

# CARDONE™ ProTech®

Supporting Today's Vehicle Technician



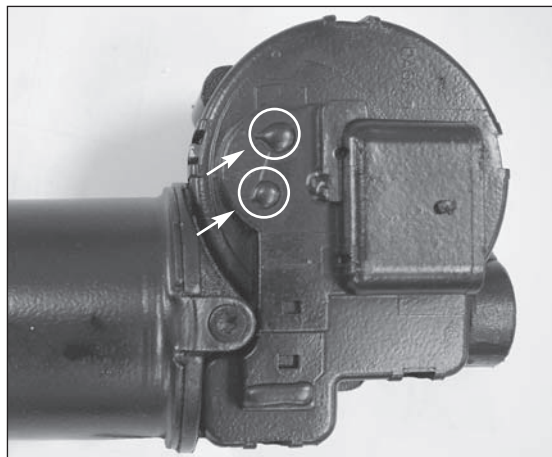
## Water Intrusion Causes Many Wiper Motor Problems

**Application** All wiper motors

**Problem** Wiper motors with and without integrated electronic pulse board not working properly or at all.

**Cause** Wiper motor and/or electronic components may have failed due to water intrusion.

**Solution** To protect the replacement wiper motor and pulse board, be sure water does not drain on wiper motor assembly. Remove any debris that might block or restrict the flow of drain water to the left or right fender well areas. Be sure to also check for proper operation of control switch and associated wiring.



**CARDONE  
Upgrade**

To prevent water intrusion, our replacement units are re-engineered to overcome original design flaws. Vent holes that allow water entry are blocked, therefore protecting the motor & its electronic components.

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## Grounding Wiper Motor Corrects Parking and Other Problems

**Application** All vehicles with electric wiper motors

**Problem** Motor will not park, will not shut off, parks in middle of windshield, or motor will not run.

**Cause** Resistance in ground path to motor.

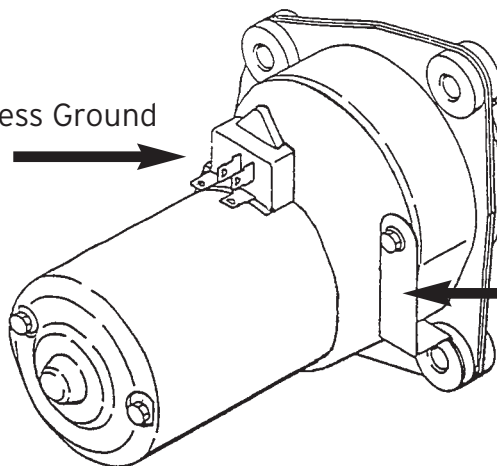
**Solution** Connect a ground strap from engine block to the motor case. If necessary scrape some paint off motor to insure a good connection.

If motor operates, check wiring harness ground, terminal ground lug or ground strap if equipped for good connection. Also check for paint on motor bosses where the mounting bracket is fastened.

If motor still fails to operate correctly, check switch and the circuit.

### Example

Check Harness Ground



Check Ground Strap

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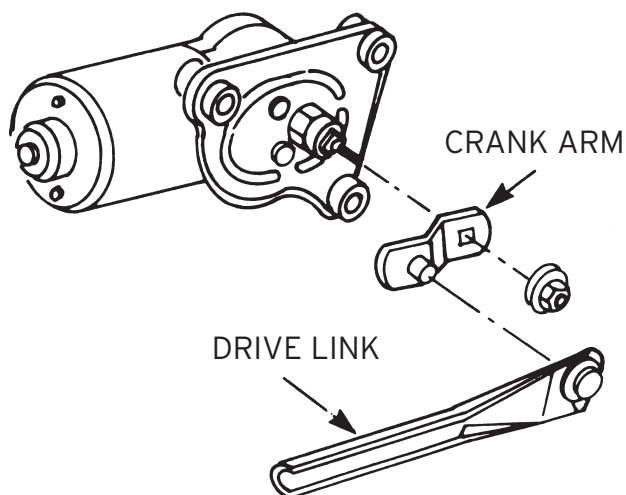
## Operating Wiper Motor Before Installation Causes Problems

**Application** All Electric Wiper Motors.

**Problem** Replacement wiper motor parks in wrong position.

**Cause** Power was applied to the unit before installation moving it off park position.

**Solution** Remove linkage from installed unit, operate motor on high speed for 5 seconds, then switch to park position. Reinstall linkage so wiper arms are in park position. Operate unit and test for proper operation. If not correct, test motor ground (see ProTech® PT 40-0001), also refer to vehicle service manual for specific installation procedures.



**Note** CARDONE units are supplied in the correct park position.

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## ProTech® Bulletin Summary: Motors

Before replacing any motor, the cause of original unit failure must be determined and corrected. Installing a replacement unit without correcting the problem will lead to early failure. Always refer to the vehicle service manual for specific installation procedures and specifications. The ProTech® bulletins listed below cover topics that should be done BEFORE, DURING or AFTER installation of the replacement unit. They assist with part selection, describe typical problems and solutions, and provide installation help and service advice.

### WIPER MOTORS

#### Before Installation

- PT 40-0002 Do not run motor before installed
- PT 40-0005 40-158 park problem caused by defective pulseboard

#### During Installation

- PT 40-0001 Faulty ground causes park problems
- PT 40-0008 Replacement unit solves water intrusion problem; vehicle checks

#### After Installation

- PT 40-0003 Bench Test for 40-169: test motor operation off vehicle
- PT 40-0004 Bench Test for 40-158, 159, 192, 1003, 1004
- PT 40-0007 Bench Test for 40-190, 191
- PT 40-0009 Bench Test 40-267, 297, 299

### WINDOW LIFT MOTORS

#### Before Installation

- PT 42-0002 Ford picture guide

#### After Installation

- PT 42-0001 Bench Test for 2-wire window lift motors
- PT 42-0003 Window Lift switch test
- PT 42-0004 Weatherstripping and regulator binding cause poor performance
- PT 42-0005 Noisy operation on cable-type regulators may not be caused by motor

### TRANSFER CASE MOTORS

#### Before Installation

- PT 48-0001 Protect replacement unit from water intrusion

#### After Installation

- PT 48-0002 Ford units require transfer of sensor wiring and pins

CARDONE Technical Service develops ProTech® bulletins that are intended to help the installer avoid common installation and service errors. The information presented is derived from our own experience and product knowledge gained from component analysis and research. Following these tips will ensure the best possible performance and service life of the replacement unit.

Please note that these bulletins are provided for your technical information only and are not authorization for repair.