

JEEP 2-SPEED ELECTRIC

Jeep

DESCRIPTION

Vehicles use a two speed motor which is a compound wound (series and shunt) type. A crank arm is attached externally to gear shaft and operates linkage which activates the wiper blades. The windshield washer pump is a positive displacement type using a bellows or a piston arrangement.

TESTING & TROUBLE SHOOTING

2-SPEED WIPER (ON CAR) "CJ" MODELS

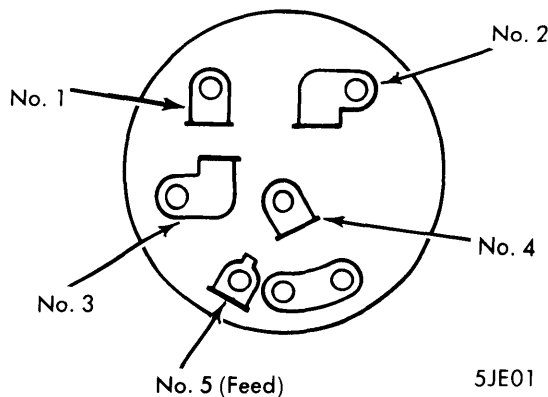
NOTE — The wiper motor must be grounded for proper operation and during all of the following test procedures.

1) Place ignition switch in "ON" position and use a suitable test lamp to check for 12 volts at switch terminal number 5 (see illustration for all terminal positions). If test lamp lights but motor does not operate, ensure ground is good by connecting a jumper wire from motor ground strap to a good body ground. If motor still will not operate, disconnect jumper wire.

2) Connect a jumper wire between terminals number 2 and 5 which should give low speed operation of motor. If motor does not operate on low speed, possible causes are an open condition in green wire leading from switch, a loose internal connection in motor or a stuck low speed brush.

3) Connect a jumper wire between terminals number 3 and 5 which should give high speed operation of motor. If motor does not operate on high speed possible causes are an open condition in red wire leading from switch, a loose internal connection in motor or a stuck high speed brush.

4) Position wiper blades in a position other than park and connect a jumper wire between terminals number 1 and 5. Motor should run on low speed and stop with blades in park position. If motor does not run with jumper connected, possible causes are an open in black wire from switch, a loose internal connection in motor, a bad connection between park point set to low speed brush, or a misaligned or damaged set of contact points. If motor runs but does not position wipers in park position, cam on drive gear is not breaking contact points sufficiently.



"CJ" MODELS TEST CONNECTIONS

2-SPEED WIPER (ON CAR) CHEROKEE, WAGONEER & "J" MODELS

Wiper Inoperative — Check wiring harness, wiper ground strap and dash switch for proper connections and mounting. Check fuse. With ignition switch "ON", check for 12 volts at harness terminal which connects to number 2 terminal. To bypass switch, disconnect wiring at motor and connect a jumper wire from number 1 and 3 terminals to ground and a 12 volt source to number 2 terminal. If wiper does not operate, disconnect transmissions from crank arm. If wiper still does not operate, remove from vehicle and test unit. See 2-Speed Wiper (Off Car).

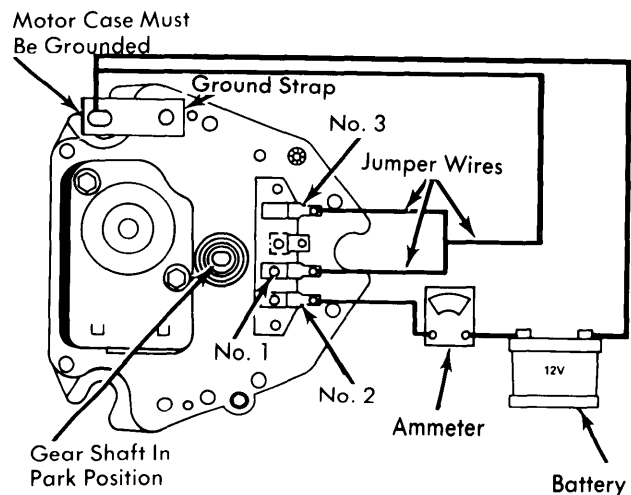
Wiper Will Not Shut Off — Determine whether wiper has both speeds, low speed only or high speed only, then operate wiper by by-passing switch as previously outlined. See Wiper Inoperative. If wiper operates correctly and has both speeds, lead to switch from number 1 terminal is grounded or switch is faulty. If wiper has low speed only, lead to switch from number 3 terminal is grounded or switch is faulty. If wiper has high speed only, lead to switch from number 3 terminal is open or switch is faulty. If wiper still does not operate, remove from vehicle and test unit. See 2-Speed Wiper (Off Car).

Does Not Return To Park With Wiper Off — Check ground strap connection and park switch contacts may be dirty, bent or broken.

Speed Normal In Low, But Too Fast In High — Terminal board resistor may be open. Remove from car to test terminal board.

Wiper Operates Intermittently — Loose ground strap or dash switch mounting.

Operates Low Speed Only & Shuts Off With Dash Switch In High Position — Reverse harness leads connecting to number 1 and 3 terminals.



CHEROKEE, WAGONEER & "J" MODELS
TEST CONNECTIONS

Windshield Wipers

JEEP 2-SPEED ELECTRIC (Cont.)

2-SPEED WIPER (OFF CAR) CHEROKEE, WAGONEER & "J" MODELS

NOTE — Use an ammeter with reading of 30 amperes (minimum) in feed circuit.

Wiper Inoperative — Connect an ammeter and battery to number 2 terminal and a jumper wire from number 1 and 3 terminals to ground. Wiper should operate at low speed. If ammeter reading is 0, check for loose splice joints or loose solder connection at number 2 terminal. If reading is 1-1.5 amperes, check for sticking brushes, open armature or loose splice joint. If reading is 11 amperes, check for broken gear or other stalling condition.

Wiper Will Not Shut Off — If wiper has both speeds, park switch contacts may not be opening or internal motor lead to number 1 terminal is grounded. If wiper has low speed only, shunt field coil may be grounded or internal wiper lead to number 3 terminal is grounded. If wiper has high speed only, shunt field is open or internal lead to number 3 terminal is open.

Wiper Operates Intermittently — Check for sticking brushes, loose splice joints or other loose connections.

Speed Normal In Low, But Too Fast In High — Check for an open circuit in 20 ohm resistor on back of terminal board.

Does Not Shut Off Or Stop In Park Position With Jumper Wire Removed From Ground — Park switch contacts may not be opening. Motor lead connecting to terminal number 3 may be grounded.

REMOVAL & INSTALLATION

WIPER MOTOR

"CJ" Models—Remove crash pad if equipped. Remove extreme left plastic hole plug from bottom of windshield frame air duct and disconnect drive link from motor crank. Mark position of

wires on switch housing before disconnecting wires. Remove motor cover, motor attaching bolts and motor. To install, reverse removal procedure.

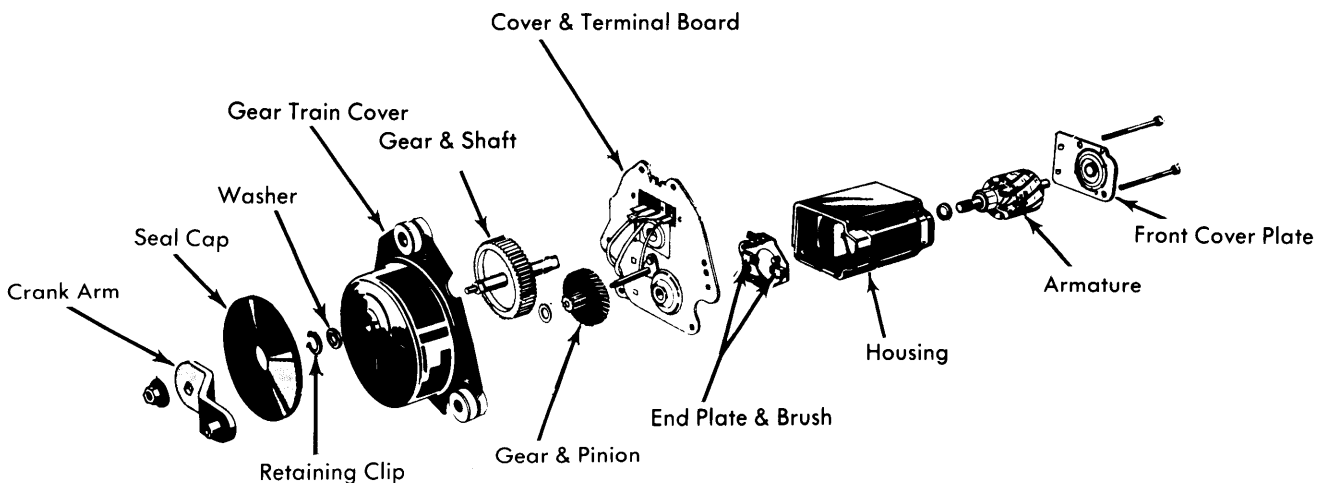
Cherokee, Wagoneer & "J" Models— Disconnect wiper drive link from crank under instrument panel. Mark wire locations at motor for proper reassembly. Disconnect motor to dash mounting screws and remove motor. To install, reverse removal procedure.

OVERHAUL

WIPER MOTOR

Disassembly — Clamp crank arm in vise and loosen retaining nut. Remove seal cap, retaining ring and end plate washer. Punch out gear box cover rivets and remove cover from gear train. Mark ground strap location for reassembly. Remove output gear and shaft, then slide intermediate gear and pinion off shaft. Remove terminal board and park switch by unsoldering motor leads from terminals and drilling out rivets that secure terminal board and park switch ground strap to plate. Release brush spring pressure against brushes, pull brushes away from armature and slide armature out of frame and field assembly. Pull end clamp off armature and remove end plate adjusting washers.

Reassembly — Reverse removal procedure while noting the following: Clean seal cap and repack with waterproof grease before installing. Gear box cover must be properly located over locating dowel pins. Ground strap must be installed. When reassembling crank arm, operate wiper to park position and install crank arm on output shaft so identification marks line up with marks on cover. Clamp crank arm in vise before tightening retaining nut. Lubricate armature shaft and bearings with light machine oil and all gear teeth with a suitable cam lubricant. Armature end play is automatically adjusted by proper reassembly of end play washers.



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WIPER MOTOR ASSEMBLY (CHEROKEE, WAGONEER & "J" MODELS)