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**KI-159 R44 14V AFT BATTERY RELAY UPGRADE KIT**

KIT CONTENTS:

1 each	A780-25	battery cable (revision V or later)
1 each	A780-26	starter cable (revision W or later)
1 each	A780-27	shunt cable
2 each	B158-103	heat shrink, 1-inch length (B158-103-1)
2 each	B260-2	ring terminal
1 each	B330-13	palnut
1 each	B415-1	relay
1 each	C452-3	guard (revision D or later)
1 each	KI-159INSTR	Kit instructions
10 each	MS3367-4-9	ty-rap
40 each	MS3367-5-9	ty-rap
20 each	MS3367-7-9	ty-rap
3 each	MS21042L3	nut
3 each	MS25171-2S	nipple
1 each	MS25171-4S	nipple
1 each	MS27039C1-06	screw
2 each	MS27039C1-07	screw
1 each	MS35489-40	grommet
3 each	NAS1149F0332P	washer

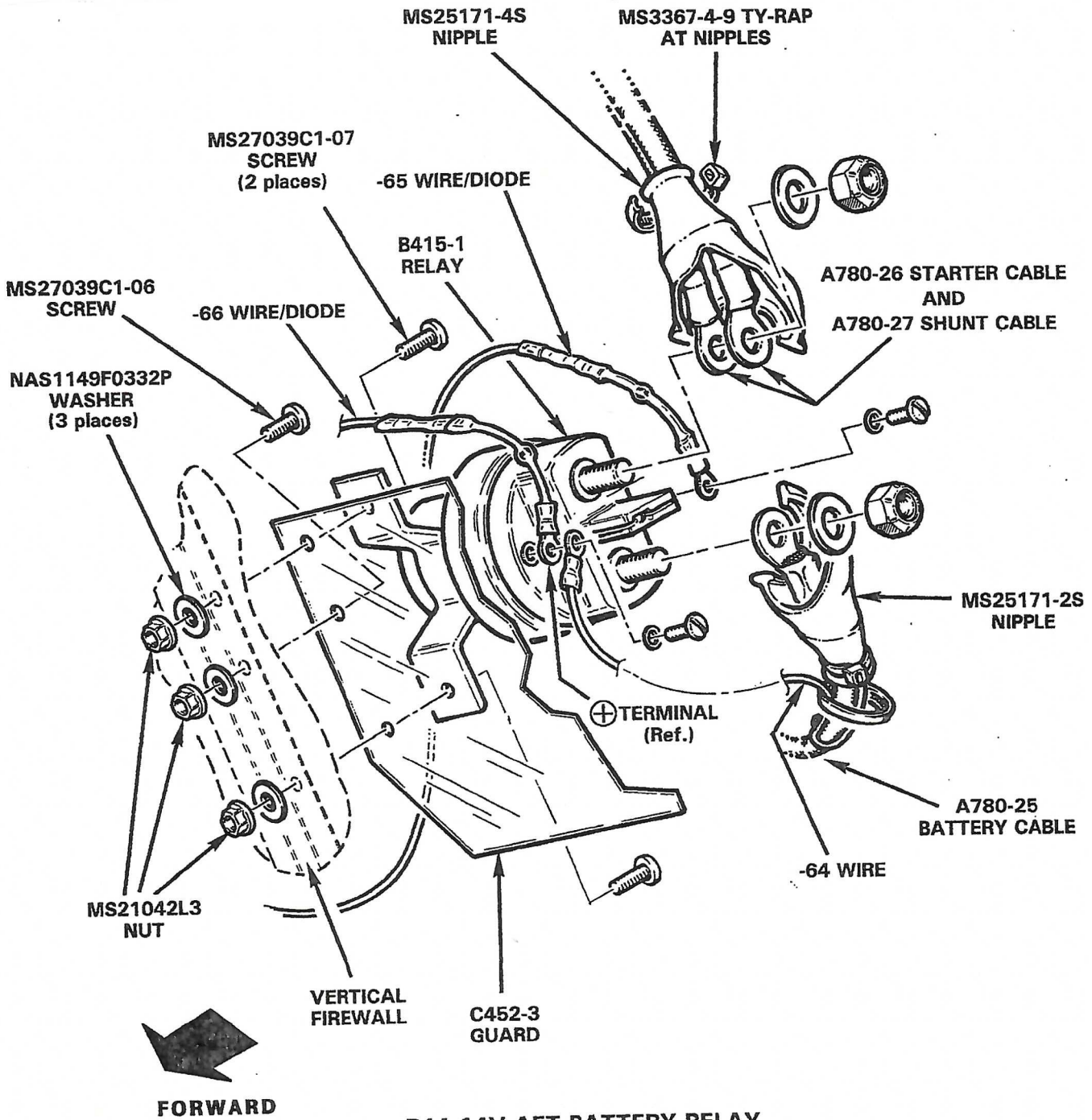
INSTRUCTIONS: (refer to Figure 1)

1. Verify kit contents match above list. Contact RHC if any parts are missing or damaged.
2. Access battery. Verify Master switch is off. Disconnect negative ground cable from battery then disconnect positive cable from battery. Washers used to shim between cable terminals and battery lugs, if any, are to remain in place.
3. Disconnect -64 wire, B304-2 diode, and -65 & -66 wire/diodes from battery relay coil terminals. Discard B304-2 diode.
4. Disconnect positive battery cable from relay and remove cable, with attached -64 wire, from aircraft. Discard cable.
5. Disconnect remaining -580 & -581 wires (shunt cable and starter cable) from relay. Disconnect opposite end of shunt cable from shunt & discard cable. Also discard B330-13 palnut used at shunt connection.
6. Remove left rear seatback to access relay mounting screws. Remove and discard relay and mounting hardware.

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7. If installed, remove and discard MS27039C1-06 screw and associated nut and washer plugging hole in firewall between relay mounting holes. This screw and hole will not be present on earlier S/N aircraft.
8. Remove and discard insulating nipples and cut #10-size ring terminals from -65 & -66 wire/diodes at edge of terminal crimp. Strip 0.25 inch of clear heat shrink from cut diode leads; avoid nicking leads. On each cut diode lead, install a 1-inch length of B158-103 heat shrink followed by a B260-2 ring terminal. Crimp ring terminals on leads. Position heat shrink to cover both ring terminal insulation & diode lead then shrink with heat gun.
9. Remove -581 wire (starter cable) from aircraft and discard. Note location of and loosen MS21919WDG clamps and cut ty-raps as required to facilitate removal.
10. Install supplied MS25171-2S nipple on one end of supplied A780-26 starter cable (-581 wire). Connect to starter and install cable in aircraft. Secure to engine intake tubes, other engine compartment wiring, and firewall, using MS21919WDG clamps and ty-raps in same manner as removed cable.
11. Install supplied MS25171-2S nipple on one end of supplied A780-27 shunt cable (-580 wire). Connect to shunt and secure using original shunt nut and lockwasher and B330-13 palnut supplied.
12. Install supplied MS25171-4S nipple on relay ends of A780-26 & -27 cables (one nipple around both cables as shown in Figure 1).
13. Position C452-3 guard over relay mounting holes and, if third hole exists between mounting holes, install supplied MS27039C1-06 screw, NAS1149F0332P washer, and MS21042L3 nut.
14. Install B415-1 relay over guard as shown in Figure 1 using supplied MS27039C1-07 screws, NAS1149F0332P washers, and MS21042L3 nuts.
15. Install supplied MS25171-2S nipple on -64 wire end of A780-25 cable. Install supplied MS35489-40 grommet on battery end of A780-25 cable.
16. Attach both -64 wire and -66 wire/diode to relay coil positive terminal as shown in Figure 1 using hardware supplied with relay (coil positive terminal has number 86 and polarity mark adjacent to it). Ensure ring terminals clear surrounding structure, and torque screw to 9-11 inch-pounds.

17. Connect starter and shunt cables to relay upper, inboard stud (stud has number 88a adjacent to it) using hardware supplied with relay. Torque nut to 105-115 inch-pounds (includes self-locking torque).
18. Attach -65 wire/diode to relay coil negative terminal using hardware supplied with relay (negative terminal has number 85 and polarity mark adjacent to it). Torque screw to 9-11 inch-pounds.
19. Connect A780-25 cable to relay lower, outboard stud (stud has number 88 adjacent to it) using hardware supplied with relay. Torque nut to 105-115 inch-pounds (includes self-locking torque).
20. Connect battery end of A780-25 cable to battery positive terminal, and position MS35489-40 grommet in battery box relief.
21. Verify all wires neatly routed and secured as required with ty-raps. Also verify all connections tight and insulating nipples in place at relay, shunt, and starter.
22. Ensure Master switch is off, and connect battery ground cable to battery negative terminal.
23. Verify proper relay function.
24. Close and secure battery box.
25. Install left rear seat back.
26. Reset clock and verify clock operation with master switch off and clutch switch disengaged.
27. With an appropriately qualified person at the controls, start helicopter using checklist.
28. Verify both rotor and engine tachometers function when both Master and Alternator switches are turned off.
29. Return Master and Alternator switches to on position and shutdown helicopter using checklist.
30. Make appropriate maintenance record entry.



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**FIGURE 1**