

Studebaker

SERVICE BULLETIN

NOVEMBER

NO. 212



1948

AIR CLEANER MAINTENANCE

Air cleaners are placed on carburetors for just one purpose: to remove as much dust from the air as possible. Because the amount of dust in the air varies widely with the types of roads used and the geographical areas in which cars are driven, two different kinds of air cleaner are used.

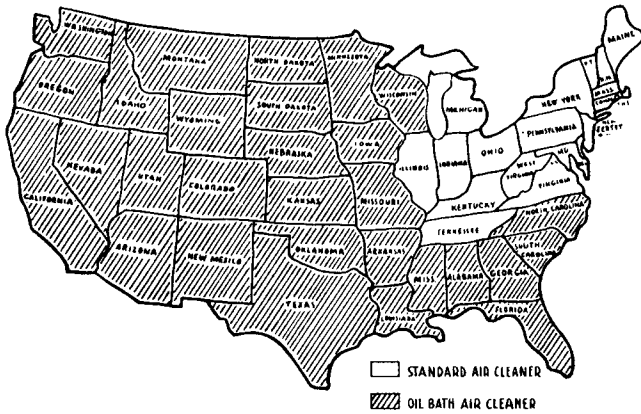


FIG. 1 - STATES RECEIVING EACH TYPE OF CLEANER

As shown on the accompanying map, in states where relatively little travel is done over dusty roads and the air is usually moist enough to keep free dust under control, Studebaker cars are equipped with the oiled filter element type of air cleaner. For shipment to other states, considered throughout the automobile industry as dusty areas, the cars are equipped at the factory with the oil bath (wet or "heavy duty") type of air cleaner.

The Two Cleaners

The oiled filter (dry) type of carburetor air cleaner consists of a round, metal container having sufficient openings to allow air to flow freely into the carburetor air horn. Within the metal container is placed a mesh filter which has been soaked in engine oil. See Fig. 2. As the air travels through the container openings, it is drawn over the oiled mesh filter by engine vacuum. Dirt and dust particles

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adhere to the oil coating on the mesh and are thus prevented from passing into the engine.

Where the quantity of such particles is not generally great, this type of cleaner performs satisfactorily, if it is cleaned and serviced regularly and correctly.

The oil bath or wet type of air cleaner is designed to filter the air of dust or dirt particles where the percentage of such particles is so great that the oiled filter type cleaner either could not handle the volume or would reach its capacity so soon as to be impractical.

The oil bath cleaner (see Fig. 3) consists of a metal container which houses a mesh filter and also a pool or reservoir of engine oil. It is so designed that incoming air must pass through the mesh filter and downward toward the pool of oil until it is deflected by the oil, after which it travels upward to the center core of the air cleaner and on into the carburetor air horn.

What dirt or dust is not filtered out of the air by the mesh filter travels on downward with the air stream until the air meets the oil pool. Since the dirt and dust particles are heavier than air they continue downward to the surface of the oil pool where they impinge

upon it and are trapped by the adhesive quality of the oil.

This type of cleaner has been found to be better than 90% efficient in removing dust and dirt particles from the air *if it is serviced at proper intervals and the work performed correctly.*

How Often Should Air Cleaners Be Serviced?

The frequency of service for air cleaners, either wet or dry types, depends entirely upon the amount of dirt and dust they have been called upon to remove from the air since they were last serviced.

Both types of air cleaner have a maximum capacity for dust removal and when this capacity is reached they can no longer remove a satisfactory amount of dust from the air. From then until the cleaners are serviced, the air entering the carburetor will carry most of its dust load with it.

This, of course, is dangerous to the engine since dust is one of the most abrasive substances that can get into the combustion chamber. If any amount of dust enters the cylinder bore it can cause serious scratching and scoring of the cylinder walls, contribute to piston ring damage, and can eventually work its way into the engine oiling system where it is carried to all parts of the engine, damaging in its travels nearly all of the close-fitting, mirror-polished bearing surfaces.

In relatively dust-free areas, where the car has been driven primarily over paved roads, the air cleaner should be serviced at least at the time of every chassis lubrication (1000 miles). If the car is driven over dirt roads from which dust rises freely (particularly in warm, dry weather) the cleaner should be inspected more frequently and serviced if necessary.

Advise Owners

Carburetor air cleaner service is not difficult to perform. It is far better to service the cleaner too often than to omit servicing it just once when needed. Owners should be advised of this fact and encouraged to keep the air cleaner serviced. Dealers should make it a part of their new car delivery procedure to point this out to the owner and also to indi-

cate the pages in the Owner's Guide which outline the correct method for cleaning air cleaners so that the owner himself can take care of it, if need be, on trips through unusually dusty areas.

Air Cleaner Service Procedure

The correct procedure for properly servicing the *standard oiled filter (dry) type carburetor air cleaner* is as follows:

1. Remove the filter element, clean with kerosene, and blow dry with compressed air.

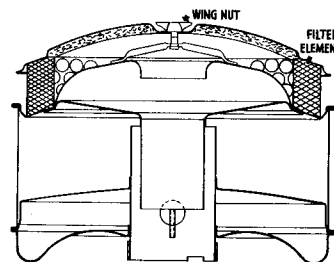


FIG. 2 - OILED FILTER
(DRY) AIR
CLEANER

2. When thoroughly dry, submerge in a good grade of engine oil and allow excess oil to drain

before reinstalling the element in the cleaner.

3. Replace filter element and wipe off all excess oil.

The correct procedure for properly servicing the *oil bath (wet) type carburetor air cleaner* is as follows:

1. Remove the filter element, clean in kerosene and allow to dry thoroughly.
2. Clean the oil reservoir and replace the filter element.
3. Dip the filter element in engine oil and drain excess.

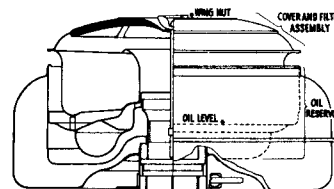


FIG. 3 - OIL BATH (WET)
AIR CLEANER

4. Pour one pint of the same viscosity of

engine oil used in the crankcase for summer (use lighter oil for winter) into the reservoir. Do not use an oil lighter than SAE No. 20 in the reservoir of the cleaner for this purpose. NOTE.--Passenger cars using oil bath air cleaners and all trucks are equipped with 1-pint capacity units; heavy duty 1-quart capacity units are available for trucks as optional equipment at extra cost.

TRUCK SERVICE ITEMS

PUSH BUTTON STARTER SWITCH - 2R16, 2R17

If for any reason an operator desires to start the engine of a 2R16 or 2R17 model truck without releasing the clutch pedal, such as in certain types of dump truck operation, a push button type, solenoid-operated starter switch may be installed.

The drawing below (Fig. 4) indicates the location of the solenoid on the instrument panel liner, while the following detailed installation instructions give full information regarding parts, drilling, and wiring required.

Parts Required:

Quantity	Part No.	Part Name
1	191939	Starter Switch Solenoid
1	513183	Push Button Switch
2	55X197	Solenoid Mounting Screws
2	380-#10G	Lock Washer
2	24X52	Nut
As Required	186123	Cable Clip

Quantity	Part No.	Part Name
*26"	#16 Gage	Primary Wire
2	31834	Terminal
2	198667	Terminal

*Purchase locally; all other parts are available at Studebaker Parts Depots.

Preliminary Steps

1. Disconnect battery ground strap.
2. Remove starter cable and ammeter lead from starter switch.
3. Remove starter switch to starter cable.
4. Remove starter switch from floor pan.

Solenoid Installation

1. Measure 2-1/2" to the right from the center of the large hole in which the starter switch was installed. Then measure down 5/16" from this point and center punch. This should place the mark on the dash liner a little below the offset.
2. Measure 2-1/8" up from the center punch mark on the dash liner following the contour of the metal surface. Center punch at this point.

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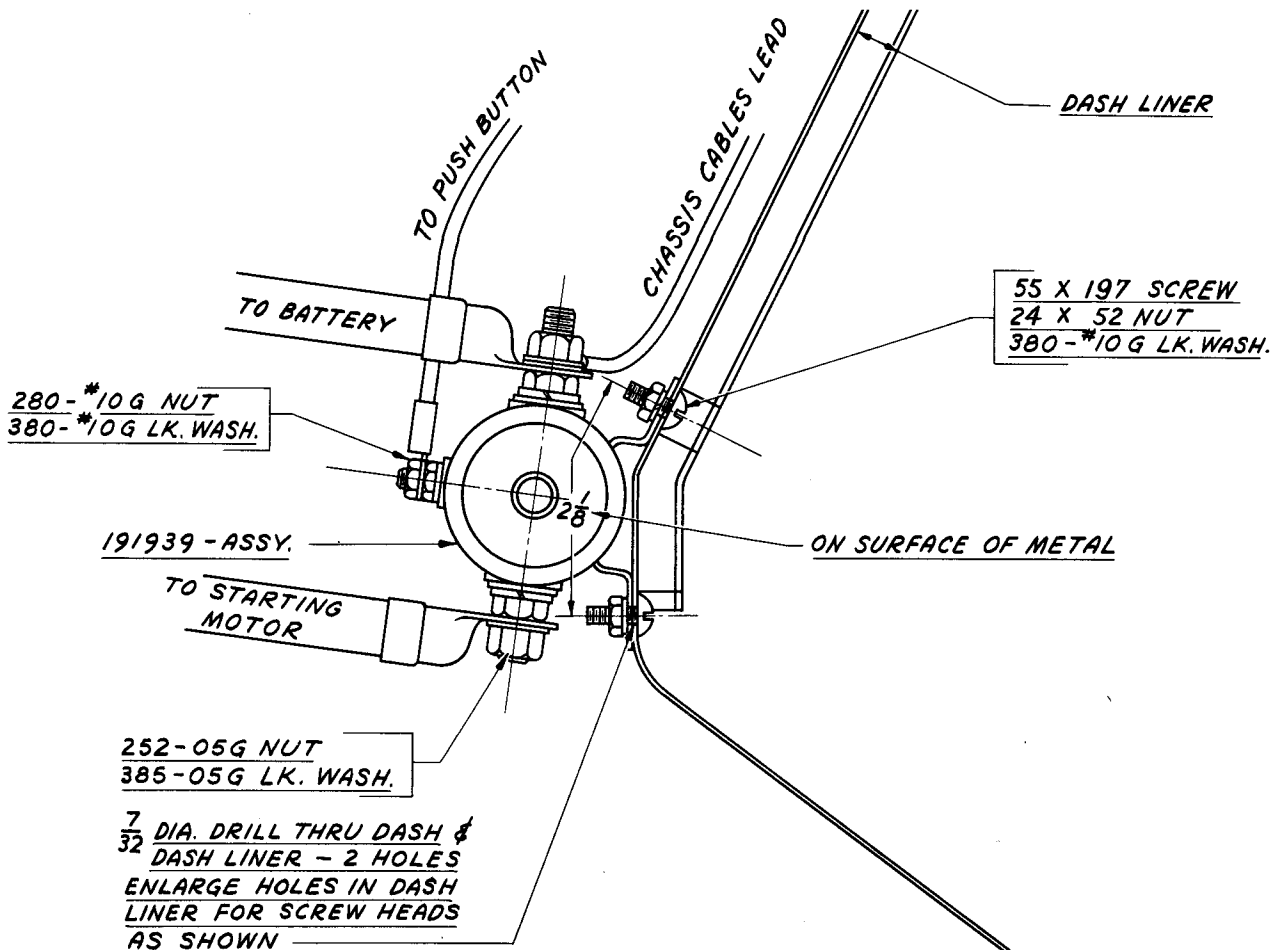


FIG. 4 - MOUNTING OF PUSH BUTTON STARTER SWITCH SOLENOID ON 2R SERIES TRUCKS

3. Drill two 7/32" holes at center punch markings.
4. Bend the mounting lugs of the starter solenoid to fit dash liner.
5. Install screws, lock washers, and nuts and tighten securely.

Installation of Push Button Switch

1. Measure 1-5/8" to the right of the light switch knob and center punch. Be sure to mark in line with other control knobs on panel.
2. Drill a 1" diameter hole. Be sure that the edge of the hole is smooth so that push button will snap into place securely.

Wiring Push Button Switch

1. Connect push button switch to the solenoid with 16 gage wire, 26" long. Install small terminal, Part No. 198667, on one end of the wire and large terminal, Part No. 31834, on the other end. Crimp or solder terminals securely.
2. Connect large terminal of 16 gage wire to small post on the solenoid. Thread the wire through the dash following the chassis cable and secure in place with clips, Part No. 186123, where required.
3. Install small terminal in push button switch connector.
4. Connect ground side of push button switch to nearest screw. Use 16 gage wire and terminals, Part Nos. 198667 and 31834. Crimp or solder terminals securely to the wire. Be sure ground connection is clear.
5. Connect cable from battery and ammeter lead to the top post on the solenoid.
6. Connect cable from solenoid to starter on the lower post of the solenoid.
7. Connect battery ground strap.

VENTED CAPSCREW FOR REAR BRAKE LINE TEE TO AXLE HOUSING - 2R10

Some early production 2R10 model trucks did not have an air vent in the rear axle assembly, thus making possible the building up of internal pressures which might result in grease leaks.

To provide an air vent in the rear axle housing assembly, the capscrew that holds the rear brake line tee to the axle housing has been changed in production. The new capscrew, Part No. 678850, contains a 3/32" vent hole through its center.

This capscrew can be installed in the field on 2R10 trucks not so equipped or a 3/32" hole may be drilled through the center of the original capscrew, Part No. 2-0416.

(Another truck service article appears on p. 6)

DIAGNOSIS CHARTS FOR 6G, 7G-14A, 15A OVERDRIVE TRANSMISSIONS

Please record this article on p. 178 of your 1947 Shop Manual.

In the 1947 Shop Manual there is a diagnosis chart on pp. 174-175 outlining two series of checks to be followed when (a) the transmission will not engage in overdrive or (b) the transmission will not change from overdrive to conventional gear with the accelerator past the wide-open position.

Recently we have had occasional reports that the transmission cannot be shifted into reverse and the overdrive dash control button cannot be pulled into conventional drive position. We are printing below a wiring diagram and, on the page opposite, a diagnosis chart giving the checks to be followed in tracing the possible causes of this condition.

With the diagram and chart in the Shop Manual and those printed here, service men now have a complete series of the checks to be made in diagnosing and correcting, in most instances, conditions which may cause overdrive transmissions to fail to operate correctly.

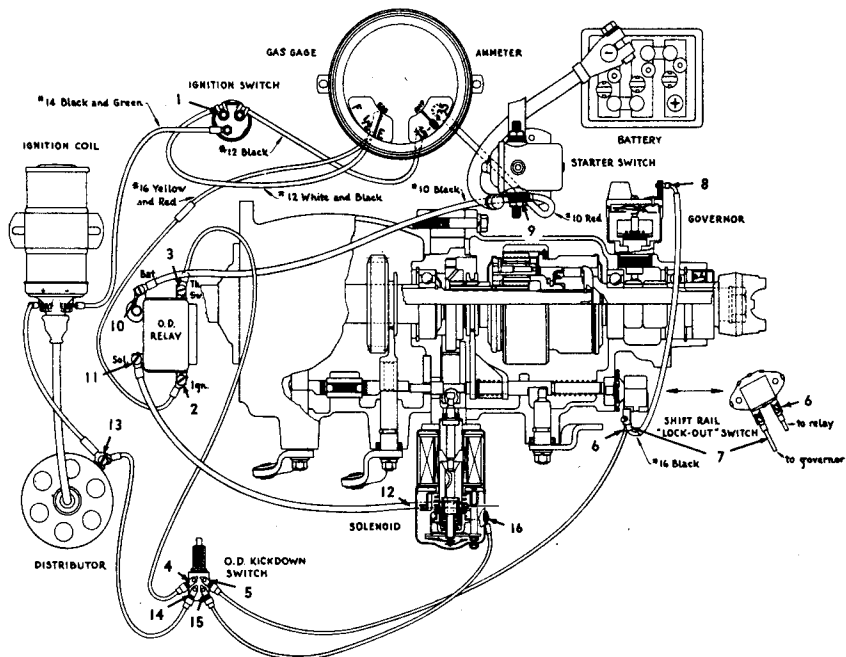
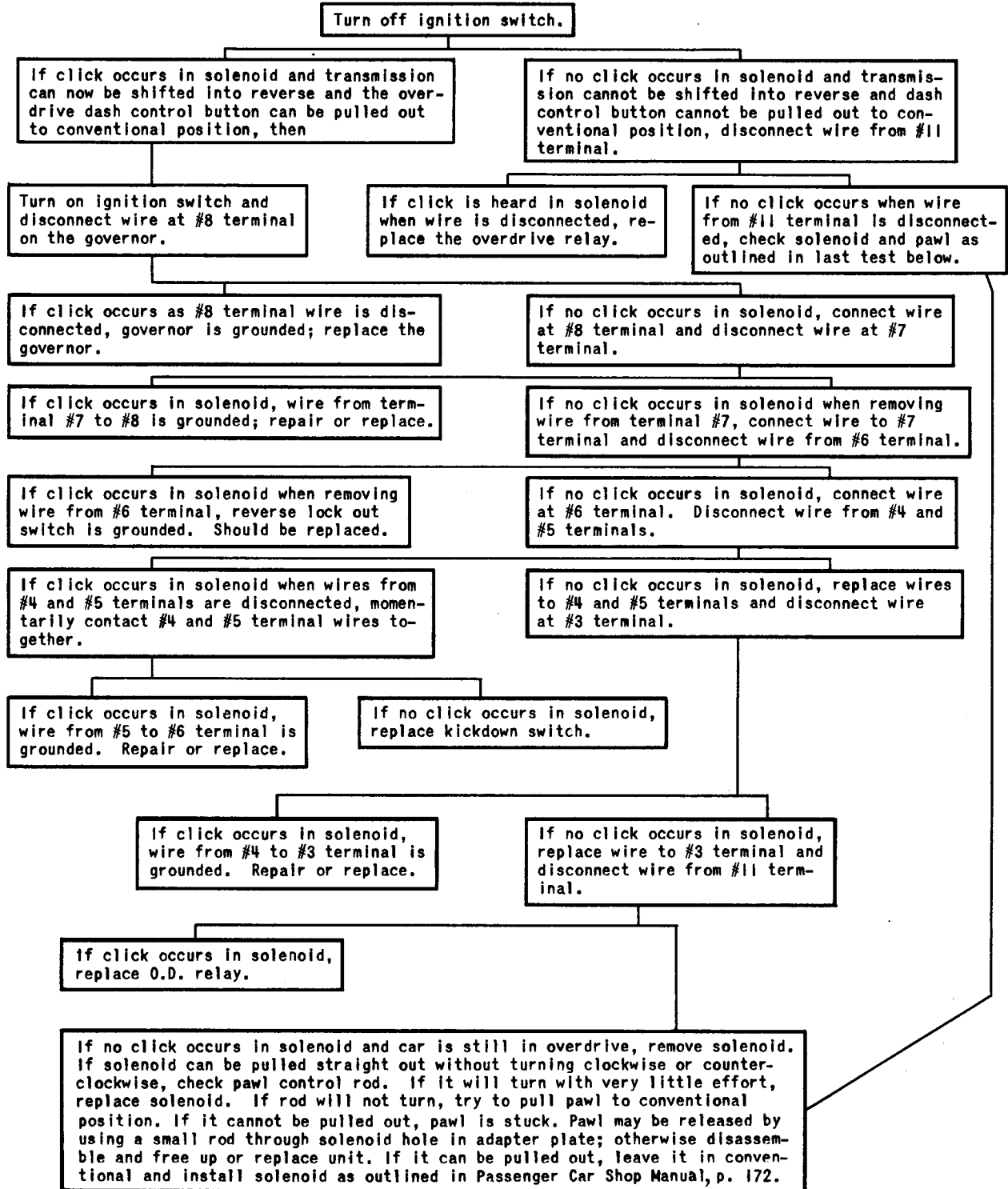


FIG. 5 - WIRING DIAGRAM OF THE GOVERNOR-CONTROLLED OVERDRIVE TRANSMISSION

TRANSMISSION CANNOT BE SHIFTED INTO REVERSE AND OVERDRIVE DASH CONTROL BUTTON CANNOT BE PULLED OUT INTO CONVENTIONAL DRIVE POSITION



**2-SPEED REAR AXLE GEARSHIFT -
2R SERIES TRUCKS**

Installation

To overcome possibility of damage to the gearshift operating chamber assembly on service rear axles or differential carrier assemblies while in transit, the method of mounting the gearshift operating chamber assembly onto the differential carrier has been redesigned to permit its installation as an individual operation.

A newly designed shift unit for double line vacuum-operated two-speed double-reduction drive units is now being furnished. This design consists of separate diaphragm and push rod assemblies.

This permits the shipment of the drive unit with a protector over the portion of the push rod assembly which extends from the housing.

Position the diaphragm assembly over the mounting studs and push rod assembly. See Fig. 7.

Using a screw driver in slot provided (A), rotate push rod as required to locate adjusting nut in the milled slot in the diaphragm assembly (B).

Install and tighten lock nut (C) to 70 to 90 inch-pounds torque.

Install and tighten stud nuts.

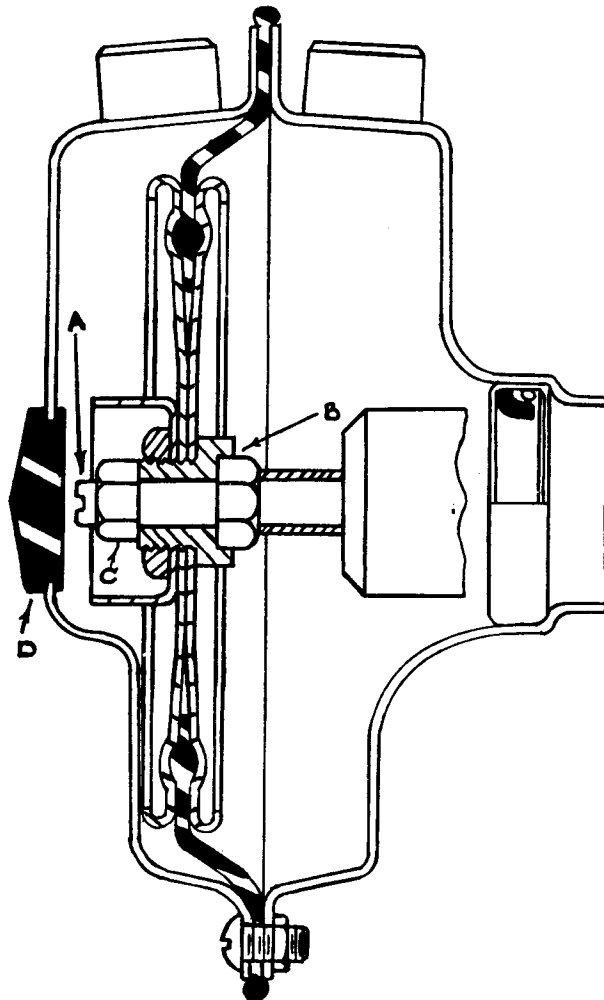
Insert rubber plug (D) in diaphragm assembly. Wetting the rubber plug will aid in positioning.

Serial Numbers

The newly-designed gearshift operating chamber assembly entered production with truck Serial Nos. R16-003661 and R17-001436. Previous to this, nine pilot models were produced bearing truck Serial Nos. R16-003548 to R16-003555, inclusive, and R17-001393 and R17-001394 on which the new parts had been installed.

Parts Released

Service parts released for 2-speed axles on 2R16 and 2R17 model trucks produced after the above serial numbers are as follows:



Part No.	Part Name	No. Per Truck
678805	Differential Carrier Assembly Complete	1
678349	R.A. Assy. - As Pur. - 6.13-8.10 Ratios- ("Gov. must be used with 2-Speed Axle" on 2R16)	1
3-0926	R.A. Bevel Drive Pinion Carrier Screw	6
3-0832	R.A. Bevel Drive Gear Shaft Brg. Cap Screw	12
678260	R.A. Gear Shift Oper. Chamber Body Assy. - Outer Half	1
678170	R.A. Gear Shift Oper. Chamber Body Opening Plug - Outer Half	1
678258	R.A. Gear Shift Oper. Chamber Diaphragm Plate	2
678257	R.A. Gear Shift Oper. Chamber Diaphragm Plate Bolt	1
678261	R.A. Gear Shift Oper. Chamber Diaphragm Plate Bolt Nut	1
678256	R.A. Gear Shift Oper. Chamber Diaphragm Plate Cup	1
678168	R.A. Gear Shift Oper. Chamber Diaphragm to Rod Nut	1
678267	R.A. Gear Shift Oper. Shaft Overtravel Rod Assembly	1
678266	R.A. Gear Shift Oper. Shaft Overtravel Rod Ret. Ring	1
678264	R.A. Gear Shift Oper. Shaft Overtravel Stop Spacer	1
252-040	R.A. Gear Shift Oper. Shaft Overtravel Rod Nut	1

NOTE.--These parts are not interchangeable with those used on trucks having serial numbers prior to the ones listed above.

FIG. 7 - 2-SPEED REAR AXLE SHIFT DIAPHRAGM