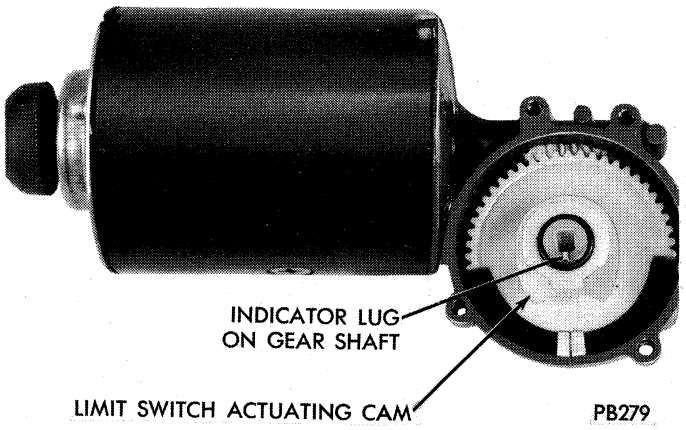

Fig. 7—Gear Assembly

HEADLAMP DOORS (CARLINE X, CHARGER XE)

Removal

(1) Disconnect motor leads at harness connector.

(2) Rotate motor hand wheel clockwise if doors are closed; or counterclockwise if doors are open; until headlamp doors are at halfway open position (indicator lug on motor switch plate and lug on gear near rectangular hole are in alignment.

(3) Compress torsion bar to headlamp door crank clip and slide clip from crank.

(4) Force torsion bar from crank arm slot by wiggling door up and down with one hand while pulling the bar out from slot with your other hand (Fig. 8).

(5) Disconnect headlamp wiring.

(6) Remove the inboard sealed beam unit.

(7) Remove retainer clip from crank assembly (Fig. 1).

(8) Remove park and turn signal lamp by removing two screws on inboard side of lamp.

(9) Remove idler pin from the housing (snap fit). The door is now loose within the housing. Slide door assembly outboard of vehicle to remove.

Installation

(1) Pass the door through its opening in the front panel.

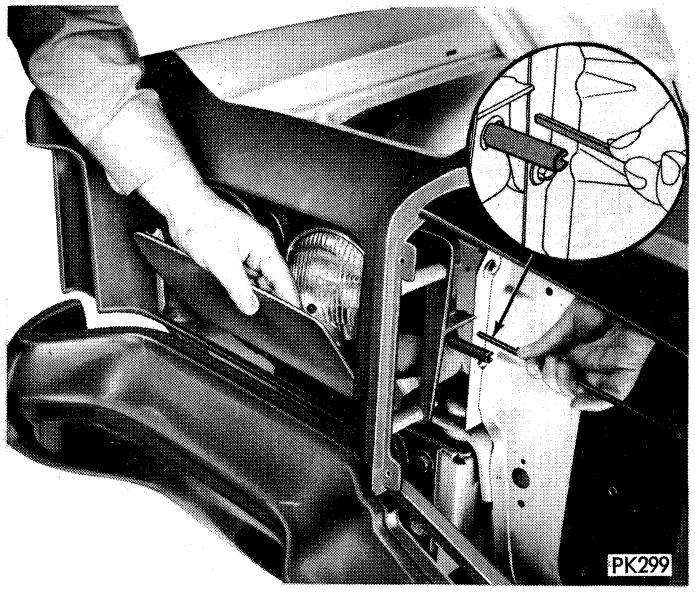

Fig. 8—Removing Torsion Bar from Door Crank (Typical)

(2) Position door in headlamp housing.

(3) Check that crank arm bushing is in place.

(4) Snap in idler pin.

(5) Install retainer on crank.

(6) Install park and turn signal lamp.

(7) Install inboard sealed beam unit.

(8) Position and fully seat torsion bar in slotted area of crank. (Check that the motor is in halfway open position (Fig. 2).

(9) Compress and position clip over crank and torsion bar.

(10) Connect motor leads at harness connector (Fig. 3) and connect headlamp wiring.

(11) Check that the door does not interfere with the front panel by turning the headlamps on and off several times. If an interference occurs, loosen the headlamp housing assembly mounting nuts and readjust the assembly until the interference is eliminated.

(12) Re-aim headlamps.

Note: To remove any light scratches on headlight doors, polish with anti-static polish.

SEAT BELT WARNING SYSTEM

INDEX

GENERAL INFORMATION

The seat belt warning system uses both visual and audible signals consisting of a buzzer and a red light on the instrument panel.

The system will always illuminate the seat belt warning lamp for 4 to 8 seconds when the ignition switch is turned to the "ON" position. Also, only if the driver does not fasten his seat belt, the buzzer will sound during the same time interval. Passenger belts are not connected to the system.

A timed buzzer-relay is used to operate the system

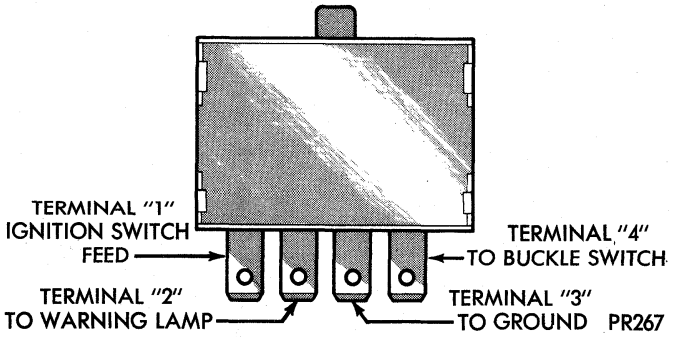

Fig. 1—Timed Buzzer-Relay Terminal Identification

for the time period. It consists of a time delay mechanism and buzzer assembly. Only the driver's seat belt buckle has a switch that is connected to the system.

TIMED BUZZER-RELAY TEST (Fig. 1)

Preparation

(1) Remove timed buzzer-relay.

(2) Connect one end of a jumper wire to a 12 volt supply.

(3) Connect a test lamp equipped with a number 194 light bulb, or equivalent, between terminal number 2 of relay and ground.

(4) Ground terminals 3 and 4 of relay.

Test Procedure

Connect 12 volt jumper wire to terminal number one of timed buzzer-relay, look at test lamp and listen for buzzer.

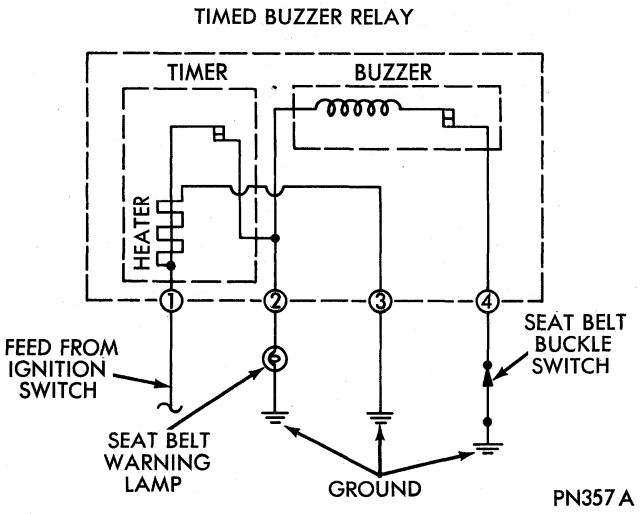

Fig. 2—Seat Belt Warning System Wiring Schematic

Results

(1) Light should come on and buzzer should sound for 4 to 8 seconds and then both should go off; if not, replace timed buzzer-relay.

(2) If operation is okay, check all wiring in vehicle for opens, shorts, or poor connections.

SEAT BELT WARNING SYSTEM DIAGNOSIS

BUZZER ON FOR THE 4-8 SECOND WHEN SEAT BELT IS BUCKLED	NO BUZZER	NO WARNING LAMP	NO BUZZER OR WARNING LAMP	BUZZER AND WARNING LAMP ON ALL THE TIME
WIRE BETWEEN TERMINAL NUMBER 4 OF TIMED, BUZZER-RELAY AND BUCKLE SWITCH GROUNDED	SEAT BELT BUCKLE SWITCH OPEN	BULB BURNED OUT	NO IGNITION FEED VOLTAGE TO TERMINAL NUMBER ONE OF THE TIMED BUZZER-RELAY	WIRE BETWEEN TERMINAL NUMBER 3 OF TIMED BUZZER-RELAY AND GROUND OPEN
DEFECTIVE BUCKLE SWITCH	SEAT BELT BUCKLE SWITCH WIRING	WARNING LAMP WIRING	TIME BUZZER-RELAY	TIME BUZZER-RELAY
TIME BUZZER-RELAY	TIME BUZZER-RELAY	TIME BUZZER-RELAY		

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SEAT BELT BUCKLE SWITCH TEST (Fig. 2)

Test timed buzzer-relay and if it checks out okay, check the wiring between seat belt buckle and ground, and the wire that goes to terminal number four of relay from buckle switch. If they check out okay, replace buckle switch.

POWER WINDOW LIFT

INDEX

GENERAL INFORMATION

Front, rear, and quarter window lift motors are of the permanent magnet type. A positive and negative battery connection to either of the two motor terminals will cause the motor to rotate in one direction. Reversing current through these same two connections will cause the motor to rotate in the opposite direction.

Each individual motor is grounded through the master switch by a black wire attached to the left cowl panel.

It is necessary that the window be free to slide up and down in the glass channels or tubes and tracks. If the window is not free to move up and down, the window lift motor will not be able to move the glass.

The most positive way to determine if the glass is free is to disconnect the electric window regulator lift arm sliders from the glass lift channels and then slide the window up and down by hand.

A less positive method is to shake the glass in the door, (with glass positioned between the up and down stop positions). If the glass will move slightly from side to side, front to rear, and up and down, then there is a good chance that the window is not bound tight in the tracks.

SWITCH VOLTAGE TEST

The following wiring test sequence determines whether or not voltage is continuous through the body harness to switch.

(1) After removing switch from trim panel for testing purposes, carefully separate multiple terminal block on wiring harness from switch body. Connect one lead of test light to black wire terminal and touch other test light lead to tan wire terminal. If the test light comes on, the wiring circuit between the battery and switch is functional. If light does not come on, check 30 amp main fuse (circuit breaker) or for a broken wire.

Switch "Up" Test

(1) Connect one jumper to tan lead and the other end of this jumper lead to up terminal as shown in Figure 1. Connect another jumper to ground terminal of the switch. Connect other end of 2nd jumper wire to down terminal of switch.

(a) If motor runs, it shows that voltage is available to motor and switch must now be tested to make sure that voltage is passing through satisfactorily. Install switch body back on multiple connector and actuate switch. If motor fails to run, replace switch body. Each switch is tested in the same manner.

(b) If motor does not run, after installing a new switch perform the "Window Lift Motor Test".

Switch "Down" Test

(1) Connect one jumper lead to tan terminal lead and other end of this jumper to down terminal as shown in Figure 2. Connect the other jumper to ground terminal of switch. Connect the other end of 2nd jumper wire to the up terminal of switch.

(a) If motor runs, this verifies that voltage is available to motor. Install switch body back on multiple connector and actuate switch. If motor fails to run, replace switch body. Each switch is tested in the same manner.

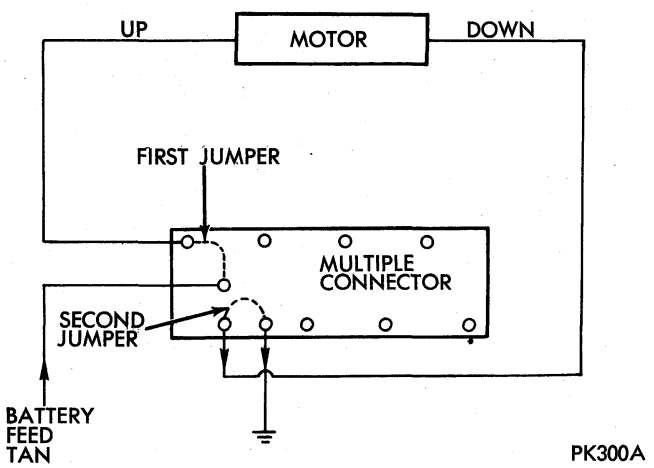

Fig. 1—Motor Switch "Up" Test

(b) If motor does not run, perform "Window Lift Motor Test".

WINDOW LIFT MOTOR TEST

(1) Connect positive (+) lead (from a test battery) to either of the two motor terminals.
(2) Connect negative (−) lead (from test battery) to remaining motor terminal.
(3) The motor should now rotate in one direction to either move window up or down.
(a) If window happens to already be in full "UP" position and motor is connected so as to rotate in "UP" direction no movement will be observed.
(b) Likewise, motor connected to "DOWN" direction rotation, no movement will be observed if window is already in full down position.
(4) Reverse battery leads (opposite to steps 1 and 2) and window should now move. If window does not move, remove motor. See below for motor removal from vehicle for bench test.
(5) If window moved completely up or down, motor should be reversed one more time (reverse leads from step 4) to complete a full window travel inspection.

REGULATOR REMOVAL FOR REPLACEMENT OF MOTOR (C MODELS FRONT DOOR ONLY)

(1) Remove door trim panel and water shield and support glass in up position.
(2) Remove center pin from regulator plate to inner panel attaching rivets with a drift punch. Drill out head of rivets with a 1/4 inch drill.

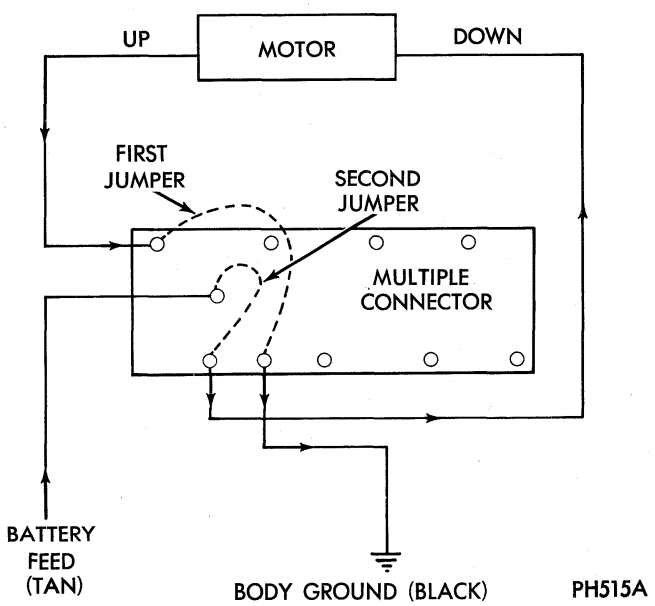

Fig. 2—Motor Switch "Down" Test

(3) Remove 1/4-20 nut holding regulator motor tie down bracket to inner panel.
(4) Disengage regulator arms from glass lift channel and pivot channel and remove regulator from door.
(5) Electrically activate regulator to full up position where counterbalance spring is in its most loose position. If regulator will not actuate to up position, extra care is required to remove spring because it will be in a higher load position.

To avoid injury, never remove motor or counterbalance spring from regulator assembly without locking unit in a bench vise.

(6) Lock regulator sector and plate securely in vise to safely remove the counterbalance spring.
(7) After removal of counterbalance spring, remove defective motor from regulator and perform the following bench test:
(a) Remove one remaining phillip head type screw from motor gearbox and carefully lift off seal.
(b) Carefully lift out gear and pinion coupling assembly. Inspect it for fractures and broken plastic gear teeth. If damaged, replace according to instructions in Gear and Pinion Replacement and Lubrication.
(8) If gear and pinion coupling assembly is not damaged, replace motor.

WINDOW REGULATOR INSTALLATION (C MODELS FRONT DOOR ONLY)

(1) With sector and plate at window up position, securely position in vise for safety and install counterbalance spring.
(2) Remove regulator from vise and temporarily connect motor pigtail connector to body wiring harness.
(3) Activate regulator with window lift switch to verify that counterbalance spring winds to a tighter position when regulator actuates to window down position.
(4) Reinstall regulator in door noting that regulator generally reinstalls best when it is in window one-half way down position.
(5) Attach regulator to inner panel with rivets or 1/4-20 screws, washers and nuts. Torque threaded fasteners to 95 inch-pounds.
(6) Engage regulator drive arm and cross arms to connecting lift channel and pivot bracket. Then position and fasten lift channel with new replacement screws torqued to 40 inch-pounds and pivot bracket torqued to 95 inch-pounds.
(7) Align window system (as required) to provide proper sealing and smooth frictionless window operation.

GEAR AND PINION REPLACEMENT AND LUBRICATION

Door and quarter window repair kits consisting of gear and pinion assembly and seal are available as MOPAR Part No. 2808914 or equivalent for rubber coupling and MOPAR Part No. 2932973 or equivalent for spring or roller coupling. MOPAR Part No. 3744280 or equivalent is kit for tailgate regulators that use this configuration of plastic gear, metal pinion and plastic rollers.

Note: Part number 2808914 and 2932973 are not interchangeable. If installed in the wrong gearbox, the gears will bind and not rotate.

When gear and pinion assembly is replaced in gear box, lubrication of gear box, gear pinion and seal is necessary if these parts have been disassembled—

In the event there is no lubricant in gear box, fill with MOPAR multi-mileage lubricant part number 2525035 or equivalent. Apply a liberal amount of lubricant to inside area of seal marked "A" as illustrated in Figure 3 and sealing surface at center area of gear and pinion coupling. Also lubricate center housing shaft and worm gear as illustrated (Fig. 3).

MOTOR REPLACEMENT (REAR DOORS C MODELS AND ALL WINDOW MOTORS R-W-X-S-H-N-F-G MODELS)

The following procedure describes replacement of a defective motor without removing window regulator or detaching any window system components. This method of motor replacement is not acceptable if any of window system parts are loosened or removed from door. If window system parts such as lift channels, upstops, tracks and pivot brackets are already loose by deficiency or are to be loosened or removed from door, then use method of repair where entire regulator is removed from door.

Removal

(1) Raise window to full UP position and keep it there at all times while replacing motor. If window is in any position other than full UP and motor is separated from spring loaded regulator, then regulator counterbalance spring will tend to propel window upwards.

Place a window block in door that will positively prevent window from going downwards or upwards. This action will prevent injury that could be caused by incorrect installation of counterbalance spring or upward movement of the window.

(2) Disconnect wiring connector from motor which is located about eleven (11) inches from motor.

(3) Remove three (3) mounting screws that hold motor gearbox to regulator. Remove third screw that secures motor tie-down bracket to inner panel if so equipped. There are three holes in inner panel which provide access to three (3) mounting screws that secure gearbox to regulator (Fig. 4).

(4) To remove motor from regulator, grip motor housing and pull motor towards outer panel. Some rocking or twisting action may be necessary to disengage motor from regulator. Do not have any hands or fingers in sector gear area where they can be pinched by small movements of regulator linkage.

Installation

(1) Install new motor on regulator by positioning motor gearbox so that it engages regulator sector teeth.

(2) Position motor so that center post gearbox fits into its pilot hole in plate. A slight rotational or rocking movement may be necessary to bring three motor gearbox screw holes into proper position.

(3) Install three (3) gearbox screws and one tie-down bracket screw, if applicable. Torque to 50/60 inch pounds.

(4) Reconnect pigtail wiring harness connector.

(5) Remove window block.

(6) Actuate regulator with switch to verify satisfactory operation.

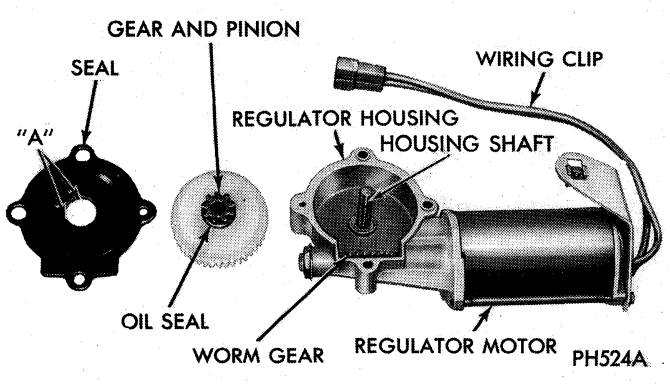

Fig. 3—Motor Lubrication

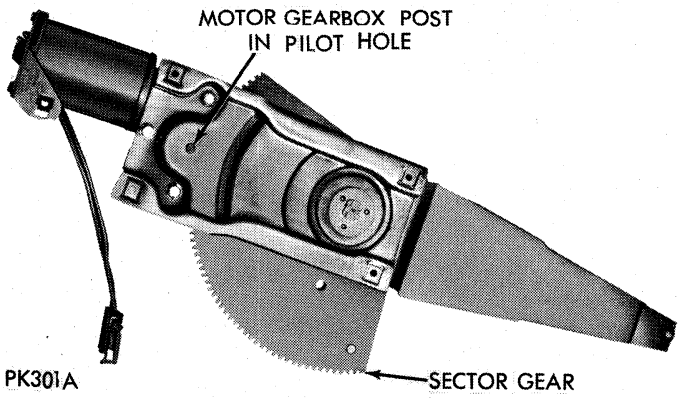

Fig. 4—Electric Motor Mounting (Typical)

TAILGATE ELECTRIC WINDOW REGULATOR

INDEX

GENERAL INFORMATION

Tailgate door electric window regulator operation for Carlines R and W, Body Types 45 and 46 is controlled for UP and DOWN travel from a two-way switch located on the instrument panel and from an outside key two-way switch located on the tailgate door. Operation of the instrument panel switch is possible only when ignition switch is in the ON position. Refer to the wiring diagram section of this manual for wiring information.

Actuation of tailgate door key will operate the two-way switch for window glass movement in this manner.

When key is inserted in unlocked tailgate door and a "clockwise" quarter turn is initiated, door will lock. Continuing a firm clockwise turn of key (beyond locked position) will activate the window regulator UP movement of glass. Returning key to quarter turn clockwise position will stop glass travel and retain door in locked position. Placing key to vertical position as originally inserted in lock) will allow key to be removed with door remaining in locked position.

When key is inserted in locked tailgate door and a "counterclockwise" quarter turn is initiated, door will unlock. Continuing a firm counterclockwise turn of key (beyond locked position) will activate the window regulator down movement of glass. Returning key to quarter counterclockwise position will stop glass travel and retain door in unlocked position. Returning key to vertical position (as originally inserted in lock) will allow key to be removed with door remaining in unlocked position.

Tailgate can be opened or closed as a door with glass raised, but not as a tailgate. When using as a tailgate, always be sure the glass remains lowered. See Operator's Manual for detail instruction.

TEST

Insert key in tailgate door and observe operation of window glass for UP and Down travel by turning key to right and left position.

In the event that the window glass can not be electrically operated or regulated, as in above paragraph, turn ignition switch to ON position and attempt to operate regulator from two-way switch on instrument panel.

Failure of either switch to control window glass will necessitate removal of tailgate door inside cover panel in order to disconnect window power connector located at left inside area of tailgate door from body harness. Wiring color code is brown and yellow.

Window Lift Motor

(1) After separating connector, apply a 12 volt source to MALE connector (motor lead cable) using Brown wire as positive and Yellow wire as negative. Observe tailgate window for one-way operation.

(2) Disconnect 12 volt source (as applied in step (1) above) and reconnect using Yellow wire as positive and Brown wire as negative. Observe tailgate window for one-way operation.

(3) If window lift motor operates satisfactorily in both up and down modes, then trouble is elsewhere in electrical circuitry. If operation is not satisfactory in either mode, replace window regulator motor (refer to Side Glass, Group 23).

Instrument Panel Switch

(1) Place test light across terminals of female connector (attached to tailgate wiring harness). Operate instrument panel tailgate window switch. Test light should glow when switch is activated.

(2) If test light does not glow, check instrument panel switch for malfunction and/or body wiring harness.

(3) Confirm ground connection is good at the instrument panel switch.

Tailgate Keylock Switch

Removal

(1) Disconnect power connector at switch and remove three (3) mounting screws securing latch and switch assembly to right edge of tailgate door support.

(2) Rotate latch mechanism inside door shell slightly to facilitate removal of key lock switch.

(3) Release switch assembly by removing two (2) screws which secure lock switch to mounting plate. Remove switch. Key lock mechanism should not be removed from door.

Installation

(1) Securely attach power connector to lock switch before attempting switch installation.

(2) Confirm that switch key slot is aligned correctly to the activating lever mechanism. Otherwise, switch will not operate.

(3) Secure lock switch by installing two (2) screws to mounting plate.

(4) Rotate latch mechanism inside door shell to facilitate installation of key lock switch.

(5) Attach three (3) mounting screws which secure latch and switch assembly to right edge of tailgate door support.

HEATED REAR GLASS

INDEX

GENERAL INFORMATION

The electrically heated rear window is available on all carlines. On R,W,S,X,C (intermediate and full size) models the option includes the 100 amp alternator and on H and N models (compact) the 65 amp alternator is used.

The system consists of a rear window with two vertical bus bars and a series of electrically connected grid lines baked on the inside surface. A control switch and a timer relay is used on H,N,C, carlines, and a control switch and continuous relay is used on R,W,X and S models.

Circuit protection is provided by a fusible link on R,W,S,X,C carlines and by a circuit breaker on H and N carlines.

When switch is turned to ON position, current is directed to rear window grid lines. The heated grid lines in turn heat rear window to clear the surface of the glass.

CAUTION: Since grid lines can be damaged or scraped off with sharp instruments, care should be taken in cleaning glass or removing foreign materials, decals or stickers. Normal glass cleaning solvents or hot water used with rags or toweling is recommended.

SYSTEM DESCRIPTION

Timer Relay (H,N,C)

The timer relay system has an electronic timing circuit which allows current to flow through grid system for approximately 10 minutes after the system is energized.

Continuous Relay (R,W,S,X)

On R,W,S and X carlines the heated rear window system incorporates a continuous relay in the circuit. When system is turned on it will remain on until system or ignition is turned off.

Control Switch

The heated rear window control switch is a three position switch which is spring-loaded to return from On or Off to its center NORMAL position.

When switch is moved to ON position it energizes a relay coil thereby causing the normally open relay contacts to close and provide power to rear window grid lines and to an indicating light on the instrument panel. When the switch returns to its NORMAL position, current provided to relay is sufficient to maintain relay coil energized and relay contacts closed.

TEST PROCEDURE

System Test

Electrically heated rear window operation can be checked in-car in the following manner:

(1) Turn the ignition ON.

(2) Turn heated rear window control switch ON.

(3) Monitor car ammeter. With the control switch ON, a distinct current draw should be noted.

(4) Using a DC voltmeter, contact the vertical bus bar on the passenger side of car with a negative lead, and the driver side of car with a positive lead. The voltmeter should read 10-14 volts.

(5) If no voltmeter is available, a distinct difference in temperature between the grid lines and adjacent clear glass can be detected in 3 to 4 minutes of operation.

Only steps (3) and (4) or (5) above will confirm system operation. Indicator light illumination means that there is power available at the output of the relay only, and does not necessarily verify system operation (see Fig. 2).

If turning the switch ON produces no distinct current draw on the ammeter the problem should be isolated in the following manner:

(1) Reconfirm that ignition switch is ON.

(2) Ensure that the heated rear window feed pigtail is connected to the wiring harness and that the ground pigtail is in fact grounded.

(3) Ensure that the fusible link or circuit breaker is operational.

When the above steps have been completed and the

system is still inoperative, one or more of the following is defective:

(a) Control switch

(b) Relay

(c) Rear window grid lines (all grid lines would have to be broken, or the feed pigtail not connected to the bus bar, for no ammeter deflection).

Succeeding paragraphs outline component checkout procedures.

If turning the switch ON produces severe ammeter deflection, the circuit should be closely checked for a shorting condition.

If system operation has been verified but indicator bulb does not light, check and replace bulb.

For detailed wiring information, refer to the "Wiring Diagrams" in Section 8.

Rear Window Grid Lines Test

The horizontal grid lines and vertical bus bar lines printed and baked on inside surface of rear window glass comprise an electrical parallel circuit. The electrically conductive lines are composed of a silver-ceramic material which when baked on glass becomes bonded to the glass and is highly resistant to abrasion. It is possible, however, that a break may exist or occur in an individual grid line resulting in no current flow through the line. To detect breaks in grid lines, the following procedure is required:

(1) Turn ignition on and turn control switch to ON. The indicator light should come on.

(2) Using a DC voltmeter with 0-15 volt range, contact vertical bus bar connecting grid lines on passenger side of car (point B of Fig. 2) with negative lead of voltmeter. With positive lead of voltmeter, contact vertical bus bar on driver side of car (point A of Fig. 2). The voltmeter should read 10-14 volts. A lower voltage reading indicates a poor ground connection.

(3) With negative lead of voltmeter, contact a good body ground point. The voltage reading should not change.

(4) Connect negative lead of voltmeter to Point B on passenger side bus bar and touch each grid line at Mid-Point with positive lead. A reading of approximately 6 volts indicates a line is good. A reading of 0 volts indicates a break in line between Mid-Point C and Point A. A reading of 10-14 volts indicates a break between Mid-Point C and ground Point B. Move toward break and voltage will change as soon as break is crossed.

If the system checks out as outlined above, but system performance is still not satisfactory, the resistance of the backlight grid should be checked with a suitable ohmmeter and compared to the following range table:

(Values Are in Fractions Of Ohms)

RW-21,22,23	**PD-43**	**PD-41**	**PDC-45,46**
.37-.49	.32-.40	.32-.40	.44-.56
C-41	**C-42,43**	**HN-41**	**HN-45**
.37-.49	.29-.37	.42-.54	.42-.54
RW-5,46	**HN-29**	**RW-41**	
.79-1.01	.42-.54	.39-.51	

Relay Testing (All Carlines)

Relays may be tested in-car or bench checked. In-car testing is accomplished in the following manner:

(1) Dismount relay. (Relay location in instrument panel can be found in Section 8.)

(2) Ground relay case to a good body ground point.

(3) Turn ignition ON.

(4) Using a DC voltmeter, with 0-15 range, check voltage at relay terminals B,Y,L and P (See Figs. 1 & 2). Terminals B and Y should confirm a voltage of 10 to 14 volts to ground. Terminals L and P should confirm 0 voltage to ground. When terminals B or Y show no voltage trace circuit upstream of relay for problem (wiring cut, fusible link or circuit breaker inoperative, bulkhead connector not operative, etc.) If terminal P indicates voltage, turn ignition switch OFF and ON and re-check. If voltage at P is still indicated, the control switch and/or relay are defective and should be replaced. If terminal L indicates voltage the relay is defective and should be replaced.

(5) If relay checks out to this point, momentarily short terminals B and P, relay should latch and stay on for 8-1/2 to 11-1/2 minutes in the case of timer relays and indefinitely for continuous relays. Terminal L should also confirm voltage. If relay fails to latch or voltage at terminal L is not confirmed, the relay is defective and should be replaced.

Bench checking of the relay may be accomplished in the following manner:

(1) Remove relay.

(2) Ground relay case and connect a jumper wire between terminals B and Y (see Figs. 1 & 2). Connect a 12 volt test light between L and ground. (A 0-15 volt range DC voltmeter may also be used.)

(3) With a DC power supply, apply 12 volts to terminal B. The test light should not light. If it does, the relay is defective and should be replaced.

(4) Momentarily short terminals B and P. The test light should come on and stay on for 8-1/2 to 11-1/2 minutes in the case of timer relays and indefinitely for continuous relays. Failure of the light to come on indicates that relay is defective and should be replaced.

Control Switch Continuity Test (Fig. 2)

For NORMAL switch position, there should be continuity between two terminals. For ON switch position, there should be continuity between all terminals. For OFF switch position, there should be no continuity between terminals.

REPAIR PROCEDURE (GRID LINES)

Once a grid line break has been located, apply a fine steel wool lightly to immediate repair area of break. After applying steel wool as recommended above, clean area with alcohol. Do not repair breaks greater than 0.25 inch long.

For repair of grids, apply materials in accordance with instructions supplied with MOPAR Repair Kit Part No. 3744970 or equivalent.

Refer to Group 23 of the Chassis-Body manual for information on connector application and glass installation.

TAILGATE GLASS

Heated tailgate glass adjustment and removal steps are identical with those standard instructions and illustrations specified in Group 23 of the Chassis-Body manual.

The following extended procedures are recommended to prevent damage to electrical heated glass components during removal and installation of heated tailgate glass.

Removal

(1) Open tailgate and remove trim panel cover.

(2) Electrically raise glass in tailgate to about 1/2 up position.

(3) Remove screws securing lift channels to glass. Screws are accessible through openings on tailgate inner door reinforcement.

(4) Separate grid lead connector at bottom corner of glass. Cover electrical clip with tape to protect wire from binding and insure clip retention to glass when removing glass from door through belt seals.

(5) Remove rubber weather seals at each end of tailgate belt line.

(6) Remove lift channels from window regulator and pull glass out of tailgate.

Installation

(1) Protect electrical clip by covering with tape as in step (4) above, to protect wire and insure clip retention to glass during installation.

(2) Position and guide glass through belt seals into run channels. Exert extra pressure when guiding glass past indents at top of channels.

(3) Insure that lift channels are lubricated. Then, slide lift channels onto regulator. Adjust regulator extension to approximately mid-position.

(4) Confirm that the electrical terminals are utilized only to connect lift channel on inside of glass.

(5) Attach power cable grounding terminal to lift channel (next to power connector clip) at lower left corner of glass.

(6) Remove protective tape from electrical clip and attach power lead to glass.

(7) Position glass as described in adjustment procedures and tighten all fasteners to specified torque of 30 inch-pounds plus or minus 5 inch-pounds. See Group 6 of this manual for additional information.

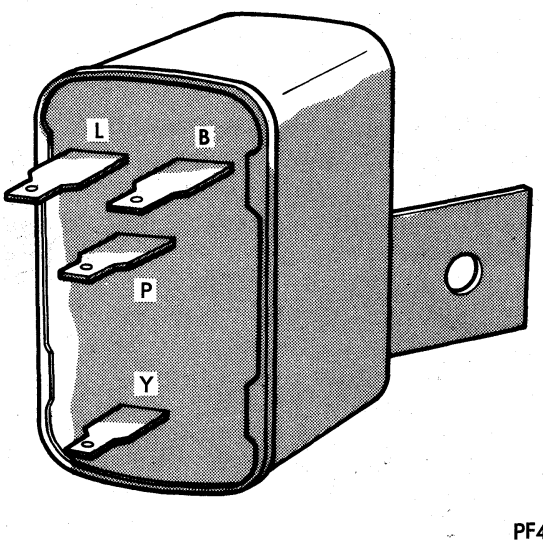

Fig. 1—Relay Connections Typical

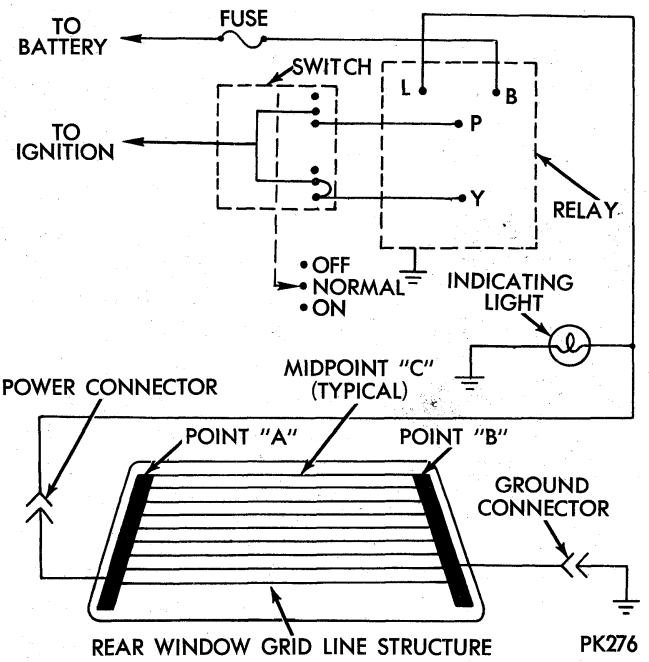

Fig. 2—Systems Electrical Circuit (Typical)

ELECTRIC LOCKS

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GENERAL INFORMATION

All doors when electrically equipped on carlines H, N, F, G, R, W, S, X and C can be locked or unlocked electrically by operating either the left or right front locking knob.

On the Chrysler New Yorker Brougham, electrically locking and unlocking are accomplished by operating the left or right toggle switch located in the trim panel console on the front doors. **No** electrical locking or unlocking operations are performed with the front door knobs on this carline so equipped with front door trim panel console toggle switches.

The rear doors, when electrically equipped, can be locked or unlocked by actuation of the front door knobs or toggle switches, or can be locked or unlocked mechanically and independently with their respective locking knobs.

The right front door can be locked or unlocked mechanically with the locking knob regardless of electrical locking and unlocking actuation with the front door knobs or the front door trim panel console toggle switches.

The right and left front door on all carlines can be locked or unlocked mechanically from the outside with the key or electrically as described above and can also be unlocked by actuation of the remote door handle.

The left front door of the Chrysler New Yorker Brougham can be locked mechanically from the inside by depressing the locking knob.

The tailgate door locks automatically when the ignition switch is turned on. The tailgate may be unlocked electrically with the ignition switch on, by actuating the tailgate unlock switch located on the instrument panel. Hold the switch in the engaged position until the tailgate has been opened.

The tailgate will lock when the spring loaded switch has been released if the ignition switch is on. When the ignition switch is off, the tailgate may be unlocked by actuating the tailgate unlock switch, using the tailgate key, or the locking button. The tailgate will lock automatically when the ignition switch is turned on.

The deck lid lock consists of a latch with internal solenoid and push button switch. The solenoid is energized only when the push button is depressed.

DOORS ELECTRICAL TEST

Make certain battery is in normal condition before testing and solenoids are correctly adjusted before circuits are tested.

The circuit breaker is located on the fuse block and the relay is located on the right side cowl behind the kick pad.

Connect the positive lead of a DC voltmeter to the buss bar on the relay assembly and the negative lead of the voltmeter to a good ground. With no load, voltage should be approximately 12.5 volts and 11 volts when locks are activated. If no reading is obtained at relay, the circuit breaker should be tested next. (Fig. 1).

Connect voltmeter positive lead to light green terminal of circuit breaker and other lead to a good ground. If a reading of 12-1/2 volts is not obtained, connect the voltmeter to the battery side of the circuit breaker. If a reading of 12-1/2 volts is obtained the circuit breaker is probably defective and should be replaced. If a reading of 12-1/2 volts is not obtained, inspect for a broken feed wire or loose connection.

To determine which solenoid is faulty, check each individual door for electrical lock and unlock or disconnect the solenoid connectors one at a time, while operating the door lock switch. In the event that none of the solenoids work, the problem may be caused by a shorted solenoid or faulty relay. Disconnecting the defective solenoid will allow the others to work

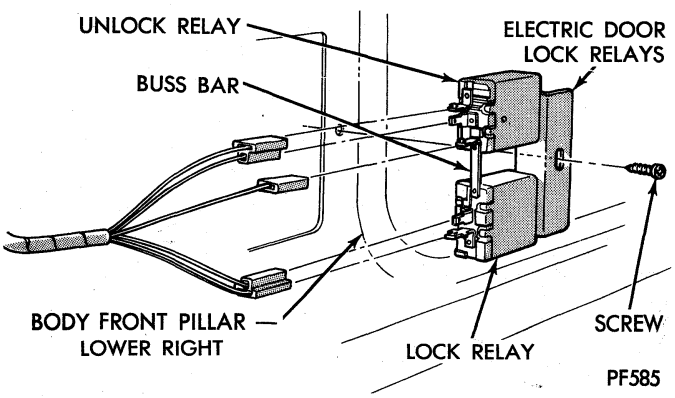


Fig. 1—Lock Relay

unless the relay has been damaged by excessive current.

Should the solenoid defect be a result of a broken pigtail wire or ground lead, it should have no effect on the operation of the other solenoids.

Removal

(1) Remove inside door release handle, window regulator handle and door trim panel.

(2) Roll door water shield away from lower rear corner of door to reveal inside panel access opening.

(3) Remove solenoid link at solenoid.

(4) Disconnect solenoid lead wires.

(5) Remove solenoid mounting bracket screws and remove solenoid assembly from mounting.

Installation

(1) Align solenoid mounting bracket to door inside panel and install mounting screws.

(2) Connect link to solenoid rod and connect wires.

(3) Adjust solenoid as described below.

(4) Reset watershield at lower rear corner of door.

(5) Install window regulator handle, door inside release lever handle and door trim panel.

If the solenoid failure was caused by overheating (sticking switch), the remaining solenoids should be checked for proper operation and replaced if necessary.

DOORS ADJUSTMENT

(1) Loosen solenoid mounting screws and slide solenoid to full down position.

(2) Raise solenoid link until latch is in locked position.

(3) Tighten solenoid mounting screws and test operation of lock (Fig. 2).

DECK LID OPERATION

Checkout

(1) Confirm solenoid lead wire is connected and 10 volts or more are available at solenoid.

(2) Provide proper ground through latch mounting screws.

(3) Remove latch and examine plunger spring to insure spring is undamaged and properly attached.

(4) Insure that solenoid plunger travel is adequate (approximately 5/8 inch).

Adjustment

Adjust deck lid latch and striker so that deck lid latches with a moderate slam. Should latch fail to lock, replace latch assembly.

(1) With ignition switch in On or Accessory position, push deck lid unlock switch (located on instrument panel on Carlines R,W,S and X and located in glove box on Carlines P,D, and C and deck lid should unlock.

TAILGATE SOLENOID ADJUSTMENT (CARLINES R AND W)

(1) Latch both tailgate upper latches.

(2) Push locking control button to locked position.

(3) Loosen solenoid mounting screws.

(4) Push solenoid toward locking control assembly.

(5) Hold solenoid gently, but firmly and push locking control push-rod until it bottoms out in locked position. This will locate solenoid in its correct position.

(6) Hold solenoid in this position and tighten mounting screws.

TAILGATE SOLENOID CHECKOUT (CARLINES R AND W)

(1) Close tailgate and lower glass.

(2) Pull tailgate lock button up and turn on ignition. Tailgate should lock.

(3) Push unlock switch (located on instrument panel) and tailgate should unlock.

(4) Release unlock switch and tailgate should lock.

(5) With the ignition in the ON or ACCESSORY position, attempt to pull the tailgate locking button up and at the same time, try to open the tailgate as a door. The push-button should travel a short distance before a vibration is felt or heard. The door should not open. In the event the pushbutton resists but no vibration is felt or heard, repeat the solenoid adjustment procedure outlined above. In the event the door can be opened while applying a light pull on the locking button, loosen the solenoid mounting screws and move the solenoid approximately .020 inch away from the locking lever. Then, retighten the mounting screws. In the event the solenoid is moved too far, it may become damaged from overheating.

(6) Repeat steps outlined in step (3).

(7) Turn off ignition and operate the tailgate unlock switch. The tailgate should unlock and remain unlocked until the ignition is turned on again.

(8) If the solenoid does not operate; see the electrical test procedure.

TAILGATE ELECTRICAL TEST (CARLINES R AND W)

The battery must be in normal condition before testing. Make certain the solenoid is correctly adjusted before circuit is tested.

In the event the tailgate does not lock or unlock electrically after solenoid adjustment check electrical circuit as follows:

(1) Remove the wiring connector at the solenoid in the tailgate. Connect a test lamp to the pink lead at the connector in the wiring harness. With the ignition switch on or in accessory position, the test lamp should light.

(2) Move the tailgate unlock switch to the unlock position and the test lamp should go out. Move the test lamp lead to the orange lead in the connector and the test lamp should be out. Release tailgate unlock switch and test lamp should light.

(3) To determine if the solenoid is operating properly, connect a positive lead to the orange wire in the solenoid connector, the solenoid link should extend. Move the positive lead to the pink wire in the connector and the solenoid link should retract.

TAILGATE ADJUSTMENT (CARLINE C)

Check the operation of tailgate latches prior to solenoid adjustments. Latches must be operating correctly before system will function as designed. In the event that latches do not operate satisfactorily, adjust latch linkage to correct condition. Refer to Group 23 of this manual for additional linkage adjustment procedures.

(1) Loosen 8-32 head screw at locking control swivel to allow solenoid shaft rod to locking lever to float in swivel.

(2) Push locking control knob and rod to locked position.

(3) Pull solenoid to locking lever toward the tailgate belt line which is away from solenoid body.

(4) Tighten 8-32 head screw.

TAILGATE SOLENOID CHECKOUT (CARLINE C)

(1) Close tailgate and lower glass before proceeding.

(2) Pull tailgate lock button up and turn ignition on or to accessory position. Tailgate should lock.

(3) Push unlock switch located on or under instrument panel and tailgate should unlock.

(4) Release unlock switch and tailgate should lock.

(5) With ignition in on or accessory position, attempt to pull tailgate locking button up at same time, try to open tailgate as a door. The pushbutton should travel a short distance before a vibration is felt or heard. The door should not open.

In the event pushbutton resists but no vibration is felt or heard, repeat the solenoid adjustment procedure outlined above.

In the event the door can be opened while applying a light pull on the locking button, loosen the solenoid mounting screws and move the solenoid approximately .020 inches toward the locking lever. Then, tighten the mounting screws. If the solenoid is moved too far, the solenoid can become damaged from overheating.

(6) Repeat steps outlined in step (5).

(7) Turn off ignition and operate the tailgate unlock switch. The tailgate should unlock and remain unlocked until the ignition is turned on again.

(8) If the solenoid does not operate; see the electrical test procedure.

If the system does not operate properly during this test, repeat the adjustment and the checkout procedures.

TAILGATE ELECTRICAL TEST (CARLINE C)

The battery must be in normal condition before testing. Make certain the solenoid is correctly adjusted before circuit is tested.

In the event the tailgate does not lock or unlock electrically after solenoid adjustment, check electrical circuit as follows:

(1) Remove the wiring connector at the solenoid in the tailgate. Connect a test lamp to the orange lead at the connector in the wiring harness. With the ignition switch on or in accessory position, the test lamp should light.

(2) Move the tailgate unlock switch to the unlock position and hold, the test lamp should go out. Move the test lamp lead to the pink lead in the connector, the test lamp should be out. Actuate tailgate unlock switch and test lamp should light.

(3) To determine if the solenoid is operating properly, connect a hot lead to the orange wire in the solenoid connector, the solenoid link should extend. Move the hot lead to the pink wire in the connector and the solenoid link should retract.

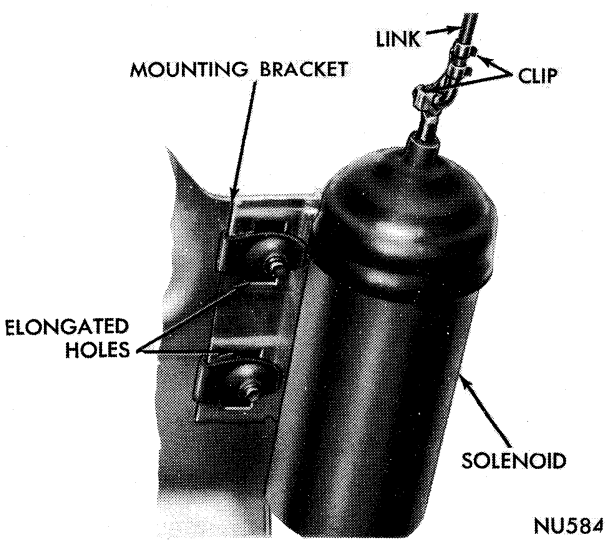


Fig. 2—Solenoid Adjustment (Typical)

POWER SEATS

INDEX

GENERAL INFORMATION

Power seats can be adjusted in six different directions—up, down, forward, back, tilt forward, or tilt rearward.

The control switch is located on the lower outboard side of the seat. The front lever on the switch (Fig. 1) raises or lowers (tilts) the front of the seat, the center lever raises or lowers the complete seat by moving switch up or down. It also moves it forward or rearward by moving switch forward or rearward. The rear lever raises or lowers (tilts) the back of the seat.

A three armature permanent magnet reversible motor is coupled through cables to rack and pinion assemblies located in the seat tracks, providing the various seat movements.

The electrical circuit is protected by a 30 amp circuit breaker located on the fuse block on the inside of the cowl panel to the left of the steering column.

SERVICE PROCEDURES

TEST

Before any testing is attempted the battery should be fully charged and all connections and terminals cleaned and tightened to insure proper continuity and grounds.

With dome light on, apply switch in direction of failure, if dome light dims the seat motion is trying to work indicating mechanical jamming. If dome light does not dim then proceed with the following electrical tests.

(1) Disconnect wire from instrument panel feed at fuse block side cowl circuit breaker.

(2) Connect a 12 volt test lamp in series between instrument panel feed and good ground. If test lamp lights, feed-in wiring is good.

(3) Remove test lamp and connect feed to circuit breaker.

(4) Disconnect wiring from other side of circuit breaker. Connect the 12 volt test lamp in series between circuit breaker and good ground, if test lamp lights circuit breaker is good.

(5) Remove test lamp and connect wiring harness.

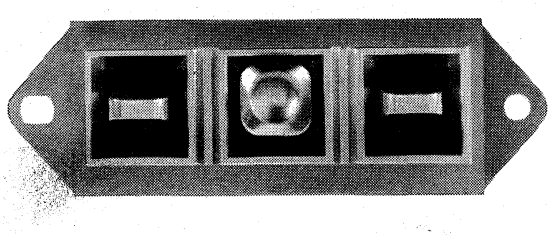


Fig. 1—Switch Control

(6) Disconnect wiring harness at connector under seat. Connect the 12 volt test lamp between red (R) and black (BK) wire in female connector on harness, if test lamp lights harness to seat is good.

(7) Remove test lamp and connect harness.

(8) Remove switch from seat harness.

(9) To check rear motor, connect a covered jumper wire between the red (R) terminal in the center section (Fig. 2) either the red with dark green (R-DGN) tracer, or yellow with dark green (Y-DGN) tracer connection in the front section. Connect a second covered jumper wire between the black (BK) terminal in the center section and the open connection in the front section, if motor does not operate, reverse the jumpers in the front section. If motor still does not operate, either the harness or complete three motor assembly may be defective.

(10) To check center motor connect a covered jumper wire between the red (R) terminal of the center section (Fig. 2) and either the red with white

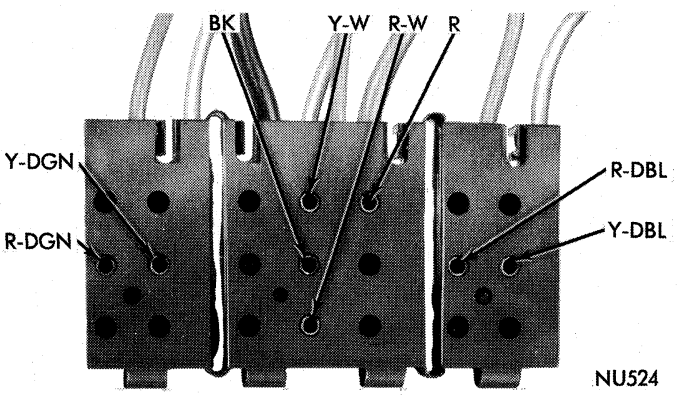


Fig. 2—Electrical Test Locations

tracer (R-W) tracer, or yellow with white (Y-W) tracer connection in the center section. Connect a second covered jumper wire between the black (BK) terminal in the center section and the open connection in the center section, if motor does not operate, reverse the jumpers (R-W) and (Y-W). If motor still does not operate, either the harness or complete three motor assembly should be replaced.

(11) To check front motor connect a covered jumper wire between the red (R) terminal in the center section (Fig. 2) and either the red with dark blue (R-DBL) tracer, or yellow with dark blue (Y-DBL) tracer connection in the rear section. Connect a second covered jumper wire between the black (BK) terminal in the center section and the open connection in the rear section, if motor does not operate, reverse the jumpers in the rear section. If motor still does not operate, either the harness or complete three motor assembly should be replaced.

(12) If all motors and the seat operate properly this indicates that the switch is bad and should be replaced. For additional wiring diagrams see "Wiring Diagram" section at end of this group.

SEAT ASSEMBLY

Removal

(1) Disconnect battery ground cable.

(2) From underneath vehicle remove mounting nuts holding seat assembly to floor pan.

(3) Tilt seat and disconnect wiring harness.

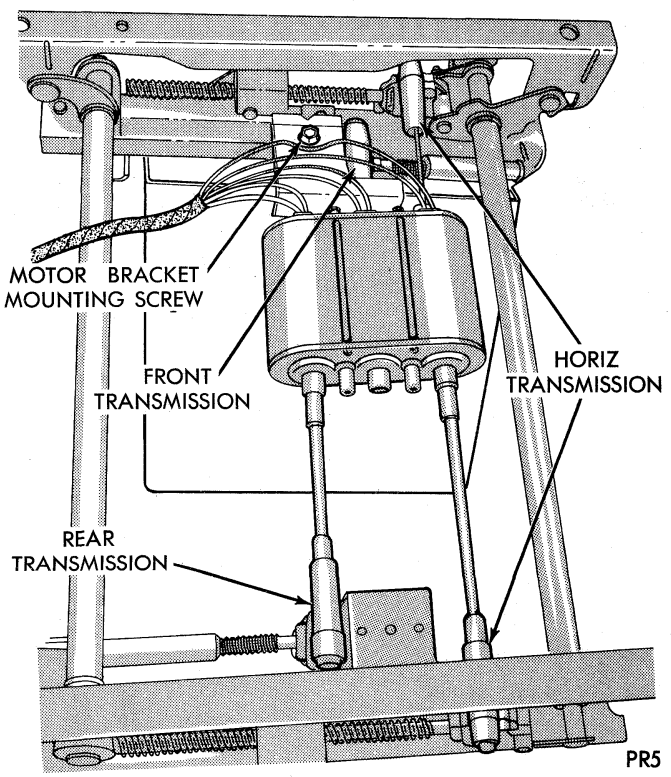


Fig. 3—Seat Track Identification "C" Body 50/50 Seat

(4) Remove assembly from vehicle.

Installation

(1) Position seat assembly in vehicle.

(2) Connect wiring harness.

(3) From underneath vehicle install and tighten mounting nuts.

(4) Connect battery ground cable and check seat operation.

ADJUSTER

Removal

(1) Remove seat assembly from vehicle following procedure outlined under, "Seat Assembly and Adjuster."

(2) Lay seat on its back on some clean surface.

(3) Remove bolts attaching adjuster to seat assembly.

Installation

(1) Lay seat on its back on some clean surface.

(2) Position adjuster to seat assembly and install attaching bolts.

(3) Install seat assembly following procedure outlined under "Seat Assembly and Adjuster."

MOTOR

Removal

Anytime the motor, cable and housing assemblies or vertical and horizontal transmission assemblies re-

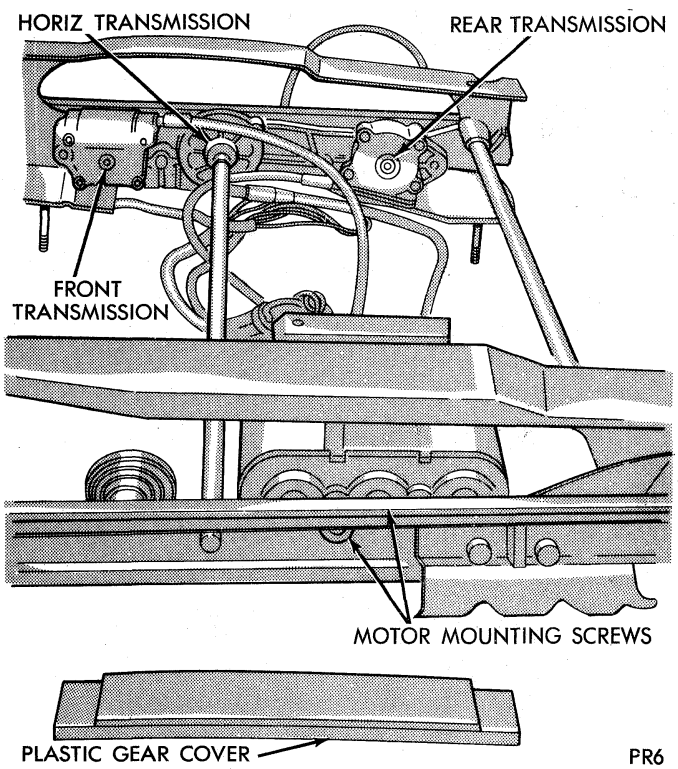


Fig. 4—Seat Track Identification All Except "C" Body 50/50 Seat

quire maintenance, the assemblies must be synchronized to insure easy and proper operation.

(1) Remove seat assembly from vehicle following procedure outlined under "Seat Assembly and Adjuster."

(2) Lay seat assembly on its back on some clean object.

(3) Remove bolt which holds motor to support (Fig. 3). Then remove mounting (Fig. 4) screws.

(4) Carefully disconnect housings and cables from motor assembly.

Installation

(1) Place motor assembly into position.

(2) Carefully connect cables and housings to motor assembly.

(3) Install mounting screws.

(4) Install bolt holding motor assembly to adjuster.

(5) Install seat assembly following procedure outlined under, "Seat Assembly and Adjuster."

CABLE AND HOUSING

Removal

Anytime the motor, cable and housing assemblies or vertical and horizontal transmission assemblies require maintenance, the assemblies must be synchronized to insure easy and proper operation.

It is recommended that anytime a cable is to be replaced that the motor assembly be removed also for ease of replacement.

(1) After motor has been disconnected, remove corbin clamp from cable housing then slide cable and housing out of connector (Fig. 5).

Installation

(1) Insert cable and housing into connector and install corbin clamp.

(2) Install motor assembly.

There is no corbin clamp on "C" body 50/50 seat.

HORIZONTAL AND VERTICAL TRANSMISSIONS

Transmissions are not removable and no maintenance is required. If transmission fails replace entire seat adjuster assembly.

SPECIFICATIONS

BATTERY			
Ampere Hours	Cranking Rating @0°F	Reserve Capacity	Application
48	325 amps	68 minutes	Standard with 225 1 BBL, 318
59	375 amps	86 minutes	Standard with 225, 2 BBL
70	440 amps	102 minutes	Standard with 360, 400
85*	500 amps	140 minutes	Optional with 225, 318 Standard with 440 Optional with 225, 318 360, 400

*Long Life—Low Maintenance Battery

CRANKING RATING is the current a battery can deliver for 30 seconds and maintain a terminal voltage of 7.2 volts or greater at a specified temperature.

RESERVE CAPACITY RATING is the amount of time a battery can deliver 25 amps and maintain a minimum terminal voltage of 10.5 volts at 80°F.

REDUCTION GEAR STARTING MOTOR

Starting Motor Model	1.5 HP—3755900 1.8 HP—3755250
Make	Chrysler Built
Voltage	12
Number of Fields	4 Series Parallel
Number of Poles	4
Brushes	4
Spring Tension	32 to 36 Ounces
Drive	Solenoid Shift Overrunning Clutch
*Cranking Amperage Draw	165 to 180 Amps. 225, 318, Cu. In. Engines 180 to 200 Amps. 360, 400, 440 Cu. In. Engines
Free-Running Test	
Voltage	11
Amperage Draw	90
Minimum Speed RPM	1.5 HP—3700 1.8 HP—5700
Locked Resistance Test	
Voltage	4
Amperage Draw	475 to 550
Solenoid Switch	
Pull-In Coil	13 to 15 Amps. @ 6 Volts @ 77°F.
Hold-In Coil	8 to 9 Amps. @ 6 Volts @ 77°F.

*Engine should be at operating temperature.

ALTERNATOR

Identification

Violet Tag	41 Amp.
Natural Tag	50 Amp.
Yellow Tag	60 Amp.
Brown Tag	65 Amp.
Yellow Tag	100 Amp.

Rotation	Clockwise at Drive End
Voltage	12 Volt System
Current Output	Design Controlled
Voltage Output	Limited by Voltage Regulator
Brushes (Field)	2
Condenser Capacity	0.5 Microfarad plus or minus 20%
Field Current Draw	
Rotating by Hand	4.5 to 6.5 Amperes @ 12V All except 100 Amp. 4.75 to 6.0 @ 12V

Current Rating	Current Output
41 Amp.	40 Amp. Minimum
50 Amp.	47 Amp. Minimum
60 Amp.	57 Amp. Minimum
65 Amp.	62 Amp. Minimum
100 Amp.	72 Amp. Minimum

Current output is measured at 1250 engine rpm and 15 volts at the alternator. 900 rpm and 13 volts for 100 Amp. Alternator.

Voltage is controlled by variable load (carbon pile) across the battery.

ELECTRONIC VOLTAGE REGULATOR

The battery specific gravity should be above 1.200 when checking the regulated voltage.
The voltage regulator is working properly if the voltage is in accordance with the following chart:—

Ambient Temperature 1/4" From Voltage Regulator	Voltage Range
—20°F.	14.9 to 15.9
80°F.	13.9 to 14.6
140°F.	13.3 to 13.9
Above 140°F.	Less than 13.9

SPARK PLUGS

Engine	Spark Plug*	Size	Gap	Gasket	Torque
225	RBL16Y	.460" Tapered Seat	.035"	No	10 ft. lbs.
318	RN12Y	14mm 3/4" reach	.035"	Yes	30 ft. lbs.
360	RN12Y	14mm 3/4" reach	.035"	Yes	30 ft. lbs.
400	OJ13Y	14mm 3/8" reach	.035"	Yes	30 ft. lbs.
400 H.P.	OJ11Y	14mm 3/8" reach	.035"	Yes	30 ft. lbs.
440	OJ13Y	14mm 3/8" reach	.035"	Yes	30 ft. lbs.
440 H.P.	OJ11Y	14mm 3/8" reach	.035"	Yes	30 ft. lbs.

*Champion or Equivalent

IGNITION COIL AND BALLAST RESISTOR

Coil	Chrysler Prestolite	Chrysler Essex
Identification	2444242	2444241
Primary Resistance @ 70—80°F	1.60 to 1.79	1.34 to 1.55
Secondary Resistance @ 70—80°F	9400 to 11700	9000 to 12200
Ballast Resistor	3656199	
Resistance @ 70—80°F		
Compensating (Coil Side)	.50-.60 ohms	
Auxiliary (Control Unit Side)	4.75-5.75 ohms	

6 CYLINDER DISTRIBUTOR APPLICATION

Listed by part number as stamped on distributor identification tag.

Engine	Engine Code	Carbu-retor	Vehicle* Weight Class	Trans-mission	FEDERAL			CALIFORNIA	CANADA	
					With Catalyst Only	Electronic Lean Burn With Catalyst	High Altitude With Catalyst And Air Pump	With Catalyst And Air Pump	Without Catalyst With Air Pump	With Catalyst Only
225-1	E-24	1BBL	3500#	M	3874876					3874876
225-1	E-24	1BBL	3500#	A	3874876		3874876		3874929	3874876
225-1	E-24	1BBL	4000#	M	3874876			4091101		3874876
225-1	E-24	1BBL	4000#	A	3874876		4091101	4091101	3874929	3874876
225-1	E-25	1BBL	3500#	A	3874876				3874929	3874876
225-1	E-25	1BBL	4000#	A	3874876			4091101		3874876
225-2	E-26	2BBL	3500#	M	3874876					3874876
225-2	E-26	2BBL	3500#	A	3874876					3874876
225-2	E-26	2BBL	4000#	M	3874876					3874876
225-2	E-26	2BBL	4000#	A	3874876					3874876

A—Automatic
M—Manual

*—Wet curb weight plus 300 pounds rounded off to the nearest 500 pounds

8 CYLINDER DISTRIBUTOR APPLICATION

Listed by part number as stamped on distributor identification tag

Engine	Engine Code	Carburetor	Vehicle* Weight Class	Transmission	FEDERAL			CALIFORNIA		CANADA		
					Electronic Lean Burn With Catalyst	High Altitude With Catalyst And Air Pump	High Altitude Electronic Lean Burn With Catalyst With or Without Air Pump	With Catalyst And Air Pump	Electronic Lean Burn With Catalyst And Air Pump	Without Catalyst Or Air Pump	Electronic Lean Burn With Catalyst	Electronic Lean Burn Without Catalyst With or Without Air Pump
318-2	E-44	2BBL	4000#	M	4091140						4091140	
318-2	E-44	2BBL	4000#	A	4091140		4091140				4091140	
318-2	E-44	2BBL	4500#	M	4091140						4091140	
318-2	E-44	2BBL	4500#	A	4091140		4091140				4091140	
318-2	E-45	2BBL	4000#	A	4091140						4091140	
318-4	E-46	4BBL	4000#	A					4091140			4091140
318-4	E-46	4BBL	4500#	A					4091140			4091140
360-2	E-55	2BBL	4000#	A	4091140					4091140		
360-2	E-55	2BBL	4500#	A	4091140					4091140		
360-2	E-55	2BBL	5000#	A	4091140					4091140		
360-4	E-56	4BBL	4500#	A		3874115		3874115				
360-4	E-56	4BBL	5000#	A		3874115		3874115				
360-2	E-57	2BBL	4000#	A	4091140					4091140	4091140	
360-2	E-57	2BBL	4500#	A	4091140					4091140	4091140	
360-2	E-57	2BBL	5000#	A	4091140					4091140	4091140	
360-4	E-58	4BBL	4000#	A	4091140	3874115		3874115				4091140
360-4	E-58	4BBL	4500#	A	4091140	3874115		3874115				4091140
400-4	E-64	4BBL	4500#	A	4091709							4091709
400-4	E-64	4BBL	5000#	A	4091709							4091709
400-4	E-68	4BBL	4500#	A	4091709							4091709
400-4	E-68	4BBL	5000#	A	4091709							4091709
440-4	E-85	4BBL	5000#	A	4091711		4091711		4091711			4091711
440-4	E-86	4BBL	5000#	A	4091711				3874173			4091711

A—Automatic
M—Manual

*—Wet curb weight plus 500 pounds rounded off to the nearest 500 pounds

IGNITION TIMING

The following specifications are published from the latest information available at the time of publication. If Curb Idle RPM, Ignition Timing, or Carbon Monoxide (CO) percentages differ from those on the Emission Control Information Label, use the specification on the label.

Car Line	Engine	Engine Code	Carburetor	Transmission	Vehicle* Weight Class	Distributor	Basic □ Timing	Curb Idle Speed △ RPM	Propane Enriched Idle Speed RPM	Propane Enriched Idle Speed RPM	Distributor	Basic □ Timing	Curb Idle Speed △ RPM	Propane Enriched Idle Speed RPM	Idle Mixture % Of CO
						ELECTRONIC IGNITION FEDERAL AND CANADA—SEA LEVEL					ELECTRONIC IGNITION CALIFORNIA				
H-N	225-1	E-24	1-BBL	M	3500#	3874876	12°BTDC	700	835						
H-N	225-1	E-24	1-BBL	A	3500#	3874876	12°BTDC	700	790						
H-N	225-1	E-24	1-BBL	A	3500#	3874929	2°ATDC***	750	880						
H-N	225-1	E-24	1-BBL	M-A	4000#	3874876	12°BTDC	700	790		4091101	8°BTDC	750	860	0.3
H-N-R-W	225-1	E-25	1-BBL	A	35/4000#	3874876	12°BTDC	700	790		4091101	8°BTDC	750	880	0.3
H-N-F-G-R-W	225-2	E-26	2-BBL	M	35/4000#	3874876	12°BTDC	750	930						
H-N-F-G-R-W	225-2	E-26	2-BBL	A	35/4000#	3874876	12°BTDC	750	900						
						ELECTRONIC IGNITION FEDERAL HIGH ALTITUDE			Below 4000 Feet	Above 4000 Feet					
H-N-F-G	225-1	E-24	1-BBL	A	4000#	4091101	8°BTDC	750	880	910	4091101	8°BTDC	750	820	0.3
F-G-R-W S-X-C	360-4	E-56	4-BBL	A	45/5000#	3874115	6°BTDC	750	830	850	3874115	6°BTDC	750	830	0.5
H-N-F-G R-W-S-X	360-4	E-58	4-BBL	A	40/4500#	3874858	8°BTDC	750	830	850	3874858	8°BTDC	750	830	0.5
R-W-S-X	440-4	E-86	4-BBL	A	5000#						3874173	8°BTDC	750	860	1.0
						FEDERAL AND CANADA ELECTRONIC LEAN BURN† SEA LEVEL					ELECTRONIC LEAN BURN† CALIFORNIA				
H-N-F-G	318-2	E-44	2-BBL	M	40/5000#	4091140	16°BTDC	700	810						
H-N-F-G R-W-S-X	318-2	E-44	2-BBL	A	40/5000#	4091140	16°BTDC	750	850						
H-N R-W-S-X	318-2	E-45	2-BBL	A	40/5000#	4091140	16°BTDC	750	850						
H-N-F-G R-W-S-X	318-4	E-46	4-BBL	A	40/5000#	4091140	*** 10°BTDC	750	825		4091140	10°BTDC	750	825	0.5
H-N-F-G R-W-S-X	360-2	E-55	2-BBL	A	40/45/5000#	4091140	12°BTDC** 20°BTDC	750	890						
H-N-F-G R-W-S-X-C	360-2	E-57	2-BBL	A	40/45/5000#	4091140	12°BTDC** 20°BTDC	750	890						
H-N-F-G R-W-S-X-C	360-2	E-57	2-BBL	A	45/5000#	4091140	*** 20°BTDC	750	890						
H-N R-W-S-X	360-4	E-58	4-BBL	A	4000#	4091140	16°BTDC	750	900						
R-W-S-X	400-4	E-64	4-BBL	A	4500#	4091709	24°BTDC 20°BTDC**	750	840 825**						
R-W-S-X-C	400-4	E-64	4-BBL	A	5000#	4091709	20°BTDC	750	840						
R-W-S-X	400-4	E-68	4-BBL	A	45/5000#	4091709	20°BTDC	750	840						
R-W-S-X	440-4	E-86	4-BBL	A	5000#	4091711	16°BTDC	750	825						
C	440-4	E-85	4-BBL	A	5000#	4091711	12°BTDC	750	860		4091711	8°BTDC	750	860	0.3
						FEDERAL HIGH ALTITUDE LEAN BURN†									
H-N R-W-S-X	318-2	E-44	2-BBL	A	4500#	4091140	16°BTDC	750	830	880					
C	440-4	E-85	4-BBL	A	5500#	4091711	8°BTDC	750	860	930					

* Wet curb weight plus 300 pounds rounded off to the nearest 500 pounds
** Canada
*** Canada only

□ Basic ignition timing ±2°
△ Curb idle speed ±100 RPM
M—Manual
A—Automatic

† Use a jumper to ground carburetor idle switch contact button

TDC—Top Dead Center
ATDC—After Top Dead Center
BTDC—Before Top Dead Center

DISTRIBUTOR SPECIFICATIONS
Listed By Part Number in Numerical Order

ELECTRONIC IGNITION			
PART NUMBER	**3874115**	**3874173**	**3874858**
Rotation	Clockwise	Counterclockwise	Clockwise
Firing Order	1-8-4-3-6-5-7-2	1-8-4-3-6-5-7-2	1-8-4-3-6-5-7-2
Advance-Centrifugal (Distributor Degrees at Distributor RPM)	1.3° to 3.1° @600 5.8° to 7.5° @800 10.0° to 12.0° @2000	1.3° to 3.1° @600 3.5° to 5.5° @700 8.0° to 10.0° @2000	1.4° to 3.4° @600 6.0° to 8.0° @800 6.5° to 8.5° @2400
Advance-Vacuum (Distributor Degrees at Inches of Mercury)	0.8° to 2.6° @7″ 10.0° to 12.0° @12.5″	0.5° to 2.5° @8″ 9.0° to 11.0° @14″	0.8° to 2.6° @7″ 10.0° to 12.5° @12.5″
Shaft Side Play*	Not to Exceed .006″	Not to Exceed .006″	Not to Exceed .006″
Shaft End Play	.003″ to .017″	.003″ to .017″	.003″ to .017″
Air Gap (Pick Up Coil to Reluctor)	.006	.006	.006

ELECTRONIC IGNITION			
PART NUMBER	**3874876**	**3874929**	**4091101**
Rotation	Counterclockwise	Clockwise	Clockwise
Firing Order	1-5-3-6-2-4	1-5-3-6-2-4	1-5-3-6-2-4
Advance-Centrifugal (Distributor Degrees at Distributor RPM)	0.2° to 2.2° @600 1.5° to 3.5° @650 3.7° to 5.7° @2500	1.4° to 3.4° @600 5.6° to 7.6° @800 9.7° to 11.7° @2300	1.0° to 1.2° @600 1.7° to 3.7° @800 5.8° to 7.8° @2060
Advance-Vacuum (Distributor Degrees at Inches of Mercury)	0.8° to 2.5° @7″ 7.3° to 9.8° @11.5″	0.8° to 2.5° @7″ 7.3° to 9.8° @11.5″	1.0° to 3.0° @9″ 7.5° to 9.5° @12.5″
Shaft Side Play*	Not to Exceed .006″	Not to Exceed .006″	Not to Exceed .006″
Shaft End Play	.003″ to .017″	.003″ to .017″	.003″ to .017″
Air Gap (Pick Up Coil to Reluctor)	.006	.006	.006

ELECTRONIC LEAN BURN			
PART NUMBER	**4091140**	**4091709**	**4091711**
Rotation	Clockwise	Counterclockwise	Counterclockwise
Firing Order	1-8-4-3-6-5-7-2	1-8-4-3-6-5-7-2	1-8-4-3-6-5-7-2
Shaft Side Play*	Not to Exceed .006″	Not to Exceed .006″	Not to Exceed .006″
Shaft End Play	.003″ to .017″	.003″ to .017″	.003″ to .017″

* Refer to Shaft and Bushing Wear Test

ELECTRONIC LEAN BURN SYSTEM

The following specifications are published from the latest information available at the time of publication. If anything differs from those on the Emission Control Information Label, use the specification on the label.

Custom I.C. Spark Control Computer Part Number	4091730	4091731	4091732	4091786	4091787	4091788
Spark Timer Advance Schedule	8°	8°	8°	8°	8°	8°
Delay Time in Seconds	60	60	60	60	60	60
Throttle Advance Schedule	7°-9°@100°F	4°-6°@100°F	5°-7°@100°F	5°-7°@100°F	5°-7°@100°F	7°-9°@100°F
Test Transducer Core Out 1 Inch	3°-6°@140°F	2°-4°@140°F	2°-5°@140°F	2°-4°@140°F	2°-4°@140°F	4°-6°@140°F
Vacuum Advance Schedule (A) Operating Vacuum Range	0″-12″	0″-14″	0″-14″	0″-15.5″	0″-10″	0″-14′
(B) Advance Off Idle (Carb Switch Isolated With Paper	None	7°-11°	None	5°-9°	None	7°-11°

	4091730	4091731	4091732	4091786	4091787	4091788
(C) Accumulation Time (In minutes)	8	8	8	7	8	8
(D) Advance After Accumulation Time	28°-32°	23°-27°	26°-30°	18°-22°	23°-27°	20°-24°
Speed Advance (Ground Carb Switch and @2000 Disconnect RPM	4°-8°	4°-8°	0°-3°	0°-1°	2°-5°	1°-5°
Throttle Transducer @4000 Before Checking) RPM	8°-12°	10°-14°	2°-6°	0°-2°	7°-11°	4°-8°

Custom I.C. Spark Control Computer Part Number	**4091791**	**4091923**	**4091924**	**4091954**	**4091955**
Spark Timer Advance Schedule	8°	8°	8°	8°	8°
Delay Time in Seconds	60	60	60	60	60
Throttle Advance Schedule	4°-6°@100°F	5°-7°@100°F	9°-11°@100°F	5°-7°@100°F	7°-9°@100°F
Test Transducer Core Out 1 Inch	1°-4°@140°F	2°-5°@140°F	5°-8°@140°F	2°-5°@140°F	4°-6°@140°F
Vacuum Advance Schedule (A) Operating Vacuum Range	0"-12"	0"-14"	0"-14"	0"-15.5"	0"-14"
(B) Advance Off Idle (Carb Switch Isolated With Paper)	None	8°-12°	None	None	7°-11°
(C) Accumulation Time (In Minutes)	8	8	8	8	7
(D) Advance After Accumulation Time	20°-24°	24°-28°	21°-25°	18°-22°	20°-24°
Speed Advance (Ground Carb Switch and Disconnect @2000 RPM	7°-11°	1°-4°	10°-15°	0°-1°	1°-5°
Throttle Transducer Before Checking) @4000 RPM	8°-12°	6°-10°	16°-21°	0°-2°	4°-8°

Custom I.C. Spark Control Computer Part Number	**4111012**	**4111013**	**4111014**	**4111015**	**4111159**
Spark Timer Advance Schedule	8°	8°	8°	8°	8°
Delay Time in Seconds	60	60	60	60	60
Throttle Advance Schedule	0°	9°-11°@100°F	5°-7°@100°F	5°-7°@100°F	5°-7°@100°F
Test Transducer Core Out 1 Inch	0°	5°-8°@140°F	2°-5°@140°F	2°-5°@140°F	2°-5°@140°F
Vacuum Advance Schedule (A) Operating Vacuum Range	0"-15.5"	0"-14"	0"-12"	0"-14"	0"-15.5"
(B) Advance Off Idle (Carb Switch Isolated With Paper)	None	None	2°-6°	2°-6°	None
(C) Accumulation Time (In Minutes)	8	8	8	8	8
(D) Advance After Accumulation Time	18°-22°	21°-25°	18°-22°	18°-22°	18°-22°
Speed Advance (Ground Carb Switch and Disconnect @2000 RPM	4°-8°	10°-14°	8°-12°	8°-12°	0°-1°
Throttle Transducer Before Checking) @4000 RPM	6°-10°	16°-21°	12°-16°	12°-16°	0°-2°

Custom I.C. Spark Control Computer Part Number	**4111169**	**4111170**	**4111172**	**4111217**	**4111218**
Spark Timer Advance Schedule	None	None	None	8°	8°
Delay Time in Seconds	None	None	None	60	60
Throttle Advance Schedule	5°-7°@100°F	5°-7°@100°F	2°-5°@140°F	0°	0°
Test Transducer Core Out 1 Inch	5°-7°@100°F	2°-5°@140°F	2°-5°@140°F	0°	0°
Vacuum Advance Schedule (A) Operating Vacuum Range	0"-10"	0"-10"	0"-10"	4"-14"	4"-14"
(B) Advance Off Idle (Carb Switch Isolated With Paper)	5°-9°	5°-9°	5°-9°	6°-10°	2°-6°
(C) Accumulation Time (In Minutes)	8	8	8	7	7
(D) Advance After Accumulation Time	16°-20°	16°-20°	16°-20°	18°-22°	18°-22°
Speed Advance (Ground Carb Switch and Disconnect @2000 RPM	1°-5°	1°-5°	1°-5°	8°-12°	8°-12°
Throttle Transducer Before Checking) @4000 RPM	4°-8°	4°-8°	4°-8°	12°-16°	12°-16°

EXTERIOR LIGHT BULBS

Carline	(H-N)	(F-G)	(R)	(W)	(X)	(XE)
Headlamps	6014	4651	4651	4651	6014	4651
Side Marker Lamps Front	168	4652 168	4652 168*	4652 168*	168	4652 **
Side Marker Lamps Rear						*
Park and Turn Signal Lamp	1157NA	1157NA	1157	1157	1157NA	1157NA
Tail, Stop and Turn Signal Lamps	1157***	1157	1157***	1157***	1157	1157
Turn Signal	1156		1156	1156		
Fender Mounted Turn Signal Indicator	168	168	168	168	168	168
License Plate Lamp	168	168	168	168	168	168
Back Up Lamps	1156	1156	1156	1156	1156	1156
Cornering Lamps	—	1156	—	—	—	—
Opera Lamps	—	756	—	—	—	—

Carline	(S)			(C)		(CS)
Headlamps	4651 4652			4000 4001		4000 4001
Side Marker Lamps Front	1949			168		168
Side Marker Lamps Rear	168					
Park and Turn Signal Lamp	1157NA			1157NA		1157NA
Tail, Stop and Turn Signal Lamps	1157			1157**		1157
Fender Mounted Turn Signal Indicator	168			168		168
License Plate Lamp	168			168		168
Back Up Lamps	1156			1156		1141
Cornering Lamps	—			1156		1156
Halo Lamp	211-2					
Opera Lamps	756			—		—

* Tail lamps serve as rear side mark lamps or parking lamp serves as front side marker.
** (2) 1157 bulbs used as tail only. *** (2) 1157 bulbs used as tail and stop only.

INTERIOR LIGHT BULBS
(F-G Models)

Headlight Switch Rheostat Dimming

Air Conditioning Controls	#363
Ash Tray	#161
Clock Digital (Note A)	Flourescent Readout
Heater Controls	#363
Instrument Cluster	#168
Radio AM	#158
Radio AM-FM	#158
Radio AM-FM-MX	#53
Radio AM-FM Electronic (Note D)	#74
Radio CB	#1815
Radio 8 Track Tape Player	#1815
Speedometer	#158
Switch Callouts	#158
Transmission Gear Selector (Note A)	#168
Wiper/Washer	#158

Non-Dimming

Brake Indicator	#158
C-Pillar Lamp	#211-2
Courtesy Lamp (Door)	#212-2
Courtesy Lamp (Under Panel)	#90
Dome Lamp	#211-2
Door Ajar	#158
Fasten Seat Belts	#158
Glove Compartment	#1891
Heated Rear Window Indicator	#74
High Beam Indicator	#158
Ignition Lamp	#1445
Map Lamp	#562
Oil Pressure Indicator	#158
Radio AM-FM Stereo Indicator	#73
Radio 8 Track Tape Player With Stereo Indicator	#73
Tailgate Ajar Indicator	#158
Trunk Lamp	#1003
Turn Signal Indicator	#158
Underhood Lamp	#1003
Visor Vanity Lamp	#158
Washer Level Indicator	#153
Windshield Header Lamps	#1004

NOTE: (A) Serviced by authorized dealers only.
(B) Included in instrument cluster lighting.
(C) All bulbs are brass or glass wedge base. Aluminum bulbs are not approved and are not to be used.
(D) Light emitting diode.

(H-N Models)

Headlight Switch Rheostat Dimming

Air Conditioning Controls	#363
Ash Tray	#161
Clock Digital (Note A)	Fluorescent Readout
Gear Shift Selector Console	#57
Heated Rear Window Control	#161
Heater Controls	#363
Instrument Cluster	#158
Radio AM	#158
Radio AM-FM	#158
Radio AM-FM Stereo	#53
Radio 8 Track Tape Player	#1815
Radio CB	#1815
Speedometer	#158
Switch Callouts	#161
Transmission Gear Selector (Note B)	#158

Non-Dimming

Brake Indicator	#158
Courtesy Lamp	#562
Dome Lamp	#211-2
Fasten Seat Belts	#158
Glove Compartment	#1891
Heated Rear Window Indicator	#161
High Beam Indicator	#158
Ignition Lamp	#1445
Map Lamp	#562
Oil Pressure Indicator	#158
Radio AM-FM Stereo Indicator	#73
Radio 8 Track Tape Player With Stereo Indicator	#73
Reverse 4-Speed Transmission Indicator	#161
Tail Gate Ajar	#158
Trunk Lamp	#1003
Turn Signal Indicator	#158
Underhood Lamp	#1003

NOTE: (A) Serviced by authorized dealer only.
(B) Included in instrument cluster lighting.
(C) All bulbs are brass or glass wedge base. Aluminum bulbs are not approved and are not to be used.

(R-W-X-S Models)

Headlight Switch Rheostat Dimming

Air Conditioning Controls	#363
Accessory Switches	#161
Ash Tray	#161
Clock Conventional (Note A)	#158
Clock Digital (Note B)	Fuorescent Readout
Gear Selector Console	#57
Heater Controls	#363
Instrument Cluster	#158
Radio AM	#158
Radio AM-FM	#158
Radio AM-FM Stereo	#53
Radio 8 Track Tape Player	#1815
Radio MX-ST Electronic (Note C)	#74
Radio CB	#1815
Speedometer	#158
Tachometer (Note A)	#158
Tilt Column Gear Selector	#363
Transmission Column Gear Selector	#158

Non-Dimming

Brake Indicator	#158
"C" Pillar Lamp	#212-2
Cargo Lamp (Station Wagon)	#211-2
Door Courtesy Lamp	#211-2
Dome Lamp	#211-2
Fasten Seat Belts	#158
Glove Compartment	#1891
Heated Rear Window Indicator	#74
High Beam Indicator	#158
Ignition Lamp	#1445
Map Lamp	#562
Oil Pressure Indicator	#158
Radio AM-FM Stereo Indicator	#73
Radio 8 Track Stereo Indicator	#73
Reverse 4-Speed Transmission Indicator	#161
Sun Roof Reading Lamp	#912
Tailgate Ajar	#161
Trunk Lamp	#1003-1004
Turn Signal Indicator	#158
Underhood Lamp	#1003-1004
Vanity Visor Lamp	#158

NOTE: (A) Included in instrument cluster lighting.
(B) Serviced by authorized dealers only.
(C) Light emitting diode.
(D) All bulbs are brass or glass wedge base. Aluminum bulbs are not approved and are not to be used.

INTERIOR LIGHT BULBS

(C Models)

Headlight Switch Rheostat Dimming

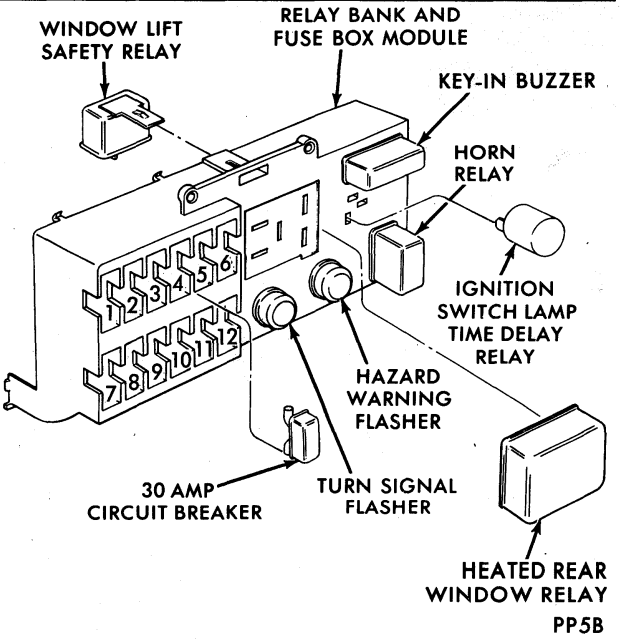
Air Conditioning Controls	#363
Antenna Switch	#161
Ash Tray (Door)	#1892
Ash Tray (Instrumentl Panel Center) (Note A)	#363
Ash Tray (Instrument Panel Right)	#158
Auto Temp II	#363
Cigar Lighter	#161
Clock Conventional	#158
Clock Digital (Note B)	Fuorescent Readout
Headlamp Switch	#1815
Headlamp Switch With Accessories Add	#161
Heater Controls	#363
Instrument Cluster	#158
Radio AM	#158
Radio AM-FM	#158
Radio 8 Track Tape Player	#1815
Radio MX-ST Electronic (Note C)	#74
Radio CB	#1815
Rear Defrost	#161
Rear U/Lock (Note E)	#158
Rear Window (Note E)	#158
Speedometer	#158
Transmission Gear Selector (Note D)	#158
Windshield Wiper Switch	#158

Non-Dimming

Brake Indicator	#158
Courtesy Lamp Door	#211-2
Dome Lamp	#211-2
Door Ajar	#158
Fasten Seat Belts	#158
Glove Compartment	#1891
Heated Rear Window Indicator	#74
High Beam Indicator	#158
Ignition Lamp	#1445
Low Battery Indicator (Note F)	L.E.D.
Low Fuel Indicator (Note F)	L.E.D.
Map Lamp	#562
Oil Pressure Indicator	#158
Radio 8 Track Stereo Indicator	#73
Reading Lamp	#1004
Tailgate Ajar	#158
Temperature (Hot) Indicator (Note F)	L.E.D.
Trunk Lamp	#1003-1004
Turn Signal Indicator	#158
Underhood Lamp	#1003-1004
Visor Vanity Lamp	#562

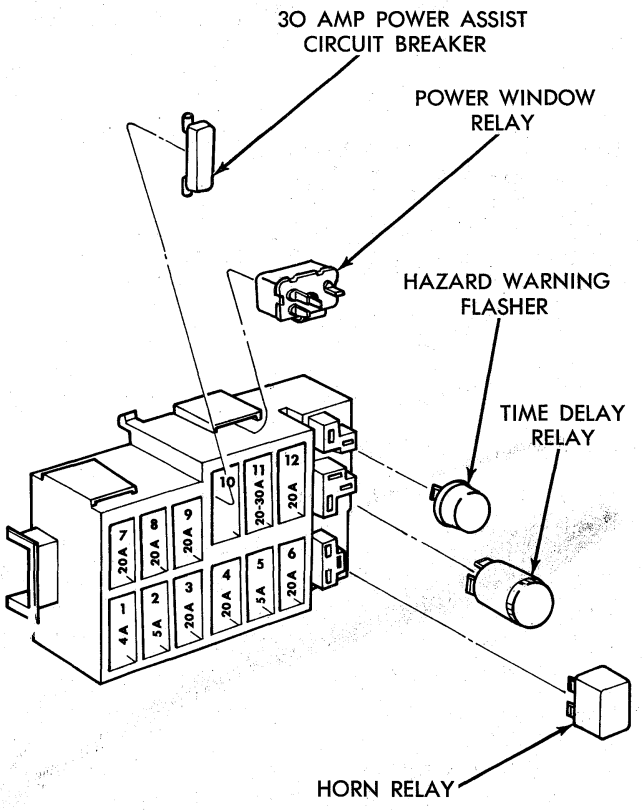
NOTE: (A) Included in heater, A/C or Auto Temp II lighting.
(B) Serviced by authorized dealer only.
(C) Light emitting diode.
(D) Included in instrument cluster lighting.
(E) Included in wiper switch lighting.
(F) All bulbs are brass or glass wedge base. Aluminum bulbs are not approved and are not to be used.

CAVITY	FUSE	ITEMS FUSED
1	5 AMP	SEAT BELT, BRAKE WARNING & OIL PRESSURE LAMPS, VOLTAGE LIMITER, FUEL & TEMP GAUGE, SEAT BELT BUZZER & DIGITAL CLOCK DISPLAY
2	20 AMP	PARK, TAIL, LICENSE, SIDE MARKER & INSTRUMENT PANEL LAMPS
3	20 AMP	STOP, DOME, MAP, GLOVE BOX, IGNITION, UNDER HOOD & TRUNK LAMPS; KEY-IN BUZZER, IGNITION LAMP TIME DELAY RELAY, CIGAR LIGHTER (HN) POWER ANTENNA (HN)
4	25 AMP	HORN (DUAL) & HORN RELAY, CIGAR LIGHTER (FG) POWER ANTENNA (FG) MAP & GLOVE BOX LAMPS (FG) TRAILER TOW STOP LAMPS (HN)
5	30 AMP C/BRKR	POWER WINDOW MOTORS, POWER DOOR LOCK SOL & POWER SEATS
6	20 AMP	POWER DOOR LOCK RELAY, SPOTLIGHT & REAR CIGAR LIGHTER (FG-O-OO)
7	3 AMP	ASH RECEIVER, GEAR SELECTOR CONSOLE; A/C & HEATER CONTROL, INSTRUMENT, CLOCK, RADIO (AM-FM MPX) SWITCH TITLE & OPEN DOOR INDIC LAMPS
8	20 AMP 30 AMP	HEATER BLOWER MOTOR A/C BLOWER MOTOR
9	20 AMP	SPEED CONTROL, REAR WINDOW DEFOGGER & ELECTRIC DECK LID RELEASE SELENOID; WINDOW LIFT SAFETY & HEATED BACKLITE RELAY & CORNERING LAMPS (FG-O-OO)
10	20 AMP	A/C CLUTCH, T/SIG & BACK-UP LAMPS
11	5 AMP	RADIO
12	20 AMP	HAZARD FLASHER, FRONT & REAR TURN SIGNAL, TURN SIGNAL INDIC LAMPS



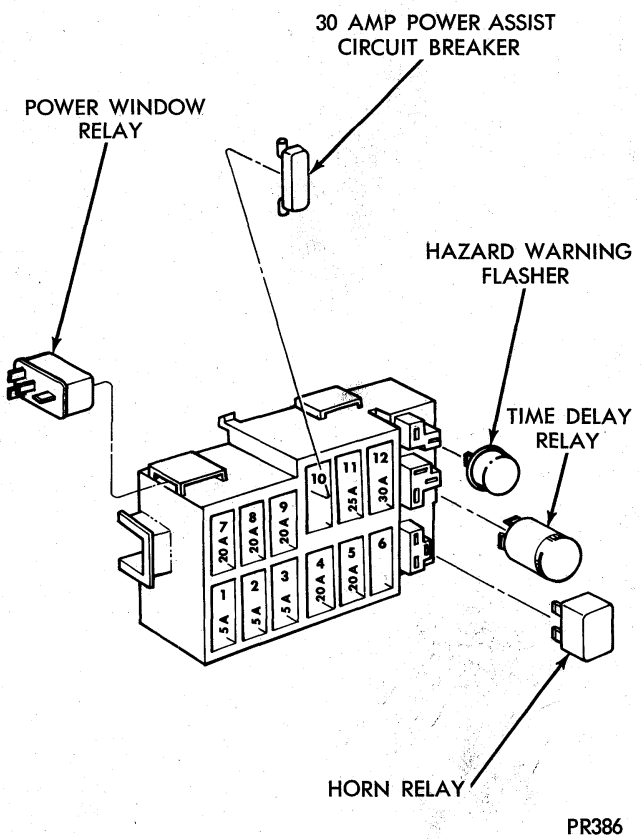
Fuses—Fuse Box and Relay Bank H-N-F-G

CAV	FUSE	ITEMS FUSED
1	4 AMP	ACC SWITCH TITLE, A/C OR HTR. CONT, ASH REC, RADIO, CLUSTER, GEAR SELECTOR & DIGITAL CLOCK LAMPS
2	5 AMP	RADIO
3	20 AMP	BACK-UP & TURN SIGNAL LAMPS; A/C CLUTCH
4	20 AMP	HAZARD FLASHER
5	5 AMP	OIL, SEAT BELT & BRAKE WARNING LAMPS; SEAT BELT BUZZER, VOLTAGE LIMITER, TACHOMETER DIGITAL CLOCK SENSOR, SPEED CONTROL, POWER WINDOW RELAY & FUEL, TEMP & OIL GAUGES
6	20 AMP	SPOTLIGHT
7	20 AMP	STOP, AFT DOME, COURTESY, DOME, TRUNK & TRAILER TOW STOP LAMPS; CIGARETTE LIGHTER
8	20 AMP	TAIL, PARK, SIDE MARKER, LICENSE, CLUSTER, MAP & TRAILER TOW TAIL LAMPS; DIGITAL CLOCK & KEY-IN BUZZER
9	20 AMP	GLOVE BOX, OPEN DOOR INDICATOR, COURTESY & IGNITION SWITCH LAMPS; IGNITION LAMP TIME DELAY RELAY, HORN RELAY & HORNS (DUAL)
10	30 AMP C/BRKR	POWER WINDOWS, SEATS, TAILGATE W/LIFT, DOOR LOCKS & DOOR GATE RELEASE
11	20 AMP 30 AMP	HEATER BLOWER MOTOR A/COND BLOWER MOTOR
12	20 AMP	TAILGATE AUTOLOCK SOLENOID, ELECTRIC DECK LID RELEASE, HEATED BACKLITE RELAY & REAR WINDOW DEFOGGER



Fuses—Fuse Box and Relay Bank R-W-S-X

CAV	FUSE	ITEMS FUSED
1	5 AMP	SWITCH TITLE, RADIO, STEREO TAPE, CLUSTER, ASH RECEIVER & CLOCK LAMPS
2	5 AMP	BRAKE WARNING, OIL PRESSURE & DOOR AJAR LAMPS; WINDOW LIFT SAFETY RELAY, VOLTAGE LIMITER, RADIO CAPACITOR, DIGITAL CLOCK READOUT & FUEL & TEMP GAUGE
3	5 AMP	RADIO
4	20 AMP	BACK-UP, TURN SIGNAL & CORNERING LAMPS: TURN SIGNAL FLASHER, SPEED CONTROL, POWER ANTENNA & A/C CLUTCH
5	20 AMP	HAZARD FLASHER
6		
7	20 AMP	STOP, DOME, TRUNK, GLOVE BOX, MAP, COURTESY VANITY VISOR, H/LAMP, IGNITION SWITCH & WINDSHIELD WIPER LAMPS; TIME DELAY RELAY, KEY-IN & H/LAMP-ON BUZZER, CLOCK & CIGAR LIGHTER
8	20 AMP	SIDE MARKER, TAIL, LICENSE, PARKING & INSTRUMENT LAMPS; DIGITAL RADIO, DIGITAL CLOCK, ANTOMATIC ANTENNA & ATC AMPLIFIER
9	20 AMP	HORN & HORN RELAY
10	30 AMP C/BRKR	POWER WINDOW, POWER SEAT & DOOR LOCK SOL
11	25 AMP	REAR CIGAR LIGHTER, DOOR LOCK RELAY COIL, SEAT BACK LATCH & READING & DOOR COURTESY LAMPS
12	30 AMP	A/C BLOWER MOTOR, HEATER BLOWER MOTOR, HEATED REAR WINDOW RELAY & ELECTRIC DECK LID



Fuses—Fuse Box and Relay Bank

ELECTRICAL WIRING DIAGRAMS

INDEX

GENERAL INFORMATION

FUSIBLE LINK REPLACEMENT

CAUTION: (1) Do not replace blown fusible links with standard wire. Only fusible type wire with hypalon insulation can be used or damage to the electrical system will occur. Also make sure correct gauge of wiring is used. Refer to Master Wiring Diagrams for proper gauge size. Service Parts replacement fusible links are available.

(2) When a fusible link blows it is very important to find out why it blew. They are placed in vehicles electrical system for protection against dead shorts to ground which can be caused by electrical component failure or various wiring failures. **DO NOT JUST REPLACE FUSIBLE LINK TO CORRECT PROBLEM.**

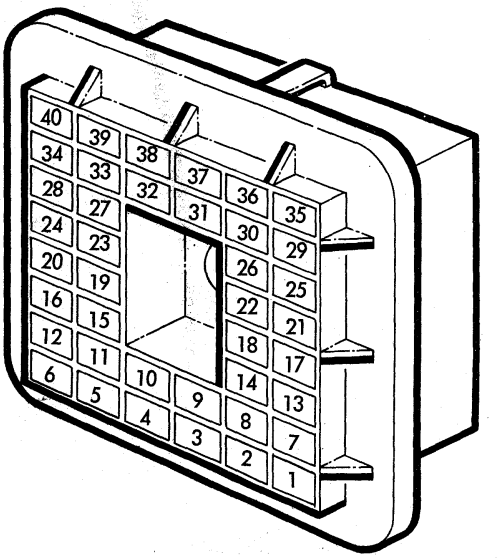
(3) When replacing fusible links that are connected to the battery terminal of starter relay, they are to be serviced with the same type of prefabricated fusible link, available through the Parts Division.

All other fusible links are replaced with a piece of fusible link wire cut from bulk reels supplied through the Parts Division. Care must be taken that the same gauge wire as the original fusible link be used.

Multiple Fusible Link Connection

(1) Cut off any remaining portion of blown fusible

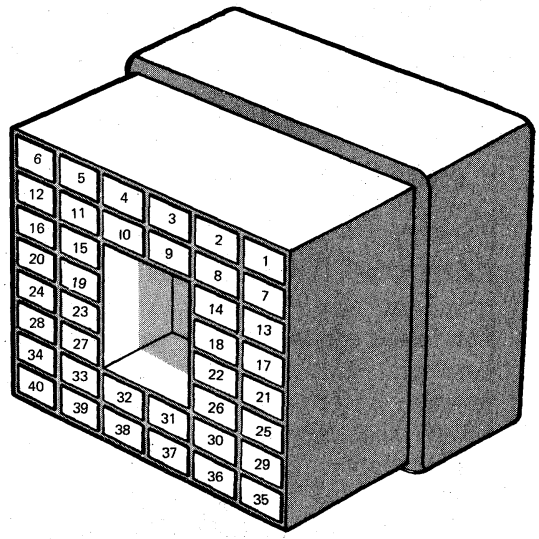
CAVITY	COLOR	DESCRIPTION
1	BK	HEATED REAR WINDOW (OVERLAY)
2	DBL*	IGNITION RUN
3	BK*	ALTERNATOR
4	DBL*	CONCEALED HEADLAMPS (OVERLAY)
5	BK/R*	CONCEALED HEADLAMPS (OPEN) (OVERLAY)
6	DBL/Y*	CONCEALED HEADLAMPS (CLOSE) (OVERLAY)
7	Y	STARTER RELAY
8	R	WINDSHIELD WIPER
9	BK*	AMMETER (ALTERNATOR)
10	DGN/R*	HORN
11		
12	LGN	LEFT TURN SIGNAL
13	DBL	WINDSHIELD WIPER
14		
15		
16	V	TEMPERATURE GAUGE SENDING UNIT
17	LBL/BK*	INTERMITTENT WIPER CONTROL
18	DBL	A/C CLUTCH
19	GY	OIL PRESSURE
20	BR*	WINDSHIELD WIPER
21	BK	BRAKE WARNING LAMP
22	BR/R*	WINDSHIELD WASHER
23		
24	DGN/Y*	WINDSHIELD WIPER
25		
26		
27	W	BACK-UP LAMP
28	V/BK*	BACK-UP LAMP
29	Y/BK*	PARKING LAMPS
30	T	RIGHT TURN SIGNAL
31	R	BATTERY
32	R*	AMMETER (BATTERY)
33		
34		
35	V*	LOW BEAM
36	R	HIGH BEAM
37	P*	ACCESSORY FEED
38	P	HAZARD FLASHER
39	DGN*	A/C HIGH BLOWER MOTOR
40	GY*	TACHOMETER (OVERLAY)



PR387

Bulkhead Disconnect R-W-S-X

CAVITY	COLOR	DESCRIPTION
1.		OPEN
2.	BK/R*	AIR CONDITIONER OR HEATER BLOWER MOTOR
3.	DBL*	IGNITION RUN
4.	W*	STOP LAMP (H-N)
5.	DGN*	VACANT
6.	R*	AMMETER
7.		VACANT
8.	BR*	WINDSHIELD WIPER
9.	BK/LBL*	KEY-IN SWITCH
10.	LBL	KEY-IN SWITCH
11.	GY/BK*	BRAKE WARNING LAMP
12.	BK*	AMMETER
13.	BK/T*	LOW WASHER FLUID LEVEL (F-G)
14.	R	WINDSHIELD WIPER
15.	T	RIGHT TURN SIGNAL (FRONT)
16.	LGN/BK*	LEFT TURN SIGNAL (FRONT)
17.	LBL/BK*	INTERMITTENT WIPE SWITCH
18.	DGN/Y*	WINDSHIELD WIPER
19.	GY	OIL PRESSURE
20.	V	TEMPERATURE
21.	BK/LGN*	HEATED REAR WINDOW
22.	DBL	WINDSHIELD WIPER
23.	R*	HI BEAM LAMP
24.	Y/BK*	PARKING LAMPS
25.	DBL*	AIR CONDITIONER COMPRESSOR CLUTCH
26.	BR/R*	WINDSHIELD WASHER
27.	LGN	HEADLAMP AND HI-BEAM LAMP FEED
28.	BK*	ALTERNATOR
29.	DGN	LEFT TURN SIGNAL (REAR)
30.	V/BK*	BACK-UP LAMP
31.	P	HAZARD FLASHER FEED
32.	R/BK*	TURN SIGNAL
33.	DGN/R*	HORN
34.	P	STOP LAMP
35.	BR	RIGHT TURN SIGNAL (REAR)
36.	W LGN	BACK-UP LAMP
37.	P*	HAZARD FLASHER
38.	Y/R*	IGNITION SWITCH LAMP
39.	BK/R*	HORN BUTTON
40.	BK	ACCESSORY FEED



PN269A

40 Way Disconnect H-N-F-G

link flush with multiple connection insulator, taking care not to cut into other fusible links.

(2) Remove 1 inch of insulation from main harness wire about 1 inch from multiple connection insulator.

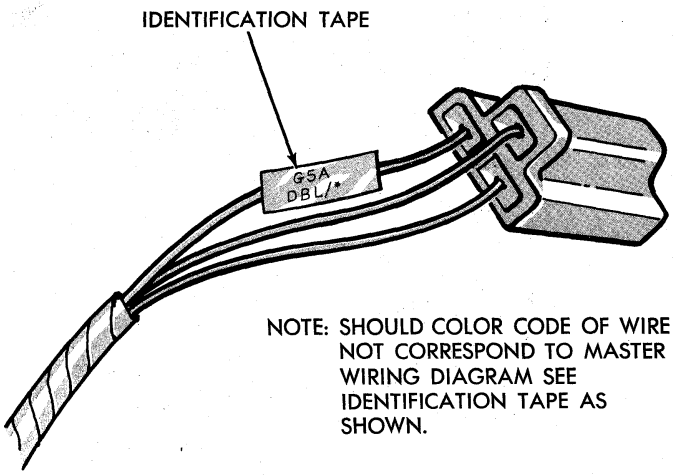
(3) Remove 1 inch of insulation from one end of new fusible link and wrap it around main harness wire that was stripped.

(4) Heat splice with a high temperature soldering gun, apply rosin type solder until it flows freely, and remove soldering gun.

(5) Allow to cool and wrap new splice with a minimum of 3 layers of suitable electrical tape.

Single Fusible Link Connection

(1) Cut fusible link including connection insulator from main harness wire.



PN420A

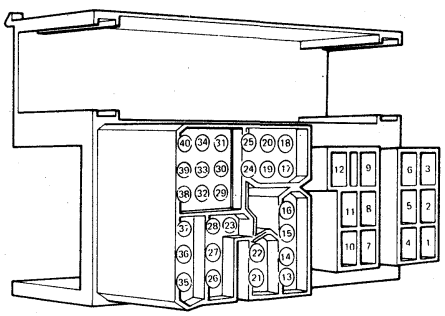
Identification of Substitute Wiring Circuits

COLOR CODE			
BK	BLACK	P	PINK
BR	BROWN	R	RED
DBL	DARK BLUE	T	TAN
DGN	DARK GREEN	V	VIOLET
GY	GRAY	W	WHITE
LBL	LIGHT BLUE	Y	YELLOW
LGN	LIGHT GREEN	*	WITH TRACER
O	ORANGE		

PK456A

Wiring Color Codes

CAVITY	DESCRIPTION
1.	L7 18BK/Y* (PARKING, TAIL, SIDE MARKER & LICENSE LAMP)
2.	D32 18P *(HAZARD FLASHER)
3.	V3 18BR* (WINDSHIELD WIPER)
4.	Q2 14BK (ACCESSORY)
5.	L2 16LGN (HEADLAMP)
6.	C5 12DGN (A/C & HEATER BLOWER MOTOR)
7.	D3 18P (STOP LAMP SWITCH, KEY -IN & HEADLAMP ON)
8.	D1 18BK*(TURN SIGNAL & BACK-UP LAMP SWITCH)
9.	R6 12BK* (BATTERY)
10.	J2 14DBL (IGNITION RUN)
11.	A3 14P HAZARD FLASHER)
12.	Q2 12BK/R* (ACCESSORY RUN)
13.	V4 18R (WINDSHIELD WIPER)
14.	V5 18DGN (WINDSHIELD WIPER)
15.	
16.	V10 18BR (WINDSHIELD WASHER)
17.	P5 20BK (BRAKE SWITCH WARNING LAMP)
18.	R16 20BK* (AMMETER ALTERNATOR)
19.	G2 20V (TEMPERATURE GAUGE)
20.	A11 20R* (AMMETER BATTERY)
21.	
22.	
23.	
24.	V12 18LBL (INTERMITTENT WIPE)
25.	G11 20DBL/R *(SEAT BELT LAMP)
26.	
27.	
28.	
29.	H2 16DGN/R*(HORN)
30.	V6 18DBL/P* (WINDSHIELD WIPER)
31.	E2 20O (CLUSTER LAMPS)
32.	M2 20Y (DOOR SWITCH)
33.	M26 20LBL (HEADLAMP-ON BUZZER)
34.	C2 18DBL* (A/C CLUTCH)
35.	V11 20BK/T* (LOW WASHER FLUID LEVEL)
36.	G6 20GY (OIL GAUGE)
37.	G4 20DBL (FUEL GAUGE)
38.	J15 20Y* (IGNITION SWITCH LAMP)
39.	M16 20BK/LBL*(DOOR SWITCH)
40.	H3 20BK/R* (HORN RELAY GROUND)



PK462C

Terminal Block Carline C

(2) Remove 1 inch of insulation from both new fusible link and main harness wire and wrap together.

(3) Heat splice with a high temperature soldering gun, apply rosin type solder until it flows freely and remove soldering gun.

(4) Allow to cool and wrap new splice with a minimum of 3 layers of suitable electrical tape.

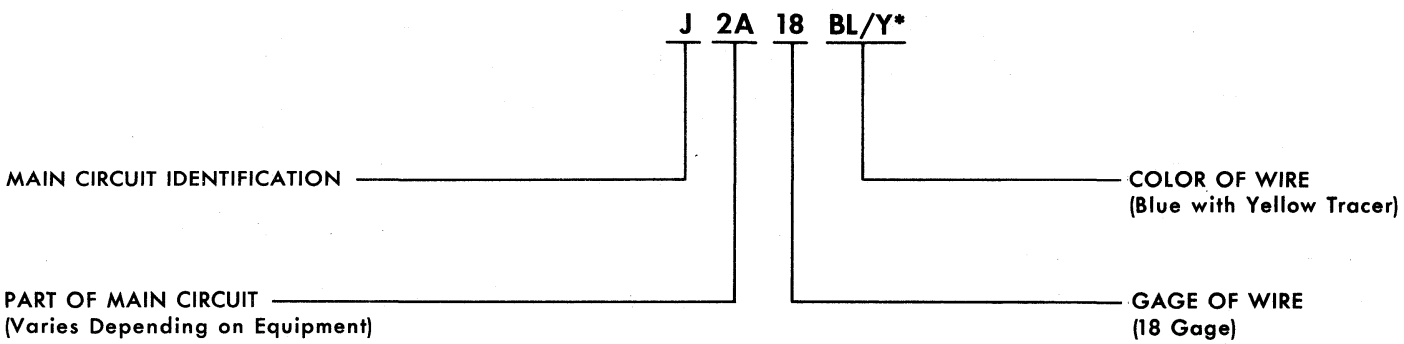
MASTER WIRING DIAGRAMS

LOCATING A SYSTEM OR COMPONENT

The master wiring diagrams contain the latest information available at the time of publication.

In order to locate a system or component use the proper vehicle alphabetical index to determine the diagram sheet number and turn to that sheet for the wiring diagram.

Sheet numbers for each wiring diagram are located at the lower right or left hand corner of each sheet.



PH803

Circuit Identification Codes

MAIN CIRCUIT IDENTIFICATION CODES

A1..... Battery Circuit to Ammeter.
A2..... Battery Circuit to Ammeter.
B..... Back Up Lamp Circuit.
C..... Air Conditioning and Heater Circuits
D..... Emergency, Stop Lamp and Turn Signal Circuits.
E..... Instrument Panel Cluster, Switches and Illumination Circuits.
F..... Radio Speakers and Power Seat Circuits.
G..... Gauges and Warning Lamp Circuits.
H..... Horn Circuit.
J..... Ignition System Run Circuit.
J1..... Ignition Switch Feed Circuit.
J3..... Ignition Switch Start Circuit.
K..... Trailer Tow.
L..... Lighting Circuit (Exterior Lights).
M..... Lighting Circuit (Interior Lights).
P..... Brake Checking Circuit.
Q2..... Accessory Buss Bar Feed (Fuse Block).
Q3..... Battery Buss Bar Feed (Feed).
R3..... Alternator Circuit to Electronic Voltage Regulator (Field).
R6..... Alternator Circuit to Ammeter (Feed).
S..... Starter Motor and Starter Relay Circuit.
T..... Trunk Lamp Circuit.
V..... Windshield Wiper and Washer Circuit.
W..... Power Window Circuit.
X..... Radio, Cigar Lighter, Lamp Grounds, Clock, Speed Control, Power Antenna, Deck Lid and Door Locks.

LEGEND

	NORMALLY OPEN CONTACT		RESISTOR
	NORMALLY CLOSED CONTACT		VARIABLE RESISTOR
	THERMAL ELEMENT (BI-METEL STRIP)		DIODE
			GROUND
	CIRCUIT BREAKER		SWITCH NORMALLY CLOSED
	COIL		SWITCH NORMALLY OPEN
	LAMP		SWITCH GANGED NORMALLY CLOSED
	FUSE		CONNECTOR
	THERMISTOR		MULTIPLE CONNECTOR
Ω	OHMS		MALE CONNECTOR
	SPLICE		FEMALE CONNECTOR
	DENOTES WIRE GOES THROUGH MAIN GROMET TO BODY COMPARTMENT H-N-P-D-C MODELS	B	DENOTES WIRE GOES THROUGH MAIN BULKHEAD TO BODY COMPARTMENT R-W-S-X MODELS

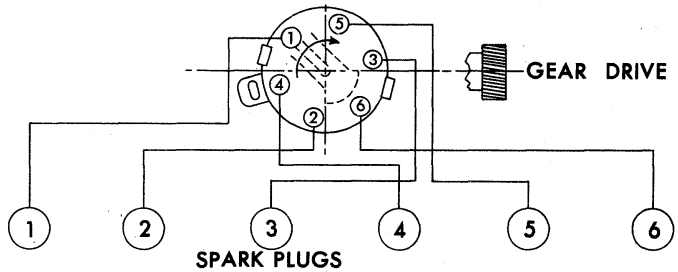
PF735B

Legend

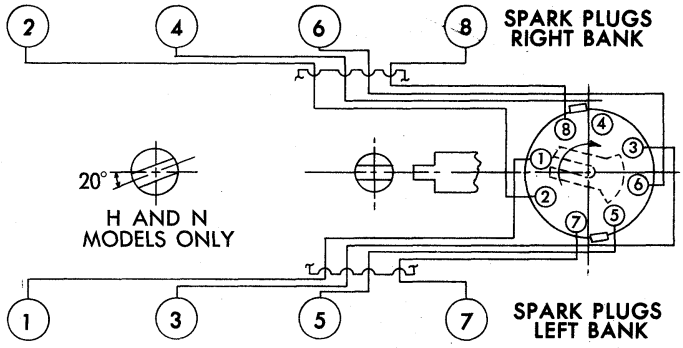
ENGINE IDENTIFICATION CODES*

E24	225—1 bbl.	(Standard)
E25	225—1 bbl.	(Heavy Duty Fleet)
E26	225—2 bbl.	
E44	318—2 bbl.	
E56	360—4 bbl.	(Standard)
E57	360—2 bbl.	
E58	360—4 bbl.	(High Performance)
E64	400—4 bbl.	(Standard)
E68	400—4 bbl.	(High Performance)
E85	440—4 bbl.	(Standard)
E86	440—4 bbl.	(High Performance)

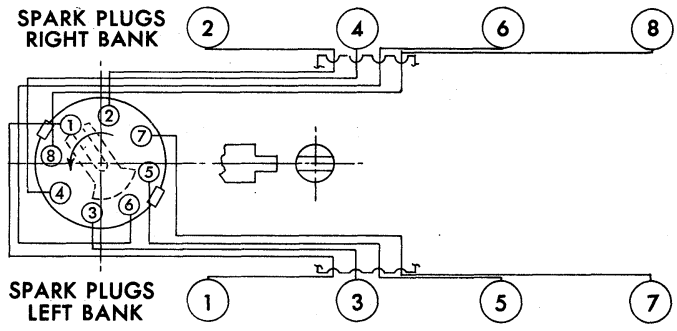
***For Reference In Wiring Diagrams Only.**



SPARK PLUGS
SIX CYLINDER DISTRIBUTOR-CLOCKWISE ROTATION
FOR 225 CUBIC INCH ENGINES
FIRING ORDER-1-5-3-6-2-4



EIGHT CYLINDER DISTRIBUTOR-CLOCKWISE ROTATION
FOR 318 AND 360 CUBIC INCH ENGINES
FIRING ORDER-1-8-4-3-6-5-7-2



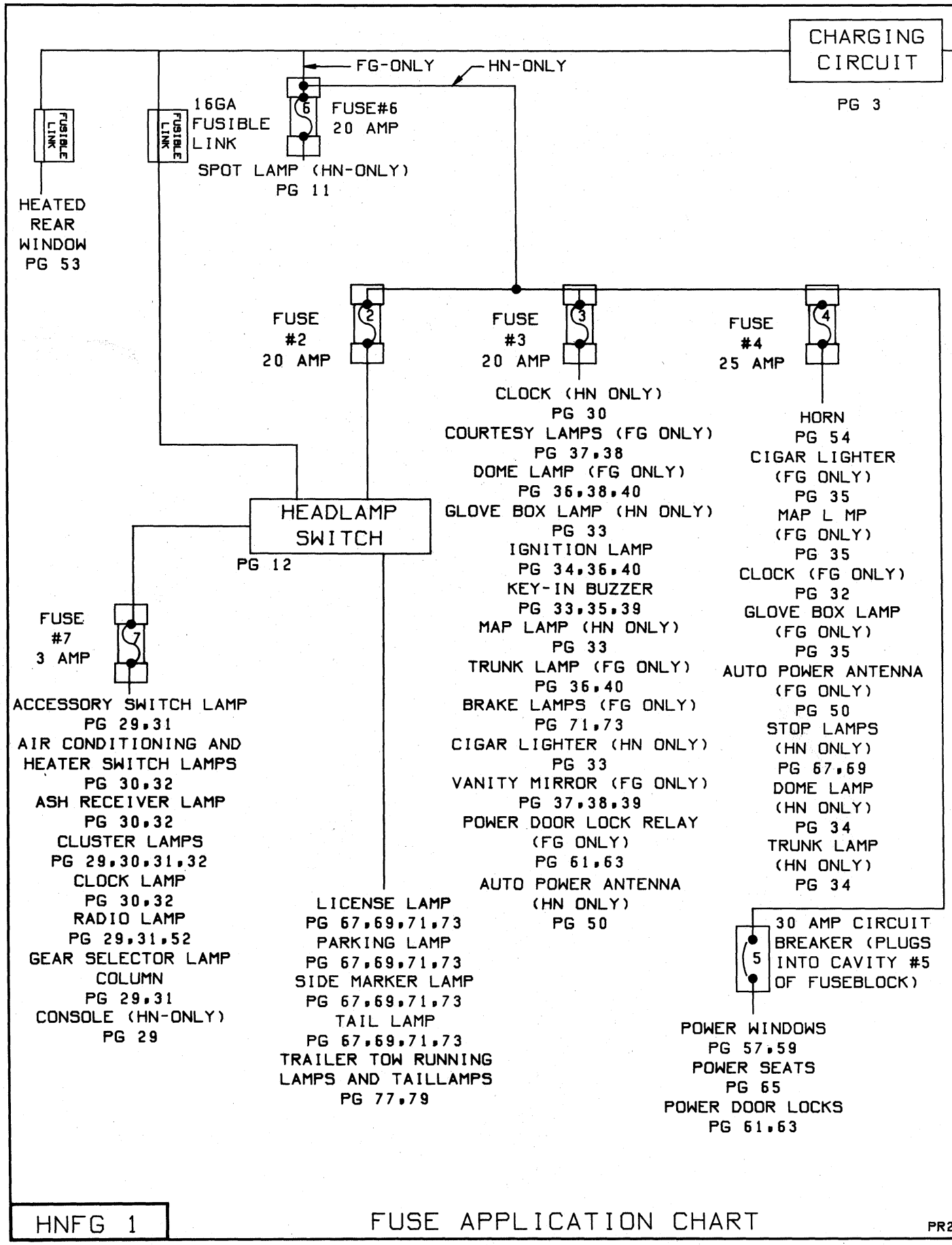
EIGHT CYLINDER DISTRIBUTOR-COUNTER-CLOCKWISE
ROTATION
FOR 400 AND 440 CUBIC INCH ENGINES
FIRING ORDER-1-8-4-3-6-5-7-2

PD541C

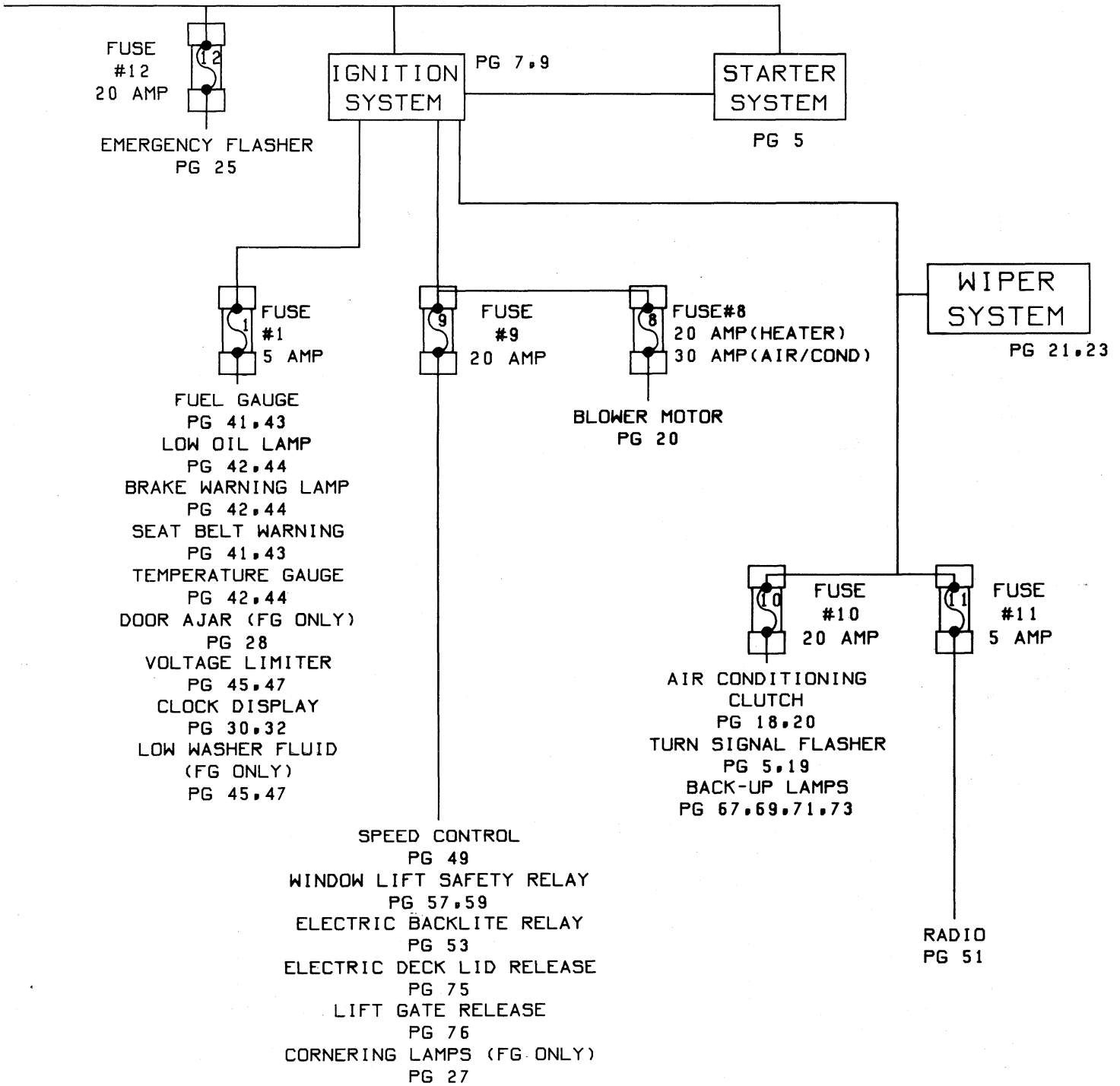
Distributor Secondary Wiring

H-N-F and G MODELS

ALPHABETICAL INDEX



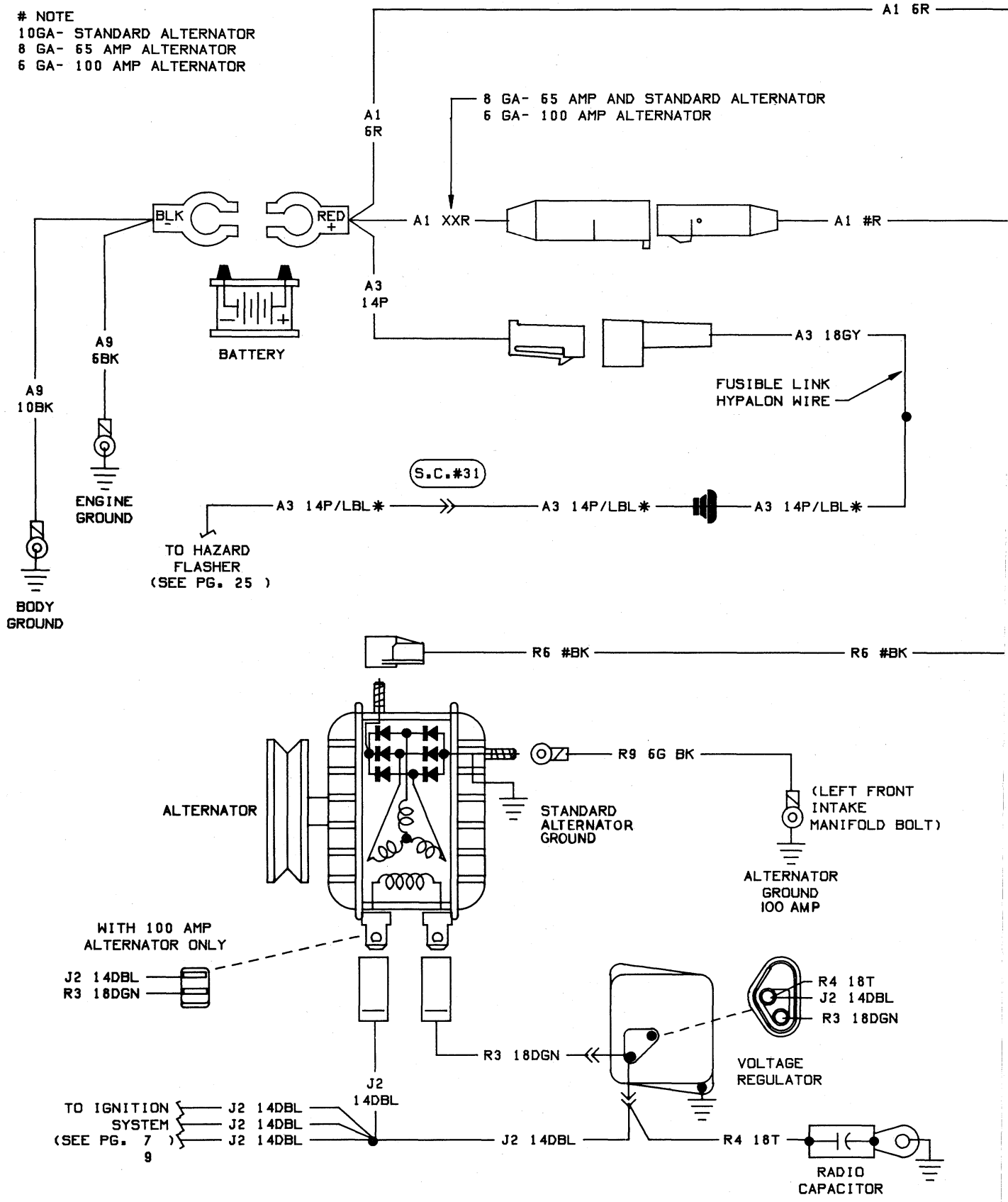
HNFG 1 FUSE APPLICATION CHART PR2



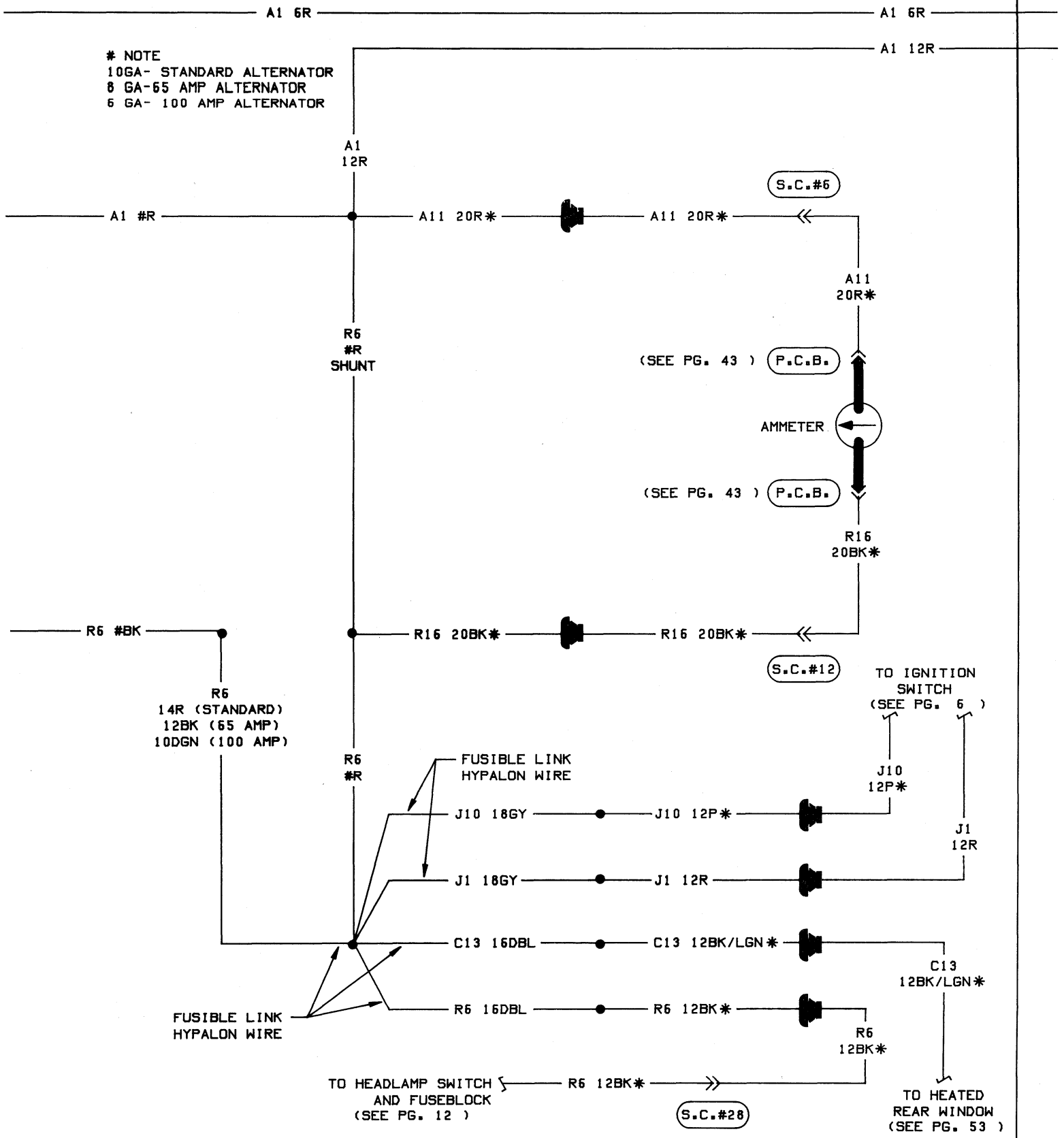
PR2

FUSE APPLICATION CHART

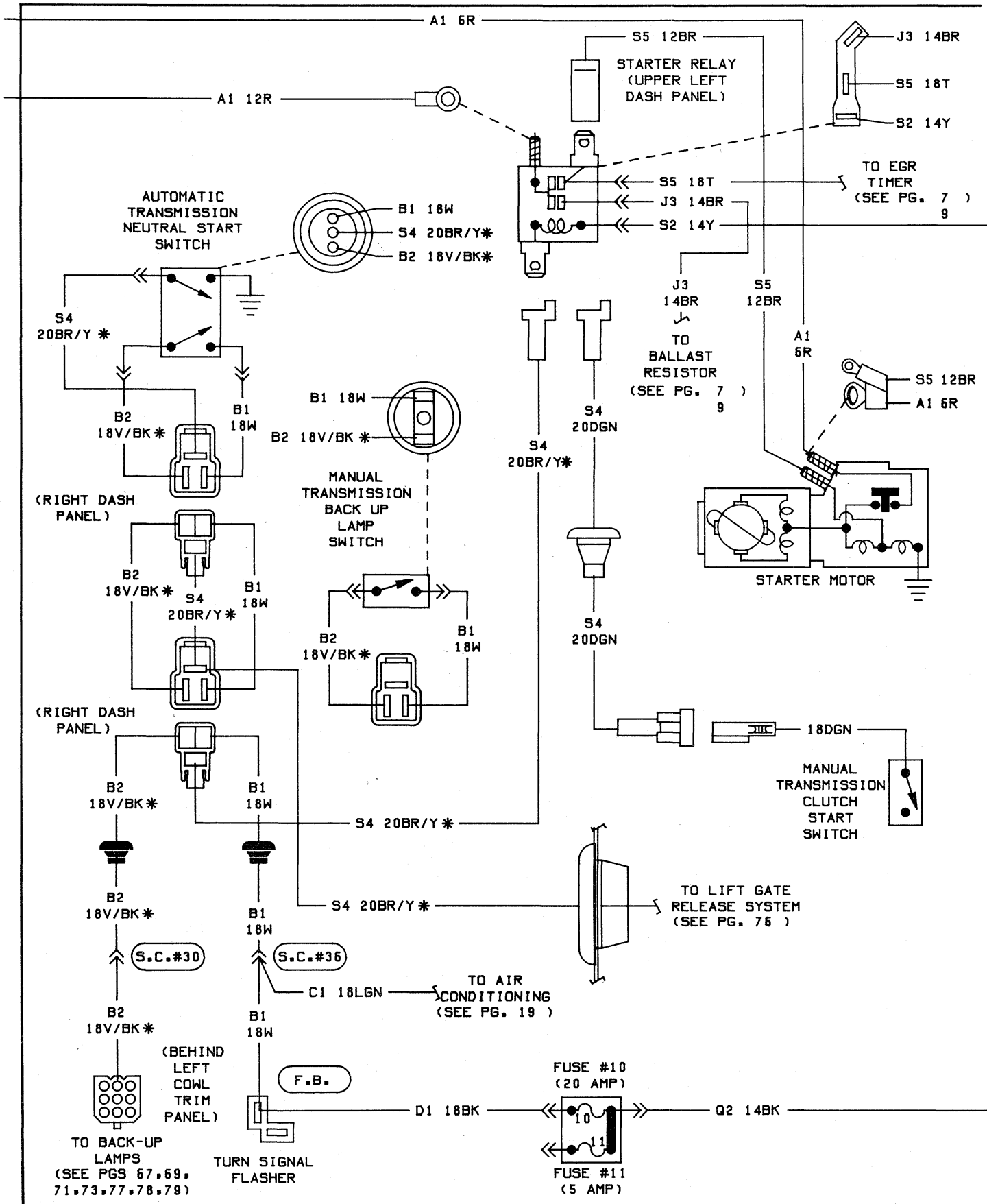
HNFG 2



HNFG 3 CHARGING SYSTEM PR2



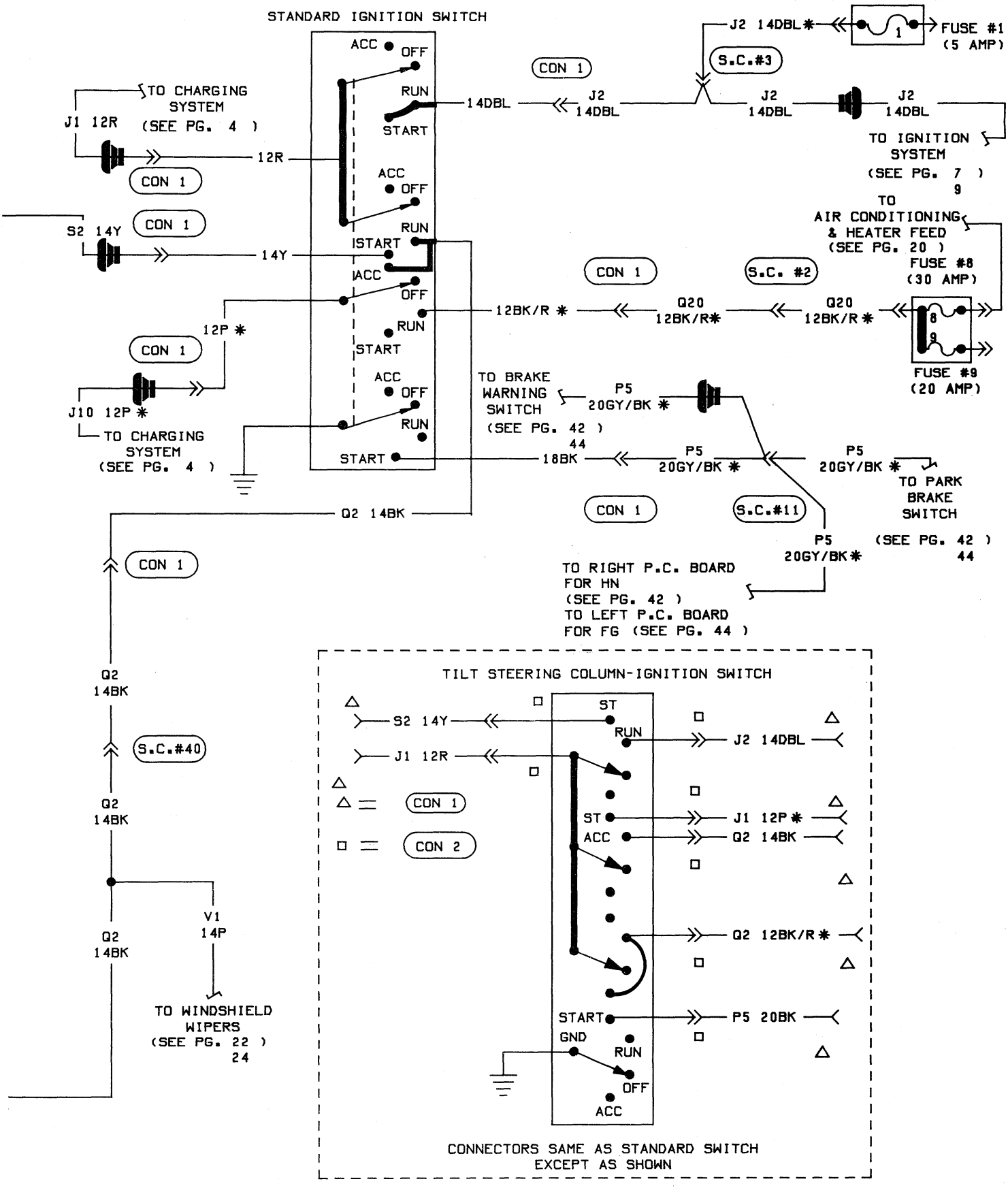
CHARGING SYSTEM



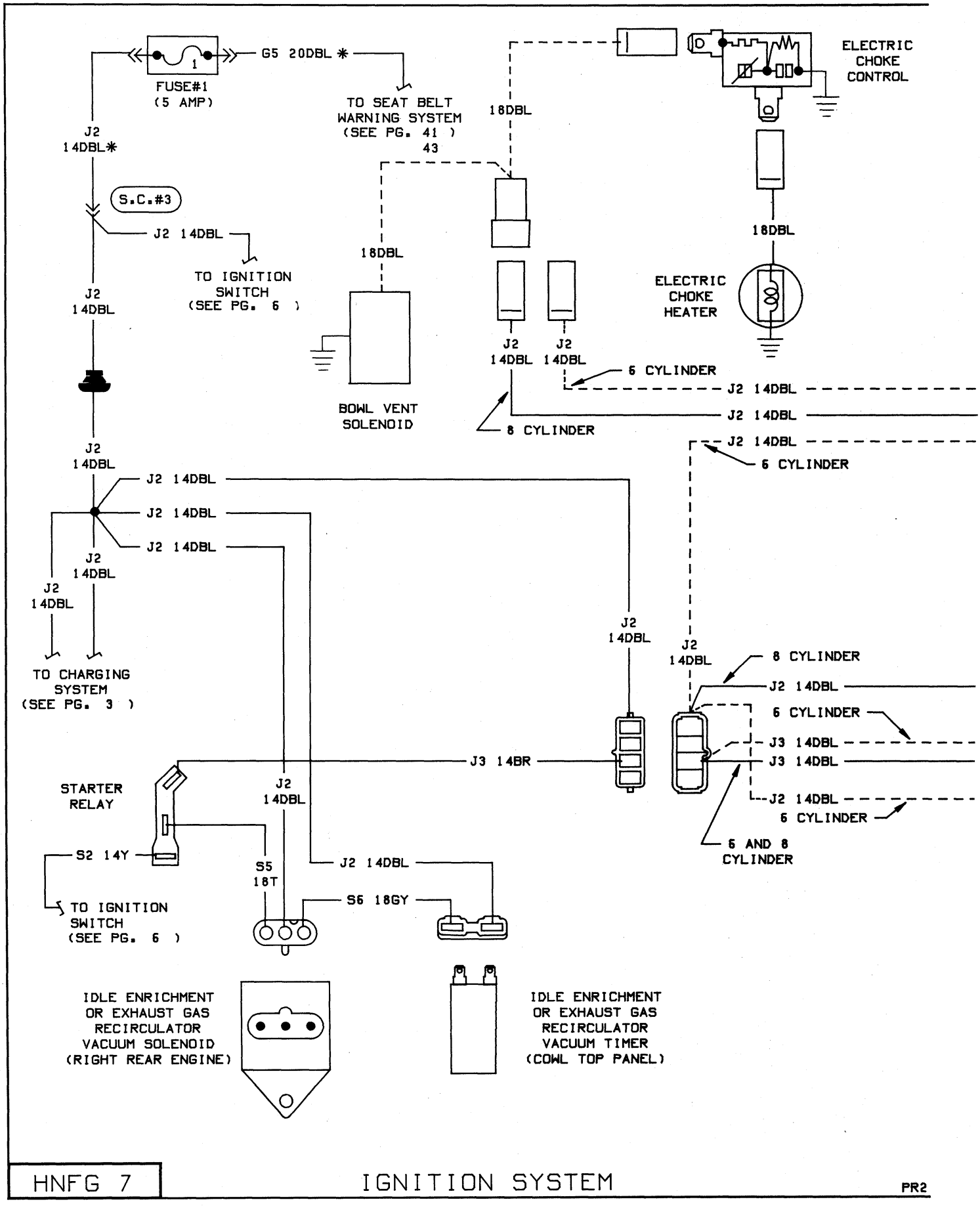
HNFG 5

STARTER SYSTEM

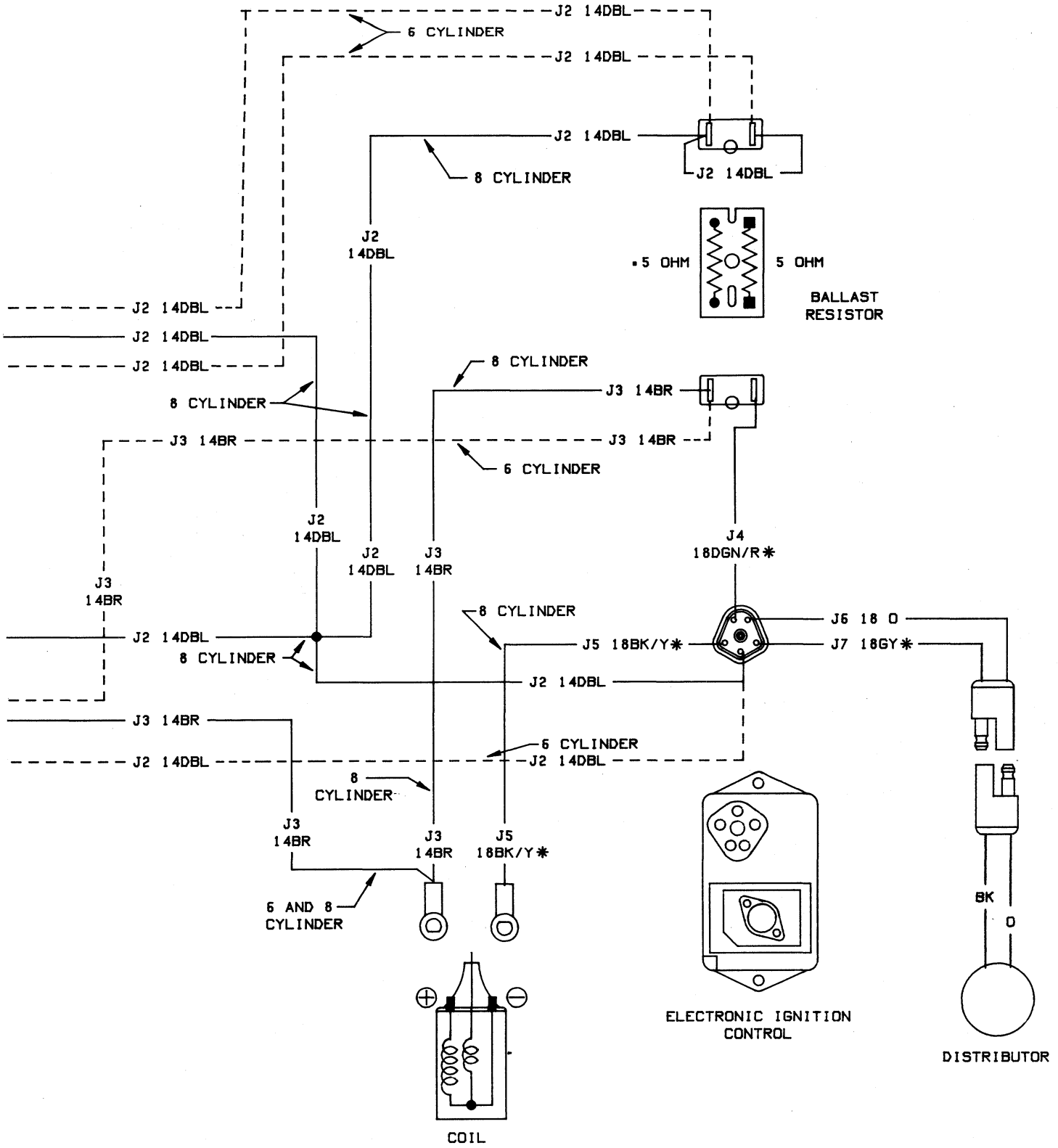
PR2



IGNITION SWITCH



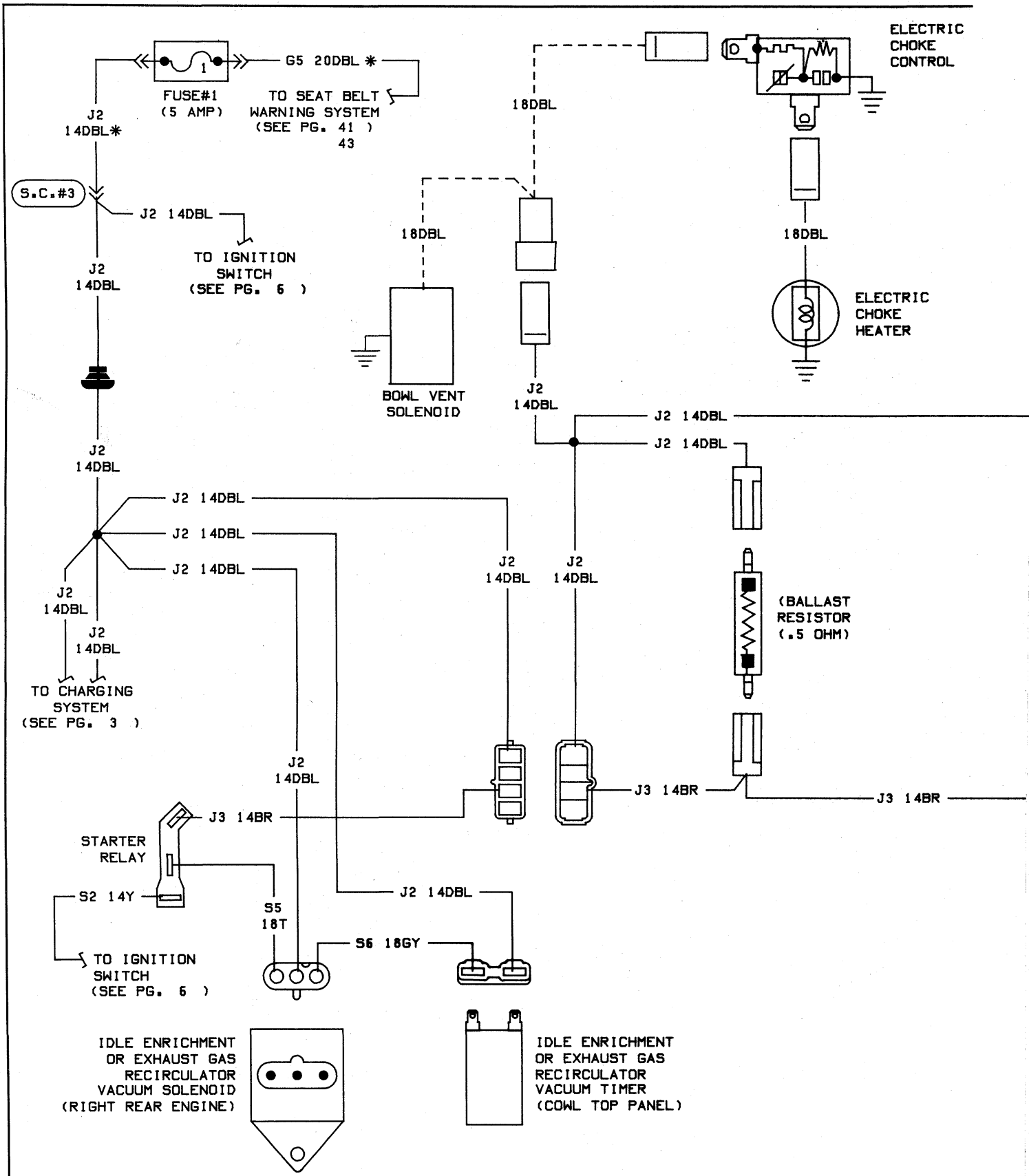
HNFG 7 IGNITION SYSTEM PR2



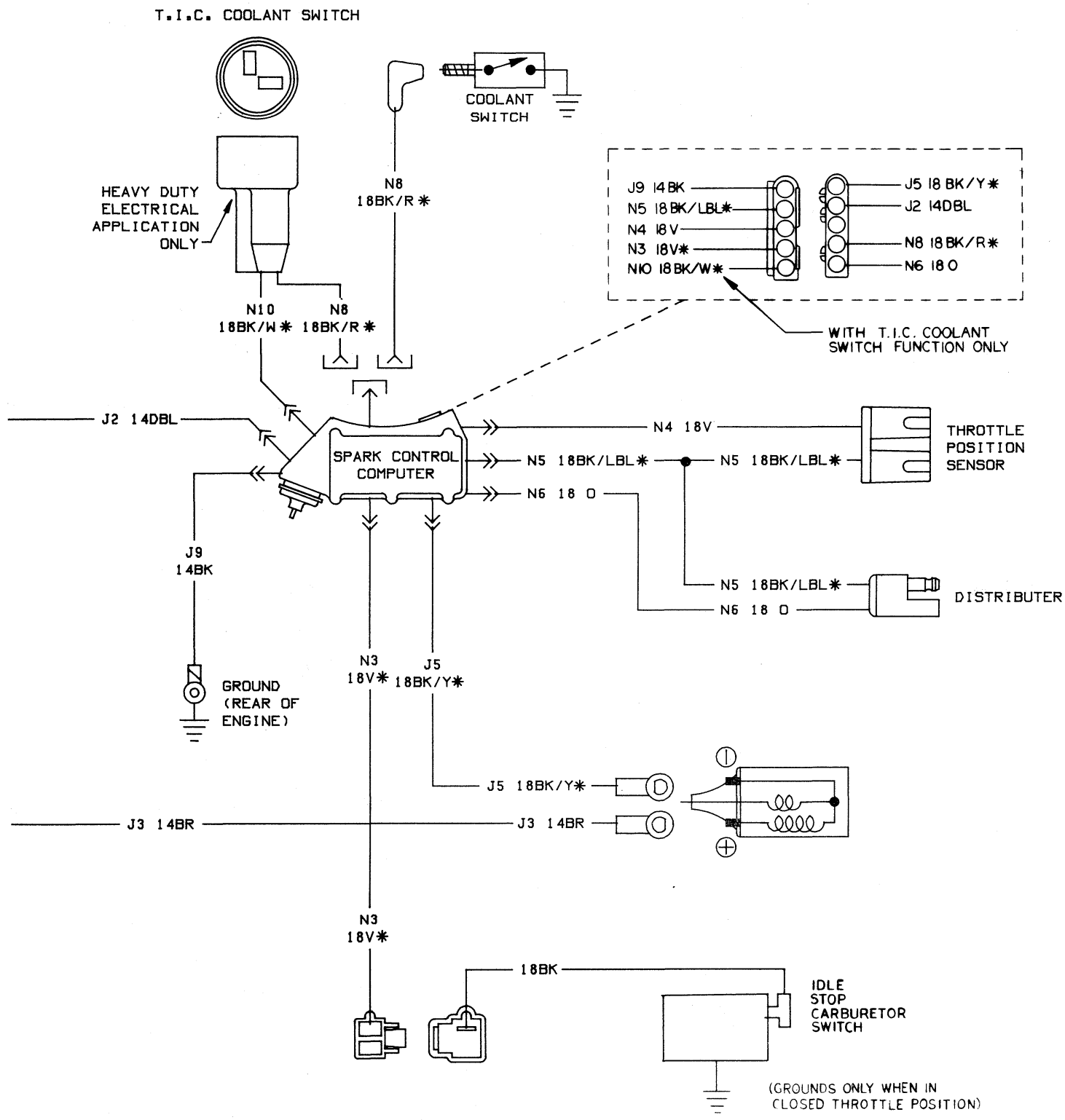
PR2

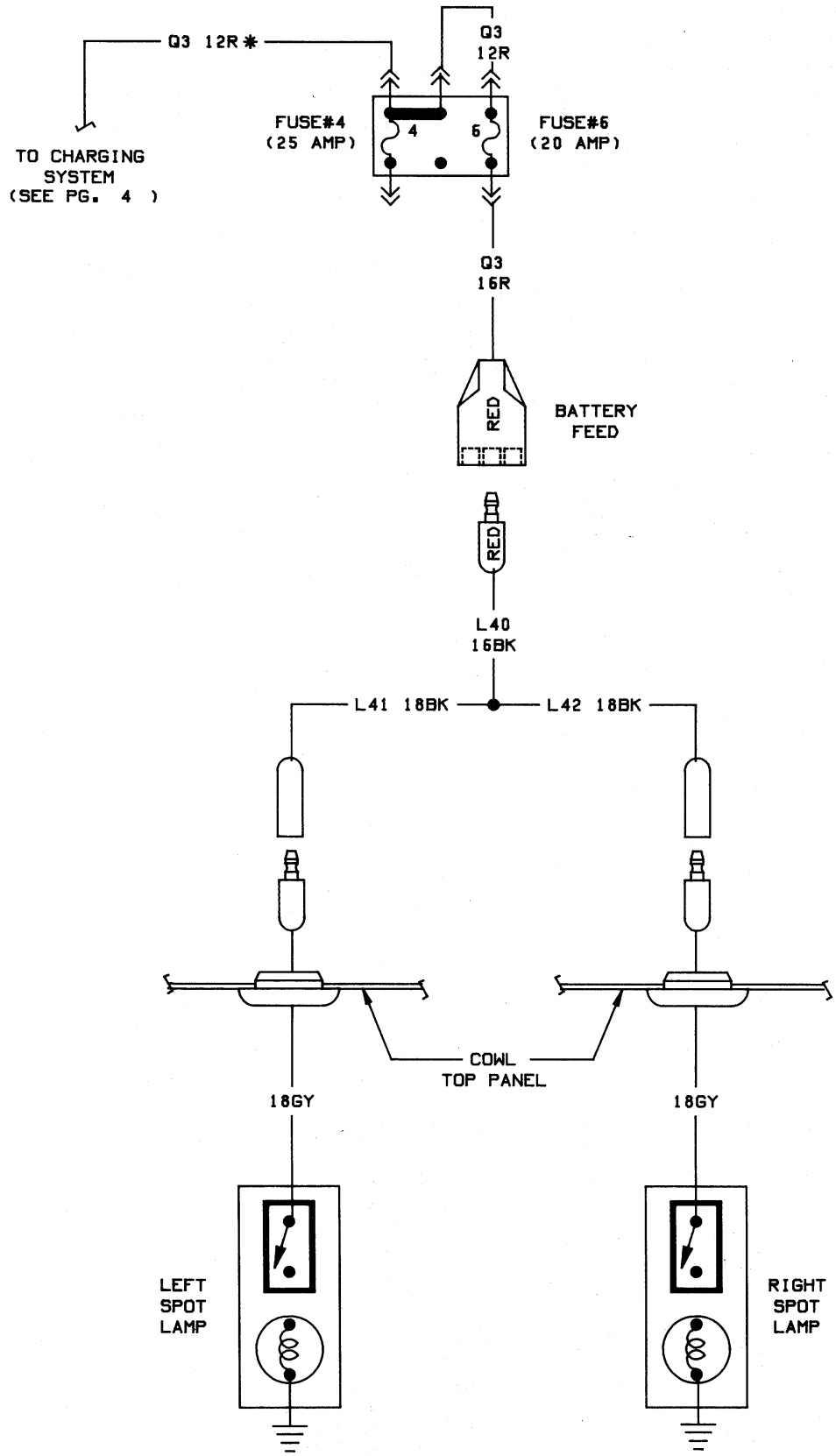
IGNITION SYSTEM

HNFG 8



HNFG 9 IGNITION SYSTEM (LEAN BURN) PR2

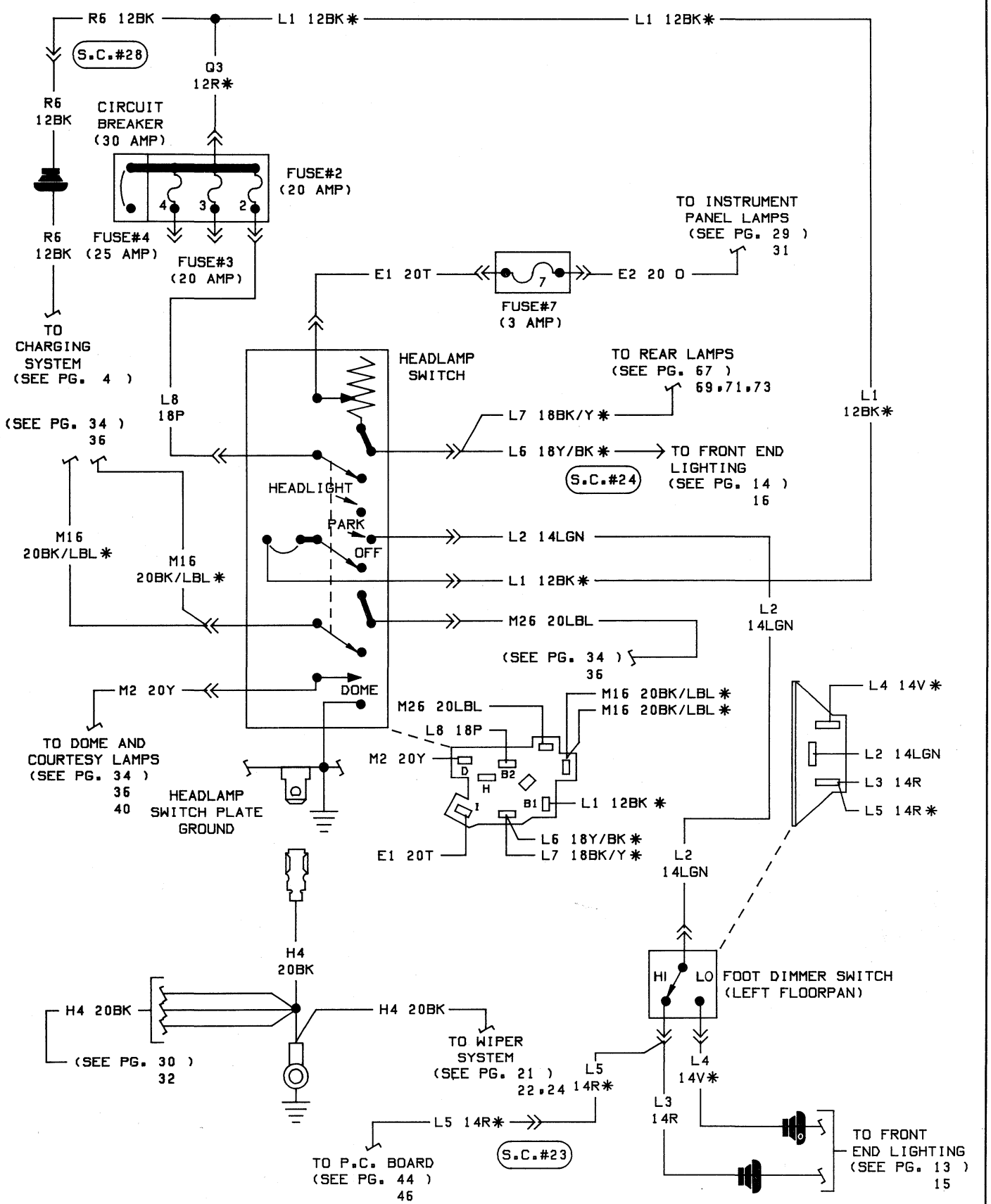

T.I.C. COOLANT SWITCH
COOLANT SWITCH
HEAVY DUTY ELECTRICAL APPLICATION ONLY
N8 18BK/R*
J9 14BK
N5 18BK/LBL*
N4 18V
N3 18V*
N10 18BK/W*
J5 18BK/Y*
J2 14DBL
N8 18BK/R*
N6 18 O
WITH T.I.C. COOLANT SWITCH FUNCTION ONLY
N10 18BK/W*
N8 18BK/R*
J2 14DBL
SPARK CONTROL COMPUTER
N4 18V
N5 18BK/LBL*
N6 18 O
THROTTLE POSITION SENSOR
N5 18BK/LBL*
N6 18 O
DISTRIBUTER
J9 14BK
GROUND (REAR OF ENGINE)
N3 18V*
J5 18BK/Y*
J5 18BK/Y*
J3 14BR
J3 14BR
N3 18V*
18BK
IDLE STOP CARBURETOR SWITCH
(GROUNDS ONLY WHEN IN CLOSED THROTTLE POSITION)



HNFG 11

POLICE SPOT LAMPS

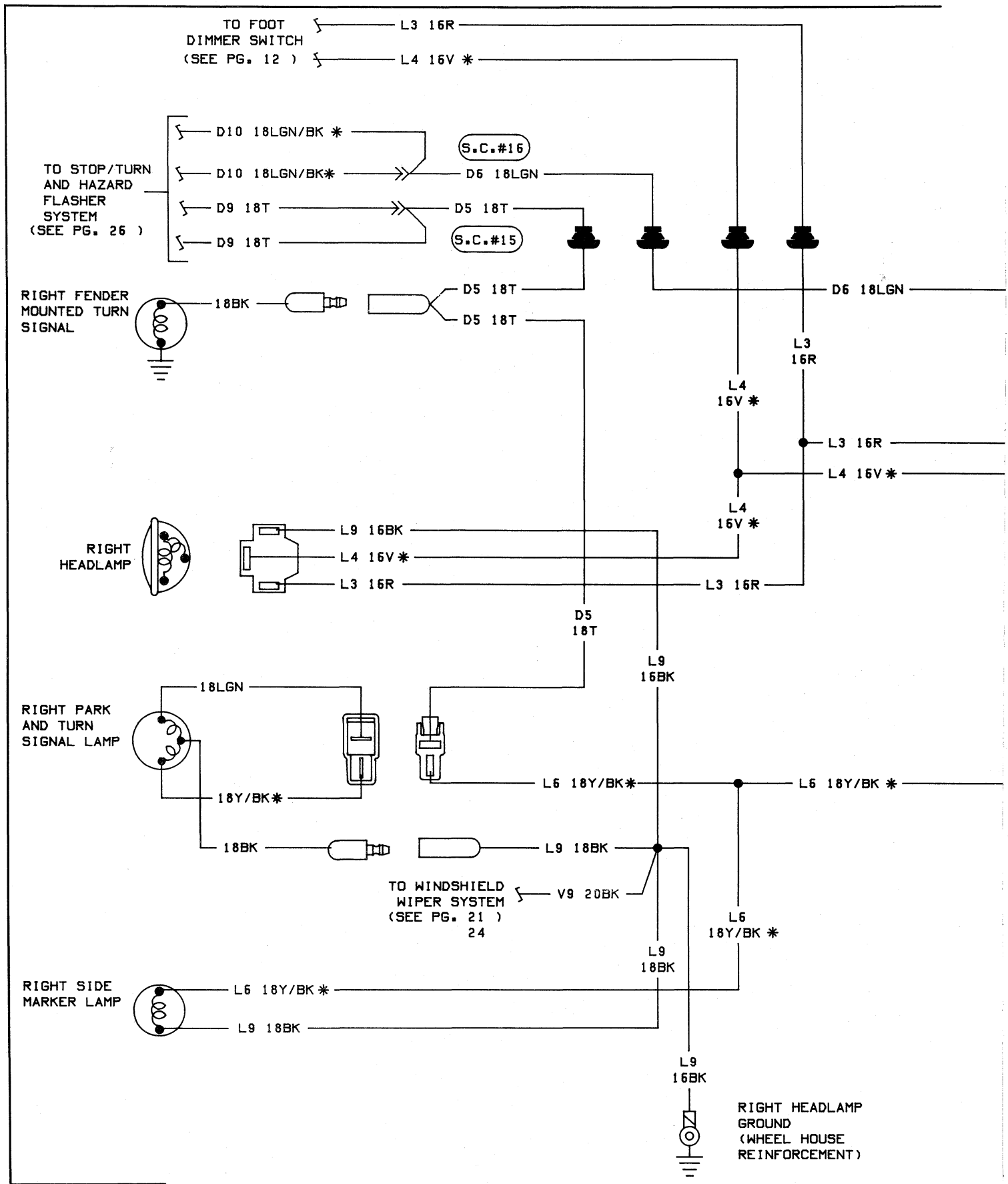
PR2



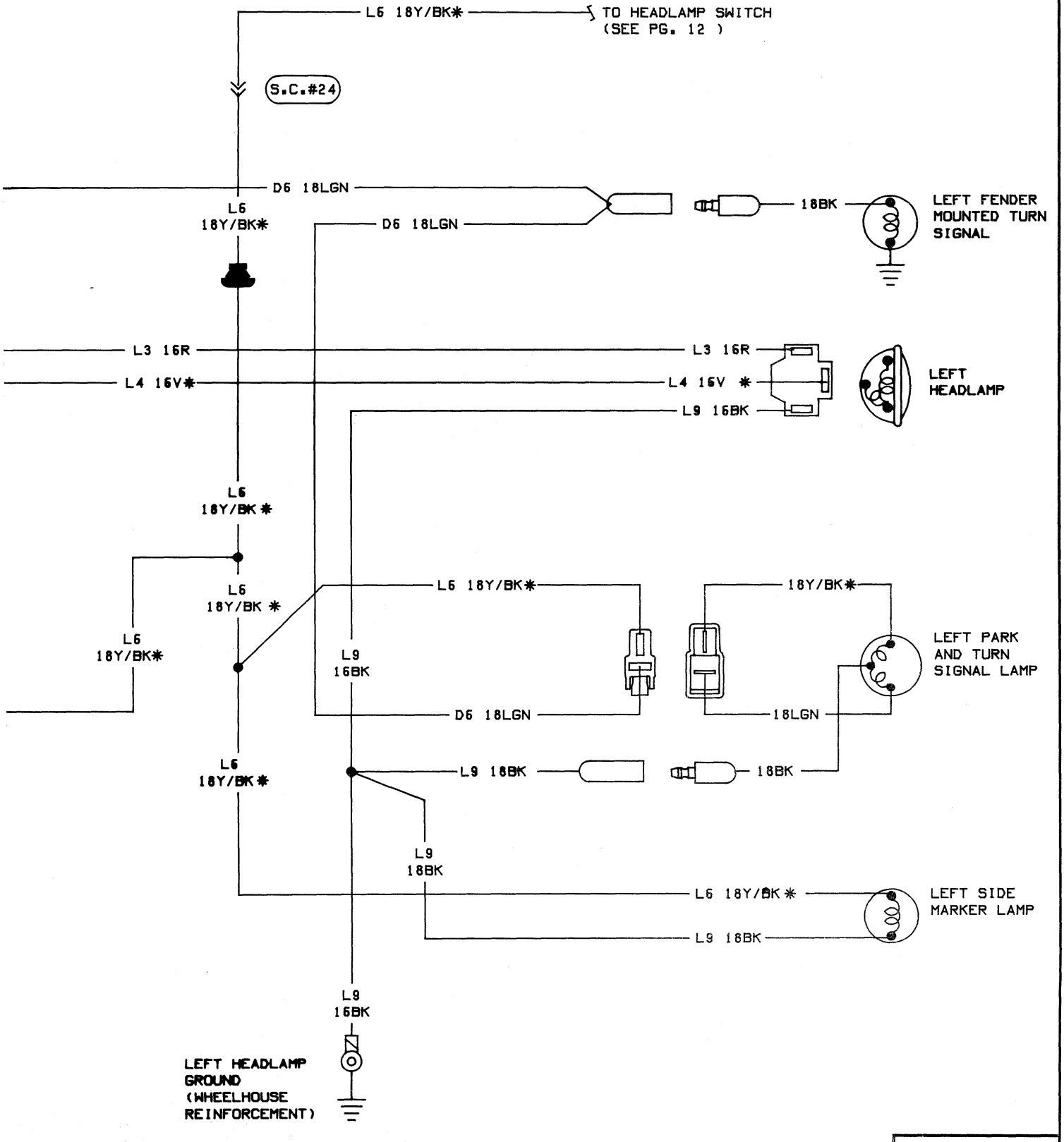
PR2

HEADLAMP SWITCH

HNFG 12



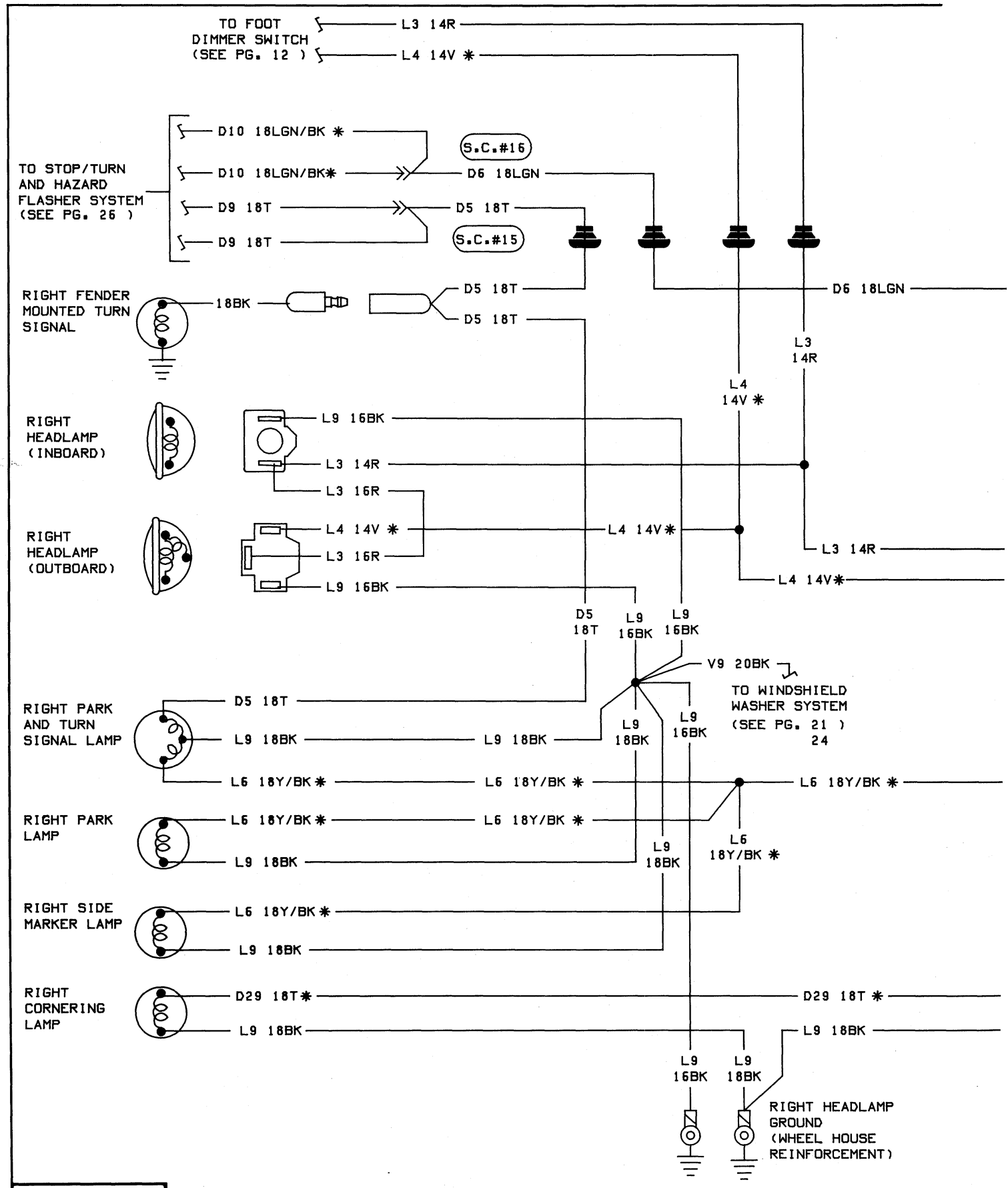
HNFG 13 HN FRONT END LIGHTING PR2



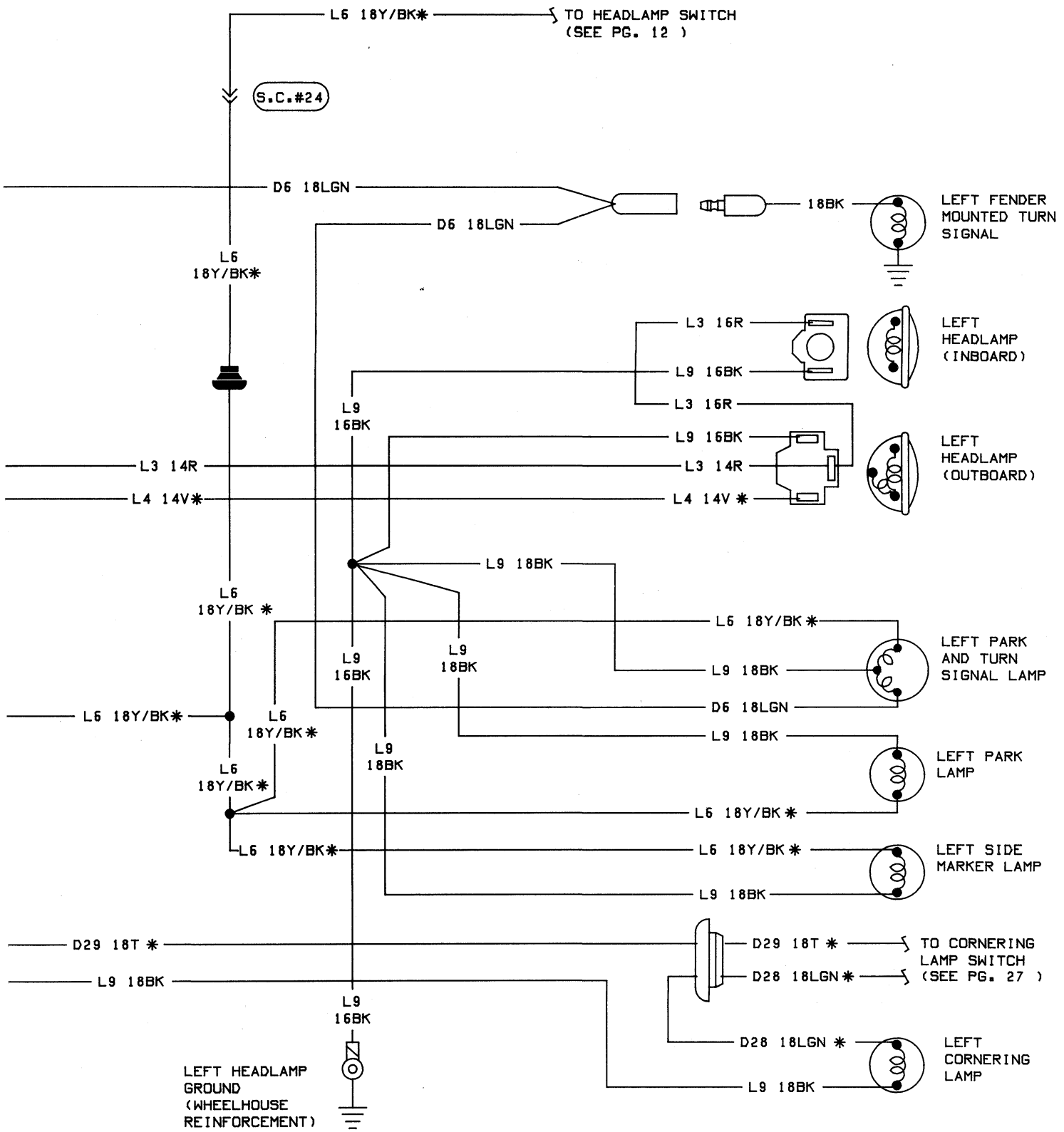
PR2

HN FRONT END LIGHTING

HNFG 14



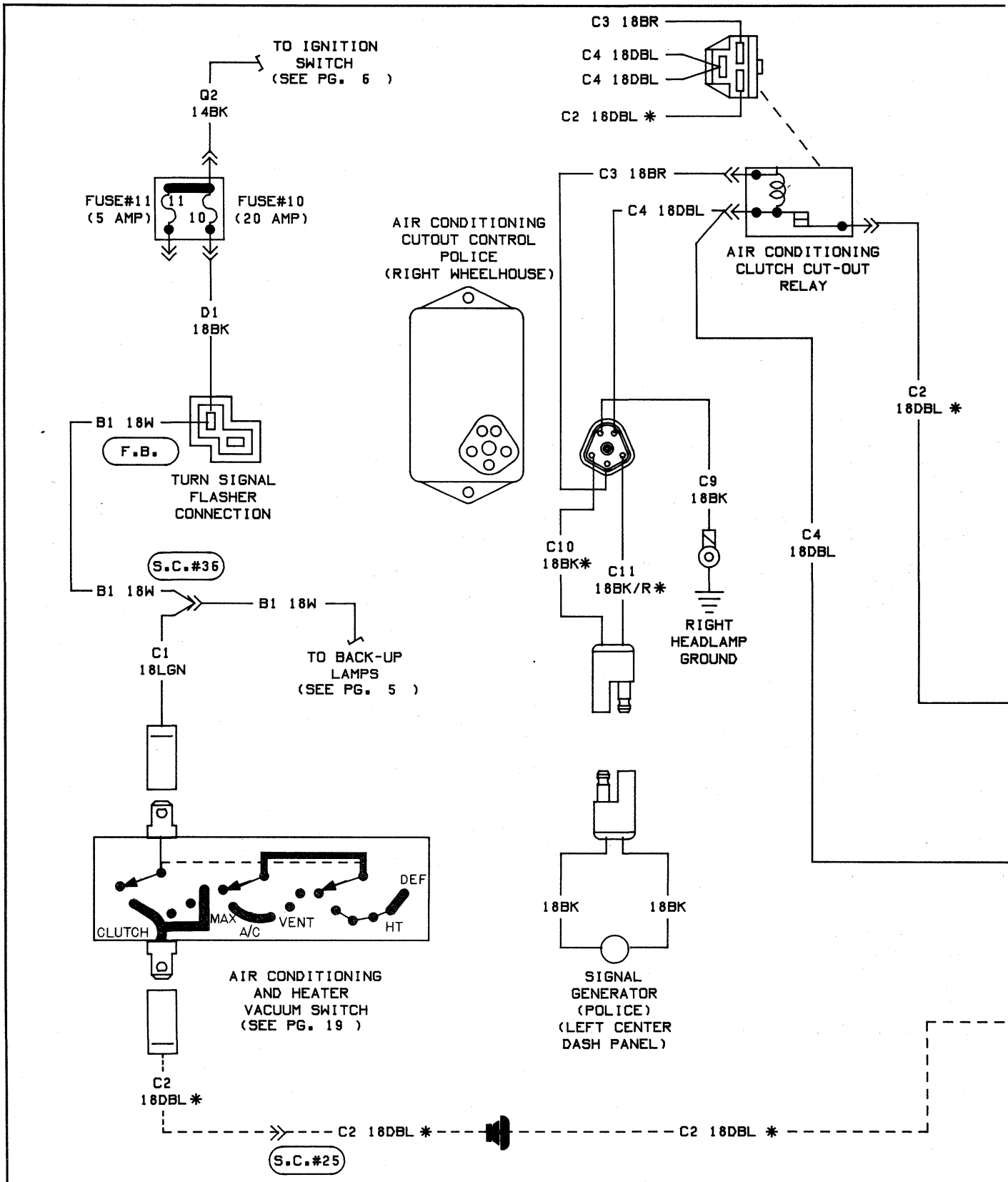
HNFG 15 FG FRONT END LIGHTING PR2



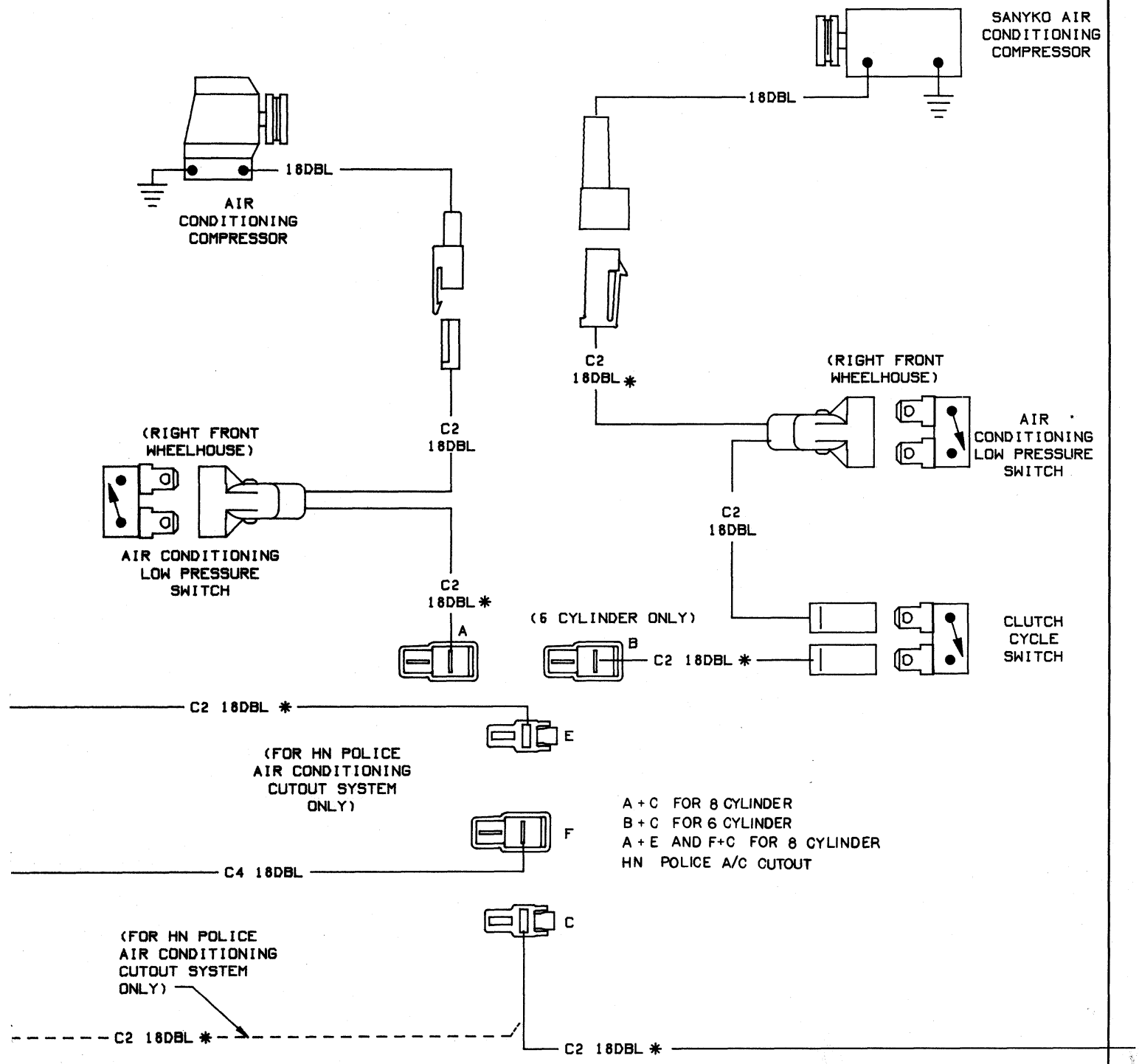
PR2

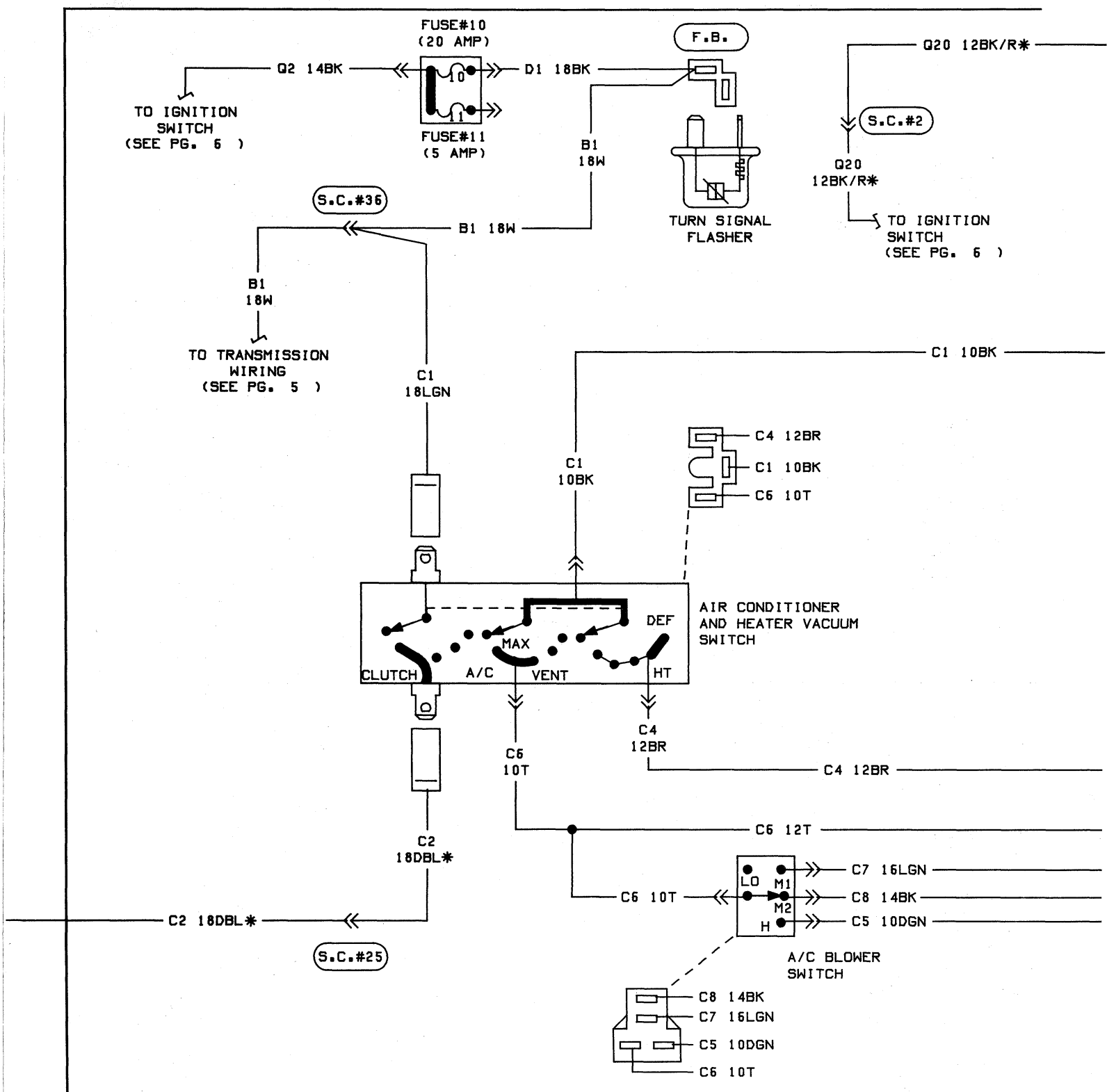
FG FRONT END LIGHTING

HNFG 16

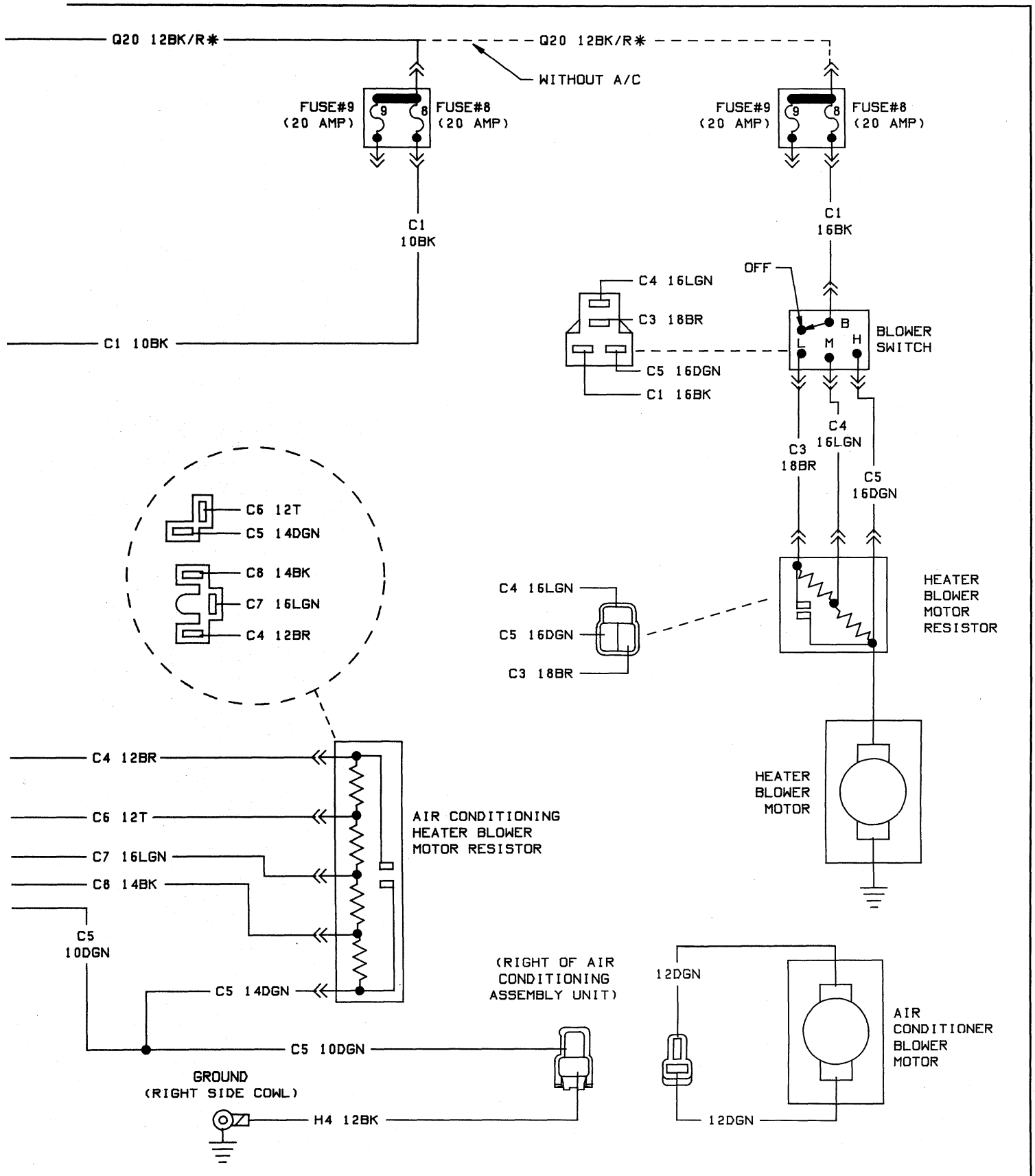


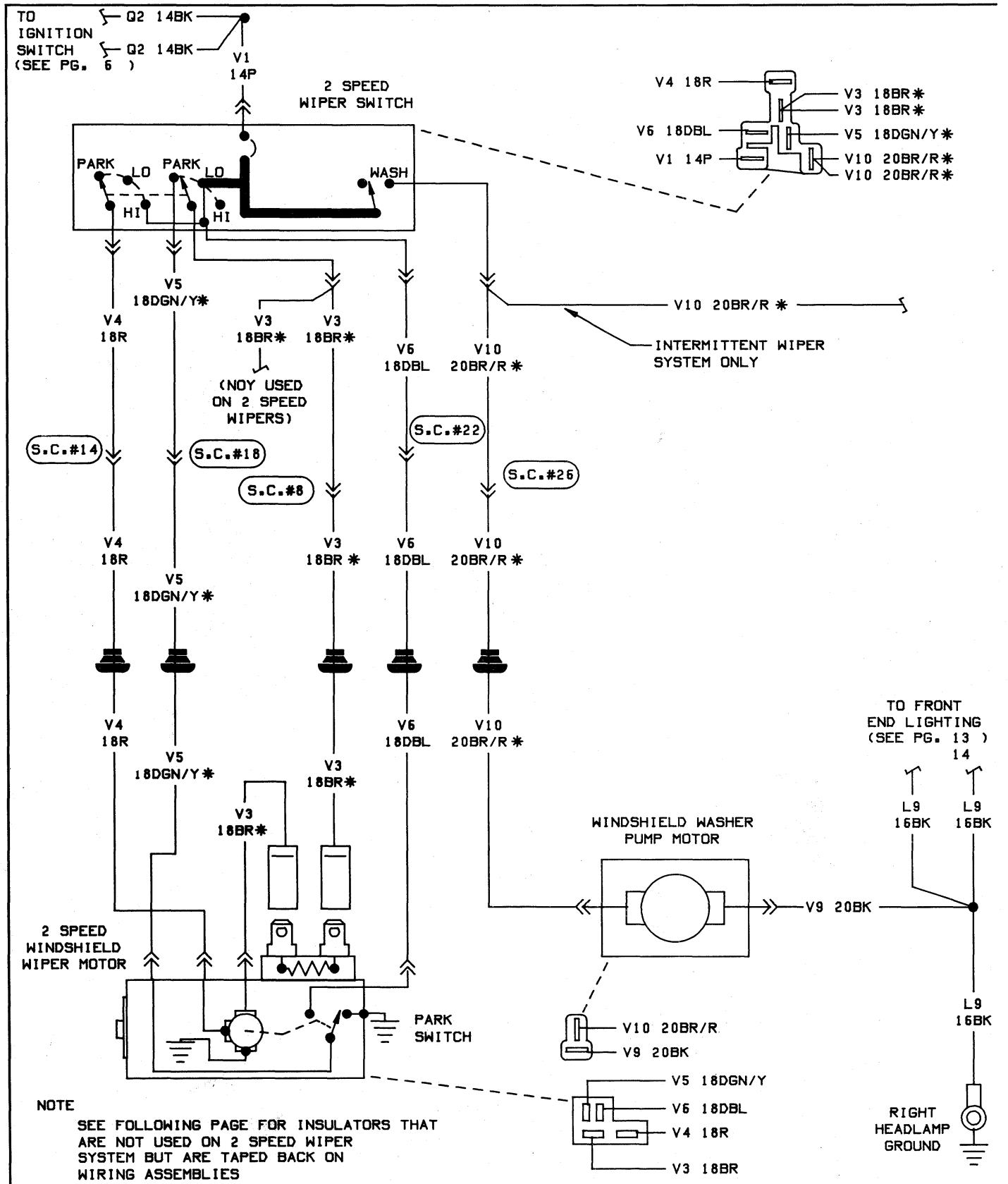
HNFG 17 POLICE AIR CONDITIONING CUTOUT SYSTEM PR2


SANYKO AIR CONDITIONING COMPRESSOR
18DBL
AIR CONDITIONING COMPRESSOR
18DBL
C2 18DBL *
(RIGHT FRONT WHEELHOUSE)
AIR CONDITIONING LOW PRESSURE SWITCH
C2 18DBL
(RIGHT FRONT WHEELHOUSE)
AIR CONDITIONING LOW PRESSURE SWITCH
C2 18DBL
C2 18DBL *
A
(6 CYLINDER ONLY)
B
C2 18DBL *
CLUTCH CYCLE SWITCH
C2 18DBL *
E
(FOR HN POLICE AIR CONDITIONING CUTOUT SYSTEM ONLY)
F
A + C FOR 8 CYLINDER
B + C FOR 6 CYLINDER
A + E AND F+C FOR 8 CYLINDER
HN POLICE A/C CUTOUT
C4 18DBL
C
(FOR HN POLICE AIR CONDITIONING CUTOUT SYSTEM ONLY)
C2 18DBL *
C2 18DBL *

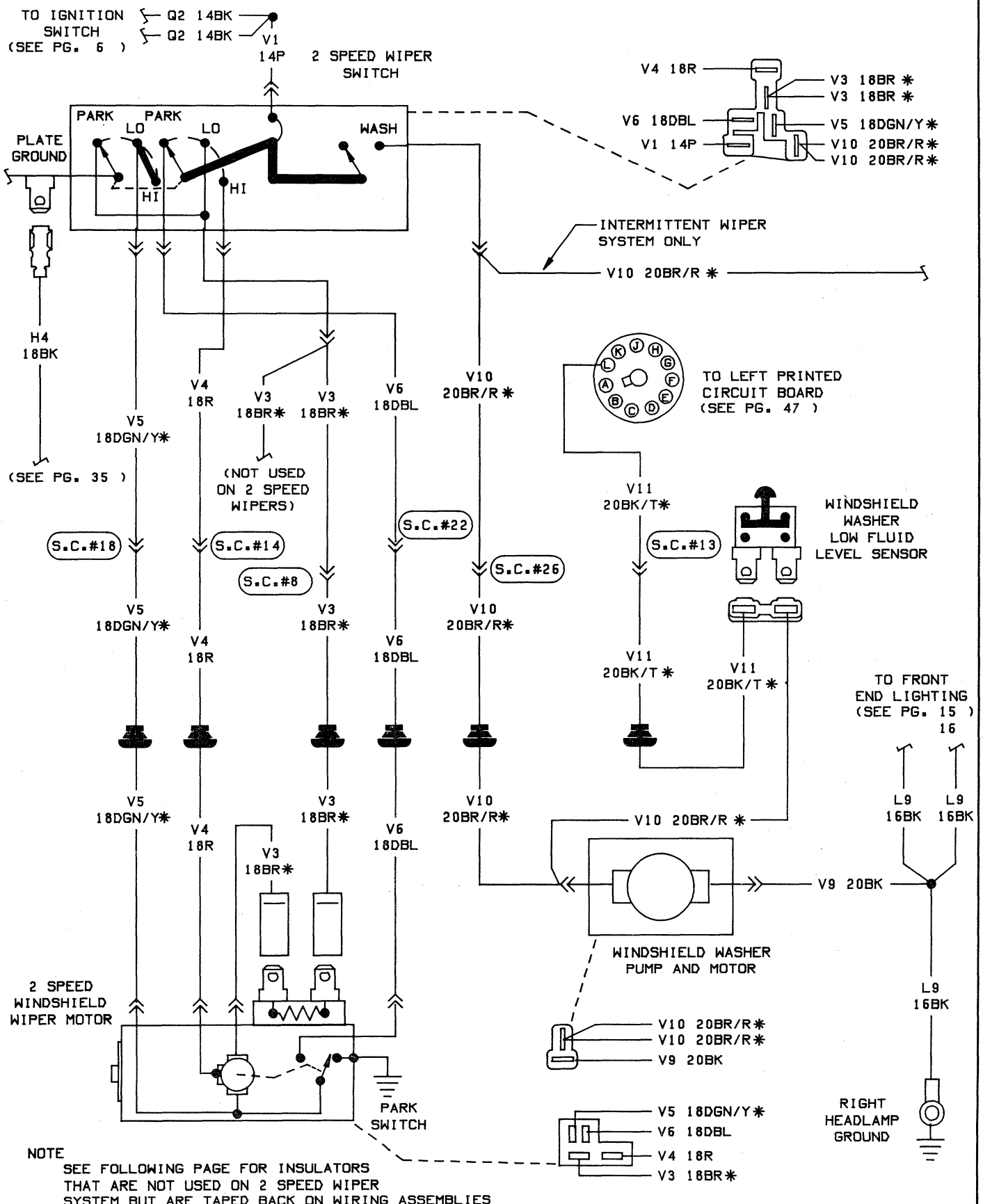


HNFG 19 AIR CONDITIONER AND HEATER SYSTEM PR2


Q20 12BK/R*
Q20 12BK/R*
WITHOUT A/C
FUSE#9 (20 AMP)
FUSE#8 (20 AMP)
FUSE#9 (20 AMP)
FUSE#8 (20 AMP)
C1 10BK
C1 10BK
C1 16BK
OFF
C4 16LGN
C3 18BR
C5 16DGN
C1 16BK
B
L
M
H
BLOWER SWITCH
C4 16LGN
C3 18BR
C5 16DGN
C6 12T
C5 14DGN
C8 14BK
C7 16LGN
C4 12BR
C4 16LGN
C5 16DGN
C3 18BR
HEATER BLOWER MOTOR RESISTOR
HEATER BLOWER MOTOR
C4 12BR
C6 12T
C7 16LGN
C8 14BK
C5 10DGN
AIR CONDITIONING HEATER BLOWER MOTOR RESISTOR
C5 14DGN
(RIGHT OF AIR CONDITIONING ASSEMBLY UNIT)
12DGN
AIR CONDITIONER BLOWER MOTOR
C5 10DGN
GROUND (RIGHT SIDE COWL)
H4 12BK
12DGN

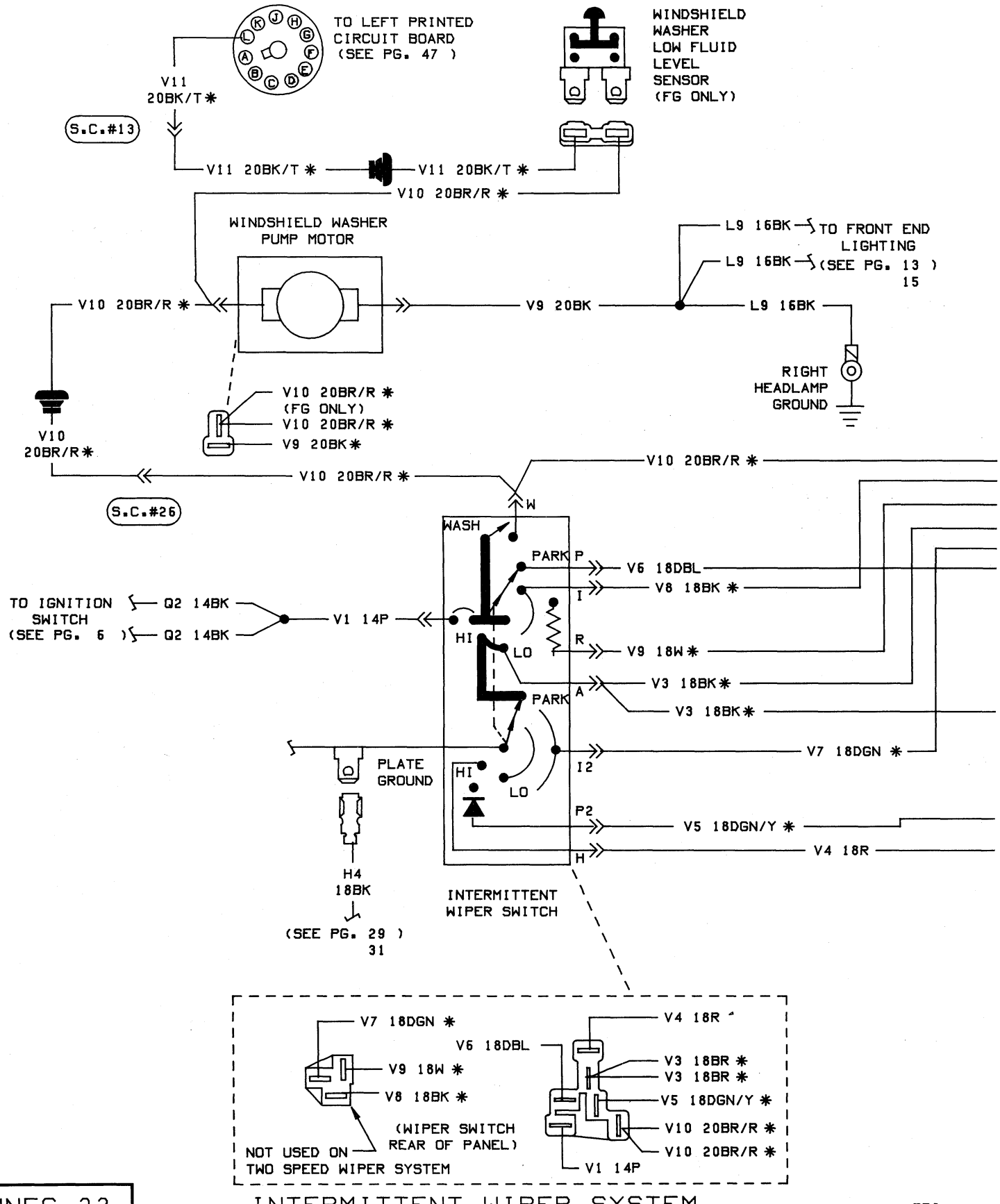


HNFG 21 HN-WINDSHIELD WIPER SYSTEM PR2

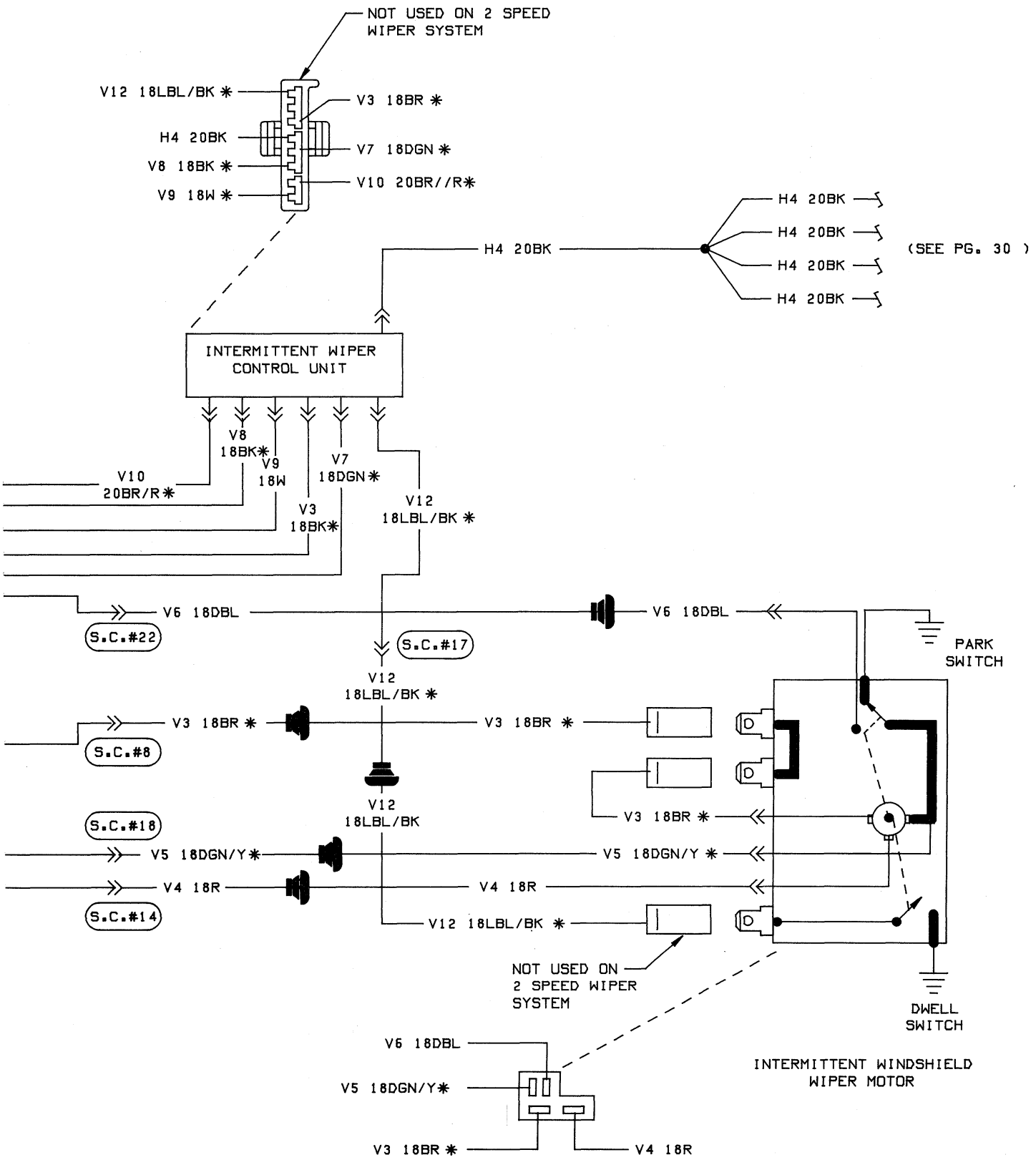


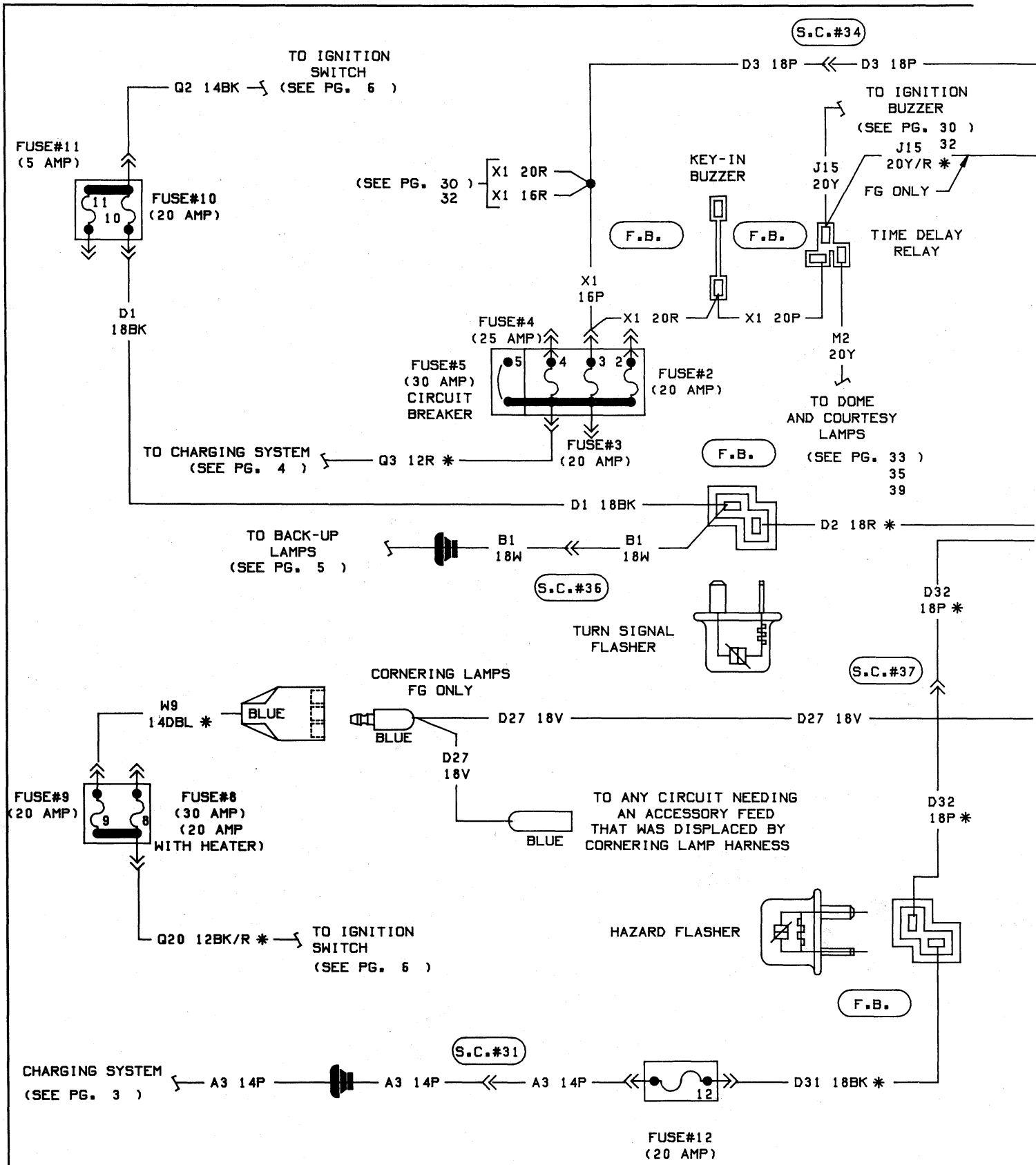
NOTE

SEE FOLLOWING PAGE FOR INSULATORS THAT ARE NOT USED ON 2 SPEED WIPER SYSTEM BUT ARE TAPED BACK ON WIRING ASSEMBLIES

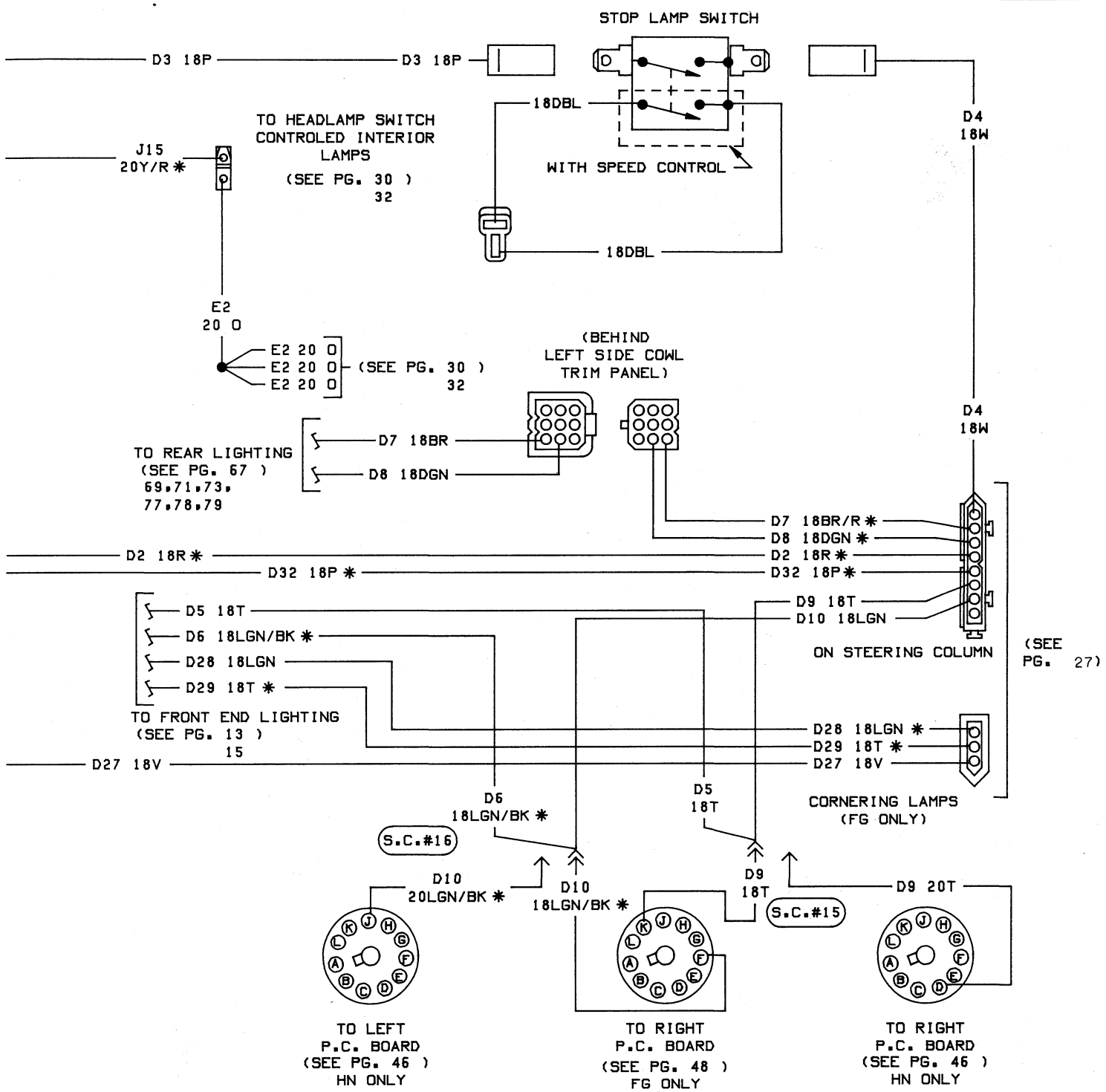


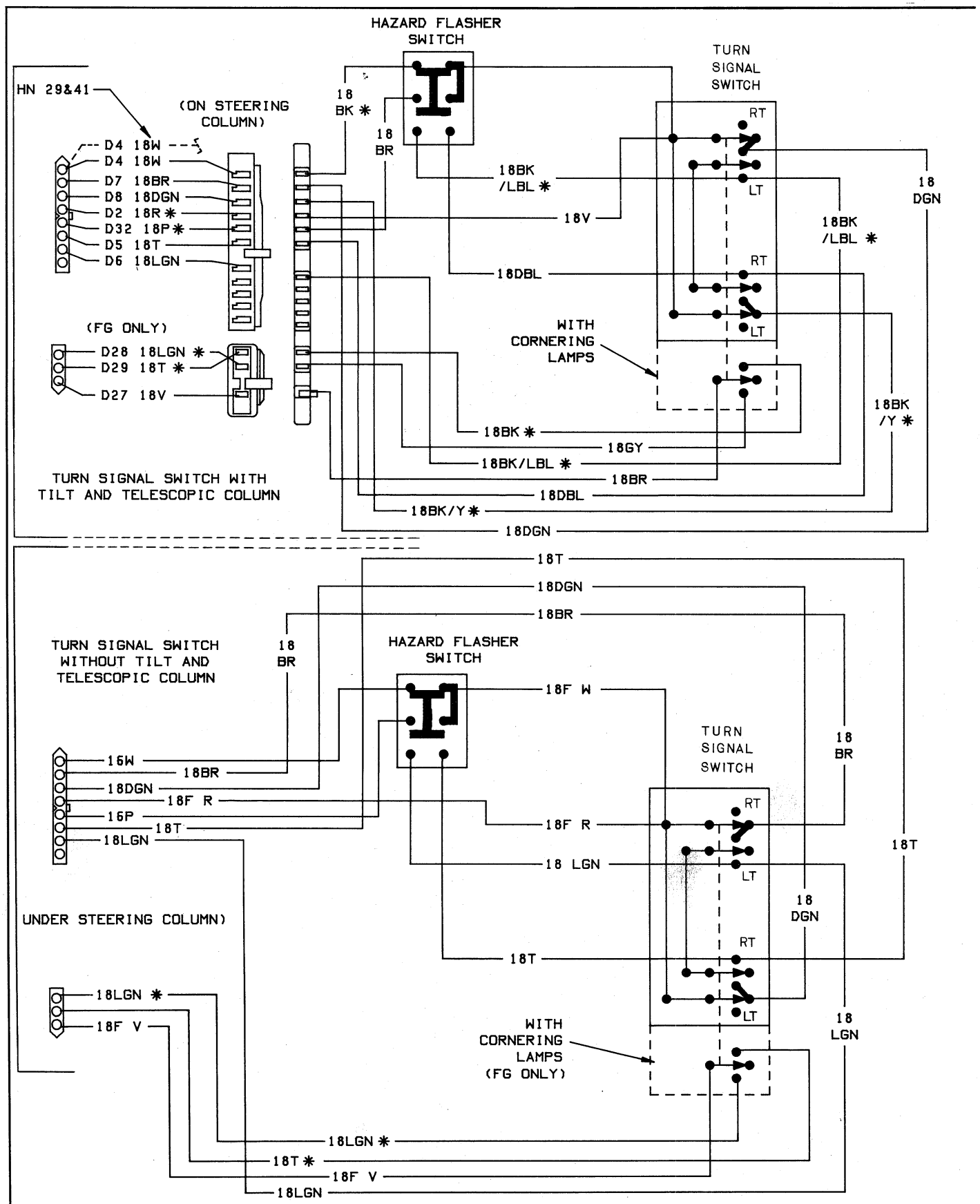
HNFG 23 INTERMITTENT WIPER SYSTEM PR2


NOT USED ON 2 SPEED WIPER SYSTEM
V12 18LBL/BK *
V3 18BR *
H4 20BK
V7 18DGN *
V8 18BK *
V10 20BR//R*
V9 18W *
H4 20BK
H4 20BK
H4 20BK
H4 20BK
H4 20BK
(SEE PG. 30)
INTERMITTENT WIPER CONTROL UNIT
V8 18BK*
V9 18W
V7 18DGN*
V10 20BR/R*
V3 18BK*
V12 18LBL/BK *
V6 18DBL
S.C.#22
V6 18DBL
S.C.#17
PARK SWITCH
V12 18LBL/BK *
V3 18BR *
S.C.#8
V3 18BR *
V12 18LBL/BK
V3 18BR *
S.C.#18
V5 18DGN/Y*
V5 18DGN/Y *
V4 18R
S.C.#14
V4 18R
V12 18LBL/BK *
NOT USED ON 2 SPEED WIPER SYSTEM
DWELL SWITCH
V6 18DBL
V5 18DGN/Y*
V3 18BR *
V4 18R
INTERMITTENT WINDSHIELD WIPER MOTOR

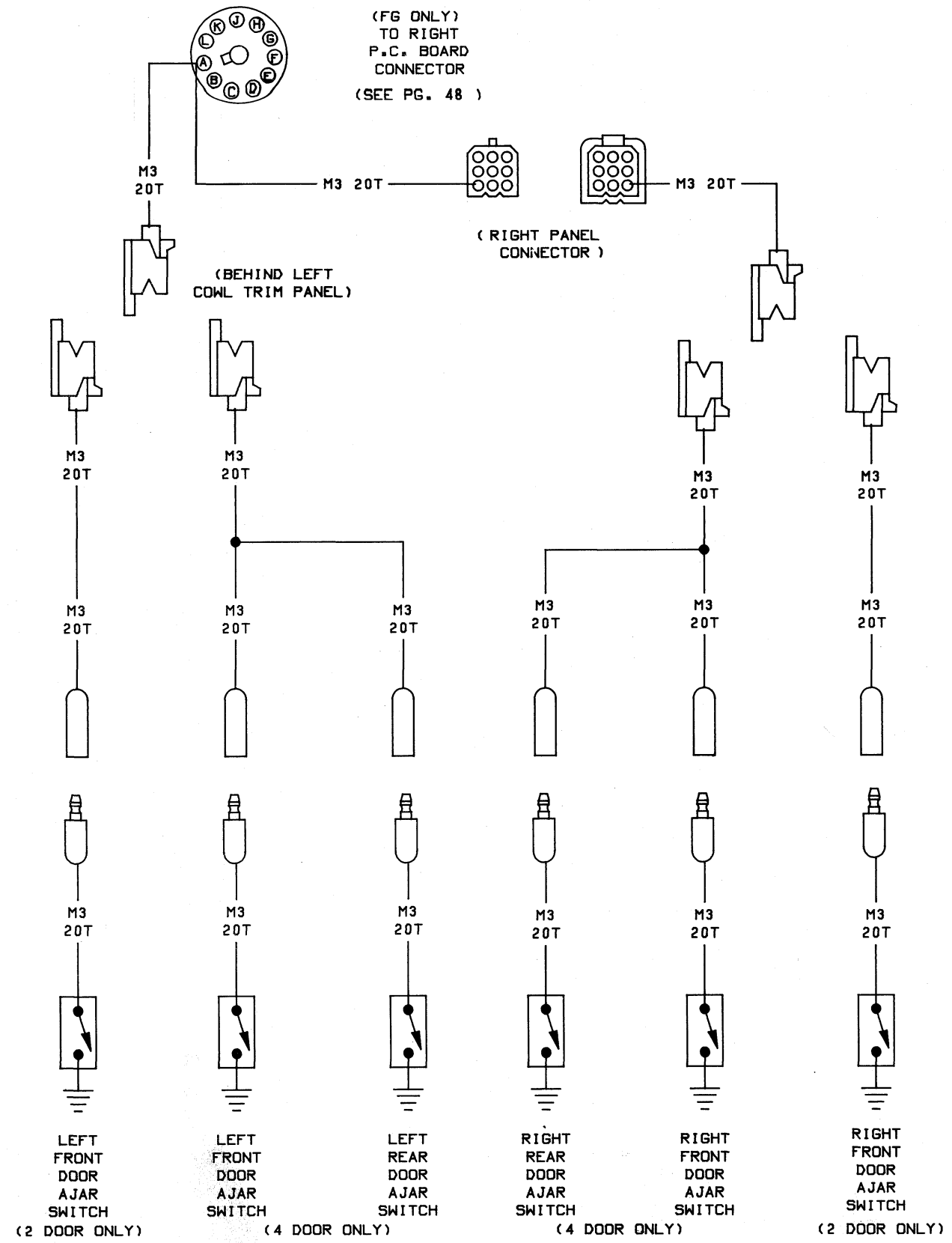


HNFG 25 STOP/TURN & HAZARD FLASHER SYSTEMS PR2


STOP LAMP SWITCH
D3 18P
D3 18P
18DBL
WITH SPEED CONTROL
18DBL
D4
18W
TO HEADLAMP SWITCH
CONTROLED INTERIOR
LAMPS
(SEE PG. 30)
32
J15
20Y/R *
E2
20 O
E2 20 O
E2 20 O
E2 20 O
(SEE PG. 30)
32
(BEHIND
LEFT SIDE COWL
TRIM PANEL)
TO REAR LIGHTING
(SEE PG. 67)
69,71,73,
77,78,79
D7 18BR
D8 18DGN
D4
18W
D7 18BR/R *
D8 18DGN *
D2 18R *
D2 18R *
D32 18P *
D32 18P *
D5 18T
D6 18LGN/BK *
D28 18LGN
D29 18T *
TO FRONT END LIGHTING
(SEE PG. 13)
15
D27 18V
D9 18T
D10 18LGN
ON STEERING COLUMN
(SEE
PG. 27)
D28 18LGN *
D29 18T *
D27 18V
CORNERING LAMPS
(FG ONLY)
D6
18LGN/BK *
S.C.#16
D5
18T
D10
20LGN/BK *
D10
18LGN/BK *
D9
18T
S.C.#15
D9 20T
TO LEFT
P.C. BOARD
(SEE PG. 46)
HN ONLY
TO RIGHT
P.C. BOARD
(SEE PG. 48)
FG ONLY
TO RIGHT
P.C. BOARD
(SEE PG. 46)
HN ONLY



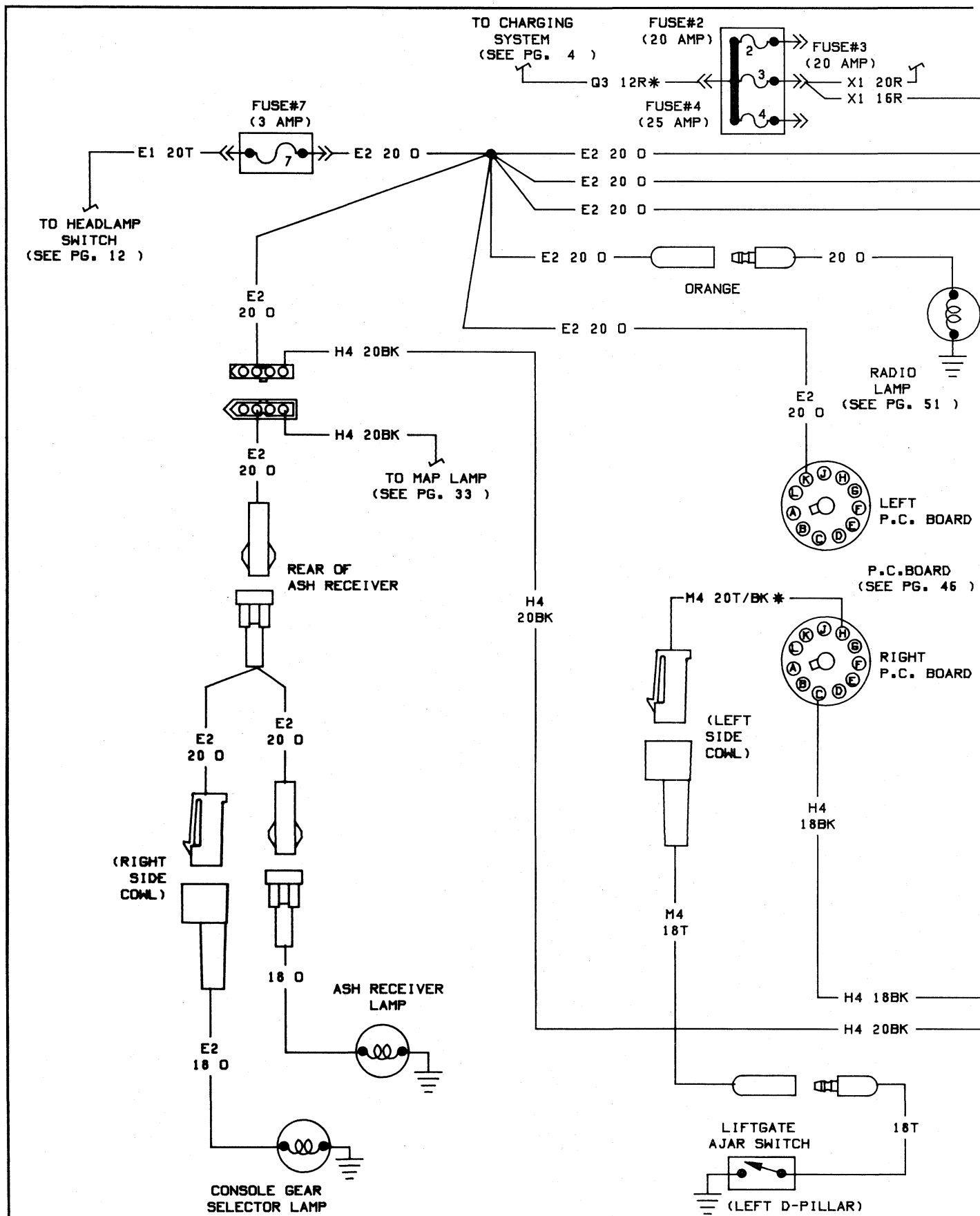
HNFG 27 TURN & HAZARD FLASHER SYSTEMS PR2



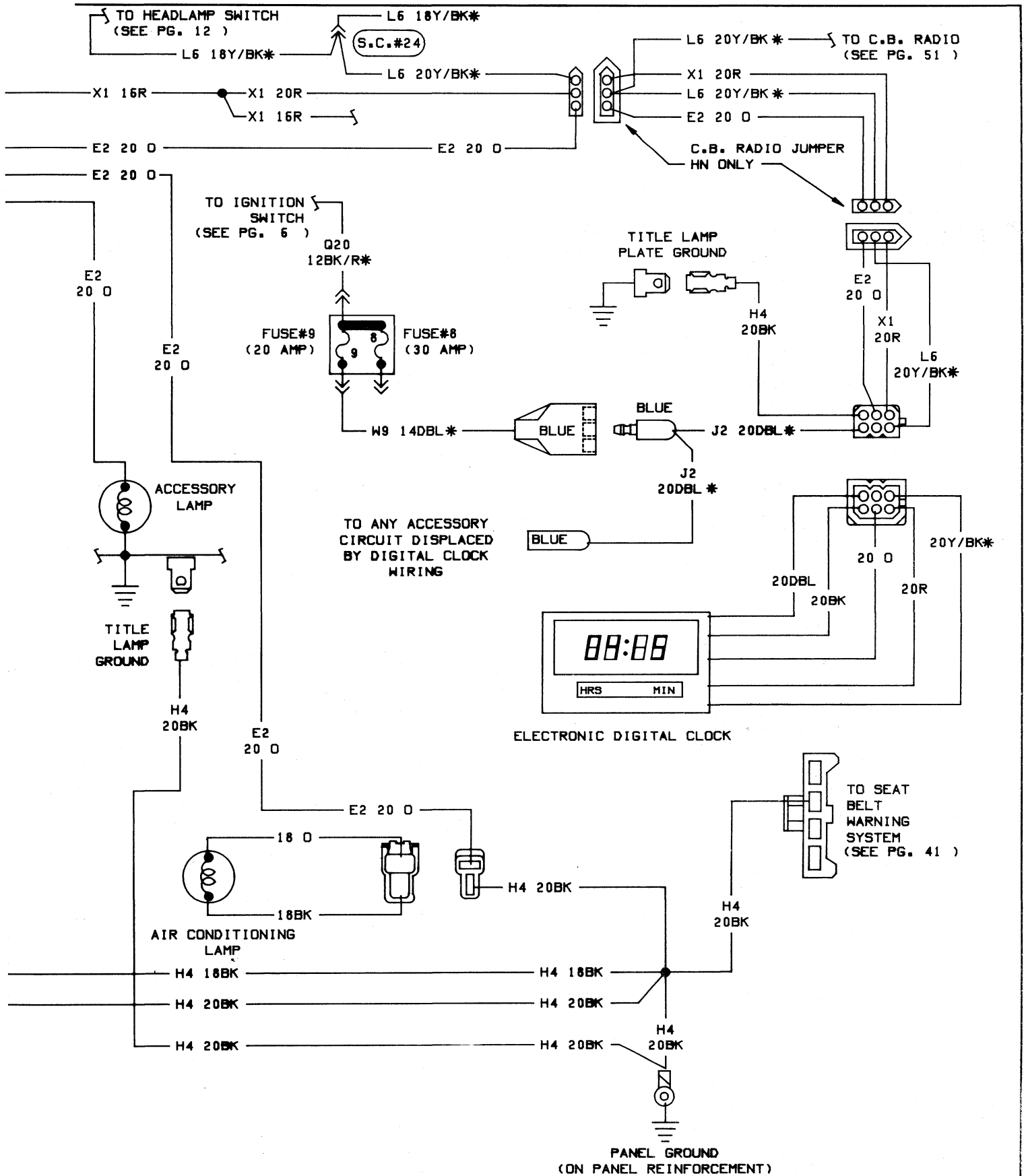
PR2

FG-DOOR AJAR

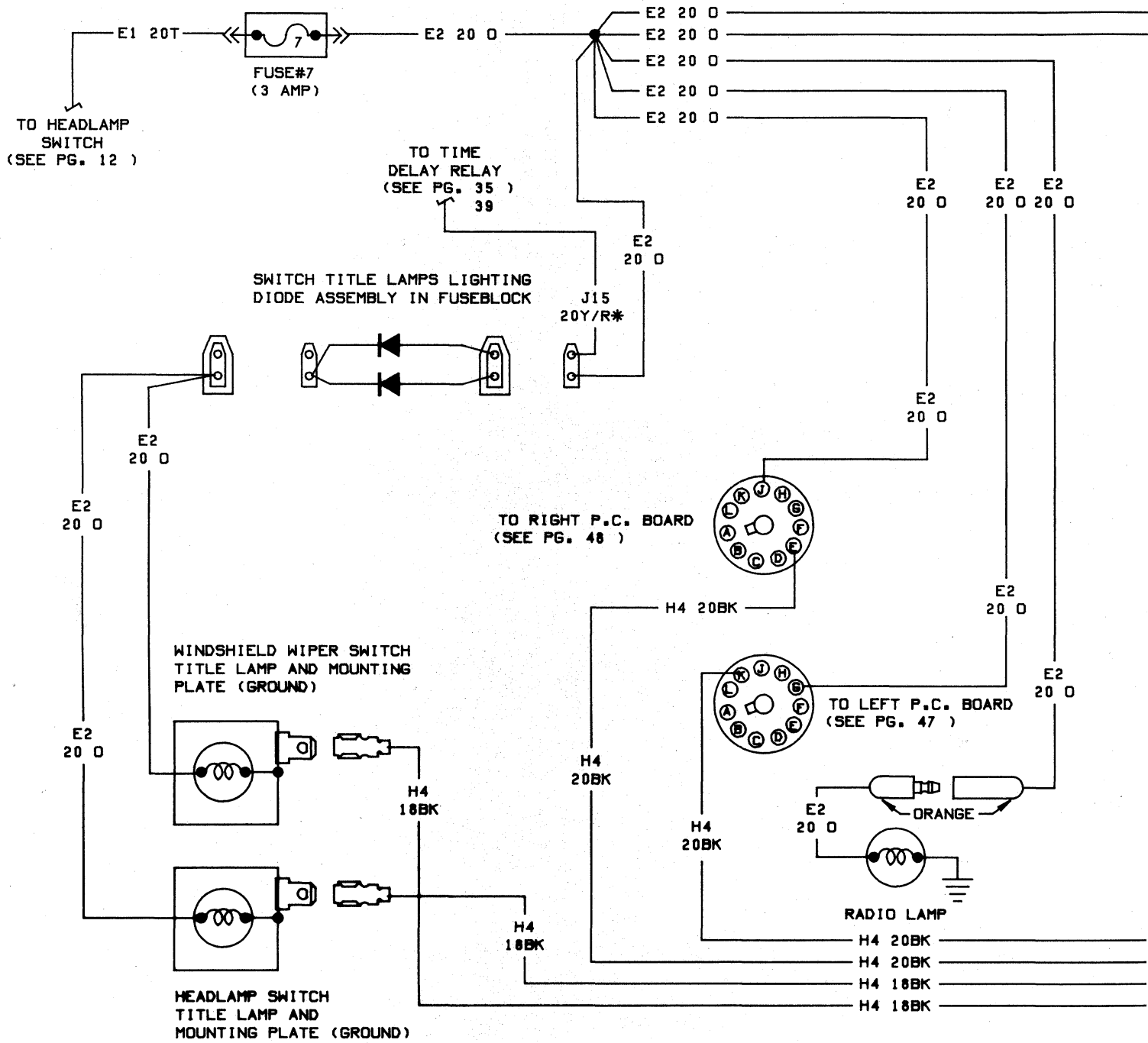
HNFG 28



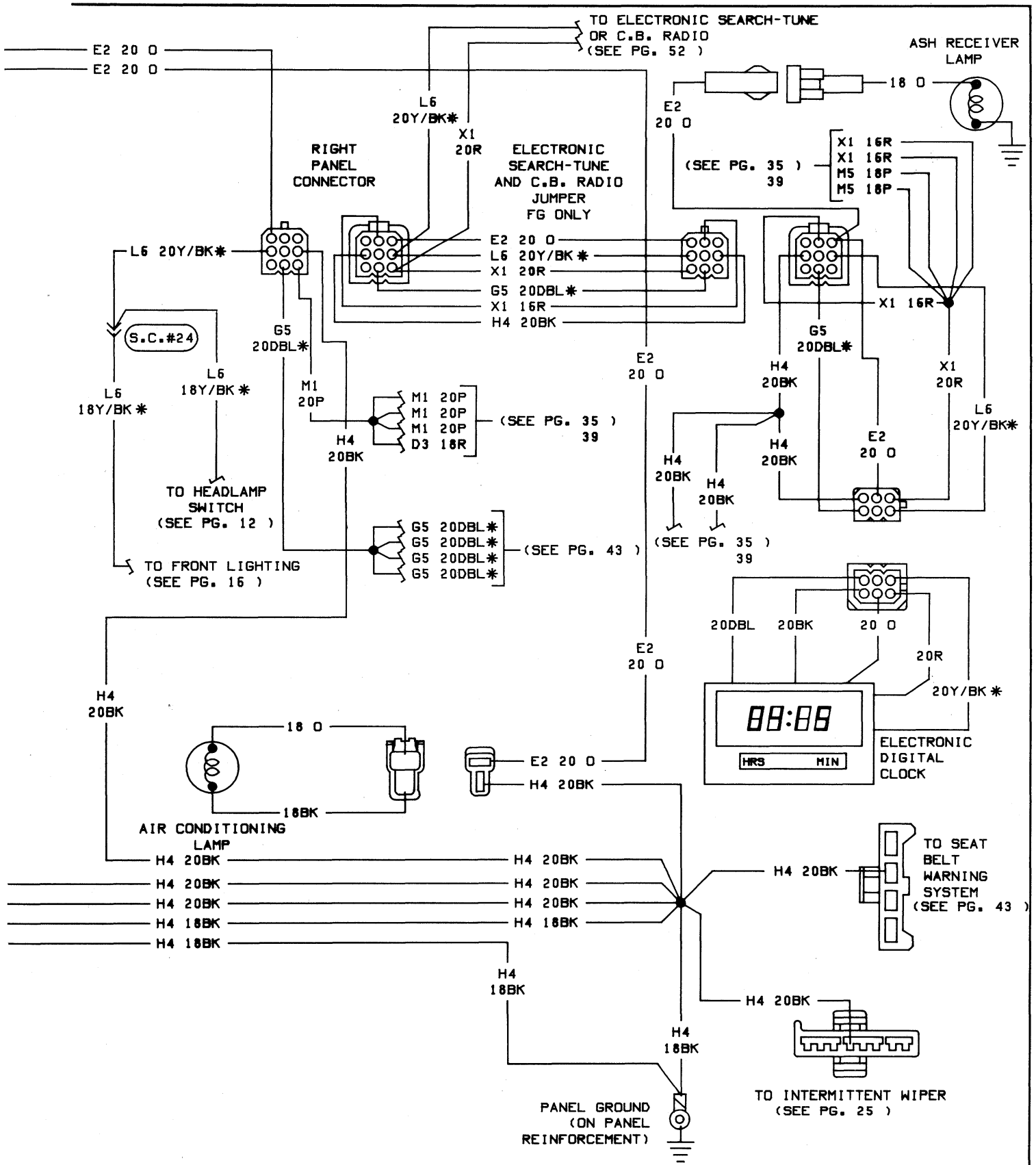
HNFG 29 HN H/LP SW CONTROLLED INTERIOR LIGHTING PR2

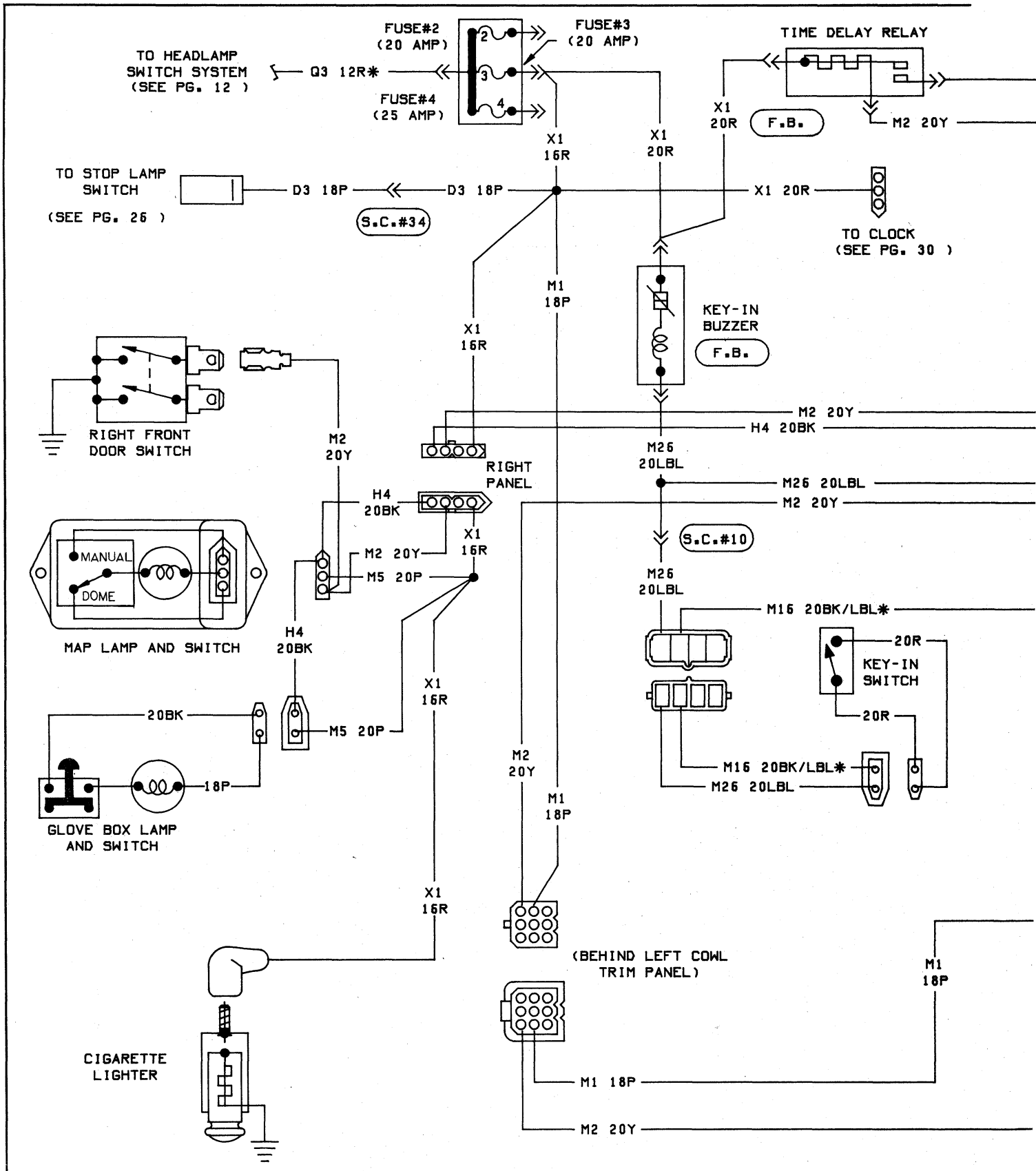


PR2 HN H/LP SW CONTROLLED INTERIOR LIGHTING HNFG 30

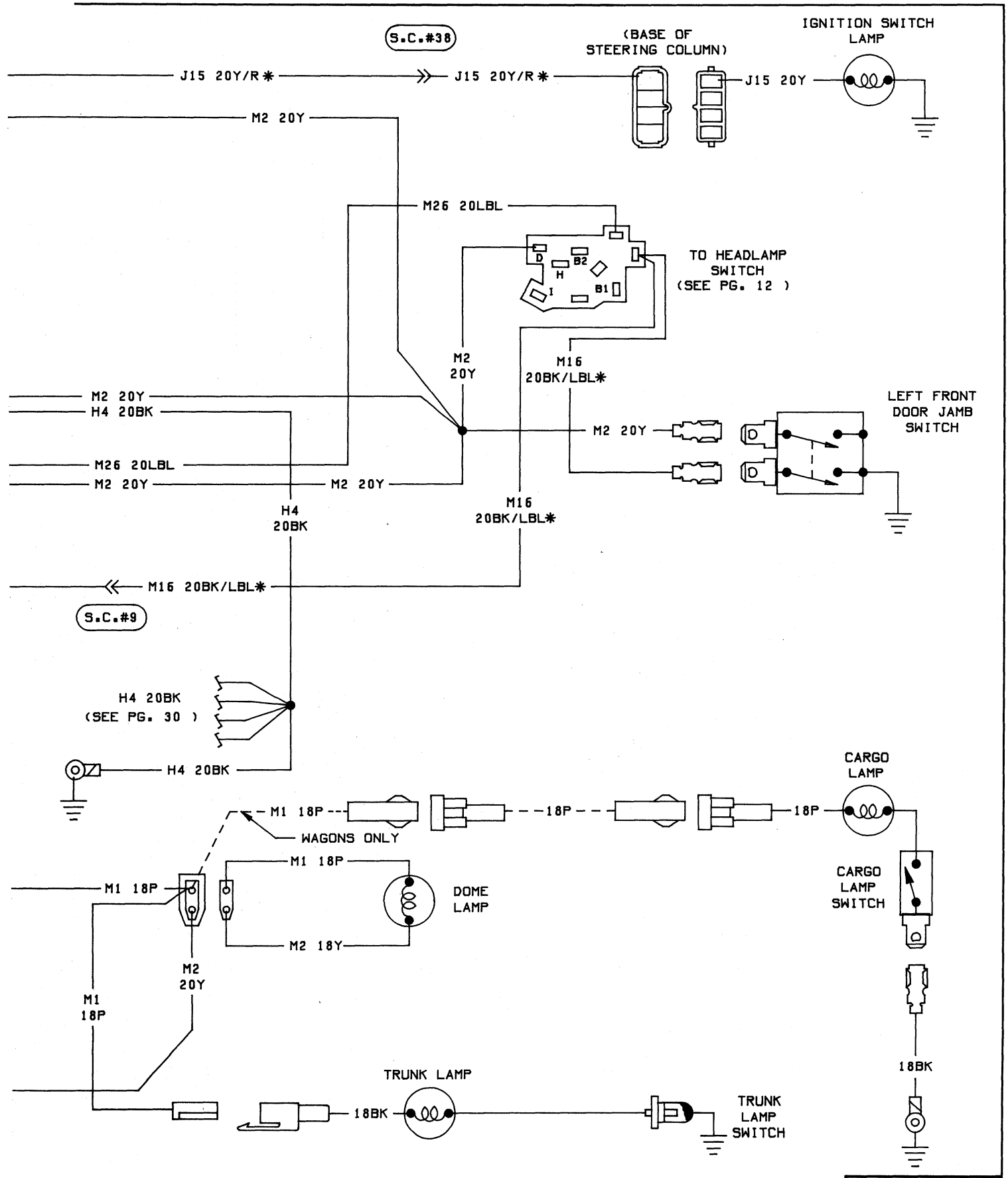


HNFG 31 FG H/LP SW CONTROLLED INTERIOR LIGHTING PR2


TO ELECTRONIC SEARCH-TUNE OR C.B. RADIO (SEE PG. 52)
ASH RECEIVER LAMP
E2 20 O
E2 20 O
L6 20Y/BK*
X1 20R
RIGHT PANEL CONNECTOR
ELECTRONIC SEARCH-TUNE AND C.B. RADIO JUMPER FG ONLY
18 O
E2 20 O
(SEE PG. 35) 39
X1 16R
X1 16R
M5 18P
M5 18P
E2 20 O
L6 20Y/BK*
X1 20R
G5 20DBL*
X1 16R
H4 20BK
L6 20Y/BK*
S.C.#24
G5 20DBL*
L6 18Y/BK*
L6 18Y/BK*
M1 20P
M1 20P
M1 20P
M1 20P
D3 18R
(SEE PG. 35) 39
H4 20BK
E2 20 O
H4 20BK
H4 20BK
X1 20R
L6 20Y/BK*
H4 20BK
H4 20BK
E2 20 O
TO HEADLAMP SWITCH (SEE PG. 12)
H4 20BK
H4 20BK
G5 20DBL*
G5 20DBL*
G5 20DBL*
G5 20DBL*
(SEE PG. 43)
(SEE PG. 35) 39
TO FRONT LIGHTING (SEE PG. 16)
20DBL
20BK
20 O
20R
20Y/BK*
E2 20 O
H4 20BK
88:88
HRS
MIN
ELECTRONIC DIGITAL CLOCK
18 O
E2 20 O
H4 20BK
18BK
AIR CONDITIONING LAMP
H4 20BK
H4 20BK
H4 20BK
H4 20BK
H4 18BK
H4 18BK
H4 20BK
H4 20BK
H4 20BK
H4 20BK
H4 18BK
H4 18BK
TO SEAT BELT WARNING SYSTEM (SEE PG. 43)
H4 20BK
H4 18BK
H4 20BK
TO INTERMITTENT WIPER (SEE PG. 25)
PANEL GROUND (ON PANEL REINFORCEMENT)



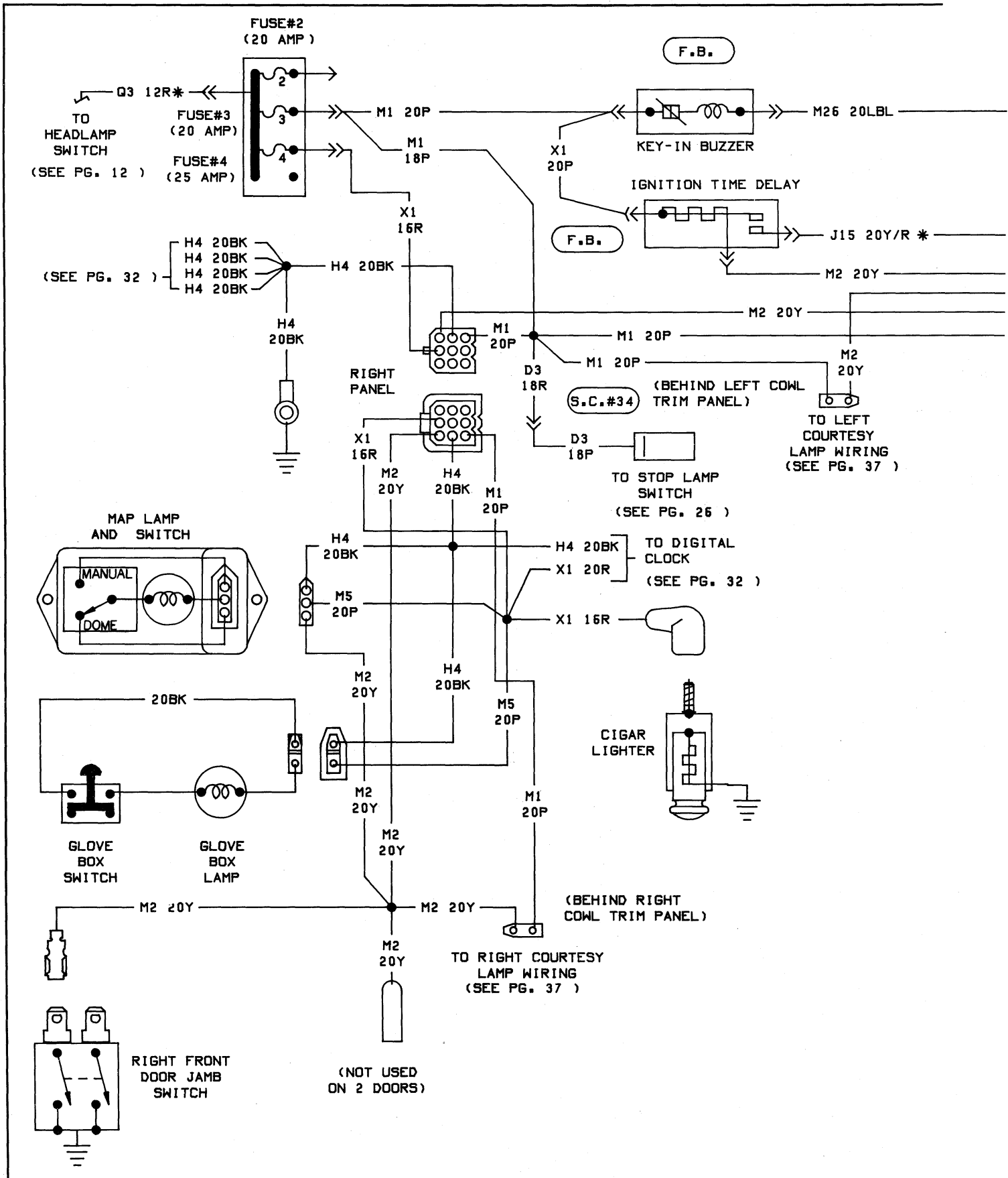
HNFG 33 HN-DOME AND COURTESY LAMPS PR2



PR2

HN-DOME AND COURTESY LAMPS

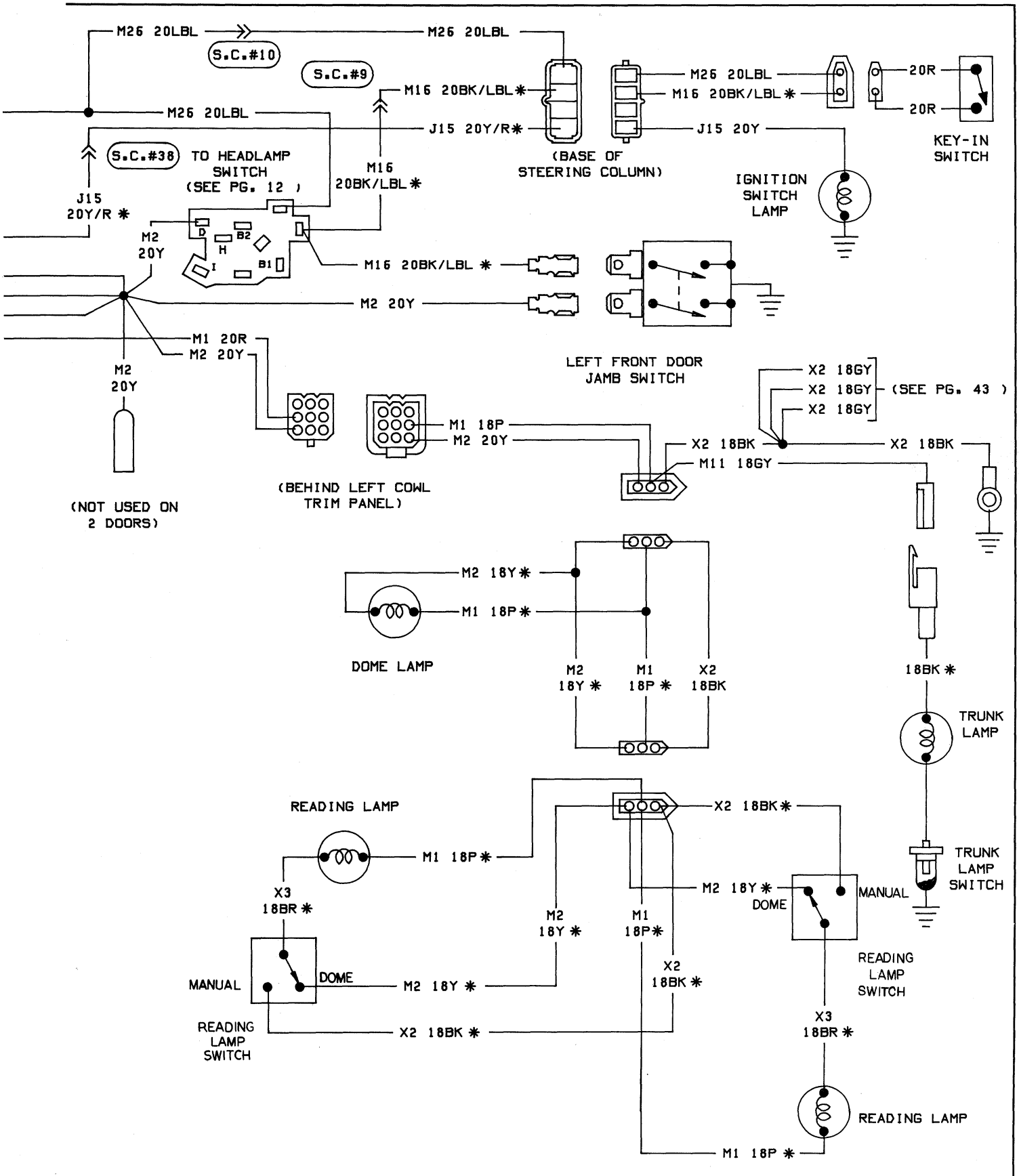
HNFG 34



HNFG 35

FG-2 DOOR COURTESY LAMPS

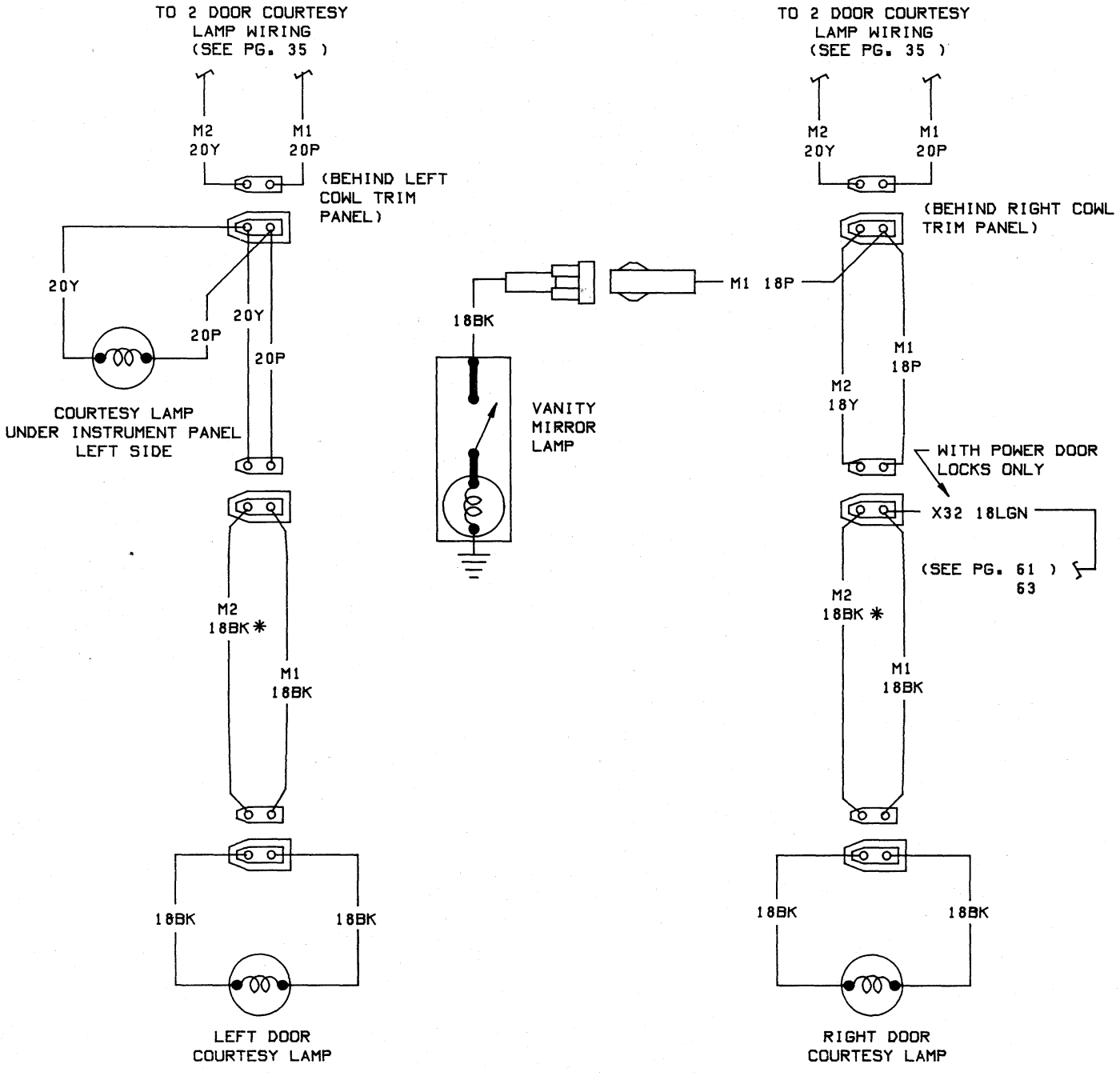
PR2



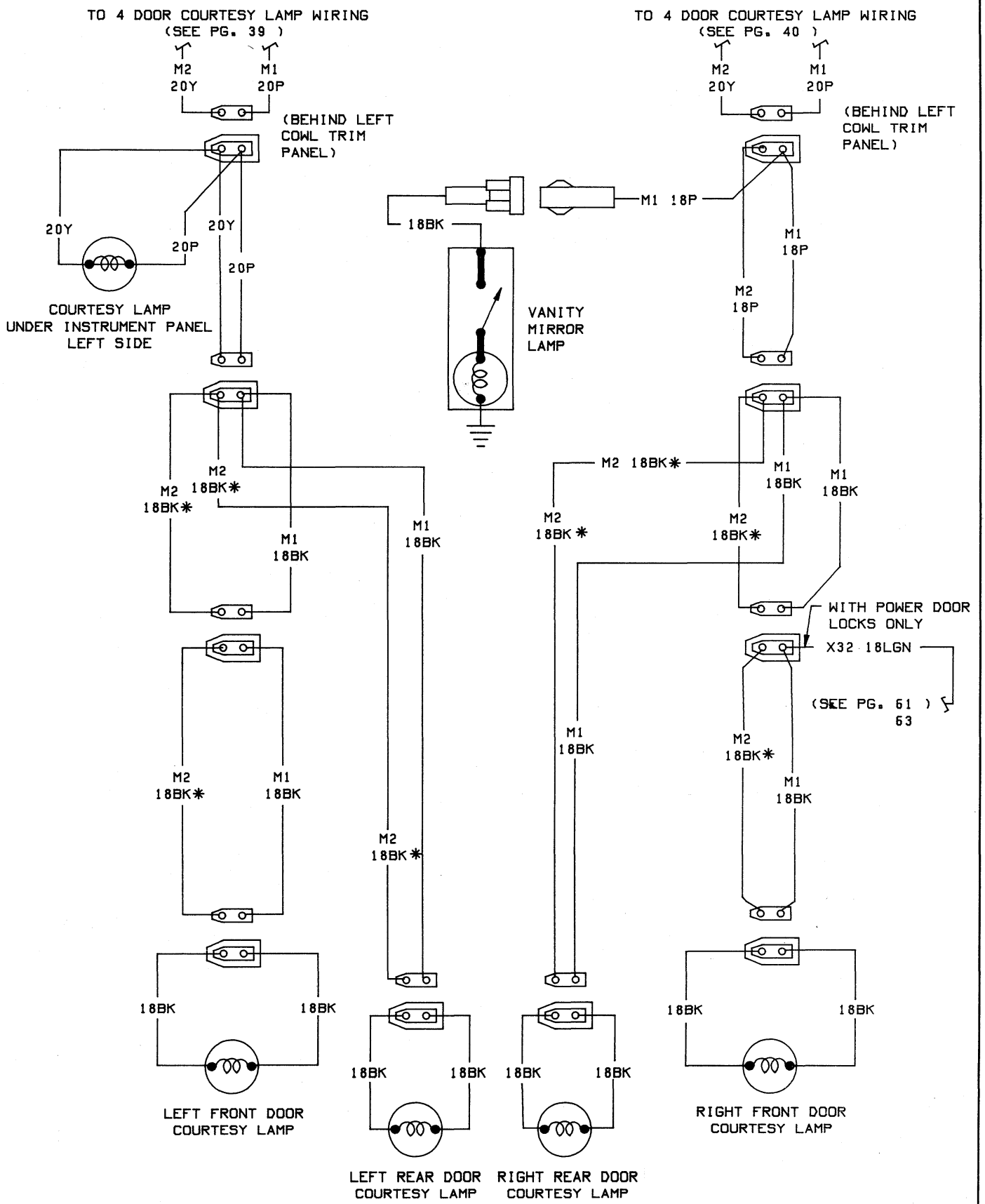
PR2

FG-2 DOOR COURTESY LAMPS

HNFG 36



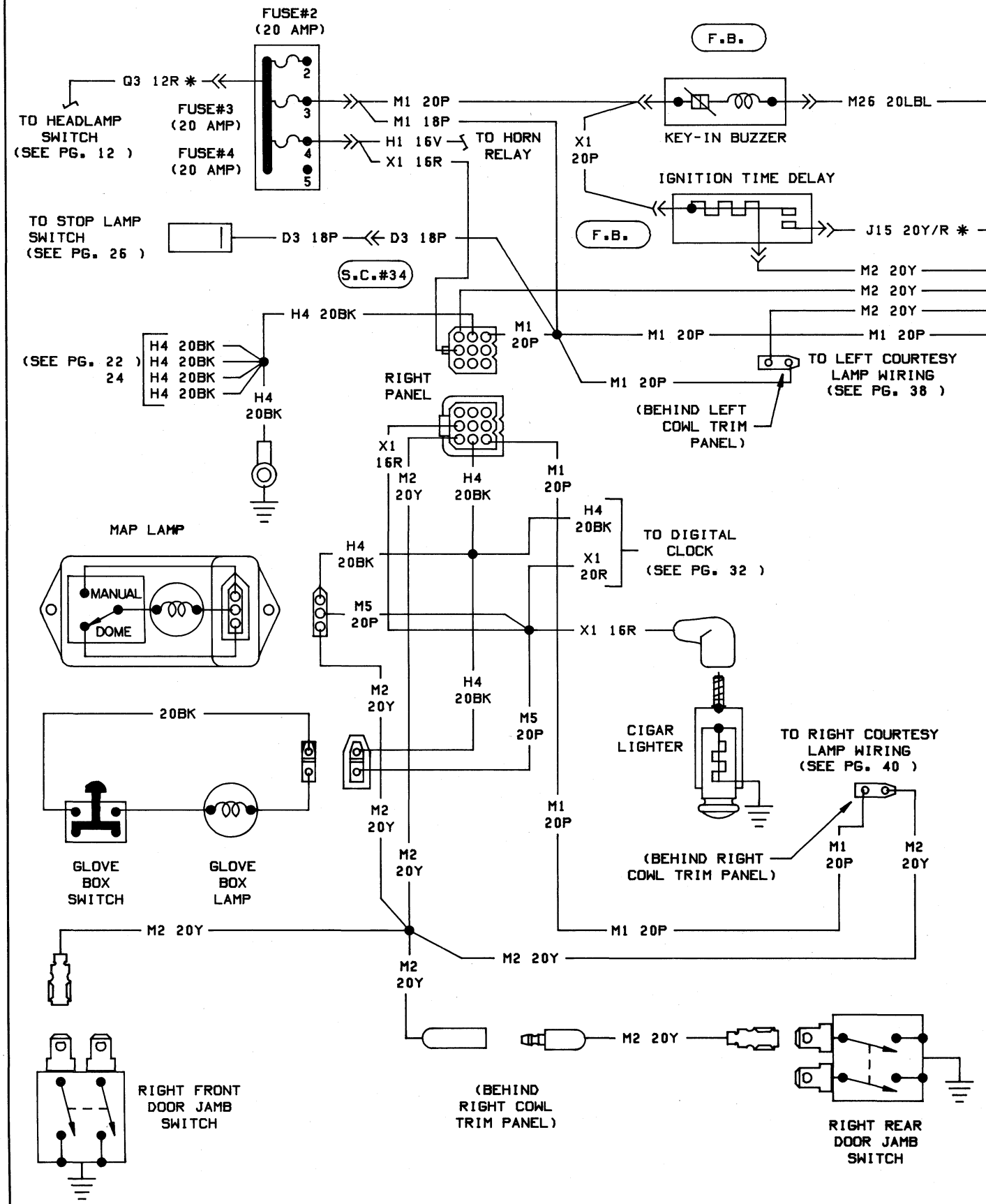
FG-2 DOOR COURTESY LAMPS



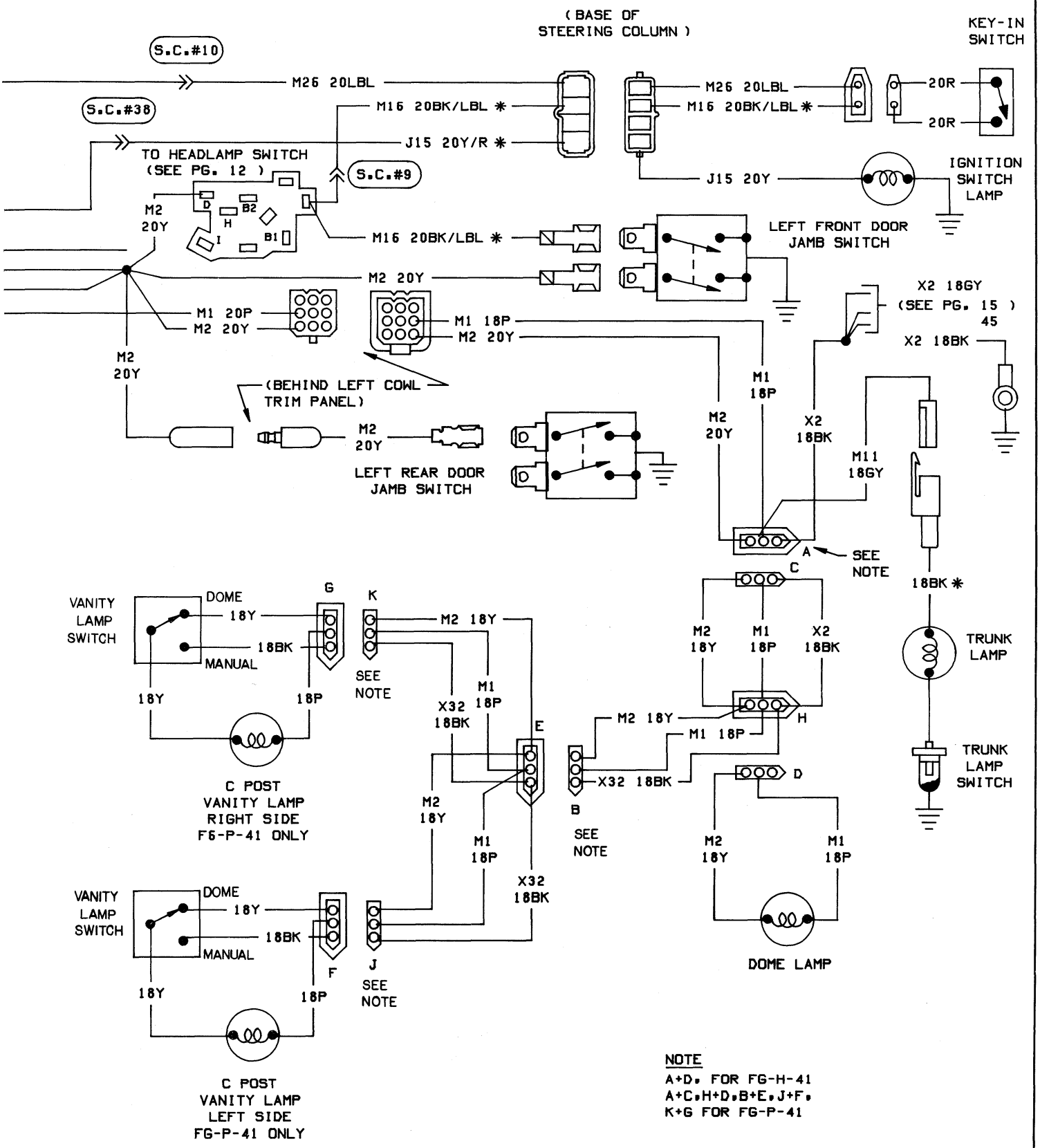
PR2

FG-4 DOOR COURTESY LAMPS

HNFG 38



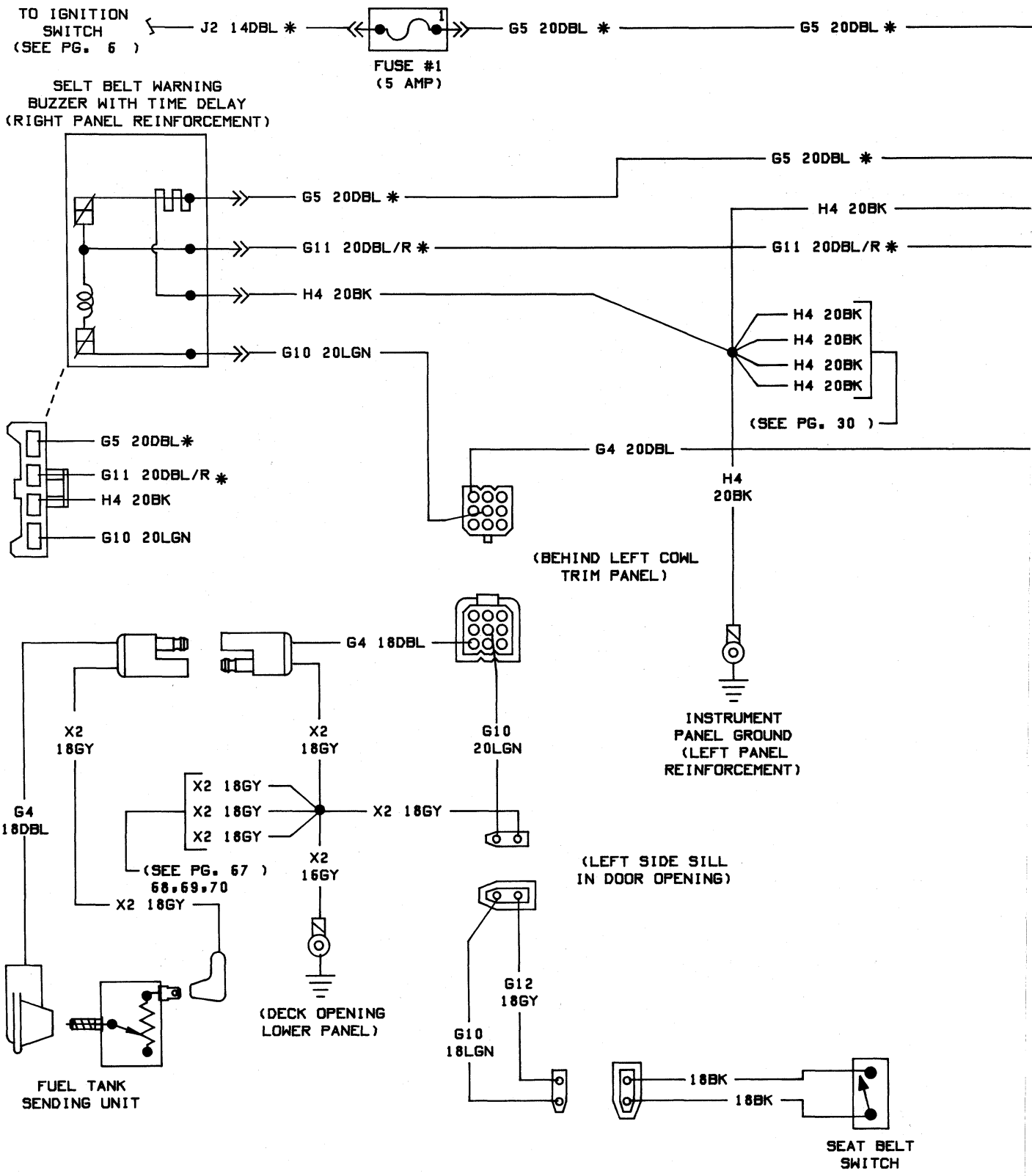
HNFG 39 FG-4 DOOR COURTESY LAMPS-FG PR2



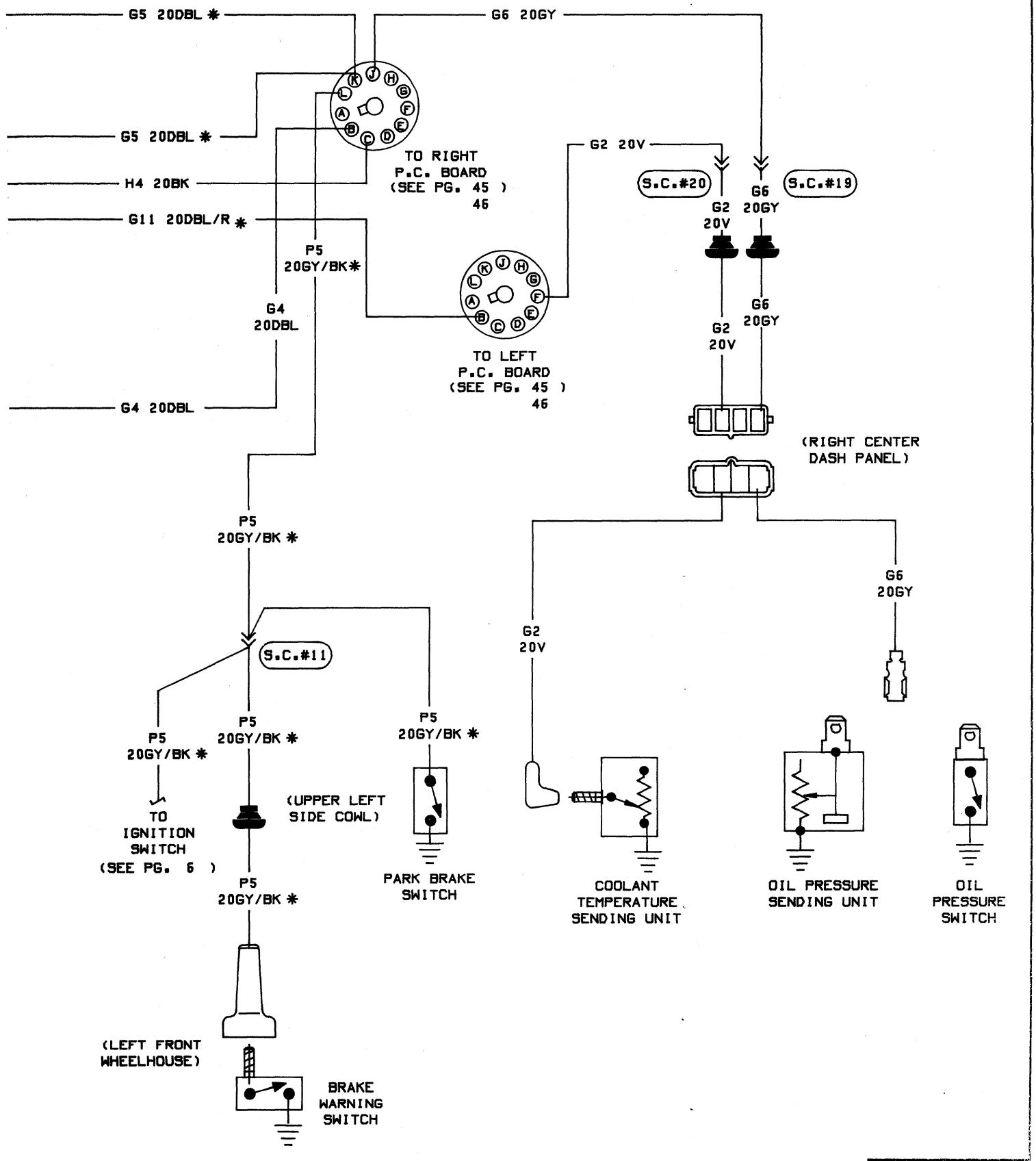
PR2

FG-4 DOOR COURTESY LAMPS

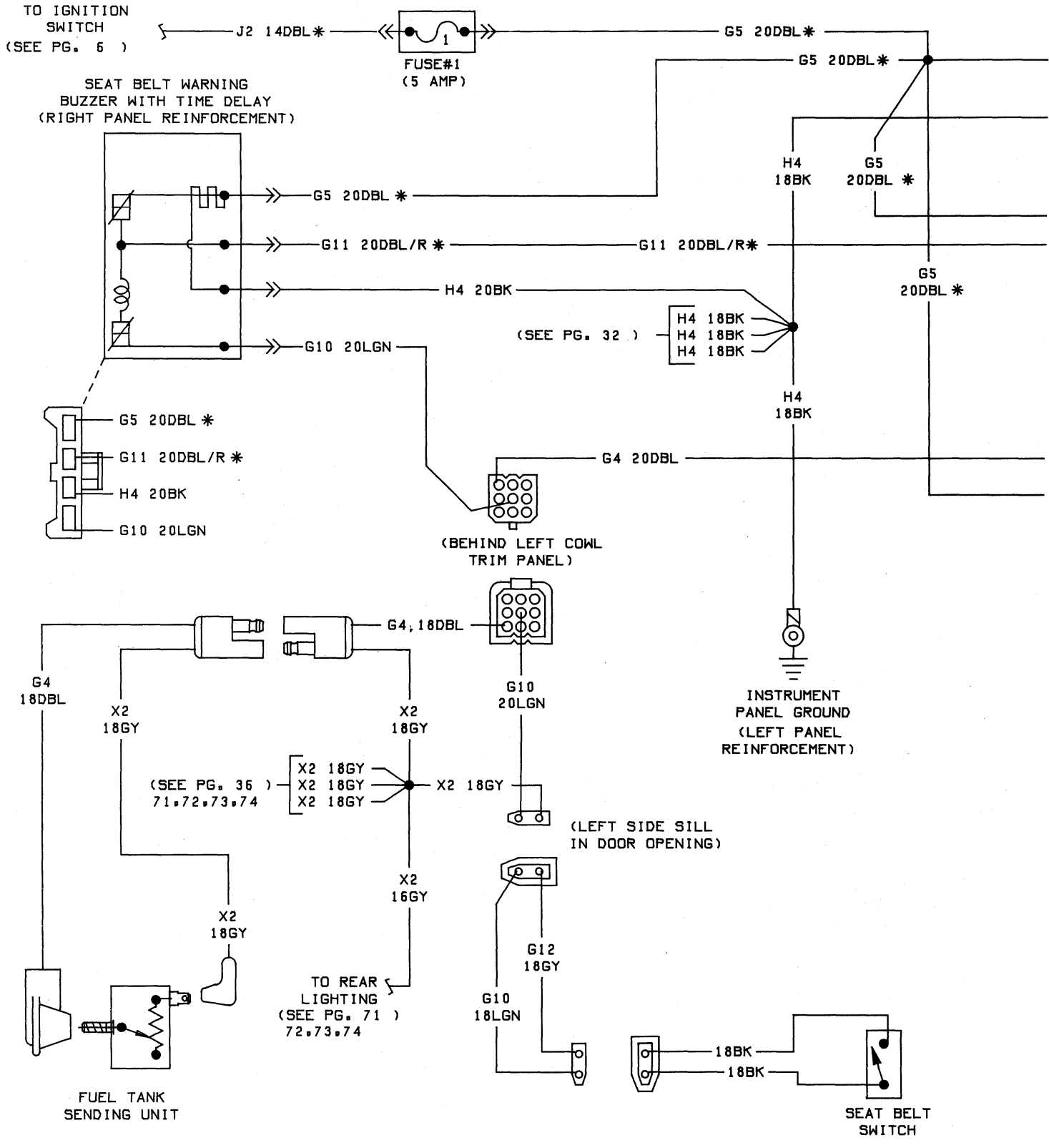
HNFG 40



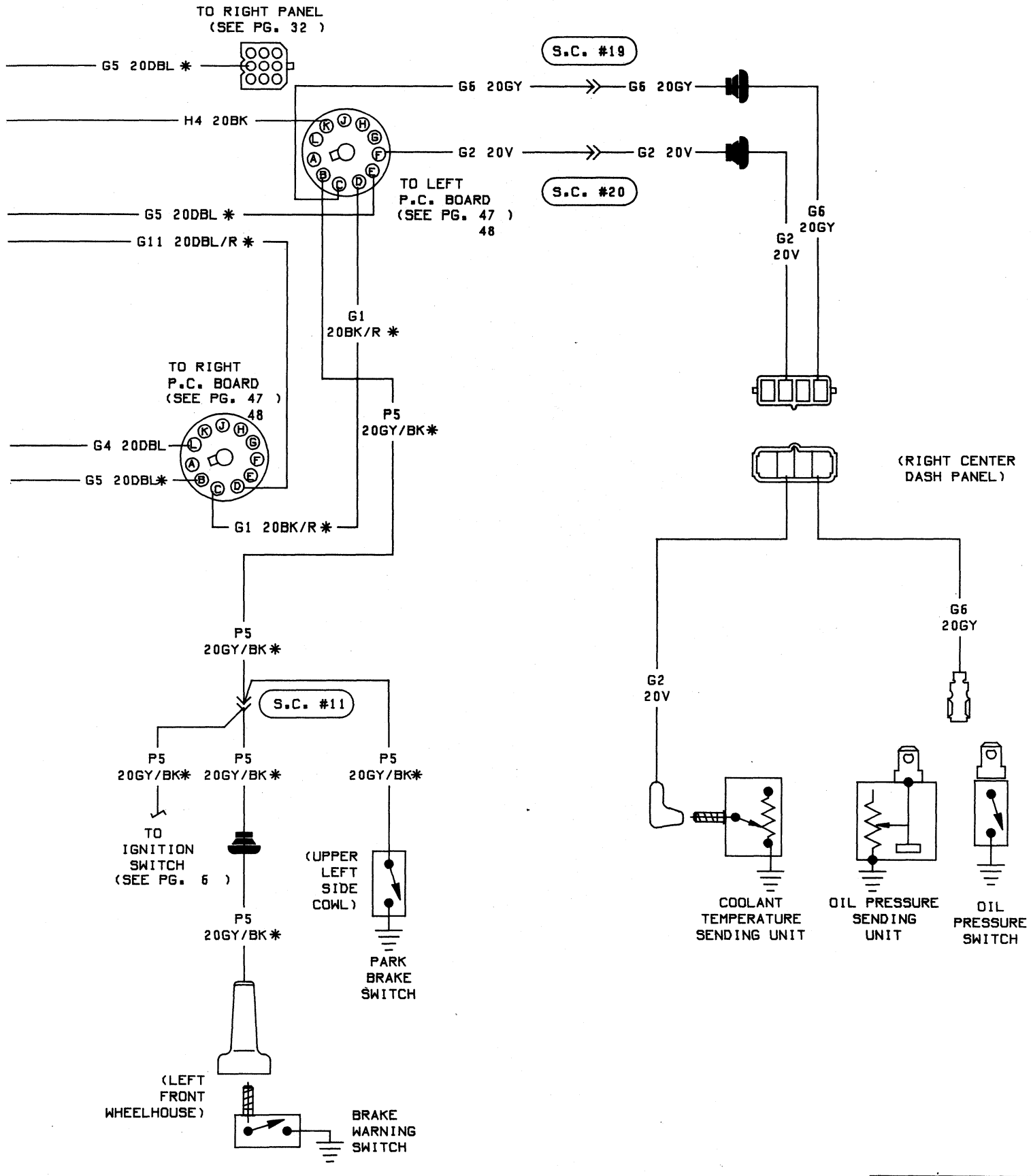
HNFG 41 HN FUEL TANK AND SEATBELT WARNING SYSTEMS PR2



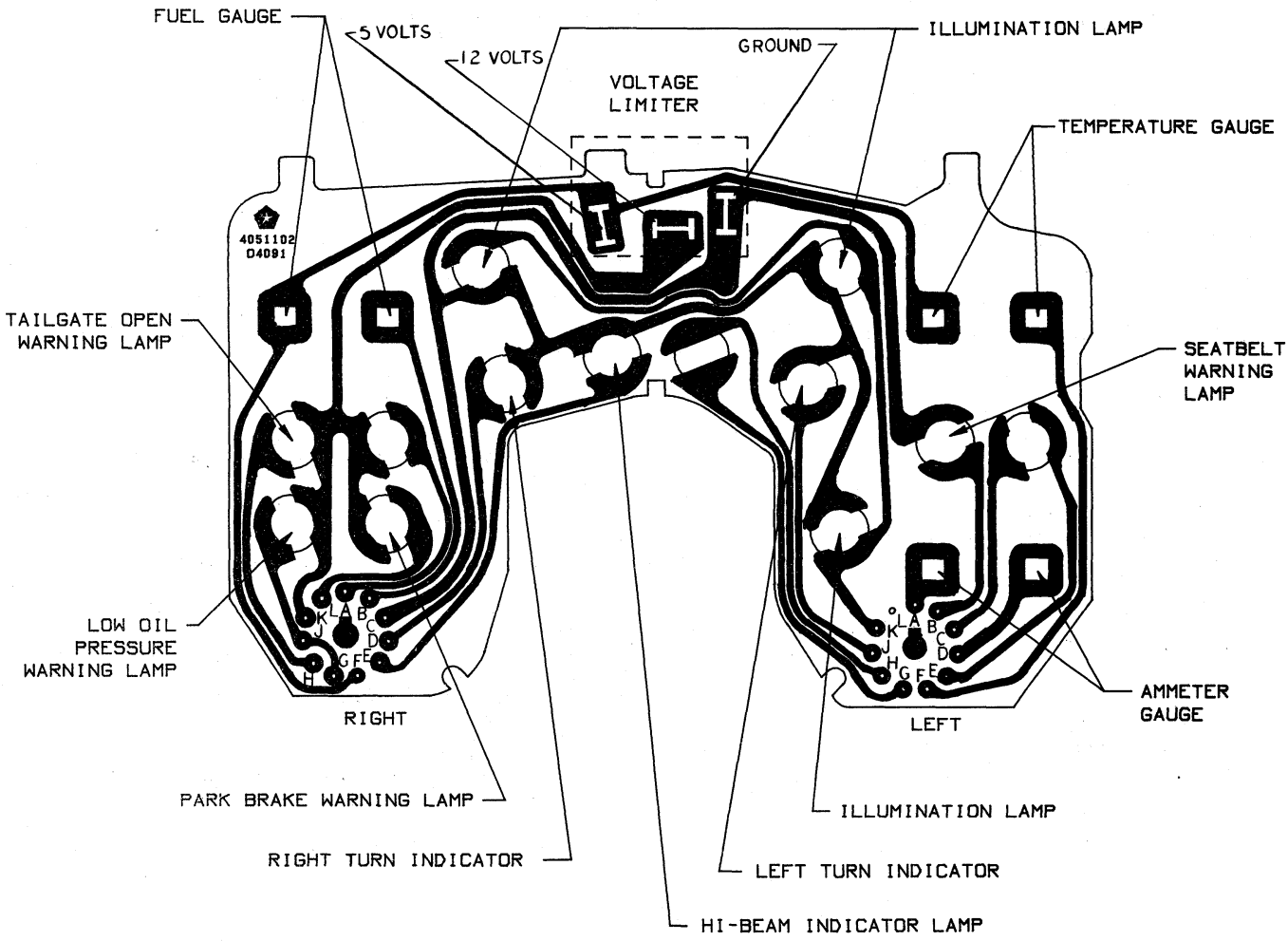
PR2 HN OIL, TEMPERATURE GAUGE AND BRAKE SWITCH HNFG 42



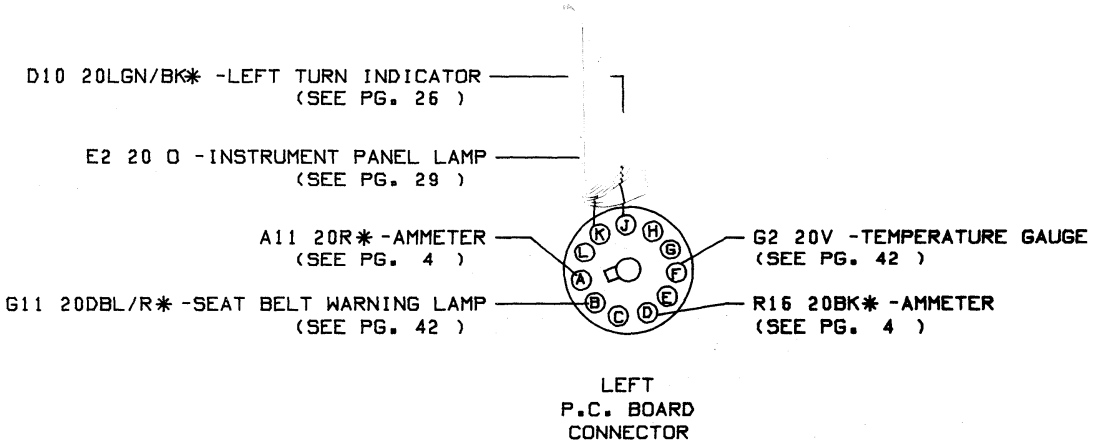
HNFG 43 FG FUEL TANK AND SEATBELT WARNING SYSTEM PR2

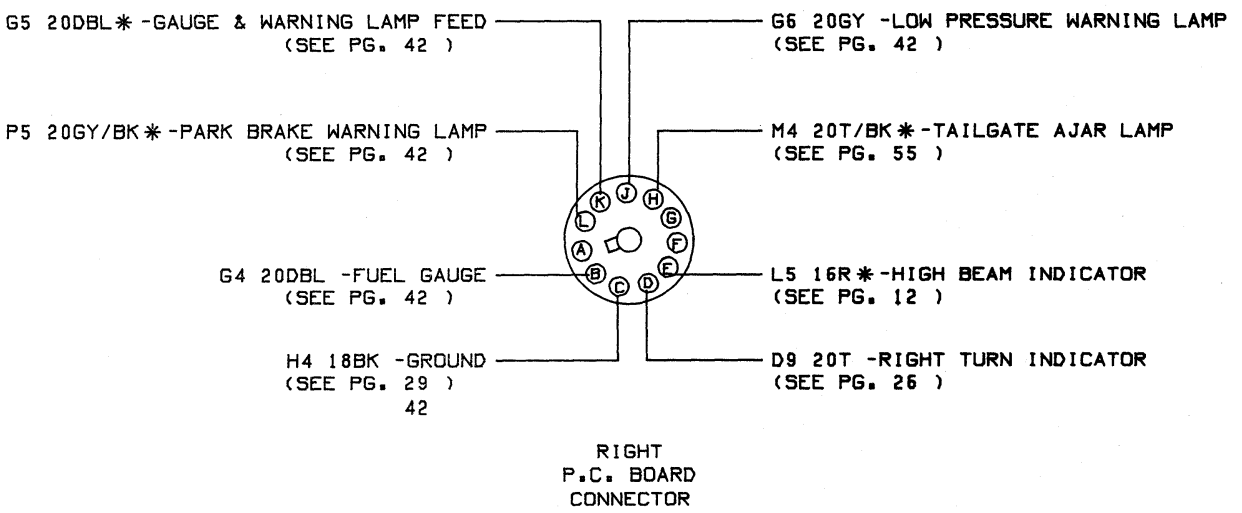


PR2 FG OIL, TEMPERATURE GAUGE & BRAKE SWITCH HNFG 44

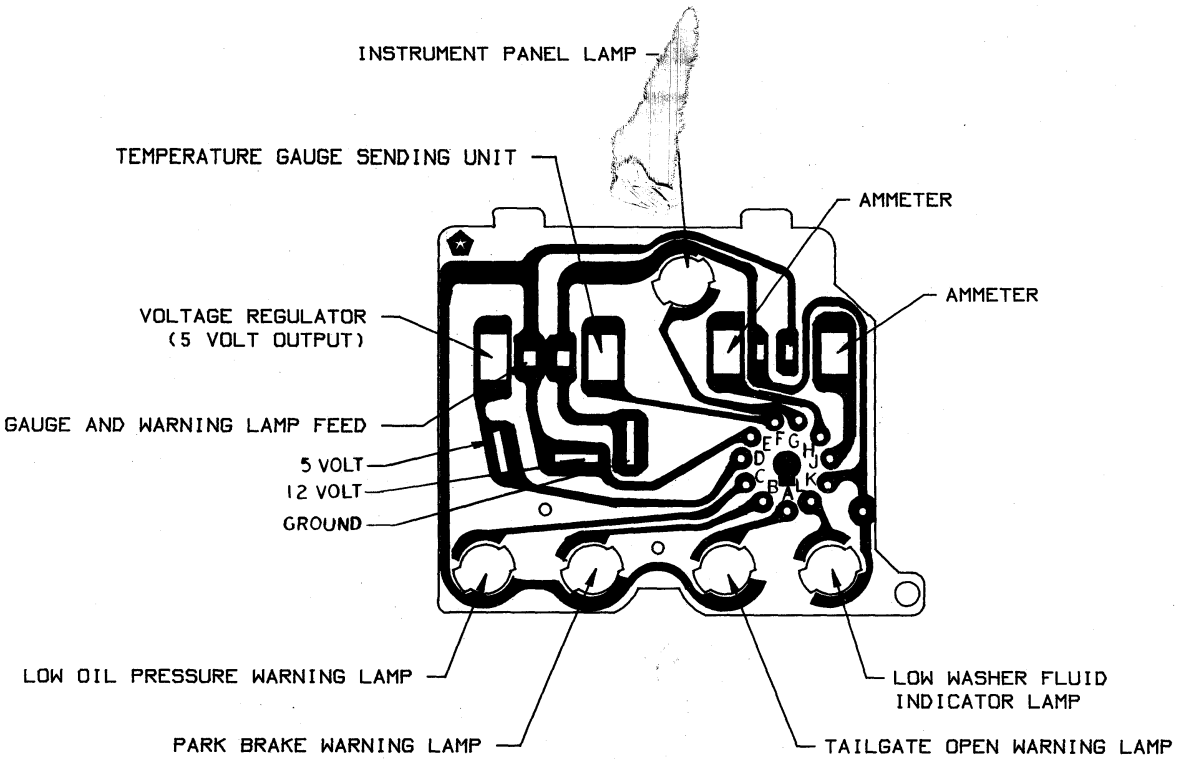


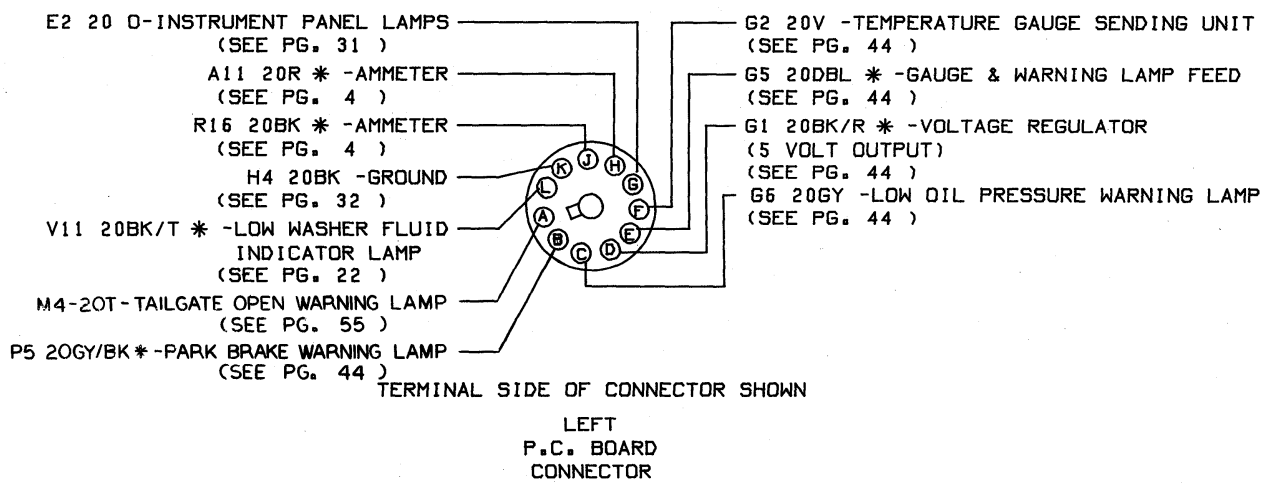
HNFG 45 HN -PRINTED CIRCUIT BOARD PR2



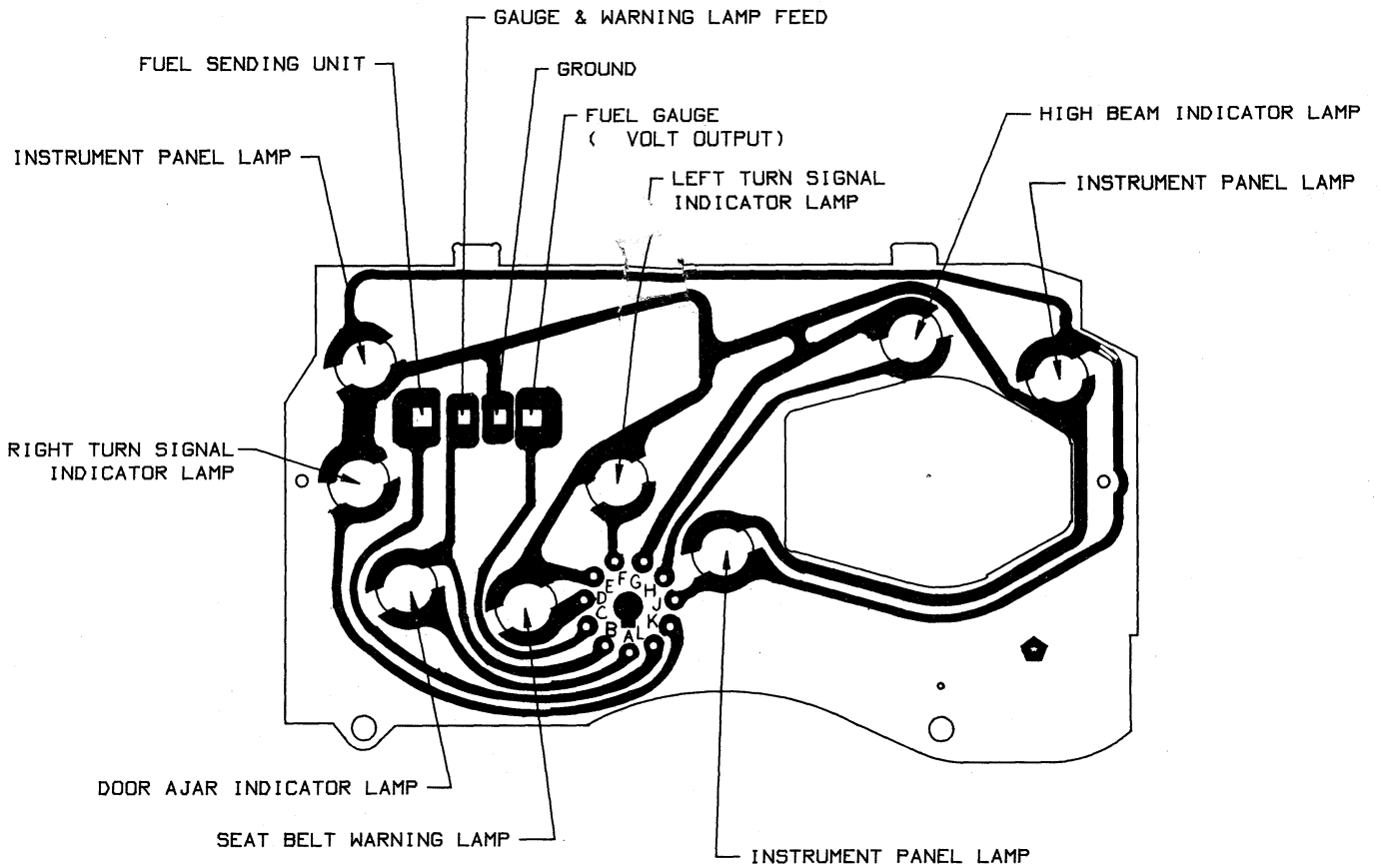


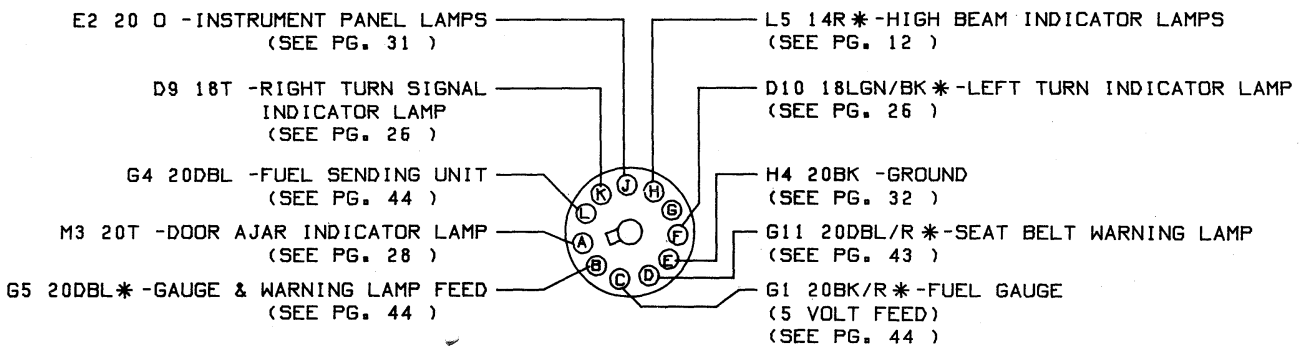
TERMINAL SIDE OF CONNECTORS SHOWN





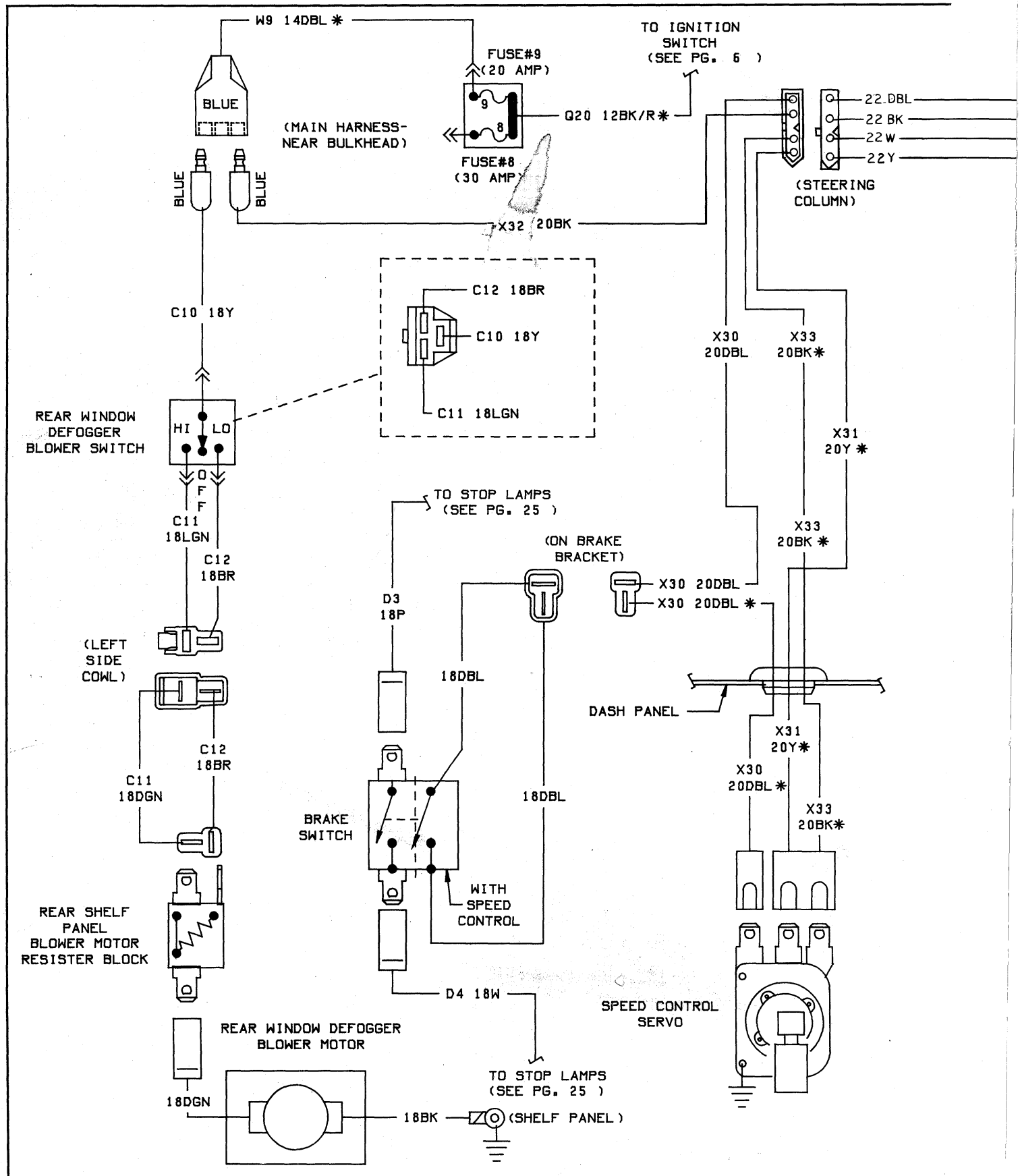
HNFG 47 FG PRINTED CIRCUIT BOARD CONNECTORS PR2





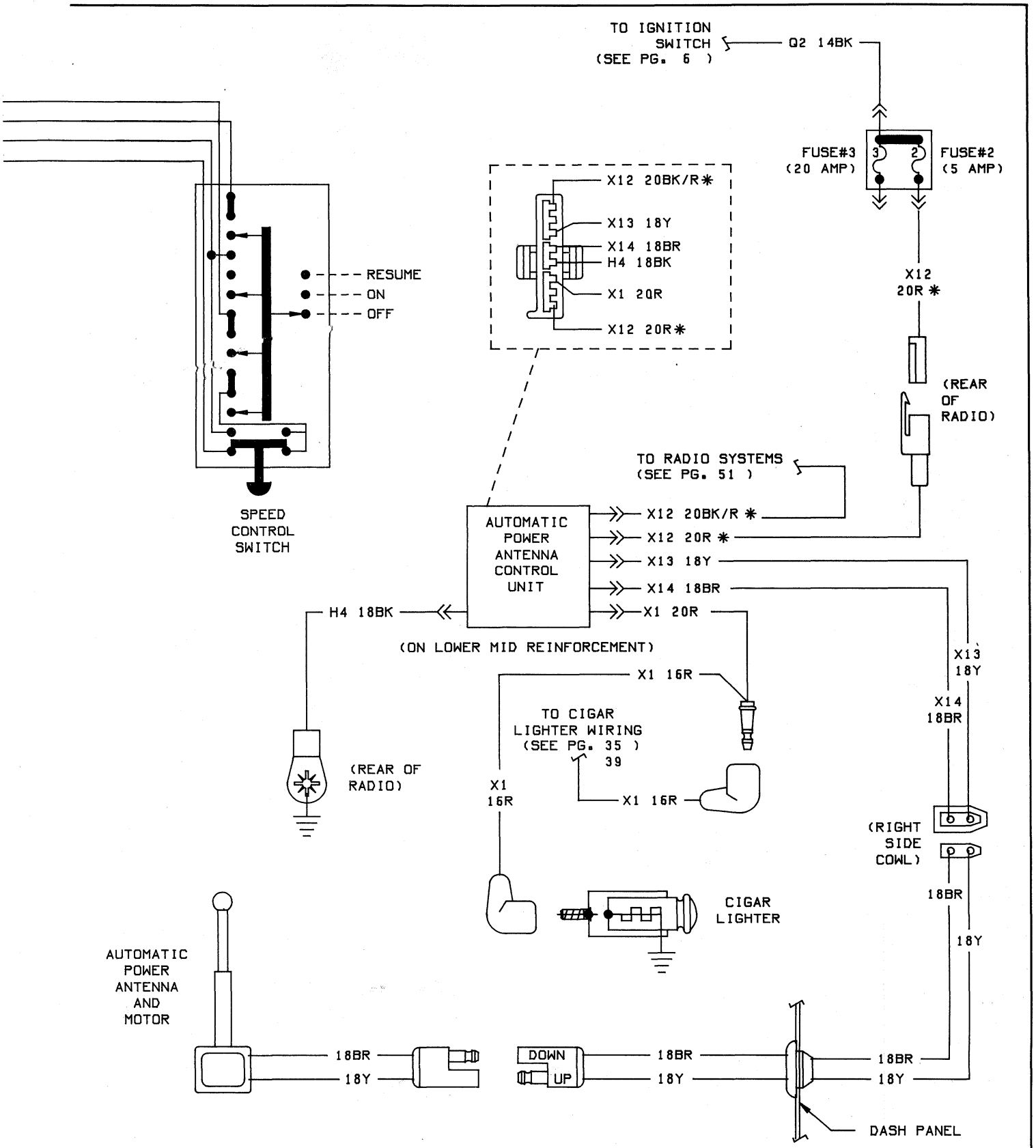
TERMINAL SIDE OF CONNECTOR SHOWN

RIGHT
P.C. BOARD
CONNECTOR

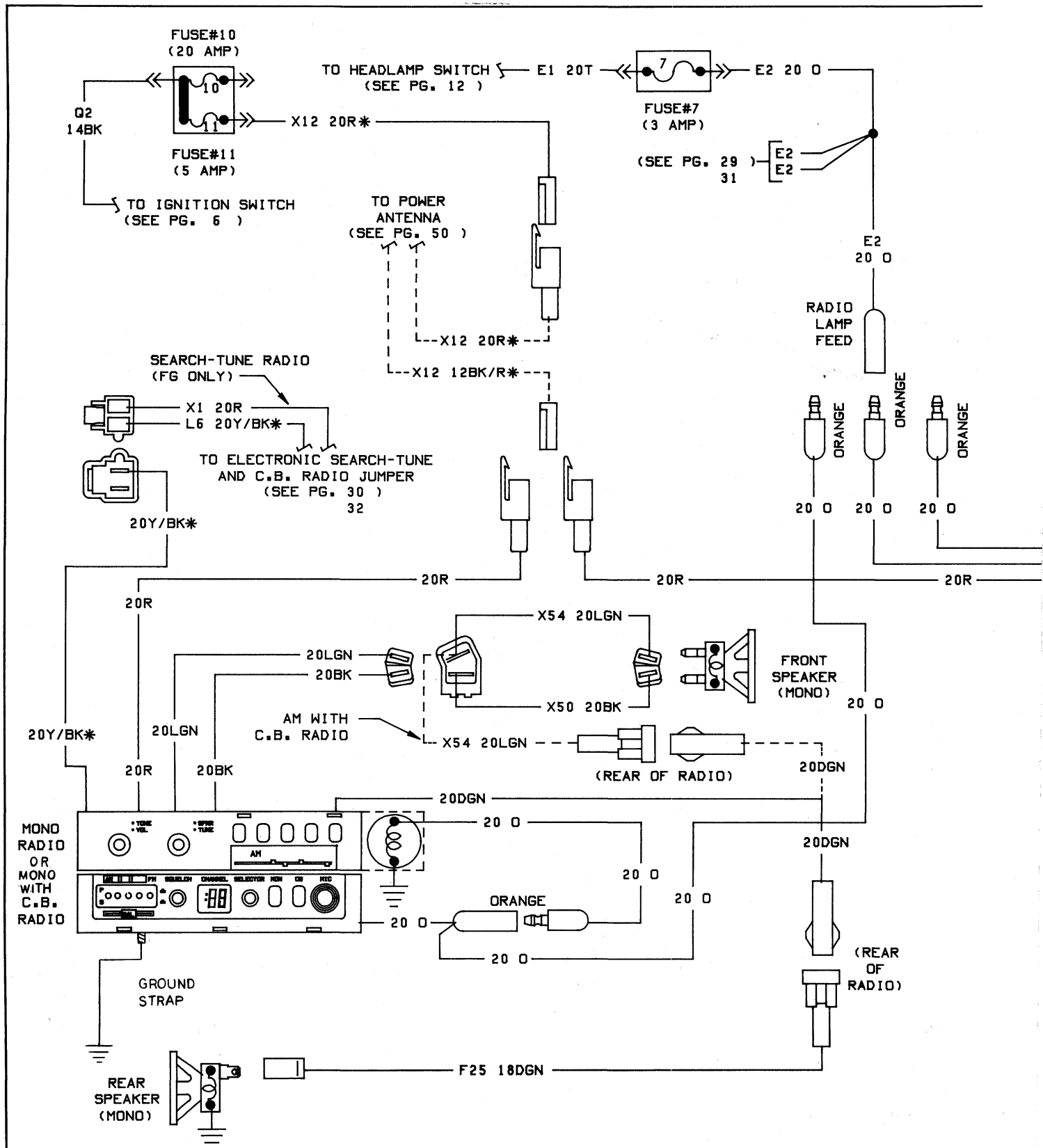


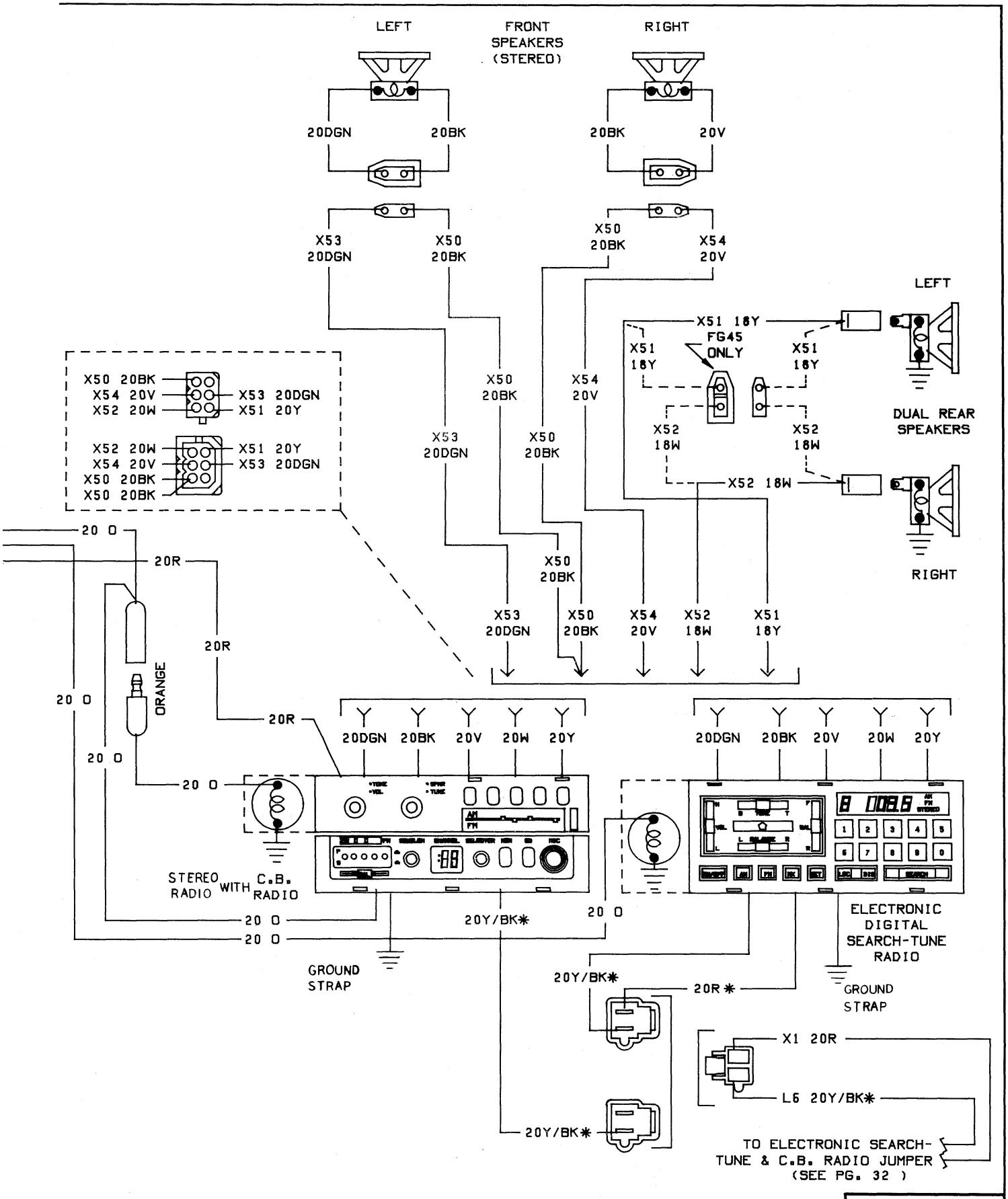
HNFG 49 SPEED CONTROL & REAR WINDOW DEFOGGER

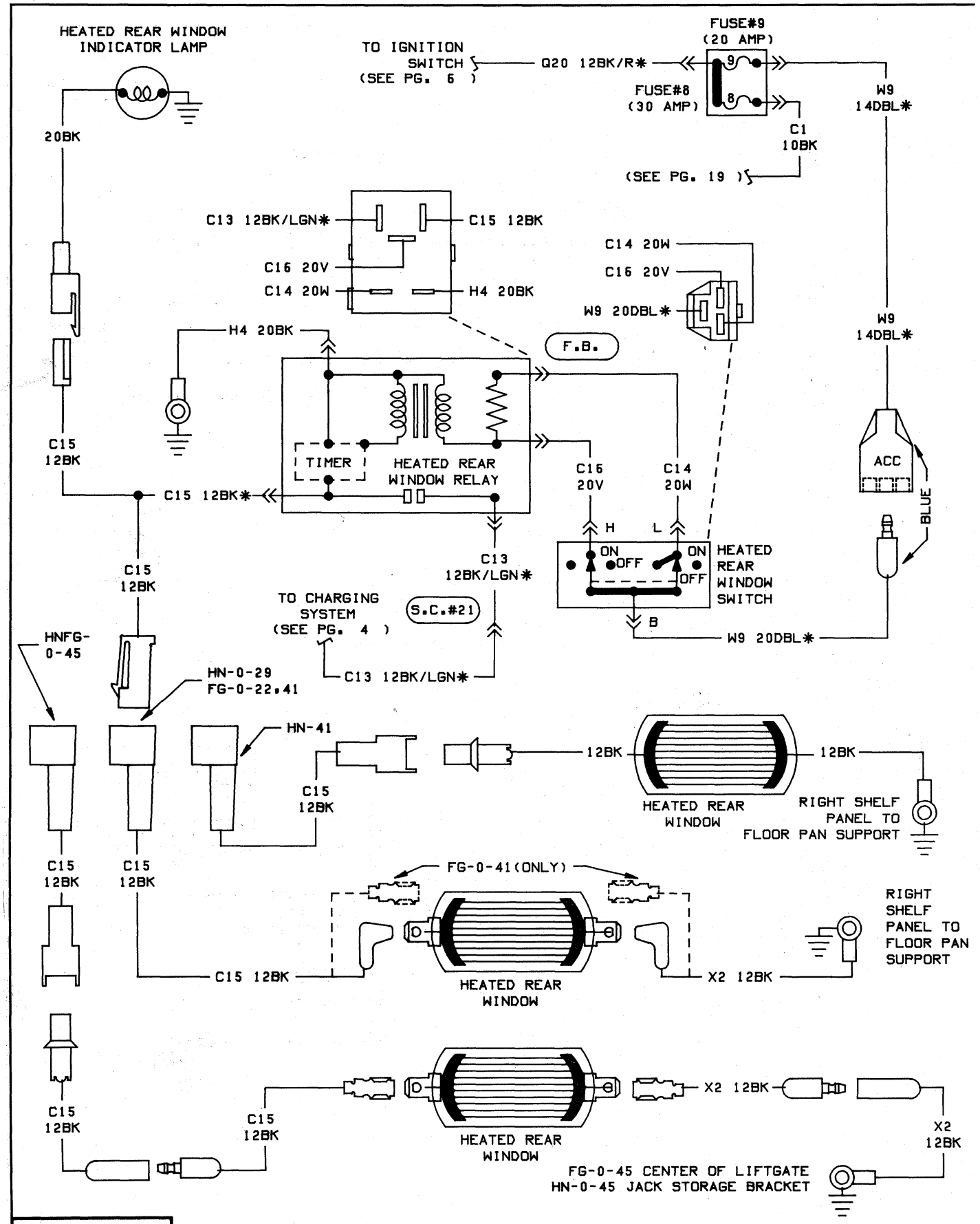
PR2



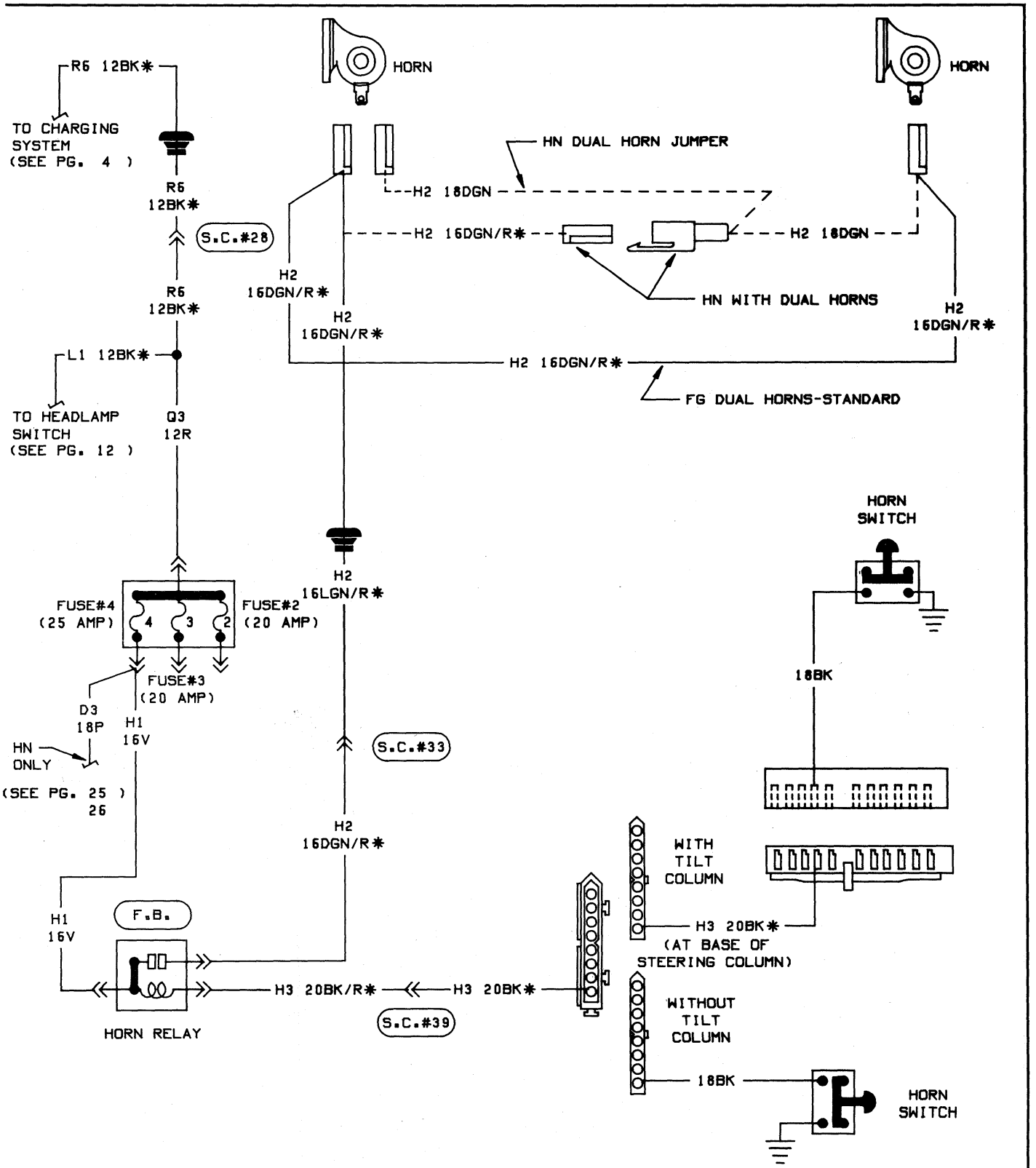
PR2 SPEED CONTROL & POWER ANTENNA SYSTEM HNFG 50

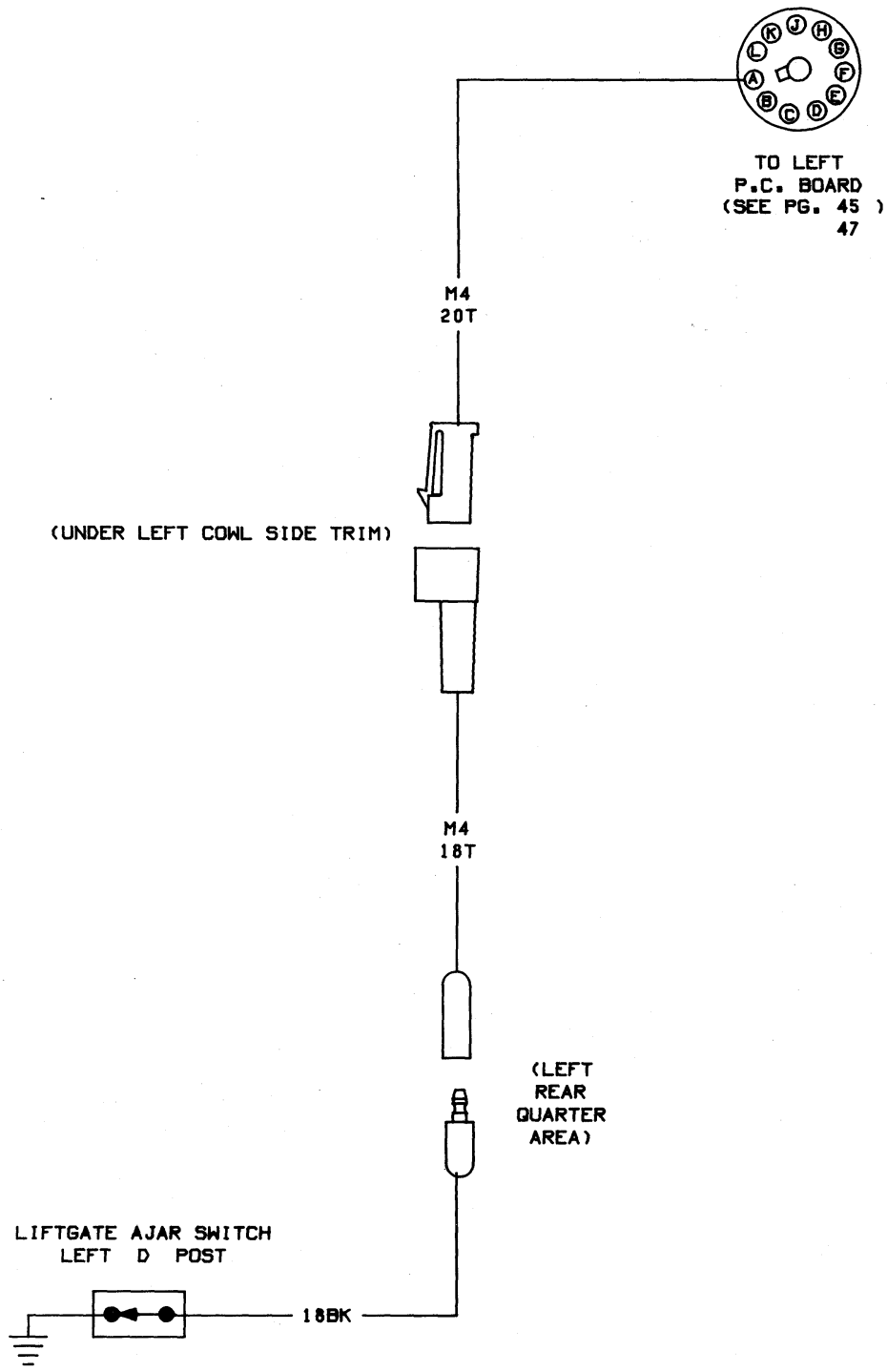

FUSE#10
(20 AMP)
10
11
FUSE#11
(5 AMP)
Q2
14BK
TO IGNITION SWITCH
(SEE PG. 6)
X12 20R*
TO HEADLAMP SWITCH
(SEE PG. 12)
E1 20T
7
FUSE#7
(3 AMP)
E2 20 O
(SEE PG. 29)
31
E2
E2
E2
20 O
TO POWER
ANTENNA
(SEE PG. 50)
X12 20R*
X12 12BK/R*
RADIO
LAMP
FEED
ORANGE
ORANGE
ORANGE
20 O
20 O
20 O
SEARCH-TUNE RADIO
(FG ONLY)
X1 20R
L6 20Y/BK*
TO ELECTRONIC SEARCH-TUNE
AND C.B. RADIO JUMPER
(SEE PG. 30)
32
20Y/BK*
20R
20R
20R
20R
X54 20LGN
20LGN
20BK
X50 20BK
FRONT
SPEAKER
(MONO)
20 O
AM WITH
C.B. RADIO
X54 20LGN
(REAR OF RADIO)
20DGN
20Y/BK*
20LGN
20R
20BK
20DGN
MONO
RADIO
OR
MONO
WITH
C.B.
RADIO
20 O
20 O
20DGN
ORANGE
20 O
20 O
20 O
(REAR
OF
RADIO)
GROUND
STRAP
REAR
SPEAKER
(MONO)
F25 18DGN


LEFT
FRONT SPEAKERS (STEREO)
RIGHT
20DGN
20BK
20BK
20V
X53 20DGN
X50 20BK
X50 20BK
X54 20V
LEFT
X51 18Y
FG45 ONLY
X51 18Y
X51 18Y
X52 18W
X52 18W
X52 18W
DUAL REAR SPEAKERS
RIGHT
X50 20BK
X54 20V
X52 20W
X53 20DGN
X51 20Y
X52 20W
X51 20Y
X54 20V
X53 20DGN
X50 20BK
X50 20BK
X53 20DGN
X50 20BK
X54 20V
X52 18W
X51 18Y
20 O
20R
20R
ORANGE
20 O
20 O
20R
20 O
20DGN 20BK 20V 20W 20Y
20DGN 20BK 20V 20W 20Y
STEREO RADIO WITH C.B. RADIO
20 O
20 O
20Y/BK*
20 O
GROUND STRAP
ELECTRONIC DIGITAL SEARCH-TUNE RADIO
20Y/BK*
20R *
GROUND STRAP
X1 20R
L6 20Y/BK*
20Y/BK*
TO ELECTRONIC SEARCH-TUNE & C.B. RADIO JUMPER (SEE PG. 32)

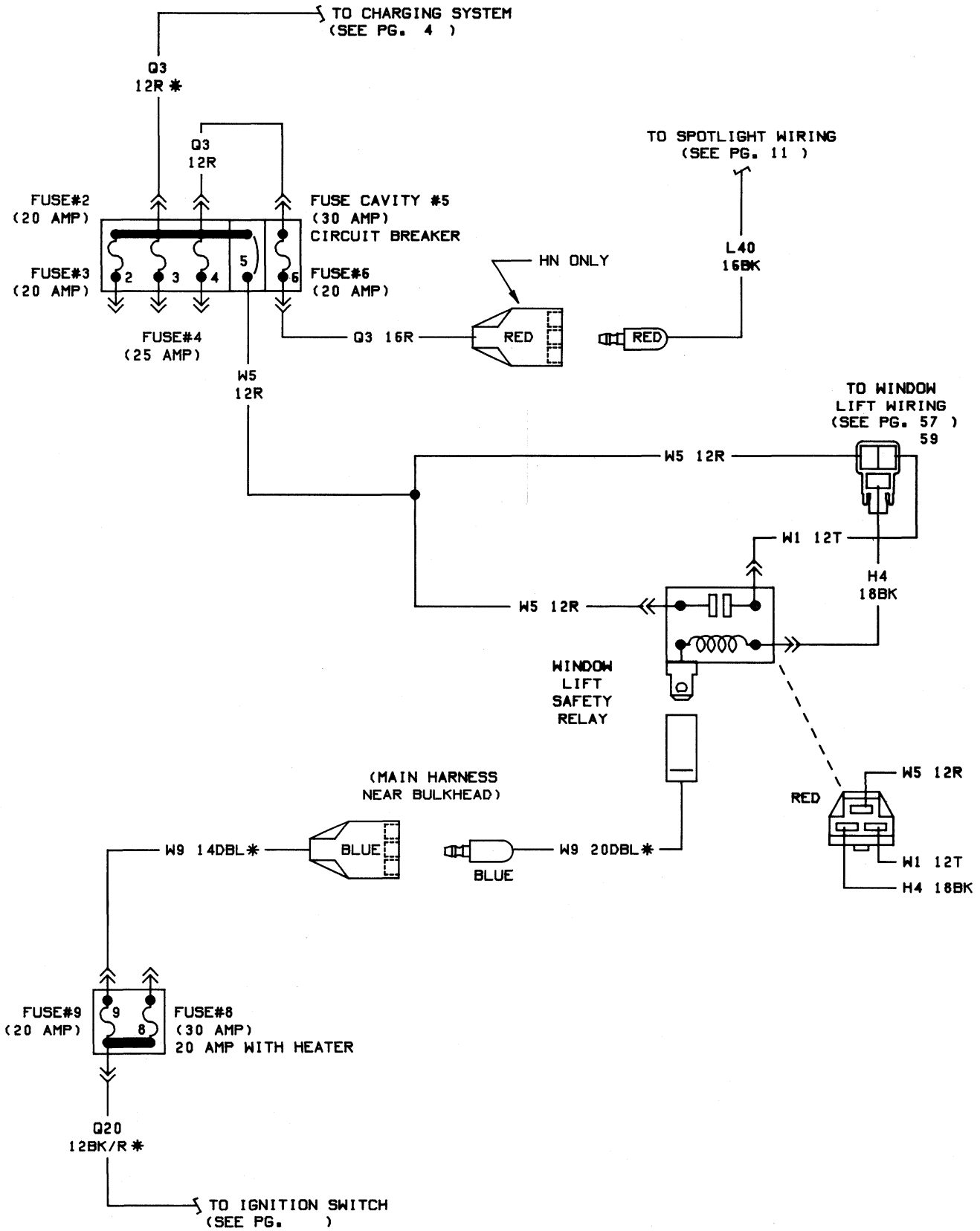


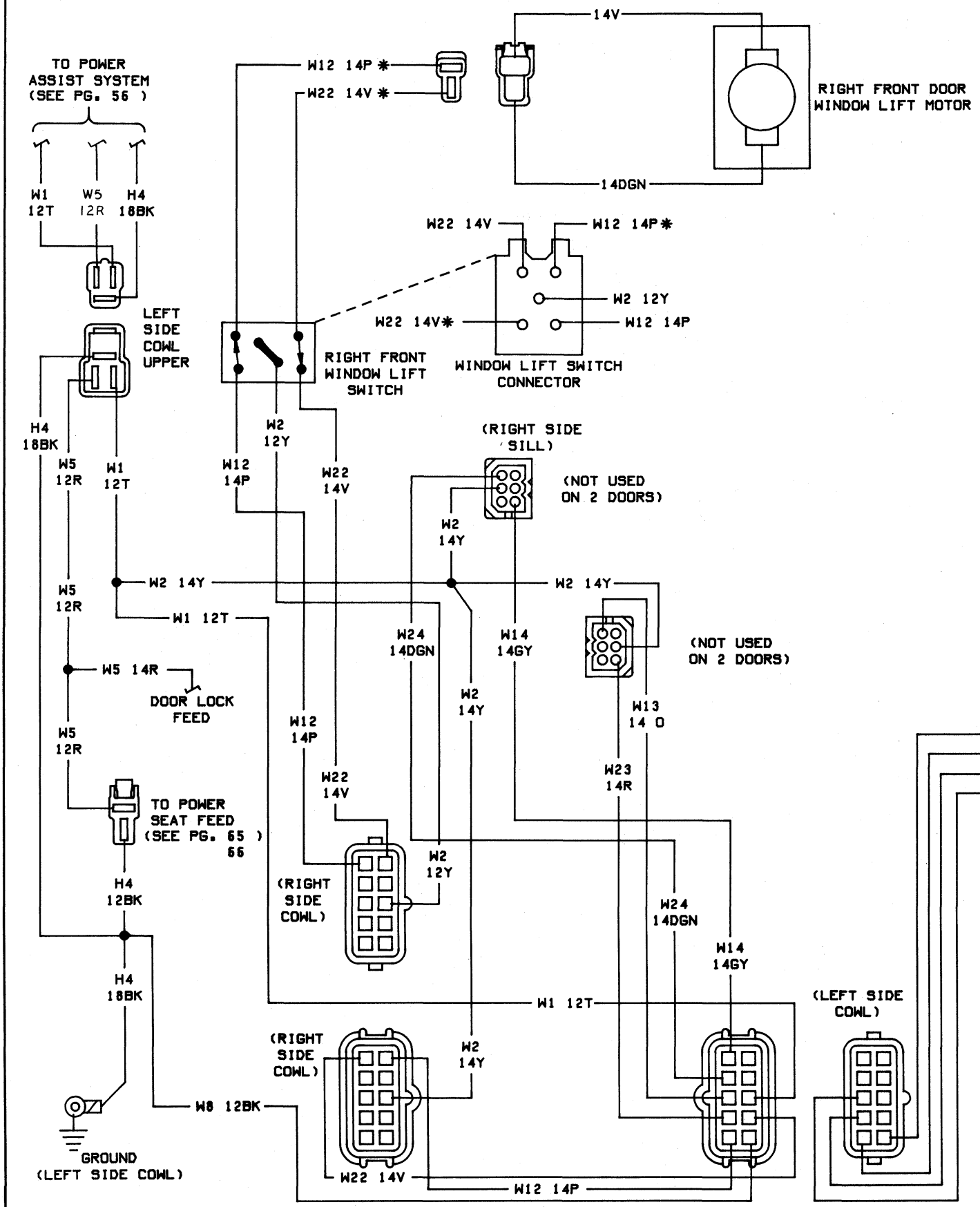
HNFG 53 ELECTRICALLY HEATED REAR WINDOW PR2


R6 12BK*
TO CHARGING SYSTEM (SEE PG. 4)
R6 12BK*
S.C.#28
R6 12BK*
L1 12BK*
TO HEADLAMP SWITCH (SEE PG. 12)
Q3 12R
HORN
HORN
HN DUAL HORN JUMPER
H2 18DGN
H2 16DGN/R*
H2 18DGN
HN WITH DUAL HORNS
H2 16DGN/R*
H2 16DGN/R*
H2 16DGN/R*
H2 16DGN/R*
FG DUAL HORNS-STANDARD
H2 16LGN/R*
FUSE#4 (25 AMP)
FUSE#2 (20 AMP)
FUSE#3 (20 AMP)
4
3
2
D3 18P
H1 16V
HN ONLY
(SEE PG. 25) 26
S.C.#33
H2 16DGN/R*
H1 16V
F.B.
HORN RELAY
H3 20BK/R*
H3 20BK*
S.C.#39
HORN SWITCH
18BK
WITH TILT COLUMN
H3 20BK*
(AT BASE OF STEERING COLUMN)
WITHOUT TILT COLUMN
18BK
HORN SWITCH



HNFG 55 LIFTGATE AJAR WARNING SYSTEM PR2

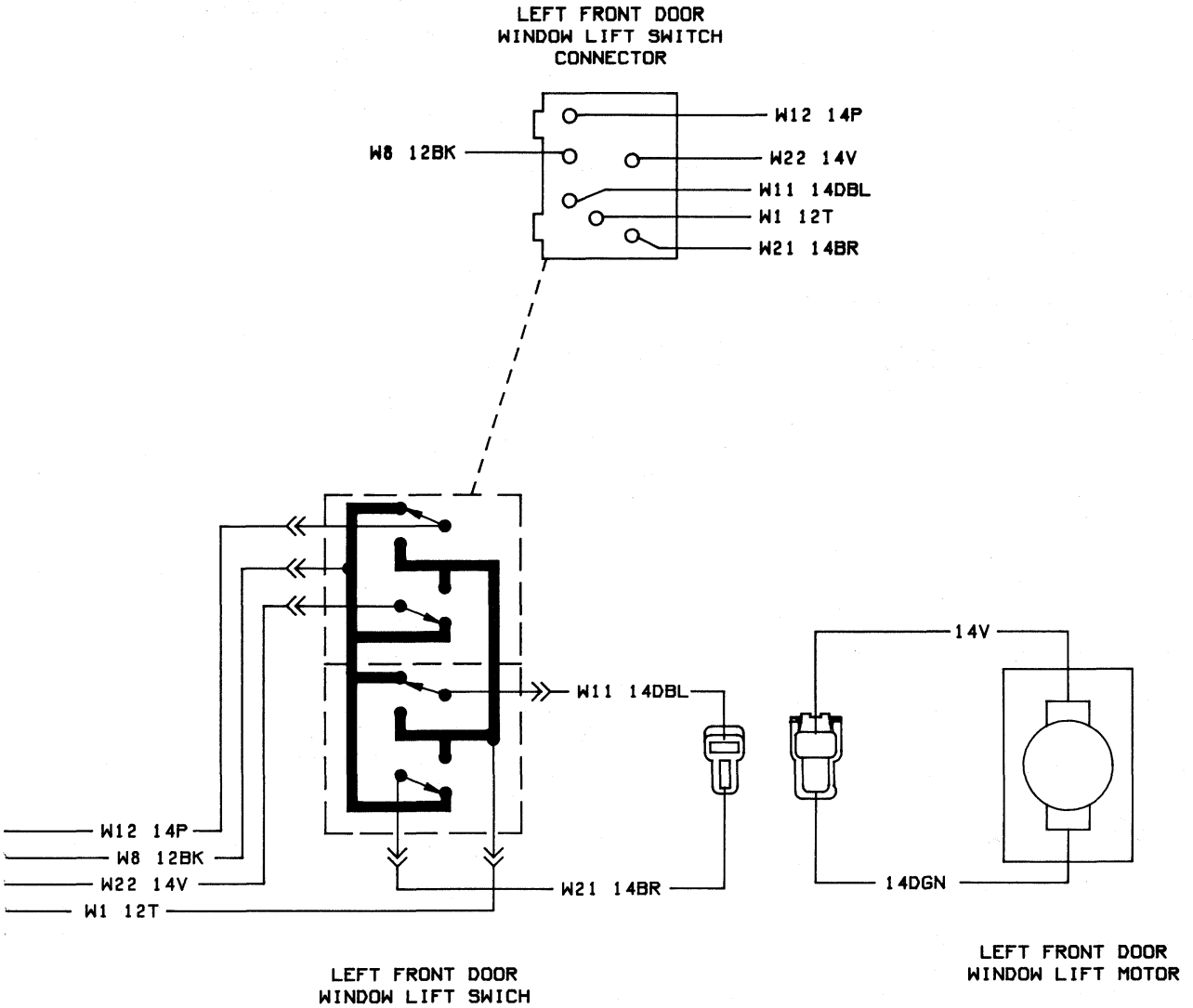

TO CHARGING SYSTEM
(SEE PG. 4)
Q3
12R *
Q3
12R
FUSE#2
(20 AMP)
FUSE#3
(20 AMP)
FUSE#4
(25 AMP)
FUSE CAVITY #5
(30 AMP)
CIRCUIT BREAKER
FUSE#6
(20 AMP)
2
3
4
5
6
TO SPOTLIGHT WIRING
(SEE PG. 11)
L40
16BK
HN ONLY
Q3 16R
RED
RED
W5
12R
TO WINDOW
LIFT WIRING
(SEE PG. 57)
59
W5 12R
W1 12T
H4
18BK
W5 12R
WINDOW
LIFT
SAFETY
RELAY
(MAIN HARNESS
NEAR BULKHEAD)
W5 12R
RED
W9 14DBL*
BLUE
BLUE
W9 20DBL*
W1 12T
H4 18BK
FUSE#9
(20 AMP)
9
8
FUSE#8
(30 AMP)
20 AMP WITH HEATER
Q20
12BK/R *
TO IGNITION SWITCH
(SEE PG.)

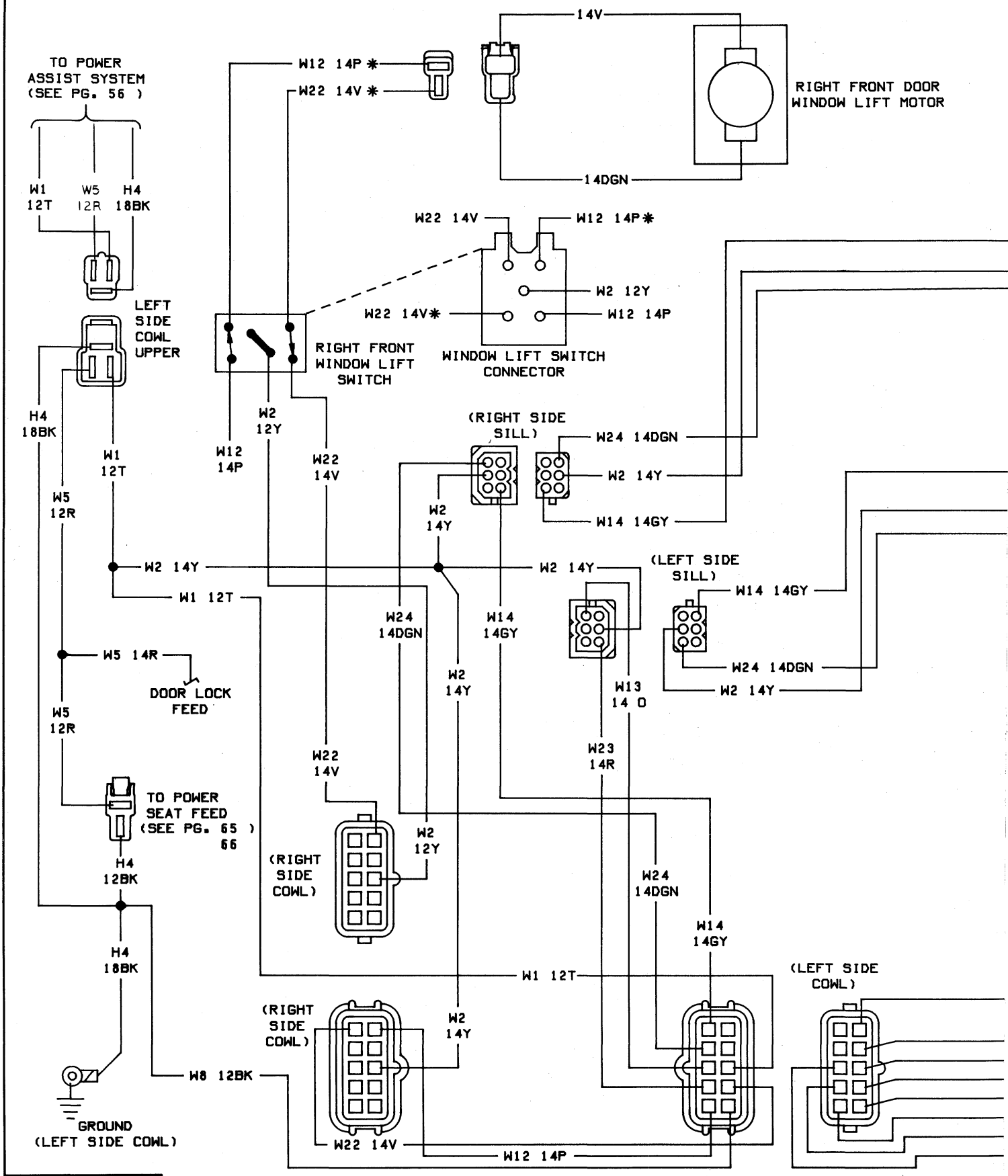


HNFG 57

2 WINDOW - WINDOW LIFT SYSTEM

PR2

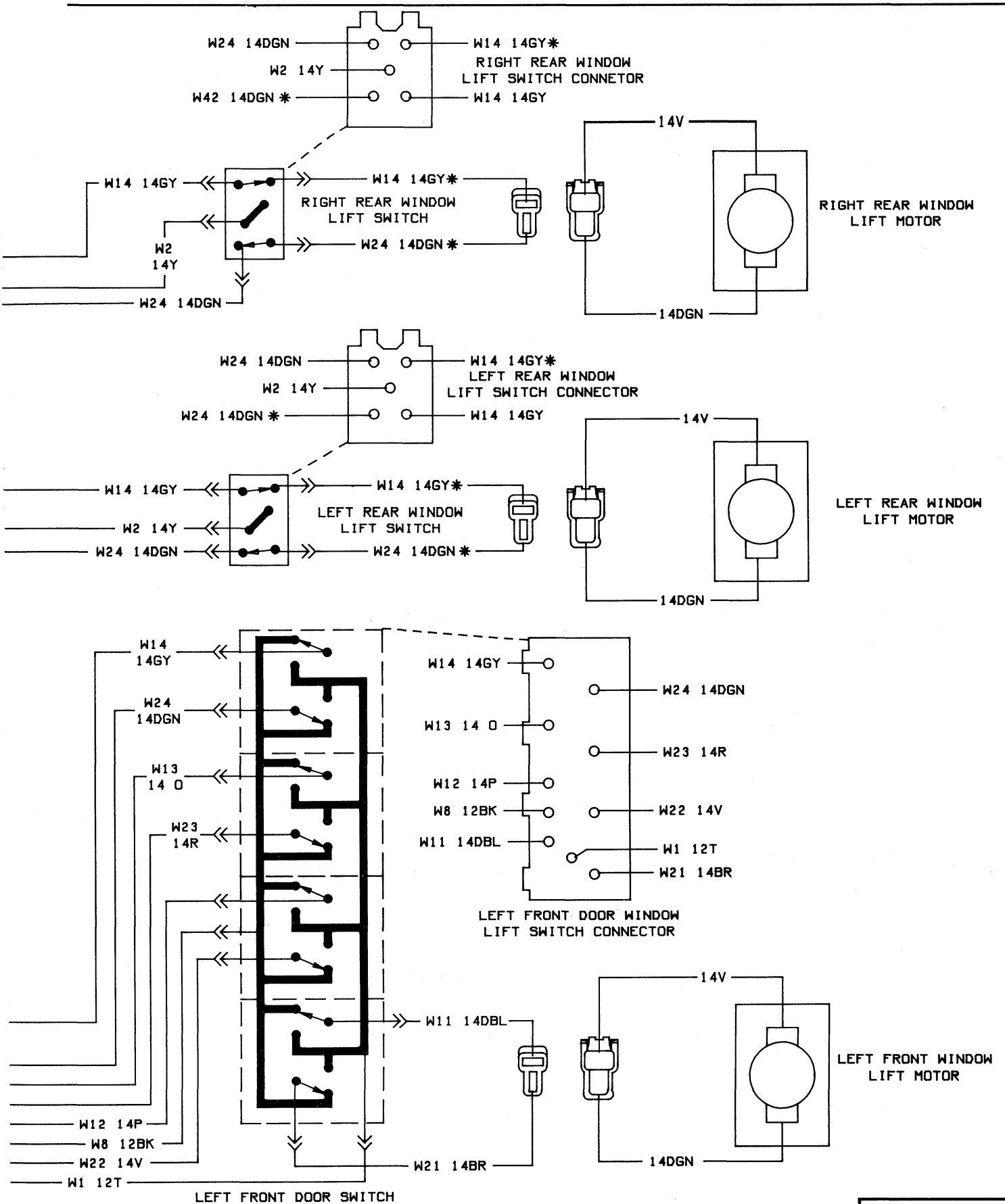

LEFT FRONT DOOR
WINDOW LIFT SWITCH
CONNECTOR
W12 14P
W8 12BK
W22 14V
W11 14DBL
W1 12T
W21 14BR
W11 14DBL
W12 14P
W8 12BK
W22 14V
W1 12T
W21 14BR
14V
14DGN
LEFT FRONT DOOR
WINDOW LIFT SWICH
LEFT FRONT DOOR
WINDOW LIFT MOTOR



HNFG 59

4 WINDOW-WINDOW LIFT SYSTEM

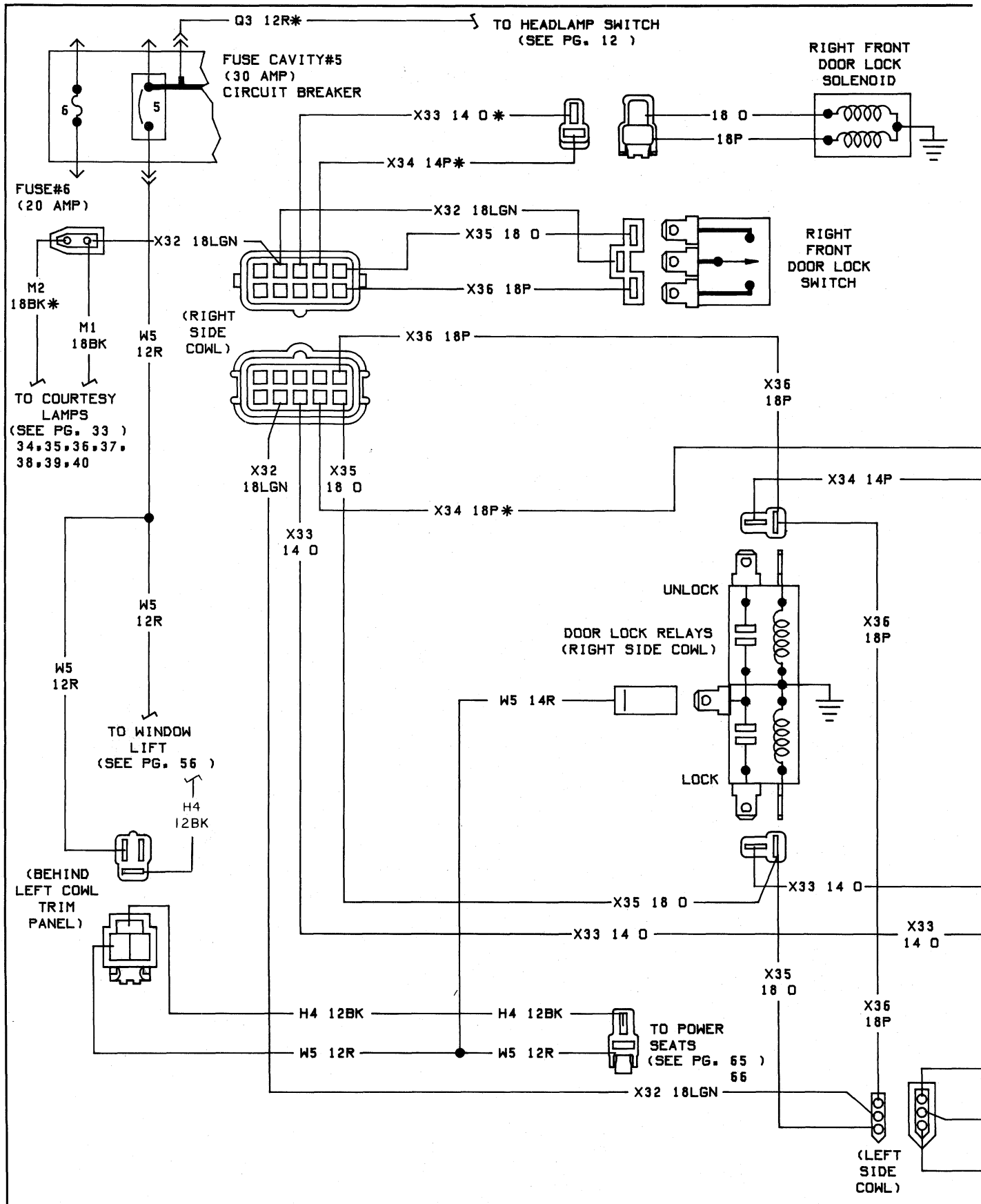
PR2



PR2

4 WINDOW-WINDOW LIFT SYSTEM

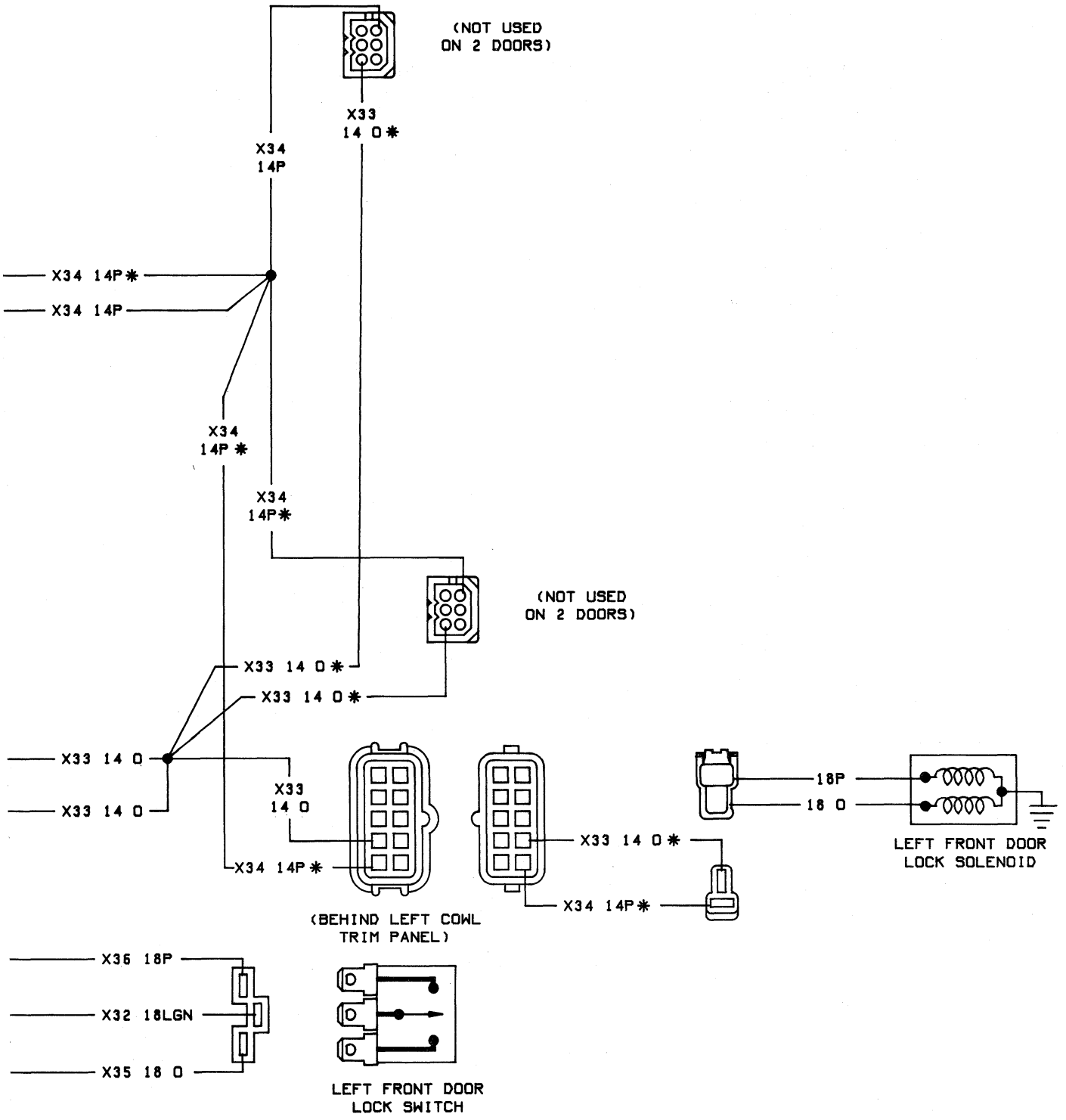
HNFG 60



HNFG 61

2 DOOR - DOOR LOCK SYSTEM

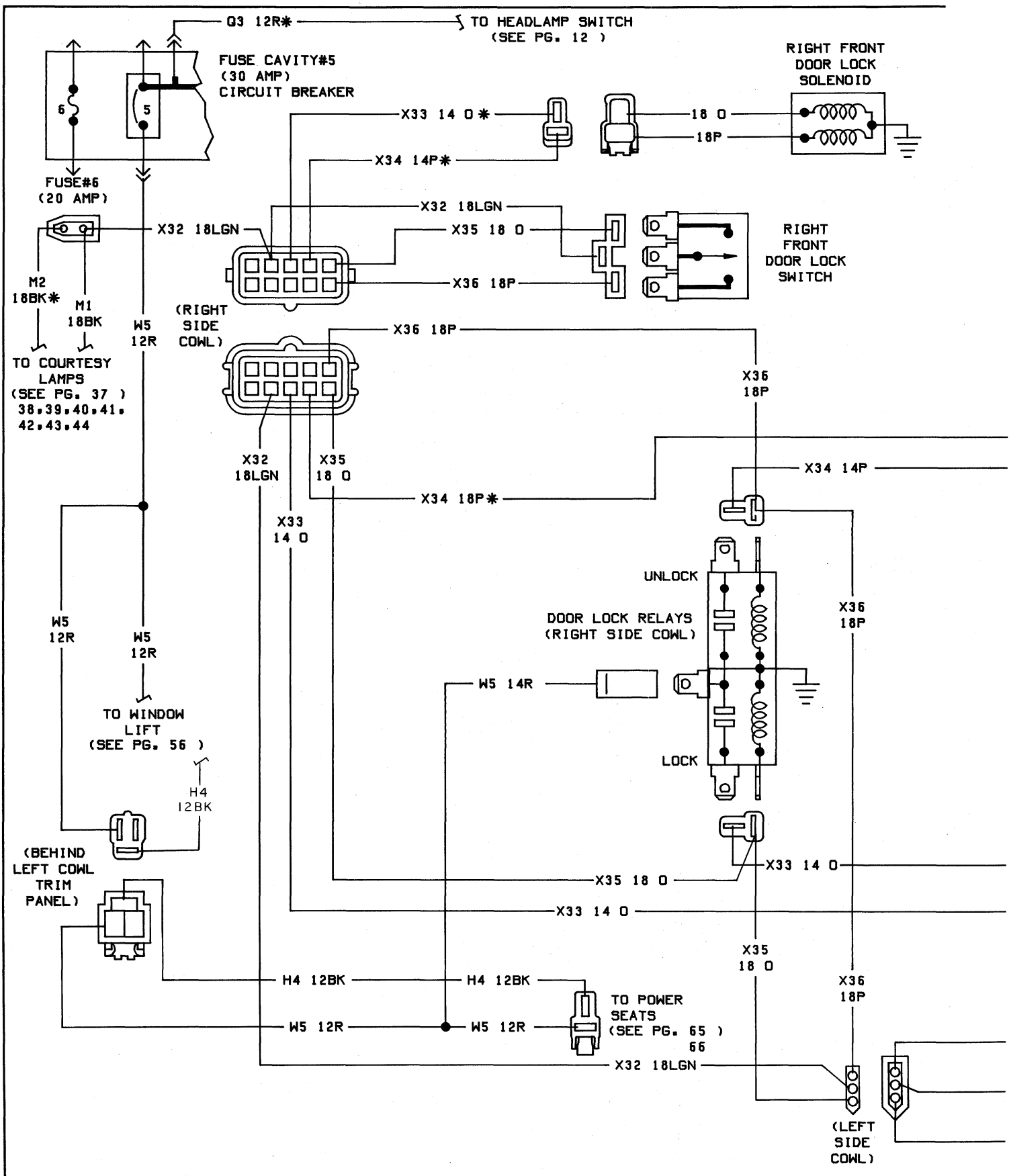
PR2



PR2

2 DOOR - DOOR LOCK SYSTEM

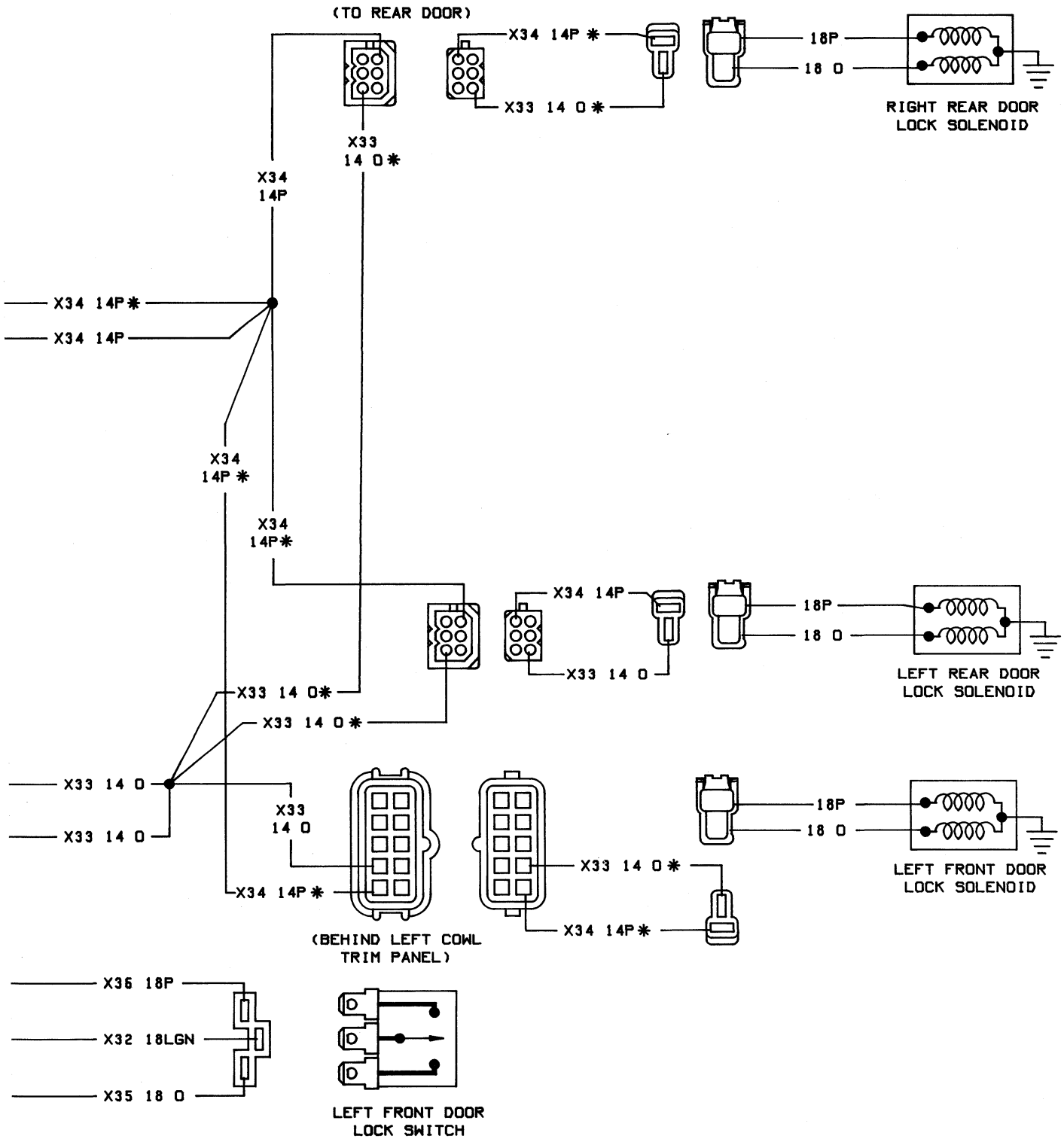
HNFG 62



HNFG 63

4 DOOR-DOOR LOCK SYSTEM

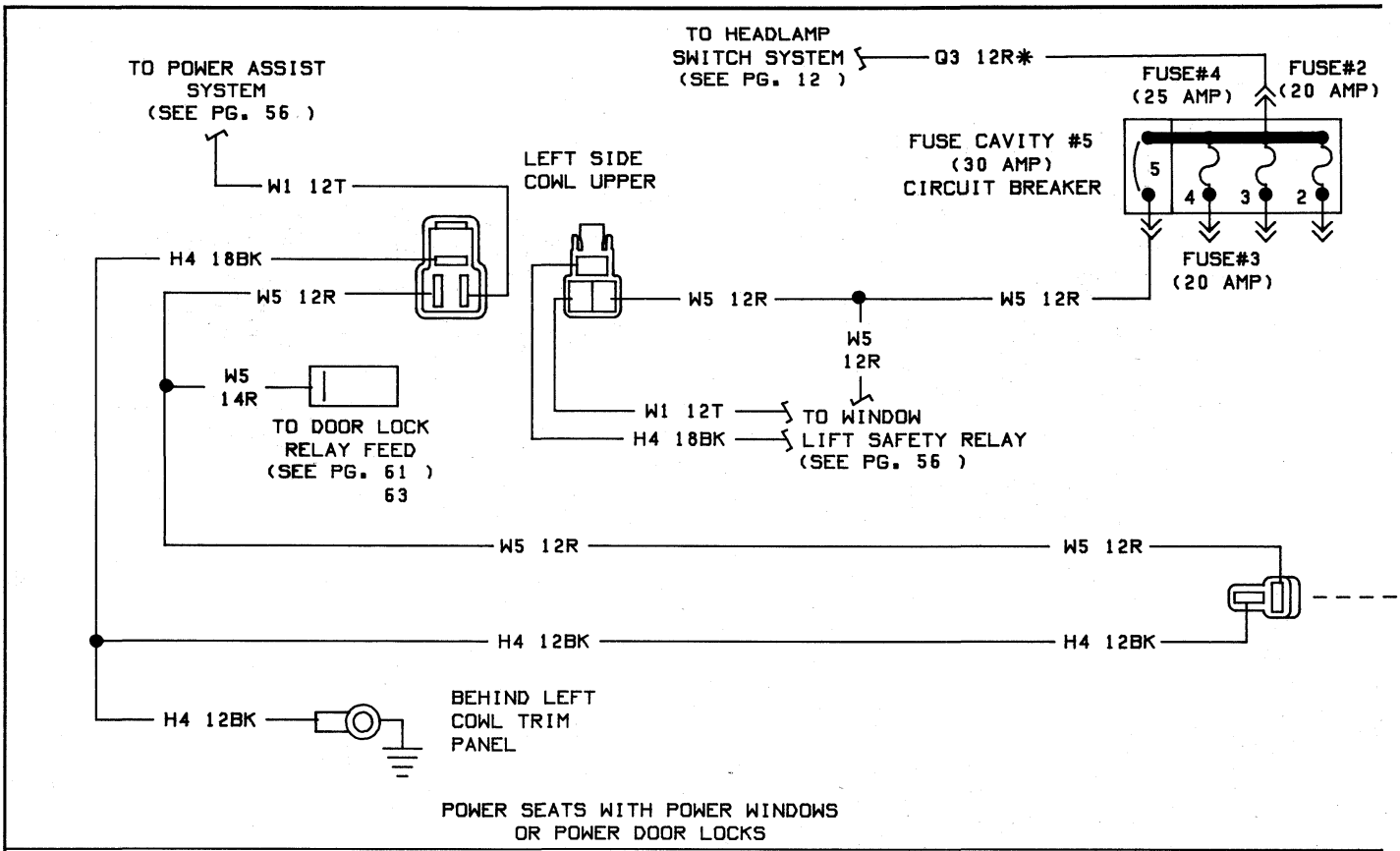
PR2



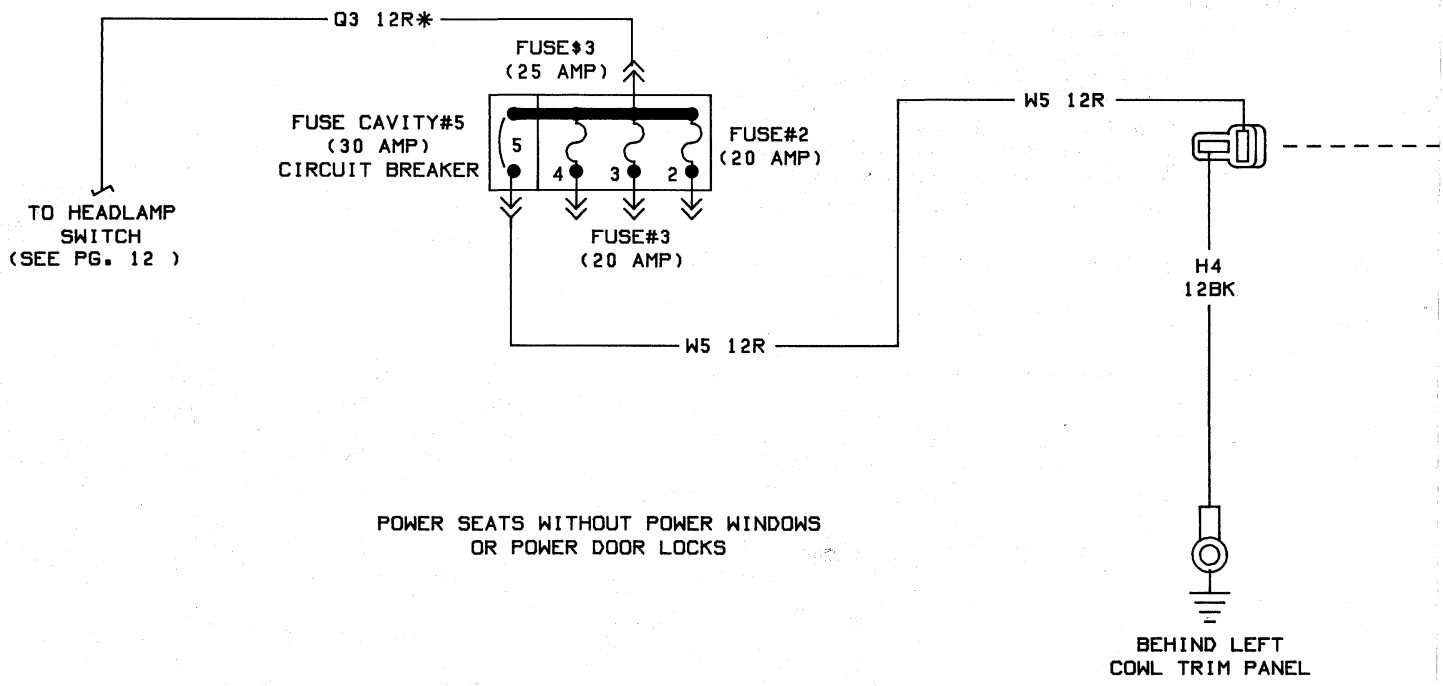
PR2

4 DOOR-DOOR LOCK SYSTEM

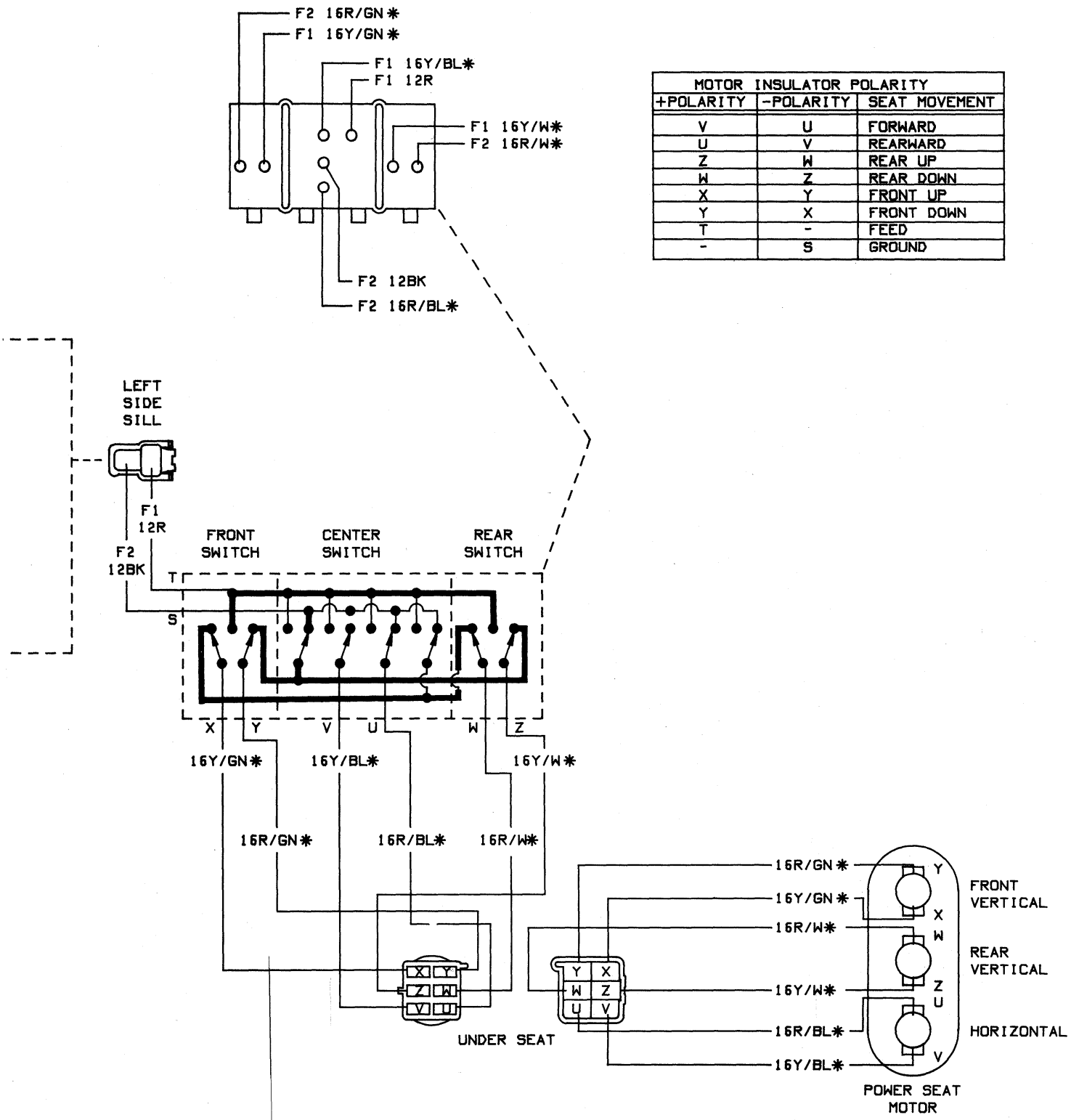
HNFG 64



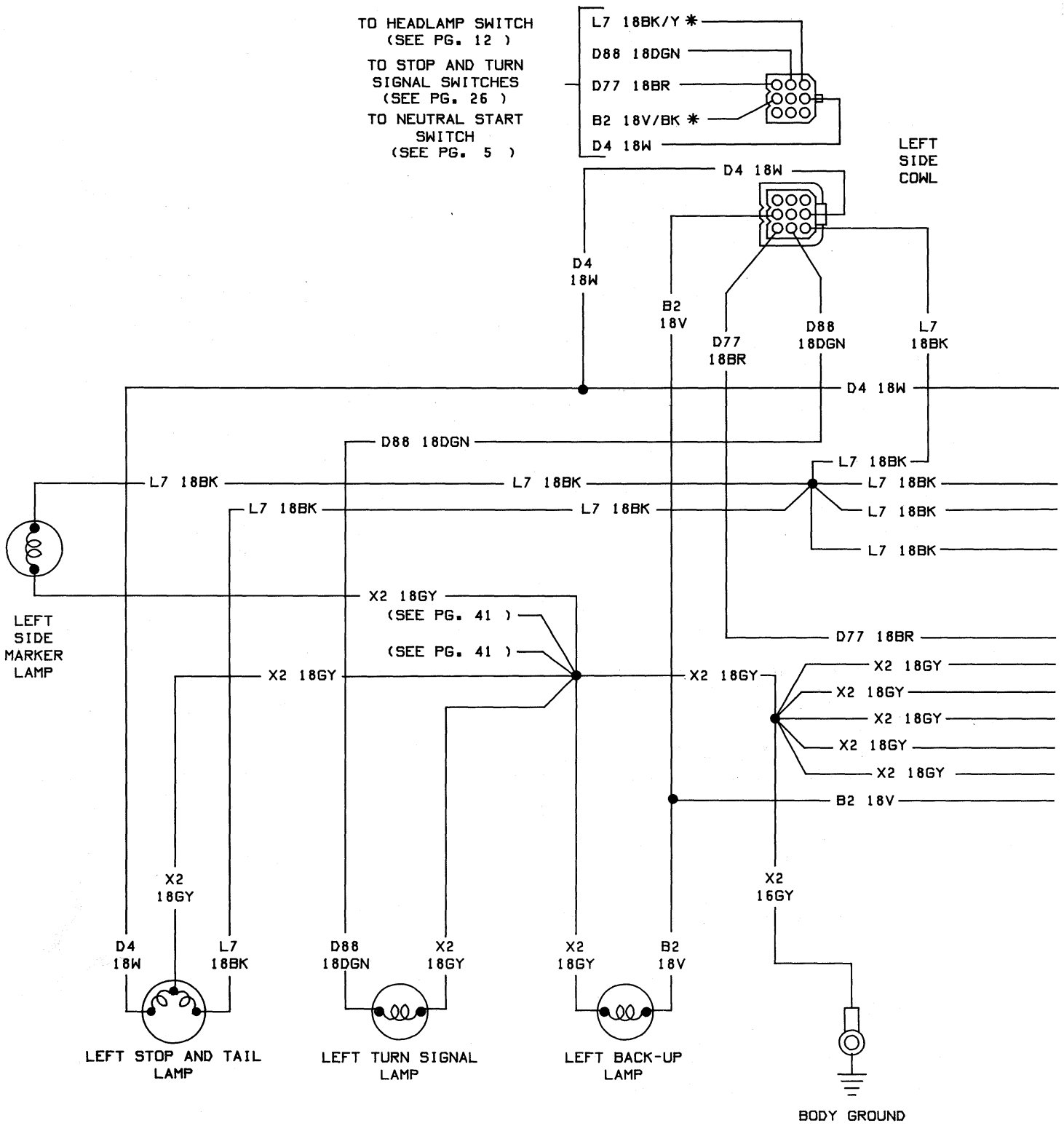
POWER SEATS WITH POWER WINDOWS OR POWER DOOR LOCKS

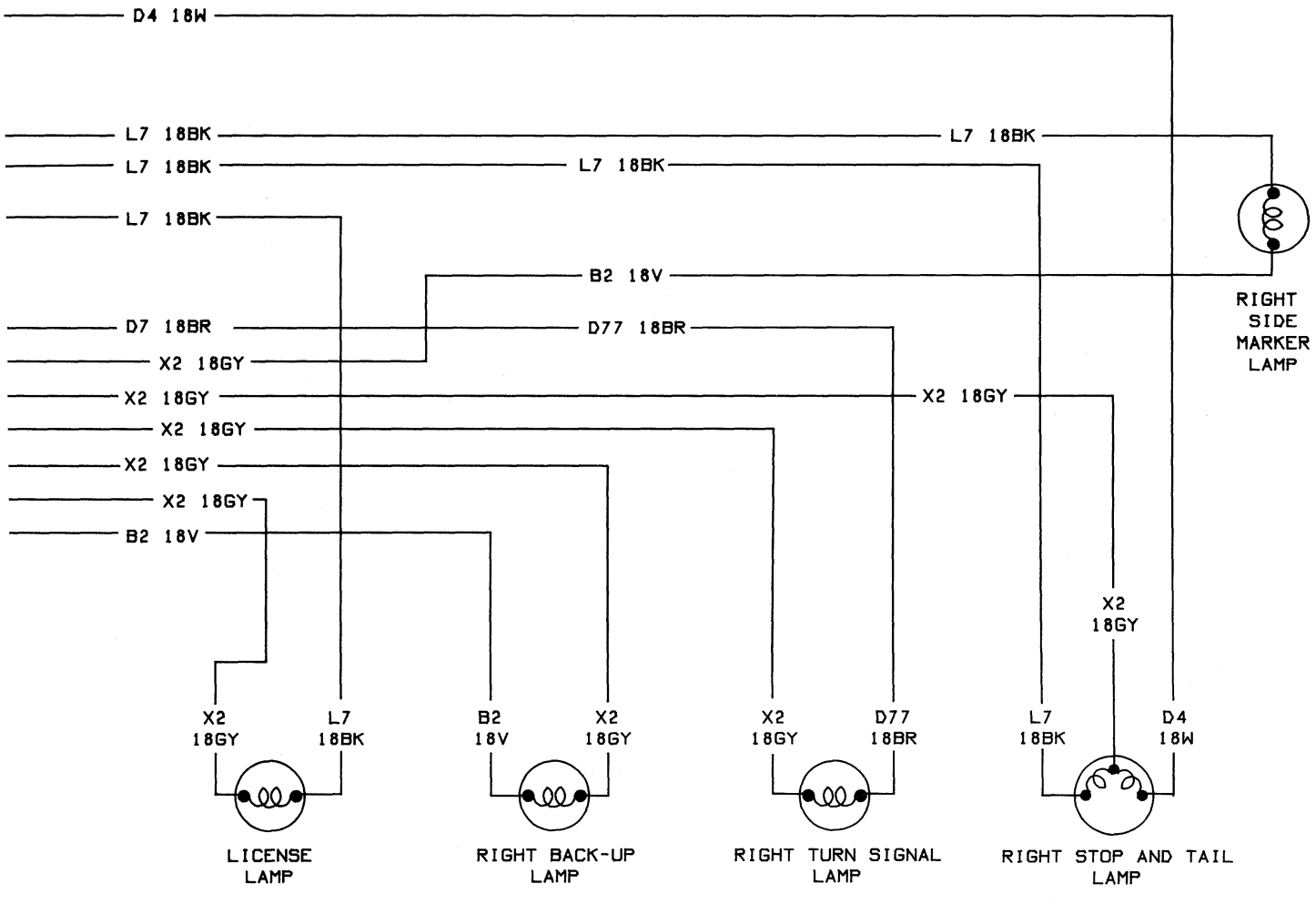


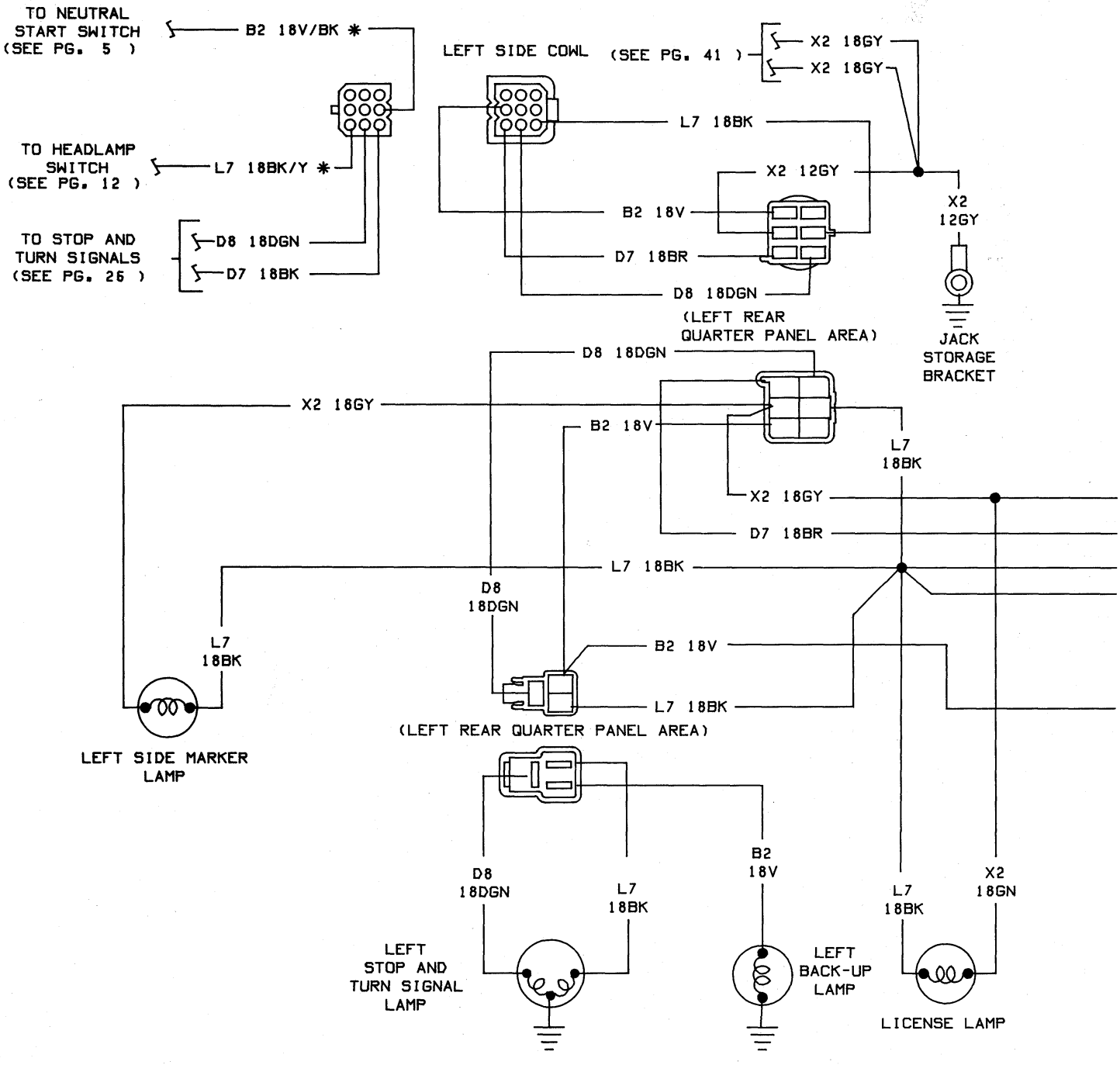
POWER SEATS WITHOUT POWER WINDOWS OR POWER DOOR LOCKS

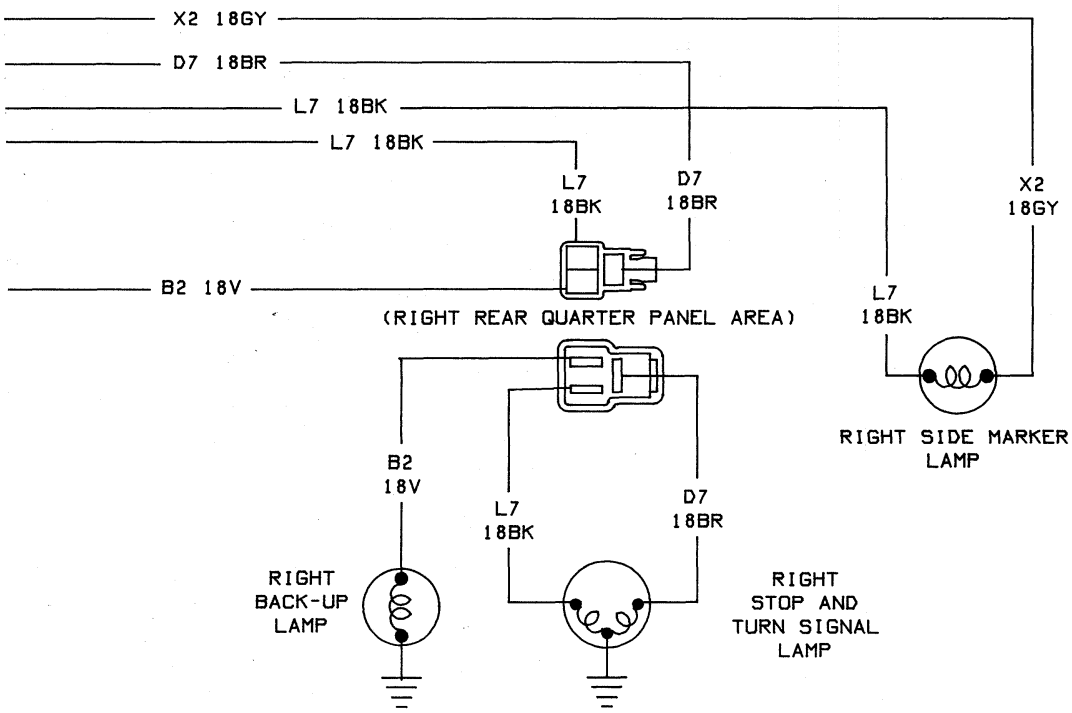


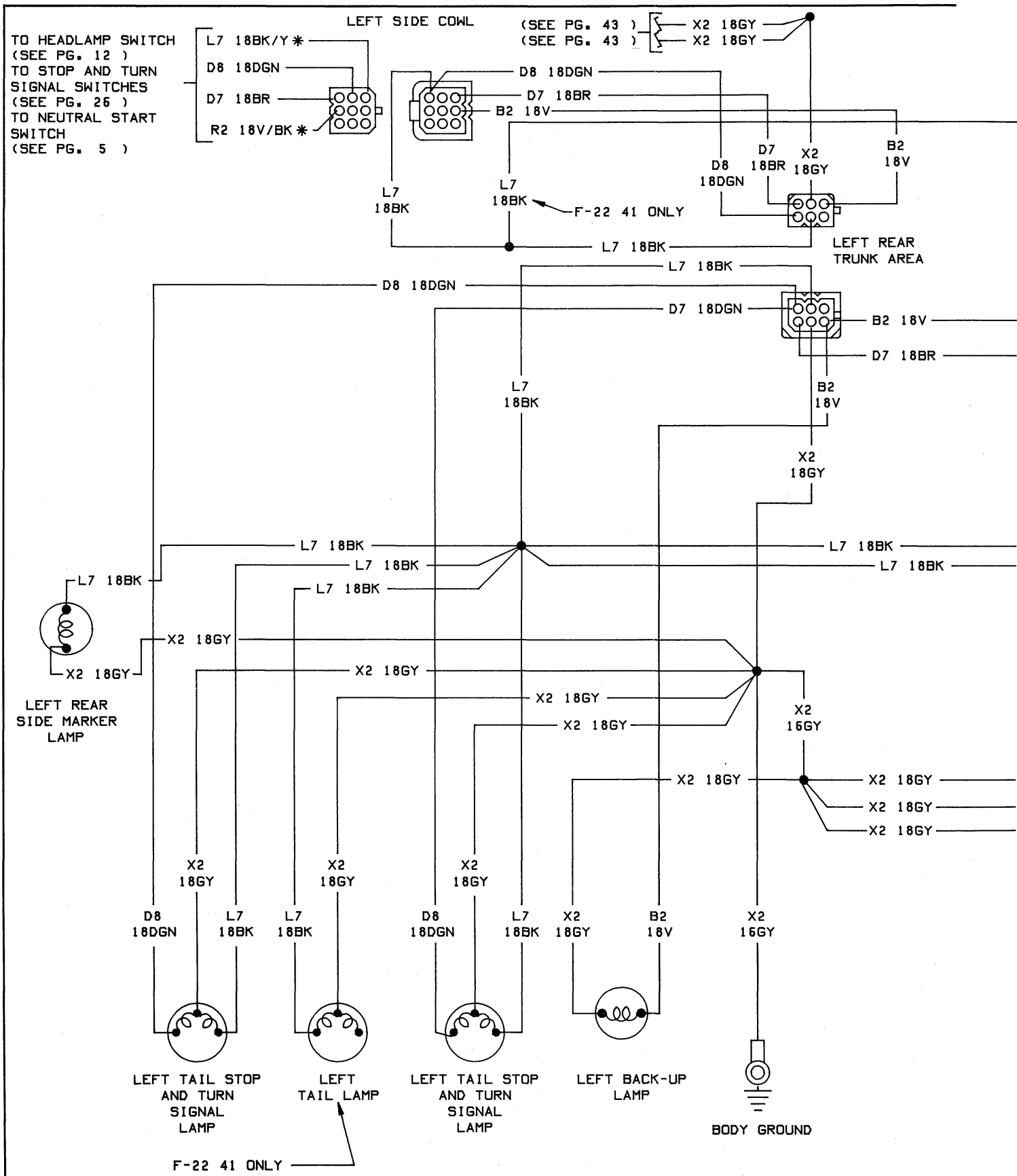
MOTOR INSULATOR POLARITY		
+POLARITY	-POLARITY	SEAT MOVEMENT
V	U	FORWARD
U	V	REARWARD
Z	W	REAR UP
W	Z	REAR DOWN
X	Y	FRONT UP
Y	X	FRONT DOWN
T	-	FEED
-	S	GROUND


TO HEADLAMP SWITCH (SEE PG. 12)
TO STOP AND TURN SIGNAL SWITCHES (SEE PG. 26)
TO NEUTRAL START SWITCH (SEE PG. 5)
L7 18BK/Y *
D88 18DGN
D77 18BR
B2 18V/BK *
D4 18W
LEFT SIDE COWL
D4 18W
B2 18V
D77 18BR
D88 18DGN
L7 18BK
D4 18W
D88 18DGN
L7 18BK
L7 18BK
L7 18BK
L7 18BK
L7 18BK
L7 18BK
L7 18BK
L7 18BK
X2 18GY
(SEE PG. 41)
(SEE PG. 41)
D77 18BR
X2 18GY
X2 18GY
X2 18GY
X2 18GY
X2 18GY
X2 18GY
X2 18GY
X2 18GY
B2 18V
LEFT SIDE MARKER LAMP
D4 18W
L7 18BK
D88 18DGN
X2 18GY
X2 18GY
B2 18V
X2 16GY
LEFT STOP AND TAIL LAMP
LEFT TURN SIGNAL LAMP
LEFT BACK-UP LAMP
BODY GROUND

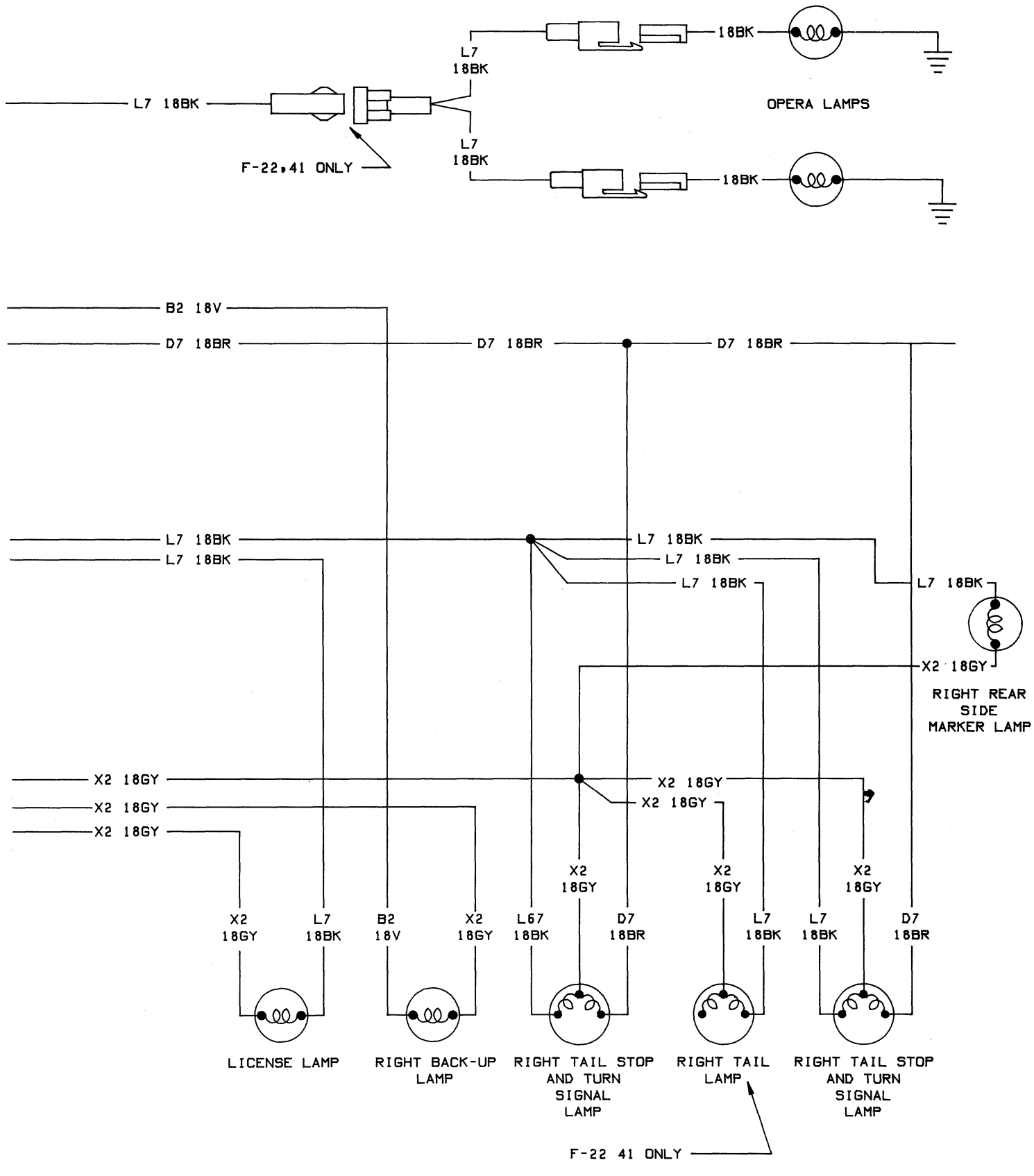

D4 18W
L7 18BK
L7 18BK
L7 18BK
L7 18BK
L7 18BK
B2 18V
D7 18BR
D77 18BR
X2 18GY
X2 18GY
X2 18GY
X2 18GY
X2 18GY
X2 18GY
B2 18V
RIGHT SIDE MARKER LAMP
X2 18GY
X2 18GY
L7 18BK
B2 18V
X2 18GY
X2 18GY
D77 18BR
L7 18BK
D4 18W
LICENSE LAMP
RIGHT BACK-UP LAMP
RIGHT TURN SIGNAL LAMP
RIGHT STOP AND TAIL LAMP


TO NEUTRAL START SWITCH (SEE PG. 5)
B2 18V/BK *
TO HEADLAMP SWITCH (SEE PG. 12)
L7 18BK/Y *
TO STOP AND TURN SIGNALS (SEE PG. 26)
D8 18DGN
D7 18BK
LEFT SIDE COWL
(SEE PG. 41)
X2 18GY
X2 18GY
L7 18BK
X2 12GY
B2 18V
D7 18BR
D8 18DGN
X2 12GY
JACK STORAGE BRACKET
(LEFT REAR QUARTER PANEL AREA)
D8 18DGN
X2 18GY
B2 18V
L7 18BK
X2 18GY
D7 18BR
L7 18BK
D8 18DGN
L7 18BK
B2 18V
L7 18BK
(LEFT REAR QUARTER PANEL AREA)
LEFT SIDE MARKER LAMP
D8 18DGN
L7 18BK
B2 18V
L7 18BK
X2 18GN
LEFT STOP AND TURN SIGNAL LAMP
LEFT BACK-UP LAMP
LICENSE LAMP


X2 18GY
D7 18BR
L7 18BK
L7 18BK
L7
18BK
D7
18BR
X2
18GY
B2 18V
(RIGHT REAR QUARTER PANEL AREA)
L7
18BK
RIGHT SIDE MARKER
LAMP
B2
18V
L7
18BK
D7
18BR
RIGHT
BACK-UP
LAMP
RIGHT
STOP AND
TURN SIGNAL
LAMP



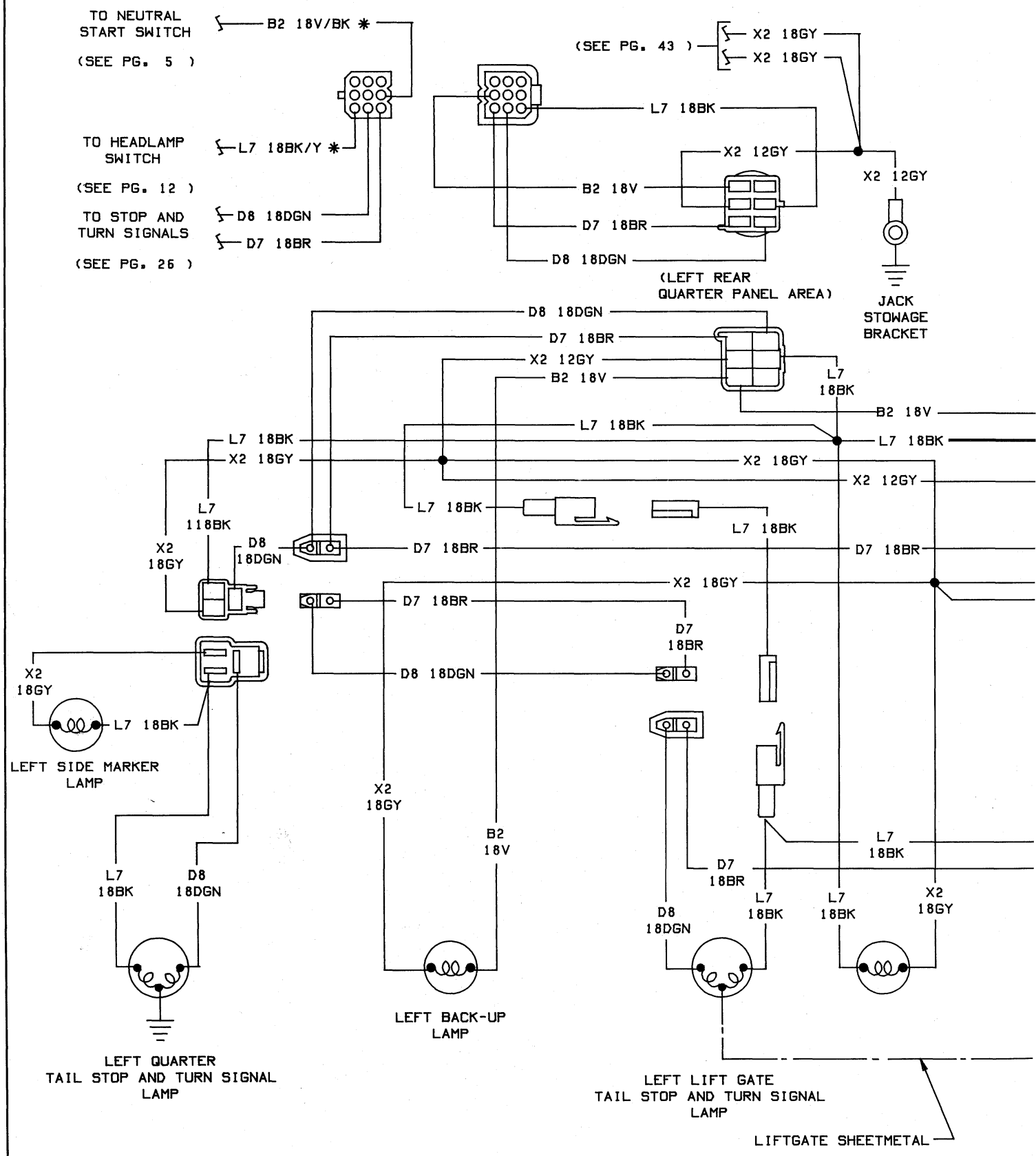
HNFG 71 FG 22,41 REAR LIGHTING PR2



PR2

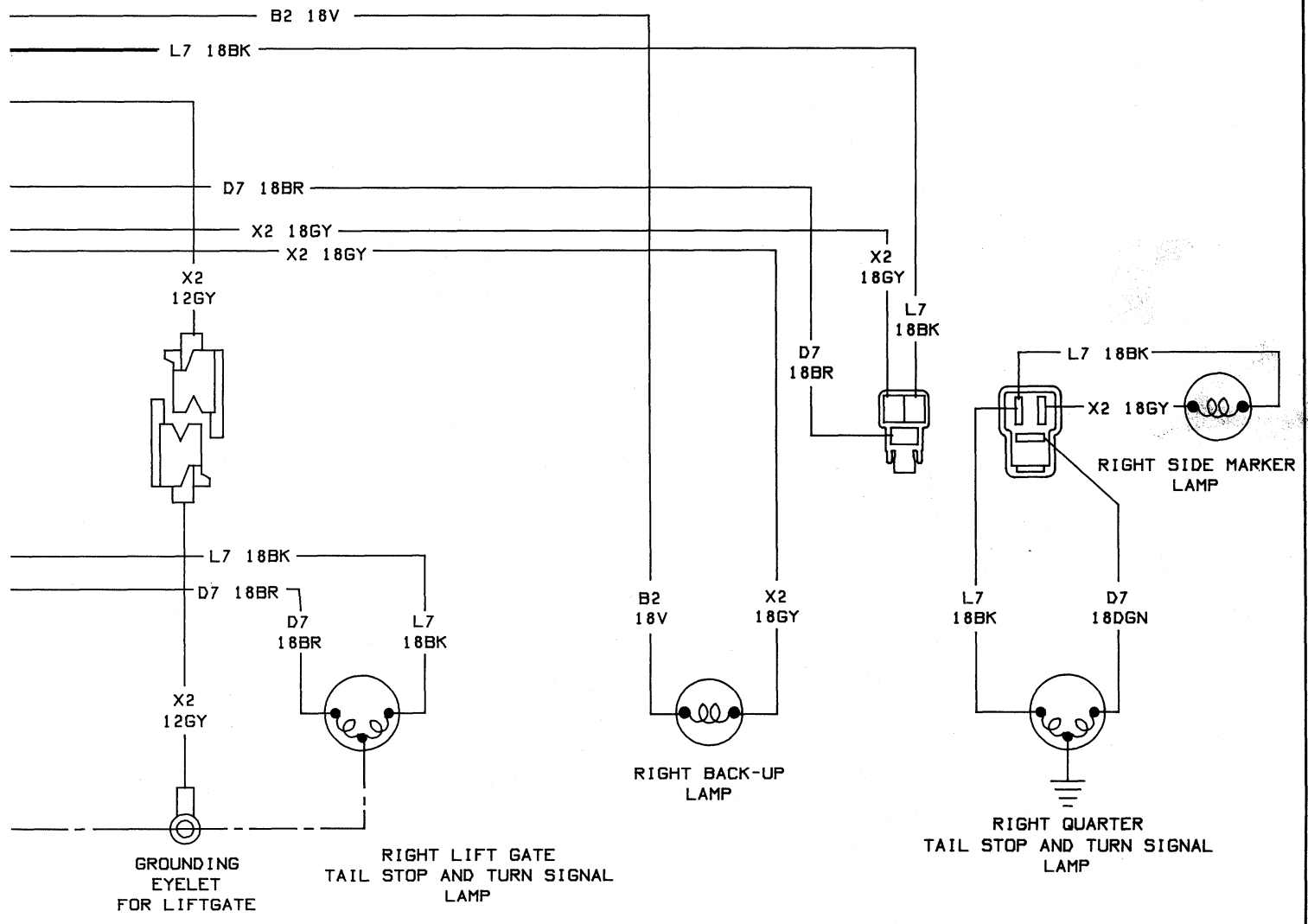
FG 22,41 REAR LIGHTING

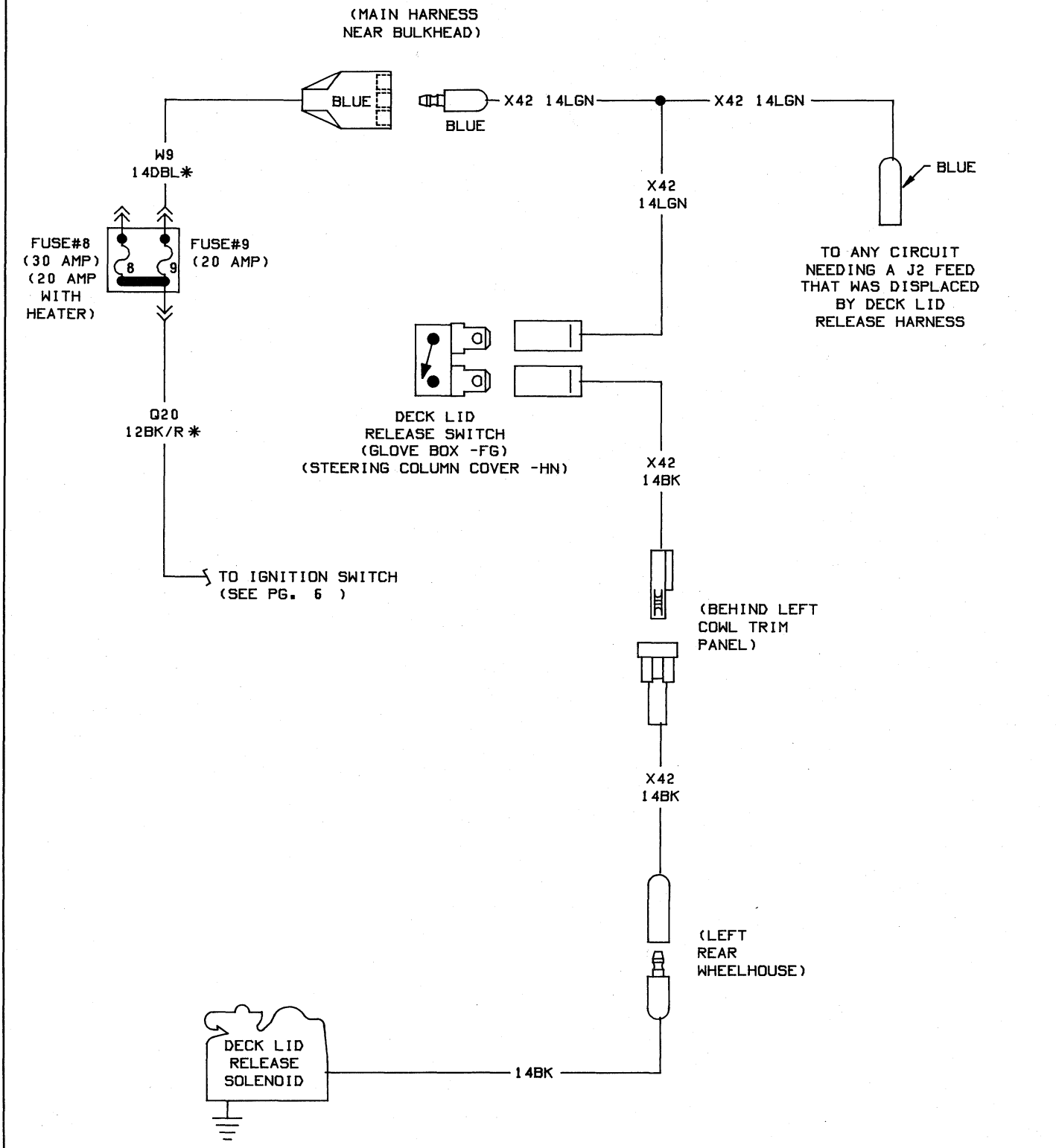
HNFG 72


TO NEUTRAL START SWITCH
(SEE PG. 5)
B2 18V/BK *
TO HEADLAMP SWITCH
(SEE PG. 12)
L7 18BK/Y *
TO STOP AND TURN SIGNALS
(SEE PG. 26)
D8 18DGN
D7 18BR
(SEE PG. 43)
X2 18GY
X2 18GY
L7 18BK
X2 12GY
B2 18V
D7 18BR
D8 18DGN
X2 12GY
(LEFT REAR QUARTER PANEL AREA)
JACK STOWAGE BRACKET
D8 18DGN
D7 18BR
X2 12GY
B2 18V
L7 18BK
B2 18V
L7 18BK
L7 18BK
L7 18BK
X2 18GY
X2 18GY
X2 12GY
L7 18BK
L7 18BK
L7 118BK
X2 18GY
D8 18DGN
D7 18BR
D7 18BR
X2 18GY
D7 18BR
D7 18BR
D8 18DGN
X2 18GY
L7 18BK
LEFT SIDE MARKER LAMP
X2 18GY
B2 18V
L7 18BK
D8 18DGN
LEFT BACK-UP LAMP
L7 18BK
D7 18BR
D8 18DGN
L7 18BK
L7 18BK
X2 18GY
LEFT QUARTER TAIL STOP AND TURN SIGNAL LAMP
LEFT LIFT GATE TAIL STOP AND TURN SIGNAL LAMP
LIFTGATE SHEETMETAL

NOTICE

ELECTRICAL ITEMS IN LIFT GATE
ARE GROUNDED TO LIFT GATE.
LIFT GATE IS GROUNDED TO BODY
VIA GROUND WIRE FROM A U-NUT
AND SCREW IN CENTER OF LIFT GATE
AND GROUNDED AT THE JACK STOWAGE
BRACKET INSIDE BODY AT REAR OF CAR

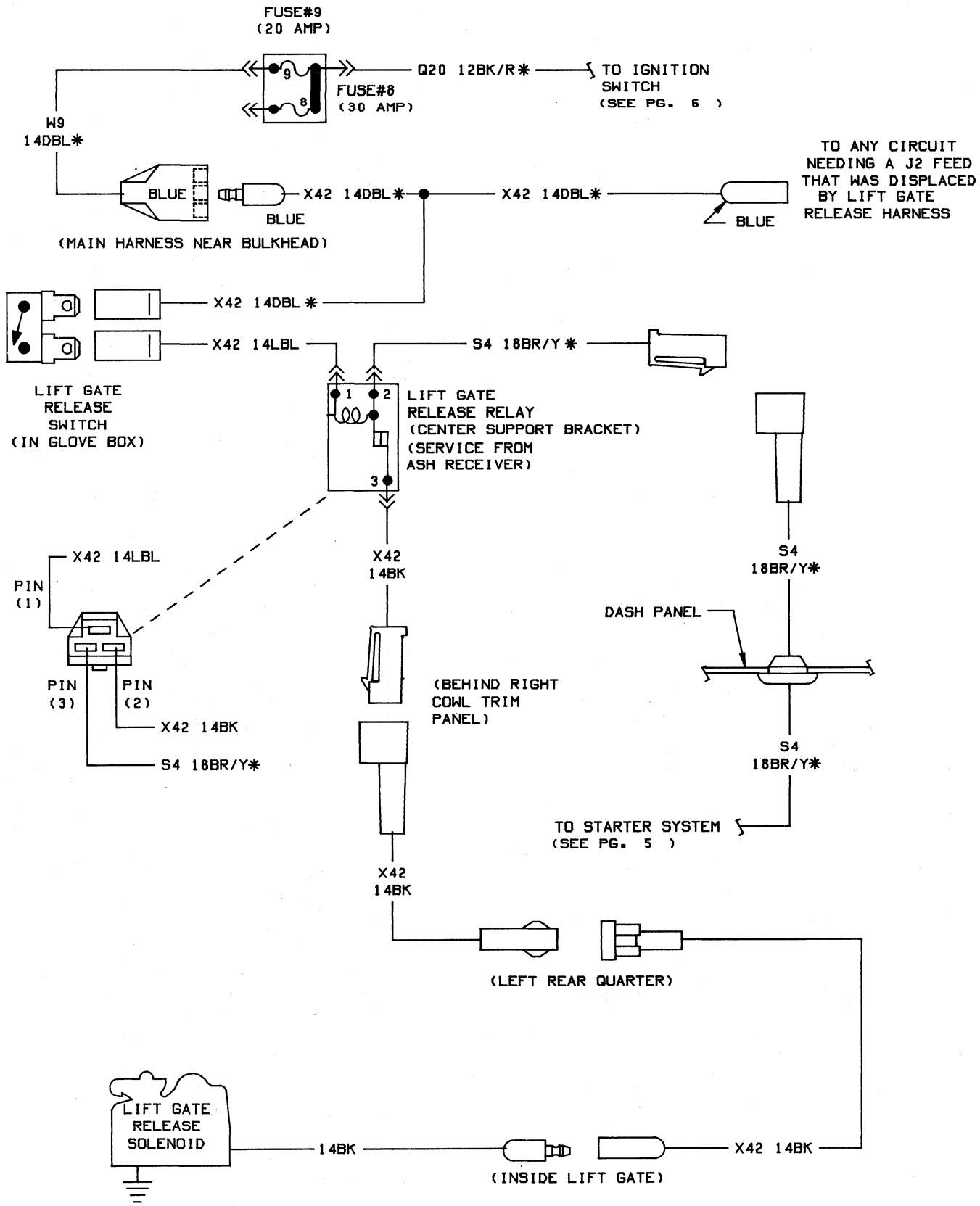




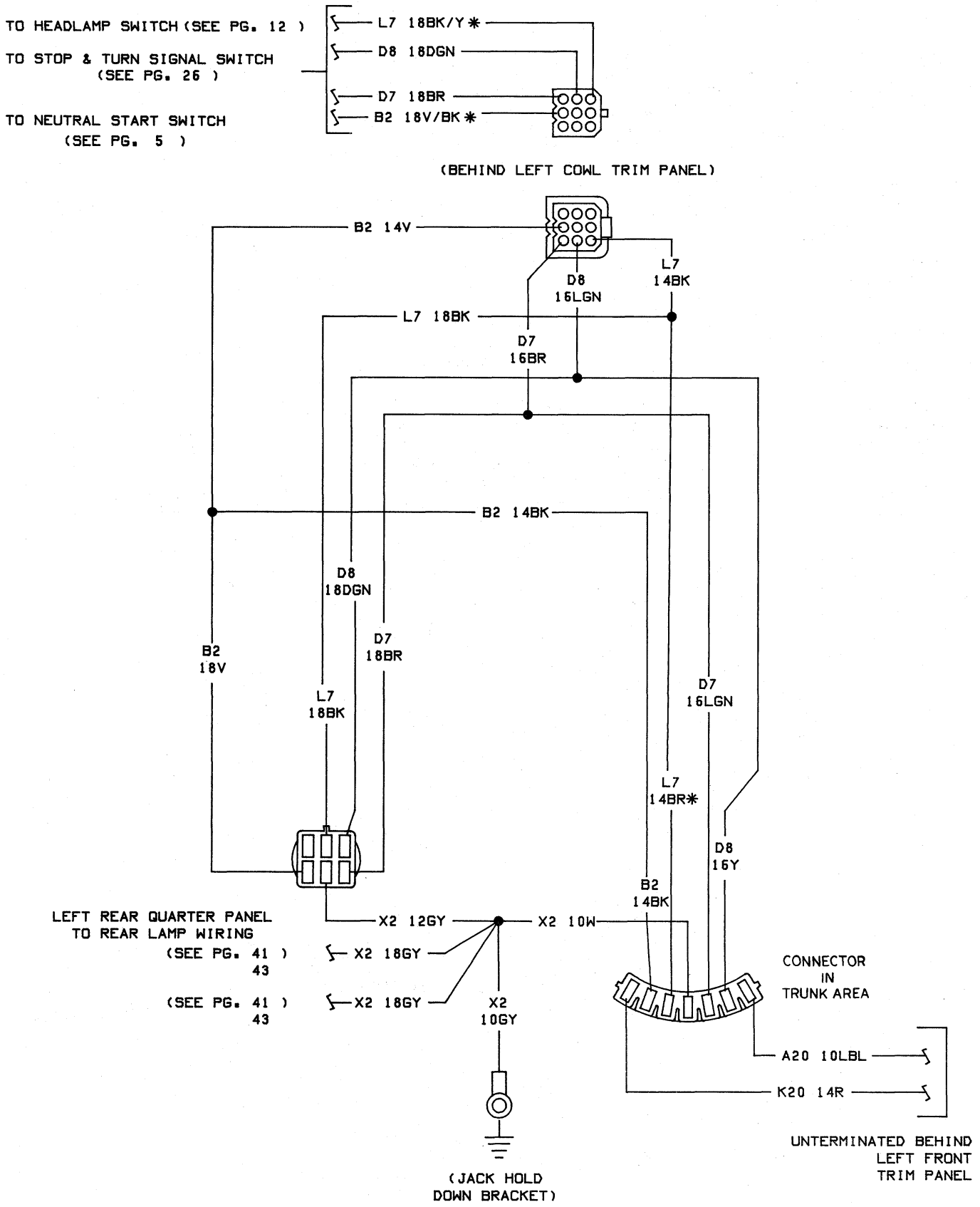
HNFG 75

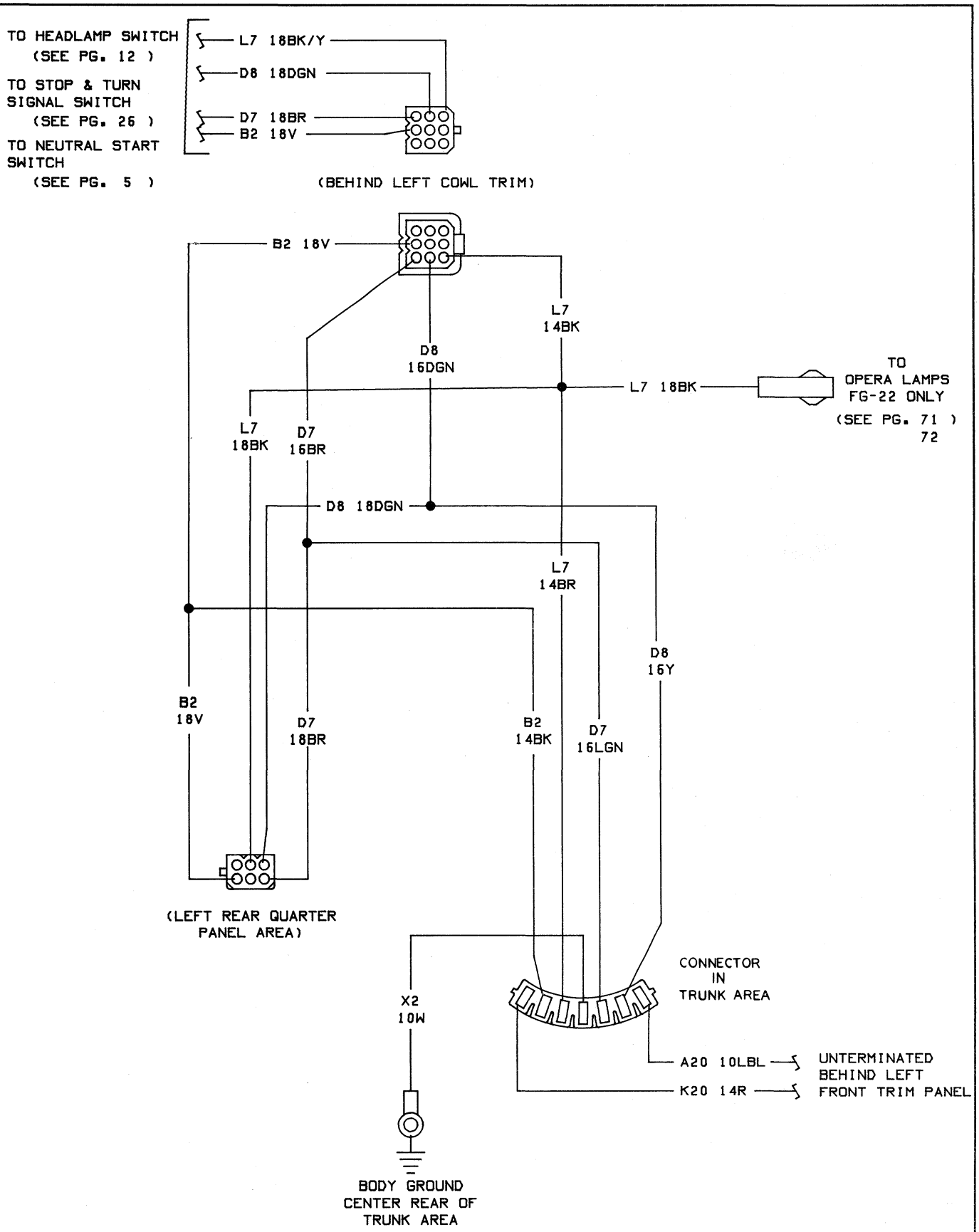
DECK LID RELEASE

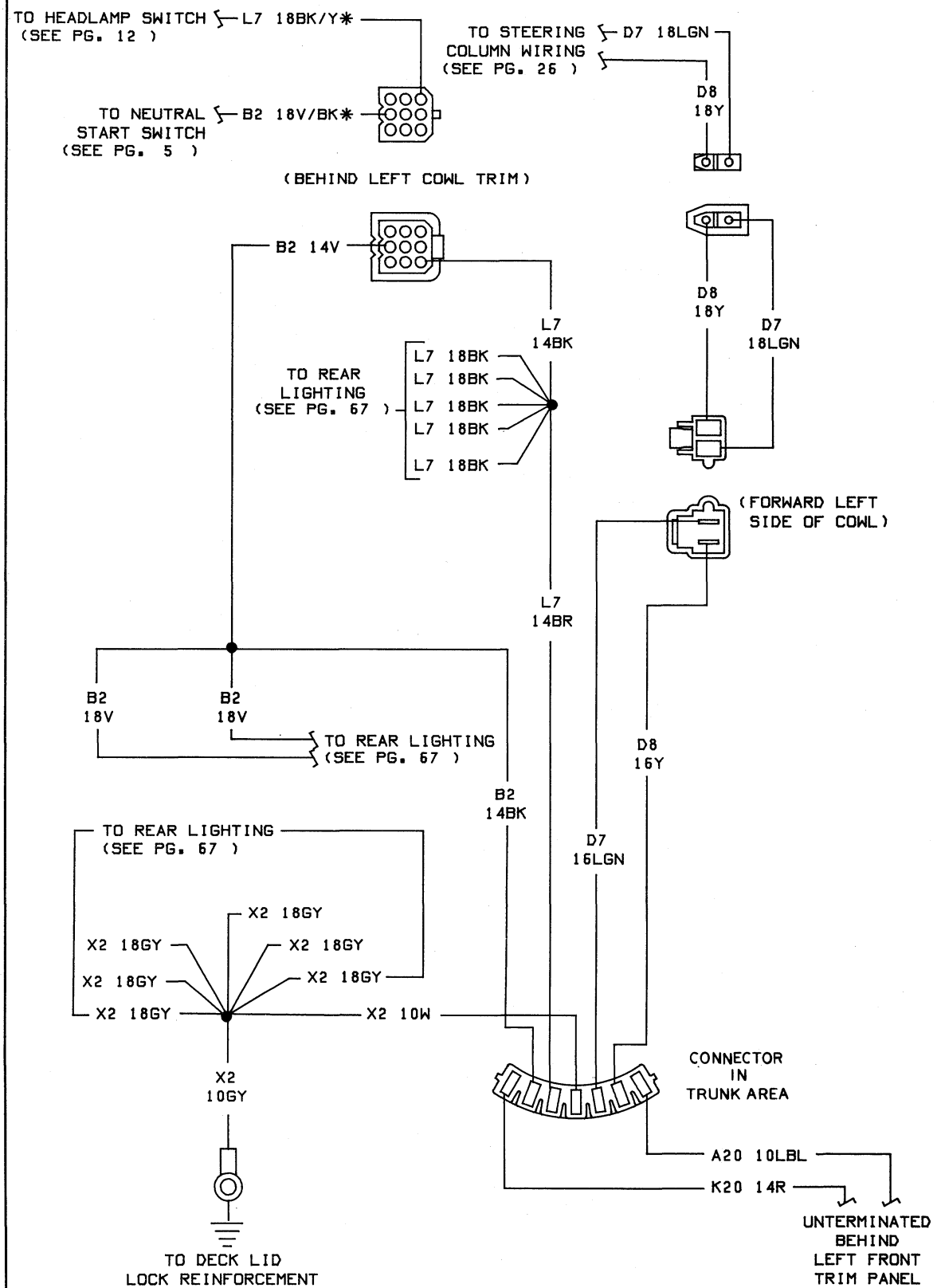
PR2



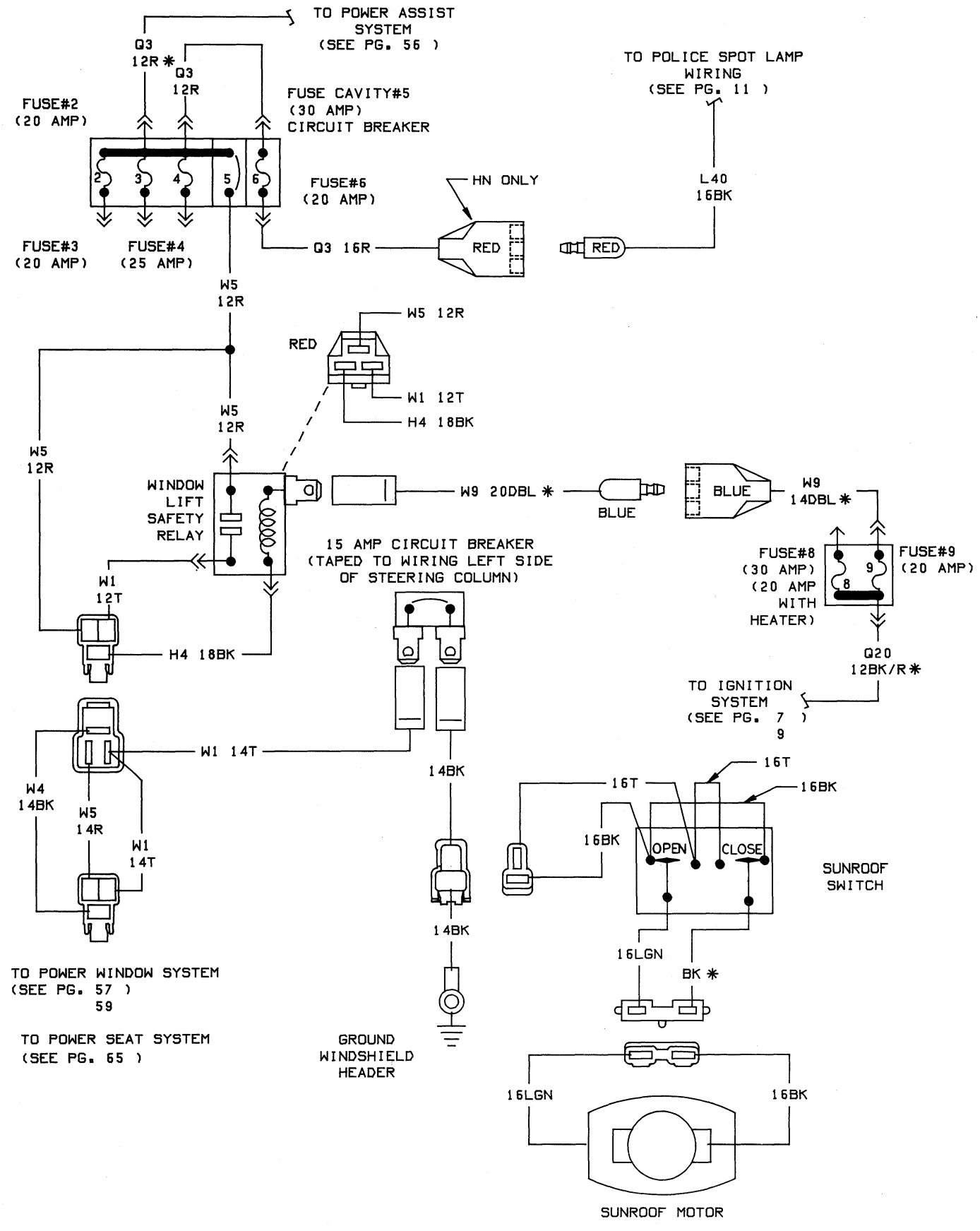
LIFT GATE RELEASE

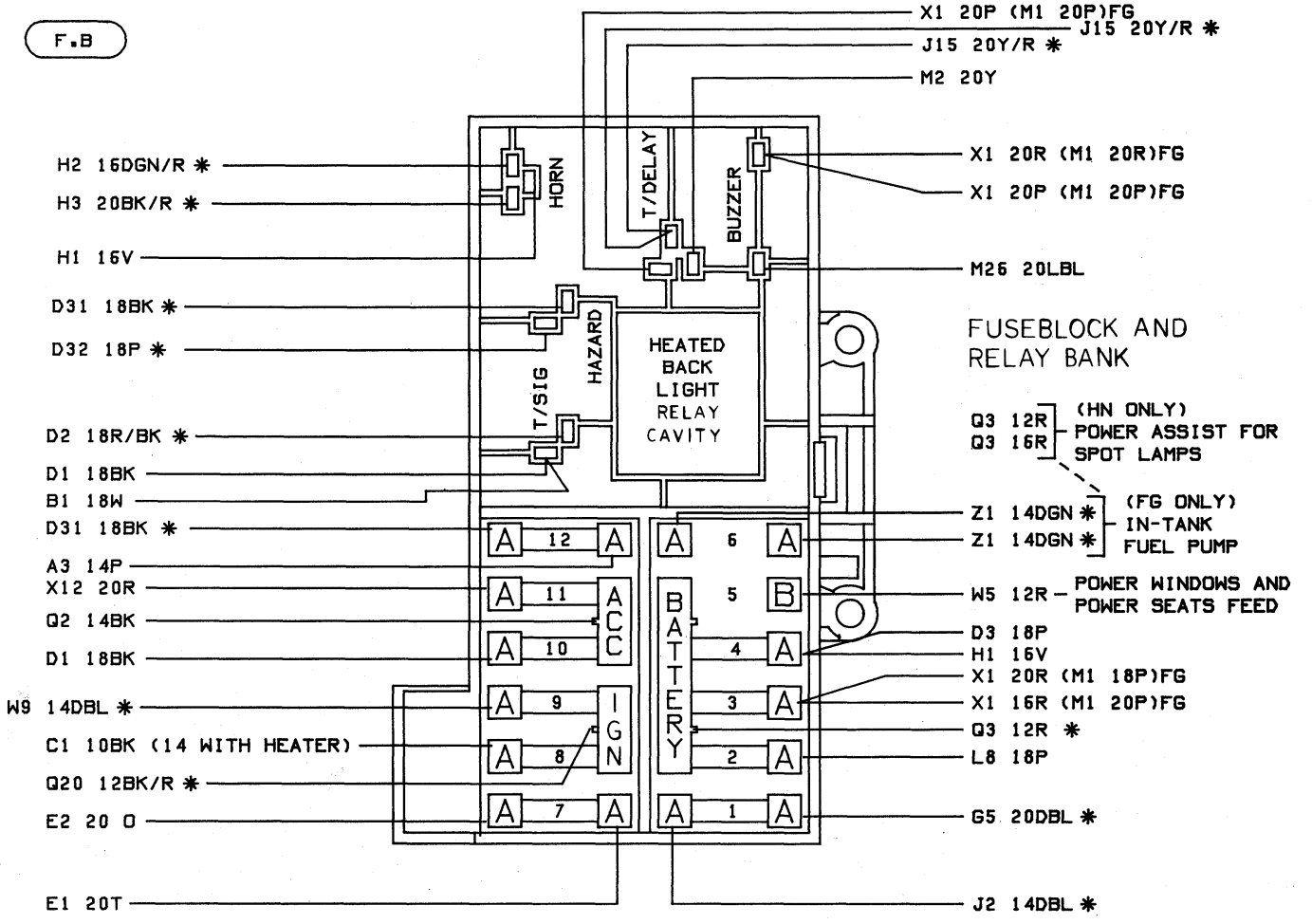

TO HEADLAMP SWITCH (SEE PG. 12)
TO STOP & TURN SIGNAL SWITCH (SEE PG. 26)
TO NEUTRAL START SWITCH (SEE PG. 5)
L7 18BK/Y*
D8 18DGN
D7 18BR
B2 18V/BK*
(BEHIND LEFT COWL TRIM PANEL)
B2 14V
D8 16LGN
L7 14BK
L7 18BK
D7 16BR
B2 14BK
D8 18DGN
D7 18BR
B2 18V
L7 18BK
D7 16LGN
L7 14BR*
D8 16Y
B2 14BK
LEFT REAR QUARTER PANEL TO REAR LAMP WIRING
(SEE PG. 41) 43
(SEE PG. 41) 43
X2 12GY
X2 10W
X2 18GY
X2 18GY
X2 10GY
CONNECTOR IN TRUNK AREA
A20 10LBL
K20 14R
UNTERMINATED BEHIND LEFT FRONT TRIM PANEL
(JACK HOLD DOWN BRACKET)


TO HEADLAMP SWITCH
(SEE PG. 12)
TO STOP & TURN SIGNAL SWITCH
(SEE PG. 26)
TO NEUTRAL START SWITCH
(SEE PG. 5)
L7 18BK/Y
D8 18DGN
D7 18BR
B2 18V
(BEHIND LEFT COWL TRIM)
B2 18V
L7 14BK
D8 16DGN
L7 18BK
TO OPERA LAMPS FG-22 ONLY
(SEE PG. 71) 72
L7 18BK
D7 16BR
D8 18DGN
L7 14BR
D8 16Y
B2 18V
D7 18BR
B2 14BK
D7 16LGN
(LEFT REAR QUARTER PANEL AREA)
CONNECTOR IN TRUNK AREA
X2 10W
A20 10LBL
K20 14R
UNTERMINATED BEHIND LEFT FRONT TRIM PANEL
BODY GROUND CENTER REAR OF TRUNK AREA



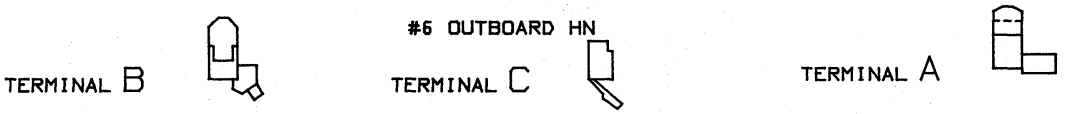
HNFG 79 HN-29,41 TRAILER TOW WIRING PR2


TO POWER ASSIST SYSTEM (SEE PG. 56)
Q3 12R *
Q3 12R
FUSE#2 (20 AMP)
FUSE CAVITY#5 (30 AMP) CIRCUIT BREAKER
TO POLICE SPOT LAMP WIRING (SEE PG. 11)
2 3 4 5 6
FUSE#6 (20 AMP)
HN ONLY
L40 16BK
FUSE#3 (20 AMP)
FUSE#4 (25 AMP)
Q3 16R
RED
RED
W5 12R
W5 12R
RED
W1 12T
H4 18BK
W5 12R
W5 12R
WINDOW LIFT SAFETY RELAY
W9 20DBL *
BLUE
BLUE
W9 14DBL *
15 AMP CIRCUIT BREAKER (TAPED TO WIRING LEFT SIDE OF STEERING COLUMN)
FUSE#8 (30 AMP) (20 AMP WITH HEATER)
FUSE#9 (20 AMP)
8 9
W1 12T
H4 18BK
Q20 12BK/R *
TO IGNITION SYSTEM (SEE PG. 7) 9
W1 14T
14BK
16T
16T
16BK
16BK
OPEN
CLOSE
SUNROOF SWITCH
W4 14BK
W5 14R
W1 14T
14BK
16LGN
BK *
TO POWER WINDOW SYSTEM (SEE PG. 57) 59
TO POWER SEAT SYSTEM (SEE PG. 65)
GROUND WINDSHIELD HEADER
16LGN
16BK
SUNROOF MOTOR

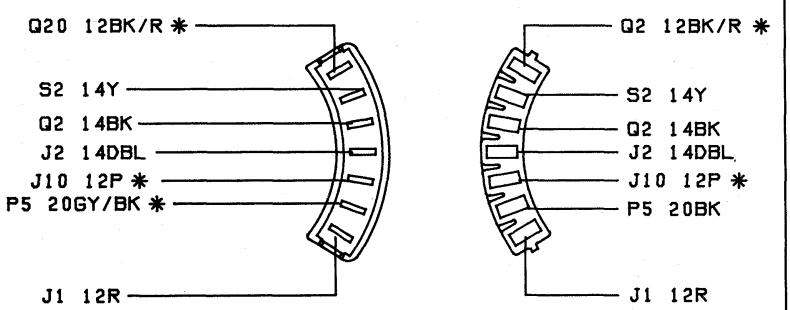


NOTES

LOWER LEFT MID REINFORCEMENT



CON 1



STARTER & IGNITION SWITCH CONNECTOR

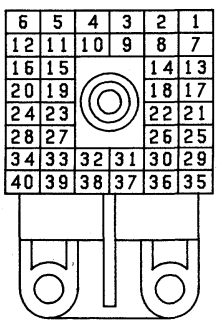
FUSE NO.	AMPS	
1	5	
2	20	
3	20	
4	25	
5	30	CIRCUIT BREAKER
6	20	
7	3	
8	30	
9	20	
10	20	
11	5	
12	20	

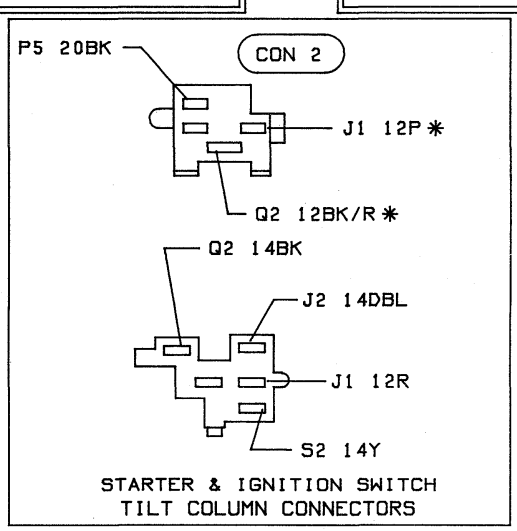
* 20 AMP HEATER ONLY

S.C.

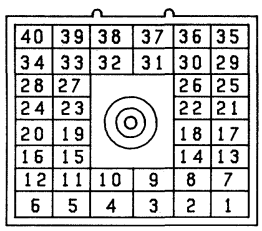
40-WAY CARRIER DISCONNECT

ENGINE COMPARTMENT CIRCUIT		CAVITY	INSTRUMENT PANEL CIRCUIT
		1	
	Q20 12BK/R *	2	Q20 12BK/R * BLOWER MOTOR
	J2 14DBL *	3	J2 14DBL * IGNITION RUN
		4	
		5	
	A11 20R *	6	A11 20R * AMMETER
		7	
	V3 18BR *	8	V3 18BR * WINDERSHIELD WIPER SWITCH
	M16 20BK/LBL *	9	M16 20BK/LBL * KEY-IN SWITCH
	M26 20LBL	10	M26 20LBL KEY-IN SWITCH
	P5 20GY/BK * , P5 20GY/BK *	11	P5 20GY/BK * , P5 20GY/BK * PARK BRAKE WARNING
	R16 20BK *	12	R16 20BK * AMMETER
	V11 20BK/T *	13	V11 20BK/T * LOW WASHER FLUID LEVEL LP
	V4 18R	14	V4 18R WINDSHIELD WIPER SWITCH
	D9 18T , D5 18T	15	D9 20T RIGHT FRONT TURN AND TURN INDICATOR
	D10 18LGN/BK * , D6 18LGN	16	D10 20LGN/BK * LEFT FRONT TURN AND TURN INDICATOR
	V12 18LBL/BK *	17	V12 20LBL/BK * WINDSHIELD WIPER SWITCH
	V5 18DGN/Y *	18	V5 18DGN/Y * WINDSHIELD WIPER SWITCH
	G6 20GY	19	G6 20GY OIL PRESSURE
	G2 20V	20	G2 20V TEMPERTURE
65 AMP ONLY	C13 12BK/LGN *	21	C13 12BK/LGN * HEATED REAR WINDOW
	V6 18DBL	22	V6 18DBL WINDSHIELD WIPER SWITCH
	L5 14R *	23	L5 14R * HIGH BEAM INDICATOR
	L6 18Y/BK *	24	L6 20Y/BK * , L6 18Y/BK * PARKING LAMP
	△C2 18DBL *	25	C2 18DBL * A/C CLUTCH
	V10 20BR/R *	26	V10 20BR/R * WINDSHIELD WIPER SWITCH
	L2 16LGN 14LGN(FG)	27	L2 16LGN 14LGN(FG)
	R6 12BK *	28	R6 12BK * ALTERNATOR
	D8 18DGN	29	D8 18DGN LEFT REAR TURN SIGNAL
	B2 18V/BK *	30	B2 18V/BK * BACK-UP LAMPS
	A3 14P/LBL *	31	A3 14P HAZARD FLASHER
	D2 18R/BK *	32	D2 18R/BK * TURN SIGNAL FLASHER
	H2 16DGN/R *	33	H2 16DGN/R * HORN FEED
	D3 18P	34	D3 18P BRAKE SWITCH
	D7 18BR	35	D7 18BR RIGHT REAR TURN SIGNAL
	△B1 18W	36	B1 18W , C1 18LGN BACK-UP LAMP FEED
	D32 18P*	37	D32 18P * HAZARD FLASHER FEED
	J15 20Y/R*	38	J15 20Y/R* IGNITION SWITCH LAMP
	H3 20BK/R *	39	H3 20BK/R * HORN GROUND
	Q2 14BK	40	Q2 14BK ACCESSORY FEED





STARTER & IGNITION SWITCH
TILT COLUMN CONNECTORS

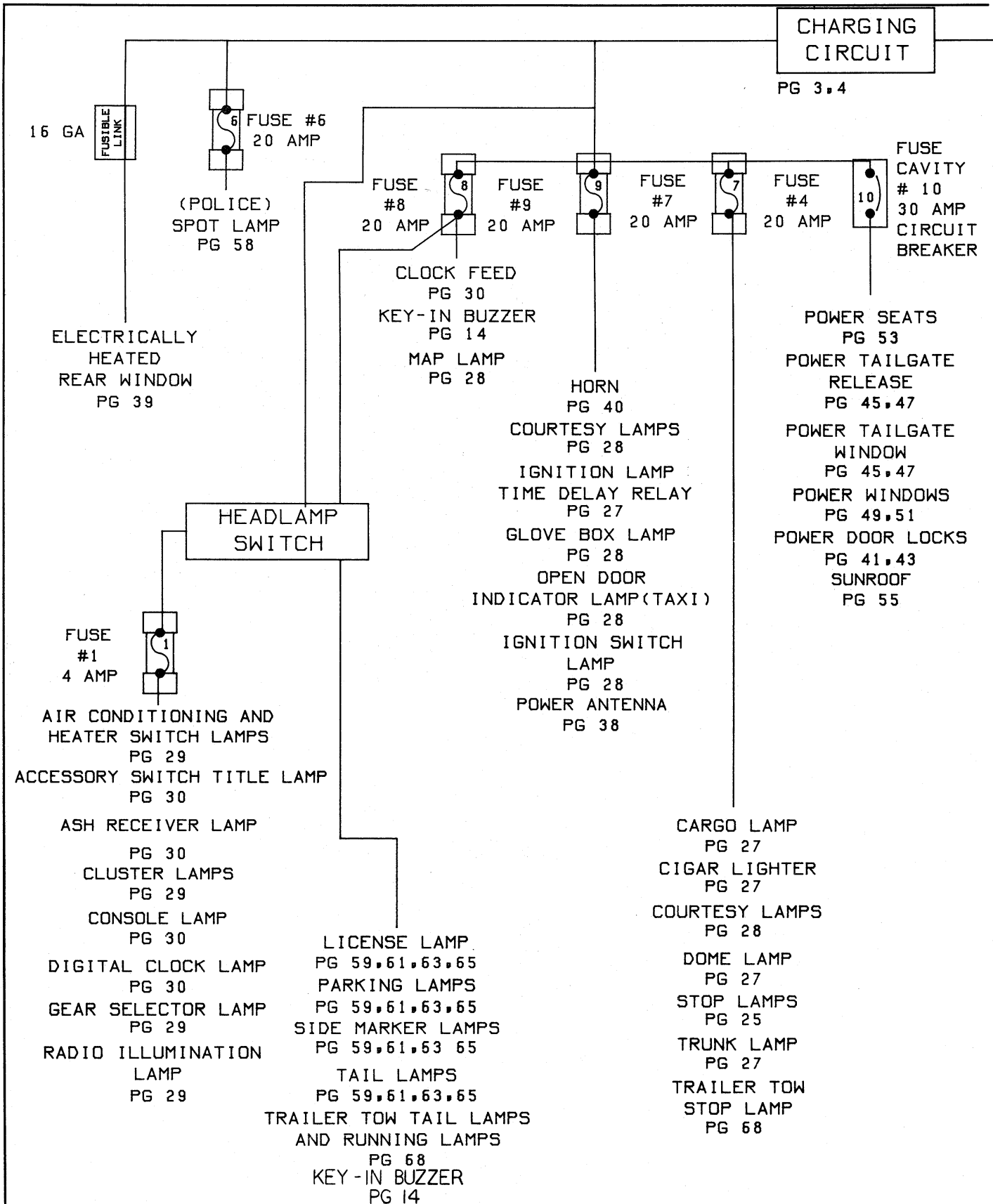


NOTE

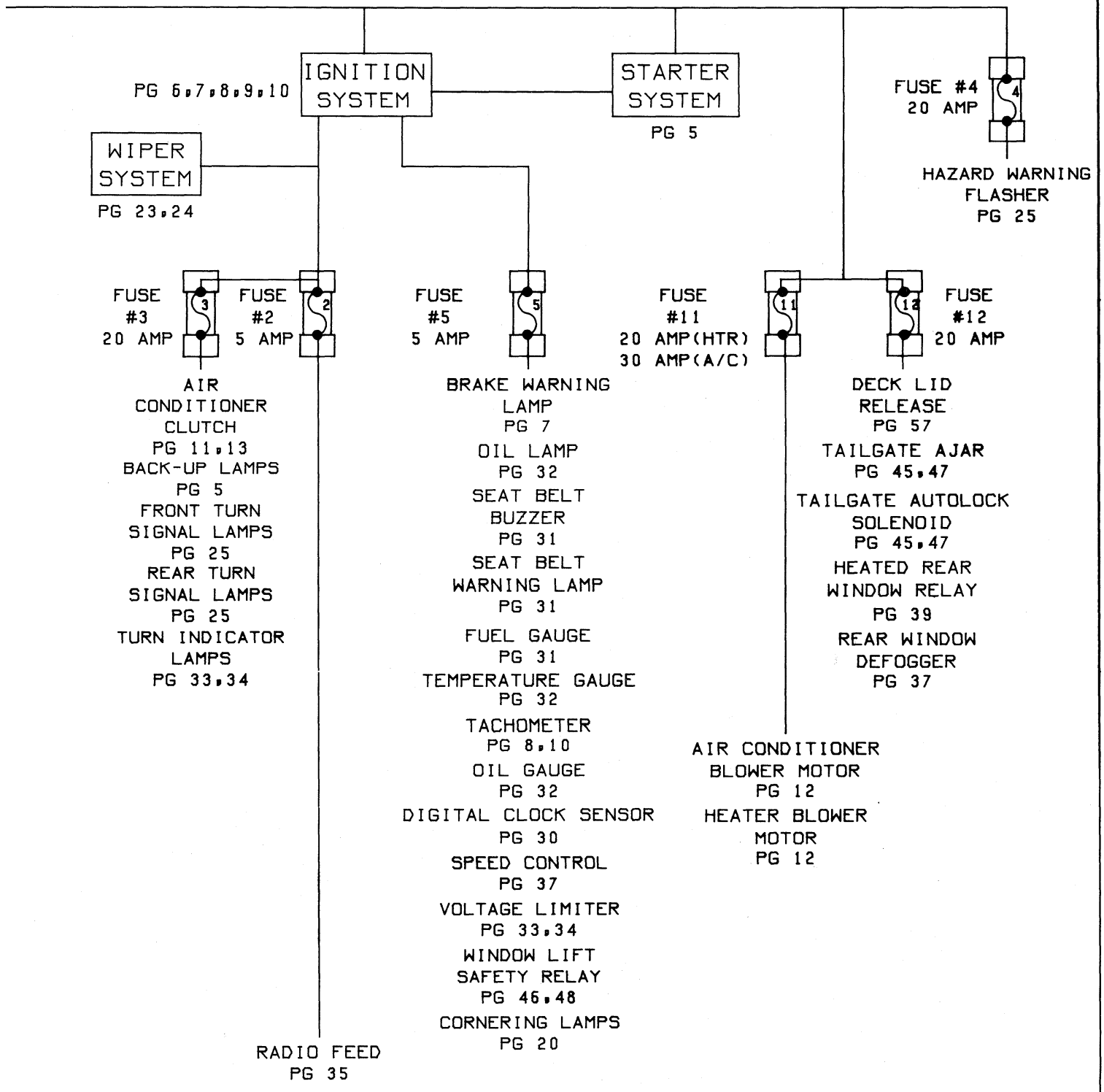
△ =AIR CONDITIONING ONLY

R-W-S-X MODELS

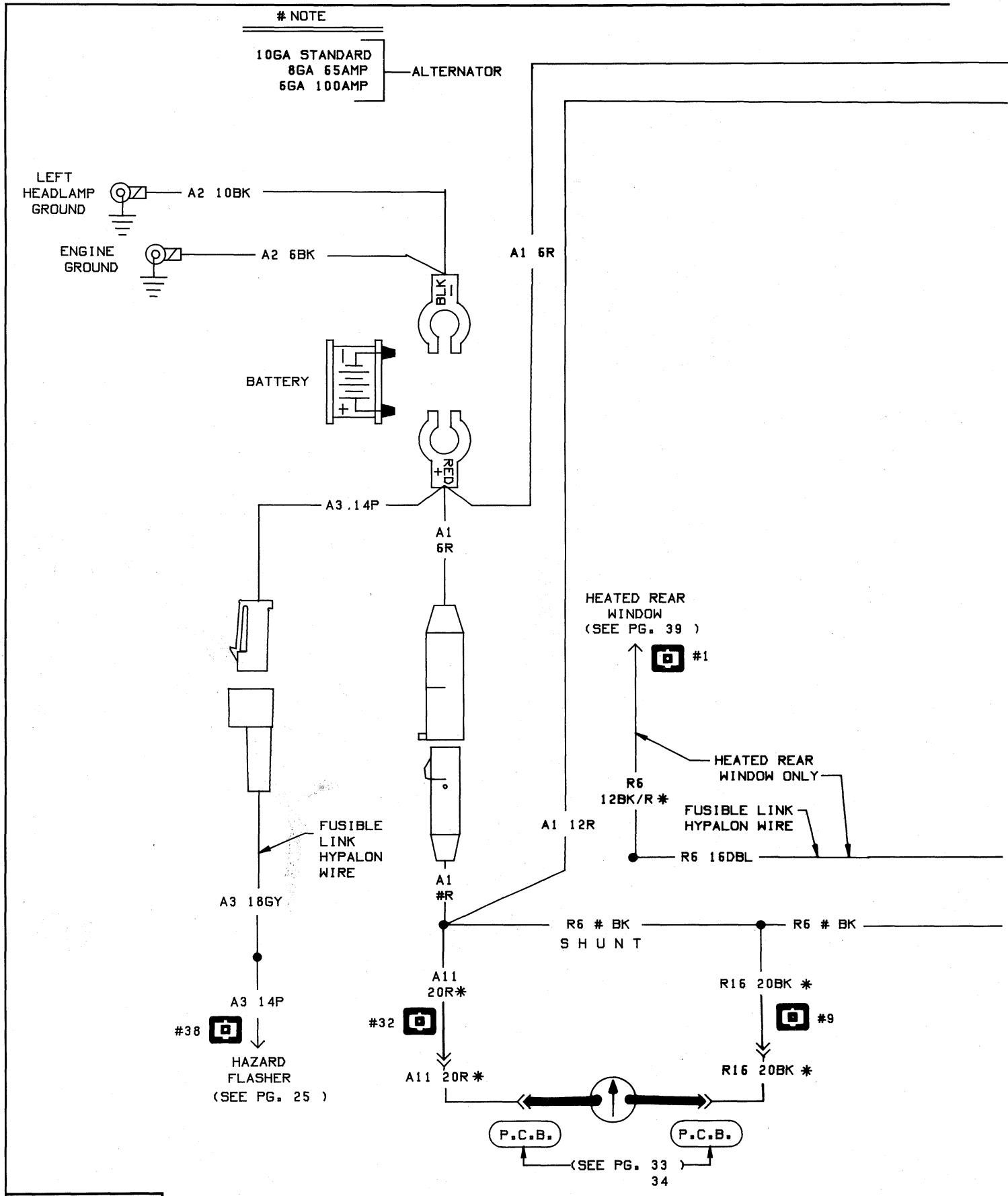
ALPHABETICAL INDEX



RWXS 1 FUSE APPLICATION CHART PR3



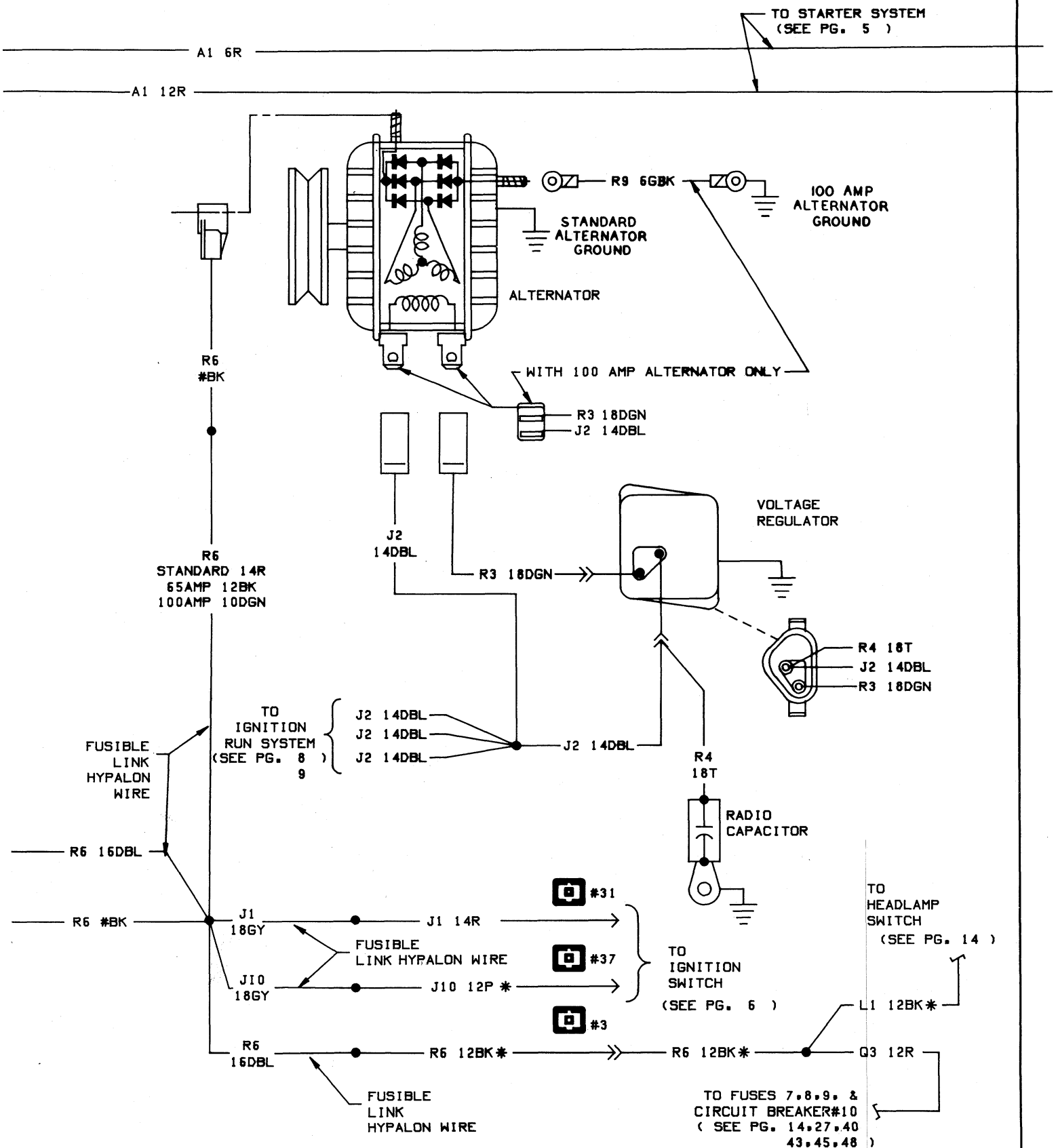
FUSE APPLICATION CHART

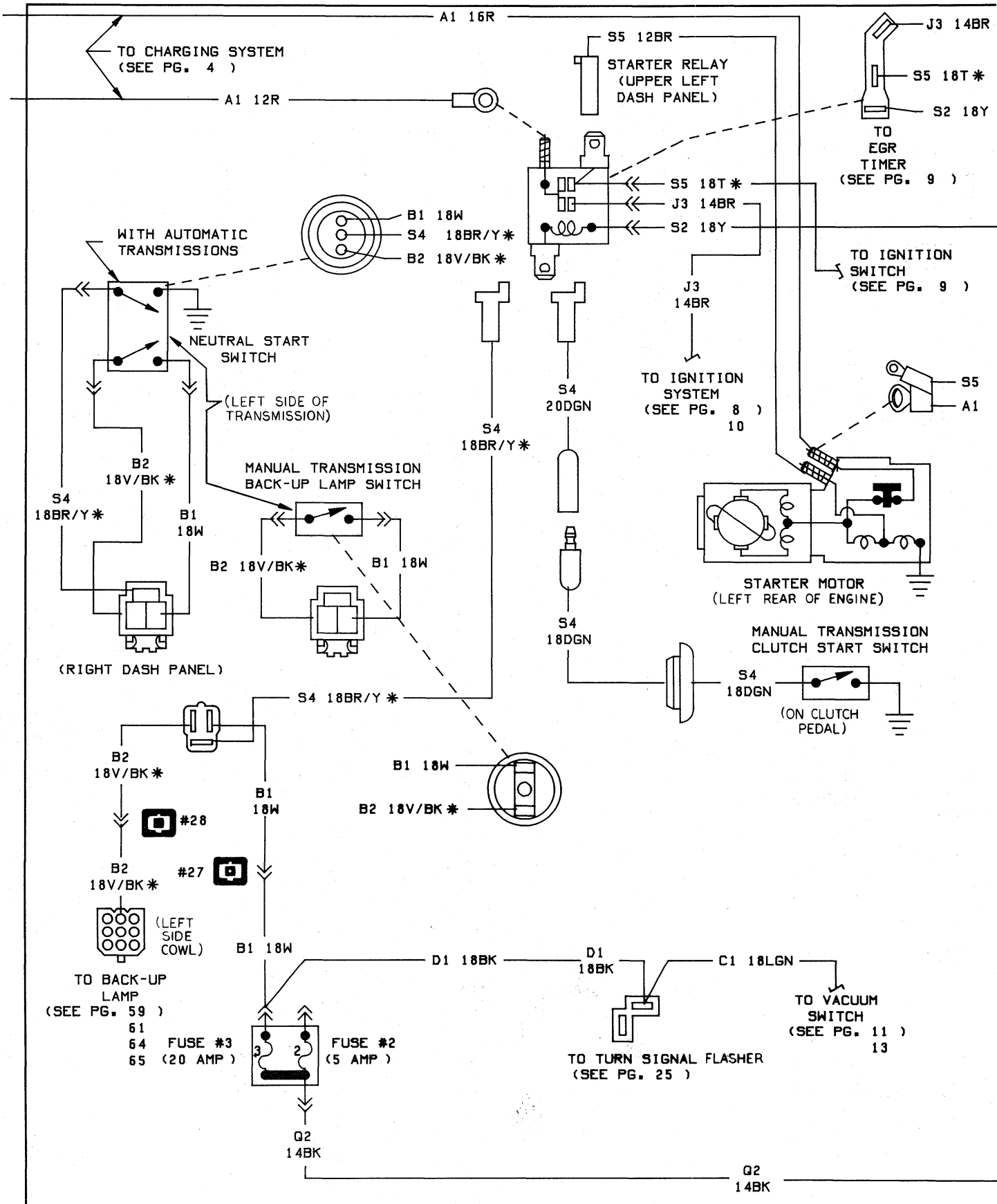


RWXS 3

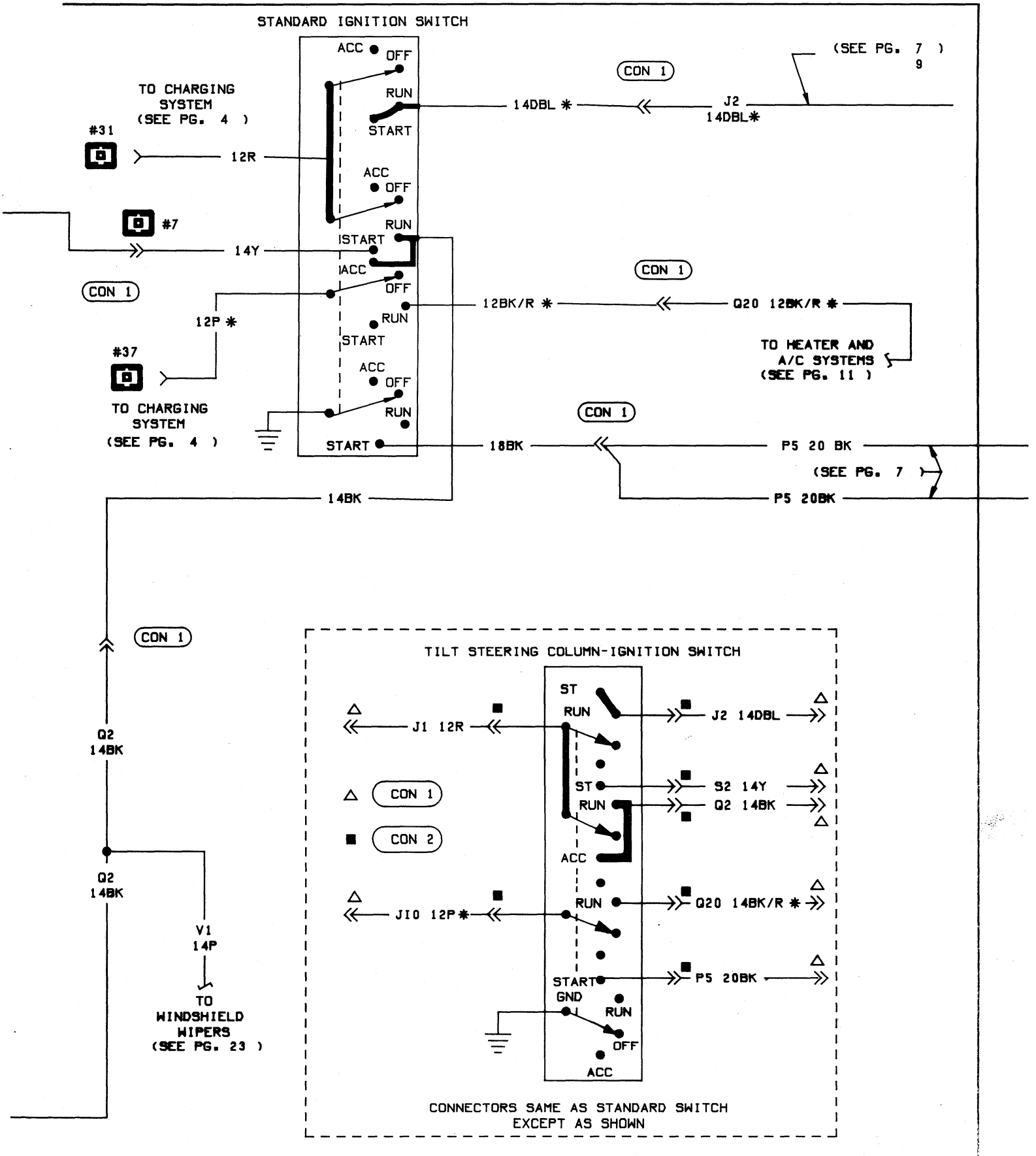
CHARGING SYSTEM

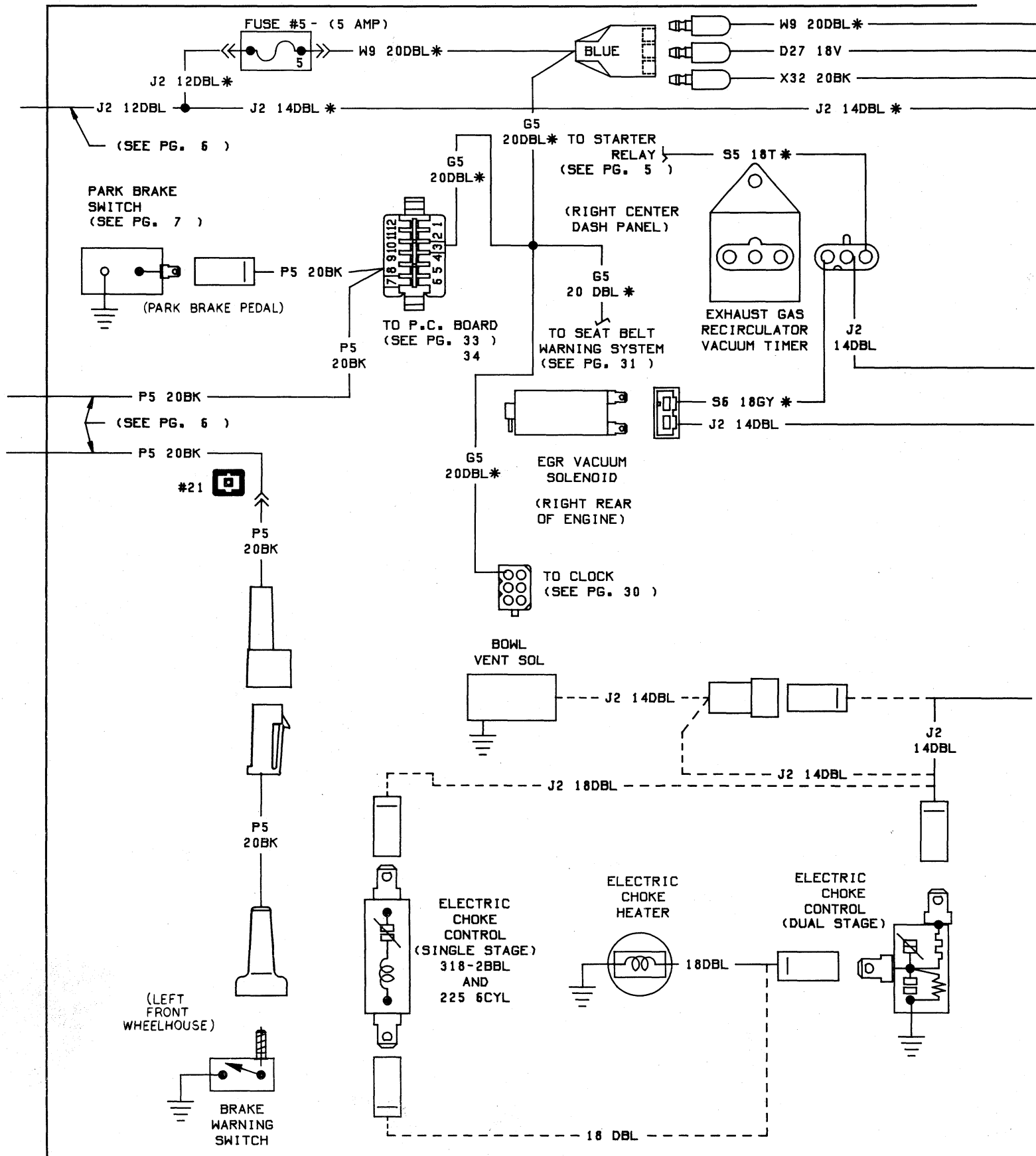
PR3


TO STARTER SYSTEM
(SEE PG. 5)
A1 6R
A1 12R
R9 6GBK
100 AMP
ALTERNATOR
GROUND
STANDARD
ALTERNATOR
GROUND
ALTERNATOR
R6
#BK
WITH 100 AMP ALTERNATOR ONLY
R3 18DGN
J2 14DBL
J2
14DBL
VOLTAGE
REGULATOR
R6
STANDARD 14R
65AMP 12BK
100AMP 10DGN
R3 18DGN
R4 18T
J2 14DBL
R3 18DGN
TO
IGNITION
RUN SYSTEM
(SEE PG. 8)
9
J2 14DBL
J2 14DBL
J2 14DBL
J2 14DBL
FUSIBLE
LINK
HYPALON
WIRE
R4
18T
RADIO
CAPACITOR
R6 16DBL
#31
R6 #BK
J1
18GY
J1 14R
TO
HEADLAMP
SWITCH
(SEE PG. 14)
FUSIBLE
LINK HYPALON WIRE
#37
J10
18GY
J10 12P *
TO
IGNITION
SWITCH
(SEE PG. 6)
#3
L1 12BK*
R6
16DBL
R6 12BK*
R6 12BK*
Q3 12R
FUSIBLE
LINK
HYPALON WIRE
TO FUSES 7,8,9, &
CIRCUIT BREAKER#10
(SEE PG. 14,27,40
43,45,48)

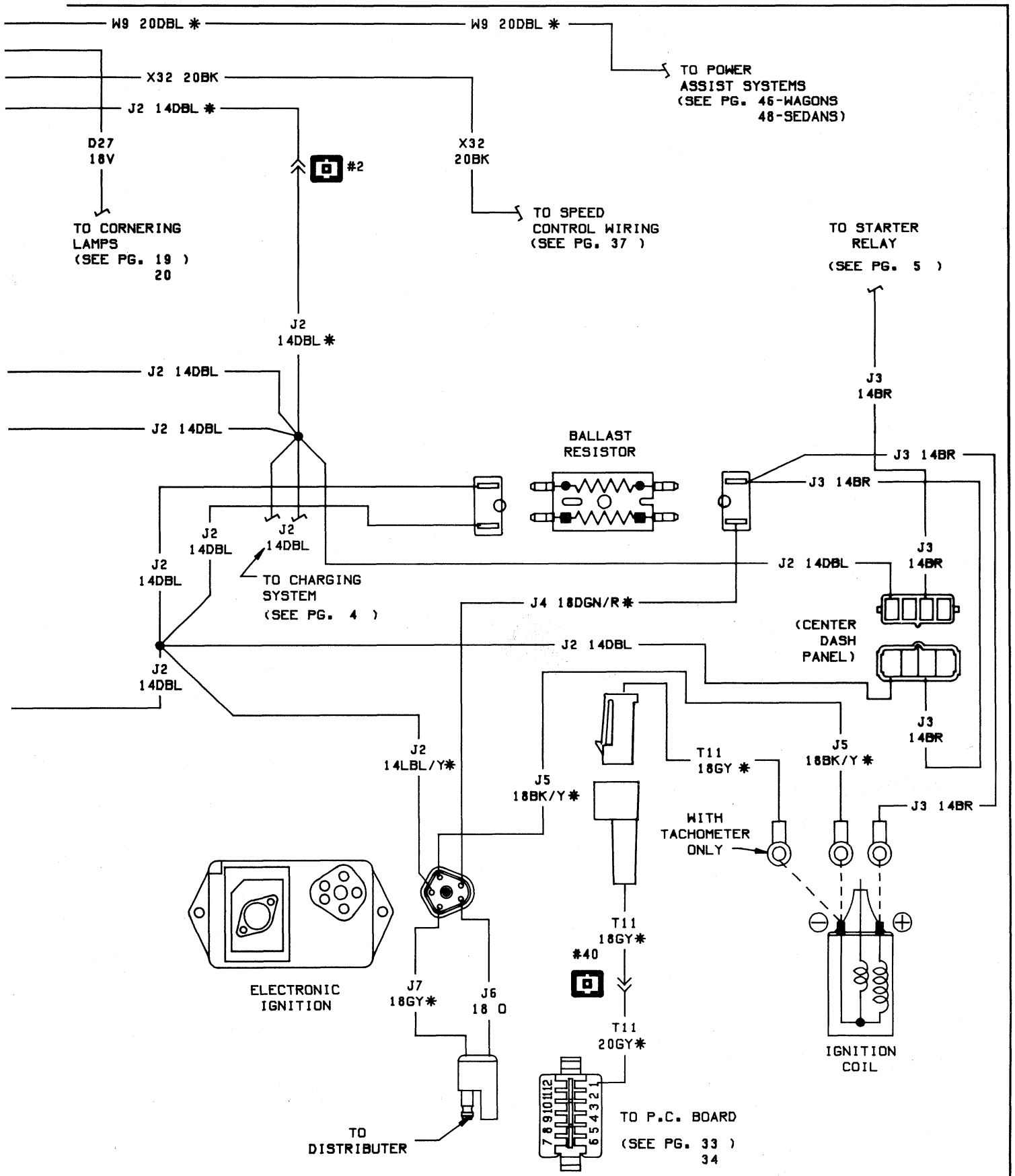


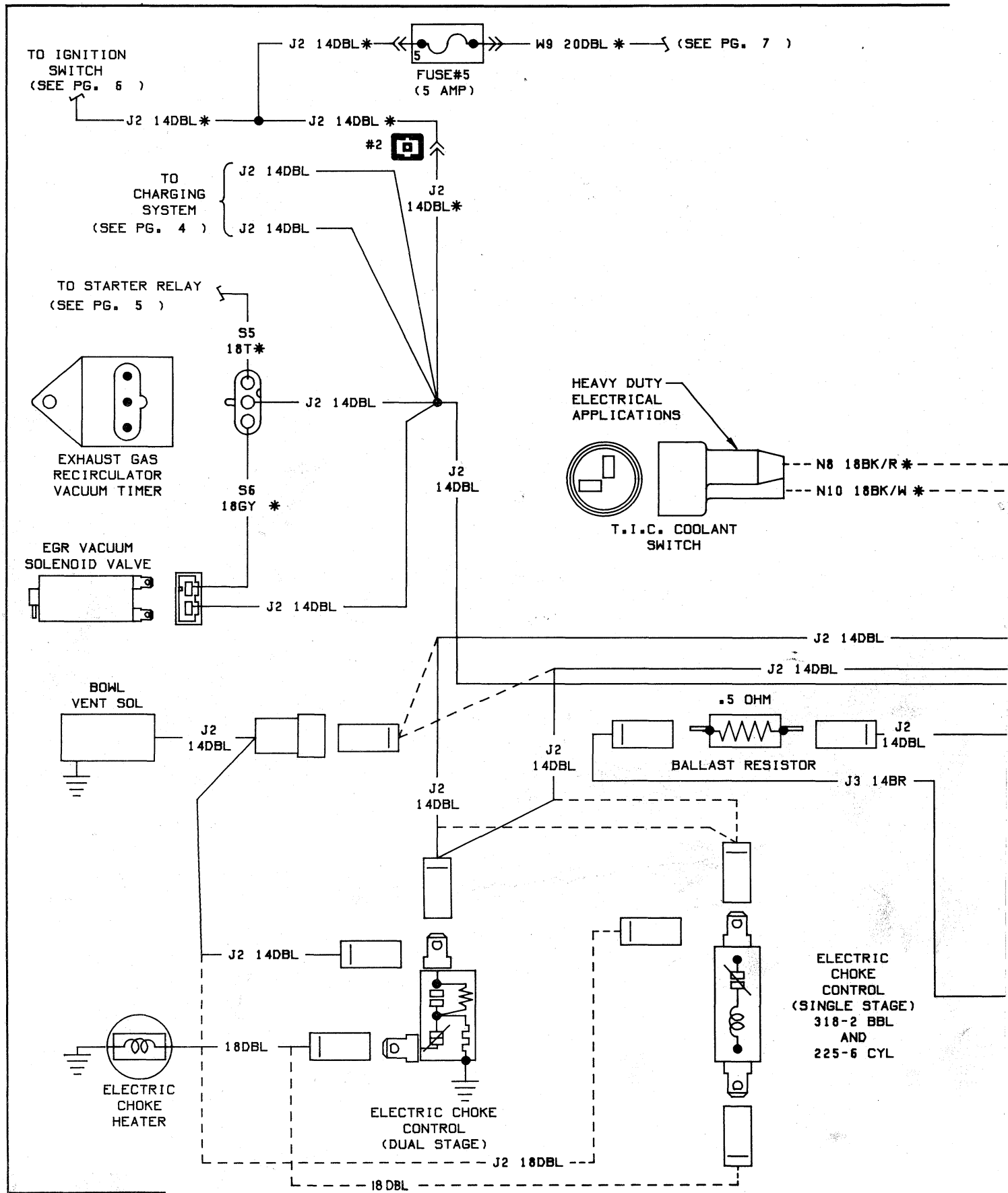
RWXS 5 STARTER SYSTEM PR3


STANDARD IGNITION SWITCH
ACC
OFF
RUN
START
TO CHARGING SYSTEM (SEE PG. 4)
#31
12R
#7
14Y
CON 1
12P *
#37
TO CHARGING SYSTEM (SEE PG. 4)
14DBL *
J2 14DBL*
(SEE PG. 7) 9
12BK/R *
Q20 12BK/R *
TO HEATER AND A/C SYSTEMS (SEE PG. 11)
18BK
P5 20 BK
(SEE PG. 7)
P5 20BK
14BK
Q2 14BK
V1 14P
TO WINDSHIELD WIPERS (SEE PG. 23)
TILT STEERING COLUMN-IGNITION SWITCH
ST
J1 12R
J2 14DBL
S2 14Y
Q2 14BK
CON 1
CON 2
J10 12P*
Q20 14BK/R *
P5 20BK
GND
CONNECTORS SAME AS STANDARD SWITCH EXCEPT AS SHOWN

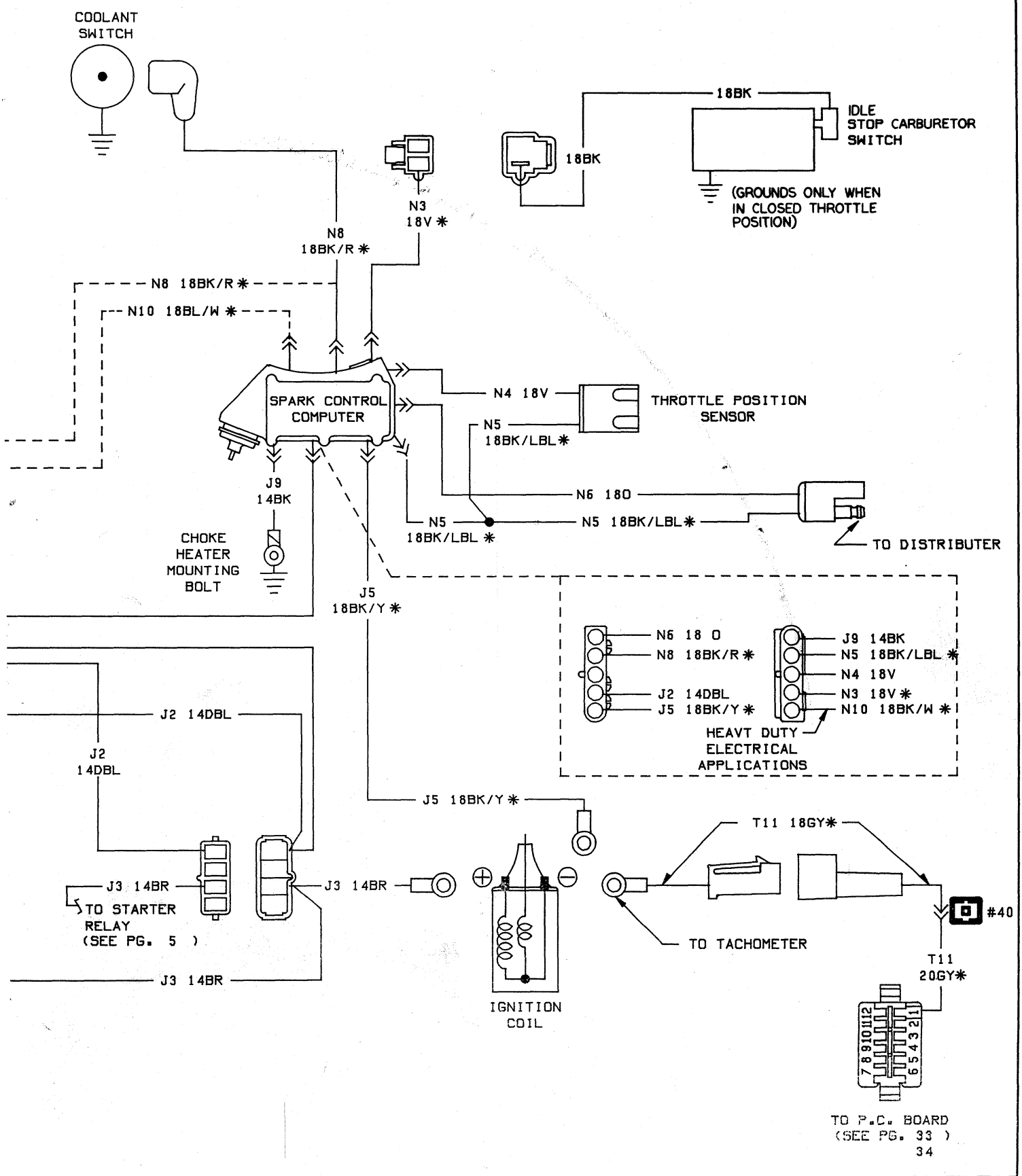


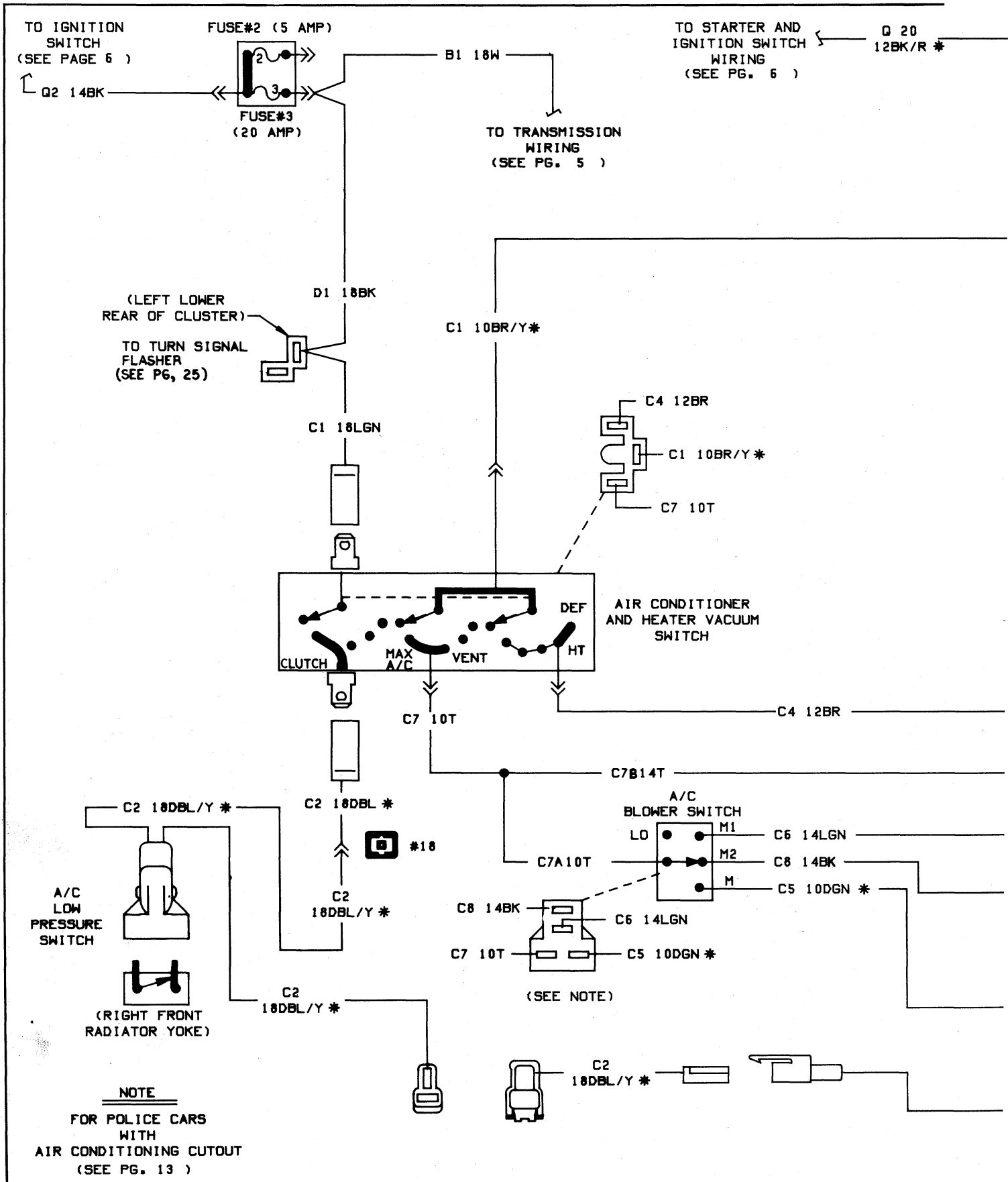
RWXS 7 RWXS IGNITION SYSTEM PR3


W9 20DBL *
W9 20DBL *
TO POWER ASSIST SYSTEMS (SEE PG. 46-WAGONS 48-SEDANS)
X32 20BK
J2 14DBL *
D27 18V
TO CORNERING LAMPS (SEE PG. 19) 20
#2
X32 20BK
TO SPEED CONTROL WIRING (SEE PG. 37)
TO STARTER RELAY (SEE PG. 5)
J2 14DBL*
J3 14BR
J2 14DBL
J2 14DBL
BALLAST RESISTOR
J3 14BR
J3 14BR
J2 14DBL
J2 14DBL
J2 14DBL
TO CHARGING SYSTEM (SEE PG. 4)
J2 14DBL
J3 14BR
J4 18DGN/R*
(CENTER DASH PANEL)
J2 14DBL
J2 14DBL
J3 14BR
J2 14LBL/Y*
J5 18BK/Y*
T11 18GY *
J5 18BK/Y*
J3 14BR
WITH TACHOMETER ONLY
T11 18GY*
#40
T11 20GY*
ELECTRONIC IGNITION
J7 18GY*
J6 18 O
IGNITION COIL
TO DISTRIBUTER
7 8 9 10 11 12
6 5 4 3 2 1
TO P.C. BOARD (SEE PG. 33) 34

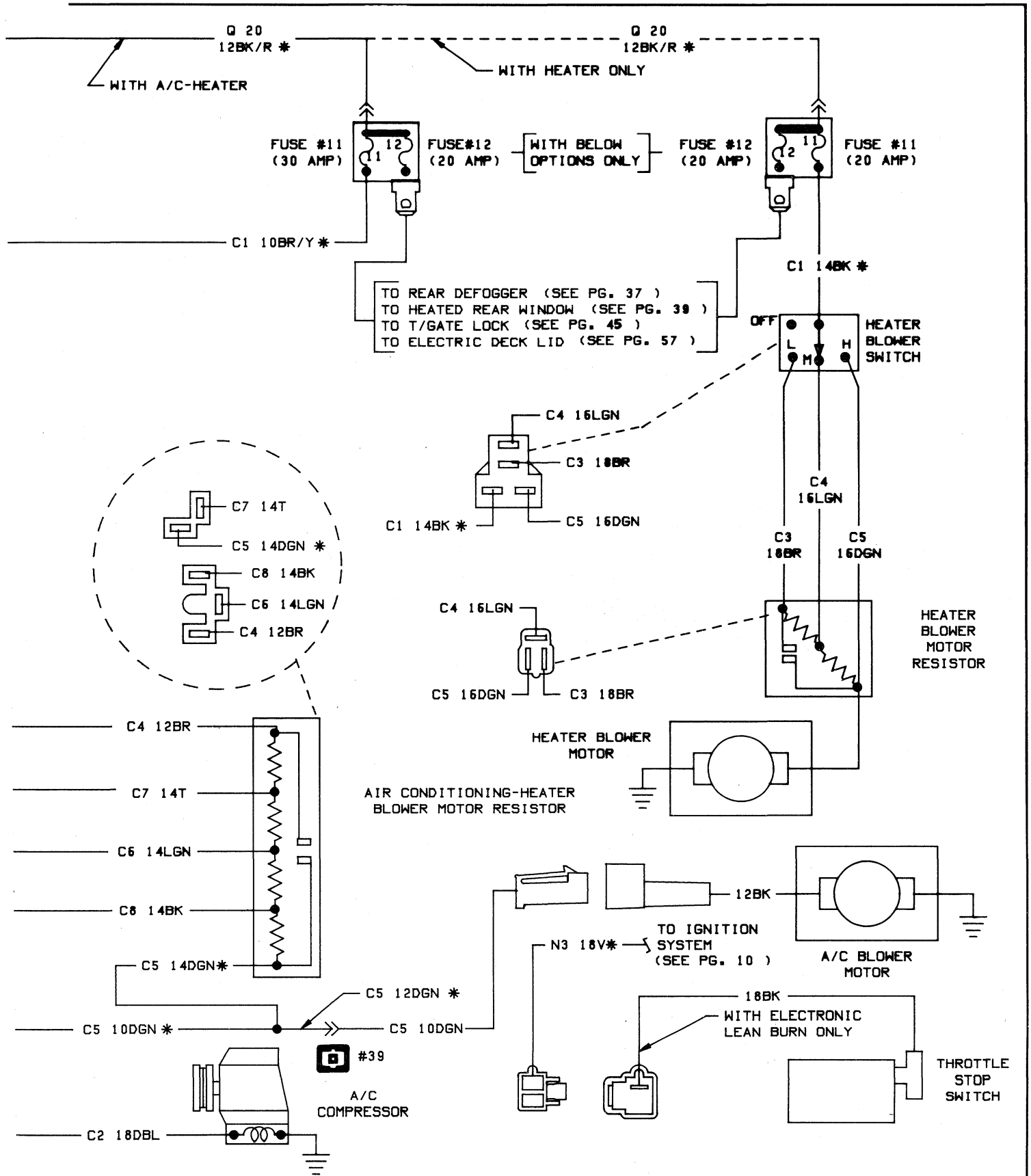


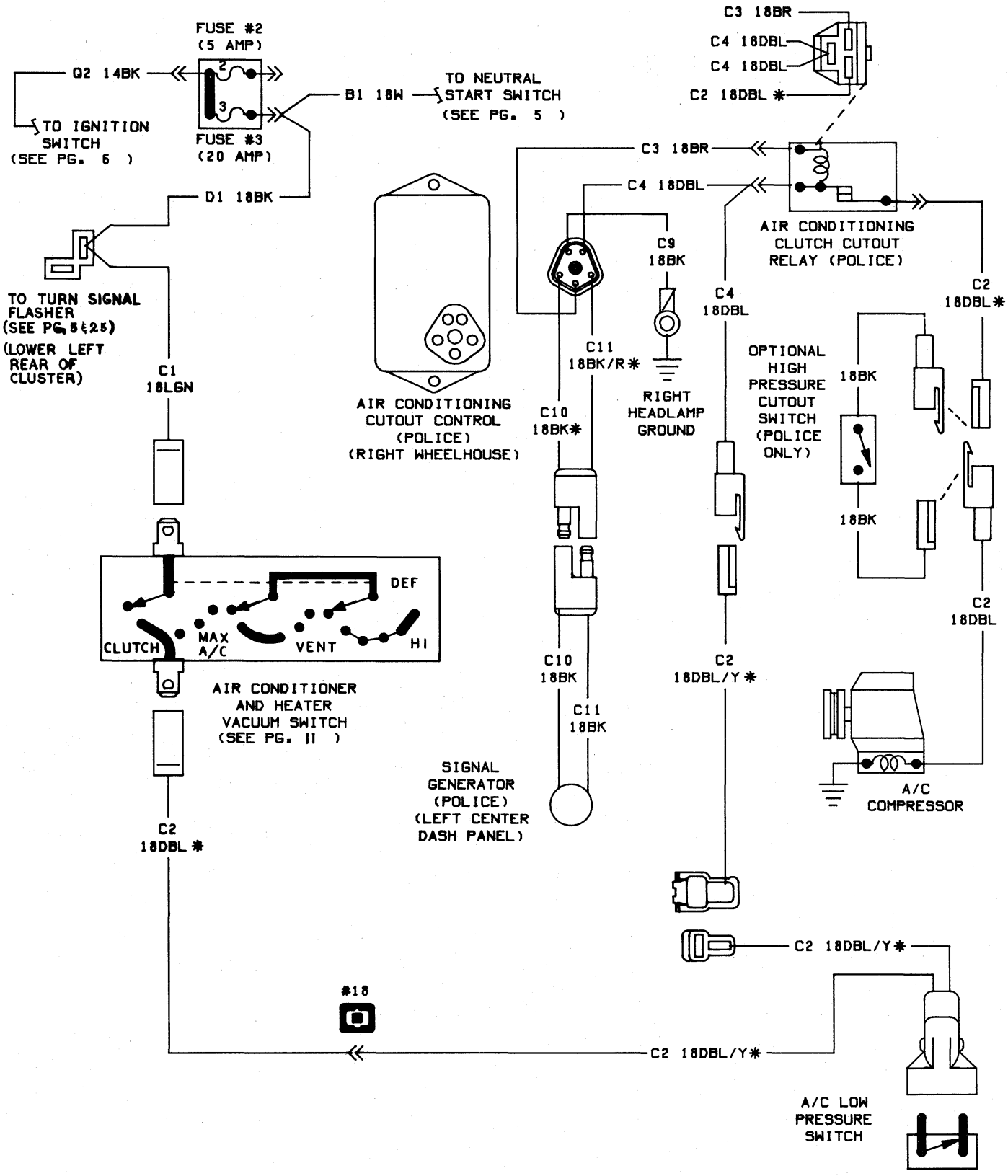
RWXS 9 RWXS IGNITION SYSTEM-ELECTRONIC LEAN BURN PR3


COOLANT SWITCH
18BK
IDLE STOP CARBURETOR SWITCH
18BK
(GROUNDS ONLY WHEN IN CLOSED THROTTLE POSITION)
N3 18V *
N8 18BK/R *
N8 18BK/R *
N10 18BL/W *
SPARK CONTROL COMPUTER
N4 18V
THROTTLE POSITION SENSOR
N5 18BK/LBL*
J9 14BK
N6 18O
N5 18BK/LBL *
N5 18BK/LBL*
TO DISTRIBUTER
CHOKE HEATER MOUNTING BOLT
J5 18BK/Y *
N6 18 O
N8 18BK/R *
J2 14DBL
J5 18BK/Y *
J9 14BK
N5 18BK/LBL *
N4 18V
N3 18V *
N10 18BK/W *
HEAVT DUTY ELECTRICAL APPLICATIONS
J2 14DBL
J2 14DBL
J5 18BK/Y *
T11 18GY*
J3 14BR
J3 14BR
TO STARTER RELAY (SEE PG. 5)
#40
TO TACHOMETER
T11 20GY*
J3 14BR
IGNITION COIL
TO P.C. BOARD (SEE PG. 33)
34

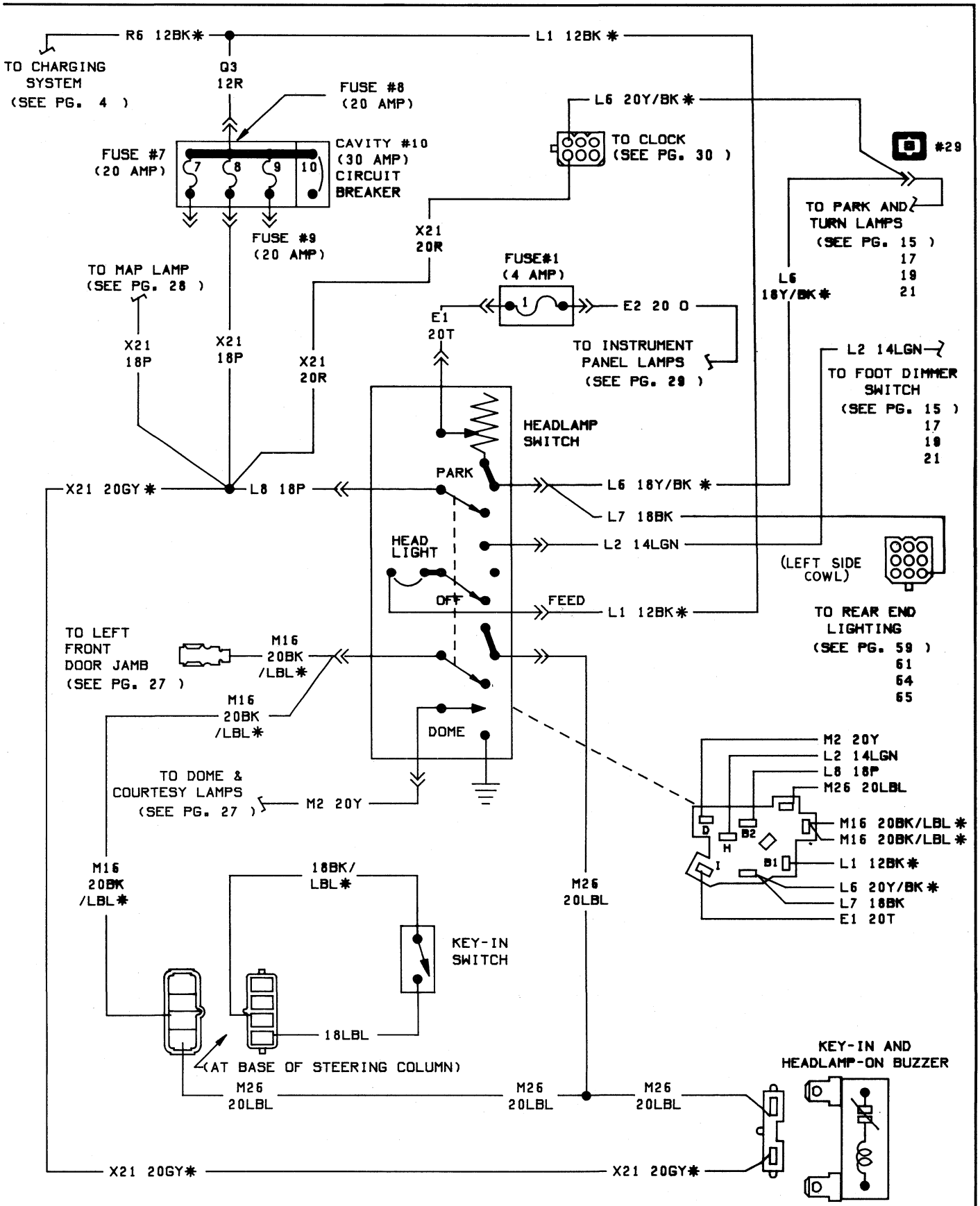


RWXS 11 AIR CONDITIONING AND HEATER SYSTEM PR3


Q 20
12BK/R *
WITH A/C-HEATER
Q 20
12BK/R *
WITH HEATER ONLY
FUSE #11
(30 AMP)
FUSE#12
(20 AMP)
WITH BELOW
OPTIONS ONLY
FUSE #12
(20 AMP)
FUSE #11
(20 AMP)
C1 10BR/Y *
C1 14BK *
TO REAR DEFOGGER (SEE PG. 37)
TO HEATED REAR WINDOW (SEE PG. 39)
TO T/GATE LOCK (SEE PG. 45)
TO ELECTRIC DECK LID (SEE PG. 57)
OFF
L
M
H
HEATER
BLOWER
SWITCH
C4 16LGN
C3 18BR
C1 14BK *
C5 16DGN
C4
16LGN
C3
18BR
C5
16DGN
C7 14T
C5 14DGN *
C8 14BK
C6 14LGN
C4 12BR
C4 16LGN
C5 16DGN
C3 18BR
HEATER
BLOWER
MOTOR
RESISTOR
HEATER BLOWER
MOTOR
AIR CONDITIONING-HEATER
BLOWER MOTOR RESISTOR
C4 12BR
C7 14T
C6 14LGN
C8 14BK
C5 14DGN*
12BK
TO IGNITION
SYSTEM
(SEE PG. 10)
N3 18V*
A/C BLOWER
MOTOR
C5 12DGN *
C5 10DGN *
C5 10DGN
18BK
WITH ELECTRONIC
LEAN BURN ONLY
#39
A/C
COMPRESSOR
THROTTLE
STOP
SWITCH
C2 18DBL



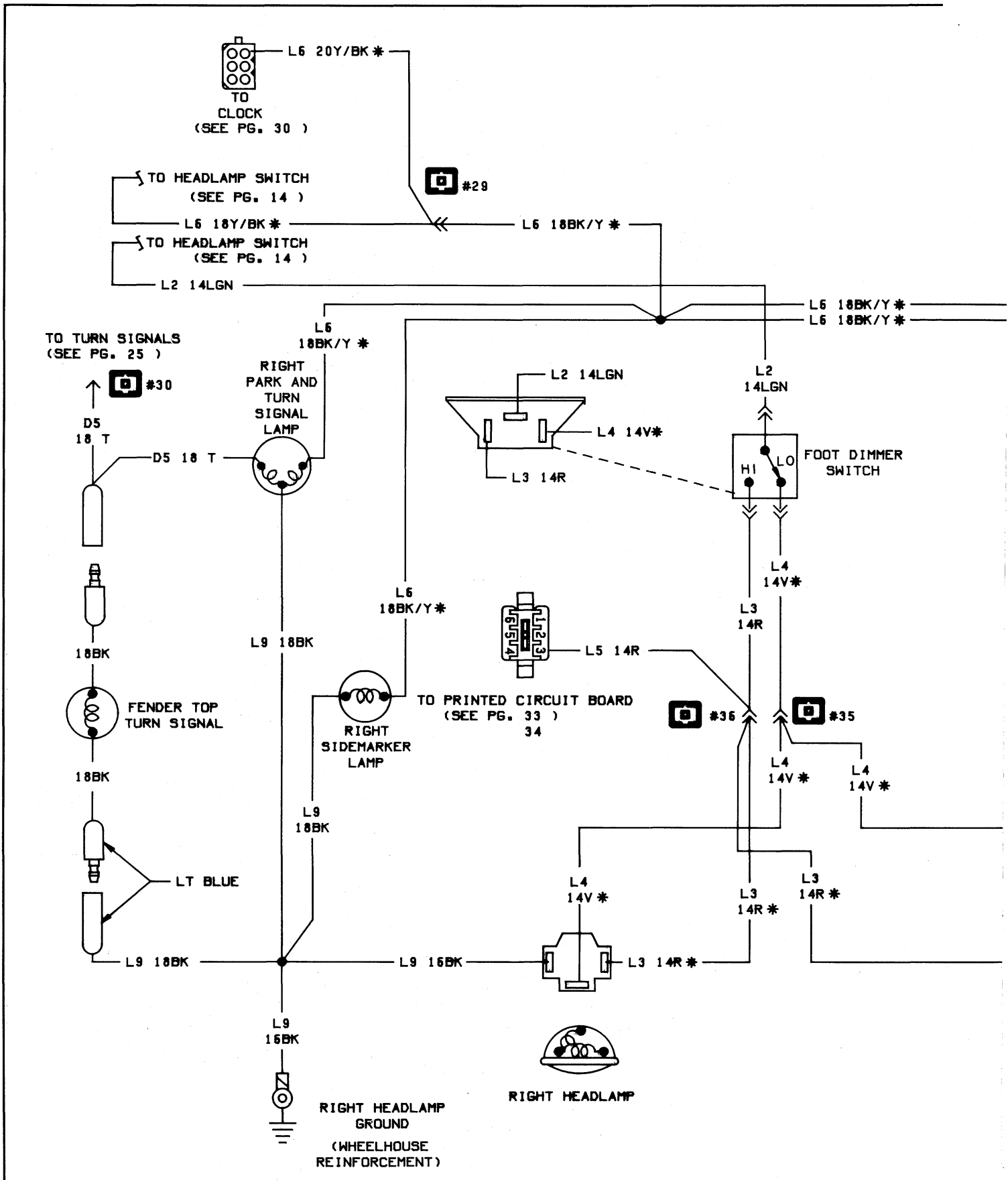
RWXS 13 POLICE AIR CONDITIONING CUTOUT SYSTEM PR3



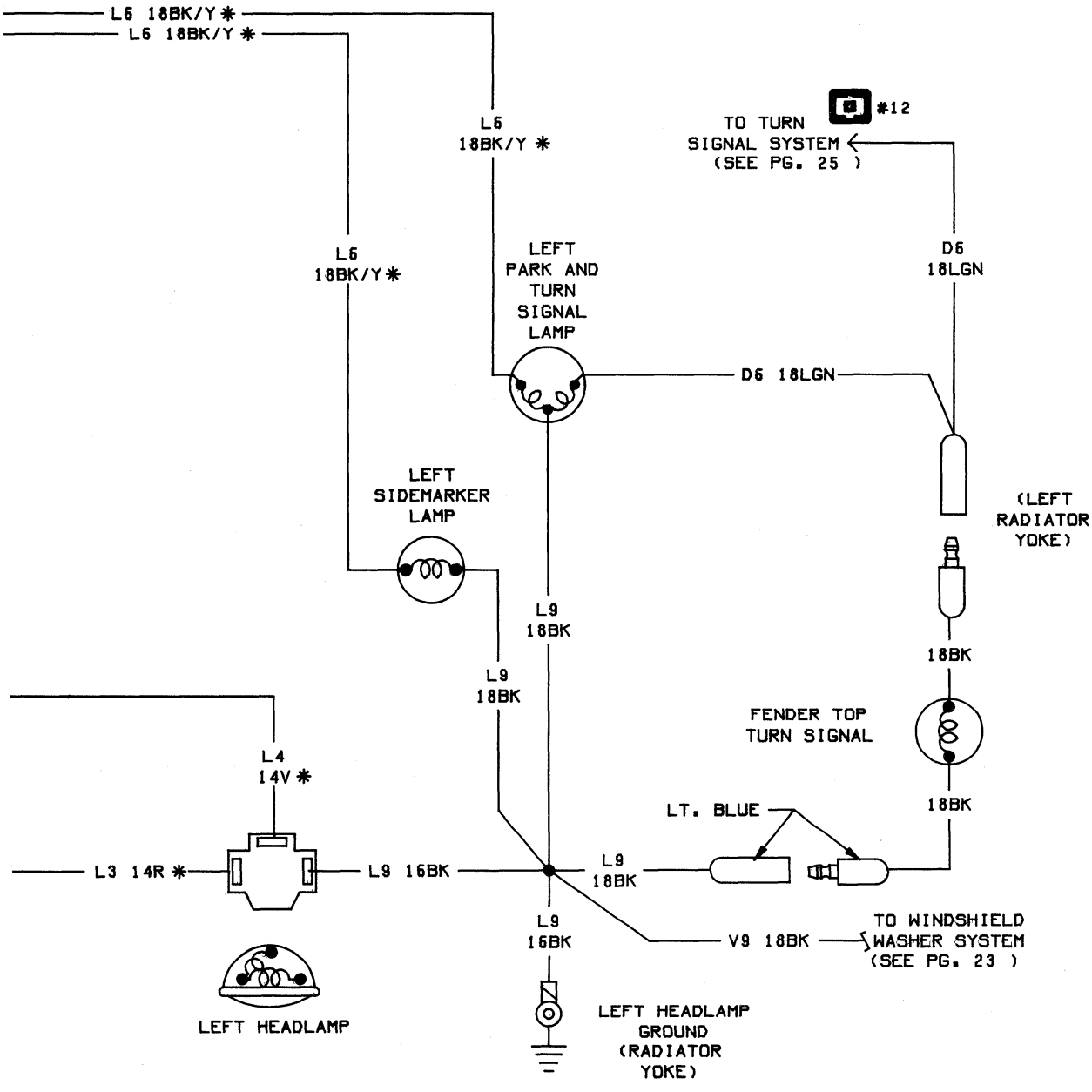
PR3

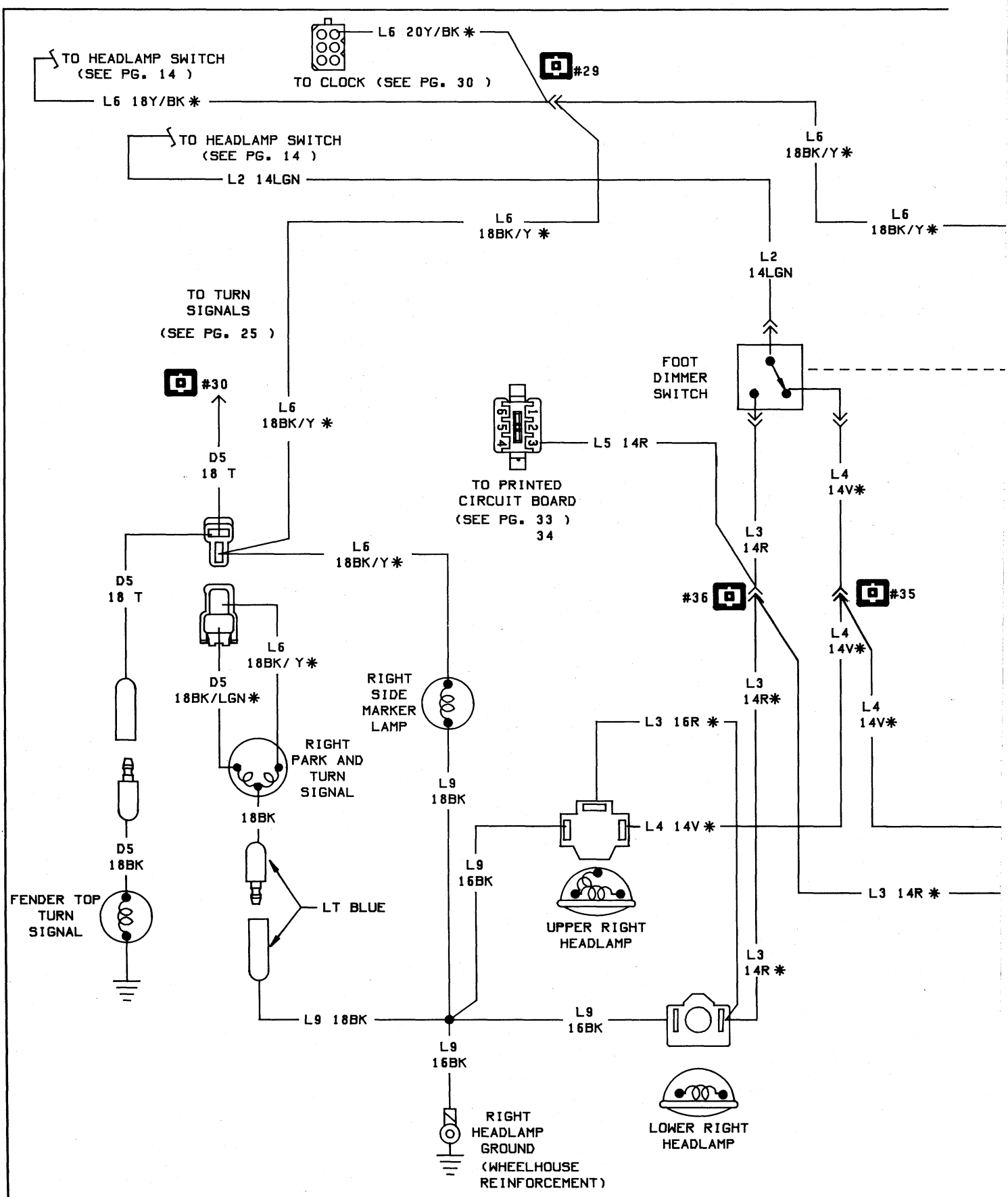
HEADLAMP SWITCH

RWXS 14

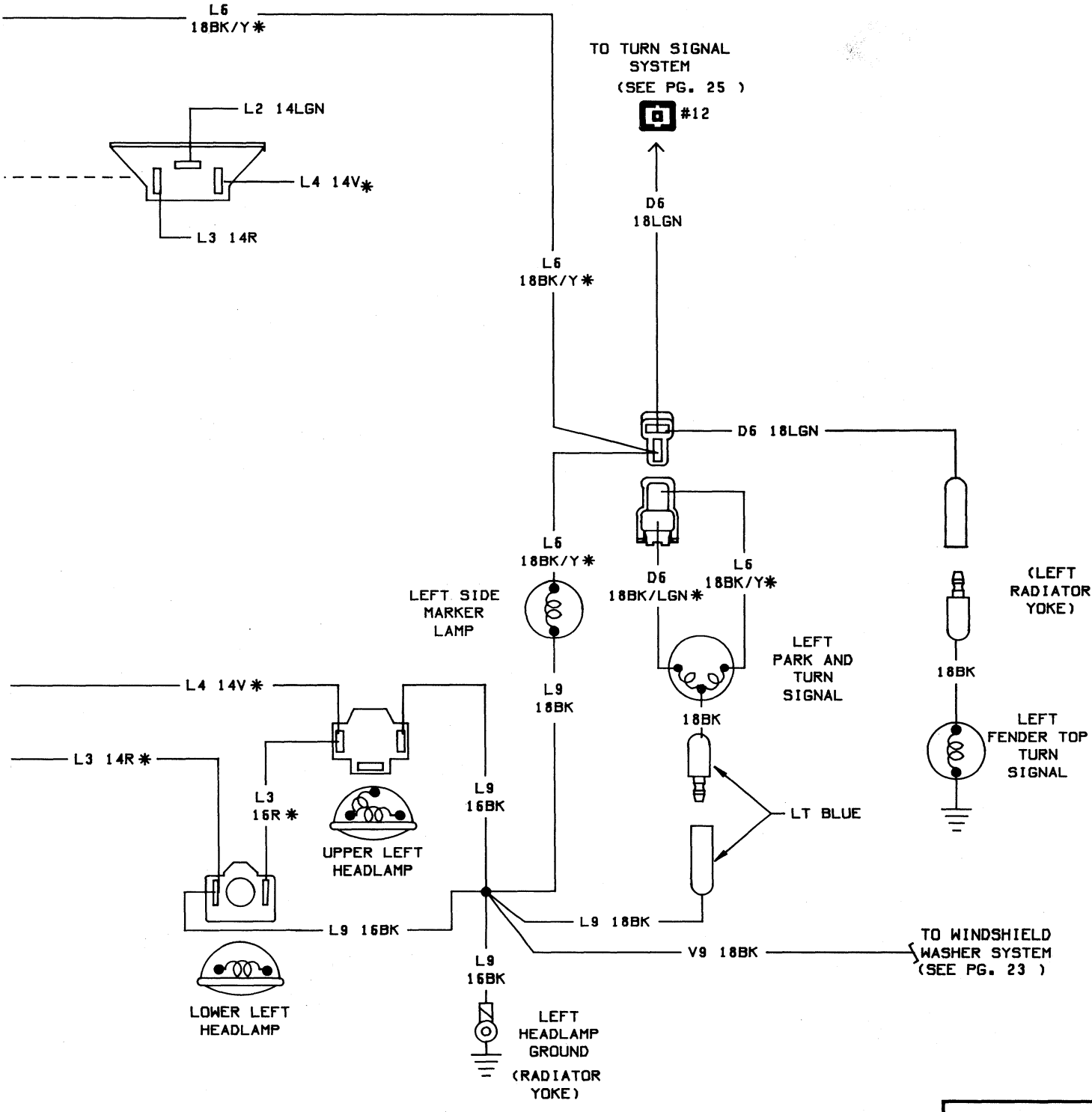


RWXS 15 X-P - FRONT LIGHTING PR3


L6 18BK/Y *
L6 18BK/Y *
L6
18BK/Y *
#12
TO TURN
SIGNAL SYSTEM
(SEE PG. 25)
L6
18BK/Y *
LEFT
PARK AND
TURN
SIGNAL
LAMP
D6
18LGN
D6 18LGN
LEFT
SIDEMARKER
LAMP
(LEFT
RADIATOR
YOKE)
L9
18BK
18BK
L9
18BK
FENDER TOP
TURN SIGNAL
L4
14V *
LT. BLUE
18BK
L3 14R *
L9 16BK
L9
18BK
L9
16BK
V9 18BK
TO WINDSHIELD
WASHER SYSTEM
(SEE PG. 23)
LEFT HEADLAMP
LEFT HEADLAMP
GROUND
(RADIATOR
YOKE)



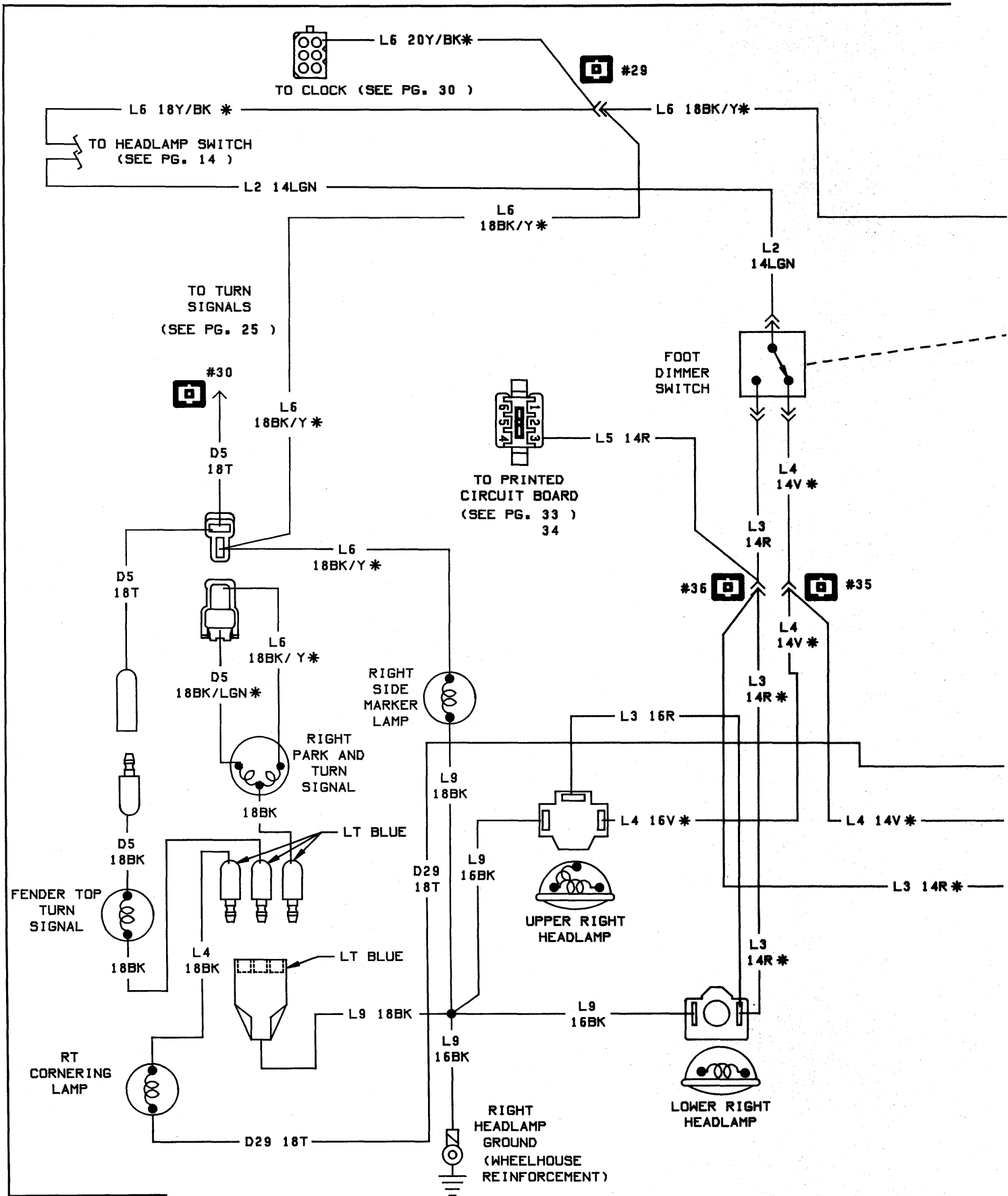
RWXS 17 RW FRONT END LIGHTING PR3



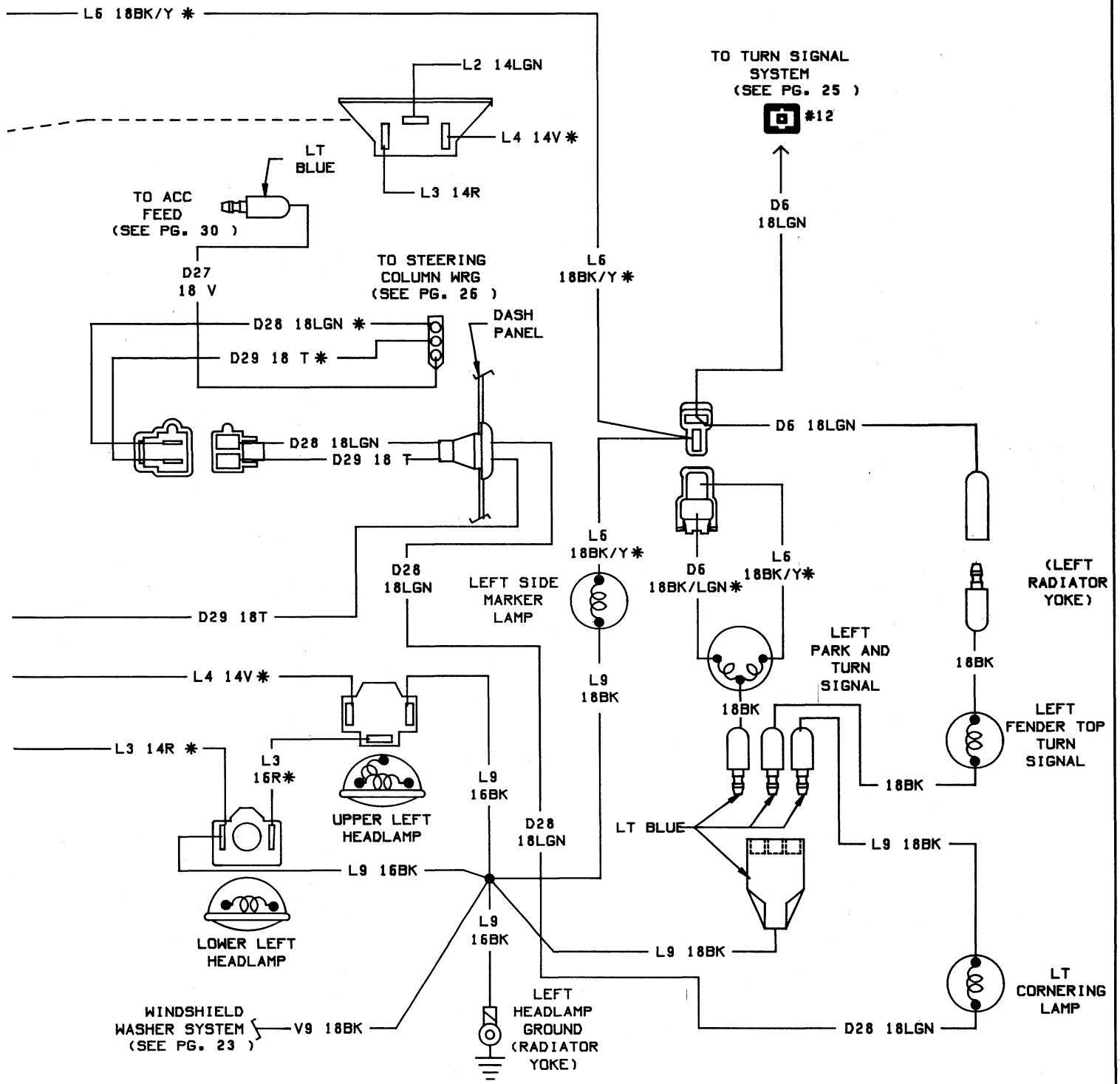
PR3

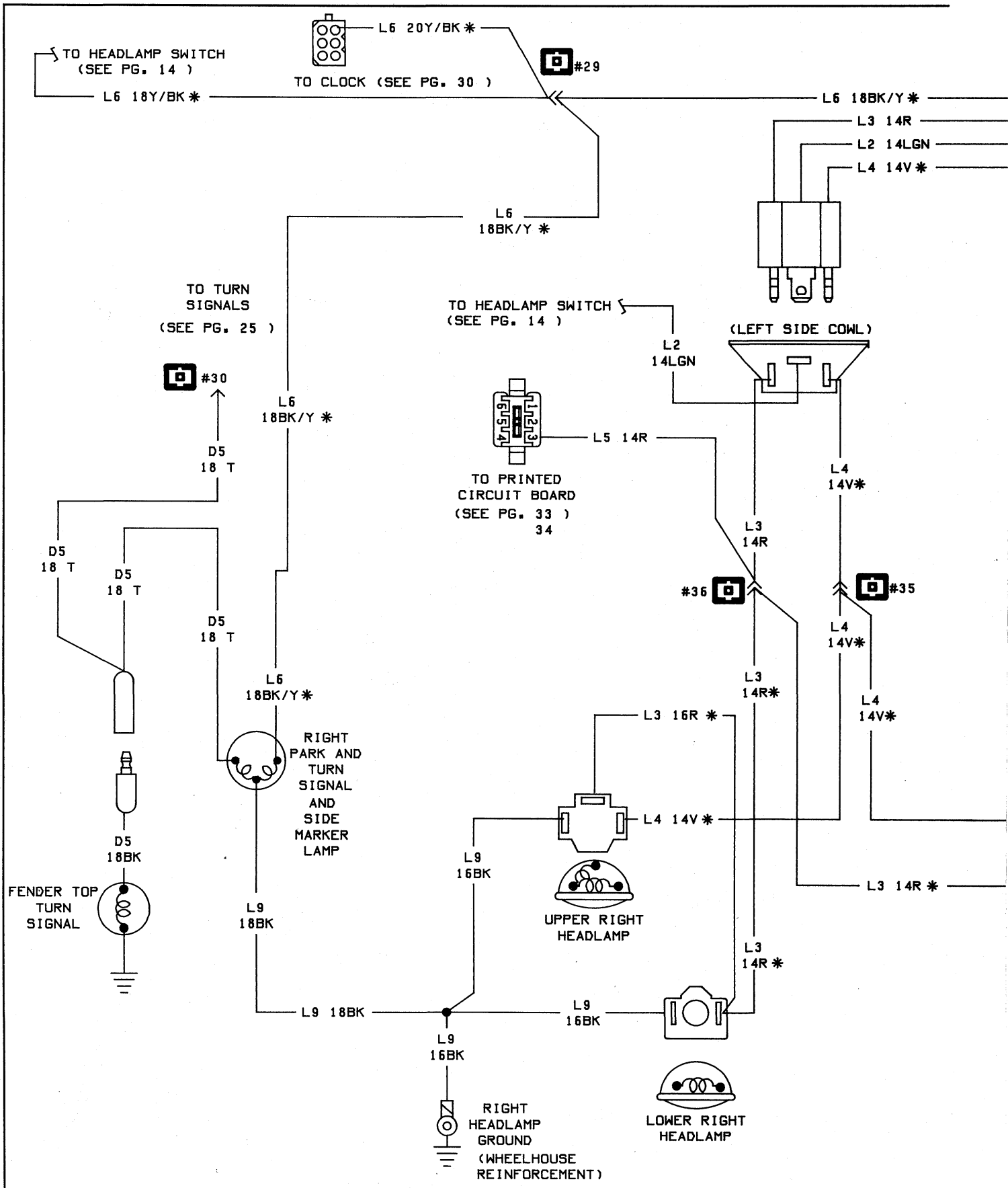
RW FRONT END LIGHTING

RWXS 18



RWXS 19 S FRONT END LIGHTING PR3

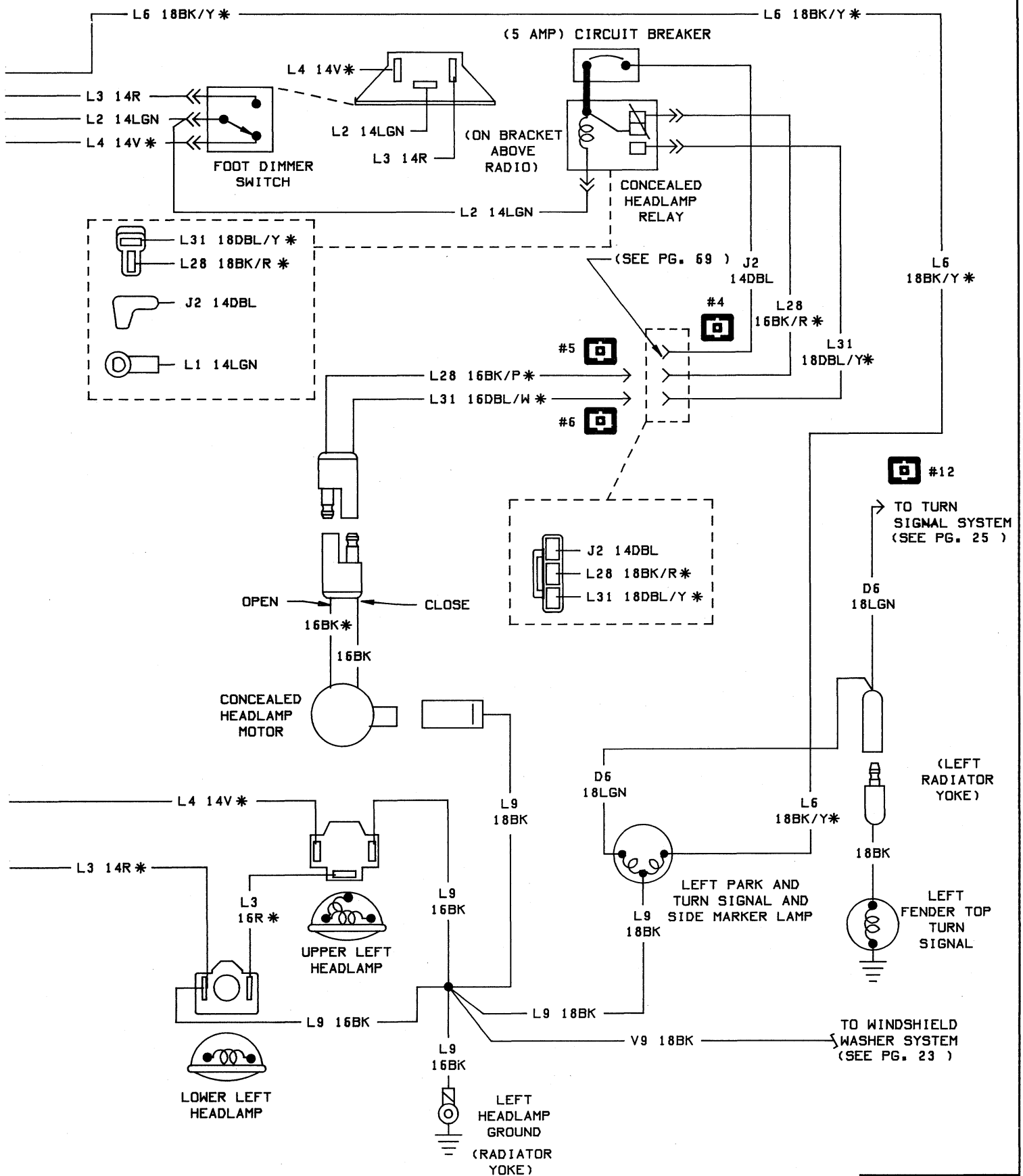

L6 18BK/Y *
L2 14LGN
L4 14V*
L3 14R
LT BLUE
TO ACC FEED (SEE PG. 30)
D27 18 V
TO STEERING COLUMN WRG (SEE PG. 26)
D28 18LGN *
D29 18 T*
DASH PANEL
D28 18LGN
D29 18 T
D29 18T
D28 18LGN
LEFT SIDE MARKER LAMP
L6 18BK/Y*
L9 18BK
L4 14V*
L3 14R *
L3 16R*
UPPER LEFT HEADLAMP
L9 16BK
D28 18LGN
L9 16BK
LOWER LEFT HEADLAMP
L9 16BK
WINDSHIELD WASHER SYSTEM (SEE PG. 23)
V9 18BK
LEFT HEADLAMP GROUND (RADIATOR YOKE)
L9 18BK
TO TURN SIGNAL SYSTEM (SEE PG. 25)
#12
D6 18LGN
L6 18BK/Y*
D6 18LGN
D6 18BK/LGN*
L6 18BK/Y*
LEFT PARK AND TURN SIGNAL
18BK
LT BLUE
L9 18BK
D28 18LGN
(LEFT RADIATOR YOKE)
18BK
LEFT FENDER TOP TURN SIGNAL
18BK
L9 18BK
LT CORNERING LAMP



RWXS 21

X-S FRONT END LIGHTING

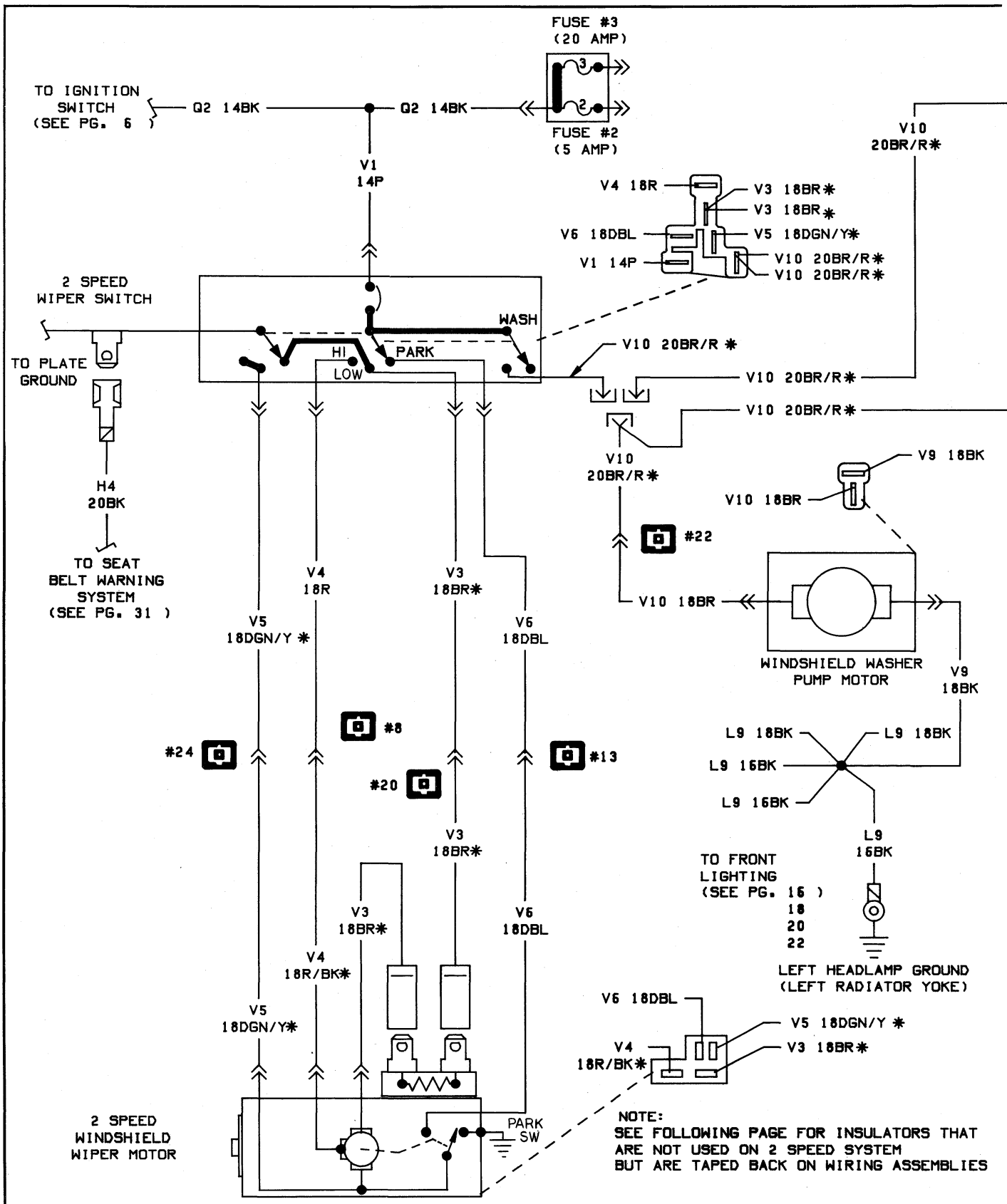
PR3



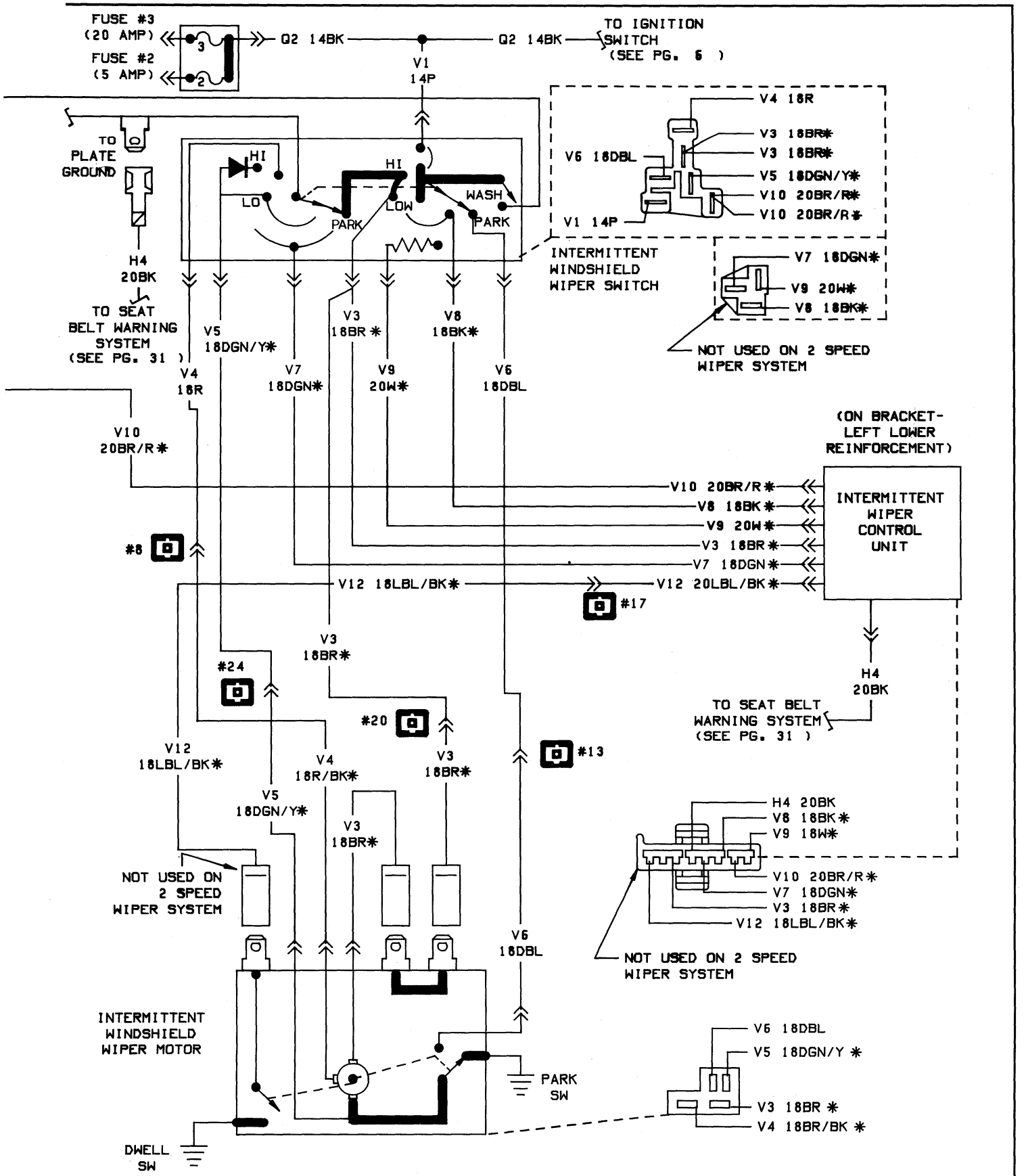
X-S FRONT END LIGHTING

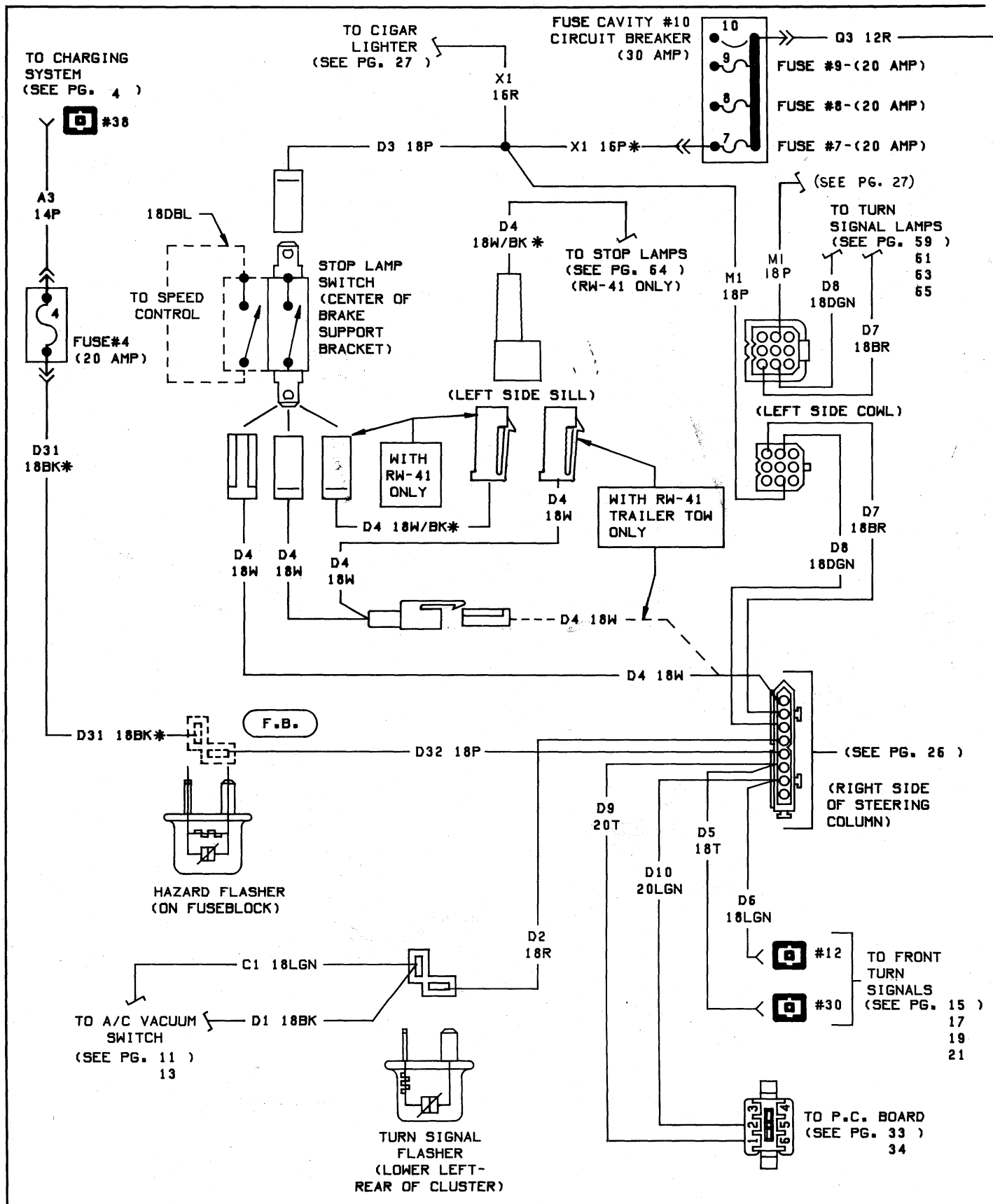
PR3

RWXS 22

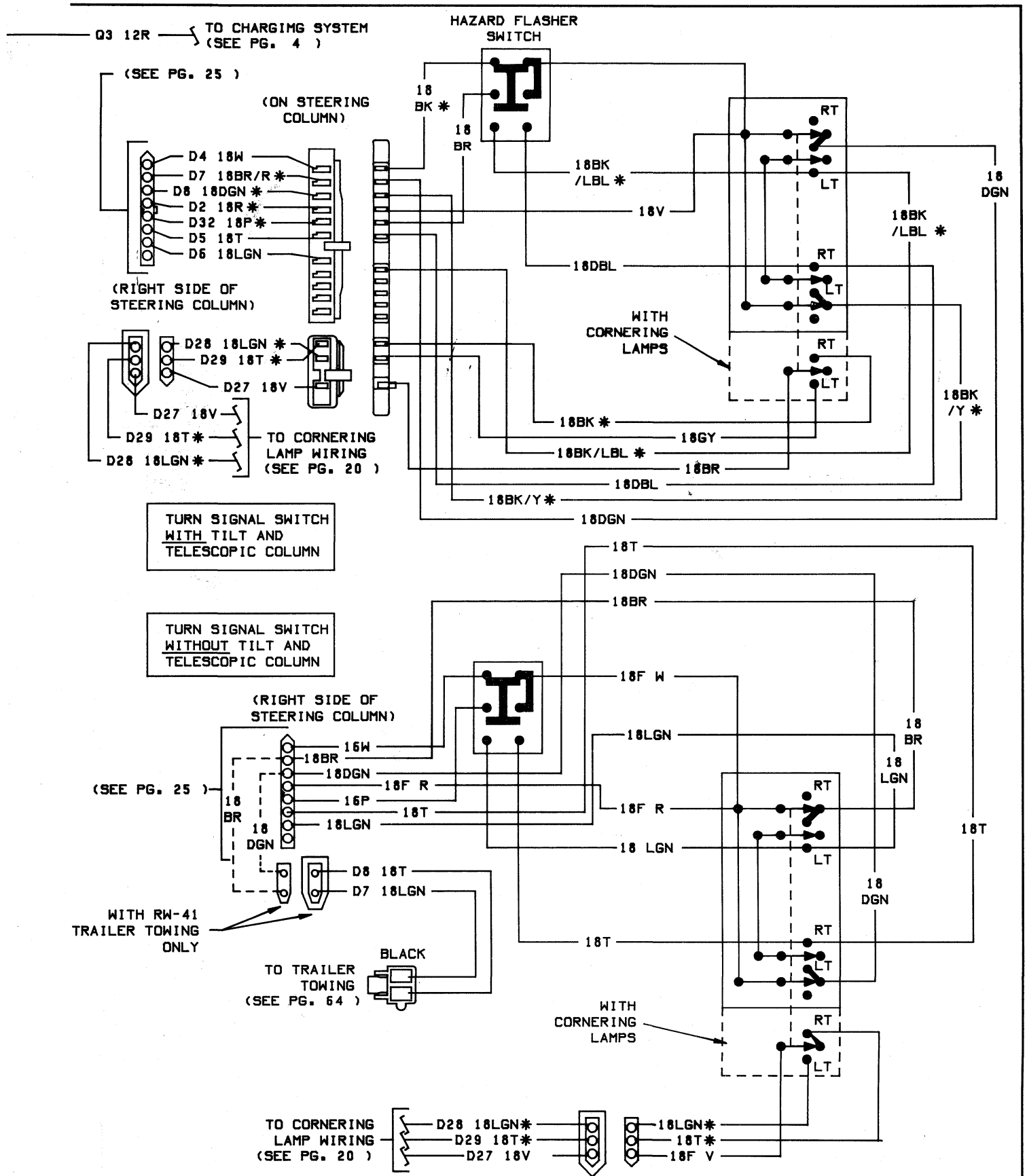


RWXS 23 WINDSHIELD WIPER SYSTEM PR3


FUSE #3
(20 AMP)
FUSE #2
(5 AMP)
3
2
Q2 14BK
Q2 14BK
TO IGNITION SWITCH
(SEE PG. 6)
V1
14P
TO
PLATE
GROUND
HI
LO
PARK
HI
LOW
WASH
PARK
H4
20BK
TO SEAT
BELT WARNING
SYSTEM
(SEE PG. 31)
V5
18DGN/Y*
V4
18R
V7
18DGN*
V3
18BR*
V9
20W*
V8
18BK*
V6
18DBL
V4 18R
V3 18BR*
V3 18BR*
V6 18DBL
V5 18DGN/Y*
V10 20BR/R*
V10 20BR/R*
V1 14P
INTERMITTENT
WINDSHIELD
WIPER SWITCH
V7 18DGN*
V9 20W*
V8 18BK*
NOT USED ON 2 SPEED
WIPER SYSTEM
V10
20BR/R*
(ON BRACKET-
LEFT LOWER
REINFORCEMENT)
V10 20BR/R*
V8 18BK*
V9 20W*
V3 18BR*
V7 18DGN*
V12 18LBL/BK*
V12 20LBL/BK*
INTERMITTENT
WIPER
CONTROL
UNIT
#8
#17
V3
18BR*
#24
#20
#13
H4
20BK
TO SEAT BELT
WARNING SYSTEM
(SEE PG. 31)
V12
18LBL/BK*
V4
18R/BK*
V3
18BR*
V5
18DGN/Y*
V3
18BR*
H4 20BK
V8 18BK*
V9 18W*
V10 20BR/R*
V7 18DGN*
V3 18BR*
V12 18LBL/BK*
NOT USED ON
2 SPEED
WIPER SYSTEM
V6
18DBL
NOT USED ON 2 SPEED
WIPER SYSTEM
INTERMITTENT
WINDSHIELD
WIPER MOTOR
PARK
SW
V6 18DBL
V5 18DGN/Y *
V3 18BR *
V4 18BR/BK *
DWELL
SW



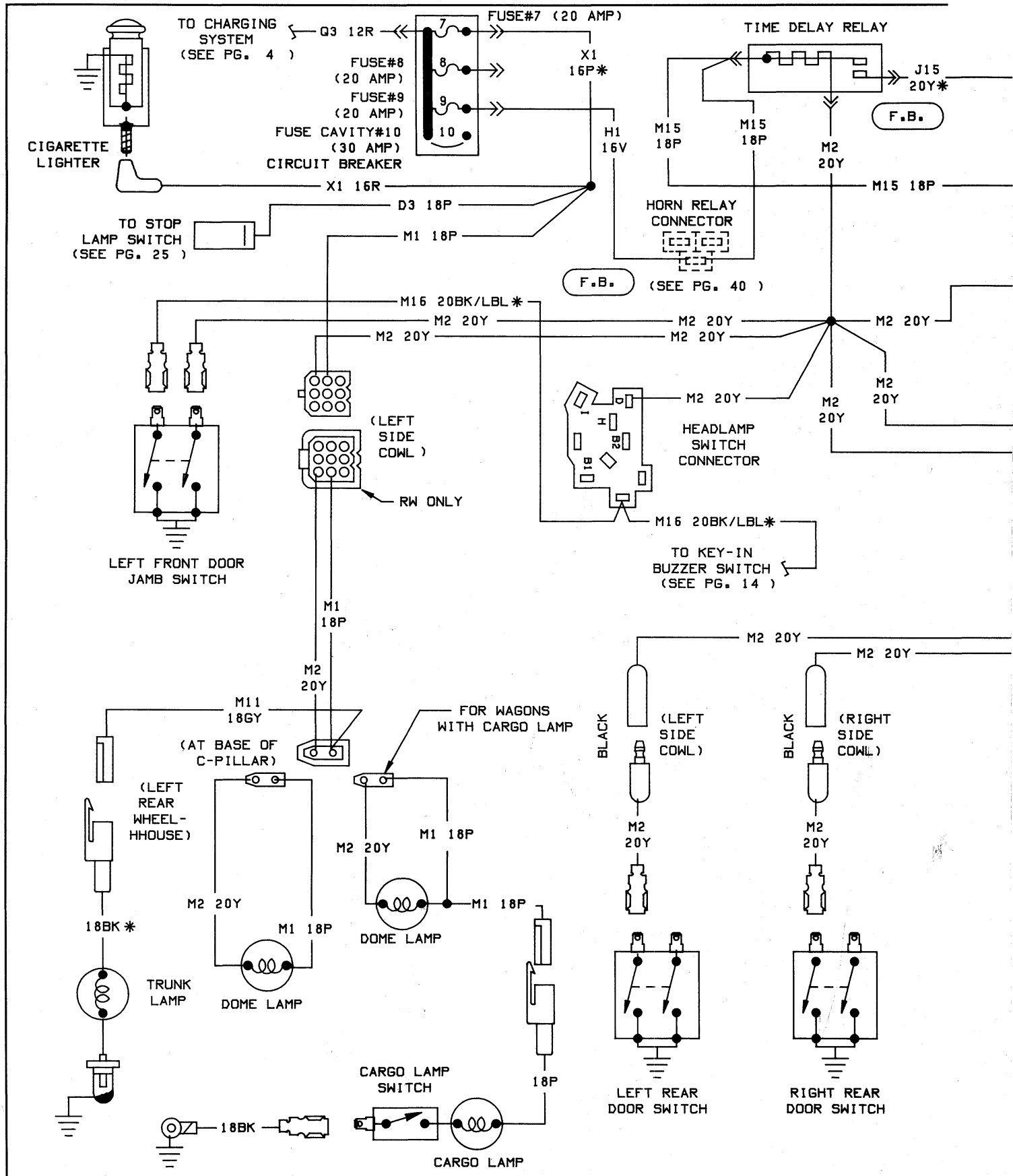
RWXS 25 STEERING COLUMN SWITCH WIRING PR3



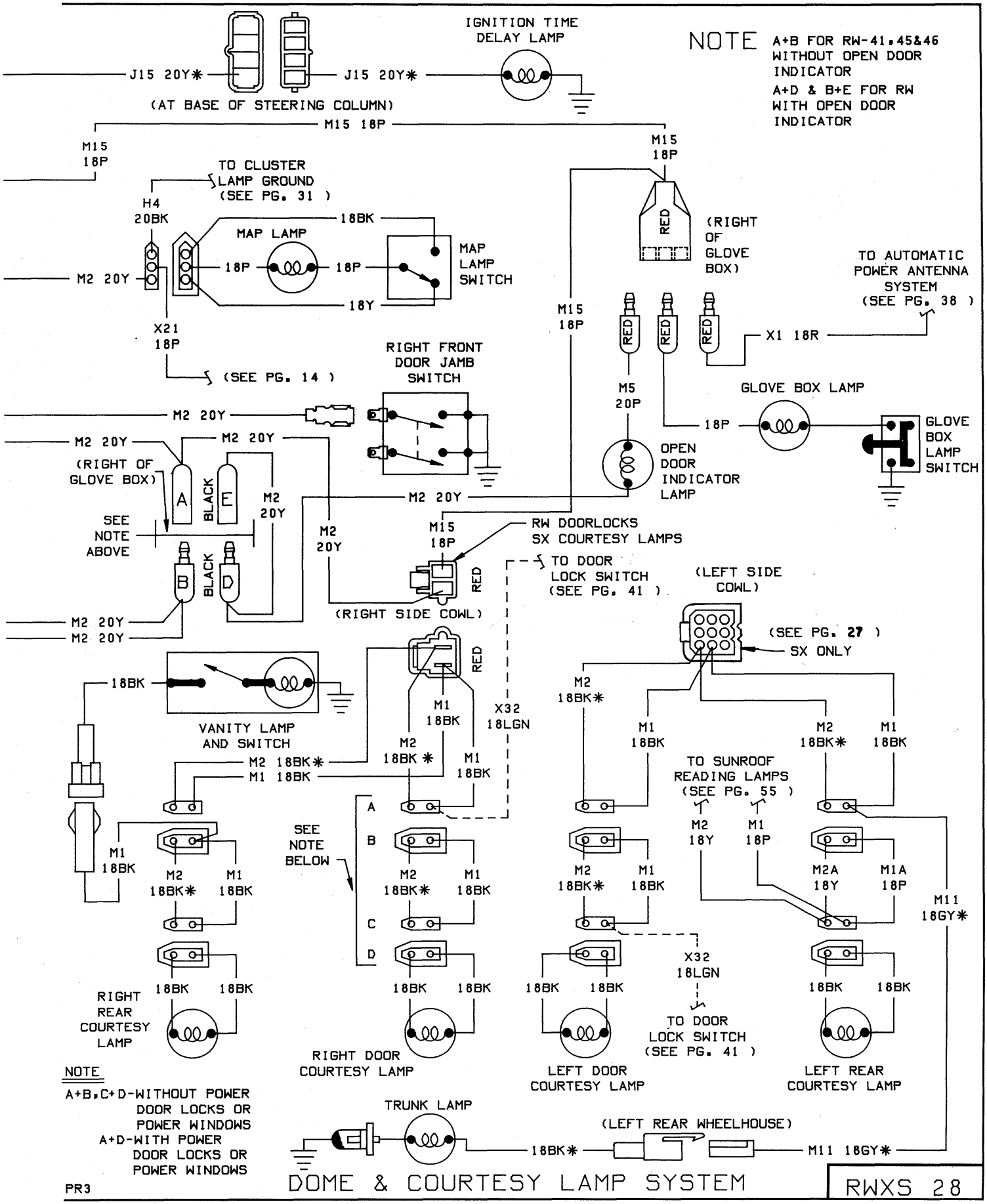
PR3

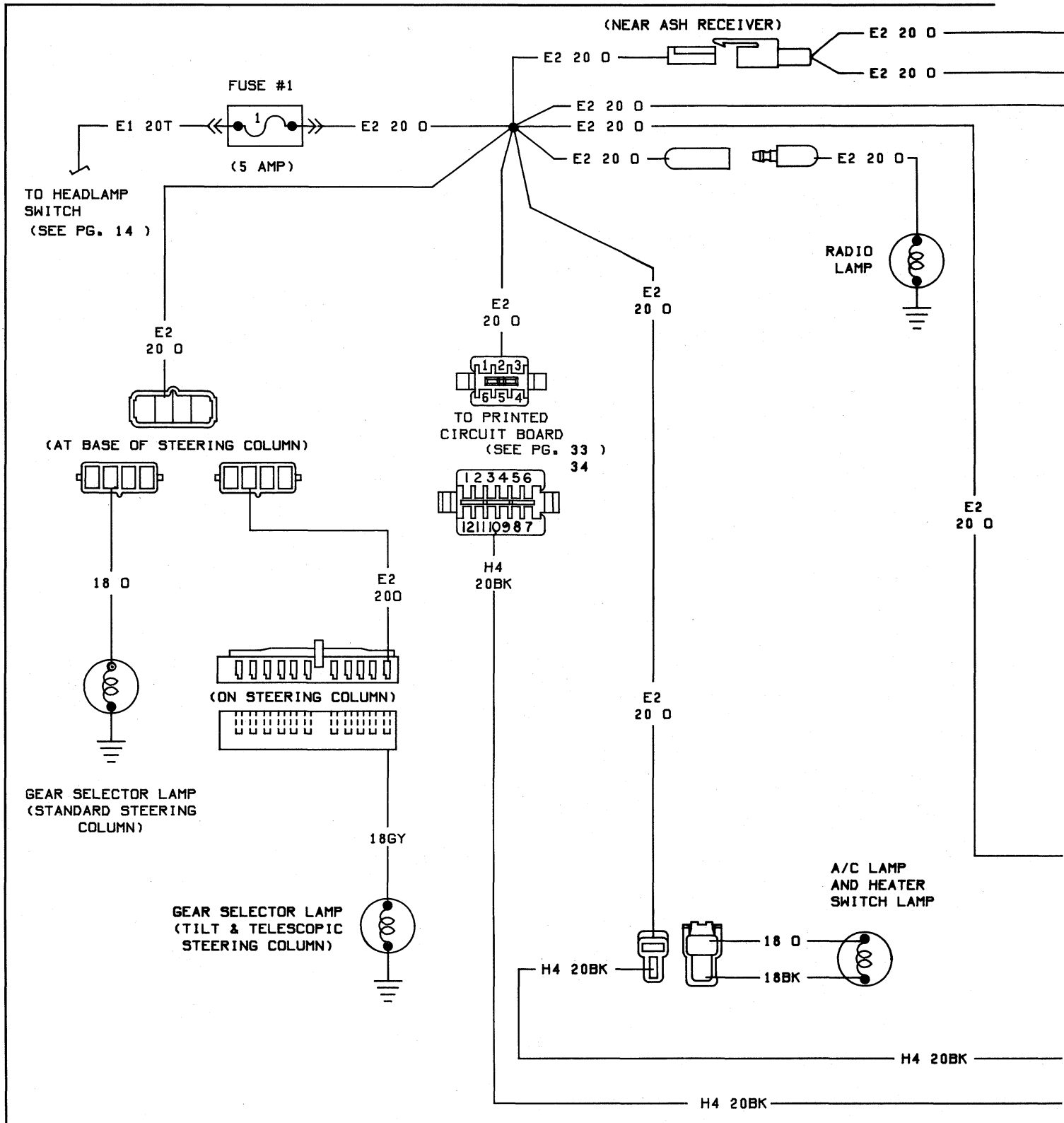
STEERING COLUMN SWITCH WIRING

RWXS 26

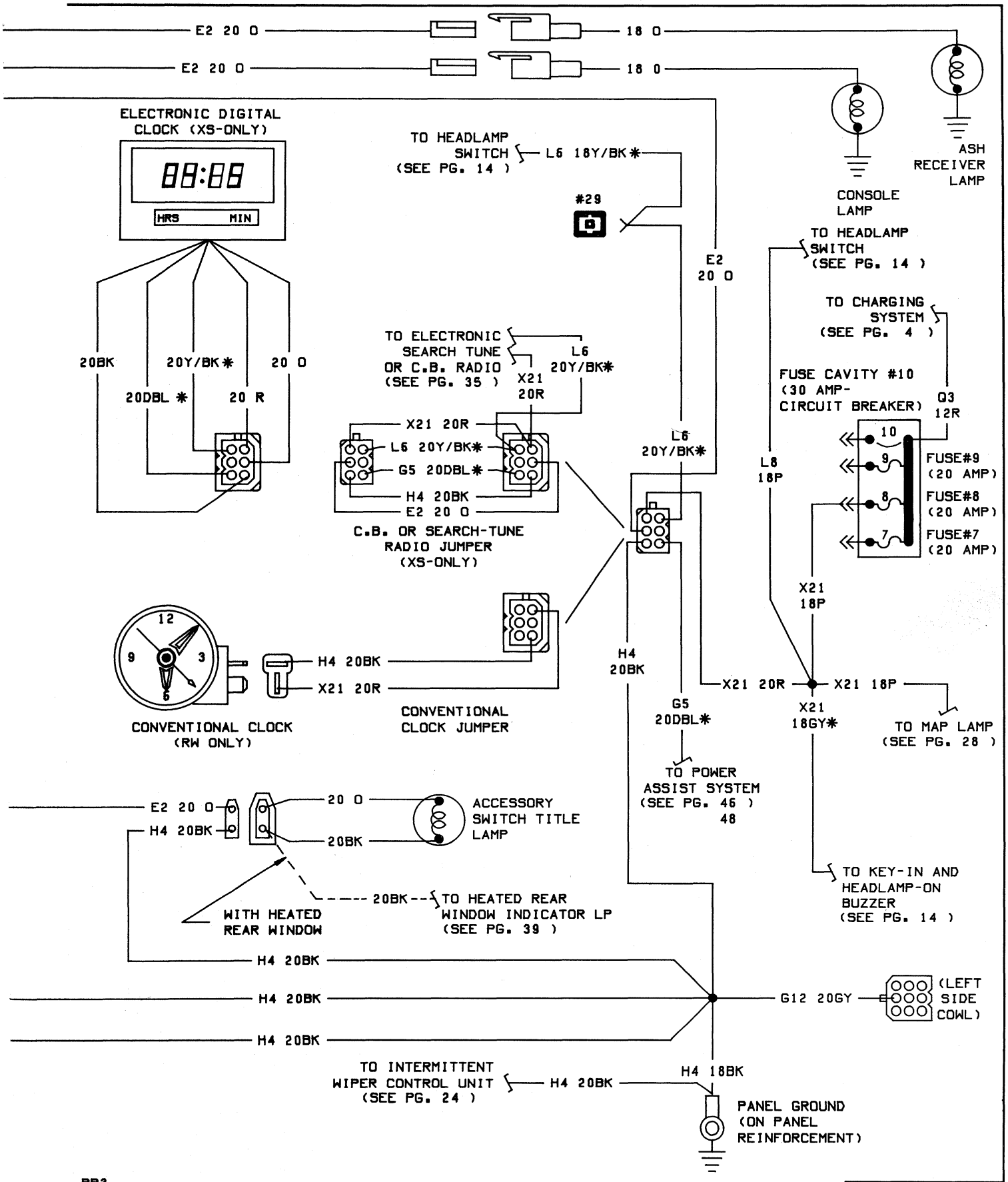


RWXS 27 DOME & COURTESY LAMP SYSTEM PR3


IGNITION TIME DELAY LAMP
J15 20Y*
J15 20Y*
(AT BASE OF STEERING COLUMN)
NOTE
A+B FOR RW-41,45&46 WITHOUT OPEN DOOR INDICATOR
A+D & B+E FOR RW WITH OPEN DOOR INDICATOR
M15 18P
M15 18P
M15 18P
TO CLUSTER LAMP GROUND (SEE PG. 31)
H4 20BK
MAP LAMP
18BK
18P
18P
18Y
MAP LAMP SWITCH
M2 20Y
X21 18P
(SEE PG. 14)
RED
(RIGHT OF GLOVE BOX)
TO AUTOMATIC POWER ANTENNA SYSTEM (SEE PG. 38)
RED
RED
RED
X1 18R
M15 18P
M5 20P
18P
GLOVE BOX LAMP
GLOVE BOX LAMP SWITCH
OPEN DOOR INDICATOR LAMP
RIGHT FRONT DOOR JAMB SWITCH
M2 20Y
M2 20Y
M2 20Y
(RIGHT OF GLOVE BOX)
A
BLACK
E
M2 20Y
M2 20Y
SEE NOTE ABOVE
B
BLACK
D
M2 20Y
M2 20Y
M2 20Y
M15 18P
RW DOORLOCKS SX COURTESY LAMPS
TO DOOR LOCK SWITCH (SEE PG. 41)
RED
(RIGHT SIDE COWL)
(LEFT SIDE COWL)
(SEE PG. 27) SX ONLY
RED
18BK
VANITY LAMP AND SWITCH
M1 18BK
X32 18LGN
M2 18BK*
M1 18BK
M2 18BK*
M1 18BK
M2 18BK*
M1 18BK
M2 18BK*
M1 18BK
TO SUNROOF READING LAMPS (SEE PG. 55)
M2 18Y
M1 18P
SEE NOTE BELOW
A
B
C
D
M1 18BK
M2 18BK*
M1 18BK
M2 18BK*
M1 18BK
M2 18BK*
M1 18BK
M2A 18Y
M1A 18P
M11 18GY*
18BK
18BK
18BK
18BK
18BK
18BK
18BK
18BK
X32 18LGN
TO DOOR LOCK SWITCH (SEE PG. 41)
RIGHT REAR COURTESY LAMP
RIGHT DOOR COURTESY LAMP
LEFT DOOR COURTESY LAMP
LEFT REAR COURTESY LAMP
NOTE
A+B,C+D-WITHOUT POWER DOOR LOCKS OR POWER WINDOWS
A+D-WITH POWER DOOR LOCKS OR POWER WINDOWS
TRUNK LAMP
(LEFT REAR WHEELHOUSE)
18BK*
M11 18GY*
PR3
DOME & COURTESY LAMP SYSTEM
RWXS 28

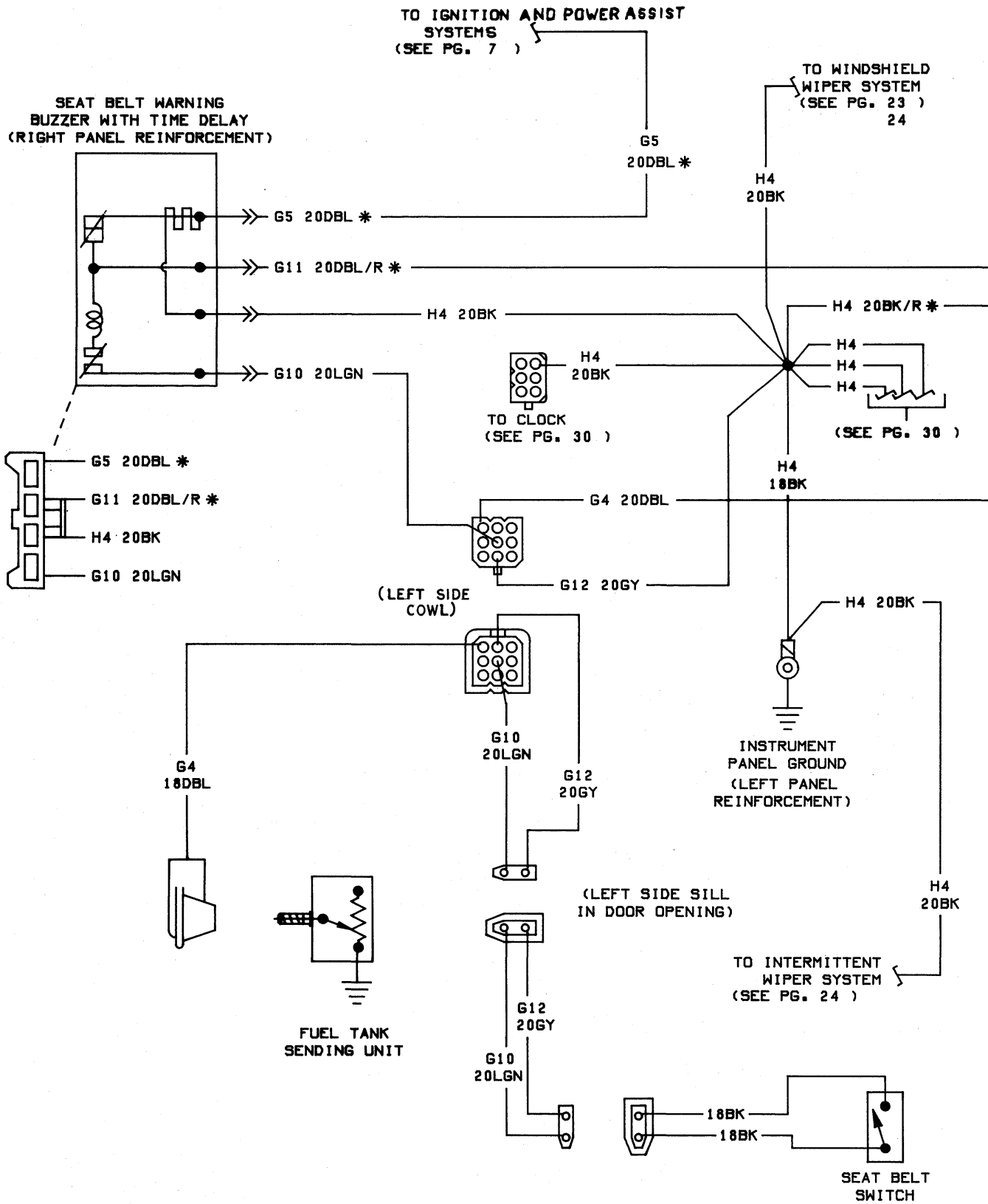


RWXS 29 HEADLAMP SWITCH CONTROLLED INTERIOR LIGHTING PR3

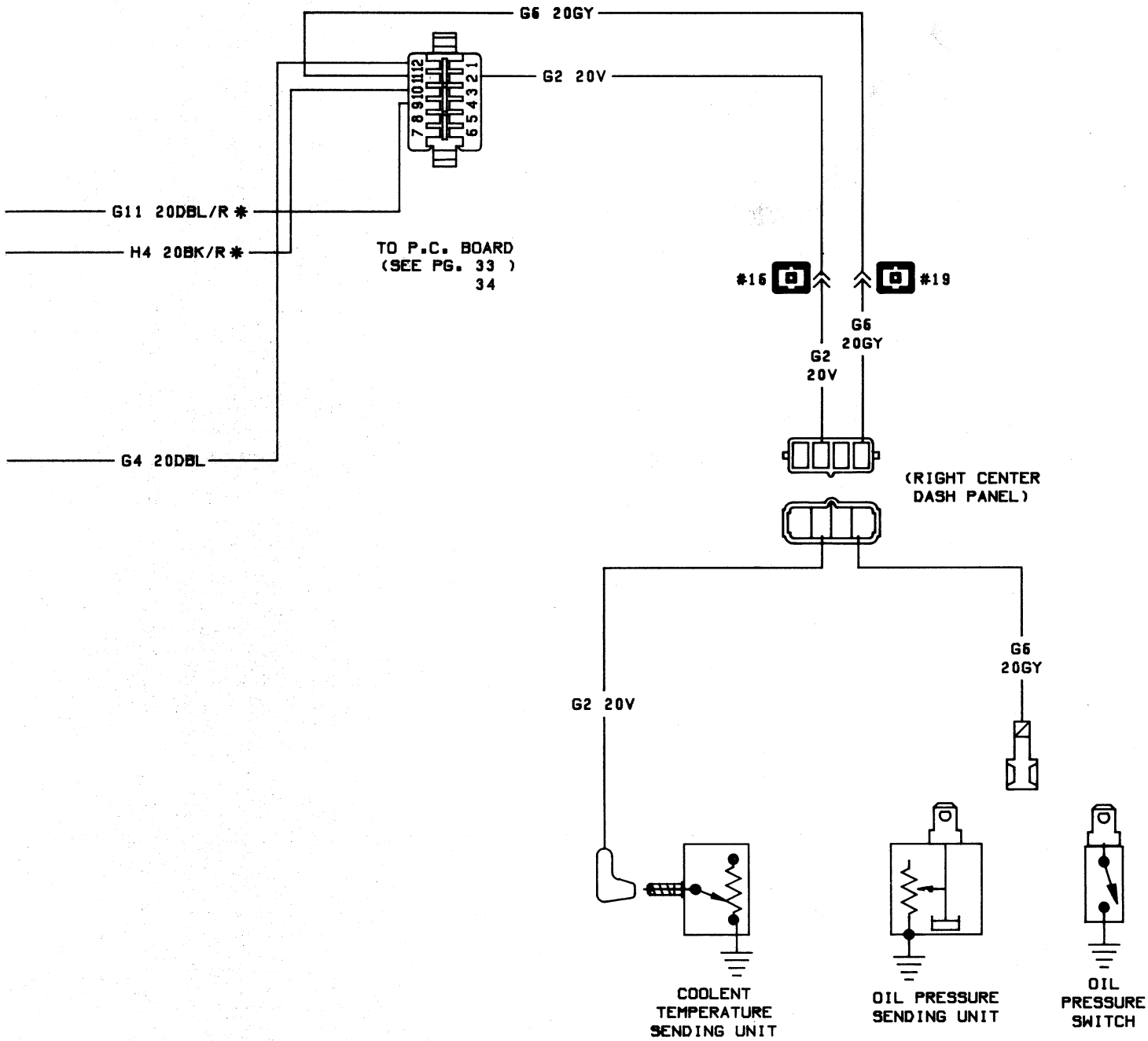


PR3

HEADLAMP SWITCH CONTROLLED INTERIOR LIGHTING

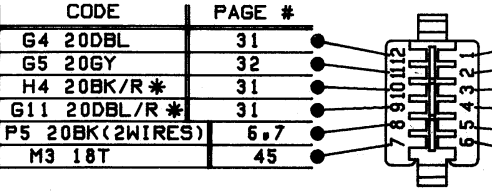


RWXS 31 SEATBELT WARNING SYSTEM PR3

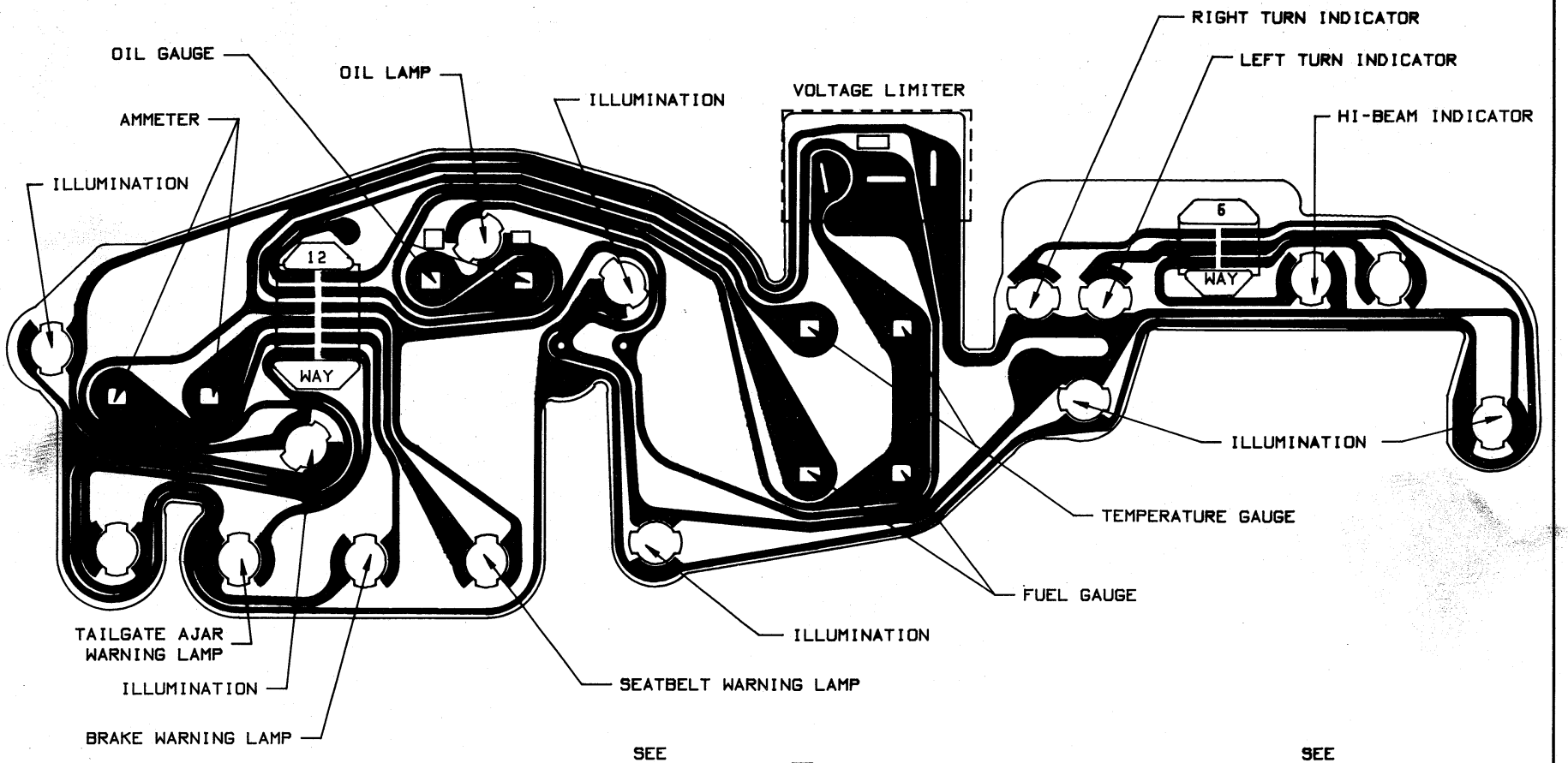

G6 20GY
G2 20V
7 8 9 10 11 12
6 5 4 3 2 1
G11 20DBL/R *
H4 20BK/R *
G4 20DBL
TO P.C. BOARD
(SEE PG. 33)
34
#16
#19
G6
20GY
G2
20V
(RIGHT CENTER
DASH PANEL)
G2 20V
G6
20GY
COOLENT
TEMPERATURE
SENDING UNIT
OIL PRESSURE
SENDING UNIT
OIL
PRESSURE
SWITCH

CIRCUIT	CODE	SEE PAGE #
FUEL GAGE	G4 20DBL	31
OIL WARNING	G5 20GY	32
GROUND	H4 20BK/R *	31
SEAT BELTS	G11 20DBL/R *	31
BRAKE FAILURE	P5 20BK(2WIRES)	6,7
T/GATE AJAR WARN	M3 18T	45

CIRCUIT	CODE	SEE PAGE #
TEMP. GAGE	G2 20V	32
VOLTAGE LIMITER	G5 20DBL *	33,34
AMMETER (BATT)	A11 20R *	3
AMMETER (ALT)	R16 20BK *	3

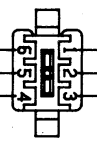


(TERMINAL END SHOWN)



CIRCUIT	CODE	SEE PAGE #
CLUSTER LAMPS	E2 20 O	33,34

CIRCUIT	CODE	SEE PAGE #
RT.TURN IND.	D9 20T	25,26
LT.TURN IND.	D10 20LGN	25,26
HI-BEAM IND	L5 14R	15,17,19,21



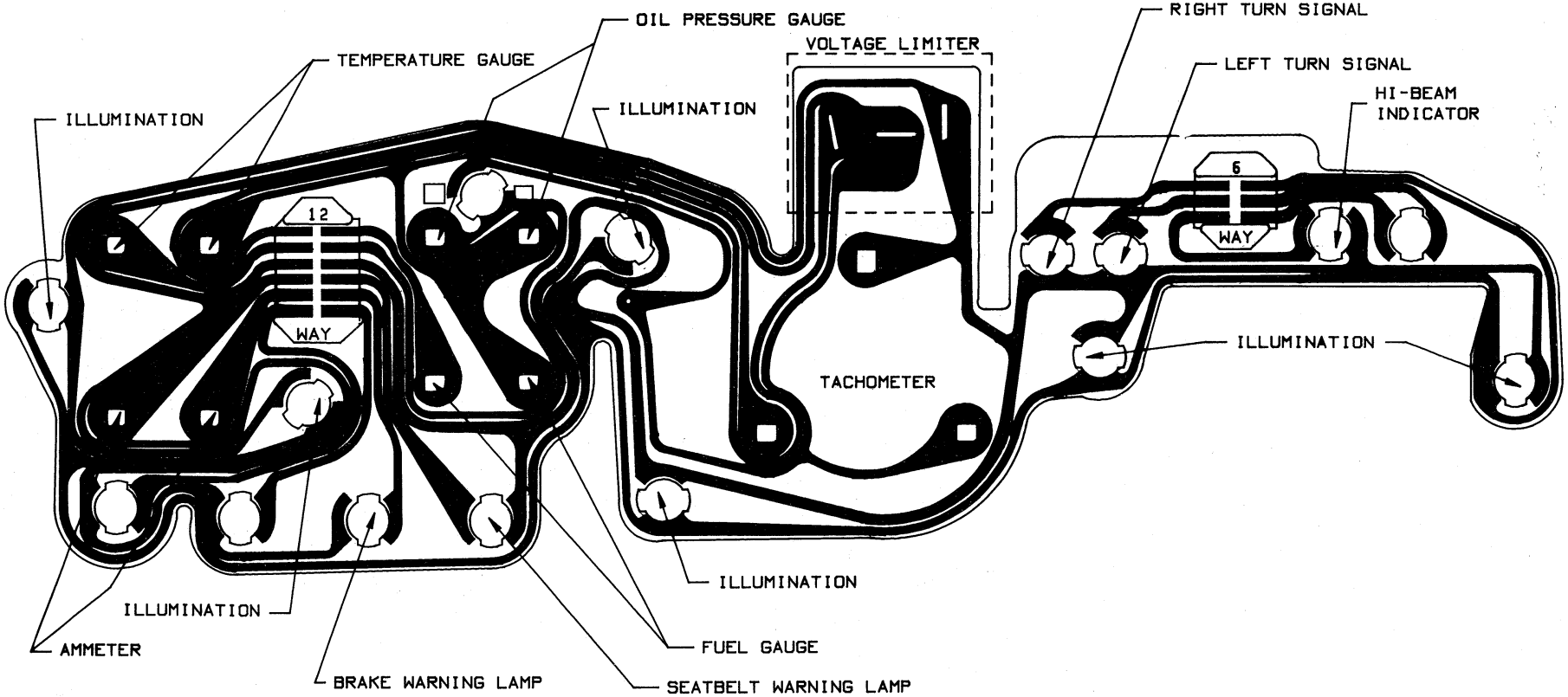
(TERMINAL END SHOWN)

78 - RWXS - PRINTED CIRCUIT BOARD

CIRCUIT	CODE	SEE PAGE #
FUEL GAGE	G4 20DBL	31
OIL WARNING	G6 20GY	32
GROUND	H4 20BK/R *	29
SEATBELTS	G11 20DBL/R *	31
BRAKE FAILURE	P5 20BK(2WIRES)	6,7

CIRCUIT	CODE	SEE PAGE #
TACHOMETER	T11 20GY *	8,10
TEMP. GAGE	G2 20V	32
VOLTAGE LIMITER	G5 20DBL *	33,34
AMMETER (BATT)	A11 20R *	3
AMMETER (ALT)	R16 20BK *	3

(TERMINAL END SHOWN)

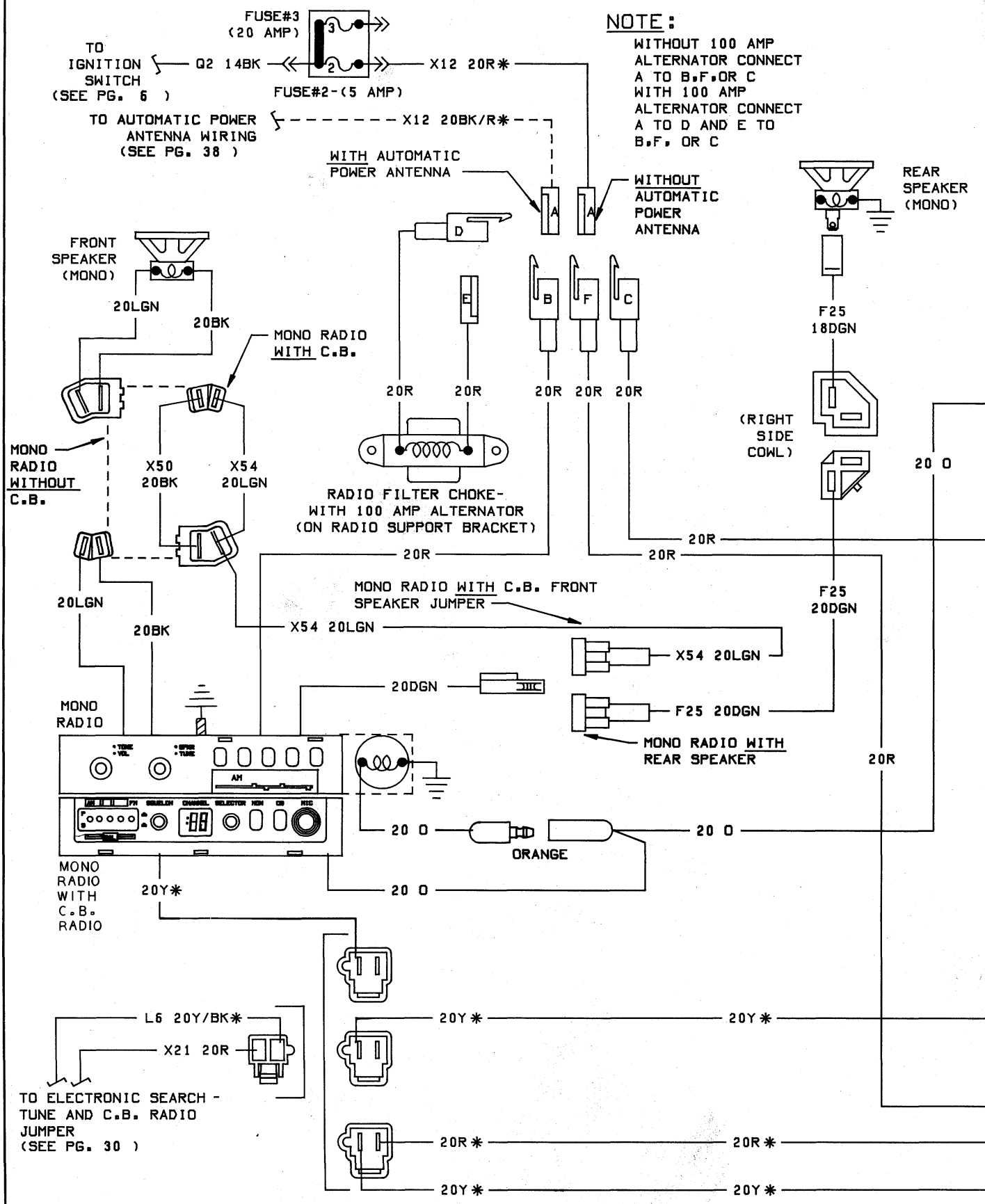


CIRCUIT	CODE	SEE PAGE #
CLUSTER LAMPS	E2 20 O	33,34

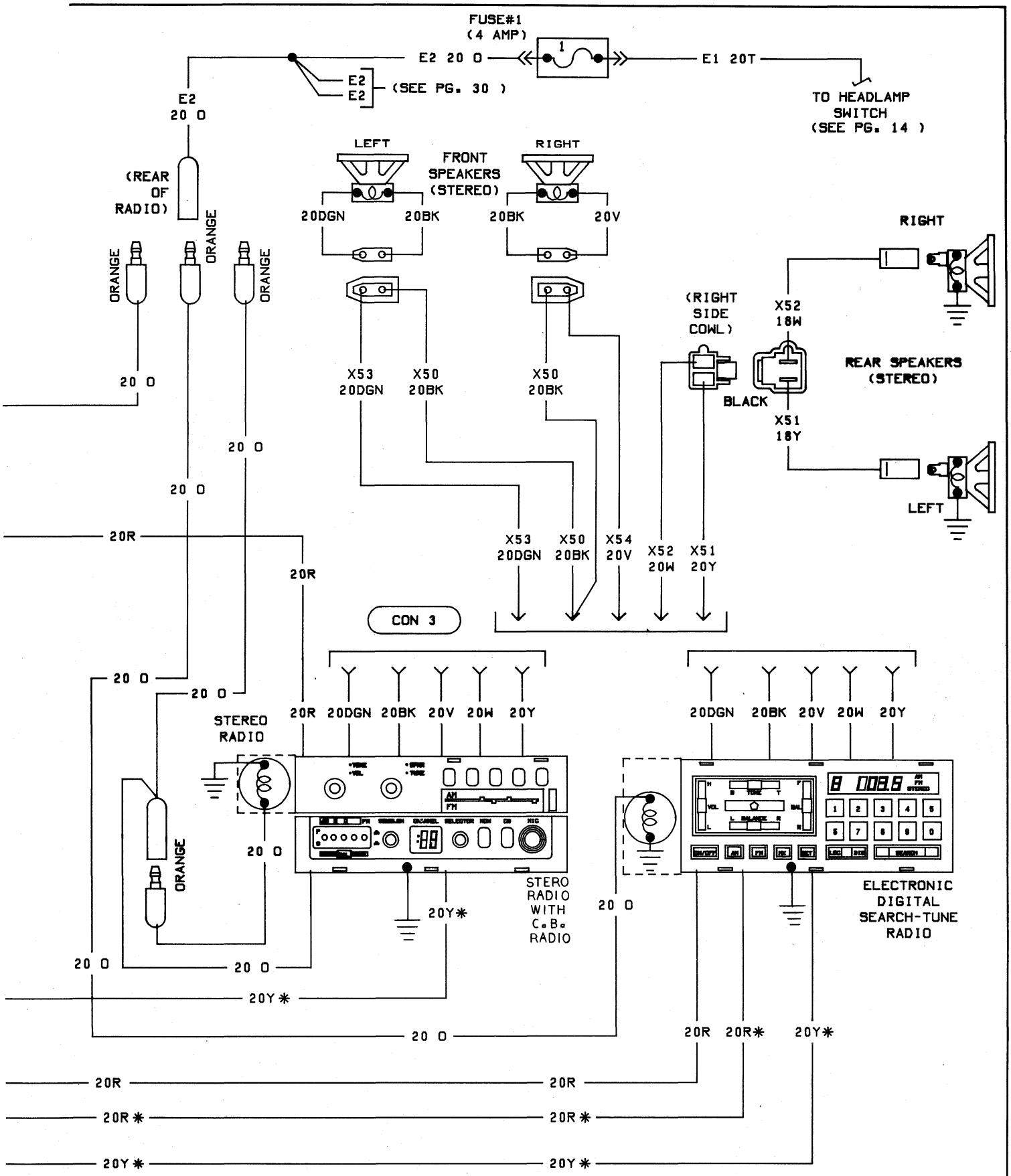
CIRCUIT	CODE	SEE PAGE #
RT.TURN IND.	D9 20T	25,26
LT.TURN IND.	D10 20LGN	25,26
HI-BEAM IND.	L5 14R	15,17,19,21

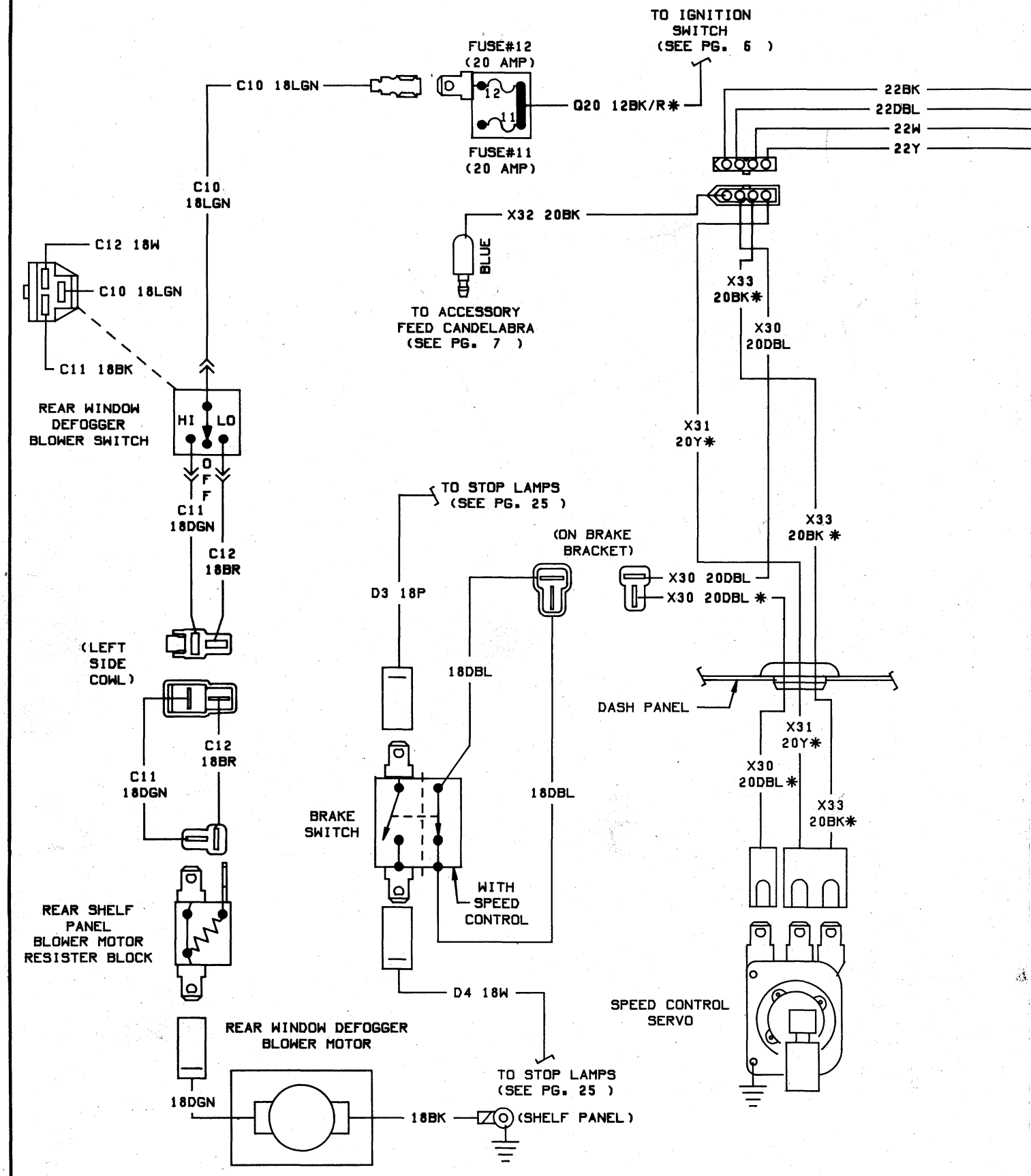
(TERMINAL END SHOWN)

78 XS - PRINTED CIRCUIT BOARD (WITH TACHOMETER)

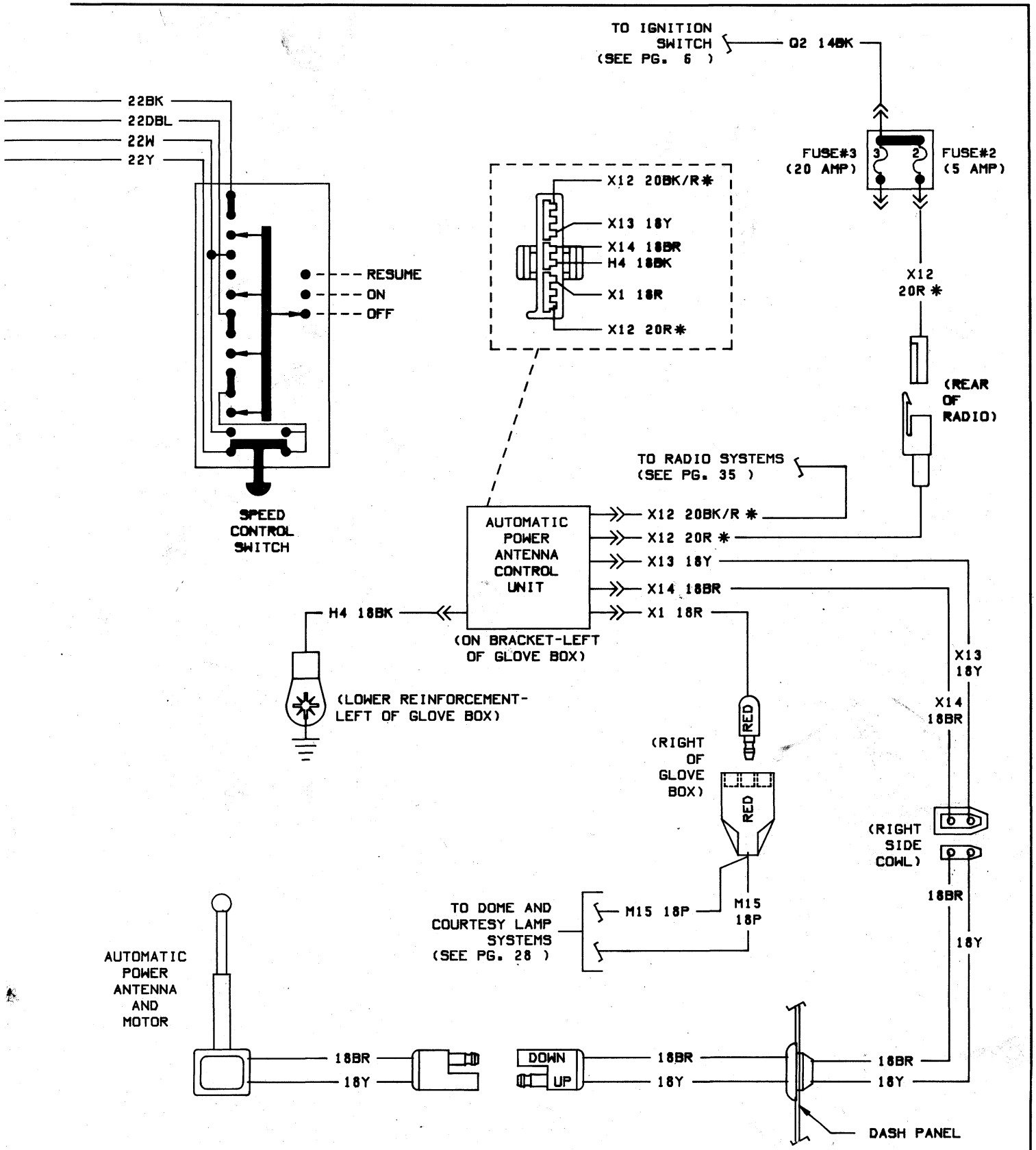


RWXS 35 MONO RADIO SYSTEMS PR3

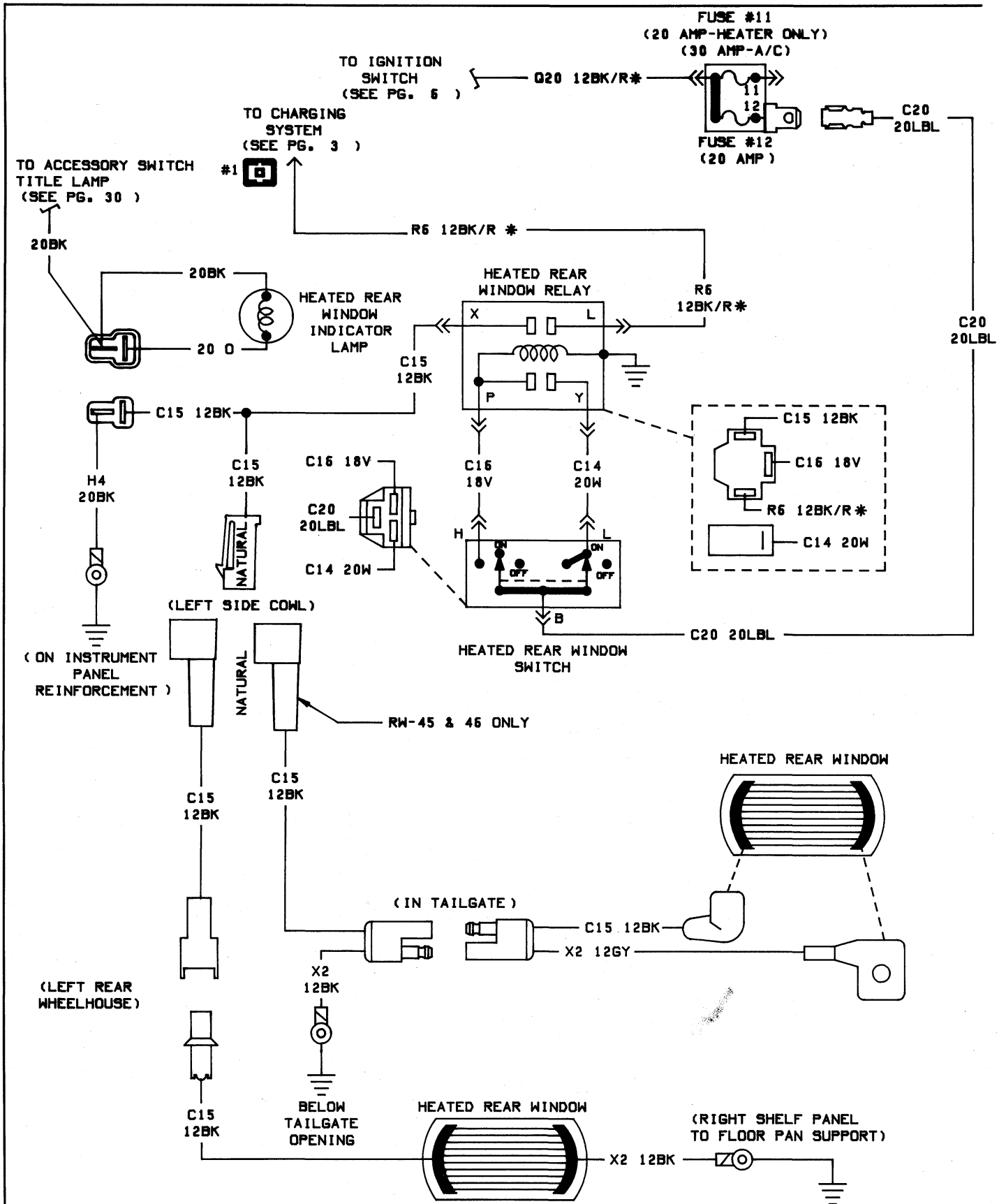

FUSE#1
(4 AMP)
E2 20 O
E1 20T
E2
E2
(SEE PG. 30)
TO HEADLAMP
SWITCH
(SEE PG. 14)
E2
20 O
(REAR
OF
RADIO)
ORANGE
ORANGE
ORANGE
LEFT
FRONT
SPEAKERS
(STEREO)
RIGHT
20DGN
20BK
20BK
20V
RIGHT
(RIGHT
SIDE
COWL)
X52
18W
REAR SPEAKERS
(STEREO)
BLACK
X51
18Y
LEFT
X53
20DGN
X50
20BK
X50
20BK
20 O
20 O
20 O
20R
20R
X53
20DGN
X50
20BK
X54
20V
X52
20W
X51
20Y
CON 3
20 O
20 O
20R
20DGN
20BK
20V
20W
20Y
20DGN
20BK
20V
20W
20Y
STEREO
RADIO
ORANGE
20 O
20Y*
STERO
RADIO
WITH
C.B.
RADIO
20 O
ELECTRONIC
DIGITAL
SEARCH-TUNE
RADIO
20 O
20 O
20Y*
20 O
20R
20R*
20Y*
20R
20R
20R*
20R*
20Y*
20Y*



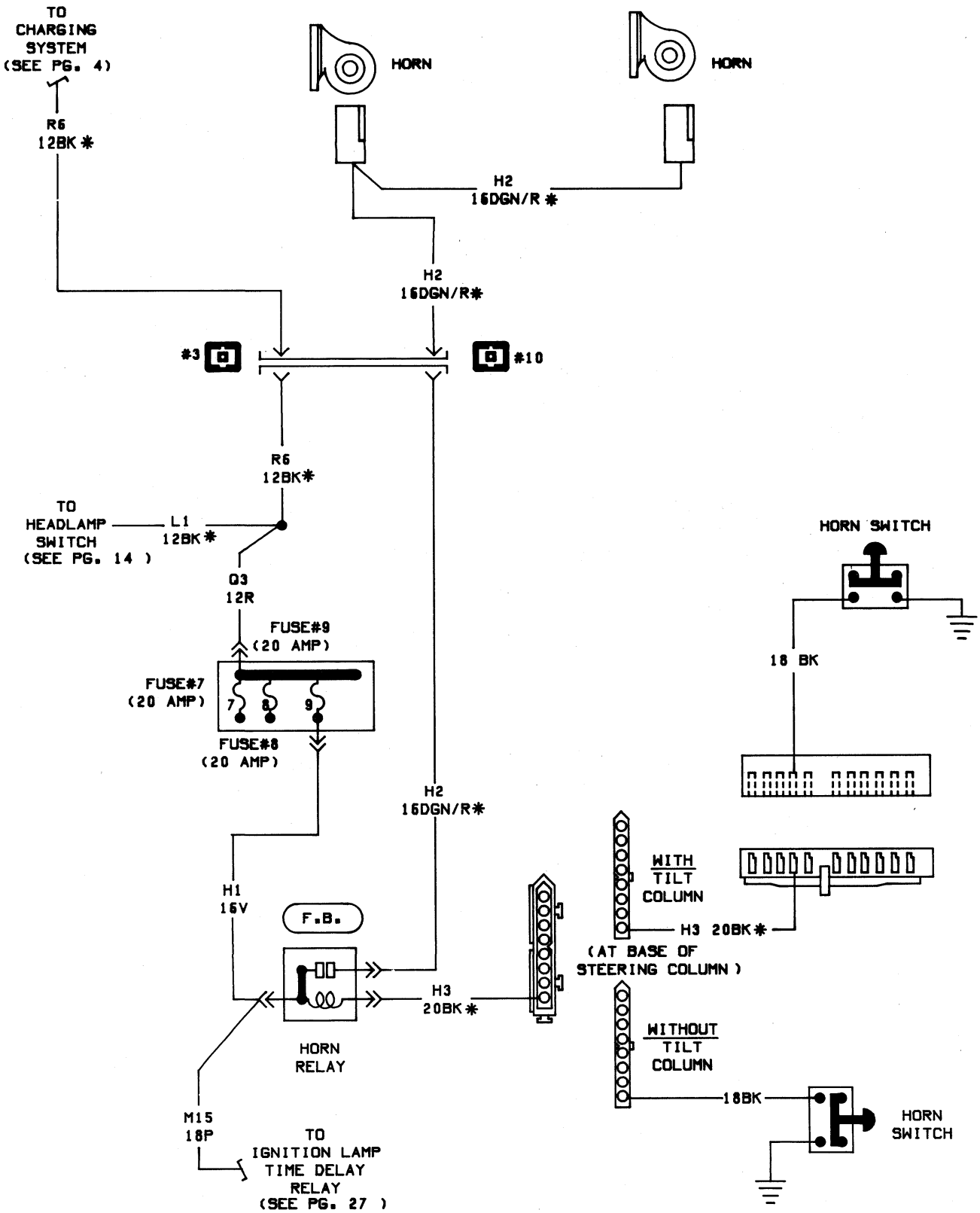
RWXS 37 SPEED CONTROL & REAR WINDOW DEFOGGER PR3



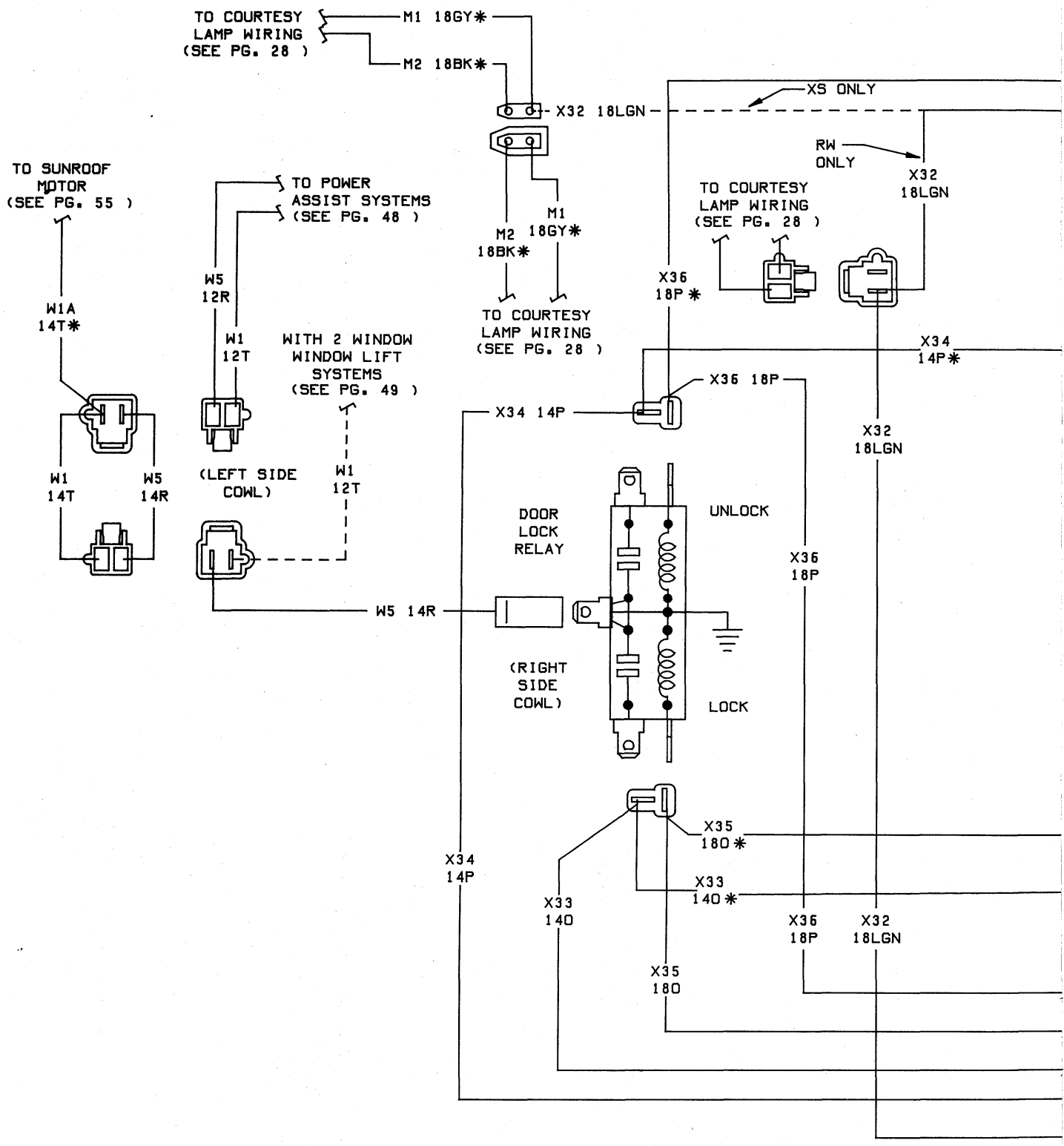
PR3 SPEED CONTROL & POWER ANTENNA SYSTEM RWXS 38



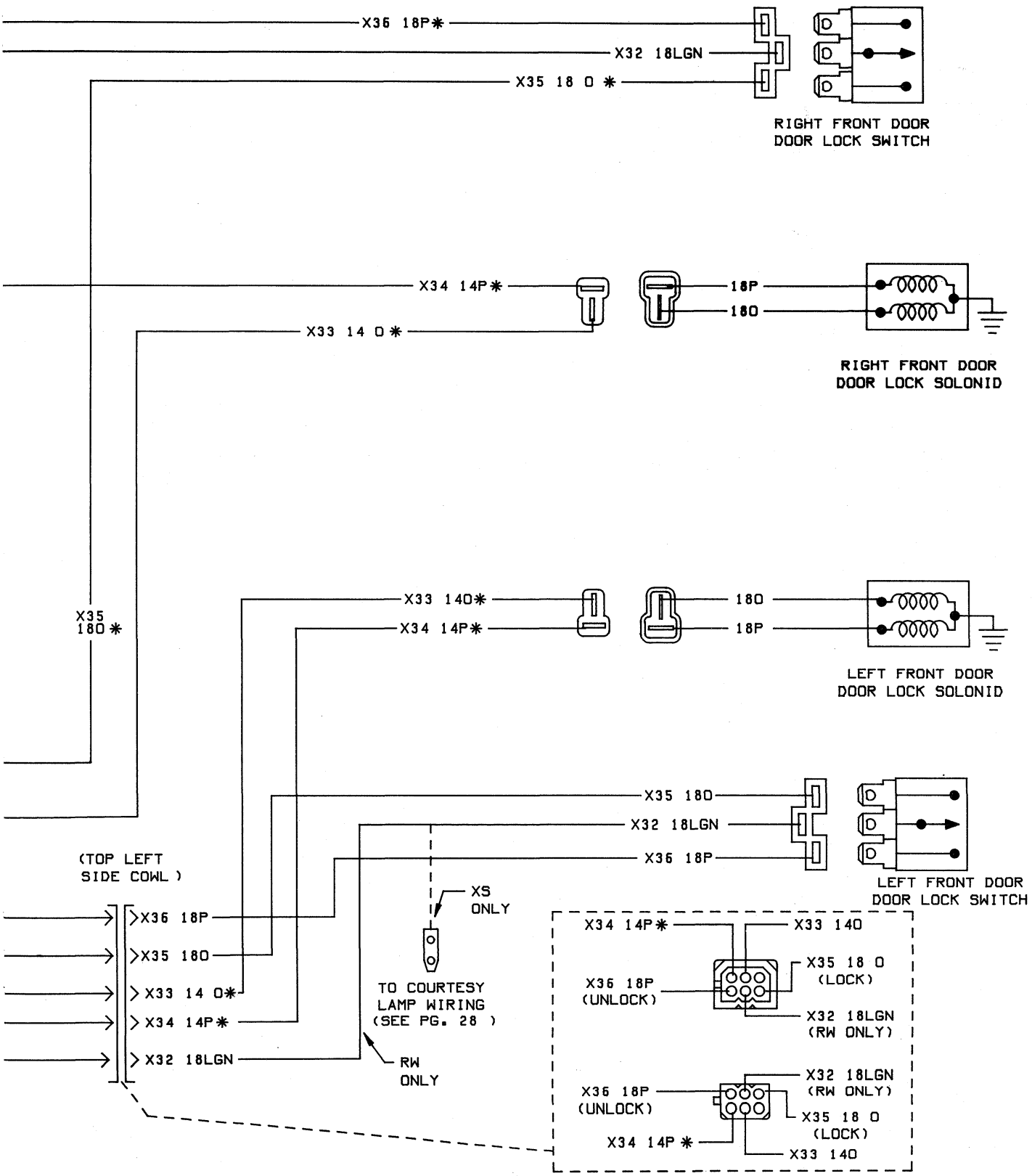
RWXS 39 ELECTRICALLY HEATED REAR WINDOW PR3


TO CHARGING SYSTEM (SEE PG. 4)
R6 12BK*
HORN
HORN
H2 16DGN/R*
H2 16DGN/R*
#3
#10
R6 12BK*
TO HEADLAMP SWITCH (SEE PG. 14)
L1 12BK*
Q3 12R
FUSE#9 (20 AMP)
FUSE#7 (20 AMP)
7
8
9
FUSE#8 (20 AMP)
H2 16DGN/R*
H1 16V
F.B.
H3 20BK*
HORN RELAY
M15 18P
TO IGNITION LAMP TIME DELAY RELAY (SEE PG. 27)
HORN SWITCH
18 BK
WITH TILT COLUMN
H3 20BK*
(AT BASE OF STEERING COLUMN)
WITHOUT TILT COLUMN
18BK
HORN SWITCH

HORN SYSTEM



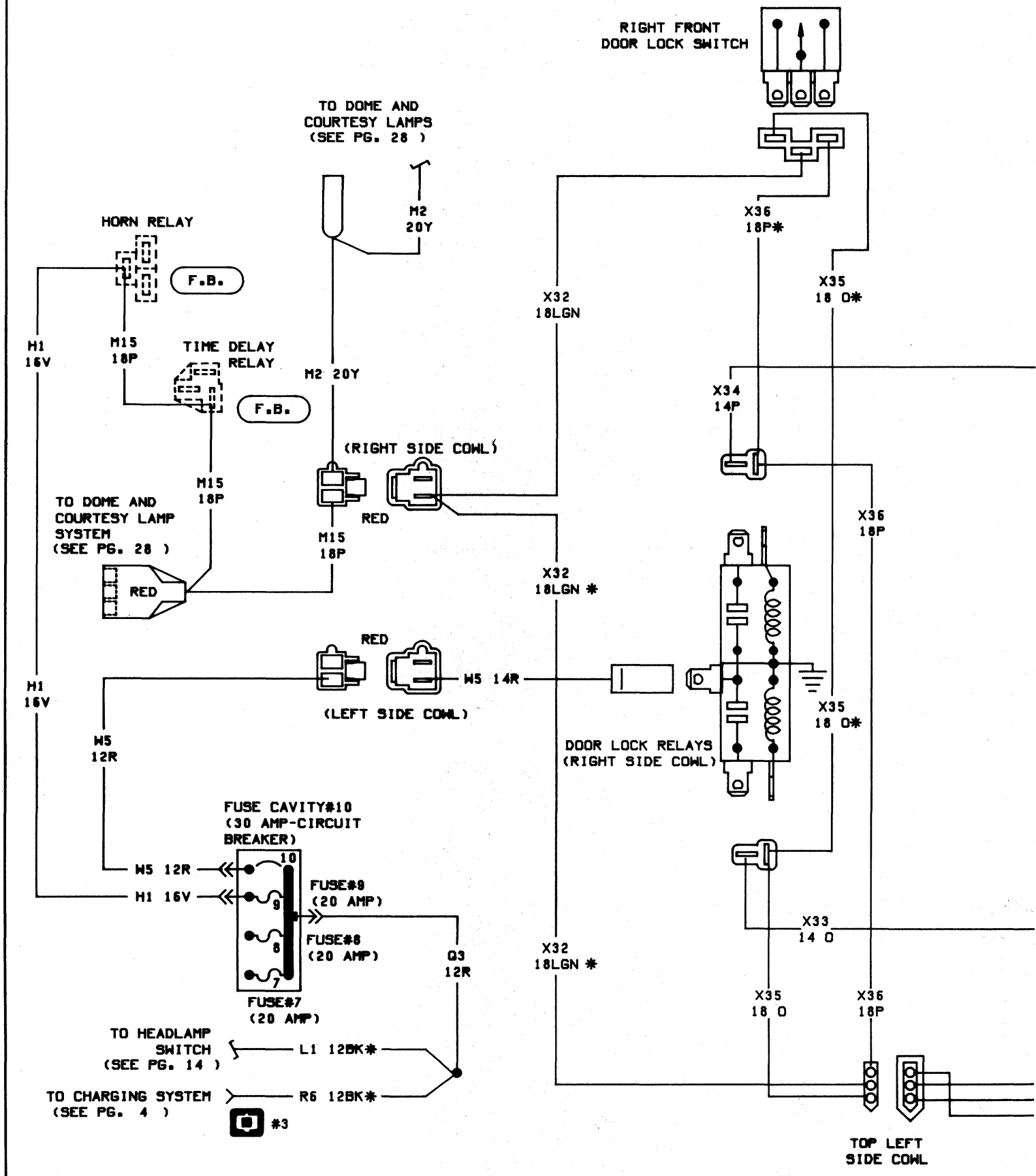
2 DOOR - DOOR LOCKS



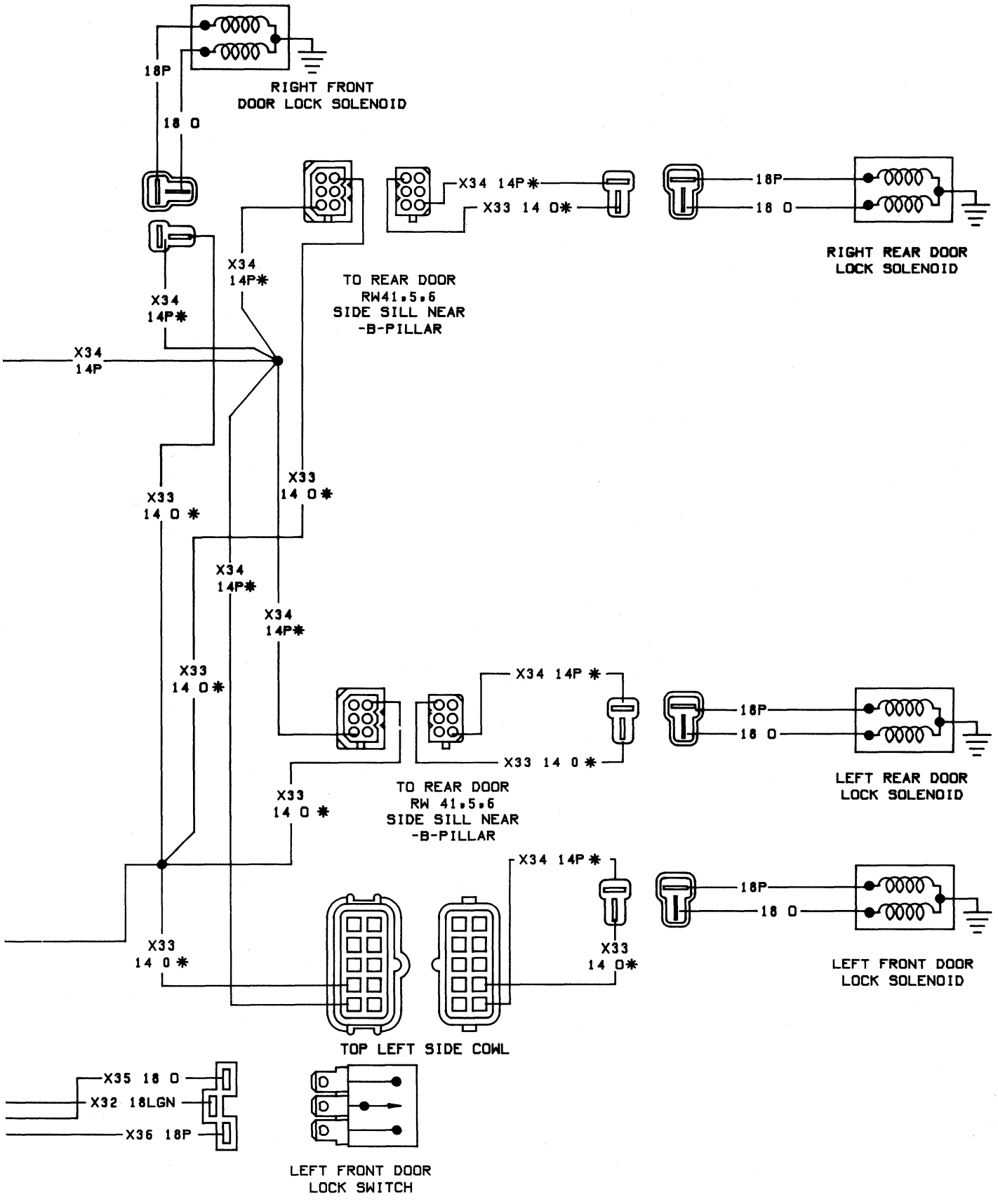
PR3

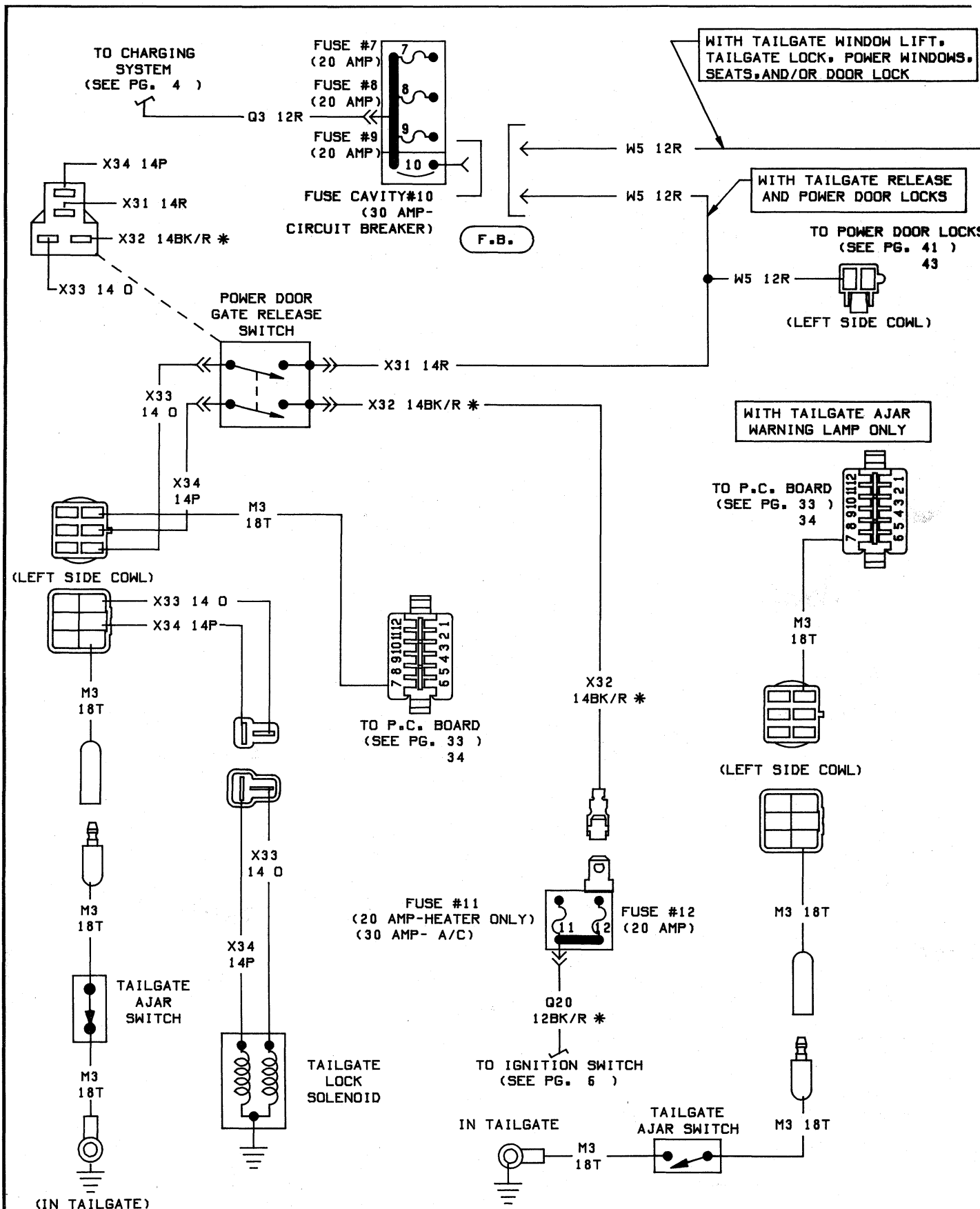
2 DOOR - DOOR LOCKS

RWXS 42

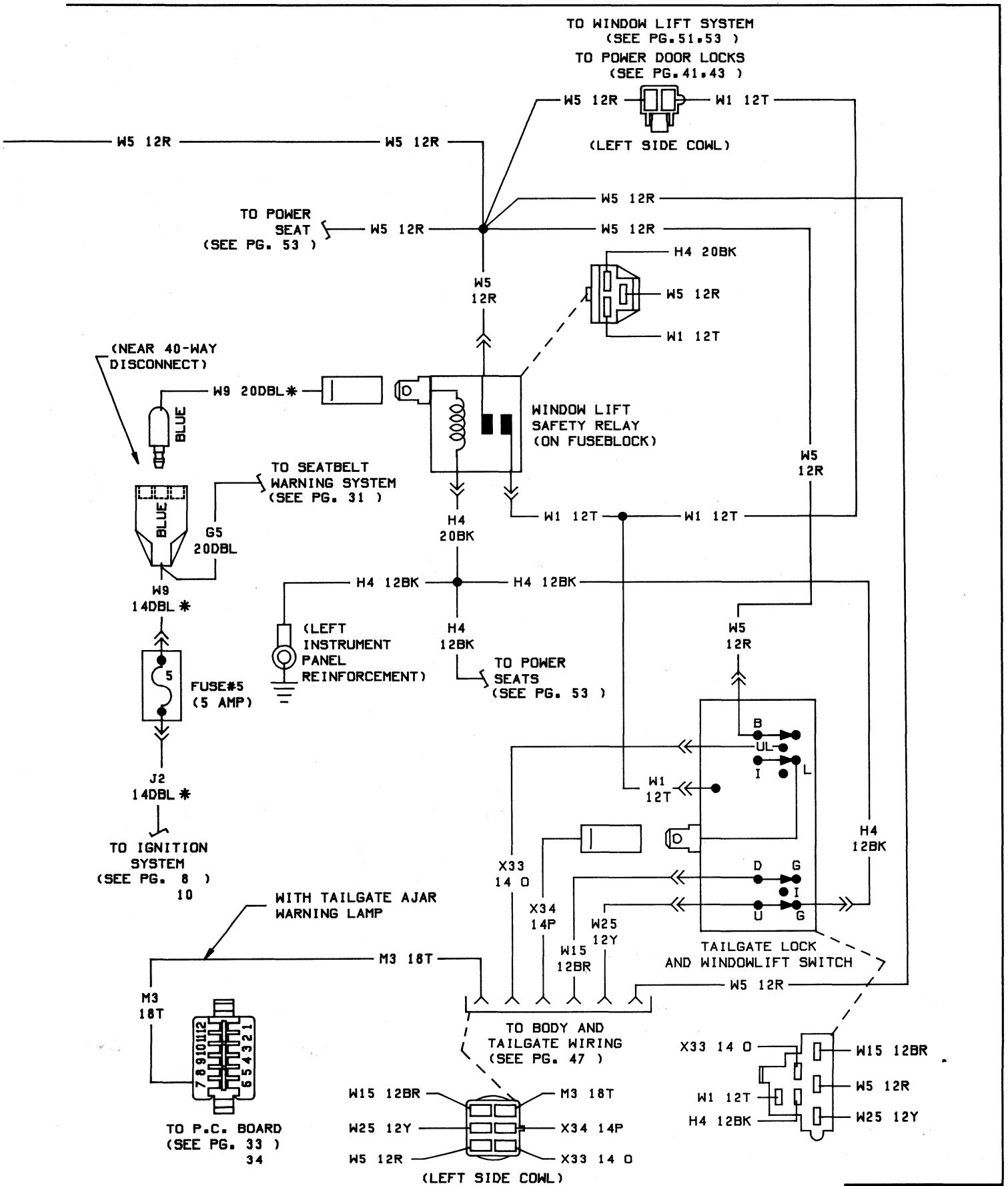


RWXS 43 4 DOOR-POWER DOOR LOCK SYSTEM PR3

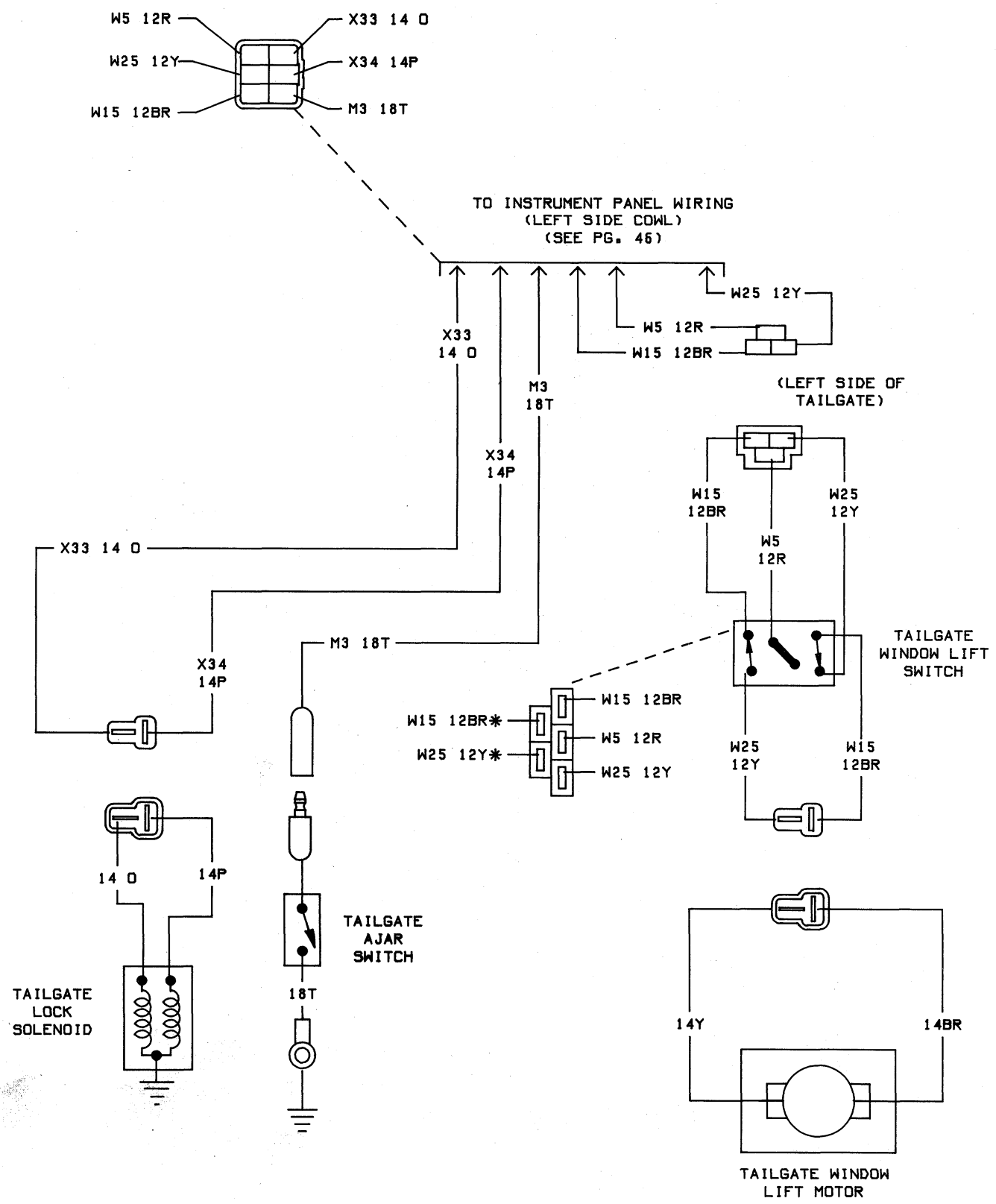

18P
RIGHT FRONT
DOOR LOCK SOLENOID
18 O
X34 14P*
X33 14 O*
18P
18 O
RIGHT REAR DOOR
LOCK SOLENOID
X34
14P*
TO REAR DOOR
RW41,5,6
SIDE SILL NEAR
-B-PILLAR
X34
14P*
X34
14P
X33
14 O*
X33
14 O*
X34
14P*
X34
14P*
X33
14 O*
X34 14P*
X33 14 O*
18P
18 O
LEFT REAR DOOR
LOCK SOLENOID
X33
14 O*
TO REAR DOOR
RW 41,5,6
SIDE SILL NEAR
-B-PILLAR
X34 14P*
18P
18 O
X33
14 O*
X33
14 O*
LEFT FRONT DOOR
LOCK SOLENOID
TOP LEFT SIDE COWL
X35 18 O
X32 18LGN
X36 18P
LEFT FRONT DOOR
LOCK SWITCH



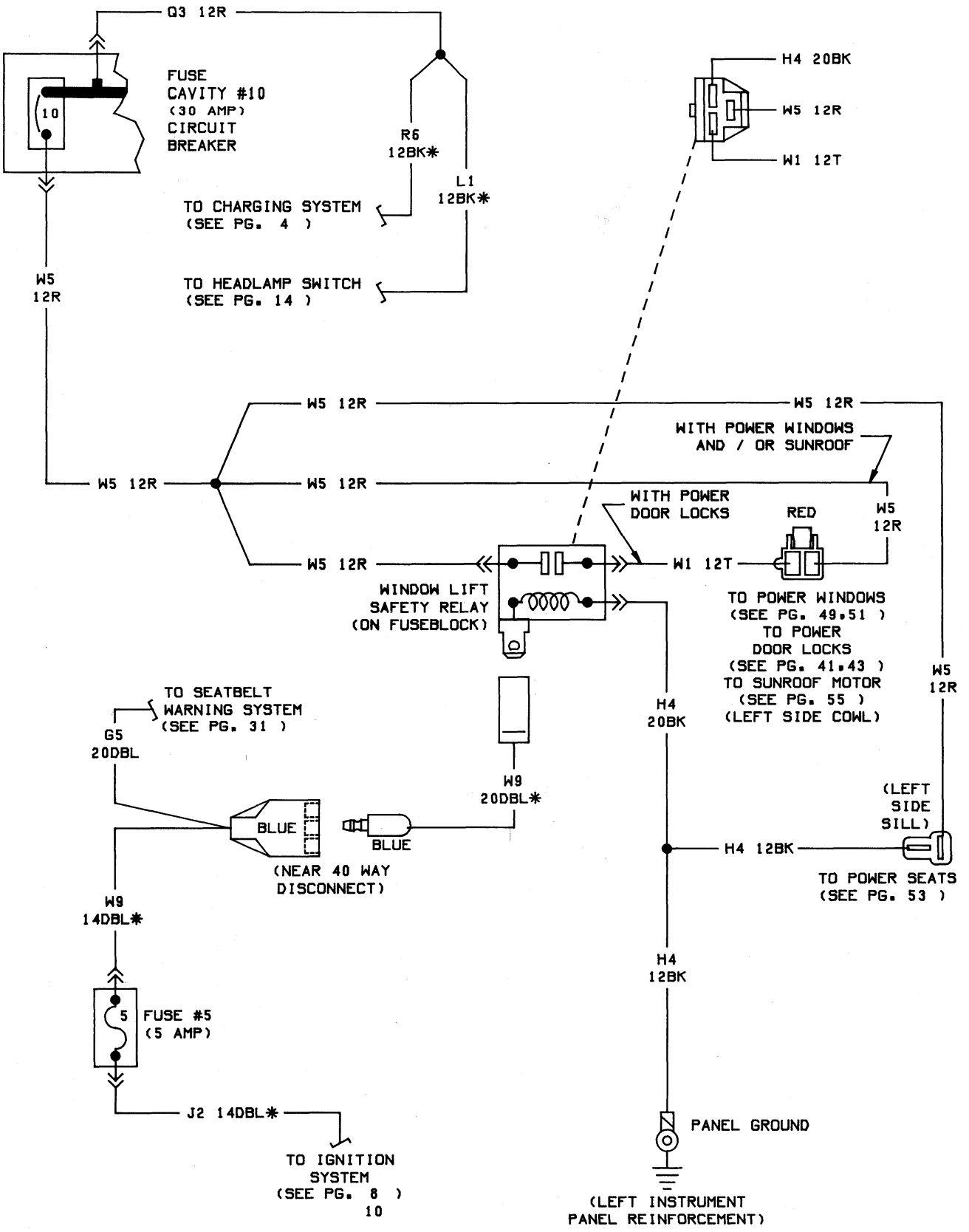
RWXS 45 TAILGATE & POWER ASSIST SYSTEM (WAGONS) PR3

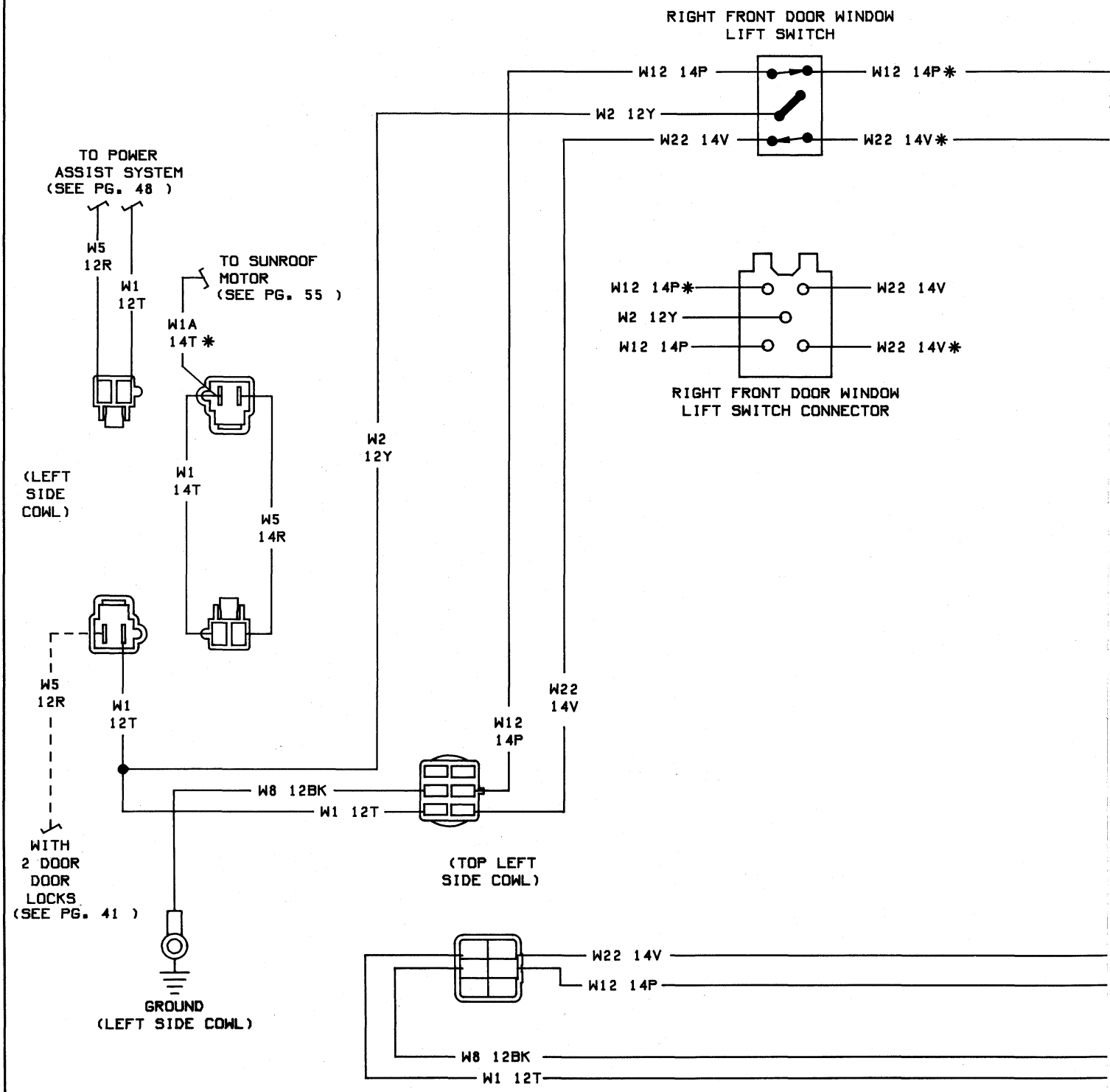


PR3 TAILGATE & POWER ASSIST SYSTEM (WAGONS) RWXS 46

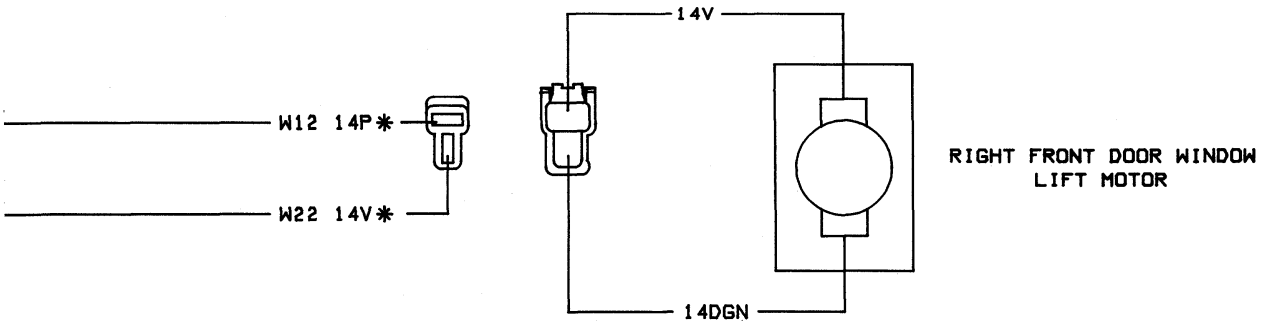


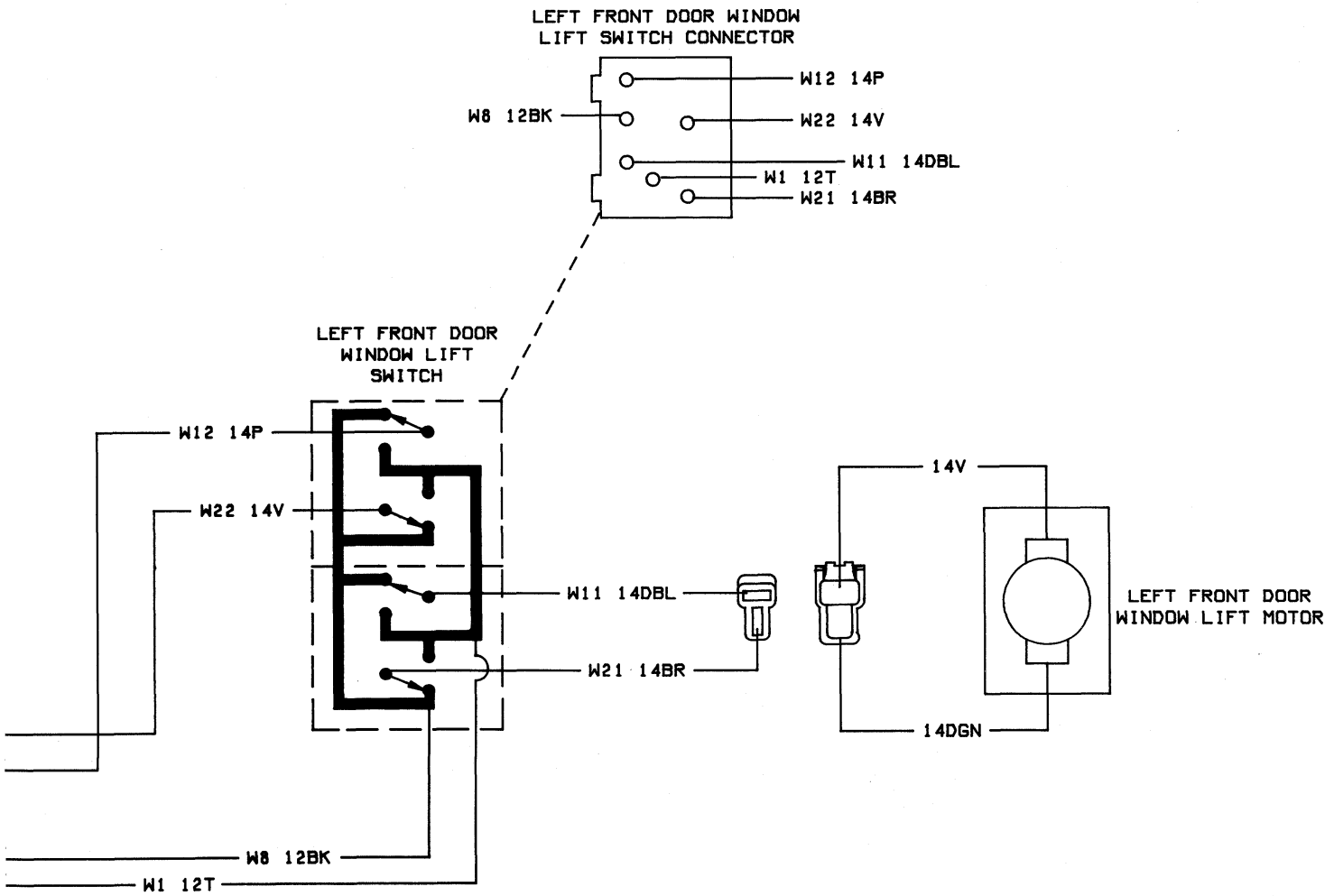
RWXS 47 POWER TAILGATE LOCK & WINDOW LIFT SYSTEM PR3

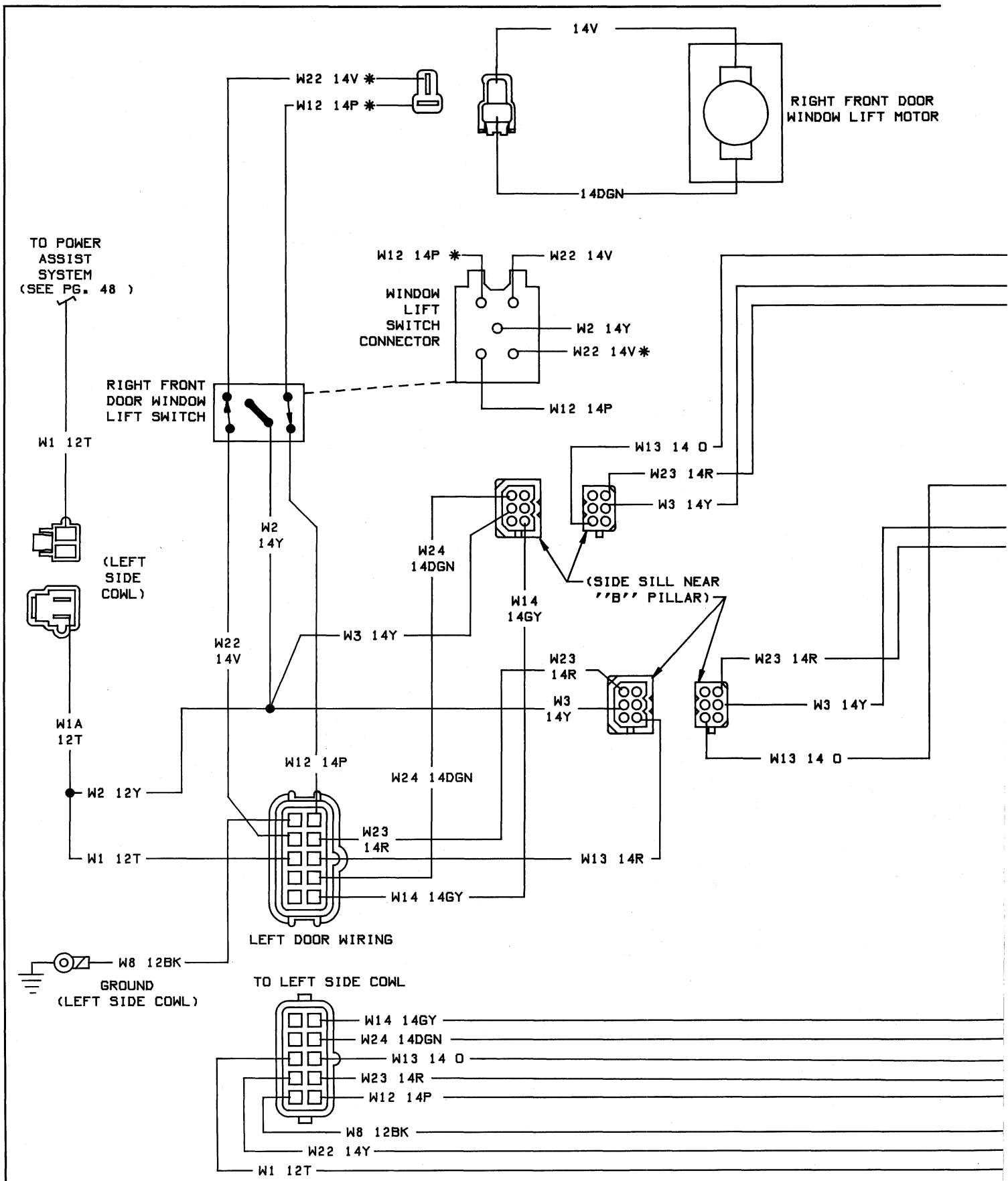

Q3 12R
FUSE CAVITY #10 (30 AMP) CIRCUIT BREAKER
10
R6 12BK*
L1 12BK*
TO CHARGING SYSTEM (SEE PG. 4)
TO HEADLAMP SWITCH (SEE PG. 14)
W5 12R
H4 20BK
W5 12R
W1 12T
W5 12R
W5 12R
WITH POWER WINDOWS AND / OR SUNROOF
W5 12R
W5 12R
WITH POWER DOOR LOCKS
RED
W5 12R
W5 12R
W1 12T
WINDOW LIFT SAFETY RELAY (ON FUSEBLOCK)
TO POWER WINDOWS (SEE PG. 49,51)
TO POWER DOOR LOCKS (SEE PG. 41,43)
TO SUNROOF MOTOR (SEE PG. 55)
(LEFT SIDE COWL)
W5 12R
TO SEATBELT WARNING SYSTEM (SEE PG. 31)
G5 20DBL
H4 20BK
W9 20DBL*
BLUE
BLUE
(NEAR 40 WAY DISCONNECT)
(LEFT SIDE SILL)
H4 12BK
TO POWER SEATS (SEE PG. 53)
W9 14DBL*
H4 12BK
5
FUSE #5 (5 AMP)
J2 14DBL*
TO IGNITION SYSTEM (SEE PG. 8 10)
PANEL GROUND
(LEFT INSTRUMENT PANEL REINFORCEMENT)



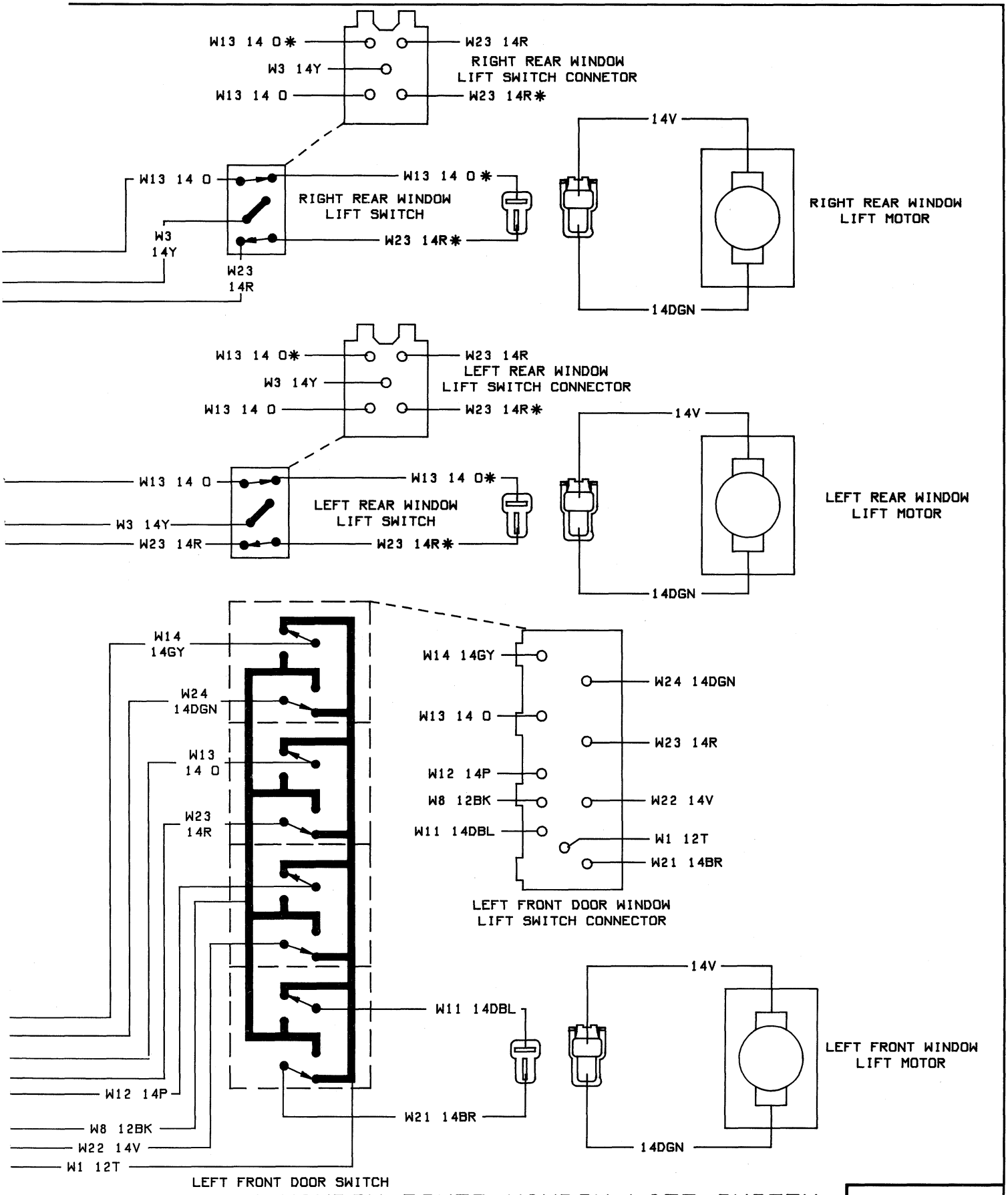
RWXS 49 2 WINDOW WINDOW LIFT SYSTEM PR3


14V
W12 14P*
W22 14V*
RIGHT FRONT DOOR WINDOW LIFT MOTOR
14DGN


LEFT FRONT DOOR WINDOW LIFT SWITCH CONNECTOR
W12 14P
W8 12BK
W22 14V
W11 14DBL
W1 12T
W21 14BR
LEFT FRONT DOOR WINDOW LIFT SWITCH
W12 14P
W22 14V
W11 14DBL
W21 14BR
14V
LEFT FRONT DOOR WINDOW LIFT MOTOR
14DGN
W8 12BK
W1 12T



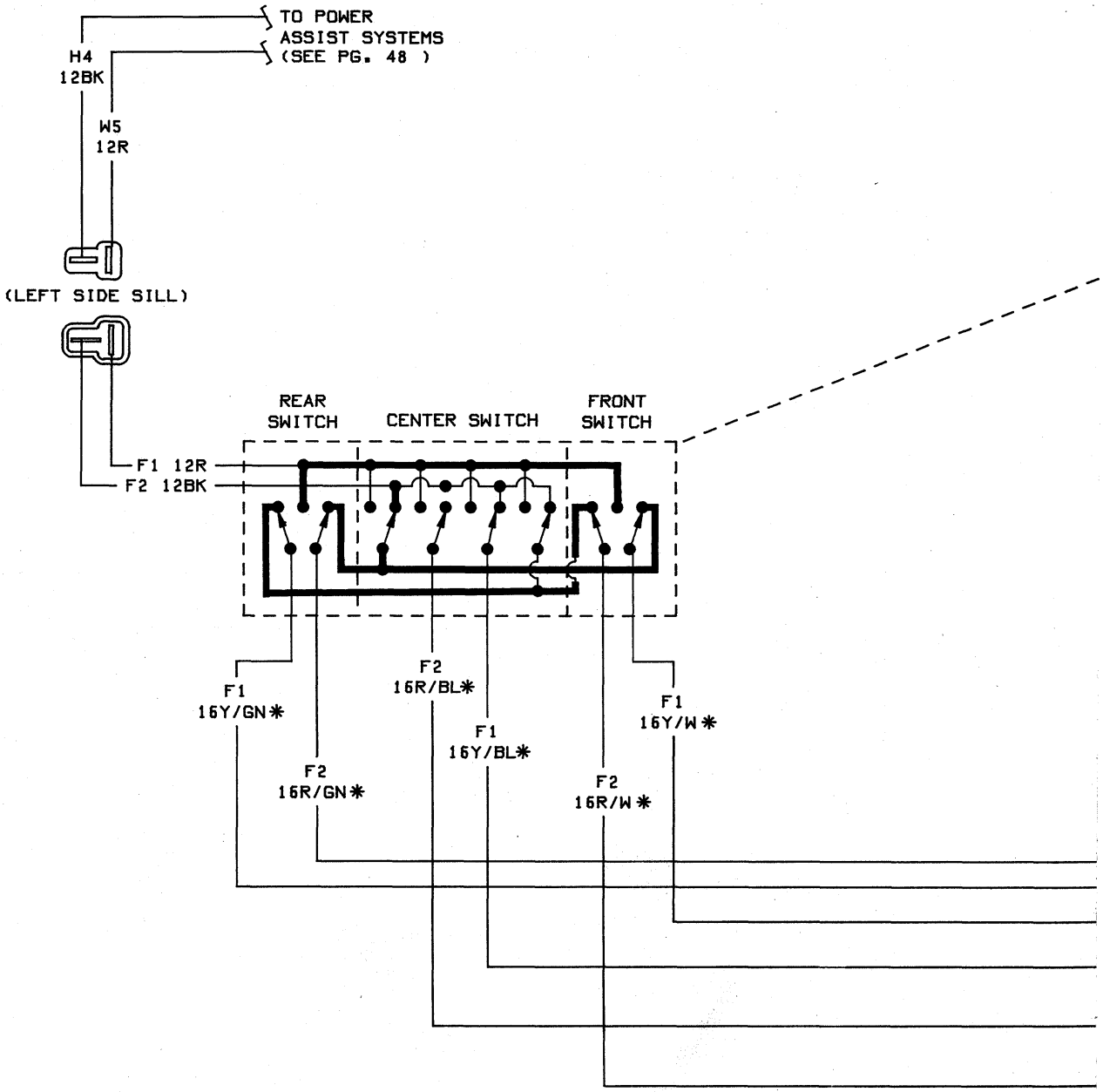
RWXS 51 4 WINDOW-POWER WINDOW LIFT SYSTEM PR3



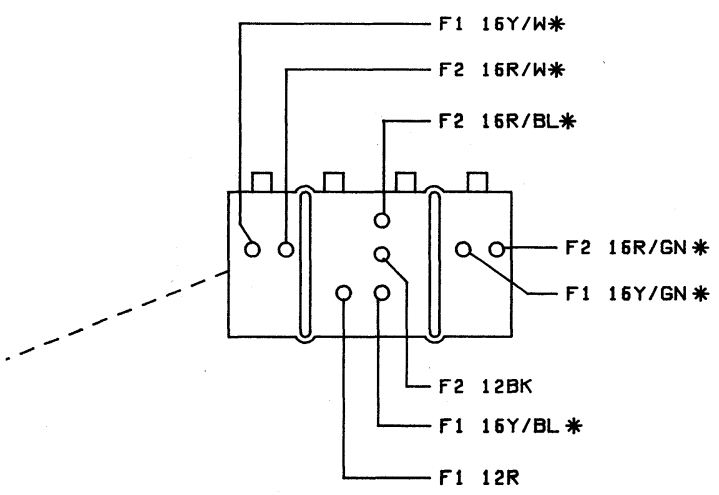
PR3

4 WINDOW-POWER WINDOW LIFT SYSTEM

RWXS 52

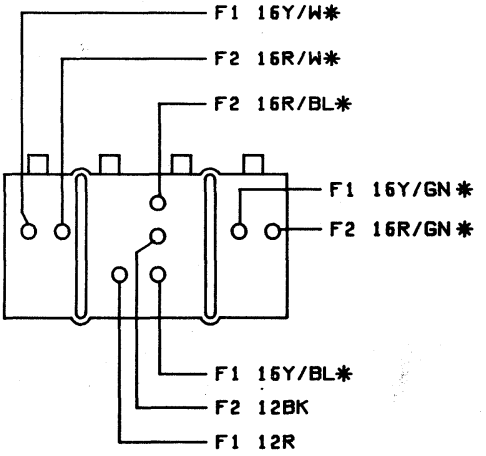


POWER SEAT SYSTEM

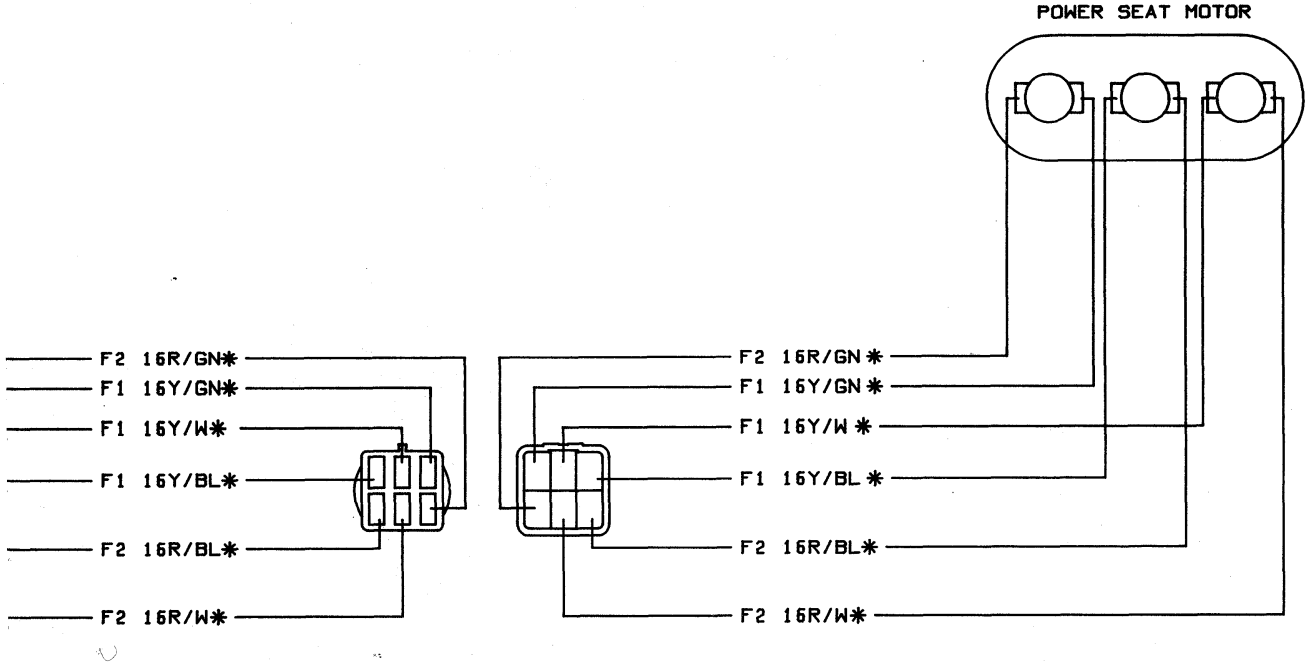


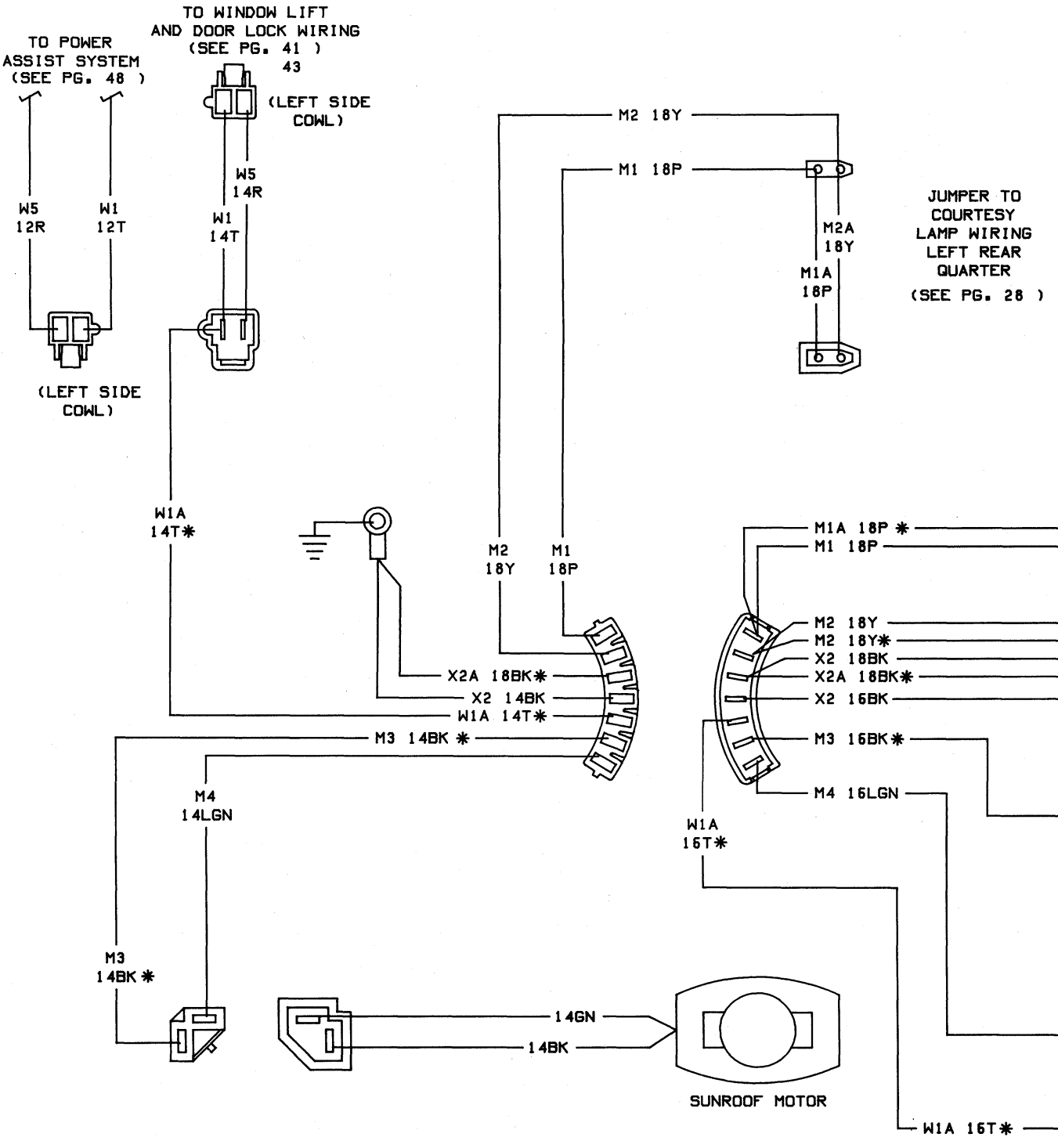
FOR BUCKET&60/40 SEATS

OR

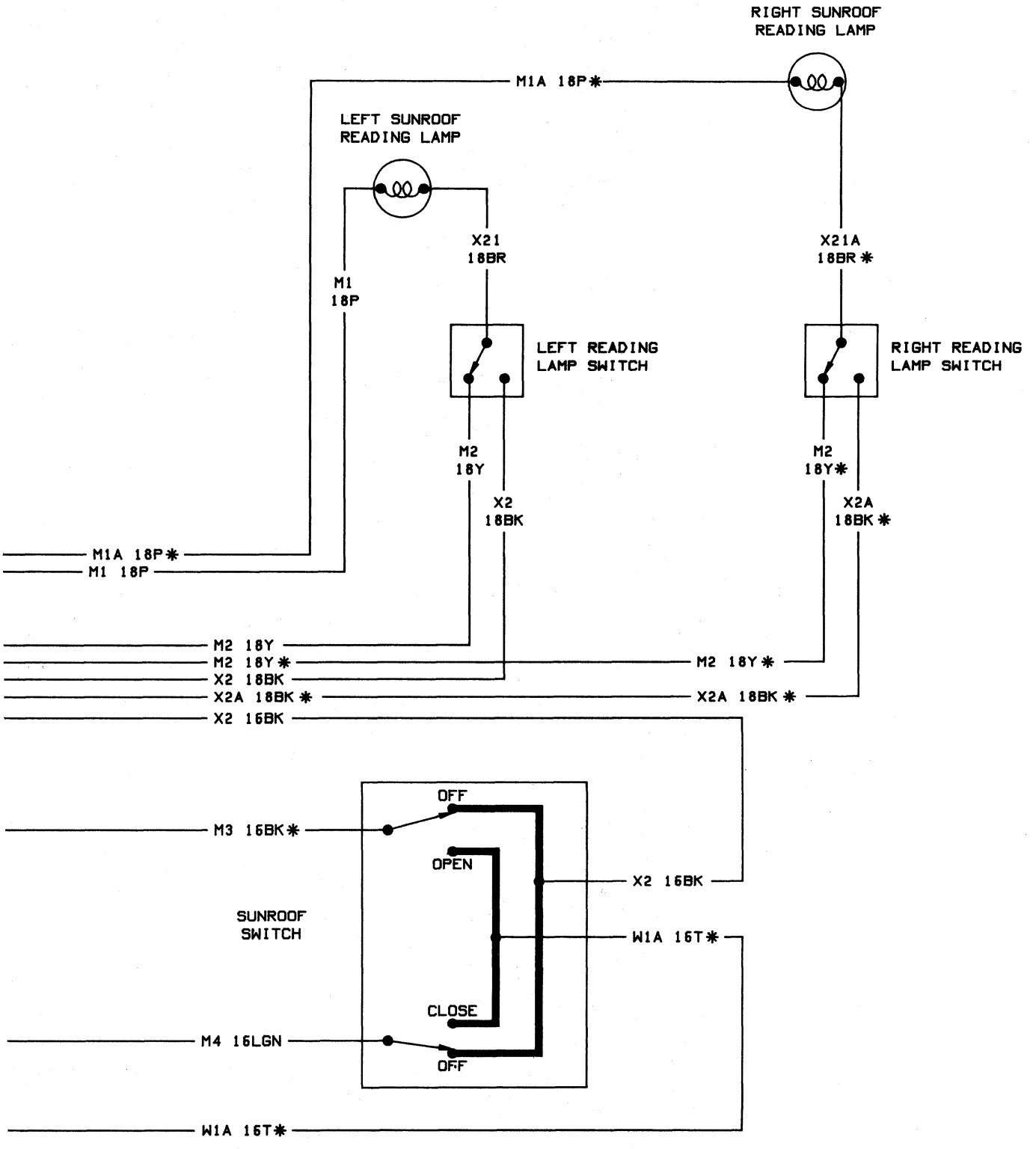


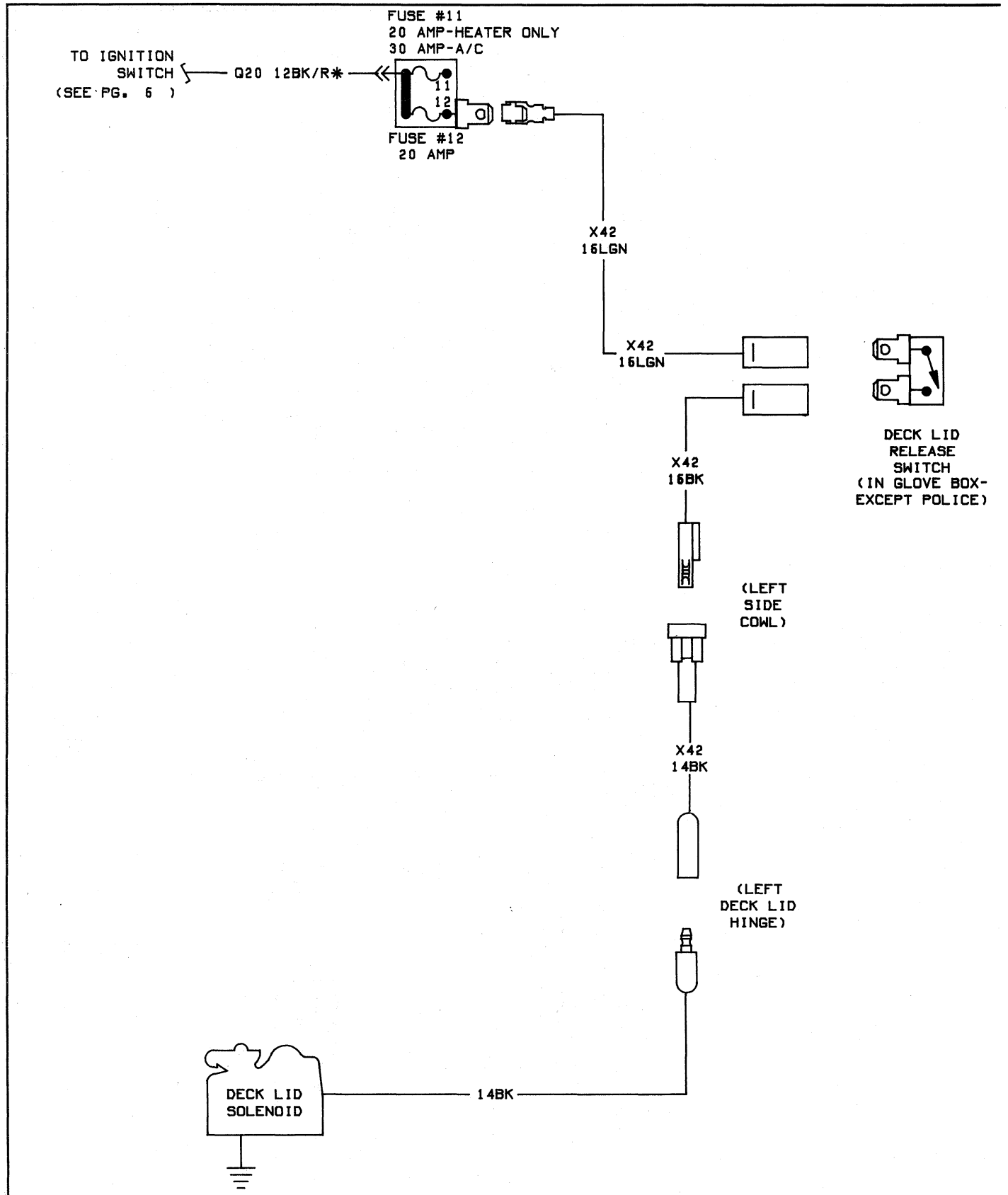
FOR BENCH SEATS



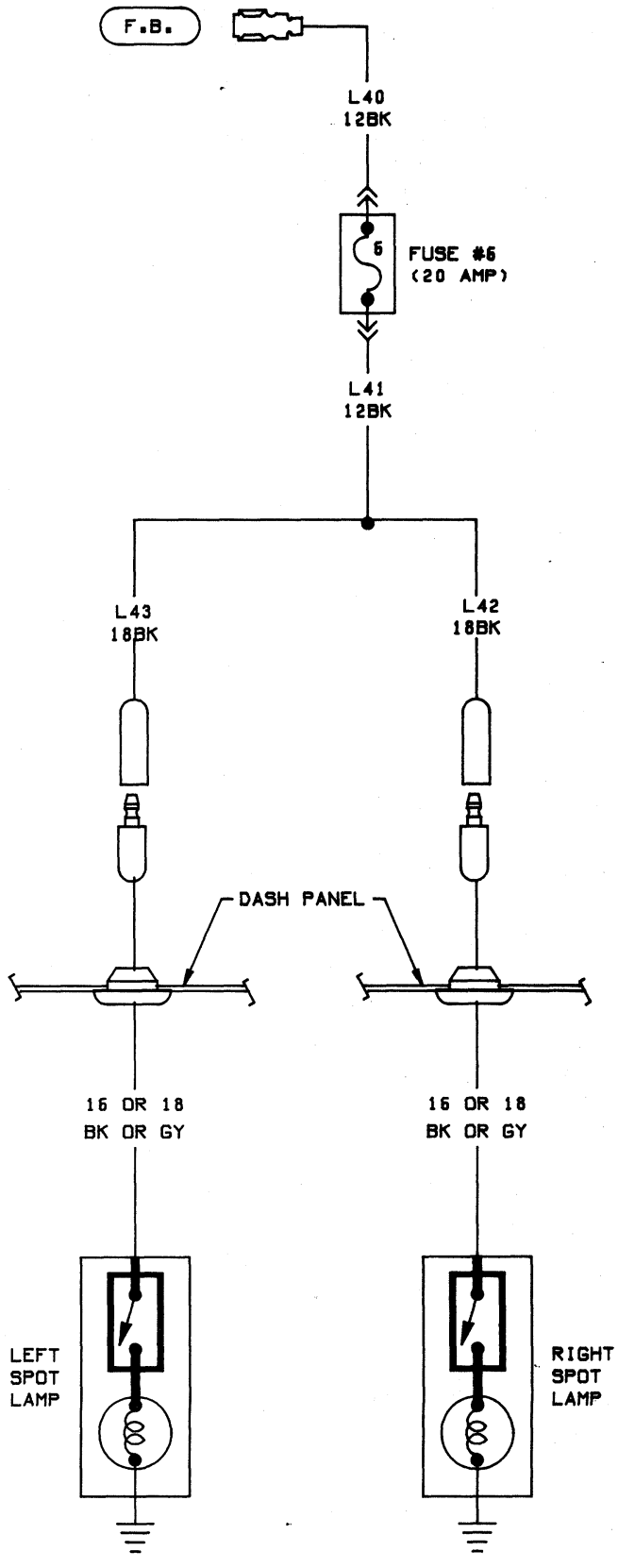


RWXS 55 POWER SUNROOF SYSTEM PR3

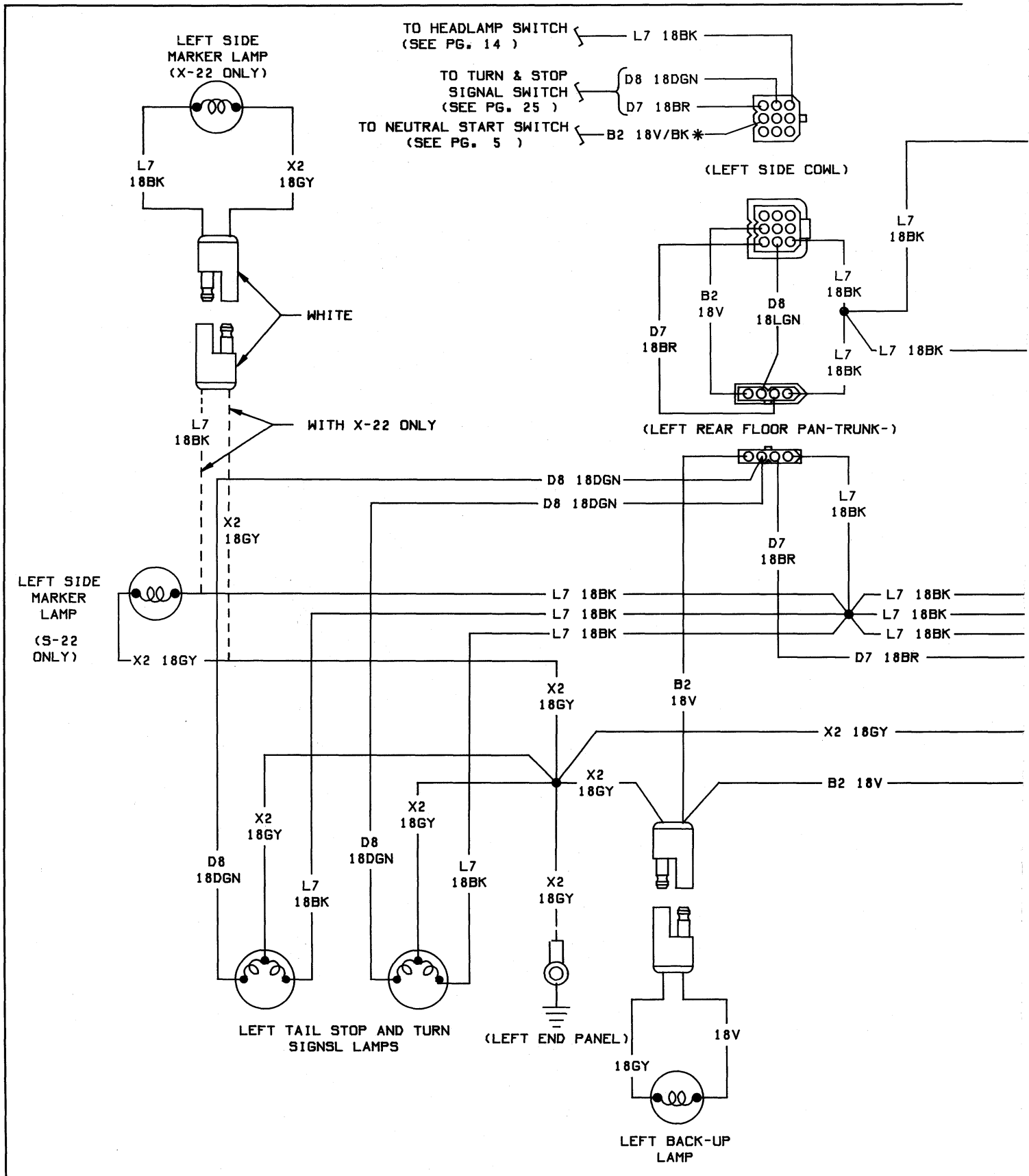

RIGHT SUNROOF
READING LAMP
M1A 18P*
LEFT SUNROOF
READING LAMP
X21
18BR
X21A
18BR*
M1
18P
LEFT READING
LAMP SWITCH
RIGHT READING
LAMP SWITCH
M2
18Y
M2
18Y*
X2
18BK
X2A
18BK*
M1A 18P*
M1 18P
M2 18Y
M2 18Y*
M2 18Y*
X2 18BK
X2A 18BK*
X2A 18BK*
X2 16BK
OFF
M3 16BK*
OPEN
X2 16BK
SUNROOF
SWITCH
W1A 16T*
CLOSE
M4 16LGN
OFF
W1A 16T*



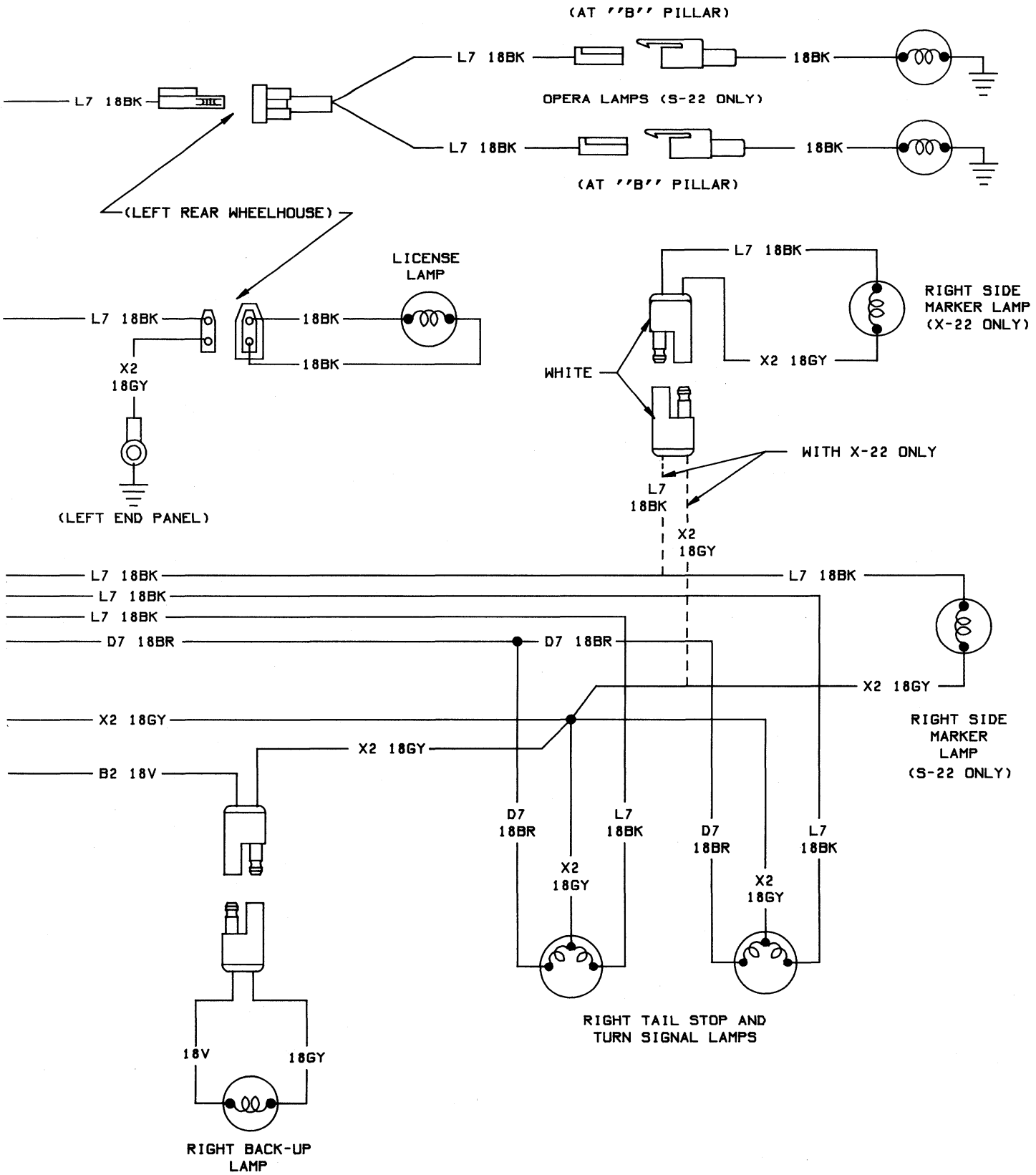
RWXS 57 DECK LID RELEASE SYSTEM PR3



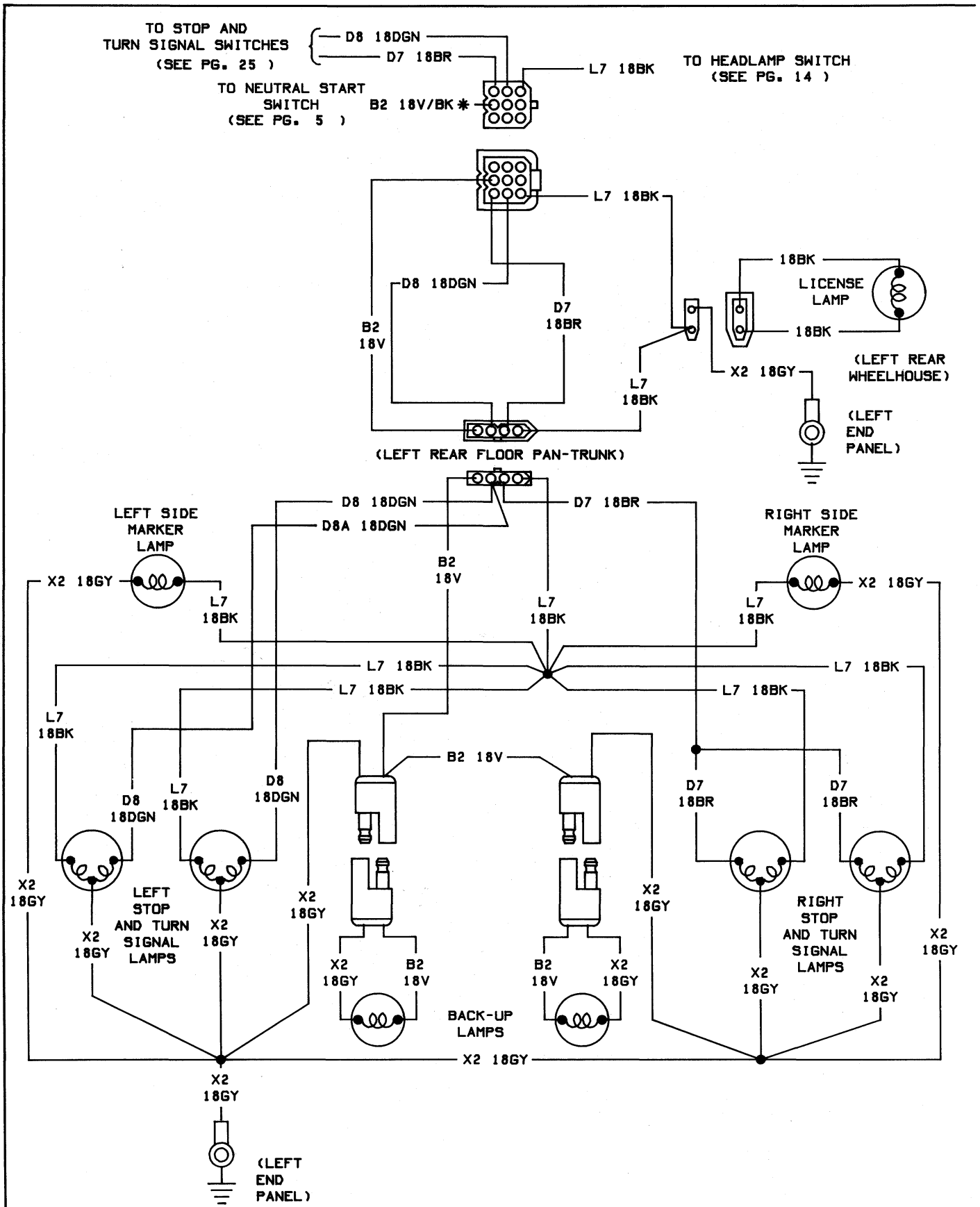
SPOT LAMP SYSTEM



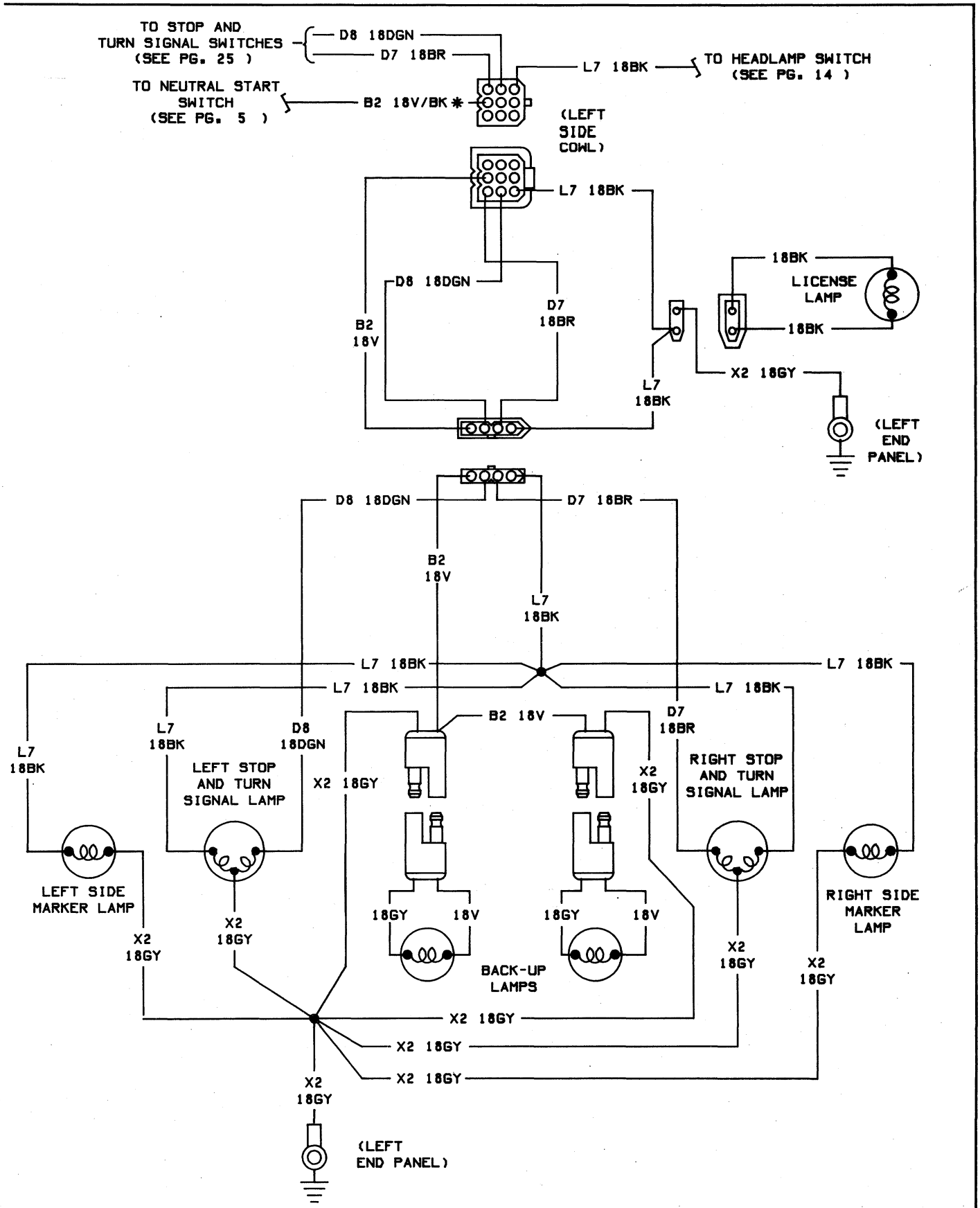
RWXS 59 SX REAR END LIGHTING PR3



SX REAR END LIGHTING



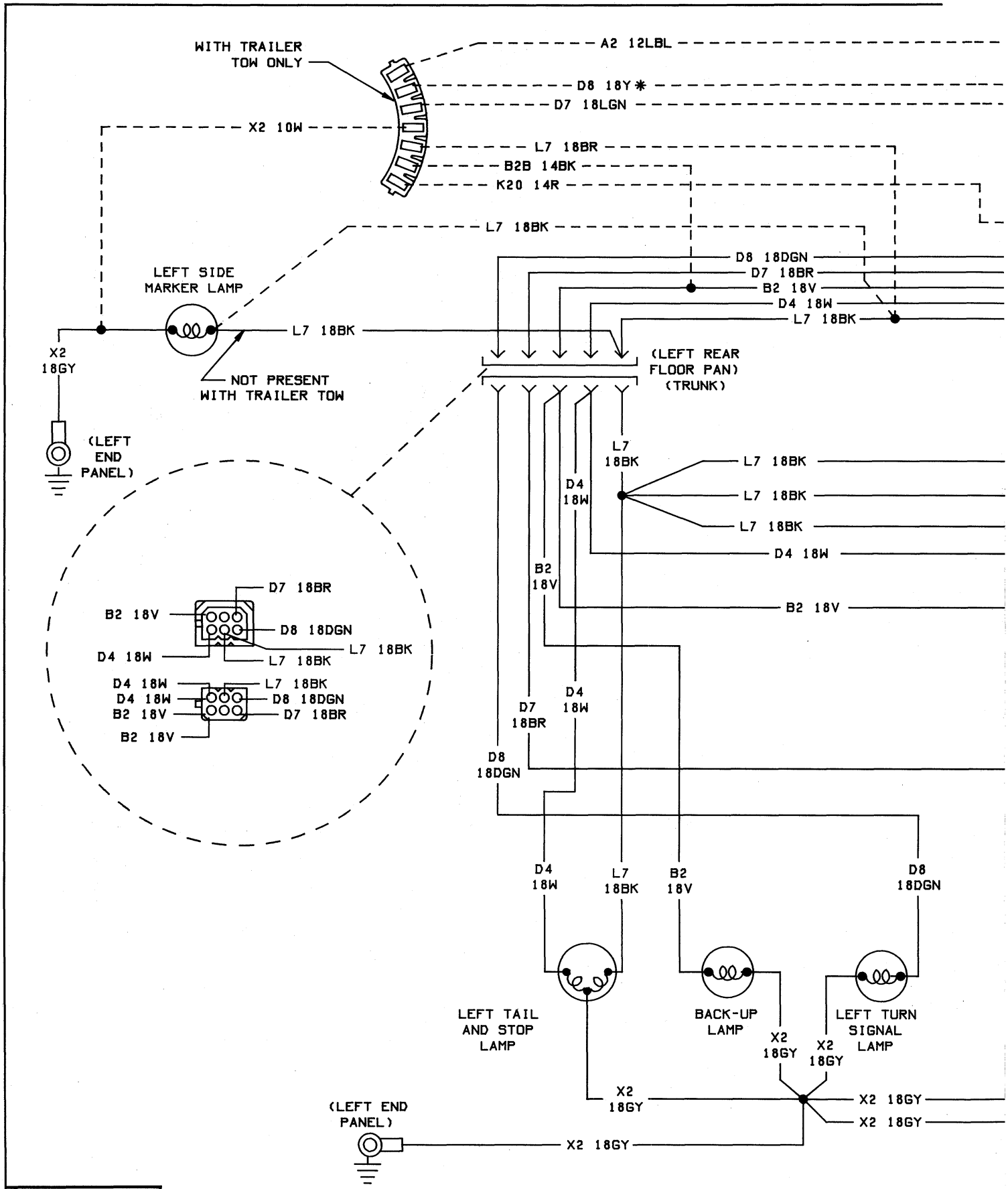
RWXS 61 W-23 REAR END LIGHTING PR3



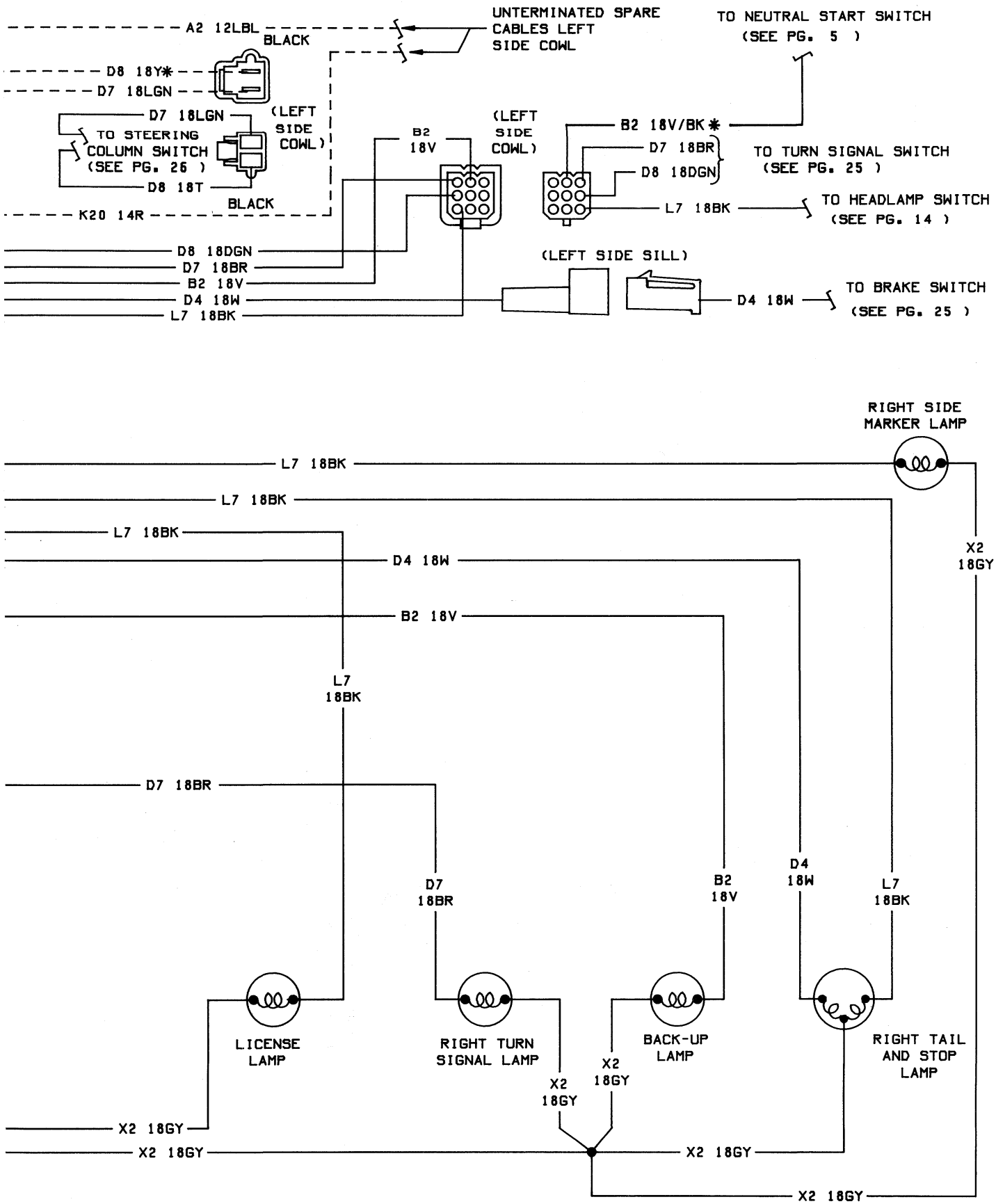
PR3

R-23 REAR END LIGHTING

RWXS 62



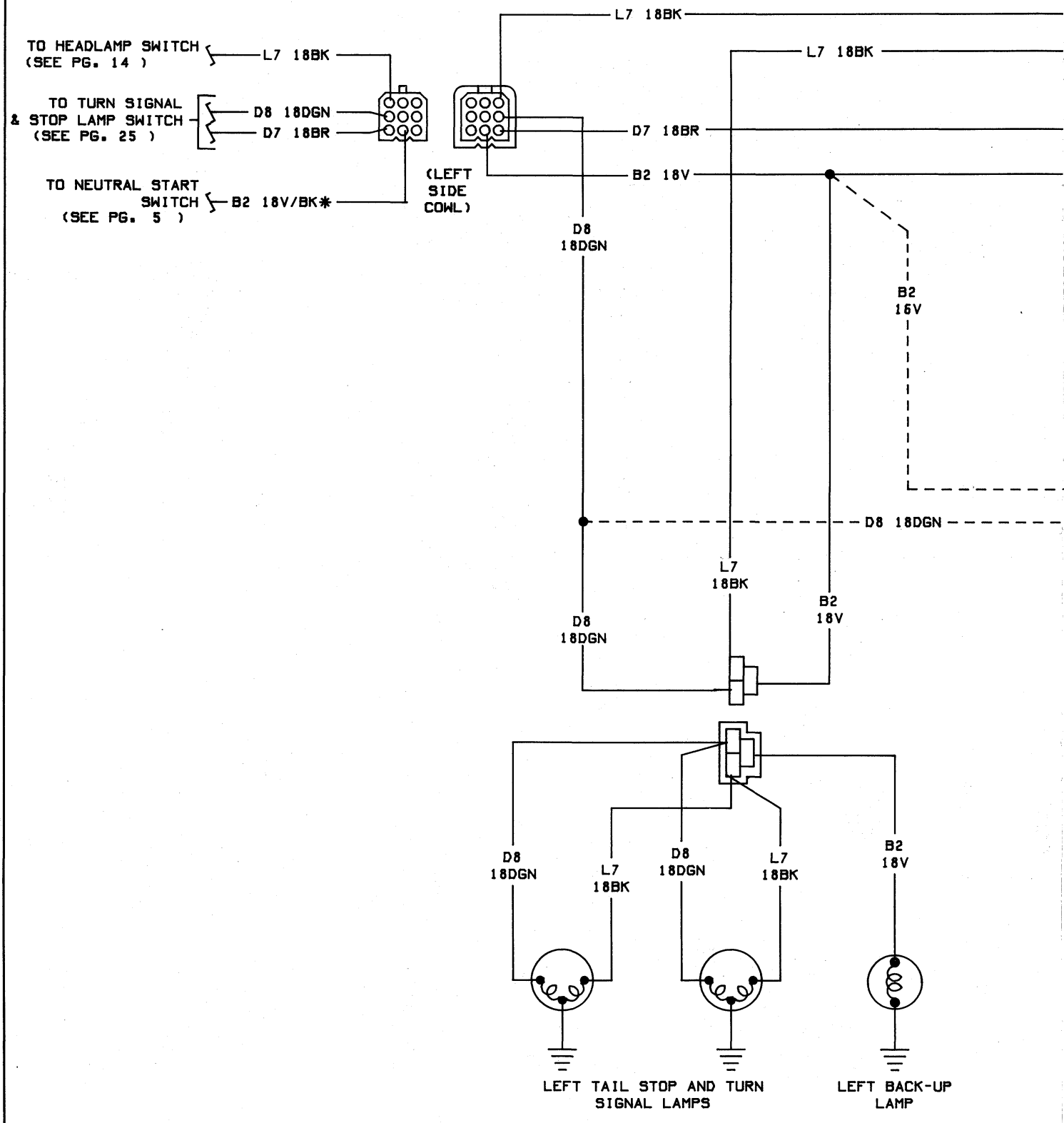
RWXS 63 RW-41 REAR END LIGHTING & T/TOW PR3

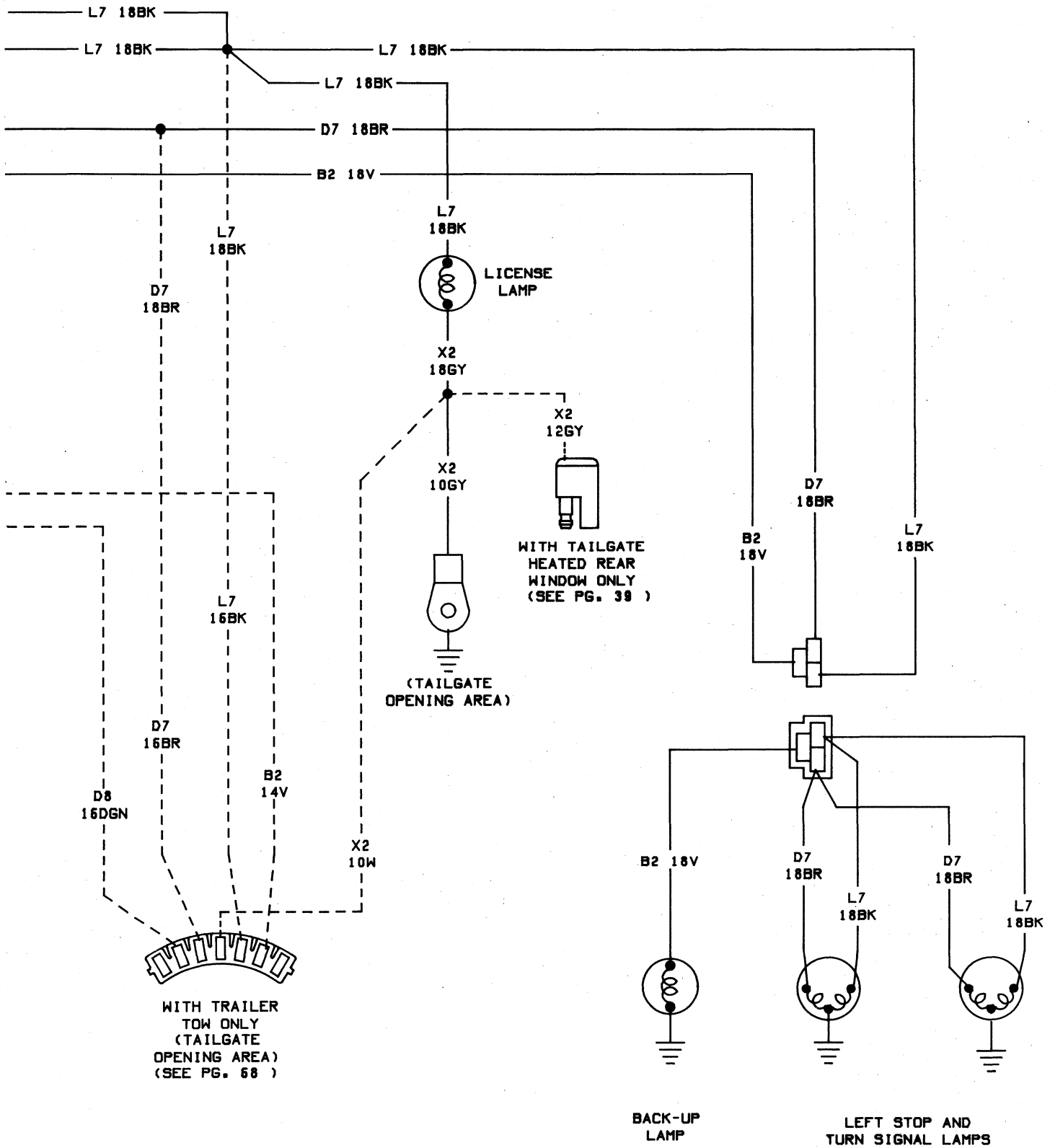


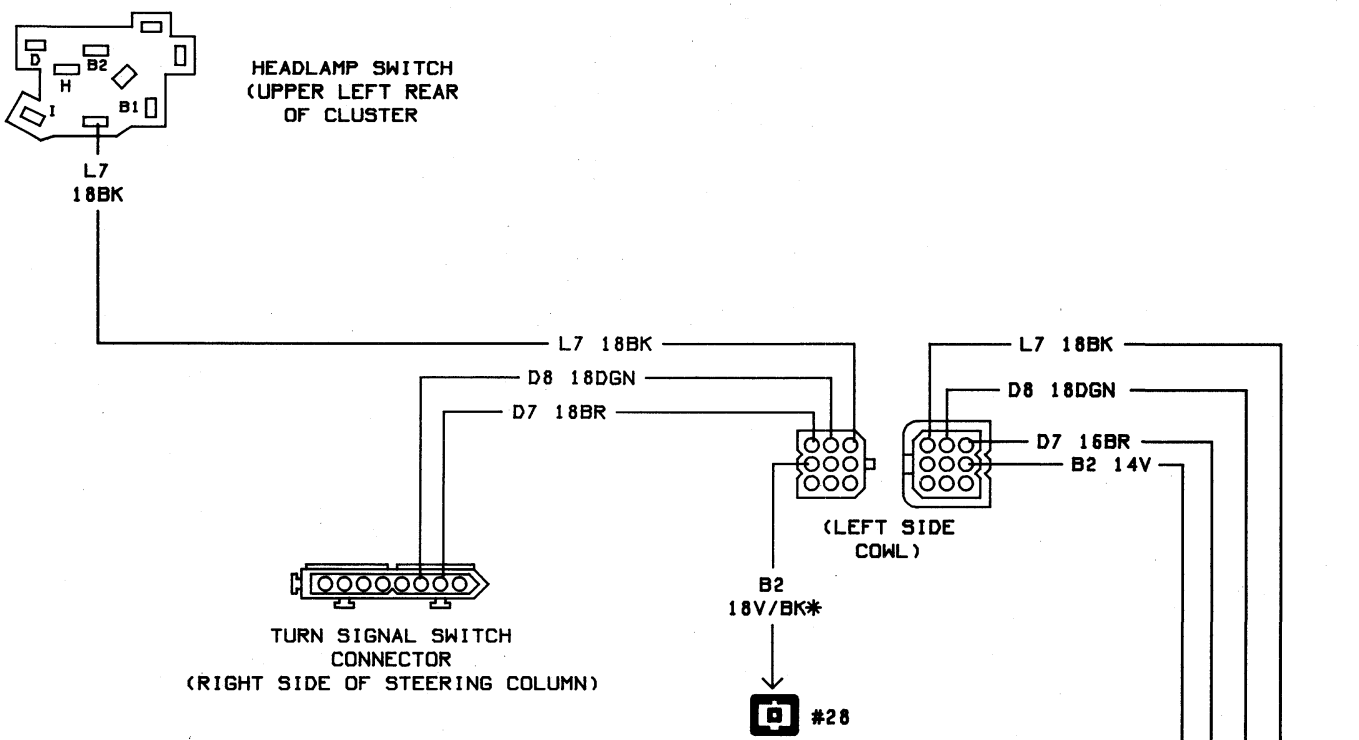
PR3

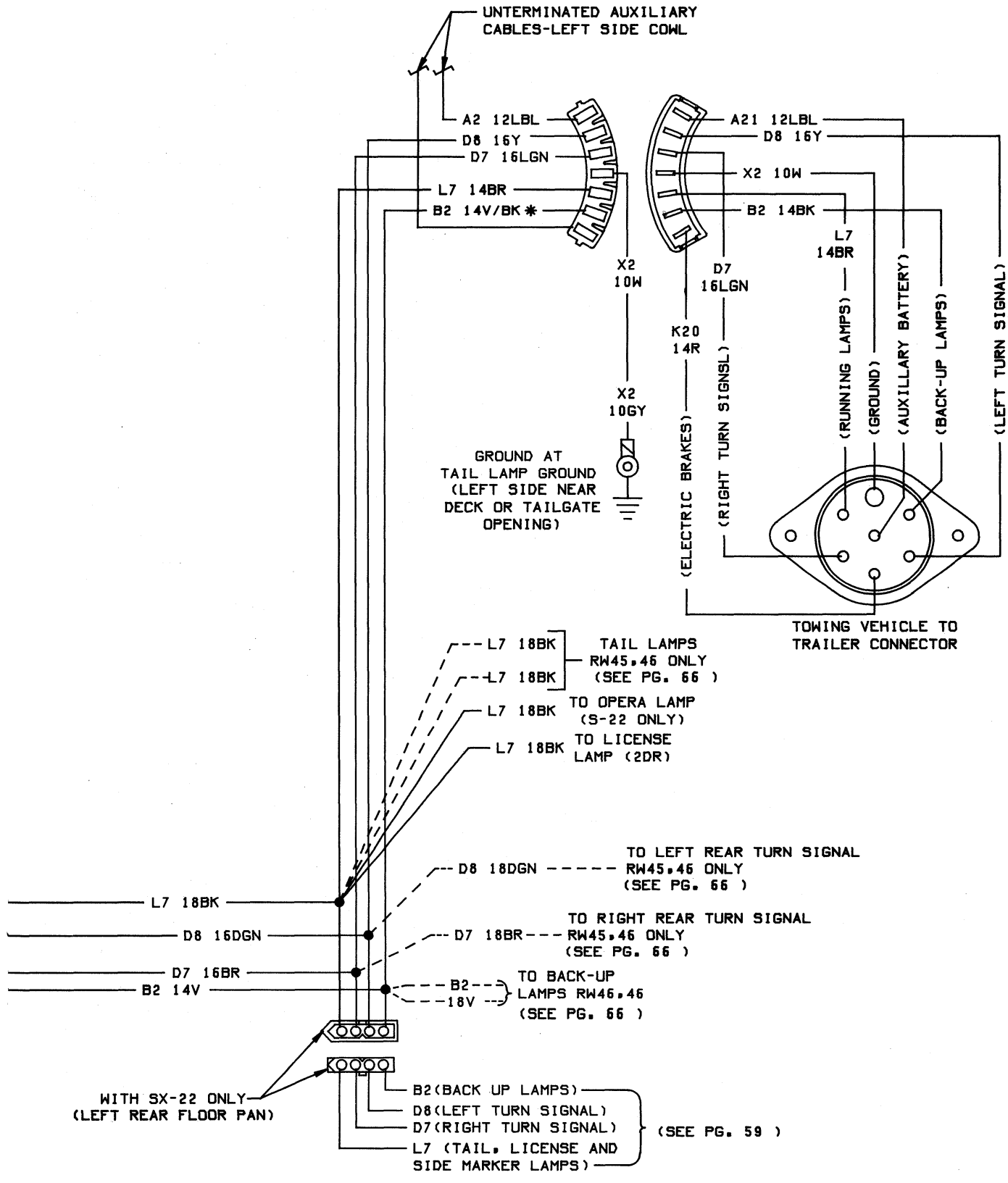
RW-41 REAR END LIGHTING

RWXS 64

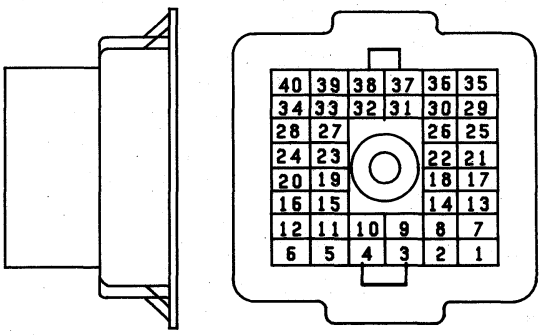

TO HEADLAMP SWITCH (SEE PG. 14)
L7 18BK
TO TURN SIGNAL & STOP LAMP SWITCH (SEE PG. 25)
D8 18DGN
D7 18BR
TO NEUTRAL START SWITCH (SEE PG. 5)
B2 18V/BK*
(LEFT SIDE COWL)
L7 18BK
L7 18BK
D7 18BR
B2 18V
D8 18DGN
B2 18V
D8 18DGN
L7 18BK
B2 18V
D8 18DGN
D8 18DGN
L7 18BK
D8 18DGN
L7 18BK
B2 18V
LEFT TAIL STOP AND TURN SIGNAL LAMPS
LEFT BACK-UP LAMP


L7 18BK
L7 18BK
L7 18BK
L7 18BK
D7 18BR
B2 18V
L7 18BK
D7 18BR
L7 18BK
LICENSE LAMP
X2 18GY
X2 12GY
X2 10GY
WITH TAILGATE HEATED REAR WINDOW ONLY (SEE PG. 39)
(TAILGATE OPENING AREA)
B2 18V
D7 18BR
L7 18BK
L7 16BK
D7 16BR
D8 16DGN
B2 14V
X2 10W
WITH TRAILER TOW ONLY (TAILGATE OPENING AREA) (SEE PG. 68)
B2 18V
D7 18BR
L7 18BK
D7 18BR
L7 18BK
BACK-UP LAMP
LEFT STOP AND TURN SIGNAL LAMPS


D
B2
H
I
B1
HEADLAMP SWITCH
(UPPER LEFT REAR
OF CLUSTER
L7
18BK
L7 18BK
D8 18DGN
D7 18BR
L7 18BK
D8 18DGN
D7 16BR
B2 14V
(LEFT SIDE
COWL)
B2
18V/BK*
#28
TURN SIGNAL SWITCH
CONNECTOR
(RIGHT SIDE OF STEERING COLUMN)



PR3 RWXS 22,23,45&46 TRAILER TOW WIRING RWXS 68

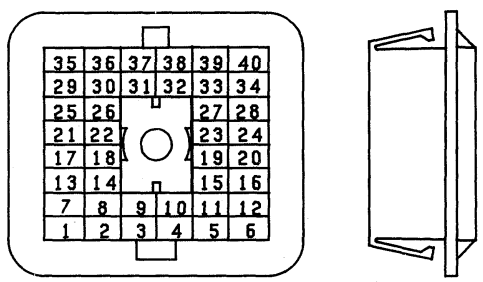


■ - MANUAL TRANSMISSION

△ - AUTOMATIC TRANSMISSION

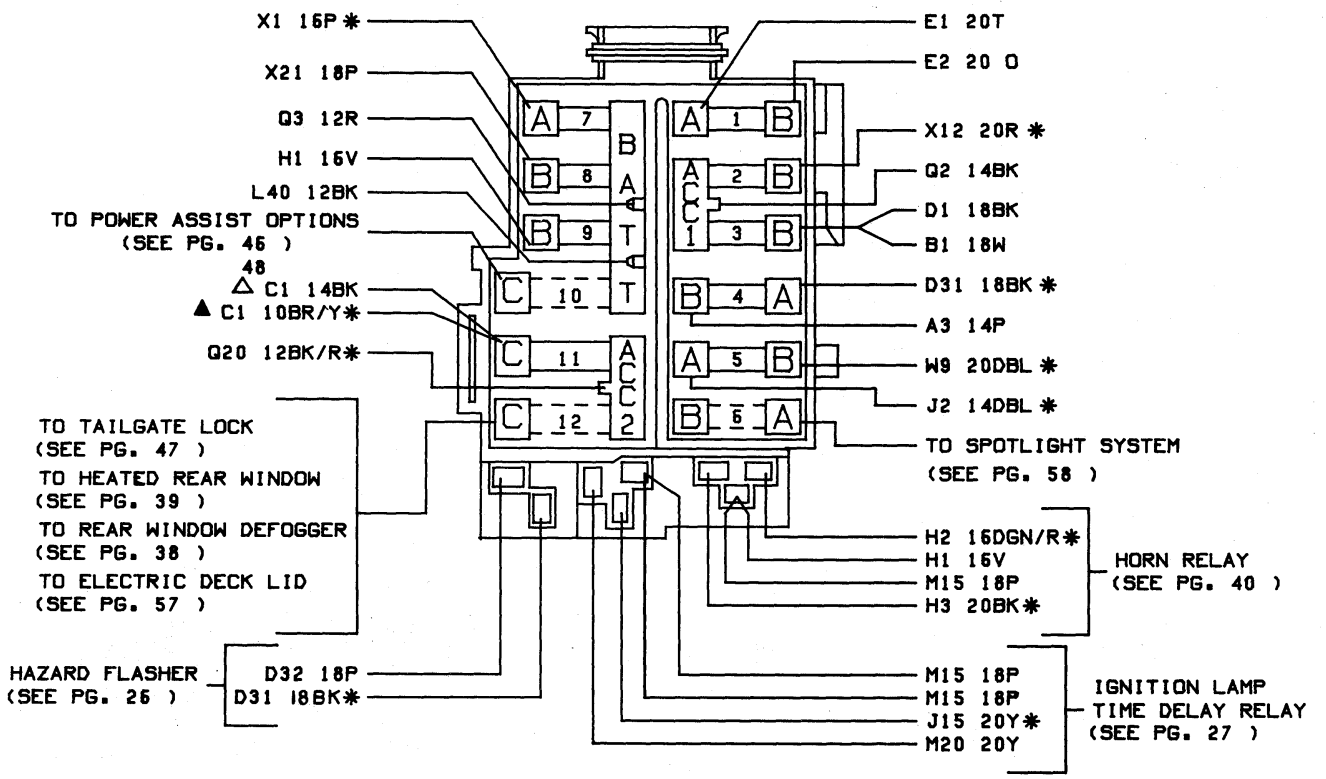
ENGINE COMPARTMENT CIRCUITS		CAVITY
R6 12BK/R*	FUSIBLE LINK, CHARGING CIRCUIT	1
J2 14DBL*	SPLICE-IGNITION RUN CIRCUIT	2
R6 12BK*	SPLICE-CHARGING CIRCUIT, SPLICE-TO ELECTRONIC VOLTAGE REGULATOR, ALTERNATOR	3
J2 14DBL	DOUBLE CRIMPED TO CAVITY#2	4
L28 16BK/P*	CONCEALED HEADLAMP MOTOR(OPEN)	5
L31 16DBL/W*	CONCEALED HEADLAMP MOTOR(CLOSE)	6
S2 18Y	STARTER RELAY-IGNITION	7
V4 18R/BK*	WINDSHIELD WIPER MOTOR	8
R16 20BK*	SPLICE-CHARGING CIRCUIT TO ALTERNATOR	9
H2 16DGN/R*	HORN	10
		11
D6 18LGN	LEFT TURN SIGNAL	12
V6 18DBL	WINDSHIELD WIPER MOTOR	13
		14
		15
G2 20V	TEMPERATURE SENDING UNIT	16
V12 18LBL/BK*	WINDSHIELD WIPER MOTOR	17
C2 18DBL/Y*	A/C LOW PRESSURE SWITCH	18
G6 20GY	OIL PRESSURE SWITCH OR SENDING UNIT	19
V3 18BR*	WINDSHIELD WIPER MOTOR	20
P5 20BK	BRAKE WARNING LAMP SWITCH	21
V10 18BR	WINDSHIELD WIPER MOTOR	22
		23
V5 18DGN/Y*	WINDSHIELD WIPER MOTOR	24
		25
		26
B1 18W	■ - BACK-UP LAMP SWITCH	27
B2 18V/BK*	■ - BACK-UP LAMP SWITCH △ - NEUTRAL START & BACK-UP LAMP SWITCH	28
L6 18BK/Y* (2 WIRES)	PARKING AND TURN SIGNAL, SIDE MARKER LAMPS	29
D5 18T	RIGHT TURN SIGNAL	30
J1 14R	FUSIBLE LINK-SPLICE-CHARGING CIRCUIT	31
A11 20R*	SPLICE-CHARGING CIRCUIT TO BATTERY	32
		33
		34
L4 14V*	HEADLAMP-LOW BEAM(2 WIRES-LEFT & RIGHT)	35
L3 14R*	HEADLAMP-HI BEAM(2 WIRES-LEFT & RIGHT)	36
J10 12P*	IGNITION SWITCH	37
A3 14P	BATTERY	38
C5 12DGN	A/C BLOWER MOTOR	39
T11 18GY*	COIL-(TACHOMETER)	40

CAVITY	INSTRUMENT PANEL CIRCUITS
1	R6 12BK/R* —— HEATED REAR WINDOW
2	J2 14DBL* —— IGNITION SWITCH & FUSEBLOCK#5
3	R6 12BK* —— HEADLAMP SWITCH & FUSEBLOCK#7 THRU 10
4	J2 14DBL —— CONCEALED HEADLAMP(FEED)
5	L28 18BK/R* —— CONCEALED HEADLAMP RELAY(OPEN)
6	L31 18DBL/Y* —— CONCEALED HEADLAMP RELAY(CLOSE)
7	S2 14Y —— IGNITION SWITCH
8	V4 18R —— WINDSHIELD WIPER SWITCH
9	R16 20BK* —— AMMETER
10	H2 16DGN/R* —— HORN RELAY
11	
12	D6 18LGN —— TURN SIGNAL SWITCH
13	V6 18DBL —— WINDSHIELD WIPER SWITCH
14	
15	
16	G2 20V —— TEMPERATURE GAUGE
17	V12 20LBL/BK* — INTERMITTENT WIPER CONTROL UNIT
18	C2 18DBL* —— A/C VACUUM SWITCH
19	G6 20GY —— OIL PRESSURE GAUGE OR WARNING LAMP
20	V3 18BR* —— WINDSHIELD WIPER SWITCH
21	P5 20BK —— HAND BRAKE RELEASE SWITCH AND BRAKE WARNING LAMP
22	V10 20BR/R* —— WINDSHIELD WASHER
23	
24	V5 18DGN —— WINDSHIELD WIPER SWITCH
25	
26	
27	B1 18W —— FUSEBLOCK#3 & TURN SIGNAL FLASHER
28	B2 18V/BK* —— BACK-UP LAMPS
29	L6 18Y/BK* —— HEADLAMP SWITCH L6 20Y/BK* —— ELECTRONIC DIGITAL CLOCK
30	D5 18T —— TURN SIGNAL SWITCH
31	J1 12R —— IGNITION SWITCH
32	A11 20R* —— AMMETER
33	
34	
35	L4 14V* —— FOOT DIMMER SWITCH
36	L3 14R,L5 14R — FOOT DIMMER SWITCH
37	J10 12P* —— IGNITION SWITCH
38	A3 14P —— FUSEBLOCK#4-HAZARD FLASHER
39	C5 12DGN* —— BLOWER MOTOR SWITCH AND BLOWER MOTOR RESISTOR
40	T11 20GY* —— TACHOMETER



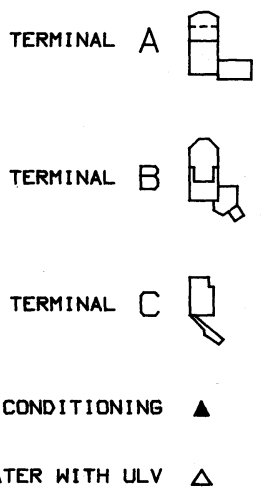
F.B.

(BOTTOM VIEW-WIRE SIDE)



(BRACKETED TO LEFT SIDE OF HEATER-AIR CONDITIONING UNIT)

NOTES

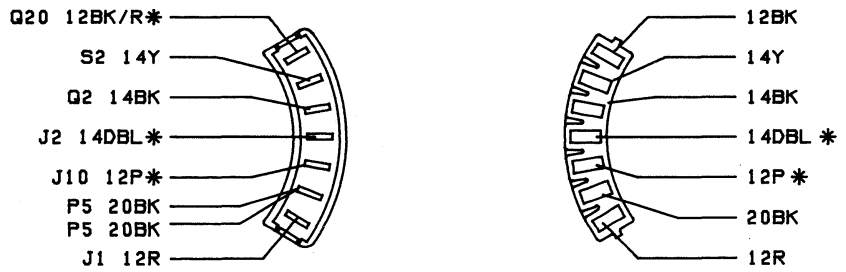


AIR CONDITIONING ▲

HEATER WITH ULV △

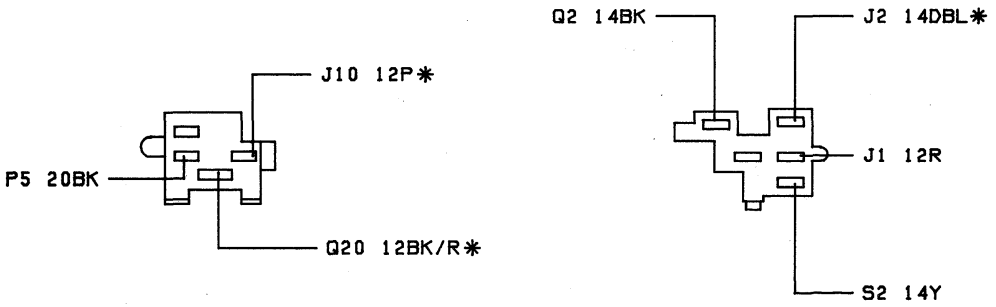
FUSE NUMBER	AMPS
#1	4
#2	5
#3	20
#4	20
#5	5
#6	20
#7	20
#8	20
#9	20
#10	30 CIRCUIT BREAKER
#11	▲ 30 / △ 20
#12	20

CON 1



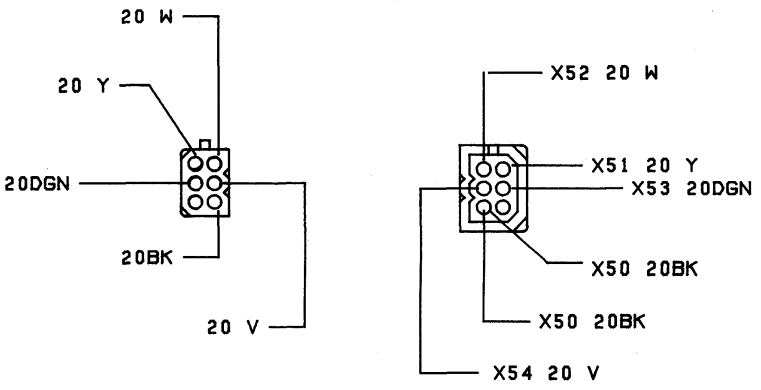
STARTER & IGNITION SWITCH
CONNECTOR

CON 2



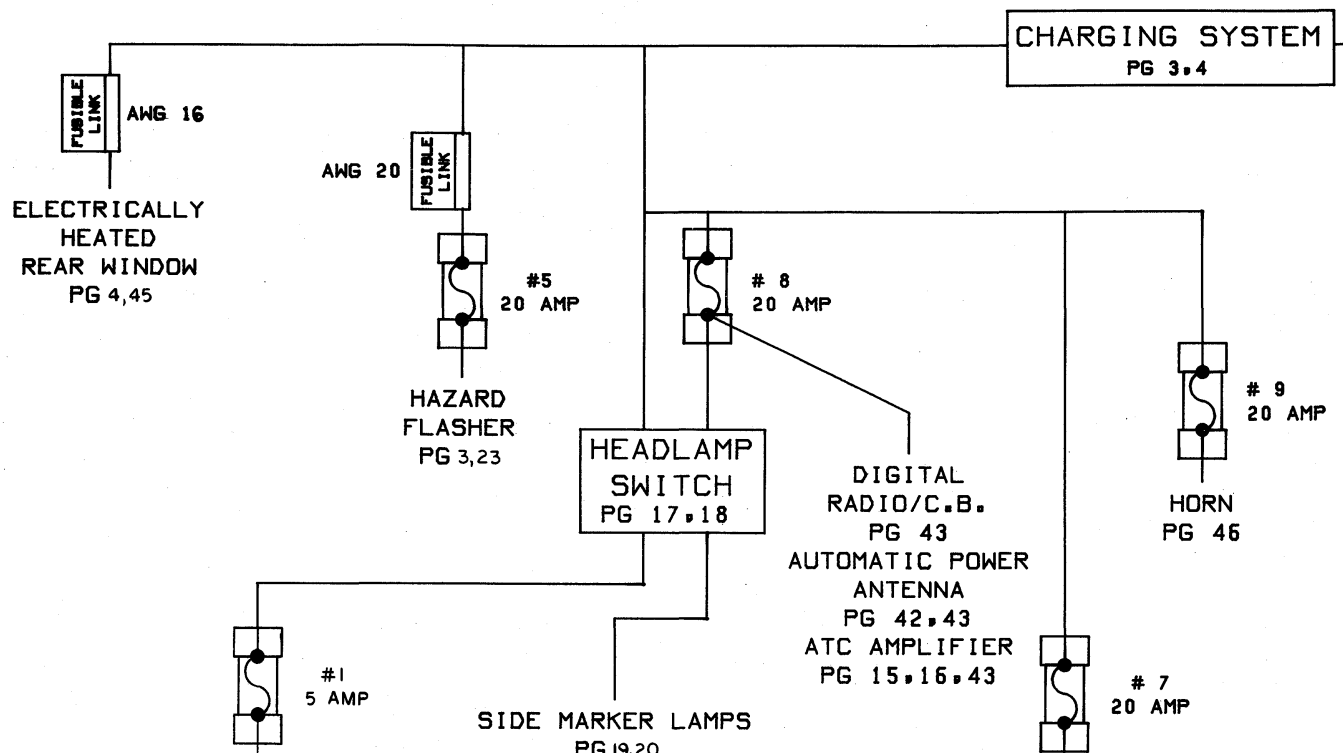
STARTER & IGNITION SWITCH
TILT COLUMN JUMPER
CONNECTORS

CON 3

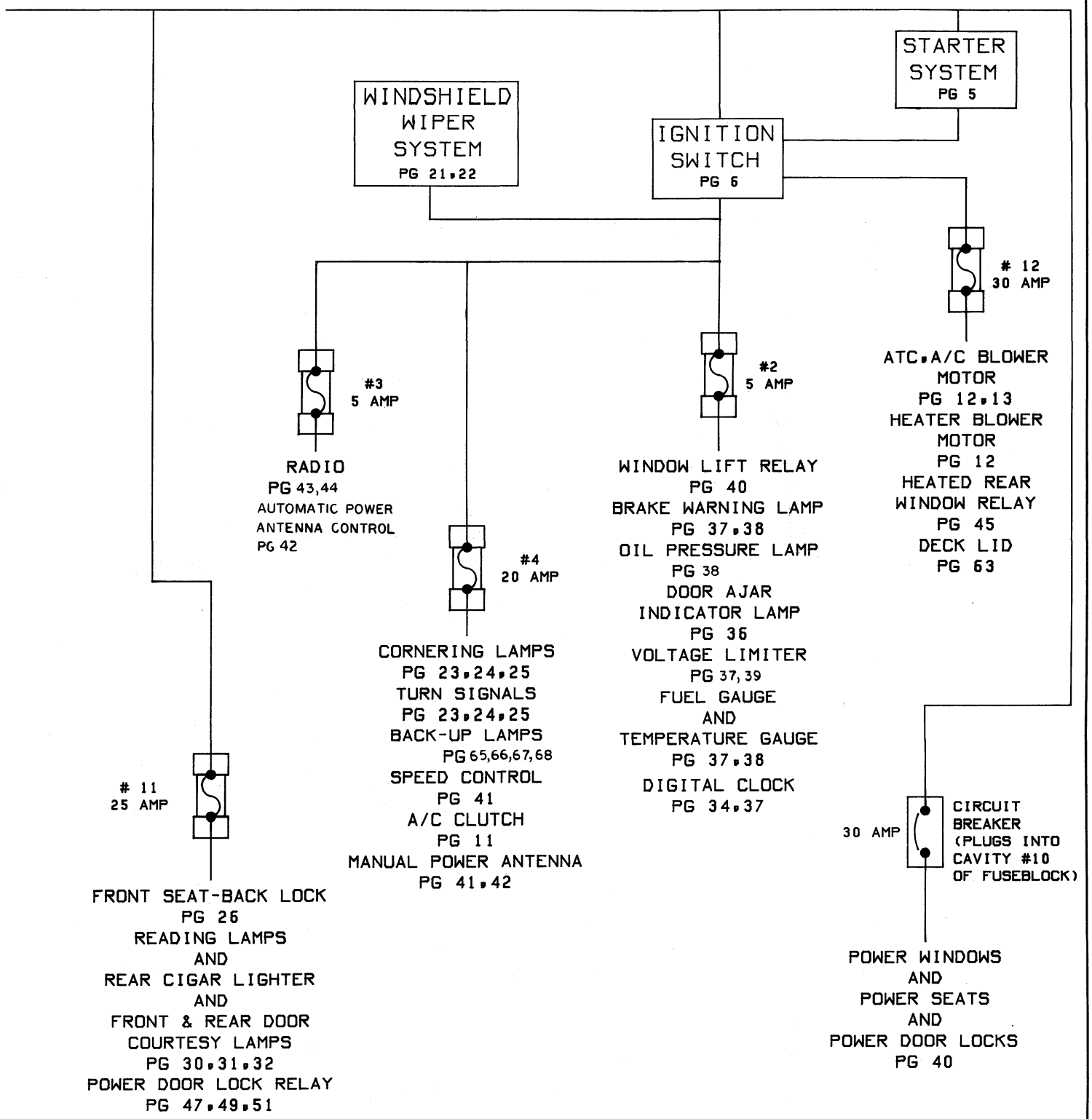


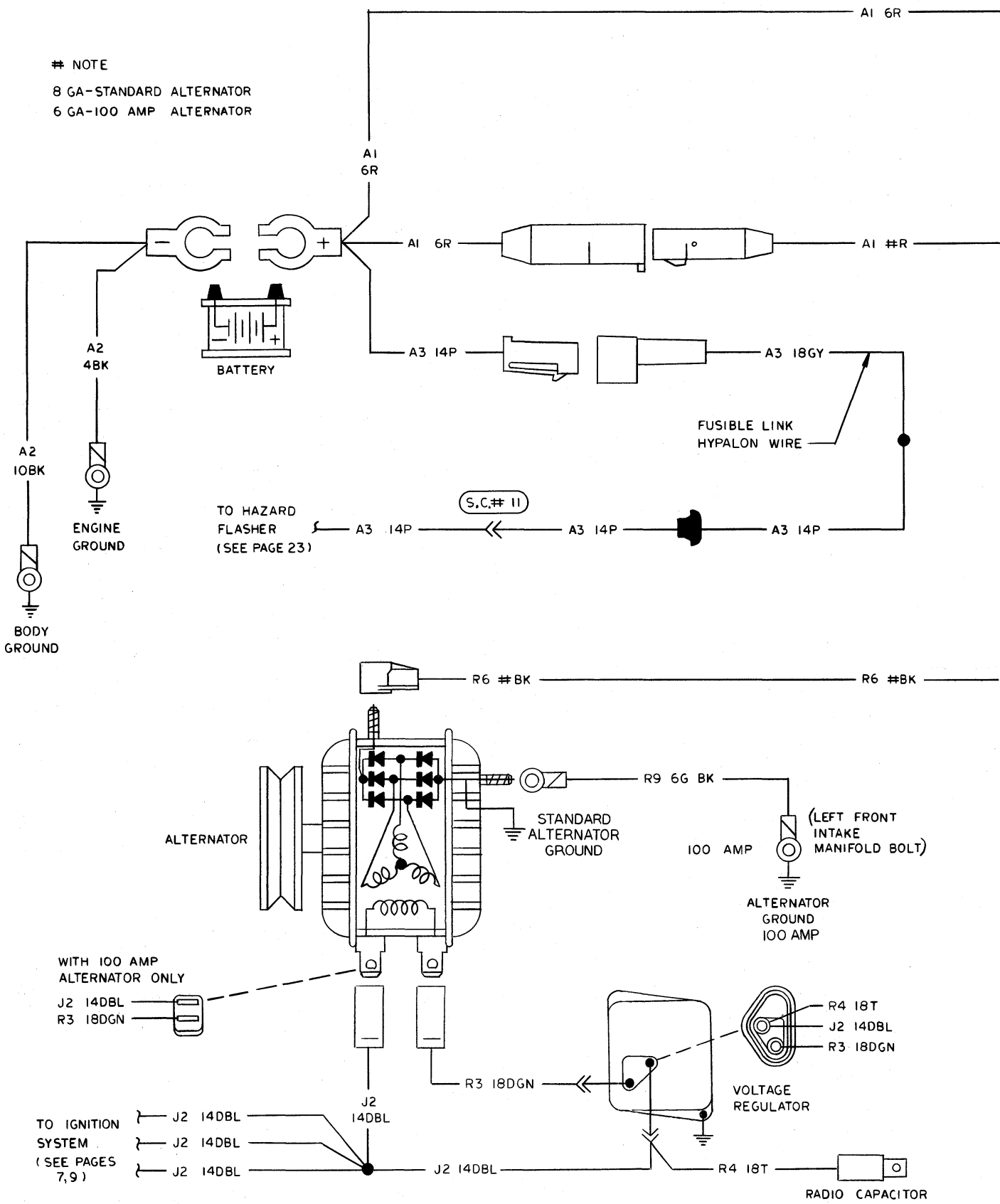
C MODELS

ALPHABETICAL INDEX

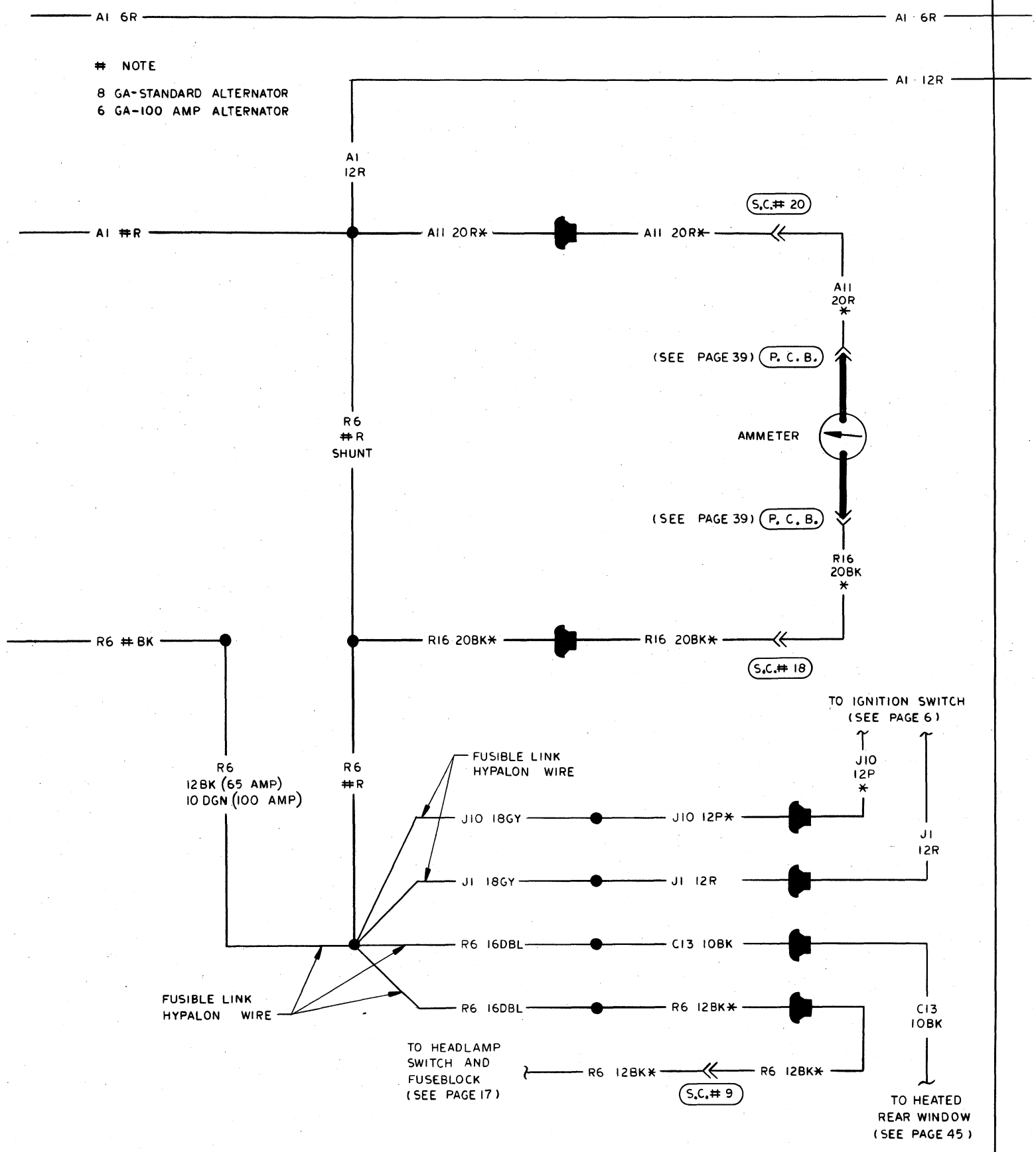


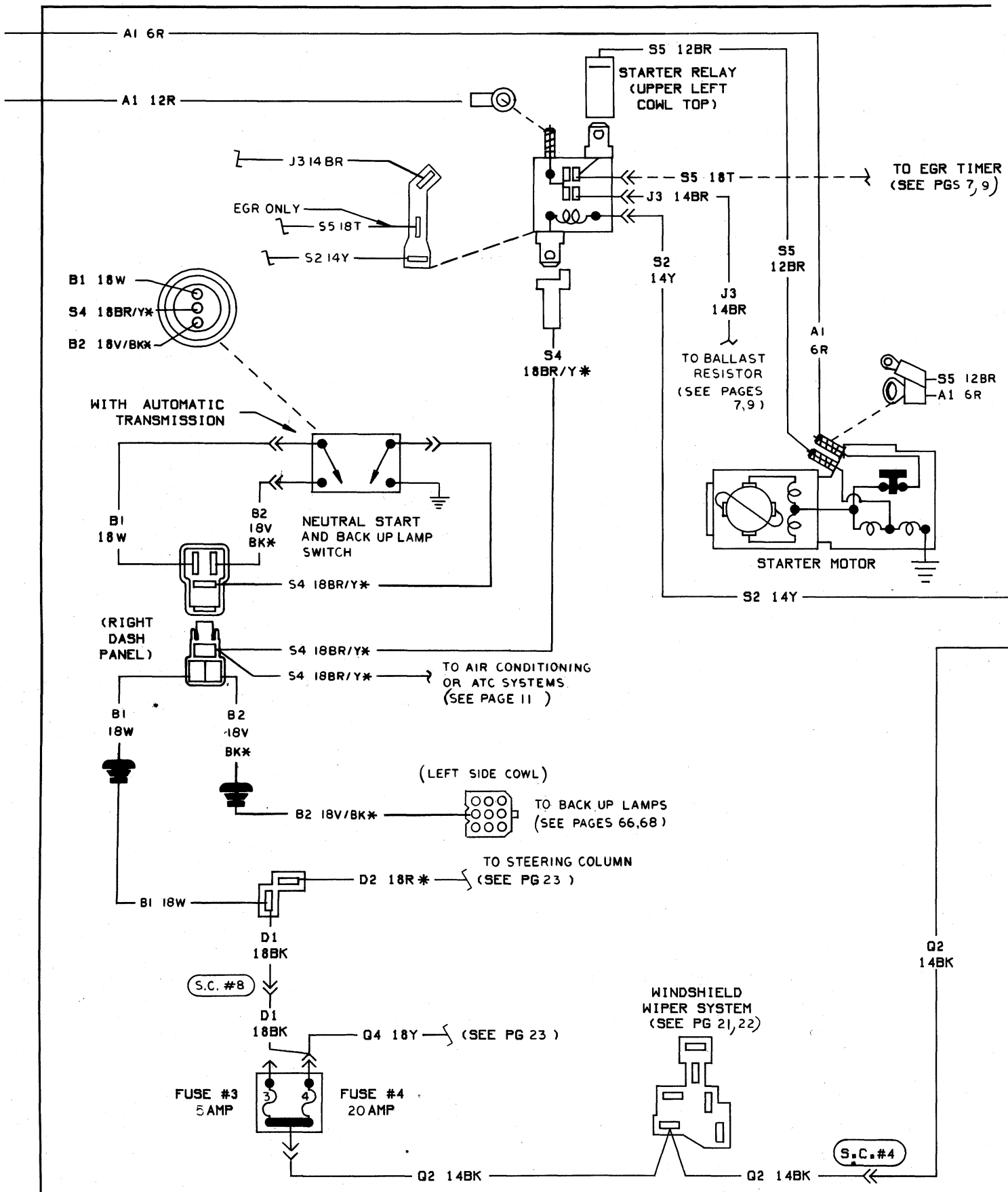
C 1 FUSE APPLICATION CHART PR4


STARTER SYSTEM PG 5
WINDSHIELD WIPER SYSTEM PG 21,22
IGNITION SWITCH PG 6
12 30 AMP
#3 5 AMP
#2 5 AMP
#4 20 AMP
11 25 AMP
RADIO PG 43,44
AUTOMATIC POWER ANTENNA CONTROL PG 42
WINDOW LIFT RELAY PG 40
BRAKE WARNING LAMP PG 37,38
OIL PRESSURE LAMP PG 38
DOOR AJAR INDICATOR LAMP PG 36
VOLTAGE LIMITER PG 37,39
FUEL GAUGE AND TEMPERATURE GAUGE PG 37,38
DIGITAL CLOCK PG 34,37
ATC,A/C BLOWER MOTOR PG 12,13
HEATER BLOWER MOTOR PG 12
HEATED REAR WINDOW RELAY PG 45
DECK LID PG 63
CORNERING LAMPS PG 23,24,25
TURN SIGNALS PG 23,24,25
BACK-UP LAMPS PG 65,66,67,68
SPEED CONTROL PG 41
A/C CLUTCH PG 11
MANUAL POWER ANTENNA PG 41,42
FRONT SEAT-BACK LOCK PG 26
READING LAMPS AND REAR CIGAR LIGHTER AND FRONT & REAR DOOR COURTESY LAMPS PG 30,31,32
POWER DOOR LOCK RELAY PG 47,49,51
30 AMP
CIRCUIT BREAKER (PLUGS INTO CAVITY #10 OF FUSEBLOCK)
POWER WINDOWS AND POWER SEATS AND POWER DOOR LOCKS PG 40



C3 CHARGING SYSTEM PR 4

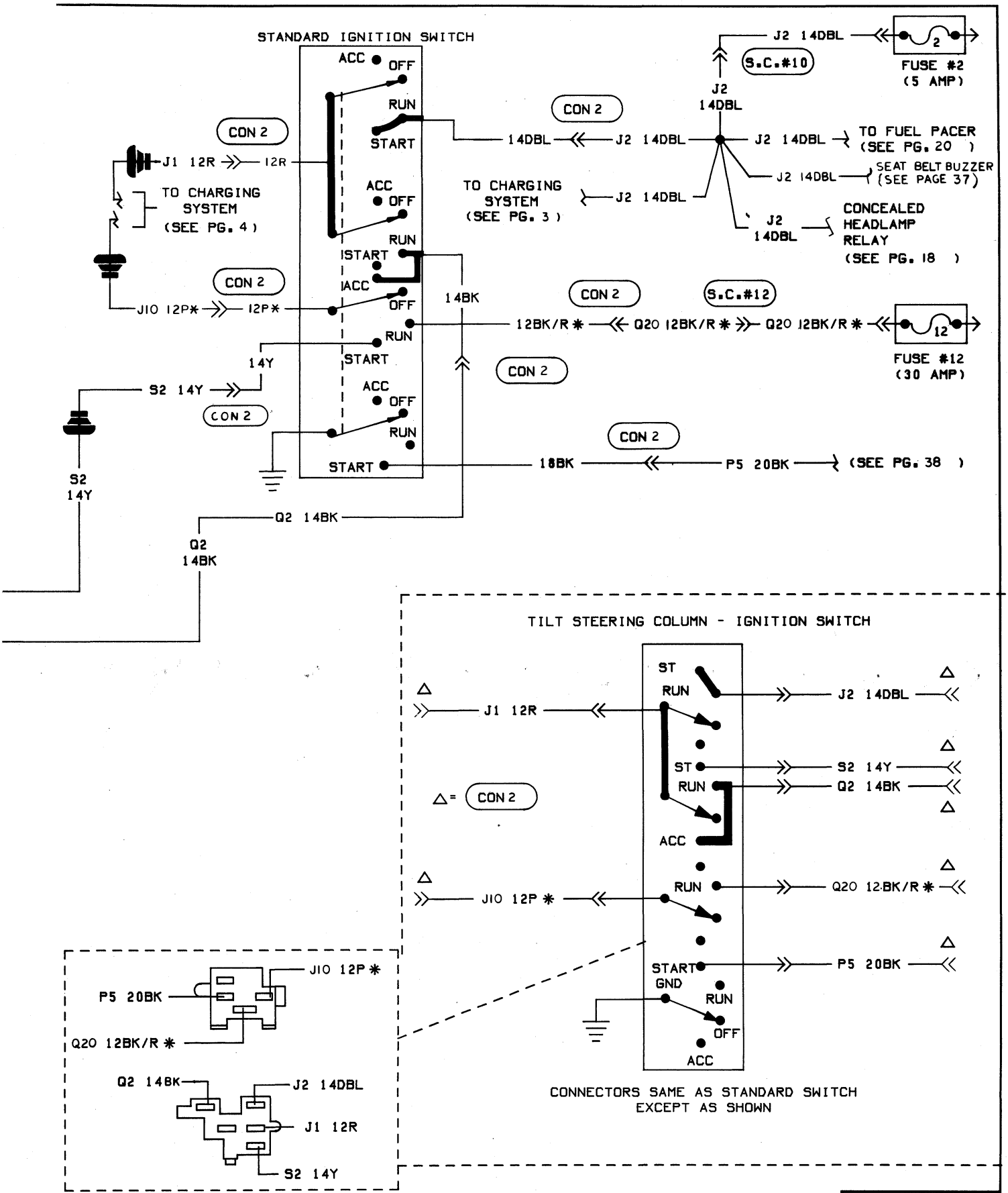

A1 6R
A1 6R
NOTE
8 GA-STANDARD ALTERNATOR
6 GA-100 AMP ALTERNATOR
A1 12R
A1 12R
A1 #R
A11 20R*
A11 20R*
S.C.# 20
A11 20R*
(SEE PAGE 39) P. C. B.
AMMETER
(SEE PAGE 39) P. C. B.
R16 20BK*
R6 #R SHUNT
R6 #BK
R16 20BK*
R16 20BK*
S.C.# 18
TO IGNITION SWITCH (SEE PAGE 6)
J10 12P*
J1 12R
R6 12BK (65 AMP) 10 DGN (100 AMP)
R6 #R
FUSIBLE LINK HYPALON WIRE
J10 18GY
J10 12P*
J1 18GY
J1 12R
R6 16DBL
C13 10BK
FUSIBLE LINK HYPALON WIRE
R6 16DBL
R6 12BK*
C13 10BK
TO HEADLAMP SWITCH AND FUSEBLOCK (SEE PAGE 17)
R6 12BK*
R6 12BK*
S.C.# 9
TO HEATED REAR WINDOW (SEE PAGE 45)



C5

STARTER SYSTEM

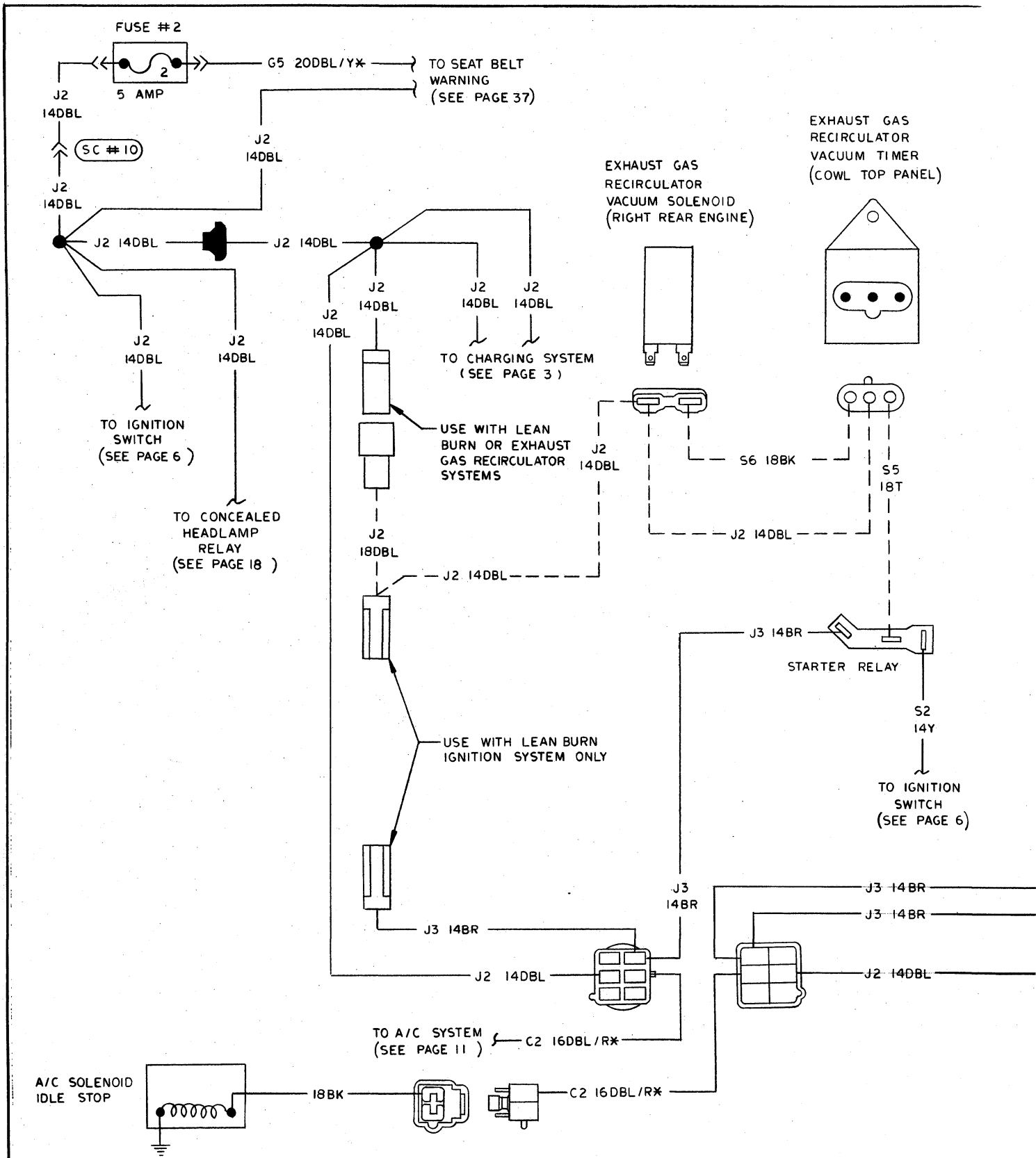
PR 4

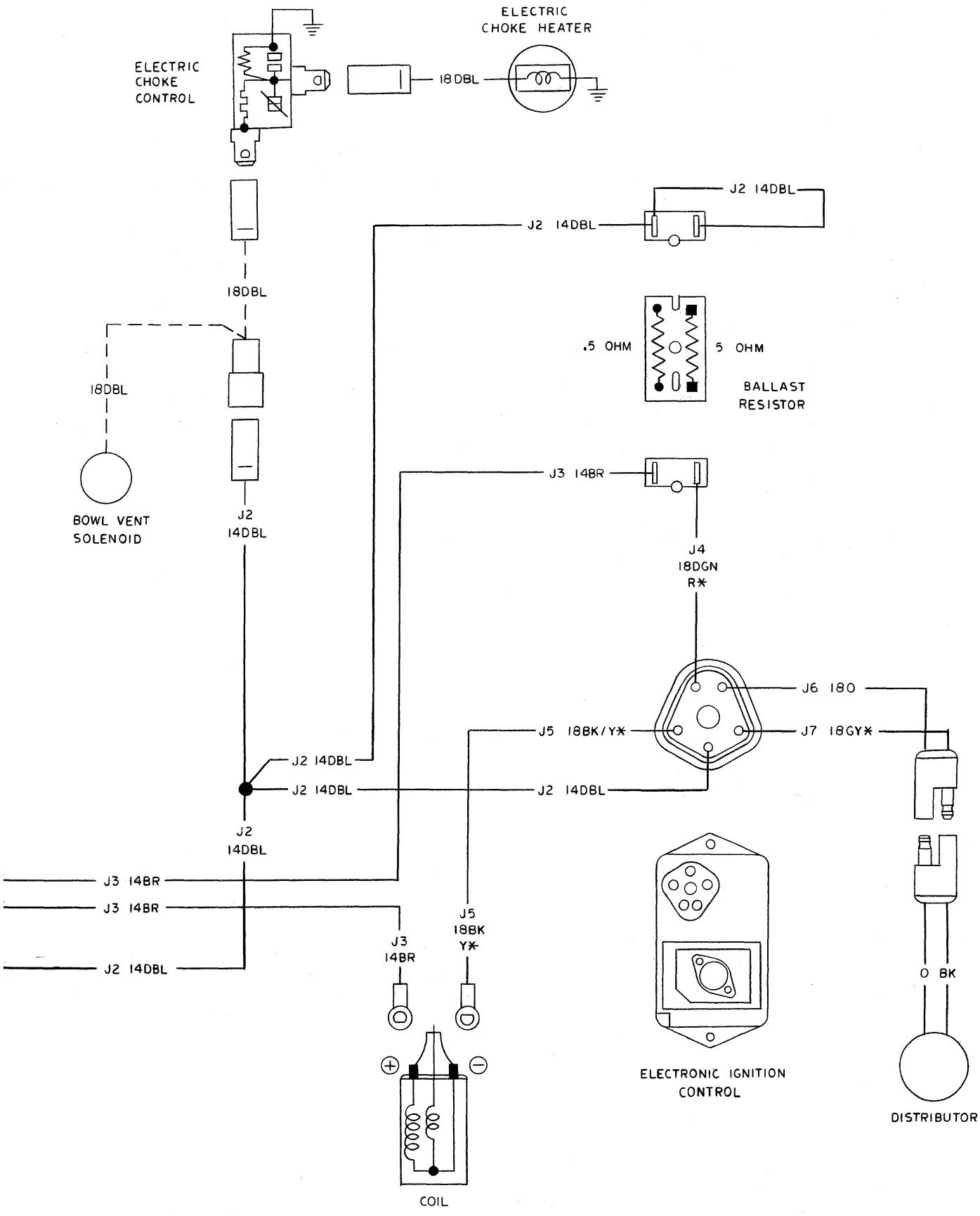


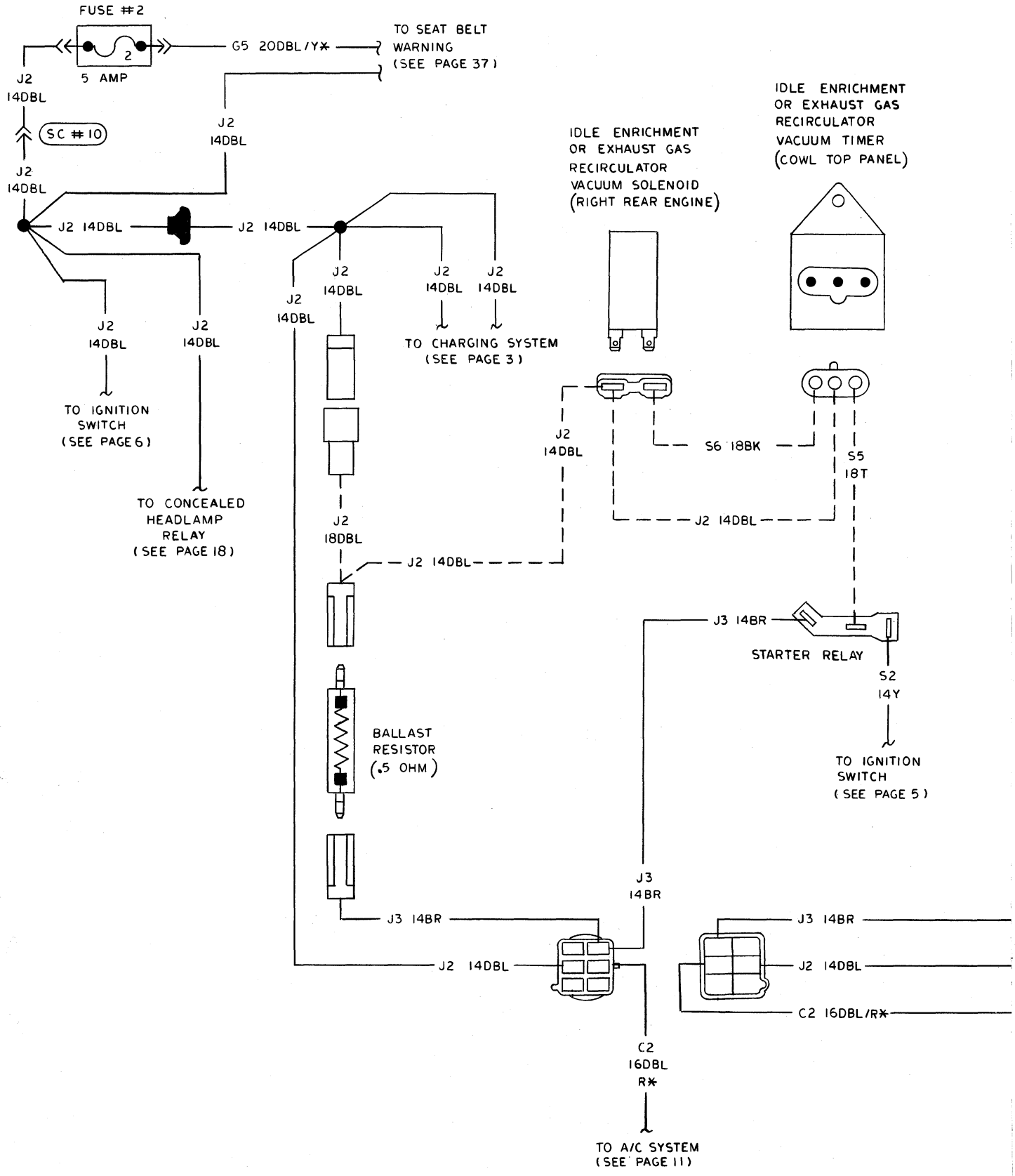
PR 4

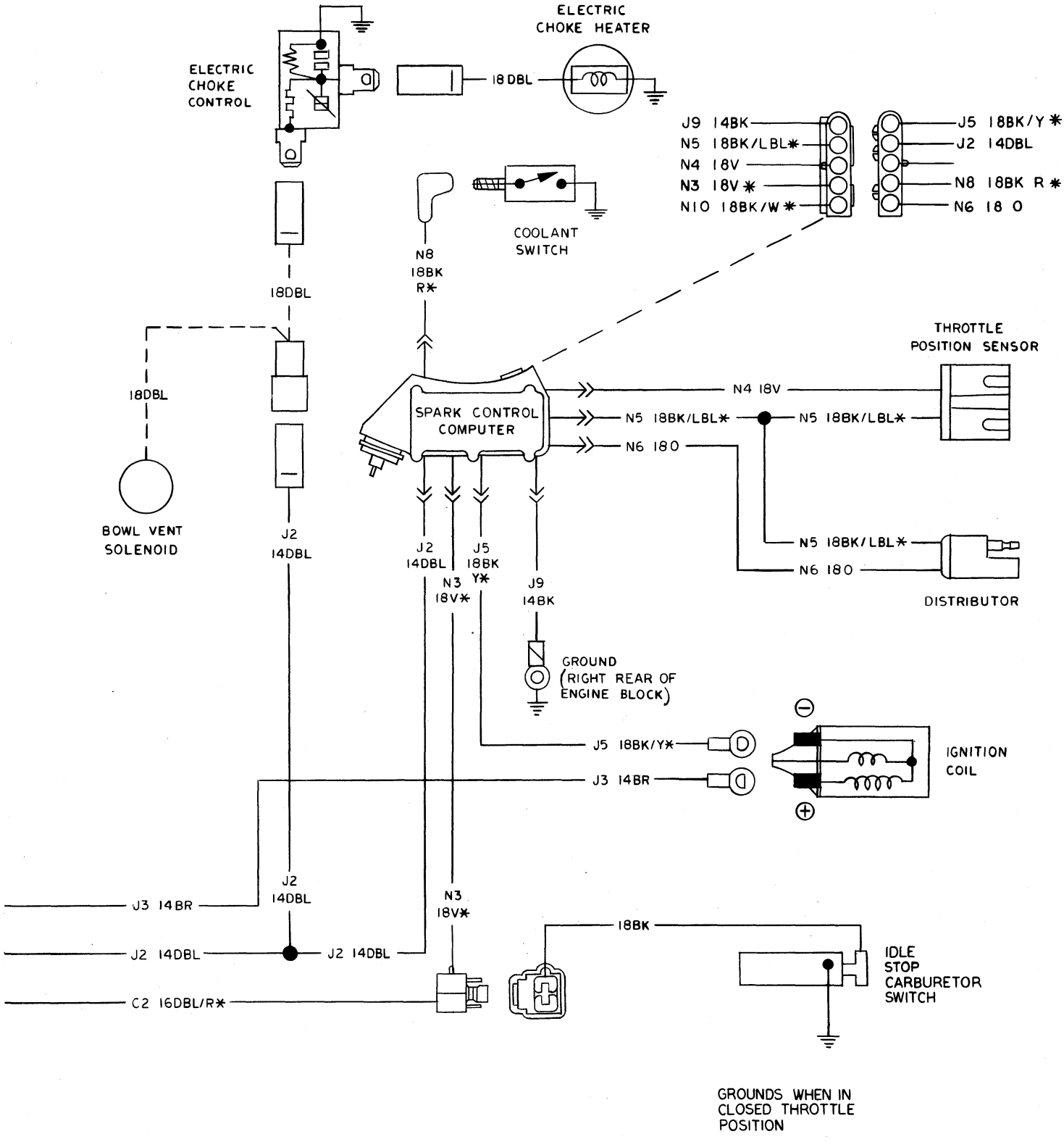
IGNITION SWITCH

C6


FUSE #2
2
5 AMP
G5 20DBL/Y*
TO SEAT BELT WARNING (SEE PAGE 37)
J2 14DBL
SC #10
EXHAUST GAS RECIRCULATOR VACUUM TIMER (COWL TOP PANEL)
EXHAUST GAS RECIRCULATOR VACUUM SOLENOID (RIGHT REAR ENGINE)
TO CHARGING SYSTEM (SEE PAGE 3)
TO IGNITION SWITCH (SEE PAGE 6)
TO CONCEALED HEADLAMP RELAY (SEE PAGE 18)
USE WITH LEAN BURN OR EXHAUST GAS RECIRCULATOR SYSTEMS
J2 18DBL
S6 18BK
S5 18T
J3 14BR
STARTER RELAY
S2 14Y
TO IGNITION SWITCH (SEE PAGE 6)
USE WITH LEAN BURN IGNITION SYSTEM ONLY
TO A/C SYSTEM (SEE PAGE 11)
C2 16DBL/R*
A/C SOLENOID IDLE STOP
18BK

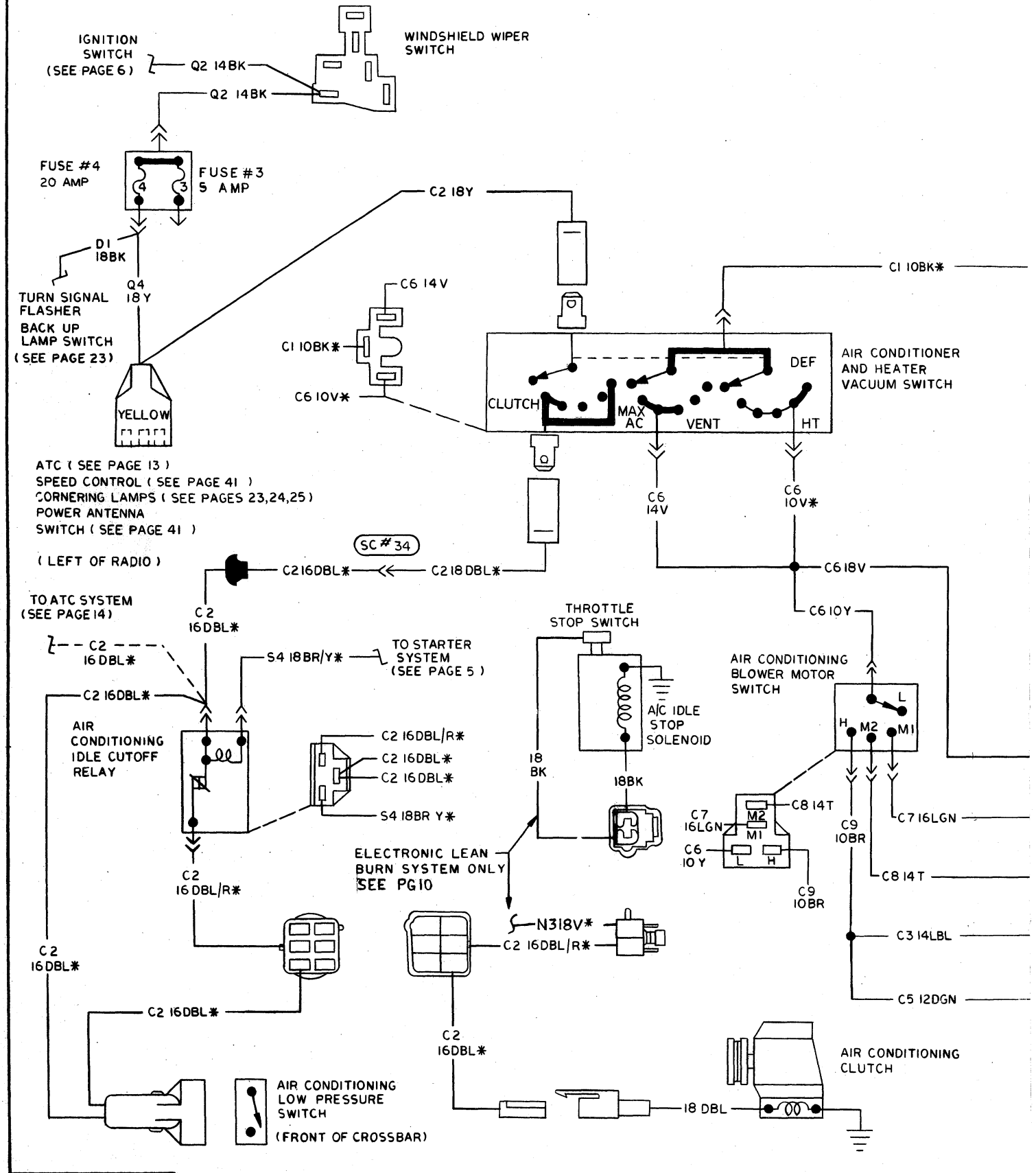

ELECTRIC CHOKE HEATER
ELECTRIC CHOKE CONTROL
18DBL
J2 14DBL
J2 14DBL
18DBL
.5 OHM
5 OHM
BALLAST RESISTOR
18DBL
J3 14BR
BOWL VENT SOLENOID
J2 14DBL
J4 18DGN R*
J6 18O
J5 18BK/Y*
J7 18GY*
J2 14DBL
J2 14DBL
J2 14DBL
J2 14DBL
J3 14BR
J3 14BR
J2 14DBL
J3 14BR
J5 18BK Y*
O BK
ELECTRONIC IGNITION CONTROL
DISTRIBUTOR
COIL


FUSE #2
2
5 AMP
G5 20DBL/Y*
TO SEAT BELT WARNING (SEE PAGE 37)
J2 14DBL
SC #10
J2 14DBL
J2 14DBL
J2 14DBL
J2 14DBL
J2 14DBL
J2 14DBL
J2 14DBL
J2 14DBL
J2 14DBL
J2 14DBL
J2 14DBL
TO IGNITION SWITCH (SEE PAGE 6)
TO CONCEALED HEADLAMP RELAY (SEE PAGE 18)
TO CHARGING SYSTEM (SEE PAGE 3)
IDLE ENRICHMENT OR EXHAUST GAS RECIRCULATOR VACUUM SOLENOID (RIGHT REAR ENGINE)
IDLE ENRICHMENT OR EXHAUST GAS RECIRCULATOR VACUUM TIMER (COWL TOP PANEL)
J2 14DBL
S6 18BK
S5 18T
J2 14DBL
J2 18DBL
J2 14DBL
J3 14BR
STARTER RELAY
S2 14Y
TO IGNITION SWITCH (SEE PAGE 5)
BALLAST RESISTOR (.5 OHM)
J3 14BR
J3 14BR
J2 14DBL
J3 14BR
J2 14DBL
C2 16DBL/R*
C2 16DBL R*
TO A/C SYSTEM (SEE PAGE 11)

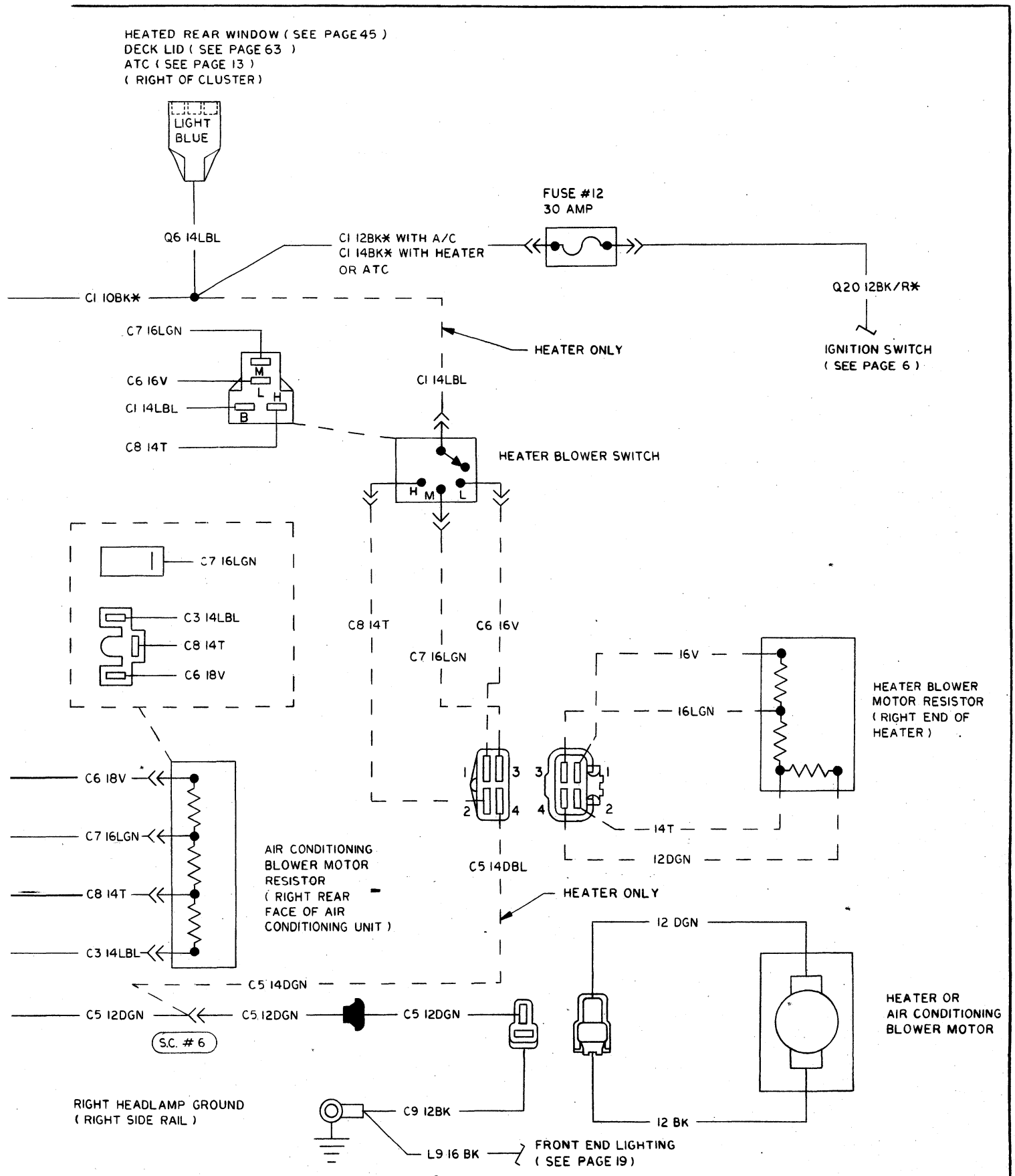


IGNITION SYSTEM (LEAN BURN)

C10



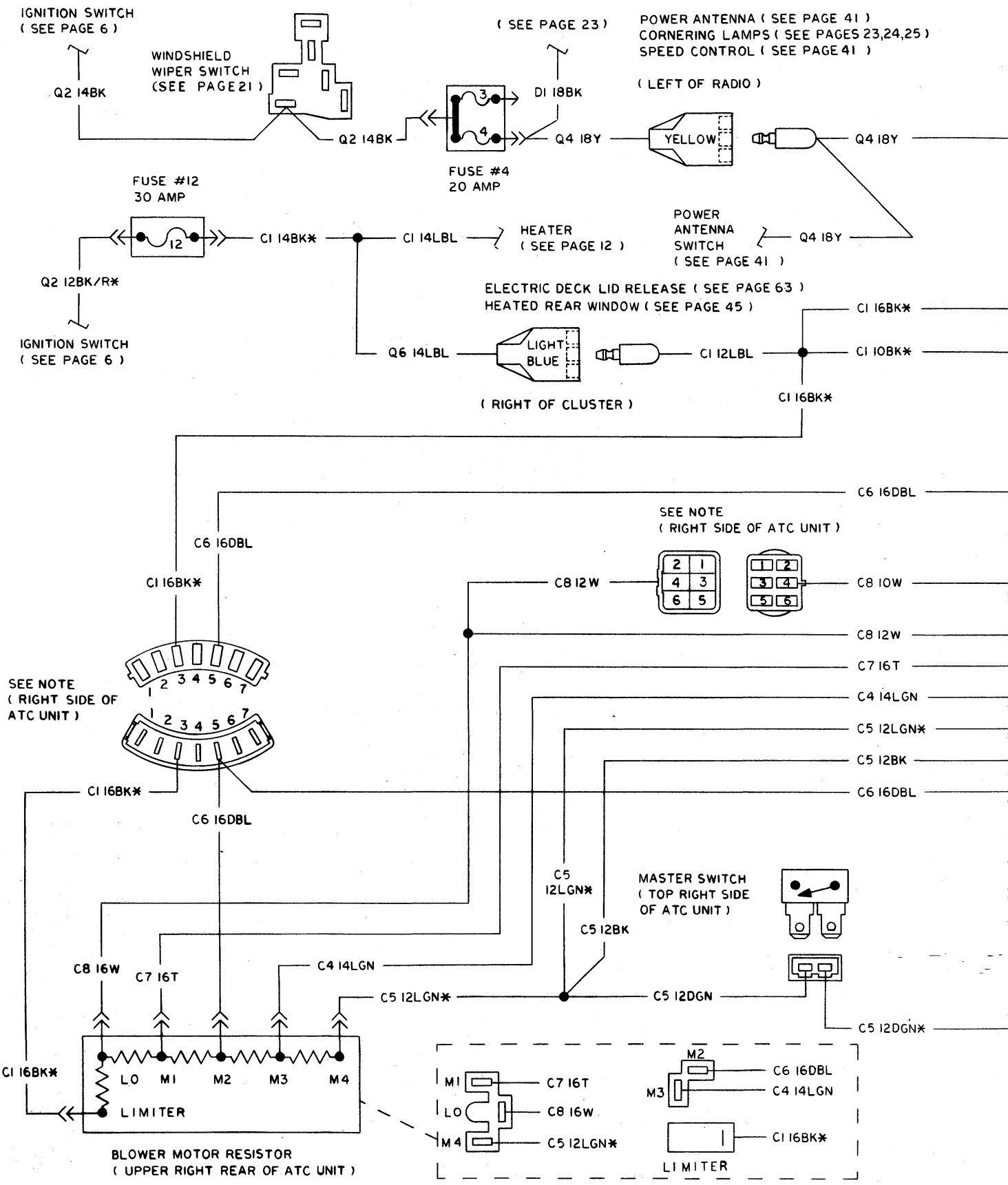
C 11 AIR CONDITIONING AND HEATER SYSTEM PR4



PR4

AIR CONDITIONING AND HEATER SYSTEM

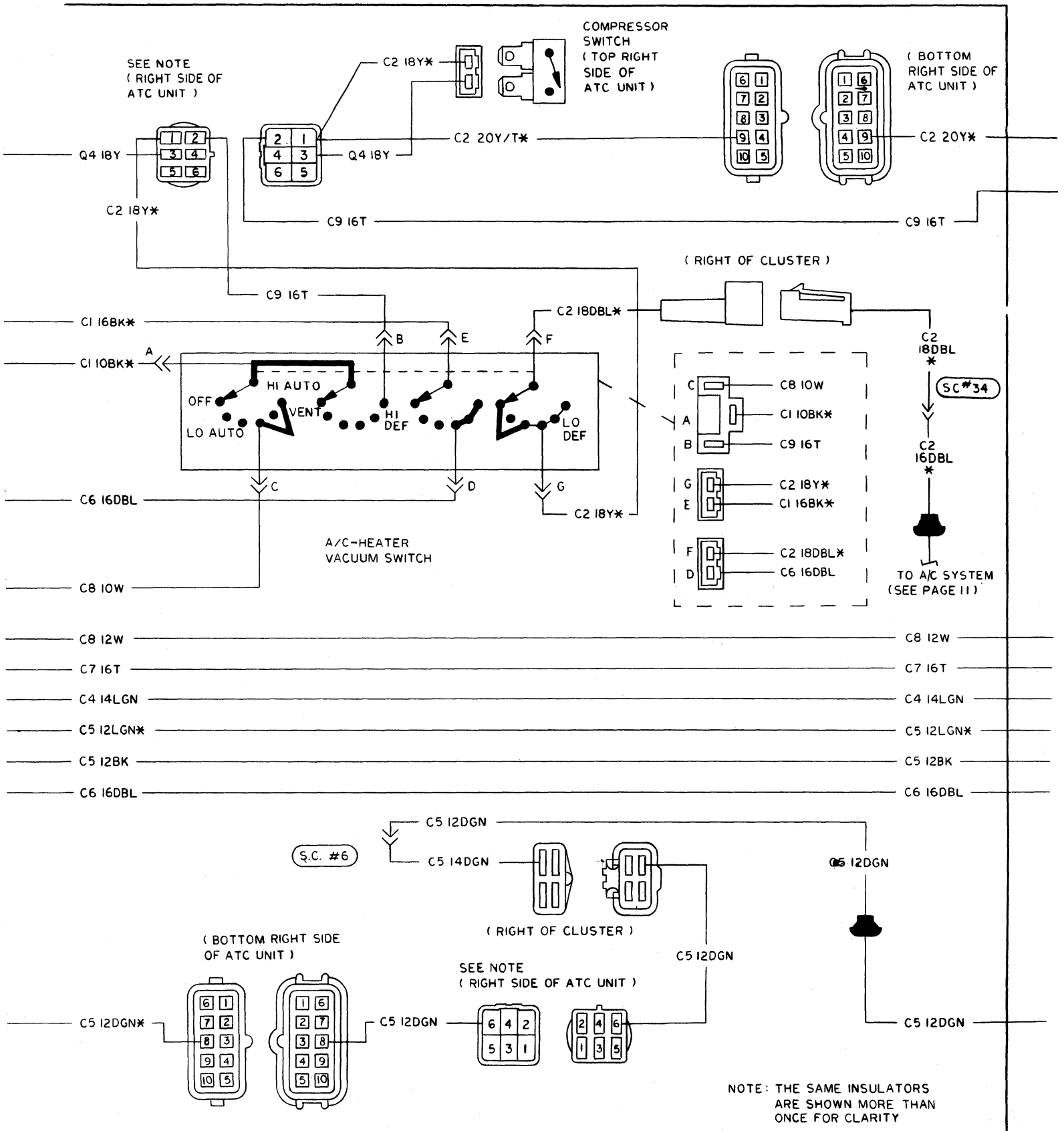
C12

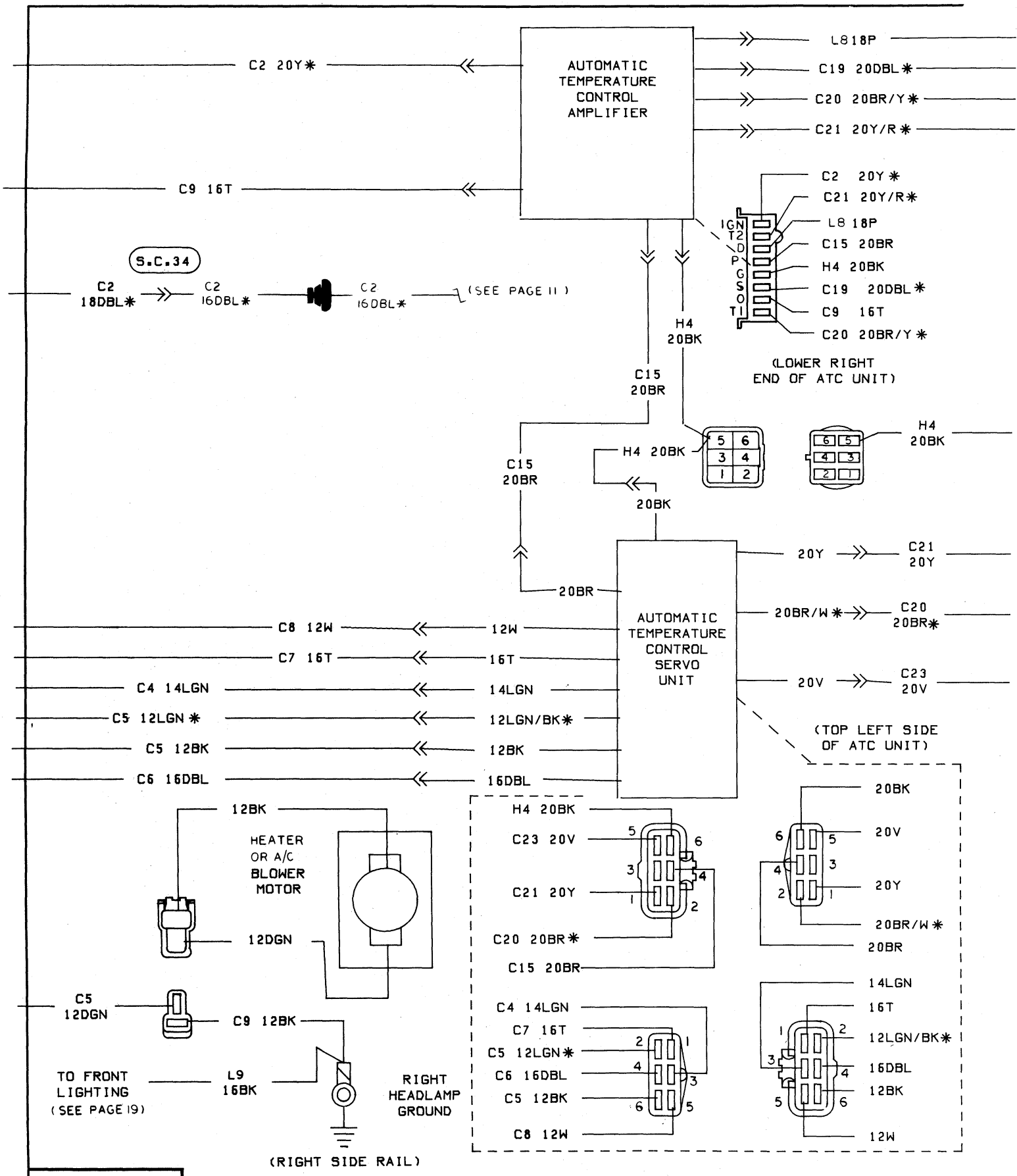


C13

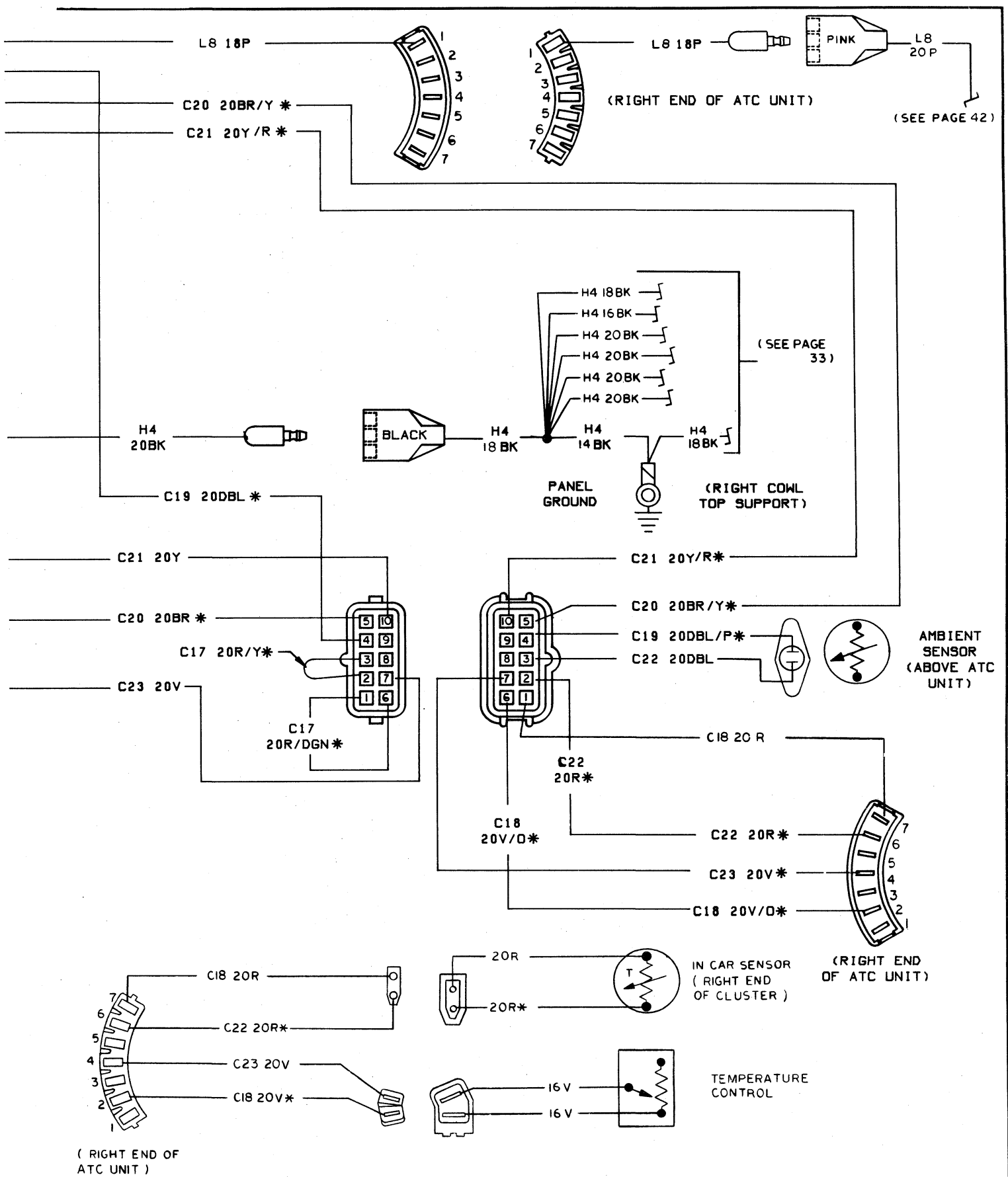
AUTO TEMPERATURE CONTROL SYSTEM

PR4

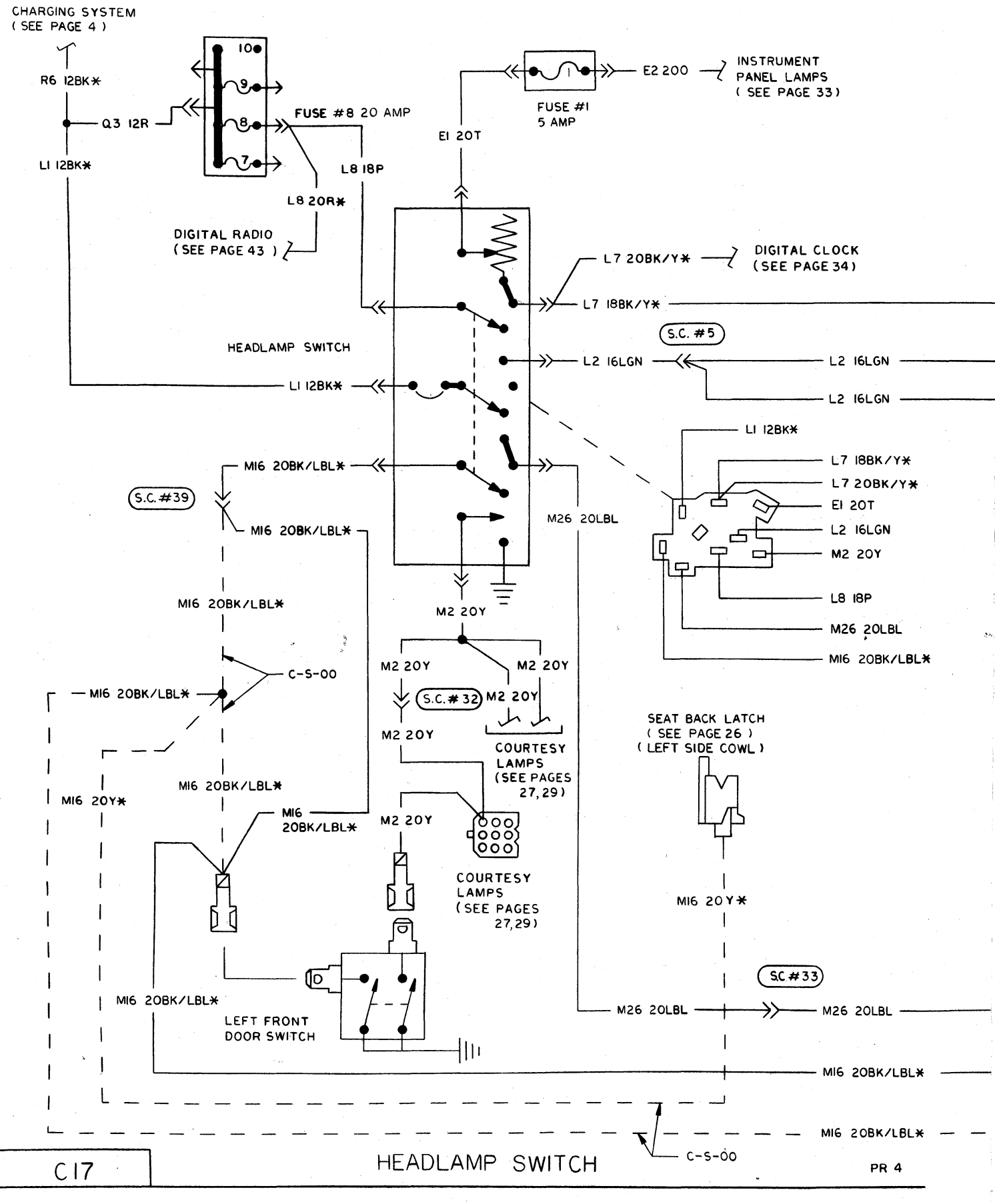

SEE NOTE (RIGHT SIDE OF ATC UNIT)
C2 18Y*
COMPRESSOR SWITCH (TOP RIGHT SIDE OF ATC UNIT)
(BOTTOM RIGHT SIDE OF ATC UNIT)
Q4 18Y
C2 20Y/T*
C2 20Y*
C9 16T
(RIGHT OF CLUSTER)
C1 16BK*
C2 18DBL*
C1 10BK*
A
B
E
F
OFF
HI AUTO
VENT
HI DEF
LO AUTO
LO DEF
C
D
G
C6 16DBL
C8 10W
A/C-HEATER VACUUM SWITCH
C8 10W
C1 10BK*
C9 16T
C2 18Y*
C1 16BK*
C2 18DBL*
C6 16DBL
C2 18DBL *
SC#34
C2 16DBL *
TO A/C SYSTEM (SEE PAGE 11)
C8 12W
C7 16T
C4 14LGN
C5 12LGN*
C5 12BK
C6 16DBL
C5 12DGN
S.C. #6
C5 14DGN
(RIGHT OF CLUSTER)
C5 12DGN
(BOTTOM RIGHT SIDE OF ATC UNIT)
SEE NOTE (RIGHT SIDE OF ATC UNIT)
C5 12DGN*
C5 12DGN
C5 12DGN
NOTE: THE SAME INSULATORS ARE SHOWN MORE THAN ONCE FOR CLARITY



C15 AUTO TEMPERATURE CONTROL SYSTEM PR4



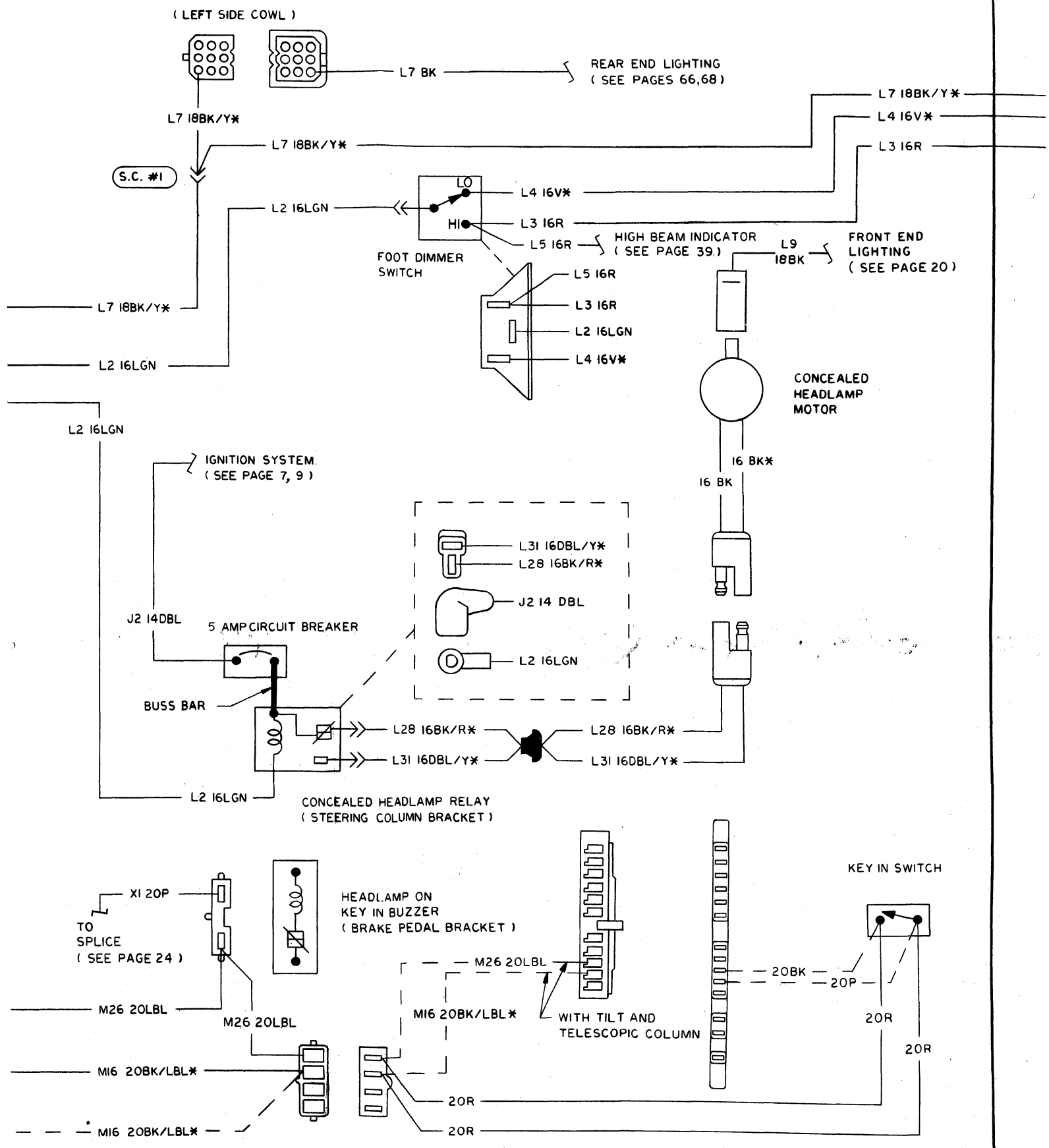
PR4 AUTO TEMPERATURE CONTROL SYSTEM C16



C17

HEADLAMP SWITCH

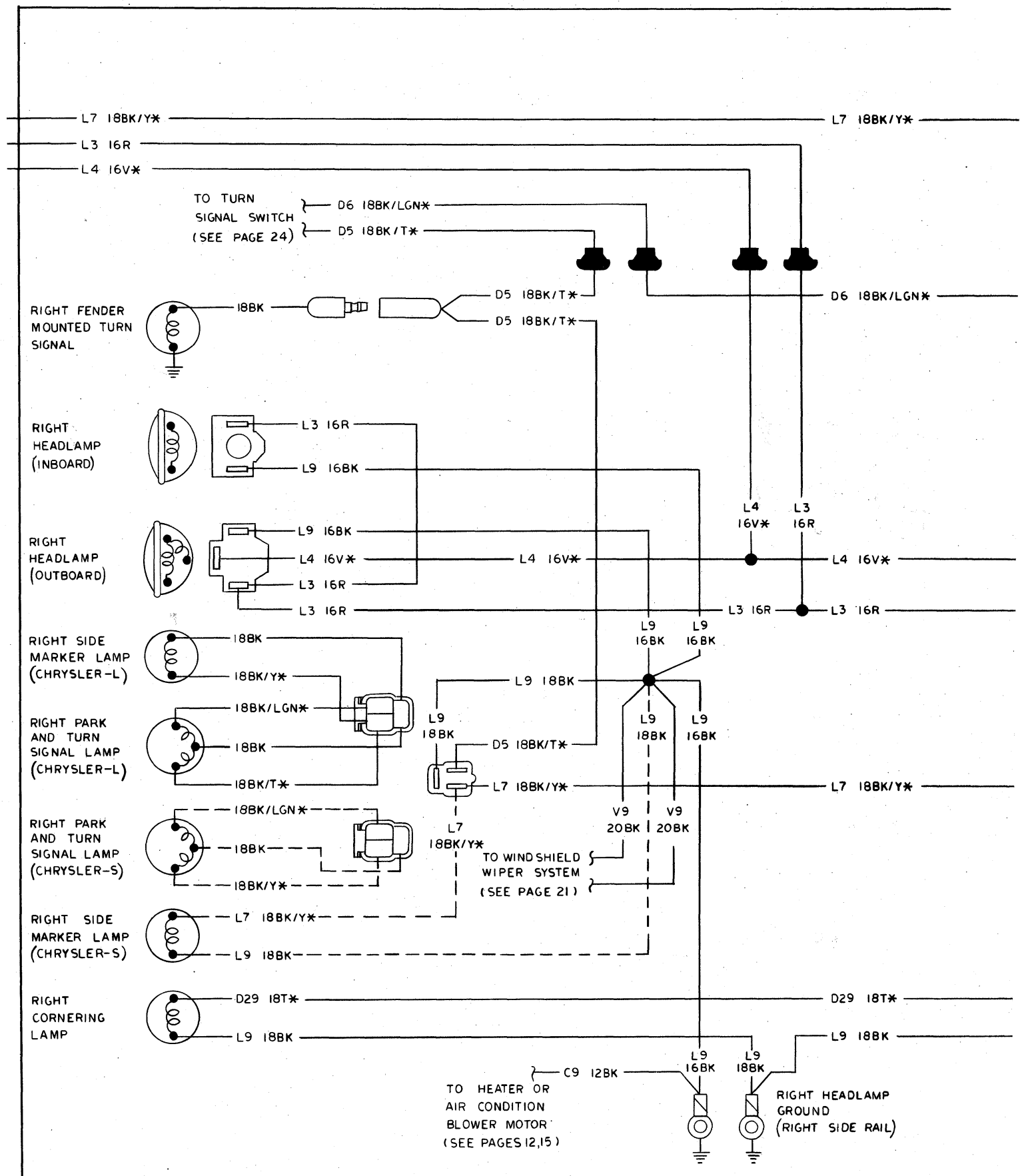
PR 4



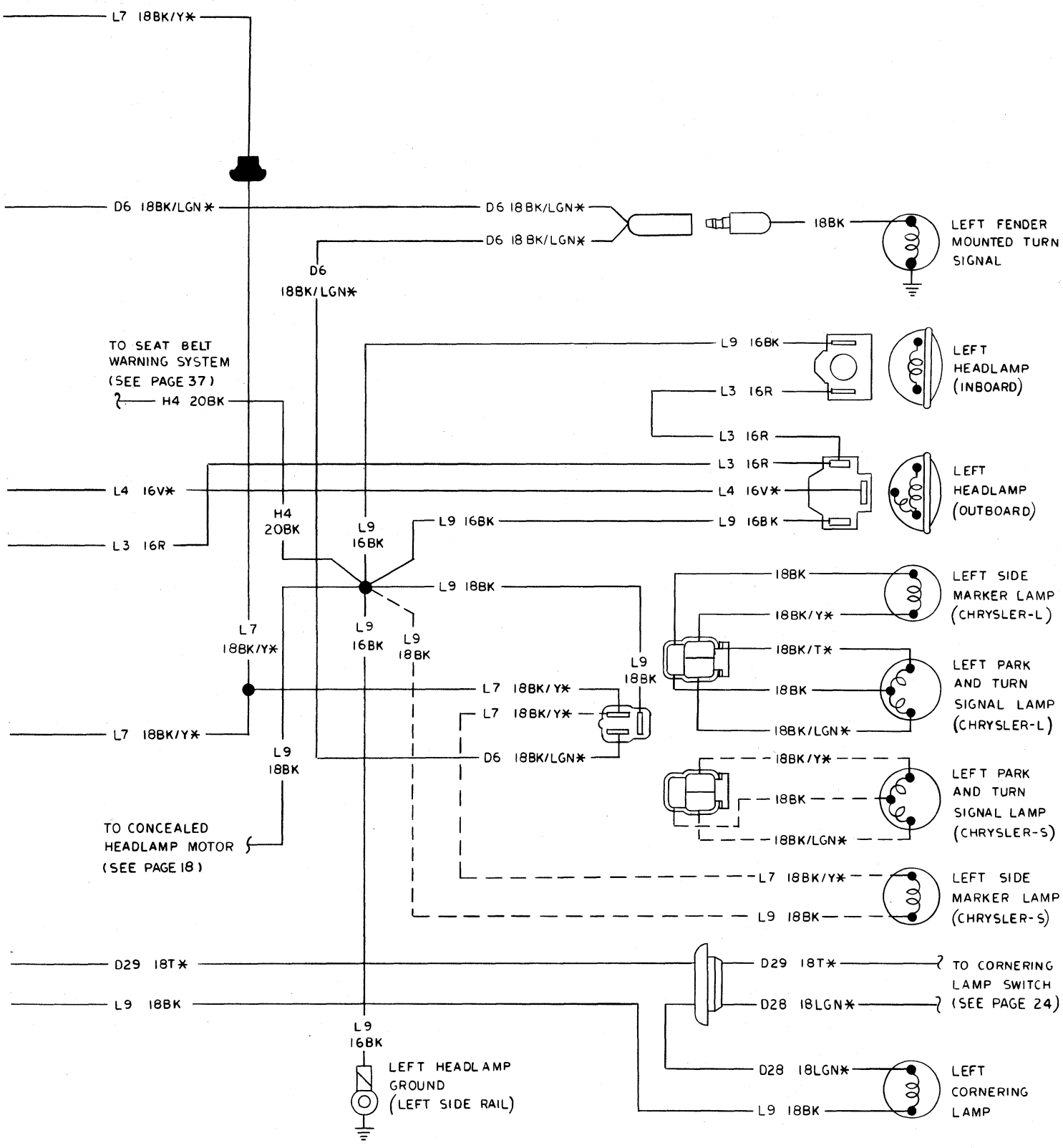
PR 4

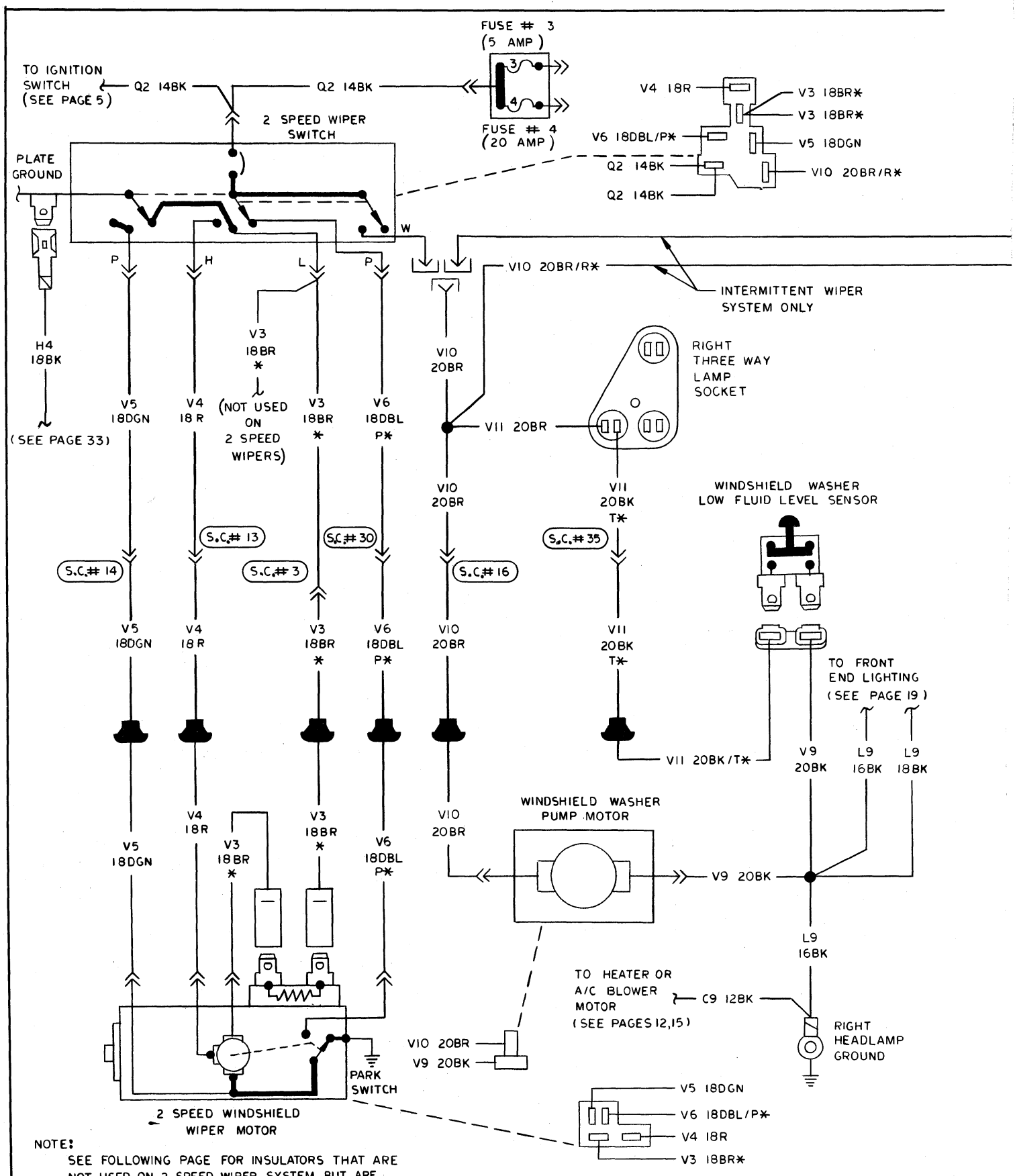
HEADLAMP SWITCH

C18



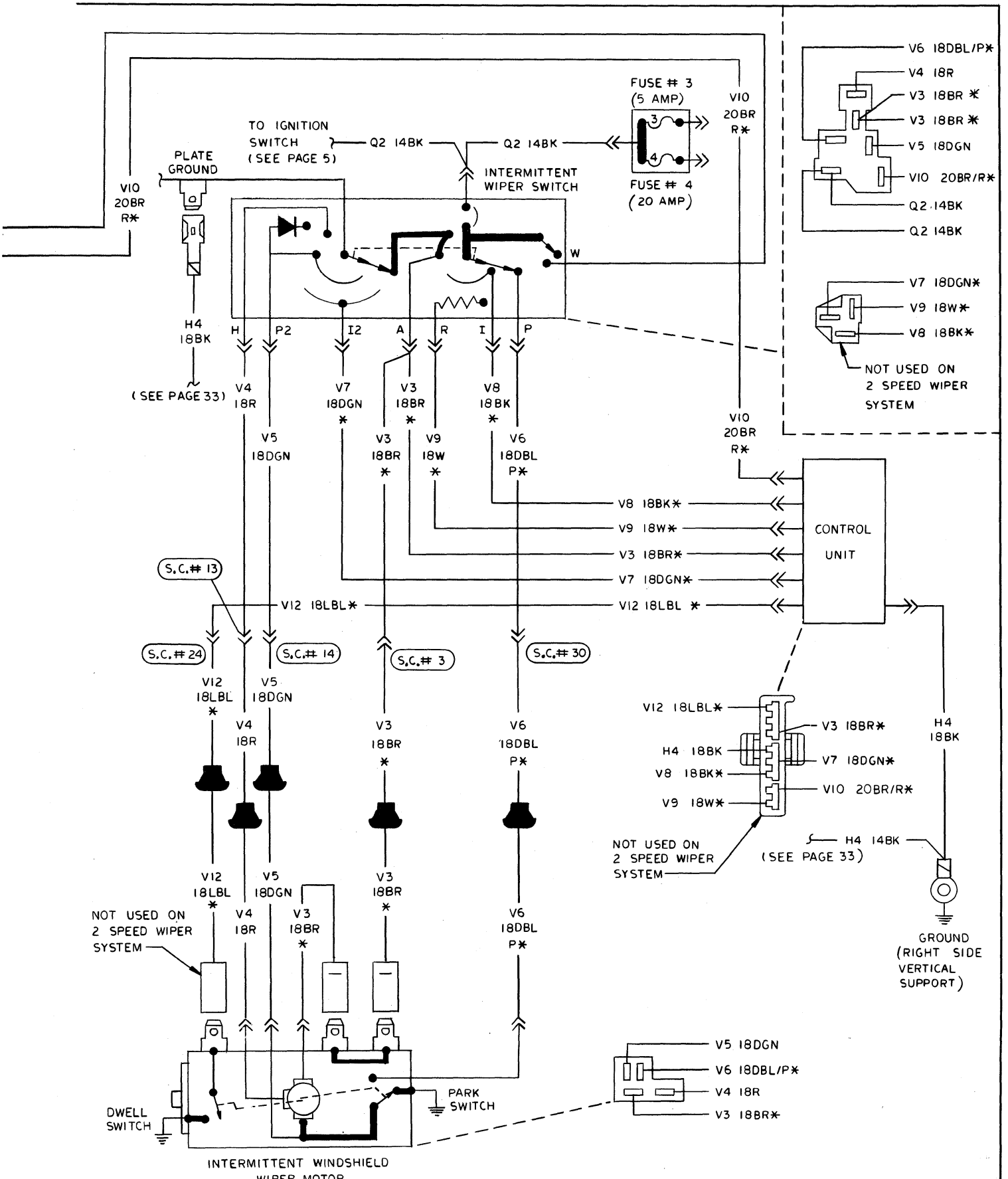
C19 CHRYSLER-FRONT END LIGHTING PR 4


L7 18BK/Y*
D6 18BK/LGN*
D6 18BK/LGN*
D6 18BK/LGN*
18BK
LEFT FENDER MOUNTED TURN SIGNAL
D6 18BK/LGN*
TO SEAT BELT WARNING SYSTEM (SEE PAGE 37)
H4 20BK
L9 16BK
L3 16R
LEFT HEADLAMP (INBOARD)
L3 16R
L3 16R
L4 16V*
L4 16V*
LEFT HEADLAMP (OUTBOARD)
L4 16V*
L3 16R
H4 20BK
L9 16BK
L9 16BK
L9 18BK
L9 18BK
18BK
18BK/Y*
LEFT SIDE MARKER LAMP (CHRYSLER-L)
L7 18BK/Y*
L9 16BK
L9 18BK
L9 18BK
18BK/T*
18BK
18BK/LGN*
LEFT PARK AND TURN SIGNAL LAMP (CHRYSLER-L)
L7 18BK/Y*
L7 18BK/Y*
L7 18BK/Y*
L9 18BK
D6 18BK/LGN*
18BK/Y*
18BK
18BK/LGN*
LEFT PARK AND TURN SIGNAL LAMP (CHRYSLER-S)
TO CONCEALED HEADLAMP MOTOR (SEE PAGE 18)
L7 18BK/Y*
LEFT SIDE MARKER LAMP (CHRYSLER-S)
L9 18BK
D29 18T*
L9 18BK
D29 18T*
TO CORNERING LAMP SWITCH (SEE PAGE 24)
D28 18LGN*
L9 16BK
LEFT HEADLAMP GROUND (LEFT SIDE RAIL)
D28 18LGN*
L9 18BK
LEFT CORNERING LAMP



NOTE:
SEE FOLLOWING PAGE FOR INSULATORS THAT ARE NOT USED ON 2 SPEED WIPER SYSTEM BUT ARE TAPED BACK ON WIRING ASSEMBLES.

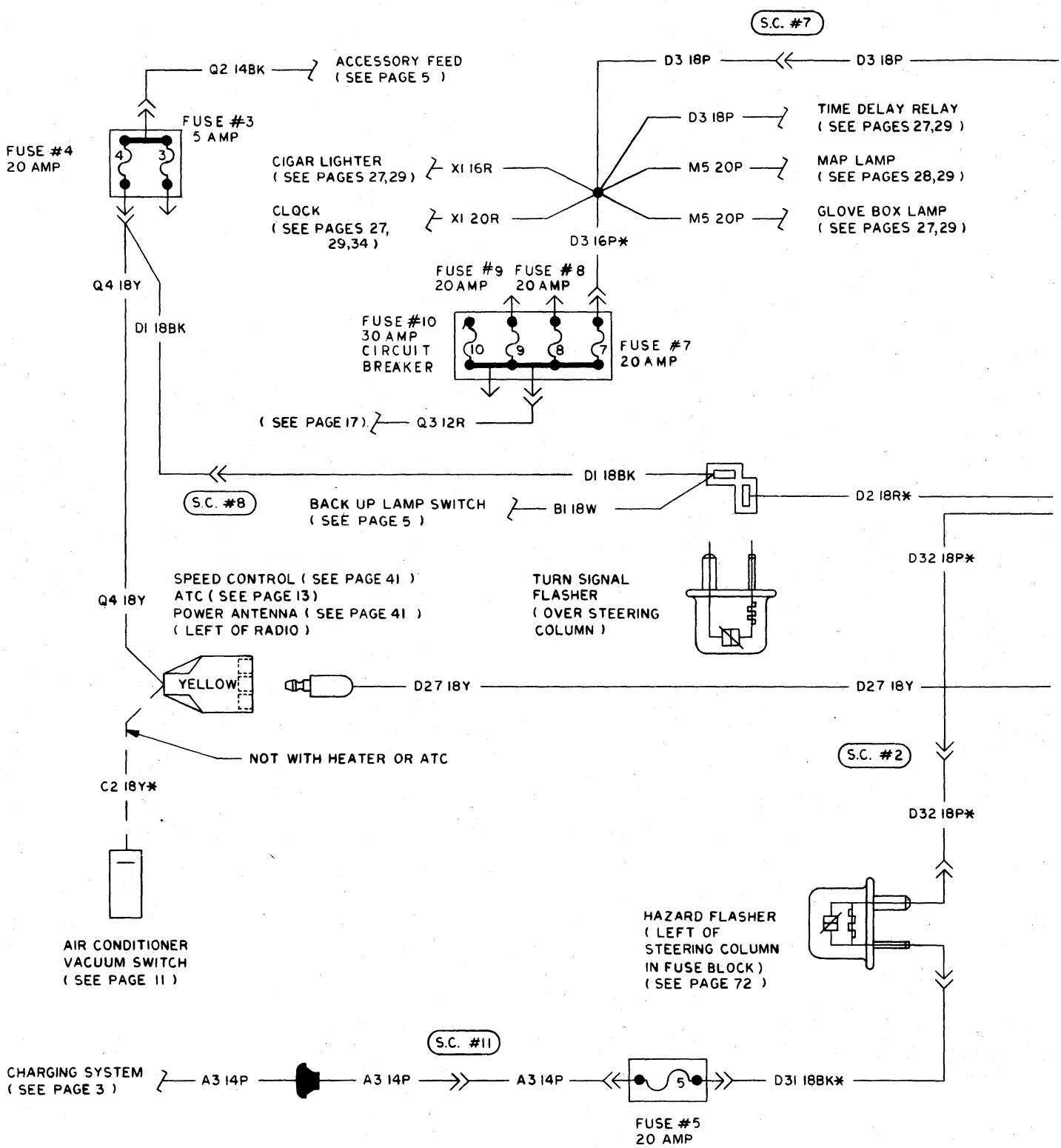
C21 WINDSHIELD WIPER SYSTEM PR 4



PR 4

WINDSHIELD WIPER SYSTEM

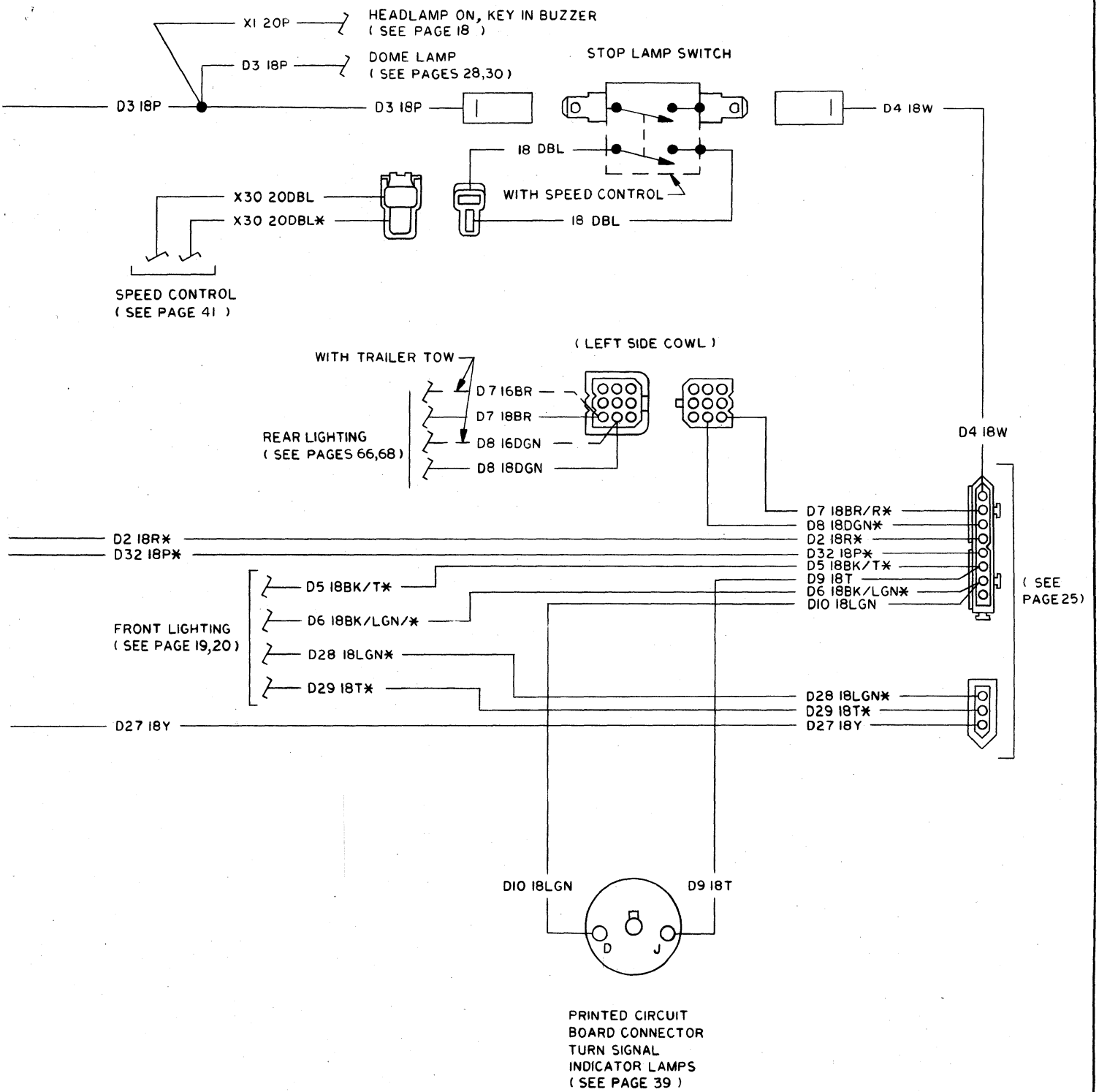
C22

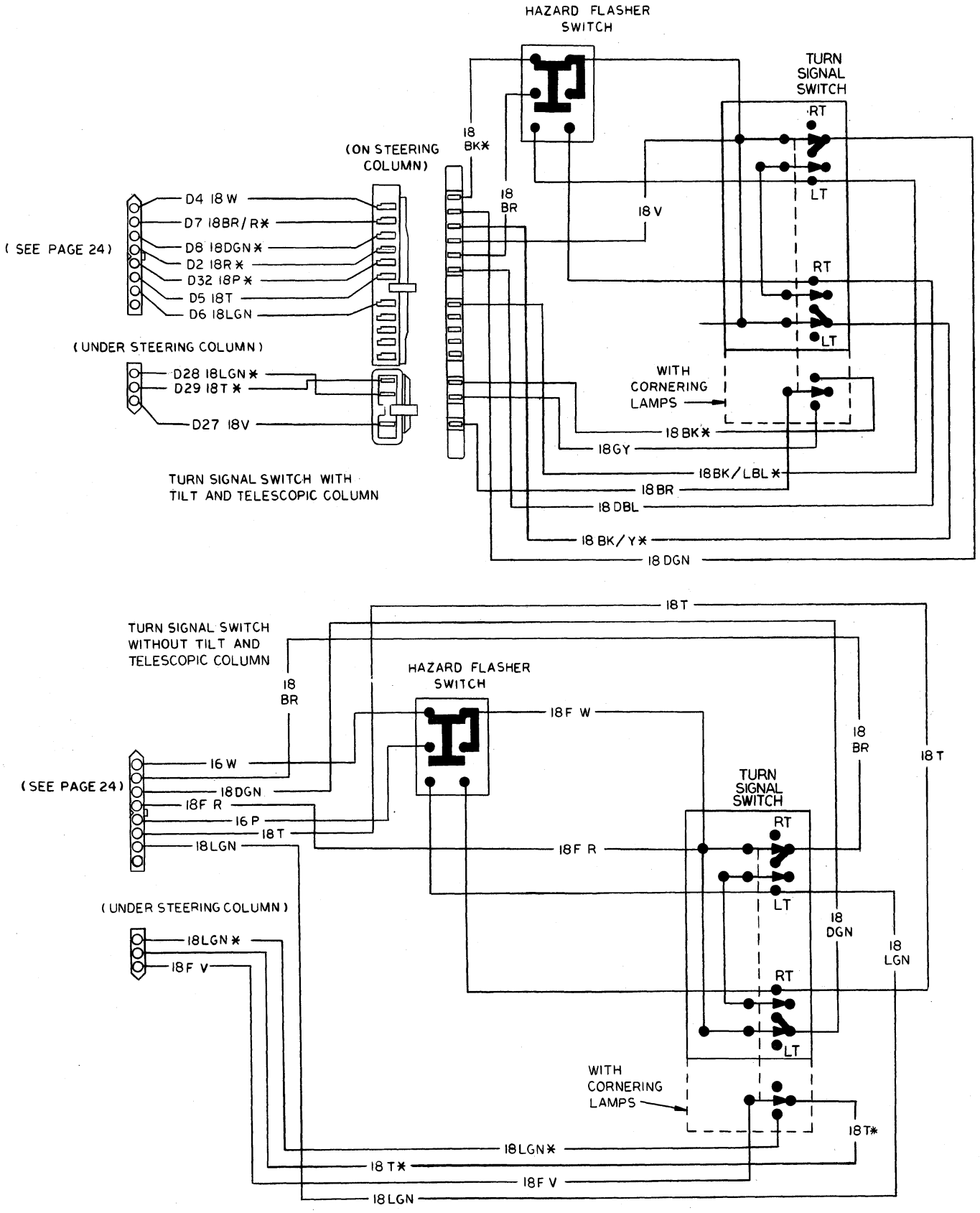


C23

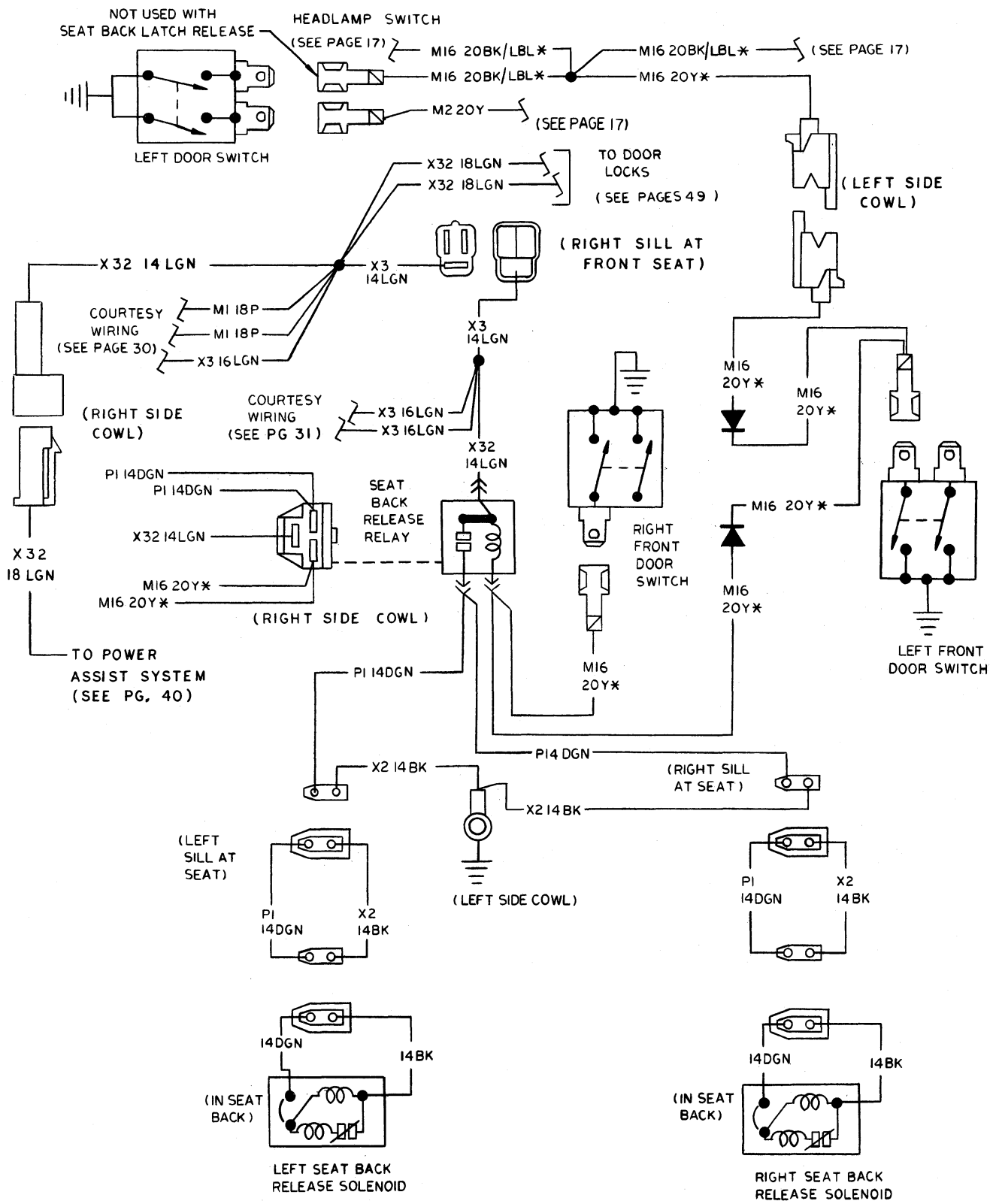
STOP, TURN & HAZARD FLASHER SYSTEMS

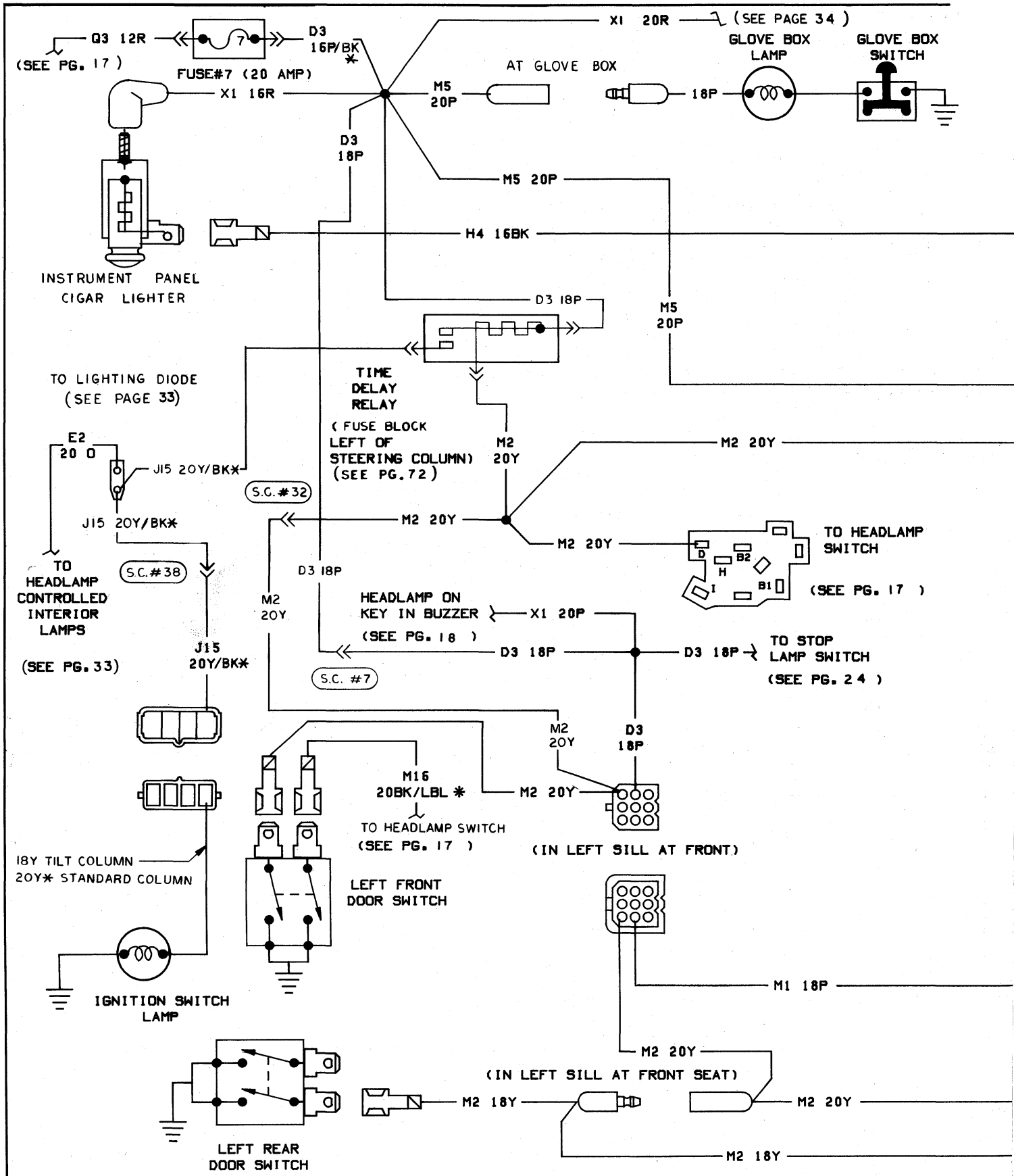
PR4


X1 20P
HEADLAMP ON, KEY IN BUZZER
(SEE PAGE 18)
D3 18P
DOME LAMP
(SEE PAGES 28,30)
STOP LAMP SWITCH
D3 18P
D3 18P
D4 18W
18 DBL
WITH SPEED CONTROL
18 DBL
X30 20DBL
X30 20DBL*
SPEED CONTROL
(SEE PAGE 41)
(LEFT SIDE COWL)
WITH TRAILER TOW
D7 16BR
D7 18BR
D8 16DGN
D8 18DGN
REAR LIGHTING
(SEE PAGES 66,68)
D4 18W
D7 18BR/R*
D8 18DGN*
D2 18R*
D32 18P*
D5 18BK/T*
D9 18T
D6 18BK/LGN*
D10 18LGN
(SEE PAGE 25)
D2 18R*
D32 18P*
D5 18BK/T*
D6 18BK/LGN/*
D28 18LGN*
D29 18T*
FRONT LIGHTING
(SEE PAGE 19,20)
D28 18LGN*
D29 18T*
D27 18Y
D27 18Y
D10 18LGN
D9 18T
D
J
PRINTED CIRCUIT
BOARD CONNECTOR
TURN SIGNAL
INDICATOR LAMPS
(SEE PAGE 39)

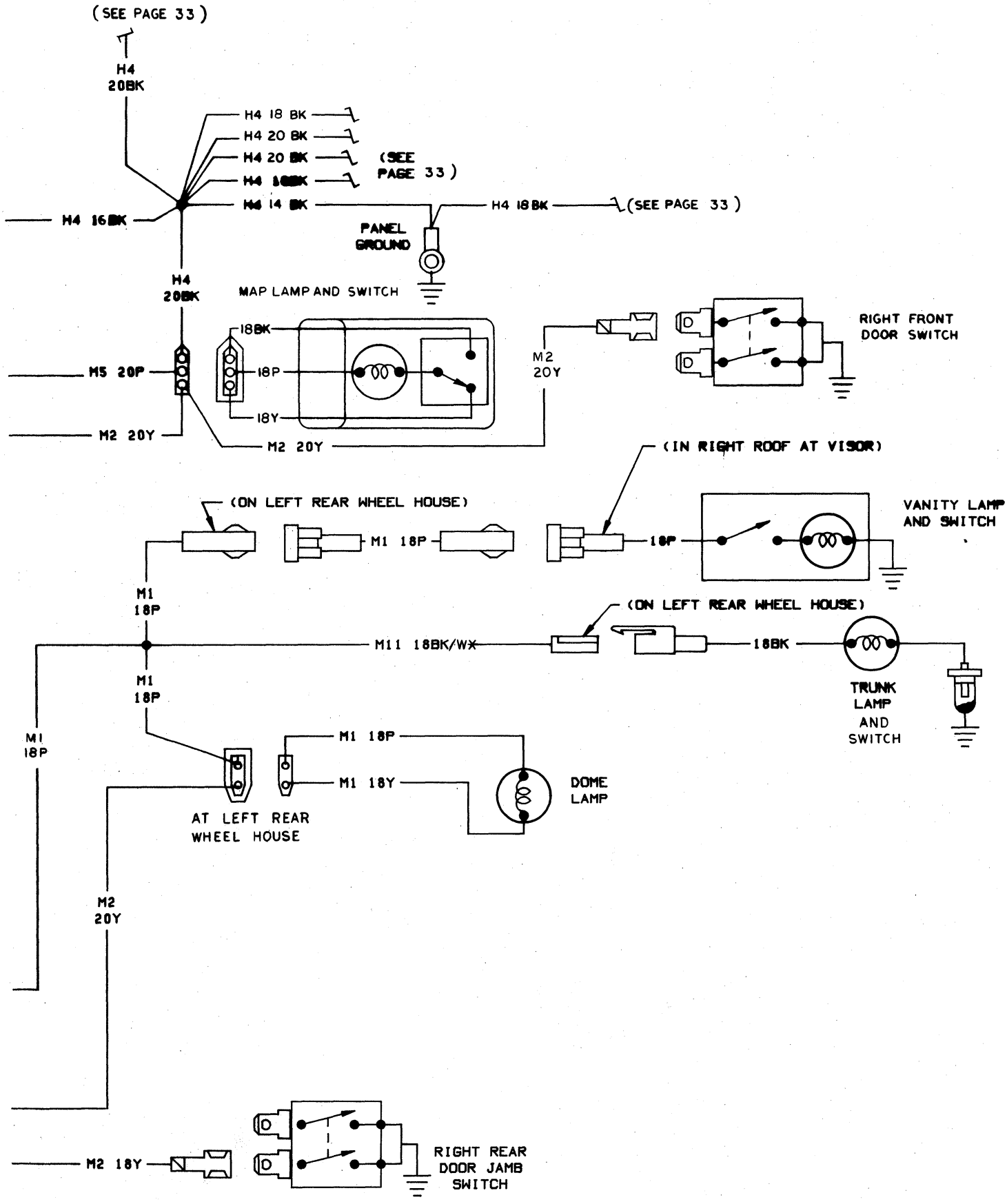


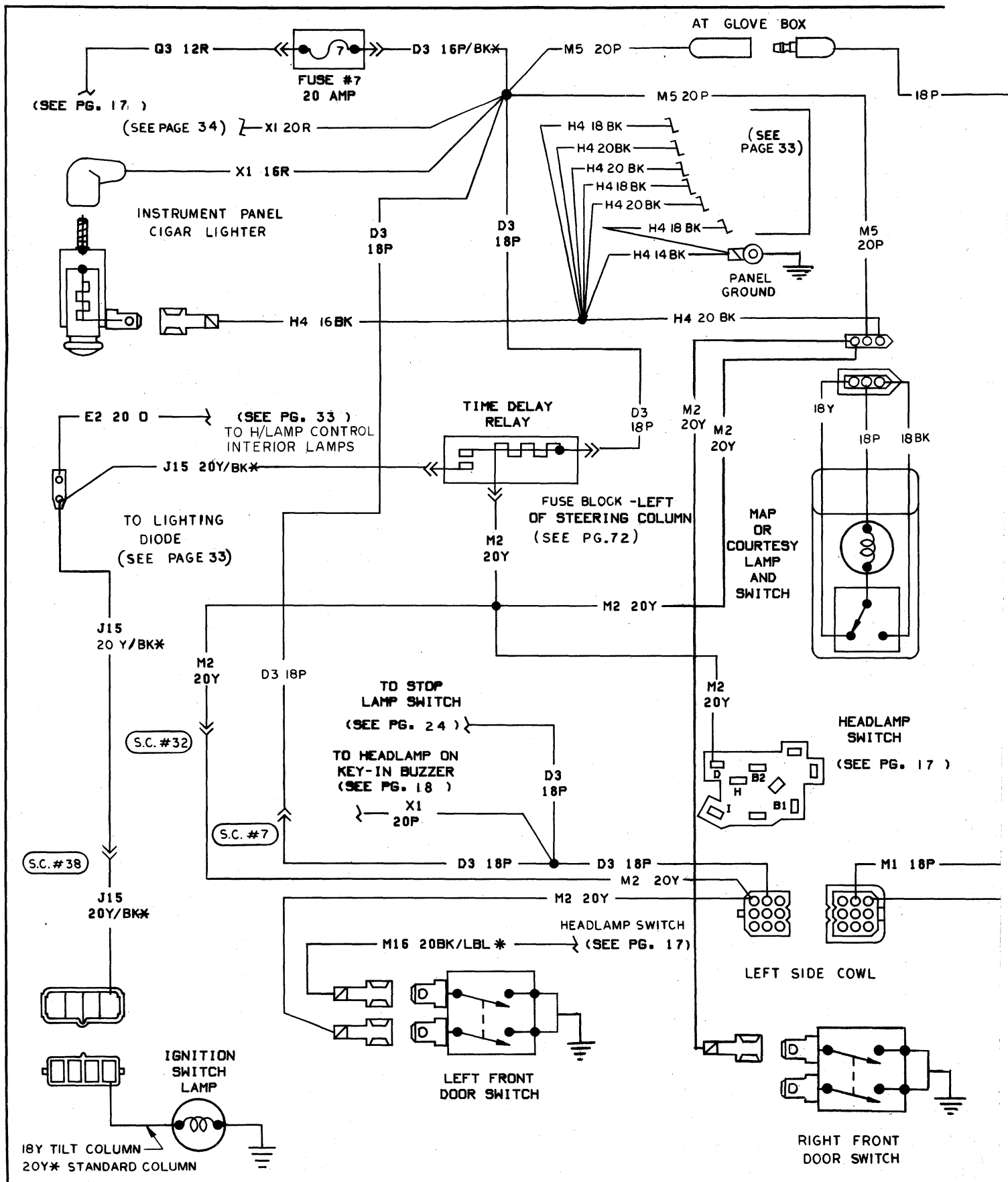
C 25 TURN & HAZARD FLASHER SYSTEMS PR4


NOT USED WITH SEAT BACK LATCH RELEASE
HEADLAMP SWITCH
(SEE PAGE 17)
M16 20BK/LBL*
M16 20BK/LBL*
M16 20BK/LBL*
(SEE PAGE 17)
M16 20Y*
M2 20Y
(SEE PAGE 17)
LEFT DOOR SWITCH
X32 18LGN
X32 18LGN
TO DOOR LOCKS
(SEE PAGES 49)
(LEFT SIDE COWL)
(RIGHT SILL AT FRONT SEAT)
X32 14 LGN
X3 14LGN
COURTESY WIRING (SEE PAGE 30)
MI 18P
MI 18P
X3 16LGN
X3 14LGN
M16 20Y*
M16 20Y*
(RIGHT SIDE COWL)
COURTESY WIRING (SEE PG 31)
X3 16LGN
X3 16LGN
X32 14LGN
PI 14DGN
PI 14DGN
SEAT BACK RELEASE RELAY
X32 14LGN
RIGHT FRONT DOOR SWITCH
M16 20Y*
X32 18 LGN
M16 20Y*
M16 20Y*
(RIGHT SIDE COWL)
M16 20Y*
LEFT FRONT DOOR SWITCH
TO POWER ASSIST SYSTEM (SEE PG. 40)
PI 14DGN
M16 20Y*
P14 DGN
X2 14 BK
(RIGHT SILL AT SEAT)
X2 14 BK
(LEFT SILL AT SEAT)
(LEFT SIDE COWL)
PI 14DGN
X2 14BK
PI 14DGN
X2 14BK
14DGN
14BK
(IN SEAT BACK)
LEFT SEAT BACK RELEASE SOLENOID
14DGN
14BK
(IN SEAT BACK)
RIGHT SEAT BACK RELEASE SOLENOID

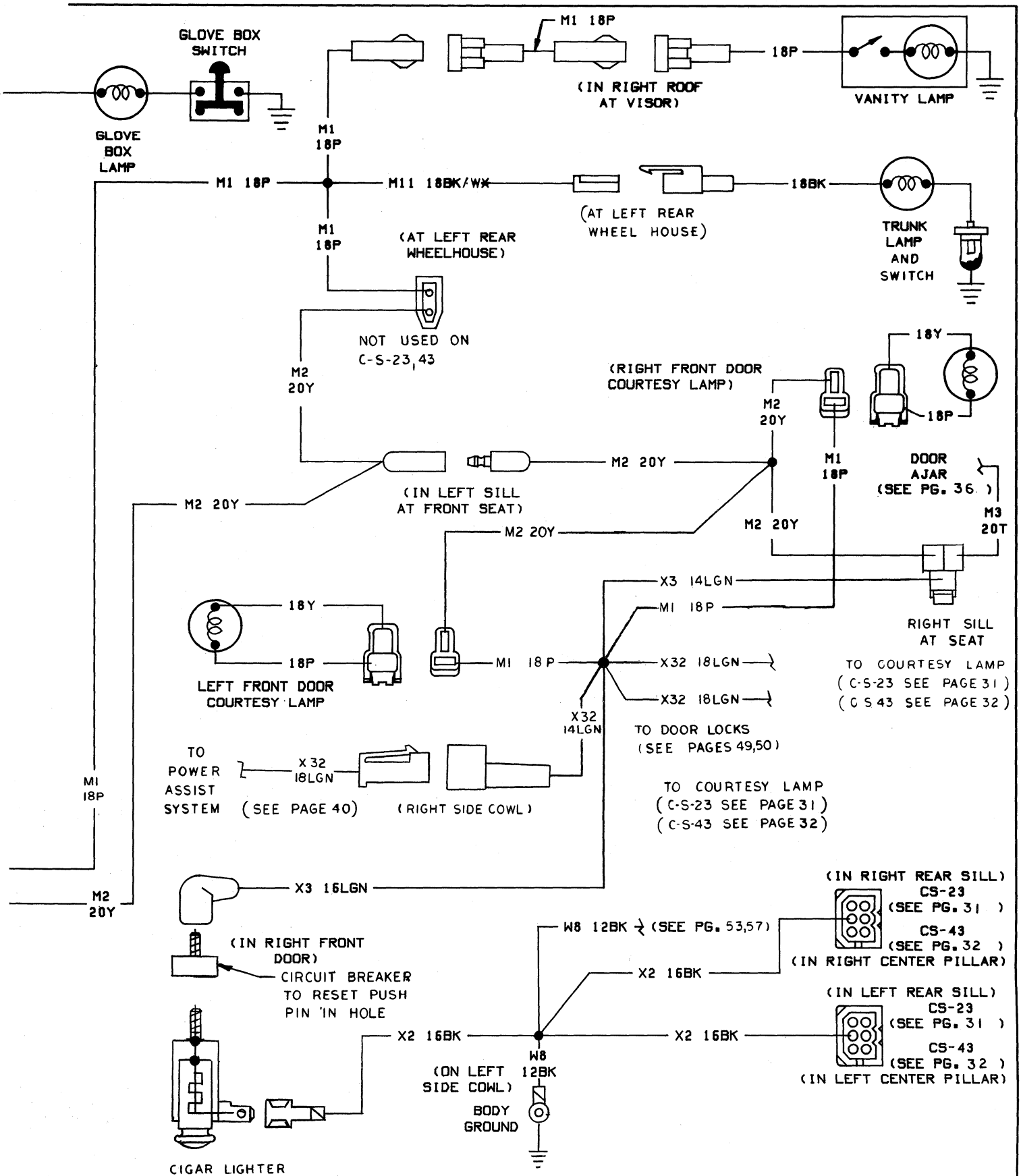


C 27 COURTESY LAMPS (C-L-23, 43) PR4

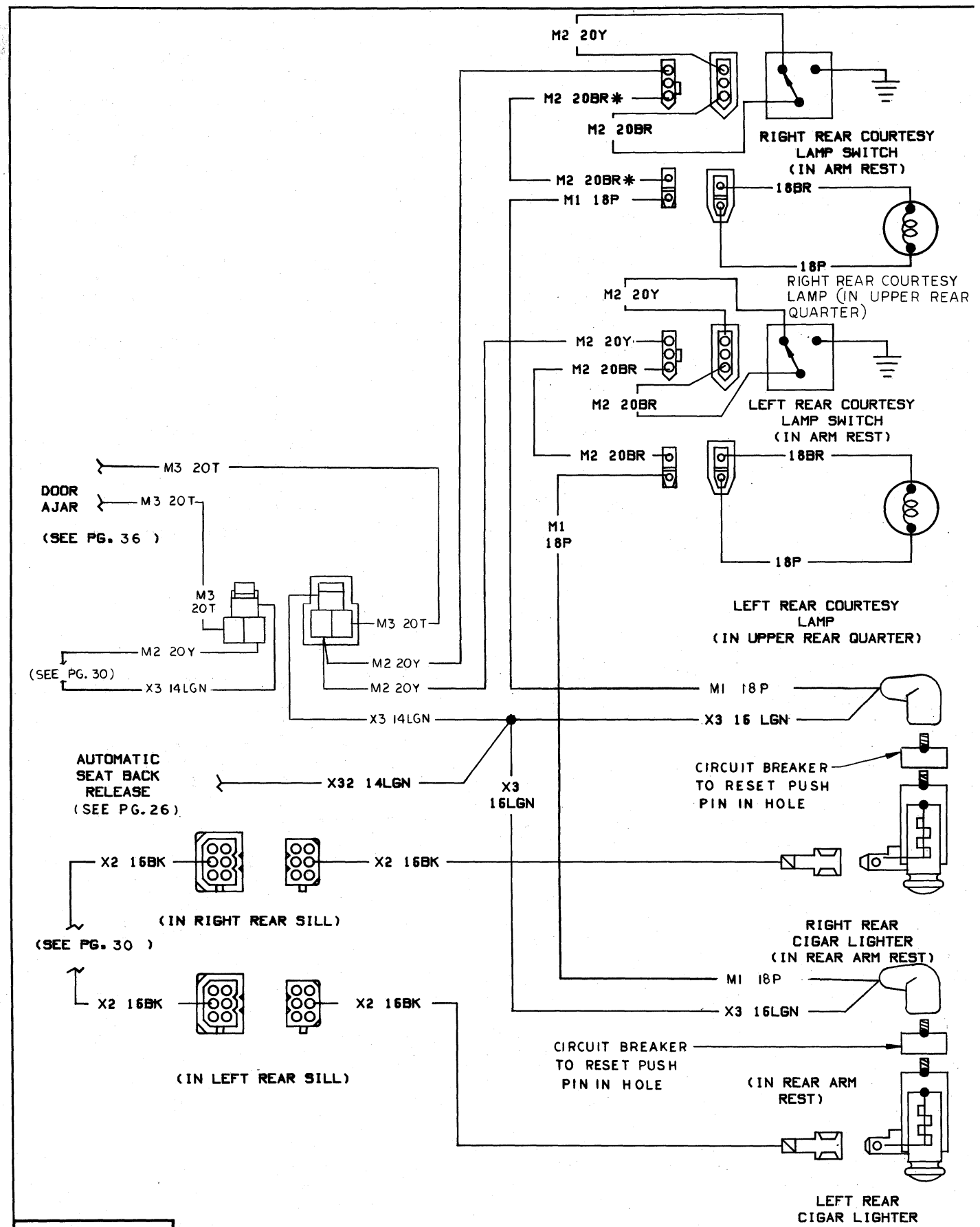

(SEE PAGE 33)
H4 20BK
H4 18 BK
H4 20 BK
H4 20 BK
H4 18BK
H4 14 BK
(SEE PAGE 33)
H4 16BK
H4 18BK
(SEE PAGE 33)
PANEL GROUND
H4 20BK
MAP LAMP AND SWITCH
18BK
18P
18Y
M5 20P
M2 20Y
M2 20Y
M2 20Y
RIGHT FRONT DOOR SWITCH
(IN RIGHT ROOF AT VISOR)
(ON LEFT REAR WHEEL HOUSE)
M1 18P
18P
VANITY LAMP AND SWITCH
M1 18P
(ON LEFT REAR WHEEL HOUSE)
M11 18BK/WX
18BK
TRUNK LAMP AND SWITCH
M1 18P
M1 18P
M1 18P
M1 18Y
DOME LAMP
AT LEFT REAR WHEEL HOUSE
M2 20Y
M2 18Y
RIGHT REAR DOOR JAMB SWITCH



C 29 COURTESY LAMPS (C-S-23,43) PR4



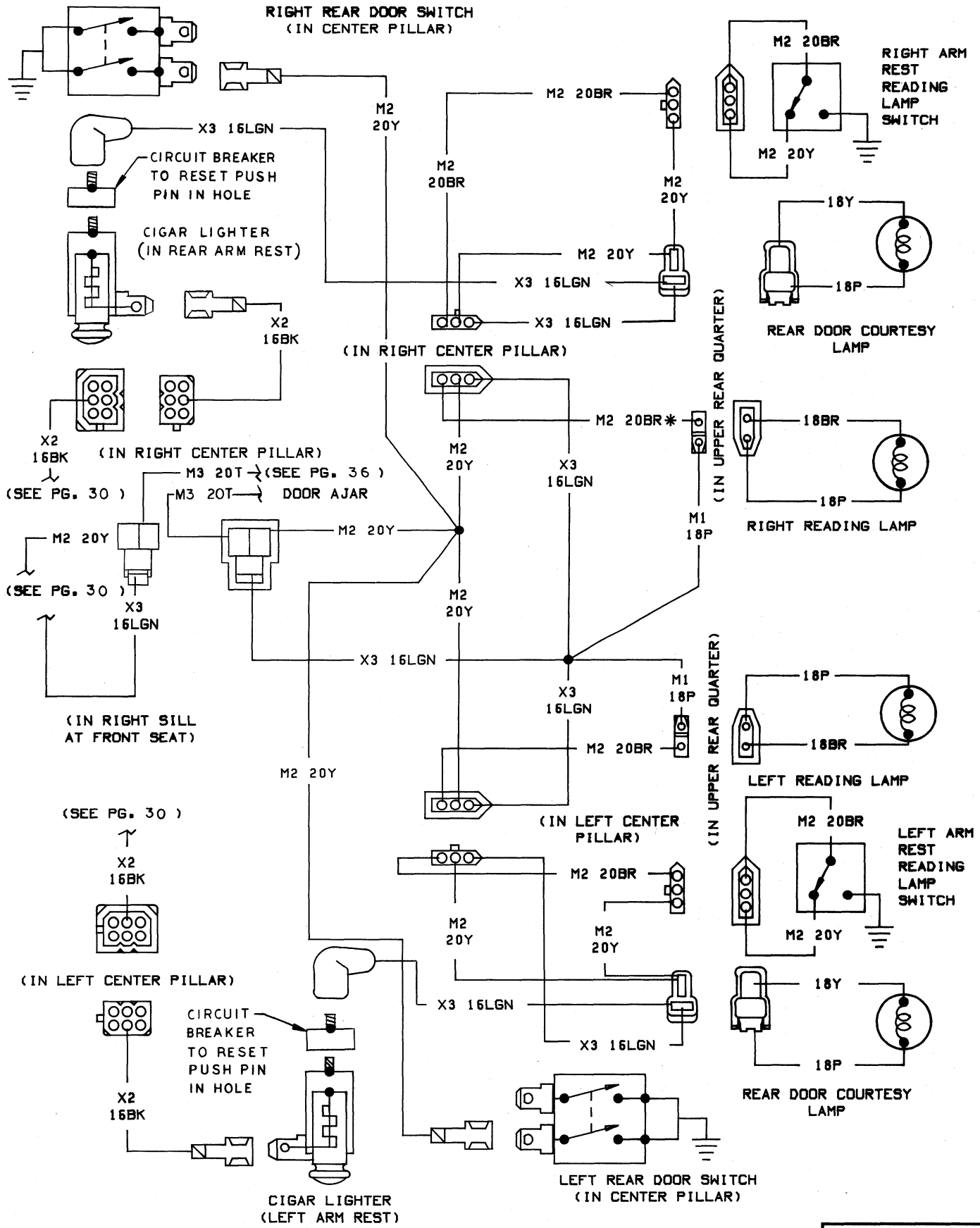
COURTESY LAMPS (C-S-23, 43)



C 31

CS-23 COURTESY WIRING

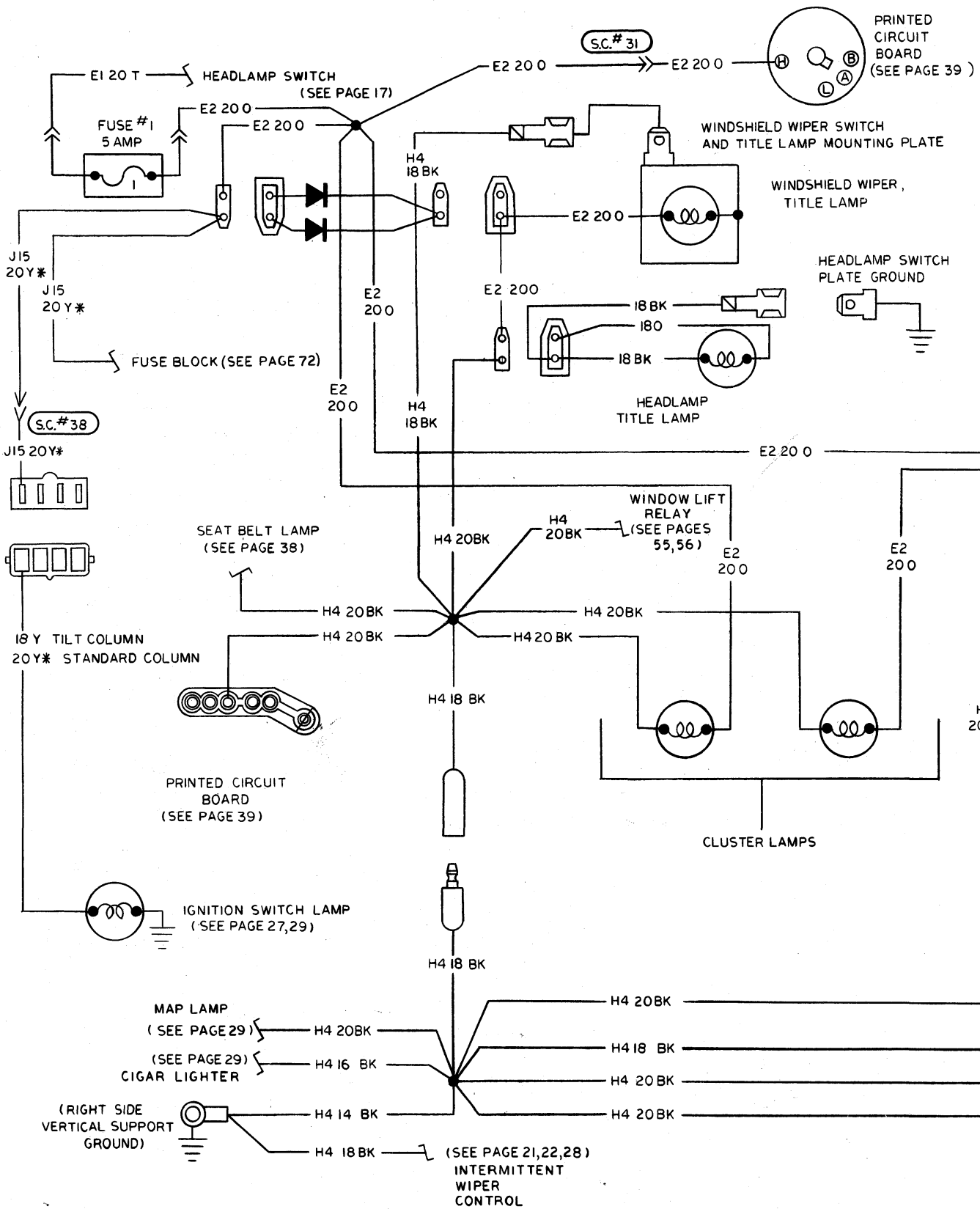
PR4



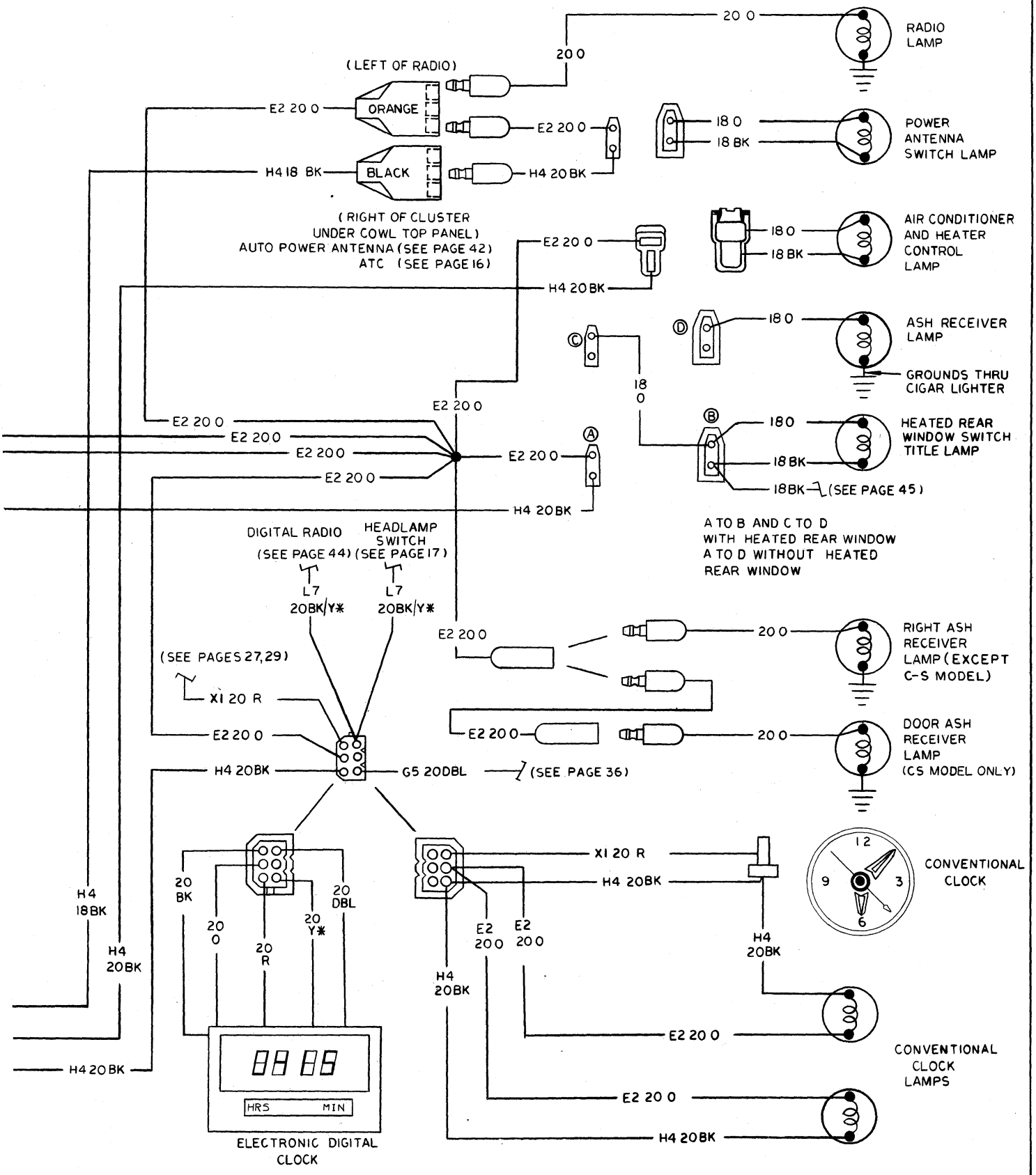
PR.4

CS-43 COURTESY WIRING

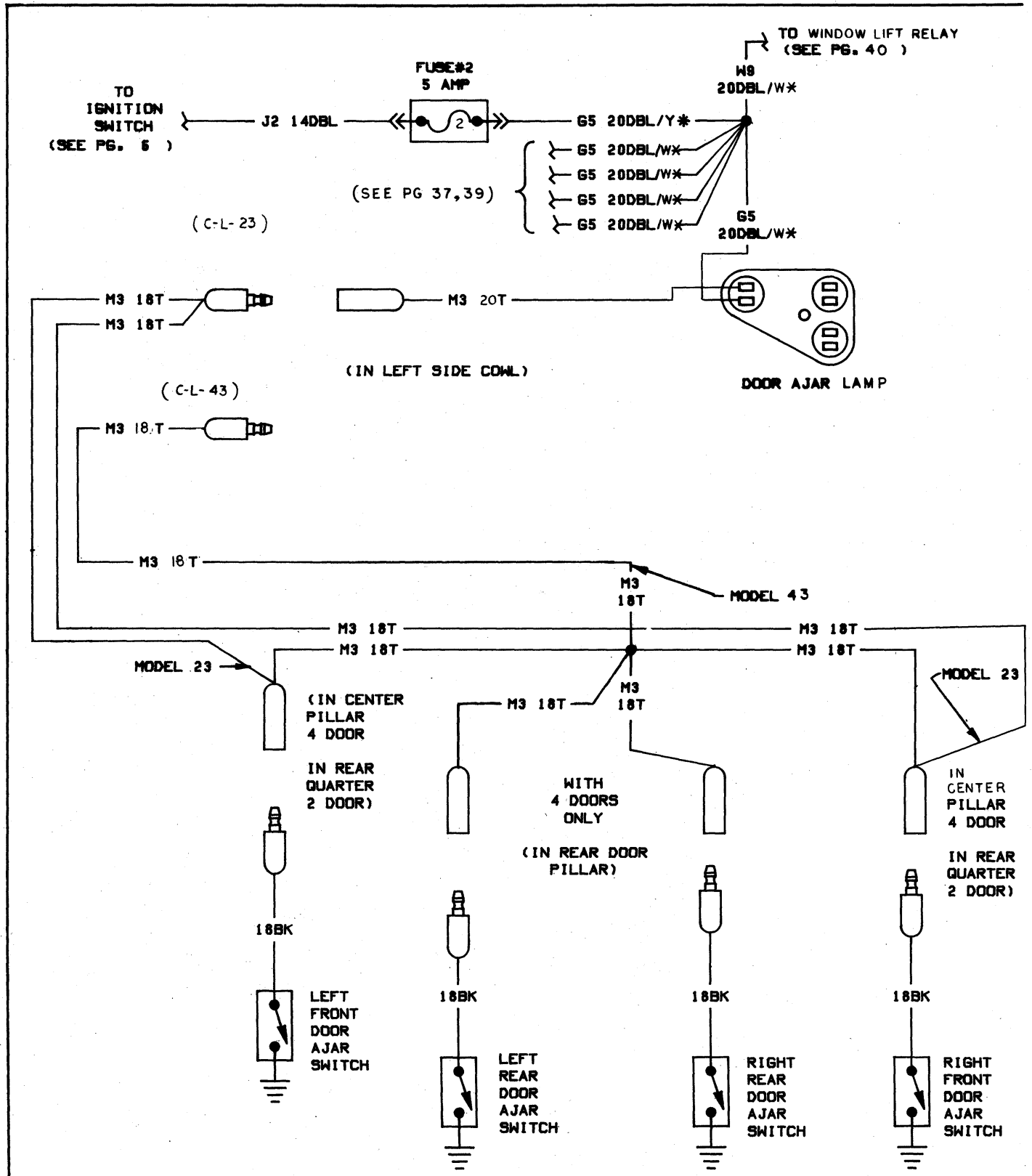
C32



C 33 HEADLAMP SWITCH CONTROLLED INTERIOR LAMPS PR4



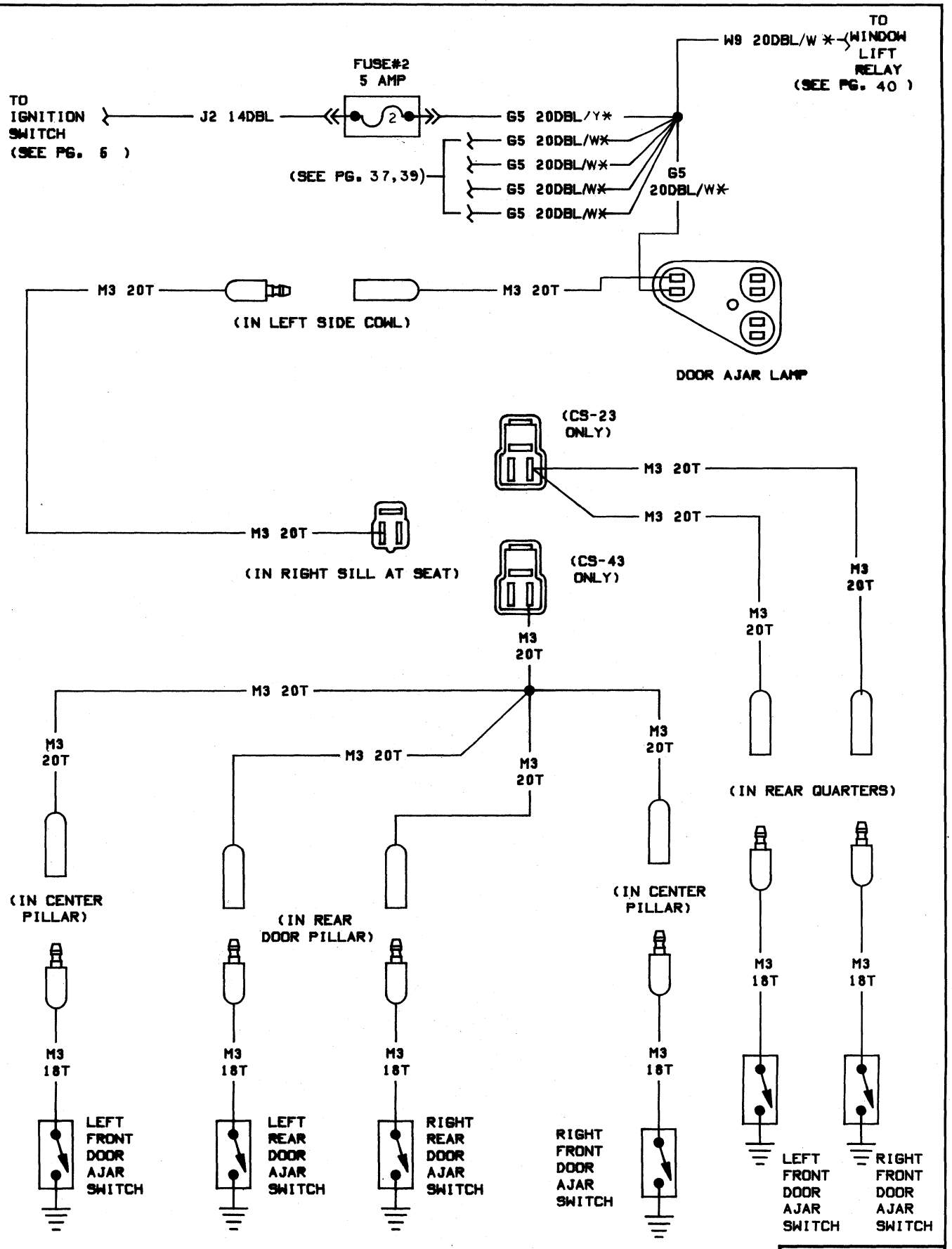
PR4 HEADLAMP SWITCH CONTROLLED INTERIOR LAMPS



C 35

DOOR AJAR SYSTEM (C-L-23, 43)

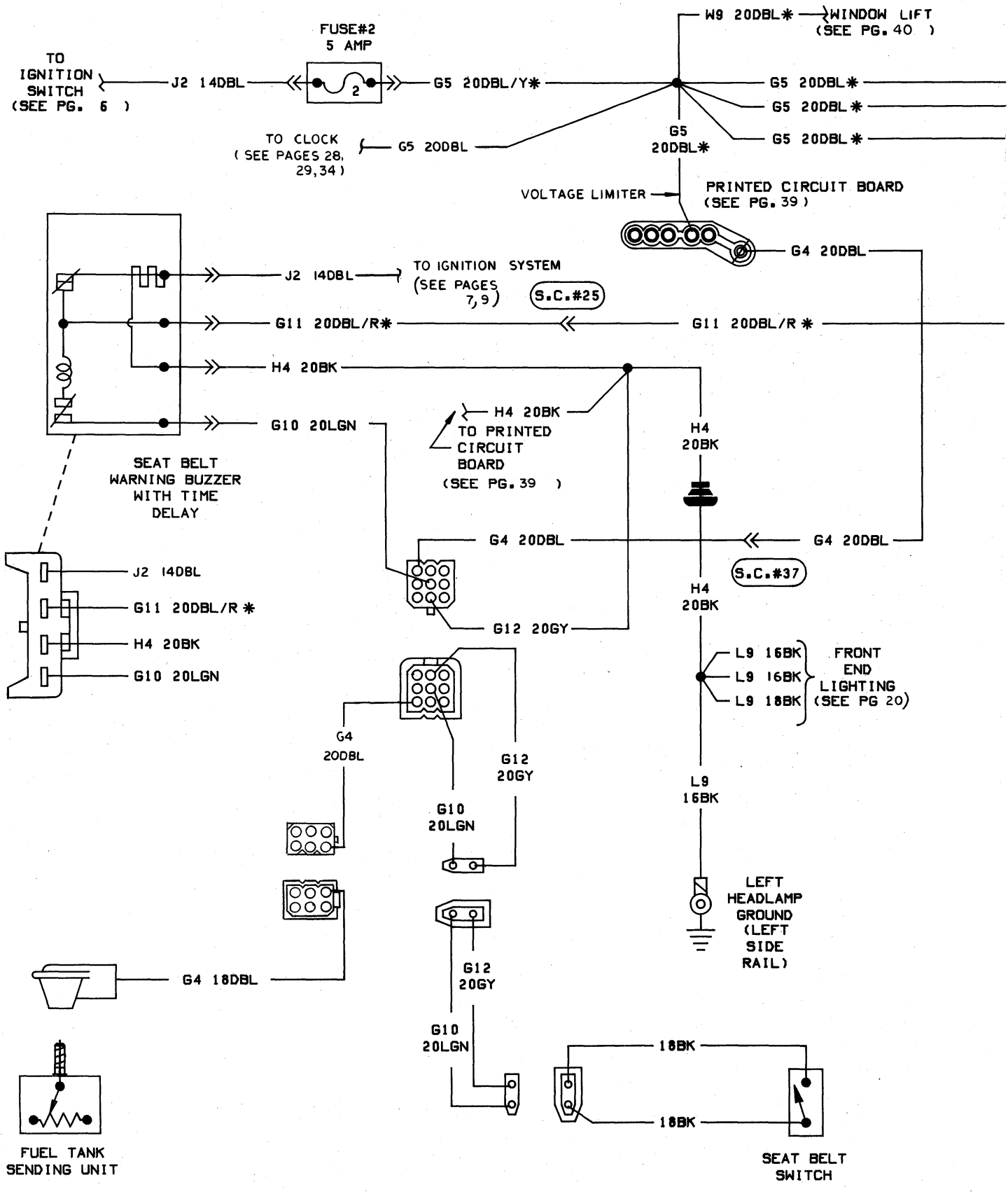
PR4



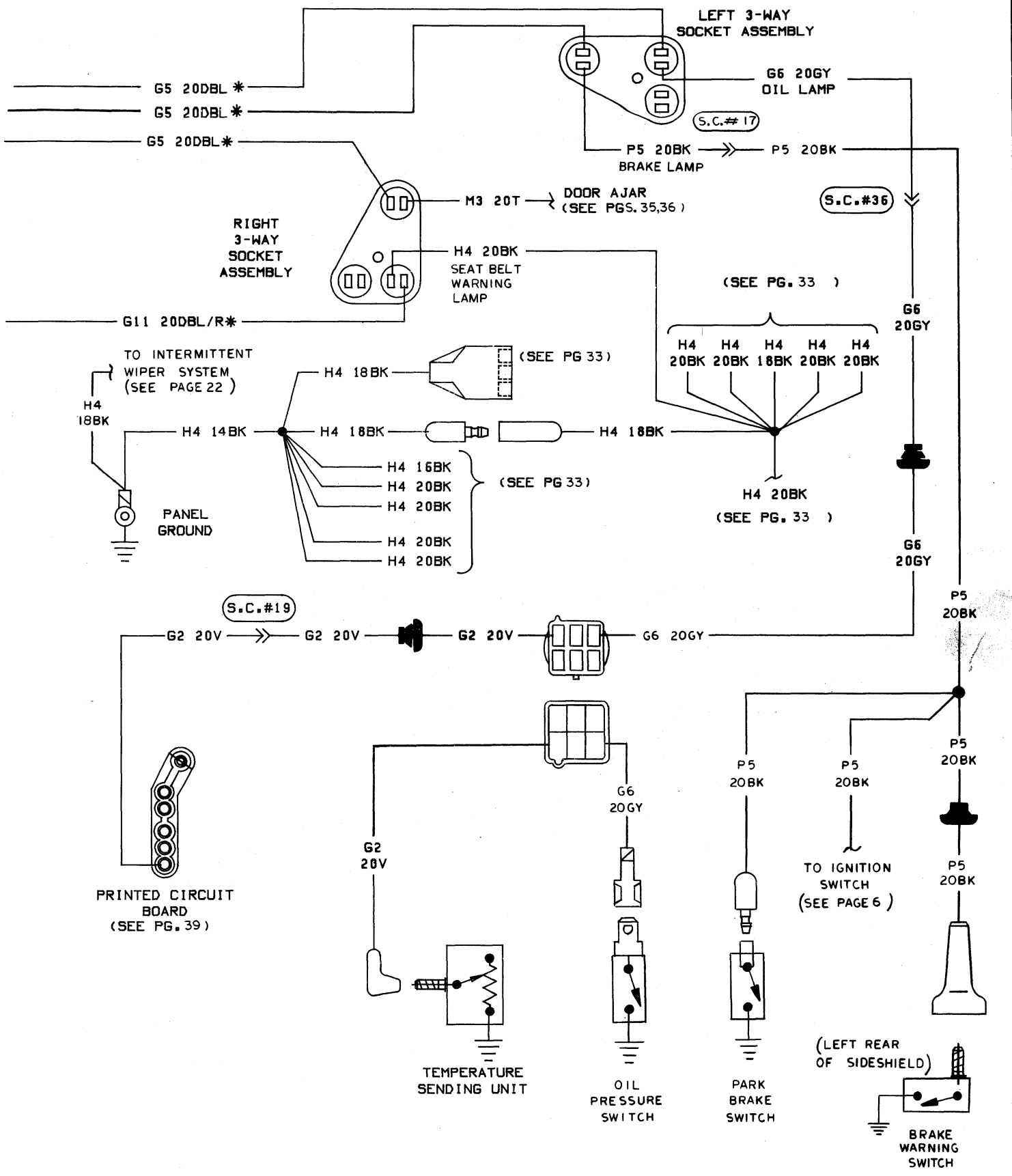
DOOR AJAR SYSTEM (C-S-23,43)

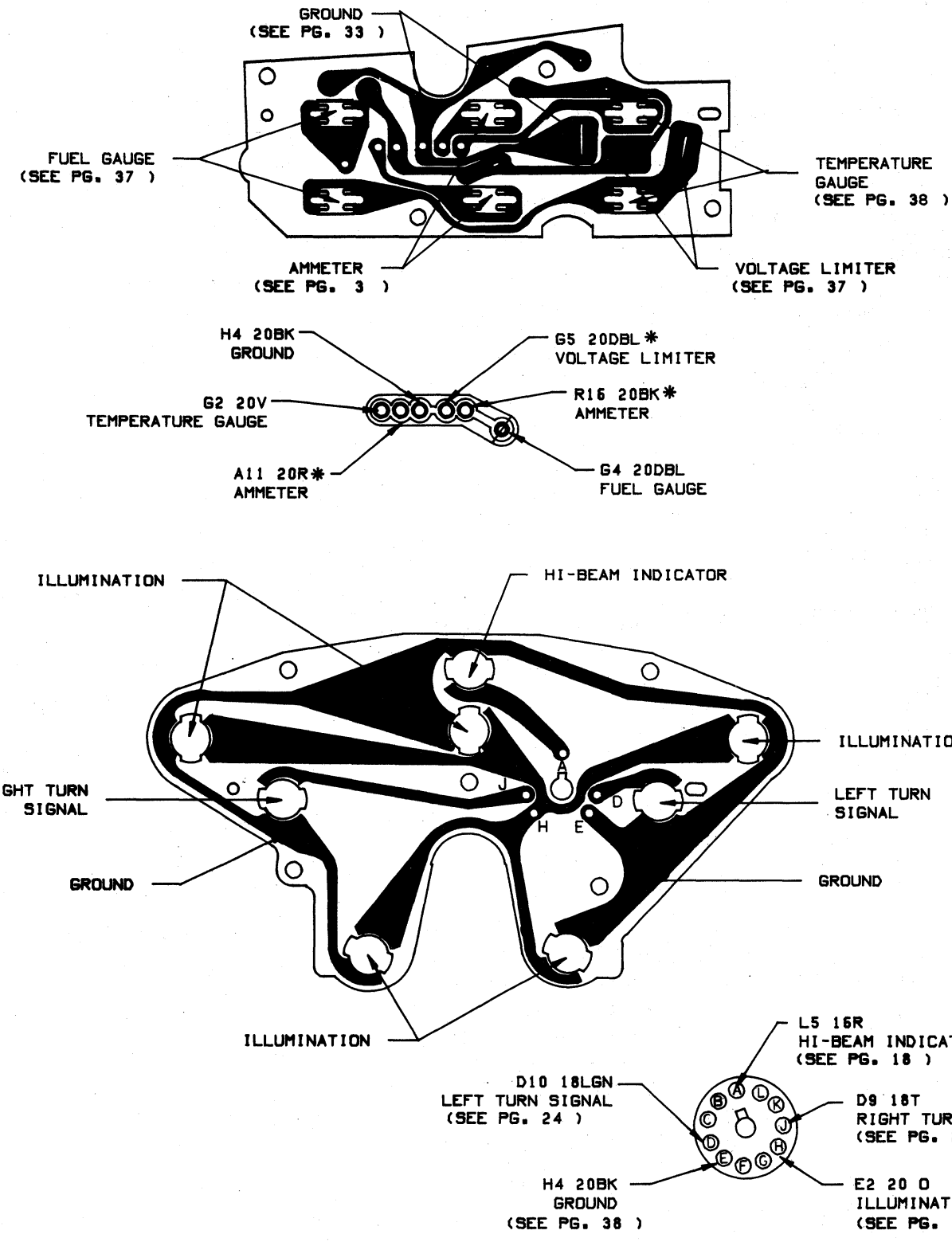
C 36

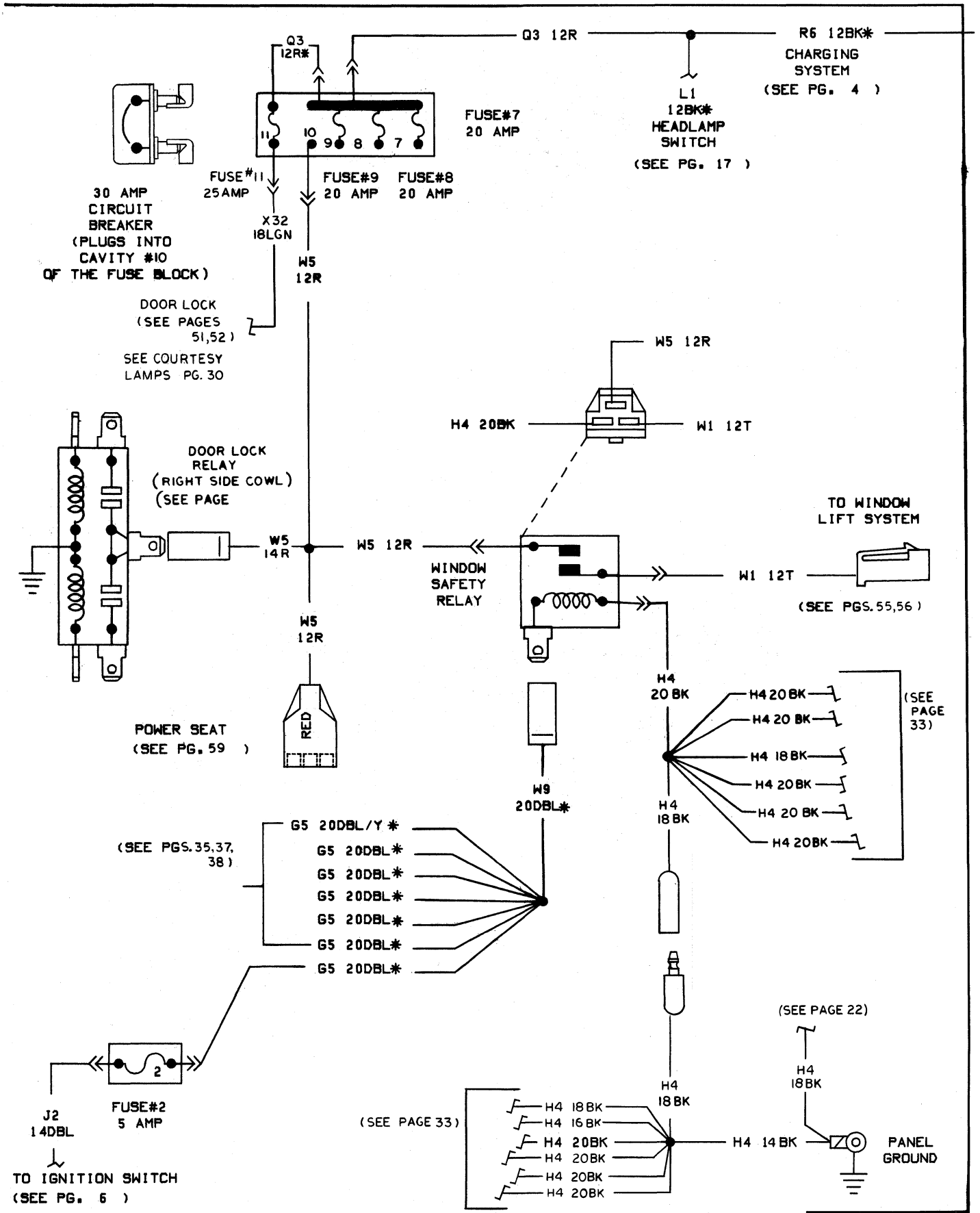
PR4



C37 FUEL TANK SENDING-SEATBELT WARNING PR4


LEFT 3-WAY SOCKET ASSEMBLY
G5 20DBL *
G5 20DBL *
G5 20DBL *
G6 20GY OIL LAMP
S.C.# 17
P5 20BK
BRAKE LAMP
P5 20BK
M3 20T
DOOR AJAR (SEE PGS. 35,36)
S.C.#36
RIGHT 3-WAY SOCKET ASSEMBLY
H4 20BK
SEAT BELT WARNING LAMP
G11 20DBL/R*
(SEE PG. 33)
G6 20GY
H4 20BK
H4 20BK
H4 18BK
H4 20BK
H4 20BK
TO INTERMITTENT WIPER SYSTEM (SEE PAGE 22)
H4 18BK
(SEE PG 33)
H4 14BK
H4 18BK
H4 18BK
H4 16BK
H4 20BK
H4 20BK
H4 20BK
H4 20BK
(SEE PG 33)
H4 20BK
(SEE PG. 33)
PANEL GROUND
G6 20GY
P5 20BK
S.C.#19
G2 20V
G2 20V
G2 20V
G6 20GY
PRINTED CIRCUIT BOARD (SEE PG. 39)
G6 20GY
G2 20V
P5 20BK
P5 20BK
P5 20BK
TO IGNITION SWITCH (SEE PAGE 6)
P5 20BK
TEMPERATURE SENDING UNIT
OIL PRESSURE SWITCH
PARK BRAKE SWITCH
(LEFT REAR OF SIDESHIELD)
BRAKE WARNING SWITCH

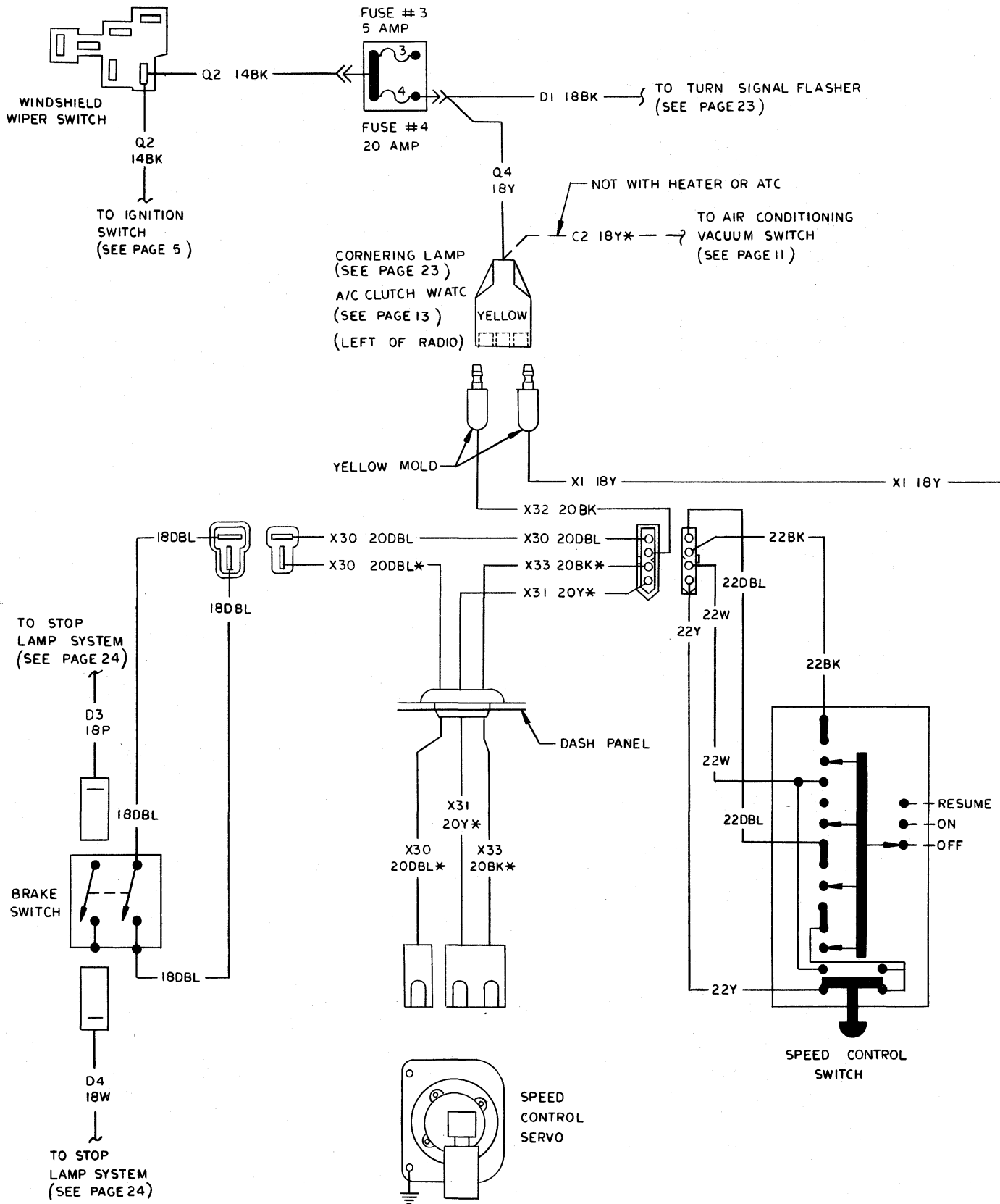

GROUND
(SEE PG. 33)
FUEL GAUGE
(SEE PG. 37)
TEMPERATURE
GAUGE
(SEE PG. 38)
AMMETER
(SEE PG. 3)
VOLTAGE LIMITER
(SEE PG. 37)
H4 20BK
GROUND
G5 20DBL*
VOLTAGE LIMITER
G2 20V
TEMPERATURE GAUGE
R16 20BK*
AMMETER
A11 20R*
AMMETER
G4 20DBL
FUEL GAUGE
ILLUMINATION
HI-BEAM INDICATOR
ILLUMINATION
RIGHT TURN
SIGNAL
LEFT TURN
SIGNAL
GROUND
GROUND
ILLUMINATION
L5 16R
HI-BEAM INDICATOR
(SEE PG. 18)
D10 18LGN
LEFT TURN SIGNAL
(SEE PG. 24)
D9 18T
RIGHT TURN SIGNAL
(SEE PG. 24)
H4 20BK
GROUND
(SEE PG. 38)
E2 20 O
ILLUMINATION LAMPS
(SEE PG. 33)

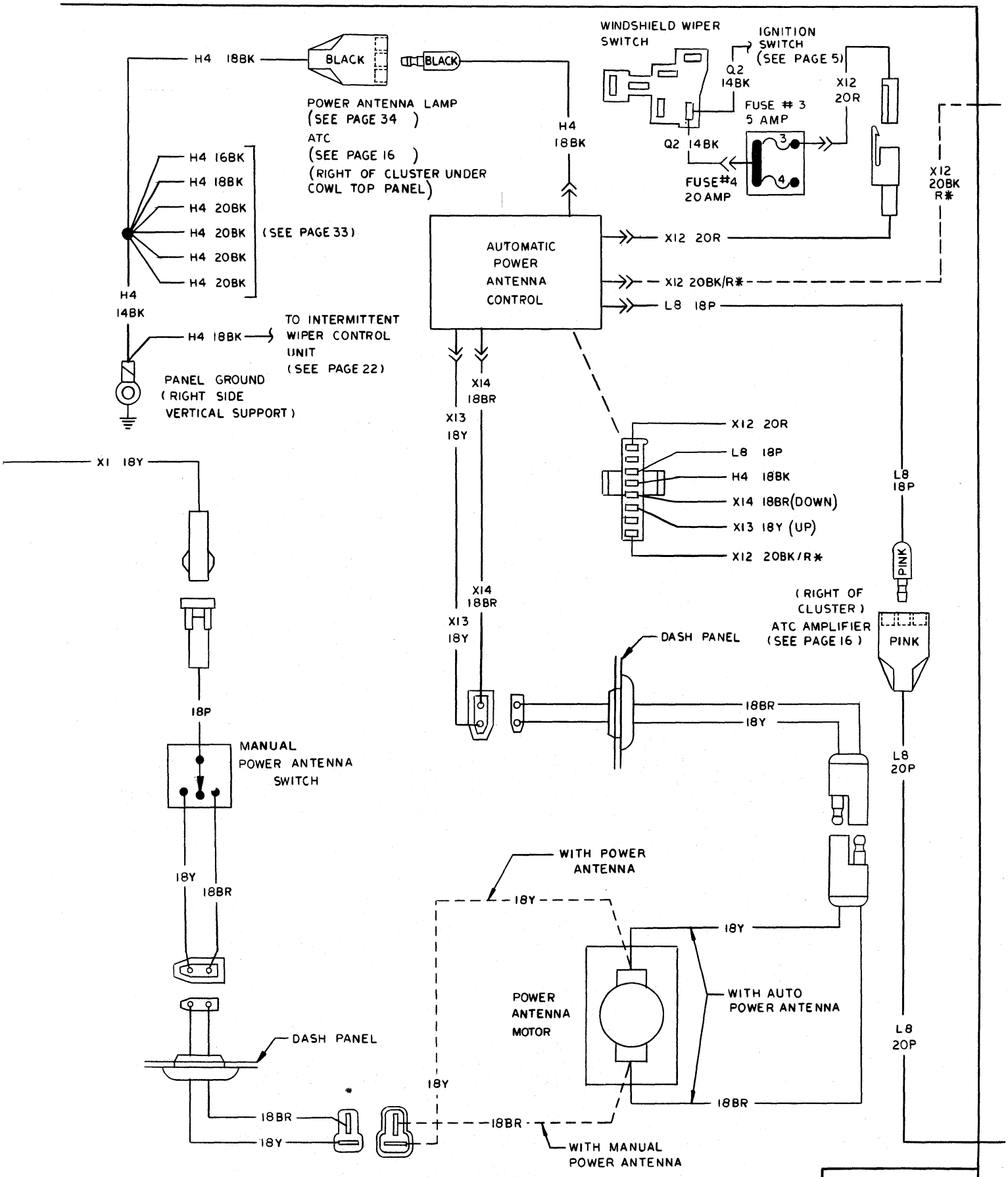


PR4

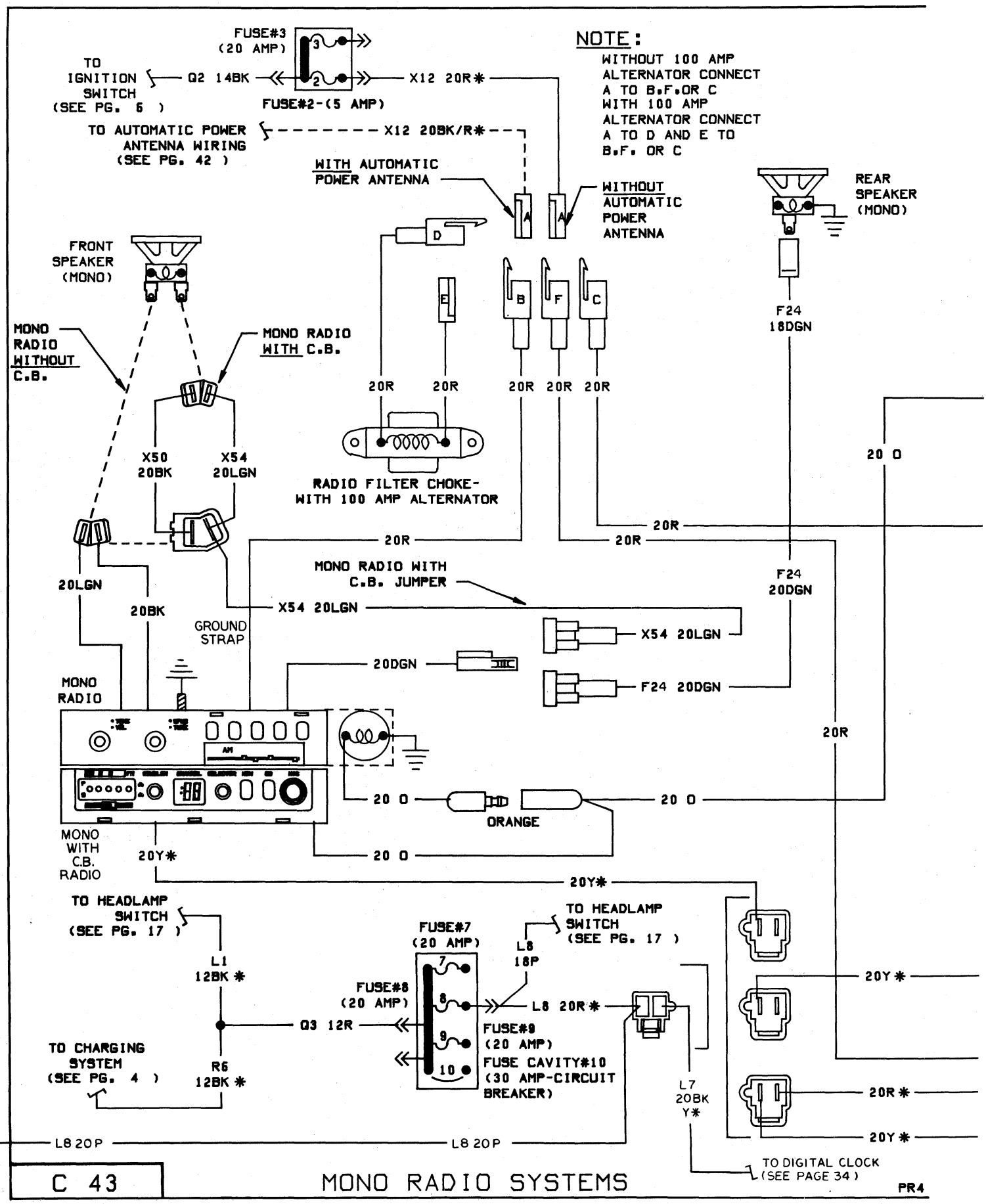
POWER ASSIST SYSTEM

C40


FUSE #3
5 AMP
WINDSHIELD
WIPER SWITCH
Q2 14BK
FUSE #4
20 AMP
D1 18BK
TO TURN SIGNAL FLASHER
(SEE PAGE 23)
Q2
14BK
TO IGNITION
SWITCH
(SEE PAGE 5)
Q4
18Y
NOT WITH HEATER OR ATC
C2 18Y*
TO AIR CONDITIONING
VACUUM SWITCH
(SEE PAGE 11)
CORNERING LAMP
(SEE PAGE 23)
A/C CLUTCH W/ATC
(SEE PAGE 13)
(LEFT OF RADIO)
YELLOW
YELLOW MOLD
X1 18Y
X1 18Y
X32 20BK
18DBL
X30 20DBL
X30 20DBL
X30 20DBL*
X33 20BK*
X31 20Y*
22BK
22DBL
22W
22Y
18DBL
TO STOP
LAMP SYSTEM
(SEE PAGE 24)
D3
18P
DASH PANEL
22BK
22W
18DBL
X31
20Y*
X30
20DBL*
X33
20BK*
22DBL
RESUME
ON
OFF
BRAKE
SWITCH
18DBL
22Y
D4
18W
TO STOP
LAMP SYSTEM
(SEE PAGE 24)
SPEED CONTROL
SWITCH
SPEED
CONTROL
SERVO



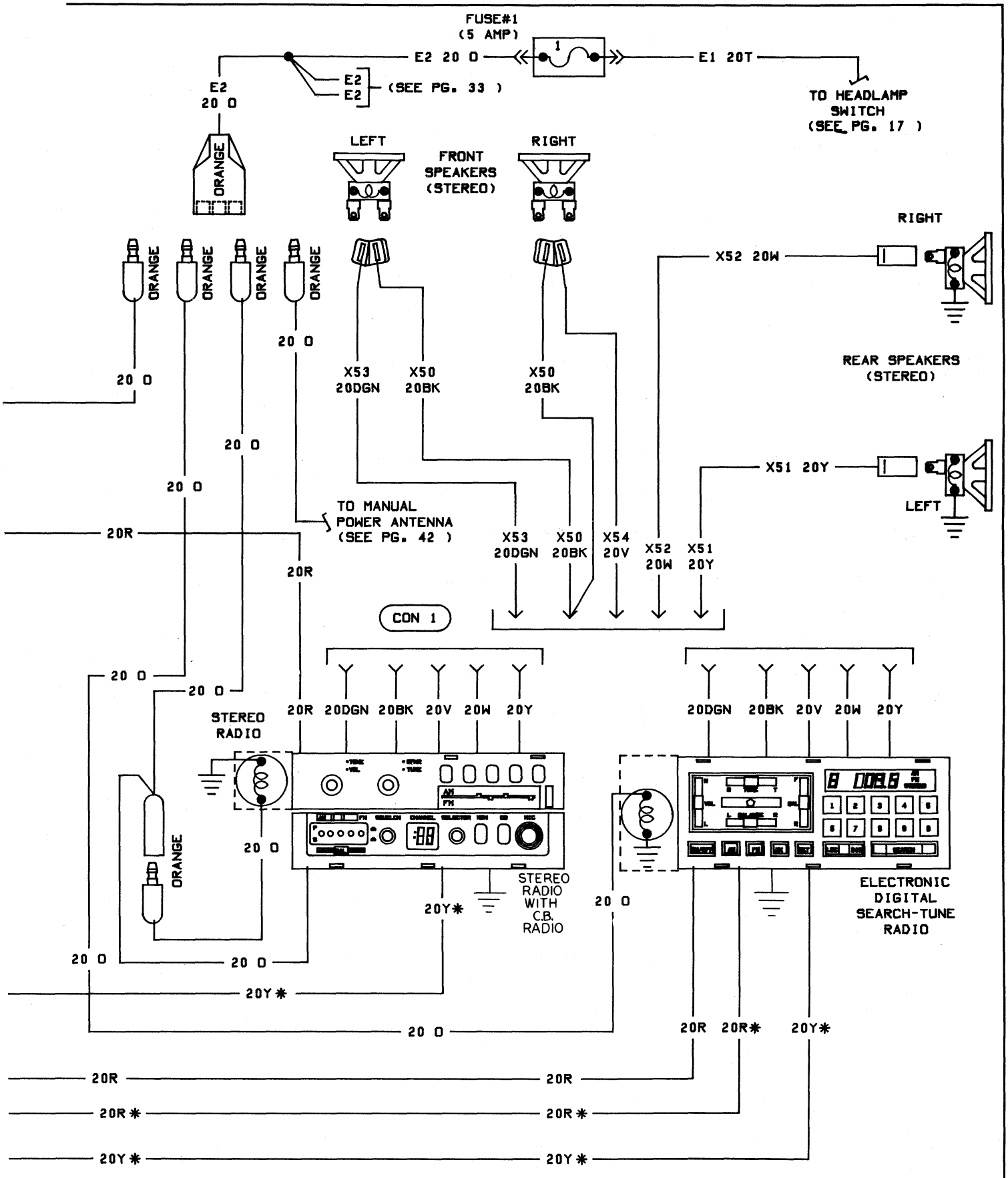
POWER ANTENNA

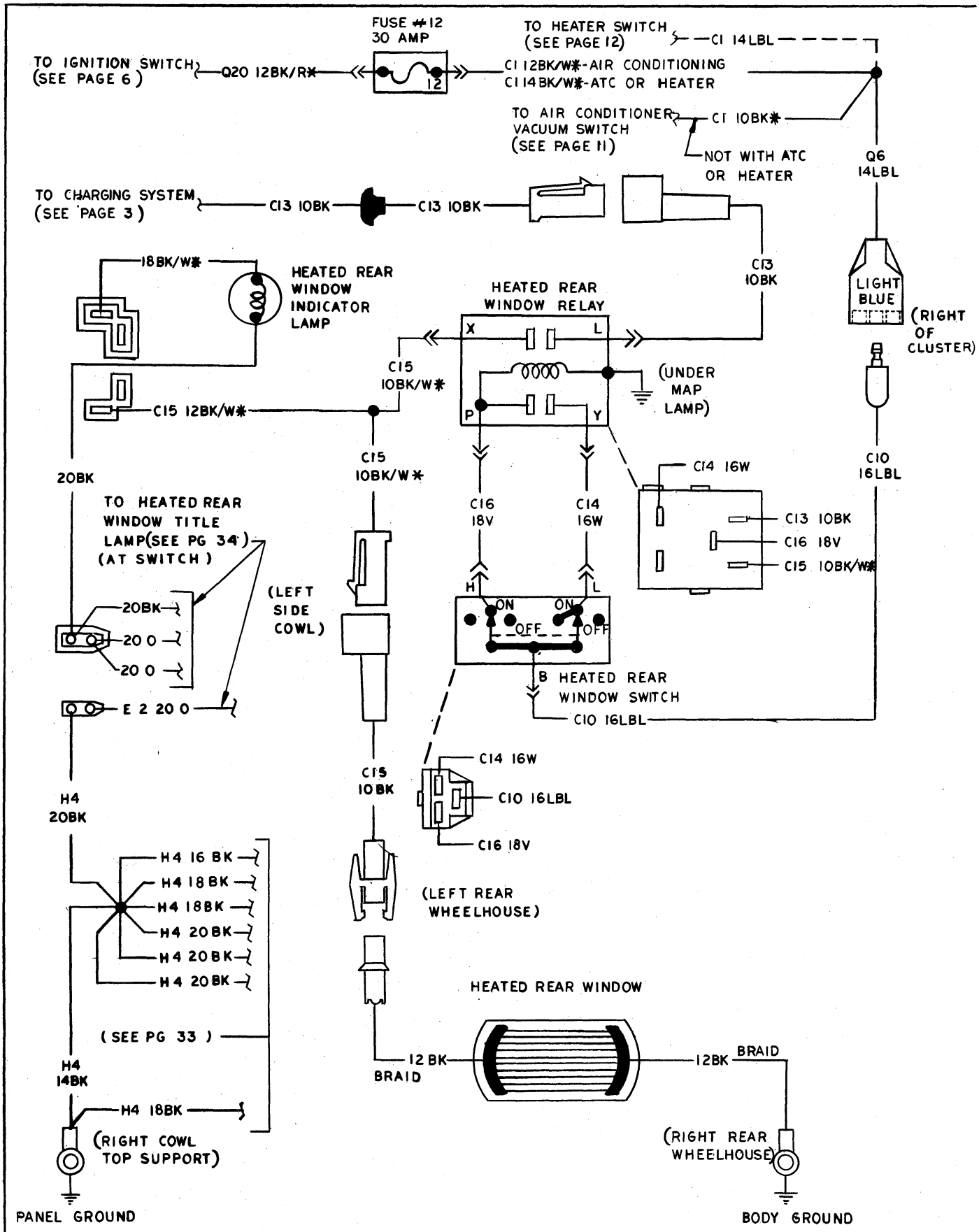


C 43

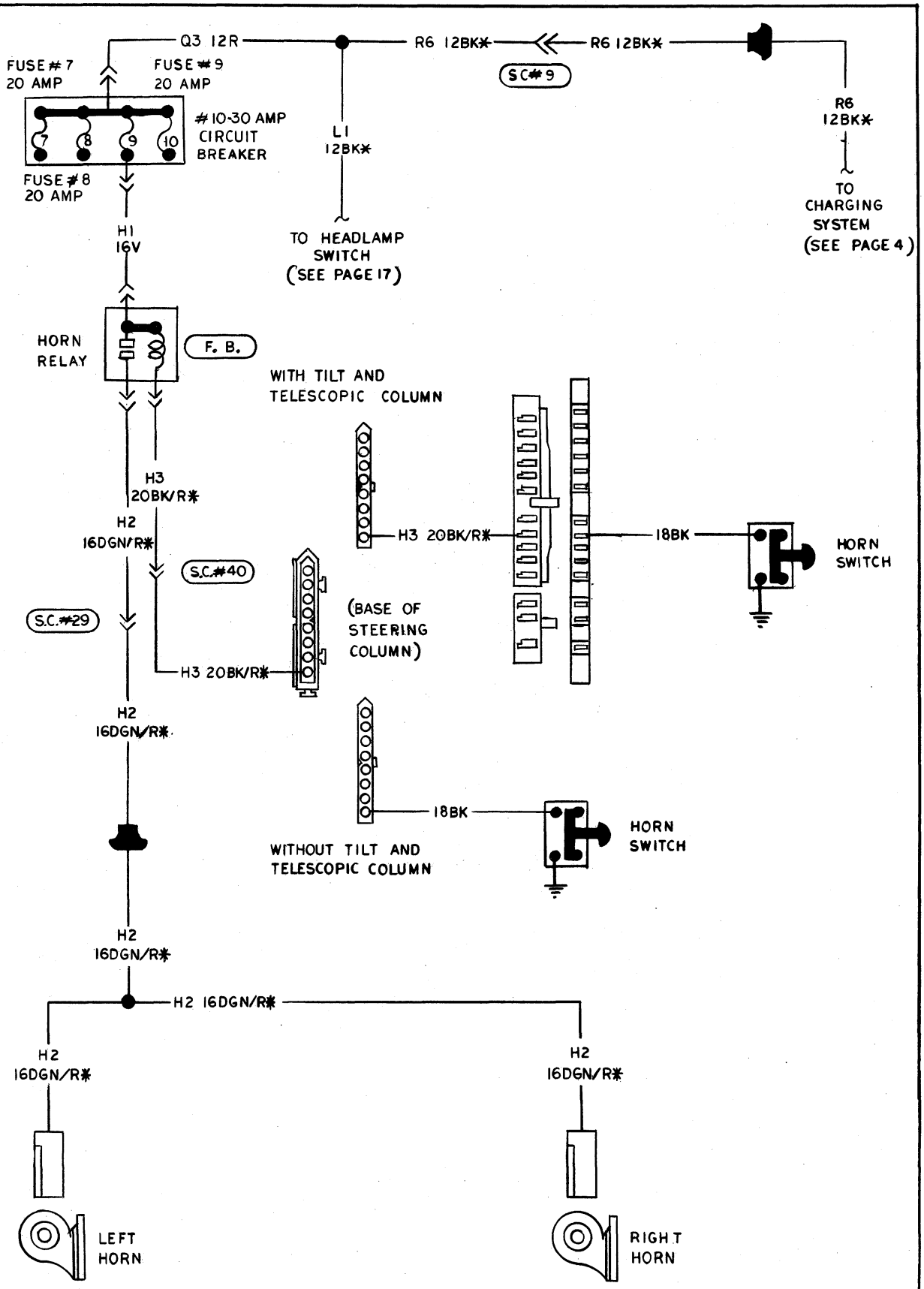
MONO RADIO SYSTEMS

PR4

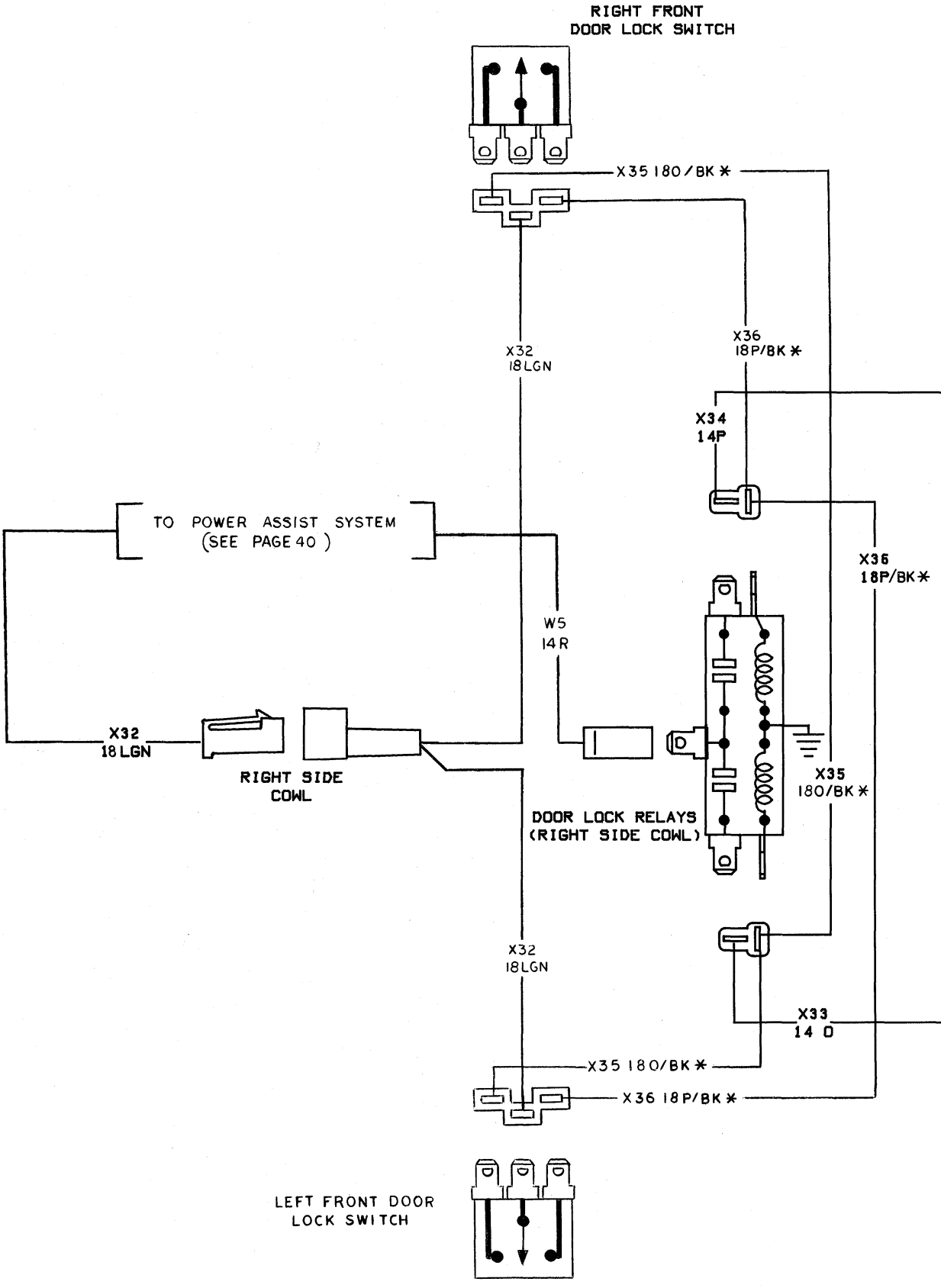

FUSE#1
(5 AMP)
E2 20 O
E1 20T
E2
E2
(SEE PG. 33)
E2
20 O
TO HEADLAMP
SWITCH
(SEE PG. 17)
ORANGE
LEFT
FRONT
SPEAKERS
(STEREO)
RIGHT
RIGHT
X52 20W
REAR SPEAKERS
(STEREO)
X51 20Y
LEFT
X53
20DGN
X50
20BK
X54
20V
X52
20W
X51
20Y
TO MANUAL
POWER ANTENNA
(SEE PG. 42)
20R
CON 1
STEREO
RADIO
20DGN
20BK
20V
20W
20Y
STEREO
RADIO
WITH
C.B.
RADIO
ELECTRONIC
DIGITAL
SEARCH-TUNE
RADIO
20Y*
20R*

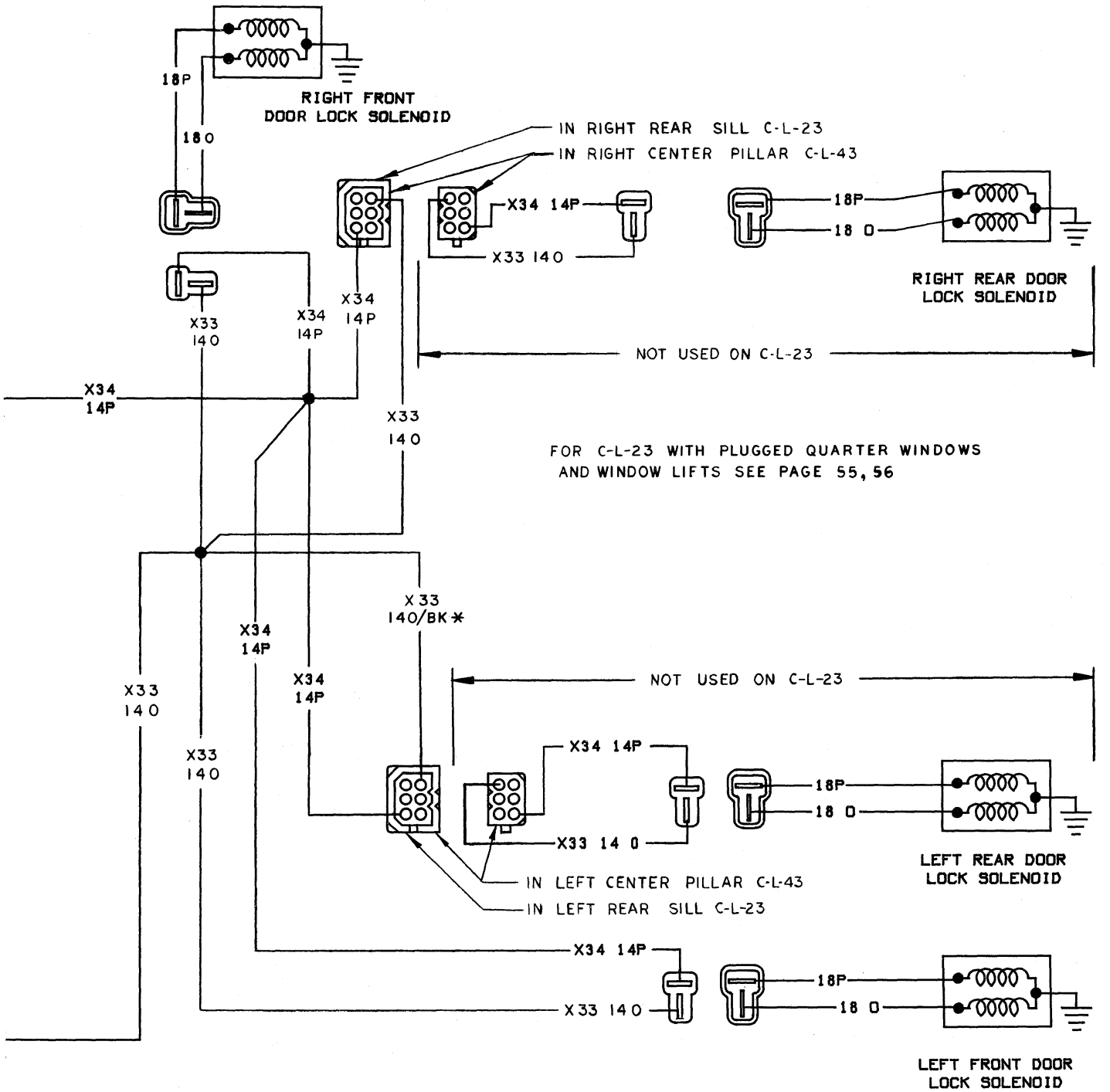


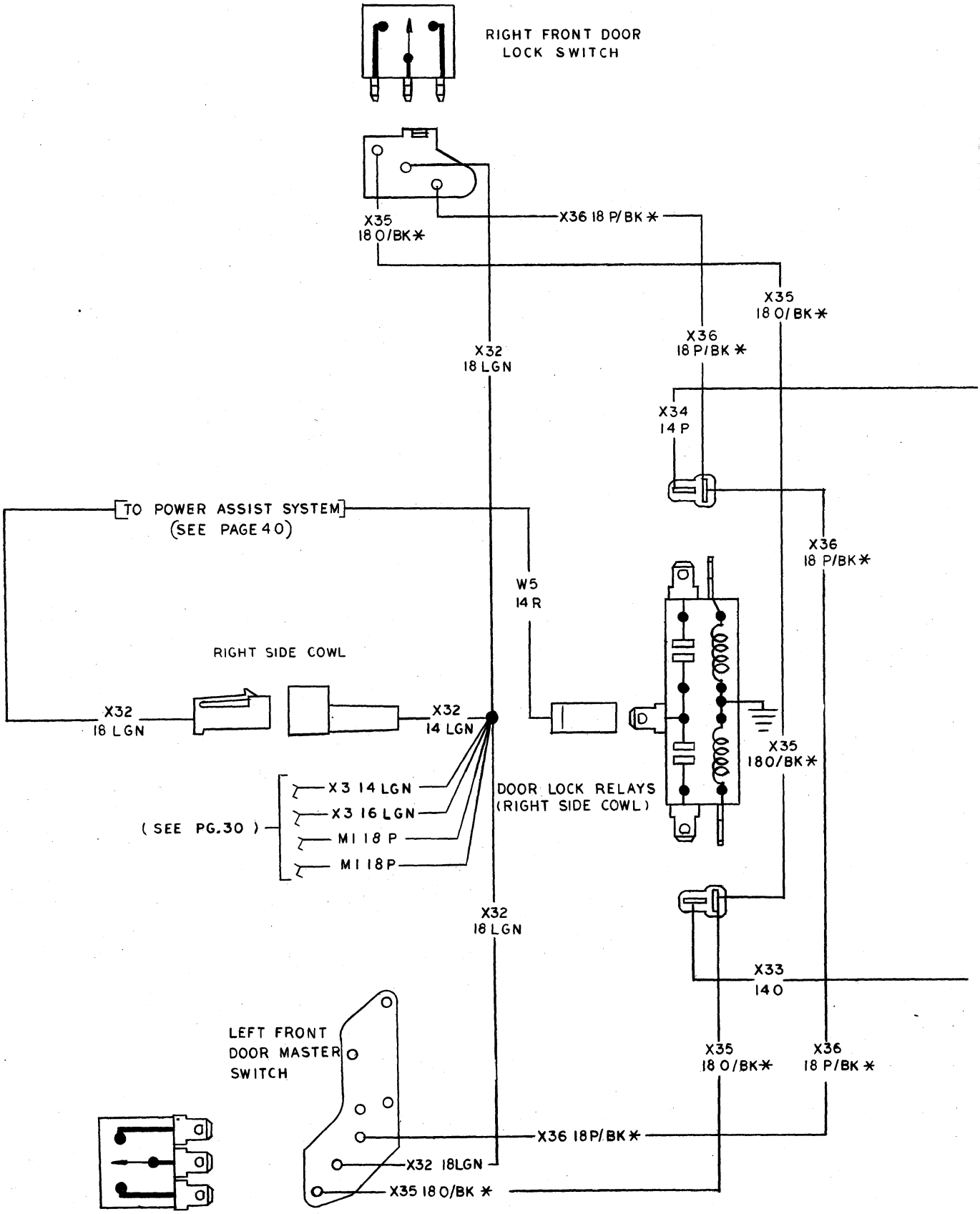
C 45 ELECTRICALLY HEATED REAR WINDOW PR4


Q3 12R
R6 12BK*
R6 12BK*
S C#9
FUSE #7
20 AMP
FUSE #9
20 AMP
#10-30 AMP
CIRCUIT
BREAKER
7
8
9
10
FUSE #8
20 AMP
L1
12BK*
R6
12BK*
TO
CHARGING
SYSTEM
(SEE PAGE 4)
H1
16V
TO HEADLAMP
SWITCH
(SEE PAGE 17)
HORN
RELAY
F. B.
WITH TILT AND
TELESCOPIC COLUMN
H3
20BK/R*
H2
16DGN/R*
S.C.#40
S.C.#29
H3 20BK/R*
18BK
HORN
SWITCH
(BASE OF
STEERING
COLUMN)
H3 20BK/R*
H2
16DGN/R*
18BK
HORN
SWITCH
WITHOUT TILT AND
TELESCOPIC COLUMN
H2
16DGN/R*
H2 16DGN/R*
H2
16DGN/R*
H2
16DGN/R*
LEFT
HORN
RIGHT
HORN

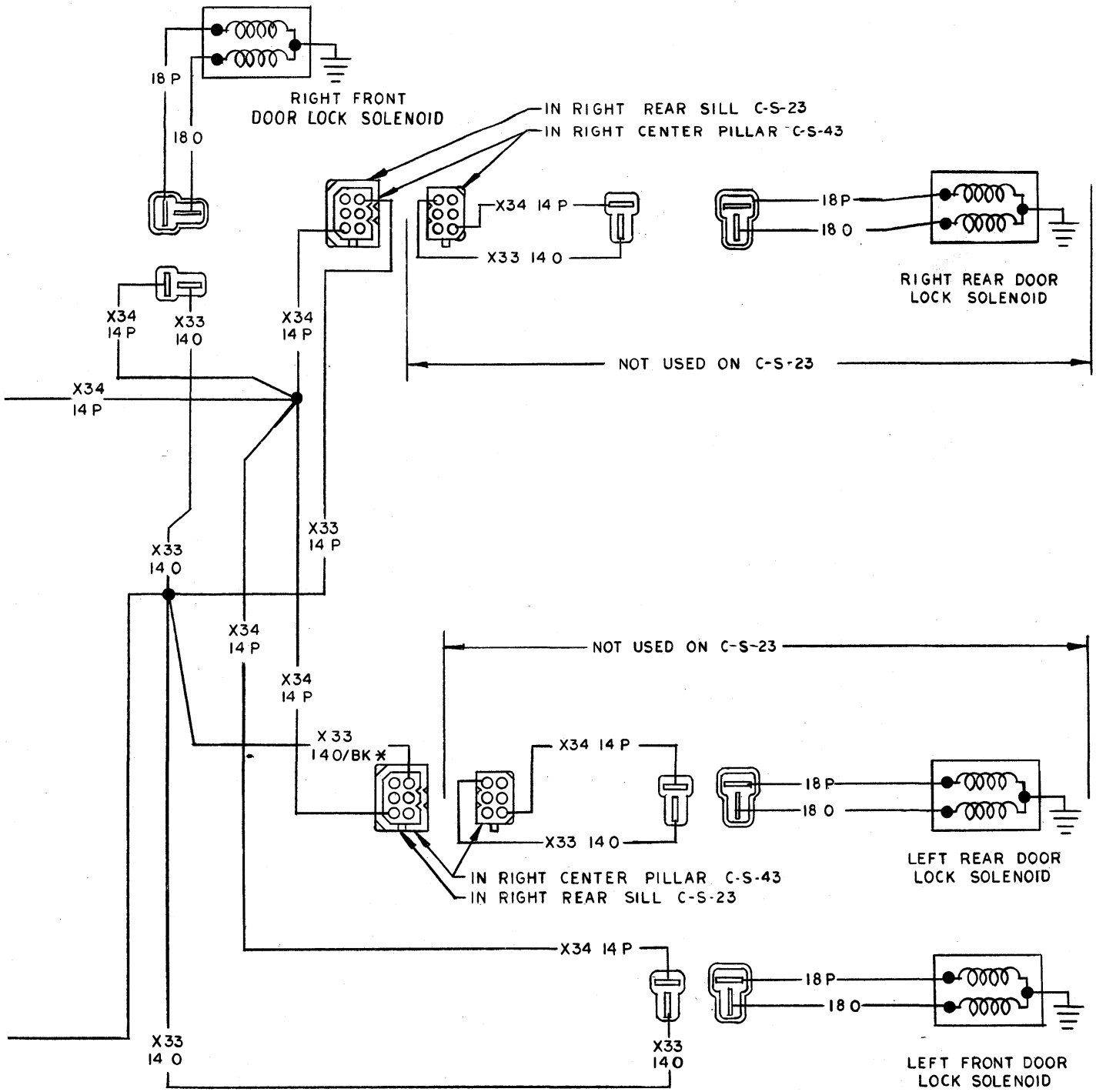
HORN SYSTEM

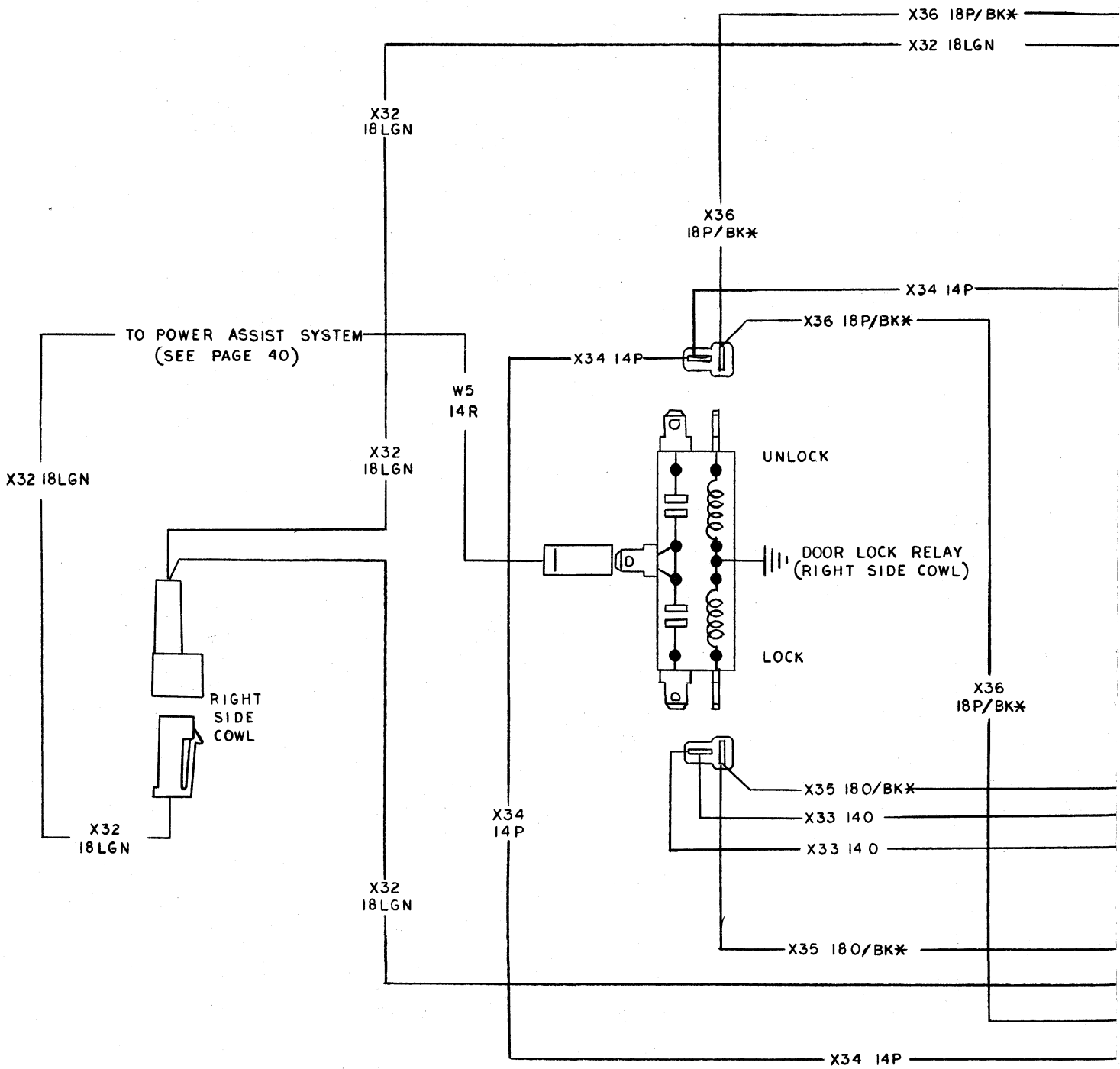

RIGHT FRONT
DOOR LOCK SWITCH
X35 18O/BK *
X36
18P/BK *
X32
18LGN
X34
14P
TO POWER ASSIST SYSTEM
(SEE PAGE 40)
W5
14R
X36
18P/BK *
X32
18 LGN
RIGHT SIDE
COWL
X35
18O/BK *
DOOR LOCK RELAYS
(RIGHT SIDE COWL)
X32
18LGN
X33
14 O
X35 18O/BK *
X36 18P/BK *
LEFT FRONT DOOR
LOCK SWITCH


18P
18 0
RIGHT FRONT
DOOR LOCK SOLENOID
IN RIGHT REAR SILL C-L-23
IN RIGHT CENTER PILLAR C-L-43
X34 14P
X33 140
18P
18 0
RIGHT REAR DOOR
LOCK SOLENOID
X33
140
X34
14P
X34
14P
NOT USED ON C-L-23
X34
14P
X33
140
FOR C-L-23 WITH PLUGGED QUARTER WINDOWS
AND WINDOW LIFTS SEE PAGE 55, 56
X33
140/BK*
X34
14P
X33
140
X34
14P
NOT USED ON C-L-23
X33
140
X34 14P
X33 14 0
18P
18 0
LEFT REAR DOOR
LOCK SOLENOID
IN LEFT CENTER PILLAR C-L-43
IN LEFT REAR SILL C-L-23
X34 14P
X33 140
18P
18 0
LEFT FRONT DOOR
LOCK SOLENOID



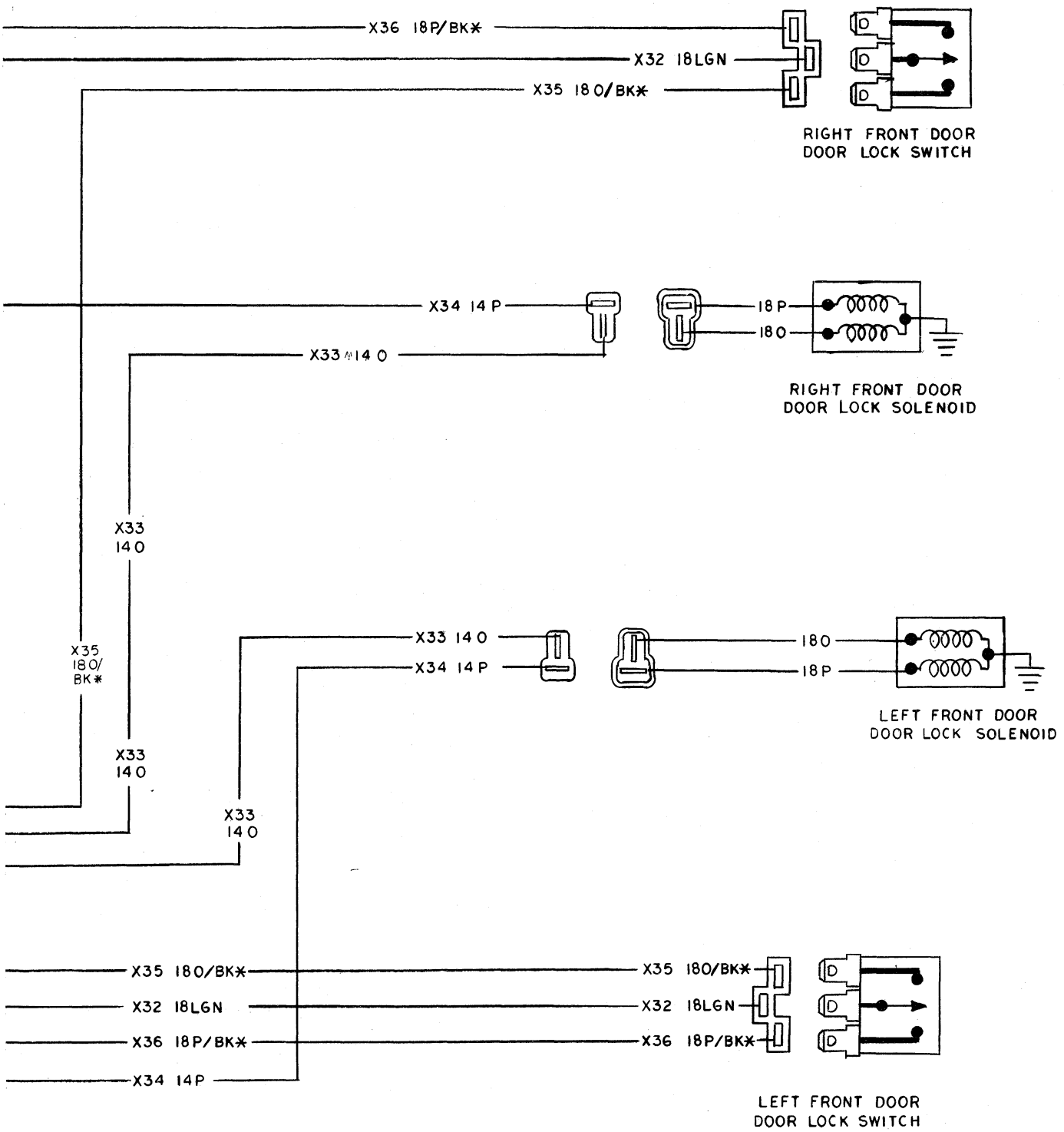
C 49 C-S-23, 43 — POWER DOOR LOCK SYSTEM PR4


18 P
18 0
RIGHT FRONT
DOOR LOCK SOLENOID
IN RIGHT REAR SILL C-S-23
IN RIGHT CENTER PILLAR C-S-43
X34 14 P
X33 14 0
18P
18 0
RIGHT REAR DOOR
LOCK SOLENOID
X34
14 P
X33
14 0
X34
14 P
NOT USED ON C-S-23
X34
14 P
X33
14 0
X33
14 P
X34
14 P
NOT USED ON C-S-23
X34
14 P
X33
140/BK*
X34 14 P
X33 14 0
18P
18 0
LEFT REAR DOOR
LOCK SOLENOID
IN RIGHT CENTER PILLAR C-S-43
IN RIGHT REAR SILL C-S-23
X34 14 P
18P
18 0
X33
14 0
X33
140
LEFT FRONT DOOR
LOCK SOLENOID



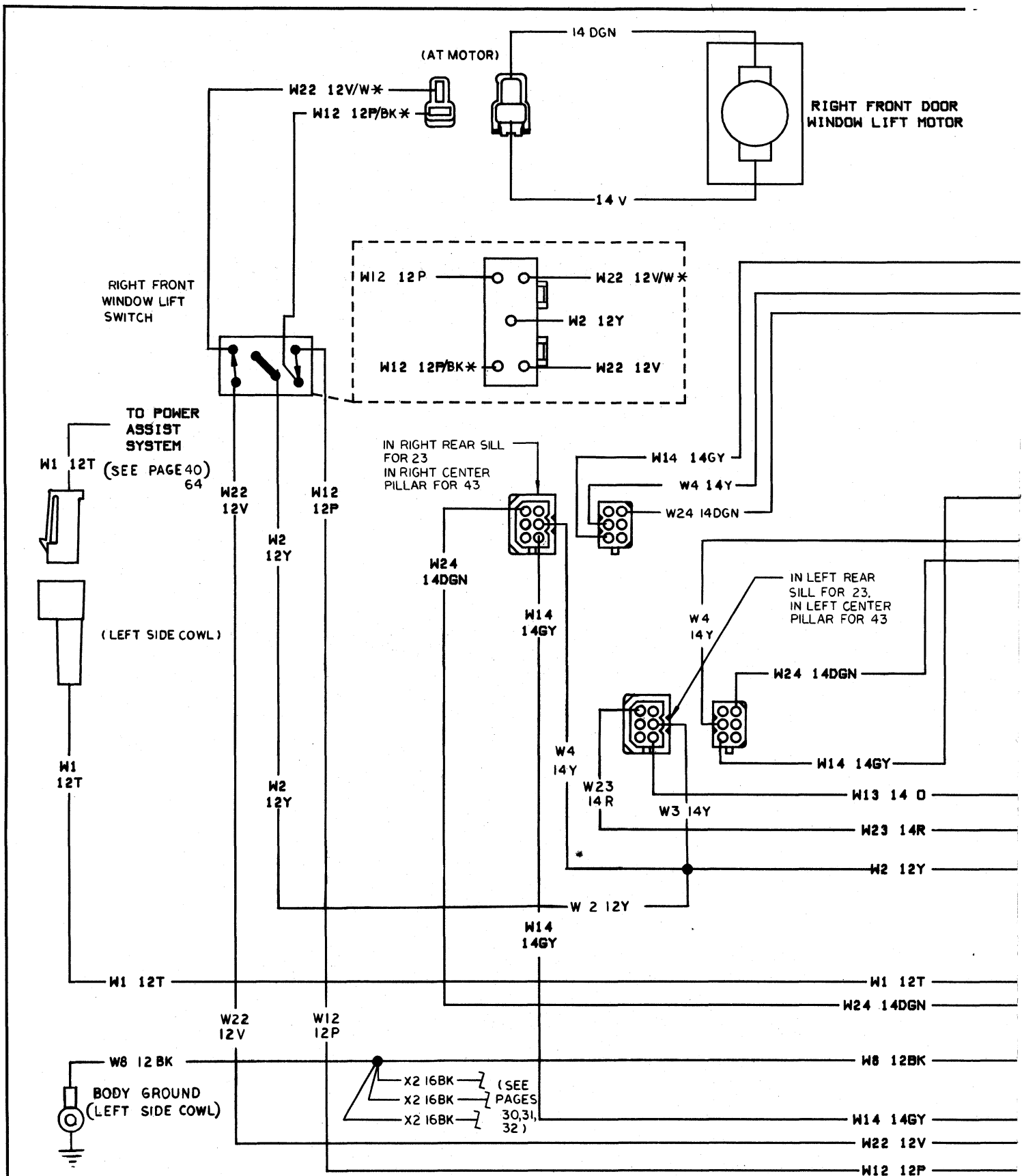
NOTE
USED ON TWO DOOR HARDTOP MODEL
WITH PLUGGED QUARTER WINDOWS
AND POWER WINDOW LIFTS
WITHOUT POWER WINDOW LIFTS SEE PG 47

C 51 POWER DOOR LOCKS (C-L-23) PR4

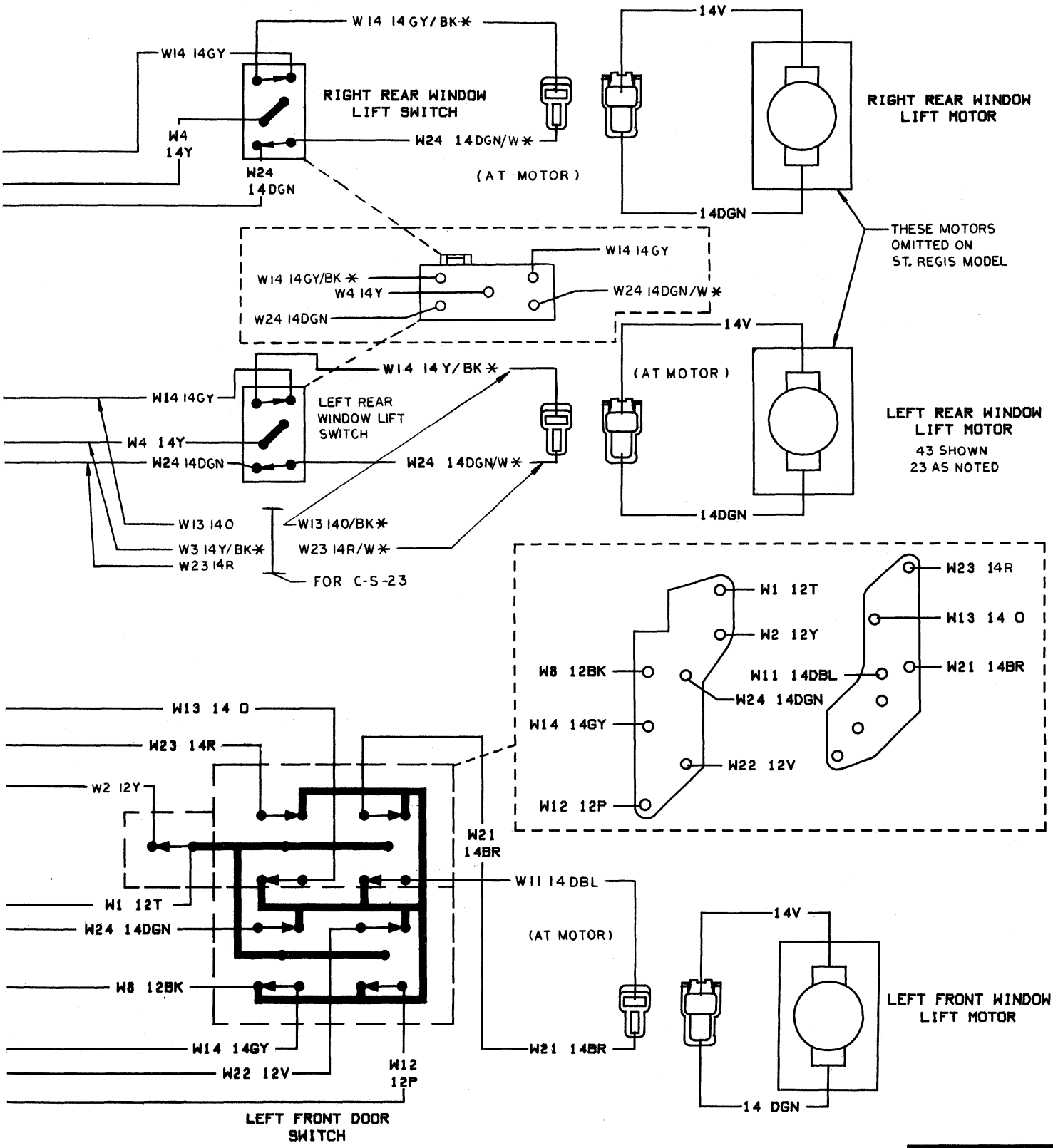


NOTE

USED ON TWO DOOR HARDTOP MODEL
WITH PLUGGED QUARTER WINDOWS
AND POWER WINDOW LIFTS
WITHOUT POWER WINDOW LIFTS SEE PG 48



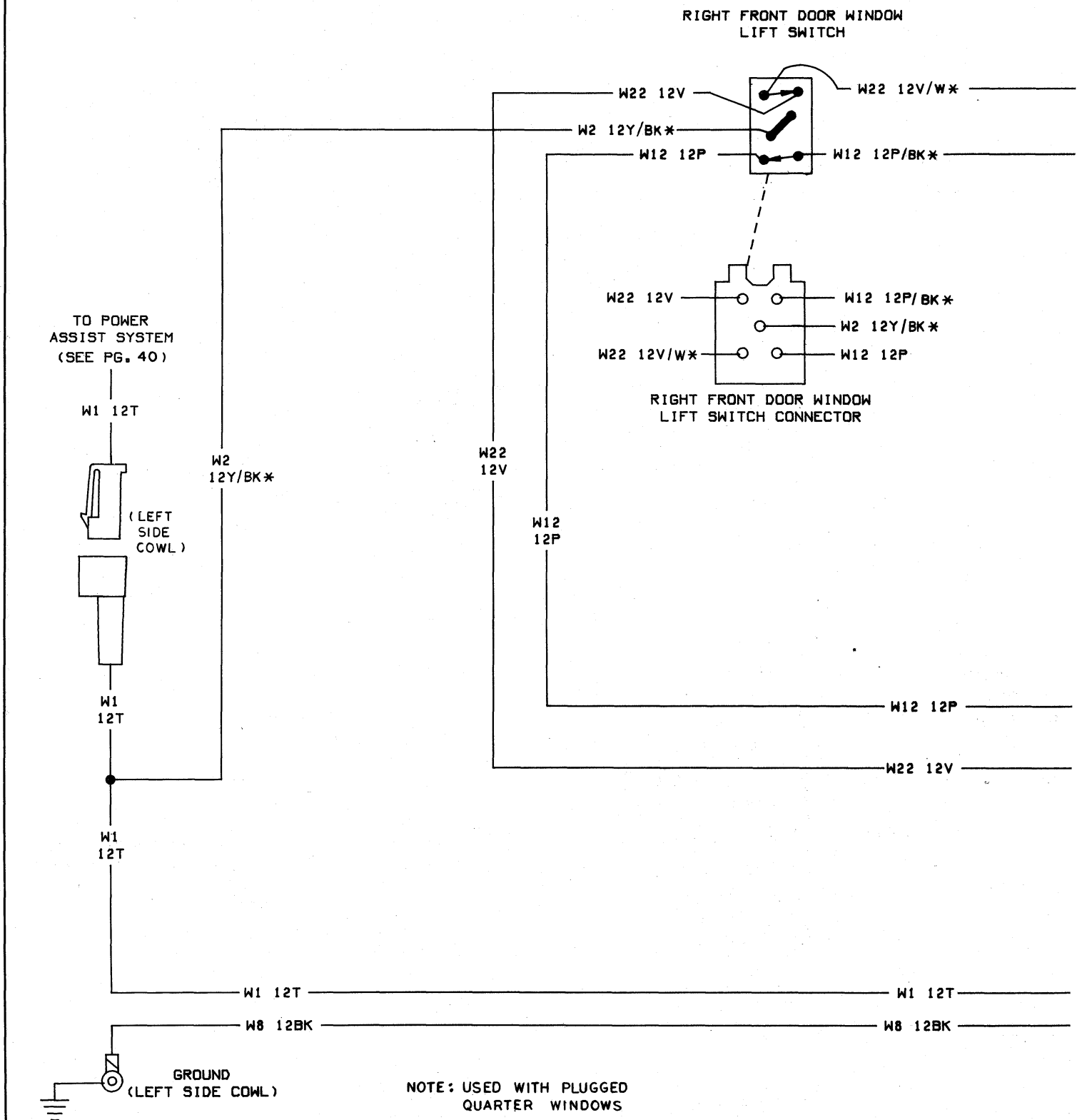
C53 C-S-23,43 - POWER WINDOW LIFT SYSTEM PR4



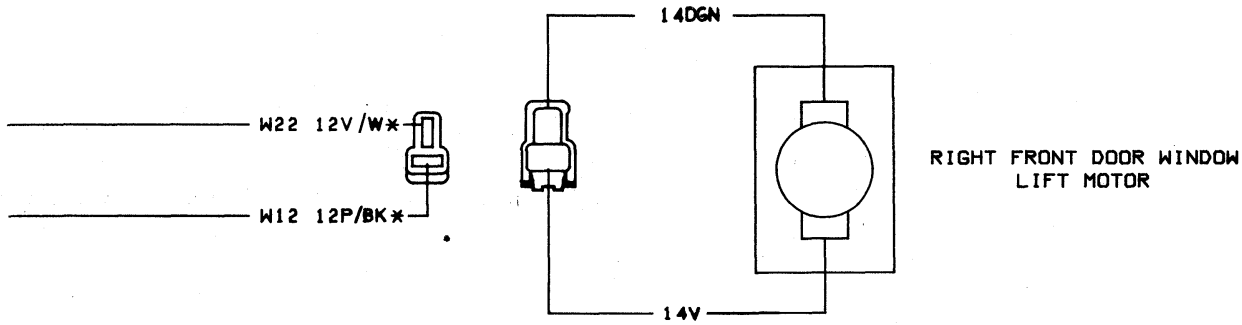
PR4

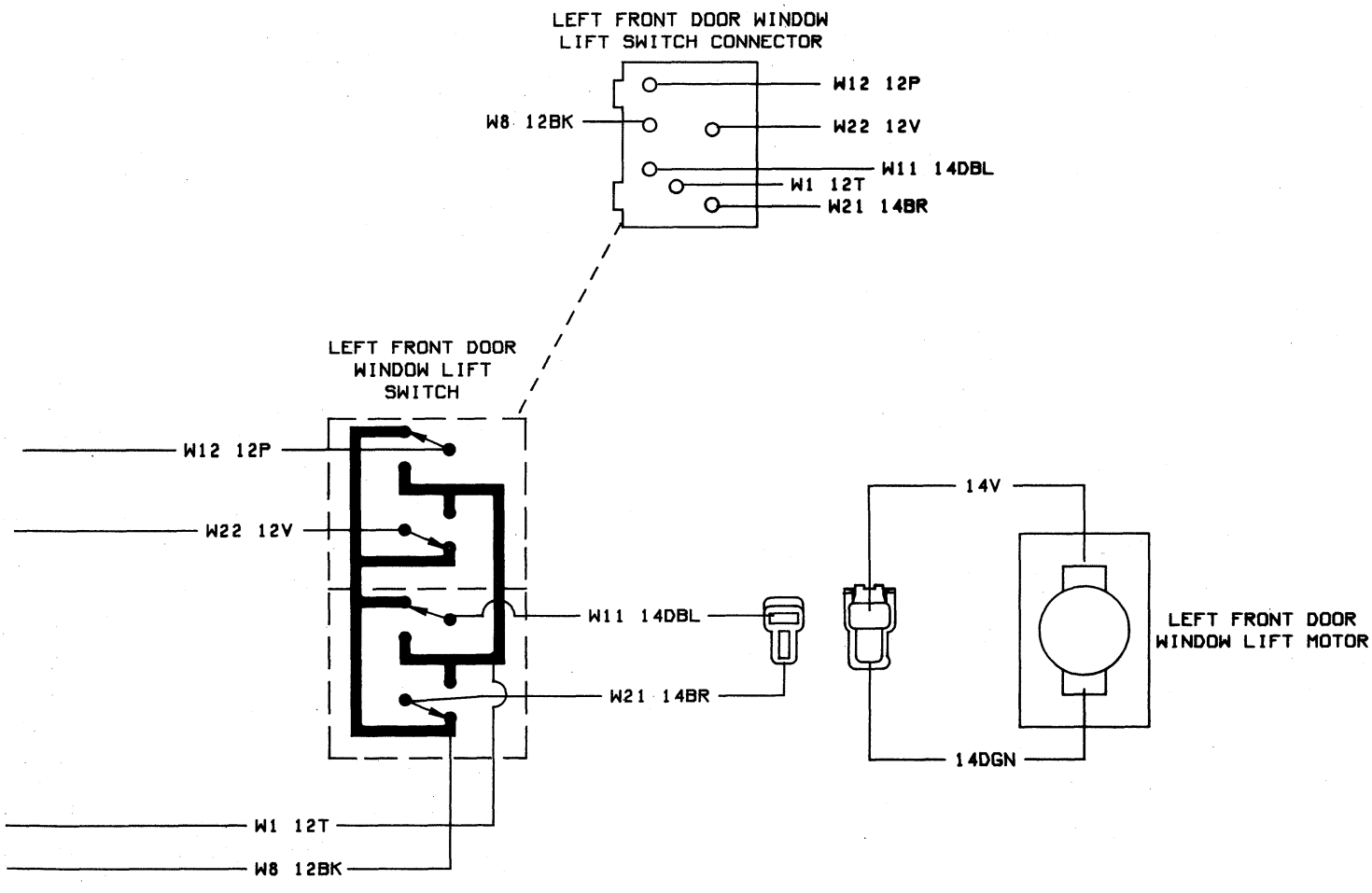
C-S-23,43 – POWER WINDOW LIFT SYSTEM

C54

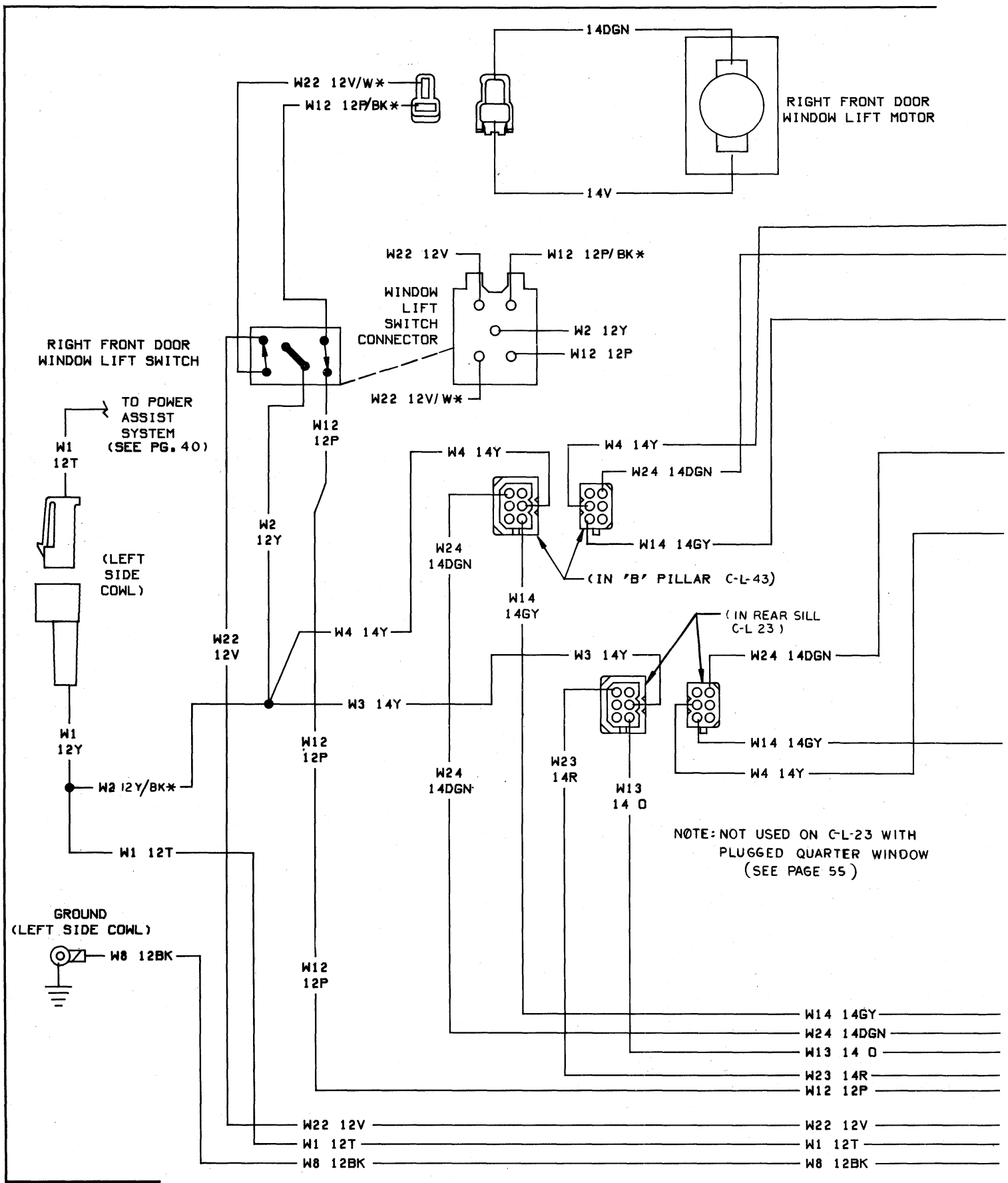


C55 2 WINDOW - WINDOW LIFT SYSTEM (C-L-23) PR4

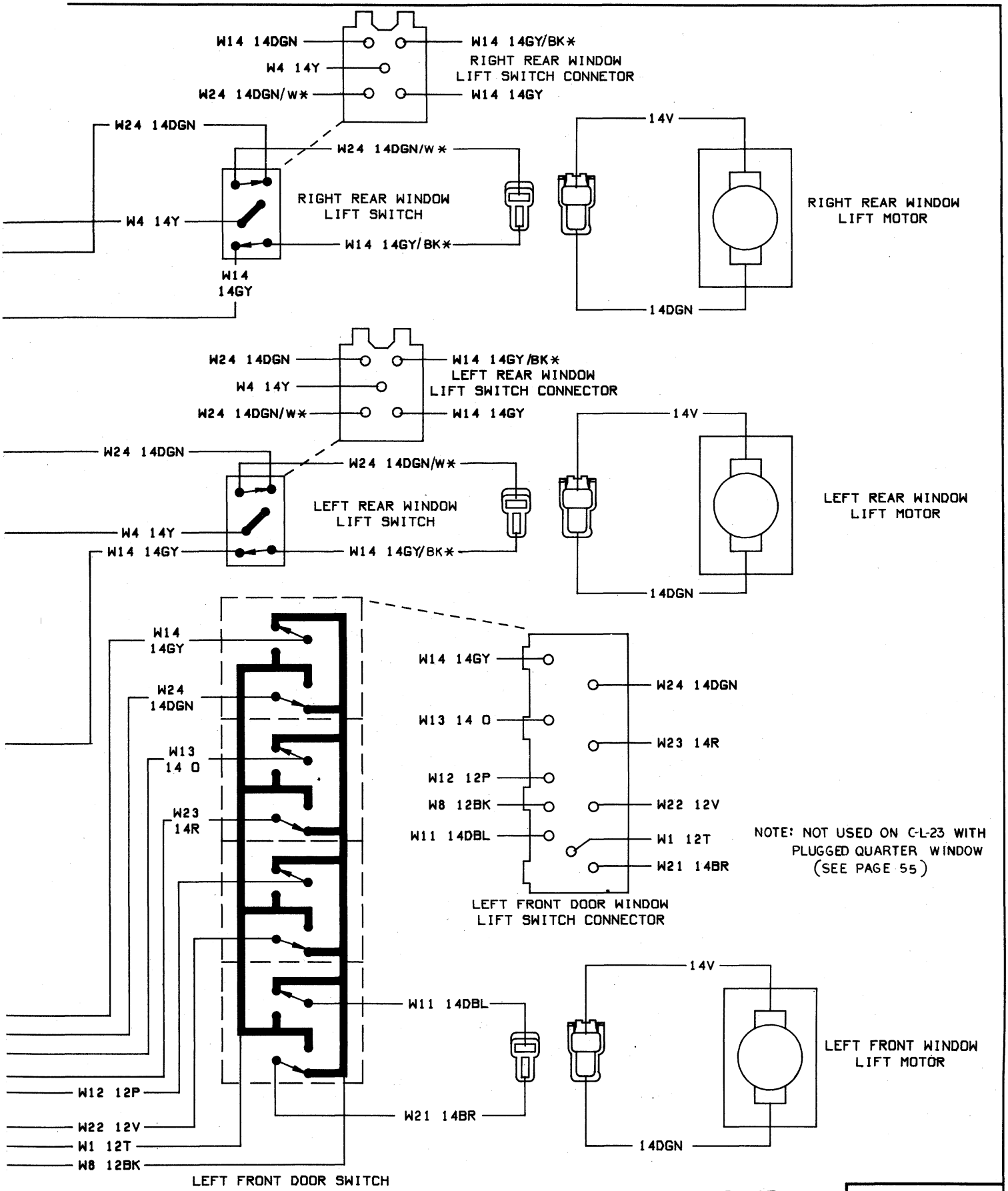




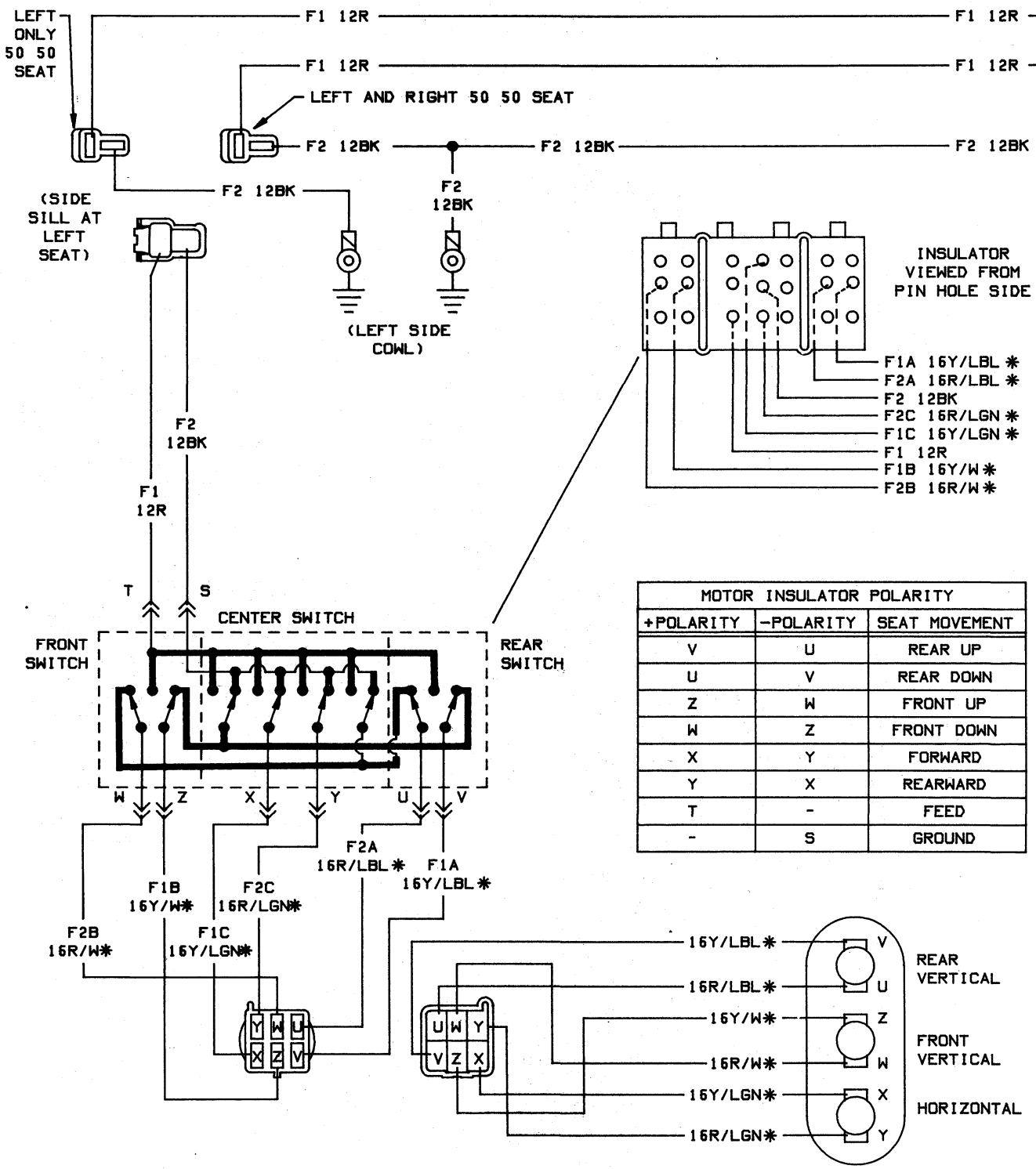
NOTE: USED WITH PLUGGED
QUARTER WINDOWS



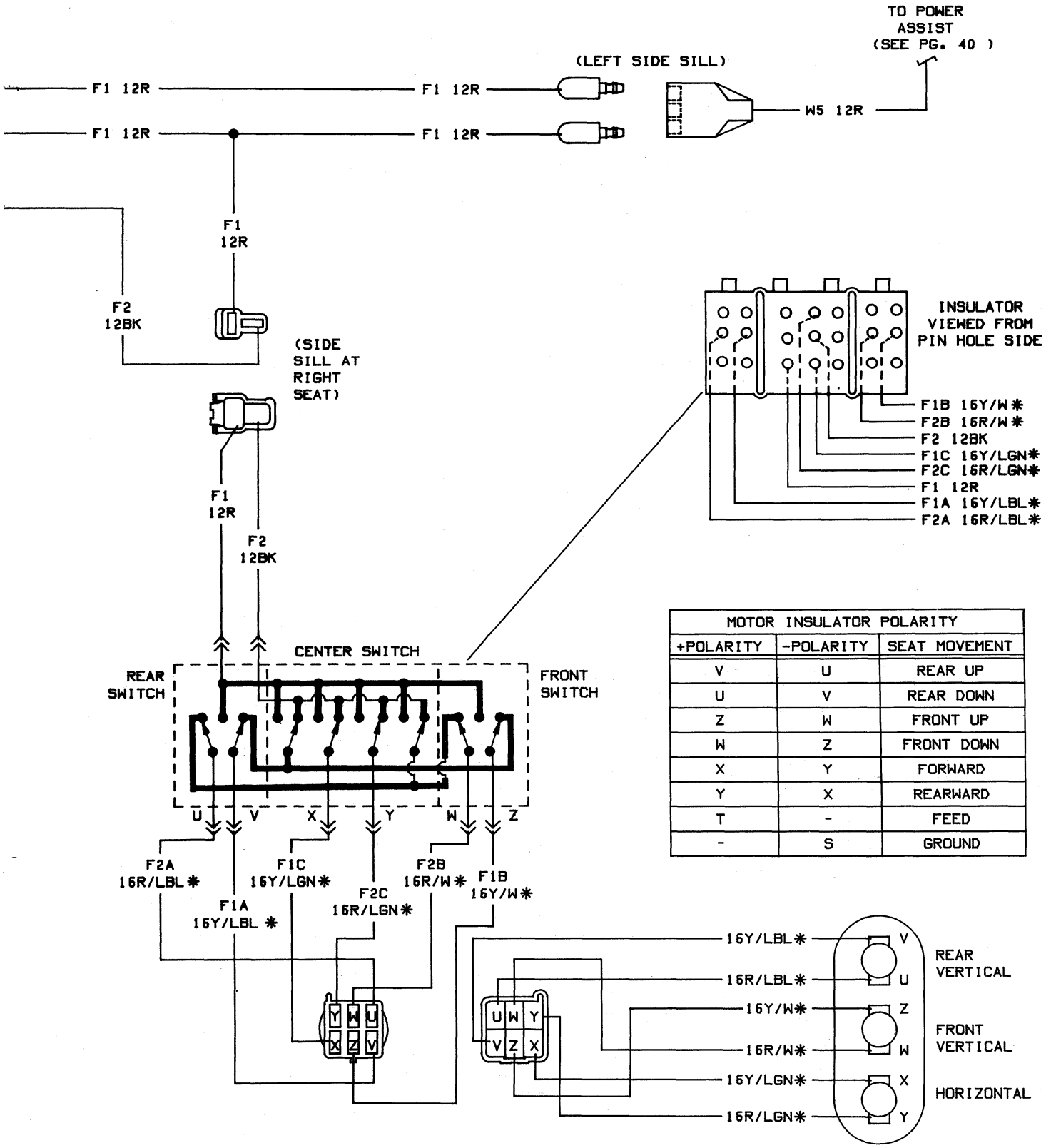
C57 4 WINDOW - WINDOW LIFT SYSTEM (C-L-00) PR4



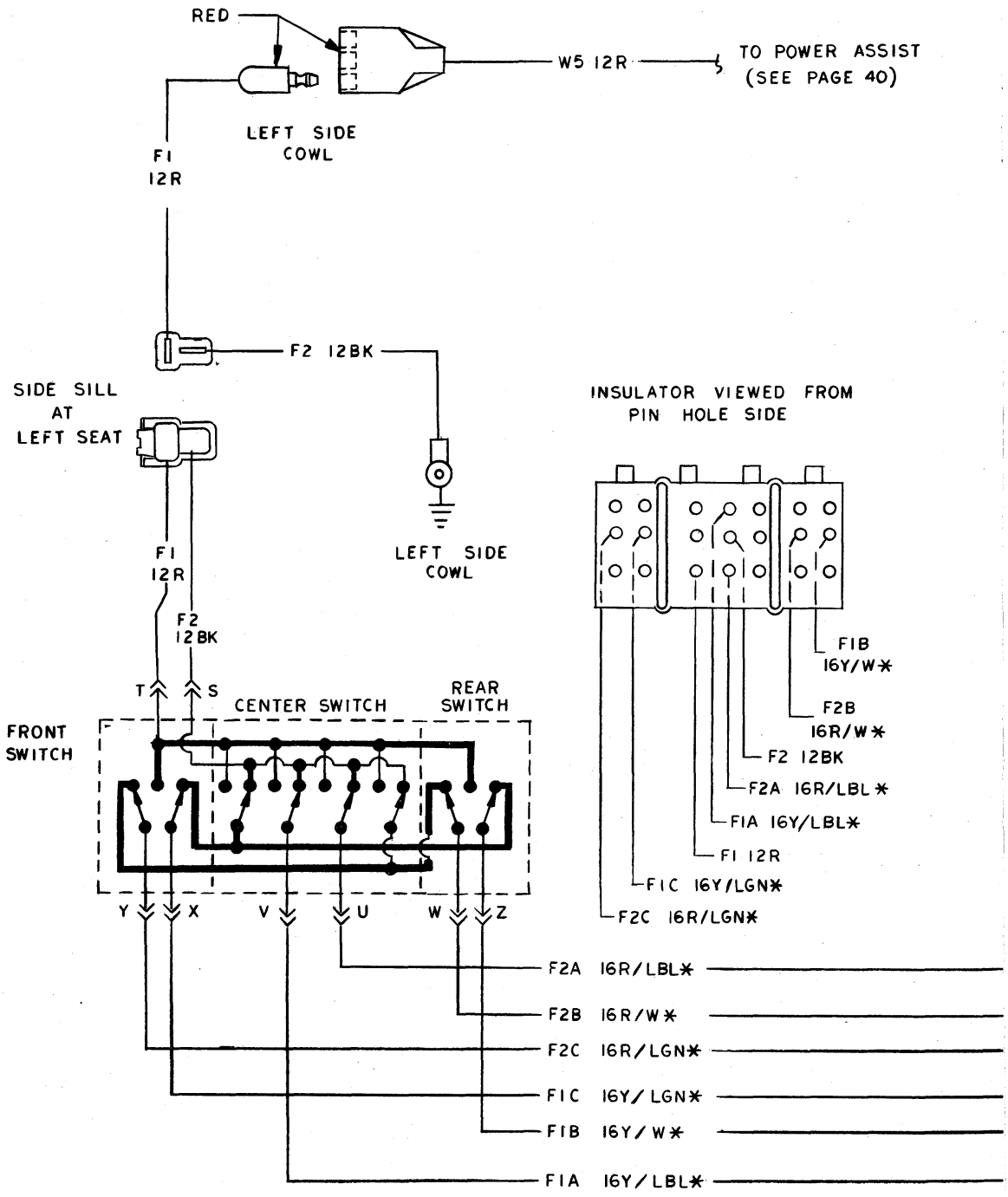
PR4 4 WINDOW - WINDOW LIFT SYSTEM (C-L-23-43) C58



MOTOR INSULATOR POLARITY		
+POLARITY	-POLARITY	SEAT MOVEMENT
V	U	REAR UP
U	V	REAR DOWN
Z	W	FRONT UP
W	Z	FRONT DOWN
X	Y	FORWARD
Y	X	REARWARD
T	-	FEED
-	S	GROUND

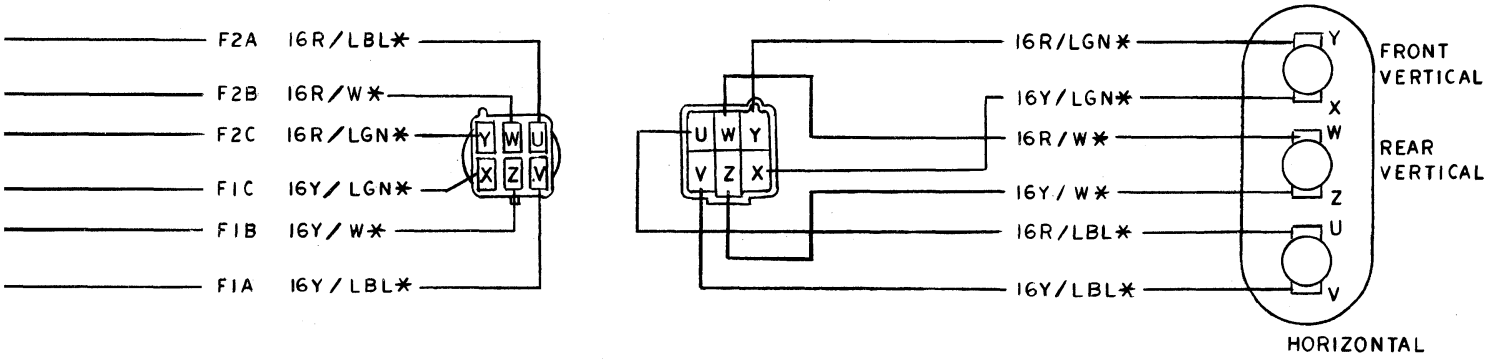


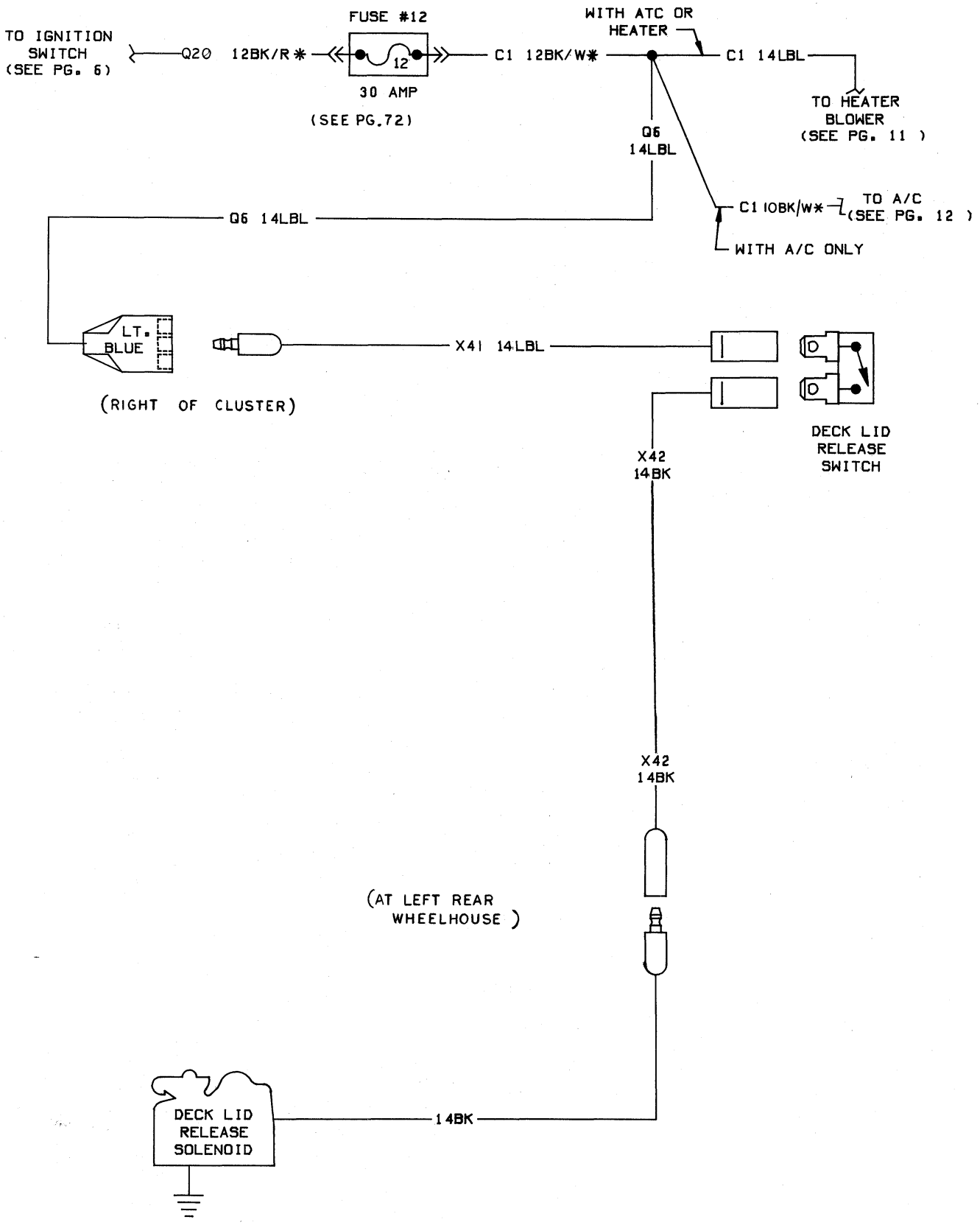
MOTOR INSULATOR POLARITY		
+POLARITY	-POLARITY	SEAT MOVEMENT
V	U	REAR UP
U	V	REAR DOWN
Z	W	FRONT UP
W	Z	FRONT DOWN
X	Y	FORWARD
Y	X	REARWARD
T	-	FEED
-	S	GROUND



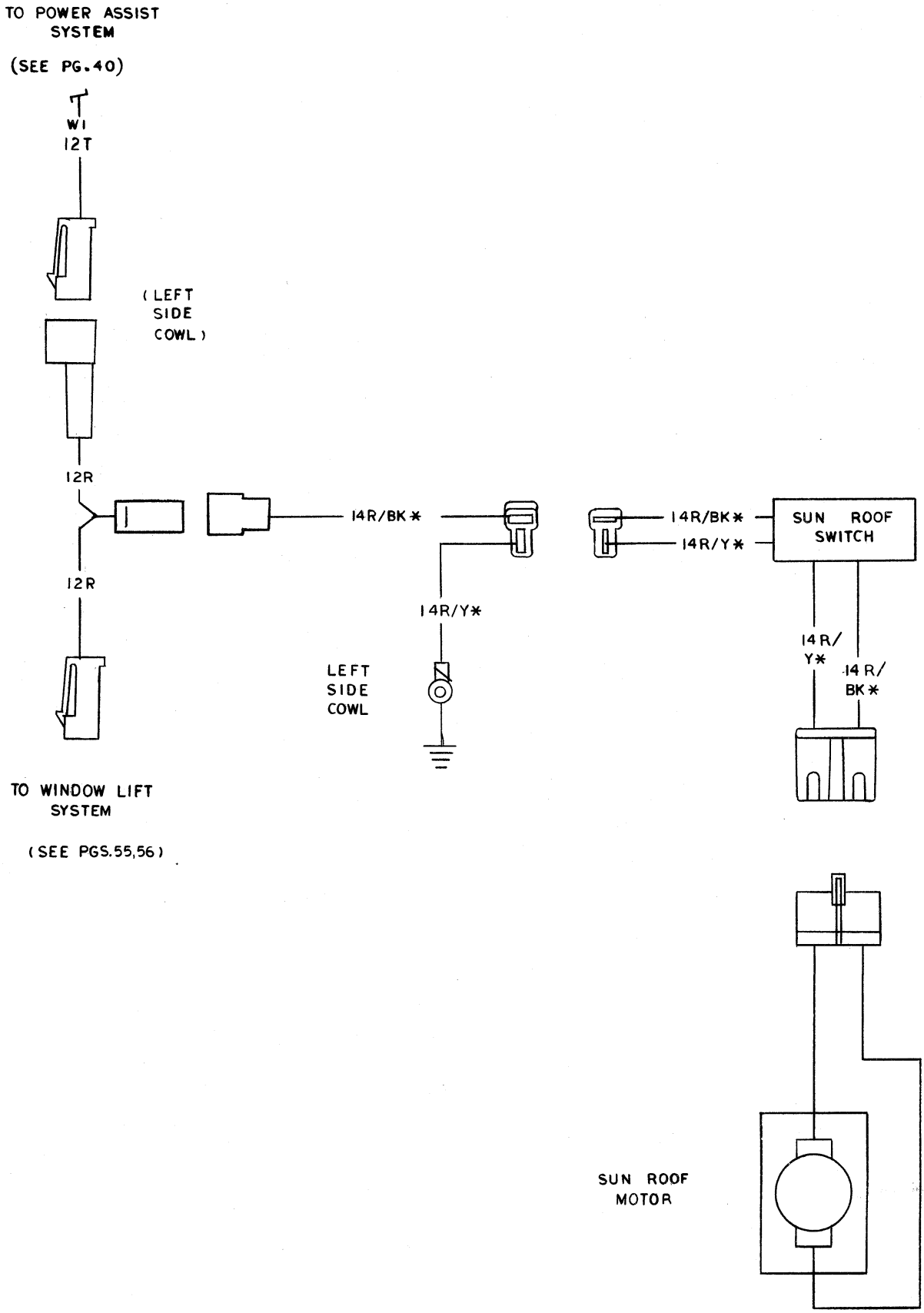
POWER BENCH SEAT ADJUSTER

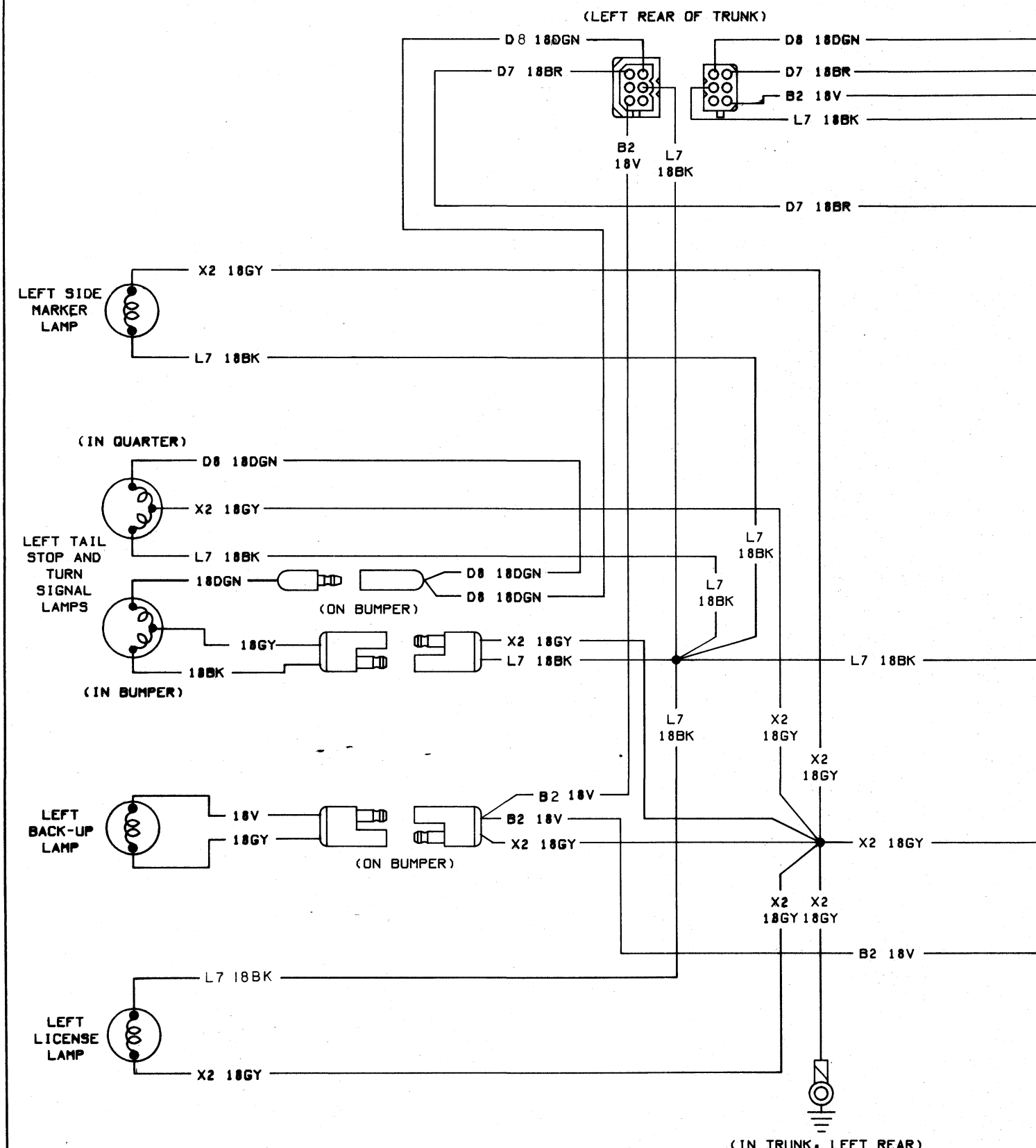
MOTOR INSULATOR POLARITY		
+POLARITY	−POLARITY	SEAT MOVEMENT
V	U	FORWARD
U	V	REARWARD
Z	W	REAR UP
W	Z	REAR DOWN
X	Y	FRONT UP
Y	X	FRONT DOWN
T	——	FEED
——	S	GROUND



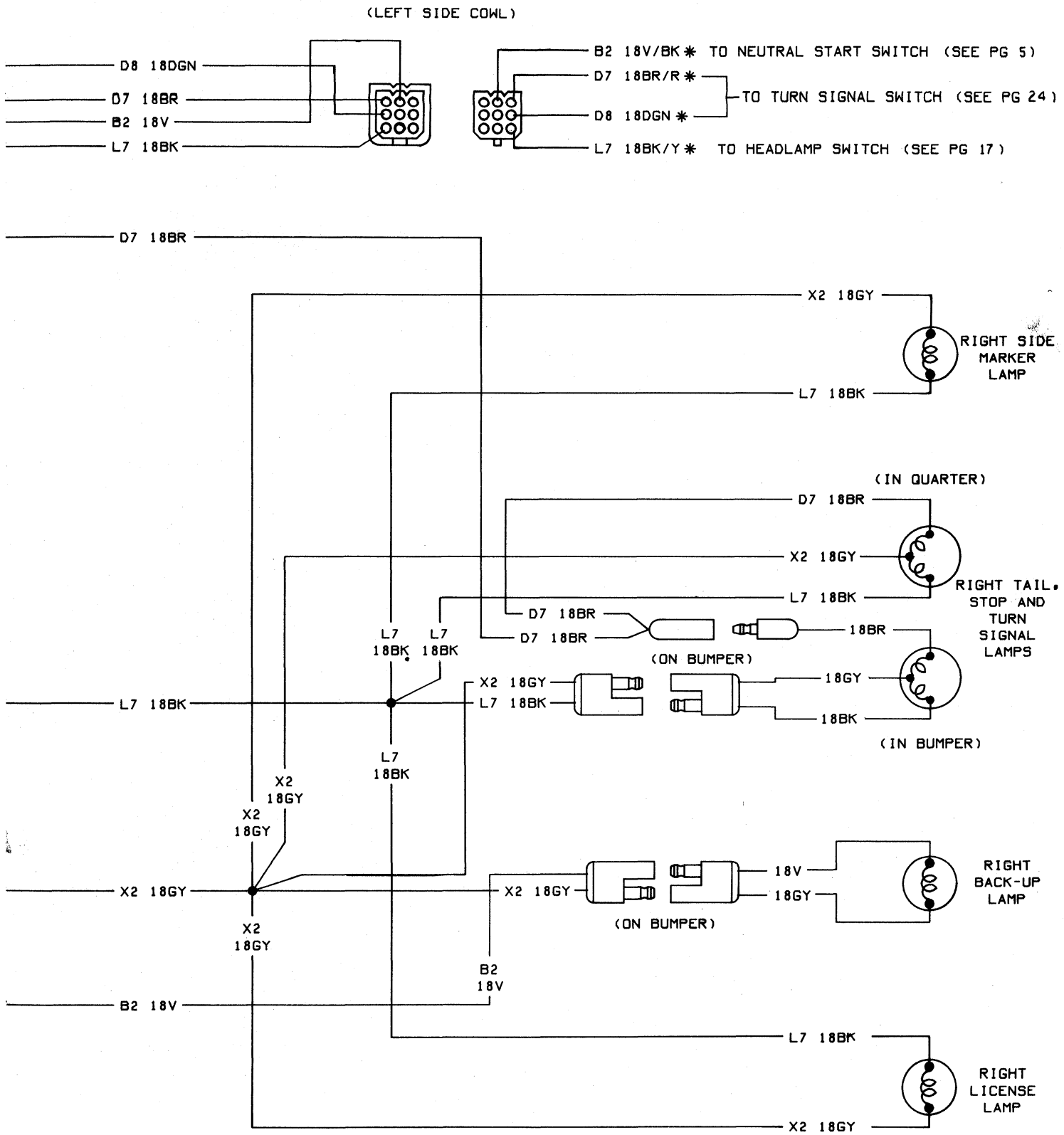


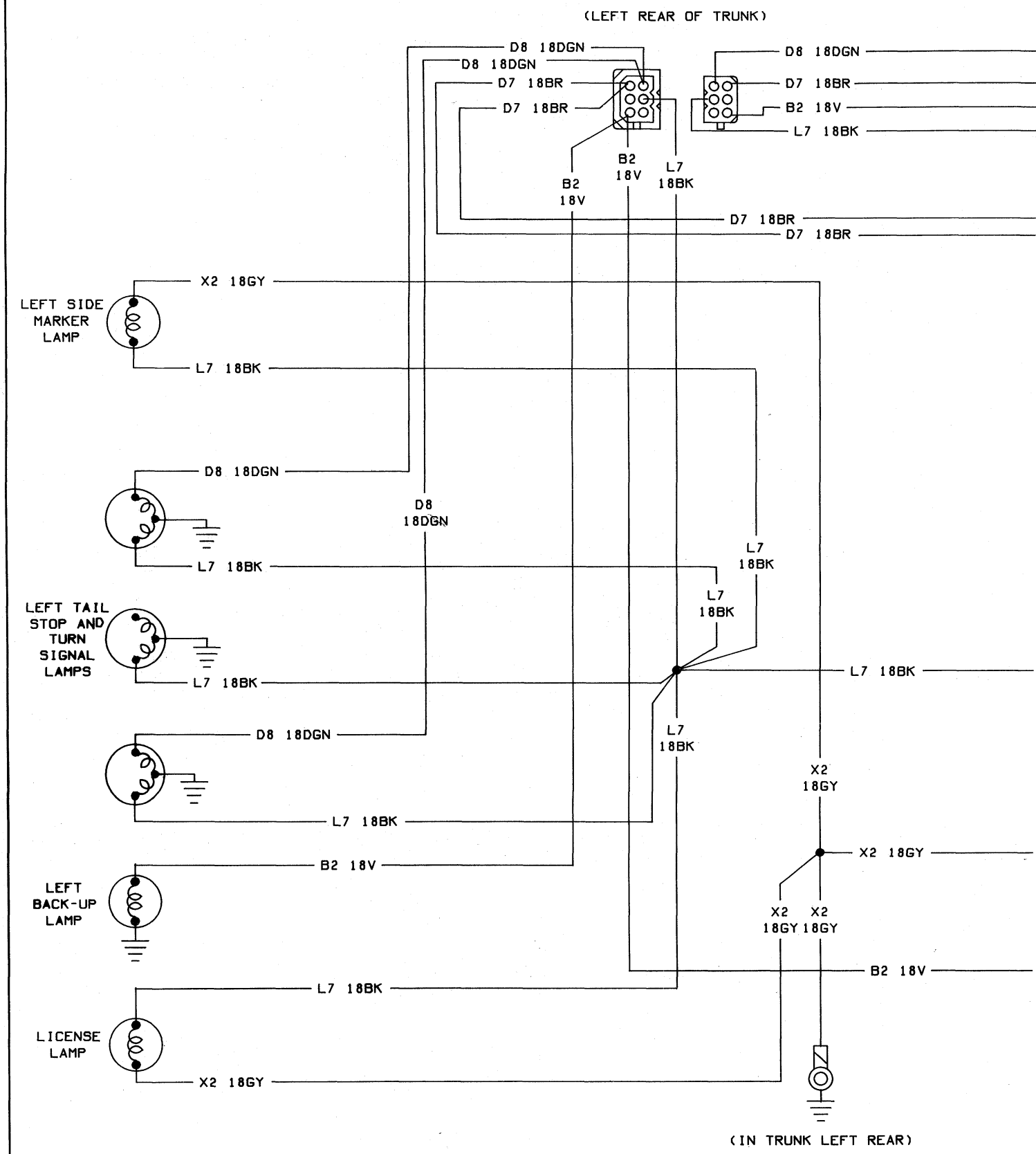
C63 DECK LID RELEASE SYSTEM PR4

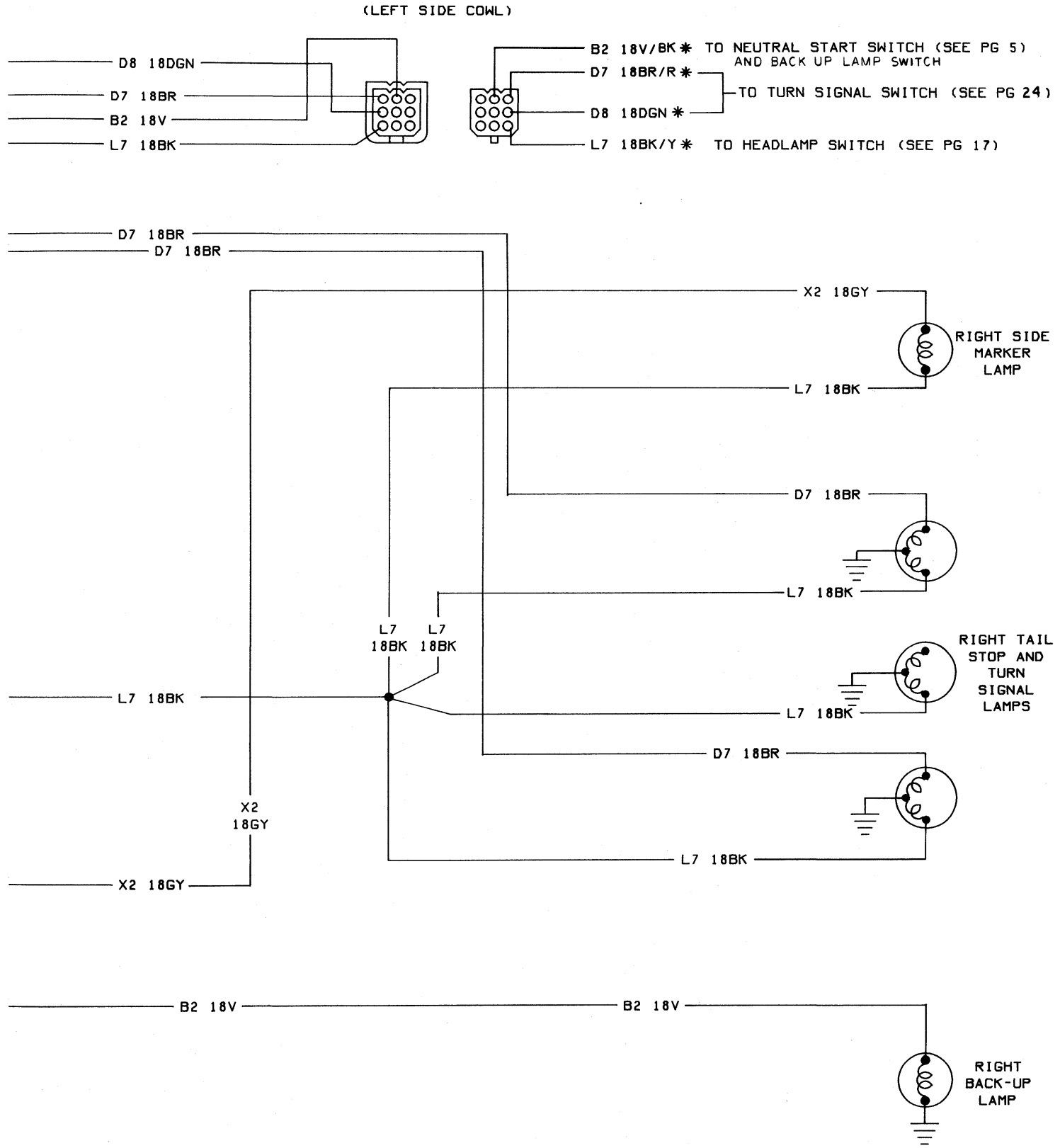

TO POWER ASSIST SYSTEM
(SEE PG.40)
W1
12T
(LEFT SIDE COWL)
12R
12R
14R/BK*
14R/Y*
LEFT SIDE COWL
14R/BK*
14R/Y*
SUN ROOF SWITCH
14R/Y*
14R/BK*
TO WINDOW LIFT SYSTEM
(SEE PGS.55,56)
SUN ROOF MOTOR

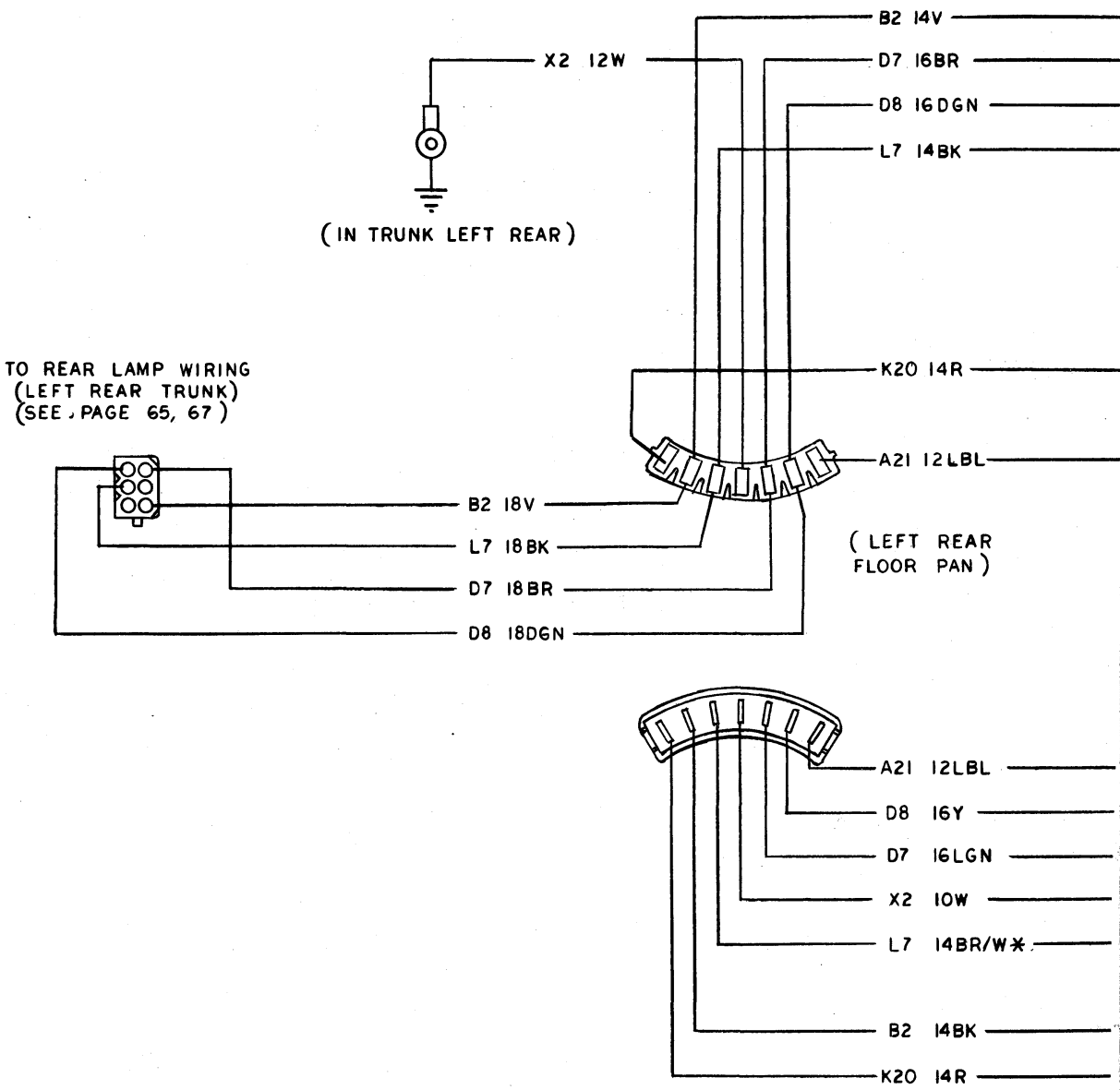


C65 CS/23-43 REAR LIGHTING PP4

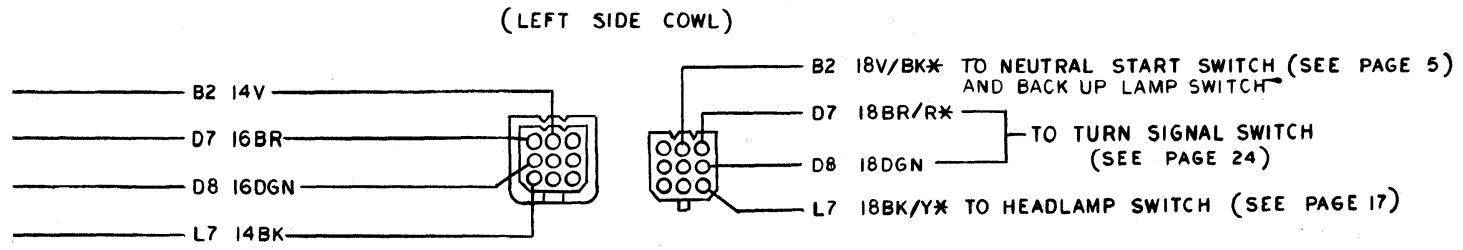

(LEFT SIDE COWL)
D8 18DGN
D7 18BR
B2 18V
L7 18BK
B2 18V/BK * TO NEUTRAL START SWITCH (SEE PG 5)
D7 18BR/R *
D8 18DGN *
TO TURN SIGNAL SWITCH (SEE PG 24)
L7 18BK/Y * TO HEADLAMP SWITCH (SEE PG 17)
D7 18BR
X2 18GY
RIGHT SIDE MARKER LAMP
L7 18BK
(IN QUARTER)
D7 18BR
X2 18GY
L7 18BK
RIGHT TAIL, STOP AND TURN SIGNAL LAMPS
D7 18BR
18BR
(ON BUMPER)
18GY
18BK
(IN BUMPER)
L7 18BK
L7 18BK
L7 18BK
X2 18GY
L7 18BK
L7 18BK
X2 18GY
X2 18GY
X2 18GY
X2 18GY
X2 18GY
(ON BUMPER)
18V
18GY
RIGHT BACK-UP LAMP
B2 18V
B2 18V
L7 18BK
RIGHT LICENSE LAMP
X2 18GY


(LEFT REAR OF TRUNK)
D8 18DGN
D8 18DGN
D7 18BR
D7 18BR
D8 18DGN
D7 18BR
B2 18V
L7 18BK
B2 18V
L7 18BK
B2 18V
D7 18BR
D7 18BR
X2 18GY
LEFT SIDE MARKER LAMP
L7 18BK
D8 18DGN
D8 18DGN
L7 18BK
L7 18BK
L7 18BK
LEFT TAIL STOP AND TURN SIGNAL LAMPS
L7 18BK
L7 18BK
D8 18DGN
L7 18BK
X2 18GY
X2 18GY
B2 18V
LEFT BACK-UP LAMP
X2 18GY X2 18GY
B2 18V
L7 18BK
LICENSE LAMP
X2 18GY
(IN TRUNK LEFT REAR)


(LEFT SIDE COWL)
D8 18DGN
D7 18BR
B2 18V
L7 18BK
B2 18V/BK * TO NEUTRAL START SWITCH (SEE PG 5) AND BACK UP LAMP SWITCH
D7 18BR/R *
TO TURN SIGNAL SWITCH (SEE PG 24)
D8 18DGN *
L7 18BK/Y * TO HEADLAMP SWITCH (SEE PG 17)
D7 18BR
D7 18BR
X2 18GY
RIGHT SIDE MARKER LAMP
L7 18BK
D7 18BR
L7 18BK
L7 18BK
L7 18BK
RIGHT TAIL STOP AND TURN SIGNAL LAMPS
L7 18BK
D7 18BR
X2 18GY
L7 18BK
X2 18GY
B2 18V
B2 18V
RIGHT BACK-UP LAMP



TRAILER TOW WIRING



K20 14R → ELECTRIC TRAILER BRAKE CIRCUIT

A21 12LBL → AUXILIARY BATTERY CHARGING CIRCUIT

UNTERMINATED WIRES LOCATED BEHIND DRIVERS KICK PAD

A21 12LBL — AUXILIARY BATTERY CHARGING

D8 16Y — LEFT STOP AND TURN SIGNAL LAMP

D7 16LGN — RIGHT STOP AND TURN SIGNAL LAMP

X2 10W — GROUND

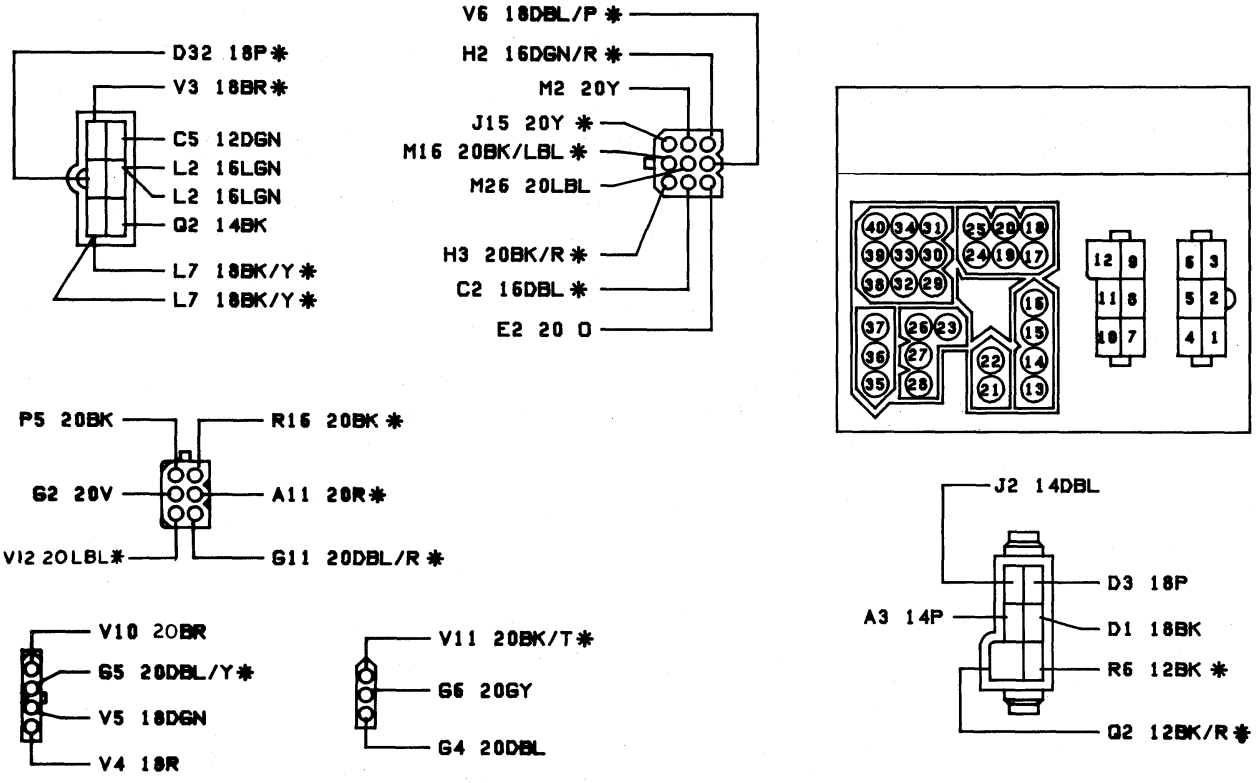
L7 14BR/W* — LICENSE, IDENTIFICATION, CLEARANCE, TAIL AND SIDE MARKER LAMPS

B2 14BK — BACK UP LAMPS

K20 14R — ELECTRIC TRAILER BRAKES

S.C.

LEFT SIDE COWL CONNECTORS



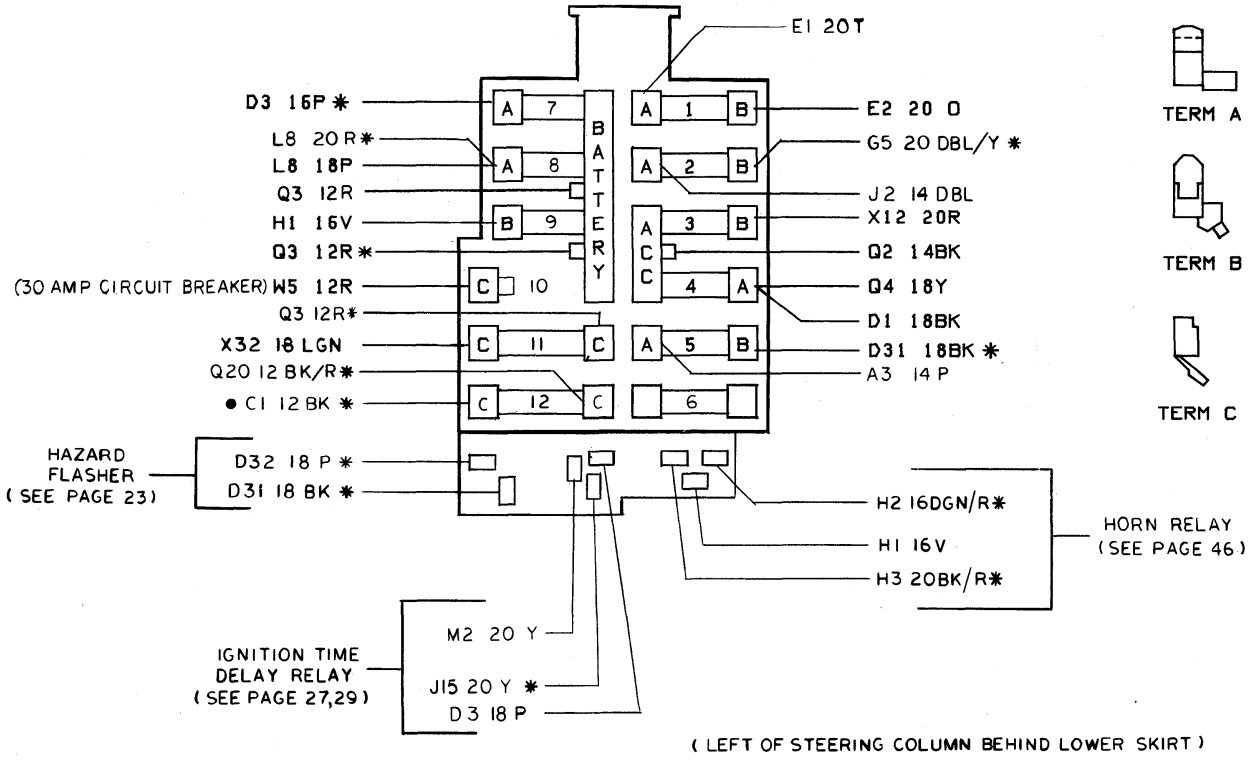
1- L7 18BK/Y* (PARKING,TAIL,SIDE MARKER & LICENSE LAMP)
2- D32 18P* (HAZARD FLASHER)
3- V3 18BR* (WINDSHIELD WIPER)
4- Q2 14BK (ACCESSORY)
5- L2 16LGN (HEADLAMP)
● 6- C5 12DGN (A/C & HEATER BLOWER MOTOR)
7- D3 18P (STOP LAMP SWITCH,KEY-IN & HEADLAMP ON)
8- D1 18BK (TURN SIGNAL & BACK-UP LAMP SWITCH)
9- R6 12BK* (BATTERY)
10- J2 14DBL (IGNITION RUN)
11- A3 14P (HAZARD FLASHER)
12- Q2 12BK/R* (ACCESSORY RUN)
13- V4 18R (WINDSHIELD WIPER)
14- V5 18DGN (WINDSHIELD WIPER)
15- G5 20DBL/Y* (IGNITION RUN)
16- V10 20BR (WINDSHIELD WIPER)
17- P5 20BK (BRAKE SWITCH)
18- R16 20BK* (AMMETER)
19- G2 20V (TEMPERATURE GAUGE)
20- A11 20R* (AMMETER)
21-
22-
23-
24- V12 18LBL* (WINDSHIELD WIPER)
25- G11 20DBL/R* (SEAT BELT LAMP)
26-
27-
28-
29- H2 16DGN/R* (HORN)
30- V6 18DBL/P* (WINDSHIELD WIPER)
31- E2 20 O (CLUSTER LAMPS)
32- M2 20Y (DOOR SWITCH)
33- M26 20LBL (HEADLAMP-ON BUZZER)
34- C2 18DBL* (A/C CLUTCH)
35- V11 20BK/T* (LOW WASHER FLUID LEVEL LP)
36- G6 20GY (OIL GAUGE)
37- G4 20DBL (FUEL GAUGE)
38- J15 20Y* (IGNITION SWITCH)
39- M16 20BK/LBL* (DOOR SWITCH)
40- H3 20BK/R* (HORN RELAY GROUND)

● - 14DGN HEATER OR ATC

F.B.

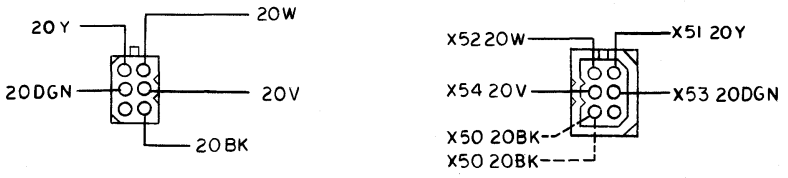
FUSEBLOCK

● - 14BK * HEATER OR ATC



(LEFT OF STEERING COLUMN BEHIND LOWER SKIRT)

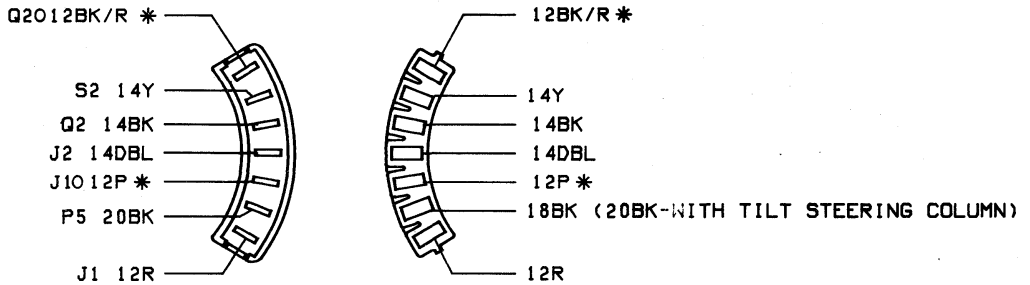
CON 1



(FORWARD OF RADIO)

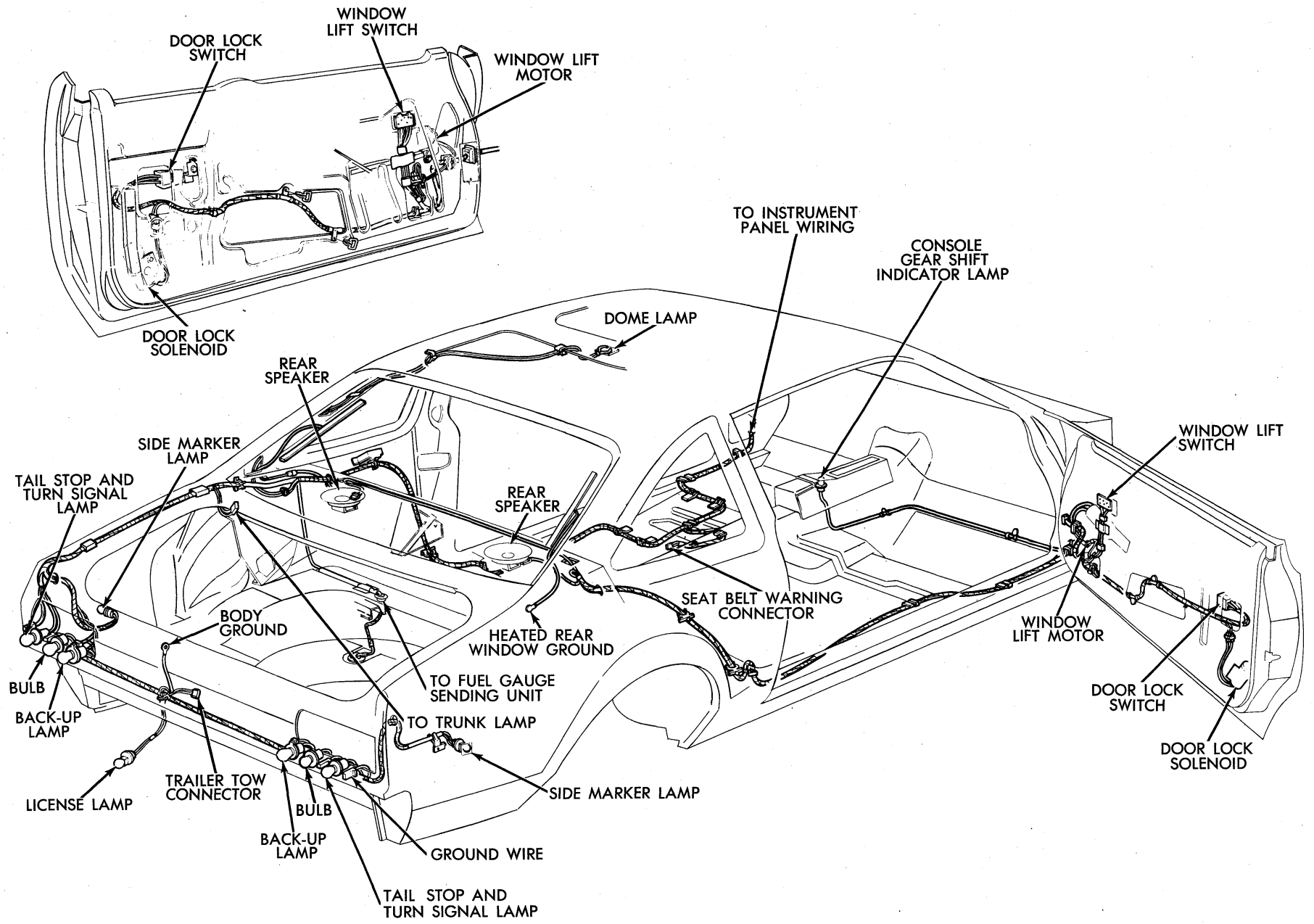
CON 2

STARTER AND IGNITION SWITCH CONNECTOR

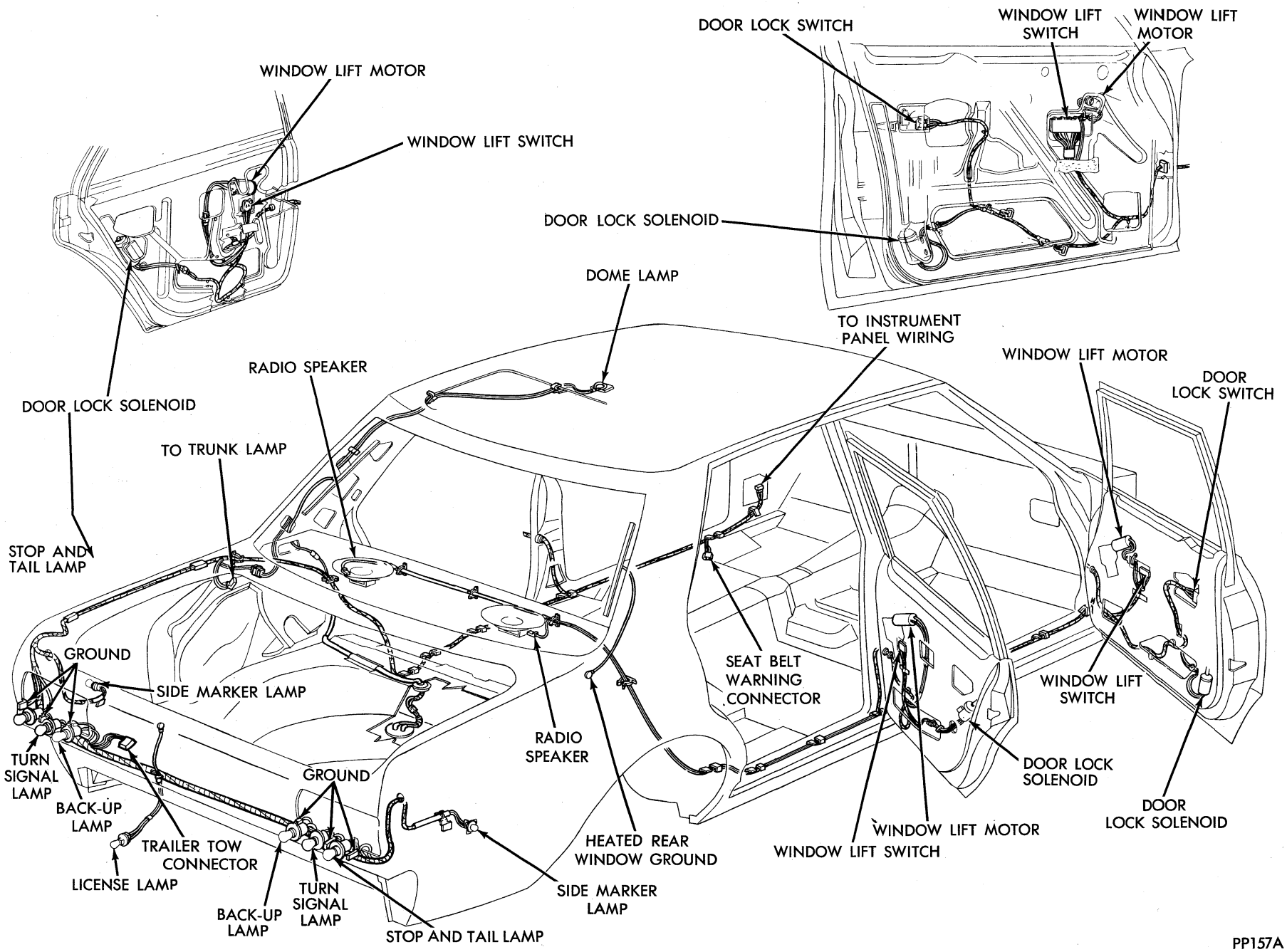


(LEFT OF STEERING COLUMN)

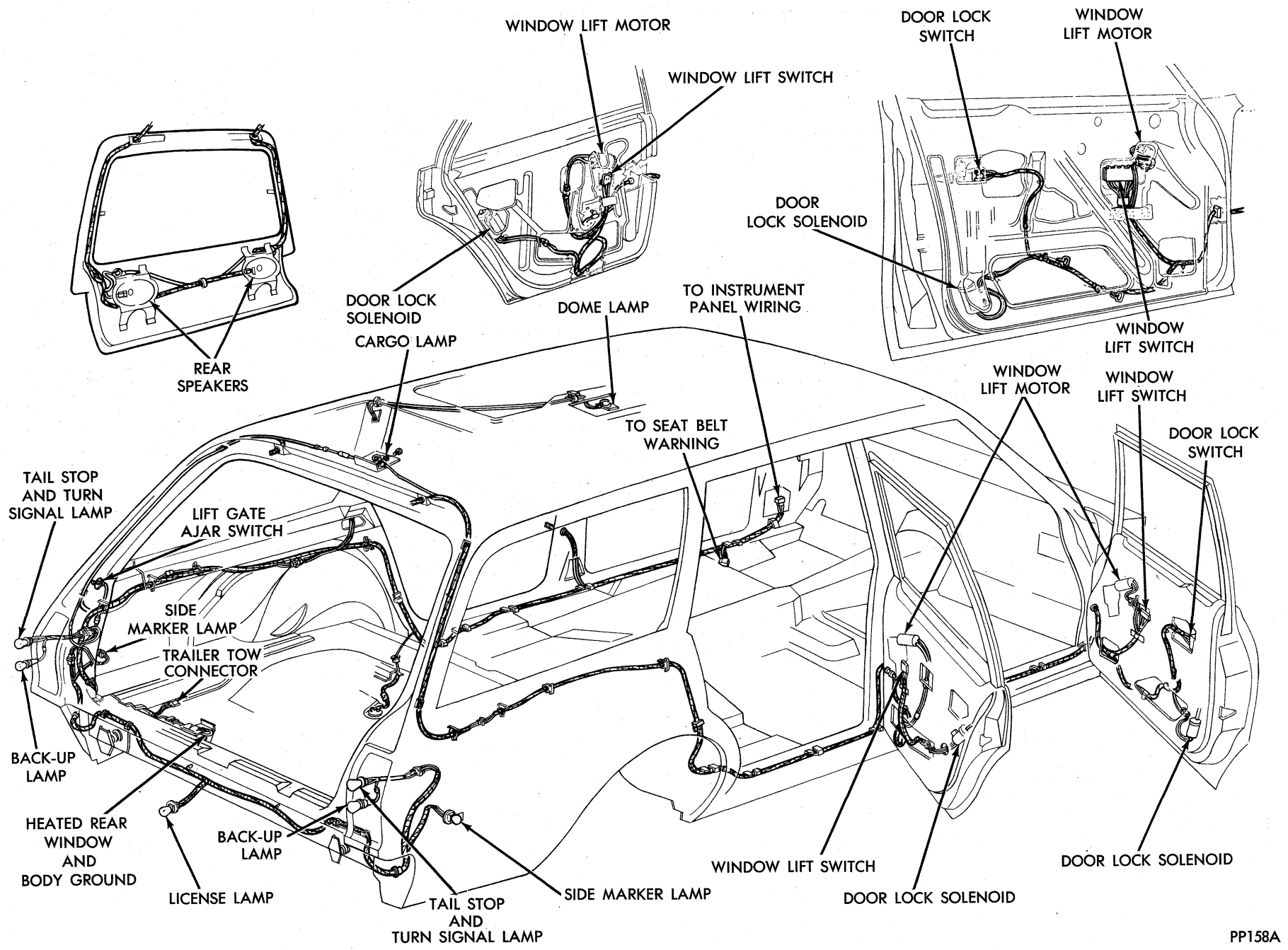
CONNECTOR PAGE



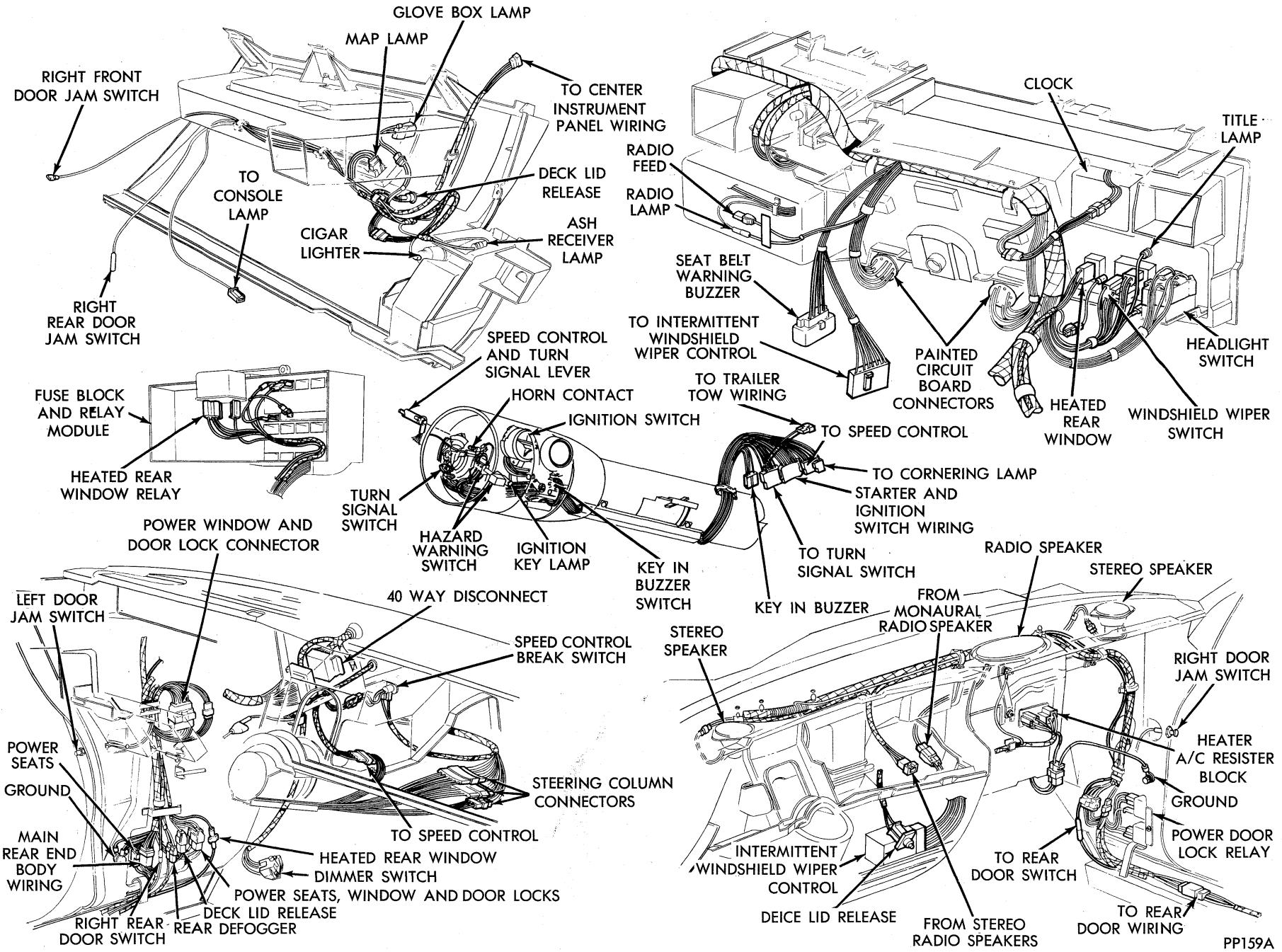
Body Compartment Electrical Component Identification (H-N-2 Dr.)



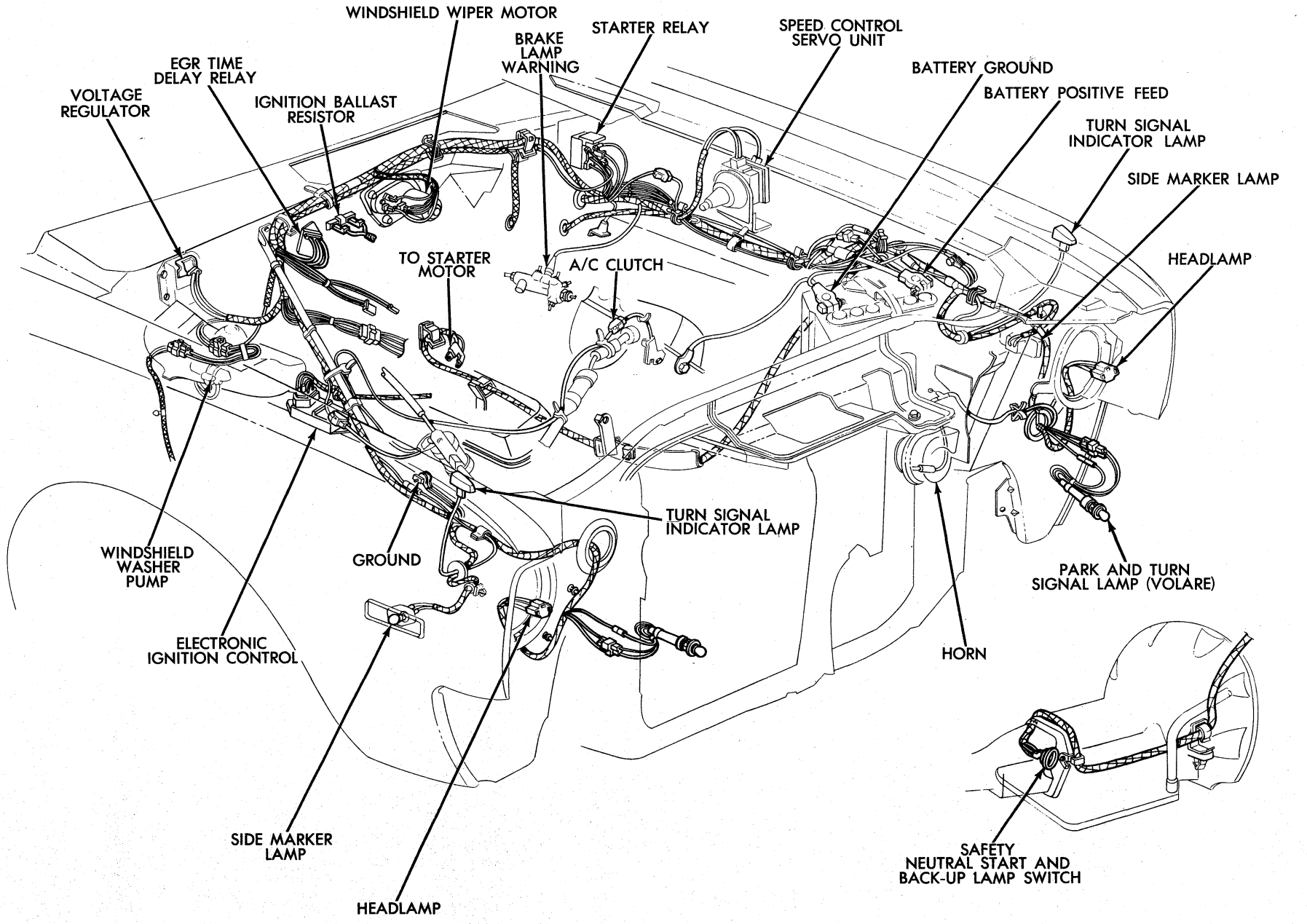
Body Compartment Electrical Component Identification (H-N-4 Dr.)



Body Compartment Electrical Component Identification (H-N-Station Wagon)

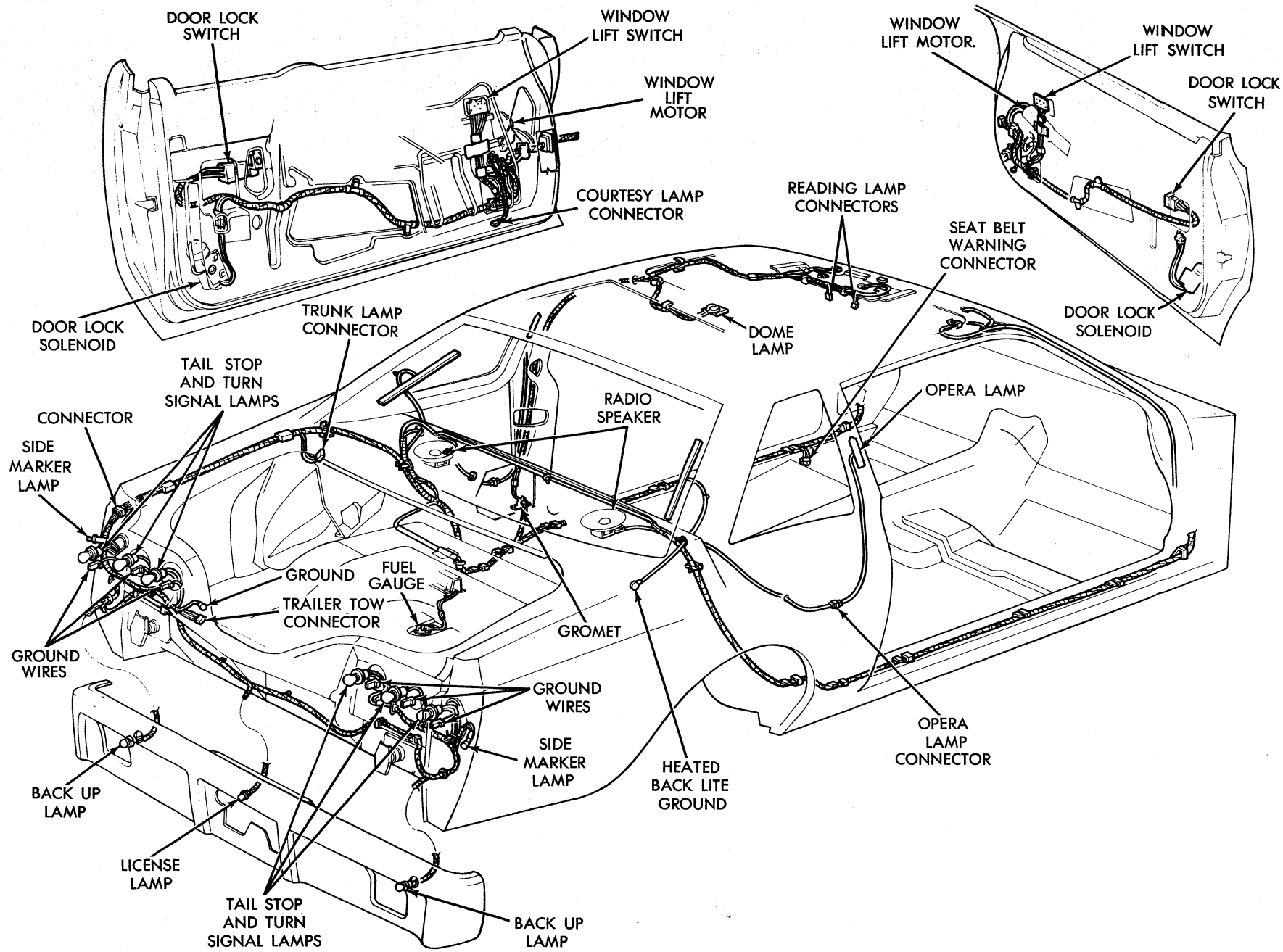


Instrument Panel Electrical Component Identification (H-N)



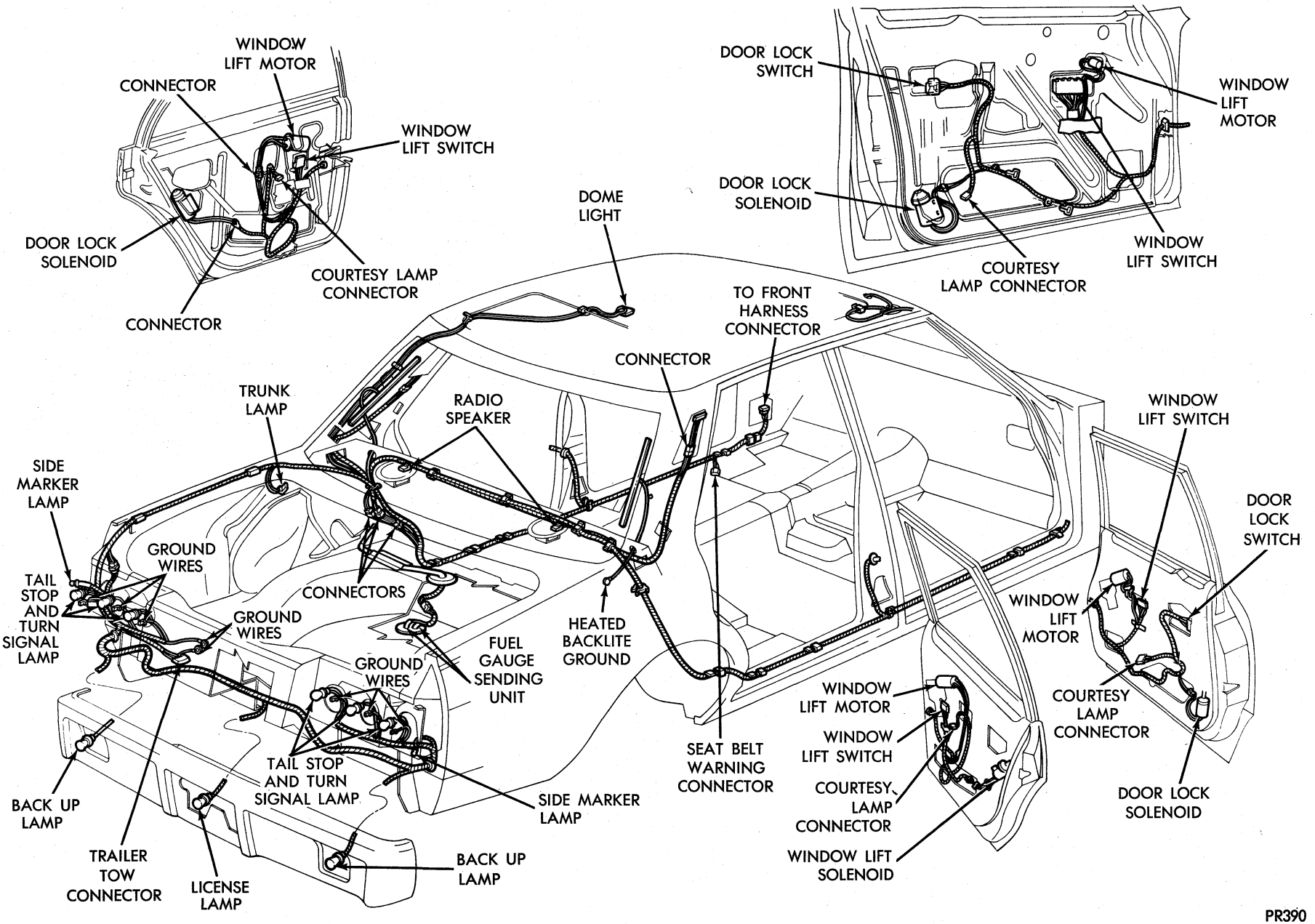
PP160A

Engine Compartment Electrical Component Identification (H-N)

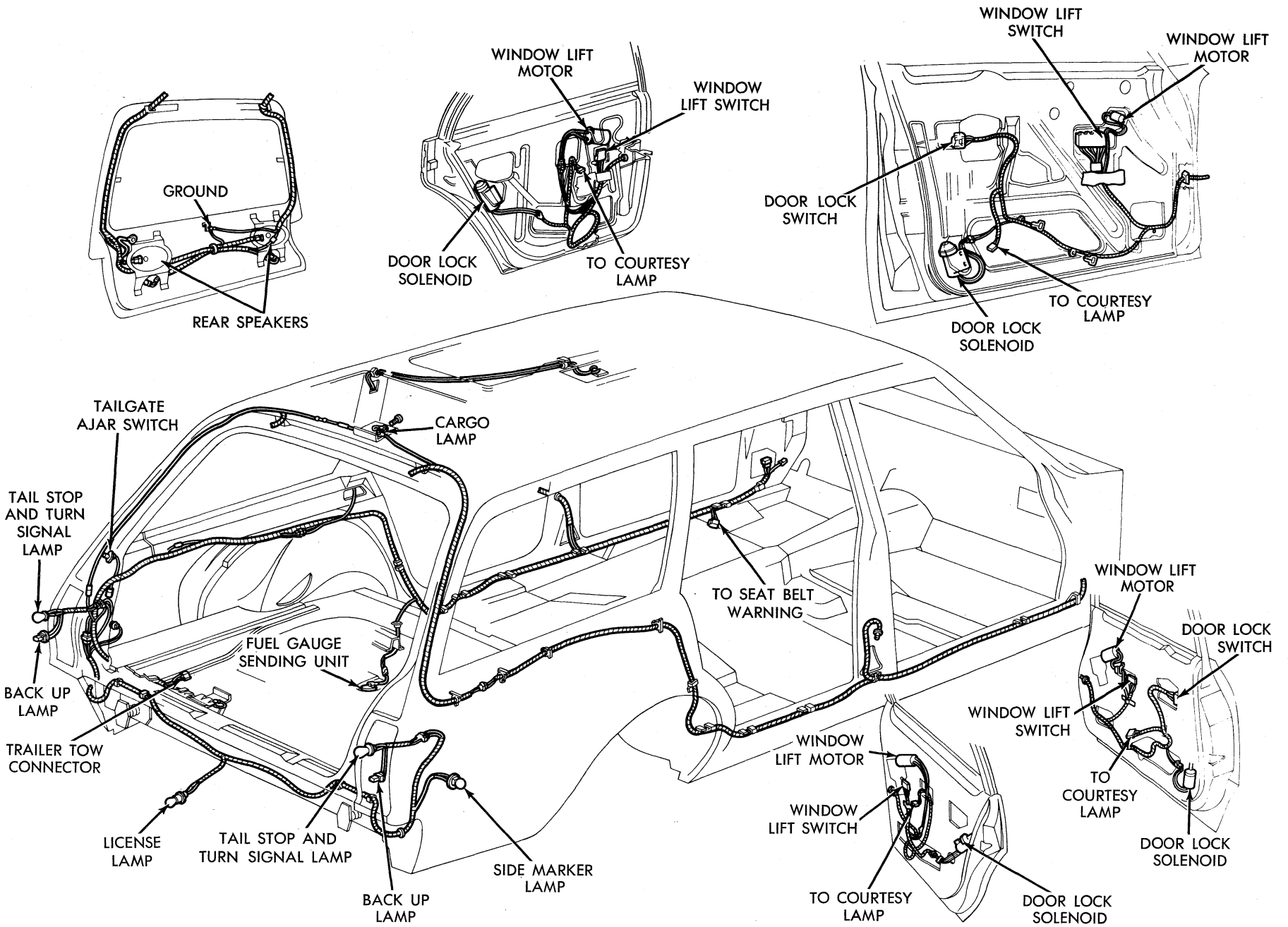


PR389

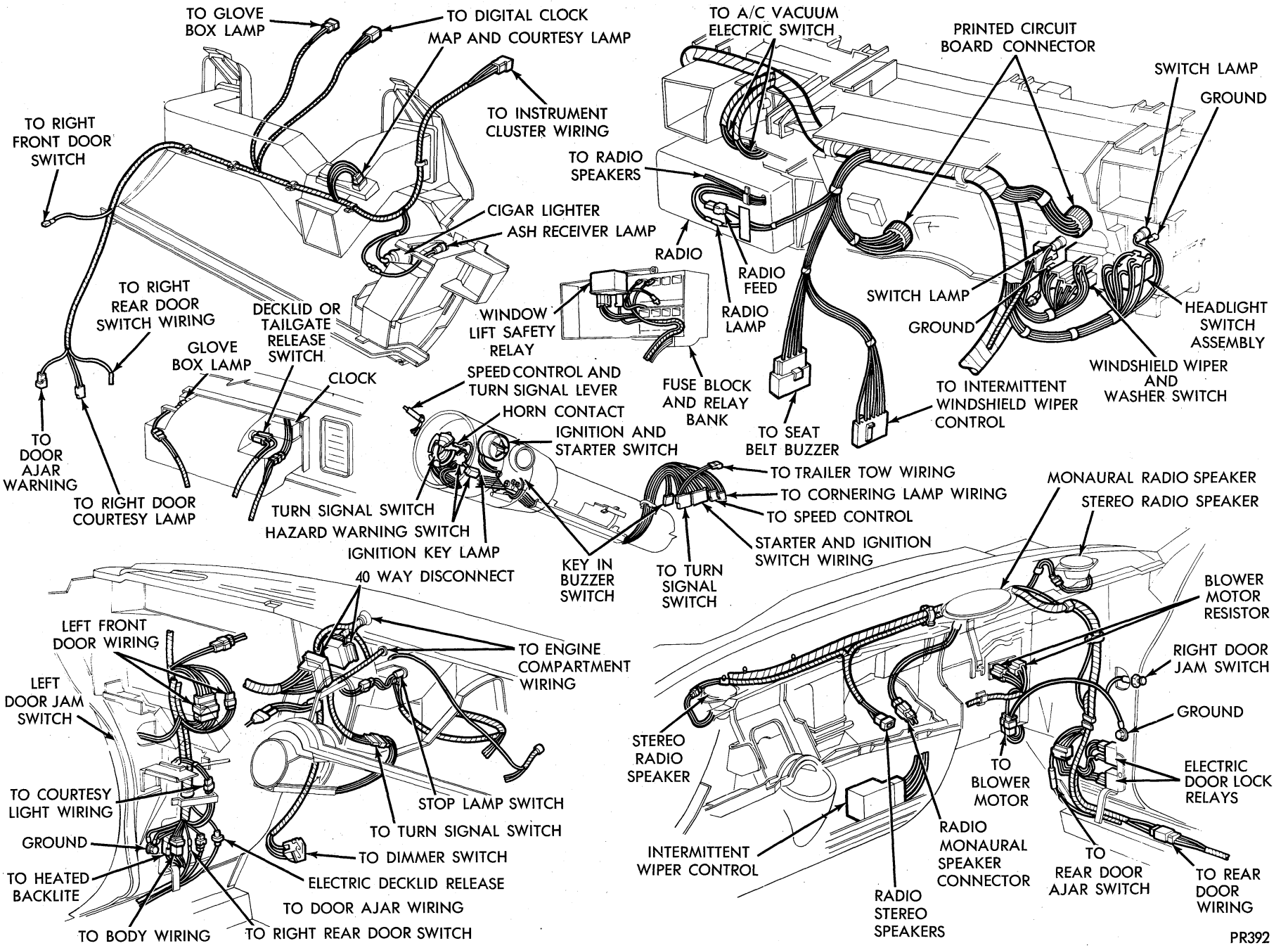
Body Compartment Electrical Component Identification (F-G 2 Dr.)



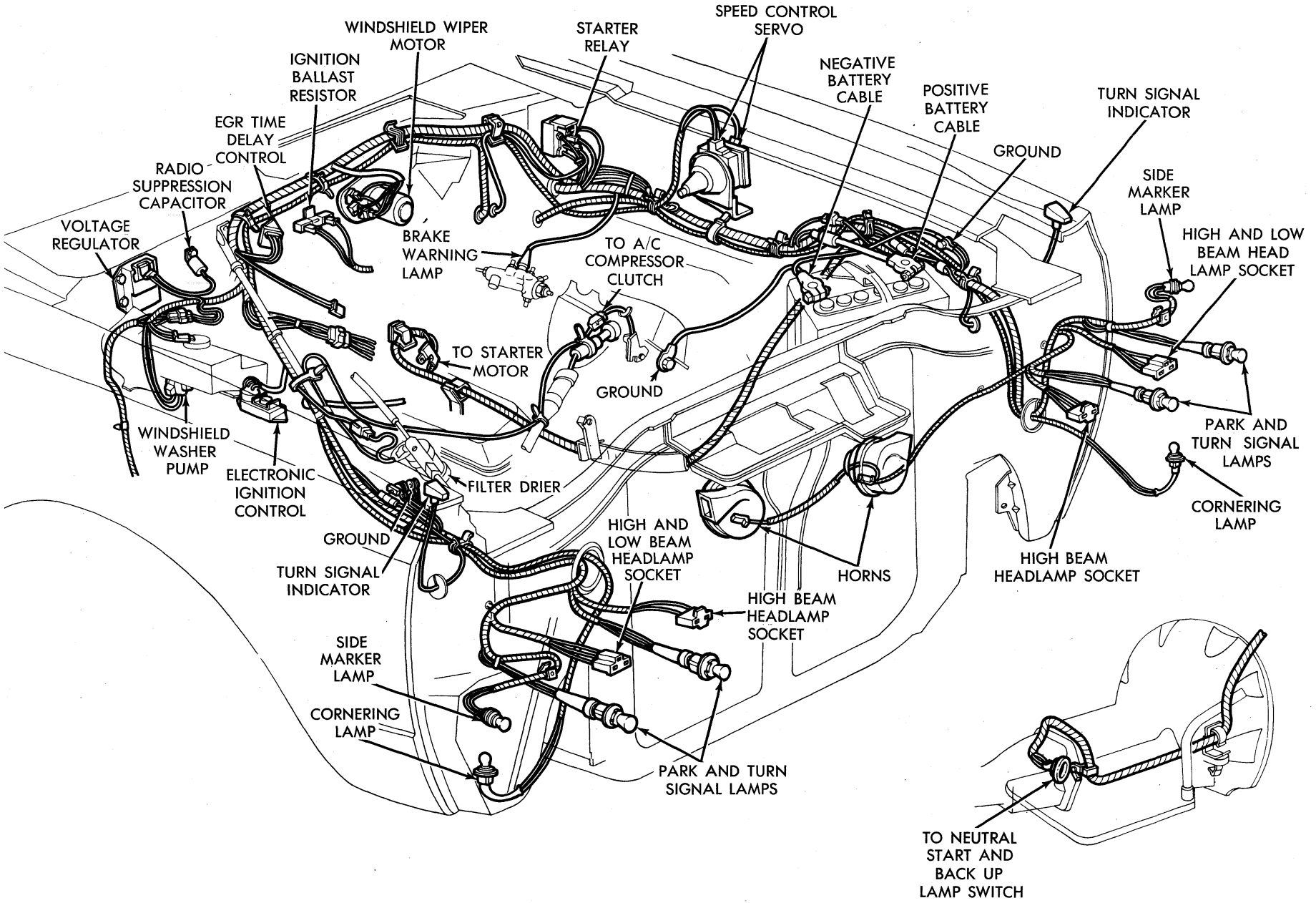
Body Compartment Electrical Component Identification (F-G 4 Dr.)



Body Compartment Electrical Component Identification (F-G Station Wagon)

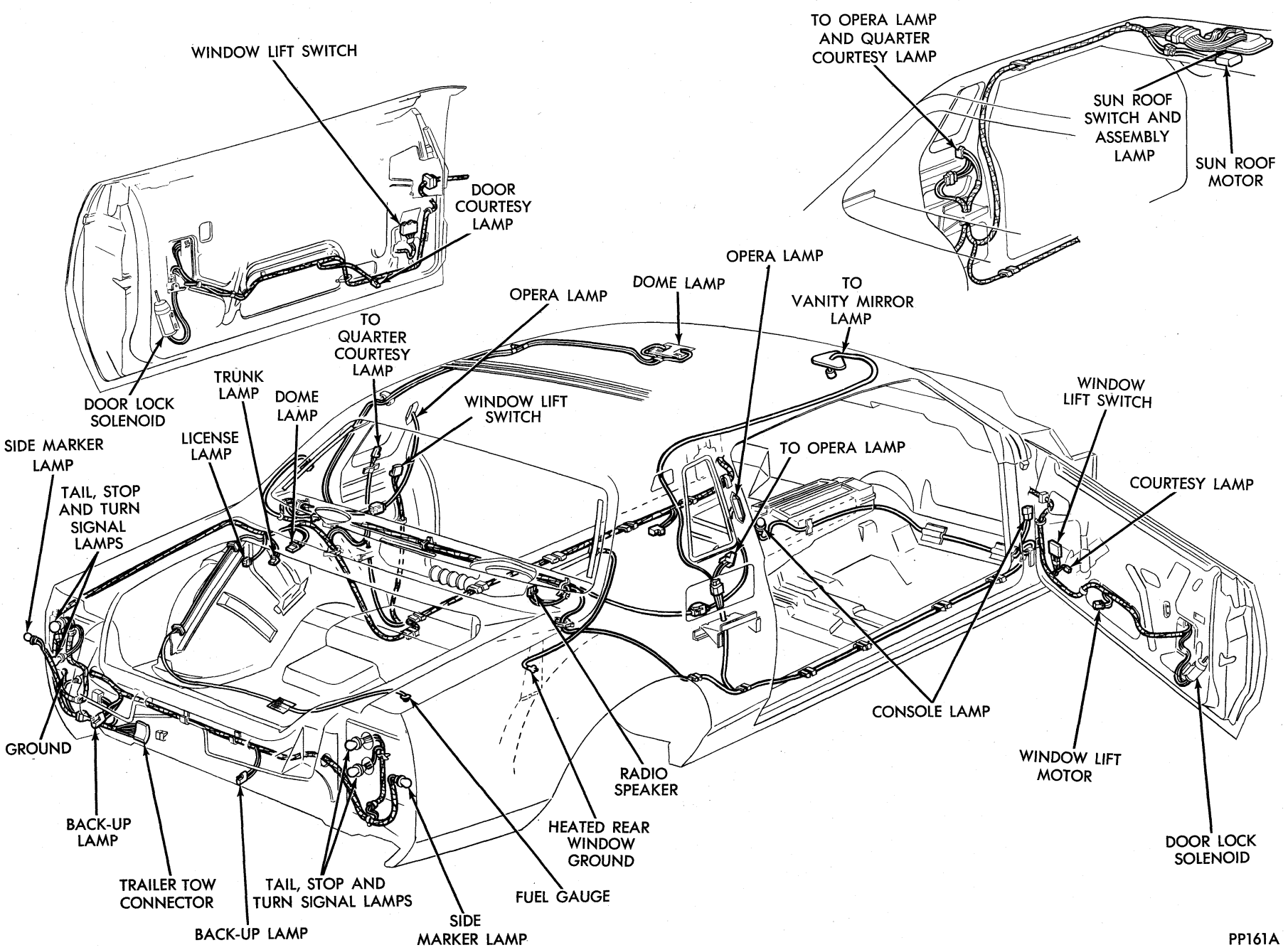


Instrument Panel Electrical Component Identification (F-G)

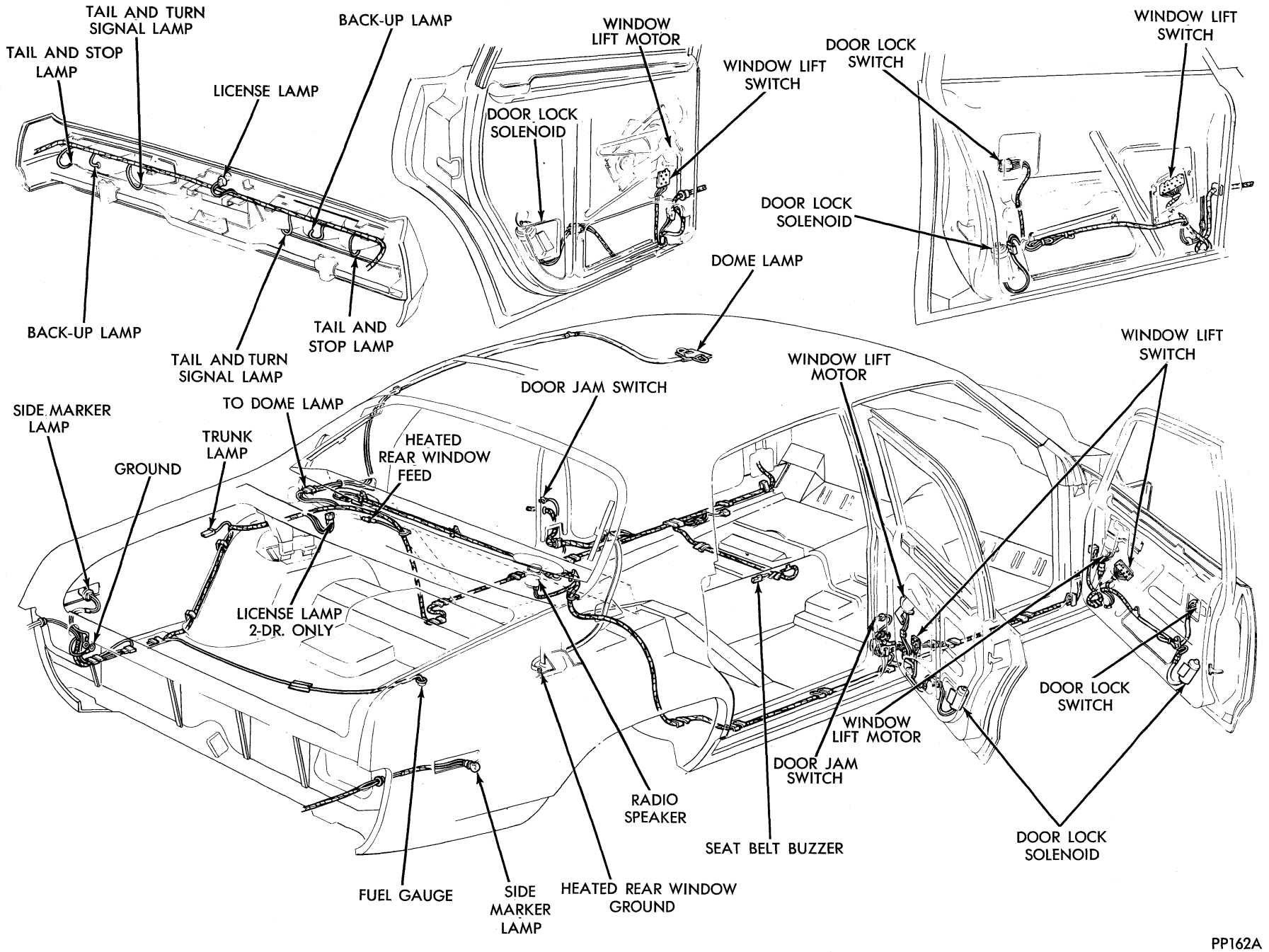


PR393

Engine Compartment Electrical Component Identification (F-G)

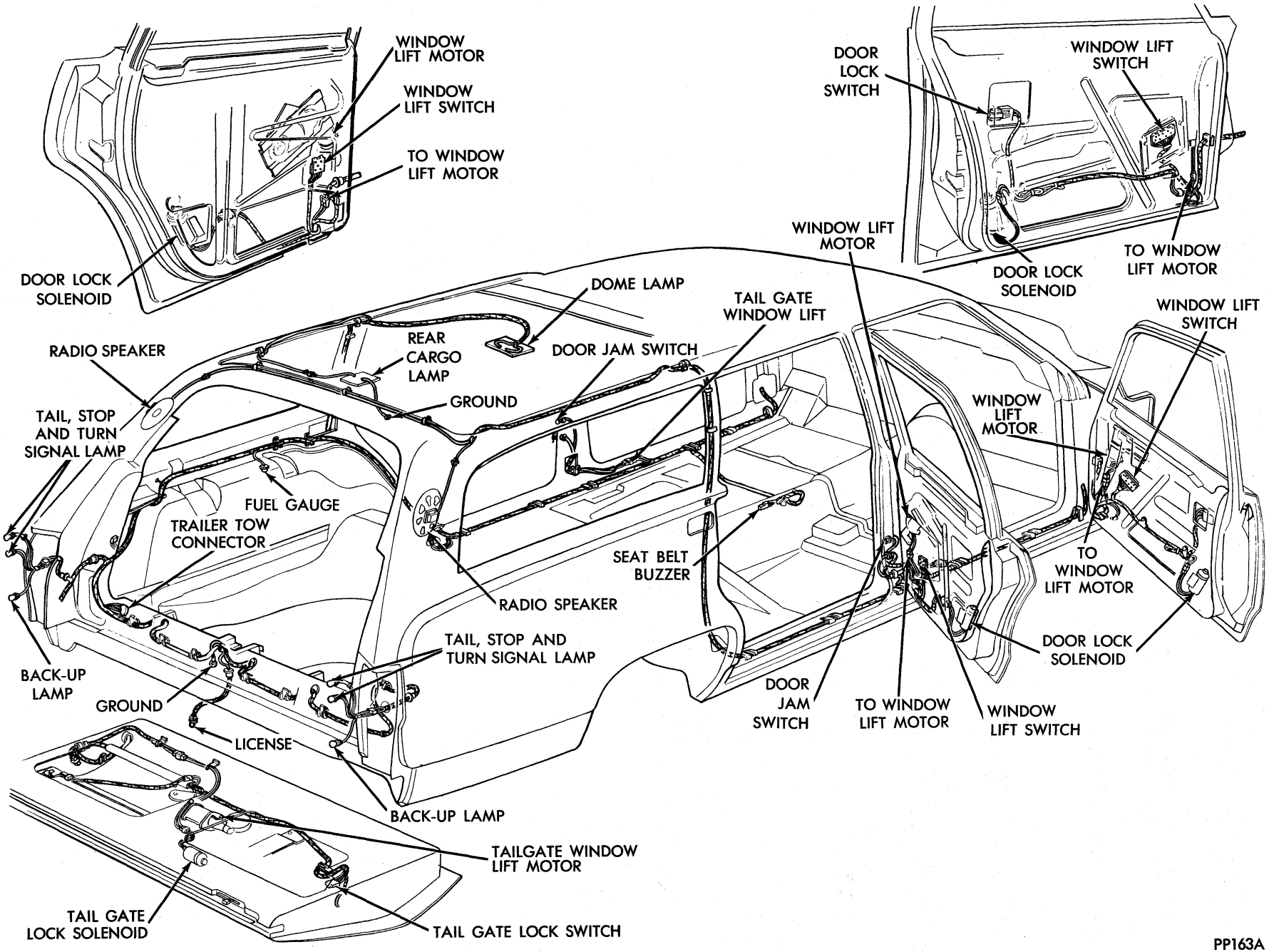


Body Compartment Electrical Component Identification (R-W-S-X 2 Dr.)

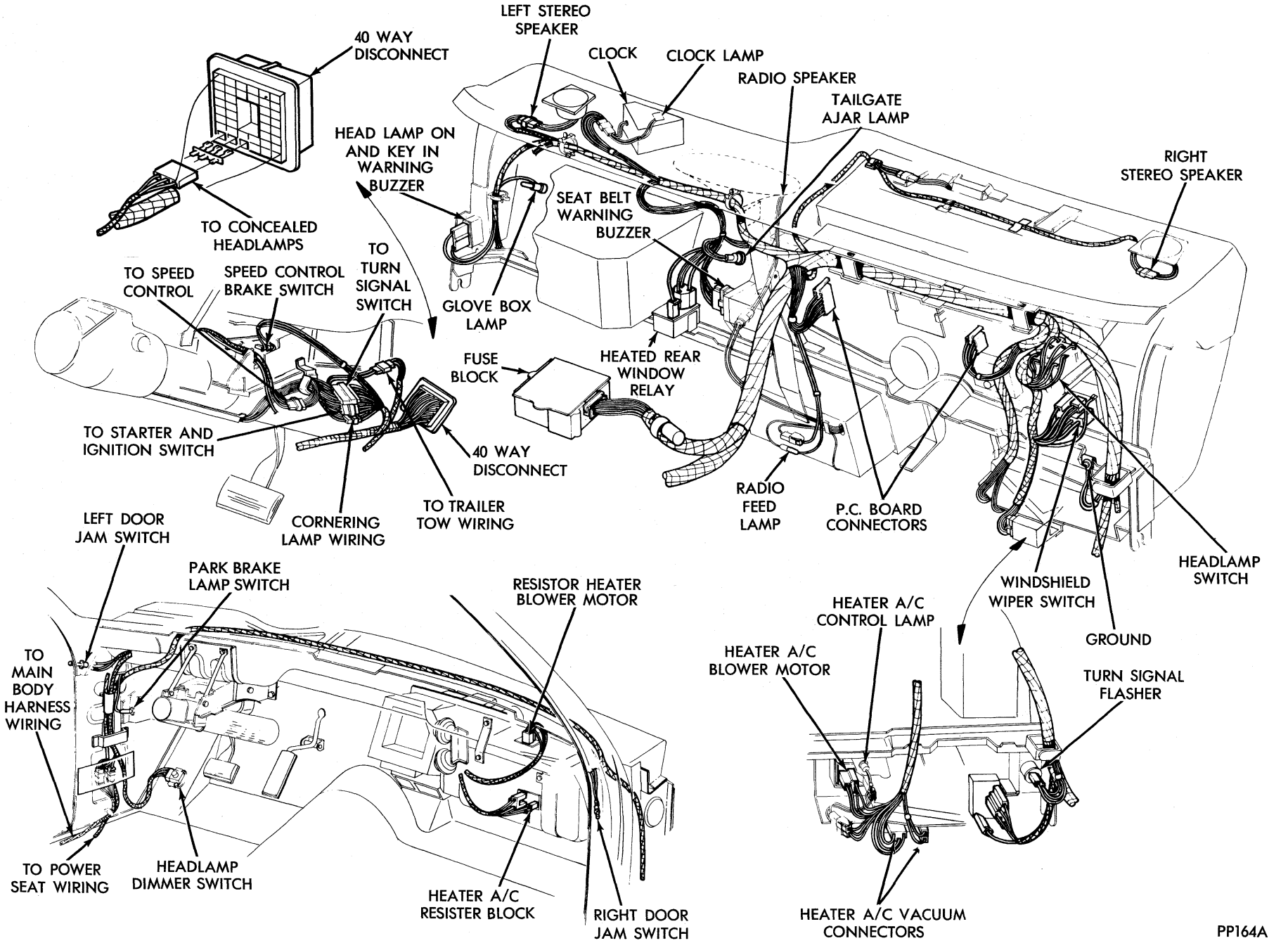


PP162A

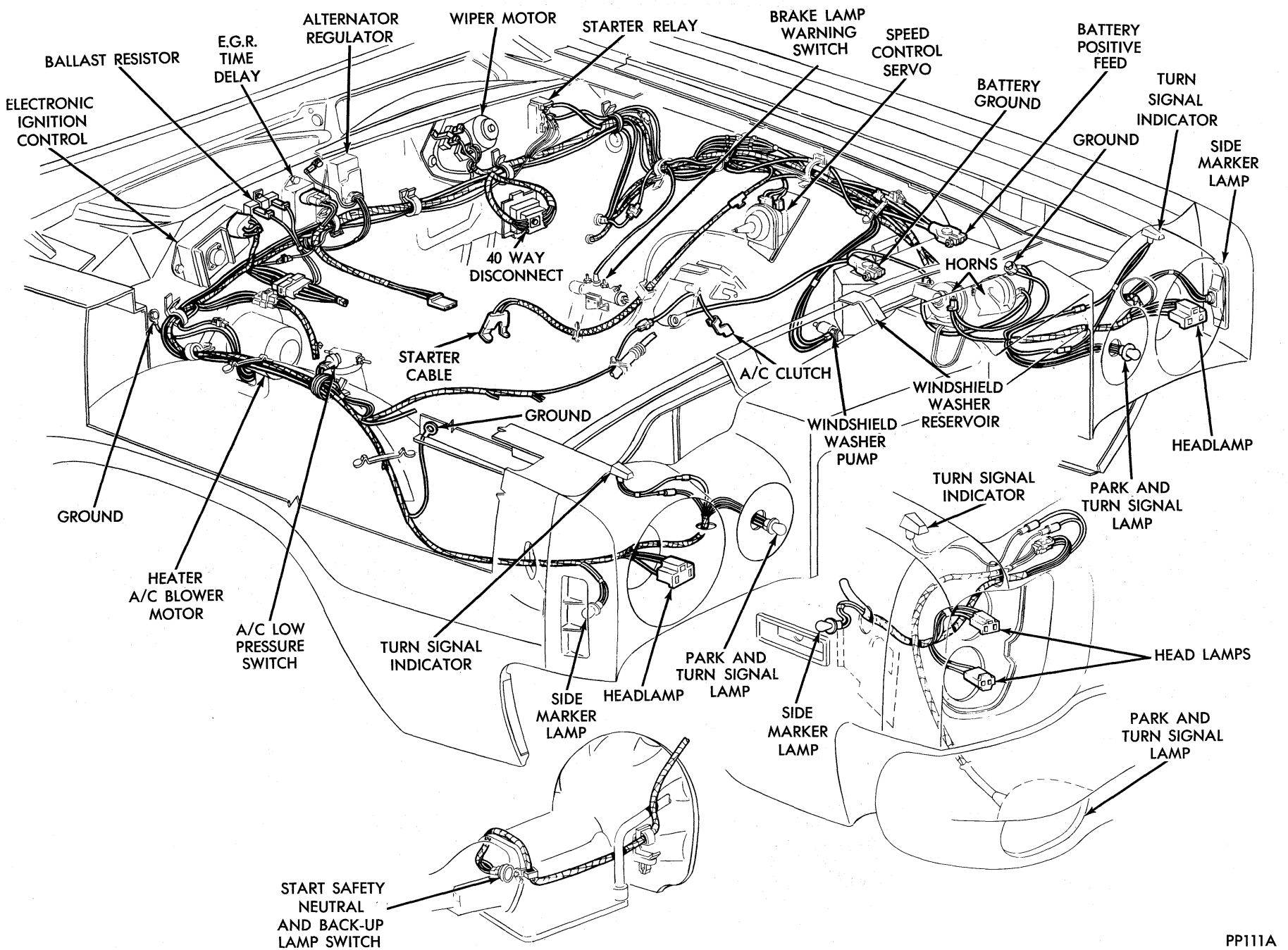
Body Compartment Electrical Component Identification (R-W-S-X-4 Dr.)



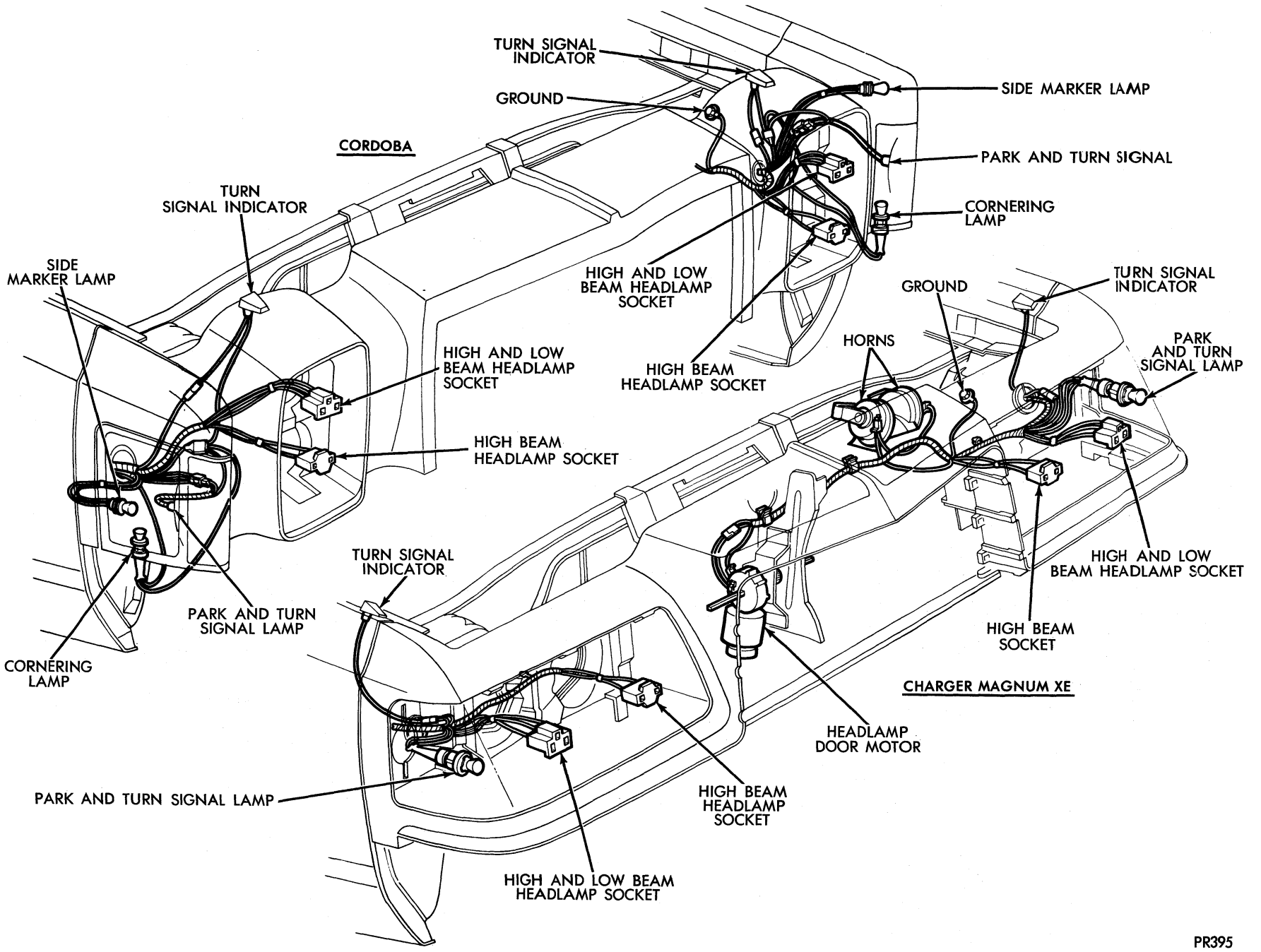
Body Compartment Electrical Component Identification (R-W-S-X-Station Wagon)



Instrument Panel Electrical Component Identification (R-W-S-X)

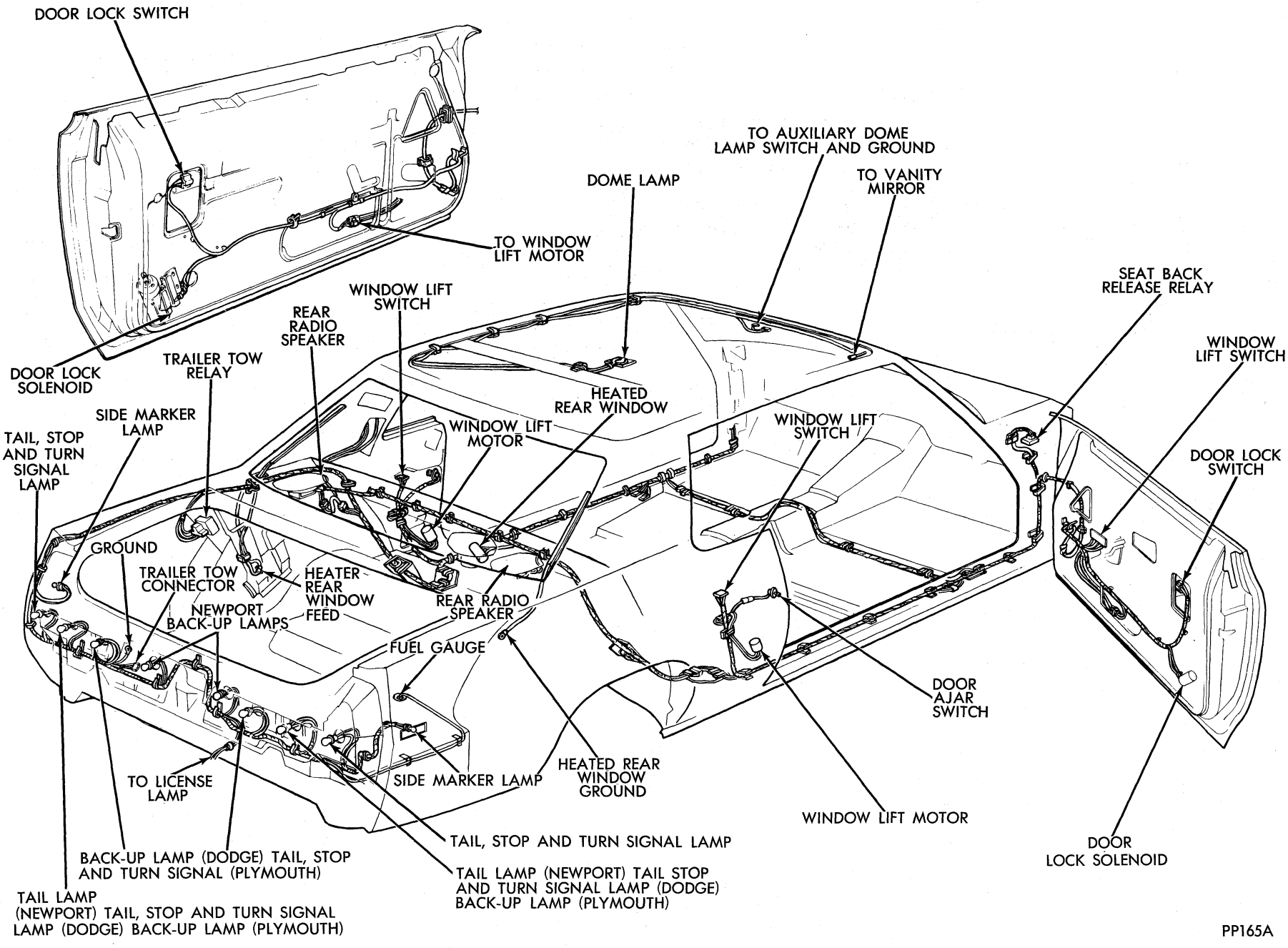


Engine Compartment Electrical Component Identification (R-W-S-X)

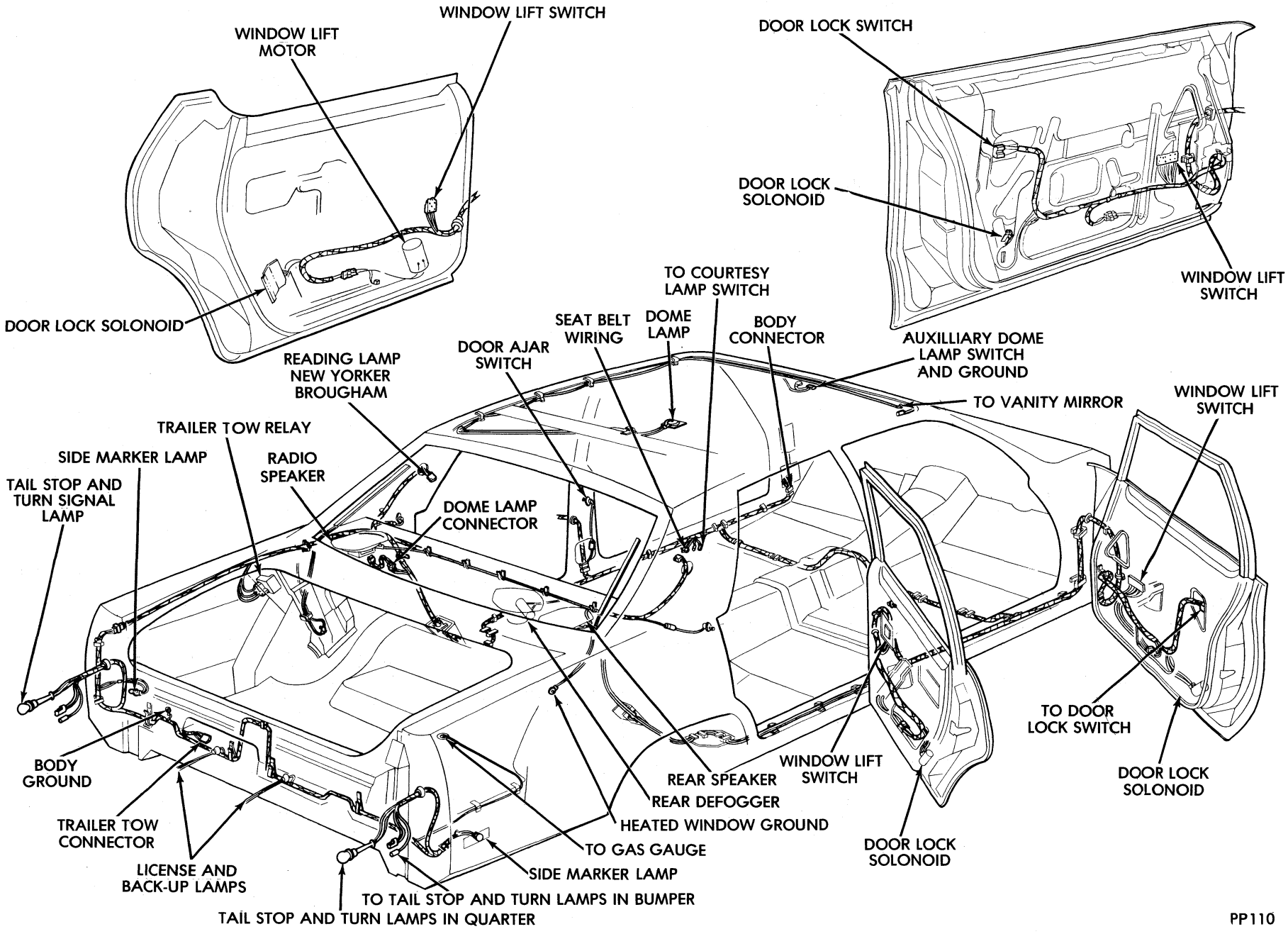


PR395

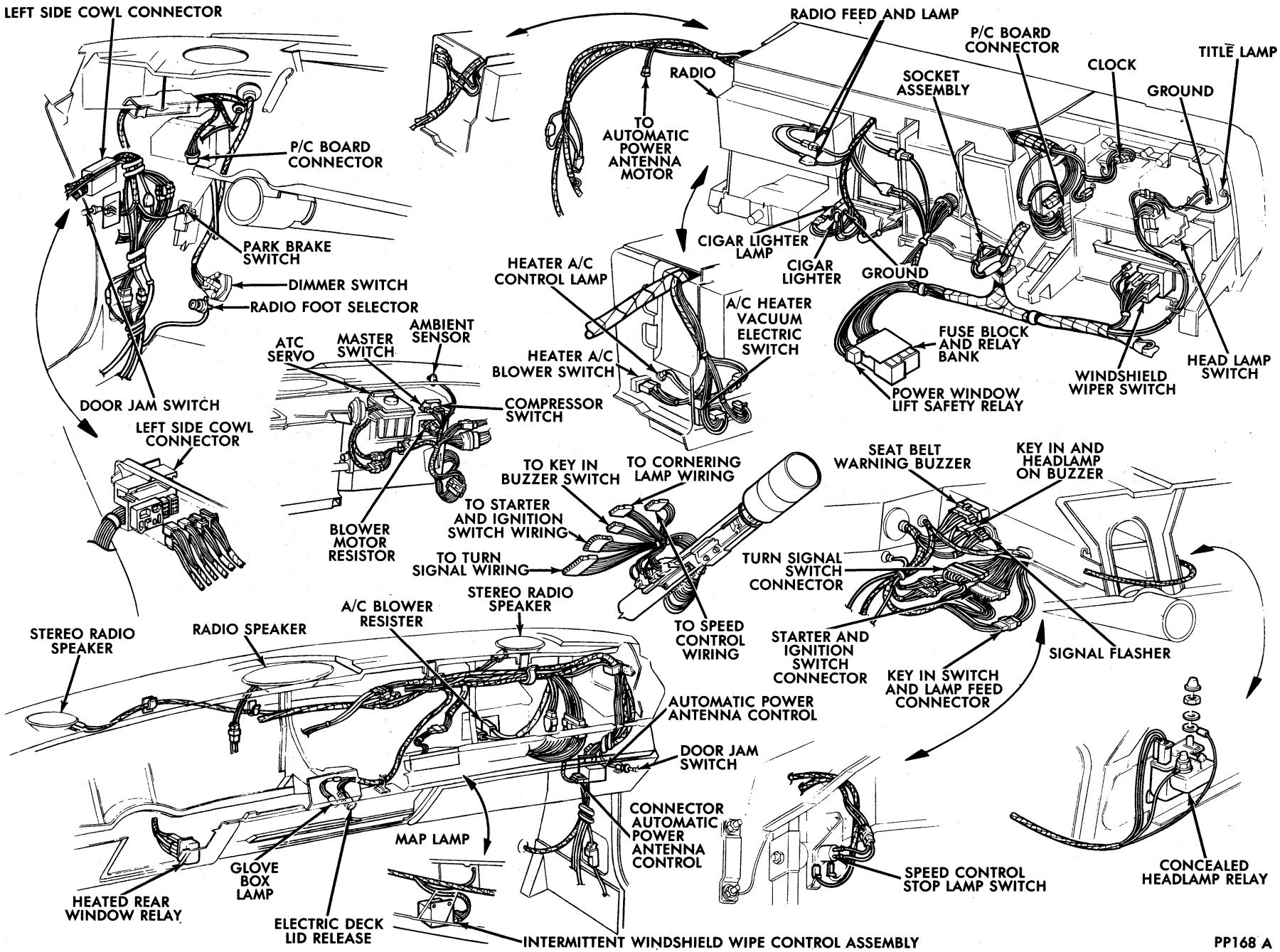
Front End Electrical Components (XE-S)



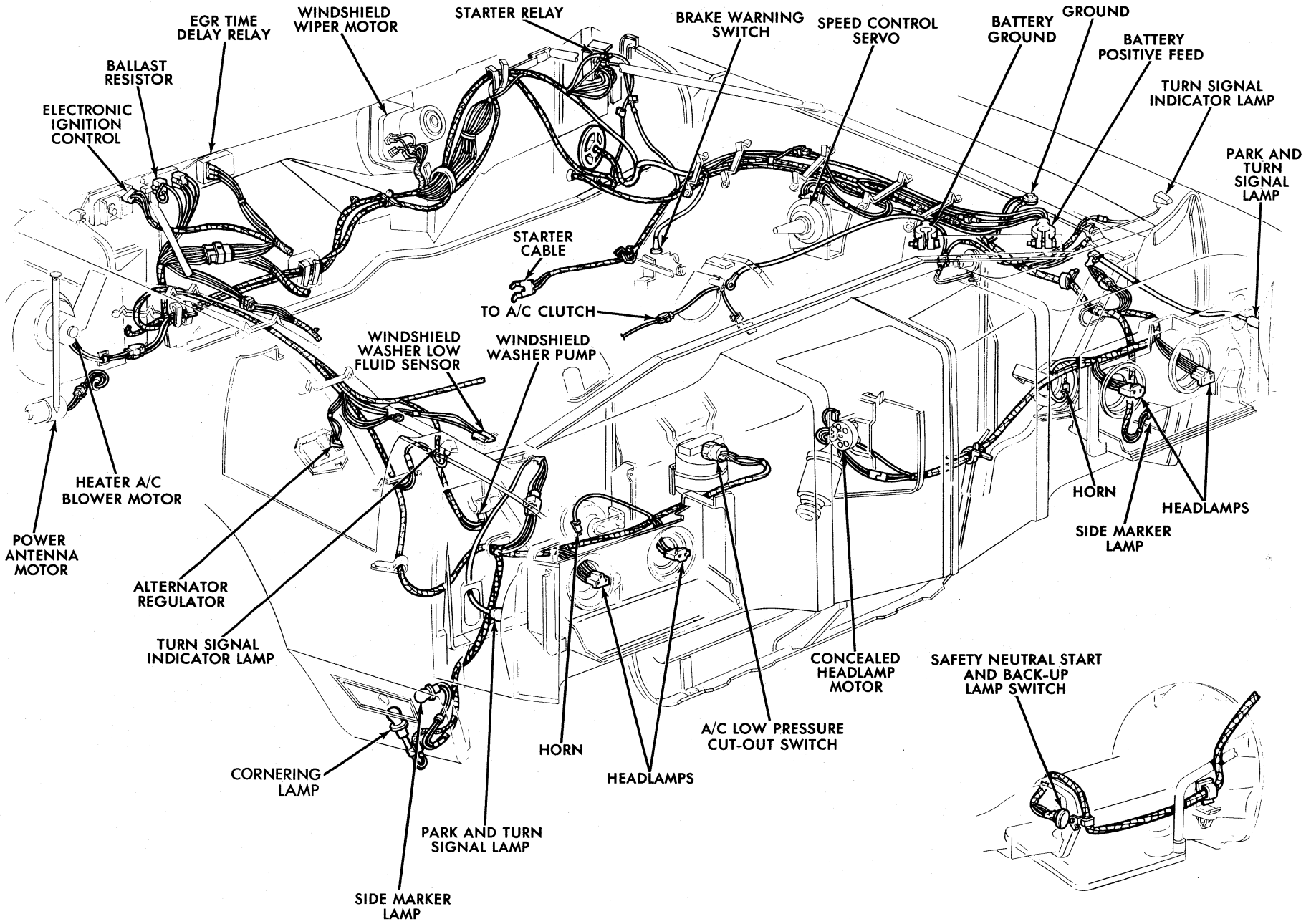
Body Compartment Electrical Component Identification (Carline C 2 Dr.)



Body Compartment Electrical Component Identification (Carline C 4 Dr.)

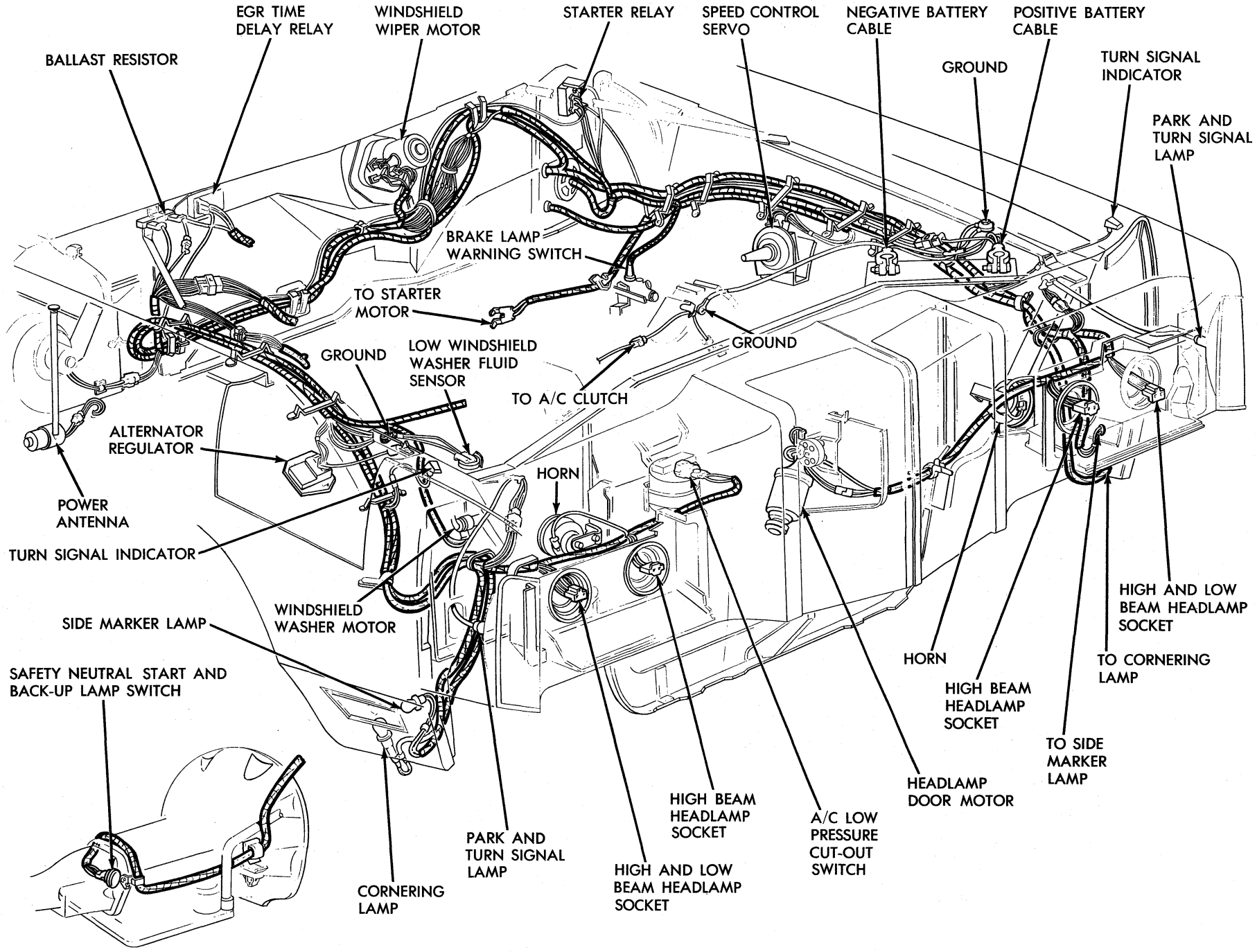


Instrument Panel Electrical Component Identification (Carline C)



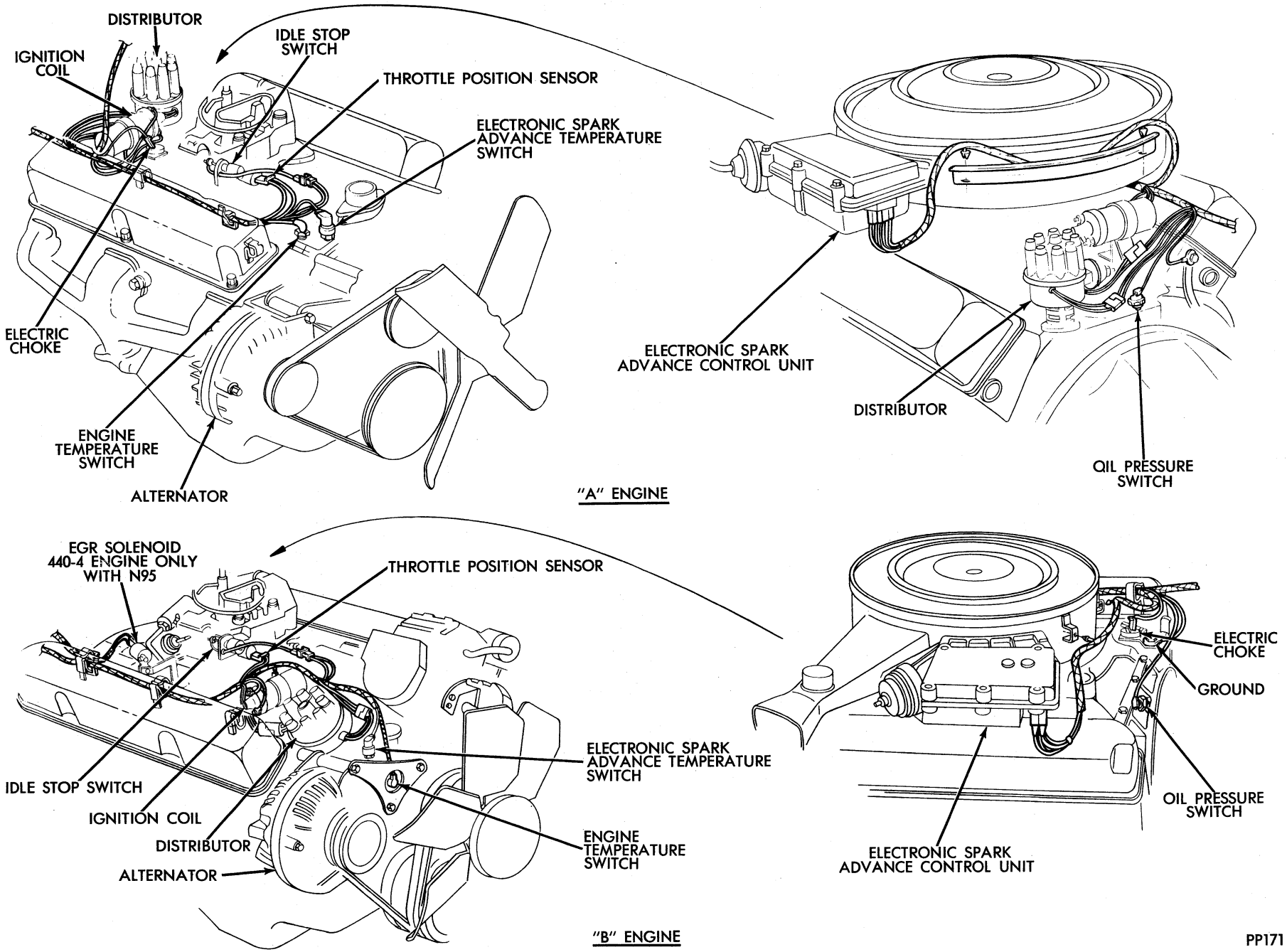
PP169-A

Engine Compartment Electrical Component Identification (Carline C All Except New Yorker)



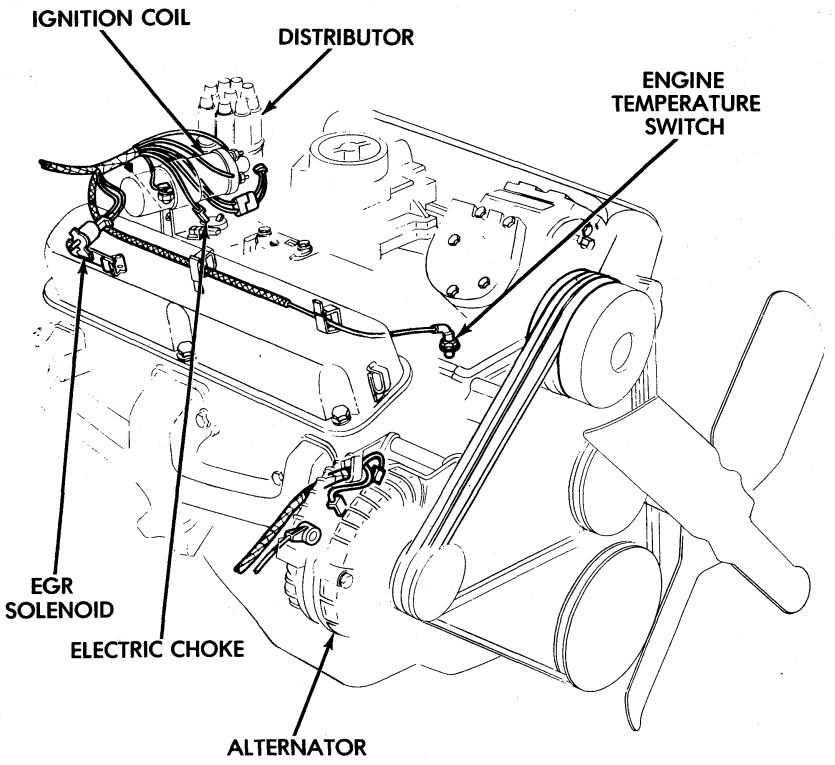
Engine Compartment Electrical Component Identification (Carline C New Yorker)

PR394

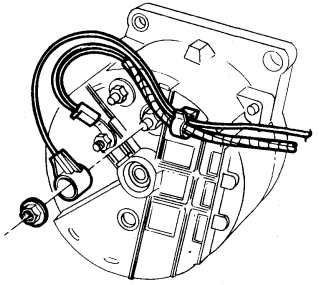


PP171

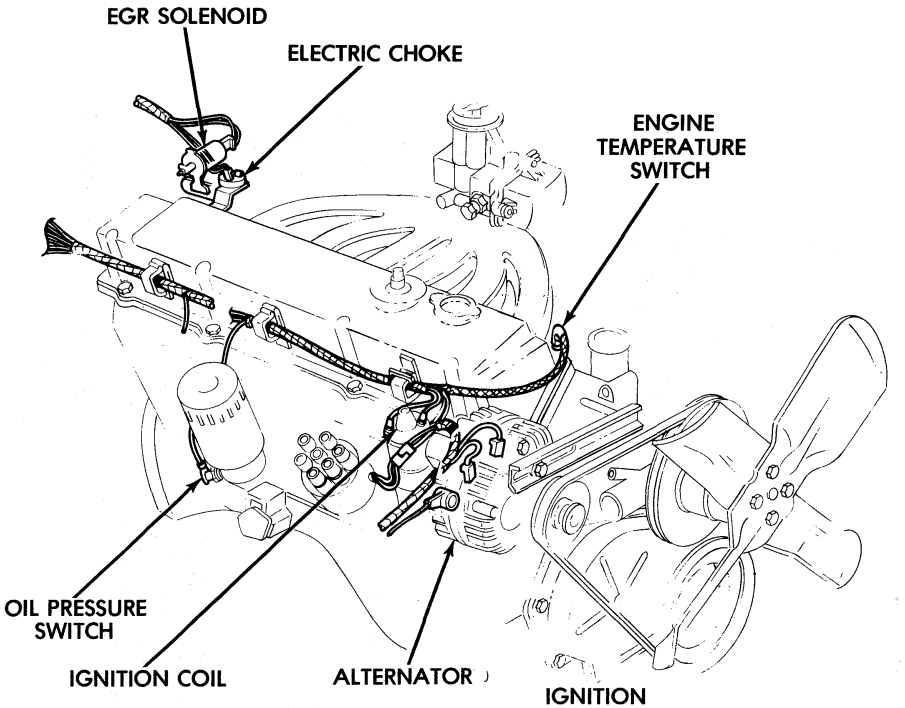
Electronic Lean Burn System



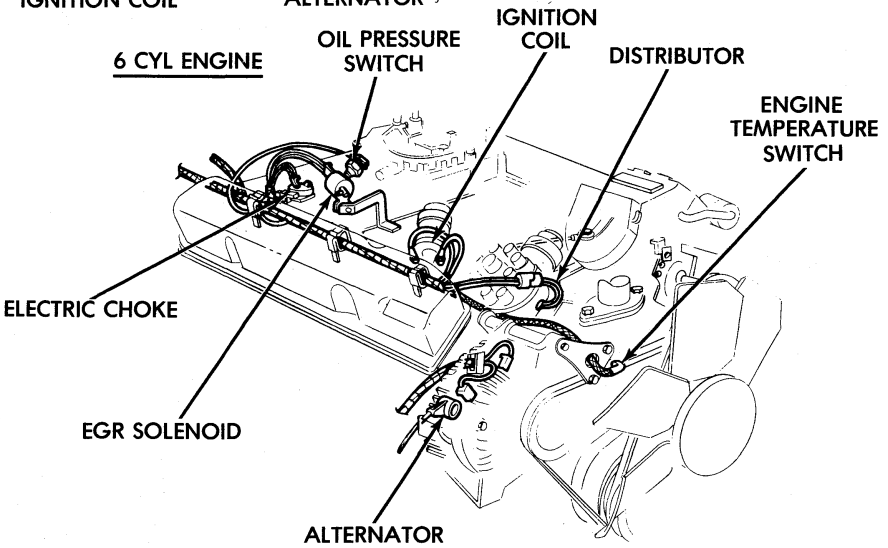
"A" ENGINE



100 AMP ALTERNATOR



6 CYL ENGINE

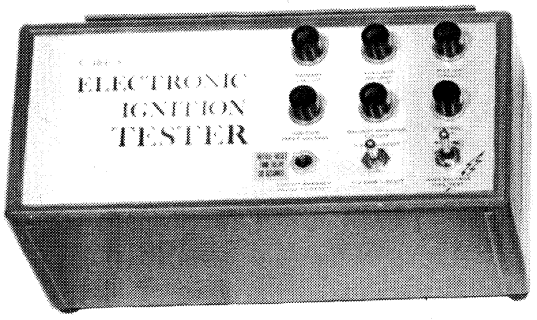


"B" ENGINE

PP170

Electronic Ignition System

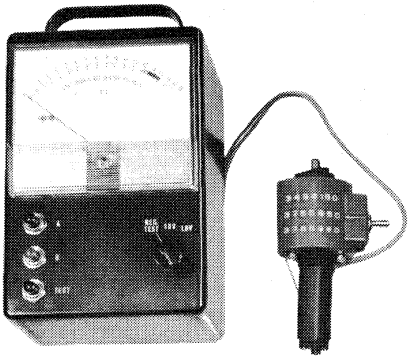
SPECIAL SERVICE TOOLS



C-4166A

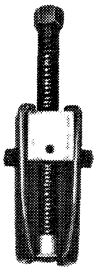
C-3829

C-4166



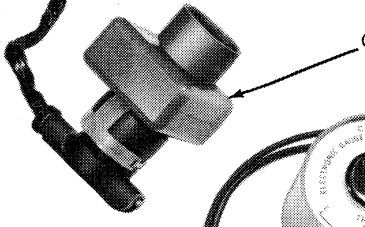
C-4133

C-4341

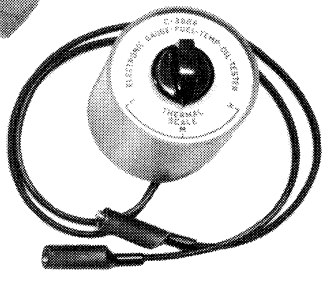


C-4333

C-4334



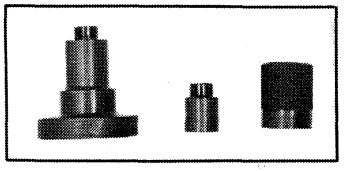
C-4166-1



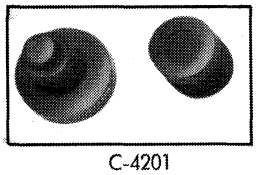
C-3826

C-4135

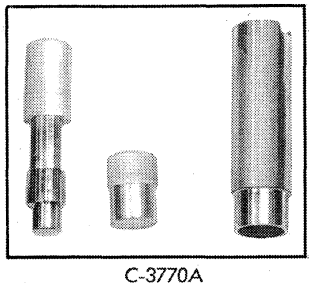
C-4331



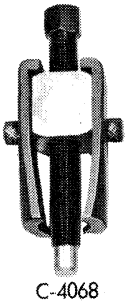
C-4330



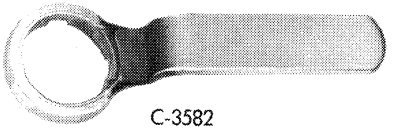
C-4201



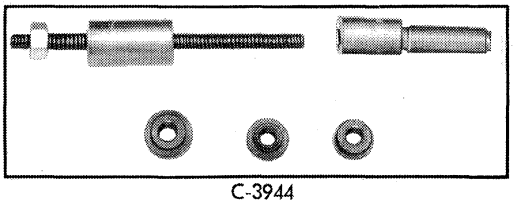
C-3770A



C-4068

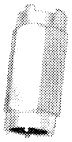


C-3582

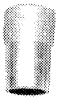


C-3944

C-3977



C-4085



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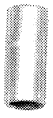
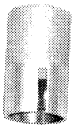


C-3858



C-3900

ALPHABETICAL INDEX