



# Service Bulletin

AUGUST

1957

NO. 327

SOUTH BEND 27, INDIANA

## Studebaker and Packard Clipper

### ENGINE OPERATING TEMPERATURE - 1957 GOLDEN HAWK AND PACKARD CLIPPER MODELS

Please record this article on the Service Bulletin Reference page of your 1957 Studebaker and Packard Clipper Supplements.

Permanent type antifreeze in the cooling system of supercharger equipped engines during the warm weather can cause excessive engine operating temperature in controlled-traffic driving. Tests have shown that if permanent antifreeze is retained during the warm weather, engine cooling system temperature may increase 10° to 12° above normal with the average 40% antifreeze solution. Therefore, the first step when there is a proven complaint of excessive engine temperatures is to check the radiator coolant. If antifreeze is used, drain and flush the entire cooling system and fill the system with clear water.

Under extreme conditions of overheating, install a 9.7 to 1 ratio pulley, Part No. 534735 with Belt, part No. 529374. This pulley will provide a higher speed fan operation. These parts should only be used under extreme condition.

### CHECKING TWIN-TRACTION DIFFERENTIAL - ALL MODELS

We have been informed that some dealers check a Twin-Traction differential by jacking up the car with a floor jack so that only one rear wheel is off the floor, then, putting the transmission in gear and accelerating the engine. And, if the car fails to move off the jack, the dealer is of the opinion that this proves that the differential is not operating as it should. This test is not conclusive and should not be used to evaluate the operation of the Twin-Traction rear axle.

## In this issue

	PAGE
<b>STUDEBAKER and PACKARD CLIPPER</b>	
CHECKING TWIN-TRACTION DIFFERENTIAL - ALL MODELS . . . . .	1
ENGINE OPERATING TEMPERATURE - 1957 GOLDEN HAWK AND PACKARD CLIPPER MODELS. . . . .	1
FRONT FENDERS FOR SERVICE - 1953 TO 1957 STUDEBAKER AND 1957 PACKARD CLIPPER MODELS . . . . .	4
HOOD DOVETAIL SPRING - 1957 STUDEBAKER AND PACKARD CLIPPER SEDANS AND STATION WAGONS 2	
HOOD REINFORCEMENT - 1956-1957 STUDEBAKER AND 1957 PACKARD CLIPPER SEDANS AND STATION WAGONS. . . . .	3
OIL COOLING UNIT LEAKS - FLIGHTOMATIC TRANSMISSION . . . . .	2
REAR AXLE SHAFT BEARING LUBRICATION - ALL MODELS . . . . .	2
TIRE PRESSURE - CAPTIVE AIR TIRES . . . . .	3
TWIN-TRACTION DIFFERENTIAL NOISE - 1957 STUDEBAKER AND PACKARD CLIPPER MODELS. . . . .	3
UNIVERSAL JOINT LUBRICATION - ALL MODELS. . . . .	2
VALVE BODY-TO-FRONT SERVO TUBES - FLIGHTOMATIC TRANSMISSION. . . . .	3
<b>PACKARD CLIPPER</b>	
HIGH RANGE CLUTCH BURNING - ULTRAMATIC TRANSMISSION . . . . .	8
PAINT FORMULAS - 1957 PACKARD CLIPPER MODELS . . . . .	6
PUSH BUTTON CONTROL - 1956 PACKARD AND CLIPPER MODELS . . . . .	6
<b>TRUCKS</b>	
EXHAUST SYSTEM. . . . .	8
STARTER MOTOR - 3E5 MODELS. . . . .	8

In the first place, the Twin-Traction rear axle merely has the ability to increase the amount of the torque transferred from the wheel with the lesser traction to the wheel with the greater traction. Normally this transfer of torque is in the ratio of approximately 3-4 to 1. The wheel with the lesser traction must afford some resistance. This resistance, multiplied by 3-4 times equals the amount of torque that is transferred to the wheel with the greater traction. When one wheel is on ice, resistance because of the friction between the tire and the ice usually provides enough torque to the other wheel to pull the car off the ice.

When the car is jacked up so that one wheel is off the floor, this wheel is free to spin in the air and affords very little or no resistance. Since there is very little or no resistance, there is very little or no transfer of torque to the other wheel and the car will not move.

We caution against spinning a rear wheel that is jacked up because the car might move off the jack; this is dependent on the tightness of the differential clutches and other affected parts and, varies from car to car.

### HOOD DOVETAIL SPRING - ALL MODELS

*Please record this article on the Service Bulletin Reference page of your 1957 Studebaker and Packard Clipper Supplements.*

To obtain better closing and fit of the hood, the hood dovetail spring and lower retainer have been changed. The new spring, Part No. 308748, has a different rate and 11 coils, whereas the original spring has 13 coils.

This change can very readily be made on cars in service by grinding off three complete coils from the original spring and substituting the original lower retainer with Retainer, Part No. 274907.

The new spring entered production with the following serial numbers:

57G - G1394930    57B - 8469415  
57H - 7206458    57L - 5701

### UNIVERSAL JOINT LUBRICATION FITTINGS - STUDEBAKER AND PACKARD CLIPPER MODELS

*Please record this article on the Service Bulletin reference page of your 1957 Studebaker and Packard Clipper Supplements.*

Universal joint lubrication fittings have been eliminated in production. The universal joints are now packed by the vendor with a special lubricant which will normally greatly improve the life of the universal joint parts.

Lubrication recommendations for joints without fittings are as follows: Disassemble and repack the universal joint at 20,000 mile intervals with universal joint lubricant.

Factory stock inventory made it necessary to produce a limited quantity of cars with mixed

joint assemblies. Therefore, during lubrication, check all joints. Obviously, those which have the fitting must be lubricated.

### REAR AXLE SHAFT BEARING LUBRICATION - STUDEBAKER AND PACKARD CLIPPER MODELS

*Please record this article on the Service Bulletin Reference page of your 1957 Studebaker and Packard Clipper Supplements.*

The plugs and vent holes in the axle housing for lubrication of the axle shaft bearings have been eliminated. The lubrication recommendations for these cars are as follows:

Remove the rear axle shaft bearings. Clean and repack the bearings with wheel bearing lubricant at 25,000 mile intervals.

It is also recommended that the bearings be repacked at any time that service work requires the removal of the axle shaft and bearings.

The recommendations remain unchanged for models with provision for lubrication.

### OIL COOLING UNIT LEAKS - FLIGHTOMATIC - 1957 GOLDEN HAWK AND PACKARD CLIPPER MODELS

*Please record this article on the Service Bulletin reference page of your 1957 Studebaker and Packard Clipper Supplements.*

If a leak should occur at the transmission oil cooler, it is advisable to check the oil pressure to make certain that the leak was not a result of abnormally high pressure. A severe leak can cause damage to the transmission as well as the engine. Therefore, a check of the oil pressure, and correction if excessive, will reduce the possibility of recurrence of the condition.

Check for high oil pressure in the following manner:

1. Using a "T" fitting, install a pressure gauge in the oil line that leads from the transmission to the oil cooler. This line can be readily identified because it attaches to the fitting located at the right front of the transmission case. The most accessible point for attaching the "T" fitting and the pressure gauge would be at the flexible line near the radiator.
2. With the transmission at normal operating

temperature, place the selector lever in the Park position. Install a tachometer. The pressure in Park position at 1,000 rpm should not exceed 60 lbs. per sq. inch.

3. If the pressure exceeds 60 lbs., install a pressure gauge on the transmission case to obtain the control pressure. If the control pressure is excessive, and adjustment of the throttle valve linkage does not correct it, remove and clean the pressure regulator valve assembly and the control valve assembly.
4. If the control pressure is within the specified limits but the pressure gauge attached to the transmission-to-cooler line reads above 60 lbs. at 1,000 rpm in Park, the following should be investigated:
  - (a) By inspection, determine that the return line from the cooler to the transmission is not pinched or obstructed in any way (this includes the oil return tube in the transmission). Obviously any restriction in the return line would raise the pressure.
  - (b) Remove and inspect the pressure regulator valves.

After a damaged cooler is repaired or replaced, it would be advisable to repeat the above pressure tests to make certain that the pressure is within the prescribed limits.

### VALVE BODY-TO-FRONT SERVO TUBES - FLIGHTOMATIC TRANSMISSION

*Please record this article on the Service Bulletin Reference page of your 1956 Studebaker Passenger Car Shop Manual and Warner Gear Transmission Section of 28 Series Truck Shop Manual.*

Care should be taken while loosening the front servo and valve body to prevent bending the front servo tubes. Tubes which are bent will place a strain on the valve body when the unit is installed so that the body is distorted. This distortion can result in sticking valves, as well as serious hydraulic leakage to the front servo.

### TIRE PRESSURE - CAPTIVE AIR TIRES

*Please record this article on the Service Bulletin Reference page of your 1957 Studebaker and Packard Clipper Supplements.*

Since the tires are inflated with more than

normal pressure when the car leaves the factory, the question arises as to the proper procedure in deflating to reduce to the recommended pressure. In production, most extra pressure is put in outer chamber through the sidewall valve; the inner chamber is inflated only 2 lbs. more than normally recommended.

When you receive the car, reduce the pressure in the outer chamber only by means of the needle valve in the sidewall down to the normal operating pressure. After reducing the outer chamber pressure to the recommended pressure, check the rim valve for the inner chamber pressure. It is permissible to have up to 2 lbs. more than normal pressure in the inner chamber. This is simply insurance against malfunctioning of the tire because as long as there is more pressure in the inner chamber than in the outer chamber, you can always be sure that the inner chamber diaphragm is in the proper position and has not been punctured or injured in any way.

### TWIN-TRACTION DIFFERENTIAL NOISE - 1957 STUDEBAKER AND PACKARD CLIPPER MODELS

*Please record this article on the Service Bulletin Reference page of your 1957 Studebaker and Packard Clipper Supplements.*

A condition of noise or chatter on a right or left turn may develop in a Twin-Traction differential during the break-in period. We suggest that before you attempt to service the unit or make replacements, that you drain out the original lubricant and fill the differential to the proper level with special Twin-Traction Lubricant, Part No. 6484484.

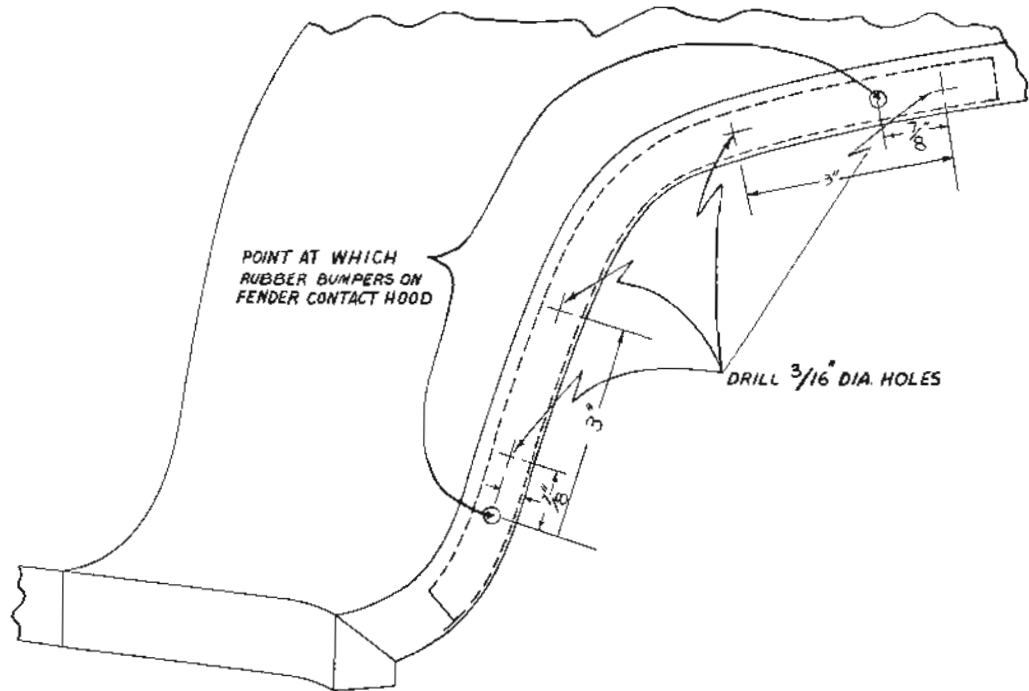
### HOOD REINFORCEMENT - 1956 - 1957 STUDEBAKER AND 1957 PACKARD CLIPPER-SEDANS AND STATION WAGONS

*Please record this article on the Service Bulletin Reference page of your 1957 Studebaker and Packard Clipper Supplements.*

Reinforcements are now being added in production to the hoods of all sedans and station wagons. A reinforcement is located in each side flange near the front corner. Although the reinforcements are being welded in production, they may be installed in the field by using small bolts and nuts. However, a flat oval-head bolt must be used to prevent interference at the fender when the hood is closed.

Layout and center-punch the hole locations

Fig. 1



on the hood flange to the dimensions shown in Fig. 1. Then, drill the holes with a 3/16" diameter drill. The bracket may be held in position on the flange with lock-type pliers and, the flange and bracket drilled at the same time. After installation of the bracket, check the clearance between the bolt heads and the fender. Provide clearance if necessary, by carefully striking the head of the bolt with a rubber mallet.

The following parts are required:

- 1 - 1320686 Bracket, right
- 1 - 1320687 Bracket, left
- 8 - 2055X1 Bolts
- 8 - G271166 Nuts

After completing the installation, paint the brackets.

The operation number and estimated time required are: Operation V-72 - Install hood reinforcements, includes painting. Time - 0.6 hours.

### PASSENGER CAR FRONT FENDER FOR SERVICE - 1953 TO 1957 STUDEBAKER AND 1957 PACKARD CLIPPER MODELS

To simplify stocking of parts and to make it possible for you to replace only the part of the fender which is needed, the Parts Department will discontinue the servicing of complete front fender assemblies as stock of complete fenders is exhausted. The following parts will be serviced:

Front Fender Outer Shell  
Front Fender Apron  
Front Fender Apron Air Deflector

It is desirable to use up all stock on hand at the Parts Depots and at the Central warehouse at South Bend of complete fender assemblies before supplying the various sections. At present the following substitutions will be made:

1956 Model G, B and H; Body W, F, Y and D

In place of complete Front Fender Assembly, Part No. 1312100, the following components will be serviced:

- 1312156 (R) Front Fender Assembly (outer shell)
- 1323178 (R) Apron Assembly
- 1320036 (R) Air Deflector

1956 Model G, B and H; Body C and K

In place of complete Front Fender Assembly, Part No. 1314456 and 1314457, the following components will be serviced:

- 303040 - 1 Front Fender Assembly (outer shell)
- 1323188 - 9 Apron Assembly
- 1314452 - 3 Air Deflector

As other complete fender stocks are exhausted, similar substitutions will be made.

If you order a complete fender after the stock of complete fenders is exhausted, the Parts Department will automatically substitute the fender outer shell only. Therefore, if a

complete fender is required, you must order all component parts.

Following is a complete summary of the substitutions plan as laid out by the Parts Department:

1957 Models G, B and H; Body W, F, Y, D and P

For complete fender and Apron Assembly, Part No. 1321180 - 1, substitute for service:

1320498 - 9 Front Fender Assembly (outer shell)  
1323178 - 9 Apron Assembly  
1320036 - 7 Front Fender and Apron Side Air Deflector Assembly  
1320170 - 1 Air Deflector Bracket  
1312020 - 1 Front Fender Reinforcement Brace

1957 Models G and H; Body C and K

For complete fender and Apron Assembly, Part No. 1320834 - 5, substitute for service:

303040 - 1 Front Fender Assembly (outer shell)  
1323188 - 9 Apron Assembly  
1314452 - 3 Front Fender Apron Upper Side Air Deflector Assembly  
306598 - 9 Brace

1957 Model L

For complete fender and Apron Assembly, Part No. 1323208 - 9, substitute for service:

1323200 - 1 Front Fender Assembly (outer shell)  
Apron Assembly, Air Deflector, Air Deflector Bracket and Front Fender Reinforcement Brace same as 1957 Model G, B and H; Body W, F, Y, D and P.

1956 Model G, B and H; Body W, F, Y and D

For complete fender and Apron Assembly, Part No. 1312100 (R), substitute for service:

1312156 (R) Front Fender Assembly (outer shell)  
1323178 (R) Apron Assembly  
1320036 (R) Air Deflector  
1312020 (R) Bracket

For complete fender and Apron Assembly, Part No. 1316339 (L), substitute for service:

1312157 (L) Front Fender Assembly (outer shell)  
1323179 (L) Apron Assembly  
1320037 (L) Air Deflector  
1312021 (L) Bracket

1956 Model G, B and H; Body C, K and J

For complete fender and Apron Assembly, Part

No. 1314456 - 7, substitute for service:

303040 - 1 Front Fender Assembly (outer shell)  
1323188 - 9 Apron Assembly  
1314452 - 3 Air Deflector  
306598 - 9 Brace

1955 Models G and H; Body W, F, Y and D-Phase A

For complete fender and Apron Assembly, Part No. 308156 - 7, substitute for service:

297284 - 5 Front Fender Assembly (outer shell)  
298402 - 3 Apron Assembly  
612556 - 7 Front Fender and Apron Side Air Deflector and Reinforcing Assembly  
306598 - 9 Brace  
308100 - 1 Front Fender and Apron Side Air Deflector Assembly  
Phase B

For complete fender and Apron Assembly, Part No. 308610 - 1, substitute for service:

308612 - 3 Front Fender Assembly (outer shell)  
298402 - 3 Apron Assembly  
612556 - 7 Front Fender and Apron Side Air Deflector and Reinforcing Assembly  
308100 - 1 Front Fender and Apron Side Air Deflector Assembly  
306598 - 9 Brace

1955 Models G and H; Body C and K

For complete front fender and Apron Assembly, Part No. 308398 - 9, substitute for service:

303040 - 1 Front Fender Assembly (outer shell)  
1323188 - 9 Apron Assembly  
308410 - 1 Air Deflector  
306598 - 9 Brace

1953-1954 Models G and H; Body W, F, Y and D

For complete front fender and Apron Assembly, Part No. 298404 - 5, substitute for service:

297284 - 5 Front Fender Assembly (outer shell)  
298402 - 3 Apron Assembly  
612556 - 7 Air Deflector Assembly  
298016 - 17 Front Fender Air Intake Upper Side Panel  
306598 - 9 Brace

1953-1954 Models G and H; Body C and K

For complete front fender and Apron Assembly, Part No. 303094 - 5, substitute for service:

303040 - 1 Front Fender Assembly (outer shell)  
1323188 - 9 Apron Assembly  
304056 - 7 Air Deflector Assembly  
306598 - 9 Brace



**PAINT FORMULATIONS - 1957  
PACKARD CLIPPER MODELS**

Record this article on the Service Bulletin reference page of your 1957 Packard Clipper Supplement.

Dupont #1044 Cumberland Gray Baking Enamel (their #289-75131) - BBT

253-050	White . . . . .	31.7%
253-0284	Black . . . . .	3.3%
253-0312	Red . . . . .	Trace
253-0519	Blue . . . . .	Trace
B-630	Base . . . . .	55.0%
B-547	Base . . . . .	10.0%
		100.0%

O'Brien's #1042 Lilac Baking Enamel (their S-1517-A) - BBR

Rutile Titanium Dioxide . . . . .	11.9 %
Carboyate Drozazine Violet . . . . .	.12%
Anti Float . . . . .	.43%
Urea and Alkyd Resin . . . . .	38.11%
Aromatic and Aliphatic Solvents . . . . .	49.44%
	100.00%

**ULTRAMATIC PUSH BUTTON CONTROL -  
1958 PACKARD AND CLIPPER MODELS**

Please record this article in the Ultramatic - Push Button section of your 1955-58 Packard Service Manual.

In most cases of malfunctioning of the Ultramatic push button control, the trouble is found in the contact finger and lead assembly of the actuator.

Unless there is an obvious failure of a component unit or relay in the system, the over-all check through the complete circuits to the fingers of the actuator is the most positive check for the source of trouble. The suggested method of checking described below, will reduce the danger of overloading or burning out the control units in the system that are operating satisfactorily and prevent overtravel of the segment with its resultant difficulties by eliminating the hit and miss method of applying jumper wires at the control units in an effort to diagnose the trouble.

Method of Checking -- Disconnect one of the cables from the battery. Disconnect the wires from the pressure switch and join them with a connector; all other wiring must remain connected. Remove the motor and actuator as described in the Packard Service Manual. Mount

the assembly on the engine support bar or some suitable location to make it accessible and to provide a good ground. (See Fig. 2). Wipe all loose dirt from the unit, and remove the actuator cover. Connect the battery cable.

Operate the controls through the push buttons in the regular way and observe the functioning of the fingers and sector. If the sector, for example, will operate to D position and then refuses to move, use a test lamp grounded to the engine and touch the D finger to see if the lamp will light. This will insure that current is flowing to that finger. Obviously, if the test lamp does not light, the trouble is in the circuit before this point. If it does light, the trouble is caused by a poor contact of the finger on the segment. Press the finger tightly against the segment, if the contact is good, depressing another button will change the sector position to the button depressed.

Remove the contact finger assembly and check the finger or fingers that are not making good contact on the segment. If the finger assembly is in good condition, bend the finger or fingers just enough to provide proper bearing on the segment. When the fingers are properly aligned on their support they should have a contour to conform to the segment. This alignment should also be checked every time a new finger assembly is installed.

If there is evidence of shorting or a previous bad arcing condition at any of the fingers, causing the fingers to lose their tension, the contact finger and lead assembly should be replaced.

If the trouble is not caused by a faulty finger contact the test lamp will enable you to

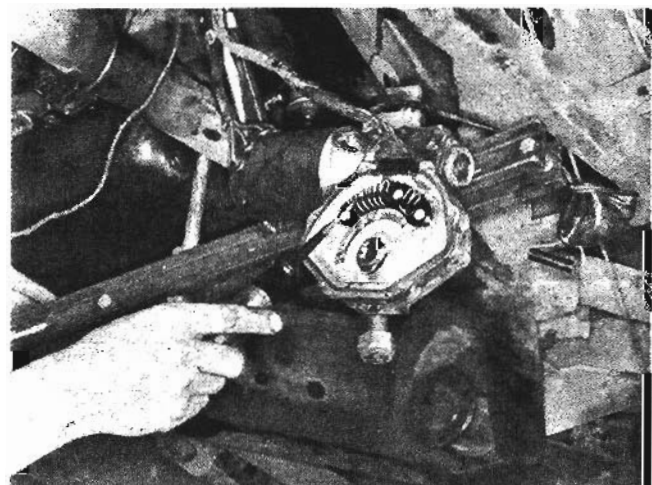


Fig. 2

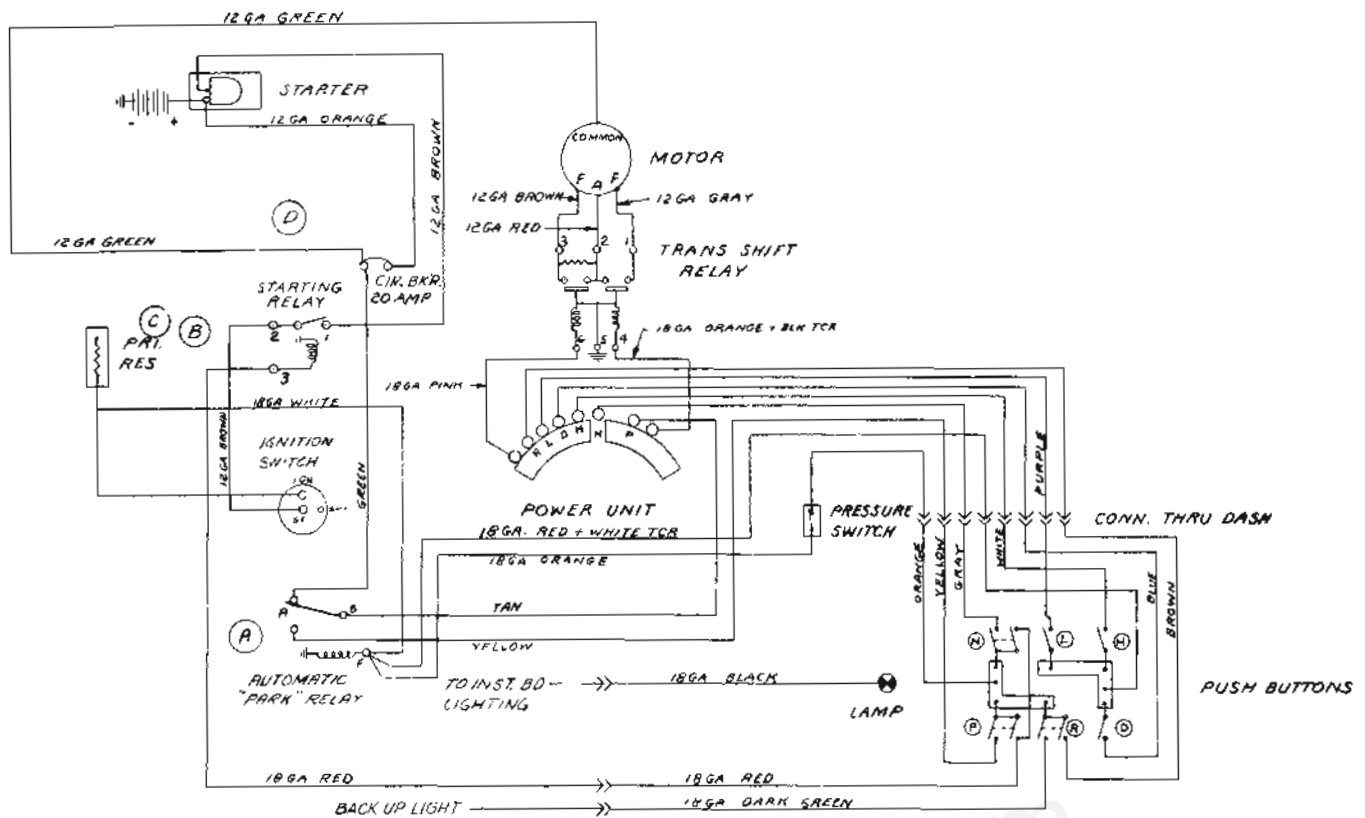


Fig. 3 WIRING DIAGRAM OF PUSH BUTTON SYSTEM

determine to which circuit the trouble is confined and trace the circuit or circuits involved to find and correct the trouble. Fig. 3 illustrates a schematic wiring diagram of the system.

**Overtravel** -- If an overtravel of the segment has occurred, first, be sure the cause has been corrected. Then, if damage has been caused to the fingers make the required repairs or replacement to place them in operating condition and alignment. Note -- If the contact segment does not have the chamfered corners, file or stone off the corners as outlined in Service Bulletin No. 322, Fig. 3.

**Caution** -- Disconnect the battery cable before replacing the motor and actuator assembly after making the necessary repairs

#### ANTI-HUNT ADJUSTMENT

Because of wear or a natural freeing-up of the armature worm drive in service, a hunting condition may develop. The hunting condition can be recognized by several clicks from the shift relay when shifts are made from one position to another.

An adjustment for the worm gear brake is provided. The adjustment procedure is covered in the 1955-56 Packard Service Manual. Push

Button Control, Ultramatic section. The procedure in the manual must be followed for a correct adjustment.

Hunting may also be caused or aggravated by a loose sector set screw, manual control valve inner lever, reverse stop or the control is not centered into the manual valve detent. To properly center the detent follow the instructions outlined in the manual.

#### CONDENSATION AND CORROSION

Condensation or water entering the actuator unit may cause damage to the extent that the contact finger assembly will need replacement.

It is very important, after the installation of a new contact finger and lead assembly, that the opening at which the wires enter the actuator be thoroughly sealed against the entrance of water. The holes of the motor housing where the wires enter should be carefully sealed. When installing a new motor and actuator assembly, be sure that all points at which wires enter the assembly are carefully sealed.

Transmission fluid may enter the contact area of the actuator causing it to fail. To provide a vent as well as a drain, modify the assembly as described and illustrated in Service Bulletin No. 322. If a leak does occur,

even though the vent and drain have been provided, the shaft seal, must be replaced.

#### PRESSURE SWITCH

If the actuator will not shift when the buttons are pressed into the reverse, neutral, or park position with the ignition switch turned on, check for a burned-out or nonfunctioning pressure switch.

#### RELAY WATER TROUGH

To protect the control relays, a water trough or drain should be mounted on the left fender, above the relays. If the car is not so equipped, install the drain as illustrated and described in Service Counselor Vol. 30, No. 1, January 1956.

#### AUTOMATIC PARK RELAY

If the owner desires to have the automatic park relay removed, consult your zone service representative as to the correct procedure. (Export dealers see Service Letter No. FP-74 dated February 20, 1957).

### HIGH RANGE CLUTCH BURNING - ULTRAMATIC TRANSMISSION

*Please record this article on the Service Bulletin Reference page at the end of the Transmission-Ultramatic section of your 1956 Studebaker Passenger Car Shop Manual and in the Ultramatic Transmission section of your 1955-56 Packard Service Manual.*

The burning-out of the high range clutch creates a very high temperature within the clutch housing. The excessive heat may cause a loss of temper in the high range clutch spring and result in the spring taking a "set". This may affect the spring to the point that its overall free length is shortened which would effect its release function. The clutch spring free length must not be less than 3 55/64". If a loss of the over-all length is established, install a new spring.

In the replacement of burned-out high range clutch, not only should the cause be corrected but all parts affected should be replaced. Reinstallation of such parts might contribute to another failure. A clutch spring which has lost its effectiveness would fall in this category.

Always make sure the high range clutch

piston does not rest flat on the milled surface of the clutch housing. If it does, oil pressure to the back of the piston is restricted which would cause slow engagement. To correct this condition, follow the instructions given in Service Counselor Vol. 29, No. 8 dated August 1955. This will not only insure a faster and more positive clutch application, but will reduce flare tendency with a resultant smoother application.

It is very important in cases of high range clutch failure to check for sticking or scored valves, worn bushings or improperly adjusted linkage. These conditions would cause a loss in effective pressure.



### TRUCK EXHAUST SYSTEM

In recent months the trucking industry has placed considerable emphasis on the abatement of engine exhaust system noise. Tests indicate that a muffler system having a 125 sone limit is an acceptable standard. A "sone" is a unit of measurement of the volume or loudness of sound.

We have been advised that a major portion of the trucking industry will begin a campaign to secure muffler system parts that conform to the 125 sone limit standard. It is important, therefore, that your service and parts department personnel be acquainted with the term "125 sone limit" specification.

All Studebaker trucks are produced with muffler systems well within the 125 sone limit standard. Replacement muffler system parts obtained from the parts and Accessories Division also meet this standard.

### STARTER MOTOR - 3E5 MODEL TRUCK

*Please record this article on the Service Bulletin Reference page of your 3E Series Trucks Supplement.*

Effective with engine serial number 1E-12157, a different model starter motor is used in the 3E5 model truck. It is an Auto-Lite Model MDM - 6003, Studebaker Part No. 1688585. While the new starter motor is interchangeable as an assembly with the old, the individual parts are not. The starter motor formerly used, Part No. 1685374 (Auto-Lite Model MDG - 6004) has been cancelled.

STUDEBAKER-PACKARD CORPORATION

SOUTH BEND 27, INDIANA