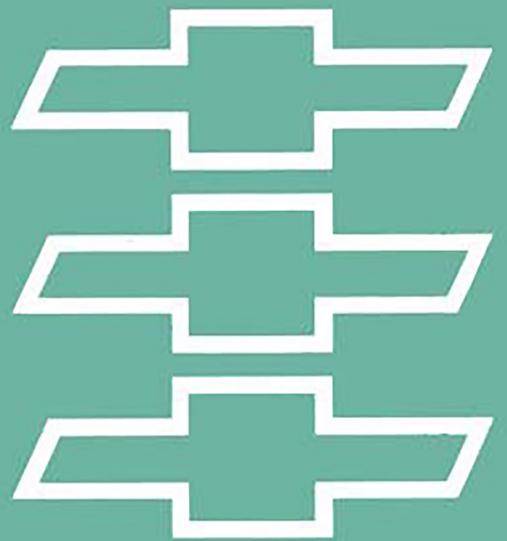
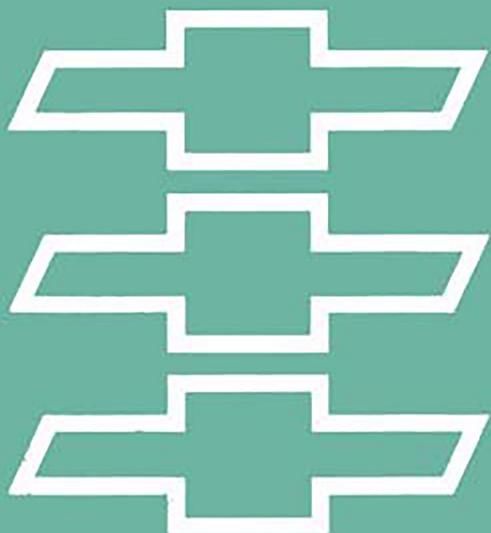




1966



CORVAIR



**CHASSIS
SHOP
MANUAL
SUPPLEMENT**

1966 CHEVROLET CORVAIR CHASSIS SHOP MANUAL SUPPLEMENT

FOREWORD

This supplement has been prepared for use with the 1965 Corvair Chassis Shop Manual and covers service information peculiar to the 1966 Corvair.

Summaries of special tools, when required, are found at the end of major sections, while Specifications covering vehicle components are presented at the rear of the manual.

All information, illustrations and specifications contained in this literature are based on the latest product information available at the time of publication approval. The right is reserved to make changes at any time without notice.

CHEVROLET MOTOR DIVISION

General Motors Corporation
DETROIT, MICHIGAN

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SECTION 0

GENERAL INFORMATION AND LUBRICATION

The 1966 Corvair models will remain basically the same as 1965 except for minor styling changes and product improvements.

Lubrication information for the 1966 Corvair will remain the same as outlined in Section 0 of the 1965 Corvair Chassis Shop Manual except as noted.

MODEL IDENTIFICATION

Series	Model Number	Description
Standard	10139	4-Door Sport Sedan, 6-Passenger
	10137	2-Door Sport Coupe, 4-Passenger
Monza	10539	4-Door Sport Sedan, 6-Passenger
	10537	2-Door Sport Coupe, 4-Passenger
	10567	2-Door Convertible, 4-Passenger
Corsa	10737	2-Door Sport Coupe, 4-Passenger
	10767	2-Door Convertible, 4-Passenger

VEHICLE DIMENSIONS

Model	4-Door Sport Sedan	2-Door Sport Coupe	2-Door Convertible
Length Overall	183.3"	183.3"	183.3"
Width Overall (Body)	69.8"	69.8"	69.8"
Height Overall	52.7"	52.8"	53.0"
Wheelbase	108"	108"	108"
Tread-Front	55.0"	55.0"	55.0"
Tread-Rear	56.6"	56.6"	56.6"
Curb Weight	Approximately 2597 lbs. 4-Dr. Sport Sedan		

UNIT AND SERIAL NUMBERS

The body identification tag has been relocated to the right of the engine mount instead of the left. The new location of the three and four speed transmissions source data code is shown on Figure 1.



Fig. 1—Three and Four-Speed Transmission Unit Number Stamped on Boss on L.H. Side of Transmission below R.H. Lower Corner of Cover

TOWING THE 1966 CORVAIR

The 1966 Corvair can be towed safely at speeds up to 55 MPH with a tow bar, using the sling principle as illustrated in Figures 2 and 3.

However, severe damage to the body rear sheet metal, the engine exhaust system, and the engine cooling air exhaust duct work may result if care is not exercised while placing the tow bar or towing the vehicle with a tow bar not incorporating the sling and cross bar features.

The rear of the vehicle can be raised without damaging the suspension components or the body using the following procedure:

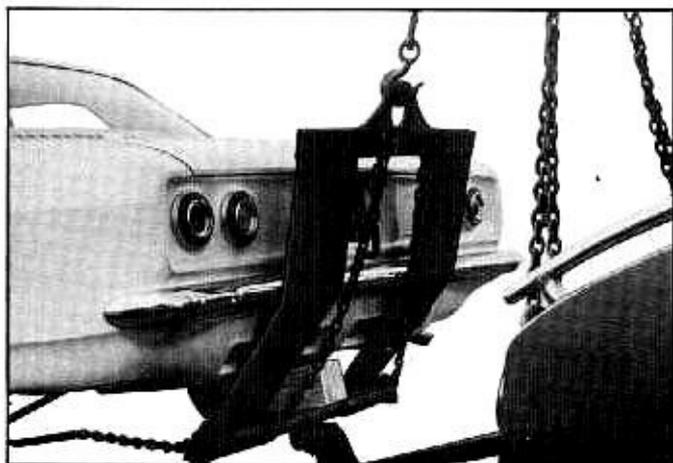


Fig. 2—Towing Sling Attachment

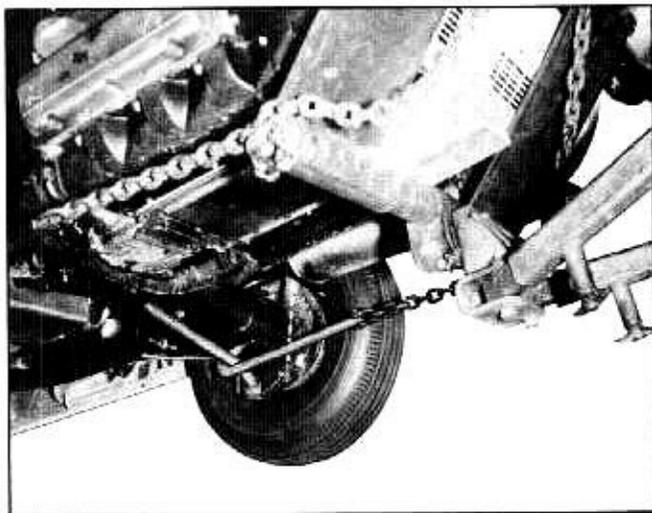


Fig. 3—Towing Sling Hook Attachment

1. Use a lifting sling employing the principle of the sling shown.
2. Attach the tow hooks of the lifting sling to the outer ends of the rear strut rods. If the strut rods cannot be used because of damage or failure, the tow hooks or chains can be attached through the bracket which attaches the forward end of the torque control arms to the body.

3. It is extremely important to position a short piece of 4"x4" between the crossarm of the lifting sling and the engine skid plate, so that it lifts at the center of the engine below the skid plate. This is necessary to prevent above mentioned damage.

Lifting Car With Drive-on Hoist

Many dealer service facilities and service stations are now equipped with a type of automotive hoist which must bear upon some part of the frame in order to lift the vehicle. In Figure 4 the shaded areas indicate areas recommended for hoist contact.

Lifting with the Auto Jack

Lifting areas on Corvair models are shown in Figure 4. When locating the auto jack, be sure the tab on the jack catches the outer body flange, thus preventing it from sliding too far under the vehicle.

LUBRICATION

TRANSMISSION—POWERGLIDE

Every 6,000 miles check fluid level on dip stick, located in the right front of the engine compartment, with engine idling, selector lever in NEUTRAL position, parking brake set and transmission at operating temperature. If fluid level is below full mark on dipstick, add small amount of automatic transmission fluid. Use either General Motors Automatic Transmission Fluid (Part Numbers 1050012-3-4 available at your Chevrolet (Dealer) which has been especially formulated and tested

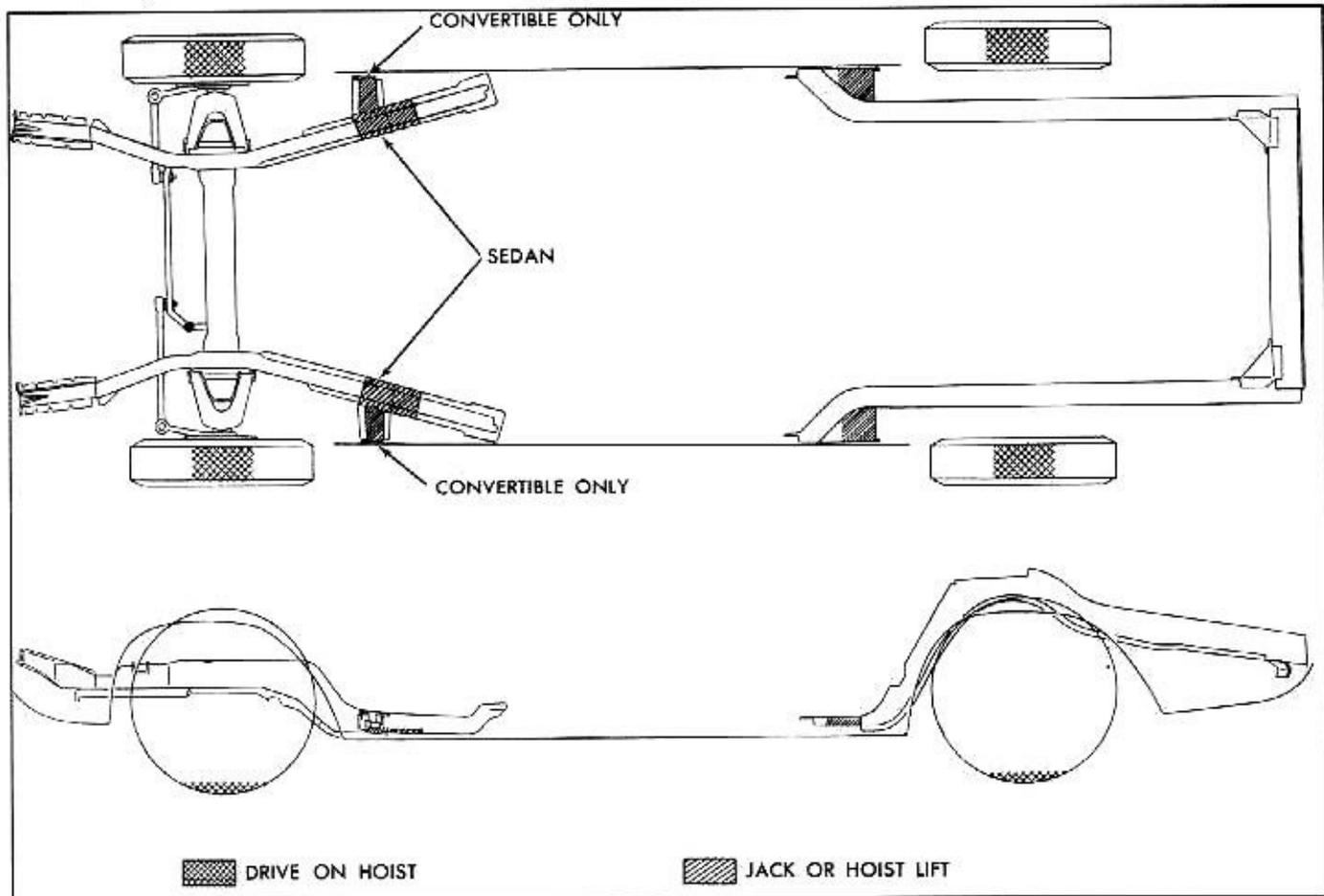


Fig. 4—Lifting Point Diagram

for use in your Automatic Transmission to provide maximum trouble-free operation or other approved Automatic Transmission Fluid Type "A" identified by the Mark AQ-ATF followed by a number and the suffix letter "A". Recheck fluid level on dipstick and again add a small amount of fluid if needed to bring level to full mark. **DO NOT OVERFILL.**

NOTE: From the "Add Oil" mark to the "Full" mark on the dip stick indicates a difference of only 1 pint of fluid.

Every 12,000 miles (more frequently, depending on severity of service, if vehicle is used to pull trailer, carry full loads during high ambient temperatures, operate in mountainous terrain or operate under other severe conditions)--Remove fluid from the transmission

sump and add two (2) quarts of fresh fluid. Operate transmission through all ranges and check fluid level as described above.

REAR AXLE

Since the rear axle engine compartment dip stick has been discontinued, the lubricant level will have to be checked at the filler plug.

Every 6,000 miles check rear axle lubricant level at operating temperature. Keep lubricant at level of filler plug. If rear axle is low, check three or four speed transmission lubricant level also. Keep filled with SAE 80 or SAE 80-90 multi-purpose gear lubricant meeting requirements of U.S. Ordnance Spec. MIL-L-2105B.

On vehicles equipped with Positraction axles use the above mentioned lubricant as Special Positraction lube will cause hard shifting on standard transmissions in cold weather.

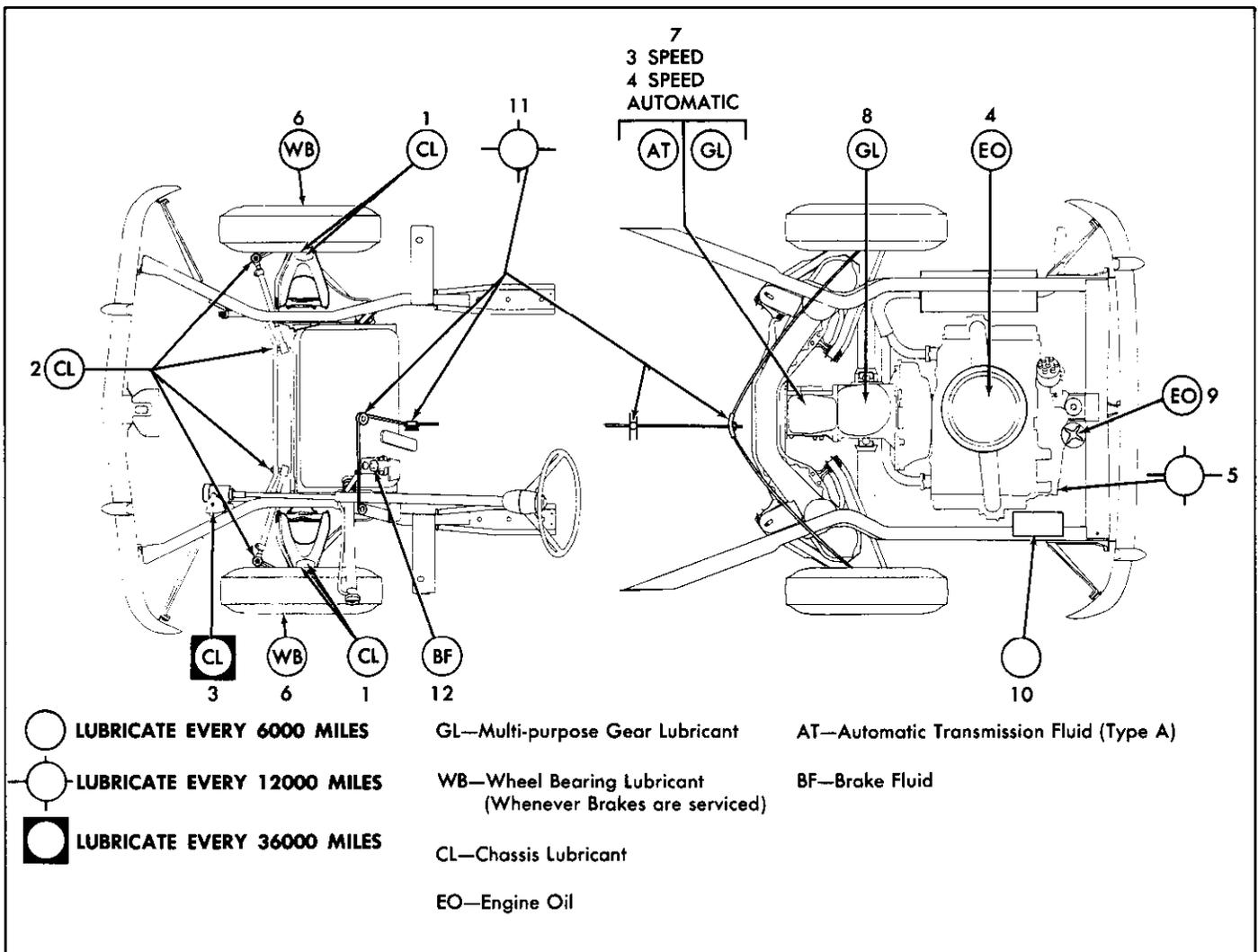


Fig. 5—Corvair Lubrication Diagram

- | | | | |
|---------------------|----------------------|---------------|-------------------------------------|
| 1. Front Suspension | 5. Engine Oil Cooler | 8. Rear Axle | 11. Parking Brake and Clutch Cables |
| 2. Steering Linkage | 6. Wheel Bearings | 9. Oil Filter | 12. Brake Master Cylinder |
| 3. Steering Gear | 7. Transmission | 10. Battery | |

SECTION 3

FRONT SUSPENSION

Service procedures outlined in the 1965 Corvair Chassis Shop Manual apply as well to the 1966 Corvair Front Suspension except as described below.

Front Wheel Bearings

Adjustment

Wheel bearing adjusting nut torque should be 12 lbs. ft.

This will apply to the 1965 Corvair as well as to the 1966 vehicle.

Lower Control Arm

Installation

When installing the inner pivot cam adjusting bolt, the bolt should be tightened to the revised torque reading of 80 lbs. ft. instead of 90-120 lbs. ft. as stated in the 1965 Corvair Chassis Shop Manual.

SECTION 4

REAR AXLE AND REAR SUSPENSION

The 1966 Corvair Rear Axle and Rear Suspension components are essentially the same as those described in the 1965 Corvair Chassis Shop Manual. Design modifications such as; the elimination of rear axle oil level dipstick, the addition of two carrier-to-transmission attaching bolts and the modification of manual transmission rear axle pinion shaft and adjusting sleeve, to

accommodate enlarged transmission mainshaft, are included in the 1966 rear axle.

The following service procedures supersede comparable operations as outlined in the 1965 Rear Axle and Rear Suspension portion of the Corvair Chassis Shop Manual; for operations not listed here, refer to the 1965 manual.

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Drive Shaft and Universal Joint

Removal

1. Raise vehicle and support with stand jacks at jacking pads on underbody.
2. Position hydraulic jack under torque arm or rear strut rod torque arm bracket and raise jack until drive shaft is at or near curb position.
3. Bend lock tabs downward from their position against trunnion retaining bolts (fig. 1).
4. Disconnect inboard drive shaft trunnion from side gear yoke by removing the four bolts, retaining straps and bolt locks.
5. Remove the four bolts, retaining straps and bolt locks securing outboard drive shaft trunnion to drive spindle flange.
6. Pry drive shaft out of flange or yoke and remove shaft assembly from vehicle.

Installation

1. Place drive shaft trunnion into side gear yoke and partially install the bolts to retain straps and bolt locks in position.
2. Position outboard end of drive shaft into the drive spindle flange and partially install the bolts to retain straps and bolt locks in position.
3. Rotate drive shaft so that loose ends of trunnion are in a horizontal position, then tighten retaining bolts alternately until both ends of the drive shaft are seated in the trunnion seats. Torque bolts to specifications and recheck for proper seating.
4. Bend all tabs of the bolt locks up against the bolt head so that bolt will not be permitted to turn.
5. Remove hydraulic jack from its position under the torque arm or strut bracket.
6. Remove stand jacks and lower vehicle to floor.

Differential Bearing Adjusting Sleeve Seal Ring Replacement

1. Raise vehicle and remove axle drive shaft and dif-

ferential side bearing yoke as outlined in this section.

2. Mark relationship of side bearing adjusting sleeve to differential carrier, making sure that these marks are easily identified as they are to be used to realign sleeve to maintain differential side bearing preload.
3. Remove the adjusting sleeve lock tab and proceed to remove adjusting sleeve, using Tool J-8342 as shown in carrier disassembly procedure outlined in 1965 Corvair Chassis Shop Manual. Record the number of turns necessary to remove sleeve from carrier, using marks scribed in Step 2 as a reference.
4. Remove the damaged seal ring and install a new one in the adjusting sleeve seal ring groove. Apply a thin coating of petroleum jelly to seal after installation in groove.
5. Install adjusting sleeve in carrier, making sure that sleeve is turned to correspond with the number of turns recorded in Step 3.

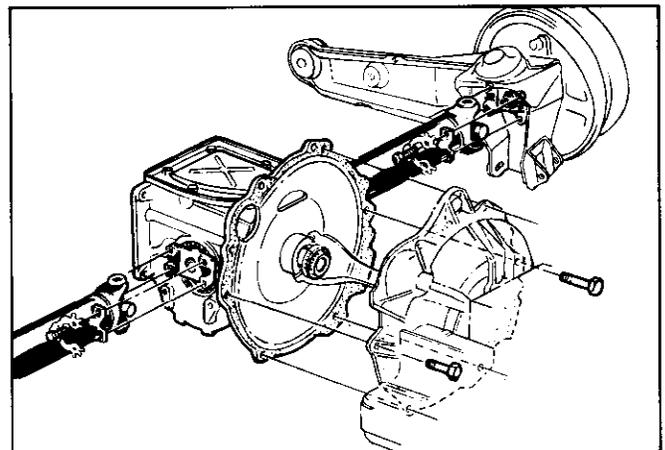


Fig. 1—Axle Drive Shaft Installation

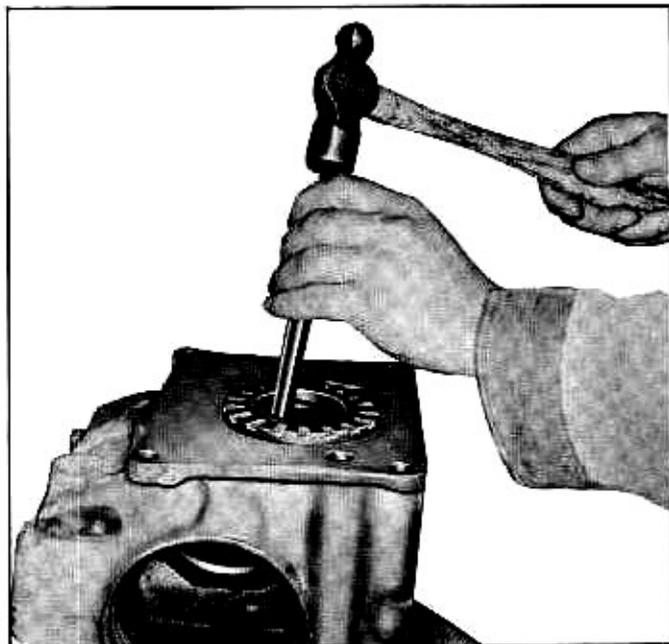


Fig. 2—Removing Pinion Front Bearing Race

6. Back off the sleeve a number of turns to relieve seal windup then reposition to original setting and install lock tab.
7. Install differential side bearing yoke and axle drive shaft as outlined in 1965 Corvair Chassis Shop Manual.

Differential Carrier Cover and/or Gasket Replacement

1. Raise vehicle and clean top of differential carrier and adjacent underbody surface, to prevent foreign matter from entering carrier when cover is removed.

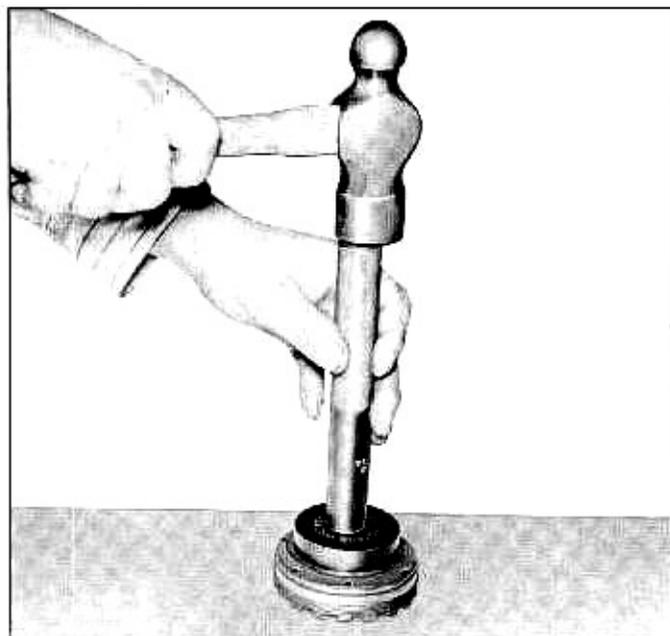


Fig. 3—Installing Bearing Race in Pinion Adjusting Sleeve



Fig. 4—Installing Pinion Front Oil Seal

2. Remove screws securing cover to carrier, remove gasket material and clean carrier gasket surface.
3. If cover is being replaced, install vent assembly to new cover.
4. Position and align new gasket on carrier, install cover—torque retaining screws to specifications and lower vehicle.

Pinion Front Bearing Race Replacement

1. Install adjusting sleeve and race assembly into carrier and remove race with a punch or other suitable tool (fig. 2). On automatic transmission models it will be necessary to remove pinion oil seal prior to race removal.

CAUTION: Adjusting sleeve should engage sufficient threads in carrier to prevent possible thread damage when driving out race.

2. Install new race in pinion adjusting sleeve using J-7137 cup installer and J-8092 (fig. 3).
3. On automatic transmission units, install new seal with J-8340 (fig. 4).

Differential Bearing Adjusting Sleeve Bearing Race Replacement

1. Install side bearing adjusting sleeve and race assembly into carrier until finger tight and drive out the old race with a punch or other suitable tool (fig. 5).

CAUTION: Adjusting sleeve should engage sufficient threads in carrier to prevent possible thread damage when driving out race.

2. Install new bearing race in adjusting sleeve, using a suitable flat plate as a driver. Drive bearing race until it is flush with sleeve face.

Differential Bearing Replacement

1. Remove differential bearings with J-7112 Puller and J-8107-2 Pilot as shown in Figure 6.

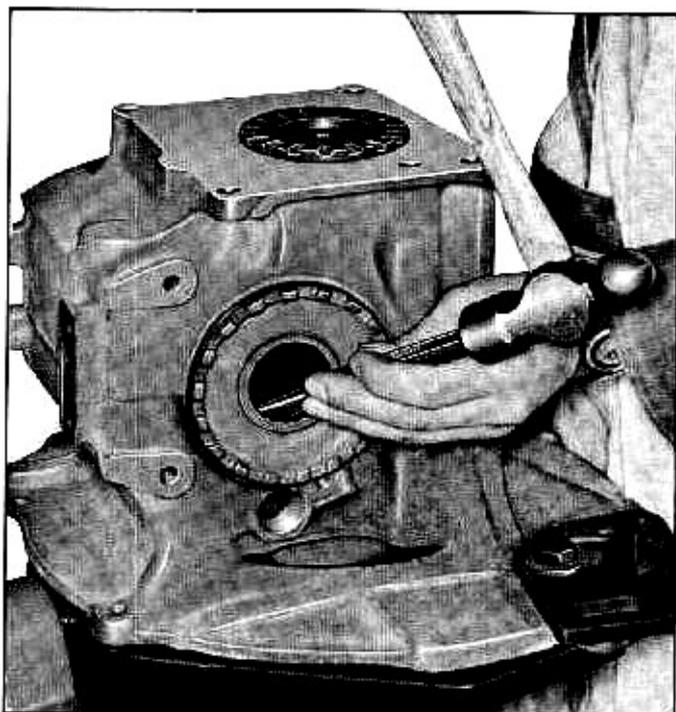


Fig. 5—Removing Differential Bearing Race

NOTE: Bearing and bearing race should be replaced as a set only.

2. Install new bearings on case or cover as required, using Tool J-22175 (Installer) and Driver Handle J-7079-2 as shown in Figure 7.

Pinion Shaft Rear Oil Seal Replacement (Automatic Transmission Axles)

1. Remove old seal from stator shaft, using a screw driver or other suitable tool as shown in Figure 8.
2. Install new seal, using J-8448-1 as illustrated in Figure 8. Press seal into bore until it seats against stop.

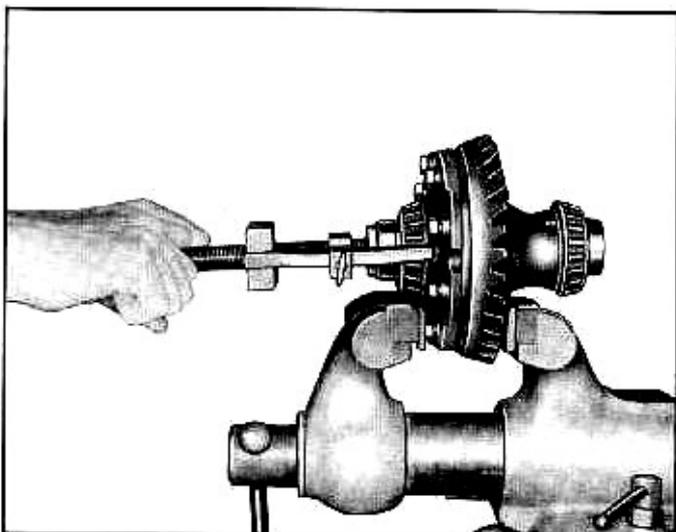


Fig. 6—Removing Differential Bearings

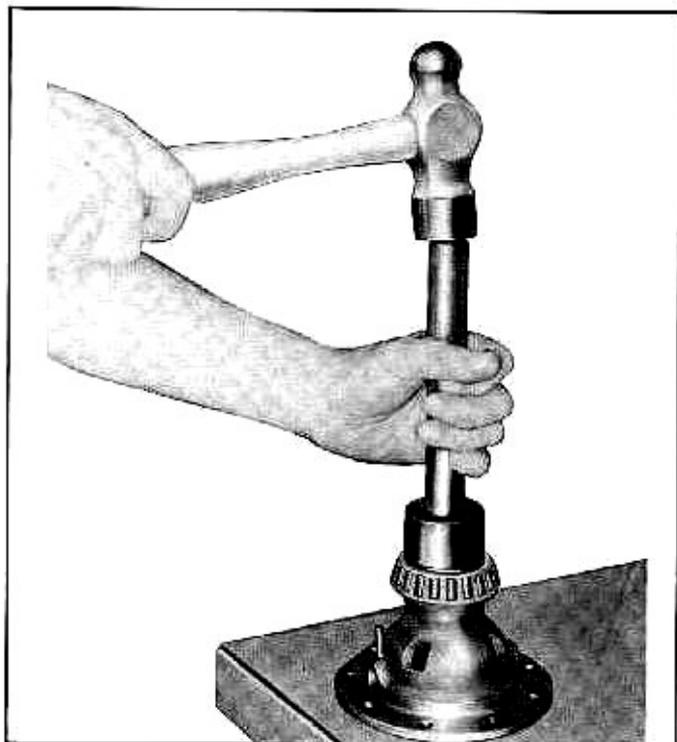


Fig. 7—Installing Differential Bearings

Ring Gear and Pinion Bearing Adjustment

Once the differential carrier is assembled, the differential side bearings and pinion bearings must be adjusted and preloaded for quiet operation as follows:

NOTE: Lubricate bearings with axle lubricant prior to adjustment.

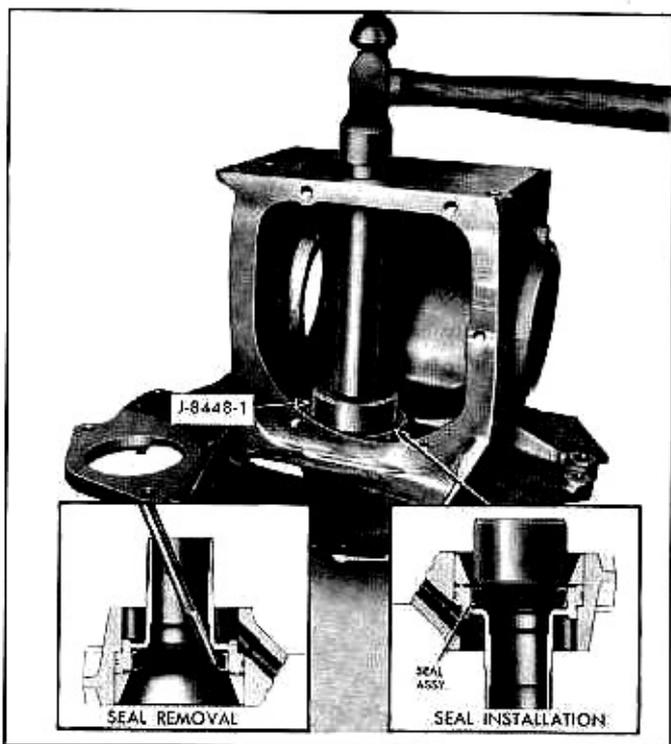


Fig. 8—Installing Pinion Rear Oil Seal in Stator Shaft

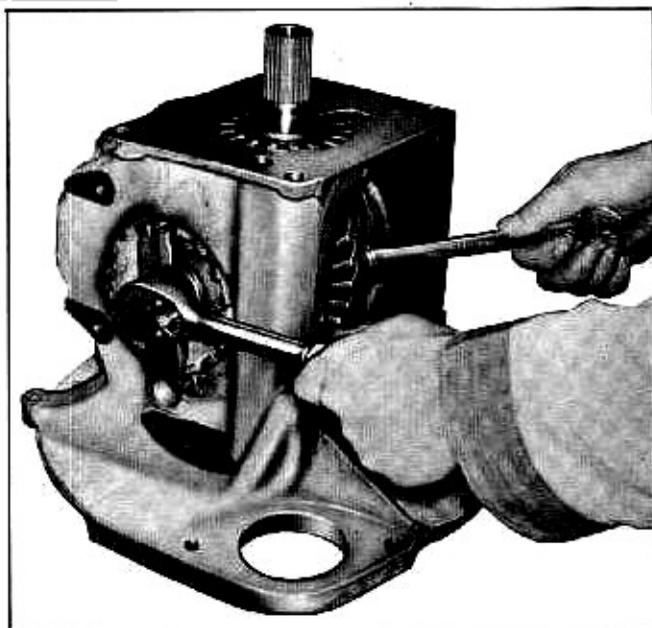


Fig. 9—Adjusting Ring Gear to Pinion

1. Tighten right side bearing adjusting sleeve with Tool J-8342 while rocking the differential assembly until there is zero backlash between the ring gear and pinion (fig. 9). Mark this point on both sleeve and carrier with crayon or pencil.
2. Tighten left side bearing adjusting sleeve until bearing and race are at point of contact. Mark this point on both adjusting sleeve and carrier.
3. Back off right side adjusting sleeve three to four notches to eliminate "O" ring wind-up. Retighten sleeve to one notch loose from zero backlash mark.
4. Back off left side adjusting sleeve to release any "O" ring wind-up, then retighten adjusting sleeve until marks realign plus a minimum of two additional notches and a maximum of three additional notches to align the sleeve notches for locking tab installation.

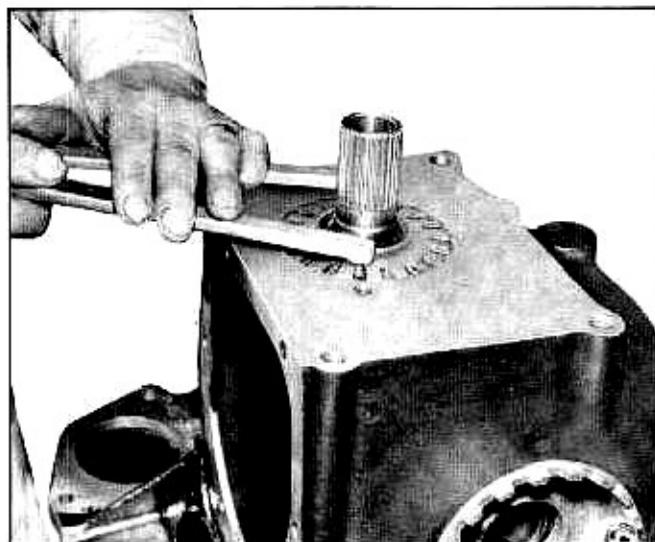


Fig. 10—Tightening Pinion Bearing Adjusting Sleeve

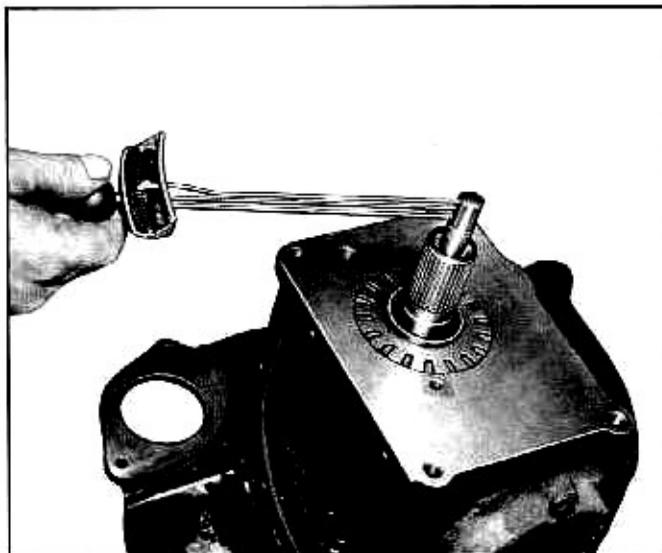


Fig. 11—Measuring Pinion Turning Torque

NOTE: At this point the differential bearings are preloaded.

5. Install differential side bearing adjusting sleeve locking tabs to prevent loss of adjustment.
6. Back off pinion adjusting sleeve as required with Tool J-972 to eliminate any pinion bearing preload (fig. 10), then measure the turning torque created by the side bearing preload at the pinion, using Tool J-8362 Adapter and an inch pound torque wrench such as J-5853 (fig. 11). Record this reading (example, 8 in. lbs.). Then retighten the pinion bearing adjusting sleeve to increase the initial turning torque by 4-6 in. lbs. with used bearings or 9-11 in. lbs. with new bearings. Using the 8 in. lbs. initial turning torque from our example, the final total turning torque measured at the pinion would be 12-14 in. lbs. with used bearings or 17-19 in. lbs. with new bearings.
7. Install pinion adjusting sleeve locking tab.

Ring Gear and Pinion Contact Pattern

Upon completion of the ring gear-to-pinion backlash adjustment, a check of the gear teeth contact pattern should be made to ensure gear life and minimize bearing noise from the carrier.

1. Thoroughly clean the ring gear and pinion teeth with solvent and air-dry.
2. Paint ring gear teeth only with a light and even coating of a mixture of iron oxide gear marking compound of a suitable consistency to produce a contact pattern on the ring gear.
3. While firmly holding the pinion with a rag to form a friction brake, turn the ring gear back and forth with a wrench (fig. 12) on the ring gear mounting bolts until a definite contact pattern is formed.
4. Inspect the contact pattern produced and analyze the results relative to the following data. Figure 13 provides gear tooth nomenclature and Figure 14 illustrates the various contact patterns which may be experienced.

The large end of the tooth is called the "heel" and the small end the "toe". Also, the top of the tooth, which is the part above the pitch line, is called the

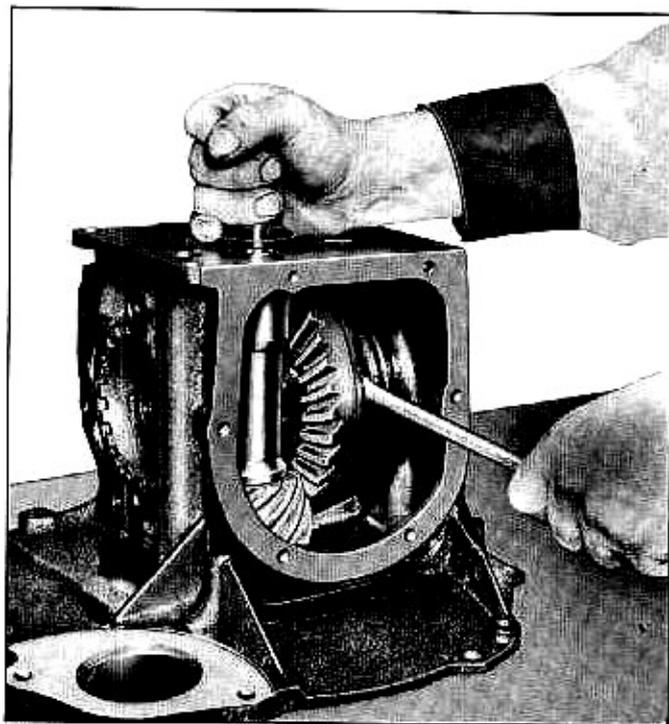


Fig. 12—Developing Contact Pattern

“face”, while the part below the pitch line is called the “flank”. The space between adjacent meshing teeth is referred to as “backlash”.

Figure 14 shows correct and incorrect contact patterns. For illustrative purposes, “coast” side of gear contact is shown. Drive and coast side of gear teeth will have identical contact patterns.

Tooth pattern “A” provides the ideal bearing for quietness and long life. If the pattern shows a toe contact “B”, it indicates not enough backlash. To correct, move the ring gear away from the pinion by loosening right-hand differential adjusting nut and tightening left-hand adjusting nut.

NOTE: Make adjustment one notch at a time, repeat check with red lead and continue adjustment until tooth contact appears as in “A”. Backlash must remain within limits.

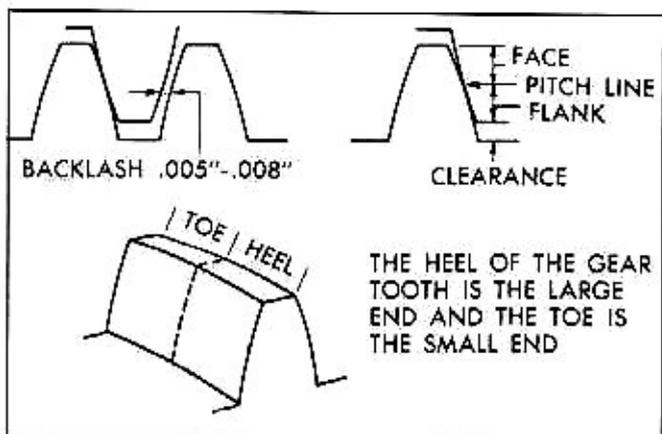


Fig. 13—Gear Tooth Nomenclature

If the pattern shows a heel contact “C”, it indicates too much backlash. Make correction as for “B”, however, loosen left-hand differential adjusting nut and tighten right-hand adjusting nut to move ring gear toward pinion. Backlash must remain within limits.

If the pattern shows a high face contact “D”, it indicates that the pinion is too far out, that is, too far from centerline of ring gear.

To correct a pattern such as in “D”, it will be necessary to install a thicker pinion shim as described under “Pinion and/or Bearing Replacement”. A .003” thicker shim is recommended as a starting point. Continued changes may be necessary to obtain the correct setting.

If the pattern shows a flank contact “E”, it indicates that the pinion is in too far. To correct, replace the pinion shim with a .003” thinner shim and recheck contact pattern.

In making pinion adjustments, be sure that backlash is correct before retesting for tooth pattern. Moving the pinion in reduces backlash and moving the pinion out increases backlash.

NOTE: When proper tooth contact is obtained, wipe gear marking compound from gears and carrier with cloth moistened with clean gasoline or kerosene.

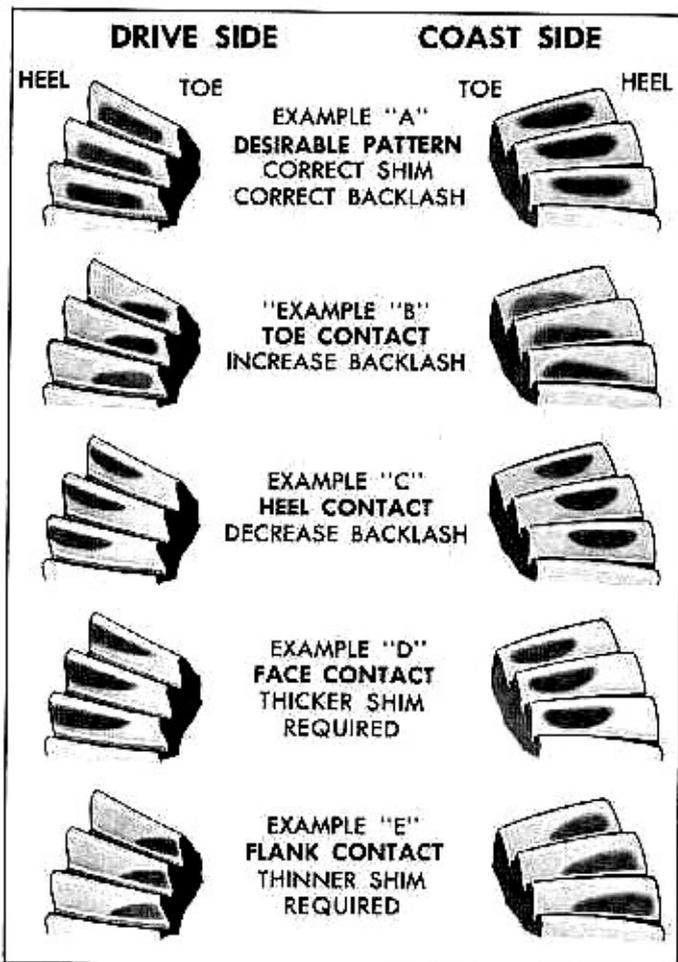


Fig. 14—Ring Gear Contact Patterns

Pour a liberal quantity of rear axle lubricant on gears and bearings and turn gears to work lubricant into all surfaces.

5. Place a new differential carrier cover gasket on the carrier, then install cover. Tighten cover bolts to specifications.
6. Fill differential carrier to a level even with the filler plug opening.

Wheel Spindle and Support

Reassembly

1. Position spindle support over torque arm studs, then position brake flange plate and shoe assembly over support and studs. Connect parking brake cable to actuating lever. Torque stud nuts to specifications.
2. Install wheel spindle bearing cups in the support, using Tool J-8850 for outer bearing and Tool J-7817 for inner bearing.
3. The wheel spindle, spindle support, spindle bearings and the spindle bearing spacer are the various items that affect wheel bearing end play. Therefore when replacing any of the aforementioned items, it will be necessary to ascertain proper adjusting shim thickness to maintain specified end play. Select the shim thickness, using Tool J-21836 as follows:
 - a. Remove the knurled nut from each end of Gauge J-21836.
 - b. Position spindle inner bearing on small end of gauge--small end of bearing toward pin on gauge--then finger tighten knurled nut against bearing.
 - c. Position gauge and bearing assembly through the inboard side of spindle support.
 - d. Install bearing spacer over large end of gauge, then position spindle outer bearing on gauge and

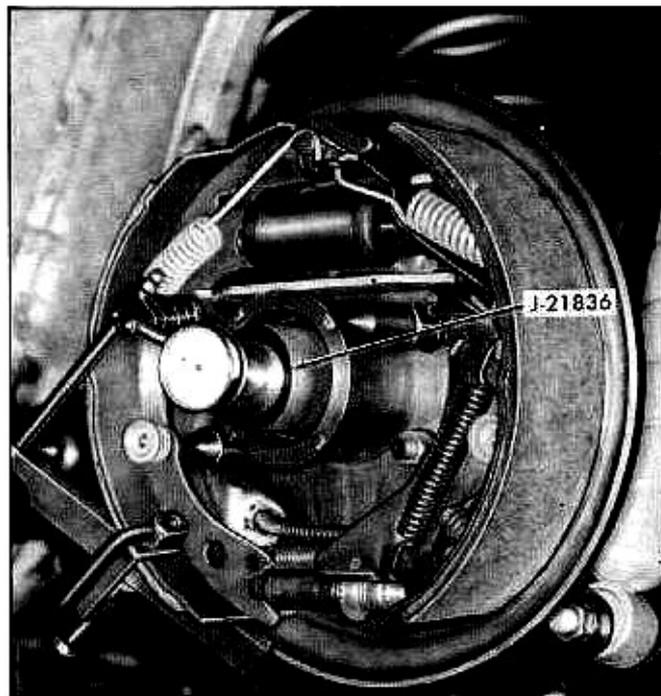


Fig. 16—Gauging Wheel Bearing Shim Requirement

- e. Install dial indicator (J-8001) and position indicator finger against moveable shaft of J-21836 (fig. 16).
- f. Move shaft of J-21836 so that it travels the maximum permissible distance limited by spacer and inner bearing.
- g. Record reading obtained in Step f--recheck to ensure accuracy.
- h. To the reading obtained in Step f, add 0.097". The total obtained is the required shim thickness necessary to maintain specified end play.

EXAMPLE: Dial indicator reading obtained in Step f: 0.026"

Add 0.097" to dial indicator reading 0.097"
(Gauge J-21836 is constructed to represent the smallest shim, which is 0.097".)

Shim thickness required (TOTAL): 0.123"

Shim to be installed would be 0.124" thick since this is the shim with a thickness nearer to the value as computed above.

4. Disassemble gauge and install spindle outer bearing. Pack both wheel bearings with a high-melting point wheel bearing lubricant prior to installation.
5. Position support outer seal on Tool J-21842 (align tabs in seal with slots in tool) install seal in support and connect brake line.
6. Reassemble spindle to spindle support.
7. Reassemble axle drive shaft, brake drum and wheel and tire assembly - torque wheel stud nuts to specifications.
8. Bleed brakes as outlined in Section 5.

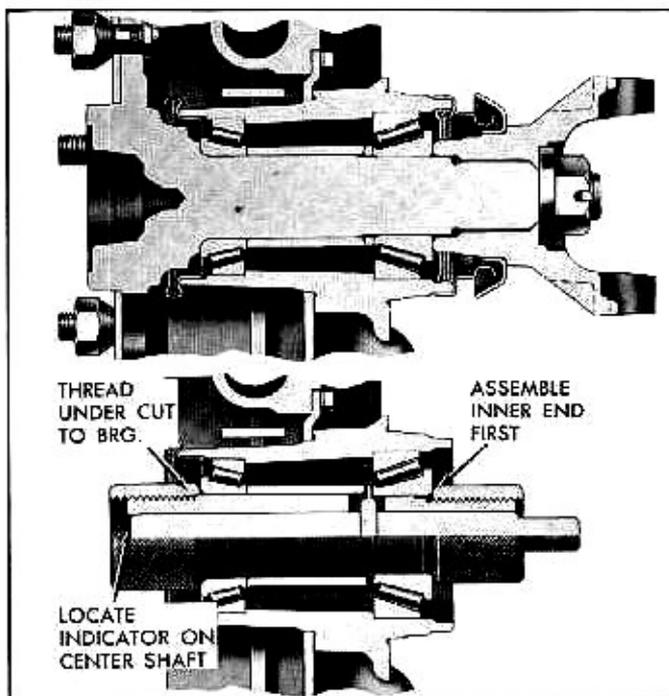


Fig. 15—Spindle Bearing Gauge Installation

SECTION 6

ENGINE

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Servicing the 1966 Corvair Engine remains basically the same as outlined in the 1965 Corvair Shop Manual except for the following items.

ACCELERATOR LINKAGE

Accelerator linkage on all 1966 Corvair engines should be adjusted to get simultaneous full throttle position at: the accelerator pedal, the linkage idler lever, and the carburetor throttle lever. The pedal downward travel stop (at the idler lever located on the transmission) is adjustable to furnish a pedal angle comfortable to the driver.

Complete accelerator linkage adjustment is as follows:

Adjustment

1. Disconnect the accelerator pull rod swivel from the rear idler lever (fig. 1).
2. Disconnect the accelerator pullback spring. Remove the carburetor cross shaft actuating rod swivel from the cross shaft.
3. Pull the carburetor cross shaft actuating rod rearward until the rear idler lever hits the stop on its bracket. Rotate the carburetor cross shaft to move the L.H. primary carburetor into wide open throttle position (thru detent on Powerglide).

With the carburetor cross shaft and its actuating rod held in the above positions; align the actuating rod swivel until it freely engages its mating hole in the cross shaft lever, then remove the swivel from the idler lever and back off the swivel five full turns and re-engage it in the lever hole.

4. Re-install the accelerator pullback spring.
5. Depress the accelerator pedal to within 1-1/8 inches of the floor carpet and block pedal in this position. This pedal setting is measured from the underside of

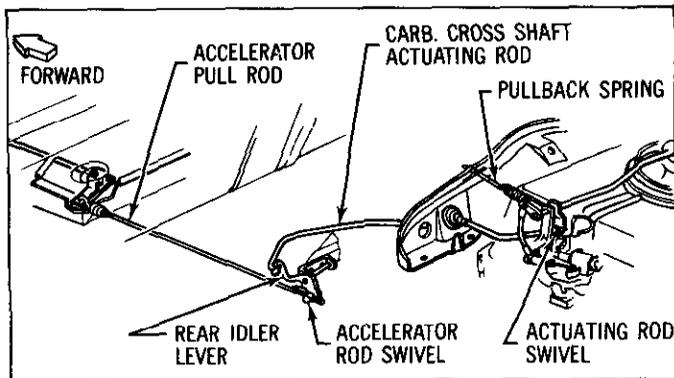


Fig. 1—Accelerator Linkage Adjustment

- the rubber flange at the top of the pedal. It is necessary to set the pedal at this height to provide comfortable pedal angle for the driver.
6. Rotate the rear idler lever into wide open throttle position and reconnect the accelerator pull rod after adjusting the rod swivel so that it freely engages its mating hole in the idler lever.
7. Remove the pedal block and check the complete accelerator control linkage adjustment by depressing the accelerator pedal and inspecting the carburetor valve to insure that it is at the wide open throttle position.
8. When necessary, perform carburetor synchronization procedure as outlined in the 1965 Corvair Shop Manual under Engine Tune Up.
9. On 4x1 carburetor equipped engines, when necessary to adjust the secondary carburetor linkage, follow adjustment procedure outlined in this section.

CARBURETOR SYNCHRONIZATION (4 x 1 CARBURETORS)

The interim 1965 release of secondary carburetor lockout mechanisms, to prevent secondary carburetors

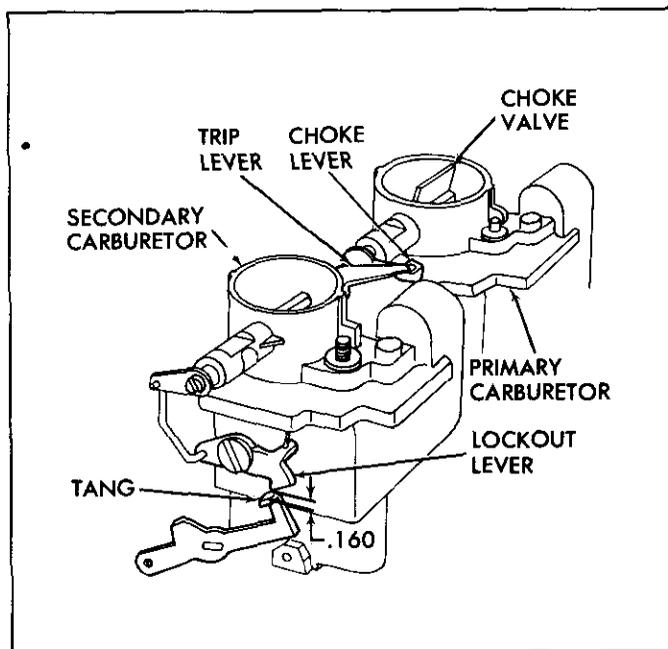


Fig. 2—Adjusting Secondary Lockout

TUNE UP CHART

HORSEPOWER			95	110	140	180
COMPRESSION ^①			130 psi			
SPARK PLUGS	Make & Number	Standard	AC-46FF	AC-44FF		
		Cold	AC-44FF	AC-42FF (Competition)		
	Gap		.035"	.030"		
D I S T R I B U T O R	Point Dwell		31°-34°			
	Point Gap		.016" (Used) .019" (New)			
	Arm Spring Tension		19-23 ounces			
	Condenser		.18-.23 microfarad			
	Timing ^②	Standard Engine	Syn.	6° B.T.D.C.	14° B.T.D.C.	18° B.T.D.C.
Auto.			14° B.T.D.C.	14° B.T.D.C.	18° B.T.D.C.	24° B.T.D.C.
Auto. & A/C			6° B.T.D.C.	24° B.T.D.C.	18° B.T.D.C.	24° B.T.D.C.
With Air Injection Reactor		Syn.	9° A.T.D.C.	1° A.T.D.C.	3° B.T.D.C.	24° B.T.D.C.
	Auto.	4° A.T.D.C.	4° B.T.D.C.	8° B.T.D.C.	24° B.T.D.C.	
DRIVE BELT	Blower Belt		55 ± 5 lbs. (Used)	75 ± 5 lbs. (New)	Using Strand Tension Gauge	
	Air Injection Belt		55 ± 5 lbs. (Used)	75 ± 5 lbs. (New)	Using Strand Tension Gauge	
	A/C Comp. Belt		95 ± 5 lbs. (Used)	140 ± 5 lbs. (New)	Using Strand Tension Gauge	
AIR CLEANER ^③			oil wetted paper			
VALVE LASH			Hydraulic - 1 turn down from zero lash			
IDLE RPM ^④	Standard Engine	Syn.	450-500	600-650		850
		Auto.	450-500			850
	With Air Injection Reactor	Syn.	700			850
		Auto.	600			850
FUEL PUMP	Pressure		3-1/2 - 5 lbs. @ Idle - 1,000 rpm			
	Volume		1 pint in 30 - 45 seconds			
CRANKCASE VENTILATION	Service Period		12,000 miles			
	Orifice Size		.062"		.089"	

① At cranking speed, throttle wide open--Maximum Variation 20 pounds between cylinders.

② At idle speed with vacuum advance line disconnected and plugged.

③ PAPER ELEMENT--Check at 12,000 miles initially--Check every 6,000 miles thereafter until replaced.

OIL BATH--Change oil at regular engine oil change intervals.

④ AUTOMATIC TRANSMISSION--With Standard Engine--As low as possible to obtain a smooth idle and prevent creep in drive or harsh shifts during transmission operation.

AIR CONDITIONED VEHICLES--Set speed up device to increase idle rpm 50 rpm when A/C is turned on.

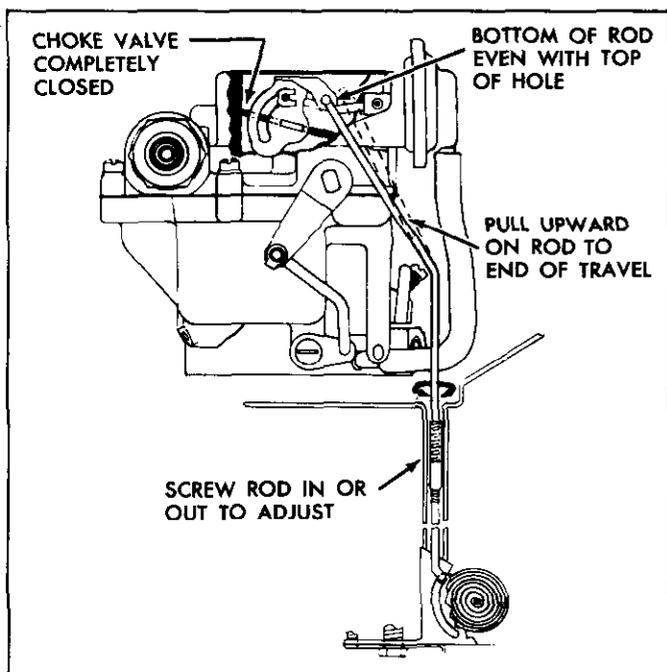


Fig. 3—Adjusting Choke

from operating during the engine warm up period, required a new carburetor cross-shaft and new secondary linkage. Therefore, carburetor synchronization of the secondary carburetors is new. The lockout mechanism is operated by the primary chokes, therefore, the primary carburetors and the primary chokes must be properly adjusted when attempting to synchronize the secondary carburetors.

1. Synchronize the primary carburetors as outlined under Engine Tune Up for the 10100 and 10500 series in the 1965 Corvair Shop Manual. Leave the choke rods disconnected.
2. With the primary choke valve in the full open position and a .160" gauge (from Tool Set J-9789) between the secondary carburetor lockout lever and the lockout tang on the throttle lever, bend secondary carburetor trip lever to just contact primary carburetor choke lever (fig. 2). Repeat operation on remaining secondary carburetor.
3. Hold choke valves closed and actuate accelerator cross-shaft (to set fast idle cams). Pull choke rod upward to end of travel and adjust rod until bottom of rod is even with top of hole in choke lever (fig. 3). Connect choke rod and repeat operation on remaining choke.
4. Disconnect left and right secondary carburetor actuating rods then hold carburetor cross-shaft so primary carburetors are in the full open position.
5. With choke valves closed (secondary throttles locked out) adjust secondary carburetor actuating rod so actuating spring is fully compressed and clevis will just enter hole in cross shaft lever (fig. 4), then back off adjustment 2 (Min.) to 3 (Max.) turns. Repeat operation on remaining actuating rod.
6. Connect both secondary actuating rods and with choke valves held wide open, slowly rotate carburetor cross shaft to the full throttle position, checking that all carburetors reach full throttle simultaneously.

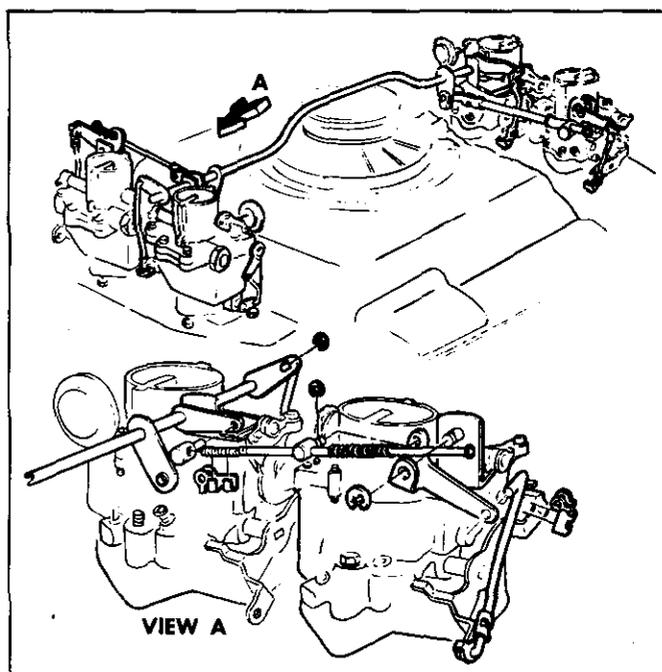


Fig. 4—Adjusting Secondary Carburetor Linkage

7. With choke valves held closed, rotate carburetor cross shaft to full throttle position and check primary carburetors for full throttle position, check if secondary carburetors are locked out and that secondary actuating springs are fully compressed.

CYLINDER HEAD ASSEMBLIES

Removal

1. Drain engine oil, then disconnect battery positive cable.
2. Remove spare tire, then remove air cleaner assembly.
3. Remove the following items from the cylinder head.
 - Carburetor, carburetor mounting studs and upper choke control rods.
 - Ignition coil and bracket (right cylinder head).
 - Side shield, lower shroud and exhaust duct.
 - Oil cooler (left cylinder head).
 - Muffler, muffler shield and muffler hanger (right cylinder head).
 - Spark plugs and vacuum balance tube hose at cylinder head.
 - Bolts attaching upper shroud to front and rear shrouds and bolts attaching front and rear shrouds to cylinder head.
 - Exhaust manifolds.

NOTE: On the front shroud, it will be necessary to disconnect heater hose at elbow to gain access to one bolt.

4. On the right cylinder head, disconnect wire to cylinder head temperature sending unit.
5. Remove the rear center shield.
6. Disconnect engine at the rear mount and lower engine several inches.
7. Remove cylinder head assembly as follows:
 - Remove valve rocker arm cover and discard gasket.

- Remove rocker arm nuts, rocker arm balls, rocker arms and push rods. Place in a rack so they may be installed in their original location.
- Remove rocker arm studs and push rod guides, then remove and discard rocker arm stud "O" ring seals.
- Pull push rod tubes from crankcase bore and remove and discard inner "O" ring seal, then remove push rod tube from cylinder head and remove and discard "O" ring seal. Remove cylinder head nuts, then remove cylinder head assembly from crankcase studs and discard cylinder head gaskets.

Installation

1. Install cylinder head assembly as follows:
 - Place cylinder head gasket in cylinder head combustion chamber.
 - Install cylinder head assembly over studs and carefully guide into place.
 - Install 6 cylinder head nuts (finger tight).
 - Install new "O" ring seals, lightly coated with oil, on long end of push rod tubes, then install push rod tubes through bore in cylinder head and install new "O" ring seals, lightly coated with oil, on inner end of push rod tubes.
 - Start push rod tubes into bores in cylinder head and crankcase, then seat the push rod tubes with a 9/16" deep socket (placed against cylinder head end of push rod tube and tapped lightly with a hammer).
 - Install new "O" ring seals, lightly coated with oil into rocker arm stud bore in cylinder head.
 - Install push rod guides, then rocker arm studs (finger tight).
 - Torque cylinder head nuts and rocker arm studs, a little at a time, in the sequence shown in the 1965 Corvair Shop Manual until the specified torque is reached (40 ft. lbs.).
 - Install push rods with the side oil hole out.
 - Install rocker arms, rocker arm balls and rocker arm nuts.
- NOTE:** Whenever new rocker arms or rocker arm balls are installed, coat surfaces lightly with Molykote or its equivalent.
2. Connect wire to cylinder head temperature sending unit on right cylinder head.
 3. Adjust valves as outlined under Valve Lifters in the 1965 Corvair Shop Manual.
 4. Using a new gasket, install valve rocker cover and torque to specifications.
 5. Install the following items as outlined in the 1965 Corvair Shop Manual.
 - Exhaust manifold.
 - Bolts attaching front and rear shroud to cylinder head and bolts attaching upper shroud to front and rear shroud.

- Spark plugs and vacuum balance tube hose.
 - Muffler hanger, muffler heat shield, and muffler (right cylinder head).
 - Oil cooler (left cylinder head).
 - Exhaust duct, lower shroud and side shield.
 - Ignition coil and bracket (right cylinder head).
 - Carburetor mounting studs, carburetor and choke control rods.
6. Raise engine and connect rear mount.
 7. Install rear center shield.
 8. Fill with oil, then connect battery positive cable.
 9. Synchronize carburetors as outlined in the 1965 Shop Manual under Engine Tune Up.

NOTE: On vehicles equipped with 140 hp. Engines (4x1 Carburetors) synchronize secondary carburetors as outlined in this section.

10. Check for oil leaks.
11. Install air cleaner assembly and spare tire.

VALVE GUIDE

Removal

Valve guide removal remains the same as outlined in the 1965 Corvair Shop Manual except for the following:

NOTE: Whenever a valve guide is to be removed it should first be broken loose (started) with Tool J-21281, which is presently used as the guide installer and has a wider shoulder than the J-21280 tool. After the guide is broken loose it can then be removed without a problem, using Remover J-21280.

ENGINE ASSEMBLIES

Installation

When connecting the rear strut rod brackets to the differential carrier during engine installation it is recommended that the retaining bolts be installed in the following manner:

1. Using a long drift, align bracket with differential carrier and install the forward bolt on the side of carrier. Do not tighten bolt. Remaining bolts will require further alignment.
2. Align bracket with rear bolt on underside of carrier, using drift to align bracket during bolt installation.
3. Install rear bolt on side of carrier, then install remaining bolt to underside of carrier.
4. Alternately tighten all bolts in small increments to permit an even draw against bracket. Tighten all bolts snugly and check bracket for proper seating against carrier. Torque all bolts.

NOTE: It is recommended that the strut rods be installed before installing the axle drive shafts.

SECTION 6M ENGINE FUEL

CONTENTS OF THIS SECTION

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General Information	6M-1
Rochester H and HV Carburetors	6M-1
Carter YH Carburetor	6M-5
Special Tools	6M-7

GENERAL INFORMATION

Servicing the 1966 Corvair Engine Fuel System remains basically the same as outlined in the 1965 Corvair Shop Manual except for the items covered in this section; the specifications covered in the Specifications section and Carburetor Synchronization, Idle Speed and Mixture Adjustment and Choke Adjustment covered in

Section 6 - Engine Tune Up.

The air cleaners for the 1966 Corvair remain basically the same as outlined in the 1965 Corvair Shop Manual except for the air conditioned vehicles which, due to the air conditioning condenser being relocated, now use the single element air cleaner.

ROCHESTER H AND HV CARBURETORS

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Pump Rod Adjustment—Models H and HV	6M-3	Lockout Adjustment—Model H	6M-4
Idle Vent Valve Adjustment—Model HV	6M-3		

GENERAL DESCRIPTION

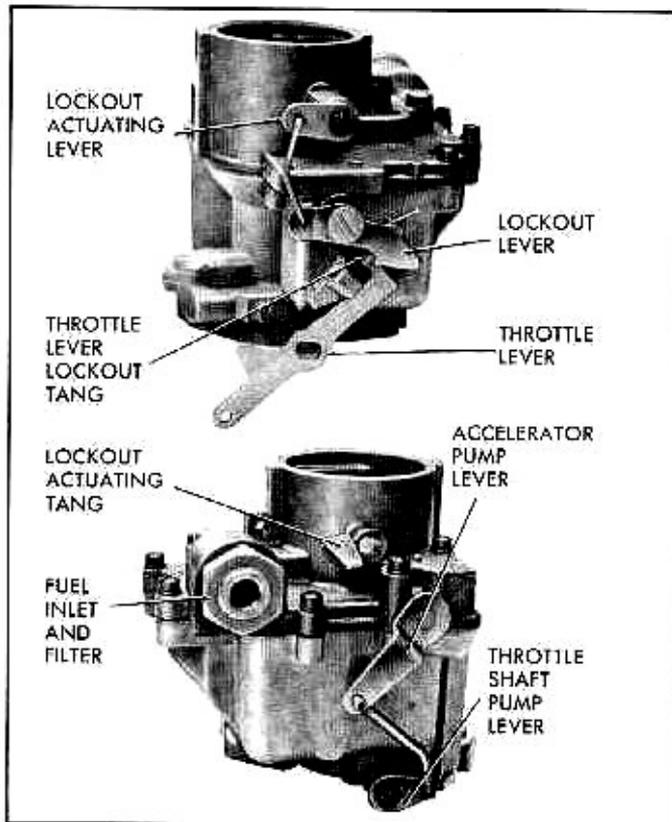


Fig. 1—Rochester H Carburetor

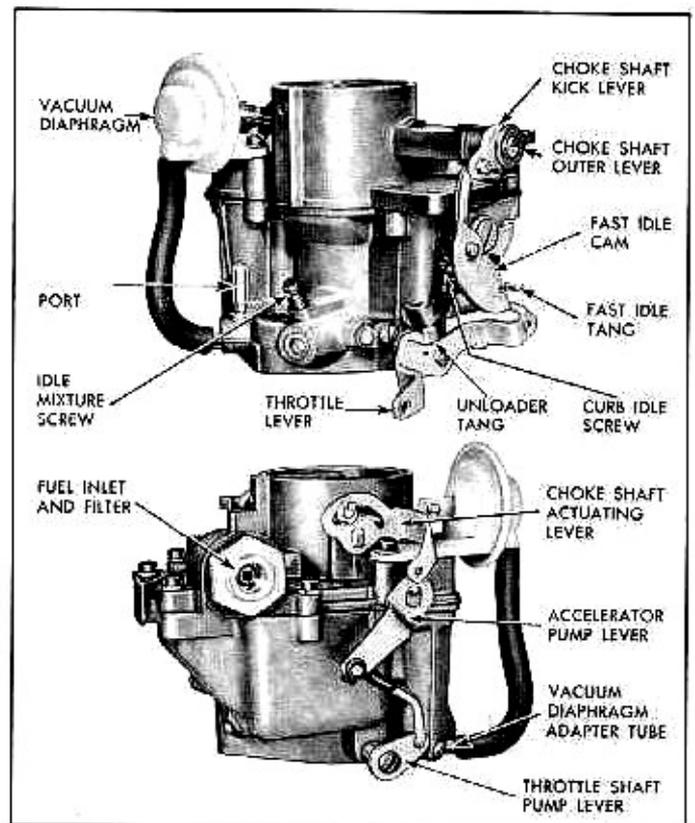


Fig. 2—Rochester HV Carburetor

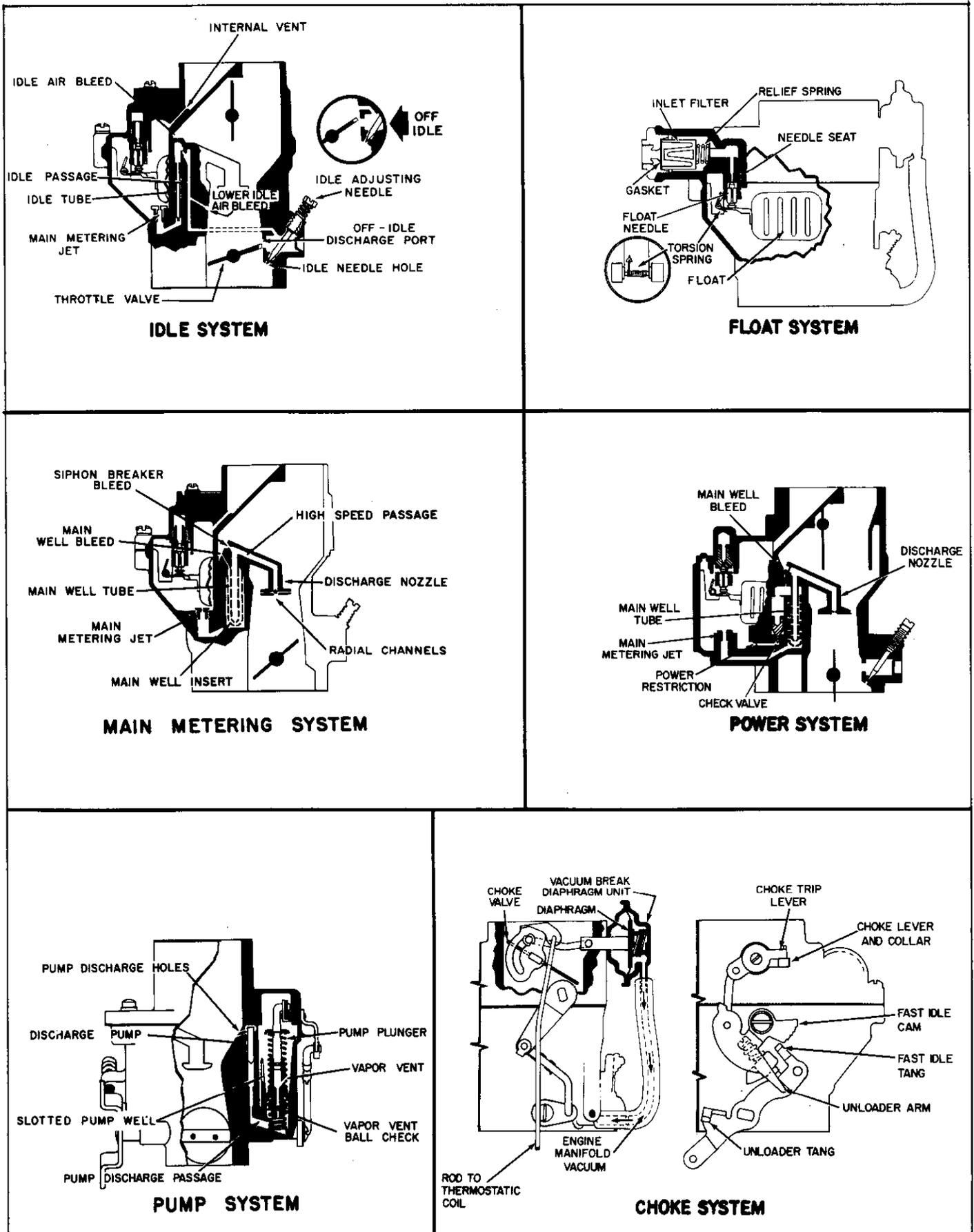


Fig. 3—Fuel Systems

The Model H Carburetor (fig. 1), used as a secondary carburetor on the 140 hp engine (4 x 1 carburetors), is basically the same as outlined in the 1965 Corvair Shop Manual except for calibration changes and the addition of linkage (Interim 1965) to lockout the carburetor until the engine has warmed up.

The Model HV Carburetor (fig. 2) is basically the same as outlined in the 1965 Corvair Shop Manual except for calibration changes and the addition of a lower idle air bleed (fig. 3).

All adjustment procedures for both carburetors are new (due to calibration changes) and will be made with the Universal Carburetor Gauge Set J-9789.

ADJUSTMENT PROCEDURES

Float Level Adjustment (Fig. 4)

With the air horn inverted and the gasket in place, check height of each float. Bend tang which contacts needle until each pontoon is set to specified dimension. Float pontoons should be parallel with air horn surface when set correctly. Align floats to avoid interference in bowl.

Float Drop Adjustment (Fig. 5)

With the air horn assembly held upright and floats suspended freely, measure dimension from air horn gasket to bottom of float pontoon at toe, adjust to specified dimension by bending tang which contacts seat at rear of float arm.

Pump Rod Adjustment (Fig. 6)

Back out idle stop screw until the throttle valves are completely closed in bore. Bend pump rod as shown until the index line on upper pump lever just aligns with sharp edge on air horn casting.

Idle Vent Valve Adjustment (Fig. 7)

To adjust, bend the tang on the throttle lever so that when the vent valve just starts to open, the proper gauge will just go between the throttle valve and the bore directly opposite the idle needle. Do not bend the spring arm on the vent valve as distortion may result.

Vacuum Break Adjustment (Fig. 8)

To adjust push diaphragm plunger inward until seated, and then close choke valve to point where connecting rod

is to end of slot in choke lever. With choke valve in this position specified gauge should fit between lower edge of choke valve and inner air horn wall as shown. To adjust, bend connecting rod at point shown.

NOTE: A rubber band may be used to hold the choke valve in the closed position.

Choke Rod Adjustment (Fig. 9)

To adjust, place fast idle tang on second step of fast idle cam next to highest step. Close choke valve so that

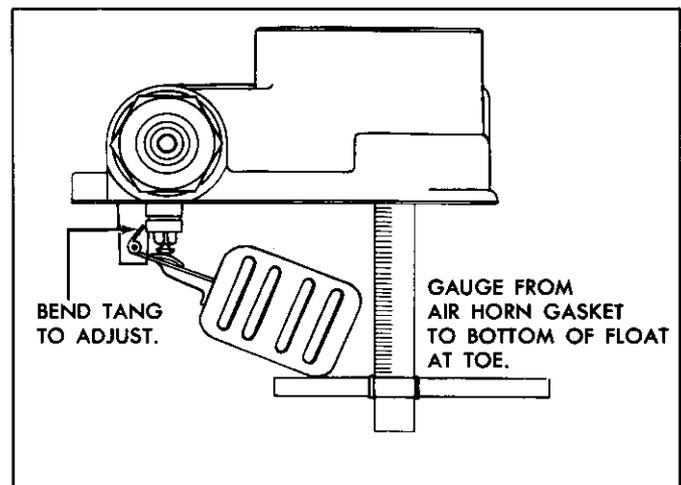


Fig. 5—Float Drop Adjustment (Models H and HV)

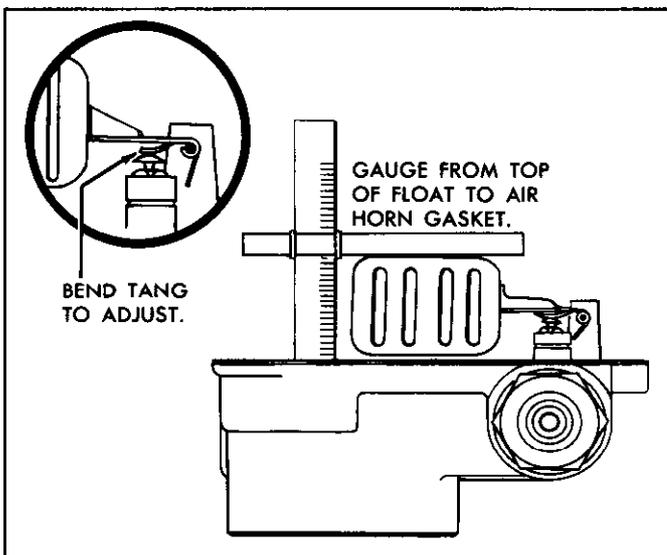


Fig. 4—Float Level Adjustment (Models H and HV)

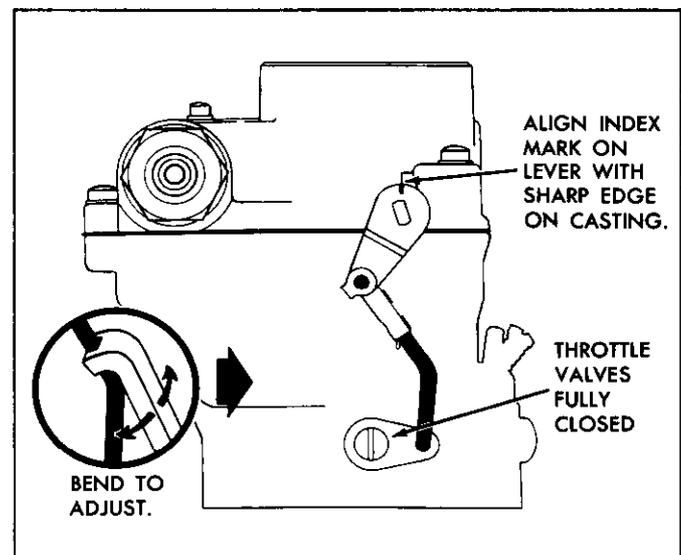


Fig. 6—Pump Rod Adjustment (Models H and HV)

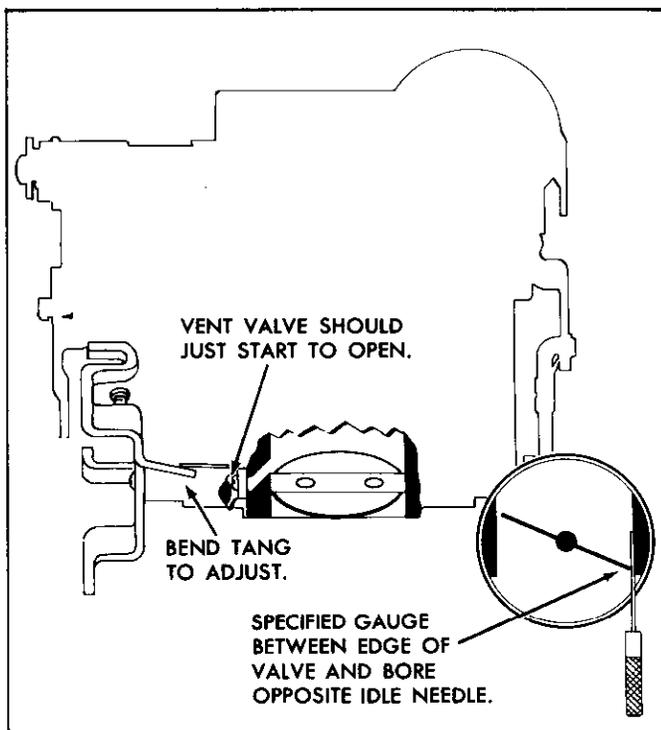


Fig. 7—Idle Vent Valve Adjustment (Model HV)

trip lever on choke shaft just contacts choke tang on lever and collar assembly.

Specified gauge should just fit between lower edge of choke valve and inner air horn wall.

To adjust, bend tang on trip lever up or down as shown.

NOTE: A rubber band may be used to hold the choke valve in the closed position.

Choke Unloader Adjustment (Fig. 10)

To adjust, hold throttle valve wide open and rotate choke valve to closed position until contact is made at unloader tang, then the specified gauge should just fit between lower edge of choke valve and inner air horn wall. To adjust, bend unloader tang on throttle lever.

NOTE: A rubber band may be used to hold the throttle valve in the open position.

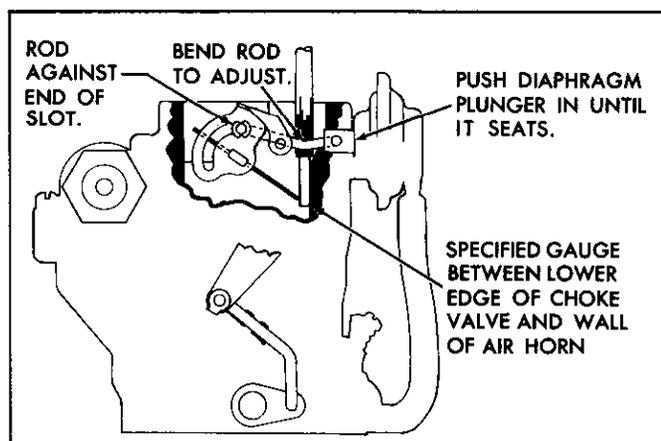


Fig. 8—Vacuum Break Adjustment (Model HV)

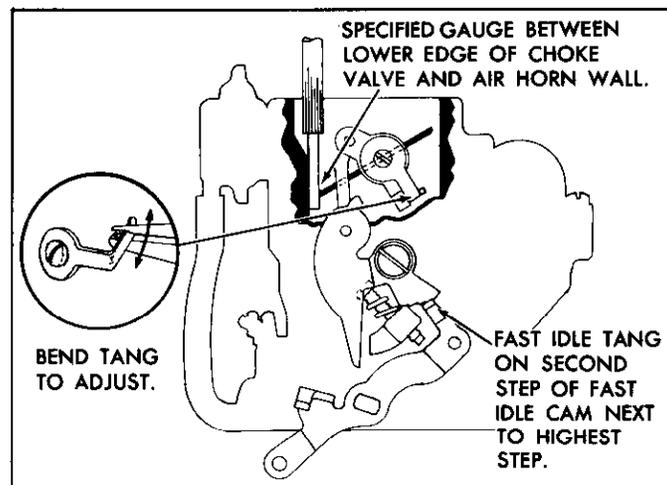


Fig. 9—Choke Rod Adjustment (Model HV)

Fast Idle Adjustment (Fig. 11)

Insert a strip of paper between idle speed screw and throttle lever, then holding throttle lever in the closed position turn idle screw in until a firm drag is felt on the strip of paper. Turn idle speed screw in 1-1/2 additional turns.

Place fast idle tang on the second step of the fast idle cam next to the highest step then the specified gauge should just fit between the idle speed screw and edge of the throttle lever.

NOTE: A rubber band may be used to hold the throttle valve in the closed position while making the initial idle setting.

Lockout Adjustment (Fig. 12)

With the throttle closed and edge of throttle lever lockout tang flush with lockout lever, bend throttle lever

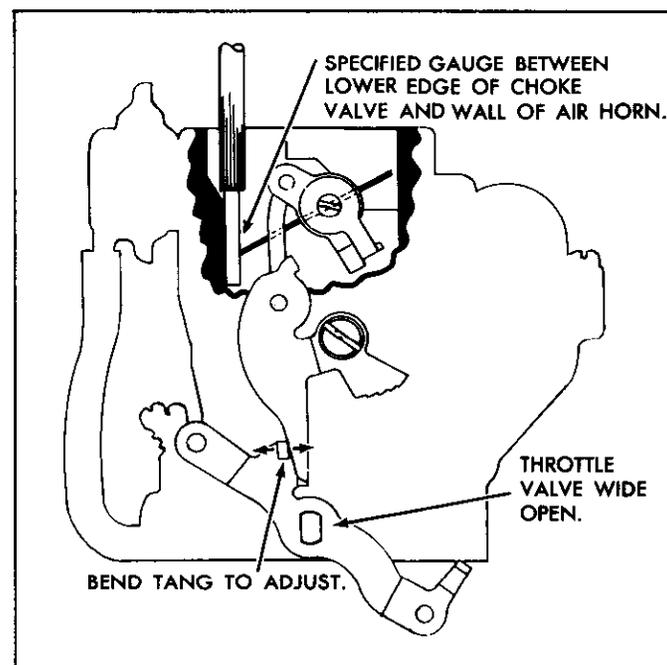


Fig. 10—Choke Unloader Adjustment (Model HV)

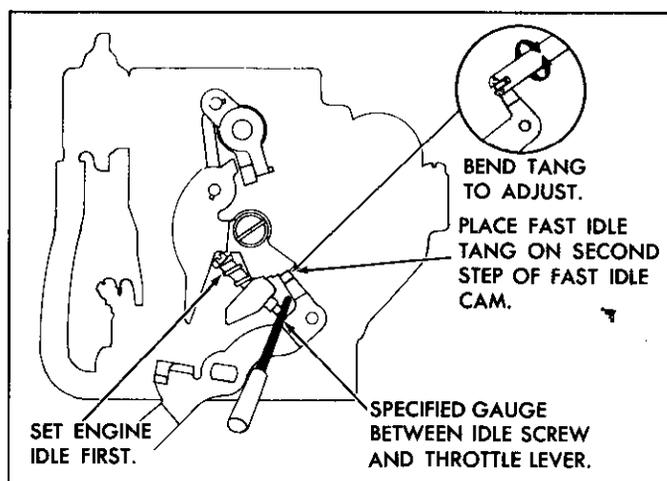


Fig. 11—Fast Idle Adjustment (Model HV)

tang to obtain specified clearance between notch in lock-out lever and throttle lever tang.

With throttle lever in locked out position bend stop tang on lockout lever to obtain specified clearance between stop tang and bottom surface of air horn.

NOTE: The primary carburetor choke mechanism operates the lockout mechanism on the secondary carburetor, therefore, final adjustment must be made with the carburetor installed on the engine. Refer to Section 6 under Engine Tune Up, Carburetor Synchronization.

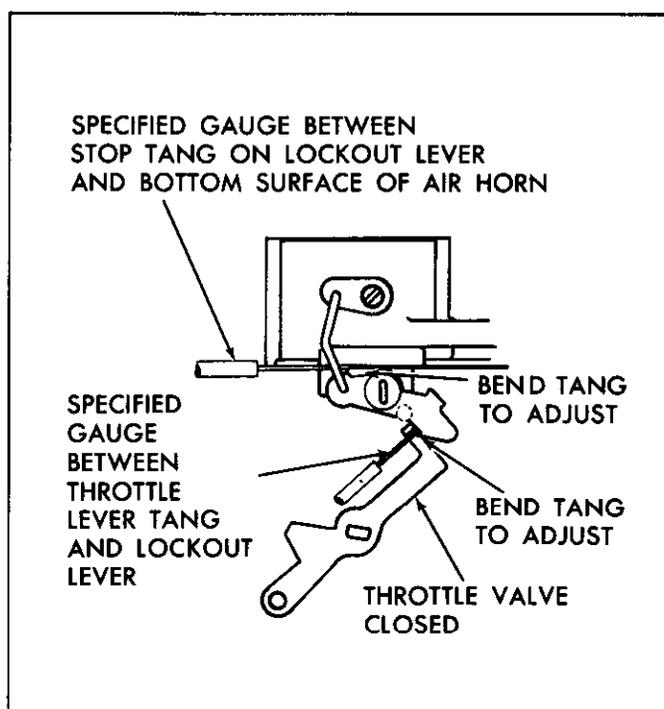


Fig. 12—Lockout Adjustment (Model H)

CARTER YH

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GENERAL DESCRIPTION

The Model YH Carburetor, used in conjunction with the Turbocharger, on the 180 hp engine, remains basically the same as outlined in the 1965 Corvair Shop Manual except for; calibration changes, listed in the

Specifications Section and new adjustment procedures (due to calibration changes) that will be made with the Universal Carburetor Gauge Set J-9789.

ADJUSTMENT PROCEDURES

Float Level Adjustment (Fig. 13)

Invert the cover and measure between the cover gasket surface and float center. Adjust to specifications by bending float arm.

Float Drop Adjustment (Fig. 14)

Hold cover upright, allowing float to hang down and measure between cover gasket surface and float seam. Adjust to specifications by bending float tang.

Choke Rod (Fast Idle) Adjustment (Fig. 15)

Hold choke valve closed then open and close throttle

valve. This will place the fast idle link on high step of cam.

Holding throttle valve toward the closed position, check clearance between throttle valve and throttle bore at side opposite the idle port. Adjust to specifications by bending fast idle connector link at offset.

Choke Unloader Adjustment (Fig. 16)

Hold choke valve toward the closed position with a rubber band then open throttle valve to wide open position and measure between upper edge of choke valve and air horn wall. Adjust to specifications by bending unloader tang on fast idle cam.

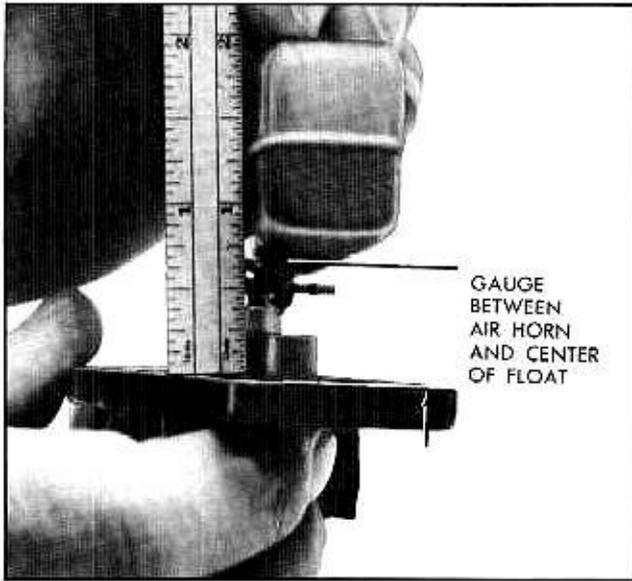


Fig. 13—Float Level Adjustment

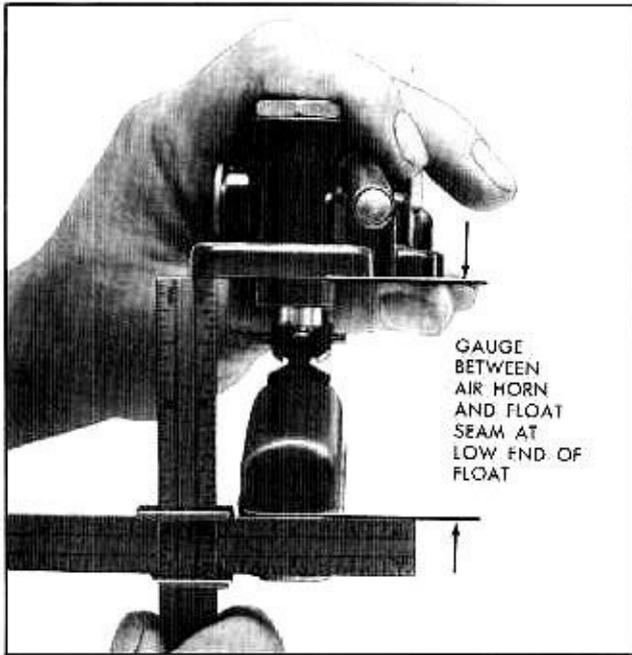


Fig. 14—Float Drop Adjustment

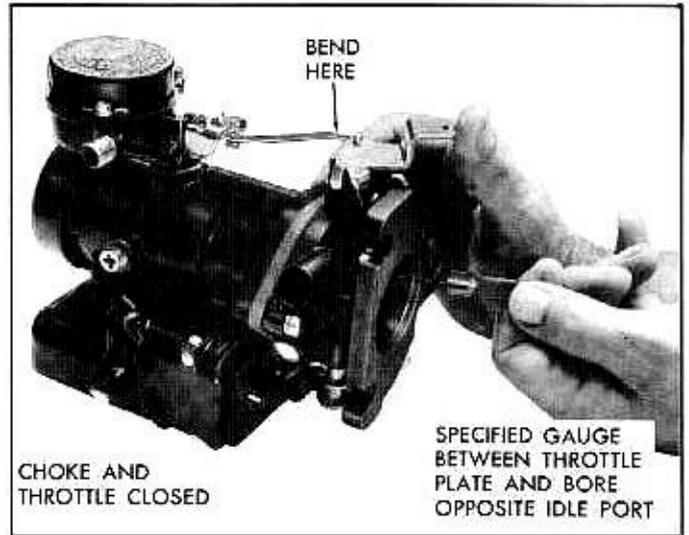
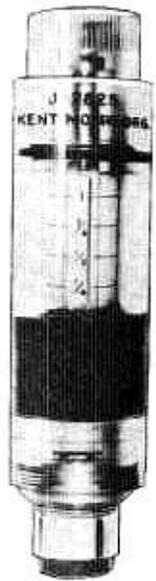


Fig. 15—Choke Rod (Fast Idle) Adjustment



Fig. 16—Choke Unloader Adjustment

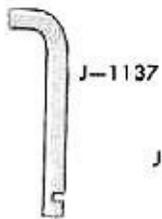
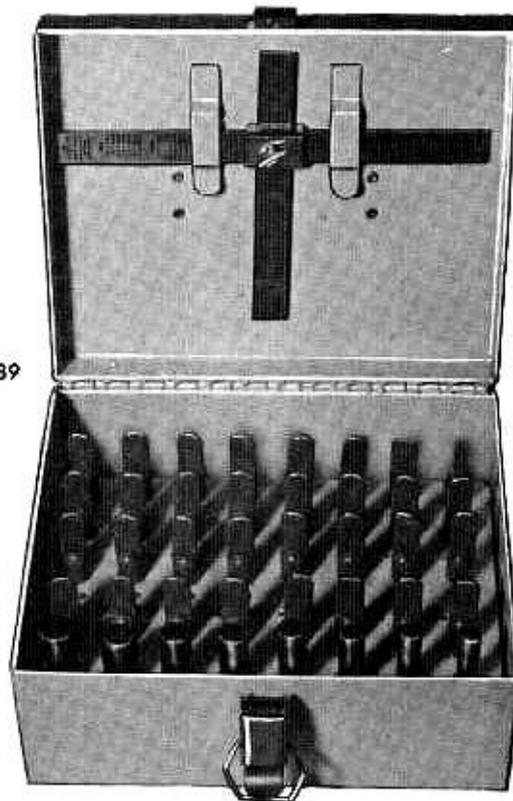
SPECIAL TOOLS



J-7825



J-9789



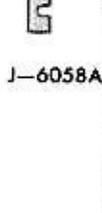
J-1137



J-4552



J-5197



J-6058A



J-6556



J-5496

BENDING TOOLS

J-8328



Fig. 17—Engine Fuel Special Tools

SECTION 6T AIR INJECTION REACTOR SYSTEM

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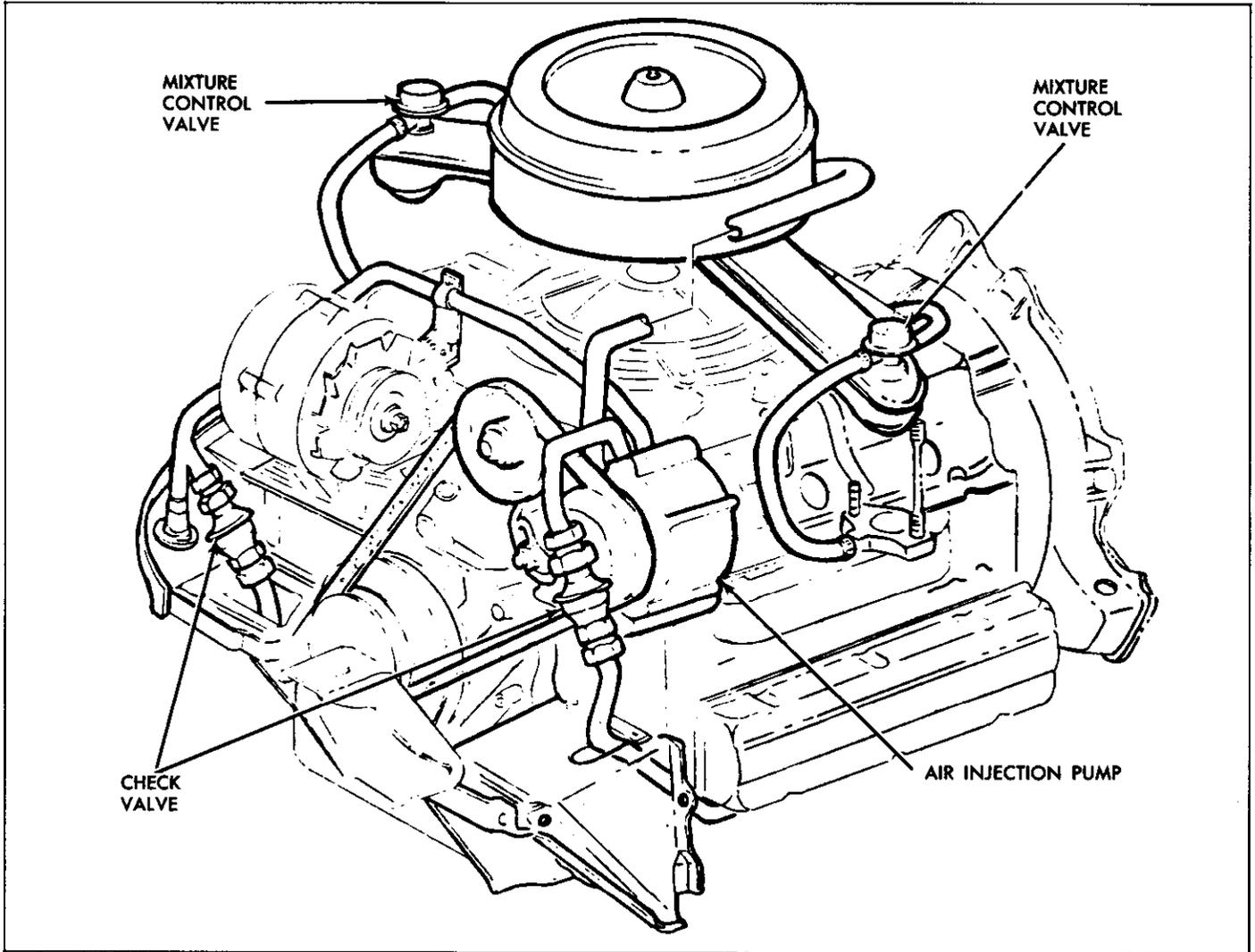


Fig. 1—Air Injection Reactor System

GENERAL DESCRIPTION

The Air Injector Reactor System (fig. 1), used on all Corvair engines in California (except the turbocharged engine and engines in vehicles equipped with air conditioning) consists of: the air injection pump (with necessary brackets and drive attachments), air injection tubes (one for each cylinder), two mixture control valves, two check valves, a pressure relief valve and tubes and hoses necessary to connect the various components.

Carburetors and distributors for engines with the Air Injection Reactor System are designed, particularly, for these engines; therefore, they should not be interchanged with or replaced by a carburetor or distributor designed for an engine without the Air Injection Reactor System.

The air injection pump (fig. 2) picks up fresh filtered air from the air cleaner, compresses the air and injects it through the tubes and injection tubes into the exhaust system in the area of the exhaust valves. The fresh air ignites and burns the unburned portion of the exhaust gases in the exhaust system, thus minimizing

exhaust contamination.

The mixture control valves (fig. 3) when triggered by a sharp increase in manifold vacuum, supplies the intake manifold with fresh filtered air to lean out the fuel-air mixture and prevent exhaust system backfire.

The check valves prevent exhaust gases from entering and damaging the air injection pump, if for any reason (such as drive belt failure) the pump becomes inoperative. Under normal operating conditions air pressure from the pump is sufficient to prevent exhaust gas from entering the pump.

The pressure relief valve, located in the left tube, relieves any excess pressure of the air injection pump.

While the system will result in exhaust emission well below the California requirements when it is properly installed and maintained, it will not provide the desired reduction in exhaust emissions if some of the engine components malfunction.

Because of the relationship between "Engine Tune Up" and "Unburned Exhaust Gases", the condition of Engine Tune Up should be checked whenever the Air Injection Reactor System seems to be malfunctioning. Particular care should be taken in checking items that affect fuel - air ratio such as the crankcase ventilation system, the carburetor and the carburetor air cleaner.

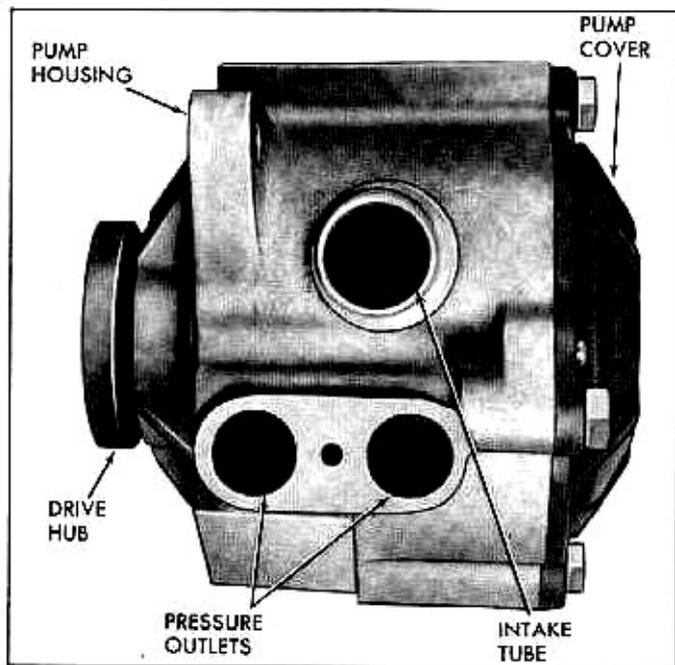


Fig. 2—Air Injection Pump

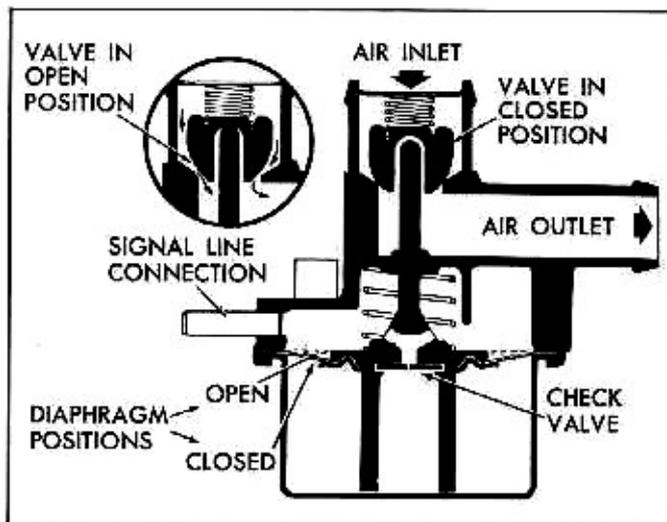


Fig. 3—Mixture Control Valve

MAINTENANCE PROCEDURES

DRIVE BELT

Inspection

- Inspect drive belt for wear, cracks or deterioration and replace if required.
- Inspect belt tension and adjust if required.

Adjustment

- Loosen idler pulley bolts then move idler pulley until belt is tight (55 ± 5 lb. used belt or 75 ± 5 lb.

new belt using a strand tension gauge) and tighten idler pulley bolts.

CAUTION: Do not pry on the pump housing. Distortion of the housing will result in extensive damage to the Air Injection Pump.

Replacement

- Loosen idler pulley bolts then swing idler pulley until drive belt may be removed.
- Install a new drive belt and adjust as outlined above.

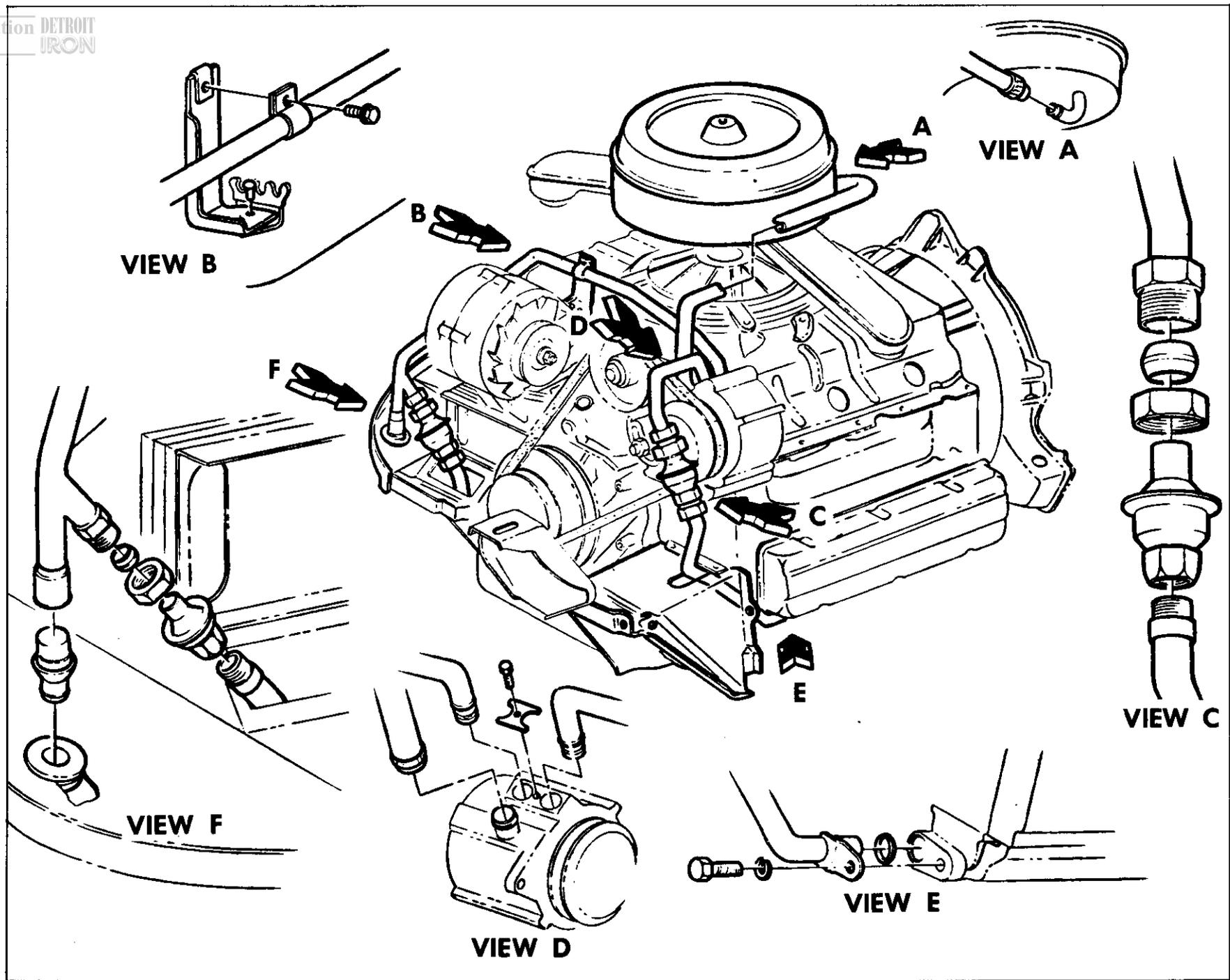


Fig. 4—Air Manifold, Hose and Tube Routing

DRIVE PULLEY

Replacement

- Remove drive belt as outlined above then replace drive pulley.
- Install and adjust drive belt as outlined above.

PUMP PULLEY

Replacement

- Hold pump pulley from turning by compressing drive belt then loosen pump pulley bolts.
- Remove drive belt as outlined above then remove pump pulley.
- Install pump pulley with retaining bolts hand tight.
- Install and adjust drive belt as outlined above.
- Hold pump pulley from turning by compressing drive belt then torque pump pulley bolts to 25 ft. lbs.
- Recheck drive belt tension and adjust if required.

TUBE AND HOSE

Inspection (Fig. 4)

- Inspect all hoses for deterioration or holes.
- Inspect all tubes for cracks or holes.
- Check all hose and tube connections.
- Check all tube and hose routing. Interference may cause wear.
- If leak is suspected on the pressure side of the system or any tubes have been disconnected on the pressure side, the connections should be checked for leaks with a soapy water solution. With the pump running, bubbles will form if a leak exists.

Replacement

- To replace any hose and/or tube, note routing then remove hose(s) and/or tube(s) as required.

CAUTION: The hoses of the Air Injection Reactor System are a special material to withstand high temperature. No other type hose should be substituted.

NOTE: The left and right pump outlet tubes are retained to the pump housing with a clamp and use "O" ring seals.

- Install new hose(s) and/or tube(s), routing them as when removed.
- Tighten all connections.

NOTE: Use anti seize compound on threads of the tube to exhaust manifold connections.

CHECK VALVE

Inspection

- The check valve should be inspected whenever the pump outlet tube is disconnected from the check valve or whenever check valve failure is suspected. (A pump that had become inoperative and had shown indications of having exhaust gases in the pump would indicate check valve failure).
- Orally blow through the check valve (toward tube) then attempt to suck back through check valve. Flow should only be in one direction (toward the tube).

Replacement

- Disconnect pump outlet tube at check valve. Remove check valve from tube, being careful not to bend or twist tube.

MIXTURE CONTROL VALVE

Inspection

- Check condition and routing of all lines especially the signal line. A defective signal or outlet line will cause malfunctioning of the mixture control valve.
- An engine with a rough idle indicates the mixture control valve may be leaking. To check, disconnect outlet and signal lines at the engine and plug openings. If engine idle smooths out, replace the valve.
- Exhaust system back fire that can be attributed to no other cause indicates a malfunction of the valve.
- A noisy valve should be replaced.

Replacement

- Disconnect the signal line and air outlet hoses then remove the valve from the air cleaner grommet.
- Install new valve in air cleaner grommet and connect air outlet and signal line hoses.

CAUTION: Mixture control valves, though similar in appearance are designed to meet the particular requirements of various engines, therefore, be sure to install the correct valve.

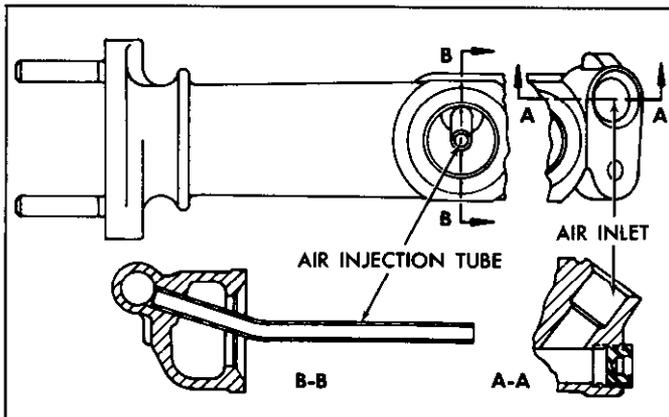


Fig. 5—Air Injection Tube

AIR INJECTION TUBE

Inspection (Fig. 5)

- There is no periodic service or inspection for the air injection tubes, yet whenever the exhaust manifolds are removed, inspect the air injection tubes for carbon build up and warped or burnt tubes.
- Remove any carbon build up with a wire brush.
- Warped or burnt tubes require exhaust manifold replacement.

AIR INJECTION PUMP

Inspection

- Check for proper drive belt tension.

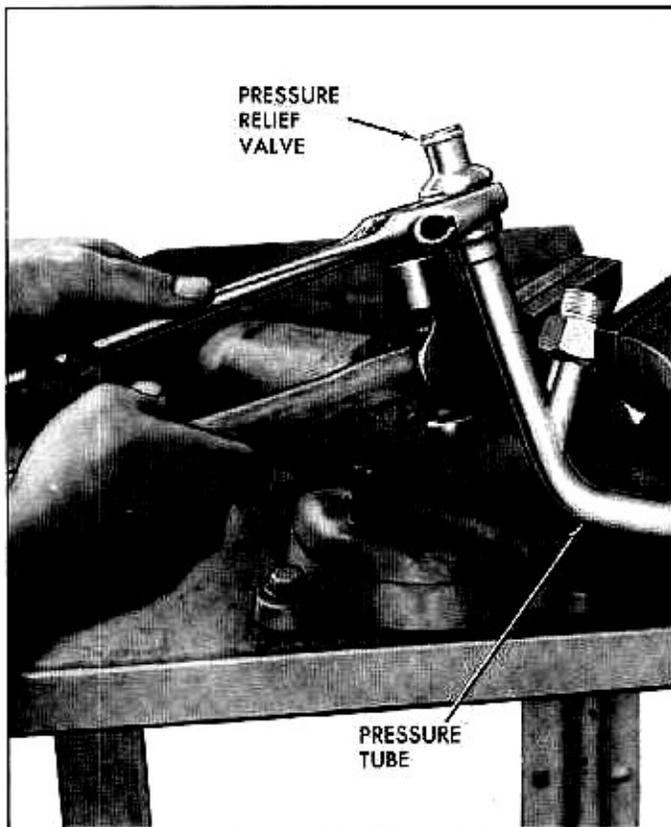


Fig. 6—Removing Pressure Relief Valve

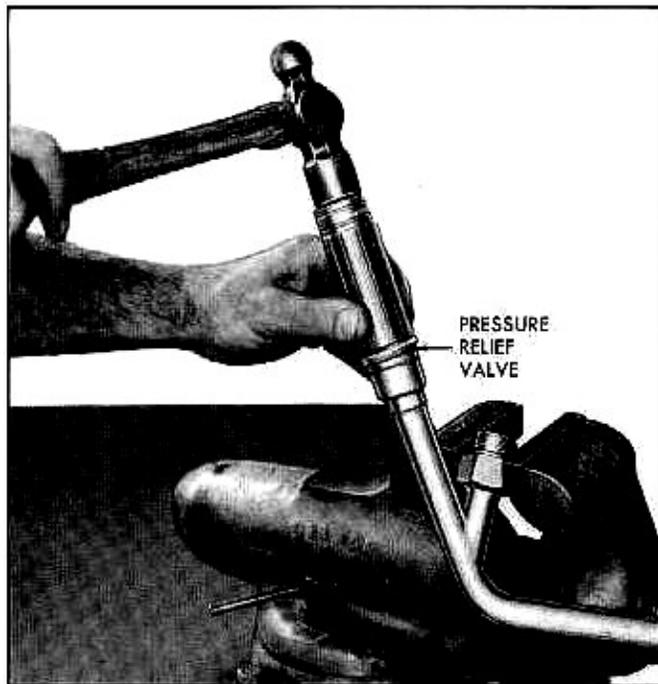


Fig. 7—Installing Pressure Relief Valve

Replacement

1. Using an adjustable wrench and a hammer, tap relief valve from the left tube, being careful to support tube sufficiently to prevent distortion (fig. 6).
2. Using a 15/16" socket tap the relief valve into tube until the valve shoulders on the tube (fig. 7).

CAUTION: Use extreme care to avoid distorting tube.

NOTE: The Air Injection Reactor System is not completely noiseless. Under normal conditions noise rises in pitch as engine speed increases. To determine if excessive noise is the fault of the Air Injection Reactor System, operate the engine with the pump drive belt removed. If excessive noise does not exist with the belt removed, proceed as follows:

- Check for a seized Air Injection Pump.
- Check hoses, tubes and all connections for leaks and proper routing.
- Check carburetor air cleaner for proper installation.
- Check air injection pump for proper mounting.
- If none of the above conditions exist and the air injection pump has excessive noise remove then repair as outlined.

Replacement

- Disconnect the inlet hose and outlet tubes at the pump.
- Remove pump pulley as outlined.
- Remove pump mounting bolts and remove pump.
- Install pump with mounting bolts loose.
- Install pump pulley as outlined.
- Install and adjust belt as outlined.
- Connect the outlet tubes and inlet hose at the pump.

PRESSURE RELIEF VALVE

Inspection

- Check for a leaky pressure relief valve. Air may be heard leaking with the pump running.

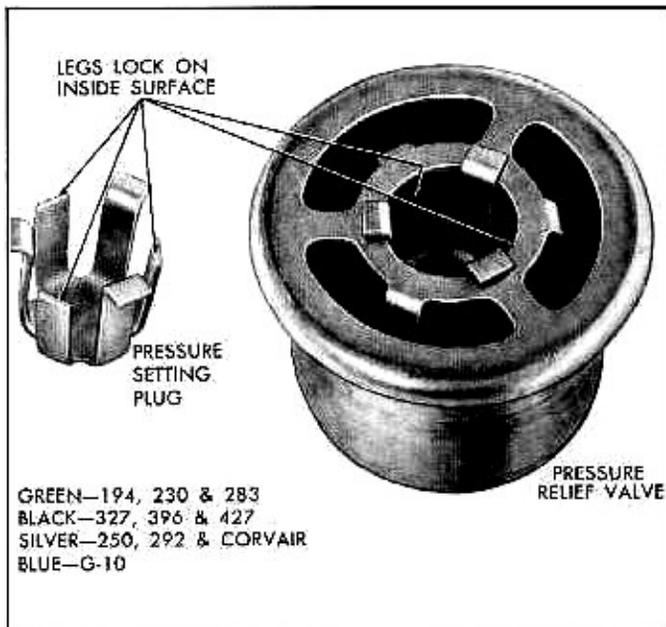


Fig. 8—Pressure Setting Plug

NOTE: Various length pressure setting plugs (fig. 8) designed for the particular requirements of vehicle-engine combinations, determine the pressure required to open the relief valve. For identification, the pressure setting plugs are color coded. To remove the pressure setting plug, carefully unlock legs from inside surface

of relief valve with a small screw driver. To install the pressure setting plug, carefully push into relief valve until legs lock. If a pressure setting plug is to be reused be sure leg angles are sufficient for the pressure setting plug to lock in place.

REPAIR PROCEDURES

AIR INJECTION PUMP

The vane type Air Injection Pump (fig. 9) consists of: cover assembly, rear rotor ring and bearing assembly, rear carbon seal, vane assemblies, vane shoes, shoe springs and the housing and rotor assembly. If required, the rear bearing may also be replaced.

To maintain the close tolerances required for an efficient air pump, the rear rotor ring is manufactured as a part of the rotor assembly and the rotor assembly is fitted to the housing with a selective spacer (ground to maintain the required clearances) therefore, the rotor and housing assembly (with rear rotor ring) are serviced as an assembly and parts from one assembly must never be interchanged with another assembly.

The front ball bearing (part of the rotor and housing assembly), the rear needle bearing and the vane needle bearings are lubricated for the life of the bearings and require no periodic service.

Disassembly

NOTE: Before disassembly, rotate the drive hub quickly, first three-quarter turn counter-clockwise, then one-quarter turn clockwise. Roughness or bumps may indicate vane bearing failure.

1. Support the drive hub in a vise and remove the cover attaching bolts then remove the cover assembly by tapping straight up with a plastic mallet (fig. 10).

CAUTION: Never clamp the air injection pump on the aluminum housing.

2. Remove the rear rotor ring attaching screws (fig.

11) then remove the rear rotor ring and bearing assembly and rear carbon seal. Discard the rear carbon seal.

3. Remove the vane assemblies (fig. 12).
4. Remove the vane shoes with tweezers or needle nose pliers (fig. 13) then remove the shoe springs.

CAUTION: Carbon shoes chip easily. Do not use excessive pressure when removing.

NOTE: Unless the rear bearings need replacing, no further disassembly of the pump is recommended.

Cleaning and Inspection

CAUTION: Under no circumstances should the housing and rotor assembly or the cover assembly be immersed in cleaning solvent.

1. Clean carbon dust from housing and rotor assembly and from cover assembly with compressed air.
2. Wipe grease and/or dirt from the housing and rotor assembly and from the cover assembly with a cloth saturated with petroleum base cleaning solvent, then clean any remaining film from assemblies with a cloth saturated with denatured alcohol.
3. Check inside of the housing for vane and/or rotor wear. Excessive wear indicates the housing and rotor assembly must be replaced.
4. Inspect the rear cover as follows:
 - Inspect the rear bearing inner race for grooves or scratches. These blemishes indicate rear bearing failure, and the bearing and cover assembly must be replaced.

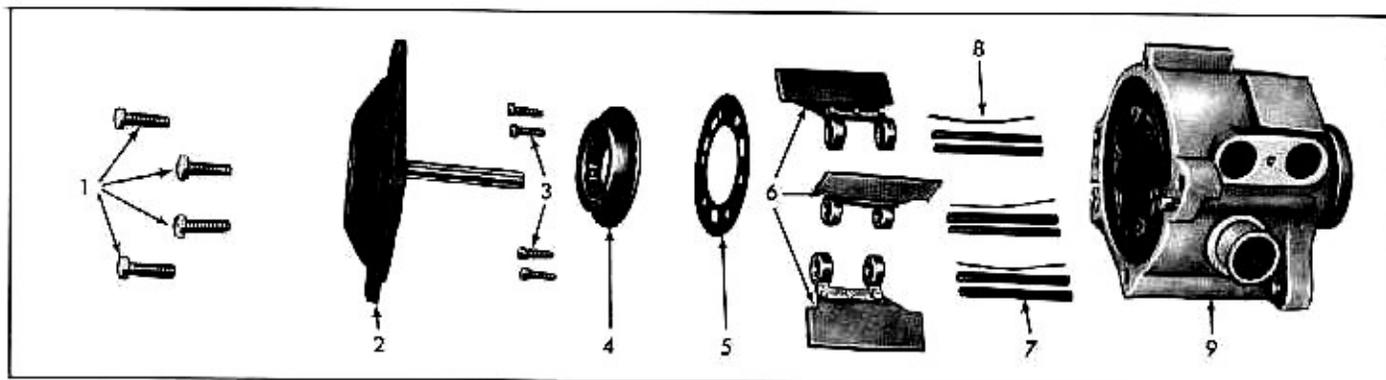


Fig. 9—Air Injection Pump - Exploded View

1. Cover Attaching Bolts
2. Cover Assembly

3. Rear Rotor Ring Screws
4. Rear Rotor Ring and Bearing Assembly

5. Rear Carbon Seal
6. Vane Assemblies
7. Vane Shoes

8. Shoe Springs
9. Housing and Rotor Assembly

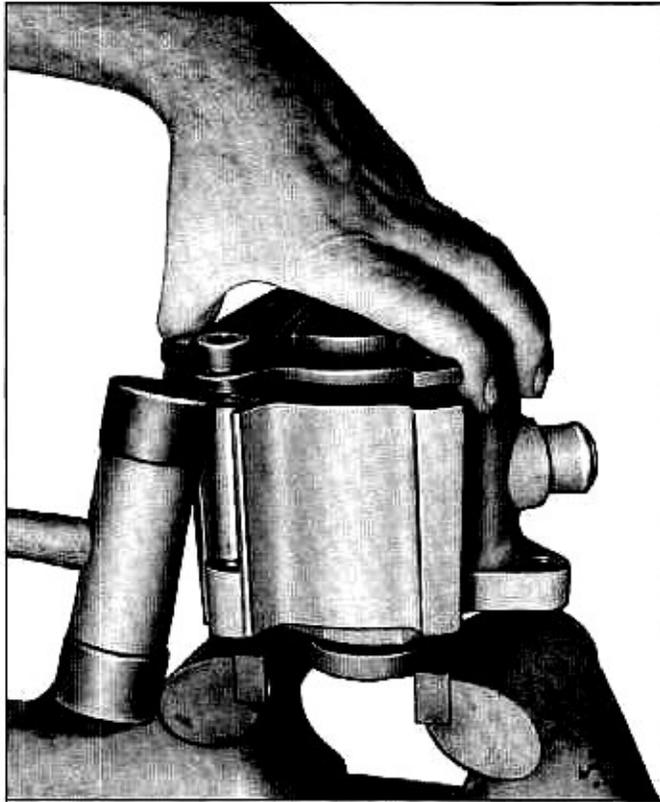


Fig. 10—Removing Cover Assembly

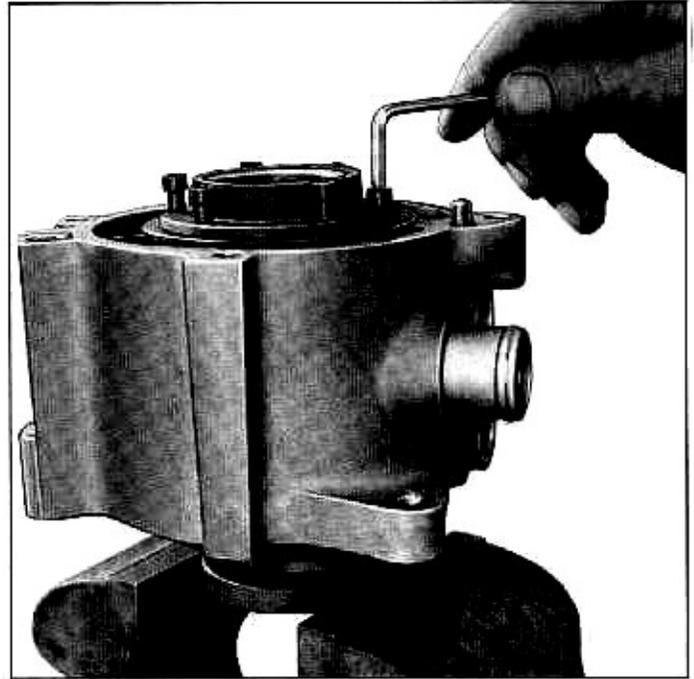


Fig. 11—Removing Rear Rotor Ring

- Inspect the vane pivot pin. This pin has been precision ground. Grooves, scratches, or discoloration indicate vane bearing failure. If bearings have failed, a new vane assembly and cover assembly are required.

5. Clean rear rotor ring and bearing assembly in petroleum solvent then dry with compressed air. Check the rear bearing for failure. Rear bearing failure is also indicated by the absence of grease in the bearing, caked grease, discoloration of bearing cage, or rollers falling out of cage. Extensive failure of this bearing may necessitate replacing rotor and housing assembly.
6. Clean vane assemblies in petroleum solvent then dry with compressed air. Check the vanes and vane bearings for wear or damage. Vane bearing failure is also indicated by an absence of grease or caked grease. Inspect the pivot pin again to confirm this bearing failure. All corners of the vanes should be square. Broken edges require the vanes be replaced.
7. Check the carbon shoes for excessive wear or chipping. Inspect the surface contacting the vane. The shoes will have small grooves from action of the thread structure of the vanes. This washboard condition is normal, but chipped or broken shoes must be replaced.

Rear Bearing Replacement

1. Using J-21058 and J-21844 pull the rear bearing out of rotor ring (fig. 14).
2. Using J-21058 and J-21844 pull the rear bearing into rotor ring until bearing is $1/32$ " beneath the rotor ring surface (fig. 14). Pull on lettered end of bearing.

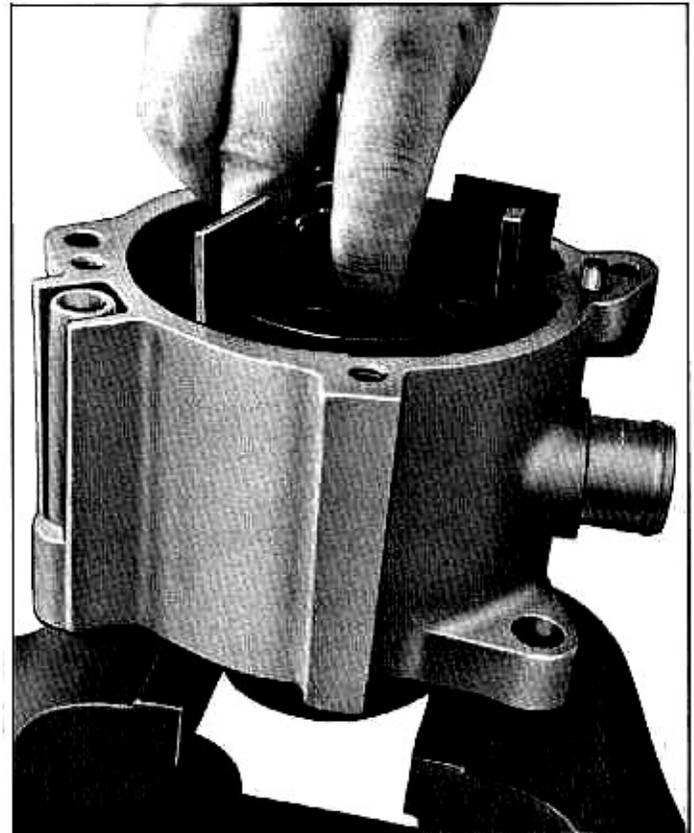


Fig. 12—Removing Vane Assemblies

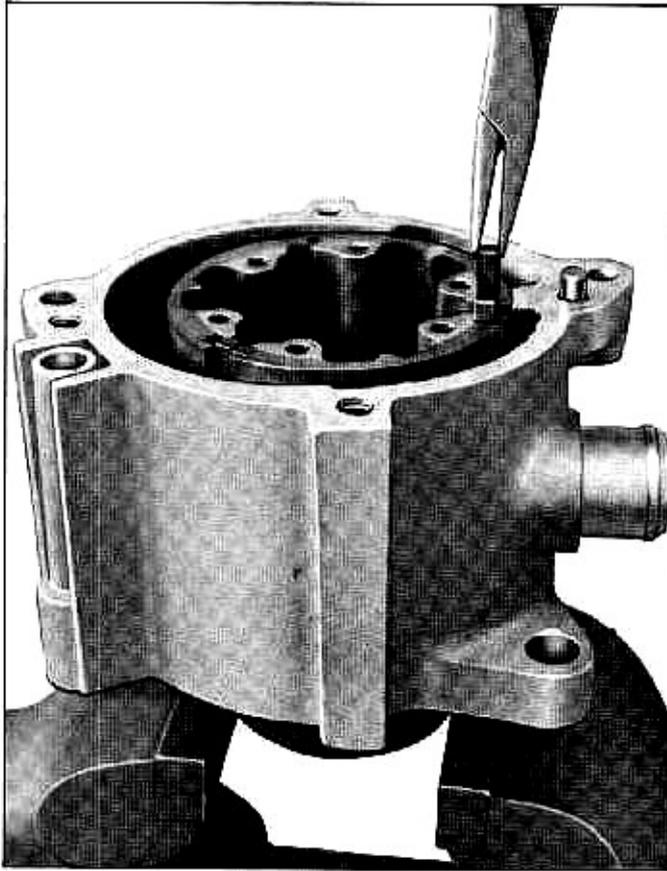


Fig. 13—Removing Vane Shoes

Assembly

1. Thoroughly lubricate vane bearings and rear bearing with air injection pump grease or its equivalent. Work grease well into bearings then carefully wipe away any excess grease.
2. Position vanes on a 3/8" x 4" rod as shown (fig. 15).

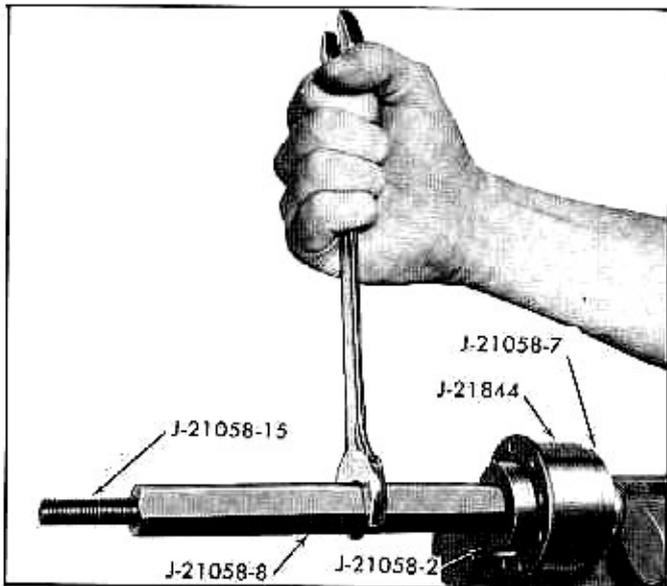


Fig. 14—Removing and Installing Rear Bearing

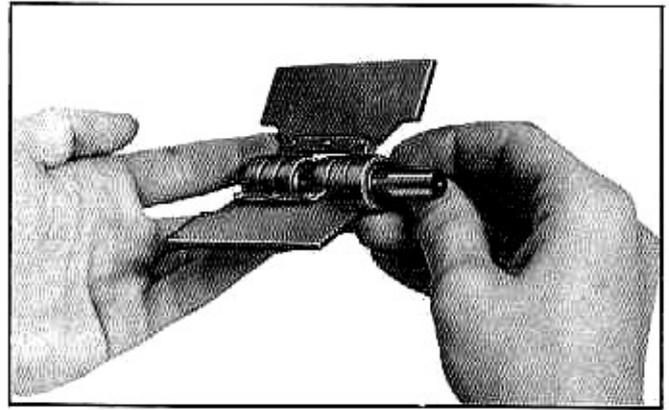


Fig. 15—Assemble Van Assemblies on Rod

3. Position rotor with one vane slot at stripper (fig. 19), then support the housing in a vise by the drive hub and install the vanes (with rod) (fig. 18).
4. Install one carbon shoe on each side of every vane (fig. 17). Shoes must be installed with bearing surface against vane and with radiused point of contact toward O.D. of rotor (fig. 19).
5. Install the shoe springs into the deepest of the two shoe slots. Ark of spring installed toward shoe (fig. 18). Push shoe spring flush with or below rotor surface.

NOTE: Figure 19 shows the air pump at this stage of assembly.

6. Position a new carbon seal and the rear rotor ring on the end of the rotor. Carbon seal and rear rotor

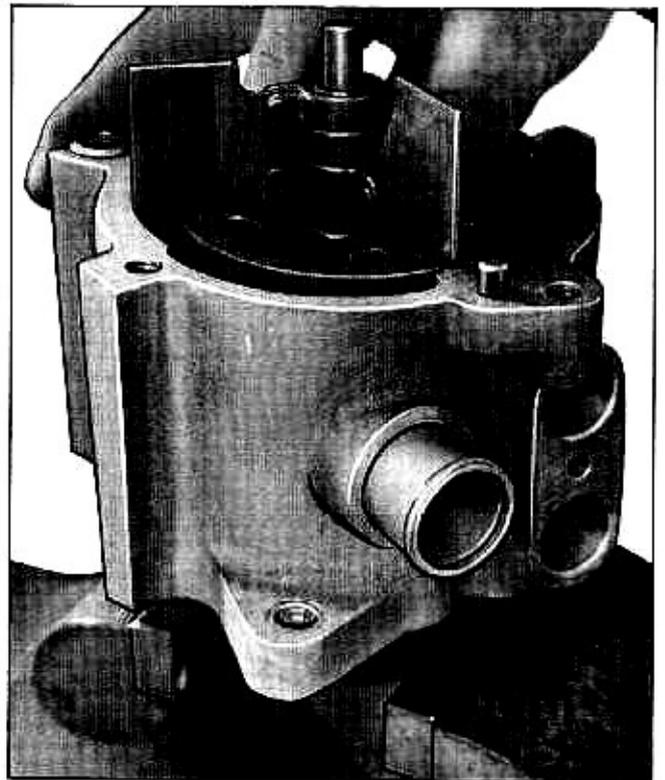


Fig. 16—Installing Vane Assemblies

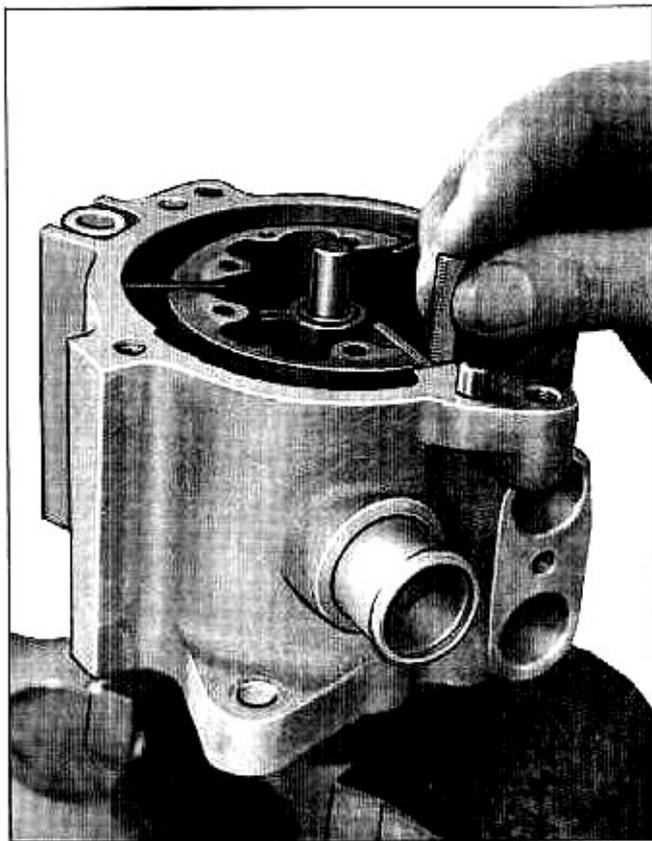


Fig. 17—Installing Vane Shoes

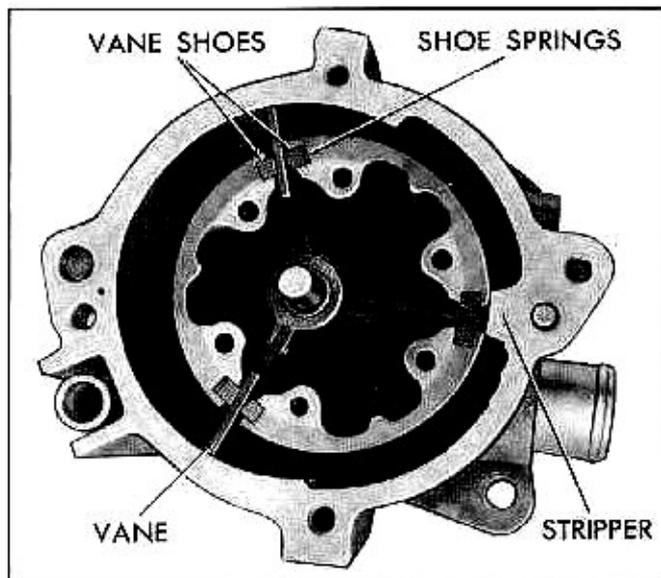


Fig. 19—Vanes, Vane Shoes and Shoe Springs Installed

ring bolt hole pattern permit installation at only one position.

7. Apply Loctite or its equivalent to the rear rotor ring attaching screw thread then install screws and evenly torque to 37 in. lbs.
8. Remove the 3/8" rod from the vanes then start the cover into position. Jockey the cover to locate the pin in the vane bearings (fig. 20).
9. Install cover attaching bolts and torque to 10 ft. lbs. while holding the housing from rotating with one hand.

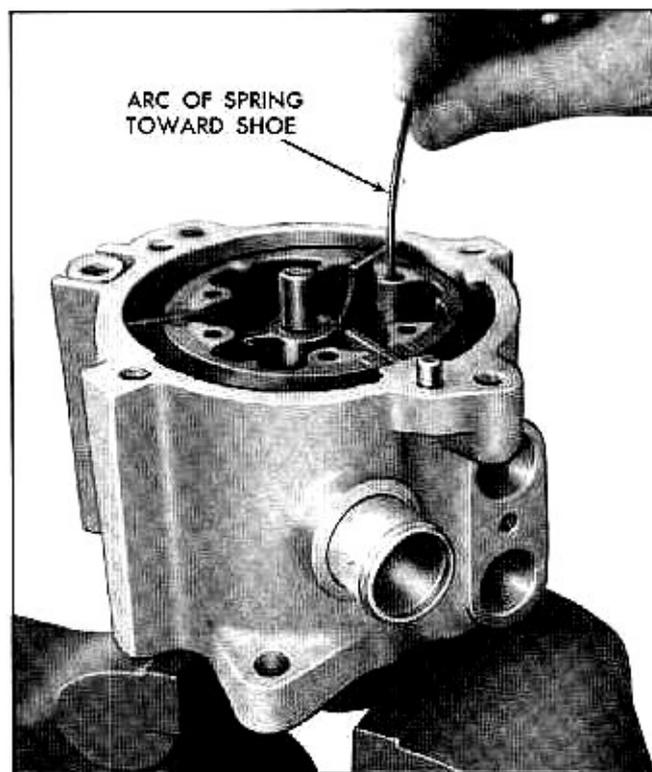


Fig. 18—Installing Shoe Springs



Fig. 20—Installing Cover Assembly

NOTE: Installation of a new vane set for the Air Injection Pump may result in the vanes chirping or squeaking during initial operation. The new vanes require wear-in running time to eliminate vane chirping. After pump installa-

tion, the vehicle should be driven five to ten miles. Should slight squeaking still persist, run vehicle through two or three full throttle shift points. In most cases the five to ten miles will be sufficient for wear-in.

SPECIAL TOOLS

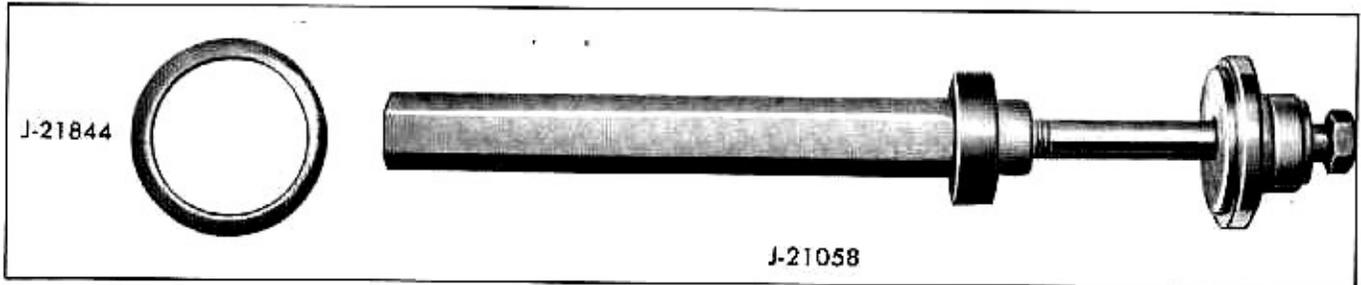


Fig. 21-Special Tools

SECTION 6Y

ENGINE ELECTRICAL

BATTERY

The battery tray and battery are redesigned to incorporate a lower side clamping type of battery retention. Installation of the battery is shown in Figure 1.

The hold-down bolt should be kept tight enough to prevent the battery from shaking around in its holder, but should not be tightened to the point where the battery case will be placed under a severe strain. Recommended hold-down bolt torque is 60 to 80 in. lbs. Other service operations remain essentially the same as 1965 models.

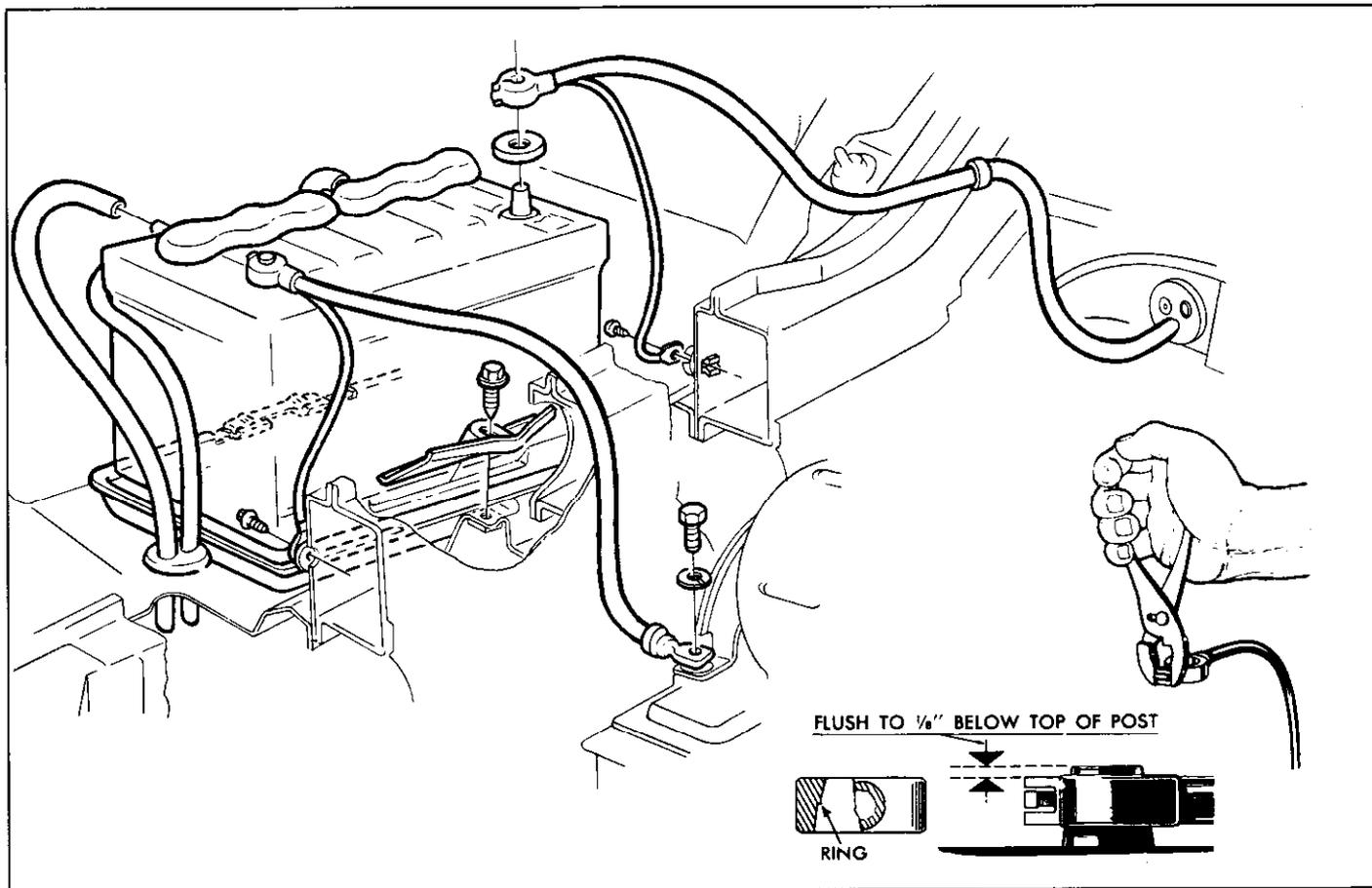


Fig. 1—Battery Installation

VOLTAGE REGULATOR

The voltage regulator used on air conditioned models is revised to incorporate an internal field discharge diode in the field circuit eliminating the special wiring harness used on previous models. A wiring diagram of the internal circuitry is shown in Figure 2. Service procedures are unchanged as described in the 1965 Corvair Shop Manual.

IGNITION SWITCH SPECIAL TOOL

Redesigned of the ignition switch attaching nut required the release of Special Tool J-22305 (fig. 3) to assist in the removal of the nut. Otherwise, service procedures remain essentially the same as outlined in the 1965 Corvair Shop Manual.

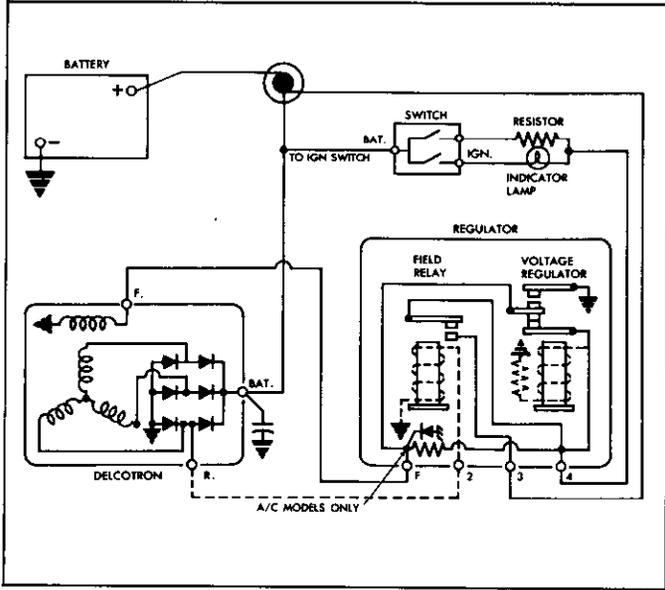


Fig. 2—Voltage Regulator Internal Circuitry



Fig. 3—Special Tool

SECTION 7 CLUTCH AND TRANSMISSIONS CLUTCH

CLUTCH LINKAGE ADJUSTMENT (REVISED)

1. Drive Nut (8) to within 1/8" of end of threads on Clutch Cable Rod assembly.
2. Tension Clutch Cable Rod Assembly to 15 lbs. and thread Swivel (7) to line up with hole in Shaft Assembly (1) inboard Lever with Lever located to dimension shown from the Trans Cross Member. Assemble swivel (7) to lever with Clip (2).

3. Torque Nut (8) to Swivel (7) using indicated torque of 8-12 ft. lbs.
4. Install Spring (5) to Bracket (6) and to Shaft (1).
5. Manually pull Clutch Pull Rod (4) forward until slack is taken up at Clutch fork. With Clutch Pull Rod (4) in this position align Swivel (3) with hole in outboard to Shaft Assembly Lever. Back off Swivel (3), 2 turns and assemble to lever with Clip (2).

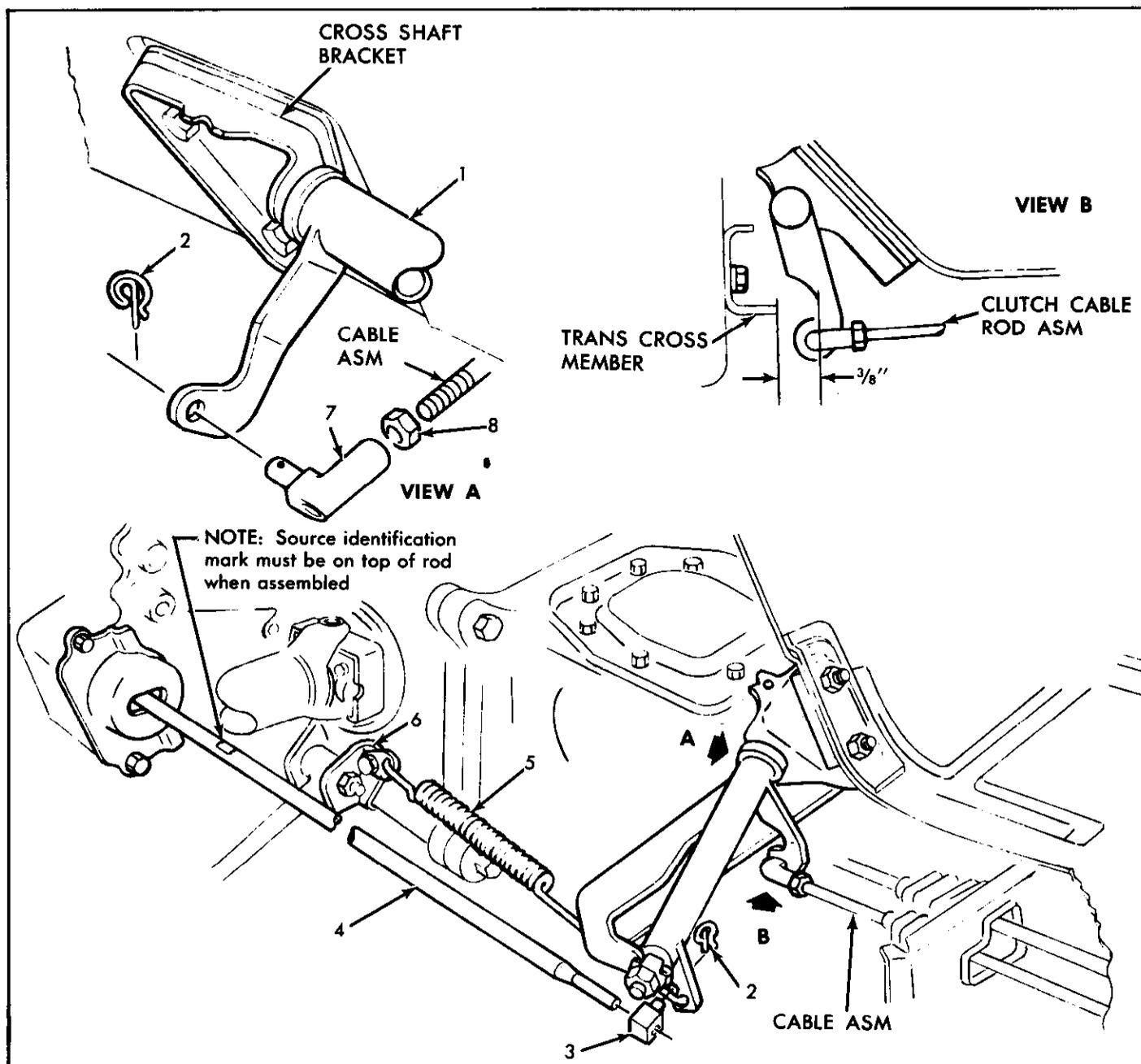


Fig. 1—Clutch Linkage Adjustment

MANUAL TRANSMISSIONS

THREE SPEED TRANSMISSION

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GENERAL DESCRIPTION

In essence, the Corvair manual three speed transmission is a conventional synchromesh type except for the use of concentric input and output shafts and its mounting on the differential carrier.

Because of its attachment to the differential carrier, the mainshaft is hollow to permit passage of the clutch shaft to the clutch gear at the front of the transmission. The clutch gear drives a countergear and the remaining power flow sequence is identical to the conventional three speed transmission.

In the transmission, the shift rod carries a finger which extends upward to engage either the first and reverse fork or the second and third fork, located in the cover, depending on shift lever position. As the two forks are parallel to each other, a slight rotational motion of the shift rod places the actuating finger in the proper fork and permits the desired shift. An interlock between the two fork shafts holds the fork not being actuated in the neutral crossover position.

The cover, installed on the left-hand side of the transmission, is a casting with accommodations for internal shift control components other than the selector shaft and the selector. The cover has a threaded through hole in the area of the first and reverse shift fork and shaft. The backup lamp switch is installed in this hole and actuated by a ball when the shaft is in the reverse detent. The same cover, first and reverse shifter head and fork assembly (used as first and second), head to shaft attaching pins, second and third shifter shaft (used as third and fourth), detent balls and detent springs are also used in the Corvair four-speed transmission.

All drive gears have helical teeth and all forward gears are synchronized. A spring loaded dampener plate on the countergear loads the clutch gear to eliminate torsional rattle.

TRANSMISSION ASSEMBLY

DISASSEMBLY OF CASE COMPONENTS

1. Remove side cover, gasket and shift forks.

2. Remove clutch gear bearing cover and gasket.
3. Remove clutch gear to bearing snap ring.
4. Since the clutch gear bearing is a slip fit to both the clutch gear and case bore, it may now be easily removed from the case by tapping from inside the case with a brass drift used through the side cover opening.
5. Remove reverse idler gear retainer "E" ring and the rear bearing retainer strap and bolt. (Fig. 2A)
6. Remove rear bearing retainer, mainshaft, pilot bearings, and clutch gear as an assembly out through rear of case.

NOTE: Move synchronizer sleeves forward as necessary to allow clearance between mainshaft and countergear assemblies.

7. Using a long drift through the clutch gear bearing case bore, drive out the reverse idler shaft and its woodruff key. Remove the reverse idler gear and tanged thrust washer.
8. Using Tool J-22246, and a plastic hammer, drive the countershaft and its woodruff key out the rear of case. (Fig. 3A) Remove countergear, roller bearings and tanged thrust washers through rear case bore.
9. If desired remove two screws and lock washers attaching shift finger to selector shaft and remove shaft out front of case. (Fig. 4A)
10. The shaft seal may now be pryed from the case and replaced if necessary.

MAINSHAFT

Disassembly

1. Using snap ring pliers, remove the 2nd and 3rd speed sliding clutch hub snap ring from mainshaft and remove clutch assembly, 2nd speed blocker ring and 2nd speed gear from front of mainshaft.
2. Remove rear bearing to mainshaft snap ring.
3. Support reverse gear with press plates (J-9771 or equivalent) and press on rear of mainshaft (fig. 5A) to remove reverse gear, thrust washer, spring washer, rear bearing and bearing retainer assembly.

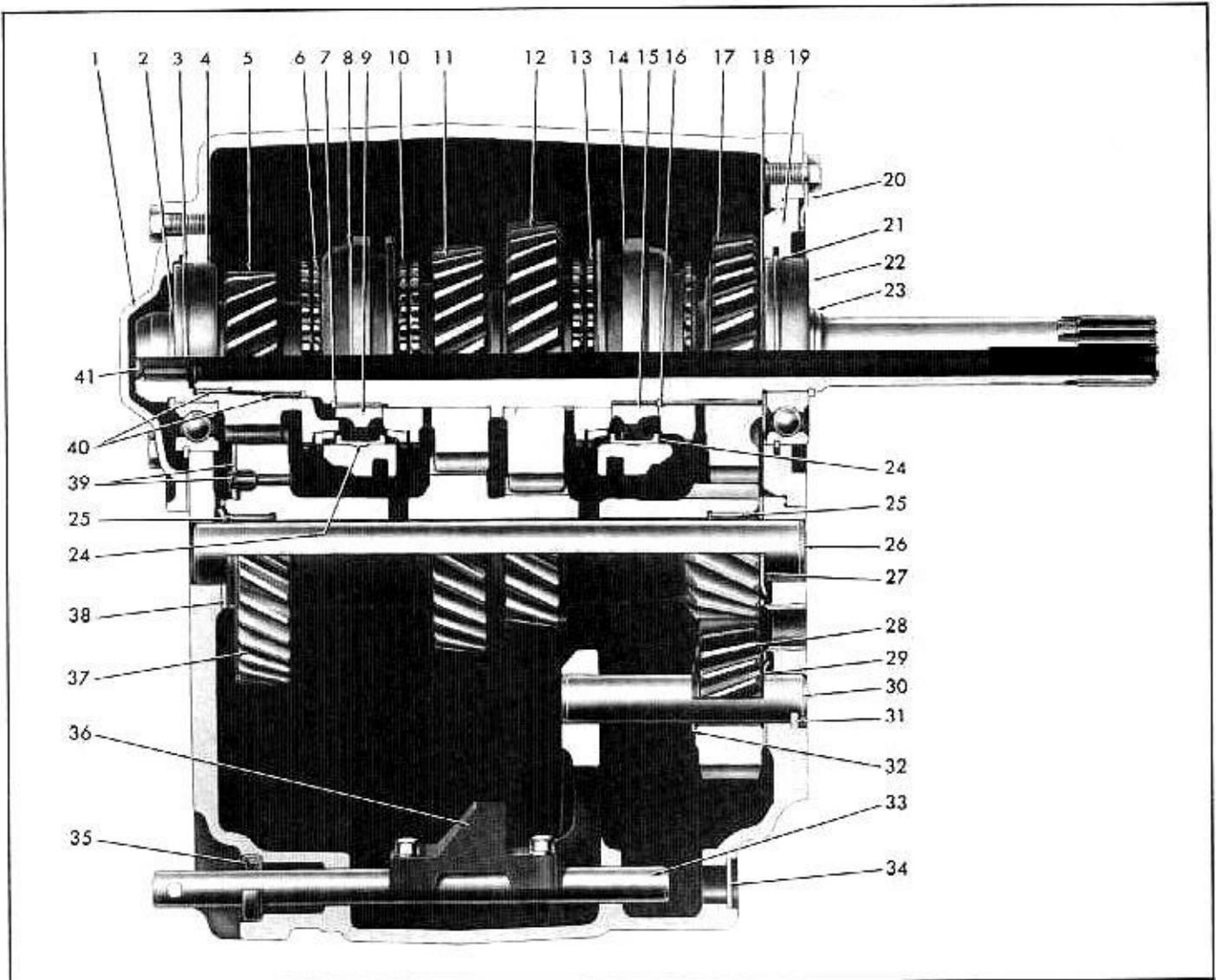


Fig. 1A—Three Speed Transmission (Cross Section)

- | | | | |
|------------------------------|--|--|--|
| 1. Bearing Retainer | 12. First Speed Gear | 21. Snap Ring—Rear Bearing to Retainer | 31. Woodruff Key |
| 2. Snap Ring—Bearing to Gear | 13. 1st Speed Blocker Ring | 22. Rear Bearing | 32. "E" Ring Retainer |
| 3. Snap Ring—Bearing to Case | 14. 1st Speed Synch. Sleeve | 23. Snap Ring—Bearing to Mainshaft | 33. Selector Shaft |
| 4. Clutch Gear Bearing | 15. 1st Speed Synch. Hub | 24. Synchronizer Key | 34. Welsh Plug |
| 5. Clutch Gear | 16. Snap Ring—1st Speed Synch. | 25. Countershaft Roller Bearings | 35. Oil Seal |
| 6. 3rd Speed Blocker Ring | 17. Reverse Gear | 26. Countershaft | 36. Shift Finger |
| 7. Snap Ring—2-3 Synch. | 18. Reverse Gear Thrust & Spring Washers | 27. Rear Thrust Washer | 37. Countergear |
| 8. 2-3 Synch. Sleeve | 19. Rear Bearing Retainer | 28. Reverse Idler Gear | 38. Front Thrust Washer |
| 9. 2-3 Synch. Hub | 20. Retainer Strap | 29. Thrust Washer | 39. Anti-Rattle Plate & Rivet Assembly |
| 10. 2nd Speed Blocker Ring | | 30. Reverse Idler Shaft | 40. Mainshaft Pilot Bearings |
| 11. Second Speed Gear | | | 41. Snap Ring |

- Using snap ring pliers spread the rear bearing to retainer snap ring and press bearing from retainer.
- Remove the 1st and Reverse sliding clutch hub to mainshaft snap ring and remove the clutch assembly, 1st speed blocker ring and 1st speed gear from rear of mainshaft. This completes disassembly of the mainshaft.

CLEANING AND INSPECTION

Transmission Case

- Wash the transmission thoroughly inside and outside with cleaning solvent, then inspect the case for cracks.
- Check the rear face for burrs, and if present, dress them off with a fine mill file.

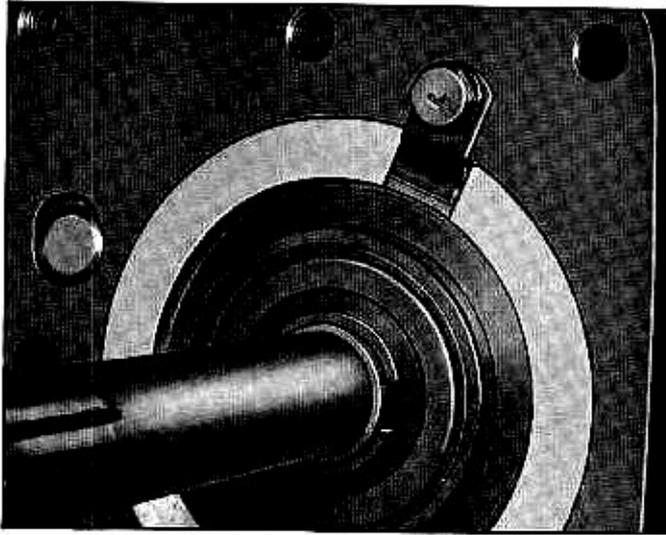


Fig. 2A—Rear Bearing, Retainer and Strap

3. Check bearing bores in case and, if damaged, replace case,

Front and Rear Bearings

1. Wash the front and rear ball bearings thoroughly in a cleaning solvent.
2. Blow out bearings with compressed air.

CAUTION: Do not allow the bearings to spin, turn them slowly by hand. Spinning bearings will damage the race and balls.

3. Make sure bearings are clean, then lubricate with light engine oil and check them for roughness by slowly turning the race by hand.

Bearing Rollers

All clutch gear and countergear bearing rollers should be inspected closely and replaced if they show wear. Inspect counter shaft and reverse idler shaft at the same time, replace if necessary. Replace all worn washers.

Gears

1. Inspect all gears for excessive wear, chips or cracks and replace any that are worn or damaged.

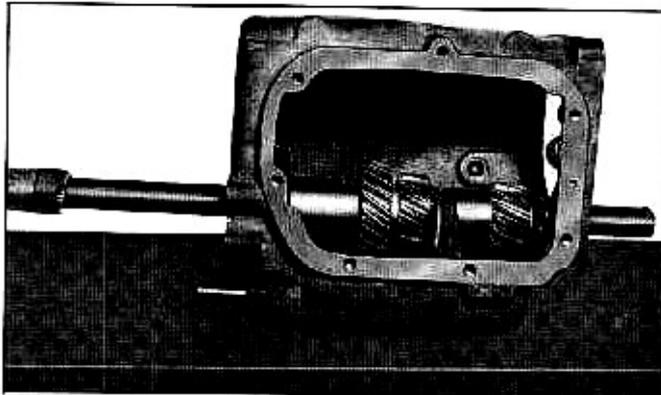


Fig. 3A—Removing Countershaft Using Tool J-22246

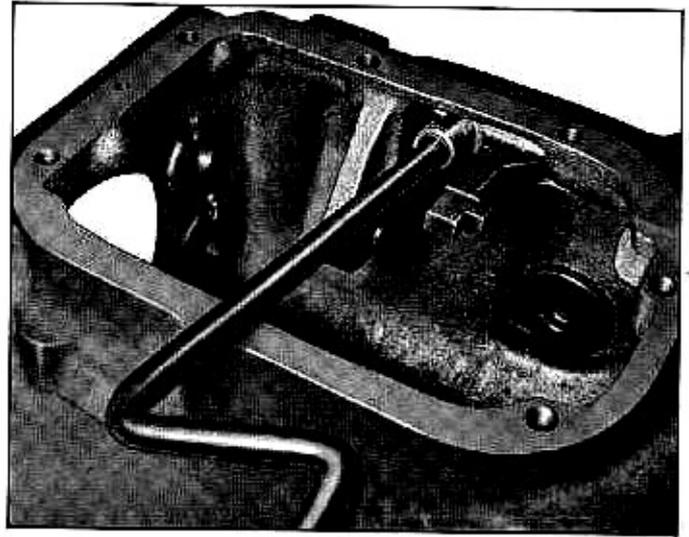


Fig. 4A—Removing Shift Finger from Selector Shaft

2. Inspect reverse gear bushing and if worn or damaged replace the entire gear.

NOTE: Reverse gear bushing is not serviced separately.

3. Check both clutch sleeves to see that they slide freely on their hubs.

Reverse Idler Gear Bushing

The bushing used in the idler gear is pressed into the gear and finish bored in place. This insures the positive alignment of the bushing and shaft as well as proper meshing of the gears. Because of the high degree of accuracy to which these parts are machined, the bushing is not serviced separately.

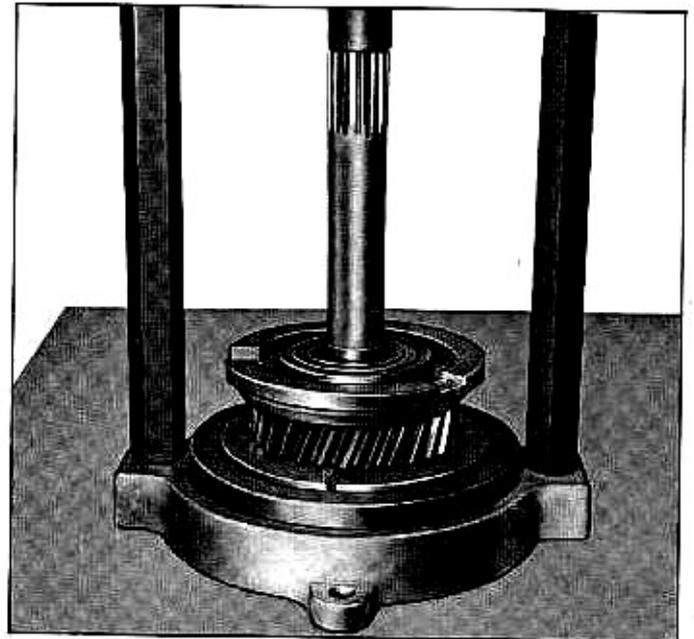


Fig. 5A—Pressing Off Rear Bearing

Countergear Anti-Rattle Plate

Inspect the plate teeth for wear or other damage. The plate and two damper springs are retained to the countergear by three rivets. (Fig. 7A) Disassembly is not recommended.

REPAIRS

Clutch Keys and Springs

NOTE: The clutch hubs and sliding sleeves are a selected assembly and should be kept together as originally assembled, but the keys and two springs may be replaced if worn or broken.

Replacement

1. Mark hub and sleeve so they can be matched upon reassembly.
2. Push the hub from the sliding sleeve, the keys and the springs may be easily removed.
3. Place the three keys and two springs in position (one on each side of hub), so all three keys are engaged by both springs. The tanged end of each synchronizer spring should be installed into different key cavities

on either side. Slide the sleeve onto the hub aligning the marks made before disassembly.

NOTE: A groove around the outside of the synchronizer hub identifies the end that must be opposite the fork slot in the sleeve when assembled. This groove indicates the end of the hub with a .07" greater recess depth.

MAINSHAFT

Assembly (Fig. 6A)

Turn the front of the mainshaft upward. Install the following components on the mainshaft:

1. Install the second speed gear with clutching teeth upward; the rear face of the gear will butt against the flange on the mainshaft.
2. Install a blocking ring with clutching teeth downward over the synchronizing surface of the second speed gear. All three blocker rings used in this transmission are identical.
3. Install the second and third synchronizer assembly with the fork slot downward; press it onto splines on

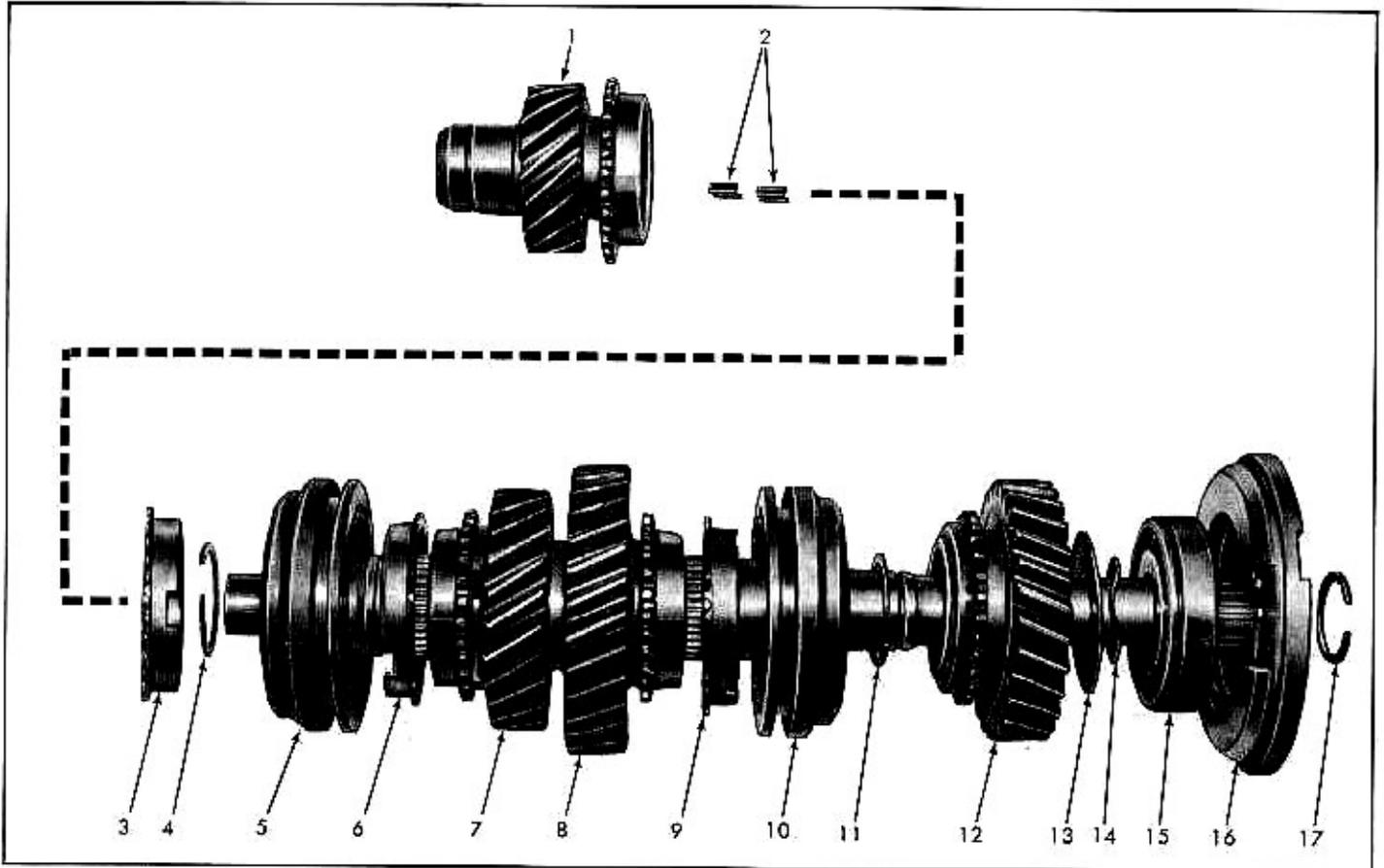


Fig. 6A—Clutch Gear & Mainshaft Assembly—Exploded

- | | | | |
|----------------------------------|------------------------------|-------------------------------------|---------------------------------------|
| 1. Clutch Gear | 5. 2-3 Synchronizer Assembly | 10. 1st Speed Synchronizer Assembly | 14. Spring Washer |
| 2. Mainshaft Pilot Bearings (76) | 6. 2nd Speed Blocker Ring | 11. Snap Ring | 15. Rear Bearing |
| 3. 3rd Speed Blocker Ring | 7. 2nd Speed Gear | 12. Reverse Gear | 16. Rear Bearing Retainer & Snap Ring |
| 4. Snap Ring | 8. 1st Speed Gear | 13. Reverse Gear Thrust Washer | 17. Snap Ring |
| | 9. 1st Speed Blocker Ring | | |

the mainshaft until it bottoms out. Both synchronizer assemblies used in this transmission are identical.

CAUTION: Be sure the notches of the blocker ring align with the keys of the synchronizer assembly.

4. Install synchronizer hub to mainshaft snap ring. Both synchronizer snap rings are identical.

Turn the rear of the mainshaft upward. Install the following components on the mainshaft:

5. Install the first speed gear with clutching teeth upward; the front face of the gear will butt against the flange on the mainshaft.
6. Install a blocker ring with clutching teeth downward over synchronizing surface of the first speed gear.
7. Install the first and reverse synchronizer assembly with fork slot downward; press it onto splines on the mainshaft.

CAUTION: Be sure the notches of the blocker ring align with the keys of the synchronizer assembly.

8. Install synchronizer hub to mainshaft snap ring.
9. Install reverse gear with clutching teeth downward.
10. Install reverse gear thrust washer (steel).
11. Install reverse gear spring washer.
12. Using snap ring pliers, expand the rear bearing retainer snap ring and assembly rear bearing into its retainer so the bearing snap ring groove is toward the chamfered edge of the retainer. Be sure to seat the retainer snap ring into the bearing groove.

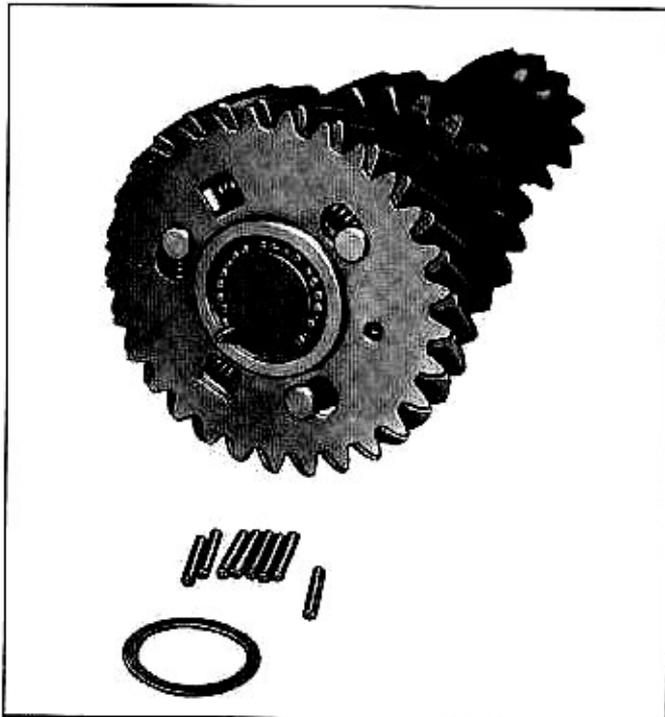


Fig. 7A—Loading Countergear Bearings Using Tool J-22246

13. Press the rear bearing and retainer assembly onto rear of the mainshaft so the chamfered retainer edge is toward the gears.
14. Install rear bearing to mainshaft snap ring. This completes the assembly of the mainshaft.

TRANSMISSION

ASSEMBLY OF CASE COMPONENTS

1. Using Tool J-22246 load a row of roller bearings (27) and a bearing thrust washer at each end of the countergear. Use heavy grease to hold them in place (fig. 7A).
2. Place countergear assembly through case rear opening along with a tanged thrust washer (tang away from gear) at each end and install countergear shaft and woodruff key from rear of case.

CAUTION: Be sure countershaft picks up both thrust washers and that the tangs are aligned with their notches in the case.

3. Install reverse idler gear thrust washer, gear and shaft with its woodruff key from the rear of case. Be sure the thrust washer is between the gear and rear of case with its tang toward notch in case. Do not install idler shaft "E" ring yet.
4. Load the two rows of mainshaft pilot bearings (74) into the clutch gear cavity and assemble the 3rd speed blocker ring onto the clutch gear clutching surface with its teeth toward the gear.
5. Pilot the clutch gear, pilot bearings and 3rd speed blocker ring assembly over the front of the mainshaft assembly. Do not assemble bearing to gear yet.

CAUTION: Be sure the notches in the blocker ring align with the keys in the 2 - 3 synchronizer assembly.

6. From the rear of the case, assemble the clutch gear and mainshaft into the case as an assembly and install the rear bearing retainer strap and bolt to case (fig. 2A).
 7. Install front bearing outer snap ring to bearing and position bearing over hub of clutch gear and into front case bore.
 8. Install snap ring to clutch gear hub, and clutch gear bearing retainer and gasket to case.
- NOTE:** The retainer oil return hole should be at the bottom.
9. Install reverse idler gear retainer "E" ring to shaft. Be sure thrust washer tang engages notch in case.
 10. Install selector shaft and shift finger so the 90° finger projection is facing clutch gear end of transmission.
 11. Shift synchronizer sleeves to neutral positions and install cover, gasket and fork assembly to case. Be sure forks align with their synchronizer sleeve grooves and selector finger with shifter heads.
 12. Tighten all bolts to specified torque.

MAINTENANCE AND ADJUSTMENTS

SIDE COVER ASSEMBLY

Removal

1. Shift transmission into neutral detent position before removing cover.
2. Carefully remove cover assembly and gasket from case. Allow oil to drain.

Disassembly

1. Drive the two shift head to shaft roll pins out of the shift head assemblies.
2. Remove both shafts and shift heads by sliding the shafts through the cover bosses.
3. Remove the 2 poppet springs and 4 detent balls from the cover bosses.

Assembly

1. Turn inside of cover up so that single attaching hole on flange is at the top.
2. Drop a poppet spring and ball in each of the two holes in the right-hand boss of the cover. All springs are identical; detent and interlock balls are identical.
3. Insert the longer (second and third) shaft three detents first, in the middle hole of the left-hand boss of the cover so that the protruding portion allows assembly of the second and third shifter head onto the shaft. The second and third shifter head and fork assembly can be identified by the shaft hole between the notch and the selector slot.
4. Assemble the second and third shifter head over the shaft with the fork hole to the right-hand side and the selector slot downward.
5. Complete insertion of shaft through the right-hand boss while lining up the shaft detents with the detent ball. Stop at the second (neutral) detent.
6. Line up holes in head and shaft; insert roll pin. Both head attaching pins are the same (fig. 8A).
7. Drop two interlock balls down hole in upper surface of left-hand boss.
8. Insert remaining (first and reverse) shaft, three detents first, in the upper hole of the left-hand boss

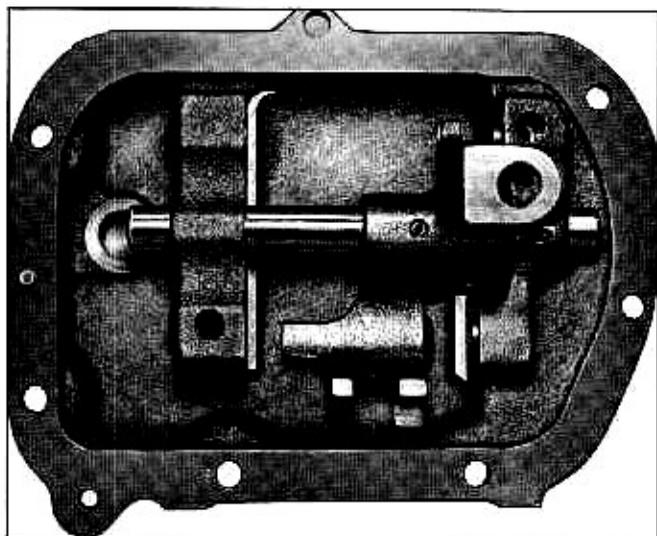


Fig. 8A—2-3 Shifter Head & Shaft Installed to Cover

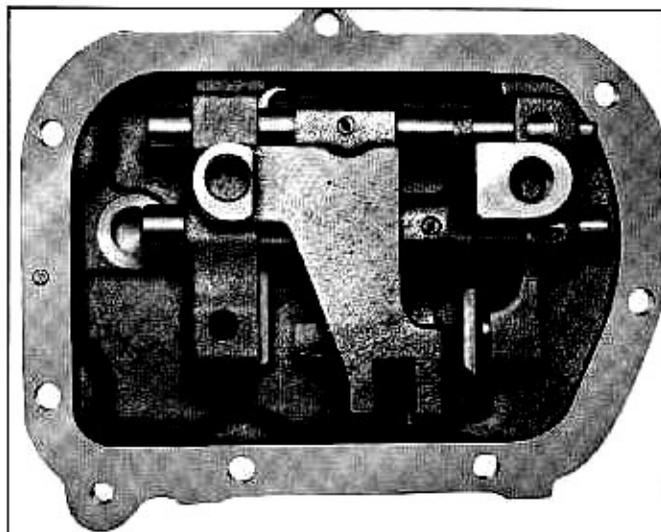


Fig. 9A—1st & Reverse Shifter Head & Shaft Installed to Cover

9. Assemble the first and reverse shifter head over the shaft with the fork hole to the left-hand side, the selector slot downward and the head notch over the second and third shaft; then slip first and reverse shaft through notch in second and third shifter head.
10. Complete insertion of shaft through the right-hand boss while lining up the shaft detents with the detent ball. Stop at the second (neutral) detent.
11. Line up holes in head and shaft; insert pin (fig. 9A).

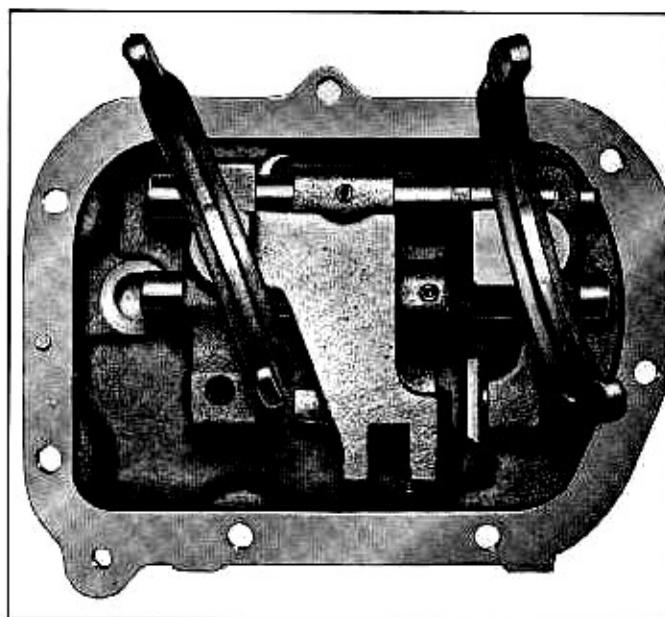


Fig. 10A—Side Cover, Shifter Shafts, Heads and Forks

Installation

1. Shift the cover shift head and fork assemblies in neutral detent (center) positions (fig. 10A).
2. Shift transmission synchronizer sleeves to neutral positions and carefully install cover, gasket and fork assembly to case. Be sure forks align with their synchronizer sleeve grooves and selector finger with shifter heads.
3. Tighten cover bolts to specified torque.
4. Remove filler plug and fill transmission to level of filler plug hole with lubricant specified in Section 0.

GEARSHIFT CONTROL ASSEMBLY

Whenever excessive looseness of the floor shift tower is experienced, or at any time a shift mechanism is disassembled for service, the following information may be used to select the proper shim pack for the shift tower and floor pan.

Shim Stack Selection

Remove the shift housing trim cover on Corsa models by removing the two cross-recess head screws and the shift lever knob. Provide access to the shift tower by

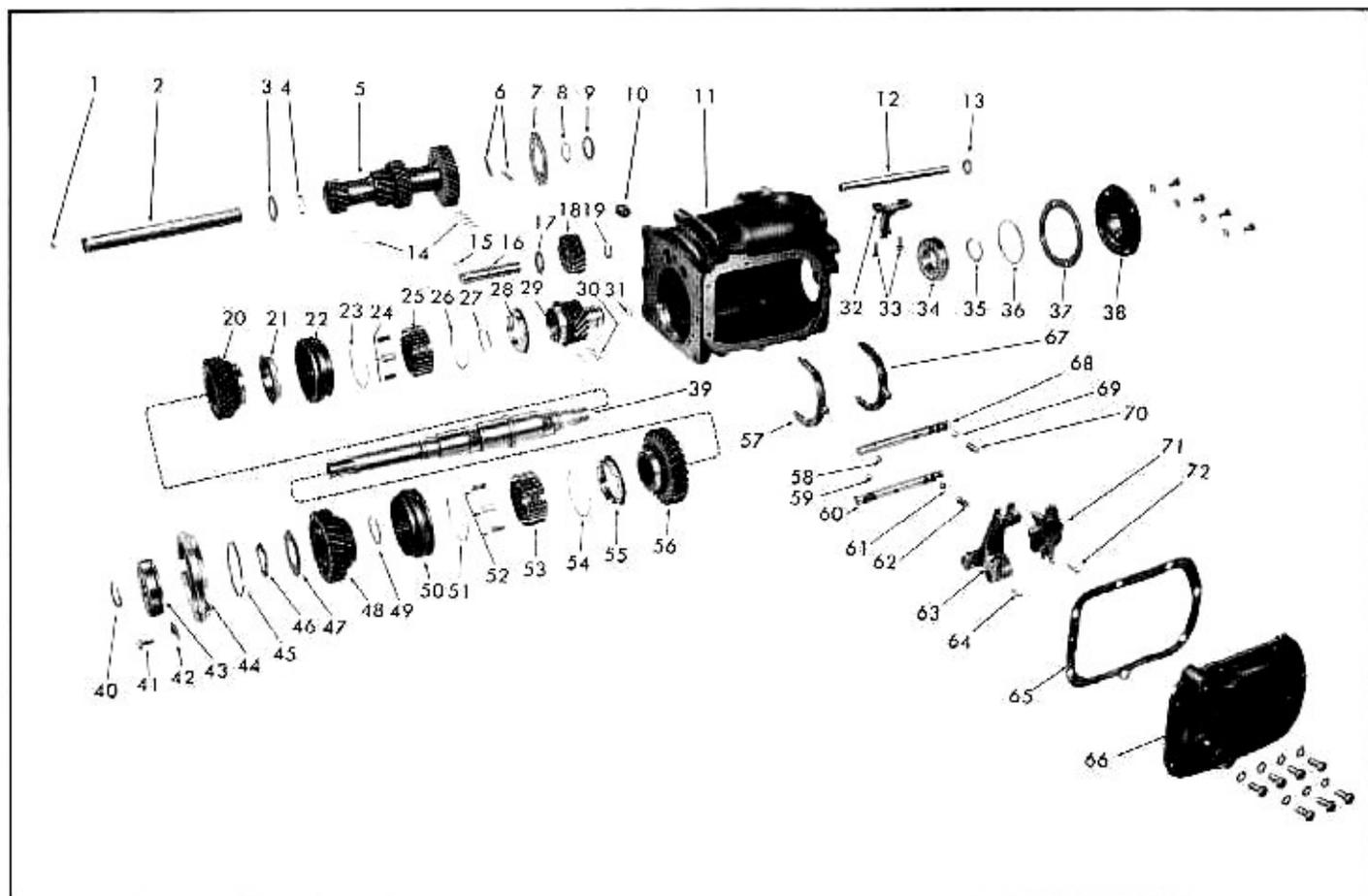


Fig. 11A—3-Speed—Exploded

- | | | | |
|-----------------------------|-------------------------------|-----------------------------------|--------------------------------|
| 1. Woodruff Key | 19. Retainer "E" Ring | 37. Gasket | 55. 1st Speed Blocker Ring |
| 2. Countershaft | 20. 2nd Speed Gear | 38. Clutch Gear Retainer | 56. 1st Speed Gear |
| 3. Thrust Washer | 21. 2nd Speed Blocker Ring | 39. Mainshaft | 57. 1st & Reverse Shift Fork |
| 4. Needle Washer | 22. 2-3 Synchronizer Sleeve | 40. Snap Ring—Bearing to Shaft | 58. Interlock Ball |
| 5. Countergear | 23. Synchronizer Key Retainer | 41. Retainer Bolt | 59. Interlock Ball |
| 6. Spring—N.S.S. | 24. Synchronizer Keys | 42. Retainer Strap | 60. 1st & Reverse Shift Rail |
| 7. Anti-Rattle Plate—N.S.S. | 25. Synchronizer Hub | 43. Mainshaft Rear Bearing | 61. Detent Ball |
| 8. Needle Washer | 26. Synchronizer Key Retainer | 44. Bearing Retainer | 62. Detent Spring |
| 9. Thrust Washer | 27. Snap Ring | 45. Snap Ring—Bearing to Retainer | 63. 1st & Reverse Shifter Head |
| 10. Filler Plug | 28. 3rd Speed Blocker Ring | 46. Spring Washer | 64. Roll Pin |
| 11. Case | 29. Clutch Gear | 47. Thrust Washer | 65. Gasket |
| 12. Shift Selector Shaft | 30. Pilot Bearings | 48. Reverse Gear | 66. Side Cover |
| 13. Seal | 31. Snap Ring | 49. Snap Ring | 67. 2nd & 3rd Shift Fork |
| 14. Needle Bearings | 32. Shifter Finger | 50. 1st & Reverse Synch. Sleeve | 68. 2nd & 3rd Shift Rail |
| 15. Woodruff Key | 33. Screws & L. Washers | 51. Synchronizer Key Retainer | 69. Detent Ball |
| 16. Reverse Idler Shaft | 34. Clutch Gear Bearing | 52. Synchronizer Keys | 70. Detent Spring |
| 17. Thrust Washer (Tanged) | 35. Snap Ring—Bearing to Gear | 53. Synchronizer Hub | 71. 2nd & 3rd Shifter Head |
| 18. Reverse Idler Gear | 36. Snap Ring—Bearing to Case | 54. Synchronizer Key Retainer | 72. Roll Pin |

disengaging the carpet and moving it out of the way.

1. Remove the front underbody tunnel cover.
2. Remove four nuts from the underside of the floor shift unit.
3. Lift the entire shift lever assembly upward to disengage it from the shifter tube pocket and floor pan.

NOTE: A hard plastic seal with shouldered stud holes (upper seal) should be on top of the floor pan, and a flat hard plastic lower seal should be between the shifter tube bracket and the underside of the floor pan. Retain these seals and any stamped steel shim plates for possible reinstallation. Discard any flat washers used for shims.

4. Obtain a micrometer measurement of the floor pan thickness at all four sides of the opening. Compare the average measurement to the "Dimension A" column in the following chart to determine what lower seal is to be used and what quantity of steel shim plates, if any, are required.

DIM A	LOWER SEAL			SHIM
	3869499	3877877	3872878	3872879
	WHITE	GREEN	BLACK	STEEL
.090 - .104			1	2
.105 - .118			1	1
.119 - .133			1	
.134 - .147		1		
.148 - .161	1			3
.162 - .178	1			2
.179 - .193	1			1
.194 - .209	1			

After selecting the proper lower seal and shim stock, coat all surfaces of the seals and shims with white grease. Assemble shims (if any) over the shoulders of the upper seal and install this pack on the upper surface of the floor pan. Insert the correct lower seal between the shifter tube bracket and under surface of the floor pan. As an aid in reassembly, a short sheet metal screw may be installed through the shifter tube reinforcement and into the underside of the floor pan to hold the lower unit stationary while installing the shift lever assembly. Reinstall the four retaining nuts and torque to 8 ft. lbs. The temporary holding screw must now be removed to permit the entire shift assembly to slide on the floor pan in reaction to powertrain movement. Reinstall all other previously removed components (fig. 12A).

SHIFT ADJUSTMENT

Refer to Figure 13A for the proper adjustment procedure.

MANUAL TRANSMISSION REMOVAL

The following is an improved service procedure for removing either a 3- or 4-speed transmission. This new procedure should be used in place of the 17-step procedure detailed for transmission removal on Page 7-27 of the 1965 Corvair Chassis Shop Manual.

1. Disconnect engine seal at front shield, left and right sides.

NOTE: Disconnect seal from shield by grasping at lower edge and pulling groove of seal off of shield flanges.

2. Disconnect starter motor wires at quick disconnect. Disconnect both battery cables at battery to avoid battery post damage when engine is lowered.
3. If so equipped, disconnect radio ground straps at left and right shields.
4. Raise vehicle and support on jack stands; then remove rear-center shield.
5. Place engine lift with Tool J-7894 attached, under engine and support weight of engine.
6. Loosen two engine rear mount nuts until nuts are flush with end of stud.
7. Disconnect fuel line from body clip so that line can spring away from floor pan.
8. To allow clearance for the transaxle to swing down, loosen the front, upper bolt from each rear strut rod bracket at the differential (a few turns to relieve tension on the lock washer). Remove the other three on each side.
9. Disconnect accelerator rods at transmission bellcrank.
10. Disconnect left and right front strut rod brackets at engine front mount bracket.
11. Disconnect the clutch fork pull rod and spring at the clutch cross shaft. Loosen the nut attaching the cross shaft to the engine front mount. The cross shaft can be rotated and pushed up out of the way.
12. Disconnect shift rod coupling at transmission shift rod.
13. Disconnect emergency brake return spring at front mount bracket.
14. If so equipped, remove back up lamp switch wiring.
15. Lower front of engine enough for transmission to clear underbody on removal. Remove bolts retaining

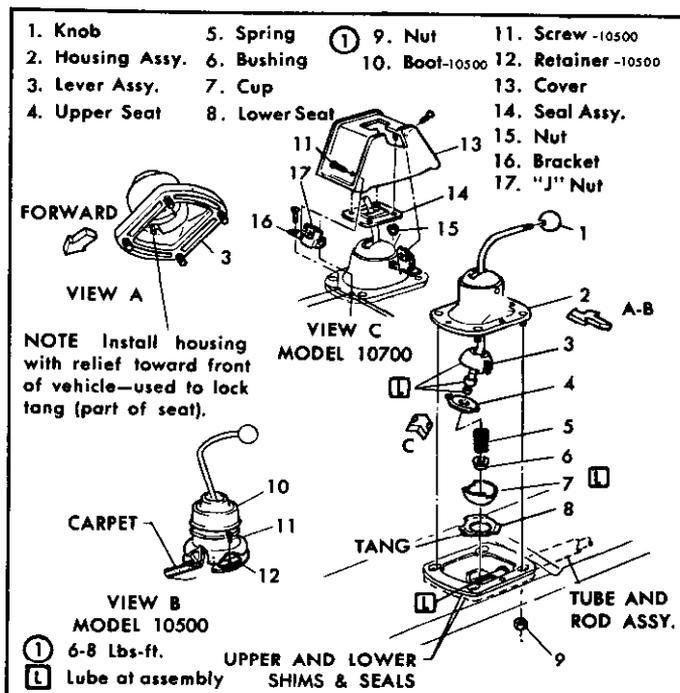


Fig. 12A-3 & 4-Speed Gearshift Control

transmission to differential, allowing transaxle to partially drain; then remove transmission from differential.

NOTE: Transmission input shaft remains engaged in clutch and will protrude out through differential. Transmission is removed with front mount bracket attached.

16. For installation of transmission reverse removal procedures.

NOTE: If a 3- or 4-speed transmission is replaced without backup lights, be sure an expansion plug is installed in replacement transmission lamp switch hole.

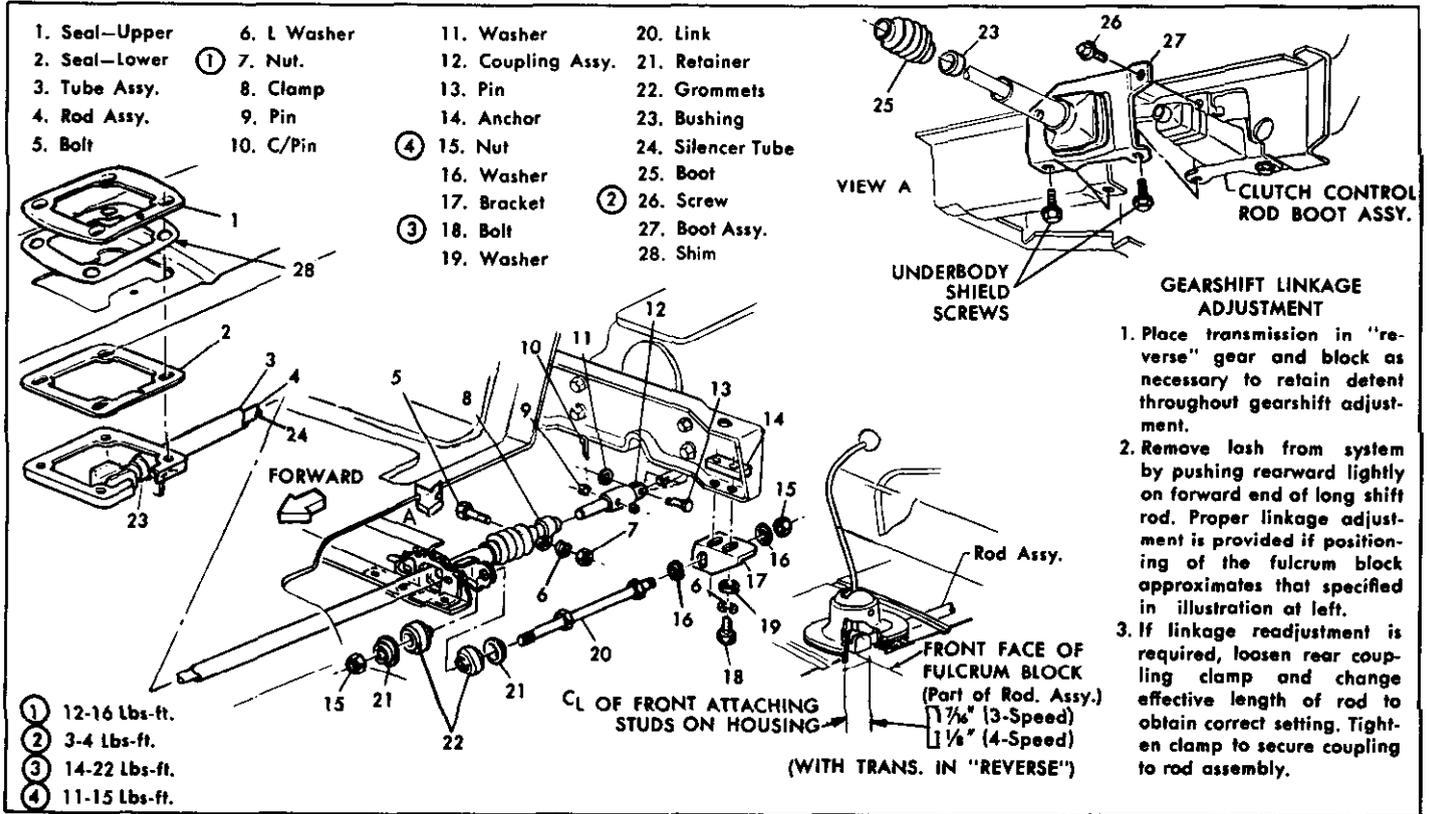


Fig. 13A-3 & 4-Speed Shift Linkage Installation & Adjustment

FOUR SPEED TRANSMISSION

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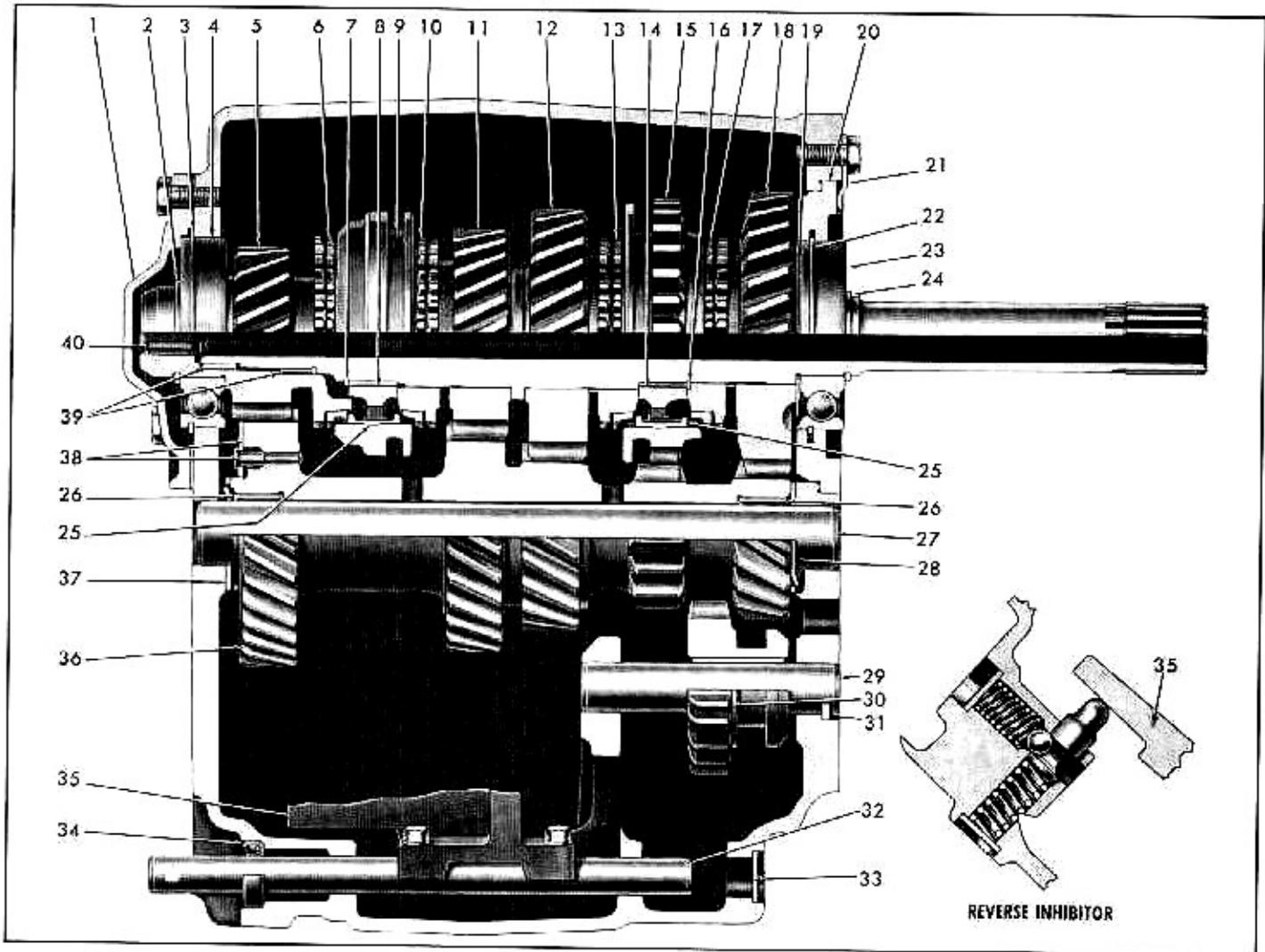


Fig. 1B—Four-Speed Transmission (Cross Section)

- | | | | |
|------------------------------|--|--|--|
| 1. Bearing Retainer | 12. Second Speed Gear | 21. Retainer Strap | 30. Reverse Idler Gear (Sliding) |
| 2. Snap Ring—Bearing to Gear | 13. 2nd Speed Blocker Ring | 22. Snap Ring—Rear Bearing to Retainer | 31. Woodruff Key |
| 3. Snap Ring—Bearing to Case | 14. 1-2 Speed Synch. Hub | 23. Rear Bearing | 32. Selector Shaft |
| 4. Clutch Gear Bearing | 15. 1-2 Speed Synch. Sleeve & Reverse Gear | 24. Snap Ring—Bearing to Mainshaft | 33. Welsh Plug |
| 5. Clutch Gear | 16. Snap Ring—1-2 Speed Synch. | 25. Synchronizer Key | 34. Oil Seal |
| 6. 4th Speed Blocker Ring | 17. First Speed Blocker Ring | 26. Countershaft Roller Bearings | 35. Shift Finger |
| 7. Snap Ring—3-4 Synch. | 18. Reverse Gear | 27. Counter Shaft | 36. Countergear |
| 8. 3-4 Synch. Hub | 19. Reverse Gear Thrust & Spring Washers | 28. Rear Thrust Washer | 37. Front Thrust Washer |
| 9. 3-4 Synch. Sleeve | 20. Rear Bearing Retainer | 29. Reverse Idler Shaft | 38. Anti-Rattle Plate & Rivet Assembly |
| 10. 3rd Speed Blocker Ring | | | 39. Mainshaft Pilot Bearings |
| 11. Third Speed Gear | | | 40. Snap Ring |

GENERAL DESCRIPTION

A great deal of similarity and interchangeability now exists between the new 3- and 4-speed transmissions. Only these 4-speed differences as they affect service will be covered here. Other 4-speed service procedures are similar to the Corvair 3-speed transmission and are not repeated in this section.

MAINSHAFT ASSEMBLY

Assembly procedures described under Corvair Three Speed Transmission also apply to this transmission.

However, the synchronizer assembly at the front of the mainshaft is used for the third and fourth rather than the second and third shift. The synchronizer assembly at the rear of the mainshaft is used for the first and second rather than the first and reverse shift. Gear teeth cut in the first and second synchronizer sleeve distinguish it from the third and fourth synchronizer sleeve. All parts except the gears and the first and second synchronizer sleeve in the new four-speed transmission mainshaft assembly are also used in the Corvair three-speed transmission mainshaft assembly. However, starting from the front, gears on the mainshaft are third, second and first rather than second, first and reverse. A fourth blocker ring is used between the 1-2 synchronizer assembly and first gear on the four-speed transmission.

REVERSE IDLER GEAR PARTS

This is a sliding reverse idler gear and shaft retained by a woodruff key. Elimination of the thrust washer between the gear and case, and removal of the snap ring groove to allow movement of the reverse idler gear, distinguishes this shaft from the three-speed transmission reverse idler shaft. Otherwise service procedure is the same as for the three-speed transmission.

COVER ASSEMBLY

The cover on the new four-speed transmission is located on the left-hand side of the case. All shift controls

except the selector shaft and selector finger are located on the cover. The backup lamp switch is located on the cover position described under Corvair three-speed transmission cover assembly.

The following parts are the same as those used in the Corvair three-speed transmission: cover, head to shaft pins, interlock and detent balls, detent springs, third and fourth shifter shaft (the three-speed second and third shifter shaft) and third and fourth shifter head and fork assembly (the three-speed second and third shifter head and fork assembly).

Disassembly and Assembly Procedures are covered in this section.

CASE

The case has a filler plug opening on the right-hand side. It provides for six bolt attachment to the carrier. Holes are added to the Corvair three-speed transmission case to accommodate the familiar reverse inhibitor parts used in the four-speed transmissions only. If necessary these parts may be removed by punching out the two case welsh plugs. (See view on Fig. 1B cross section.)

MISCELLANEOUS

This transmission includes the Corvair three-speed transmission clutch gear bearing retainer, gasket, selector shaft and selector shaft seal. A new selector finger has been designed to both engage the shifter head selector slots in the cover, as well as the reverse inhibitor, located in the base of the case.

TOOLS

The same dummy countershaft Tool J-22246, used with the three-speed transmissions can also be used with the four-speed transmission.

MAINTENANCE AND ADJUSTMENTS

SIDE COVER ASSEMBLY (Fig. 2B)

Disassembly

1. Drive out the three roll pins retaining the shifter heads to their shafts.
2. With upper and lower shifter shafts in neutral detent positions, remove the center shifter shaft and head by sliding the shaft through the cover bosses.
3. Remove the other two shifter shafts and heads.
4. Remove the 3 poppet strings and 7 detent balls from the cover bosses. Remove the interlock pin from the 3-4 shifter shaft.

Assembly

1. Turn inside of cover up so that single attaching hole on flange is at the top.
2. Drop a poppet spring and ball in each of the two holes in the right-hand boss of the cover. All detent springs are identical; all detent and interlock balls are identical.

3. Insert interlock pin in the hole of the interlock detent in the longest of the shafts with three detents (the third and fourth shaft). Insert the shaft, three detents first, into the middle hole of the left-hand boss of the cover so that the protruding portion allows assembly of the third and fourth shifter head and fork assembly. The third and fourth shifter head and fork assembly has a larger fork than the first and second shifter head and fork assembly. It can be identified by the shaft hole between the notch and the selector slot.
4. Assemble the third and fourth shifter head and fork assembly over the shaft with the fork hole to the right-hand side and the selector slot downward.
5. Complete insertion of shaft through the right-hand boss while lining up the shaft detents with the detent ball. Stop at the 2nd (neutral speed) detent.
6. Line up holes in head and shaft, insert roll pin. All head attaching pins are the same. (Fig. 3B)

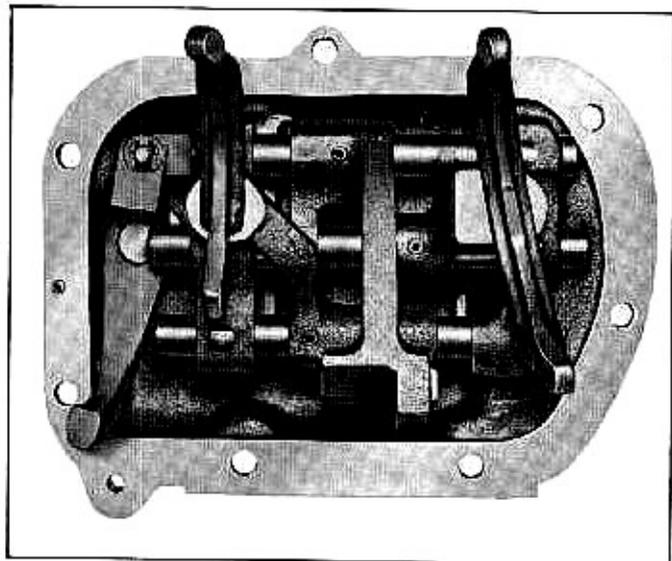


Fig. 2B—4-Speed Side Cover & Fork Assembly

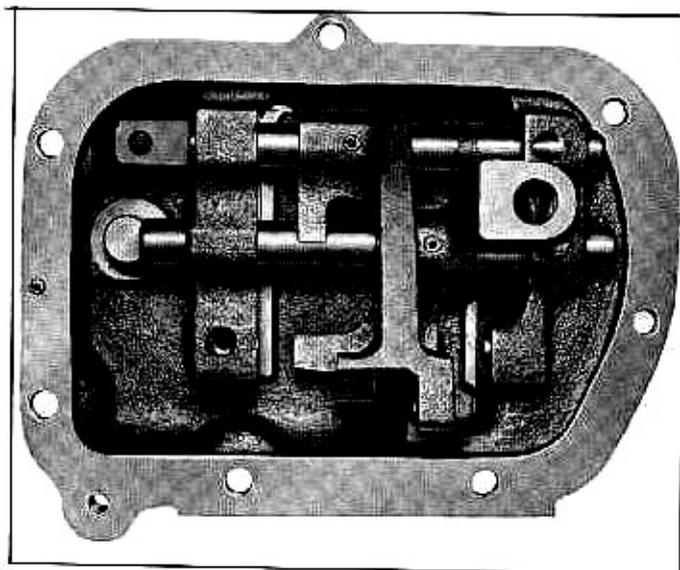


Fig. 4B—Reverse Shifter Shaft & Head Installed to Cover

7. Drop two interlock balls in upper surface of left-hand boss.
8. Insert two detent (reverse) shaft, two detents first, in the upper hole of the left-hand boss so that the protruding portion allows assembly of the reverse shifter head onto the shaft.
9. Assemble the reverse shifter head over the reverse shaft with its notch over the third and fourth shaft; then slip the reverse shaft through the notch in the third and fourth shifter head.
10. Complete insertion of shaft through the right-hand boss while lining up the shaft detents with the detent ball. Stop at the 2nd (neutral) detent.
11. Line up holes in head and shaft; insert pin. (Fig. 4B)
12. Drop two interlock balls in lower surface left-hand boss so that they clear the cross passage detent hole. Drop the remaining detent spring and ball in the left-hand boss.
13. Insert the remaining shaft, three detents first, in the

14. Assemble the first and second shifter head and fork assembly onto the shaft with the fork hole to the left and the selector slot downward. Move the middle or 3-4 shaft to the right or 3rd detent (4th gear position) to aid installation of 1-2 shifter head.
15. Complete insertion of shaft through the left-hand boss while lining up the shaft detents with the detent ball. Stop at the second (neutral) detent.
16. Line up holes in head and shaft; insert pin. (Fig. 5B)
17. If reverse lever pin was removed from blind hole at left of third and fourth shaft, press into cover until pin protrudes .724/.720.
18. Insert reverse lever over pin.
19. Line up reverse lever slot with pin hole in reverse shaft. Install pin and one "E" washer so the washer is under lever; insert "E" washer to retain pin

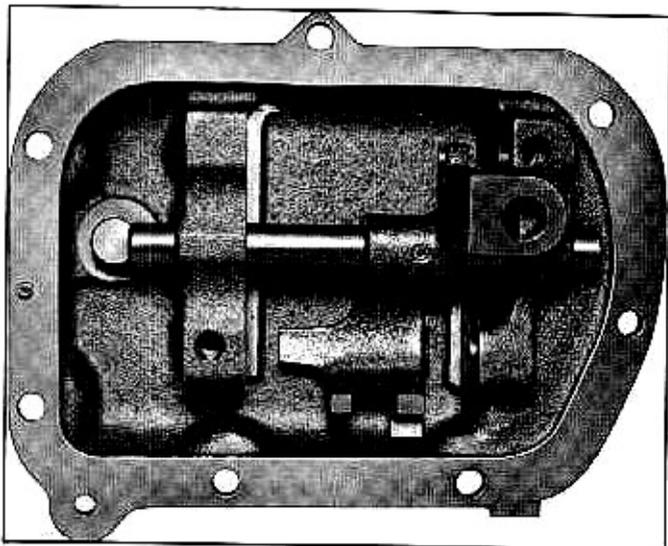


Fig. 3B—3-4 Shifter Shaft & Head Installed to Cover

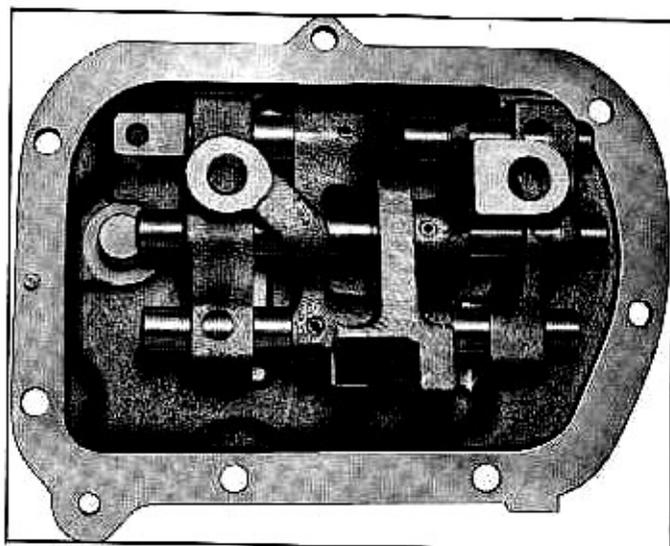


Fig. 5B—1-2 Shifter Shaft & Head Installed to Cover

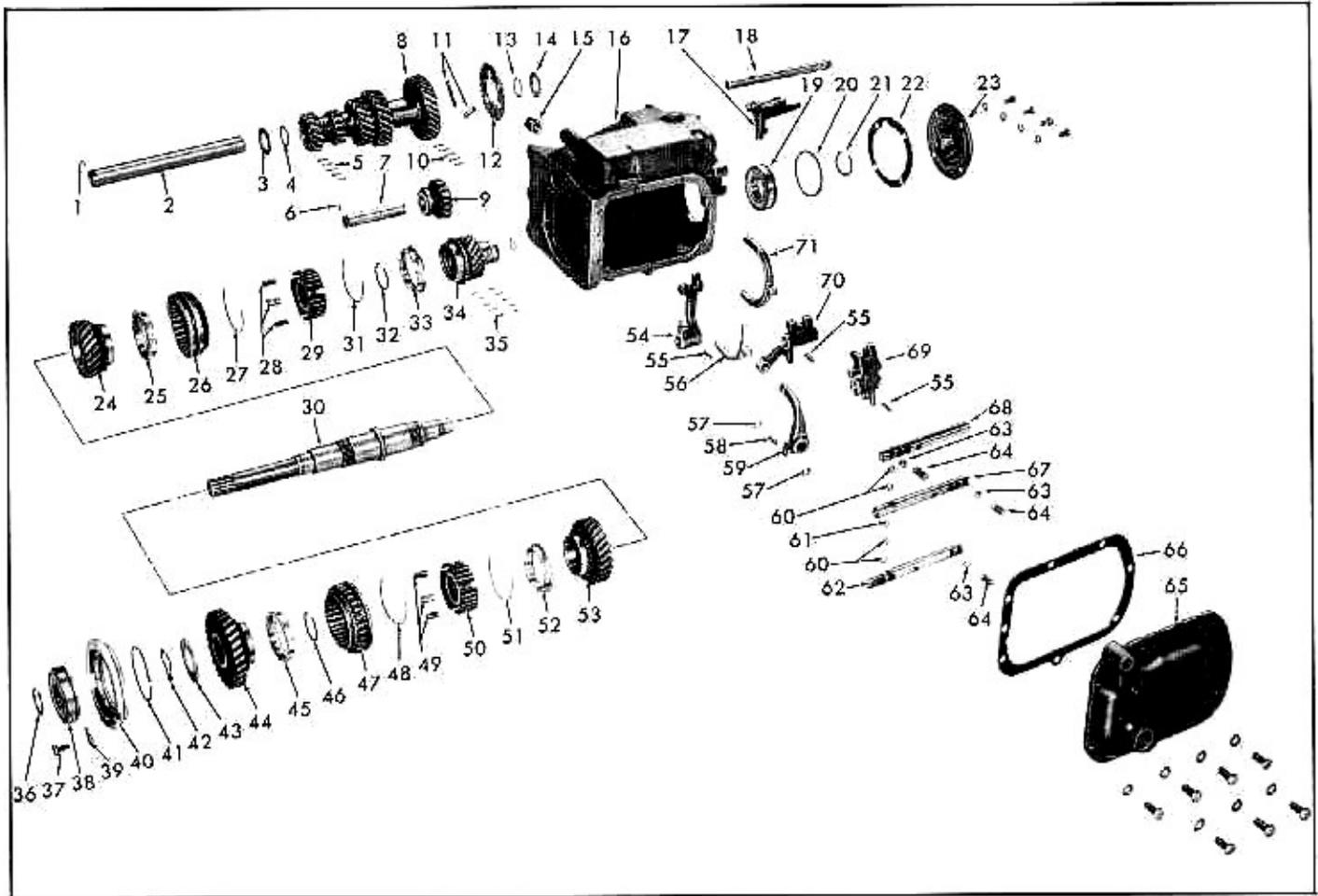


Fig. 6B—Corvair 4-Speed—Exploded

- | | | |
|-------------------------------|--------------------------------------|----------------------------|
| 1. Woodruff Key | 24. 3rd Speed Gear | 48. Key Retainer Spring |
| 2. Countershaft | 25. 3rd Speed Blocker Ring | 49. Clutch Keys |
| 3. Thrust Washer | 26. 3-4 Synchronizer Sleeve | 50. 1-2 Synchronizer Hub |
| 4. Bearing Washer | 27. Key Retainer Spring | 51. Key Retainer Spring |
| 5. Needle Bearings | 28. Clutch Keys | 52. 2nd Speed Blocker Ring |
| 6. Woodruff Key | 29. 3-4 Synchronizer Hub | 53. 2nd Speed Gear |
| 7. Reverse Idler Shaft | 30. Mainshaft | 54. Reverse Shifter Head |
| 8. Countergear | 31. Key Retainer Spring | 55. Roll Pin |
| 9. Reverse Idler Gear | 32. Snap Ring—Hub to Shaft | 56. 1-2 Shift Fork |
| 10. Needle Bearings | 33. 4th Speed Blocker Ring | 57. "E" Ring |
| 11. Spring | 34. Clutch Gear | 58. Pin |
| 12. Anti-Rattle Plate | 35. Pilot Bearings | 59. Reverse Shift Fork |
| 13. Bearing Washer | 36. Snap Ring—Bearing to Shaft | 60. Interlock Balls |
| 14. Thrust Washer | 37. Bearing Retainer Strap Bolt | 61. Interlock Pin |
| 15. Filler Plug | 38. Rear Bearing | 62. Reverse Shifter Shaft |
| 16. Case | 39. Bearing Retainer Strap | 63. Detent Ball |
| 17. Shift Finger | 40. Bearing Retainer | 64. Detent Spring |
| 18. Selector Shaft | 41. Snap Ring—Bearing to Retainer | 65. Side Cover |
| 19. Clutch Gear Bearing | 42. Spring Washer | 66. Gasket |
| 20. Snap Ring—Bearing to Case | 43. Thrust Washer | 67. 3-4 Shifter Shaft |
| 21. Snap Ring—Bearing to Gear | 44. 1st Speed Gear | 68. 1-2 Shifter Shaft |
| 22. Gasket | 45. 1st Speed Blocker Ring | 69. 3-4 Shifter Head |
| 23. Bearing Retainer | 46. Snap Ring—Hub to Shaft | 70. 1-2 Shifter Head |
| | 47. 1-2 Synch. Sleeve & Reverse Gear | 71. 3-4 Shift Fork |

above reverse shaft.

20. Press against right-hand side of middle (third and fourth) shaft so that shaft moves one detent into neutral position.

GEARSHIFT CONTROL ASSEMBLY—SHIFT LINKAGE ADJUSTMENT—TRANSMISSION REMOVAL

Refer to Corvair Three-Speed Transmission Section, as these procedures also apply here.

TORQUE SPECIFICATIONS

Clutch Gear Retainer to Case Bolts	10 ft. lbs.
Side Cover to Case Bolts	10 ft. lbs.
Lubrication Filler Plug	25 ft. lbs.
Shift Finger to Selector Shaft Bolts	10 ft. lbs.
Rear Bearing Retainer Strap Bolts	10 ft. lbs.
Transmission to Differential Carrier Bolts	45 ft. lbs.
Transmission to Support Crossmember Bolts	25 ft. lbs.
Mount to Support Crossmember Nuts	70 ft. lbs.

SPECIAL TOOLS

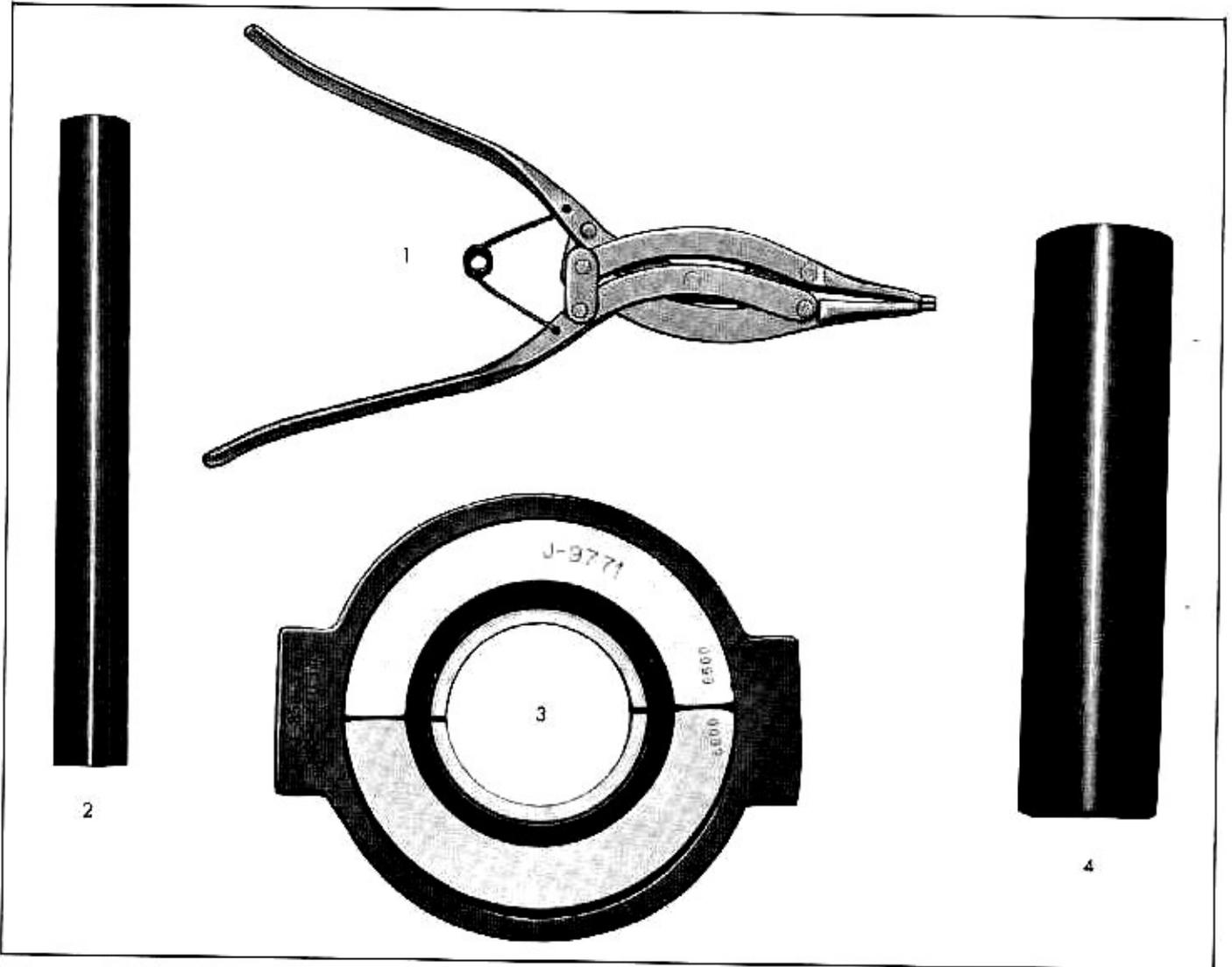


Fig. 7B-3 & 4-Speed Corvair Special Tools

- | | |
|------------------------------------|---|
| 1. J-8059 Snap Ring Pliers | 3. J-9771 Press Plates used with J-358-1 Holder Adapter |
| 2. J-22246 Countergear Dummy Shaft | 4. J-5590 Front Bearing Installer |

AUTOMATIC TRANSMISSION

The "Corvair" Powerglide service operations remain the same as covered in the 1965 Corvair Chassis Shop Manual except for the removal of the TV pressure test plug on the front pump cover. Information as to proce-

dure and checks of the T.V. pressure will therefore not apply to 1966. In this respect, the Corvair Powerglide is now similar to the Aluminum Powerglide used in Passenger Cars and Trucks.

SECTION 8

FUEL TANK AND EXHAUST SYSTEMS

GENERAL DESCRIPTION

The service procedures for fuel tank and fuel lines remain the same as outlined in the 1965 shop manual. The 1966 Corvair exhaust systems are carryover from

1965. The dual exhaust was an interim 1965 addition. Three replacement exhaust systems service the four production exhausts.

COMPONENT PART REPLACEMENT

The all welded 95 and 110 hp production exhaust system is serviced as a package - muffler, tail pipe and clamp. The exhaust pipe and attachments are serviced separately.

The all welded 140 hp dual exhaust system is serviced as a welded assembly for each side (fig. 1).

The bolted 180 hp Turbocharged exhaust system is serviced with separate parts.

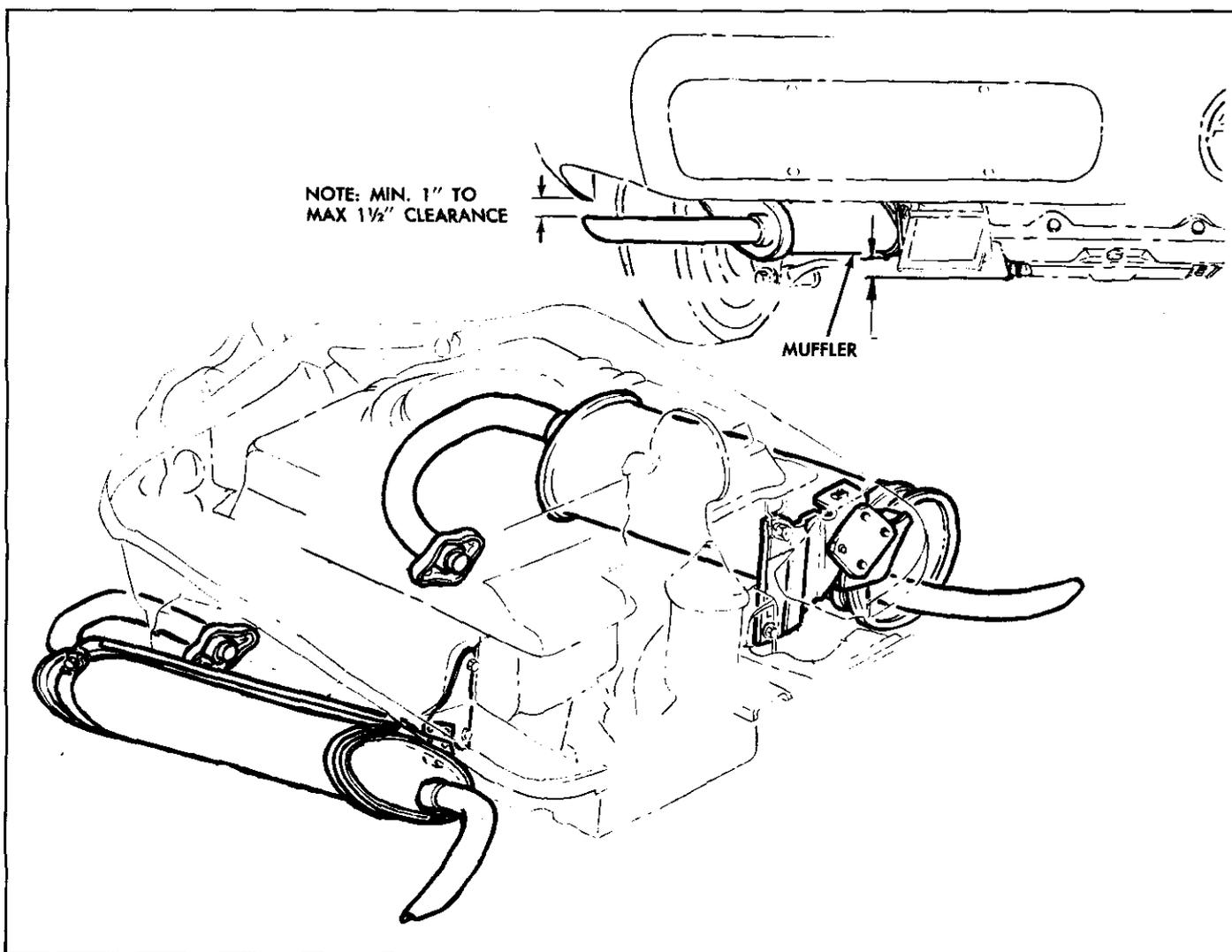


Fig. 1—Dual Exhaust 140 h.p.

SECTION 9

STEERING

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GENERAL DESCRIPTION

The steering system on the 1966 Corvair is new with the addition of a coupling in the steering shaft and a reaction plate on the underside of the floor pan. The coupling and reaction plate are to allow the lower steering shaft to absorb the impact in case of a front end collision.

This change in the steering system requires new pro-

cedures for removing and servicing the mast jacket assembly and removing the steering gear.

The service procedures affected by changes for 1966 are outlined in the following pages. Parts not covered herein may be assumed to be serviced as outlined in the 1965 Corvair Shop Manual.

SERVICE OPERATIONS

STEERING GEAR

Removal

1. Raise front of vehicle and drill 1-1/8" diameter hole in left front splash shield (fig. 1).
2. Remove the steering coupling clamp bolt and nut.
3. Remove the pitman arm from the shaft using Tool J-6627.
4. Remove the three mounting bolts from the steering gear while supporting the gear.
5. Remove steering gear from the bottom of the vehicle.

Installation

1. From the bottom of the vehicle, guide the steering gear and shaft into position carefully to align the coupling with the notch in steering shaft.
2. Secure the steering gear in place with three mounting bolts. Torque to 30 ft. lbs.
3. With steering gear on center, or high position, install pitman arm, washer and nut. Torque to 95 ft. lbs.
4. Install steering coupling bolt and torque to 25 ft. lbs.
5. Insert plug in access hole drilled in splash shield.

STEERING WHEEL

SIMULATED WOOD

This simulated wood steering wheel hub and flange has been revised to incorporate two cap screws to improve flange to hub retention. The cap screws must be removed to attach Tool J-2927 when removing steering wheel. Torque the screws to 11 ft. lbs. upon reinstallation.

TELESCOPING

A horn button liner is now used to reduce horn blowing effort and provide an anti-rattle device. The liner can be made accessible by removing the horn button.

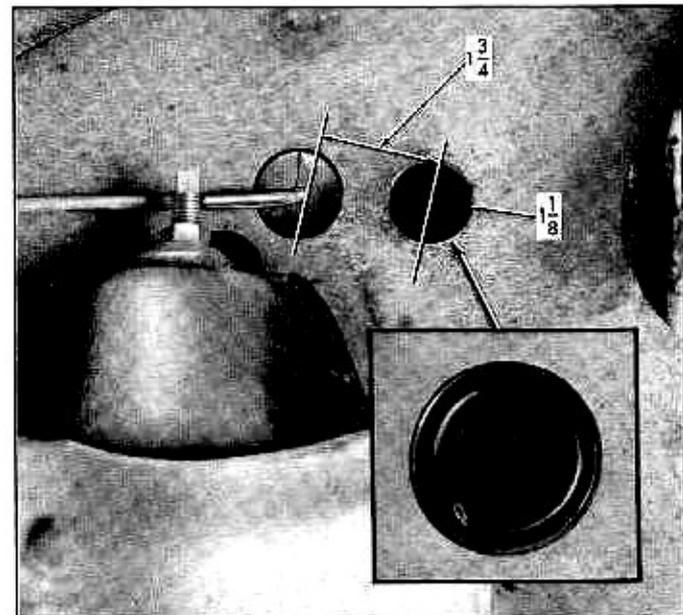


Fig. 1—Splash Shield Access Hole Location

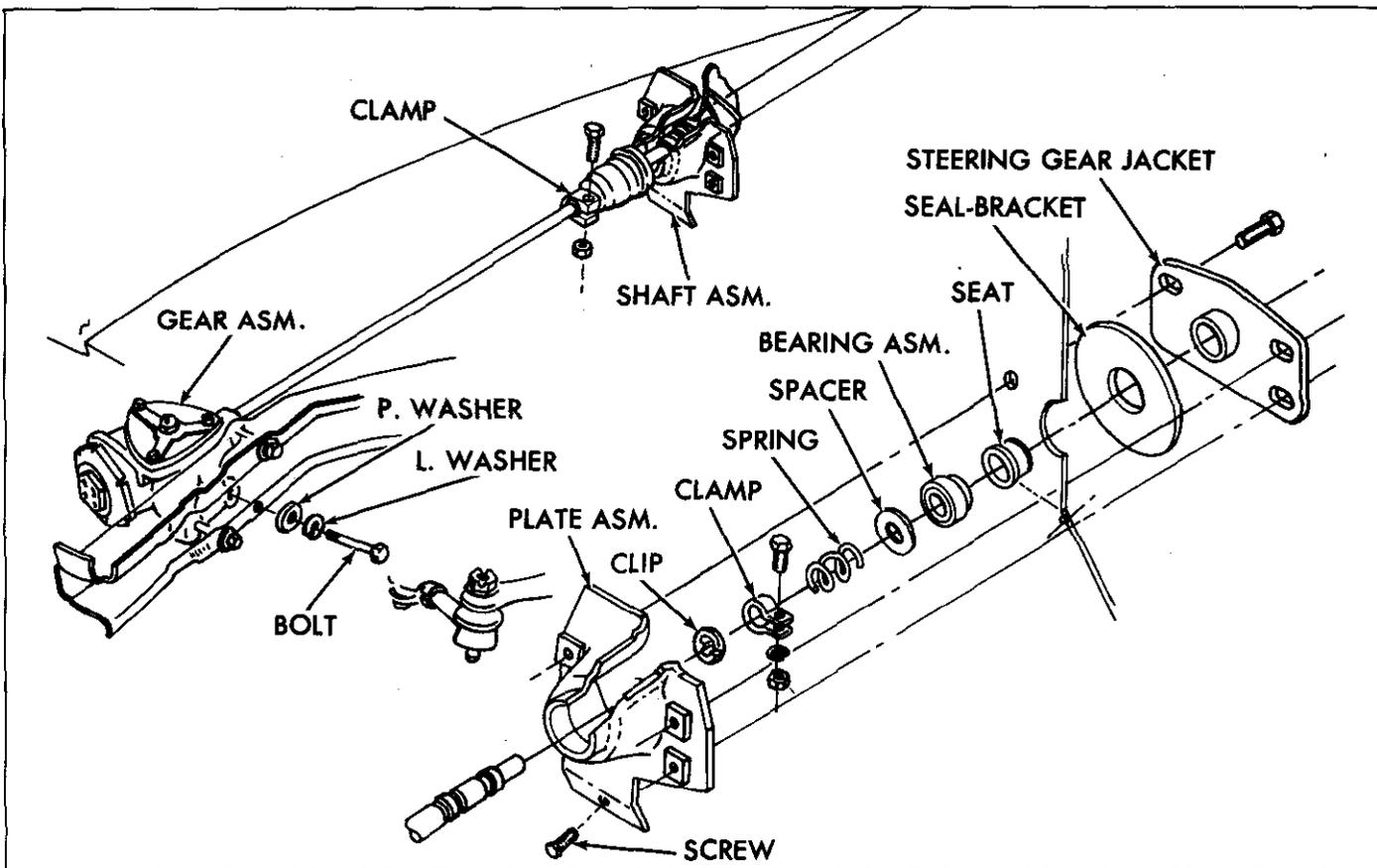


Fig. 2—Mast Jacket and Coupling

MAST JACKET (Fig. 2)

Removal

1. Disconnect battery ground cable.
2. From inside the car, remove the three bolts from the mast jacket to floor pan bracket.
3. Raise the front of the vehicle and drill a 1-1/8" diameter hole in the left front wheel splash shield (fig. 1).
4. Remove steering coupling clamp bolt and nut.
5. From under the vehicle, remove the screw holding the steering shaft stop plate to the floor pan and remove stop plate.
6. Lower vehicle and disconnect the two directional signal wiring connectors from chassis harness.
7. On Telescoping models place the mast jacket in the full collapsed position.
8. While supporting the mast jacket remove the two attaching bolts at the upper mast jacket support.
9. Pull the mast jacket up through the floor pan and out of the vehicle.

Disassembly (Non Telescoping)

1. Remove steering wheel as outlined in Section 9 of the 1965 Corvair Shop Manual.
2. Remove directional signal lever and attaching screw.
3. Using a small screw driver or ice pick, remove upper bearing snap ring from steering shaft.
4. Slide steering shaft out bottom of mast jacket and remove lower bearing seat, lower bearing, spacer and clamp.
5. If necessary pry the "E" clip from the lower end of

the steering shaft.

6. Remove the three directional signal retaining screws and lift off switch retainer and housing.

Assembly (Non Telescoping)

1. Feed directional signal switch wiring through directional signal housing and install housing onto mast jacket leaving switch hang to one side.
2. Position directional signal switch retainer into housing and engage tangs on mast jacket with slots in retainer.
3. Align directional signal switch with housing and retainer and loosely assemble with three screws. Then rotate the assembly clockwise to engage the tangs fully and tighten the screws.
4. Install "E" clip in groove in lower end of steering shaft. Position clamp, spring, spacer, lower bearing and bearing seat over upper end of shaft and down against "E" clip.
5. Insert steering shaft into bottom of mast jacket and up through upper bearing and install upper bearing snap ring.
6. Position lower bearing seat and bearing into mast jacket and adjust clamp to allow .005 min. to .030 max. axial movement of steering shaft. Tighten clamp bolt to 40 in. lbs.
7. Install steering wheel as outlined in Section 9 of the 1965 Corvair Shop Manual.

Assembly and Disassembly (Telescoping)

Assembly and disassembly procedures for the telescoping mast jacket remain the same as outlined in the

1965 Corvair Shop Manual except that the steering coupling pin must be removed from the steering shaft to permit removal of the shaft from the mast jacket.

Installation

1. On telescoping models place the mast jacket in the full collapsed position.
2. Install bracket to floor pan seal over end of steering shaft.
3. Insert steering shaft through hole in floor pan and loosely assemble mast jacket upper support to instrument panel with turn signal wiring cover in position between support and mast jacket.
4. Raise front of vehicle and place on jack stands.
5. Assemble upper steering shaft coupling clamp to lower steering shaft and tighten bolt.
6. Position reaction plate to underside of floor pan and attach with screw.
7. Insert plug in access hole drilled previously and lower vehicle.
8. From inside the vehicle install three mast jacket bracket to floor pan bolts.
9. Tighten upper support to instrument panel.
10. Connect wiring harness and battery cable.

STEERING COUPLING (Fig. 3)

Disassembly

1. Remove mast jacket assembly from vehicle as outlined in this section and paint reference mark on coupling cover and steering shaft.

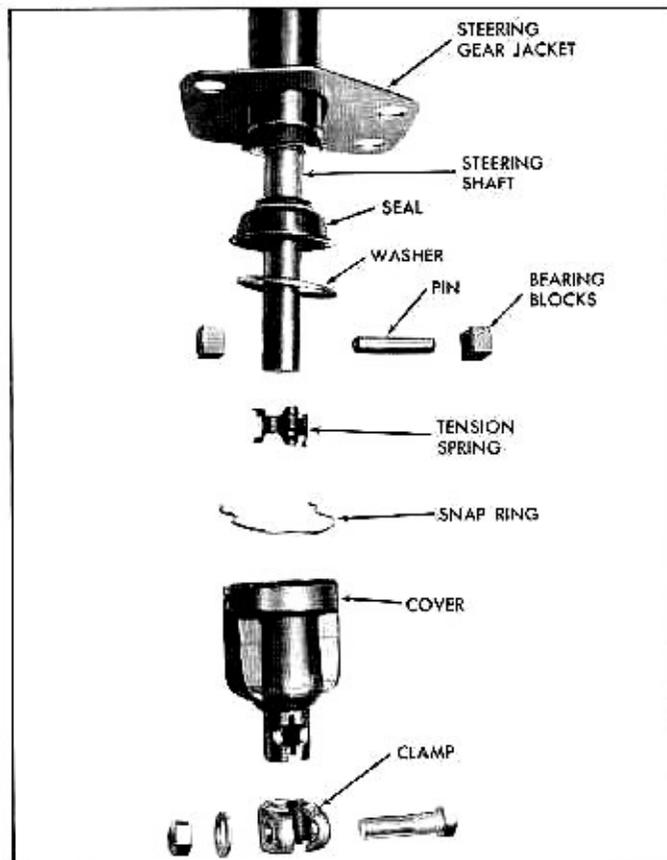


Fig. 3—Steering Coupling

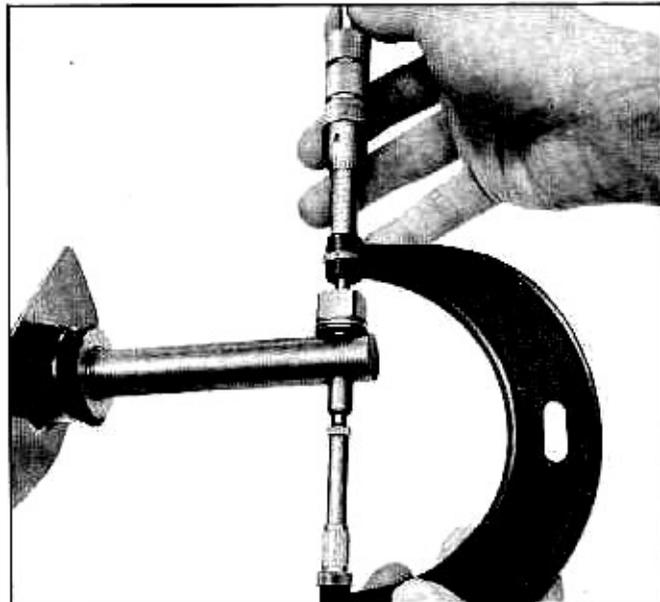


Fig. 4—Checking Coupling Pin Centering

2. Pry off snap ring and slide cover from shaft.
3. Remove bearing blocks and tension spring from pivot pin.
4. Clean grease off pin and end of shaft. Scribe location mark on pin on same side as chamfer in shaft.
5. Supporting shaft assembly securely, with chamfer up, press pin out of shaft with arbor press:

NOTE: Do not drive pin out with hammer. This will cause sticky or binding bearings when reassembled.

6. Slide washer and seal off end of shaft.

Assembly

1. Be sure all parts are free of dirt. Slide seal and washer onto steering shaft with lip of washer towards lower end of shaft.
2. Press pin back into shaft from chamfered side. Locate pin in shaft using scribe mark as reference.

NOTE: Pin must be centered within .012 in. or binding in the coupling will result.

3. Check centering of pin (fig. 4).
 - a. Place just enough 3/8" flat washers on pin to prevent bearing block from bottoming when installed.
 - b. Measure distance from end of pin to top of bearing with micrometer.
 - c. Remove bearing and washers and place same bearing and washers on other end of pin. Measure distance from end of pin to top of bearing. If micrometer readings in Steps b and c differ more than .012, repeat last part of Step 2 and recheck.
4. Apply a liberal amount of wheel bearing grease to inside and outside of bearing blocks and inside of cover.
5. Position tension spring and bearing blocks on pin.
6. Slide cover over bearing blocks aligning reference mark on cover with mark on shaft. Install washer and seal into end of cover and secure with snap ring retainer.

SECTION 10

WHEELS AND TIRES

GENERAL DESCRIPTION

The factory installed tires for the Corvair are selected to provide the best all around tire performance for all normal operations. They are designed to operate satisfactorily with loads up to and including the specified full rated load capacity of the vehicle when inflated as recommended in the tire inflation pressure table that follows.

The standard tire size for all 1966 Corvairs is 7.00 x 13 4-ply rating, 2-ply.

SPARE TIRE AND JACK STOWAGE

Air Conditioned vehicles have the spare tire mounted in the luggage compartment. A scissors type jack and wrench with wheel nut - hub cap remover are stowed under the tire.

MAINTENANCE

INFLATION PRESSURES

To ensure the proper tire inflation pressure for the owners particular requirements, follow the recommendations in the tire inflation pressures table. Properly inflated tires will ensure the best tire life and riding

comfort over the full range of driving conditions.

When loads above average are carried use inflation pressure recommended for full rated load. Tire inflation pressures may increase as much as 6 pounds per square inch (psi) when hot.

VEHICLE CAPACITY RATING AND RECOMMENDED TIRE INFLATION PRESSURES (PSI TIRES COOL)

	Average Load		Full Rated Load	
	All Models except Models with Bucket Seats	1 to 5 Passengers (750# Load)		6 Passengers + 200# Trunk Load (1100# Load)
Tire Inflation Pressures (psi)	Front 15	Rear 26	Front 15	Rear 30
Models with Bucket Seats except Convertibles	1 to 5 Passengers (750# Load)		5 Passengers + 200# Trunk Load (950# Load)	
Tire Inflation Pressures (psi)	Front 15	Rear 26	Front 15	Rear 30
Convertibles	1 to 5 Passengers (750# Load)		5 Passengers + 200# Trunk Load (950# Load)	
Tire Inflation Pressures (psi)	Front 15	Rear 28	Front 15	Rear 30

1. For continuous high speed operation increase front tire inflation pressure 2 pounds per square inch and rear tire inflation pressure 4 pounds per square inch over the recommended pressure, but not to exceed a maximum pressure of 32 pounds per square inch cool.
2. Over-inflation will adversely affect the tires and the

- durability and riding comfort of the car. Under-inflation will promote heat and abnormal wear.
3. Cool tire inflation pressure: after vehicle has been inoperative for 3 hours or more, or driven less than 1 mile. Hot tire inflation pressure: after vehicle has been driven 10 miles or more at 60-70 miles per hour.

WHEEL BALANCING

Corvairs with wire wheel covers should have the wheels balanced with the wire wheel covers installed on the wheel.

SWITCHING TIRES

Rotate tires as shown every 6000 miles to distribute wear over all five tires. This will help to obtain maximum service from the tires.

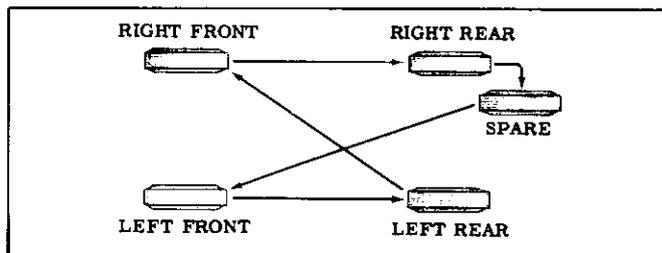


Fig. 1—Tire Rotation

SECTION 11

CHASSIS SHEET METAL

GENERAL DESCRIPTION

The Corvair Chassis Sheet Metal of 1965 is serviced the same in 1966. New for 1966 is the addition of a front bumper valance panel.

COMPONENT PART REPLACEMENT

Panel—Front Bumper Valance (Fig. 1)

Removal and Installation

1. Jack up front of vehicle.
2. Remove 8 screws attaching bumper valance below front end panel.

NOTE: When replacing front bumper valance screws torque to 26 in. lbs. Excessive torque may crack the plastic valance panel.

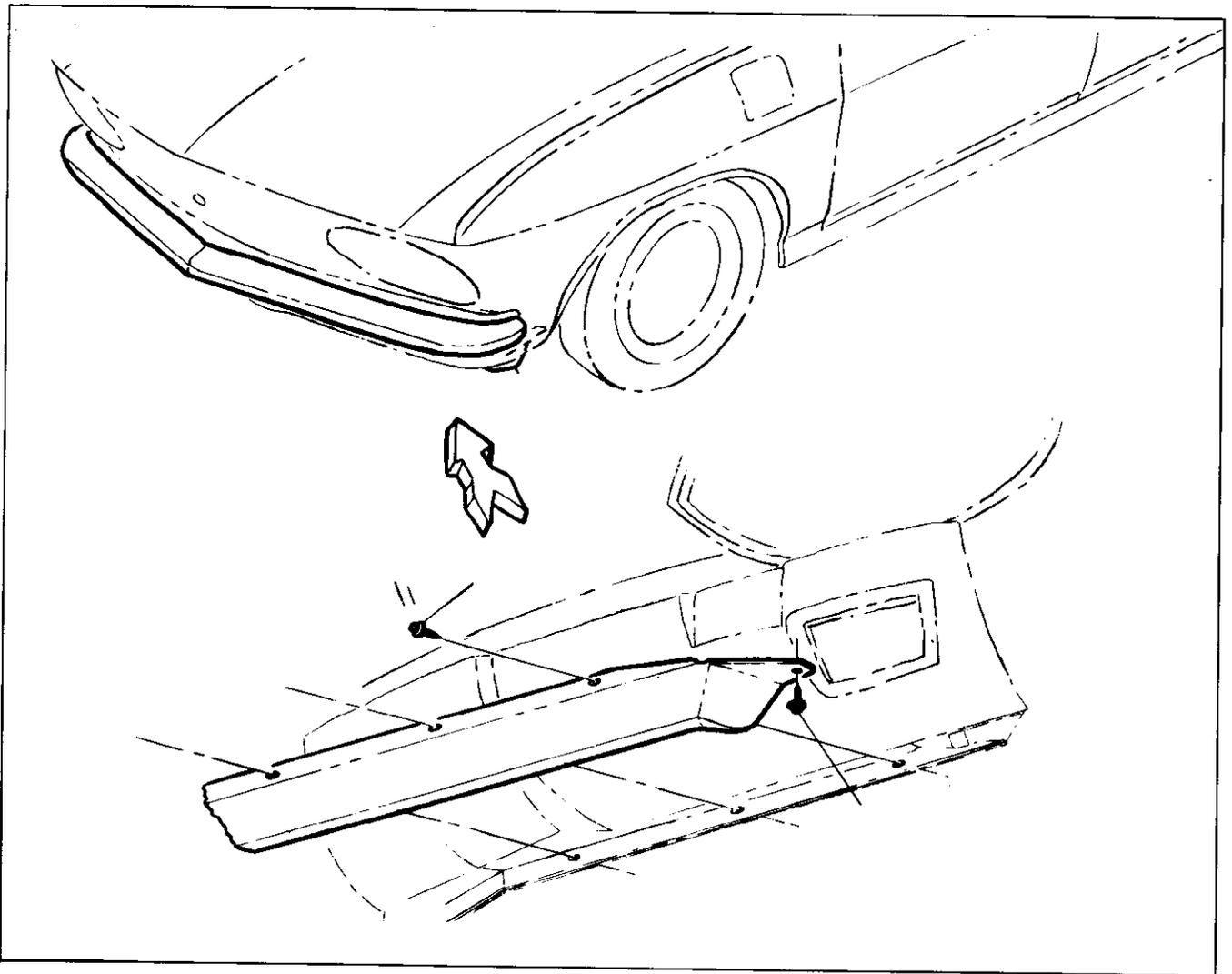


Fig. 1—Front Bumper Valance Panel

SECTION 12 BODY AND CHASSIS ELECTRICAL

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3 and 4 Speed Transmission	12-1	Removal and Installation	12-2
Neutral Safety Switch Replacement	12-1	Wiring Harness	12-2
Speedometer Cable Replacement	12-1	Wiring Diagrams	12-4

BACKING LAMP SWITCH REPLACEMENT

3 and 4 Speed Transmissions (Fig. 1)

1. Raise and support vehicle at suitable working height.
2. Disconnect wiring connector unit from switch.
3. Remove switch and gasket from transmission side cover.
4. Install new gasket and switch unit.

NOTE: The conical shaped gasket must be installed as shown in Figure 1 or the switch will not seat properly.

5. Connect wiring to switch and check operation of switch.

SPEEDOMETER CABLE REPLACEMENT

In addition to the service procedures outlined in the 1965 Corvair Shop Manual the rubber seal, located where the speedometer cable core passes through a clearance hole in the steering knuckle, should be replaced whenever a new cable is installed and an inspection of the wheel bearings should be made for possible contamination.

NEUTRAL SAFETY SWITCH REPLACEMENT (Fig. 2)

1. Disconnect the battery ground cable.
2. Remove instrument cluster assembly from vehicle.
3. Remove the retaining ring securing the switch lever arm to range selector assembly.

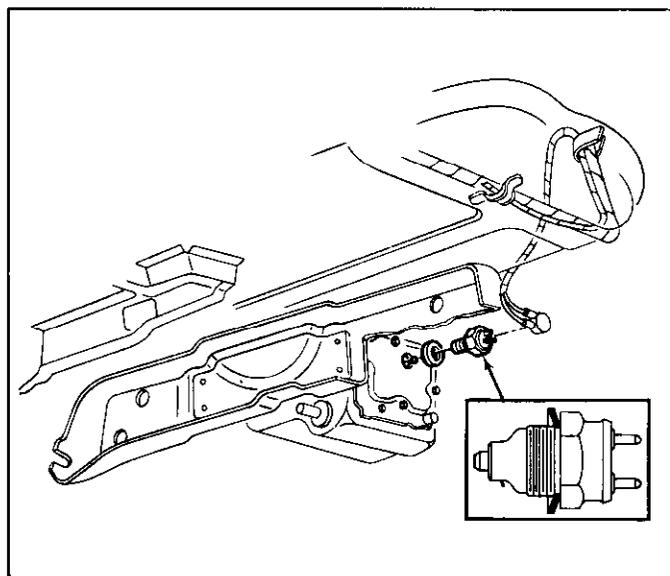


Fig. 1—Backing Lamp Switch

4. Remove the two screws that attach the switch to the range selector assembly.
5. Lower the switch and disconnect the wiring harness connectors from the switch terminals.
6. Install wiring harness connectors onto new switch.
7. Extend plunger in switch to its outer most position and insert .680 - .685 gauge block in switch case.
8. Position switch plunger pin to the range selector assembly and loosely install the two attaching screws.
9. Install the retainer securing the plunger pin to the selector assembly.
10. Place transmission range selector into "N"-neutral position.
11. Push forward on switch case until contact carrier is against gauge block.
12. Tighten switch attaching screws and remove gauge block.
13. Connect battery temporarily and test operation of switch. Engine must start in "N"-neutral position only. Check operation of backing lamps if so equipped.

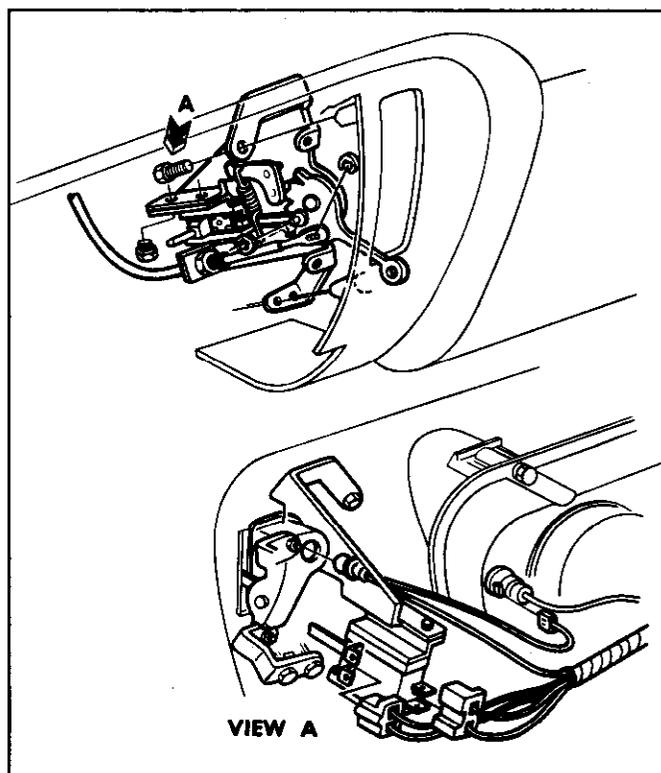


Fig. 2—Neutral Safety Switch Installation

14. Install instrument cluster to console.
15. Connect battery ground cable and check operation of instruments.

INSTRUMENT CLUSTER

Removal (Fig. 3)

1. Disconnect battery ground cable.
2. Remove upper mast jacket support clamp (Powerglide models only).
3. Remove light and wiper switch bezel nuts using Tool J-21932.

NOTE: On Powerglide models remove shift lever knob.

4. Remove heater or air conditioning control retaining screws and allow control to hang below instrument console. On A/C models remove air outlet from panel.
5. Disconnect speedometer cable at rear of speedometer housing. If so equipped, disconnect trip odometer.
6. Remove screws retaining instrument cluster assembly to console.
7. Pull instrument cluster assembly forward from console and disconnect cluster wiring harness from panel wiring harness at multiple disconnect (fig. 3).

NOTE: On Powerglide models, remove shift lever mechanism from rear of cluster housing.

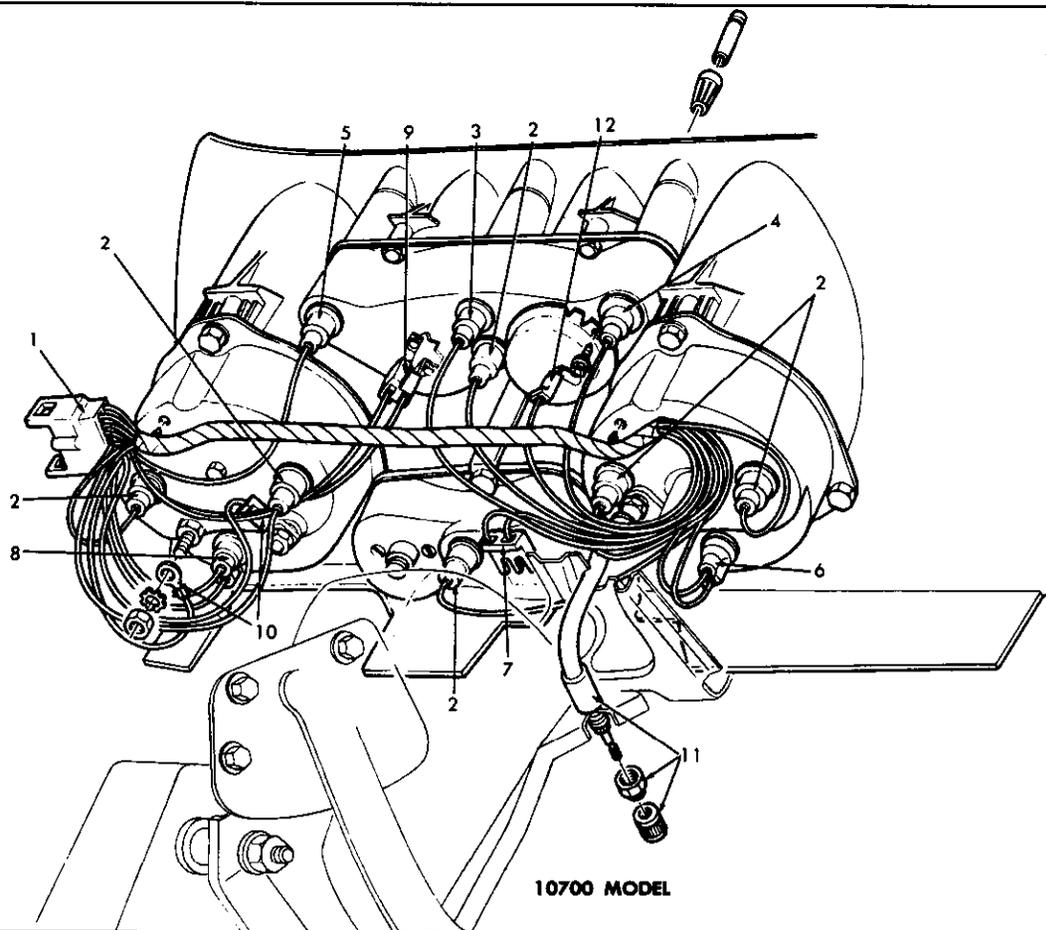
8. Remove cluster from the console and transfer to a suitable bench area for repair operations.

Installation

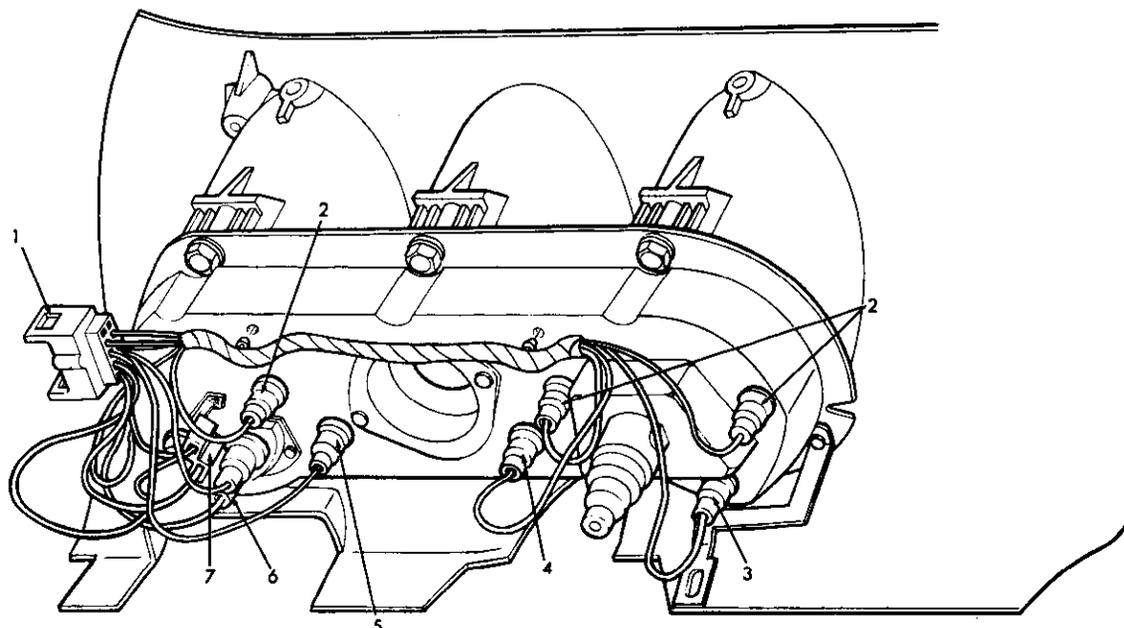
1. Position instrument cluster assembly to console.
NOTE: On Powerglide models attach shift lever mechanism to cluster assembly.
2. Connect cluster wiring harness to instrument panel wiring harness (fig. 3).
3. Install screws retaining cluster assembly to console.
4. Connect speedometer cable to rear of speedometer housing (connect trip odometer, if so equipped).
5. Position heater control to cluster and install retaining screws.
6. Install light and wiper switch bezel retaining nuts. On Powerglide models install shift lever knob and on A/C models install air outlet.
7. Install mast jacket upper support clamp.
8. Connect battery ground cable and check operation of cluster assembly.

WIRING HARNESS

The wiring harness assemblies remain essentially the same as 1965 except for a new color code common to all vehicles. The color of the wire designates a particular circuit while the harness title indicates the type of harness, single or multiple wire, and also describes the location of the harness. Composite wiring diagrams for all models are included in Figures 4 thru 7.



10700 MODEL



10100-10500 MODELS

Fig. 3—Instrument Cluster Assemblies

- 1. To Instrument Panel Harness
- 2. Instrument Cluster Bulb
- 3. Hi-Beam Indicator

- 4. L.H. Direction Indicator
- 5. R.H. Direction Indicator
- 6. Gen/Fan Indicator

- 7. Fuel Gauge
- 8. Temp/Press Indicator
- 9. Manifold Temp. Gauge

- 10. Tachometer
- 11. Trip Odometer
- 12. Clock

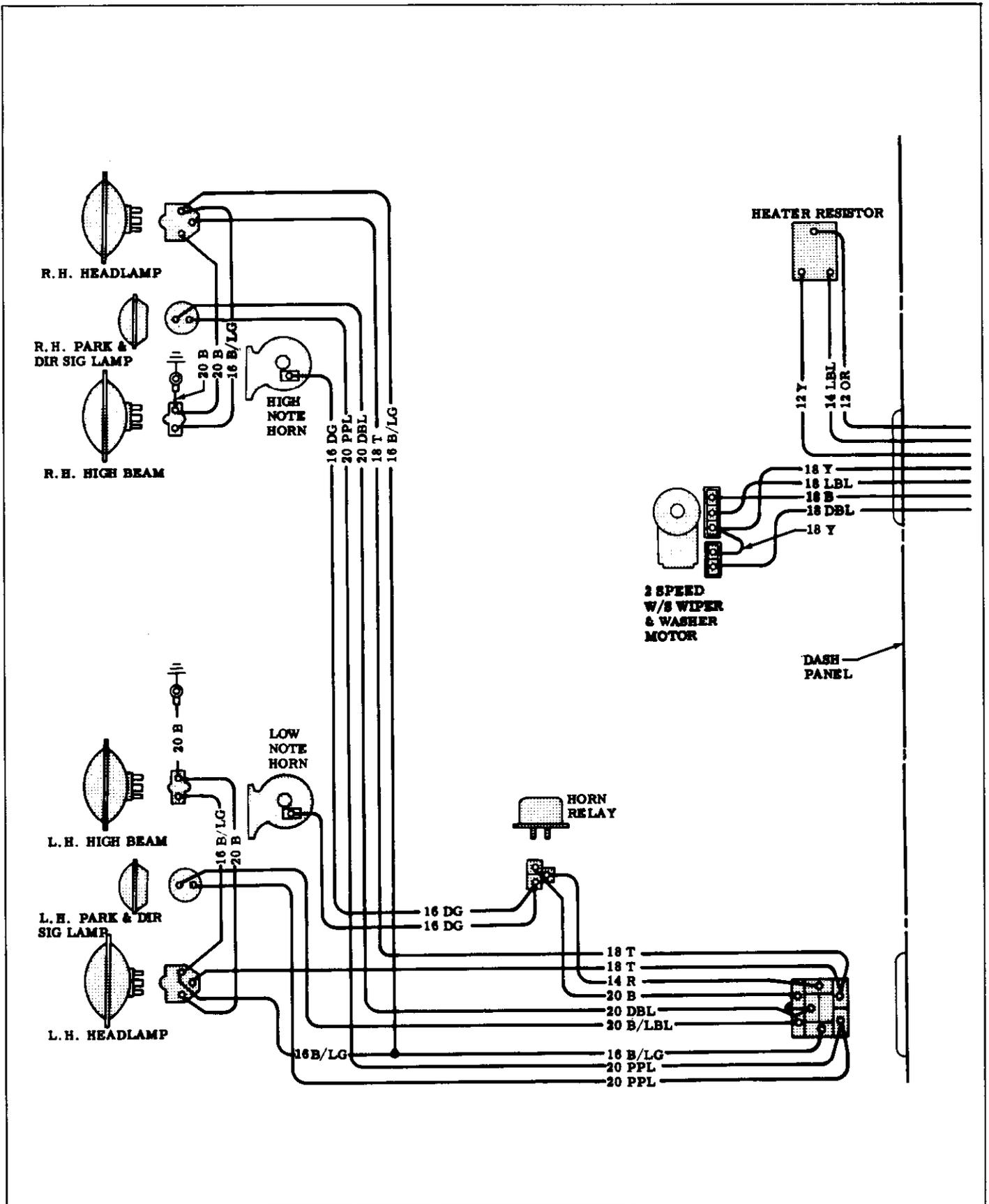


Fig. 4—Front End

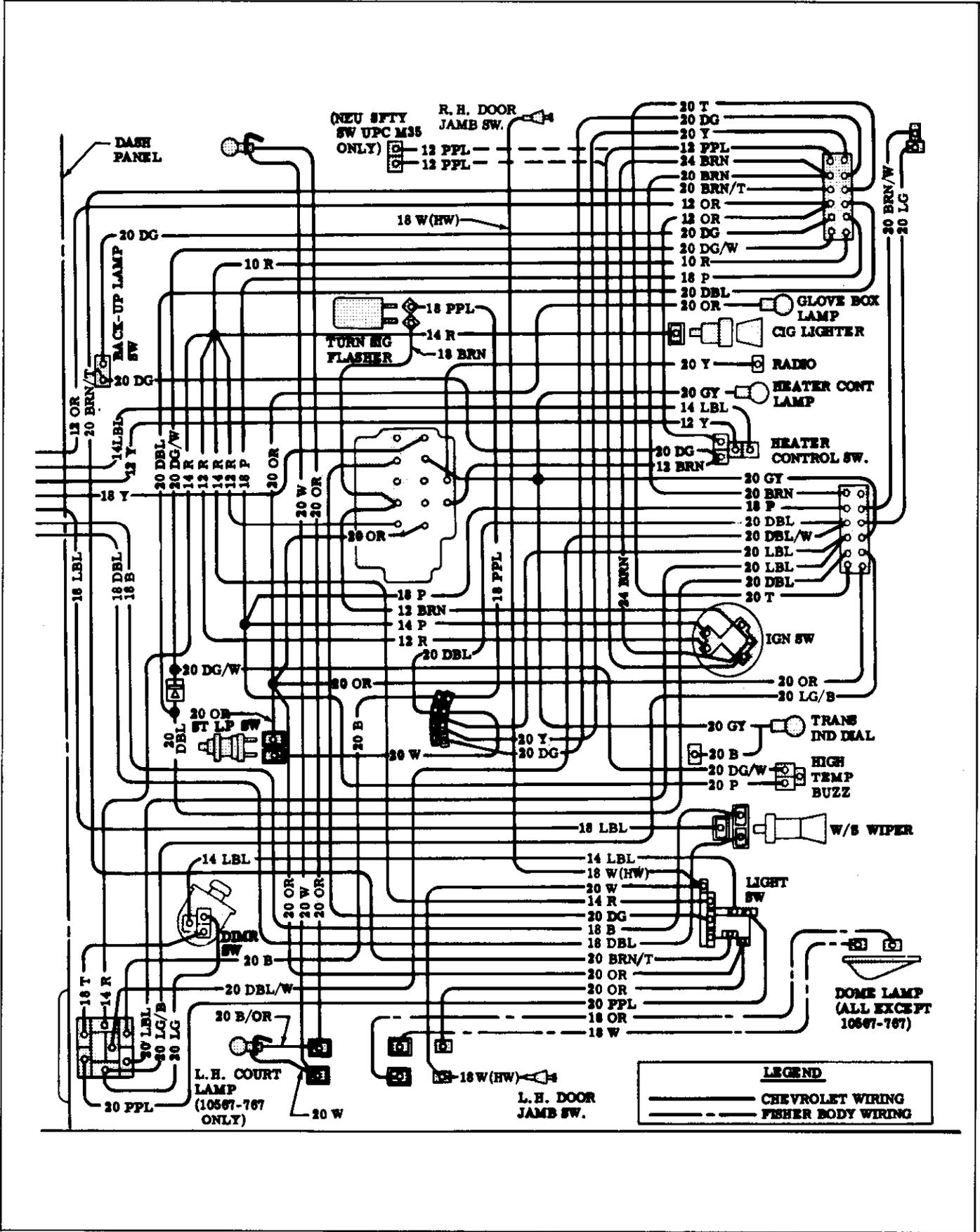


Fig. 5—Fuse Panel and Instrument Panel

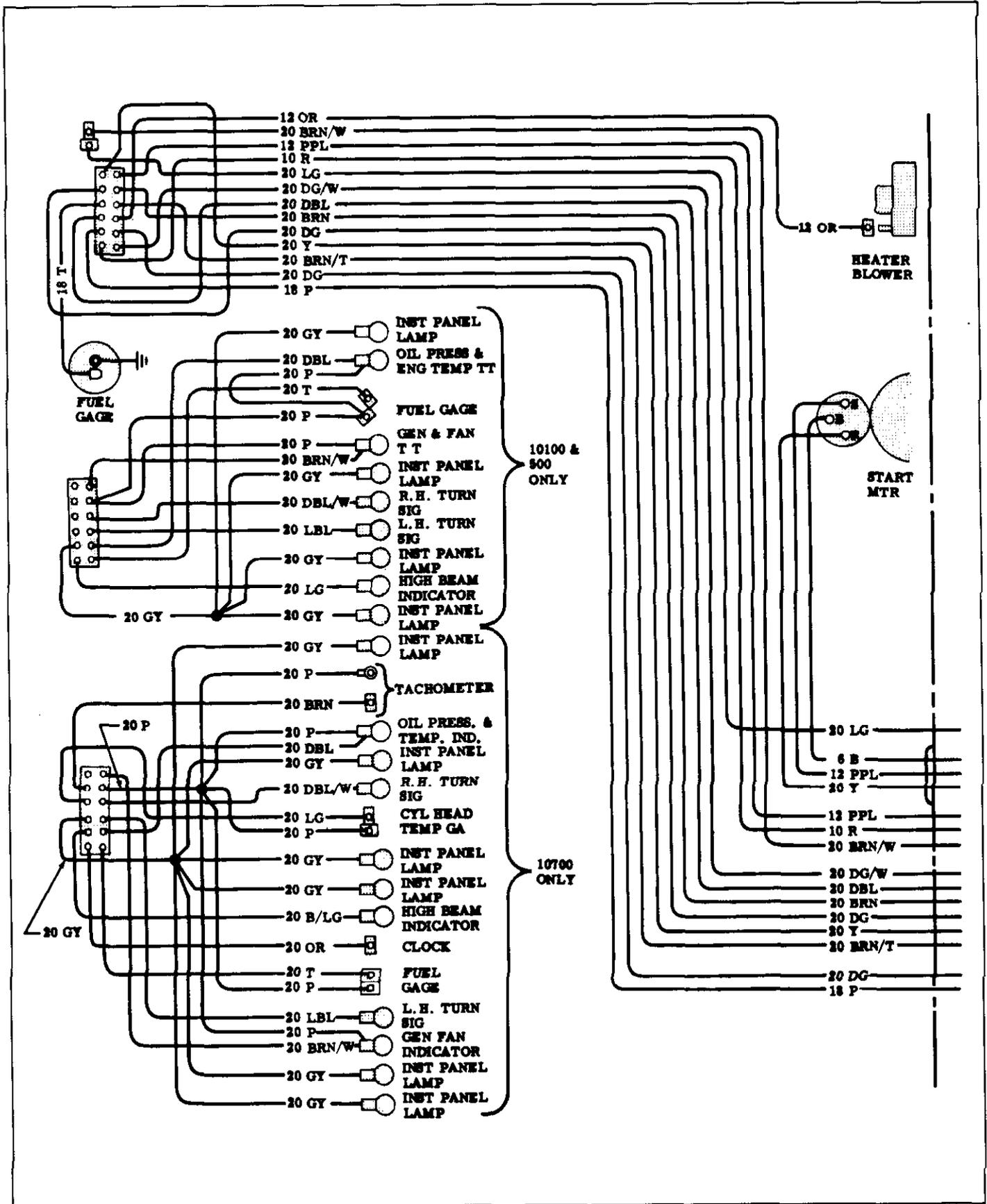


Fig. 6—Instrument Cluster and Body Harness

SECTION 14

BUMPERS

CORVAIR 10000 SERIES

The design of the 1966 Corvair bumpers remains the same as those used in 1965. Continue to refer to the 1965 Corvair Chassis Shop Manual for service operations.

SECTION 15

HEATER AND ACCESSORIES

DIRECT AIR HEATER

The 1966 Corvair Direct Air Heater is basically carry-over from that used in the 1965 vehicle. The Blower and

Air Inlet Assembly has been changed so as to remove the never-used outside air intake, but its basic installation remains as in 1965. See Figure 1.

AIR CONDITIONING

While still basically the same system as used in 1965, several noteworthy revisions have been made to the 1966 Corvair All-Weather Air Conditioning System. See Figure 2. These changes center around the relocation of the condenser and receiver-dehydrator in the 1966 vehicle and the necessary refrigerant hose routing revisions necessitated by these changes. In addition, a slightly revised performance test procedure is necessary because of the necessity of performing the test with the engine compartment lid closed. This is necessary because of the new engine air plenum location of the condenser, which is so placed that all air must flow through it before entering the engine compartment. The engine then takes its air from within the engine compartment. An air conditioned vehicle with the engine compartment open, ajar or poorly sealed would receive inadequate air-flow through the condenser. The receiver-dehydrator has been relocated to the kick up panel just to the rear of the spare tire in the luggage compartment.

RELAY

Electrical wiring for the 1966 Corvair All-Weather System is illustrated in Figure 7. Notice that the relay found in the 1965 system is no longer used.

FAST IDLE ADJUSTMENT

Figure 6 illustrates the installation of the 1966 electric fast idle control. Adjustment is accomplished in the same manner as in the 1965 control, that is, by turning the gap adjusting screw shown in Figure 6. Adjust the screw so that the engine will maintain 50 rpm over recommended curb idle for the engine involved when the air conditioning system is "on" and the compressor clutch is engaged.

PERFORMANCE TEST

This test is performed in much the same manner as in the 1965 system but with several variations caused by the relocation of the condenser. For clarity the entire list of performance test conditions will be reproduced here.

CONDENSER

The condenser is attached to the engine air plenum just below the air inlet duct and is placed so as to completely cover the cowl plenum duct to engine compartment air entry holes. Sealing strips at top and bottom of the condenser assembly assures that all airflow entering the engine compartment will flow through the condenser.

Since the new condenser does not require engine mounting or shrouding, engine service with the air conditioning option will be greatly simplified.

Figure 3 illustrates condenser mounting.

ENGINE COMPARTMENT LID SWITCH

To assure that the air conditioning system will not be operated when the engine compartment is open, a mercury switch is installed on the lid and connected to the compressor ground circuit. When the lid is opened, the ground circuit will be broken, shutting off the compressor. The blower will continue to operate.

RECEIVER-DEHYDRATOR

Figure 4 illustrates the 1966 Receiver-Dehydrator location.

COMPRESSOR

While basically the same as used in 1965, Figure 5 is included here to illustrate the 1966 compressor mounting.

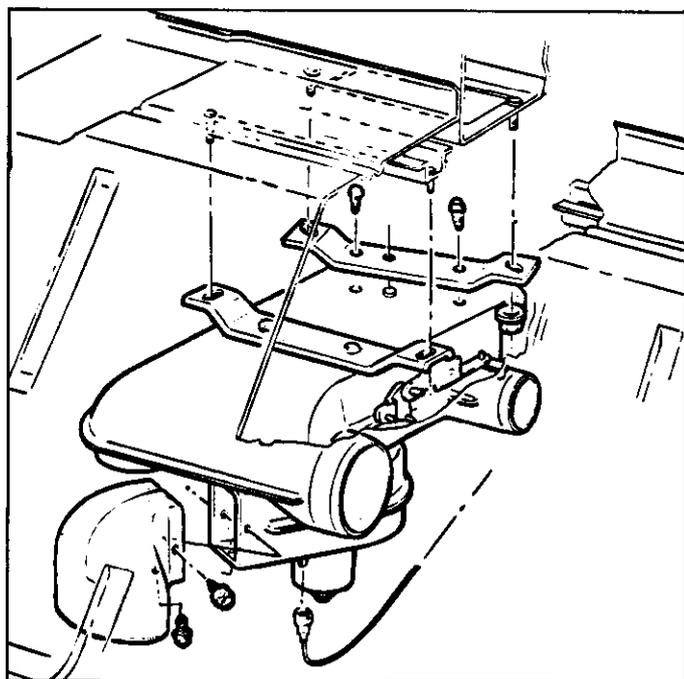


Fig. 1—Air Inlet Assembly

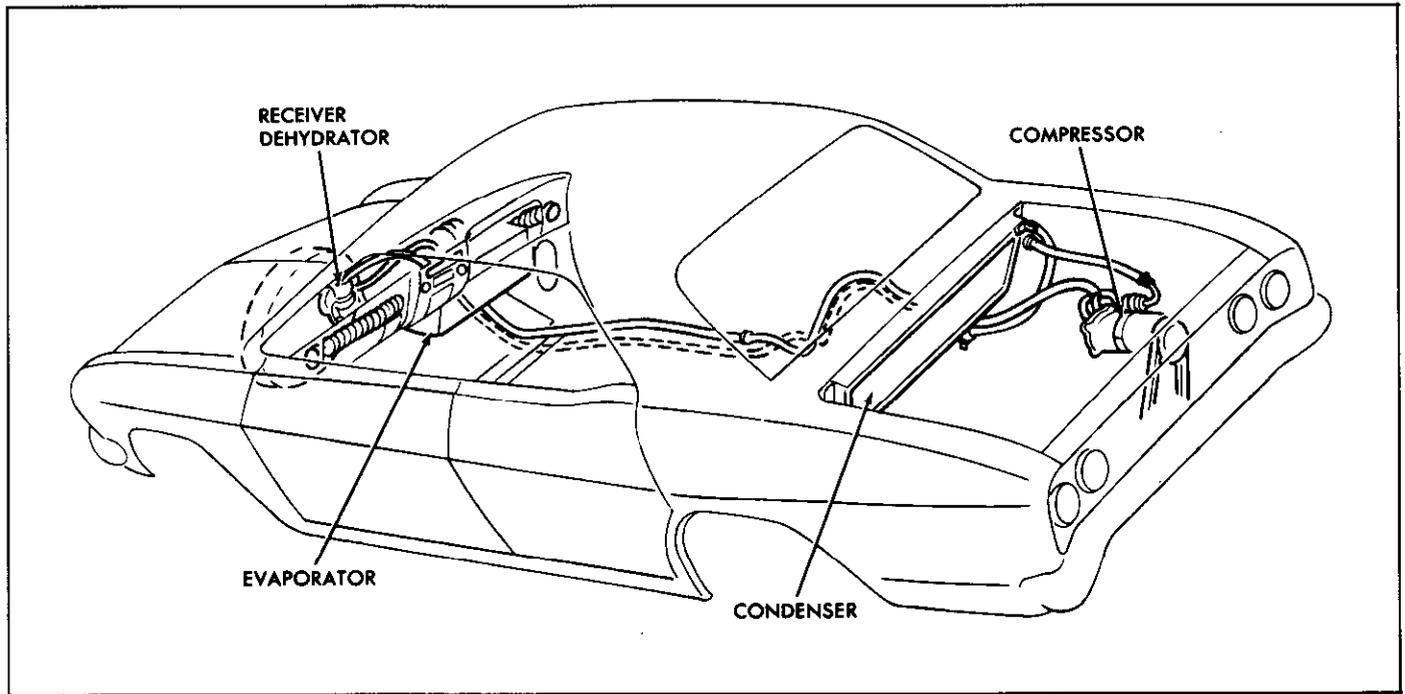


Fig. 2—1966 All-Weather Air Conditioning System

1. Doors and windows closed.
2. Engine compartment lid closed.
3. Large fan directing air flow toward the engine compartment air inlet grille just behind the rear window.
4. Vehicle in NEUTRAL with the engine running at 2000 rpm.
5. Air conditioning controls set for:
 - a. Maximum cooling.
 - b. High Blower speed.
 - c. Full inside air.
6. Heater off.
7. Gauge set installed. Since the engine compartment lid must be closed during this test to insure that maximum airflow will pass through the condenser,

8. System settled out (run-in approximately 10 minutes).

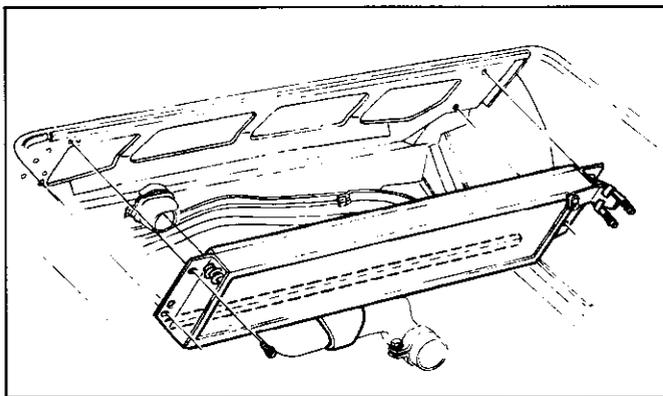


Fig. 3—Condenser Installation

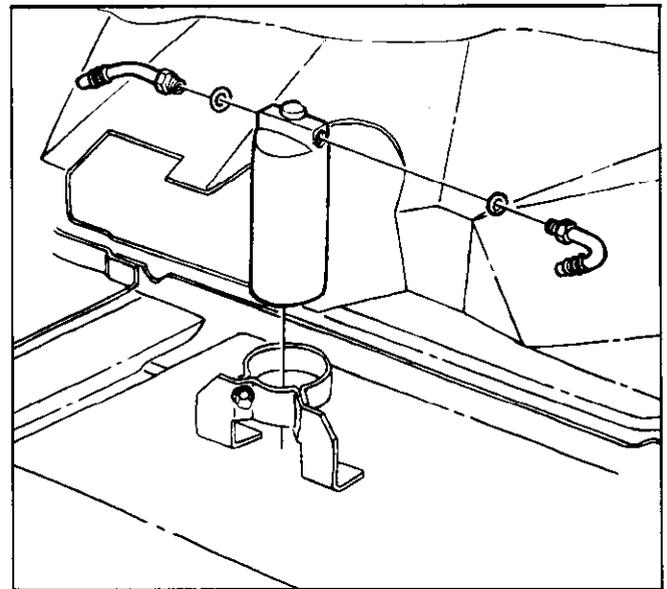


Fig. 4—Receiver—Dehydrator Location

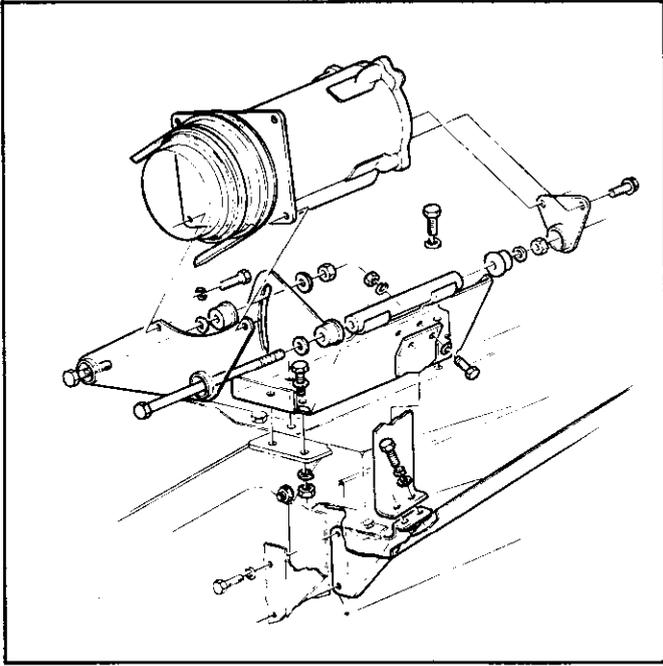


Fig. 5—Compressor Mounting

9. A thermometer placed in the right-hand diffuser outlet.

The following Performance Data define normal operation of the 1966 system under the above conditions.

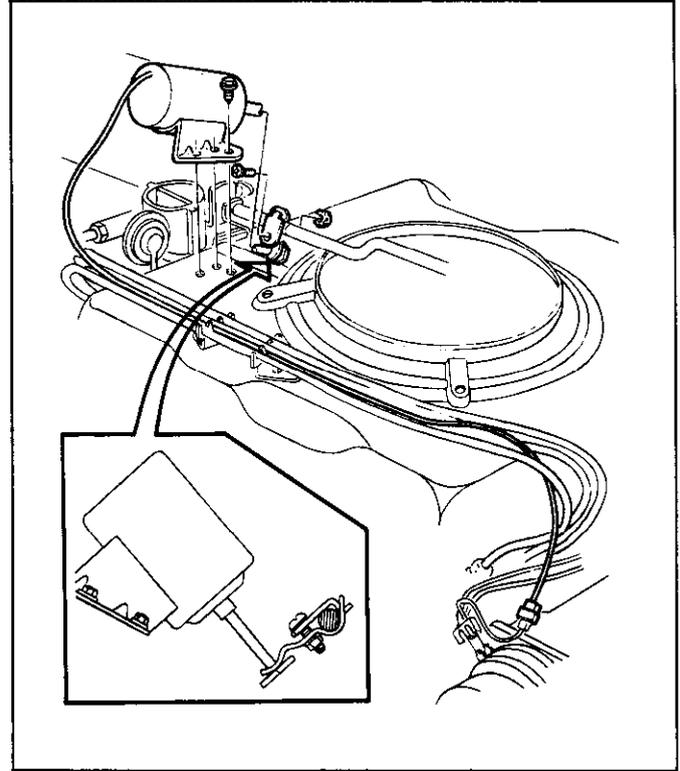


Fig. 6—Fast Idle Control

Engine Air Inlet Temperature	70°	80°	90°	100°	110°	120°
Engine RPM	2000 rpm					
Compressor Head Press.	140-150	145-155	175-185	210-220	255-265	270-280
Compressor Suction Press.	14	15	16	20	20	25
Discharge Air Temp. at R.H. Outlet*	35-40	35-40	37-42	39-44	42-47	42-47

*When compressor clutch disengages.

1966 CORVAIR ALL-WEATHER AIR CONDITIONING SYSTEM CAPACITIES

Refrigerant Charge (R-12) 4 lbs. 8 oz.
 Oil Charge 10 oz. of 525 Viscosity Oil

WIRING DIAGRAM

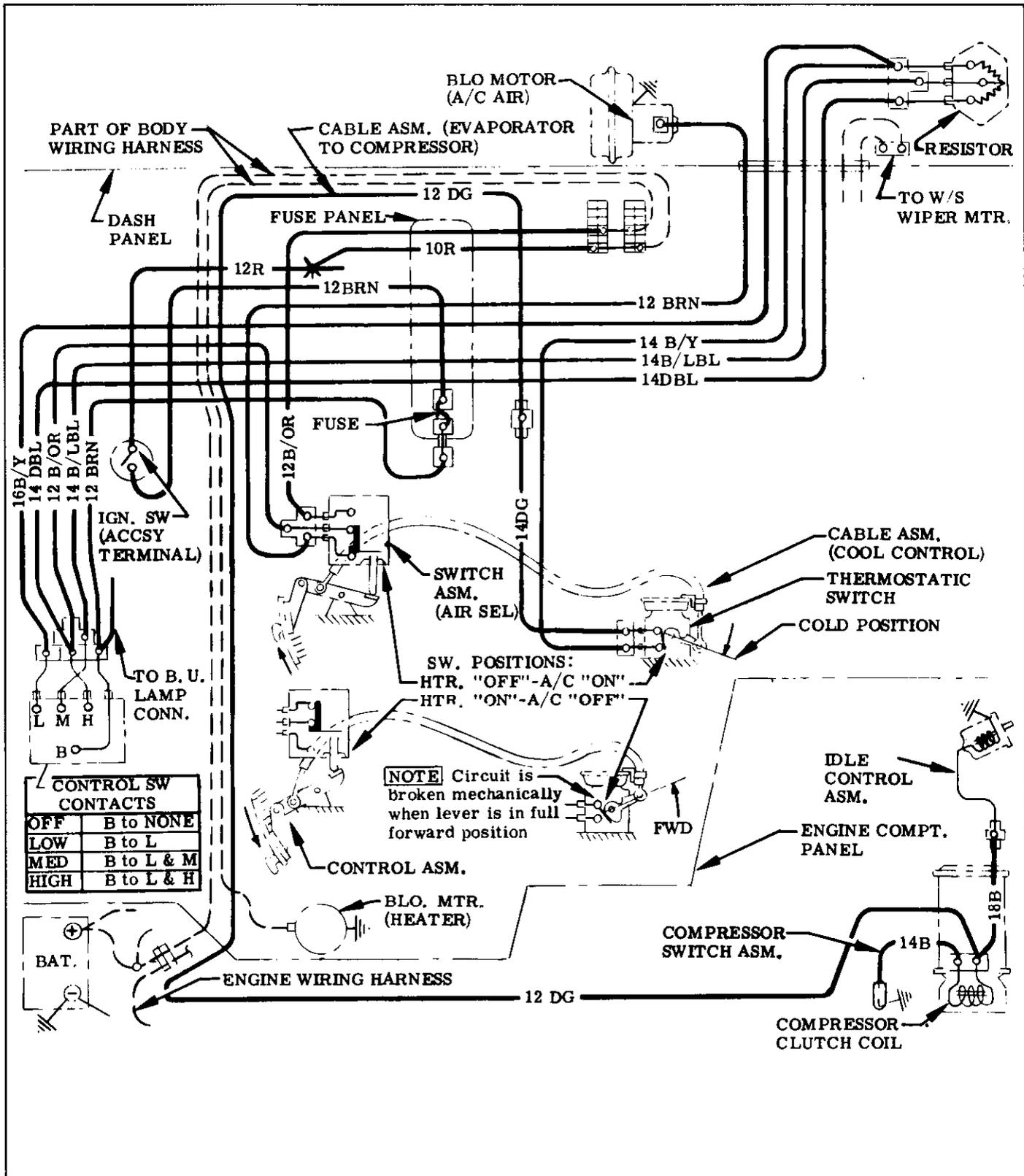


Fig. 7—Corvair All-Weather Air Conditioning System Wiring Diagram

SPECIFICATIONS

FRONT SUSPENSION

(SECTION 3)

Caster	Positive 3° + 1/2°*
Camber	Positive 1° ± 1/2°*
Steering Axis Inclination	6 1/2° ± 1/2°
Toe-in (Total)**	
Front	1/4"
Wheel Nut Torque	55 to 65 lbs. ft.
Wheel Bearing Endplay001" to .008"

Riding Height:

All Models. 26.2" ± 1/2"

Measurements between sides should be within 1/2" of each other.

*Within 1/2° of opposite side.

**Toe setting must always be made after caster and camber.

REAR AXLE AND SUSPENSION

(SECTION 4)

REAR AXLE

Type Differential integral with engine and transmission, driving rear wheels independently through universal joints.

Lubricant Capacity Transmission and Rear Axle (Manual) 3-and 4-Speed 4 qts.
Type Recommended . SAE 80, Multi-Purpose, meeting requirements of U.S. Ordnance Spec. MIL-L-2105B

Ratio (to 1) 3.27, 3.55
Gear Backlash003-.010"
(.005-.008" desired)

Pinion Bearing Preload (in. lbs.) New	5-10
Pinion Adjustment	Shim
Differential Bearing Adjustment	Sleeves
Bolt Torques	
Ring Gear	50 ft. lbs.
Drive Spindle Flange	125 ft. lbs.
Drive Spindle Yoke Nut	100 ft. lbs.
Pinion Adjusting Sleeve Lock	25 ft. lbs.
Differential Cover	180 in. lbs.
Differential Carrier to Transmission	45 ft. lbs.
Differential Carrier to Engine	25 ft. lbs.
Axle Shaft Retaining Bolts	15 ft. lbs.
Differential Carrier Filler Plug	30 ft. lbs.

REAR SUSPENSION

Type Stamped steel torque control arms with adjustable brackets for toe-in setting. Rubber mounted front and rear lateral strut rods with eccentric cam bolt at rear strut rod outer pivot for camber adjustment.

Shock Absorbers
Make Delco
Type Direct, double-acting; hydraulic

*Toe-in (Total) Rear 1/4"
*Camber (Rear) Pos. 1° ± 1/2°
*Camber must not vary more than 1/2 degree from side to side. Toe setting must be made after camber is set.

Bolt Torques

Rear Wheel Spindle Support to Torque Control Arm	40 ft. lbs.
Torque Control Arm Bracket to Underbody	25 ft. lbs.
Front Strut Rod Outer Nuts	15 ft. lbs.
Front Strut Rod Bracket to Transmission Support	25 ft. lbs.
Torque Arm Bushing Pivot Nut	110 ft. lbs.
Rear Strut Rod Pivot Nut	80 ft. lbs.
Rear Strut Rod Bracket to Differential Carrier	25 ft. lbs.
Rear Shock Absorber Lower Attaching Nut	50 ft. lbs.
Rear Shock Absorber Upper Nut	90 in. lbs.
Wheel Stud Nuts	60 ft. lbs.
Control Arm Rebound Bumper	20 ft. lbs.

BRAKES

(SECTION 5)

Main Cylinder Diameter	
Organic	1.0"
Wheel Cylinder Diameter	
Front875"
Rear9375"
Brake Lining (Bonded)	
Width	
Front	2.5"
Rear	2.0"

Thickness	
Primary17"
Secondary20"
Minimum Serviceable030"
Length (Front and Rear)	
Primary	9.01"
Secondary	9.75"
Front Anchor Pin Torque	130 ft. lbs.

ENGINE (SECTION 6)

GENERAL DATA:					
Type		Flat Opposed 6			
Displacement		164			
Horsepower @ rpm		95 @ 3600	110 @ 4400	140 @ 5200	180 @ 4400
Torque @ rpm		154 @ 2400	160 @ 2800	160 @ 3600	265 @ 3200
Bore		3-7/16"			
Stroke		2-15/16"			
Compression Ratio		8.25:1	9:1	8:1	
Firing Order		1-4-5-2-3-6			
CYLINDER BORE:					
Diameter		3.4370"-3.4400"			
Out of Round		Production	.001" (Max.)		
		Service	.002" (Max.)		
Taper	Production	Thrust Side	.0005" (Max.)		
		Relief Side	.001" (Max.)		
	Service		.005" (Max.)		
PISTON:					
Clearance		Production	.0011"-.0017"		
		Service	.0035" (Max.)		
PISTON RING:					
C O M P.	Groove Clearance	Production	.0017"-.0032"		
		Service	Hi Limit Production + .001"		
	Gap	Production	.013"-.025"		
		Service	Hi Limit Production + .01"		
O I L	Groove Clearance	Production	.000"-.005"		
		Service	Hi Limit Production + .001"		
	Gap	Production	.015"-.035"		
		Service	Hi Limit Production + .01"		
PISTON PIN:					
Diameter		.7999"-.8002"			
Clearance		Production	.0001" Interference - .00025" Clearance		
		Service	.001" (Max.)		
Fit in Rod		.0008"-.0016" (Interference)			

Horsepower		95	110	140	180
CRANKSHAFT:					
Main Journal	Diameter	#1 & 2	2.0978"-2.0988"		
		#3 & 4	2.0983"-2.0993"		
	Taper	Production	.0002" (Max.)		
		Service	.001" (Max.)		
	Out of Round	Production	.0002" (Max.)		
		Service	.001" (Max.)		
Main Bearing Clearance	Production	#1 & 2	.0012"-.0028"		
		#3 & 4	.0007"-.0022"		
	Service	.003" (Max.)			
Crankshaft End Play		.002"-.006"			
Crankpin	Diameter	1.799"-1.800"			
		Taper	Production	.0003" (Max.)	
	Service		.001" (Max.)		
	Out of Round	Production	.0002" (Max.)		
		Service	.001" (Max.)		
	Rod Bearing Clearance	Production	.0004"-.0025"		
Service		.003" (Max.)			
Rod Side Clearance		.005"-.010"			
CAMSHAFT:					
Lobe Lift ± .002" (Int. & Exh.)		.257"	.260"		
Journal Diameter	#1	1.440"			
	#2-3 & 4	1.200"			
Camshaft Runout		.0015" (Max.)			
VALVE SYSTEM:					
Lifter		Hydraulic			
Rocker Arm Ratio		1.5:1			
Valve Lash (Int. & Exh.)		One turn down from zero lash			
Face Angle (Int. & Exh.)		45°			
Seat Angle (Int. & Exh.)		46°			
Seat Runout (Int. & Exh.)		.002" (Max.)			
Seat Width	Intake	1/32"-1/16"			
	Exhaust	1/16"-3/32"			
Stem Clearance	Production	Int.	.0010"-.0028"		
		Exh.	.0014"-.0029"		
	Service	Hi Limit Production + (.001" Int.) (.002" Exh.)			
Valve Spring	Free Length		2.08"		
	Pressure lbs. @ in.	Closed	78-86 @ 1.66"		
		Open	170-180 @ 1.26"		
	Installed Height ± 1/32"		1-21/32"		
Spring Damper		.045" x .250", Flat Wound, Approx. 4 Coils			

TORQUES

Size	Usage	Torque
1/4-20	Oil Pan	100 in. lbs.
	Oil Pump Cover	70 in. lbs.
	Oil Cooler to Cylinder Head	50 in. lbs.
	Shroud Attachment	70 in. lbs.
	Valve Rocker Cover	50 in. lbs.
5/16-18	Oil Suction Screen Pipe Clamp	40 in. lbs.
	Crankcase L.H. to R.H. (One in Oil Sump)	10 ft. lbs.
	Crankcase Cover	10 ft. lbs.
	Oil Cooler Adapter to Crankcase	10 ft. lbs.
	Oil Filter and Delcotron Adapter	10 ft. lbs.
11/32-24	Rear Housing	10 ft. lbs.
	Clutch Cover and Pressure Plate	20 ft. lbs.
	Flywheel (Syn. Transmission)	45 ft. lbs.
	Flex Plate (P/G Transmission)	25 ft. lbs.
	3/8-16	Oil Cooler to Adapter
Shroud Attachment		15 ft. lbs.
Skid Plate		20 ft. lbs.
Flywheel or Clutch Housing		25 ft. lbs.
Crankshaft Pulley to Balancer		30 ft. lbs.
7/16-20	Crankcase L.H. to R.H.	55 ft. lbs.
	Oil Filter	20 ft. lbs.
1/2-20	Crankshaft Pulley or Balancer	45 ft. lbs.
5/16-24	Connecting Rod	25 ft. lbs.
3/8-16	Exhaust Manifold Clamp	25 ft. lbs.
	Rear Mounting Bracket	45 ft. lbs.
	Stud - Cylinder Head to Crankcase	20 ft. lbs.
	Switch - Cylinder Head Temperature	15 ft. lbs.
3/8-24	Cylinder Head Nut	40 ft. lbs.
	Valve Rocker Arm Stud	40 ft. lbs.
	Adjusting Nut - Valve Rocker Arm	100 in. lbs.
	Distributor Clamp Nut	10 ft. lbs.
	Sending Unit - Cylinder Head Temperature	10 ft. lbs.
1/2-20	Switch Cylinder Head Temperature	15 ft. lbs.
	Oil Pan Drain Plug	35 ft. lbs.
1/8-27	Oil Pressure Switch	55 in. lbs.
9/16-18	Oil Pressure Regulator Valve Plug	15 ft. lbs.
14 mm.	Spark Plug	20 ft. lbs.

MOUNT TORQUES

Attaching Part	Torque
Front Mount Nuts	70 ft. lbs.
Bracket-to-Transmission	25 ft. lbs.
Front Mount-to-Crossmember	25 ft. lbs.
Rear Mount Nuts	30 ft. lbs.
Rear Mount-to-Frame	20 ft. lbs.

ENGINE FUEL

(SECTION 6M)

MODEL	Rochester HV				Roch. H	Carter YH
ENGINE	95, 110 & 140 (prim) hp. (exc. with A.I.R.)		95, 110 & 140 (prim) hp. (With A.I.R.)		140 hp. (Sec.)	180 hp.
TRANSMISSION	Syn.	Auto.	Syn.	Auto.	All	Syn.
PART NUMBER	7026023	7026024	7036023	7036024	7026026	3880786 (4141SA)
Float Level	1-1/16"					5/8"
Float Drop	1-9/16"					2-3/8"
Accelerator Pump	Index Line					
Idle Vent	.015"					
Choke Rod	.190"					
Fast Idle	.075"					.035"
Choke Vacuum Break	.190"					
Choke Unloader	.325"					.450"
Choke	1/2 to 1 Rod Diameter Interference					1 Lean
Secondary Lockout	Lever Tang					.020"
	Lever Stop					.060"
Main Metering Jet	.050"	.049"	.050"	.049"	.046"	.0846"
Metering Rod						.053" x .048"
Throttle Bore	1-1/4"					1-1/2"

A.I.R. = Air Injection Reactor

ENGINE ELECTRICAL

(SECTION 6Y)

BATTERY 1980024 Ground Neg Plates 54 Ampere Hour 44		
GENERATOR Application Cold Output amps Cold Output Volts Field Current Draw @ 12 V. 80°F	1100639 Base 35 14 2.2-2.6	1100698 Air Conditioning 47 14 2.8-3.2
VOLTAGE REGULATOR Application voltage regulator Air Gap Setting @ 85°F Point Opening Field Relay Air Gap Point Opening Closing Voltage	1119515 All Except Air Conditioning .067 13.8-14.8 .014 .015 .030 1.5-3.2	1119519 Air Conditioning .067 13.8-14.8 .014 .015 .030 1.5-3.2
STARTING MOTOR Application Brush Spring Tension (oz.) Free Speed Volts Amperes rpm Resistance Test (Armature Locked) Volts Amperes Torque-Mounting Pad Bolts (ft.-lbs.) Solenoid Hold-in Windings Both Windings	1108306 Std. Trans. 35 10.6 58 6750-10,500 4.0 280 20-30	1108307 Auto. Trans. 35 10.6 58 6750-10,500 4.0 280 20-30
		10.5-12.5 Amperes @ 10V 42-49 Amperes @ 10V
IGNITION COIL 1115200 Application All Primary Resistance, ohms 1.28-1.42 Secondary Resistance, ohms 7200-9500		
IGNITION RESISTOR Type Special Wire—Part of Harness Resistance 1.8 ohms		
SPARK PLUGS Application Size Plug Gap Torque	AC-44FF 110, 140 and 180 hp 14 mm. .030"	AC-46FF 95 hp 14 mm. .035"
15-20 lb. ft.		

DISTRIBUTOR	1110310	1110311	1110319	1110329	1110330	1110339
Application	95 HP Std. Trans.	95 HP Powerglide	110 HP (All)	180 HP Turbo-Charged	140 HP 4 x 1 BBL Std. Trans.	140 HP 4 x 1 Powerglide
Rotation-View from Drive End	CCW	CCW	CCW	CCW	CCW	CCW
Breaker Point Gap .	.019" New—.016" Used					
Breaker Arm Tension	19-23 oz. (Measured just behind points)					
Condenser Capacity .	.18-.23 Micro Farads					
Firing Order	1-4-5-2-3-6					
Ignition Timing @ Idle	6° BTDC	14° BTDC	14° BTDC	24° BTDC	18° BTDC	18° BTDC
Cam Angle (Dwell) .	31°-34°					
Centrifugal Advance Start	0° @ 700 rpm	0° @ 1700 rpm	0° @ 800 rpm	0° @ 4000 rpm	0° @ 800 rpm	0° @ 800 rpm
Intermediate			4° @ 1200 rpm			
Maximum	28° @ 4200 rpm	20° @ 4200 rpm	20° @ 4800 rpm	18° @ 4900 rpm	18° @ 2800 rpm	18° @ 3200 rpm
Vacuum Advance Start	0° @ 6" Hg	0° @ 7" Hg	0° @ 7" Hg	0° @ 2.25 psi*	0° @ 6" Hg	0° @ 7" Hg
Full Advance (+ Engine)	24° @ 14" Hg	24° @ 15 Hg	24° @ 15" Hg	8° @ 3.62 psi*	22° @ 14" Hg	24° @ 15" Hg

*Retard

TRANSMISSIONS AND CLUTCH (SECTION 7)

CLUTCH (MANUAL TRANSMISSION) 3-SPEED AND 4-SPEED

Make & type	Chevrolet, single dry disc, centrifugal	
Type pressure plate springs	Diaphragm, bent finger design	
Total spring load (lb.)	1250-1450	1275-1475
No. of clutch driven discs	One	
Clutch facing	Material	Woven type asbestos
	Outside & inside dia.	8.0 & 6.0
	Total eff. area (sq. in.)	44.0
	Thickness	.125 ea.
Engagement cushioning method	Flat spring steel between facings	
Release bearing	Type & method of lubrication	Single row ball, packed and sealed

MANUAL TRANSMISSION

Number of forward speeds		3-Speed 3	4-Speed 4	
Transmission ratios	In first	3.11	3.11	
	In second	1.84	2.20	
	In third	1.00	1.47	
	In fourth		1.00	
	In reverse	3.22	3.11	
Synchronous meshing, specify gears		All forward gears		
Shift lever location		Floor		
Lubricant	Capacity (pt.)	3.1	3.6	
	Type recommended	Military Spec. MIL-L-2105-B		
	SAE viscosity number	Summer	SAE 80	
		Winter	SAE 80	
Extreme cold		SAE 80		

AUTOMATIC TRANSMISSION

Trade name	Powerglide	
Type describe	Torque converter with planetary gears	
Method of Selection (Lever, Push Button or other)	Lever	
Selector Pattern	L-D-N-R	
List gear ratios Selector Pattern and indicate which are used in each selector position	Drive 1.82 & 1.0 Low & Reverse - 1.82	
Max. upshift speeds—drive range	49	
Max. kickdown speeds—drive range	45	
Torque convertor	Number of elements	3
	Max. ratio at stall	2.60
	Type of cooling (air, liquid)	None
Lubricant	Capacity—refill (pt.)	6
	Type recommended	A Suffix A

**STEERING
(SECTION 9)**

STEERING GEAR

Type Recirculating Ball
 Steering Ratio
 Gear 18:1
 Overall 23.5:1

LINKAGE

Type Parallel Relay
 Location Front of Wheels
 Tie Rods 2

TORQUE CHART

Worm Bearing Preload 3-1/2 to 4-1/2 in. lbs.
 Sector Lash Adjustment 8 to 10 in. lbs.
 in excess of above
 Max. Steering Gear Preload 14 in. lbs.
 Steering Gear Mounting Bolts 30 ft. lbs.
 Pitman Shaft Nut 95 ft. lbs.
 Steering Wheel Nut 30 ft. lbs.
 Tie Rod End Nut 35 ft. lbs.
 Tie Rod Clamp Bolts 15 ft. lbs.
 Idler Arm Mounting Bolts 20 ft. lbs.
 Steering Gear Coupling Bolt 25 ft. lbs.
 Lower Mast Jacket Bearing
 Clamp Torque 40 in. lbs.

ACCESSORIES

(SECTION 15)

AIR CONDITIONING

Compressor

Make Frigidaire
 Type 6 Cylinder AXIAL
 Displacement 10.8 Cu. In.
 Rotation Counter-Clockwise

Blower Motor

Volts 14
 Amps (Cold) 9.4 (Max.)
 RPM (Cold) 3100

Compressor Clutch Coil

Ohms (at 80° F) 3.85
 Amps (at 80° F) 3.2 @ 12 Volts

System Capacities

Refrigerant R-12
 Compressor Oil Frigidaire 525 Viscosity
 R-12 4 lbs. 8 oz.
 Compressor Oil 10 oz.
 Fuse 15 Amp-in fuse block