

**1961**

# **CHEVROLET**

## **NEW PRODUCT INFORMATION**



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TECHNICAL SERVICE DEPARTMENT  
**CHEVROLET MOTOR DIVISION**

GENERAL MOTORS CORPORATION

# INTRODUCTION

This booklet is presented to cover the new service information for the 1961 Chevrolet Passenger Car, Corvair, Truck and Corvette. It should be used in conjunction with the 1961 Passenger Car Shop Manual, 1961 Corvair Shop Manual and 1961 Truck Supplement. The Corvair Shop Manual includes the L.D.F.C. models.

The L.D.F.C. models are completely described from a servicing and product information standpoint. The information for the Passenger Car, Corvair, Truck and Corvette covers those changes that affect service procedures.

The booklet is divided into four parts (1) Passenger Car (2) Corvair (3) Truck and (4) Corvette. Each part is subdivided into sections, numbered the same as the Shop Manuals. For example, Section 2 in the Shop Manuals covers General Lubrication; Section 2 in each part of this booklet covers all the lubrication requirement changes for the 1961 products. All sections describe constructional changes, how the new units operate and related service procedures. Complete service procedures are covered in the Shop Manuals. Sections that remain unchanged are not included in this booklet.

The booklet is designed to be used in conjunction with the Training Programs to be conducted in the Chevrolet Classrooms of the General Motors Training Centers.

All information, illustrations and specifications contained in the manual 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.

# PART 2—CORVAIR

## SECTION 1 GENERAL INFORMATION

### 1961 MODEL LINE-UP

The Corvair model line-up for 1961 is expanded to include standard and deluxe models of the new 4-door, 6-passenger Lakewood Station Wagon.

Another addition to the Corvair line is

a special 95-inch wheelbase Station Wagon called the Greenbrier with a series designation of R-1206. The following chart is a complete list of all the models offered in the Corvair line.

### CORVAIR MODEL IDENTIFICATION CHART

Series Designation	Model Number	Description
Corvair 500	527	2-Door Coupe, 5-Passenger
	569	4-Door Sedan, 6-Passenger
	535	4-Door Station Wagon, 6-Passenger (Lakewood)
Corvair 700	727	2-Door Coupe, 5-Passenger
	769	4-Door Sedan, 6-Passenger
	735	4-Door Station Wagon, 6-Passenger (Lakewood)
R-12	R1206 Deluxe*	4-Door Station Wagon, 6-Passenger
Corvair	927	2-Door Coupe, 4-Passenger

\*Custom package is available as single option (RPO 431).

## SECTION 3

# SUSPENSION

The 1960 Corvair chassis, including the improvements introduced in mid-season, is carried over for 1961 with the design extended to the new Lakewood Station Wagon models. Station wagon front and rear sus-

pensions are the same as those used on the other models with the spring rates and shock absorber calibrations tailored to the particular requirements of the vehicle.

# SECTION 6A

## ENGINE

The Corvair Turbo-Air engine for 1961 is basically the same as the 1960 model with some significant revisions. Changes involve a simplified carburetor air intake system, minor carburetor changes, increased piston displacement, and air cooling system revisions.

### SIMPLIFIED AIR INTAKE SYSTEM

The tripod support, automatic choke, and air cleaner over the engine cooling blower have been eliminated lowering the engine height. Short, flat, wedge-shaped ducts extend forward from each carburetor to separate smaller than previous air cleaners, which house oil-wetted polyurethane elements (fig. 1).

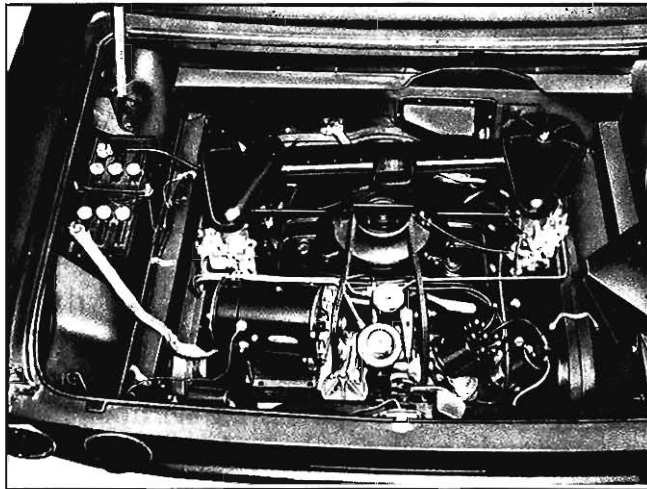


Fig. H1—Top View—Corvair Engine

Although the new elements are smaller, usable filtering surface is doubled. This is due to a change in the direction the air flows in relation to the filter element. Previously, air taken in near the bottom of the air cleaner flowed to the center where it passed through the filter element from inside to outside, thus restricting usable fil-

tering surface to the inside diameter. Airflow in the new system is from outside to inside, and the outside diameter is such that one new element provides as much filtering surface as the former large unit.

An oval crossover air duct runs laterally across the forward engine compartment connecting the two air cleaners. The crossover contains a single inlet duct which projects rearward toward the engine blower to pick up preheated air.

### Manual Choke

A manual choke is used with each carburetor which are operated together by a single instrument panel pull knob mounted to the left of the steering column (fig. 2). The single cable from the instrument panel control is attached to a cross over cable that connects to each carburetor choke.

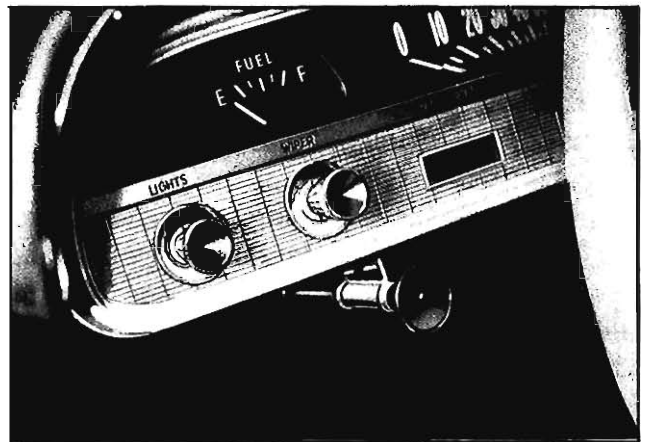


Fig. H2—Manual Choke Pull Knob

The choke linkage is devised so the first portion of travel opens the throttle to increase engine speed before moving the choke valve. Therefore, when a vehicle is stopped for a period of time during adverse weather conditions, the new choke control

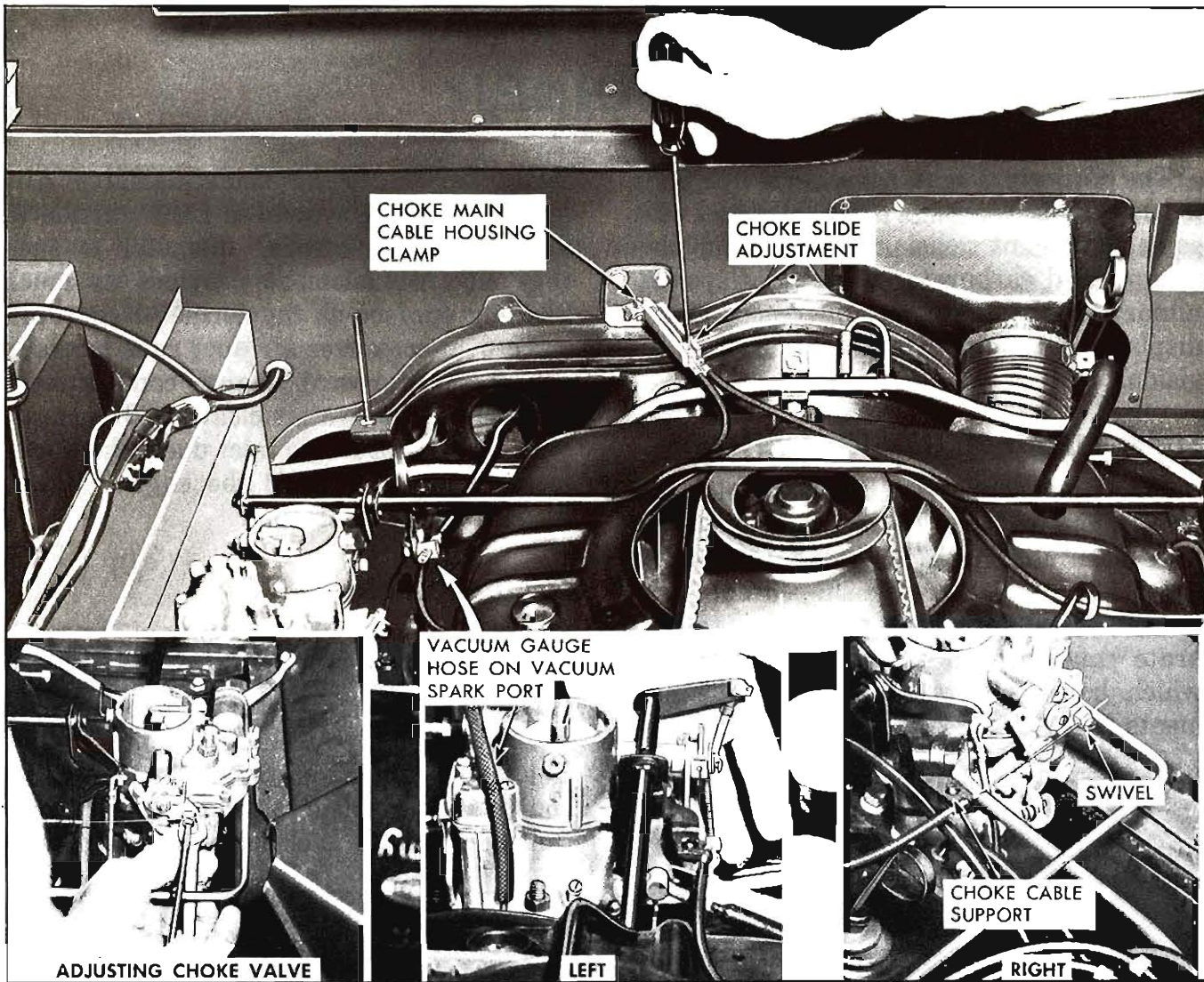


Fig. H3—Manual Choke Adjustment

can be set to increase engine speed reducing the possibility of carburetor icing.

#### Choke Adjustment Procedure

1. With the slide  $\frac{1}{4}$ " from the rear of the mounting bracket (fig. 3) and choke knob on dashboard out approximately  $\frac{1}{8}$ ", tighten the slide screw onto the main choke cable wire.
2. Check and/or adjust cable housing to approximately  $\frac{1}{4}$ " beyond mounting bracket clamp and tighten clamp at each carburetor.
3. With slide approximately  $\frac{1}{4}$ " from rear of mounting bracket slot, tighten

swivel at each choke lever and throttle kick cam when choke valve is fully open. Cut the cable wire so about  $\frac{1}{4}$ " extends past the swivel. Use care not to bend or kink cable wire.

4. Pull choke knob to check for proper operation.
  - a. Choke valve should just begin to move when pull knob is approximately  $\frac{3}{8}$ " to  $\frac{1}{2}$ " out.

**NOTE.** During the first  $\frac{3}{8}$ " to  $\frac{1}{2}$ " choke knob travel, the fast idle cam raises idle speed without moving the choke valve.

- b. Pull knob full out and choke valve should be closed.
- c. Check ease of operation. (Kinks cause sticking.)

## **MINOR CARBURETOR CHANGES**

The carburetor is modified to reduce sensitivity to air intake system restriction. With the previous automatic choke location, it was necessary to vent the float chamber mainly with outside atmosphere. This tended to cause excessively rich fuel mixtures if the operator failed to service the air cleaner which permitted the air cleaner element to load-up. With the new choke location, vent passage diameters are increased and placed between the float bowl and the carburetor air horn.

The advantage is the air pressure in the float chamber is almost the same as the pressure of air flowing through the carburetors, so that metering of gasoline to the venturi cluster is more in the proper ratio to air volume available for combustion.

Also contributing to fuel economy, the venturi cluster is modified so that the short extension of the lower nozzle has been removed, placing the outlet flush with the lower surfaces of the four radial tubes. With this arrangement, the outlet is moved closer to the point of maximum venturi restriction, consequently gasoline is discharged into air of higher velocity to produce greater vaporization and more complete combustion.

## **INCREASED CUBIC INCH DISPLACEMENT**

The Corvair engine for 1961 has a cubic inch displacement of 145 cubic inches compared with 140 cubic inches for the 1960 models. This is accomplished by increasing the cylinder bore from 3.375" to 3.4375". The stroke remains the same at 2.6", consequently neither the crankshaft or connect-

ing rods have changed. Piston diameter is slightly larger and combustion chambers are slightly larger, so the compression ratio does not change.

## **AIR COOLING SYSTEM**

### **Construction**

The damper ring, operating thermostat, attaching rod and lever arm have been eliminated from the 1961 Corvair engine. The engine cooling air is controlled by separate exhaust duct damper doors. The doors are located at the outlet end of the lower shrouds and exhaust ducts which house each cylinder bank. Individual bellows thermostat, heat baffle and mounting bracket are bolted inside and to the front of each lower shroud. An actuating rod is attached between the bellows thermostat and each exhaust duct damper door (fig. 4). With this arrangement, as the engine warms up the doors automatically open according to the engine cooling requirements.

Rearward of the cylinder banks, recirculating air bleed slots are cut in the top surfaces of the air exhaust ducts (fig. 5).

When starting a cold engine and during the warm up period, the exhaust doors are held closed by the thermostats. Since the damper ring is eliminated, the engine blower constantly supplies air through the engine air cooling system, the bleed slots, into the engine compartment and is then again circulated by the blower. The effect of recirculating heated air serves two functions. First, it shortens engine warm-up time causing oil to flow more freely and parts are lubricated more rapidly. Second, warm air surrounds the carburetors to help minimize icing conditions.

### **Operation of Damper Doors**

Design of the bellows thermostats is such that the exhaust doors start to open when cooling air temperature reaches 200-210

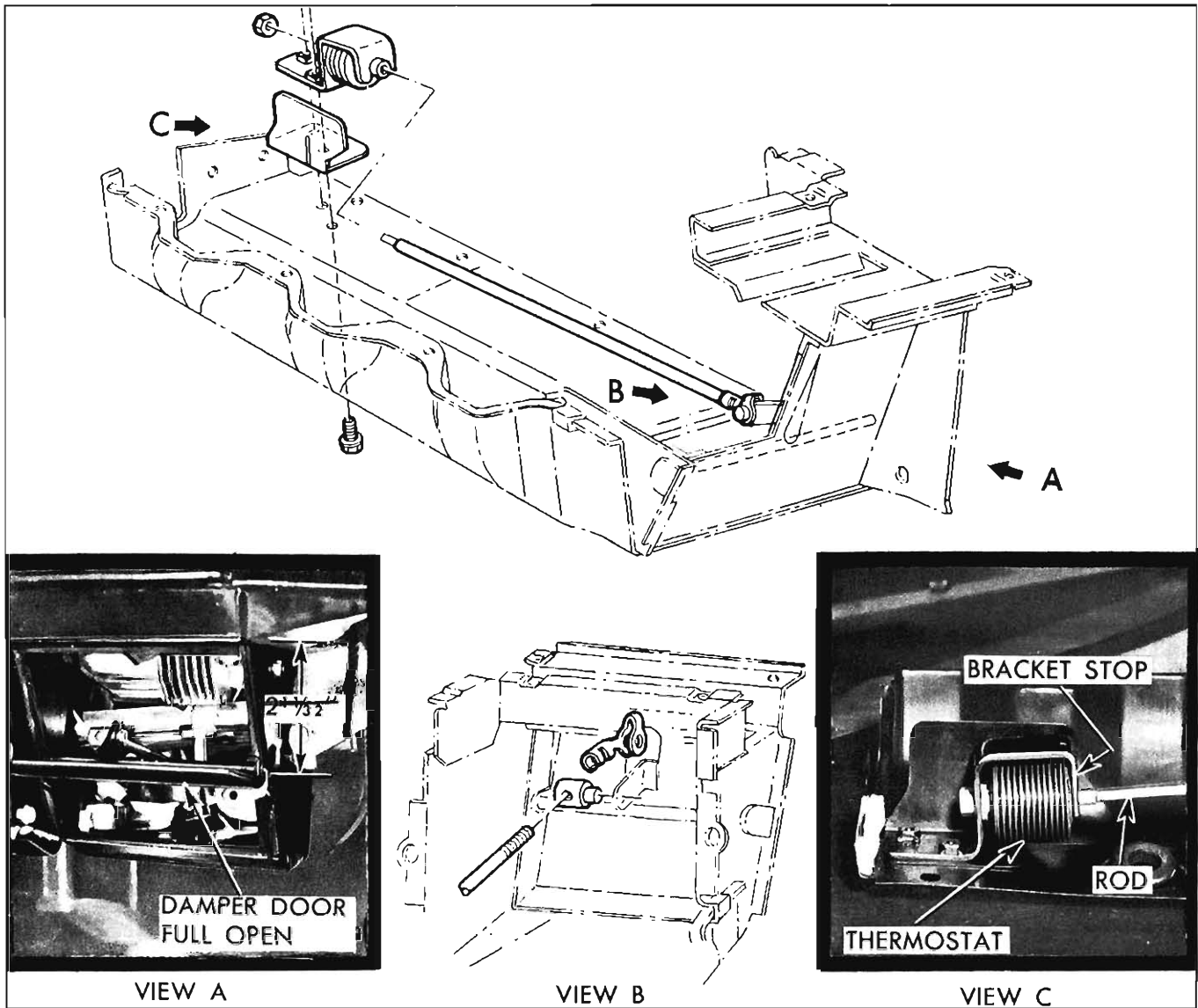


Fig. H4—Exhaust Duct Damper Door and Thermostat

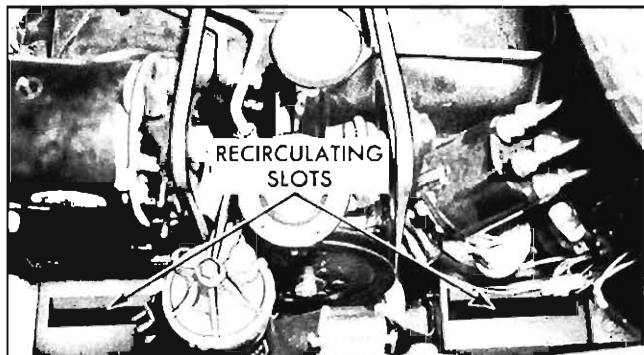


Fig. H5—Recirculating Air Bleed Slots

degrees Fahrenheit, and are full open at 225-230 degrees. In normal operation, ex-

haust doors angle will vary between full open and closed to keep the temperature of the cooling air within a range to keep the engine operating in its most efficient temperature range. This also means that combustion air is supplied at a temperature more advantageous to proper carburetion.

It becomes apparent that during the warm up period the capacity of the engine blower is such that with the exhaust doors closed the volume of air being supplied to the air cooling system cannot be discharged through the bleed slots (fig. 6). This creates a back pressure. So in effect, the vol-



ume of air flow is reduced during the warm up period for 1961 models at the exhaust end rather than the intake end.

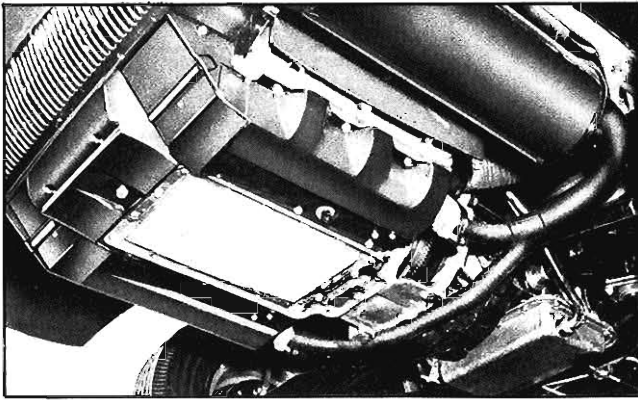


Fig. H6—Cooling Air Damper Doors Closed

### Damper Door Adjustment

To properly adjust the exhaust duct damper doors, with the shroud attached to the engine, refer to the following step by step procedure.

1. Clamp vise grip pliers on actuating rod through lower portion of door opening.
2. Pull rod toward rear of engine until a slight resistance is felt.

**NOTE:** At this point the thermostat is contacting the mounting bracket in the full open position.

3. Remove swivel retaining clip and disconnect swivel from damper door.
4. Place the exhaust door in the full open position ( $2\frac{1}{32}$ " ), then adjust the swivel to enter the slot in the exhaust duct damper door.
5. Replace swivel retaining clip.

### Operation of Bellows Thermostat

The bellows thermostat contains a coil spring that tends to open the exhaust door and is charged with a measured amount of Normal Butyl Alcohol. A characteristic of alcohol is during low temperature conditions its volume is reduced causing a low

pressure area within the bellows. Consequently, atmospheric pressure is sufficient to compress the bellows, including the internal spring, keeping the exhaust doors closed. As the engine warms up the alcohol is transformed from a liquid to a gas which expands the bellows permitting the spring within the bellows to expand opening the exhaust doors. This, in effect, is a safety feature, for if the bellows should leak, atmospheric pressure is equalized and the spring tension within the thermostat automatically opens the exhaust doors to the maximum cooling position.

### TEMPERATURE GAUGE

Engine temperature for 1961 is measured electrically by a disc-type temperature sensitive sending unit located on the underside of the right hand cylinder head, near number three cylinder (fig. 7). This unit, which replaces the oil temperature sending unit, is electrically connected to a tell-tale light in the instrument panel. Due to the greater conductivity of metal, especially aluminum, a quicker more accurate indication of engine temperature is available. Should the cylinder head temperature reach 450 degrees F., the tell-tale light will operate. The light serves the dual purpose of also indicating oil pressure.

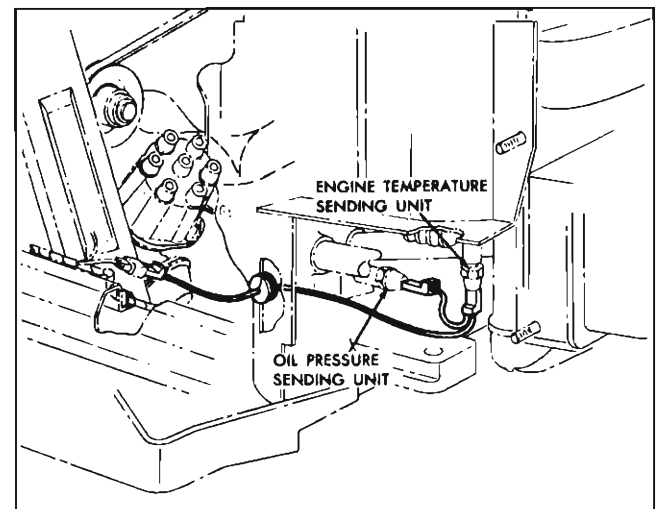


Fig. H7—Location of Engine Sending Units

## REAR ENGINE MOUNT

A new rear engine support is used for all 1961 Corvair engines (fig. 8), except L.D.F.C. models. It consists of a "L" shaped piece of metal mounted between two rectangular rubber biscuits. Two bolts attach the support to the body with one additional bolt connecting the support to the engine mounting bracket. The lower nut is removed from under the engine.

All L.D.F.C. models use the same rear engine mount as the 1960 Corvair models.

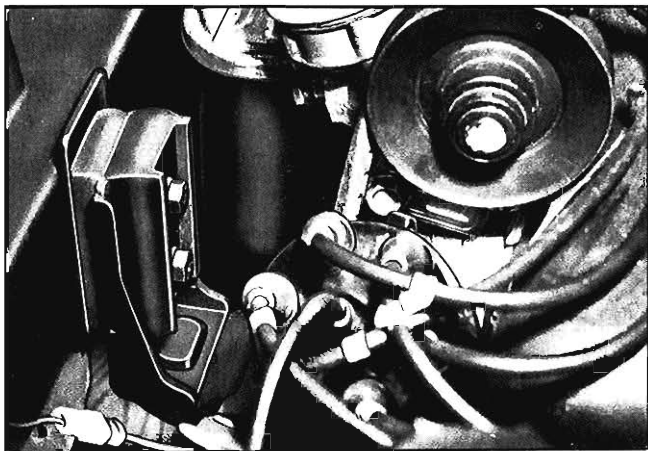


Fig. H8—New Rear Engine Mount

## MINOR ENGINE CHANGES

The following list briefly summarizes the minor changes between the 1960 and 1961 Corvair engine.

1. A  $\frac{3}{8}$ " engine vacuum balance tube replaces the larger tube used for 1960 models.
2. Both oil slingers and retainer snap rings have been omitted from the 1961 engines. They were located at the front and rear ends of the crankshaft.
3. The exhaust sleeves for 1961 are now a press fit into the exhaust manifold. They butted together for 1960 models (fig. 9). Refer to 1961 Corvair Shop Manual for service procedure.
4. The standard main bearing for number

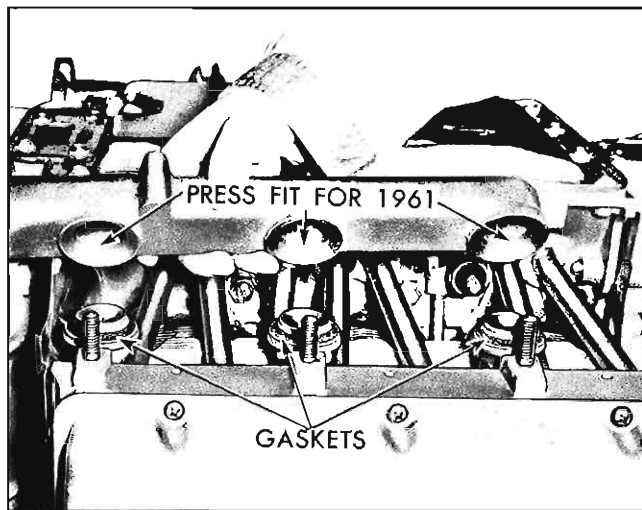


Fig. H9—Exhaust Manifold and Sleeve

4 is constructed to lower the centerline of the crankshaft .0015" and maintain .0007" to .0022" oil clearance. The bearing is identified by being spot painted with brown dye.

5. Cylinder air cooling fin construction has been changed to eliminate the cylinder head bolt holes.
6. For 1961 the choke heat pipe is eliminated.
7. The lower engine shrouds and exhaust ducts are combined to form one piece.
8. The perimeter of the lower shrouds is completely sealed with sponge rubber. Including a seal at the front end between the shroud and exhaust pipe. This will help to minimize any leakage of engine cooling air.
9. New non-metallic resistance type ignition wires, from distributor to spark plugs, are used for all 1961 Corvair engines to further suppress electrical disturbance that may interfere with radio reception.

## LAKWOOD & L.D.F.C. ENGINE VARIATIONS

Generally speaking, engines used for Lakewood station wagons and L.D.F.C.

models are the same as those used for sedans and coupes except for relocation of some service items.

The ignition system coil, which is mounted to the engine right rear face below the distributor for sedans and coupes, is mounted on the body in the center of the rear access door. The oil filler tube projects from the lower right side of the crankcase, ending just below the distributor. Oil level is checked by a bayonet-type gauge attached to the filler tube cap. The current and voltage regulator is moved from the rear body panel to the rear of the engine compartment left side inner panel. The carburetor air induction system does not have the short extension projecting toward the engine blower which is attached to the cross-over pipe running between air cleaners.

## HIGH PERFORMANCE ENGINE

For 1961 the high performance engine, called the Super Turbo-Air (fig. 10), is again offered for Corvair models equipped with 3 or 4-speed transmissions, including the Lakewood Station Wagon model, but not the Greenbrier.

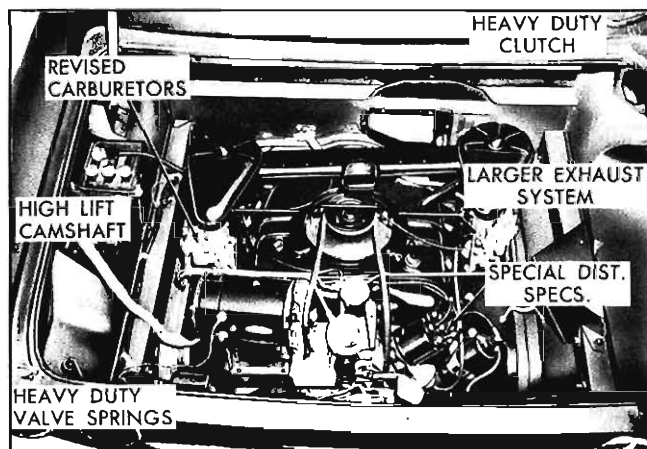


Fig. H10—Super Turbo-Air Engine

The basic engine is the same as the regular production engine with the increase in horsepower derived from increasing the

volumetric efficiency and modifications in the carburetors. The following paragraphs explain how these changes increase the engine horsepower.

## Volumetric Efficiency

Volumetric efficiency is the ease with which an engine breathes. As the piston moves down for an intake stroke, it creates a partial vacuum, causing air to flow into the combustion chamber. As the piston moves up on an exhaust stroke, it displaces this air and causes the combustion chamber to be emptied. Theoretically an engine should be able to take in and discharge an amount of air equal to its cubic inch displacement, every two revolutions of the crankshaft. But, when considering the inertia of the air, the time interval the valves are open, the restriction to air flow caused by the intake air flowing through the carburetor, intake manifold and the valves, the amount of air coming into the engine is restricted or partially "choked off." The discharge of the exhaust gases is restricted by the exhaust valves, exhaust manifold, muffler and tail pipe, causing back pressures which also contribute to the inability of an engine to breathe with 100 per cent efficiency.

To improve the engine breathing means more air-fuel mixture must be taken in and more exhaust gases discharged in a given length of time. By permitting more air-fuel mixture to fill the combustion chamber, a more powerful push is generated on the top of the pistons, resulting in higher horsepower output.

This was accomplished on the Super Turbo-Air engine by installing a camshaft which causes the intake and exhaust valves to open sooner, stay open longer, and lifts the valves to a higher point. This permits a greater flow of incoming air-fuel mixture and outgoing exhaust gases, which results in better engine breathing.

To go along with the valves opening farther are new type valve springs, valve spring caps and valve spring shims. The cylinder heads are machined differently than the standard cylinder head to facilitate the installation of the larger type valve springs.

The discharge of the gases is aided by increasing the size of the muffler and tailpipe passages. The tube diameters of the muffler and tailpipe have been increased from 1½ to 2 inches.

### **Carburetor Modifications**

With the greater air flow it was necessary to change the amount of fuel being discharged into the throat of the carburetor. This was accomplished by increasing the size of the idle tube .001" larger than the regular 3 speed transmission model carburetors. The restriction in the idle channel has also been increased .001". When a vehicle is to be used for extended high

speed operation, the main metering jet should be replaced with one that is .001" larger.

### **Distributor**

A distributor with a copper colored oiler is used with the Super Turbo-Air engine and has incorporated the following changes compared with the regular standard transmission distributor. The ignition timing at idle is 13° BTDC. The centrifugal advance curve is 0° at 700 rpm, 6.5° at 1200 RPM, 24° at 4800 RPM. The vacuum advance curve is 0° at 6" hg. and 23° at 15.2" hg. The increase in the ignition timing and centrifugal advance improves the break away feel during periods of low speed acceleration. The idle speed has been increased to 800 RPM for this engine. The spark plugs recommended for use with this engine are AC-46FF. When the vehicle is used for extended periods of high speed driving use spark plugs numbered AC-44FF.

## **CORVAIR ENGINE SPECIFICATIONS**

### **1961**

Turbo-Air	80 H.P. @ 4400; 128 Lb/Ft @ 2300
Super Turbo-Air	98 H.P. @ 4600; 132 Lb/Ft @ 28-3000

### **1960**

Turbo-Air	80 H.P. @ 4400; 125 Lb/Ft @ 2400
Turbo-Air Special	95 H.P. @ 4800; 125 Lb/Ft @ 2800

## SECTION 6B

### CLUTCH

The diameter of the clutch driven disc, used with the 1961 SuperTurbo-Air engine, has decreased to assist high speed shifting. The inside diameter of the clutch facing material is reduced to 6 inches from  $6\frac{1}{8}$  inches and the outside diameter is decreased to 8 inches from  $9\frac{1}{8}$  inches. By reducing the diameter of the clutch driven

disc, this tends to reduce the rotating inertia force of the clutch disc. Consequently, with the clutch slowing down sooner it is easier for the synchronizing units in the transmission to equalize the speed of the parts to be meshed; therefore, high speed gear shifting is smoother.

# SECTIONS 6C, D & E

## REAR AXLE, 3 & 4 SPEED AND POWERGLIDE TRANSMISSIONS

The Corvair transmission-axle combinations are extended for 1961 with the introduction of a new 4-speed transmission. The construction and operation of the standard 3-speed and optional Powerglide transmissions are carried over from 1960 with more economical axle ratios and revised 3-speed transmission gear ratios.

The standard axle ratio for coupe and sedan models is reduced to 3.27-to-1 from 3.55-to-1, with the optional axle ratios being 3.55:1 and 3.89:1. A 3.55:1 ratio is standard in the new Corvair Lakewood Station Wagon with 3.89:1 available as an option.

The Greenbrier's transaxle is similar to that of the Corvair passenger car except for gear ratios and heavier axle components to accommodate the van-type vehicle's capacity and 58 inch tread width. Standard equipment is the conventional 3-speed synchromesh transmission with gear ratios of 3.50-to-1 for first, 1.99-to-1 for second, 1.00-to-1 for third, and 3.97-to-1 for reverse. Powerglide and the 4-speed transmission are available as options. Gear ratios for the 4-speed unit are: 1.00-to-1 for fourth; 1.55-to-1 for third; 2.55-to-1 for second; and 4.27-to-1 for first and reverse.

A rear axle ratio of 3.89-to-1 is used with the Greenbrier when equipped with the standard 3-speed or Powerglide automatic transmissions while a ratio of 3.27-to-1 is used with the 4-speed unit.

The standard equipment, 3-speed transmission has increased gear ratios to maintain first and second gear performance. With the 3.27 axle, total transaxle gear reduction is approximately the same as in

1960. However, third or direct drive is reduced for more economical operation of the vehicle. The following chart compares the 1960 with the 1961 transmission and total reduction gear ratios for the coupe and sedan models. They are as follows:

	1960 (Axle Ratio-3.55:1)		1961 (Axle Ratio-3.27:1)	
	Trans- mission	Total Reduction	Trans- mission	Total Reduction
First	3.22:1	11.43:1	3.50:1	11.45:1
Second	1.84:1	6.53:1	1.99:1	6.50:1
Third	1.00:1	3.55:1	1.00:1	3.27:1
Reverse	3.65:1	12.96:1	3.97:1	12.98:1

### 4-SPEED TRANSMISSION

The optional 4-speed transmission is an entirely new unit for all 1961 Corvair models, including the Corvair 95 series models (fig. 11). It is available with either the standard or high performance engines to give the driver greater performance and flexibility of operation.

### Construction

The gear set is housed in a cast iron case, has a concentric input and output shaft designed for the transaxle and space limitations of a rear engine drive. All four forward driving gears are helically cut, in constant mesh and are fully synchronized. The synchronizer assemblies are splined to the transmission mainshaft, which are spline-connected to the hypoid pinion shaft. The first and second gear synchronizer cone is located on the mainshaft assembly near the rear of the transmission. The third and fourth gear synchronizer cone is located on the mainshaft assembly next to the clutch gear (fig. 12).

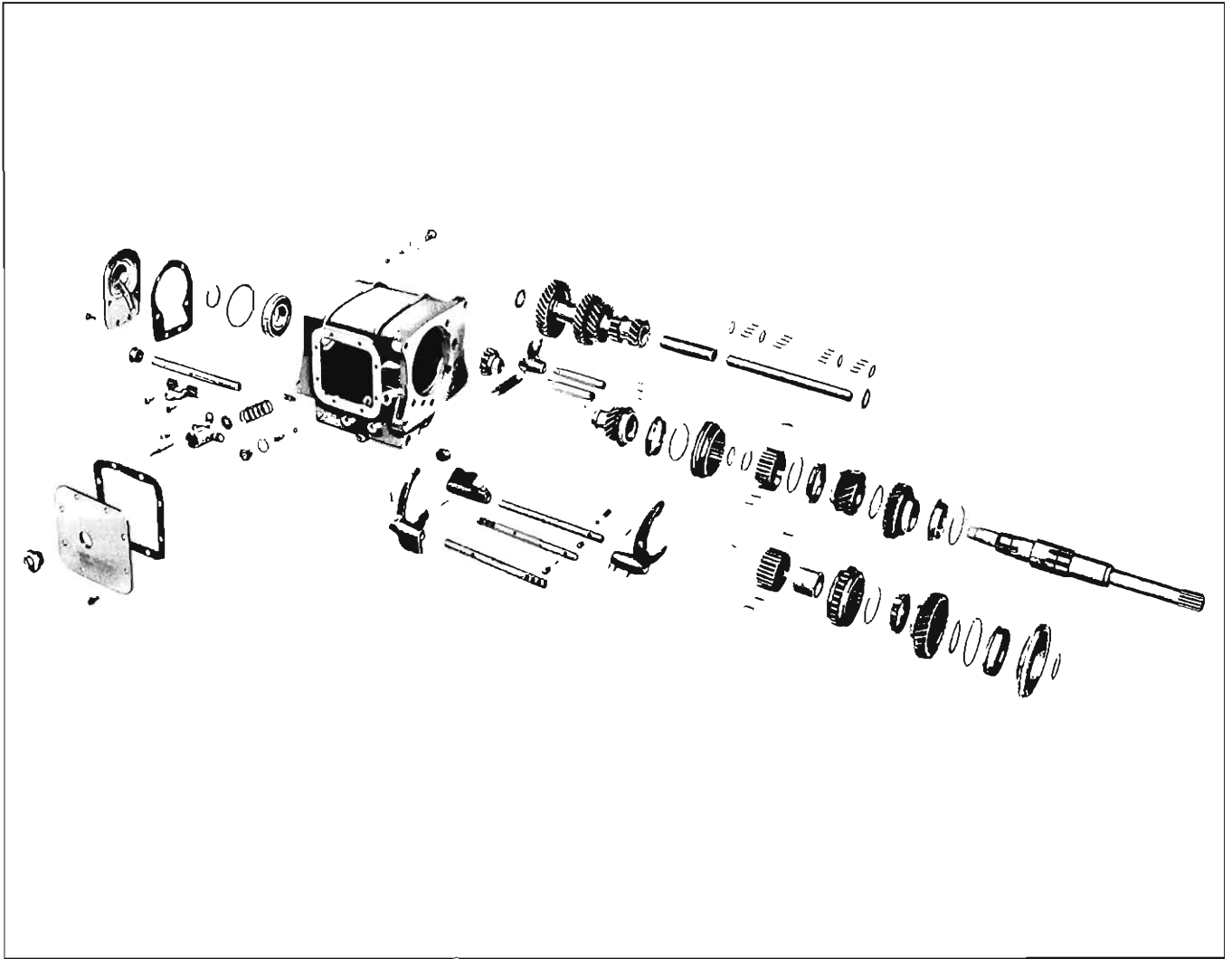


Fig. H11—Four Speed Transmission—Exploded View

The front end of the clutch gear shaft is supported by the clutch gear which in turn is supported by the front ball bearing that is held in position by a snap ring and bolted on end cover. The rear end of the clutch shaft is supported by the pilot bearing in the front end of the crankshaft. The rear end of the mainshaft is supported by the rear ball bearing which is held in place by a snap ring. The front end of the mainshaft is supported by needle bearings which are between the mainshaft and clutch gear.

The countergear is carried on needle bearings at both ends while the thrust is taken by thrust washers located between the ends of the countergear and the front and rear

of the case. The countershaft is prevented from moving toward the front by being a press fit in the case and toward the rear by butting against the axle housing case.

The reverse idler gear slides on a bronze bushing and is supported by a reverse idler gear shaft. To keep the reverse idler shaft from moving toward the front, the shaft is undercut providing a shoulder to butt against the case. Rearward movement is prevented by the rear end of the shaft butting against the axle housing case. Shaft rotating is prevented by a pin installed in the shaft at the rear end.

Similar in construction, the reverse idler

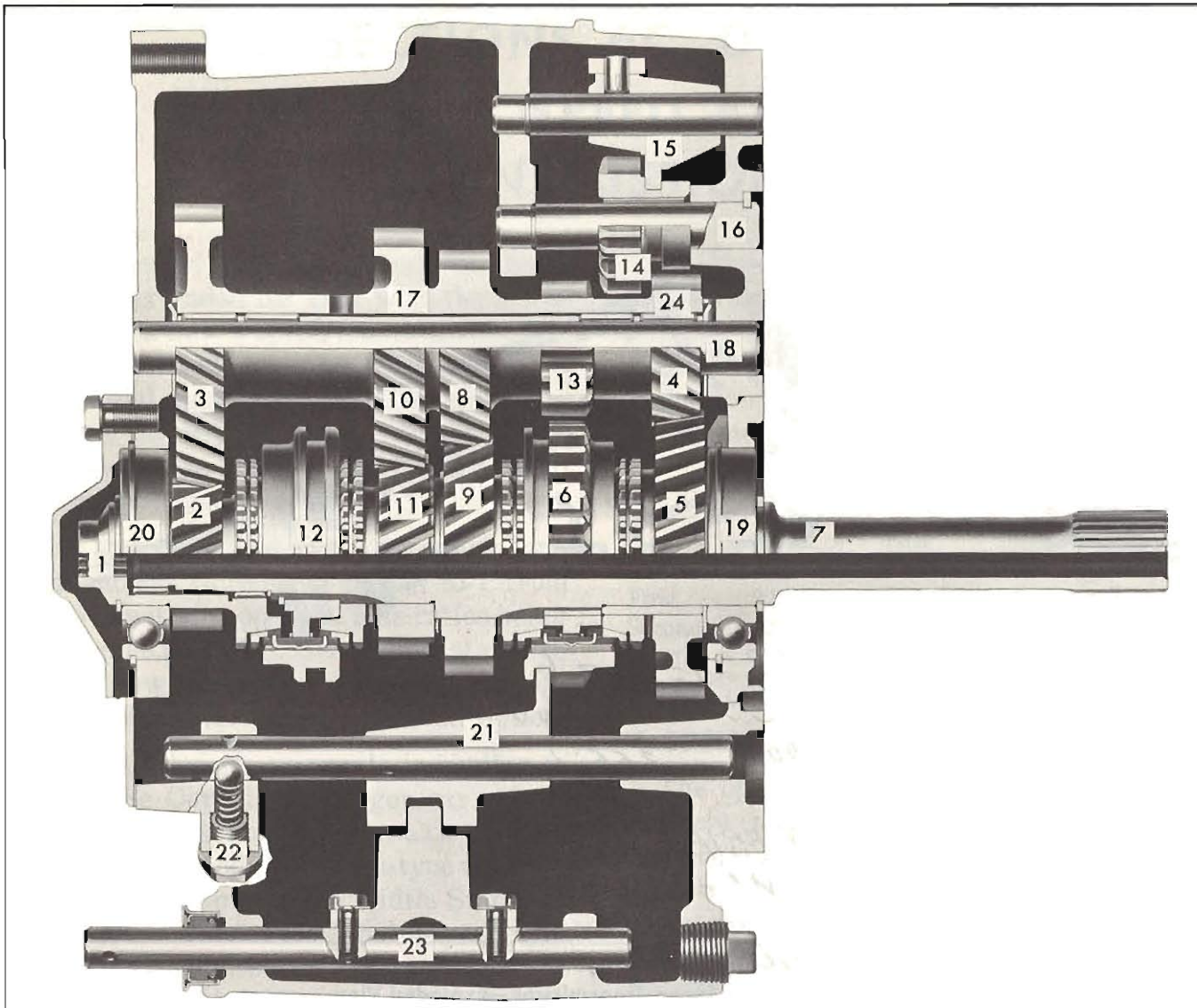


Fig. H12—Nomenclature Parts—Four Speed Transmission

- |                                    |                                   |                                       |                                    |
|------------------------------------|-----------------------------------|---------------------------------------|------------------------------------|
| 1. Clutch Shaft                    | 7. Mainshaft                      | 12. 3rd & 4th Synchronizer Assembly   | 17. Countergear                    |
| 2. Clutch Gear                     | 8. 2nd Speed Gear on Countergear  | 13. Reverse Idler Gear on Countergear | 18. Countershaft                   |
| 3. Clutch Gear on Countergear      | 9. 2nd Speed Gear                 | 14. Reverse Idler Gear                | 19. Rear Bearing                   |
| 4. 1st Speed Gear on Countergear   | 10. 3rd Speed Gear on Countergear | 15. Reverse Idler Gear Shifter Fork   | 20. Front Bearing                  |
| 5. 1st Speed Gear                  | 11. 3rd Speed Gear                | 16. Reverse Idler Shaft               | 21. 1st & 2nd Shifter Shaft & Fork |
| 6. 1st & 2nd Synchronizer Assembly |                                   |                                       | 22. Detent Ball & Spring           |
|                                    |                                   |                                       | 23. Shifter Shaft & Selector Lever |
|                                    |                                   |                                       | 24. Needle Bearings                |

shifter shaft is prevented from moving in the same manner as the reverse idler gear shaft except no pin is installed to prevent shaft rotating. The rear end of both shafts should be staked.

### Operation

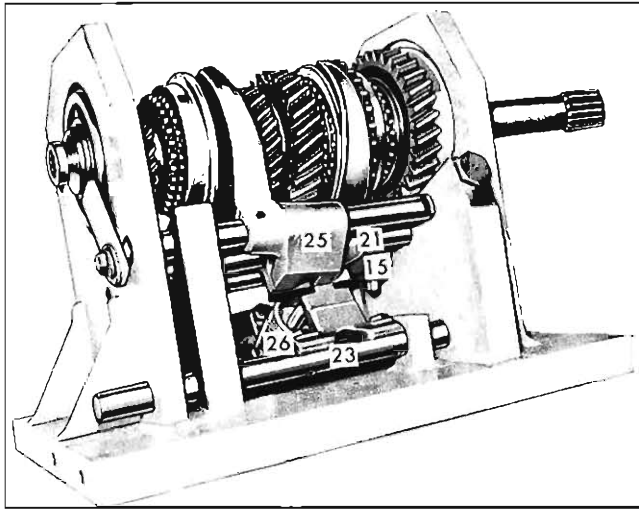
Gearshifting is manual through shift con-

trol rods for first through fourth gears and reverse.

### Reverse Springs

When shifting into reverse it is necessary to overcome spring resistance. This makes it impossible to shift into reverse unless the springs in Fig. 13 are compressed. One

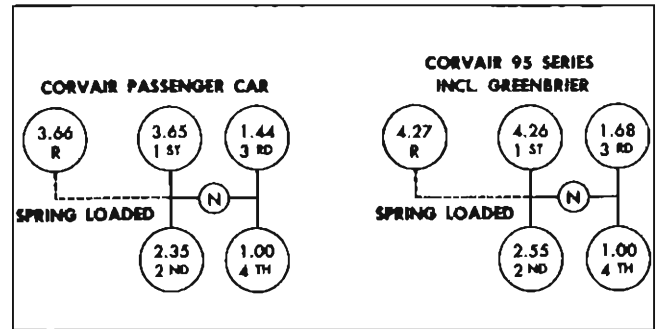




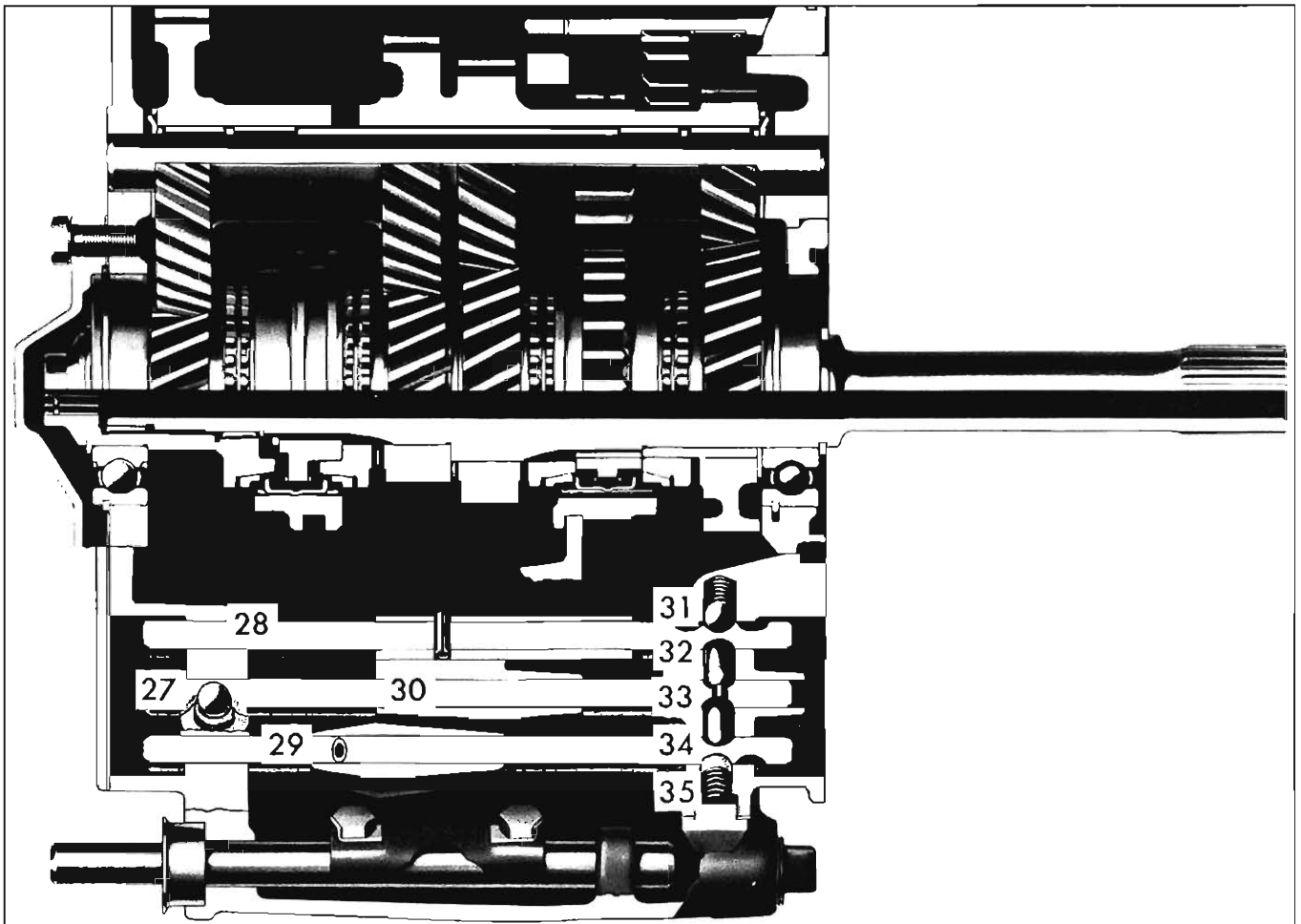
**Fig. H13—Reverse Shift Springs**

25. 3rd & 4th Shifter Shaft & Fork    26. Reverse Springs

spring is used in this location for Corvair Passenger Car 4-speed transmissions and 2 springs are installed when this transmission is used in Corvair 95 series. The



**Fig. H14—Four Speed Transmission Shift Pattern and Gear Ratios**



**Fig. H15—Detent Balls, Springs and Interlock Mechanism**

27. 1-2 Detent Ball & Spring  
28. Reverse Shifter Shaft  
29. 3-4 Shifter Shaft

30. 1-2 Shifter Shaft  
31. Reverse Detent Ball & Spring  
32. Reverse Interlock Pin

33. 1-2 Sliding Pin  
34. 3-4 Interlock Pin  
35. 3-4 Detent Ball & Spring

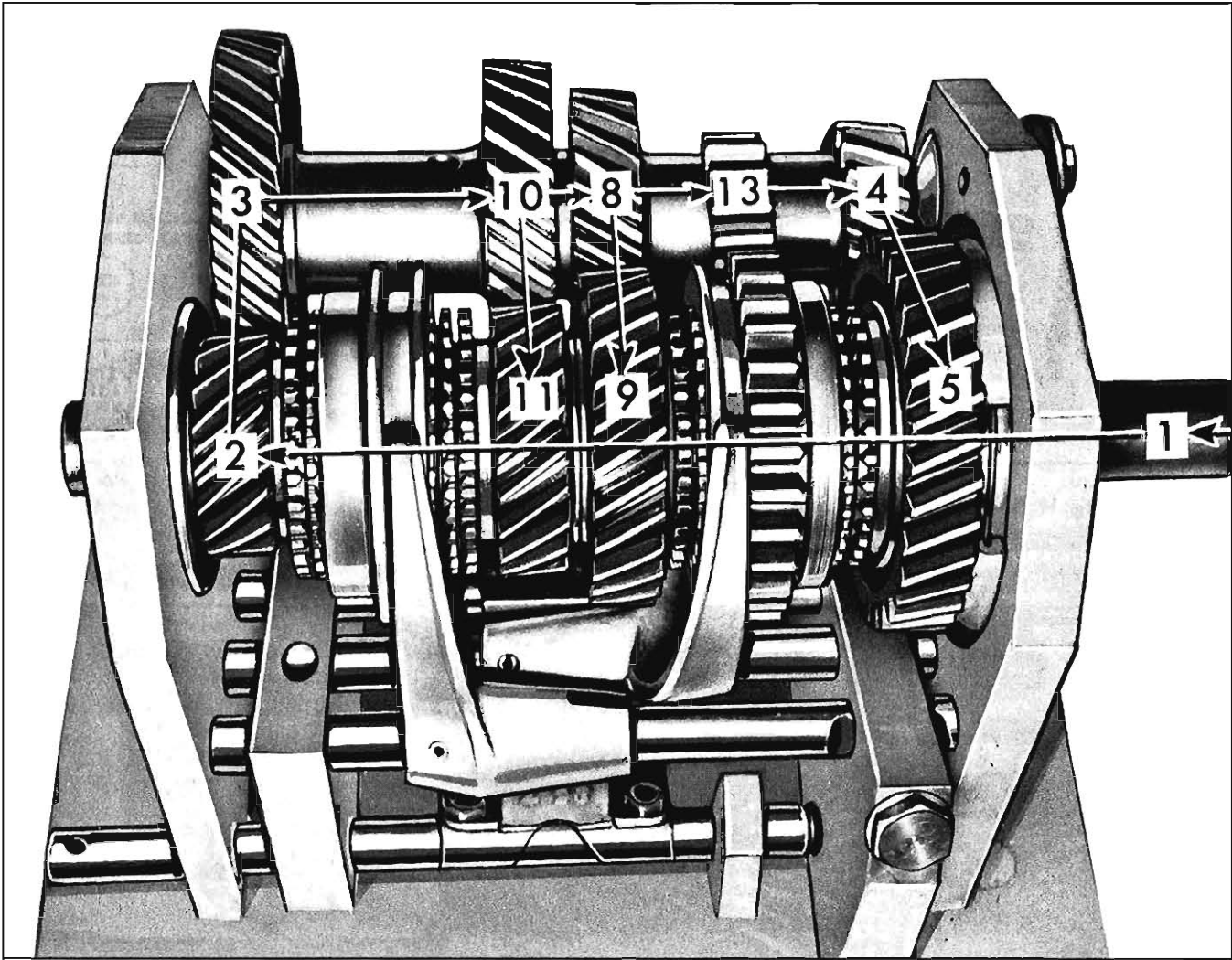


Fig. H16—Neutral Powerflow

transmission gear ratios are also slightly different.

All four forward gears are provided with synchronizers which can be engaged while the car is in motion. The gear ratios for the two 4-speed transmissions are as in Fig. 14.

#### Detent Balls and Interlock Mechanism

Detent balls and springs are used with each of the three shifter shafts to keep the transmission in gear (fig. 15). And a double poppet with movable pin interlock arrangement is used to prevent shifting into two gears at once. For example, if the 3-4

shifter shaft is moved into gear, the 3-4 interlock pin is forced out of the slot in the 3-4 shifter shaft against the 1-2 movable pin, forcing the reverse interlock pin into the slot in the reverse shifter shaft. This means that with the 3-4 shifter shaft shifted into gear the 1-2 and reverse shifter shafts are locked in place.

#### Gears

An engine driven clutch gear drives a countergear in a manner similar to the Corvair 3-speed unit. However, forward speed gears on the countergear remain in

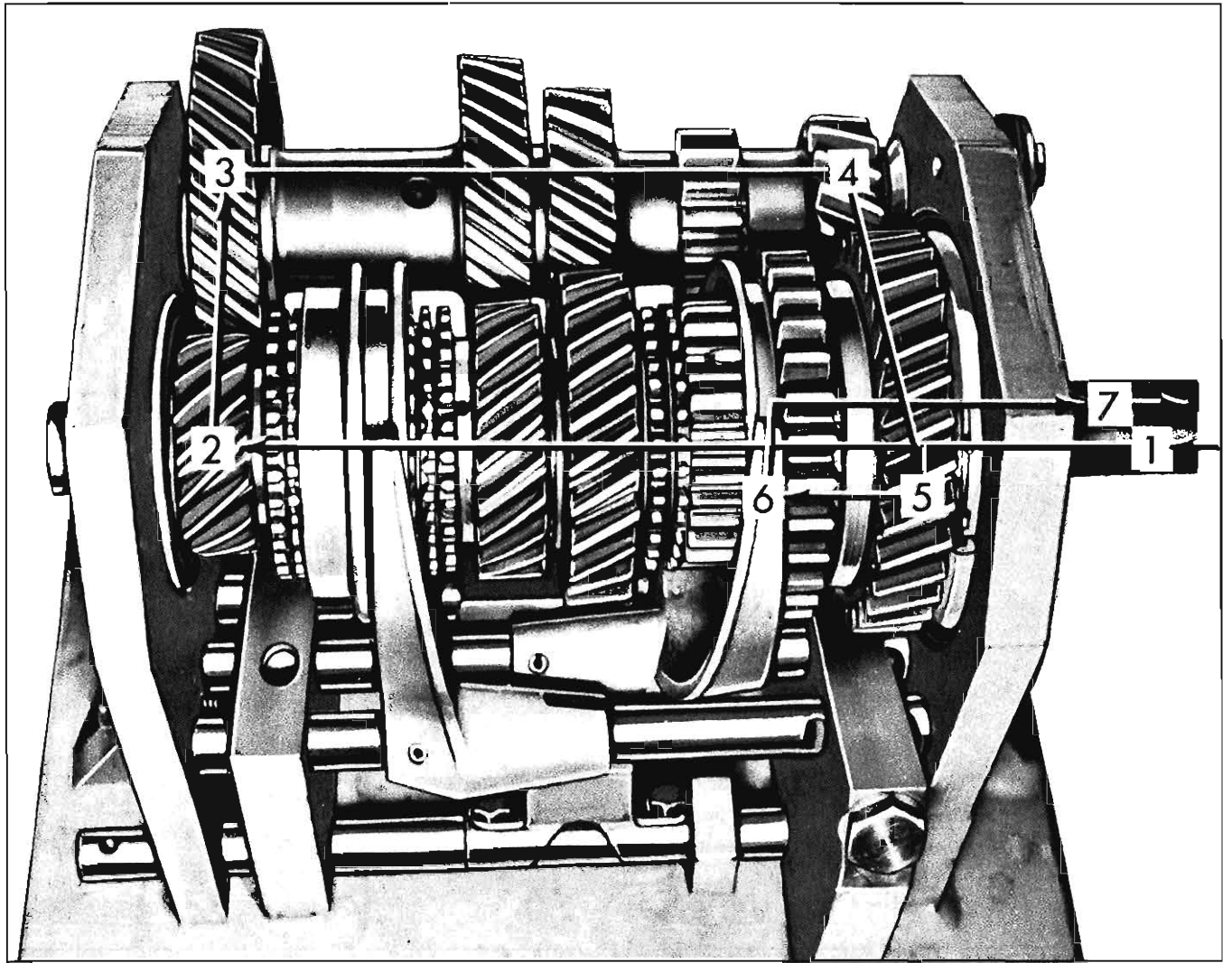


Fig. H17—1st Gear Powerflow

constant mesh with three non-sliding mainshaft gears giving, first, second, and third. Forward gears are engaged through two sliding clutch sleeves mounted on the mainshaft. Fourth gear engagement is made by direct connection of the clutch shaft to the mainshaft.

Engagement of the constant-mesh mainshaft gears to the mainshaft or of the clutch shaft to the mainshaft is accomplished through blocker ring-type synchronizers. In addition to durability, this arrangement assures that gear engagement cannot be completed until the proper shaft-

to-gear speed relationship is established. The full synchronization feature permits easy, quiet up and downshifting, even to first gear, without double-clutching. This provides the greatest possible use of the engine for vehicle speed control.

The only sliding gear in this 4-speed unit is used to engage reverse. This is in contrast to the standard 3-speed transmission which uses a common sliding gear for first and reverse gears. Engagement of reverse in the new transmission is a simple motion of the floor mounted shift lever against a spring load. No lifting is necessary.

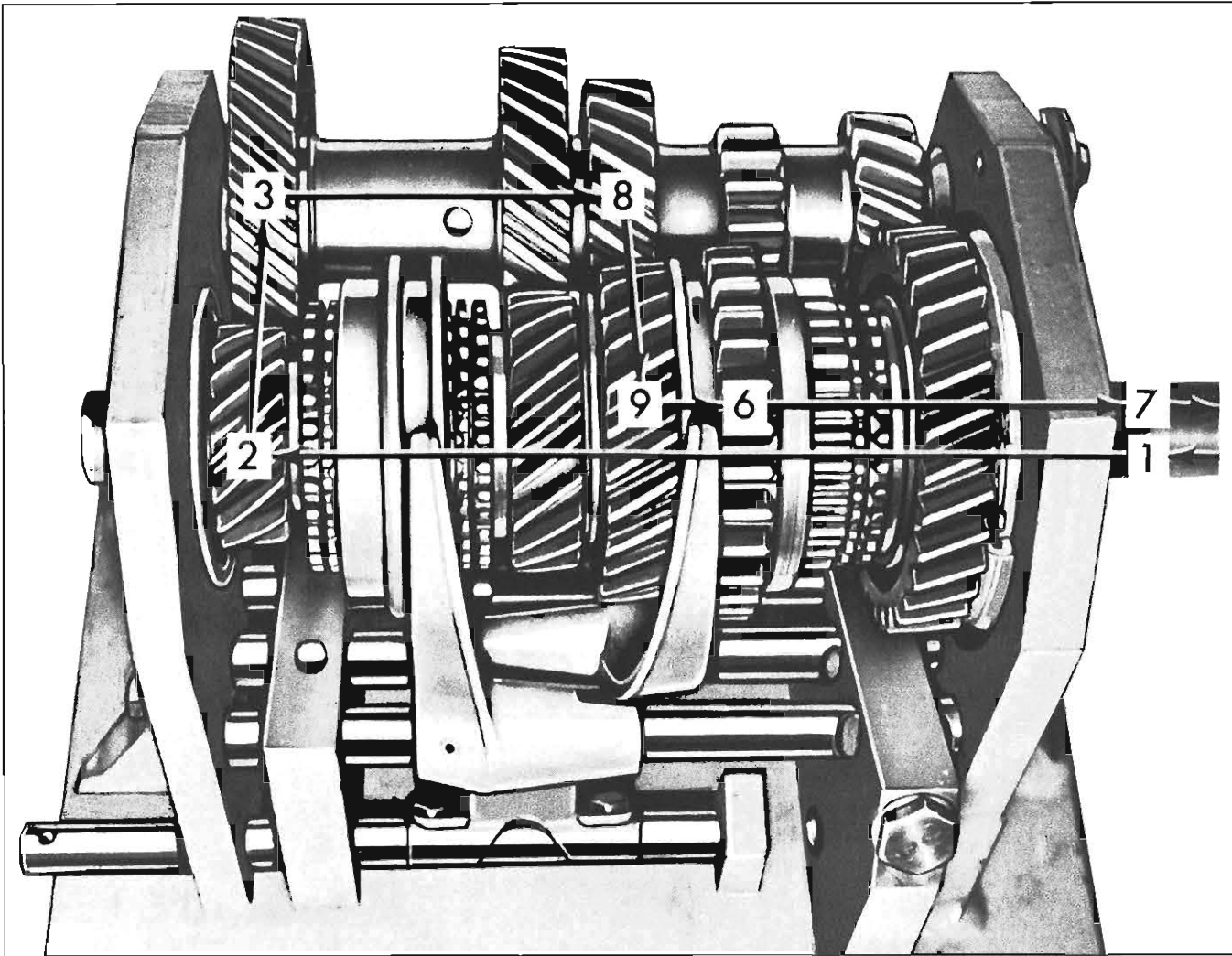


Fig. H18—2nd Gear Powerflow

### Neutral Power Flow

When shifting into neutral, the 1-2 synchronizer and 3-4 synchronizer assemblies are in a middle position. They do not tie the clutch gear, 3rd speed gear, 2nd speed gear or 1st speed gear to the mainshaft. This means when these gears are driven the power terminates at these points. The powerflow is from (1) clutch shaft (2) clutch gear (3) clutch gear on countergear (10) 3rd speed gear on countergear (11) 3rd speed gear (8) 2nd speed gear on countergear (9) 2nd speed gear (13) reverse idler on countergear (4) 1st speed gear on

countergear (5) 1st speed gear (fig. 16).

### 1ST Speed Powerflow

When shifting into 1st gear, the 1-2 synchronizer assembly is moved towards the rear of the transmission case and the 1-2 sliding sleeve ties the 1st speed gear to the mainshaft. The powerflow is from (1) clutch shaft (2) clutch gear (3) clutch gear on countergear (4) 1st gear on countergear (5) 1st speed gear (6) 1-2 sliding sleeve and out the (7) mainshaft (fig. 17).

### 2ND Speed Powerflow

When shifting into 2nd gear, the 1-2 syn-

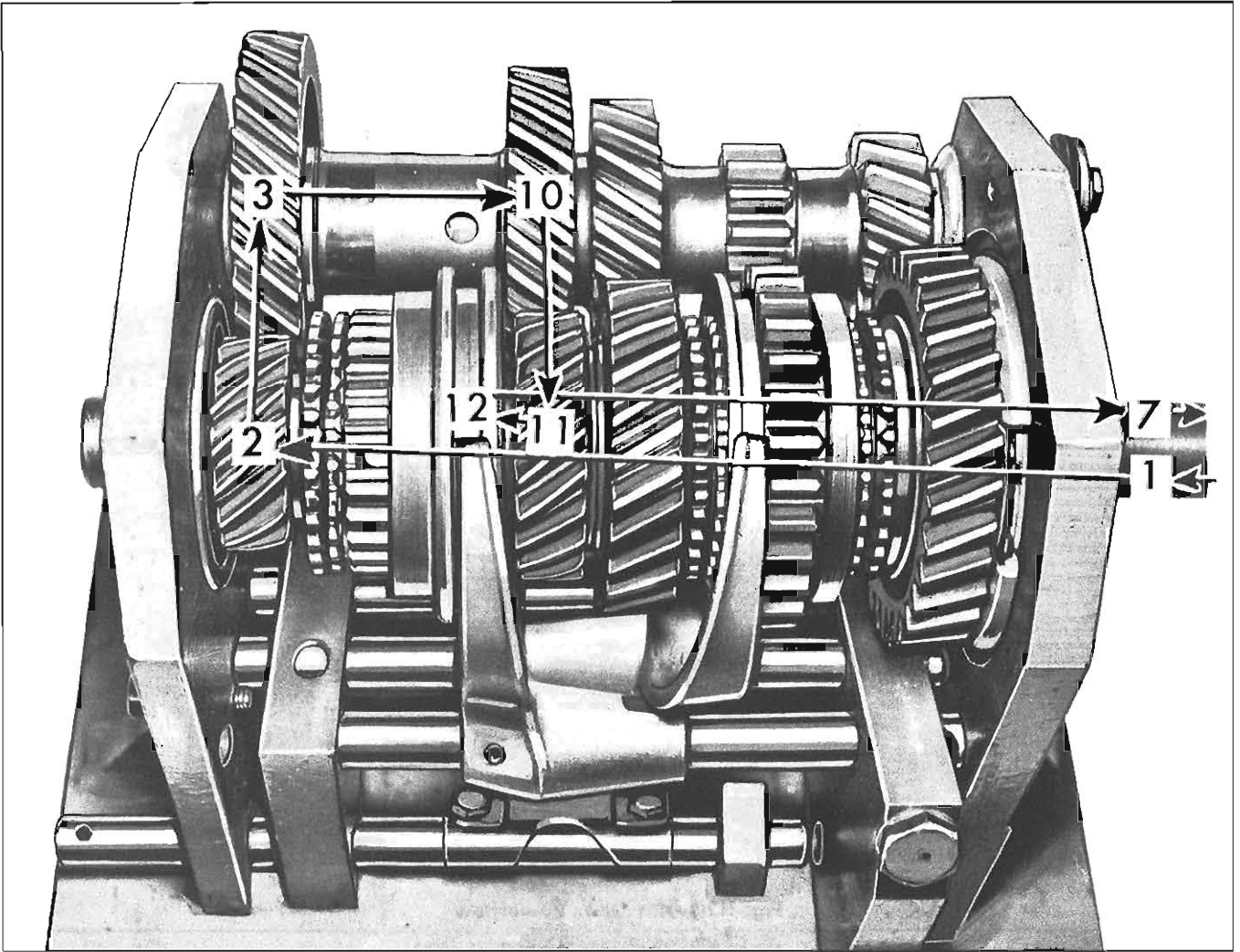


Fig. H19—3rd Gear Powerflow

chronizer assembly is moved toward the front of the transmission case and the 1-2 sliding sleeve ties the 2nd speed gear to the mainshaft. The powerflow is from (1) clutch shaft (2) clutch gear (3) clutch gear on countergear (8) 2nd gear on countergear, 2nd speed gear (9) 1-2 sliding sleeve and out the (7) mainshaft (fig. 18).

### 3RD Speed Powerflow

When shifting into 3rd gear, the 3-4 synchronizer assembly is moved towards the rear of the transmission case and the 3-4 sliding sleeve ties the 3rd speed gear to the

mainshaft. The powerflow is from (1) clutch shaft (2) clutch gear (3) clutch gear on countergear (10) 3rd gear on countergear (11) 3rd speed gear (12) 3-4 sliding sleeve and out the (7) mainshaft (fig. 19).

### 4TH Speed Powerflow

When shifting into 4th gear, the 3-4 synchronizer assembly is moved towards the front of the transmission case and the 3-4 sliding sleeve ties the clutch gear to the mainshaft. The powerflow is from (1) clutch shaft (2) clutch gear (12) 3-4 sliding sleeve and out the (7) mainshaft (fig. 20).

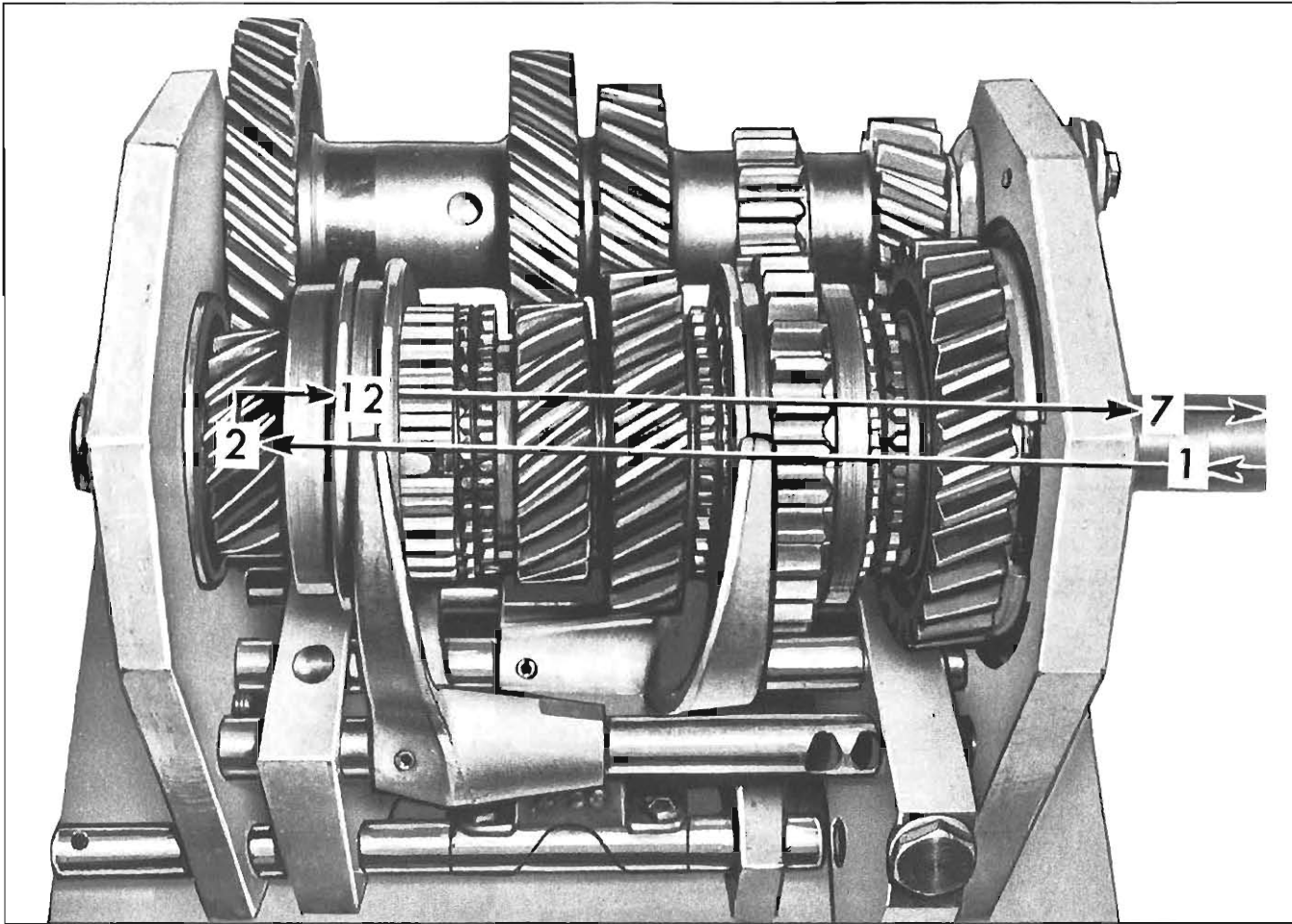


Fig. H20—4th Gear Powerflow

### Reverse Powerflow

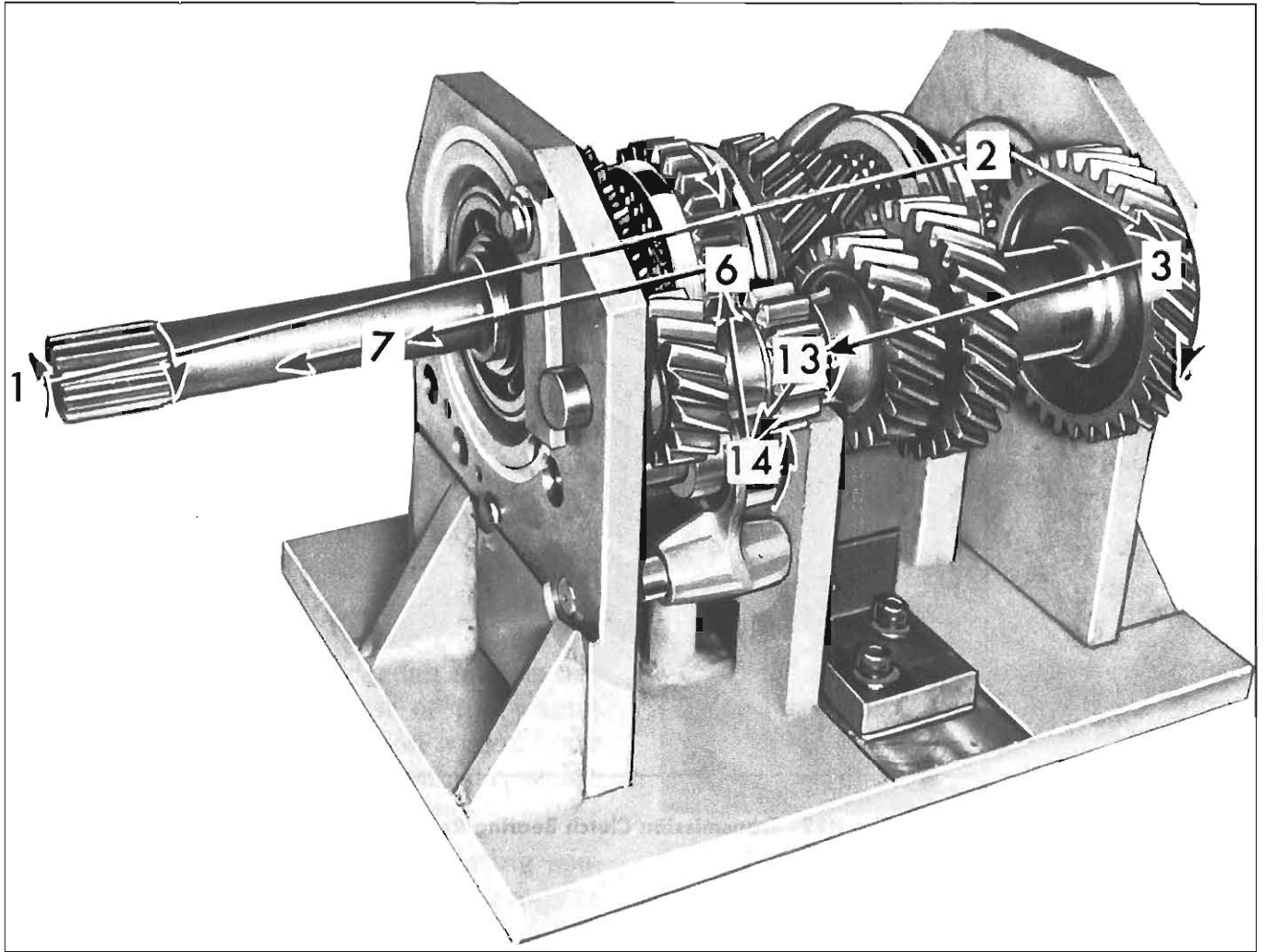
Reverse gear operation in this transmission is somewhat unusual. The first and second gear synchronizer assembly has spur teeth around its circumference. A smaller spur gear is directly below the synchronizer assembly on the countershaft when the assembly is in neutral position. The two gears by themselves are not in mesh. But when both synchronizer assemblies are in neutral and the operator selects reverse gear, a slider moves the reverse sliding spur gear into mesh with the countershaft gear and the synchronizer assembly.

When shifting into reverse, the reverse

idler is moved into mesh with the reverse gear on countershaft and the reverse gear on 1st and 2nd synchronizer assembly. This movement ties the reverse gear on countershaft to the mainshaft and causes the mainshaft to rotate in a reverse direction. The powerflow is from (1) clutch shaft (2) clutch gear (3) clutch gear on countershaft (13) reverse gear on countershaft (14) reverse idler gear (6) reverse gear on 1-2 synchronizer assembly and out the (7) mainshaft (fig. 21).

### New Service Tool

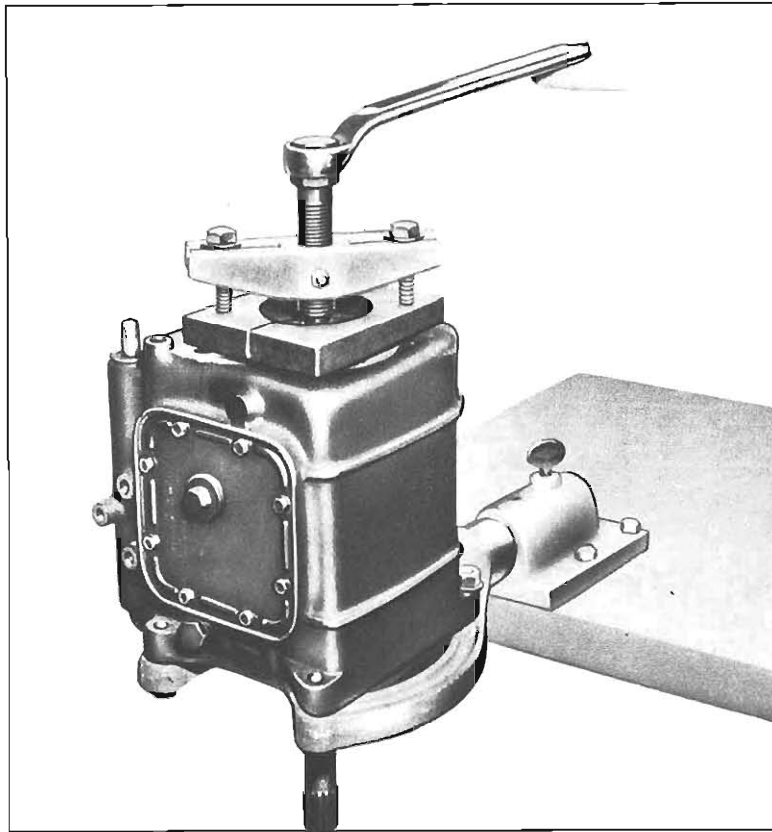
A new service tool, J-8880, Transmission Clutch Bearing Remover, is available for both Corvair and LDFC 4-speed transmis-



**Fig. H21—Reverse Powerflow**

sions. The tool removes the clutch gear bearing from the clutch gear to permit disassembly of the transmission. The tool is

required because pulling reaction must be against the clutch gear rather than the case (fig. 22).



**Fig. H22—Transmission Clutch Bearing Remover**



# SECTION 10

## BODY AND SHEET METAL

### BODY STRUCTURE

The construction of the 1961 Corvair body for 2 and 4-door models is essentially the same as the body frame integral construction of the 1960 models. Some interior panels have been altered to accommodate a relocated spare tire, a larger 14 gallon fuel tank and a direct air heater-defroster system.

The big body structure change in the Corvair line is the addition of two Station Wagon models. One, the Lakewood, is constructed from front to rear of the rear doors the same as 4-door sedan models but from this point to the rear of the wagon it carries conventional station wagon body structures. Second is the Greenbrier, which has a totally new body structure.

Body construction features relating specifically to the Greenbrier too numerous to mention will be covered later in this section with the complete Corvair 95 series body structure story being presented in Section 3 Trucks.

### Spare Tire

Relocation of the spare tire to the right rear portion of the engine compartment for coupe and sedan models increases the luggage capacity of the front stowage compartment and permits the use of a larger capacity fuel tank (fig. 23). A wheelhouse shaped panel welded to the inner quarter panel provides a pocket for positioning the spare tire. A portion of the spare tire overhangs into the engine compartment making it necessary to relocate the battery and modify the deck lid inner panel to provide the required clearance for the battery. A key-type lock is attached to one mounting

lug to minimize the possibility of tire theft. The jack and lug wrench are stowed in the luggage compartment.

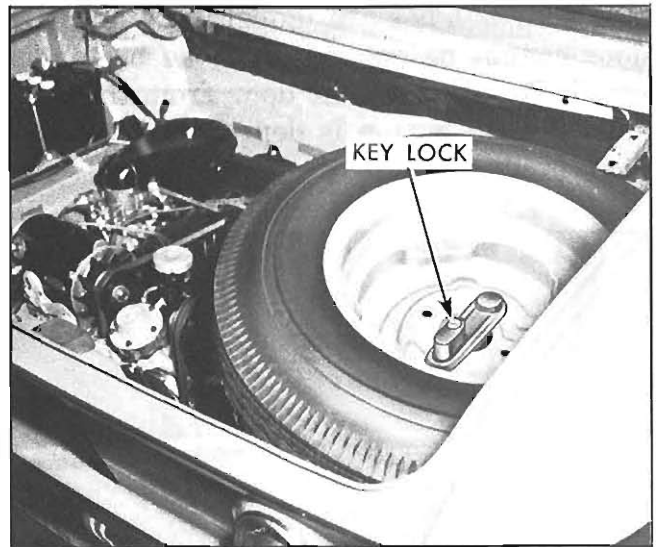


Fig. H23—Spare Tire Location—Corvair Passenger Car

### Direct Air Heater

The new Direct Air Heater-defroster assembly for 1961 Corvair models is located forward of the engine under the rear package shelf. Consequently the shelf is raised several inches. Heater and defroster air enters the passenger compartment through a network of ducts under the rear seat and passes through the right and left hand rocker panels to the front compartment and defroster outlet ducts. Interior body panels have been revised to house the system. The construction and operation of the direct air heater system is covered in Accessory Section 11.

### Doors

Additional safety and convenience are provided in 4-door models with the use of

new rear door push-button locks. This lock replaces the locking feature of the previous combination interior door handle and lock. It is located on the window sill and minimizes the possibility of accidentally opening the rear door (fig. 24). The operating procedure is the same as the regular Passenger Car. For example, with the button down, in the locked position, the inside and outside door handles are inoperative, and the door cannot be opened until the button is lifted. To lock the rear door from the outside, the sill button is depressed after the door is closed.

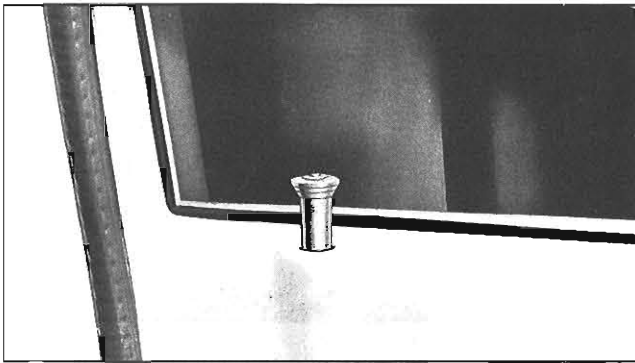


Fig. H24—Push Button Rear Door Lock

## NEW STATION WAGON MODELS

### Lakewood

Basically, the new Lakewood Station Wagon for 1961 is structurally the same as the 4-door sedan models except in areas peculiar to the station wagon-type vehicles. Front end sheet metal, body front end, side doors and underbody back to the rear of the second seat are the same as the sedan. Rear and upper structure are different. The station wagon roof is 1½ inches higher than the sedan, which means the windshield and side windows are larger. The rear window glass is fixed in a top hinged liftgate.

Vertical inlet louvers, which admit cooling air to the engine compartment, are located on each side of the Station Wagon beneath the fixed rear quarter windows (fig. 25).

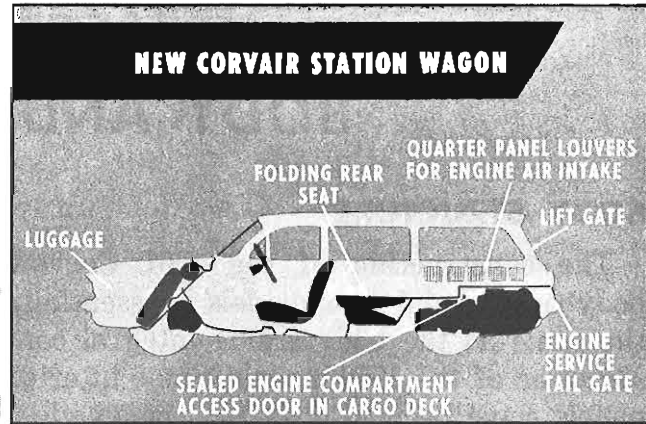


Fig. H25—Corvair Station Wagon—Lakewood

The rear door is top hinged and opens from the bottom in one upward swinging arc.

The engine compartment is accessible for service through a large rectangular panel in the rear cargo deck. Battery service is through a separate smaller door to the left of the engine door (fig. 26). Both doors have similar construction and sealing and are secured in place by quarter-turn, screw-type fasteners.

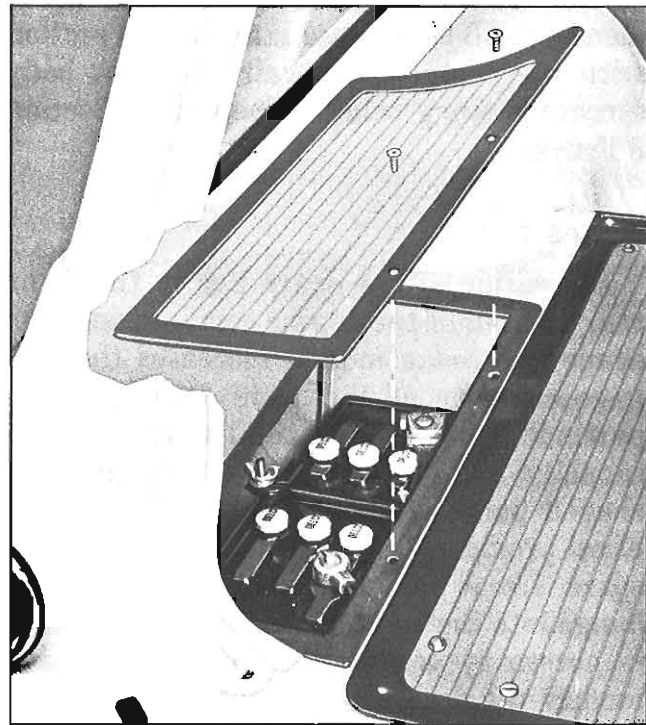


Fig. H26—Battery Service Door

Periodic servicing of the engine is performed through an exterior bottom hinged door, placed between the liftgate and the rear bumper (fig. 27).

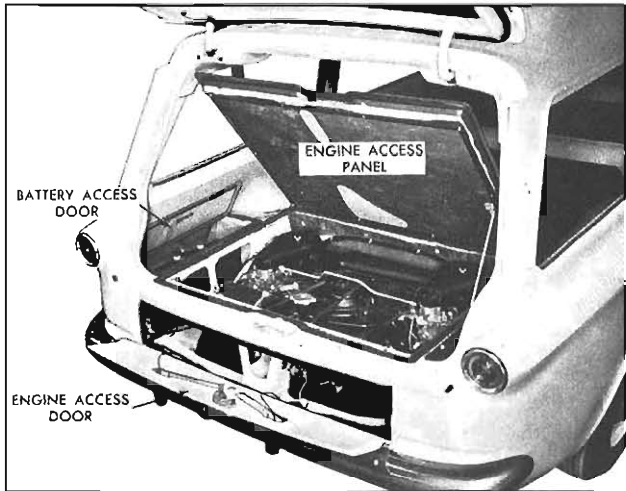


Fig. H27—Maintenance Service Doors

The rear folding seat is standard equipment for the Lakewood, 2 and 4-door sedan models. The seat is constructed like the Corvair 4-door sedan except the folding end locking mechanism and the deck portion of the back are similar to that used in the 1961 regular Passenger Car Station Wagon models.

With the second seat folded down, the cargo deck is 71 inches long. This dimension with a wide 53 inch deck and 27 inch height gives over 60 cubic feet of cargo space behind the front seat. With an addition of over 11 cubic feet of concealed and locked storage space under the hood, the total cargo capacity of the Lakewood Station Wagon is nearly 72 cubic feet.

## GREENBRIER SPORTS WAGON

The Corvair 95 Greenbrier, series R1206 is a compact, lightweight sports wagon with a van-type body constructed to give the utmost utility in an economy vehicle (fig. 28). It incorporates Corvair features of rear engine-transaxle power train, four wheel

independent suspension, and frame-integral body structure with a new feature of forward control. The Greenbrier is capable of carrying a relatively large load with excellent maneuverability and handling characteristics. This new station wagon features a single compartment van-type body which gives outstanding visibility and comfort for the driver and passengers, excellent accessibility, and ideal load distribution.

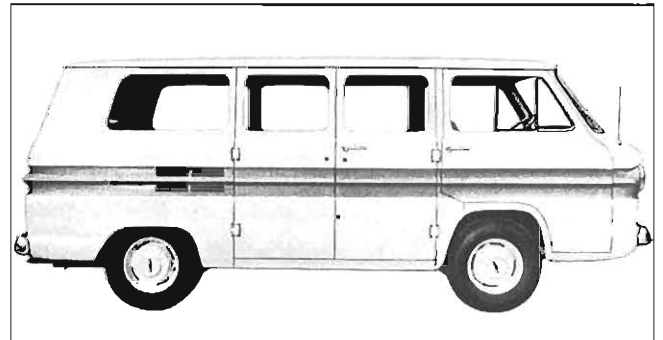


Fig. H28—Greenbrier Sports Wagon

## Body Structure

The Greenbrier Station Wagon body structure is an example of another variation of the body-frame integral construction of the Corvair line.

The frame-body shell is constructed of five subassemblies: the underbody, the front end structure, the right and left hand side panels, and the roof panel. Addition of front doors, double right hand side doors, and double rear doors complete the body structure of the standard vehicle (fig. 29).

These subassemblies are common in varying degrees to the four models offered in the Corvair 95 series which are merchandised as trucks, except the Greenbrier which is merchandised as a Passenger Car. Therefore, detailed description of the construction of these subassemblies is covered in Part 3 Trucks. In Part 3 Trucks the construction of the major subassemblies is covered first, relating to the Corvan, followed by specific constructional variations



Fig. H29—Greenbrier Body Shell

for the Rampside and Pickup. Specific variations related to the Greenbrier are now covered.

### Seats

Six passengers can sit comfortably in two full width seats which are standard equipment. The front seat is mounted over and

forward of the front axle and is adjustable for maximum front seat comfort. Also, the front seat backrest can be adjusted to various tilting angles by loosening the side bracket screws with a screwdriver.

The full width second seat is normally mounted facing forward against the rear kickup and can be easily removed without

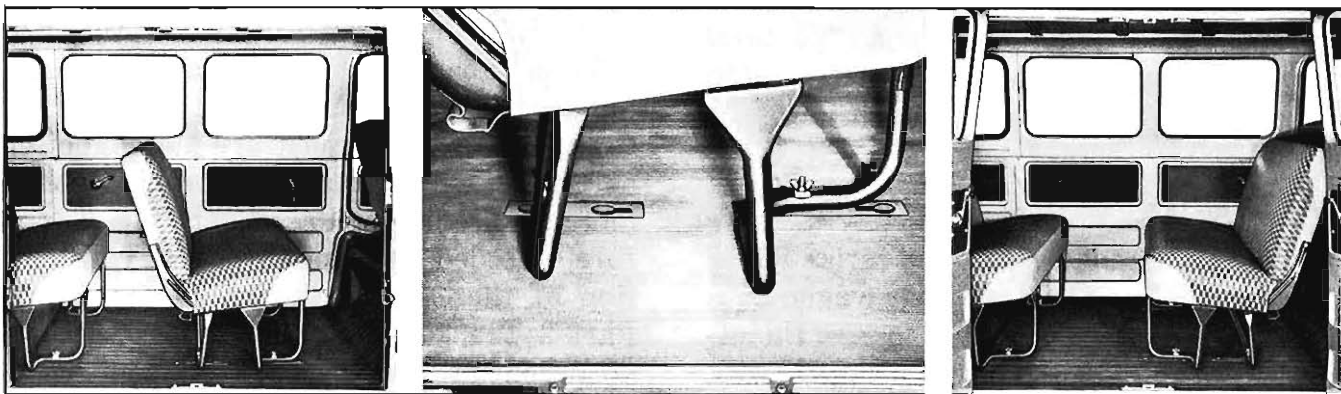


Fig. H30—Repositioning Second Seat

tools by unscrewing "wing-type" screws. The seat can be installed facing either towards the vehicle front or rear. When positioning the seat towards the rear, floor mat plugs must be removed before attaching the "wing" screws.

Also, the second seat has folding rear legs which are collapsed when positioned against the kickup (fig. 30).

A third seat, available as an option, provides 9-passenger seating. Similar to the second seat except that it does not have rear folding legs, the seat mounts only in the number three position facing forward.

### Doors

An interesting feature of the standard Greenbrier is that it is equipped with six doors arranged for maximum passenger and cargo accessibility. Passengers gain entrance through right and left front doors and large double side doors on the right or normally curb-side. Left hand side doors are available as a regular production option. Access to the rear cargo deck is through rear double doors. All doors are held in the

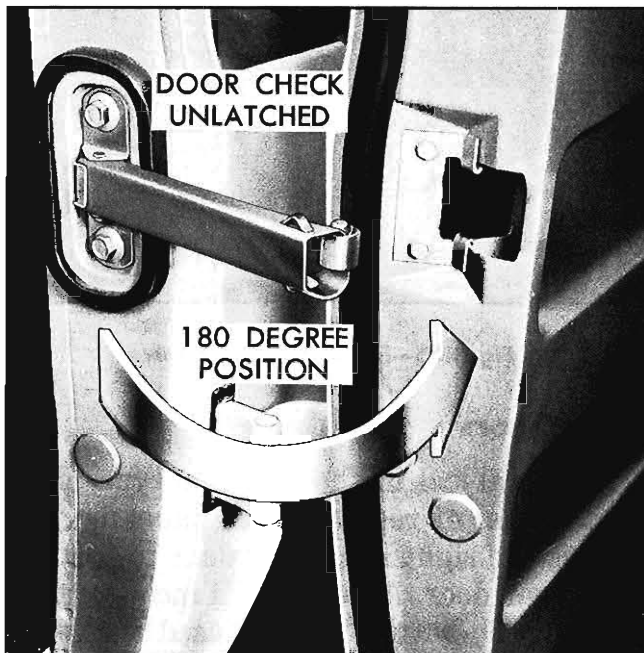


Fig. H31—2-Position Door Checks

open position by 2-position door checks. Front doors open a full 90 degrees, while the double side and rear doors open 95 degrees. In addition, side and rear doors can be opened 180 degrees by simply releasing the checks. Rubber bumpers on the body panels prevent interference of the doors with the body (fig. 31).

### Door Locks

Both the standard right hand and optional left hand double side doors use the strap-type hinge, 2-position check, and upper and lower wedge features of the double rear doors. Closed-cell sponge rubber weatherstripping is used around the door frames, and rubber grommets around the door hinges prevent dust entry.

Both doors are retained positively with spring-loaded, slam-type bolt locks located

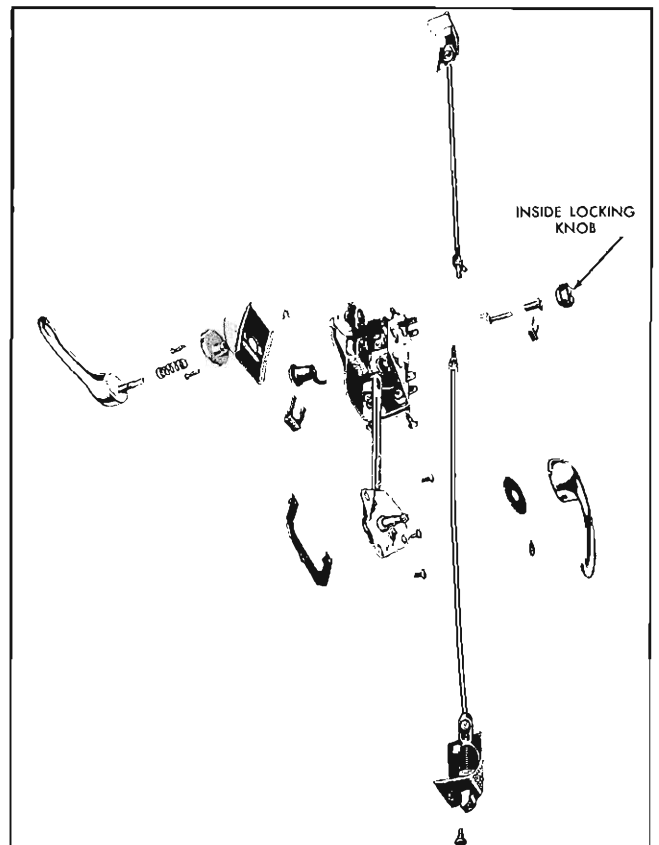


Fig. H32—Double Side Doors—Front Door Locking Mechanism

at the top and bottom of each door. The locking mechanisms are contained entirely within the door structures (fig. 32).

Both an inside and outside release handle are provided for the front side door. The inside release handle is identical to that used for the front doors, while the outside release is a 2-position lever-type handle. In the "closed-door" position, the handle is horizontal; to open the door, the handle is turned downward 45 degrees; after the door is opened, the handle automatically moves upward to the horizontal position, setting the lock bolts so the door can be closed. A rubber bumper on the front side door handle eliminates interference with the body when the door is fully opened; another rubber bumper on the rear side door outer panel serves the same purpose (fig. 33).

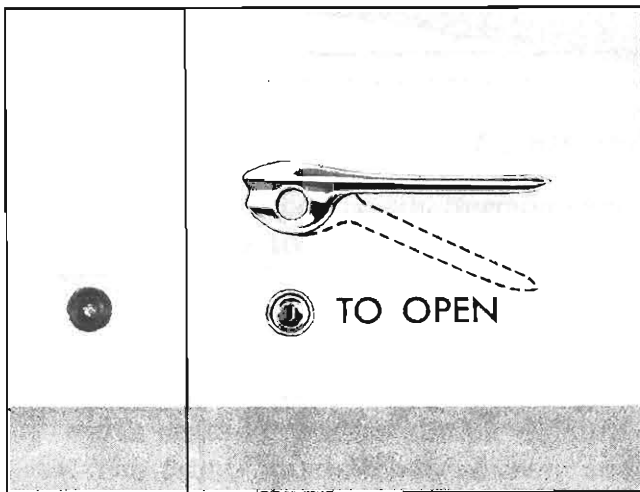


Fig. H33—Double Side Doors Outside Release Handle

The rear side door release handle, located on the door inner side face, is of a lever-type (fig. 34).

A separate key lock below the front side door handle locks both side doors since the front side door laps over the rear side door. Both doors can be locked from the inside with a locking knob located on the inner panel of the front side door (fig. 35). Should the doors be locked from the outside, they

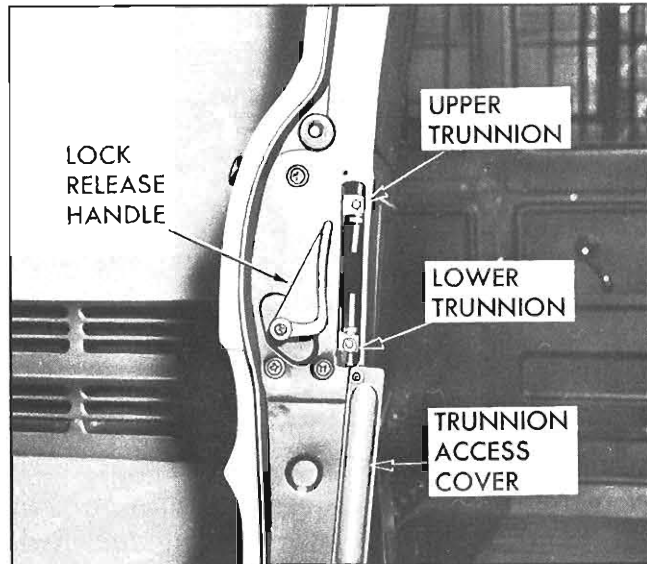


Fig. H34—Rear Side Door Release Handle

cannot be unlocked from the inside since the inside and outside locks operate independently of each other.

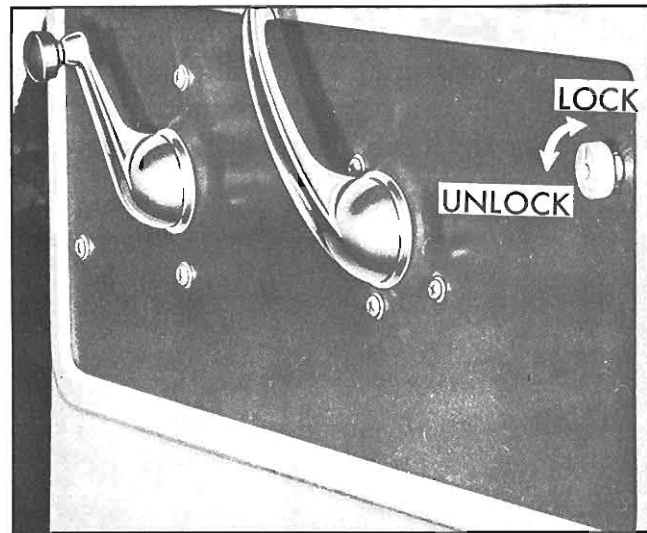


Fig. H35—Inside Locking Knob

## Rear Doors

A central lock of the fork cam type, identical to that of regular truck panel models, retains the right hand rear door to the left hand rear door. A key lock is incorporated in the push-button release used with the horizontally-positioned outside handle. Upper and lower wedges on both doors help

control vertical door movement, relieving the door lock of undue stress. Reduced door closing effort and excellent sealing are provided with closed-cell sponge rubber weatherstripping around the doors (fig. 36).

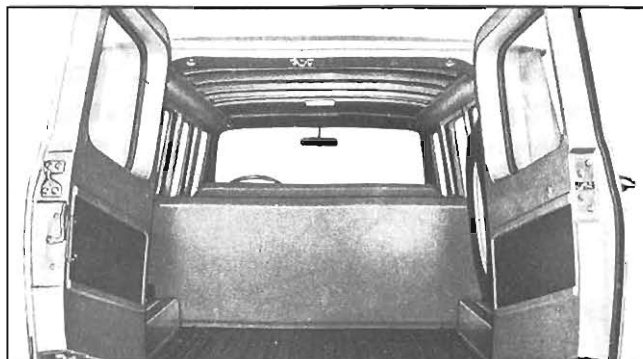


Fig. H36—Rear Door Locking Mechanism

## Windows

Four large window openings on each side give the driver and passengers outstanding side vision. Front doors are equipped with pivot-type ventipanes which use a friction catch. The balance of side window glass except the fixed rear quarter window rolls down with crank-type window regulators. Rear door glass is fixed.

All window glass in the Greenbrier is solid safety sheet from the front side doors rearward. The two front side doors, including the vent panes, are laminated safety sheet glass with the windshield being laminated safety plate glass.

## Capacity

Nominally rated as a 1600 pound capacity vehicle, it carries 9 passengers and a 250 pound cargo load or six passengers and 700 pounds of cargo. When used with the front seat only, the Greenbrier's volume capacity is over 175 cubic feet.

The wheelbase is 95 inches with the tread being 58-inches front and rear. The tread is 4" wider than the regular Corvair passenger car. The weight distribution is relatively equal and constant with approximately 50 percent front and rear whether loaded or unloaded. Weight distribution remains relatively unchanged from "no load" to "full load" because of the dropped-center underbody, which supports the majority of the load between the front and rear wheels.

# SECTION 11

## ACCESSORIES

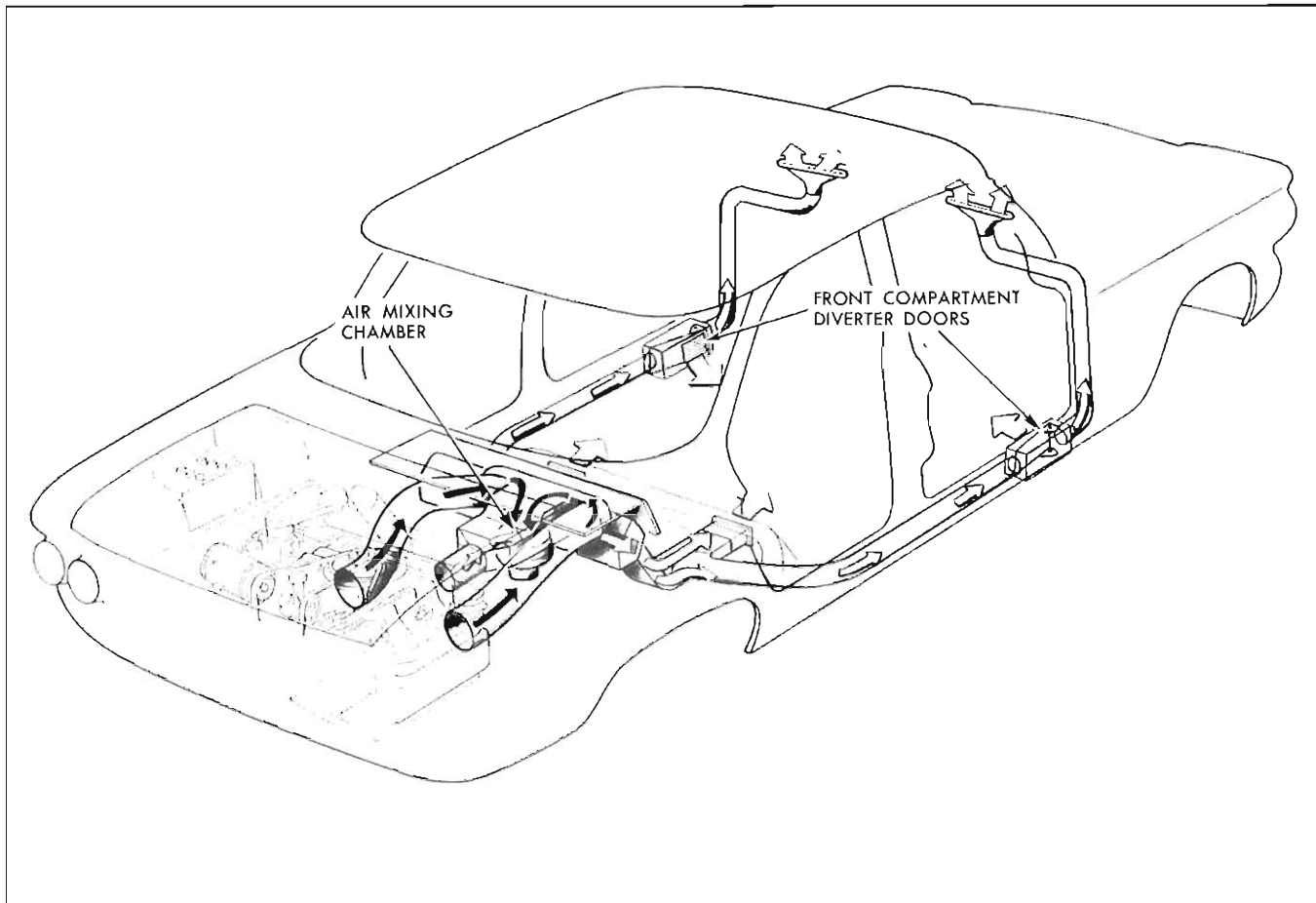


Fig. H37—Schematic Direct Air Heater



## DIRECT AIR HEATER

A completely new heater is available as a factory installed option for all 1961 Corvair models and L.D.F.C. models. The Direct Air Heater uses the engine cooling air to provide fast heating through outlets located around the passenger compartment perimeter. The new design provides more complete air distribution and desirable temperature from floor to shoulder level (fig. 37).

### Construction

The operation of the Direct Air Heater system necessitates damper doors at the rear end of the exhaust shrouds. Two flexible rubber hoses connect the front end of each exhaust shroud to a rectangular air mixing chamber (fig. 38). This chamber is also connected by means of flexible hose to the engine top cover. The heater blower is mounted below the rectangular air mixing chamber.

The heater blower housing is connected to each rocker panel by two heater ducts

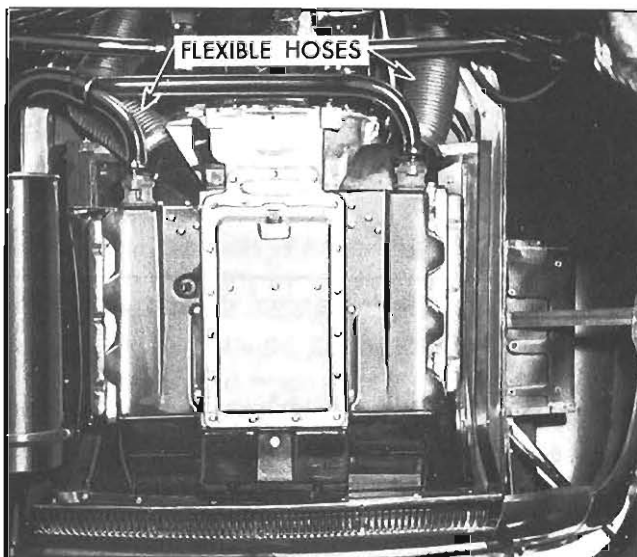


Fig. H38—Connections Between Lower Engine Shroud and Heater Blower Housing

which are connected to each rocker panel by flexible rubber hoses (fig. 39). Two additional duct openings are located under the rear seat for heat distribution into the rear compartment area. Two flexible rubber hoses connect the front end of the rocker panels to the defroster ducts. In all, seven flexible hoses are used in the perimeter heater system. Two flexible hoses between the engine and heater blower housing, two between the rear seat ducts and rocker panels and two between the rocker panels and defroster ducts. Plus one between the engine top cover and heater blower housing for a total of seven flexible hoses.

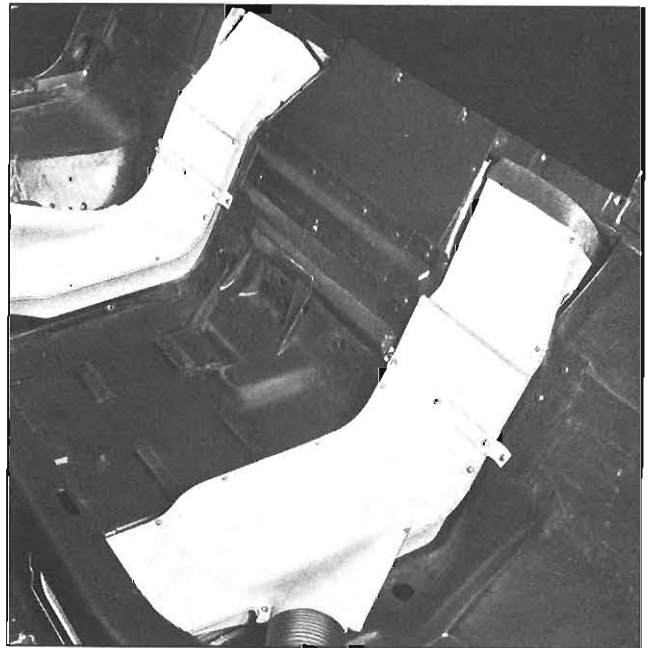


Fig. H39—Rear Seat Discharge Ducts

One outlet duct is located on each side of the front compartment for heat distribution. A damper door at each front compartment opening directs the air flow to either the front compartment or defroster (fig. 37).

### Operation

The engine blower delivers cool air through the flexible hose, which connects the engine top cover to the firewall, to the

mixing chamber. Engine cooling air also passes through the engine to the lower shrouds. From the two lower shrouds heated air passes through the two flexible rubber hoses to the rectangular mixing chamber.

### Mixing Chamber

This chamber, above the blower, serves as a mixing point for cool air from under the engine cover and hot air from the engine lower shrouds. A pivoting door directly above the center of the blower regulates the portions of cool and hot air permitted to enter the blower (fig. 40).

the blower in the full down position, prevents heated air from flowing into the blower. The only air to the blower is from the duct connecting the firewall to the engine top cover.

The air flow from under the engine top cover is controlled by a smaller damper door located in a separate passage in the mixing chamber. By varying the damper door position the volume of cool air to the heater blower is controlled.

To summarize, the two damper doors in the mixing chamber control in varying de-

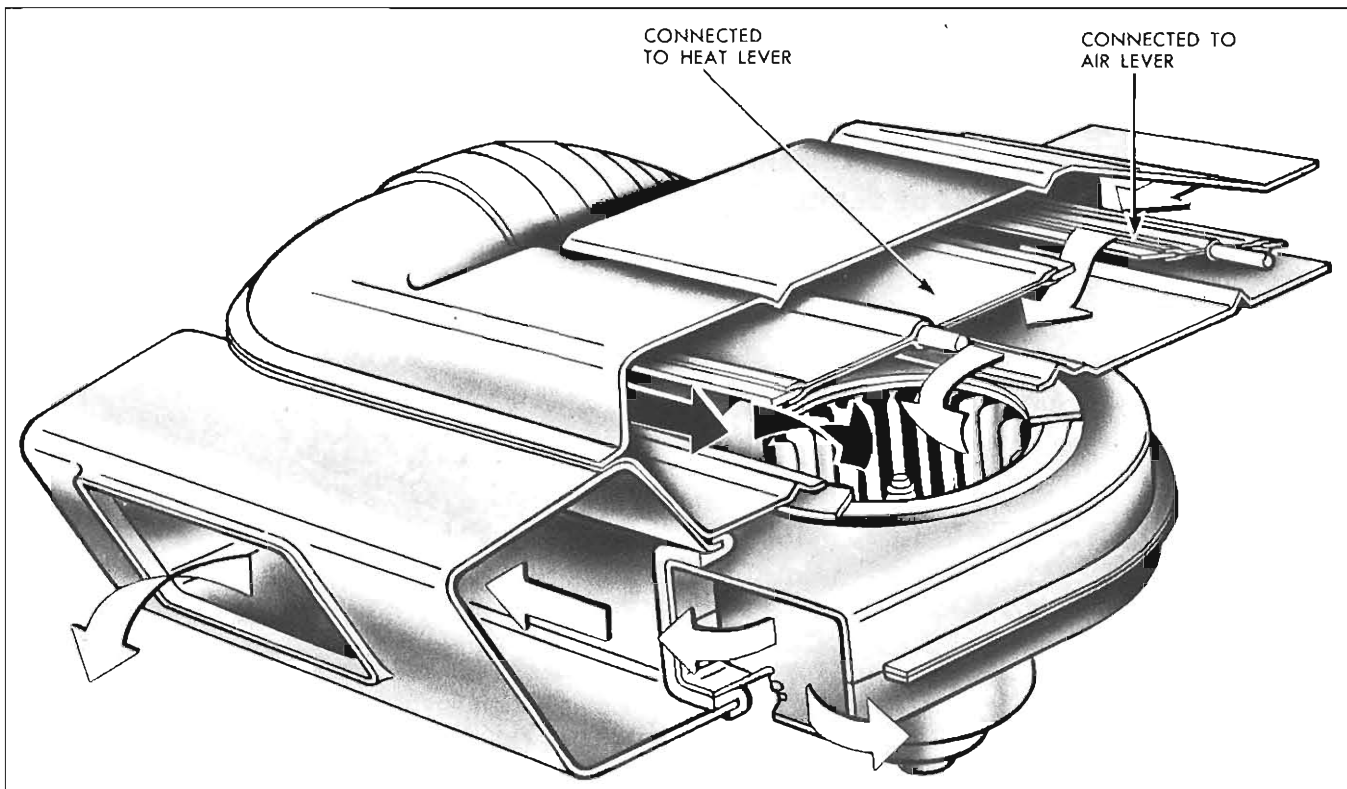


Fig. H40—Direct Air Heater Mixing Chamber

When the pivoting door directly above the blower is in the full up position only the heated air from the engine lower shroud is directed into the blower. With this door in the middle position both heated air and cool air from under the engine top cover are mixed together as it flows into the blower. Positioning the door directly above

grees the volume of either heated or cool air supplied to the heater blower. This gives the operator an accurate means to control the temperature of the incoming air.

The smaller damper door also serves as a controlling device of incoming cool air when the heater blower is off. By position-

ing this door in the open position with the larger damper door closed, cool air is forced through the direct air heating system by means of the engine blower.

Since the engine centrifugal blower channels cold and hot air to the mixing chamber in direct proportion to engine rpm, heated air supplied to the passenger compartment varies only 14 degrees from 0 to 60 MPH. An outstanding feature of this system is that windshield defogging or de-icing can be achieved almost immediately after the engine is started. At a vehicle speed of 60 MPH, with the electric centrifugal blower operating at the maximum speed of 2800 rpm, heated air is supplied to the passenger compartment at approximately 230 cubic feet per minute.

### System

Blended air is forced through transverse plenum chamber to two sheet metal ducts which pass under the rear seat. Rectangular slots at the ends of these ducts allow warm air to flow into the rear compartment. Warm air also passes through flexible hoses from either duct into the rocker panels. Warm air passes through rocker panels to front compartment rectangular outlet slots. From this point air is either transmitted into the front compartment or into the flexible hoses to defroster outlets. The direction of the air flow is controlled by the position of the front compartment diverter doors.

With warm air being supplied to the passenger compartment through the opening at the base of the rear seat, through outlets located forward of the front seat at either side, and through windshield defroster nozzles, a full perimeter system is realized.

### Heater Controls

The Direct Air heater control panel for 1961 is completely changed (fig. 41). The

horizontal top lever controls the heater blower speed. Full left position is "off" with three intermediate speeds available by moving the lever from left to right. The lever marked "H" controls the position of the larger damper door directly above the heater blower. The lever marked "A" controls the position of the smaller damper door in the duct from the engine top cover. The lever marked "D" controls the position of the two diverter doors located at each of the front compartment outlet ducts. These doors direct air either into the front compartment or to the defroster nozzles.

### GASOLINE HEATER

Improvements in the gasoline heater are designed to increase passenger convenience and comfort. A 2-speed blower arrangement permits uniform range control by the operator while new discharge ducts insure uniform air distribution and improve windshield defrosting.

Heater control levers and their location have not changed. The "FAN" lever, how-

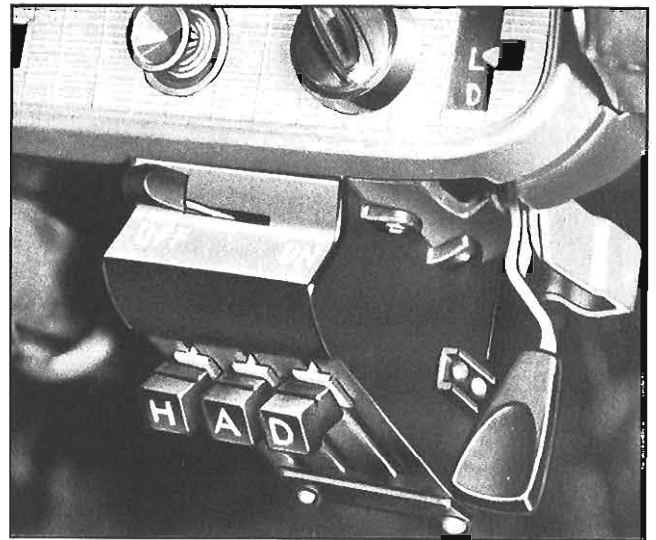


Fig. H41—Heater Control Panel

ever, is now a 3-position control, providing an intermediate blower speed in addition to the high and low speeds previously supplied.

During mid-season 1960 and for 1961 models the Corvair gasoline Heater has been revised to incorporate a new ignitor, similar to the A. C. Spark Plug Ignitor. The addition of the ignitor should help to minimize spark plug fouling by putting more resistance in the spark plug circuit. More resistance in the spark plug circuit causes a higher voltage build up resulting in more voltage available to jump the spark plug gap.

The gasoline heater is available in 1961 only as a dealer installed accessory on regular Corvairs and as both factory and dealer installed on the Greenbrier and Corvair 95 series models.

### **WINDSHIELD WIPER AND WASHER**

The windshield wiper system for all 1961 Corvair models is the same in construction as the 1960 models, but is a positive action single-speed electric type, and features parallel acting linkage to assure a large wiped area. The wiper transmission and links are housed entirely within the plenum chamber.

Supplementing the standard equipment single speed electric wiper, for 1961 a 2-speed windshield wiper is available in combination with windshield washer equipment as an extra cost option. The package is very similar to the 2-speed wiper-washer combination available for regular passenger cars.

### **Push-Button Radio**

The list of accessories available for 1961 Corvair models now includes a push-button radio in addition to the manually tuned unit offered previously. The Corvair unit is a four tube set utilizing a power transistor, printed circuits and a mechanical lockup type tuner with five push-buttons. Controls for both the regular and push-button radios are supported by a rectangular housing and attached to the instrument panel lower flange as for the 1960 models.

### **Roof Top Carrier**

The Roof Top Carrier, introduced in mid-season 1960, is carried over for 1961 models. It is fabricated of chromium plated, seamless tubular steel rails and cast supports or posts, with stainless steel platform bars. The platform is composed of five longitudinal bars fastened to three transverse bars which are insulated from the roof by hard rubber pads. Each of the four die-cast posts are fastened to the roof by two machine screws made of stainless steel providing solid permanent attachment. The screws are turned into metal inserts surrounded by a hard rubber covering which is forced into holes drilled in the roof top. As the screws are tightened down, moving the insert upward, the rubber is pinched causing it to balloon out, tightly sealing the holes from water leaks and preventing corrosion. Hard rubber insulators are also used at the posts to protect the roof top.

Other Corvair accessories generally are the same as those offered in 1960.

# PART 3—TRUCKS

## SECTION 1

### GENERAL INFORMATION

The 1961 truck program provides 189 models on 18 wheelbases, which includes three new 4-wheel drive units and three new light-duty forward control models. The Sedan Delivery and Sedan Pickup are discontinued. Regular truck models repre-

sent a continuation of the 1960 program with identifying styling changes and several body and chassis revisions. The big story for 1961, therefore, is the addition of the three new light-duty forward control models to the line. Designated as the R1200

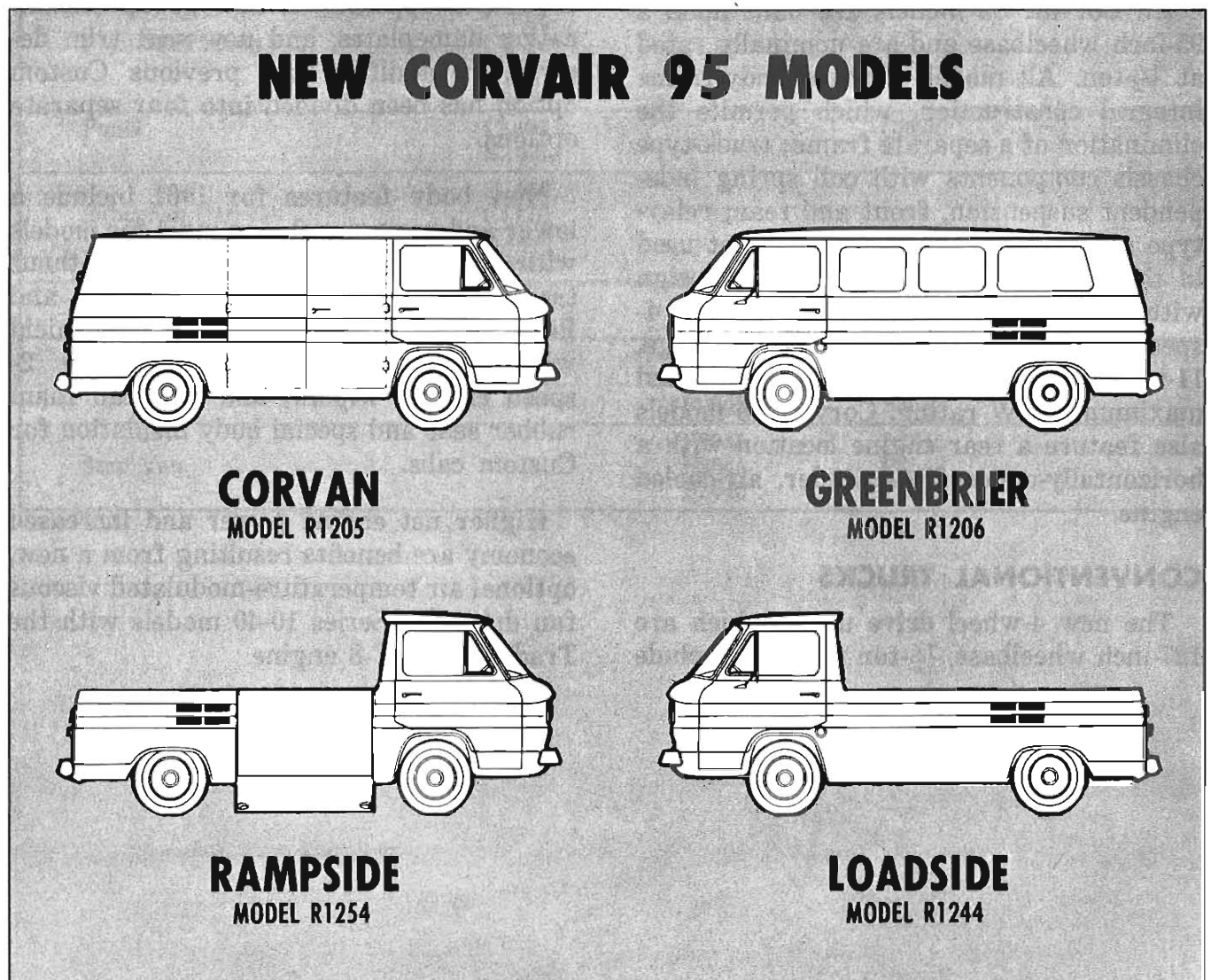


Fig. T1—Corvair 95 Model Identification

or Corvair 95 Series, the new models are tailored to compete in the fast-growing light-duty delivery vehicle market (fig. 1).

### **CORVAIR 95 SERIES**

The new Corvair 95 Series is comprised of model R1205, a panel delivery called the Corvan; model R1244, a pickup called the Loadside; and model R1254, a pickup with a rampgate called the Rampside. (The Corvair 95 series also includes model R1206, a station wagon called the Greenbrier. Model R1206, however, is not a part of the 1961 truck lineup since it will be merchandised as a passenger car.)

All Corvair 95 models are built upon a 95-inch wheelbase and are nominally rated at  $\frac{1}{2}$ -ton. All models feature body-frame integral construction, which permits the elimination of a separate frame; truck-type chassis components with coil spring independent suspension, front and rear; relay-type steering linkage similar to that used in the conventional line; transaxle design with the standard 3-speed or optional 4-speed or Powerglide transmission; large, 11-inch brakes; and a hefty 4600 pound maximum GVW rating. Corvair 95 models also feature a rear engine location with a horizontally-opposed, 6-cylinder, air-cooled engine.

### **CONVENTIONAL TRUCKS**

The new 4-wheel drive units, which are 127-inch wheelbase,  $\frac{1}{2}$ -ton vehicles, include

model K1503, a cab-chassis; model K1504, a Stepside pickup; and model K1534, a Fleet-side pickup. Gross vehicle weight ratings range from 4900 to 5600 pounds.

Models in both the  $\frac{1}{2}$  and  $\frac{3}{4}$ -ton categories are equipped with a 3-speed synchromesh transmission in place of the Chevrolet 4-speed transmission used previously. Also,  $\frac{1}{2}$ -ton Suburban Carryall models and  $\frac{1}{2}$ -ton 4-wheel drive models utilize 7.10-15-4 ply tires as base equipment in place of the 6.70-15-6 ply tires formerly used.

Styling refinements for the conventional line include eight new exterior colors, a new front end appearance, new group classification nameplates, and new seat trim designs. In addition, the previous Custom option has been divided into four separate options.

New body features for 1961 include a lower and narrower floor tunnel for models with the 3-speed, 3-speed H.D. (without transmission-mounted parking brake), and Powerglide transmission; a new windshield wiper-washer combination featuring 2-speed electric wipers; and new full foam rubber seat and special body insulation for Custom cabs.

Higher net engine power and increased economy are benefits resulting from a new, optional air temperature-modulated viscous fan drive for Series 10-40 models with the Trademaster V-8 engine.

## LIGHT AND MEDIUM-DUTY MODEL LINEUP

Vehicle Type	½-Ton	¾-Ton	1-Ton	1½-Ton
L.D.F.C. Pickup	R1244			
L.D.F.C. Rampside Pickup	R1254			
L.D.F.C. Panel	R1205			
Flat Face Cowl	C1402	C2502	C3602	C4102 C4302
Windshield Cowl	C1412	C2512	C3612	C4112 C4312
Conventional Cab Chassis	C1403 C1503 K1403 K1503	C2503 K2503	C3603	C4130 C4303
Stepside Pickup	C1404 C1504 K1404 K1504	C2504 K2504	C3604	
Fleetside Pickup	C1434 C1534 K1434 K1534			
Panel	C1405 K1405		C3605	
Suburban Carryall	C1406 C1416 K1406 K1416			
Conventional Stake		C2509	C3609	C4109 C4309
Forward Control		P2342 P2542 P2642	P3342 P3542 P3642	
Step Van		P2345 P2545 P2645	P3345 P3545 P3645	

## MEDIUM AND HEAVY-DUTY MODEL LINEUP

Vehicle Type	1½-Ton Special		2-Ton		2-Ton Heavy		2½-Ton	
Flat Face Cowl	C5102S	C6102S	C5102	C6102	C6102H			
	C5202S	C6302S	C5202	C6302	C6302H			
	C5302S	C6502S	C5302	C6502	C6502H			
	C5502S		C5502					
Windshield Cowl	C5112S	C6112S	C5112	C6112	C6112H			
	C5212S	C6312S	C5212	C6312	C6312H			
	C5312S	C6512S	C5312	C6512	C6512H			
	C5512S		C5512					
L.C.F. Cab Chassis	L5203S	L6203S	L5203	L6203	L6103H	L6603H	L7103	L8103
	L5303S	L6303S	L5303	L6303	L6203H	L6903H	L7203	L8203
	L5603S	L6603S	L5603	L6603	L6303H		L7303	L8303
	L6103S	L6903S	L6103	L6903			L7603	L8603
Tilt Cab Chassis	T6203S		T6203		T6203H		T7203	T8203
	T6303S		T6303		T6303H		T7303	T8303
	T6603S		T6603		T6603H		T7603	T8603
	T6803S		T6803		T6803H		T7803	T8803
Conventional Cab Chassis	C5103S	C6103S	C5103	C6103	C6103H		C7103	C8103
	C5203S	C6203S	C5203	C6203	C6203H		C7203	C8203
	C5303S	C6303S	C5303	C6303	C6303H		C7303	C8303
	C5503S	C6503S	C5503	C6503	C6503H		C7503	C8503
		C6803S		C6803	C6803H		C7803	C8803
Conventional Stake	C5109S		C5109					
	C5309S		C5309					
L.C.F. Stake	L5309S		L5309					
Tandem							M7303	
							M7503	
							M7803	
School Bus			S5302					
			S6202					
			S6402				S7702	
			S6702				S7902	



## POWER TRAINS

Model	Engine Displacement and Name	Transmission	Rear Axle	
			Capacity	Ratio
R12	145 Cubic Inch	3-Speed Synchronesh 4-Speed Synchronesh 2-Speed Powerglide		3.89:1 or 3.27:1
C10	235 Thriftmaster 283 Trademaster	3-Speed Synchronesh 3-Spd. Hd. Synchronesh 4-Speed Synchronesh Powerglide	3500 Lbs. 3500 Lbs.	3.90:1 3.38:1
K10	235 Thriftmaster 283 Trademaster	4-Speed Synchronesh	3300 Lbs.* 3500 Lbs.	3.90:1
C20	235 Thriftmaster 283 Trademaster	3-Speed Synchronesh 3-Spd. Hd. Synchronesh 4-Speed Synchronesh Powerglide	5200 Lbs.	4.57:1
K20	235 Thriftmaster 283 Trademaster	4-Speed	3500 Lbs.* 5200 Lbs.	4.57:1
P20	235 Thriftmaster Special	3-Speed Synchronesh 3-Spd. Hd. Synchronesh 4-Speed Synchronesh Hydramatic	5200 Lbs.	5.14:1
C30	235 Thriftmaster 283 Trademaster	4-Speed Synchronesh 3-Spd. Hd. Synchronesh	7200 Lbs.	5.14:1
P30	235 Thriftmaster Special	4-Speed Synchronesh 3-Spd. Hd. Synchronesh Hydramatic	7200 Lbs.	5.14:1
C40	235 Thriftmaster 283 Trademaster	4-Speed Synchronesh	11000 Lbs.	6.17:1
CL50	235 Thriftmaster 283 Trademaster	4-Speed Synchronesh	13000 Lbs.	6.60:1
S50	235 Thriftmaster 283 Trademaster	4-Speed Synchronesh	13500 Lbs.	6.60:1
CLT60	261 Jobmaster§ 283 Taskmaster	4-Speed Synchronesh 5-Speed New Process 5-Speed New Process Powermatic	15000 Lbs. 15000 Lbs.	7.20:1 6.40/8.72:1
S62, S64	261 Jobmaster 283 Taskmaster	4-Speed Synchronesh 5-Speed New Process Powermatic	13500 Lbs. 15000 Lbs. 15000 Lbs.	6.60:1 7.20:1 6.40/8.72:1
S67	261 Jobmaster 348 Workmaster Spec.	4-Speed Synchronesh 5-Spd. Clark 265V Powermatic	15000 Lbs. 15000 Lbs.	7.20:1 6.40/8.72:1
CLT70	348 Workmaster Spec.	5-Spd. Clark 265V 5-Spd. Clark 267V Powermatic	16000 Lbs. 16000 Lbs. 16000 Lbs.	7.17:1 6.50/9.04:1 7.17/9.97:1
S70	348 Workmaster Spec.	5-Spd. Clark 265V	15000 Lbs. 15000 Lbs. 16000 Lbs. 16000 Lbs.	7.20:1 6.40/0.72 7.17:1 6.50/9.04:1
M70	348 Workmaster	5-Spd. Spicer 3152 3-Spd. Spicer Aux. Powermatic	16000 Lbs. each	7.17:1
CLT80	348 Workmaster	5-Spd. Spicer 3152 5-Spd. Spicer 3152A Powermatic	18500 Lbs.¶	7.17:1▽ 7.67:1 6.50/8.87 7.17/9.77

\* — Front Axle capacity on four wheel drive models.

§ — This engine not used with Powermatic transmission on Tilt models.

▽ — For use with Powermatic only on this series trucks.

¶ — This axle is rated at 18000 pounds for "off-road" operations.

## REGULAR PRODUCTION OPTIONS

RPO	Description	RPO	Description
105	Direction signal equipment 10-80	341	Side mounted wheel equipment for Pickup models
112	Deluxe heater 10-80	345	Heavy-duty battery equipment C10, CL50, 60, 70, 80, M70, P20, T60
115	Recirculating heater 10-80	346	Vacuum gauge equipment S50, 60, 70
130	W/S washer equipment (exc. 02S)	350	Hydraulic strg. equipment 60-80
201	2-Spd, 8.72/6.40:1, 15000 lb. rear axle CLST 60, S70	351	Generator equip. 35 amp. 10-80
202	2-Spd, 7.17/9.97:1 16000 lb. rear axle CLT 60, 70	352	HD battery equipment 10-80
204	2-Spd, 7.17/9.77:1 18000 lb. rear axle CLT 60, 70	355	2-Speed wiper and washer equip.
209	Parking brake equipment P20, 30	367	Front bumper, P20, 30
210	Rear view mirror equipment 10-80	371	Max. economy opt. C10
212	Brake booster—hyd. P20, 30 C30, 40 series	383	Side moulding equipment—Fleetsides
213	Shock absorber equipment 10-80	385	348 cu. in. V-8 engine S67
215	3.38:1 Axle Ratio—C10	386	5-Spd. Clark trans. C.R. (CLT 70, 80)
217	Engine pos. vent. 10-80	389	Generator equip.—50 amp. low-cut-in 10-80
218	Rear bumpers, (Pickups)	391	Auto jack equipment C20, 30, 40, 50, 60, 70, 80 and Fwd. Controls
219	7000 lb. front susp. CLST 60	393	Chrome bumpers C10, 20, 30
221	9000 lb. front susp. CLST 80, M70	394	Panoramic cab equipment
222	HD clutch equipment CK 10, 20 C30	395	Lock equipment LH door and spare wheel 10-80
229	Platform and stake rack equipment CLT 60, 70, 80	402	15000 lb GVW plate CL 50, CLT 60
233	HD outer frame reinforcements 60-80	404	22000 lb GVW plate CLT 60
235	Side member inner reinforcement equipment CL 61, 62, 63	407	21000 lb GVW plate S60
239	Oil filter, 1 qt. 10-50	408	V-8 engine 10-50
241	Governor 10-60 w/L-6	413	Air-over hydraulic brake equipment 60-80
243	Special crankcase ventilation equip. 10-80	414	HD Brake Booster CLS 50-60
247	P/U box mounting equipment	423	Running board CK 1403, 1503
254	HD rear springs 10-40	432	Custom and appearance 10-80
255	HD front spring P-30	433	Comfort and Convenience Equip.—10-80
256	HD radiator 10-80	439	Forward Control misc. body equipment
258	Custom seat 10-80 cabs	446	30 gallon gasoline tank P25, 26, 35, 26
264	Auxiliary seat—panels, tilts	467	16000 lb. 7.17:1 rear axle CLT 60 S70
266	Tachometer 70, 80, 60 w/V-8	472	20 gallon gasoline tank 10-60 cab chassis models
267	Auxiliary spring P30	475	2-spd. 16000 lb. 6.5/9.04:1 rear axle CLST 70 and 60 H models
281	Vacuum power reserve tank 50-80	479	2-spd. 6.5/8.87 rear axle 18000 lbs. CLT 80
309	Powermatic Trans.—60-70-80	480	Cab equipment
310	Auxiliary trans.—tandem	562	Single unit body equipment Panels and Carryalls
311	Powerglide trans. C10, 20	564	Two Unit Body Equip.
316	HD, 3-speed transmission C10, 20, 30 P20, 30	567	Custom cab equipment 10-80
318	4-Spd, C10, 20, P20, K10, K20	585	Air Brake equipment CLT 70 and 80, 60 H models
321	Hydramatic transmission Forward Control models only	591	Air cleaner 1 qt. 10-50
322	5-Speed New Process Transmission CLT60, S62, S64	592	Oil filter, 2 qt. 10-50
327	Generator equipment 40 amp. 10-80	603	Special heavy-duty rear springs CLT 60, 70 and 80
332	HD, torsion bar equipment CLT 60, 70, 80	680	Limited slip 3.90:1 rear axle C10
336	Direction signal switch equipment Flat Face Cows and School Buses	683	Front wheel locking hub K10, 20
339	Wheel carrier equipment C20, 30, 40 Flat Face and Windshield Cows, 30, 40 Stakes 20, 30 Fwd. Controls	698	15000 lb. 7.20:1 rear axle, S62, 64
340	Special HD Torsion Bar, CL 50, 60, 70	700 thru 746	Color options, single and two-tone

## SECTION 2

# GENERAL LUBRICATION

The lubrication recommendations for the 1961 trucks are basically unchanged from 1960. The inclusion of the Corvair 95 Series truck does make it necessary to learn new

locations to lubricate. The 1961 Corvair Shop Manual gives these necessary detailed instructions.

# SECTION 3

## FRAME AND SUSPENSION

### CORVAIR 95

#### Ride and Handling

Good vehicle ride and handling result from the stability provided by the short 95-inch wheelbase, 58-inch front and rear treads, and low vehicle center of gravity. Vehicle ride and handling are maintained, too, with the stability gained from the relatively equal and constant weight distribution, which remains at approximately 40 percent front and 60 percent rear whether loaded or unloaded. Weight distribution remains relatively unchanged from "no load" to "full load" because of the dropped-center

underbody, which supports the majority of the load between the front and rear wheels for more equalized wheel loading (fig 2).

The slightly greater rear end loading, approximately 60 percent of both the curb and gross vehicle weights, improves vehicle performance by assuring good traction and, because of the lighter front end loading, faster steering and more effective braking.

#### CONVENTIONAL TRUCK

The frame and suspension for the conventional truck model line remains unchanged from the 1960 models.

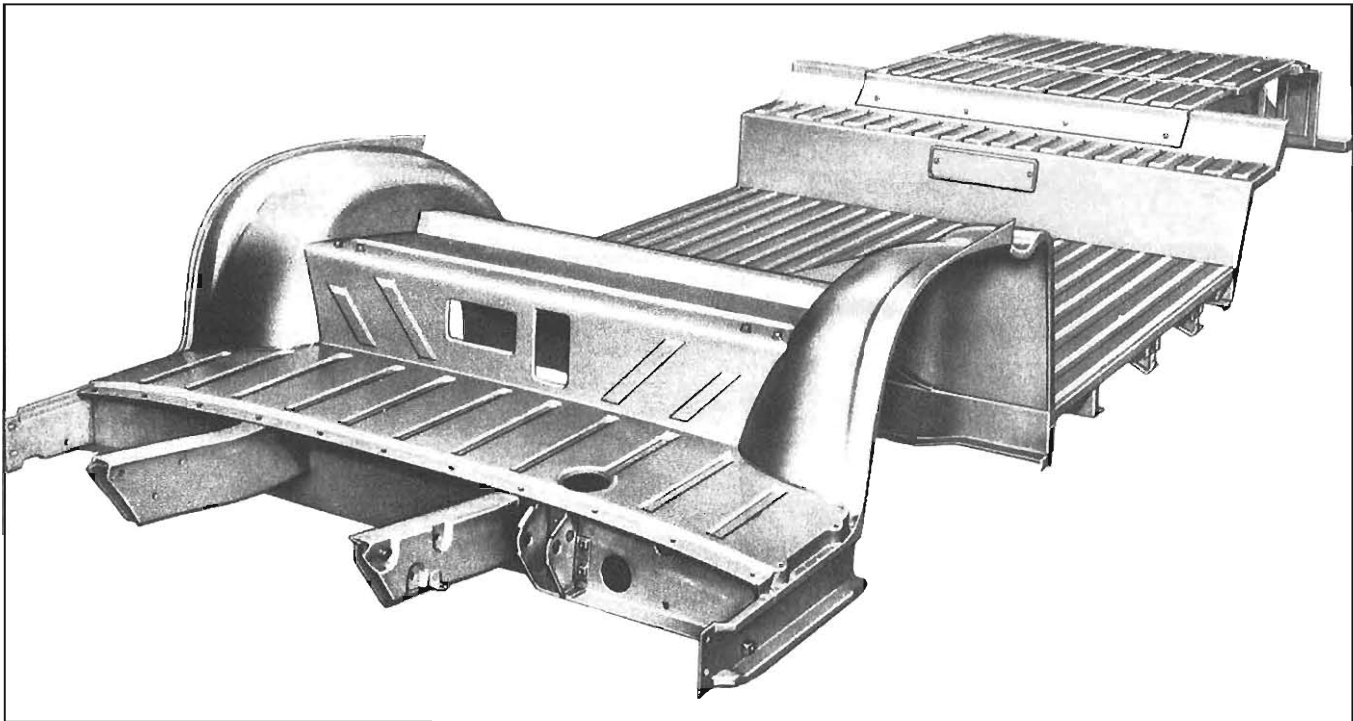


Fig. T2—Corvair 95 Underbody

# SECTION 4

## STEERING

### CORVAIR 95

The steering system for the Corvair 95 series models is similar in construction to the Truck Tilt Cab, the regular Corvair and it also has some unique features specially designed for Corvair 95 series models. The linkage from the steering gear to the relay rod is constructed as the Tilt Cab models with the remainder of the linkage resembling the regular Corvair. The steering linkage is, of course, constructed of smaller size parts than Tilt Cab models.

The steering gear is a double row ball-type which entered production for the regular Corvair during a 1960 mid-season change (fig. 3). The steering shaft is one piece consisting of one shaft from the steering wheel to the worm gear which is an integral part of the steering shaft. The mast jacket is a press fit into the steering gear housing.

The steering gear and linkage (fig. 4) are positioned forward of the front wheels and are attached to the underbody. The pitman arm is linked to the relay rod by the con-

necting rod and the 90 degree relay arm assembly. Equal length tie rods connect the relay rod with the steering arms which extend forward from each wheel spindle. The length of the tie rods can be altered, in the conventional manner, to provide proper toe-in. Adjusting the steering connecting rod controls the position of the steering wheel.

The end of the relay rod opposite the relay arm assembly is supported by the idler arm assembly which contains self-lubricating all nylon bushings. This type bushing is also used at the relay rod end of the relay arm assembly. The tie rods and steering connecting rods are equipped with self-tensioning spring loaded ball and socket joints which automatically compensate for normal internal wear.

### Steering Gear

#### Adjustments

There are two steering gear adjustments necessary to insure proper steering gear operation. One, preloading the worm gear thrust bearings insures properly seating of the bearings for long life and, two, adjusting the steering gear high point helps to stabilize the vehicle during "straight ahead" driving conditions.

Both adjustments are performed in the conventional way with the worm bearing pre-load adjustment being first. Refer to the 1961 Corvair Shop Manual, page 4-16 covers these adjusting procedures in detail. On page 4-17 the steering wheel alignment adjusting procedure is presented.

#### Remove

To remove the steering gear, first remove the bumper and left front outer extension panel. Then disconnect the steering connecting rod from the pitman arm and re-

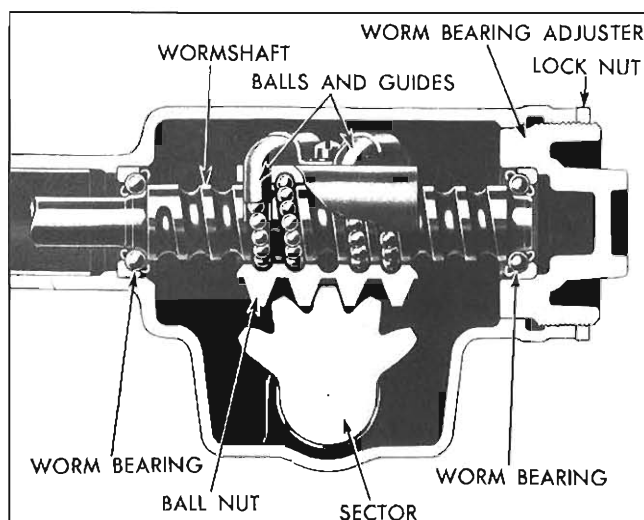


Fig. T3—Steering Gear Construction

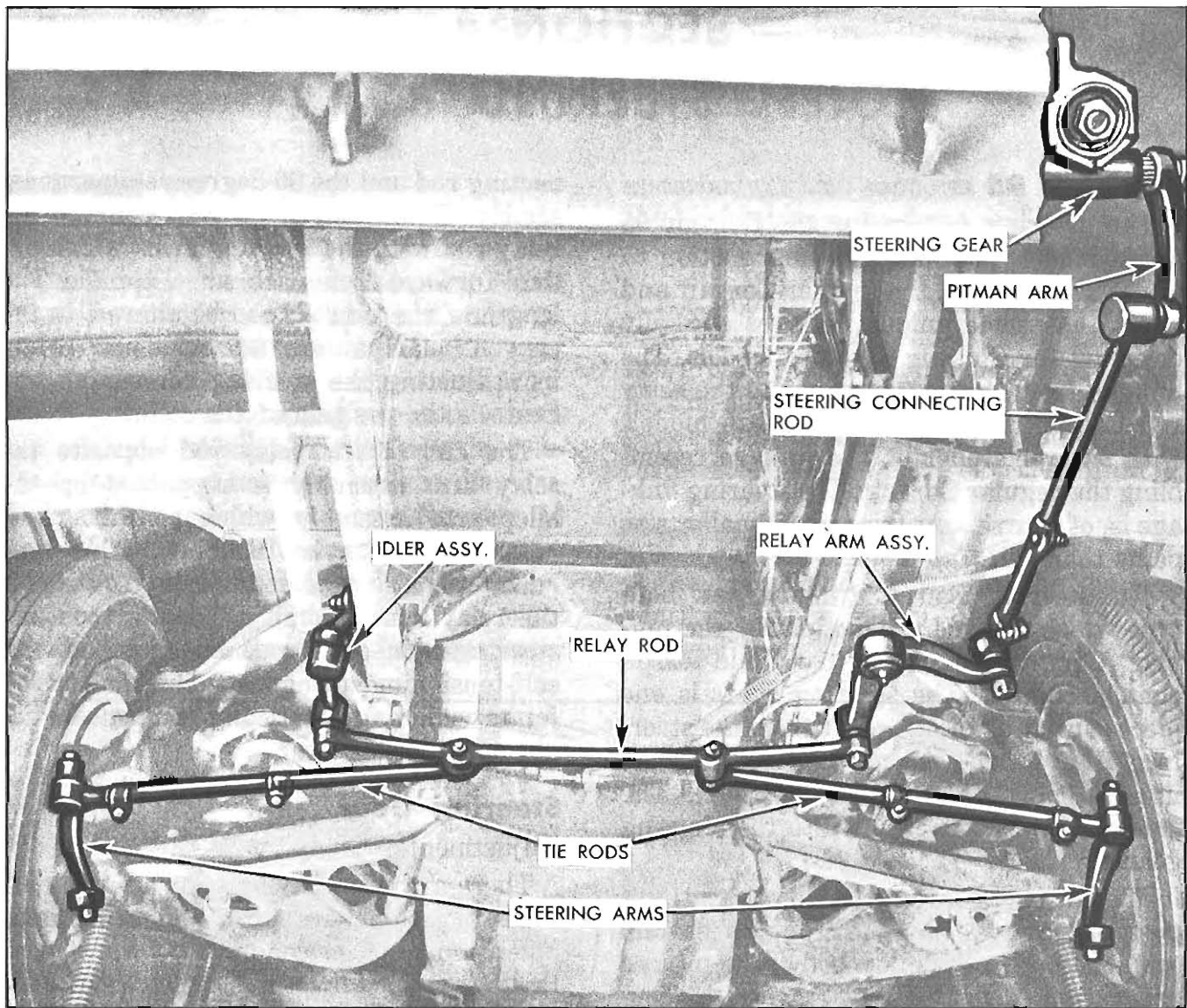


Fig. T4—Corvair 95 Steering System

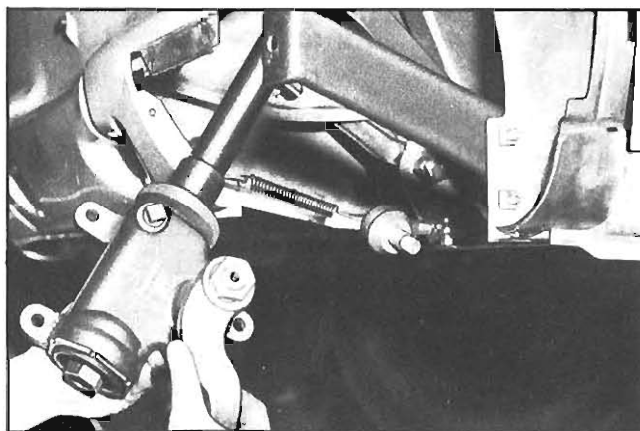


Fig. T5—Removing Steering Gear

move the steering wheel, directional signal assembly and mast jacket to dash clamp. After removing the three bolts holding the steering gear to the body rail, the steering gear and mast jacket assembly can be lowered from the body (fig. 5).

### Lubrication

The Corvair 95 series models have the same steering linkage lubrication requirements as the regular Corvair plus the relay arm pivot must be lubricated every 1000 miles.

# SECTION 5

## REAR AXLE

### **CONVENTIONAL TRUCK C10 Series Rear Axle Assembly**

A 3.38-to-1 rear axle assembly, which replaces the former 3.90-to-1 ratio, is released as regular production equipment for Series C10 models. The lower ratio of engine rpm to vehicle speed afforded by the new axle

assembly provides a slight improvement in fuel economy.

The 3.38-to-1 ratio axle is released for use with all synchromesh transmissions. When the Powerglide option is used, however, the 3.90-to-1 axle ratio is mandatory.

Axle rated capacities remain unaffected at 3500 pounds.

# SECTION 6

## BRAKES

### **IMPROVED AIR COMPRESSOR**

Air Brake Compressor Assemblies for the air-hydraulic and full-air brake systems are modified to improve braking efficiency. These compressors incorporate a new governor which increases reservoir tank pressure from 85-105 psi to 100-125 psi. The higher reservoir tank pressures not only produce greater braking forces but also permit more stops per tank of air pressure.

### **HEAVY-DUTY VACUUM POWER BRAKES, 50-60 SERIES**

R.P.O. 414, Heavy-Duty Vacuum Power Brake Equipment is released for C, L, 850

and C, L, S, T60 models. This option consists of a 11½-inch diaphragm booster (Midland Ross) and a 1¼ inch diameter main cylinder. The regular production 11-inch booster and 1⅛-inch diameter main cylinder are deleted. The larger components provide the 2-ton models with increased brake pedal reserve and higher braking forces for improved performance.

The 11½ inch booster option has also been made mandatory with the heavy-duty front suspension (RPO 219) to compensate for the larger wheel cylinders used in the 7000 pound suspension.



# SECTION 8

## ENGINE

### **CONVENTIONAL TRUCK**

Several important changes occur in the 1961 Chevrolet Truck power team lineup. The 283 cubic inch unit Taskmaster V-8 being discontinued and replaced with the 348 cubic inch Workmaster Special V-8 as an option for Series 60 models.

### **Higher Rate Engine Mounts**

The front engine mounts for Series C10, 20 vehicles have been modified to reduce body shake. The use of harder rubber with its higher vibration rate reduces mount deflection from .050 inches to .042 inches.

### **More Flexible Gooseneck Tube**

A more flexible gooseneck tube, which supplies oil to the valve rocker arm shaft, has been released for the 261 cubic inch 6-cylinder engine. This change reduces the possibility of tube breakage and consequent loss of oil to the valve rocker arm shaft.

### **Improved Valve Rocker Shaft Supports**

The end valve rocker shaft supports in the 261 cubic inch 6-cylinder engine are modified to reduce stress concentration and the possibility of shaft breakage. A  $\frac{1}{8}$  inch slot is cut horizontally through one side of the bearing boss. This permits the bearing boss to flex slightly, distributing the clamping forces more evenly around the valve rocker shaft. Localized shaft stresses thus are reduced, providing increased shaft durability.

### **Improved Cylinder Heads**

The 261 cubic inch Jobmaster and 283 cubic inch Taskmaster engine cylinder

heads have been improved for heavy-duty service by increasing the chrome content of the metal. This change in material specifications results in a less ductile material, improving valve seat durability.

### **More Durable Pistons**

Durability of the 348 cubic inch engine pistons is improved by increasing the cross-sectional area near the lower part of the piston skirt, thereby extending both piston and engine life. The new pistons are identified by the letter "T" stamped on the top of the piston.

### **Manifold to Cylinder Head Gasket**

The heat riser holes in the inlet manifold to cylinder head gasket of 348 cubic inch V-8 engines have been enlarged to permit more exhaust gas to flow through the inlet manifold heat riser passages. As a result, the surfaces of the main air-fuel induction passages are warmer, which improves fuel vaporization for increased engine performance under normal operating conditions.

A redesigned carburetor-to-manifold gasket is used on 1961 models with the 283 cubic inch Trademaster V-8 engine. Though gasket shape remains unchanged, the new gasket has three small sectional areas cut out of the portion not needed to seal the carburetor to the manifold. With less gasket area, the insulating effect of the gasket between the manifold and carburetor is reduced, resulting in increased heat transfer to the carburetor. Since carburetor warmup is faster, the possibility of carburetor icing is reduced.

## ENGINE AVAILABILITY AND OUTPUT RATING CHART

Engine Name	Availability	Displacement (cu. in.)	Comp. Ratio	Carbu- retion	Gross		Net	
					HP	Torque (lbs. ft.)	HP	Torque (lbs. ft.)
Thriftmaster	STD C10-K10-C20- K20-C30-C40- C50-S50-L50	235	8.25	1-Bbl.	135 @ 4000	217 @ 2000	115 @ 3600	195 @ 2000
Thriftmaster Econ. Option	RPO C10	235	8.25	1-Bbl.	110 @ 3200	210 @ 1600	95 @ 3200	190 @ 1600
Thriftmaster Special	STD P20-P30	235	8.25	1-Bbl.	135 @ 4000	217 @ 2000	110 @ 3600	192 @ 2000
Jobmaster	STD C60-S60-L60- T60	261	8.0	1-Bbl.	150 @ 4000	235 @ 2000	130 @ 3800	218 @ 2000
Trademaster	RPO C10-K10-C20- K20-C30-C40- C50-S50-L50	283	8.5	2-Bbl.	160 @ 4200	270 @ 2000	137 @ 4000	250 @ 2000
Workmaster Special	STD C70-L70-T70- S70 RPO C60-S60-L60- T60	348	7.75	2-Bbl.	185 @ 4000	315 @ 2200	160 @ 3600	285 @ 1800
Workmaster	STD C80-L80-T80- M70	348	7.75	4-Bbl.	230 @ 4400	335 @ 2800	194 @ 3800	302 @ 2600

## SECTION 10

# FUEL SYSTEM

### CORVAIR 95

The 2-piece, seam-welded fuel tank, located above the front suspension cross-member and under the front seat riser, has an 18½ gallon capacity. Filler tube location is at the left hand side of the body just rearward of the front door opening (fig. 6). The gasoline line is fastened inside the right hand underbody longitudinal sill and crosses over to the left hand upper side of the engine at the rear suspension cross-member. The line then runs across the upper side of the blower plenum to the left hand side of the fuel pump from where it is then connected to each carburetor.

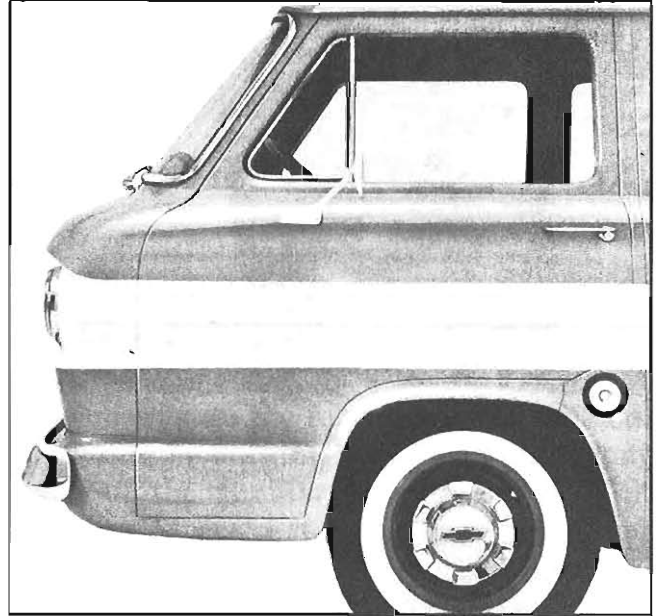


Fig. T6—Corvaire 95 Gasoline Tank Location

# SECTION 11

## CLUTCH

### **CONVENTIONAL TRUCK**

A 10 inch diameter Belleville clutch replaces the former 11 inch diameter clutch.

### **CORVAIR 95**

The clutch used with either the Corvair

95, 3 or 4-speed synchromesh transmission, is basically similar to the clutch used in Corvair passenger cars. Clutch disc facing diameter is 9.12 inches (O.D.) and 6.12 inches (I.D.). Total facing area is approximately 72 square inches.

# SECTION 12

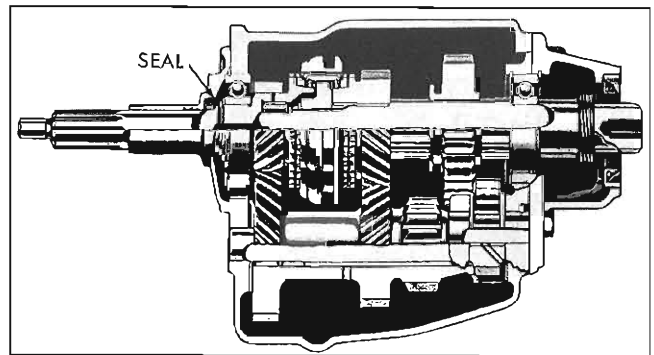
## MANUAL TRANSMISSION

In general, the transmission line-up for 1961 follows 1960 with the following changes.

The H.D. 3-speed and 5-speed transmission durability has been improved through the use of a redesigned clutch gear bearing retainer which embodies a lip seal (fig. 7). The new design makes it possible to eliminate a retainer washer on the H.D. 3-speed and all 5-speed transmissions except the New Process transmission. For the New Process transmission, a retainer nut and oil return groove on the clutch gear stem have been eliminated.

The reverse idler gear in the regular truck 3-speed transmission has been made more durable. The gear for 1961 has 15 teeth.

Formerly the parking brake mounting for trucks equipped with an auxiliary trans-



**Fig. T7—Redesigned Clutch Gear Bearing Retainer**

mission was on the auxiliary transmission. Applying the parking brake held the output shaft of the auxiliary transmission. With the parking brake mounted in this position excessive vibration of the parking brake handle resulted. For 1961 the parking brake mounting is on the main transmission. It is now necessary to have the auxiliary transmission in gear to hold the vehicle when the parking brake is applied.

# SECTION 13

## AUTOMATIC TRANSMISSIONS

### CORVAIR 95 POWERGLIDE

Corvaair 95 models may be equipped with an optional Powerglide transmission. Although basic design is similar to the passenger car Powerglide, the transmission has one unique feature. A transmission oil cooler located in the left rear wheel house compartment, is used with the Corvaair 95 Powerglide (fig. 8).

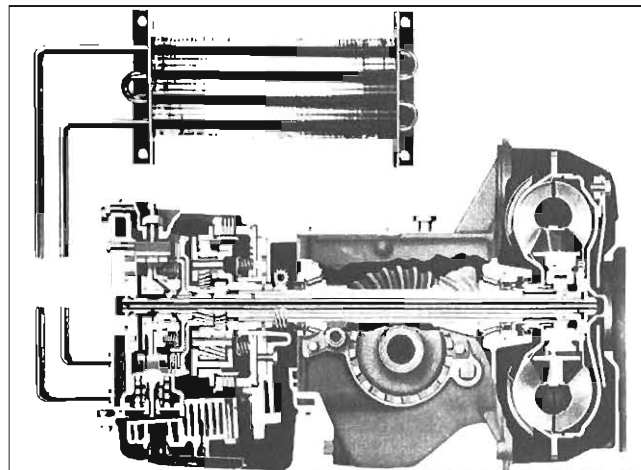


Fig. T8—Corvaair 95 Powerglide

### 1961 TRANSMISSION AVAILABILITY

Transmission	R12	C10 C20	K10 K20	P20	P30	C30	C40	C-L-S 50	C-L- S-T 60	C-L- S-T 70	M70	C-L-T 80
3-Speed Conventional	Std.	Std.	Std.	Std.								
3-Speed Heavy Duty		Opt.		Opt.	Opt.	Opt.						
4-Speed	Opt.	Opt.	Opt.	Opt.	Std.	Std.	Std.	Std.	Std.			
5-Spd. (New Process 530C)									Opt.			
5-Spd. (Clark 265V)										Std.		
5-Spd. (Clark 267V)*										Opt. §		
5-Spd. (Spicer 3152)											Std.	Std.
5-Spd. (Spicer 3152A)*												Opt.
3-Spd. Aux. (Spicer 5831-F)											Opt.	
Powerglide	Opt.	Opt.										
Hydramatic				Opt.	Opt.							
Powermatic								Opt. ▼	Opt.	Opt.	Opt.	Opt.
2-Speed Transfer Case (Timken T221)			Std.									

\*Close Ratio Transmissions.

§—Available on C, O, and T models only.

▼—Not available on 6-cylinder T models.

# SECTION 14

## BODY AND SHEET METAL

### CONVENTIONAL TRUCK

Chevrolet truck bodies for 1961 are carried forward from 1960 essentially unchanged.

Drastic reductions in floor tunnel size of vehicles with the 3-speed, 3-speed H.D. (without transmission-mounted parking brake) and Powerglide transmission afford increased front compartment roominess for the driver and passengers.

Comparison with the 1960 tunnel shows a decrease in tunnel width of  $4\frac{1}{4}$  inches at the heel point (AA) and 3 inches in front of the seat (BB), providing a considerable gain in foot room. More leg room for the passenger in the center of the front seat is another advantage of the new tunnel configuration since its height is decreased  $1\frac{3}{8}$  inches at the heel point and  $3\frac{3}{4}$  inches in front of the seat (fig. 9).

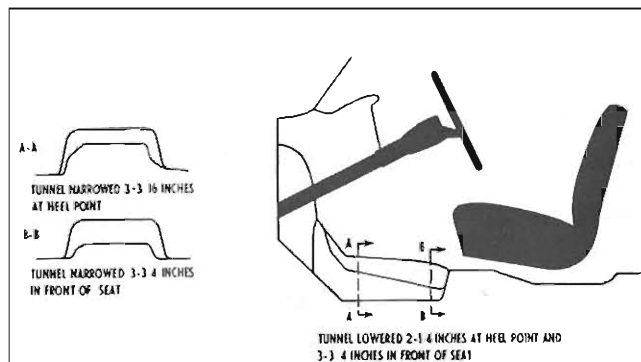


Fig. T9—New Floor Tunnel Configuration

### CORVAIR 95 BODY STRUCTURE

#### Corvan

The body construction for the 1961 Corvan and Greenbrier is of the body-frame integral construction which is a variation of the basic Corvaire body. Integration of

frame and body into a single van-type unit produces an excellent combination of interior-exterior dimensions, strength, and capacity. Accomplished through the efficient use of structural material and with the dropped center underbody the load floor is positioned closer to the ground.

The frame-body shell is made up of five subassemblies. They are: (1) the underbody, (2) the front end structure, (3 & 4) the right and left hand side panels, and (5) the roof panel. The construction of these subassemblies relating to the Corvaire 95 series are as follows:

#### Underbody

The underbody forms the backbone of the vehicle. The front and rear suspension are attached to and support the underbody. The rear mounted power train is attached to and is supported by the underbody. The underbody also can support up to 1600 pound load. A "dropped center" flat floor between the axle kick-ups is slightly less than 14 inches above the ground which contributes to the vehicle having a low center of gravity.

The underbody is built up from two subassemblies welded and bolted together at the back of the front kickup. Two full length longitudinal sills, box sectioned front and rear and of the hat section in the central portion support the ribbed floor. They are widely spaced at the rear and center and are further inboard in the forward portion to provide clearance for the front suspension. Heavy shear plates spot welded to lateral supports tie the offset sills together.

Lateral support is provided through variously shaped cross and outrigger sills; all

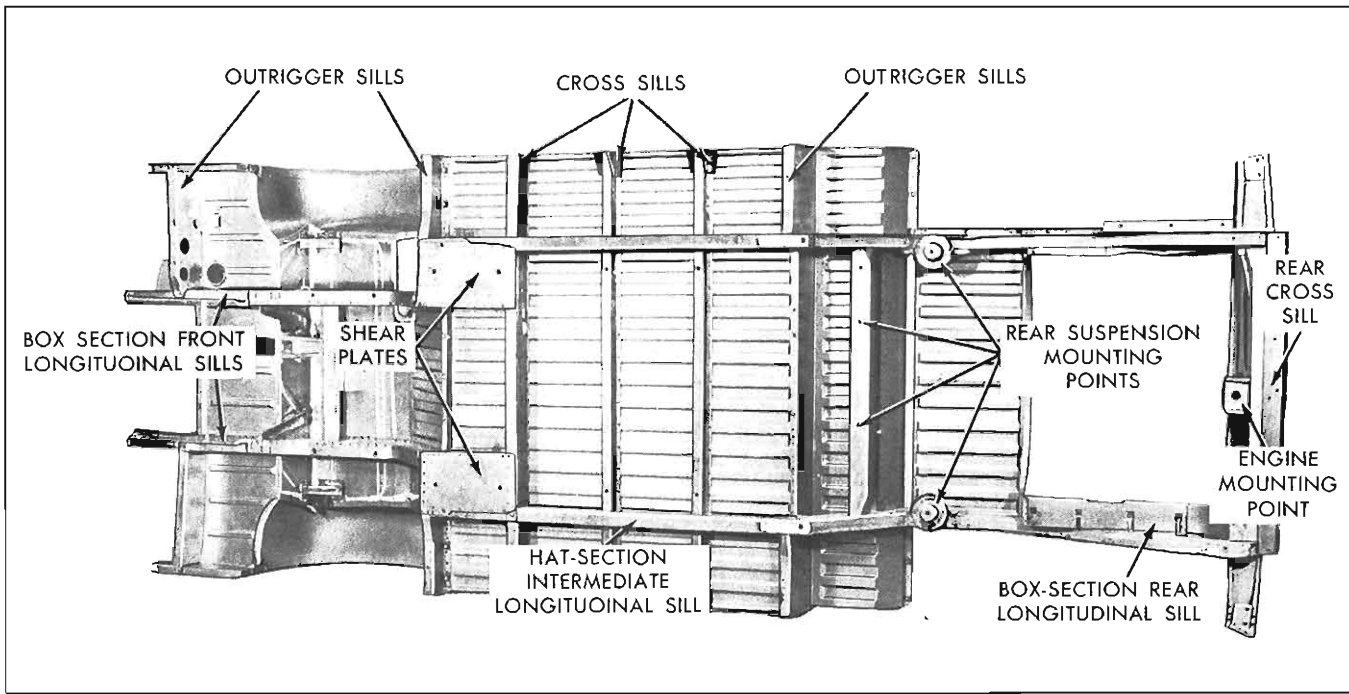


Fig. T10—Construction Underbody Pan

the sills are reinforced with braces and gussets. An extra-heavy gauge portion of the rear kickup floor panel serves as the front bulkhead for the engine compartment and as a structural crossmember. A large panel in the rearmost floor section is easily removable for upper engine accessibility (fig. 10).

Anti-corrosion measures are taken to protect the undersurface of the body. The entire lower surface of the underbody is sprayed with a high zinc content chromate primer. Enclosed areas where moisture may collect are sealed with a compound consisting of aluminum particles suspended in a wax base. In addition, before welding all underbody flanges are treated with a special rust inhibiting compound. As a final preventative measure, all wheelhouses are sprayed with undercoating.

### Front End

The front end consists of several sheet metal subassemblies rigidly welded together. The unit consists primarily of inner

and outer front end panels, toe pan, instrument panel, hinge pillars, and windshield header rail. Box, hat, and channel sections are used throughout to contribute rigidity to the outer panel styling and front end structure (fig. 11).

Fresh air for the vehicle interior is provided by the ram effect of a plenum chamber incorporated in the front end structure. Outside air enters the plenum through an inlet grille located below the windshield.

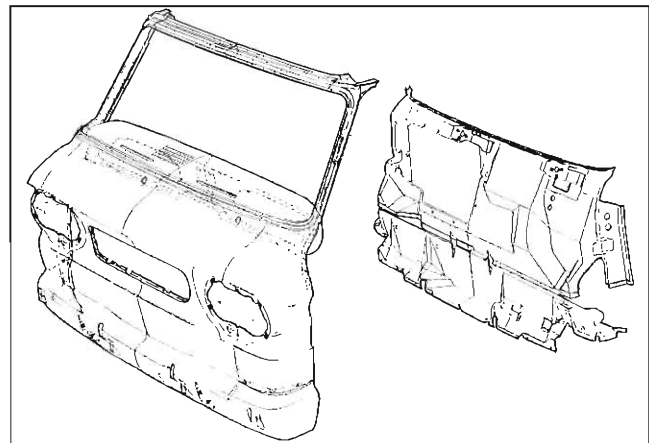


Fig. T11—Front End Body Structure



Air enters the vehicle interior through right and left hand outlets located in cowl side walls. Flow is controlled by outlet doors adjusted with pull-type knobs positioned on the far right and left hand sides of the instrument panel.

The front underbody is made up of a slightly crowned floor panel and a seat riser flanked with wheelhouses. The rear underbody, or load compartment, is comprised of a straight floor panel and a raised floor panel on two levels (fig. 12). When the two underbodies are joined, the straight floor panel of the rear underbody becomes the "dropped-center" of the underbody assembly. This underbody configuration affords several features to the overall Corvair 95 series. With the incorporation of doors or ramps in the body side structures, convenient side loading at low heights is provided, supplementing that at the rear. Also, since the largest load area is at the center of the vehicle, weight distribution between the front and rear wheels remains relatively unchanged when the vehicle is loaded, thus not adversely affecting vehicle ride and handling. The underbody configuration also provides a low vehicle center of gravity, which contributes to good vehicle ride and handling.

## Roof

Because of the roof length extra-heavy gauge steel is used for the roof panel. Rails, welded to the roof panel perimeter, provide additional strength. Unlike passenger car construction, main attachments of this assembly to the balance of the body is with bolts on all edges except over the front and rear doors. Here portions of the roof rail form part of the upper door jamb, and are welded together. Added rigidity is afforded with seven triple-channeled roof bows which are slightly overcrowned so they butt tightly against the roof panel. Metal-to-metal contact between the bows and the roof is prevented by rubber friction pads. Vinyl-coated trim panels cemented to the roof panel between the exposed roof bows give protection from heat and sound (fig. 13).

## Side Structure

Addition of right and left hand side panel assemblies complete the body shell. Formed with integral rear quarters wrapping around to the double rear door jambs, these units include the rear wheelhouse and an air induction provision for the air-cooled engine.

On the right side, welded-in, full length

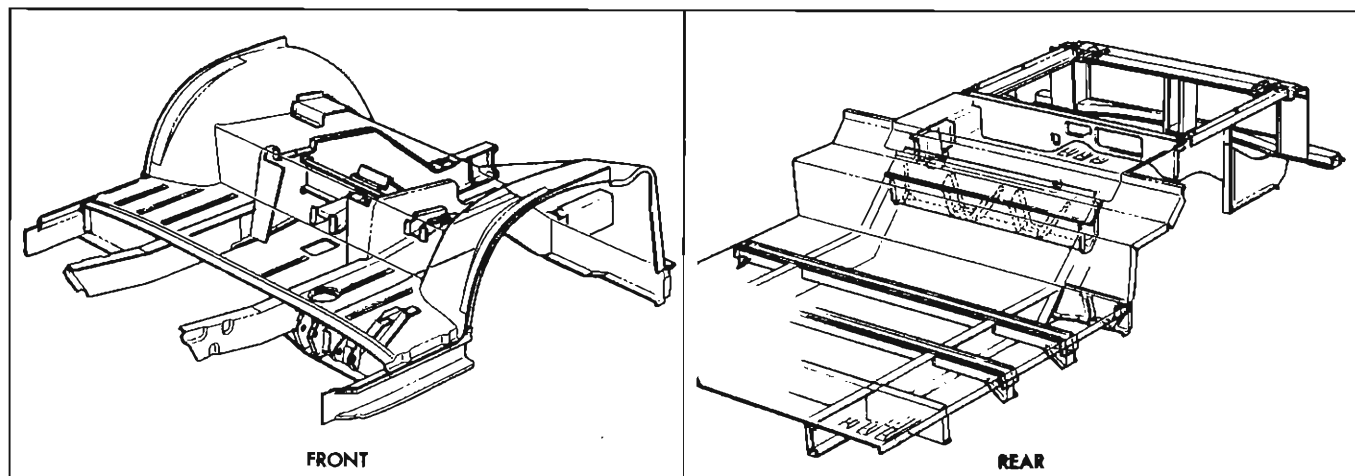


Fig. T12—Front and Rear Floor Pan Construction

vertical pillars support the roof and provide sturdy hinge jambs for the double side doors.

On the left side, roof support is provided by vertical column or strainers and upper pillars (fig. 13).

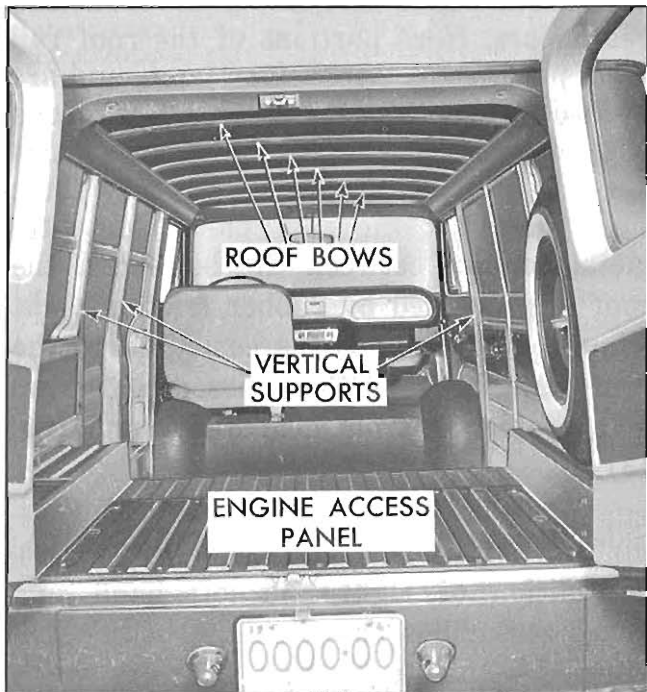


Fig. T13—Roof and Side Construction

### Engine Access Panel

Access to the engine for all 1961 Corvair 95 models is through a removable panel at the rear end of the underbody assembly (fig. 14). Attached to the panel undersurface on panel delivery and station wagon models is a  $\frac{5}{8}$  inch thick blanket of fiber glass to insulate against engine heat and noise.

The first  $\frac{1}{8}$  inch of the fiber glass material is of a higher density than the remainder of the blanket, thus eliminating the possibility of any loose particles of fiber glass being drawn into the engine air cleaner.

Closed cell sponge rubber surrounds the perimeter of the removable panel, provid-

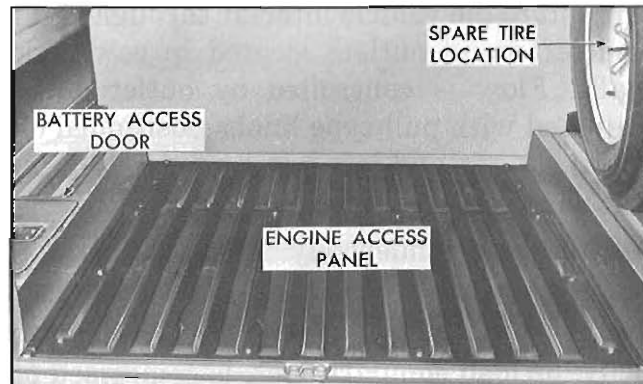


Fig. T14—Engine Access Panel

ing an efficient seal against moisture, dirt, and fumes. The panel is retained with spring-loaded screw-type fasteners which permit easy and rapid panel removal and replacement.

### Engine Access Door—Periodic Maintenance

Below the double rear doors on Van type models and tailgate on Pickup models, a heavy-gauge metal door provides access to the engine oil filler tube and other components such as the distributor, coil, generator, and oil filter. The door is hinged at the bottom with a piano hinge, and supported in the open position with slotted links. Retention of the door is through a slam-type lock, which opened with a lift handle located above the license plate (fig. 15).

Closed cell sponge rubber seal around the door opening assures rattle-free retention

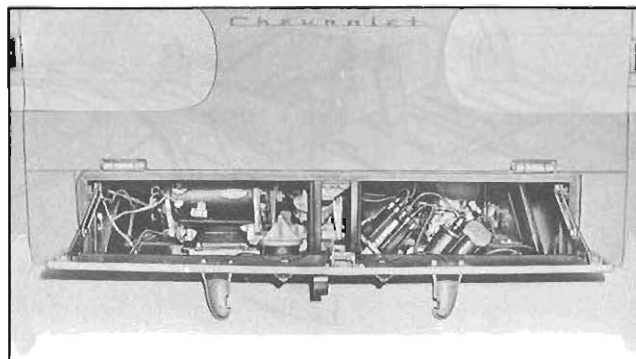


Fig. T15—Engine Access Door

of the door and a positive seal against road dirt and moisture.

### Battery Access Door

Battery accessibility for all Corvair 95 models is provided with a hinged door in the top surface of the left hand rear wheel-house (fig. 16). The door is retained with a slam-type lock. A flat, sponge rubber seal surrounds the door opening, providing excellent sealing and rattle-free door retention.

The battery is positively retained within the compartment. Ventilation in this area is provided by the engine air induction system.

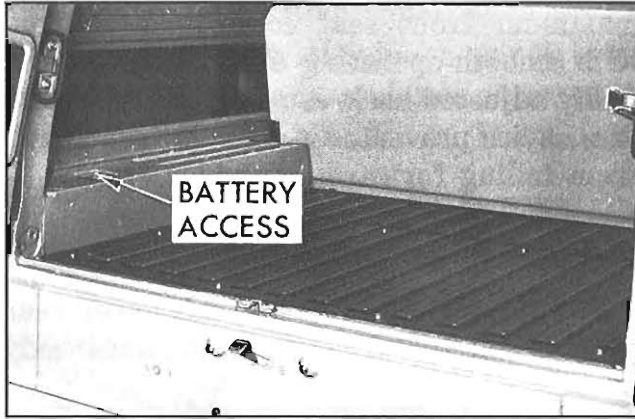


Fig. T16—Battery Access Door

### Engine Air Induction System

Plenum chambers are located in each of the vehicle's rear quarter panels as a means for air to be supplied to the engine compartment (fig. 17).

The plenum chambers are formed by bolting inner panels to the outer panels in the area above and behind the rear wheel-houses. Air enters the plenums through louvers in the outer panels, then is drawn into the engine compartment through holes at the bottom of the plenums. Relatively clean air is supplied the engine since the inlet louvers are located high on the outer side panels and forward of the rear wheel

openings. The plenum chamber interiors are primed and painted as a rust preventive measure.

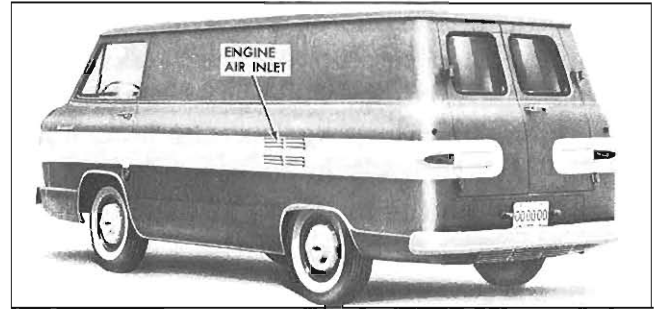


Fig. T17—Corvan

### Spare Tire & Jack Storage

The spare tire assembly for Greenbrier and Corvan models is stowed vertically inside the body atop the right hand wheel-house where it is easily accessible through the rear doors (fig. 18). Retention of the assembly is with a wing-type bolt and spacer, the bolt screws into a bracket welded to the rearmost side panel vertical support.

The jack and combination jack handle and wheel wrench are stowed behind the



Fig. T18—Spare Tire Location—Van Type Models

spare wheel and tire assembly. They are mounted on two slotted brackets bolted to the body side panel. The brackets are located approximately mid-way between the horizontal centerline of the wheel and tire assembly and the top of the wheelhouse, thereby permitting the spare wheel and tire assembly to butt against the jack, holding the jack securely in position. Because of their location, the brackets also help to stabilize the spare wheel and tire assembly in its stowed position.

The spare tire assembly for the Rampside and Pickup is stowed behind the front seat. Retention of the assembly is with a wing-type bolt and spacer, the bolt entering a bracket welded to the rear panel (fig. 19).

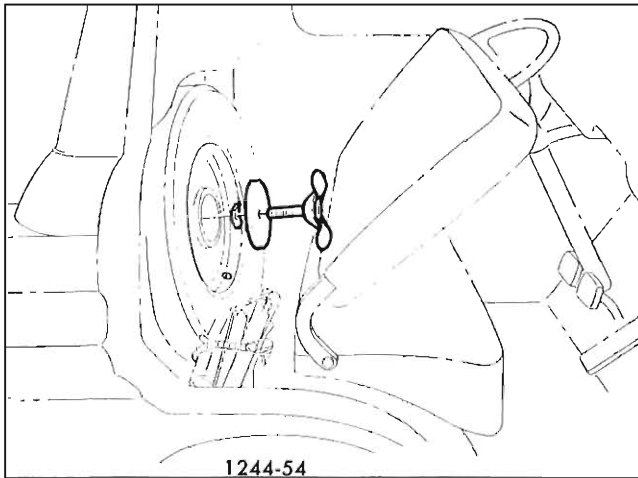


Fig. T19—Spare Tire Location—Pickup Models

### Seats

Seat construction for Corvair 95 models is essentially the same as that for standard models in the regular truck line, with spring wire elements employed for cushions and coil springs for backrests. Seat padding also is identical to standard models in the regular truck line except a 1¼ inch rather than a one inch thick urethane foam pad is used in the seat cushion. For Custom models, a 1½ inch thick urethane foam pad is used in the seat cushion and a ¾ inch

thick urethane foam pad is added to the backrest.

Unlike regular truck models where seat cushions and backrests are trimmed separately then mounted to the frames, Corvair 95 seat cushions and backrests are trimmed directly to the frame. Woven cloth trim with a nylon fill is used for deluxe seat coverings, while custom coverings are of nylon-faced woven cloth. Durable vinyl is used for the seat facings, seat bolsters, and backrest rear faces.

A single driver's seat is provided for the panel delivery, and a full-width front seat is available as a regular production option (RPO 482). All other models have the full-width front seats as regular production equipment. As with regular truck models, maximum front seat comfort is assured with smooth-operating seat adjusters and easily adjusted backrests (fig. 20). A retention device prevents Corvair 95 front seats from falling forward on sudden stops.

### Pickup

For the pickup model, a cab lower rear panel is bolted and welded to the underbody

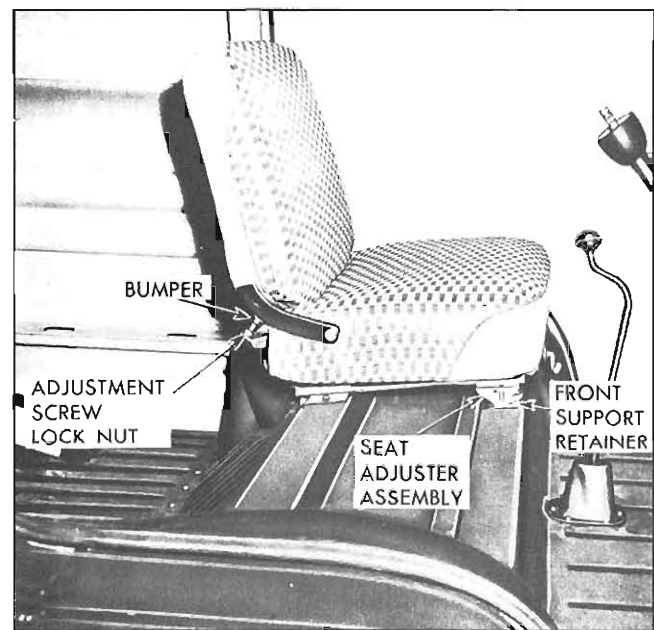


Fig. T20—Driver's Seat Adjustment

at the connection of the front and rear underbodies. This panel, which is embossed for stiffness, is formed with a circular depression to receive the spare wheel and tire assembly mounted inside the cab behind the seat. Pickup box side assemblies are added to this sub-assembly, then the basic front end structure is added. A cab upper rear panel assembly comprised of an inner and outer panel is then bolted and welded to the cab lower rear panel and pickup box side panels. The resultant rear cab structure is then joined to the front end structure with door opening header rails, then the roof panel is added (fig. 21).

### Tailgate

An inner and outer panel make up the tailgate structure, the inner panel being ribbed longitudinally and the outer panel being configured for stiffness. The tailgate

is hinged with two heavy-gauge strap-type hinges, and the tailgate is supported in the open position with two folding links. Slam-type bolt locks retain the gate in the closed position, and the locks are released with spring-loaded handles recessed in the inner panel at the upper left and right hand corners. The release handle assemblies are chrome-plated for appearance and durability.

Double-rabbit construction of the tailgate pillars assures a graintight seal of the tailgate with the pickup box side panels (fig. 22).

### Rampside

The use of a unique rampgate in the right hand pickup box side structure of Model R1254 affords convenient, fast, and safe loading and unloading from the curb side (fig. 23).

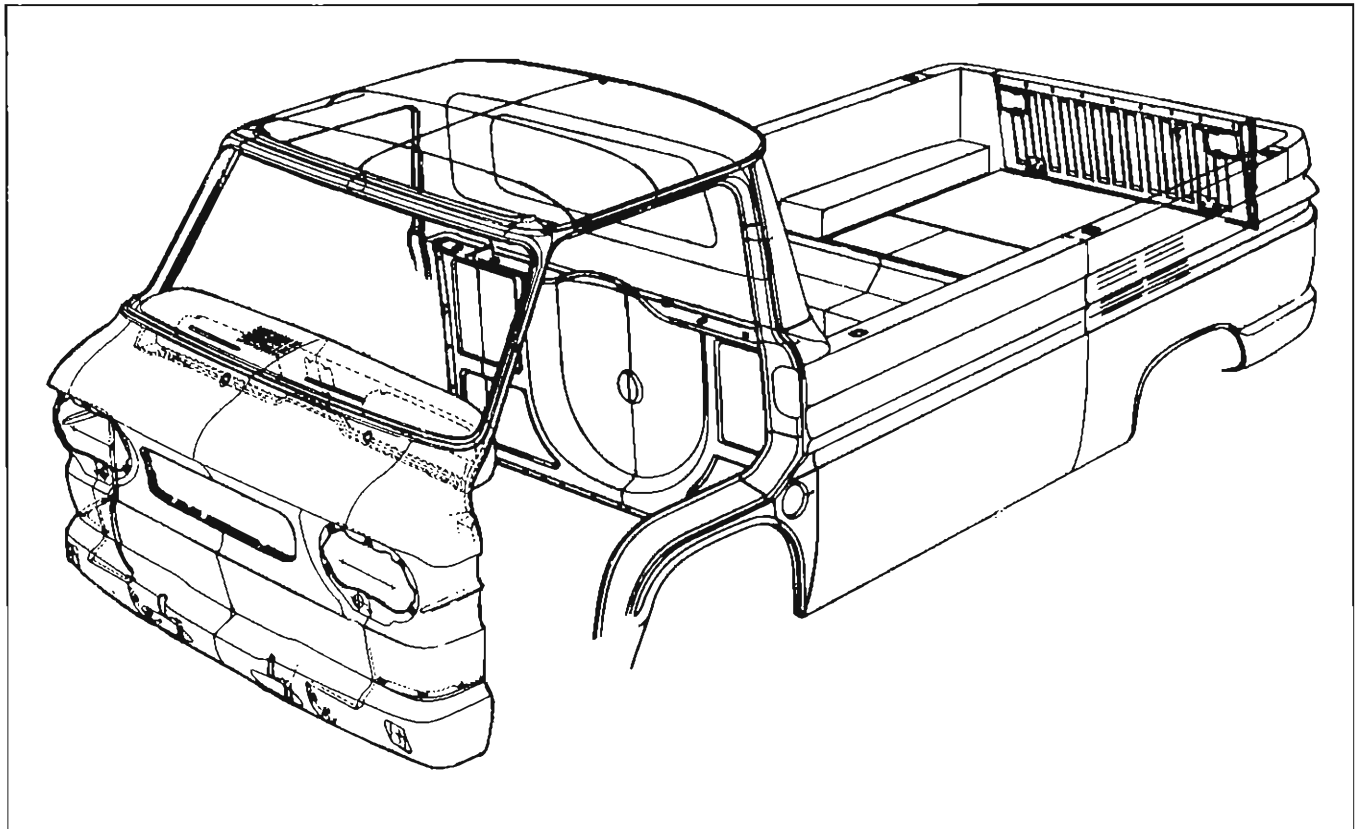
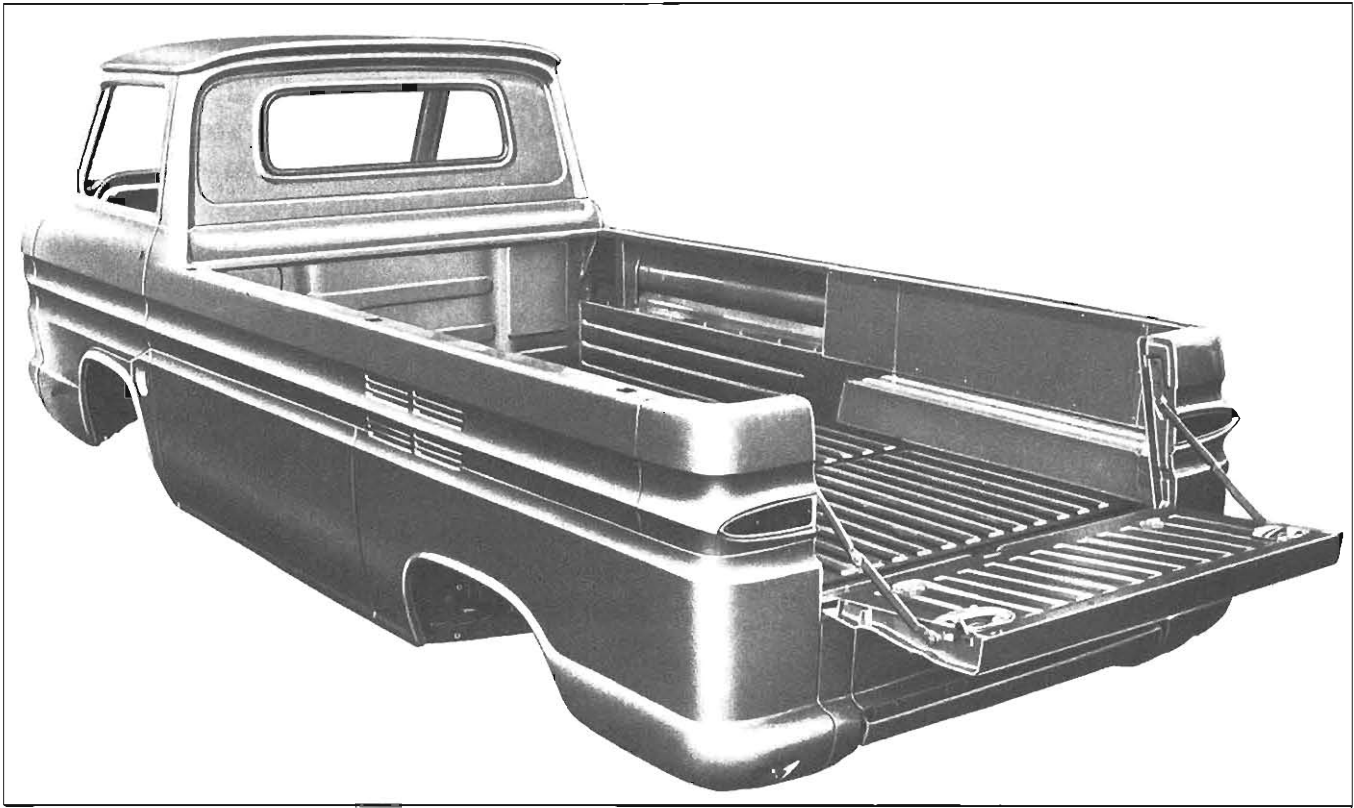


Fig. T21—Pickup Body Structures



**Fig. T22—Pickup Body Tailgate**

The sturdy rampgate (1600 lbs. capacity) is constructed of an inner and outer panel reinforced with internal transverse and longitudinal strainers. Full-width embossed ribbing is carried on the inner panel, contributing to the rigidity of the gate and assuring a good ramp surface when the gate is lowered. Supplementing the foothold achieved with the ribbed surface, the inner panel is painted with non-skid paint.

The gate is hinged at the bottom with a full-width, concealed, piano hinge. Gate retention is through slam-type locks at the upper left and right hand corners of the inner panel (fig. 24). Both locks are operated with spring-loaded release handles recessed in the surface of the inner panel. The release handle assemblies are chrome-plated for appearance and durability. A safety catch pull handle mounted to the side panel left hand pillar must be released before the gate can be lowered.



**Fig. T23—Model R1254 Rampside**

Alignment of the gate with the side panel opening is assured with conical guide pins above each lock release handle. Rubber-bushed conical depressions in the side panel pillars receive the pins, the bushings acting as stabilizing bumpers for the gate. The guide pins not only align the gate within its opening, but also help remove undue stress from the locks. To assure a tight fit of the rampgate with the door opening at all

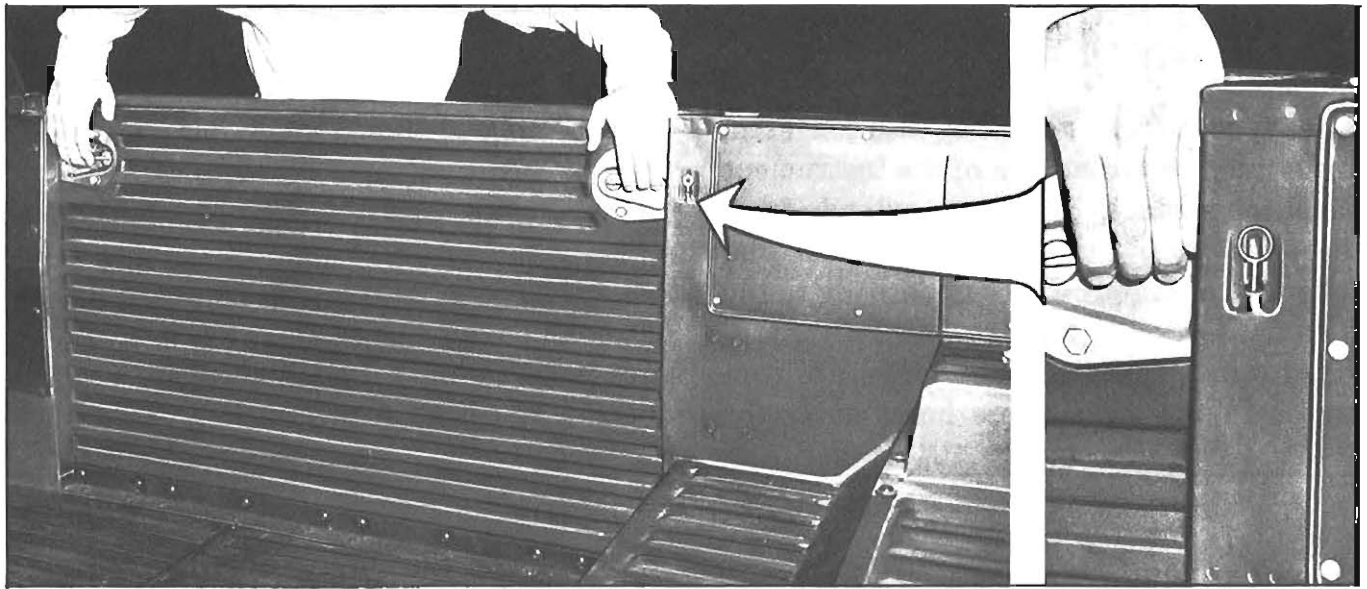


Fig. T24—Rampside Door Release Handles

times, the guide pins are adjustable. Grain-tight sealing is afforded with the double-rabbit construction of the side panel pillars.

A full-length, hard rubber bumper caps the top edge of the gate, providing protection when the gate is lowered. Inclination angle of the gate is approximately 22 degrees.

#### Level Load Floor

A removable, 3-piece floor panel assembly is available for Corvair 95 pickup models to provide a level load area the full length of the pickup box. This unit is available complete with wood floor panels as a Factory Optional Accessory (FOA 134), or less floor panels as a dealer-installed accessory. Since the dealer package includes only the supporting mechanism together with installation instructions, floor panels must be purchased separately.

Excepting the forward panel, which is tailored to conform to the contour of the spare wheel embossment on the cab rear wall, all panels are 60.8 inches wide and 21.1 inches deep. Panel material consists of  $\frac{3}{4}$ -inch fir plywood.

Each floor panel is supported with an inverted L-shaped angle iron support bolted to its underside. The supports seat on inverted L-shaped strip steel braces attached longitudinally to each pickup box inner side panel. Two Z-shaped iron supports attached to the top surface of the center panel form seating surfaces for the front and rear sections. When the Level Load floor is used on the Rampside, model R1254, the enclosed area beneath the level floor can be used for carrying additional cargo.

#### Heater Duct Work

Heat outlets in the passenger compartment of the Greenbrier Sportswagon consist of the following areas: (1) a non-adjustable louvered plate opening in the front face of the rear underbody raised area, (2) a heat distributor mounted to the front face of the front seat riser, and, (3) defroster outlets (fig. 25). Panel and pickup models, however, incorporate only the forward outlet and defrosters. Ducting, which channels warm air to the front compartment, is routed on the right hand side of the underbody, just inboard of the normal frame location. To reduce heat loss, jute-

backed floor covering is included in the heater package for the Greenbrier Sportswagon.

Jet-type defroster nozzles, also louvered, are located on either side of the instrument panel top surface. Duct work extends from the outlet below the front seat riser and follows the contour of the underbody to the forward section of the firewall. Two corrugated windshield defroster hoses are connected to the duct. These hoses enter the

passenger compartment in the toe panel area and branch out to each defroster nozzle.

### Body Dimensions

Corvair 95 Series trucks exemplify the utmost in exterior compactness and interior roominess. Measuring only 70.0 inches wide and 179.1 inches long, the new trucks are easy to park and maneuver. Overall height at design load is a low 68.5 inches

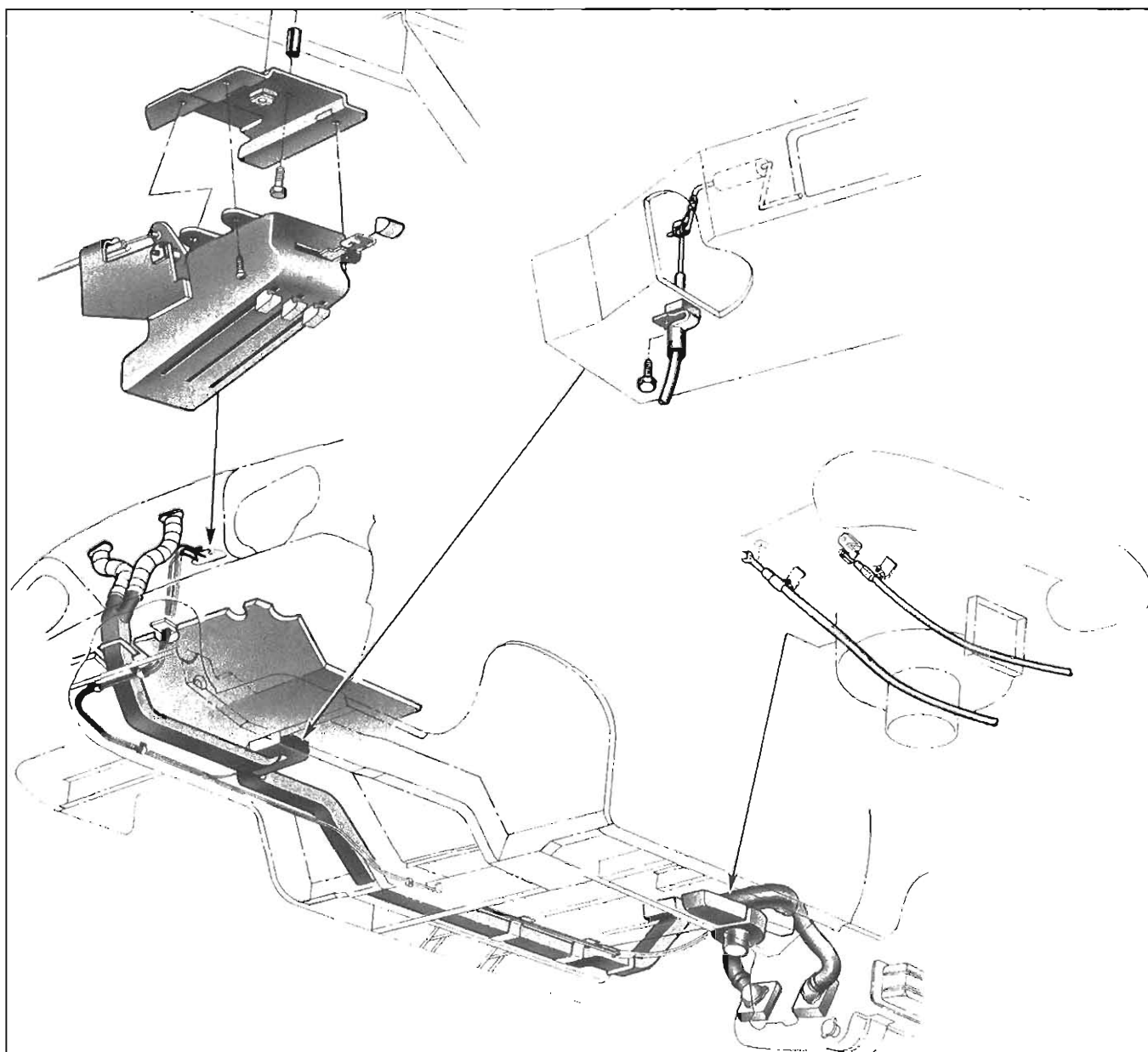


Fig. T25—Direct Air Heater—L.D.F.C. Installation



for the panel and 69.0 inches for pickups. Despite the compact exteriors, cargo capacities range up to 191 cubic feet.

Because the body-frame integral construction permits placing the under-body closer to the ground than with conventional models, the heights loads must be lifted are substantially smaller. From the ground at design load, side door load height is less than 14.0 inches and rear door or tailgate load height is only 26.5 inches. Similar convenience upon entry and exit through the front doors is afforded with a low step height of 17.0 inches, measured at load height.

### **Door Dimensions**

Large door and tailgate openings facilitate loading and unloading. A crate as large as 49.0 inches high by 53.5 inches wide can be loaded through the double side doors of panel models. The rear door opening of panel models measures 36.0 inches high by 44.6 inches wide, while the tailgate opening on pickups measure 44.8 inches wide. The Rampside pickup has a ramp-gate opening width of 47.5 inches.

### **Capacity**

Corvair 95 models are designed for a 1600 pound payload, including the driver, which compares favorably with payload capacities of 1/2-ton nominally rated vehicles in the regular truck line.

Cargo capacity of the panel delivery is 191 cubic feet, and a generous 176 cubic feet is available with the optional full-width front seat. Pickup model capacity is 80 cubic feet.

### **Paint**

The improved exterior enamel introduced with the 1960 regular Truck line is used for Corvair 95 models. Color choice is identical to that of the regular truck line.

### **Windshield Visibility Area**

Unusually good forward visibility is afforded with the high, wide windshield having a daylight opening area of 1170.75 square inches. Visibility through the windshield during rainy weather is excellent, too, since the 15-inch blades of the tandem-acting wipers provide a wipe area of approximately 748.0 square inches. The large daylight opening areas of other windows afford outstanding all-around visibility.

### **Lifting & Mounting Areas**

For convenient vehicle jacking, left and right hand jacking pads are provided on the foremost and rearmost outrigger sills (fig. 26). Provisions are made on the sills for mounting chassis components. Two holes are pierced in each front underbody longitudinal sill for the front suspension assembly, and a total of five mounting points are provided for the rear suspension, trans-axle, and engine.

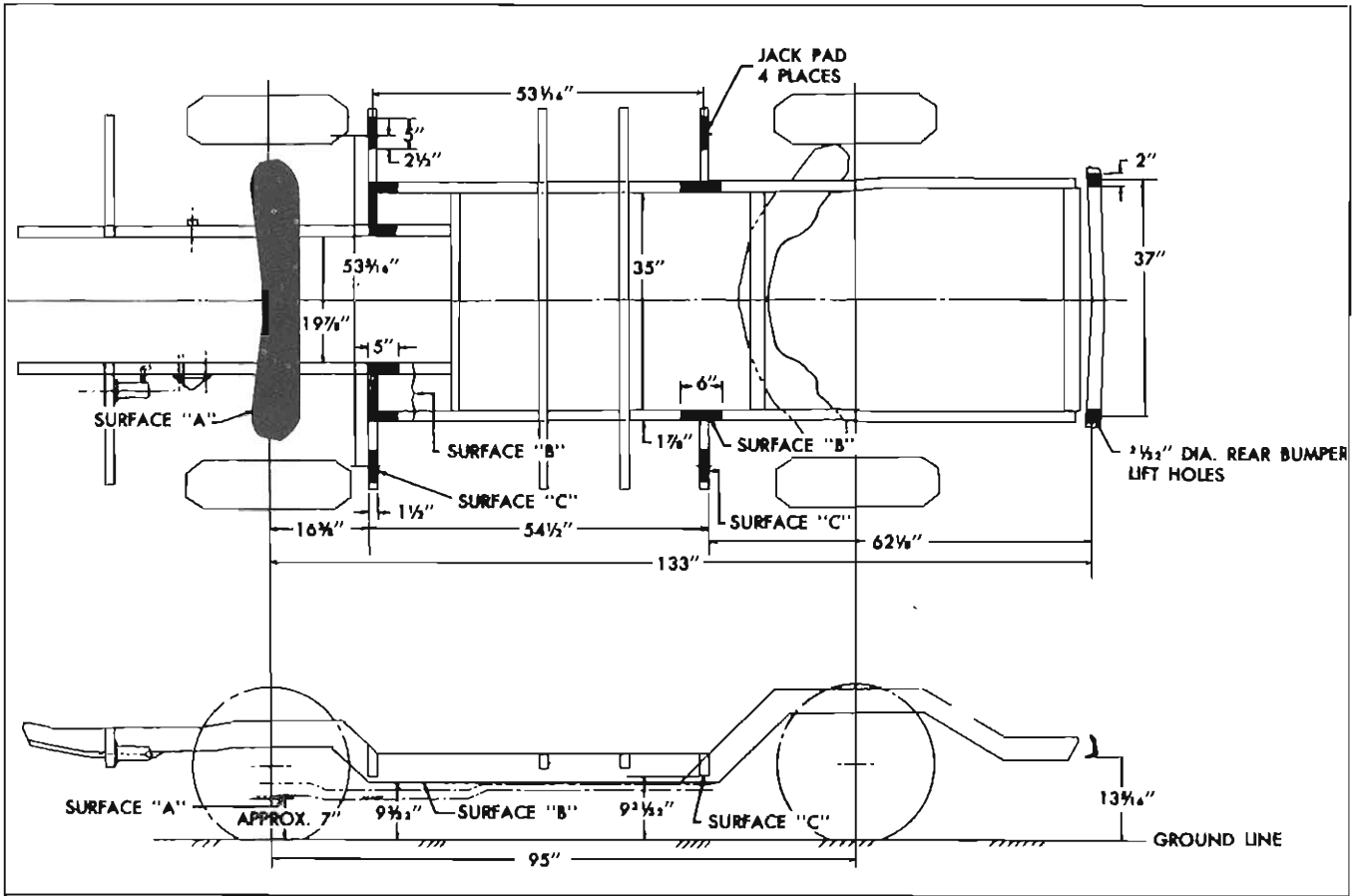


Fig. T26—Lifting Locations—L.D.F.C. Models

# SECTION 15

## ACCESSORIES

### THE CONVENTIONAL 1961 TRUCK

#### Viscous Fan Drive

An air temperature-modulated viscous fan drive is released as a Regular Production Option for Series 10-40 models with the Trademaster V-8 engine. The new option consists of a fluid drive clutch, which is air temperature-regulated, and a high-capacity, 5-blade fan.

Positioned between the "V"-belt drive pulley and the fan driveshaft, the temperature-sensitive, variable-speed fluid clutch regulates fan speed to engine cooling needs. Power to drive the fan is transmitted through shearing of highly-viscous silicone fluid. An air temperature-sensitive, bimetallic thermostat on the face of the cast aluminum fluid clutch housing is mechanically connected to an internal valve. As the thermostat senses the temperature of the air coming from the radiator, the valve regulates the flow of silicone fluid between two internal chambers, the reservoir chamber and the fluid coupling, or drive chamber.

When the radiator air temperature is be-

low normal, the thermostat and valve cause the silicone fluid to transfer from the fluid coupling chamber to the reservoir chamber, reducing the torque-transmitting capacity to effect slippage between the V-belt drive and fan. This condition continues as long as the temperature is below normal and the engine is cool. When hot, the thermostat senses the higher radiator air temperature and causes the fluid to transfer to the fluid coupling chamber, which results in higher torque-transmitting capacity and higher fan speeds. Actually, the fan, even though it rotates slowly when the fluid coupling is "disengaged," is used only when fan cooling is required.

By regulating the fan to engine cooling needs several benefits are achieved: higher net engine power; increased economy; and reduced fan noise. Another benefit achieved from the fluid clutch, and one that depends on the amount and viscosity of the fluid in the coupling chamber, is that the maximum fan speed is limited to a predetermined speed. At this limit, the fan reaction torque is equal to the fluid shear drive torque.

