

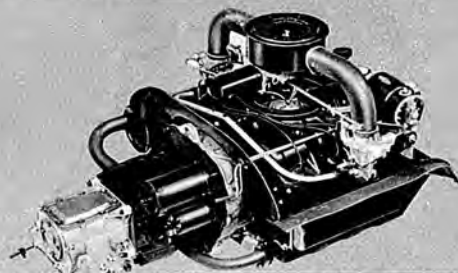
FOREWORD

This booklet contains a complete reprint of the slidefilm, 1960 Corvair Preliminary Service Information. Keep one copy handy for ready reference on the job and retain at least one copy in the Service Department File of Technical Information.

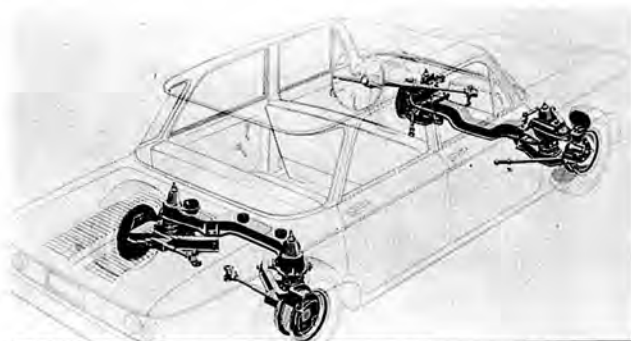
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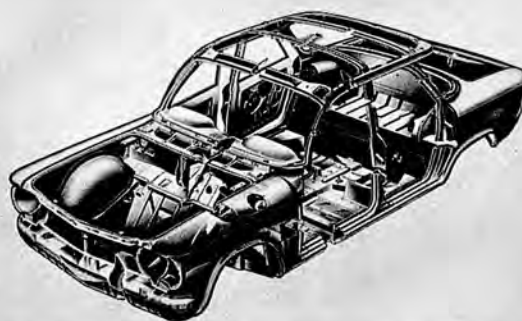
1. GENERAL DESCRIPTION



The 1960 Corvair is not only a new car, but a new kind of car. Engine, transmission and differential, for example, are joined as a single power unit, mounted in the rear of the car.

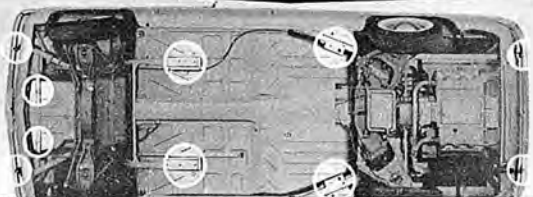


Like full-size Chevrolets, coil springs are used on all four wheels. With rear mounting of power train, however, rear wheels are suspended individually, very similarly to front suspension systems.

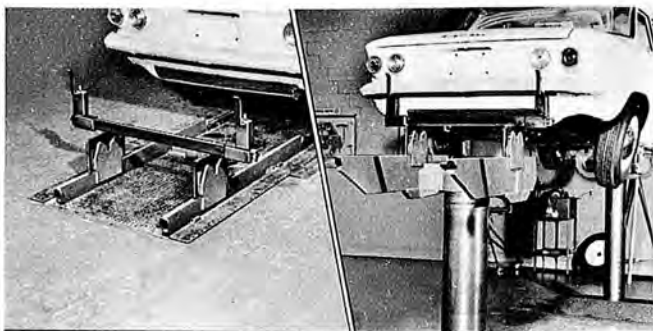


Another important departure from standard Chevrolets is the integral, all-welded body construction. No separate frame is required with this unitized design.

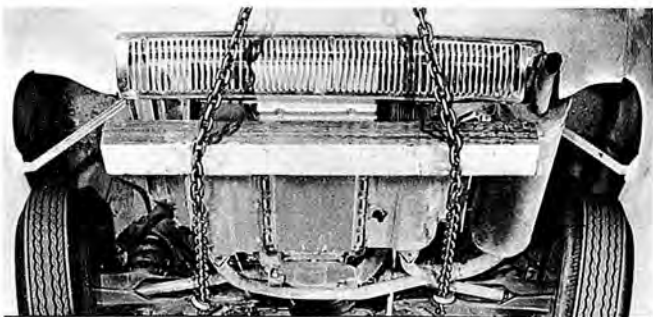
2. HOISTING AND TOWING



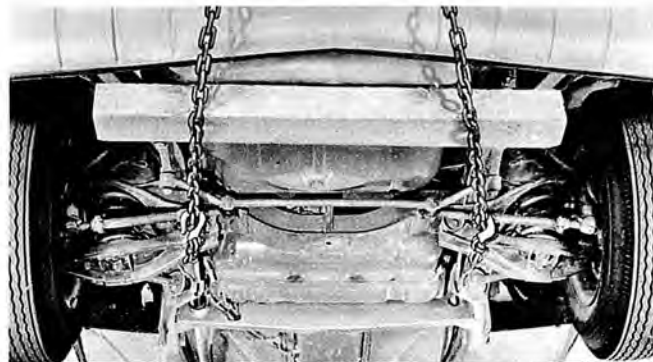
With this frame-integral type of construction, 10 reinforced lifting areas, shown here, are provided, in addition to the usual lifting by front suspension. Lift only at these points, with hoists, to prevent damaging underpan or rear power train. When jacking car, do not lift under engine or differential carrier.



Most frame contact hoists require no modification. Axle-pickup types, however, need adapters such as the one shown here. Each hoist manufacturer has his own adapter available.



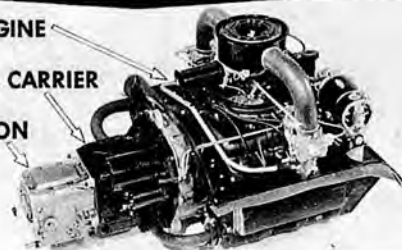
When towing, the sling method of pickup is recommended. For lifting rear end of car, hook sling in front of rear lower control arms. To avoid damaging rear vent grille or valence panels, place a 3-foot length of 4 x 4 under slings at engine skid plate.



Picking up by front end, hook slings behind front suspension and use the same type of spacer, placed so it rests across the areas under luggage compartment shown here.

3. POWER COMPONENTS

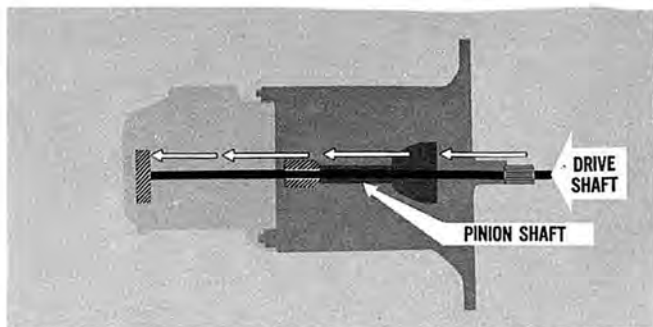
ENGINE
DIFFERENTIAL CARRIER
TRANSMISSION



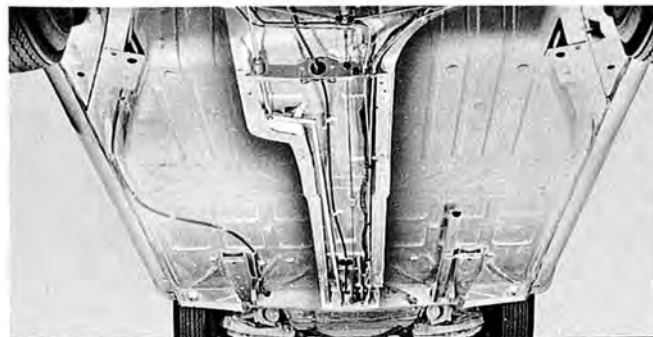
This is the complete power train package — engine, differential carrier and transmission, bolted together as a complete assembly. Transmission and differential carrier form a subassembly, the Transaxle.

POWER FLOW

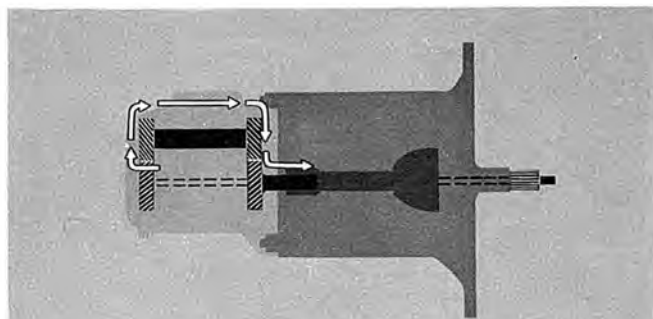
Now let's take a look at how the power flows from the engine to the rear wheels. For the purposes of this film we will use a 3-speed manual transmission. Flow is identical, however, in Powerglide-equipped units.



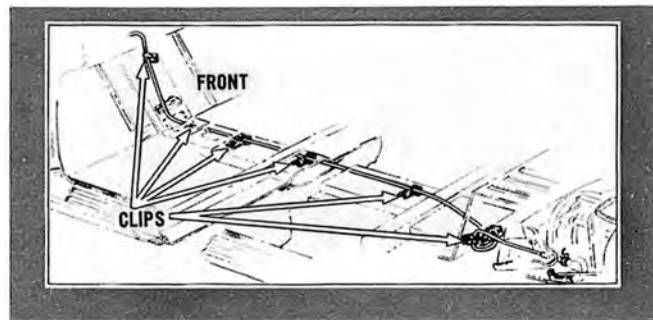
Engine power is delivered to the transmission by a drive shaft which passes through the hollow pinion shaft of the differential, and enters the rear of the transmission case. This shaft continues through to the front of the transmission.



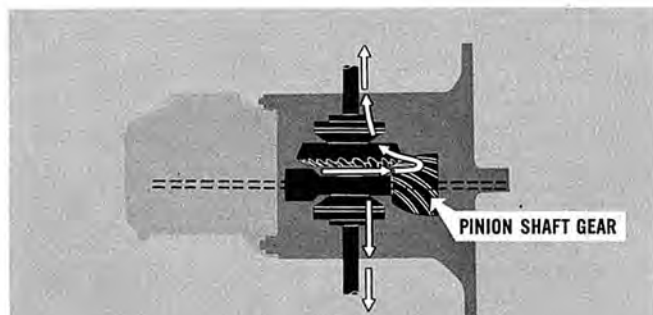
All cable and rod controls pass through a small tunnel to the driver compartment. A removable cover from under the car is provided for service and routine lubrication of cable pulleys at 10,000-mile intervals.



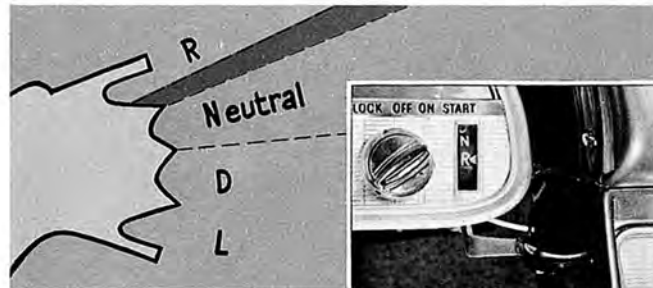
Power returns through the transmission the same as in a normal 3-speed unit. (Second speed gear is illustrated.) The output shaft resembles a sleeve over the input shaft, and is splined into the hollow differential pinion shaft.



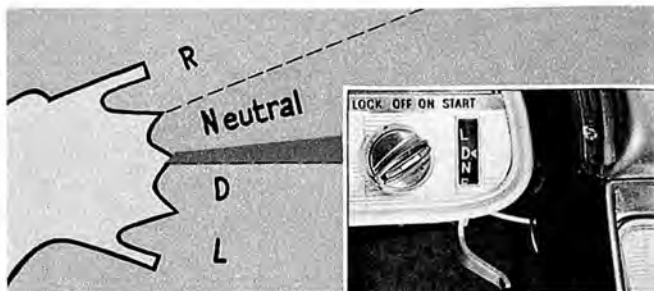
Powerglide-equipped cars use a bowden cable connecting dash control lever to manual control valve at transmission. It is clipped securely in six places to underpan. When removing or replacing, cable must be clipped in its original location for proper manual control valve action.



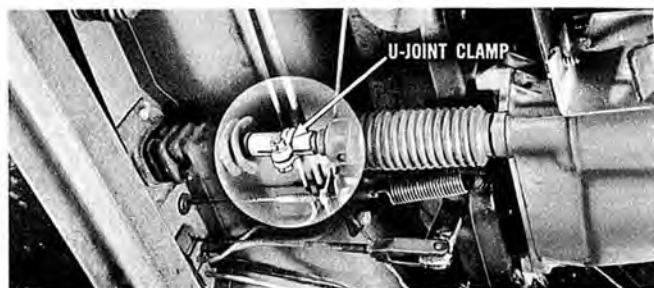
The pinion shaft gear drives the ring gear on the differential case in the conventional manner, delivering power to the rear axle shafts and in turn to the rear wheels.



For a quick check of Powerglide manual control valve operation, have transmission at operating temperature and engine at normal idle. Slowly move range selector from "N" to "R." If valve is properly positioned, reverse clutch applies just past the peak of the rooster-comb tooth between "N" and "R."

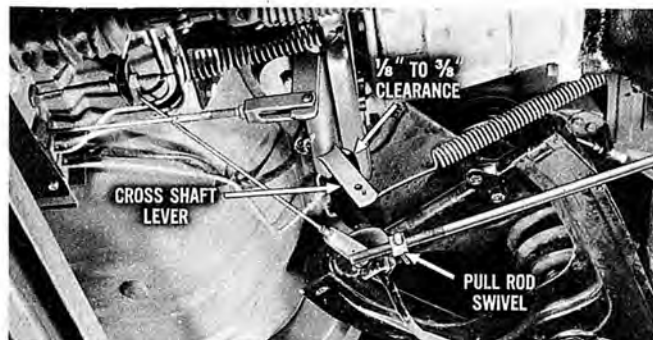


Repeat the check going from "N" to "D." Low band should apply just past the peak of the tooth separating "N" from "D." If reverse clutch or low band doesn't respond properly, it will be necessary to check and adjust manual control valve as outlined in Section 6E-4 of the Corvair Shop Manual.

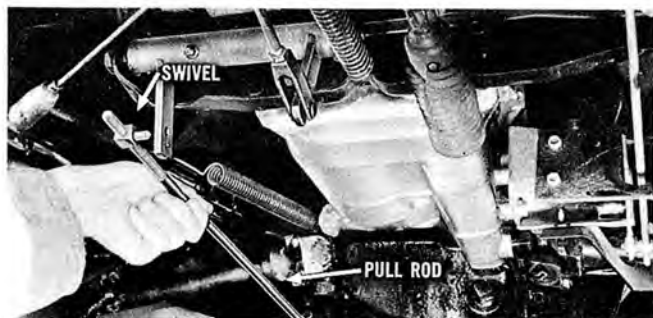


Manual transmission shift linkage is easily adjusted by raising car and loosening U-joint clamp at transmission. Move transmission shifter shaft to REVERSE. Have someone place floor shift lever in reverse and hold it while you tighten the U-joint clamp. Test transmission in all ranges for proper operation.

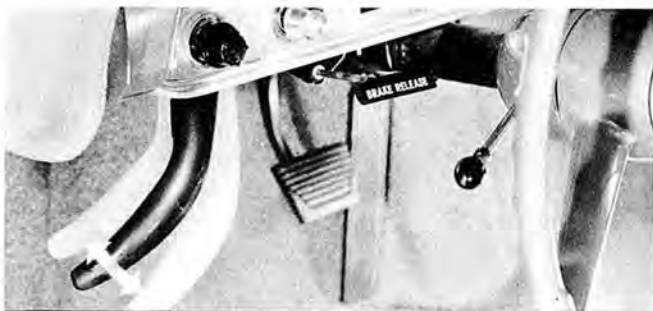
Clutch pedal should have $\frac{3}{4}$ " free travel. If pedal is binding or clutch slipping, first check cable. Make sure it's fastened securely at the pedal and is running freely over idler pulleys under tunnel. If cable is all right, proceed as follows to complete adjustment:



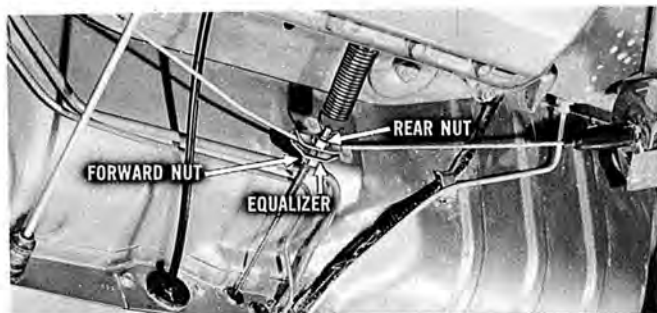
Disconnect clutch fork pull rod swivel from cross shaft lever shown here. Leave return spring attached. Adjust clevis on control cable so there is $\frac{1}{8}$ " to $\frac{3}{8}$ " clearance between shaft lever and front transmission mounting bracket.



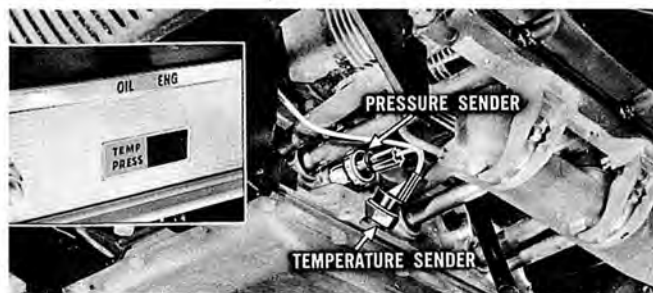
Remove slack in clutch fork pull rod and hold in this position while aligning pull rod swivel with hole in cross shaft lever. Then back off swivel three complete turns and assemble to lever. Install retaining clip, then check clutch pedal for proper travel.



An overrunning ratchet on the parking brake handle assembly is provided for safety. It permits pumping of brake handle to apply enough tension to firmly set parking brake. Should two or more full strokes be required to hold car, adjust parking brake as follows:



Make sure brakes are fully released. Then pull brake lever up 3 notches. Loosen forward check nut on equalizer and tighten rear nut until heavy drag is felt when rotating wheels. Tighten check nuts. With parking brake again fully released, there should be no drag.



Two sending units located under right bank at rear of engine, connected to a single dash light, warn of either low oil pressure or high oil temperature. After starting cold engine, if warning light continues to burn, it will be necessary to determine whether electrical or mechanical trouble exists or if senders are faulty.

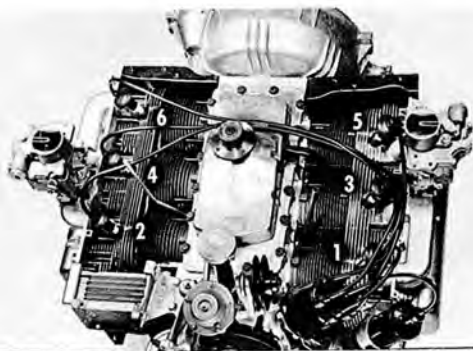
ENGINE



Construction details of the air-cooled Corvair engine are unique in many respects, but basically require very few additional service procedures than you're accustomed to.



Check for grounded sender circuit by removing sender connectors. Turn ignition to "ON." If light comes on, circuit is grounded. (Shrouding is removed for photographing purposes.)



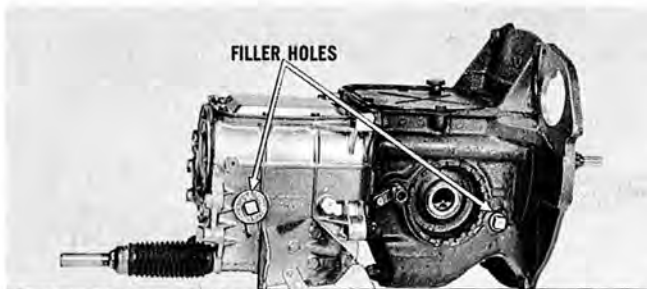
In operation, crankshaft rotation is counterclockwise, viewed from the rear. This is opposite Chevrolet V8's and in-line Sixes. Cylinders are numbered as shown. Firing order is 1-4-5-2-3-6.



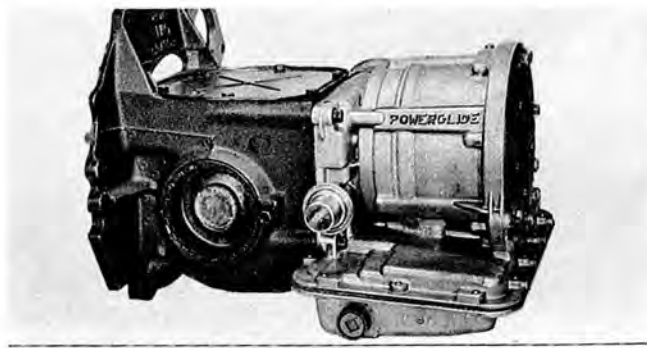
Next, if circuit is all right, re-install connector on pressure sender only. Start engine. If light goes out, then temperature sender is faulty. If light continues to burn, connect a pressure gauge at pipe plug on top of oil filter base. Correct pressure should be 35 psi at 1000 r.p.m. Replace faulty senders and repeat test.



Three-speed Transaxles have a common oil supply. The transmission receives throw-off oil from the ring gear. A drain-back hole is located above the safe operating level of transmission, so a quantity of lubricant is retained. For routine 1,000-mile inspections, check level at differential. If oil is up, transmission will also have an operating supply.



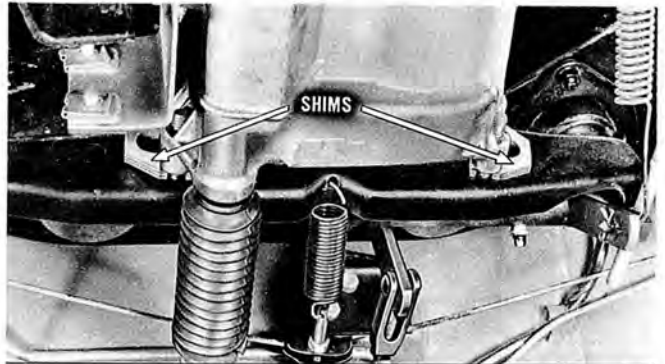
The following periodic maintenance is recommended. Drain both units completely at the end of the first 1,000 miles to remove any metal particles. Refill by adding 3 pints of SAE 80 hypoid lubricant to differential carrier and 3 more pints to transmission. Drain and refill every 10,000 miles thereafter.



On Powerglide Transaxles, the transmission is sealed from the differential carrier and does not require draining and refilling. However, differential carrier requires the same periodic maintenance as with 3-speed Transaxles.

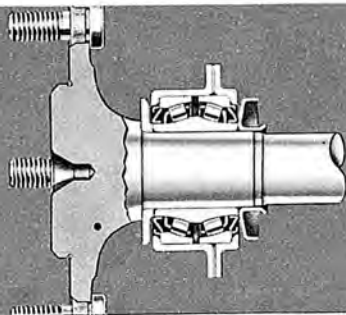


Corvair rear suspension is the swing-axle type, each wheel independently sprung. This design not only gives a superior ride but also makes possible control of rear suspension geometry.



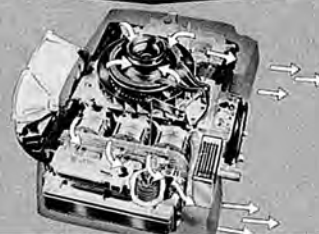
Toe-in is built into unit to provide uniform handling and desirable understeer on turns. Toe-in is adjusted by adding or removing shims from front transmission mounts.

Shimming at front mounts moves complete power train fore or aft. This moves axle inner ends against the flexible pivot of axle shaft bearings, thus affecting toe-in. Adjust 0" to 1/4" total toe-in, measured in front of rear wheel. (If car is backed onto front end machine, toe-in becomes toe-out.)



Rear axle bearings are double-row barrel type, self-aligning bearings at each axle end. This permits axle shafts limited movement to match the changing angle of the suspension system as the wheels move up and down.

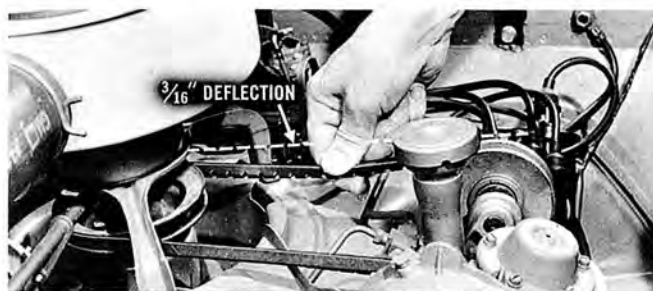
4. ENGINE COOLING



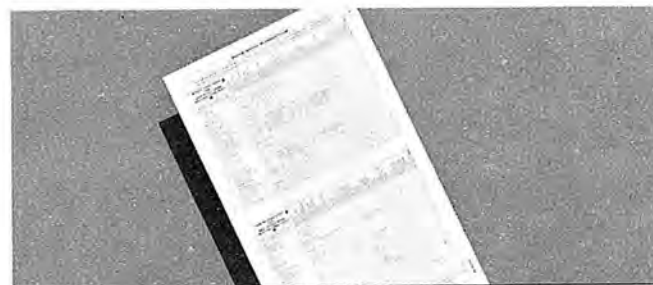
Forced air from a belt-driven blower is directed around the engine by a metal shroud. The size and speed of the blower and the design and routing of the shroud are carefully calculated to cool engine at all speeds.



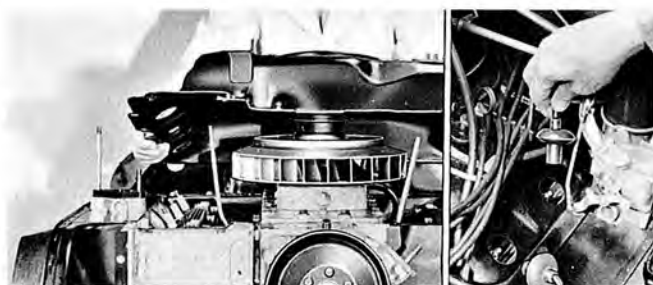
If necessary to perform major overhaul work on any of the power components, removal and replacement of the power train package involves only a few procedures, and takes less than 2 hours. Follow Section 6-4 of the Corvair Shop Manual for a step-by-step listing of the necessary procedures.



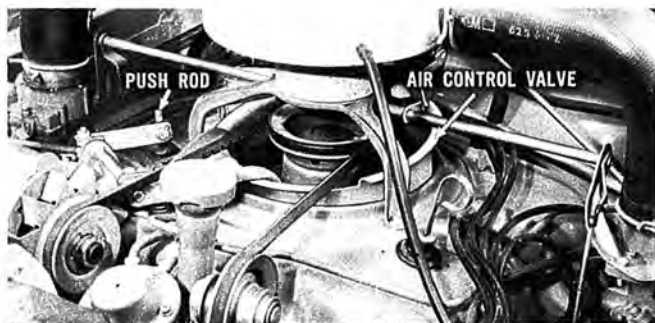
Before delivery, every Corvair should be thoroughly road-tested to make sure blower belt tension is properly set. Check before and after test. Apply light pressure midway between blower and idler pulley. Belt should have $\frac{3}{16}$ " deflection. If necessary, adjust tension by moving idler pulley in or out.



Almost all of the more common checks and service operations, however, can be performed without removing the power train from the car. A handy chart on Pages 6A 10-11 of Corvair Shop Manual lists these operations and shows what steps are necessary to reveal the part to be serviced.



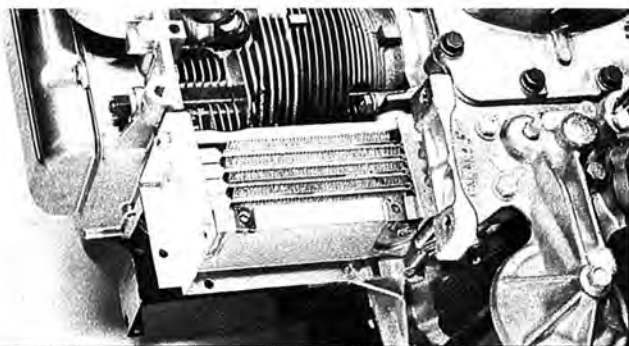
Use extreme care when handling shroud sections. Forcing, prying, pounding or bending will open up serious air gaps at the seams with resulting engine hot spots. Make sure spark plug covers are securely in place. Two covers out of position are enough to seriously affect the efficiency of the cooling system.



To assist in engine warm-up and help maintain even temperature, an air control valve is provided at the blower intake. This collar-shaped valve is operated by a thermostat on the left bank connected to a push rod which raises or lowers valve.



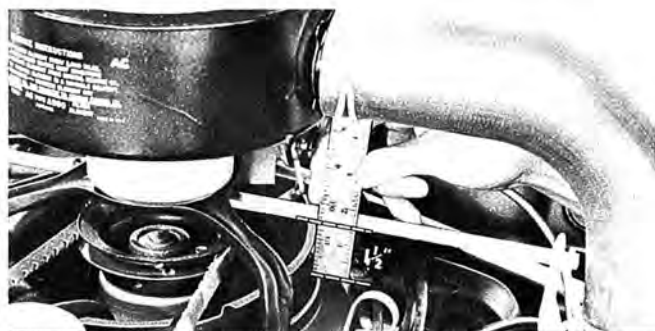
Next, disengage swivel from hinge lever. Then, holding air control valve open $1\frac{1}{2}$ " , adjust swivel so it just enters hole in hinge lever. Replace retainer. Don't bend hinge or bracket to correct valve height.



Located under the shroud on the left bank is the oil cooler. The cooler is designed to hold oil temperature around 280 degrees. It is important to keep oil cooler core clean to maintain proper oil temperature.



Every 5,000 miles, remove the inspection cover under the generator and check the oil cooler core for dirt. Accumulation can easily be removed by using a brush or a jet of compressed air.



To check air control valve for proper clearance, bring engine to operating temperature. Then, pull up on push rod from thermostat to its upward limit. Valve should be open $1\frac{1}{2} \pm \frac{1}{16}$ " measuring at a point opposite hinge as shown here.

While driving, if dash generator warning light comes on, car should be stopped immediately to find the trouble. Under no circumstances should engine be operated if trouble is a broken blower drive belt. Any 56" industrial V-type belt $\frac{3}{8}$ " wide, available in most hardware and auto parts stores, will work long enough to get car into a Chevrolet dealership for proper repairs.



Air for cooling and carburetion is drawn through louvered deck lid. There is no danger of engine overheating if lid is snow- or ice-covered, but sluggish performance will result. The blower will exhaust almost all available air in the compartment, leaving an insufficient amount for combustion.

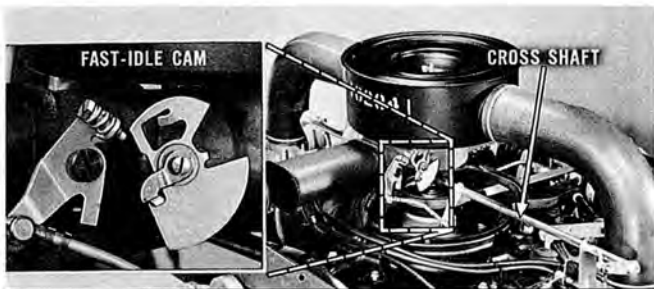


Both carburetors contain a sintered bronze inlet gasoline filter like other Chevrolet carburetors. Filters should be cleaned every 5,000 miles and replaced at 15,000-mile intervals.

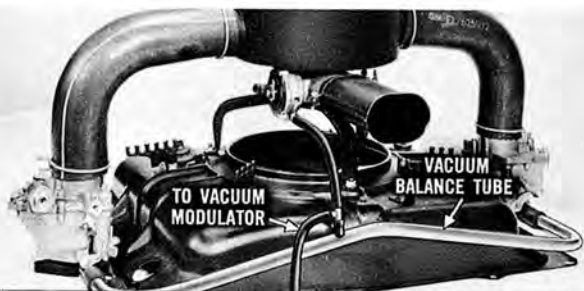
5. FUEL SYSTEM



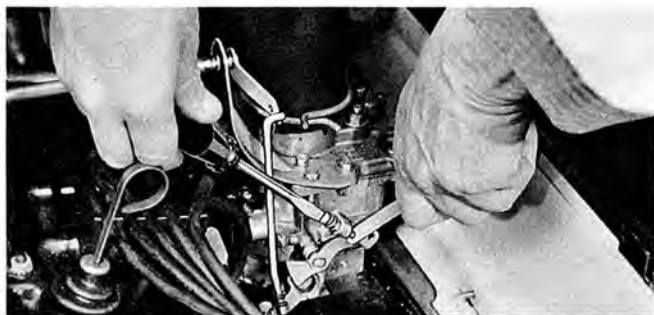
Each cylinder head has an integral intake manifold and is provided with its own carburetor. Both carburetors receive air through a common air cleaner and automatic choke assembly.



A single cross shaft, actuated by the accelerator rod, controls throttle linkage at both carburetors. It's important that both throttle valves be adjusted so that their action is synchronized. Before checking action, make sure fast-idle screw is clear of fast-idle cam. Then, remove clips and disengage right and left linkage.



These model "H" downdraft carburetors are interchangeable, left or right. A vacuum balance tube connects the two intake systems to improve idling smoothness, and to provide vacuum from all six cylinders to help operate automatic choke and vacuum modulator on Powerglide cars.

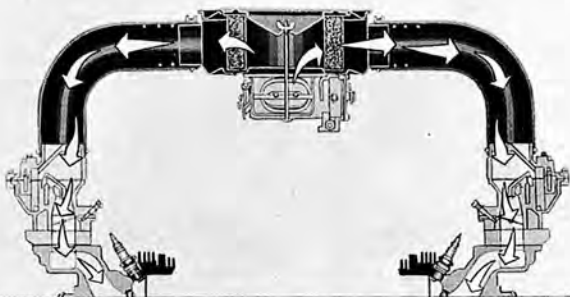


Back off curb idle screws on each carburetor. Using a .003" to .005" feeler gauge, pass between curb idle screw and its stop. Turn down screw until it just holds gauge. Remove feeler strip and turn screw one more turn. Repeat on opposite carburetor.



Connect right carburetor linkage to cross shaft. Then, make sure cross shaft is fully turned clockwise, and lift left throttle rod and adjust swivel so it just passes through hole in cross shaft lever. Throttle action will then be synchronized.

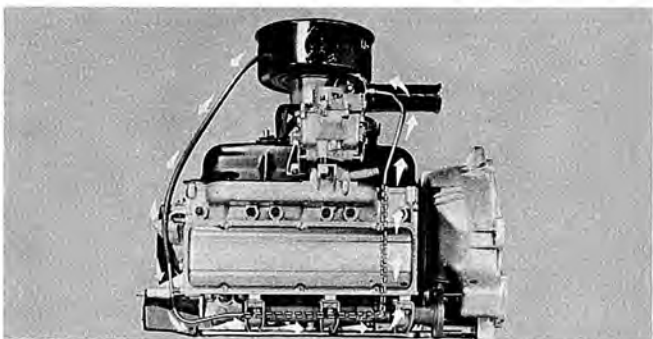
Because choke is isolated from carburetors, the hissing of vacuum, ordinarily drowned out by air rushing through the venturis, will be heard. This is normal and does not indicate a leak at the choke.



The single automatic choke provides uniform choking at both carburetors, regulating air flow through the intake air horn before it enters the air cleaner. Air flows in a reverse pattern from usual, from the center of the cleaner, through the element to the outside edge.



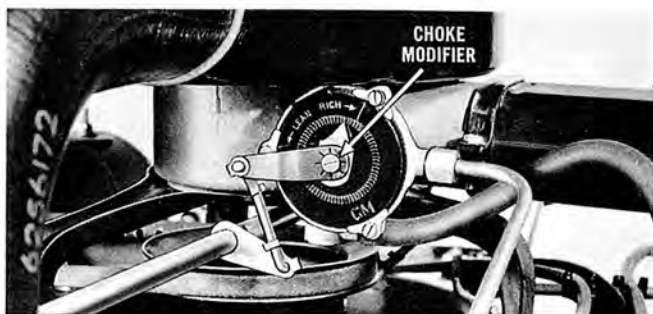
The air cleaner element is oil-wetted and can be cleaned repeatedly. Element should be rinsed out every 5,000 miles in kerosene. Re-oil with light engine oil. Squeeze to get rid of excess oil — never wring. To install:



Heated air for the automatic choke housing is drawn through the cleaner element by vacuum. Providing clean air eliminates periodic checking of housing for silt and moisture accumulation.

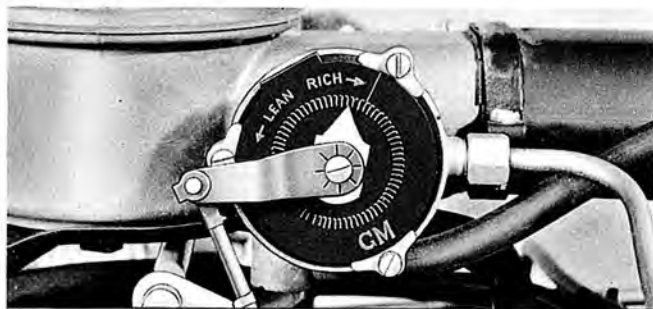


Place element in air cleaner body. It should be allowed to drop lightly into position so the upper flared lip extends outside the top of the air cleaner. Next, install cover over center stud and tighten so lid will "crush" edges of element against cleaner body, thus forming a seal.

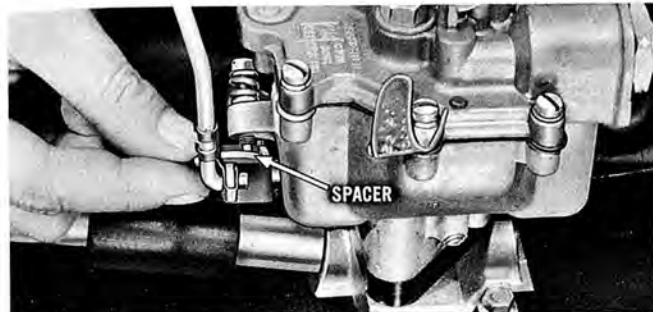


An essential part of the automatic choke is the choke modifier — a variable anchor for the choke thermal spring actuated by the throttle linkage. This device is provided to prevent loading-up in cold weather on initial acceleration.

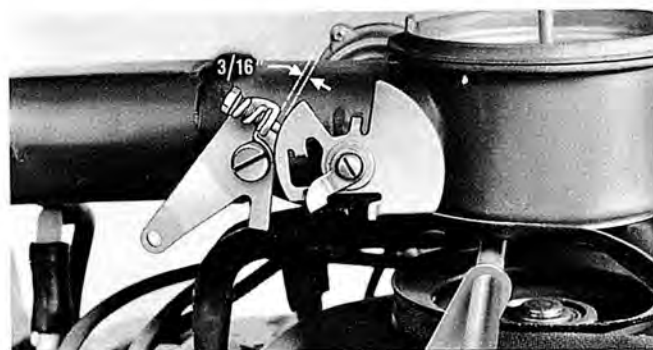
Normally, under heavy acceleration, low manifold vacuum would allow the thermal spring to force choke closed. The choke modifier relaxes this spring to balance carburetion to engine demands.



Adjustment of the automatic choke is at the choke modifier. Normal setting is 3-notches lean. To adjust, loosen screw holding lever and pointer, and move pointer counterclockwise 3-notches lean and tighten screw, holding adjustment in position.



Choke unloader and fast-idle adjustments are made at the automatic choke. To check fast idle, begin by placing a $\frac{1}{8}$ " spacer between throttle lever and adjusting screw on left hand carburetor. Next, disengage the fast-idle link swivel from the fast-idle lever.



Turn the fast-idle adjusting screw down until $\frac{3}{16}$ " projects past the fast-idle lever as shown. Rotating the fast-idle cam counterclockwise, the fast-idle screw should just bear on the high step of the cam. Then:



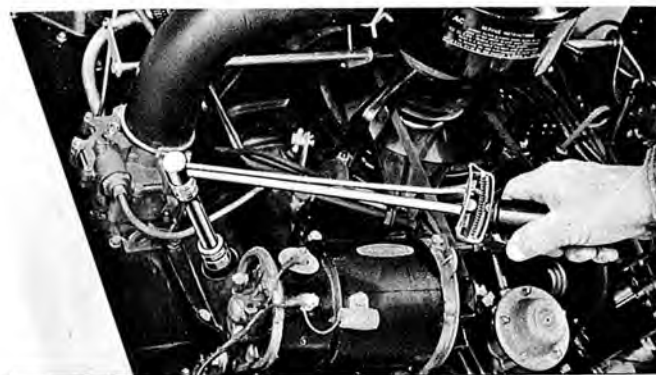
Hold the screw and fast-idle lever in position and turn the swivel on the fast-idle link so it just enters hole in the fast-idle lever. Replace retainer clip and remove the $\frac{1}{8}$ " spacer. Trim adjusting fast-idle screw to obtain a speed of 2200 r.p.m.

6. ENGINE TUNE-UP



Tune-up procedures of Corvair engines are identical to all other Chevrolets. The only difference is in the location of some of the components and in the design.

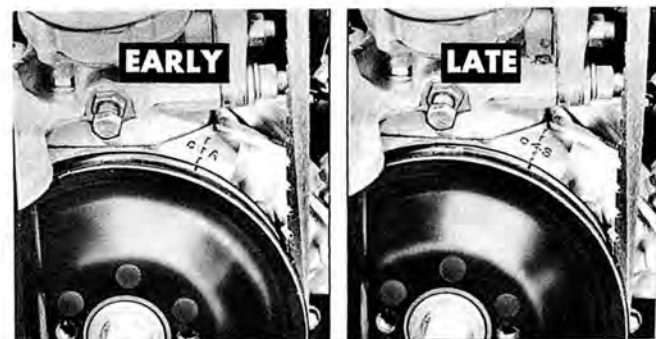
The tower-type distributor uses pre-aligned point sets, adjustable by removing cap, loosening point hold-down screw, and turning screw driver in wedge slot. Distributor rotation is clockwise. Point gap is .019" new, and .016" for cleaned points. Dwell should be 31 to 35 degrees with maximum variation 3 degrees.



Spark plugs are AC 44-FF, specially designed for use with aluminum heads. Anti-seize compound is not used. Torque is 20 foot-pounds and gap .035".



Proper vacuum advance setting is shown by a scale on the breaker plate. When properly set, scale will read 23 degrees aligned with the edge of the cutout on the distributor body as shown here.



First production engines used the markings "O" and "A" on timing pointer tab. This was later changed to degree marks "0-4-8." Time early engines 1/2 the distance from "O" to "A." Late engines are timed 4 degrees BTDC.



If necessary to adjust, loosen screws, on underside of distributor body, that hold vacuum advance unit. Slide unit as needed. Tighten the screws in correct position.



Valves are hydraulically operated through an overhead assembly similar in design to that used on V8 engines. Valves are adjusted cold with engine stopped as shown in Corvair Shop Manual, Page 6A-51.

7. TIRES — FRONT SUSPENSION — STEERING

FRONT:
15 LBS.
COLD



REAR:
26 LBS.
COLD

It's extremely important that the 6.50 x 13 tires be inflated as follows without deviation:

• FRONT: 15 Pounds COLD • REAR: 26 Pounds COLD
When checking tires warm, there should always be 11 to 12 pounds pressure difference between front and rear tires.

Correct idle speed should be: 500 r.p.m., 3-speed transmission; 475 r.p.m., Powerglide, in DRIVE. Idle speed and mixture screws should be adjusted equally by working back and forth from one carburetor to the other. Adjust to maximum vacuum readings at above r.p.m. This will be between 14" to 18".



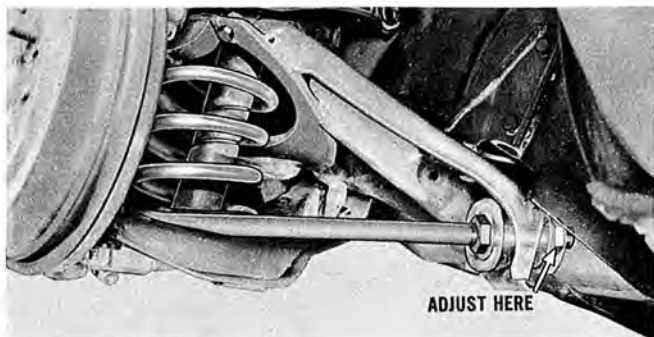
Overinflation or trying to even pressures, front and rear, will destroy handling and ride stability. No front suspension corrections should be made without first checking and correcting tire pressures and distribution.

HERE ARE ENGINE SPECIFICATIONS OF GENERAL INTEREST:

No. of Cylinders . . . 6 — Horizontal
Displacement 140 Cu. In.
Bore and Stroke . . . 3.375" x 2.60"
Compression Ratio . . 8.00:1
Brake Horsepower . . 80 @ 4400 R.P.M.
Crankcase Capacity . 4 Qts.



Front suspension alignment follows conventional procedures. Make all adjustments with luggage compartment empty, except for spare wheel.



A variation from regular Chevrolet front suspensions is a strut rod, shown here. Varying length of strut controls **CASTER**. Set to: Pos $3\frac{1}{2}$ degrees to 4 degrees at curb weight.

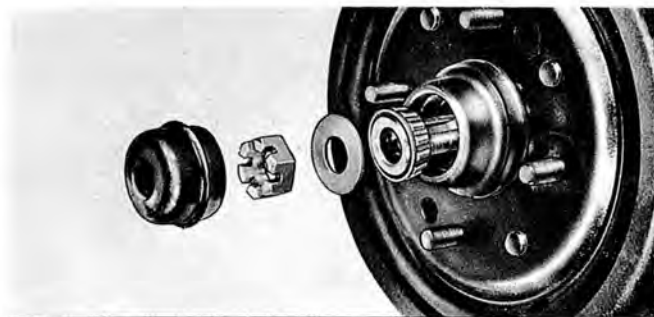
CAMBER is controlled by shims at the upper control arm cross shaft the same as larger Chevrolets. **TOE-IN** is controlled by varying tie rod length.

CAMBER: Pos $\frac{1}{2}^\circ \pm \frac{1}{2}^\circ$ at curb weight.

TOE-IN: $\frac{3}{16}'' + 0'' - \frac{1}{16}''$ per wheel.



The standard design steering gear employs a slight variation in lash adjustment. Place an inch-pounds torque wrench on steering wheel center nut. With pitman arm disconnected, adjust lash to give 7 to 12 inch-pounds pull through center.

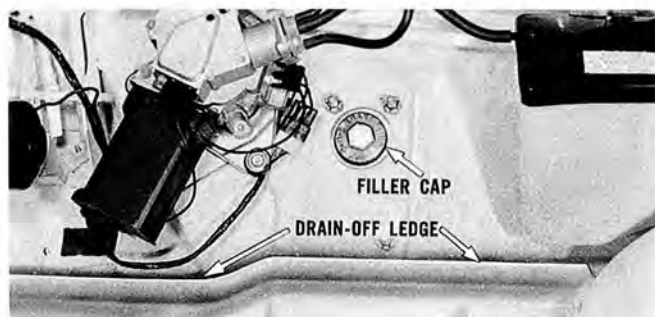


New tapered roller front wheel bearings require new adjusting procedures. Torque nut 80 inch-pounds while rotating wheel. Back off 1 to $1\frac{1}{2}$ flats and insert cotter pin. When correctly adjusted, bearings will have 0" to .004" end play. **DO NOT PRE-LOAD BEARINGS.**

8. BRAKES



Tool J-8363 is required for brake adjustment as follows:
FRONT: 12 notches loose from hard drag
REAR: 20 notches loose from hard drag.
 Additional clearance is required at rear to allow brake drums to walk over brake linings. Rear drums are extra-wide to compensate for this movement.

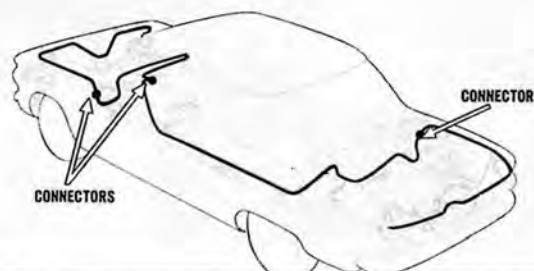


Master cylinder is located under dash but filled through the front luggage compartment. A special drain-off ledge prevents fluid from spilling into the compartment. Check fluid level every 1,000 miles.

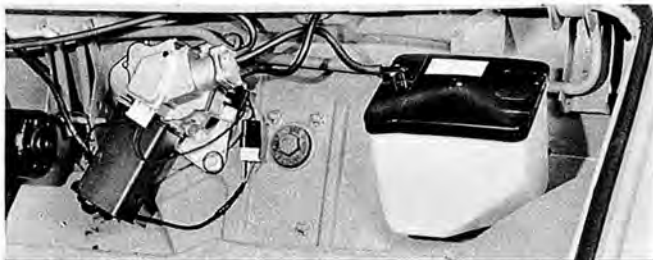
9. ELECTRICAL SYSTEM



Standard parts and layout are used in this 12-volt system. This means easier diagnosis and quicker service, since no special procedures or tools are required. All components are easily reached.



Chassis wiring is broken up into four harnesses, shown here, and connected at points indicated with master plugs. This permits quicker isolation of shorts or other electrical trouble. See the Corvair Shop Manual for complete and detailed wiring diagrams of all circuits.



A single-speed electric windshield wiper is standard equipment with electrically operated washer pump available as an option. To avoid washer fluid spilling into luggage compartment, do not fill washer tank more than 2" below top. Methanol-base anti-freezes must not be used. Use Chevrolet washer anti-freeze and solvent, part 988299 instead.

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