

Service Bulletin

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SOUTH BEND 27, INDIANA

This bulletin provides preliminary new service information for 1958 Studebaker and Packard Passenger cars.

Except for the items mentioned in this bulletin, service information provided in Studebaker and Packard Clipper 1957 Supplements to the 1956 Studebaker Passenger Car Shop Manual and in Service Bulletin Articles which refer to 1957 model passenger cars, applies to 1958 model Studebaker and Packard Passenger cars.

Car model symbols are used and the information given applies to all body types for that model unless otherwise stated. For detailed information data refer to the "General Model Identification" chart.

1958 GENERAL MODEL IDENTIFICATION

Model	Name	Body Style	Body Symbol	Engine	Wheel Base
58G	Scotsman	2 Dr. Sedan	F1	6 cyl.—185	116½
58G	Scotsman	4 Dr. Sedan	W1	6 cyl.—185	116½
58G	Scotsman	2 Dr. Station Wagon	D1	6 cyl.—185	116½
58G	Champion	2 Dr. Sedan	F4	6 cyl.—185	116½
58G	Champion	4 Dr. Sedan	V4	6 cyl.—185	116½
58B	Commander	4 Dr. Sedan	W4	8 cyl.—259	116½
58B	Commander	4 Dr. Station Wagon	P4	8 cyl.—259	116½
58H	President	4 Dr. Sedan	Y6	8 cyl.—289	120½
58H	President	4 Dr. Station Wagon	P6	8 cyl.—289	116½
58G	Silver Hawk	Coupe	C3	6 cyl.—185	120½
58H	Silver Hawk	Coupe	C3	8 cyl.—289	120½
58H	Golden Hawk	Sport Hardtop	K7	8 cyl.—289 (Supercharged)	120½
58L	Packard-Hawk	Sport Hardtop	K9	8 cyl.—289 (Supercharged)	120½

STARTING ENGINE NUMBERS

	58G—Scotsman and Champion	58B Commander	58H President	58HK Golden Hawk	58LS Packard Hawk
South Bend	1228401	V-407501	P-60701	PS-5501	LS-5201
Canada	C-74701	VC-13301	PC-2001		

STARTING SERIAL NUMBERS

	58G	58B	58H	58H-K7 Golden Hawk	58LK Packard Hawk
South Bend	G-1405401	8471601	7210001	6104501	58LS-1001
Canada	G-772301	8965101	7902001		

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BRAKE SYSTEM

The total braking area is 147.4 sq. in. on 58G models and 172.4 sq. in. on all other models. Primary shoe linings are positioned on the lower end of the primary shoe. A "Nylon" bushing is used in the brake pedal.

A power unit is standard on Packard 58LK models and is available as optional equipment on all other models.

CLIMATIZER

The flow of water to the Climatizer and defroster heater core is controlled by a single manually operated valve which is mounted on the dash under the hood (see Fig. 1). The valve is adjusted for the desired air temperature by moving the control handle mounted below the instrument board.

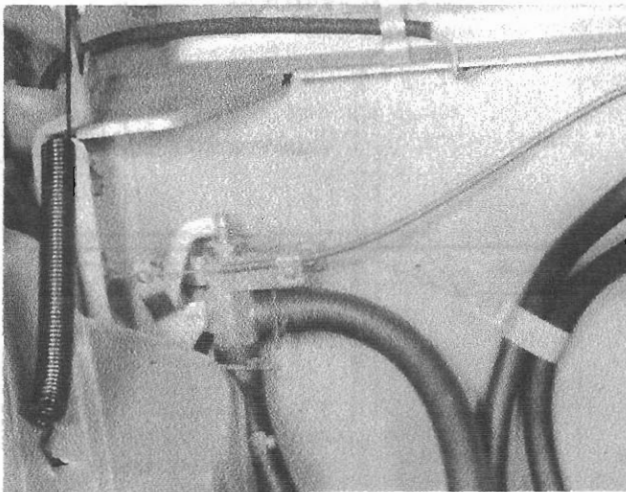


FIG. 1

CLUTCH

The 58H Studebaker Golden Hawk and 58LK Packard Hawk models are serviced the same as Studebaker 58H President models. A Nylon bushing is used in the clutch pedal shaft sleeve.

COOLING SYSTEM

The 58LK Packard Hawk model is equipped with a .97 to 1 ratio fan and water pump drive pulley and a 56 in. outside diameter belt.

ELECTRICAL SYSTEM

A Willard 12 volt battery Model HO-11-50 is used on all models.

Dual headlights are standard equipment on Studebaker 58B and 58H, sedan and station wagon models. 58G models except the Scotsman use a single headlight with a new mounting. Dual headlights are available for these models. The ignition switch is lighted on all except 58G Scotsman models.

TACHOMETER

Packard 58LK models have a tachometer drive unit mounted under the distributor cap and rotor. The unit is the same as that used on 1957 Golden Hawk models.

HORN

All models except the 58G Scotsman are equipped with Delco twin air-horns. The "Scotsman" models have a single air-tone horn. All horns are solenoid type. Each horn is mounted and attached by means of a single bracket. The horn cannot be disassembled and is available only as a complete assembly.

LAMP BULBS

Location	Voltage and Number
Headlight—Single	12-16 Sealed Beam No. 5400
Headlight—Dual	
—High Beam (inner)	12-16 Sealed Beam No. 4001
—Low Beam (outer)	12-16 Sealed Beam No. 4002
Ignition Switch	12-16 Mazda No. 1445
Trunk	12-16 Mazda No. 57
Directional Signals (Front & Parking Lamp)	12-16 Mazda No. 1034
(Rear Tail Light & Stop)	12-16 Mazda No. 1034
(Tell-Tale)	12-16 Mazda No. 1445
Back-up light (All except Hawk model)	12-16 Mazda No. 1073
Back-up light (Hawk model)	12-16 Mazda No. 1141

CIRCUIT BREAKER AND FUSES

	AMPERES	LOCATION
Circuit Breaker—		
Head, parking, tail, back-up and instrument lights	20	On headlight switch
Fuses—		
Body and stop lights	ACC 15	In block behind instrument panel
Overdrive	SFE-14	In relay on dash panel
Directional signal	ACC-15	In fuse block behind instrument panel

Removal and Installation

Remove the upper air deflector panel. Disconnect the horn wire. Remove the two retaining bolts which hold the horn bracket to the fender and remove the horn.

Position the bracket on the fender and install the retaining bolts. Connect the horn cable. Install the air deflector panel.

Adjustment

A tone adjustment can be made by turning the external adjusting screw located on top of the unit.

DUAL HEAD LAMPS

Lamp number	
High Beam (Inner)	4001
Low Beam (Outer)	4002
Wattage	
High Beam (Inner)	37½ W.
High & Low (Outer)	50-37½ W.
Voltage	12-16
Max. Amperes	4.19-3.15

Adjustment

The vertical adjustment screw is located at the top and the horizontal adjustment screw is located at the side of each light (See Fig. 2).

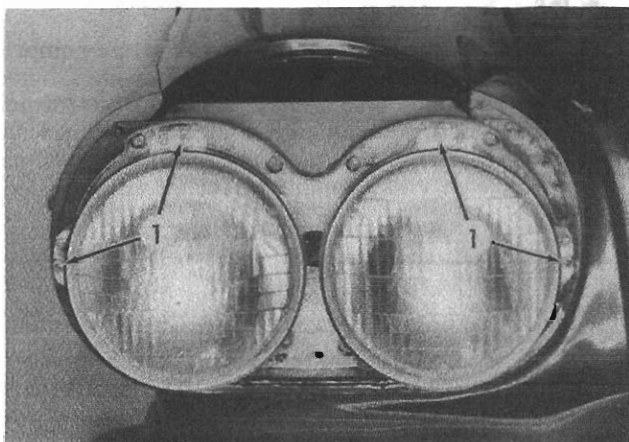


FIG. 2
1. HEAD LAMP ADJUSTING SCREWS

Aiming

Four Sealed Beam units are used (two on each side). The inner unit on each side has the numeral "1" molded into the top of the lens. This is a single filament-high beam unit. The outer unit on each side has the numeral "2" molded into the top of the lens. This is a two filament high beam—low beam unit.

The No. 1 (inner) units are aimed with the geometrical center of the hot spot straight ahead and two inches below the center of the headlight on a screen twenty five feet in front of the light (See Fig. 3).

The No. 2 (outer unit) low beam is aimed so that the top edge of the high intensity portion of the light

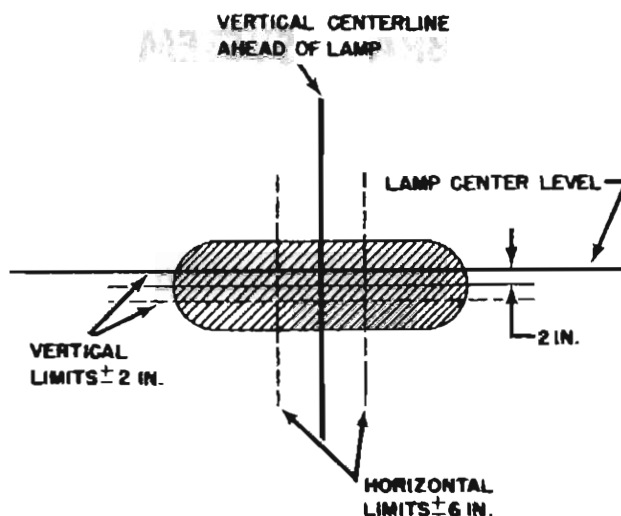


FIG. 3 AIMING INNER UNITS

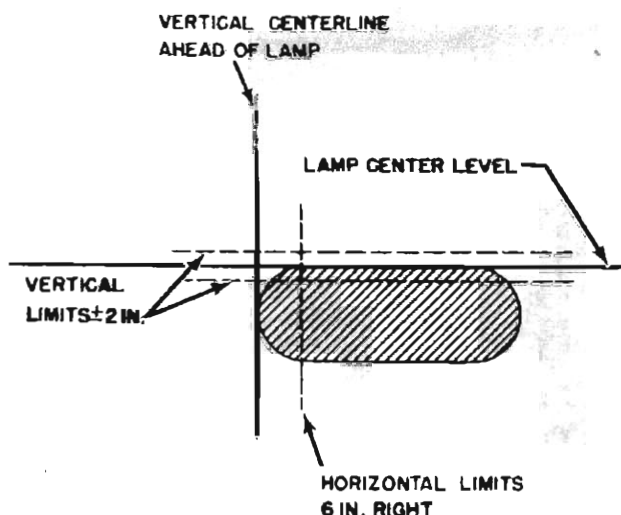


FIG. 4 AIMING OUTER UNITS

pattern is at the level of the headlight center and the left edge of the high intensity portion of the light pattern is straight ahead (see Fig. 4). When the lower beam of the No. 2 unit is properly aimed the high beam of the No. 2 unit will automatically be properly aimed.

ENGINE 185

OILING SYSTEM

A stationary oil strainer (see Fig. 5) is used in place of the floating strainer used in prior models.

OIL STRAINER AND SUCTION PIPE ASSEMBLY

Removal and Installation

After removing the oil pan, remove the suction pipe flange-to-block cap screw. Remove the assembly and remove the flange-to-block gasket.

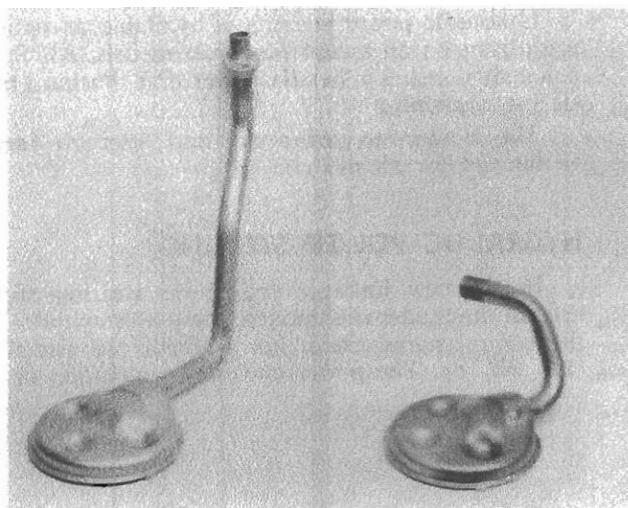


FIG. 5

FIG. 6

The oil strainer and pipe is serviced only as an assembly. It should not be disassembled.

To install the oil strainer and pipe assembly, position a new pipe flange-to-block gasket on the block, install the assembly and the cap screw. Install the oil pan.

VALVES AND VALVE SPRINGS

The valve lifter springs as shown in Fig. 31 in the 1956 Studebaker Shop Manual are not used in 58G Model engines.

259 and 289

The Studebaker Golden Hawk 58HK model and the Packard 58LK Hawk model is equipped with the 289 cu. in. engine supercharged. Except for the changes listed in the supercharger section which were necessary for supercharger adaptation, the engine is the same as used in the 58H President models.

Steel backed Micro-babbitt Lined connecting rod bearing inserts are used in all models. Tri-metal bearing inserts are available for service replacement.

The vibration damper used on 289 cu. in. engines, supercharged or with air conditioning equipment is 8 $\frac{3}{4}$ " (22.22 cm.) in diameter. The damper on all other 289 cu. in. engines is 7-15/16" (20.16 cm.) in diameter.

OILING SYSTEM

A stationary oil strainer is used in place of the floating oil strainer used in prior models. (See Fig. 6). Surplus oil from the valve rocker arm assemblies returns to the crankcase through a hole at the rear. This hole connects through a hollow dowel with a hole drilled through the cylinder block.

OIL PUMP AND STRAINER

Disassembly

If it is necessary to replace the oil strainer the strainer and pipe will be serviced only as an assembly.

The assembly can be removed from the oil pump body, using a pipe wrench to turn the strainer suction pipe which is threaded into the oil pump body.

Reassembly

Install the oil strainer and pipe assembly to the oil pump by threading the pipe into the oil pump body with a pipe wrench and tighten to 30 ft. pounds torque. Check the position of the strainer in relation to the oil pump. The lower surface of the strainer should be parallel with the pump cover. If the strainer is not parallel with the oil pump cover continue to thread the suction pipe into the pump body until proper alignment is obtained. Never back off on the pipe threads to obtain alignment as this will loosen the pipe in pump body.

EXHAUST SYSTEMS

Dual exhaust systems are used on all Studebaker 58H, 58HK and Packard 58LK Models.

EXHAUST PIPES, MUFFLERS AND TAIL PIPES

On both the single or dual exhaust systems the front mounting brackets which were bolted to the clutch housing or convertor housing *are discontinued* to minimize noise.

FRONT SUSPENSION AND STEERING

A link type front stabilizer bar is used on all Studebaker 58B, 58H, 58HK and all Packard models. The stabilizer bar link is connected to the lower control arm thru a rubber mounting. The upper end of the link is connected to the frame by bolt and rubber bushings.

STABILIZER SHAFT

Removal

To remove the control arm stabilizer shaft and link assembly, remove the nut and bolt from the upper end of the stabilizer shaft link (See Fig. 7). Re-

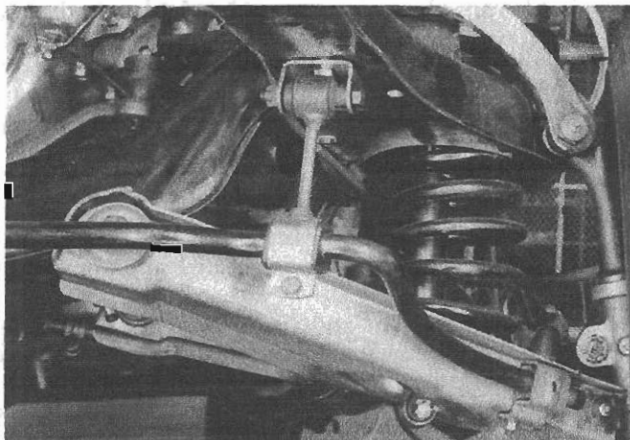


FIG. 7

move the two cap screws that hold the shaft to the lower control arm and pull the shaft down and outward to free the shaft clip from the slots in the control arms.

Disassembly

Remove the link lower bushing clip clamp bolt. Spread the clip and remove the link from the shaft. Remove the lower control arm stabilizer shaft bushing retainers from the shaft. Slide the three rubber bushings from the shaft.

Reassembly

Apply gasoline or naphtha to the inside surface of the bushings then slide the rubber bushings on the stabilizer shaft to their proper location. Install the link assembly on the stabilizer shaft and install the clamp bolt, nut and washer (do not tighten).

Installation

Install the shaft to lower control arm bushing retainers and install the stabilizer shaft assembly on the lower control arms. Make sure the rubber bushings are properly located and tighten the retainer control arm screws. Align the stabilizer shaft link and lower rubber bushing and install bolt to fasten the upper end of the link to the frame. Tighten the clamp bolt at the lower end of the link to hold the rubber bushing securely.

LINK UPPER BUSHING

Removal and Installation

With a suitable arbor and sleeve press the steel sleeve out of the rubber bushing, the rubber bushing can then be removed from the link.

To install the bushing in the link, insert the rubber bushing in the link eye, then press the sleeve into the rubber bushing.

STEERING SYSTEM

Three types of steering gears are used. The Ross TL-12 variable ratio cam and twin lever, the Ross SL-54 variable ratio cam and single lever roller stud and the Saginaw. On all of these steering gears the cam lever is serrated for attachment to the pitman arm.

The type and make of steering gear can be identified as follows:

Ross TL-12 cam and twin lever gear used on Scotsman models and on Champion models without power steering. This gear has a bolted on top cover and the lubricant filler hole plug is located at upper end of the gear housing.

Ross SL-54 cam and single lever roller stud gear used on Champion 58G models with power steering, on Studebaker 58B, 58H, 58HK and on Packard models without power steering. This gear has a bolted on top cover and the lubricant filler hole plug is located at the center of the gear housing.

Hydraulic power steering is available as optional equipment on all except Scotsman models. All Studebaker models use a Bendix power unit. Packard models use Saginaw units.

The Power Steering pump and reservoir remain unchanged for all models.

HYDRAULIC POWER STEERING

In the new linkage type power steering system used in the Studebaker models, the power cylinder and the control valve assemblies are separate assemblies (see Fig. 8). The power cylinder is mounted or an-

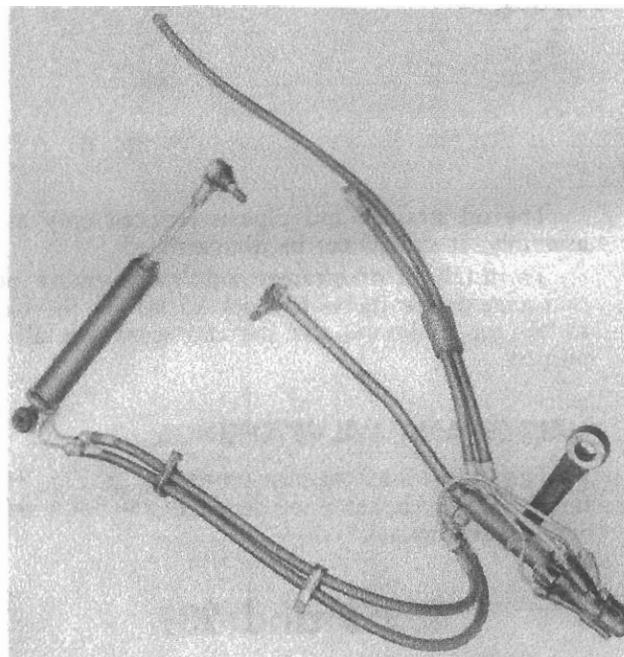


FIG. 8

chored at the left frame side rail in front of the front crossmember, with the power cylinder piston rod attached to the steering bell crank. The bell crank has been redesigned to incorporate a third arm for the power cylinder attachment. The control valve assembly is threaded into the steering gear end of the reach rod. To provide attachment for the control valve the reach rod has been changed. Because of the difference in the location of the steering gear, the reach rod and hoses used on the sedan and station wagon models are different from those used on the Hawk models. However, the same power cylinder assembly, control valve assembly and pitman arm are used on all models. The pitman arm is permanently fastened to the control valve ball stud and can not be removed.

The Ross SL-54 steering gear is used on all models.

The power steering pump, bell crank mounting and tie rods remain the same as used on the prior models.

OPERATION—In the straight-ahead position and with less than 4 pounds turning effort exerted on the steering wheel, the control valve is held in the neutral or center position by the centering spring (see Fig. 9). In this position, fluid flows past the control valve to the power cylinder and with slight pressure in the lines maintains a balanced pressure on both sides of the power piston. Because all passages are open with

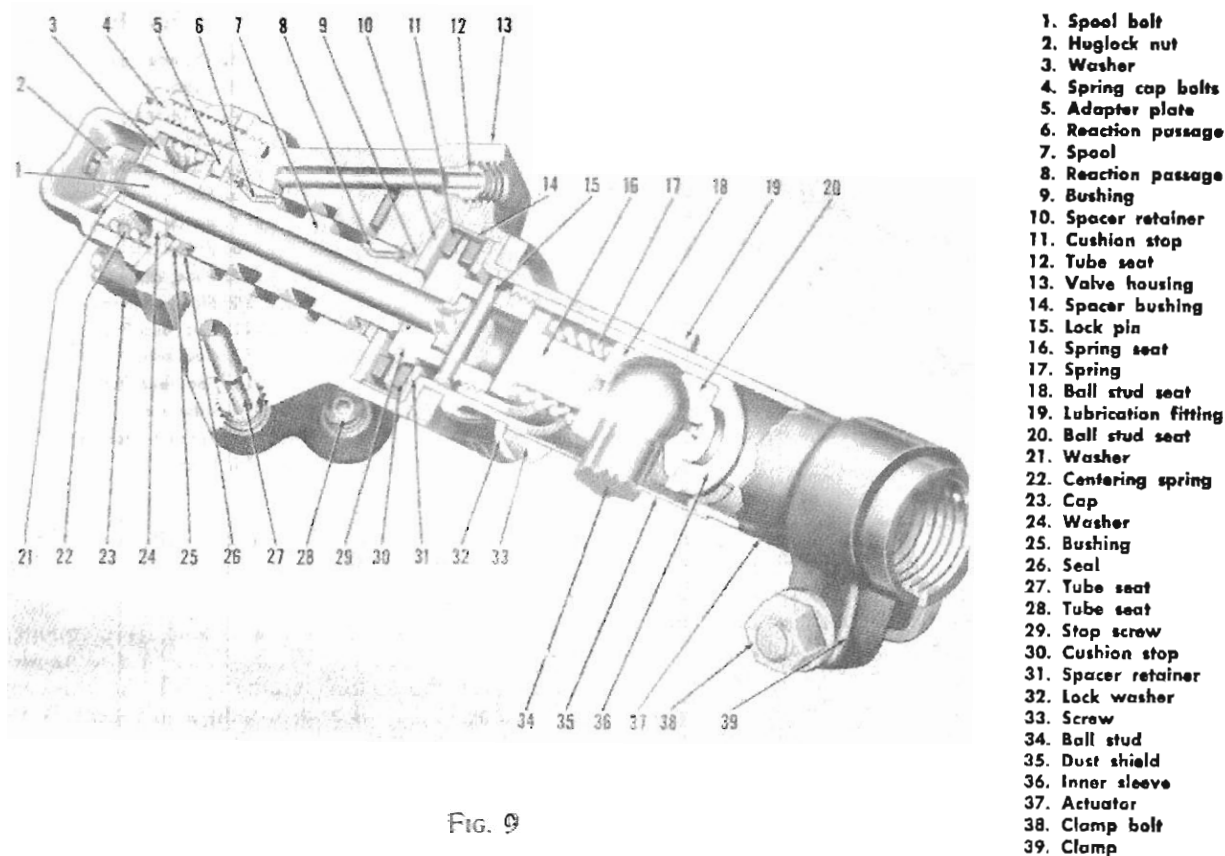


FIG. 9

the valve in the center position the remainder of the fluid flows around the valve lands and returns to the pump reservoir.

When the turning effort becomes greater than approximately 4 pounds, the pressure of the spring is overcome and the control valve spool is moved. Moving the valve spool permits fluid pressure to the right or left side of the power cylinder, depending on the direction of the turn. Pressure on the power piston then provides the assist in turning the wheels. The control valve not only directs fluid under pressure to the power piston but at the same time opens passages to permit fluid from the opposite side of the piston to return to the pump reservoir.

Fluid is permitted to flow behind the ends of the valve spool through passages in the spool. When the control valve is moved, the fluid pressure at one end of the valve becomes greater than at the opposite end. This reaction pressure at the spool is exactly proportional to the pressure in the cylinder and this way provides the "steering feel" at the wheel.

The ball check valve located between the fluid return line and pressure line permits free movement of fluid from one end of the power cylinder to the other when steering is performed without power supply. The ball check valve is normally held closed by pump pressure.

The power cylinder is of double-walled construc-

tion (see Fig. 10). Both hoses are connected to the outer end (anchor end). Fluid at the left of the piston enters directly into the cylinder. Fluid to the right side of the piston must first flow through a chamber formed by the cylinder wall and the outer tube. When the pressure at one side of the cylinder becomes great enough to overcome the pressure at the other side of the piston, the piston moves and through the piston rod which is connected to the bell crank provides the assist on the turn. As the piston moves, it forces the fluid out of the opposite side which returns to the reservoir.

CONTROL VALVE ASSEMBLY

Removal

The control valve unit, reach rod and hoses should be removed from the car as an assembly; then, the control valve removed from the reach rod while on the bench.

Disconnect the hoses at the pump body, pump reservoir, and the power cylinder. Drain the fluid from the hoses. Remove the hose retaining clips. Disconnect the reach rod from the steering bell crank. On the Hawk models, remove the starter. Remove the pitman arm retaining nut and lock washer. Using Puller J-5664, remove the pitman arm from the steering gear shaft. Then remove the control valve, reach rod and hoses as an assembly from the car.

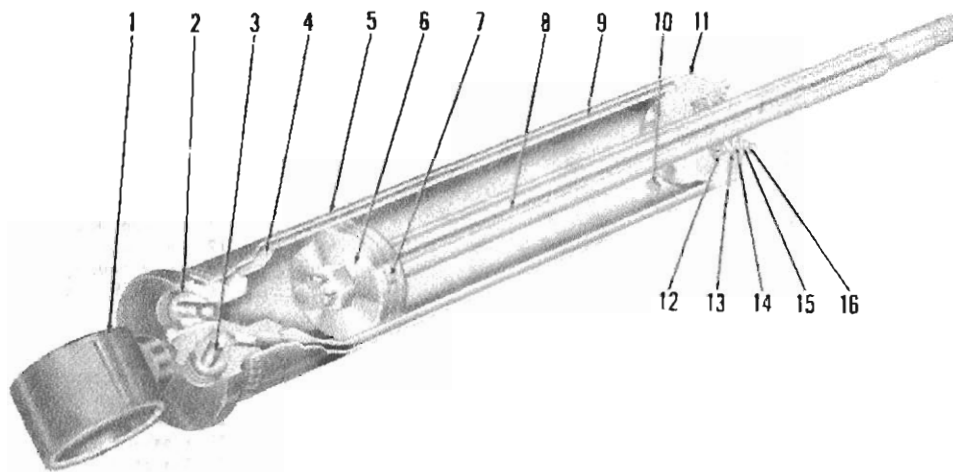


Fig. 10

1. Cylinder eye
2. Tube seat
3. Tube seat
4. Cylinder tube
5. Fluid conductor tube
6. Piston
7. Piston ring
8. Piston rod
9. Fluid chamber
10. Fluid passage
11. Rod bearing
12. Rod seal
13. Seal bushing
14. Dust seal
15. Scraper washer
16. Snap ring

Before removing the valve assembly from the reach rod, clean the assembly to remove dirt, grit and grease from the outside. Remove the four hoses from the control valve body. To remove the control valve from the reach rod, loosen the clamp on the actuator sleeve and screw the valve assembly counterclockwise off the reach rod. To facilitate reassembly and maintain the proper approximate reach rod length, count the number of turns as the valve assembly is removed from the reach rod.

Disassembly

The control valve should not be held in a vise for disassembly. However, if the bolts are difficult to remove, the control valve may be lightly held by the actuator flange to facilitate loosening the two screw and lockwasher assemblies. Under no circumstances should the control valve be firmly clamped in a vise as this may result in damage to the valve.

Remove the two centering spring cap bolts (4, Fig. 9) and remove the cap from the valve housing.

Remove the Huglock nut (2) from the spool bolt (1). Then, remove the centering spring washer (3), spring (22), spacer, centering spring washer (24), adapter plate (5) and bushing (25).

Remove the two screw and lock washer assemblies (33 and 32) that retain the actuator (37) to the control valve housing; then remove the actuator housing or outer sleeve from the valve body. The spool bolt will be withdrawn from the spool along with the actuator assembly.

The spool seal bushing (9), "U" cup seals (26), spacer bushing (14) and spacer retainer (10) are removed by pressing on alternate ends of the spool projections, by hand, firmly enough to expose the bushing and seals which are assembled onto the small and large spool journals. If the seals show signs of wear or surface breaks, they should be replaced. In removing the spool, special care should be taken to protect the spool edges and the bore of the valve housing from damage. *Do not use a linty rag or waste to wipe off the spool or the bore of the valve housing.* Remove foreign matter with compressed air or by immersing in clean oil or solvent.

Hold the actuator assembly in one hand and pull the spool bolt with the other hand just enough to take

up the slack. This will fully expose the lock pin (15) in the stop screw (29), then push the lock pin out of the stop screw.

To remove the inner sleeve and its components, turn the stop screw out of the inner or sliding sleeve and remove the spacer retainer (31). At this point, remove the ball stud and pitman arm assembly from the actuator by pushing the sliding sleeve in and toward the flange and lift the ball stud out of the sleeve. Remove the rubber seal and dust shield from the ball stud. The inner sleeve (36), spring seat (16), spring (17), ball stud seats (18 and 20) may now be removed.

If necessary to remove the tube seats, use an EZ-Out extractor. The check valve may be removed by first removing the tube seat, then using a screw driver to remove the check valve.

CONTROL VALVE

Reassembly

Each part must be free of dirt when installed to avoid malfunction of the unit. Lubricate all parts of the control valve assembly with Automatic Transmission Fluid—Type A when reassembling.

Position the ball stud seat in the inner or sliding sleeve. Then, slip the inner sleeve into the outer sleeve. Assemble the rubber seal and dust shield over the ball stud shank and install the ball stud and pitman arm assembly in the inner sleeve through the opening in the outer sleeve. Assemble the other ball stud seat in the inner sleeve to secure the ball stud and align the notches on both seats with the ball stud. Install the spring and spring seat.

Slip the spacer retainer over the threaded end of the stop screw. Insert the spool bolt through the stop screw. Turn the stop screw into the inner sleeve as far as possible then, back off just enough to secure alignment of the stop screw hole and the inner sleeve slot. Install the lock pin through the slot, stop screw hole and the spool bolt slot.

Install the spool with the large journal end facing the centering spring end of the valve body. Install the "U" cup seals and bushings over the spool journals using care to avoid damaging the seal lips. Small nicks or dirt will cause leaks.

Install the bushing retainer (10) into the cavity at the port end of the valve housing. Assemble the actuator assembly to the valve body by carefully inserting the spool bolt into the spool bolt hole, then position the actuator assembly on the body and install the retaining bolts. Tighten the bolts to 140-170 inch-pounds torque.

Install the adapter plate over the spool projections at the centering spring end of the valve. Install the centering spring spacer over the end of the spool bolt and through the centering spring washer (24). Place the centering spring over the spacer. Install the centering spring washer (3) and plain washer (21) over the spool bolt and install the spool nut. Tighten the nut until the spool can rotate with no perceptible end play.

NOTE: THE SPOOL BOLT WILL ROTATE UNTIL LOCK PIN IS ENGAGED. AFTER SPOOL BOLT IS BUTTED THEN BACK OFF NUT ABOUT 1/6 TURN.

Position the centering spring cap on the valve body and install the retaining cap screws.

Move the ball stud back and forth to check the valve spool for free movement.

Installation

Screw the control valve assembly into the reach rod the same number of turns as noted in the disassembly.

Install the hoses on the control valve being careful not to distort the bend in the tubing.

Set the front wheels in the straight ahead position and center the steering gear in the high spot. Slip the pitman arm on the steering gear shaft, aligning the marks on the arm and the shaft. Then check the distance between the center of the pitman arm ball and the reach rod ball stud by holding the end of the reach rod in position at the bellcrank. Adjust the length of the reach rod so that the reach rod ball stud will slip into the bellcrank without moving the wheels from their straight-ahead position. It is necessary to remove the unit from the car to make the adjustment. Connect the reach rod to the bellcrank and install the pitman arm retaining nut and lock washer.

With the actuator sleeve clamp loose, rotate the reach rod clockwise until the reach rod ball stud bottoms. In like manner, rotate the valve assembly clockwise until the pitman arm stud bottoms in the actuator sleeve window. Now tighten the actuator sleeve clamp securely. Rotate the locked reach rod and valve assembly counterclockwise until the ball stud is located in the center of the actuator window.

Connect the hoses at the proper locations and install the retaining clip screws.

On the Hawk models, install the starter.

POWER CYLINDER

Removal

To remove the power cylinder from the car, first, air blast the assembly to remove the dirt. Then, disconnect the two hoses from the cylinder and drain the fluid. Move the wheels back and forth to force all of

the fluid out of the cylinder. Remove the cotter pin and nut and disconnect the cylinder rod from the bell crank.

Remove the self locking nut from the mounting stud on the left frame side rail mounting bracket at the port end of the cylinder. Remove the outside insulator retaining washer. Remove the power cylinder from the stud and the rubber bushing from the cylinder eye.

Disassembly

Since the construction of the power cylinder assembly does not permit removal of the piston or piston rod, any damage to the cylinder or rod will necessitate replacement of the entire unit.

The piston rod seal components, tube seats and ball stud end are the only serviceable parts in the power cylinder assembly. Before removal of the seal components, the exposed portion of the seal cavity should be carefully cleaned with solvent, brush and compressed air.

Remove the ball stud end and lock nut.

Remove the retaining ring (16) with snap ring pliers.

Pull the piston rod outward to remove the scraper washer (15), dust seal (14) and the bushing (13).

To remove the rod seal for replacement, turn the steering wheel to the left stop with the engine running. Hydraulic fluid pressure will blow the seal out of the cavity. This must be done before the hoses or other parts are disconnected. The seal is press fitted and can not ordinarily be removed with shop pressure. If it is necessary to remove the seal with hand tools, use two awls but avoid scratching or scarring the seal counterbore or such damage will result in future leaks.

Reassembly

Install the piston rod seal, lip side of the seal to the cavity.

Install seal bushing (13), large diameter end outward.

Install the dust seal (14), small diameter hole outward.

Install the scraper with the dished hole outward and the retaining ring with the sharp edge outward.

Install the lock nut and ball stud end. Thread the end until the distance from the center of the cylinder eye to the center of the ball stud is $13\frac{7}{8}$ " (35.24 cm.). Then, tighten the lock nut.

Installation

Install the ball stud end in the bell crank.

Place the insulator washer and the cylinder retaining stud on the frame left side rail.

Assemble the bushing to the cylinder eye and install the end of the cylinder on the retaining stud. Install the insulator washer over the stud and install the self locking nut. Tighten the nut until it bottoms against the washer. Then torque it to 45-50 foot-pounds.

Connect the power cylinder hoses. Check the reservoir fluid level and bleed the system. Check the hoses for leaks. Refill the reservoir, if necessary.

BLEEDING THE SYSTEM

Fill power steering pump reservoir to top.

Allow a short period of gravity feed from pump to valve before starting engine. This will insure the presence of lubricant in the valve to prevent scoring under a steering demand.

Start engine and make approximately two full (lock to lock) parking cycles (wheels on ground). Major portion of fluid in reservoir will then flow into the power cylinder and valve assemblies.

Refill pump reservoir to required level.

CAUTION: This procedure must be followed to prevent scoring either the pump and/or the linkage spool valve.

STEERING EFFORT CHECK

Place the vehicle on dry concrete and set the parking brake. The hydraulic fluid must be warmed to its operating temperature before an accurate check can be made. Run the engine at idle speed and, at the same time, turn the steering wheel to the right and left several times. About two minutes of this procedure will usually bring the fluid temperature to normal operating temperature. If checking in a low outside (atmosphere) temperature it may require a slightly longer period.

Hook a spring tension scale to the steering wheel then, measure the effort necessary to turn the steering wheel one turn off the center ($\frac{1}{2}$ turn to the right and $\frac{1}{2}$ turn to the left). If the effort is not more than 11 lbs. in either direction the power steering system is operating normally. If the check shows the effort in excess of 11 lbs., check the system for causes outlined in the Diagnosis section.

Diagnosis—Power Steering

Condition and Causes

NO OIL PRESSURE

Flow and pressure control valve assembly sticking
Loose pump drive belt
Weak relief valve spring
Relief valve stuck open
Low oil level in reservoir
Improper fluid

PUMP LEAKS

Loose, damaged or cracked connections
Hose leaks
Seals between pump and reservoir
Pump shaft seal
Pump cover seal

POWER CYLINDER LEAKS

Loose damaged or cracked connections
Scored piston rod
Worn or damaged seal

PUMP NOISE

Air in system
Relief valve chatter
Low oil level
Obstructed intake oil line or passage
Obstructed reservoir vent
Wrong type of fluid
Pump bearings rough
Sticking pump vanes
Loose pump drive pulley
Wheels held at stops too long overheating pump

POOR RECOVERY AND CENTERING

Tire pressure low
Control valve spool not functioning correctly
Incorrect spool nut adjustment
Incorrect wheel bearing adjustment
Pitman arm stud riding window
Chatter in system
Air in system
Loose spool bolt
Defective rubber bushings
Worn or defective cushion stops

HARD STEERING

Valve spool sticking
Pump failure (loss of pressure, erratic pressure)
Loose or broken belt
Pump parts worn
Hydraulic leaks
Low fluid level
Underinflated tires
Bent linkage
Piston ring leakage
Pump flow control valve sticks
Air in hydraulic system
Steering adjustment tight
Wheels out of alignment
Pitman arm riding window
Front wheel oscillation
Ball stud worn
Defective anchor bushings
Loose spool nut

NO STEERING ASSIST WITH ENGINE RUNNING

Belt slips
Fluid level low
Leakage at fittings, hose or seals
Piston or rod binding in power cylinder
Loose spool nut
Defective cushion stops

GASOLINE SYSTEM

A single barrel downdraft carburetor (Carter Model BBR1-27245S) is used on 58G Scotsman Models. A single barrel downdraft carburetor (Carter Model 2417S) is used on 58G Champion models. A two-barrel downdraft carburetor (Stromberg Model WW6-117B) is used on 58B models and on 58H Silver Hawk models. A four barrel downdraft carburetor (Carter Model WCFB-2219 SA-Std. or O. D.) (WCFB-2214 SB AD) is used on 58H Sedan models. A two-barrel downdraft carburetor (Stromberg Model WWG-122A) is used on 58HK Golden Hawk and 58LK Packard Hawk models. A dry type (Fram plasticized paper) air cleaner element is used on 58G Scotsman models. Flexible fuel line connections are of the hose and clamp type.

GASOLINE GAGE AND TANK

The gasoline tank to fuel pump pipe connection is located in the tank instead of the gage unit. The flexible connection is a hose and clamp type.

CARBURETOR AIR CLEANER

A dry type (Fram plasticized paper) air cleaner element is used on 58G Scotsman models.

CARBURETOR

The 58HK Studebaker Golden Hawk and 58LK Packard Hawk models are equipped with a two-barrel (Stromberg Model WW6-122A) carburetor. This carburetor is the same unit as used on 57HK Studebaker and 57L Packard Clipper models with all modifications previously released. The WW6-122A carburetor is vented for improved hot engine starts as described in Service Bulletin number 325.

SUPERCHARGER SYSTEM

Description

A single flapper type vent is located in the air chamber base cover at the front.

The engine is equipped with steel backed-babbitt lined connecting rod and crankshaft main bearings.

Impeller Installation

The allowable clearance between the impeller and diffuser face is changed to .035" - .040".

LUBRICATION

UNIVERSAL JOINTS

Lubricant fittings are not used. The joints should be disassembled and cleaned, then repack the joints with universal joint lubricant at 20,000 mile intervals.

REAR AXLE SHAFT BEARINGS

No provision is made for lubricating the rear axle shaft bearings through the axle housing. To lubricate remove the bearings, clean and repack them with special wheel bearing lubricant at intervals of 25,000 miles.

PROPELLER SHAFTS AND UNIVERSAL JOINTS

All models have a one piece drive line (see Fig. 11). This consists of a single propeller shaft and two universal joints. A slip joint is located on the front. This slip joint slides on mating splines of the transmission shaft. The universal joints are packed with universal joint lubricant. Lubricant fittings are not used.

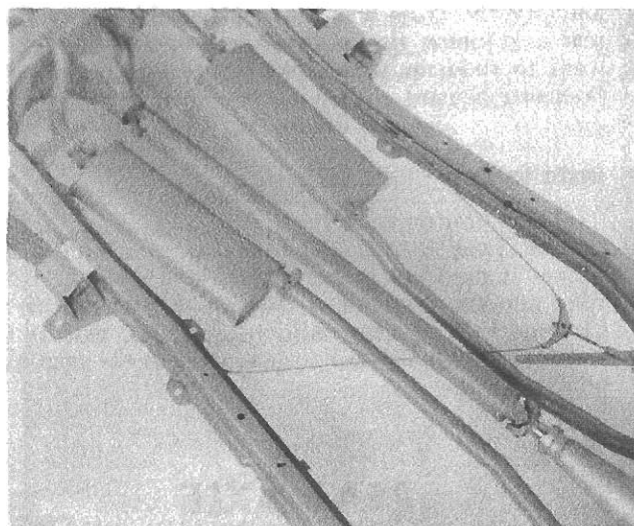


Fig. 11

PROPELLER SHAFT LENGTH

58G—Standard Axle	Conventional & Overdrive	Flightomatic
W-F-D	3 x 55-5/16 (7,62 x 140,5 cm.)	3 x 54 5/8
C	3 x 53 7/8 (7,62 x 136,8 cm.)	3 1/4 x 53 7/8
58G—Twin-Traction Axle		
W-F-D	3 x 54 5/8 (7,62 x 138,7 cm.)	3 x 53 7/8
C	3 1/4 x 53 7/8 (8,3 x 134,9 cm.)	3 1/4 x 52 1/4 (8,3 x 132,7 cm.)
58B—Standard & Twin-Traction Axle		
W-J-P	3 1/4 x 53 7/8	3 1/4 x 53-13/16 (8,3 x 136,7 cm.)
58H		
J	3 1/4 x 53 7/8	3 1/4 x 53-13/16
C	3 1/4 x 51 1/2 (8,3 x 129,9 cm.)	3 1/4 x 52 1/4
Y	3 1/2 x 57 1/8 (8,9 x 145,1 cm.)	3 1/2 x 57-13/16 (8,9 x 146,9 cm.)
K7	3 1/2 x 51 3/4 (8,9 x 131,4 cm.)	3 1/4 x 52 1/4
58L		
Y	3 1/2 x 57 1/8	3 1/2 x 57-13/16
J-P	3 1/4 x 53 7/8	3 1/4 x 53-13/16
K9	3 1/2 x 51 3/4	3 1/4 x 52 1/4

Length taken from Centerline to Centerline of Joints.
All Wall Thickness .065.

DRIVE LINE ASSEMBLY

Alignment

The maximum runout limits of the propeller shaft are .010" (0,254 mm.) at the end of 1½" (38,1 mm.) from the weld and .015" (0,381 mm.) at the center of the shaft.

Removal

Remove the U-bolts at the rear universal joint and pry the cross and bearing assembly away from rear axle pinion flange. Pull the propeller shaft rearward to slide the front yoke out of the transmission extension housing.

Installation

Apply transmission lubricant—SAE 90—Std. and O.D. or Type A—(AQ-ATF) AD transmission to the splines at the front universal joint and slide the front yoke into the rear end of the transmission extension. Connect the rear universal joint to the rear axle by installing the U-bolts to hold the joint to the rear axle pinion flange.

REAR AXLE

The rear axle housing is changed because of new rear spring mounting. The vent holes and lubrication plugs for the rear axle shaft bearings are not provided on 1958 models.

AXLE RATIOS

	58G	58B
Standard Gear Ratio		
—with Overdrive	*4.56	3.73
—with Flightomatic	3.54	3.31
—with Standard	*4.10	3.54

*Scotsman—

W-F—Standard and Overdrive Transmission—3.54

D—Standard Transmission—4.10

D—Overdrive Transmission—4.56

	58H	58L	
	Y-C	K7	K9
Standard Gear Ratio			
- with Overdrive	3.92	4.09	4.09
- with Flightomatic	3.31	3.31	3.31
- with Standard	3.54	N.A.	N.A.

SPRINGS AND SHOCK ABSORBERS

The rear springs are off-set mounted on the frame (see Fig. 12.) The rear spring center bolt is located 21" (53,3 cm.) from the center of the front eye. The rear spring rear shackles are the same length (3 inches). The rear spring front hanger brackets have two holes for the spring bolt for right and left spring mounting.

Rear Spring—Size 2½" x 54" (6,35 x 137,2 cm.)

Standard number of leaves

All 58G except D models 4 leaves

58G-D models 5 leaves

All 58B and 58H except P models 5 leaves

P models 6 leaves

Shackle length 3" (7,62 mm.)

I.D. Diameter of front eye 1.490" (37,85 mm.)

I.D. Diameter of rear eye 1.865" (47,37 mm.)

REAR SPRING

Installation

The rear spring front hanger bracket has two holes (see Fig. 12) for the spring bolt. The bolt is installed in the lower hole on the left side and in the upper hole on the right side on left hand control cars. The bolt is installed in the upper hole on the left side and in the lower hole on the right side on right hand control cars.

STANDARD AND OVERDRIVE TRANSMISSION

The standard and overdrive transmissions used in 1958 Model Studebakers and Packards have been changed in their appearance by the longer rear housing. This housing is required to accommodate the one piece propeller shaft. In addition, the electrical relay used with the overdrive transmission has been eliminated. However, the operation and service of the transmission remains the same as past models with the following exceptions.

MODEL	STANDARD	OVERDRIVE
58G	T96	T96
58B and 58H	T86	T86
58HK and 58LK		T85

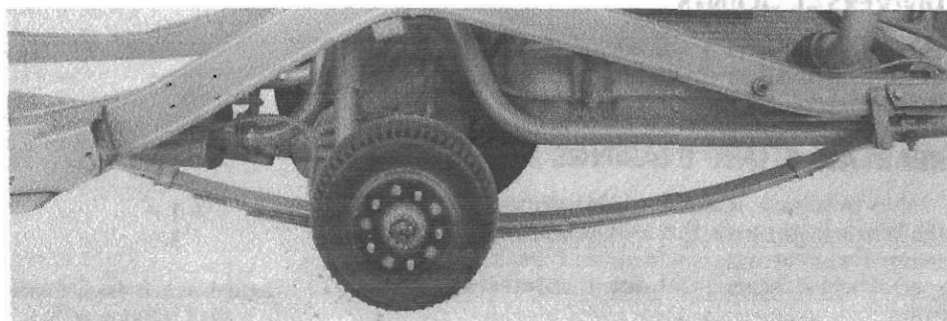


FIG. 12

REAR HOUSING OIL SEAL

Removal

Disconnect the propeller shaft at the rear axle assembly and remove the propeller shaft by sliding the sliding sleeve of the front universal joint from the transmission rear housing. For T86 and T96 transmissions position Bushing and Seal Remover, J4830-01, in the rear housing so that the lip of the tool is between the metal flanges of the seal and expand the tool. For T85 transmission use Bushing and Seal Remover, J-7296. Attach slide hammer, J-2619-B, and remove the seal.

Installation

Position the Bushing and Seal Replacer Collar, J-6403-2, on the Bushing and Seal Replacer, J-6403, for T86 and T96 transmissions, J-6440-2 and J-6440 for T85 transmissions, and position a new rear housing seal on the tool with the felt toward the rear of the transmission. Place the tool and seal in the rear housing and drive the seal into place. Slide the front universal joint sliding sleeve onto the transmission output shaft and into the rear housing. Connect the propeller shaft at the rear axle assembly.

REAR HOUSING BUSHING

Removal

Remove the rear housing seal as described above. Install the Bushing and Seal Remover J-4803-01, for T86 and T96 transmissions, and J-7296 for T85 transmissions, in the rear housing so that the lip of the tool extends beyond the front of the bushing. Expand the tool and install slide hammer, J-2619-B and remove the bushing.

Installation

Position a new rear housing bushing on the Bushing and Seal Replacer, J-6403 for T86 and T96 transmissions, J-6440 for T85 transmissions, and install the bushing and tool in the rear housing. Drive the bushing into position. Replace the rear housing seal as described above.

GOVERNOR

Removal and Disassembly

Disconnect the governor wire from the overdrive solenoid and using wrench J-3227, remove the governor assembly.

Remove the governor cover retaining screws and remove the governor cover and contact points as an assembly. **DO NOT ATTEMPT TO CLEAN THE GOVERNOR CONTACT POINTS BY FILING.** These points carry full battery voltage and are made of special material and have a corrugated pattern on the contact surfaces.

Reassembly and Installation

Position a new governor cover and contact point

assembly on the governor and install the retaining screws.

Screw the governor assembly into the transmission case and connect the governor wire to the overdrive solenoid.

REAR HOUSING

Removal—Overdrive Trans.

The rear housing can be removed *only* after the transmission is removed from the car. Remove the governor assembly. Drive the overdrive control lever retaining pin from the transmission case and disengage the control lever. Drive a sharp punch into the Welsh plug on top of the rear housing and remove the

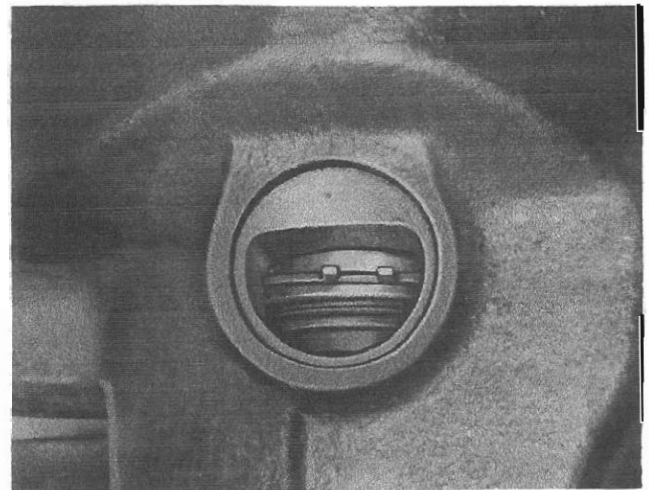


Fig. 13

plug. Care should be taken when driving the punch into the plug to locate the punch well toward the rear of the plug. Loosen the rear housing retaining cap screws and stud nut approximately $\frac{3}{16}$ " and while expanding the bearing snap ring, visible through the Welsh plug hole, (see Fig. 13), tap the end of the output shaft with a plastic hammer to loosen the bearing in the housing. Remove the retaining cap screws and stud nut. Hold pressure against the output shaft and remove the rear housing. Remove the bearing snap ring and the housing gasket from the rear housing.

Installation

Position the bearing snap ring in the rear housing. Lightly coat a new housing gasket with petroleum jelly and position on the transmission case. Slide the rear housing into position while holding the bearing snap ring expanded. Install the housing retaining cap screws and stud nut and tighten finger tight. If the bearing snap ring is not in the groove of the bearing insert a large screwdriver through the governor hole in the rear housing and push against the speedometer drive gear to align the bearing snap ring groove with the snap ring. Tighten the retaining cap screws and stud nut. Position a new Welsh plug in its hole and drive into place. Install the governor assembly as outlined above. Engage the overdrive control lever and install the retaining pin in the transmission case.

REAR HOUSING

Removal—Standard Trans.

Disconnect the propeller shaft at the rear axle assembly and remove the propeller shaft by sliding the front universal joint sliding sleeve from the rear housing. Disconnect the speedometer cable and remove the speedometer drive gear pinion. Loosen the rear housing retaining cap screws and turn out until there is approximately 3/16" (4.76 mm.) clearance between the lock washer and the rear housing. Tap the end of the output shaft with a plastic hammer to loosen the rear transmission bearing in the rear housing. Remove the retaining cap screws and while holding pressure against the output shaft remove the rear housing. Remove the rear housing gasket.

Installation

Lightly coat a new rear housing gasket with petroleum jelly and position on the rear of the transmission case. Install the transmission rear housing and retaining cap screws. Install the sliding sleeve of the front universal joint on the output shaft and in the rear housing. Connect the propeller shaft at the rear axle assembly. Install the speedometer drive pinion and cable.

SPEEDOMETER DRIVE GEAR

Removal

Remove the rear housing. Remove the speedometer drive gear rear retaining snap ring and slide the gear from the output shaft. Care must be taken not to lose the speedometer drive gear ball located in the recess on the output shaft. Remove the ball.

Installation

Install the ball in the recess on the output shaft and slide the speedometer drive gear onto the output shaft so that the groove is aligned with the drive ball. Install the rear retaining snap ring.

CHECK OF OVERDRIVE ELECTRICAL CIRCUIT

The relay has been eliminated from the overdrive electrical circuit and the circuit is connected directly to the starter solenoid. The circuit is energized when the car speed is sufficiently high enough to close the governor points thus grounding the circuit. Because of this change in the electrical circuit the trouble shooting procedure of the electrical circuit of the overdrive is greatly simplified.

Transmission Fails to Operate in Overdrive

Check and replace the fuse as required
Check all connections at
Starter solenoid
Fuse holder

Kickdown switch
Overdrive solenoid
Governor

Ground the governor wire at the solenoid—

If solenoid clicks,
replace or repair governor as required

If solenoid fails to click,

1. Check current from kickdown switch to solenoid. Replace the kickdown switch, if necessary.
2. Replace solenoid

Transmission Fails to Kickdown

Check for loose connections at

Solenoid
Kickdown switch
Distributor

Defective kickdown switch

Replace switch

Defective solenoid

Replace solenoid

FLIGHTOMATIC TRANSMISSION

The appearance of the Flightomatic transmission used on all models has been changed by the longer extension housing used with the one piece propeller shaft (see Fig. 14). Certain bushings and thrust washers have been added to provide support and clearances occasioned by the use of the longer output shaft and extension housing.

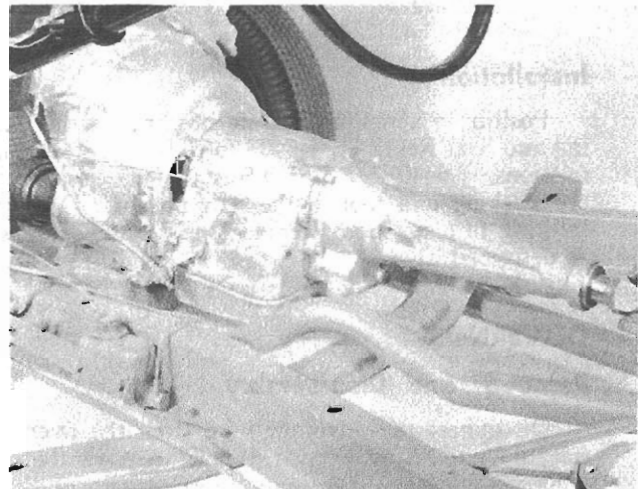


FIG. 14

The Flightomatic transmission used on 1958 models is identified as follows:

	58G	58B 58H	58HK 58LK
Model Number.....	AS4-5H	AS6-5P	AS6-7A
Color Background On Serial Plate.....	Red	White	Copper
Starting Serial Number.....	10001	10901	10001

A new control valve assembly is used on 58B, 58H, 58HK, and 58LK models. The new control valve assembly provides for smoother upshifts and downshifts and reduces the possibility of transmission malfunction caused by sticking valves. A new governor valve assembly is used in these models along with the new control valve assembly.

This section of the 1958 Model Service Bulletin will cover the service procedures as they *differ* from the service procedures of the 1957 models.

SHIFT SPEED CHART

The control valve used in 58B, 58H, 58HK, and 58LK models gives a different pattern of shift speeds. For clarity, the shift speeds for all models are given below.

	58G	58B, 58H, 58HK, 58LK Models
Light throttle upshift—1st to 2nd gear.....	8-12	
Light throttle upshift—2nd to 3rd gear.....	17-23	12-18
Kickdown upshift—1st to 2nd gear.....	36-43	34-42
Kickdown upshift—2nd to 3rd gear.....	55-65	63-73
Maximum kickdown—3rd to 2nd gear.....	50-60	60-70
Maximum kickdown—2nd to 1st gear.....	17-23	20-26
Maximum kickdown—3rd to 1st gear.....	10-15	12-18
Closed throttle downshift—3rd to 2nd gear..	9-14	3-8
Closed throttle downshift—2nd to 1st gear..	4-7	
Maximum closed throttle downshift— 2nd to 1st gear (L position).....	10-16	15-21

MAINTENANCE AND ADJUSTMENTS

To provide for smoother upshifts and downshifts and to assure proper pressure to bands and clutches under all driving conditions, use the new method of throttle linkage adjustment as outlined in Service Bulletin No. 328. This procedure for the adjustment of the throttle linkage should be followed on all cars equipped with Flightomatic transmission at the time the car is prepared for retail delivery and at any time it is necessary to adjust the throttle linkage.

FLUID PRESSURE CHECKS

The new control valve assembly used on 58HK and 58LK models affects a change in the idle pressure and the pressure regulation tests. The pressure for these models is as follows:

Idle Pressure Test

The idle pressure on the 58HK and 58LK models is 52-95 p.s.i.

Pressure Regulation Test

The control pressure of the Flightomatic transmission on 58HK and 58LK models is 95-100 p.s.i. at 1000 engine rpm and at the full kickdown position is 132-184 p.s.i. in D and L ranges and 184-203 p.s.i. in the R position.

REPLACEMENT of SUB-ASSEMBLIES-TRANSMISSION in CAR

EXTENSION HOUSING, OIL SEAL, AND OUTPUT SHAFT BUSHING—ALL MODELS

Removal

Completely tighten the rear band to prevent movement of the planetary assembly and the dislocation of thrust washers on the transmission shaft. Disconnect the speedometer cable and remove the speedometer drive pinion. Disconnect the propeller shaft at the rear axle assembly and remove the propeller shaft by sliding the sleeve of the front universal joint off the transmission output shaft.

Insert the bushing and seal remover, J-4830-01, in the extension housing seal so that the tabs on the tool are between the metal flanges of the seal and expand the tool. Attach slide hammer, J-2619-B, and remove the seal. Install the bushing and seal remover, J-4830-01, in the extension housing so that the tool goes in beyond the bushing, expand the tool, and attach slide hammer, J-2619-B, and remove the bushing. Remove the extension housing retaining cap screws and remove extension housing and extension housing gasket.

If only the seal and/or bushing is to be replaced, it is not necessary to remove the extension housing.

Installation

Lightly coat a new extension housing gasket with petroleum jelly and position on the rear pump housing. Install the extension housing and retaining cap screws. Torque and tighten the cap screws to 28-33 ft. lbs. Slide the propeller shaft front universal joint sleeve onto the transmission output shaft and connect the propeller shaft to the rear axle assembly. Install the speedometer drive gear pinion and cable. Adjust the rear band and check and fill the transmission with fluid to the proper level.

SPEEDOMETER DRIVE GEAR

Removal

Remove the extension housing as outlined in this section. Remove the speedometer drive gear retaining snap ring and remove the nylon speedometer drive gear. Note that the speedometer drive gear is driven by a ball set in a recess on the output shaft.

Installation

Place the speedometer drive gear ball in the recess in the output shaft. Position the speedometer drive gear so that the slot in the inner diameter of the gear is toward the front of the transmission and slide the drive gear on the output shaft so that the slot engages the drive ball. Install the extension housing as outlined in this section. Install a new extension housing bushing on the bushing and seal replacer, J-6403-01, position bushing and tool in the extension housing, and drive the bushing into place. Place collar, J-6403-2, on the bushing and seal replacer, J-6403-01, and position a new extension housing oil seal on the tool. Place tool and oil seal in the extension case and drive the seal into position.

TRANSMISSION ASSEMBLY

Removal

Disconnect the propeller shaft at the rear axle assembly and remove the propeller shaft by sliding the sleeve of the front universal joint off the transmission output shaft. The procedure for the removal of the transmission otherwise is the same as 1957 models.

Installation

Install the transmission as on 1957 models. Install the propeller shaft by sliding the front universal joint sleeve onto the transmission output shaft and complete installation by connecting the rear universal joint to the rear axle assembly.

REMOVAL of SUB-ASSEMBLIES

CONTROL VALVE ASSEMBLY

To prevent damage to the front servo, front servo oil tubes, and the control valve assembly, it is necessary to loosen the front servo retaining cap screw and free the servo on the dowel in the transmission case.

CHECKING TRANSMISSION END PLAY

Mount the dial indicator as on previous models. Insert a large screw driver between the transmission case and the front clutch housing and move the transmission gear train to the rear. Zero the dial indicator. Insert the screw driver between the output shaft external ring gear and the transmission case and move the transmission gear train to the front of the transmission. Read the dial indicator—this is the end play. End play should be .010" to .029". End play is controlled by the thickness of the thrust washer at the rear of the planetary gear assembly, as in past models.

EXTENSION HOUSING

Remove the extension housing retaining cap screws and remove the extension housing and gasket.

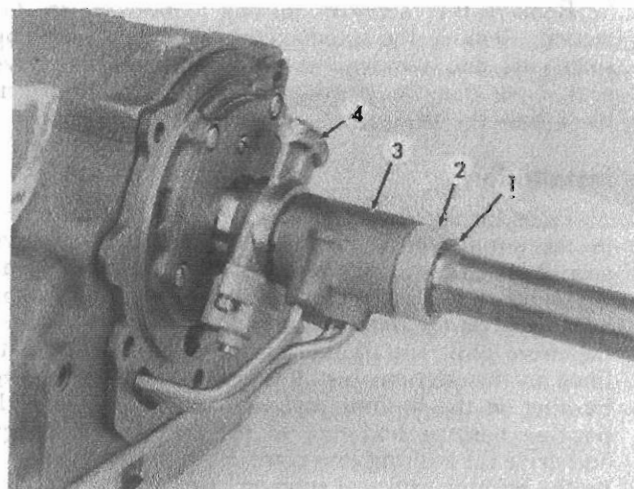


FIG. 15

- | | |
|---------------------------|----------------------|
| 1. Snap ring | 3. Oil distributor |
| 2. Speedometer drive gear | 4. Governor assembly |

SPEEDOMETER DRIVE GEAR

Remove the speedometer drive gear retaining snap ring (1, Fig. 15) and slide the speedometer drive gear off the output shaft. Note the drive ball in the recess of the output shaft. Remove the drive ball.

DISTRIBUTOR

Remove the distributor by sliding off the output shaft. Note that the distributor tubes slide off with the distributor and that the tubes are three different lengths. When installing the tubes, the ends of the tubes with raised shoulders go toward the front of the transmission and the ends of the tubes must be in even alignment.

REAR PUMP

Remove the four oil rings from the output shaft.

After the rear pump has been removed, note the large thrust washer on the forward face of the pump. The thrust washer is located by tabs on the washer that fit into recesses on the face of the pump (see Fig. 16). Remove the thrust washer.

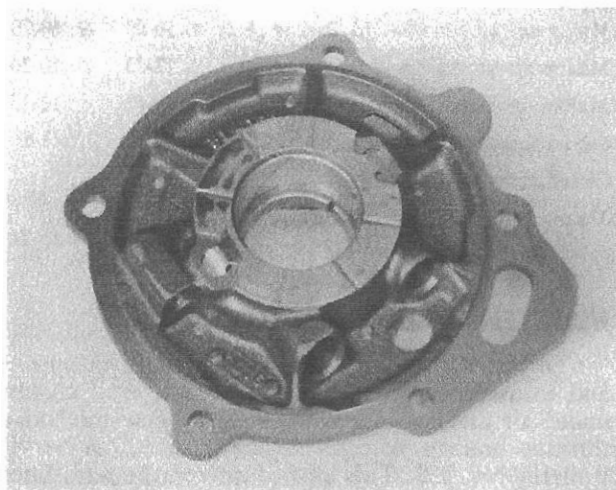


FIG. 16

SUB-ASSEMBLY DISASSEMBLY AND REASSEMBLY

The control valve assembly on 58B and 58H models can be identified by the number 8 stamped on the valve assembly. The control valve assembly used on 58HK and 58LK models can be identified by the number 7 stamped on the valve assembly.

CONTROL VALVE ASSEMBLY— 58B, 58H, 58HK, AND 58LK MODELS

When servicing the control valve assembly, it is recommended that each valve body of the assembly be disassembled, cleaned and inspected, and reassembled one at a time. This will reduce the possibility of accidentally interchanging the springs in the valve bodies.

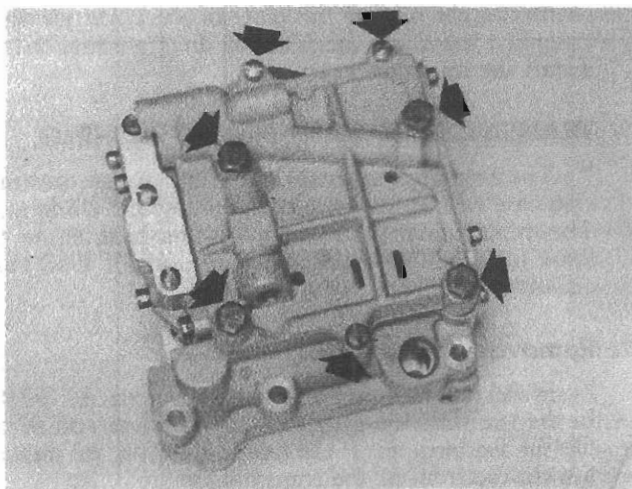


FIG. 17

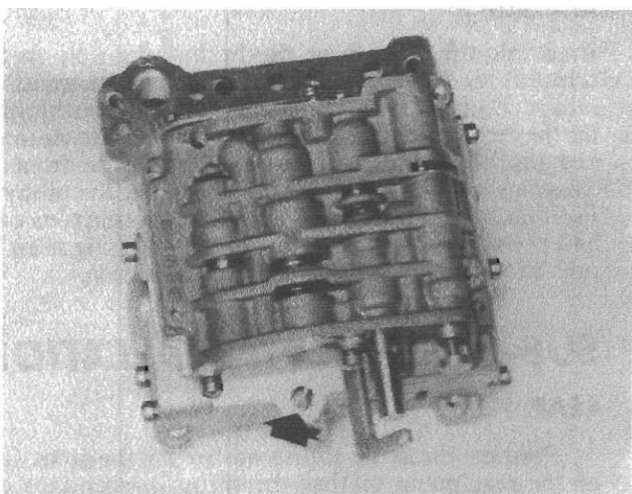


FIG. 18

Disassembly

Lower Valve Body Cover

Remove the four cap screws and three slotted screws that attach the lower valve body cover to the lower valve body (see Fig. 17) and remove the cover. There are no valves to service in the cover and it is only necessary to clean and inspect the cover.

Upper Valve Body

Remove the screw that attaches the upper valve body and separator plate to the lower valve body (see Fig. 18). Remove the two separator plate retaining screws and remove the separator plate from the upper valve body. This valve body is serviced in the same manner as previous models.

Reassembly

Assemble the valve body as assembled on previous models. Position the separator plate on the upper valve body and install the retaining screws.

Disassembly

Lower Valve Body

Remove the four screws (22, Fig. 19) from the valve body side plate and remove the side plate (21). Remove the 2-1 shift valve spring (20), and valve (19). Remove the 2-3 shift valve governor plug (18). Remove the inhibitor valve (17) and spring (16). Remove the four valve body end body retaining screws (3) and remove the end body (4). Remove the orifice control valve (12) and spring (13), inner and outer 2-3 shift valve springs (7 and 8) and 2-3 shift valve (9), transition valve (10) and spring (11). Remove the end body cover retaining screws (1) and remove the cover (2). Remove the inhibitor valve plug (5) and the 2-3 shift valve plug (6) from the end body.

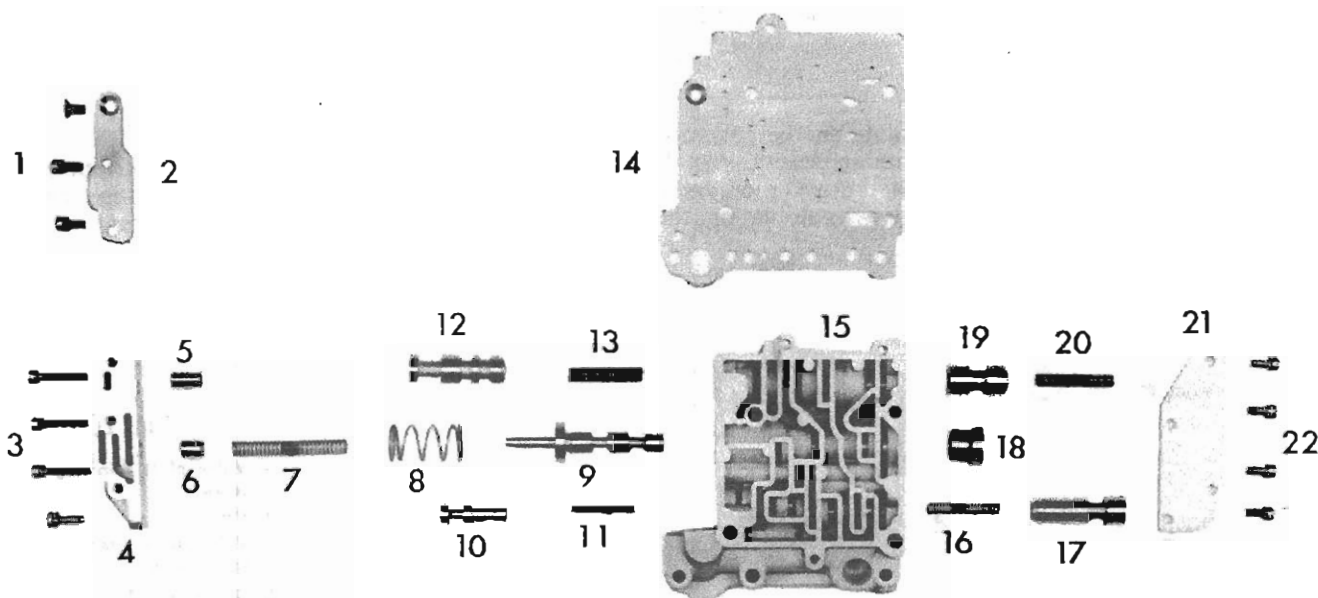


FIG. 19

1. End body cover screws
2. Cover
3. End body screws
4. End body
5. Inhibitor valve plug
6. 2-3 shift valve plug

7. 2-3 shift valve inner spring
8. 2-3 shift valve outer spring
9. 2-3 shift valve
10. Transition valve
11. Spring
12. Orifice control valve

13. Spring
14. Separator plate
15. Valve body
16. Inhibitor valve spring
17. Inhibitor valve
18. 2-3 shift valve governor plug

19. 2-1 shift valve
20. 2-1 shift valve spring
21. Side plate
22. Side plate screws

Reassembly

Install the orifice control valve plug and the 2-3 shift valve plug in their bores in the lower valve body end body and install the end body plate and retaining screws. Install the transition valve and spring, 2-3 shift valve and 2-3 shift valve inner and outer spring, orifice control valve spring and valve in their bores of the lower valve body and install the end body and retaining screws. Install the inhibitor valve spring and valve, 2-3 shift valve governor plug and the 2-1 shift valve and spring in their bores and install the valve body side plate and retaining screws.

Position the upper valve body on the lower valve body and install the retaining screws. Position the lower valve body cover on the lower valve body and install the four retaining cap screws. Install the three slotted retaining screws.

EXTENSION HOUSING

If the seal and/or bushing is to be replaced in the extension housing, the procedure outlined under Replacement Of Sub-Assemblies should be followed.

GOVERNOR VALVE ASSEMBLY 58B, 58H, 58HK, and 58LK Models

The governor valve assembly for 58HK and 58LK models is identified by the letter A stamped on the governor head.

Disassembly

Remove the two screws (3, Fig. 20) that attach the governor valve assembly to the governor counterweight (6). Remove the governor valve (5) from the governor valve body (4). Remove the governor valve plate retaining screws (1) and remove the plate (2).

Reassembly

Position the governor valve plate on the governor valve body and install the retaining screws. Install the governor valve in its bore of the governor valve body. Position the governor valve assembly on the

counterweight so that the plate of the governor valve assembly is toward the front of the transmission and install the retaining screws.

TRANSMISSION CASE FRONT BUSHING

The bushing located in the front of the transmission case will be serviced beginning with 1958 models. The replacement procedure for this bushing is the same for all Flightomatic transmissions of 1958 models and past models.

Removal

Place the bushing remover and replacer, J-7180, in the transmission case with the remover end of the tool in the bushing. Press the bushing out of the case toward the front of the transmission.

Installation

Break the sharp edge of the bushing hole in the case. Install the front pump assembly on the transmission case. Position a new transmission case bushing on the replacer end of the tool, J-7180, with the open end of the bushing oil grooves toward the front of the transmission. Lubricate the outside of the bushing. Position the tool and bushing in the transmission case and press the bushing into place. The bushing must be pressed toward the front of the transmission.

SUB-ASSEMBLY INSTALLATION

REAR PUMP

Position the large thrust washer on the front face of the rear pump so that the thrust washer tabs engage the recesses in the pump face. Apply a thin coating of petroleum jelly on a new rear pump gasket and position the gasket on the transmission. Install the rear pump drive key in the slot on the output shaft and install the rear pump.

DISTRIBUTOR

Install the distributor tubes in the distributor with the raised shoulders on the tubes toward the transmission case. The tubes are of different lengths, and when

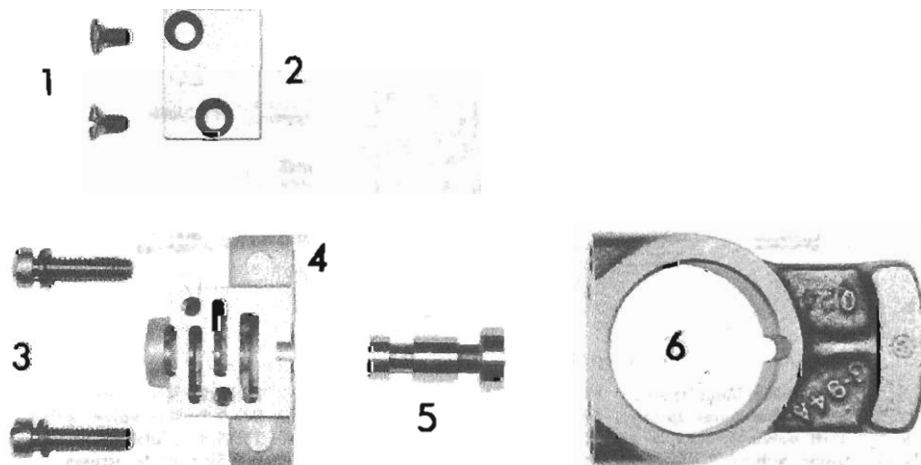


FIG. 20

1. Valve plate retaining screws
2. Plate
3. Valve body screws
4. Valve body
5. Governor valve
6. Counterweight

properly installed, the transmission end of the tubes should be in even alignment. Install the four oil rings on the output shaft. Install the distributor by sliding over the output shaft.

SPEEDOMETER DRIVE GEAR

Install the speedometer drive gear drive ball in its recess in the output shaft. Position the speedometer drive gear so that the slot in the inner diameter of the gear is toward the front of the transmission and install the speedometer drive gear by sliding over the output shaft. Install the speedometer drive gear retaining snap ring.

EXTENSION HOUSING

Lightly coat a new extension housing gasket with petroleum jelly and position on the rear pump housing. Install the extension housing and the retaining cap screws.

TOOLS

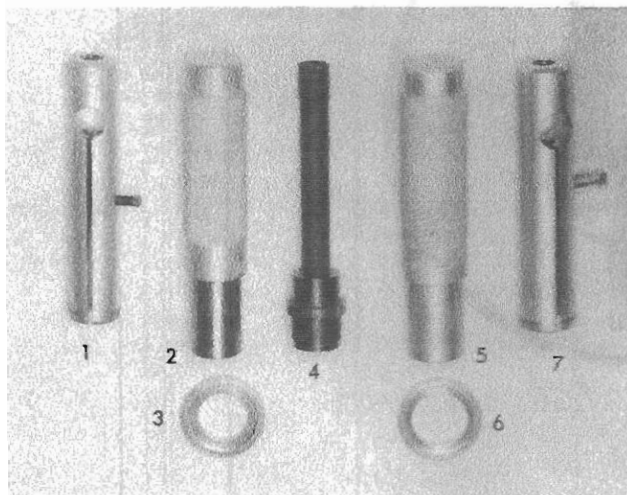


FIG. 21

Figure 21 illustrates the special tools required to service the standard, overdrive and Flightomatic transmissions of the 1958 models.

WHEELS AND TIRES

Safety Rim type wheels are used on all models.

All 58G models are equipped with 15" wheels and 6.40x15 tires.

58B-W models are equipped with 14" wheels and 7.50x14 tires.

58 B-P, 58H—Y-K and 58L-K Models are equipped with 14" wheels and 8.00x14 tires.

TIRES

Inflation Pressures—Standard*

24 lbs.—Front

20 lbs.—Rear (except Station Wagon models)

24 lbs.—Rear on Station Wagon models.

*Under conditions where car loading of four or more passengers is considered normal, 26 lbs. front and rear is recommended.

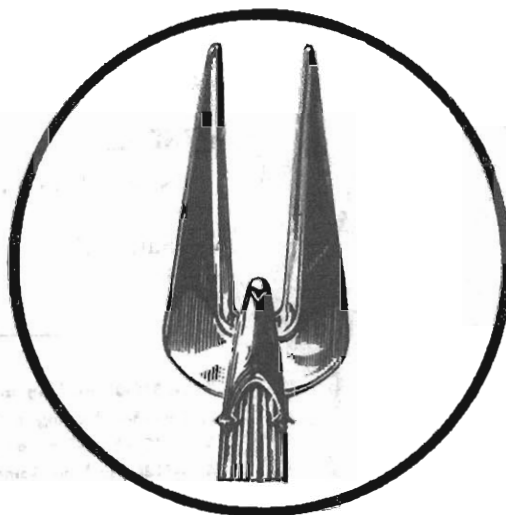
For sustained high speed driving 30 lbs. front and rear is recommended.

WHEELS

Safety Rim 14x5K wheels are used with 7.50x14 tires.

Safety Rim 14x5½K wheels are used with 8.00x14 tires.

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1. J-4830-01 Bushing and Seal Remover—T86, T96 and Flightomatic
 2. J-6403-1 Bushing and Seal Replacer—T86, T96 and Flightomatic
 3. J-6403-2 Bushing and Seal Replacer Collar
 4. J-7180 Bushing Remover and Replacer—Flightomatic
 5. J-6440-1 Bushing and Seal Replacer—T85
 6. J-6440-2 Bushing and Seal Replacer Collar
 7. J-7296 Bushing and Seal Remover—T85



STUDEBAKER-PACKARD CORPORATION

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