CHEVROLET

SERVICE NEWS

VOLUME 32 JANUARY, 1960 NUMBER 1

CONTENTS

WASHER ANTIFREEZE MIXING PROCEDURE

A new windshield washer antifreeze mixing procedure for Windshield Washer Antifreeze, Part No. 988299 (Isopropyl type), has been developed to simplify the addition of antifreeze to the washer container.

The method printed on the bottle consists of adding various quantities of antifreeze to 1½ pints of water. This sometimes produces more mixture than will fit in the washer reservoir.

A new method using a percentage mixture is available for greater ease of mixing. For example, if the jar is empty, fill the container to slightly less than ⅓ full with antifreeze, then continue to fill the container to 2" from the top. This ⅓ antifreeze solution will provide protection to 8° F.

NOTE: *Filling the container to 2" from the top reduces the possibility of spilling solution in the engine or luggage compartment.*

The following chart covers the amount of antifreeze needed to provide adequate protection for various temperatures:

Protection Temperature	*Percent Antifreeze*	*Mixing Ratio*
24° F	14%	1 part antifreeze to 8 parts water
16° F	25%	1 part antifreeze to 4 parts water
8° F	33⅓%	1 part antifreeze to 3 parts water
0° F	40%	2 parts antifreeze to 5 parts water

To provide best cleaning of the windshield during the summer, add four ounces of antifreeze to the washer jar instead of the one ounce previously specified.

Both isopropyl alcohol and methanol alcohol base antifreezes are presently available, but only the isopropyl type (Part No. 988299) should be used for the Corvair.

When windshield washers are used, the solution drains into the fresh air chamber through the vent grille. As the alcohol in the antifreeze evaporates, fumes can be drawn into the heater air system.

The Corvair Gasoline Heater heat exchanger is considerably hotter in certain portions than the heater core of a hot water heater. If any type of windshield washer antifreeze other than Isopropyl is used, the hot heat exchanger could generate irritating fumes which would be blown into the passenger compartment by the ventilator blower and cause irritation to the eyes of the occupants.

Corvair Service

LIFTING PROCEDURE

A Corvair can be satisfactorily lifted by attaching hooks to the holes in the bumper brackets. When this procedure is used, adequate protection must be given to the chrome bumpers and body sheet metal. Position nylon straps or other protective padding between the lifting chains and the body to minimize the possibility of damage to the body sheet metal and bumpers.

THREAD REPAIR INSERTS

Thread repair inserts provide a quick and permanent way to repair damaged internal threads.

Thread repair kits are now available through G.M. Parts Warehouses under Part No. 3780960. This repair kit includes three size inserts, 30 - 1/4-20, 25 - 5/16-18 and 15 - 3/8-16. Three special taps and three inserting tools, one for each size of insert, one "T" handle that fits all inserting tools and one pressure plate are also included.

With this kit the repaired threads are the same size as the original threads and will not rust or corrode. The inserts are made of wear-resistant stainless steel which provides durability for repeated assembly and disassembly operations (fig. 1).

Additional quantities of inserts are available under Part No. 452644 for the 1/4-20, Part No. 452668 for the 5/16-18 and Part No. 452692 for the 3/8-16. The inserts are packaged in paper bags, each containing 10 inserts.

The installation procedure involves three steps (1) drilling, (2) tapping and (3) installing the insert.

Drilling

When repairing damaged threads, drill out the hole using the same size drill that is equal in diameter to the bolt. For example for a 1/4" bolt, use a 1/4" drill. It is important to use a clean, sharp, correctly ground drill. Proper hole size is necessary for full strength inserts and to provide insert sealing where the hole is subject to leakage. When drilling out a broken stud, care should be taken to drill the hole perpendicular to the mounting surface.

Tapping

Select from the thread repair kit a tap marked for the size of the thread to be repaired. These special taps are designed to cut the special threads to accommodate the insert. A standard tap handle will fit the special taps.

Apply anti-sieze compound (Part No. 3776999) to tapped hole and inside thread of insert, after insertion, to prevent leakage.

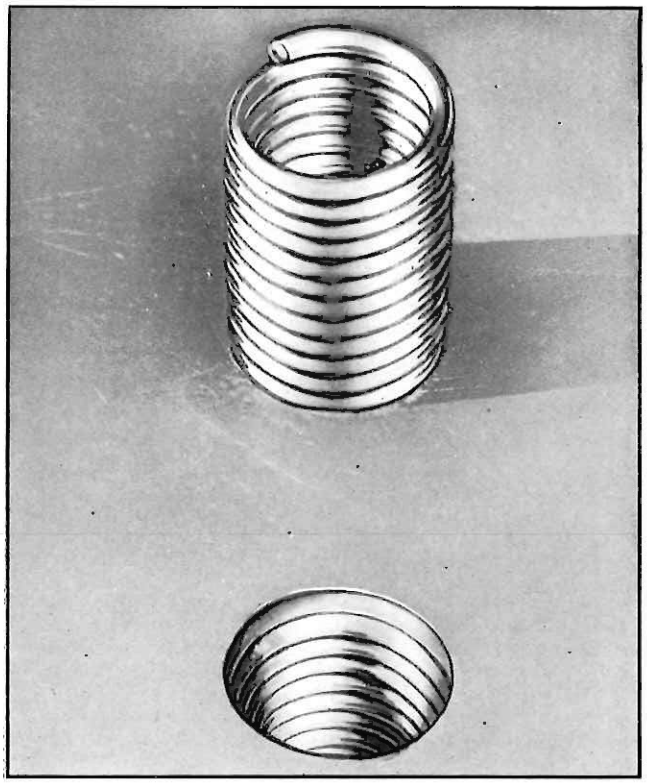

Fig. 1—Thread Repair Insert

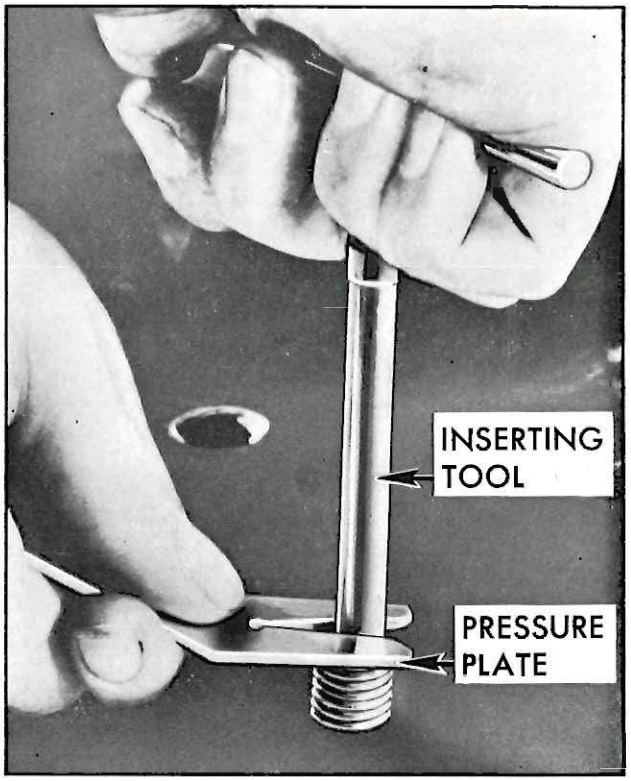

Fig. 2—Installing Insert

Installing

1. Select the inserting tool marked with the size of the threads to be repaired. Attach the inserting tool to the "T" handle. Use the same size insert as the threads being repaired. For example, for a 1/4" - 20 thread, use a 1/4" - 20 insert. The insert has a long tang on one end. Slide the open end of the insert over the inserting tool with the tang positioned in the slot in the end of the inserting tool.
2. Place the insert, still mounted on the inserting tool, squarely over the tapped hole. Position the pressure plate on top of the insert and apply a downward force. Do not apply downward force on the inserting tool (fig. 2).
3. Maintain force on the pressure plate and turn the inserting tool clockwise until the first few threads are threaded into the tapped threads. Remove the pressure plate and continue to install until the top of the insert is seated from 1/4 to 1 turn below the start of the tapped threads.
4. After the insert has been properly installed, the tang must be recovered from the hole.

For through holes, grasp the tang with long nose pliers and agitate up and down until the tang breaks loose at the notch.

For blind holes and 1/4" holes disengage inserting tool from tang, turn 1/4 turn and allow to rest on the tang. Strike the inserting tool a sharp blow to break off tang. A pencil magnet can be used to recover the loose tang.

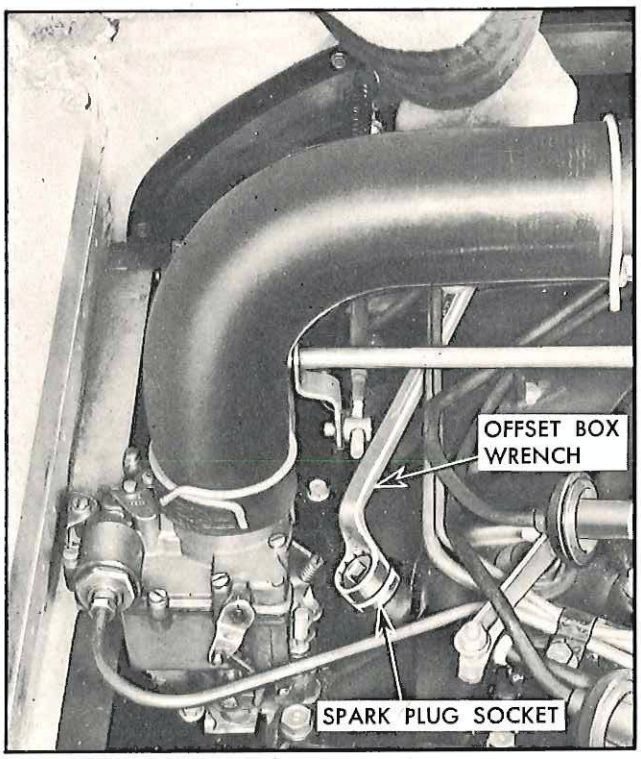

Fig. 3—Removing No. 4 Spark Plug—Corvair

REMOVING #4 SPARK PLUG

Number 4 spark plug can be readily removed or installed on the Corvair engine, by using a hex. head spark plug socket and an offset box-end wrench. (fig. 3). A long box-end wrench is suggested because substantial initial torque is sometimes necessary to break the spark plug loose.

POWERGLIDE HYDRAULIC PRESSURE TESTS

A hydraulic pressure check is a valuable guide for diagnosing Corvair Powerglide transmission malfunctions. For example, if slippage is noticed during low speed acceleration, a probable cause is a slipping low band. Low band slippage can be caused by either mechanical or hydraulic failure. Mechanical failure can be determined by checking the band adjustment or visual inspection of the parts. Visual inspection of the parts involves partially disassembling the transmission, whereas, if the serviceman initially checks the hydraulic pressures, he has additional information to assist him to determine the cause of failure before the transmission is disassembled.

If the mainline pressure does not equal the specified pressure, the cause for low band slippage is improper operation of the hydraulic system. With this information, the serviceman can concentrate on hydraulic components rather than mechanical parts failure. In many cases of hydraulic trouble, the cause of the trouble can be corrected with a valve body overhaul, which can readily be done without removing the power train.

Fig. 4 locates the mainline and throttle valve pressure test plugs. The mainline pressure test plug is at 6 o'clock and the T.V. test plug is at 8 o'clock as viewed from the front of the transmission.

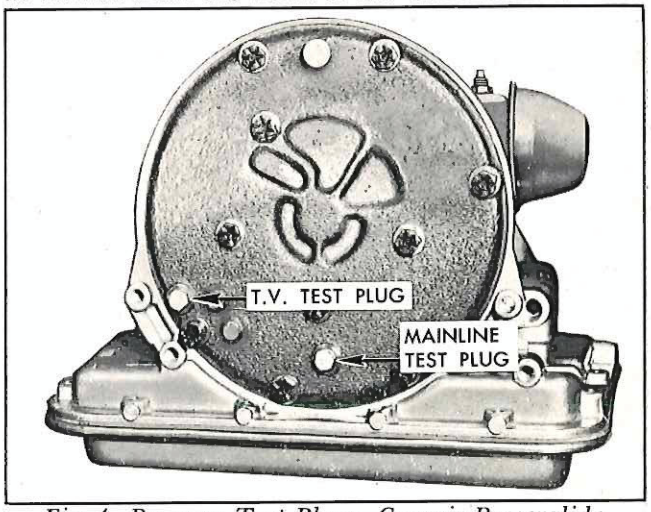

Fig. 4—Pressure Test Plugs—Corvair Powerglide

The T.V. pressure varies from zero p.s.i. at closed throttle to 52 to 54 p.s.i. at wide open throttle. T.V. pressure can be checked by disconnecting the throttle linkage at the throttle lever. Connect a pressure gauge to the T.V. test plug. Move the throttle lever, at the side of the transmission case, to wide open throttle position. With the engine

idling and the vacuum hose disconnected the T.V. pressure should be 52-54 p.s.i. with the transmission throttle lever through detent.

The following chart lists the correct mainline pressures at idle with the vacuum modulator hose connected and disconnected.

Range	*Pressure (Vac. Mod. Hose Conn.)*	*Pressure (Vac. Modulator Hose Disconnected)*
Reverse	81-98 psi	140-157 psi
Neutral	47-57 psi	71-82 psi
Drive	47-57 psi	71-82 psi
Low	71-82 psi	71-82 psi

When checking the mainline pressure the rear pump should cut-out the front pump at approximately 20 M.P.H. when the vehicle is operating at normal temperature. To make this check raise the rear wheels, place the selector lever in "D" and accelerate the engine. Front pump pressure should drop to approximately 0-5 p.s.i. If pressure does not drop, rear pump is disengaged, clogged, or rear pump priming check ball not seating.

REMOVING OR ADJUSTING FRONT COMPARTMENT LID TORQUE RODS

This procedure supersedes the information presented in the 1960 Corvair Shop Manual on page 10-19.

1. Open front compartment lid, prop lid in extreme up position, remove the spare tire holding screw and move tire to front of luggage compartment.
2. If heater is installed, disconnect electrical connection to the ventilating blower motor, remove five sheet metal screws from the blower motor flange and remove blower motor assembly.
3. Position a 7/16" box end wrench on the right hand torque rod, and a 1/2" box end wrench on the larger diameter left hand torque rod (fig. 5).

   NOTE: *The box-end wrenches should be at least 8" long.*
4. With right hand, push down on the end of the two wrenches, to release tension on retaining pin. With the other hand, turn the pin to align with slots and remove pin. To adjust rods, move pin as required to a different pair of holes.

   NOTE: *Three holes on each side of the mounting bracket permit adjustment of the tension on the torque rods.*
5. If torque rods are to be removed, exercise care when releasing tension on torque rods, after removal of pin, as torque rods are under considerable tension.

   NOTE: *If a windshield washer is installed, the mounting bracket must be removed before the left hand torque rod can be removed.*

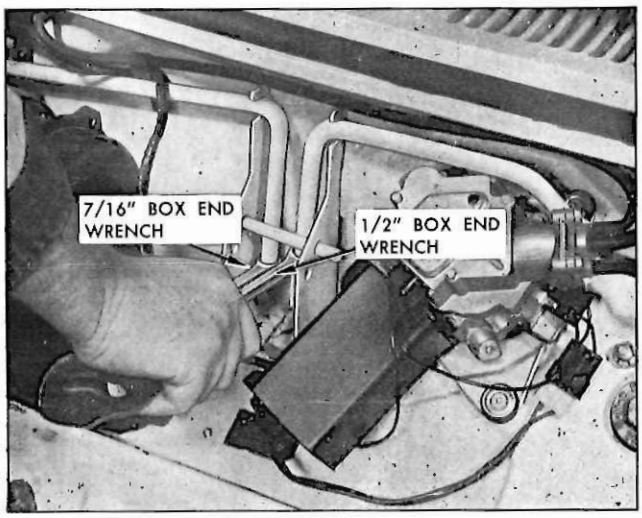

Fig. 5—Removing Deck Lid Torsion Bars

PURGE SWITCH—SERVICE REPLACEMENT

Early production gasoline heater purge switches were attached to the heater case with one or two screws. Later model and service replacement purge switches are attached with one screw and a key type locking tang (fig. 6).

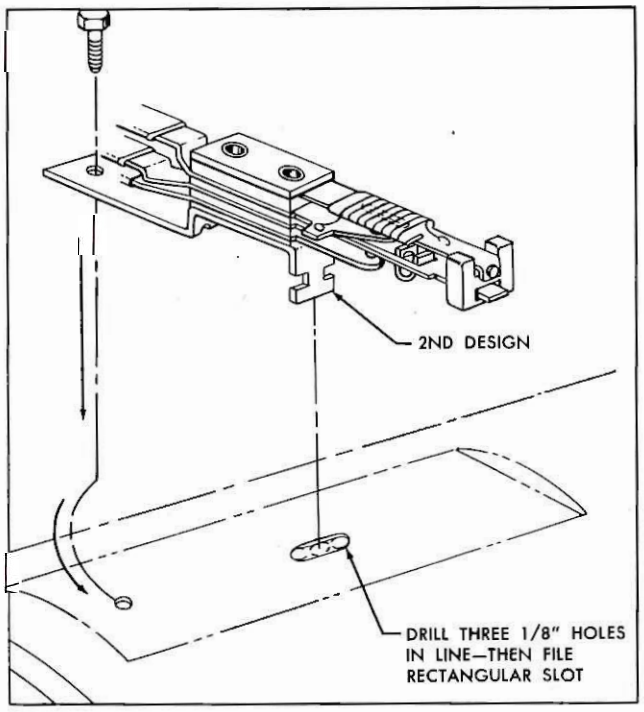

Fig. 6—Purge Switch Installation

The following procedure should be followed when replacing an older model purge switch with a purge switch of the later design:

1. Remove screws securing defective purge switch. Do not disconnect wires.

2. Locate the new purge switch in the same mounting position as the one that was removed, being sure that the hole in the mounting bracket of the purge switch is in line with the screw hole of the heater case.
3. Scribe a mark for a hole to be drilled in the heater case at the center of the area where the purge switch locking tang contacts the heater case.
4. Using a 1/8 inch drill with a sleeve to prevent the drill from entering the case more than 1/4 inch, drill a hole at the point indicated in Step 3 and drill two additional 1/8 inch holes at each side of the original hole (fig. 6).
   CAUTION: *Drilling to a depth beyond 1/4 inch can cause damage to the heat exchanger.*
5. With a file, smooth out drilled area, making a 1/8 x 3/8 slot.
6. With the purge switch 90° to the normal mounting position, insert the locking tangs into the hole. Turn the purge switch to its normal mounting position and secure with one screw through the mounting bracket of the purge switch.
7. Working with one wire at a time, remove each lead of the old purge switch from its connector and immediately attach the same color-coded lead on to the mating tang of the replacement switch.
8. Replace purge switch cover.
9. Test for proper purge cycle operation.

Passenger Car Service

HEAVY DUTY FRONT WHEEL BEARINGS

Heavy duty front wheel bearings released for 1958-60 taxi cab service may also be used for 1958-60 heavy duty passenger car service. The parts must be changed as a unit. For example, if the outer bearing is replaced the inner bearing and felt assembly must also be replaced.

The inner bearing hub bore diameter is too small to permit using these bearings on vehicles prior to 1958.

The following are the 1958-60 heavy duty parts:

Front Wheel Outer Bearing Assembly	7451085
Front Wheel Inner Bearing Assembly	7451085
Felt Assembly—Front Wheel Inner Bearing Seal	3759306

EXHAUST MANIFOLD HEAT CONTROL VALVE

Cases have been reported stating the exhaust manifold heat control valve on L-6 engines is frozen in either the open or closed position which adversely affects the operation of the engine. This condition is more frequent in the spring and fall months because moisture causes the control valve shaft to rust in the housing.

To free up the valve, tap the control valve shaft back and forth with a small hammer and rotate the counter weight back and forth until the valve is free. To prevent reoccurrence of the problem, apply powdered graphite or graphite in a solution (such as Lock-Ease) to both ends of shaft.

POWERGLIDE GOVERNOR PRESSURE WITH 3.08 AXLE

Full throttle upshift points on the 1960 Passenger car Powerglide transmission with 3.08 rear axle are approximately 5 M.P.H. higher than with 3.36 rear axle. This is because with a 3.08 axle the propeller shaft speed is less for a given M.P.H. than with a 3.36 axle and the governor pressure is therefore lower.

If the upshift point is higher than specified, the governor could be faulty. Therefore, to determine if the governor is satisfactory, the serviceman should compare the actual governor pressure to the specified pressure. The following chart lists the specified governor pressures at 10 M.P.H. intervals for power trains using 3.08 and 3.36 rear axles. The governor pressure must be within the specified range to provide satisfactory operation.

Car Speed (MPH)	*Governor Pressure (PSI)*	
	3.08 Axle	*3.36 Axle*
10	7-12	8-13
20	29-32	31-35
30	39-43	42-47
40	51-57	55-62
50	68-76	74-83
60	88-98	96-106

NOISY OR "CHUCKING" SIX-WAY FRONT SEAT

Some early production 1960 models equipped with the "three motor type" six-way front seat assembly produced a noisy or "chucking" condition of the front seat assembly. This condition is caused by excessive looseness in the adjusting mechanism and can be corrected by performing the following adjustments:

1. Adjust seat to full up and full forward position. Remove seat adjuster track covers.
2. On both sides of the seat stake the metal adjacent to the trunnion pin located in the

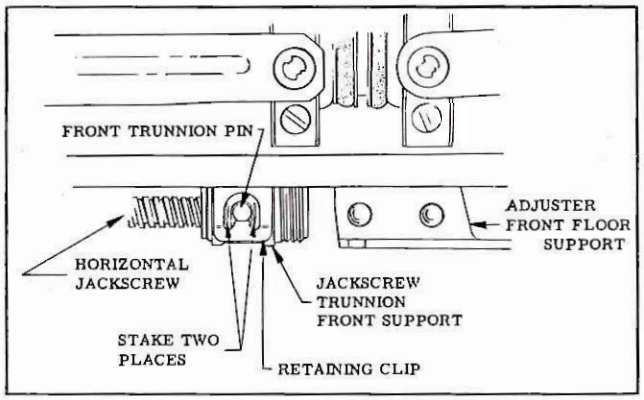

Fig. 7—Staking Front Trunnion Pin

front floor support for the horizontal jackscrew (fig. 7). Do not stake the retaining clip.

NOTE: *The front seat assembly may need to be disconnected from the floor to facilitate properly staking the metal.*

3. On both sides of the seat stake the metal adjacent to the trunnion pin located in the rear floor support for the horizontal jackscrew (fig. 8).

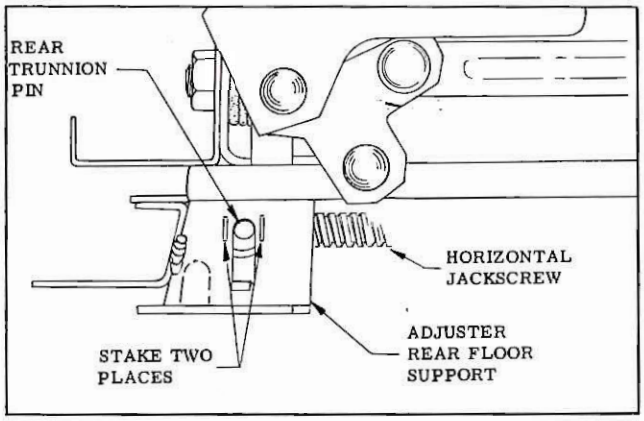

Fig. 8—Staking Rear Trunnion Pin

4. Install spring, Part No. 4307437, between upper and lower channels as shown in Fig. 9.

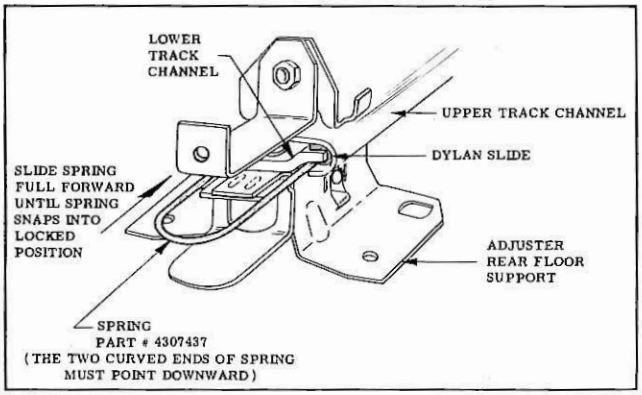

Fig. 9—Installing Spring

The two curved ends of the spring must point down to lock spring in position. When the springs are properly installed, the Dylan slides are forced tighter against the inner wall of the upper channel, increasing the friction between the upper and lower channels.

REVISED SPEED AND CRUISE CONTROL CABLE ADJUSTMENT

The following control cable adjustment procedure supersedes the information shown in TP-13, New Product Information Book and the 1960 Passenger Car Shop Manual Supplement:

1. Rotate selector knob counterclockwise (fig. 10) as far as it will turn without forcing.

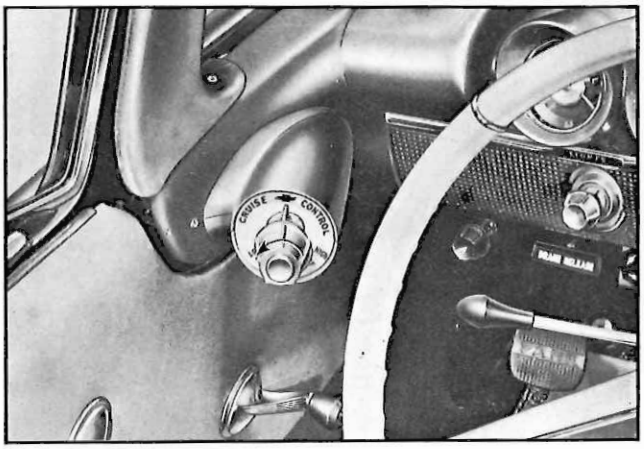

Fig. 10—Cruise Control Knob

2. Hold dust shield so that it will not rotate while unscrewing clamp nut (fig. 11). Let nut slide down control cable. NOTE: *This nut retains control cable in bottom of dust shield.*

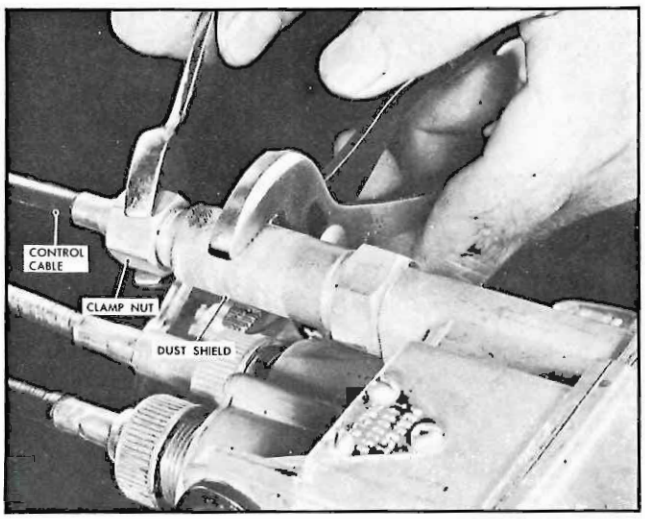

Fig. 11—Removing Clamp Nut

3. After removing clamp nut, pull control cable out of dust shield until ferrule at end of cable is free from bottom of dust shield (fig. 12). If ferrule is tight in the dust shield, carefully

pry the four fingers apart until ferrule slides out freely. In some cases, it may be necessary to unscrew the dust shield from the unit in order to pry the four fingers apart.

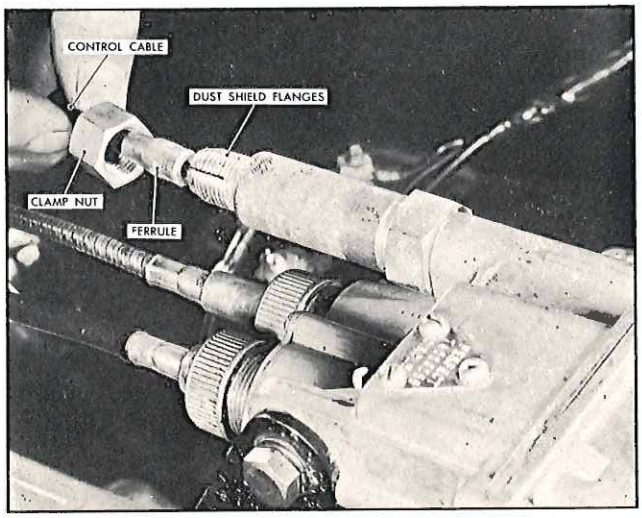

Fig. 12—Removing Ferrule

CAUTION: *Hold hex. fitting at top of dust shield so it cannot turn when unscrewing dust shield.*

4. Reinsert ferrule in dust shield. Push in lightly on control cable until it stops.

   CAUTION: *Do not force cable beyond this position. Fingers of dust shield must clamp ferrule on its largest diameter.*

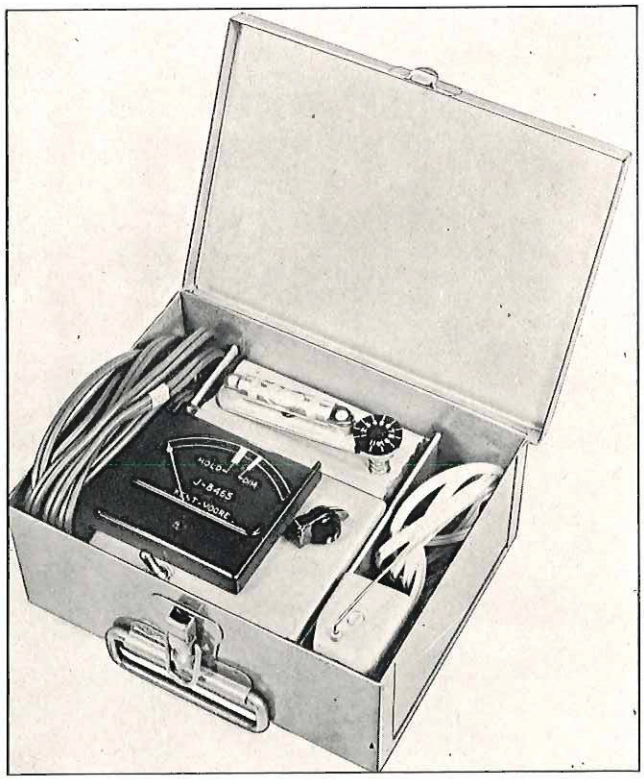

Fig. 13—J-8465 Guide-Matic Tester

5. Again try to rotate selector knob *counterclockwise only,* in order to make certain it is at low setting. This will properly position the control cable to the dust shield.
6. Tighten clamp nut on bottom of dust shield securely.

AUTRONIC-EYE GUIDE-MATIC TESTER CONVERSION

It is not possible to convert past model Kent-Moore testing equipment tool number J-5297 for use in aligning the 1960 "Guide-Matic" headlamp control.

Tester J-8465 is available for checking out the 1960 "Guide-Matic" (fig. 13). This tester with adapter J-8728 can be used for all past model "Autronic-Eye" equipment (fig. 14).

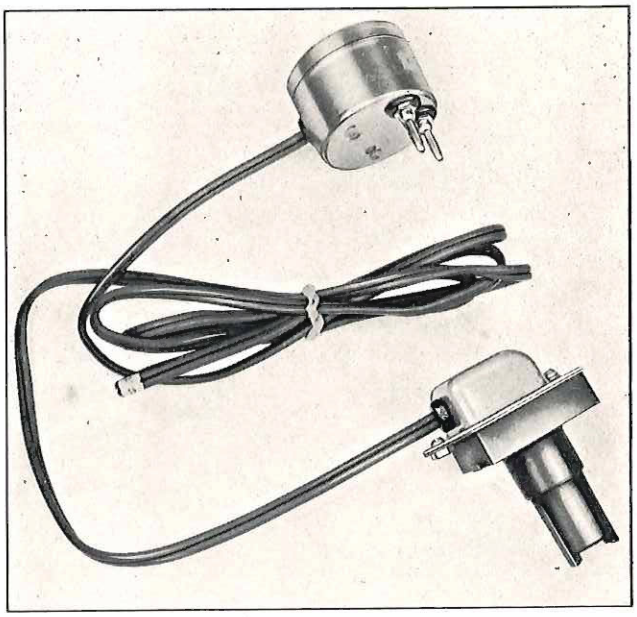

Fig. 14—J8728 Adapter

Truck Service

CORRECTION—1960 TRUCK SHOP MANUAL

Number 26 has been omitted from the nomenclature list of Fig. 38—Layout of 4-Speed Transmission Parts, on page 12-24 of the 1960 Truck Shop Manual. Number 27 should be 26 and all the succeeding numbers are to be reduced by one. For example, number 26 is the Clutch Gear Bearing and number 47 is an Oil Seal. There is no number 68.

The legend for figure 37—Type "FR-3" Brake Components, page 6-18, 1960 Truck Shop Manual is incorrect. Refer to figure 37—Type "FR-3" Brake Components, page 6-21, 1958 Truck Shop Manual for correct listing of the parts.

EATON REAR AXLE SPECIFICATIONS

The following specifications cover the Eaton Rear Axle Assembly and should be included in Section 16 of the 1960 Truck Shop Manual.

The rear axle lubricant capacities stated on page 5-53 and page 5-64 are incorrect. The correct capacities are presented in the following chart.

EATON REAR AXLE SPECIFICATIONS CHART

MODEL	1618-30D-1619-30R	1790A-1791A	16802-16803	17800-17801
Type	Spiral Bevel			
	Single Speed		Planetary 2 Speed	
RATED CAPACITY (POUNDS)	16000	18000	16000	18000
RATIO	7.17:1	7.67:1	6.50/9.04:1 7.17/9.47:1	6.50/8.87:1 7.17/9.77:1
IDENTIFICATION				
Model, Serial and Ratio	Stamped on Top of Carrier			
Pinion Mounting	Straddle			
Gear Combination	43-6	46-6	39-6 43-6	
Differential	4 Pinion Type			
Axle Shaft (16 Spline)	1 7/8"	1 31/32"	1 7/8"	1 31/32"
LUBRICANT CAPACITY				
(Pints)	1618 19.5 1619 19.5 30D 22 30R 20	19	6.50/9.04:1 19 7.17/9.97:1 20	21
ADJUSTMENTS				
Pinnion Bearing				
Shim Thickness Available (Pinion Cage to Carrier)	0.003", 0.010", 0.030"			
Adjustment Method (Refer to Shop Manual)	Spacers			
Spacer Thickness Available	(Except 30D) .513" .534" .516" .540" .522" .543" .528"	.311" .321" .313" .325" .317" .327"	.257" .265" .261" .269"	.311" .321" .313" .325" .317" .327"
30D	.627" .644" .632" .650" .638"			
Rotating Torque	15-35 in./lbs.			
Backlash				
Backlash	0.008"-0.015"			
Differential Bearings	Adjusting Nuts			
Adjustment Method (Refer to Shop Manual)				
MAXIMUM ALLOWABLE RUN-OUT				
Ring Gear (Installed)	0.006"			
Differential or Support Case	0.003"			
Axle Shaft	0.060"			
TORQUE SPECIFICATIONS (FT-LBS)				
Differential Case Bolts	80-100		50-70	80-100
Support Case and Ring Gear Bolt Nuts	80-100			125-150
Pinion Flange Nut (Except 30D)	325-450	400-600	325-450	400-600
(30D Input)	500-700			
(30D Output)	400-600			
Pinion Cage Bolts	100-125			
Differential Bearing Cap Bolts	175-200	(R.H.) 150-175 (L.H.) 175-200	175-200	225-250
Differential Carrier to Housing Bolts	80-100	150-175	80-100	150-175
Bowl Cover to Housing Bolts	35-50			
Differential Bearing Adjuster Lock Bolts			100-125	150-175
Axle Shaft Stud Nuts	80-100			
Electric Shift Unit Attaching Nuts	50-70			
Differential Carrier Cover to Carrier Bolts (30D)	150-175			