FIGHTING VEHICLE, INFANTRY, M2
(2350-01-048-5920)

AND

FIGHTING VEHICLE, CAVALRY, M3
(2350-01-049-2695)

MARCH 1983
WARNINGS

This list summarizes critical WARNINGs in this manual. They are repeated here to let you know how important they are. Study these WARNINGs carefully; they can save your life and the lives of soldiers you work with.

WARNING

Unsafe use of chemical products, tools, and equipment can injure you. Read and follow WARNINGs and instructions on labels of all chemical products. Follow all general shop safety procedures. See unit commander for further safety instructions.

WARNING

You could be burned if you work on a vehicle that has been running. Allow vehicle to cool, or use care if you work on a hot vehicle. Tasks are written for a cool vehicle.

For artificial respiration and first aid, see FM 21-11.
TECHNICAL MANUAL
DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
FIGHTING VEHICLE, INFANTRY, M2
(2350-01-048-5920)
AND
FIGHTING VEHICLE, CAVALRY, M3
(2350-01-049-2695)
HULL

Reporting Errors and Recommending Improvement

You can help improve this manual. If you find any mistakes, or if you know a way to improve the procedures, please let us know. Mail your letter, DA Form 2808 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual, directly to: Commander, US Army Tank-Automotive Command, ATTN: DRSTA-MB, Warren, MI 48090. A reply will be sent to you.

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# CHAPTER 8

MAINTENANCE OF FAN AND FAN SPEED CONTROL

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REPAIR VANEAXIAL FAN ASSEMBLY

INITIAL SETUP

Tools:
- General mechanic's tool kit: automotive
- Arbor press — 3444-00-243-2654
- Telescope gage set — 79L
- Micrometer caliper set — GGG-C-105
- Slide caliper, 3 inch — 5210-00-224-9942

Personnel Required:
- Track Veh Rep 63H20

Equipment Conditions:
- Vaneaxial fan assembly on workbench

REPAIR

1. REMOVE HOUSING, FAN IMPELLER, SHAFT, AND BEARING FROM STATOR. See task: REPLACE VANEAXIAL FAN STATOR ASSEMBLY, page 8-7.

2. REMOVE SPACER (1) FROM SHAFT (2).

3. REMOVE BEARING (3) FROM SHAFT (2).
   a. Place shaft (2) on arbor press with bearing (3) down.
   b. Press shaft (2) from bearing (3).
   c. Remove bearing (3) from arbor press.

GO TO NEXT PAGE
4. **MEASURE INNER DIAMETERS OF TWO BEARING BORES (1, 2) ON STATOR (3).**
   
   a. Take two measurements, 90 degrees apart, of two bearing bores (1, 2). Use telescope gage (4) and micrometer sets.
   
   b. If any measurement is not between 3.3464 inches (84.9986 mm) and 3.3472 inches (85.0187 mm), replace stator (3).

5. **MEASURE INNER DIAMETER OF FAN IMPELLER BORE (5).**
   
   a. Take two measurements, 90 degrees apart of fan impeller bore (5). Use telescope gage (4) and micrometer sets.
   
   b. If either measurement is not between 1.7713 inches (44.9910 mm) and 1.7720 inches (45.0088 mm), replace fan impeller (6).

6. **MEASURE WIDTH OF FAN IMPELLER KEYWAY (7). USE SLIDE CALIPER (8) AND MICROMETER SET.**
   
   a. If measurement is not between 0.3135 inches (7.9629 mm) and 0.3155 inches (8.0137 mm), replace fan impeller (6).
7. MEASURE DIAMETER OF TWO BEARING SEATS (9, 10) ON SHAFT (11).
   a. Take two measurements, 90 degrees apart, of bearing seat (9) on stator side of shaft (11). Use micrometer set (12).
   b. If either measurement of bearing seat (9) is not between 1.7716 inches (44.9986 mm) and 1.7721 inches (45.0113 mm), replace shaft (11) and two bearings.
   c. Take two measurements, 90 degrees apart, of bearing seat (10), on fan impeller side of shaft (11). Use micrometer set (12).
   d. If either measurement of bearing seat (10) is not between 1.7705 inches (44.9707 mm) and 1.7710 inches (44.9834 mm), replace shaft (11) and two bearings.

8. MEASURE INNER DIAMETER OF BORE OF TWO BEARINGS (13).
   a. Take two measurements, 90 degrees apart, of two bearing bores (13). Use telescope gage (4) and micrometer sets.
   b. If readings are not between 1.7712 inches (44.9885 mm) and 1.7717 inches (45.0012 mm), replace bearing.

9. MEASURE OUTER DIAMETER OF TWO BEARINGS (13).
   a. Take two measurements, 90 degrees apart of outer diameter of each bearing (13). Use micrometer set (12).
   b. If any measurement is not between 3.3459 inches (84.9859 mm) and 3.3465 inches (85.0011 mm), replace bearing.
10. INSTALL BEARING (1) ON SHAFT (2).
   a. Place bearing (1) on arbor press.
   b. Press shaft (2), threaded side first in bearing (1).
   c. Remove shaft (2) from arbor press.

11. INSTALL SPACER (3) ON SHAFT (2).

12. INSTALL BEARING SHAFT, FAN IMPELLER, AND HOUSING ON STATOR.
    See task: REPLACE VANEAXIAL FAN STATOR ASSEMBLY, page 8-7.

END OF TASK
REPLACE VANEAXIAL FAN STATOR ASSEMBLY

DESCRIPTION

This task covers: Remove (page 8-7). Install (page 8-9).

INITIAL SETUP

Tools:
- General mechanic's tool kit: automotive
- Inserted hammer face holder — 5120-00-903-8553
- Inserted hammer face — 5120-00-585-8202
- Inserted hammer face — 5120-00-540-4273
- Torque adapter, 1/2 inch drive, 5/16 inch — 12298105-1
- Torque wrench, 1/2 inch drive, 0-175 ft-lb — 5120-00-640-6364
- Internal retainer ring pliers — 5120-00-595-9552

Personnel Required:
- Track Veh Rep 63H10
- Helper (H)

Equipment Conditions:
- Vaneaxial fan on workbench

Materials/Parts:
- Key washer
- Stator assembly
- Lock washer (4)
- Retaining ring (2)

REMOVE

1. REMOVE HOUSING (1) FROM STATOR (2).
   a. Remove eight screws (3) and flat washers (4) from housing (1).
   b. Install two jack screws (5) in two jacking holes (6) on housing (1).
   c. Tighten two jack screws (5), and remove housing (1) from stator (2).
   d. Remove two jack screws (5) from housing (1).

GO TO NEXT PAGE
2. REMOVE NUT (1) AND KEY WASHER (2) FROM SHAFT (3).
   a. Bend tab (4) of key washer (2) away from slot (5) in nut (1).
   b. Remove nut (1) and key washer (2) from shaft (3). Discard key washer. Use adapter.

3. REMOVE FAN IMPELLER (7) FROM STATOR (6).
   CAUTION
   Shaft may fall out if not supported and damage may result. Shaft must be supported by hand during removal.

4. REMOVE COVER (11) FROM STATOR (6).
   a. Place stator (6) on side.
   b. Remove four screws (8), lock washers (9), flat washers (10), and cover (11) from stator (6). Discard lock washers.

5. REMOVE SHAFT (3) FROM STATOR (6).
   a. (H) support shaft (3).
   b. Remove shaft (3) from stator (6). Use plastic hammer.
6. REMOVE KEY (12) FROM SHAFT (3).

8. INSTALL BEARING (13) ON NEW STATOR (6).
   a. Tap bearing (13) into stator (6) until firmly seated.
   b. Install two new rings (14) in stator (6). Use pliers.

7. REMOVE BEARING (13) FROM STATOR (6).
   a. Remove two rings (14) from stator (6). Discard rings. Use pliers.
   b. Tap bearing (13) from stator (6).

9. INSTALL SHAFT (3) ON STATOR (6). USE PLASTIC HAMMER.

GO TO NEXT PAGE
10. INSTALL COVER (1) ON STATOR (2).
   a. Install cover (1) on stator (2) with four flat washers (3), new lock washers (4), and screws (5).

11. INSTALL KEY (6) INTO SHAFT (7) UNTIL FIRMLY SEATED. KEY SHOULD NOT EXTEND INTO THREADS.

NOTE
When using torque wrench with torque adapter, torque value must be converted. Procedure for converting torque value is on page

13. INSTALL NUT (10) AND NEW KEY WASHER (11) ON SHAFT (7).
   a. Place stator (2) on workbench with shaft (7) up.
   b. Install key washer (11) and nut (10) on shaft (7).
   c. TORQUE NUT (10) TO 45-50 FT-LB (6-7 MKG). USE TORQUE WRENCH AND ADAPTER.
   d. Bend one tab (12) of key washer (11) into slot (13) on nut (10).

12. INSTALL FAN IMPELLER (8) ON STATOR (2).
   a. Align slot (9) on fan impeller (8) with key (6) on shaft (7).
   b. Install fan impeller (8) on stator (2).
NOTE
Screws are left untorqued for later installation on vehicle.

14. INSTALL HOUSING (14) ON STATOR (2).
   a. Aline dowel pins (15) on stator (2) with housing (14).
   b. Install housing (14) on stator (2) with eight flat washers (16) and screws (17). Tighten screws.

END OF TASK
CHAPTER 9
MAINTENANCE OF ELECTRICAL SYSTEM

Section I. MAINTENANCE OF POWER UNIT

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REPAIR TRANSMISSION WIRING HARNESS 3W2

INITIAL SETUP

Tools:
Multimeter, URM-105C — 6625-00-999-6282

References:
TM 9-2350-252-20-1

Personnel Required:
Fuel and Elec Sys Rep 63G10

Equipment Conditions:
Transmission wiring harness 3W2 on workbench

REPAIR

1. TEST ALL LEADS FOR CONTINUITY. NOTE LEADS THAT FAIL USE MULTIMETER.


GO TO NEXT PAGE
WIRING DIAGRAM

END OF TASK
REPAIR WIRING HARNESS 3W1

INITIAL SETUP

Tools:

- Multimeter, URM-105C-6625-00-999-6282

References:

- TM 9-2350-252-20-1

Personnel Required:

- Fuel and Elec Sys Rep 63G10

Equipment Conditions:

- Wiring harness 3W1 on workbench

REPAIR

1. TEST ALL PINS FOR CONTINUITY. NOTE WIRES THAT FAIL. USE MULTIMETER.


5. REPAIR LEADS 3W1E1, 3W1E2, 3W1E3, 3W1E4, 3W1E5, 3W1E6, 3W1E7, 3W1E8, 3W1E9, 3W1E10, 3W1E11, 3W1E12, 3W1E14, 3W1E15, 3W1E16, AND 3W1E17. See TM 9-2350-252-20-1.

GO TO NEXT PAGE
REPAIR GEN-STARTER WIRING HARNESS 3W4

INITIAL SETUP

Tools:
Multimeter, URM -105C-6625-00-999-6282

References:
TM 9-2350-252-20-1

Personnel Required:
Fuel and Elec Sys Rep 63G10

Equipment Conditions:
Wiring harness 3W4 on workbench

REPAIR

1. TEST ALL PINS FOR CONTINUITY. NOTE WIRES THAT FAIL. USE MULTIMETER.


END OF TASK
This task covers:

- Circuit breakers CB1 thru CB12:
- Circuit breakers CB13, CB14:
- Relay K1:
- Relay K5:
- Relay K7:
- Relays K3, K4, K8:
- Resistor R1:
- Diode CR1/Relay K1:
- Diode CR1/Relay K5:
- Diode CR1/Relay K7:
- Diodes CR1/Relay K3, CR1/Relay K4:
- Choke L1:
- Modules TB1 thru TB6:
- Semiconductor DS1:
- Switch S1:
- Switch S2:
- Jack J1:
- Jack J2:
- Jack J3:
- Jack J4:
- Jack J5:
- Jack J6:
- Jack J7:
- Jack J8:
- Jack J9:
- Jack J10:
- Jack J11:
- Jack J12:
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- Jack J17:
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- Jack J19:
- Lead W2:
- Lead W5:
- Lead W6:
- Lead W7:
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INITIAL SETUP

Tools:
- Turret mechanic's tool kit
- Common solder kit — PRC150A
- Contact tool 20 — M81969-14-02
- Contact crimp type tool kit — MS27426
- Crimping tool 26-14 — M22520/24-01
- Crimping hand tool 12-10 — MS3316-1
- Contact tool 16 — M81969-14-03
- Contact tool 0 — 81969-15-03
- Contact tool 4 — 81969-15-02
- Pin extraction tool — M81969/18-01

Personnel Required:
- Tank Turret Repairer 45K10

References:
- TM 55-1500-323-25
- TM 9-2350-252-20-1

Equipment Conditions:
- Vehicle distribution box on workbench

Materials/Parts:
- Adhesive (Item 5, App B)
- Nonelectrical wire (Item 42, App B)

CIRCUIT BREAKERS CB1 THRU CB12

REMOVE

NOTE
Wiring diagram (FO-3) will help you identify leads, contacts, and terminals.

1. REMOVE COVER (1) FROM BOX (2).
   a. Remove 17 screws (3), washers (4), and cover (1) from box (2).
NOTE
Step 2 should be done only if gasket is worn or damaged.

2. REMOVE GASKET (5) FROM BOX (2). DISCARD GASKET.


4. REMOVE LEAD 6 (6) FROM BUS W12 (7).
   a. Remove nut (8), lock washer (9), screw (10), and lead 6 (6) from bus W12 (7). Tag lead. Discard lock washer.
5. REMOVE LEADS 6B (1) AND W9 (2) FROM BUS W4 (3).
   a. Remove screw (4), lead W9 (2), lock washer (5), and nut (6) from bus W4 (3). Tag lead. Discard lock washer.
   b. Remove screw (7), lead 6B (1), lock washer (8), and nut (9) from bus W4 (3). Tag lead. Discard lock washer.

NOTE
Step 6 should be done only if access to circuit breakers CB8 and CB11 is required.

6. REMOVE BUS W12 (10) FROM CIRCUIT BREAKERS (11).
   a. Remove two screws (12), lock washers (13), and bus W12 (10) from circuit breakers (11). Discard lock washers.

7. REMOVE BUS W4 (3) FROM CIRCUIT BREAKERS (11).
   a. Remove 10 screws (14), lock washers (15), and bus W4 (3) from circuit breakers (11). Discard lock washers.

NOTE
Step 7 should be done only if access to circuit breakers CB1, CB2, CB3, CB4, CB5, CB6, CB7, CB9, CB10, or CB12 is required.
Circuit breakers CB1, CB6, and CB8 have two leads each; all other circuit breakers have one lead.

8. REMOVE LEAD (16) FROM FAULTY CIRCUIT BREAKER (17).
   a. Remove screw (18), lock washer (19), and lead (16) from circuit breaker (17). Tag lead. Discard screw and lock washer.

9. REMOVE PANEL (20) FROM BOX (21).
   a. Remove six screws (22), lock washers (23), and panel (20) from box (21). Discard lock washers.

10. REMOVE FAULTY CIRCUIT BREAKER (17) FROM PANEL (20).
    a. Remove two screws (24) and faulty circuit breaker (17) from panel (20).
11. INSTALL CIRCUIT BREAKER (1) ON PANEL (2).
   a. Install circuit breaker (1) on panel (2) with two screws (3).

12. INSTALL PANEL (2) ON BOX (4).
   a. Install panel (2) on box (4) with six lock washers (5) and screws (6).

13. INSTALL LEAD (7) ON CIRCUIT BREAKER (1).
   a. Install lead (7) on terminal (8) of circuit breaker (1) with lock washer (9) and screw (10).
NOTE
Step 14 should be done only if access to circuit breakers CB1, CB2, CB3, CB4, CB5, CB6, CB7, CB9, CB10, or CB12 was required.

14. INSTALL BUS W4 (11) ON CIRCUIT BREAKERS (12).
   a. Install bus W4 (11) on circuit breakers (12) with 10 lock washers (13) and screws (14).

NOTE
Step 15 should be done only if access to circuit breakers CB8 or CB11 was required.

15. INSTALL BUS W12 (15) ON CIRCUIT BREAKERS (12).
   a. Install bus W12 (15) on circuit breakers (12) with two lock washers (16) and screws (17).
16. INSTALL LEADS 6B (1) AND W9 (2) ON BUS W4 (3).
   a. Install lead 6B (1), screw (4), lock washer (5), and nut (6) on bus W4 (3).
   b. Install lead W9 (2), screw (7), lock washer (8), and nut (9) on bus W4 (3).

17. INSTALL LEAD 6 (10) ON BUS W12 (11).
   a. Install lead 6 (10), screw (12), lock washer (13), and nut (14) on bus W12 (11).

19. INSTALL GASKET (15) ON BOX (16).
   a. Apply thin coat of adhesive on one side of gasket (15) and on mating surface of box (16).
   b. Press gasket (15) on box (16).

20. INSTALL COVER (17) ON BOX (16).
   a. Install cover (17) on box (16) with 17 washers (18) and screws (19).

21. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

CIRCUIT BREAKERS CB13, CB14

REMOVE

22. DO STEPS 1 AND 2.

   NOTE
   Only lock washer from faulty circuit breaker is discarded.

23. REMOVE BUS W-3 (20) FROM CIRCUIT BREAKERS CB13 (21) AND CB14 (22).
   a. Remove two screws (23), lock washers (24), lead W6 (25), and bus W3 (20) from circuit breakers CB13 (21) and CB14 (22). Tag lead. Discard lock washer.
NOTE
If access to circuit breaker CB13 is required, lead W8 must be removed. If access to circuit breaker CB14 is required, lead W7 must be removed.

24. REMOVE LEAD (1) FROM FAULTY CIRCUIT BREAKER (2).
   a. Remove screw (3), lock washer (4), and lead (1) from circuit breaker (2). Tag lead. Discard lock washer.

25. REMOVE FAULTY CIRCUIT BREAKER (2) FROM BOX (5).
   a. Remove two screws (6), lock washers (7), and circuit breaker (2) from box (5). Discard lock washers.

INSTALL

26. INSTALL CIRCUIT BREAKER (2) ON BOX (5).
   a. Install circuit breaker (2) on box (5) with two lock washers (7) and screws (6).

27. INSTALL LEAD (1) ON CIRCUIT BREAKER (2).
   a. Install lead (1) on circuit breaker (2) with lock washer (4) and screw (3).
28. INSTALL BUS W3 (8) ON CIRCUIT BREAKERS CB13 (9) AND CB14 (10).
   a. Place bus W3 (8) on circuit breakers CB13 (9) and CB14 (10).
   b. Install lock washer (11) and screw (12) on circuit breaker CB14 (10).
   c. Install lead W6 (13) on circuit breaker CB13 (9) with lock washer (14) and screw (15).

29. DO STEPS 19 AND 20.

30. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULTS.

31. DO STEPS 1 AND 2.

32. REMOVE LEAD 27 (16) AND DIODE (17) FROM TERMINAL K1X1 (18).
   a. Remove nut (19), diode (17), and lead 27 (16) from terminal K1X1 (18). Tag lead. Discard nut.
33. REMOVE DIODE (1) AND TWO LEADS 589 (2) FROM TERMINAL K1X2 (3).
   a. Remove nut (4), diode (1), and two leads 589 (2) from terminal K1X2 (3). Tag leads. Discard nut.

34. REMOVE LEAD W8 (5) FROM TERMINAL K1A1 (6).
   a. Remove nut (7) and lead W8 (5) from terminal K1A1 (6). Tag lead. Discard nut.

35. REMOVE LEADS 575B (8) AND 575A (9) FROM TERMINAL K1A2 (10).
   a. Remove nut (11) and leads 575B (8) and 575A (9) from terminal K1A2 (10). Tag leads. Discard nut.

36. REMOVE RELAY K1 (12) FROM BOX (13).
   a. Remove two screws (14), washers (15), and relay K1 (12) from box (13).
37. INSTALL RELAY K1 (12) ON BOX (13).
   a. Install relay K1 (12) on box (13) with two washers (15) and screws (14).

38. INSTALL LEADS 575A (9) AND 575B (8) ON TERMINAL K1A2 (10).
   a. Install leads 575A (9) and 575B (8) on terminal K1A2 (10) with nut (11).

39. INSTALL LEAD W8 (5) ON TERMINAL K1A1 (6).
   a. Install lead W8 (5) on terminal K1A1 (6) with nut (7).

40. INSTALL TWO LEADS 589 (2) AND DIODE (1) ON TERMINAL K1X2 (3).
   a. Install two leads 589 (2) and diode (1) on terminal K1X2 (3) with nut (4).

GO TO NEXT PAGE
41. INSTALL LEAD 27 (1) AND DIODE (2) ON TERMINAL K1X1 (3).
   a. Install lead 27 (1) and diode (2) on terminal K1X1 (3) with nut (4).

42. DO STEPS 19 AND 20.

43. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

44. DO STEPS 1 AND 2.


46. REMOVE LEADS W6 (5), W9 (6), AND W2 (7) FROM TERMINAL K5A1 (8).
   a. Remove nut (9), lock washer (10), washer (11), leads W6 (5), W9 (6), W2 (7), and washer (12) from terminal K5A1 (8). Tag leads. Discard nut, lock washer, and washers.
47. REMOVE LEADS 49 (13) AND W11 (14) FROM TERMINAL K5A2 (15).
   a. Remove nut (16), lock washer (17), washer (18), leads 49 (13) and W11 (14), and washer (19) from terminal K5A2 (15). Tag leads. Discard nut, lock washer, and washers.

48. REMOVE DIODE (20) FROM TERMINALS K5X1 (21) AND K5X2 (22).
   a. Remove two nuts (23), lock washers (24), washers (25), and diode (20) from terminals K5X1 (21) and K5X2 (22). Discard nuts, lock washers, and washers.
49. REMOVE LEADS 181 (1) AND 7B (2) FROM RELAY K5 (3).
   a. Remove lead 181 (1) and washer (4) from terminal K5X1 (5). Tag lead. Discard washer.
   b. Remove lead 7B (2) and washer (6) from terminal K5X2 (7). Tag lead. Discard washer.

50. REMOVE RELAY K5 (3) FROM BOX (8).
   a. Remove two screws (9), lock washers (10), washers (11), and relay K5 (3) from box (8). Discard lock washers.

51. INSTALL RELAY K5 (3) ON BOX (8).
   a. Install relay K5 (3) on box (8) with two washers (11), lock washers (10), and screws (9).

52. INSTALL LEADS 181 (1) AND 7B (2) ON RELAY K5 (3).
   a. Install washer (4) and lead 181 (1) on terminal K5X1 (5).
   b. Install washer (6) and lead 7B (2) on terminal K5X2 (7).
53. INSTALL DIODE (12) ON TERMINALS K5X1 (5) AND K5X2 (7).

a. Install diode (12) on terminals K5X1 (5) and K5X2 (7) with two washers (13), lock washers (14), and nuts (15).

54. INSTALL LEADS W11 (16) AND 49 (17) ON TERMINAL K5A2 (18).

a. Install washer (19) and leads W11 (16) and 49 (17) on terminal K5A2 (18) with washer (20), lock washer (21), and nut (22).

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55. INSTALL LEADS W2 (1), W9 (2), AND W6 (3) ON TERMINAL K5A1 (4).
   a. Install washer (5) and leads W2 (1), W9 (2), and W6 (3) on terminal K5A1 (4) with washer (6), lock washer (7), and nut (8).


57. DO STEPS 19 AND 20.

58. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

59. DO STEPS 1 AND 2.

60. REMOVE TWO CIRCUIT CARDS. See task: REPLACE CONSOLIDATION CIRCUIT CARD ASSEMBLY, page 9-97; and REPLACE WARNING CIRCUIT CARD ASSEMBLY, page 9-101.

61. REMOVE LEAD W7 (9) FROM TERMINAL K7A1 (10).
   a. Remove nut (11), lock washer (12), washer (13), lead W7 (9), and washer (14) from terminal K7A1 (10). Tag lead. Discard nut, lock washer, and washers.
62. REMOVE LEADS 716 (15) AND W10 (16) FROM TERMINAL K7A2 (17).
   
a. Remove nut (18), lock washer (19), washer (20), leads 716 (15) and W10 (16), and washer (21) from terminal K7A2 (17). Tag leads. Discard nut, lock washer, and washers.

63. REMOVE DIODE (22) FROM TERMINAL K7X1 (23) AND K7X2 (24).
   
a. Remove two nuts (25), lock washers (26), washers (27), and diode (22) from terminals K7X1 (23) and K7X2 (24). Discard nuts, lock washers, and washers.

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64. REMOVE TWO LEADS 27A (1) AND LEAD 439B (2) FROM RELAY K7 (3).
   a. Remove two leads 27A (1) and washer (4) from terminal K7X1 (5). Tag leads. Discard washer.
   b. Remove lead 439B (2) and washer (6) from terminal K7X2 (7). Tag lead. Discard washer.

65. REMOVE RELAY K7 (3) FROM BOX (8).
   a. Remove two screws (9), lock washers (10), and relay K7 (3) from box (8). Discard lock washers.

66. INSTALL RELAY K7 (3) ON BOX (8).
   a. Install relay (3) on box (8) with two lock washers (10) and screws (9).

67. INSTALL TWO LEADS 27A (1) AND LEAD 439B (2) ON RELAY K7 (3).
   a. Install washer (4) and two leads 27A (1) on terminal K7X1 (5).
   b. Install washer (6) and lead 439B (2) on terminal K7X2 (7).
68. INSTALL DIODE (11) ON TERMINALS K7X1 (5) AND K7X2 (7).
   a. Install diode (11) on terminals K7X1 (5) and K7X2 (7) with two washers (12), lock washers (13), and nuts (14).

69. INSTALL LEADS W10 (15) AND 716 (16) ON TERMINAL K7A2 (17).
   a. Install washer (18), leads W10 (15) and 716 (16), washer (19), lock washer (20), and nut (21) on terminal K7A2 (17).

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70. INSTALL LEAD W7 (1) ON TERMINAL K7A1 (2).
   a. Install washer (3) and lead W7 (1) on terminal K7A1 (2) with washer (4),
      lock washer (5), and nut (6).

71. INSTALL TWO CIRCUIT CARDS. See task:
    REPLACE CONSOLIDATION CIRCUIT CARD ASSEMBLY, page 9-97; and

72. DO STEPS 19 AND 20.

73. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

74. REPEAT STEPS 1 AND 2.

75. REMOVE TWO CIRCUIT CARDS. See task:
    REPLACE CONSOLIDATION CIRCUIT CARD ASSEMBLY, page 9-97; and

76. UNSOLDER LEADS (7) FROM FAULTY RELAY (8). USE COMMON SOLDER KIT.
NOTE
Step 77 should be done only if relay K3 or K4 is faulty. Relay K8 has no diode.

77. UNSOLDER DIODE (9) FROM TERMINALS X1 (10) AND X2 (11) ON RELAY K3 (12) OR K4 (13). USE COMMON SOLDER KIT.

78. REMOVE GROUND LEAD (14) FROM MOUNTING PLATE (15).
   a. Remove screw (16), lock washer (17), and ground lead (14) from mounting plate (15). Discard lock washer.

79. REMOVE MOUNTING PLATE (15) FROM BOX (18).
   a. Remove three screws (19), lock washers (20), washers (21), and mounting plate (15) from box (18). Discard lock washers.

80. REMOVE FAULTY RELAY (22) FROM MOUNTING PLATE (15).
   a. Remove two screws (23), locknuts (24), and relay (22) from mounting plate (15). Discard locknuts.
81. INSTALL RELAY (1) ON MOUNTING PLATE (2).
   a. Install relay (1) on mounting plate (2) with two screws (3) and locknuts (4).

82. INSTALL MOUNTING PLATE (2) ON BOX (5).
   a. Install mounting plate (2) on box (5) with three washers (6), lock washers (7), and screws (8).

83. INSTALL GROUND LEAD (9) ON MOUNTING PLATE (2).
   a. Install ground lead (9) on mounting plate (2) with lock washer (10) and screw (11).

NOTE
Step 84 should be done only if diode was removed from relay K3 or K4.

84. SOLDER DIODE (12) ON TERMINALS X1 (13) AND X2 (14) OF RELAY K3 (15); OR K4 (16) WITH CIRCLED END OF DIODE ON TERMINAL X1 (13). USE COMMON SOLDER KIT.
85. SOLDER LEADS (17) ON RELAY (1). USE COMMON SOLDER KIT.

86. INSTALL TWO CIRCUIT CARDS. See task: REPLACE CONSOLIDATION CIRCUIT CARD ASSEMBLY, page 9-97; and REPLACE WARNING CIRCUIT CARD ASSEMBLY, page 9-101.

87. DO STEPS 19 AND 20.

88. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

89. DO STEPS 1 AND 2.


91. UNSOLDER AND REMOVE RESISTOR R1 (18) FROM MOUNTING BRACKET (2). USE COMMON SOLDER KIT.
INSTALL

92. SOLDER RESISTOR R1 (1) ON MOUNTING PLATE (2). USE COMMON SOLDER KIT.


94. DO STEPS 19 AND 20.

95. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

DIODE CR1/RELAY K1

REMOVE

96. DO STEPS 1 AND 2.

97. REMOVE DIODE (3) FROM RELAY K1 (4).
   a. Remove two nuts (5) and diode (3) from terminals K1X1 (6) and K1X2 (7) on relay K1 (4).
98. INSTALL DIODE (3) ON RELAY K1 (4).
   a. Install diode (3) on terminals K1X1 (6) and K1X2 (7) on relay K1 (4) with two nuts (5).


100. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

DIODE CR1/RELAY K5

REMOVE

101. DO STEPS 1 AND 2.


103. REMOVE DIODE (8) FROM RELAY K5 (9).
   a. Remove two nuts (10), lock washers (11), washers (12), and diode (8) from terminals K5X1 (13) and K5X2 (14) on relay K5 (9).
104. INSTALL DIODE (1) ON RELAY K5 (2).
   a. Install diode (1) on terminals K5X1 (3) and K5X2 (4) of relay K5 (2) with two washers (5), lock washers (6), and nuts (7).


106. DO STEPS 19 AND 20.

107. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

108. DO STEPS 1 AND 2.


110. REMOVE DIODE (8) FROM RELAY K7 (9).
   a. Remove two nuts (10), lock washers (11), washers (12), and diode (8) from terminals K7X1 (13) and K7X2 (14) on relay K7 (9).
111. INSTALL DIODE (8) ON RELAY K7 (9).
   a. Install diode (8) on terminals K7X1 (13) and K7X2 (14) of relay K7 (9) with two washers (12), lock washers (11), and nuts (10).


113. DO STEPS 19 AND 20.

114. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

115. DO STEPS 1 AND 2.


117. UNSOLDER DIODE (15) FROM TERMINALS X1 (16) AND X2 ON RELAY K3 (18) OR K4 (19). USE COMMON SOLDER KIT.

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118. SOLDER DIODE (1) ON TERMINALS X1 (2) AND X2 (3) ON RELAY K3 (4); OR K4 (5) WITH CIRCLED END OF DIODE ON TERMINAL X1. USE COMMON SOLDER KIT.


120. DO STEPS 19 AND 20.

121. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

122. DO STEPS 1 AND 2.


124. UNSOLDER LEADS 54B (6) AND 54C (7) FROM TERMINALS L1-1 (8) AND L1-2 (9). USE COMMON SOLDER KIT.
125. REMOVE CHOKE L1 (10) FROM BOX (11).
   a. Remove two screws (12), lock washers (13), and choke L1 (10) from box (11). Discard lock washers.

126. INSTALL CHOKE L1 (10) IN BOX (11).
   a. Install choke L1 (10) in box (11) with two lock washers (13) and screws (12).

127. SOLDER LEADS 54B (6) AND 54C (7) ON TERMINALS L1-1 (8) AND L1-2 (9). USE COMMON SOLDER KIT.


129. DO STEPS 19 AND 20.

130. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

GO TO NEXT PAGE
MODULES TB1 THRU TB6

131. DO STEPS 1 AND 2.


133. REMOVE LEADS 49 (1) AND W11 (2) FROM RELAY K5 (3).
   a. Remove nut (4), lock washer (5), washer (6), leads 49 (1) and W11 (2), and washer (7) from terminal K5A2 (8) of relay K5 (3). Tag leads.

135. REMOVE TRACK (11) FROM BOX (12).
   a. Remove two screws (13) and track (11) from box (12).

136. MOVE RETAINER (14) TO END OF TRACK (11).
   a. Loosen retainer screw (15) and move retainer (14) to end of track (11).

NOTE
If faulty module is between other modules, other modules must be slid toward retainer until faulty module will clear guides.

137. REMOVE FAULTY MODULE (10) FROM TRACK (11).
   a. Slide faulty module (10) toward retainer (14) until clear of guides (16).
   b. Remove faulty module (10) from track (11).

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NOTE
Moduloscannotbeinterchanged. Part number of
module must be checked before installing. New
module must be placed on track where faulty
module was removed.

138. INSTALL MODULE (1) IN TRACK (2).
   a. Place module (1) in track (2)
      between guides (3).
   b. Slide module (1) away from retainer
      (4).

139. SECURE MODULES (1) IN TRACK (2).
   a. Slide retainer (4) against module
      6 (5) until each module (1) is aligned
      with its own number on track (2).
      Tighten retainer screw (6).

140. INSTALL TRACK (2) IN BOX (7).
    a. Install track (2) in box (7) with two
       screws (8).

141. INSTALL CONTACTS (9) IN MODULE (1).
    See TM 55-1500-323-25. USE CONTACT
    TOOL 20.
142. INSTALL LEADS W11 (10) AND 49 (11) ON RELAY K5 (12).
   a. Install washer (13) and leads W11 (10) and 49 (11) on terminal K5A2 (14) with washer (15), lock washer (16), and nut (17).


144. DO STEPS 19 AND 20.

145. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

SEMICONDUCTOR DS1

REMOVE

146. DO STEPS 1 AND 2.


148. REMOVE STRAPS (18) FROM LEADS 7B (19) AND 181A (20). DISCARD STRAPS.

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149. REMOVE JACK J19 (1) FROM ELECTRICAL BRACKET (2).
   a. Remove two nuts (3), lock washers (4), screws (5), and jack J19 (1) from electrical bracket (2). Discard lock washers.

150. REMOVE LEAD 181A (6) FROM RECEPTACLE 47 (7) OF JACK J19 (1).

151. REMOVE CONTACT FROM LEAD 181A (6). See TM 55-1500-323-25. USE CONTACT CRIMP TOOL KIT.

NOTE
Leads 7B make up ground lead.

152. REMOVE GROUND LEAD (8) FROM MOUNTING PLATE (9).
   a. Remove screw (10), lock washer (11), and ground lead (8) from mounting plate (9). Discard lock washer.

154. REMOVE SEMICONDUCTOR DS1 (12) FROM BOX (13).
   a. Remove clip (14) from semiconductor DS1 (12).
   b. Remove semiconductor DS1 (12) from box (13).

155. INSTALL SEMICONDUCTOR DS1 (12) ON BOX (13).
   a. Install semiconductor DS1 (12) on box (13).
   b. Install clip (14) on semiconductor DS1 (12).
   c. Place leads 7B (8) and 181A (6) along inside of box (13). Cut to size.

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156. INSTALL TERMINAL LUG ON LEADS 7B (1). See TM 9-2350-252-20-1. USE CRIMPING TOOL 26-14.

NOTE
Leads 7B make up ground lead.

157. INSTALL GROUND LEAD (1) ON MOUNTING PLATE (2).
   a. Install ground lead (1) on mounting plate (2) with lock washer (3) and screw (4).

158. INSTALL CONTACT ON LEAD 181A (5).
     See TM 55-1500-323-25. USE CONTACT CRIMP TOOL KIT AND CRP 12-10 HAND TOOL.

159. INSTALL LEAD 181A (5) IN RECEPTACLE 47 (6) OF JACK J19 (7).

160. INSTALL JACK J19 (7) ON ELECTRICAL BRACKET (8).
   a. Install jack J19 (7) on electrical bracket (8) with two screws (9), lock washers (10), and nuts (11).
161. INSTALL STRAPS (12) ON LEADS 7B (1) AND 181A (5).


163. DO STEPS 19 AND 20.

164. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

165. DO STEPS 1 AND 2.

166. REMOVE SWITCH S1 (13) FROM BOX (14).
   a. Remove boot (15) from switch S1 (13).
   b. Remove switch S1 (13) and lock washer (16) from box (14). Discard lock washer.

167. UNSOLDER TWO LEADS (17) FROM SWITCH S1 (13). USE COMMON SOLDER KIT.

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INSTALL

168. SOLDER LEADS (1) TO SWITCH S1 (2). USE COMMON SOLDER KIT.

169. INSTALL SWITCH S1 (2) ON BOX (3).
   a. Install lock washer (4), switch S1 (2), and boot (5) on box (3).

170. DO STEPS 19 AND 20.

171. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

SWITCH S2

REMOVE

172. DO STEPS 1 AND 2.

173. REMOVE COTTER PIN (6) FROM GUARD (7). DISCARD COTTER PIN.

174. REMOVE SWITCH S2 (8) FROM BOX (9).
   a. Remove jam nut (10), lock washer (11), and guard (7) from switch S2 (8). Discard jam nut and lock washer.
   b. Remove switch S2 (8) and locking ring (12) from inside of box (9). Discard locking ring.
175. REMOVE TWO LEADS (13) FROM SWITCH S2 (8).
   a. Remove two screws (14), lock washers (15), and leads (13) from terminals S2-2 (16) and S2-3 (17) of switch S2 (8). Tag leads. Discard screws, lock washers, and switch.

176. INSTALL TWO LEADS (13) ON SWITCH S2 (8).
   a. Install two leads (13) on terminals S2-2 (16) and S2-3 (17) of switch S2 (8) with two lock washers (15) and screws (14).
177. INSTALL SWITCH S2 (1) ON BOX (2).
   a. Install locking ring (3) on switch S2 (1) with tab (4) pointed away from switch S2.
   b. Position switch S2 (1) on box (2) with tab (4) in alignment hole (5).
   c. Install guard (6), lock washer (7), and jam nut (8) on switch S2 (1).

178. INSTALL NEW COTTER PIN (9) IN GUARD (6).

179. DO STEPS 19 AND 20.

180. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

181. DO STEPS 1 AND 2.

   NOTE
   Jam nut is not discarded unless jack J1 is replaced.

182. REMOVE JACK J1 (10) FROM BOX (2).
   a. Remove lock wire (11) from jack J1 (10). Discard lock wire.
   b. Remove jam nut (12) and jack J1 (10) from box (2). Discard jam nut.

185. INSTALL JACK J1 (10) ON BOX (2).
   a. Install jack J1 (10) on box (2) with jam nut (12).
   b. Install lock wire (11) on jack J1 (10).

186. DO STEPS 19 AND 20.

187. RETURN TO FVS AND LRU TROUBLESHOOTING. VERIFY NO FAULT.


188. DO STEPS 1 AND 2.

NOTE
Jam nut is not discarded unless jack J2 is replaced.

189. REMOVE JACK J2 (14) FROM BOX (2).
   a. Remove lock wire (15) from jack J2 (14). Discard lock wire.
   b. Remove jam nut (16) and jack J2 (14) from box (2). Discard jam nut.


192. INSTALL JACK J2 (2) ON BOX (3).
   a. Install jack J2 (2) on box (3) with jam nut (4).
   b. Install lock wire (5) on jack J2 (2).

193. DO STEPS 19 AND 20.

194. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

195. DO STEPS 1 AND 2.

NOTE
Jam nut is not discarded unless jack J3 is replaced.

196. REMOVE JACK J3 (6) FROM BOX (3).
   a. Remove lock wire (7) from jack J3 (6). Discard lock wire.
   b. Remove jam nut (8) and jack J3 (6) from box (3). Discard jam nut.

197. REMOVE CONTACTS (9) FROM JACK J3 (6). TAG CONTACTS. See TM 55-1500-323-25. USE CONTACT TOOL 16.
198. INSTALL CONTACTS (9) ON JACK J3 (6). See TM 55-1500-323-25. USE CONTACT TOOL 16.

199. INSTALL JACK J3 (6) ON BOX (3).
   a. Install jack J3 (6) on box (3) with jam nut (8).
   b. Install lock wire (7) on jack J3 (6).

200. DO STEPS 19 AND 20.

201. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

202. DO STEPS 1 AND 2.

NOTE
Jam nut is not discarded unless jack J4 is replaced.

203. REMOVE JACK J4 (10) FROM BOX (3).
   a. Remove lock wire (11) from jack J4 (10). Discard lock wire.
   b. Remove jam nut (12) and jack J4 (10) from box (3). Discard jam nut.


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206. INSTALL JACK J4 (2) ON BOX (3).
   a. Install jack J4 (2) on box (3) with jam nut (4).
   b. Install lock wire (5) on jack J4 (2).

207. DO STEPS 19 AND 20.

208. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

209. DO STEPS 1 AND 2.

   NOTE
   Jam nut is not discarded unless jack J5 is replaced.

210. REMOVE JACK J5 (6) FROM BOX (3).
   a. Remove lock wire (7) from jack J5 (6).
      Discard lock wire.
   b. Remove jam nut (8) and jack J5 (6) from box (3). Discard jam nut.


213. INSTALL JACK J5 (6) ON BOX (3).
   a. Install jack J5 (6) on box (3) with jam nut (8).
   b. Install lock wire (7) on jack J5 (6).

214. DO STEPS 19 AND 20.

215. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

216. DO STEPS 1 AND 2.

   NOTE
   Jam nut is not discarded unless jack J6 is replaced.

217. REMOVE JACK J6 (10) FROM BOX (3).
   a. Remove lock wire (11) from jack J6 (10). Discard lock wire.
   b. Remove jam nut (12) and jack J6 (10) from box (3). Discard jam nut.


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219. INSTALL CONTACTS (1) ON JACK J6 (2). See TM 55-1500-323-25. USE CONTACT TOOL 16.

220. INSTALL JACK J6 (2) ON BOX (3).
   a. Install jack J6 (2) on box (3) with jam nut (4).
   b. Install lock wire (5) on jack J6 (2).

221. DO STEPS 19 AND 20.

222. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

223. DO STEPS 1 AND 2.

   NOTE
   Jam nut is not discarded unless jack J7 is replaced.

224. REMOVE JACK J7 (6) FROM BOX (3).
   a. Remove lock wire (7) from jack J7 (6). Discard lock wire.
   b. Remove jam nut (8) and jack J7 (6) from box (3). Discard jam nut.

227. INSTALL JACK J7 (6) ON BOX (3).
   a. Install jack J7 (6) on box (3) with jam nut (8).
   b. Install lock wire (7) on jack J7 (6).

228. DO STEPS 19 AND 20.

229. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

230. DO STEPS 1 AND 2.

   NOTE
   Jam nut is not discarded unless jack J8 is replaced.

231. REMOVE JACK J8 (10) FROM BOX (3).
   a. Remove lock wire (11) from jack J8 (10). Discard lock wire.
   b. Remove jam nut (12) and jack J8 (10) from box (3). Discard jam nut.

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233. INSTALL CONTACTS (1) ON JACK J8 (2). See TM 55-1500-323-25. USE CONTACT TOOL 16.

234. INSTALL JACK J8 (2) ON BOX (3).
   a. Install jack J8 (2) on box (3) with jam nut (4).
   b. Install lock wire (5) on jack J8 (2).

235. DO STEPS 19 AND 20.

236. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

237. DO STEPS 1 AND 2.

   NOTE
   Jam nut is not discarded unless jack J9 is replaced.

238. REMOVE JACK J9 (6) FROM BOX (3).
   a. Remove lock wire (7) from jack J9 (6). Discard lock wire.
   b. Remove jam nut (8) and jack J9 (6) from box (3). Discard jam nut.


241. INSTALL JACK J9 (6) ON BOX (3).
   a. Install jack J9 (6) on box (3) with jam nut (8).
   b. Install lock wire (7) on jack J9 (6).


243. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

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244. DO STEPS 1 AND 2.


246. REMOVE LEAD W2 (1) FROM RELAY K5 (2).

   a. Remove nut (3), lock washer (4), washer (5), leads W6 (6), W9 (7), W2 (1), and washer (8) from terminal K5A1 (9). Tag leads.

NOTE
Jam nut is not discarded unless jack J10 is replaced.

247. REMOVE JACK J10 (10) FROM BOX (11).

   a. Remove lock wire (12) from jack J10 (10). Discard lock wire.
   b. Remove jam nut (13) from jack J10 (10). Discard jam nut.
   c. Remove lead W2 (1) and jack J10 (10) from box (11).

248. REMOVE CONTACT (14) FROM JACK J10 (10). See TM 55-1500-323-25. USE CONTACT TOOL 0.
249. INSTALL CONTACT (14) ON JACK J10 (10). See TM 55-1500-323-25. USE CONTACT TOOL 0.

250. INSTALL JACK J10 (10) ON BOX (11).
   a. Install jack J10 (10) on box (11) with jam nut (13).
   b. Install lock wire (12) on jack J10 (10).

251. INSTALL LEAD W2 (1) ON RELAY K5 (2).
   a. Install washer (8), leads W2 (1), W9 (7), W6 (6), washer (5), lock washer (4), and nut (3) on terminal K5A1 (9).


253. DO STEPS 19 AND 20.

254. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

GO TO NEXT PAGE
JACK J11

REMOVE

255. REMOVE TWO CIRCUIT CARDS. See
task: REPLACE CONSOLIDATION
CIRCUIT CARD ASSEMBLY, page 9-97;
and REPLACE WARNING CIRCUIT

256. DO STEPS 1 AND 2.

NOTE
Jam nut is not discarded unless jack J11 is
replaced.

257. REMOVE JACK J11 (1) FROM BOX (2).

a. Remove lockwire (3) from jack J11 (1).
Discard lockwire.

b. Remove jam nut (4) and jack J11 (1)
from box (2). Discard jam nut.

INSTALL

258. REMOVE CONTACTS (5) FROM JACK
J11 (1). TAG CONTACTS. See
TM 55-1500-323-25. USE CONTACT
TOOL 18.

259. INSTALL CONTACTS (5) ON JACK
J11 (1). See TM 55-1500-323-25. USE
CONTACT TOOL 18.
260. INSTALL JACK J11 (1) ON BOX (2).
   a. Install jack J11 (1) on box (2) with jam nut (4).
   b. Install lock wire (3) on jack J11 (1).


262. DO STEPS 19 AND 20.

263. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

264. DO STEPS 1 AND 2.


NOTE
Jam nut is not discarded unless jack J12 is replaced.

266. REMOVE JACK J12 (6) FROM BOX (2).
   a. Remove lock wire (7) from jack J12 (6). Discard lock wire.
   b. Remove jam nut (8) and jack J12 (6) from box (2). Discard jam nut.


GO TO NEXT PAGE
269. INSTALL JACK J12 (1) ON BOX (2).
   a. Install jack J12 (1) on box (2) with jam nut (3).
   b. Install lock wire (4) on jack J12 (1).


271. DO STEPS 19 AND 20.

272. RETURN TO FVS AND LRU TROUBLESHOOTING. VERIFY NO FAULT.

273. DO STEPS 1 AND 2.

274. REMOVE LEADS W5 (5) AND W11 (6) FROM JACK J13 (7).
   a. Remove two screws (8), washers (9), and leads W5 (5) and W11 (6) from jack J13 (7). Tag leads.

275. REMOVE CONNECTOR (10) FROM JACK J13 (7).
   a. Remove screw (11), washer (12), and locknut (13) from box (2). Discard locknut.
   b. Remove connector (10) from jack J13 (7). Discard connector.

276. REMOVE JACK J13 (7) FROM BOX (2).
   a. Remove four locknuts (14), washers (15), screws (16), and jack J13 (7) from box (2). Discard locknuts.
277. INSTALL LEADS W5 (5) AND W11 (6) ON JACK J13 (7).
   a. Install leads W5 (5) and W11 (6) on jack J13 (7) with two washers (9) and screws (8). Tighten screws finger tight.

NOTE
Jack J13 comes with insulator and gasket.

278. INSTALL JACK J13 (7) ON BOX (2).
   a. Remove insulator (17) and gasket (18) from jack J13 (7). Discard gasket and insulator.
   b. Install jack J13 (7) on box (2) with four screws (16), washers (15), and locknuts (14).
   c. Tighten two screws (8) on jack J13 (7) to secure leads W5 (5) and W11 (6).
279. INSTALL CONNECTOR (1) ON JACK J13 (2).
   a. Install cable (3), washer (4), screw (5), and locknut (6) on box (7).
   b. Install connector (1) on jack J13 (2).

280. DO STEPS 19 AND 20.

281. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

282. DO STEPS 1 AND 2.

   NOTE
   Cover is not discarded unless jack J14 is replaced.

283. REMOVE COVER (8) FROM JACK J14 (9).
   a. Remove locknut (10), screw (11), washer (12), and chain (13) from box (7). Discard locknut.
   b. Remove cover (8) from jack J14 (9). Discard cover.

284. REMOVE JACK J14 (9) FROM BOX (7).
   a. Remove four nuts (14), lock washers (15), screws (16), and jack J14 (9) from box (7). Discard lock washers.


287. INSTALL JACK J14 (9) ON BOX (7).
   a. Install jack J14 (9) on box (7) with four screws (16), lock washers (15), and nuts (14).

288. INSTALL COVER (8) ON JACK J14 (9).
   a. Install chain (13), washer (12), screw (11), and locknut (10) on box (7).
   b. Install cover (8) on jack J14 (9).

289. DO STEPS 19 AND 20.

290. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

GO TO NEXT PAGE
291. DO STEPS 1 AND 2.

NOTE
Cover is not discarded unless jack J15 is replaced.

292. REMOVE COVER (1) FROM JACK J15 (2).
   a. Remove locknut (3), screw (4), washer (5), and chain (6) from box (7). Discard locknut.
   b. Remove cover (1) from jack J15 (2). Discard cover.

293. REMOVE JACK J15 (2) FROM BOX (7).
   a. Remove four nuts (8), lock washers (9), screws (10), and jack J15 (2) from box (7). Discard lock washers.


296. INSTALL JACK J15 (2) ON BOX (7).
   a. Install jack J15 (2) on box (7) with four screws (10), lock washers (9), and nuts (8).

297. INSTALL COVER (1) ON JACK J15 (2).
   a. Install chain (6), washer (5), screw (4), and locknut (3) on box (7).
   b. Install cover (1) on jack J15 (2).

298. DO STEPS 19 AND 20.

299. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

300. DO STEPS 1 AND 2.


   NOTE
   Jam nut is not discarded unless jack J16 is replaced.

302. REMOVE JACK J16 (12) FROM BOX (7).
   a. Remove lock wire (13) from jack J16 (12). Discard lock wire.
   b. Remove jam nut (14) and jack J16 (12) from box (7). Discard jam nut.

GO TO NEXT PAGE
303. REMOVE CONTACTS (1) FROM JACK J16 (2). TAG CONTACTS. See TM 55-1500-323-25. USE CONTACT TOOL 20.

304. INSTALL CONTACTS (1) ON JACK J16 (2). See TM 55-1500-323-25. USE CONTACT TOOL 20.

305. INSTALL JACK J16 (2) ON BOX (3).
   a. Install jack J16 (2) on box (3) with jam nut (4).
   b. Install lock wire (5) on jack J16 (2).


308. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.
309. DO STEPS 1 AND 2.


311. REMOVE LEAD W10 (6) FROM RELAY K7 (7).
   a. Remove nut (8), lock washer (9), washer (10), leads 716 (11) and W10 (6), and washer (12) from terminal K7A2 (13). Tag leads.

   NOTE
   Jam nut is not discarded unless jack J17 is replaced.

312. REMOVE JACK J17 (14) FROM BOX (3).
   a. Remove lock wire (15) from jack J17 (14). Discard lock wire.
   b. Remove jam nut (16) and jack J17 (14) with lead W10 (6) from box (3). Discard jam nut.


GO TO NEXT PAGE
314. INSTALL CONTACT (1) ON JACK J17 (2). See TM 55-1500-323-25. USE CONTACT TOOL 4.

315. INSTALL JACK J17 (2) ON BOX (3).
   a. Install jack J17 (2) on box (3) with jam nut (4).
   b. Install lock wire (5) on jack J17 (2).

316. INSTALL LEAD W10 (6) ON RELAY K7 (7).
   a. Install washer (8), leads W10 (6) and 716 (9), washer (10), lock washer (11), and nut (12) on terminal K7A2 (13).


318. DO STEPS 19 AND 20.

319. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.
320. DO STEPS 1 AND 2.


322. REMOVE JACK J18 (14) FROM CIRCUIT CARD ASSEMBLY (15).

323. REMOVE CONTACTS (16) FROM JACK J18 (14). TAG CONTACTS. See TM 55-1500-323-25. USE EXTRACTION TOOL.

324. INSTALL CONTACTS (16) IN JACK J18 (14). See TM 55-1500-323-25. USE EXTRACTION TOOL.

GO TO NEXT PAGE
325. INSTALL JACK J18 (1) ON CIRCUIT CARD ASSEMBLY (2).


327. DO STEPS 19 AND 20.

328. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

329. DO STEPS 1 AND 2.


331. REMOVE JACK J19 (3) FROM ELECTRICAL BRACKET (4).

   a. Remove two nuts (5), lock washers (6), screws (7), and jack J19 (3) from electrical bracket (4). Discard lock washers.
332. REMOVE CONTACTS (8) FROM JACK J19 (3). TAG CONTACTS. See TM 55-1500-323-25. USE EXTRACTION TOOL.

333. INSTALL CONTACTS (8) IN JACK J19 (3). See TM 55-1500-323-25. USE EXTRACTION TOOL.

334. INSTALL JACK J19 (3) ON ELECTRICAL BRACKET (4).
   a. Install jack J19 (3) on electrical bracket (4) with two screws (7), lock washers (6), and nuts (5).


337. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

GO TO NEXT PAGE
338. DO STEPS 1 AND 2.


340. REMOVE LEAD W2 (1) FROM RELAY K5 (2).
   a. Remove nut (3), lock washer (4), washer (5), leads W6 (6), W9 (7), and W2 (1), and washer (8) from terminal K5A1 (9). Tag leads.

341. REMOVE JACK J10 (10) FROM BOX (11).
   a. Remove lock wire (12) from jack J10 (10). Discard lock wire.
   b. Remove jam nut (13) and jack J10 (10) from box (11).
   c. Remove lead W2 (1) and jack J10 (10) from box (11).

342. REMOVE LEAD W2 (1) FROM JACK J10 (10). See TM 55-1500-323-25. USE CONTACT TOOL 0.
343. INSTALL LEAD W2 (1) ON JACK J10 (10). See TM 55-1500-323-25. USE CONTACT TOOL 0.

344. INSTALL JACK J10 (10) ON BOX (11).
   a. Install jack J10 (10) on box (11) with jam' nut (13).
   b. Install lock wire (12) on jack J10 (10).

345. INSTALL LEAD W2 (1) ON RELAY K5 (2).
   a. Install washer (5), leads W2 (1), W9 (7), and W6 (6), washer (5), lock washer (4), and nut (3) on terminal K5A1 (9).


347. DO STEPS 19 AND 20.

348. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

GO TO NEXT PAGE
349. DO STEPS 1 AND 2.

350. REMOVE LEAD W5 (1) FROM JACK J13 (2).
   a. Remove screw (3), washer (4), and lead W5 (1) from lower terminal (5) on jack J13 (2).

351. REMOVE ELECTRONIC COMPONENT BRACKET AND MOTHERBOARD ASSEMBLY. See task: REPLACE ELECTRONIC COMPONENT BRACKET AND MOTHERBOARD ASSEMBLY, page 9-105.

352. REMOVE JACK J8 (6) FROM BOX (7).
   a. Do step 231.

353. REMOVE JACK J16 (8) FROM BOX (7).
   a. Do step 302.

354. REMOVE JACK J12 (9) FROM BOX (7).
   a. Do step 266.
355. REMOVE LEAD W5 (1) AND TERMINAL SCREW E1 (10) FROM BOX (7).
   a. Remove jam nut (11), washer (12), nut (13), and washer (14) from terminal screw E1 (10).
   b. Remove terminal screw E1 (10), lead W5 (1), and washer (15) from box (7).

356. INSTALL LEAD W5 (1) AND TERMINAL SCREW E1 (10) ON BOX (7).
   a. Place lead W5 (1) and washer (15) on terminal screw E1 (10).
   b. Install terminal screw E1 (10) on box (7) with washer (14) and nut (13).
   c. Place washer (12) and jam nut (11) on terminal screw E1 (10). Tighten jam nut finger tight.

357. INSTALL JACK J12 (9) ON BOX (7).
   a. Do step 289.

358. INSTALL JACK J16 (8) ON BOX (7).
   a. Do step 305.

GO TO NEXT PAGE
349. DO STEPS 1 AND 2.

350. REMOVE LEAD W5 (1) FROM JACK J13 (2).
   a. Remove screw (3), washer (4), and lead W5 (1) from lower terminal (5) on jack J13 (2).

351. REMOVE ELECTRONIC COMPONENT BRACKET AND MOTHERBOARD ASSEMBLY. See task: REPLACE ELECTRONIC COMPONENT BRACKET AND MOTHERBOARD ASSEMBLY, page 9-105.

352. REMOVE JACK J8 (6) FROM BOX (7).
   a. Do step 231.

353. REMOVE JACK J16 (8) FROM BOX (7).
   a. Do step 302.

354. REMOVE JACK J12 (9) FROM BOX (7).
   a. Do step 266.
355. REMOVE LEAD W5 (1) AND TERMINAL SCREW E1 (10) FROM BOX (7).
   a. Remove jam nut (11), washer (12), nut (13), and washer (14) from terminal screw E1 (10).
   b. Remove terminal screw E1 (10), lead W5 (1), and washer (15) from box (7).

356. INSTALL LEAD W5 (1) AND TERMINAL SCREW E1 (10) ON BOX (7).
   a. Place lead W5 (1) and washer (15) on terminal screw E1 (10).
   b. Install terminal screw E1 (10) on box (7) with washer (14) and nut (13).
   c. Place washer (12) and jam nut (11) on terminal screw E1 (10). Tighten jam nut finger tight.

357. INSTALL JACK J12 (9) ON BOX (7).
   a. Do step 269.

358. INSTALL JACK J16 (8) ON BOX (7).
   a. Do step 305.

GO TO NEXT PAGE
359. INSTALL JACK J8 (1) ON BOX (2).
   a. Do step 234.

360. INSTALL ELECTRONIC COMPONENT BRACKET AND MOTHERBOARD ASSEMBLY. See task: REPLACE ELECTRONIC COMPONENT BRACKET AND MOTHERBOARD ASSEMBLY, page 9-105.

361. INSTALL LEAD W5 (3) ON JACK J13 (4).
   a. Install lead W5 (3), washer (5), and screw (6) on lower terminal (7) of jack J13 (4).

362. DO STEPS 19 AND 20.

363. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

364. DO STEPS 1 AND 2.


366. REMOVE LEAD W6 (8) FROM RELAY K5 (9).
   a. Remove nut (10), lock washer (11), washer (12), leads W9 (13), W2 (14), and W6 (8), and washer (15) from terminal K5A1 (16) on relay K5 (9). Tag leads.
367. REMOVE LEAD W6 (8) FROM BUS W3 (17).
   a. Remove screw (18), lock washer (19), and lead W6 (8) from bus W3 (17).
   b. Remove lead W6 (8) from box.

368. INSTALL LEAD W6 (8) ON BUS W3 (17).
   a. Install lead W6 (8), lock washer (19), and screw (18) on bus W3 (17).

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369. INSTALL LEAD W6 (1) ON RELAY K5 (2).
   a. Install washer (3), leads W6 (1), W2 (4), and W9 (5), washer (6), lock washer (7), and nut (8) on terminal K5A1 (9) of relay K5 (2).


371. DO STEPS 19 AND 20.

372. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

373. DO STEPS 1 AND 2.

374. REMOVE LEAD W7 (10) FROM RELAY K7 (11).
   a. Remove nut (12), lock washer (13), washer (14), lead W7 (10), and washer (15) from terminal K7A1 (16) on relay K7 (11).
375. REMOVE LEAD W7 (10) FROM CIRCUIT BREAKER CB14 (17).
   a. Remove screw (18), lock washer (19),
      and lead W7 (10) from terminal 2 (20)
      on circuit breaker CB14 (17).
   b. Remove lead W7 (10) from box.

376. INSTALL LEAD W7 (10) ON CIRCUIT BREAKER CB14 (17).
   a. Install lead W7 (10), lock washer
      (19), and screw (18) on terminal 2
      (20) of circuit breaker CB14 (17).
377. INSTALL LEAD W7 (1) ON RELAY K7 (2).
   a. Install washer (3), lead W7 (1), washer (4), lock washer (5), and nut (6) on terminal K7A1 (7) of relay K7 (2).

378. DO STEPS 19 AND 20.

379. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

380. DO STEPS 1 AND 2.

381. REMOVE LEAD W8 (8) FROM RELAY K1 (9).
   a. Remove nut (10) and lead W8 (8) from terminal K1A1 (11) on relay K1 (9).
382. REMOVE LEAD W8 (8) FROM CIRCUIT BREAKER CB13 (12).
   a. Remove screw (13), lock washer (14), and lead W8 (8) from terminal 2 (15) on circuit breaker CB13 (12).
   b. Remove lead W8 (8) from box.

383. INSTALL LEAD W8 (8) ON CIRCUIT BREAKER CB13 (12).
   a. Install lead W8 (8), lock washer (14), and screw (13) on terminal 2 (15) of circuit breaker CB 13 (12).

GO TO NEXT PAGE
377. INSTALL LEAD W7 (1) ON RELAY K7 (2).
   a. Install washer (3), lead W7 (1), washer (4), lock washer (5), and nut (6) on terminal K7A1 (7) of relay K7 (2).

378. DO STEPS 19 AND 20.

379. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

380. DO STEPS 1 AND 2.

381. REMOVE LEAD W8 (8) FROM RELAY K1 (9).
   a. Remove nut (10) and lead W8 (8) from terminal K1A1 (11) on relay K1 (9).
382. REMOVE LEAD W8 (8) FROM CIRCUIT BREAKER CB13 (12).
   a. Remove screw (13), lock washer (14), and lead W8 (8) from terminal 2 (15) on circuit breaker CB13 (12).
   b. Remove lead W8 (8) from box.

383. INSTALL LEAD W8 (8) ON CIRCUIT BREAKER CB13 (12).
   a. Install lead W8 (8), lock washer (14), and screw (13) on terminal 2 (15) of circuit breaker CB 13 (12).

GO TO NEXT PAGE
384. INSTALL LEAD W8 (1) ON RELAY K1 (2).
   a. Install lead W8 (1) and nut (3) on terminal K1A1 (4) of relay K1 (2).

385. DO STEPS 19 AND 20.

386. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

387. DO STEPS 1 AND 2.


389. REMOVE LEAD W9 (5) FROM RELAY K5 (6).
   a. Remove nut (7), lock washer (8), washer (9), leads W6 (10), W2 (11), and W9 (5), and washer (12) from terminal K5A1 (13) on relay K5 (6). Tag leads.
390. REMOVE LEAD W9 (5) FROM BUS W4 (14).
   a. Remove screw (15), lead W9 (5), lock washer (16), and nut (17) from bus W4 (14). Discard lock washer.
   b. Remove lead W9 (5) from box.

391. INSTALL LEAD W9 (5) ON BUS W4 (14).
   a. Install lead W9 (5), screw (15), lock washer (16), and nut (17) on bus W4 (14).

GO TO NEXT PAGE
392. INSTALL LEAD W9 (1) ON RELAY K5 (2).
   a. Install washer (3), leads W9 (1), W2 (4), and W6 (5), washer (6), lock washer (7), and nut (8) on terminal K5A1 (9) of relay K5 (2).


394. DO STEPS 19 AND 20.

395. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

396. DO STEPS 1 AND 2.

397. REMOVE LEAD W10 (10) FROM RELAY K7 (11).
   a. Remove nut (12), lock washer (13), washer (14), leads 716 (15) and W10 (10), and washer (16) from terminal K7A2 (17) on relay K7 (11). Tag leads.
398. REMOVE JACK J17 (18) FROM BOX (19).
   a. Remove lock wire (20) from jack J17 (18). Discard lock wire.
   b. Remove jam nut (21) from jack J17 (18).
   c. Remove lead W10 (10) and jack J17 (18) from box (19).


GO TO NEXT PAGE
401. INSTALL JACK J17 (1) ON BOX (2).
   a. Install jack J17 (1) on box (2) with jam nut (3).
   b. Install lock wire (4) on jack J17 (1).

402. INSTALL LEAD W10 (5) ON RELAY K7 (6).
   a. Install washer (7), leads W10 (5) and 716 (8), washer (9), lock washer (10), and nut (11) on terminal K7A2 (12) of relay K7 (6).

403. DO STEPS 19 AND 20.

404. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.
**LEAD W11**

**REMOVE**

405. DO STEPS 1 AND 2.


407. REMOVE LEAD W11 (13) FROM RELAY K5 (14).
   a. Remove nut (15), lock washer (16), washer (17), leads 49 (18) and W11 (13), and washer (19) from terminal K5A2 (20) on relay K5 (14).

408. REMOVE LEAD W11 (13) FROM JACK J13 (21).
   a. Remove screw (22), washer (23), and lead W11 (13) from upper terminal (24) of jack J13 (21).
   b. Remove lead W11 (13) from box.

**GO TO NEXT PAGE**
409. INSTALL LEAD W11 (1) ON JACK J13 (2).
   a. Install lead W11 (1) on upper terminal (3) of jack J13 (2) with washer (4) and screw (5).

410. INSTALL LEAD W11 (1) ON RELAY K5 (6).
   a. Install washer (7), leads W11 (1) and 49 (8), washer (9), lock washer (10), and nut (11) on terminal K5A2 (12) of relay K5 (6).


412. DO STEPS 19 AND 20.

413. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

END OF TASK
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REPLACE CONSOLIDATION CIRCUIT CARD ASSEMBLY

DESCRIPTION

This task covers: Remove (page 9-97). Install (page 9-98).

INITIAL SETUP

Tools:
- Turret mechanic's tool kit

Personnel Required:
- Tank Turret Repairer 45K10

Materials/Parts:
- Adhesive (Item 5, App B)
- Consolidation circuit card assembly
- Lock washer (4)

Equipment Conditions:
- Vehicle distribution box on workbench

REMOVE

1. REMOVE COVER (1) FROM BOX (2).
   a. Remove 17 screws (3), washers (4), and cover (1) from box (2).

2. REMOVE GASKET (5) FROM BOX (2). DISCARD GASKET.

NOTE
Step 2 should be done only if gasket is too worn or damaged for further use.

GO TO NEXT PAGE
3. REMOVE RETAINER (1) FROM BRACKET (2).
   a. Remove four screws (3), lock washers (4), washers (5), and retainer (1) from bracket (2). Discard lock washers.

4. REMOVE CIRCUIT CARD (6) FROM BRACKET (2).

5. INSTALL NEW CIRCUIT CARD (6) IN BRACKET (2).

6. INSTALL RETAINER (1) ON BRACKET (2).
   a. Install retainer (1) on bracket (2) with four washers (5), new lock washers (4), and screws (3).
NOTE
Step 7 should be done only if worn or damaged gasket was removed in step 2.

7. INSTALL NEW GASKET (7) ON BOX (8).
   a. Apply thin coat of adhesive to one side of gasket (7) and mating surface of box (8). Let dry 10-20 minutes until tacky.
   b. Press gasket (7) on box (8).

8. INSTALL COVER (9) ON BOX (8).
   a. Install cover (9) on box (8) with 17 washers (10) and screws (11).

9. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

END OF TASK
REPLACE WARNING CIRCUIT CARD ASSEMBLY

DESCRIPTION

This task covers: Remove (page 9-101). Install (page 9-102).

INITIAL SETUP

Tools:
- Turret mechanic’s tool kit

Personnel Required:
- Tank Turret Repairer 45K10

Materials/Parts:
- Adhesive (Item 5, App B)
- Warning circuit card assembly
- Lock washer (4)

Equipment Conditions:
- Vehicle distribution box on workbench

REMOVE

1. REMOVE COVER (1) FROM BOX (2).
   a. Remove 17 screws (3), washers (4), and cover (1) from box (2).

2. REMOVE GASKET (5) FROM BOX (2). DISCARD GASKET.

NOTE
Step 2 should be done only if gasket is worn or damaged.

GO TO NEXT PAGE
3. REMOVE RETAINER (1) FROM TWO BRACKETS (2).
   a. Remove four screws (3), lock washers (4), washers (5), and retainer (1) from two brackets (2). Discard lock washers.

4. REMOVE CIRCUIT CARD (6) FROM TWO BRACKETS (2).

5. INSTALL NEW CIRCUIT CARD (6) IN TWO BRACKETS (2).

6. INSTALL RETAINER (1) ON TWO BRACKETS (2).
   a. Install retainer (1) on two brackets (2) with four washers (5), new lock washers (4), and screws (3).
NOTE
Step 7 should be done only if gasket was removed in step 2.

7. INSTALL GASKET (7) ON BOX (8).
   a. Apply thin coat of adhesive on one side of gasket (7) and mating surface of box (8). Let dry 10-20 minutes until tacky.
   b. Press gasket (7) on box (8).

8. INSTALL COVER (9) ON BOX (8).
   a. Install cover (9) on box (8) with 17 washers (10) and screws (11).

9. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

END OF TASK
Section IV. MAINTENANCE OF ELECTRONIC COMPONENT BRACKET AND MOTHERBOARD ASSEMBLY

REPLACE ELECTRONIC COMPONENT BRACKET AND MOTHERBOARD ASSEMBLY

DESCRIPTION

This task covers: Remove (page 9-105). Install (page 9-107).

INITIAL SETUP

Tools: Turret mechanic's tool kit

Personnel Required: Tank Turret Repairer 45K10

Materials/Parts:

Lock washer (2)
Lock washer (4)
Lock washer (4)
Electronic component bracket and motherboard assembly

Equipment Conditions:
Vehicle distribution box on workbench

REMOVE

1. REMOVE COVER (1) FROM BOX (2).
   a. Remove 17 screws (3), washers (4), and cover (1) from box (2).

2. REMOVE GASKET (5) FROM BOX (2). DISCARD GASKET.

NOTE
Step 2 should be done only if gasket is worn or damaged.

GO TO NEXT PAGE
3. REMOVE RETAINER (1) FROM TWO BRACKETS (2).
   a. Remove four screws (3), lock washers (4), washers (5), and retainer (1) from two brackets (2). Discard lock washers.

4. REMOVE WARNING CARD (6) FROM TWO BRACKETS (2).

5. REMOVE CONSOLIDATION CARD (7) FROM TWO BRACKETS (2).

6. REMOVE JACK J19 (8) FROM ELECTRICAL BRACKET (2).
   a. Remove two nuts (9), lock washers (10), screws (11), and jack J19 (8) from electrical bracket (2). Discard lock washers.
8. REMOVE BRACKET AND MOTHERBOARD ASSEMBLY (14) FROM BOX (15).
a. Remove four screws (16), lock washers (17), and bracket and motherboard assembly (14) from box (15). Discard lock washers.

7. REMOVE JACK J18 (12) FROM CIRCUIT CARD ASSEMBLY (13).

9. INSTALL NEW BRACKET AND MOTHERBOARD ASSEMBLY (14) IN BOX (15).
a. Install bracket and motherboard assembly (14) in box (15) with four new lock washers (17) and screws (16).

10. INSTALL JACK J18 (12) ON CIRCUIT CARD ASSEMBLY (13).
11. INSTALL JACK J19 ON ELECTRICAL BRACKET (2).
   a. Install jack J19 (1) on electrical bracket (2) with two screws (3), new lock washers (4), and nuts (5).

12. INSTALL CONSOLIDATION CARD (6) IN TWO BRACKETS (2).

13. INSTALL WARNING CARD (7) IN TWO BRACKETS (2).

14. INSTALL RETAINER (8) ON TWO BRACKETS (2).
   a. Install retainer (8) on two brackets (2) with four washers (9), new lock washers (10), and screws (11).
NOTE
Step 15 should be done only if gasket was removed in step 2.

15. INSTALL GASKET (12) ON BOX (13).
   a. Apply thin coat of adhesive on one side of gasket (12) and mating surface of box (13). Let dry 10-20 minutes until tacky.
   b. Press gasket (12) onto box (13).

16. INSTALL COVER (14) ON BOX (13).
   a. Install cover (14) on box (13) with 17 washers (15) and screws (16).

17. RETURN TO FVS LRU TROUBLESHOOTING. VERIFY NO FAULT.

END OF TASK
REPAIR RESISTOR ASSEMBLY

INITIAL SETUP

Tools:

- Automotive fuel and electrical systems repair kit
- Soldering gun — 3439-00-542-0396
- Multimeter, URM-105C — 6625-00-999-6282

Personnel Required:

- Fuel and Elec Sys Rep 63G10

Equipment Conditions:

- Resistor assembly on workbench

Materials/Parts:

- Lock washer (4)

REPAIR

1. REMOVE FIVE LEADS (1) FROM FOUR RESISTORS (2).
   a. Remove four nuts (3), lock washers (4), and five leads (1) from four terminal screws (5). Discard lock washers. Tag leads.
   b. Remove four nuts (6) and terminal screws (5) from four resistors (2).

NOTE

Lock washers in step 1 should be discarded only if resistor(s) are bad.

2. REMOVE TWO JUMPERS (7) FROM FOUR RESISTORS (2).
   a. Remove four nuts (8), lock washers (9), and two jumpers (7) from four terminal screws (10). Discard lock washers. Tag leads.
   b. Remove four nuts (11) and terminal screws (10) from four resistors (2).

GO TO NEXT PAGE
3. CHECK CONTINUITY OF FOUR LEADS FROM JACK TO FOUR RESISTORS. TAG DAMAGED LEAD(S). USE MULTIMETER.

4. CHECK CONTINUITY OF THREE LEADS FROM JACK TO RELAY. TAG DAMAGED LEAD(S). USE MULTIMETER.

5. CHECK CONTINUITY OF TWO JUMPERS FROM FOUR RESISTORS. TAG DAMAGED JUMPER(S). USE MULTIMETER.

6. CHECK CONTINUITY OF JUMPER ON RELAY. TAG IF DAMAGED. USE MULTIMETER.

7. CHECK CONTINUITY OF LEAD FROM RELAY TO RESISTOR R3. TAG IF DAMAGED. USE MULTIMETER.

8. CHECK CONTINUITY OF FOUR RESISTORS. TAG DAMAGED RESISTOR(S). USE MULTIMETER.

9. DETERMINE FAULT OF RESISTOR ASSEMBLY.

   a. If jack is damaged, do steps 10 thru 13. Go to step 22.
   b. If continuity exists in all resistors, leads, and jumpers, relay is damaged. Do steps 14 thru 19. Go to step 22.
   c. If continuity does not exist in any of four leads from jack to resistors, do steps 10 and 13. Go to step 22.
   d. If continuity does not exist in any of three leads from jack to relay, do steps 10, 15, 18, and 13. Go to step 22.
   e. If continuity does not exist in any two jumpers for resistors, replace damaged jumper(s). Go to step 22.
   f. If continuity does not exist in jumper for relay, do steps 14 and 19. Go to step 22.
   g. If continuity does not exist in lead from relay to resistor R3, do steps 15 and 18. Go to step 22.
   h. If continuity does not exist in any of four resistors, do steps 20 and 21. Go to step 22.
NOTE
If jack is damaged, all seven leads must be unsoldered from jack.
If jack is not damaged, unsolder damaged lead(s) only.

10. UNSOLDER LEAD(S) (1) FROM JACK (2). USE SOLDERING GUN.

11. REMOVE JACK (2) FROM BASE (3).
   a. Remove four locknuts (4), screws (5), washers (6), and jack (2) from base (3). Discard locknuts.

12. INSTALL JACK (2) ON BASE (3).
   a. Position jack (2) on base (3) with indexing keyway (7) at 3 o'clock position. Align screw holes.
   b. Install four washers (6), screws (5), and locknuts (4) on jack (2) and base (3).

13. SOLDER LEAD(S) (1) ON JACK (2). USE SOLDERING GUN.

GO TO NEXT PAGE
14. UNSOLDER JUMPER (1) FROM RELAY (2). USE SOLDERING GUN.

15. UNSOLDER LEAD(S) (3) FROM RELAY (2). USE SOLDERING GUN.

16. REMOVE RELAY (2) FROM BRACKET (4).
   a. Remove two locknuts (5), screws (6), and relay (2) from bracket (4). Discard locknuts.

17. INSTALL RELAY (2) ON BRACKET (4).
   a. Install relay (2), two screws (6), locknuts (5) on bracket (4).
18. SOLDER LEAD(S) (3) ON RELAY (2). USE SOLDERING GUN.

19. SOLDER JUMPER (1) ON RELAY (2). USE SOLDERING GUN.

NOTE
Steps 20 and 21 can be used to remove and install resistors R1 and R2 or resistors R3 and R4.

20. REMOVE TWO RESISTORS (7) FROM BRACKET (8).
   a. Remove two locknuts (9), screws (10), four washers (11), and two resistors (7) from bracket (8). Discard locknuts.

21. INSTALL TWO RESISTORS (7) ON BRACKET (8).
   a. Install two resistors (7), four washers (11), two screws (10), and locknuts (9) on bracket (8).
22. INSTALL TWO JUMPERS (1) ON FOUR RESISTORS (2).
   a. Install four terminal screws (3) and nuts (4) on four resistors (2).
   b. Install two jumpers (1), four new lock washers (5), and nuts (6) on four terminal screws (3).

23. INSTALL FIVE LEADS (7) ON FOUR RESISTORS (2).
   a. Install four terminal screws (8) and nuts (9) on four resistors (2).
   b. Install five leads (7), four lock washers (10), and nuts (11) on four terminal screws (8).

NOTE
Resistor R3 has two leads.
## Section VI. MAINTENANCE OF WIRING HARNESS

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</table>
SERVICE/REPAIR VEHICLE BATTERIES

INITIAL SETUP

Personnel Required:
Fuel and Elec Sys Rep 63G10

Equipment Conditions:
Battery on workbench

References:
TM 9-6140-200-14

SERVICE/REPAIR

1. SERVICE AND REPAIR BATTERIES. See TM 9-6140-200-14.

END OF TASK
REPAIR WIRING HARNESS 1W10

INITIAL SETUP

Tools:
- General mechanic's tool kit: automotive
- Automotive fuel and electrical systems tool kit
- Multimeter, URM-105C — 6625-00-999-6282
- Portable electric heat gun — 500A
- Soldering gun — 3439-00-542-0396
- Machinist's vise, 4 Inch — 5120-00-293-1439
- Hacksaw frame — 5110-00-288-9657
- Hacksaw blade — 5110-00-237-8107

Materials/Parts:
- Adhesive sealant tape (Item 13, App B)
- Tin-lead solder (Item 65, App B)

Personnel Required:
- Fuel and Elec Sys Rep 63G10

Equipment Conditions:
- Wiring harness 1W10 on workbench

REPAIR

1. TEST ALL LEADS FOR CONTINUITY.
   NOTE LEADS THAT FAIL. USE MULTIMETER.

2. REPAIR PLUGS 1W10P1, 1W10P2, AND 1W10P3. See task: REPAIR/REPLACE MULTIPIN JACK/PLUG, FRONT AND REAR RELEASE, page 4-2.1.


END OF TASK
REPAIR CABLE 1W32

INITIAL SETUP

Tools:
Multimeter, URM-105C — 6625-00-999-6282

References:
TM 9-2350-252-20-1

Personnel Required:
Fuel and Elec Sys Rep 63G10

Equipment Conditions:
Cable assembly 1W32 on workbench

REPAIR

1. TEST ALL LEADS FOR CONTINUITY. NOTE LEADS THAT FAIL USE MULTIMETER.

2. REPAIR PLUG 1W32P1. See task:
   REPAIR/REPLACE MULTIPIN JACK/PLUG, FRONT AND REAR RELEASE, page 4-2.1.

3. REPAIR JACK 1W32J1. See
   TM 9-2350-252-20-1.

END OF TASK
REPAIR WIRING HARNESS 1W1

INITIAL SETUP

Tools:
- Multimeter, URM-105C — 6625-00-999-6282

References:
- TM 9-2350-252-20-1

Equipment Conditions:
- Wiring harness 1W1 on workbench

Personnel Required:
- Fuel and Elec Sys Rep 63G10

REPAIR

1. TEST ALL LEADS FOR CONTINUITY. NOTE LEADS THAT FAIL. USE MULTIMETER.

2. REPAIR PLUG 1W1P1. See task: REPAIR/REPLACE MULTIPIN JACK/PIN, FRONT AND REAR RELEASE, page 4-2.1.

3. REPAIR PLUGS 1W1P2, 1W1P3, 1W1P4, AND 1W1P5. See TM 9-2350-252-20-1.

4. REPAIR LEADS 1W1E1, 1W1E2, 1W1E3, 1W1E4, and 1W1E5. See TM 9-2350-252-20-1.

END OF TASK
REPAIR LEAD 1W2

INITIAL SETUP

Tools:
- Solder torch kit — 3439-00-542-0531
- Multimeter, URM - 105C — 6625-00-999-8282

References:
- TM 9-2350-252-20-1

Equipment Conditions:
- Electrical lead 1W2 on workbench

Materials/Parts:
- Tin-lead solder (Item 65, App B)

Personnel Required:
- Fuel and Elec Sys Rep 63G10

REPAIR

WIRING DIAGRAM

1. TEST ALL PINS FOR CONTINUITY. NOTE WIRES THAT FAIL. USE MULTIMETER.


END OF TASK
REPAIR CABLE 1W4

INITIAL SETUP

Tools:
Multimeter, URM-105C — 6625-00-999-6282

References:
TM 9-2350-252-20-1

Personnel Required:
Fuel and Elec Sys Rep 63G10

Equipment Conditions:
Cable assembly 1W4 on workbench

REPAIR

1. TEST ALL PINS FOR CONTINUITY. NOTE WIRES THAT FAIL. USE MULTIMETER.

2. REPAIR PLUG 1W4P1. See task:
   REPAIR/REPLACE MULTIPIN JACK/PLUG, FRONT AND REAR RELEASE, page 4-2.1.


END OF TASK
REPAIR CABLE 1W30

INITIAL SETUP

Tools:
Multimeter, URM-105C — 6625-00-999-6282

Equipment Conditions:
Cable assembly 1W30 on workbench

Personnel Required:
Fuel and Elec Sys Rep 63G10

REPAIR

1. TEST ALL PINS FOR CONTINUITY. NOTE WIRES THAT FAIL. USE MULTIMETER.

2. REPAIR PLUG 1W30P2 AND JACK 1W30J2. See task: REPAIR/REPLACE MULTIPIN JACK/PLUG, FRONT AND REAR RELEASE, page 4-2.1.

END OF TASK
REPAIR WIRING HARNESS 1W5

INITIAL SETUP

Tools:
Multimeter, URM-105C — 6625-00-999-6282

Equipment Conditions:
Wiring harness 1W5 on workbench

Personnel Required:
Fuel and Elec Sys Rep 63G10

REPAIR

1. TEST ALL PINS FOR CONTINUITY. NOTE WIRES THAT FAIL. USE MULTIMETER.

2. REPAIR PLUGS 1W5P1, 1W5P2, AND 1W5P3. See task: REPAIR/REPLACE MULTIPIN JACK/PLUG, FRONT AND REAR RELEASE, page 4-2.1.
WIRING DIAGRAM

END OF TASK
REPAIR CABLE 1W6

INITIAL SETUP

Tools:
Multimeter, URM-105C — 6625-00-999-6282

Equipment Conditions:
Cable assembly 1W6 on workbench

Personnel Required:
Fuel and Elec Sys Rep 63G10

REPAIR

1. TEST ALL PINS FOR CONTINUITY. NOTE WIRES THAT FAIL. USE MULTIMETER.

2. REPAIR PLUG 1W6P1 AND JACK 1W6J1. See task: REPAIR/REPLACE MULTIPIN JACK/PLUG, FRONT AND REAR RELEASE, page 4-2.1.

GO TO NEXT PAGE
WIRING DIAGRAM

END OF TASK
REPAIR WIRING HARNESS 1W7

INITIAL SETUP

Tools:
- Multimeter, URM-105C — 6625-00-999-6282

Equipment Conditions:
- Wiring harness 1W7 on workbench

Personnel Required:
- Fuel and Elec Sys Rep 63G10

REPAIR

1. TEST ALL PINS FOR CONTINUITY. NOTE WIRES THAT FAIL. USE MULTIMETER.

2. REPAIR PLUGS 1W17P1, 1W17P3, 1W17P4, 1W17P5, and 1W17P6. See task: REPAIR/REPLACE MULTIPIN JACK/PLUG, FRONT AND REAR RELEASE, page 4-2.1.

GO TO NEXT PAGE
END OF TASK
REPAIR CABLE 1W31

INITIAL SETUP

Tools:
- Multimeter URM-105C — 6625-00-999-6282

Equipment Conditions:
- Cable assembly 1W31 on workbench

Personnel Required:
- Fuel and Elec Sys Rep 63G10

REPAIR

1. TEST ALL PINS FOR CONTINUITY. NOTE WIRES THAT FAIL. USE MULTIMETER.

2. REPAIR PLUGS 1W31P2 AND 1W31P7. See task: REPAIR/REPLACE MULTIPIN JACK/PLUG, FRONT AND REAR RELEASE, page 4-2.1.

GO TO NEXT PAGE
END OF TASK
REPAIR WIRING HARNESS 1W11

INITIAL SETUP

Tools: Multimeter, URM-105C — 6625-00-999-6282

Equipment Conditions: Wiring harness 1W11 on workbench

Personnel Required: Fuel and Elec Sys Rep 63G10

REPAIR

1. TEST ALL PINS FOR CONTINUITY. NOTE WIRES THAT FAIL. USE MULTIMETER.


GO TO NEXT PAGE
REPAIR WIRING HARNESS 1W13

INITIAL SETUP

Tools:
Multimeter, URM-105C — 6625-00-999-6282

References:
TM 9-2350-252-20-1

Personnel Required:
Fuel and Elec Sys Rep 83G10

Equipment Conditions:
Wiring harness 1W13 on workbench

REPAIR

1. TEST ALL PINS FOR CONTINUITY. NOTE WIRES THAT FAIL. USE MULTIMETER.

2. REPAIR PLUGS 1W13P1 AND 1W13P2. See task: REPAIR/REPLACE MULTIPIN JACK/PLUG, FRONT AND REAR RELEASE, page 4-2.1.


GO TO NEXT PAGE
END OF TASK
REPAIR WIRING HARNESS 1W17

INITIAL SETUP

Tools:
Multimeter, URM-105C — 6625-00-999-6282

References:
TM 9-2350-252-20-1

Personnel Required:
Fuel and Elec Sys Rep 63G10

Equipment Conditions:
Wiring harness 1W17 on workbench

REPAIR

1. TEST ALL PINS FOR CONTINUITY. NOTE WIREs THAT FAIL. USE MULTIMETER.


GO TO NEXT PAGE
REPAIR WIRING HARNESS 1W17

INITIAL SETUP

Tools:
- Multimeter, URM-105C — 6625-00-999-6282

References:
- TM 9-2350-252-20-1

Personnel Required:
- Fuel and Elec Sys Rep 63G10

Equipment Conditions:
- Wiring harness 1W17 on workbench

REPAIR

1. TEST ALL PINS FOR CONTINUITY. NOTE WIRES THAT FAIL. USE MULTIMETER.


GO TO NEXT PAGE
REPAIR WIRING HARNESS 1W18

INITIAL SETUP

Tools:
Multimeter, URM-105C — 6625-00-999-6282

References:
TM 9-2350-252-20-1

Personnel Required:
Fuel and Elec Sys Rep 63G10

Equipment Conditions:
Wiring harness 1W18 on workbench

REPAIR

1. TEST ALL PINS FOR CONTINUITY. NOTE WIRES THAT FAIL. USE MULTIMETER.

2. REPAIR PLUGS 1W18P1, 1W18P2, 1W18P4, 1W18P5, 1W18P10, 1W18P15, 1W18P16, 1W18P17, AND 1W18P18. See task: REPAIR/REPLACE MULTIPIN JACK/PLUG, FRONT AND REAR RELEASE, page 4-2.1.

3. REPAIR PLUGS 1W18P3, 1W18P6, 1W18P7, 1W18P8, 1W18P9, AND 1W18P11. See TM 9-2350-252-20-1.


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WIRING DIAGRAM

END OF TASK
REPAIR WIRING HARNESS 1W19

INITIAL SETUP

Tools:
- Multimeter, URM-105C — 6625-00-999-6282

References:
- TM 9-2350-252-20-1

Personnel Required:
- Fuel and Elec Sys Rep 63G10

Equipment Conditions:
- Wiring harness 1W19 on workbench

REPAIR

1. TEST ALL LEADS FOR CONTINUITY.
   NOTE LEADS THAT FAIL. USE MULTIMETER.


GO TO NEXT PAGE
REPAIR WIRING HARNESS 1W19

INITIAL SETUP

Tools:
Multimeter, URM-105C — 6625-00-999-6282

References:
TM 9-2350-252-20-1

Personnel Required:
Fuel and Elec Sys Rep 63G10

Equipment Conditions:
Wiring harness 1W19 on workbench

REPAIR

1. TEST ALL LEADS FOR CONTINUITY. NOTE LEADS THAT FAIL. USE MULTIMETER.


GO TO NEXT PAGE
REPAIR CABLE 1W24

INITIAL SETUP

Tools:
- Multimeter, URM-105C — 6625-00-999-6282

Equipment Conditions:
- Cable assembly 1W24 on workbench

Personnel Required:
- Fuel and Elec Sys Rep 63G10

REPAIR

1. TEST ALL PINS FOR CONTINUITY. NOTE WIRES THAT FAIL. USE MULTIMETER.


END OF TASK
REPAIR LEAD 1W25

INITIAL SETUP

Tools:
Multimeter, URM-105C — 6625-00-999-6282

References:
TM 9-2350-252-20-1

Personnel Required:
Fuel and Elec Sys Rep 63G10

Equipment Conditions:
Electrical lead 1W25 on workbench

REPAIR

1. TEST ALL PINS FOR CONTINUITY. NOTE WIRES THAT FAIL. USE MULTIMETER.


END OF TASK
REPAIR WIRING HARNESS 1W26

INITIAL SETUP

Tools:
Multimeter, URM-105C — 6625-00-999-6282

References:
TM 9-2350-252-20-1

Personnel Required:
Fuel and Elec Sys Rep 63G10

Equipment Conditions:
Wiring harness 1W26 on workbench

REPAIR

1. TEST ALL PINS FOR CONTINUITY. NOTE WIRES THAT FAIL. USE MULTIMETER.


3. REPAIR PLUGS 1W26P3, 1W26P4, 1W26P5, 1W26P6, AND 1W26P7. See TM 9-2350-252-20-1.

END OF TASK
REPAIR WIRING HARNESS 1W27

INITIAL SETUP

Tools:
Multimeter, URM-105C — 6625-00-999-6282

References:
TM 9-2350-252-20-1

Personnel Required:
Fuel and Elec Sys Rep 63G10

Equipment Conditions:
Wiring harness 1W27 on workbench

REPAIR

1. TEST ALL PINS FOR CONTINUITY. NOTE WIRES THAT FAIL. USE MULTIMETER.


END OF TASK
# CHAPTER 10

MAINTENANCE OF FINAL DRIVE

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REPLACE FINAL DRIVE OUTPUT SHAFT SEAL

DESCRIPTION

This task covers:  Remove (page 10-3).  Install (page 10-9).

INITIAL SETUP

Tools:

General mechanic's tool kit: automotive
Heatgun — 500A
Hinged socket wrench handle, 3/4 inch drive 5120-00-221-7959
Extension, 3/4 inch drive, 8 inch — 5120-00-243-7328
Socket, 3/4 inch drive, 15/16 inch — 5120-00-181-6813
Sledge hammer — 5120-00-224-4130
Jack screw (2) — (Item 4, App D)
Final drive axle support — 12307576
Machinist's vise, 6 inch jaws — 5120-00-293-1493
Combination wrench, 1 1/4 inch — 1173
Bearing/bushing removal tool — 12298109
Hex head capscrew (3) — MS90725-3
Seal installation tool — 554276
Adjustable spanner wrench, 6 1/4 inch — 53983
Torque wrench, 1/2 inch drive, 0-175 ft-lb — 5120-00-640-6364
Socket wrench ratchet handle, 3/4 inch drive, 18 inch — 5120-00-249-1076

Tools (cont):

Torque wrench, 3/4 Inch drive, 0-600 ft-lb — 5120-00-221-7983

Materials/Parts:

Lube oil (Item 38, App B)
Grease (Item 18, App B)
Key washer
Seal (2)
Preformed packing
Preformed packing (2)

Personnel Required:

Track Veh Rep 63H10
Helper (H)

References:

TM 9-2350-252-10-1
LO 9-2350-252-12

Equipment Conditions:

Engine stopped (TM 9-2350-252-10-1)

REMOVE

NOTE

Removal of left and right final drive output shaft seal is the same. Left side is shown.

1. RAISE FRONT ARMOR PLATE. See TM 9-2350-252-10-1.

2. BREAK TRACK. See TM 9-2350-252-10-1.

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3. DRIVE VEHICLE. See TM 9-2350-252-10-1.

4. (H) SIGNAL DRIVER WHEN TRACK CLEARS SPROCKET (1). LIFT TRACK.

5. STOP ENGINE. See TM 9-2350-252-10-1.

6. REMOVE SPROCKET (1) AND CARRIER (2) FROM FINAL DRIVE (3).
   a. Remove 13 screws (4) from carrier (2). Leave in top screw (5). Use hinged handle, extension, and socket.
   b. Remove top screw (5), and tap carrier (2) and sprocket (1) loose from final drive (3). Use hinged handle, extension, and socket.
   c. Remove sprocket (1) and carrier (2) from final drive (3). Have helper assist. Use sledge hammer.

7. ROTATE FLANGE (6) FOR ACCESS TO SCREWS (7) ON RETAINER (8).
   a. Install two screws (9) on flange (6) finger tight so that pry bar (10) will have enough leverage to rotate flange.
   b. Position pry bar (10) between two screws (9).
   c. Rotate flange (6) until two cutouts (11) are aligned with two screws (7) on retainer (8).

NOTE
Two screws used in step 7 are removed from carrier in step 6.
8. REMOVE EIGHT SCREWS (7) FROM RETAINER (8).
   a. Remove two screws (7) and washers (12) from retainer (8).
   b. Remove pry bar (10) and two screws (9) from flange (6).
   c. Repeat steps 7 and 8 until eight screws (7) and washers (12) are removed from retainer (8).

9. REMOVE OUTPUT SHAFT (13) FROM HOUSING (14).
   a. Install two jack screws (15) opposite to each other on retainer (8).
   b. Turn two jack screws (15) evenly until output shaft (13) is free of housing (14).
   c. Remove output shaft (13) from housing (14). Have helper assist.
   d. Remove two jack screws (15) from retainer (8).
10. INSTALL OUTPUT SHAFT (1) ON SUPPORT (2).
   a. Install support (2) in vise.
   b. Position output shaft (1) on support (2).
      Have helper assist.
   c. Tighten two screws (3) on support (2).
      Use combination wrench.

11. REMOVE PREFORMED PACKING (4) FROM RETAINER (5). DISCARD PREFORMED PACKING.

12. REMOVE RETAINING NUT (6) AND KEY WASHER (7) FROM OUTPUT SHAFT (1).
   a. Bend tab out on key washer (7).
   b. Remove retaining nut (6) and key washer (7) from output shaft (1).
      Discard key washer.
CAUTION
Bushing can be easily damaged by bushing removal tool. Screw bushing removal tool on two uppermost threads of bushing only.

13. REMOVE BUSHING (8) FROM OUTPUT SHAFT (1).
   a. Mark bushing (8) and output shaft (1).
   b. Heat bushing (8) for 10 minutes. Use heatgun.
   c. Thread bushing removal tool (9) on two uppermost threads of bushing (8).
   d. Tap bottom of bushing removal tool (9) until bushing (8) is removed from output shaft (1).
   e. Remove bushing removal tool (9) from bushing (8).

14. REMOVE BEARING (10) FROM OUTPUT SHAFT (1).

15. REMOVE RETAINER (5) FROM OUTPUT SHAFT (1).

GO TO NEXT PAGE
16. REMOVE SEAL ASSEMBLY (1) FROM RETAINER (2). DISCARD SEAL ASSEMBLY.

17. REMOVE SEAL ADAPTER (3) FROM RETAINER (2).
   a. Place retainer (2) on workbench with inner side up.
   b. Tap seal adapter (3) from retainer (2).

18. REMOVE PREFORMED PACKING (4) FROM SEAL ADAPTER (3). DISCARD PREFORMED PACKING.

19. REMOVE SECOND SEAL ADAPTER (5) FROM OUTPUT SHAFT (6).
   a. Install three capscrews (7) on seal adapter (5).
   b. Pry seal adapter (5) from output shaft (6).
   c. Remove three capscrews (7) from seal adapter (5).
20. REMOVE SECOND SEAL ASSEMBLY (8) FROM SEAL ADAPTER (5). DISCARD SEAL ASSEMBLY.

21. REMOVE PREFORMED PACKING (9) FROM SEAL ADAPTER (5). DISCARD PREFORMED PACKING.

22. INSTALL TWO NEW PREFORMED PACKINGS (4, 9) ON TWO SEAL ADAPTERS (3, 5).
   a. Apply lube oil to two preformed packings (4, 9).
   b. Install two preformed packings (4, 9) on two seal adapters (3, 5).

23. INSTALL SEAL ADAPTER (5) ON OUTPUT SHAFT (6).
   a. Place seal adapter (5) on output shaft (6) with screw holes up.
   b. Tap seal adapter (5) on output shaft (6) until properly seated.

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CAUTION
Final drive can be damaged if preformed packing of seal assembly is twisted when installed on output shaft. Make sure preformed packing is not twisted when being installed.

Final drive can be damaged if lube oil comes into contact with preformed packing or its seat on metal face. Make sure preformed packing and its seat are free from foreign material and lube oil when being installed.

NOTE
Replacements for two seal assemblies removed in steps 16 and 20 come as a set.

24. INSTALL NEW SEAL ASSEMBLY (1) ON OUTPUT SHAFT (2).
   a. Install seal assembly (1) on output shaft (2). Use seal installation tool.
   b. Apply lube oil to metal face (3) on seal assembly (1) only.

25. INSTALL SECOND SEAL ADAPTER (4) IN RETAINER (5).
   a. Place retainer (5) on workbench with outer side up.
   b. Install seal adapter (4) in retainer (5).

CAUTION
Final drive can be damaged if preformed packing of seal assembly is twisted when being installed in retainer. Make sure preformed packing is not twisted when being installed.

26. INSTALL SECOND NEW SEAL ASSEMBLY (6) IN RETAINER (5). USE SEAL INSTALLATION TOOL.
CAUTION
Final drive can be damaged if lube oil comes into contact with preformed packing or its seat on metal face. Make sure preformed packing and its seat are free from foreign material and lube oil when being installed.

27. INSTALL RETAINER (5) ON OUTPUT SHAFT (2).
   a. Apply lube oil to metal face of seal assembly (6) in retainer (5).
   b. Install retainer (5) on output shaft (2).

28. INSTALL BEARING (7) ON OUTPUT SHAFT (2).
   a. Apply grease to inner race of bearing (7).
   b. Install bearing (7) with smaller end of inner race down on output shaft (2).

29. INSTALL BUSHING (8) ON OUTPUT SHAFT (2).
   a. Apply grease to inner surface of bushing (8).
   b. Position bushing (8) on output shaft (2) with marks aligned.
   c. Tap bushing (8) on output shaft (2) until seated.

GO TO NEXT PAGE
30. INSTALL NEW KEY WASHER (1) AND RETAINING NUT (2) ON OUTPUT SHAFT (3).
   a. Apply grease to threads of retaining nut (2).
   b. Install key washer (1) and retaining nut (2) with beveled edge down on output shaft (3). Tighten retaining nut finger tight.

31. SEAT BEARING (4) ON OUTPUT SHAFT (3).
   a. Rotate bearing (4) one full turn.
   b. Tighten retaining nut (2) on output shaft (3) finger tight.
   c. Repeat substeps a and b above until it is not possible to tighten retaining nut (2) by hand.

32. ADJUST TOLERANCE BETWEEN OUTER RACE (5) AND ROLLERS (6) ON BEARING (4).
   a. Evenly tap retaining nut (2) on output shaft (3).
   b. Tighten retaining nut (2) on output shaft (3). Use spanner wrench.
   c. Rotate bearing (4) one full turn.
33. MEASURE TOLERANCE BETWEEN OUTER RACE (5) AND ROLLERS (6) ON BEARING (4).
   a. Take four measurements, 90 degrees apart, between rollers (6) and outer race (5) of bearing (4).
   b. If tolerance is not between 0.004 inch (0.1016 mm) and 0.0049 inch (0.1245 mm), go to step 32.
   c. If tolerance is between 0.004 inch (0.1016 mm) and 0.0049 inch (0.1245 mm), bend tab of key washer (1) to secure retaining nut (2).

34. INSTALL NEW PREFORMED PACKING (7) ON RETAINER (8).
   a. Apply grease to preformed packing (7).
   b. Install preformed packing (7) on retainer (8).

35. REMOVE OUTPUT SHAFT (3) FROM SUPPORT (9).
   a. Loosen two screws (10) on support (9). Use combination wrench.
   b. Remove output shaft (3) from support (9). Have helper assist.
36. POSITION OUTPUT SHAFT (1) IN HOUSING (2) WITH SPLINES ALIGNED. HAVE HELPER ASSIST.

37. ROTATE FLANGE (3) FOR ACCESS TO SCREW HOLES (4) ON RETAINER (5).
   a. Install two screws (6) on flange (3) finger tight so that pry bar (7) will have enough leverage to rotate flange.
   b. Position pry bar (7) between two screws (6).
   c. Rotate flange (3) until two cutouts are aligned with two screw holes (4) on retainer (5).

38. INSTALL EIGHT SCREWS (8) ON RETAINER (5).
   a. Apply lube oil to threads of eight screws (8).
   b. Install two washers (9) and screws (8) on retainer (5).
   c. Remove pry bar (7) and two screws (6) from flange (3).
   d. Repeat steps 37 and 38 until all eight washers and screws are installed.

39. TORQUE EIGHT SCREWS (8) TO 36-40 FT-LB (5-6 MKG).
   a. Repeat step 37 for access to two screws (8).
   b. TORQUE TWO SCREWS (8) TO 36-40 FT-LB (5-6 MKG). USE 1/2 INCH DRIVE TORQUE WRENCH.
   c. Repeat substeps a and b above until all eight screws (8) are torqued.
40. INSTALL SPROCKET (10) AND CARRIER (11) ON FINAL DRIVE (12).
   a. Position sprocket (10) and carrier (11) on final drive (12). Have helper assist.
   b. Install 14 screws (13) on carrier (11). Use ratchet handle, extension, and socket.

41. TORQUE 14 SCREWS (13) TO 299-325 FT-LB (41-45 MKG). USE 3/4 INCH DRIVE TORQUE WRENCH, EXTENSION, AND SOCKET.

42. JOIN TRACK. See TM 9-2350-252-10-1.

43. TORQUE NUT (14) TO 299-325 FT-LB (41-45 MKG). USE 3/4 INCH DRIVE TORQUE WRENCH AND SOCKET.

44. LOWER FRONT ARMOR PLATE. See TM 9-2350-252-10-1.

45. DRIVE VEHICLE. See TM 9-2350-252-10-1.

46. CHECK FINAL DRIVE OIL LEVEL. See LO 9-2350-252-12.

END OF TASK
36. POSITION OUTPUT SHAFT (1) IN HOUSING (2) WITH SPLINES ALIGNED. HAVE HELPER ASSIST.

37. ROTATE FLANGE (3) FOR ACCESS TO SCREW HOLES (4) ON RETAINER (5).
   a. Install two screws (6) on flange (3) finger tight so that pry bar (7) will have enough leverage to rotate flange.
   b. Position pry bar (7) between two screws (6).
   c. Rotate flange (3) until two cutouts are aligned with two screws holes (4) on retainer (5).

38. INSTALL EIGHT SCREWS (8) ON RETAINER (5).
   a. Apply lube oil to threads of eight screws (8).
   b. Install two washers (9) and screws (8) on retainer (5).
   c. Remove pry bar (7) and two screws (6) from flange (3).
   d. Repeat steps 37 and 38 until all eight washers and screws are installed.

39. TORQUE EIGHT SCREWS (8) TO 36-40 FT-LB (5-6 MKG).
   a. Repeat step 37 for access to two screws (8).
   b. TORQUE TWO SCREWS (8) TO 36-40 FT-LB (5-6 MKG). USE 1/2 INCH DRIVE TORQUE WRENCH.
   c. Repeat substeps a and b above until all eight screws (8) are torqued.
40. INSTALL SPROCKET (10) AND CARRIER (11) ON FINAL DRIVE (12).
   a. Position sprocket (10) and carrier (11) on final drive (12). Have helper assist.
   b. Install 14 screws (13) on carrier (11). Use ratchet handle, extension, and socket.

41. TORQUE 14 SCREWS (13) TO 299-325 FT-LB (41-45 MKG). USE 3/4 INCH DRIVE TORQUE WRENCH, EXTENSION, AND SOCKET.

42. JOIN TRACK. See TM 9-2350-252-10-1.

43. TORQUE NUT (14) TO 299-325 FT-LB (41-45 MKG). USE 3/4 INCH DRIVE TORQUE WRENCH AND SOCKET.

44. LOWER FRONT ARMOR PLATE. See TM 9-2350-252-10-1.

45. DRIVE VEHICLE. See TM 9-2350-252-10-1.

46. CHECK FINAL DRIVE OIL LEVEL. See LO 9-2350-252-12.

END OF TASK
# CHAPTER 11

MAINTENANCE OF FUEL SYSTEM

Section I. MAINTENANCE OF FUEL SYSTEM INSTALLATION

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REPLACE LOWER FUEL TANK

DESCRIPTION

This task covers: Remove (page 11-3). Install (page 11-34.9).

INITIAL SETUP

Tools:

- General mechanic's tool kit: automotive
- Combination wrench, 1 1/4 inch — 1173
- Sting (2) — 2520-00-040-2297
- Wrecker, M816 — 2320-00-051-0489
- Wooden block, 2 inches x 4 inches x 12 inches (4) (Item 5, App C)
- Wooden block, 2 inches x 4 inches x 6 feet (2) (Item 6, App C)
- Torque wrench, 3/8 inch drive, 0-600 in-lb B58
- Adapter, 3/8 inch to 1/2 inch drive — A4
- Torque wrench adapter, 1/2 inch drive, 7/16 inch — 12298105-2
- Steel tape, 25 ft — 5210-00-234-6744

Materials/Parts:

- Adhesive (Item 5, App B)
- Sealing compound (Item 50, App B)
- Sealing compound (Item 52, App B)
- Nonelectrical wire (Item 41, App B)
- Drum, 55 gallon (4)
- Sealing washer (200)
- Self-locking nut (5)
- Lock washer (10)
- Lock washer (4)
- Lock washer

WARNING

Fuel can catch fire and burn you. Do not smoke. Disconnect vehicle ground cable before you work on fuel system. Wipe up spilled fuel.

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1. LOWER RAMP. See TM 9-2350-252-10-1.
2. REMOVE VEHICLE GROUND CABLE. See TM 9-2350-252-20-1.


4. REMOVE REAR HULL MOUNTED CREW VENT FAN INLET DUCT. See TM 9-2350-252-20-1.

**WARNING**

Fire extinguishers can discharge and injure you. Insert antirecoil plugs, lock pins, and cotter pins before you work near fire extinguishers.

5. DEACTIVATE FIRE SUPPRESSION SYSTEM. See TM 9-2350-252-20-1.


8. CLOSE DOOR (1).
   a. Lift outside door catch (2) and slide door (1) to right. Do not latch door.
9. REMOVE TWO LATCHES (3) FROM DOOR (1).
   a. Remove four locknuts (4), lock washers (5), screws (6), washers (7), and two latches (3) from door (1). Discard locknuts and lock washers.

NOTE
Door is removed from turret side.

10. REMOVE DOOR (1) FROM UPPER AND LOWER TRACKS (8, 9).
   a. Lift and remove door (1) from upper and lower tracks (8, 9).
   b. Remove door (1) from vehicle.

GO TO NEXT PAGE
11. REMOVE UPPER TRACK (1) FROM RIGHT PANEL (2).
   a. Remove two screws (3) and washers (4) from right panel (2) and upper track (1).

12. REMOVE UPPER TRACK (1) FROM LEFT PANEL (5).
   a. Mark turret side of upper track (1) and left panel (5).
   b. Remove four screws (6), washers (7), and upper track (1) from left panel (5).
   c. Remove upper track (1) from vehicle.
13. REMOVE LOWER TRACK (8) FROM RIGHT PANEL (2).
   a. Remove two screws (9) and washers (10) from right panel (2) and lower track (8).

14. REMOVE LOWER TRACK (8) FROM THREE ANGLE BRACKETS (11).
   a. Remove three screws (12) and washers (13) from three angle brackets (11) and lower track (8).

GO TO NEXT PAGE
15. REMOVE LOWER TRACK (1) FROM LEFT PANEL (2).
   a. Mark turret side of lower track (1) and left panel (2).
   b. Remove two screws (3), washers (4), and lower track (1) from left panel (2).
   c. Remove lower track (1) from vehicle.

16. REMOVE FAN CONTROLLER (5) FROM LEFT PANEL (2).
   a. Remove plug (6) from fan controller (5). Tag plug.
   b. Remove four nuts (7), lock washers (8), and fan controller (5) from left panel (2). Discard lock washers.
17. REMOVE PLUG (9) FROM HULL GYRO BLOCK (10). TAG PLUG.

18. REMOVE WIRING HARNESS 2W309 (11) FROM LEFT PANEL (2).
   a. Remove three screws (12), clamps (13), and wiring harness 2W309 (11) from left panel (2).
   b. Remove three clamps (13) from wiring harness 2W309 (11).
19. REMOVE LEFT PANEL (1) FROM TWO ANGLE BRACKETS (2).
   a. Remove two screws (3) and washers (4) from two angle brackets (2) and left panel (1).

20. LOOSEN SIX SCREWS (5) ON LEFT PANEL (1) AND BULKHEAD.
21. REMOVE LEFT PANEL (1) FROM VEHICLE.
   a. Remove four screws (6) and lock washers (7) from left panel (1) and ceiling. Discard lock washers.
   b. Remove left panel (1) from vehicle. Have helper assist.

22. REMOVE REAR VENT FAN CONTROL BOX. See TM 9-2350-252-20-1.

23. REMOVE TWO PLUGS (8, 9) FROM VRC CONTROL BOX (10). TAG PLUGS.

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24. REMOVE RIGHT PANEL (1) FROM BRACKET (2).
   a. Remove locknut (3), screw (4), and washer (5) from right panel (1) and bracket (2). Discard locknut.

25. REMOVE RIGHT PANEL (1) FROM ANGLE BRACKET (6).
   a. Remove screw (7) and washer (8) from angle bracket (6) and right panel (1).
26. REMOVE RIGHT PANEL (1) FROM VEHICLE.
   a. Remove two screws (9) and lock washers (10) from right panel (1) and ceiling. Discard lock washers.
   b. Remove right panel (1) from vehicle.

27. LOOSEN CLAMP (11) ON BRACKET (12) AND AIR TUBE (13).
   a. Remove locknut (14) and washer (15) from screw (16). Discard locknut.
   b. Loosen clamp (11) on bracket (12) and air tube (13).
28. LOOSEN CLAMP (1) ON AIR TUBE (2) AND HOSE (3).
   a. Loosen clamp (1) and slide clamp up on hose (3).

29. REMOVE TUBE BRACKET (4) FROM SPONSON.
   a. Remove two locknuts (5), four washers (6), two screws (7), and tube bracket (4) from sponson. Discard locknuts.

30. REMOVE AIR TUBE (2) FROM MIDDLE AIR TUBE (8).
   a. Loosen clamp (9) on air hose (10). Slide clamp up on air hose.
   b. Remove air tube (2) from middle air tube (8).

31. REMOVE AIR TUBE (2) FROM VEHICLE.
   a. Remove air tube (2) from hose (3) and bracket (11).
   b. Remove air tube (2) from vehicle.
32. REMOVE THREE ANGLE BRACKETS (12) FROM PASSAGEWAY FLOOR PLATE (13).
   a. Remove three screws (14) and washers (15) from angle brackets (12) and passageway floor plate (13).

33. REMOVE THREE ANGLE BRACKETS (16) FROM FUEL CELL FLOOR PLATE (17).
   a. Remove three screws (18) and washers (19) from angle brackets (16) and fuel cell floor plate (17).
34. REMOVE MIDDLE AIR TUBE (1) FROM END AIR TUBE (2).
   a. Loosen clamp (3) on air hose (4). Slide clamp up on air hose.
   b. Remove middle air tube (1) from end air tube (2).

35. REMOVE END AIR TUBE (2) FROM LOWER TANK (5).
36. REMOVE MIDDLE AIR TUBE (1) FROM LOWER TANK (5).

37. DRAIN UPPER FUEL TANK. See TM 9-2350-252-20-1.

38. (IFV ONLY) REMOVE BRACKET (6) FROM FUEL CELL FLOOR PLATE (7).
   a. Remove two screws (8), lock washers (9), bracket (6), and two spacers (10) from fuel cell floor plate (7). Discard lock washers.

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39. (CFV ONLY) REMOVE BRACKET (1)
FROM FUEL CELL FLOOR PLATE (2).
   a. Remove screw (3), lock washer (4),
      washer (5), bracket (1), and spacer (6)
      from fuel cell floor plate (2). Discard
      lock washer.

40. (IFV ONLY) REMOVE SEATBELT (7)
FROM ANGLE BRACKET (8).
   a. Remove locknut (9), washer (10),
      seatbelt (7), and screw (11) from angle
      bracket (8). Discard locknut.
41. (IFV ONLY) REMOVE ANGLE BRACKET (8) FROM FLOOR.
   a. Remove two screws (12), washers (13), and angle bracket (8) from floor.

NOTE
Squad seats No. 5, No. 7, No. 8, and No. 9 are removed the same way.

42. (IFV ONLY) REMOVE SQUAD SEATS NO. 5, NO. 7, NO. 8, AND NO. 9 (14) FROM VEHICLE.
   a. Tag four squad seats (14).
   b. Flip four squad seats (14) down.
   c. Remove four pins (15) from each of four squad seats (14).
   d. Remove four squad seats (14) from vehicle.
43. (CFV ONLY) REMOVE SQUAD SEAT PAN. CFV ONLY. See TM 9-2350-252-20-1.

44. (CFV ONLY) REMOVE SQUAD SEAT NO. 5 (1) FROM MOUNTING POST (2).
   a. Remove six screws (3), lock washers (4), washers (5), and squad seat No. 5 (1) from mounting post (2). Discard lock washers.

45. (CFV ONLY) REMOVE LOWER MISSILE RACK MOUNT BRACKET — CFV ONLY. See TM 9-2350-252-20-1.

46. (CFV ONLY) REMOVE MISSILE STORAGE RACK STRAPS. See TM 9-2350-252-20-1.

47. (CFV ONLY) REMOVE RIGHT AMMO STOWAGE RACK — CFV ONLY. See TM 9-2350-252-20-1.

48. REMOVE PASSAGEWAY FLOOR PLATE (6) FROM FLOOR.
   a. Remove 10 screws (7), lock washers (8), spacers (9), 3 washers (10), and passageway floor plate (6) from floor. Discard lock washers.

49. (CFV ONLY) REMOVE RIGHT AMMO STOWAGE ACCESS COVER — CFV ONLY. See TM 9-2350-252-20-1.
NOTE

For IVF, 12 screws, lock washers, 9 spacers, and 3 washers should be removed from fuel cell floor plate.

For CFV, 11 screws, washers, 8 spacers, and three lock washers should be removed from fuel cell floor plate.

IFV is shown in this step.

50. REMOVE FUEL CELL FLOOR PLATE (11) FROM FLOOR.
   a. Remove three screws (12), lock washers (13), and washers (14) from fuel cell floor plate (11). Discard lock washers.
   b. Remove nine screws (12), lock washers (13), and spacers (15) from fuel cell floor plate (11). Discard lock washers.
   c. Lift fuel cell floor plate (11) straight up, and remove from vehicle.

51. REMOVE ACTUATOR FLOOR PLATE COVER. See TM 9-2350-252-20-1.

52. REMOVE LEFT REAR AMMO STOWAGE ACCESS COVER. See TM 9-2350-252-20-1.

53. REMOVE RIGHT REAR CENTER AMMO STOWAGE ACCESS COVER. See TM 9-2350-252-20-1.

54. REMOVE RIGHT AMMO STOWAGE ACCESS COVER. See TM 9-2350-252-20-1.

55. REMOVE REAR BILGE PUMP ACCESS COVER. See TM 9-2350-252-20-1.

56. OPEN DRAIN PLUG (16).
   a. Turn knob (17) left to open drain plug (16).

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57. **INSTALL HOSE (1) FOR DRAINING.**
   a. Install hose (1) on drain barb (2).
   b. Route other end of hose (1) under cross members (3) and out of drain plug hole (4) in rear of vehicle.

58. **POSITION DRUM (5).**
   a. Position drum (5) on side with fill hole (6) up. Block each side of drum.
   b. Remove fill hole cap (7) from drum (5), and insert hose (1) into fill hole (6).

59. **REMOVE LOCK WIRE (8) FROM THREE DRAIN VALVES (9). DISCARD LOCK WIRE.**
60. DRAIN LOWER TANK (10).
   a. Turn three drain valves (9) left to open.

61. CLOSE THREE DRAIN VALVES (9).
   a. Turn three drain valves (9) right to close.
   b. If lower tank (10) is empty, go to step 62.
   c. If lower tank (10) is not empty, repeat steps 58, 60, and 61.

62. STOW DRUM (5).
   a. Remove hose (1) from fill hole (6), and install fill hole cap (7) on drum (5).
   b. Unblock and stow drum (5).

63. REMOVE HOSE (1) FROM DRAIN BARB (2) AND VEHICLE.

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64. CLOSE DRAIN PLUG (1).
a. Turn knob (2) right to close drain plug (1).

WARNING
Fire extinguishers can discharge and injure you. Use extreme caution when working near or on fire extinguishers. Make sure antirecoil plugs and lock pins are in place.

65. REMOVE RELEASE CLEVIS (3) FROM DISCHARGE CLEVIS (4).
a. Remove cotter pin (5) from pin (6). Discard cotter pin.
b. Remove washer (7) and pin (6) from discharge clevis (4).
c. Remove release clevis (3) from discharge clevis (4).
66. REMOVE CABLE BRACKET (8) FROM BRACKET (9).
   a. Remove two screws (10), washers (11), and cable bracket (8) from bracket (9).

67. REMOVE BRACKET (9) FROM NIGHT SIGHT SUPPORT (12).
   a. Remove two nuts (13), screws (14), and four washers (15) from bracket (9) and night sight support (12).
   b. Remove screw (16) and washer (17) from bracket (9) and night sight support (12).
68. REMOVE PLUG 1W11P9 (1) FROM JACK 1L1J1 (2). TAG PLUG.

69. REMOVE PLUG 1W11P8 (3) FROM JACK 1L2J1 (4). TAG PLUG.
70. REMOVE BRACKET (5) FROM SPONSON.
   a. Remove four screws (6), washers (7), and bracket (5) from sponson. Have helper assist.
   b. Place bracket (5) with two fire extinguishers (8) up on blocks.

71. REMOVE FOUR COVERS (9) FROM FOUR HANGERS (10).
   a. Remove four screws (11) and cover (9) from each of four hangers (10).
72. REMOVE REAR COVER (1) FROM LOWER TANK (2).
   a. Slide lugs (3) on rear cover (1) from slots (4) on forward cover (5).
   b. Remove rear cover (1) from lower tank (2).

73. REMOVE FORWARD COVER (5) FROM LOWER TANK (2).
   a. Remove two screws (6), lock washer (7), and washers (8) from forward cover (5). Discard lock washers.
   b. Remove forward cover (5) from lower tank (2).
74. REMOVE BRACKET (9) WITH RAMP SWITCH (10) FROM HULL.
a. Remove two screws (11), washers (12),
and bracket (9) with ramp switch (10)
from hull.

75. REMOVE PLUG 1W18P15 (13) FROM JACK 1A29J1 (14). TAG PLUG.

76. REMOVE PLUG 1W18P17 (15) FROM JACK 1A30J1 (16). TAG PLUG.
77. REMOVE PLUG 1W18P18 (1) FROM JACK 1A31J1 (2). TAG PLUG.

78. REMOVE PLUG 1W18P16 (3) FROM JACK 1A32J1 (4). TAG PLUG.

79. REMOVE PLUG 1W18P8 (5) FROM JACK 1MT7J1 (6). TAG PLUG.

80. REMOVE GROUND LEAD (7) FROM TRANSMITTER (8).
   a. Remove screw (9), lock washer (10), and ground lead (7) from transmitter (8). Discard lock washer.
81. REMOVE FOUR HANGERS (11) FROM LOWER TANK (12).
   a. Remove 4 studs (13), 12 screws (14), and 16 sealing washers (15) from each of four hangers (11). Discard sealing washers.
   b. Remove four hangers (11) and gaskets (16) from lower tank (12). Discard gaskets.

82. REMOVE TWO FEED HOSES (17) FROM TWO FUEL PUMPS (18) ON LEFT AND RIGHT HANGERS (11).
   a. Loosen two clamps (19) on two feed hoses (17) on two fuel pumps (18).
   b. Remove two feed hoses (17) from two fuel pumps (18).
   c. Slide two clamps (19) off two feed hoses (17).
   d. Place two feed hoses (17) in lower tank (12).
83. REMOVE TRANSMITTER (1) FROM LOWER TANK (2).
   a. Mark screw hole (3) on transmitter (1) nearest to center of lower tank (2).
   b. Remove 12 screws (4), sealing washers (5), transmitter (1), and gasket (6) from lower tank (2). Discard sealing washers and gasket.

84. REMOVE LINK (7) FROM BULKHEAD.
   a. Remove screw (8) and link (7) from bulkhead.
85. REMOVE TWO ACCESS COVERS (9) FROM LOWER TANK (2).
   a. Remove 24 screws (10) and sealing washers (11) from each of 2 access covers (9). Discard sealing washers.
   b. Remove two access covers (9) and gaskets (12) from lower tank (2). Discard gaskets.

86. REMOVE ACCESS COVER (13) FROM UPPER TANK (14).
   a. Remove 24 screws (15), sealing washers (16), access cover (13), and gasket (17) from upper tank (14). Discard sealing washers and gasket.

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87. REMOVE FUNNEL TUBE (1) FROM HOSE PLATE (2).
   a. Loosen clamp (3) on coupling hose (4).
   b. Remove funnel tube (1) with two bent tubes (5) from hose plate (2). Place funnel tube in upper tank (6).
   c. Pull two feed hoses (7) from lower tank into upper tank (6) through hose plate (2). Place feed hoses in upper tank.

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CAUTION
Dirt can clog fuel system and damage engine. Plug end of fuel return hose.

88. REMOVE FUEL RETURN HOSE (8) FROM ELBOW (9) ON PLATE (10).
   a. Plug end of fuel return hose (8).
CAUTION
Dirt can clog fuel system and damage engine. Plug end of vent hose.

89. REMOVE VENT HOSE (11) FROM ADAPTER (12) ON PLATE (10).
   a. Plug end of vent hose (11).

90. REMOVE HOSE (13) FROM PLATE (10) AND UPPER TANK (6).
   a. Loosen two clamps (14) on hose (13).
   b. Remove hose (13) with two clamps (14) from plate (10) and upper tank (6).

91. REMOVE PLATE (10) FROM LOWER TANK (15).
   a. Remove 12 screws (16), sealing washers (17), plate (10), and gasket (18)
      from lower tank (15). Discard sealing washers and gasket.
92. REMOVE DRAIN VALVE (1) FROM UPPER TANK (2).
   a. Remove six screws (3), sealing washers (4), drain valve (1), and gasket (5) from upper tank (2). Discard sealing washers and gasket.

CAUTION
Dirt can clog fuel system and damage engine. Plug end of fuel hose.

93. REMOVE VENT AND FUEL HOSES (6, 7) FROM SHUTOFF VALVE (8).
   a. Remove nut (9), lock washer (10), screw (11), clamp (12), and vent hose (6) from shutoff valve (8). Discard lock washer.

94. REMOVE SHUTOFF VALVE (8) FROM UPPER TANK (2).
   a. Remove six screws (13), sealing washers (14), shutoff valve (8), and gasket (15) from upper tank (2). Discard sealing washers and gasket.
95. REMOVE HOSE PLATE (16) FROM BOTTOM OF UPPER TANK (2).
   a. Remove 10 screws (17), sealing washers (18), hose plate (16), and gasket (19) from upper tank (2). Discard sealing washers and gasket.

96. REMOVE RETAINER (20) WITH WIRING HARNESS 1W18 (21) FROM LOWER TANK (22).
   a. Remove screw (23) and lock washer (24) from retainer (20) with wiring harness 1W18 (21). Discard lock washer.
   b. Remove retainer (20) with wiring harness 1W18 (21) and gasket (25) from lower tank (22). Do not discard gasket.
97. REMOVE LOWER BRACKET (1) FROM HULL.
   a. Remove two screws (2), washers (3), and lower bracket (1) from hull.

98. REMOVE TWO SIDE BRACKETS (4) FROM RIGHT SIDE OF HULL.
   a. Remove four screws (5), washers (6), and two side brackets (4) from right side of hull.

99. REMOVE TWO OUTER REAR BRACKETS (7) FROM HULL.
   a. Remove four screws (8), washers (9), and two rear outer brackets (7) from hull.
100. LOOSEN TWO INNER REAR BRACKETS (10) FROM LOWER TANK (11).
   a. Loosen four screws (12) on two inner rear brackets (10).
   b. Slide both inner rear brackets (10) away from lower tank (11).

101. REMOVE FRONT BRACKET (13) FROM BULKHEAD.
   a. Remove three screws (14), lock washers (15), washers (16), and front bracket (13) from bulkhead. Discard lock washers.

102. REMOVE DRAIN HOSE (17) FROM FRONT DRAIN VALVE (18).
   a. Plug end of drain hose (17).

CAUTION
Dirt can clog fuel system and damage engine.
Plug end of drain hose.

103. REMOVE DRAIN HOSE (19) FROM CENTER DRAIN MANIFOLD (20).
   a. Plug end of drain hose (19).

CAUTION
Dirt can clog fuel system and damage engine.
Plug end of drain hose.

GO TO NEXT PAGE
104. REMOVE REAR DRAIN VALVE (1) FROM LOWER TANK (2).

a. Remove three screws (3) and washers (4) from bracket (5).

b. Remove six screws (6) and sealing washers (7) from rear drain valve (1). Discard sealing washers.

c. Remove rear drain valve (1), gasket (8), and bracket (5) from lower tank (2). Discard gasket.

105. REMOVE CENTER DRAIN VALVE (9) FROM LOWER TANK (2).

a. Remove three screws (10) and washers (11) from bracket (12).

b. Remove six screws (13) and sealing washers (14) from center drain valve (9). Discard sealing washers.

c. Remove center drain valve (9), gasket (15), and bracket (12) from lower tank (2). Discard gasket.
106. REMOVE FRONT DRAIN VALVE (16) FROM LOWER TANK (2).
   a. Remove six screws (17) and sealing washers (18) from front drain valve (16). Discard sealing washers.
   b. Remove front drain valve (16) and gasket (19) from lower tank (2). Discard gasket.

NOTE
Two hoses can prevent removal of lower tank from vehicle. Make sure hoses are placed out of way behind upper tank.

107. PLACE TWO HOSES (20) BEHIND UPPER TANK (21).

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108. JOIN WRECKER TO LOWER TANK (1).
   a. Place one end of each sling (2) in each hanger opening (3) of lower tank (1). Use two slings.
   b. Insert clean wooden block (Item 5) (4) in each loop of two slings (2). Take up slack. Have helper assist.

109. PLACE LOWER TANK (1) ON TWO WOODEN BLOCKS (5).
   a. Lift lower tank (1) from vehicle. Make sure lower tank clears all brackets. Have helper assist. Use wrecker.
   b. (H) Place two wooden blocks (Item 6) (5) under lower tank (1) on right and left sides.
   c. Place lower tank (1) on wooden blocks (5). Have helper assist. Use wrecker.

110. REMOVE WRECKER, TWO SLINGS (2), AND FOUR WOODEN BLOCKS (4) FROM LOWER TANK (1). HAVE HELPER ASSIST.
WARNING
Fuel can catch fire and burn you. Do not smoke. Wipe up spilled fuel.

NOTE
There is about a 3 inch clearance for lower tank inside vehicle.

111. REMOVE LOWER TANK (1) FROM VEHICLE.
   a. Pull lower tank (1) to rear of vehicle until two helpers can position themselves at forward corners of lower tank. Have helper assist.
   b. Position two helpers at forward corners of lower tank (1).
   c. Position helper and mechanic at rear corners of lower tank (1).
   d. Lift and tilt lower tank (1) so that lower tank will clear inside of vehicle. Have helpers assist.
   e. Remove lower tank (1) from rear of vehicle. Have helpers assist.

INSTALL

NOTE
Step 113 should be done only if rubber pads were removed from hull.

113. INSTALL RUBBER PADS (6) ON HULL.
   a. Apply thin coat of adhesive on one side of rubber pads (6) and on mating surface of hull.
   b. Press adhesive coated side of rubber pads (6) on hull.

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CAUTION
Lower tank can be easily damaged. Do not force lower tank into vehicle.

114. PLACE NEW LOWER TANK (1) IN VEHICLE.

a. Position two helpers at forward corner of lower tank (1), and third helper and mechanic at rear corners of lower tank.
b. Lift and tilt lower tank (1). Check that lower tank will clear inside of vehicle. Have helpers assist.
c. Place lower tank (1) inside vehicle on two wooden blocks (Item 6). Leave enough room for two helpers to get out of way.
d. Push lower tank (1) until closest to proper position. Do not push lower tank against front bulkhead. Have helper assist.

115. JOIN WRECKER TO LOWER TANK (1).

a. Place one end of sling (2) in each hanger opening (3) of lower tank (1). Use two slings.
b. Insert clean wooden block (4), (Item 5) in each loop of two slings (2). Take up slack. Have helper assist.
116. POSITION LOWER TANK (1) IN VEHICLE.
   a. Lift lower tank (1). Use wrecker.
   b. Remove two wooden blocks (Item 6) (5) from under lower tank (1).
   c. Position lower tank (1) so that lower tank is seated firmly in vehicle. Have helper assist.

117. REMOVE WRECKER, TWO SLINGS (2) AND FOUR WOODEN BLOCKS (ITEM 5) FROM LOWER TANK (1). HAVE HELPER ASSIST.

118. REMOVE TWO HOSES (6) FROM BEHIND UPPER TANK (7).

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NOTE

Some screws on front drain valve cannot be reached without torque adapter.

When using torque wrench with torque adapter, torque value must be converted. Procedure for converting torque value is on page 2-8.

119. INSTALL FRONT DRAIN VALVE (1) ON LOWER TANK (2).

   a. Apply sealing compound (Item 52) to threads of six screws (3).

   b. Apply sealing compound (Item 50) to threads of six screws (3).

   c. Install new gasket (4) and front drain valve (1) on lower tank (2) with six new sealing washers (5) and screws (3).

   d. CROSS TORQUE SIX SCREWS (3) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH, ADAPTER, AND TORQUE ADAPTER.
Some screws on center drain valve cannot be reached without torque adapter.

When using torque wrench with torque adapter, torque value must be converted. Procedure for converting torque value is on page 2-6.

120. INSTALL CENTER DRAIN VALVE (6) ON LOWER TANK (2).
   a. Apply sealing compound (Item 52) to threads of six screws (7).
   b. Apply sealing compound (Item 50) to threads of six screws (7).
   c. Install new gasket (8) and center drain valve (6) on lower tank (2) with six new sealing washers (9) and screws (7).
   d. Install three washers (10) and screws (11) on bracket (12). Tighten screws finger tight.
   e. CROSS TORQUE SIX SCREWS (7) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH, ADAPTER, AND TORQUE ADAPTER.

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NOTE
Some screws on rear drain valve cannot be reached without torque adapter.

When using torque wrench with torque adapter, torque value must be converted. Procedure for converting torque value is on page 2-8.

121. INSTALL REAR DRAIN VALVE (1) ON LOWER TANK (2).
   a. Apply sealing compound (Item 52) to threads of six screws (3).
   b. Apply sealing compound (Item 50) to threads of six screws (3).
   c. Install new gasket (4) and rear drain valve (1) on lower tank (2) with six new sealing washers (5) and screws (3).
   d. Install three washers (6) and screws (7) on bracket (8). Tighten screws finger tight.
   e. CROSS TORQUE SIX SCREWS (3) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH, ADAPTER, AND TORQUE ADAPTER.
122. INSTALL DRAIN HOSE (9) ON CENTER DRAIN MANIFOLD (10).
   a. Unplug end of drain hose (9).
   b. Install drain hose (9) on center drain manifold (10).

123. INSTALL DRAIN HOSE (11) ON FRONT DRAIN VALVE (12).
   a. Unplug end of drain hose (11).
   b. Install drain hose (11) on front drain valve (12).
124. INSTALL TWO OUTER REAR BRACKETS (1) ON HULL.
   a. Install two outer rear brackets (1) on hull with four washers (2) and screws (3).

125. POSITION TWO INNER REAR BRACKETS (4) ON LOWER TANK (5).
   a. Slide two inner rear brackets (4) against lower tank (5).
   b. Tighten two screws (6) on each inner rear bracket (4).
126. TIGHTEN SIX SCREWS (7) ON TWO BRACKETS (8) OF CENTER AND REAR DRAIN VALVES.

127. INSTALL FRONT BRACKET (9) ON BULKHEAD.

   a. Install front bracket (9) on bulkhead with three washers (10), new lock washers (11), and screws (12).
128. INSTALL LOWER BRACKET (1) ON HULL.
   a. Install lower bracket (1), two washers (2), and screws (3) on hull.

129. INSTALL TWO SIDE BRACKETS (4) ON RIGHT SIDE OF HULL.
   a. Install two side brackets (4) on right side of hull with four washer (5) and screws (6).

130. INSTALL RETAINER (7) WITH WIRING HARNESS 1W18 (8) ON LOWER TANK (9).
   a. Install gasket (10) and retainer (7) with wiring harness 1W18 (8) on lower tank (9) with new lock washer (11) and screw (12).
131. INSTALL HOSE PLATE (13) ON BOTTOM OF UPPER TANK (14).
   a. Apply sealing compound (Item 52) to threads of 10 screws (15).
   b. Apply sealing compound (Item 50) to threads of 10 screws (15).
   c. Install new gasket (16) and hose plate (13) on upper tank (14) with 10 new sealing washers (17) and screws (15).
   d. CROSS TORQUE 10 SCREWS (15) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH AND ADAPTER.

NOTE
When using torque wrench with torque adapter, torque value must be converted. Procedure for converting torque value is on page 2-8.

132. INSTALL SHUTOFF VALVE (18) ON UPPER TANK (14).
   a. Apply sealing compound (Item 52) to threads of six screws (19).
   b. Apply sealing compound (Item 50) to threads of six screws (19).
   c. Install new gasket (20) and shutoff valve (18) on upper tank (14) with six new sealing washers (21) and screws (19).
   d. CROSS TORQUE SIX SCREWS (19) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH, ADAPTER, AND TORQUE ADAPTER.

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133. INSTALL FUEL AND VENT HOSES (1, 2) ON SHUTOFF VALVE (3).
   
a. Unplug end of fuel hose (1).

b. Install fuel hose (1) on shutoff valve (3). Use combination wrench.

c. Install vent hose (2), clamp (4), screw (5), new lock washer (6), and nut (7) on shutoff valve (3).

134. INSTALL DRAIN VALVE (8) ON UPPER TANK (9).
   
a. Apply sealing compound (Item 52) to threads of six screws (10).

b. Apply sealing compound (Item 50) to threads of six screws (10).

   c. Install new gasket (11) and drain valve (8) on upper tank (9) with six new sealing washers (12) and screws (10).
135. INSTALL PLATE (13) ON LOWER TANK (14).
   a. Apply sealing compound (Item 52) to threads of 12 screws (15).
   b. Apply sealing compound (Item 50) to threads of 12 screws (15).
   c. Install new gasket (16) and plate (13) on lower tank (14) with 12 new sealing washers (17) and screws (15).
   d. CROSS TORQUE 12 SCREWS (15) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH AND ADAPTER.

136. INSTALL HOSE (18) ON PLATE (13) AND UPPER TANK (9). TIGHTEN TWO CLAMPS (19).

137. INSTALL VENT HOSE (2) ON ADAPTER (20) OF PLATE (13).
   a. Unplug end of vent hose (2).
   b. Install vent hose (2) on adapter (20).
138. INSTALL FUEL RETURN HOSE (1) ON ELBOW (2) OF PLATE (3).
   a. Unplug end of fuel return hose (1).
   b. Install fuel return hose (1) on elbow (2).

139. INSTALL FUNNEL TUBE (4) ON HOSE PLATE (5).
   a. Push two feed hoses (6), one at a time, through hose plate (5) into lower tank.
   b. Position funnel tube (4) on hose plate (5) with two bent tubes (7) pointing to center of upper tank (8).
   c. Make sure top (9) of funnel tube (4) is 14.5-15 inches (37-38 cm) from bottom of upper tank (8). Use tape measure.
   d. Tighten clamp (10) on coupling hose (11).
140. INSTALL ACCESS COVER (12) ON UPPER TANK (8).

a. Apply sealing compound (Item 52) to threads of 24 screws (13).

b. Apply sealing compound (Item 50) to threads of 24 screws (13).

c. Install new gasket (14) and access cover (12) on upper tank (8) with 24 new sealing washers (15) and screws (13).

d. CROSS TORQUE 24 SCREWS (13) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH AND ADAPTER.

141. INSTALL LINK (16) ON BULKHEAD.

a. Install link (16) on bulkhead with screw (17).

142. INSTALL TRANSMITTER (18) ON LOWER TANK (19).

a. Position new gasket (20) and transmitter (18) on lower tank (19) with mark (21) aligned with center of lower tank.

b. Apply sealing compound (Item 52) to threads of 12 screws (22).

c. Apply sealing compound (Item 50) to threads of 12 screws (22).

d. Install 12 new sealing washers (23) and screws (22) on transmitter (18).

e. CROSS TORQUE 12 SCREWS (22) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH AND ADAPTER.

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NOTE
Longest feed hose must be installed on left hanger.
Second feed hose must be installed on right hanger.

143. INSTALL TWO FEED HOSES (1) ON TWO FUEL PUMPS (2) ON LEFT AND RIGHT HANGERS (3).
   a. Place two new gaskets (4) on left and right hangers (3).
   b. Reach through hanger openings and pull out two feed hoses (1) from lower tank (5).
   c. Slide two clamps (6) on two feed hoses (1).
   d. Install two feed hoses (1) on two fuel pumps (2). Tighten two clamps (6).

144. INSTALL FOUR HANGERS (3) ON LOWER TANK (5).
   a. Apply sealing compound (Item 52) to threads of 16 studs (7) and 48 screws (8).
   b. Apply sealing compound (Item 50) to threads of 16 studs (7) and 48 screws (8).
   c. Place two new gaskets (9) on two hangers (3).
   d. Position four hangers (3) in lower tank (5) with arrows pointing to center of lower tank.
   e. Install one sealing washer (10) and stud (7) in every fourth hole on each hanger (3). Aline first stud with arrow on top of hanger. Tighten studs finger tight.
   f. Install 12 new sealing washers (10) and screws (8) on each hanger (3). Tighten screws finger tight.

145. CROSS TORQUE 16 STUDS (7) AND 48 SCREWS (8) TO 83-91 IN-LB (98-105 CMKG). USE TORQUE WRENCH AND ADAPTER.
146. INSTALL GROUND LEAD (11) ON TRANSMITTER (12).
   a. Install ground lead (11) on transmitter (12) with new lock washer (13) and screw (14).

147. INSTALL PLUG 1W18P8 (15) ON JACK 1MT7J1 (16) OF TRANSMITTER (12).

148. INSTALL PLUG 1W18P16 (17) ON JACK 1A32J1 (18).

149. INSTALL PLUG 1W18P18 (19) ON JACK 1A31J1 (20).
150. INSTALL PLUG 1W18P17 (1) ON JACK 1A30J1 (2).

151. INSTALL PLUG 1W18P15 (3) ON JACK 1A28J1 (4).

152. INSTALL TWO ACCESS COVERS (5) ON LOWER TANK (6).
   a. Apply sealing compound (Item 52) to threads of 48 screws (7).
   b. Apply sealing compound (Item 50) to threads of 48 screws (7).
   c. Place two new gaskets (8) and access covers (5) on lower tank (6).
   d. Install 24 new sealing washers (9) and screws (7) on each access cover (5).
   e. CROSS TORQUE 48 SCREWS (7) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH AND ADAPTER.
WARNING
Fire extinguishers can discharge and injure you. Use extreme caution when working near or on fire extinguishers. Make sure antirecoil plugs and lock pins are in place.

153. INSTALL BRACKET (10) ON SPONSON.
   a. Install bracket (10), four washers (11), and screws (12) on sponson. Tighten screws finger tight. Have helper assist.

154. INSTALL PLUG 1W11P8 (13) ON JACK 1L2J1 (14).

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155. INSTALL PLUG 1W11P9 (1) ON JACK 1L1J1 (2).

156. INSTALL BRACKET (3) ON NIGHT SIGHT SUPPORT (4).
   
a. Install washer (5) and screw (6) on bracket (3) and night sight support (4).
   
b. Install four washers (7), two screws (8), and nuts (9) on bracket (3) and night sight support (4).
157. TIGHTEN FOUR SCREWS (10) ON BRACKET (3) AND SPONSON.

158. INSTALL CABLE BRACKET (11) ON BRACKET (3).
   a. Install cable bracket (11) on bracket (3) with two washers (12) and screws (13).

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WARNING
Fire extinguishers can discharge and injure you. Use extreme caution when working near or on fire extinguishers. Make sure antirecoil plugs and lock pins are in place.

159. INSTALL RELEASE CLEVIS (1) ON DISCHARGE CLEVIS (2).
   a. Position release clevis (1) on discharge clevis (2) with pin holes alined.
   b. Install pin (3) and washer (4) on release clevis (1).
   c. Install new cotter pin (5) on pin (3).

160. FUEL VEHICLE. See TM 9-2350-252-10-1.
    CHECK FOR LEAKS.

161. INSTALL FORWARD COVER (6) ON LOWER TANK (7).
   a. Install forward cover (6) on lower tank (7) with two washers (8), new lock washers (9), and screws (10).
162. INSTALL REAR COVER (11) ON LOWER TANK (7).
   a. Place rear cover (11) on lower tank (7).
   b. Insert lugs (12) of rear cover (11) in slots (13) of forward cover (6).

163. INSTALL FOUR COVERS (14) ON FOUR HANGERS (15).
   a. Install 4 covers (14) on 4 hangers (15) with 16 screws (16).

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164. INSTALL BRACKET (1) WITH RAMP SWITCH (2) ON HULL.
   a. Install bracket (1) with ramp switch (2) on hull with two washers (3) and screws (4).

165. INSTALL NEW LOCK WIRE (5) ON THREE DRAIN VALVES (6).
166. INSTALL REAR BILGE PUMP ACCESS COVER. See TM 9-2350-252-20-1.

**NOTE**
If more work space is needed, squad seats No. 8 and No. 9 should not be unstowed until step 227.

167. INSTALL RIGHT AMMO STOWAGE ACCESS COVER. See TM 9-2350-252-20-1.

168. INSTALL RIGHT REAR CENTER AMMO STOWAGE ACCESS COVER. See TM 9-2350-252-20-1.

169. INSTALL LEFT REAR AMMO STOWAGE ACCESS COVER. See TM 9-2350-252-20-1.

**NOTE**
If more work space is needed, squad seat No. 6 should not be unstowed until step 227.

170. INSTALL ACTUATOR FLOOR PLATE COVER. See TM 9-2350-252-20-1.

171. (CFV ONLY) INSTALL RIGHT AMMO STOWAGE ACCESS COVER — CFV ONLY. See TM 9-2350-252-20-1.

**NOTE**
For IFV, 3 washers, 9 spacers, 12 lock washers, and screws should be installed on fuel cell floor plate.

For CFV, 3 lock washers, 8 spacers, 11 washers, and screws should be installed on fuel cell floor plate.

IFV is shown in this step.

172. INSTALL FUEL CELL FLOOR PLATE (7) ON FLOOR.
   a. Install fuel cell floor plate (7), nine spacers (8), new lock washers (9), and screws (10) on floor.
   b. Install three washers (11), new lock washers (9), and screws (10) on fuel cell floor plate (7).

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173. INSTALL PASSAGEWAY FLOOR PLATE (1) ON FLOOR.
   a. Install passageway floor plate (1), 3 washers (2), 7 spacers (3), 10 new lock washers (4), and screws (5) on floor.


175. (CFV ONLY) INSTALL MISSILE STORAGE RACK STRAPS. See TM 9-2350-252-20-1.


NOTE
If more work space is needed, squad seat No. 5 and jump seat should not be unstowed until step 228.

177. (CFV ONLY) INSTALL SQUAD SEAT NO. 5 (6) ON MOUNTING POST (7).
   a. Install squad seat No. 5 (6), six washers (8), new lock washers (9), and screws (10) on mounting post (7).

NOTE
Squad seats No. 5, No. 7, No. 8, and No. 9 are installed the same way.

179. (IFV ONLY) INSTALL SQUAD SEATS NO. 5, NO. 7, NO. 8, AND NO. 9 (11) IN VEHICLE.
   a. Install each squad seat (11) in vehicle with four pins (12).
   b. Flip squad seats (11) up to stow position.

180. (IFV ONLY) INSTALL ANGLE BRACKET (13) ON FLOOR.
   a. Install angle bracket (13), two washers (14), and screws (15) on floor.

181. (IFV ONLY) INSTALL SEAT BELT (16) ON ANGLE BRACKET (13).
   a. Install seat belt (16), washer (17), screw (18), and new locknut (19) on angle bracket (13).

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182. (IFV ONLY) INSTALL BRACKET (1) ON FUEL CELL FLOOR PLATE (2).
   a. Install two spacers (3), bracket (1), two new lock washers (4), and screws (5) on fuel cell floor plate (2).

183. (CFV ONLY) INSTALL BRACKET (6) ON FUEL CELL FLOOR PLATE (2).
   a. Install spacer (7), bracket (6), washer (8), new lock washer (9), and screw (10) on fuel cell floor plate (2).

184. INSTALL MIDDLE AIR TUBE (11) ON LOWER TANK (12).
185. INSTALL END AIR TUBE (13) ON LOWER TANK (12).

186. INSTALL MIDDLE AIR TUBE (11) ON END AIR TUBE (13).
   a. Position air hose (14) of end air tube (13) on middle air tube (11).
   b. Slide clamp (15) down air hose (14).
   c. Tighten clamp (15) on air hose (14) and middle air tube (11).

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187. INSTALL THREE ANGLE BRACKETS (1) ON FUEL CELL FLOOR PLATE (2).
   a. Install three angle brackets (1), washers (3), and screws (4) on fuel cell floor plate (2). Tighten screws finger tight.

188. INSTALL THREE ANGLE BRACKETS (5) ON PASSAGEWAY FLOOR PLATE (6).
   a. Install three angle brackets (5), washers (7), and screws (8) on passageway floor plate (6). Tighten screws finger tight.
189. INSTALL AIR TUBE (9) IN VEHICLE.
   a. Position air tube (9) on hose (10) and bracket (11).

190. INSTALL AIR TUBE (9) ON MIDDLE AIR TUBE (12).
   a. Position air hose (13) of middle air tube (12) on air tube (9).
   b. Slide clamp (14) down on air hose (13).
   c. Tighten clamp (14) on air hose (13) and air tube (9).

191. INSTALL TUBE BRACKET (15) ON SPONSON.
   a. Install tube bracket (15), four washers (16), two screws (17), and new locknuts (18) on sponson.

192. INSTALL CLAMP (19) ON AIR TUBE (9) AND HOSE (10).
   a. Slide clamp (19) over end of air tube (9) and hose (10). Tighten clamp.

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193. INSTALL CLAMP (1) ON AIR TUBE (2) AND BRACKET (3).
   a. Position clamp (1) around air tube (2) and on screw (4).
   b. Install washer (5) and new locknut (6) on screw (4).

194. INSTALL RIGHT PANEL (7) IN VEHICLE.
   a. Position right panel (7) in vehicle with ceiling and right panel screw holes aligned.
   b. Install two new lock washers (8), and screws (9) on right panel (7) and ceiling. Tighten screws finger tight.
195. INSTALL RIGHT PANEL (7) ON ANGLE BRACKET (10).
   a. Aline right panel (7) and angle bracket (10) slots.
   b. Install washer (11) and screw (12) on angle bracket (10) and right panel (7).
      Tighten screw fingertight.

196. INSTALL RIGHT PANEL (7) ON BRACKET (13).
   a. Aline right panel (7) slot with bracket (13) screw hole.
   b. Install washer (14), screw (15), and new locknut (16) on right panel (7) and bracket (13).

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197. INSTALL TWO PLUGS (1, 2) ON VRC CONTROL BOX (3).

198. INSTALL REAR VENT FAN CONTROL BOX. See TM 9-2350-252-20-1.

199. INSTALL LEFT PANEL (4) IN VEHICLE.
   a. Slide left panel (4) between six washers (5) and bulkhead. Have helper assist.
   b. Position left panel (4) with ceiling and left panel screw holes aligned. Have helper assist.
   c. Install four new lock washers (6) and screws (7) on left panel (4) and ceiling. Tighten screws finger tight.
200. INSTALL TWO ANGLE BRACKETS (8) ON LEFT PANEL (4).
   a. Install two washers (9) and screws (10) on two angle brackets (8) and left panel (4). Tighten screws finger tight.

201. INSTALL WIRING HARNESS 2W309 (11) ON LEFT PANEL (4).
   a. Install three clamps (12) on wiring harness 2W309 (11).
   b. Install three clamps (12) and screws (13) on left panel (4).
202. INSTALL PLUG (1) ON HULL GYRO BLOCK (2).

203. INSTALL FAN CONTROLLER (3) ON LEFT PANEL (4).
   a. Install fan controller (3), four new lock washers (5), and nuts (6) on left panel (4).
   b. Install plug (7) on fan controller (3).
204. INSTALL LOWER TRACK (8) ON LEFT PANEL (4).
   a. (H) Position lower track (8) on turret side of left panel (4) with marks alined.
   b. Install two washers (9) and screws (10) on left panel and lower track. Tighten screws finger tight.

205. INSTALL LOWER TRACK (8) ON THREE ANGLE BRACKETS (11).
   a. (H) Aline lower track (8) screw holes with angle bracket (11) slot.
   b. Install three washers (12) and screws (13) on three angle brackets (11) and lower track (8). Tighten screws finger tight.
206. INSTALL LOWER TRACK (1) ON RIGHT PANEL (2).
   a. Aline lower track (1) screw holes with right panel (2) slots.
   b. Install two washers (3) and screws (4) on right panel (2) and lower track (1).
      Tighten screws finger tight.

207. INSTALL UPPER TRACK (5) ON LEFT PANEL (6).
   a. (H) Position upper track (5) on turret side of left panel (6) with marks aligned.
   b. Install four washers (7) and screws (8) on left panel (6) and upper track (5).
      Tighten screws finger tight.
208. INSTALL UPPER TRACK (5) ON RIGHT PANEL (2).
   
a. Aline upper track (5) screw holes with right panel (2) slots.

   b. Install two washers (9) and screws (10) on right panel (2) and upper track (5). Tighten screws finger tight.

209. INSTALL DOOR (11) ON LOWER AND UPPER TRACKS (1, 5).

   a. Place door (11) on lower track (1) with lower track between two bottom latches (12) and door.

   b. Lift and position door (11) so that two bearings (13) rest on upper track (5).
210. INSTALL TWO LATCHES (1) ON DOOR (2).

a. Install two latches (1), four washers (3), screws (4), new lock washers (5), and new locknuts (6) on door (2).

211. TORQUE TWO SCREWS (7) ON RIGHT PANEL (8) AND CEILING TO 264-288 IN-LB (304-322 CMKG). USE TORQUE WRENCH AND ADAPTER.
212. TORQUE THREE BOTTOM SCREWS (9) ON THREE ANGLE BRACKETS (10) AND FUEL CELL FLOOR PLATE (11) TO 284-288 IN-LB (304-322 CMKG). USE TORQUE WRENCH AND ADAPTER.

213. TORQUE THREE TOP SCREWS (12) ON THREE ANGLE BRACKETS (10) ON FUEL CELL FLOOR PLATE (11) TO 73-79 IN-LB (84-91 CMKG). USE TORQUE WRENCH AND ADAPTER.

214. TORQUE TWO SCREWS (13) ON RIGHT PANEL (8) AND LOWER TRACK (14) TO 73-79 IN-LB (84-91 CMKG). USE TORQUE WRENCH AND ADAPTER.
215. TORQUE TWO SCREWS (1) ON RIGHT PANEL (2) AND UPPER TRACK (3) TO 73-79 IN-LB (84-91 CMKG). USE TORQUE WRENCH AND ADAPTER.

216. TORQUE FOUR SCREWS (4) ON LEFT PANEL (5) AND CEILING TO 264-288 IN-LB (304-322 CMKG). USE TORQUE WRENCH AND ADAPTER.

217. TORQUE THREE BOTTOM SCREWS (6) ON THREE ANGLE BRACKETS (7) ON PASSAGEWAY FLOOR PLATE (8) TO 264-288 IN-LB (304-322 CMKG). USE TORQUE WRENCH AND ADAPTER.

218. TORQUE THREE TOP SCREWS (9) ON THREE ANGLE BRACKETS (7) ON PASSAGEWAY FLOOR PLATE (8) TO 73-79 IN-LB (84-91 CMKG). USE TORQUE WRENCH AND ADAPTER.
219. TORQUE TWO SCREWS (10) ON LEFT PANEL (5) AND LOWER TRACK (11) TO 73-79 IN-LB (84-91 CMKG). USE TORQUE WRENCH AND ADAPTER.

220. TORQUE FOUR SCREWS (12) ON LEFT PANEL (5) AND UPPER TRACK (3) TO 73-79 IN-LB (84-91 CMKG). USE TORQUE WRENCH AND ADAPTER.
221. TORQUE SIX SCREWS (1) ON LEFT PANEL (2) AND BULKHEAD TO 73-79 IN-LB (84-91 CMKG). USE TORQUE WRENCH AND ADAPTER.

222. OPEN DOOR (3).
   a. Slide door (3) open.
   b. Make sure outside door catch (4) holds door (3) open.

223. INSTALL REAR HULL MOUNTED CREW VENT FAN INLET DUCT. See TM 9-2350-252-20-1.

224. INSTALL TURRET.
   See TM 9-2350-252-34-2.

   WARNING
   Fire extinguishers can discharge and injure you. Insert antirecoil plugs, lock pins, and cotter pins before you work near fire extinguishers.

225. ACTIVATE FIRE SUPPRESSION SYSTEM. See TM 9-2350-252-20-1.

226. INSTALL VEHICLE GROUND CABLE.
   See TM 9-2350-252-20-1.


228. (CFV ONLY) UNSTOW SQUAD SEAT NO. 5 AND JUMP SEAT. See TM 9-2350-252-20-1.

229. ADJUST RAMP SWITCH.
   See TM 9-2350-252-20-1.

END OF TASK
INITIAL SETUP

Tools:
- General mechanic’s tool kit: automotive
- Combination wrench, 1 1/4 inch — 1173
- Torque wrench, 3/8 inch drive, 0-600 in-lb — B58
- Socket, 3/8 inch drive, 7/16 inch — 5120-00-227-6703
- Wooden blocks

Materials/Parts:
- General mechanic’s tool kit: automotive
- Combination wrench, 1 1/4 inch — 1173
- Torque wrench, 3/8 inch drive, 0-600 in-lb — B58
- Socket, 3/8 inch drive, 7/16 inch — 5120-00-227-6703
- Wooden blocks

Materials/Parts (cont):
- Lock washer
- Lock washer (11)
- Lock washer (12)

Personnel Required:
- Track Veh Rep 63H10
- Helper (H)

References:
- TM 9-2350-252-10-1
- TM 9-2350-252-10-2
- TM 9-2350-252-20-1
- TM 9-2350-252-34-2

Equipment Conditions:
- Engine stopped (TM 9-2350-252-10-1)
- Turret shut down (TM 9-2350-252-10-2)

REPAIR

1. CHECK FUEL LEVEL IN LOWER TANK.
   a. Move MASTER POWER switch (1) to ON.
   b. Move ENGINE ACCESSORY switch (2) to ON.
   c. Read FUEL gage (3). Record reading.
   d. Move ENGINE ACCESSORY switch (2) to OFF.
   e. Move MASTER POWER switch (1) to OFF.
2. LOWER RAMP. See TM 9-2350-252-10-1.

3. REMOVE COAX MACHINE GUN. See TM 9-2350-252-10-2.


5. TRAVERSE TURRET TO 4100 MILS. See TM 9-2350-252-10-2.

**WARNING**
Fuel can catch fire and burn you. Do not smoke. Disconnect vehicle ground cable before you work on fuel system. Wipe up spilled fuel.

6. REMOVE VEHICLE GROUND CABLE. See TM 9-2350-252-20-1.

7. DRAIN UPPER FUEL TANK. See TM 9-2350-252-20-1.

**WARNING**
Fire extinguishers can discharge and injure you. Insert antirecoil plugs, lock pins, and cotter pins before you work near the bottles.

8. TRAVERSE TURRET TO 6400 MILS. See TM 9-2350-252-10-2.

**NOTE**
Steps 9 thru 12 should be done only if fuel gage reads more than 3/4 full.


10. REMOVE PASSAGeway FLOOR PLATE. See TM 9-2350-252-20-1.

11. REMOVE ACTUATOR FLOOR PLATE COVER. See TM 9-2350-252-20-1.

12. DRAIN 35 GALLONS OF FUEL FROM LOWER FUEL TANK. See TM 9-2350-252-20-1.


**WARNING**
Fire extinguishers can discharge and injure you. Use extreme caution when working near or on fire extinguishers. Make sure antirecoil plugs and lock pins are in place.

**NOTE**
Plugs 1W18P9 and 1B2P1 are located behind duct hose.

15. REMOVE PLUG 1W18P9 (1) FROM PLUG 1B2P1 (2). TAG PLUGS.
16. REMOVE PLUG 1W18P6 (3) FROM PLUG 1A8P1 (4). TAG PLUGS.

17. REMOVE HEATER HOSE (5) FROM FUEL PUMP (6).
   a. Remove heater hose (5) from fuel pump (6).
   b. Plug heater hose (5).

18. REMOVE HEATER SUPPLY HOSE (7) FROM SHUTOFF VALVE (8).
   a. Remove heater supply hose (7) from shutoff valve (8).
   b. Plug heater supply hose (7).
WARNING
NBC agents can kill you. Decontaminate air cleaner and vent system after NBC attack.

19. OPEN DOOR (1) OF FILTER BOX (2).
   a. Remove lock wire (3) from two latches (4) on filter box (2). Discard lock wire.
   b. Unlatch and open door (1) on filter box (2).

20. REMOVE FILTER (5) FROM FILTER BOX (2).

21. REMOVE HOSE (6) FROM DUCT (7).
   a. Loosen clamp (8) on hose (6).
   b. Remove hose (6) and clamp (8) from duct (7).
22. REMOVE VENT FAN (9) FROM FILTER BOX (2).
   a. Remove two locknuts (10), washers (11), and screws (12) from outer bracket (13). Discard locknuts.
   b. Remove three locknuts (14), washers (15), screws (16), outer bracket (13), and vent fan (9) from filter box (2). Discard locknuts.

23. REMOVE FILTER BOX (2) FROM BULKHEAD.
   a. Remove three screws (17), lock washers (18), washers (19), retainer (20), and filter box (2) from bulkhead. Discard lock washers.

24. REMOVE FOUR COVERS (21) FROM FOUR HANGERS (22).
   a. Remove 16 screws (23) and 4 covers (21) from 4 hangers (22).
25. REMOVE REAR COVER (1) FROM LOWER TANK (2).
   a. Slide four lugs (3) on rear cover (1) from four slots (4) in forward cover (5).
   b. Remove rear cover (1) from lower tank (2).

26. REMOVE FORWARD COVER (5) FROM LOWER TANK (2).
   a. Remove two screws (6), lock washers (7), and washers (8) from forward cover (5). Discard lock washers.
   b. Remove forward cover (5) from lower tank (2).
27. REMOVE ACCESS TANK COVER (9) FROM UPPER TANK (10).
   a. Remove 24 screws (11), sealing washers (12), access cover (9), and gasket (13) from upper tank (10).
      Discard sealing washers and gasket.

28. REMOVE ACCESS COVER (14) FROM LOWER TANK (2).
   a. Remove 24 screws (15), sealing washers (16), access cover (14), and gasket (17) from lower tank (2). Discard sealing washers and gasket.

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29. REMOVE TWO BENT TUBES (1) WITH TWO UPPER HOSES (2) FROM UPPER TANK (3).
   a. Remove nut (4), lock washer (5), screw (6), and two clamps (7) with two bent tubes (1) from bracket (8). Discard lock washer.

30. REMOVE TWO BENT TUBES (1) FROM TWO UPPER HOSES (2).
   a. Loosen two clamps (9) on two upper hoses (2).
   b. Remove two bent tubes (1) from two upper hoses (2).
   c. Slide two clamps (9) off two upper hoses (2).
31. PLACE TWO UPPER HOSES (2) IN LOWER TANK (10).
   a. Reach through access hole (11) of lower tank (10). Pull two upper hoses (2) from upper tank into lower tank.

CAUTION
Dirt can clog fuel system and damage engine.
Cover opening of lower tank.

32. PLACE ACCESS COVER (12) ON LOWER TANK (10).

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33. REMOVE VENT HOSE (1) FROM ELBOW (2) ON ADAPTER PLATE (3).
   a. Remove vent hose (1) from elbow (2) on adapter plate (3).
   b. Plug vent hose (1).

34. REMOVE FUEL HOSE (4) FROM SHUTOFF VALVE (5).
   a. Remove fuel hose (4) from shutoff valve (5). Use combination wrench.
   b. Plug fuel hose (4).
35. REMOVE VENT HOSE (1) FROM SHUTOFF VALVE (5).
   a. Remove nut (6), washer (7), and screw (8) from clamps (9, 10).
   b. Remove two vent hoses (1) with clamp (9) from clamp (10) on shutoff valve (5).

36. REMOVE HEATER SUPPLY HOSE (11) FROM ADAPTER PLATE (12).
   a. Remove heater supply hose (11) from adapter plate (12).
   b. Plug heater supply hose (11).

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37. REMOVE FRONT UPPER BRACKET (1) FROM BULKHEAD.
   a. Remove two screws (2), lock washers (3), washers (4), and front upper bracket (1) from bulkhead. Discard lock washers.

38. REMOVE MIDDLE AND REAR UPPER BRACKETS (5, 6) FROM BULKHEAD.
   a. Remove outside screw (7), lock washer (8), and washer (9) from rear upper bracket (6). Discard lock washer.
   b. Loosen inside screw (10) on rear upper bracket (6). Turn rear upper bracket for access to middle upper bracket (5).
   c. Loosen two screws (11) and slide middle upper bracket (5) off bulkhead.
   d. Move upper tank so that inside screw (10) on rear upper bracket (6) can be removed.
   e. Remove inside screw (10), lock washer (12), washer (13), and rear upper bracket (6) from bulkhead. Discard lock washer.
39. REMOVE REAR BRACKET (14) FROM HULL.
   a. Remove two screws (15), washers (16), and rear bracket (14) from hull.

40. REMOVE TWO LOWER BRACKETS (17) FROM HULL.
   a. Remove four screws (18), washers (19), and two lower brackets (17) from hull.

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41. REMOVE HOSE (1) FROM ADAPTER PLATE (2) AND UPPER TANK (3).
   a. Loosen two clamps (4) on hose (1).
   b. Remove hose (1) with two clamps (4) from adapter plate (2) and upper tank (3).

42. LOOSEN CLAMP (5) ON BOOT (6) ON FUEL TANK COVER (7).
43. REMOVE STRAINER (8) FROM UPPER TANK (3).
   a. Unlatch and open cover (9).
   b. Remove filler cap (10) and chain (11) from filler neck (12).
   c. Remove retainer (13) and strainer (8) from upper tank (3).

CAUTION
Upper tank can be damaged easily. Do not force upper tank out of vehicle.

44. REMOVE UPPER TANK (3) FROM VEHICLE.
   a. Remove upper tank (3) through rear of vehicle. Have helper assist.
   b. Place upper tank (3) on wooden blocks.
   c. Remove two screws (14), lock washers (15), and washers (16) from bulkhead. Discard lock washers.

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45. REMOVE FILLER NECK (1) FROM HULL.
   a. Remove 12 screws (2), lock washers (3), spacer (4), boot (5), filler neck (1), and spacer (6) from hull. Discard lock washers.

46. INSTALL FILLER NECK (1) ON HULL.
   a. Install spacer (6), filler neck (1), boot (5), spacer (4), 12 new lock washers (3), and screws (2) on hull.
NOTE
Make sure filler neck is aligned with upper tank opening when installing upper tank.

47. INSTALL UPPER TANK (7) ON VEHICLE.
   a. Install two washers (8), new lock washers (9), and screws (10) in bulkhead at middle upper bracket position. Tighten screws three turns only.
   b. Position upper tank (7) on mounting surface of vehicle. Have helper assist.

NOTE
Boot should be positioned on fuel tank cover through fuel tank opening outside of vehicle.

48. INSTALL BOOT (5) ON FUEL TANK COVER (11).
   a. Position boot (5) on fuel tank cover (11).
   b. Place clamp (12) on boot (5). Tighten clamp.

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49. INSTALL HOSE (1) ON ADAPTER PLATE (2) AND UPPER TANK (3).
   a. Place hose (1) with two clamps (4) on adapter plate (2) and upper tank (3).
   b. Tighten two clamps (4) on hose (1).

50. INSTALL TWO LOWER BRACKETS (5) ON HULL.
   a. Install two lower brackets (5) on hull with four washers (6) and screws (7).
51. INSTALL REAR BRACKET (8) ON HULL.
   a. Install rear bracket (8) on hull with two washers (9) and screws (10).

52. INSTALL FRONT, MIDDLE, AND REAR UPPER BRACKETS (11, 12, 13) ON BULKHEAD.
   a. Slide slotted middle bracket (12) between two washers (14) and bulkhead. Tighten two screws (15).
   b. Install front and rear upper brackets (11, 13) on bulkhead with four washers (16), new lock washers (17), and screws (18).
53. INSTALL HEATER SUPPLY HOSE (1) ON ADAPTER PLATE (2).
   a. Unplug heater supply hose (1).
   b. Install heater supply hose (1) on adapter plate (2).

54. INSTALL FUEL HOSE (3) ON SHUTOFF VALVE (4).
   a. Unplug fuel hose (3).
   b. Install fuel hose (3) on shutoff valve (4).
      Use combination wrench.
55. INSTALL VENT HOSE (5) ON ELBOW (6) ON ADAPTER PLATE (7).
   a. Unplug vent hose (5).
   b. Install vent hose (5) on elbow (6) on adapter plate (7).

56. INSTALL VENT HOSE (5) ON SHUTOFF VALVE (4).
   a. Position clamp (8) on vent hose (5) on clamp (9) on shutoff valve (4).
   b. Install screw (10), washer (11), and nut (12) on two clamps (8, 9).

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57. REMOVE ACCESS COVER (1) FROM LOWER TANK (2).

NOTE
Make sure upper hoses do not reach beyond top of funnel tube.

58. PLACE TWO UPPER HOSES (3) IN UPPER TANK (4).
   a. Route two upper hoses (3) in lower tank (5) through coupling hose (6) and funnel tube (7) into upper tank (4).
Upper hoses may be lubricated with petrolatum or diesel fuel if needed.

59. INSTALL TWO BENT TUBES (8) ON TWO UPPER HOSES (3).
   a. Slide two clamps (9) on two upper hoses (3).
   b. Install two bent tubes (8) on two upper hoses (3).
   c. Tighten two clamps (9) on two upper hoses (3).

60. INSTALL TWO BENT TUBES (8) WITH TWO UPPER HOSES (3) IN UPPER TANK (4).
   a. Position two clamps (10) on bracket (11) of funnel tube (7).
   b. Install screw (12), new lock washer (13), and nut (14) on two clamps (10) and bracket (11).

61. INSTALL ACCESS COVER (1) ON LOWER TANK (2).
   a. Apply sealing compound (Item 52) to threads of 24 screws (15).
   b. Apply sealing compound (Item 50) to threads of 24 screws (15).
   c. Install new gasket (16) and access cover (1) on lower tank (2) with 24 new sealing washers (17) and screws (15).
   d. CROSS TORQUE 24 SCREWS (15) TO 83-91 IN-LB (98-105 CMKG). USE TORQUE WRENCH AND SOCKET.
62. INSTALL ACCESS COVER (1) ON UPPER TANK (2).
   a. Apply sealing compound (Item 52) to threads of 24 screws (3).
   b. Apply sealing compound (Item 50) to threads of 24 screws (3).
   c. Install new gasket (4) and access cover (1) on upper tank (2) with 24 new sealing washers (5) and screws (3).
   d. CROSS TORQUE 24 SCREWS (3) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH AND SOCKET.

63. INSTALL FORWARD COVER (6) ON LOWER TANK (7).
   a. Place forward cover (6) on lower tank (7).
   b. Install two washers (8), new lock washers (9), and new screws (10) on forward cover (6).
64. INSTALL REAR COVER (11) ON LOWER TANK (7).
   a. Place rear cover (11) on lower tank (7).
   b. Insert four lugs (12) on rear cover (11) in four slots (13) in forward cover (6).

65. INSTALL FOUR COVERS (14) ON FOUR HANGERS (15).
   a. Install 4 covers (14) on 4 hangers (15) with 16 screws (16).
66. INSTALL FILTER BOX (1) ON BULKHEAD.
   a. Install filter box (1) on bulkhead with retainer (2), three washers (3), new lock washers (4), and screws (5).

67. INSTALL VENT FAN (6) ON FILTER BOX (1).
   a. Position vent fan (6) on filter box (1) with fan duct (7) 45 degrees to left.
   b. Install three screws (8), washers (9), and new locknuts (10) on vent fan (6). Do not tighten locknuts.
   c. Slide outer bracket (11) between two washers (9) and vent fan (6).
   d. Install two screws (12), washers (13), and new locknuts (14) on outer bracket (11).
   e. Tighten locknuts (10) on vent fan (6).
68. INSTALL HOSE (15) ON DUCT (16).
   a. Slide hose (15) with clamp (17) onto duct (16).
   b. Tighten clamp (17) on hose (15).

69. INSTALL FILTER (18) IN FILTER BOX (1).

70. CLOSE DOOR (19) OF FILTER BOX (1).
   a. Close and latch door (19) of filter box (1).
   b. Install new lock wire (20) on two latches (21) on filter box (1).
71. INSTALL HEATER SUPPLY HOSE (1) ON SHUTOFF VALVE (2).
   a. Unplug heater supply hose (1).
   b. Install heater supply hose (7) on shutoff valve (2).

72. INSTALL HEATER HOSE (3) ON FUEL PUMP (4).
   a. Unplug heater hose (3).
   b. Install heater hose (3) on fuel pump (4).

73. INSTALL PLUG 1W18P6 (5) ON PLUG 1A8P1 (6).

WARNING
Fire extinguishers can discharge and injure you. Use extreme caution when working near or on fire extinguishers. Make sure antirecoil plugs and lock pins are in place.

74. INSTALL PLUG 1W18P9 (7) ON PLUG 1B2P1 (8).
75. INSTALL STRAINER (9) IN UPPER TANK (10).
   a. Install strainer (9) and retainer (11) in upper tank (10).
   b. Install chain (12) and filler cap (13) on filler neck (14).
   c. Close and latch cover (15).

76. INSTALL TURRET. See TM 9-2350-252-34-2.

NOTE
Steps 77 thru 79 should be done only if lower fuel tank was drained.

77. INSTALL ACTUATOR FLOOR PLATE. See TM 9-2350-252-20-1.

78. INSTALL PASSAGeway FLOOR PLATE. See TM 9-2350-252-20-1.

79. INSTALL FUEL CELL FLOOR PLATE COVER. See TM 9-2350-252-20-1.

80. INSTALL VEHICLE GROUND CABLE. See TM 9-2350-252-20-1.

81. INSTALL 25MM GUN BARREL. See TM 9-2350-252-10-2.

82. INSTALL COAX MACHINE GUN. See TM 9-2350-252-10-2.

83. ACTIVATE FIRE SUPPRESSION SYSTEM. See TM 9-2350-252-20-1.

84. RAISE RAMP. See TM 9-2350-252-10-1.

85. FUEL VEHICLE. See TM 9-2350-252-10-1.
REPLACE UPPER FUEL TANK

DESCRIPTION

This task covers: Remove (page 11-63). Install (page 11-83).

INITIAL SETUP

Tools:
- General mechanic's tool kit: automotive
  - Combination wrench, 1 1/4 inch — 5120-00-228-9517
  - Torque wrench, 3/8 inch drive, 0-600 in-lb — 5120-00-542-5681
  - Socket, 3/8 inch drive, 7/16 inch — 5120-00-227-6703
  - Torque wrench adapter, 1/2 inch drive, 7/16 inch — 12298105-2
  - Adapter, 3/8 inch, 1/2 inch drive — 5120-00-240-8703

Materials/Parts (cont):
- Gasket
- Gasket
- Gasket (2)
- Gasket (2)
- Sealing washer (104)
- Engine fuel tank
- Self-locking nut (5)

Personnel Required:
- Track Veh Rep 63H10
- Helper (H)

References:
- TM 9-2350-252-10-1
- TM 9-2350-252-10-2
- TM 9-2350-252-20-1
- TM 9-2350-252-34-2
- Adhesive (item 5, App B)
- Sealing compound (item 51, App B)
- Sealing compound (item 49, App B)
- Tech petrolatum (item 60, App B)
- Nonelectrical wire (item 41, App B)
- Lock washer (2)
- Lock washer (11)
- Gasket
- Gasket
- Self-locking nut

REMOVE

1. CHECK FUEL LEVEL IN LOWER TANK.
   a. Move MASTER POWER switch (1) to ON.
   b. Move ENGINE ACCESSORY switch (2) to ON.
   c. Read fuel gage (3). Record reading.
   d. Move ENGINE ACCESSORY switch (2) to OFF.
   e. Move MASTER POWER switch (1) to OFF.

GO TO NEXT PAGE
2. LOWER RAMP. See TM 9-2350-252-10-1.

3. REMOVE COAX MACHINE GUN. See TM 9-2350-252-10-2.


5. REMOVE VEHICLE GROUND CABLE. See TM 9-2350-252-20-1.


7. DRAIN UPPER FUEL TANK. See TM 9-2350-252-20-1.

NOTE
Steps 8 thru 11 should be done only if fuel gage showed more than 3/4 full in step 1c.

8. REMOVE FUEL CELL FLOOR PLATE COVER. See TM 9-2350-252-20-1.

9. REMOVE PASSAGEWAY FLOOR PLATE. See TM 9-2350-252-20-1.

10. REMOVE ACTUATOR FLOOR PLATE. See TM 9-2350-252-20-1.

11. DRAIN 35 GALLONS OF FUEL FROM LOWER FUEL TANK. See TM 9-2350-252-20-1.

WARNING
Fuel can catch fire and burn you. Do not smoke. Disconnect vehicle ground cable before you work on fuel system. Wipe up spilled fuel.

WARNING
Fire bottles can discharge and injure you. Make sure lock pins and anti-recoil plugs are installed in fire bottles.

NOTE
Plug 1W18P9 and 1B2P1 are behind duct hose.

12. REMOVE PLUG 1W18P9 (1) FROM PLUG 1B2P1 (2). TAG PLUGS.
13. REMOVE PLUG 1W18P6 (3) FROM PLUG 1A8P1 (4). TAG PLUGS.

CAUTION
Dirt can clog fuel system and damage engine. Plug end of fuel hose.

14. REMOVE HEATER HOSE (5) FROM FUEL PUMP (6).
   a. Remove heater hose (5) from fuel pump (6).
   b. Plug end of heater hose (5).

GO TO NEXT PAGE
15. REMOVE HEATER HOSE (1) FROM SHUTOFF VALVE (2).
   a. Remove heater hose (1) from shutoff valve (2).
   b. Plug end of heater hose (1).

**WARNING**

NBC agents can kill you. Do not service air cleaner or vent system after NBC attack. Decontaminate vehicle.

16. UNLATCH AND OPEN DOOR (3) OF FILTER BOX (4).
   a. Remove lock wire (5) from two latches (6) on door (3). Discard lock wire.
   b. Unlatch and open door (3) of filter box (4).
17. REMOVE FILTER (7) FROM FILTER BOX (4).

18. REMOVE HOSE (8) FROM DUCT (9).
   a. Loosen clamp (10) on hose (8).
   b. Remove hose (8) and clamp (10) from duct (9).

19. REMOVE VENT FAN (11) AND OUTER BRACKET (12) FROM FILTER BOX (4).
   a. Remove two locknuts (13), washers (14), screws (15) from outer bracket (12). Discard locknuts.
   b. Remove three locknuts (16), washers (17), screws (18), outer bracket (12), and vent fan (11) from filter box (4). Discard locknuts. Have helper assist.

GO TO NEXT PAGE
20. REMOVE FILTER BOX (1) FROM BULKHEAD.
   a. Remove three screws (2), lock washers (3), washers (4), retainer (5), and filter box (1) from bulkhead. Discard lock washers. Have helper assist.

21. REMOVE ACCESS COVER (6) FROM UPPER TANK (7).
   a. Remove 24 screws (8), sealing washers (9), access cover (6), and gasket (10) from upper tank (7). Discard gasket and sealing washers.
22. REMOVE TWO BENT TUBES (11) WITH TWO UPPER HOSES (12) FROM UPPER TANK (7).
   a. Remove locknut (13), screw (14), and two bent tubes (11) with two clamps (15) from bracket (16). Discard locknut.

23. REMOVE TWO BENT TUBES (11) FROM TWO UPPER HOSES (12).
   a. Loosen two clamps (17) on two upper hoses (12).
   b. Remove two bent tubes (11) from two upper hoses (12).
   c. Slide two clamps (17) off two upper hoses (12).

GO TO NEXT PAGE
CAUTION
Dirt can clog fuel system and damage engine.
Plug end of vent hose.

24. REMOVE VENT HOSE (1) FROM ELBOW (2) ON PLATE (3).
   a. Remove vent hose (1) from elbow (2).
   b. Plug end of vent hose (1).

25. REMOVE PLATE (3) FROM UPPER TANK (4).
   a. Remove 10 screws (5), sealing washers (6), plate (3), and gasket (7) from upper tank (4). Discard gasket and sealing washers.
26. REMOVE HEATER HOSE (8) FROM COUPLING HOSE (9).
   a. Loosen hose clamp (10) on heater hose (8).
   b. Remove heater hose (8) from coupling hose (9).

27. REMOVE FUNNEL TUBE (11) WITH COUPLING HOSE (9) FROM UPPER TANK (4).
   a. Loosen clamp (12) on coupling hose (9).
   b. Remove funnel tube (11) with coupling hose (9) from upper tank (4).

28. REMOVE DRAIN VALVE (13) FROM UPPER TANK (4).
   a. Remove six screws (14), sealing washers (15), drain valve (13), and gasket (16) from upper tank (4). Discard sealing washers and gasket.

GO TO NEXT PAGE
CAUTION
Dirt can clog fuel system and damage engine.
Plug end of fuel hose.

29. REMOVE FUEL HOSE (1) FROM SHUTOFF VALVE (2). USE COMBINATION WRENCH.
   a. Remove fuel hose (1) from shutoff valve (2).
   b. Plug end of fuel hose (1).

30. REMOVE VENT HOSE (3) FROM SHUTOFF VALVE (2).
   a. Remove locknut (4), and screw (5) from two clamps (7, 8). Discard locknut.
   b. Remove vent hose (3) with clamp (7) from shutoff valve (2).
31. REMOVE SHUTOFF VALVE (2) FROM UPPER TANK (9).
   a. Remove six screws (10), sealing washers (11), shutoff valve (2), and gasket (12) from upper tank (9). Discard gasket and sealing washers.

32. REMOVE HEATER HOSE (13) FROM ELBOW (14).
   a. Remove heater hose (13) from elbow (14).
   b. Plug end of heater hose (13).
33. REMOVE FRONT UPPER BRACKET (1) FROM BULKHEAD.
   a. Remove two screws (2), washers (3), and front upper bracket (1) from bulkhead.

34. REMOVE TWO UPPER BRACKETS (4, 5) FROM BULKHEAD.
   a. Remove outside screw (6) and washer (7) from rear upper bracket (5).
   b. Loosen inside screw (8) on rear upper bracket (5). Turn rear upper bracket to access middle upper bracket (4).
   c. Loosen two screws (9), and slide middle upper bracket (4) off bulkhead.
   d. Remove inside screw (8), washer (10), and rear upper bracket (5) from bulkhead.
35. REMOVE REAR BRACKET (11) FROM HULL.
   a. Remove two screws (12), washers (13), and bracket (11) from hull.

36. REMOVE TWO LOWER BRACKETS (14) FROM HULL.
   a. Remove four screws (15), washers (16), and two brackets (14) from hull.
37. REMOVE FOUR COVERS (1) FROM FOUR HANGERS (2).
   a. Remove four screws (3) and cover (1) from each of four hangers (2).

38. REMOVE REAR COVER (4) FROM LOWER TANK (5).
   a. Slide lugs (6) on rear cover (4) from slots (7) on forward cover (8).
   b. Remove rear cover (4) from lower tank (5).
39. REMOVE FORWARD COVER (8) FROM LOWER TANK (5).
   a. Remove two screws (9), lock washers (10), and forward cover (8) from lower tank (5). Discard lock washers.

40. REMOVE ACCESS COVER (11) FROM LOWER TANK (5).
   a. Remove 24 screws (12), sealing washers (13), access cover (11), and gasket (14) from lower tank (5). Discard gasket and sealing washers.
41. PLACE TWO UPPER HOSES (1) IN LOWER TANK (2).
   a. Reach through access hole (3) of lower tank (2). Pull two upper hoses (1) from upper tank into lower tank.

CAUTION
Dirt can clog fuel system and damage engine. Cover openings of lower tank when not working at openings.

42. PLACE ACCESS COVER (4) ON LOWER TANK (2).
43. PLACE FORWARD COVER (5) ON LOWER TANK (2).

44. PLACE REAR COVER (6) ON LOWER TANK (2).
   a. Place rear cover (6) on lower tank (2).
   b. Insert lugs (7) of rear cover (6) in slots (8) of forward cover (5).

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45. REMOVE HOSE (1) FROM PLATE (2) AND UPPER TANK (3).
   a. Loosen two clamps (4) on hose (1).
   b. Remove hose (1) with two clamps (4) from plate (2) and upper tank (3).

46. LOOSEN CLAMP (5) ON COVER (6).
47. REMOVE STRAINER (7) FROM UPPER TANK (3).
   a. Release latch and pull fuel cover (8) open.
   b. Open filler cap (9).
   c. Remove retainer (10) and strainer (7) from upper tank (3).

48. REMOVE UPPER TANK (3) FROM VEHICLE.
   a. Remove upper tank (3) through rear of vehicle. Have helper assist.
   b. Place upper tank (3) on side. Have helper assist.
   c. Remove two upper middle bracket screws (11), lock washers (12), and washers (13) from bulkhead. Discard lock washers.
49. REMOVE HOSE PLATE (1) FROM UPPER TANK (2).
   
   a. Remove 12 screws (3), sealing washers (4), hose plate (1), and gasket (5) from upper tank (2). Discard gasket and sealing washers.

50. REMOVE PLATE (6) FROM UPPER TANK (2).
   
   a. Place upper tank (2) on its bottom. Have helper assist.
   b. Remove six screws (7), sealing washers (8), plate (6) with heater hose (9), and gasket (10) from upper tank (2). Discard gasket and sealing washers.
51. REMOVE COVER (11) FROM UPPER TANK (2).
   a. Scribe mark (12) on cover (11) at twelve o'clock position.
   b. Remove 16 screws (13), sealing washers (14), cover (11), and gasket (15) from upper tank (2). Discard gasket and sealing washers.

52. REMOVE RUBBER PADS (16) FROM HULL. DISCARD RUBBER PADS.

53. INSTALL RUBBER PADS (16) ON HULL.
   a. Apply thin coat of adhesive to one side of rubber pads (16) and mating surface of hull.
   b. Press cemented side of rubber pads (16) onto hull.

NOTE
Step 52 should be done only if rubber pads are worn or damaged.

NOTE
Step 53 should be done only if rubber pads were removed from hull.
CAUTION
Inner rubber ring of sealing washers can be damaged easily. Use care when installing sealing washers on screws.

54. INSTALL COVER (1) ON NEW UPPER TANK (2).
   a. Apply sealing compound (Item 51) to threads of 16 screws (3).
   b. Apply sealing compound (Item 49) to threads of 16 screws (3).
   c. Position new gasket (4) and cover (1) on upper tank (2) with mark (5) in twelve o'clock position.
   d. Install 16 new sealing washers (6), screws (3), and cover (1) on upper tank (2).
   e. CROSS TORQUE 16 SCREWS (3) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH AND SOCKET.

NOTE
When using torque wrench with torque adapter, torque value must be converted. Procedure for converting torque value is on page 2-8.

55. INSTALL PLATE (7) ON UPPER TANK (2).
   a. Apply sealing compound (Item 51) to threads of six screws (8).
   b. Apply sealing compound (Item 49) to threads of six screws (8).
   c. Install new gasket (9) and plate (7) with heater hose (10) on upper tank (2) with six new sealing washers (11) and screws (8).
   d. CROSS TORQUE SIX SCREWS (8) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH, TORQUE ADAPTER, AND ADAPTER.
56. INSTALL HOSE PLATE (12) ON UPPER TANK (2).
   a. Place upper tank (2) on its side. Have helper assist.
   b. Apply sealing compound (Item 51) to threads of 12 screws (13).
   c. Apply sealing compound (Item 49) to threads of 12 screws (13).
   d. Install new gasket (14) and hose plate (12) on upper tank (2) with 12 new sealing washers (15) and screws (13).
   e. CROSS TORQUE 12 SCREWS (13) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH AND SOCKET.

57. INSTALL TWO WASHERS (16), NEW LOCK WASHERS (17), AND SCREWS (18) ON BULKHEAD AT MIDDLE UPPER BRACKET POSITION. TIGHTEN SCREWS THREE TURNS ONLY.

58. INSTALL UPPER TANK (2) IN VEHICLE. HAVE HELPER ASSIST.

GO TO NEXT PAGE
NOTE
Boot should be positioned on filler neck cover by working through filler neck hole outside of vehicle.

59. INSTALL BOOT (1) ON COVER (2).
   a. Place clamp (3) on cover (2).
   b. Position boot (1) between cover (2) and clamp (3).
   c. Tighten clamp (3) on boot (1).

NOTE
Make sure clamps are on nose.

60. INSTALL HOSE (4) ON PLATE (5) AND UPPER TANK (6). TIGHTEN TWO CLAMPS (7).
61. INSTALL REAR UPPER BRACKET (8) ON BULKHEAD.
   a. Install rear upper bracket (8) on bulkhead with washer (9), and inside screw (10). Tighten inside screw three turns only.

62. INSTALL TWO LOWER BRACKETS (11) ON HULL.
   a. Install two lower brackets (11) on hull with four washers (12) and screws (13).
63. INSTALL REAR BRACKET (1) ON HULL.
   a. Install rear bracket (1) on hull with two washers (2) and screws (3).

64. INSTALL THREE UPPER BRACKETS (4, 5, 6) ON BULKHEAD.
   a. Slide slotted middle upper bracket (4) between two washers (7) and bulkhead. Tighten two screws (8).
   b. Align rear upper bracket (5) and outside bulkhead screw hole. Install washer (9) and outside screw (10) on rear upper bracket. Tighten screws (10, 11).
   c. Install front upper bracket (6) on bulkhead with two washers (12) and two screws (13).
65. INSTALL HEATER HOSE (14) ON ELBOW (15) OF PLATE (16).
   a. Unplug end of heater hose (14).
   b. Install heater hose (14) on elbow (15) of plate (16).

   **NOTE**
   When using torque wrench with torque adapter, torque value must be converted. Procedure for converting torque value is on page 2-8.

66. INSTALL SHUTOFF VALVE (17) ON UPPER TANK (18).
   a. Apply sealing compound (Item 51) to threads of six screws (19).
   b. Apply sealing compound (Item 49) to threads of six screws (19).
   c. Install new gasket (20) and shutoff valve (17) on upper tank (18) with six new sealing washers (21) and screws (19).
   d. CROSS TORQUE SIX SCREWS (19) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH, TORQUE ADAPTER, AND ADAPTER.

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67. INSTALL VENT HOSE (1) ON SHUTOFF VALVE (2).
   a. Position clamp (3) on vent hose (1) in clamp (4) on shutoff valve (2).
   b. Install screw (5) and new locknut (6) on both clamps (3, 4).

68. INSTALL FUEL HOSE (7) ON SHUTOFF VALVE (2).
   a. Unplug end of fuel hose (7).
   b. Install fuel hose (7) on shutoff valve (2). Use combination wrench.
NOTE
When using torque wrench with torque adapter, torque value must be converted. Procedure for converting torque value is on page 2-8.

69. INSTALL PLATE (8) ON UPPER TANK (9).
   a. Apply sealing compound (Item 51) to threads of 10 screws (10).
   b. Apply sealing compound (Item 49) to threads of 10 screws (10).
   c. Install new gasket (11) and plate (8) on upper tank (9) with 10 new sealing washers (12) and screws (10).
   d. CROSS TORQUE 10 SCREWS (10) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH, TORQUE ADAPTER, AND ADAPTER.

70. INSTALL VENT HOSE (1) ON ELBOW (13) OF PLATE (8).
   a. Unplug end of vent hose (1).
   b. Install vent hose (1) on elbow (13) of plate (8).

GO TO NEXT PAGE
71. INSTALL DRAIN VALVE (1) ON UPPER TANK (2).
   a. Apply sealing compound (Item 51) to threads of six screws (3).
   b. Apply sealing compound (Item 49) to threads of six screws (3).
   c. Install new gasket (4) and drain valve (1) on upper tank (2) with six new sealing washers (5) and screws (3).

72. INSTALL FUNNEL TUBE (6) WITH COUPLING HOSE (7) IN UPPER TANK (2).
   a. Position funnel tube (6) with coupling hose (7) and clamp (8) on hose plate (9).
   b. Make sure top of funnel tube (6) is 14.5-15 inches (368-381 mm) from inside bottom of upper tank (2).
   c. With bracket (10) facing center of upper tank (2), tighten clamp (8) on coupling hose (7).
73. INSTALL HEATER HOSE (11) ON COUPLING HOSE (7).
   a. Apply petrolatum to end of heater hose (11).
   b. Slide heater hose (11) through hose clamp (12) on coupling hose (7).
   c. Tighten hose clamp (12) on heater hose (11).

74. REMOVE REAR COVER (13) FROM LOWER TANK (14).
   a. Slide lugs (15) on rear cover (13) from slots (16) on forward cover (17).
   b. Remove rear cover (13) from lower tank (14).
75. REMOVE FORWARD COVER (1) FROM LOWER TANK (2).

76. REMOVE ACCESS COVER (3) FROM LOWER TANK (2).
CAUTION
Dirt can clog fuel system and damage engine. Cover openings of lower tank when not working at openings.

77. PLACE TWO UPPER HOSES (4) IN UPPER TANK (5).
   a. Push two upper hoses (4) from lower tank (2) up into upper tank (5) through coupling hose (6). Stop when two upper hoses reach top of funnel tube (7).

NOTE
Upper hoses may be lubricated with petrolatum if needed.

78. INSTALL TWO BENT TUBES (8) ON TWO UPPER HOSES (4).
   a. Slide two clamps (9) on two upper hoses (4).
   b. Install two bent tubes (8) on two upper hoses (4).
   c. Tighten two clamps (9) on two upper hoses (4).

79. INSTALL TWO BENT TUBES (8) WITH UPPER HOSES (4) IN UPPER TANK (5).
   a. Position two clamps (10) on bracket (11) of funnel tube (7).
   b. Install screw (12), and new locknut (13) on two clamps (10) and bracket (11).

GO TO NEXT PAGE
80. INSTALL ACCESS COVER (1) ON LOWER TANK (2).
   a. Apply sealing compound (Item 51) to threads of 24 screws (3).
   b. Apply sealing compound (Item 49) to threads of 24 screws (3).
   c. Install new gasket (4) and access cover (1) on lower tank (2) with 24 new sealing washers (5) and screws (3).
   d. CROSS TORQUE 24 SCREWS (3) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH AND SOCKET.

81. INSTALL ACCESS COVER (6) ON UPPER TANK (7).
   a. Apply sealing compound (Item 47) to threads of 24 screws (8).
   b. Apply sealing compound (Item 45) to threads of 24 screws (8).
   c. Install new gasket (9) and access cover (6) on upper tank (7) with 24 new sealing washers (10) and screws (8).
   d. CROSS TORQUE 24 SCREWS (8) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH AND SOCKET.
82. INSTALL FORWARD COVER (11) ON LOWER TANK (2).
   a. Install forward cover (11) on lower tank (2) with two washers (12), new lock washers (13), and screws (14).

83. INSTALL REAR COVER (15) ON LOWER TANK (2).
   a. Place rear cover (15) on lower tank (2).
   b. Insert lugs (16) of rear cover (15) in slots (17) of forward cover (11).

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84. INSTALL FOUR COVERS (1) ON FOUR HANGERS (2).
   a. Install 4 covers (1) on 4 hangers (2) with 16 screws (3).

CAUTION
Door on filter box can get damaged when turret is being removed or installed. Push filter box back all the way against bulkhead when you install filter box.

85. INSTALL FILTER BOX (4) ON BULKHEAD.
   a. Install filter box (4) on bulkhead with retainer (5), three washers (6), new lock washers (7), and screws (8). Have helper assist.
86. INSTALL VENT FAN (9) AND OUTER BRACKET (10) ON FILTER BOX (4).
   a. Position vent fan (9) on filter box (4) with fan duct (11) 45 degrees to left.
   b. Install three screws (12), washers (13), and new locknuts (14) on vent fan (9). Do not tighten locknuts.
   c. Slide outer bracket (10) between washers (13) and vent fan (9).
   d. Install two screws (15), washers (16), and new locknuts (17) on outer bracket (10). Tighten all locknuts. Have helper assist.

87. INSTALL HOSE (18) ON DUCT (19).
   a. Slide hose (18) with clamp (20) on duct (19).
   b. Tighten clamp (20) on hose (18).

88. INSTALL FILTER (21) IN FILTER BOX (4).

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89. CLOSE AND LATCH DOOR (1) OF FILTER BOX (2).
   a. Close and latch door (1) of filter box (2).
   b. Install new lock wire (3) on each latch (4) on door (1).

90. INSTALL HEATER HOSE (5) ON SHUTOFF VALVE (6).
   a. Unplug end of heater hose (5).
   b. Install heater hose (5) on shutoff valve (6).

91. INSTALL HEATER HOSE (5) ON FUEL PUMP (7).
   a. Unplug end of heater hose (5).
   b. Install heater hose (5) on fuel pump (7).

92. INSTALL PLUG 1W18P6 (8) ON PLUG 1A8P1 (9).
NOTE
Plugs 1W18P9 and 1B2P1 are behind duct hose.

93. INSTALL PLUG 1W18P9 (10) ON PLUG 1B2P1 (11).

94. INSTALL STRAINER (12) IN UPPER TANK (13).
   a. Place strainer (12) and retainer (14) in upper tank (13).
   b. Install filler cap (15) on vehicle.
   c. Close fuel cover (16) and secure latch.

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95. FUEL VEHICLE. See TM 9-2350-252-10-1.

96. CHECK UPPER TANK FOR LEAKS.
   a. Check upper tank for leaks at fittings and plates.

97. INSTALL TURRET. See TM 9-2350-252-34-2.

NOTE
Steps 98 thru 100 should be done only if lower fuel tank was drained.

98. INSTALL ACTUATOR FLOOR PLATE. See TM 9-2350-252-20-1.

99. INSTALL PASSAGEWAY FLOOR PLATE. See TM 9-2350-252-20-1.

100. INSTALL FUEL CELL FLOOR PLATE COVER. See TM 9-2350-252-20-1.

101. INSTALL VEHICLE GROUND CABLE. See TM 9-2350-252-20-1.


103. INSTALL COAX MACHINE GUN. See TM 9-2350-252-10-2.

104. RAISE RAMP. See TM 9-2350-252-10-1.

END OF TASK
REPLACE LOWER FUEL TANK ACCESS COVER GASKET

DESCRIPTION

This task covers: Remove (page 11-99). Install (page 11-100).

INITIAL SETUP

Tools: General mechanic's tool kit: automotive Torque wrench, 3/8 inch drive, 0-600 in-lb — B58 Adapter, 3/8 inch to 1/2 inch drive — A4

Personnel Required:

Track Veh Rep 63H10

References:

TM 9-2350-252-10-1
TM 9-2350-252-34-2

Materials/Parts:

Sealing compound (Item 50, App B)
Sealing compound (Item 52, App B)
Gasket
Sealing washer (24)

Equipment Conditions:

Engine stopped (TM 9-2350-252-10-1)
Turret shut down (TM 9-2350-252-10-2)

REMOVE

1. LOWER RAMP. See TM 9-2350-252-10-1.

2. REMOVE TURRET. See TM 9-2350-252-34-2.

3. REMOVE FORWARD COVER. See task: REPLACE RIGHT FORWARD FUEL CELL COVER, page 11-129.
WARNING
Fuel can catch fire and burn you. Do not smoke.

CAUTION
Fuel system may get damaged if gasket material falls into fuel tank. Do not let pieces of gasket material fall into fuel tank.

NOTE
Gaskets from front and rear access covers are replaced the same way.

4. REMOVE ACCESS COVER (1) FROM LOWER TANK (2).
   a. Remove 24 screws (3), sealing washers (4), access cover (1), and gasket (5) from lower tank (2). Discard sealing washers and gasket.

INSTALL
5. INSTALL ACCESS COVER (1) ON LOWER TANK (2).
   a. Apply sealing compound (Item 52) to threads of 24 screws (3).
   b. Apply sealing compound (Item 50) to threads of 24 screws (3).
   c. Install new gasket (5) and access cover (1) on lower tank (2) with 24 new sealing washers (4) and screws (3).
   d. TORQUE 24 SCREWS (3) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH AND ADAPTER.

6. INSTALL FORWARD COVER. See task: REPLACE RIGHT FORWARD FUEL CELL COVER, page 11-129.


8. RAISE RAMP. See TM 9-2350-252-10-1.

END OF TASK
REPLACE LOWER FUEL TANK FEED HOSES

DESCRIPTION

This task covers: Remove (page 11-101). Install (page 11-106).

INITIAL SETUP

Tools:
- General mechanic's tool kit: automotive
- Torque wrench, 3/8 inch drive, 0-600 in-lb — B58
- Adapter, 3/8 inch to 1/2 inch drive — A4

Materials/Parts:
- Sealing compound (Item 50, App B)
- Sealing compound (Item 52, App B)
- Lock washer (2)
- Sealing washer (56)
- Gasket
- Gasket (2)
- Hose

Personnel Required:
- Track Veh Rep 63H10

References:
- TM 9-2350-252-10-1
- TM 9-2350-252-10-2
- TM 9-2350-252-20-1
- TM 9-2350-252-34-2

Equipment Conditions:
- Engine stopped (TM 9-2350-252-10-1)
- Turret shut down (TM 9-2350-252-10-2)

REMOVE

1. LOWER RAMP. See TM 9-2350-252-10-1.

WARNING
Fuel can catch fire and burn you. Do not smoke. Disconnect vehicle ground cable before you work on fuel system. Wipe up spilled fuel

2. REMOVE VEHICLE GROUND CABLE. See TM 9-2350-252-20-1.

3. REMOVE FUEL CELL FLOOR PLATE COVER. See TM 9-2350-252-20-1.

4. REMOVE PASSAGEWAY FLOOR PLATE. See TM 9-2350-252-20-1.

5. REMOVE ACTUATOR FLOOR PLATE COVER. See TM 9-2350-252-20-1.

6. DRAIN LOWER FUEL TANK. See TM 9-2350-252-20-1.


GO TO NEXT PAGE
8. REMOVE FOUR COVERS (1) FROM FOUR HANGERS (2).
   a. Remove 16 screws (3) and 4 covers (1) from 4 hangers (2).

9. REMOVE REAR COVER (4) FROM LOWER TANK (5).
   a. Slide four lugs (6) on rear cover (4) from four slots (7) on forward cover (8).
   b. Remove rear cover (4) from lower tank (5).

10. REMOVE FORWARD COVER (8) FROM LOWER TANK (5).
    a. Remove two screws (9), lock washers (10), washers (11), and forward cover (8) from lower tank (5). Discard lock washers.
11. REMOVE ACCESS COVER (12) FROM LOWER TANK (5).
   a. Remove 24 screws (13), sealing washers (14), access cover (12), and gasket (15) from lower tank (5). Discard sealing washers and gasket.

   NOTE
   Lower hoses should be removed from upper hoses so that menders stay on upper hoses. If required, lower hoses can be cut from menders with knife.

12. REMOVE TWO LOWER HOSES (16) FROM TWO UPPER HOSES (17).
   a. Lift two lower hoses (16) and upper hoses (17) from lower tank (5).
   b. Loosen two clamps (18). Remove two lower hoses (16) from two menders (19) on two upper hoses (17).
   c. Slide two clamps (18) off two lower hoses (16).
   d. Place two lower hoses (16) and upper hoses (17) back into lower tank (5).

GO TO NEXT PAGE
CAUTION
Dirt can damage lower tank and fuel system. Cover access hole to keep dirt out of lower tank and fuel system.

13. PLACE ACCESS COVER (1) ON LOWER TANK (2).

14. REMOVE PLUG 1W18P16 (3) FROM JACK 1A32J1 (4) ON LEFT HANGER (5). TAG PLUG.

15. REMOVE PLUG 1W18P17 (6) FROM JACK 1A30J1 (7) ON RIGHT HANGER (5). TAG PLUG.
16. **REMOVE LEFT AND RIGHT HANGER (5) WITH FUEL PUMPS (8) FROM LOWER TANK (2).**
   
a. Remove 8 studs (9), 24 screws (10), and 32 sealing washers (11) from left and right hangers (5). Discard sealing washers.

b. Remove left and right hangers (5) with fuel pumps (8) and gaskets (12) from lower tank (2). Discard gaskets.

17. **REMOVE TWO LOWER HOSES (13) FROM TWO FUEL PUMPS (8) ON LEFT AND RIGHT HANGERS (5).**
   
a. Loosen two clamps (14) on two lower hoses (13).

b. Remove two lower hoses (13) from two fuel pumps (8).

c. Slide two clamps (14) off two lower hoses (13). Discard lower hoses.

18. **CUT TWO NEW LOWER HOSES (13).**
   
a. Cut one lower hose (13) 42 inches (106.7 cm) long.

b. Cut one lower hose (13) 56 inches (142.2 cm) long.

**GO TO NEXT PAGE**
NOTE
If required, lubricate lower hoses with petrolatum or diesel fuel.

19. INSTALL TWO LOWER HOSES (1) ON TWO FUEL PUMPS (2) ON LEFT AND RIGHT HANGERS (3).
   a. Slide two clamps (4) on two lower hoses (1).
   b. Install shorter lower hose (1) on fuel pump (2) on right hanger (3). Tighten clamp (4).
   c. Install longer lower hose (1) on fuel pump (2) on left hanger (3). Tighten clamp (4).

NOTE
Beginning with hole aligned with arrow in left hanger, install four studs in every fourth hole.

20. INSTALL LEFT AND RIGHT HANGERS (3) WITH FUEL PUMPS (2) IN LOWER TANK (5).
   a. Apply sealing compound (Item 52) to threads of 8 studs (6) and 24 screws (7).
   b. Apply sealing compound (Item 50) to threads of 8 studs (6) and 24 screws (7).
   c. Place two new gaskets (8) on lower tank (5). Place left and right hangers (3) with fuel pumps (2) in lower tank.
   d. Install eight new sealing washers (9) and studs (6) in every fourth hole on left and right hangers (3). Tighten studs finger tight.
   e. Install 24 new sealing washers (9) and screws (7) on left and right hangers (3). Tighten screws finger tight.

21. CROSS TORQUE 8 STUDS (6) AND 24 SCREWS (7) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH AND ADAPTER.
22. INSTALL PLUG 1W18P17 (10) ON JACK 1A30J1 (11) ON RIGHT HANGER (3).

23. INSTALL PLUG 1W18P16 (12) ON JACK 1A32J1 (13) ON LEFT HANGER (3).

24. REMOVE ACCESS COVER (14) FROM LOWER TANK (5).

GO TO NEXT PAGE
NOTE
If required, lubricate lower hoses with petrolatum and diesel fuel.

25. INSTALL TWO LOWER HOSES (1) ON TWO UPPER HOSES (2).
   a. Lift two lower hoses (1) and two upper hoses (2) from lower tank (3).
   b. Slide two clamps (4) onto two lower hoses (1).
   c. Install two lower hoses (1) on two menders (5) on two upper hoses (2). Tighten two clamps (4).
   d. Place two lower hoses (1) and upper hoses (2) back into lower tank (3).

26. INSTALL ACCESS COVER (6) ON LOWER TANK (3).
   a. Apply sealing compound (Item 52) to threads of 24 screws (7).
   b. Apply sealing compound (Item 50) to threads of 24 screws (7).
   c. Install new gasket (8) and access cover (6) on lower tank (3) with 24 new sealing washers (9) and screws (7).
   d. CROSS TORQUE 24 SCREWS (7) ON ACCESS COVER (6) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH AND ADAPTER.
27. INSTALL FORWARD COVER (10) ON LOWER TANK (3).
   a. Install forward cover (10) on lower tank (3) with two washers (11), new lock washers (12), and screws (13).

28. INSTALL REAR COVER (14) ON LOWER TANK (3).
   a. Place rear cover (14) on lower tank (3).
   b. Insert four lugs (15) of rear cover (14) in four slots (16) of forward cover (10).

GO TO NEXT PAGE
29. INSTALL FOUR COVERS (1) ON FOUR HANGERS (2).
   a. Install 4 covers (1) on 4 hangers (2) with 16 screws (3).


31. INSTALL ACTUATOR FLOOR PLATE COVER. See TM 9-2350-252-20-1.

32. INSTALL PASSAGEWAY FLOOR PLATE. See TM 9-2350-252-20-1.

33. INSTALL FUEL CELL FLOOR PLATE COVER. See TM 9-2350-252-20-1.

34. INSTALL VEHICLE GROUND CABLE. See TM 9-2350-252-20-1.

35. RAISE RAMP. See TM 9-2350-252-10-1.

36. FUEL VEHICLE. See TM 9-2350-252-10-1.

END OF TASK
REPAIR UPPER/LOWER FUEL TANK TRANSFER COMPONENTS

INITIAL SETUP

Tools:
- General mechanic's tool kit: automotive
- Torque wrench, 3/8 inch drive, 0-600 in-lb — B58
- Socket, 3/8 inch drive, 7/16 inch — 5120-00-227-6703
- Steel tape, 25 ft — 5210-00-234-6744

Personnel Required:
- Track Veh Rep 63H10

References:
- TM 9-2350-252-10-1
- TM 9-2350-252-10-2
- TM 9-2350-252-20-1
- TM 9-2350-252-34-2

Materials/Parts:
- Sealing compound (Item 50, App B)
- Sealing compound (Item 52, App B)
- Gasket (2)
- Lock washer
- Preformed packing
- Preformed packing
- Gasket
- Gasket
- Sealing washer (72)
- Hose

Equipment Conditions:
- Engine stopped (TM 9-2350-252-10-1)
- Turret shut down (TM 9-2350-252-10-2)

REPAIR

1. LOWER RAMP. See TM 9-2350-252-10-1.

2. REMOVE COAX MACHINE GUN. See TM 9-2350-252-10-2.


4. TRAVERSE TURRET TO 4100 MILS. See TM 9-2350-252-10-2.

5. REMOVE VEHICLE GROUND CABLE. See TM 9-2350-252-20-1.

6. DRAIN UPPER FUEL TANK. See TM 9-2350-252-20-1.

7. TRAVERSE TURRET TO 6400 MILS. See TM 9-2350-252-10-2.

8. REMOVE FUEL CELL FLOOR PLATE COVER. See TM 9-2350-252-20-1.

9. REMOVE PASSAGEWAY FLOOR PLATE. See TM 9-2350-252-20-1.

10. REMOVE ACTUATOR FLOOR PLATE COVER. See TM 9-2350-252-20-1.

11. DRAIN LOWER FUEL TANK. See TM 9-2350-252-20-1.

13. REMOVE FOUR COVERS (1) FROM FOUR HANGERS (2).
   a. Remove four screws (3) and cover (1) from each of four hangers (2).

14. REMOVE REAR COVER (4) FROM LOWER TANK (5).
   a. Slide lugs (6) on rear cover (4) from slots (7) on forward cover (8).
   b. Remove rear cover (4) from lower tank (5).
15. REMOVE FORWARD COVER (8) FROM LOWER TANK (5).
   a. Remove two screws (9), lock washers (10), and washers (11) from forward cover (8). Discard lock washers.
   b. Remove forward cover (8) from lower tank (5).

16. REMOVE ACCESS COVER (12) FROM UPPER TANK (13).
   a. Remove 24 screws (14), sealing washers (15), access cover (12), and gasket (16) from upper tank (13).
      Discard sealing washers and gasket.

GO TO NEXT PAGE
17. REMOVE ACCESS COVER (1) FROM LOWER TANK (2).

   a. Remove 24 screws (3), sealing washers (4), access cover (1), and gasket (5) from lower tank (2). Discard sealing washers and gasket.

NOTE
If necessary, use knife to cut upper hoses from menders. Menders must not be damaged during removal.

18. REMOVE TWO UPPER HOSES (6) FROM TWO LOWER HOSES (7).

   a. Lift two upper and lower hoses (6, 7) up through lower tank (2).

   b. Loosen two clamps (8). Remove two upper hoses (6) from menders (9) on two lower hoses (7).

   c. Slide two clamps (8) off two upper hoses (6).

   d. Place two upper and lower hoses (6, 7) with menders (9) back into lower tank (2).
NOTE
Steps 19 and 20 apply only if either of two lower hoses is damaged.
If neither of two lower hoses is damaged, go to step 21.
If necessary, a knife can be used to cut menders from lower hoses.

19. REMOVE TWO MENDE...0 FROM TWO LOWER HOSES (7).
   a. Lift two lower hoses (7) up from lower tank (2).
   b. Loosen two clamps (8) on two lower hoses (7).
   c. Remove two menders (9) from two lower hoses (7).
   d. Slide two clamps (8) off two lower hoses (7).
   e. Place two lower hoses (7) back into lower tank (2).


CAUTION
Lower tank and fuel system can be damaged if dirt and foreign objects get into lower tank.
Cover opening of lower tank.

21. PLACE ACCESS COVER (10) ON LOWER TANK (2).

GO TO NEXT PAGE
22. REMOVE TWO BENT TUBES (1) WITH UPPER HOSES (2) FROM UPPER TANK (3).
   a. Remove nut (4), lock washer (5), screw (6), and two clamps (7) with bent tubes (1) from bracket (8). Discard lock washer.
   b. Remove two bent tubes (1) with two upper hoses (2) from upper tank (3).

23. REMOVE TWO BENT TUBES (1) FROM TWO UPPER HOSES (2).
   a. Loosen two clamps (7) on two upper hoses (2).
   b. Remove two upper hoses (2) from two bent tubes (1).
   c. Slide two clamps (7) off two upper hoses (2). Discard upper hoses.

24. CUT TWO NEW UPPER HOSES (2).
   a. Cut two pieces of upper hose (2) 48 inches (1219 mm) long.

NOTE
Steps 23, 24, and 25 apply only if upper hoses are damaged. If upper hoses are not damaged, go to step 26.
If needed, lubricate upper hoses with petrolatum or diesel fuel.

25. INSTALL TWO UPPER HOSES (2) ON TWO BENT TUBES (1).
   a. Slide two clamps (7) on two upper hoses (2).
   b. Install two upper hoses (2) with two clamps (7) on two bent tubes (2). Tighten clamps.

26. REMOVE HEATER HOSE (9) FROM COUPLING HOSE (10).
   a. Loosen hose clamp (11) on heater hose (9).
   b. Remove heater hose (9) from coupling hose (10).

27. REMOVE FUNNEL TUBE (12) WITH COUPLING HOSE (10) FROM HOSE PLATE (3).
   a. Loosen lower clamp (13) on coupling hose (10).
   b. Remove funnel tube (12) with coupling hose (10) from hose plate (3).

   Steps 28, 29, and 30 apply only if coupling hose is damaged. If coupling hose is not damaged, go to step 31.

28. REMOVE COUPLING HOSE (10) FROM FUNNEL TUBE (12).
   a. Loosen upper clamp (14) on coupling hose (10).
   b. Remove coupling hose (10), upper and lower clamps (14, 13), and hose clamp (11) from funnel tube (12). Discard coupling hose.
29. CUT NEW COUPLING HOSE (1).
   a. Cut one piece of coupling hose (1) 4 inches (101.6 mm) long.

30. INSTALL COUPLING HOSE (1) ON FUNNEL TUBE (2).
   a. Slide hose clamp (3), upper and lower clamps (4, 5) on coupling hose (1).
   b. Install coupling hose (1) on funnel tube (2). Tighten upper clamp (4). Do not tighten lower clamp (5).

31. REMOVE FUEL RETURN HOSE (6) FROM ELBOW (7) ON PLATE (8).
   a. Plug fuel return hose (6).

CAUTION
Dirt can clog fuel lines. Plug end of fuel return hose.
32. REMOVE ELBOW (7) FROM PLATE (8).
   a. Remove preformed packing (9) from elbow (7). Discard preformed packing.

33. REMOVE VENT HOSE (10) FROM ADAPTER (11) ON PLATE (8).
   a. Plug vent hose (10).

34. REMOVE ADAPTER (11) FROM PLATE (8).
   a. Remove preformed packing (12) from adapter (11). Discard preformed packing.

35. REMOVE HOSE (13) FROM PLATE (8) AND UPPER TANK (14).
   a. Loosen two clamps (15) on hose (13).
   b. Remove hose (13) with two clamps (15) from plate (8) and upper tank (14).
   c. Slide two clamps (15) off hose (13).
NOTE
Step 36 applies only if hose is damaged. If hose is not damaged, go to step 37.

36. CUT NEW HOSE (1).
   a. Discard old hose (1).
   b. Cut one piece of hose (1) 6.5 inches (165 mm) long.

37. REMOVE PLATE (2) FROM LOWER TANK (3).
   a. Remove 12 screws (4), sealing washers (5), plate (2), and gasket (6) from lower tank (3). Discard sealing washers and gasket.

38. REMOVE HOSE PLATE (7) FROM UPPER TANK (8).
   a. Remove 12 screws (9), sealing washers (10), hose plate (7), and gasket (11) from upper tank (8). Discard sealing washers and gasket.
39. INSTALL HOSE PLATE (7) ON UPPER TANK (8).
   a. Apply sealing compound (Item 52) to threads of 12 screws (9).
   b. Apply sealing compound (Item 50) to threads of 12 screws (9).
   c. Install new gasket (11) and hose plate (7) on upper tank (8) with 12 new sealing washers (10) and screws (9).
   d. TORQUE 12 SCREWS (9) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH AND SOCKET.

40. INSTALL PLATE (2) ON LOWER TANK (3).
   a. Apply sealing compound (Item 52) to threads of 12 screws (4).
   b. Apply sealing compound (Item 50) to threads of 12 screws (4).
   c. Install new gasket (6) and plate (2) on lower tank (3) with 12 new sealing washers (5) and screws (4).
   d. TORQUE 12 SCREWS (4) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH AND SOCKET.
41. INSTALL HOSE (1) ON PLATE (2) AND UPPER TANK (3).
   a. Slide two clamps (4) on hose (1).
   b. Install hose (1) with two clamps (4) on plate (2) and upper tank (3). Tighten clamps.

42. INSTALL ADAPTER (5) ON PLATE (2).
   a. Install new preformed packing (6) on adapter (5).
   b. Install adapter (5) on plate (2).

43. INSTALL VENT HOSE (7) ON ADAPTER (5) OF PLATE (2).
   a. Unplug vent hose (7).
   b. Install vent hose (7) on adapter (5) of plate (2).

44. INSTALL ELBOW (8) ON PLATE (2).
   a. Install new preformed packing (9) on elbow (8).
   b. Install elbow (8) on plate (2).
45. INSTALL FUEL RETURN HOSE (10) ON ELBOW (8) OF PLATE (2).
   a. Unplug fuel return hose (10).
   b. Install fuel return hose (10) on elbow (8) of plate (2).

46. INSTALL FUNNEL TUBE (11) ON HOSE PLATE (12).
   a. Position funnel tube (11) on hose plate (12) with bracket (13) toward center of upper tank (14).
   b. Make sure top (15) of funnel tube (11) is 14.5-15 inches (37-38 cm) from bottom of upper tank (14). Use steel tape.
   c. Tighten lower clamp (15) on coupling hose (16).

47. INSTALL HEATER HOSE (17) ON COUPLING HOSE (16).
   a. Slide heater hose (17) through hose clamp (18).
   b. Tighten hose clamp (18) on heater hose (17).

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48. INSTALL TWO BENT TUBES (1) WITH TWO UPPER HOSES (2) IN UPPER TANK (3).
   a. Insert two upper hoses (2) through funnel tube (4).
   b. Position two clamps (5) on bracket (6) of funnel tube (4).
   c. Install screw (7), new lock washer (8), and nut (9) on bracket (6).

NOTE
Steps 49 and 50 should be done only if lower hoses were replaced.
If lower hoses were not replaced, go to step 51.
If necessary, lower hoses can be lubricated with petrolatum or diesel fuel.

49. INSTALL TWO MENDERS (10) ON TWO LOWER HOSES (11).
   a. Slide two clamps (12) on two lower hoses (11).
   b. Install two menders (10) on two lower hoses (11).
   c. Tighten two clamps (12) on two lower hoses (11).

   a. If step 50 is done, task is completed.
51. REMOVE ACCESS COVER (13) FROM LOWER TANK (14).

NOTE
If necessary, upper hoses can be lubricated with petrolatum or diesel fuel.

52. INSTALL TWO UPPER HOSES (2) ON TWO LOWER HOSES (11).
   a. Lift two lower hoses (11) and two upper hoses (2) up through lower tank (14).
   b. Slide two clamps (16) on two upper hoses (2).
   c. Install two upper hoses (2) on two menders (10). Tighten two clamps (16).
   d. Place upper and lower hoses (2, 11) back into lower tank (14).

GO TO NEXT PAGE
53. INSTALL ACCESS COVER (1) ON LOWER TANK (2).
   a. Apply sealing compound (Item 52) to threads of 24 screws (3).
   b. Apply sealing compound (Item 50) to threads of 24 screws (3).
   c. Install new gasket (4) and access cover (1) on lower tank (2) with 24 new sealing washers (5) and screws (3).
   d. TORQUE 24 SCREWS (3) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH AND SOCKET.

54. INSTALL ACCESS COVER (6) ON UPPER TANK (7).
   a. Apply sealing compound (Item 52) to threads of 24 screws (8).
   b. Apply sealing compound (Item 50) to threads of 24 screws (8).
   c. Install new gasket (9) and access cover (6) on upper tank (7) with 24 new sealing washers (10) and screws (8).
   d. TORQUE 24 SCREWS (8) TO 83-91 IN-LB (96-105 CMKG). USE TORQUE WRENCH AND SOCKET.
55. INSTALL FORWARD COVER (11) ON LOWER TANK (2).
   a. Install forward cover (11) on lower tank (2) with two washers (12), new lock washers (13), and screws (14).

56. INSTALL REAR COVER (15) ON LOWER TANK (2).
   a. Place rear cover (15) on lower tank (2).
   b. Insert lugs (16) of rear cover (15) in slots (17) of forward cover (11).

GO TO NEXT PAGE
57. INSTALL FOUR COVERS (1) ON FOUR HANGERS (2).
   a. Install four covers (1) on four hangers (2) with 16 screws (3).

58. INSTALL TURRET. See TM 9-2350-252-34-2.

59. INSTALL ACTUATOR FLOOR PLATE COVER. See TM 9-2350-252-20-1.

60. INSTALL PASSAGEWAY FLOOR PLATE. See TM 9-2350-252-20-1.

61. INSTALL FUEL CELL FLOOR PLATE COVER. See TM 9-2350-252-20-1.

62. INSTALL VEHICLE GROUND CABLE. See TM 9-2350-252-20-1.

63. INSTALL 25MM GUN BARREL. See TM 9-2350-252-10-2.

64. INSTALL COAX MACHINE GUN. See TM 9-2350-252-10-2.

65. RAISE RAMP. See TM 9-2350-252-10-1.

66. FUEL VEHICLE. See TM 9-2350-252-10-1.

END OF TASK
## Section II. MAINTENANCE OF FUEL TANK COVER INSTALLATION

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REPAIR/REPLACE FUEL TANK COVERS

INITIAL SETUP

Tools:
- General mechanic's tool kit: automotive

Materials/Parts:
- Adhesive (Item 5, App B)
- Cushion
- Lock washer (2)

Personnel Required:
- Track Veh Rep 63H10

References:
- TM 9-2350-252-10-1
- TM 9-2350-252-10-2
- TM 9-2350-252-34-2

Equipment Conditions:
- Engine stopped (TM 9-2350-252-10-1)
- Turret shut down (TM 9-2350-252-10-2)

REMOVE

1. LOWER RAMP. See TM 9-2350-252-10-1.

2. REMOVE TURRET. See TM 9-2350-252-34-2.

3. REMOVE FOUR COVERS (1) FROM FOUR HANGERS (2).
   a. Remove four screws (3) and cover (1) from each of four hangers (2).

GO TO NEXT PAGE
CAUTION
Dirt in fuel cells can plug fuel lines and damage engine. Do not let dirt fall into fuel cells.

4. REMOVE REAR COVER (1) FROM LOWER TANK (2).
   a. Slide lugs (3) on rear cover (1) from slots (4) on forward cover (5).
   b. Remove rear cover (1) from lower tank (2).

5. REMOVE FORWARD COVER (5) FROM LOWER TANK (2).
   a. Remove two screws (6), lock washers (7), and washers (8) from forward cover (5). Discard lock washers.
   b. Remove forward cover (5) from lower tank (2).
6. REMOVE CUSHIONS (9, 10, 11) FROM FORWARD AND REAR COVERS (5, 1). DISCARD CUSHIONS.

7. CUT 29 NEW CUSHIONS (9, 10, 11).
   a. Cut eight cushions (9) 1.5 inches (38.1 mm) by 11.5 inches (292.1 mm).
   b. Cut 15 cushions (10) 1.5 inches (38.1 mm) by 7.5 inches (189.5 mm).
   c. Cut six cushions (11) 1.5 inches (38.1 mm) by 16 inches (406.4 mm).

8. INSTALL CUSHIONS (9, 10, 11) ON FORWARD COVER (5).
   a. Apply thin coat of adhesive to one side of cushions (9, 10, 11) and to mating surface of forward cover (5). Let adhesive dry 10-20 minutes until tacky.
   b. Press cushions (9, 10, 11) on forward cover (5).

9. INSTALL CUSHIONS (9, 10, 11) ON REAR COVER (1).
   a. Apply thin coat of adhesive to one side of cushions (9, 10, 11) and to mating surface of rear cover (1). Let adhesive dry 10-20 minutes until tacky.
   b. Press cushions (9, 10, 11) on rear cover (1).

GO TO NEXT PAGE
10. INSTALL FORWARD COVER (1) ON LOWER TANK (2).
   a. Install forward cover (1) on lower tank (2) with two screws (3), new lock washers (4), and washers (5).

11. INSTALL REAR COVER (6) ON LOWER TANK (2).
   a. Place rear cover (6) on lower tank (2).
   b. Insert lugs (7) of rear cover (6) in slots (8) of forward cover (1).

12. INSTALL FOUR COVERS (9) ON FOUR HANGERS (10).
   a. Install four covers (9) with four screws (11) on each of four hangers (10).


14. RAISE RAMP. See TM 9-2350-252-10-1.

END OF TASK
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REPAIR STEERING SHAFT ASSEMBLY

INITIAL SETUP

Tools:
- General mechanic's tool kit: automotive
- Machinist's vise, 4 inch jaw — 5120-00-293-1439
- Wrench pliers — VP7R
- Drive pin punch, 3/16 inch — 5120-00-243-0791

Personnel Required:
- Track Veh Rep 63H10

Equipment Conditions:
- Steering shaft assembly on workbench

Materials/Parts:
- Spring pin (2)
- Spring pin (2)

REPAIR

1. PLACE STEERING SHAFT ASSEMBLY IN VISE WITH ACCESS TO SPRING PIN HOLE (1) IN UNIVERSAL JOINT (2).

2. REMOVE SHORT STEERING SHAFT (3) FROM UNIVERSAL JOINT (2).
   a. Remove spring pin (4) from short steering shaft (3) and universal joint (2). Discard spring pin. Use punch and pliers.
   b. Remove short steering shaft (3) from universal joint (2).

GO TO NEXT PAGE
3. REMOVE WOODRUFF KEY (1) FROM SHORT STEERING SHAFT (2).

4. REMOVE UNIVERSAL JOINT (3) FROM MIDDLE STEERING SHAFT (4).
   a. Rotate steering shaft assembly in vise to gain access to spring pin (5).
   b. Remove spring pin (5) from universal joint (3) and middle steering shaft (4). Discard spring pin. Use punch and pliers.
   c. Remove universal joint (3) from middle steering shaft (4).

5. REMOVE WOODRUFF KEY (6) FROM MIDDLE STEERING SHAFT (4). USE PLIERS AND PUNCH IF NECESSARY.
6. REMOVE MIDDLE STEERING SHAFT (4) FROM LONG STEERING SHAFT (7).
   a. Adjust long steering shaft (7) in vise to gain access to two spring pins (8, 9) and key (10).
   b. Slide middle steering shaft (4) back or forth to gain access to two spring pins (8, 9). Remove two spring pins from middle steering shaft and key (10). Discard spring pins. Use punch and pliers.
   c. Remove key (10) from side of long steering shaft (7).
   d. Remove middle steering shaft (4) from long steering shaft (7).

7. INSTALL MIDDLE STEERING SHAFT (4) ON LONG STEERING SHAFT (7).
   a. Insert middle steering shaft (4) in long steering shaft (7), and aline holes.
   b. Install key (10) through long steering shaft (7) and middle steering shaft (4). Aline holes for spring pins (8, 9).
   c. Install two new spring pins (8, 9) in middle steering shaft (4) and key (10).
9. INSTALL UNIVERSAL JOINT (3) ON MIDDLE STEERING SHAFT (4).
   a. Aline keyway in universal joint (3) with woodruff key (1) on middle steering shaft (4).
   b. Tap universal joint (3) onto middle steering shaft (4) and aline holes for spring pin (5).
   c. Install new spring pin (5) in universal joint (3) and middle steering shaft (4).

8. INSTALL WOODRUFF KEY (1) IN MIDDLE STEERING SHAFT (2).

10. INSTALL WOODRUFF KEY (6) IN KEYWAY ON SHORT STEERING SHAFT (7).
11. INSTALL SHORT STEERING SHAFT (7) ON UNIVERSAL JOINT (3).
   a. Adjust steering shaft assembly in vise so universal joint (3) is securely fastened.
   b. Aline woodruff key (6) on short steering shaft (7) with keyway in universal joint (3).
   c. Tap short steering shaft (7) into universal joint (3) and aline spring pin holes (8).
   d. Install new spring pin (9) in universal joint (3) and short steering shaft (7).

12. REMOVE STEERING SHAFT ASSEMBLY FROM VISE.

END OF TASK
# CHAPTER 13

MAINTENANCE OF WINTERIZATION KITS

## Section I. MAINTENANCE OF COOLANT HEATER

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INITIAL SETUP

Tools:
- General mechanic's tool kit: automotive
- Automotive fuel and electrical system repair kit
- Multimeter, Type TS352B/U — 6625-00-553-0142

Personnel Required:
- Fuel and Elec Sys Rep 63G10

References:
- TM 55-1500-323-25
- TM 9-2350-252-20-1

Materials/Parts:
- Terminal — MS2714-2
- Lock washer
- Screw
- DPDT switch — 345
- SPST switch — 2418
- Receptacle — 54831-G1
- Circuit breaker — MS25017-30
- Indicator light — 54841-C1

Equipment Conditions:
- Heater control box assembly on workbench

REPAIR

1. REMOVE COVER (1) FROM BOX (2).
   a. Remove two screws (3) and cover (1) from box (2).

2. CHECK CONTINUITY OF POWER SUPPLY LEAD (4). USE MULTIMETER.
   a. Connect multimeter probes to terminals (5, 6) on power supply lead (4).
   b. If continuity does not exist, replace power supply lead (4). Perform steps 3 thru 10.
   c. If continuity exists, go to step 11.
3. REMOVE POWER SUPPLY LEAD (1) FROM TERMINAL (2) OF CIRCUIT BREAKER (3).
   a. Remove screw (4), lock washer (5), and power supply lead (1) from terminal (2).

4. REMOVE POWER SUPPLY LEAD (1) AND GROMMET (6) FROM BOX (7).
   a. Untie knot in power supply lead (1).
   b. Pull grommet (6) off box (7). Remove power supply lead (1) with grommet from box (7).

5. REMOVE GROMMET (6) FROM POWER SUPPLY LEAD (1).

6. REPAIR TERMINAL ON POWER SUPPLY LEAD. See TM 9-2350-252-20-1.

7. REPAIR PLUG ON POWER SUPPLY LEAD. See TM 9-2350-252-20-1.

8. INSTALL GROMMET (6) ON POWER SUPPLY LEAD (1).
9. INSTALL POWER SUPPLY LEAD (1) AND GROMMET (6) ON BOX (7).
   a. Insert terminal end (8) of power supply lead (1) through box (7).
   b. Install grommet (6) on box (7).
   c. Tie knot in terminal end (8) of power supply lead (1) inside of box (7).

10. INSTALL POWER SUPPLY LEAD (1) ON TERMINAL (2) OF CIRCUIT BREAKER (3).
    a. Install power supply lead (1), lock washer (5), and screw (4) on terminal (2).

11. CHECK CONDITION AND CONTINUITY OF JACK (9). USE MULTIMETER.
    a. Check continuity between pin A (10) of jack (9) to top right terminal (11) of DPDT switch (12).
    b. Check continuity between pin B (13) of jack (9) to bottom terminal (14) of SPST switch (15).
    c. Check continuity between pin C (16) of jack (9) to center left terminal (17) of DPDT switch (12).
    d. Check continuity between pin D (18) of jack (9) to top terminal (19) of circuit breaker (20).
    e. Check continuity between pin E (21) of jack (9) to bottom left terminal (22) of DPDT switch (12).
    f. If continuity does not exist in each measurement, replace jack (9). Go to step 12. If continuity does exist, go to step 16.

GO TO NEXT PAGE
12. REMOVE JACK (1) FROM BRACKET (2).
   a. Remove four screws (3), nuts (4), eight lock washers (5), ground lead (6), and jack (1) from bracket (2). Discard lock washers and screws.


15. INSTALL JACK (1) ON BRACKET (2).
   a. Install jack (1), ground lead (6), eight new lock washers (5), four new screws (3), and nuts (4) on bracket (2).
16. CHECK CONTINUITY OF REMAINING LEADS.
   a. Check continuity between left terminal (8) and bottom right terminal (9) of DPDT switch (10).
   b. Check continuity of two jumper leads (11) on DPDT switch (10).
   c. Check continuity between top terminal (12) of circuit breaker (13) to center right terminal (14) of DPDT switch (10).
   d. Check continuity between bottom left terminal (15) of DPDT switch (10) to terminal 2 (16) of indicator light assembly (17).
   e. Check continuity between top terminal (12) of circuit breaker (13) to terminal 3 (18) of indicator light assembly (17).
   f. Check continuity between terminal 1 (19) of indicator light assembly (17) to ground (20).
   g. If continuity does not exist for each measurement, repair lead. See TM 9-2350-252-20-1.

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17. CHECK CONTINUITY OF CIRCUIT BREAKER (1). USE MULTIMETER.
   a. Connect two probes to two terminals (2).
   b. If continuity exists, circuit breaker (1) is good. Go to step 21.
   c. If continuity does not exist, replace circuit breaker (1). Perform steps 17 thru 20.

18. REMOVE FOUR LEADS (3) FROM CIRCUIT BREAKER (1).
   a. Remove screw (4), lock washer (5), and three leads (3) from terminal (2). Discard lock washer. Tag leads.
   b. Remove screw (6), lock washer (7), and lead (3) from terminal (2). Discard lock washer. Tag lead.

19. REMOVE CIRCUIT BREAKER (1) FROM BOX (8).
   a. Remove two screws (9), lock washers (10), and circuit breaker (1) from box (8).

20. INSTALL CIRCUIT BREAKER (1) ON BOX (8).
   a. Install circuit breaker (1), two lock washers (10), and screws (9) on box (8).
21. INSTALL FOUR LEADS (3) ON CIRCUIT BREAKER (1).
   a. Install three leads (3), new lock washer (5), and screw (4) on terminal (2).
   b. Install lead (3), new lock washer (7), and screw (6) on terminal (2).

22. CHECK CONTINUITY OF SPST SWITCH (11). USE MULTIMETER.
   a. Connect multimeter probes to pin B (12) and pin A (13) on jack (14).
   b. Move SPST switch (11) to HI. If continuity does not exist, replace SPST switch. Perform steps 23 thru 28.
   c. Move SPST switch (11) to LO. If continuity exists, replace SPST switch. Perform steps 23 thru 28.
   d. If readings in substeps b and c above are good, go to step 29.
23. REMOVE JACK (1) AND BRACKET (2) FROM BOX (3).
   a. Remove two screws (4) and lock washers (5) from box (3) and bracket (2). Discard lock washers.
   b. Move jack (1) and bracket (2) away from box (3).

24. REMOVE SPST SWITCH (6) FROM BOX (3).
   a. Remove nut (7), lock washer (8), and SPST switch (6) from box (3). Discard lock washer and nut.

25. REMOVE TWO LEADS (9) FROM SPST SWITCH (6).
   a. Remove two screws (10), lock washers (11), and leads (9) from two terminals (12, 13). Discard lock washers. Tag leads. Discard SPST switch.
26. INSTALL TWO LEADS (9) ON NEW SPST SWITCH (6).
   a. Install two leads (9), new lock washers (11), and screws (10) on two terminals (12, 13).

27. INSTALL SPST SWITCH (6) ON BOX (3).
   a. Install new lock washer (8) and SPST switch (6) on box (3) with terminals and leads positioned at left and bottom.
   b. Install new nut (7) on SPST switch (6).

28. INSTALL JACK (1) AND BRACKET (2) ON BOX (3).
   a. Install bracket (2) with jack (1) on box (3) with two screws (4) and new lock washers (5).
29. **CHECK CONTINUITY OF DPDT SWITCH (1) IN OFF AND START POSITIONS. USE MULTIMETER.**

a. Connect multimeter probes to pin A (2) and pin C (3) on jack (4).

b. Move DPDT switch (1) to OFF. If continuity exists, replace DPDT switch. Perform steps 31 thru 44.

c. Move DPDT switch (1) to START. If continuity does not exist, replace DPDT switch. Perform steps 31 thru 44.

d. Connect multimeter probes to pin A (2) and pin D (5) on jack (4). Repeat substeps b and c above.

e. If four readings in substeps b and c above were correct, go to step 30.

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30. **CHECK CONTINUITY OF DPDT SWITCH (1) IN OFF AND RUN POSITIONS. USE MULTIMETER.**

a. Connect multimeter probes to pin C (3) and pin E (6) on jack (4).

b. Move DPDT switch (1) to OFF. If continuity exists, replace DPDT switch. Perform steps 31 thru 44.

c. Move DPDT switch (1) to RUN. If continuity does not exist, replace DPDT switch. Perform steps 31 thru 44.

d. If both readings were correct, go to step 45.
31. REMOVE DPDT SWITCH (1) FROM BOX (7).
   a. Remove nut (8), lock washer (9), and DPDT switch (1) from box (7). Discard nut, lock washer and DPDT switch.

32. REMOVE JUMPER LEAD (10) FROM TOP LEFT TERMINAL (11) OF DPDT SWITCH (1).
   a. Remove screw (12), lock washer (13), and jumper lead (10) from top left terminal (11). Tag lead. Discard lock washer.

33. REMOVE LEAD A (14) AND JUMPER LEAD (15) FROM TOP RIGHT TERMINAL (16) OF DPDT SWITCH (1)
   a. Remove screw (17), lock washer (18), lead A (14), and jumper lead (15) from top right terminal (16). Tag leads. Discard lock washers.

34. REMOVE LEAD C (19) FROM CENTER LEFT TERMINAL (20) OF DPDT SWITCH (1).
   a. Remove screw (21), lock washer (22), and lead C (19) from center left terminal (20). Tag lead. Discard lock washer.

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35. REMOVE JUMPER LEAD (1) FROM CENTER RIGHT TERMINAL (2) OF DPDT SWITCH (3).
   a. Remove screw (4), lock washer (5), and jumper lead (1) from center right terminal (2). Tag lead. Discard lock washer.

36. REMOVE LEAD E (6) AND JUMPER LEAD (7) FROM BOTTOM LEFT TERMINAL (8) OF DPDT SWITCH (3).
   a. Remove screw (9), lock washer (10), lead E (6), and jumper lead (7) from bottom left terminal (8). Tag lead. Discard lock washer.

37. REMOVE TWO JUMPER LEADS (11) FROM BOTTOM RIGHT TERMINAL (12) OF DPDT SWITCH (3).
   a. Remove screw (13), lock washer (14), and two jumper leads (11) from bottom right terminal (12). Tag lead. Discard switch and lock washer.

38. INSTALL TWO JUMPER LEADS (11) ON BOTTOM RIGHT TERMINAL (12) OF DPDT SWITCH (3).
   a. Install two jumper leads (11), new lock washer (14), and screw (13) on bottom right terminal (12).
39. INSTALL LEAD E (6) AND JUMPER LEAD (7) ON BOTTOM LEFT TERMINAL (8) OF DPDT SWITCH (3).
   a. Install lead E (6), jumper lead (7), new lock washer (10), and screw (9) on bottom left terminal (8).

40. INSTALL JUMPER LEAD (1) ON CENTER RIGHT TERMINAL (2) OF DPDT SWITCH (3).
   a. Install jumper lead (1), new lock washer (5), and screw (4) on center right terminal (2).

41. INSTALL LEAD C (15) ON CENTER LEFT TERMINAL (16) OF DPDT SWITCH (3).
   a. Install lead C (15), new lock washer (17), and screw (18) on center left terminal (16).

42. INSTALL LEAD A (19) AND JUMPER LEAD (20) ON TOP RIGHT TERMINAL (21) OF DPDT SWITCH (3).
   a. Install jumper lead (20), lead A (19), new lock washer (22), and screw (23) on top right terminal (21).

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43. INSTALL JUMPER LEAD (1) ON TOP LEFT TERMINAL (2) OF DPDT SWITCH (3).
   a. Install jumper lead (1), new lock washer (4), and screw (5) on top left terminal (2).

44. INSTALL DPDT SWITCH (3) ON BOX (6).
   a. Install new lock washer (7) and DPDT switch (3) in box (6) with toggle switch (8) spring loaded down.
   b. Install new nut (9) on DPDT switch (3).

45. CHECK CONTINUITY OF LAMP (10). USE MULTIMETER.
   a. Remove lamp (10) from indicator light assembly (11).
   b. Check continuity of lamp (10). If continuity does not exist, replace lamp.
46. CHECK CONTINUITY OF INDICATOR LIGHT ASSEMBLY (11). USE MULTIMETER.
   a. Connect multimeter probes to terminal 1 (12) and terminal 2 (13) at back of indicator light assembly (11).
   c. Connect probes to terminal 2 (13) and terminal 3 (15) at back of indicator light assembly (11).
   d. If continuity does not exist, replace lamp (10). Perform steps 47 thru 51.
   e. If readings in substeps a and b above are correct, go to step 49.

47. REMOVE LAMP FROM INDICATOR LIGHT ASSEMBLY. See TM 9-2350-252-20-1.

48. REMOVE INDICATOR LIGHT ASSEMBLY (11) FROM BOX (6).
   b. Remove indicator light assembly (11) and lock washer (17) from box (6). Discard indicator light assembly and lock washer.

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49. UNSOLDER THREE LEADS FROM THREE TERMINALS ON INDICATOR LIGHT ASSEMBLY. See task: REPAIR JACK/PLUG, SOLDER TYPE, page 4-2.7.

50. SOLDER THREE LEADS ON TERMINALS OF INDICATOR LIGHT ASSEMBLY. See task: REPAIR JACK/PLUG, SOLDER TYPE, page 4-2.7.

51. INSTALL NEW INDICATOR LIGHT ASSEMBLY (1) ON BOX (2).
   a. Install new lock washer (3) and indicator light assembly (1) on box (2).
   b. Install new nut (4) on indicator light assembly (1).

52. INSTALL NEW LAMP IN INDICATOR LIGHT ASSEMBLY. See TM 9-2350-252-20-1.

53. INSTALL COVER (5) ON BOX (2).
   a. Install cover (5) and two screws (6) on box (2).

END OF TASK
REPAIR COOLANT HEATER

INITIAL SETUP

Tools:
- Automotive fuel and electrical systems repair kit
- Open end wrench, 7/16 x 1/2 — 5120-00-187-7123
- Socket head screw key set — 5120-00-935-4641

Personnel Required:
- Fuel and Elec Sys Rep 63G20

Equipment Conditions:
- Coolant heater on workbench

Materials/Parts:
- Sealing compound (Item 50, App B)
- Sealing compound (Item 52, App B)
- Gasket
- Gasket
- Preformed packing (2)
- Ring seal

REPAIR

1. REMOVE COVER (1) FROM HEATER (2).
   a. Turn screw (3) to left, and remove cover (1) from heater (2).

GO TO NEXT PAGE
2. REMOVE 7 SCREWS (1) AND 13 LEADS (2) FROM TERMINAL BLOCK (3). TAG LEADS.

3. REMOVE TERMINAL BLOCK (3) FROM HEATER (4).
   a. Remove screw (5) and terminal block (3) from heater (4).
4. REMOVE IGNITER LEAD (6) FROM TERMINAL (7).
   a. Remove nut (8), lock washer (9), and igniter lead (6) from terminal (7).

5. REMOVE IGNITER (10) FROM HEATER (4).
   a. Remove igniter (10) and gasket (11) from heater (4). Discard gasket.

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6. REMOVE FIVE LEADS (1) FROM FLAME SWITCH (2). TAG LEADS.
   a. Remove five screws (3) and leads (1) from five terminals (4) on flame switch (2).
   b. Store five screws (3) in terminals (4).

7. REMOVE FLAME SWITCH (2) FROM HEAT EXCHANGER ASSEMBLY (5).
   a. Loosen nut (6), and remove flame switch (2) from heat exchanger assembly (5).
8. REMOVE TWO LEADS (7) FROM OVERHEAT SWITCH (8). TAG LEADS.
   a. Remove two screws (9) with captive lock washers and two leads (7) from overheatswitch (8).

9. REMOVE OVERHEAT SWITCH (8) FROM HEATER (5).
   a. Remove two screws with captive washers (10) and overheatswitch (8) fromheat exchangerassembly (5).

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10. REMOVE PLUG (1) FROM JACK (2) ON LEAD 2 (3).

11. REMOVE THERMOSTAT ASSEMBLY VALVE (4) AND THERMOSTAT BRACKET (5) FROM TOP OF VALVE BRACKET (6).

   a. Remove screw (7) with captive washer, thermostat bracket (5), and thermostat assembly valve (4) from valve bracket (6).
12. REMOVE FUEL HOSE (8) FROM FUEL TUBE ASSEMBLY (9) AND FUEL LINE CONNECTOR (10).
   a. Loosen two clamps (11) on fuel hose (8).
   b. Remove fuel hose (8) from fuel tube assembly (9) and fuel line connector (10).
   c. Remove clamps (11) from fuel hose (8).

13. REMOVE FUEL TUBE ASSEMBLY (9) FROM TEE ADAPTER (12).

14. REMOVE FUEL LINE CONNECTOR (10) FROM ELBOW (13).

GO TO NEXT PAGE
15. REMOVE ELBOW (1) FROM BURNER ASSEMBLY (2).

16. REMOVE PIPE PLUG (3), NOZZLE (4), TEE ADAPTER (5), AND ELBOW (6) FROM REGULATOR VALVE (7).

17. REMOVE TWO VALVE ASSEMBLY ELEMENTS (8) FROM REGULATOR VALVE (7).
   a. Remove two push-on nuts (9) and valve assembly elements (8) from regulator valve (7).
18. REMOVE PLUG (10) FROM JACK (11) ON LEAD 8 (12).

19. REMOVE RELAY ASSEMBLY (13) FROM CONTROL BRACKET (14).
   a. Remove two screws (15) with captive lock washers, two nuts (16) with captive lock washers, and relay assembly (13) from control bracket (14).
20. REMOVE REGULATOR VALVE (1) FROM VALVE BRACKET (2).
   a. Remove screw (3) with captive lock washer from valve bracket (2).

21. REMOVE VOLTAGE CONTROL (4) FROM CONTROL BRACKET (5).
   a. Remove two screws (6) with captive lock washers, two nuts (7) with captive lock washers, and voltage control (4) from control bracket (5).
CAUTION
Mica washers and insulator are easily damaged if tightened too much. Diode should be removed and installed by hand, and carefully tightened with open end wrench.

22. REMOVE DIODE (8) FROM CONTROL BRACKET (5). USE OPEN END WRENCH.
   a. Remove nut (9), lock washer (10), lead (11), flat washer (12), mica washer (13), insulator (14), mica washer (15), and diode (8) from control bracket (5).

23. REMOVE RECEPTACLE ASSEMBLY (16) FROM CONTROL BRACKET (5).
   a. Remove four screws (17) with captive lock washers and receptacle assembly (16) from control bracket (5).

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24. REMOVE COVER PLATE (1) FROM BURNER ASSEMBLY CASING (2).

a. Remove four screws (3) with captive lock washers and cover plate (1) from burner assembly casing (2).

25. REMOVE PLUG (4) FROM JACK (5).
26. REMOVE AIR INLET COVER (6) FROM BURNER ASSEMBLY CASING (2).
   a. Remove eight screws (7) with captive lock washers and air inlet cover (6) from burner assembly casing (2).

27. REMOVE CONTROL BRACKET (8) FROM HEAT EXCHANGER ASSEMBLY (9).
   a. Remove two screws (10) with captive lock washers, two nuts (11) with captive lock washers, and control bracket (8) from heat exchanger assembly (9).
28. REMOVE BURNER ASSEMBLY CASING (1) FROM HEAT EXCHANGER ASSEMBLY (2).
   a. Remove five screws (3) with captive lock washers and burner assembly casing (1) from heat exchanger assembly (2).

29. AS A UNIT, REMOVE BURNER ASSEMBLY (4) AND MOTOR AND PUMP ASSEMBLY (5) FROM HEAT EXCHANGER ASSEMBLY (2).
   a. Loosen two screws (6) on two clamps (7).
   b. Slide two clamps (7) up on two pump hoses (8).
   c. As a unit, remove two pump hoses (8), burner assembly (4), and motor and pump assembly (5) from heat exchanger assembly (2).
   d. Remove ring seal (9) from burner assembly (4) and heat exchanger assembly (2). Discard ring seal.
30. REMOVE TWO PUMP HOSES (8) FROM MOTOR AND PUMP ASSEMBLY (5).
   a. Loosen two screws (10) on two clamps (11).
   b. Slide two clamps (11) down on two pump hoses (8).
   c. Remove two pump hoses (8) from motor and pump assembly (5).

31. REMOVE TWO ELBOWS (12) FROM MOTOR AND PUMP ASSEMBLY (5).

32. REMOVE MOTOR AND PUMP ASSEMBLY (5) FROM BURNER ASSEMBLY (4).
   a. Remove four screws (13) and motor and pump assembly (5) from burner assembly (4).

GO TO NEXT PAGE
33. REMOVE COMBUSTION AIR INLET (1) FROM MOTOR AND PUMP ASSEMBLY (2).
   a. Remove setscrew (3) from fan (4). Use socket key set.
   b. Remove fan (4) and air inlet plate (5) from motor and pump assembly (2).
   c. Remove two screws (6) and combustion air inlet (1) from motor and pump assembly (2).

34. REMOVE VAPORIZER (7) FROM BURNER ASSEMBLY (8).
   a. Remove two screws (9), retainer (10), and vaporizer (7) from burner assembly (8).
35. REMOVE DRAIN PLUG (11) FROM HEAT EXCHANGER ASSEMBLY (12).

36. REMOVE FLAME SWITCH ASSEMBLY (13) FROM FRAME ASSEMBLY (14).
   a. Remove two screws (15), nuts (16) with captive lock washers, and flame switch assembly (13) from frame assembly (14).

GO TO NEXT PAGE
37. REMOVE LEVER (1), SPRING (2), AND TWO RODS (3) FROM FRAME ASSEMBLY (4).
   a. Remove nut (5), lever (1), and spring (2) from frame assembly (4).
   b. Tip frame assembly (4) and remove two rods (3).

38. CHECK COMMON TERMINAL (6) BETWEEN TERMINAL 2 (7) AND TERMINAL 4 (8) ON FLAME SWITCH (9) FOR CONTINUITY. USE MULTIMETER.
   a. Connect test probes to common terminal (6) and to terminal 2 (7). Check for continuity.
   b. Connect test probes to common terminal (6) and terminal 4 (8). Check for continuity.
   c. If continuity exists in substeps a or b above, replace flame switch (9).
   d. Connect test probes to common terminal (6) and to terminal 2 (7). Press actuator (10). Check for continuity.
   e. Connect test probes to common terminal (6) and to terminal 4 (8). Press actuator (10). Check for continuity.
   f. If continuity does not exist in substeps d or e above, replace flame switch (9).
39. CHECK COMMON TERMINAL (6) BETWEEN TERMINAL 1 (11) AND TERMINAL 3 (12) ON FLAME SWITCH (9) FOR CONTINUITY. USE MULTIMETER.

a. Connect test probes to common terminal (6) and terminal 1 (11). Check for continuity.

b. Connect test probes to common terminal (6) and terminal 3 (12). Check for continuity.

c. If continuity does not exist in substeps a or b above, replace flame switch (9).

d. Connect test probes to common terminal (6) and terminal 1 (11). Press actuator (10).

e. Connect test probes to common terminal (6) and terminal 3 (12). Press actuator (10). Check for continuity.

f. If continuity exists in substeps d or e above, replace flame switch (9).

40. CHECK OPERATION OF IGNITER (13). USE MULTIMETER.

a. Connect two test probes (14) from multimeter to igniter terminal (15) and cap (16). Check continuity.

b. If multimeter does not show continuity, replace igniter (13).

GO TO NEXT PAGE
41. INSTALL TWO RODS (1), SPRING (2), AND LEVER (3) ON FRAME ASSEMBLY (4).
   a. Insert two rods (1) in frame assembly (4).
   b. Install spring (2), lever (3), and nut (5) on frame assembly (4).

42. INSTALL FLAME SWITCH (6) IN FRAME ASSEMBLY (4).
   a. Install flame switch (6), two screws (7), and nuts (8) with captive lock washers on frame assembly (4).
43. TIGHTEN ADJUSTING SCREW (9) ON FRAME ASSEMBLY (4).
   a. Tighten adjusting screw (9) until flame switch (6) clicks.
   b. Turn adjusting screw (9) one-half turn more, and seal in position with sealing compound (Item 50).

44. INSTALL VAPORIZER (10) ON BURNER ASSEMBLY (11).
   a. Install two screws (12), retainer (13), and vaporizer (10) on burner assembly (11).

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45. INSTALL COMBUSTION AIR INLET (1) ON MOTOR AND PUMP ASSEMBLY (2).
   a. Install combustion air inlet (1) and two screws (3) on motor and pump assembly (2).
   b. Install air inlet plate (4) and fan (5) on motor and pump assembly (2).
   c. Install setscrew (6) in fan (5). Use socket key set.

46. INSTALL MOTOR AND PUMP ASSEMBLY (2) ON BURNER ASSEMBLY (7).
   a. Install motor and pump assembly (2) and four screws (8) on burner assembly (7).
47. INSTALL TWO ELBOWS (9) ON MOTOR AND PUMP ASSEMBLY (2).

48. INSTALL TWO PUMP HOSES (10) ON MOTOR AND PUMP ASSEMBLY (2).
   a. Slide two clamps (11) on two pump hoses (10).
   b. Slide two pump hoses (10) on two elbows (9). Tighten two screws (12) on two clamps (11).
49. AS A UNIT, INSTALL BURNER ASSEMBLY (1) AND MOTOR AND PUMP ASSEMBLY (2) ON HEAT EXCHANGER ASSEMBLY (3).

a. Install new ring seal (4) on burner assembly (1).

b. Slide two clamps (6) on two pump hoses (5).

c. As a unit, position pump hoses (5), burner assembly (1), and motor and pump assembly (2) on heat exchanger assembly (3).

d. Tighten two screws (7) on two clamps (6).

50. INSTALL DRAIN PLUG (8) ON HEAT EXCHANGER ASSEMBLY (3).
51. INSTALL BURNER ASSEMBLY CASING (9) ON HEAT EXCHANGER ASSEMBLY (3).
   a. Install burner assembly casing (9) and five screws (10) with captive lock washers on heat exchanger assembly (3).

52. INSTALL CONTROL BRACKET (11) ON HEAT EXCHANGER ASSEMBLY (3).
   a. Install control bracket (11), two screws (12) with captive lock washers, and nuts (13) with captive lock washers on heat exchanger (3).
53. INSTALL AIR INLET COVER (1) ON BURNER ASSEMBLY CASING (2).
   a. Install air inlet cover (1) and eight screws (3) with captive lock washers on burner assembly casing (2).

54. INSTALL PLUG (4) ON JACK (5).
   a. Insert plug (4) through plate (6).
   b. Install plug (4) on jack (5).
55. INSTALL COVER PLATE (6) ON BURNER ASSEMBLY CASING (2).
   a. Install cover plate (6) and four screws (7) with captive lock washers in burner assembly casing (2).

56. INSTALL RECEPTACLE ASSEMBLY (8) ON CONTROL BRACKET (9).
   a. Install receptacle assembly (8) and four screws (10) with captive lock washers on control bracket (9).

GO TO NEXT PAGE
CAUTION
Mica washers and insulator are easily damaged if tightened too much. Diode should be removed and installed by hand, and carefully tightened with open end wrench.

57. INSTALL DIODE (1) ON CONTROL BRACKET (2). USE OPEN END WRENCH.
   a. Install diode (1), mica washer (3), insulator (4), mica washer (5), flat washer (6), lead (7), lock washer (8), and nut (9) on control bracket (2).

58. CHECK DIODE (1) FOR CONTINUITY. USE MULTIMETER.
   a. Place positive test pin (red) on threaded end of diode (1), and negative test pin (black) on lead (7). If continuity exists, replace diode.
   b. Place positive test pin (red) on lead (7), and negative test pin (black) on threaded end of diode (1). If continuity does not exist, replace diode.
59. INSTALL VOLTAGE CONTROL (10) ON CONTROL BRACKET (2).
   a. Install voltage control (10), two screws (11) with captive lock washers, and two nuts (12) with captive lock washers on control bracket (2).

60. INSTALL REGULATOR VALVE (13) ON VALVE BRACKET (14).
   a. Install regulator valve (13) and screw (15) with captive lock washer on valve bracket (14).
61. INSTALL RELAY ASSEMBLY (1) ON CONTROL BRACKET (2).
   a. Install relay assembly (1), two screws (3) with captive lock washers, and two nuts (4) with captive lock washers on control bracket (2).

62. INSTALL PLUG (5) TO JACK (6) ON LEAD 8 (7).
63. INSTALL TWO VALVE ASSEMBLY ELEMENTS (8) ON REGULATOR VALVE (9).

   a. Install two valve assembly elements (8) and push-on nuts (10) on regulator valve (9).

64. INSTALL ELBOW (11), TEE ADAPTER (12), NOZZLE (13) AND PIPE PLUG (14) ON REGULATOR VALVE (9).
65. INSTALL ELBOW (1) ON BURNER ASSEMBLY (2).

66. INSTALL FUEL LINE CONNECTOR (3) IN ELBOW (1).

67. INSTALL FUEL TUBE ASSEMBLY (4) ON ADAPTER (5).

68. INSTALL FUEL HOSE (6) ON FUEL TUBE ASSEMBLY (4) AND FUEL LINE CONNECTOR (3).
   a. Slide two clamps (7) on fuel hose (6).
   b. Install fuel hose (6) on fuel tube assembly (4) and fuel line connector (3).
   c. Slide two clamps (7) to end of fuel hose (6) and tighten two screws (8).
69. INSTALL THERMOSTAT ASSEMBLY VALVE (9), THERMOSTAT BRACKET (10), AND SCREW (11) ON TOP OF VALVE BRACKET (12).

70. INSTALL PLUG (13) TO JACK (14) ON LEAD 2 (15).

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71. INSTALL OVERHEAT SWITCH (1) AND TWO SCREWS (2) WITH CAPTIVE LOCK WASHERS ON HEAT EXCHANGER ASSEMBLY (3).

72. INSTALL TWO LEADS (4) AND TWO SCREWS (5) WITH CAPTIVE LOCK WASHERS ON OVERHEAT SWITCH (1).
73. INSTALL FLAME SWITCH (6) ON HEAT EXCHANGER ASSEMBLY (3).
   a. Tighten nut (7).

74. INSTALL FIVE LEADS (8) ON FLAME SWITCH (6).
   a. Remove five screws (9) from five terminals (10).
   b. Install five leads (8) and screws (9) on flame switch (6).
75. INSTALL IGNITER (1) ON HEATER (2).
   a. Install new gasket (3) and igniter (1) on heater (2).

76. INSTALL IGNITER LEAD (4) ON TERMINAL (5).
   a. Install lock washer (6), igniter lead (4), and nut (7) on terminal (5).
77. INSTALL TERMINAL BLOCK (8) AND SCREW (9) ON CONTROL BRACKET (10).

78. INSTALL 7 SCREWS (11) AND 13 LEADS (12) ON TERMINAL BLOCK (8).

79. INSTALL COVER (13) ON HEATER (2).

END OF TASK
Section II. MAINTENANCE OF HEAT EXCHANGER

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REPAIR HEAT EXCHANGER BLOWER ASSEMBLY

INITIAL SETUP

Tools:
- General mechanic's tool kit: automotive
- Automotive fuel and electrical system repair tool kit
- Socket head screw key, 1/8 inch — 5120-00-240-5292

Personnel Required:
- Fuel and Elec Sys Rep 63G10

Equipment Conditions:
- Blower assembly on workbench

Materials/Parts:
- Lock washer (6)
- Direct current motor
- Captive screw (8)

REPAIR

1. REMOVE THREE GROUND LEADS (1) FROM MOTOR ASSEMBLY (2) AND BLOWER HOUSING (3).
   a. Remove six captive screws (4), three ground leads (1), and six lock washers (5) from motor assembly (2) and blower housing (3). Discard lock washers and captive screws.

2. REMOVE AIR VALVE (6) FROM BLOWER HOUSING (3).
   a. Remove two captive screws (7), nuts (8), and air valve (6) from blower housing (3). Discard captive screws.

GO TO NEXT PAGE
4. REMOVE MOTOR ASSEMBLY (3) FROM BLOWER HOUSING (4).
   a. Mark blower housing (4) where guard (5) alines with blower housing.
   b. Remove three nuts (6), spacers (7), grommets (8), motor assembly (3), three large washers (9), and small washers (10) from blower housing (4).

NOTE
Steps 6 and 7 should be done only if decal on blower assembly is damaged.

5. REMOVE WHEEL (11) FROM BLOWER HOUSING (4).

6. REMOVE DECAL (12) FROM BLOWER HOUSING (4). DISCARD DECAL.
7. INSTALL DECAL (12) ON BLOWER HOUSING (4).

8. POSITION WHEEL (11) IN BLOWER HOUSING (4).

9. INSTALL MOTOR ASSEMBLY (3) ON BLOWER HOUSING (4).
   a. Aline mark on blower housing (4) with guard (5) on motor assembly (3).
   b. Install three small washers (10), large washers (9), motor assembly (3), three
      grommets (8), spacers (7), and nuts (6) on blower housing (4).

   **NOTE**
   Wheel should be centered for proper installation of setscrew.

10. TIGHTEN SETSCREW (1) IN SHAFT (2).
    USE SOCKET HEAD SCREW KEY.

GO TO NEXT PAGE
11. INSTALL AIR VALVE (1) IN BLOWER HOUSING (2).
   a. Position air valve (1) in blower assembly (2) with ends alined with two tabs (3).
   b. Install two new captive screws (4) and nuts (5) on blower housing (2) and air valve (1).

12. INSTALL THREE GROUND LEADS (6) ON MOTOR ASSEMBLY (7) AND BLOWER HOUSING (2).
   a. Install six new lock washers (8), three ground leads (6), and six new captive screws (9) on motor assembly (7) and blower housing (2).

END OF TASK
Section III. MAINTENANCE OF WIRING HARNESS

REPAIR WIRING HARNESS 1W29

INITIAL SETUP

Tools:
- Machinist's vise, 4 inch — 5120-00-293-1439
- Hacksaw frame — 5110-00-289-9657
- Hacksaw blade — 5110-00-237-8107
- Solder torch kit — 3439-00-542-0531
- Multimeter, URM-105C — 6625-00-999-6282

References:
- TM 9-2350-252-20-1

Equipment Conditions:
- Wiring harness 1W29 on workbench

Personnel Required:
- Fuel and Elec Sys Rep 63G10

REPAIR

1. TEST ALL PINS FOR CONTINUITY. NOTE WIRES THAT FAIL. USE MULTIMETER.

2. REPAIR PLUGS 1W29P1 AND 1W29P2. See task: REPAIR/REPLACE MULTIPIN JACK/PLUG, FRONT AND REAR RELEASE, page 4-2.1.


END OF TASK
Section IV. MAINTENANCE OF INLET AND EXHAUST GRILLE COVER ASSEMBLY

REPAIR INLET AND EXHAUST GRILLE COVER ASSEMBLY

INITIAL SETUP

Personnel Required:
Fabric Repair Sp 43M10

Equipment Conditions:
Inlet and exhaust grille cover assembly on workbench

References:
FM 10-16

REPAIR

1. REPAIR STRAP ASSEMBLY. See FM 10-16.
2. REPAIR CANVAS. See FM 10-16.

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WELD HULL AS NECESSARY

INITIAL SETUP

Personnel Required:

Metal Worker 44B10

Equipment Conditions:

Engine stopped (TM 9-2350-252-10-1)
Turret shut down (TM 9-2350-252-10-2)

References:

TM 9-2350-252-10-1
TM 9-2350-252-10-2
TM 9-237

WELD

NOTE

General Support welding on the hull is to be done only on the hull, ramp, ramp access door, and hatches.

Direct Support welding is to be done only on vehicle bolt-on armor.

Organizational Maintenance welding is to be done only on stowage bracketry.

1. DETERMINE TYPE OF METAL DESIGNATOR. See next page.

2. WELD HULL AS NECESSARY. See TM 9-237.

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15-1 (15-2 blank)
REPAIR WIND SHIELD ASSEMBLY

INITIAL SETUP

Tools:
- Canvas tool kit — 5180-00-754-0731
- Industrial sewing machine — 3530-00-171-1710

Personnel Required:
- Fabric Repair Sp 43M10

References:
- FM 10-16

Equipment Conditions:
- Wind shield assembly on workbench

REPAIR

1. REPAIR WIND SHIELD ASSEMBLY.
   See FM 10-16.

END OF TASK
# CHAPTER 16
MAINTENANCE OF FINAL DRIVE

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16-1 (16-2 blank)
REPAIR FINAL DRIVE

INITIAL SETUP

Tools:
- General mechanic’s tool kit: automotive
- Universal puller kit — 5120-00-313-9496
- Mechanical puller kit — 5120-00-423-1596
- Final drive axle support — 12307576
- Seal installation tool — 5S4276
- Bearing/bushing removal tool — 12298109
- Height gage — 5120-00-222-4566
- Dial indicator — 5210-00-045-9887
- Micrometer, 8 inch — 5210-00-250-0870
- Outside micrometer caliper set — GGG-C-105
- Grinder with bench stand — 5130-00-293-2488
- Industrial goggles — 4240-00-269-7912
- Combination wrench, 1 1/4 inch — 1173
- Hammer, 2 lb — 5120-00-061-8546
- Mandrel, 4 inch — 11872884-2
- Track drift pin — 12296846
- Torque wrench, 3/8 inch drive, 0-200 in-lb — 5120-00-853-4538
- Torque wrench, 1/2 inch drive, 0-175 ft-lb — 5120-00-640-6364
- Dial bore gage — 1201P4
- Jack screw (2) (Item 3, App C)
- Hex head cap screw (3) — MS90725-3
- Surface plate — 10539031-1
- Solid angle plate — AP-12RR
- Clamp, 8 x 3 1/4 inch — 5120-00-203-6436
- Arbor press — 3444-00-449-7295
- Adjustable spanner wrench, 6 1/4 inch — 53983
- Machinist’s vise, 6 inch jaws — 5120-00-293-1439
- Thermal drying oven — COF-3-480V
- Heatproof mittens (2) — 8415-00-286-8843
- Socket, 3/8 inch drive, 1/2 inch — 5120-00-237-0977
- Socket, 3/8 inch drive, 7/16 inch — 5120-00-227-8703
- Heatgun — 500A
- Socket head screw key, 3/8 inch — 5120-00-198-5390

Materials/Parts:
- Sealing compound (Item 47, App B)
- Lube oil (Item 38, App B)
- Automotive grease (Item 18, App B)
- Anti-seize compound (Item 17, App B)
- Preformed packing
- Key washer
- Seal
- Preformed washer (2)
- Lock screw (8)
- Gasket
- Key screw (4)
- Gasket
- Lock screw (8)
- Gasket
- Lock bolt (5)
- Seal
- Retaining ring

Personnel Required:
- Track Veh Rep 63H10
- Helper (H)

References:
- TM 9-214

Equipment Conditions:
- Final drive on workbench
NOTE

There is a left and right final drive on vehicle. Both are the same except right final drive has speedometer drive gear. Left final drive is shown.

1. REMOVE EIGHT SCREWS (1) FROM RETAINER (2).
   a. Rotate flange (3) until cutouts (4) are aligned with two screws (1).
   b. Remove two screws (1) and washers (5) from retainer (2).
   c. Repeat substeps a and b above until all eight screws (1) are removed from retainer (2).

2. REMOVE OUTPUT SHAFT (6) FROM HOUSING (7).
   a. Install two jackscrews (8) opposite each other on retainer (2).
   b. Turn two jackscrews (8) evenly until output shaft (6) is free of housing (7).
   c. Remove output shaft (6) from housing (7). Have helper assist.
   d. Remove two jackscrews (8) from retainer (2).
3. MEASURE OUTPUT SHAFT BORE (9) OF HOUSING (7). USE DIAL BORE GAGE (10).
   
a. If diameter of output shaft bore (9) of housing (7) is more than 8.270 inches (220 mm), stop task. Notify supervisor that final drive is not repairable.

4. INSTALL OUTPUT SHAFT (6) IN SUPPORT (11).
   
a. Install support (11) in vise.
   
b. Position output shaft (6) on support (11). Have helper assist.
   
c. Tighten two screws (12) on support (11). Use combination wrench.

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5. REMOVE PREFORMED PACKING (1) FROM RETAINER (2). DISCARD PREFORMED PACKING.

6. REMOVE RETAINING NUT (3) AND KEY WASHER (4) FROM OUTPUT SHAFT (5).
   a. Bend tab out on key washer (4).
   b. Remove retaining nut (3) and key washer (4) from output shaft (5). Discard key washer.

7. REMOVE BUSHING (6) FROM OUTPUT SHAFT (5).
   a. Mark bushing (6) and output shaft (5).
   b. Heat bushing (6) for 10 minutes. Use heatgun.
   c. Thread bushing removal tool (7) on two uppermost threads of bushing (6).
   d. Tap bottom of bushing removal tool (7) until bushing (6) is removed from output shaft (5).
   e. Remove bushing removal tool (7) from bushing (6).
8. REMOVE BEARING (8) FROM OUTPUT SHAFT (5).

9. REMOVE RETAINER (2) FROM OUTPUT SHAFT (5).

10. REMOVE SEAL ASSEMBLY (9) FROM RETAINER (2). DISCARD SEAL ASSEMBLY.

11. REMOVE SEAL ADAPTER (10) FROM RETAINER (2).
    a. Place retainer (2) on workbench with inner side up.
    b. Tap seal adapter (10) from retainer (2).

GO TO NEXT PAGE
12. REMOVE PREFORMED PACKING (1) FROM SEAL ADAPTER (2). DISCARD PREFORMED PACKING.

13. REMOVE SECOND SEAL ADAPTER (3) FROM OUTPUT SHAFT (4).
   a. Install three screws (5) on seal adapter (3).
   b. Pry seal adapter (3) from output shaft (4).
   c. Remove three screws (5) from seal adapter (3).

14. REMOVE SEAL ASSEMBLY (6) FROM SEAL ADAPTER (3). DISCARD SEAL ASSEMBLY.

15. REMOVE PREFORMED PACKING (7) FROM SEAL ADAPTER (3). DISCARD PREFORMED PACKING.
16. MEASURE BEARING SEAT (8) OF OUTPUT SHAFT (4).
   a. Take two measurements, 90 degrees apart, of bearing seat (8). Use micrometer set (9).
   b. If either measurement is more than 4.922 inches (124.968 mm) or less than 4.921 inches (124.714 mm), stop task. Notify supervisor that final drive is not repairable.

17. MEASURE AND RECORD OUTER DIAMETER OF SEAL ADAPTER BORE (10) OF OUTPUT SHAFT (4). USE 8 INCH MICROMETER (11).

18. MEASURE THICKNESS OF LIP (12) OF SEAL ADAPTER BORE (10) OF OUTPUT SHAFT (4).
   a. Measure and record thickness of lip (12) of seal adapter bore (10) at two points where 8 inch micrometer made contact. Use micrometer set (9).

19. DETERMINE INNER DIAMETER OF SEAL ADAPTER BORE (10).
   a. Add together two measurements of lip (12) thickness from step 18. Record sum.
   b. Subtract sum of substep a above from outer diameter of seal adapter bore (10), step 17. Record difference.
   c. Repeat steps 17, 18, 19a, and 19b, 90 degrees from first set of measurements.
   d. If either set of measurements from steps 19b or 19c is more than 7.253 inches (184.22 mm) or less than 7.250 inches (184.15 mm), stop task. Notify supervisor that final drive is not repairable.
NOTE
Step 20 should be done only if oil dam is damaged. If oil dam is not damaged, go to step 21.

20. REMOVE OIL DAM (1) FROM OUTPUT SHAFT (2). USE UNIVERSAL PULLER KIT.

21. REMOVE OUTPUT SHAFT (2) FROM SUPPORT (3).
   a. Loosen two screws (4) from support (3). Use combination wrench.
   b. Remove output shaft (2) from support (3). Have helper assist.
NOTE
Step 22 should be done only if plug is damaged. If plug is undamaged, go to step 23.

22. REMOVE PLUG (5) FROM OUTPUT SHAFT (2).
   a. Place output shaft (2) on side on workbench.
   b. Remove plug (5) from output shaft (2).
      Use hammer and drift pin.

23. REMOVE INPUT COVER (6) FROM HOUSING COVER (7).
   a. Turn final drive so housing cover (7) is up. Block as necessary. Have helper assist.
   b. Remove eight lock screws (8), washers (9), input cover (6), and gasket (10) from housing cover (7).
   c. Save lock screws (8) and gasket (10) for possible adjustment step later in task.
24. REMOVE COVER (1) FROM INTERMEDIATE COVER (2).
   a. Bend tabs out on four key washers (3).
   b. Remove four screws (4), key washers (3), cover (1), and gasket (5) from intermediate cover (2). Discard key washers and gasket.

25. REMOVE INTERMEDIATE COVER (2) FROM HOUSING COVER (6).
   a. Remove eight lock screws (7), washers (8), intermediate cover (2), and gasket (9) from housing cover (6).
   b. Save lock screws (7) and gasket (9) for possible adjustment step later in task.
26. REMOVE TWO DRAIN PLUGS (10) FROM HOUSING (11). USE SOCKET KEY.

27. REMOVE 25 SCREWS (12) AND WASHERS (13) FROM HOUSING COVER (6).
   a. Note location of screws (12).

NOTE
Two screws used in step 28 are from step 27.

28. REMOVE HOUSING COVER (6) FROM HOUSING (11).
   a. Install two screws (12) in two jacking holes of housing cover (6).
   b. Turn screws (12) evenly until housing cover (6) is free of housing (11).
   c. Remove housing cover (6) and gasket (14) from housing (11). Have helper assist. Discard gasket.
   d. Remove two screws (12) from housing cover (6).

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29. REMOVE OUTPUT GEAR (1) FROM HOUSING (2). HAVE HELPER ASSIST.

30. REMOVE DAM (3) FROM HOUSING (2).
   a. Remove five lock screws (4), washers (5), and dam (3) from housing (2). Discard lock screws.

31. REMOVE INTERMEDIATE GEAR (6) FROM HOUSING (2).

32. REMOVE INPUT GEAR (7) FROM HOUSING (2).
33. REMOVE SEAL (8) FROM INPUT COVER (9).
   a. Support input cover (9) on workbench with outer side down. Use wooden blocks or other suitable material.
   b. Drive seal (8) from input cover (9). Discard seal.

WARNING
Hot parts can burn you. Wear heatproof mittens when doing this step.

NOTE
Step 34 should be done only if any gear, bearing in housing cover, or inner race that contacts bearing in housing cover is damaged.

Each bearing comes with inner race. If bearing or inner race is damaged, they must be replaced as a set.

34. REMOVE OUTPUT, INTERMEDIATE, AND INPUT BEARINGS (10, 11, 12) FROM HOUSING COVER (13). USE HEATPROOF MITTENS.
   a. Preheat oven to 250 degrees.
   b. Place housing cover (13) in oven with outer side up for 30 minutes.
   c. Remove housing cover (13), and output, intermediate, and input bearings (10, 11, 12) from oven. If output, intermediate, and input bearings do not drop out of housing cover, use universal puller kit.
35. REMOVE OUTPUT, INTERMEDIATE, AND INPUT BEARINGS (1, 2, 3) FROM HOUSING (4). USE HEATPROOF MITTENS.
   a. Preheat oven to 250 degrees.
   b. Place housing (4) in oven with outer side up for 30 minutes.
   c. Remove housing (4) and output, intermediate, and input bearings (1, 2, 3) from oven. If output, intermediate and input bearings do not drop out of housing, use universal puller kit.

36. REMOVE RETAINING RING (5) FROM HOUSING (4). DISCARD RETAINING RING.

37. MEASURE OUTPUT BEARING BORE (6) OF HOUSING (4). USE DIAL BORE GAGE (7).
   a. If reading is not between 6.6881 inches (169.87 mm) and 6.6891 inches (169.90 mm), stop task. Notify supervisor that final drive is not repairable.
38. MEASURE INTERMEDIATE BEARING BORE (8) OF HOUSING (4). USE DIAL BORE GAGE (7).
   a. If reading is not between 6.6881 inches (169.87 mm) and 6.6891 inches (169.90 mm), stop task. Notify supervisor that final drive is not repairable.

39. MEASURE INPUT BEARING BORE (9) OF HOUSING (4). USE DIAL BORE GAGE (7).
   a. If reading is not between 4.9173 inches (124.89 mm) and 4.9183 inches (124.92 mm), stop task. Notify supervisor that final drive is not repairable.

NOTE
Steps 40 thru 48 should be done only if output, intermediate, and input bearings were removed from housing cover in step 34.

40. PREPARE HOUSING COVER (10) FOR FIRST SET OF MEASUREMENTS OF OUTPUT BEARING BORE (6).
   a. Place solid angle plate (11) on surface plate (12) on workbench.
   b. Position housing cover (10) on solid angle plate (11) with outer side away from solid angle plate. Have helper assist.
   c. Position clamp (13) on housing cover (10) and solid angle plate (11). Tighten clamp.
   d. Place height gage (14) and dial indicator (15) directly in front of output bearing bore (6).

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41. MEASURE OUTPUT BEARING BORE (1) OF HOUSING COVER (2).
   a. Measure and record height from surface plate (3) to highest point on inner surface of output bearing bore (1). Use height gage (4) and dial indicator (5).
   b. Measure and record height from surface plate (3) to lowest point on inner surface of output bearing bore (1). Use height gage (4) and dial indicator (5).

42. DETERMINE DIAMETER OF OUTPUT BEARING BORE (1) OF HOUSING COVER (2) FROM FIRST SET OF MEASUREMENTS.
   a. Subtract measurement of lowest point on output bearing bore (1), step 41b, from highest point on output bearing bore, step 41a.
   b. If difference is not between 6.6881 inches (169.87 mm) and 6.6891 inches (169.90 mm), stop task. Notify supervisor that final drive is not repairable.

43. PREPARE HOUSING COVER (2) FOR SECOND SET OF MEASUREMENTS OF OUTPUT BEARING BORE (1).
   a. Move height gage (4) and dial indicator (5) away from housing cover (2).
   b. Loosen clamp (6) on housing cover (2). Have helper assist.
   c. Turn housing cover (2) 90 degrees on solid angle plate (7). Tighten clamp (6). Have helper assist.
   d. Place height gage (4) and dial indicator (5) directly in front of output bearing bore (1).
44. MEASURE OUTPUT BEARING BORE (1) OF HOUSING COVER (2).
   a. Measure and record height from surface plate (3) to highest point on inner surface of output bearing bore (1). Use height gage (4) and dial indicator (5).
   b. Measure and record height from surface plate (3) to lowest point on inner surface of output bearing bore (1). Use height gage (4) and dial indicator (5).

45. REMOVE HOUSING COVER (2) FROM SOLID ANGLE PLATE (7). HAVE HELPER ASSIST.

46. DETERMINE DIAMETER OF OUTPUT BEARING BORE (1) OF HOUSING COVER (2) FROM SECOND SET OF MEASUREMENTS.
   a. Subtract measurement of lowest point on output bearing bore (1), step 44b, from highest point, on output bearing bore, 44a.
   b. If difference is not between 6.6881 inches (169.87 mm) and 6.6891 inches (169.90 mm), stop task. Notify supervisor that final drive is not repairable.

47. MEASURE INTERMEDIATE BEARING BORE (8) OF HOUSING COVER (2). USE DIAL BORE GAGE (9).
   a. If reading is not between 6.6881 inches (169.87 mm) and 6.6891 inches (169.90 mm), stop task. Notify supervisor that final drive is not repairable.

48. MEASURE INPUT BEARING BORE (10) OF HOUSING COVER (2). USE DIAL BORE GAGE (9).
   a. If reading is not between 4.9173 inches (124.89 mm) and 4.9183 inches (124.92 mm), stop task. Notify supervisor that final drive is not repairable.

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NOTE
If output gear is damaged, output gear, two output bearings, and their inner races must be replaced. Go to step 50.

Step 49 should be done only if one or both output bearings or their inner races are damaged.

Only inner race that is damaged or has contact with damaged output bearing should be removed.

Each output bearing comes with inner race. If output bearing or inner race is damaged, they must be replaced as a set.

49. REMOVE INNER RACE(S) (1) FROM OUTPUT GEAR (2). See TM 9-214. USE MECHANICAL PULLER KIT AND MANDREL.

50. REMOVE ODOMETER DRIVE (3) FROM INTERMEDIATE GEAR (4).
   a. Place intermediate gear (4) on side.
   b. Tap odometer drive (3) from intermediate gear (4).

NOTE
Step 50 should be done only if intermediate gear or odometer drive is damaged.

51. REMOVE UPPER INNER RACE (5) FROM INTERMEDIATE GEAR (4). See TM 9-214. USE MECHANICAL PULLER KIT AND ARBOR PRESS.
Step 52 should be done only if intermediate bearing in housing or lower inner race is damaged.

Intermediate bearing in housing and lower inner race come as a set. If either is damaged, both must be replaced.

52. REMOVE LOWER INNER RACE (6) FROM INTERMEDIATE GEAR (4). See TM 9-214. USE GRINDER, HAMMER, AND GOGGLES.

If input gear is damaged, replace input gear, two input bearings, and their inner races. Go to step 55.

Step 54 should be done only if one or both input bearings or their inner races are damaged.

Remove only inner race that is damaged or has contact with damaged input bearing.

Each input bearing comes with inner race. If input bearing or inner race is damaged, they must be replaced as a set.

54. REMOVE INNER RACE(S) (9) FROM INPUT GEAR (8). See TM 9-214. USE MECHANICAL PULLER KIT AND ARBOR PRESS.

Step 53 should be done only if plug or input gear is damaged.

53. REMOVE PLUG (7) FROM INPUT GEAR (8).
   a. Place input gear (8) on arbor press with housing side up.
   b. Press plug (7) from input gear (8).
   c. Remove input gear (8) from arbor press.

Step 55 should be done only if input gear, or one or both inner races for input gear were replaced.

55. INSTALL INNER RACE(S) (9) ON INPUT GEAR (8). See TM 9-214. USE ARBOR PRESS.
NOTE
Step 56 should be done only if input gear or plug was replaced.

56. INSTALL PLUG (1) IN INPUT GEAR (2).
   a. Place input gear (2) on arbor press with housing side down.
   b. Press plug (1) into input gear (2).
   c. Remove input gear (2) from arbor press.

NOTE
Step 57 should be done only if intermediate gear or lower inner race was replaced.

57. INSTALL LOWER INNER RACE (3) ON INTERMEDIATE GEAR (4). See TM 9-214.
    USE ARBOR PRESS.

NOTE
Step 58 should be done only if intermediate gear or upper inner race was replaced.

    USE ARBOR PRESS.

NOTE
Step 59 should be done only if intermediate gear or odometer drive was replaced.

59. INSTALL ODOMETER DRIVE (6) IN INTERMEDIATE GEAR (4).
   a. Place intermediate gear (4) on workbench with housing side down.
   b. Tap odometer drive (6) into intermediate gear (4) until seated.
NOTE
Step 60 should be done only if output gear, or one or both inner races were replaced.

60. INSTALL INNER RACE(S) (7) ON OUTPUT GEAR (8). See TM 9-214. USE ARBOR PRESS.

NOTE
Steps 61 thru 65 should be done only if output, intermediate, and input bearings were removed from housing cover in step 34.

Gaskets and lock screws used in steps 61 and 62 are from steps 25 and 23. New gaskets and lock screws will be installed in steps 75 and 77.

61. INSTALL INTERMEDIATE COVER (9) ON HOUSING COVER (10).
   a. Install gasket (11) and intermediate cover (9) on housing cover (10) with eight washers (12) and lock screws (13).
   b. TORQUE EIGHT LOCK SCREWS (13) TO 36-40 FT-LB (5-6 MKG). USE 1/2 INCH DRIVE TORQUE WRENCH.
62. INSTALL INPUT COVER (1) ON HOUSING COVER (2).
   a. Install gasket (3) and input cover (1) on housing cover (2) with eight washers (4) and lock screws (5).
   b. TORQUE EIGHT LOCK SCREWS (5) TO 36-40 FT-LB (5-6 MKG). USE 1/2 INCH DRIVE TORQUE WRENCH.

63. INSTALL OUTPUT, INTERMEDIATE, AND INPUT BEARINGS (6, 7, 8) IN HOUSING COVER (2). USE HEATPROOF MITTENS.
   a. Preheat oven to 250 degrees.
   b. Place housing cover (2) in oven for 30 minutes. Have helper assist.
   c. Remove housing cover (2) from oven. Place on workbench with outer side down. Have helper assist.
   d. Install output, intermediate, and input bearings (6, 7, 8) in housing cover (2) until seated.

64. REMOVE INPUT COVER (1) FROM HOUSING COVER (2).
   a. Remove eight lock screws (5), washers (4), input cover (1), and gasket (3) from housing cover (2). Discard lock screws and gasket.
65. REMOVE INTERMEDIATE COVER (9) FROM HOUSING COVER (2).

a. Remove eight lock screws (10), washers (11), intermediate cover (9), and gasket (12) from housing cover (2). Discard lock screws and gasket.

NOTE
Stop 66 and 67 should be done only if bearings for output, intermediate, and input gears were removed from housing in step 35.

66. INSTALL RETAINING RING (13) IN HOUSING (14).

WARNING
Hot parts can burn you. Wear heatproof mittens when doing this step.

67. INSTALL OUTPUT, INTERMEDIATE, AND INPUT BEARINGS (15, 16, 17) IN HOUSING (14). USE HEATPROOF MITTENS.

a. Preheat oven to 250 degrees.
b. Place housing (14) in oven for 30 minutes. Have helper assist.
c. Remove housing (14) from oven. Place on workbench with inner side up. Have helper assist.
d. Install output, intermediate, and input bearings (15, 16, 17) in housing (14) until seated.

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68. INSTALL NEW SEAL (1) IN INPUT COVER (2).
   a. Place input cover (2) on arbor press with outer side up.
   b. Apply sealing compound to outer edge of seal (1).
   c. Press seal (1) with spring side down in input cover (2).
   d. Remove input cover (2) from arbor press.

69. INSTALL INPUT GEAR (3) IN HOUSING (4).
   a. Turn housing (4) so that inner side is up. Block as necessary. Have helper assist.
   b. Install input gear (3) in housing (4).

70. INSTALL INTERMEDIATE GEAR (5) IN HOUSING (4).

71. INSTALL DAM (6) ON HOUSING (4).
   a. Apply lube oil to five new lock screws (7).
   b. Install dam (6) on housing (4) with five washers (8) and lock screws (7).
   c. TORQUE FIVE LOCK SCREWS (7) TO 132-134 IN-LB (152-166 CMKG). USE 3/8 INCH DRIVE TORQUE WRENCH AND 1/2 INCH SOCKET.
72. INSTALL OUTPUT GEAR (9) IN HOUSING (4). HAVE HELPER ASSIST.

73. INSTALL NEW GASKET (10) ON HOUSING (4).

74. INSTALL HOUSING COVER (11) ON HOUSING (4).
   a. Install housing cover (11) on housing (4) with 25 washers (12) and screws (13). Have helper assist.
   b. TORQUE 25 SCREWS (13) TO 24-28 FT-LB (3-4 MKG). USE 1/2 INCH DRIVE TORQUE WRENCH.
75. INSTALL INTERMEDIATE COVER (1) ON HOUSING COVER (2).
   a. Apply lube oil to eight new lock screws (3).
   b. Install new gasket (4) and intermediate cover (1) on housing cover (2) with eight washers (5) and lock screws (3).
   c. TORQUE EIGHT LOCK SCREWS (3) TO 36-40 FT-LB (5-6 MKG). USE 1/2 INCH DRIVE TORQUE WRENCH.

76. INSTALL COVER (6) ON INTERMEDIATE COVER (1).
   a. Apply lube oil to new gasket (7).
   b. Apply lube oil to four screws (8).
   c. Install gasket (7) and cover (6) on intermediate cover (1) with four new key washers (9) and screws (8).
   d. TORQUE FOUR SCREWS (8) TO 73 IN-LB (84-91 CMKG). USE 3/8 INCH DRIVE TORQUE WRENCH AND 7/16 INCH SOCKET.
   e. Bend tabs of each key washer (9) to secure each screw (8).
77. INSTALL INPUT COVER (10) ON HOUSING COVER (2).
   a. Apply sealing compound to threads of eight new lock screws (11).
   b. Apply lube oil to inner edge of seal (12) of input cover (10).
   c. Install new gasket (13) and input cover (10) on housing cover (2) with eight washers (14) and lock screws (11).
   d. TORQUE EIGHT LOCK SCREWS (11) TO 36-40 FT-LB (5-6 MKG). USE 1/2 INCH DRIVE TORQUE WRENCH.

NOTE
Step 78 should be done only if oil dam was removed from output shaft in step 20.

78. INSTALL OIL DAM (15) ON OUTPUT SHAFT (16).
   a. Place output shaft (16) on arbor press with shaft end up. Have helper assist.
   b. Press oil dam (15) into output shaft (16).
   c. Remove output shaft (16) from arbor press. Have helper assist.
NOTE
Step 79 should be done only if plug was removed from output shaft in step 22.

79. INSTALL PLUG (1) ON OUTPUT SHAFT (2).
   a. Place output shaft (2) on arbor press with shaft end down. Have helper assist.
   b. Apply sealing compound to outer edge of plug (1).
   c. Press plug (1) on output shaft (2).
   d. Remove output shaft (2) from arbor press. Have helper assist.

80. INSTALL OUTPUT SHAFT (2) ON SUPPORT (3).
   a. Position output shaft (2) on support (3). Have helper assist.
   b. Tighten two screws (4) on support (3). Use combination wrench.
81. INSTALL TWO NEW PREFORMED PACKINGS (5) ON TWO SEAL ADAPTERS (6).
   a. Apply lube oil to two preformed packings (5).
   b. Install two preformed packings (5) on two seal adapters (6).

82. INSTALL ONE SEAL ADAPTER (6) ON OUTPUT SHAFT (2).
   a. Place seal adapter (6) on output shaft (2) with screw holes up.
   b. Tap seal adapter (6) on output shaft (2) until properly seated.

83. INSTALL ONE SEAL ASSEMBLY (7) ON OUTPUT SHAFT (2).
   a. Apply lube oil to preformed packing (8) of seal assembly (7).
   b. Install seal assembly (7) on output shaft (2). Use seal installation tool.

NOTE
Replacements for two seal assemblies removed in steps 10 and 14 come as a set.
84. INSTALL SECOND SEAL ADAPTER (1) IN RETAINER (2).
   a. Place retainer (2) on workbench with outer side up.
   b. Install seal adapter (1) in retainer (2).

85. INSTALL SECOND SEAL ASSEMBLY (3) IN RETAINER (2). USE SEAL INSTALLATION TOOL.
   a. Apply lube oil to preformed packing (4) of seal assembly (3).
   b. Install seal assembly (3) in retainer (2). Use seal installation tool.

86. INSTALL RETAINER (2) ON OUTPUT SHAFT (5).
   a. Apply lube oil to metal face of seal assembly (3) in retainer (2).
   b. Install retainer (2) on output shaft (5).

87. INSTALL BEARING (6) ON OUTPUT SHAFT (5).
   a. Apply grease to inner race of bearing (6).
   b. Install bearing (6) on output shaft (5).

NOTE
Inner race of bearing is tapered. Bearing must be installed with smaller and of inner race down.
88. INSTALL BUSHING (7) ON OUTPUT SHAFT (5).
   a. Apply grease to inner surface of bushing (7).
   b. Position bushing (7) on output shaft (5) with marks aligned.
   c. Tap bushing (7) on output shaft (5) until seated.

89. INSTALL NEW KEY WASHER (8) AND RETAINING NUT (9) ON OUTPUT SHAFT (5).
   a. Apply grease to threads of retaining nut (9).
   b. Install key washer (8) and retaining nut (9) on output shaft (5). Tighten retaining nut finger tight.

90. SEAT BEARING (6) ON OUTPUT SHAFT (5).
   a. Rotate bearing (6) one full turn.
   b. Tighten retaining nut (9) on output shaft (5) hand tight.
   c. Repeat substeps a and b above until it is not possible to tighten retaining nut (9) by hand.

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91. ADJUST TOLERANCE BETWEEN OUTER RACE (1) AND ROLLERS (2) ON BEARING (3).
   a. Evenly tap retaining nut (4) on output shaft (5).
   b. Tighten retaining nut (4) on output shaft (5). Use spanner wrench.
   c. Rotate bearing (3) one full turn.

92. MEASURE TOLERANCE BETWEEN OUTER RACE (1) AND ROLLERS (2) ON BEARING (3).
   a. Take four measurements, 90 degrees apart, between rollers (2) and outer race (1) of bearing (3).
   b. If tolerance is not between .004 inch (.1016 mm) and .0049 inch (.1245 mm), go to step 91.
   c. If tolerance is between .004 inch (.1016 mm) and .0049 inch (.1245 mm), bend tab of key washer (6) to secure retaining nut (4).
93. INSTALL NEW PREFORMED PACKING (7) ON RETAINER (8).
   a. Apply grease to preformed packing (7).
   b. Install preformed packing (7) on retainer (8).

94. REMOVE OUTPUT SHAFT (5) FROM SUPPORT (9).
   a. Loosen two screws (10) on support (9).
      Use combination wrench.
   b. Remove output shaft (5) from support (9). Have helper assist.

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95. INSTALL OUTPUT SHAFT (1) IN FINAL DRIVE.
   a. Turn final drive with housing (2) up. Block as necessary. Have helper assist.
   b. Position output shaft (1) in final drive with splines alined. Have helper assist.
   c. Rotate flange (3) until cutouts (4) are alined with screw holes.
   d. Install two washers (5) and screws (6) on retainer (7). Tighten screws finger tight.
   e. Repeat substeps c and d above until all eight washers (5) and screws (6) are installed.

96. TORQUE EIGHT SCREWS (6) TO 36-40 FT-LB (5-6 MKG). USE 1/2 INCH DRIVE TORQUE WRENCH.

97. INSTALL TWO DRAIN PLUGS (8) IN HOUSING (2). USE SOCKET KEY.

98. LUBRICATE FINAL DRIVE.
   a. Place final drive on side. Have helper assist.
   b. Fill final drive with three quarts of lube oil.
   c. Rotate output shaft to lubricate gears and bearings.
99. DRAIN OIL FROM FINAL DRIVE.
   a. Remove two drain plugs (8) from housing (2). Use socket key.
   b. Tip housing (2) so that lube oil will drain into suitable container. Have helper assist.

100. INSTALL TWO DRAIN PLUGS (8) ON HOUSING (2).
   a. Position final drive with housing (2) down. Block as necessary. Have helper assist.
   b. Apply antiselize compound to threads of two drain plugs (8).
   c. Install two drain plugs (8) in housing (2). Use socket key.

END OF TASK
APPENDIX A
REFERENCES

SCOPE

This appendix lists all forms, field manuals, technical manuals and miscellaneous publications referenced in this manual.

FORMS

See TM 38-750 for current maintenance forms and records.

LUBRICATION

Lubrication Order for Fighting Vehicle, Infantry, M2 (2350-01-048-5920) and Fighting Vehicle, Cavalry, M3 (2350-01-049-2695)...

FIELD MANUALS

First Aid for Soldiers ........................................ FM 21-11
Fundamentals of Machine Tools .................................. FM 9-24
General Repair of Paints, Canvas, and Webbing ................. FM 10-16

TECHNICAL MANUALS

Administrative Storage of Equipment ................................ TM 740-90-1
Cooling Systems: Tactical Vehicles ....................................... TM 750-254
Direct and General Support Maintenance Manual for
Engine, Diesel: Liquid Cooled V-type, Eight
Cylinder Turbocharged, VTA-903T, (8750013) .......................... TM 9-2815-219-34
Direct and General Support Maintenance Manual for
Fighting Vehicle, Infantry, M2 (2350-01-048-5920)
and Fighting Vehicle, Cavalry, M3 (2350-01-049-2695), Turret .............. TM 9-2350-252-34-2
Direct and General Support Maintenance Manual
(Including Repair Parts and Special Tools List)
for Starter, Engine, Electrical (Leece-Neville
Model M0017071MB) (2920-00-267-9987) .................................. TM 9-2520-243-34
Direct and General Support Maintenance Manual
for Transmission Assembly HMPT-500 ........................................ TM 9-2520-270-34
Direct and General Support Maintenance Repair
Parts and Special Tools List for Fighting
Vehicle, Infantry, M2 (2350-01-048-5920) and
Fighting Vehicle, Cavalry, M3 (2350-01-049-2695), Hull .................. TM 9-2350-252-34P-1
Inspection, Care, and Maintenance of Antifriction Bearings ............... TM 9-214
Materials Used for Cleaning, Preserving, Abrading,
and Cementing Ordnance Materiel and Related Materials
Including Chemicals .......................................................... TM 9-247
TECHNICAL MANUALS (cont)

Operator's Manual for Fighting Vehicle, Infantry, M2 (2350-01-048-5920) and Fighting Vehicle, Cavalry, M3 (2350-01-049-2895), Hull .................................................. TM 9-2350-252-10-1


Organizational Maintenance for Fighting Vehicle, Infantry, M2 (2350-01-048-5920) and Fighting Vehicle, Cavalry, M3 (2350-01-049-2895), Hull .................................................. TM 9-2350-252-20-1

Procedures for Destruction of Conventional Ammunitions and Improved Conventional Munitions to Prevent Enemy Use .................................................. TM 750-244-5-1

Procedures for Destruction of Electronics Materiel to Prevent Enemy Use .................................................. TM 750-244-2

Procedures for Destruction of Equipment in Federal Supply Classifications 1000, 1005, 1010, 1520, 2530, 5590, 5595 to Prevent Enemy Use .................................................. TM 750-244-7

Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use .................................................. TM 750-244-8

Storage Batteries, Lead-Acid Type .................................................. TM 9-6140-200-14

The Army Maintenance Management System (TAMMS) .................................................. TM 38-750

Theory and Application of Welding .................................................. TM 9-237

Transportability Guidance, Fighting Vehicle, Infantry, M2 (2350-01-048-5920) and Fighting Vehicle, Cavalry, M3 (2350-01-049-2895) .................................................. TM 55-2350-252-14

MISCELLANEOUS PUBLICATIONS

Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items) .................................................. CTA 50-970
APPENDIX B
EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

SCOPE

This appendix lists expendable supplies and materials you will need to maintain the hull of the IFV and CFV. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

EXPLANATION OF COLUMNS

a. Column 1 — Item Number. This number is assigned to the entry in the listing and is referenced in the Materials/Parts section of the task to identify the material (e.g., “Automotive grease (Item 18, App. B”).

b. Column 2 — Level. This column identifies the lowest level of maintenance that requires the listed item.

   O — Organizational Maintenance
   F — Direct Support Maintenance
   H — General Support Maintenance

c. Column 3 — National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.

d. Column 4 — Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parentheses followed by the part number.

e. Column 5 — Unit of Measure (U/M). Indicates the measured used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.
## Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST

### EXPENDABLE SUPPLIES AND MATERIALS LIST

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## EXPENDABLE SUPPLIES AND MATERIALS LIST (cont)

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<td>(81346) SN53WRMAP3 0.032</td>
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APPENDIX C

ILLUSTRATED LIST OF MANUFACTURED ITEMS

Section I. INTRODUCTION

This appendix tells you how to make items authorized to be manufactured or fabricated at direct and general support maintenance.

All bulk materials needed for manufacture of an item are listed. A part number or specification number may be given.

Section II. INDEX OF MANUFACTURED ITEMS

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>NAME</th>
<th>PAGE NUMBER</th>
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<tbody>
<tr>
<td>1</td>
<td>Wooden Block (8 x 12 x 24 inches)</td>
<td>C-2</td>
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<tr>
<td>2</td>
<td>Wooden Block Assembly</td>
<td>C-2</td>
</tr>
<tr>
<td>3</td>
<td>Jack Screw</td>
<td>C-3</td>
</tr>
<tr>
<td>4</td>
<td>Wooden block (2 x 4 x 12 inches)</td>
<td>C-3</td>
</tr>
<tr>
<td>5</td>
<td>Wooden block (4 x 2 x 72 inches)</td>
<td>C-4</td>
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<tr>
<td>6</td>
<td>Wooden Block (8 x 16 x 30 inches)</td>
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</tr>
<tr>
<td>7</td>
<td>Oil Reservoir</td>
<td>C-5</td>
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</table>
Section III. ILLUSTRATIONS OF MANUFACTURED ITEMS

Item 1 — Wooden Block (8 x 12 x 24 inches)

Materials:
1. Wood block

Notes:
1. Fabricate from wood.
2. All dimensions are in inches.

Item 2 — Wooden Block Assembly

Materials:
1. Wood blocks

Notes:
1. Fabricate from wood.
2. a. 2 blocks — 3 x 3 x 8
   b. 1 block — 4 x 8 x 30
   c. 1 block — 8 x 8 x 30
3. Blocks are toe-nailed together as shown.
Materials:
1. Screw (MS90725-78)

Notes:
1. Fabricate from screw (MS90725-78).
2. Use thread cutting die 3/8-16NC to provide threads up to screwhead.

Item 3 — Jack Screw

Materials:
1. Wood block

Notes:
1. Fabricate from wood.
2. All dimensions are in inches.

Item 4 — Wooden Block (2 x 4 x 12 inches)
Item 5 — Wooden Block (4 x 2 x 72 inches)

Materials:
1. Wood block

Notes:
1. Fabricate from wood.
2. All dimensions are in inches.

Item 6 — Wooden Block (8 x 16 x 30 inches)

Materials
1. Wood block

Notes:
1. Fabricate from wood.
2. All dimensions are in inches.
Materials:
1. Steel, tin, or aluminum

Notes:
1. Fabricate from steel, tin or aluminum.
2. Weld all joints. See TM 9-237.
3. All dimensions are in inches.

Item 7 — Oil Reservoir
APPENDIX D

GUIDE FOR TASK: REPAIR SCREW THREAD INSERTS

Section I. INTRODUCTION

This appendix shows the location and size of screw thread inserts used with the task: REPAIR SCREW THREAD INSERTS, page 4-3. Each of the tasks in this appendix list part numbers, tool sizes, and working dimensions.

Section II. INDEX OF INSERT REPAIR TASKS

<table>
<thead>
<tr>
<th>Name</th>
<th>Page No.</th>
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<tbody>
<tr>
<td>Repair Dual Support Roller Inserts</td>
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<tr>
<td>Repair Engine Access Cover Inserts</td>
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<tr>
<td>Repair Engine Access Door Inserts</td>
<td>D-4</td>
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<tr>
<td>Repair Ramp Access Door Inserts</td>
<td>D-5</td>
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<tr>
<td>Repair Ramp Assembly Inserts</td>
<td>D-6</td>
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<tr>
<td>Repair Steering System Inserts</td>
<td>D-7</td>
</tr>
<tr>
<td>Repair Vaneaxial Stator Inserts</td>
<td>D-8</td>
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</table>
Section III. INSERT REPAIR TASK

REPAIR DUAL SUPPORT ROLLER INSERTS

DESCRIPTION

This task gives the location and size of inserts (1) used with dual support rollers. Part numbers, tool sizes, and working dimensions are given below. For procedures to remove and install inserts, see task: REPAIR SCREW THREAD INSERTS, page 4-3.

<table>
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<th>PART #</th>
<th>QUANTITY</th>
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Drill bit, 29/32 inch - 5133-00-228-1321
REPAIR ENGINE ACCESS COVER INSERTS

DESCRIPTION

This task gives the location and size of inserts (1) used with the engine access cover. Part numbers, tool sizes, and working dimensions are given below. For procedures to remove and install inserts, see task: REPAIR SCREW THREAD INSERTS, page 4-3.

<table>
<thead>
<tr>
<th>PART #</th>
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<th>TOOL SIZES</th>
<th>DEPTH (INCHES)</th>
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</table>
REPAIR ENGINE ACCESS DOOR INSERTS

DESCRIPTION

This task gives the location and size of inserts (1) used with the engine access door. Part numbers, tool sizes, and working dimensions are given below. For procedures to remove and install inserts, see task: REPAIR SCREW THREAD INSERTS, page 4-3.

<table>
<thead>
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<th>PART #</th>
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<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
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<tr>
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<td>3/4</td>
<td>5/8</td>
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REPAIR RAMP ACCESS DOOR INSERTS

DESCRIPTION

This task gives the location and size of inserts (1) used with the ramp access door. Part numbers, tool sizes, and working dimensions are given below. For procedures to remove and install inserts, see task: REPAIR SCREW THREAD INSERTS, page 4-3.

<table>
<thead>
<tr>
<th>PART #</th>
<th>QUANTITY</th>
<th>DRILL BIT SIZES (inches)</th>
<th>TOOL SIZES</th>
<th>DEPTH (INCHES)</th>
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REPAIR RAMP ASSEMBLY INSERTS

DESCRIPTION

This task gives the location and size of inserts (1) used with the ramp assembly. Part numbers, tool sizes, and working dimensions are given below. For procedures to remove and install inserts, see task: REPAIR SCREW THREAD INSERTS, page 4-3.

<table>
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<th>PART</th>
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<th>TOOL SIZES</th>
<th>DEPTH (INCHES)</th>
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REPAIR STEERING SYSTEM INSERTS

DESCRIPTION

This task gives the location and size of inserts (1) used with the steering system. Part numbers, tool sizes, and working dimensions are given below. For procedures to remove and install inserts, see task: REPAIR SCREW THREAD INSERTS, page 4-3.

<table>
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<th>DEPTH (INCHES)</th>
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<td>A</td>
<td>B</td>
<td>C</td>
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REPAIR VANEAXIAL STATOR INSERTS

DESCRIPTION

This task gives the location and size of inserts (1) used with the vaneaxial stator. Part numbers, tool sizes, and working dimensions are given below. For procedures to remove and install inserts, see task: REPAIR SCREW THREAD INSERTS, page 4-3.

<table>
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<tr>
<th>PART #</th>
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<td>CR08W R108D .820 .172 .096</td>
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APPENDIX E

PIN AND SOCKET ARRANGEMENTS FOR PLUGS AND JACKS

Section I. Introduction

SCOPE

This appendix is to be used as support in performing troubleshooting and maintenance tasks involving plugs and jacks utilized in the hull of the IFV and CFV. Section II contains an index of the plugs and jacks and the name of their corresponding diagrams in this appendix. Section III contains the diagrams of the pin arrangements and the socket arrangements for the plugs and jacks.

EXPLANATION OF SECTION II

Section II contains the Index of Plugs and Jacks. The first column of the index is a listing of the plugs and jacks in alphabetical sequence by the name indicated in the troubleshooting or maintenance task. Plugs and jacks that are indicated by numbers are listed in numerical sequence after the alphabetical listings. The second column of the index indicates the diagram name corresponding to each listing.

EXPLANATION OF SECTION III

Section III contains the diagrams of the pin and socket arrangements for the plugs and jacks. On the left side of the page is a diagram of the pin arrangement of a plug or jack. To the left of each pin arrangement diagram is a list of the plugs and jacks in the hull which have that pin arrangement. On the right side of the page is a diagram of the socket arrangement of a plug or a jack. To the right of each socket arrangement diagram is a list of the plugs and jacks in the hull which have that socket arrangement.
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Section III. Diagrams of Pin and Socket Arrangement for Plugs and Jacks

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Plug 1

Jack 1

CX 7060/VCR to Intercom

Distribution Box 1A1, J12

Plug 2

Jack 2

1W13, P1

Distribution Box 1A1, J9

Plug 3

Jack 3

TMDE DCA 13

STE-M1/FVS DCA 3

Distribution Box 1A1, J14

Distribution Box 1A1, J15

Plug 4

Jack 4

Fire Suppression Control 1A39, J2

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**HULL**

- **Coolant Temp XDCR**
  3A1MT6, J1
- **Eng Oil Press XDCR**
  3A1MT7, J1
- **Eng Oil Temp XDCR**
  3A1MT8, J1
- **Fuel Rail Press XDCR**
  3A1MT9,
- **Turbo Outlet Press**
  XDCR 3A1MT10, J1
- **Trans Oil High Temp**
  XDCR 3A2MT2, J1
- **Trans Oil Low Press**
  XDCR 3A2MT3, J1
- **Start Switch**
  3A1S1, J1
- **Air Cleaner Restricted**
  SW 3A1S4, J1
- **Fuel Filter Restricted**
  SW 3A1S3, J1
- **Generator 3A261, J1**
  1W18, P1

**Plug 21**

**Jack 21**

3W1, P3
3W1, P5
3W1, P8
3W1, P10
3W1, P11
3W1, P12
3W2, P4

**Plug 22**

**Jack 22**

1W7, P4
1W19, J1
1W19, J4

**Plug 23**

**Jack 23**

1W7, P5
3W1, P6

**Plug 24**

**Jack 24**

3W4, P1

Distribution Box 1A1, J6
HULL

Plug 29

1W20, J1

1W18, J18
1W18, J17
1W18, J15

Plug 30

1W9, P1 to Intercom

Plug 31

Fan Control Box
Lt. 1A15, J1

Fan Control Box
Rt. 1A16, J1

3W4, P2

Plug 32

Night Sight 1A36, J1

1W17, P10

Jack 29

Jack 31

1W18, P2
1W18, P10
3W2, J1

Jack 32

1W17, P10
HULL

Plug 33

3W1, P7
3W1, P1

Jack 33

Coolant
Hi Temp
SW 3A1, J1

Plug 34

1W17, P6 to Radiac

Coolant
Low Level Sender
3A1MT4, J1
GLOSSARY

Section I. ABBREVIATIONS

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<td>ac</td>
<td>alternating current</td>
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<td>amp</td>
<td>amperage/ampere</td>
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<td>appendix</td>
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<td>degrees Celsius</td>
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<td>Cavalry Fighting Vehicle</td>
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<td>cm</td>
<td>centimeter</td>
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<td>cmkg</td>
<td>centimeter kilogram</td>
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SW  switch
Sys  system
TM  technical manual
TOE  Table of Organization and Equipment
TOW  tube-launched, optically-tracked, wire-guided, antitank missile
V  volts
VDB  vehicle distribution box
vdc  volt direct current

Section II. UNUSUAL TERMS

abrasives:  harsh, rough
burs:  a rough area remaining on metal after it has been cast, cut, or drilled
coustic:  corrode or dissolve by chemical action
chase:  a groove cut
crocus:  a variety of iron oxide, used in the form of an abrasive powder for polishing
ferrous:  contains iron
hone:  sharpen, enlarge, smooth out
races:  a groovelike part in which a moving part slides or rolls
scoured:  grooved, scratched, notched
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**Pin-Point Where It Is: In This Space Tell What Is Wrong and What Should Be Done About It:**

**Step 8.** The bracket (7) is shown mounted on the turret. But the installation occurs in step 10. Please change illustration in step 8.

**Step 3.** Capt. 260 (5) has five wires, not four. Please fix illustration.

**Step 3.** The torque is shown as "66-68 FT-LB (66-68 MKG)." Correct one or the other.

**Step 4.** The shim called out as item 5 is a lock washer. Please change. The same part is called out correctly in step 8.

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## THE METRIC SYSTEM AND EQUIVALENTS

### LINEAR MEASURE
- 1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
- 1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
- 1 Kilometer = 1000 Meters = 0.621 Miles

### SQUARE MEASURE
- 1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
- 1 Metric Ton = 1000 Kilograms = 2.2 Long Tons
- 1 Sa Centimeter = 100 Sq Millimeters = 0.155 Sq Inches
- 1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
- 1 Sq Kilometer = 1,000,000 Sq Meters = 0.386 Sq Miles

### CUBIC MEASURE
- 1 Cu Centimeter = 1000 Cu Millimeters = 0.06 Cu Inches
- 1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

### WEIGHTS
- 1 Kilogram = 1000 Grams = 2.2 Lbs
- 1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

### LIQUID MEASURE
- 1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
- 1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

### TEMPERATURE
- $\frac{5}{9}(°F - 32) = °C$
- 212° Fahrenheit = 100° Celsius
- 90° Fahrenheit = 32.2° Celsius
- 32° Fahrenheit = 0° Celsius

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