

Studebaker

# SERVICE BULLETIN

APRIL

NO. 221



1949

## WINDSHIELD WIPER DIAGNOSIS AND SERVICE PROCEDURES

*Please record this Service Bulletin on page 18 of your 1947 Passenger Car Shop Manual.*

The diagnosis steps and service procedures given in this issue of the Service Bulletin are printed in the sequence in which the service mechanic should perform them to locate the cause of slow acting or inoperative windshield wiper action. The sequence developed gives the indicated corrections or adjustments with the least waste of time and avoids much unnecessary backtracking.

Mechanics who work on windshield wipers should become familiar with the sequence of tests and checks in this Bulletin.

**1. WIPER SPEED** The wiper blade should travel across a *wet* windshield at a minimum rate of 140 single strokes or 70 cycles per minute while the engine is idling. A paper boot may be used on the blade to check the wiper speed under conditions similar to those on a wet glass. See Fig. 1.

If the blade does not wipe clean, go next to Step No. 2. If the speed of the blade is too slow, go next to Step Nos. 3, 4, and 5 as may be required.

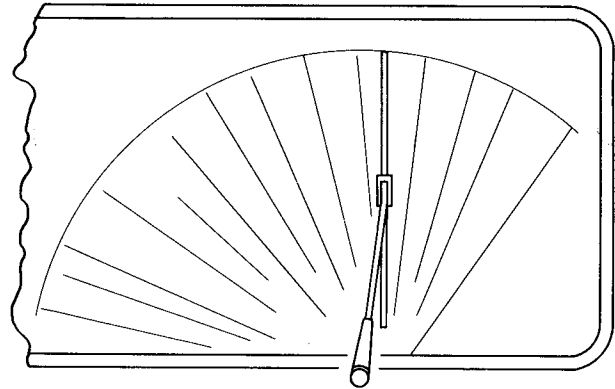


FIG. 1

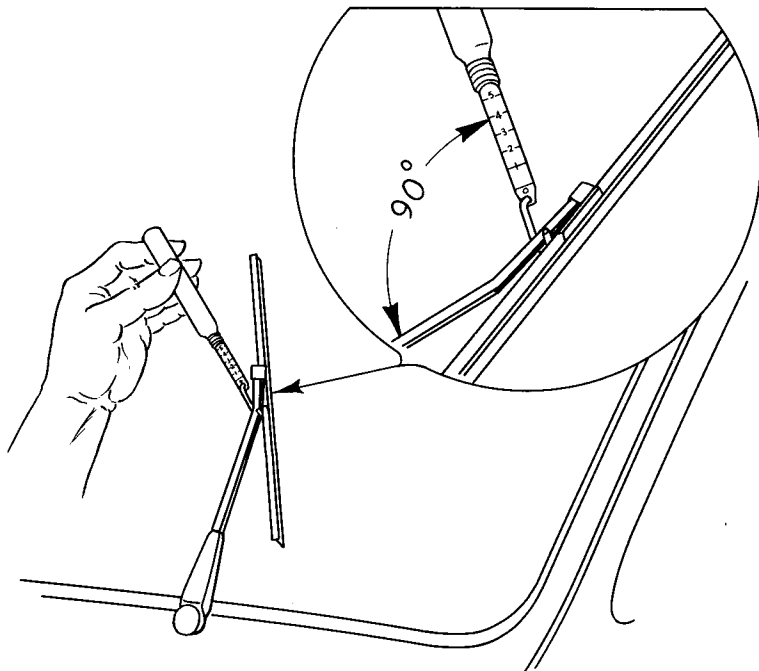


FIG. 2

**2. ARM TENSION** If the blade does not wipe clean, check the arm tension with a Postalett or similar scale calibrated in ounces. Attach the scale under the wiper blade arm where it is connected to the blade. See Fig. 2. Pull away from the windshield at right angles to the arm so that the blade will be just off the glass. Jiggle the wiper arm with the opposite hand until it reaches a position of free rest. The scale should show at least 4 ounces. If the reading is under 4 ounces, apply a few drops of oil at the end of the tension spring and arm pivot rivet; work the oil in thoroughly. If the pressure does not increase, replace the arm.

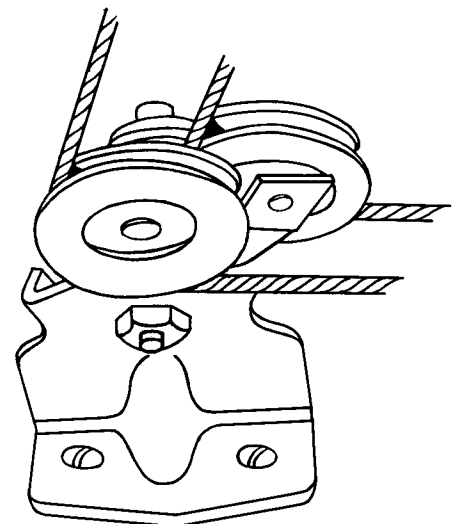
**3. CABLE LINKAGES** To remove cable linkages, relieve tension on the cables by loosening the cable tension lock nut; press pulleys toward center of car and retighten nut to hold pulleys in this position. In reinstallation, adjust cable tension as described below.

Cable linkages are not interchangeable and must be installed as designated by the stamping. Those stamped "R" must be applied to the right or passenger side of the car, while those marked "L" must be placed on the left or driver's side.

Care must be exercised not to kink or fracture the cables during installation and the cables must operate without contact with any part of the vehicle body, accessories, or wiring system.

**Cable Tensioners** Cable tensioners are likewise not interchangeable and must be installed as stated in the explanation above on cable linkages.

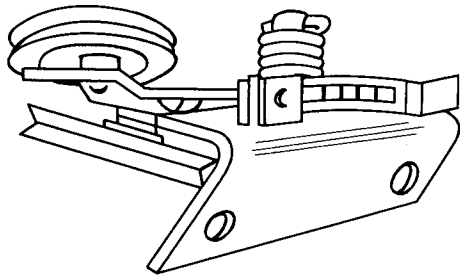
**Tensioner Adjustment** For proper adjustment on cable tensioner, loosen nut and tap stud lightly to unseat



CABLE TENSIONER ON 1947-'48 MODELS

FIG. 3

(continued at top of p.3)



### RATCHET TYPE TENSIONER ON 1949 MODELS

FIG. 4

After this one boost, it should never again require adjustment. We suggest this be made a part of your 1000 mile adjustment service.

**Cable and Pulley Lubrication** Light oil should be used on the pulley bearings of both the tensioners and cable linkage housing.

Light grease should be smeared on cables where they run over the pulleys.

**4. MOTOR AND HOSE** Disconnect hose at wiper motor and attach a vacuum gage to hose. Gage should register from 14 to 16 inches of vacuum at idle. If it registers less, the volume of air moving through the motor may be reduced by a restricted hose. The clamp on the dash (see Fig. 5) may be turned down too tightly. If this condition has remained for some time, the restriction in the hose may be permanently set; therefore, replace the hose. If the gage reading is still low, check the vacuum supply as in Step No. 5.

If the vacuum reading is normal and the motor does not operate, inspect the control connection to the motor. The control wire conduit should be flush with the end of the boss or pad as shown in Fig. 5 to assure full windshield wiper and washer action. Other positions may interfere with the valve action.

If the motor does not operate properly, replace the motor assembly.

**5. VACUUM SUPPLY** at Engine Manifold Static vacuum should register from 14 to 16 inches of mercury at idling speeds. To check vacuum, disconnect wiper hose at manifold and connect vacuum gage. See Fig. 6. If the engine vacuum is insufficient, diagnose cause and repair engine.

(continued from p.2)

lock washer. This permits the cable tensioner to take up any slack in the cables automatically. Retighten the nut firmly to hold the pulleys in the new position. It may be necessary to hold tensioner while tightening lock nut to prevent it from turning with the nut. Each tensioner must be adjusted separately.

If cable tensioners are removed from the fire-wall, care must be exercised on reinstallation to see that the cable runs out from the pulley centrally and not on one side wall of the pulley groove. See Fig. 3,

On 1949 models the automatic tensioner does not require adjustment. Cable slack is taken up by a spring loaded ratchet. See Fig. 4. After the wiper has been used for a short time, the tensioner should be pushed out by hand.

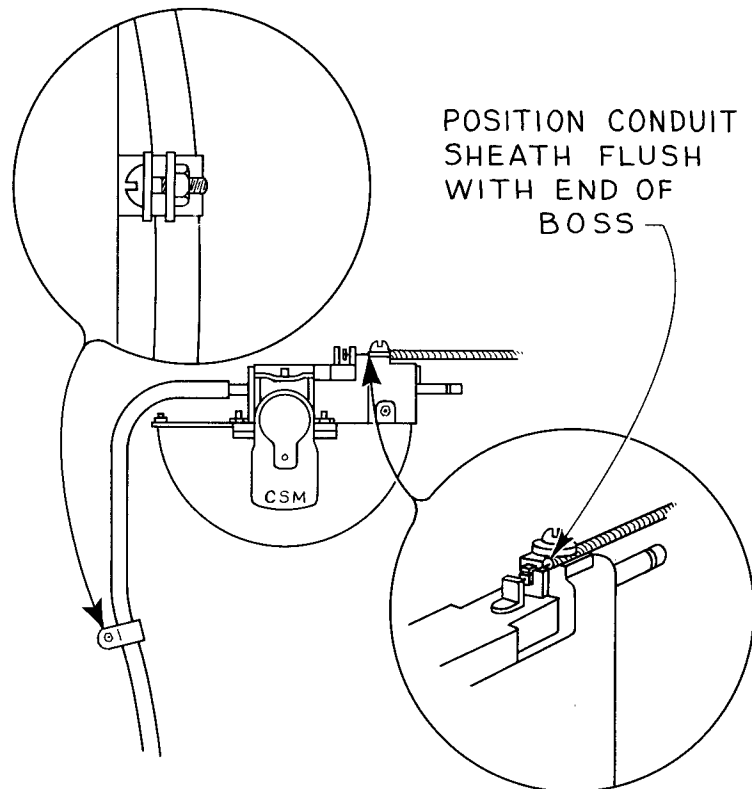


FIG. 5

#### Vacuum Supply at Fuel-Vacuum Pump

a) **Vacuum Gage Check:** NOTE.-- Always make this check of the vacuum pump with the outlet open because internal pressure due to closing the outlet will damage the mechanism.

Disconnect both inlet and outlet lines (see Fig. 7) at the pump. Attach vacuum gage tube to vacuum section inlet (side attached to wiper line). With engine operating at speed equivalent to 20 miles per hour road speed, gage should register between 7 and 12 inches of

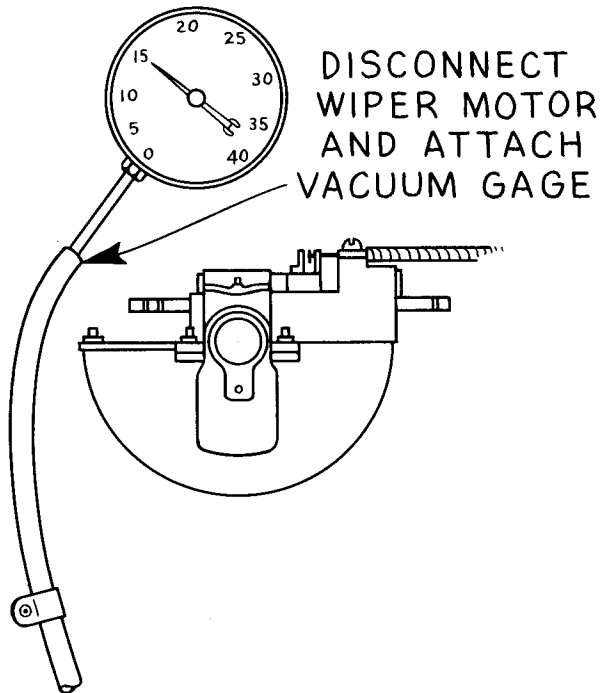


FIG. 6

vacuum. If less than 7 inches of vacuum is registered, it can be assumed that the vacuum section of the pump is inoperative.

b) Check without Vacuum Gage: Turn on windshield wiper. Disconnect outlet line (engine side) from pump. Operate engine from idle through slow acceleration to about 40 miles per hour. Wiper should start operating on pump vacuum at about 15 miles per hour engine speed and reach full speed at about 40

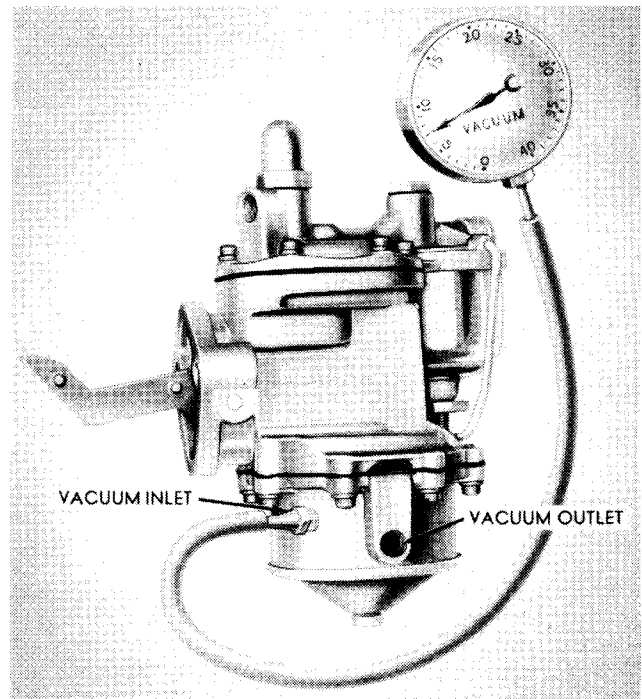


FIG. 7

miles per hour, indicating the vacuum section of the pump is operating properly.

If the wiper does not operate, detach windshield wiper line at pump and join to the already detached outlet line with a piece of rubber hose. *Slowly* operate engine from idle to about 25 miles per hour. The wiper should run at full speed, operating on engine vacuum only. If it does not, it can be assumed that the wiper motor or tubing is defective.

The pump vacuum section is inoperative if the windshield wiper operates on engine vacuum, but not on pump vacuum.