

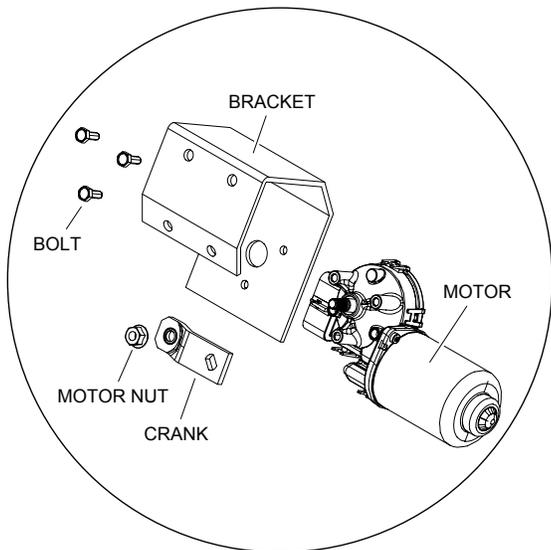
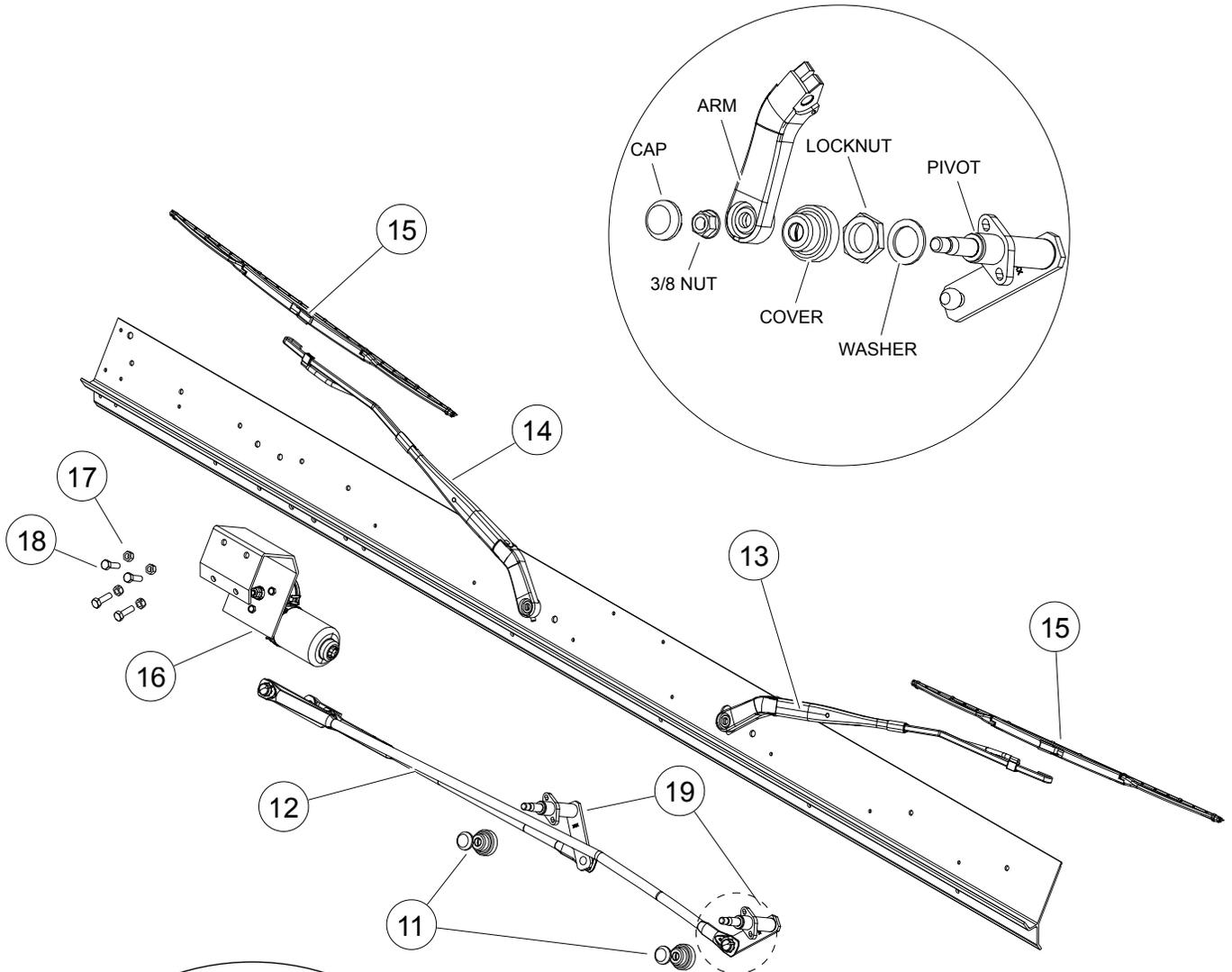


# Service Guide

## Aeromaster Wiper System T-Series

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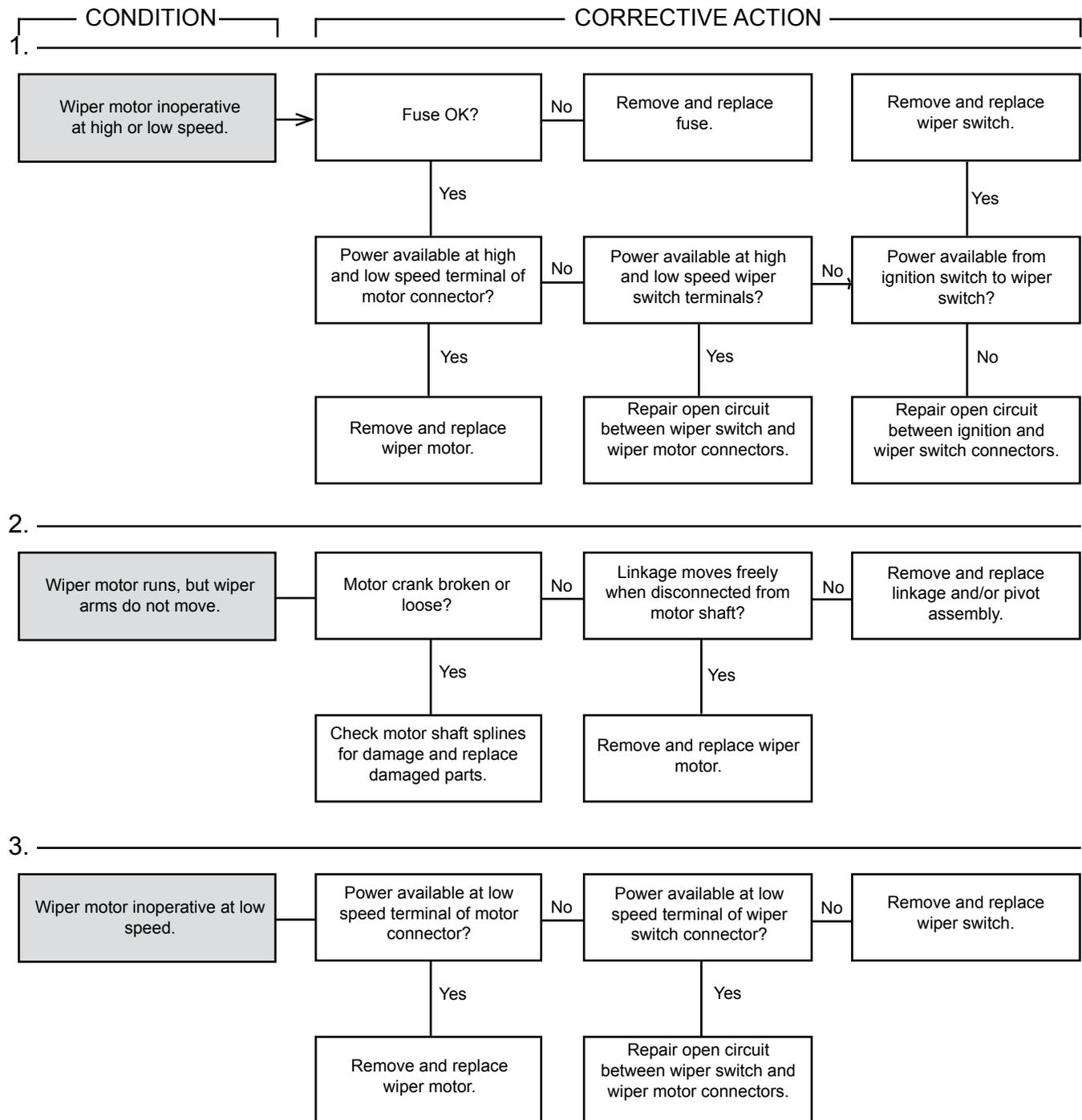


BOM ID	Description
11	WIPER PARTS PACK
12	LINKAGE
13	ARM WIPER LH
14	ARM WIPER RH
15	WIPER BLADE 24"
16	MOTOR BCKT ASSY WIPER
17	NUT HX 5/16-18
18	BLT HX 5/16-18 X 0.75
19	PIVOT

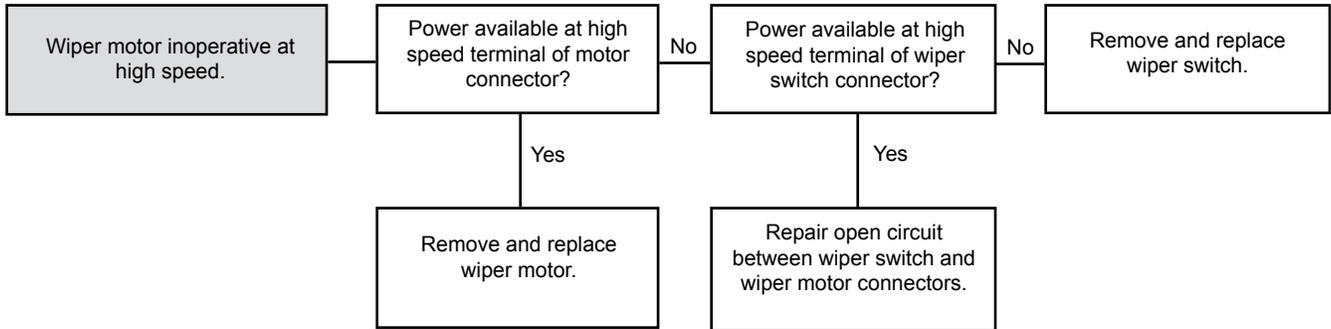
Wiper System

# Troubleshooting Procedure

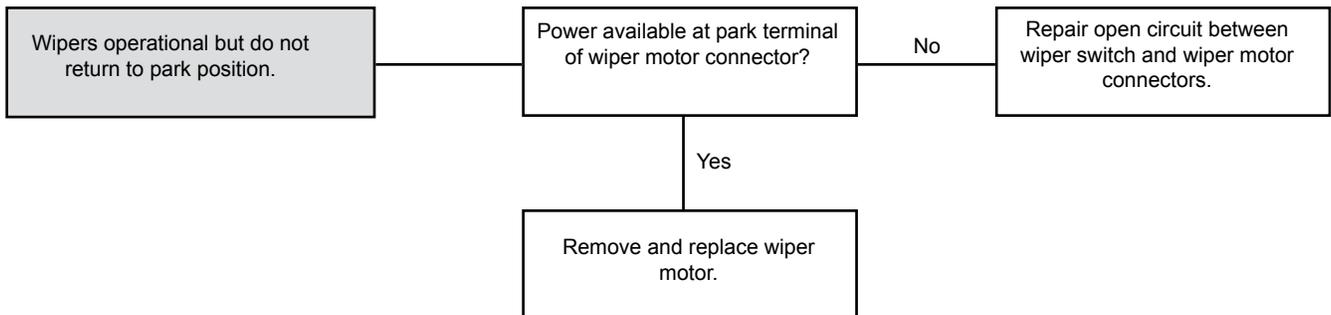
The following troubleshooting and repair procedure should be followed when encountering problems with wiper systems.



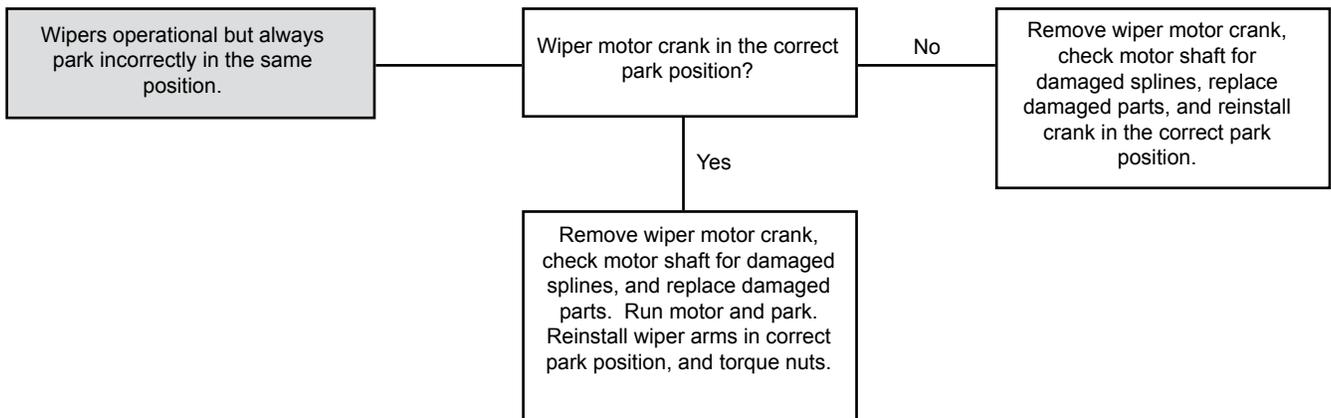
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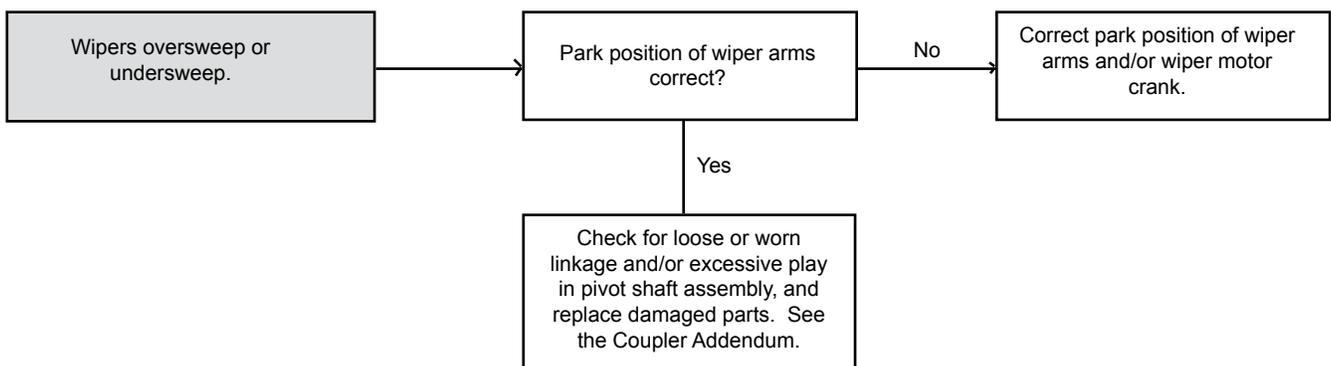
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6.



7.



# Wiper Blades



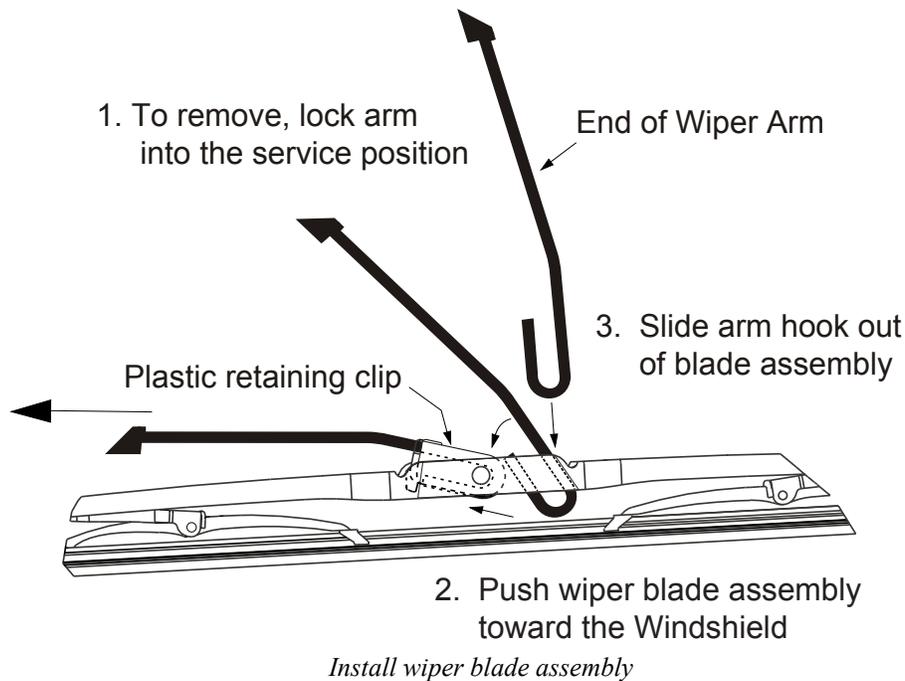
**CAUTION:** Always install wiper arms and blades according to the manufacturer's instructions to avoid interference with the windshield molding.

## Removal

1. Pull the wiper arm away from the windshield and lock the arm into the Service position.
2. Rotate the blade about 90° and push the blade toward the windshield about 1". The rubber insert will bow outward from the arm pushing against it.
3. Unhook the blade assembly from the arm.

## Installation

1. Hook in a replacement blade and push it away from the vehicle until the blade locks in place.
2. Rotate the blade to its normal position and lower the arm.



# Wiper Assembly

## Removal



**CAUTION:** The wiper motor is equipped with an internal thermal overload protection switch that stops the wiper motor in case of overload. Thus, if the motor is not unplugged, the motor may activate itself without warning. Always unplug the motor when working on or disconnecting wiper linkages.

1. Disconnect the wiper motor harness to the jumper harness.

*NOTE:* Removal of the washer bottle assembly is only necessary on the Ford E-Series chassis.

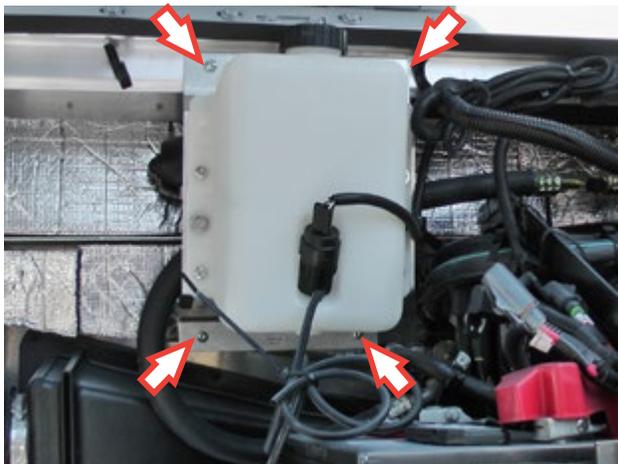
*NOTE:* Do not disconnect washer bottle or hose or harness connector for access to the wiper assembly.

*NOTE:* Keep all fasteners unless noted otherwise.

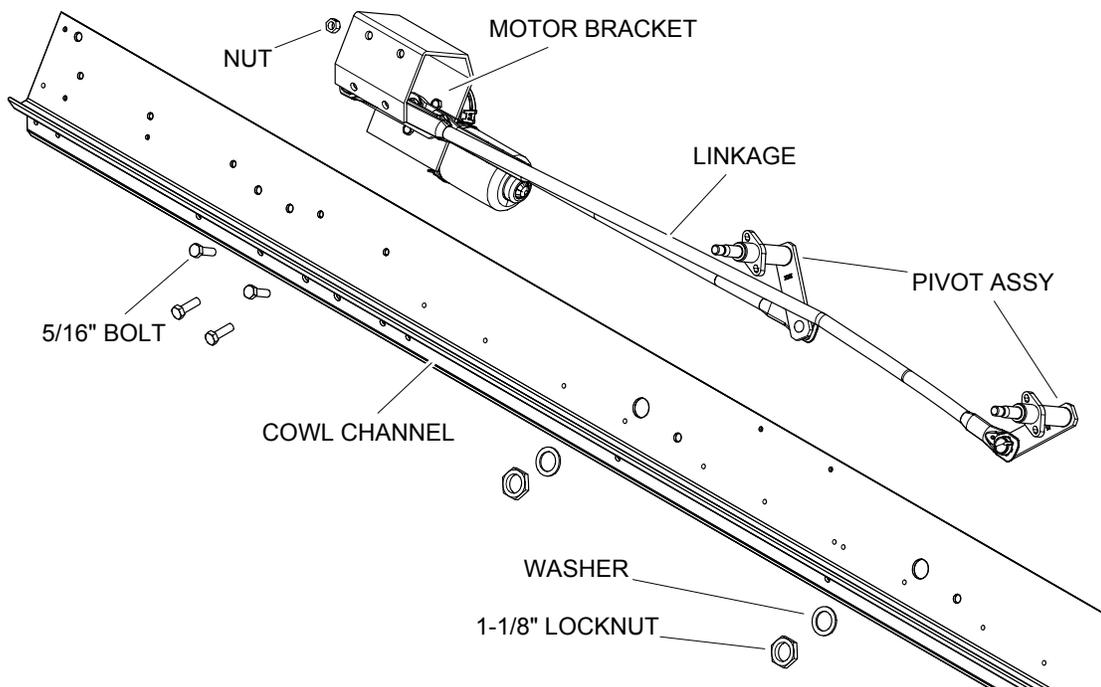
2. On the Ford E-Series chassis, remove (4) Torx screws from washer bottle bracket and set assembly aside.



*Harness on the RH side of washer bottle*



*Washer bottle bracket fasteners*



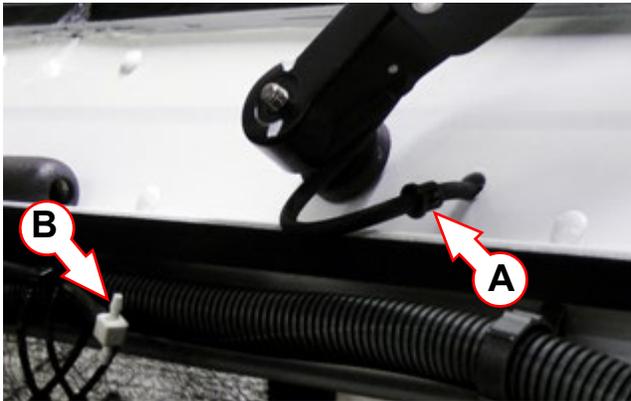
*Motor Mount and Crank*

3. Remove the wiper arms and covers.
4. Remove locknuts and flat washers from pivots.
5. Remove (4) 5/16" flange bolts and nuts on the cowl.
6. Remove wiper assembly from under cowl.

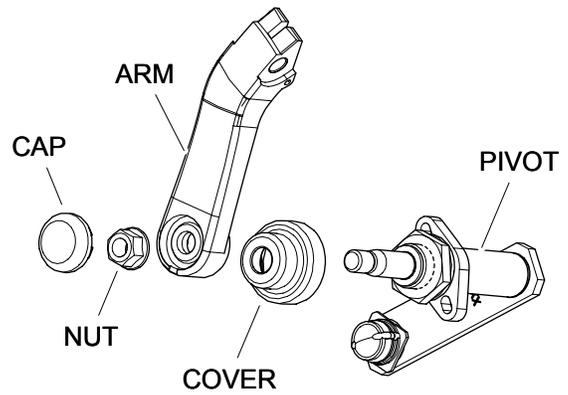
## **Installation**

1. Install pivots in cowl using locknuts and flat washers.
2. Torque to 24-26 ft•lbs.
3. Use (4) 5/16" nuts to fasten the wiper motor bracket against the inside of the cowl channel.
4. Torque to 7-11 ft•lbs.
5. Connect the wiper motor harness to the jumper harness.
6. Turn the ignition On, and run the wiper system. Return the wiper control to the Off position to allow the wiper motor to park itself.
7. Install wiper arms.
8. On Ford E-Series chassis, secure washer bottle bracket using (4) Torx screws.

# Wiper Arms



Wiper arm hose grommet (A) and T-fitting (B)



Wiper arm overview

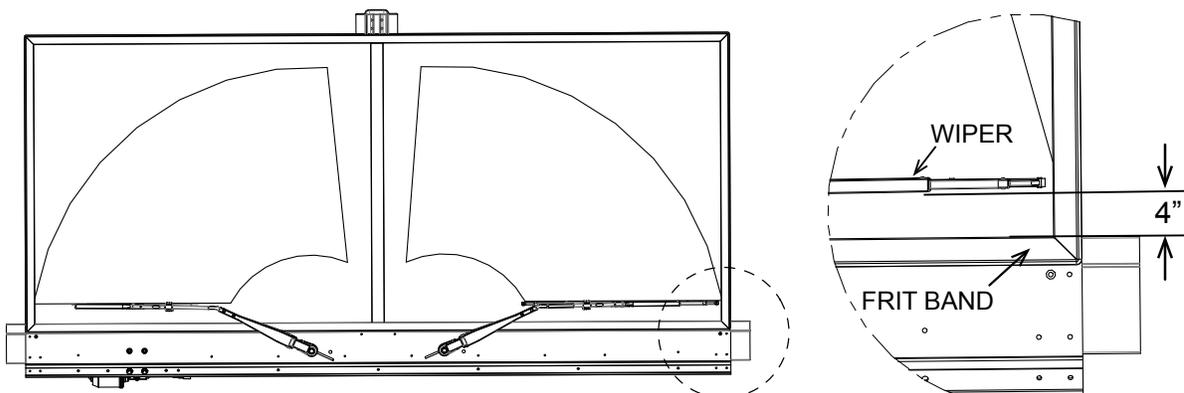
## Removal

*NOTE: Keep all fasteners unless noted otherwise.*

1. Disconnect the washer hose from the T-fitting pump assembly under the hood. Remove the grommet and the hose through the cowl.
2. Remove the arm-retaining nut with a 13 mm wrench and remove the wiper arm.

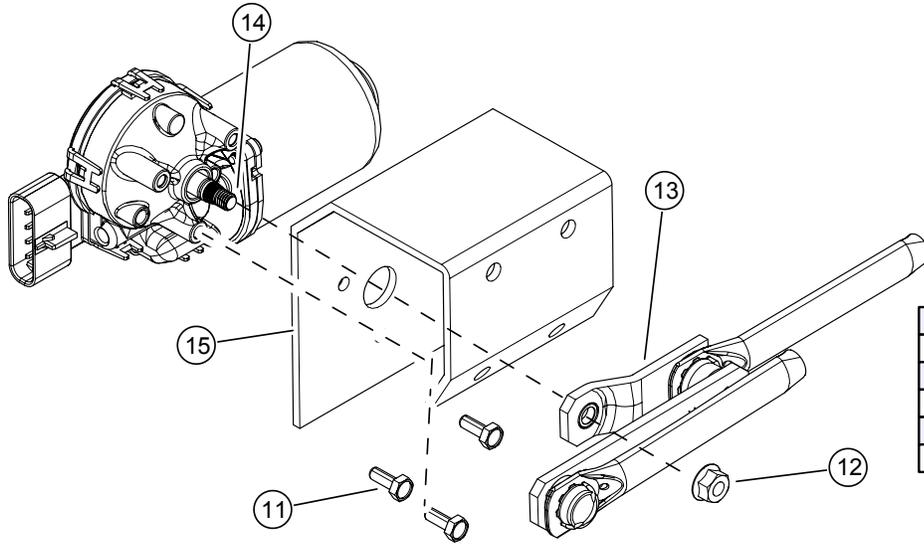
## Installation

1. Turn the ignition On, and run the wiper system. Return the wiper control to the Off position to allow the wiper motor to park itself.
2. Push the arm heads over the tapered knurl shaft. The blades should be approximately 4" from the top edge of the windshield glass frit band and the bottom edge of the wiper.
3. Replace arm-retaining nuts with a 13 mm wrench.
4. Inspect by turning the ignition On to run the wiper system. Return the wiper control to the Off position to allow the wiper motor to park itself.
5. Torque to 14-17 ft•lbs.
6. Push the washer hose through the holes in the cowl and connect to the T-fitting washer pump.



86.5 and 93.5 Park position

# Motor Replacement



ID	Description
11	M8 HEX BOLT
12	M10 NUT
13	CRANK ARM
14	MOTOR DRIVE SHAFT
15	MOTOR BRACKET

Wiper motor overview

## Removal

*NOTE: Keep all fasteners unless noted otherwise.*

*NOTE: The Ford E-Series chassis requires moving the washer bottle bracket to service the wiper motor.*

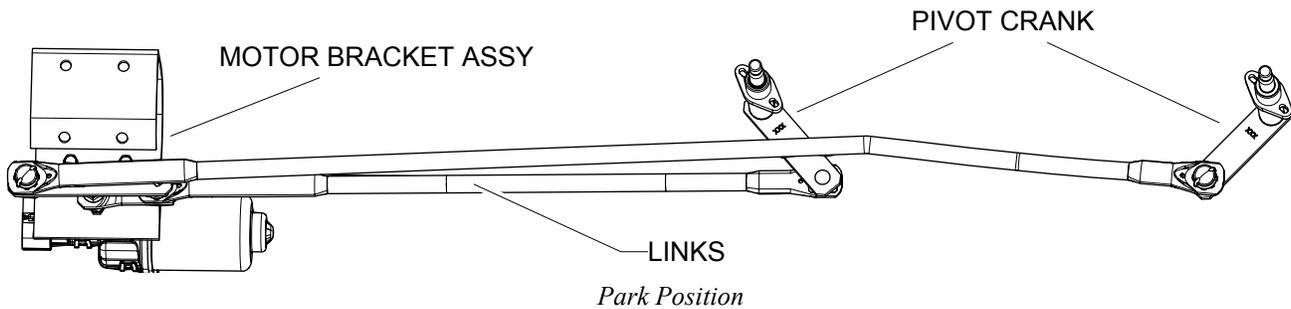
1. Disconnect the Negative (Black) battery cable.
2. Disconnect the wiper motor jumper harness.
3. Remove the M10 wiper motor drive shaft nut and set aside for reuse.
4. Remove the motor crank from the motor drive shaft.
5. Remove the (3) M8 motor mount bolts.
6. Remove the wiper motor.

## Installation

*NOTE: Motors in pre-1999 vehicles point toward the passenger side. Replacement motor requires a pigtail wiper harness (P/N 16515004) included with the Wiper Motor and Bracket Assembly (P/N 09801632).*

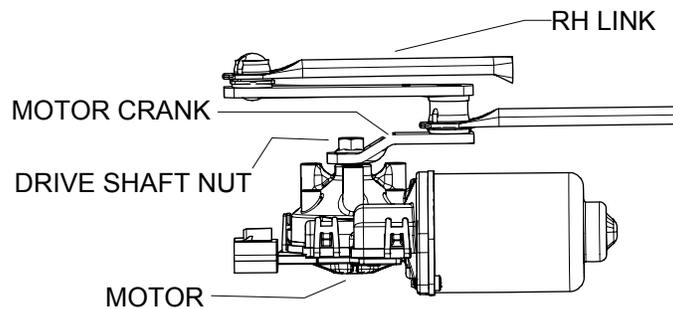
1. Install motor using (3) mount screws.
2. Torque to screws to 7-11 ft•lbs.
3. Connect the wiper motor jumper harness.

4. Connect the battery.
5. Turn the ignition On, and run the wiper system. Return the wiper control to the Off position to allow the wiper motor to park itself.



6. With wiper arms still attached to the pivots, move the wiper arms until the wiper linkage is in the Park position.
7. Attach the motor drive crank to the motor drive shaft.
8. Hold the motor crank arm in place with a wrench and torque the motor drive shaft nut to 9-17 ft•lbs.

*NOTE: If the wiper linkage moves while torquing the motor drive crank, the wiper system will rotate once to return park position after the ignition is switched on.*

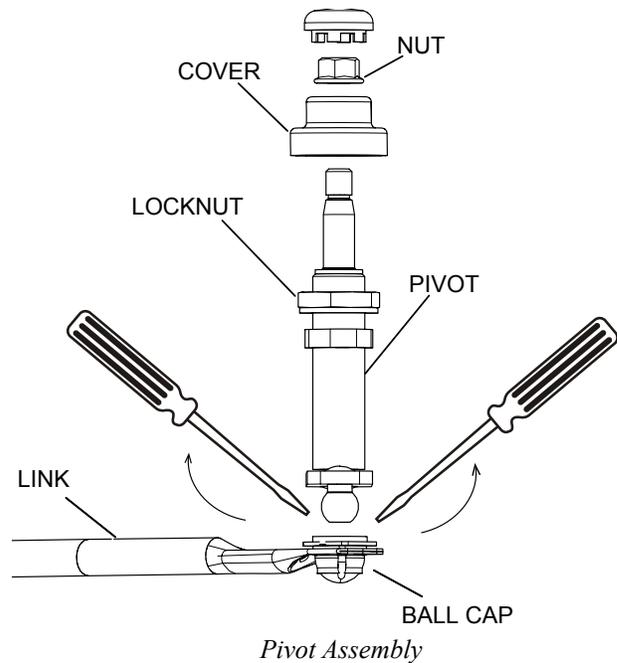


*Park position (bracket omitted for clarity)*

# Pivot Assembly Replacement

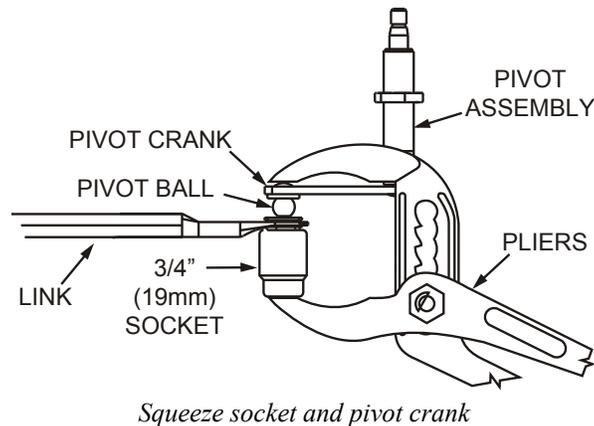
## Pivot Removal

1. Disconnect the Negative (Black) battery cable.
2. Remove the wiper arms.
3. Disconnect the link from the pivot by using two flat-blade screwdrivers, on the underside of the plastic ball cap.
4. Remove the pivot cover.
5. Use a deep well socket to remove the 1-1/8" locknut from the pivot.
6. Remove the pivot assembly.



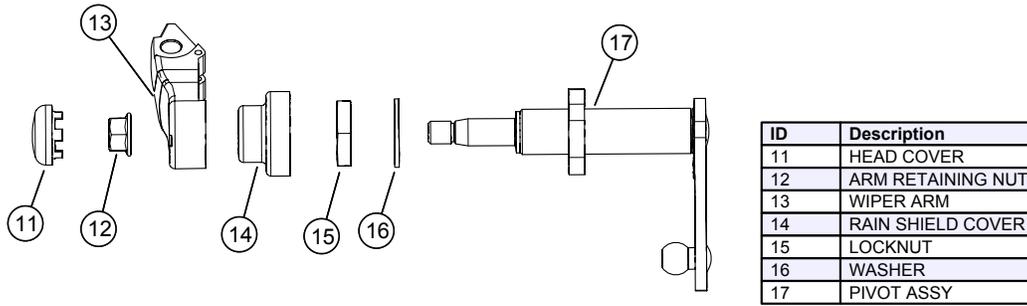
## Pivot Installation

1. Place the new pivot assembly on the linkage.
2. Secure the pivot to the cowl. using 1-1/8" locknut and washer.
3. Grease the plastic ball cap with Castrol "LM" or Shell "Retinax A" grease or equivalent.
4. Place a 3/4" socket over the plastic ball cap and push the cap onto the pivot ball. Use multi-grip or tongue-and-groove pliers to squeeze the socket and the pivot crank together until the ball is firmly seated in the ball cap.
5. Torque the pivot locknut to 22–30 ft•lb.
6. Replace the cover.
7. Connect the battery, turn the On ignition, and run the wiper system. Return the wiper control to the Off position to allow the wiper motor to park itself.
8. Install the wiper arms.



# Link Assembly Replacement

## Removal



*Pivot Assembly*

1. Disconnect the **Negative (Black)** battery cable.
2. Remove the the wiper arms and covers.
3. Remove the locknuts and washers from the pivot assemblies.
4. Remove the motor crank from the wiper motor drive shaft.
5. Remove the pivot and link assembly.

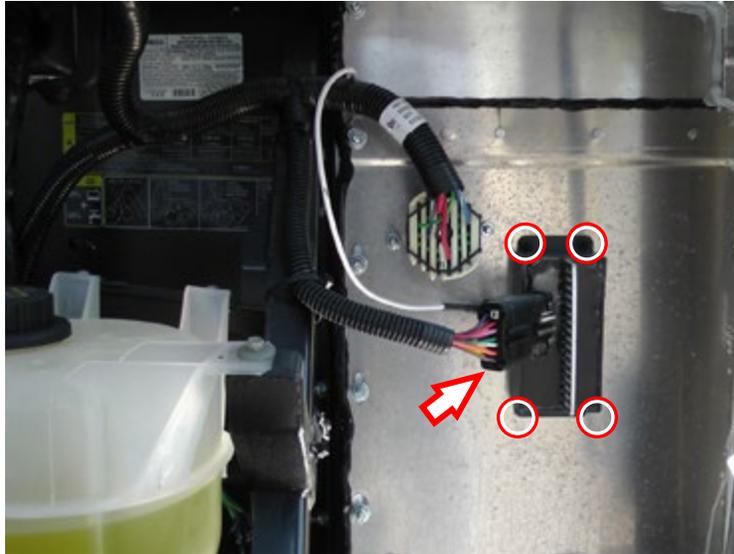
## Installation

1. Position the linkage assembly and install pivots.
2. Connect the battery, turn the ignition on, and run the wiper system. Return the wiper control to the Off position to allow the wiper motor to park itself.
3. Disconnect the battery.
4. Reinstall the motor crank to the wiper motor drive shaft.
5. Confirm the motor crank is in the Park position. If not, rotate the motor crank. The motor crank arm should be pointing horizontal toward the passenger side.
6. Torque the motor drive shaft nut to 9–17 ft•lb.
7. Connect the wiper motor harness to the jumper harness.
8. Turn the ignition On, and run the wiper system. Return the wiper control to the Off position to allow the wiper motor to Park itself.
9. Adjust wiper arm position if necessary.

# Ford E-Series Wiper Control Module



**WARNING:** Always remove the (BLACK) Negative cable first and connect it last.



*Wiper control module harness and screws*

## Removal

1. Disconnect the vehicle Negative (BLACK) battery cable(s).
2. Secure the battery cable(s) away from the terminal to prevent accidental contact.
3. Disconnect the harness connector from the module.
4. Remove (4) screws securing the module to the cowl.

## Installation

1. Secure replacement module to the cowl.
2. Secure wiper control harness to the module.
3. Connect the battery.

**Utilimaster Customer Service**

**574-848-2200**

Email: [CustSvc@Utilimaster.com](mailto:CustSvc@Utilimaster.com)

**Wiper System, T-Series, June 2016**

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