1965 FORD MOTOR CO. 1 & 2-SPEED ELECTRIC

Ford Motor Co.
All Models Exc. "P" (1965)

DESCRIPTION

Single or two-speed electric motors used to drive wiper arm and blade assemblies. Crank arm is attached externally to gear shaft and operates linkage which activates wiper blades. Circuit protection is through a circuit breaker which is integral with windshield wiper switch.

ADJUSTMENT

WIPER PARK SWITCH

Adjust switch contact points by turning adjusting screw clockwise until inner contact points just open. Back off adjusting screw 1 ½ turns. *NOTE — Adjustment should be made with parking lever riding on lower part of output gear cam.* Insert a .030" feeler gauge between center and outer contact points, then bend the outer arm to obtain .030" clearance.

REMOVAL & INSTALLATION

WIPER MOTOR

Removal — Disconnect switch feed wire from ignition switch and quick disconnect plug. Remove linkage arm retaining clip and remove linkage arms. Disconnect ground lead at motor. Remove bolts retaining motor mounting bracket and remove wiper motor and mounting bracket assembly as a unit.

Installation — To install, reverse removal procedure while noting the following: On two-speed motors, temporarily connect quick disconnect plug to wiper switch and attach a jumper wire from accessory terminal of switch to wiper "B" lead. Attach a second jumper from ground terminal of motor to suitable ground. Turn ignition switch to "ACC" position and wiper switch to high or low position. While motor is operating, use a soft hammer to lightly tap side of motor frame which will help align motor bearings. Turn all switches off and disconnect jumper wires.

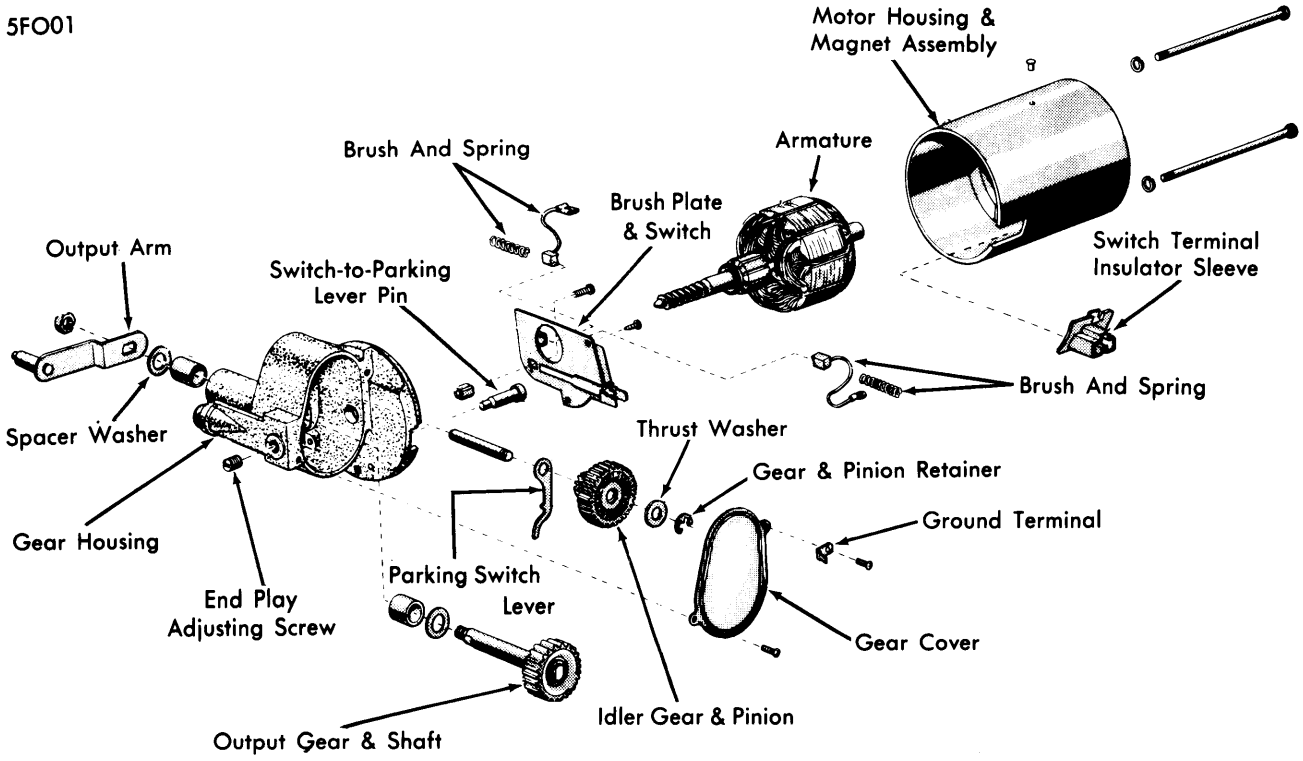
WIPER CONTROL SWITCH

Removal & Installation — Disconnect battery cable at battery, loosen set screw on wiper control knob and remove knob. Remove wiper control to instrument panel retaining nut using suitable tool (T56L-700A). Remove wiper control switch from instrument panel and disconnect wires. To install, reverse removal procedure.

OVERHAUL

WIPER MOTOR

Disassembly (1-Speed) — 1) Remove gear cover and ground terminal. Remove idler gear retainer, thrust washer and idler gear. Remove motor through bolts, motor housing, switch terminal insulator sleeve, and armature. *CAUTION — Do not pound case magnet assembly as damage may occur to ceramic magnets.* Remove armature end play adjusting set screw.



1-SPEED WIPER MOTOR

1965 FORD MOTOR CO. 1 & 2-SPEED ELECTRIC (Cont.)

2) Mark position of output arm with respect to output shaft for reassembly. Remove output arm retaining nut, flat washer, output gear and shaft assembly, thrust washer and parking switch lever. Remove brushes and springs, brush plate and switch assembly, then remove switch contact to parking lever pin from gear housing.

Reassembly (1-Speed) – 1) Install parking switch lever on idler gear shaft with cam rider pointing toward gear housing output shaft hole. *NOTE – Lever must bottom against casting.* Apply suitable grease to output gear teeth and shaft bearing surface, position thrust washer on shaft and insert shaft in bearing. *NOTE – Parking switch lever must be clear of cam and gear assembly.*

2) Install spacer washer, output arm and retaining nut on shaft. *NOTE – Install arm in position as marked at disassembly.* Position brush springs and brushes in holders and wrap wire around them to secure brushes in fully retracted position. Push insulated brush connector onto switch terminal. Position switch contact to parking lever pin in gear housing and position brush plate assembly to housing, then install retaining screws.

3) Adjust switch contact points. *See Wiper Park Switch Adjustment.* Apply suitable grease to ball bearing in end of armature shaft and position armature shaft in gear housing, then remove brush retracting wires. Hold armature in position and install terminal insulating sleeve, motor housing and magnet assembly and through bolts. Use suitable sealer in area where terminal insulator sleeve seats against motor and gear housing.

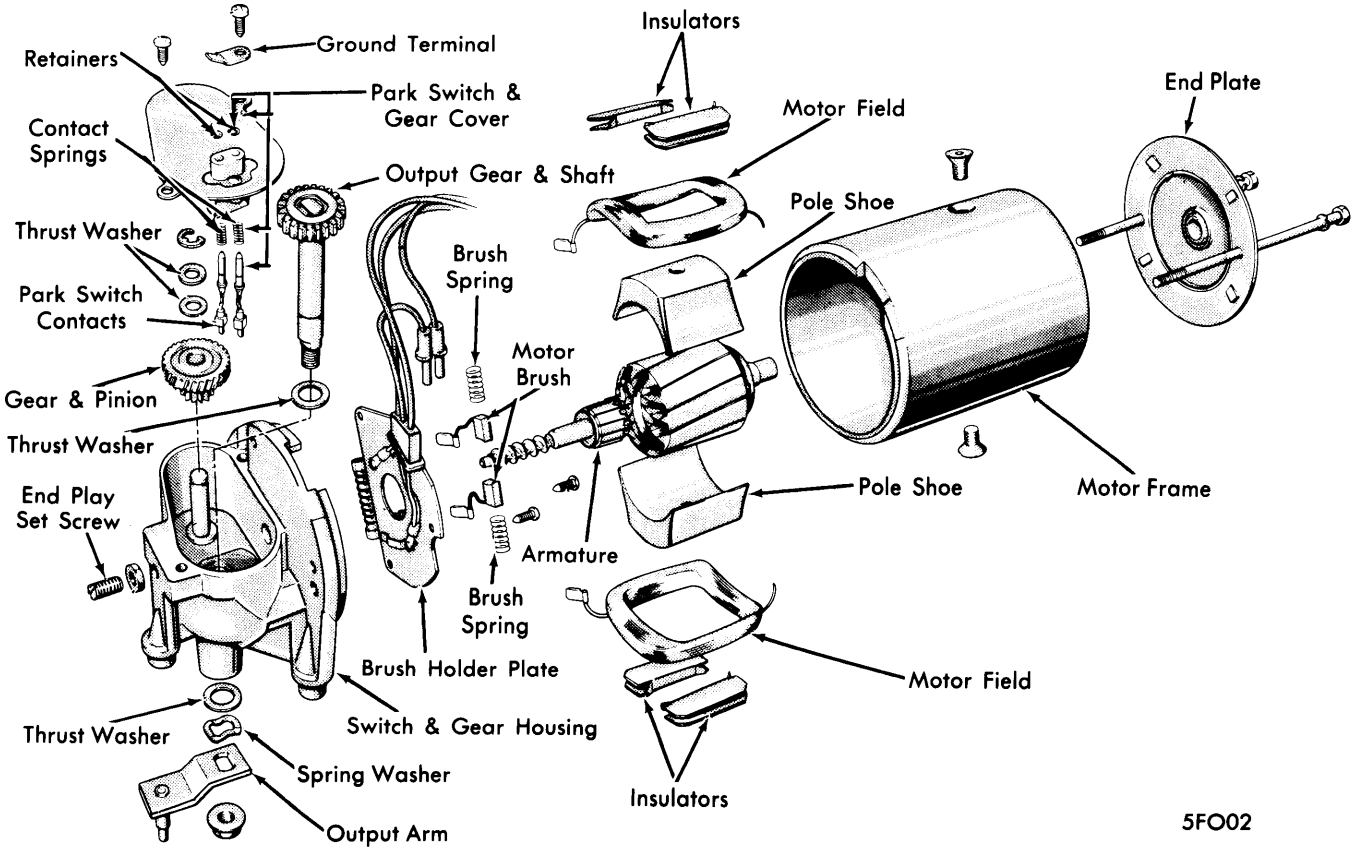
4) Apply suitable grease to worm gear and idler gear, then install gears, thrust washer and retainer. Install armature shaft end play adjusting screw and adjust end play to .003". Apply suitable grease to armature shaft and install gear housing cover and ground terminal.

Disassembly (2-Speed) – 1) Pull leads loose at park switch terminals, remove ground terminal and lift park switch and gear cover assembly from switch and gear housing. Remove retainer and thrust washers from gear and pinion shaft, then lift gear and pinion off shaft. Remove through bolts and separate end plate from frame and armature shaft.

2) Separate motor frame from switch and gear housing by holding frame in left hand and pressing armature shaft forward with right hand. Withdraw motor frame from housing approximately 2½". To prevent damage to brushes and springs, keep armature pressed forward and pull brushes back against brush springs. Loop brush leads behind rear corner of brush box and remove armature.

3) Remove series field (heavy gauge wire) terminal and shunt field (fine gauge wire) terminal from brush holder and plate assembly terminals. Disconnect brush leads from terminals, slide brushes from boxes and remove springs. Remove brush holder and plate assembly from housing. Remove armature end play set screw and lock nut as an assembly.

4) Remove output arm retaining nut, note position of output arm on shaft for reassembly and remove output arm, spring washer and thrust washer from shaft.



2-SPEED WIPER MOTOR

1965 FORD MOTOR CO. 1 & 2-SPEED ELECTRIC (Cont.)

Reassembly (2-Speed) – 1) Install a park switch contact spring onto each park switch contact terminal, apply a light film of suitable grease to square sides of contact fingers and insert both terminals into park switch housing. Install output gear and shaft assembly into switch and gear housing. Check park switch contact terminals for free movement in housing.

2) Install brush holder and plate assembly on switch and gear housing ensuring that motor lead rubber seal is correctly positioned. Install brush spring into box using rear of brush to compress spring into box and make sure brush lead is in brush box slot farthest from male brush terminal. Install brush lead terminal onto brush holder plate terminal and loop brush lead around rear corner of brush box to hold brush in place.

3) Apply suitable grease to worm shaft and insert shaft into housing. Slide motor frame over armature approximately 2". Install series field terminal onto male brush terminal (with field lead pointing away from armature) and shunt field terminal onto resistor male terminal (with field lead pointing away from armature). Remove both brush lead loops from rear corners of brush boxes and allow brushes to seat against commutator.

4) Align motor frame and housing indexing marks and position together, apply suitable grease to ball bearing at end of armature shaft, install end plate on armature shaft (align index marks on frame and end plate), and install motor through bolts. Apply suitable grease to gear and pinion shaft and teeth, then install gear and pinion on shaft ensuring assembly bottoms against switch and gear housing.

5) Install thrust washers on gear and pinion shaft and install retaining ring. Apply suitable grease to end of armature shaft and install set screw in housing. Insert a .003" feeler gauge between end of armature shaft and set screw, then slowly tighten set screw until .003" clearance is obtained. *NOTE – Armature shaft must bottom in end plate.* Tighten set screw lock nut. Install park switch and gear housing cover assembly to housing and male ground terminal must be installed on cover retaining screw nearest motor frame. Install park switch leads on terminals.