



VOL. 15 No. 7

APRIL 1, 1941

SERVICE INFORMATION AVAILABLE ON THE 1951

Service information on the Packard Clipper, Model 1951, will include a Service Film entitled "Servicing the Packard Clipper" which will be in your hands complete with film supplements by April 15.

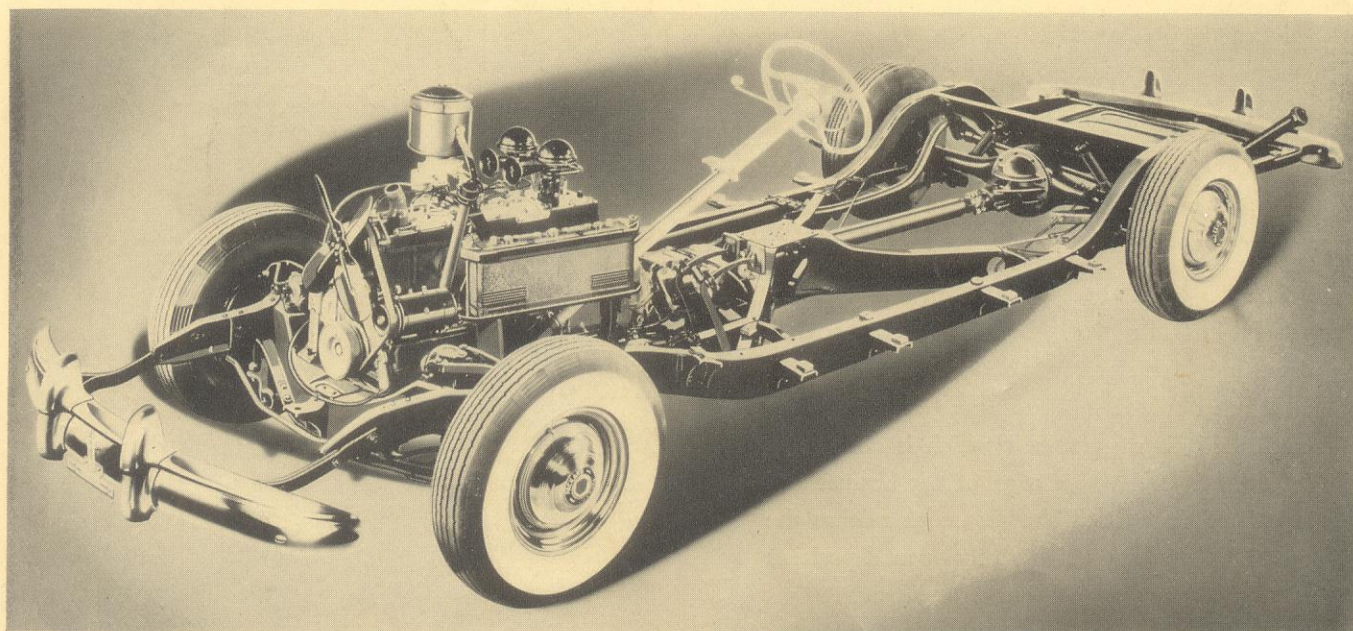
The Preliminary Parts List with both suggested list and dealer net prices will also be in your hands by that time.

A new type of Owner's Book along with an Owner's Service Card is being included with each car shipped. The new book is non-techni-

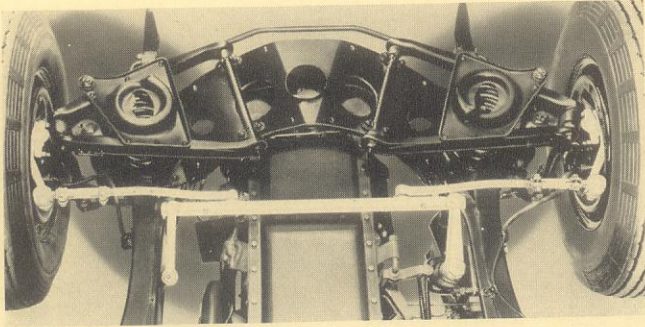
cal and encourages the owner to visit his Packard Dealer for all service requirements.

This issue of the Service Letter contains views of the new features of interest to service men. The lubrication and wiring diagrams and the Standard Sizes, Adjustments and Weights are included.

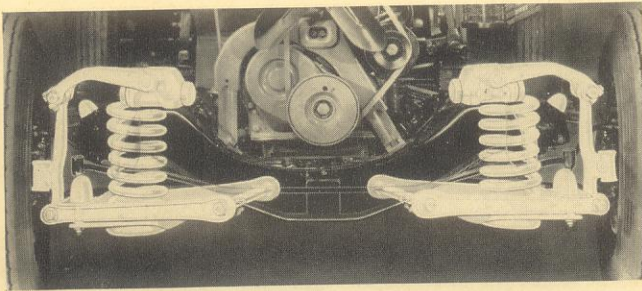
This will give you preliminary information to assist in getting these cars ready for delivery and will take care of any service that may be required.



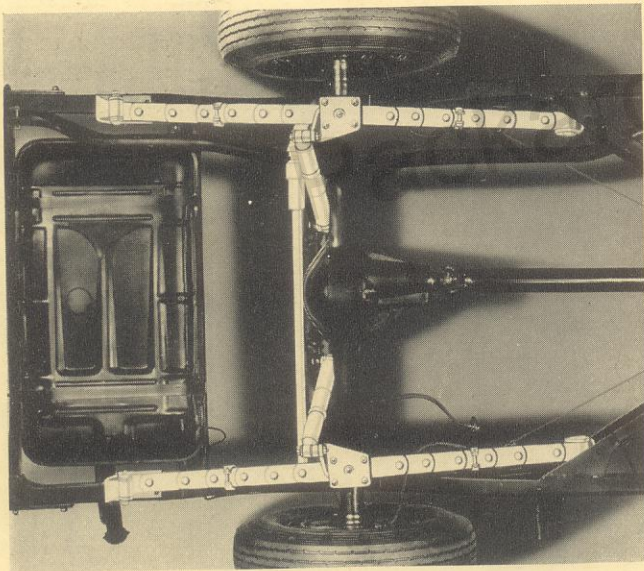
1951 FEATURES



STEERING CONNECTIONS

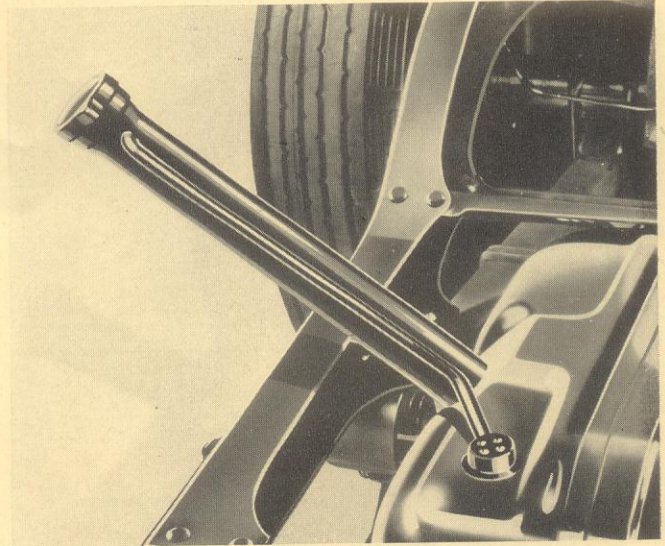


FRONT SUSPENSION



REAR SUSPENSION

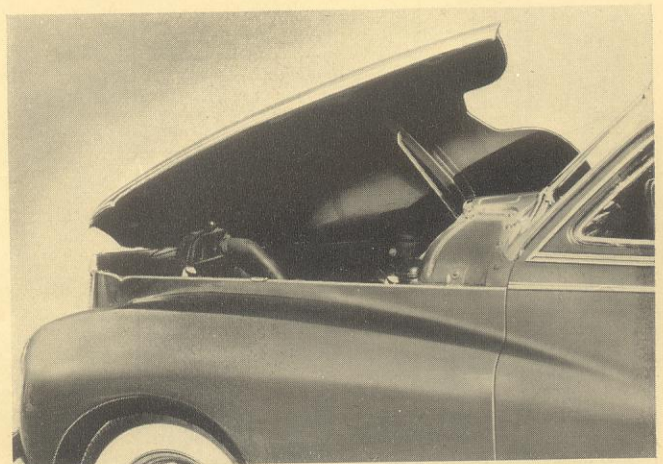
Note: To lift bonnet push down and back on control knob located below instrument panel at extreme left or right. Lift bonnet about one inch and insert finger in opening to release safety catch. This is a small rod which is about two feet ahead of the rear edge of the bonnet and is pushed in toward the motor to release the catch. Raise bonnet to the fully opened position and insert support to hold in position.



VENTALARM



BONNET LATCH CONTROL KNOB



BONNET SUPPORT AND CLAMPS

INSTALLING FOG LIGHTS WITH STONE SHIELDS

19th SERIES

A front bumper stone shield has been added as standard equipment on Nineteenth Series cars. To install fog light equipment, PA-362435, on Nineteenth Series cars with front bumper stone shield, place the fog lamp upper clamp bracket in position on the bumper inner support bar, as far back as possible under the stone shield. Scribe the clamp bracket bolt hole on the stone shield. Centerpunch and drill a pilot hole for the cutting saw. With a cutting saw, using this hole in the stone shield as a guide, cut from the top a 2" diameter hole in the shield. Follow the installation instructions in the fog light package in all other respects.

THE STORY OF A PIECE OF TIN

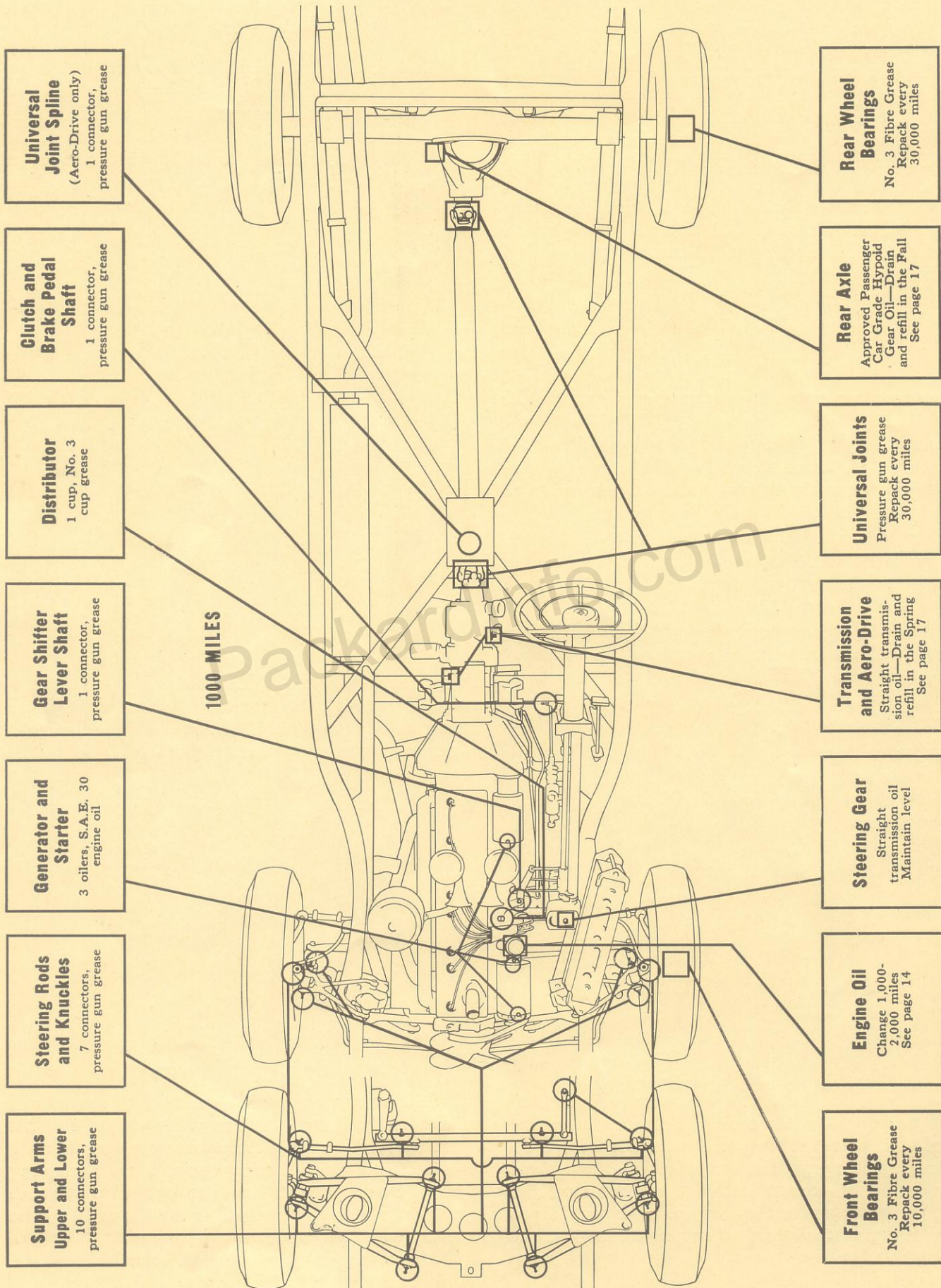
Mr. "A" bought a new Packard car from the dealer in his home town. Proud of his new machine, he started next day on a vacation trip across the continent.

For some reason—carelessness or indifference?—the New Car Fitting and Delivery operation had not been properly performed by the dealer, and Mr. "A" encountered unnecessary trouble.

When he stopped at a Packard dealer en route to have the first difficulty corrected, "no charge" service under the terms of the warranty was refused *because the selling dealer had failed to stamp the dash-plate.* So—Mr. "A" paid for warranty service.



1951 LUBRICATION DIAGRAM



STEERING KNUCKLE BEARINGS

19th SERIES

At the beginning of the 19th Series we used antimony-lead steering knuckle thrust bearings in the 1900 and 1901. We also used roller bearings at each end of the steering knuckle pin.

We later found that if these antimony-lead thrust bearings were not frequently lubricated they had a tendency to bind and to increase the stiffness of the steering. We accordingly changed back to the 18th Series construction, using ball thrust bearings at the bottom of the knuckle and bronze bushings on the king pin.

We are no longer supplying the antimony-lead thrust bearings from service and when any replacements are made they should be made with the ball thrust bearings which were used on the 18th Series. If the roller bearings on the king pin are in good condition they need not be disturbed.

In the 19th Series Super 8 design we continued with ball thrust bearings at the lower end of the knuckle but used antimony-lead bushings on the king pin. These bushings also have been discontinued and last year's bronze bushings are now being supplied. No change was made in the ball thrust bearings.

"FOR WHOM THE BELL TOLLS"

(With apologies to Hemingway)

- For the dealer who neglects to sell at least one accessory with every new car.
- For the dealer who neglects to sell an Inspection and Lubrication Book with each car as a means of getting the owner into his service department.
- For the service manager who fails to maintain a regular follow-up to keep his service customers coming in.
- For the service manager who shouts back at a complaining customer.
- For the service salesman who forgets to telephone the customer if the car will not be ready when promised.
- For the service salesman who neglects to test the car carefully to be sure it is satisfactory before it is delivered to the owner.
- For the service mechanic who knows so much he doesn't have to read the Service Letters.

CLUTCH LINKAGE

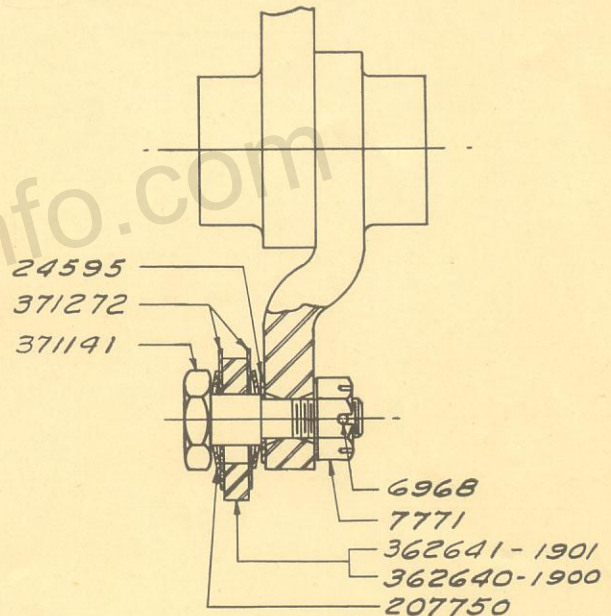
1600-1601 1700-1701 1800-1801

In checking the clutch pedal adjustment on 17th and 18th Series Junior cars you have noticed that there is a tendency for the pedal to go down instead of to come up.

This is due to wear in the linkage. As the clearance increases in the ends of the rods the pedal moves downward, and unless its position is watched it will reach a point where there is not enough travel remaining to disengage the clutch.

This is sometimes overlooked by mechanics who are thinking in terms of the older models. Previous to this construction the pedal had a tendency to move upward, due to wear in the lining of the plate, and would eventually come up to the point where it rode against the floor board. Since this had been the case some service stations have overlooked the importance of checking the pedal adjustment on the 17th and 18th Series Junior cars to make sure that it is high enough to provide a full disengagement.

You have undoubtedly noticed that a different linkage is used in the 1900 and 1901. The new linkage does not develop the lost motion which formerly occurred and the pedal position remains practically constant. This new linkage can be applied to the 17th and 18th Series Junior cars.

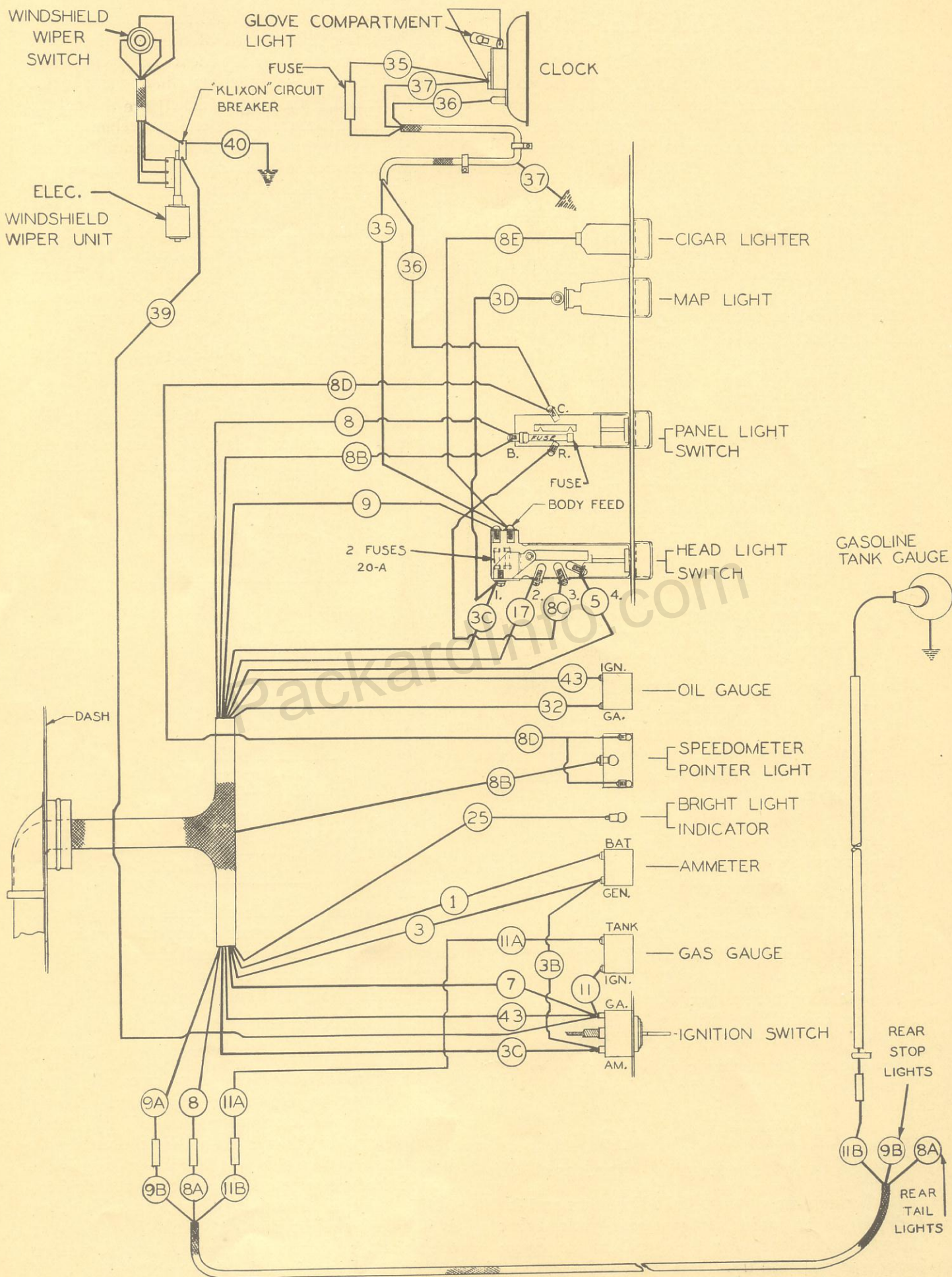


If it is found that the old style linkage on the earlier cars requires repair or replacement it will be quicker and easier to install the new linkage complete. The parts list for \$3.66 and can be installed in about an hour. You can order

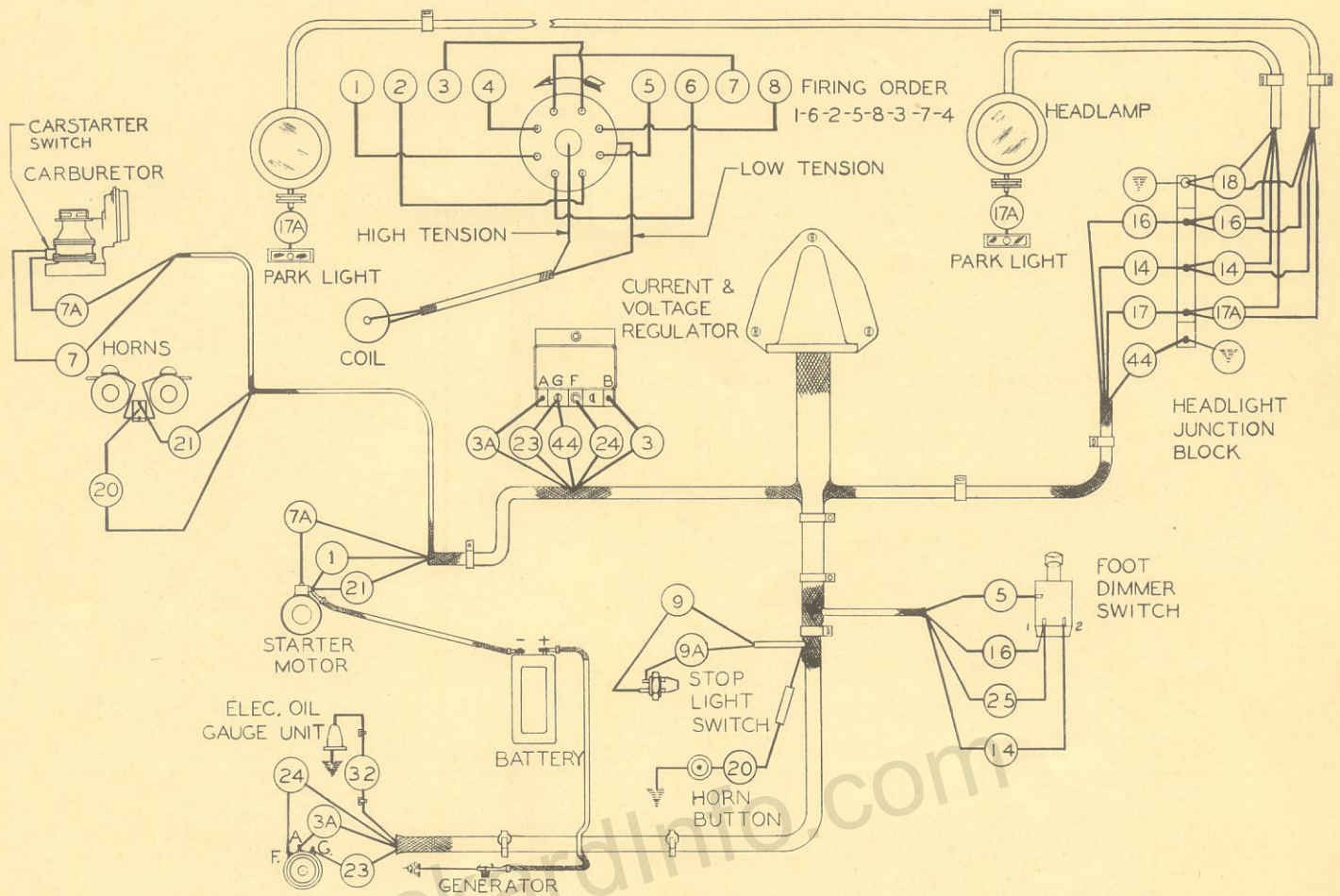
377473 Clutch Relay Equipment (1700 and 1800)

277494 Clutch Relay Equipment (1701 and 1801)

The installation exactly duplicates the 19th Series except at the point where the stud is mounted in the lower extension of the clutch pedal. In the earlier cars the hole in the pedal was chamfered on each side and, in order to provide a firm anchorage for the stud, a flat washer, Pc. No. 24595, is included in the equipment. This washer is installed against the face of the lever so that the shoulder of the stud bears against the washer and is not drawn into the chamfered hole.



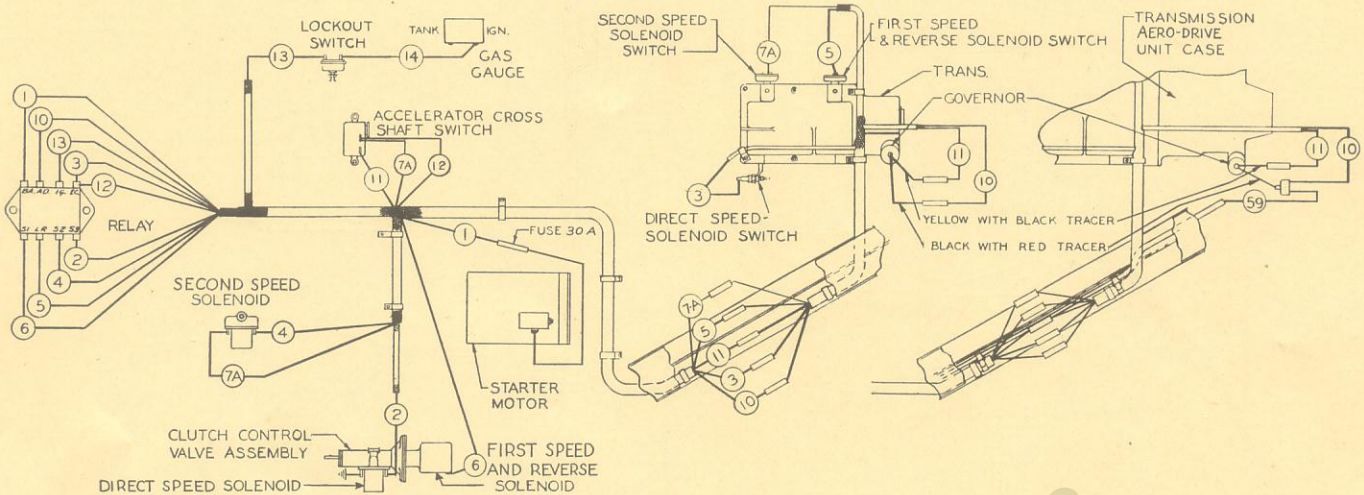
1951 CHASSIS WIRING DIAGRAMS



NO.	GAUGE	COLOR	LOCATION
1	10	Red	From Starter Motor Switch to Ammeter
3	10	Black	From Ammeter to Regulator
3A	10	Red	From Generator to Regulator
3B	12	Black	From Ammeter to Ignition Switch
3C	12	Black	From Ammeter to Headlight Switch
3D	16	Black	From Headlight Switch to Map Light
5	14	Black	From Headlight Switch to Foot Dimmer Switch
7	16	Black	From Ignition Switch to Car Starter Switch
7A	16	Black	From Car Starter Switch to Starter Solenoid Switch
8	16	Black	From Panel Light to Rear Harness Junction
8A	16	Black	From Rear Harness Junction to Rear Tail Lights
8B	16	Black	From Panel Light Switch to Speedometer Pointer Light
8C	16	Black	From Head Light Switch to Panel Light Switch
8D	16	Black	From Panel Light Switch to Panel Lights
8E	14	Black	From Cigar Lighter to Headlight Switch
9	16	Green	From Headlight Switch to Stop Light Switch
9A	16	Green	From Stop Light Switch to Rear Junction Harness
9B	16	Green	From Rear Harness Junction to Stop Lights
11	16	Black	From Ignition Switch to Gas Gauge
11A	18	Tan with Black and Red	From Wiring Harness (Rear) to Gas Gauge (Inst.)
11B	18	Tracers	From Wiring Harness (Rear) to Gas Gauge (Tank)
14	14	Red	From Foot Dimmer Switch to Headlights (City)
16	14	Green	From Foot Dimmer Switch to Headlights (Drive)
17	16	Black with Red Tracer	From Headlight Switch to Junction Block
17A	16	Blue	From Junction Block to Parking Lights
18	14	Black	From Headlights to Junction Block (Ground)
20	16	Brown	From Steering Column to Horns
21	12	Black	From Starter Motor to Horns
23	14	Black	From Generator to Regulator Ground
24	18	Brown	From Generator to Regulator Field
25	18	White	From Foot Dimmer Switch to Indicator Light
32	16	Yellow with Black Tracer	From Oil Gauge Unit to Gauge
35	18	Red	From Headlight Switch to Fuse at Clock
36	18	Black	From Clock to Panel Light Switch
37	18	White	From Clock to Center Panel Lower Right Screw (Ground)
39	16	Red	From Electric Windshield Wiper Unit to Ignition Switch
40	16	Green	From Electric Windshield Wiper Motor to Ground
43	16	Black	From Ignition Switch to Oil Gauge
44	14	Black	From Voltage Regulator to Junction Block (Ground)

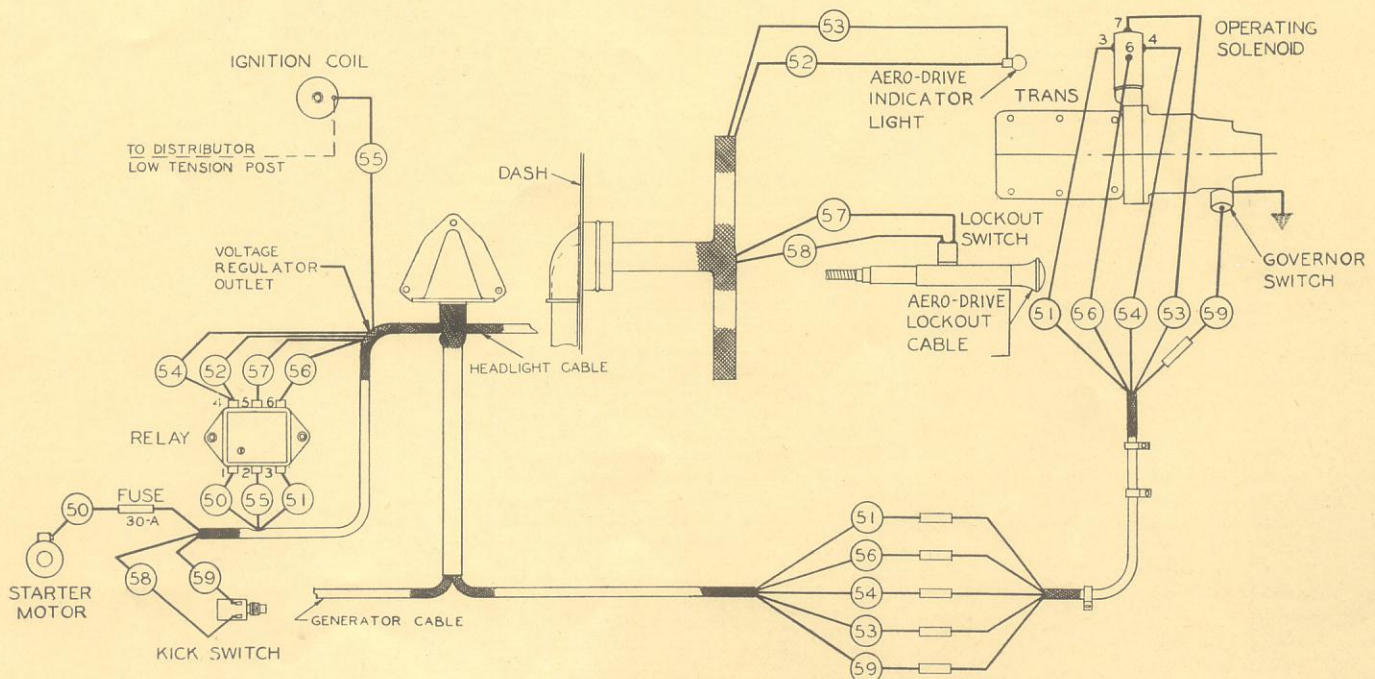
1951 ELECTROMATIC CLUTCH WIRING DIAGRAM

NO.	GAUGE	COLOR	LOCATION
1	12	Black	From Starter Motor Fuse Connection to Battery Post on Relay
2	16	Black and Green	From S3 Post on Relay to Solenoid No. 3
3	16	Yellow and Black	From EC Post on Relay to Direct Speed Solenoid Switch
4	16	Green	From S2 Post on Relay to Solenoid No. 2
5	16	Black and Red	From LR Post on Relay to First Speed and Reverse Solenoid Switch
6	12	Red	From S1 Post on Relay to Solenoid No. 1
7A	16	Yellow	From Solenoid No. 2 to Second Speed Solenoid Switch
10	16	Black	From AD Post on Relay to (Black with Red Tracer) Cable on Governor
11	16	Green	From Accelerator Cross Shaft Switch to (Yellow with Black Tracer) Cable on Governor
12	16	Yellow and Black	From EC Post on Relay to Accelerator Cross Shaft Switch
13	16	Red	From Ignition Post on Relay to Lockout Switch
14	16	Red	From Lockout Switch to Gas Gauge



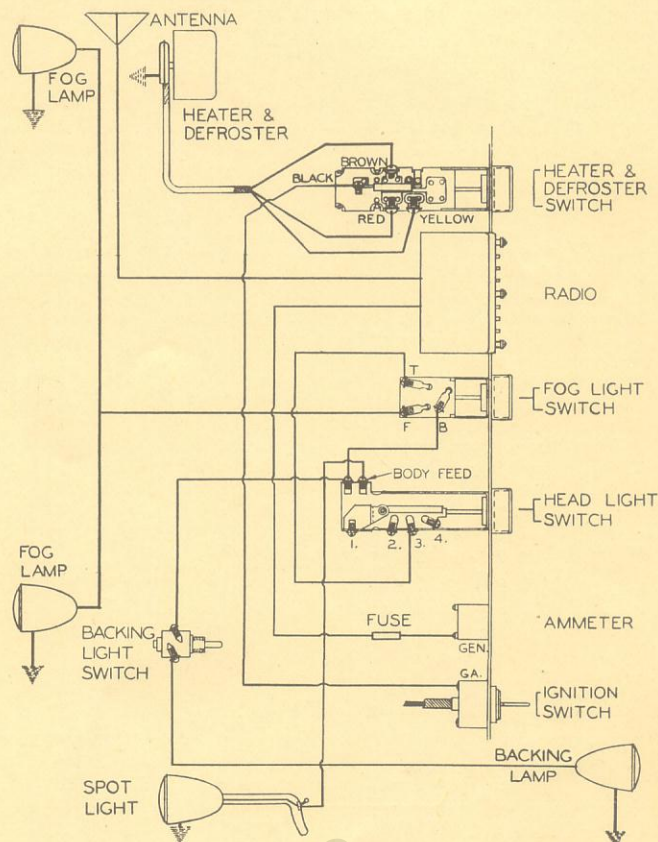
1951 TRANSMISSION AERO-DRIVE WIRING DIAGRAM

NO.	GAUGE	COLOR	LOCATION
50	12	Black	From Starter Motor Switch to Relay Post No. 1
51	14	Yellow	From Relay Post No. 3 to Solenoid Post No. 3
52	18	Brown	From Relay Post No. 4 to Aero-Drive Indicator Light
53	18	Brown	From Solenoid Post No. 7 to Indicator Light
54	12	Black	From Relay Post No. 4 to Solenoid Post No. 4
55	16	Green	From Relay Post No. 2 to Ignition Coil—Low Tension Post
56	14	Green	From Relay Post No. 6 to Solenoid Post No. 6
57	16	Black with Red Tracer	From Relay Post No. 5 to Aero-Drive Lockout Switch
58	16	Black with Red Tracer	From Kick Switch to Aero-Drive Lockout Switch
59	16	Black with Red Tracer	From Kick Switch to Governor Switch



PACKARD CLIPPER ACCESSORY LIST AND WIRING DIAGRAM

PA-366666	Curtain, Rear Window
PA-373688	Heater, Dual Stream
PA-373273	Heater, De Luxe
PA-13015	Heater, Switch and Wire Equipment
PA-373637	Lights, Backing
PA-373685	Lights, Fog
PA-366668	Lights, Luggage Compartment
PA-374315	Mirror (Door Clamp type)
PA-374239	Mirror, De Luxe—Left
PA-374238	Mirror, De Luxe—Right
PA-366689	Mirror, Non-Glare
PA-373826	NoRol
PA-373272	Oil Filter Equipment
PA-373887	Radiator Cover
PA-373886	Radiator Screen
PA-373610	Radio, Custom, 6-Button
PA-366645	Rotary Antenna
PA-374236	Seat Covers
PA-374038	Venetian Shade, Rear Window
PA-366622	Wheel Shield



1951 MECHANICAL SPECIFICATIONS, ADJUSTMENTS AND WEIGHTS

ENGINE

Make	Packard
Type	L Head—Vertical
	En Bloc
A.M.A. Horsepower	33.8
Maximum Brake Horsepower	125
Revolutions per Minute	3600
Maximum Torque	228 Lbs. Ft. at 1800 R.P.M.
Suspension	Rubber Mounted
Firing Order	1-6-2-5-8-3-7-4
Bore	3 1/4"
Stroke	4 1/4"
Piston Displacement	282 cu. in.
Cylinders	8 in line
Compression Ratio—Standard	6.85 to 1
Weight with Clutch and Transmission	791 Lbs.
	With Aero-Drive 840 Lbs.
Cylinder Head Material	Cast Iron
Motor R.P.M. per Mile—Standard Ratio	2953

CRANKCASE

Type	Integral with Cylinders
Upper Half Material	Cast Iron
Lower Half Material	Steel Stamping
Oil Capacity	6 Qts.
Main Bearing Diameter	2 3/4"
Main Bearing Length No. 1	1 1/2"
Main Bearing Length No. 2	1 3/4"
Main Bearing Length No. 3	1 1/2"
Main Bearing Length No. 4	1 3/4"
Main Bearing Length No. 5	2 1/8"
Crankcase Oil Gauge	Dip Stick, Left Side
Total Main Bearing Area	56.6 sq. in.
Crankcase Drain Plug	5/8"—18

VALVES

Valve Lift	Exhaust .3175"
	Intake .318"
	L Head
Valve Arrangement	
Valve Head Diameter—Inlet	1 3/4"
Valve Head Diameter—Exhaust	1 3/8"
Valve Stem Diameter—Inlet	.33975"
Valve Stem Diameter—Exhaust	.33975"
Valve Over-All Length	5.619"
Valve Material—Inlet	Chrome Nickel
Valve Material—Exhaust	Austenitic Steel
Valve End (Type)	Split Cone
Valve Stem Clearance—Inlet	.0025"
Valve Stem Clearance—Exhaust	.0045"
Valve Tappet Clearance Inlet—Warm	.007"
Valve Tappet Clearance Exhaust—Warm	.010"
Inlet Valve Opens	1° BTDC
Inlet Valve Closes	39° ALDC
Exhaust Valve Closes	5° ATDC
Exhaust Valve Opens	45° BLDC
Tappet Clearance for Timing Inlet	.0125"
Tappet Clearance for Timing Exhaust	.015"
Valve Seat Angle—Inlet	30°
Valve Seat Angle—Exhaust	45°
Valve Spring	Single
Valve Spring Load Valve Closed	47-52 lbs. (1 5/8")
Valve Spring Load Valve Open	114-124 lbs. (1 1/8")
Exhaust Pipe Diameter	2 1/4"
Muffler Size—Front	5 1/8" x 38 3/4"

FRONT END

Gear Cover	Steel Stamping
Camshaft Drive	Silent Chain
Make of Chain	Morse 3682-R or Ramsey
Length, Width and Pitch of Chain	58 links; 1 1/4"; .375"
Number of Camshaft Bearings	5
Clearance of Camshaft Bearings	.001"-.003"
Camshaft End Play	.0025"-.006"
Camshaft Sprocket—Material and Size	Cast Iron—42 Teeth
Camshaft Material	Malleable Iron

PISTON

Weight	17 1/4 oz.
Weight with Rings and Pin	23 3/4 oz.
Over-all Height	3 7/8"
Height Centerline of Pin to Top	2 1/4"
Type and Material	Autothermic Aluminum Alloy with Strut .0005"-.001"
Skirt Clearance	2 1/4" x 7/8"
Piston Pin—Size	Floating
Type	Pressure
Lubrication of Pin	.87515"-.87485"
Piston Pin Hole—Ream	Finger Push at 160°
Piston Pin Fit in Piston	Size to Size
Piston Pin Fit in Rod	.003-.006"
Piston Pin Oversizes	3
No. of Rings per Piston	1
No. of Oil Rings per Piston	1
Depth of Piston Ring Grooves No. 1	.1782"
Depth of Piston Ring Grooves No. 2	.1782"
Depth of Piston Ring Grooves No. 3	.1762"
Type of Compression Rings	1 Per. Circle No. 200
	1 Per. Circle No. 70K
Type of Oil Rings	1 Per. Circle No. X90-"C" Wall
Width of Compression Rings No. 1	.0925"-.0935"
Width of Compression Rings No. 2	.1240"-.1235"
Width of Oil Rings	.1865"-.186"
Piston Ring Wall Thickness No. 1	.152"-.162"
Piston Ring Wall Thickness No. 2	.152"-.162"
Piston Ring Wall Thickness No. 3	.121"-.129"
Piston Ring Gap—Compression	.007"-.017"
Piston Ring Gap—Oil	.007"-.015"
Location of Rings	Above Pin
Piston Oil Drain Holes	12 3/8"
Piston Oversizes	.005", .010", .020", .030", .040"

CONNECTING ROD

Weight	1 lb., 15.6 oz.
Material	Steel Forging
Bearing Type	Detachable Shell
Center to Center Length	7 1/8"
Diameter of Crankpin Bearing	2 3/8"
Length of Crankpin	1 3/4"
Clearance Bearing to Crankpin	.0005"-.0015"
End Play on Crankshaft	.004"-.010"
Oil Lead to Piston Pin	Rifle Drilled
Bearing Material	Babbitt
Assembled in Motor	Oil Hole Toward Camshaft
Cap Attached	Bolts, Nuts and Lock Nuts
Shims	Not Used

CRANKSHAFT

Type	Counterbalanced
Material	Steel Forging
No. of Counterweights	8 Forged Integral
No. of Main Bearings	5
Main Bearing Diameter	2 3/4"
Thrust Taken on	Center
Vibration Damper	Rubber Friction Disc, Waterproof
Weight	95 lbs.
End Play	.003"-.008"
Main Bearing Material	Babbitt Lined Steel Shell
Clearance—all Main Bearings	.0005"-.0015"
Crankshaft Sprocket—Material and Size	Steel—21 Teeth
Shims	Not Used

MOTOR LUBRICATION

Type	Full Pressure
Oil Pump Type	Gear
Crankcase Capacity	6 Qts.
Oil Filler Location	Left Side
Oil Filter Location	Special Equipment
Oil Measuring Stick	Left Crankcase
Oil Intake	Floating
Crankcase Ventilator	R. H. at Rear of Block
Oil Pressure—Normal Driving	40 Lbs.

CHASSIS LUBRICATION

Every 1,000 to 2,000 Miles

Crankcase—S.A.E. 30*

*Below Minus 10° F. 10-W Plus 10% Kerosene

Minus 10° F.—10-W

Plus 10° F.—20-W

Plus 32° F.—S.A.E. 30

Drain and Refill—6 Qts.

90° F.—S.A.E. 40

*Average Daylight Temperature

Knuckle Pins—Pressure Grease Gun	2 Lub. Connectors
Steering Col. Gear Shift Idler Lever Shaft	1 Lub. Connector
Steering Connecting Rod—Pressure Gun Grease	2 Lub. Connectors
Steering Tie Rods—Pressure Gun Grease	2 Lub. Connectors
Univ. Joint Spline Gun Grease, Over-drive Only	1 Lub. Connector
Generator—S.A.E. 30	2 Oilers
Starter Motor—S.A.E. 30	1 Oiler
Distributor—No. 3 Cup Grease	1 Cup
Clutch and Brake Pedal—Pressure Gun Grease	1 Lub. Connector
Steering Idler Lever	1 Lub. Connector
Support Arm Pin, Inner, Gun Grease	4 Lub. Connectors
Support Arm Pin, Outer, Gun Grease	2 Lub. Connectors
Wheel Support Pin Upper	4 Lub. Connectors

Every 10,000 Miles

Front Wheel Bearing Fibre Grease	(4) Repack 4 oz. per Wheel
Transmission—S.A.E. 140 Summer, 90 Winter	Drain and Refill—2 Pts.
Transmission Aero-Drive Case—S.A.E. 140 Summer, 90 Winter	Drain and Refill—1 1/4 Pts.
Steering Gear—S.A.E. 140 Summer, 90 Winter	Drain and Refill—11 oz.
Rear Axle—See Packard Dealer	Drain and Refill—6 3/4 Pts.

Every 30,000 Miles

Rear Wheel Bearing Fibre Grease	Repack 2 oz. per wheel
Universal Joints, Gun Grease	Repack

CLUTCH

Type	Single Dry Plate
Free Pedal	1 1/2"-2"
Facing Material	U. S. Asbestos
	No. 1133-G Woven
Size Facing	6" x 10" x .125"
Throwout Bearing Lubrication	Packed
Clutch Spring Pressure	127 1/2 Lbs. at 1 3/16"
No. of Springs	9
Vibration Neutralizer	Springs

TRANSMISSION

Type	Selective—Silent
	Synchronized
No. of Forward Speeds	3
Aero-Drive—High	3.15 Standard
High	4.36 4.09
Second	6.67 6.25
First	10.59 9.93
Reverse	13.78 12.92
Oil Capacity	2 Pts.
Aero-Drive	1 1/4 Pts.
Oil Level Plugs	1/2"—14 Pipe
Gear Teeth	Helical
Steering Post Shift	Standard Equipment
	"Mechanical"

FRAME

Type	Taper Pressed Steel Double Drop, Box Section Side Rail in Front and Rear
Thickness	3/16"
No. of Cross Members	5, X-Type Member in Center

STEERING GEAR

Make	Packard
Type	Worm and Double Tooth Roller
Ratio	20.19 to 1
Steering Wheel	18"—3 Spoke "T"
Type of Steering Wheel	Vulcanized Rubber Over Steel Frame
Minimum Turning Radius	21 ft. 2 in.

FRONT SUSPENSION

Make	Packard Safe-T-flex
Type	Independent Parallelogram
Axle End	Reverse Elliot
Steering Knuckle Pin Bearings	(Lower) .866 x 1.1875 x 1.06 Bushing; (Upper) Needle Bearing
Thrust Bearings	Steel Ball Bearing
Caster	Neg. 1° Plus or Minus 1/2°
Front Wheel Toe-In	0 Plus 1/8 Minus 0

FRONT SUSPENSION—(Cont.)

Knuckle Pin Angle	5° 35'
Tread	59 1/4"
Camber	1/4° Plus or Minus 1/2°
Wheel Bearing—Inner	Timken 2585 Cone 2523 Cup
Wheel Bearing—Outer	Timken 1380 Cone 1329 Cup
Wheel Bearing Adjustment	Tighten Nut and Back Off 1/2 Turn and Lock

ELECTRICAL

Battery—Make	Willard WH-2D-120 Autolite P-17-ZR 17 Plate 120 Ampere Hours 19 1/4" x 4"
Battery—Capacity	50 BTDC
Battery—Size	.0125"—.0175"
Ignition Timing	Full Automatic
Breaker Point Gap	600 R.P.M. Engine
Spark Control	Autolite IGP-4502 10 mm.
Spark Advance Begins at	104 AC or Champion Y4A
Distributor (Vacuum Control)	.0255"—.0305"
Spark Plug—Size	Autolite GDZ-4801-F
Spark Plug—Make and Type (2)	Belt
Spark Plug Gap	920 R.P.M. Autolite
Generator—Make and Type	
Generator Drive	35 Ampere
Generator Cut-in Speed—Cold	
Generator Maximum Charging Rate—(Cold—8 Volt)	35 Ampere
Generator Maximum Charging Rate—(Hot—8 Volt)	Autolite VPR-4002 6 1/2 to 7 Volts
Generator Voltage Regulator	Yes
Generator Voltage to Close Cut-Out	Autolite MAW-4024
Generator Ventilated	Bendix Shift
Starter Motor—Make and Type	140
Starter Drive	9
No. of Flywheel Teeth	From Front
No. of Teeth in Bendix Pinion	On Instrument Board and
Pinion Meshes	Foot Switch
Light Control	Thermostat Relay
Headlamp Current Protection	SFE 20 Ampere
Auxiliary Fuse	SFE 20 Ampere
Body Fuse	SFE 20 Ampere
Tail Lamp Fuse	SFE 20 Ampere
Stop Light Fuse	SFE 20 Ampere
W. S. Wiper Protection	Thermostat Relay
Clock Fuse	SFE 2 Ampere
Aero-Drive Relay	SFE 30 Ampere
Headlamp Lens—Dia. at Bezel	6 1/2"
Headlamp Bulb—Sealed Beam	40-30 Watt
Horn—Make and Type	Sparton
Horn—Location	Mounted on Engine
Battery Terminal Grounded	Positive
Ampere Draw of Horns (2)	22-25 Ampere
Ampere Draw of Car Heater Motor	6 Ampere at 7 Volts
Ampere Draw of Car Defroster	4 1/2 Ampere at 7 Volts
Ampere Draw of W. S. Wiper	4 1/2 Ampere at 6 Volts
Ampere Draw of Lights	30-40 Watts
Ampere Draw of Coil—Idling Cold	2.4 Amperes
Ampere Draw of Coil—Stopped Cold	5. Amperes
Clock—Make and Type	Electric—Borg
Cigar Lighter	Automatic
Starter Stall Torque	18 ft. lbs., 4 Volt 670 Ampere Autolite CE-4659 on dash
Ignition Coil	19-23 oz.
Spring Tension on Contacts—Distributor	

COOLING SYSTEM

Water Pump	Centrifugal Self-adjusting
Water Pump Drive	Fan Belt
Radiator Core	Tubular
Capacity of System	4 1/4 Gal.
Fan	4 Blade—18"
Driving Pulley	On Crankshaft
Ratio	.963 to 1
Thermostat Starts to Open	147 1/2° (In Cylinder)
Fan Belt	49 1/4 O.D. x 3/4" x 42°
Radiator Shutter	No
Radiator Hose—Inlet	12 1/8 x 2 1/8 x 1 3/4" I.D. 120° Angle-Moulded 3 3/4" x 1 3/4" I.D. 2 1/8" O.D. On Instrument Board
Radiator Hose—Outlet	At Generator
Heat Indicator	38 Gal. per Min.
Fan Belt Adjustment	Pressure Type (4 1/2 lbs. per sq. in.) (12 lbs. per sq. in. for Air Cond.)
Gravity Flow of Radiator	
Radiator Cap	

GASOLINE SYSTEM

Carburetor—Make and Size	Carter WDO-512-S—1" Down-Draft Duplex Mechanical Pump A.C. Off Camshaft Incorporated in Fuel Pump Electric 17 Gal. A.C. Standard Thermostat Thermostatically Controlled 3/32" Below Top of Bowl "Ventalarm"
Gasoline Feed	
Pump Drive	
Gasoline Filter	
Gasoline Gauge	
Gasoline Tank Capacity	
Air Cleaner and Silencer	
Carburetor Heat Control	
Automatic Choke	
Carburetor Fuel Level	
Filling Signal	

REAR AXLE

Type	Semi-Floating
Make	Packard
Final Drive	Hypoid Gears
Propulsion	Through Springs
Axle Housing	Banjo Type Pressed Steel
Universal Joints	"Mechanics" Roller Bearing Type
No. Required	2
Oil Capacity	6 3/4 Pts.
Wheel Bearings	Timken Cone 26878 Cup 26830 60 3/16"
Tread	4.09 to 1
Standard Gear Ratio (Without Aero-drive)	.003"—.005"
Pinion Backlash	45—11
No. Teeth—Gear and Pinion	1/2"—14 Pipe
Oil Drain Plugs	

SPRINGS

Front—5 Passenger Sedan—Standard	1900 x 81—Coil
Rear—5 Passenger Sedan—Standard	930 x 110—Leaf
Front—Size	5.61 O.D.—4 1/4" I.D.
No. of Coils	9.35 Effective
Rear Length and Width	54 3/8" x 2"
Shackles	Rubber Bushed
Spring Covers	No
Shock Absorbers—Front	Delco Hydraulic—Two- Way
Shock Absorbers—Rear	Monroe Direct Acting
Shock Absorber Stabilizer	Front
Spring Material—Front and Rear	Silico Manganese

BRAKES

Type	Internal Expanding
Operation	On All 4 Wheels Hydraulic—2 Shoe 171.5 Sq. In.
Effective Area—Hand Brake	85.7 Sq. In.
Lining Size and Material—Primary	1 3/4" x 1 1/8" x 11 1/2" Marshall 2201-H-8
Secondary	1 3/4" x 1 1/8" x 13" Marshall 2201-H-8
Drum Diameter	12" Centrifuse

WHEELS

Make	Motor Wheel
Size of Tire	Demountable Disc 15" x 7.00"—4 Ply
Recommended Tire Pressure—Front	26 Lbs.
(Warm) —Rear	28 Lbs.

BODY

Panel Material	Steel
Upholstery Material—Closed Cars	Broadcloth & Bedord Cord
Glass	Safety
Windshield Wiper	Electric—Tandem
Radio Antenna	Front Fender, Vacuum Op- erated, Center Rotomatic (All Accessories)
Built-in Trunk	Yes
Spare Wheel Location	Rear Compartment
Top Type	Metal

WEIGHTS AND DIMENSIONS

	Shipping Weight	Road Weight
Five Passenger Sedan (1401)	3725 Lbs.	3865 Lbs.
Wheelbase	127"	
Over-all Length Bumper to Bumper	219 1/8"	
Over-all Height Loaded	64 1/8"	
Over-all Width	76 1/8"	

AFTER CONDITIONING A NEW CAR DO THREE THINGS

HUNTINGTON, WEST VIRGINIA

REDEMPTION CERTIFICATE AND VEHICLE DELIVERY RECORD

CITY, NAME OF DISTRIBUTOR **Brook Michigan** VEHICLE NUMBER **1282-211**

DISTRIBUTOR NUMBER **12808** CITY **Brook** DATE DELIVERED **5-15-39**

TO BE USED AS A DEMONSTRATOR ☐ YES ☒ NO **0000** MILEAGE **0000** SALESMAN'S NAME **William L. Jones** STATE **Michigan**

DELIVERED TO **Mr. R. Smith** CITY **Brook** YES ☐ NO ☒ OWNER ☐ NEW ☒ OLD

ADDRESS **427 Prospect Avenue** FLEET OPERATOR ☐ NO ☒ ALLOWANCE **\$665**

OCCUPATION **Physician** YEAR **1937** CASH ☐ CASH-TRADE ☐ CASH-TRADE TIME ☐ TRADE TIME ☒

TRADE-IN: MAKE **Buick** CASH ☐ CASH-TRADE ☐ CASH-TRADE TIME ☐ TRADE TIME ☒

FINANCED BY: **Brook Michigan** CASH ☐ CASH-TRADE ☐ CASH-TRADE TIME ☐ TRADE TIME ☒

IMPORTANT: THIS RECORD MUST BE COMPLETELY FILLED OUT AND MAILED TO DISTRIBUTOR TO RECEIVE REGISTRATION. CHECK AND INSURE FACTORY SERVICE REGISTRATION. FACTORY COPY DO NOT DETACH.

FORM 17A-24 PRINTED IN U. S. A.



BLAIR MOTORS, INC.

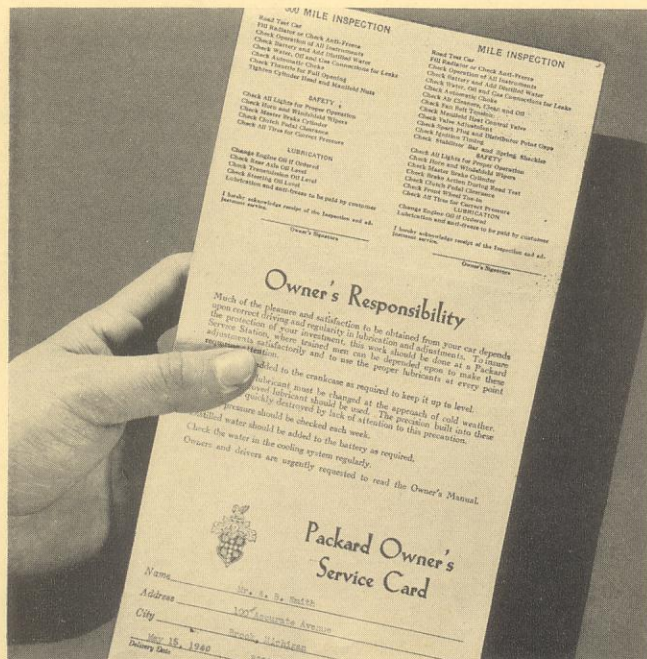
1. REGISTER THE DELIVERY



2. STAMP THE NUMBER PLATE



LUBRICATION DEPARTMENT



3. FILL OUT AND DELIVER THE OWNER'S CARD



*MOTOR ANALYZER DEPARTMENT