FORD MOTOR CO.

Ford Motor Co.
All Models

DESCRIPTION

NON-DEPRESSED PARK WIPERS

Versailles, Monarch, Granada, Pinto, Bobcat, Fairmont, Zephyr, & Mustang – Wipers are actuated by permanent magnet, rotary type motor. Two wiper arms and blades are mounted on a pivot shaft, one at each side of windshield. Pivot shafts are connected to the motor by linkage arms and attaching clips.

DEPRESSED PARK WIPERS

All Other Models – Wiper motor is a two speed permanent magnet depressed park type with brush end plate at one end of housing and a gear housing at the other end. The park switch is located in gear cover and park mechanism is located in output arm.

INTERMITTENT WIPER GOVERNOR

Intermittent operation of wiper motor is controlled by a variable resistor in the windshield wiper control switch in conjunction with the electronic governor. This allows for a variable pause between wiping cycles. For intermittent operation, the wiper switch (exc. Ford, Meteor, Mercury), is rotated to the left. The more left rotation, the more resistance, thus more time is allowed between wipe cycles. On Ford, Meteor and Mercury, the wiper switch knob slides towards the right and the first position is for intermittent operation. On Versailles, Monarch, Granada, and Mustang, the wiper switch knob slides to the right with the first detent being the intermittent operation. After placing knob in intermittent position, rotate time control knob clockwise to increase the pause between wipe cycles.

TESTING

WIPER MOTOR CURRENT DRAW

Depressed Park – Motor test can be performed on car with linkage disconnected or on bench. Connect ammeter as shown. Connect a jumper wire from battery negative post to low speed terminal on motor end plate and read current draw. Move jumper to high speed terminal and read current draw. In both cases, current draw should not exceed 3.5 Amps.

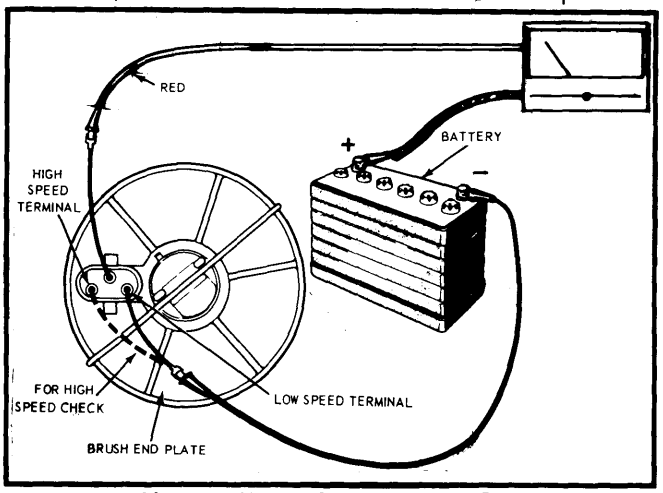

Fig. 1 Motor Current Draw Test

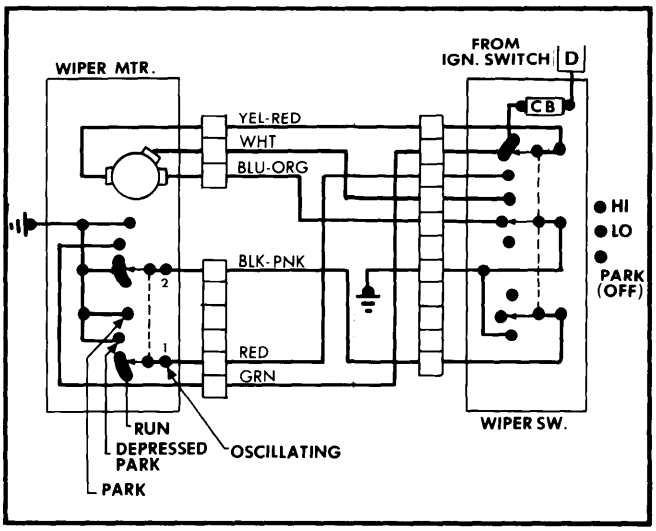

Fig. 2 Wiring Diagram 2-Speed Standard Depressed Cougar, LTD II, Mark V, Thunderbird, Lincoln, Ford, Mercury, Ranchero

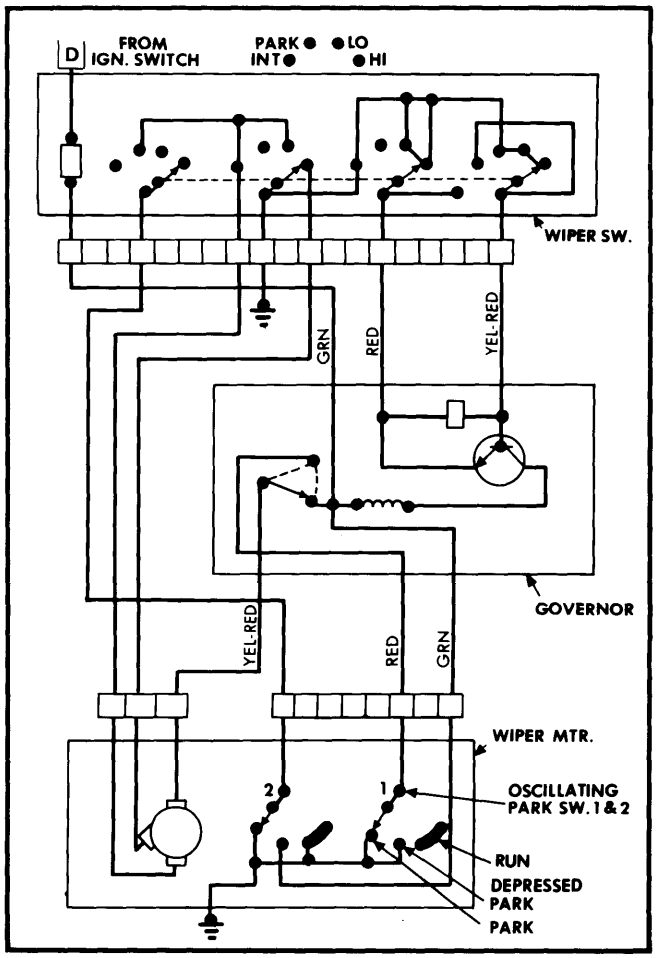

Fig. 3 Wiring Diagram 2-Speed Intermittent Depressed – Cougar, LTD II, Mark V, Thunderbird, Lincoln, Ford, Mercury, Ranchero

Non-Depressed Park – Disconnect battery. Disconnect linkage from motor, and disconnect electrical plug to test motor on vehicle. Connect meter as shown. Current draw in high and low speed should not exceed 3 Amps.

FORD MOTOR CO. (Cont.)

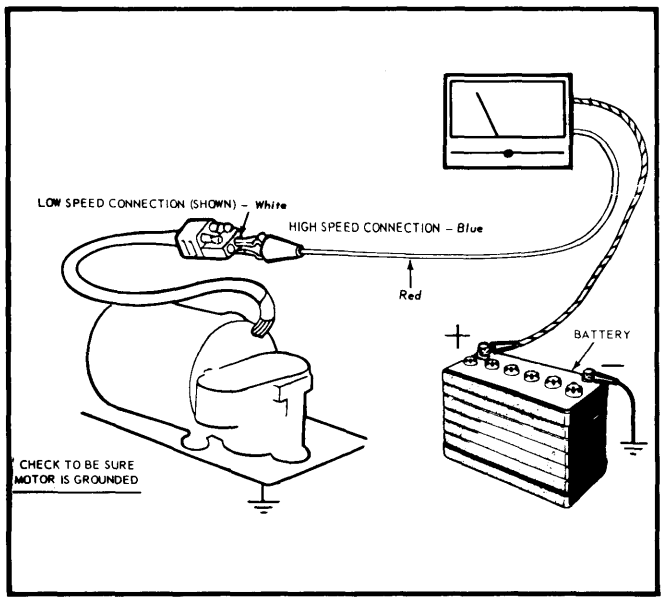

Fig. 4 Non-Depressed Motor Current Draw Test

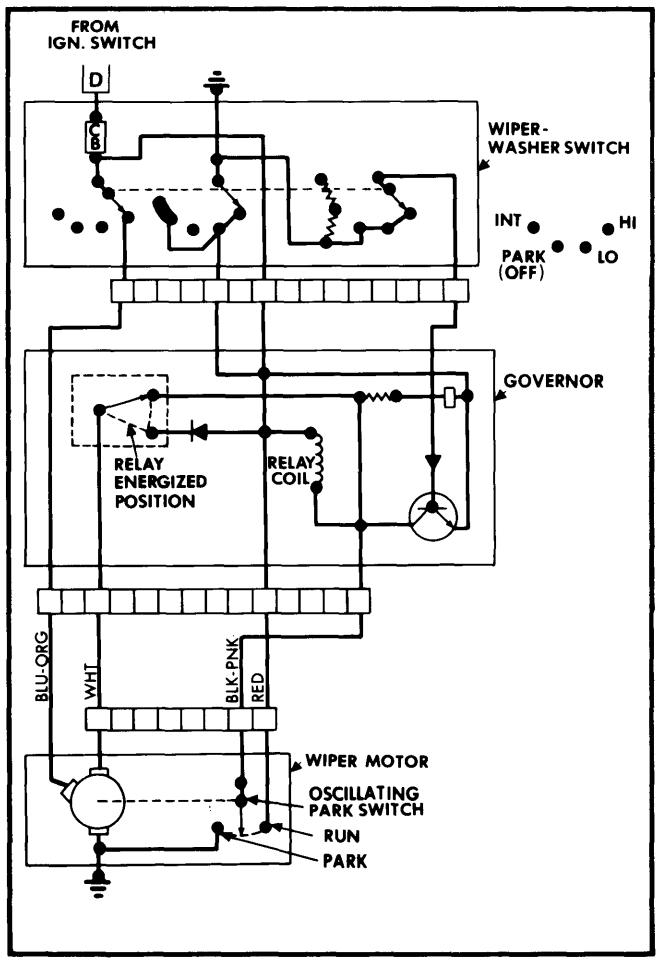

Fig. 5 Wiring Diagram 2-Speed Standard Non-Depressed -Pinto, Bobcat

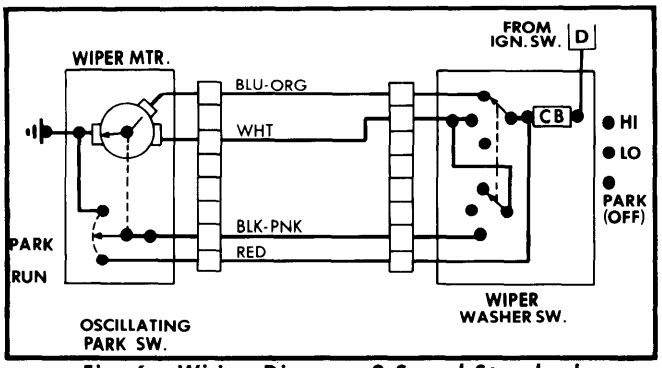

Fig. 6 Wiring Diagram 2-Speed Standard Non-Depressed - Mustang, Fairmont, Zephyr, Granada, Monarch, Versailles

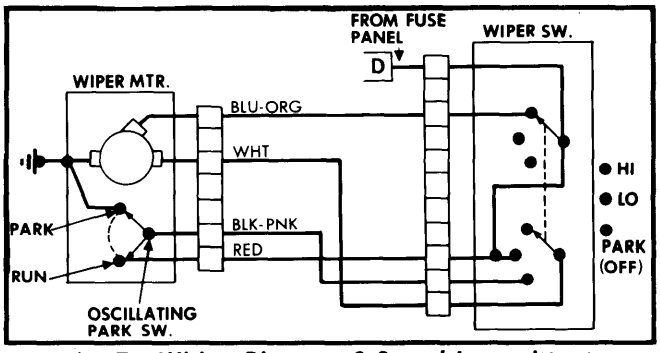

Fig. 7 Wiring Diagram 2-Speed Intermittent Non-Depressed - Pinto, Bobcat

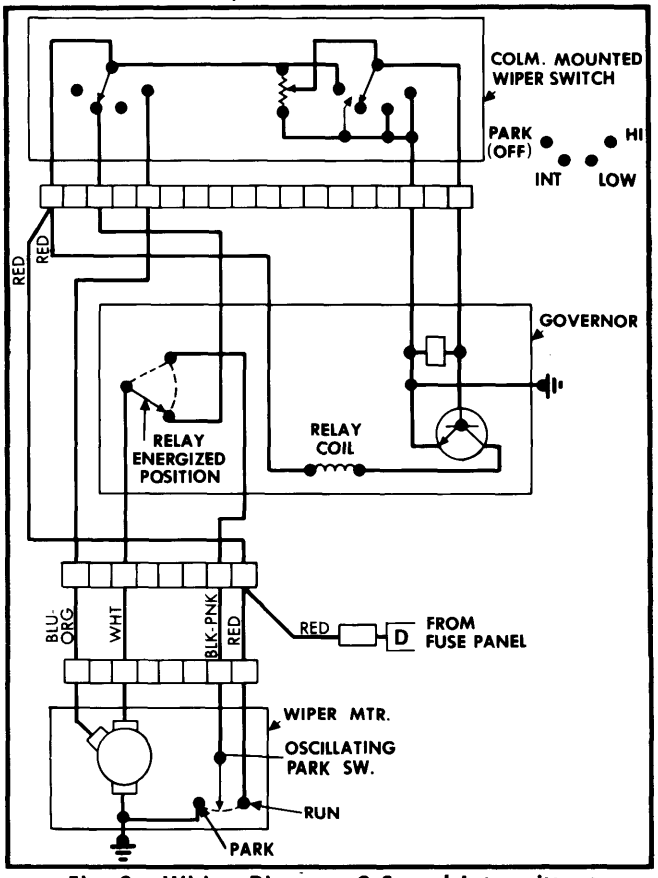

Fig. 8 Wiring Diagram 2-Speed Intermittent Non-Depressed - Mustang, Fairmont, Zephyr, Granada, Monarch, Versailles

FORD MOTOR CO. (Cont.)

CIRCUIT BREAKER

All Models – Ford, Mercury and Meteor have an 8¼ ampere circuit breaker in fuse panel. Mustang, Fairmont, Zephyr, Monarch, Granada and Versailles have a 6 ampere circuit breaker in the wiper control switch. All rotary pin terminal switches have a circuit breaker rating of 8¼ amperes. Slide switches have no circuit breakers.

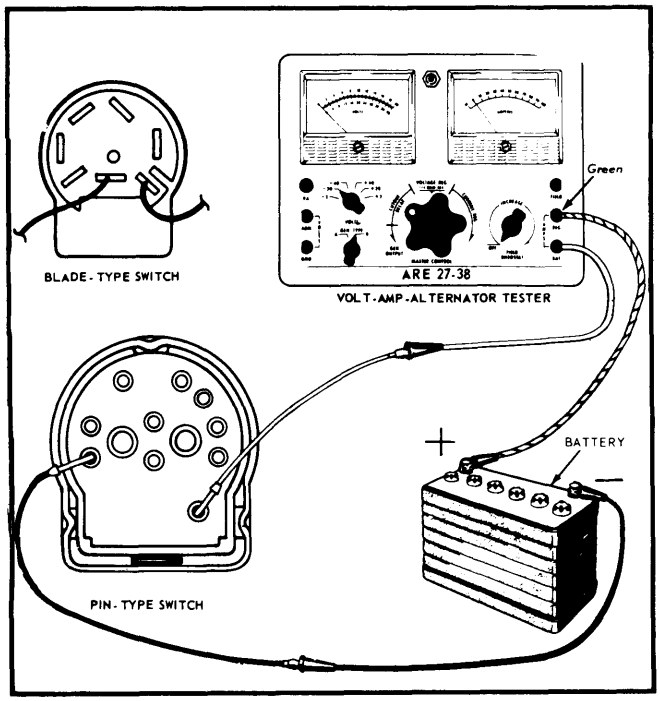

Fig. 9 Circuit Breaker Test

Before connecting leads, short them together and adjust current draw so that it equals circuit breaker rating. Connect meter as shown. Leave breaker connected to meter for ten minutes. Current reading should remain at rated current. If circuit breaker opens during the ten minutes it should be replaced.

Now adjust current draw to twice the rated current. The current reading on the ammeter should drop to zero within 30 seconds. If it takes longer than 30 seconds for breaker to open, it should be replaced.

WIPER MOTOR PARKING TEST

Non-Depressed Park – Stop wiper system with ignition switch so blades are not in park position. Connect jumper wires as shown. The wipers should not run more than one full cycle then park. If motor will not park, or will not run to park, replace motor.

Depressed Park – Stop output arm about 90° past park position for this test. Make electrical connections (see illustration). With this hookup, the motor output arm should move in the following cycle: Rotate in normal direction. Reverse direction of rotation for about 10-15°. Stop rotating while crank pin is moved radially outward in a semicircular motion. Then finally stop in park position with current draw going to zero.

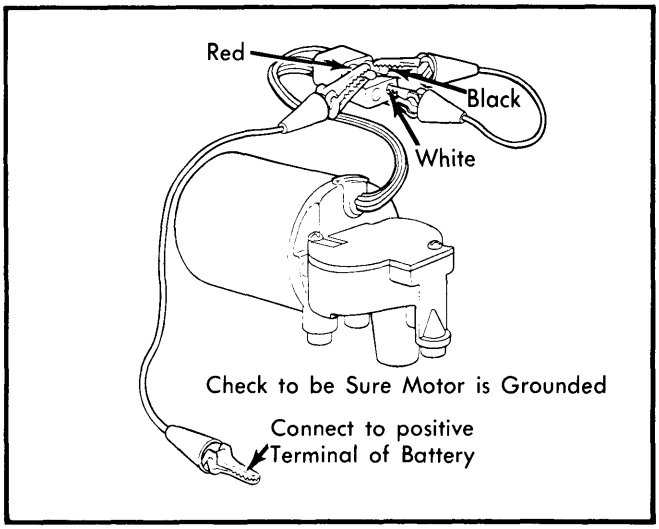

Fig. 10 Non-Depressed Motor Park Test

If output arm rotates in the reverse direction more than 15°, or if the motor stalls or jams while the output arm is rotating in the reverse direction replace the arm and windlatch assembly with the appropriate kit. If the motor does not run or does not park, check wiring connections at motor before removing motor from vehicle. For any other deviation, replace the gear cover and switch assembly with appropriate kit.

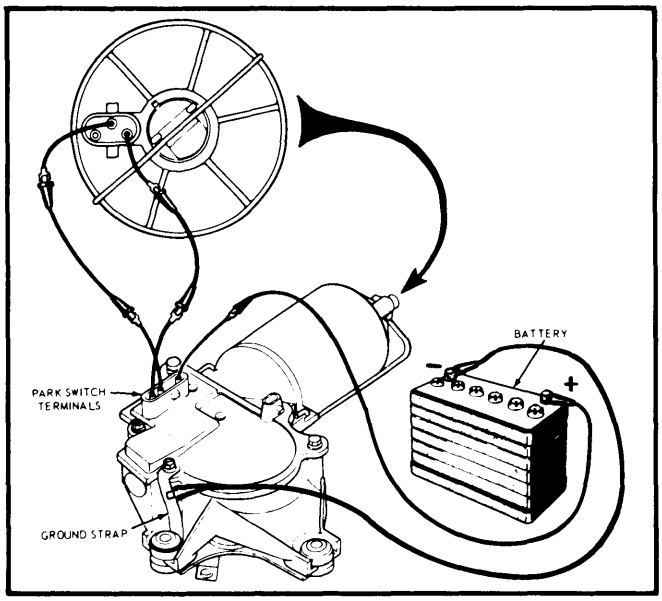

Fig. 11 Depressed Motor Park Test

WIPER SWITCH CONTINUITY TEST

All Models – Check continuity between switch terminals as shown in *Fig. 12 through 19*. An ohmmeter must be used to test both systems. To detect marginal operation of the switch, move control knob while each reading is being taken. If switch does not indicate continuity as shown or poor continuity exists during movement, replace switch.

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WIPER SWITCH CONTINUITY TESTS

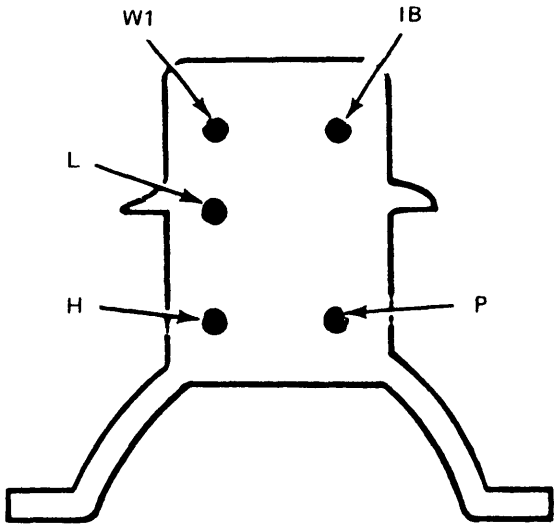

Fig. 12 Pin Type Switch Connector Fairmont, Zephyr

Switch Position	Terminal Continuity
Off (Park)	P-L
Low	B-L
High	B-H
Wash	B-W

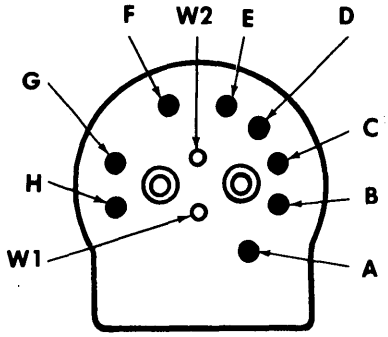

Fig. 13 Pin Type Switch Connector Standard Wipers

Switch Position	Terminal Continuity
Off (Park)	B-C, A-H, F-G
Low	C-D, A-G-H
High	D-E, A-G-H
Wash	W1-W2

Intermitent Wipers

Off (Park)	B-C, A-H, F-G
Low	C-D-F-G, A-H
High	D-E-F-G, A-H
Intermittent	A-H,C-D-F-G
Wash	W1-2

Variable resistance between F and G: Minimum of between 100-900 ohms, to a maximm of 5,600-8,400 ohms.

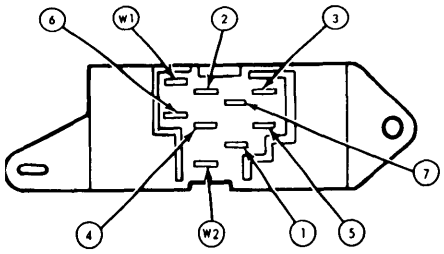

Fig. 14 Blade Type (Slide Switch) Connector Standard Wipers

Switch Position	Terminal Continuity
Off (Park)	1-5, 3-7
Low	1-4, 2-7
High	1-4, 2-6
Wash	W1-W2

Variable resistance between F and C: Minimum of between 100-900 ohms,to a maximum of 8,000-13,000 ohms.

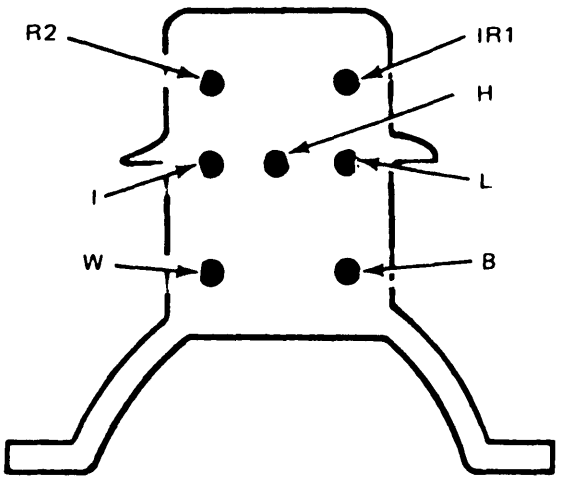

Fig 15 Pin Type Interval Switch Connector Fairmont, Zephyr

Switch Position	Terminal Continuity
Ford Zephyr Interval Wiper- Off (Park)	B-H
Low	B-L
High	B-H-L
Intermittent	B-1
Wash	B-W

Varible resistance between R-1 and R-2: Minimum 300 ohms, Maximum 15,000 ohms. Fairmont and Zephyr only.

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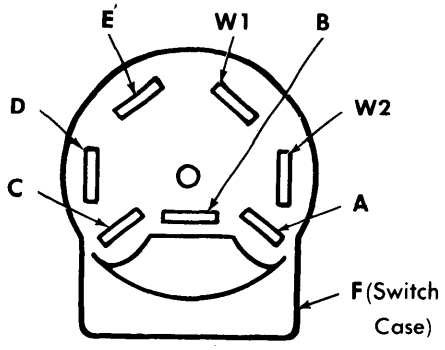

Fig. 16 Blade Type Switch Connector Standard Wipers

Switch Position	Terminal Continuity
Off (Park)	C-D, A-B
Low	A-B-C
High	A-B-E
Wash	W1-W2

Intermittent Wipers

Off (Park)	A-B, D-E
Low	A-B, D-E-F
High	D-E-F, A-B-C
Intermittent	E-F, A-B
Wash	W1-W2

Variable resistance between D and E: Minimum of between 480-720 ohms, to a maximum of 5,600-8,400 ohms.

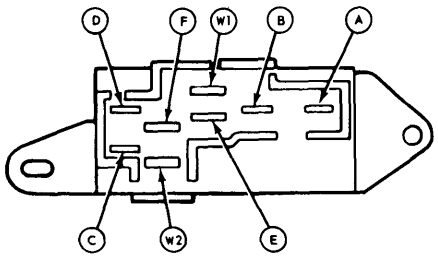

Fig. 17 Blade Type (Slide Switch) Connector Intermittent Wipers

Switch Position	Terminal Continuity
Off (Park)	A-E
Intermittent	B-E-F
Low	B-E-F-C
High	D-B-F-C
Wash	W1-W2

Variable resistance between F and C: Minimum of between 100 -900 ohms, to a maximum of 8,000-13,000 ohms.

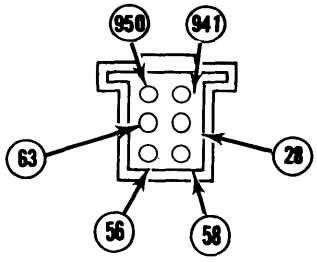

Fig. 18 Pin Type Connector Standard Wipers (Column Mounted Switch)

Switch Position	Terminal Continuity
Off (Park)	28-58
Low	58-63
High	63-56
Wash	941-950

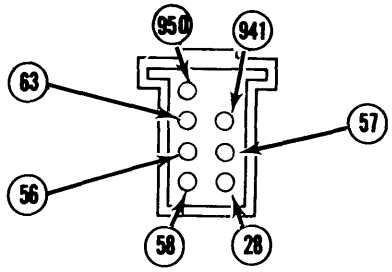

Fig. 19 Pin Type Connector Intermittent Wipers (Column Mounted Switch)

Switch Position	Terminal Continuity
Off (Park)	58-63, 28-63
Intermittent	58-63
Low	58-63, 28-57
High	63-56, 28-57
Wash	941-950

Variable resistance between 63 and 57 (switch off): Between 1,500 to 3,000 ohms minimum and 28,000 to 42,000 ohms maximum.

REMOVAL & INSTALLATION

WIPER MOTOR

Depressed Park Type (All Models) – Disconnect the battery. Remove wiper arm and blade assemblies. Remove left cowl screen for access through cowl opening. Disconnect linkage drive arm from motor output arm crankpin by removing retaining clip. From firewall, disconnect wire connectors from motor. Remove three bolts retaining motor-to-firewall, and remove motor. If output arm catches on firewall during removal, hand turn arm clockwise so it will clear opening. Before installing motor, be sure output arm is in park position.

FORD MOTOR CO. (Cont.)

Non-Depressed Park Type (Versailles, Monarch, Granada) – Disconnect battery. Remove evaporator case center distribution duct assembly (if equipped). Remove wiper motor pivot clip (work over top of brake support). Lift linkage from motor arm and remove motor from bracket.

NOTE – *Some Granada and Monarch models have an additional brace to floor pan, which must be detached and moved to one side to gain access to motor mounting bolts. To install, reverse removal procedure.*

Non-Depressed Park Type (Fairmont & Zephyr) – Disconnect battery. Remove left wiper arm and cowl top grille screws. Raise forward left corner of cowl, disconnect the linkage drive arm from motor output crank arm pin by removing retaining clip. Disconnect connector, remove mounting bolts and remove motor. To install, reverse removal procedure.

Non-Depressed Park Type (Pinto, Bobcat, Mustang) – Disconnect wiper pivot shaft and link assembly from motor drive arm ball. Remove three motor attaching screws and lower motor from under left side of instrument panel. Disconnect electrical leads and remove motor. To install, reverse removal procedure.

INTERMITTENT GOVERNOR

To locate the intermittent governor on vehicles, proceed as follows: Continental Mark V, remove the instrument panel pad. Lincoln Continental, Ford, Mercury, Fairmont, Zephyr, Granada, Monarch and Versailles, reach behind the left side of instrument panel. Pinto and Bobcat, remove fuse panel bracket and governor is mounted on back side. Cougar, LTD II and Thunderbird, remove two screws from under center of panel and lower governor.

WINDSHIELD WIPER SWITCH

Disconnect battery ground cable on all models. Remove switch knobs and bezel nut on Continental, Thunderbird, Cougar and LTD II, then remove switch and connector. On Continental Mark V, remove cluster finish panel and wiper switch mounting plate. Disconnect wiring and remove switch.

On Ford and Mercury, remove wiper and headlight switch knobs and bezel. Remove panel, switch retaining screws and switch, from the rear. Remove the instrument cluster on Pinto and Bobcat; then control knob, bezel nut and switch.

Mustang, Fairmont, Zephyr, Granada, Monarch and Versailles use an intergral wiper/washer and turn signal arm which is removed from steering column using an Allen wrench or equivalent to remove retaining screw at base. To install, reverse removal procedure.