

# Studebaker SERVICE BULLETIN

DECEMBER

NO. 246



1950

## TEST STUDEBAKER PERMANENT ANTI-FREEZE WITH ETHYLENE GLYCOL SCALE

Please record this article on the Service Bulletin reference page of the Cooling section of your 1951 Shop Manual.

Dealers are urged to advise their service personnel that Studebaker Permanent Anti-Freeze is 100% ethylene glycol (with inhibitors added) and can be accurately tested only on the ethylene glycol scale of the anti-freeze tester.

Some of the popular brands of anti-freeze are styled ethylene glycol but actually are a blended mixture of ethylene and heavier glycols. These mixtures can be tested only on the tester scale bearing their brand names. Studebaker Anti-freeze tested on such a scale will read higher than the true protected temperature and may mislead the serviceman or the owner.

Studebaker Permanent Anti-freeze, being 100% ethylene glycol (inhibitors added to protect against corrosion), is the most stable type of anti-freeze known; the inhibitors retain their non-acid properties far longer at maximum efficiency than is possible in the various combination mixtures. Furthermore, in the approximately 20 states requiring registration, testing, and approval of anti-freezes, Studebaker Permanent Anti-Freeze meets with all official requirements, including checks on protective qualities in accordance with the protection chart shown on the outside of the container.

### CORRECTIONS TO SHOP MANUAL

Please turn to page 5 of the Cooling System section of the 1951 Shop Manual and make the following changes.

Left hand column, line 5: Change the word "head" to "block."

Left hand column, line 6: Change the words "open petcocks" to "remove pipe plugs."

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## REMOVAL OF INSTRUMENT PANEL CONTROLS AND SWITCHES - H AND 10G

Please record this article on page 27 of the Electrical section of your 1951 Shop Manual.

Spanner-type retaining nuts holding windshield wiper, light, and Climatizer heat-and-blower controls to the instrument panel can be removed by use of a spanner socket made by Snap-On Tools under Snap-On Part No. S-9458. This socket is for use with 1/4" drive socket handles or rachets.

To remove the control it is necessary only to loosen the set screw in the knob, remove knob, then remove the spanner nut with the spanner socket. All of this is done from the driver's side of the instrument panel.

Order this socket from your nearest Snap-On Tools sales representative.

# STUDEBAKER AUTOMATIC DRIVE - ELIMINATION OF OIL LEAK AT THE SELECTOR CONTROL SHAFT

*This article is a reprint of Passenger Car Service Letter No. 839 which may now be discarded from your files. Please record this article on page 36 of your Studebaker Automatic Transmission Preliminary Shop Manual.*

Oil leaks encountered at the selector control shaft of an automatic transmission are usually the result of the "O" ring oil seal on the shaft being scuffed or torn. These leaks can be eliminated by the installation of a new "O" ring oil seal, together with a new packing gasket and a new flat washer. The following parts which are necessary to make this replacement may be ordered from your local Parts Depot:

- Part No.529677 - Selector Control Shaft Packing Gasket
- Part No.529678 - Selector Control Shaft "O" Ring Seal
- Part No.529679 - Selector Control Shaft Washer
- Part No.527783 - Oil Pan Gasket

## Procedure For Removal and Replacement of the Selector Control Shaft Assembly and the Selector Control Shaft Oil Seal

### REMOVAL

1. Drain the oil from the *transmission assembly only* and remove the transmission oil pan.
2. Remove the nut (1, Fig. 1), lock washer (2) and flat washer (3) holding the selector

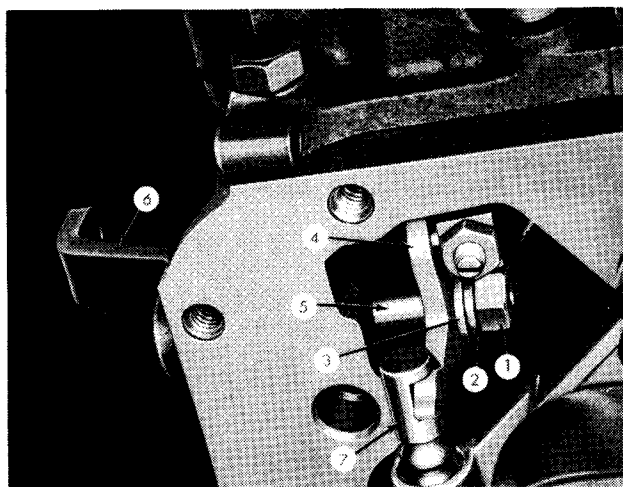


FIG. 1

- 1. NUT
- 2. LOCK WASHER
- 3. FLAT WASHER
- 4. CONTROL SHAFT INNER LEVER
- 5. SELECTOR SHAFT
- 6. SELECTOR CONTROL SHAFT
- 7. SELECTOR VALVE

control shaft inner lever (4) to the selector shaft (5).

3. Disconnect the hand control bell crank-to-transmission rod at the selector control shaft assembly (6, Fig. 1).
4. Remove the selector control shaft assembly from the selector control shaft inner lever and the transmission case, by pulling outward on the control shaft assembly.
5. Remove the packing gasket from the transmission case.
6. Remove the "O" ring seal (1, Fig. 2) from the groove in the selector control shaft (3) and then remove the flat washer (2) from the shaft.

### REPLACEMENT

1. With a screw driver, blunt the leading edge of the selector shaft bore (1, Fig. 3) at

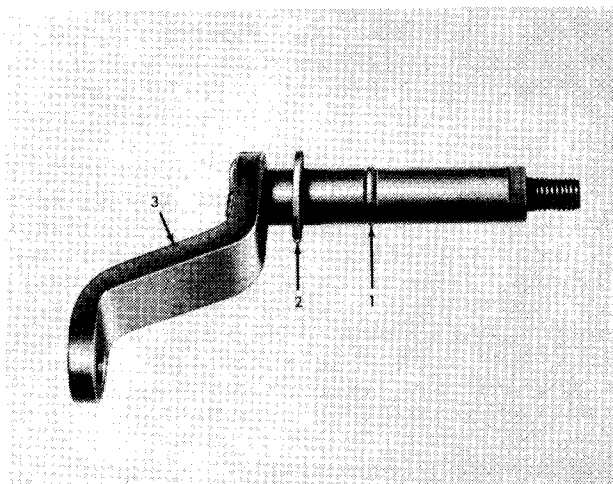


FIG. 2

- 1. "O"-RING SEAL
- 2. FLAT WASHER
- 3. SELECTOR CONTROL SHAFT

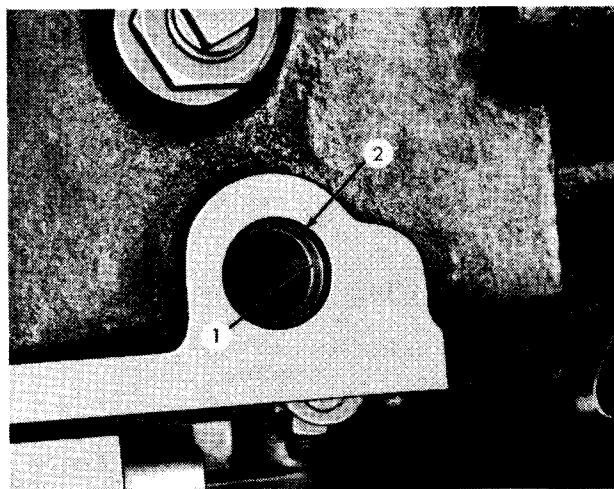


FIG. 3

- 1. LEADING EDGE OF SELECTOR SHAFT BORE
- 2. PACKING GASKET COUNTERBORE

- the base of the packing gasket counterbore (2) to prevent scuffing the "O" ring seal during installation. Clean the selector shaft bore in the transmission case and lubricate the bore with 10W engine oil.
2. Install a new packing gasket, Part No. 529677 in the counterbore (2, Fig. 3) in the transmission case.
  3. Lubricate the selector control shaft and new "O" ring seal, Part No. 529678, with 10W engine oil. Slide a new flat washer (2, Fig. 2), Part No. 529679, over the selector control shaft. Install the new "O" ring seal (1) in its groove on the selector shaft.
  4. With a twisting motion, install the selector control shaft into the transmission case and selector control shaft inner lever. (Note.-- *The end of the selector shaft and the selector control shaft inner lever are matched pieces; that is, the shaft has flats ground on it and the inner lever is notched to fit these flats on the shaft. The correct position is with the selector control shaft outer lever toward the top of the transmission.*)
  5. Install the flat washer, lock washer, and nut holding the selector control shaft inner lever to the selector control shaft. Tighten and check to assure that the selector control shaft inner lever is properly positioned in the selector valve (7, Fig. 1).
  6. Install the oil pan using a new oil pan gasket, Part No. 527783.
  7. Fill the transmission to proper level using 10W premium engine oil as outlined in the Preliminary Automatic Transmission Shop Manual.
  8. Check operation of car and inspect for leaks.

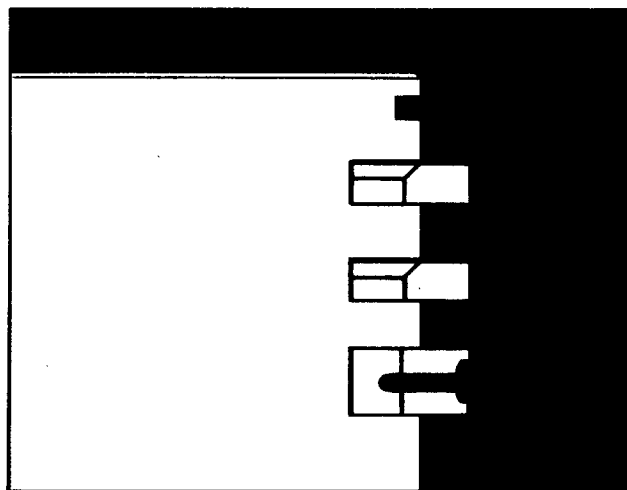
### PHILCO AUTO RADIO SERVICE STATION DIRECTORY

Mailed with this issue of the Service Bulletin is your copy of the 1951 Philco Auto Radio Service Directory, listing all Philco auto radio distributors and service stations in the continental United States and the Territory of Hawaii as of the time of printing.

Your attention is called to the general remarks on the inside of the front cover and also to the Foreword and Warranty Parts and Service information on the first page of the book.

Please note that distributors are listed in bold face type and the letter D follows the name and address. While distributors can make warranty repairs and authorize the replacement of parts, their services in this respect should be confined only to those cases that cannot be handled in your own city. If there

is an authorized Philco auto radio service station in your locality, you are urged to handle all your warranty repairs or replacements with that station.



### PISTON RING INSTALLATION - H MODELS

*Please record this article on page 87 of the Engine section of your 1951 Shop Manual and make a marginal reference to this article beside the paragraph headed "Piston Ring Installation - Commander" on page 40 of the Engine section.*

As assembled in production, the two top compression rings in the Commander V-8 engine have a chamfer on the inner diameter. Install both rings with this chamfer upward as shown in the accompanying drawing.

### PACKAGE COMPARTMENT CARDS DISCONTINUED ON CARS AND TRUCKS

*Please record this article on the Service Bulletin Reference page of the Preparation for Delivery sections of your 1951 Shop Manual and your 2R Series Trucks Shop Manual.*

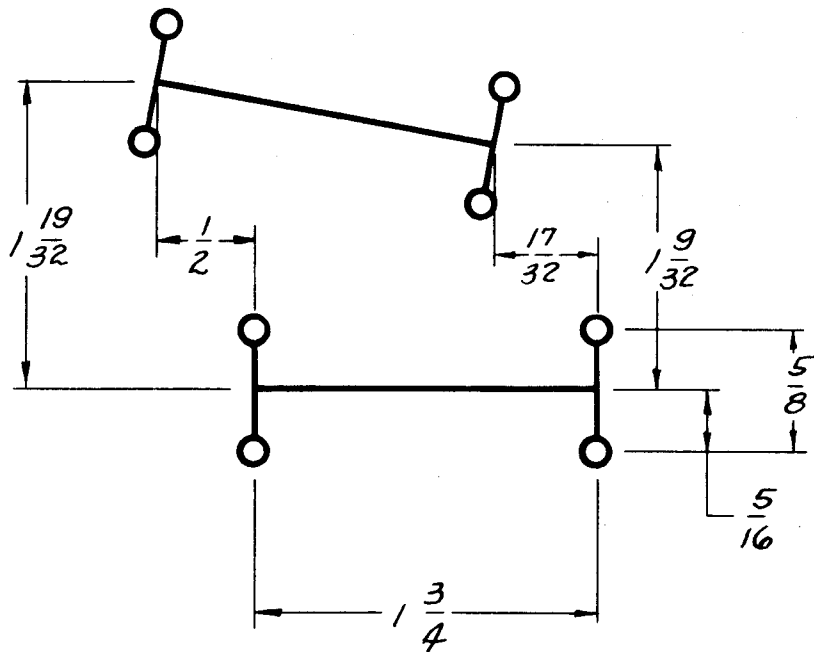
Effective in production the week ending December 16, 1950, package compartment cards will no longer be furnished.

**AIR CLEANERS**

**REQUIRE**

**REGULAR SERVICE**

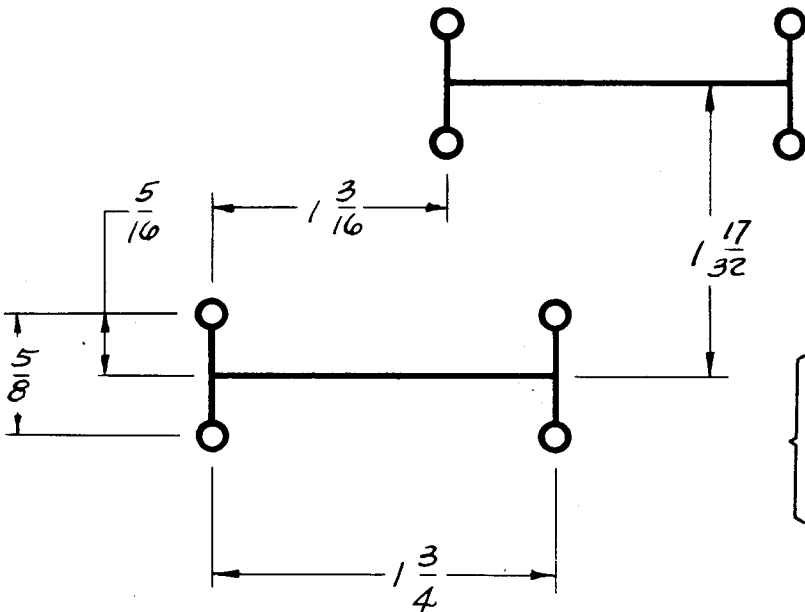
*Keep them Efficient!*



These holes and slits for use with old type pedal. They are found in LHC Floor Mats, Part Nos. 652646-652648-652754.

These holes and slits for use with new type pedal. They are found in Part Nos. 653132-653134-653136.

**MODIFICATIONS OF FLOOR MATS FOR LEFT HAND CONTROL 2R SERIES TRUCKS**



These holes and slits for use with old type pedal. They are found in RHC Floor Mats, Part Nos. 652647-652649-652755.

These holes and slits for use with new type pedal. They are found in RHC Floor Mats, Part Nos. 653133-653135-653137.

**MODIFICATIONS OF FLOOR MATS FOR RIGHT HAND CONTROL 2R SERIES TRUCKS**

## TRUCK SERVICE ITEMS

### TRUCK FLOOR MAT MODIFICATION TO ACCOMMODATE NEW ACCELERATOR

Please record this article on pages 30 and 126 of your 2R Series Trucks Shop Manual.

A longer accelerator pedal, designed to give a more comfortable position for the driver's foot, entered production effective with Serial Nos. 2R5-66171, 2R6-1248, 2R10-27996, 2R11-1307 with three speed transmission. On 2R5-66156, 2R6-1284, 2R10-27981, 2R11-1350; 2R14-299, 2R15-12085, 2R16A-29767, 2R17A-18970 with four speed transmission.

This accelerator pedal fastens at the lower end against the floor pan, instead of against the toeboard as in trucks built prior to the above serial numbers.

Due to the large number of trucks in operation in the field at this time, only the original mat will be carried in service stock. If mats or accelerator pedals are changed in service use the following instructions:

#### NEW MAT -- OLD PEDAL

If, in the future, as older mats wear out, it is necessary to install one of the new style mats in a truck equipped with the original type of accelerator pedal, the new mat can be modified by making new mounting holes and slits forward of those in the mat, as shown by the upper set of slits and holes in the accompanying drawings.

#### OLD MAT -- NEW PEDAL

It is possible to install the new type accelerator pedal in a truck equipped with the original type floor mat, by providing hinge mounting holes and hinge slits in the floor mat somewhat closer to the rear of the mat than the original holes and slits. The pedal pad will cover the original slits and holes.

The drawings on the opposite page show in full scale the location of the hinge mounting holes and slits, the upper set of each drawing showing the arrangement of the old style mats and the lower set showing that of new mats. Note also that one drawing illustrates the locations for right hand control trucks and the other for left hand control trucks.

The drawings can be used as templates or tracings can be made of them for that purpose.

## HEAVY DUTY TRUCK ENGINES - 2R SERIES

Please record this article on page 107 of your 2R Series Trucks Shop Manual.

"Heavy duty" truck engines are those six cylinder engines of 245.6 cubic inch displacement which contain chrome faced top piston rings, Part No. 530010, hard-faced exhaust valves, Part No. 526898, and the exhaust valve Roto cap kit, Part No. 530020 (consisting of six Roto caps, Part No. 530417, and six valve springs, Part No. 530418).

Heavy duty truck engines for 2R16A, and 2R17A models are available for service installation either as complete engine assemblies or as stripped engine assemblies.

The heavy duty engines can be identified by inspection of the engine serial number pad. This pad is longer than that on the standard 245.6 cu. in. engines, is painted red, and a clover leaf symbol is stamped into the pad as a prefix to the engine number stamping.

The following table lists the engine assemblies available through your parts depots for service installation:

Part No.	For Model	Part Name
680459	2R16A, 2R17A	Engine assembly, stripped
680473	2R16A, 2R17A	Engine assembly, complete

A summary of the heavy duty parts for servicing individual parts of the above listed engine assemblies or for use in converting standard 245.6 cu. in. engines for heavy duty service follows:

Part No.	No.	Truck Part Name
530010	6	Chrome-faced top piston ring
526898	6	Hard-faced exhaust valve
530020	1	Roto cap kit, composed of:
		6-530417 Roto cap
		6-530418 Valve springs

### REAR AXLE ASSEMBLY - 2R5, 2R6 MODEL TRUCKS

The 4.82-1 ratio rear axle assembly for 2R5 and 2R6 model trucks, has been changed to 4.89-1 and the 4.55-1 rear axle to 4.56-1 ratio. The ratio change results in a better tooth combination giving quieter operation.

The ring gear of the new axles is of heavier construction and the bolt circle has been changed. With the new design the ring gear cap screws are directly in back of the ring gear teeth, thus reducing the stress on the cap screws.

The differential side bearings are 3/16" (total) further apart, making necessary a change in the axle housing. However, by placing the differential side bearings further apart the same differential case can be used with the standard and all optional gear ratios. The new axle assembly can be identified by the number "44" cast in the lower reinforcing web on the right rear side.

The parts numbers affected are as follows:

Old Part No.	New Part No.	Part Name
679817		Axle Assembly 4.82
	680233X1	Axle Assembly 4.89
679815	680233X2	Axle Assembly 4.09
679828		Axle Assembly 4.55
	680398	Axle Assembly 4.56

Both new and old parts will be carried in stock since they are not interchangeable.

The 4.09-1 ratio is standard on the 2R6 and special order on the 2R5 with the 3 or 4 speed transmission. The 4.89 ratio will be used with overdrive transmissions on both the 2R5 - 2R6.

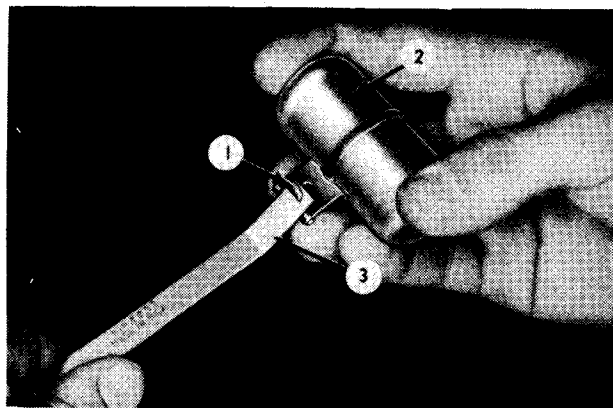
The 4.89-1 ratio axle entered production beginning with Serial Nos. R5-65214 and R6-1150 and the 4.09 ratio axle entered production with Serial Nos. R5-67101 and R6-1430.

### SPRING LOADED NEEDLE VALVE AND SEAT ASSEMBLY - 2R16A AND 2R17A MODEL TRUCKS

A spring loaded needle valve and seat assembly, Part No. 680279, is available through your parts depot for service installation in trucks operating over unusually rough roads, or at steep angles such as occur in some dump truck operations. The purpose of the spring loaded needle and seat assembly is to prevent flooding of the carburetor and eliminate the stalling of the engine that usually occurs at slow speeds as a result of high fuel level.

The new needle valve and seat assembly is readily interchangeable with original needle and seat assembly (Part No. 675434). However, when installing the new needle and seat assembly, care should be taken to prevent dislodging the small spring and pin in the needle valve.

To check float level with the carburetor on the truck, remove the air cleaner, air horn, and air horn gasket. Hold the float lever pin retainer securely in place, start engine and check float using Carter float gage T-109-50 or Kent-Moore tool KMO-733 using the 7/64" side. If neither tool is available the fuel line should be 21/32" from the top of the carburetor bowl.



With the carburetor off the truck, remove the air horn and air horn gasket. Hold the float lever pin retainer securely in place and turn carburetor upside down. Place a 6" scale diagonally across the carburetor bowl surface so that the scale does not touch center rib of the float. The float should just touch the scale.

If necessary to bend float lever to obtain correct setting, see accompanying illustration and follow instructions on page 122 of the 2R Series Trucks Shop Manual.

### RADIATOR AND FAN ASSEMBLIES - 2R5, 2R10, and 2R15 MODEL TRUCKS

To provide a stronger radiator core assembly, the cellular type supplied on the 2R5-10-15 models has been changed to a tubular type similar to that used on the 2R16A-17A models. This change entered production with truck Serial Nos. R5-67642, R10-28405, and R15-12140.

The fan assembly has also been changed to aid cooling and reduce fan noise. This change became effective in production with engine Serial Nos. 1R-84980 for the 2R5 and 2R10 models and 2R-11632 on the 2R15 model truck.

The canceled and new parts are as follows:

Part No.		Part Name	Model
Cancel	New		
677136	680282	Radiator Core Assembly - Std.	2R5, 2R10
525048	530430	Fan Blade Assembly	2R15

Since the radiator core and fan assemblies are interchangeable with prior models, only the latest parts will be carried in stock after the present supply of the canceled parts has been exhausted. The capacity of cooling systems with new radiator is 10-1/2" qts.