WINDSHIELD - REAR WINDOW - WINDSHIELD WIPER

WINDSHIELD

GENERAL

The windshields on all models consist of two sheets of glass, some flat and some curved, laminated together to form a one-piece safety glass.

All windshields are retained in their respective openings by similar lock-type rubber weatherstrips (channels).

The safety type glass is designed with adequate clearance to prevent stress and strains. When replacing cracked glass resulting from causes other than a direct blow or a known instance of temporary misalignment, it is very important that the cause of the breakage be determined and the condition corrected.

The inside rear view mirror bracket for Cherokee, Wagoneer, and Truck models is bonded directly to the windshield glass with a polyvinyl-butyral compound through a heat-induction process.

Service replacement windshield glass may have the rear view mirror bracket bonded to the windshield glass. In this case the mirror is simply transferred from the unserviceable windshield to the bracket on the replacement windshield.

If the replacement windshield does not have the mirror bracket bonded to it, or if on serviceable windshields the bracket bond has been lost, a service kit is available for bracket installation. The kit is available from your local parts distribution center and consists of a replacement bracket and firm-setting, two-component adhesive. Installation instructions are included in this section, as well as in the kit.

NOTE: *Do not attempt to remount the original bracket. For best results use a new bracket with the proper adhesive, available as a service kit.*

INSERT REMOVAL

A V-shaped rubber insert is set into a molded groove in the rubber weatherstrip on some units, to provide a snug fit to the glass and the opening flange.

On others an interlocking type lip is part of the weatherstrip as shown in figures 17-3 and 17-4.

The weatherstrip should be 75° F (24° C) or above before windshield removal is attempted.

(1) Cover adjoining painted surfaces to protect finish.

(2) Remove windshield wiper arms using a wiper arm removal tool if available. If not, use a wide blade screwdriver.

(3) On vehicles so equipped, remove the windshield insert moulding or V-shaped rubber strip from around the outside of the windshield using a screw-driver blade and carefully pry the insert from the slit in the weatherstrip (fig. 17-1).

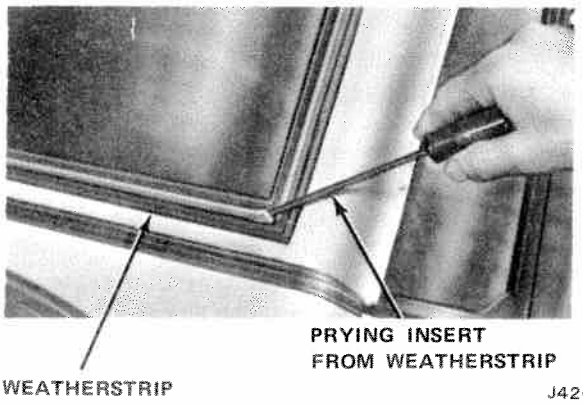

Fig. 17-1 Removing Windshield Moulding Insert from Weatherstrip

(4) On units with locking-type weatherstrip, use a wedge shaped fiber or hardwood stick or wand as shown in figure 17-2 to unlock the weatherstrip as shown in figures 17-3 and 17-4.

(5) On vehicles with the stainless steel mouldings, remove the moulding screws at the top and bottom of the side mouldings.

(6) Remove top corner moulding by lifting the bottom and pulling outboard.

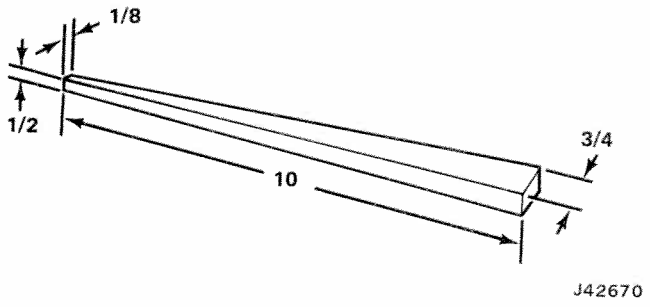

Fig. 17-2 Wooden Wand Dimensions (Inches)

(7) Side mouldings are tipped toward center of vehicle and lifted off.

(8) Remove top moulding.

(9) Slide center moulding clip to left or right and remove bottom mouldings.

(10) This will expose the locking type weatherstrip (fig. 17-3).

(11) The locking type weatherstrip without mouldings is shown in fig. 17-4.

(12) On units with or without mouldings, unlock the rubber weatherstrip starting at the bottom with a fiber stick or wand (fig. 17-5).

GLASS REMOVAL

(1) Use fiber stick to break seal between windshield glass and weatherstrip.

(2) Removal of the windshield from the weatherstrip should be performed by two men, one man pushing lower inside corner, one man lifting as windshield comes free.

(3) Remove weatherstrip from opening.

(4) Inspect weatherstrip and clean off sealer from glass cavity and flange cavity.

NOTE: *Inspect for uneven surfaces or irregularities in the windshield opening flange that could cause stress damage to the windshield glass.*

(5) If windshield has been removed for reasons other than damaged glass and is to be replaced, clean hardened sealer from glass edges.

GLASS INSTALLATION

NOTE: *Windshield installation should be accomplished in relatively warm surroundings in order that the windshield weatherstrip will remain pliable to make the installation operation easier and reduce the possibility of breaking the windshield.*

(1) Clean any old sealer from windshield opening flange.

(2) If removed weatherstrip is used, be sure glass cavity and flange cavity are clean.

(3) Using a medium body sealer in a pressure type applicator, apply a 1/16-inch bead of sealer completely around weatherstrip in flange cavity as shown in fig. 17-3.

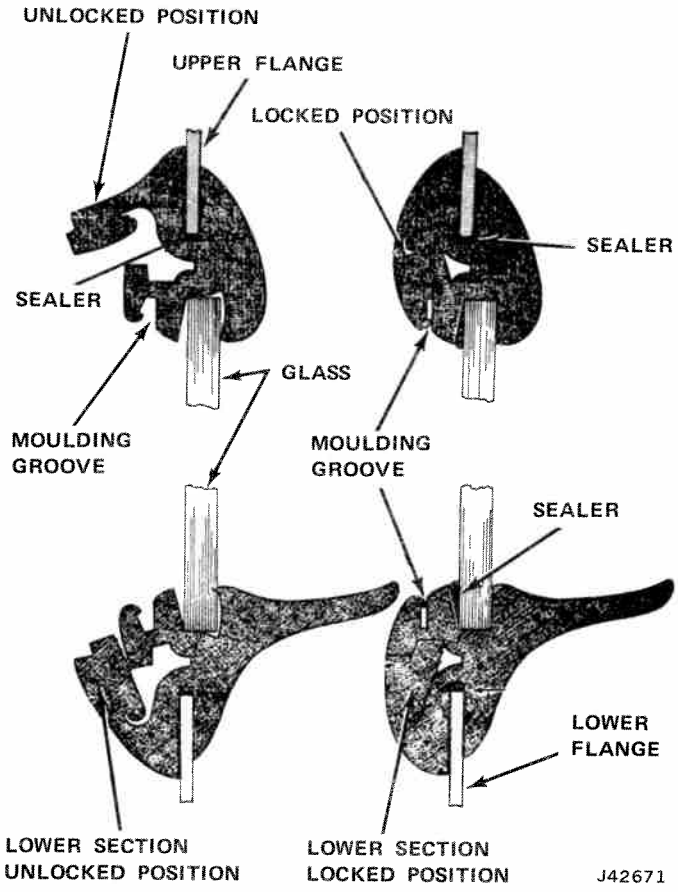

Fig. 17-3 Windshield Weatherstrip Cross-section - Moulding Removed

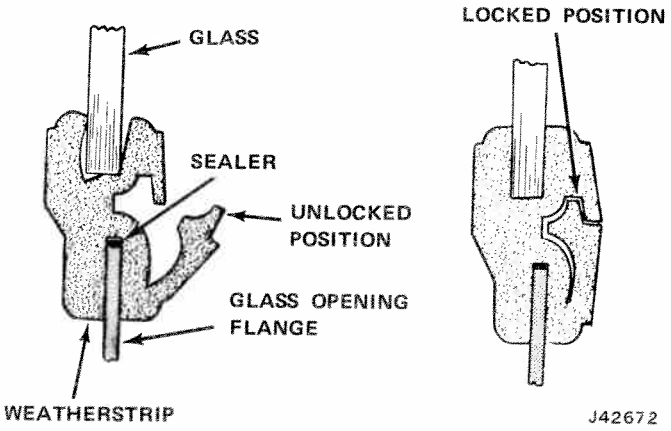

Fig. 17-4 Windshield Weatherstrip Cross-section

(4) Install the weatherstrip on the windshield opening flange.

(5) Apply a liberal amount of liquid soap solution in the glass cavity of the weatherstrip.

(6) With two men working on the outside of the vehicle, work windshield into upper glass cavity and into each side. Position wooden wand under bottom of glass

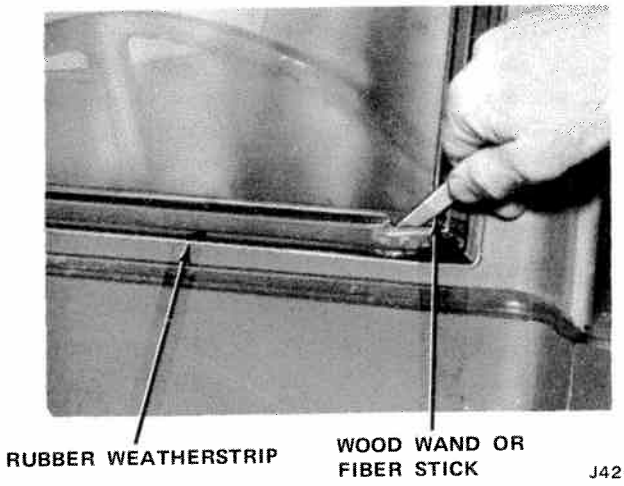

Fig. 17-5 Unlocking Rubber Weatherstrip

and lift windshield up and into lower glass cavity. Check for equal side clearance.

(7) Use the wooden wand to lock weatherstrip as shown in the locked position (fig. 17-3 and 17-4).

NOTE: *Soap solution should be removed from the weatherstrip and glass before installing sealer.*

(8) Using a pressure-type applicator, apply a medium-bodied sealer between the weatherstrip and glass on outside of glass around entire perimeter (fig. 17-3).

STAINLESS STEEL MOULDING INSTALLATION

NOTE: *Excessive soap solution should be removed from the weatherstrip before installing trim moulding.*

(1) Bottom mouldings are installed one at a time. To facilitate installation, place a 1/8-inch (0.32 cm) diameter cord in weatherstrip moulding retaining groove along entire length of weatherstrip, leaving enough cord hanging out at each end to permit a good grip on cord.

(2) Working first with either left or right bottom moulding, place moulding in groove.

(3) Starting at the outside corner of the weatherstrip, pull up on cord while lightly tapping top of moulding with rubber mallet. This will lock the moulding in the weatherstrip retaining groove. Continue process until moulding is installed in weatherstrip, and then repeat process with the other bottom moulding, again starting at the outside corner.

(4) Install center moulding clip to cover gap between left and right bottom moulding.

(5) The one-piece top moulding is installed in the same manner, except that the moulding is tapped upwards into the retaining groove.

(6) Side and upper corner mouldings can then be inserted in the retaining groove and secured by installing the upper and lower screws.

(6) Fill gap at upper outboard corner between trim moulding and body with black sealer.

(8) Clean excess sealer from windshield and moulding.

(9) Install windshield wiper arms.

(10) Test windshield for water leaks.

REAR VIEW MIRROR BRACKET INSTALLATION

Cherokee - Wagoneer - Truck

(1) At driver's side, outside of vehicle, measure 6-3/8 inches down from the lower edge of the reveal moulding (fig. 16-6). Place a wax pencil mark on the glass, alongside the vertical moulding.

(2) From the wax mark at the vertical moulding, measure 27-7/8 inches toward the center of the windshield and mark a vertical line.

(3) Measure five inches down from lower edge of reveal moulding and mark a horizontal line across the vertical line.

(4) If the vinyl pad has remained on the windshield glass, apply low heat with an electric heat gun until vinyl softens, then peel pad from glass using care not to scratch or mar the glass surface.

(5) Clean the bracket mounting area of the windshield glass thoroughly. Use a mildly abrasive cleaning powder (Ajax, Comet, or equivalent) applied to clean cloth saturated with alcohol.

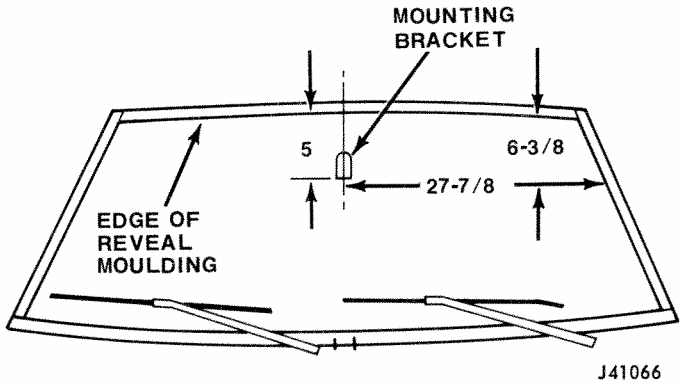

Fig. 17-6 Windshield Mounted Rear View Mirror Bracket Location Dimensions (Inches)

(6) Remove all traces of cleanser by wiping area with a paper towel moistened with alcohol.

(6) Scuff the bonding surface (the side without the 3/8-inch circular depression) of the mirror bracket with a clean piece of fine grit sandpaper. Apply alcohol to a clean towel and wipe surface clean.

(8) Apply a generous amount of the accelerator, supplied with kit, to mirror bracket mounting surface. Allow five minutes to dry.

(9) Apply a thin film of accelerator to windshield. Allow one minute to dry.

CAUTION: *Do not touch surfaces to which accelerator has been applied - an imperfect bond could result.*

(10) Apply one drop of adhesive at the center of the mirror bracket bonding surface. Use the bottom of the adhesive tube to distribute the adhesive evenly over the entire surface.

(11) Position the bottom straight edge of the bracket on the horizontal line, while centering it on the vertical line (fig. 17-6). Press bracket to glass and hold firmly for one minute. Be sure bracket is properly located - adhesive sets quickly.

FOLDING WINDSHIELD REMOVAL

On the CJ models the windshield and frame assembly may be lowered to the hood by unlatching the two clamps at each side of the windshield. When in the lowered position, always secure the windshield by passing the strap at the top of the windshield through the loop on the hood and drawing the strap up firmly.

(1) To remove the windshield and frame as an assembly, remove the wiper control switch from the dash.

(2) Disconnect the windshield wiper motor electric wires from the switch and remove them from the grommetted hole.

(3) Unlatch the two windshield clamps on each side of the windshield.

(4) Fold the windshield forward until the slot in the windshield hinges aligns with the flat side of the pin in the body hinges.

(5) Slip windshield off the pins and remove from body.

(6) The glass can be removed from the frame, in the same manner as outlined for all windshield glass removal, after the wiper cover has been removed.

REAR WINDOW

GENERAL

The rear window is a one-piece, tempered glass. The overall size of the glass varies with the different vehicles.

Cherokee - Wagoneer

For service replacement and adjustment of tailgate window glass, refer to Section 16 - Tailgate-Luggage Rack.

TRUCK MODELS

A sliding rear window for J-10 and J-20 Truck cabs is a new option for 1974 and provides advantages of better cab ventilation and ease of communication between passengers in the truck cab and camper body when installed. The sliding rear window is replaced as an assembly using the same procedures as for the regular Truck rear window.

WINDSHIELD WIPER

GENERAL

All models are equipped with a two-speed, electric wiper motor.

On CJ models, the motor is mounted on the lower left corner of the windshield(fig. 17-7).

Cherokees, Wagoneers, and Trucks are equipped, on the driver's side, with an articulated windshield wiper arm which provides an improved wiping pattern (fig. 17-8). The wiper blade-to-wiper arm mounting has also been changed. New service procedures covering these changes are included in this section.

WIPER AND WASHER CONTROLS

The control switches are mounted on the instrument panel, to the left of the steering column.

The two-speed wiper motor is energized for continous wiping action by turning the control knob in a clockwise direction.

The electric washer pump is operated by depressing the wiper control knob or, on some models, the push button in the center of the control knob.

Wiper Control Removal

(1) Remove control knob.

(2) Remove nut and switch.

(3) Mark the wire color locations on the switch and disconnect the wires.

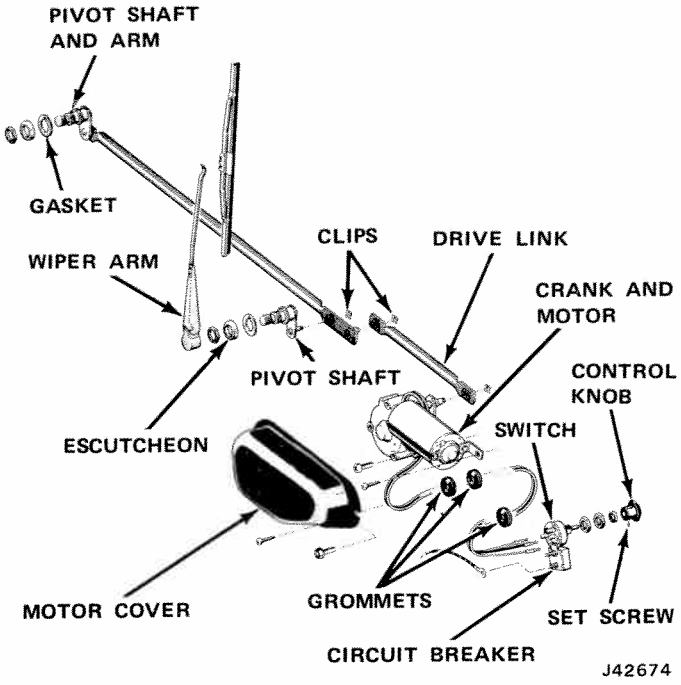

Fig. 17-7 Wiper Components - CJ Models

WIPER BLADES

Removal - CJ Models

The wiper blade assembly is removed from the wiper arm by holding the blade away from the windshield, and pushing it firmly against the tip of the arm to compress the locking spring and disengage the retaining pin. At the same time, pivot the blade clockwise to unhook it from the end of the arm

Replacement - Cherokee-Wagoneer-Truck

(1) To remove wiper blade from mounting pin on wiper arm, insert a screwdriver into spring release opening of blade saddle and depress spring clip. Pull blade from arm (fig. 17-9).

(2) To install, push blade saddle onto mounting pin so that spring clip engages pin. Be sure blade is securely attached to arm.

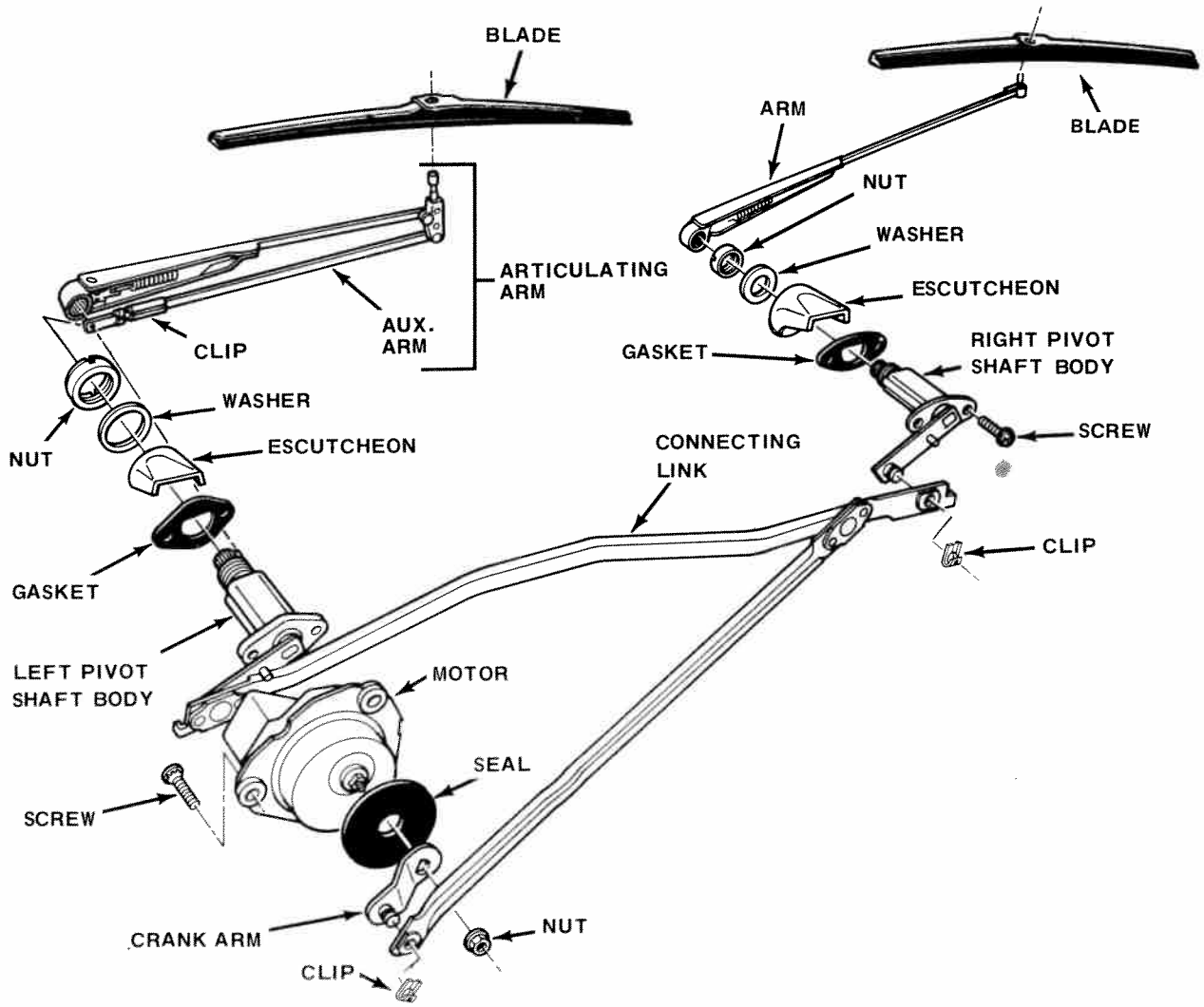

Fig. 17-8 Windshield Wiper Components - Cherokee-Wagoneer-Truck

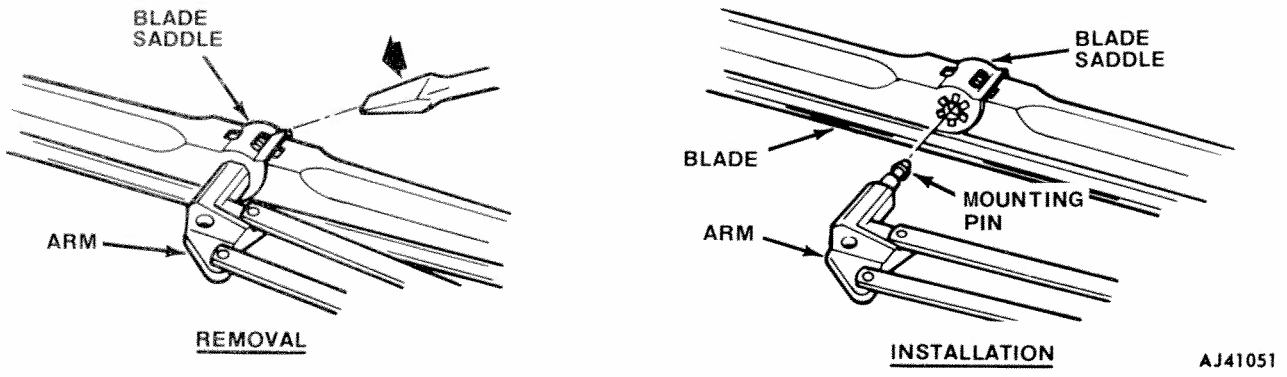

Fig. 17-9 Wiper Blade Replacement

WIPER ARM REPLACEMENT

CJ Models

(1) To remove the windshield wiper arms from the pivot body shaft, first mark the pivot shaft and arm so that the wiper arm can be reinstalled in the same position, and then pry up carefully on the wiper arm as shown in figure 17-10.

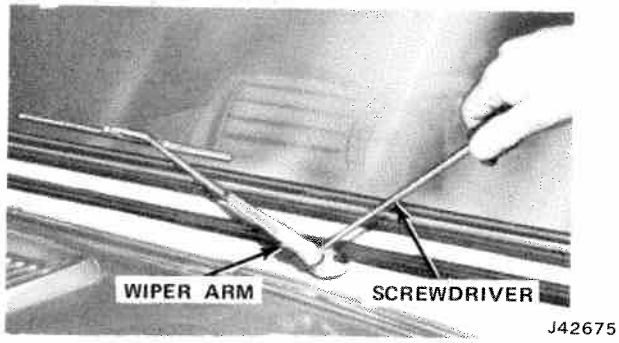

Fig. 17-10 Wiper Arm Removal

(2) Push wiper arm over pivot shaft. Be sure pivot shaft is in park position and wiper arm is positioned as shown in figure 17-11.

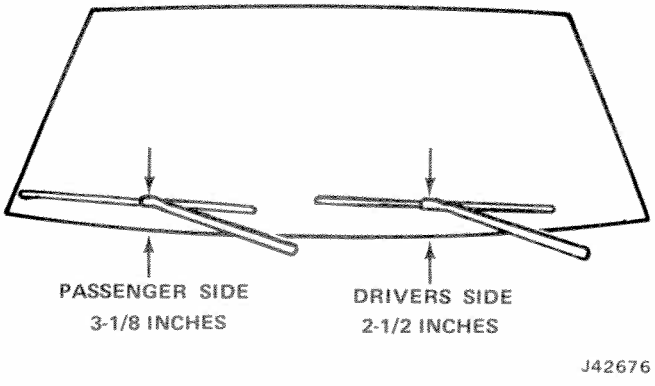

Fig. 17-11 Wiper Arm Park Position - CJ Models

Cherokee - Wagoneer - Truck

(1) Raise blade end of arm from windshield and move spring tab away from pivot shaft. Disengage auxiliary arm retainer clip (driver's side only) from pivot pin and pull wiper arm from pivot shaft (fig. 17-8).

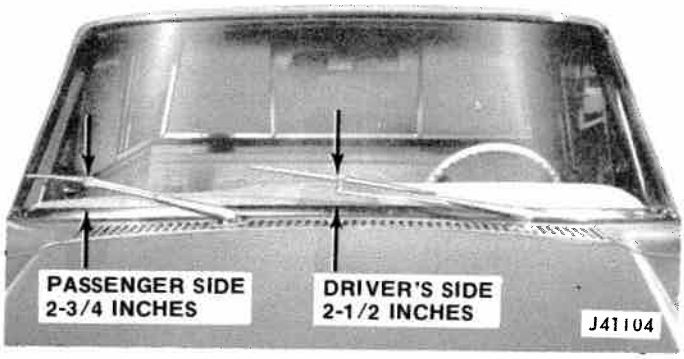

Fig. 17-12 Wiper Arm Park Position - Cherokee-Wagoneer-Truck

(2) To install, position auxilary arm (if so equipped) over pivot pin and engage retainer clip. Push wiper arm over pivot shaft. Be sure that pivot shaft is in park position and wiper arm is positioned as shown in fig. 17-12.

TWO-SPEED WIPER MOTOR

General

When the dash switch is moved to the low-speed position, current from the battery flows through a series field coil and is divided. One part passes through the shunt field coil to ground at the dash switch; the other part passes through the armature to ground at the dash switch.

Moving the dash switch to the high-speed position opens the shunt field circuit to ground at the dash switch and keeps the armature circuit closed to ground. The shunt field current must then pass through a 20-ohm resistor located on the back of the wiper terminal board and then through the same lead that connects the

armature circuit to ground through the dash switch.

Moving the dash switch to the OFF position opens both the armature and shunt field circuits to ground at the dash switch. However, both of these circuits are still closed to ground through the parking switch. When the cam on the wiper output gear opens the park switch contacts, the wiper blades are in the parked position.

Troubleshooting Procedure

Figure 17-13 illustrates the method of connecting leads to the two-speed wiper either for bench operation or to run wiper independently of dash switch and vehicle wiring when installed in vehicle.

Typical wiper troubles are as follows: wiper inoperative; wiper will not shut off; wiper operates only on fast speed; wiper operates only on slow speed; wiper shuts off with dash switch in high-speed position; blades do not return to park position when wiper is turned OFF; wiper speed normal at low but too fast in high; intermittent operation during normal wiping cycle.

Troubleshooting procedures are divided into two categories; wiper troubleshooting in vehicle; wiper troubleshooting on bench.

Troubleshooting in Vehicle

If wiper is inoperative check the following items:

- Fuse
- Wiring harness to motor connections
- Dash switch connection and ground
- Wiper ground strap

With ignition switch on, check for 12 volts at harness terminal that connects to wiper terminal. To determine if dash switch or wiring is at fault, disconnect harness from wiper motor and try operating wiper as shown in figure 17-13. If wiper fails to operate, remove body parts as required, disconnect transmissions from wiper crank arm, and recheck wiper operation. If wiper still fails to perform correctly, remove wiper from vehicle and check wiper according to procedure under Wiper Troubleshooting on Bench.

If wiper will not shut off, determine if wiper has both low and high speeds, slow speed only or high speed only. It is important that the wiper operates at low speed during parking cycle.

Disconnect wiring harness from wiper motor and try operating wiper independently of dash switch as shown in fig. 17-13.

If wiper shuts off correctly with crank arm in park position and wiper has both speeds, check the lead between terminal 7 and dash switch ground, and check for defective dash switch. If wiper shuts off correctly but wiper has low speed only, check lead between wiper terminal 1 and dash switch ground and check for defective dash switch. If wiper shuts off correctly but has high speed only, check lead between wiper terminal and dash switch open circuit and check for defective dash switch. If wiper still fails to operate correctly, remove it from vehicle and check it according to instructions under Wiper Troubleshooting.

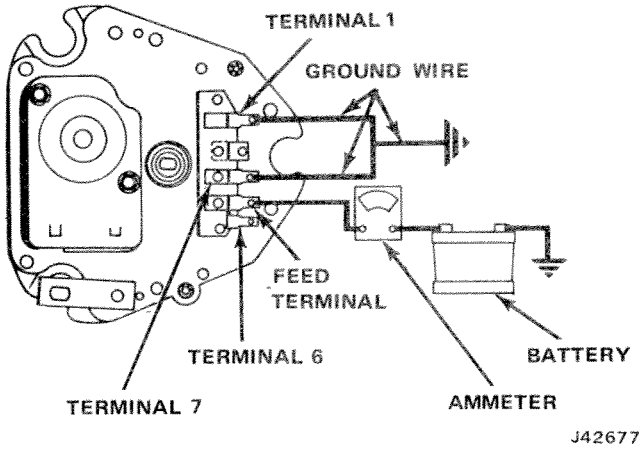

Fig. 17-13 Two-Speed Wiper Test Connections - All Models

If wiper has fast speed only, check for defective dash switch or open lead between terminal 1 and dash switch.

If wiper has slow speed only and shuts off with dash switch in high speed position, reverse harness leads that connect to wiper Terminals 1 and 7 shown in fig. 17-13.

If blades do not return to park position when wiper is turned off, check wiper ground strap connection to vehicle body. Remove wiper from vehicle and check for dirty, bent, or broken park switch contacts.

If wiper speed is normal in slow, but too excessive in fast speed, remove wiper from vehicle and check for an open terminal or resistor.

If wiper operates erratically, check for loose wiper ground strap connection or loose dash switch mounting.

Troubleshooting on Bench

Refer to Fig. 17-13.

Using ammeter capable of reading at least 30 amperes check feed wire circuit shown in Fig. 17-13 for open circuit.

If wiper is inoperative, connect wiper to operate in low speed and observe current draw. If the reading is zero amps, check for loose solder connection at feed terminal or loose splice joints. If reading is 1 to 1.5 amps check for open armature, sticking brushes, or loose splice joint. If reading is 11 amps, check for broken gear, seized shaft, or some other condition that will stall the wiper.

If wiper will not shut off, this condition may exist if wiper has one or both speeds. If wiper has both speeds, check for park switch contacts not opening or internal wiper motor lead that connects to wiper Terminal 7 being grounded. If wiper has low speed only, check for grounding of internal wiper motor lead that connects to wiper Terminal 1 and check shunt field coil for grounding. If wiper has high speed only, check for open in internal wiper motor lead that connects to wiper Termi-

nal 1 and check for shunt field open circuit.

If wiper crank arm does not return to park position when wiper is turned off, check for dirty, bent, or broken park switch contacts.

If wiper speed is normal in slow, but too excessive in fast speed, check for open circuit in the 20-ohm resistor on back of wiper terminal board.

If wiper operates erratically, check for sticky brushes or loose splice joints.

If the wiper will not shut off, or wiper crank arm fails to stop in park position when jumper wire is removed from wiper Terminal 1, check that park switch contacts are opening. Also check for ground in internal motor lead that connects to Terminal 1.

Wiper Motor Removal

CJ Models

(1) Remove the extreme left plastic hole plug from the bottom of the windshield frame air duct and disconnect the drive link from the motor crank.

(2) Loosen the wiper control switch knob slotted setscrew.

(3) Remove the control switch and mark location of wires on switch housing priop to disconnecting wires.

(4) Remove the motor cover and the motor.

NOTE: *The motor cover must be sealed when installing.*

Cherokee - Wagoneer - Truck

(1) Disconnect wiper drive link from crank under instrument panel.

(2) Mark wire locations at motor for proper assembly under the hood.

(3) Disconnect motor and washer pump wires at motor under hood.

(4) Remove motor-to-dash mounting screws.

Wiper Pivot Shaft and Linkage Removal

(1) Remove the wiper arms and pivot shaft nuts, washers, escutcheons, and gaskets.

(2) Disconnect the drive arm from the motor crank.

(3) Remove individual links where necessary, to remove pivot shaft bodies without excessive interference.

Disassembly of Two-Speed Wiper Motor and Washer

Refer to Fig. 17-14.

(1) Remove pump cover and pump.

(2) Remove vacuum motor from pump.

(3) Clamp crank arm in vise and loosen crank arm retaining nut.

(4) Remove seal cap, retaining ring, and end plate washer. Seal cap should be cleaned and repacked with a waterproof grease before reassembly.

(5) Punch out the gear box cover retaining rivets and remove cover from gear train. Mark ground strap location for reassembly purposes.

(6) Remove output gear and shaft. Then slide intermediate gear and pinion off shaft.

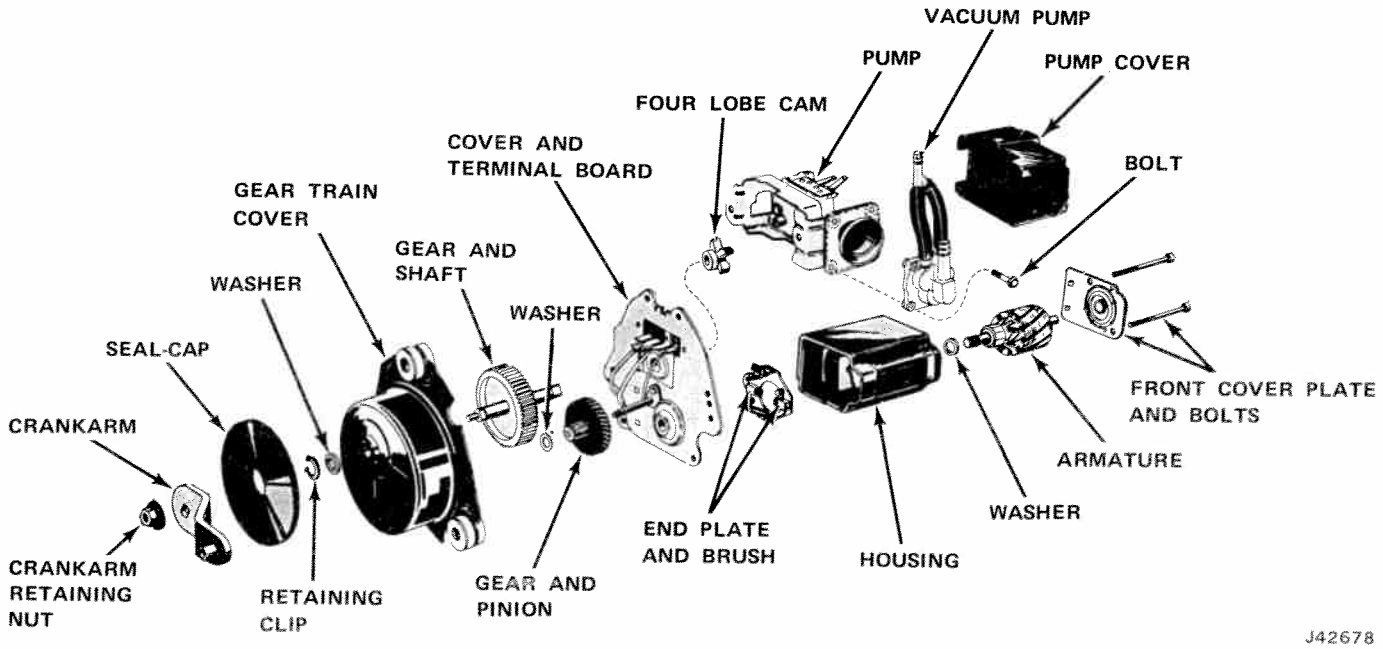

Fig. 17-14 Two Speed Wiper Motor and Washer

Assembly of Two-Speed Wiper Motor and Washer

(1) All gear teeth should be lubricated with a cam and ball bearing lubricant.

(2) When reassembling the gear box cover, be sure cover is located properly over locating dowel pins.

(3) Also be sure to install ground strap.

(4) When reassembling the crank arm, operate wiper to park position and install crank arm on output shaft so that identification marks line up with those in the cover.

(5) Clamp crank in vise before securing the retaining nut.

(6) Assemble washer pump assembly to wiper motor. Refer to Fig. 17-15 for positioning of washer pump cam drive.

WASHER PUMP

CJ Models

The electric washer pump assembly is mounted on the water reservoir. The impeller motor case is grounded to the toeboard by a black ground wire. It is energized by a yellow feed wire from the single blade terminal on the control switch.

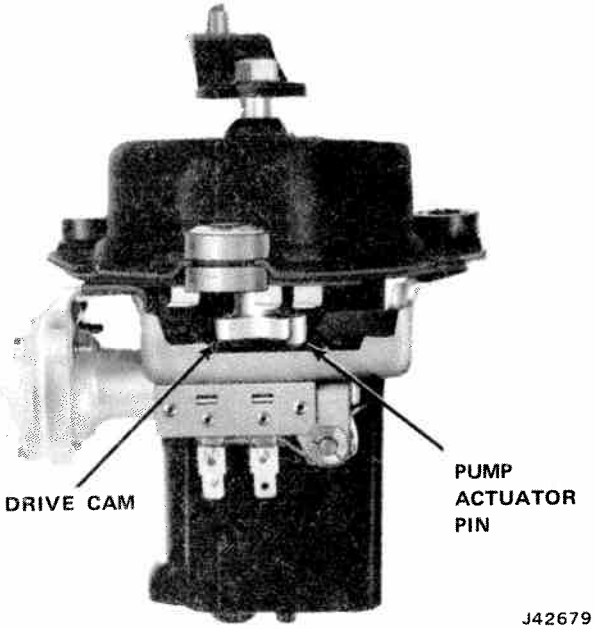

Fig. 17-15 Washer Pump Cam Drive

TECHNICAL SERVICE LETTER REFERENCE

Date	Letter No.	Subject	Changes Information on Page No.