Troubleshooting and repairing the wiper/washer system

Models: Challenger, Miramar, Outlaw, Ace, Hurricane, Windsport

Follow this 3-step process

1. **Find the customer complaint in the table below in the left-hand column**
2. **Follow the corresponding troubleshooting diagram listed in the right-hand column to identify the cause/repair procedure**
3. **Follow the repair procedure to correct the problem and then verify the problem is gone**

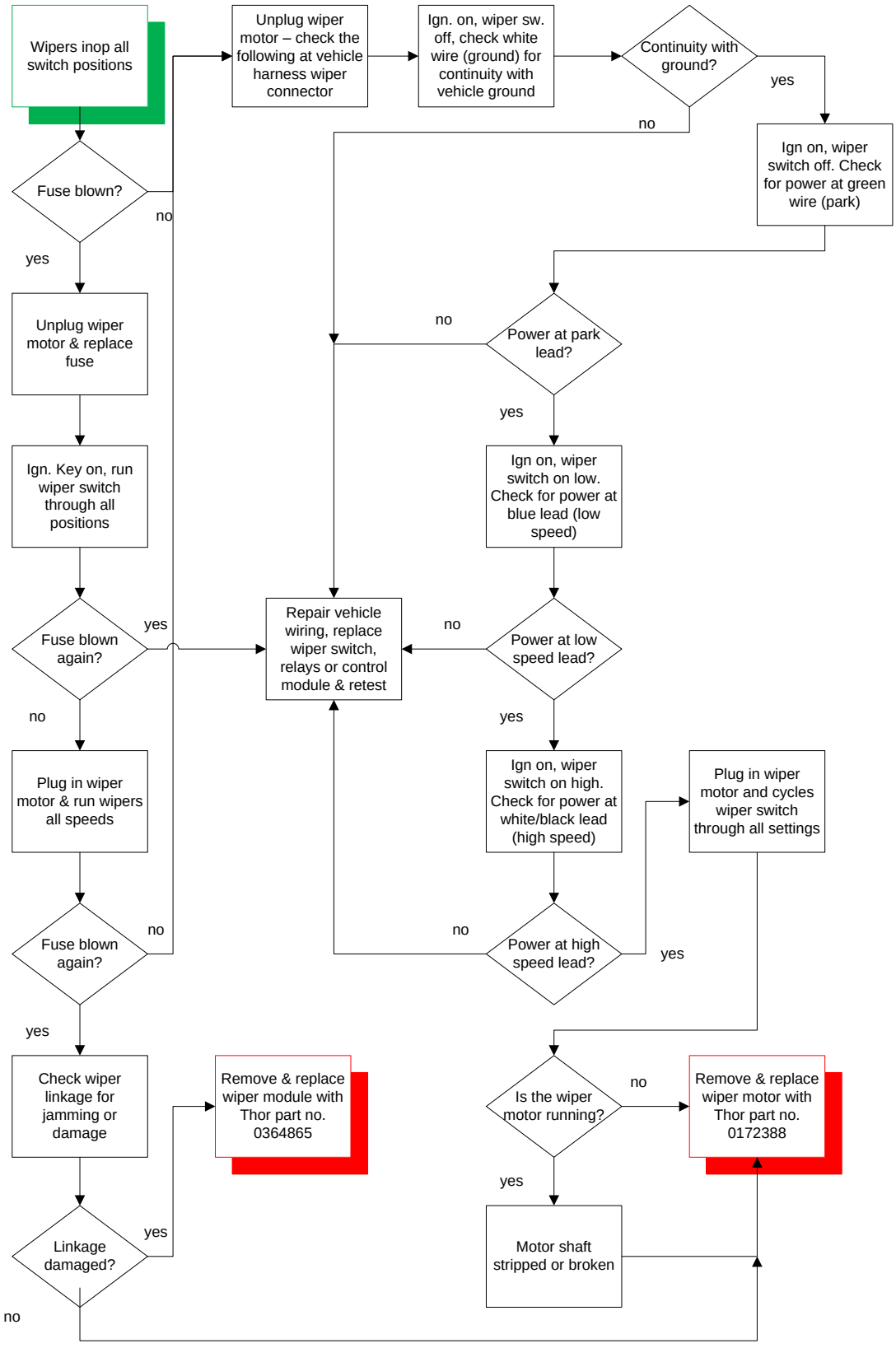
Customer complaint	Troubleshooting diagram
Wipers do not run regardless of switch position	“wipers inoperative all switch positions”
Wipers do not run on one of the switch settings	“wiper inoperative one switch position”
Wipers do not go back to park – they stop immediately	“auto-park problems”
Wipers park too high or too low*	“wipers park consistently too high or low”
Wipers travel too far at top or bottom – run off glass	“wiper over-sweep”
Wipers move in jerking motion or change park position	“erratic operation”
Wipers stopped suddenly for awhile and restart later	“Temporary shutdown”
Wiper arm overshot reversal point and jammed**	“toggled or damaged linkage”
Wiper arm loose on pivot shaft or fell off	“loose wiper arm”
Wiper blade loose on arm or fell off	“loose wiper blade”
No washer fluid getting to windshield	“washer system problems”

*Driver side arm parked too high

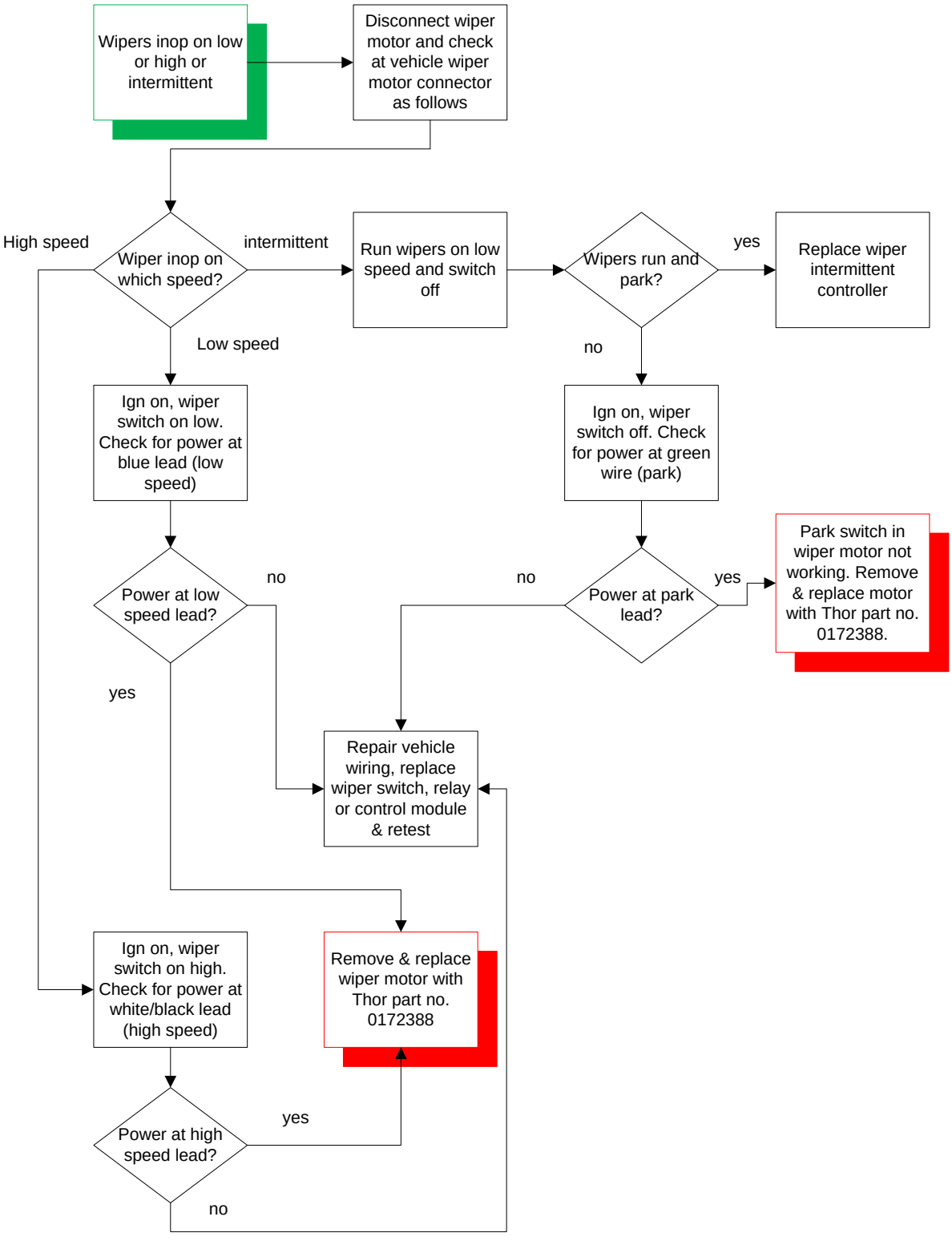
*driver side arm parked too low

**Linkage toggle causing passenger side arm to over-travel and jam

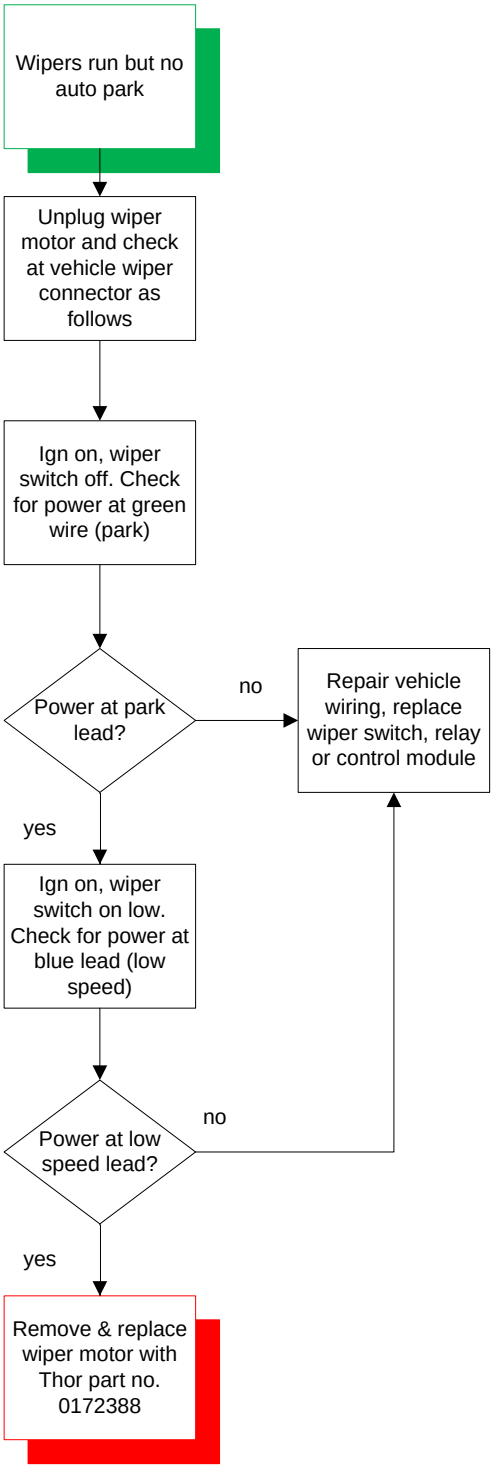
Wipers inoperative, all switch positions



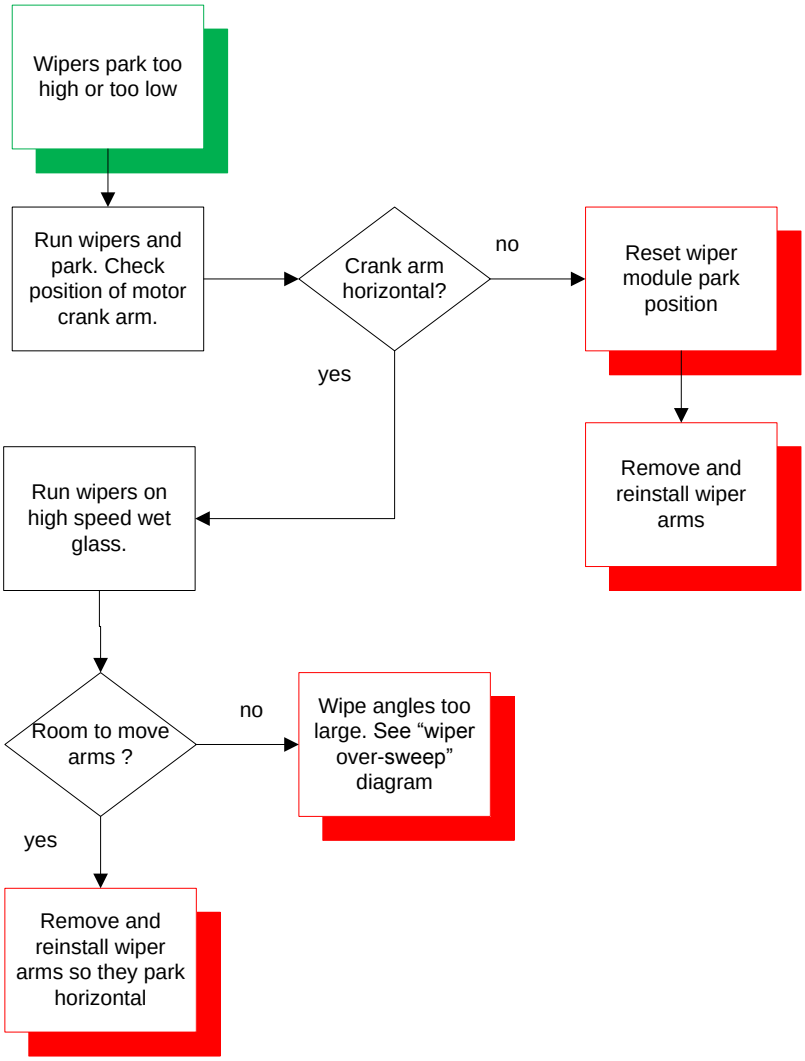
Wipers inoperative on one switch position



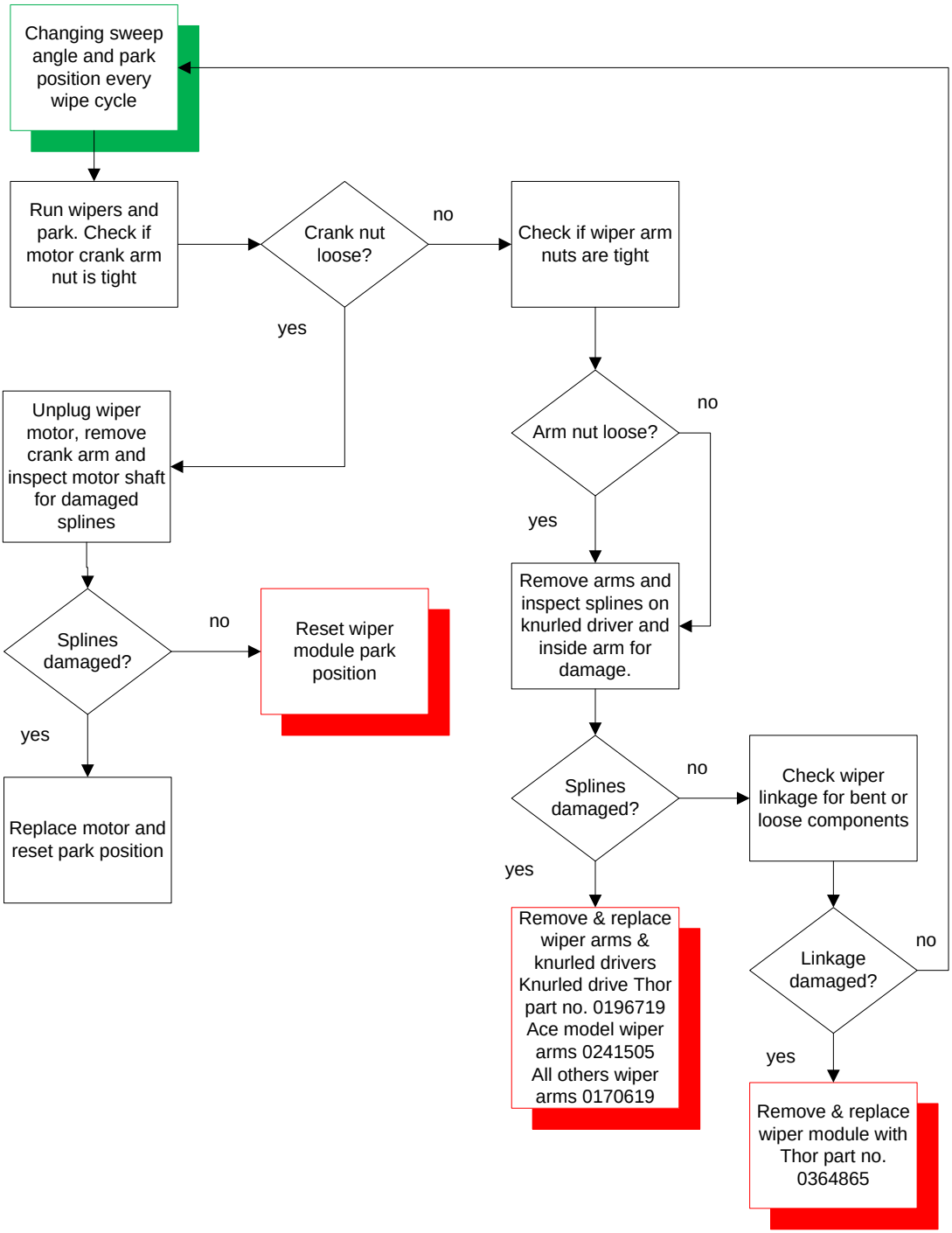
Auto-park problems



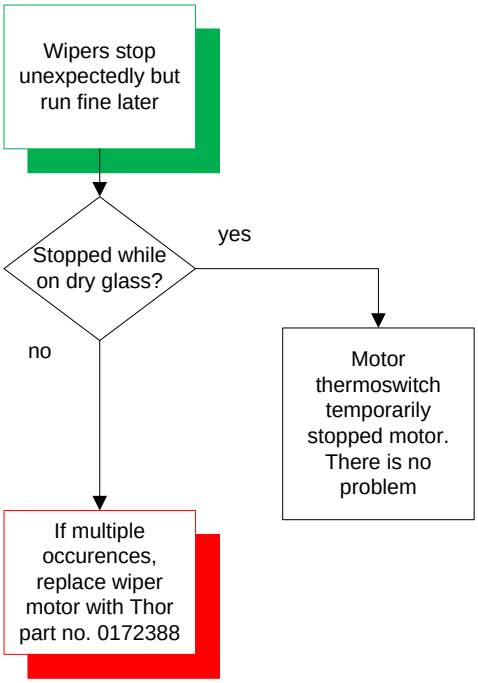
Wipers park consistently too high or too low



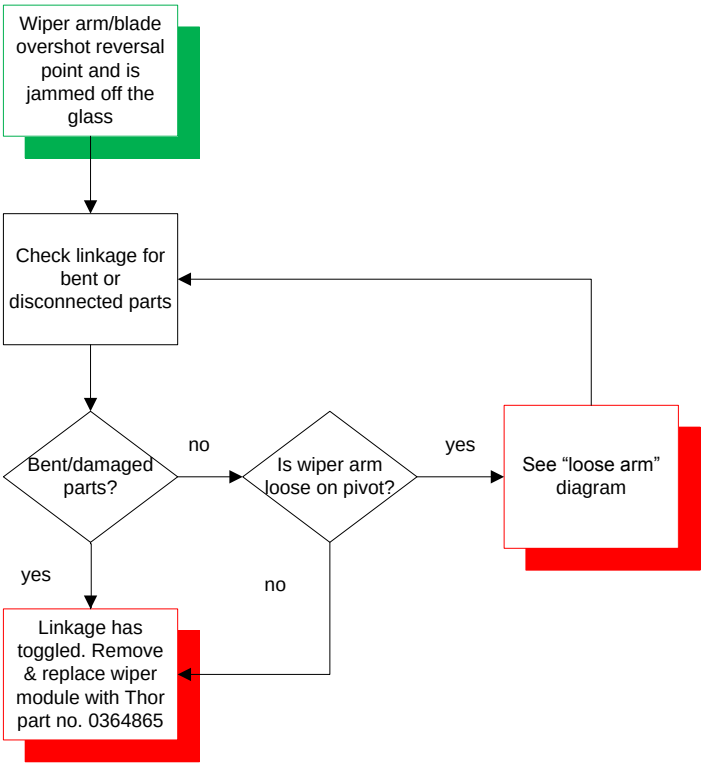
Erratic operation



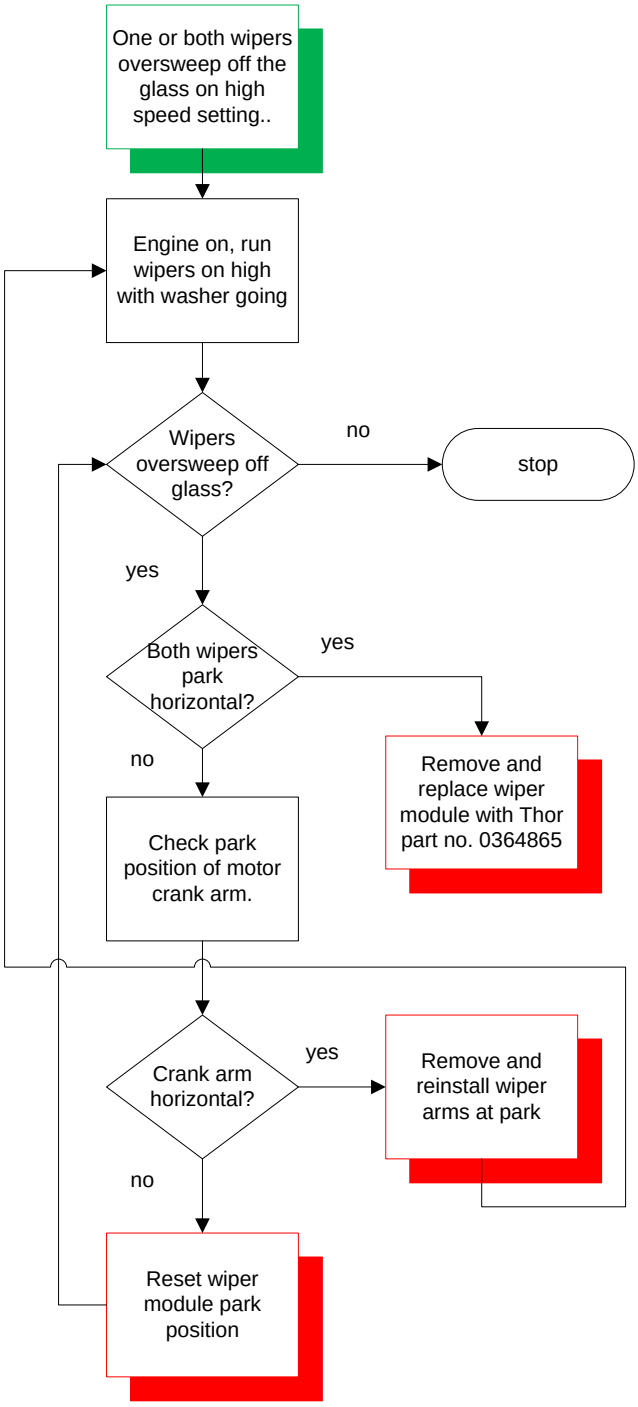
Temporary shutdown



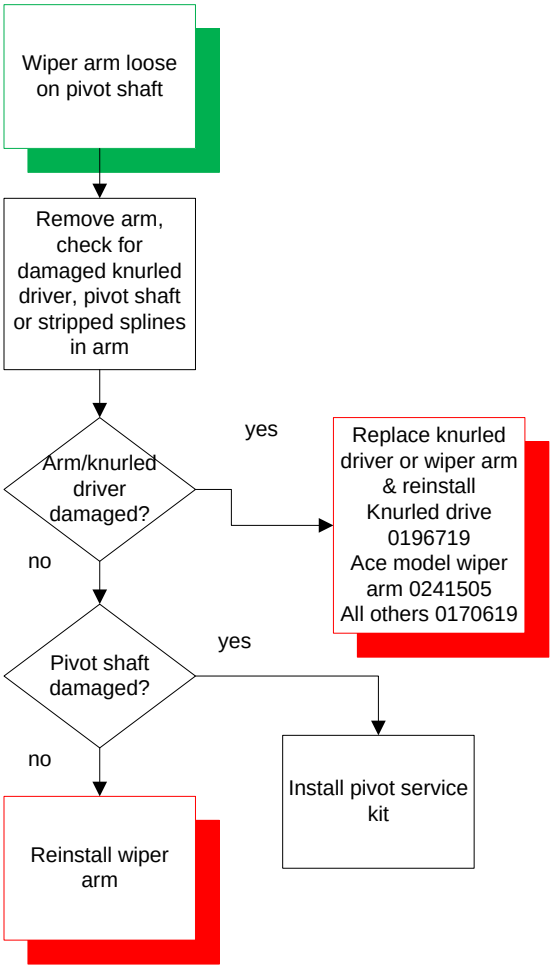
Toggled or damaged linkage



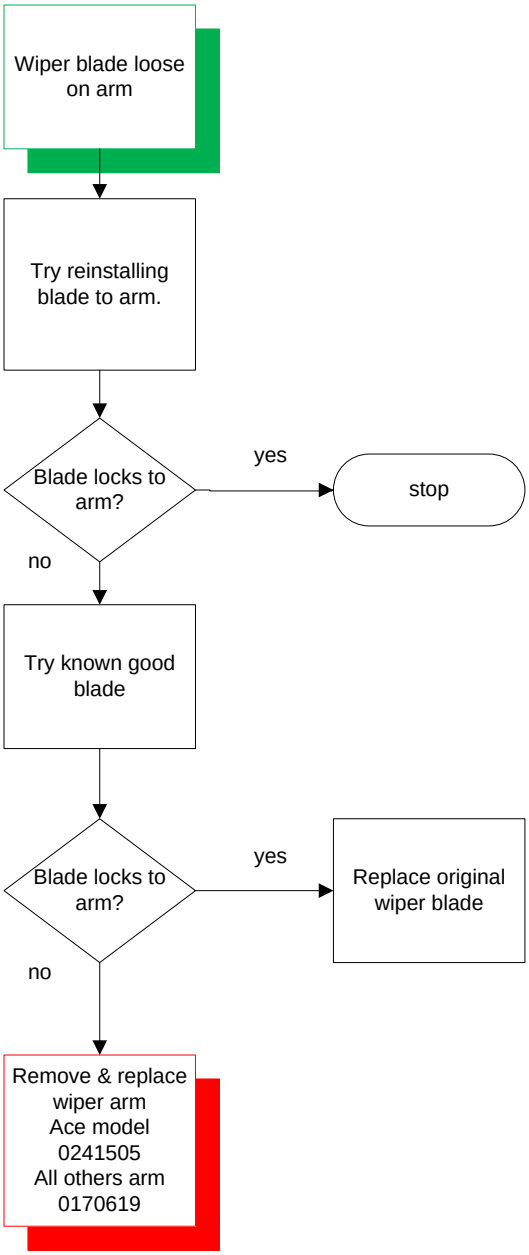
Wiper over-sweep



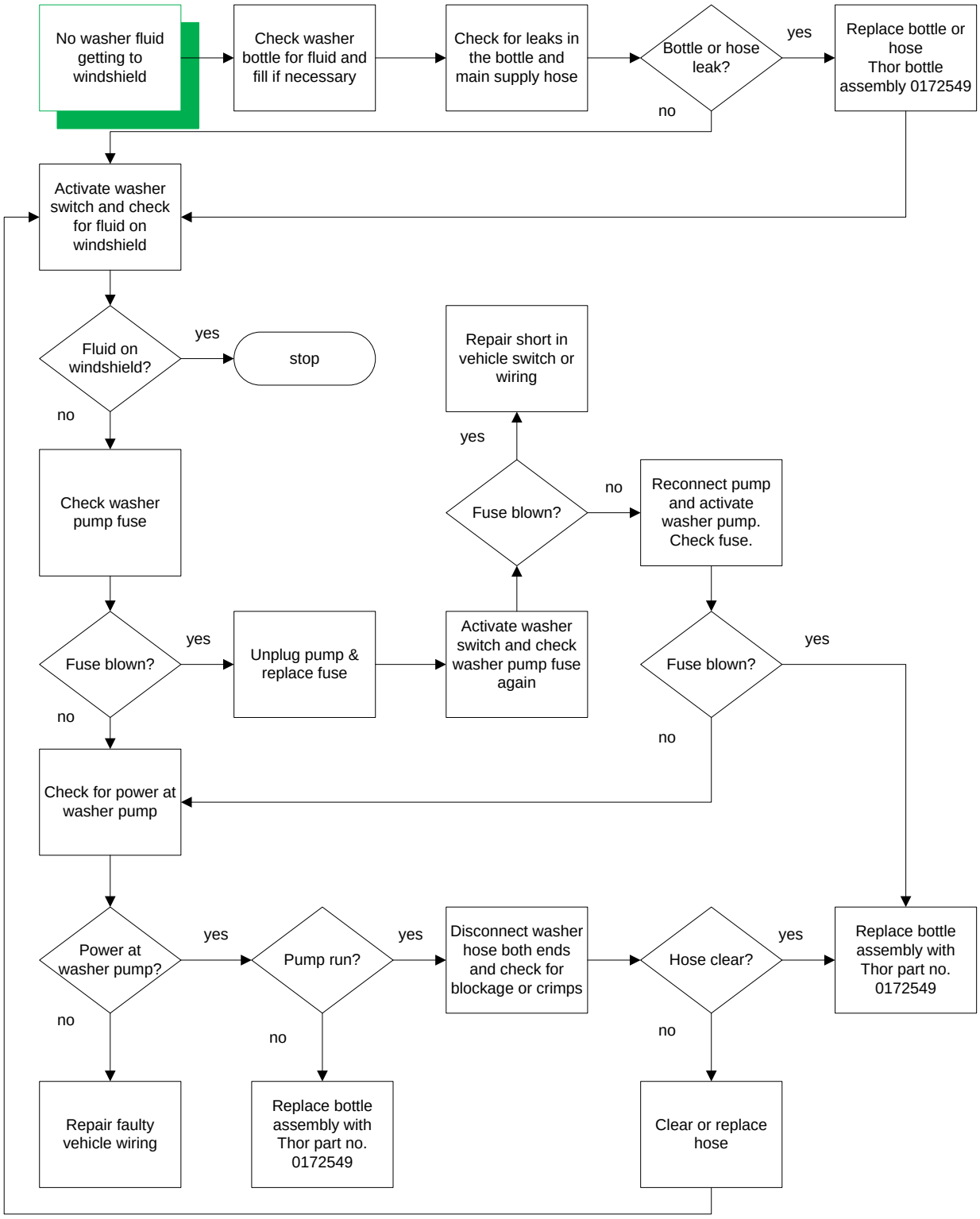
Loose wiper arm



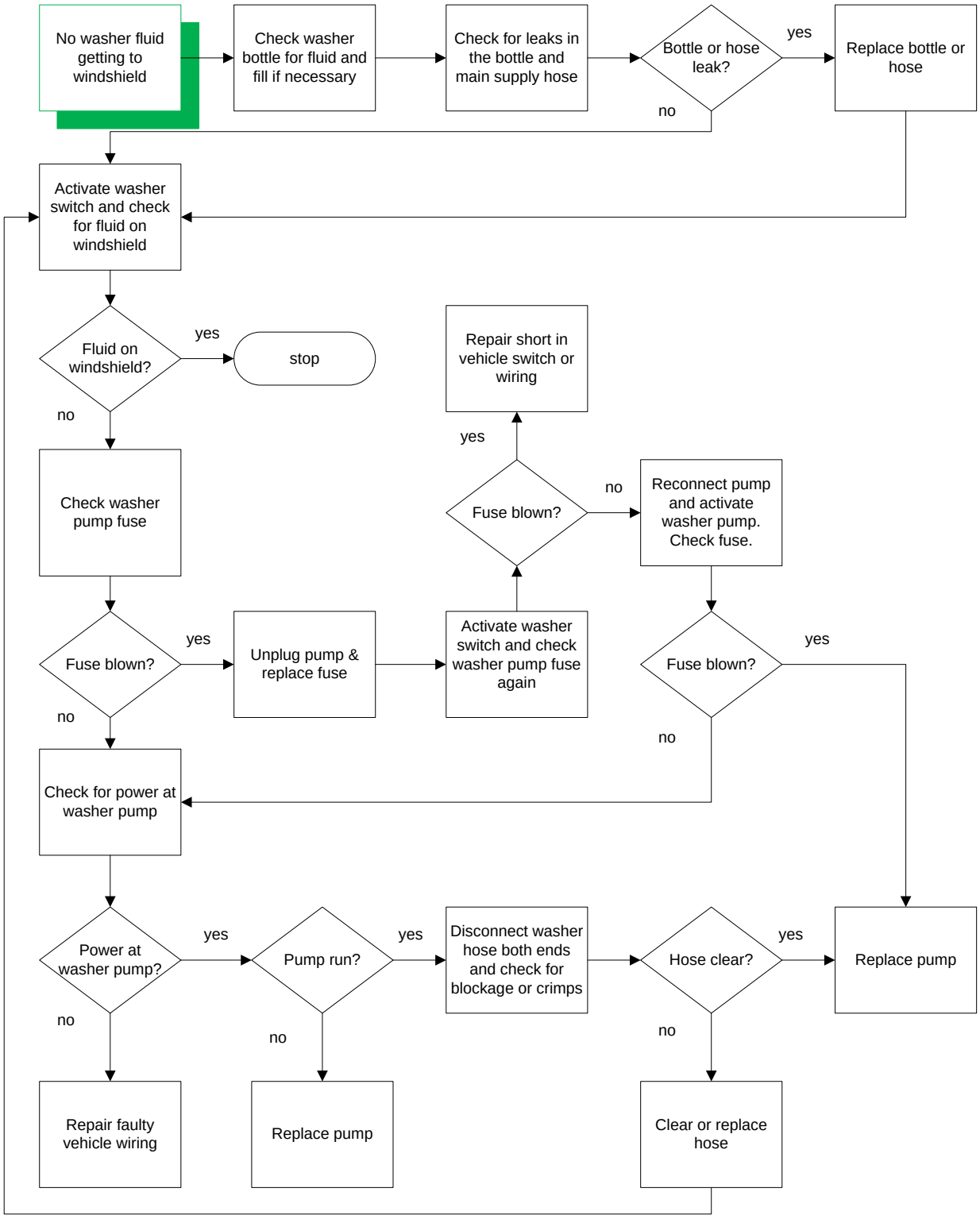
Loose wiper blade



Washer system problems



Washer system problems



Wiper service module removal/installation procedure

Tools required:

1. 3/8” drive ratchet
2. Sockets as follows
    a. 9/16”
    b. Deep wall 1”
    c. 5/16”
3. 3/8” drive torque wrench, >25 ft-lbs

Module removal procedure Note: the service wiper module will have all new mounting hardware

1. Remove both wiper arm acorn nuts & washers using a 9/16” socket (fig. 1).
2. Pull the wiper arm washer hoses off of the hose fittings (fig. 1).
3. Pull both wiper arms off of the pivot shafts – there is a knurled drive that may stick inside the wiper arm or stick to the pivot shaft. Save the arms & blades (fig. 1).

Fig. 1 Pivot shown with arm removed and washer hose disconnected

4. Pull off the rubber caps on the pivot shafts.
5. On the back side of the vehicle cap, locate and disconnect the washer hoses from the brass fittings that go through the cap from the outside (fig. 2).
6. Unplug the wiper motor from the vehicle harness.

7. Some older wiper modules may have one or more brackets that attach the wiper module to either the back side of the cap or the underside of the dash. Unscrew these from the vehicle.
8. Follow the long wiper module stringer bracket outboard to one of the pivots. Remove the 2 screws that attach the stringer to the cap using a 5/16" socket. Do this for both sides (fig. 2).

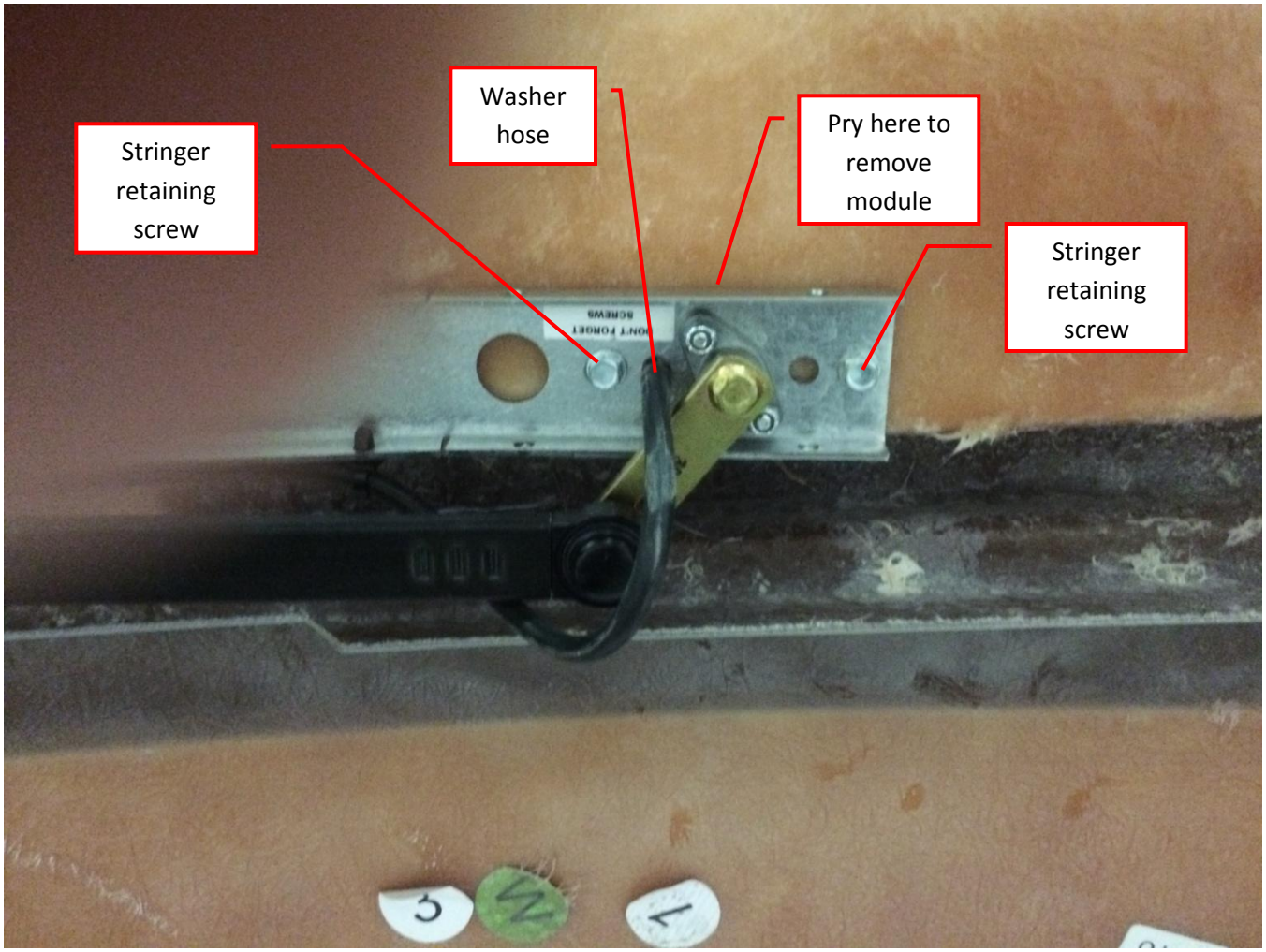


Fig. 2 Rear view of stringer in vehicle

9. Locate the washer hose coming from the washer bottle and disconnect it at the plastic hose T on the wiper module. Don't allow the hose to drop lower than the washer bottle or the bottle may drain.
10. On the outside, remove the large pivot nuts using a 1" socket. Next, remove the large flat washers with brass hose fittings and gaskets.
11. The wiper module may now be removed from the vehicle. **DO NOT** strike the pivot shafts with a hammer or mallet to force the wiper module rearward as this may loosen the shaft retaining clips. If the module is stuck, wedge a large standard screw driver under the stringer bracket near the pivot and pry to move the wiper module rearward (see fig. 2 for pry location).

Wiper module installation procedure

1. To install a new service wiper module, do the following;
    a. Position the replacement wipe module next to the old removed module on a bench top
    b. Bend the new wiper module stringer bracket at each end to match the old one as closely as possible
2. Check the orientation of the motor crank arm on the wiper module. It should be horizontal (within a few degrees) and pointing towards the driver side of the vehicle. If it is not, refer to the separate “setting wiper module park position” procedure and correct as necessary before continuing (fig. 3).

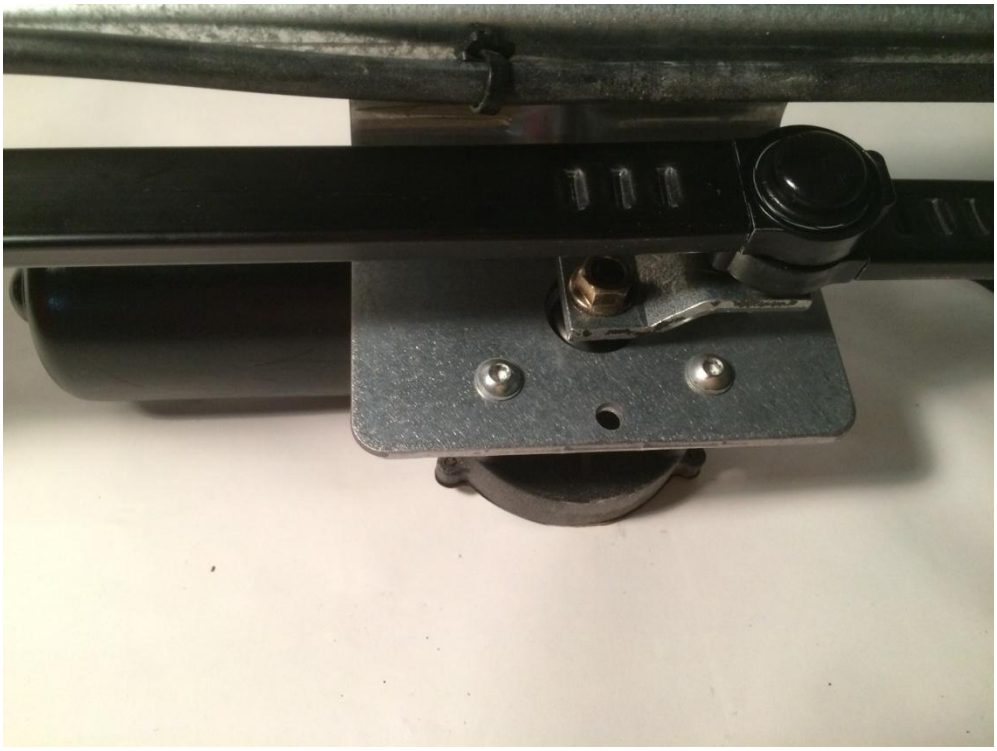


Fig. 3 Correct park position of the wiper linkage

3. Install the wiper service module by starting the pivot shafts through the holes in the cap.
4. Push the stringer bracket flat against the cap backer and install (2) new #12 screws through the stringer into the existing holes in the backer at each end. Tighten with a 5/16” socket until snug. Do not over-tighten or strip the screws. If the stringer was bent properly in step 1b, then the stringer should be flat against the backer on both ends (see fig.2).
5. Wiper service modules do not need or use any additional brackets (as supplied on some old modules).
6. From the outside, reinstall the pivot gaskets, large flat washers with hose barbs and the large pivot nuts. Use a 1” socket and tighten the pivot nuts to 15 ft-lbs. Do not over-tighten or the fiberglass may crack. Push the rubber caps back onto the pivots (fig. 1).

7. From under the hood, reattach the 2 wiper module washer hoses (at the pivot ends) to the hose barbs (fig. 2). Also reconnect the supply hose from the washer bottle to the T connector at the module.
8. With the ignition switch off, reconnect the wiper motor to the vehicle harness. Make sure to observe the polarity on the connectors and match up the locking feature on each connector.
9. Switch the ignition key on and cycle the wipers and repark. Check to see that the motor crank arm is still horizontal. If not, refer to the "setting wiper module park position" procedure and correct before continuing. Switch the ignition key off.
10. Reattach the wiper arms
    a. If the knurled drivers are stuck in the wiper arms, tap the knurled drivers out of the wiper arms and discard. Install new drivers onto the pivot shafts.
    b. Slip the wiper arms onto the knurled drivers so that the wiper blades are positioned horizontal (fig. 4).
    c. Install the 2 dished washers and acorn nuts on the pivots. Torque using the 9/16" socket to 10-ft-lbs. Do not over-tighten or the knurled driver may crush or crack and the wiper arm will loosen during use.
11. Switch the ignition key on, start the vehicle engine and run the wipers on both low and high applying washer fluid. Make sure that the wipers operate on both speeds and that the washer system primes and sprays the windshield. Switch the wipers off and make sure that they park horizontally at the bottom of the windshield.

Fig. 4 Correct typical wiper arm park position

Setting wiper module park position procedure

Tools required:

4. 3/8” drive ratchet
5. 13 mm socket
6. 13 mm box wrench
7. 1” open end wrench or adjustable wrench
8. 3/8” drive torque wrench with capacity of 25 ft-lbs

Procedure

Warning: Rotating the wiper motor crank arm manually while the ignition key is on will activate the wiper motor auto-park feature. Serious injury can result from moving wiper linkage parts.

1. With the wiper arms removed (see separate procedure “wiper arm removal & installation”) do the following;
    a. Ignition key off, unplug the wiper motor from the vehicle harness
    b. Using the 1” open end or adjustable wrench, rotate the motor crank arm so that it is pointing down at 6 o’clock to gain access to the crank retaining nut.
    c. Restrain the motor crank arm from turning with the 1” open end or adjustable wrench and at the same time use a 13 mm socket to remove the crank arm retaining nut. Save the nut.

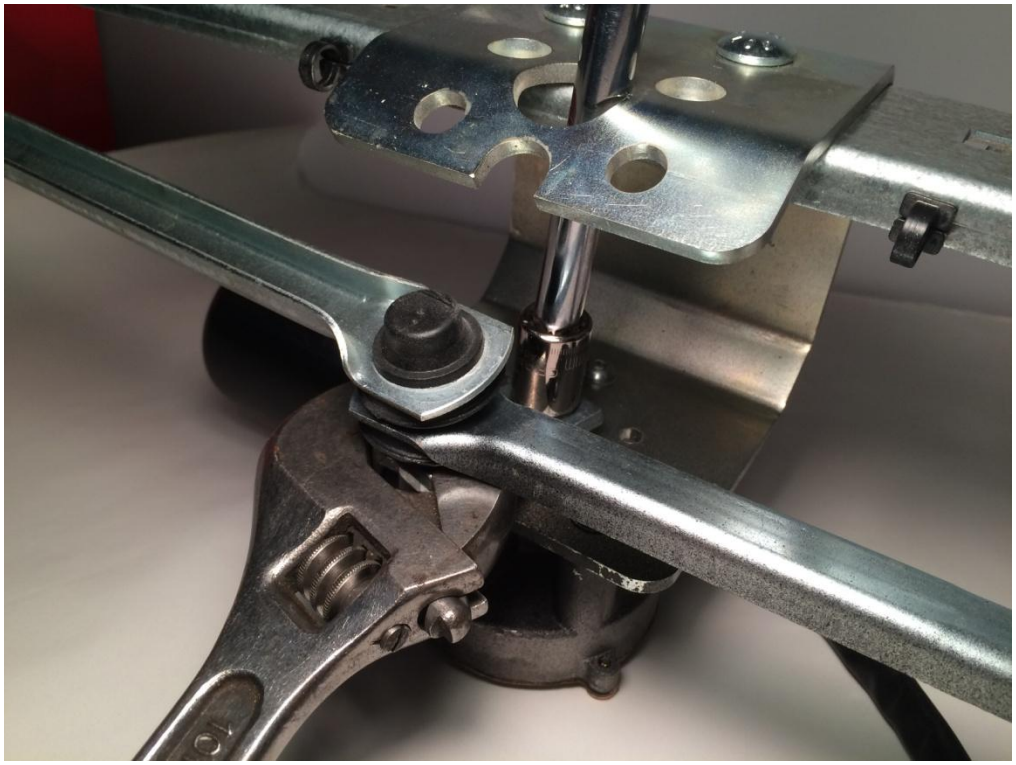


Fig. 1 Crank rotated to 6 o’clock and restrained for nut removal

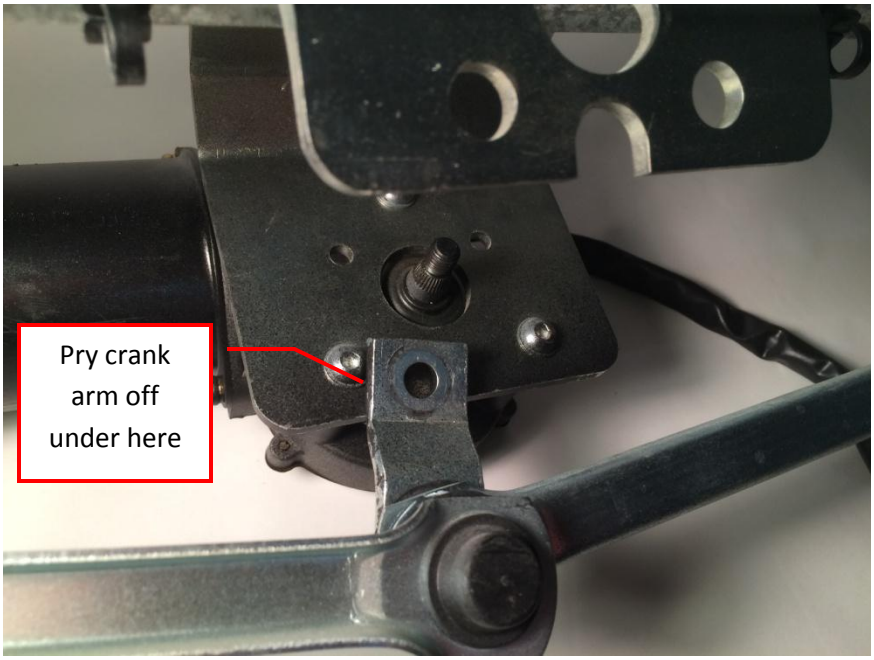


Fig. 2 Crank arm removed from motor shaft

d. Pry the motor crank arm off of the motor shaft (see fig. 2)

2. Plug the wiper motor back into the vehicle harness. Run the wiper motor several cycles and then switch off and allow it to park. Unplug the wiper motor from the vehicle harness again.
3. Make sure that the pivot levers are both pointing down, not up (figure 3).

Fig. 3 Pivot lever pointing down

4. Reinstall the crank arm onto the motor shaft making sure it is pointing horizontal towards the driver's side. Spin the nut down by hand as tight as possible (fig. 4).

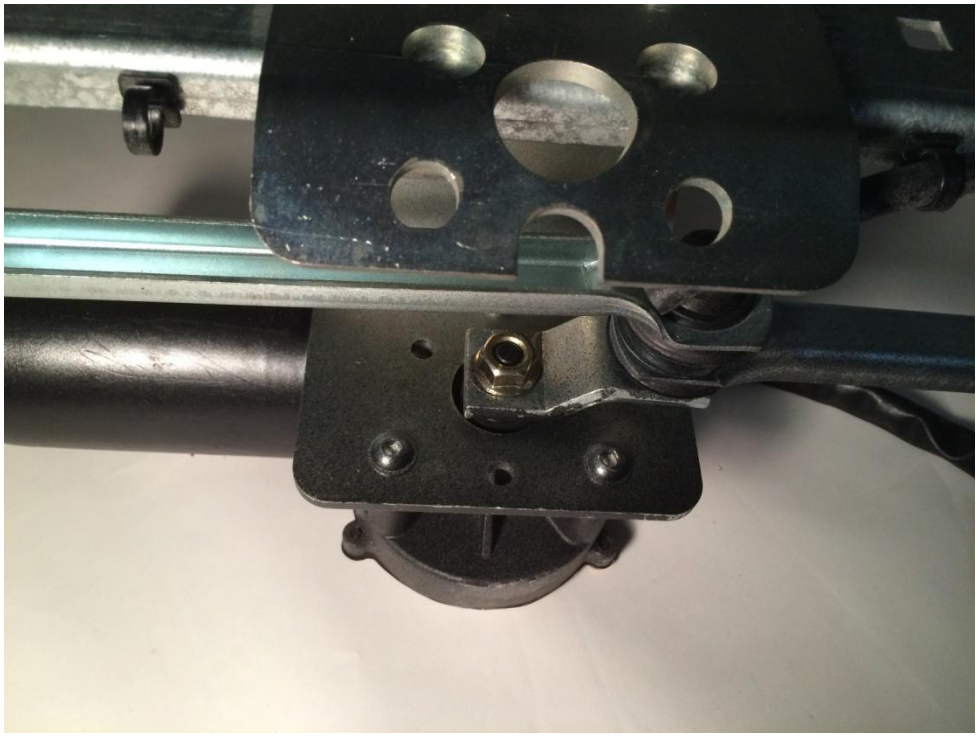


Fig. 4 Correct park position shown

5. Restrain the crank arm from turning with the 1” open end or adjustable wrench. Use the 13 mm box wrench to tighten the crank nut as much as possible by hand (fig. 5).

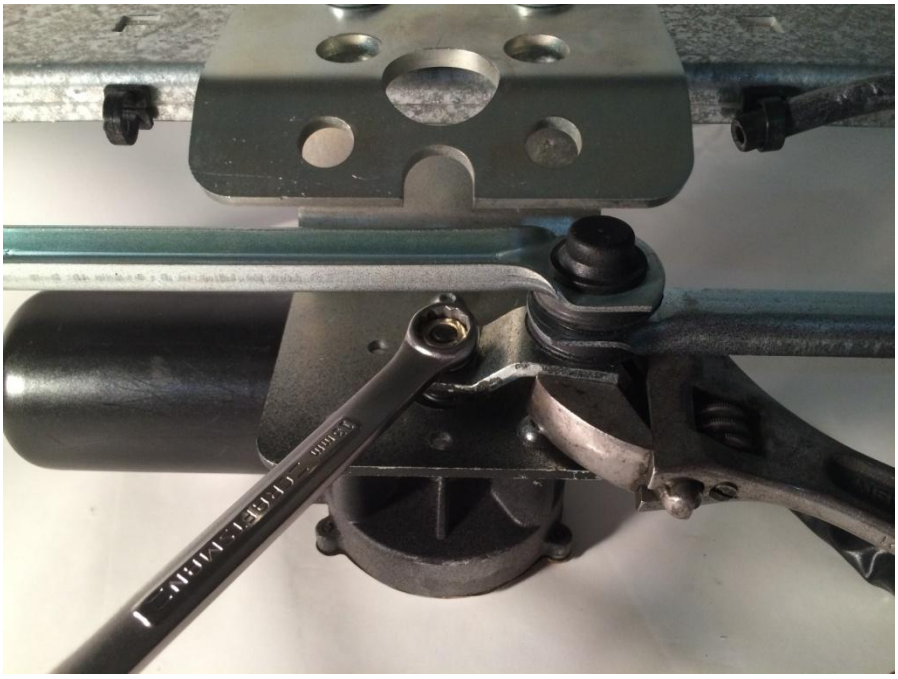


Fig. 5 Tighten crank nut with box wrench as much as possible

6. Rotate the crank arm down to 6 o’clock again with the 1” open end wrench to gain access to the crank nut with a torque wrench (see fig. 1).
7. Restrain the motor crank arm with the 1” open end or adjustable wrench and torque the motor crank arm nut to 20 ft-lbs using the 13 mm socket (see fig. 1).
8. Reconnect the wiper motor to the vehicle harness. Switch on the ignition switch and wiper switch. Allow the wipers to cycle a few times and then switch off and allow to park. Check that the motor crank arm is horizontal pointing towards the driver side.
9. Finish installing the wiper arms according to the “wiper arm removal and installation” procedure.
10. Recheck wiper operation.

Wiper arm removal & installation procedure

Tools required:

9. 3/8” drive ratchet
10. 9/16” socket
11. 3/8” drive torque wrench, >25 ft-lbs
12. Pin punch

Removal procedure

12. Remove both wiper arm acorn nuts using a 9/16” socket. Save nuts & dished washers.

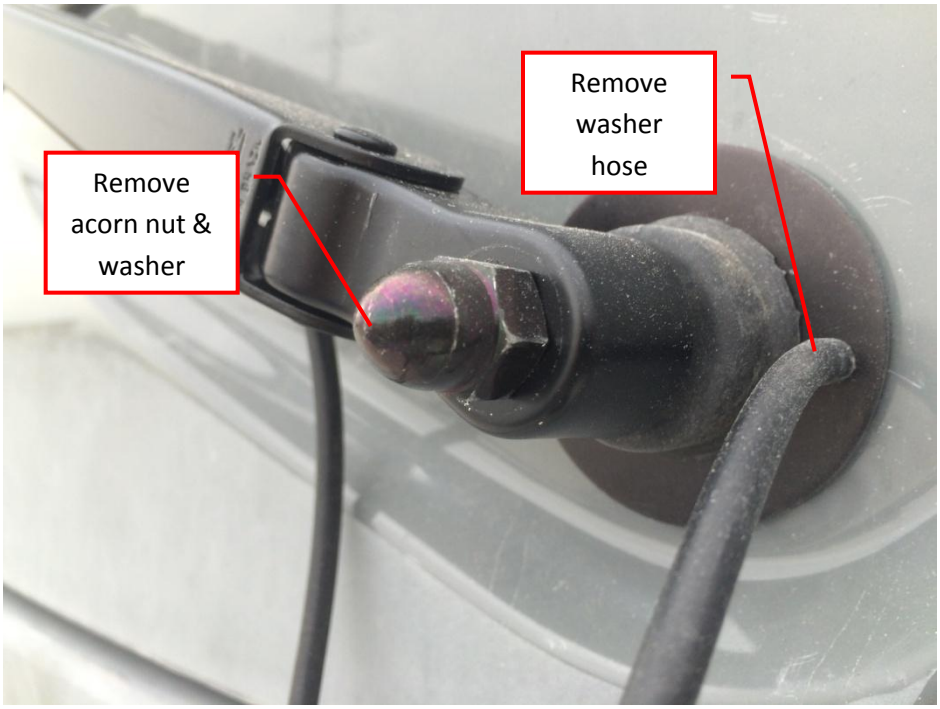


Fig. 1 Typical installed wiper arm

13. Pull the wiper arm washer hoses off of the hose fittings.
14. Pull both wiper arms off of the pivot shafts – there is a knurled drive that may stick inside the wiper arm. Save the arms, blades & knurled drivers (fig. 2).
15. If the knurled driver is stuck inside the arm, use a pin punch to gently tap it out of the arm.

Fig. 2 Pivot shaft with arm removed

Installation procedure

1. Check the orientation of the wiper module motor crank arm. It should be horizontal (within a few degrees) and pointing towards the driver side of the vehicle. If it is not, refer to the separate procedure “setting wiper module park position” and correct if necessary before proceeding (fig. 3).

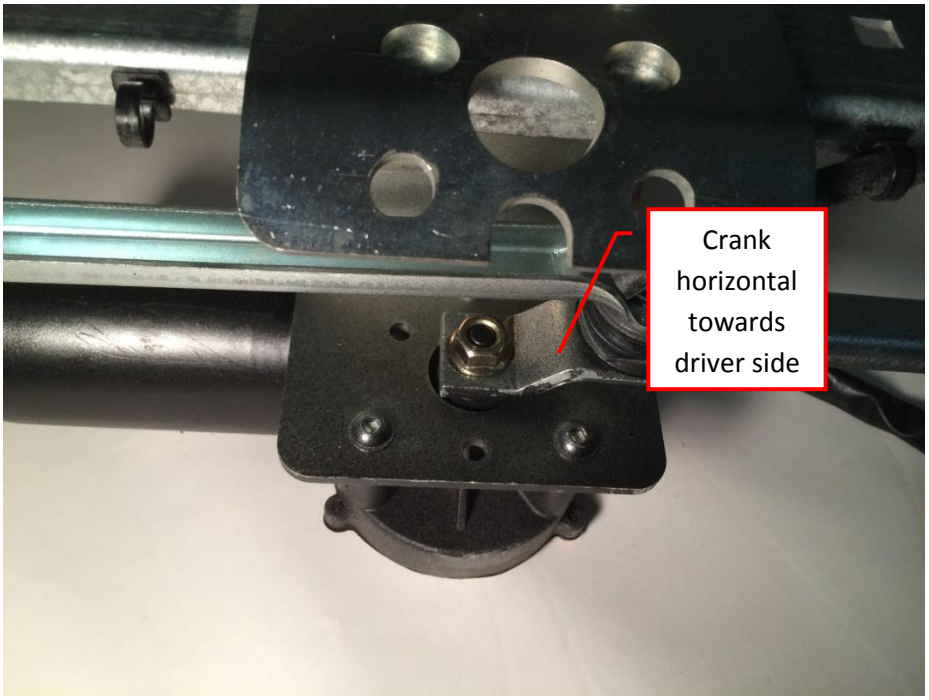


Fig. 3 Motor crank arm in the proper park position

2. Reattach the wiper arms
    a. Make sure that the wiper blades are installed and latched to the wiper arms
    b. Position the knurled drivers onto the pivot shafts
    c. Slip the wiper arms onto the knurled drivers so that the wiper blades are positioned horizontal (fig. 4).
    d. Install the 2 dished washers and acorn nuts on the pivots. Torque using the 9/16” socket to 10-ft-lbs. Do not over-tighten or the knurled driver may crush and the nut will loosen during use.
    e. Reconnect the washer hoses to the hose barbs. The hoses should be looped under the arms and around the pivots in a CCW orientation (fig. 4).

Fig. 4 Typical park position

3. Switch the ignition key on, start the vehicle engine and run the wipers on both low and high applying washer fluid. Switch the wipers off and make sure that they park horizontally at the bottom of the windshield.

Wiper motor removal and replacement procedure

Tools required:

13. 3/8” drive ratchet
14. 13 mm socket
15. 3/8” drive torque wrench, >25 ft-lbs
16. 4 mm Allen drive
17. 1” open end wrench or adjustable wrench
18. 13 mm box wrench
19. Large standard screw driver

Procedure

Warning: Rotating the wiper motor crank arm manually while the ignition key is on can activate the motor auto-park feature. Serious injury can result from moving wiper linkage parts.

11. Unplug the wiper motor from the vehicle harness
12. Lift both wiper arms up off the glass until they latch open
13. Using a 1” open end wrench, rotate the motor crank arm so that it is pointing down at 6 o’clock (fig. 1).
14. Restrain the motor crank arm from turning with the 1” open end wrench and at the same time use a 13 mm socket to remove the crank arm retaining nut. Save the nut.

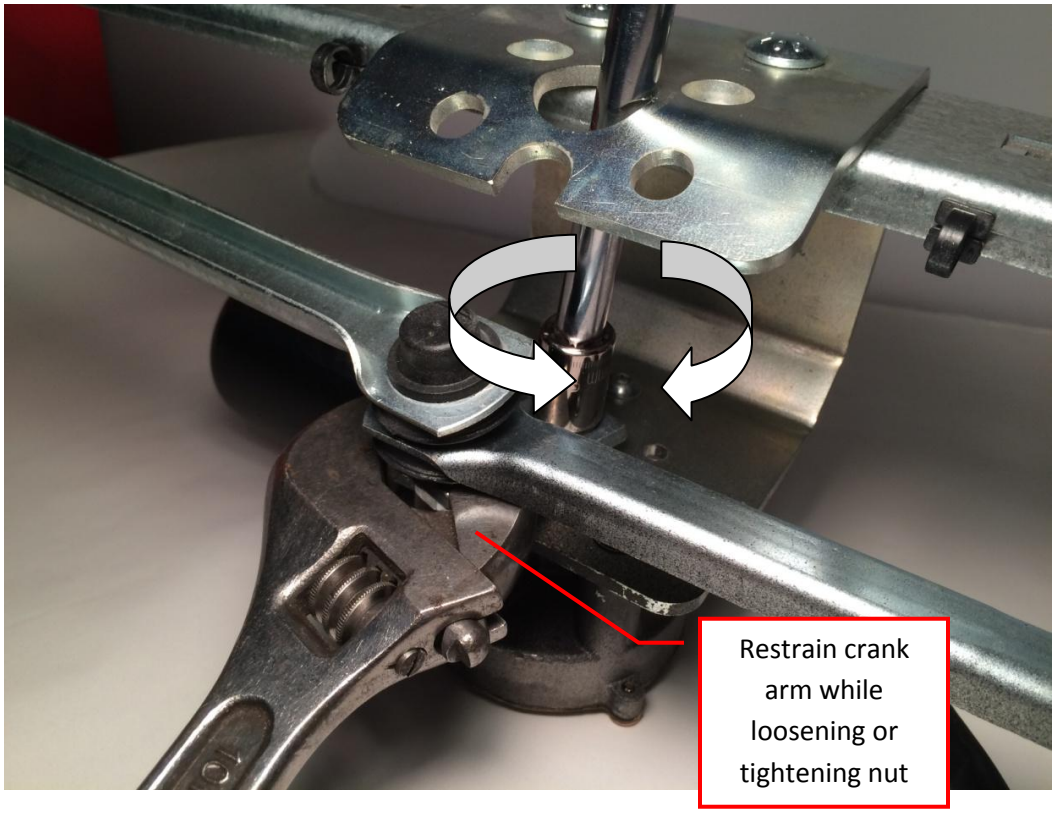


Fig. 1 Crank arm rotated down and restrained while nut is removed or tightened

15. Pry the motor crank arm off the motor shaft using a large standard screw driver (fig. 2).

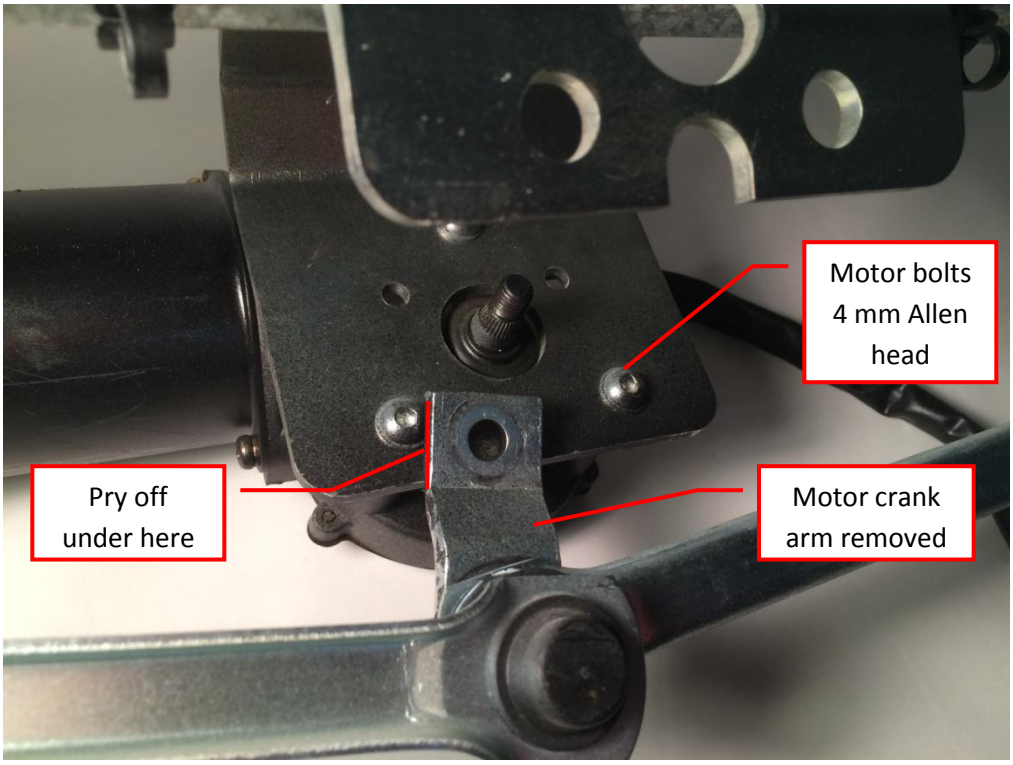


Fig. 2 Crank arm removed – 3 motor bolts can be removed

16. Remove the (3) button head screws holding the motor to the bracket with a 4mm Allen drive. Save the screws.
17. The motor can now be removed.
18. Take the new wiper motor and plug it into the vehicle harness. Run the wiper motor several cycles and then switch off and allow it to park. **Unplug the motor from the vehicle harness**.
19. Position the new motor onto the wiper module motor bracket and install the (3) button head screws using the 4 mm Allen drive. Torque to 7 ft-lbs (fig. 2).
20. Reinstall the crank arm onto the motor shaft making sure it is pointing horizontal towards the driver's side. Spin the nut down by hand as tight as possible.
21. Restrain the crank arm from turning with the 1" open end or adjustable wrench. Use the 13 mm box wrench to tighten the crank nut as much as possible by hand (fig. 3). It will be torqued properly next.

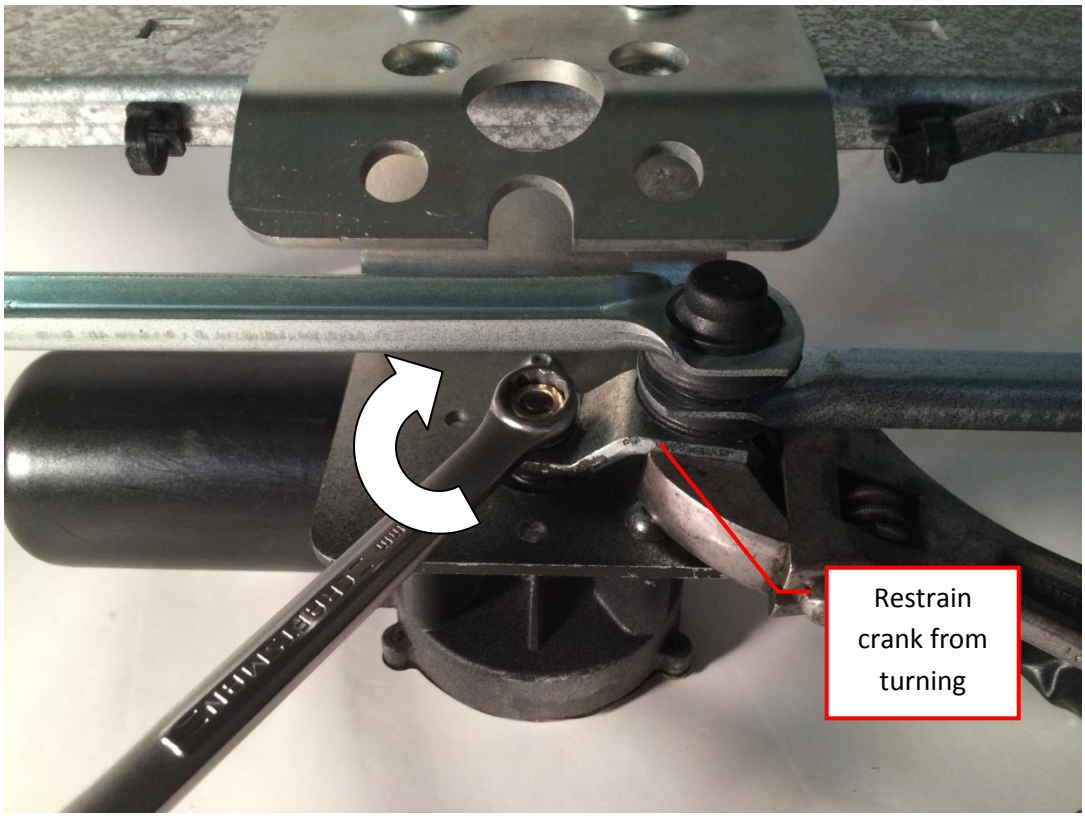


Fig. 3 Crank pointing horizontal and restrained while nut is tightened

22. Use the 1” open end wrench and rotate the motor crank so that it is pointing at 6 o’clock. This will give access to the crank nut with the torque wrench & socket (fig. 1).
23. Restrain the motor crank arm with the 1” open end or adjustable wrench and torque the motor crank arm nut to 20 ft-lbs using the 13 mm socket (fig. 1).
24. Lower the wiper arms back down so the blades are on the windshield. The blades will be positioned in the middle of the sweep pattern because the motor crank is rotated out of park.
25. Make sure the ignition switch is off before reconnecting the wiper motor to the vehicle harness. Switch on the ignition switch and wiper switch. Allow the wipers to cycle a few times on high and low and then switch off and allow to park. Check that the motor crank arm is horizontal pointing towards the driver side and that both of the blades are parked horizontal. Readjust the arms if required.