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SERVICE Counselor

PACKARD DIVISION
OF
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Mechanical Specifications and Adjustments

56TH SERIES CHASSIS AND BODY SYMBOLS

		CLIPPER			PACKARD	
		DELUXE	SUPER	CUSTOM		
		352 Cu. In. 240 HP 2 BBL.		352 Cu. In. 275 HP 4 BBL.	374 Cu. In. 290 HP 4 BBL.	374 Cu. In. 310 HP Two-4 BBL.
CHASSIS SYMBOLS		5640		5660	5680	5688
BODY TYPES	Pass.					
SEDAN—4 DOOR	6	5622	5642	5662	5682	
HARD TOP—2 DOOR	6		5647	5667	5687	5697
CONVERTIBLE	6					5699
WHEEL BASE		122"			127"	
OVERALL LENGTH		214¾" Approx.			218½" Approx.	

CHASSIS SYMBOLS	5640	5660	5680	5688
BRAKES				
Type	Hydraulic 2—Shoe	Hydraulic 2—Shoe	Hydraulic 2—Shoe	Hydraulic 2—Shoe
Effective Area	191.8 sq. in.	191.8 sq. in.	208.25 sq. in.	208.25 sq. in.
Effective Area Hand Brake	85.25 sq. in.	85.25 sq. in.	98.0 sq. in.	98.0 sq. in.
Drum Diameter				
Front	11" Centrifuse	11" Centrifuse	12" Centrifuse	12" Centrifuse
Rear	11" Centrifuse	11" Centrifuse	12" Centrifuse	12" Centrifuse
Lining Size and Material				
Primary Shoes				
Front	9 5/16" x 2½" x 3/16"	9 5/16" x 2½" x 3/16"	11½" x 2¼" x 3/16"	11½" x 2¼" x 3/16"
Rear	9 5/16" x 2" x 3/16"	9 5/16" x 2" x 3/16"	11½" x 2" x 3/16"	11½" x 2" x 3/16"
Material	Marshall—4112	Marshall—4112	Marshall—4112	Marshall—4112
Secondary Shoes				
Front	12" x 2½" x 3/16"	12" x 2½" x 3/16"	13" x 2¼" x 3/16"	13" x 2¼" x 3/16"
Rear	12" x 2" x 3/16"	12" x 2" x 3/16"	13" x 2" x 3/16"	13" x 2" x 3/16"
Material	Marshall—9051	Marshall—9051	Marshall—9051	Marshall—9051
Wheel Cylinder Size				
Front	1⅛" Dia.	1⅛" Dia.	1⅛" Dia.	1⅛" Dia.
Rear	1 1/16" Dia.	1 1/16" Dia.	1" Dia.	1" Dia.
Master Cylinder Size	1" Dia.	1" Dia.	1" Dia.	1" Dia.
Brake (Power Unit)	Sp. Equipment	Sp. Equipment	Std. Equipment	Std. Equipment
CLUTCH				
Type	Single Dry Plate	Single Dry Plate		
Pedal Free Play	1¼" to 1½"	1¼" to 1½"		
Facing Material	Woven Asbestos	Woven Asbestos		
Size of Facing	7" x 11" x .125"	7" x 11" x .125"		
Throw Out Bearing	Prelubricated Ball	Prelubricated Ball		
Clutch Spring Pressure (Total)	1656 lbs.	1656 lbs.		
Number of Springs	8	8		
Vibration Neutralizer	Yes	Yes		
COOLING SYSTEM				
Type	Pressure	Pressure	Pressure	Pressure
Water Pump	Centrifugal Self-Adjusting	Centrifugal Self-Adjusting	Centrifugal Self-Adjusting	Centrifugal Self-Adjusting
Water Pump Drive	Fan Belt	Fan Belt	Fan Belt	Fan Belt
Capacity of System	26 qts.	26 qts.	26 qts.	26 qts.
Heater Capacity				
(One)	½ qt.	½ qt.		
(Two)	1 qt.	1 qt.	1 qt.	1 qt.
Fan	4 Blade—19¾" Dia.	4 Blade—19¾" Dia.	4 Blade—19¾" Dia.	4 Blade—19¾" Dia.
Drive Pulley	On Crankshaft	On Crankshaft	On Crankshaft	On Crankshaft
Ratio	.92 to 1	.92 to 1	.92 to 1	.92 to 1
Thermostat Starts to Open				
Standard	167° to 173°	167° to 173°	167° to 173°	167° to 173°
High Reading	177° to 182°	177° to 182°	177° to 182°	177° to 182°
Fan Belt	56 11/16" x ⅜"	56 11/16" x ⅜"	56 11/16" x ⅜"	56 11/16" x ⅜"
Fan Belt Adjustment	At Generator	At Generator	At Generator	At Generator
Heat Indicator	Electric	Electric	Electric	Electric
Gravity Flow of Radiator (Minimum)	30 Gal. per Min.	30 Gal. per Min.	30 Gal. per Min.	30 Gal. per Min.
Radiator Cap	Pressure Type—12 psi	Pressure Type—12 psi	Pressure Type—12 psi	Pressure Type—12 psi
ELECTRICAL				
Battery				
Make and Type	Auto-Lite 3EA-60 Willard HDW-3KM-60	Auto-Lite 3EA-60 Willard HDW-3KM-60	Auto-Lite 3EA-60 Willard HDW-3KM-60	Auto-Lite 3EA-60 Willard HDW-3KM-60
Capacity	60 Ampere Hour	60 Ampere Hour	60 Ampere Hour	60 Ampere Hour
Number of Plates	9 Per Cell	9 Per Cell	9 Per Cell	9 Per Cell
Terminal Grounded	Negative	Negative	Negative	Negative
Starting Motor				
Make and Type	Auto-Lite MDF-6008	Auto-Lite MDF-6008	Delco-Remy 1107656	Delco Remy-1107656
Starter Drive	Solenoid Actuated Shift	Solenoid Actuated Shift	Solenoid Actuated Shift	Solenoid Actuated Shift
Number of Flywheel Teeth	182	182	182	182
Number of Teeth in Starter—Pinion	9	9	9	9
Pinion Meshes	From Front	From Front	From Front	From Front
Current Draw—Free Running	60 Amps. Max. @10 Volts	60 Amps. Max. @10 Volts	95 Amps. @10.1 Volts	95 Amps. @10.1 Volts
Current Draw				
Cranking Engine (70° F.)	200-225 Amps.	200-225 Amps.	200-225 Amps.	200-225 Amps.
Brush Spring Tension	42-53 oz.	42-53 oz.	35 oz.	35 oz.

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ELECTRICAL (Cont'd.)

	5640	5660	5680	5688
Generator				
Make and Type	Auto-Lite GJC-7002F	Auto-Lite GJC-7002F	Delco-Remy 1102003	Delco-Remy 1102003
Generator Drive	Belt	Belt	Belt	Belt
Generator Output	30 Amps.	30 Amps.	30 Amps.	30 Amps.
Brush Spring Tension	18 to 36 oz.	18 to 36 oz.	28 oz.	28 oz.
Regulator				
Make and Type	Auto-Lite VRX-6009A	Auto-Lite VRX-6009A	Delco-Remy 1119123	Delco-Remy 1119123
Maximum Output	30 Amps.	30 Amps.	30 Amps.	30 Amps.
Circuit Breaker				
Air Gap	.031"—.034"	.031"—.034"	.020"	.020"
Contact Gap	.015"	.015"	.020"	.020"
Close Volts	13.0—13.75	13.0—13.75	11.8—13.5	11.8—13.5
Current Regulator				
Air Gap	.048"—.052"	.048"—.052"	.075"	.075"
Amperes	30 Amps.	30 Amps.	30 Amps.	30 Amps.
Voltage Regulator				
Air Gap	.048"—.052"	.048"—.052"	.075"	.075"
Voltage (110° F.)	14.0—14.6	14.0—14.6	13.8—14.8	13.8—14.8
Distributor				
Make and Type	Auto-Lite IBJ-4001D	Auto-Lite IBJ-4001C	Delco-Remy 1110865	Delco-Remy 1110865
Ignition Timing	5° BTDC	5° BTDC	10° BTDC	10° BTDC
Breaker Point Gap (Initial Setting)	.017"	.017"	.016"	.016"
Breaker Arm Spring Tension	17-20 oz.	17-20 oz.	19-23 oz.	19-23 oz.
Spark Control	Full Automatic	Full Automatic	Full Automatic	Full Automatic
Spark Advance Begins At	600 Eng. R.P.M.	600 Eng. R.P.M.	600 Eng. R.P.M.	600 Eng. R.P.M.
Vacuum Advance (Maximum)—(Crankshaft Degrees)	24° @12½ In. Hg.	20° @13 In. Hg.	16° @15 In. Hg.	16° @ 15 In. Hg.
Governor Advance (Maximum)—(Crankshaft Degrees)	28° @3400 Eng. R.P.M.	30° @4000 Eng. R.P.M.	24° @4000 Eng. R.P.M.	24° @4000 Eng. R.P.M.
Cam Dwell Angle	27°	27°	26°—33°	26°—33°
Condenser Capacity (Mfgrs.)	.25—.28	.25—.28	.18—.23	.18—.23
Ignition Coil				
Make and Type	Auto-Lite CAD-4004	Auto-Lite CAD-4004	Delco-Remy 1115095	Delco-Remy 1115095
Ampere Draw—Idling Hot	2.2 Amps.	2.2 Amps.	1.25 Amps.	1.25 Amps.
Spark Plugs				
Make and Type	Champion N-18	Champion N-18	Champion N-18	Champion N-18
Size	14 MM	14 MM	14 MM	14 MM
Gap Setting	.033"—.037"	.033"—.037"	.033"—.037"	.033"—.037"
Current Protection				
Head, Tail & Parking Light	20 Amp. Circuit Breaker	20 Amp. Circuit Breaker	20 Amp. Circuit Breaker	20 Amp. Circuit Breaker
Stop Light	AGW—7½ Amp. Fuse (SFE 20 Amp. Fuse with Spring Suspension—5622)	AGW—7½ Amp. Fuse	AGW—7½ Amp. Fuse	AGW—7½ Amp. Fuse
Body	SFE 20 Amp. Fuse	SFE 20 Amp. Fuse	SFE 20 Amp. Fuse	SFE 20 Amp. Fuse
Dome Light	SFE 20 Amp. Fuse	SFE 20 Amp. Fuse	SFE 20 Amp. Fuse	SFE 20 Amp. Fuse
Directional Signal	SFE 9 Amp. Fuse	SFE 9 Amp. Fuse	SFE 9 Amp. Fuse	SFE 9 Amp. Fuse
Courtesy Light	SFE 20 Amp. Fuse	SFE 20 Amp. Fuse	SFE 20 Amp. Fuse	SFE 20 Amp. Fuse
Clock	AGA 2 Amp. Fuse	AGA 2 Amp. Fuse	AGA 2 Amp. Fuse	AGA 2 Amp. Fuse
Overdrive	AGC 15 Amp. Fuse	AGC 15 Amp. Fuse		
Instruments	AGW 7½ Amp. Fuse	AGW 7½ Amp. Fuse	AGW 7½ Amp. Fuse	AGW 7½ Amp. Fuse
Windshield Washer	SFE 9 Amp. Fuse	SFE 9 Amp. Fuse	SFE 9 Amp. Fuse	SFE 9 Amp. Fuse
Heater	AGC 15 Amp. Fuse	AGC 15 Amp. Fuse	AGC 15 Amp. Fuse	AGC 15 Amp. Fuse
Radio	AGW 7½ Amp. Fuse	AGW 7½ Amp. Fuse	AGW 7½ Amp. Fuse	AGW 7½ Amp. Fuse
Antenna (Electric)	SFE 20 Amp. Fuse	SFE 20 Amp. Fuse	SFE 20 Amp. Fuse	SFE 20 Amp. Fuse
Suspension—Load Compensator Motor	AGC 30 Amp. Fuse	AGC 30 Amp. Fuse	AGC 30 Amp. Fuse	AGC 30 Amp. Fuse
—Control Circuit	AGW 7½ Amp. Fuse	AGW 7½ Amp. Fuse	AGW 7½ Amp. Fuse	AGW 7½ Amp. Fuse
Push Button Circuit	20 Amp. Circuit Breaker	20 Amp. Circuit Breaker	20 Amp. Circuit Breaker	20 Amp. Circuit Breaker
Lighting & Accessories				
Headlight Bulb—Sealed Beam	40—50 Watts	40—50 Watts	40—50 Watts	40—50 Watts
Horn—Make	Sparks Withington	Sparks Withington	Sparks Withington	Sparks Withington
Horn—Location	Radiator Cradle Support	Radiator Cradle Support	Radiator Cradle Support	Radiator Cradle Support
Clock—Type and Make	Electric—Borg	Electric—Borg	Electric—Borg	Electric—Borg
Radio—Make—Push Button Type	Delco	Delco	Delco	Delco
Universal Tuning Type	Delco	Delco	Delco	Delco

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CHASSIS SYMBOLS	5640	5660	5680	5688

ELECTRICAL (Con't.)

Ampere Draw of Headlights—Each.	3.35—4.19 @ 12.8 Volts	3.35—4.19 @ 12.8 Volts	3.35—4.19 @ 12.8 Volts	3.35—4.19 @ 12.8 Volts
Ampere Draw of Horns	17 Amps.	17 Amps.	17 Amps.	17 Amps.
Ampere Draw of Heater Blower Motor	6.5 Amps. @ 14 Volts—@ 3000 R.P.M.	6.5 Amps. @ 14 Volts—@ 3000 R.P.M.	6.5 Amps. @ 14 Volts—@ 3000 R.P.M.	6.5 Amps. @ 14 Volts—@ 3000 R.P.M.
Ampere Draw of Radio	3.2 Amps. @ 12 Volts	3.2 Amps. @ 12 Volts	3.2 Amps. @ 12 Volts	3.2 Amps. @ 12 Volts

ENGINE

General Information

Make	Packard	Packard	Packard	Packard
Type	90° V	90° V	90° V	90° V
A.M.A. Horsepower	51.2	51.2	54.45	54.45
Maximum Brake Horsepower	240 @ 4600 R.P.M.	275 @ 4600 R.P.M	290 @ 4600 R.P.M.	310 @ 4600 R.P.M.
Suspension	Rubber Mounted	Rubber Mounted	Rubber Mounted	Rubber Mounted
Numbering System (front to rear)				
Left Bank	1-3-5-7	1-3-5-7	1-3-5-7	1-3-5-7
Right Bank	2-4-6-8	2-4-6-8	2-4-6-8	2-4-6-8
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	1-8-4-3-6-5-7-2
Torque	350 ft. lbs. @ 2800 R.P.M.	380 ft. lbs. @ 2800 R.P.M.	405 ft. lbs. @ 2800 R.P.M.	405 ft. lbs. @ 2800 R.P.M.
Bore	4"	4"	4⅛"	4⅛"
Stroke	3½"	3½"	3½"	3½"
Piston Displacement	352 cu. in.	352 cu. in.	374 cu. in.	374 cu. in.
Cylinders	8	8	8	8
Compression Ratio	9.5 to 1	9.5 to 1	10.0 to 1	10.0 to 1
Cylinder Head Material	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Engine Revolutions per Mile	Wheel revolutions per mile (see wheels) times rear axle gear ratio (see rear axle) gives engine revolutions per mile. With overdrive, multiply engine revolutions per mile by .722.			

Connecting Rod

Weight	1 lb. 10.688 oz.	1 lb. 10.688 oz.	1 lb. 10.688 oz.	1 lb. 10.688 oz.
Material	Steel Forging	Steel Forging	Steel Forging	Steel Forging
Bearing Type	Detachable Shell	Detachable Shell	Detachable Shell	Detachable Shell
Center to Center Length	6 25/32"	6 25/32"	6 25/32"	6 25/32"
Clearance Bearing to Crankpin	.0005" to .0025"	.0005" to .0025"	.0005" to .0025"	.0005" to .0025"
End Play on Crankshaft	.003" to .011" Two Rods	.003" to .011" Two Rods	.003" to .011" Two Rods	.003" to .011" Two Rods
Oil to Piston Pin	Splash	Splash	Splash	Splash
Bearing Material	Steel Backed Babbitt	Steel Backed Babbitt	Steel Backed Babbitt	Steel Backed Babbitt
Assembled in Engine	Oil Holes Toward Camshaft	Oil Holes Toward Camshaft	Oil Holes Toward Camshaft	Oil Holes Toward Camshaft
Bearing Adjustment	Replace Bearing Shells	Replace Bearing Shells	Replace Bearing Shells	Replace Bearing Shells

Crankshaft

Type	Counterbalanced	Counterbalanced	Counterbalanced	Counterbalanced
Material	Cast Steel	Cast Steel	Cast Steel	Cast Steel
Number of Counterweights	6	6	6	6
Number of Main Bearings	5	5	5	5
Main Bearing Journal Diameter	2.4990"	2.4990"	2.4990"	2.4990"
Connecting Rod Journal Diameter	2.250"	2.250"	2.250"	2.250"
Main Bearing Length No. 1	.950"	.950"	.950"	.950"
No. 2	.950"	.950"	.950"	.950"
No. 3	.950"	.950"	.950"	.950"
No. 4	.950"	.950"	.950"	.950"
No. 5	1.736"	1.736"	1.736"	1.736"
Total Effective Main Bearing Area	44.46 sq. in.	44.46 sq. in.	44.46 sq. in.	44.46 sq. in.
Thrust Taken On	No. 5—Rear Main	No. 5—Rear Main	No. 5—Rear Main	No. 5—Rear Main
Vibration Damper	Rubber Friction Disc	Rubber Friction Disc	Rubber Friction Disc	Rubber Friction Disc
End Play	.0035" to .0085"	.0035" to .0085"	.0035" to .0085"	.0035" to .0085"
Main Bearing Material	No. 1-2-3-4 Copper Lead No. 5 Steel Backed Babbitt	No. 1-2-3-4 Copper Lead No. 5 Steel Backed Babbitt	No. 1-2-3-4 Copper Lead No. 5 Steel Backed Babbitt	No. 1-2-3-4 Copper Lead No. 5 Steel Backed Babbitt
Clearance—All Main Bearings	.0003" to .0023"	.0003" to .0023"	.0003" to .0023"	.0003" to .0023"
Crankshaft Sprocket—Material and Size	Steel—24 Teeth	Steel—24 Teeth	Steel—24 Teeth	Steel—24 Teeth
Bearing Adjustment	Replace Bearing Shells	Replace Bearing Shells	Replace Bearing Shells	Replace Bearing Shells

Camshaft and Chain

Camshaft Material	Cast Alloy Iron	Cast Alloy Iron	Cast Alloy Iron	Cast Alloy Iron
Camshaft Drive	Silent Chain	Silent Chain	Silent Chain	Silent Chain
Make of Chain	Morse	Morse	Morse	Morse
Length, Width, & Pitch of Chain	64 Links, 1", .375"	64 Links, 1", .375"	64 Links, 1", .375"	64 Links, 1", .375"
Number of Camshaft Bearings	5	5	5	5
Clearance of Camshaft Bearings	.0005" to .0045"	.0005" to .0045"	.0005" to .0045"	.0005" to .0045
Camshaft End Play	.0035" to .0065"	.0035" to .0065"	.0035" to .0065"	.0035" to .0065"
Camshaft Sprocket—Material and Size	Heat Treated Iron—48 Teeth	Heat Treated Iron—48 Teeth	Heat Treated Iron—48 Teeth	Heat Treated Iron—48 Teeth

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ENGINE (Cont'd.)

Oiling System

	5640	5660	5680	5688
Type	Full Pressure	Full Pressure	Full Pressure	Full Pressure
Oil Pump Type	Gear	Gear	Gear	Gear
Crankcase Capacity	5 qts.	5 qts.	5 qts.	5 qts.
Oil Filler Location	Front of Engine	Front of Engine	Front of Engine	Front of Engine
Oil Measuring Stick	Right Crankcase	Right Crankcase	Right Crankcase	Right Crankcase
Oil Filter Location	Front—Between V	Front—Between V	Front—Between V	Front—Between V
Oil Pump Intake	Floating Screen	Floating Screen	Floating Screen	Floating Screen
Crankcase Ventilator	Yes	Yes	Yes	Yes
Oil Pressure—Normal Driving	45 lbs. @ 2800 R.P.M.	45 lbs. @ 2800 R.P.M.	45 lbs. @ 2800 R.P.M.	45 lbs. @ 2800 R.P.M.
Oil Drain Plug	⅜"—18 Thread	⅜"—18 Thread	⅜"—18 Thread	⅜"—18 Thread

Pistons

	5640	5660	5680	5688
Type	Autothermic—Slipper Type	Autothermic—Slipper Type	Autothermic—Slipper Type	Autothermic—Slipper Type
Material	Aluminum Alloy	Aluminum Alloy	Aluminum Alloy	Aluminum Alloy
Weight	24.762 oz.	24.762 oz.	26.067 oz.	26.067 oz.
Overall Height	4.197"	4.197"	4.197"	4.197"
Height Centerline of Pin to Top	2.072"	2.072"	2.072"	2.072"
Skirt Clearance (Bottom)	.000"—.0015"	.000"—.0015"	.000"—.0015"	.000"—.0015"
Assemble Pistons with "Notch" on Piston Head Toward	Front of Engine	Front of Engine	Front of Engine	Front of Engine
Piston Pin Size	3¼" x .9803"	3¼" x .9803"	3¼" x .9803"	3¼" x .9803"
Type Pin	Floating	Floating	Floating	Floating
Lubrication of Pin	Splash	Splash	Splash	Splash
Piston Pin Fit in Piston	Palm Push Fit @ 160° F.	Palm Push Fit @ 160° F.	Palm Push Fit @ 160° F.	Palm Push Fit @ 160° F.
Piston Pin Fit in Rod	Finger Push Fit	Finger Push Fit	Finger Push Fit	Finger Push Fit
Piston Pin Oversize	.003" & .006"	.003" & .006"	.003" & .006"	.003" & .006"
Number of Rings per Piston	3	3	3	3
Number of Oil Rings per Piston	1	1	1	1
Number of Compression Rings per Piston	2	2	2	2
Width of Compression Rings	.078"	.078"	.078"	.078"
Width of Oil Ring	.186"	.186"	.186"	.186"
Piston Ring Gap—Compression	.019"	.019"	.018"	.018"
Piston Ring Gap—Oil	.015"	.015"	.015"	.015"
Location of Rings	Above Pin	Above Pin	Above Pin	Above Pin
Piston Oil Drain Hole	8 5/32" Dia. Holes	8 5/32" Dia. Holes	8 5/32" Dia. Holes	8 5/32" Dia. Holes
Piston Oversize	.010", .020", .030"	.010", .020", .030"	.010", .020", .030"	.010", .020", .030"

Valves

	5640	5660	5680	5688
Valve Lift—Inlet	.398"	.398"	.398"	.398"
—Exhaust	.388"	.388"	.388"	.388"
Valve Arrangement	Overhead	Overhead	Overhead	Overhead
Valve Head Diameter—Inlet	2"	2"	2"	2"
—Exhaust	1.687"	1.687"	1.687"	1.687"
Valve Stem—Diameter—Inlet	.3725"	.3725"	.3725"	.3725"
—Exhaust	.3715"	.3715"	.3715"	.3715"
Valve Stem Oversize	.003", .010", .020", .030"	.003", .010", .020", .030"	.003", .010", .020", .030"	.003", .010", .020", .030"
Valve Overall Length—Inlet	5.712"	5.712"	5.712"	5.712"
—Exhaust	5.690"	5.690"	5.690"	5.690"
Valve Material—Inlet	Silichrome Steel	Silichrome Steel	Silichrome Steel	Silichrome Steel
—Exhaust	Austenitic Steel	Austenitic Steel	Austenitic Steel	Austenitic Steel
Valve Spring Keeper—Type	Split Cone	Split Cone	Split Cone	Split Cone
Valve Stem Clearance—Inlet	.001"—.002"	.001"—.002"	.001"—.002"	.001"—.002"
—Exhaust	.002"—.003"	.002"—.003"	.002"—.003"	.002"—.003"
Valve Tappet Clearance	Automatic Take-Up	Automatic Take-Up	Automatic Take-Up	Automatic Take-Up
Inlet Valve Opens	14° BTDC	14° BTDC	14° BTDC	14° BTDC
Inlet Valve Closes	62° ALDC	62° ALDC	62° ALDC	62° ALDC
Exhaust Valve Opens	54° BLDC	54° BLDC	54° BLDC	54° BLDC
Exhaust Valve Closes	18° ATDC	18° ATDC	18° ATDC	18° ATDC
Tappet Clearance for Timing	Not Used	Not Used	Not Used	Not Used
Valve Seat Angle—Inlet	30°	30°	30°	30°
—Exhaust	45°	45°	45°	45°
Valve Spring	Single	Single	Single	Single
Valve Spring Load—Valve Closed	87 to 97 lbs. @ 1¾"	87 to 97 lbs. @ 1¾"	87 to 97 lbs. @ 1¾"	87 to 97 lbs. @ 1¾"
—Valve Opened	173 to 187 lbs. @ 1⅜"	173 to 187 lbs. @ 1⅜"	173 to 187 lbs. @ 1⅜"	173 to 187 lbs. @ 1⅜"

Exhaust System

	5640	5660	5680	5688
Exhaust Pipe Diameter	2" (5622—Main 2¼" Branch 2")	2"	2"	2"
Muffler Size	26" x 8¾" x 5"	26" x 8¾" x 5"	26" x 8¾" x 5"	26" x 8¾" x 5"
Muffler Silencer	9¾" x 5⅛" x 5"	9¾" x 5⅛" x 5"	11⅞" x 8¾" x 4¾"	11⅞" x 8¾" x 4¾"
Tail Pipe Diameter	1¾" (5622-2")	1¾"	1¾"	1¾"

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CHASSIS SYMBOLS	5640	5660	5680	5688
FRAME				
Description	Channel Steel Side Members Full Length of Frame Joined Together by Cross Member, Plus X Member	Channel Steel Side Members Full Length of Frame Joined Together by Cross Member, Plus X Member	Channel Steel Side Members Full Length of Frame Joined Together by Cross Member, Plus X Member	Channel Steel Side Members Full Length of Frame Joined Together by Cross Member, Plus X Member
Depth (Maximum)	5"	5"	5"	5"
Thickness (Maximum)	9/64"	9/64"	9/64"	9/64" (Reinforcement ⅜" Thick)
Flange Width (Maximum)	2¾"	2¾"	2¾"	2¾"
FRONT SUSPENSION				
Make	Packard	Packard	Packard	Packard
Type	Independent Parallelogram	Independent Parallelogram	Independent Parallelogram	Independent Parallelogram
Steering Knuckle	Reverse Elliott	Reverse Elliott	Reverse Elliott	Reverse Elliott
Steering Knuckle Pin Diameter	.866"	.866"	.866"	.866"
—Lower	Bushing—Needle Bearing Used with Power Steering	Bushing—Needle Bearing Used with Power Steering	Bushing—Needle Bearing Used with Power Steering	Needle Bearing
—Upper	Needle Bearing	Needle Bearing	Needle Bearing	Needle Bearing
Thrust Bearings	Ball Bearing	Ball Bearing	Ball Bearing	Ball Bearing
Caster	Neg. 1° Plus-Minus ½°	Neg. 1° Plus-Minus ½°	Neg. 1° Plus-Minus ½°	Neg. 1° Plus-Minus ½°
Front Wheel Toe-In	0 Plus 1/16" Minus 0	0 Plus 1/16" Minus 0	0 Plus 1/16" Minus 0	0 Plus 1/16" Minus 0
Knuckle Pin Angle	5° 50'	5° 50'	5° 50'	5° 50'
Camber	0° Plus ¾° Minus ¼°	0° Plus ¾° Minus ¼°	0° Plus ¾° Minus ¼°	0° Plus ¾° Minus ¼°
Wheel Bearing—Inner & Outer	Tapered Roller	Tapered Roller	Tapered Roller	Tapered Roller
Wheel Bearing Adjustment	Tighten Nut to 20 ft. lbs. and Back Off 1 Hex & Lock	Tighten Nut to 20 ft. lbs. and Back Off 1 Hex & Lock	Tighten Nut to 20 ft. lbs. and Back Off 1 Hex & Lock	Tighten Nut to 20 ft. lbs. and Back Off 1 Hex & Lock
Tread	59.7"	59.7"	60"	60"
FUEL SYSTEM				
Carburetor				
Make and Type	Carter WGD-2393-S	Carter WCFB-2394-S	Rochester 4GC-7008610	Rochester 4GC-7009600 (Front) Rochester 4GC-7009601 (Rear)
Bore Size	1 7/16" Two Barrel	1 7/16" Four Barrel	1 7/16" Four Barrel	1 7/16" Four Barrel
Main Venturi	1 3/16"	Pri.—1 1/16", Sec. 1¼"	Pri.—1⅛", Sec. 1¼"	Pri.—1 1/16", Sec.—1¼"
Float Setting	3/16"	Pri.—⅛", Sec.—3/16"	1⅝"	1⅝"
Float Drop		Pri.—15/32", Sec.—17/32"	2¼"	2¼"
Measured From	Float to Cover	Float to Cover	Float Bottom to Cover Gasket	Float Bottom to Cover Gasket
Metering Rod. No.	75-1223	75-1241		
Economy Step	.064"	.072"		
Power Step	.048"	.040"		
Center Step Tapers To	.0555"	.0555"		
Main Metering Jet	.086" (No. 44 Drill)	Pri.—.093" (No. 42 Drill) Sec.—.0785" (No. 47 Drill)	Pri.—.052", Sec.—.065"	Pri.—.048", Sec.—.054"
Low Speed Jet	.032" (No. 67 Drill)	.035" (No. 65 Drill)		
Idle Tube			Pri.—.030", Sec.—.027"	Pri.—.030", Sec.—None
By-Pass Jet	.055" (No. 54 Drill)	.055" (No. 54 Drill)		
Economizer Jet	.052" (No. 55 Drill)	.049" (1.25 MM Drill)		
Idle Bleed	.051" (1.3 MM Drill)	.0629" (1.6 MM Drill)		
Idle Needle Hole			.046"	.046"
Anti-Percolator Jet	.028" (No. 70 Drill)	.028" (No. 70 Drill)		
Pump Discharge Jet	.0225" (No. 74 Drill)	.025" (No. 72 Drill)	.026"	.026"
Idle Adjustment Turns Out	¾ to 1¼	¾ to 1¼	1 to 1½	1 to 1½
Idle Adjustment—Engine R.P.M. Std. & O.D. Trans.	450 to 500 R.P.M.	450 to 500 R.P.M.		
Ultra. (Shift Lever in High)	450 R.P.M.	450 R.P.M.	450 R.P.M.	450 R.P.M.
Choke Adjustment	2 Points Rich	On Index	On Index	On Index
Air Cleaner and Silencer	Oil Bath	Oil Bath	Oil Bath	Oil Bath
Fuel Inlet Filter	Ceramic	Ceramic	Ceramic	Ceramic
Fuel Pump				
Make and Type	Carter M-2198-S	Carter M-2198-S	Carter M-2198-S	Carter M-2198-S
Pump Drive	Eccentric—Frt. End of Camshaft	Eccentric—Frt. End of Camshaft	Eccentric—Frt. End of Camshaft	Eccentric—Frt. End of Camshaft
Pressure—PSI	3½ to 5 @ 500 R.P.M.	3½ to 5 @ 500 R.P.M.	3½ to 5 @ 500 R.P.M.	3½ to 5 @ 500 R.P.M.
Capacity—60 Seconds	1 qt. @ 500 R.P.M.	1 qt. @ 500 R.P.M.	1 qt. @ 500 R.P.M.	1 qt. @ 500 R.P.M.
Inlet Side	Inward	Inward	Inward	Inward
Outlet	Outward	Outward	Outward	Outward
Vacuum Pump	AC—Vane Type	AC—Vane Type	AC—Vane Type	AC—Vane Type
Vacuum @ 1800 Eng. R.P.M.	20 in. hg.	20 in. hg.	20 in. hg.	20 in. hg.
Vacuum Connection	Right Side Crankcase	Right Side Crankside	Right Side Crankcase	Right Side Crankcase
Fuel Tank Capacity—Gallons	20	20	20	20
Fuel Filter	At Carburetor Inlet	At Carburetor Inlet	At Carburetor Inlet	At Carburetor Inlet
Fuel Gauge	Electric	Electric	Electric	Electric

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REAR AXLE				
Make and Type	Packard-Spicer Semi-Floating	Packard-Spicer Semi-Floating	Packard-Spicer Semi-Floating	Packard-Spicer Semi-Floating
Final Drive	Hypoid Gears	Hypoid Gears	Hypoid Gears	Hypoid Gears
Propulsion	Torque Arms (5622 Optional—Rear Spring)	Torque Arms	Torque Arms	Torque Arms
Axle Housing	Removable Cover Type	Removable Cover Type	Removable Cover Type	Removable Cover Type
Oil Capacity	3 Pints	3 Pints	3½ Pints	3½ Pints
Wheel Bearings	Prelubricated Ball	Prelubricated Ball	Prelubricated Ball	Prelubricated Ball
Tread	59 63/64"	59 63/64"	60.9"	60.9"
Gear Ratio—Std. Transmission	Optional Ratio No. Teeth	Optional Ratio No. Teeth		
	3.54 to 1, 46-13	3.54 to 1, 46-13		
	4.09 to 1, 45-11	4.09 to 1, 45-11		
Overdrive	Optional Ratio No. Teeth	Optional Ratio No. Teeth		
	3.54 to 1, 46-13	3.54 to 1, 46-13		
	4.09 to 1, 45-11	4.09 to 1, 45-11		
Ultramatic	Optional Ratio No. Teeth	Optional Ratio No. Teeth	Optional Ratio No. Teeth	Optional Ratio No. Teeth
	2.87 to 1, 43-15	2.87 to 1, 43-15	2.87 to 1, 43-15	2.87 to 1, 43-15
	3.07 to 1, 43-14	3.07 to 1, 43-14	3.07 to 1, 43-14	3.07 to 1, 43-14
	3.31 to 1, 43-13	3.31 to 1, 43-13	3.31 to 1, 43-13	3.31 to 1, 43-13
	3.54 to 1, 46-13	3.54 to 1, 46-13	3.54 to 1, 46-13	3.54 to 1, 46-13
	4.09 to 1, 45-11	4.09 to 1, 45-11	4.09 to 1, 45-11	4.09 to 1, 45-11
Pinion Backlash	.003" to .006"	.003" to .006"	.003" to .006"	.003" to .006"
Oil Drain & Fill Plugs	¾"—Pipe	¾"—Pipe	¾"—Pipe	¾"—Pipe
UNIVERSAL JOINT				
Make	Std. & O.D. Spicer	Std. & O.D. Spicer		
	Ultra.—Universal Prod.	Ultra.—Universal Prod.	Ultra.—Universal Prod.	Ultra.—Universal Prod.
Type				
Std. & O.D. Trans.	Cross and Yokes	Cross and Yokes		
Ultra. Drive	Front—Balls & Trunnion	Front—Balls & Trunnion	Front—Balls & Trunnion	Front—Balls & Trunnion
	Rear—Cross & Yokes	Rear—Cross & Yokes	Rear—Cross & Yokes	Rear—Cross & Yokes
Number Required	2	2	2	2
SPRINGS				
Front—Coil	2040 Load x 90 Rate			
Front—Size	4¼ Inside Diameter			
Rear—Leaf	950 Load x 95 Rate			
Rear Length & Width	54⅜" x 2½"			
Shackles	Rubber Mounted			
Shock Absorbers—Hydraulic	Direct Acting 1" Dia.			
Stabilizer—Front	Torsional			
Spring Material	Silico-Manganese Steel (Model 5622)			
STEERING GEAR				
Make	Packard—Gemmer	Packard—Gemmer	Packard—Gemmer	Packard—Gemmer
Type—Conventional Steering	Worm & Three Tooth Roller	Worm & Three Tooth Roller	Worm & Three Tooth Roller	
—Power Steering	Worm & Two Tooth Roller	Worm & Two Tooth Roller	Worm & Two Tooth Roller	Worm & Two Tooth Roller
Steering Wheel	18"—2 Spokes	18"—2 Spokes	18"—2 Spokes	18"—2 Spokes
Conventional Steering				
Ratio—Gear	22.3 to 1	22.3 to 1	22.3 to 1	
Ratio—Overall	30.9 to 1	30.9 to 1	30.9 to 1	
Minimum Turning Radius	21½ ft.	21½ ft.	22½ ft.	
Power Steering				
Ratio—Gear	16.4 to 1	16.4 to 1	16.4 to 1	16.4 to 1
Ratio—Overall	19.9 to 1	19.9 to 1	19.9 to 1	19.9 to 1
Minimum Turning Radius	20½ ft.	20½ ft.	21½ ft.	21½ ft.
TORSION-LEVEL SUSPENSION				
Make	Packard	Packard	Packard	Packard
Type	Full Length Torsion Bar	Full Length Torsion Bar	Full Length Torsion Bar	Full Length Torsion Bar
Spring (Front)	Main Torsion Bar	Main Torsion Bar	Main Torsion Bar	Main Torsion Bar
Material	Silico-Manganese Steel	Silico-Manganese Steel	Silico-Manganese Steel	Silico-Manganese Steel
Torsion Bar (Long)	Main Suspension	Main Suspension	Main Suspension	Main Suspension
—Size	106" x 1"	106" x 1"	111" x 1"	111" x 1"
Torsion Bar (Short)	Load Compensator	Load Compensator	Load Compensator	Load Compensator
—Size	46⅛" x 25/32"	46⅛" x 25/32"	51" x 13/16"	51" x 13/16"

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TORSION-LEVEL SUSPENSION (Cont'd.)

Spring (Rear)	Main Torsion Bar	Main Torsion Bar	Main Torsion Bar	Main Torsion Bar
Shock Absorber	Direct Acting 1" Dia.	Direct Acting 1" Dia.	Direct Acting 1" Dia.	Direct Acting 1" Dia.
Stabilizer—Front	Torsional	Torsional	Torsional	Torsional
Stabilizer—Rear	2-Link Type Torsional	2-Link Type Torsional	2-Link Type Torsional	2-Link Type Torsional
Load Compensator Control	Electric—Automatic	Electric—Automatic	Electric—Automatic	Electric—Automatic

TRANSMISSION

Type						
Standard	Selective—Silent Synchronized		Selective—Silent Synchronized			
Overdirve	Sp. Equipment		Sp. Equipment			
Ultramatic	Sp. Equipment		Sp. Equipment		Std. Equipment	Std. Equipment
Transmission Ratios	STD. O.D. ULTRA.		STD. O.D. ULTRA.		ULTRAMATIC	ULTRAMATIC
Overdrive	.722 to 1		.722 to 1			
Direct	1 to 1	1 to 1	1 to 1	1 to 1	1 to 1	1 to 1
Second	1.58 to 1		1.58 to 1			
Low	2.49 to 1	1.82 to 1	2.49 to 1	1.82 to 1	1.82 to 1	1.82 to 1
Reverse	3.15 to 1	1.63 to 1	3.15 to 1	1.63 to 1	1.63 to 1	1.63 to 1
Oil Capacity—Std. Trans.	3¼ Pints		3¼ Pints			
Oil Capacity—Overdrive Unit	1¼ Pints		1¼ Pints			
Oil Capacity—Automatic	11 qts.		11 qts.		11 qts.	11 qts.
Gear Tooth—Std. Trans.	Helical		Helical			
Oil Level Plugs—Std. & O.D.	½" Pipe		½" Pipe			
Oil Level Indicator—Automatic	Filler Cap Dip Stick Right Side—Under Hood		Filler Cap Dip Stick Right Side—Under Hood		Filler Cap Dip Stick Right Side—Under Hood	Filler Cap Dip Stick Right Side—Under Hood

WHEELS

Type	Demountable Disc (15" x 5½" "K" Rim)	Demountable Disc (15" x 5½" "K" Rim)	Demountable Disc (15" x 6" "L" Rim)	Demountable Disc (15" x 6" "L" Rim)
Tire Size	760 x 15	760 x 15	800 x 15	800 x 15
Wheel Rev. Per Mile	731	731	717	717
Recommended Tire Pressure				
—Cold—Front	24 lbs.	24 lbs.	24 lbs.	24 lbs.
—Rear	24 lbs.	24 lbs.	24 lbs.	24 lbs.
For loads in excess of four passengers				
—Cold—Front	26 lbs.	26 lbs.	26 lbs.	26 lbs.
—Rear	26 lbs.	26 lbs.	26 lbs.	26 lbs.

CAR DIMENSIONS

Wheel Base	122"	122"	127"	127"
Overall Length—Bumper to Bumper	215 11/32"	215 11/32"	218 41/64"	218 41/64"
Overall Height—Loaded	62" (Sedan)	62" (Sedan)	62.3" (Sedan)	61.7"
Overall Width	78"	78"	78"	78"

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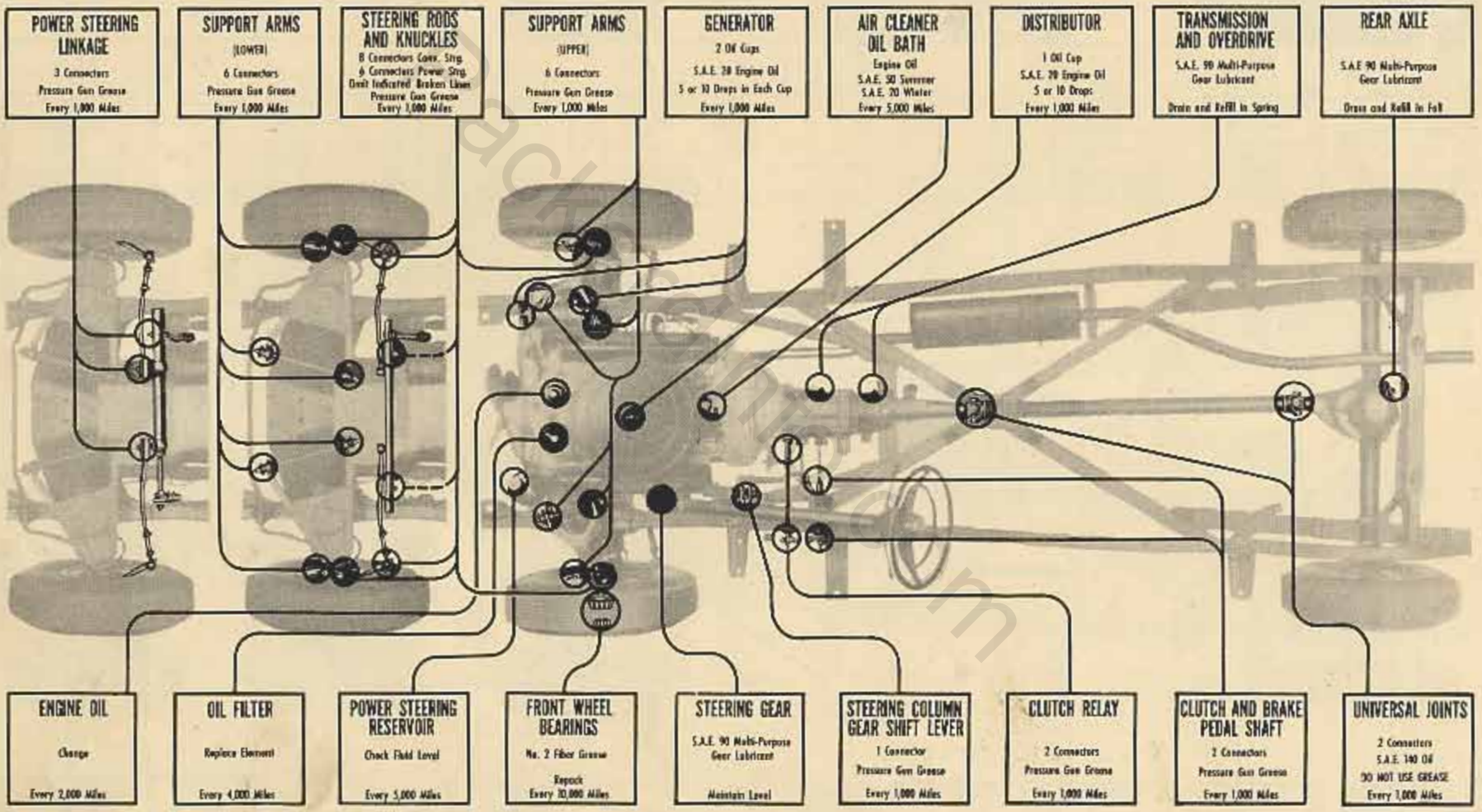
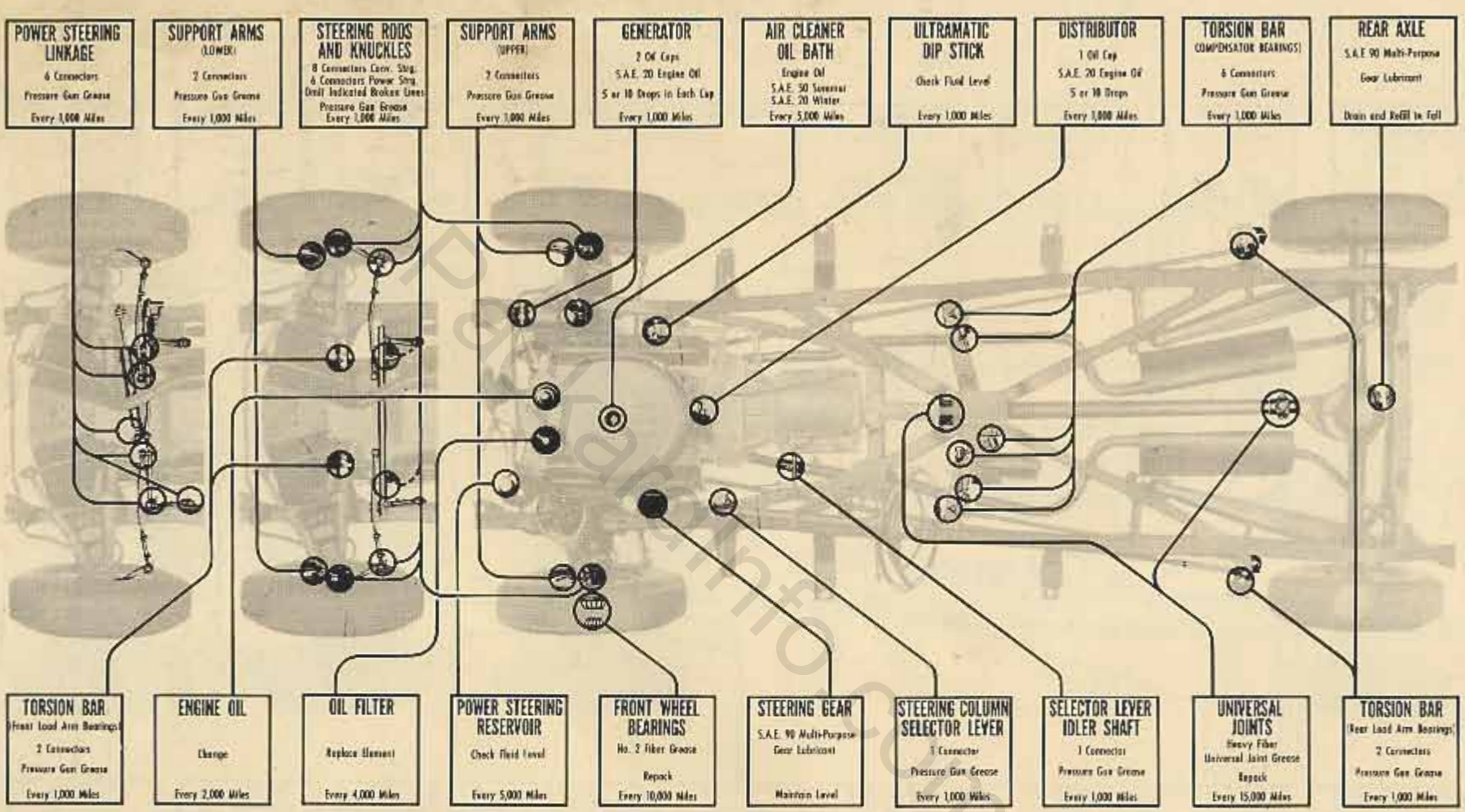
LUBRICATION CHART



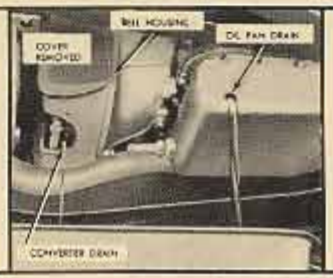
LUBRICATION CHART



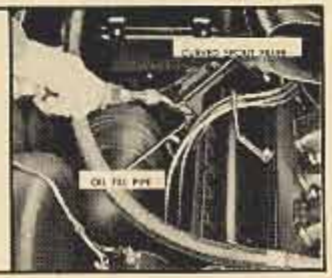
SERVICING THE TWIN ULTRAMATIC TRANSMISSION

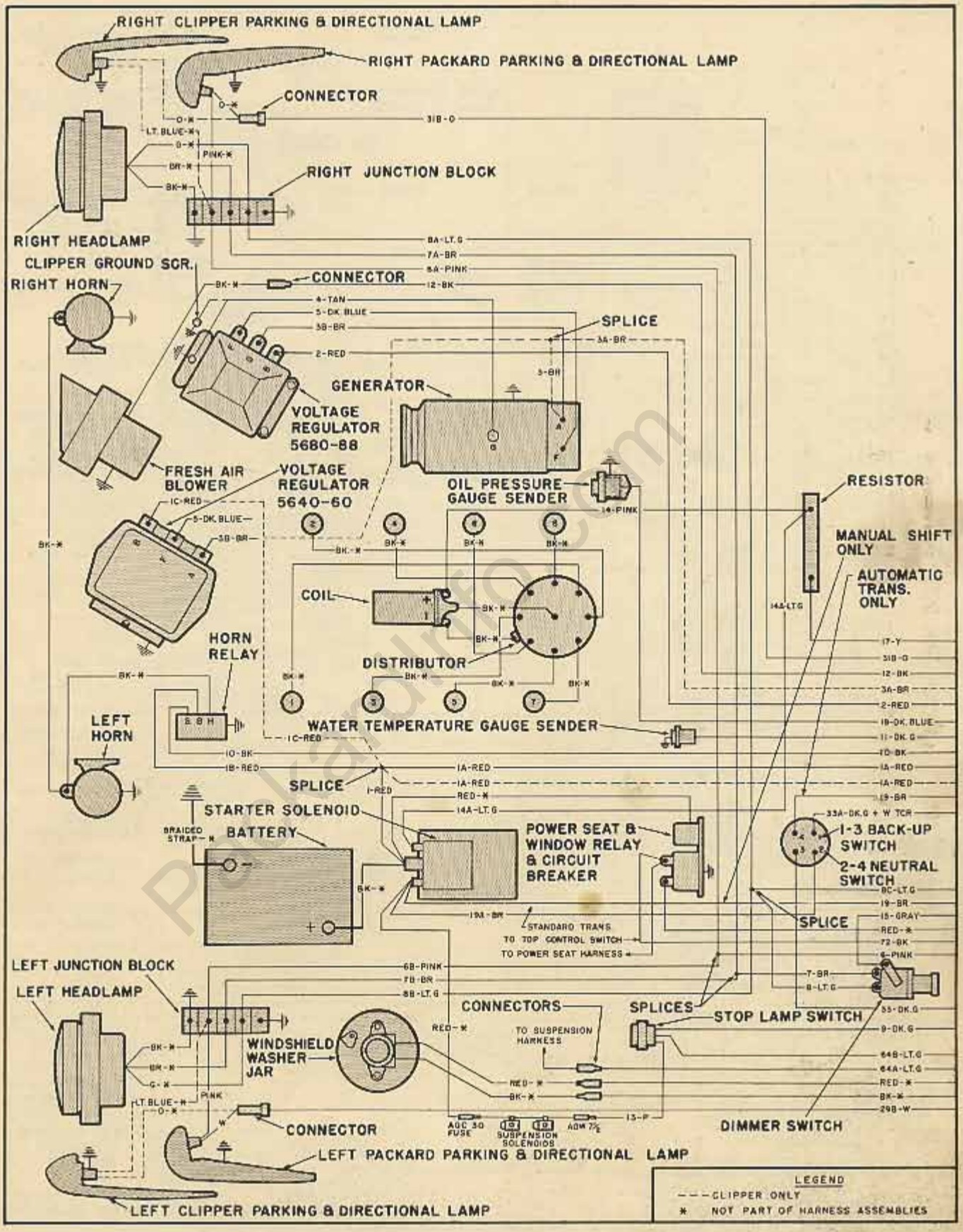
CHECK THE FLUID LEVEL EVERY 1,000 MILES

CHANGE FLUID, REMOVE SCREEN AND CLEAN EVERY 25,000 MILES

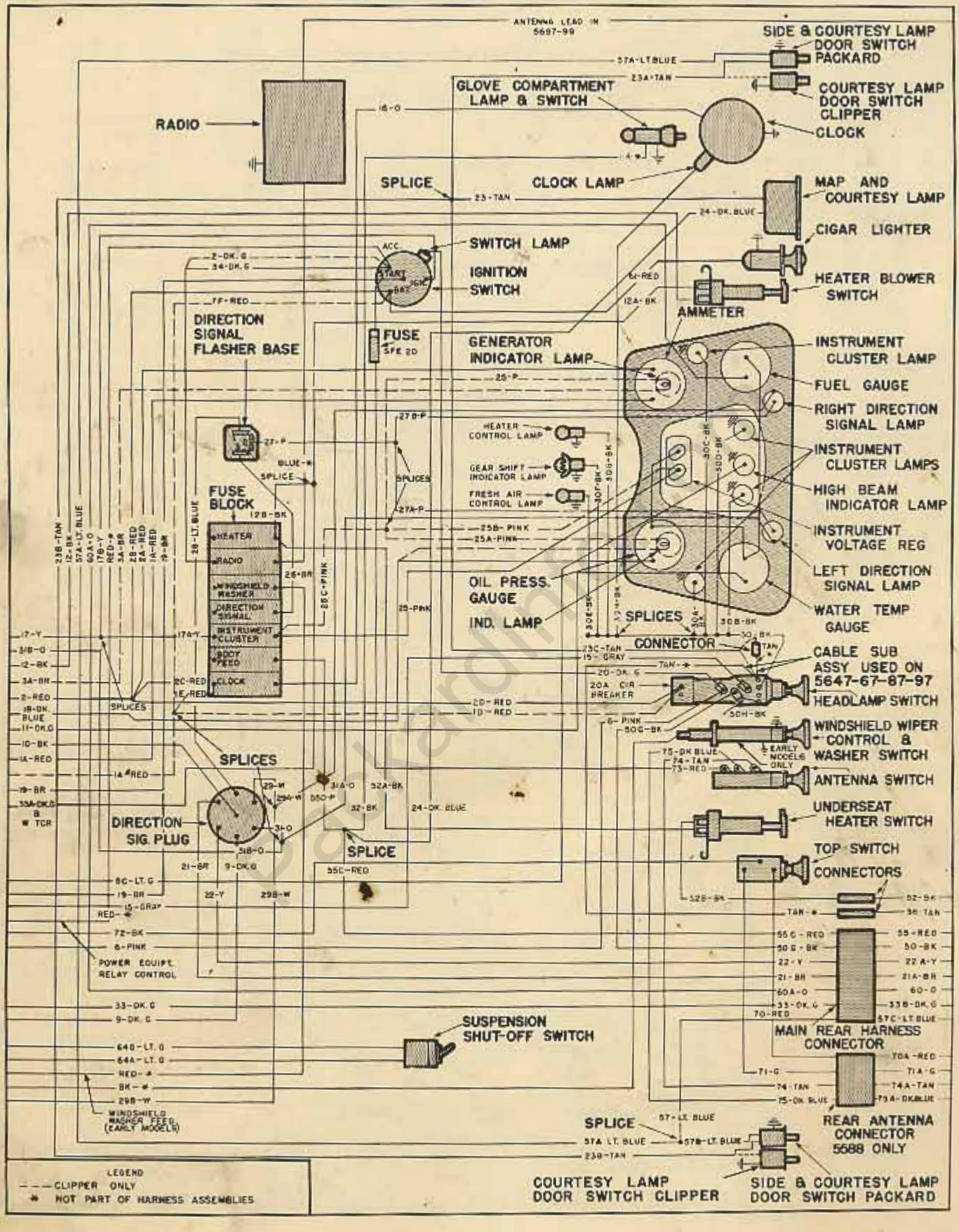


REFILL WITH PACKARD ULTRAMATIC DRIVE FLUID

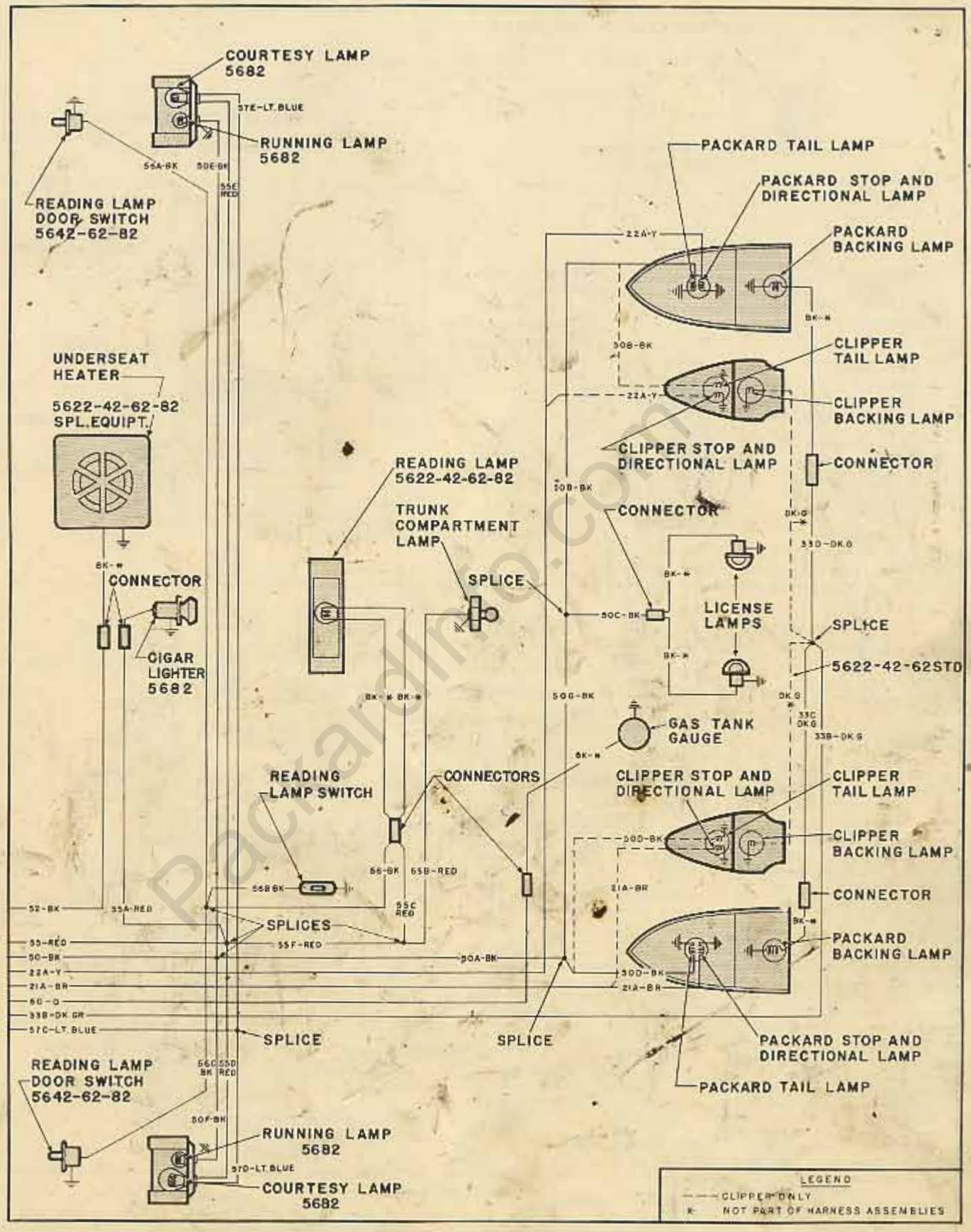




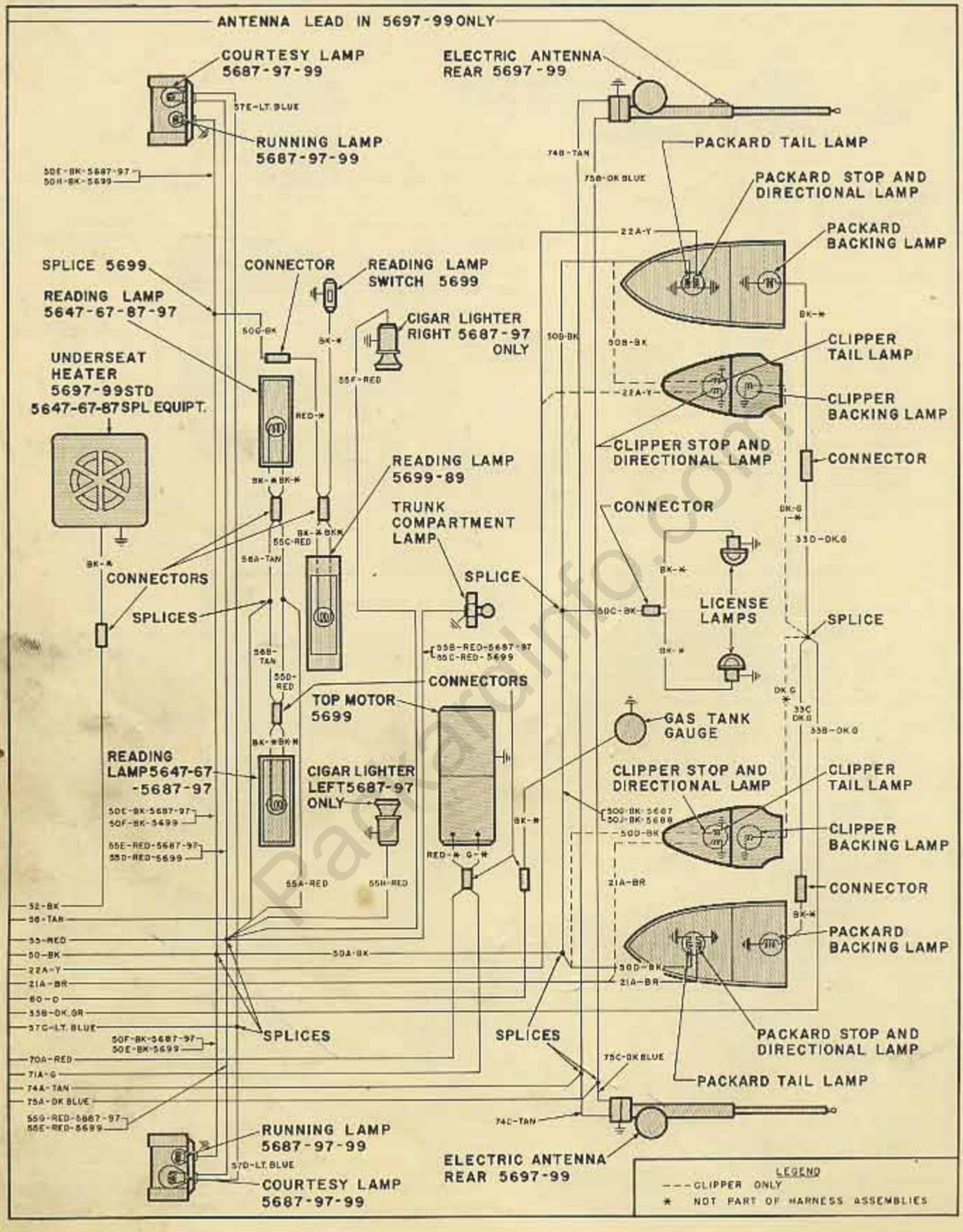
56th Series Engine Compartment Wiring Diagram



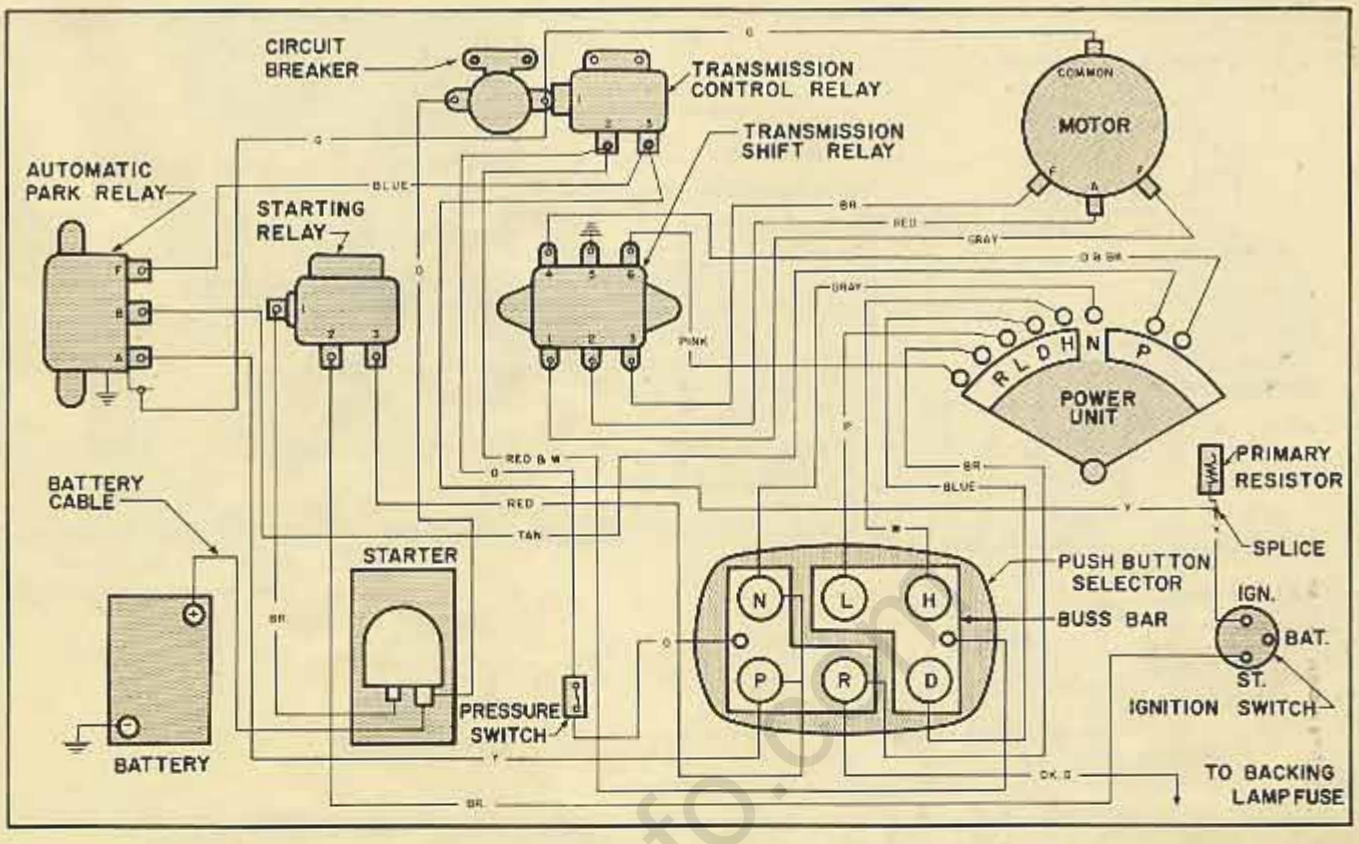
56th Series Driver's Compartment Wiring Diagram



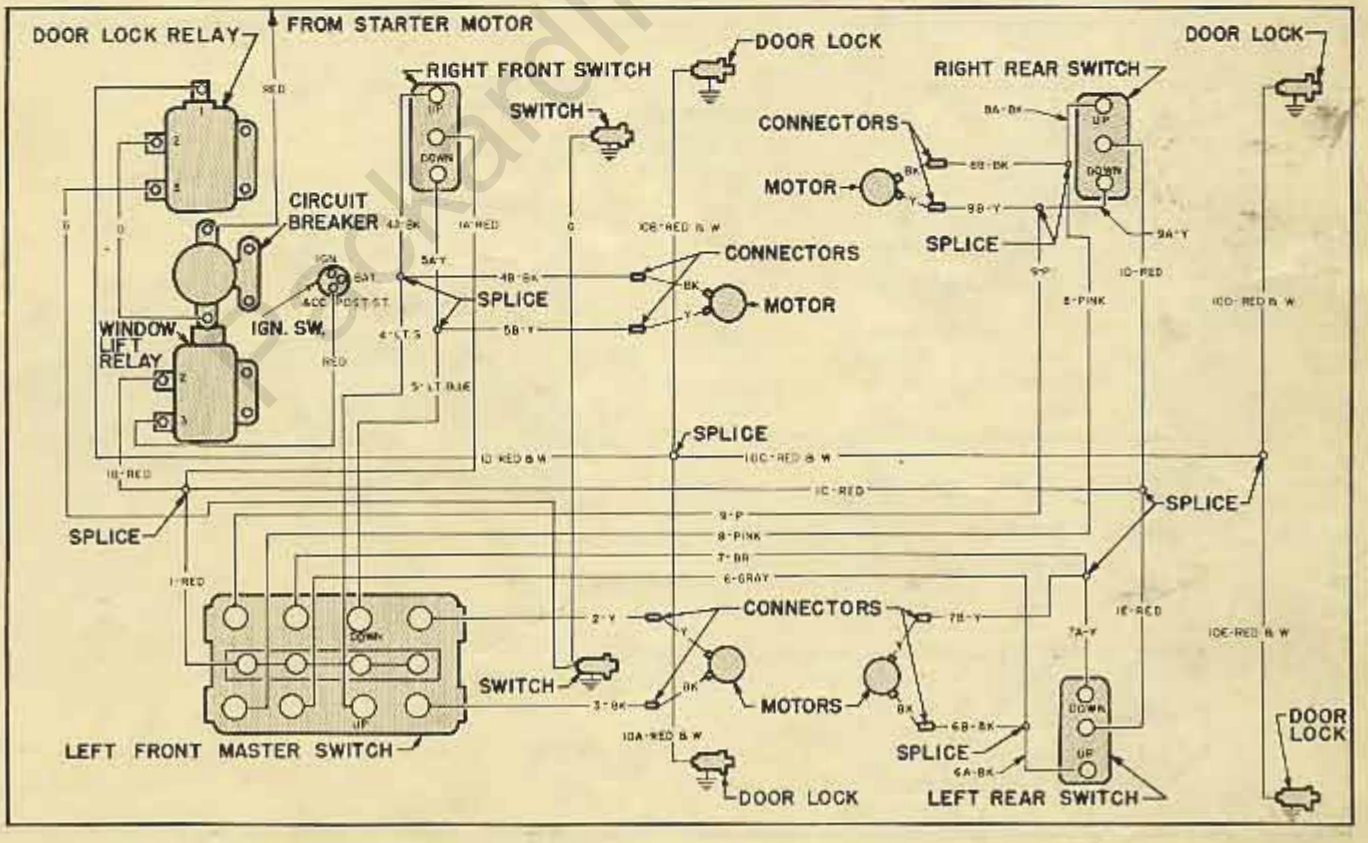
56th Series Rear Chassis and Body Wiring Diagram (Models 5622-42-62 and 82)



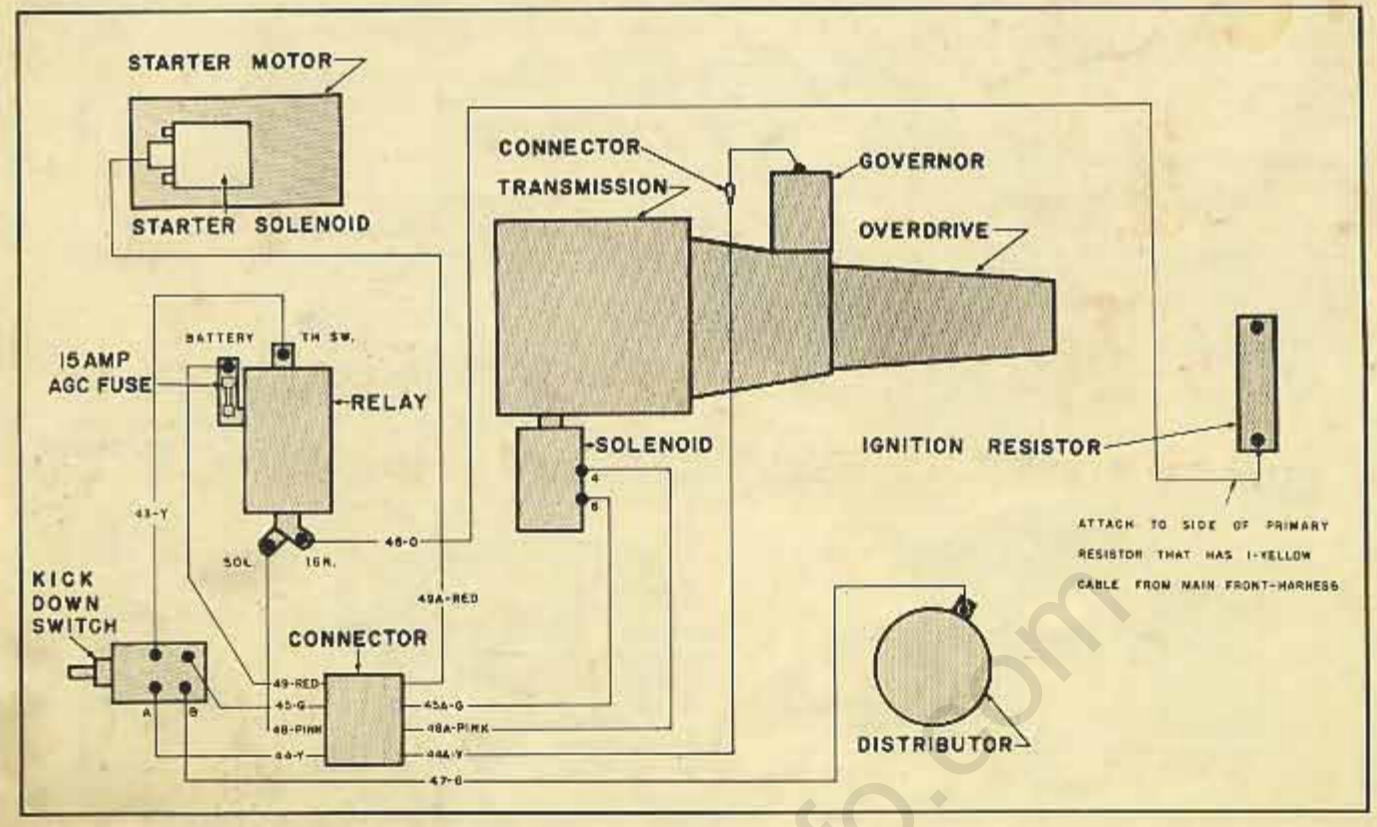
56th Series Rear Chassis and Body Wiring Diagram (Models 5647-67-87-97 and 99)



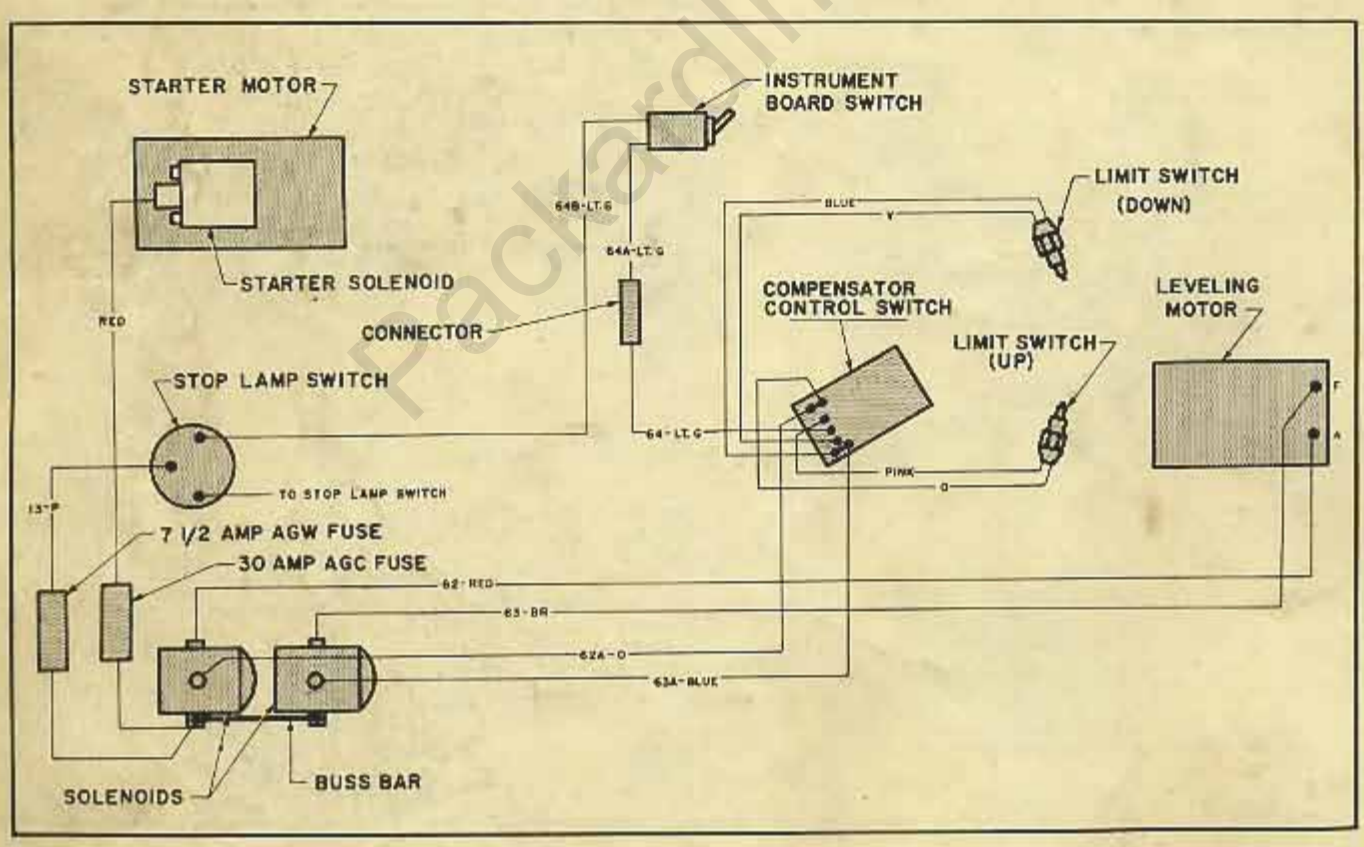
Push Button Selector Wiring Diagram



Electric Window Lift and Door Lock Wiring Diagram



56th Series Overdrive Wiring Diagram



56th Series Torsion-Level Suspension Wiring Diagram

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