Wiper and Washer Systems: Component Tests and General Diagnostics

COMPONENT TEST - WIPER MOTOR - WINDSHIELD

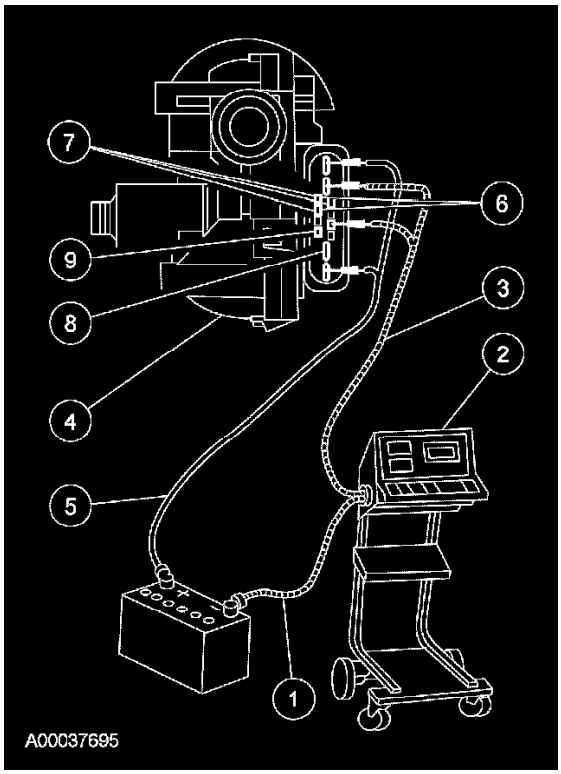
CAUTION: Do not handle the windshield wiper motor abusively when diagnosing the wiper operations. Failure to follow this caution may result in damage to the motor magnets and will make the windshield wiper motor inoperative. Rough handling of new windshield wiper motors may also damage the motor magnets.

NOTE:

- Windshield wiper motor component test is carried out to determine if windshield wiper motor and module are functional and not in software safe mode. Refer to Principles of Operation for software safe mode parameters. See: Initial Inspection and Diagnostic Overview/Principles of Operation
- Battery voltage must remain **within 10 to 15 V** to carry out test and keep windshield wiper motor from entering its software safe mode.
- When connecting the power and ground test leads to the windshield wiper motor terminals, care must be taken to not short terminals between power and ground, as well as making sure the logic ground, pin 3, is always securely connected to prevent permanent windshield wiper motor module damage.

If the windshield wiper motor does not pass any of the following tests, install a new windshield wiper motor.

Use SABRE Premium Battery and Electrical System Tester to test the windshield wiper motor.



To test the windshield wiper motor, remove the windshield wiper mounting arm and pivot shaft from the windshield wiper motor. Refer to Wiper Blade and Pivot Arm Adjustment - Windshield. See: Wiper Arm/Adjustments

Disconnect the wiper motor. Connect the (1) green lead from the (2) SABRE to the battery negative (-) post. Connect the red lead (3) from the SABRE to the wiper motor (4) component side connector ground and logic ground pins 6 and 3 (3). Connect battery positive cable (5) to windshield wiper motor (4) component side connector battery and logic positive pins 5 and 8 (5).

Low Speed
Test the low speed mode by connecting a separate set of test leads from battery ground (-) post to windshield wiper motor (4) component side pins 9 and 10 (6). When these pins are grounded, the windshield wiper motor operation should now be in low speed mode.

High Speed
Test the high speed mode by connecting a separate set of test leads from battery ground (-) post to windshield wiper motor (4) component side pins 1, 9, and 10 (7). When these pins are grounded, the windshield wiper motor operation should now be in high speed mode.

Washer Pump Relay (Integral)
Test the windshield wiper motor internal washer relay function by measuring the voltage between windshield wiper motor (4) component side pin 7 (8), and ground while grounding the windshield wiper motor (4) component side pin 12 (9). When wash command input pin 12 is grounded, measured voltage should read **10 volts or greater**.

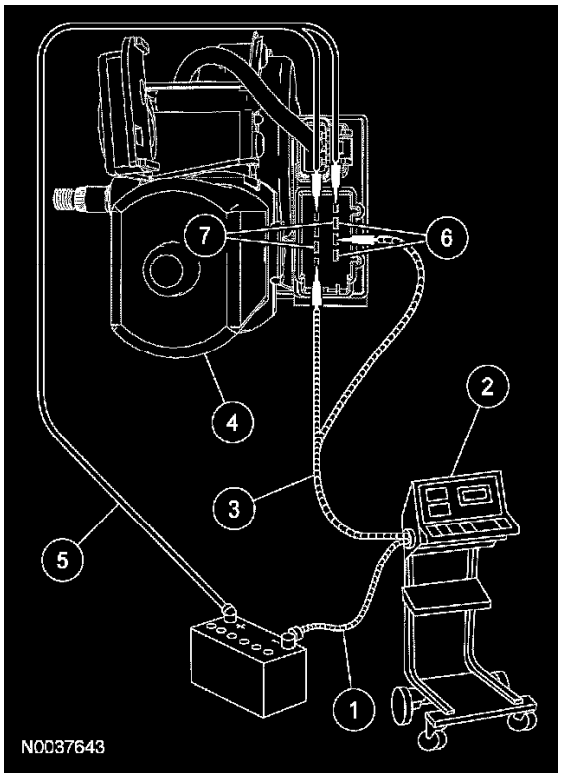
Component Test - Wiper Motor - Rear Window

CAUTION: Do not handle the rear window wiper motor abusively when diagnosing the wiper operations. Failure to follow this caution may result in damage to the motor magnets and will make the rear window wiper motor inoperative. Rough handling of new rear window wiper motors may also damage the motor magnets.

NOTE:
- Rear window wiper motor component test is carried out to determine if wiper motor and module are functional and not in software safe mode. Refer to Principles of Operation for software safe mode parameters. See: Initial Inspection and Diagnostic Overview/Principles of Operation
- Battery voltage must remain **within 10 to 15 V** to carry out test and keep wiper motor from entering its software safe mode.
- When connecting the power and ground test leads to the rear wiper motor terminals, care must be taken to not short terminals between power and ground, as well as making sure the logic ground, pin 3, is always securely connected to prevent permanent rear window wiper motor module damage.

If the rear window wiper motor does not pass any of the following tests, install a new rear window wiper motor.

Use the SABRE Premium Battery and Electrical System Tester to test the rear window wiper motor.



Disconnect the rear window wiper motor. Connect the (1) green lead from the (2) SABRE to the battery negative (-) post. Connect the red lead (3) from the SABRE to the wiper motor (4) component side connector ground pins 2 and 3 (3). Connect battery positive cable (5) to wiper motor (4) component side connector battery and logic positive pins 7 and 8 (5).

On Mode
Test the on mode by connecting a separate set of test leads from battery ground (-) post to windshield wiper motor (4) component side pins 1 and 5 (6). When these pins are grounded, the rear window wiper motor operation should now be in on mode.

Washer Pump Relay (Integral)
Test the rear window wiper motor internal washer relay function by measuring the voltage between wiper motor (4) component side pin 4 (7), and ground. When wash command input pin 5 (7) is grounded, measured voltage should read **10 volts or greater**.