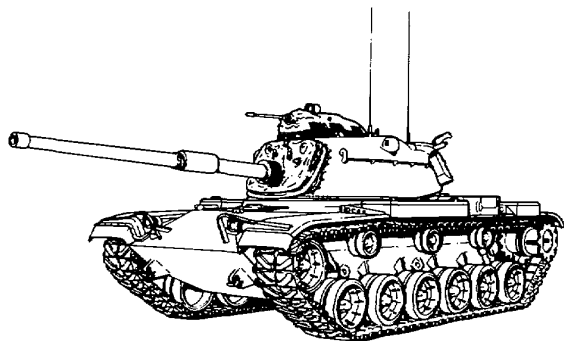


**TECHNICAL MANUAL****ORGANIZATIONAL MAINTENANCE  
VOLUME 3 OF 4  
CHAPTERS 10 THRU 15**

**TANK, COMBAT, FULL TRACKED  
105-MM GUN, M60  
2350-00-678-5773  
(HULL)**

<b>ELECTRICAL SYSTEM</b>	<b>10-1</b>
<b>TRANSMISSION AND SHIFTING MAINTENANCE</b>	<b>11-1</b>
<b>FINAL DRIVE AND UNIVERSAL JOINTS</b>	<b>12-1</b>
<b>BRAKE SYSTEM</b>	<b>13-1</b>
<b>TRACK AND SUSPENSION SYSTEM</b>	<b>14-1</b>
<b>STEERING SYSTEM</b>	<b>15-1</b>

**WARNING**

**The following summary list is adapted from the warnings within this volume. However, all warnings should be observed as noted in the text.**

Keep hands and feet from under final drive and from between hull and final drive to prevent injury in case final drive slips.

Safety block must be installed when replacing track support roller.

Cleaning agent specified is flammable. Use only in well ventilated areas. Keep away from flames, sparks, or heat. Do not smoke while using. Prevent contact with eyes, mouth, and/or skin. Wear rubber gloves when performing cleaning procedures.

CHANGE

NO. 2

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
Washington, D.C., 2 December 1987

Organizational Maintenance

Volume 3 of 4  
Chapters 10 thru 15

TANK, COMBAT, FULL-TRACKED:  
105-MM GUN, M60  
2350-00-678-5773  
(HULL)

TM 9-2350-260-20-1-3, 13 February 1981, is changed as follows:

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12-11 thru 12-14  
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Distribution:

To be distributed in accordance with DA Form 12-37, Unit Maintenance requirements for Tank, Combat Full-Tracked, 105-MM, M60.



CHANGE

NO. 1

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, D.C. 23 September 1985

**ORGANIZATIONAL MAINTENANCE MANUAL  
TANK, COMBAT, FULL-TRACKED: 105-MM GUN, M60  
NSN 2350-00-678-5773  
(HULL**

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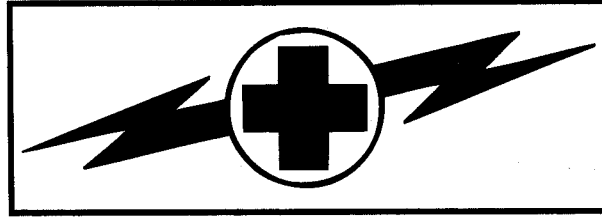
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Distribution:

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**WARNING**

**CARBON MONOXIDE POISONING CAN BE DEADLY**

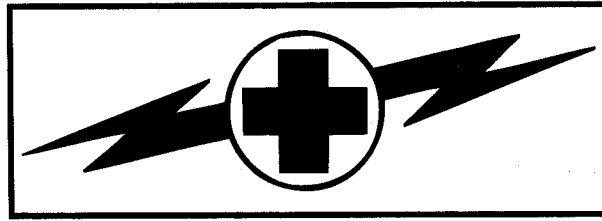
Carbon monoxide is a colorless, odorless, deadly poisonous gas, which when breathed deprives the body of oxygen and causes suffocation. Exposure to air contaminated with carbon monoxide produces symptoms of headache, dizziness, loss of muscular control, apparent drowsiness, and/or coma. Permanent brain damage or death can result from severe exposure. Carbon monoxide occurs in the exhaust fumes of fuel-burning heaters and internal-combustion engines and becomes dangerously concentrated under conditions of inadequate ventilation. The following precautions must be observed to make sure of the safety of personnel whenever the personnel heater, main or auxiliary engine of any tank is operated for maintenance purposes or tactical use.

1. **DO NOT** operate heater or engine of tank in an enclosed area unless the area is **ADEQUATELY VENTILATED**.
2. **DO NOT** idle engine for long periods without maintaining **ADEQUATE VENTILATION** in personnel compartment.
3. **DO NOT** drive any tank with inspection plates, cover plates, or engine compartment doors removed unless necessary for maintenance purposes.
4. **BE ALERT** at all times during tank operation for exhaust odors and exposure symptoms. If either are present, **IMMEDIATELY VENTILATE** personnel compartments. If symptoms persist, remove affected personnel from tank and treat as follows: expose to fresh air; keep warm; **DO NOT PERMIT PHYSICAL EXERCISE**.

**THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS ADEQUATE VENTILATION.**

For artificial respiration, refer to FM 21-11.

**WARNING**



**WARNING**

**HIGH VOLTAGE**

Used in the operation of this equipment

**DEATH ON CONTACT**

May result if personnel fail to observe safety precautions.

Never work on electronic equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment, and who is competent in administering first aid. When a technician is aided by operators, he must warn them about dangerous areas.

Whenever possible, the master battery switch and battery ground straps should be either turned off or disconnected before beginning work on the equipment.

Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through vital organs of the body.

Before you work around tracked vehicle, remove rings, bracelets, and wristwatches. These items may be caught on projections and cause injury, or may be shorted across an electrical circuit and cause severe burns and electrical shock.

For artificial respiration, refer to FM 21-11.

**ORGANIZATIONAL MAINTENANCE MANUAL  
TANK, COMBAT, FULL-TRACKED: 105-MM GUN, M60  
NSN 2350-00-678-5773  
(HULL)**

**REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS**

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual to: Commander, U.S. Army Tank Automotive Command, ATTN: AMSTA-MBC, Warren, Michigan 48397-5000. A reply will be furnished to you.

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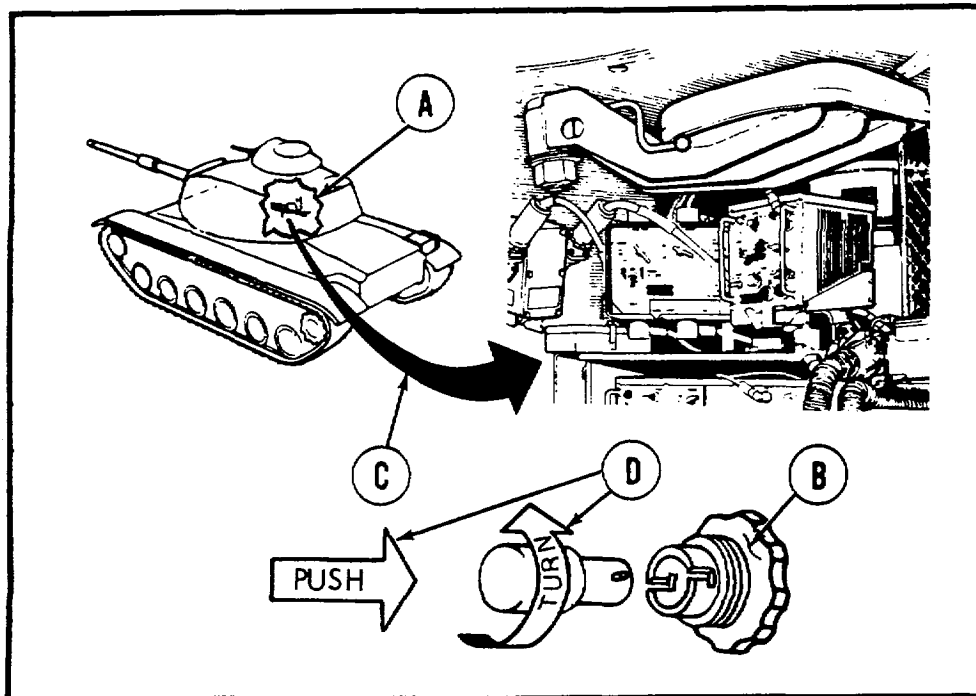
\*This manual, together with TM 9-2350-260-20-1-1, 13 February 1981; TM 9-2350-260-20-1-2, 13 February 1981; and TM 9-2350-260-20-14, 13 February 1981 supersedes so much of TM 9350-215-20, 23 February 1965, as pertains to M60 Tank.

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## HOW TO USE THIS MANUAL

- This manual is divided into chapters.
- Chapters are by functional group code and are presented in same order as the RPSTL (Repair Parts and Special Tools List).
- Procedure indexes are on procedures that are four pages or more, and indicate how the procedure is set up, i.e., disassembly, removal, cleaning and inspection, etc.
- All manual references refer to page numbers.
- Steps are numbered and are to be performed in that order.
- Be sure to read all NOTES, WARNINGS, and CAUTIONS.
- Locator views are included wherever necessary. These will help you locate the item for which the procedure is referencing.
- Jagged circle (☞) on locator (A) indicates a cutout and item is inside the tank.
- A (⌒) symbol represents the outside surface (B) of a piece of equipment that cannot be shown in its entirety.
- Callouts are shown by a circle with a letter inside.
- Locator arrows (C) are black and mechanical motion arrows (D) are white.
- Broken leader arrow (---➔) indicates the item is either inside or under the tank and cannot be seen.



TA146916

## HOW TO USE THIS MANUAL - Continued

- Certain sections of the manual have detailed 'how to use' instructions at the beginning of the section - for example, troubleshooting.
- A maintenance information index is located in back of this manual. It is set up in alphabetical order and maintenance function, for example, disassemble, clean, inspect, repair, remove, install, assemble, and test.
- An illustrated list of manufactured items, or better known as fabricated tools, is located in back of this manual. It is nothing more than direction on how to fabricate tools that are listed throughout the manual.



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**GENERATOR REPLACEMENT (Sheet 1 of 15)**

PROCEDURE INDEX

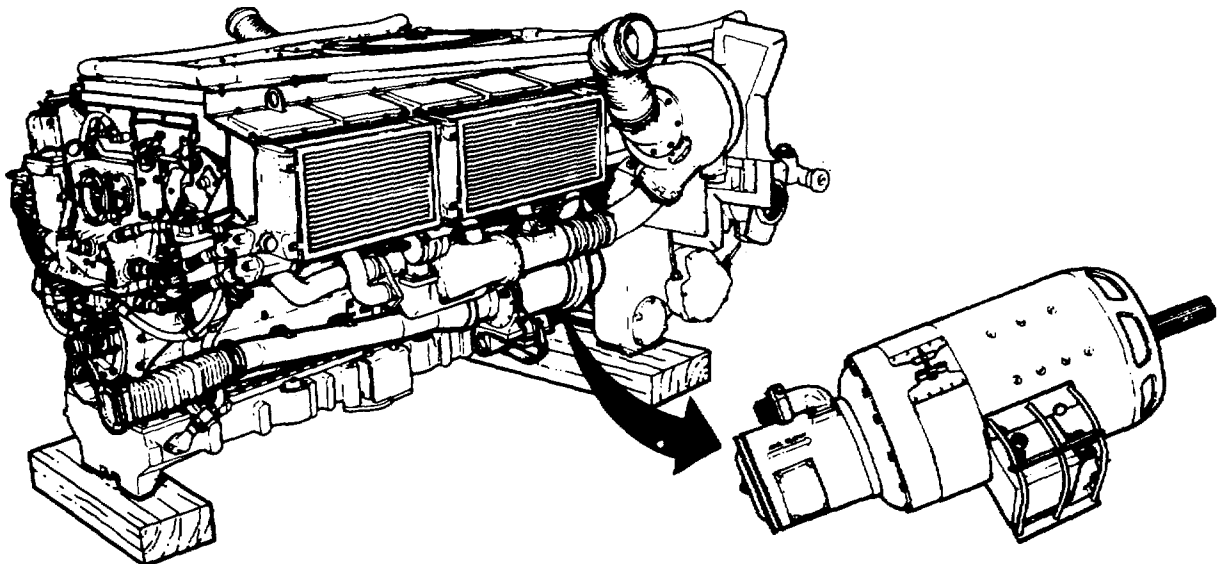
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**TOOLS:** Slip joint pliers  
 Flat-tip screwdriver  
 Hydraulic jack  
 3/8 in. combination box and open end wrench  
 1/2 in. combination box and open end wrench  
 9/16 in. combination box and open end wrench  
 9/16 in. half-moon box wrench  
 1-1/8 in. open end wrench  
 Diagonal cutting pliers  
 Putty knife

**SUPPLIES:** Drive adapter gasket (8666738)  
 Self-locking nuts (MS21044N6) (8 required)  
 Self-locking nuts (503354) (2 required)  
 Self-locking nuts (MS20365-B1032A) (2 required)  
 Lockwire (Item 61, Appendix D)  
 Lockwasher (MS35338-48) (2 required)  
 Lockwasher (MS35335-41) (2 required)

**PERSONNEL:** Two

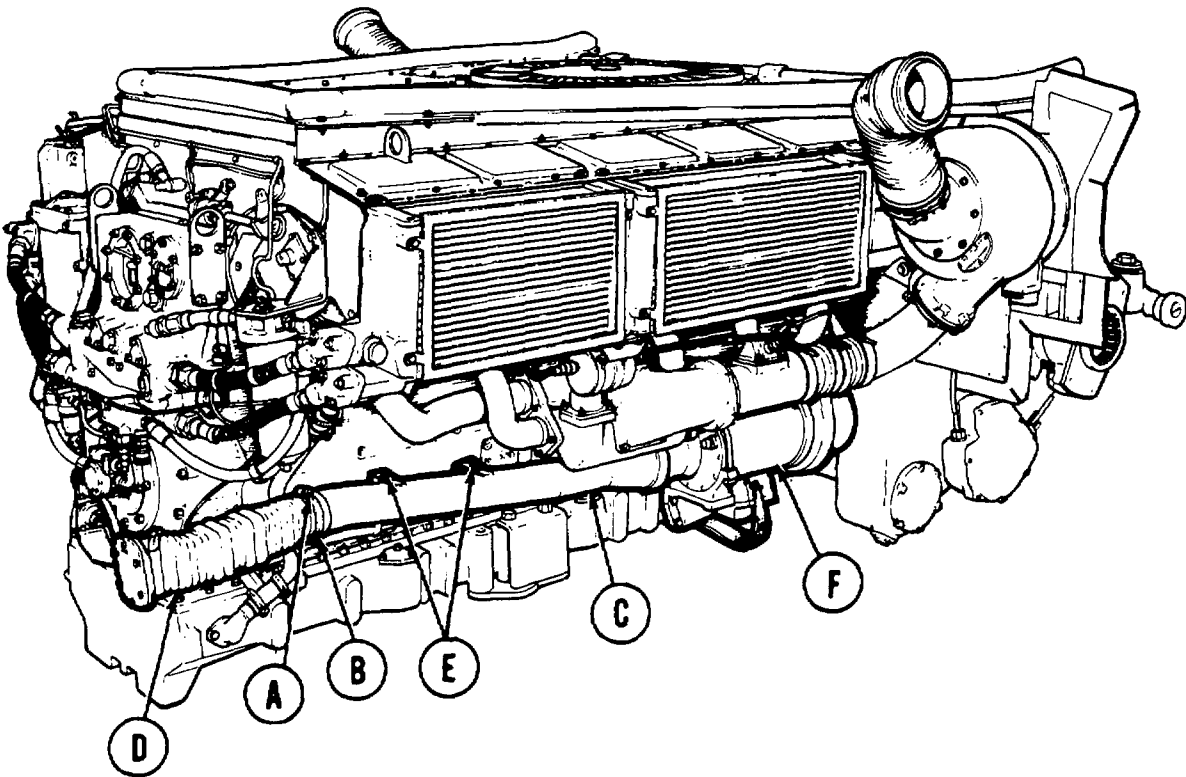
**PRELIMINARY PROCEDURE:** Remove powerplant (page 5-1)



Go on to Sheet 2

**GENERATOR REPLACEMENT (Sheet 2 of 15)****REMOVAL:**

1. Using screwdriver, loosen screw (A).
2. Slide clamp (B) onto generator duct (C).
3. Remove flexible connector (D) from generator duct (C).
4. Remove clamp (B).
5. Using 1/2 inch wrench, remove two screws, lockwashers, and flat washers (E) securing generator duct (C) to engine. Throw lockwashers away.
6. Remove generator duct (C) from generator (F).



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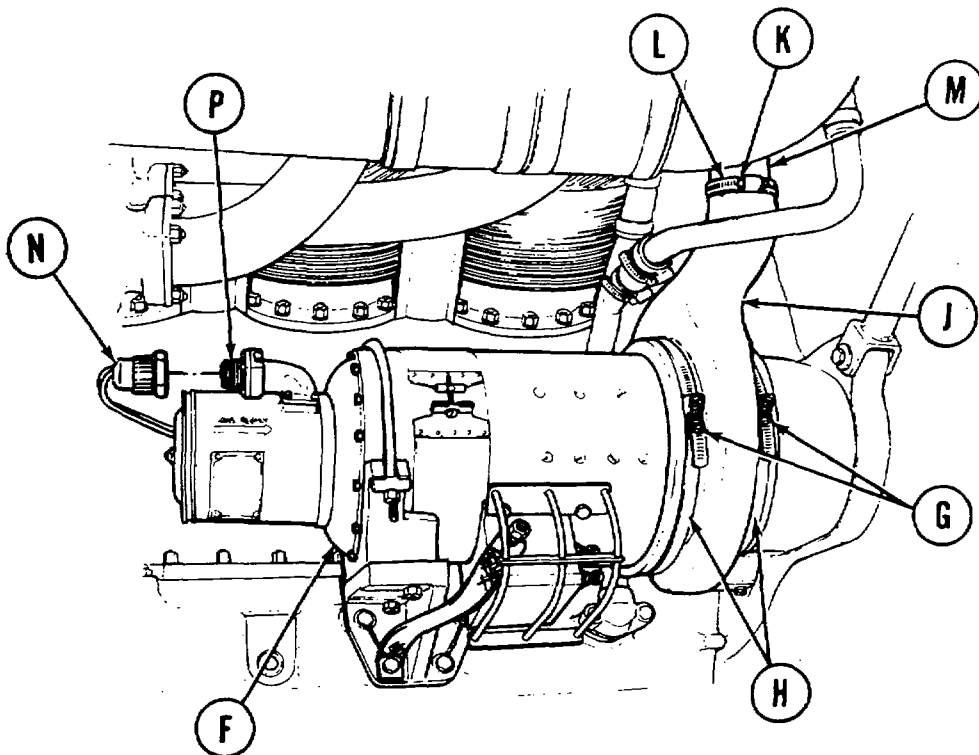


## GENERATOR REPLACEMENT (Sheet 3 of 15)

## NOTE

During the remainder of the removal procedure, the screws and clamps are all one piece. The screws are turned until the clamp comes apart.

7. Using screwdriver, turn two screws (G) removing clamps (H) securing flexible boot (J) to generator (F).
8. Using screwdriver, turn screw (K) removing clamp (L) from flexible boot (J).
9. Disconnect flexible boot (J) from exhaust tube (M).
10. Using 1-1/8 inch wrench, remove electrical connector (N) from generator connector (P).

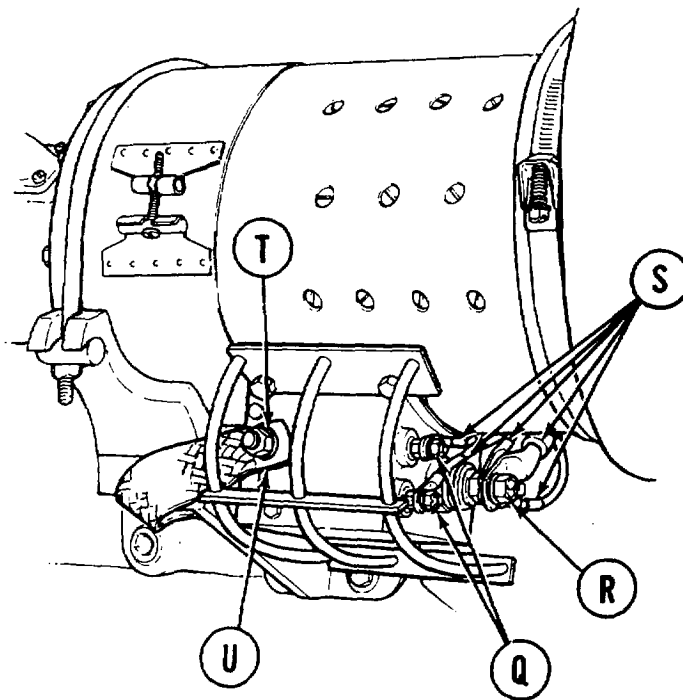


Go on to Sheet 4

TA147041

**GENERATOR REPLACEMENT (Sheet 4 of 15)**

11. Using 3/8 inch wrench, remove two self-locking nuts and washers (Q). Throw self-locking nuts away.
12. Using 9/16 inch wrench, remove self-locking nut and washer (R). Throw self-locking nut away.
13. Using fingers, remove five wires (S) and position aside.
14. Using 9/16 inch wrench, remove self-locking nut and washer (T). Throw self-locking nut away.
15. Remove ground strap and lockwasher (U). Throw lockwasher away.



Go on to Sheet 5

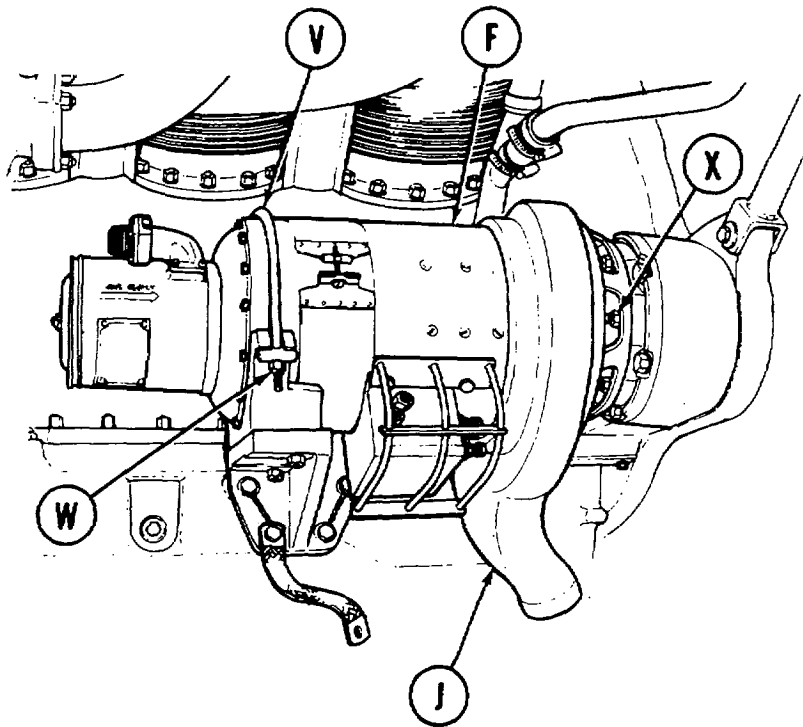
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## GENERATOR REPLACEMENT (Sheet 5 of 15)

## NOTE

When removing U-bolt (V) from generator, lift bar and rod out of cradle holder in front of generator. Lift U-bolt over top of generator and slide out of identical holder in back of generator.

16. Using 1/2 inch wrench, loosen self-locking nut (W).
17. Remove U-bolt (V) from generator (F).
18. Turn exhaust opening of flexible boot (J) down.
19. Pull flexible boot (J) onto generator (F).
20. Using 9/16 inch half-moon wrench, loosen six self-locking nuts (X).

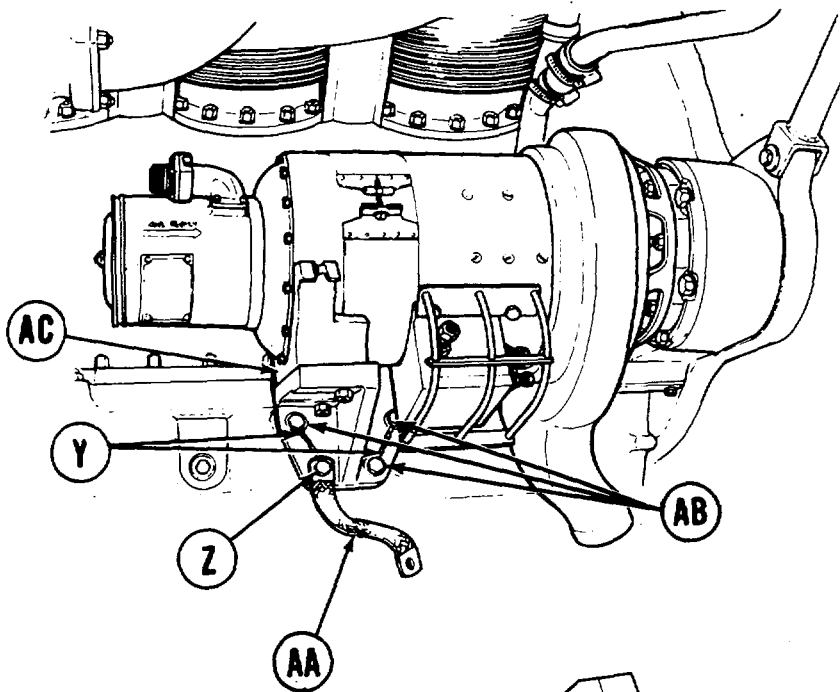


Go on to Sheet 6

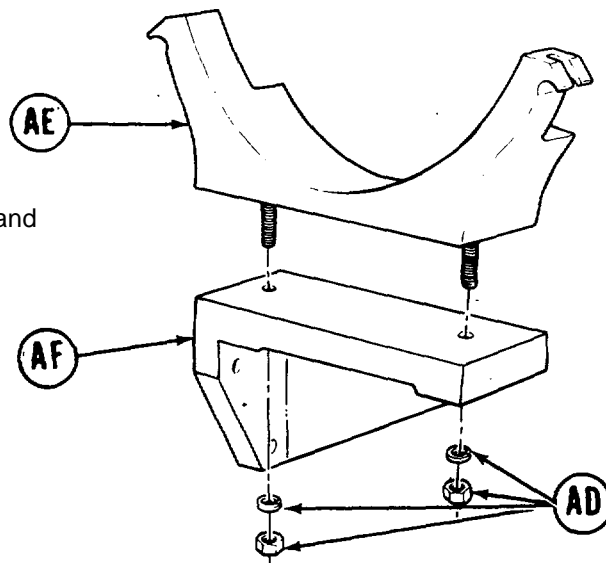
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**GENERATOR REPLACEMENT (Sheet 6 of 15)**

21. Using diagonal pliers, remove lockwires (Y).
22. Using 9/16 inch wrench, remove screw and flat washer (Z).
23. Remove ground strap and lockwasher (AA). Throw lockwasher away.
24. Using 9/16 inch wrench, remove three screws and flat washers (AB).
25. Remove cradle assembly (AC) from engine.



26. Using 9/16 inch wrench, remove two nuts and flat washers (AD).
27. Remove cradle (AE) from cradle bracket (AF).



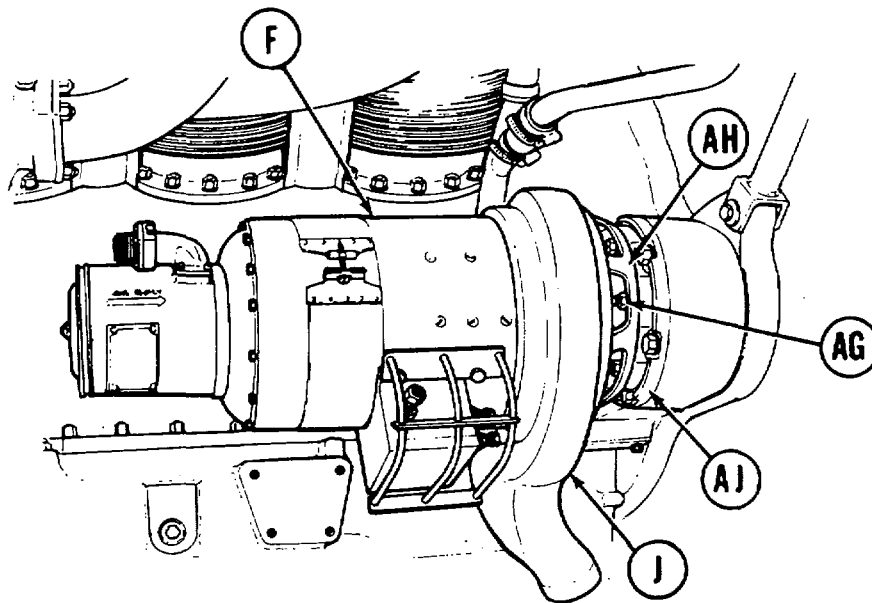
Go on to Sheet 7

## GENERATOR REPLACEMENT (Sheet 7 of 15)

**WARNING**

Generator weighs approximately 100 pounds; therefore, two persons are required to handle generator during removal. Care must be used to prevent damage to splined shaft and housing when removing generator.

28. Using hydraulic jack, support generator (F).
29. Rotate generator (F) counterclockwise (in direction of arrow) until self-locking nuts (AG) align with elongated holes in mounting flange (AH).
30. Slide generator (F) away from drive adapter (AJ) until drive shaft is disengaged.
31. Remove generator (F) and flexible boot (J) and place on work bench.

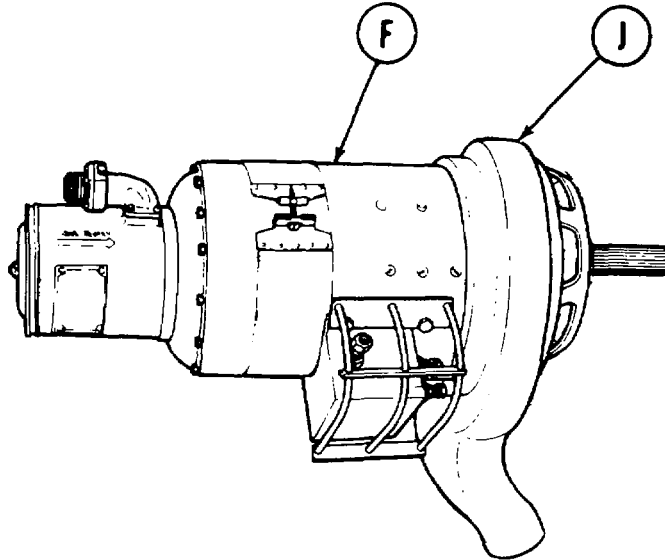


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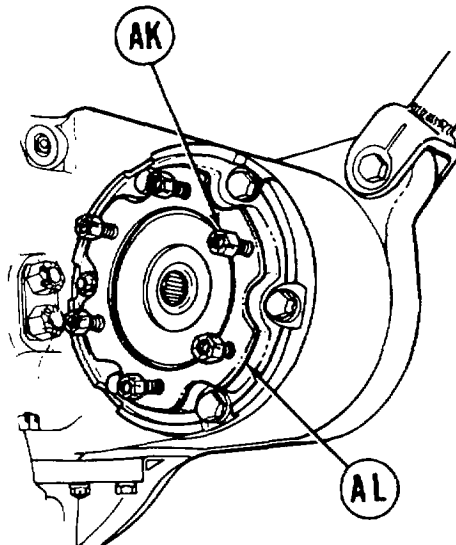
**GENERATOR REPLACEMENT (Sheet 8 of 15)**

32. Remove flexible boot (J) from generator (F).



33. Using 9/16 inch wrench, remove six self-locking nuts (AK). Throw self-locking nuts away.

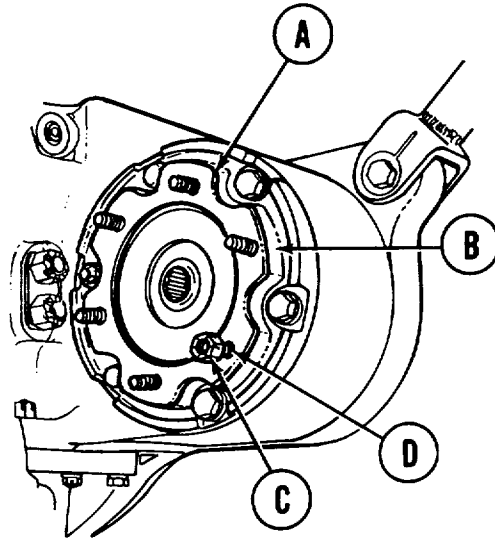
34. Using putty knife, remove gasket (AL). Throw gasket away.



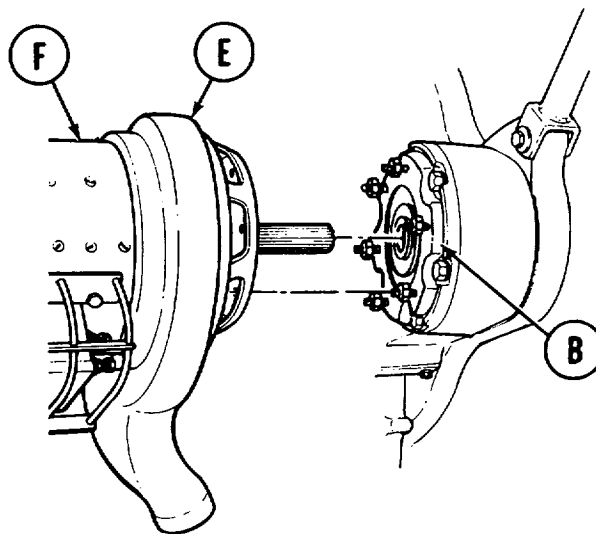
Go on to Sheet 9

**GENERATOR REPLACEMENT (Sheet 9 of 15)****INSTALLATION:**

1. Install new gasket (A) on drive adapter (B).
2. Using fingers, install six new self-locking nuts (C) on end of mounting studs (D).



3. Install flexible boot (E) on generator (F).
4. Using hydraulic jack, align generator (F) in position with drive adapter (B).

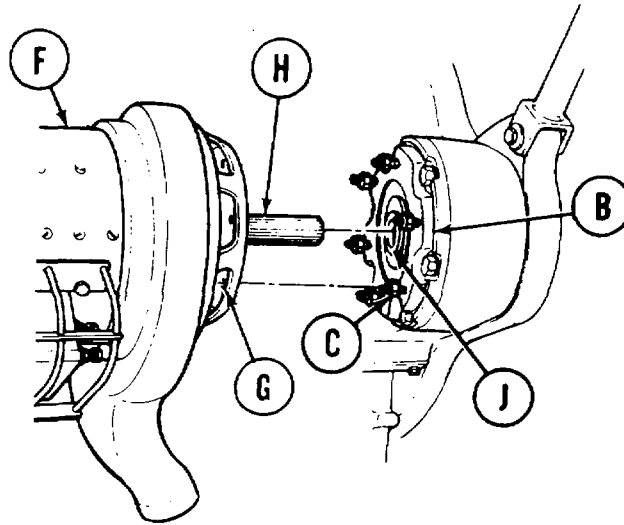


Go on to Sheet 10

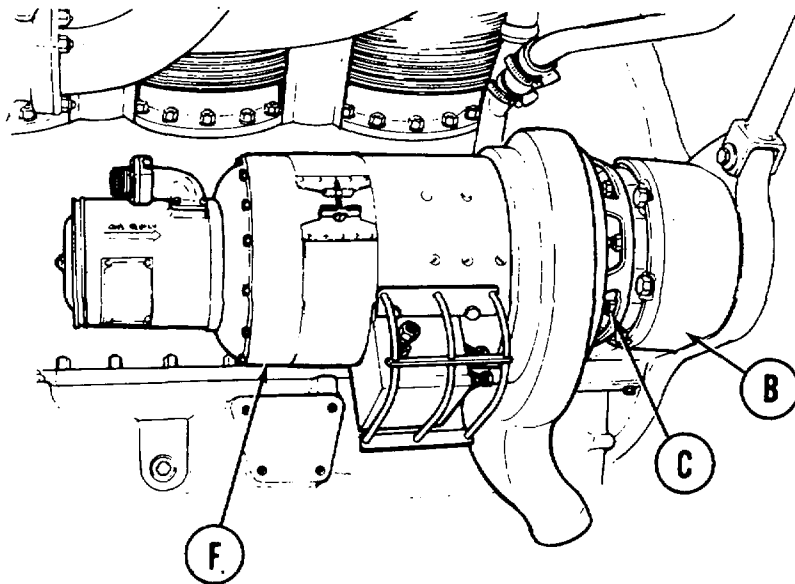
TA147047

**GENERATOR REPLACEMENT (Sheet 10 of 15)**

5. Aline mounting flange holes (G) with six self-locking nuts (C), and generator shaft splines (H) with drive adapter splines (J).
6. Push generator (F) onto drive adapter (B) and rotate generator (F) clockwise.



7. Using 9/16 inch half-moon wrench, tighten six self-locking nuts (C) securing generator (F) to drive adapter (B).



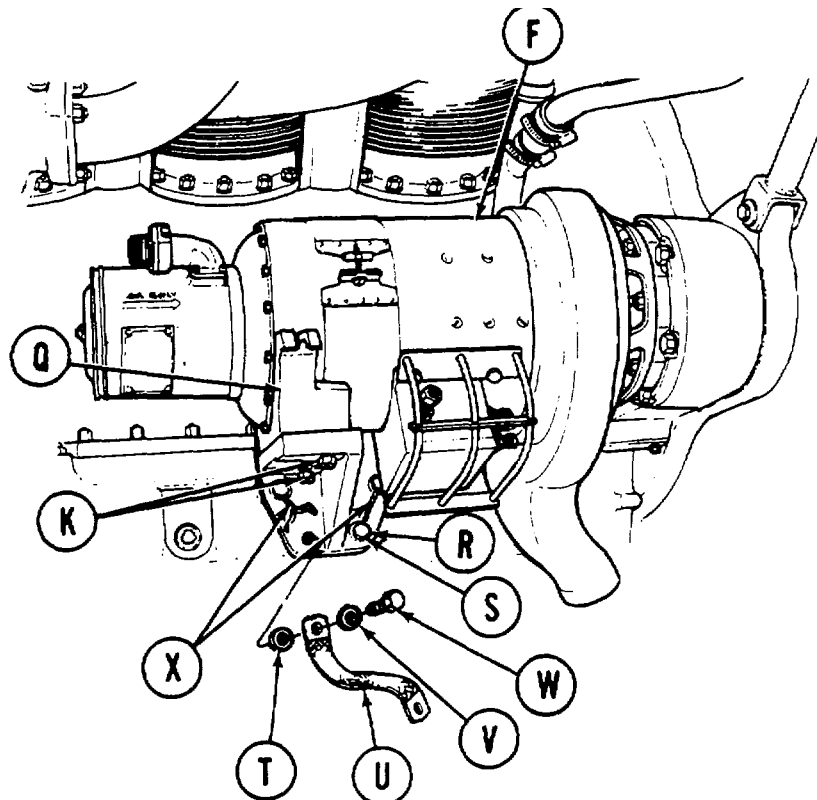
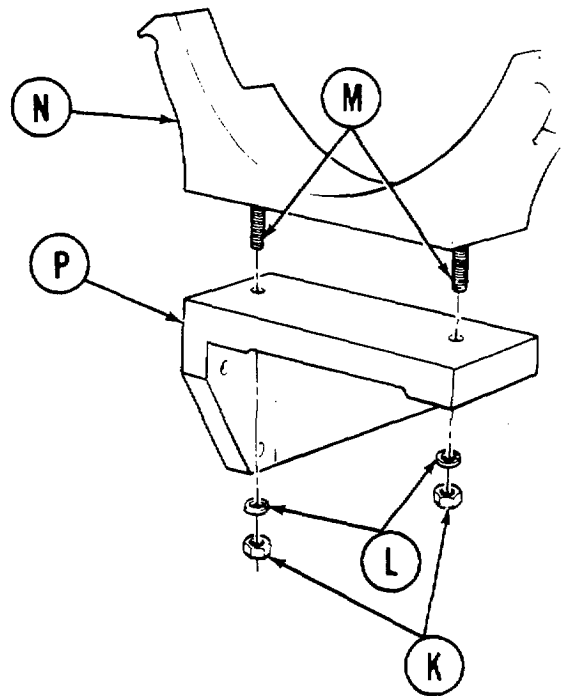
Go on to Sheet 11

TA147048



**GENERATOR REPLACEMENT (Sheet 11 of 15)**

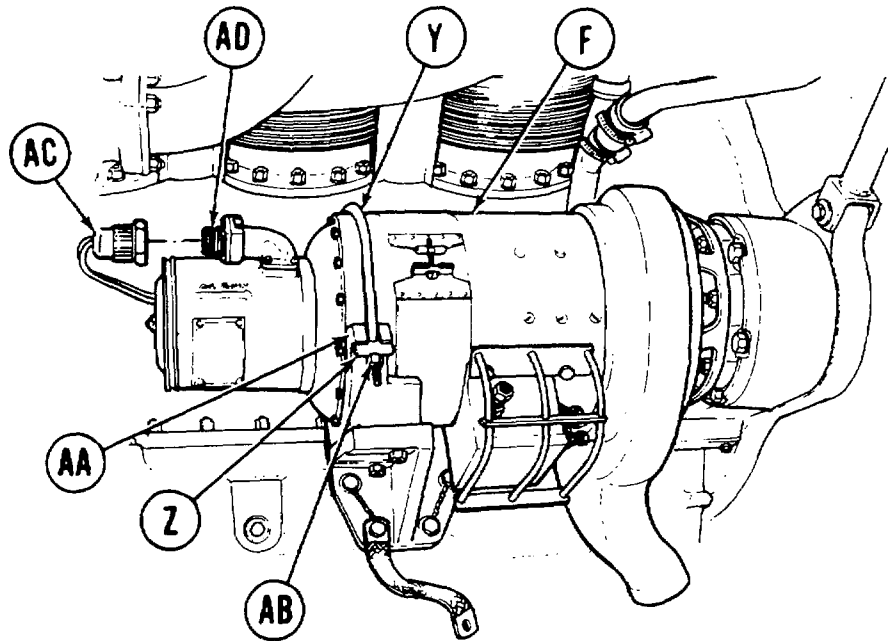
8. Using fingers, install two nuts (K) and fiat washers (L) on studs (M) securing cradle (N) to cradle bracket (P).
9. Position cradle assembly (Q) to generator (F) and engine.
10. Using 9/16 inch wrench, install three screws (R) and flat washers (S) securing cradle assembly (Q) to engine.
11. Using 9/16 inch wrench, install new lockwasher (T), ground strap (U), flat washer (V), and screw (W).
12. Using pliers, install two lockwires (X).
13. Using 9/16 inch wrench, tighten nuts (K).



Go on to Sheet 12

**GENERATOR REPLACEMENT (Sheet 12 of 15)**

14. Position U-bolt (Y) over generator (F).
15. Position two U-bolt bars (Z) into cradle assembly holders (AA).
16. Using 9/16 inch wrench, tighten two self-locking nuts (AB).
17. Using 1-1/8 inch wrench, connect electrical connector (AC) to generator connector (AD).



Go on to Sheet 13

TA147050

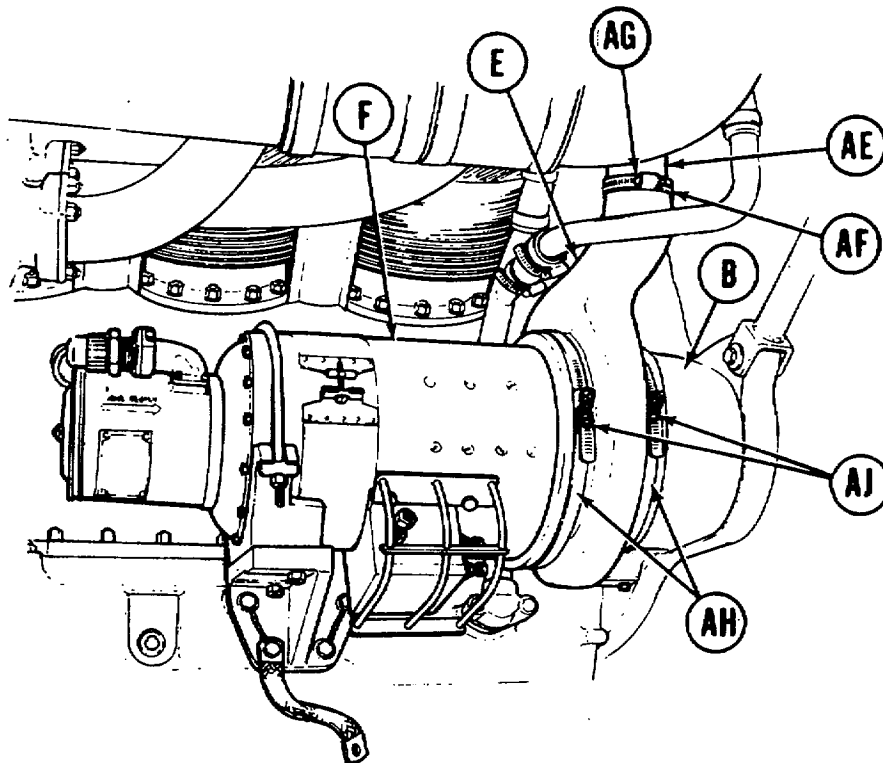
**GENERATOR REPLACEMENT (Sheet 13 of 15)**

18. Position flexible boot (E) on exhaust tube (AE).
19. Position clamp (AF) on flexible boot (E).
20. Using screwdriver, turn screw (AG) securing clamp (AF).

**CAUTION**

**Do not change flexible boot during steps 21 through 23.**

21. Position flexible boot (E) in place on generator (F) and drive adapter (B).
22. Position two clamps (AH) in place on flexible boot (E).
23. Using screwdriver, turn two screws (AJ) securing clamps (AH).

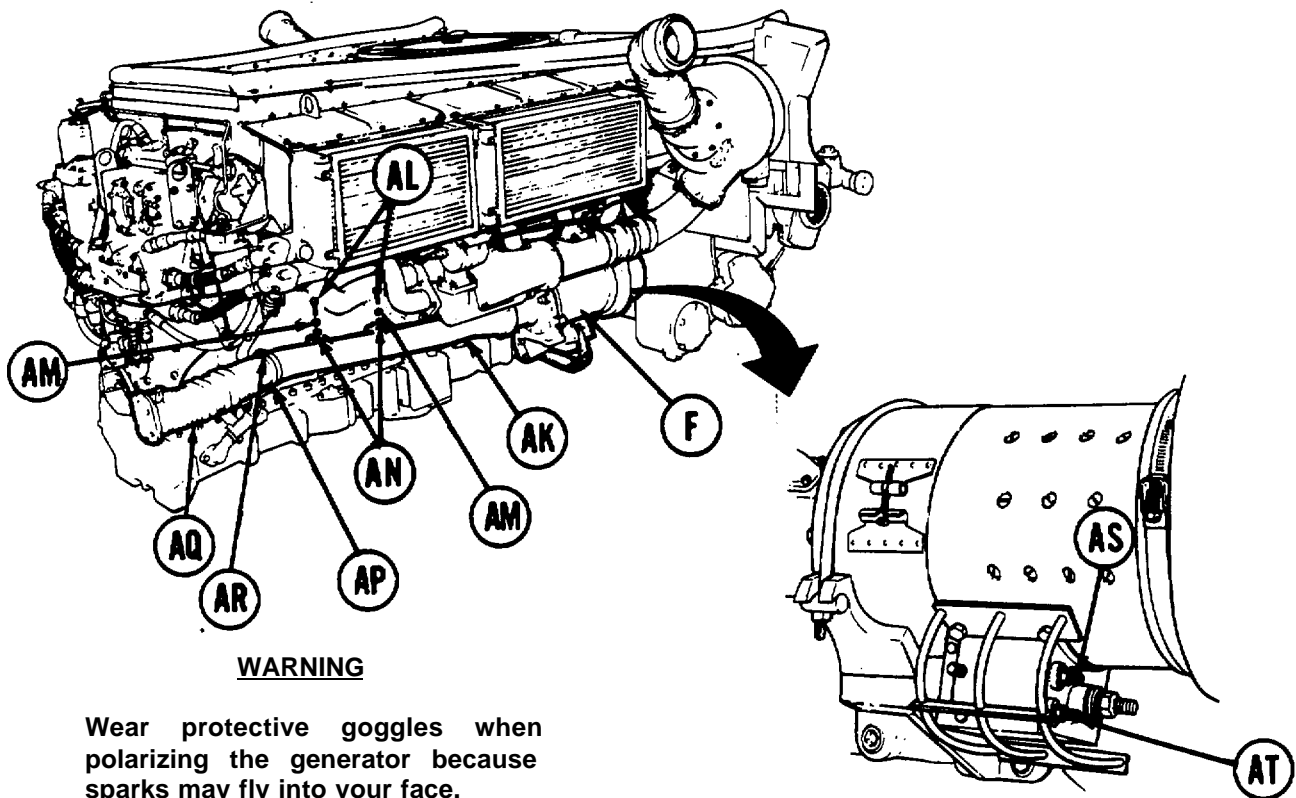


Go on to Sheet 14

TA147051

**GENERATOR REPLACEMENT (Sheet 14 of 15)**

24. Position generator duct (AK) on generator (F).
25. Using 1/2 inch wrench, install two screws (AL), new lockwashers (AM), and flat washers (AN) securing generator duct (AK) to engine.
26. Slide clamp (AP) on generator duct (AK).
27. Position flexible connector (AQ) on generator duct (AK).
28. Position clamp (AP) on flexible connector (AQ).
29. Using screwdriver, turn screw (AR) to secure clamp (AP).



**WARNING**

Wear protective goggles when polarizing the generator because sparks may fly into your face.

**NOTE**

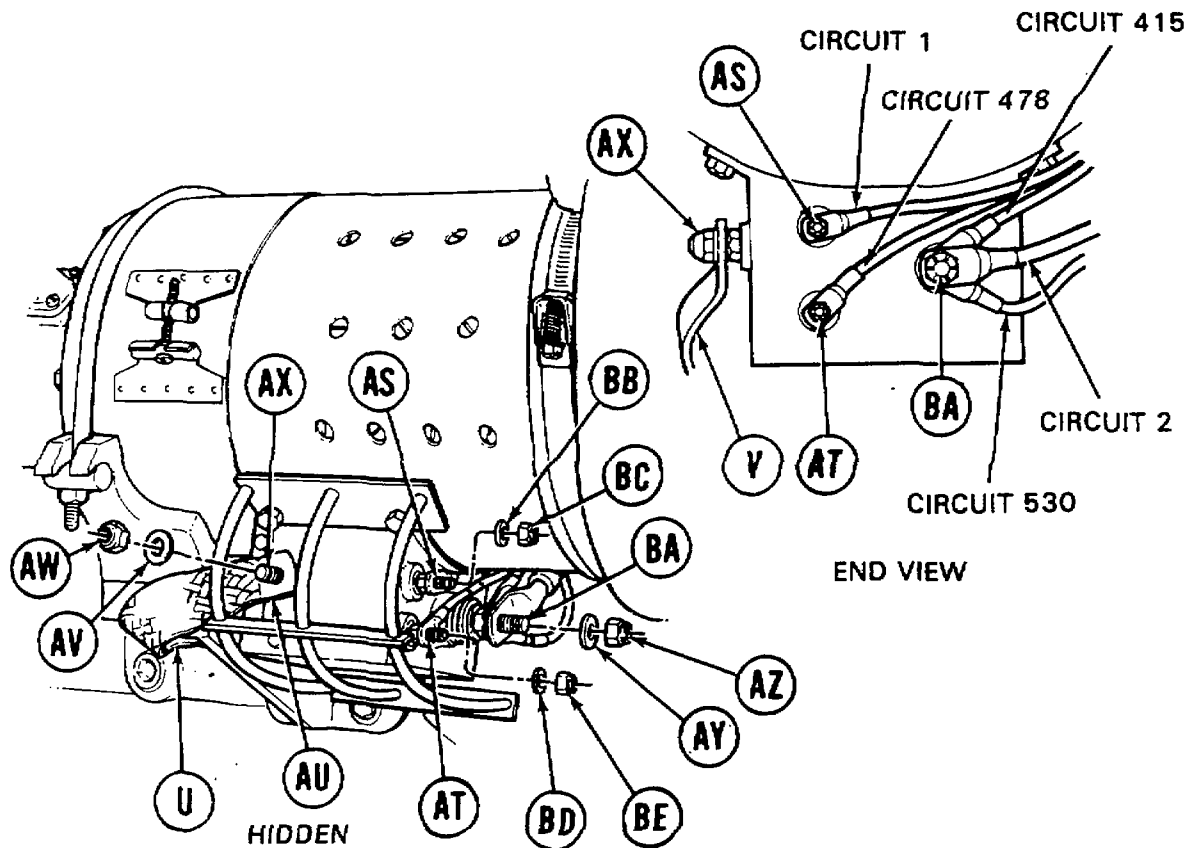
Polarize the generator. Using a 6-24 vdc power source, connect positive (+) lead of power source to generator terminal (AS). Touch negative (-) lead of power source to generator terminal (AT) for a period of less than five seconds. Disconnect positive lead from generator terminal (AS).

Go on to Sheet 15

TA147052

**GENERATOR REPLACEMENT (Sheet 15 of 15)**

30. Using 9/16 inch wrench, install washer (AV), ground strap (U), flat washer (AU), and new self-locking nut (AW) to terminal (AX).
31. Using 9/16 inch wrench, install electrical lead (circuit 530), electrical lead (circuit 415), electrical lead (circuit 2), flat washer (AY) and new self-locking nut (AZ) to terminal (BA).
32. Using 3/8 inch wrench, install electrical lead (circuit 1), flat washer (BB) and new self-locking nut (BC) to terminal (AS).
33. Using 3/8 inch wrench, install electrical lead (circuit 478), flat washer (BD), and new self-locking nut (BE) to terminal (AT).



34. Connect engine for powerplant test run (page 5-54).
35. Start and run engine at idle speed according to procedures for powerplant test run (page 5-57).
36. Check BATTERY-GENERATOR indicator in driver's compartment for proper indication.
37. Shut down and disconnect engine as prepared for powerplant test run (ground hop) (page 5-67).
38. Install 2A powerplant (page 5-14) or 2D powerplant (5-40).

End of Task

TA147053

**VOLTAGE REGULATOR ASSEMBLY REPLACEMENT (Sheet 1 of 3)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-22
Installation	10-24

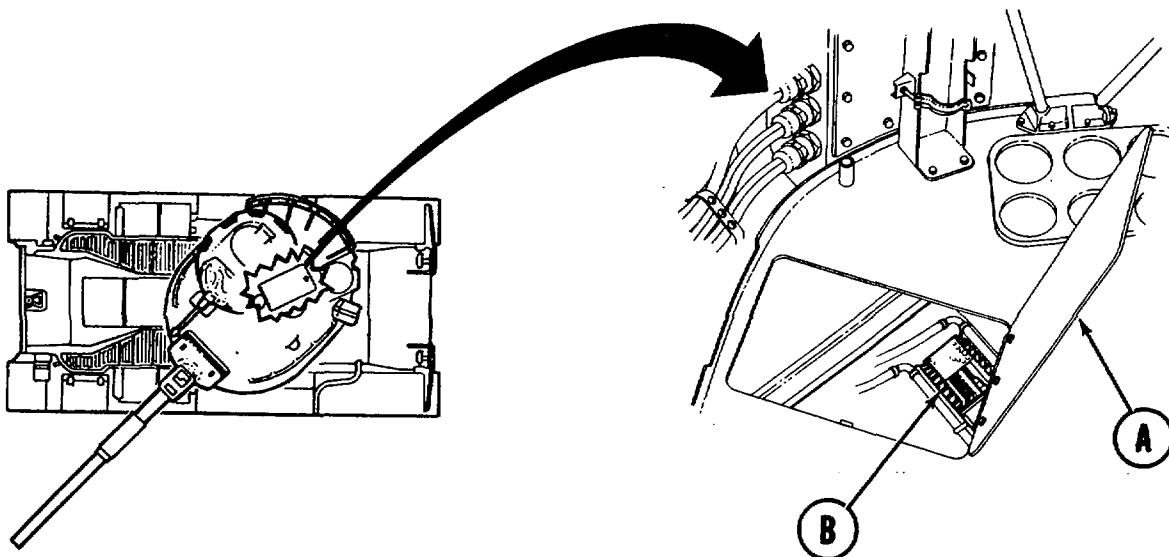
TOOLS: 5/16 in. combination box and open end wrench  
 10 in. extension with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 Spanner wrench  
 7/16 in. combination box and open end wrench  
 3/8 in. combination box and open end wrench  
 3/8 in. socket with 1/2 in. drive

SUPPLIES: Lockwasher (MS35333-40)  
 Lockwasher (MS35338-44) (4 required)

REFERENCE: TM 9-2350-260-10

REMOVAL:

1. Open turret platform access cover (A) (TM 9-2350-260-10).
2. Manually traverse turret to gain access to voltage regulator (B) (TM 9-2350-260-10).



Go on to Sheet 2

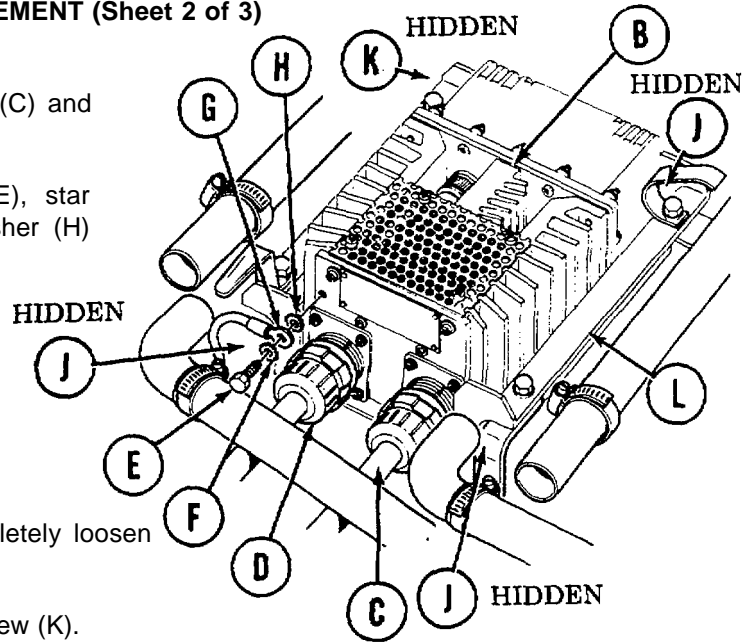
TA147054

**VOLTAGE REGULATOR ASSEMBLY REPLACEMENT (Sheet 2 of 3)**

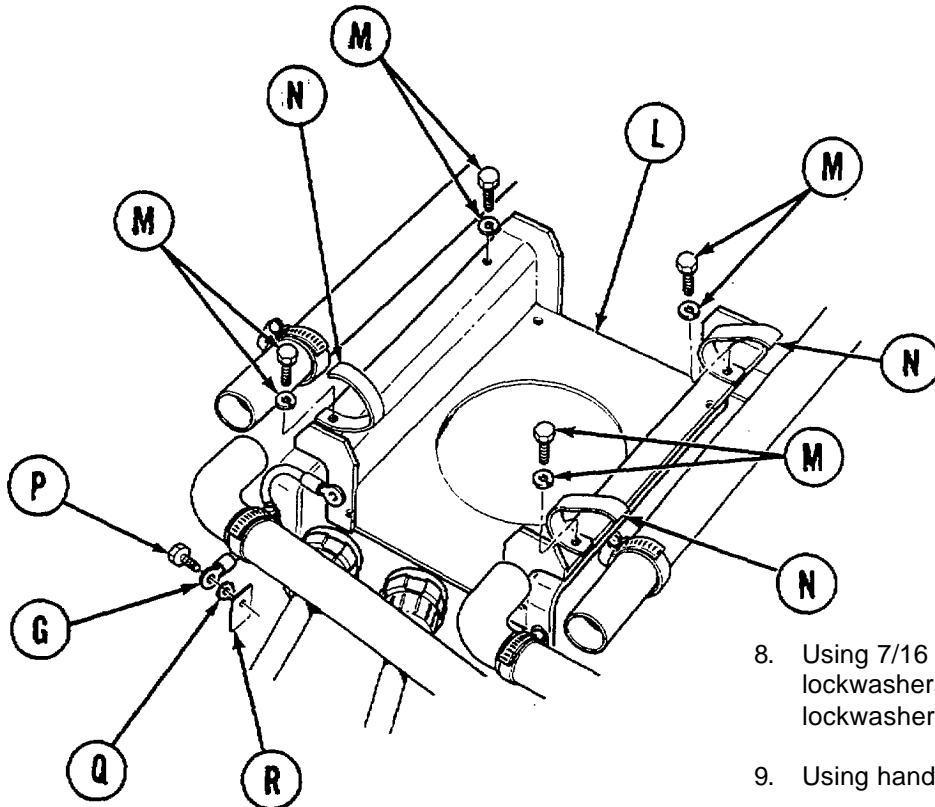
3. Using spanner wrench, remove connectors (C) and (D) from voltage regulator (B).
4. Using 5/16 inch wrench, remove screw (E), star washer (F), ground lead (G), and star washer (H) from voltage regulator (B).

**NOTE**

Screws (J) and (K) are part of voltage regulator (B) and can not be removed. Completely loosen screws (J) and (K) when doing steps 5 and 6.



5. Using 3/8 inch socket and extension, completely loosen three screws (J).
6. Using 3/8 inch wrench, completely loosen screw (K).
7. Using hands, remove voltage regulator (B) from bracket (L).



8. Using 7/16 inch wrench, remove four screws and lockwashers (M) and three clamps (N). Throw lockwashers away.
9. Using hands, remove bracket (L).
10. Using 7/16 inch wrench, remove screw (P), lockwasher (Q), and ground lead (G) from terminal (R) on hull. Throw lockwasher

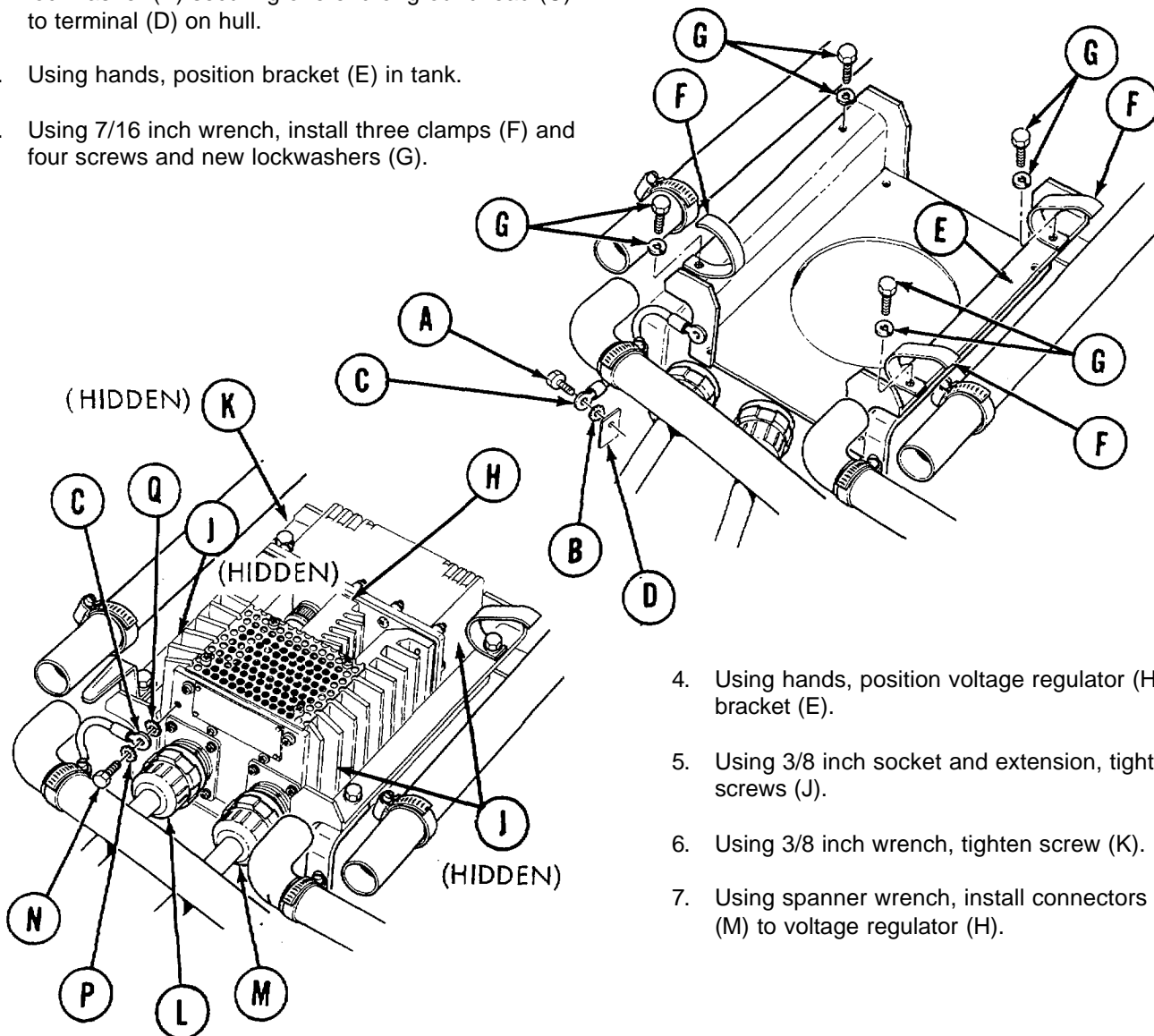
Go on to Sheet 3

TA147055

**VOLTAGE REGULATOR ASSEMBLY REPLACEMENT (Sheet 3 of 3)**

**INSTALLATION:**

1. Using 7/16 inch wrench, install screw (A) and new lockwasher (B) securing one end of ground lead (C) to terminal (D) on hull.
2. Using hands, position bracket (E) in tank.
3. Using 7/16 inch wrench, install three clamps (F) and four screws and new lockwashers (G).



4. Using hands, position voltage regulator (H) in bracket (E).
5. Using 3/8 inch socket and extension, tighten three screws (J).
6. Using 3/8 inch wrench, tighten screw (K).
7. Using spanner wrench, install connectors (L) and (M) to voltage regulator (H).

8. Using 5/16 inch wrench, install screw (N), small star washer (P), ground lead (C), and large star washer (Q) to voltage regulator (H).
9. Close turret platform access cover (TM 9-2350-260-10).
10. Adjust generator voltage (page 10-25).

End of Task

TA147056



**GENERATOR VOLTAGE ADJUSTMENT (Sheet 1 of 2)**

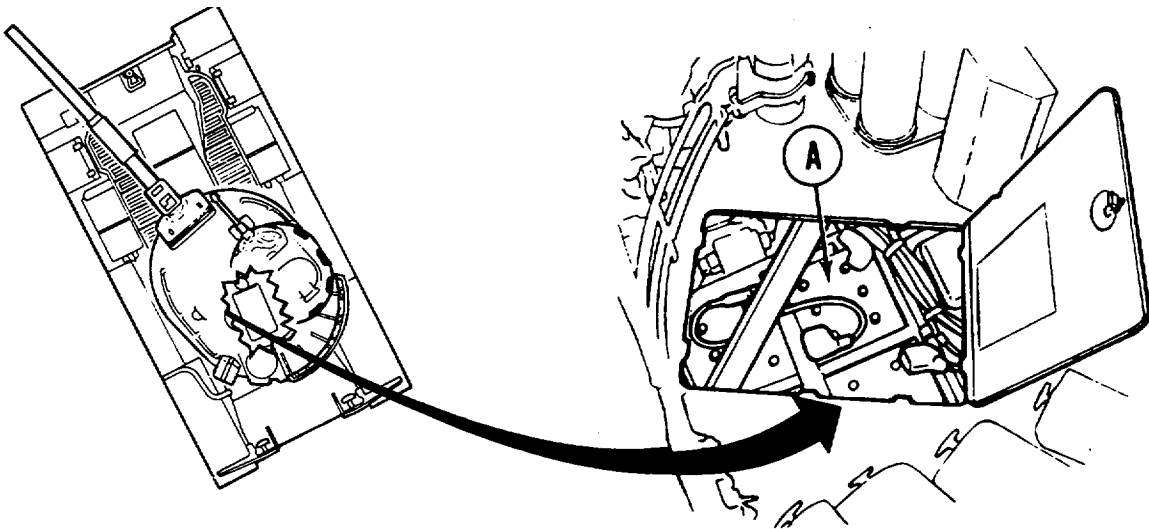
TOOLS: Flat-tip screwdriver  
7/8 in. combination box and open end wrench

TEST EQUIPMENT: Multimeter

REFERENCES: TM 9-2350-260-10  
TM 9-6140-200-14

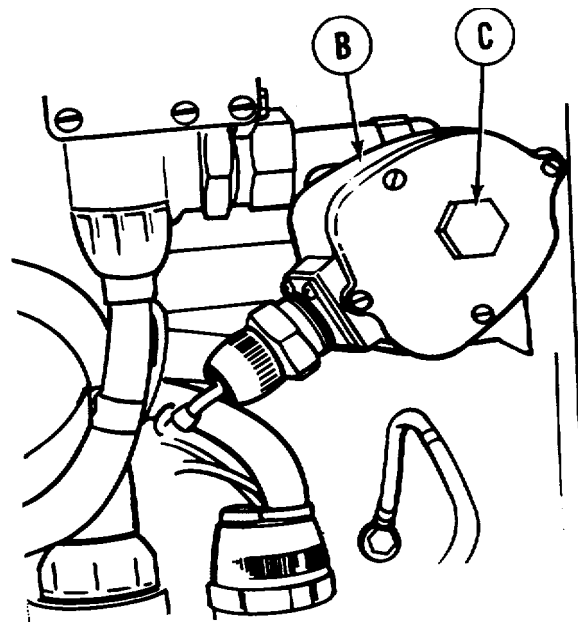
PERSONNEL: Two

PRELIMINARY PROCEDURES: Open turret platform access door (TM 9-2350-260-10)  
Traverse turret to locate batteries (TM 9-2350-260-10)



**ADJUSTMENT:**

1. Check batteries (A) for full charge (page 10-300).
2. Charge batteries if they are not at full charge (TM 9-6140-200-14).
3. Traverse turret to locate voltage control box (B) (TM 9-2350-260-10).
4. Using wrench, remove access plug (C).



Go on to Sheet 2

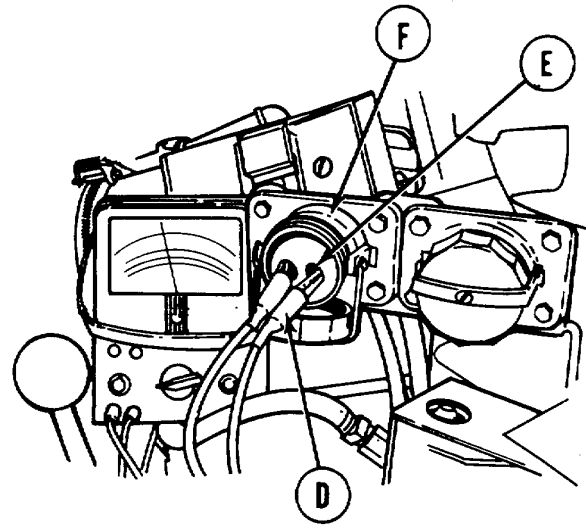
TA147057

## GENERATOR VOLTAGE ADJUSTMENT (Sheet 2 of 2)

## NOTE

**There is a positive (+) and a negative (-) shown on slave receptacle.**

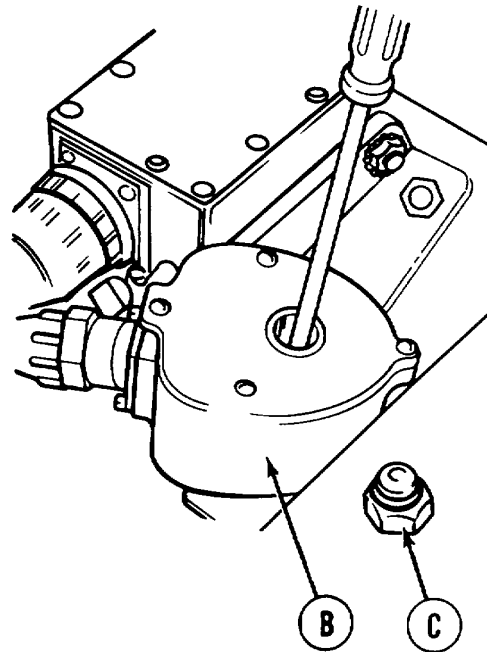
5. Set multimeter to 0-50 volt DC range.
6. With one person in drivers compartment with multimeter, place red test lead (D) in positive (+) (E) side and black test lead in negative (-) side of slave receptacle (F).
7. Person in driver's compartment, start engine (TM 9-2350-260-10) and run for one half hour at 1000 RPM.
8. Turn on service headlights (TM 9-2350-260-10).



## NOTE

**Make sure person in turret has full view of multimeter.**

9. Person in turret, using screwdriver, adjust voltage control box (B) until multimeter indicates 26-30 VDC.
10. If voltage cannot be obtained, refer to troubleshooting (page 4-406).
11. Shut down engine and turn off service headlight (TM 9-2350-260-10).
12. Install access plug (C) in voltage control box (B).
13. Remove test leads from slave receptacle (F).



End of Task

TA147058

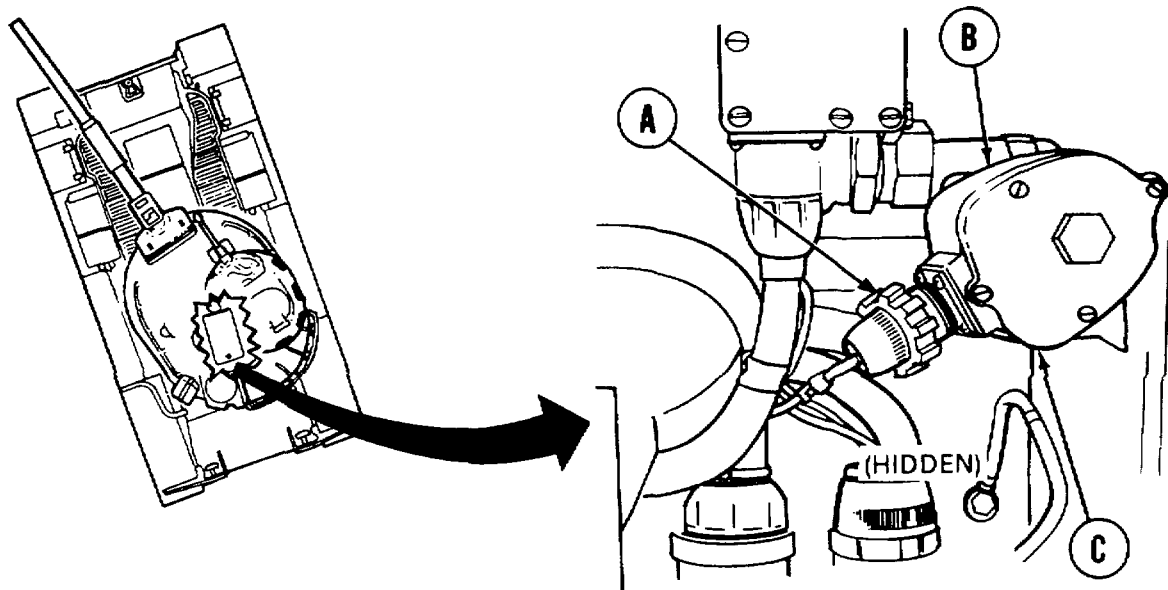
**VOLTAGE CONTROL BOX REPLACEMENT (Sheet 1 of 2)**

TOOLS: 7/16 in. combination box and open end wrench  
Spanner wrench

REFERENCE: TM 9-2350-260-10

SUPPLIES: Lokwasher (MS35338-44) (2 required)

PRELIMINARY PROCEDURES: Open turret platform access door (TM 9-2350-260-10)  
Traverse turret to gain access to voltage control box (TM 9-2350-260-10)

**REMOVAL:**

1. Using spanner wrench, disconnect electrical connector (A) from voltage control box (B).

**NOTE**

**Screws and lockwashers (C) securing voltage control box (B) are located under the voltage control box.**

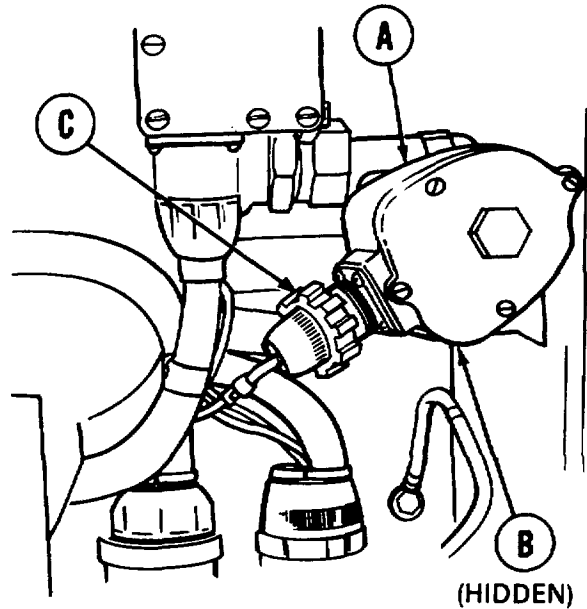
2. Using 7/16 inch wrench, remove two screws and lockwashers (C) securing voltage control box (B) to bracket. Throw lockwashers away.
3. Remove voltage control box (B) from mounting bracket and tank.

Go on to Sheet 2

TA147059

**VOLTAGE CONTROL BOX REPLACEMENT (Sheet 2 of 2)****INSTALLATION:**

1. Position voltage control box (A) onto mounting bracket.
2. Using 7/16 inch wrench, install two screws and new lockwashers (B) to underside of voltage control box (A) to secure control box (A) to bracket.
3. Connect electrical connector (C) to voltage control box (A).
4. Perform generator voltage adjustment (page 10-25).



End of Task

TA147060

**STARTER REPLACEMENT (Sheet 1 of 7)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-30
Installation	10-30

TOOLS: Diagonal cutting pliers  
 Flat-tip screwdriver  
 Slip joint pliers  
 Ratchet with 1/2 in. drive  
 10 in. extension with 1/2 in. drive  
 1/2 in. socket with 1/2 in. drive  
 3/4 in. socket with 3/8 in. drive  
 9/16 in. socket with 1/2 in. drive  
 3/4 in. socket with 1/2 in. drive  
 1/2 in. combination box and open end wrench  
 3/4 in. combination box and open end wrench  
 13/16 in. combination box and open end wrench  
 15/16 in. combination box and open end wrench  
 Torque wrench with 3/8 in. drive (0-200 lb-in.)

SPECIAL TOOLS: Ground hop kit (Item 30, Chapter 3, Section I)  
 Wrench, open end (Item 4, Chapter 3, Section I)

SUPPLIES: Pencil  
 Two tags  
 Lockwire (10 in.) (Item 59, Appendix D)  
 Glyptol (Item 38, Appendix D)  
 Lockwasher (MS45904-76)  
 Self-locking nut (MS21044N5) (2 required)  
 Lockwasher (MS35333-40) (4 required)  
 Self-locking nut (MS21044N10) (3 required)

PERSONNEL: Two

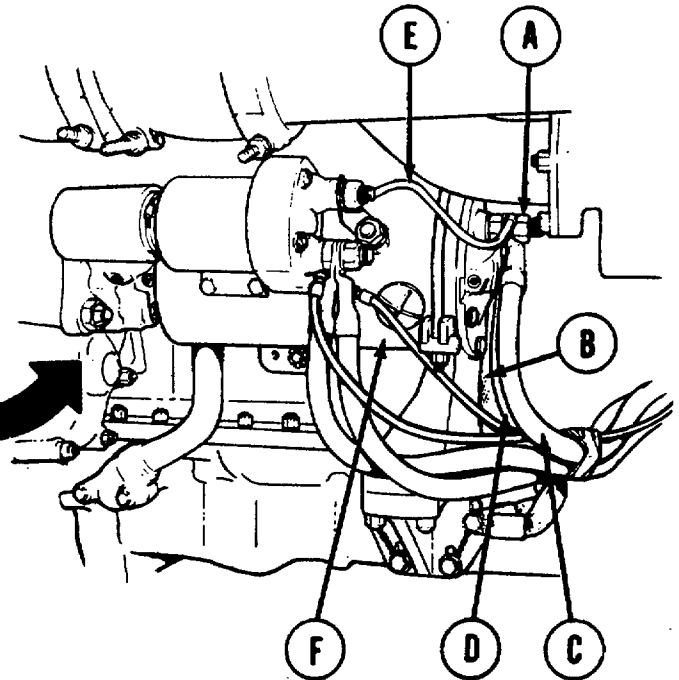
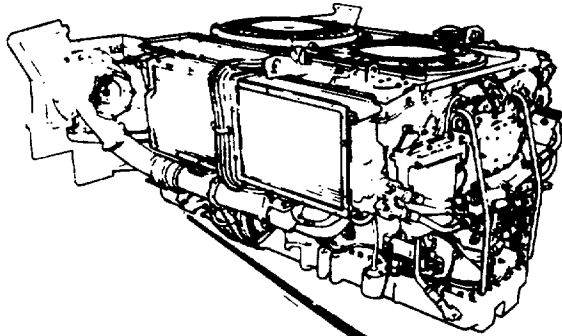
REFERENCES: TM 9-2350-260-10

PRELIMINARY PROCEDURES: Remove powerplant (page 5-1)  
 Remove starter low voltage relay solenoid (page 10-36)  
 (2D engine only)

Go on to Sheet 2

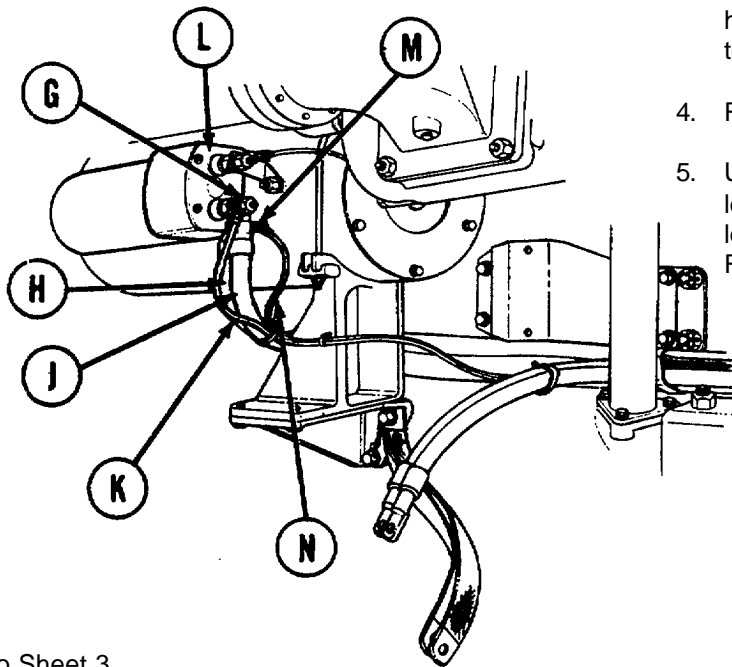
STARTER REPLACEMENT (Sheet 2 of 7)

REMOVAL:



1. Using 13/16 inch wrench, remove nut and lockwasher (A) securing ground straps (B), heavy cables (C) and (D) and light cable (E) to terminal on front of starter (F). Throw lockwasher away.
2. Remove all cables and tag.

3. Using 3/4 inch socket, remove nut, external tooth lockwasher, and split lockwasher (G) securing two heavy cables (H) and (J) and one light cable (K) to terminal on front of starter relay solenoid (L).
4. Remove and tag all cables.
5. Using screwdriver, remove screw and external tooth lockwasher (M) securing cable (N) to terminal at lower front of starter switch relay solenoid (L). Remove cable.

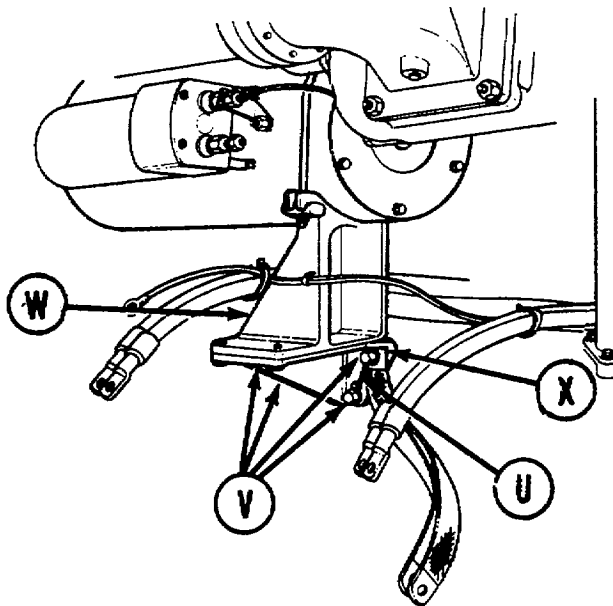
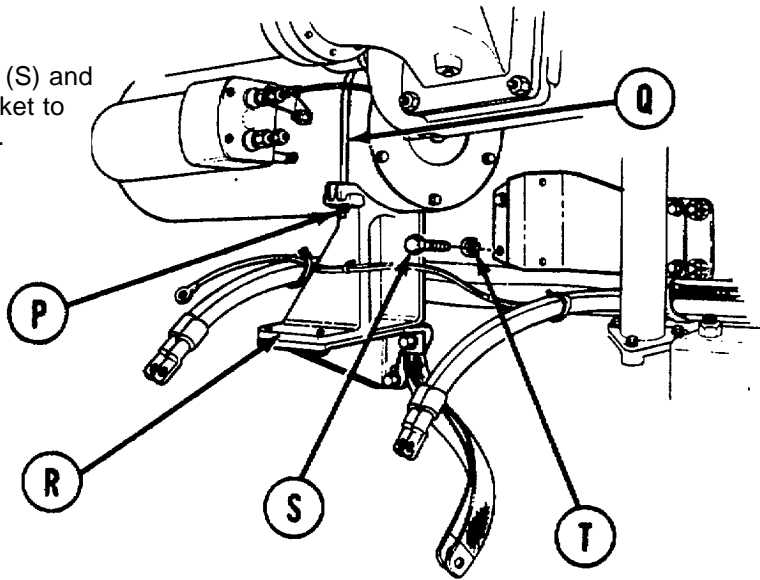


Go on to Sheet 3

TA147062

**STARTER REPLACEMENT (Sheet 3 of 7)**

6. Using 1/2 inch wrench, loosen two self-locking nuts (P) securing U-bolt (Q) to cradle assembly (R). Throw self-locking nuts away.
7. Using 1/2 inch wrench, move four screws (S) and lockwashers securing relay solenoid bracket to engine oil pan. Throw lockwashers away.



8. Using pliers, cut and remove lockwire (U) on four screws (V) securing starter cradle assembly (W) and bracket (X) to engine oil pan.
9. Using 9/16 inch socket and extension, loosen and remove four screws and flat washers (V) securing starter cradle assembly (W) and bracket (X) to engine oil pan. Remove starter cradle bracket and U-bolt as an assembly.

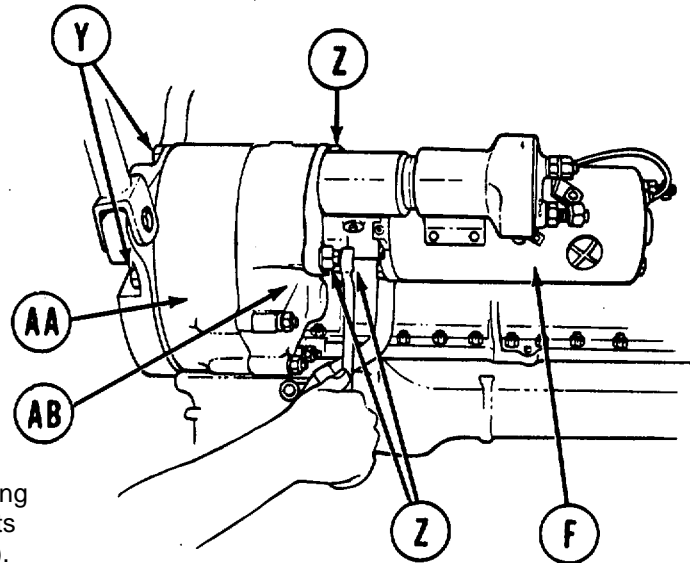
Go on to Sheet 4

TA147063

STARTER REPLACEMENT (Sheet 4 of 7)

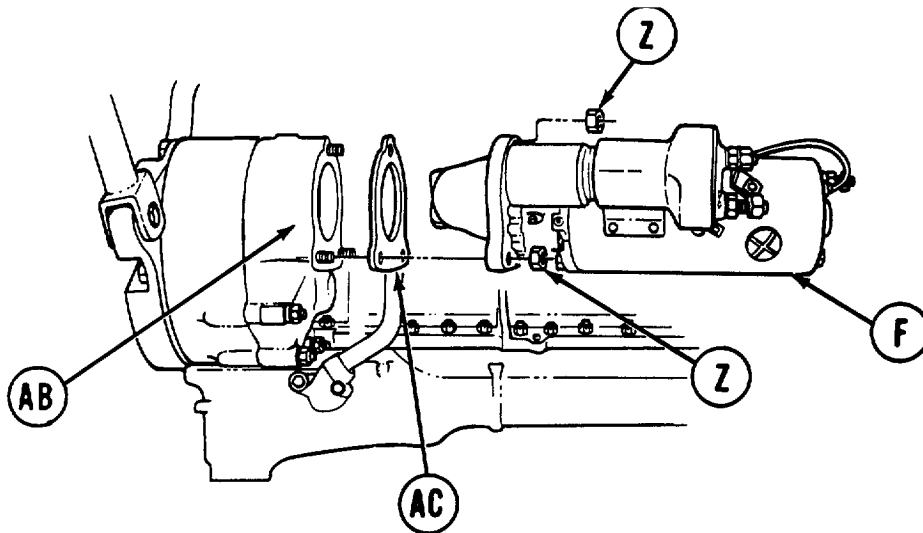
NOTE

The top and front fasteners have bolts (Y) which pass through the engine hull housing (AA) and must be held in place when removing the self-locking nuts (Z). The inboard fastener has a stud and will not require a wrench to hold it in place.



10. Using 15/16 inch wrench on bolts (Y) and special wrench (Item 4, Chapter 3, Section I) on self-locking nuts (Z), loosen and remove three self-locking nuts (Z) securing tarter (F) to starter drive adapter (AB). Throw self-locking nuts away.

11. Using two persons, ease starter out of starter drive adapter (AB). Remove starter from engine.

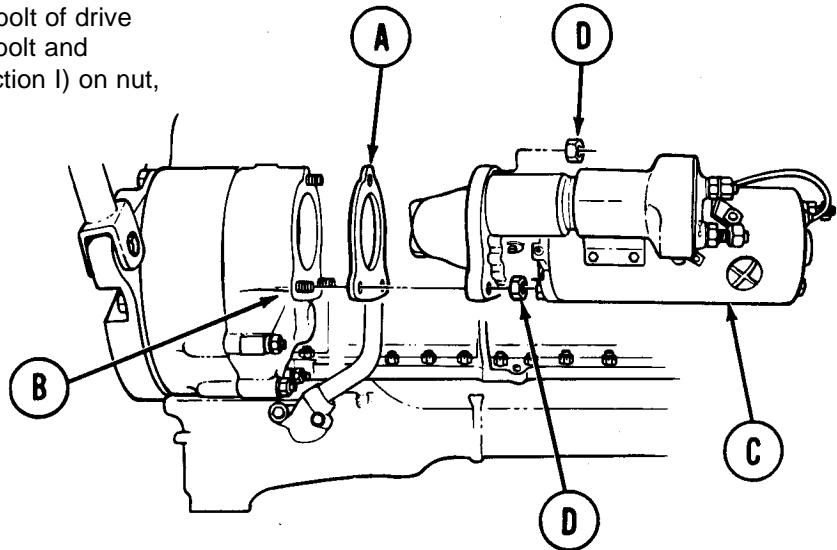


12. Remove gasket (AC) from starter drive adapter (AB). Throw gasket away.

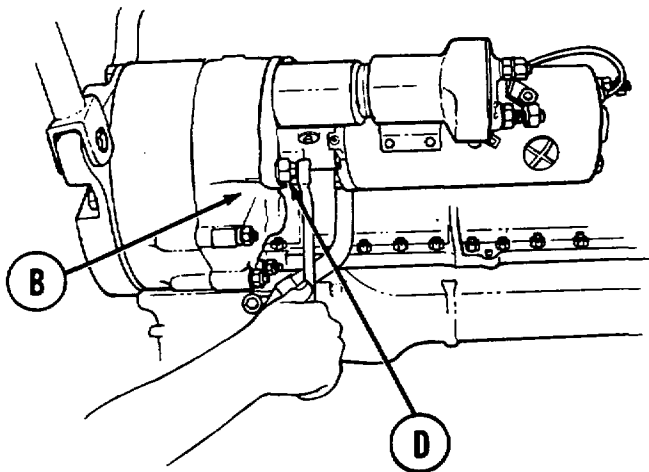


**STARTER REPLACEMENT (Sheet 5 of 7)****INSTALLATION:**

1. Install new gasket (A) on starter drive adapter (B).
2. Using two persons, ease starter (C) into place in starter drive adapter (B). Support starter and install one new self-locking nut (D) on upper bolt of drive adapter. Using 15/16 inch wrench on bolt and special wrench (Item 4, Chapter 3, Section I) on nut, secure nut on bolt.



3. Install lower new self-locking nut on bolt in same way upper self-locking nut on bolt in step 2.
4. Using special wrench, secure last new self-locking nut (D) onto bolt.

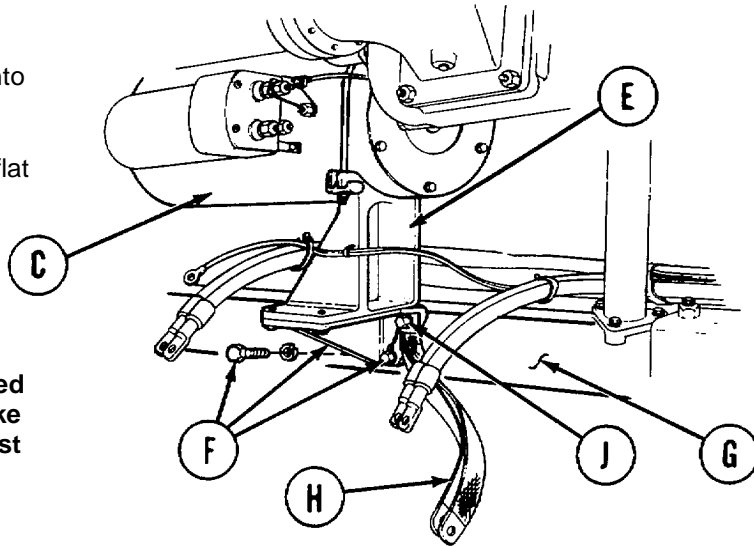


Go on to Sheet 6

TA147065

**STARTER REPLACEMENT (Sheet 6 of 7)**

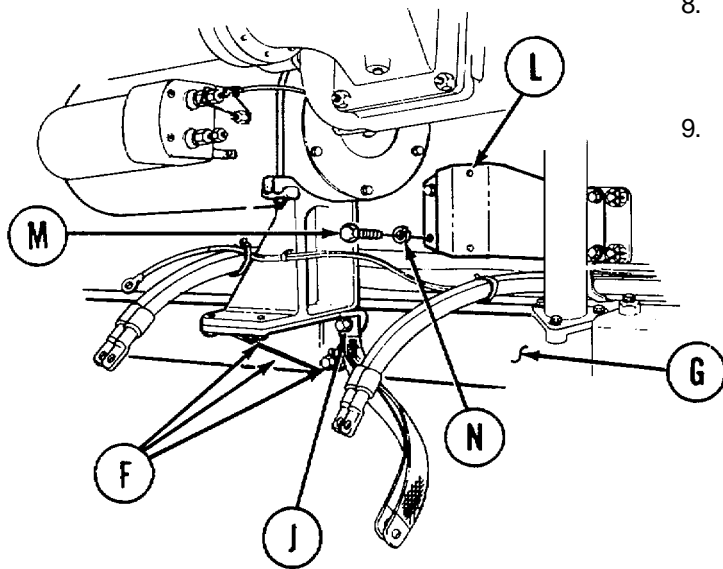
5. Slide starter cradle assembly bracket (E) into position on starter (C).
6. Using fingers, install three screws (F) with flat washers to secure starter cradle assembly bracket (E) to engine oil pan (G).



**NOTE**

When installing double-braided ground strap (H) to screw (J), make sure flat washer seats flat against bracket face.

7. Using fingers, install double-braided ground strap (H) with screw and fat washer (J), and install screw to starter cradle assembly bracket (E) and engine oil pan (G) as in step 6.



8. Using 1/2 inch wrench, tighten two new self-locking nuts evenly to be sure nuts and U-bolts seat properly.
9. Using 9/16 inch socket and extension, secure four screws and flat washers (F) and (J).

**NOTE**

After securing bolts and flat washers (F) and (J) check front of starter case to be sure there is no gap between starter case and support cradle assembly. If there is a gap, loosen bolts (F) and (J) and adjust position of cradle assembly so there is no gap.

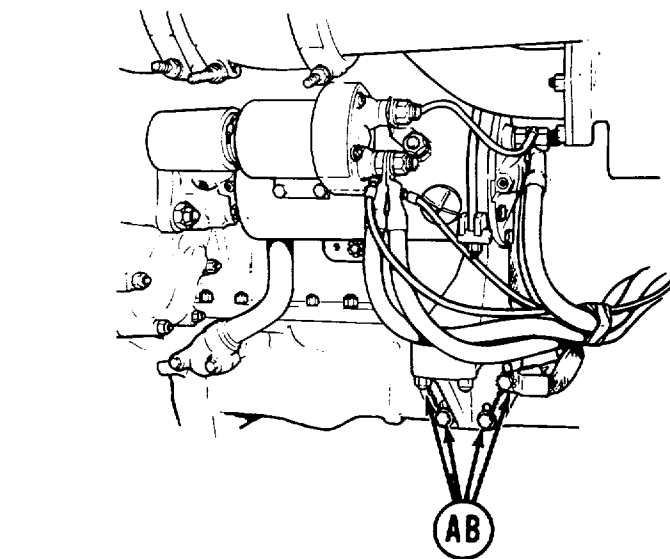
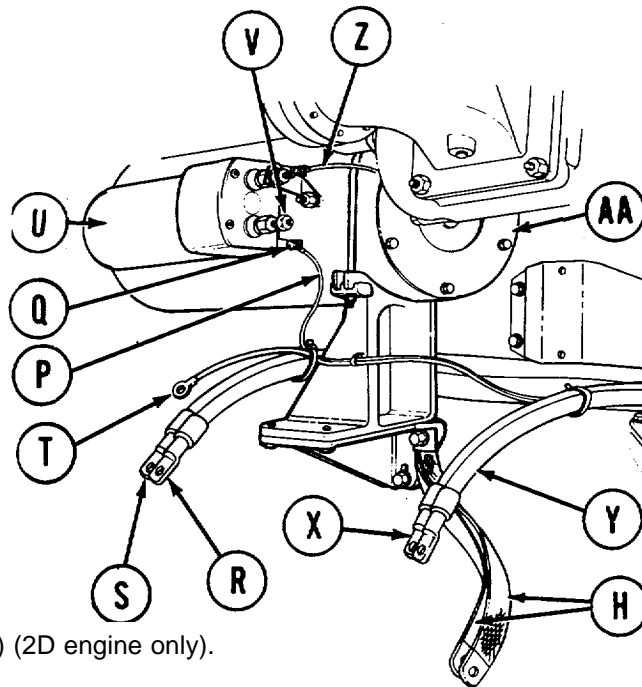
10. Using 1/2 inch socket and extension, secure low voltage relay solenoid bracket (L) to engine oil pan (G) with four screws (M) and new lockwashers (N).

Go on to Sheet 7

TA147066

**STARTER REPLACEMENT (Sheet 7 of 7)**

11. Using screwdriver, secure small cable (P) onto bottom front of solenoid relay with screw and new external tooth lockwasher (Q).
12. Install heavy cables (R) and (S) and tagged light cable (T) onto lower terminal of tarter switch relay solenoid (U). Using 3/4 inch socket and torque wrench, secure cables with nut and lockwasher (V) to 168-192 lb-in (19-22 N•m).
13. Install two double-braided ground straps (H) and two heavy cables (X) and (Y) and tagged light cable (Z) onto large terminal at starter motor (AA). Using 3/4 inch socket and torque wrench, secure cables with nut and lockwashers to 168-192 lb-in (19-22 N•m).
14. Install starter low voltage relay solenoid (page 10-37) (2D engine only).
15. Connect powerplant for ground hop (page 5-54).
16. Start engine (TM 9-2350-260-10).



17. Stop engine (TM 9-2350-260-10).
18. Using pliers, secure four bracket bolts with lockwire (Item 59, Appendix D) (AB), exactly as shown in the figure, to prevent them from loosening.
19. Coat all exposed terminal fittings with glyptol (Item 38, Appendix D).
20. Disconnect ground hop kit (page 5-67).
21. Install 2A powerplant (page 5-14) or 2D powerplant (page 5-40).

End of Task

TA147067

**STARTER LOW VOLTAGE RELAY SOLENOID REPLACEMENT (2D ENGINE) (Sheet 1 of 2)**

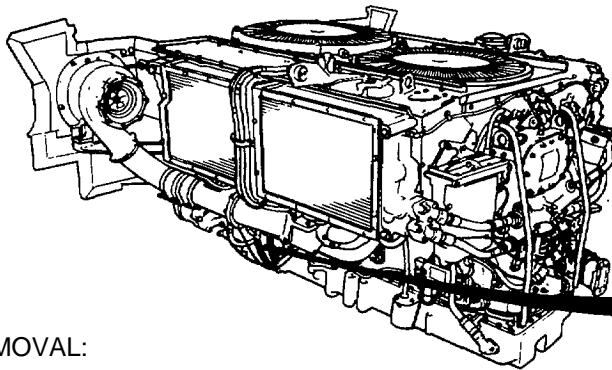
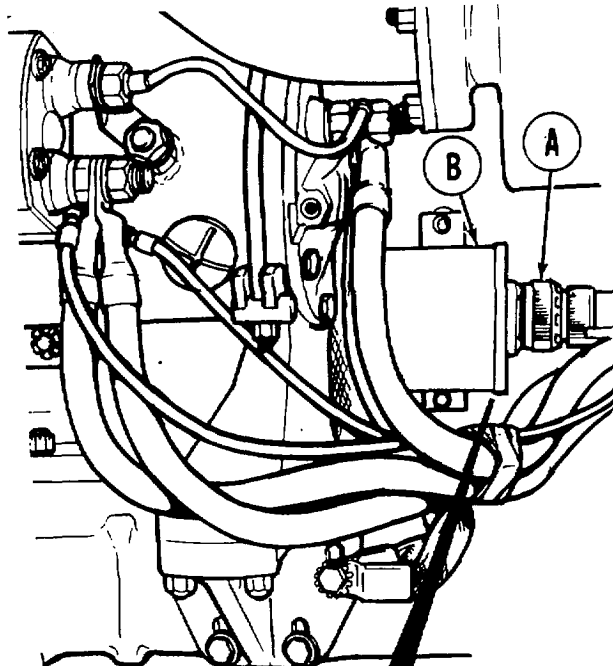
**TOOLS:** Ratchet with 1/2 in. drive  
 5 in. extension with 1/2 in. drive  
 7/16 in. socket with 1/2 in. drive  
 7/16 in. combination box and open end wrench  
 Spanner wrench

**SPECIAL TOOLS:** Ground hop kit (Item 30 Chapter 3, Section I)

**SUPPLIES:** Self-locking nut (MS21045-4) (2 required)

**REFERENCE:** TM 9-2350-260-10

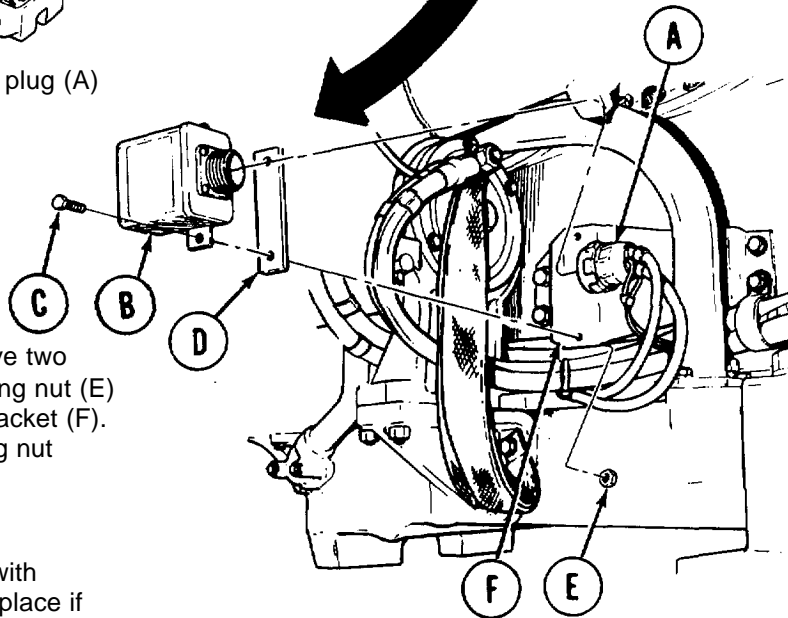
**PRELIMINARY PROCEDURE:** Remove powerplant (page 5-27)



**REMOVAL:**

1. Using spanner wrench, unscrew electrical plug (A) from front of relay solenoid (B).

2. Using socket and 7/16 inch wrench, remove two capscrews (C), insulators (D), and self-locking nut (E) securing relay solenoid (B) to mounting bracket (F). Remove relay solenoid. Throw self-locking nut away.



**INSPECTION:**

Inspect insulator (D) and wiring harness (G) with connector plug (A) for cracks or damage. Replace if damaged.

Go on to Sheet 2

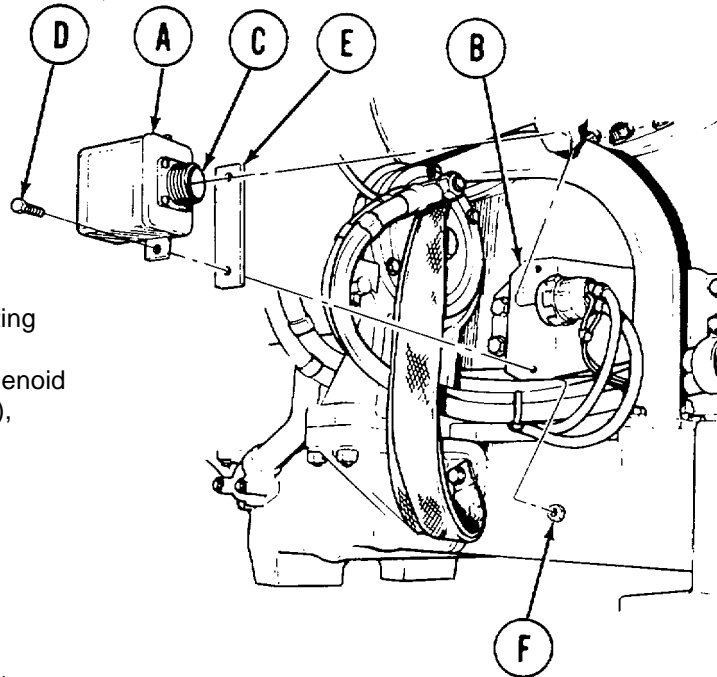
**STARTER LOW VOLTAGE RELAY SOLENOID REPLACEMENT (2D ENGINE) (Sheet 2 of 2)**

**INSTALLATION:**

**NOTE**

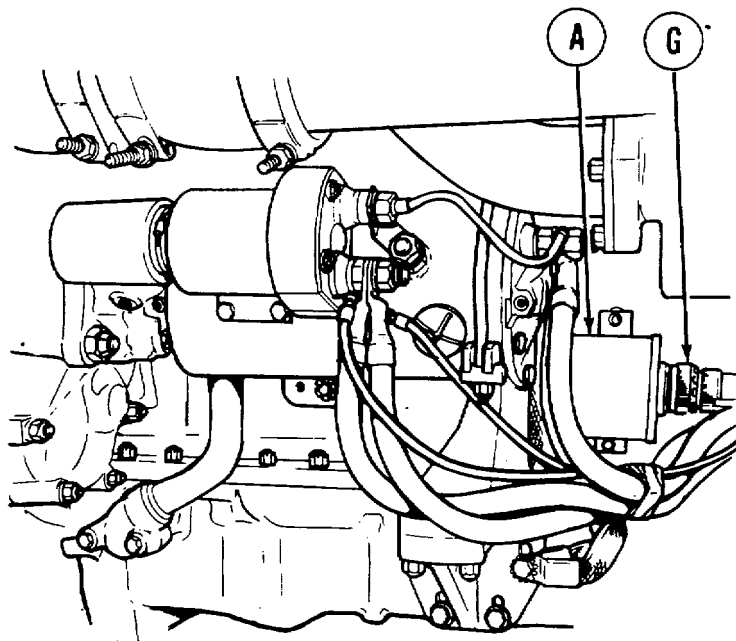
**Be sure insulators (E) are placed between relay solenoid (A) and engine mounting bracket (B) as shown.**

1. Place relay solenoid (A) in position over mounting bracket (B) with electrical plug (C) facing front. Using socket and 7/16 inch wrench, secure solenoid (A) to mounting plate (B) with two capscrews (D), insulators (E), and new self-locking nuts (F).
2. Screw electrical connector (G) to front of relay solenoid (A). Tighten, using spanner wrench.



**TEST:**

1. Connect powerplant for ground hop (page 5-54).
2. Start engine (TM 9-2350-260-10). Check to be sure engine starts smoothly.
3. Stop engine. Disconnect powerplant from test set-up (page 5-67).
4. Install 2D powerplant (page 5-40).



End of Task

TA147069

**ENGINE FUEL INJECTION PUMP-FUEL SHUTOFF LEAD REPLACEMENT (Sheet 4 of 5)**

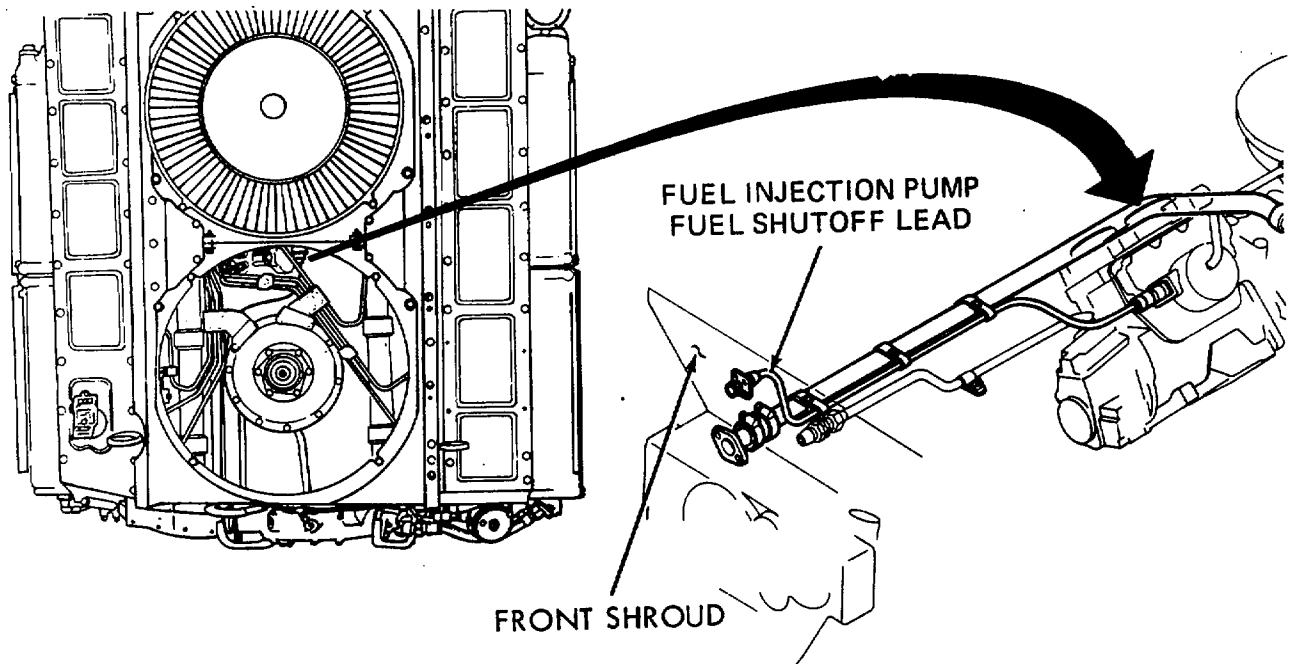
PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-39
Installation	10-40
Installation	10-41

**TOOLS:** Slip joint pliers  
 Cross-tip screwdriver with No. 1 tip (Philips)  
 Flat-tip screwdriver  
 1/4 in. combination box and open end wrench  
 7/8 in. combination box and open end wrench  
 3/8 in. combination box and open end wrench

**SUPPLIES:** Lockwasher (MS35335-20) (4 required)  
 Self-locking nut (MS21083-N3) (3 required)  
 Lockwire (Item 59, Appendix D)

**PRELIMINARY PROCEDURES:** Remove powerplant (page 5-1)  
 Remove engine cooling fan (page 19-48)



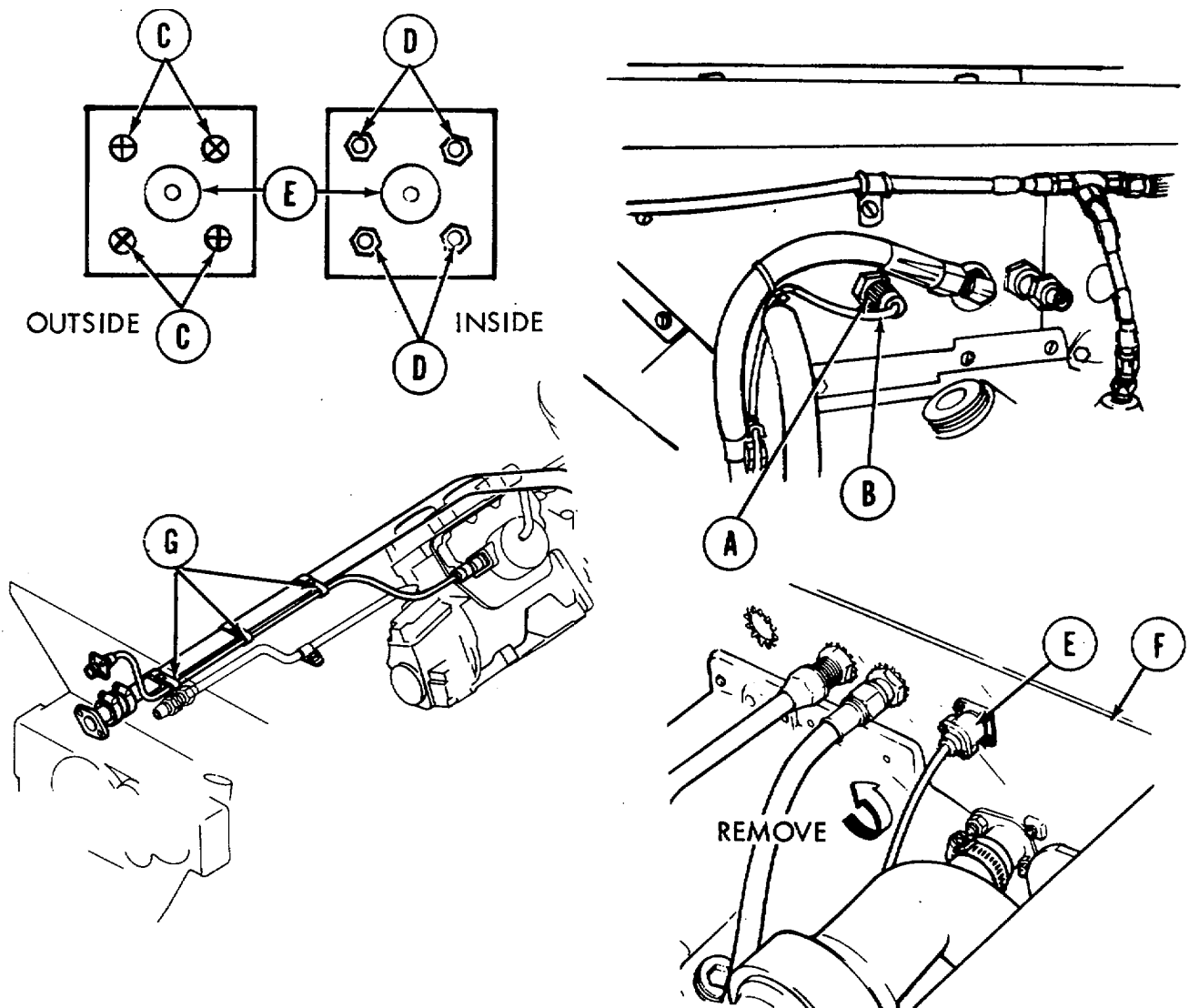
Go on to Sheet 2

TA147070

**ENGINE FUEL INJECTION PUMP-FUEL SHUTOFF LEAD REPLACEMENT (Sheet 2 of 5)**

**REMOVAL:**

1. Using 7/8 inch wrench, loosen retaining nut (A) on electrical connector (B).
2. Remove connector (B).
3. Using Phillips screwdriver and 1/4 inch wrench, remove four screws (C), lockwashers, and nut (D) on connector (E). Throw lockwashers away.
4. Remove connector (E) from engine shroud (F).
5. Using flat-tip screwdriver and 3/8 inch wrench, remove three loop clamps (G). Throw self-locking nuts away.



Go on to Sheet 3

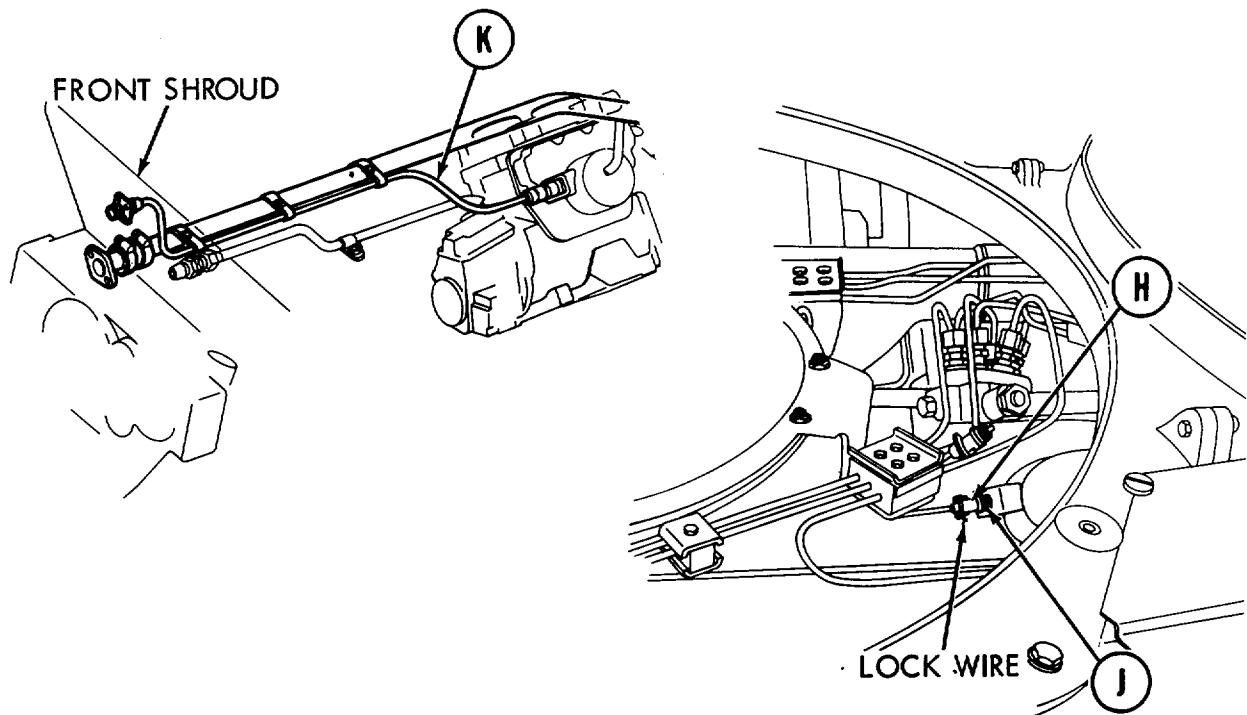
TA147071

**ENGINE FUEL INJECTION PUMP-FUEL SHUTOFF LEAD REPLACEMENT (Sheet 3 of 5)**

6. Using pliers, remove lockwire from retaining nut (H).
7. Using pliers, loosen retaining nut (H) on connector (J).
8. Remove connector (J).
9. Remove lead (K).

**INSPECTION:**

1. Check loop clamp for crack and proper shape.
2. Check screws and nuts for stripped threads.
3. Replace parts as necessary.



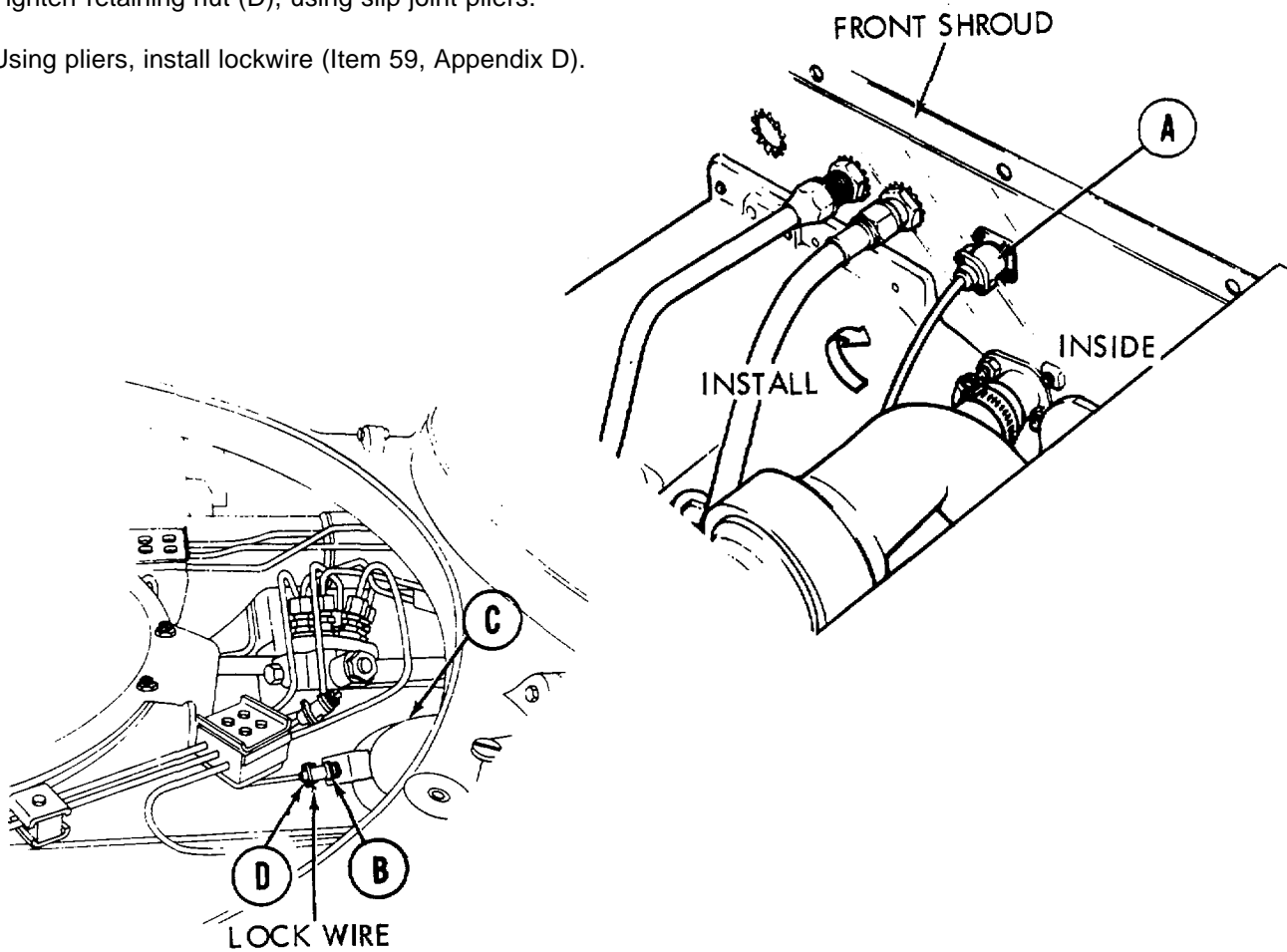
Go on to Sheet 4

TA147072



**ENGINE FUEL INJECTION PUMP-FUEL SHUTOFF LEAD REPLACEMENT (Sheet 4 of 5)****INSTALLATION:**

1. Install connector (A) of replacement lead through engine shroud from inside of engine.
2. Using Phillips screwdriver and 1/4 inch wrench, secure connector (A) with four screws, new lockwashers, and nuts. Make sure nuts are inside engine shroud.
3. Install connector (B) on fuel pump (C).
4. Tighten retaining nut (D), using slip joint pliers.
5. Using pliers, install lockwire (Item 59, Appendix D).

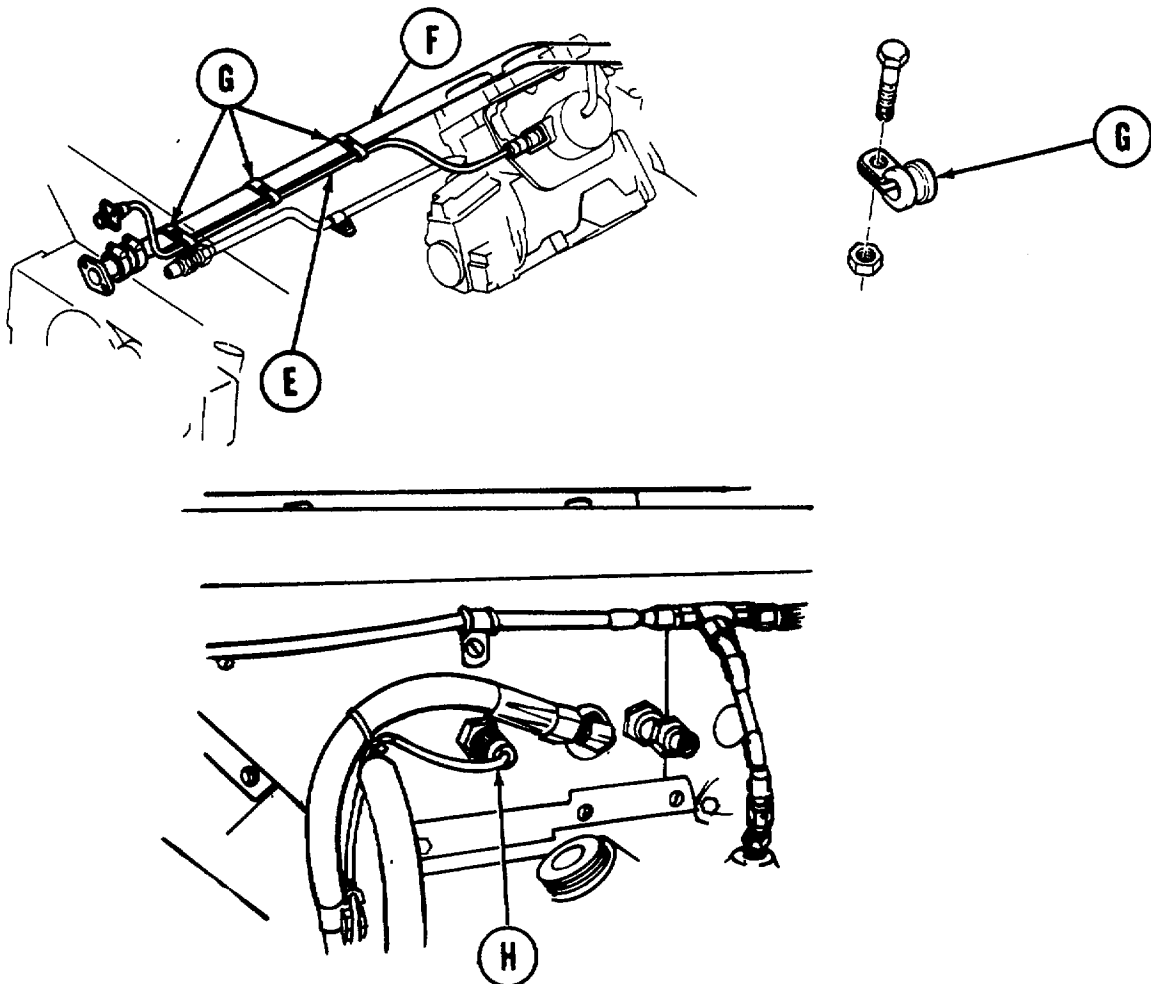


Go on to Sheet 5

TA147073

**ENGINE FUEL INJECTION PUMP-FUEL SHUTOFF LEAD REPLACEMENT (Sheet 5 of 5)**

6. Position lead (E) next to line (F) and install three loop clamps (G).
7. Using 3/8 inch wrench and fiat-tip screwdriver, secure three loop clamps (G) with three screws and new self-locking nuts.
8. Using 7/8 inch wrench, install electrical connector (H).
9. Install engine cooling fan (page 19-49).
10. Install 2A powerplant (page 5-14) or 2D powerplant (page 5-40).



End of Task

TA147074

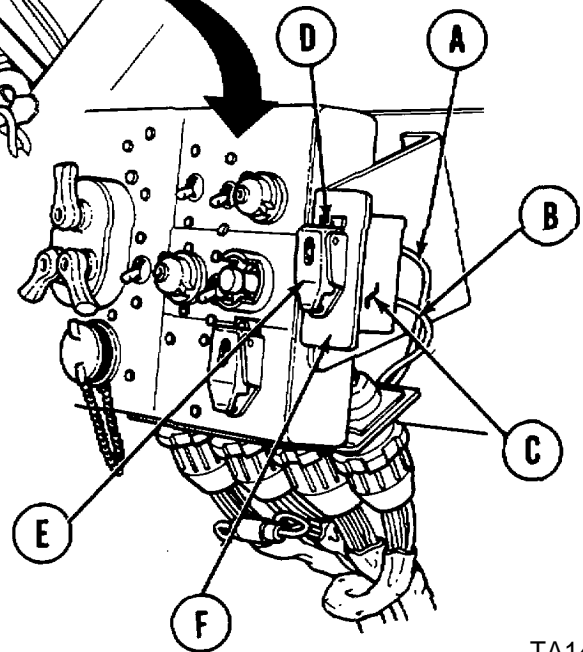
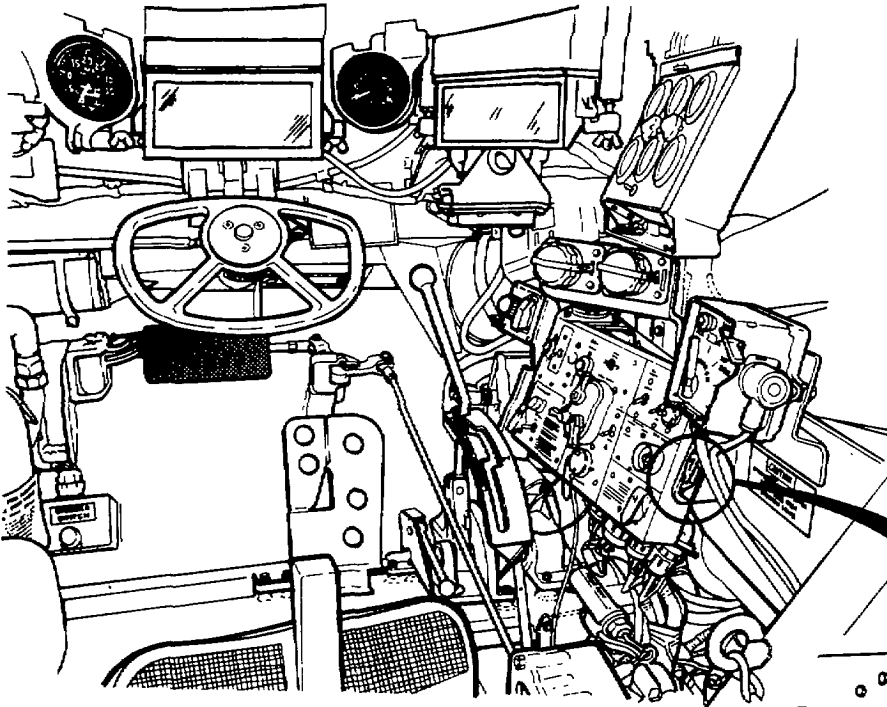
**GENERATOR SWITCH OR GUARD REPLACEMENT (Sheet 1 of 2)**

TOOLS: Cross-tip screwdriver

TEST EQUIPMENT: Multimeter

SUPPLIES: Silicone compound (Item 32, Appendix D)  
Lockwasher (MS35338-57) (2 required)

REFERENCE: TM 9-2350-260-10

**REMOVAL:**

1. Disconnect two leads (A) and (B) from switch (C).
2. Using cross-tip screwdriver, remove two screws and lockwashers (D) securing guard (E) and switch (C) to bracket (F). Throw lockwashers away.
3. Remove guard (E) and switch (C) from bracket (F).

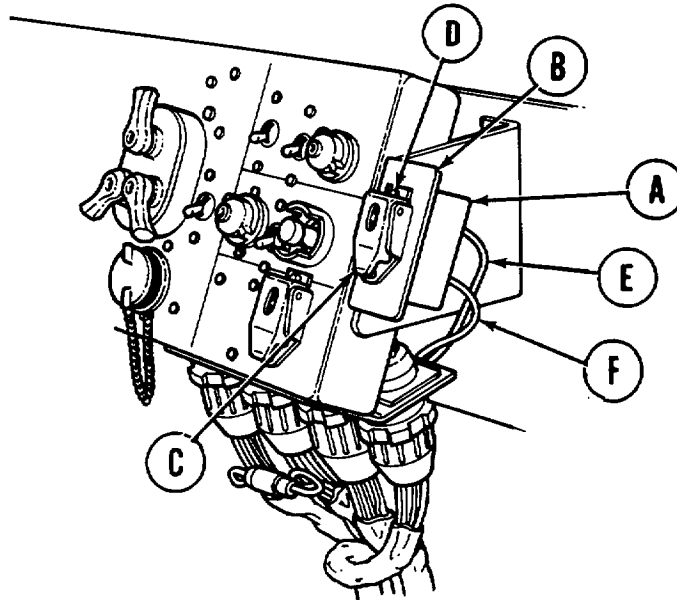
Go on to Sheet 2

TA147075

**GENERATOR SWITCH OR GUARD REPLACEMENT (Sheet 2 of 2)****INSTALLATION:****NOTE**

**Use multimeter to verify continuity that switch (A) is in ON position.**

1. Position switch (A) with ON position up through rear of mounting bracket (B).
2. Position guard (C) over switch (A) toggle and front of mounting bracket (B).
3. Using cross-tip screwdriver, install and tighten two screws and new lockwashers (D) securing guard (C) and switch (A) to mounting bracket (B).



4. Coat outside surface of lead (E) and (F) connectors with silicone compound (Item 32, Appendix D) and connect to switch (A).
5. Start engine (TM 9-2350-260-10) and check operation of generator.
6. Shut down engine.

End of Task

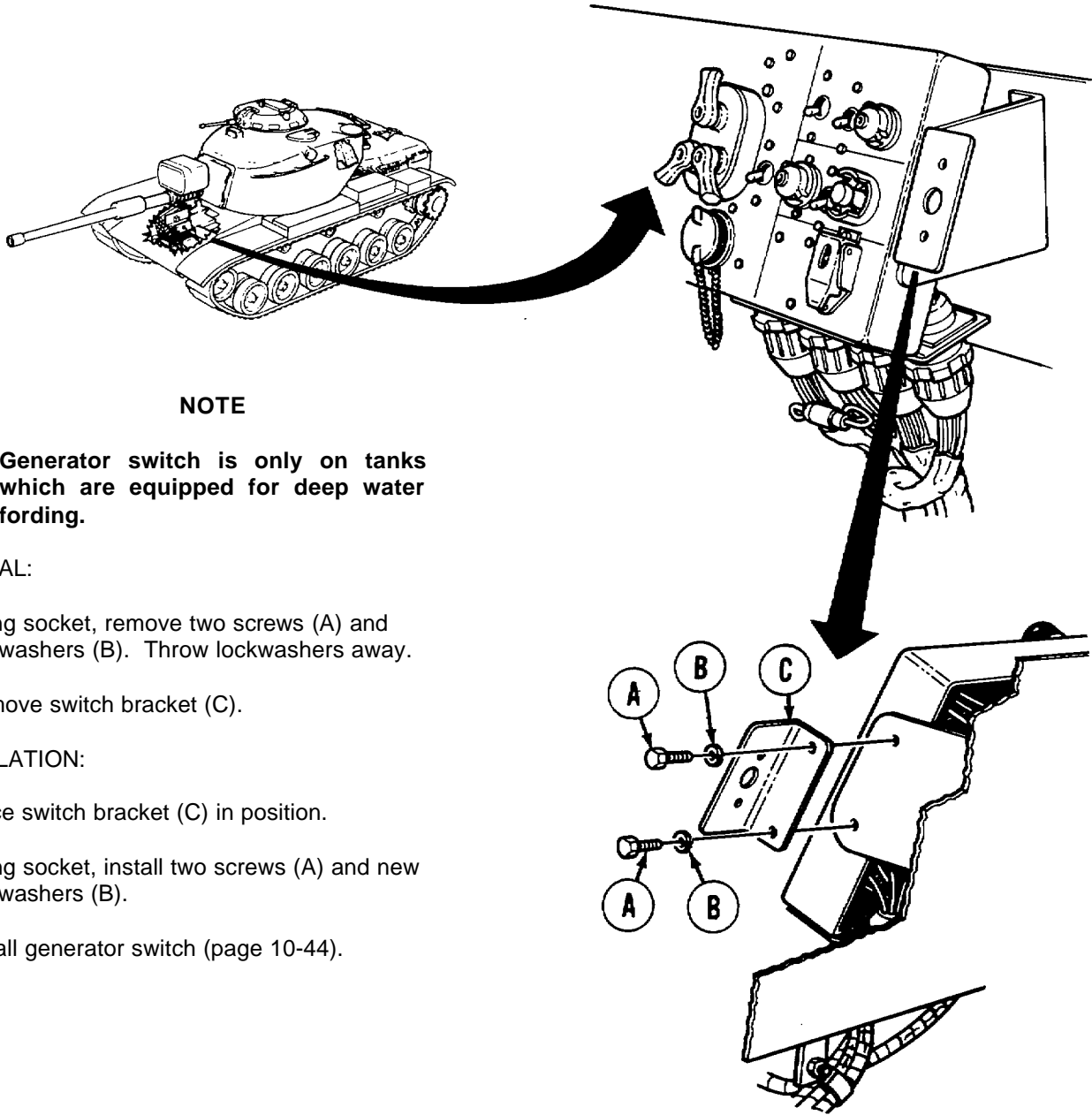
TA147076

**GENERATOR SWITCH BRACKET REPLACEMENT (Sheet 1 of 1)**

TOOLS: 7/16 in. combination box and open end wrench

SUPPLIES: Lockwasher (MS35338-43) (2 required)

PRELIMINARY PROCEDURE: Remove generator switch (page 10-43)



**NOTE**

Generator switch is only on tanks which are equipped for deep water fording.

**REMOVAL:**

1. Using socket, remove two screws (A) and lockwashers (B). Throw lockwashers away.
2. Remove switch bracket (C).

**INSTALLATION:**

1. Place switch bracket (C) in position.
2. Using socket, install two screws (A) and new lockwashers (B).
3. Install generator switch (page 10-44).

ROTATED 180° FOR CLARITY

End of Task

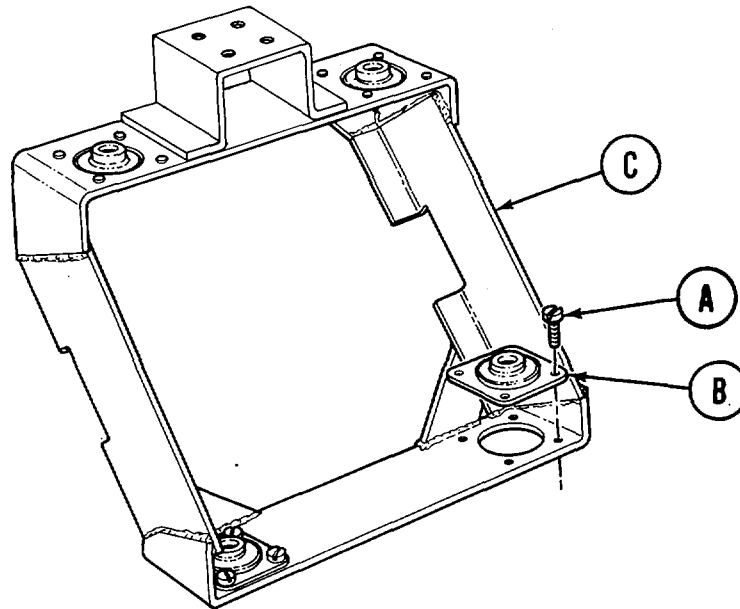
TA147077

## INSTRUMENT PANEL CLUSTER SUPPORT ASSEMBLY AND MOUNTING CUSHIONS REPLACEMENT (Sheet 1 of 1)

TOOLS: Flat-tip screwdriver

PRELIMINARY PROCEDURE: Remove instrument panel cluster assembly (page 10-137)

REMOVAL:



1. Using screwdriver, remove four screws (A) securing each cushion (B) to support assembly (C).
2. Remove cushions (B).

INSTALLATION:

1. Position cushions (B) onto support assembly (C).
2. Using screwdriver, install four screws (A) to secure cushion (B) to support assembly (B).
3. Install instrument pane cluster assembly (page 10-138).

End of Task

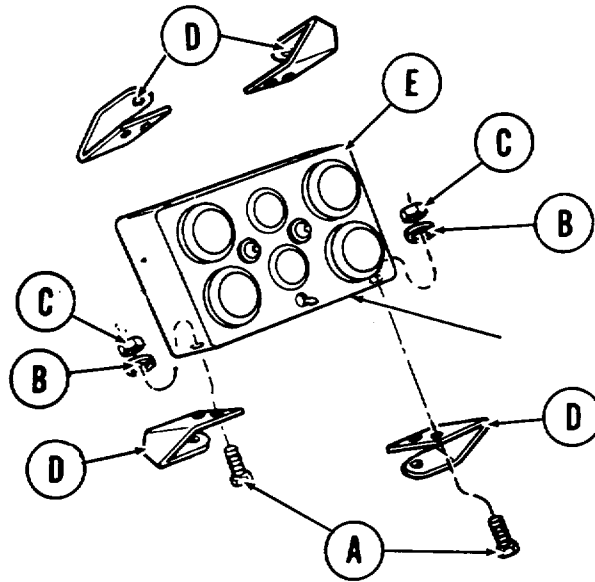
TA147078

**CLUSTER ASSEMBLY MOUNTING BRACKET REPLACEMENT (Sheet 1 of 1)**

TOOLS: 5/16 in. combination box and open end wrench  
Cross-tip screwdriver

SUPPLIES: Lockwasher (MS35333-39) (8 required)

PRELIMINARY PROCEDURE: Remove instrument panel cluster assembly (page 10-137)

**REMOVAL:**

1. Using wrench and screwdriver, remove eight screws (A), lockwashers (B), and nuts (C) securing four brackets (D) to panel (E). Throw lockwashers away.
2. Remove four brackets (D).

**INSTALLATION:**

1. Place brackets (D) in position on panel (E).
2. Using wrench and screwdriver, install eight screws (A), new lockwashers (B), and nuts (C).
3. Install cluster assembly (page 10-138).
4. Make sure cluster assembly is secure in panel support

End of Task

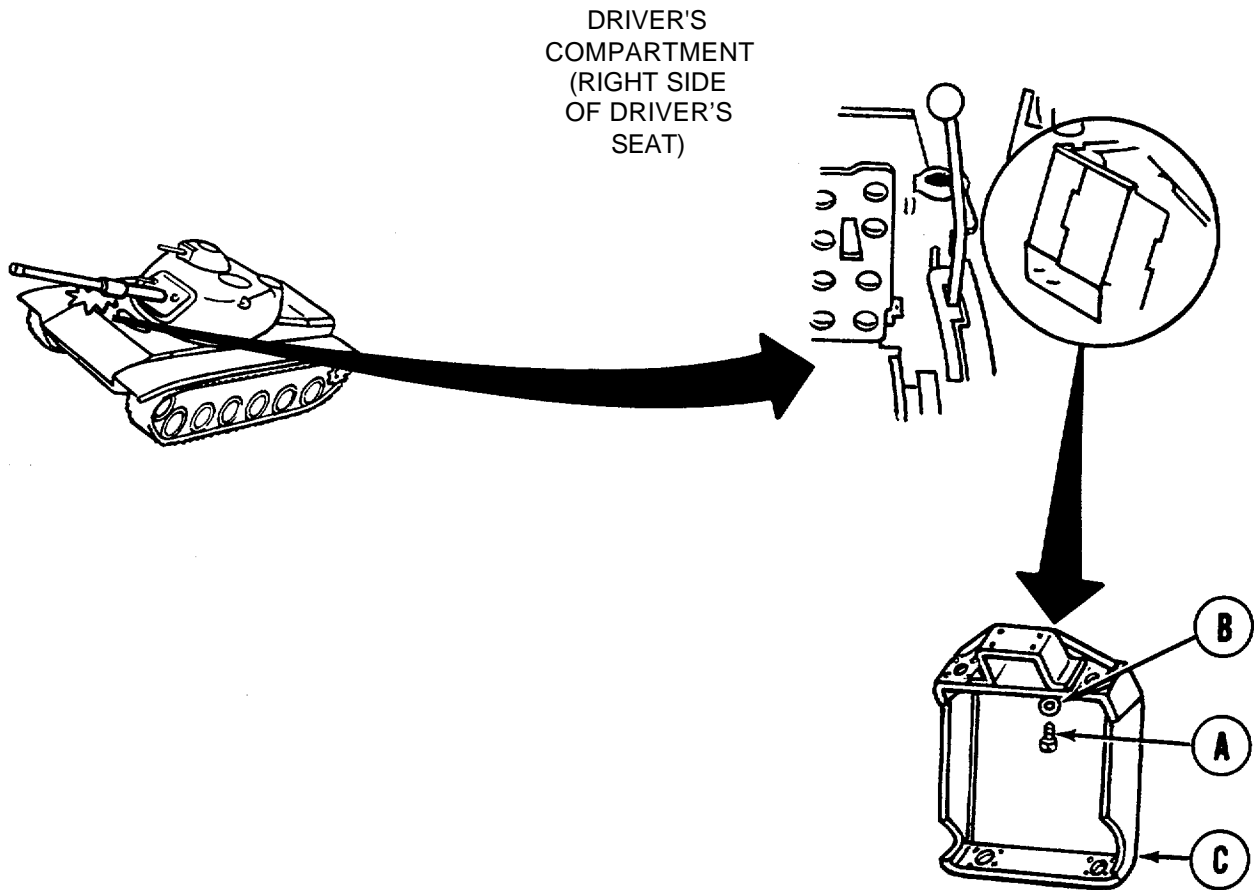
TA147079

**GAGE INSTRUMENT PANEL SUPPORT REPLACEMENT (Sheet 1 of 2)**

TOOLS: 7/16 in. combination box and open end wrench

SUPPLIES: Lockwasher (MS35333-40) (4 required)

PRELIMINARY PROCEDURES: Remove gage instrument panel cluster (page 10-137)



**REMOVAL:**

IW0525

1. Using wrench, remove four screws (A) and lockwashers (B) securing panel support (C) to hull roof. Throw lockwashers away.
2. Remove support (C) from tank.

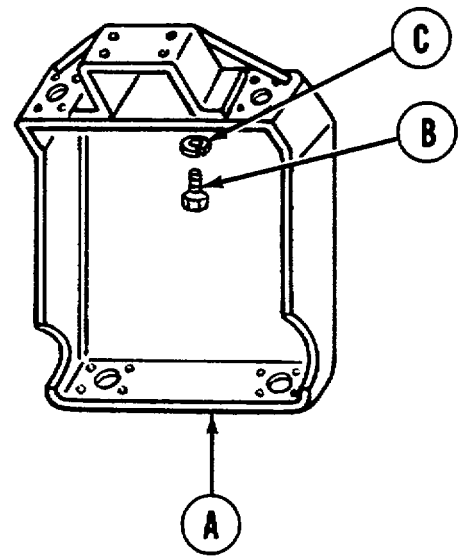
Go on to Sheet 2

TA147080



**GAGE INSTRUMENT PANEL SUPPORT REPLACEMENT (Sheet 2 of 2)****INSTALLATION:**

1. Position panel support (A) in mounting place.
2. Using wrench, tighten four screws (B) and new lockwashers (C) securing support (A) to hull roof.
3. Install gage instrument panel cluster into support (A) (page 10-138).



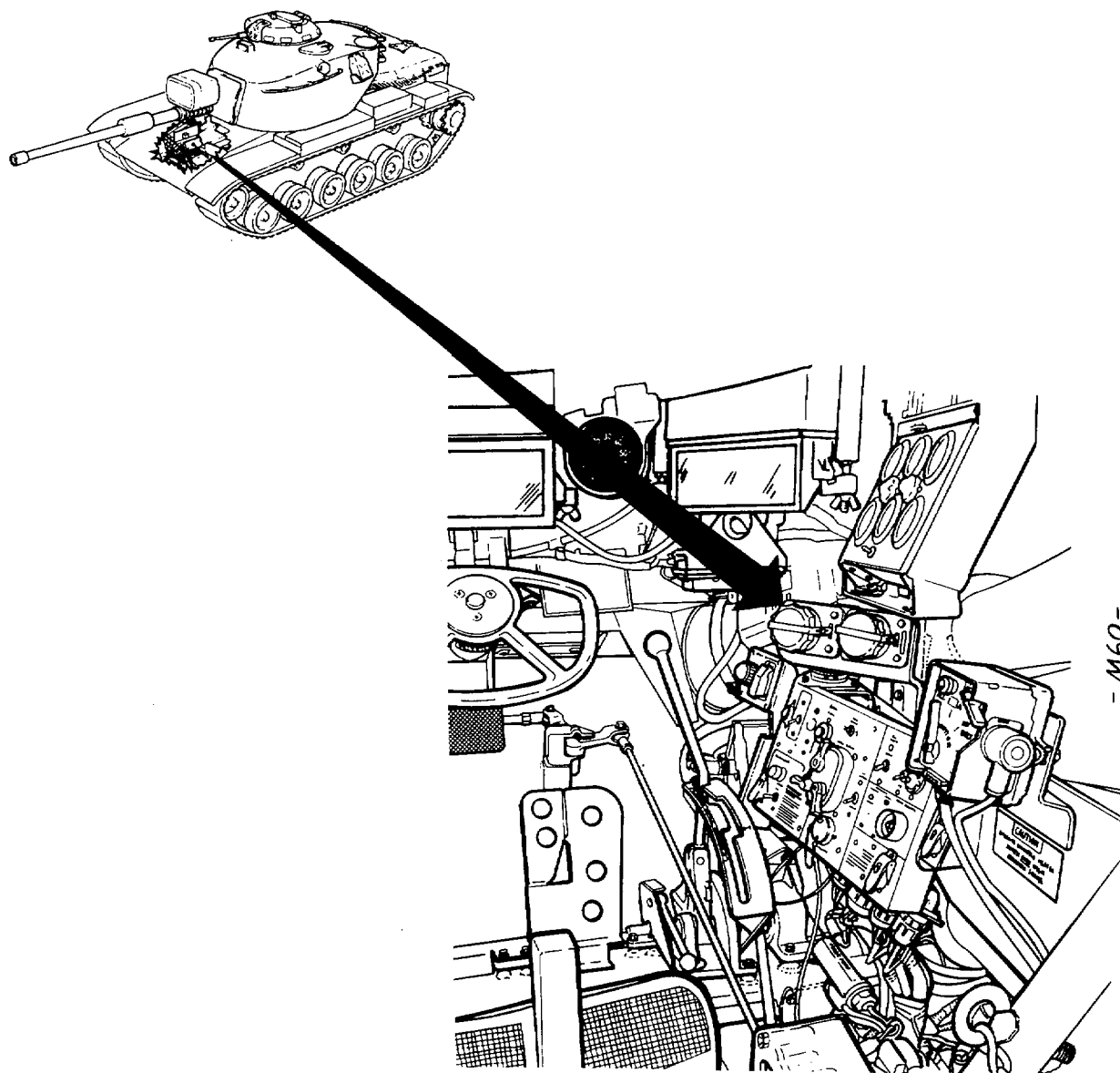
End of Task

TA147081

**MASTER CONTROL PANEL DISPLACEMENT (Sheet 1 of 3)**

**TOOLS:** 7/16 in. combination box and open end wrench (2 required)  
7/16 in. socket with 1/2 in. drive  
Ratchet with 1/2 in. drive

**SUPPLIES:** Silicone compound (Item 32, Appendix D)  
Lockwasher (MS35338-46) (4 required)

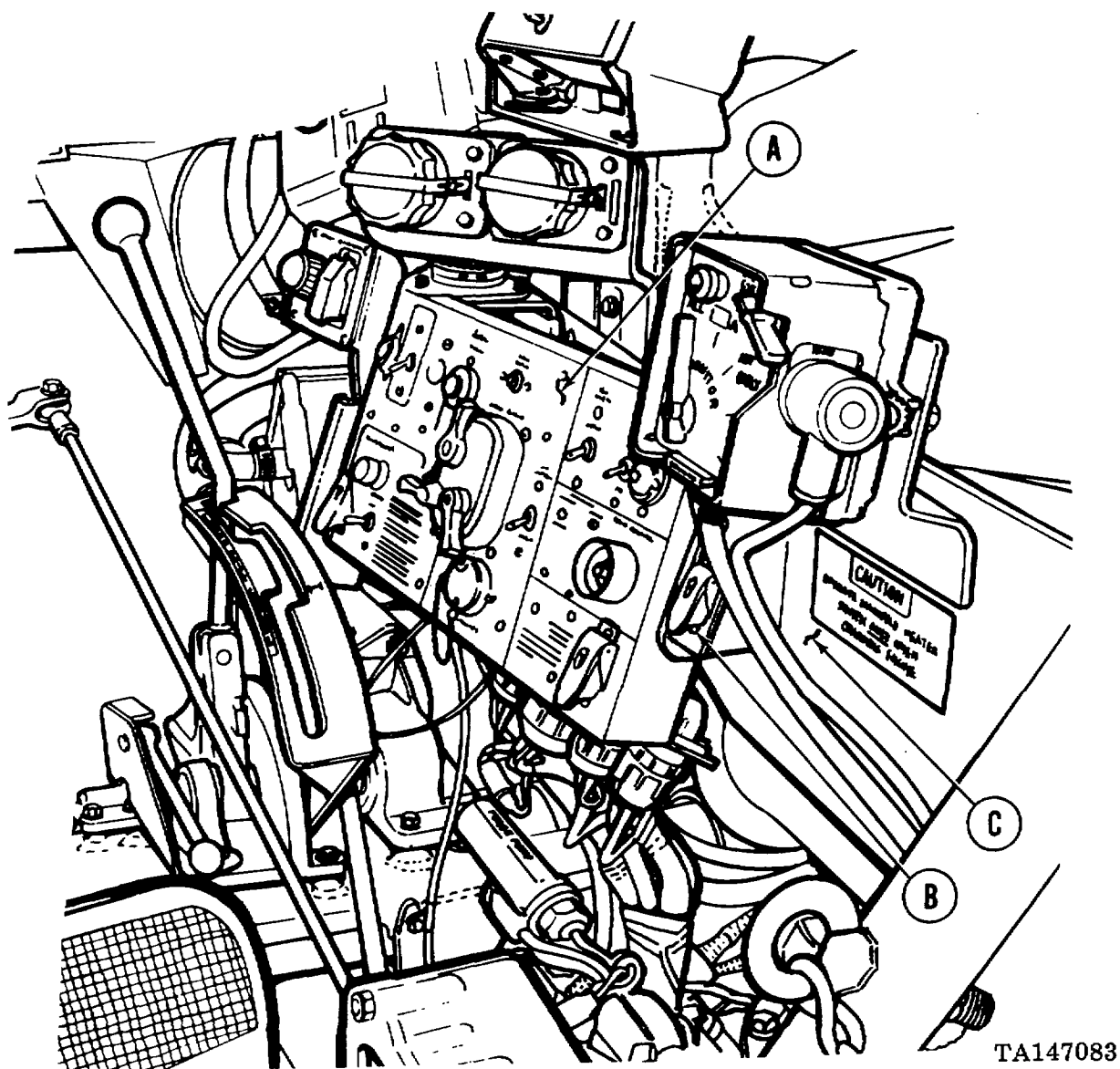


TA147082

Go on to Sheet 2

## MASTER CONTROL PANEL DISPLACEMENT (Sheet 2 of 3)

## REMOVAL:

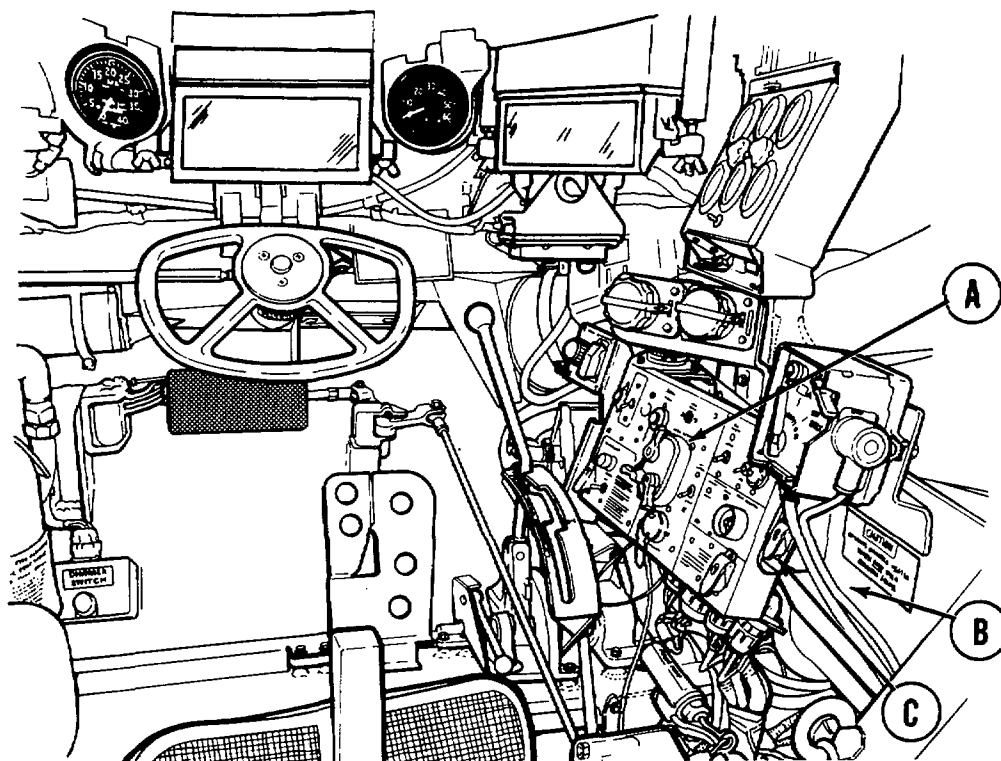


TA147083

1. Support master control panel (A).
2. Using 7/16 inch socket, remove four screws and lockwashers (B) securing master control panel (A) to plate assembly (C). Throw lockwashers away.
3. Tilt and lower master control panel (A) toward you.

Go on to Sheet 3

## MASTER CONTROL PANEL DISPLACEMENT (Sheet 3 of 3)



TA147084

## INSTALLATION:

1. Position master control panel (A) to mounting plate (B).
2. Install four screws and new lockwasher (C) to secure master control panel (A) to mounting plate (B).
3. Using 7/16 inch socket, tighten screws (C).

End of Task

**MASTER CONTROL PANEL ASSEMBLY REPLACEMENT (Sheet 1 of 5)**

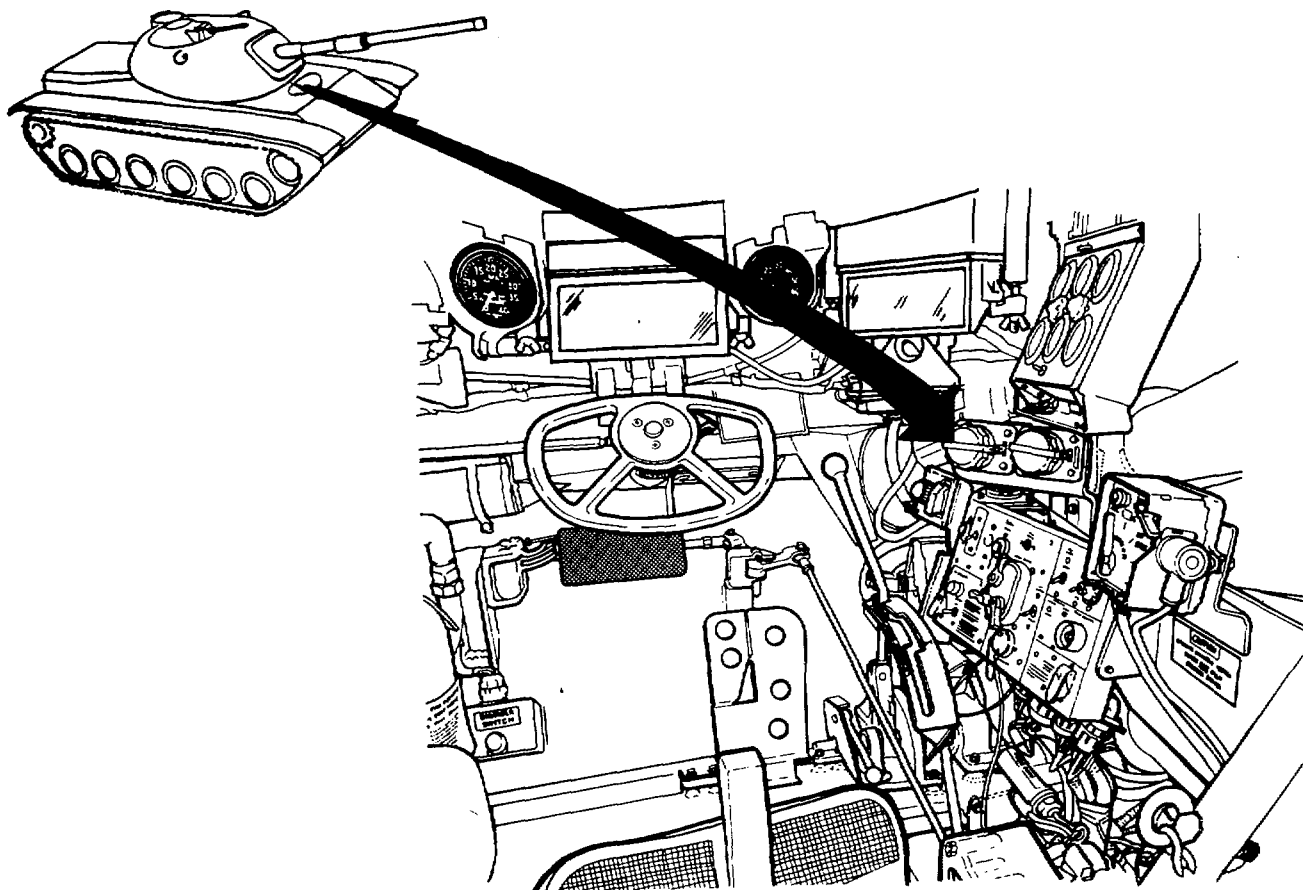
PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-54
Installation	10-56

TOOLS: 7/16 in. combination box and open end wrench  
 7/16 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 Spanner wrench

SUPPLIES: Silicone compound (Item 32, Appendix D)  
 Lockwasher (MS35333-40) (2 required)  
 Lockwasher (MS35338-46) (4 required)

PRELIMINARY PROCEDURE: Disconnect three battery ground straps (page 10-294)

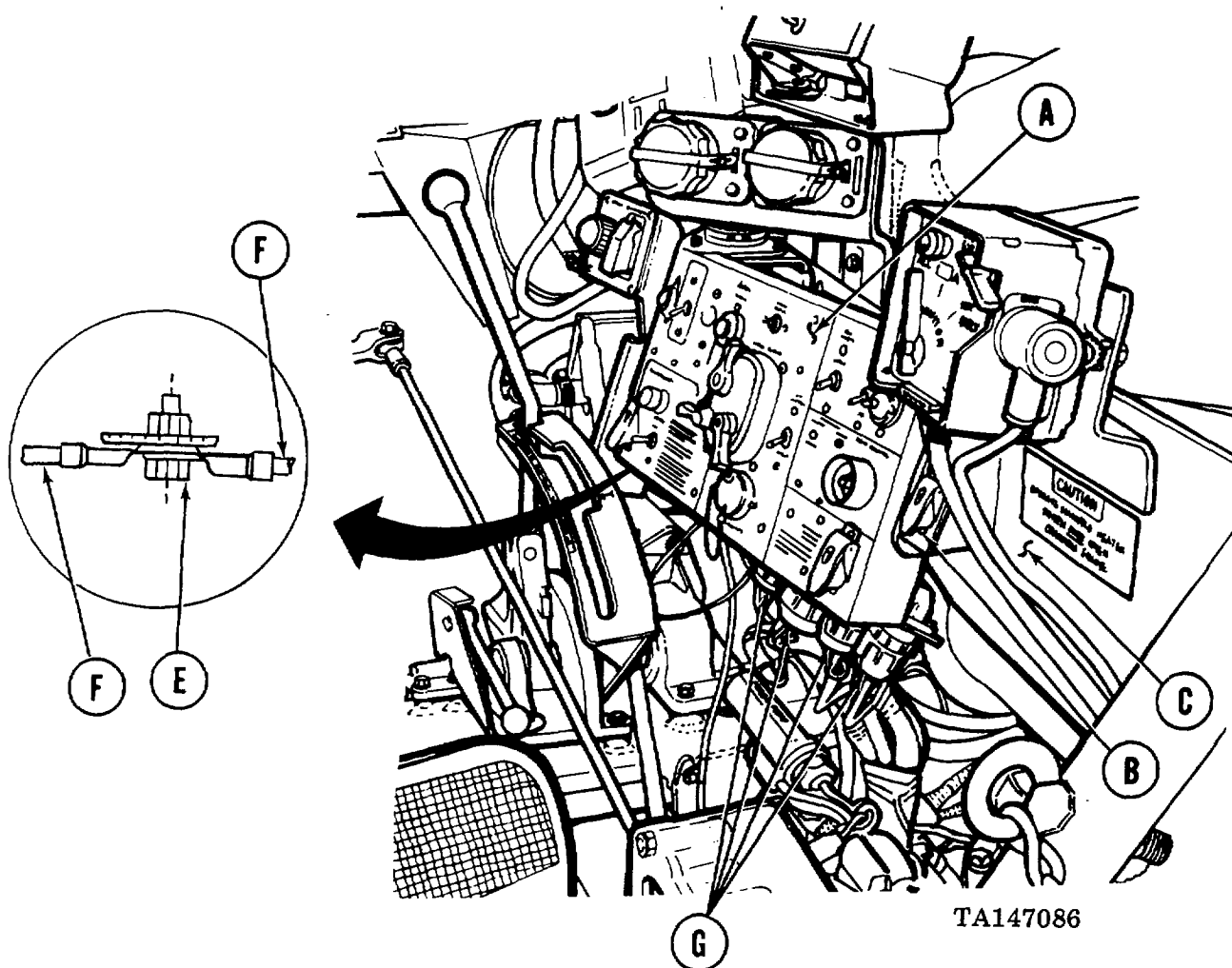


TA147085

Go on to Sheet 2

## MASTER CONTROL PANEL ASSEMBLY REPLACEMENT (Sheet 2 of 6)

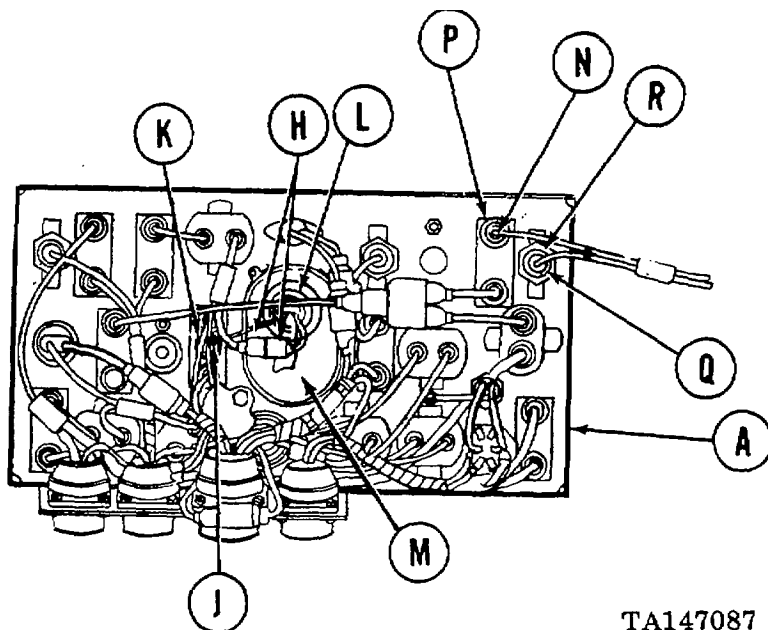
## REMOVAL:



1. Support master control panel (A).
2. Using 7/16 inch socket, remove four screws and lockwashers (B) securing master control panel (A) to plate assembly (C). Throw lockwashers away.
3. Tilt master control panel (A) toward you.
4. Using 7/16 inch wrench to hold nut, use a 7/16 inch wrench to remove screw, two lockwashers, and nut (E) securing two ground leads (F) to master control panel. Throw lockwashers away.
5. Using spanner wrench, remove four electrical connectors (G) from master control panel (A).

Go on to Sheet 3

## MASTER CONTROL PANEL ASSEMBLY REPLACEMENT (Sheet 3 of 5)



TA147087

6. Disconnect connectors (H)(CKT 15).
7. Disconnect circuit no. 19 connector (J) from switch (K).
8. Using spanner wrench, disconnect main light switch connector (L) from switch (M).
9. Disconnect circuit no. 415C connector (N) from switch (P).
10. Disconnect circuit no. 415 connector (Q) from indicator light (R).

**NOTE**

**Some early model M60 tanks may have an additional circuit (CKT 25) coming from the master control panel. Remove control panel slowly and look for this circuit. If circuit (CKT 25) is present, disconnect connector and go to step 11.**

11. Remove master control panel (A) from tank.

Go on to Sheet 4

**MASTER CONTROL PANEL ASSEMBLY RELACEMENT (Sheet 4 of 5)****INSTALLATION:**

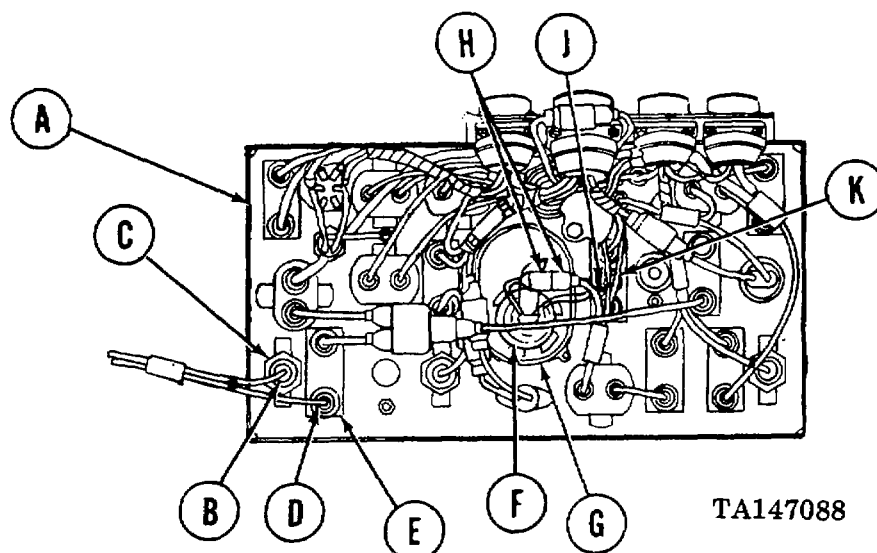
1. Position master control panel (A) into tank.
2. Support master control panel (A) face side down with connector to the right and away from you.

**NOTE**

**Apply silicone compound (Item 32, Appendix D) to all male connectors prior to installation.**

**NOTE**

**If circuit 25 was disconnected, reconnect**

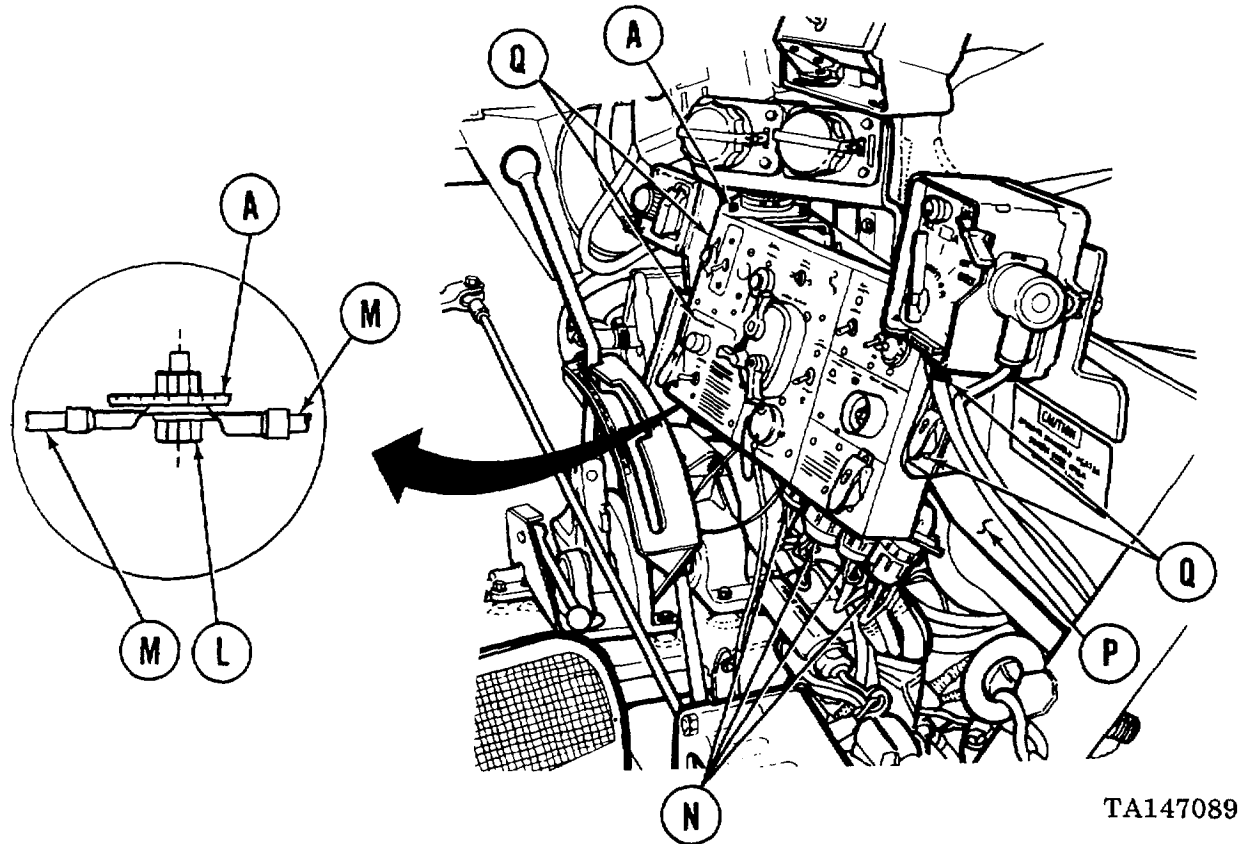


3. Connect circuit lead no. 415 connector (B) to indicator light (C).
4. Connect circuit lead no. 415 connector (D) to switch (E).
5. Using spanner wrench, connect main light switch connector (F) to switch (G).
6. Connect circuit lead no. 15 connectors (H).
7. Connect circuit lead no. 19 connector (J) to switch (K).

Go on to Sheet 5



## MASTER CONTROL PANEL ASSEMBLY REPLACEMENT (Sheet 5 of 5)



TA147089

8. Install one screw, two new lockwashers, and one nut (L) to secure two ground leads (M) to master control panel (A).
9. Using two 7/16 inch wrenches, tighten screw and nut (L).
10. Connect four electrical connectors (N), one at a time, from either left or right. Tighten each connector using spanner wrench before installing the next one.
11. Position master control panel (A) to mounting plate (P).
12. Install four screws and new lockwashers (Q) to secure master control panel (A) to mounting plate (P).
13. Using 7/16 inch socket, tighten screws (Q).
14. Connect battery ground leads (page 10-294).

End of Task

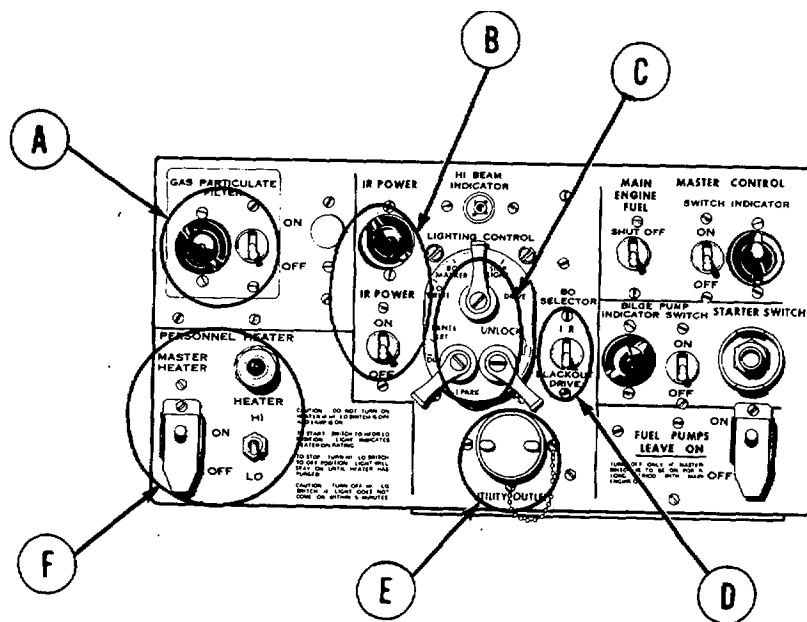
MASTER CONTROL PANEL REPAIR INDEX (Sheet 1 of 5)

NOTE

There are two master control panels for the M60 tank, which are identical except for the securing screws on the front panel. One has flat-tip and the other cross-tip screws.

PROCEDURE INDEX

PROCEDURE	PAGE
(A) Gas Particulate Switch and Indicator Light Replacement	10-63
(B) Power Switch Indicator Light Replacement	10-67
(C) Lighting Control Switch and Hi-Beam Indicator Replacement	10-71
(D) Blackout Selector Switch Replacement	10-75
(E) Utility Outlet Replacement	10-77
(F) Master Heater Switch, Hi-Low Switch, and Indicator Light Replacement	10-79



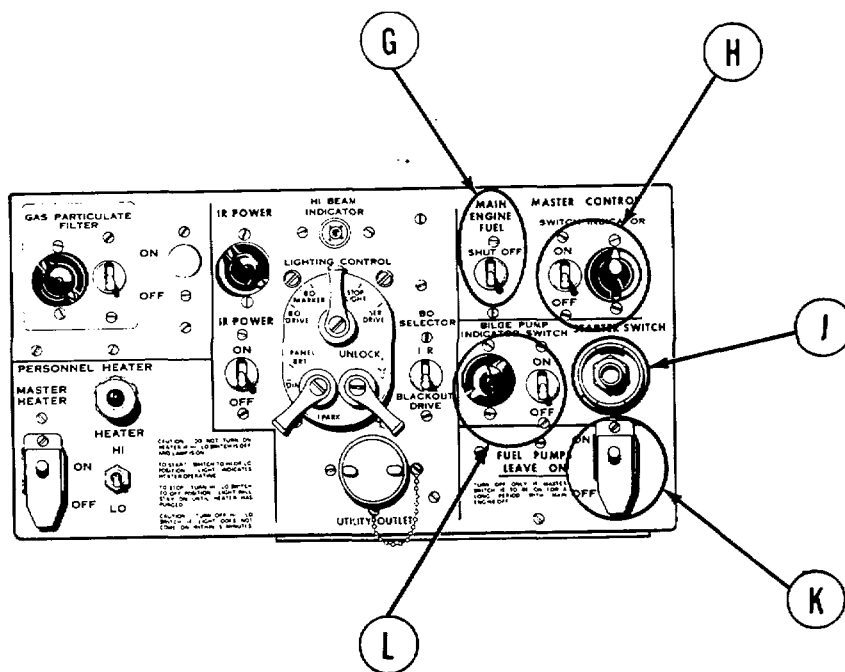
TA147090

Go on to Sheet 2

MASTER CONTROL PANEL REPAIR INDEX (Sheet 2 of 5)

PROCEDURE INDEX - CONTINUED

PROCEDURE	PAGE
(G) Main Engine Fuel Shutoff Switch Replacement	10-85
(H) Master Control Switch and Indicator Light Replacement	10-87
(J) Starter Switch Replacement	10-91
(K) Fuel Pump Switch Replacement	10-93
(L) Bilge Pump Switch and Indicator Light Replacement	10-95



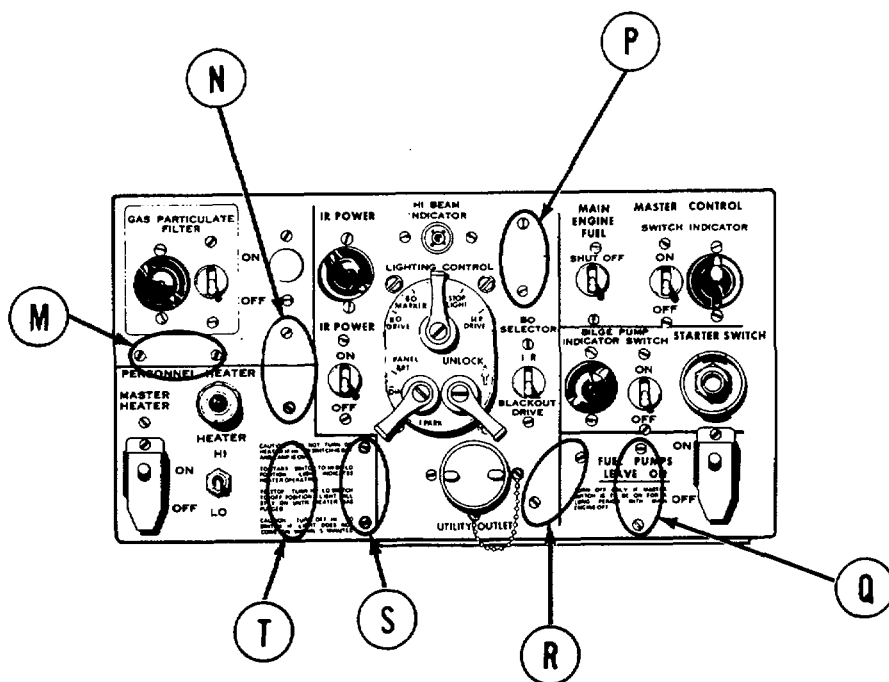
TA147091

Go on to Sheet 3

MASTER CONTROL PANEL REPAIR INDEX (Sheet 3 of 5)

PROCEDURE INDEX - CONTINUED

PROCEDURE	PAGE
(M) Bilge Pump Circuit Breaker Replacement	10-100
(N) Manifold Preheat Circuit Breaker Replacement	10-100
(P) Fuel Shutoff Circuit Breaker Replacement	10-100
(Q) Fuel Pump Circuit Breaker Replacement	10-100
(R) Utility Outlet Circuit Breaker Replacement	10-100
(S) IR Power Circuit Breaker Replacement	10-100
(T) Gage Circuit Breaker Replacement	10-102



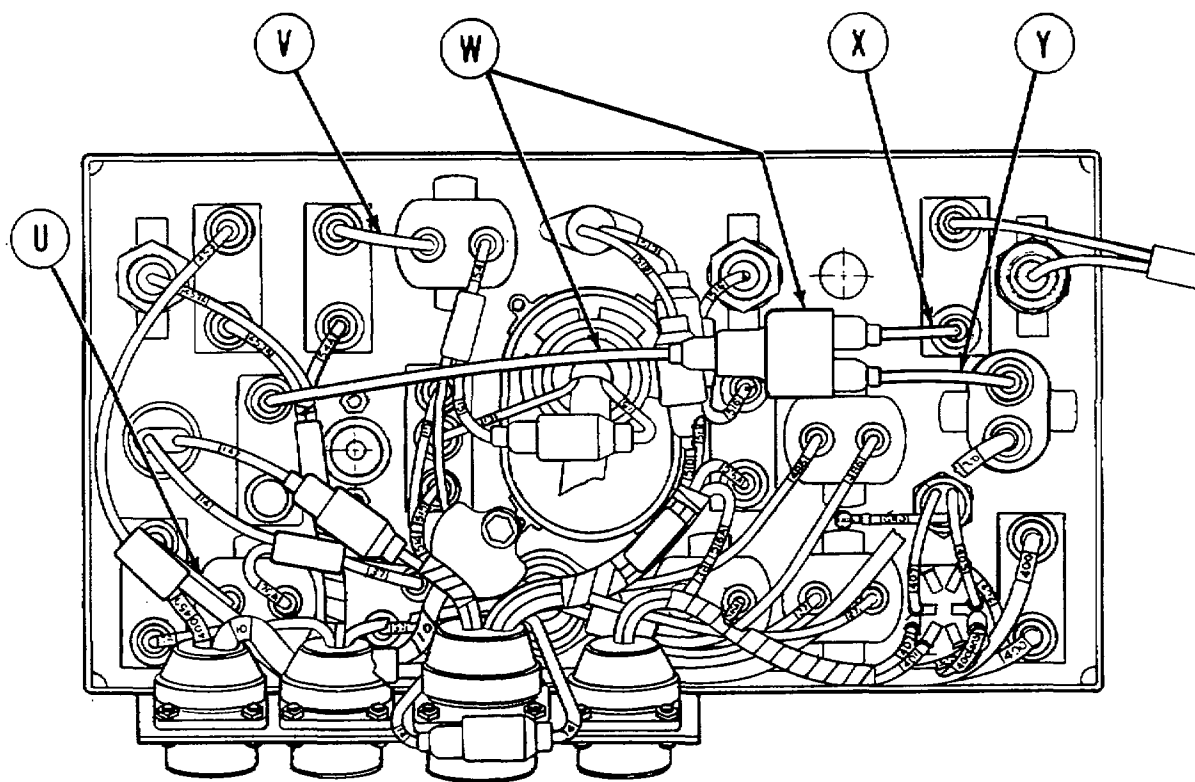
TA147092

Go on to Sheet 4

MASTER CONTROL PANEL REPAIR INDEX (Sheet 4 of 5)

PROCEDURE INDEX - CONTINUED

PROCEDURE	PAGE
(U) Fuel Pump Switch Lead Assembly Replacement	10-104
(V) Fuel Shutoff Switch Lead Assembly Replacement	10-106
(W) Bilge Pump Switch Lead Assembly and Power Connector Assembly Replacement	10-108
(X) Gas Particulate Switch Lead Assembly Replacement	10-110, 112
(Y) Bilge Pump Circuit Breaker Lead Assembly Replacement	10-114



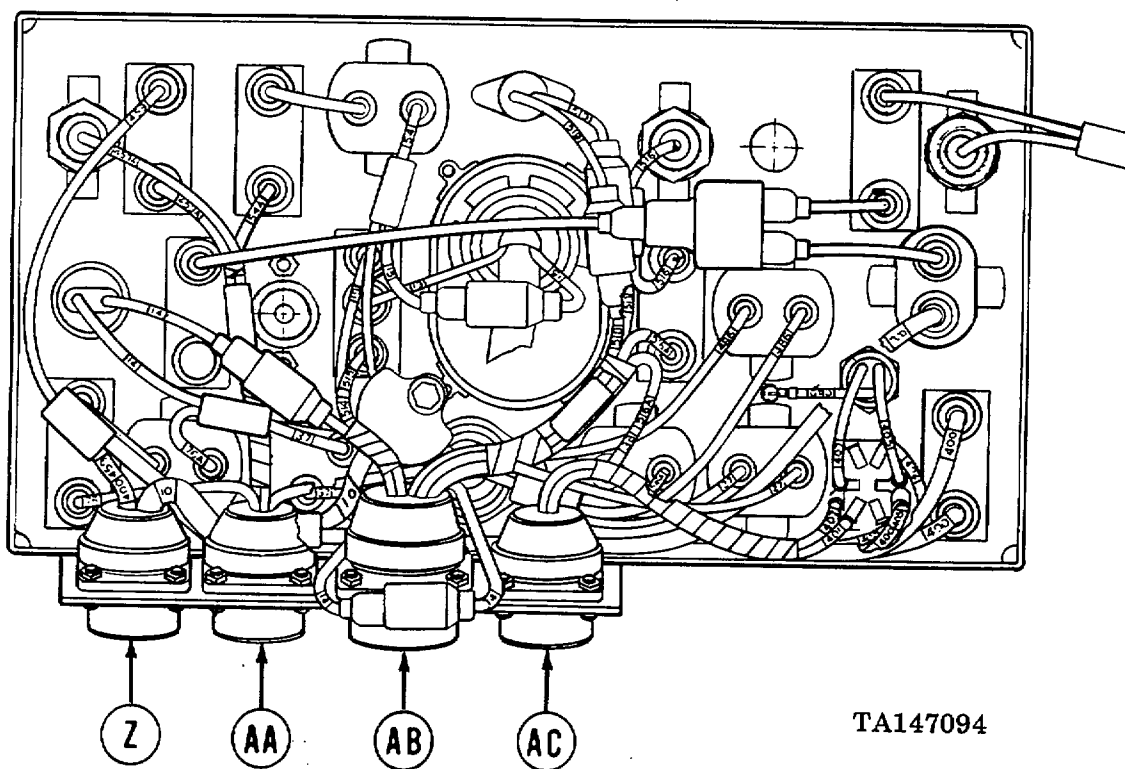
TA147093

Go on to Sheet 5

MASTER CONTROL PANEL REPAIR INDEX (Sheet 5 of 5)

PROCEDURE INDEX - CONTINUED

PROCEDURE	PAGE
(Z) Master Control Panel Power Wiring Harness Replacement	10-116
(AA) Master Control Panel Starting Wiring Harness Replacement	10-122
(AB) Master Control Panel Accessories Wiring Harness Replacement	10-126
(AC) Master Control Panel Personnel Heater Wiring Harness Replacement	10-130



TA147094

**MASTER CONTROL PANEL REPAIR (Sheet 1 of 71)**  
**Gas Particulate Switch and Indicator Light Replacement (Sheet 1 of 4)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-63
Installation	10-65

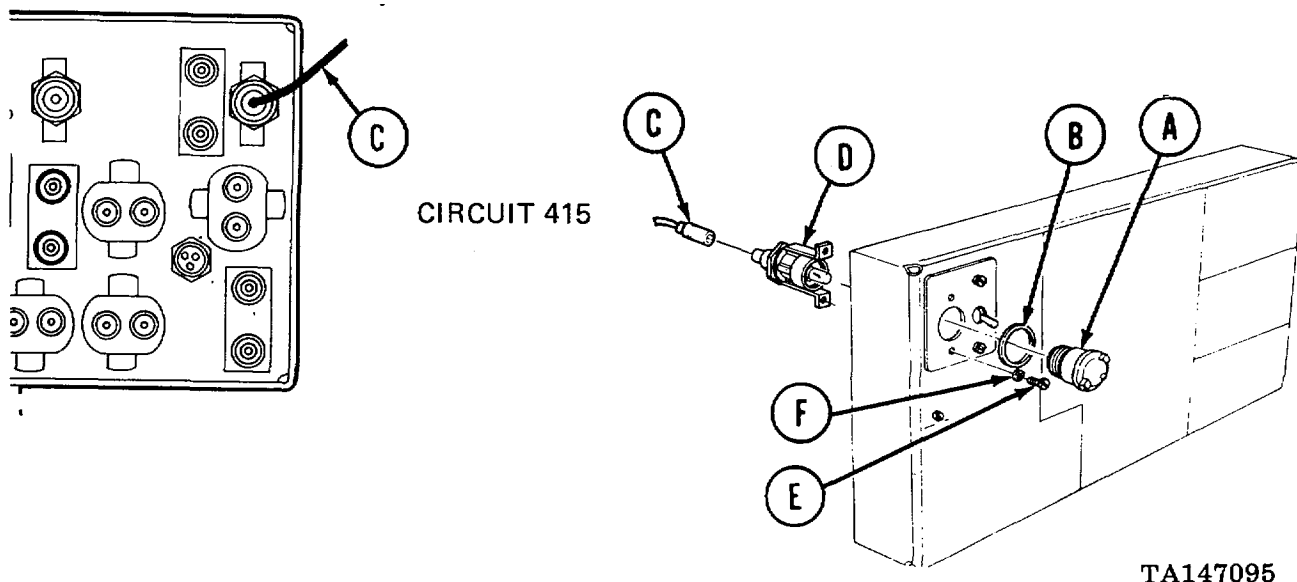
TOOLS: Flat-tip screwdriver  
 Cross-tip screwdriver

SUPPLIES: Lockwasher (MS35338-42) (4 required)  
 Silicone compound (Item 32, Appendix D)  
 Preformed packing (7358626)

PRELIMINARY PROCEDURE: Remove panel from tank (page 10-54)

REMOVAL:

1. Using fingers, remove lens (A) by turning counterclockwise.
2. Remove preformed packing (B). Throw preformed packing away.
3. Using fingers, disconnect electrical connector (C) from rear of base assembly (D).
4. Using screwdriver, remove two screws (E) and lockwashers (F) securing base assembly (D) to panel. Throw lockwashers away.

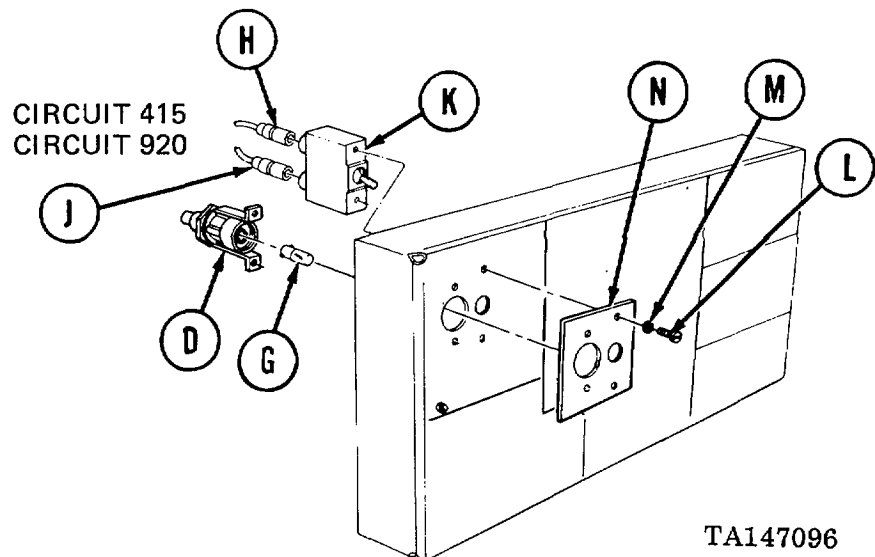
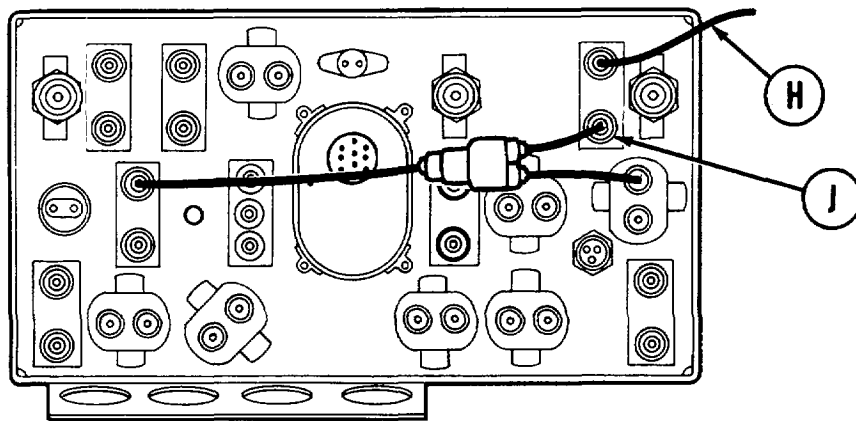


Go on to Sheet 2

**MASTER CONTROL PANEL REPAIR (Sheet 2 of 71)**

**Gas Particulate Switch and Indicator Light Replacement (Sheet 2 of 4)**

5. Remove base assembly (D).
6. Using fingers, remove lamp (G) from be assembly (D) by pushing in and turning counterclockwise.
7. Using fingers, remove two electrical connectors (H) and (J) from rear of switch (K).
8. Using screwdriver, remove two screws (L) and lockwashers (M) securing switch (K) to panel. Throw lockwashers away.
9. Remove switch (K) and plate (N).



TA147096

Go on to Sheet 3

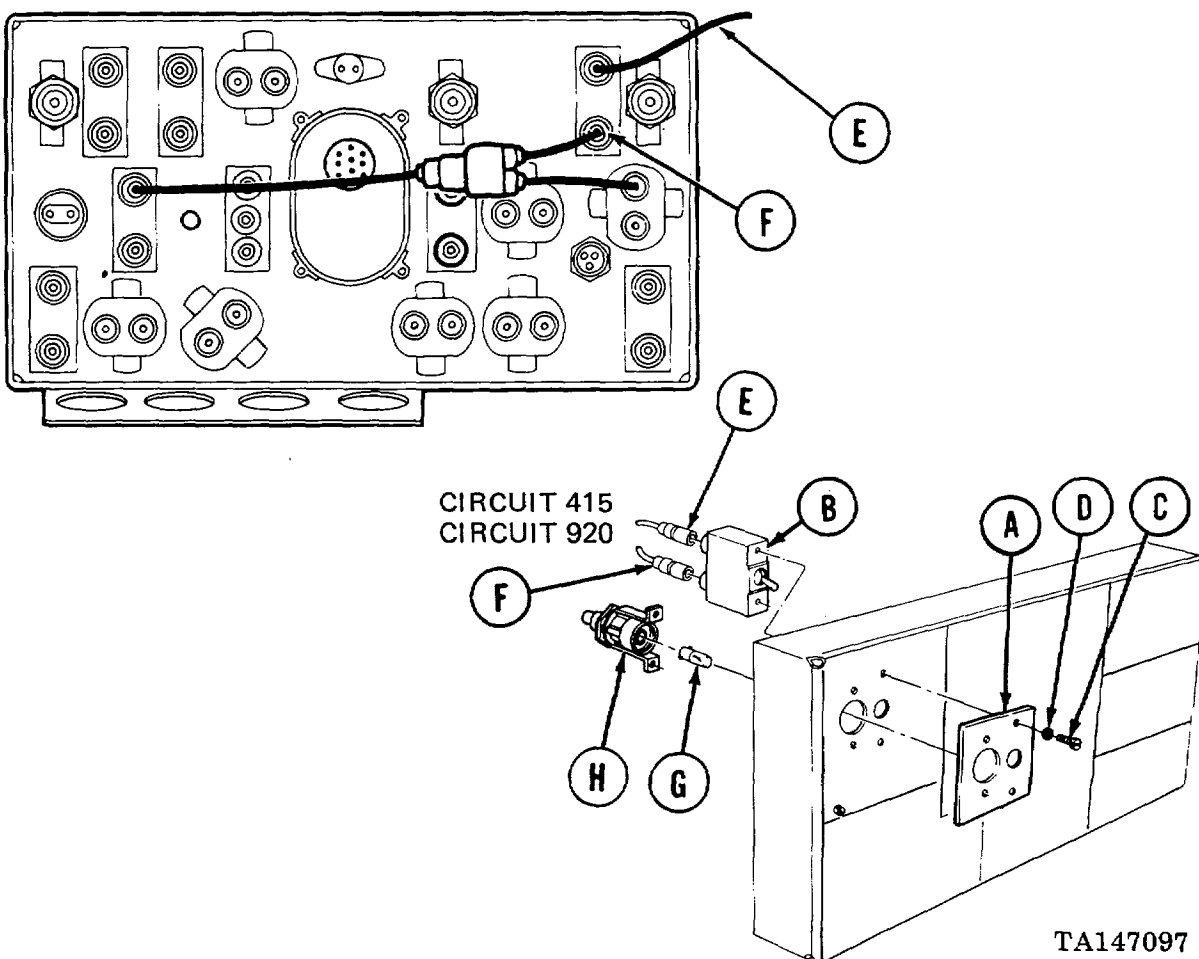


**MASTER CONTROL PANEL REPAIR (Sheet 3 of 71)**

**Gas Particulate Switch and Indicator Light Replacement (Sheet 3 of 4)**

**INSTALLATION:**

1. Place plate (A) and switch (B) in position on panel.
2. Using screwdriver, install two screws (C) and new lockwashers (D) securing plate (A) and switch (B) to panel.
3. Apply silicone compound (Item 32, Appendix D) to electrical connector (E) and (F).
4. Using finger, connect two electrical connectors (E) and (F) to switch (B) by pushing in.
5. Using fingers, install lamp (G) in base assembly (H) by pushing in and turning clockwise.
6. Place base assembly (H) in position on panel.

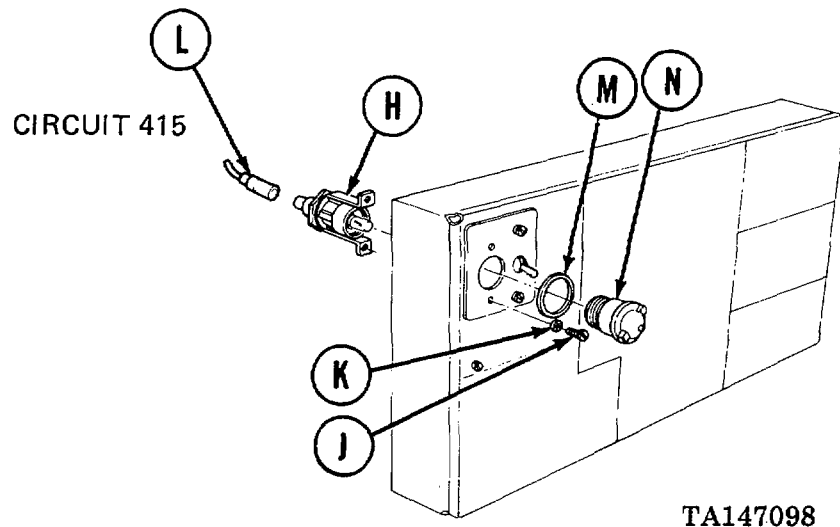
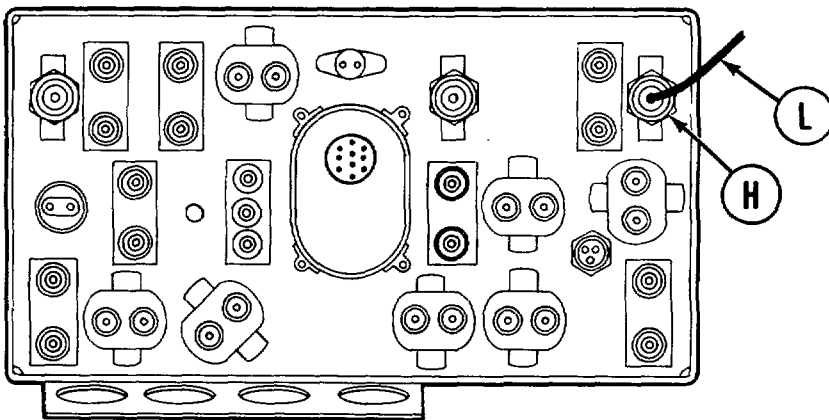


Go on to Sheet 4

**MASTER CONTROL PANEL REPAIR (Sheet 4 of 71)**

**Gas Particulate Switch and Indicator Light Replacement (Sheet 4 of 4)**

7. Using screwdriver, install two screws (J) and new lockwashers (K) securing base assembly (H) to panel.
8. Apply silicone compound (Item 32, Appendix D) to electrical connector (L).
9. Using fingers, connect electrical connector (L) to base assembly (H).
10. Place new preformed packing (M) in position on lens (N).
11. Using fingers, install lens (N) in panel by turning clockwise.
12. Install panel in tank (page 10-56).



End of Task

**MASTER CONTROL PANEL REPAIR (Sheet 5 of 71)**  
**IR Power Switch and Indicator Light Replacement (Sheet 1 of 4)**

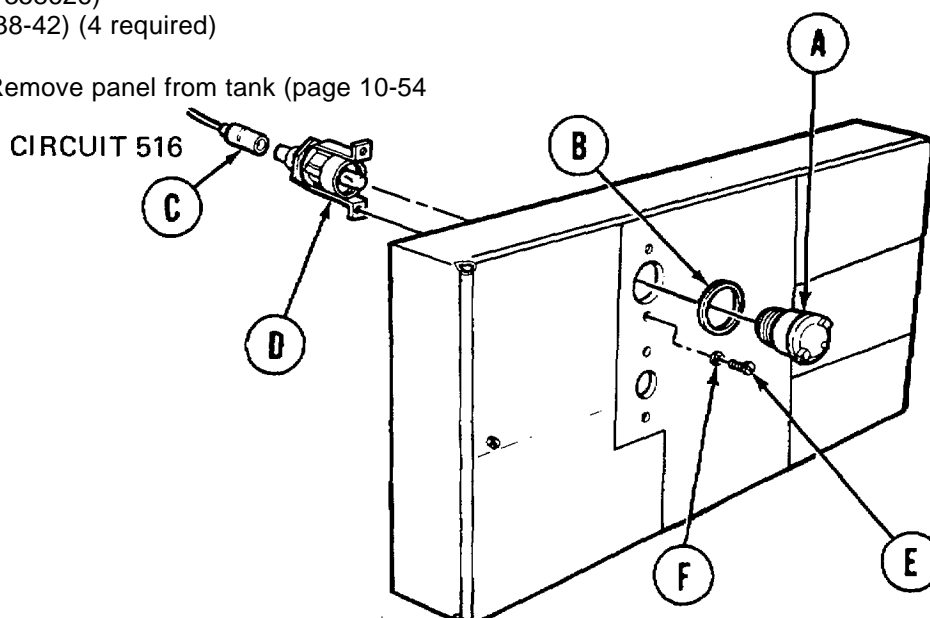
PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-67
Installation	10-69

TOOLS: Flat-tip screwdriver  
 Cross-tip screwdriver

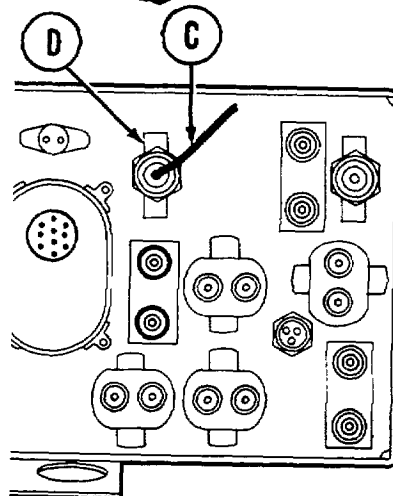
SUPPLIES: Silicone compound (Item 32, Appendix D)  
 Preformed packing (7358626)  
 Lockwasher (MS35338-42) (4 required)

PRELIMINARY PROCEDURE: Remove panel from tank (page 10-54)



REMOVAL:

1. Using fingers, remove lens (A) by turning counterclockwise.
2. Remove preformed packing (B). Throw preformed packing away.
3. Using fingers, disconnect electrical connector (C) from rear of base assembly (D).
4. Using screwdriver, remove two screws (E) and lockwashers (F) securing base assembly (D) to panel. Throw lockwashers away.
5. Remove base assembly (D).

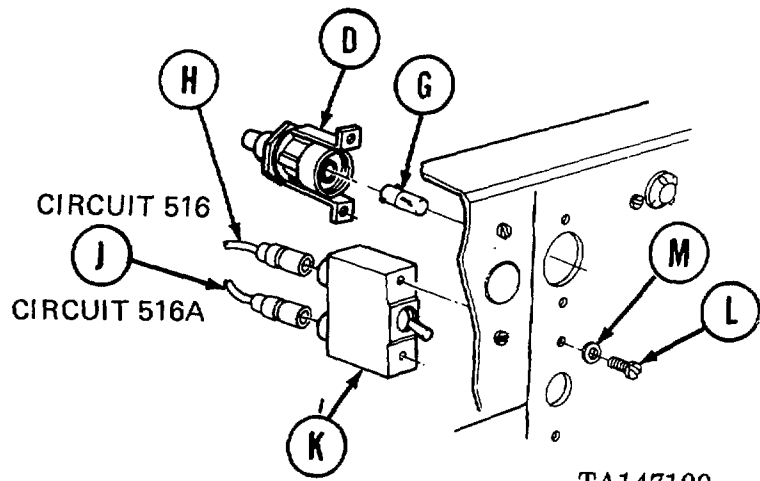
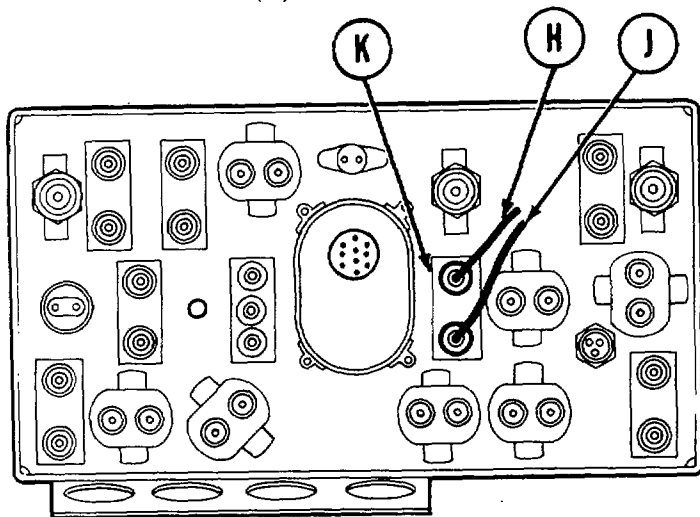


TA147099

Go on to Sheet 2

**MASTER CONTROL PANEL REPAIR (Sheet 6 of 71)**  
**IR Power Switch and Indicator Light Replacement (Sheet 2 of 4)**

6. Using fingers, remove lamp (G) from be assembly (D) by pushing in and turning counterclockwise.
7. Using fingers, remove two electrical connectors (H) and (J) from rear of switch (K).
8. Using screwdriver, remove two screw (L) and lockwashers (M) securing switch (K) to panel. Throw lockwashers away.
9. Remove switch (K).

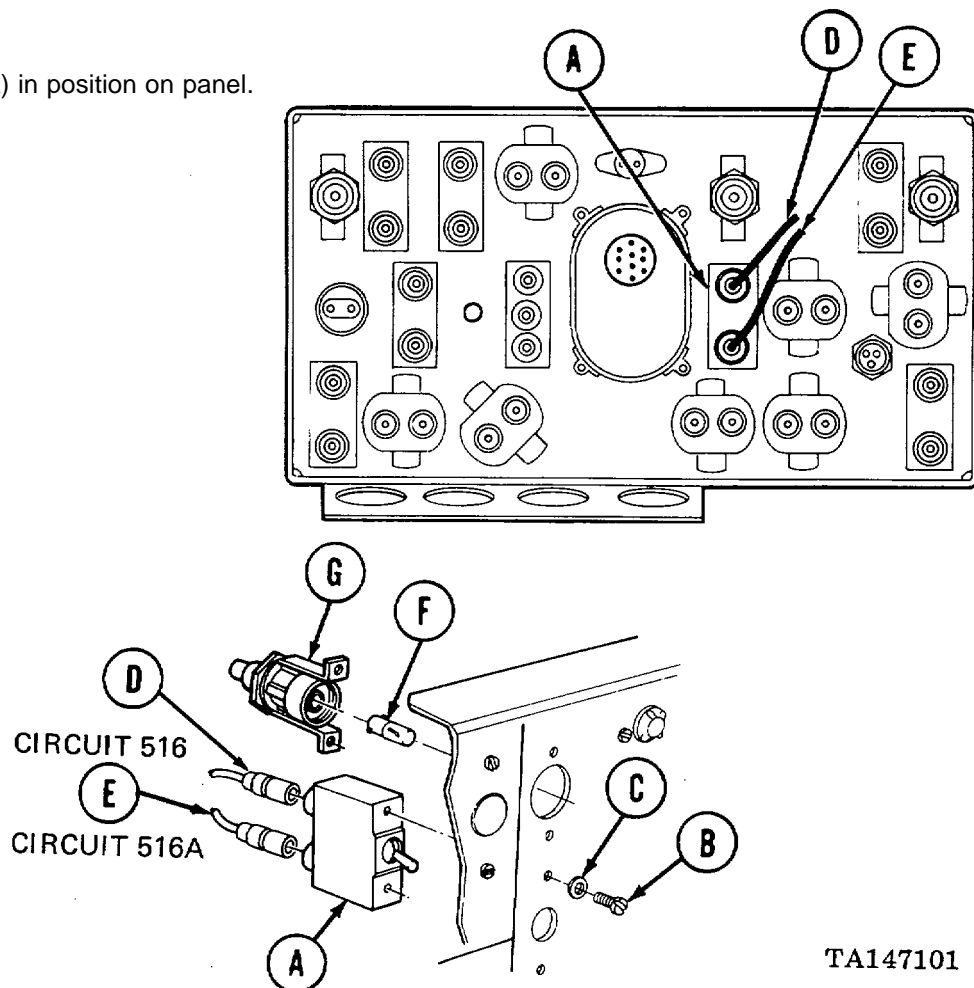


Go on to Sheet 3

**MASTER CONTROL PANEL REPAIR (Sheet 7 of 71)**  
**IR Power Switch and Indicator Light Replacement (Sheet 3 of 4)**

INSTALLATION:

1. Place switch (A) in position on panel.

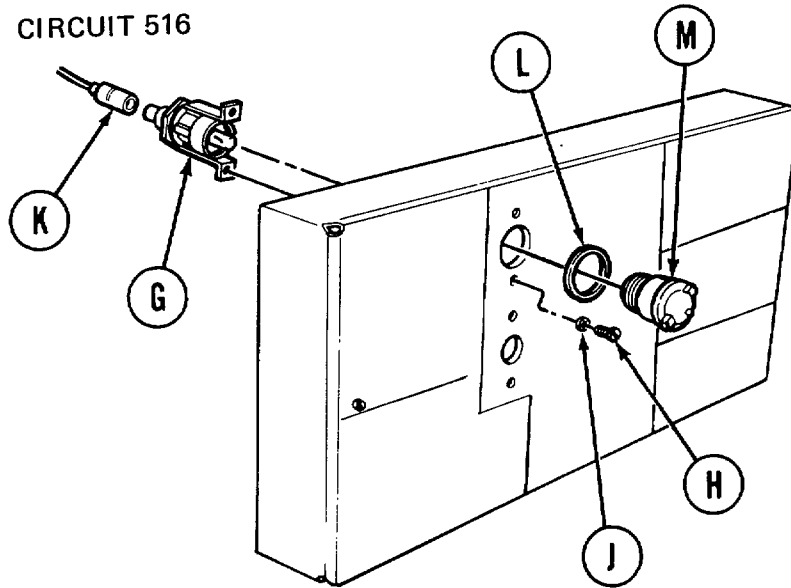


2. Using screwdriver, install two screws (B) and new lockwashers (C) securing switch (A) to panel.
3. Apply silicone compound (Item 32, Appendix D) to two electrical connectors (D) and (E).
4. Using fingers, connect two electrical connectors (D) and (E) to switch (A) by pushing in
5. Using finger, install lamp (F) in base assembly (G) by pushing in and turning clockwise.
6. Place base assembly (G) in position on panel.

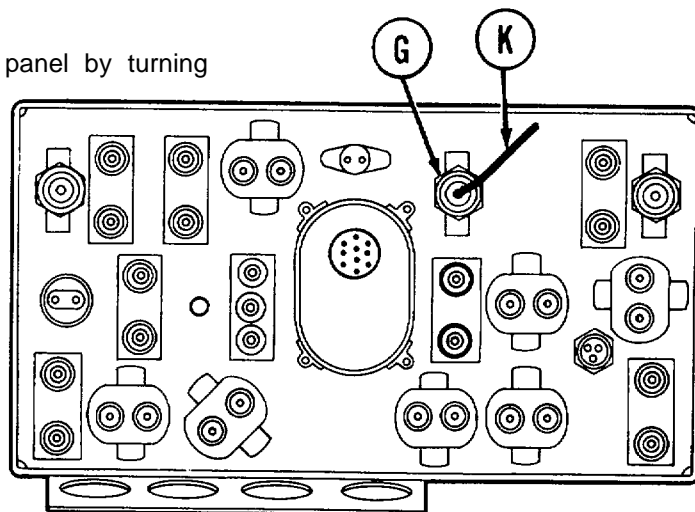
Go on to Sheet 4

**MASTER CONTROL PANEL REPAIR (Sheet 8 of 71)**  
**IR Power Switch and Indicator Light Replacement (Sheet 4 of 4)**

7. Using screwdriver, install two screws (H) and new lockwashers (J) securing be assembly (G) to panel.
8. Apply silicone compound (Item 32, Appendix D) to electrical connector (K).



9. Using fingers, connect electrical connector (K) to rear of base assembly (G).
10. Place new preformed packing (L) in position on lens (M).
11. Using fingers, install lens (M) in panel by turning clockwise.
12. Install panel in tank (page 10-56).



TA147102

End of Task

**MASTER CONTROL PANEL REPAIR (Sheet 9 of 71)**  
**Lighting Control Switch and Hi-Beam Indicator Light Replacement (Sheet 1 of 4)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-71
Installation	10-73

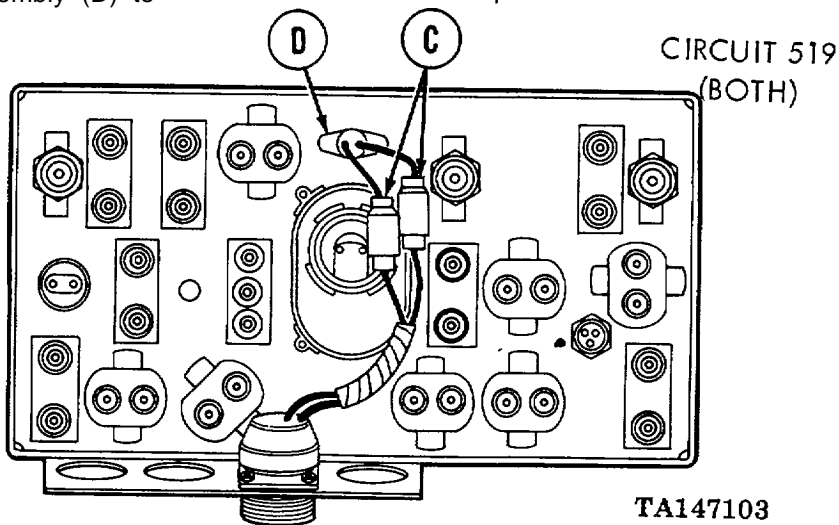
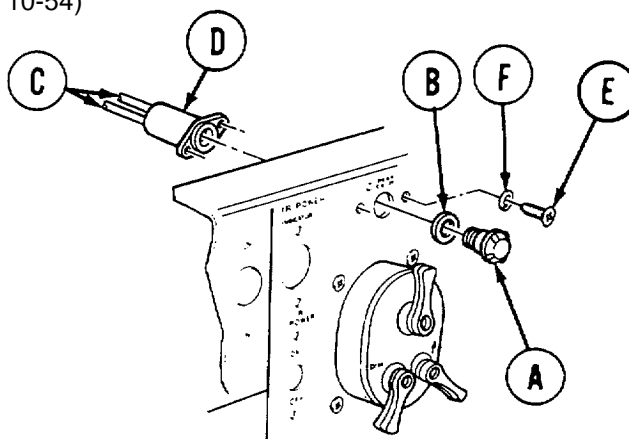
TOOLS: Flat-tip screwdriver  
 Cross-tip screwdriver

SUPPLIES: Lockwasher (MS35338-43) (4 required)  
 Silicone compound (Item 32, Appendix D)  
 Preformed packing (7358626)  
 Lockwasher (MS35338-42) (2 required)

PRELIMINARY PROCEDURE: Remove panel from tank (page 10-54)

REMOVAL:

1. Using fingers, remove lens (A) by turning counterclockwise.
2. Remove preformed packing (B). Throw preformed packing away.
3. Using fingers, disconnect two electrical connectors (C) on rear of base assembly.
4. Using cross-tip screwdriver, remove two screws (E) and lockwashers (F) securing base assembly (D) to panel. Throw lockwashers away.
5. Remove base assembly (D).

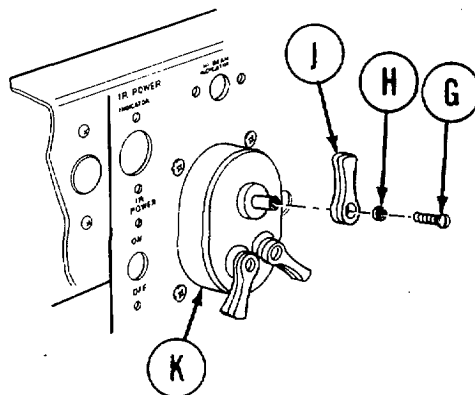


Go on to Sheet 2

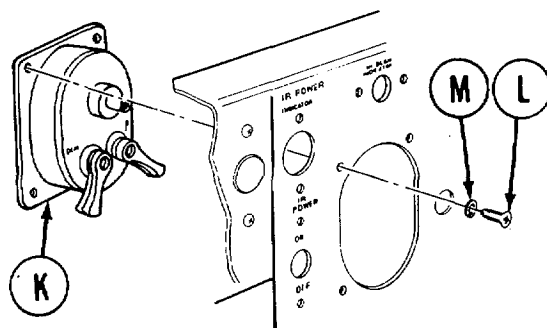
**MASTER CONTROL PANEL REPAIR (Sheet 10 of 71)**

**Lighting Control Switch and Hi-Beam Indicator Light Replacement (Sheet 2 of 4)**

- Using flat-tip screwdriver, remove screw (G), lockwasher (H), and switch control handle (J) from light control switch (K). Save parts for installation.



- Using cross-tip screwdriver, remove four screws (L) and lockwashers (M) securing lighting control switch (K) to panel. Throw lockwashers away.
- Remove lighting control switch (K) from rear of panel.



TA147104

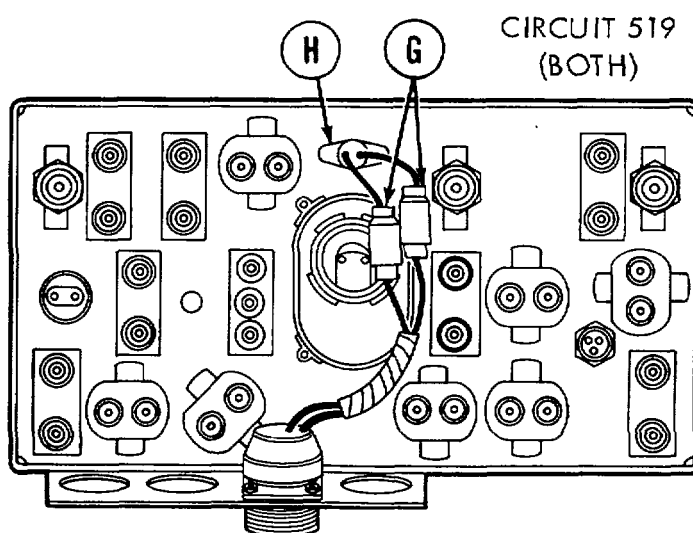
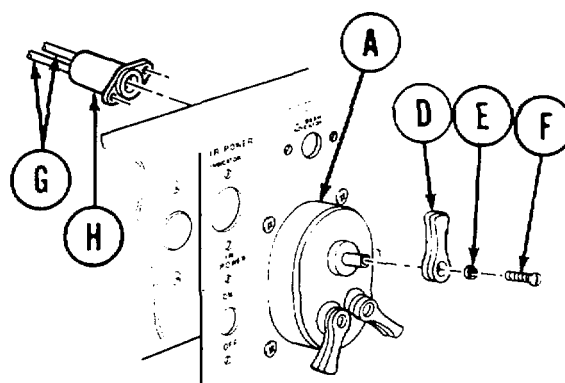
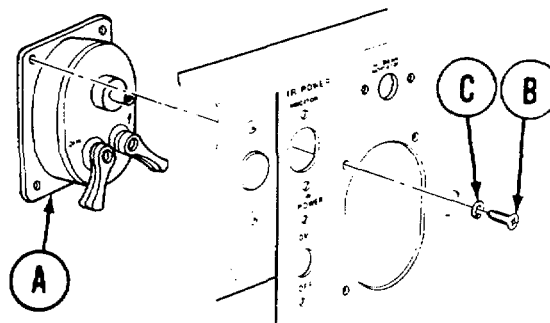
Go on to Sheet 3



**MASTER CONTROL PANEL REPAIR (Sheet 11 of 71)**  
**Lighting Control Switch and Hi-Beam Indicator Light Replacement (Sheet 3 of 4)**

**INSTALLATION:**

1. Place lighting control switch (A) in position on panel.
2. Using cross-tip screwdriver, install four screws (B) and new lockwashers (C) securing lighting control panel switch (A) to panel.
3. Using flat-tip screwdriver, install switch control handle (D), lockwasher (E), and screw (F) to lighting control switch (A)
4. Apply silicone compound (Item 32, Appendix D) two electrical connectors (G) at rear of base assembly (H).
5. Using fingers, connect two electrical connectors (G) at rear of base assembly (H).
6. Place base assembly (H) in position on panel.

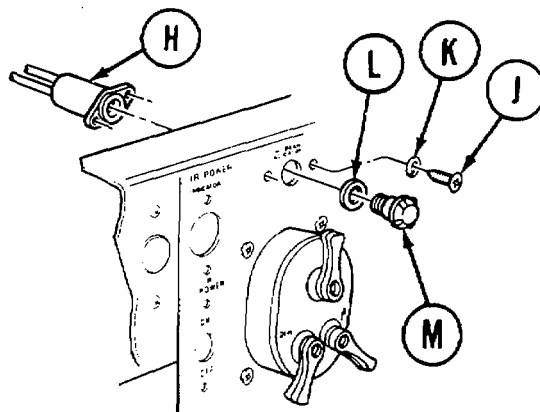


Go on to Sheet 4

TA147105

**MASTER CONTROL PANEL REPAIR (Sheet 12 of 71)****Lighting Control Switch and Hi-Beam Indicator Light Replacement (Sheet 4 of 4)**

7. Using cross-tip screwdriver, install two screws (J) and new lockwashers (K) securing base assembly (H) to panel.
8. Place new preformed packing (L) in position on lens (M).
9. Using fingers, install lens (M) in panel by turning clockwise.
10. Install panel in tank (page 10-56).



TA147106

End of Task

**MASTER CONTROL PANEL REPAIR (Sheet 13 of 71)**  
**Blackout Selector Switch Replacement (Sheet 1 of 2)**

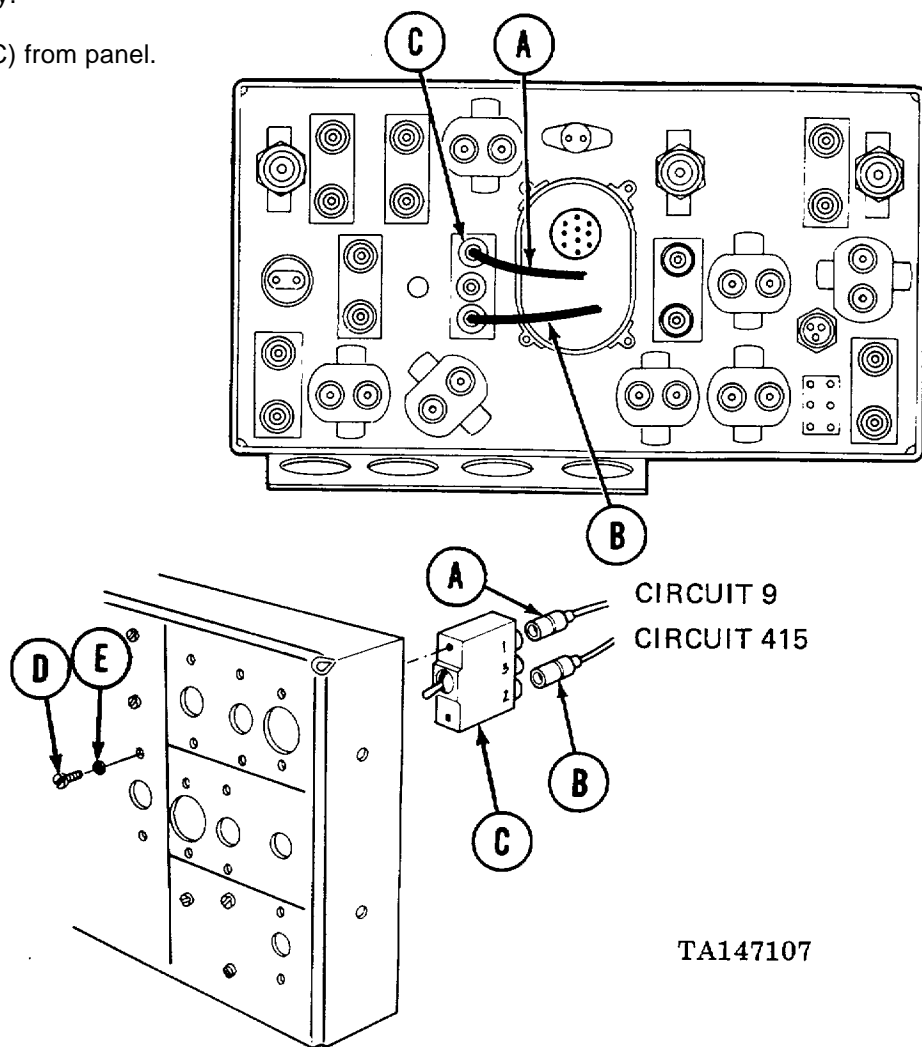
TOOLS: Flat-tip screwdriver  
 Cross-tip screwdriver

SUPPLIES: Silicone compound (Item 32, Appendix D)  
 Lockwasher (MS35338-42) (2 required)

PRELIMINARY PROCEDURE: Remove panel from tank (page 10-54)

REMOVAL:

1. Using fingers, remove two electrical connectors (A) and (B) from switch (C).
2. Using screwdriver, remove two screws (D) and lockwashers (E) securing switch (C) to panel. Throw lockwashers away.
3. Remove switch (C) from panel.



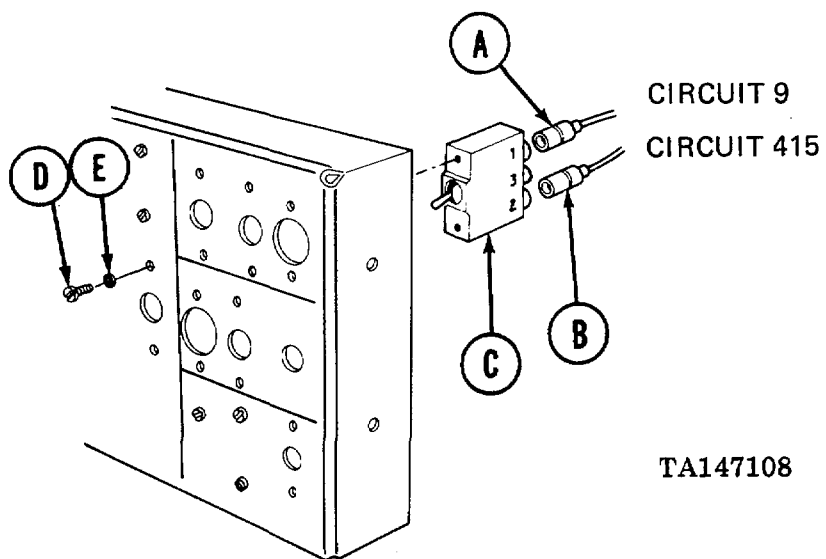
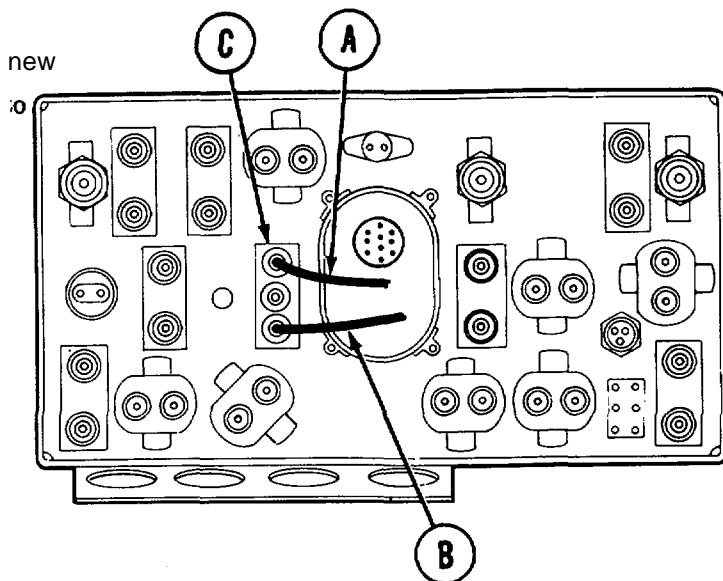
TA147107

Go on to Sheet 2

**MASTER CONTROL PANEL REPAIR (Sheet 14 of 71)**  
**Blackout Selector Switch Replacement (Sheet 2 of 2)**

**INSTALLATION:**

1. Apply silicone compound (Item 32, Appendix D) to two electrical connectors (A) and (B).
2. Using fingers, connect two electrical connectors (A) and (B) to outside connectors of switch (C) by pushing in.
3. Place switch (C) in position on panel.
4. Using screwdriver, install two screws (D) and new lockwashers (E) securing switch (C) to panel.
5. Install master control panel (page 10-56).



TA147108

End of Task

**MASTER CONTROL PANEL REPAIR (Sheet 15 of 71)**  
**Utility Outlet Replacement (Sheet 1 of 2)**

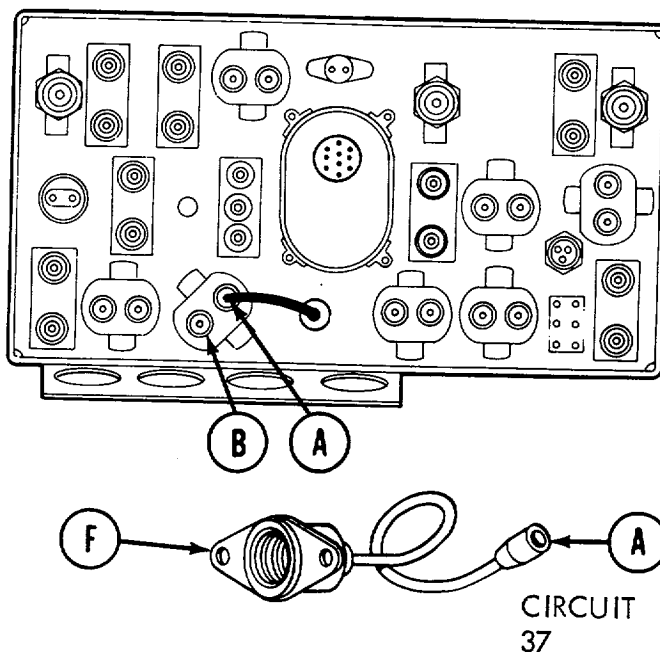
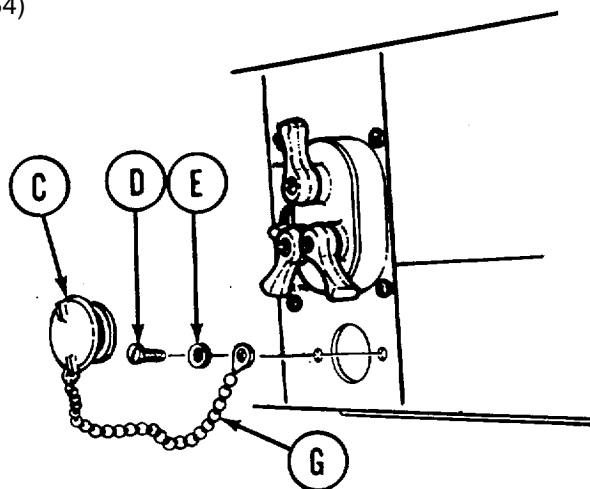
**TOOLS:** Flat-tip screwdriver  
 Cross-tip screwdriver

**SUPPLIES:** Silicone compound (Item 32, Appendix D)  
 Lockwasher (MS35338-41)(2 required)

**PRELIMINARY PROCEDURE:** Remove panel from tank (page 10-54)

**REMOVAL:**

1. Using fingers, disconnect electrical connector (A) from circuit breaker (B).
2. Using fingers, remove cap (C) by turning counterclockwise.
3. Using screwdriver, remove two screws (D) and lockwashers (E) securing utility outlet assembly (F) to panel. Throw lockwashers away.
4. Remove utility outlet assembly (F), cap (C), and retainer chain (G).



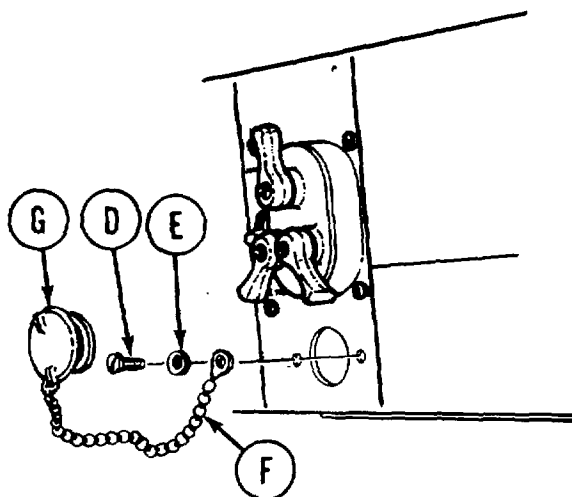
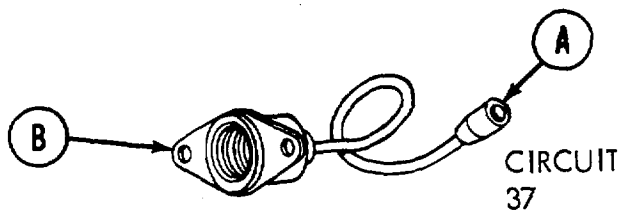
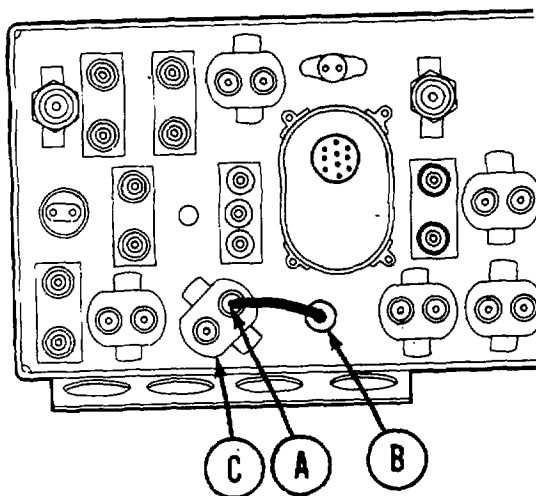
TA147109

Go on to Sheet 2

**MASTER CONTROL PANEL REPAIR (Sheet 16 of 71)**  
**Utility Outlet Replacement (Sheet 2 of 2)**

**INSTALLATION:**

1. Apply silicone compound (Item 32, Appendix D) to electrical connector (A).
2. Connect electrical connector (A) of utility outlet assembly (B) to breaker (C).
3. Place utility outlet assembly (B) in position on panel.
4. Using screwdriver, install two screws (D), new lockwashers (E), and retainer chain (F) securing utility outlet assembly (B) to panel.
5. Using fingers, install cap (G) by turning clockwise.
6. Install panel in tank (page 10-56).



TA147110

End of Task

**MASTER CONTROL PANEL REPAIR (Sheet 17 of 71)**  
**Master Heater Switch, Hi-Lo Switch, and Indicator Light Replacement**  
**(Sheet 1 of 6)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-79
Installation	10-82

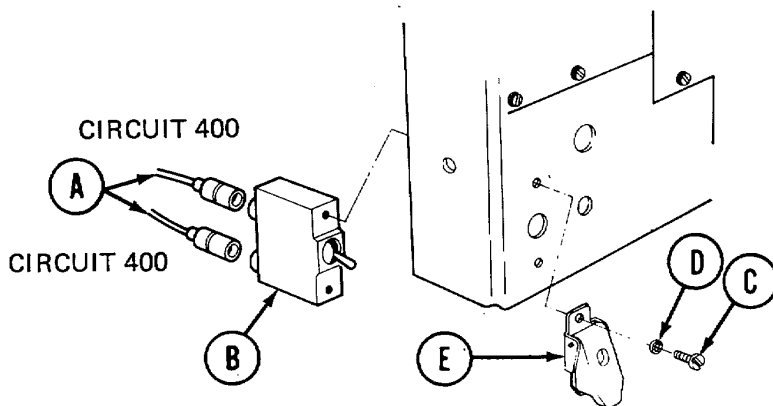
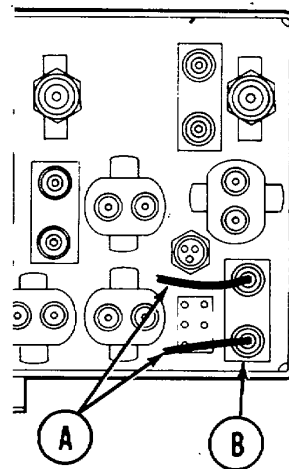
TOOLS: Flat-tip screwdriver  
 Cross-tip screwdriver  
 3/4 in. combination box and open end wrench  
 9/16 in. combination box and open end wrench

SUPPLIES: Silicone compound (Item 32, Appendix D)  
 Lockwasher (MS3533842)(3 required)  
 Lockwasher (MS3533843)(6 required)

PRELIMINARY PROCEDURE: Remove panel from tank (page 10-54)

REMOVAL:

1. Using fingers, disconnect two electrical connectors (A) from switch (B).
2. Using cross-tip screwdriver, remove two screws (C) and lockwashers (D) securing switch (B) and guard (E) to panel. Throw lockwashers away.
3. Remove switch (B) and guard (E).

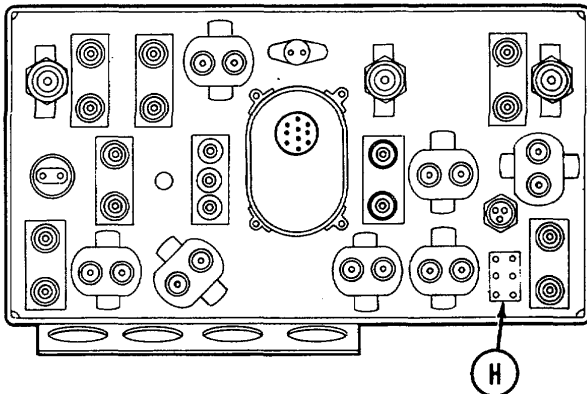


Go on to Sheet 2

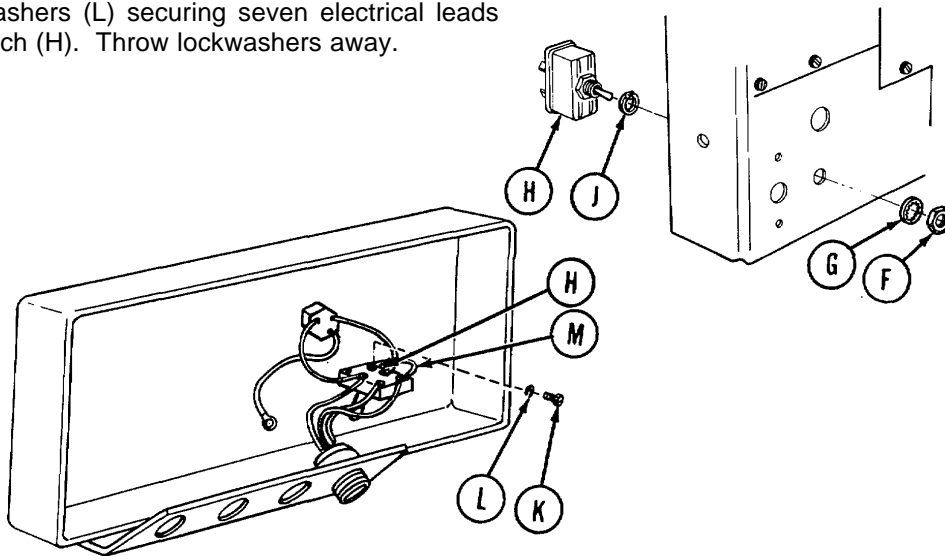
TA147111

**MASTER CONTROL PANEL REPAIR (Sheet 18 of 71)**  
**Master Heater Switch, Hi-Lo Switch, and Indicator Light Replacement**  
**(Sheet 2 of 6)**

4. Using 9/16 inch wrench, remove nut (F) and lockwasher (G) securing switch (H) to panel. Throw lockwasher away.
5. Remove switch (H) and lockring (J) from panel.



6. Using flat-tip screwdriver, remove five screws (K) and lockwashers (L) securing seven electrical leads (M) to switch (H). Throw lockwashers away.



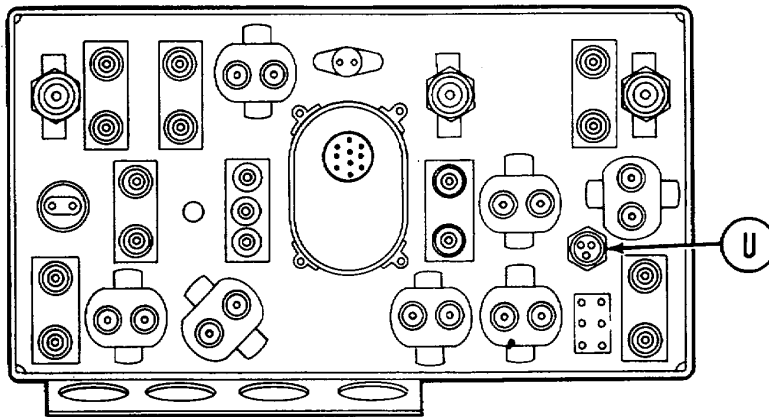
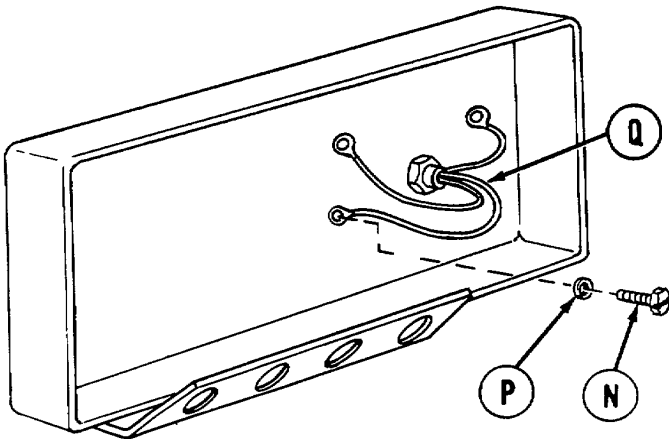
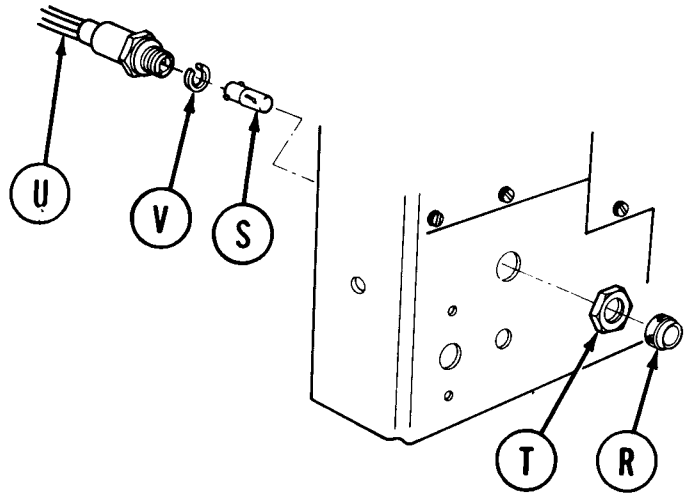
Go on to Sheet 3

TA147112



**MASTER CONTROL PANEL REPAIR (Sheet 19 of 71)**  
**Master Heater Switch, Hi-Lo Switch, and Indicator Light Replacement**  
**(Sheet 3 of 6)**

7. Using cross-tip screwdriver, remove screw (N) and lockwasher (P) securing ground lead (Q) to rear of panel. Throw lockwasher away.
8. Using fingers, remove lens (R) by turning counterclockwise.
9. Using fingers, remove lamp (S) by pushing in and turning counterclockwise.
10. Using 3/4 inch wrench, remove nut (T) securing lamp assembly (U) to panel.
11. Remove lamp assembly (U) and lockwasher (V) from panel. Throw lockwasher away.



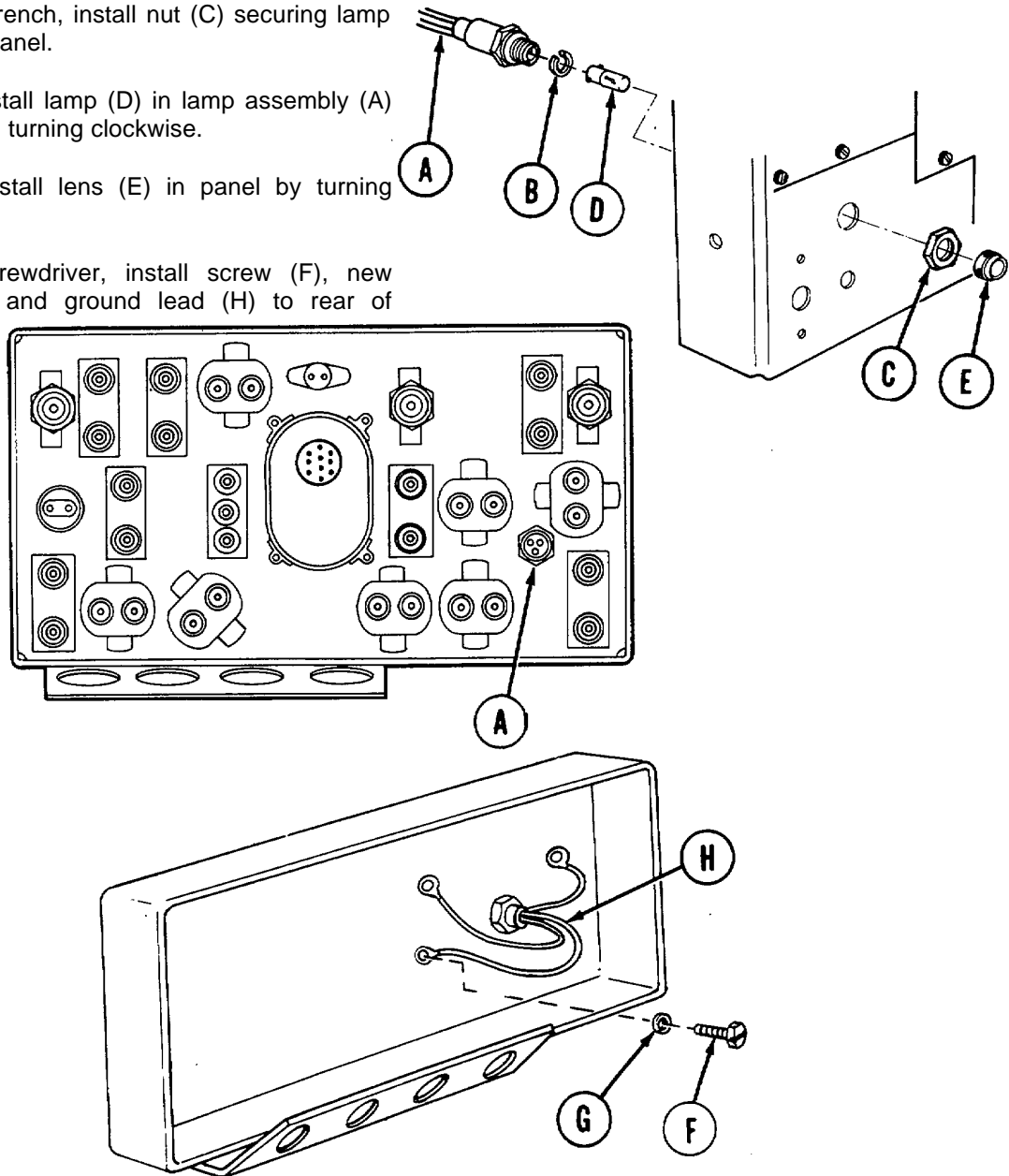
TA147113

Go on to Sheet 4

**MASTER CONTROL PANEL REPAIR (Sheet 20 of 71)**  
**Master Heater Switch, Hi-Lo Switch, and Indicator Light Replacement**  
**(Sheet 4 of 6)**

**INSTALLATION:**

1. Place lamp assembly (A) and new lockwasher (B) in position on rear of panel.
2. Using 3/4 inch wrench, install nut (C) securing lamp assembly (A) to panel.
3. Using fingers, install lamp (D) in lamp assembly (A) by pushing in and turning clockwise.
4. Using fingers, install lens (E) in panel by turning clockwise.
5. Using flat-tip screwdriver, install screw (F), new lockwasher (G), and ground lead (H) to rear of panel.



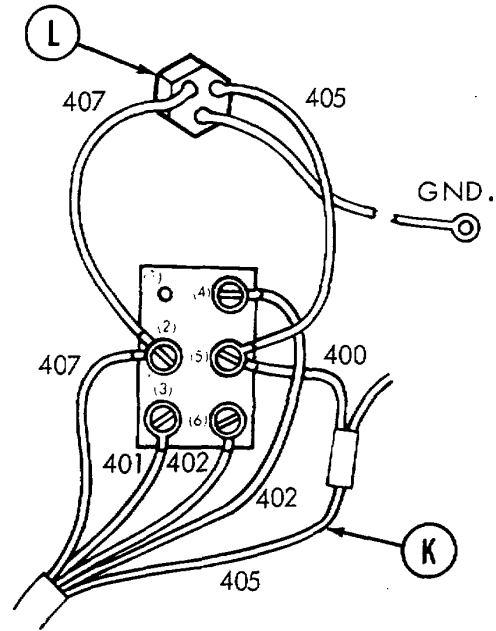
Go on to Sheet 5

TA147114

**MASTER CONTROL PANEL REPAIR (Sheet 21 of 71)**

**Master Heater Switch Hi-Lo Switch, and Indicator Light Replacement (Sheet 5 of 6)**

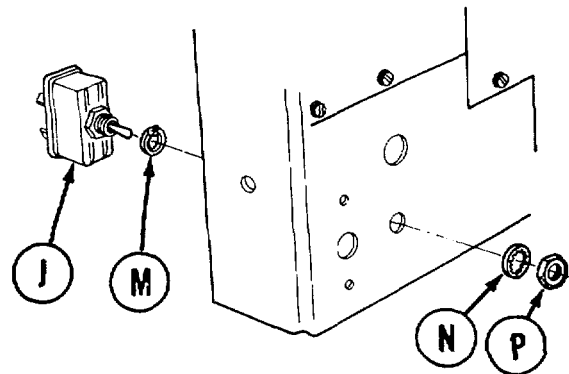
6. Using flat-tip screwdriver, remove screws and washers from terminals 2 through 6 of replacement switch (J). Retain screws and washers for installation.
7. Position electrical leads (K) to switch (J) as shown.



**NOTE**

**Electrical leads (405 and 407) are part of lamp assembly.**

8. Using flat-tip screwdriver, secure leads to terminals 2 through 6 with screws and washers removed in step 6.
9. Place switch (J) and lockring (M) in position on panel.
10. Using 9/16 inch wrench, install new lockwasher (N) and nut (P) securing switch (J) to panel.

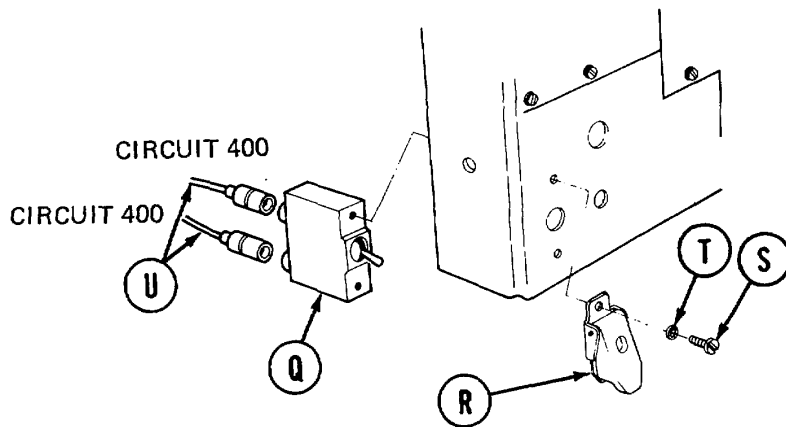
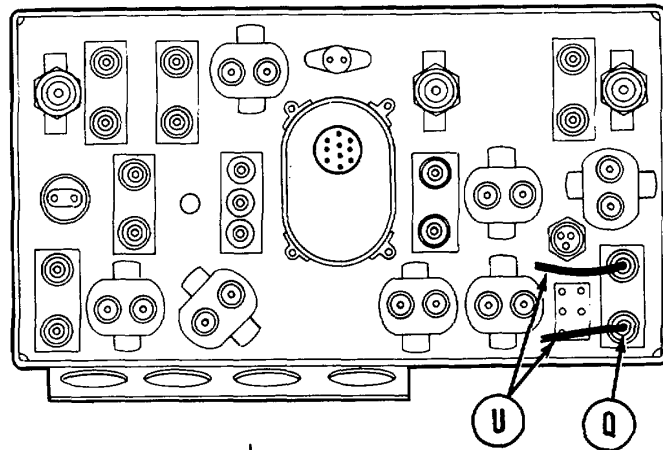


TA147115

Go on to Sheet 6

**MASTER CONTROL PANEL REPAIR (Sheet 22 of 71)**  
**Master Heater Switch, Hi-Lo Switch, and Indicator Light Replacement**  
**(Sheet 6 of 6)**

11. Place switch (Q) and guard (R) in position on panel.
12. Using cross-tip screwdriver, install two screws (S) and new lockwashers (T) securing switch (Q) to panel.
13. Apply silicone compound (Item 32, Appendix D) to two electrical connectors (U).
14. Using fingers, connect two electrical connectors (U) to switch (Q) by pushing in.
15. Install panel in tank (page 10-56).



End of Task

TA147116

**MASTER CONTROL PANEL REPAIR (Sheet 23 of 71)**  
**Main Engine Fuel Shutoff Switch Replacement (Sheet 1 of 2)**

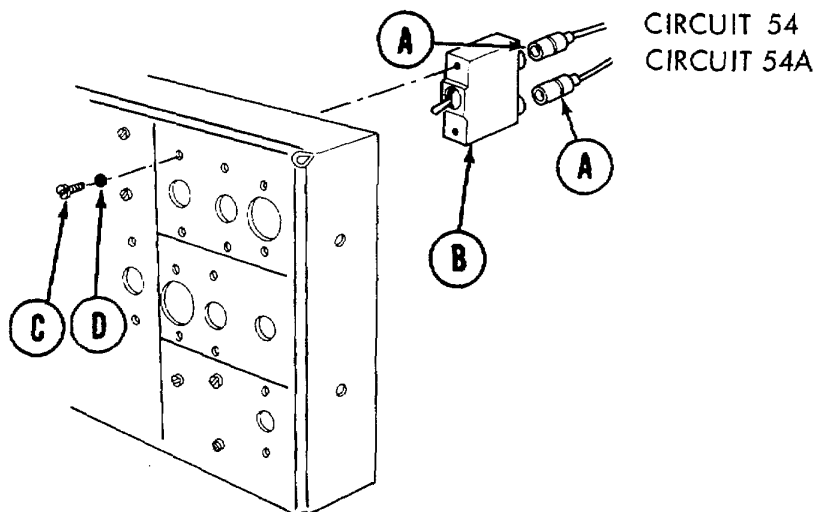
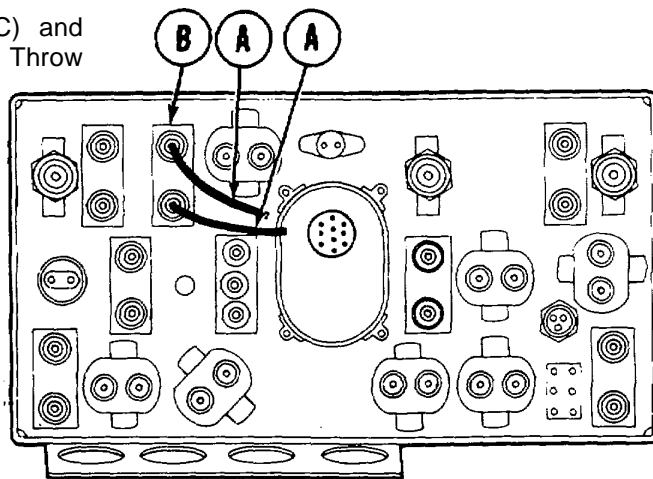
**TOOLS:** Flat-tip screwdriver  
 Cross-tip screwdriver

**SUPPLIES:** Silicone compound (Item 32, Appendix D)  
 Lockwasher (MS35338-42)(2 required)

**PRELIMINARY PROCEDURE:** Remove panel from tank (page 10-54)

**REMOVAL:**

1. Using finger, remove two electrical connectors (A) from switch (B) by pulling out.
2. Using screwdrivers, remove two screws (C) and lockwashers (D) securing switch (B) to panel. Throw lockwashers away.
3. Remove switch (B).



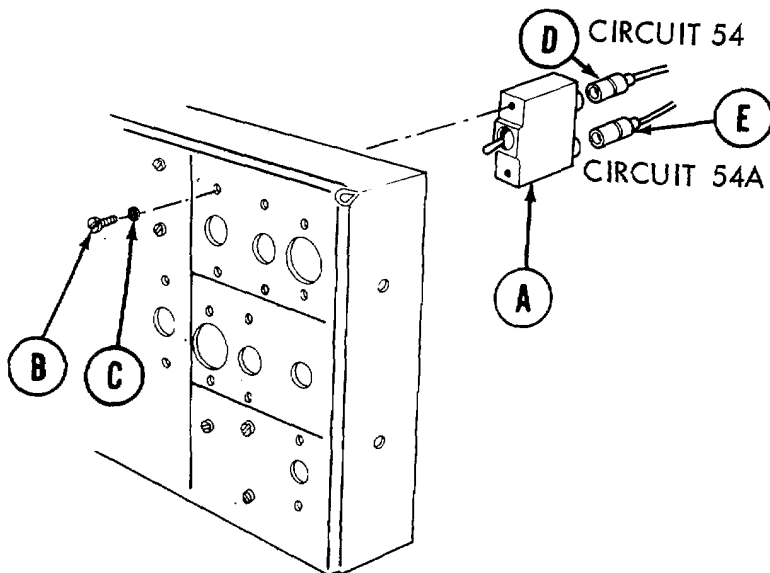
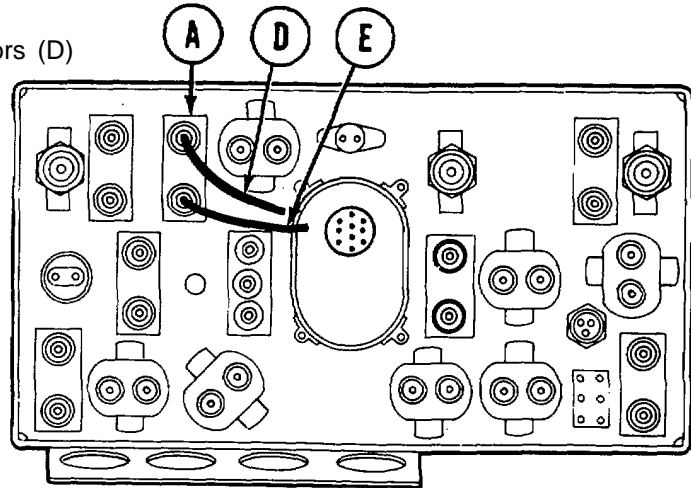
Go on to Sheet 2

TA147117

**MASTER CONTROL PANEL REPAIR (Sheet 24 of 71)**  
**Main Engine Fuel Shutoff Switch Replacement (Sheet 2 of 2)**

**INSTALLATION:**

1. Place switch (A) in position on panel.
2. Using screwdriver, install two screws (B) and new lockwashers (C) securing switch (A) to panel.
3. Apply silicone compound (Item 32, Appendix D) to two electrical connectors (D) and (E).
4. Using fingers, connect two electrical connectors (D) and (E) to switch (A).
5. Install panel in tank (page 10-56.)



TA147118

End of Task

**MASTER CONTROL PANEL REPAIR (Sheet 25 of 71)**  
**Maser Control Switch and Indicator Light Replacement (Sheet 1 of 4)**

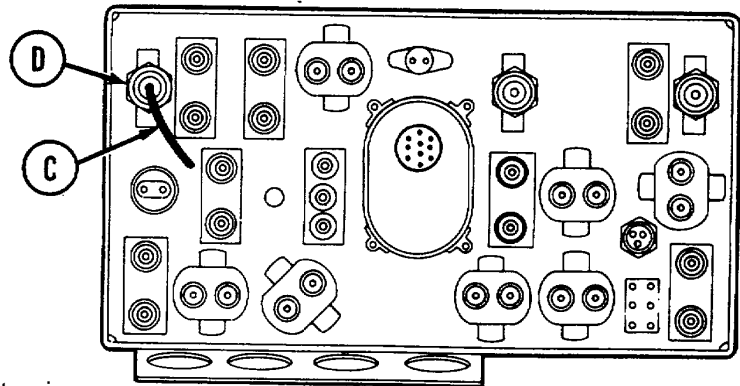
PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-87
Installation	10-89

TOOLS: Flat-tip screwdriver  
 Cross-tip screwdriver

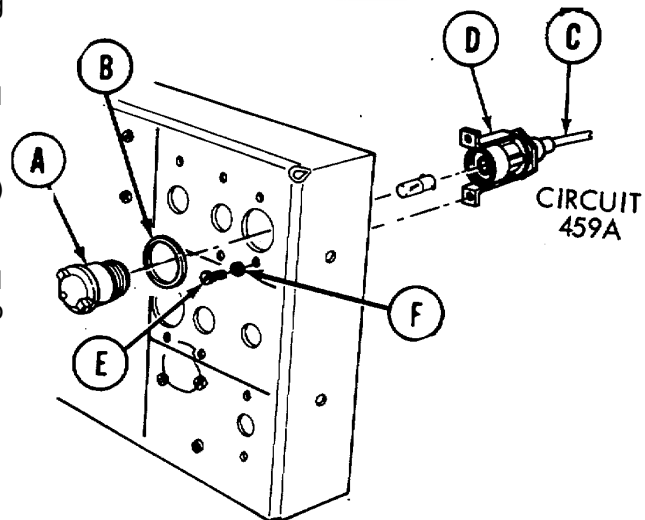
SUPPLIES: Silicone compound (Item 32, Appendix D)  
 Preformed packing (7358626)  
 Lockwasher (MS35338-42)(4 required)

PRELIMINARY PROCEDURE: Remove panel from tank (page 10-54)



REMOVAL:

1. Using fingers, remove lens (A) by turning counterclockwise.
2. Remove preformed packing (C). Throw preformed packing away.
3. Using fingers, disconnect electrical connector (A) from rear of base assembly.
4. Using screwdriver, remove two screws (E) and lockwashers (F) securing base assembly (D) to panel. Throw lockwashers away.
5. Remove base assembly (D).



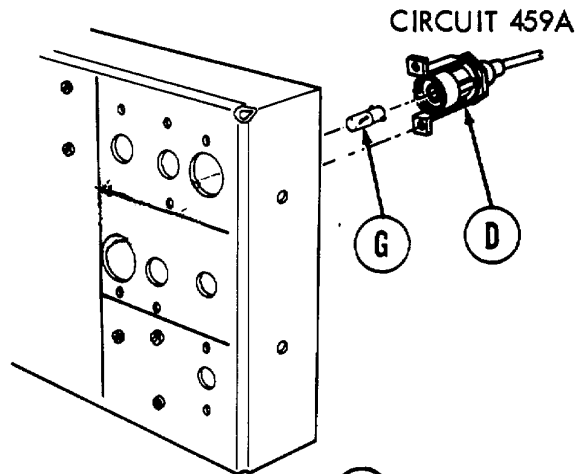
Go on to Sheet 2

TA147119

**MASTER CONTROL PANEL REPAIR (Sheet 26 of 71)**

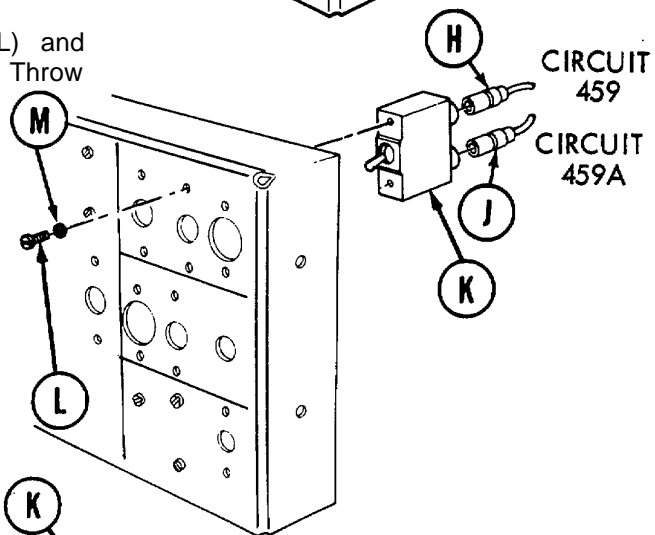
**Master Control Switch and Indicator Light Replacement (Sheet 2 of 4)**

- Using fingers, remove lamp (G) from base assembly (D) by pushing in and turning counterclockwise.

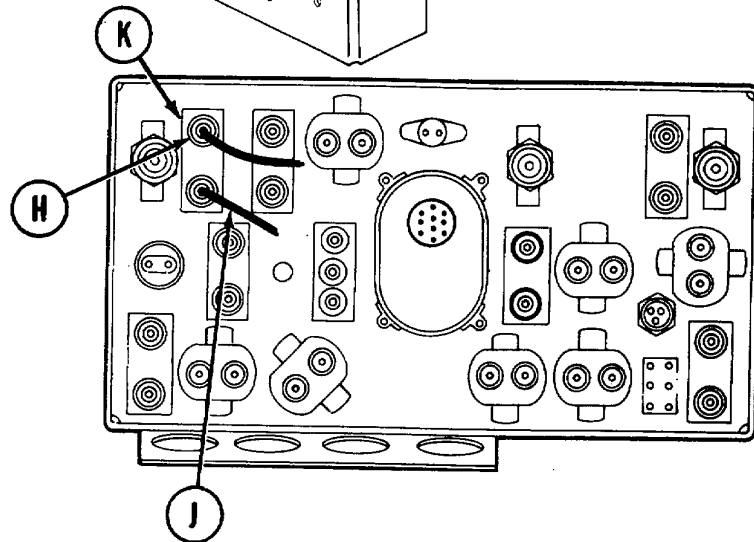


- Using fingers, remove two electrical connectors (H) and (J) from rear of switch (K).

- Using screwdriver, remove two screws (L) and lockwasher (M) securing switch (K) to panel. Throw lockwashers away



- Remove switch (K) from panel.



TA147120

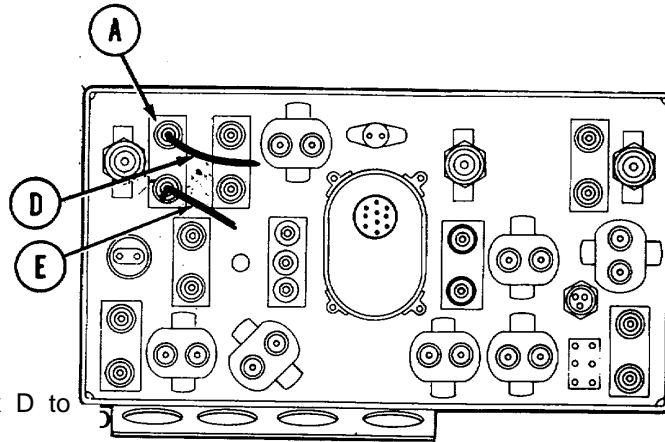
Go on to Sheet 3



**MASTER CONTROL PANEL REPAIR (Sheet 27 of 71)**  
**Master Control Switch and Indicator Light Replacement (Sheet 3 of 4)**

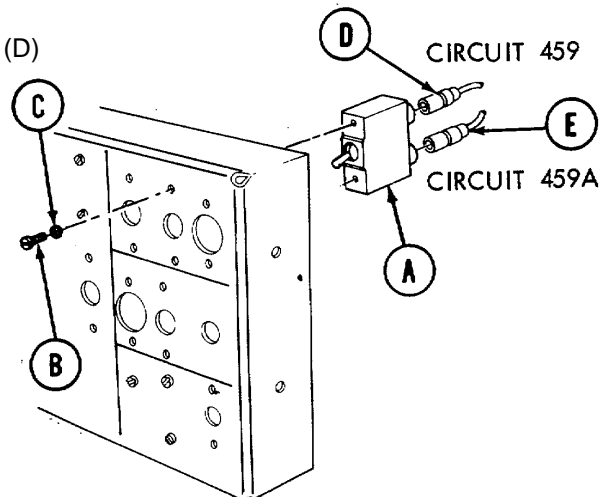
**INSTALLATION:**

1. Place switch (A) in position on panel.
2. Using screwdriver, install two screws (B) and new lockwashers (C) securing switch (A) to panel.



3. Apply silicone compound (Item 32, Appendix D to two electrical connectors (D) and (E).

4. Using fingers, connect two electrical connectors (D) and (E) to switch (A) by pushing in.

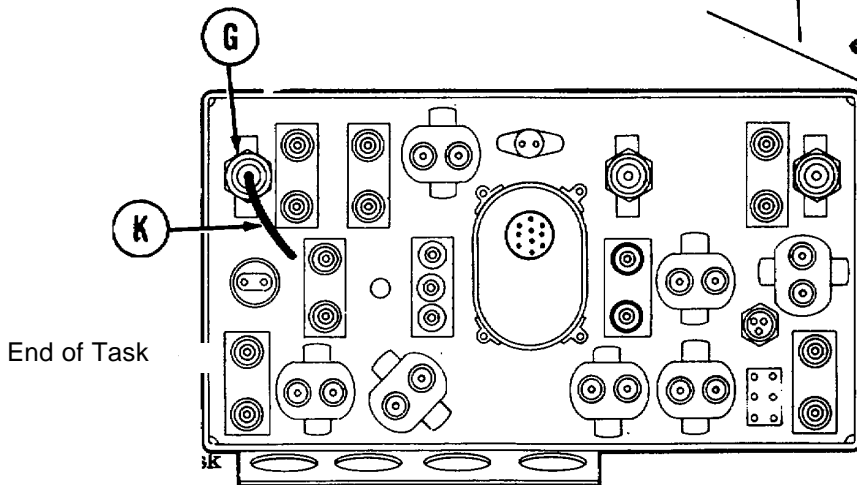
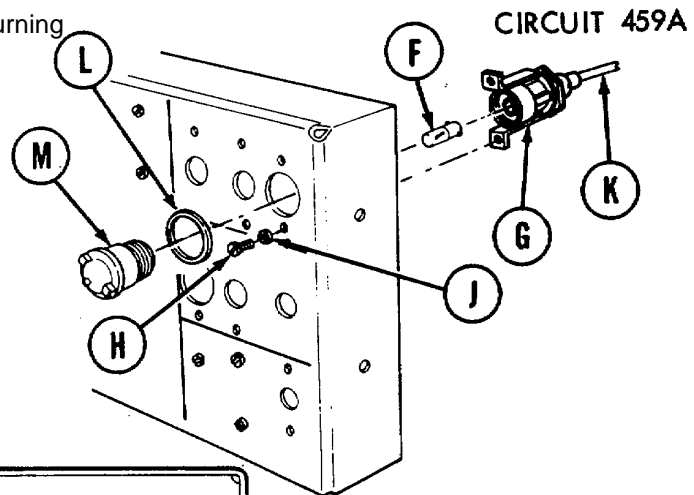


TA147121

Go on to Sheet 4

**MASTER CONTROL PANEL REPAIR (Sheet 28 of 71)**  
**Master Control Switch and Indicator Light Replacement (Sheet 4 of 4)**

5. Using fingers, install lamp (F) in base assembly (G) by pushing in and turning clockwise.
6. Place base assembly (G) in position on panel.
7. Using screwdriver, install two screws (H) and new lockwashers (J) securing base assembly (G) to panel.
8. Apply silicone compound (Item 32, Appendix D) to electrical connector (K).
9. Using fingers, connect electrical connote (K) to base assembly (G).
10. Place preformed packing (L) in position on lens (M).
11. Using fingers, install lens (M) in panel by turning clockwise.
12. Install panel in tank (page 10-56).



TA147122

**MASTER CONTROL PANEL REPAIR (Sheet 29 of 71)**  
**Starter Switch Replacement (Sheet 1 of 2)**

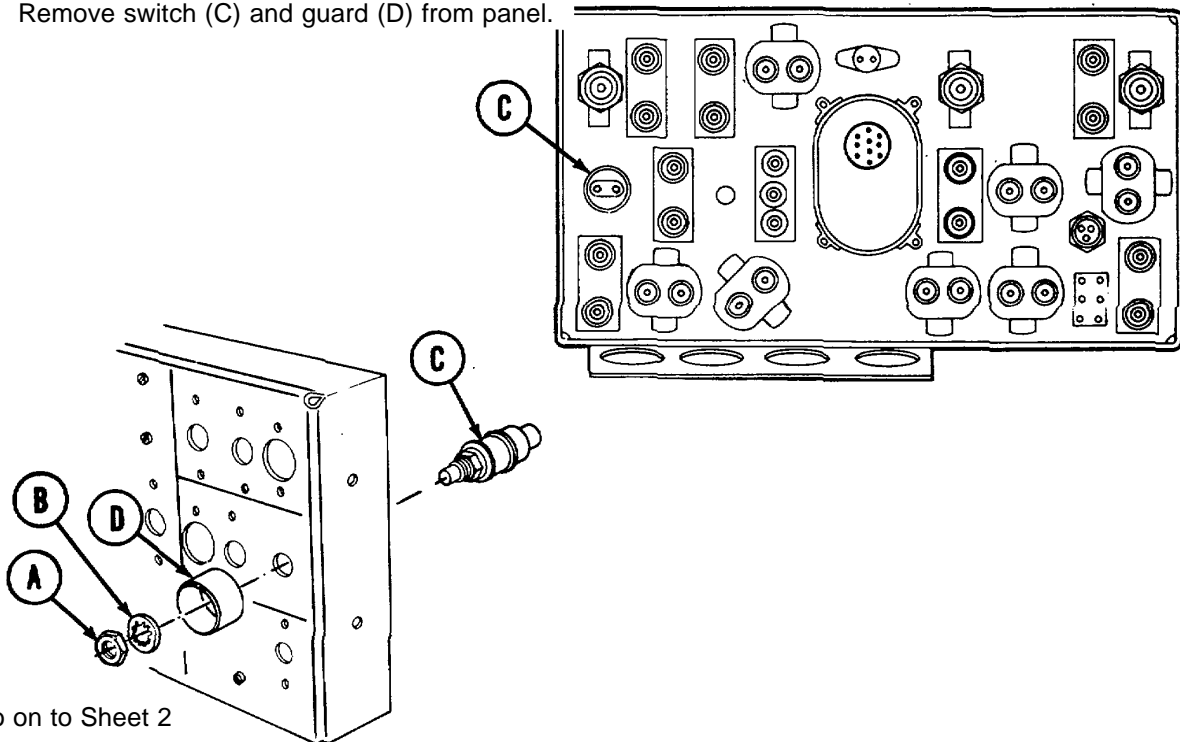
TOOLS: Ratchet with 1/2 in. drive  
 3/4 in. socket with 1/2 in. drive

SUPPLIES: Silicone compound (Item 32, Appendix D)  
 Lockwasher (MS35338-40)

PRELIMINARY PROCEDURE: Remove panel from tank (page 10-54)

REMOVAL:

1. Using socket, remove nut (A) and lockwasher (B) securing switch (C) and guard (D) to panel. Throw lockwasher away.
2. Using fingers, disconnect electrical connectors from rear of switch (C).
3. Remove switch (C) and guard (D) from panel.



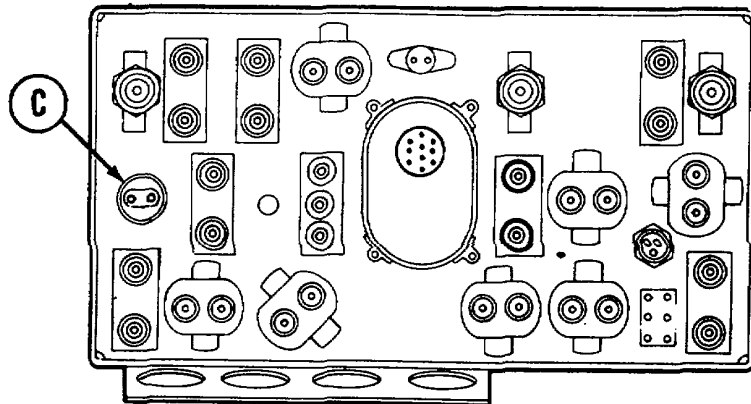
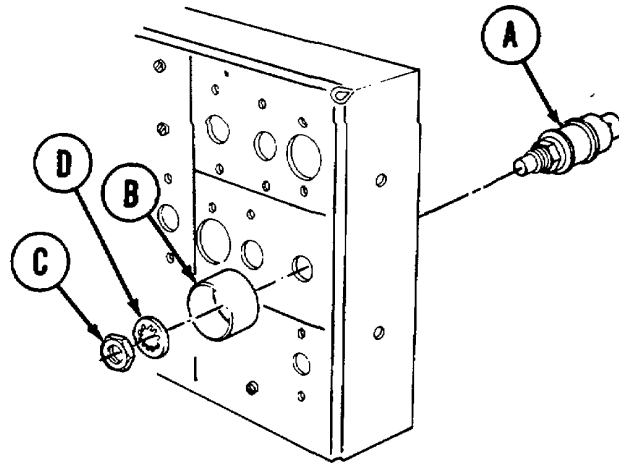
Go on to Sheet 2

TA147123

**MASTER CONTROL PANEL REPAIR (Sheet 30 of 71)**  
**Starter Switch Replacement (Sheet 2 of 2)**

**INSTALLATION:**

1. Position switch(A) and guard (B) onto panel.
2. Using socket, install nut (C) and new lockwasher (D) securing switch (A) and guard (B) to pan.
3. Apply silicone compound (tem 32, Appendix D) to electrical connectors at rear of switch (C).
4. Using fingers, connect electrical connectors.
5. Install master control pane (page 10-56).



End of Task

**MASTER CONTROL PANEL REPAIR (Sheet 31 of 71)**  
**Fuel Pump Switch Replacement (Sheet 1 of 2)**

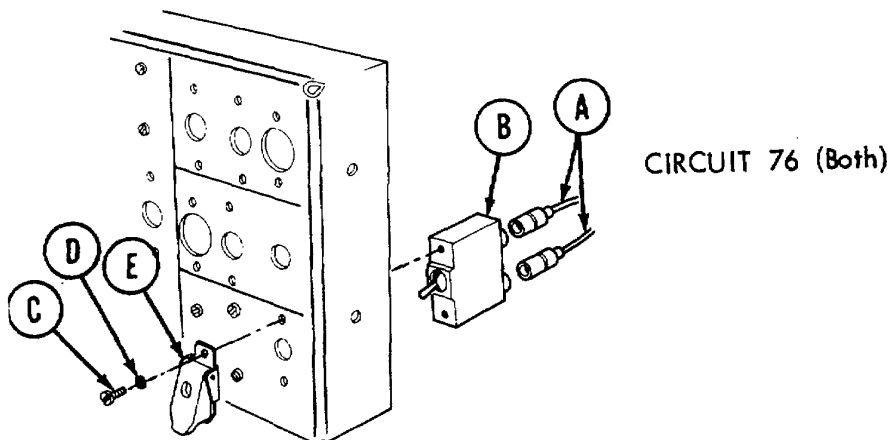
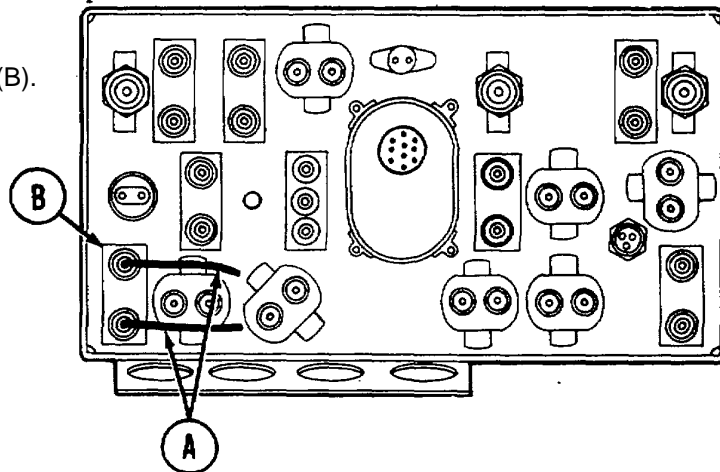
**TOOLS:** Flat-tip screwdriver  
 Cross-tip screwdriver

**SUPPLIES:** Silicone compound (Item 32, Appendix D)  
 Lockwasher (MS35338-42) (2 required)

**PRELIMINARY PROCEDURE:** Remove panel from tank (page 10-54)

**REMOVAL:**

1. Using fingers, disconnect two electrical connectors (A) from switch (B).
2. Using screwdriver, remove two screws (C) and lockwashers (D) securing switch (B) to panel. Throw lockwashers away.
3. Remove guard (E) and switch (B).



Go on to Sheet 2

**MASTER CONTROL PANEL REPAIR (Sheet 32 of 71)**  
**Fuel Pump Switch Replacement (Sheet 2 of 2)**

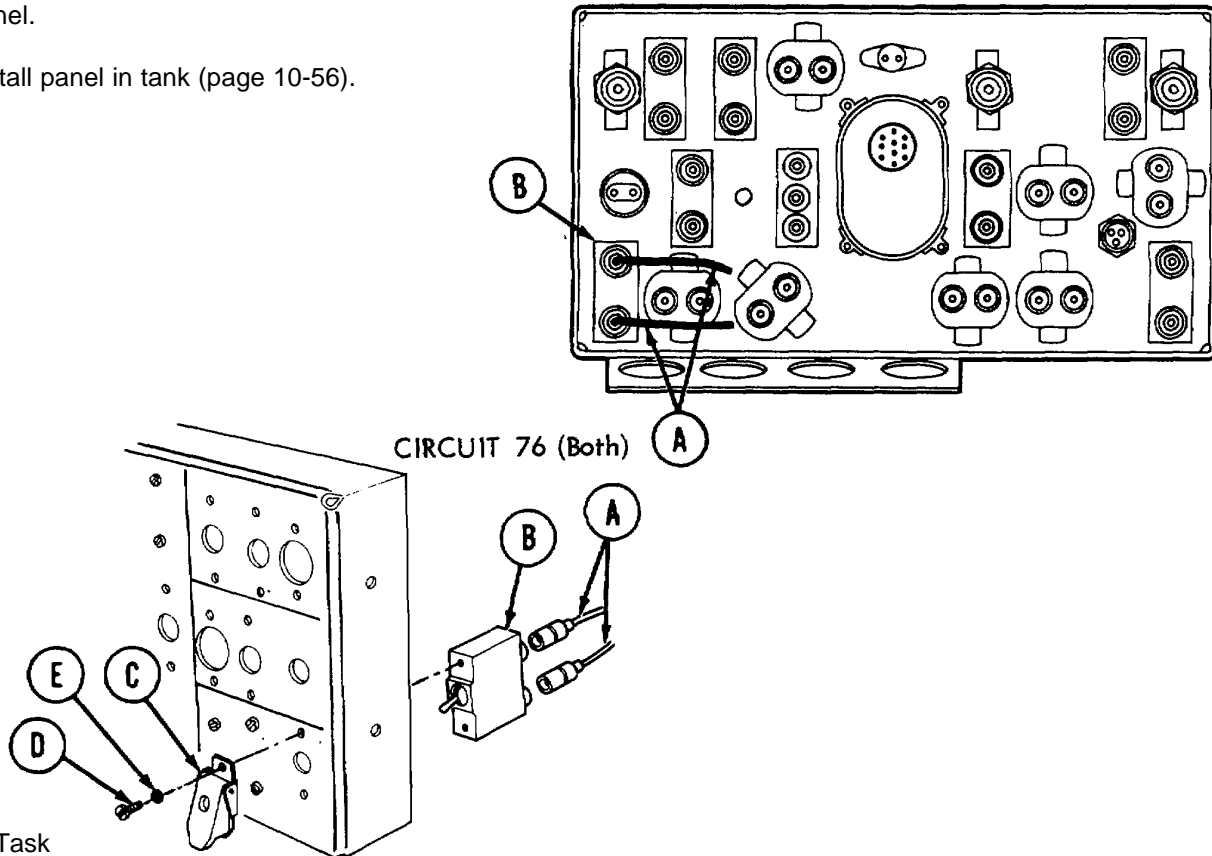
**INSTALLATION:**

1. Apply silicone compound (Item 32, Appendix D) to two electrical connectors (A).

**NOTE**

**Use multimeter to perform continuity check to make sure switch is on.**

2. Using fingers, connect two electrical connectors (A) to switch (B) by pushing in.
3. Place switch (B) and guard (C) in position on panel.
4. Using screwdriver, install two screws (D) and new lockwashers (E) securing switch (B) and guard (C) to panel.
5. Install panel in tank (page 10-56).



End o Task

TA147126

**MASTER CONTROL PANEL REPAIR (Sheet 33 of 71)**  
**Bilge Pump Switch and Indicator Light Replacement (Sheet 1 of 4)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-95
Installation	10-97

TOOLS: Flat-tip screwdriver  
 Cross-tip screwdriver

SUPPLIES: Silicone compound (Item 32, Appendix D)  
 Preformed packing (7358626)  
 Lockwasher (MS35338-42) (4 required)

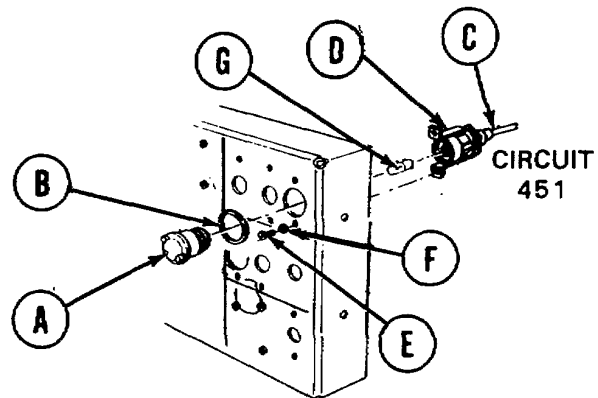
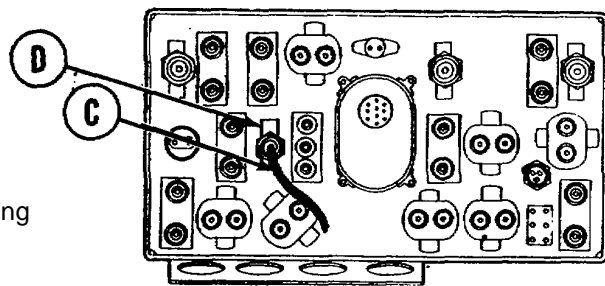
PRELIMINARY PROCEDURE: Remove panel from tank (page 10-54)

**NOTE**

**This procedure to be used only if bilge pump switch and indicator light are present on master control panel.**

REMOVAL:

1. Using finger, remove lens (A) by turning counterclockwise.
2. Remove preformed packing (B). Throw preformed packing away.
3. Using fingers, disconnect electrical connector (C) from base assembly (D).
4. Using screwdriver, remove two screws (E) and lockwashers (F) securing base assembly (D) to panel. Throw lockwashers away.
5. Remove base assembly (D).
6. Using fingers, remove lamp (G) from base assembly (D).

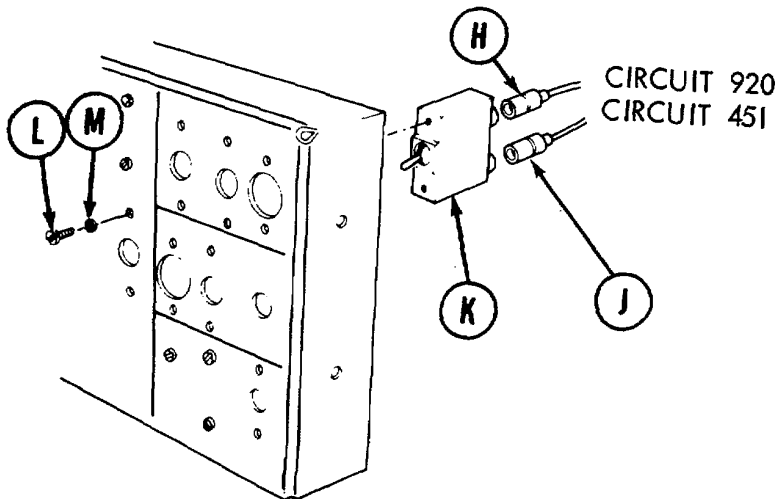
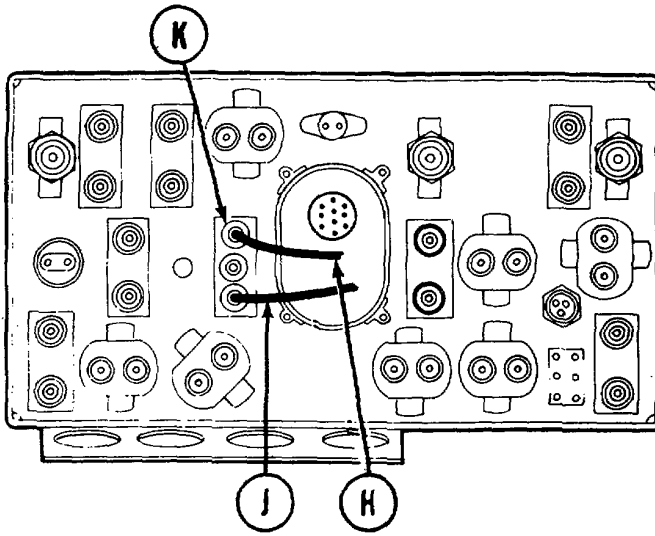


Go on to Sheet 2

TA147127

**MASTER CONTROL PANEL REPAIR (Sheet 34 of 71)**  
**Bilge Pump Switch and Indicator Light Replacement (Sheet 2 of 4)**

7. Using fingers, remove two electrical connectors (H) and (J) from switch (K).
8. Using screwdriver, remove two screws (L) and lockwashers (M) securing switch (K) to panel. Throw lockwashers away.
9. Remove switch (K).



Go on to Sheet 3

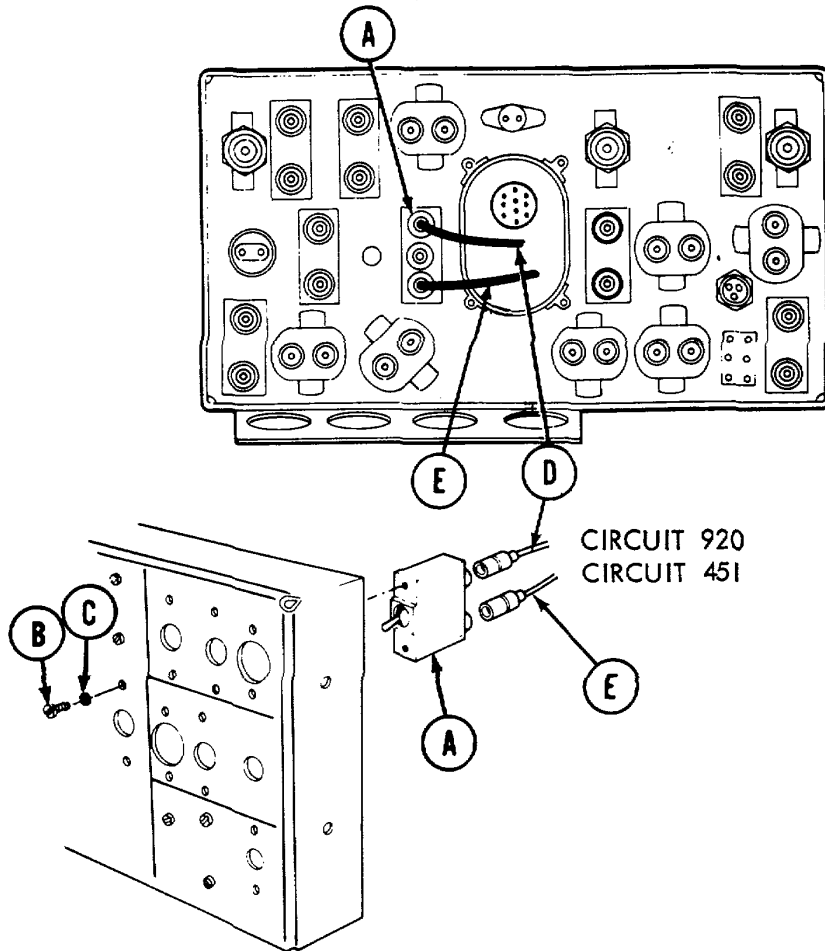
TA147128



**MASTER CONTROL PANEL REPAIR (Sheet 35 of 71)**  
**Bilge Pump Switch and Indicator Light Replacement (Sheet 3 of 4)**

INSTALLATION:

1. Place switch (A) in position on panel.
2. Using screwdriver, install two screws (B) and new lockwashers (C) securing switch (A) to panel.
3. Apply silicone compound (Item 32, Appendix D) to two electrical connectors (D) and (E).
4. Using fingers, connect electrical connectors (D) and (E) to switch (A) by pushing in.



Go on to Sheet 4

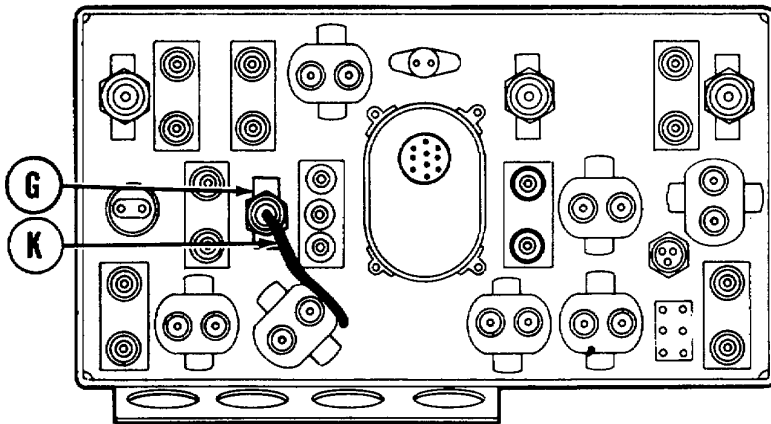
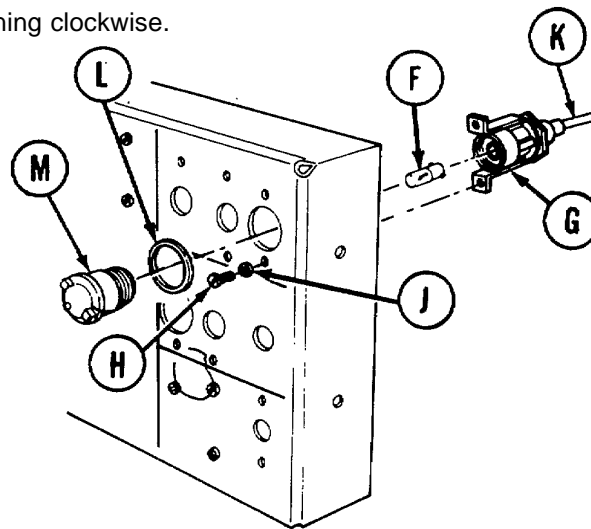
TA147129

10-97

**MASTER CONTROL PANEL REPAIR (Sheet 36 of 71)**  
**Bilge Pump Switch and Indicator Light Replacement (Sheet 4 of 4)**

5. Using finger, install lamp (F) in base assembly (G) by pushing in and turning clockwise.
6. Place base assembly (G) in position on panel.
7. Using screwdriver, install two screws (H) and new lockwashers (J) securing base assembly (G) to panel.
8. Apply silicone compound (Item 32, Appendix D) to electrical connector (K).
9. Using fingers, connect electrical connector (K) to base assembly (G) by pushing in.
10. Place new preformed packing (L) in position on lens (M).
11. Using fingers, install lens (M) in panel by turning clockwise.
12. Install panel in tank (page 10-56).

**CIRCUIT 451**



End of Task

TA147130

**MASTER CONTROL PANEL REPAIR (Sheet 37 of 71)**  
**Circuit Breaker Replacement (Sheet 1 of 5)**

PROCEDURE INDEX

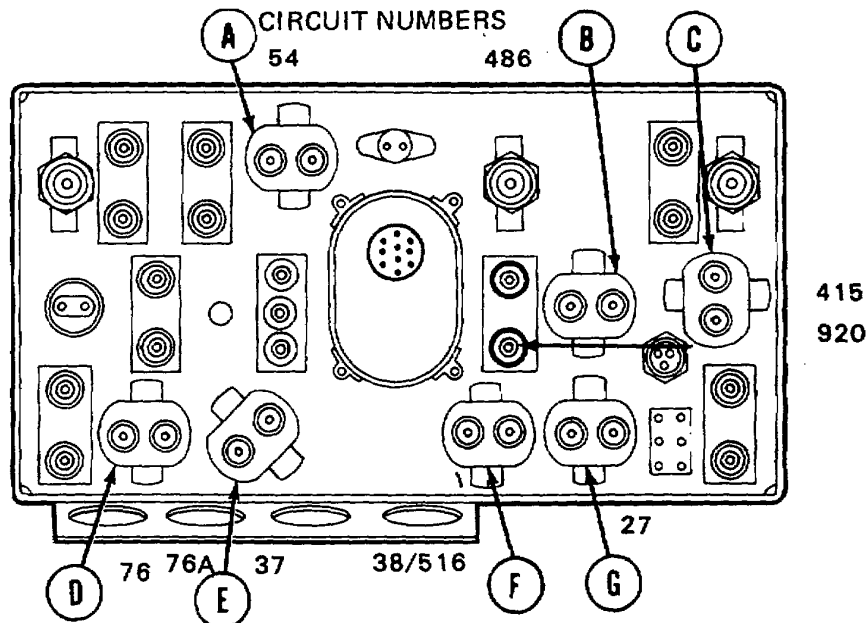
PROCEDURE	PAGE
Removal (A, B, C, D, E, and F (Same))	10-100
Installation (A, B, C, D, E, and F (Same))	10-101
Removal (G)	10-102
Installation (G)	10-103

**TOOLS:** Flat-tip screwdriver  
 Cross-tip screwdriver  
 11/32 in. combination and open end wrench  
 Ratchet with 1/2 in. drive  
 3/8 in. socket with 1/2 in. drive

**SUPPLIES:** Silicone compound (Item 32, Appendix D)  
 Lockwasher (MS35338-42)(14 required)

**PRELIMINARY PROCEDURE:** Remove panel from tank (page 10-54)

There are seven circuit breakers located in the master control panel. Six circuit breaker, fuel shutoff (A), manifold preheat (B), bilge pump (B), fuel pump (D) utility outlet (E), and IR power (F), are replaced by removing mounting screws from front of panel. One circuit breaker, gage (G), is replaced by removing screws from rear of panel.



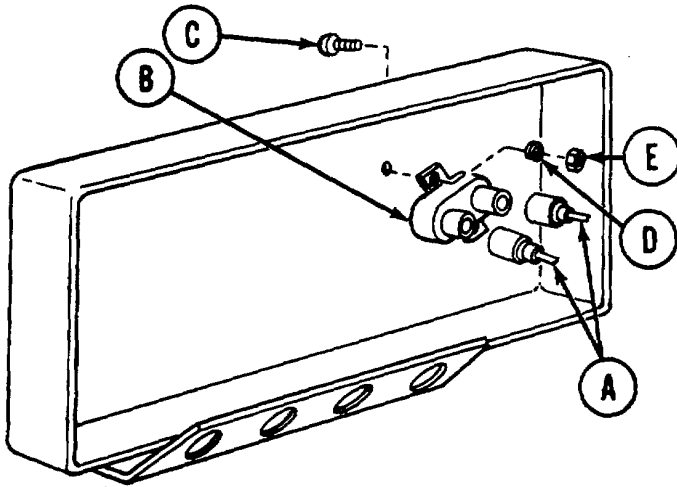
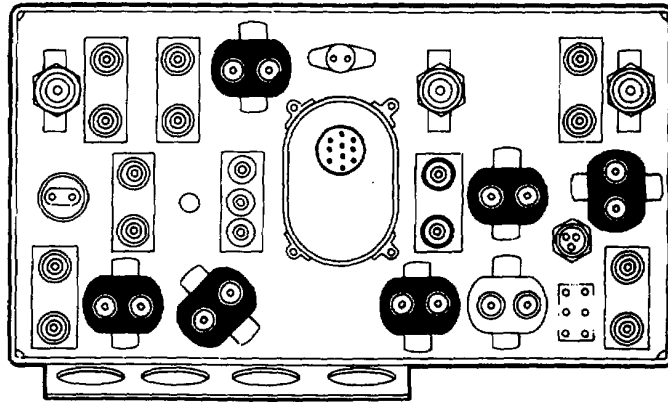
Go on to Sheet 2

TA147131

**MASTER CONTROL PANEL REPAIR (Sheet 38 of 71)**  
**Circuit Breaker Replacement (Sheet 2 of 5)**

REMOVAL OF CIRCUIT BREAKERS (A, B, C, D, E, and F):

1. Using fingers, remove two electrical connectors (A) from circuit breaker (B) by pulling out.
2. Using screwdriver, remove two screws (C), lockwashers, and nuts (E) securing circuit breaker (B) to panel. Throw lockwashers away.
3. Remove circuit breaker (B).



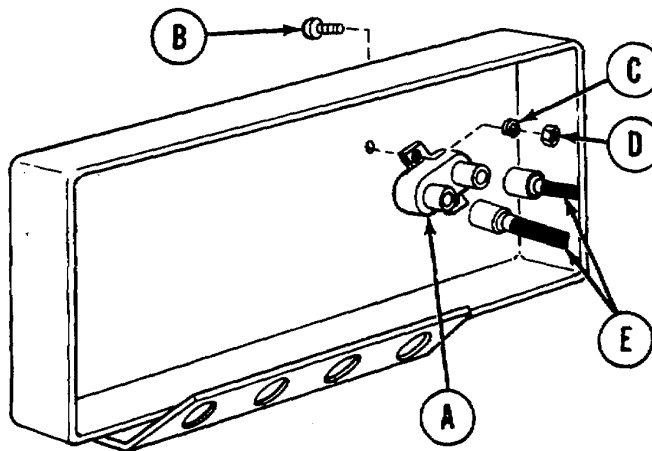
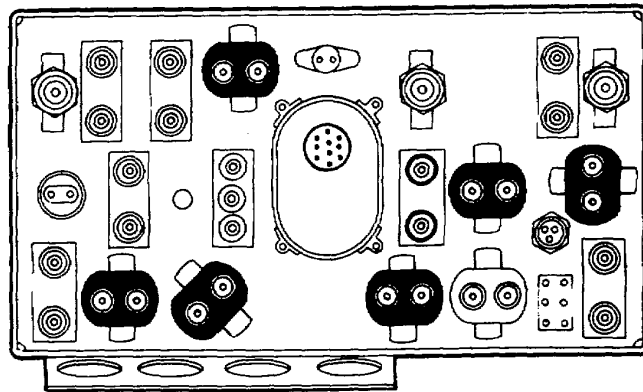
Go on to Sheet 3

TA147132

**MASTER CONTROL PANEL REPAIR (Sheet 39 of 71)**  
**Circuit Breaker Replacement (Sheet 3 of 5)**

**INSTALLATION:**

1. Place circuit breaker (A) in position on panel.
2. Using screwdriver, install two screws (B), new lockwashers (C), and nuts (D) securing circuit breaker (A) to panel.
3. Apply silicone compound (Item 32, Appendix D) to two electrical connectors (E).
4. Using fingers connect electrical connectors (E) to circuit breaker (A) by pushing in.
5. Install panel in tank (page 10-56).



Go on to Sheet 4

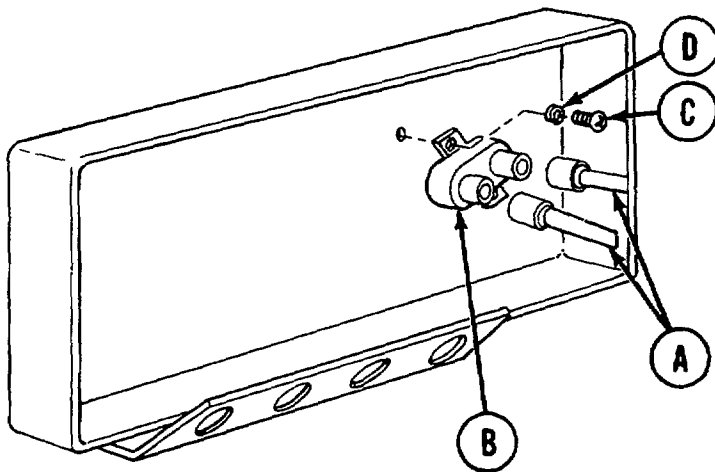
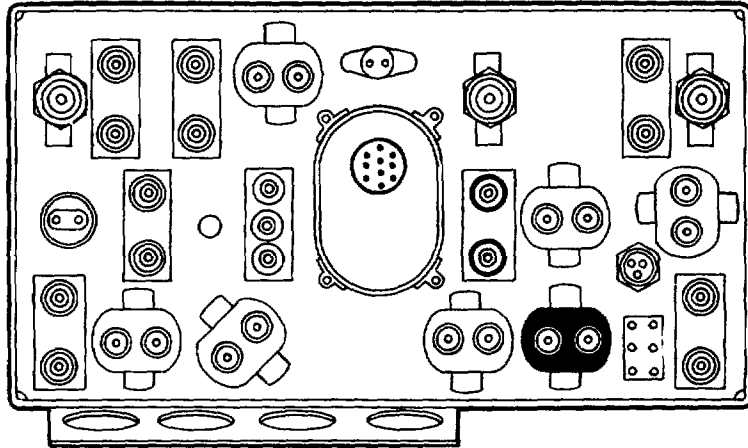
TA147133

10-101

**MASTER CONTROL PANEL REPAIR (Sheet 40 of 71)**  
**Circuit Breaker Replacement (Sheet 4 of 5)**

**REMOVAL OF CIRCUIT BREAKER (G):**

1. Using fingers, disconnect two electrical connectors (A) from circuit breaker (B) by pulling out.
2. Using screwdriver, remove two screws (C) and lockwashers (D) securing circuit breaker (B) to panel. Throw lockwashers away.
3. Remove circuit breaker (B).



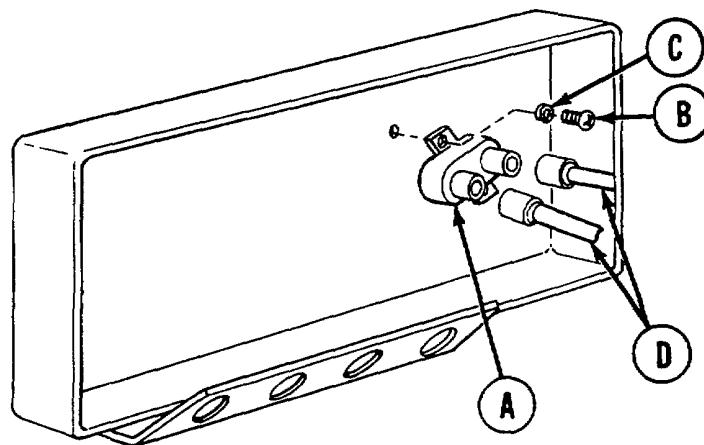
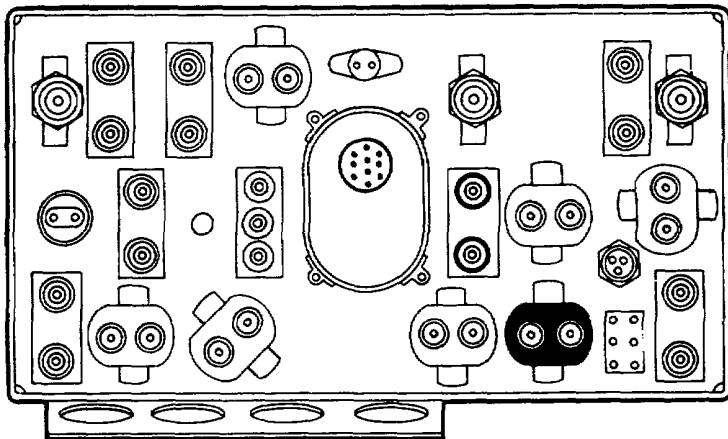
Go on to Sheet 5

TA147134

**MASTER CONTROL PANEL REPAIR (Sheet 41 of 71)**  
**Circuit Breaker Replacement (Sheet 5 of 5)**

INSTALLATION OF CIRCUIT BREAKER (G):

1. Place circuit breaker (A) in position on panel.
2. Using screwdriver, install two screws (B) and new lockwashers (C) securing circuit breaker (A) to panel.
3. Apply silicone compound (Item 32, Appendix D) to two electrical connectors (D).
4. Using fingers, connect two electrical connectors (D) to circuit breaker (A) by pushing in.
5. Install panel in tank (page 10-56).



End of Task

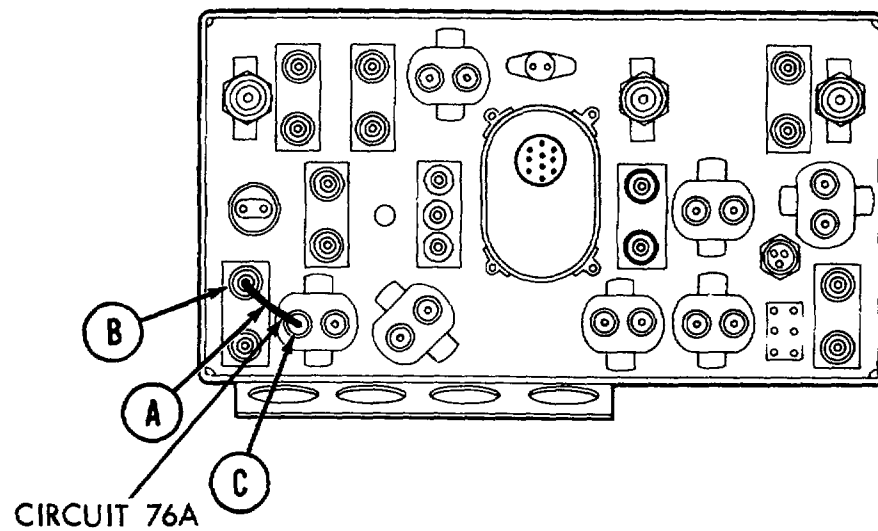
**MASTER CONTROL PANEL REPAIR (Sheet 42 of 71)**  
**Fuel Pump Switch Lead Assembly Replacement (Sheet 1 of 2)**

SUPPLIES: Silicone compound (Item 32, Appendix D)

PRELIMINARY PROCEDURE: Remove panel from tank (page 10-54)

REMOVAL:

1. Remove electrical lead connector (A) from fuel shutoff switch (B).
2. Remove electrical lead connector (A) from fuel shutoff circuit breaker (C).
3. Remove lead assembly (A) from panel.



Go on to Sheet 2

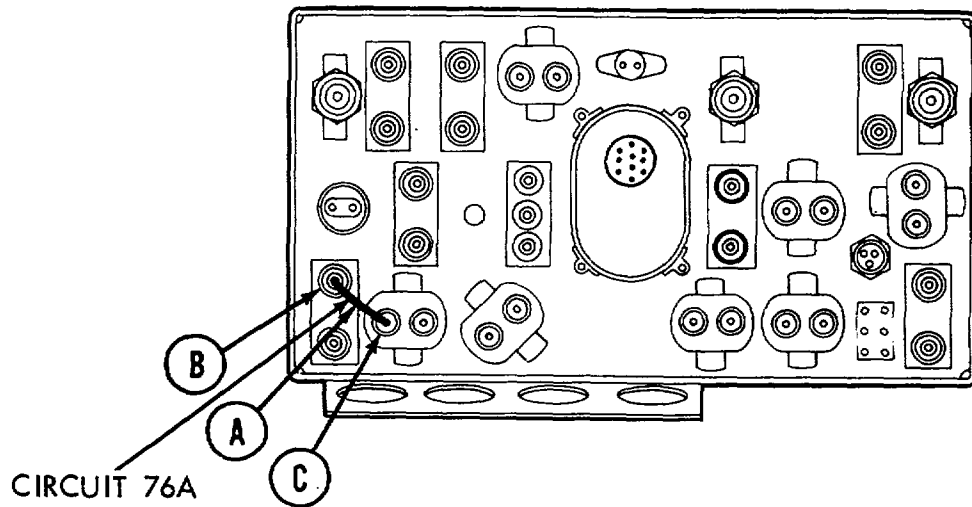
TA147136



**MASTER CONTROL PANEL REPAIR (Sheet 43 of 71)**  
**Fuel Pump Switch Lead Assembly Replacement (Sheet 2 of 2)**

**INSTALLATION:**

1. Apply silicone compound (Item 32, Appendix D) both electrical connectors on lead assembly (A).
2. Connect electrical connector (A) to fuel shutoff switch (B).
3. Connect electrical connector (A) to fuel shutoff circuit breaker (C).
4. Install panel in tank (page 10-56).



End of Task

TA147137

10-105

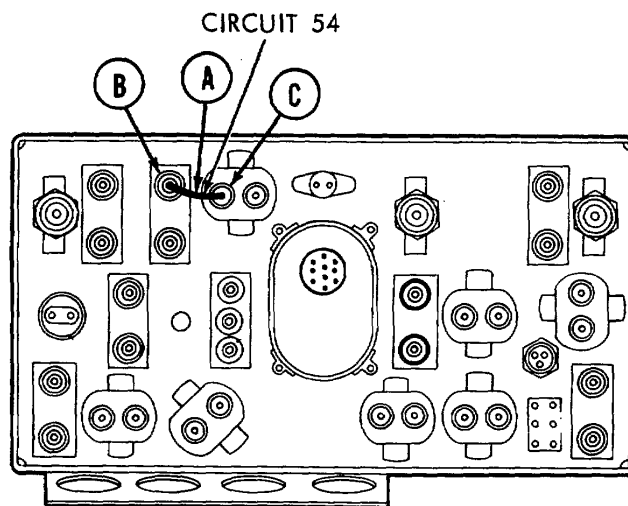
**MASTER CONTROL PANEL REPAIR (Sheet 44 of 71)**  
**Fuel Shutoff Switch Lead Assembly Replacement (Sheet 1 of 2)**

SUPPLIES: Silicone compound (Item 32, Appendix D)

PRELIMINARY PROCEDURE: Remove panel from tank (page 10-54)

REMOVAL:

1. Remove electrical ad connector (A) from fuel shutoff switch (B).
2. Remove electrical lead connector (A) from fuel shutoff circuit breaker (C)
3. Remove lead assembly (A) from panel.



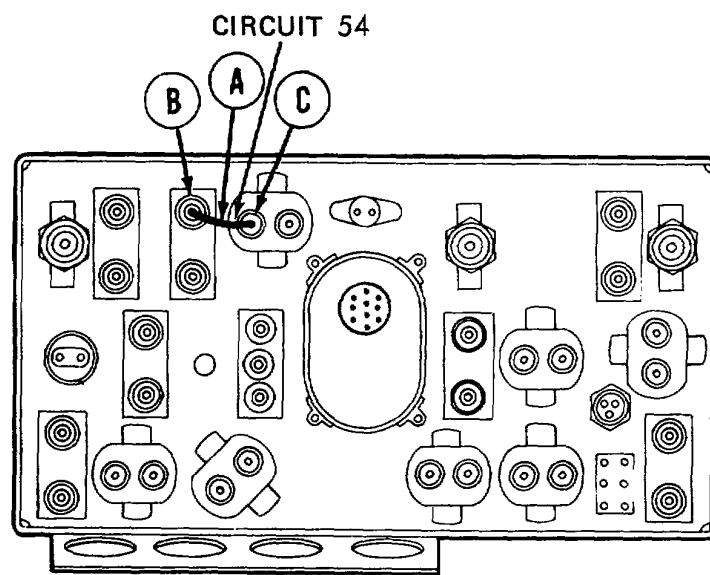
Go on to Sheet 2

TA147138

**MASTER CONTROL PANEL REPAIR (Sheet 45 of 71)**  
**Fuel Shutoff Switch Lead Assembly Replacement (Sheet 2 of 2)**

**INSTALLATION:**

1. Apply silicone compound (Item 32, Appendix D) to both electrical connectors on lead assembly (A).
2. Connect electrical connector (A) to fuel shutoff switch (B).
3. Connect electrical connector (A) to fuel shutoff circuit breaker (C)
4. Install panel in tank (page 10-56).



End of Task

TA147139

10-107

**MASTER CONTROL PANEL REPAIR (Sheet 46 of 71)**  
**Bilge Pump Switch Lead Assembly and Power Connector Assembly Replacement**  
**(Sheet 1 of 2)**

SUPPLIES: Silicone compound (Item 32, Appendix D)

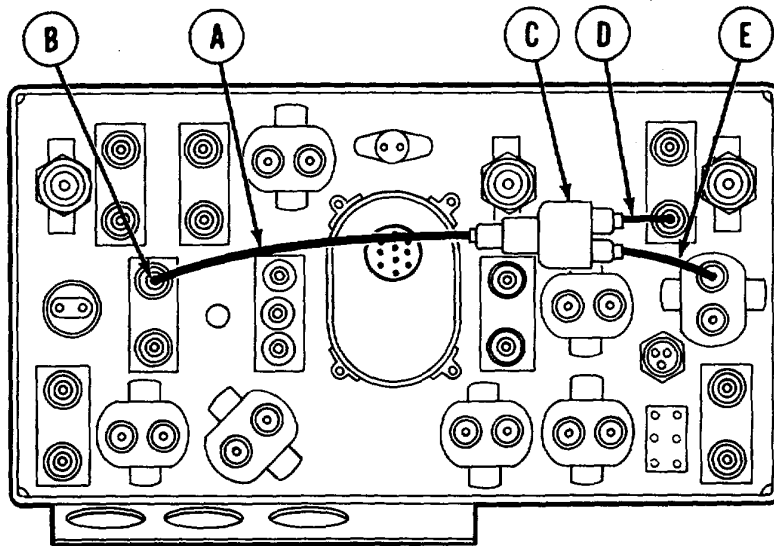
PRELIMINARY PROCEDURE: Remove panel from tank (page 10-54)

**NOTE**

**This procedure is used only when a bilge pump switch is present**

REMOVAL:

1. Remove electrical lead connector (A) circuit 451 from bilge pump switch (B).
2. Remove electrical lead connector (A) from power connector (C) by pulling apart.
3. Disconnect power connector (C) and gas particulate switch lead connector (D) circuit 415 by pulling apart.
4. Disconnect power connector (C) and bilge pump circuit breaker lead connector (E) circuit 920 by pulling apart.
5. Remove wiring harness (A) from panel.



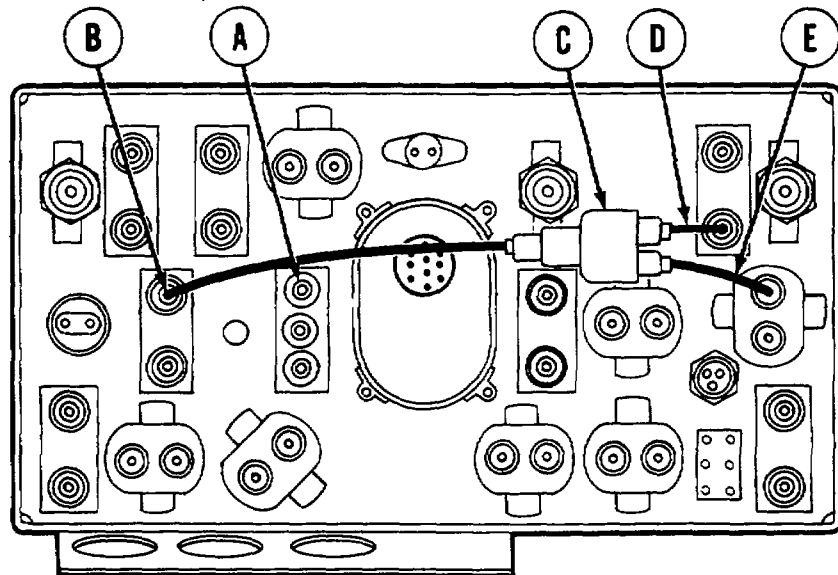
Go on to Sheet 2

TA147140

**MASTER CONTROL PANEL REPAIR (Sheet 47 of 71)**  
**Bilge Pump Switch Lead Assembly and Power Connector Assembly Replacement**  
**(Sheet 2 of 2)**

INSTALLATION:

1. Apply silicone compound (Item 32, Appendix D) to both electrical connectors of lead assembly (A).
2. Apply silicone compound (Item 32, Appendix D) to three electrical connectors of power connector (C).
3. Connect lead connector from gas particulate switch (D) circuit 415 to power connector (C).
4. Connect lead connector from bilge pump circuit breaker (E) circuit 920 to power connector (C).
5. Connect lead connector (A) circuit 451 to power connector (C).
6. Connect lead connector (A) circuit 451 to bilge pump switch (B).
7. Install panel in tank (page 10-56).



End of Task

TA147141

10-109

**MASTER CONTROL PANEL REPAIR (Sheet 48 of 71)**  
**Gas Particulate Switch Lead Assembly Replacement (Sheet 1 of 2)**

SUPPLIES: Silicone compound (Item 32, Appendix D)

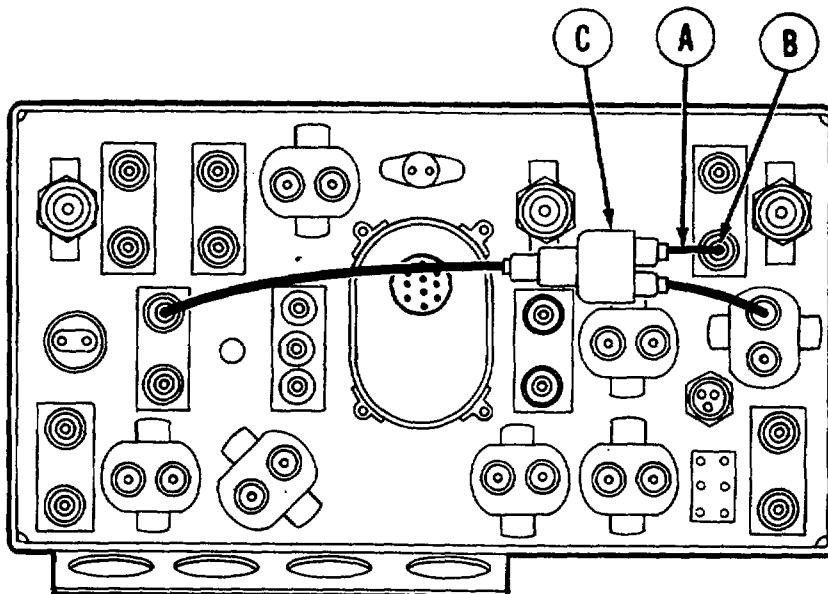
PRELIMINARY PROCEDURE: Remove panel from tank (page 10-54)

**NOTE**

**This procedure is used only when a bilge pump switch is present.**

REMOVAL:

1. Remove electrical lead connector (A) circuit 415 from gas particulate switch (B).
2. Remove electrical lead connector (A) from power connector (C).
3. Remove electrical lead connector (A) circuit 415 from panel.

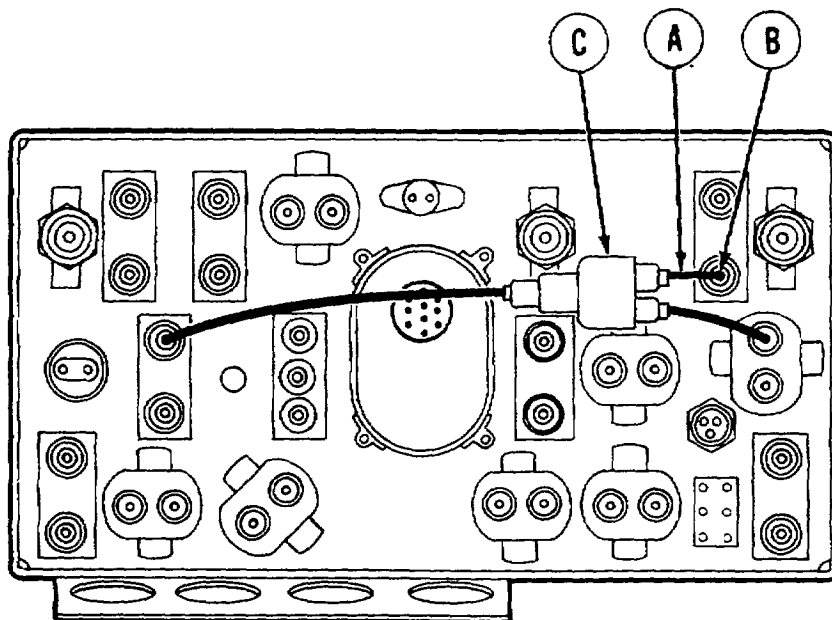


Go on to Sheet 2

TA147142

**MASTER CONTROL PANEL REPAIR (Sheet 49 of 71)**  
**Gas Particulate Switch Lead Assembly Replacement (Sheet 2 of 2)**

1. Apply silicone compound (Item 32, Appendix D) to both electrical connectors of lead assembly (A).
2. Connect lead connector (A) circuit 415 to gas particulate switch (B).
3. Connect lead connector (A) circuit 415 to power connector (C).
4. Install panel in tank (page 10-56).



End of Task

TA147143

10-111

**MASTER CONTROL PANEL REPAIR (Sheet 50 of 71)**  
**Gas Particulate Switch Lead Assembly Replacement (Sheet 1 of 2)**

SUPPLIES: Silicone compound (Item 32, Appendix D)

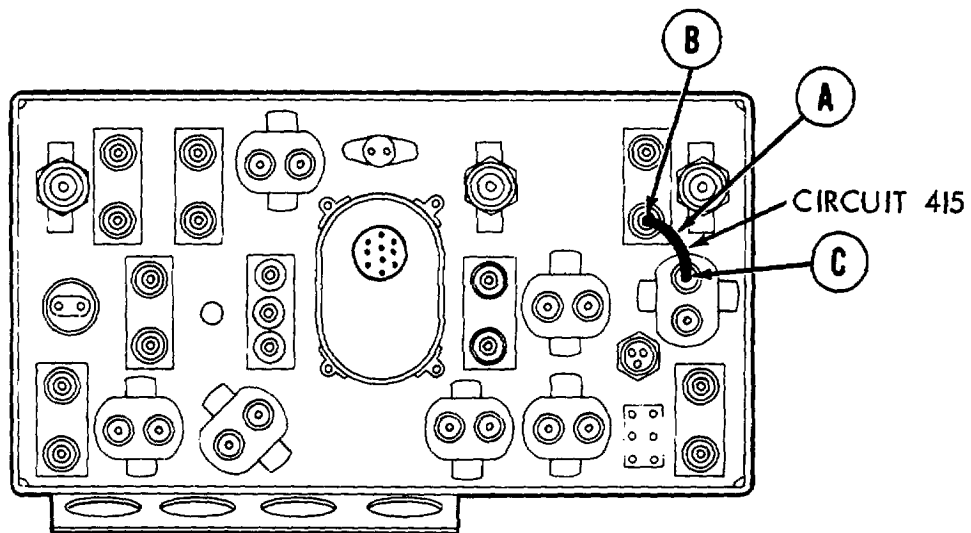
PRELIMINARY PROCEDURE: Remove panel from tank (page 10-54)

**NOTE**

**This procedure is used when the bilge pump switch is not present.**

REMOVAL:

1. Remove electrical lead connector (A) from gas particulate switch (B).
2. Remove electrical lead connector (A) from bilge pump circuit breaker (C).
3. Remove electrical lead connector (A) from panel.



Go on to Sheet 2

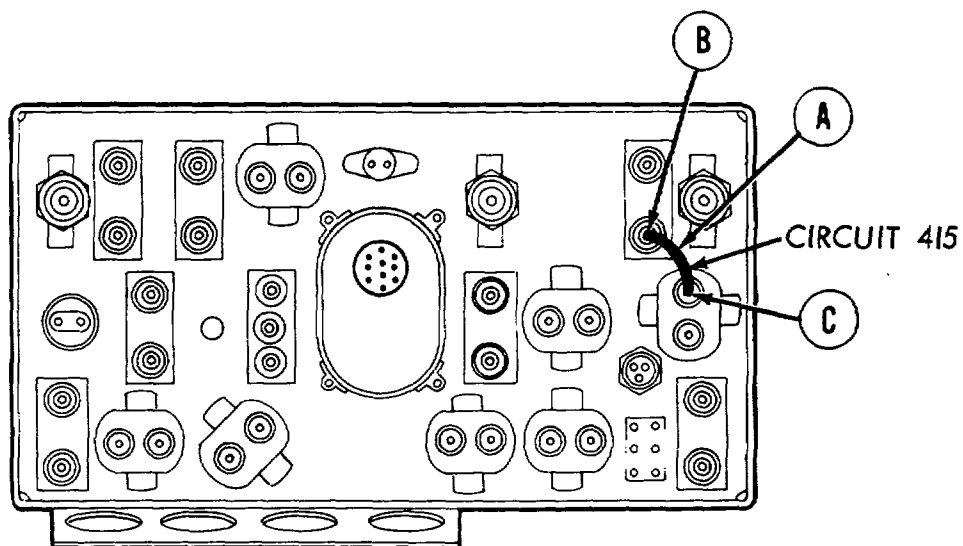
TA147144



**MASTER CONTROL PANEL REPAIR (Sheet 51 of 71)**  
**Gas Particulate Switch Lead Assembly Replacement (Sheet 2 of 2)**

**INSTALLATION:**

1. Apply silicone compound (Item 32, Appendix D) to both electrical connector of lead assembly (A).
2. Connect lead connector (A) to gas particulate switch (B).
3. Connect lead connector (A) to bilge pump circuit breaker (C).
4. Install panel in tank (page 10-56).



End of Task

TA147145

10-113

**MASTER CONTROL PANEL REPAIR (Sheet 52 of 71)**  
**Bilge Pump Circuit Breaker Lead Assembly Replacement (Sheet 1 of 2)**

SUPPLIES: Silicone compound (Item 32, Appendix D)

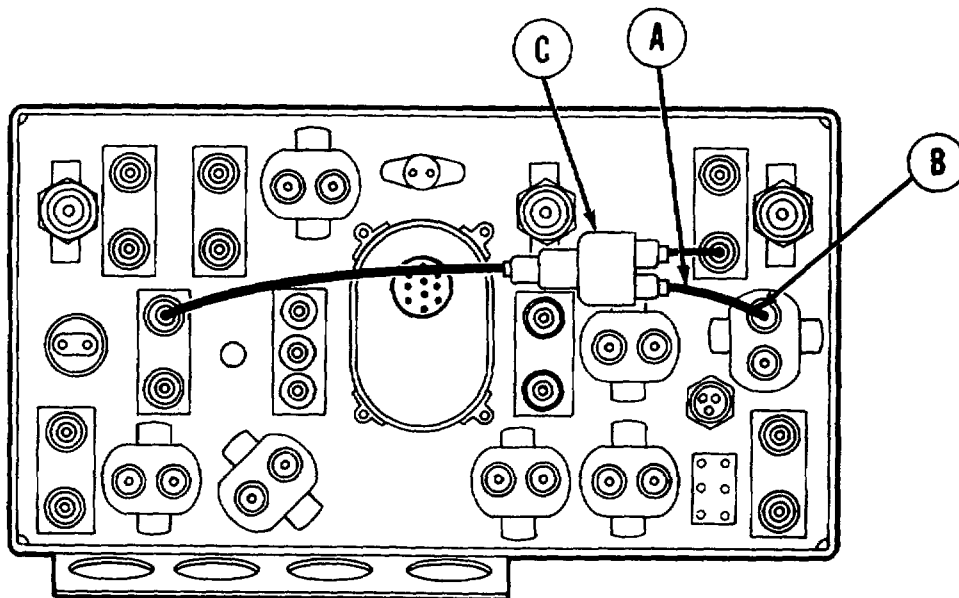
PRELIMINARY PROCEDURE: Remove panel from tank (page 10-54)

**NOTE**

**This procedure is used only when a bilge pump switch is present.**

REMOVAL:

1. Remove electrical lead connector (A) circuit 920 from bilge pump circuit breaker (B).
2. Remove electrical lead connector (A) circuit 920 from power connector (C).
3. Remove electrical lead (A) circuit 920 from panel.



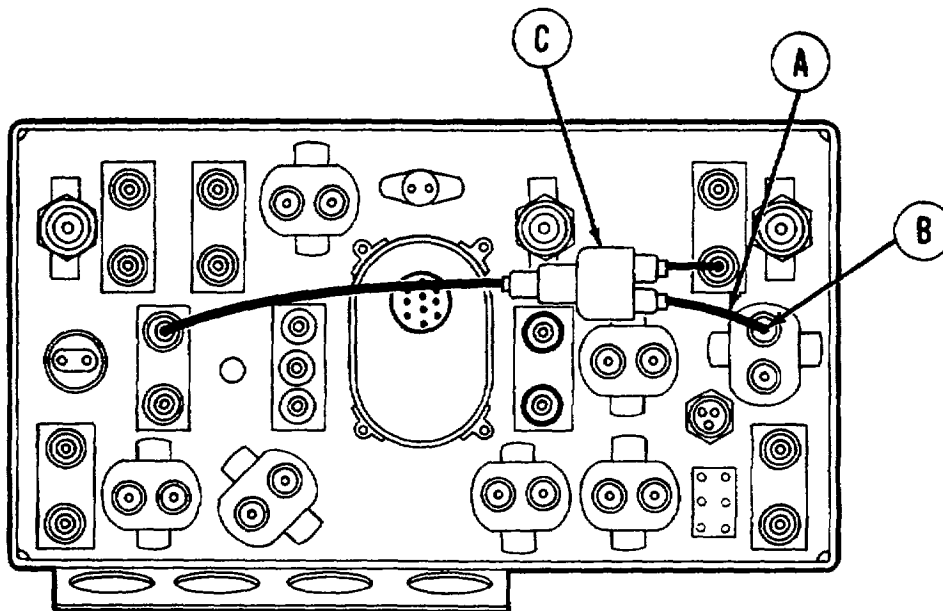
Go on to Sheet 2

TA147146

**MASTER CONTROL PANEL REPAIR (Sheet 53 of 71)**  
**Bilge Pump Circuit Breaker Lead Assembly Replacement (Sheet 2 of 2)**

**INSTALLATION:**

1. Apply silicone compound (Item 32, Appendix D) to both electrical connectors of lead assembly (A) circuit 920.
2. Connect lead connector (A) circuit 920 to bilge pump circuit breaker (B).
3. Connect lead connector (A) circuit 920 to power connector (C).
4. Install panel in tank (page 10-56).



End of Task

TA147147

10-115

**MASTER CONTROL PANEL REPAIR (Sheet 54 of 71)**  
**Master Control Panel Power Wiring Harness Replacement (Sheet 1 of 6)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-116
Installation	10-120

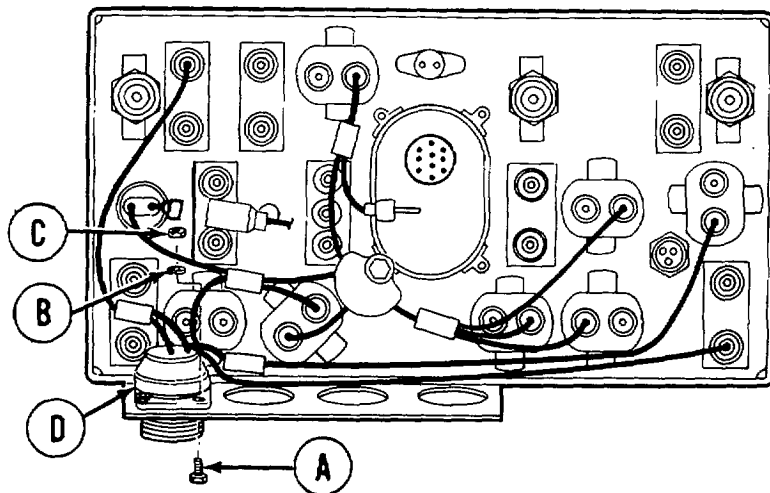
TOOLS: Flat-tip screwdriver  
 3/8 in. combination box and open end wrench (2 required)  
 11/32 in. combination box and open end wrench  
 Offset flat-tip screwdriver  
 Cross-tip screwdriver

SUPPLIES: Silicone compound (Item 32, Appendix D)  
 Lockwasher (MS35338-42)(5 required)

PRELIMINARY PROCEDURE: Remove panel from tank (page 10-54)

REMOVAL:

1. Using screwdriver on screw (A) and 11/32 inch wrench on nut (C), remove four screws (A), lockwashers (B), and nut (C) securing connector (D) to panel. Throw lockwashers away.
2. Remove connector (D) from panel and position aside.

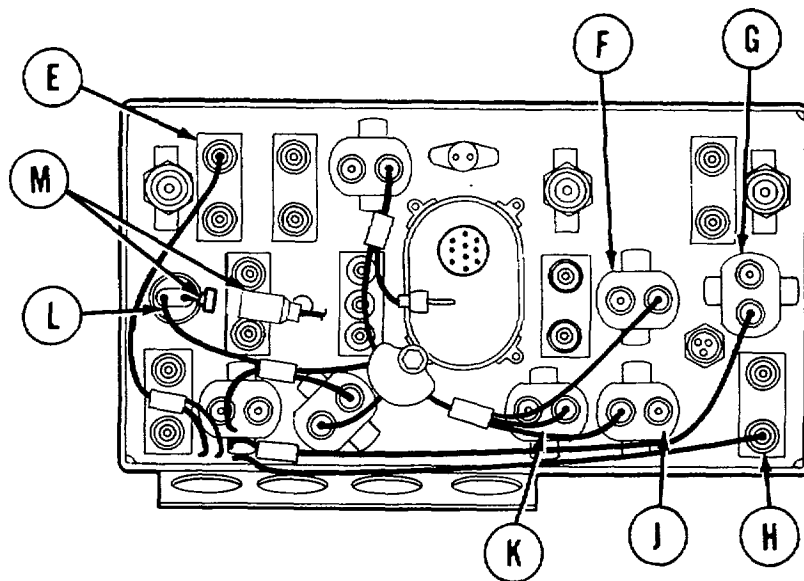


Go on to Sheet 2

TA147148

**MASTER CONTROL PANEL REPAIR (Sheet 55 of 71)**  
**Master Control Panel Power Wiring Harness Replacement (Sheet 2 of 6)**

3. Disconnect electrical connector (circuit 459) from mater control switch (E).
4. Disconnect electrical connector (circuit 486) from manifold preheat circuit breaker (F).
5. Disconnect electrical connector (circuit 400) from master heater switch (H).
6. Disconnect electrical connector (circuit 920) from bilge pump circuit breaker (G).
7. Disconnect electrical connector (circuit 27) from gage circuit breaker (J).
8. Disconnect electrical connector (circuit 38/516A) from IR power circuit breaker (K).
9. Disconnect electrical connector (circuit 14) from starter switch (L).
10. Disconnect electrical connector (circuit 14) (M).

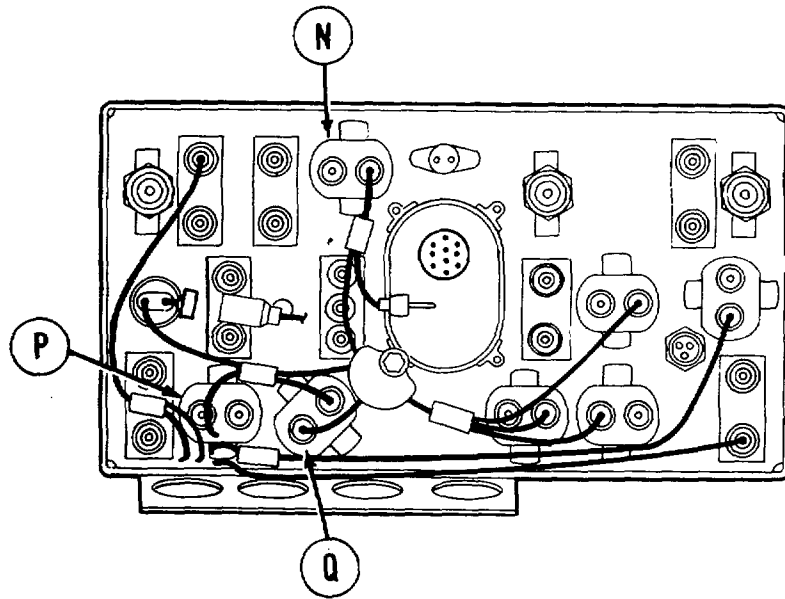


Go on to Sheet 3

TA147149

**MASTER CONTROL PANEL REPAIR (Sheet 56 of 71)****Master Control Panel Power Wiring Harness Replacement (Sheet 3 of 6)**

11. Disconnect electrical connector (circuit 54) from fuel shutoff circuit breaker (N).
12. Disconnect electrical connector (circuit 76A) from fuel pump circuit breaker (P).
13. Disconnect electrical connector (circuit 37) from utility outlet circuit breaker (Q).

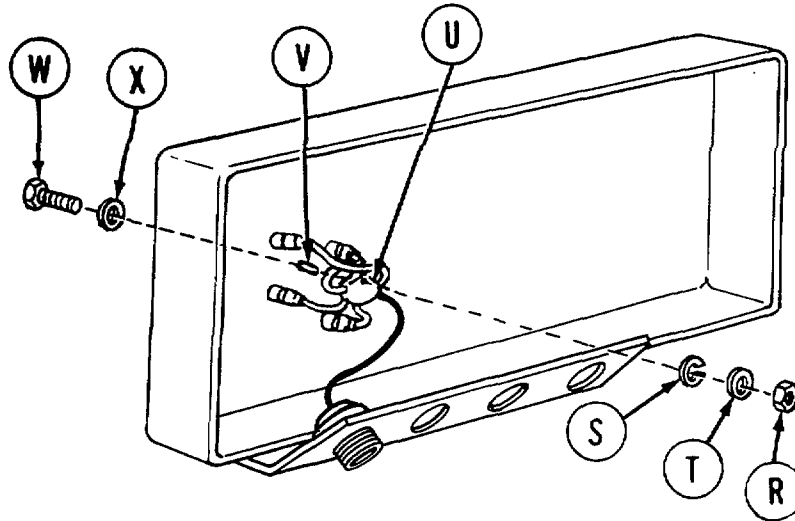


Go on to Sheet 4

TA147150

**MASTER CONTROL PANEL REPAIR (Sheet 57 of 71)****Master Control Panel Power Wiring Harness Replacement (Sheet 4 of 6)**

14. Using 3/8 inch wrench, remove nut (R), flat washer C(T), and lockwasher (S) securing harness (U) to panel. Throw lockwasher away.
15. Remove wiring harness (U).



16. Inspect studs (V) for stripped or damaged threads. If any defects are found, replace.
17. If necessary to replace stud (V), use 3/8 inch wrench on screw (W) and 3/8 inch wrench on stud (V). Remove stud (V), washer (X) and screw (W).

Go on to Sheet 5

TA147151

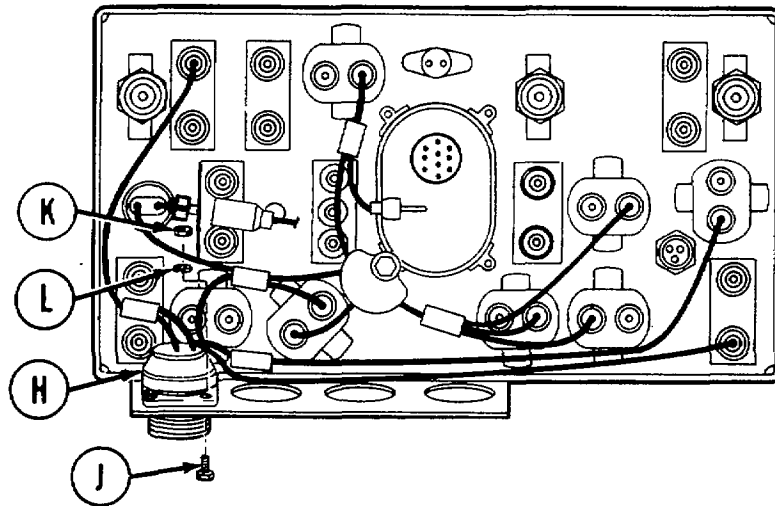
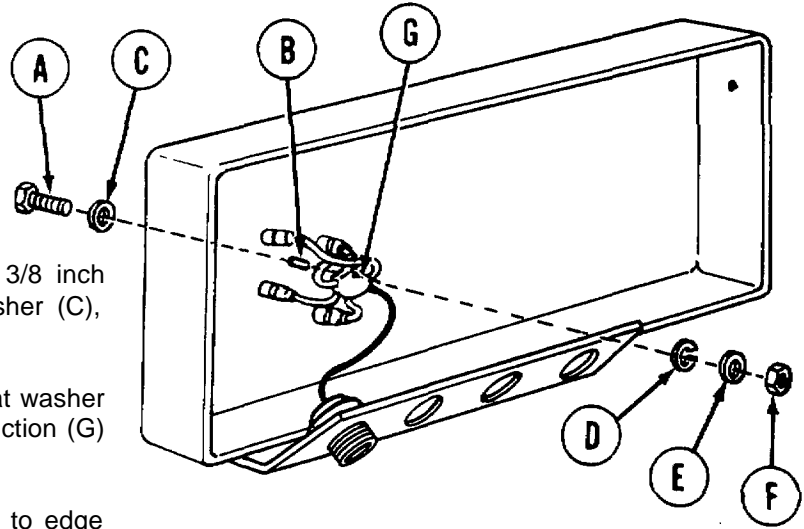
10-119

**MASTER CONTROL PANEL REPAIR (Sheet 58 of 71)**

**Master Control Panel Power Wiring Harness Replacement (Sheet 5 of 6)**

**INSTALLATION:**

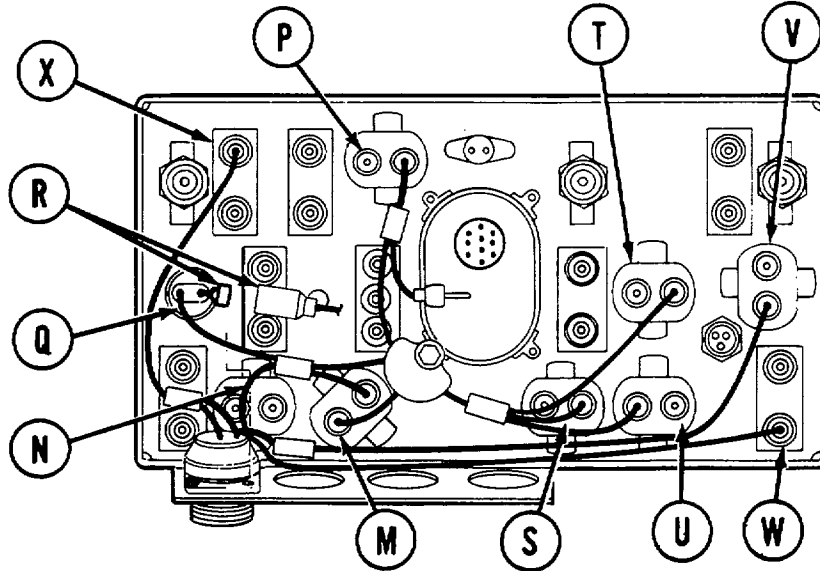
1. Using 3/8 inch wrench on screw (A) and 3/8 inch wrench on stud (B), install screw (A), washer (C), and stud (B).
2. Using socket, install new lockwasher (D), flat washer (E), and nut (F) securing wiring harness junction (G) to panel.
3. Position connector (H) onto panel with key to edge panel.
4. Using screwdriver on screw (J) and 11/32 inch wrench on nut (K), install four screws (J), new lockwashers (L), and nut (K) to secure connector (H) to panel.
5. Apply silicone compound (Item 32, Append D) to all electrical connectors of wiring harness junction (G).





**MASTER CONTROL PANEL REPAIR (Sheet 59 of 71)****Master Control Panel Power Wiring Harness Replacement (Sheet 6 of 6)**

6. Connect electrical connector (circuit 37) from utility outlet circuit breaker (M).
7. Connect electrical connector (circuit 76A) from fuel pump circuit breaker (N).
8. Connect electrical connector (circuit 54) from fuel shutoff circuit breaker (P).
9. Connect electrical connector (circuit 14) to starter switch (Q).
10. Connect electrical connectors (circuit 14)(R).
11. Connect electrical connector (circuit 38/516A) to IR power circuit breaker (S).
12. Connect electrical connector (circuit 486) to manifold preheat circuit breaker (T).
13. Connect electrical connector (circuit 27) to gage circuit breaker (U).
14. Connect electrical connector (circuit 920) to bilge pump circuit breaker (V).
15. Connect electrical connector (circuit 400) to master heater switch (W).
16. Connect electrical connector (circuit 459) to master control switch (X).
17. Install master control panel (page 10-56).



End of task

TA147153

10-121

**MASTER CONTROL PANEL REPAIR (Sheet 60 of 71)**  
**Master Control Panel Starting Wiring Harness Replacement (Sheet 1 of 4)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-122
Installation	10-124

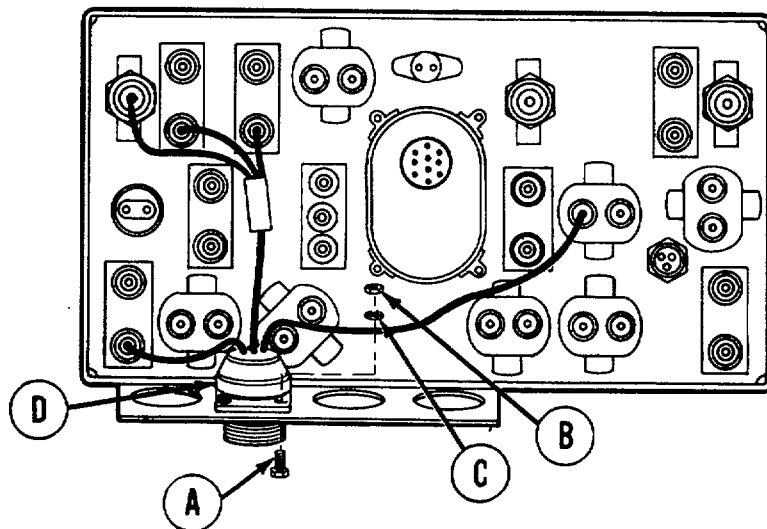
TOOLS: Flat-tip screwdriver  
 11/32 in. combination box and open end wrench  
 Cross-tip screwdriver

SUPPLIES: Silicone compound Item 32, Appendix D)  
 Lockwasher (MS35338-42)(4 required)

PRELIMINARY PROCEDURE: Remove panel from tank (page 10-44)

REMOVAL:

1. Using screwdriver on screw (A) and 11/32 inch wrench on nut (B), remove four screws (A), lockwashers (C), and nuts (B) securing connector (D) to panel. Throw lockwashers away.
2. Remove connector (D) from panel and position aside.

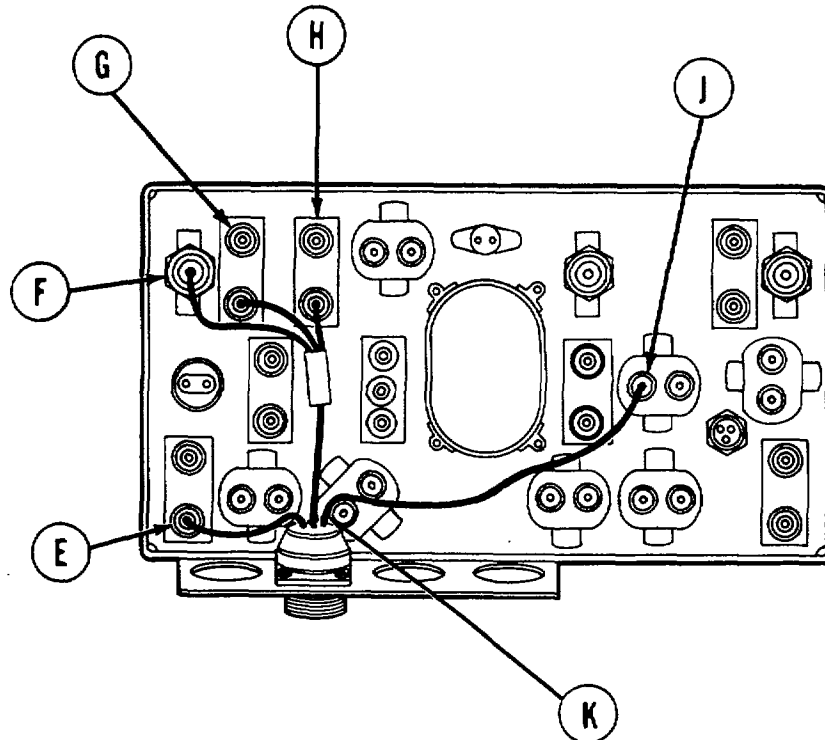


Go on to Sheet 2

TA147154

**MASTER CONTROL PANEL REPAIR (Sheet 61 of 71)****Master Control Panel Starting Wiring Harness Replacement (Sheet 2 of 4)**

3. Disconnect electrical connector (circuit 76) from fuel pump switch (E).
4. Disconnect electrical connector (circuit 459A) from master control indicator light (F).
5. Disconnect electrical connector (circuit 459A) from master control switch (G).



6. Disconnect electrical connector (circuit 54A) from fuel shutoff switch (H).
7. Disconnect electrical connector (circuit 486) from manifold reheat circuit breaker (J).
8. Remove wiring harness (K) from panel.

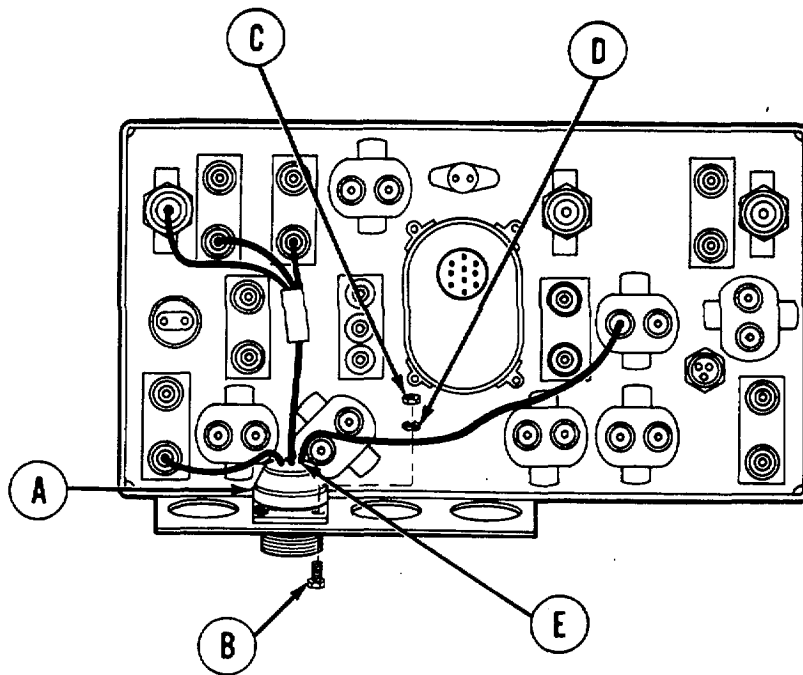
Go on to Sheet 3

TA147155

10-123

**MASTER CONTROL PANEL REPAIR (Sheet 62 of 71)****Master Control Panel Starting Wiring Harness Replacement (Sheet 3 of 4)****INSTALLATION:**

1. Position connector (A) onto panel with key to edge of panel.
2. Using screwdriver on screw (B) and 11/32 inch wrench on nut (C), install four screws (B), new lockwashers (D), and nuts (C) to secure connector (A) to panel.
3. Apply silicone compound (Item 32, Appendix D) to all electrical connectors of wiring harness (E).

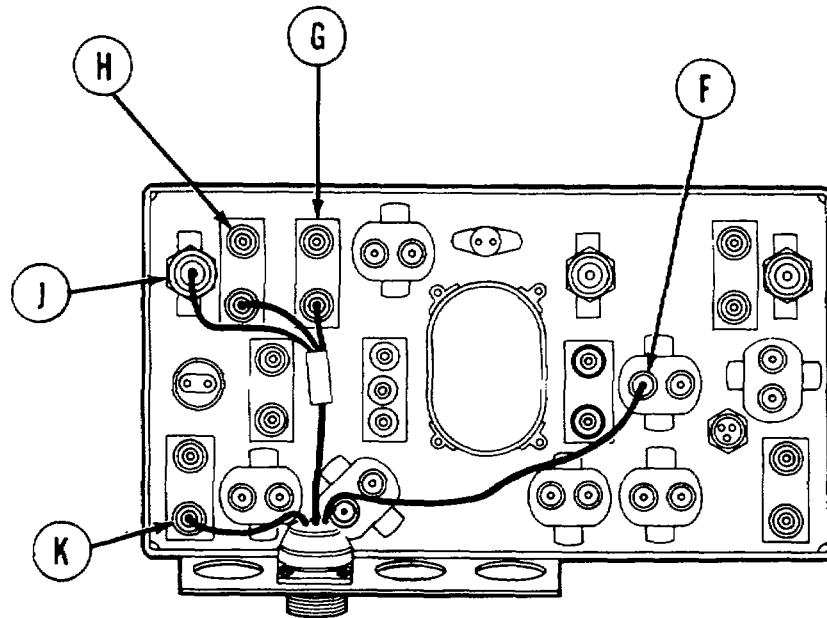


Go on to Sheet 4

TA147156

**MASTER CONTROL PANEL REPAIR (Sheet 63 of 71)****Master Control Panel Starting Wiring Harness Replacement (Sheet 4 of 4)**

4. Connect electrical connector (circuit 486) to manifold preheat circuit breaker (F).
5. Connect electrical connector (circuit 54A) to fuel shutoff switch (G).
6. Connect electrical connector (circuit 459A) to master control switch (H).
7. Connect electrical connector (circuit 459A) to master control indicator light (J).
8. Connect electrical connector (circuit 76) to fuel pump switch (K).
9. Install panel in tank (page 10-56).



End of Task

TA147157

10-125

**MASTER CONTROL PANEL REPAIR (Sheet 64 of 71)**  
**Master Control Panel Accessories Wiring Harness Replacement (Sheet 1 of 4)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-126
Installation	10-128

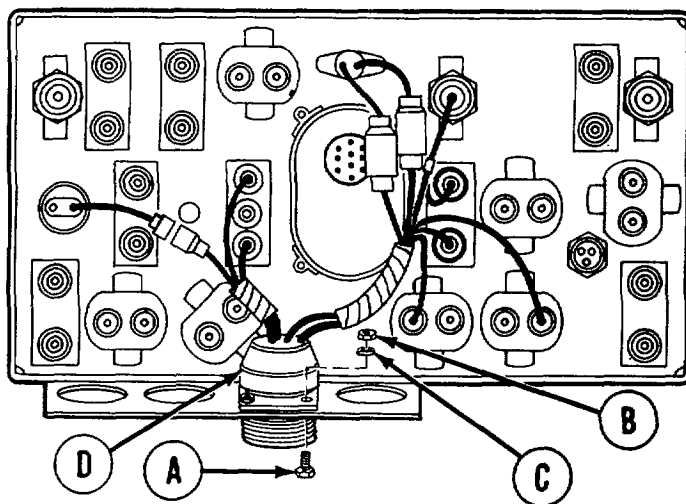
TOOLS: Flat-tip screwdriver  
 11/32 in. combination box and open end wrench  
 Cross-tip screwdriver

SUPPLIES: Silicone compound (Item 32, Appendix D)  
 Lockwasher (MS35338-42) (4 required)

PRELIMINARY PROCEDURE: Remove panel from tank (page 10-54)

REMOVAL:

1. Using screwdriver on screw (A) and 11/32 inch wrench on nut (B), remove four screws (A), lockwashers (C), and nut (B) securing connector (D) to panel. Throw lockwashers away.
2. Remove connector (D) from panel and position aside.



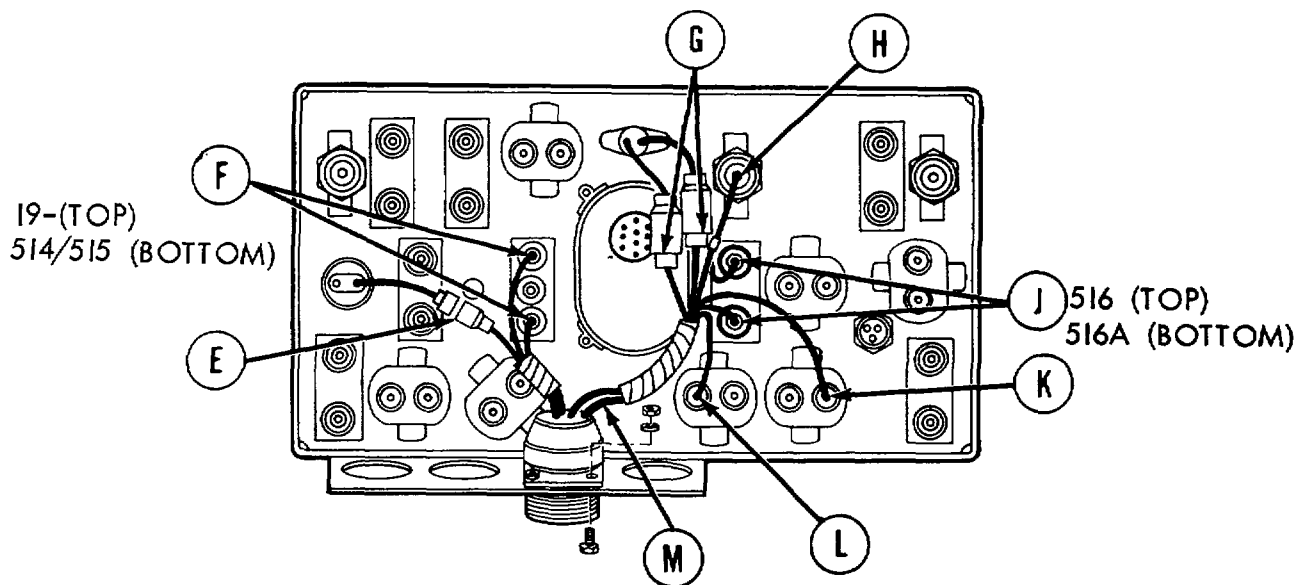
Go on to Sheet 2

TA147158

**MASTER CONTROL PANEL REPAIR (Sheet 65 of 71)**

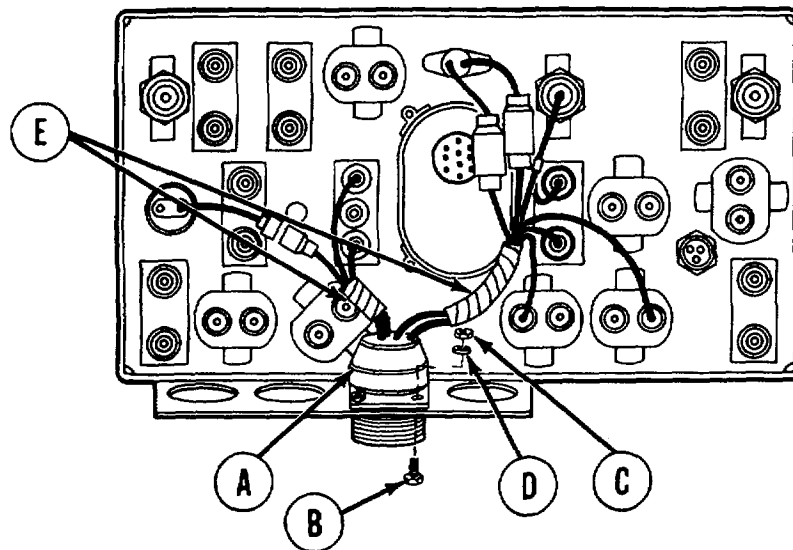
**Master Control Panel Accessories Wiring Harness Replacement (Sheet 2 of 4)**

3. Disconnect electrical connector (circuit 14) from starter switch connector (E).
4. Disconnect two electrical connectors (circuits 19 and 514/515) from blackout selector switch (F).
5. Disconnect two electrical connectors (circuit 519) from hi-beam indicator lamp connectors (G).
6. Disconnect electrical connector (circuit 516) from IR power indicator lamp (H).
7. Disconnect two electrical connectors (circuits 516 and 516A) from IR power switch (J).
8. Disconnect electrical connector (circuit 27) from gage circuit breaker (K).
9. Disconnect electrical connector (circuit 516A/38) from IR power circuit breaker (L).
10. Remove wiring harness (M) from panel.



**MASTER CONTROL PANEL REPAIR (Sheet 66 of 71)****Master Control Panel Accessories Wiring Harness Replacement (Sheet 3 of 4)****INSTALLATION:**

1. Position connector (A) onto panel wit key to edge of panel.
2. Using screwdriver on screw (B) and 11/32 inch wrench on nut (C), install four screws (B), new lockwashers, and nuts (C) to secure connector (A) to panel.
3. Apply silicone compound (Item 32, Appendix D) to all electrical connectors of wiring harness (E).



Go on to Sheet 4

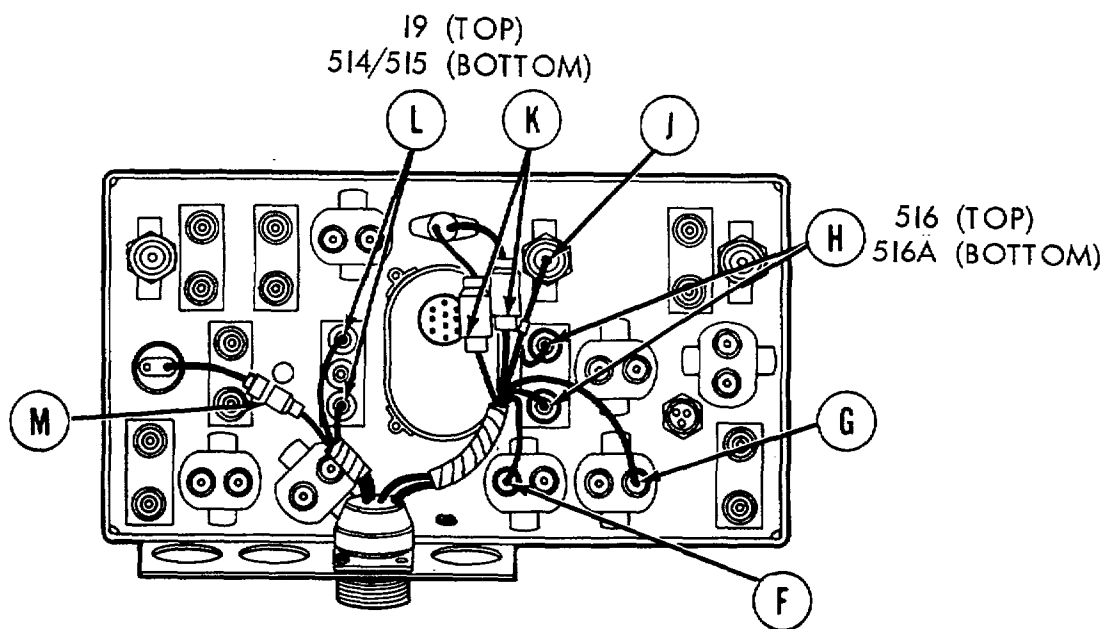
TA147160



**MASTER CONTROL PANEL REPAIR (Sheet 67 of 71)**

**Master Control Panel Accessories Wiring Harness Replacement (Sheet 4 of 4)**

4. Connect electrical connector (circuit 516A/38) to IR power circuit breaker (F).
5. Connect electrical connector (circuit 27) to gage circuit breaker (G).
6. Connect two electrical connectors (circuits 516 and 516A) to IR power switch (H).
7. Connect electrical connector (circuit 516) to IR power indicator lamp (J).
8. Connect two electrical connectors (circuit 519) to hi-beam indicator lamp connectors (K).
9. Connect two electrical connectors (circuit 19 and 514/515) to blackout selector switch (L).
10. Connect electrical connector (circuit 14) to starter switch connector (M).
11. Install panel in tank (page 10-56).



End of Task

TA147161

**MASTER CONTROL PANEL REPAIR (Sheet 68 of 71)**

**Master Control Panel Personnel Heater Wiring Harness Replacement (Sheet 1 of 4)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-130
Installation	10-132

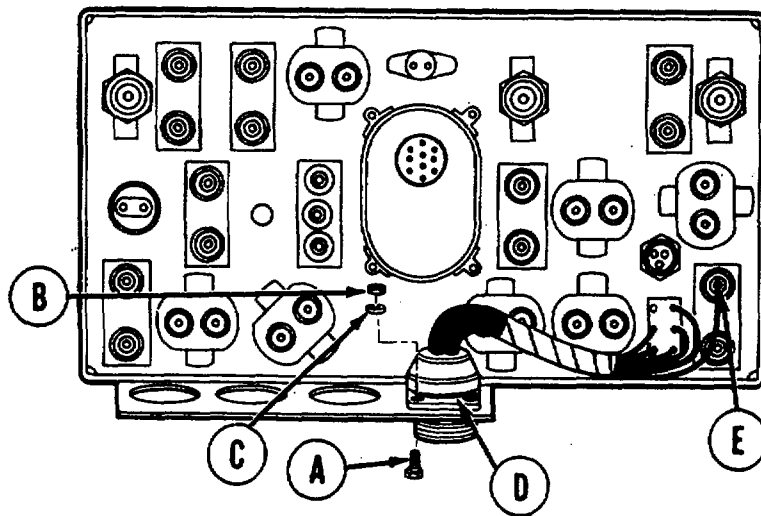
TOOLS: Flat-tip screwdriver  
 Long round nose pliers  
 Ratchet with 1/2 in. drive  
 3/4 in. socket with 1/2 in. drive  
 11/32 in. combination box and open end wrench  
 Cross-tip screwdriver

SUPPLIES: Silicone compound tem 32, Appendix D)  
 Lockwasher (MS35338-42)(4 required)  
 Lockwasher (MS35338-43)(6 required)

PRELIMINARY PROCEDURE: Remove panel from tank (page 10-54)

REMOVAL:

1. Using screwdriver on screw (A) and 11/32 inch wrench on nut (B), remove four screws (A), lockwashers (C) and nuts (B) securing connector (D) to panel. Throw lockwashers away.
2. Remove connector (D) from panel and position aside.
3. Using fingers, remove electrical connector (circuit 400) from rear of switch (E).



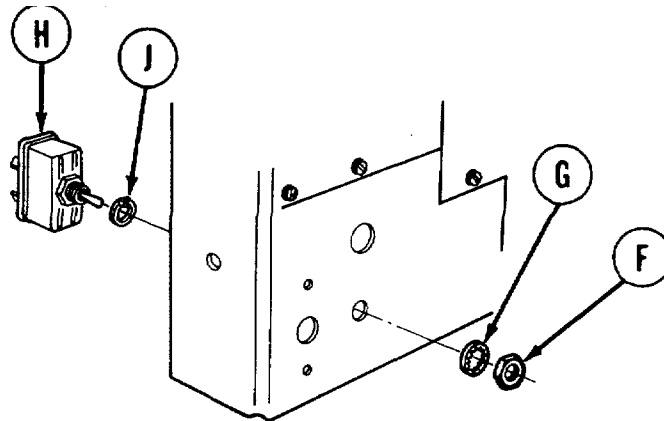
Go on to Sheet 2

TA147162

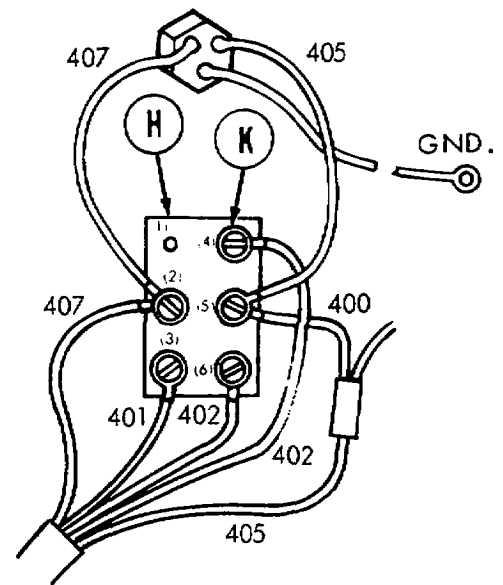
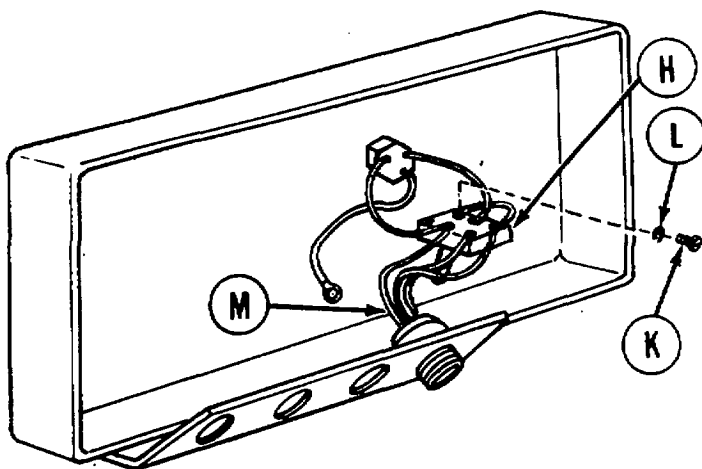
**MASTER CONTROL PANEL REPAIR (Sheet 69 of 71)**

**Master Control Panel Personnel Heater Wiring Harness Replacement (Sheet 2 of 4)**

4. Using 9/16 inch wrench, remove nut (F) and lockwasher (G) securing switch (H) to panel. Throw lockwasher away.
5. Remove switch (H) and lockring (J) from panel.



6. Using screwdriver, remove five screws (K) and lockwashers (L) securing seven electrical leads from switch. Throw lockwashers away.
7. Remove wiring harness assembly (M).



Go on to Sheet 3

TA147163

**MASTER CONTROL PANEL REPAIR (Sheet 70 of 71)**

**Master Control Panel Personnel Heater Wiring Harness Replacement (Sheet 3 of 4)**

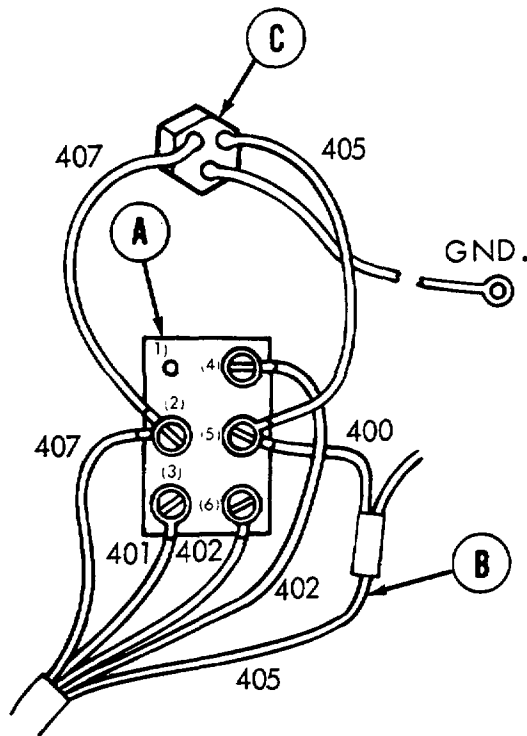
**INSTALLATION:**

1. Using screwdriver, move screws and washers from terminals 2 through 6 of replacement hi-lo switch (A). Retain screws and washer for installation.
2. Position electrical leads (B) to switch (A) as shown.

**NOTE**

**Electrical leads (407 and 405) are part of indicator light (C).**

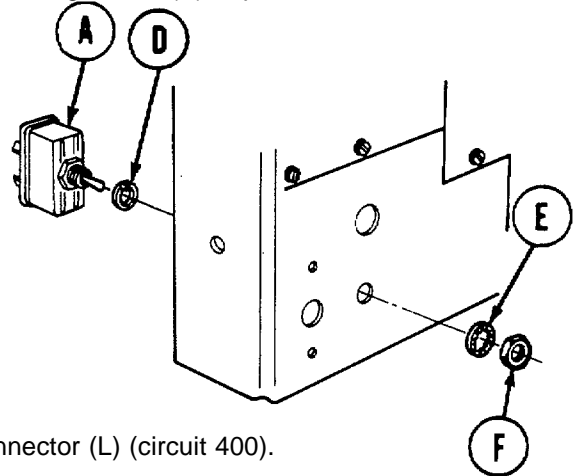
3. Using screwdriver, secure leads to terminals 2 through 6 with screws and washers removed in step 1.



**MASTER CONTROL PANEL REPAIR (Sheet 71 of 71)**

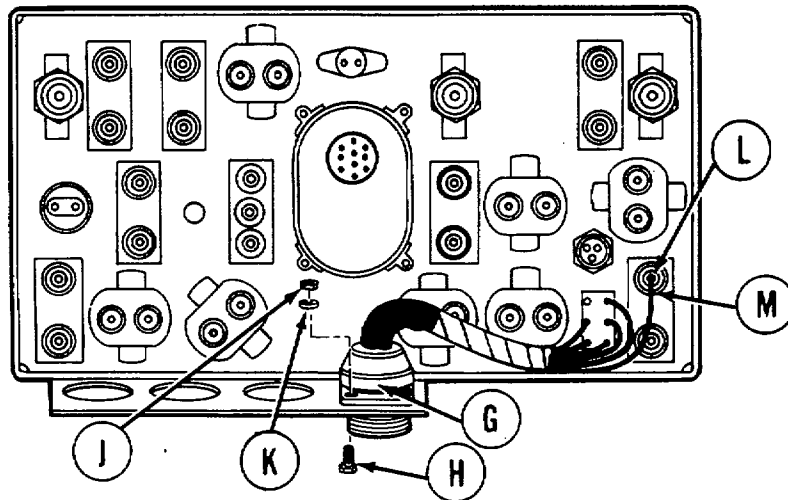
**Master Control Panel Personnel Heater Wiring Harness Replacement (Sheet 4 of 4)**

4. Place switch (A) and lockring (D) in position on panel.
5. Using 9/16 inch wrench, install new lockwasher (E) and nuts) securing switch (A) to panel.



6. Position connector (G) onto panel with key to edge of panel.
7. Using screwdriver on screw (H) and 11/32 inch wrench on nut (J), install circuit screws (H), new lockwashers (K), and nuts (J) to secure connector (G) to panel.

8. Apply silicone compound (Item 32, Appendix D) to electrical connector (L) (circuit 400).
9. Using fingers, connect electrical connector (L) (circuit 400) to switch (M) by pushing in.
10. Install panel in tank (page 10-56).



End of Task

TA147165

10-133

**INDICATOR LIGHT BASE ASSEMBLY REPAIR (Sheet 1 of 1)**

TOOLS: 1 in. combination box and open end wrench

SUPPLIES: Lockwasher(7358625)  
Gasket (11605388)

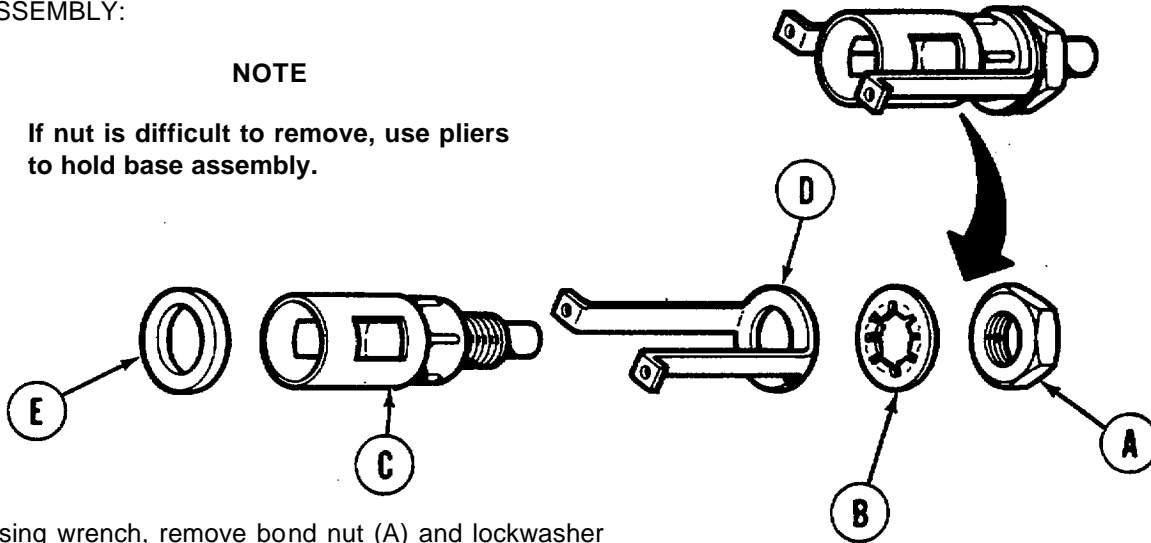
REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURE: Remove base assembly from master control panel (page 10-87)

DISASSEMBLY:

**NOTE**

If nut is difficult to remove, use pliers to hold base assembly.



1. Using wrench, remove bond nut (A) and lockwasher (B) from lampholder (C). Throw lockwasher away.
2. Remove retaining trap (D) and gasket (E) from lampholder (C). Throw gasket away.

**CLEANING AND INSPECTION:**

1. Clean all component parts as required.
2. Inspect base assembly for broken or damaged parts. Replace as required.

**ASSEMBLY:**

1. Place lampholder (C) in position in retaining strap (D) .
2. Using wrench, install bond nut (A) and new lockwasher and new lockwasher (B).
3. Place new gasket (E) in position on lampholder (C).
4. Install base assembly in master control panel (page 10-58).

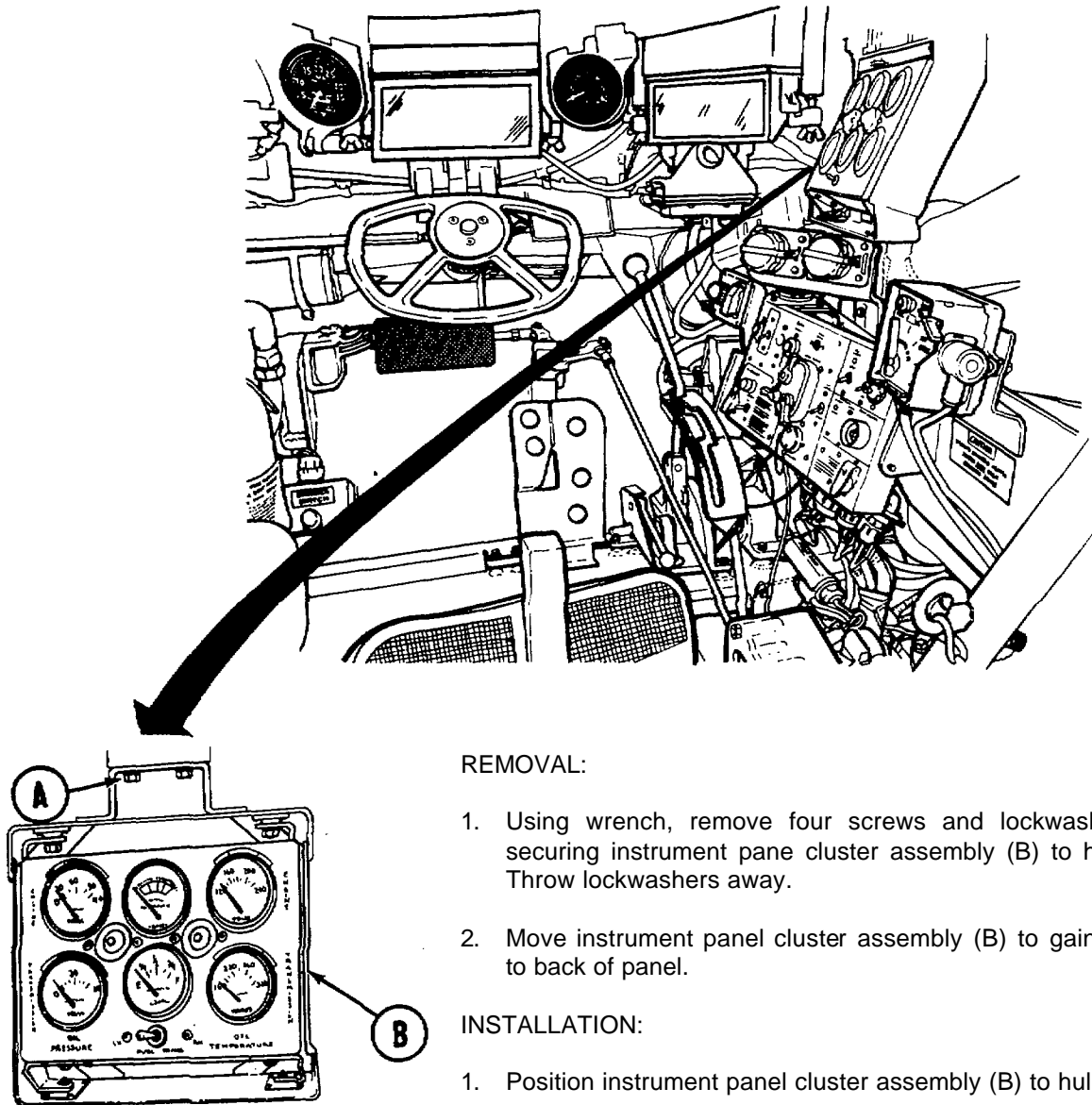
End of Task

TA147166

**INSTRUMENT PANEL CLUSTER ASSEMBLY DISPLACEMENT (Sheet 1 of 1)**

TOOLS: 7/16 in. combination box and open end wrench

SUPPLIES: Lockwasher (MS35333-40) (4 required))



**REMOVAL:**

1. Using wrench, remove four screws and lockwashers (A) securing instrument pane cluster assembly (B) to hull roof. Throw lockwashers away.
2. Move instrument panel cluster assembly (B) to gain access to back of panel.

**INSTALLATION:**

1. Position instrument panel cluster assembly (B) to hull.
2. Using wrench, install and tighten four screws and new lockwashers (A) securing instrument panel cluster assembly (B) to hull.

End of Task

TA147167

**INSTRUMENT PANEL CLUSTER ASSEMBLY REPLACEMENT (Sheet 1 of 4)**

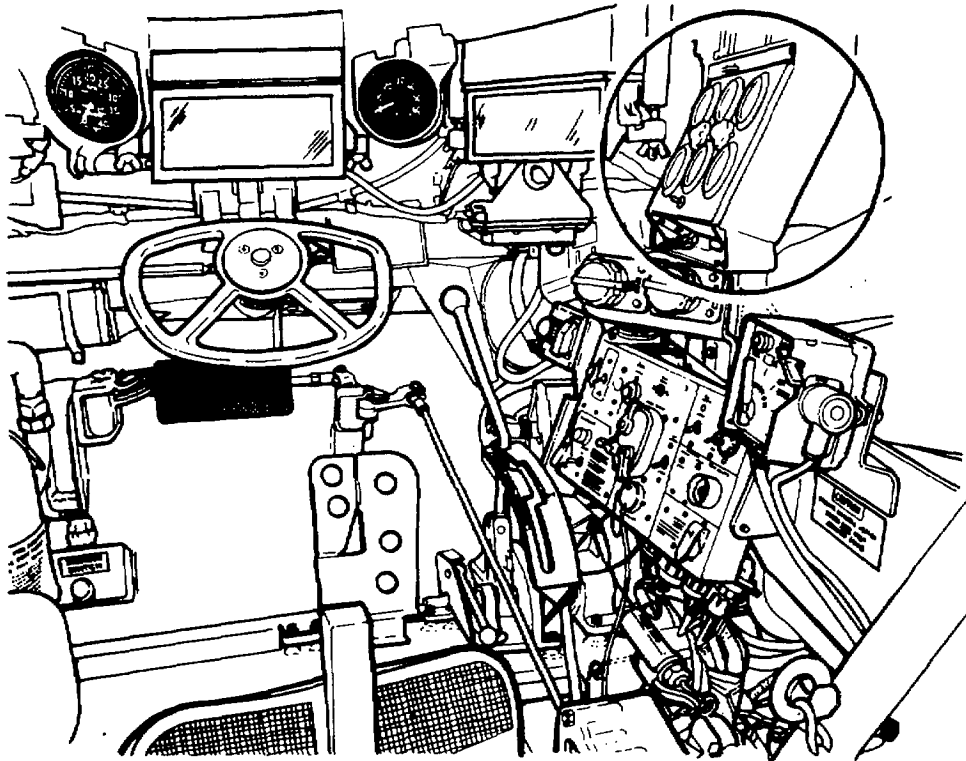
PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-137
Installation	10-138

TOOLS: 7/16 in. combination box and open end wrench  
 3/8 in. combination box and open end wrench  
 7/16 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 Cross-tip screwdriver  
 Spanner wrench  
 11/32 in. combination box and open end wrench  
 5/16 in. combination box and open end wrench

SUPPLIES: Lockwasher (MS35333-40) (4 required)  
 Lockwasher (MS35333-38) (4 required)  
 Lockwasher (MS35333-39) (8 required)  
 Lockwasher (MS35335-33) (3 required)

PRELIMINARY PROCEDURE: Remove battery ground straps (page 10-294)

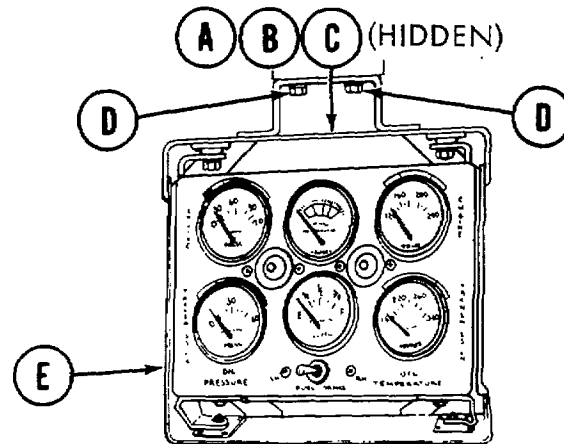




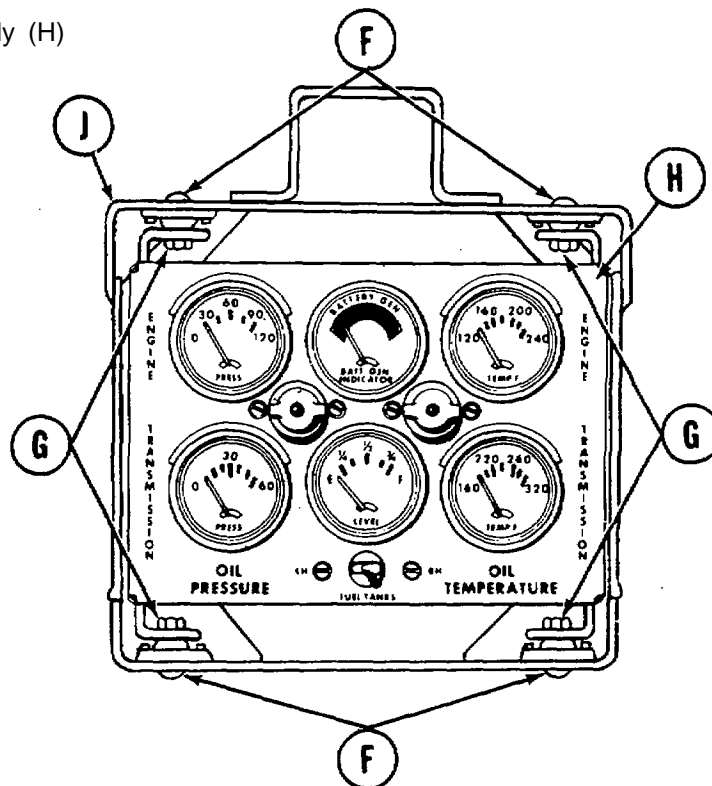
**INSTRUMENT PANEL CLUSTER ASSEMBLY REPLACEMENT (Sheet 2 of 4)**

**REMOVAL:**

1. Using spanner wrench, disconnect cable connector (A) from receptacle on rear of panel.
2. Using 7/16 inch wrench and 7/16 inch socket, remove three screws, lockwashers, and nuts (B) (hidden) securing ground lead (C) hidden to receptacle mounting bracket. Throw lockwashers away.



3. Using 7/16 inch wrench, remove four screws and lockwashers (D) securing support assembly with instrument panel cluster assembly (E) to hull. Throw lockwashers away.
4. Remove support assembly with instrument panel cluster assembly (E) from tank.
5. Using cross-tip screwdriver and 11/32 inch wrench, remove four screws, lockwashers (F), and nuts (G) securing instrument panel cluster assembly (H) to support assembly (J). Throw lockwashers away.
6. Remove instrument panel cluster assembly (H) from support assembly (J).



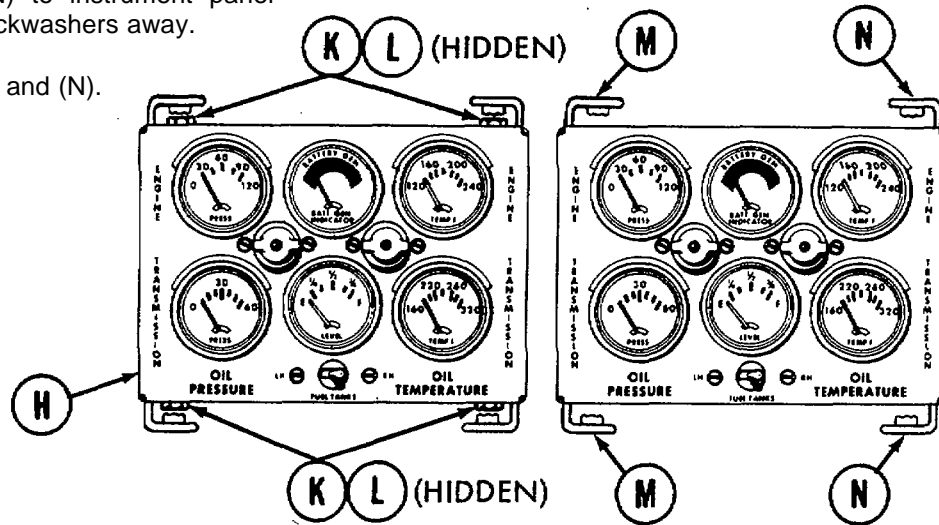
Go on to Sheet 3

TA147169

**INSTRUMENT PANEL CLUSTER ASSEMBLY REPLACEMENT (Sheet 3 of 4)**

7. Using 5/16 inch wrench and 3/8 inch wrench, remove eight screws (K), lockwashers, and nuts (L),(hidden) securing brackets (M) and (N) to instrument panel cluster (H). Throw lockwashers away.

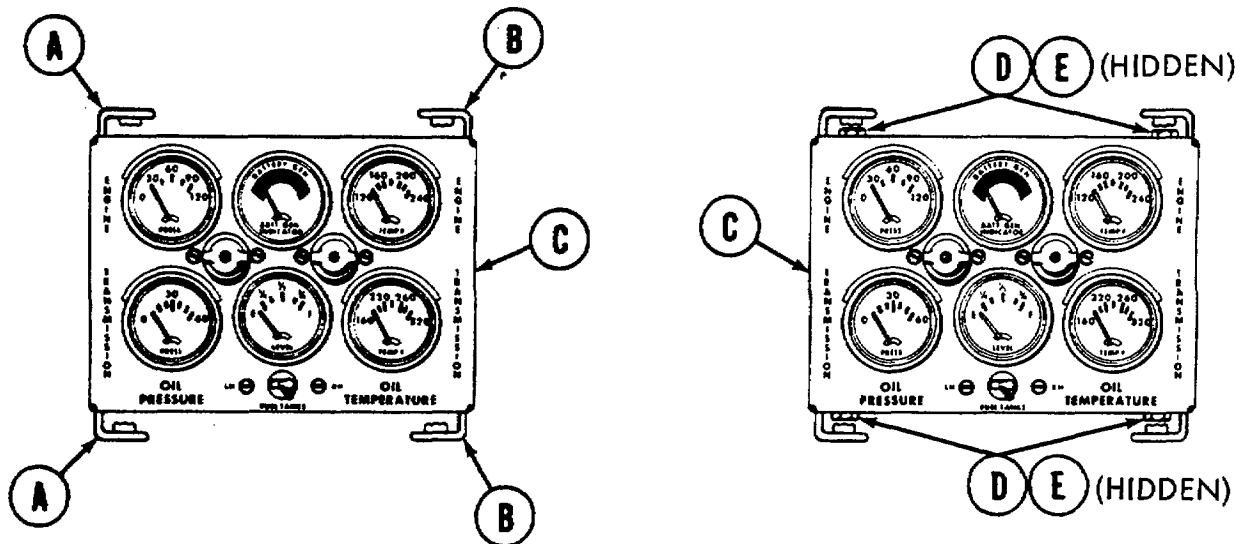
8. Remove brackets (M) and (N).



**INSTALLATION:**

1. Position brackets (A) and (B) to instrument panel cluster (C).

2. Using 5/16 inch socket and 3/8 inch wrench, secure each bracket (A) and (B) with two screws and new lockwashers (D) and nuts (E) (hidden).

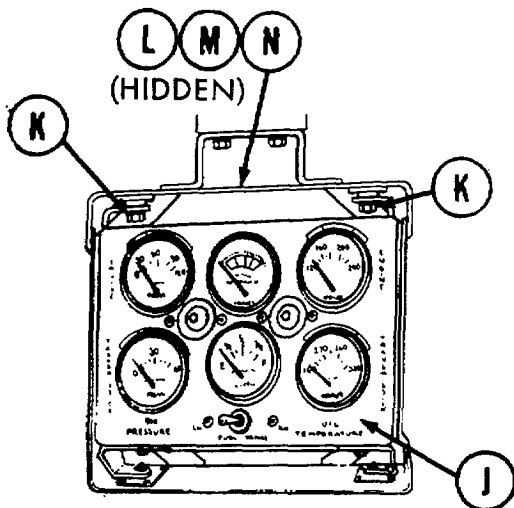
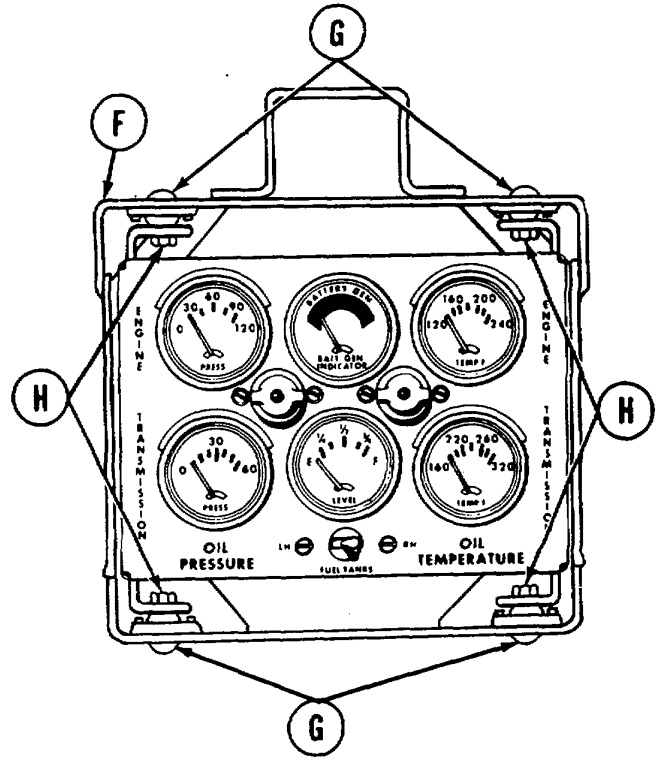


Go on to Sheet 4

TA147170

**INSTRUMENT PANEL CLUSTER ASSEMBLY REPLACEMENT (Sheet 4 of 4)**

3. Position instrument panel clusters (C) into support assembly (F).
4. Using cross-tip screwdriver and 11/32 inch wrench, install four screws and new lockwashers (G) and nuts (H) to secure instrument panel cluster assembly (C) to support assembly (F).



5. Position instrument panel cluster assembly and support assembly (J) to mounting block.
6. Using 3/8 inch wrench, install four screws and new lockwashers (K) to secure support assembly (J) to mounting block.

7. Using spanner wrench, connect cable connector (L) to receptacle on mar of panel.
8. Using 7/16 inch wrench and 7/16 inch socket, install screw through three new lockwashers and nut (M) to secure ground lead (N) to receptacle bracket.
9. Install battery ground strap (page 10-294).
10. Start engine and check instrument panel cluster assembly for normal indications.

End of Task

TA147171

**INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 1 of 23)**

PROCEDURE INDEX

PROCEDURE	PAGE
(A) Engine Oil Pressure Indicator Replacement	10-141
(B) Battery Generator Indicator Replacement	10-143
(C) Engine Oil Temperature Indicator Replacement	10-145
(D) Gage Illumination indicator Light Replacement	10-147
(E) Transmission Oil Pressure indicator Replacement	10-149

The diagram shows a front view of an instrument panel cluster assembly. It features six gauges arranged in two rows. The top row includes an Engine Oil Pressure gauge (A), a Battery Generator gauge (B), and an Engine Oil Temperature gauge (C). The bottom row includes a Transmission Oil Pressure gauge (E), a Fuel Tank Liquid Quantity gauge (F), and a Transmission Oil Temperature gauge (G). A central Fuel Tank Selector Switch (H) is located between the bottom two gauges. Below the gauges is a wiring harness (J) and a Fuel Tank Selector Switch Cable Assembly (K). Callouts A through K are shown in circles with arrows pointing to their respective components.

(F) Fuel Tank Liquid Quantity Indicator Replacement	10-151
(G) Transmission Oil Temperature Indicator Replacement	10-154
(H) Fuel Tank Selector Switch Replacement	10-156
(J) Instrument Panel Wiring Harness Replacement	10-158
(K) Fuel Tank Selector Switch Cable Assembly Replacement	10-162

**INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 2 of 23)**  
**Engine Oil Pressure Indicator Replacement (Sheet 1 of 2)**

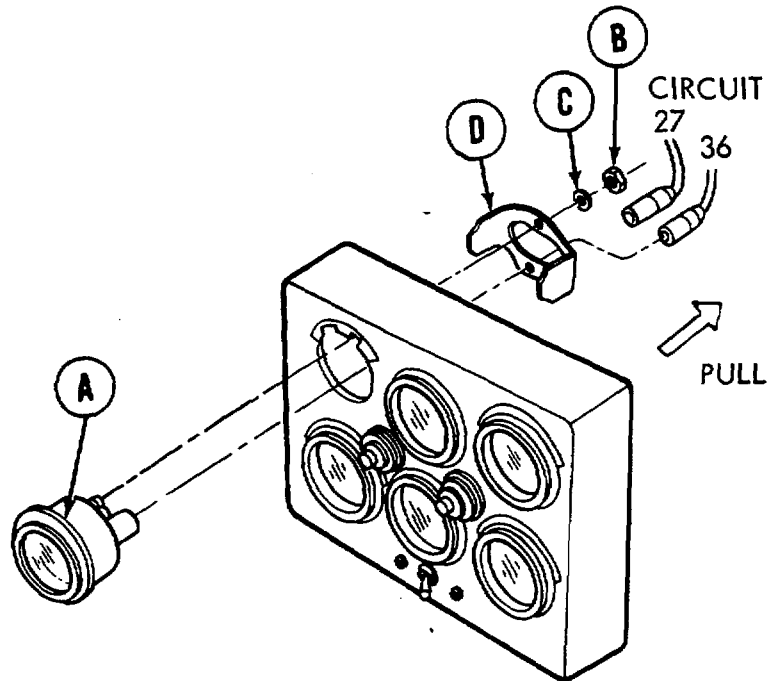
TOOLS: 3/8 in. combination box and open end wrench

SUPPLIES: Silicone compound (Item 32, Appendix D)  
 Lockwasher (MS35338-43) (2 required)

PRELIMINARY PROCEDURE: Remove instrument panel from tank (page 10-136)

REMOVAL:

1. Remove two leads (circuits 27 and 36) from rear of indicator (A) by pulling out.
2. Using wrench, remove two nuts (B) and lockwashers (C) securing indicator (A) and mounting bracket (D) to panel.
3. Remove indicator (A) and mounting bracket (D).



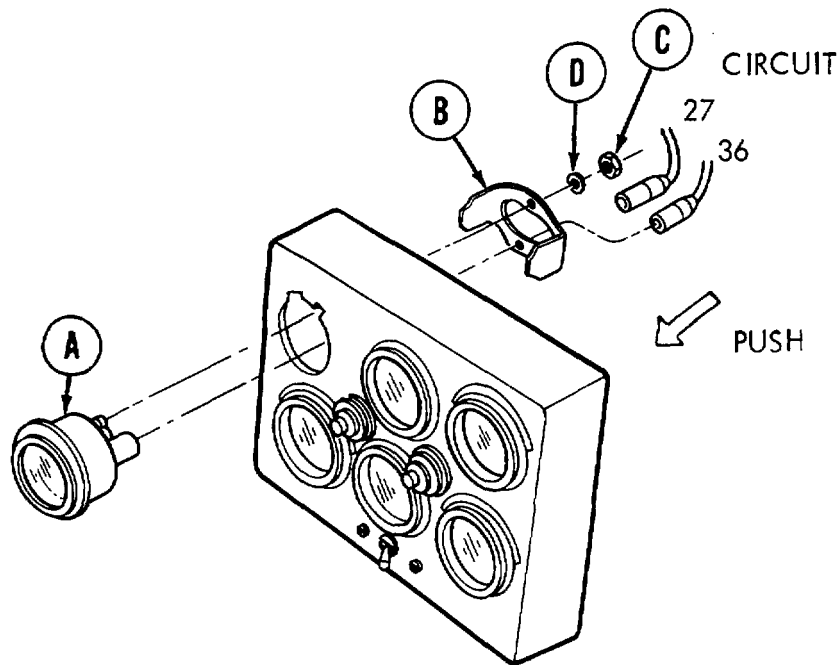
Go on to Sheet 2

TA147173

**INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 3 of 23)**  
**Engine Oil Pressure Indicator Replacement (Sheet 2 of 2)**

**INSTALLATION:**

1. Apply silicone compound (Item 32, Appendix D) to two indicator (A) electrical connectors.
2. Place indicator (A) in position on panel.
3. Place mounting bracket (B) in position on rear of indicator (A).
4. Using wrench, install two nuts (C) and new lockwashers (D).



5. Connect two leads (circuits 27 and 36) to rear of indicator (A) by pushing in.
6. Install instrument panel in tank (page 10-138).

End of Task

TA147174

**INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 4 of 23)**  
**Battery Generator Indicator Replacement (Sheet 1 of 2)**

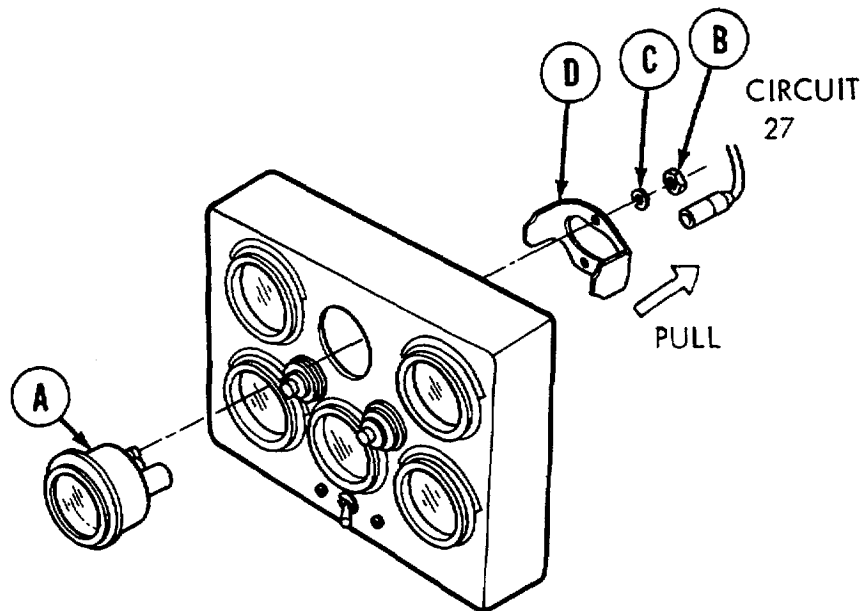
TOOLS: 3/8 in. combination x and open end wrench

SUPPLIES: Silicone compound (Item 32, Appendix D)  
Lockwasher (MS35338-43) (2 required)

PRELIMINARY PROCEDURE: Remove instrument panel from tank (page 10-136)

REMOVAL:

1. Remove lead (circuit 27) from rear of indicator (A) by pulling out.
2. Using wrench, remove two nuts (B) and lockwashers (C) securing indicator (A) and mounting bracket (D) to panel. Throw lockwashers away.
3. Remove indicator (A) and mounting bracket (D).



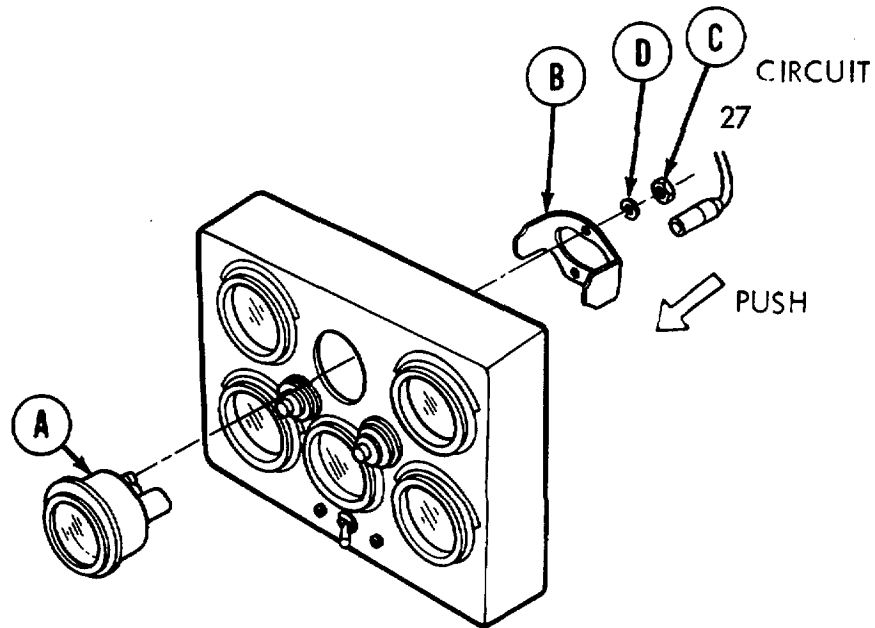
Go on to Sheet 2

TA147175

**INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 5 of 23)**  
**Battery Generator Indicator Replacement (Sheet 2 of 2)**

**INSTALLATION:**

1. Apply silicone compound (Item 32, Appendix D) to indicator (A) electrical connector.
2. Place indicator (A) in position in panel.
3. Using wrench, install two nuts (C) and new lockwashers (D) securing indicator (A) and mounting bracket (B) on panel.



5. Connect lead (circuit 27) to rear of indicator (A) by pushing in.
6. Install instrument panel in tank (page 10-138).

End of Task

TA147176



**INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 6 of 23)**  
**Engine Oil Temperature Indicator Replacement (Sheet 1 of 2)**

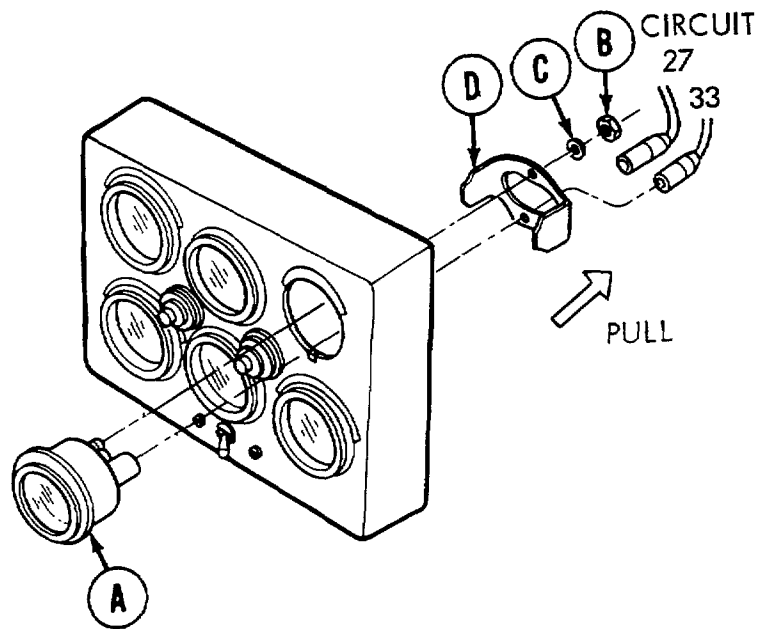
TOOLS: 3/8 in. combination box and open end wrench

SUPPLIES: Silicone compound (Item 32, Appendix D)  
 Lockwasher (MS35338-43) (2 required)

PRELIMINARY PROCEDURE: Remove instrument panel from tank (page 10-136)

REMOVAL:

1. Remove two leads (circuits 27 and 33) from rear of indicator (A) by pulling out.
2. Using wrench, remove two nuts (B) and lockwashers (C) securing indicator (A) and mounting bracket (D) to panel.
3. Remove indicator (A) and mounting bracket (D).

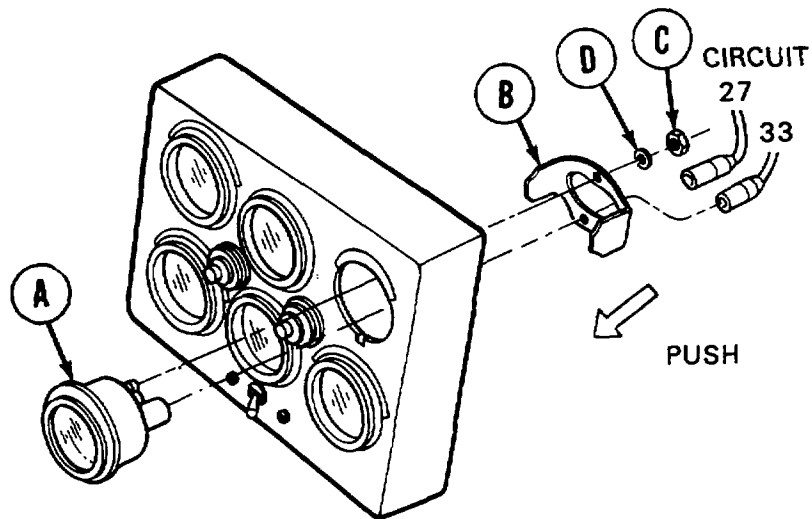


Go on to Sheet 2

TA147177

**INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 7 of 23)**  
**Engine Oil Temperature Indicator Replacement (Sheet 2 of 2)**

1. Apply silicone compound (Item 32, Appendix D) to two indicator (A) electrical connectors.
2. Place indicator (A) in position in panel.
3. Place mounting bracket (B) in position on indicator (A).
4. Using wrench, install two nuts (C) and new lockwashers (D) securing indicator (A) and mounting bracket (B) to panel.



5. Connect two leads (27 and 33) to rear of indicator (A) by pushing in.
6. Install panel in tank (page 10-138).

End of Task

TA147178

**INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 8 of 23)**  
**Gage Illumination Indicator Light Replacement (Sheet 1 of 2)**

TOOLS: Cross-tip screwdriver

SUPPLIES: Silicone compound (Item 32, Appendix D)

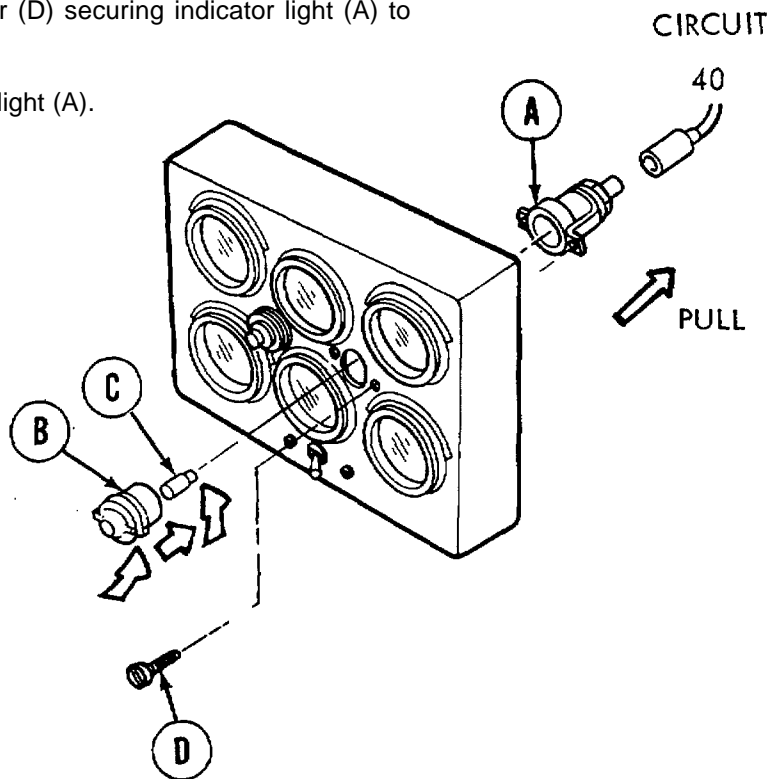
PRELIMINARY PROCEDURE: Remove instrument panel from tank (page 10-136)

**NOTE**

**Removal and installation of both gage illumination indicator lights is the same.**

**REMOVAL:**

1. Remove lead (circuit 40) from rear of indicator light (A) by pulling out.
2. Remove lens (B) by turning counterclockwise.
3. Remove lamp (C) by pushing in and turning counterclockwise.
4. Using screwdriver, remove two screws with assembled washer (D) securing indicator light (A) to panel.
5. Remove indicator light (A).



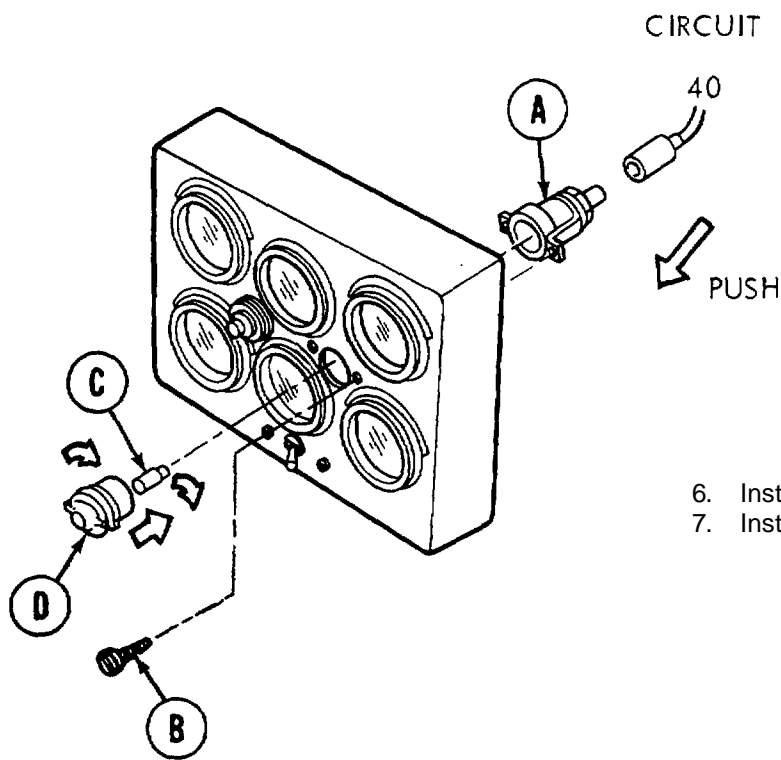
Go on to Sheet 2

TA147179

**INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 9 of 23)**  
**Gage Illumination Indicator Light Replacement (Sheet 2 of 2)**

INSTALLATION:

1. Apply silicone compound (Item 32, Appendix D) to indicator light (A) and lead no. 40.
2. Connect lead (circuit 40) to rear of indicator light (A) by pushing in.
3. Place indicator light (A) in position in panel.
4. Using screwdriver, install two screws with assembled washers (B) securing indicator light (A) to panel.
5. Install lamp (C) by pushing in and turning clockwise.



6. Install lens (D) by turning clockwise.
7. Install panel in tank (page 10-138).

End of Task

TA147180

**INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 10 of 23)**  
**Transmission Oil Pressure Indicator Replacement (Sheet 1 of 2)**

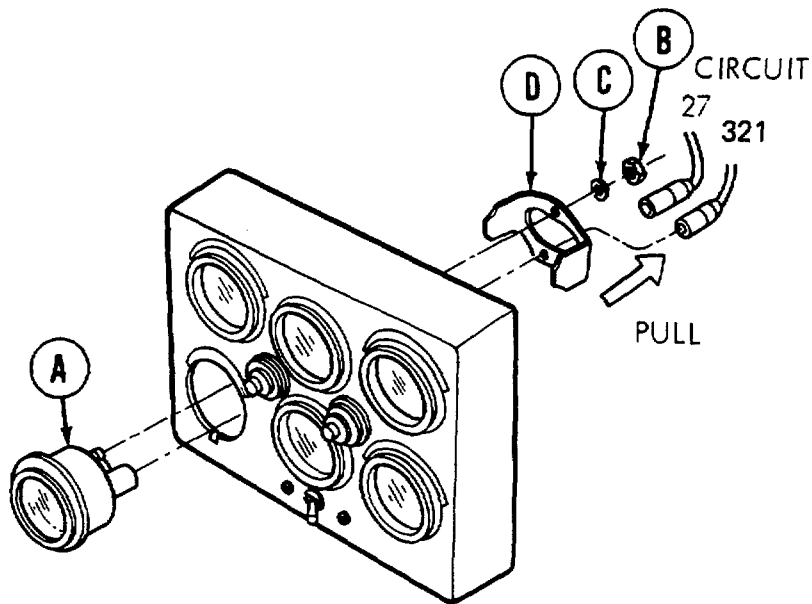
TOOLS: 3/8 in. combination box and open end wrench

SUPPLIES: Silicone compound (Item 32, Appendix D)  
Lockwasher (MS35338-43) (2 required)

PRELIMINARY PROCEDURE: Remove instrument panel from tank (page 10-136)

REMOVAL:

1. Remove two leads (circuits 27 and 321) from rear of indicator (A) by pulling out.
2. Using wrench, remove two nuts (B) and lockwashers (C) securing indicator (A) and mounting bracket (D) to panel.
3. Remove indicator (A) and mounting bracket (D).



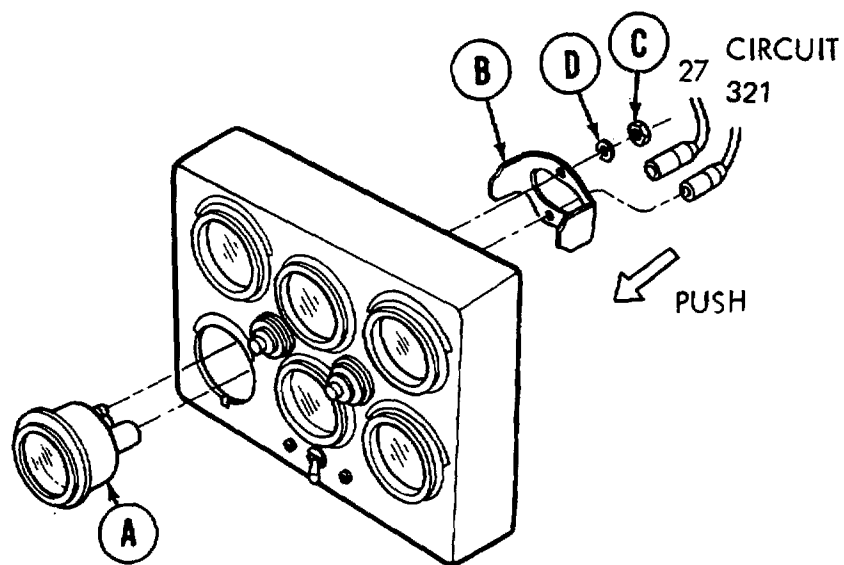
Go on to Sheet 2

TA147181

**INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 11 of 23)**  
**Transmission Oil Pressure Indicator Replacement (Sheet 2 of 2)**

**INSTALLATION:**

1. Apply silicone compound (Item 32, Appendix D) to two indicator (A) electrical connectors.
2. Place indicator (A) in position on panel.
3. Place mounting bracket (B) in position on indicator (A).
4. Using wrench, install two nuts (C) and new lockwashers (D) securing indicator (A) to panel.
5. Connect two leads (circuit 27 and 321) to indicator (A) by pushing in.



6. Install panel in tank (page 10-138).

End of Task

TA147182

**INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 12 of 23)**  
**Fuel Tank Liquid Quantity Indicator Replacement (Sheet 1 of 3)**

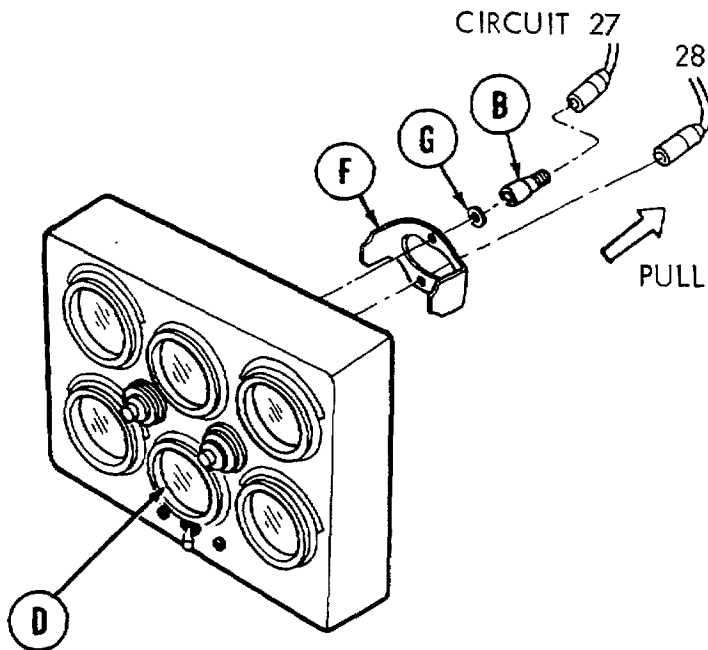
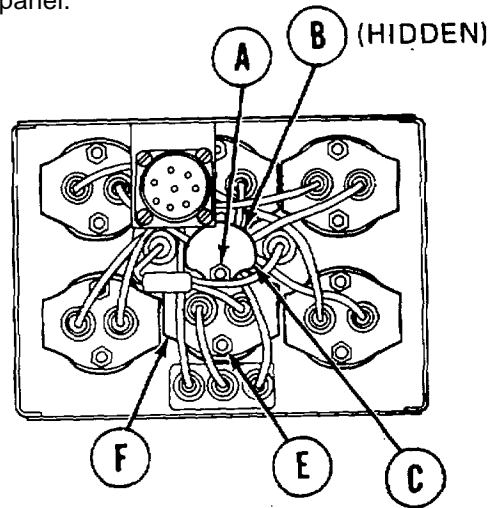
TOOLS: 3/8 in. combination box and open end wrench (2 required)

SUPPLIES: Silicone compound (Item 32, Appendix D)  
 Lockwasher (MS35338-43) (2 required)

PRELIMINARY PROCEDURE: Remove instrument panel from tank (page 10-136)

REMOVAL:

1. Using one wrench on nut, flatwasher and lockwasher (A), and one wrench to hold stud (B) (hidden), remove nut, flatwasher and lockwasher (A) securing harness junction (C) to panel.
2. Displace harness junction (C).
3. Disconnect two leads (circuits 27 and 28) from rear of indicator (D).



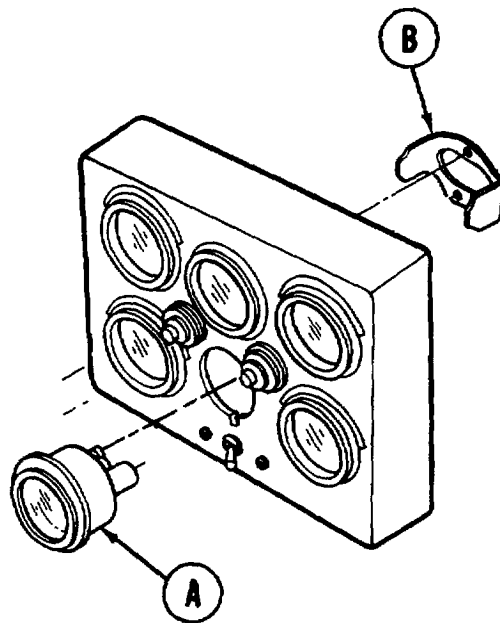
4. Using wrench, remove stud (B) and flat washer (G).
5. Using wrench, remove two nut and lockwashers (E) securing mounting bracket (F) to panel. Throw lockwashers away.
6. Remove indicator (D) from panel.

Go on to Sheet 2

TA147183

**INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 13 of 23) Fuel Tank Liquid Quantity Indicator Replacement (Sheet 2 of 3)****INSTALLATION:**

1. Apply silicone compound (Item 32, Appendix D) to two indicator (A) electrical connectors.
2. Place indicator (A) in position on panel.
3. Place mounting bracket (B) in position on indicator (A).

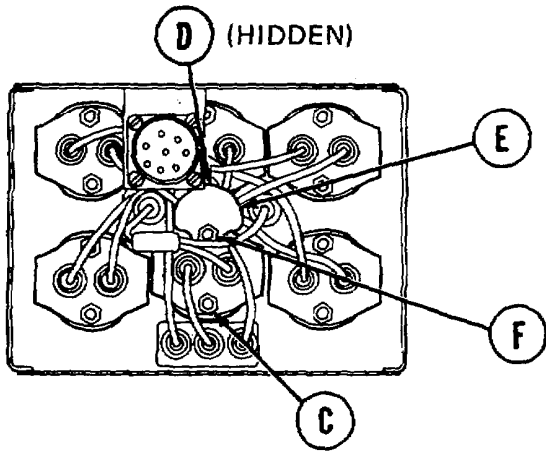


Go on to Sheet 3

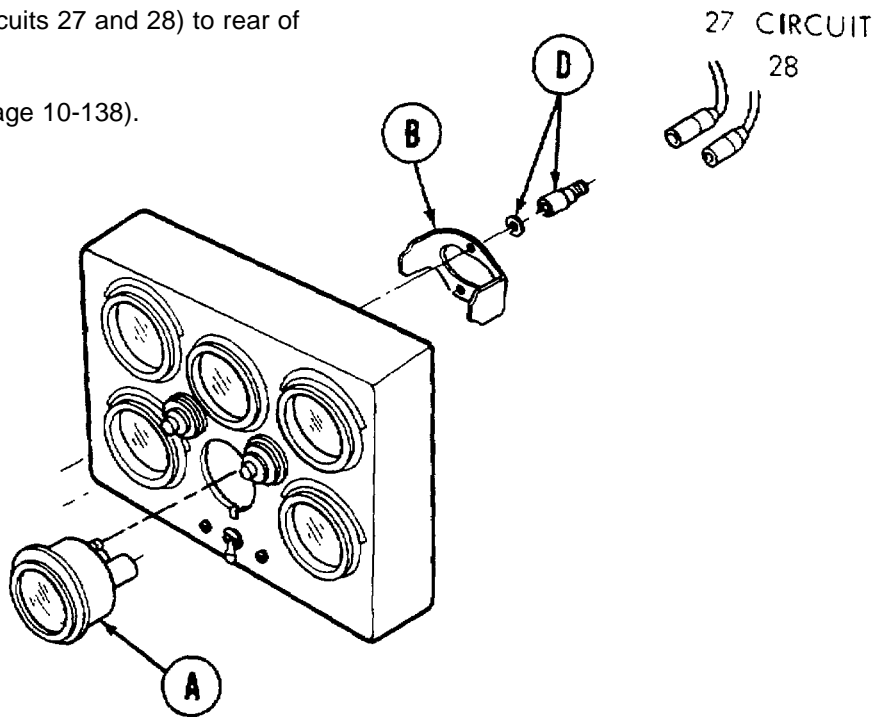
TA147184



**INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 14 of 23)**  
**Fuel Tank Liquid Quantity Indicator Replacement (Sheet 3 of 3)**



4. Using wrench, install two nuts and new lockwashers (C).
5. Using wrench, install stud and washer (D).
6. Place harness junction (E) in position on panel.
7. Using wrench, install flatwasher, lockwasher, and nut (F) securing harness junction (E) in position.
8. Connect two leads (circuits 27 and 28) to rear of indicator (A).
9. Install panel in tank (page 10-138).



End of Task

TA147185

**INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 15 of 23)**  
**Transmission Oil Temperature Indicator Replacement (Sheet 1 of 2)**

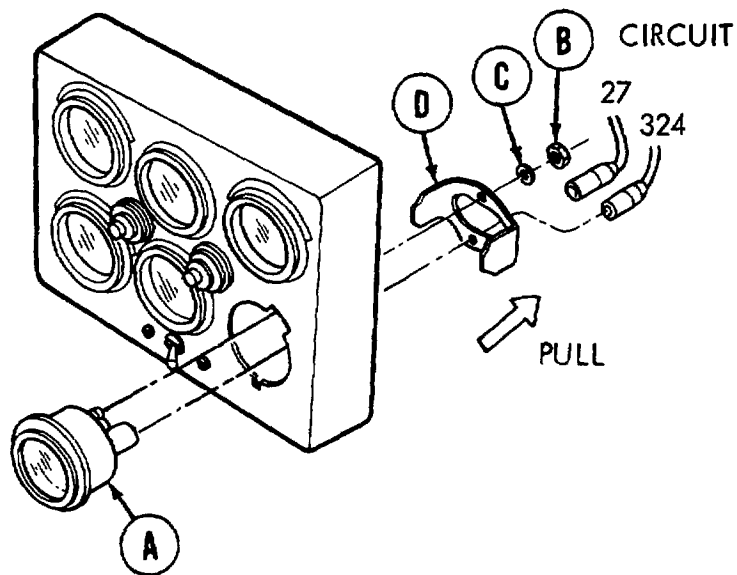
TOOLS: 3/8 in. combination box and open end wrench

SUPPLIES: Silicone compound (Item 32, Appendix D)  
Lockwasher (MS35338-43) (2 required)

PRELIMINARY PROCEDURE: Remove instrument panel from tank (page 10-136)

REMOVAL:

1. Remove two leads (circuits 324 and 27) from rear of indicator (A) by pulling out.
2. Using wrench, remove two nuts (B) and lockwashers (C) securing indicator (A) and mounting bracket (D) to panel. Throw lockwashers away.
3. Remove indicator (A) and mounting bracket (D).



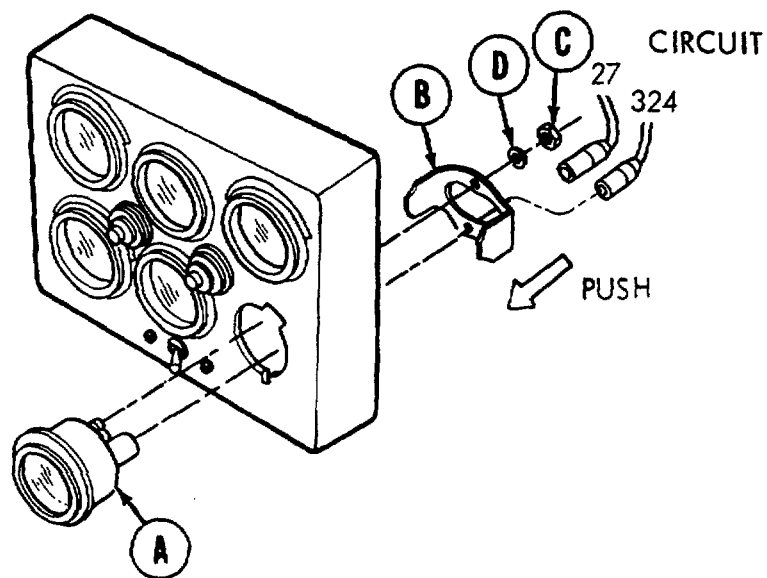
Go on to Sheet 2

TA147186

## INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 16 of 23) Transmission Oil Temperature Indicator Replacement (Sheet 2 of 2)

### INSTALLATION:

1. Apply silicone compound (tem 32, Appendix D) to two indicator (A) electrical connectors.
2. Place indicator (A) in position in panel.
3. Place mounting bracket (B) in position on indicator (A).
4. Using wrench, install two nuts (C) and new lockwashers (D) securing indicator (A) and mounting bracket (B) in position on panel.



5. Connect two leads (circuits 324 and 27) to rear of indicator (A) by pushing in.
6. Install instrument panel in tank (page 10-138).

End of Task

TA147187

**INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 17 of 23)**  
**Fuel Tank Selector Switch Replacement (Sheet 1 of 2)**

TOOLS: Flat-tip screwdriver

SUPPLIES: Silicone compound (Item 32, Appendix D)

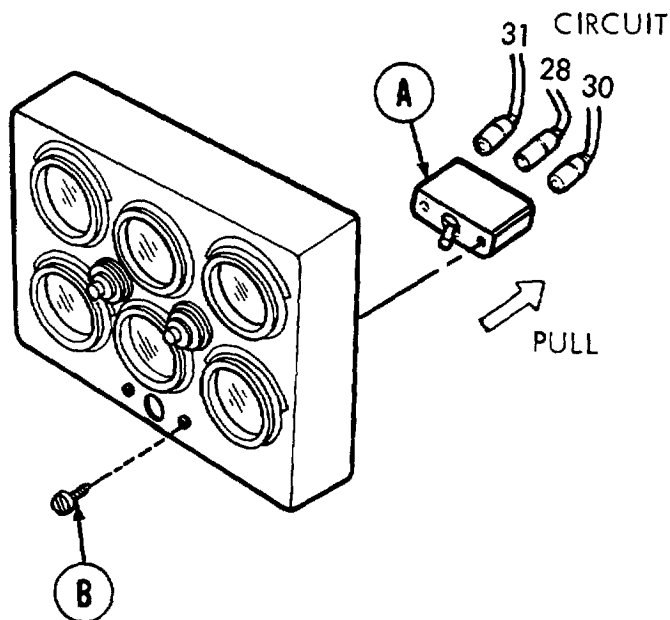
PRELIMINARY PROCEDURE: Remove instrument panel from tank (page 10-136)

**REMOVAL:**

1. Remove three leads (circuits 30, 28, and 31) from rear of switch (A) by pulling out.
2. Using screwdriver, remove two assembled screws (B) securing switch (A) to panel.
3. Remove switch (A).

**INSTALLATION:**

1. Apply silicone compound (Item 32, Appendix D) to three switch (A) leads (circuits 30, 28, and 31).
2. Place switch (A) in position in panel.
3. Using screwdriver, install two assembled screws (B) securing switch (A) to panel.

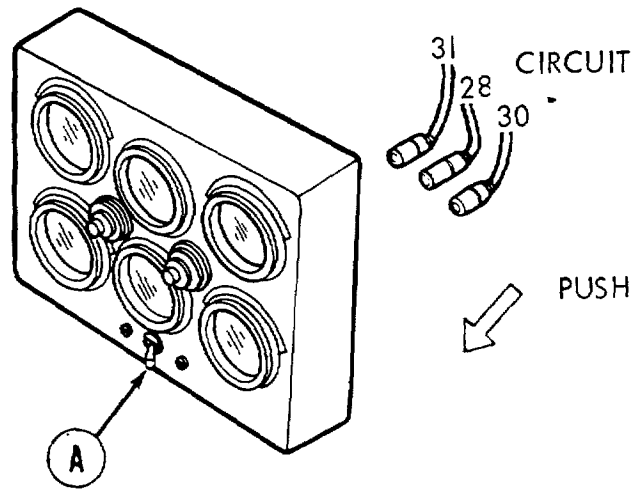


Go on to Sheet 2

TA147188

**INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 18 of 23)**  
**Fuel Tank Selector Switch Replacement (Sheet 2 of 2)**

4. Connect three leads (circuits 30, 28, and 31) to rear of switch (A).
5. Install instrument panel in tank (page 10-138).



End of Task

TA147189

**INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 19 of 23)**  
**Instrument Panel Wiring Harness Replacement (Sheet 1 of 4)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-158
Installation	10-160

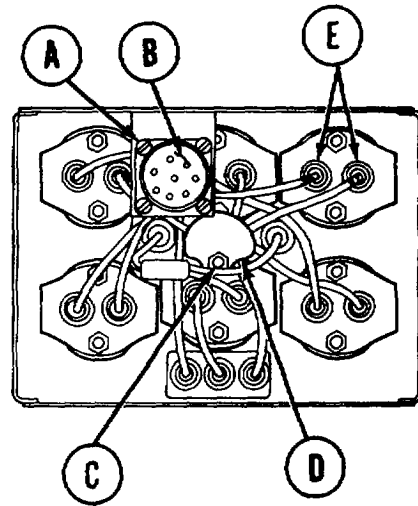
**TOOLS:** Pliers, slip joint  
 3/8 in. combination box and open end wrench  
 Flat-t screwdriver

**SUPPLIES:** Silicone compound (Item 32, Appendix D)  
 Lockwasher (MS35338-42) (4 required)

**PRELIMINARY PROCEDURE:** Remove instrument panel from tank (page 10-136)

**REMOVAL:**

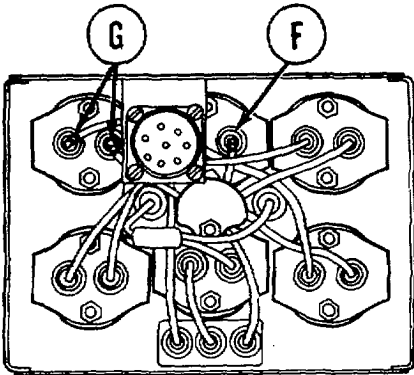
1. Using screwdriver, remove four screws and lockwashers (A) securing receptacle connector (B) to panel. Throw lockwashers away.
2. Using wrench, remove nut and flat washers (C), securing harness junction (D) to panel.
3. Disconnect two leads (circuit 27 and 36) from engine oil pressure gage (E) by pulling out



Go on to Sheet 2

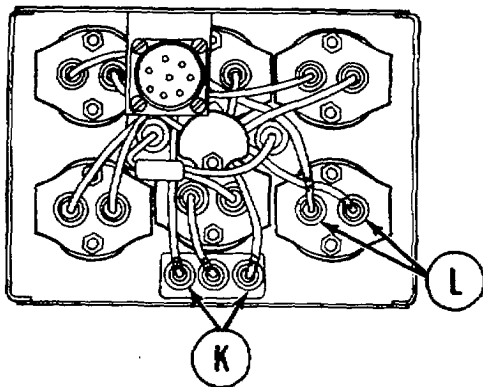
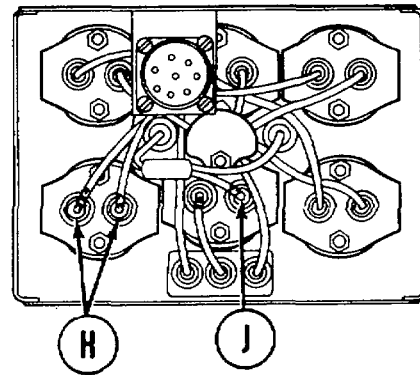
TA147190

**INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 20 of 23)**  
**Instrument Panel Wiring Harness Replacement (Sheet 2 of 4)**



4. Disconnect one lead (circuit 27) from battery indicator gage (F).
5. Disconnect two leads (circuit 27 and 321) from transmission oil pressure indicator (G).

6. Disconnect two leads (circuits 27 and 324) from transmission oil temperature indicator (H).
7. Disconnect lead (circuit 27) from fuel gage indicator (J).



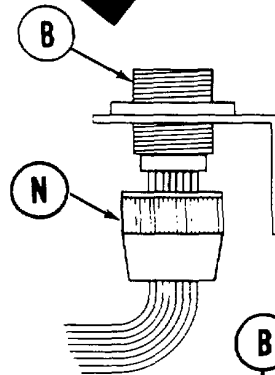
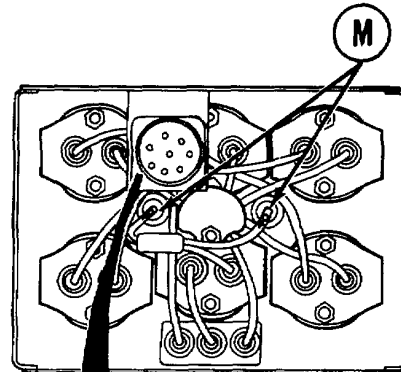
8. Disconnect two leads (circuits 30 and 31) from fuel switch (K).
9. Disconnect two leads (circuits 33 and 27) from engine oil temperature indicator (L).

Go on to Sheet 3

TA147191

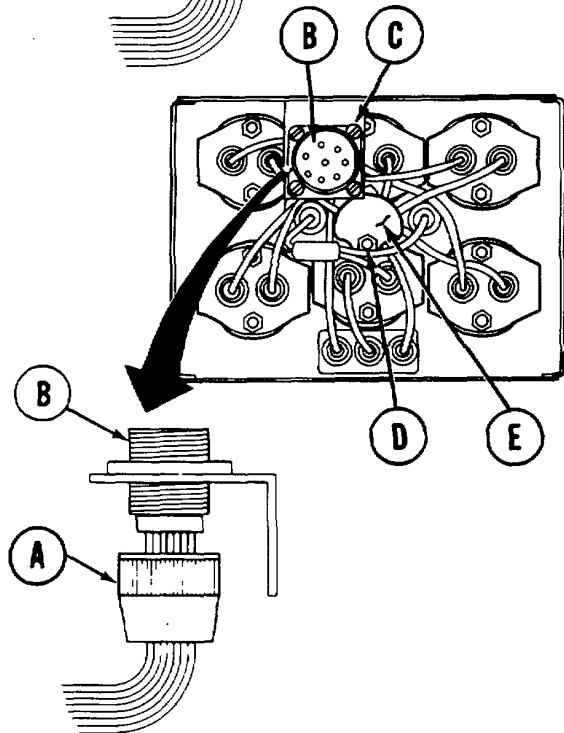
**INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 21 of 23)**  
**Instrument Panel Wiring Harness Replacement (Sheet 3 of 4)**

10. Disconnect two leads No. 40 from two panel lights (M).
11. Loosen receptacle connector retainer nut (N) and slide back on leads.
12. Remove wiring harness from panel.



**INSTALLATION:**

1. Apply silicone compound (Item 32, Appendix D) to 16 lead connectors of instrument panel wiring harness.
2. Place wiring harness in position in panel.
3. Using pliers, tighten receptacle connector retainer nut (A) to receptacle connector (B).
4. Using screwdriver, install four screws and new lockwashers (C) securing receptacle connector (B) to panel.
5. Using wrench, install nut and flatwashers (D) securing harness junction (E) to panel.



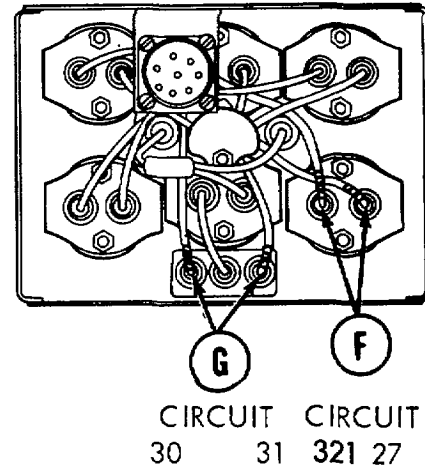
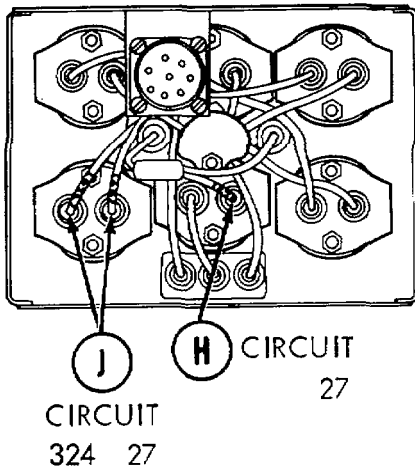
Go on to Sheet 4

TA147192



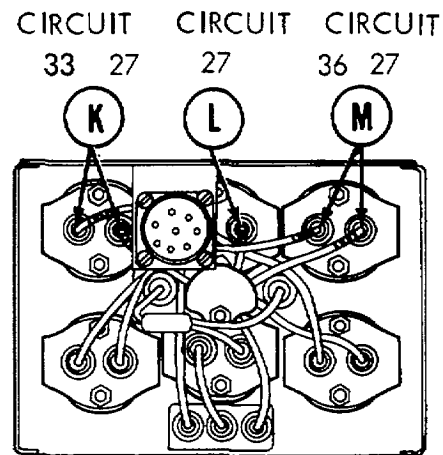
**INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 22 of 23)**  
**Instrument Panel Wiring Harness Replacement (Sheet 4 of 4)**

6. Connect two leads (circuits 321 and 27) to engine oil temperature indicator (F).
7. Connect two leads (circuits 30 and 31) to fuel switch (G).

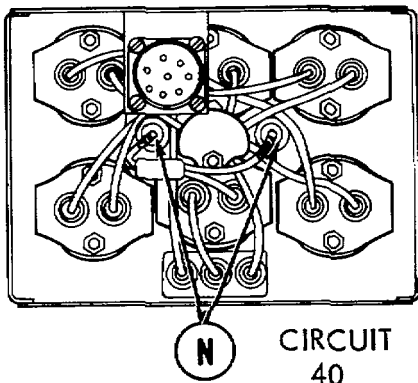


8. Connect lead (circuit 27) to fuel gage indicator (H).
9. Connect two leads (circuits 27 and 324) to transmission oil temperature indicator (J).

10. Connect two leads (circuits 27 and 33) to transmission oil pressure indicator (K).
11. Connect lead (circuit 27) to battery indicator (L).
12. Connect two leads (circuits 27 and 36) to engine oil pressure indicator (M).



13. Connect two leads (circuit 40) to two panel lights (N).
14. Install instrument panel in tank (page 10-138).



End of Task

TA147193

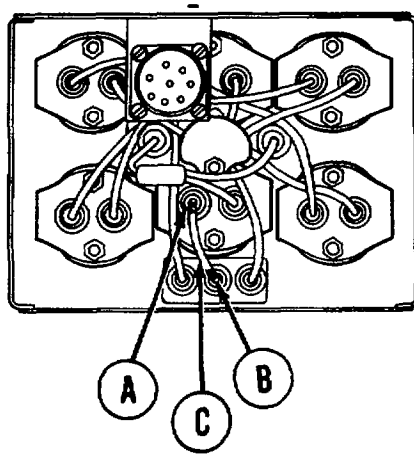
**INSTRUMENT PANEL CLUSTER ASSEMBLY REPAIR (Sheet 23 of 23)**  
**Fuel Tank Selector Switch Cable Assembly Replacement (Sheet 1 of 1)**

SUPPLIES: Silicone compound (Item 32, Appendix D)

PRELIMINARY PROCEDURE: Remove instrument panel from tank (page 10-136)

REMOVAL:

1. Remove connector (circuit 28) from fuel tank indicator (A) by pulling out.
2. Remove other connector (circuit 28) from fuel tank selector switch (B).
3. Remove lead (C).



INSTALLATION:

1. Apply silicone compound (Item 32, Appendix D) to each connector (A) and (B) of cable assembly (C).
2. Connect one connector (circuit 28) to fuel tank indicator (A).
3. Connect other connector (circuit 28) to fuel tank selector switch (B).
4. Install instrument panel in tank (page 10-138).

End of Task

TA147194

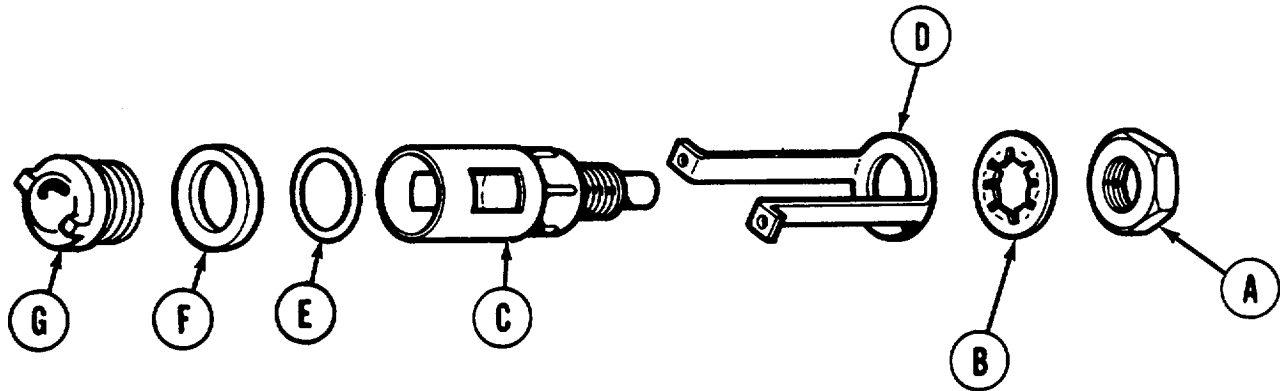
**INSTRUMENT PANEL CLUSTER ASSEMBLY GAGE ILLUMINATION INDICATOR LIGHT REPAIR (Sheet 1 of 1)**

TOOLS: 1 in. combination box and open end wrench  
Flat-tip screwdriver with 1/4 in. blade

SUPPLIES: Gasket (7358626)  
Gasket (11605388)

PRELIMINARY PROCEDURE: Remove gage illumination indicator light from instrument panel cluster assembly (page 10-147)

DISASSEMBLY:



1. Using wrench, remove band nut (A) and lockwasher (B) from body (C).
2. Remove bracket (D) and gasket (E) from body (C). Throw gasket away.
3. Using screwdriver, remove gasket (F) from lens (G). Throw gasket away.

INSPECTION:

Inspect body, bracket, and lens for breaks or stripped threads. Replace as necessary.

ASSEMBLY:

1. Position bracket (D) onto body (C) and install lockwasher (B).
2. Using wrench, install band nut (A) to body (C).
3. Position new gasket (E) to body (C).
4. Install new gasket (F) to lens (G).
5. Install indicator light assembly instrument panel cluster assembly (page 10-148).

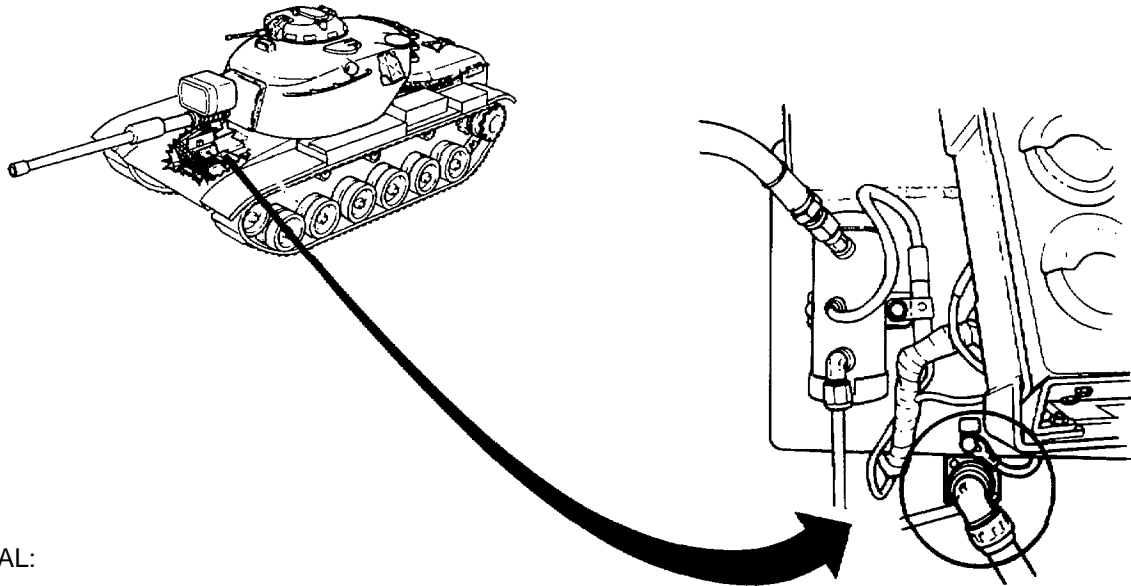
End of Task

TA147195

**BILGE PUMP STOWAGE RECEPTACLE PLATE REPLACEMENT (Sheet 1 of 2)**

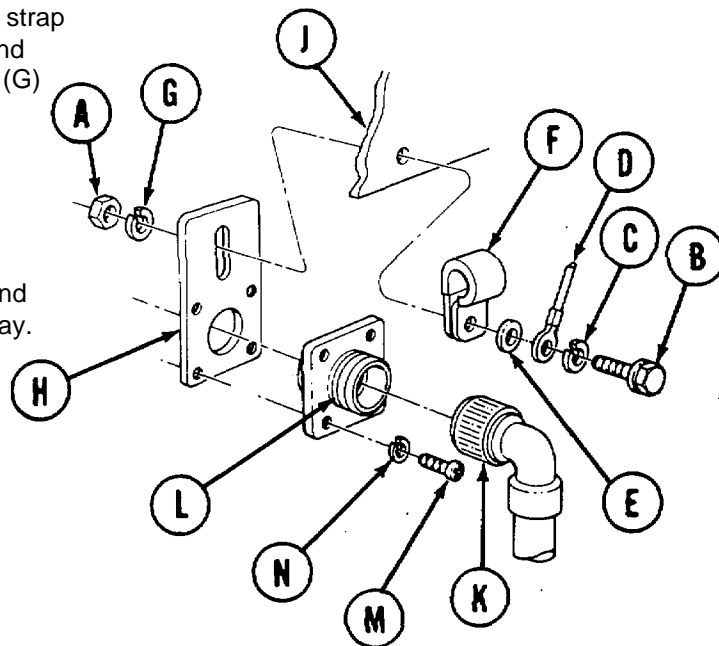
**TOOLS:** Ratchet with 1/2 in. drive  
 7/16 in. socket with 1/2 in. drive  
 7/16 in. combination box and open end wrench  
 11/32 in. open end wrench  
 Flat-tip screwdriver  
 6 in. extension with 1/2 in. drive

**SUPPLIES:** Lockwasher (MS35333-40) (4 required)  
 Lockwasher (MS35338-40) (2 required)



**REMOVAL:**

1. Using 7/16 inch wrench to hold nut (A), use socket to remove screw (B), lockwasher (C), ground strap from fuel pump (D), washer (E), clamp (F), and lockwasher (G). Throw lockwashers (C) and (G) away.
2. Remove plate (H) from plate assembly (J).
3. Remove connector (K) from shell (L).
4. Using screwdriver, remove four screws (M) and lockwashers (N). Throw lockwashers (N) away.
5. Remove shell (L) from plate (H).



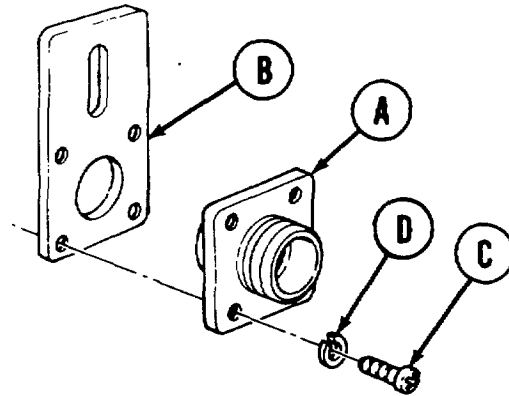
Go on to Sheet 2

TA147196

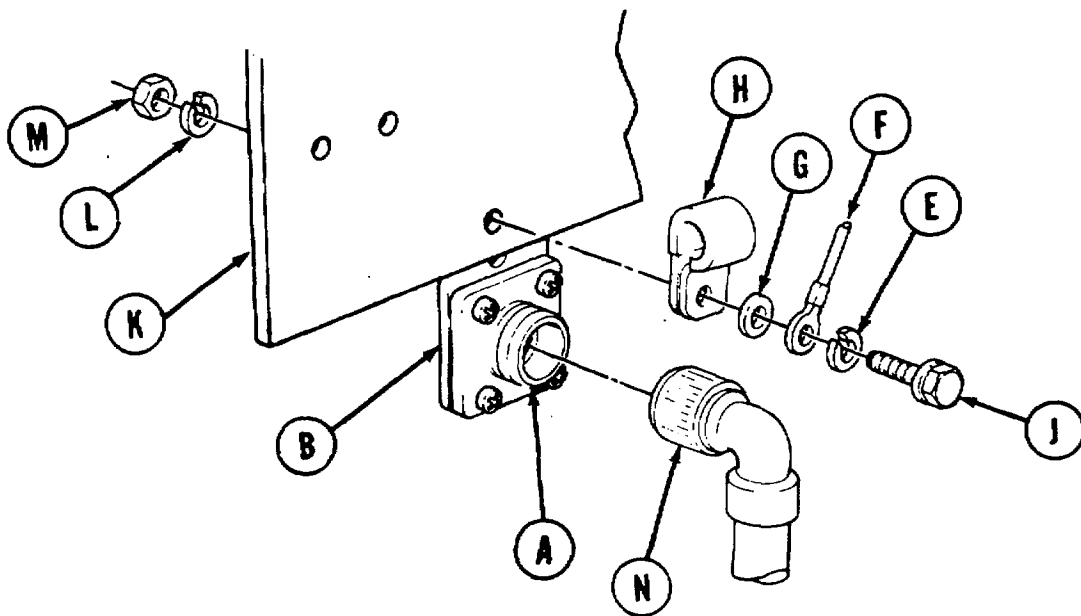
**BILGE PUMP STOWAGE RECEPTACLE PLATE REPLACEMENT (Sheet 2 of 2)**

**INSTALLATION:**

1. Place shell (A) onto plate (B).
2. Using screwdriver, install four screws (C) and new lockwashers (D), securing shell (A) to plate (B).



3. Place new lockwasher, ground cable (F), washer (G), and clamp (H) onto screw (J).
4. Place plate (B) onto plate assembly (K).



5. Install screw (J) with assembled items (E, F, G, and H) through plate (B) and plate assembly (K).
6. Place new lockwasher (L) and nut (M) onto screw (J).
7. Using 7/16 inch wrench to hold nut (M), use socket to tighten screw (J).
8. Install connector (N) to shell (A).

End of Task

TA147197

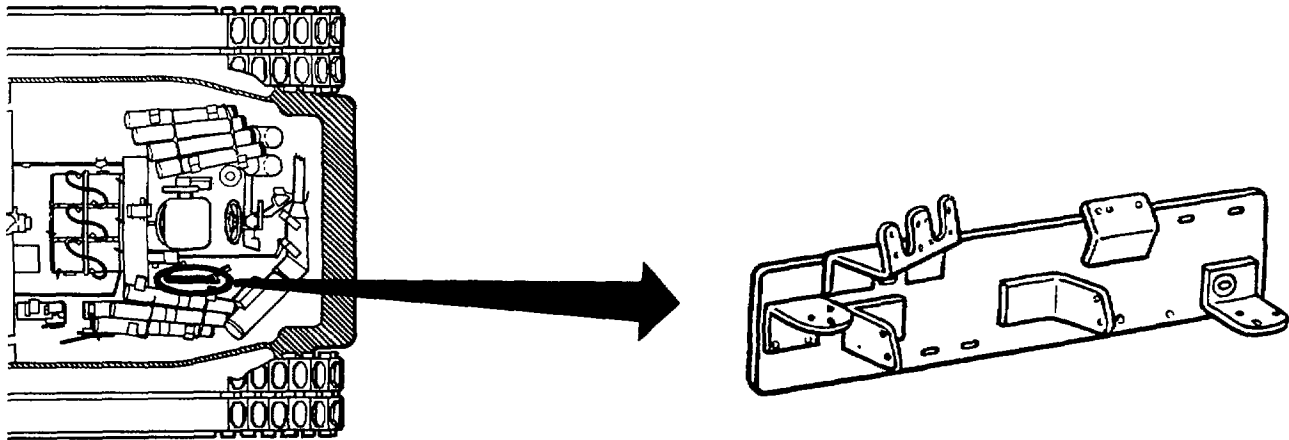
**MASTER CONTROL PANEL MOUNTING PLATE ASSEMBLY REPLACEMENT (Sheet 1 of 2)**

**TOOLS:** 7/16 in. sock with 1/2 in. drive  
 9/16 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 10 in. long extension with 1/2 in. drive

**SUPPLIES:** Lockwasher (MS35338-46)(7 required)

**PRELIMINARY PROCEDURES:** Remove personnel heater fuel pump (page 7-67)  
 Remove master control panel (page 10-54)  
 Remove headlight stowage (page 10-169)  
 Remove bilge pump mounting plate and dummy shell (page 10-164)

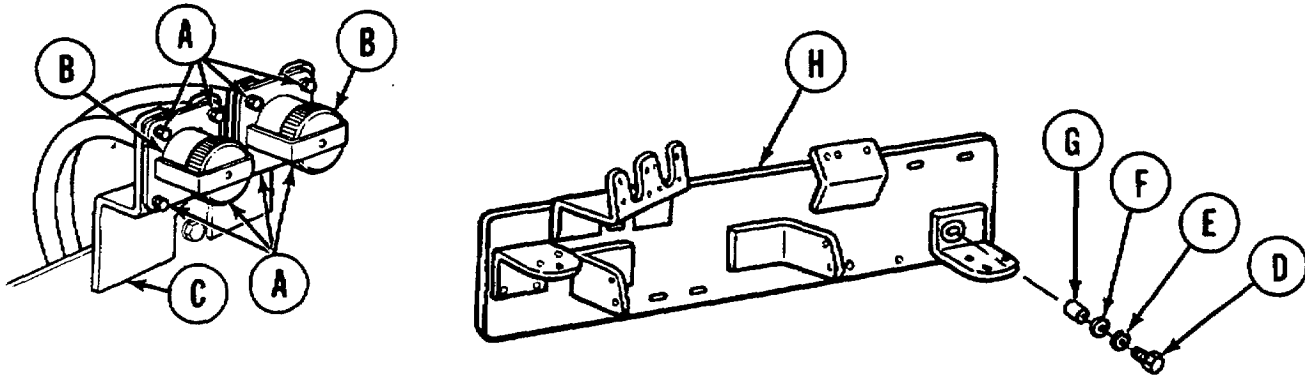
LOCATED AT RIGHT  
 SIDE OF DRIVER'S SEAT



Go on to Sheet 2

TA147198

MASTER CONTROL PANEL MOUNTING PLATE ASSEMBLY REPLACEMENT (Sheet 2 of 2)



REMOVAL:

1. Using 9/16 inch socket, remove eight screws and washers (A).
2. Lift two slave receptacles (B) upward and out of mounting bracket (C).
3. Using 9/16 inch socket, remove seven screws (D), lockwashers (E), flatwashers (F), and inserts (G) securing control panel plate (H). Throw lockwashers away.
4. Remove plate (H).

INSTALLATION:

1. Mount plate (H) into position at right side of driver's seat.
2. Using 9/16 inch socket, install seven screws (D), new lockwashers (E), fiat washers (F), and inserts (G) securing plate (H).
3. Install master control panel (page 10-56).
4. Install personnel heater fuel pump (page 7-68).
5. Position two slave receptacles (B) into mounting bracket (C).
6. Using socket, install eight screws and washers (A).
7. Install headlight stowage (page 10-170).
8. Install bilge pump mounting plate and dummy shell (page 10-165).

Go on to Sheet 3

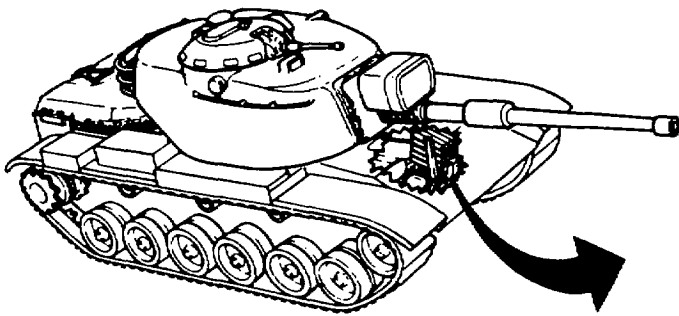
TA147199

**INFRARED RECEPTACLE STOWAGE ASSEMBLY REPLACEMENT (Sheet 1 of 1)**

TOOLS: Flat-tip screwdriver

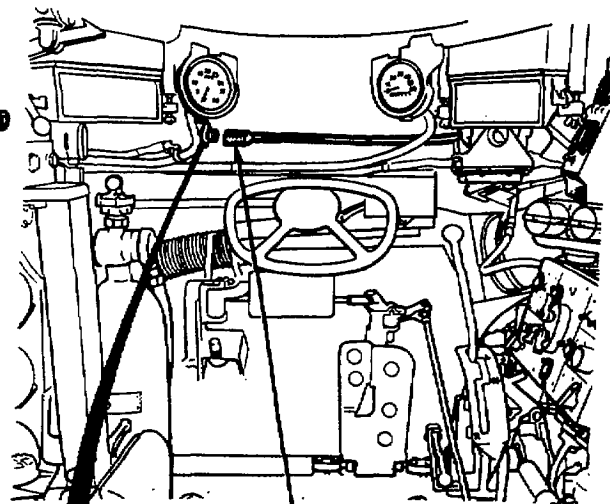
SUPPLIES: Lockwasher (M35338-41) (4 required)

**BENEATH TACHOMETER  
(LEFT SIDE)**



**NOTE**

**Be sure MASTER CONTROL switch is OFF.**

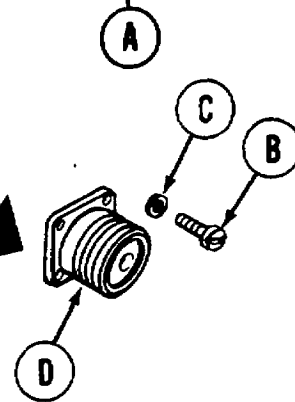


**REMOVAL:**

1. Remove electrical connector (A).
2. Using screwdriver, remove four screws (B) and lockwashers (C). Throw lockwashers (C) away.
3. Remove receptacle (D).

**INSTALLATION:**

1. Place receptacle (D) in position.
2. Using screwdriver, install four screws (B) and new lockwashers (C).
3. Install electrical connector (A).



End of Task

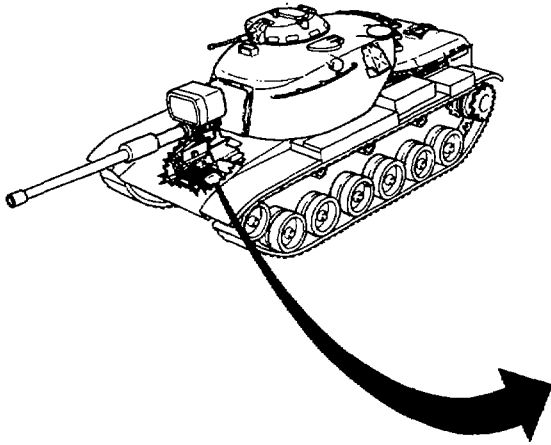
TA147200



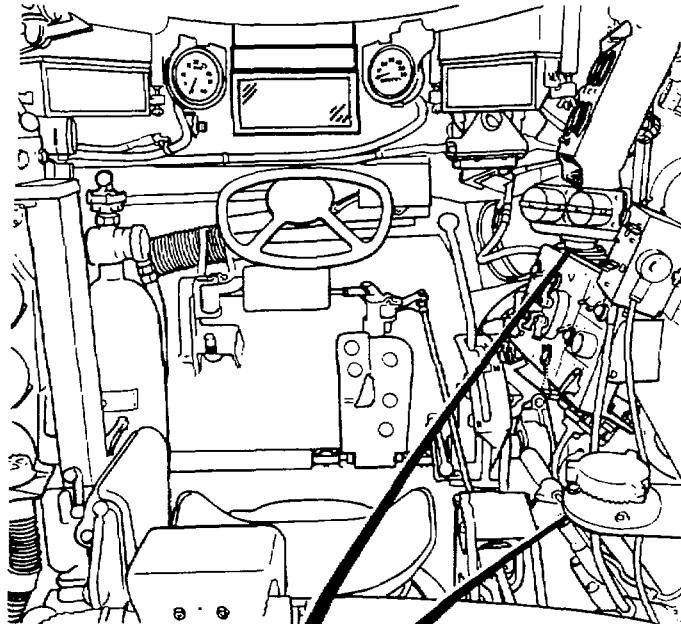
**HEADLIGHT STOWAGE LAMPHOLDER REPAIR AND REPLACEMENT (Sheet 1 of 2)**

**TOOLS:** Flat-tip screwdriver  
3/8 in. combination box and open end wrench

**SUPPLIES:** Spring clip (7739925)  
Lockwasher (MS35338-44)  
(3 required)



**DRIVER'S STATION**

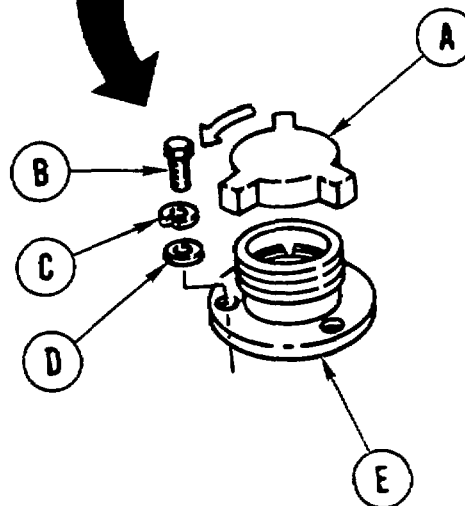


**NOTE**

There are two lampholders at drivers station. Removal and installation are the same for each lampholder.

**REMOVAL:**

1. Using hand, remove dust cap (A) by turning counterclockwise.
2. Using wrench, remove three screws (B), lockwashers (C), and flat washers (D). Throw lockwashers away.
3. Remove lampholder (E).



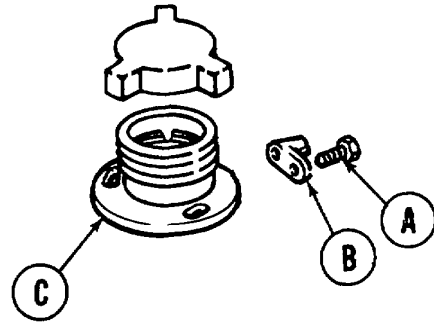
Go on to Sheet 2

TA147201

**HEADLIGHT STOWAGE LAMPHOLDER REPAIR AND REPLACEMENT (Sheet 2 of 2)**

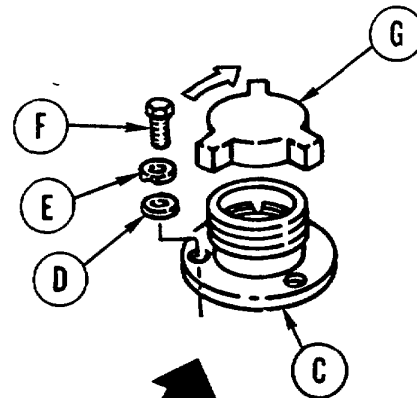
**DISASSEMBLY:**

1. Using screwdriver, remove two screws (A) with assembled lockwashers.
2. Remove defective spring clip (B) from lampholder (C) and throw it away.



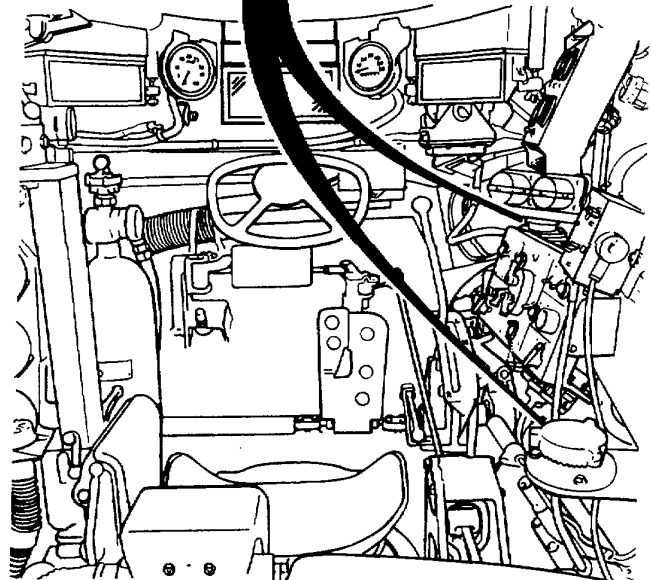
**ASSEMBLY:**

1. Place new spring clip (B) in position on lampholder (C).
2. Using screwdriver, install two screws (A) with assembled lockwashers.



**INSTALLATION:**

1. Place lampholder (C) in position at mounting location.
2. Using wrench, install three flat washers (D), new lockwashers (E), and screws (F).
3. Manually install dust cap (G) by turning clockwise.



End of Task

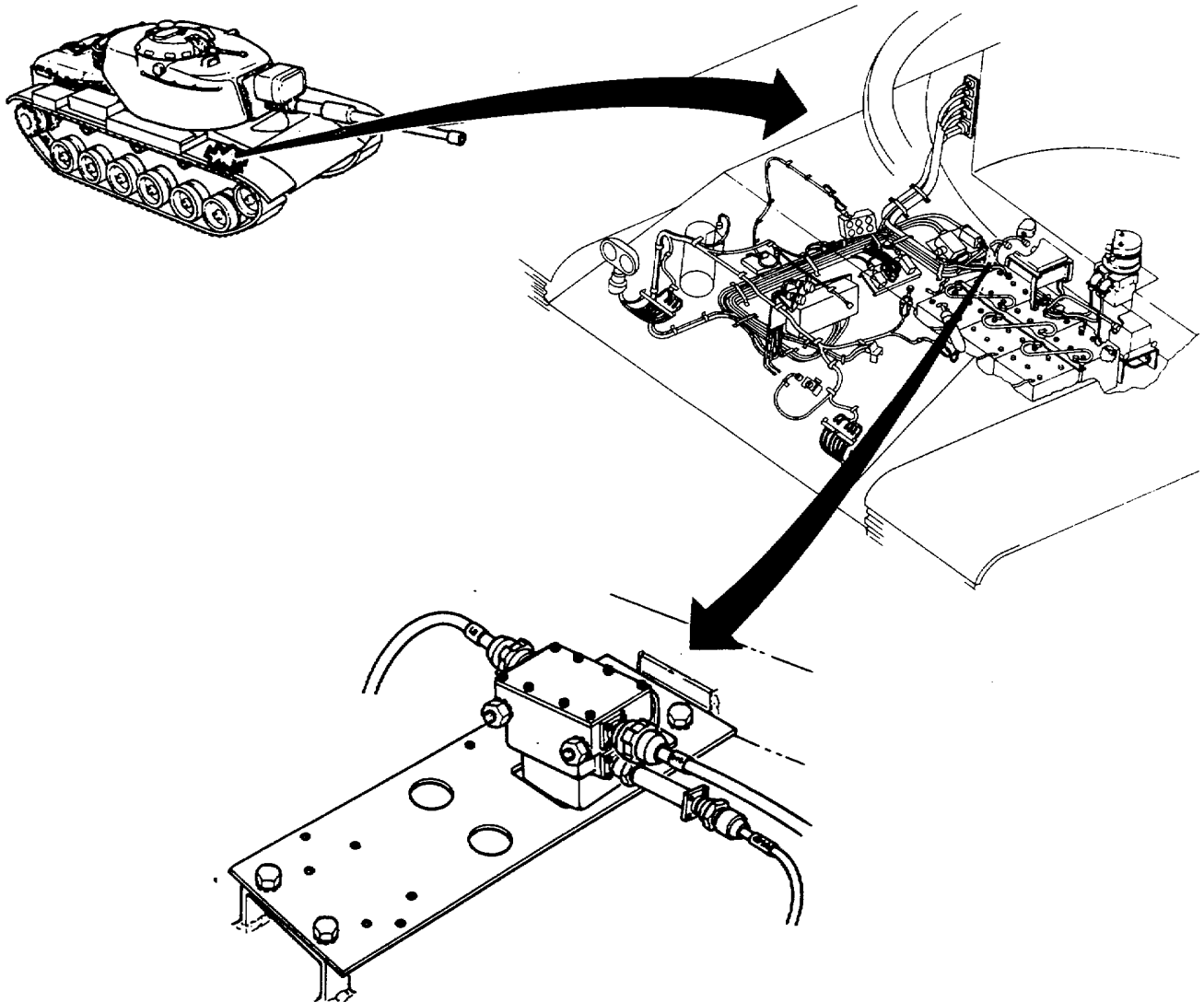
**MASTER RELAY REPLACEMENT (Sheet 1 of 3)**

**TOOLS:** Ratchet with 1/2 in. drive  
 1/2 in. socket with 1/2 in. drive  
 3/4 in. combination box and open end wrench  
 7/8 in. combination box and open end wrench  
 Spanner wrench  
 1/2 in. combination box and open end wrench

**SUPPLIES:** Lockwasher (MS45904-72)(4 required)

**REFERENCE:** TM 9-2350-260-10

**PRELIMINARY PROCEDURES:** Disconnect three battery ground straps (page 10-294)  
 Manually traverse turret to expose master relay  
 (TM 9-2350-260-10)

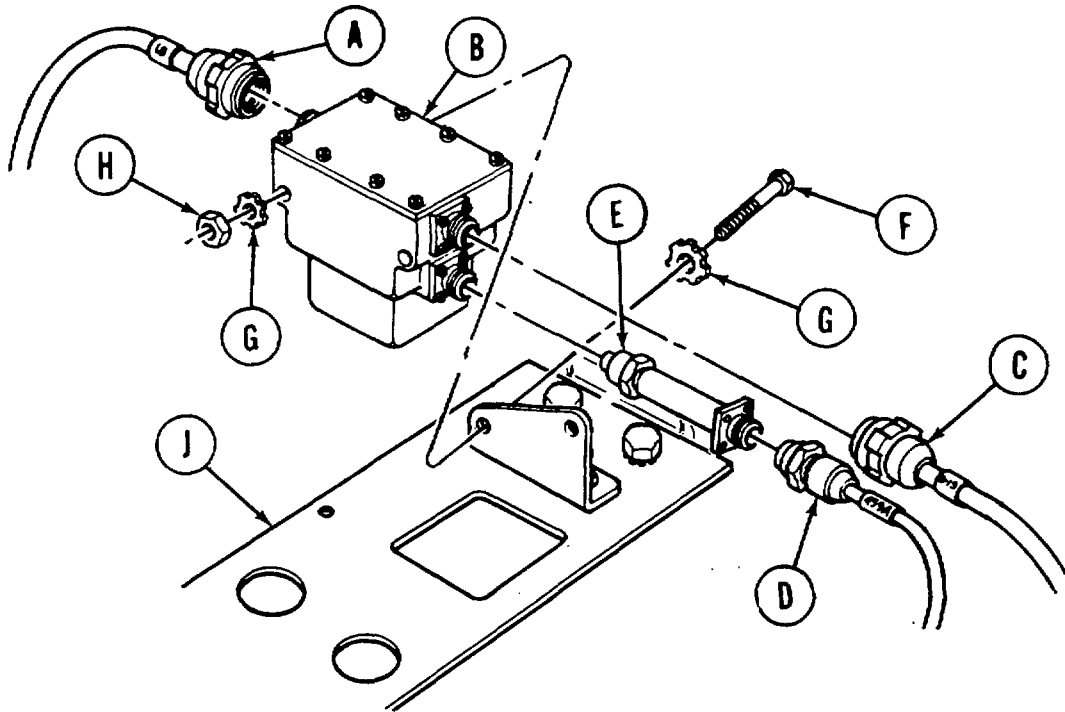


Go on to Sheet 2

**MASTER RELAY REPLACEMENT (Sheet 2 of 3)**

**REMOVAL:**

1. Using spanner wrench, remove connector (A) from master relay (B).
2. Using spanner wrench, remove connector (C) from master relay (B).



3. Using 7/8 inch wrench, remove connector (D).

**NOTE**

**Some tanks do not have protection device (E). If your tank does not have protection device (E), skip step 4 and go on to steps 5 and 6. If your tank does have protection device (E), continue with steps 4 through 6.**

4. Using 3/4 inch wrench, remove protection device (E) from master relay (B).
5. Using socket and 1/2 inch wrench, remove two bolts (F), four lockwashers (G), and two nuts (H). Throw lockwashers (G) away.
6. Remove master relay (C) from plate (J) and from tank.

Go on to Sheet 3

TA147204

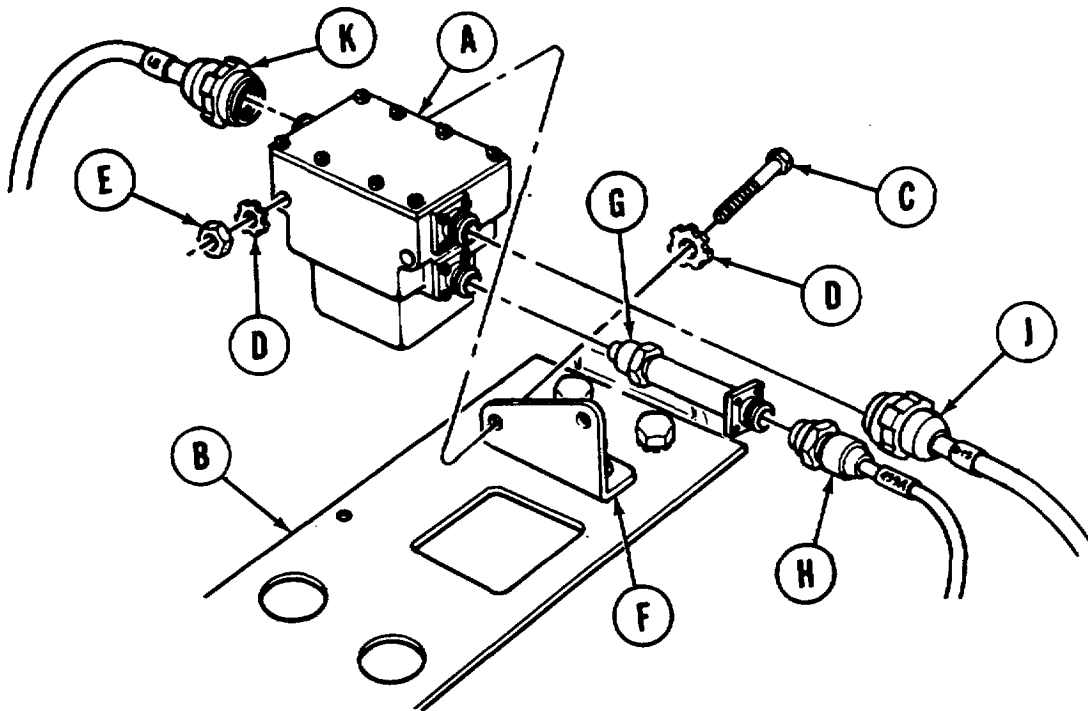
**MASTER RELAY REPLACEMENT (Sheet 3 of 3)****INSTALLATION:**

1. Traverse turret to expose master relay. Position master relay (A) into plate (B).
2. Using socket, install two bolts (C) four new lockwashers (D), and two nuts (E) to hold master relay (A) to bracket (F).

**NOTE**

**If your tank has protection device (G), continue with steps 3 through 8. If your tank does not have protection device (G), skip step 3 and continue with steps 4 through 8.**

3. Using 3/4 inch wrench, install protection device (G) to master relay (A).
4. Using 7/8 inch wrench, install connector (H) to protection device (G).



5. Using spanner wrench, install connector (J) to master relay (A).
6. Using spanner wrench, install connector (K) to master relay (A).
7. Connect three battery ground straps (page 10-294).

End of Task

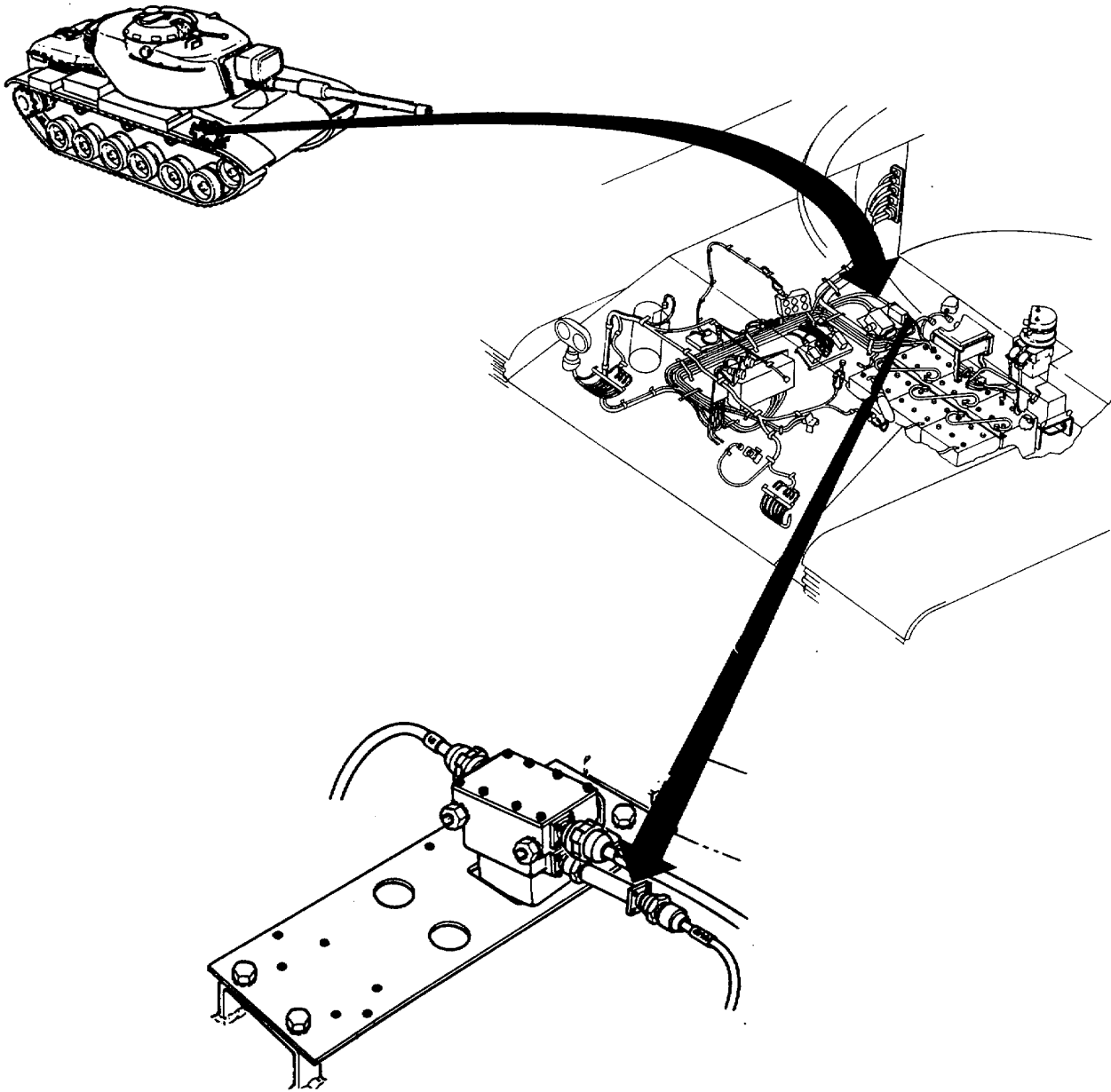
TA147205

**PROTECTION DEVICE REPLACEMENT (Sheet 1 of 3)**

TOOLS: Spanner wrench  
3/4 in. combination box and open end wrench  
7/8 in. combination box and open end wrench

REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURES: Traverse turret for access to master relay  
(TM 9-2350-260-10)  
Open turret platform access door (TM 9-2350-260-10)



Go on to Sheet 2

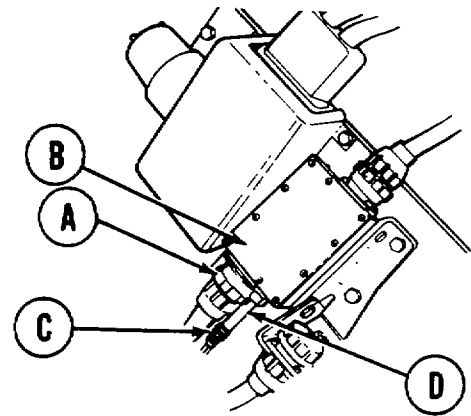
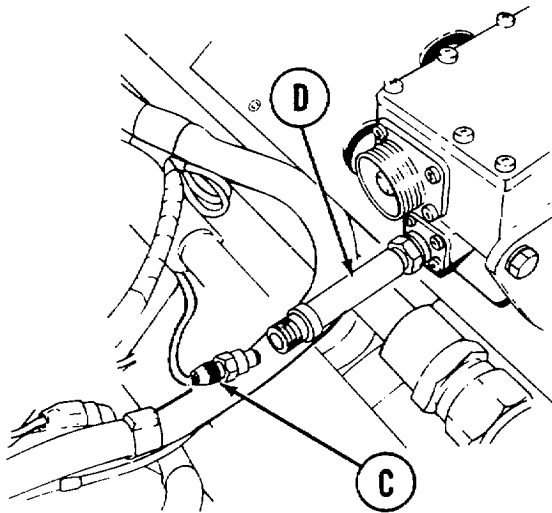
**PROTECTION DEVICE REPLACEMENT (Sheet 2 of 3)**

**REMOVAL:**

**CAUTION**

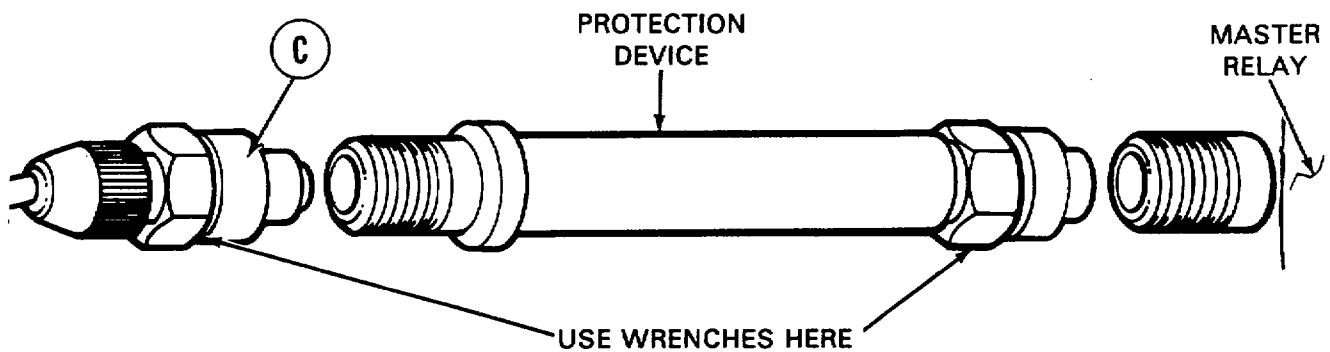
**Make sure MASTER CONTROL switch is set to OFF before replacing protection device.**

1. Using spanner wrench, loosen connector (A).
2. Manually remove connector (A) from master relay (B).



3. Using 7/8 inch wrench, loosen connector (C).
4. Manually remove connector (C) from protection device (D).

5. Using 3/4 inch wrench, remove protection device (D) from master relay (B).

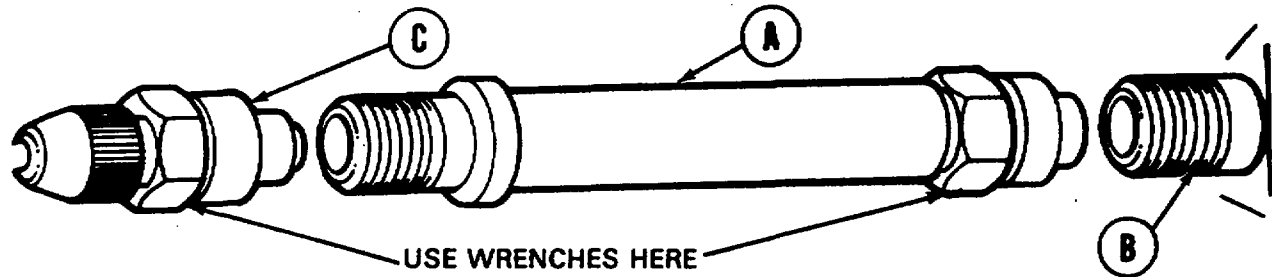


Go on to Sheet 3

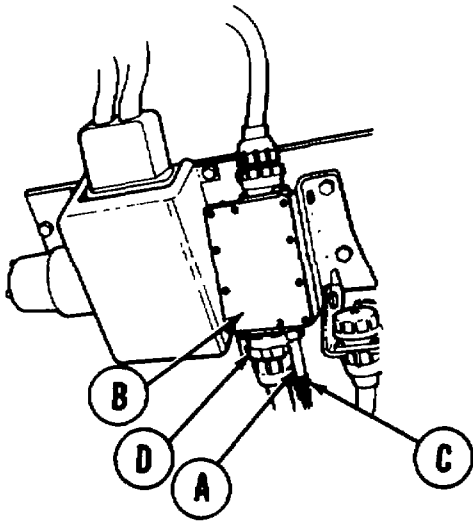
**PROTECTION DEVICE REPLACEMENT (Sheet 3 of 3)**

**INSTALLATION:**

1. Manually start protection device (A) onto master relay (B).



2. Using 3/4 inch wrench, install protection device (A) onto master relay (B).



3. Manually start connector (C) onto protection device (A).
4. Using 7/8 inch wrench, install connector (C).

5. Manually start connector (D) onto master relay (B).
6. Using spanner wrench, install connector (D).
7. Close turret platform access door (TM 9-2350-260-10).

End of Task

TA147208

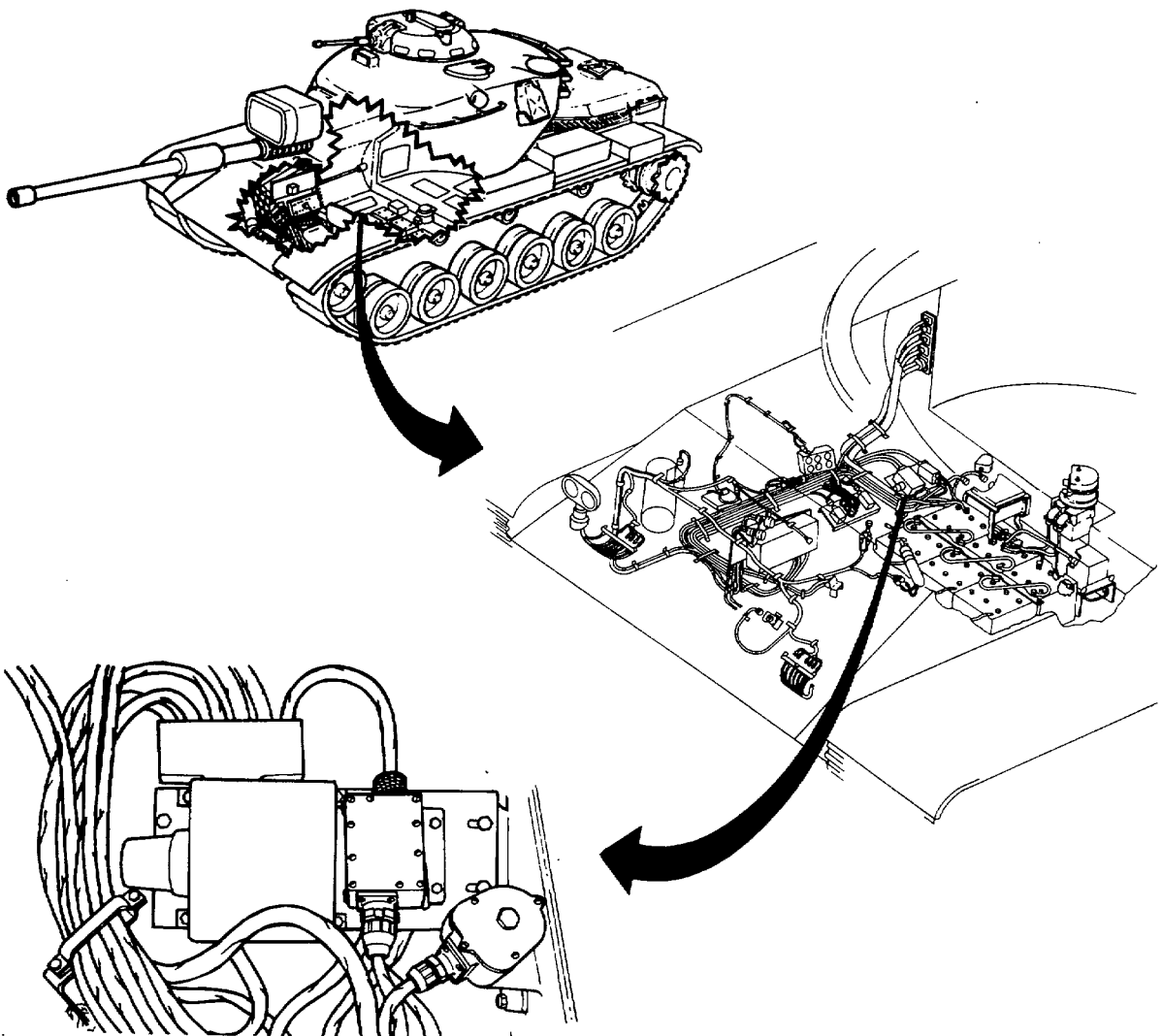


**STARTER RELAY ASSEMBLY REPLACEMENT (Sheet 1 of 3)**

**TOOLS:** 7/16 in. socket with 1/2 in. drive  
 10 in. extension with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 3/4 in. socket with 1/2 in. drive  
 Torque wrench with 1/2 in. drive (0-175 lb-ft)(0-237 N•m)

**REFERENCE:** TM 9-2350-260-10

**PRELIMINARY PROCEDURES:** Disconnect three battery ground cable straps  
 (page 10-294)  
 Manually traverse turret to expose starter relay  
 (TM 9-2350-260-10)

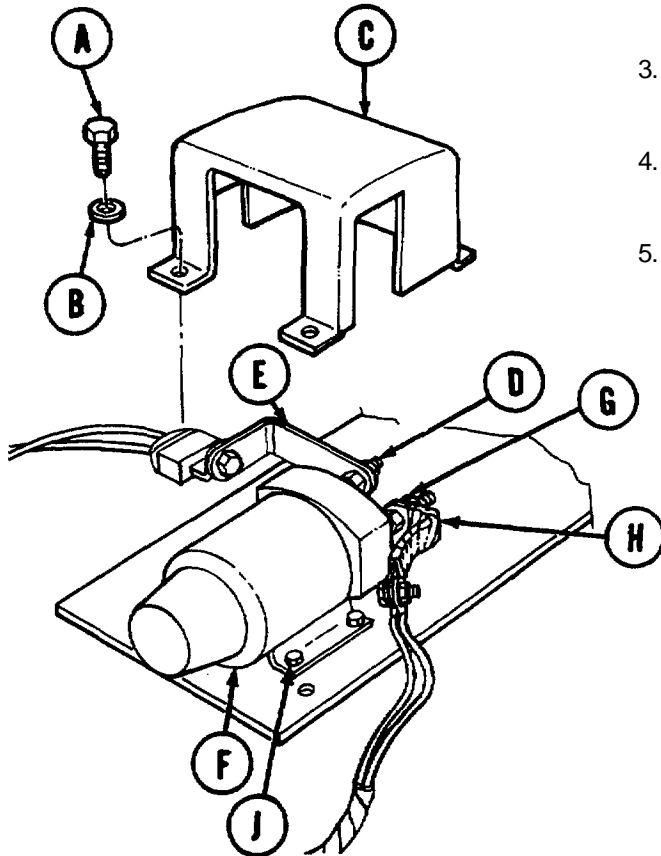
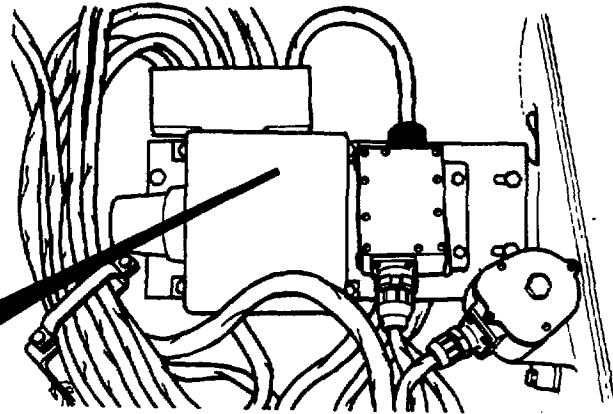


Go on to Sheet 2

**STARTER RELAY ASSEMBLY REPLACEMENT (Sheet 2 of 3)**

**REMOVAL:**

1. Using 7/16 in socket, remove three screws (A) and washer (B). Remove cover (C).

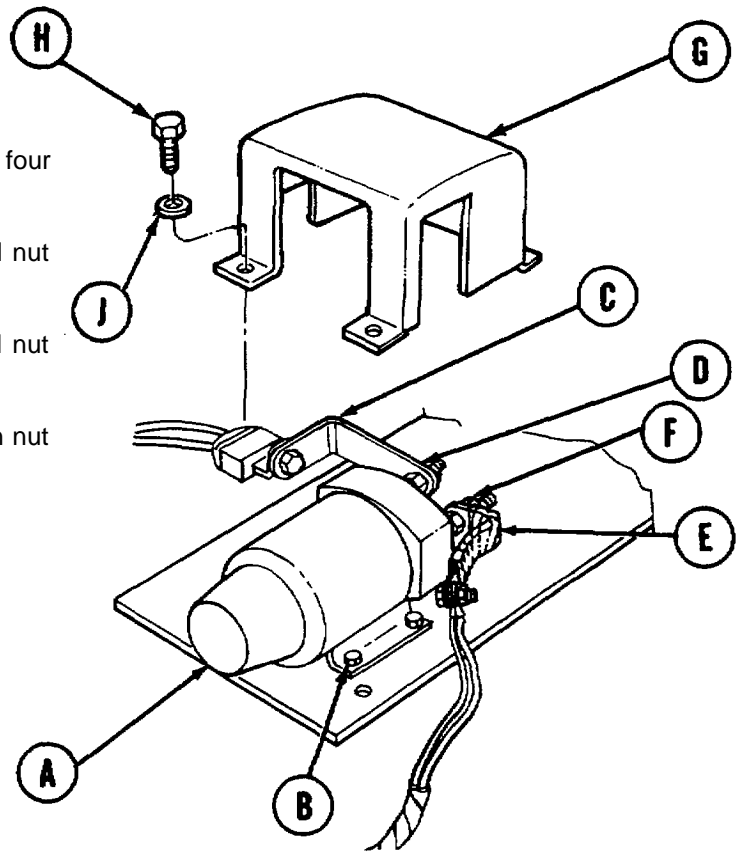


2. Using 3/4 inch socket, remove nut (D) and remove bus bar (E) from relay (F) stud.
3. Using 3/4 inch socket, remove nut (G) and remove bus bar (H) from lay (F) stud.
4. Using 7/16 inch socket, remove four screws (J) securing lay (F) to mounting plate.
5. Remove relay (F) from tank.

Go on to Sheet 3

**STARTER RELAY ASSEMBLY REPLACEMENT (Sheet 3 of 3)****INSTALLATION:**

1. Position relay (A) onto mounting plate.
2. Using 7/16 inch socket, install and tighten four screws (B) securing relay (A) to mounting plate.
3. Install bus bar (C) onto relay (A) stud and install nut (D).
4. Install bus bar (E) onto relay (A) stud and install nut (F).
5. Using torque wrench and 3/4 inch socket, tighten nut (D) and (F) 14 to 16 lb-ft. (1820 N•m).
6. Position cover (G) over relay (A).



7. Using 7/16 inch socket, install and tighten three screws (H) and washers (J) securing cover (G) to mounting plate.
8. Connect three battery ground straps (page 10-294).
9. Start engine (TM 9-2350-260-10).
10. Stop engine (TM 9-2350-260-10).

End of Task

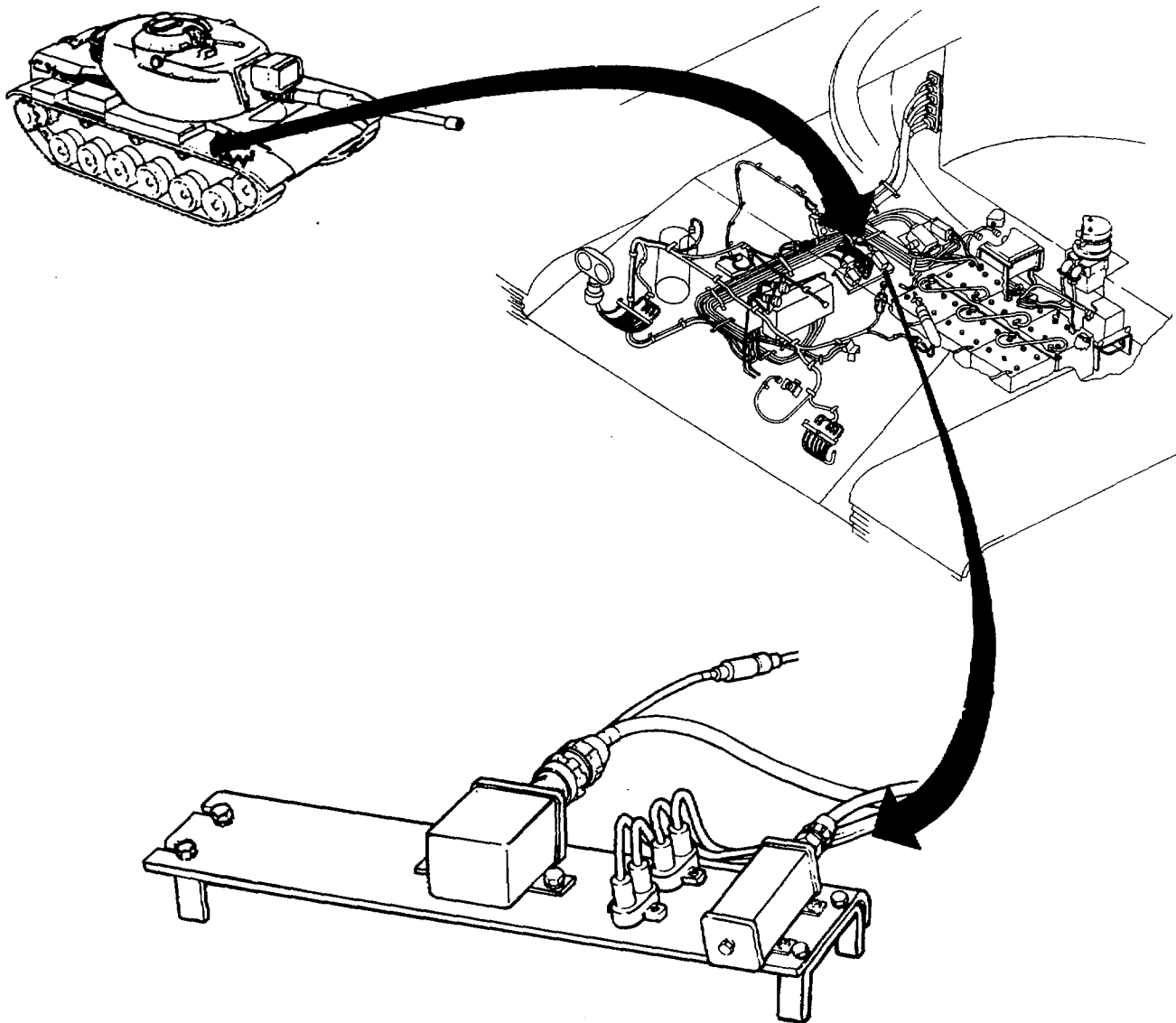
**FIRE EXTINGUISHER RELAY REPLACEMENT (Sheet 1 of 3)**

TOOLS: 12 in. adjustable wrench  
 Cross-tip screwdriver

SUPPLIES: Lockwasher (MS35335-31) (4 required)

REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURES: Disconnect three battery ground traps (page 10-294) Manually traverse turret to expose fire extinguisher relay (TM 9-2350-260-10)

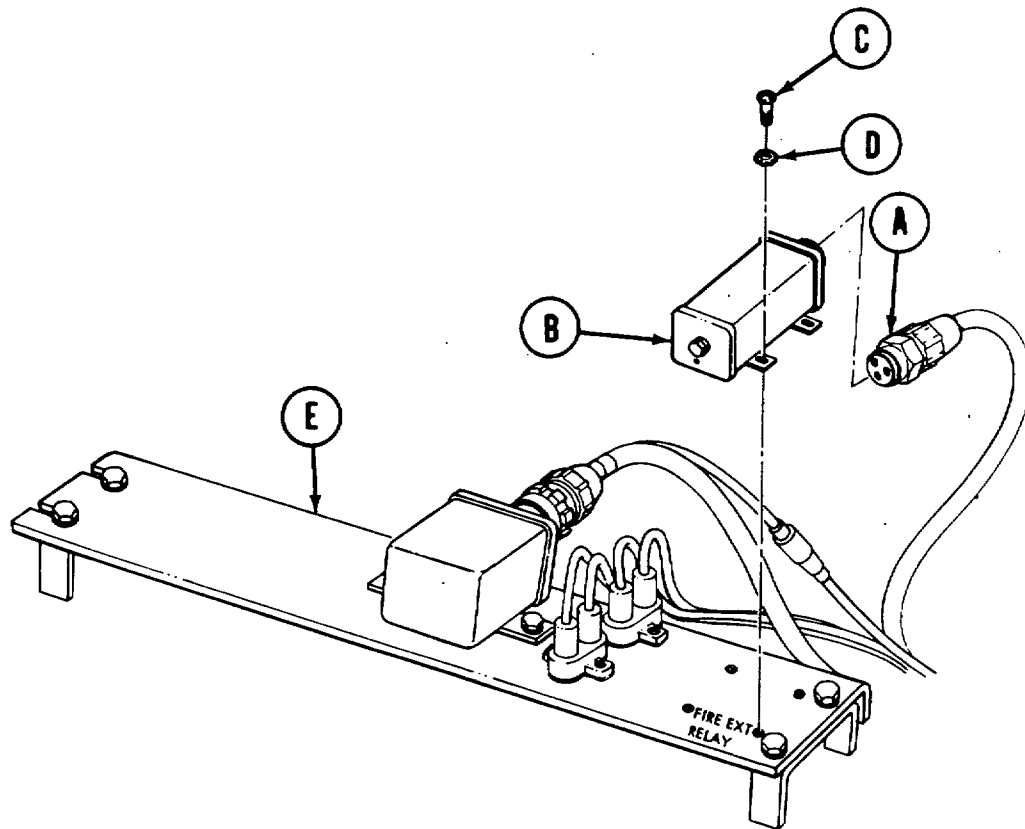


Go on to Sheet 2

TA147212

**FIRE EXTINGUISHER RELAY REPLACEMENT (Sheet 2 of 3)****REMOVAL:**

1. Using wrench, remove electrical connector (A) from fire extinguisher relay (B).
2. Using screwdriver, remove four screws (C) and lockwashers (D) holding fire extinguisher relay (B) to plate (E). Throw lockwashers (D) away.



3. Remove fire extinguisher relay (B) from tank.

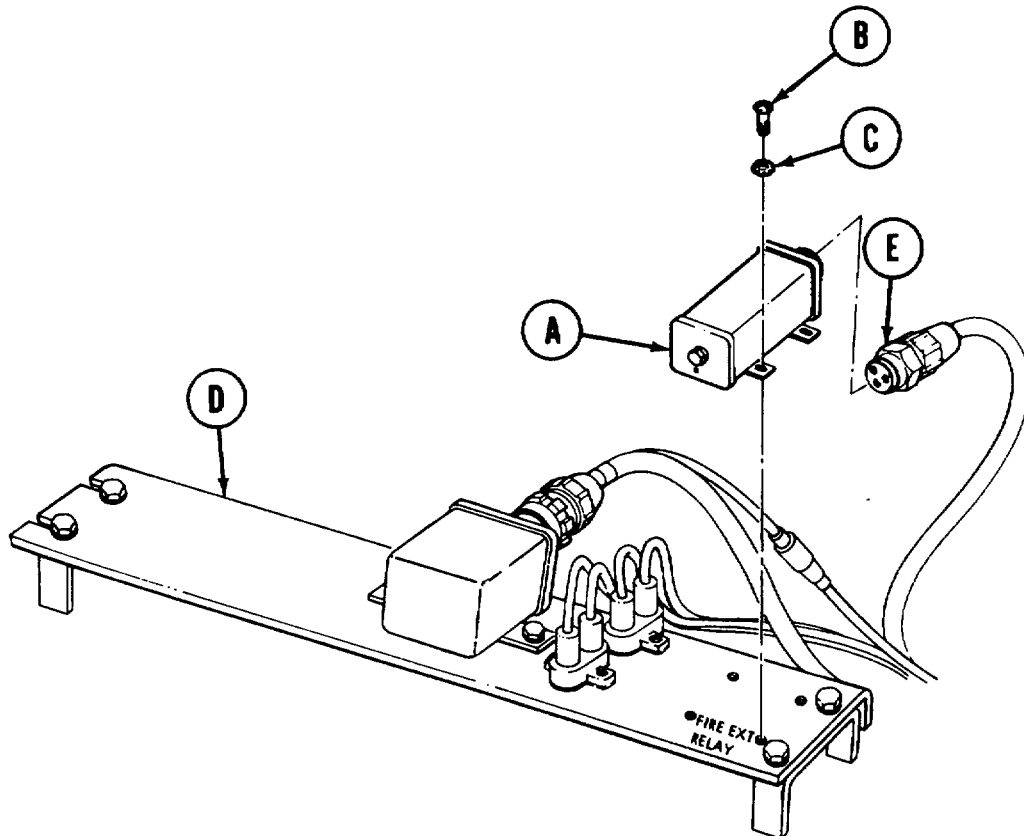
Go on to Sheet 3

TA147213

10-181

**FIRE EXTINGUISHER RELAY REPLACEMENT (Sheet 3 of 3)****INSTALLATION:**

1. Position fire extinguisher relay (A) into tank.
2. Using screwdriver, install four screws (B) and new lockwashers (C) to hold fire extinguisher relay (A) to plate (D).
3. Using wrench, install electrical connector (E) to fire extinguisher relay (A).



4. Connect three battery ground straps (page 10-294).

End of Task

TA147214

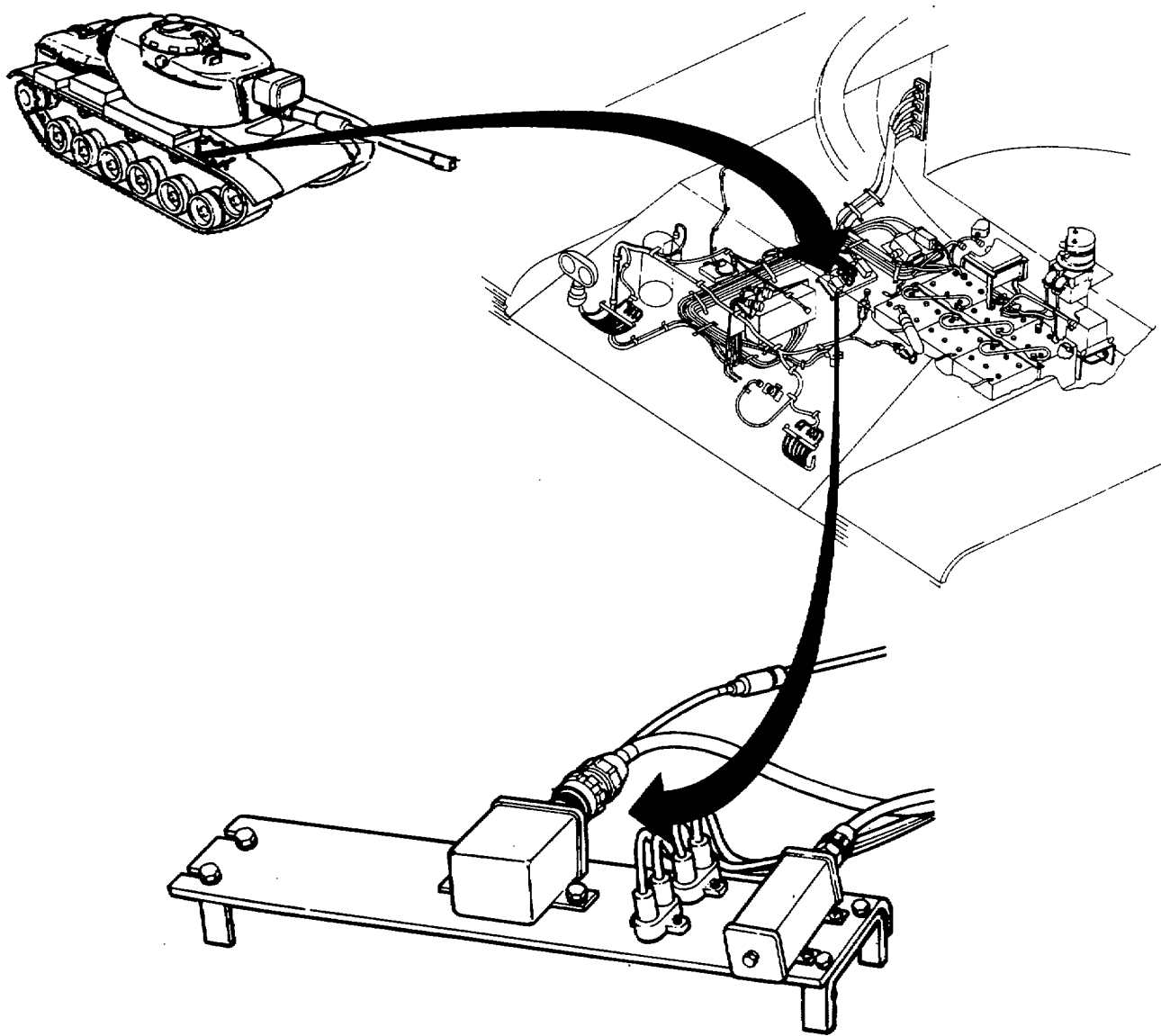
**AIR CLEANER BLOWER MOTOR RELAY REPLACEMENT (Sheet 1 of 2)**

**TOOLS:** Ratchet with 1/2 in. drive  
 7/16 in. socket with 1/2 in. drive  
 Spanner wrench  
 5 in. extension with 1/2 in. drive

**SUPPLIES:** Lockwasher (MS35335-31)(2 required)

**REFERENCE:** TM 9-2350-260-10

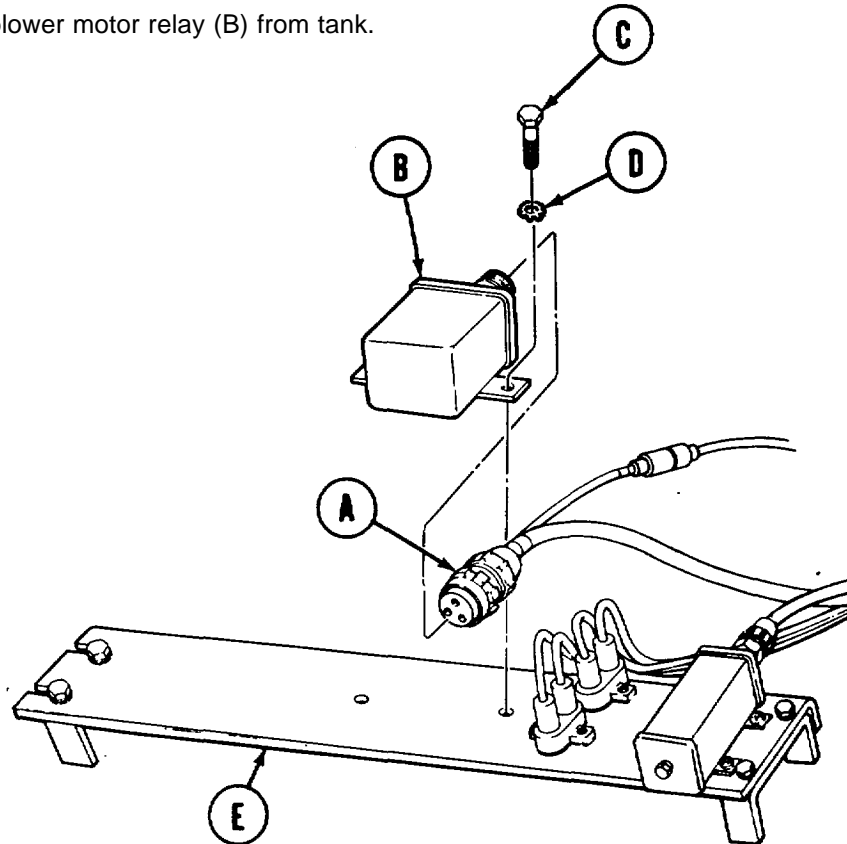
**PRELIMINARY PROCEDURES:** Disconnect three battery ground straps (page 10-294) Manually traverse turret to expose air cleaner blower relay (TM 9-2350-260-10)



Go on to Sheet 2

**AIR CLEANER BLOWER MOTOR RELAY REPLACEMENT (Sheet 2 of 2)****REMOVAL:**

1. Using spanner wrench, remove electrical connector (A) from air cleaner blower motor relay (B).
2. Using socket, remove two screws (C) and lockwashers (D) holding air cleaner blower motor relay (B) to plate (E). Throw lockwashers (D) away.
3. Remove air cleaner blower motor relay (B) from tank.

**INSTALLATION:**

1. Position air cleaner blower motor relay (B) in tank.
2. Using socket, install two screws (C) and new lockwashers (D) to hold air cleaner blower motor relay (B) to plate (E).
3. Using spanner wrench, install electrical connector (A) to air cleaner blower motor relay (B).
4. Connect three battery ground straps (page 10-294).

End of Task

TA147216



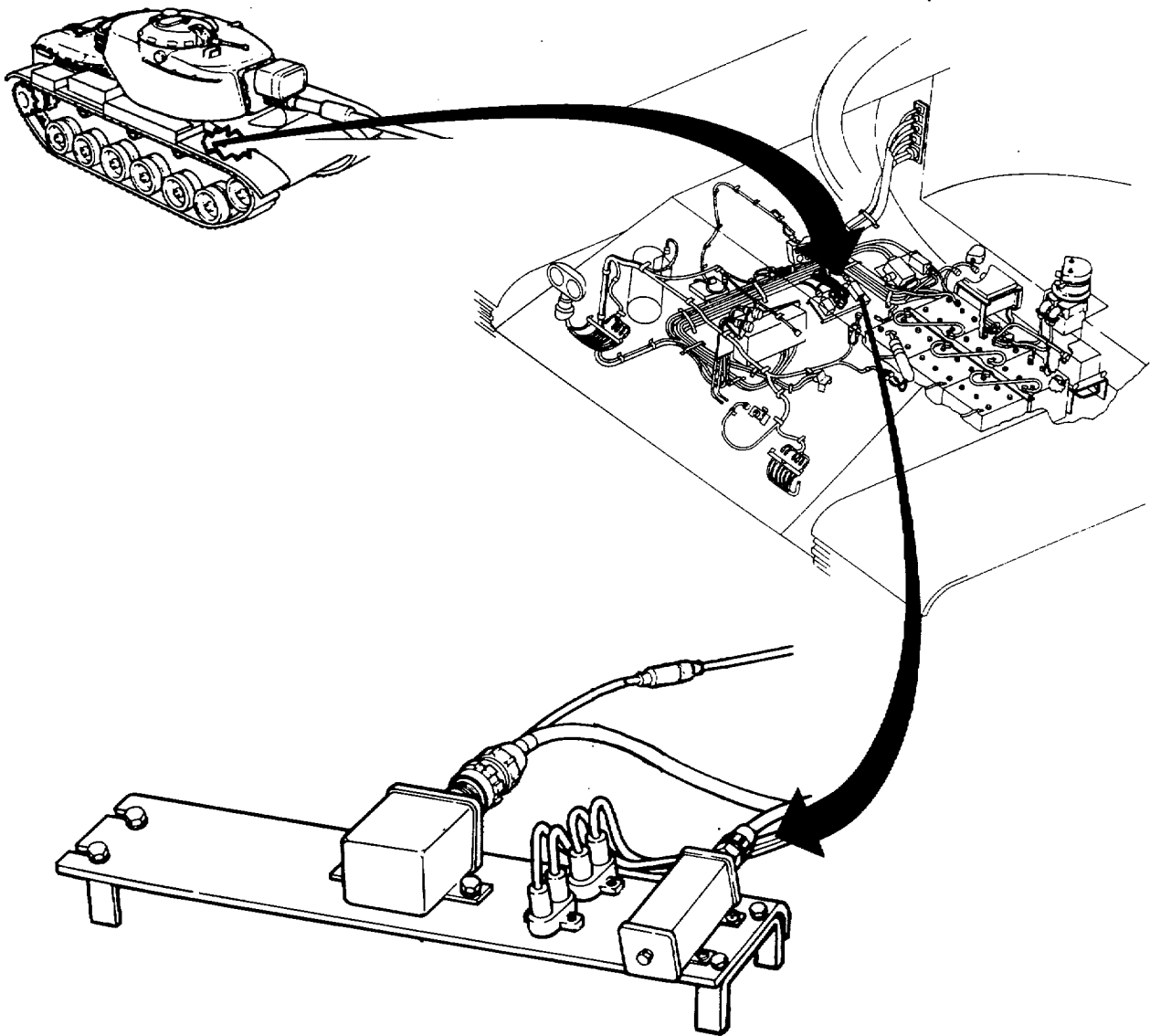
**FIRE EXTINGUISHER AND PERSONNEL HEATER CIRCUIT BREAKERS REPLACEMENT**  
(Sheet 1 of 3)

TOOLS: Cross-tip screwdriver

SUPPLIES: Tags  
Lockwasher (MS35335-31)(4 required)

REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURES: Disconnect three battery ground straps (page 10-294)  
Manually traverse turret to expose fire extinguisher and personnel heater circuit breakers  
(TM 9-2350-260-10)



Go on to Sheet 2

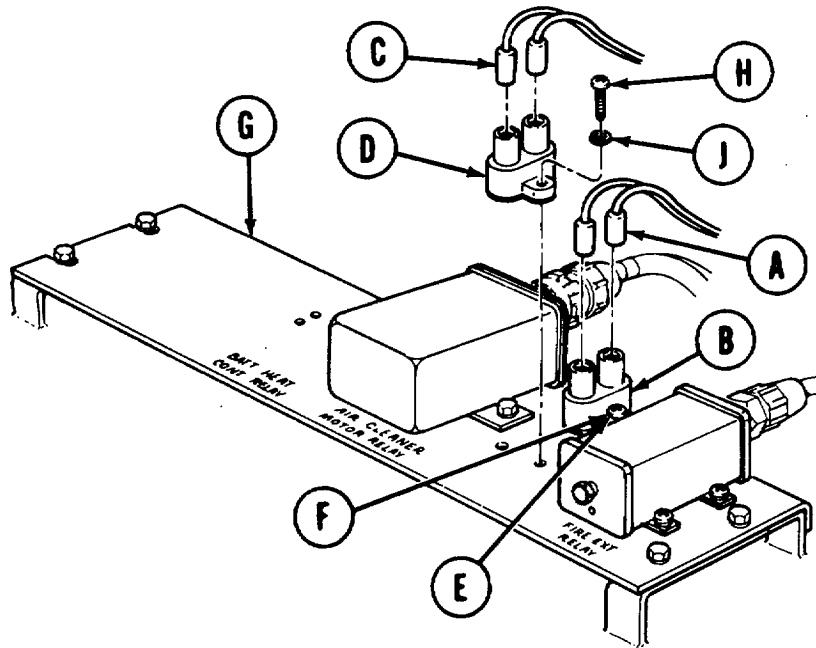
TA147217

10-185

## FIRE EXTINGUISHER AND PERSONNEL HEATER CIRCUIT BREAKERS REPLACEMENT (Sheet 2 of 3)

### REMOVAL:

1. Tag and disconnect two cable connectors (A) from fire extinguisher circuit breaker (B) and two cable connectors (C) from personnel heater circuit breaker (D).
2. Using screwdriver, remove two screws (E) and lockwashers (F) holding fire extinguisher circuit breaker (B) to plate (G). Throw lockwashers (F) away.



3. Using screwdriver, remove two screws (H) and lockwashers (J) holding personnel heater circuit breaker (D) from plate (G). Throw lockwashers (J) away.
4. Remove fire extinguisher circuit breaker (B) and personnel heater circuit breaker (D) from tank.

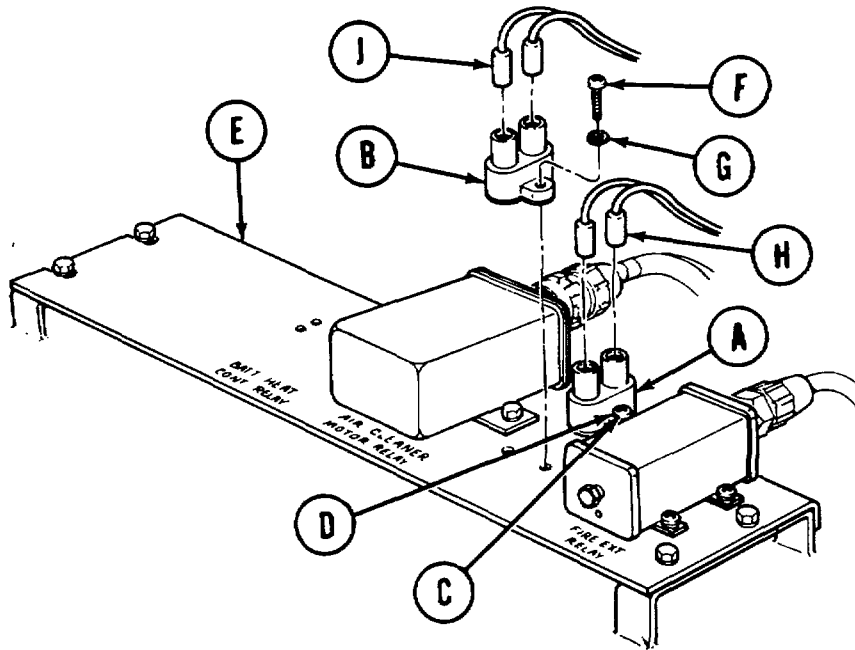
Go on to Sheet 3

TA147218

## FIRE EXTINGUISHER AND PERSONNEL HEATER CIRCUIT BREAKERS REPLACEMENT (Sheet 3 of 3)

### INSTALLATION:

1. Position fire extinguisher circuit breaker (A) and personnel heater circuit breaker (B) in tank.
2. Using screwdriver, install two screws (C) and new lockwashers (D) to hold fire extinguisher circuit breaker (A) to plate (E).



3. Using screwdriver, install two screws (F) and new lockwashers (G) to hold personnel heater circuit breaker (B) to plate.
4. Connect two cable connectors (H) to fire extinguisher circuit breaker (A) and two cable connectors (J) to personnel heater circuit breaker (B).
5. Connect three battery ground straps (page 10-294).

End of Task

TA147219

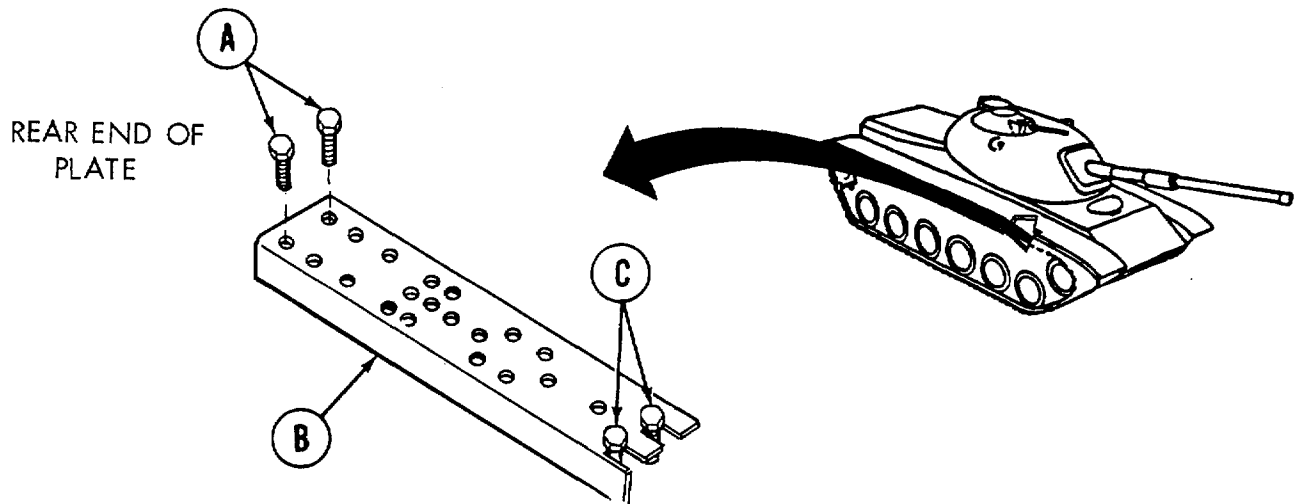
10-187

**RELAY AND CIRCUIT BREAKER MOUNTING PLATE REPLACEMENT (Sheet 1 of 2)**

TOOLS: 9/16 in. socket with 1/2 in. drive

REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURES: Remove air cleaner blower motor relay (page 10-184)  
 Remove two circuit breakers (page 10-186)  
 Remove fire extinguisher relay (page 10-181)

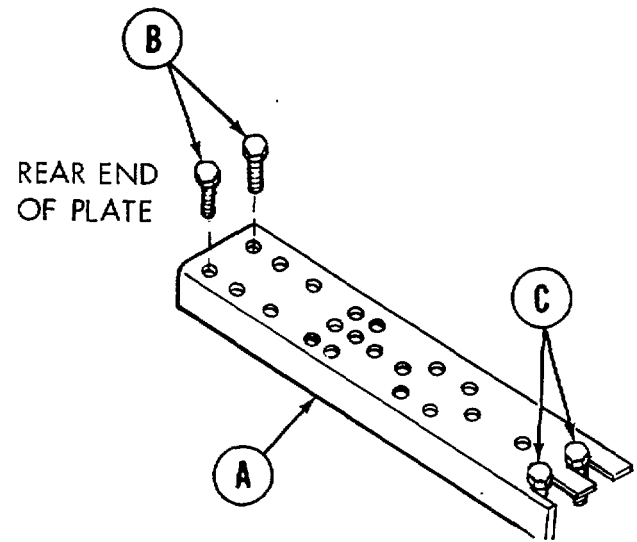
**REMOVAL:**

1. Using 9/16 inch wrench, remove two screws (A) at rear end of plate (B).
2. Using 9/16 inch wrench, loosen two screws (C) at front end of plate (B).
3. Slide plate (B) to rear and remove it.

Go on to Sheet 2

**RELAY AND CIRCUIT BREAKER MOUNTING PLATE REPLACEMENT (Sheet 2 of 2)****INSTALLATION:**

1. Position plate (A) into mounting place.
2. Using 9/16 inch wrench, install two screws (B) at rear end of plate (A).
3. Using 9/16 inch wrench, tighten two screws (C) at front end of plate (A).
4. Install fire extinguisher relay (page 10-182).
5. Install two circuit breakers (page 10-187).
6. Install blower motor relay (page 10-184).



End of Task

TA147221

10-189

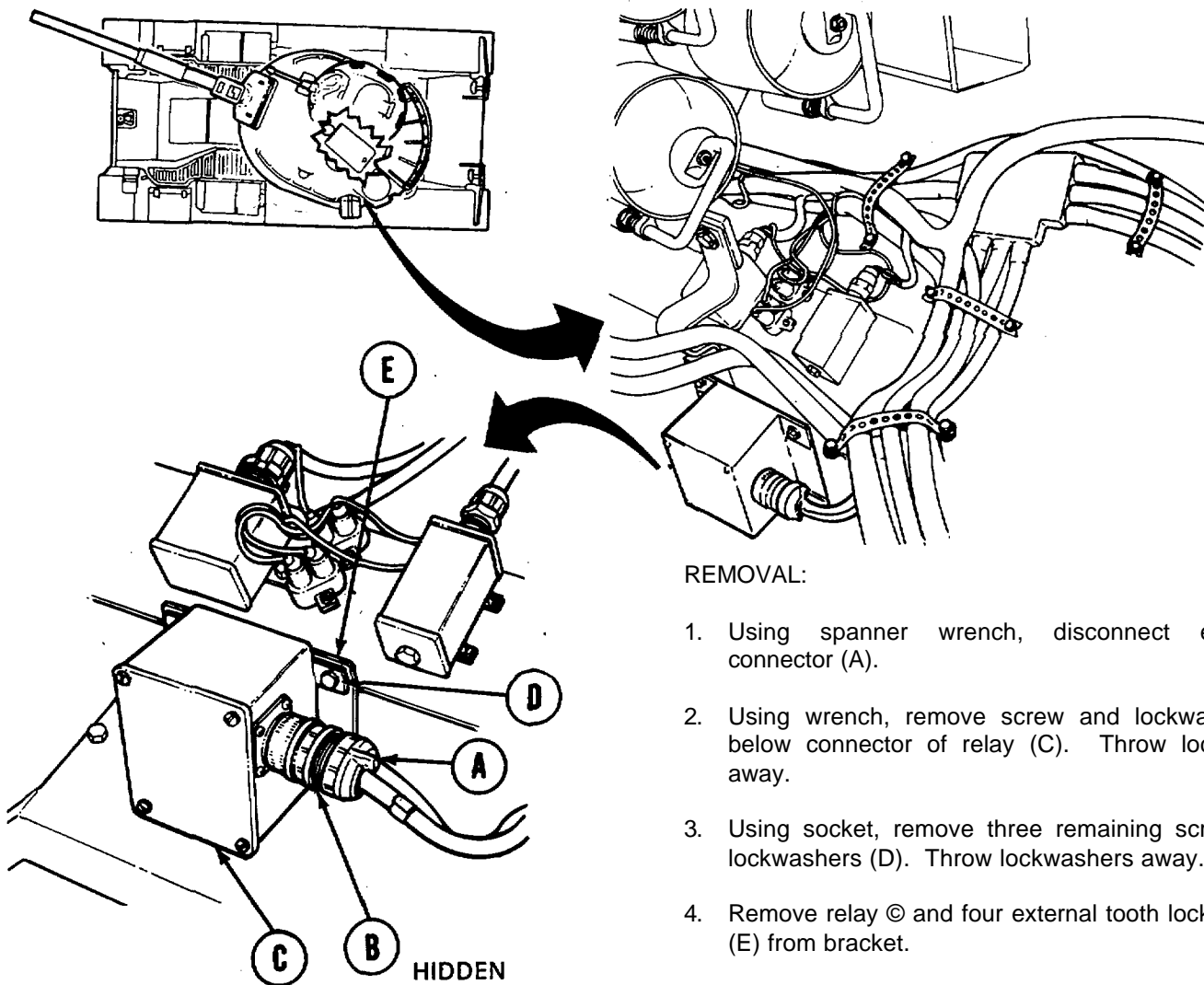
**BILGE PUMP RELAY ENCLOSURE ASSEMBLY REPLACEMENT (Sheet 1 of 2)**

**TOOLS:** 7/16 in. combination box and open end wrench  
 7/16 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 5 in. extension with 1/2 in. drive  
 Spanner wrench

**SUPPLIES:** Lockwasher (MS35338-44) (4 required)

**REFERENCE:** TM 9-2350-260-10

**PRELIMINARY PROCEDURES:** Disconnect three battery ground straps (page 10-294)  
 Open turret platform access door and manually traverse turret to expose relay  
 (TM 9-2350-260-10)



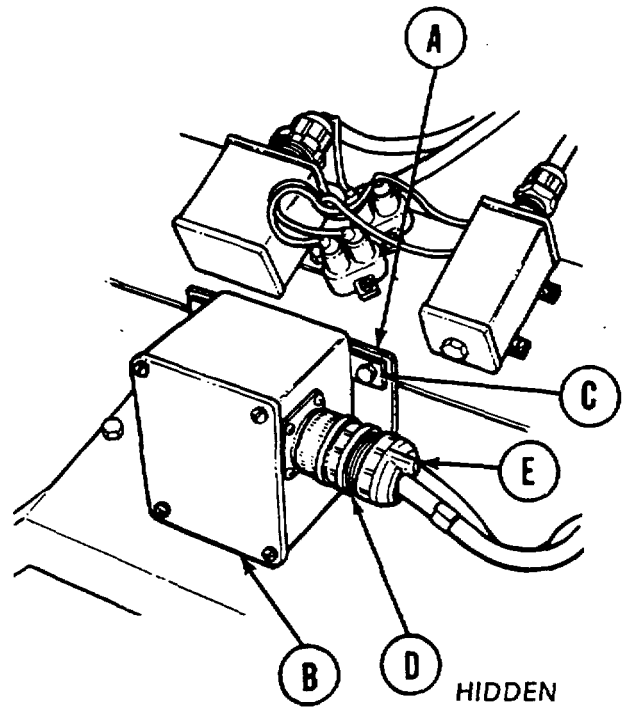
**REMOVAL:**

1. Using spanner wrench, disconnect electrical connector (A).
2. Using wrench, remove screw and lockwasher (B) below connector of relay (C). Throw lockwasher away.
3. Using socket, remove three remaining screws and lockwashers (D). Throw lockwashers away.
4. Remove relay (C) and four external tooth lockwashers (E) from bracket.

Go on to Sheet 2

**BILGE PUMP RELAY ENCLOSURE ASSEMBLY REPLACEMENT (Sheet 2 of 2)****INSTALLATION:**

1. Place four external tooth lockwashers (A) over screw holes on mounting bracket.
2. Place relay (B) over external tooth lockwashers (A).
3. Insert four screws and new lockwashers by hand to align relay (B) with bracket.
4. Using wrench, tighten screw (D) below connector relay (B).
5. Using socket, tighten other three screws (C).
6. Conned electrical connector (E). Using spanner wrench, tighten.
7. Connect three battery ground straps (page 10-294).
8. Close turret platform access door (TM 9-2350-260-10).



End of Task

TA147223

10-191

**BILGE PUMP RELAY ENCLOSURE ASSEMBLY REPAIR (Sheet 1 of 12)**

PROCEDURE	PAGE
Circuit Breaker Replacement	10-192
Cable Assembly Replacement	10-195
Solenoid Relay Replacement	10-199

**Circuit Breaker Replacement (Sheet 1 of 3)**

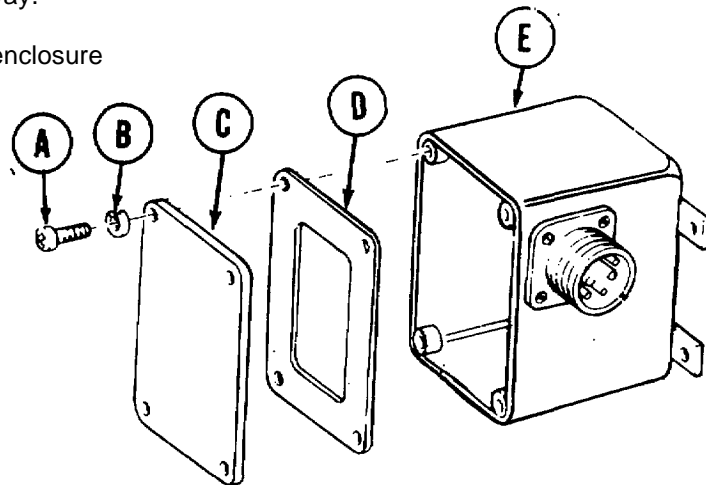
**TOOLS:** Cross-tip screwdriver (Phillips)  
 7/16 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 5 in. extension with 1/2 in. drive

**SUPPLIES:** Crocus cloth (Item 14, Appendix D)  
 Steel wool (Item 55, Appendix D)  
 Gasket(10951769)  
 Lockwasher (MS35338-43) (6 required)  
 Lockwasher (MS35333-39) (2 required)  
 Lockwasher (MS35338-101) (2 required)

**PRELIMINARY PROCEDURE:** Remove enclosure assembly from tank (page 10-190)

**REMOVAL:**

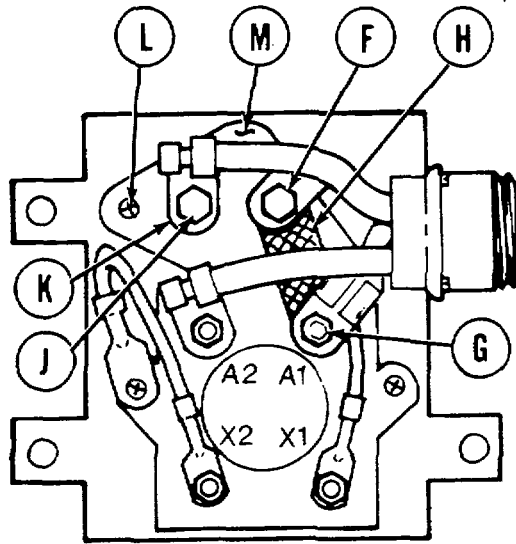
1. Using screwdriver, remove four screws (A) and lockwashers (B). Throw lockwashers (B) away.
2. Remove cover (C) and gasket (D) from enclosure assembly (E). Throw gasket (D) away.



Go on to Sheet 2



**BILGE PUMP RELAY ENCLOSURE ASSEMBLY REPAIR (Sheet 2 of 12)**  
**Circuit Breaker Replacement (Sheet 2 of 3)**



3. Using socket, remove screw (F) with two lockwashers. Throw lockwashers away.
4. Using socket, remove nut (G) with lockwasher holding bus bar (H). Throw lockwasher away.
5. Remove bus bar (H).
6. Using socket, remove screw (J) with lockwasher. Throw lockwasher away.

7. Remove lead (K).
8. Using screwdriver, remove two screws (L) with flat washers and lockwashers. Throw lockwashers away.
9. Remove circuit breaker (M).

**CLEANING AND INSPECTION:**

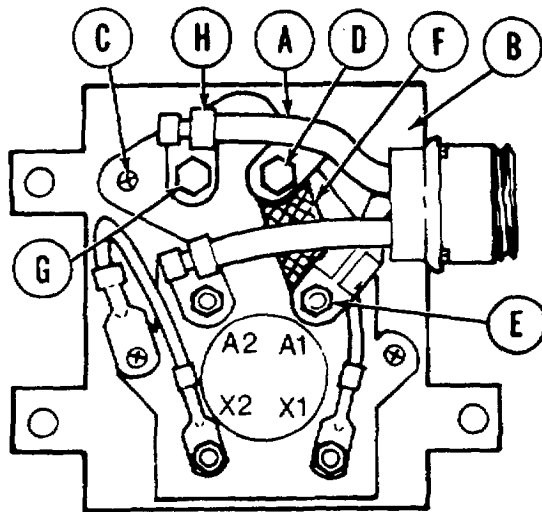
1. Inspect circuit breaker for corrosion. If corroded areas cannot be cleaned using crocus cloth (Item 14, Appendix D) or steel wool (Item 55, Appendix D), replace circuit breaker.
2. Inspect for mechanical damage or wear. If damaged or worn, replace circuit breaker.

Go on to Sheet 3

**BILGE PUMP RELAY ENCLOSURE ASSEMBLY REPAIR (Sheet 3 of 12)**  
**Circuit Breaker Replacement (Sheet 3 of 3)**

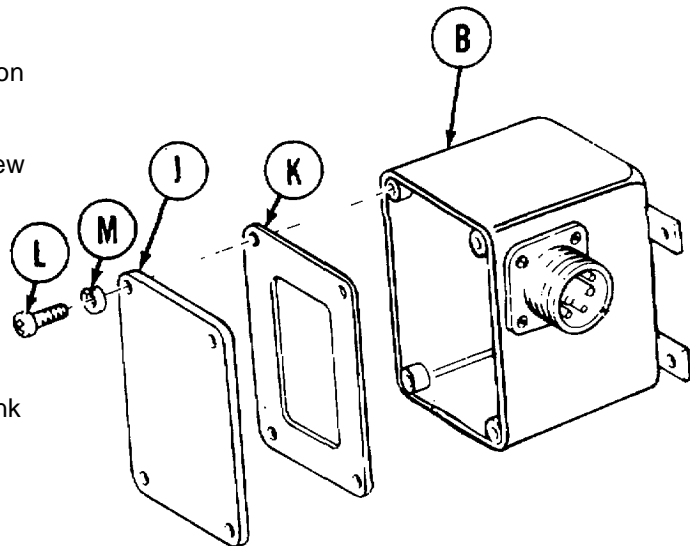
INSTALLATION:

1. Position circuit breaker (A) into position in enclosure assembly (B).
2. Using screwdriver, install two screws (C) with flat washers and new lockwashers.



3. Place two new lockwashers at position (D) on circuit breaker and one flat washer at position (E) of relay. Position bus bar (F) over new lockwasher at (D) and (E).
4. Using socket, install screw and two flat washers through bus bar on circuit breaker at position (D).
5. Using socket, install nut and flat washer to hold bus bar at position (E).
6. Using socket, install screw, flat washer, and new lockwasher (G) to secure lead (H).

7. Place cover (J) and new gasket (K) into installation position on enclosure assembly (B).
8. Using screwdriver, install four screws (L) and new lockwashers (M).



9. Install enclosure assembly (B) in tank (page 10-191).

End of Task

**BILGE PUMP RELAY ENCLOSURE ASSEMBLY REPAIR (Sheet 4 of 12)**  
**Cable Assembly Replacement (Sheet 1 of 4)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-195
Cleaning and Inspection	10-197
Installation	10-197

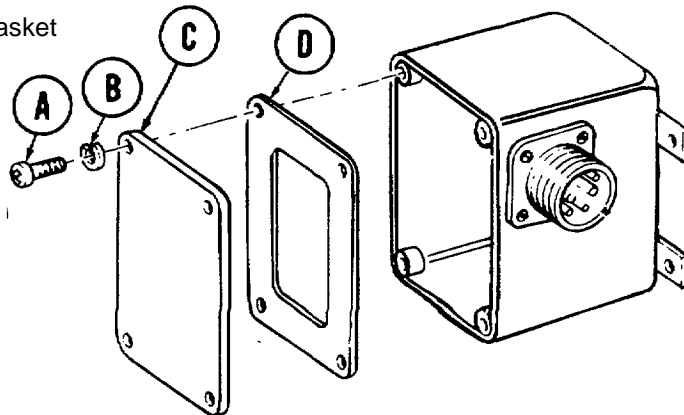
TOOLS: Cross-tip screwdriver  
 5/16 in. socket with 1/2 in. drive  
 7/16 in. socket with 1/2 in. drive  
 5 in. extension with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 Flat-tip screwdriver

SUPPLIES: Gasket (MS52000-9)  
 Gasket (10951769)  
 Crocus cloth (Item 14, Appendix D)  
 Steel wool (Item 55, Appendix D)  
 Lockwasher (MS35338-43) (4 required)  
 Lockwasher (MS35338-41) (4 required)  
 Lockwasher (MS35338-101)  
 Lockwasher (MS35338-98)

PRELIMINARY PROCEDURE: Remove enclosure assembly from tank (page 10-190)

REMOVAL:

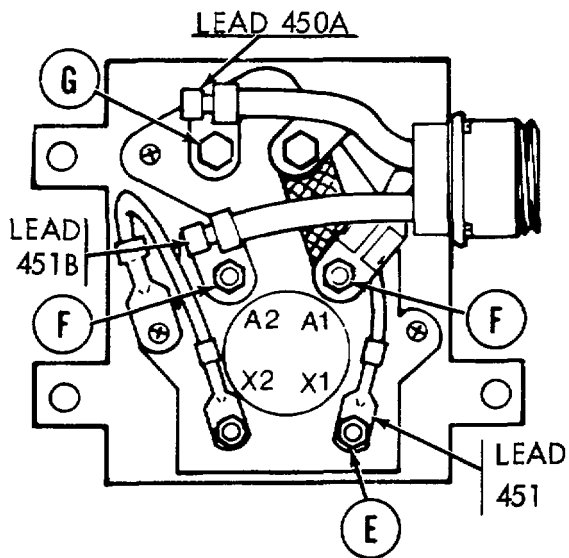
- Using cross-tip screwdriver, remove four screws (A) and lockwashers (B) holding cover (C). Throw lockwashers (B) away.
- Remove cover (C) and gasket (D). Throw gasket (D) away.



Go on to Sheet 2

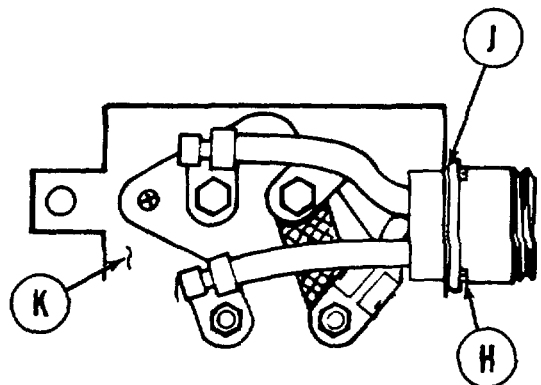
**BILGE PUMP RELAY ENCLOSURE ASSEMBLY REPAIR (Sheet 5 of 12)**  
**Cable Assembly Replacement (Sheet 2 of 4)**

3. Using 5/16 inch socket, remove nut (E) with lockwasher. Throw lockwasher away.
4. Remove lead 451 and flat washer.
5. Using 7/16 inch socket, remove nut (F) with lockwasher and flat washer. Throw lockwasher away.



6. Remove lead 451B.
7. Using 7/16 inch socket, remove screw (G) with flat washer and lockwasher. Throw lockwasher away.
8. Remove lead 450A.

9. Using flat-tip screwdriver, remove four screws (H) with lockwashers and nuts. Throw lockwashers away.
10. Remove cable assembly and gasket (J) from enclosure assembly (K).
11. Throw gasket away if damaged.



Go on to Sheet 3

TA147228

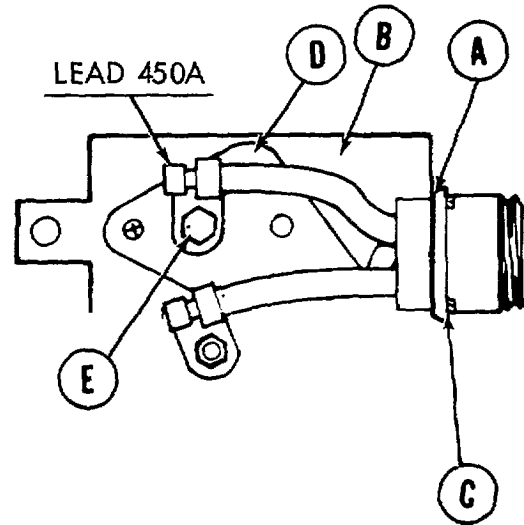
**BILGE PUMP RELAY ENCLOSURE ASSEMBLY REPAIR (Sheet 6 of 12)**  
**Cable Assembly Replacement (Sheet 3 of 4)**

**CLEANING AND INSPECTION:**

1. Inspect all parts for corrosion. If corroded part cannot be cleaned using crocus cloth (Item 14, Appendix D) or steel wool (Item 55, Appendix D), replace parts.
2. Inspect all parts for mechanical damage and wear. If damaged or worn, replace parts.

**INSTALLATION:**

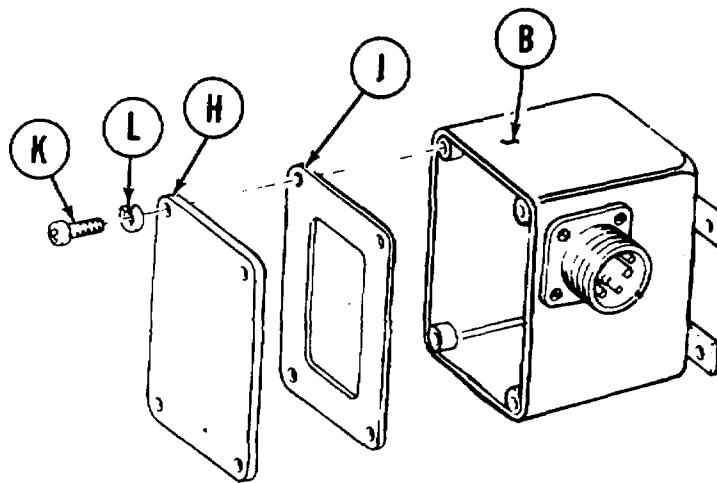
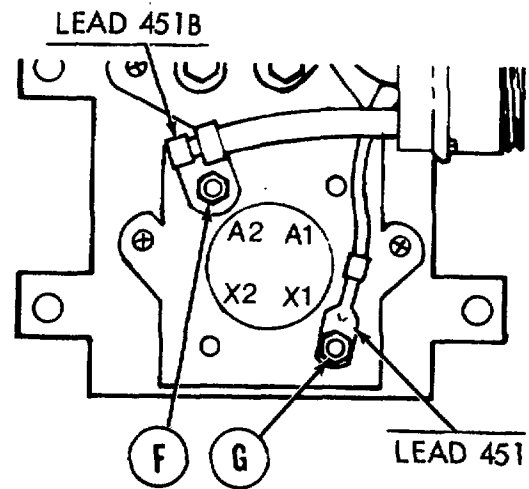
1. Position gasket and cable assembly (A) into place on enclosure assembly (B) with notch of cable assembly facing 9 o'clock position as you face it.
2. Using screwdriver, install four screws (C) with new lockwashers and nuts.
3. Place lead 450A onto terminal of circuit breaker (D).
4. Using 7/16 inch socket, install screw (E) with mew lockwasher and flat washer.



Go on to Sheet 4

**BILGE PUMP RELAY ENCLOSURE ASSEMBLY REPAIR (Sheet 7 of 12)**  
**Cable Assembly Replacement (Sheet 4 of 4)**

5. Place lead 451B with flat washer and new lockwasher onto terminal.
6. Using 7/16 inch socket, install nut (F) to terminal A2.
7. Place flat washer and lead 451 on terminal X1.
8. Using 5/16 inch socket, install nut (G) with new lockwasher.
9. Place cover (H) and new gasket (J) onto enclosure assembly (B).
10. Using cross-tip screwdriver, install four screws (K) with new lockwashers (L).
11. Install enclosure assembly (B) in tank (page 10-191).



End of Task

TA147230

**BILGE PUMP RELAY ENCLOSURE-ASSEMBLY REPAIRS (Sheet 8 of 12)**  
**Solenoid Relay Replacement (Sheet 1 of 5)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-199
Cleaning and Inspection	10-201
Installation	10-201

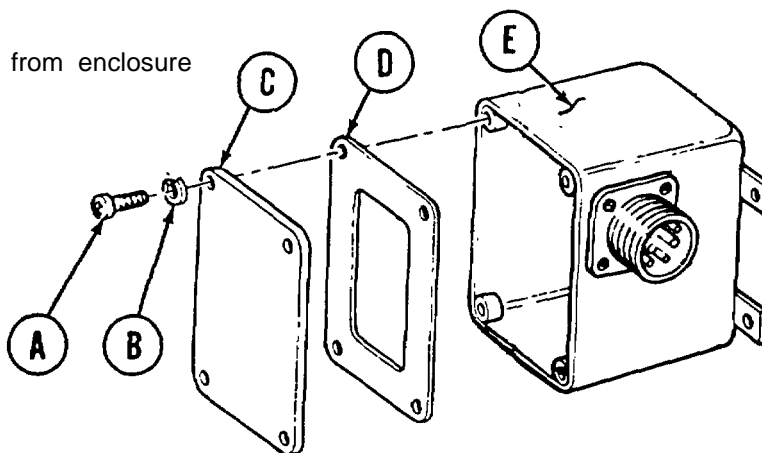
TOOLS: Cross-tip screwdriver  
 5/16 in. socket with 1/2 in. drive  
 7/16 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 5 in. extension with 1/2 in. drive

SUPPLIES: Gasket (10951769)  
 Crocus cloth (Item 14, Appendix D)  
 Steel wool (Item 55, Appendix D)  
 Lockwasher (MS35338-43) (4 required)  
 Lockwasher (MS35338-101) (2 required)  
 Lockwasher (MS35338-98) (2 required)  
 Lockwasher (MS35338-39) (3 required)

PRELIMINARY PROCEDURE: Remove enclosure assembly from tank (10-190)

REMOVAL:

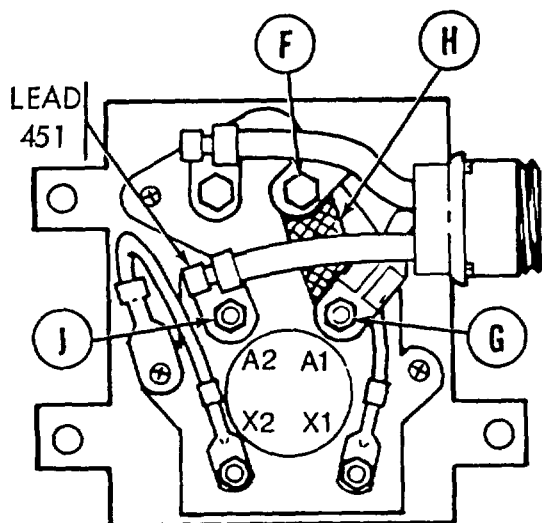
- Using screwdriver, remove four screws (A) and lockwashers (B) holding cover (C). Throw lockwashers (B) away.
- Remove cover (C) and gasket (D) from enclosure assembly (E). Throw gasket away.



Go on to Sheet 2

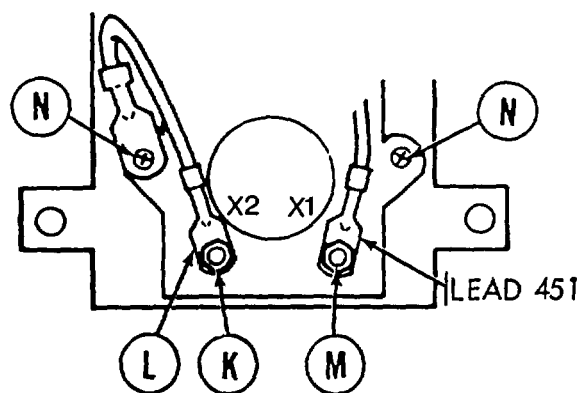
TA147231

**BILGE PUMP RELAY ENCLOSURE ASSEMBLY REPAIR (Sheet 9 of 12)**  
**Solenoid Relay Replacement (Sheet 2 of 5)**



3. Using 7/16 inch socket, remove screw (F) with two flat washers.
4. Using 7/16 inch socket, remove nut (G) with lockwasher. Throw lockwasher away.
5. Remove bus bar (H).
6. Using 7/16 inch socket, remove nut (J) with lockwasher. Throw lockwasher away.
7. Remove lead 451 from terminal A2.

8. Using 5/16 inch socket, remove nut (K) with lockwasher and flat washer. Throw lockwasher away.
9. Remove ground lead (L) from terminal X2.
10. Using 5/16 inch socket, remove nut (M) with lockwasher and flat washer. Throw lockwasher away.
11. Remove lead 451 from terminal X1.
12. Using screwdriver, remove two screws (N) with lockwashers. Throw lockwashers away.

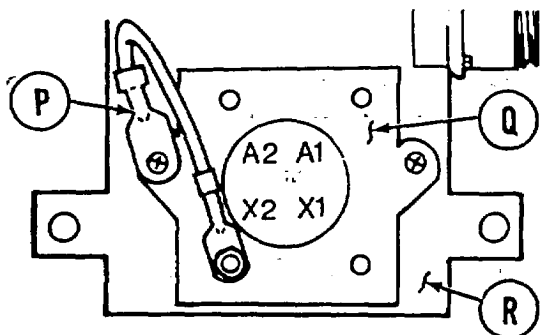


Go on to Sheet 3

TA147232



**BILGE PUMP RELAY ENCLOSURE ASSEMBLY REPAIR (Sheet 10 of 12)**  
**Solenoid Relay Replacement (Sheet 3 of 5)**



13. Using fingers, remove ground lead (P) from solenoid relay (Q).

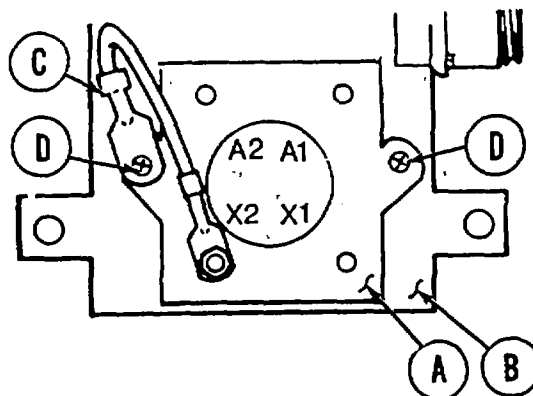
14. Remove solenoid relay (Q) from relay enclosure assembly (R).

**CLEANING AND INSPECTION:**

1. Visually inspect all parts for corrosion. If corroded parts cannot be cleaned with crocus cloth (Item 14, Appendix D) or steel wool (Item 55, Appendix D), replace parts.
2. Visually inspect for technical damage and wear. If damaged or worn, replace parts.

**INSTALLATION:**

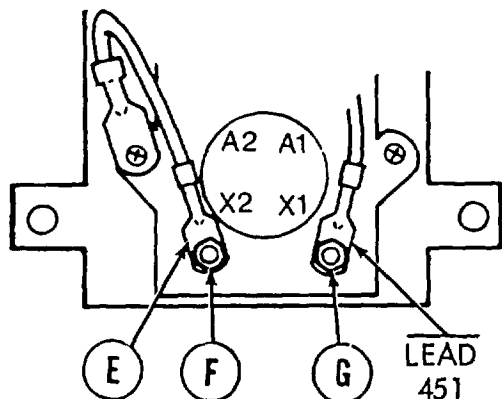
1. Position solenoid relay (A) into place in enclosure assembly (B).
2. Place ground lead (C) into position as shown.
3. Using screwdriver, install two screws (D) with two new lockwashers.



TA147233

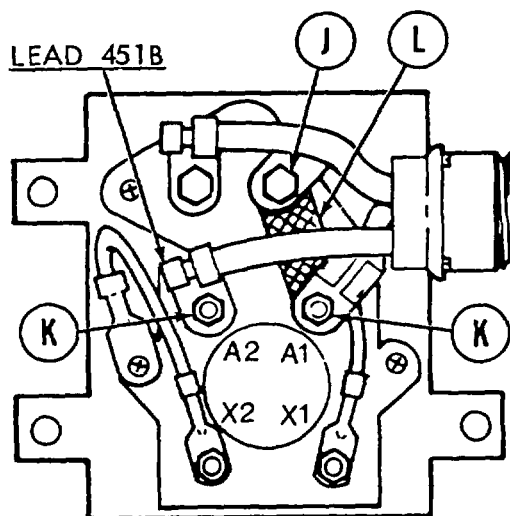
Go on to Sheet 4

**BILGE PUMP RELAY ENCLOSURE ASSEMBLY REPAIR (Sheet 11 of 12)**  
**Solenoid Relay Replacement (Sheet 4 of 5)**



4. Place ground lead (E) with flat washer into position on X2 terminal.
5. Using 5/16 inch socket install nut (F) with new lockwasher.
6. Place lead 451 with flat washer into position on terminal X1.

7. Using 5/16 inch socket, install nut (G) with new lockwasher.
8. Place lead 451B with flat washer into position on terminal A2.
9. Using 7/16 inch socket, install nut (H) with new lockwasher.
10. Place two flat washers at position (J) on circuit breaker and one flat washer at position (K) of relay.
11. Position bus bar (L) over flat washers at (J) and (K).
12. Using 7/16 inch socket, install screw and two flat washers (J) through bus bar on circuit breaker at position (J).
13. Using 7/16 inch socket, install nut and flat washer to hold bus bar at position (K).

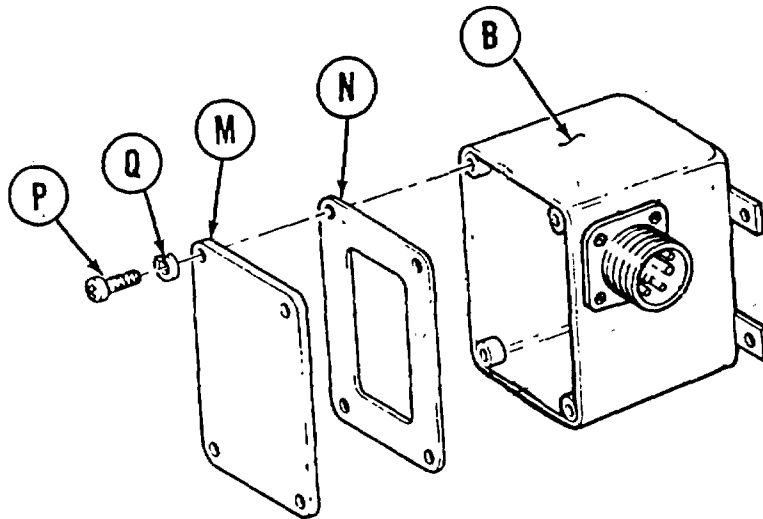


TA147234

Go on to Sheet 5

**BILGE PUMP RELAY ENCLOSURE ASSEMBLY REPAIR (Sheet 12 of 12)**  
**Solenoid Relay Replacement (Sheet 5 of 5)**

14. Place cover (M) and new gasket (N) on enclosure assembly (B).
15. Using screwdriver, install four screws (P) and new lockwashers (Q).
16. Install enclosure assembly (B) in tank (page 10-191).



End of Task

TA147235

**INFRARED POWER SUPPLY AND SHOCK MOUNT ASSEMBLY REPLACEMENT**  
 (Sheet 1 of 5)

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-204
Inspection	10-206
Installation	10-207

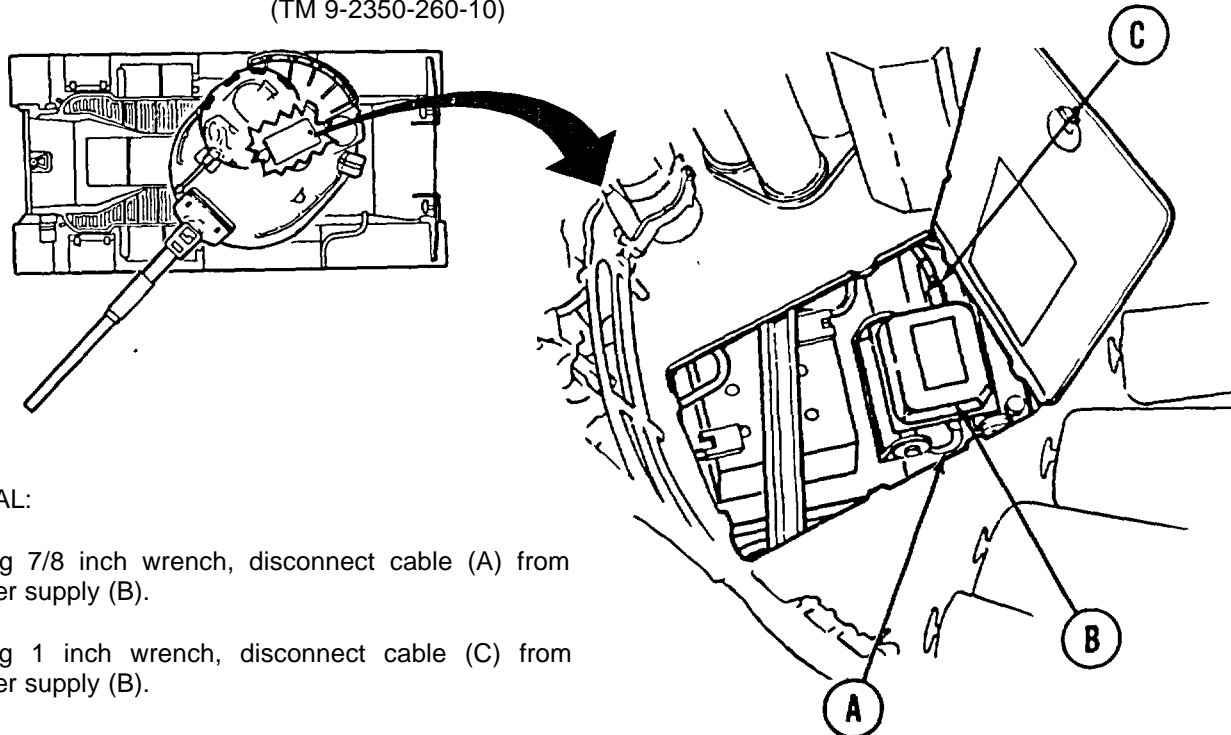
TOOLS: 1/4 in. combination box and open end wrench  
 7/16 in. socket with 3/8 in. drive  
 1/2 in. socket with 3/8 in. drive  
 5 in. extension with 3/8 in. drive  
 Ratchet with 3/8 in. drive

7/16 in. combination box and open end wrench  
 7/8 in. combination box and open end wrench  
 1 in. combination box and open end wrench  
 Flat-tip screwdriver

SUPPLIES: Lockwasher (MS35335-35) (4 required)  
 Lockwasher (MS35338-46) (4 required)

REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURE: Open turret platform access door (TM 9-2350-260-10)  
 Traverse turret to expose infrared power supply, located directly behind left battery (TM 9-2350-260-10)



REMOVAL:

1. Using 7/8 inch wrench, disconnect cable (A) from power supply (B).
2. Using 1 inch wrench, disconnect cable (C) from power supply (B).

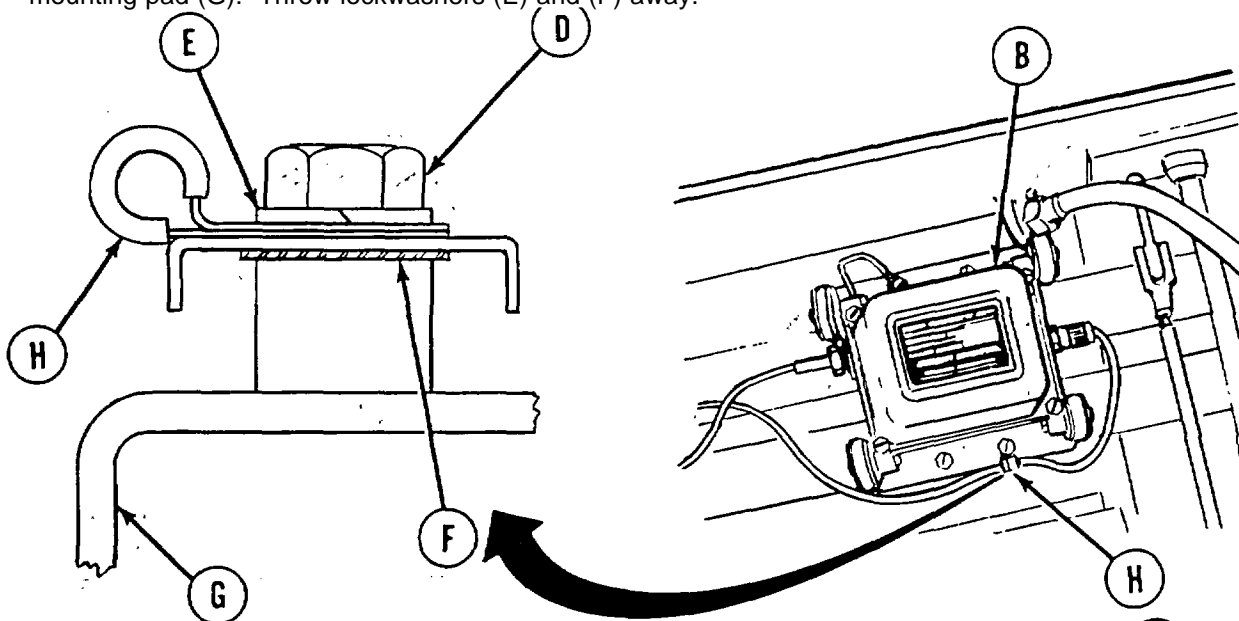
Go on to Sheet 2

TA147236

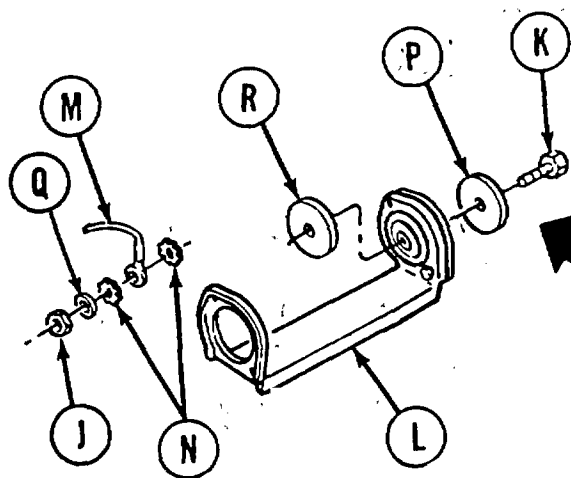
**INFRARED POWER SUPPLY AND SHOCK MOUNT ASSEMBLY REPLACEMENT**

(Sheet 2 of 5)

- Using 1/2 inch socket, remove four screws (D), lockwashers (E), and lockwashers (F) securing power supply (B) to mounting pad (G). Throw lockwashers (E) and (F) away.



- Remove clamp (H).
- Move power supply (B) from tank to bench.
- Using 7/16 inch wrench to hold nut (J), use 7/16 inch socket and remove four screws (K) and nuts (J) securing power supply (B) to bracket (L).



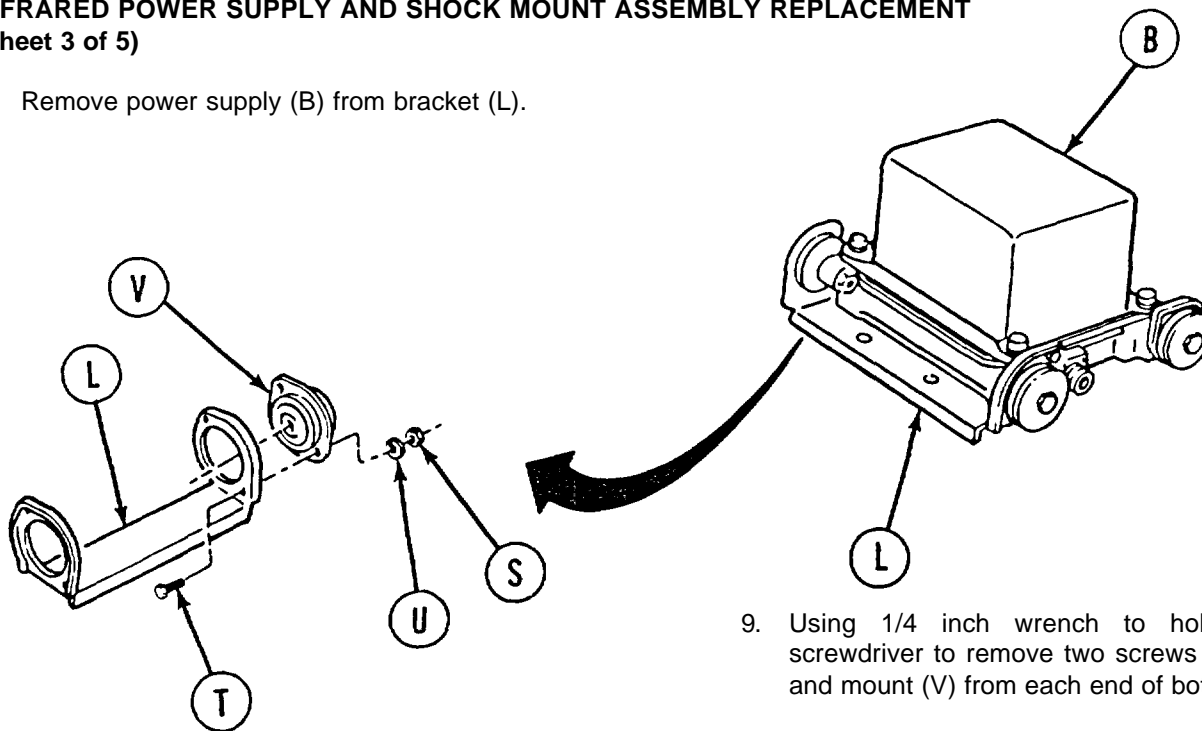
- Remove ground strap (M), two washers (N), four washers (P), washers (Q), and washers (R) from bracket (L).

Go on to Sheet 3

TA147237

**INFRARED POWER SUPPLY AND SHOCK MOUNT ASSEMBLY REPLACEMENT**  
 (Sheet 3 of 5)

8. Remove power supply (B) from bracket (L).



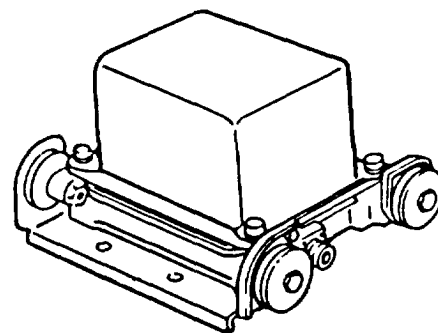
9. Using 1/4 inch wrench to hold nut (S), use screwdriver to remove two screws (T), washers (U), and mount (V) from each end of both brackets (L).

**INSPECTION:**

1. Inspect all parts for defects.
2. Replace any defective parts.

**NOTE**

**Mounting hardware used to mount power supply to brackets is same for both ends of each bracket, except for end of bracket not shown on illustration. Mounting hardware for hidden bracket is described in step 4.**



Go on to Sheet 4

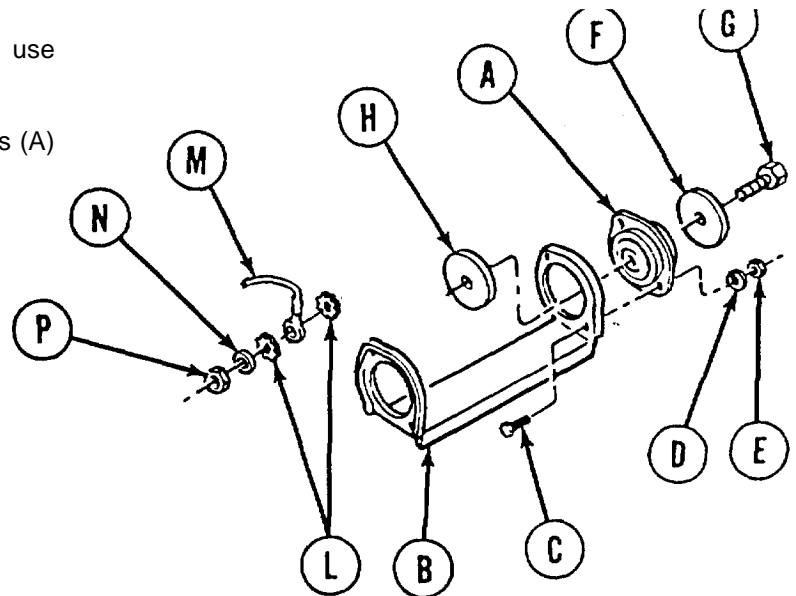
TA147238

**INFRARED POWER SUPPLY AND SHOCK MOUNT ASSEMBLY REPLACEMENT**

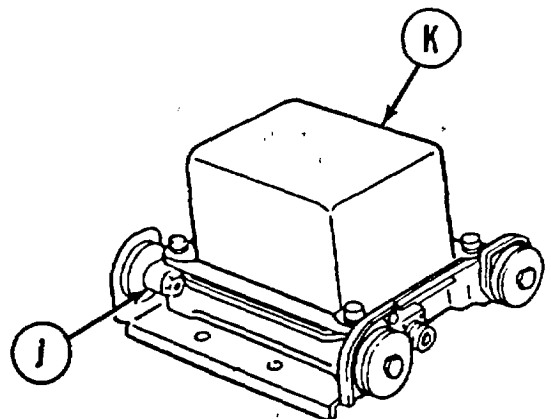
(Sheet 4 of 5)

**INSTALLATION:**

1. Position mount (A) on outside of bracket (B). Insert screw (C) through inside of bracket (B). Install mount (A), washer (D), and nut (E) onto screw (C).
2. Using 1/4 inch wrench to hold nut (E), use screwdriver to tighten screw (C).
3. Repeat steps 1 and 2 to install remaining mounts (A) into brackets (B).



4. Position washer (F) on screw (G). Install screw (G) through mount (A), washer (H), hole (J) in power supply (K), washer (L), ground strap (M), washer (L), and washer (N). Using 7/16 inch wrench to hold screw (G), use 7/16 inch socket to tighten nut (P).
5. Using same procedure described in step 4, except omitting washers (L) and ground strap (M) install Dower supply (K) onto brackets (B).



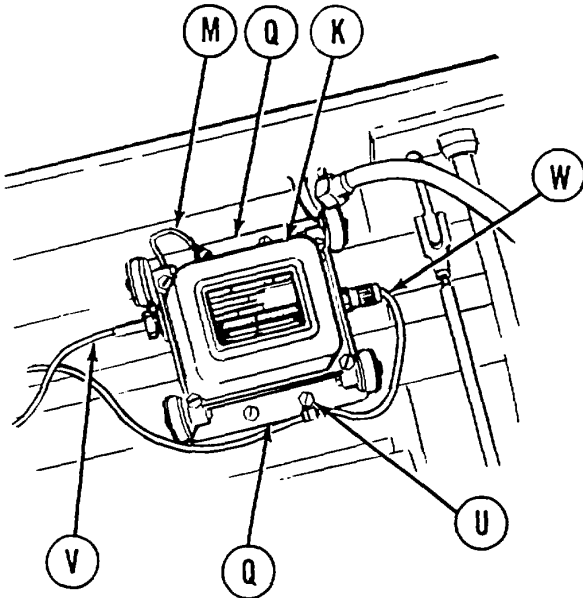
Go on to Sheet 5

TA147239

**INFRARED POWER SUPPLY AND SHOCK MOUNT ASSEMBLY REPLACEMENT**

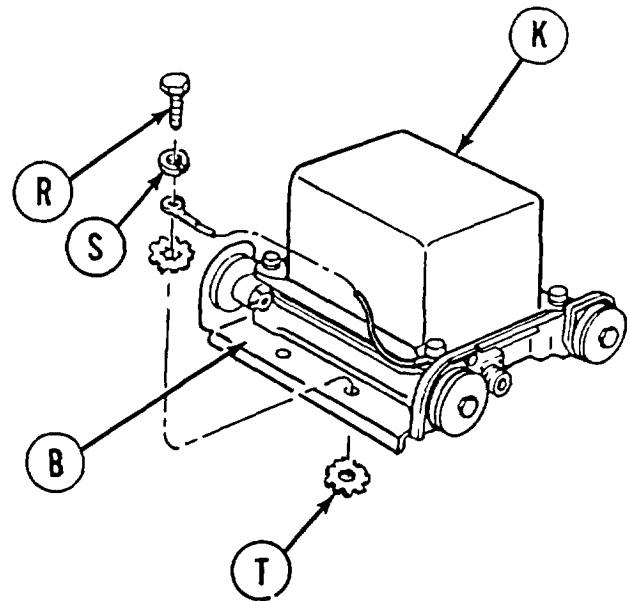
(Sheet 5 of 5)

6. Position assembled power supply (K) onto mounting pad (Q) inside turret.



7. Install screw (R) through new lockwasher (S), ground strap (M), bracket (B), and new lockwasher (T). Using 1/2 inch socket tighten screw (R) into mounting pad (Q).

8. Install screw (R) through new lockwasher (S), clamp (U), bracket (B), and new lockwasher (T). Using 1/2 inch socket tighten screw (R) into mounting pad (Q).



9. Using same procedure as described in step 8, except omitting clamp (U), install two screws (R), new lockwashers (S), and new lockwashers (T) and secure bracket (B) to mounting pad (Q).

10. Using 1 inch wrench, install connector on cable (V) to power supply (K).

11. Using 7/8 inch wrench, install connector on cable (W) to power supply (K).

12. Close turret platform access door (TM 9-2350-260-10).

TA147240

End of Task



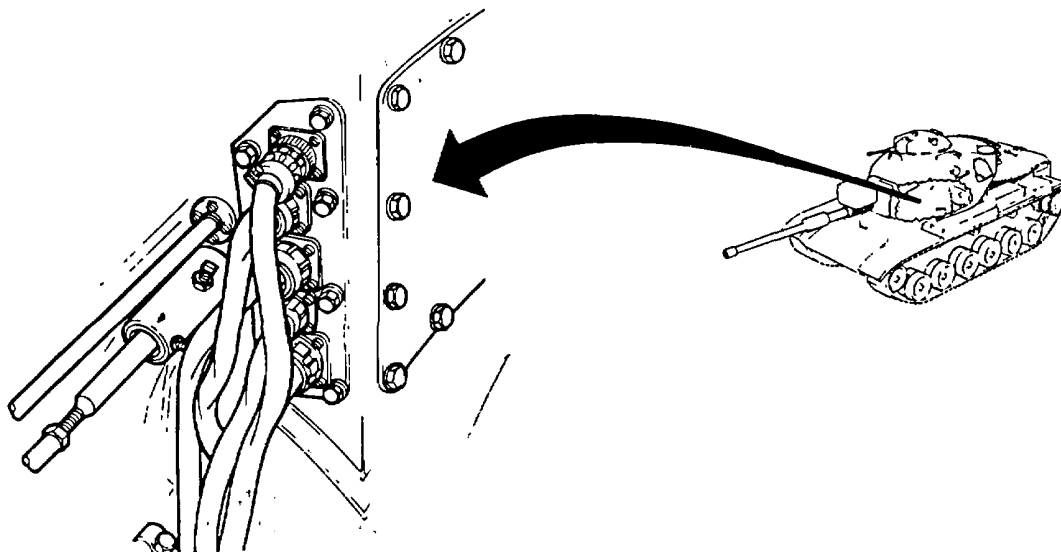
**BULKHEAD RECEPTACLE MOUNTING PLATE REPLACEMENT (Sheet 1 of 3)**

**TOOLS:** 9/16 in. socket with 1/2 in. drive  
 5 in. extension with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 Flat-tip screwdriver  
 Spanner wrench

**SUPPLIES:** Tags and pencil  
 Gasket (10863524)  
 Gasket (8762240)  
 Gasket (MS51007-13)

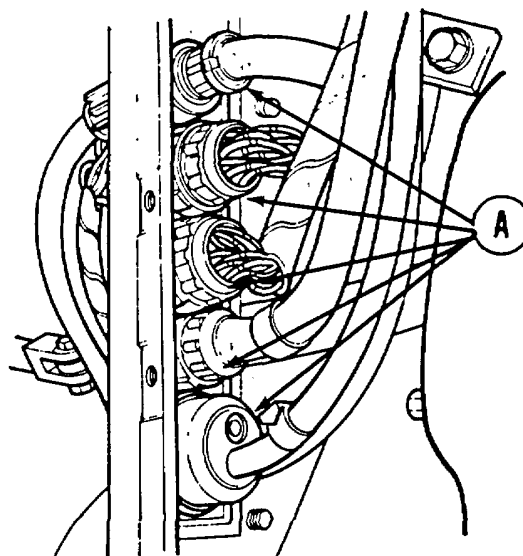
Gasket (MS52000-8)  
 Gasket (MS51007-8)  
 Gasket (MS52000-10)

**PRELIMINARY PROCEDURE:** Remove right side bulkhead access cover (page 16-37)



**REMOVAL:**

1. Using spanner wrench, disconnect five connectors (A).



Go on to Sheet 2

TA147241

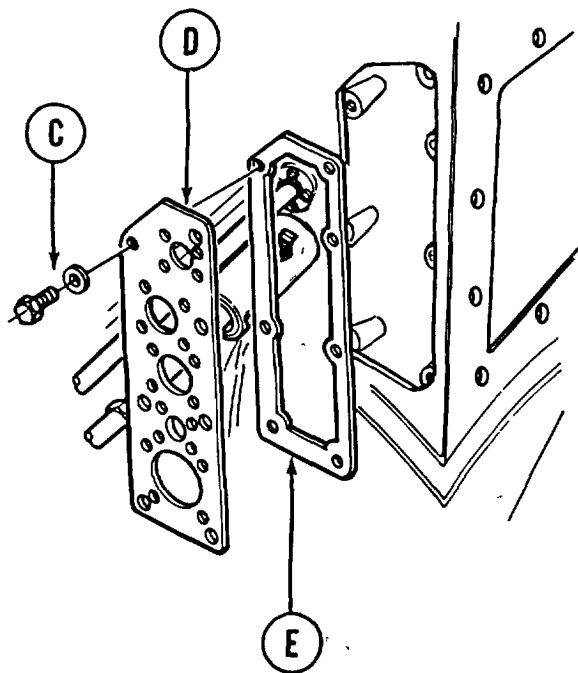
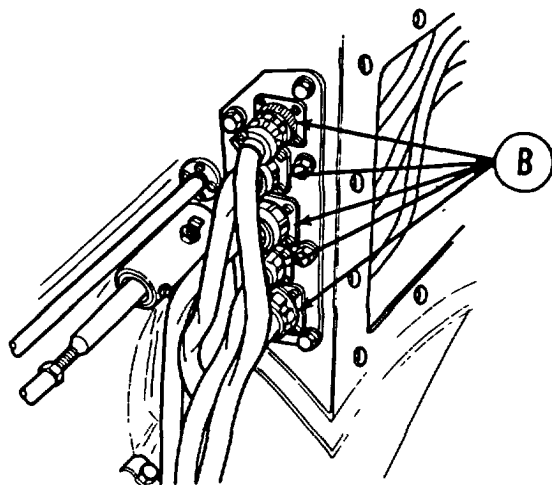
**BULKHEAD RECEPTACLE MOUNTING PLATE REPLACEMENT (Sheet 2 of 3)**

- Using screwdriver, remove four screws and washers securing each of five cable connectors (B).

**NOTE**

Identify and tag each cable connector as you remove them.

- Remove cable connectors (B) and then gaskets. Throw gasket away.



- Using 9/16 inch socket, remove seven screws and washers (C) securing plate (D).
- Remove plate (D) and gasket (E). Throw gasket away.

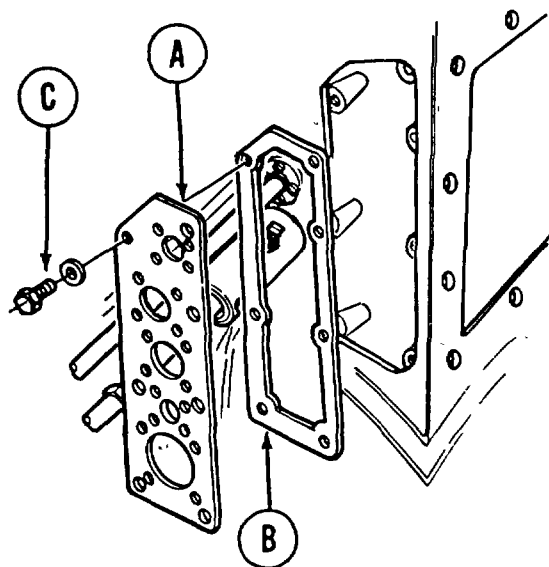
Go on to Sheet 3

TA147242

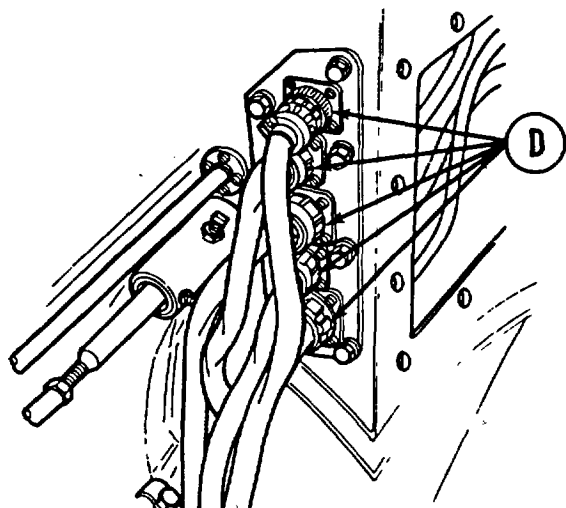
**BULKHEAD RECEPTACLE;MOUNTING PLATE REPLACEMENT (Sheet 3 of 3)**

**INSTALLATION:**

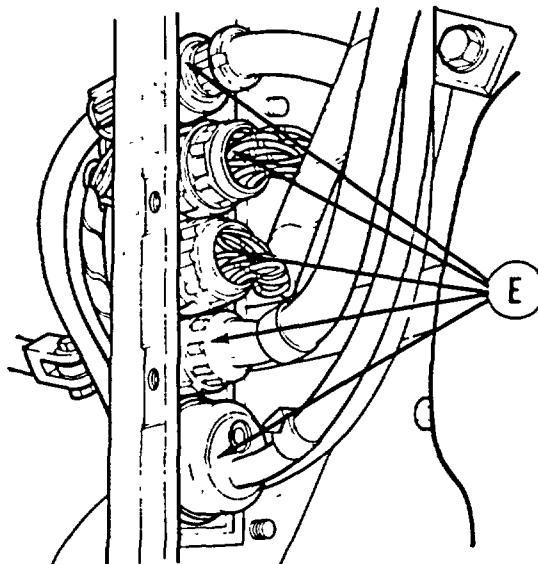
1. Position plate (A) and gasket (B) to bulkhead.
2. Using 9/16 inch socket, install and securing seven screws and washers (C) to secure plate (A) and new gasket (B) to bulkhead.



3. Position cable connectors (D) and new gaskets as noted during removal onto plate (A).
4. Using screwdriver, install four screws and washers to secure each of five cable connectors (D) to plate (A).



5. Using spanner wrench, connect five connectors (E) to their corresponding connector.
6. Install right side bulkhead access cover (page 16-38).



End of Task

TA147243

**HEADLIGHT BEAM SELECTOR SWITCH ASSEMBLY REPLACEMENT (Sheet 1 of 1)**

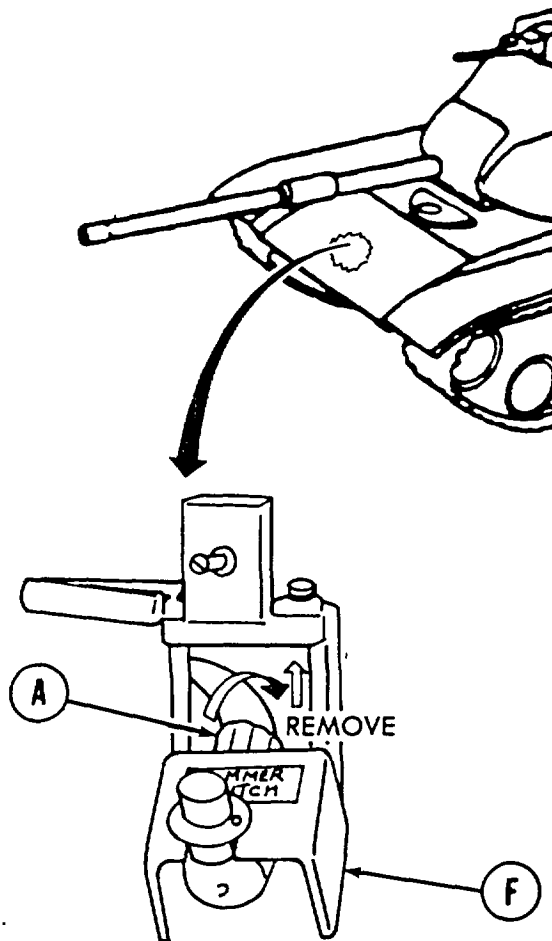
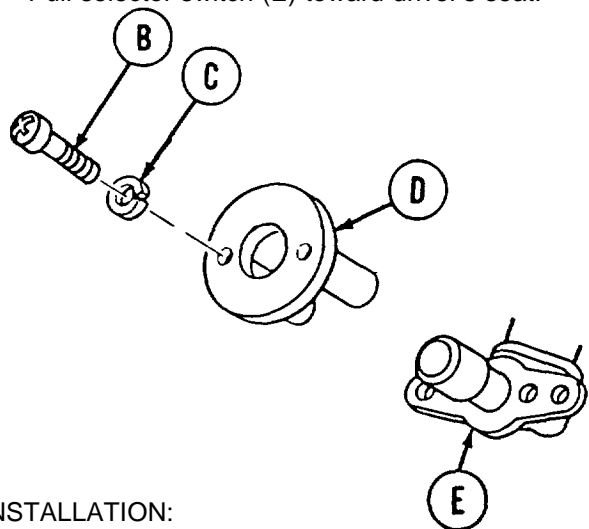
TOOLS: Cross-tip screwdriver  
Spanner wrench

SUPPLIES: Lockwasher (MS35336-27) (2 required)

REFERENCE: TM 9-2350-260-10

REMOVAL:

1. Using wrench, disconnect electrical connector (A).
2. Using screwdriver, remove two screws (B) and lockwashers (C). Throw lockwashers away.
3. Remove guard (D).
4. Pull selector switch (E) toward driver's seat.



INSTALLATION:

1. Place selector switch (E) in position on mounting bracket (F).
2. Using wrench, connect electrical connector (A).
3. Place guard (D) on selector switch (E).
4. Using screwdriver, install two screws (B) and new lockwashers (C).

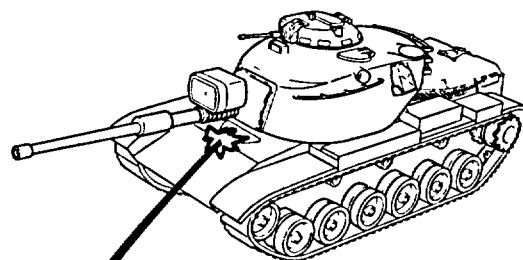
End of Task

TA147244

**POWERPLANT WARNING LIGHT ASSEMBLY REPLACEMENT (Sheet 1 of 3)**

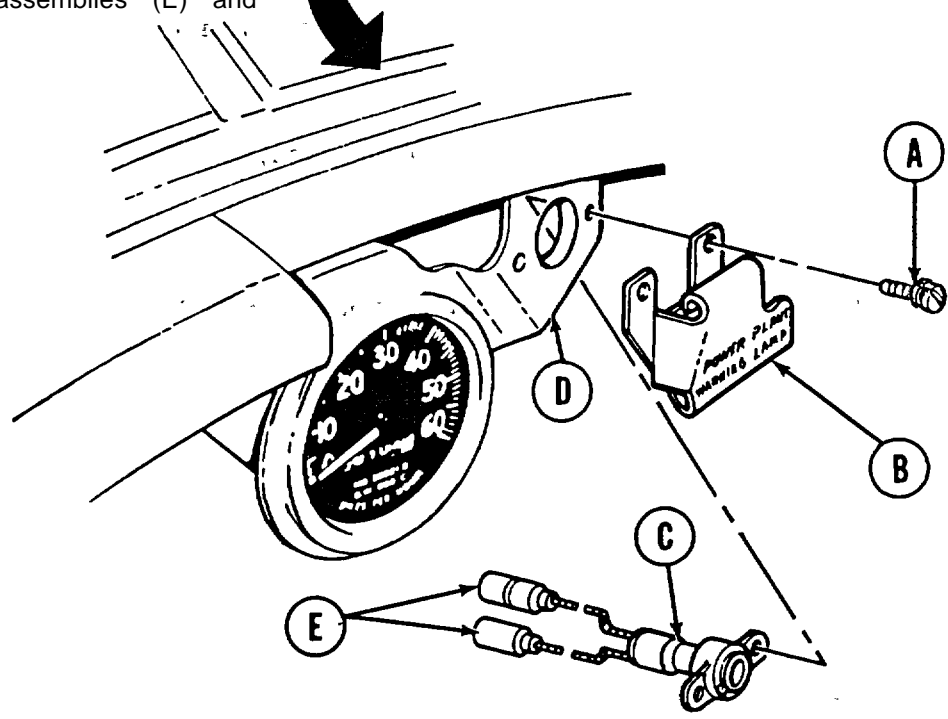
TOOLS: Flat-tip screwdriver

SUPPLIES: Lint free cloth (Item 12, Appendix D)  
 Steel wool (Item 55, Appendix D)  
 Silicone compound (Item 32, Appendix D)  
 Gasket (7353562)



REMOVAL:

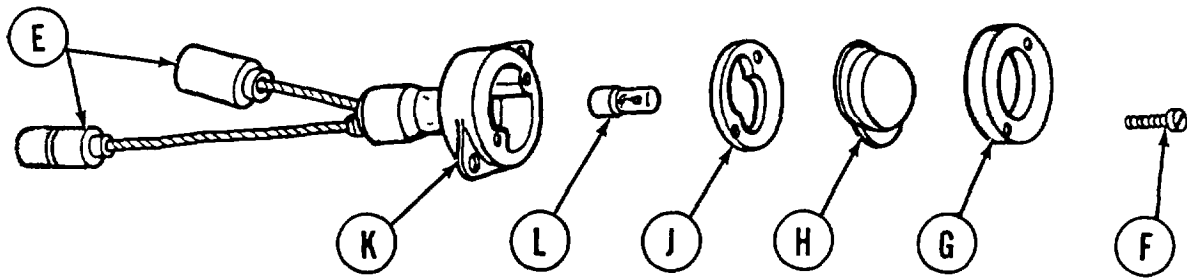
1. Using screwdriver, remove two assembled washer screws (A).
2. Remove light deflector (B).
3. Using fingers, work loose indicator light (C) from bracket (D).
4. Disconnect two connector assemblies (E) and remove indicator light (C).



Go on to Sheet 2

TA147245

## POWERPLANT WARNING LIGHT ASSEMBLY REPLACEMENT (Sheet 2 of 3)



5. Using screwdriver, remove two screws (F).
6. Remove door (G), lens (H), and gasket (J) from frame (K). Throw gasket away.
7. Press in on lamp (L), turn counterclockwise slightly, and remove.

## CLEANING AND INSPECTION:

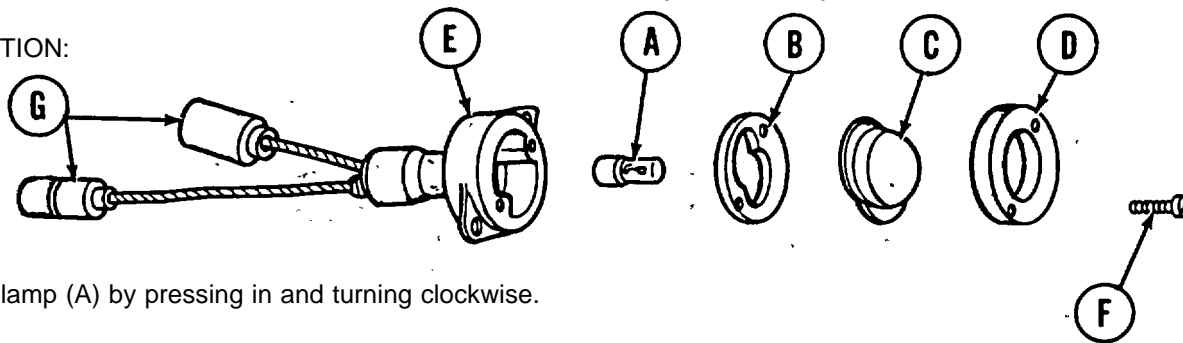
1. Clean light deflector and lens with moist, lint-free cloth (Item 12, Appendix D).
2. Using steel wool (Item 55, Appendix D) remove any corrosion from terminals in connector assemblies (E).
3. Inspect all parts for damage or wear. Replace any defective part.

Go on to Sheet 3

TA147246

**POWERPLANT WARNING LIGHT ASSEMBLY REPLACEMENT (Sheet 3 of 3)**

**INSTALLATION:**

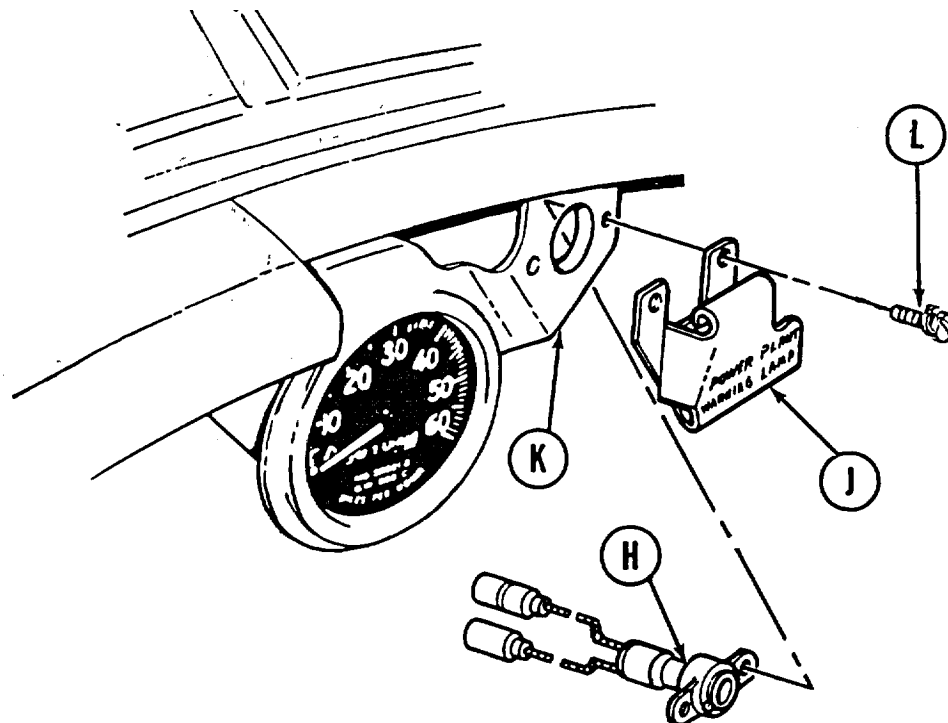


1. Install lamp (A) by pressing in and turning clockwise.
2. Attach new gasket (B), lens (C), and door (D) to frame (E).
3. Using screwdriver, install two screws (F).

**NOTE**

**Apply silicone compound (Item 32, Appendix D) to mating surfaces to connector (G).**

4. Attach two connector (G).
5. Position indicator light (H) and light reflector (J) on bracket (K).
6. Using screwdriver, install two assembled washer screws (L).
7. Place MASTER CONTROL switch ON and check that lamp (A) lights.



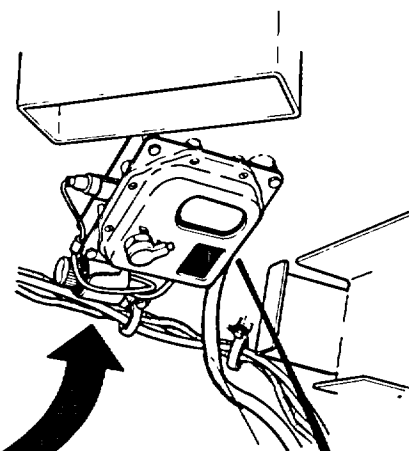
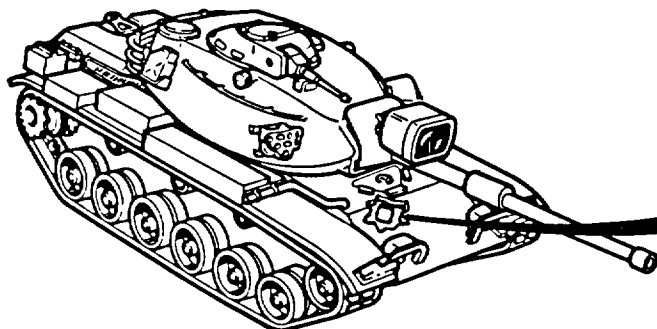
End of Task

**DOMELIGHT ASSEMBLY REPLACEMENT (Sheet 1 of 2)**

**TOOLS:** Ratchet with 1/2 in. drive  
 7/16 in. socket with 1/2 in. drive  
 5 in. extension with 1/2 in. drive

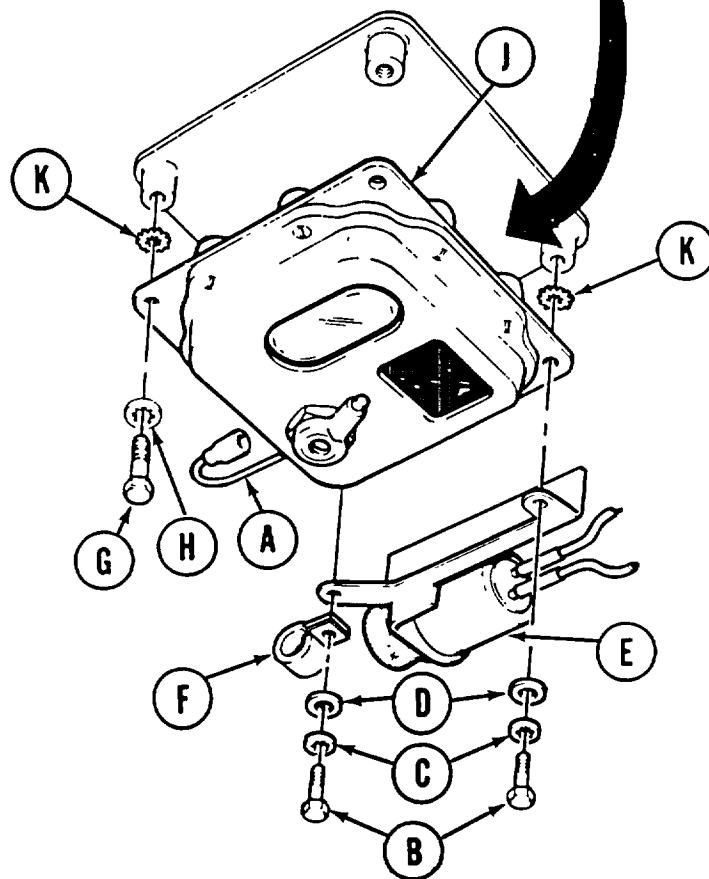
**SUPPLIES:** Lockwasher (MS35333-40) (4 required)  
 Lockwasher (MS45904-68) (4 required)

**REFERENCE:** TM 9-2350-260-10



**REMOVAL:**

1. Using fingers, disconnect electrical connectors (A).
2. Using socket, remove two screws (B), lockwashers (C), and flat washers (D). Throw lockwashers (C) away.
3. Remove variable resistor assembly (E) and clamp (F).
4. Using socket, remove two remaining screws (G) and lockwashers (H). Throw lockwashers (H) away.
5. Remove domelight assembly (J) and four lockwashers (K). Throw lockwashers (K) away.



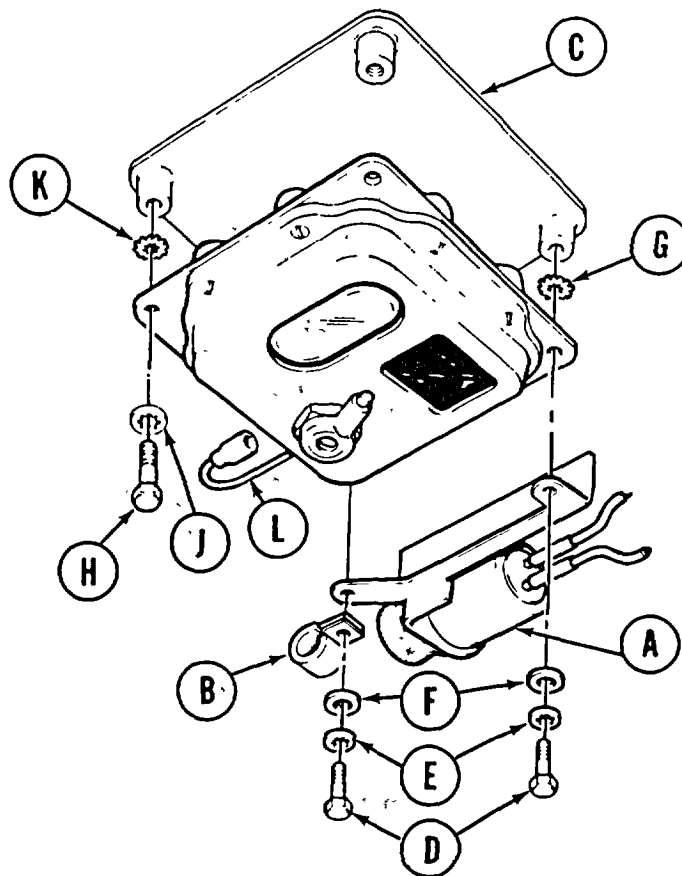
Go on to Sheet 2

TA147248



**DOMELIGHT ASSEMBLY REPLACEMENT (Sheet 2 of 2)****INSTALLATION:**

1. Place resistor assembly (A) and clamp (B) in position on domelight assembly (C).
2. Insert two screws (D), new lockwashers (E), and flat washers (F) in screw holes of domelight assembly.
3. Place two new lockwashers (G) over screws (D).
4. Aline domelight (C) on mounting bracket of tank.
5. Tighten screws (D) with fingers.
6. Using socket, install two remaining screws (H), new lockwashers (J), and new lockwashers (K).
7. Using socket, tighten two screws (H).
8. Using fingers connect electrical connectors (L).



End of Task

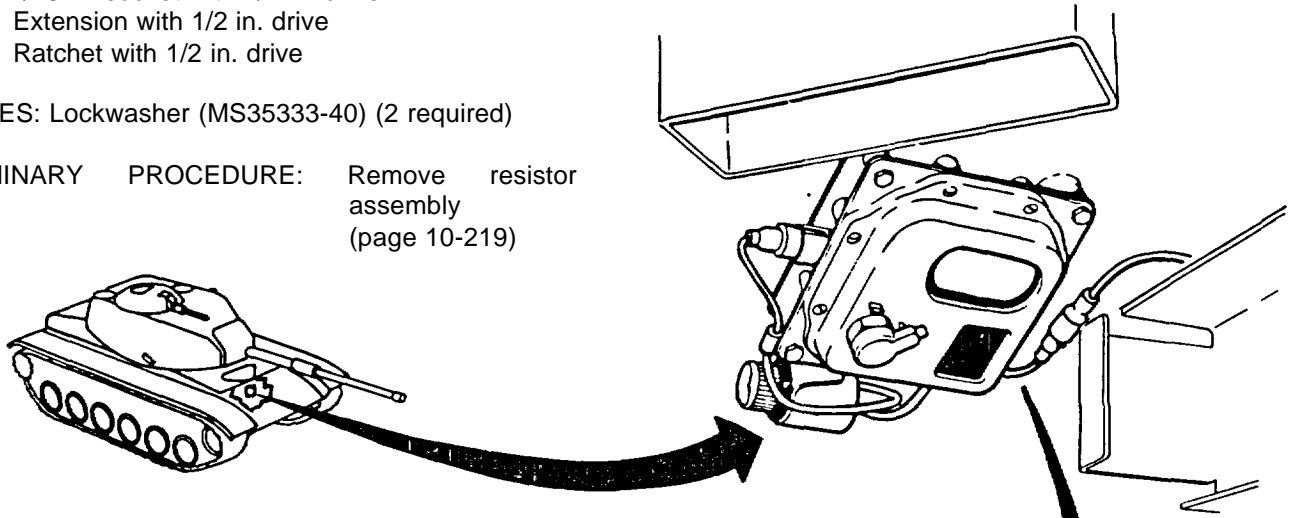
TA147249

**DOMELIGHT RESISTOR ASSEMBLY BRACKET REPLACEMENT (Sheet 1 of 1)**

**TOOLS:** 7/16 in. socket with 1/2 in. drive  
 Extension with 1/2 in. drive  
 Ratchet with 1/2 in. drive

**SUPPLIES:** Lockwasher (MS35333-40) (2 required)

**PRELIMINARY PROCEDURE:** Remove resistor assembly (page 10-219)

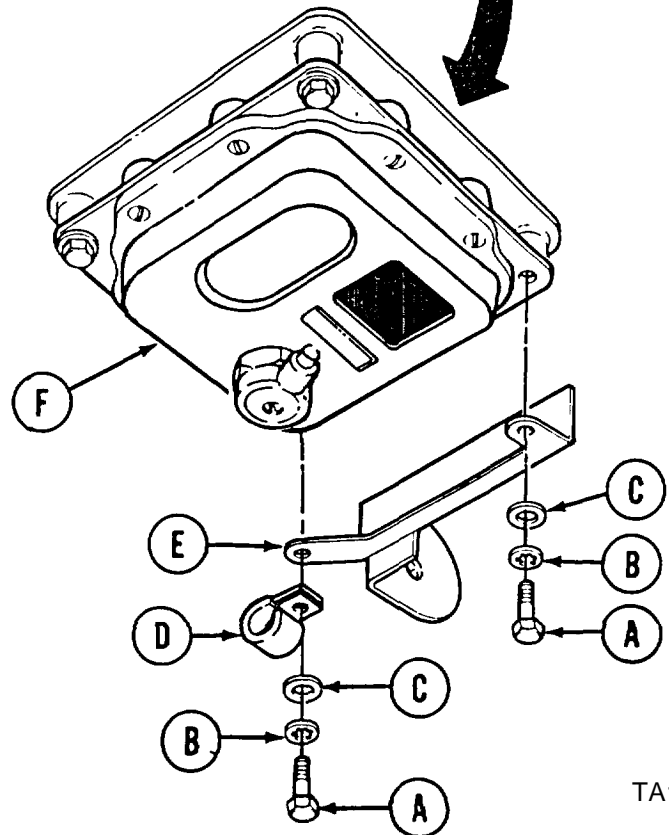


**REMOVAL:**

1. Using socket remove two screws (A), lockwashers (B), and washers (C). Throw lockwashers away.
2. Remove clamp (D) and bracket (E).

**INSTALLATION:**

1. Position bracket holes and clamp (D) with holes in domelight assembly (F).
2. Place new lockwashers (B) and washers (C) on two screws (A).
3. Insert through holes in positioned parts of step 1.
4. Using socket, tighten screws (A).
5. Install resistor assembly (page 10-220).



End of Task

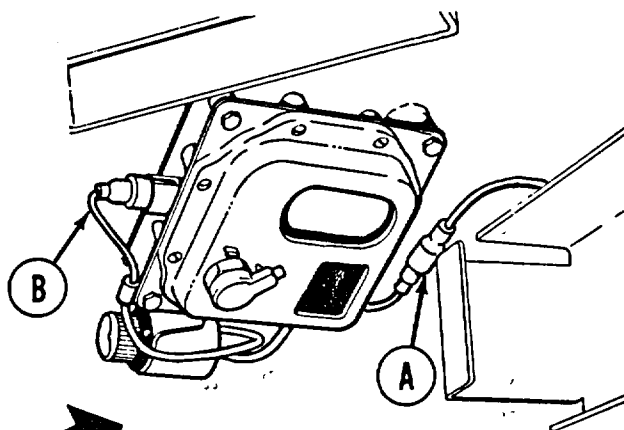
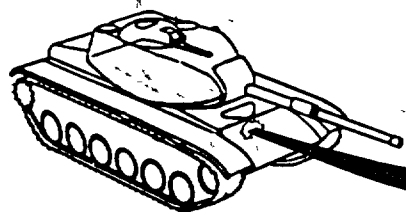
TA147250

**DOMELIGHT RESISTOR ASSEMBLY REPLACEMENT (Sheet 1 of 2)**

**TOOLS:** Ratchet with 1/2 in. drive  
 3 in. extension with 1/2 in. drive  
 7/16 in. socket with 1/2 in. drive  
 9/16 in. combination box and open end wrench  
 Hose clamp pliers  
 3/32 in. socket head screw key (allen wrench)

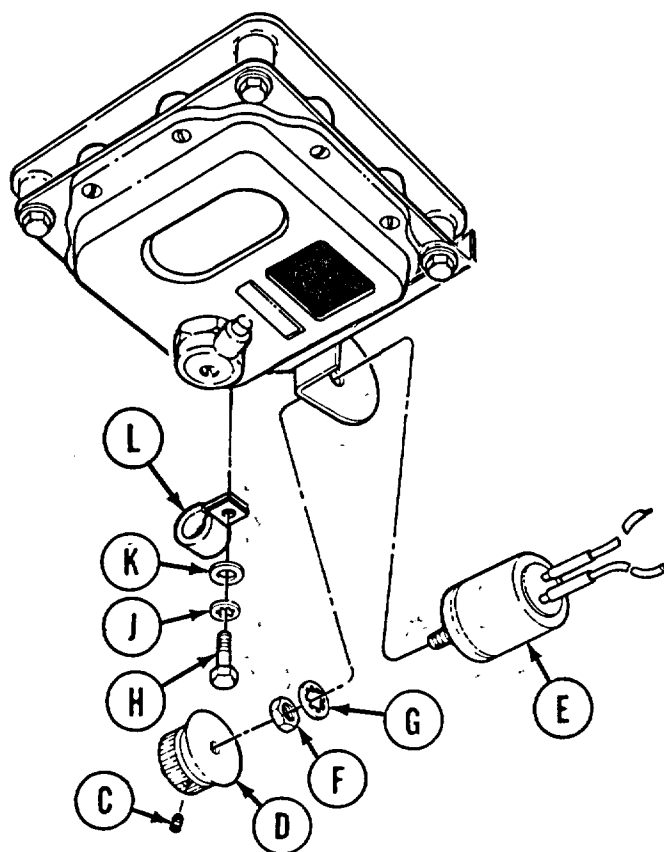
**SUPPLIES:** Lockwasher (MS35333-40)

**REFERENCE:** TM 9350-260-10



**REMOVAL:**

1. Disconnect electrical connectors (A) and (B).
2. Using allen wrench loosen two setscrews (C).
3. Slide knob (D) off shaft of resistor assembly (E).
4. Using box wrench on nut (F) and pliers on resistor assembly (E), remove nut (F) and washer (G).
5. Using socket, remove screw (H), lockwasher (J), washer (K), and clamp (L). Throw lockwasher away.
6. Open clamp (L) to release resistor assembly wires.
7. Remove resistor assembly (E).



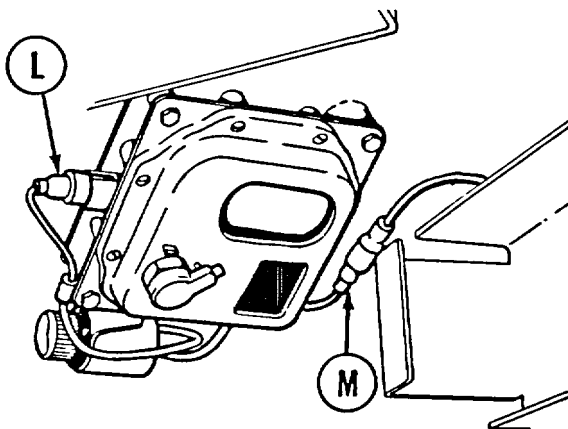
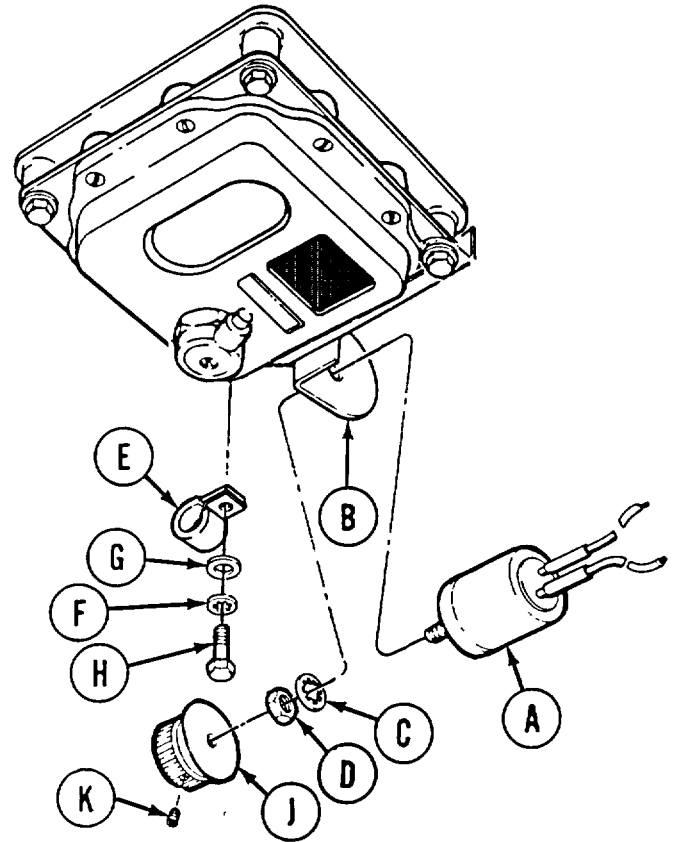
Go on to Sheet 2

TA147251

**DOMELIGHT RESISTOR ASSEMBLY REPLACEMENT (Sheet 2 of 2)**

**INSTALLATION:**

1. Position resistor assembly (A) in domelight resistor assembly bracket (B).
2. Place new washers (C) and nut (D) on resistor assembly (A).
3. Using box wrench on nut (D) and plies on resistor assembly (A), tighten nut (D).
4. Open clamp (E) enough to insert wires of resistor assembly (A).
5. Place new lockwasher (F), flat washer (G), and clamp (E) on screw (H).
6. Using socket, tighten screw (H).
7. Slide knob (J) on resistor assembly (A).
8. Using allen wrench, tighten two setscrews (K).



9. Connect electrical connector (L) and (M).
10. Perform functional test (TM 9-2350-260-10).

End of Task

TA147252

## DOMELIGHT ASSEMBLY REPAIR (Sheet 1 of 8)

## PROCEDURE INDEX

PROCEDURE	PAGE
Disassembly	10-221
Cleaning and Inspection	10-225
Assembly	10-225

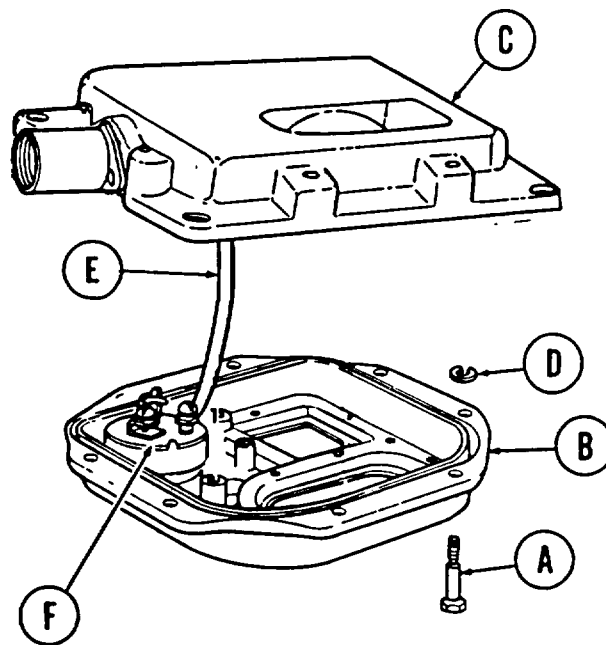
TOOLS: Flat-tip screwdriver  
 Cross-tip screwdriver  
 8 in. adjustable wrench  
 Long round nose pliers (needle nose)

SUPPLIES: Lockwasher (MS35335-30) (5 required)  
 Gasket (7320655)

PRELIMINARY PROCEDURE: Remove domelight (page 10-211)

## DISASSEMBLY:

1. Using flat-tip screwdriver, unscrew eight captive screws (A).
2. Separate door assembly (B) from body assembly (C).
3. Using flat-tip screwdriver, remove electrical lead (E) from rotary switch (F).
4. Using needle nose pliers, remove eight rings (D) from captive screws (A). Remove captive screws (A).

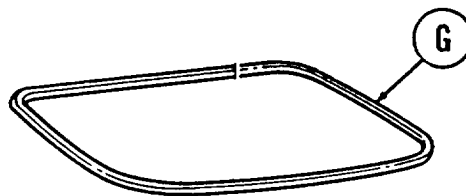


Go on to Sheet 2

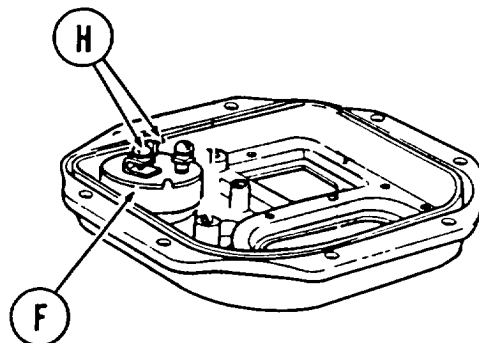
TA147253

**DOMELIGHT ASSEMBLY REPAIR (Sheet 2 of 8)**

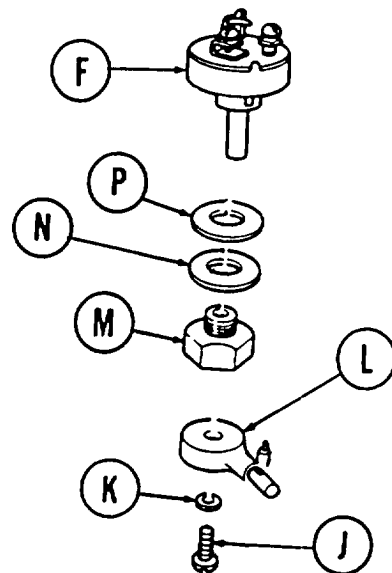
- Using flat-tip screwdriver, remove door gasket (G) by inserting under gasket and lifting up.



- Using flat-tip screwdriver, remove two remaining electrical leads (H) from switch (F).



- Using flat-tip screwdriver, remove screw (J) and lockwasher (K) securing knob (L). Remove knob (L). Throw lockwasher (K) away.



- Using crescent wrench, remove nut assembly (M), washer (N), and gasket (P). Throw gasket away.

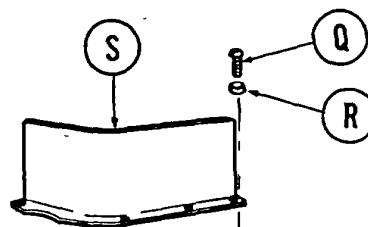
- Remove rotary switch (F).

Go on to Sheet 3

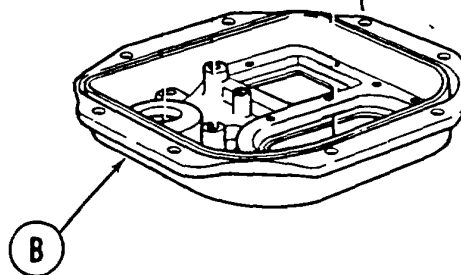
TA147254

**DOMELIGHT ASSEMBLY REPAIR (Sheet 3 of 8)**

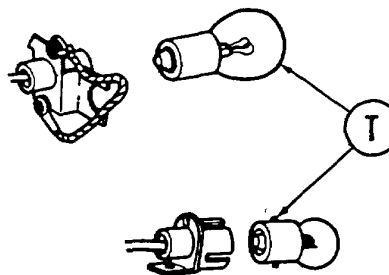
10. Using cross-tip screwdriver, remove four screws (Q) and lockwashers (R) from partition (S). Throw lockwashers away.



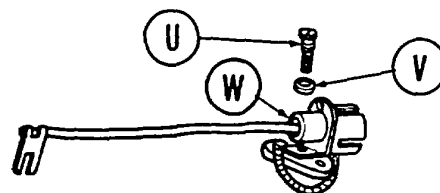
11. Remove partition (S) from door assembly (B).



12. Remove two lamps (T) by pushing in and turning counterclockwise.

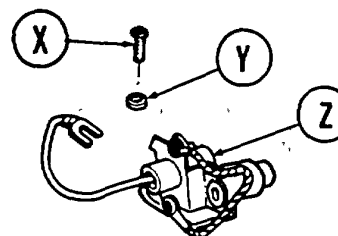


13. Using flat-tip screwdriver, remove two screws (U) and flat washers (V) holding red socket assembly (W) in place.



14. Remove red socket assembly (W).

15. Using cross-tip screwdriver, remove two screws (X) and flat washers (Y) holding the white socket assembly (Z) in place.

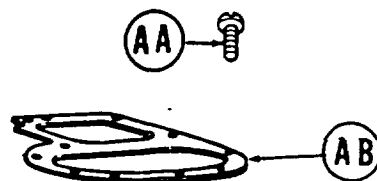


16. Remove white socket assembly (Z).

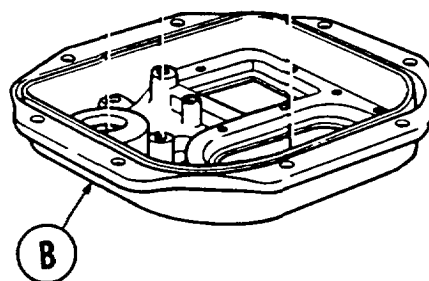
Go on to Sheet 4

**DOMELIGHT ASSEMBLY REPAIR (Sheet 4 of 8)**

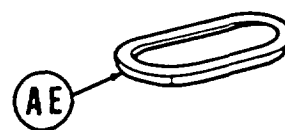
17. Using cross-tip screwdriver, remove seven screws (AA) from retaining plate (AB).



18. Remove retaining plate (AB).



19. Remove red lens (AC) and gasket (AD) by pushing up from outside of door assembly (B).



20. Remove white lens (AE) and gasket (AF) in same manner as red lens.

Go on to Sheet 5



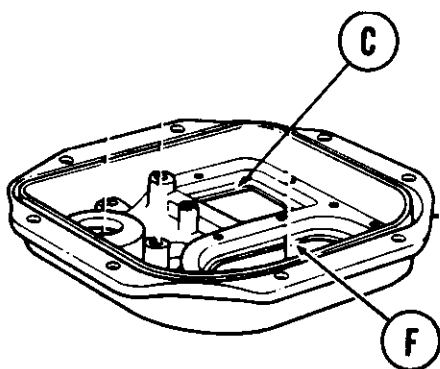
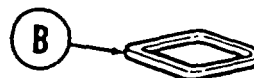
**DOMELIGHT ASSEMBLY REPAIR (Sheet 5 of 8)**

**CLEANING AND INSPECTION:**

1. Inspect domelight and components for cleanliness and corrosion. Replace any components that cannot be cleaned:
  
2. Inspect for mechanical damage and wear. If worn or damaged, replace.
  
3. Inspect domelight components for cracks. If any items are cracked, replace them.
  
4. Inspect all gaskets for damage. If damaged, replace.

**ASSEMBLY:**

1. Place red lens (A) and gasket (B) in position (C) on door assembly.



2. Place white lens (D) and gasket (E) in position (F) on door assembly.

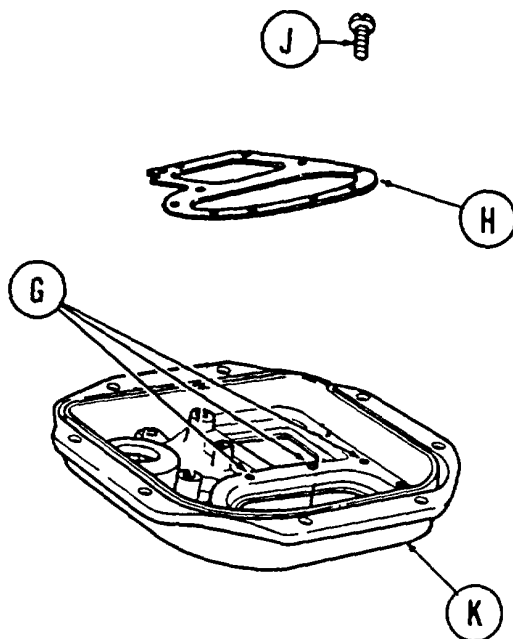
Go on to Sheet 6

DOMELIGHT ASSEMBLY REPAIR (Sheet 6 of 8)

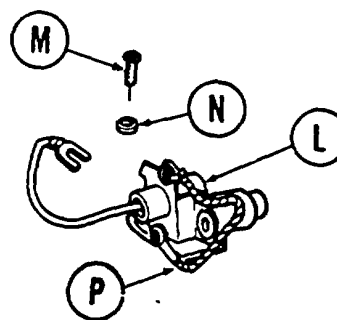
NOTE

Do not place screws in three holes (G) shown.

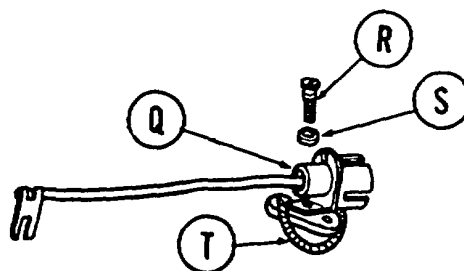
- Using cross-tip screwdriver, install retaining plate (H) and seven screws (J) to door assembly (K).



- Using cross-tip screwdriver, install white socket assembly (L), two screws (M), new lockwashers (N), and ground strap (P).



- Using flat-tip screwdriver, install red socket assembly (Q), two screws (R), new lockwashers (S), and ground cable (T).

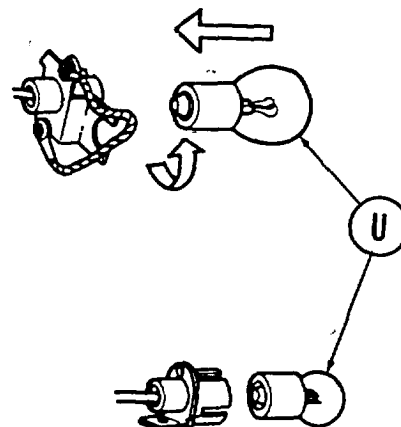


Go on to Sheet 7

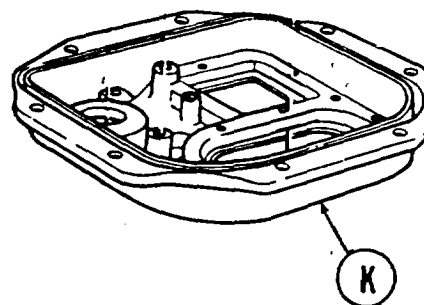
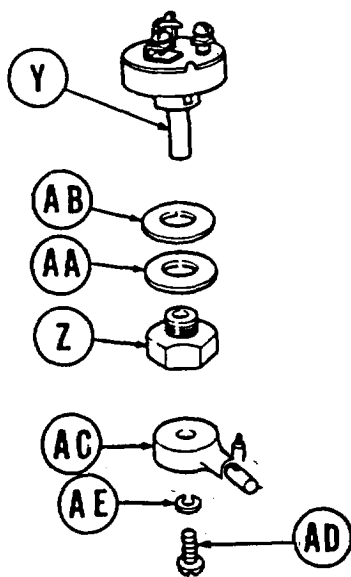
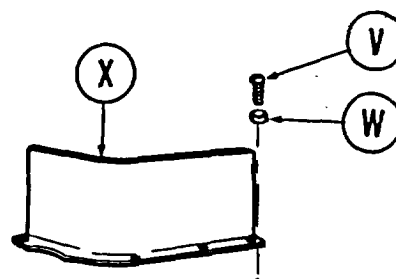
TA147258

**DOMELIGHT ASSEMBLY REPAIR (Sheet 7 of 8)**

6. Install two lamps (U) in position: large lamp to white, small lamp to red.



7. Using cross-tip screwdriver, install four screws (V) and new lockwashers (W) to secure partition (X) to door assembly (K).



8. Place rotary switch (Y) in position on door assembly.
9. Using crescent wrench, install nut (Z), washer (AA), and new gasket (AB).
10. Using flat-tip screwdriver, install knob (AC), screw (AD), and new lockwasher (AE).

Go on to Sheet 8

TA147259

**DOMELIGHT ASSEMBLY REPAIR (Sheet 8 of 8)**

11. Using flat-tip screwdriver, install lead from white socket assembly to connector (AF) which is marked 'W' on switch (Y).

12. Using flat-tip screwdriver, install lead from red socket assembly to connector (AG) which is marked 'R' on switch (Y).

13. Using fingers, install door gasket (AH) in gasket groove of door assembly (K).

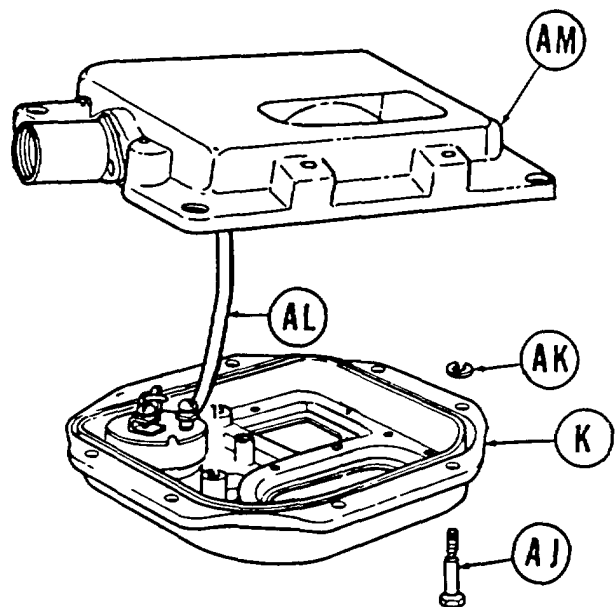
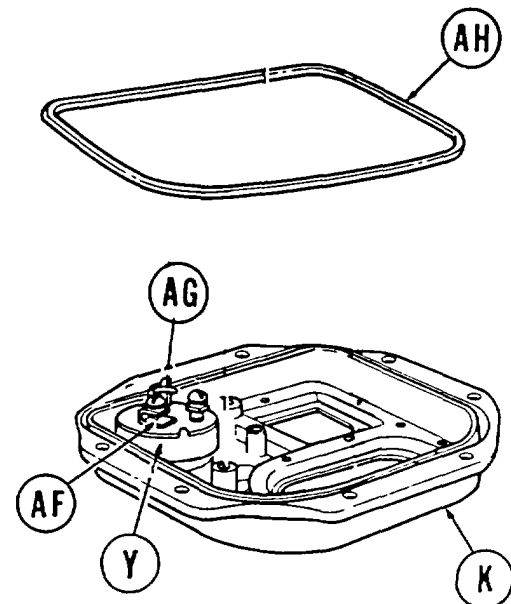
14. Using fingers, install eight captive screws (AJ).

15. Using needle nose pliers, install eight rings (AK) on captive screws (AJ).

16. Using flat-tip screwdriver, install lead (AL) on remaining connector of switch (Y).

17. Using flat-tip screwdriver, tighten eight captive screws (AJ) securing door assembly (K) to body assembly (AM).

18. Install domelight (page 10-217).



End of Task

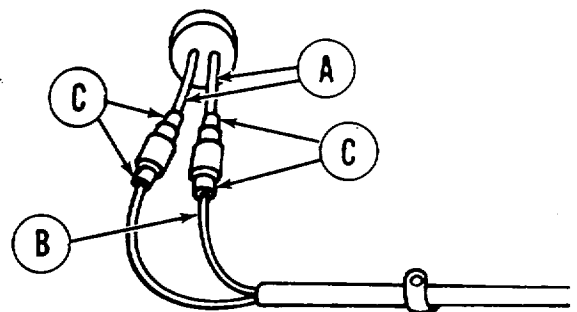
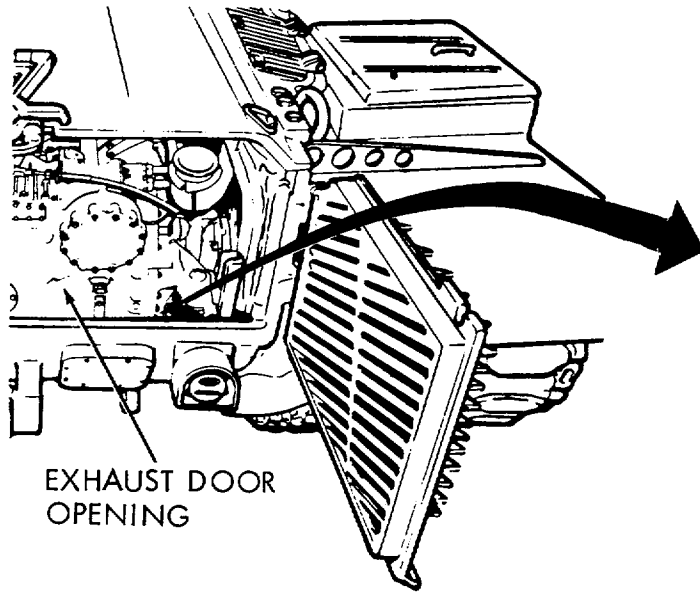
TA147260

**RIGHT TAILLIGHT -STOPLIGHT ASSEMBLY REPLACEMENT (Sheet 1 of 3)**

**TOOLS:** 9/16 in. combination box and open end wrench

**SUPPLIES:** Silicone compound (Item 32, Appendix D)  
Masking tape (Item 57, Appendix D)  
Pencil  
Lockwasher (MS35335-32)(2 required)

**PRELIMINARY PROCEDURE:** Remove transmission shroud (page 9-20)



CONNECTIONS FOR RIGHT TAILLIGHT-STOPLIGHT ASSEMBLY

**REMOVAL:**

**NOTE**

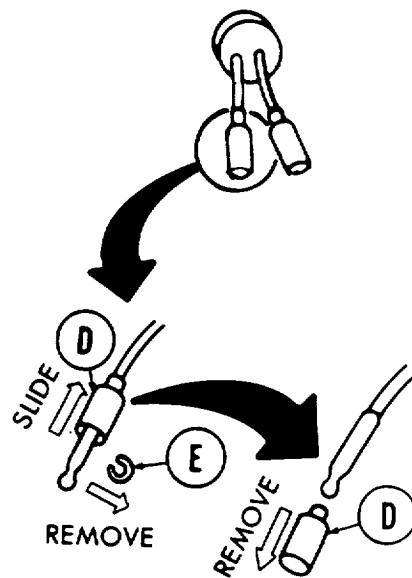
Inspect leads (A) and leads (B) for numbered tags (C) 23 and 24. If leads do not have tags, use masking tape (Item 57, Appendix D) and pencil to number leads.

1. Reach through exhaust door opening and disconnect two leads (A) from hull connectors (B).
2. Slide two connector shells (D) back on taillight leads to expose two dotted washers (E).

**NOTE**

Lubricant may be needed on leads (A) to remove shells (D).

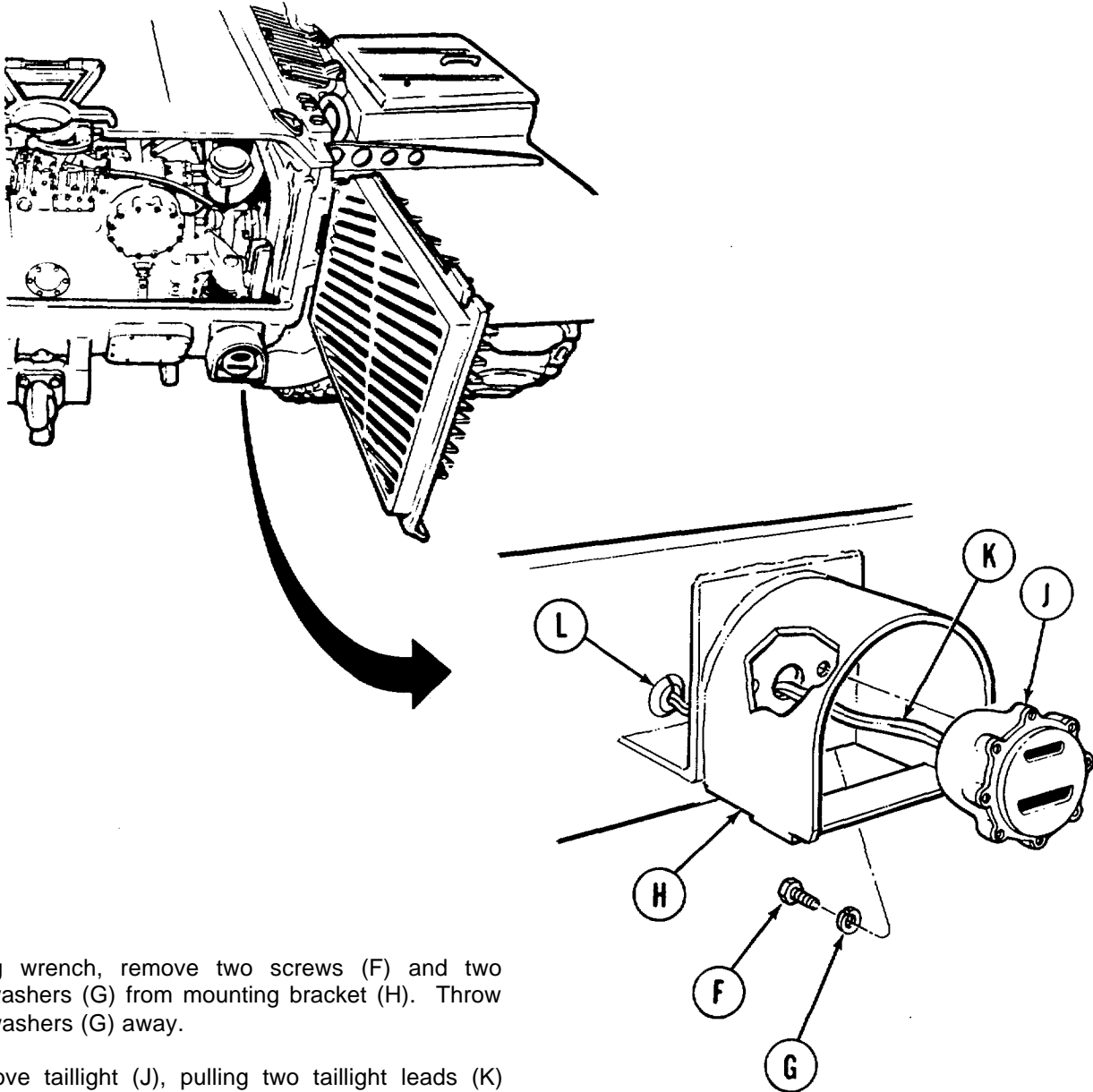
3. Remove two dotted washers (E) and two shells (D).



Go on to Sheet 2

TA147261

## RIGHT TAILLIGHT -STOPLIGHT ASSEMBLY REPLACEMENT (Sheet 2 of 3)



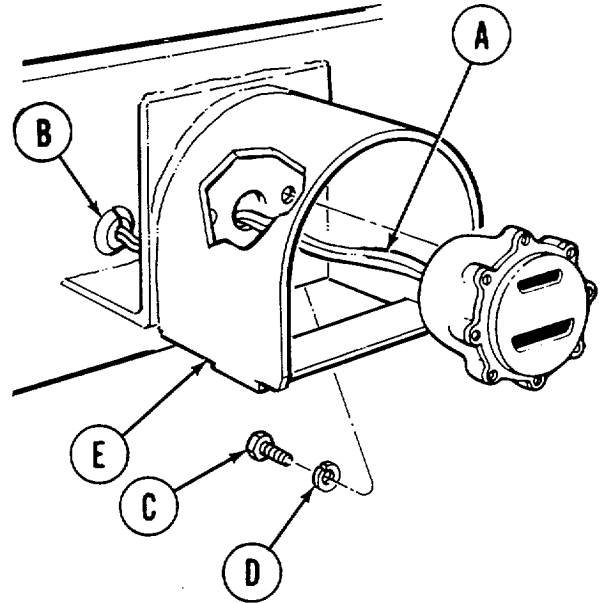
4. Using wrench, remove two screws (F) and two lockwashers (G) from mounting bracket (H). Throw lockwashers (G) away.
5. Remove taillight (J), pulling two taillight leads (K) through rubber grommet (L).

Go on to Sheet 3

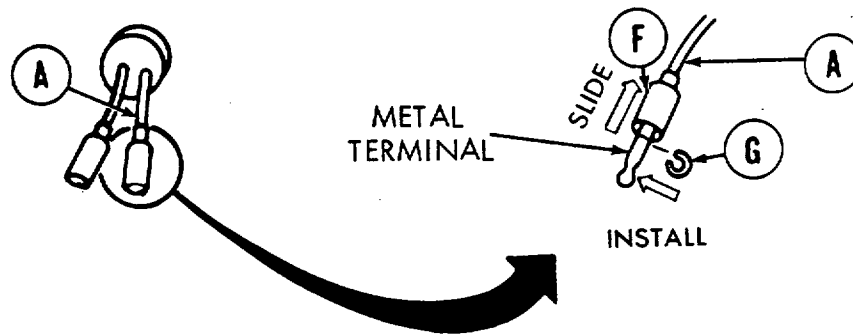
**RIGHT TAILLIGHT -STOPLIGHT ASSEMBLY REPLACEMENT (Sheet 3 of 3)**

**INSTALLATION:**

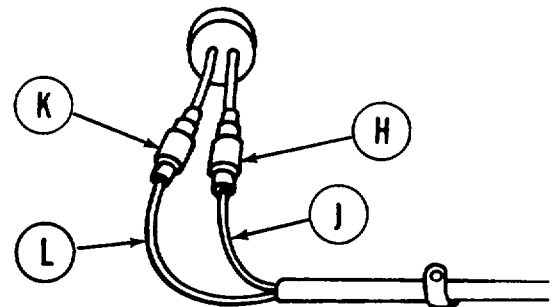
1. Using silicone compound (Item 32, Appendix D) on taillight leads (A), insert two leads through rubber grommet (B).
2. Using wrench, install two screws (C) and two new lockwashers (D) on mounting bracket (E).



3. Slide two shells (F) on taillight leads (A).
4. Install two slotted washers (G) on leads (A) behind metal terminal.



5. Connect tagged or taped taillight lead (H) to hull connector number 24 (J).
6. Connect remaining lead (K) to hull connector number 23 (L).
7. Install transmission shroud (page 9-23).
8. Check for proper taillight operation (TM 9-2350-260-10).



End of Task

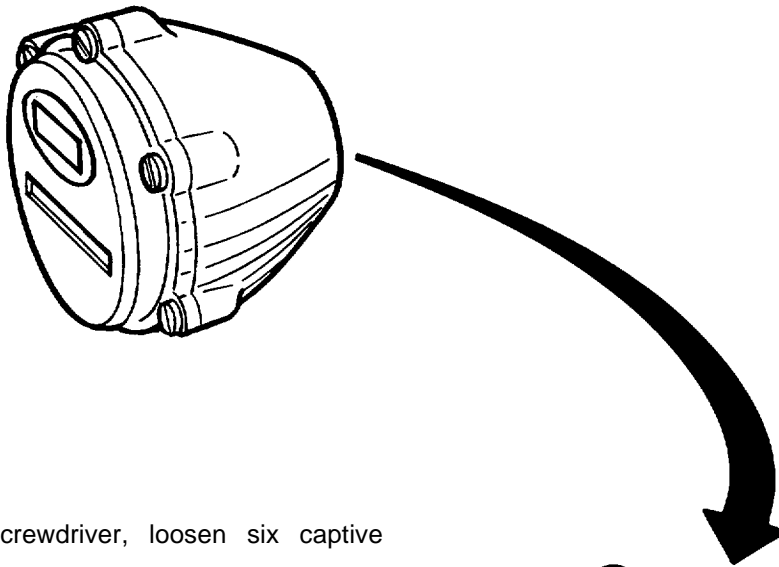
TA147263

**RIGHT TAILLIGHT -STOPLIGHT ASSEMBLY REPAIR (Sheet 1 of 3)**

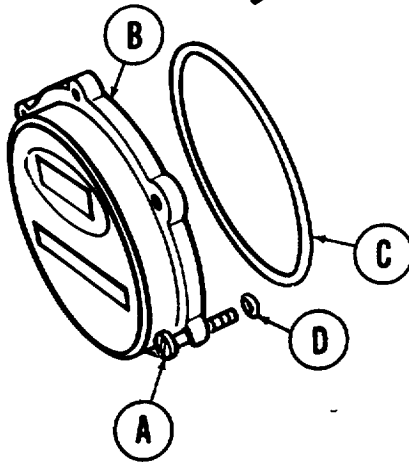
TOOLS: Flat-tip screwdriver  
Cross-tip screwdriver

SUPPLIES: Crocus cloth (Item 14, Appendix D) or steel wool (Item 55, Appendix D)  
Silicone compound (Item 3, Appendix D)  
Preformed packing (7320658)  
Lockwasher (MS35338-42) (2 required)

PRELIMINARY PROCEDURES: Remove taillight from tank for complete repair (page 10-229).  
Lamp replacement (step 1 thru 4) can be accomplished with taillight on tank.

**DISASSEMBLY:**

1. Using flat-tip screwdriver, loosen six captive screws (A).
2. Using fingers, remove door assembly (B), preformed packing (C), and six retainer rings (D). Throw preformed packing away.



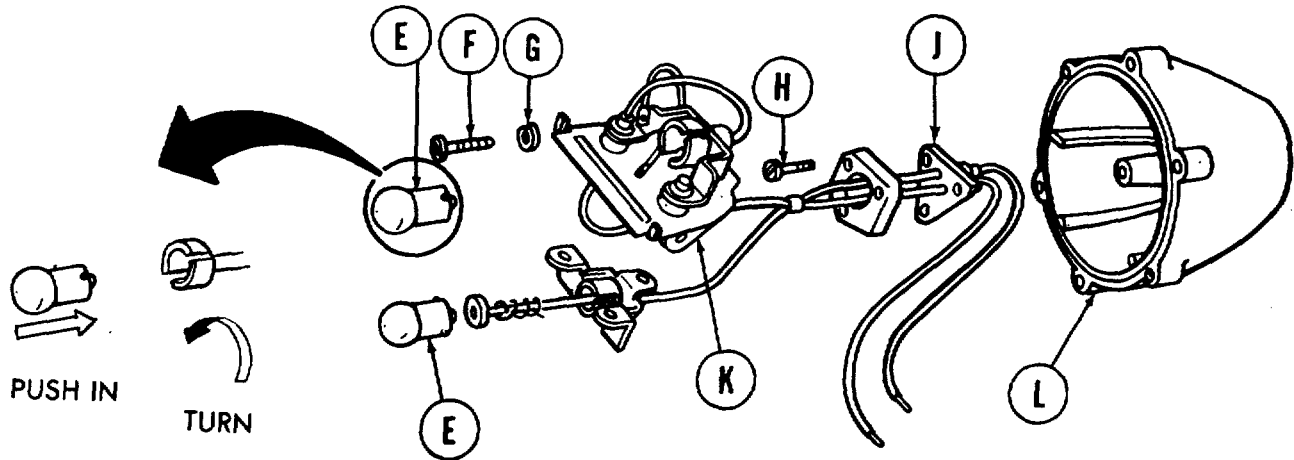
Go on to Sheet 2

TA147264



**RIGHT TAILLIGHT -STOPLIGHT ASSEMBLY REPAIR (Sheet 2 of 3)**

3. Remove two stoplight and taillight lamps (E).
4. Using cross-tip screwdriver, remove two screws (F) and two lockwashers (G). Throw lockwashers away.



5. Using Phillips screwdriver, remove three screws (H) from grommet (J).
6. Remove socket and wiring assembly (K) with fingers by pressing out grommet (J) from body assembly (L).

**CLEANING AND INSPECTION:**

1. Inspect taillight assembly for corrosion. Corroded areas which cannot be cleaned with crocus cloth (Item 14, Appendix D) or steel wool (Item 55, Appendix D) are cause for replacement of that item.
2. Inspect taillight and components for cracks. If any items are cracked, replace.
3. Inspect for mechanical damage and wear. If damaged or worn, replace.

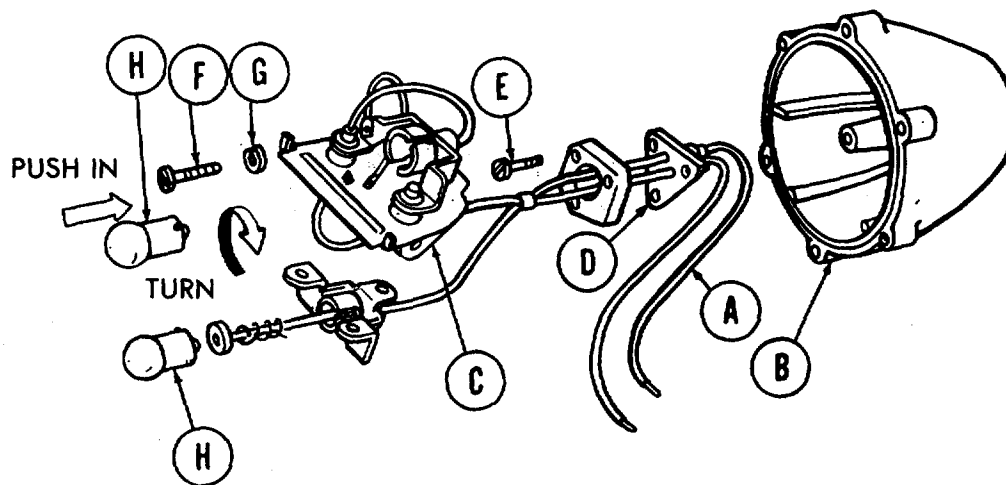
Go on to Sheet 3

TA147265

**RIGHT TAILLIGHT -STOPLIGHT ASSEMBLY REPAIR (Sheet 3 of 3)**

**ASSEMBLY:**

1. Inset two leads (A) through body assembly (B).
2. Install socket and wiring assembly (C) by pressing in grommet (D).
3. Using cross-tip screwdriver, install three screws (E).
4. Using cross-tip screwdriver, install two screws (F) and two new lockwasher (G).

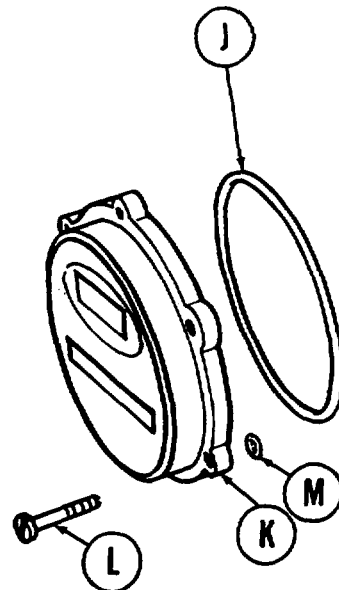


5. Install two lamps (H).
6. Coat new preformed packing gasket (J) with silicone compound (Item 32, Appendix D) before installation.
7. Place new preformed packing (J) in door assembly (K).

**NOTE**

**Wires are located at bottom of body assembly (B) for positioning of door assembly (K) as shown.**

8. Using flat-tip screwdriver, install six screws (L), door assembly (K), and six retainer rings (M).
9. Install taillight-stoplight assembly (page 10-231).
10. Perform test on taillight assembly (TM 9-2350-260-10).



End of Task

TA147266

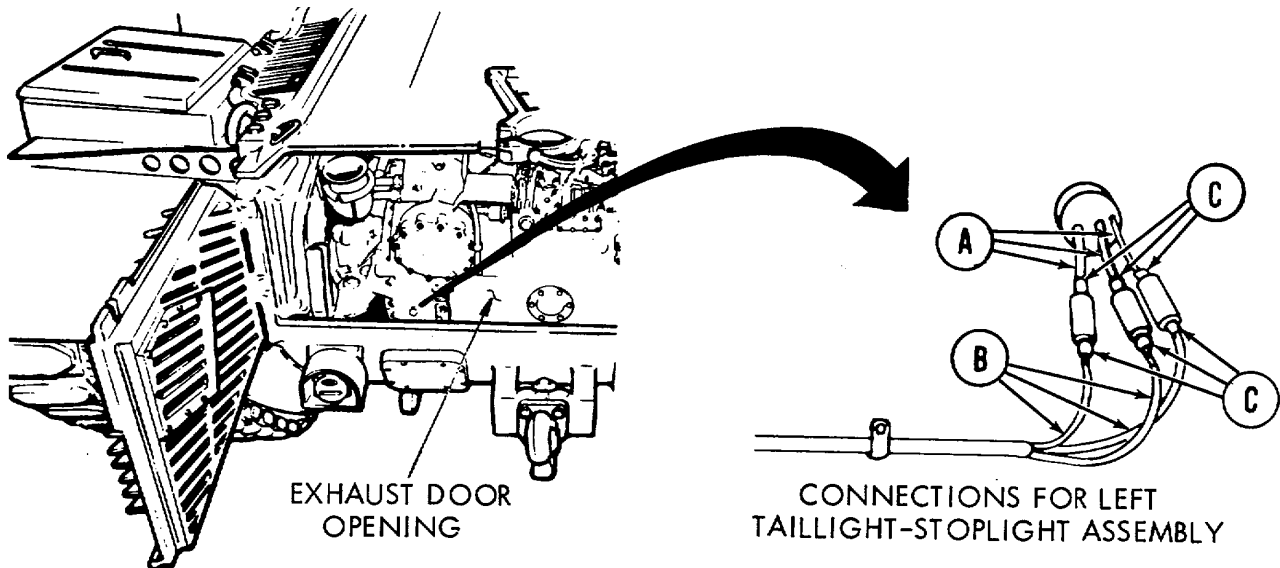
**LEFT TAILLIGHT - STOPLIGHT ASSEMBLY REPLACEMENT (Sheet 1 of 3)**

TOOLS: 9/16 in. combination box and open end wrench

SUPPLIES: Silicone compound (Item 32, Appendix D)  
 Masking tape (Item 57, Appendix D)  
 Pencil  
 Lockwasher (MS35335-32) (2 required)

REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURE: Remove transmission shroud (page 9-20)



REMOVAL:

**NOTE**

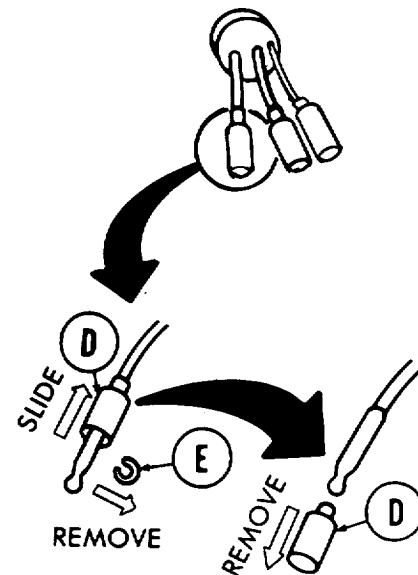
Inspect leads (A) and leads (B) for numbered tags (C). If leads do not have tags, use masking tape (Item 57, Appendix D) and pencil to number leads 21, 22, and 24.

1. Reach through exhaust door opening and disconnect three leads (A) from hull connectors (B).
2. Slide three connector shells (D) back on taillight leads to expose three slotted washers (E).

**NOTE**

Lubricant may be needed on leads (A) to remove shells (D).

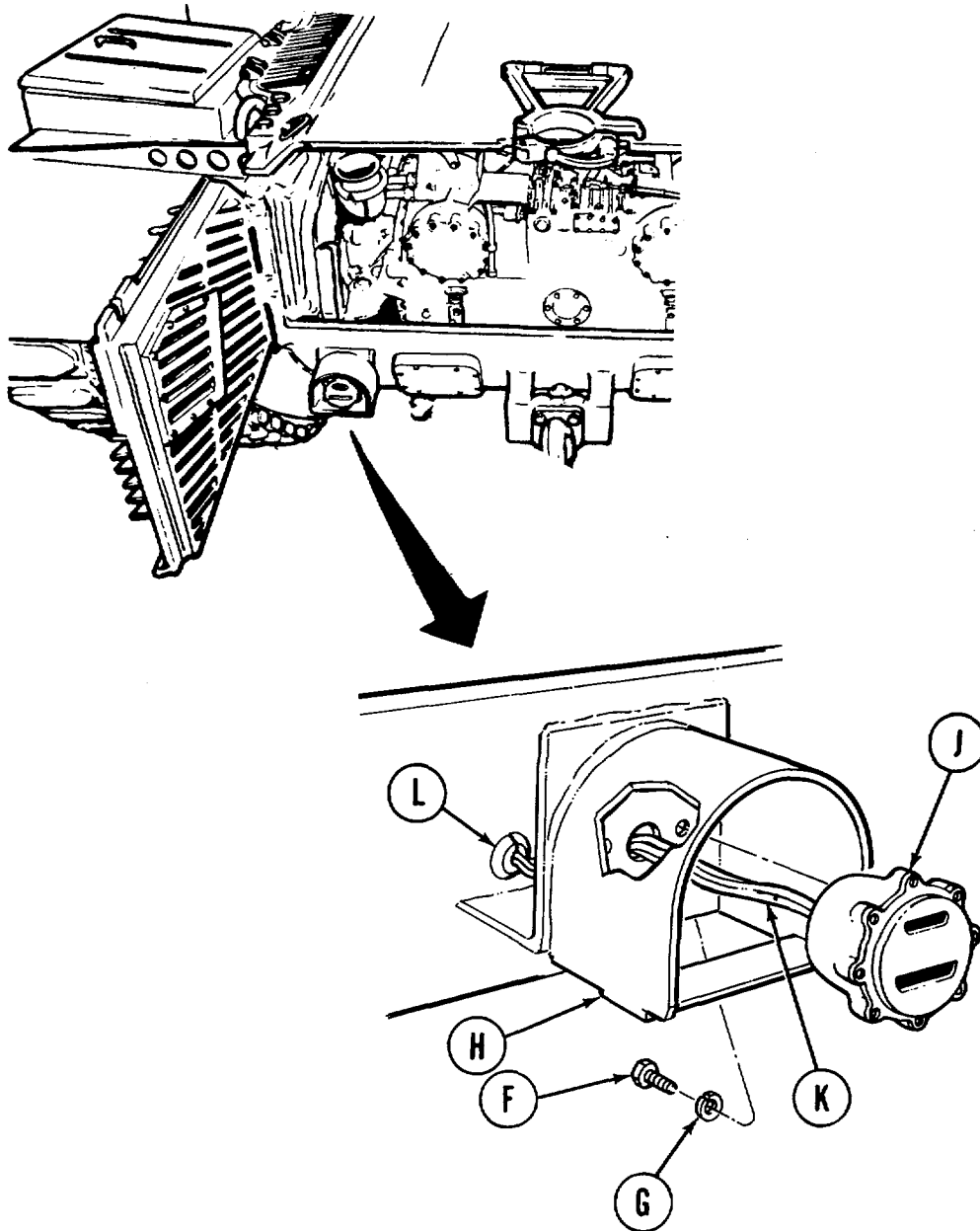
3. Remove three slotted washers (E) and three shells (D).



Go on to Sheet 2

TA147267

## LEFT TAILLIGHT - STOPLIGHT ASSEMBLY REPLACEMENT (Sheet 2 of 3)



4. Using wrench, remove two screws (F) and two lockwashers (G) from mounting bracket (H). Throw lockwashers away.
5. Remove taillight (J), pulling three taillight leads (K) through rubber grommet (L).

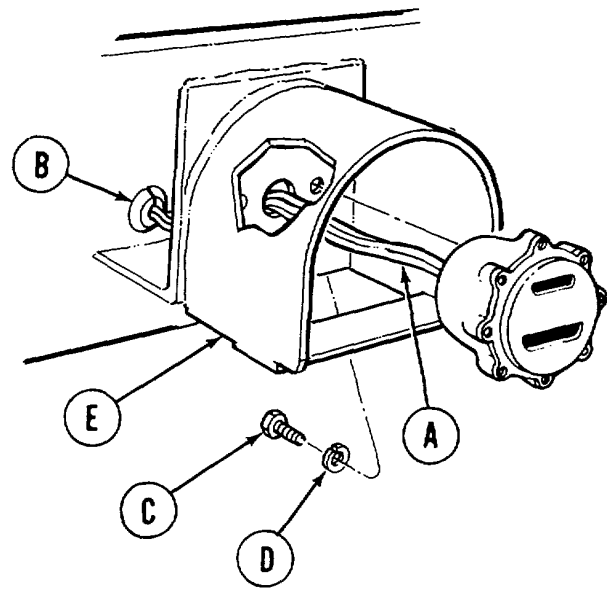
Go on to Sheet 3

TA147268

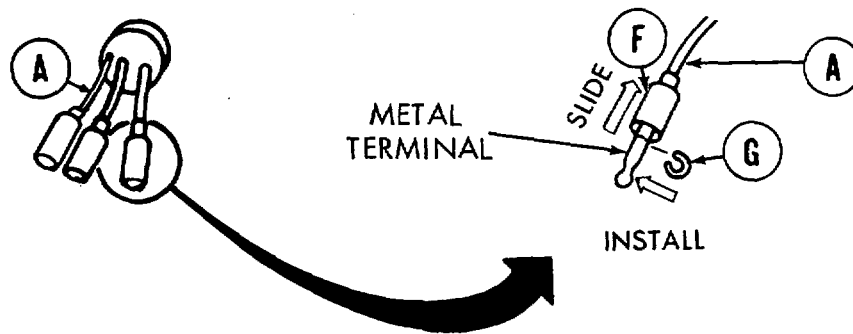
**LEFT TAILLIGHT - STOPLIGHT ASSEMBLY REPLACEMENT (Sheet 3 of 3)**

**INSTALLATION:**

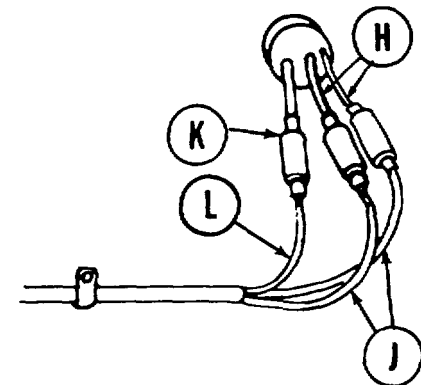
1. Using silicone compound (Item 32, Appendix D) on taillight leads (A), insert three leads through rubber grommet (B).
2. Using wrench, install two screws (C) and two new lockwashers (D) on mounting bracket (E).



3. Slide three shell (F) on taillight leads (A).
4. Install three slotted washers (G) on leads (A) behind metal terminal.



5. Connect two tagged or taped taillight leads (H) to hull connectors number 22 and 24 (J).
6. Connect remaining lead (K) to hull connector number 21 (L).
7. Install transmission shroud (page 9-23).
8. Check for proper taillight operation (TM 9-2350-260-10).



End of Task

TA147269

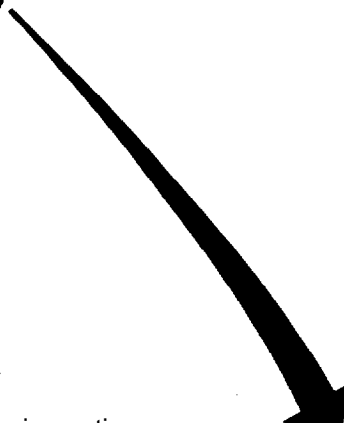
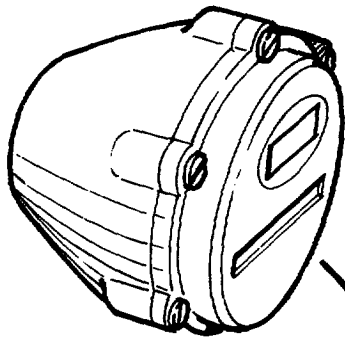
**LEFT TAILLIGHT -STOPLIGHT ASSEMBLY REPAIR (Sheet 1 of 3)**

**TOOLS:** Flat-tip screwdriver  
 Cross-tip screwdriver (Phillips)

**SUPPLIES:** Preformed packing (7320658)  
 Crocus cloth (Item 14, Appendix D)  
 Silicone compound (Item 32, Appendix D)  
 Lockwasher (MS35338-42)(2 required)  
 Steel wool (Item 55, Appendix D)

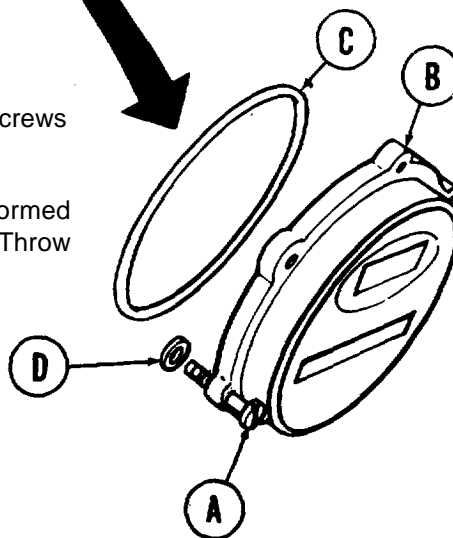
**REFERENCE:** TM 9-2350-260-10

**PRELIMINARY PROCEDURE:** Remove taillight from tank for complete repair (page 10-235). Lamp replacement (steps 1 thru 4) can be done with taillight on tank.



**DISASSEMBLY:**

1. Using flat-tip screwdriver, loosen six captive screws (A).
2. Using fingers, remove door assembly (B), preformed packing (C), and six retainer rings (D). Throw preformed packing away.

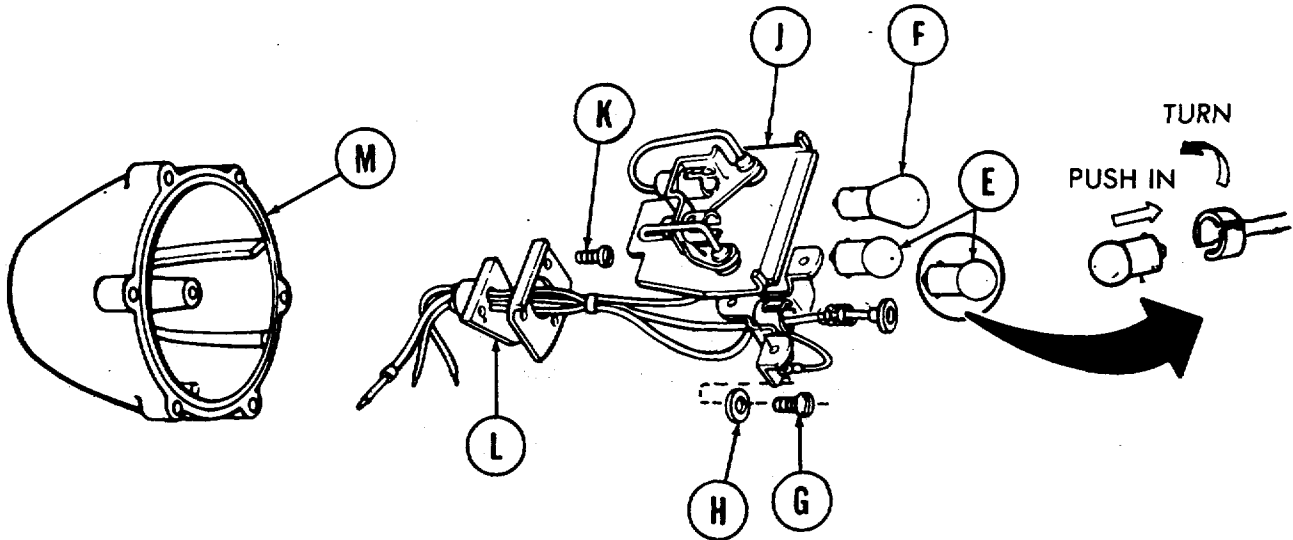


Go on Sheet 2

TA147270

**LEFT TAILLIGHT -STOPLIGHT ASSEMBLY REPAIR (Sheet 2 of 3)**

3. Remove two small stoplight and taillight lamps (E).
4. Remove large blackout drive lamp (F).
5. Using Phillips screwdriver, remove two screws (G) and lockwashers (H) from socket and wiring assembly (J). Throw lockwashers (H) away.



6. Using Philip screwdriver, remove three screws (K) from grommet (L).
7. Remove socket and wiring assembly (J) with fingers by pressing out grommet (L) from body assembly (M).

**CLEANING AND INSPECTION:**

1. Inspect taillight and components for cracks. Replace any cracked items.
2. Inspect for mechanical damage and wear. If damaged or worn, replace.
3. Inspect taillight assembly for corrosion. Corroded area which cannot be cleaned with crocus cloth (Item 14, Appendix D) or steel wool item 55, Appendix D) is cause for replacement of that item.

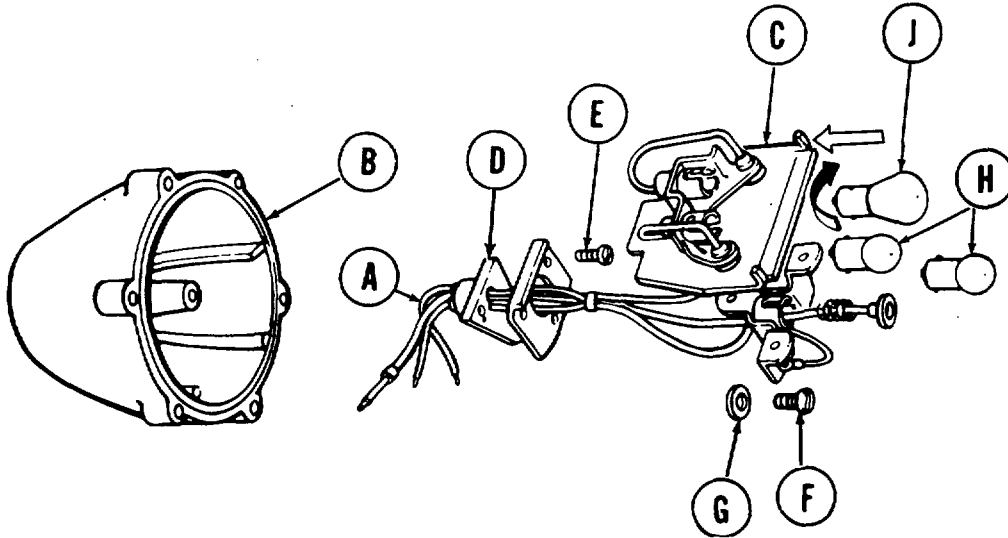
Go on to Sheet 3

TA147271

**LEFT TAILLIGHT -STOPLIGHT ASSEMBLY REPAIR (Sheet 3 of 3)**

**ASSEMBLY:**

1. Insert three leads (A) through body assembly (B).
2. Install socket and wiring assembly (C) by pressing in grommet (D).
3. Using Phillips screwdriver, install three screws (E).
4. Using Phillips screwdriver, install two screws (F) and new lockwashers (G).

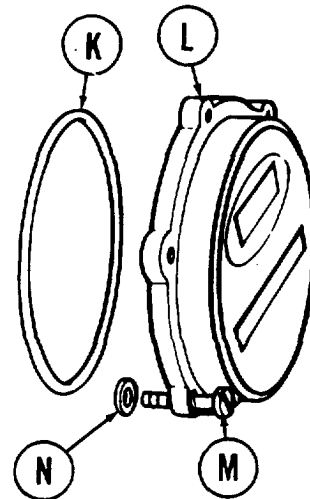


5. Install three lamps (H) and (J).
6. Coat preformed packing gasket (K) with silicone compound (Item 32, Appendix D) before installation.
7. Place new preformed packing (K) on door assembly (L).

**NOTE**

**Wires are located at bottom of housing (B) for positioning of door assembly (L).**

8. Using flat-tip screwdriver, install six screws (M), door assembly (L), and six retainer rings (N) on body assembly (B).
9. Install taillight-stoplight assembly (page 10-237).



End of Task

TA147272

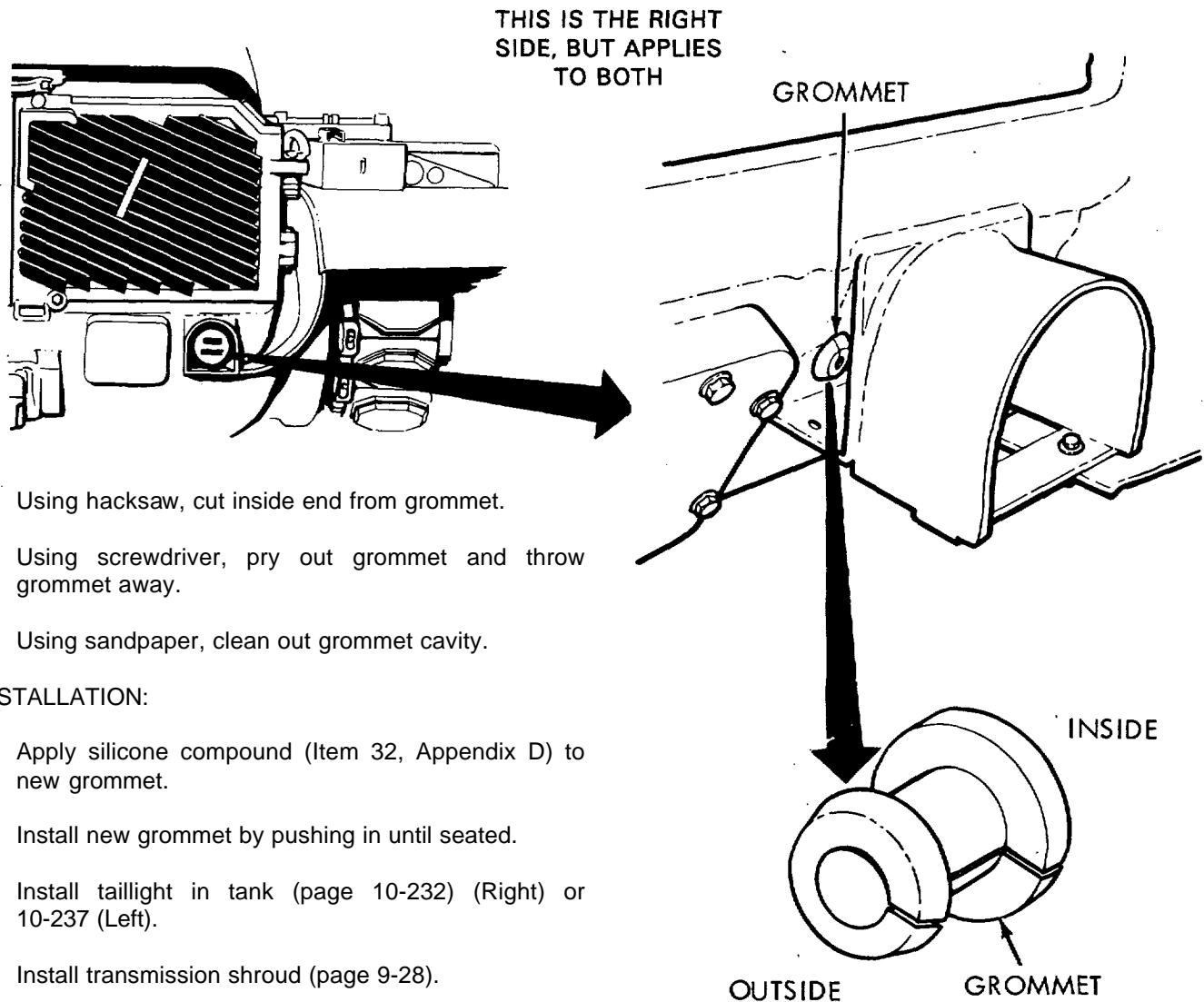


**TAILLIGHT GROMMET REPLACEMENT (Sheet 1 of 1)**

**TOOLS:** Flat-tip screwdriver Hand hacksaw

**SUPPLIES:** Silicone compound (Item 32, Appendix D)  
Grommet (7970128)  
Sandpaper (Item 51, Appendix D)

**PRELIMINARY PROCEDURES:** Remove transmission shroud (page 9-20)  
Remove taillight from tank (page 10-229)  
(Right) or 10-235 (Left)



1. Using hacksaw, cut inside end from grommet.
2. Using screwdriver, pry out grommet and throw grommet away.
3. Using sandpaper, clean out grommet cavity.

**INSTALLATION:**

1. Apply silicone compound (Item 32, Appendix D) to new grommet.
2. Install new grommet by pushing in until seated.
3. Install taillight in tank (page 10-232) (Right) or 10-237 (Left).
4. Install transmission shroud (page 9-28).

End of Task

TA147273

**HEADLIGHT ADJUSTMENT (Sheet 1 of 2)**

TOOLS: 7/16 in. combination box and open end wrench  
 9/16 in. combination box and open end wrench  
 50 ft measuring tape

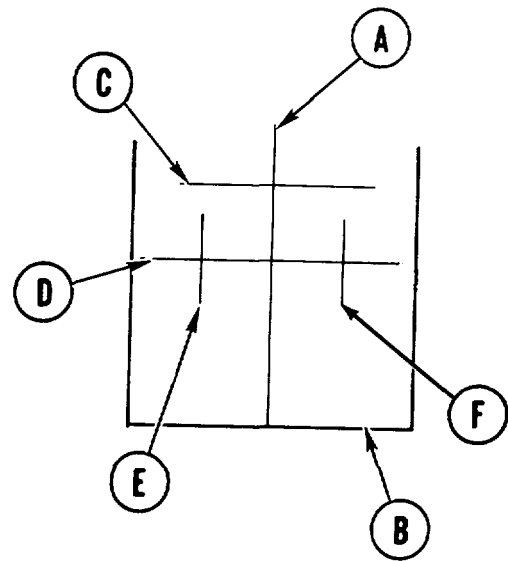
SUPPLIES: Chalk (Item 11, Appendix D)

REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURE: Park tank on flat ground 25 feet from flat vertical wall

**ADJUSTMENT:**

1. Using measuring tape, locate center of tank.
2. Using chalk (Item 11, Appendix D), draw line (A) on ground and up vertical wall (B).
3. Using measuring tape, measure distance from ground to center of headlight.
4. Using chalk, draw line (C) on wall (B) of the distance found in step 3.
5. Using measuring tape, measure down 27-1/4 inches from line (C). Using chalk, draw line (D) on wall (B).
6. Using measuring tape, measure distance from center of tank to center of clear lens on left headlight.
7. Using chalk, draw line (E) that distance found in step 6 on wall (B).
8. Perform steps 6 and 7 for right side. Using chalk, draw line (F) on wall (B).

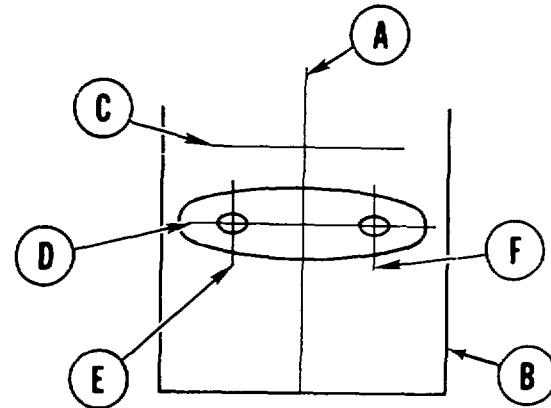


Go on to Sheet 2

TA147274

**HEADLIGHT ADJUSTMENT (Sheet 2 of 2)**

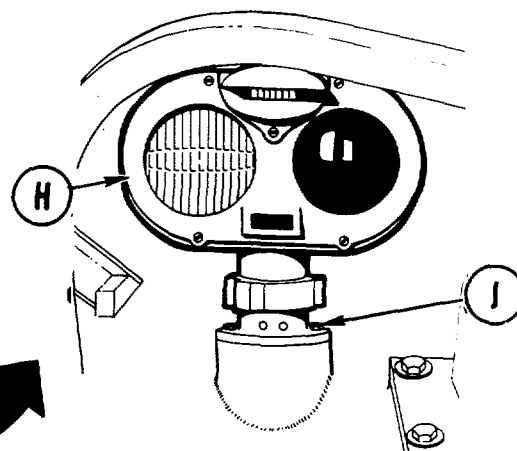
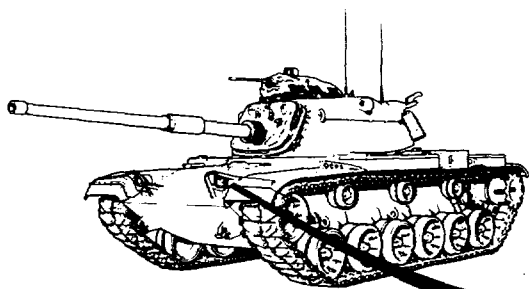
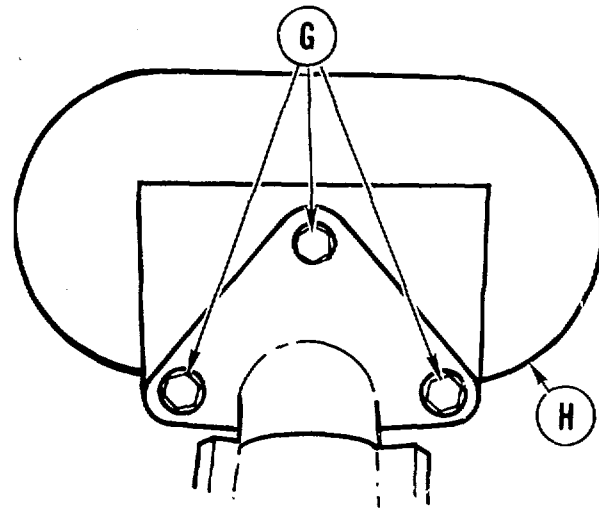
9. Turn on service drive headlights, low beam (TM 9-2350-260-10).
10. Center of maximum light intensity should be centered on line (D).
11. If not, using 9/16 inch wrench, loosen three screws (G) and adjust by tilting headlight (H) to desired angle.



**NOTE**

**Adjust both left and right headlights in same manner.**

12. Using 9/16 inch wrench, tighten three screws (G).
13. Check to see if light intensity for left headlight is centered on intersection of lines (D) and (E).
14. If not, using 7/16 inch wrench, loosen three screws (J) at base of headlight.
15. Turn headlight (H) until in proper position.
16. Using 7/16 inch wrench, tighten three screws (J) when adjusted.
17. Repeat steps 13 through 16 for right headlight, using lines (D) and (F).
18. Turn off lights (TM 9-2350-260-10).



End of Task

TA147275

**HEADLIGHT ASSEMBLY (LEFT AND RIGHT) REPLACEMENT (Sheet 1 of 1)**

TOOLS: Hammer

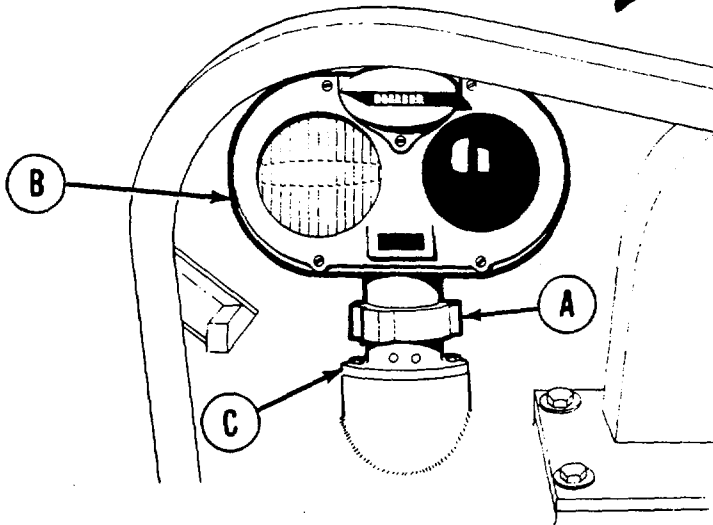
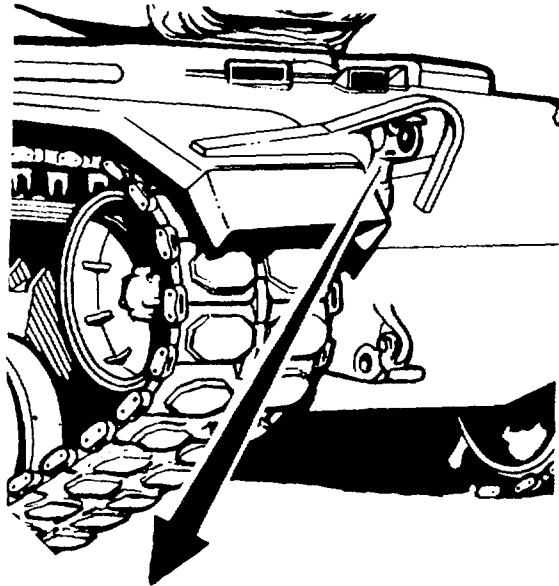
REFERENCE: TM 9-2350-260-10

**NOTE**

Some rings may be too tight to loosen with fingers. Tap with hammer until loose. Then do steps 1 and 2.

**REMOVAL:**

1. Using fingers, turn ring (A) counterclockwise while lifting headlight (B) away from base assembly (C).
2. Remove headlight assembly (B).

**INSTALLATION:**

1. Place headlight assembly (B) in position on base assembly (C).
2. Using fingers, turn ring (A) clockwise while pressing down on headlight (B). Tighten ring.
3. Check operation of headlight (TM 9-2350-260-10).

End of Task

TA147276

**HEADLIGHT ASSEMBLY REPAIR (LEFT AND RIGHT) (Sheet 1 of 8)**

PROCEDURE INDEX

PROCEDURE	PAGE
Disassembly	10-245
Cleaning and Inspection	10-249
Assembly	10-249

TOOLS: Flat-tip screwdriver Cross-tip screwdriver (Phillips)

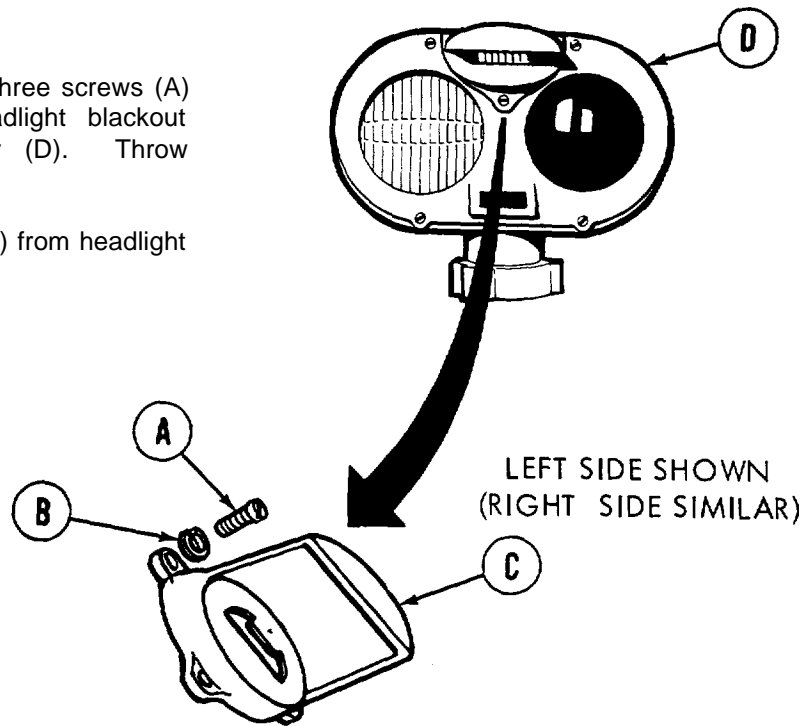
SUPPLIES: Adhesive (Item 2, Appendix D)  
 Crocus cloth (Item 14, Appendix D)  
 Steel wool (Item 55, Appendix D)  
 Soft cloth (for cleaning lens)(Item 13, Appendix D)  
 Lockwasher (MS35335-31) (3 required)

REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURE: Remove headlight assembly (page 10-244)

DISASSEMBLY:

1. Using Phillips screwdriver, remove three screws (A) and lockwashers (B) holding headlight blackout shield (C) to headlight assembly (D). Throw lockwashers away.
2. Remove headlight blackout shield (C) from headlight assembly (D).

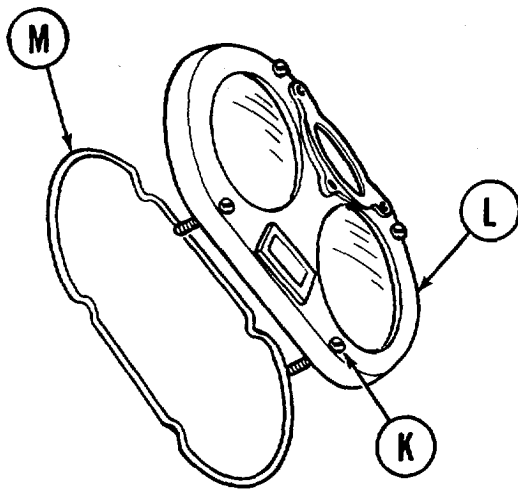
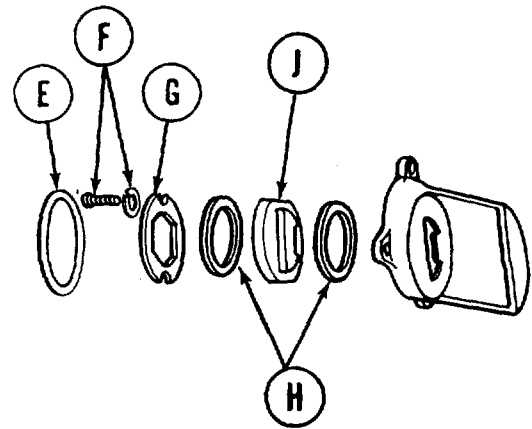


Go on to Sheet 2

TA147277

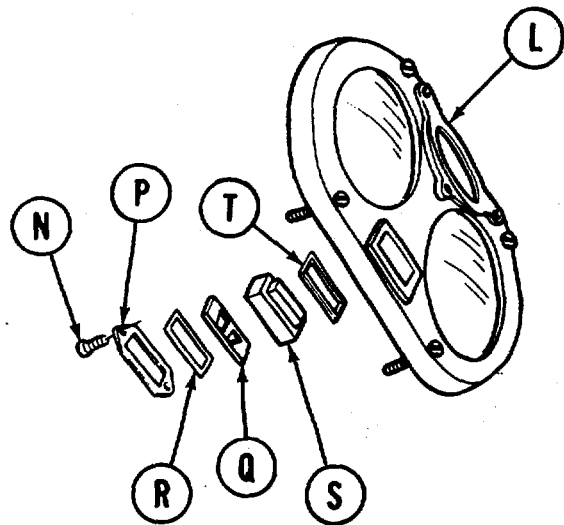
**HEADLIGHT ASSEMBLY REPAIR (LEFT AND RIGHT) (Sheet 2 of 8)**

3. Remove round rubber seal (E).
4. Using Phillips screwdriver, remove two screws and lockwashers (F).
5. Using fingers, remove retainer (G), two rubber seals (H), and lens (J).



6. Using flat-tip screwdriver, loosen four captive screws (K).
7. Remove headlight cover (L).
8. Using fingers, remove seal (M).

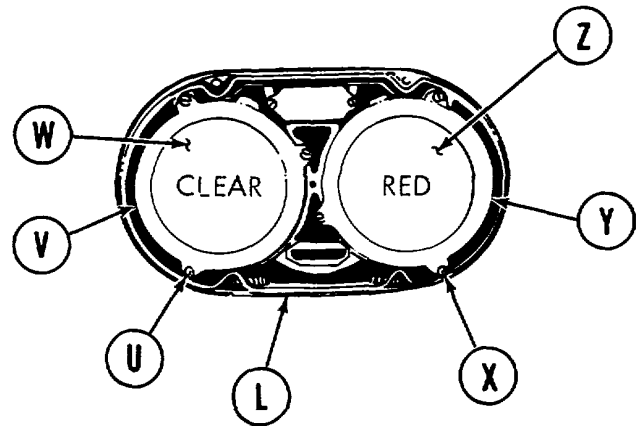
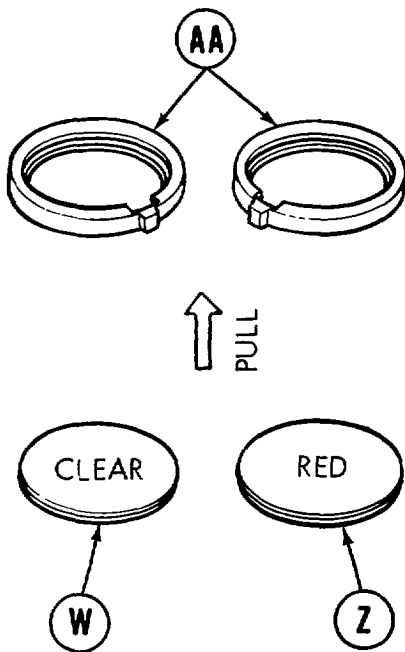
9. Using Phillips screwdriver, remove two screws (N) with assembled washers. Remove retainer (P).
10. Using fingers, remove filter (Q), rubber seal (R), lens (S), and seal (T).



Go on to Sheet 3

**HEADLIGHT ASSEMBLY REPAIR (LEFT AND RIGHT) (Sheet 3 of 8)**

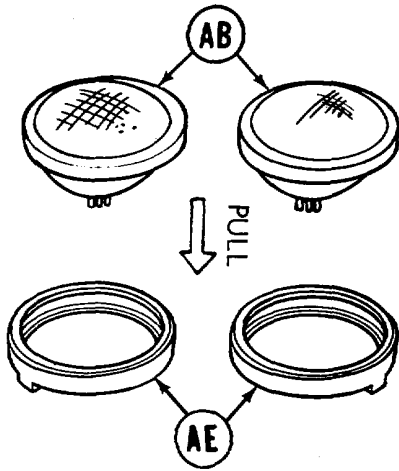
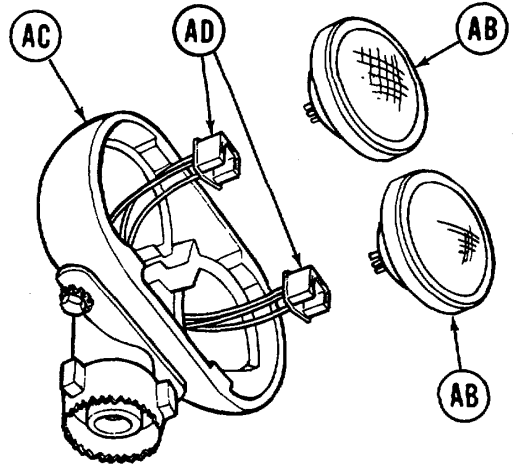
11. Using Phillip screwdriver, remove three screws (U) and retainer (V) holding dear headlight lens (W) in headlight cover (L).
12. Push out clear lens and seal (W) from headlight cover (L).
13. Using Phillips screwdriver, remove three screws (X) and retainer (Y) holding red lens (Z) in headlight cover (L).



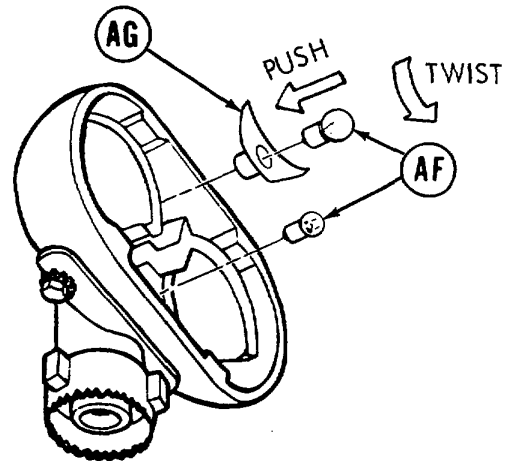
14. Push out red lens and seal (Z) in same manner a clear lens.
15. Using fingers, remove two seals (AA) from clear lens (W) and red lens (Z).

HEADLIGHT ASSEMBLY REPAIR (LEFT AND RIGHT) (Sheet 4 of 8)

16. Using fingers, lift out two headlight and gaskets (AB) from headlight body (AC).
17. Unplug two headlights (AB) from electrical connectors (AD).



18. Using fingers, remove two seals (AE) from headlights (AB).



19. Remove two bulbs (AF) by pushing in and twisting them counterclockwise. Remove reflector (AG) with fingers.

Go on to Sheet 5

TA147280



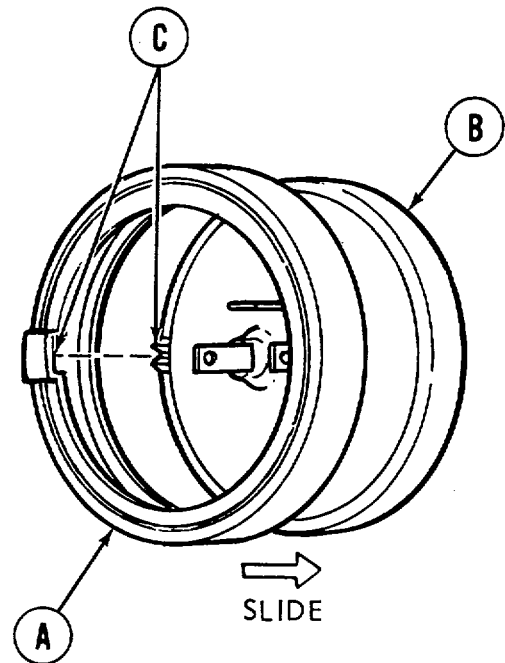
**HEADLIGHT ASSEMBLY REPAIR (LEFT AND RIGHT) (Sheet 5 of 8)**

**CLEANING AND INSPECTION:**

1. Inspect headlight components for corrosion. Any item that cannot be cleaned with crocus cloth (Item 14, Appendix D) or steel wool (Item 55, Appendix D) is cause for replacement.
2. Inspect seals and gasket for wear, cut, and/or deterioration. Replace damaged seals and gaskets.
3. Using soft cloth (Item 13, Appendix D), clean lens glass.
4. Inspect lens glass for chipping, scratches, or cracks. Replace damaged lens glass.
5. Using cloth, remove any dust or moisture from parts.

**ASSEMBLY:**

1. Slide two seals (A) over two headlights (B), aligning notches (C) on both.

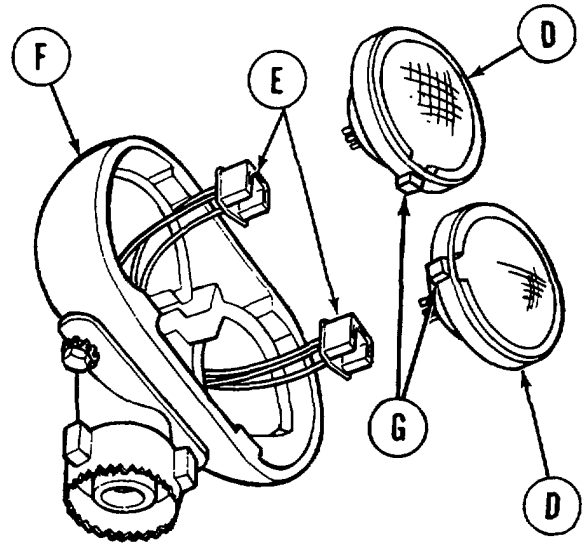


Go on to Sheet 6

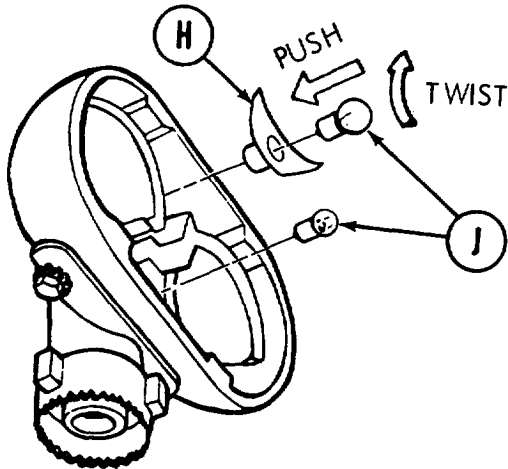
TA147281

**HEADLIGHT ASSEMBLY REPAIR (LEFT AND RIGHT) (Sheet 6 of 8)**

2. Connect two headlight (D) to two electrical connectors (E) on headlight body (F).
3. Place two headlights (D) in headlight body (F), aligning notches (G) on both.

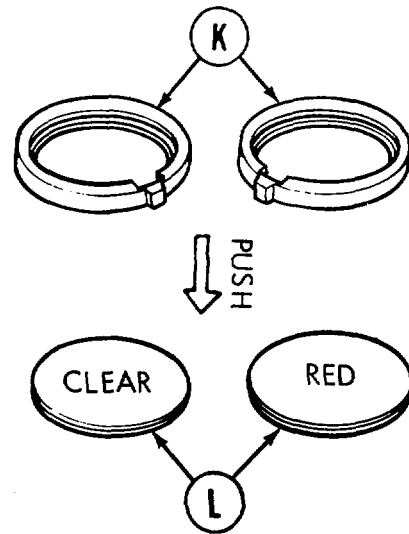


**NOTE**  
Install reflector (H) with larger bulb (J).



4. Using fingers, install reflector (H), and install two bulbs (J) by pushing in and twisting them clockwise. Large bulb with reflector (H) goes on top.

5. Using fingers, install two seals (K) around two headlight lenses (L). Make sure notches of seals are to inside.



Go on to Sheet 7

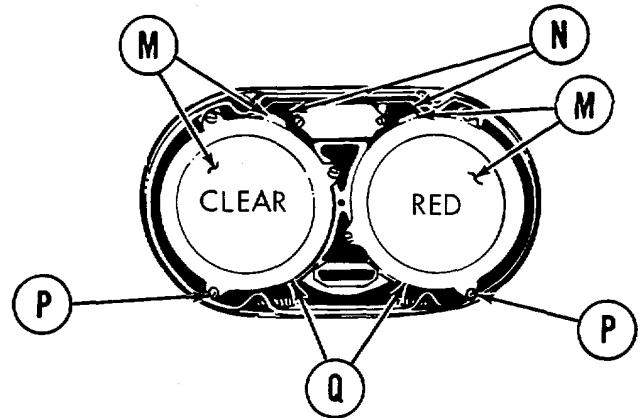
TA147282

HEADLIGHT ASSEMBLY REPAIR (LEFT AND RIGHT) (Sheet 7 of 8)

**NOTE**

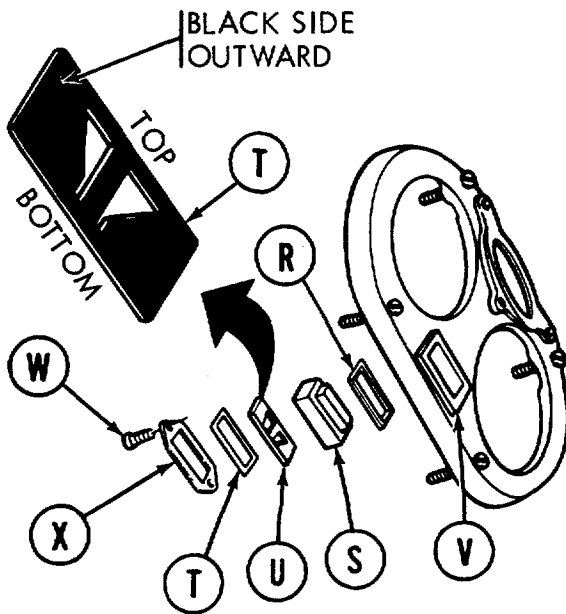
Make sure red and clear lenses (M) are positioned as shown.

6. Place headlight lens and seals (M) in notches headlight cover (N) with rounded sides outward.
7. Using Phillips screwdriver, install six screws (P) and two retainers (Q) in position over two lenses (M) and tighten.



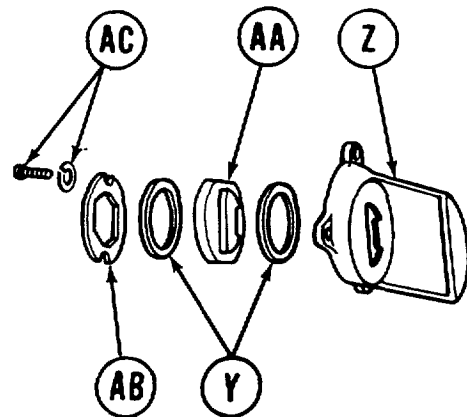
**NOTE**

Make sure filter (T) is positioned properly in blackout marker cavity (V) properly.



8. Using fingers, install seal (R), lens (S), seal (T), and filter (U) in blackout marker cavity (V).
9. Using Phillips screwdriver, install two screws (W) with assembled washers to secure retainer (X).

10. Using fingers, install one seal (Y) in blackout headlight shield (Z).
11. Using fingers, install blackout headlight lens (AA) in position on blackout headlight shield (Z).
12. Using Phillips screwdriver, install other seal (Y) and retainer (AB) into headlight she (2) with two screws and lockwashers (AC).

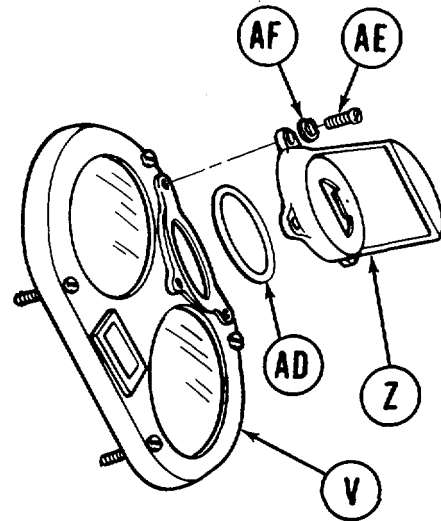


Go on to Sheet 8

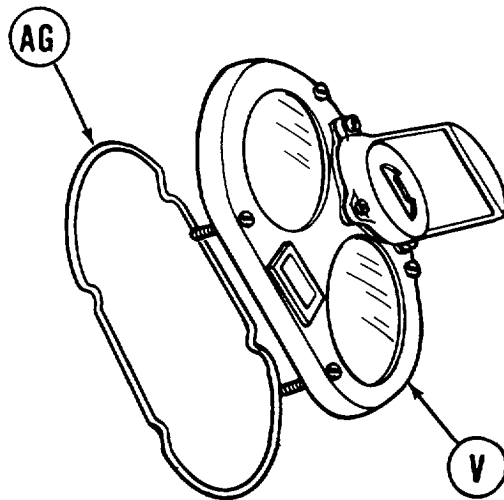
TA147283

**HEADLIGHT ASSEMBLY REPAIR (LEFT AND RIGHT) (Sheet 8 of 8)**

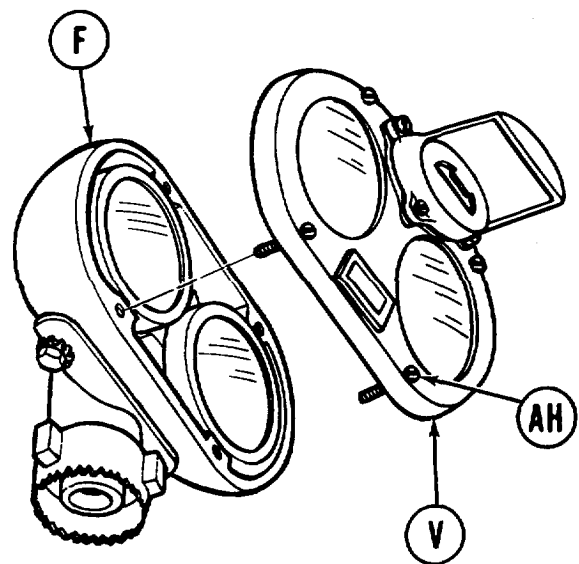
13. Apply adhesive (Item 2, Appendix D) to round seal (AD) and place on blackout headlight shield (Z).
14. Using Phillips screwdriver, install three screws (AE), new lockwashers (AF), and shield (Z) to headlight cover (V).



15. Apply adhesive (Item 2, Appendix D) to headlight cover seal (AG) and insert on headlight cover (V).



16. Using flat-tip screwdriver, tighten four captive screws (AH) securing headlight cover (V) to headlight body (F).
17. Install headlight assembly (page 10-244).



End of Task

**HEADLIGHT HARNESS BASE ASSEMBLY REPLACEMENT (Sheet 1 of 4)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-253
Installation	10-255

TOOLS: Cross-tip screwdriver (Phillips)  
7/16 in. combination box and open end wrench

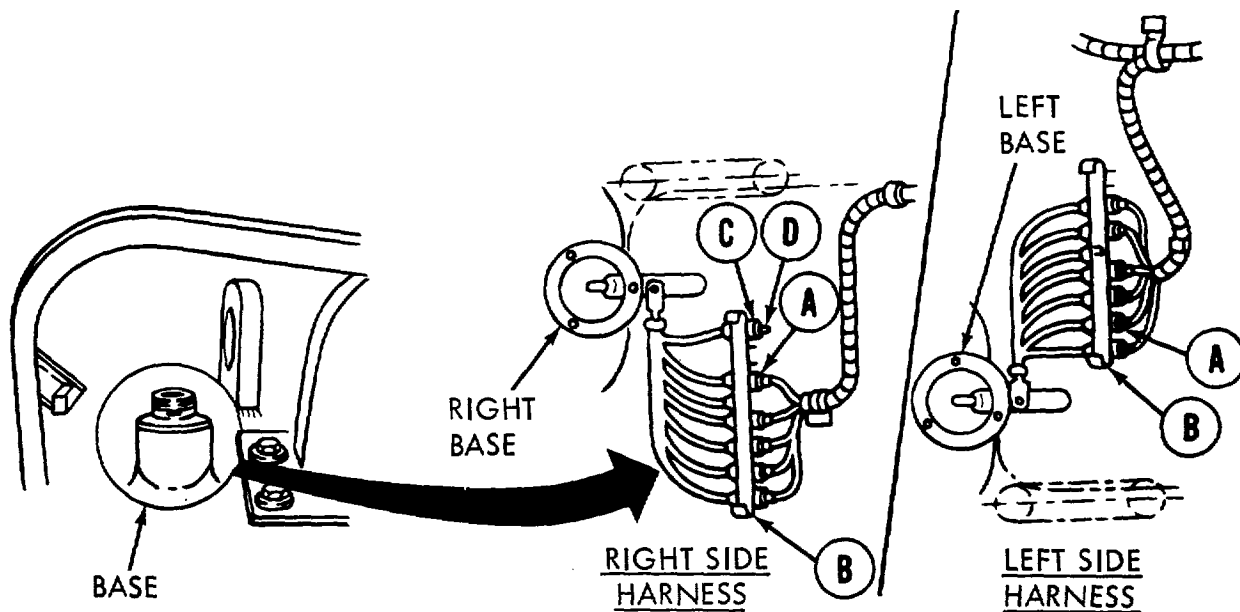
SUPPLIES: Silicone compound (Item 32, Appendix D)  
Lockwasher (MS45904-60)  
Gasket (7970024)

REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURE: Remove headlight (page 10-244)

**NOTE**

**For replacement of right headlight harness base assembly, personnel heater must be removed (page 18-20).**



REMOVAL:

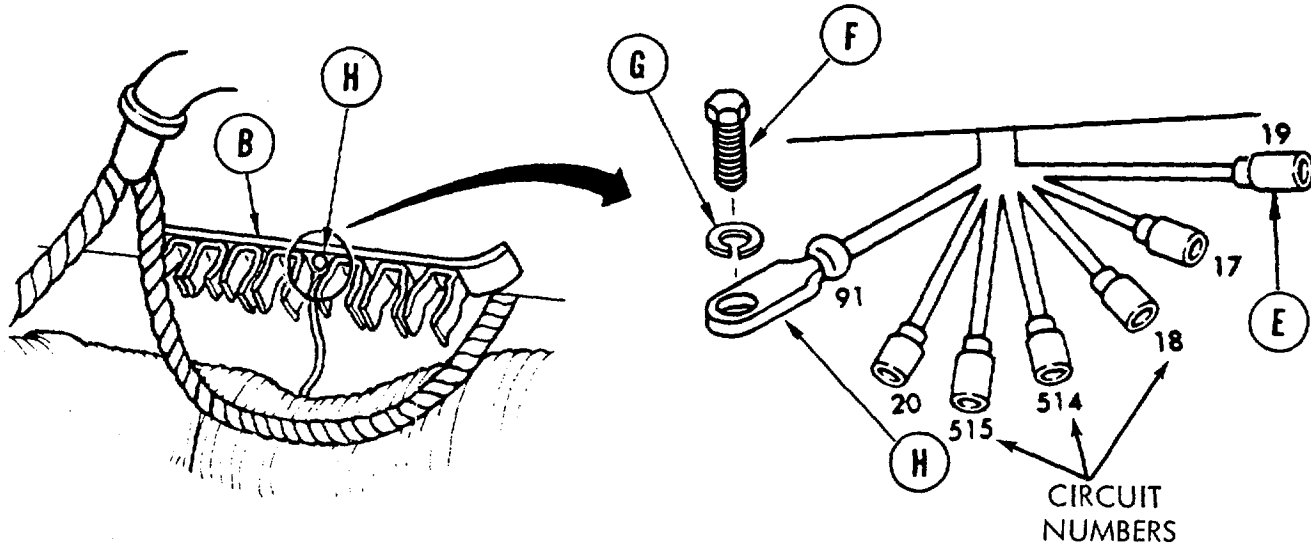
1. From inside tank, remove six connectors (A) from left bracket assembly (B) by pulling down.
2. Remove plug shell (C) and dummy plug (D) from right side base only.

Go on to Sheet 2

TA147285

**HEADLIGHT HARNESS BASE ASSEMBLY REPLACEMENT (Sheet 2 of 4)**

3. Disconnect six electrical connectors (E) by pulling apart.
4. Using 5/16 inch wrench, remove screw (F), lockwasher (G), and ground lead (H) from bracket (B) attached to inside of front hull. Throw lockwasher away.

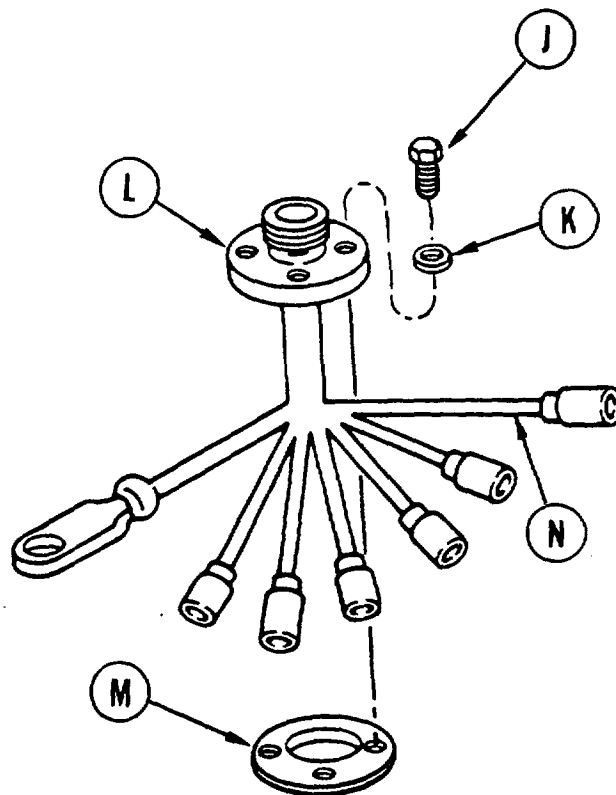


5. From outside of tank, using 7/16 inch wrench, remove three screws (J) and fat washers (K) securing base assembly (L) and gasket (M) to tank.

**NOTE**

When removing base (L) assembly, pull seven leads (N) out one at a time. If leads are taped together, remove tape to allow leads to be removed one at a time.

6. Remove base assembly (L) and gasket (M). Throw gasket away.



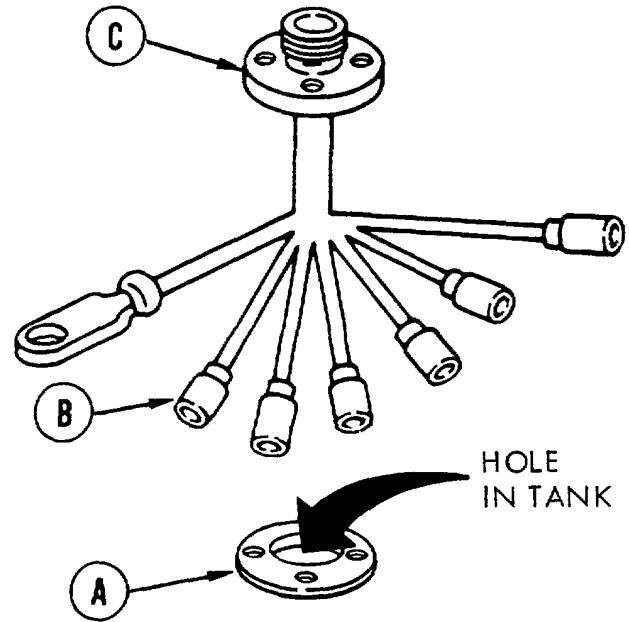
Go on to Sheet 3

TA147286

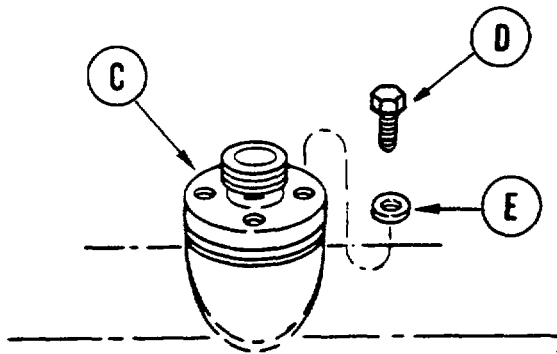
**HEADLIGHT HARNESS BASE ASSEMBLY REPLACEMENT (Sheet 3 of 4)**

**INSTALLATION:**

1. Place new gasket (A) in position on tank.
2. Apply silicone compound to six electrical connectors (B).
3. Insert seven leads (B)(one at a time) through hole in tank.
4. Place base assembly (C) in position on gasket (A).



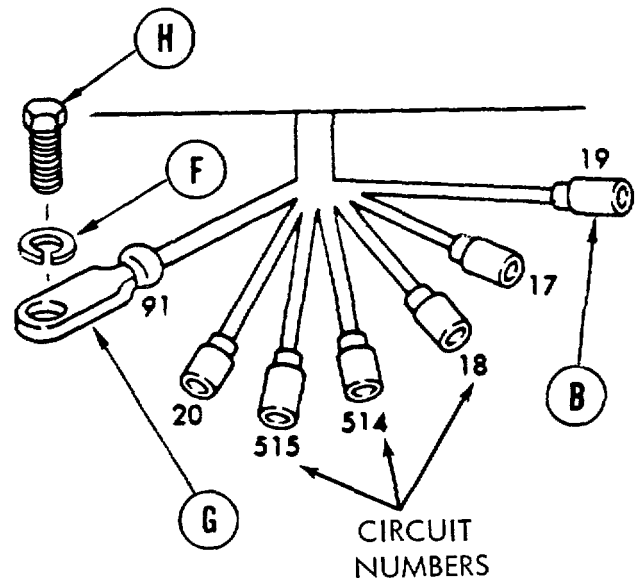
5. Using 7/16 inch wrench, install three screws (D) and flat washers (G) securing base assembly (C) to tank.



**NOTE**

**Make sure to connect connectors properly. Use metal tags for identifying proper connections.**

6. From inside of tank, connect six connectors (B) by pushing together.
7. Using 5/16 inch wrench, install new lockwasher (F), ground lead (G), and screw (H) securing ground lead to hull.

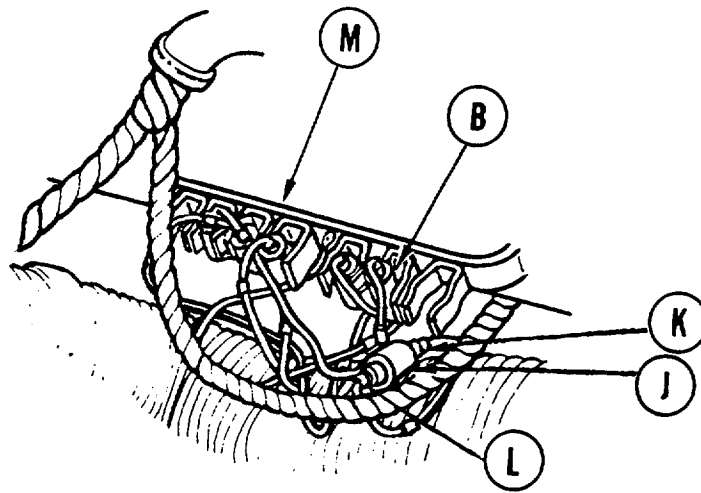


Go on to Sheet 4

TA147287

**HEADLIGHT HARNESS BASE ASSEMBLY REPLACEMENT (Sheet 4 of 4)**

8. Connect plug shell (J) and dummy plug (K) lead No. 19 connector (L).
9. Place six connectors (B) in position in left bracket assembly (M) by pushing up.
10. Install headlight on tank (page 10-244).
11. Adjust headlight aim (page 10-242).
12. Install personnel heater if removed (page 18-22).



End of Task

TA117288



**GAS PARTICULATE LEAD REPLACEMENT (Sheet 1 of 5)**

PROCEDURE INDEX

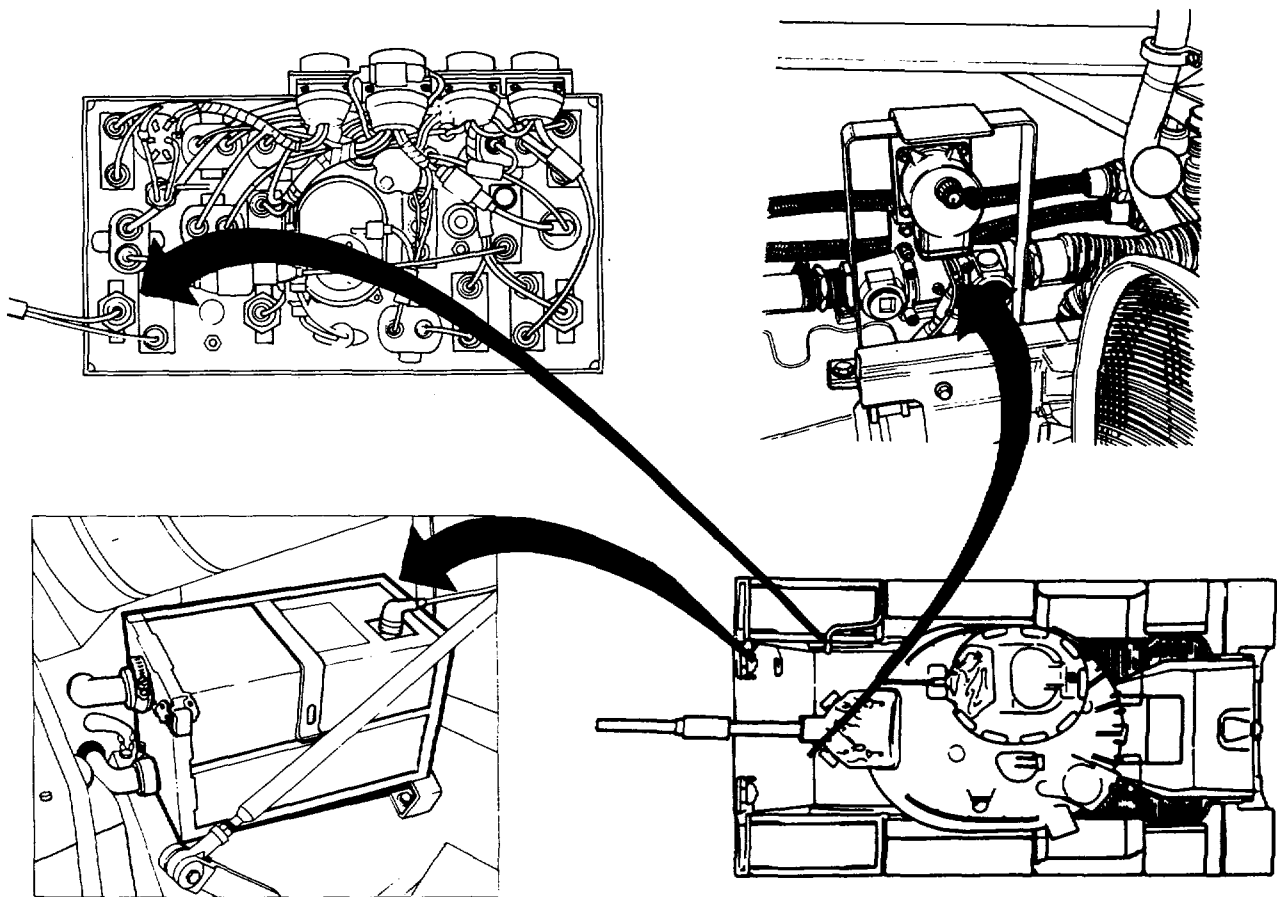
PROCEDURE	PAGE
Removal	10-258
Installation	10-259

TOOLS: 7/16 in. combination box and open end wrench Spanner wrench

SUPPLIES: Silicone compound (Item 32, Appendix D)

REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURES: Disconnect three battery ground straps (page 10-294)  
Display master control panel (page 10-54)



Go on to Sheet 2

TA147289

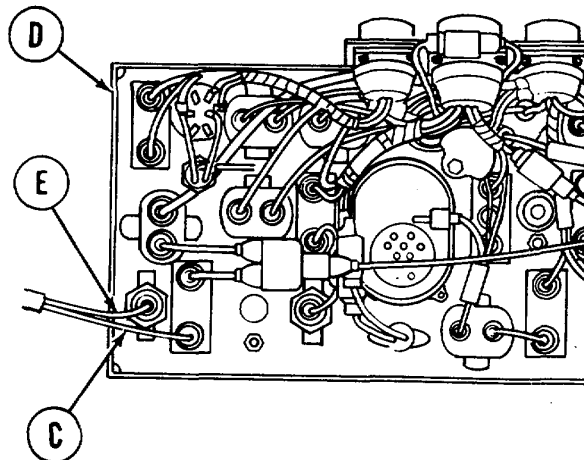
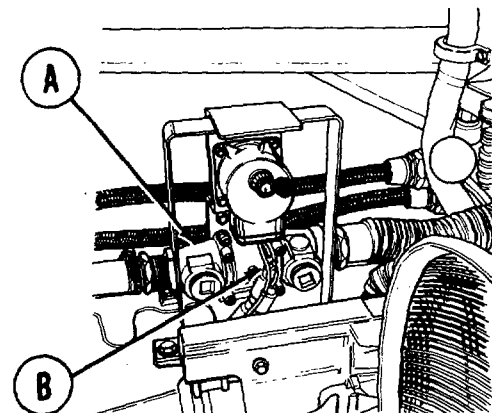
**GAS PARTICULATE LEAD REPLACEMENT (Sheet 2 of 5)**

REMOVAL:

**NOTE**

Gas particulate air heater (A) is located behind driver's seat and in front of batteries.

1. Remove circuit 415C connector (B) as gas particulate air heater (A).

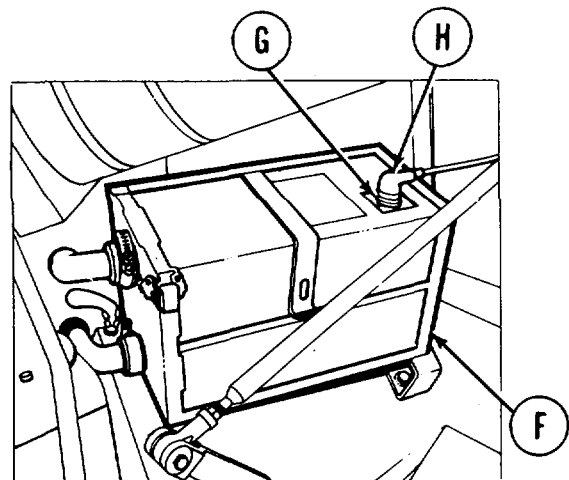


2. Remove circuit 415C connector (C) at master control panel (D).
3. Remove circuit 415 connector (E) at master control panel (D).

**NOTE**

Gas particulate filter assembly (F) is located to right of driver's seat and under personnel heater.

4. Using spanner wrench, remove nut (G) holding connector (H) to gas particulate filter assembly (F).
5. Remove connector (H) from gas particulate filter assembly (F).

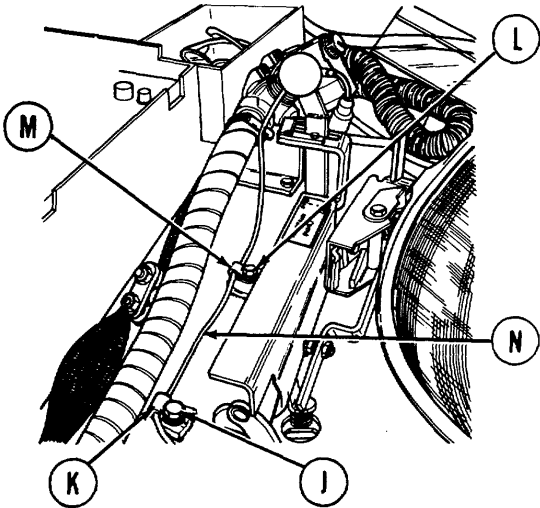


Go on to Sheet 3

TA147290

**GAS PARTICULATE LEAD REPLACEMENT (Sheet 3 of 5)**

6. Remove bilge pump stowage receptacle plate (page 10-164).
7. Remove circuit lead from clamp.

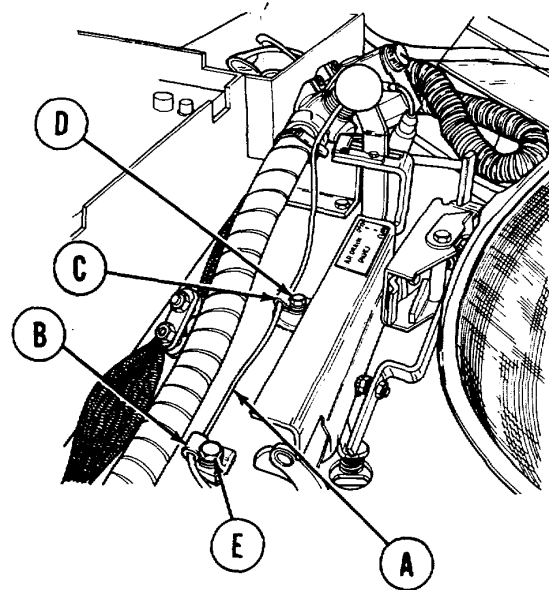


8. Using wrench, remove screw (J) holding one side of strap (K).
9. Using wrench, remove screw (L) holding damp (M).
10. Remove gas particulate air heater lead (N) from strap (K) and clamp (M).

11. Remove gas particulate lead from tank.

**INSTALLATION:**

1. Position gas particulate lead in tank.
2. Install gas particulate air heater lead (A) under strap (B) and into clamp (C).
3. Using wrench, install screw (D) to hold clamp (C).
4. Using wrench, install screw (E) to hold strap (B).

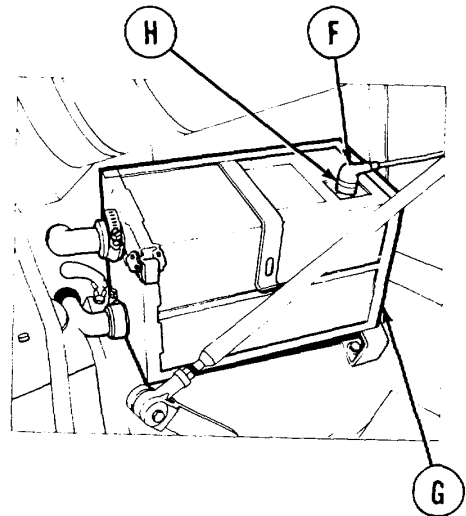


TA14291

Go on to Sheet 4

**GAS PARTICULATE LEAD REPLACEMENT (Sheet 4 of 5)**

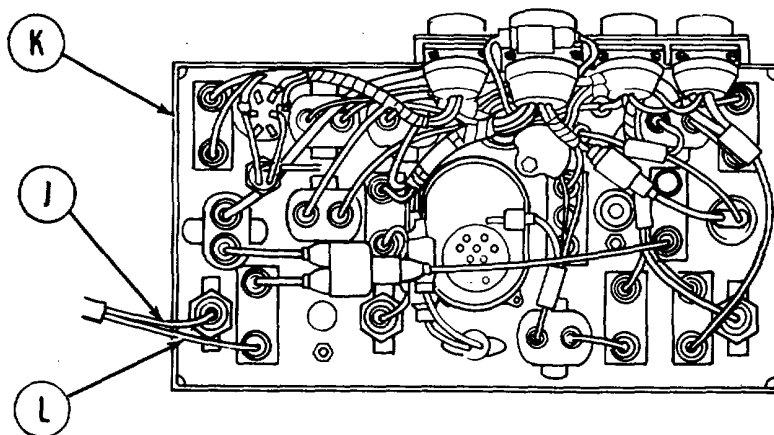
5. Install circuit lead into clamp.
6. Install bilge pump stowage receptacle plate (page 10-165).
7. Push connector (F) into socket in gas particulate filter assembly (G).
8. Using spanner wrench, install nut (H) to hold connector (F) to gas particulate filter assembly (G).



**NOTE**

**Put a light coat of silicone compound (Item 32, Appendix D) on rubber connectors before installing.**

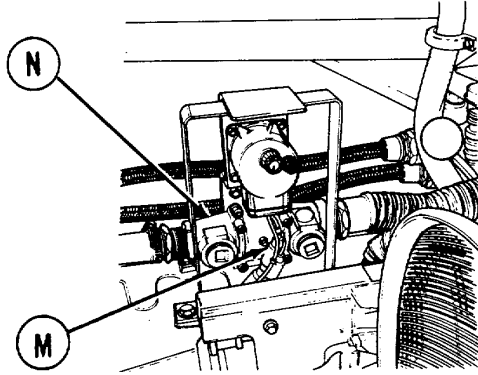
9. Install circuit 415 connector (J) at master control panel (K).
10. Install circuit 415C connector (L) at master control panel (K).



Go on to Sheet 5

TA147292

**GAS PARTICULATE LEAD REPLACEMENT (Sheet 5 of 5)**



11. Install circuit 415C connector (M) at gas particulate air heater (N).

12. Install master control panel (page 10-56).

13. Connect three battery ground straps (page 10-294).

14. Check out gas particulate filter system (TM 9-2350-260-10).

TA147293

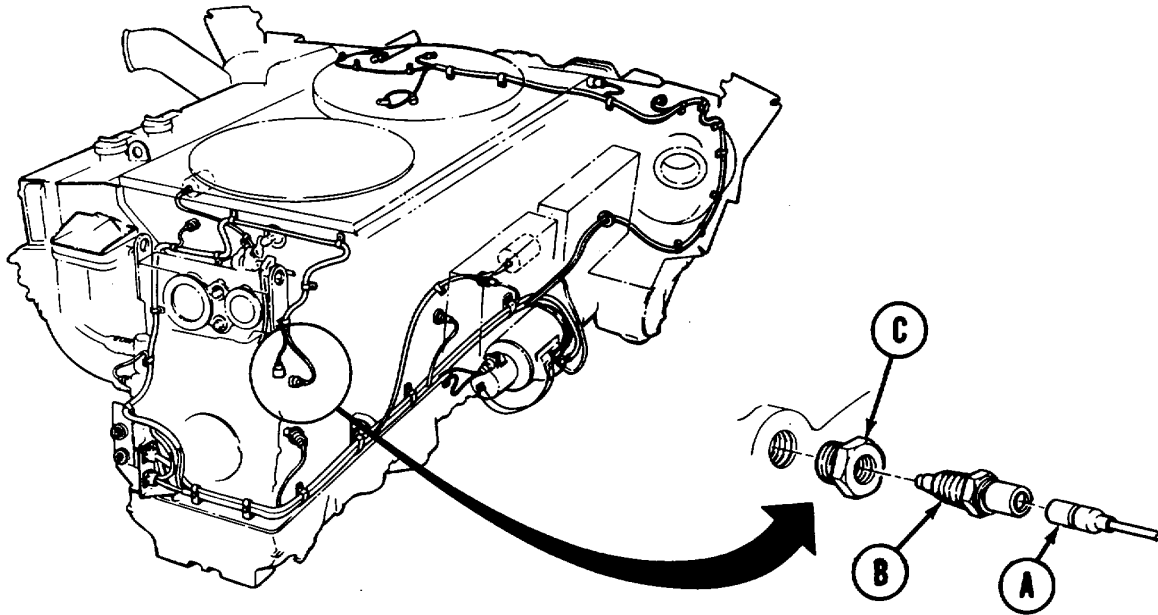
End of Task

**ENGINE OIL TEMPERATURE TRANSMITTER REPLACEMENT (2A ENGINE)(Sheet 1 of 2)**

**TOOLS:** 15/16 in. deep well socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 15/16 in. socket with 1/2 in. drive

**SUPPLIES:** Sealing compound (Item 20, Appendix D)  
 Rags (Item 65, Appendix D)

**PRELIMINARY PROCEDURE:** Remove powerplant (page 5-2)

**REMOVAL:**

1. Disconnect electrical lead (A) from oil temperature transmitter (B).
2. Place rags under oil temperature transmitter (B).
3. Using 15/16 inch deep well socket, remove oil temperature transmitter (B).
4. Using 15/16 inch socket, remove bushing (C).

**INSPECTION:**

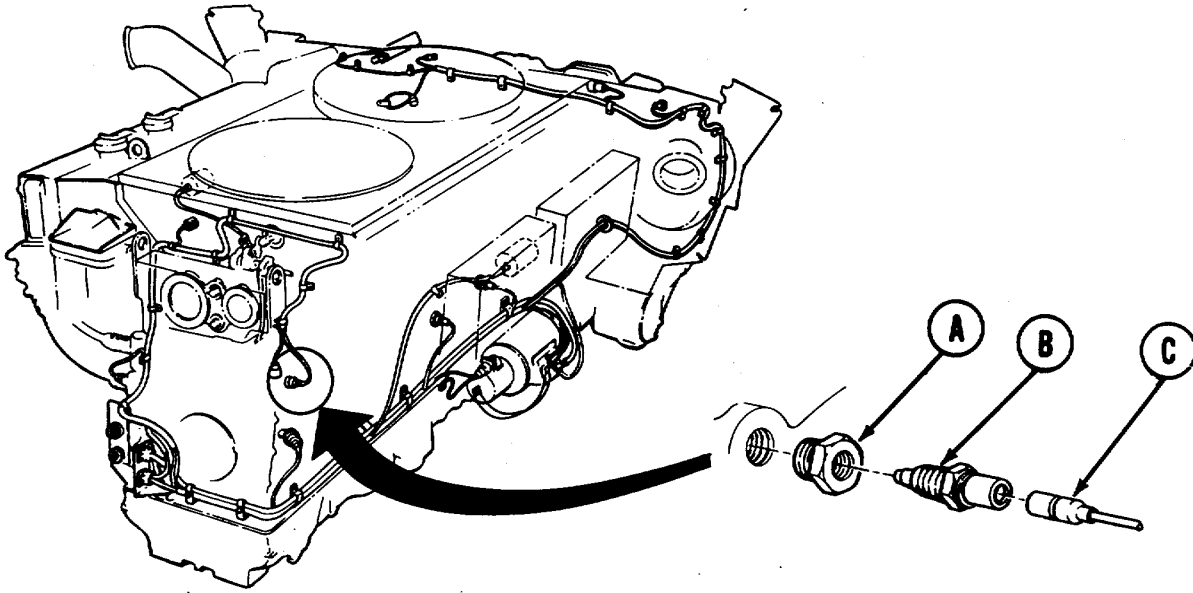
Inspect bushing (C) for cracks and crossed threads. Replace as necessary.

Go on to Sheet 2

TA147294

**ENGINE OIL TEMPERATURE TRANSMITTER REPLACEMENT (2A ENGINE)(Sheet 2 of 2)**

**INSTALLATION:**



1. Lightly coat threads of bushing (A) and oil temperature transmitter (B) with sealing compound (Item 20, Appendix D).
2. Using 15/16 inch socket install bushing (A) into engine.
3. Using deep well socket, install transmitter (B) to bushing (A).
4. Connect electrical lead (C) onto transmitter (B).
5. Remove rags from under transmitter.
6. Connect engine for powerplant ground hop (page 5-54).
7. Start and run engine. Observe oil temperature indicator for normal oil temperature. (TM 9-2350-260-10).
8. Shut down engine. Disconnect engine from powerplant ground hop (page 5-67).
9. Install powerplant (page 5-14).

End of Task

TA147295

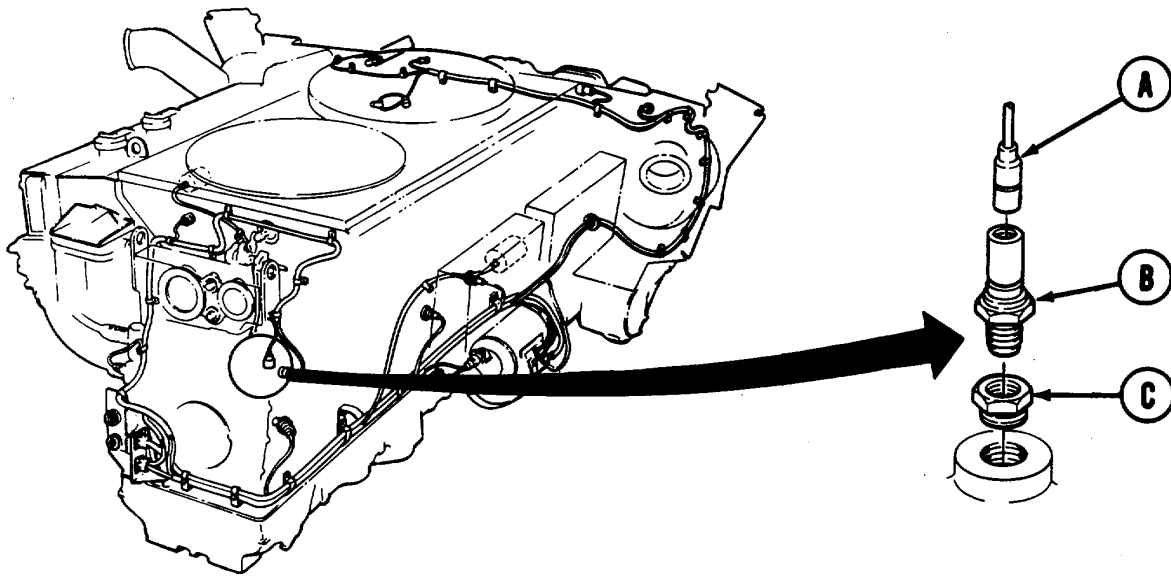
**ENGINE OIL HIGH TEMPERATURE SWITCH REPLACEMENT (2A ENGINE)(Sheet 1 of 2)**

**TOOLS:** 15/16 in. deep well socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 15/16 in. socket with 1/2 in. drive

**SPECIAL TOOLS:** Ground Hop kit (Item 30, Chapter 3, Section I)

**SUPPLIES:** Rags (Item 65, Appendix D)  
 Sealing compound (Item 20, Appendix D)

**PRELIMINARY PROCEDURE:** Remove powerplant (page 5-2)

**REMOVAL:**

1. Disconnect electrical lead (A) from oil high temperature switch (B).
2. Place rags (Item 65, Appendix D) under and around switch (B).
3. Using 15/16 in. deep well socket, remove switch (B).
4. Using 15/16 inch socket, remove bushing (C).

**INSPECTION:**

Inspect bushing (C) for cracks and crossed threads. Replace as necessary.

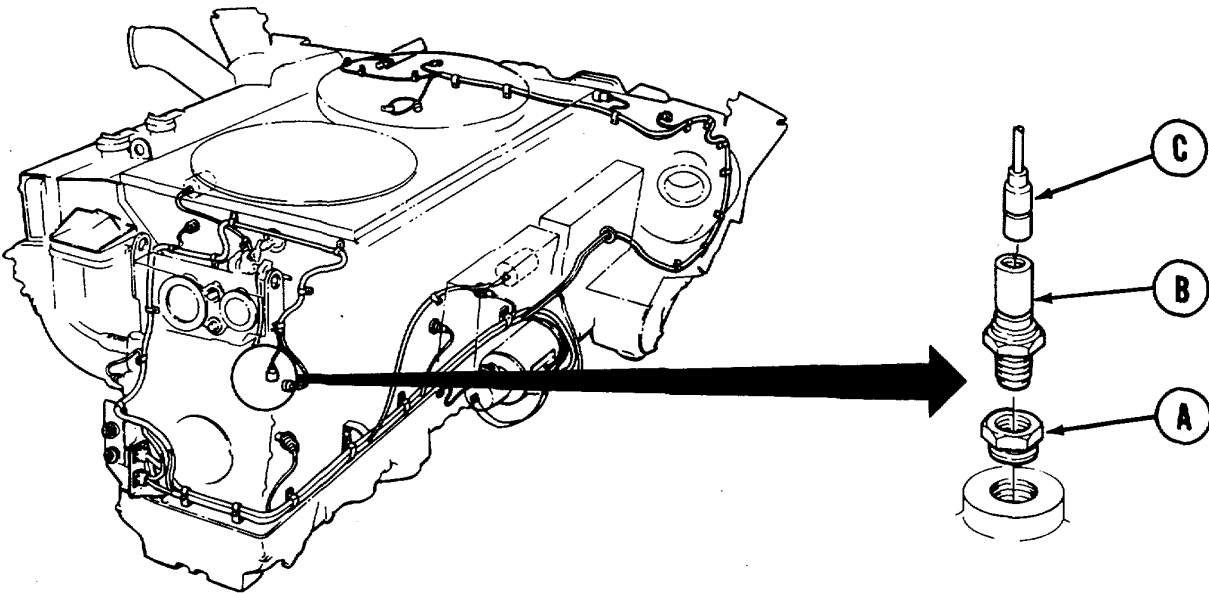
Go on to Sheet 2

TA147296



## ENGINE OIL HIGH TEMPERATURE SWITCH REPLACEMENT (2A ENGINE)(Sheet 2 of 2)

## INSTALLATION:



1. Remove rags from engine.
2. Lightly coat threads of bushing (A) and oil high temperature switch (B) with sealing compound (Item 20, Appendix D).
3. Using 15/16 inch socket, install bushing (A) into engine.
4. Using deep well socket, install oil high temperature switch (B).
5. Connect electrical lead (C) to switch (B).
6. Connect engine for powerplant ground hop (page 5-54).
7. Start and run engine. Observe oil temperature indicator for normal temperature. (TM 9-2350-260-10).
8. Shut down engine. Disconnect engine from ground hop (page 5-67).
9. Install powerplant (page 5-14).

End of Task

**ENGINE OIL HIGH PRESSURE TRANSMITTER REPLACEMENT (2A ENGINE)(Sheet 1 of 2)**

TOOLS: Ratchet with 1/2 in. drive  
5 in. extension with 1/2 in. drive  
15/16 in. combination box and open end wrench  
3/4 in. socket with 1/2 in. drive

SPECIAL TOOLS: Ground Hop kit (Item 30, Chapter 3, Section 1)

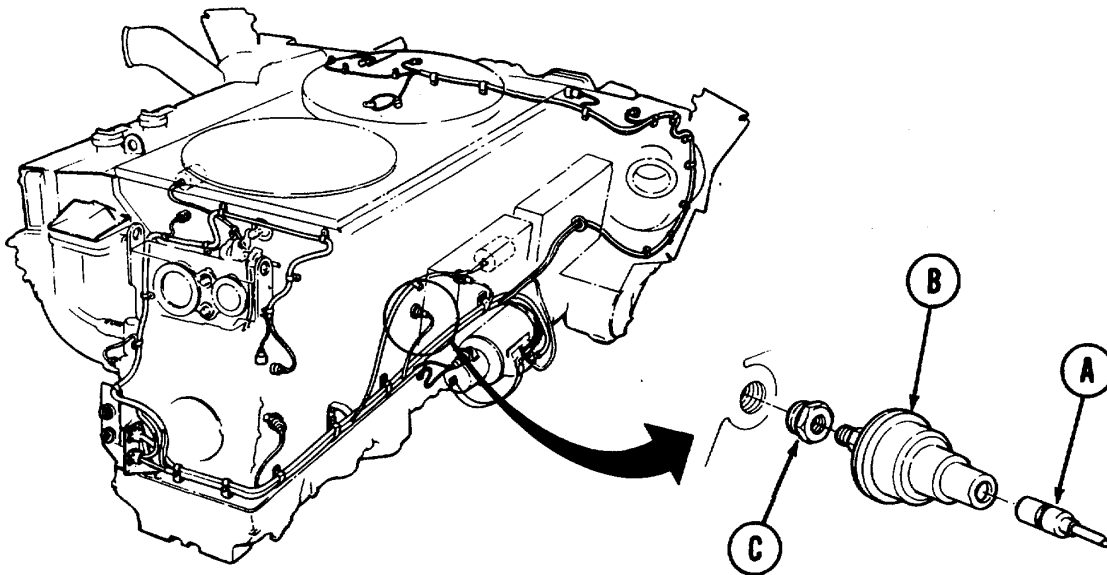
SUPPLIES: Sealing compound (Item 20, Appendix D)

REFERENCE: LO 9-2350-260-12

PRELIMINARY PROCEDURES: Remove powerplant (page 5-2)  
Drain engine oil (LO 9-2350-260-12)

**REMOVAL:**

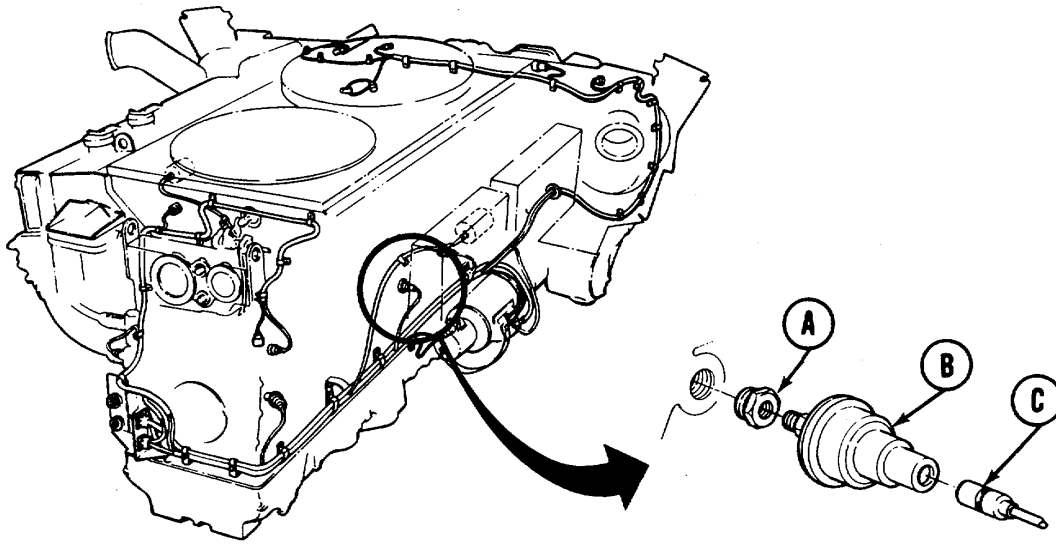
1. Disconnect electrical lead (A) from engine oil pressure transmitter (B).
2. Using wrench, remove engine oil pressure transmitter (B).
3. Using socket, remove bushing (C) from engine.

**INSPECTION:**

Inspect bushing (C) for cracks and crossed threads. Replace as necessary.

TA147298

Go on to Sheet 2

**ENGINE OIL HIGH PRESSURE TRANSMITTER REPLACEMENT (2A ENGINE)(Sheet 2 of 2)****INSTALLATION:**

1. Lightly coat threads of bushing (A) and transmitter (B) with sealing compound (Item 20, Appendix D).
2. Using socket, install bushing (A) into engine.
3. Using wrench, install transmitter (B) onto bushing (A).
4. Connect electrical lead (C) to switch (B).
5. Fill engine with oil (LO 9-2350-260-12).
6. Connect engine for powerplant ground hop (page 5-54).
7. Start and run engine. Observe oil temperature indicator for normal oil temperature. (TM 9-2350-260-10)
8. Shut down engine. Disconnect engine from powerplant ground hop (page 5-67).
9. Install powerplant (page 5-14).

TA147299

End of Task

**ENGINE OIL LOW PRESSURE SWITCH REPLACEMENT (2A ENGINE)(Sheet 1 of 2)**

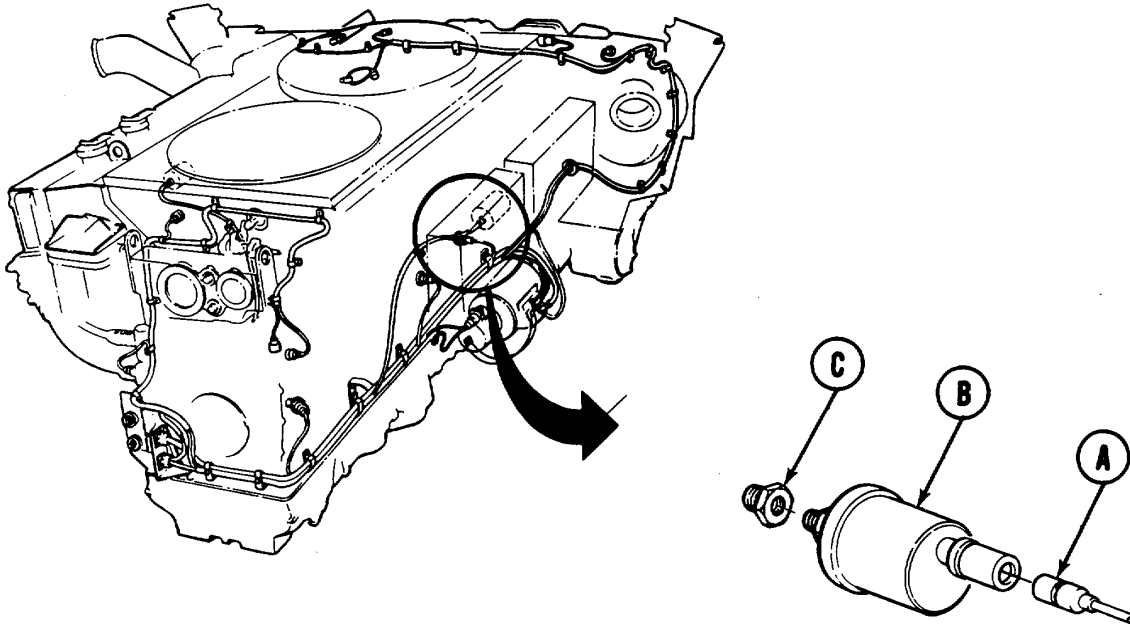
**TOOLS:** 15/16 in. deep well socket with 1/2 in. drive  
 3/4 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 5 in. extension with 1/2 in. drive

**SPECIAL TOOLS:** Ground Hop kit (Item 30, Chapter 3, Section 1)

**SUPPLIES:** Sealing compound (Item 20, Appendix D)

**REFERENCE:** LO 9-2350-260-12

**PRELIMINARY PROCEDURES:** Remove powerplant (page 5-2)  
 Drain engine oil (LO 9-2350-260-12)



**REMOVAL:**

1. Disconnect electrical lead (A).
2. Using wrench, remove engine oil low pressure switch (B).
3. Using socket, remove bushing (C).

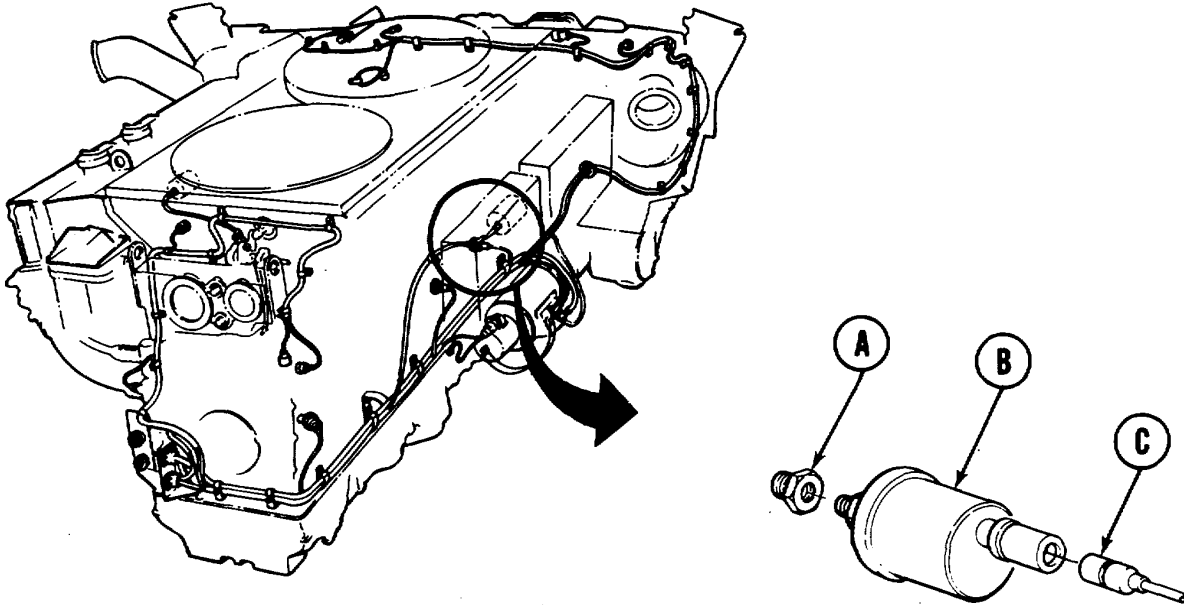
**INSPECTION:**

Inspect bushing (C) for cracks and crossed threads. Replace as necessary

Go on to Sheet 2

## ENGINE OIL LOW PRESSURE SWITCH REPLACEMENT (2A ENGINE)(Sheet 2 of 2)

## INSTALLATION:



1. Lightly coat threads of bushing (A) and oil low pressure switch (B) with sealing compound (Item 20, Appendix D).
2. Using socket, install bushing into engine.
3. Using wrench, install oil low pressure switch (B) onto bushing (A).
4. Connect electrical lead (C) to switch (B).
5. Fill engine with oil (LO 9-2350-260-12).
6. Connect engine for powerplant ground hop (page 5-54).
7. Start and run engine. Observe oil temperature indicator for normal oil temperature. (TM 9-2350-260-10).
8. Shut down engine. Disconnect engine from powerplant ground hop (page 5-67).
9. Install powerplant (page 5-14).

End of Task

TA147301

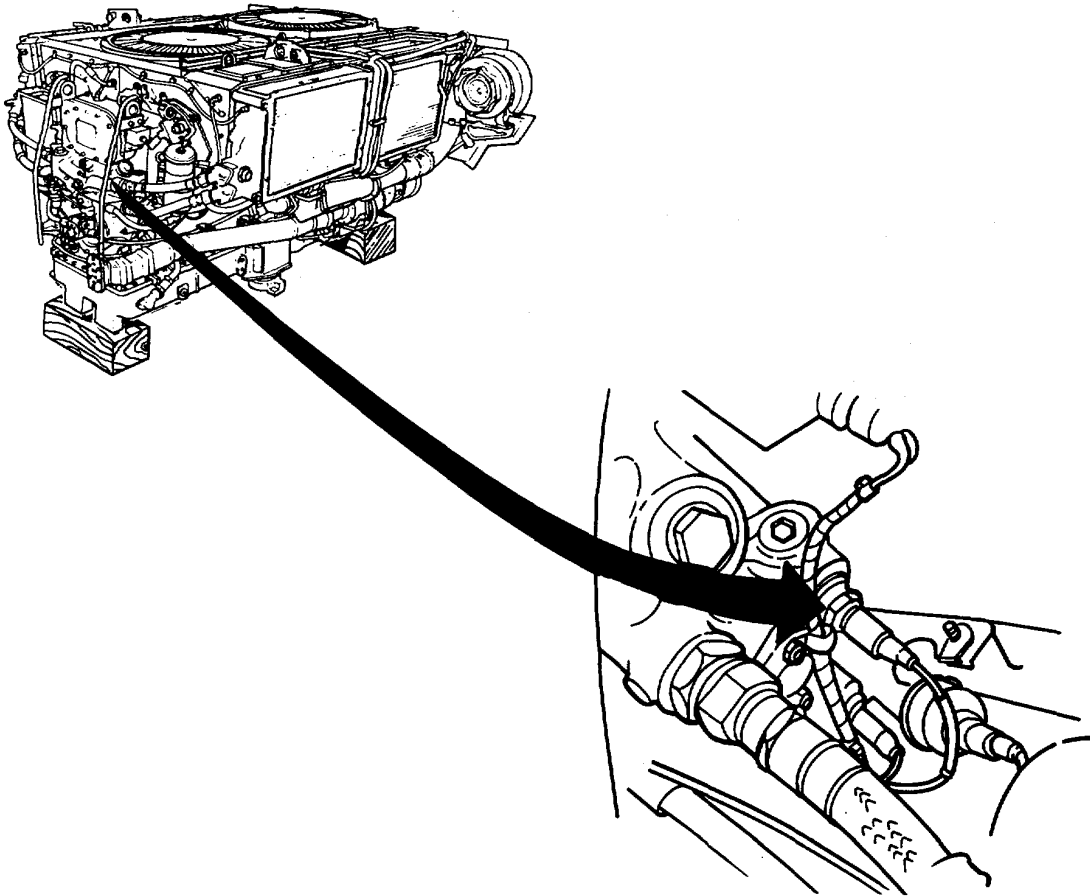
**ENGINE OIL TEMPERATURE TRANSMITTER REPLACEMENT (2D ENGINE)(Sheet 1 of 3)**

**TOOLS:** 1/2 in. combination box and open end wrench  
15/16 in. combination box and open end wrench

**SPECIAL TOOLS:** Ground hop kit (Item 30, Chapter 3, Section I)

**SUPPLIES:** Rags (Item 65, Appendix D)  
Sealing compound (Item 20, Appendix D)  
Silicone compound (Item 32, Appendix D)  
Self-locking nut (MS21045-4)

**PRELIMINARY PROCEDURE:** Remove powerplant (page 5-27)

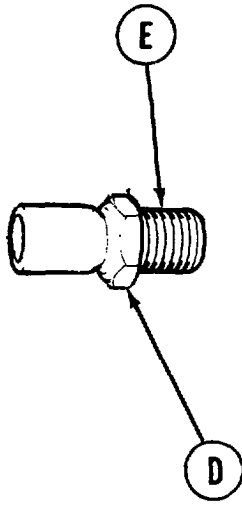
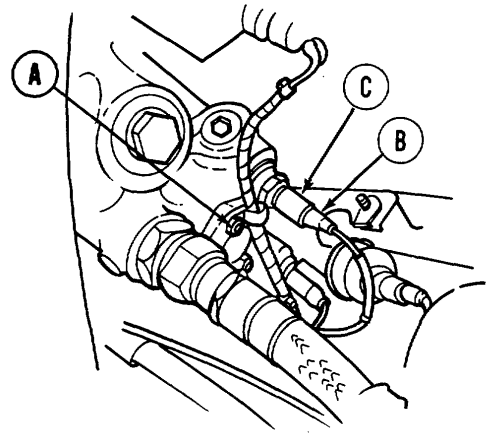


Go on to Sheet 2

TA147302

**ENGINE OIL TEMPERATURE TRANSMITTER REPLACEMENT (2D ENGINE)(Sheet 2 of 3)****REMOVAL:**

1. Place rags (Item 65, Appendix D) under transmitter.
2. Using 1/2 inch wrench, remove self-locking nut and clamp (A). Throw nut away.
3. Pull socket of rubber insulated connector (B) from switch cap (C).
4. Using 15/16 inch wrench, remove transmitter (D) from engine.



5. Check interior and protruding part of transmitter socket (E) for cracks and crossed threads. Replace if necessary.

**INSTALLATION:**

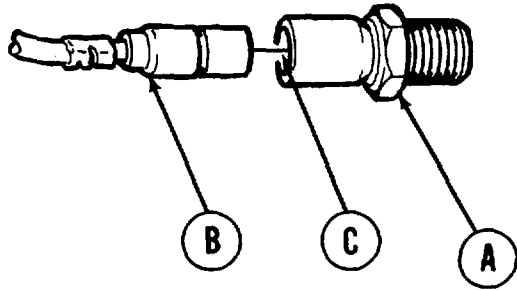
1. Lightly coat threads of transmitter with sealing compound (Item 20, Appendix D).

Go on to Sheet 3

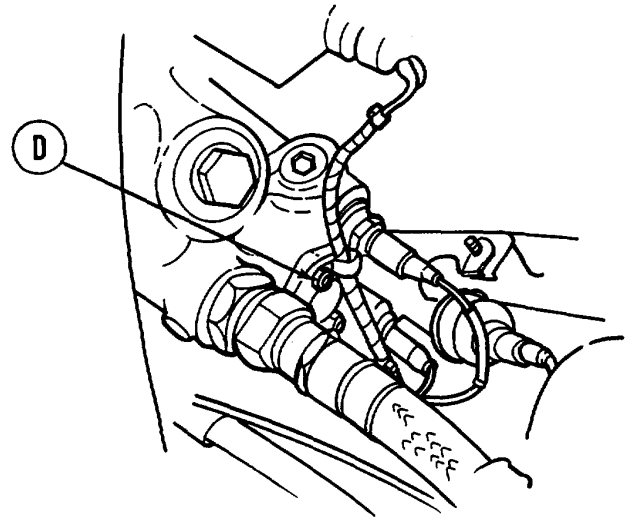
TA147303

10-271

## ENGINE OIL TEMPERATURE TRANSMITTER REPLACEMENT (2D ENGINE)(Sheet 3 of 3)



2. Using 15/16 inch wrench, install transmitter (A) into engine.
3. Lubricate connector (B) with silicone compound (Item 32, Appendix D).
4. Push socket of rubber insulated connector (B) into transmitter cap (C).



5. Remove rags from under transmitter.
6. Using 1/2 inch wrench, install new self-locking nut and clamp (D).
7. Connect engine for powerplant ground hop (page 5-54).
8. Start and run engine. Observe oil temperature indicator for normal oil temperature. (TM 9-2350-260-10).
9. Shut down engine. Disconnect engine from powerplant ground hop (page 5-67).
10. Intel powerplant (page 5-40).

End of Task

TA147304



**ENGINE OIL HIGH TEMPERATURE SWITCH REPLACEMENT (2D ENGINE)(Sheet 1 of 2)**

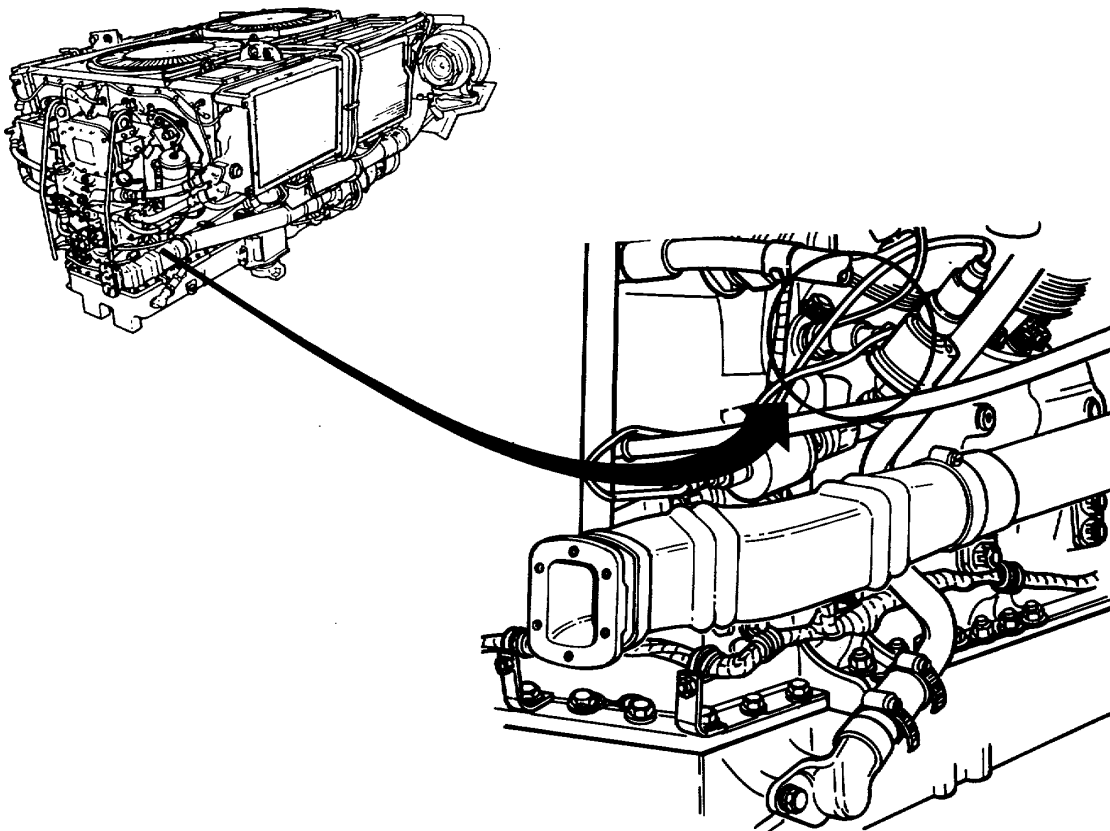
TOOLS: 15/16 in. deep well socket with 1/2 in. drive  
Ratchet with 1/2 in. drive

SPECIAL TOOLS: Ground hop kit (Item 30, Chapter 3, Section I)

SUPPLIES: Rags (Item 65, Appendix D)  
Sealing compound (Item 20, Appendix D)  
Silicone compound (Item 32, Appendix D)

REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURE: Remove powerplant (page 5-27)



Go on to Sheet 2

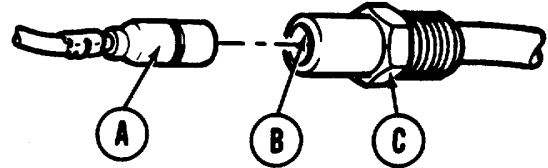
TA147305

10-273

**ENGINE OIL HIGH TEMPERATURE SWITCH REPLACEMENT (2D ENGINE)(Sheet 2 of 2)**

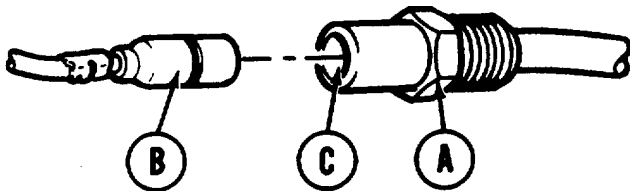
**REMOVAL:**

1. Place rags (Item 65, Appendix D) under switch.
2. Pull socket of rubber insulated connector (A) from switch cap (B).
3. Using socket, remove switch (C) from engine.



**INSTALLATION:**

1. Lightly coat threads of switch with sealing compound (Item 20, Appendix D).



2. Using socket, install switch (A) into engine.
3. Lubricate rubber connector (B) with silicone compound (Item 32, Appendix D).
4. Push socket of rubber insulated connector (B) into switch cap (C).
5. Remove rags from under switch

6. Connect engine for powerplant ground hop (page 5-54).
7. Start and run engine. Observe temperature indicator for normal oil temperature (TM 9-2350-260-10).
8. Shut down engine. Disconnect engine from powerplant ground hop (page 5-67).
9. Install powerplant (page 5-40).

End of Task

TA147306

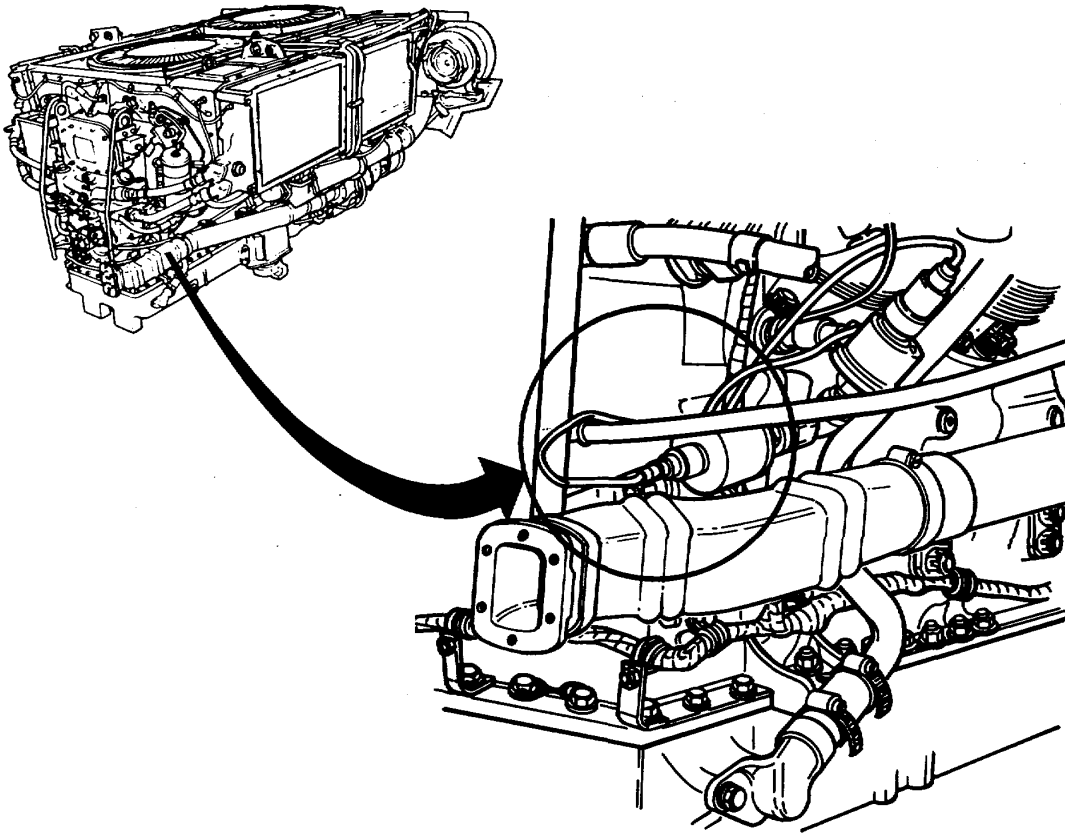
**ENGINE OIL LOW PRESSURE SWITCH REPLACEMENT (2D ENGINE)(Sheet 1 of 3)**

**TOOLS:** 7/8 in. combination box and open end wrench  
12 in. adjustable wrench (crescent)

**SPECIAL TOOLS:** Ground hop kit (Item 30, Chapter 3, Section I)

**SUPPLIES:** Rags (Item 65, Appendix D)  
Sealing compound (Item 20, Appendix D)  
Silicone compound (Item 32, Appendix D)

**PRELIMINARY PROCEDURES:** Remove powerplant (page 5-27)  
Remove engine oil high temperature switch (page 10-274)



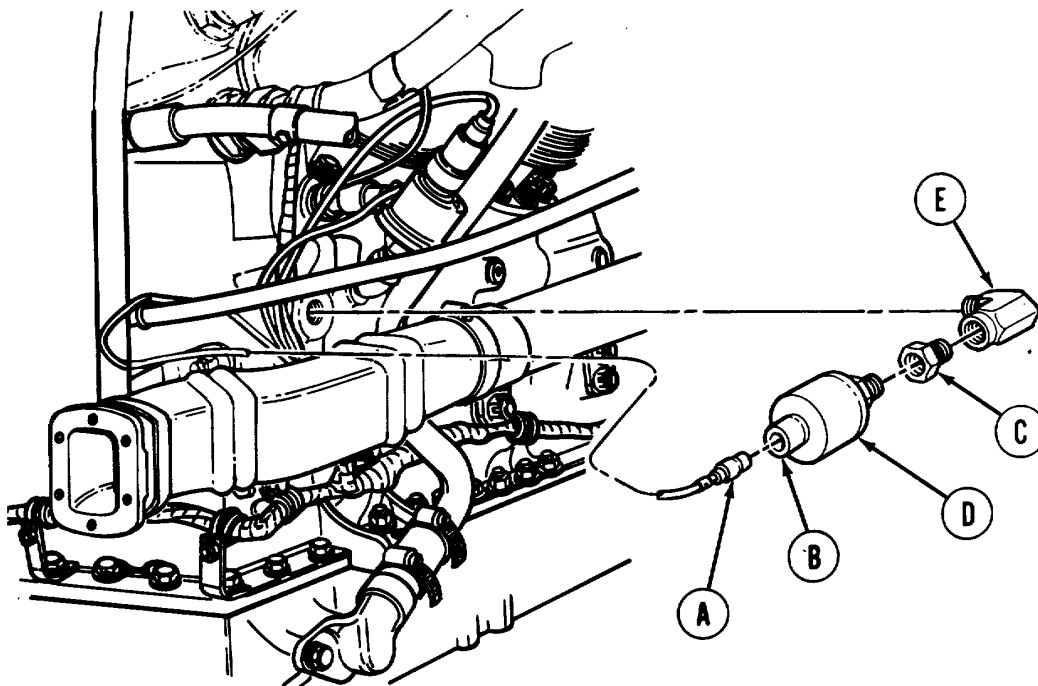
Go on to Sheet 2

**ENGINE OIL LOW PRESSURE SWITCH REPLACEMENT (2D ENGINE)(Sheet 2 of 3)****REMOVAL:**

1. Place rags (Item 65, Appendix D) under engine oil low pressure switch.
2. Pull socket of rubber insulated connector (A) from switch cap (B).
3. Using 7/8 inch wrench to hold adapter (C), use adjustable wrench and remove switch (D) from adapter (C).
4. Using 7/8 inch wrench, remove adapter (C) from elbow (E).
5. Using crescent wrench, remove elbow (E) from engine.

**INSTALLATION:****NOTE**

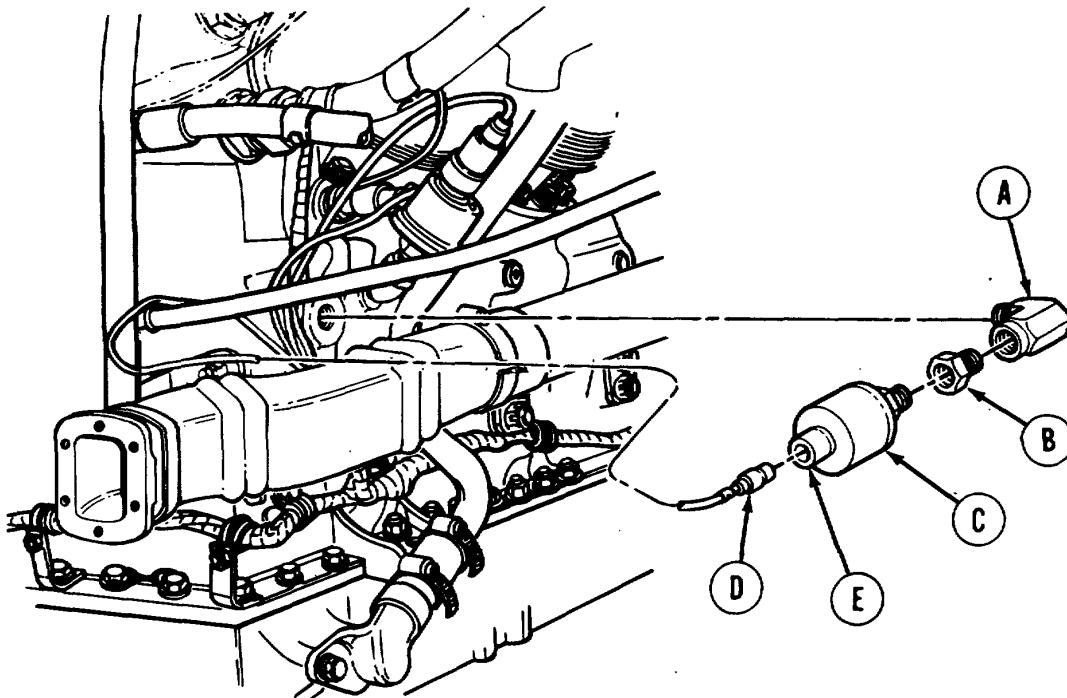
Prior to installation, lightly coat male threads of all components with sealing compound (Item 20, Appendix D).



Go on to Sheet 3

**ENGINE OIL LOW PRESSURE SWITCH REPLACEMENT (2D ENGINE)(Sheet 3 of 3)**

1. Using adjustable wrench, install elbow (A) to engine.
2. Using 7/8 inch wrench, install adapter (B) to elbow (A).
3. Using adjustable wrench, install new switch (C) into adapter (B).
4. Lubricate connector (D) with silicone compound (Item 32, Appendix D).
5. Push socket of rubber insulated connector (D) into switch cap (E).
6. Remove rags from under engine oil low pressure switch.
7. Install engine oil high temperature switch (page 102-74).
8. Connect engine for powerplant ground hop (page 5-54).
9. Start and run engine. Observe oil low pressure indicator for normal oil pressure. (TM 9-2350-260-10).
10. Shut down engine. Disconnect engine from powerplant ground hop (page 5-67).
11. Install powerplant (page 5-40).



End of Task

TA147309

10-277

**ENGINE OIL HIGH PRESSURE TRANSMITTER REPLACEMENT (2D ENGINE)(Sheet 1 of 3)**

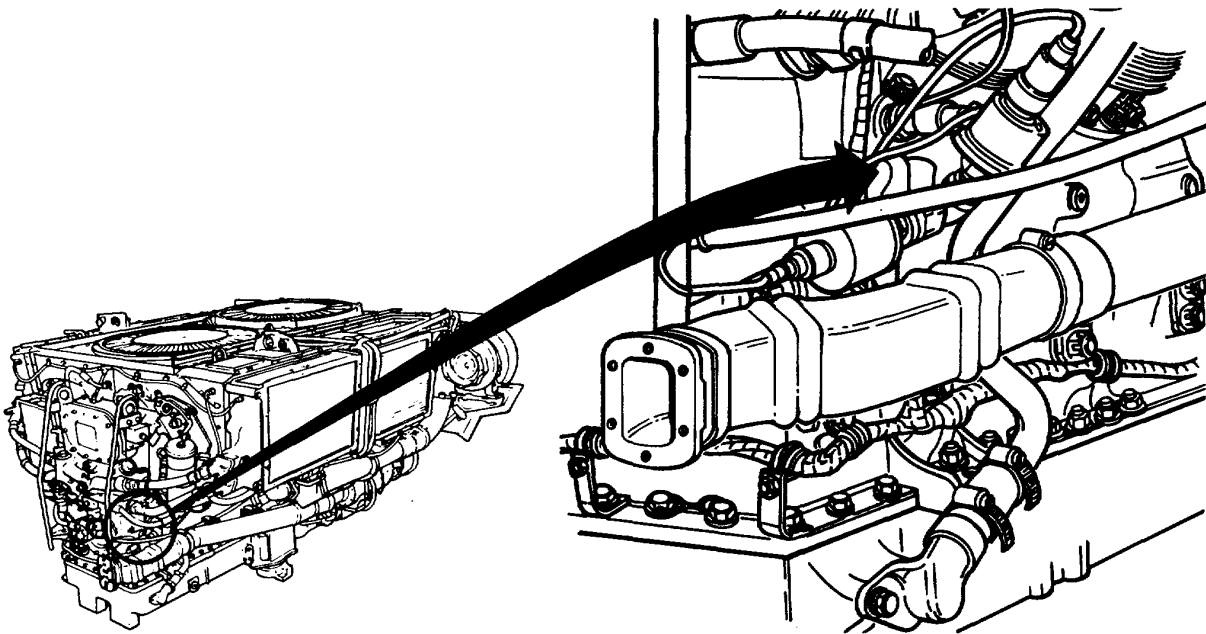
TOOLS: 7/8 in. combination box and open end wrench  
3/4 in. combination box and open end wrench  
10 in. pipe wrench

SPECIAL TOOLS: Ground hop kit (Item 30, Chapter 3, Section I)

SUPPLIES: Rags (Item 65, Appendix D)  
Silicone compound (Item 32, Appendix D)  
Sealing compound (Item 20, Appendix D)

REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURE: Remove powerplant (page 5-27)



Go on to Sheet 2

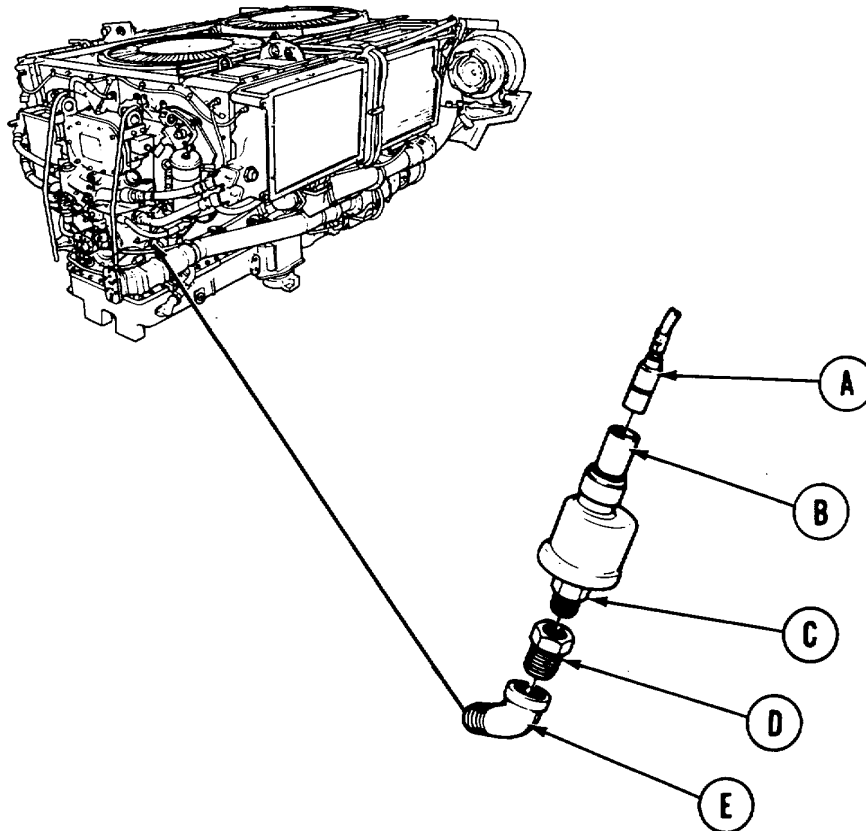
TA147310

**ENGINE OIL HIGH PRESSURE TRANSMITTER REPLACEMENT (2D ENGINE)(Sheet 2 of 3)****REMOVAL:**

1. Place rags (Item 65, Appendix D) under engine oil high pressure transmitter.
2. Pull socket of rubber insulated connector (A) from transmitter cap (B).
3. Using 7/8 inch wrench, remove transmitter (C) from pipe bushing D).
4. Using 3/4 inch wrench, remove pipe bushing (D) from elbow (E).
5. Using pipe wrench, remove elbow (E) from engine.

**INSPECTION:**

1. Check pipe bushing (D) and elbow (E) for cracks and crossed threads. Replace as required.
2. Replace faulty parts.



Go on to Sheet 3

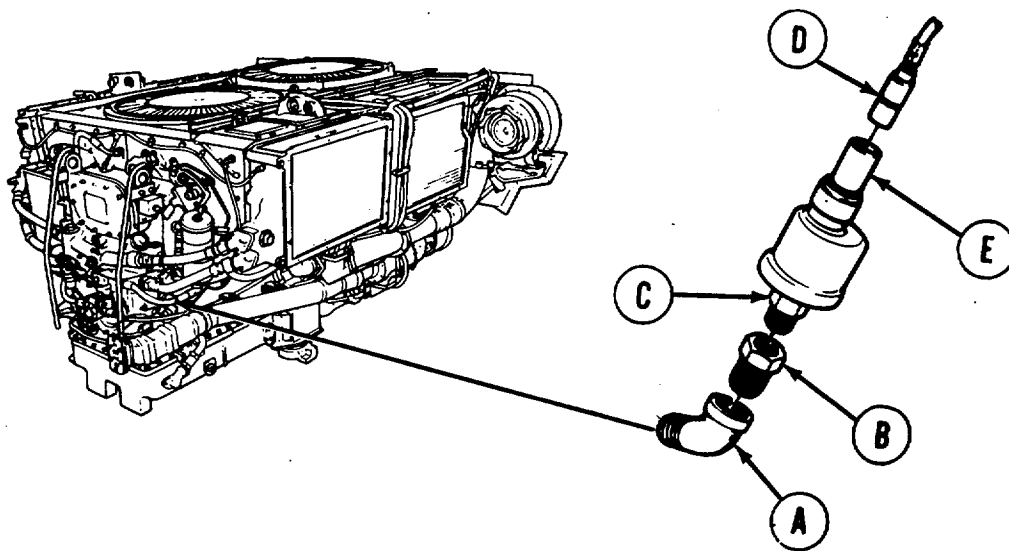
TA147311

10-279

**ENGINE OIL HIGH PRESSURE TRANSMITTER REPLACEMENT (2D ENGINE)(Sheet 3 of 3)****INSTALLATION:****NOTE**

**Prior to installation, lightly coat male threads of all components with sealing compound (Item 20, Appendix D).**

1. Using pipe wrench, install elbow (A) to engine.
2. Using 3/4 inch wrench, install pipe bushing (B) to elbow (A).
3. Using 7/8 inch wrench, install new transmitter (C) to pipe bushing (B).
4. Lubricate connector (D) with silicone compound (Item 32, Appendix D).
5. Push socket of rubber insulated connector (D) into transmitter cap (E).
6. Remove rags from under engine oil high pressure transmitter.
7. Connect engine for powerplant ground hop (page 5-54).



8. Start and run engine. Observe oil pressure indicator for normal oil pressure (TM 9-2350-260-10).
9. Shut down engine. Disconnect engine from powerplant ground hop (page 5-67).
10. Install powerplant (page 5-40).

End of Task

TA147312



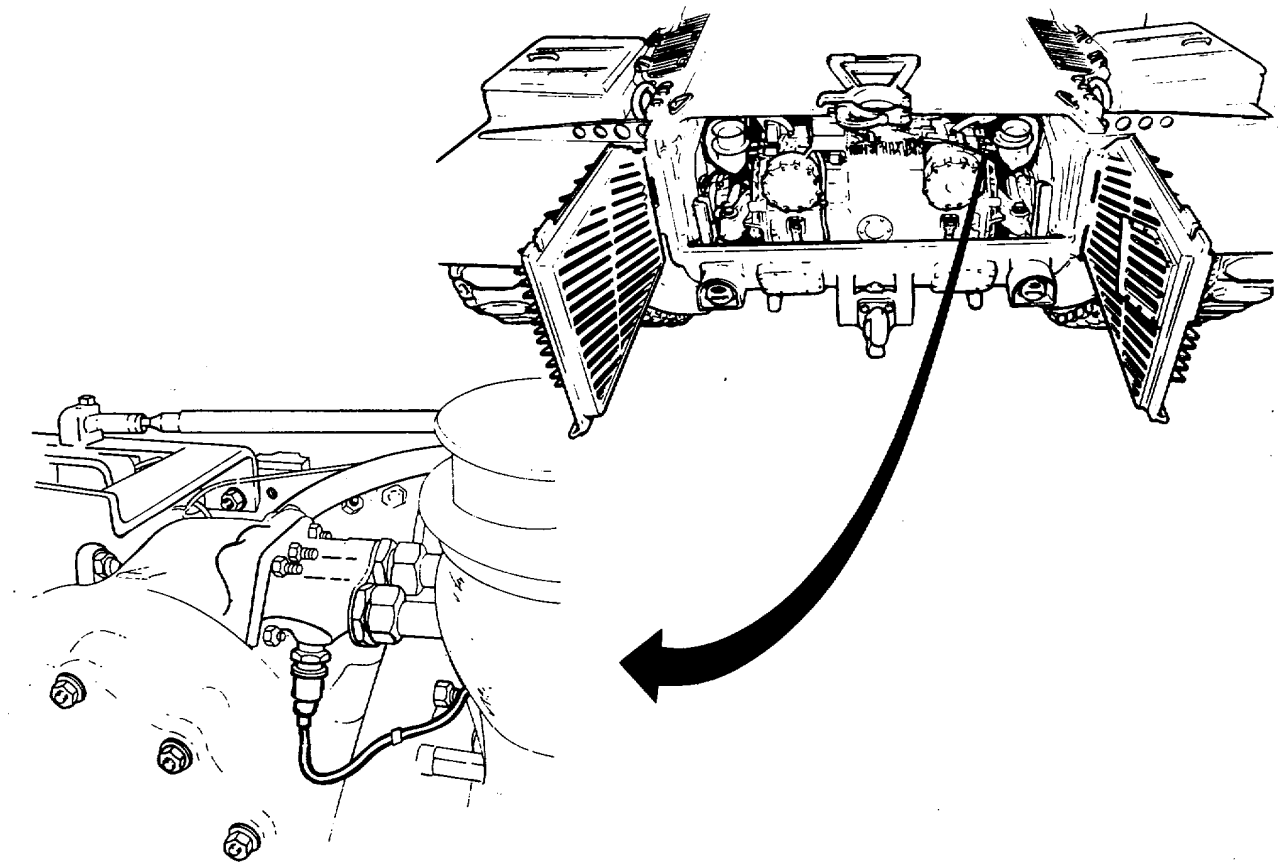
**TRANSMISSION OIL HIGH TEMPERATURE SWITCH REPLACEMENT(Sheet 1 of 2)**

TOOLS: 15/16 in. combination box and open end wrench

SUPPLIES: Rags (Item 65, Appendix D)  
Sealing compound (Item 20, Appendix D)  
Silicone compound (Item 32, Appendix D)

REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURE: Remove transmission shroud (page 9-20)



Go on to Sheet 2

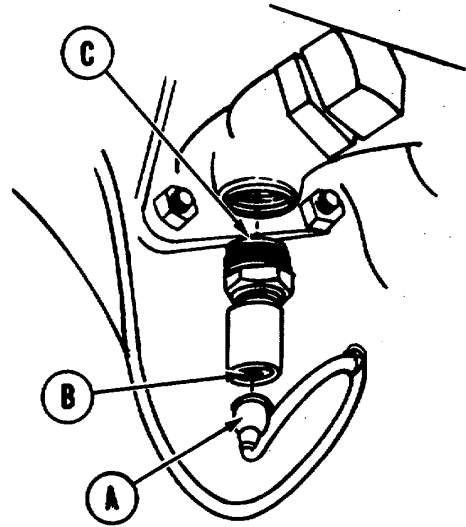
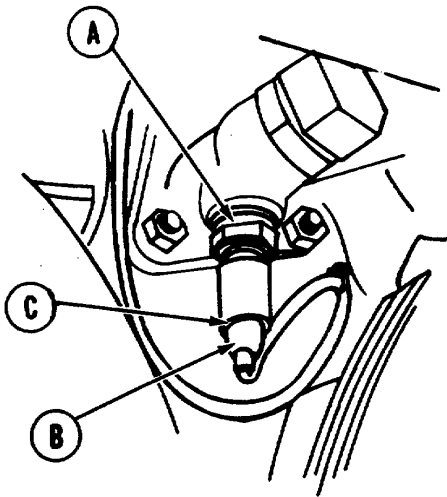
TA147313

10-281

**TRANSMISSION OIL HIGH TEMPERATURE SWITCH REPLACEMENT (Sheet 2 of 2)**

**REMOVAL:**

1. Place rags under switch.
2. Pull socket of rubber insulated connector (A) from switch cap (B).
3. Using wrench, remove switch (C) from transmission.



**INSTALLATION:**

1. Lightly coat threads of switch with sealing compound (Item 20, Appendix D).
2. Using wrench, install switch (A) into transmission.
3. Lubricate connector (B) with silicone compound (Item 32, Appendix D).
4. Push socket of rubber insulated connector (B) into switch cap (C).
5. Remove rags from under switch.
6. Start and run engine. Observe oil temperature indicator for normal oil temperature (TM 9-2350-260-10).
7. Shut down engine (TM 9-2350-260-10)
8. Install transmission shroud (page 9-23).

End of Task

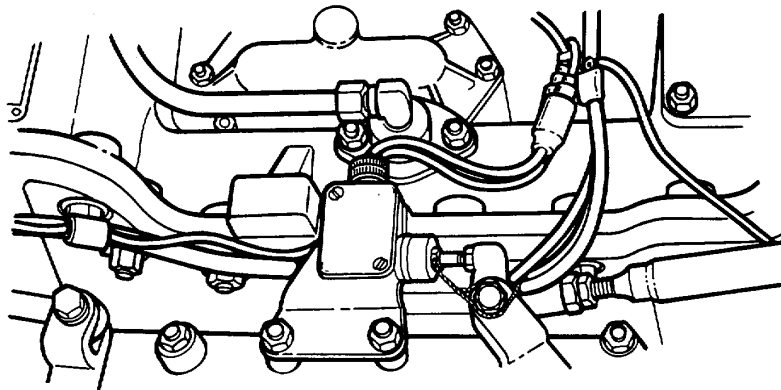
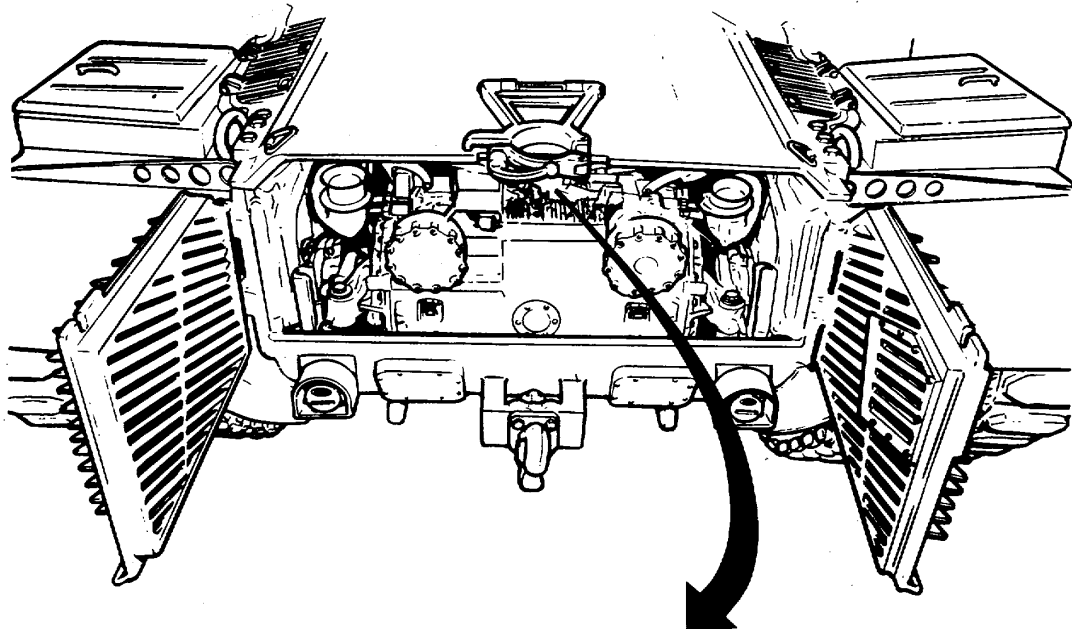
TA147314

**NEUTRAL SHIFT SWITCH ASSEMBLY REPLACEMENT (Sheet 1 of 2)**

**TOOLS:** Flat-tip screwdriver with 2 in. blade  
3/8 in. combination box and open end wrench

**SUPPLIES:** Silicone compound (Item 32, Appendix D)  
Lockwasher (MS35338-42)(2 required)

**PRELIMINARY PROCEDURE:** Remove transmission shroud (page 9-20)



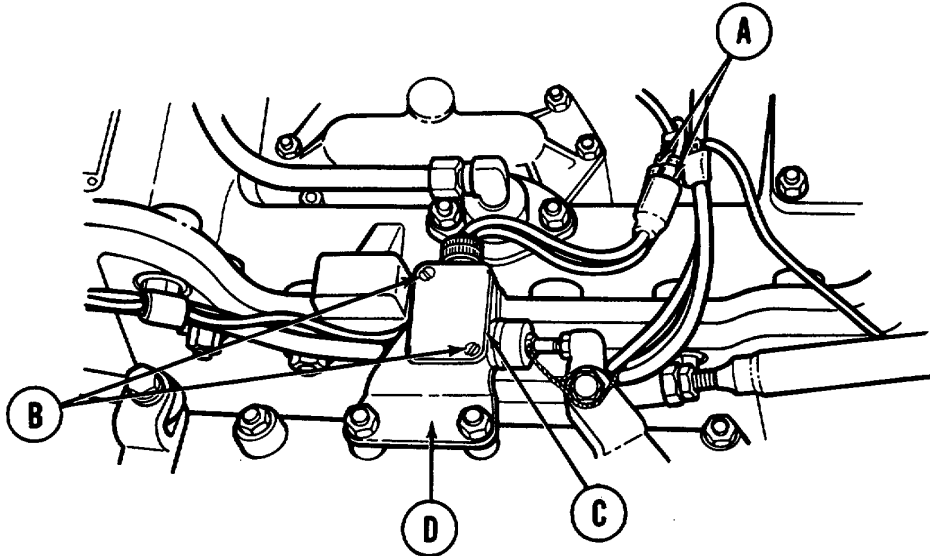
Go on to Sheet 2

TA147315

10-283

**NEUTRAL SHIFT SWITCH ASSEMBLY REPLACEMENT (Sheet 2 of 2)****REMOVAL:**

1. Disconnect two electrical connectors (A).
2. Using screwdriver and wrench, remove two screws, lockwashers, and nuts (B) securing switch (C).
3. Remove switch (C) from bracket (D).

**INSTALLATION:**

1. Position switch (C) onto bracket (D).
2. Using screwdriver and wrench, install and tighten two screws, new lockwashers, and nuts (B) securing switch (C) to bracket (D).
3. Apply silicone compound (Item 32, Appendix D) to male connectors and connect two connectors (A).
4. Check neutral switch adjustment (page 11-22).
5. Install transmission shroud (page 9-23).

End of Task

TA147316

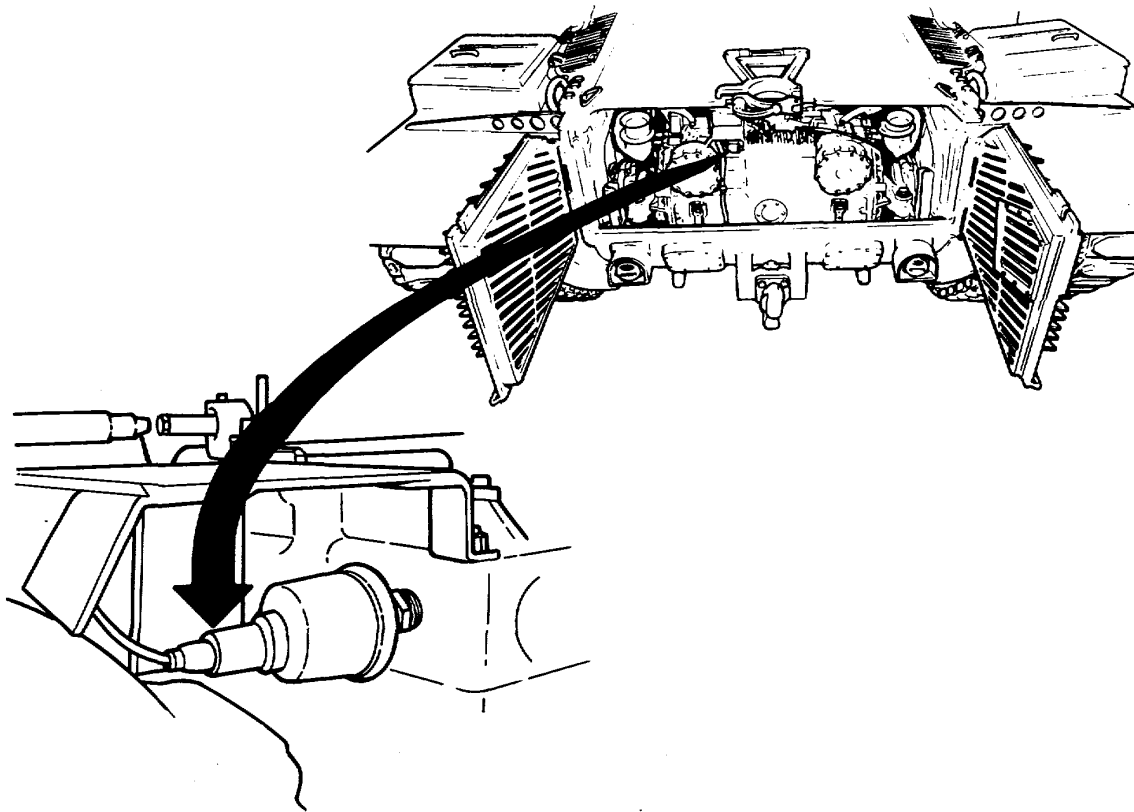
**TRANSMISSION OIL PRESSURE TRANSMITTER REPLACEMENT (Sheet 1 of 3)**

TOOLS: 3/4 in. combination box and open end wrench  
7/8 in. combination box and open end wrench

SUPPLIES: Rags (Item 65, Appendix D)  
Sealing compound (Item 20, Appendix D)

REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURE: Remove transmission shroud.(page 9-20)



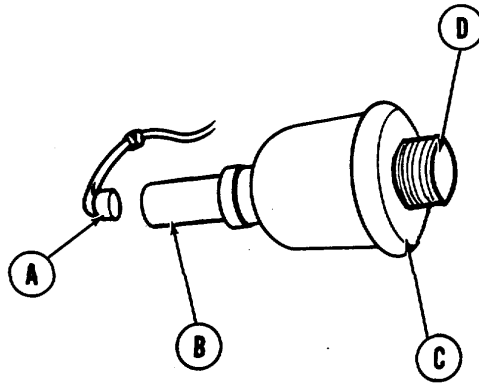
Go on to Sheet 2

TA147317

10-285

**TRANSMISSION OIL PRESSURE TRANSMITTER REPLACEMENT (Sheet 2 of 3)****REMOVAL:**

1. Place rags under transmitter.
2. Pull socket of rubber insulated connector (A) from transmitter cap (B).
3. Using 7/8 inch wrench, remove transmitter (C) from bushing (D).
4. Using 3/4 inch wrench, remove bushing (D) from transmission socket.
5. Check bushing (D) for cracks and crossed threads. Replace if necessary.



Go on to Sheet 3

TA147318

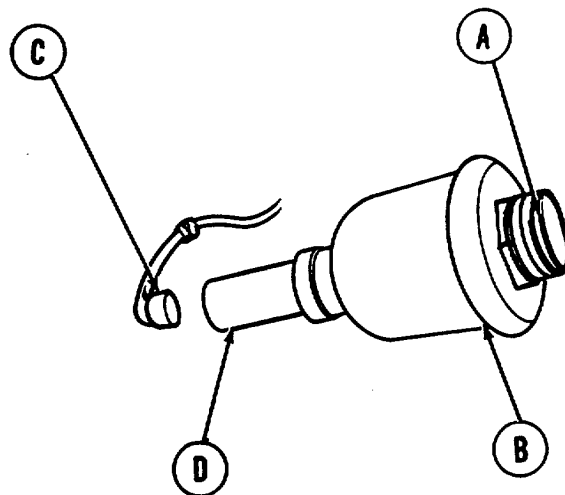
**TRANSMISSION OIL PRESSURE TRANSMITTER REPLACEMENT (Sheet 3 of 3)**

## INSTALLATION:

**NOTE**

**Prior to installation lightly coat male threads of all components with sealing compound (Item 20, Appendix D).**

1. Using 3/4 inch wrench, install bushing (A) to transmission socket.
2. Using 7/8 inch wrench, install transmitter (B) to bushing (A).
3. Push socket of rubber insulated connector (C) into transmitter cap (D).
4. Remove rags from under transmitter.
5. Start and run engine. Observe oil pressure indicator for normal oil pressure (TM 9-2350-260-10).
6. Shut down engine (TM 9-2350-260-10).
7. Install transmission shroud (page 9-23).



End of Task

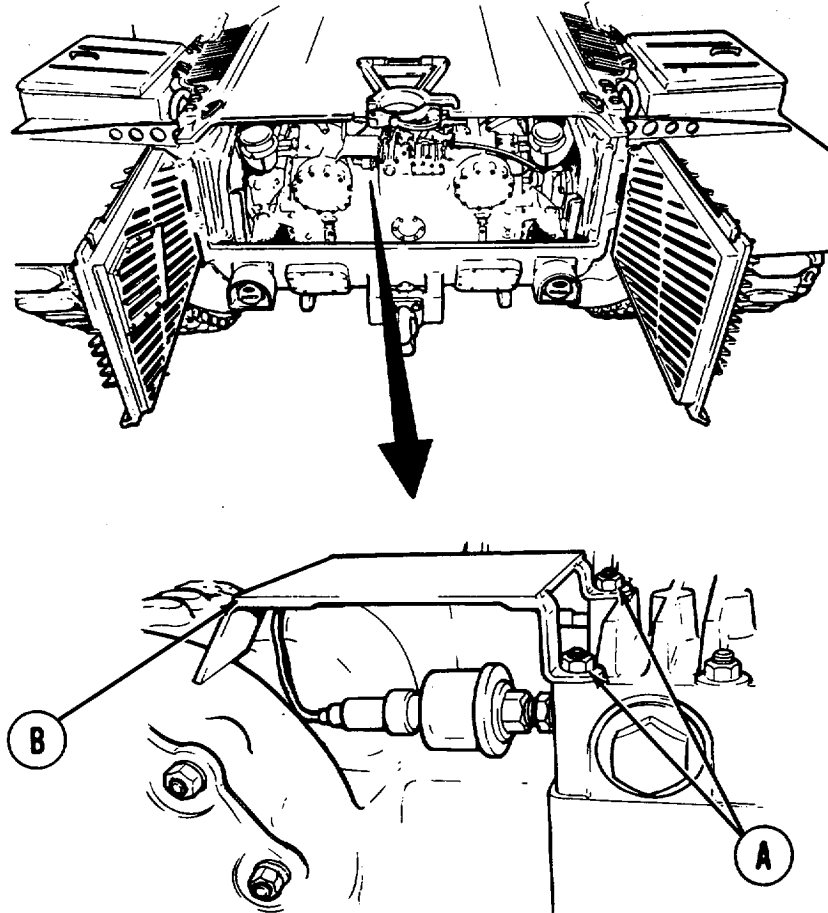
TA147319

10-287

## TRANSMISSION OIL PRESSURE TRANSMITTER GUARD PLATE REPLACEMENT (Sheet 1 of 2)

TOOLS: Ratchet with 1/2 in. drive  
9/16 in. socket with 1/2 in. drive

PRELIMINARY PROCEDURE: Remove transmission shroud (page 9-20)



### REMOVAL:

1. Using socket, remove two nuts (A) holding oil pressure transmitter guard plate (B) to transmission.
2. Manually lift oil pressure transmitter guard plate (B) up and away from transmission.

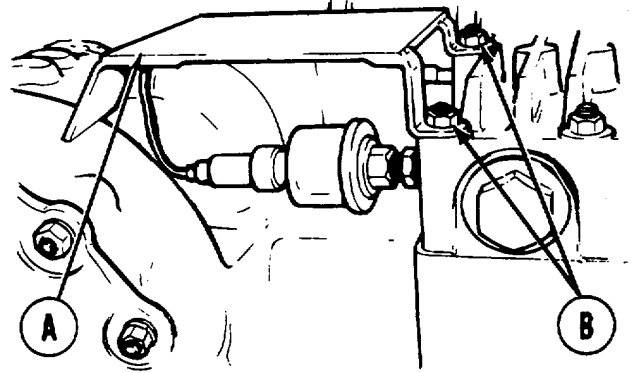
Go on to Sheet 2

TA147320



**TRANSMISSION OIL PRESSURE TRANSMITTER GUARD PLATE REPLACEMENT (Sheet 2 of 2)****INSTALLATION:**

1. Position off pressure transmitter guard plate (A) onto transmission.
2. Manually start two nuts (B) to hold oil pressure transmitter guard plate (A) in place.
3. Using socket tighten two nuts (B).
4. Install transmission shroud (page 9-23).



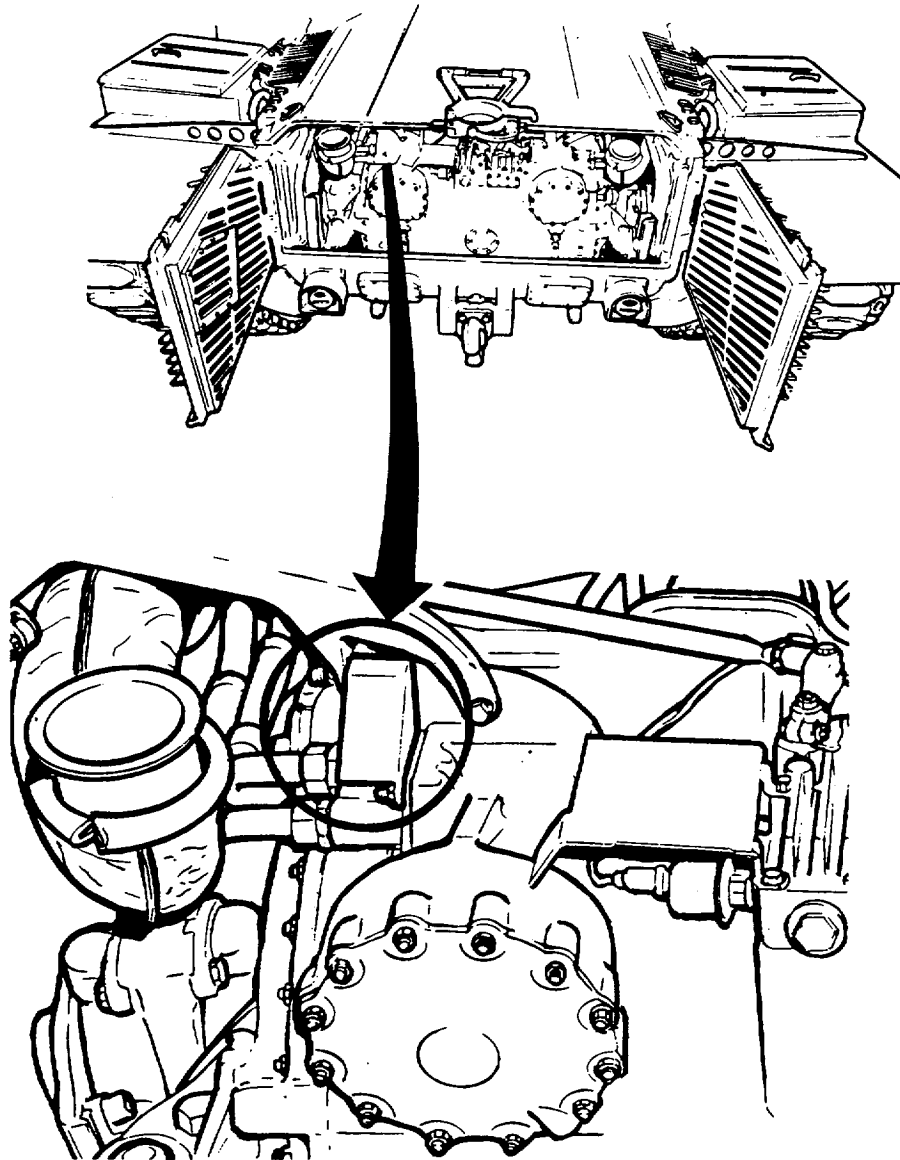
End of Task

TA147321

**TRANSMISSION OIL TEMPERATURE TRANSMITTER PROTECTOR REPLACEMENT (Sheet 1 of 2)**

TOOLS: Ratchet with 1/2 in. drive  
10 in. extension with 1/2 in. drive  
9/16 in. socket with 1/2 in. drive

PRELIMINARY PROCEDURE: Remove transmission shroud (page 9-20)



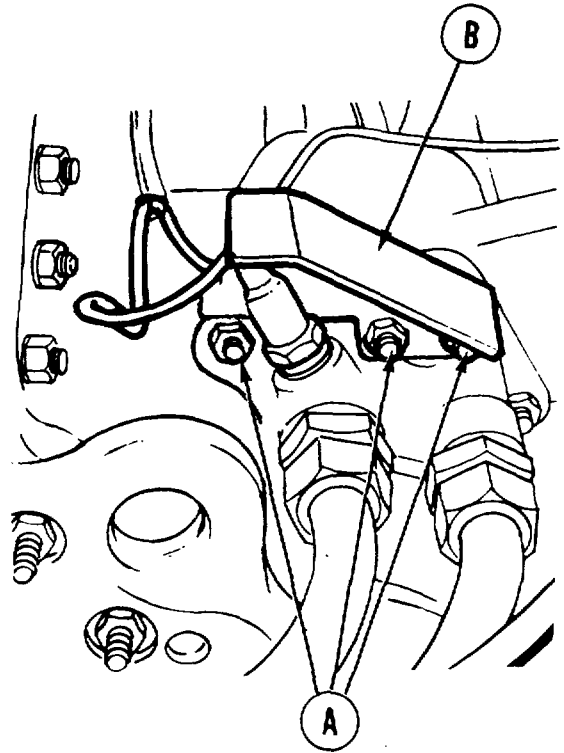
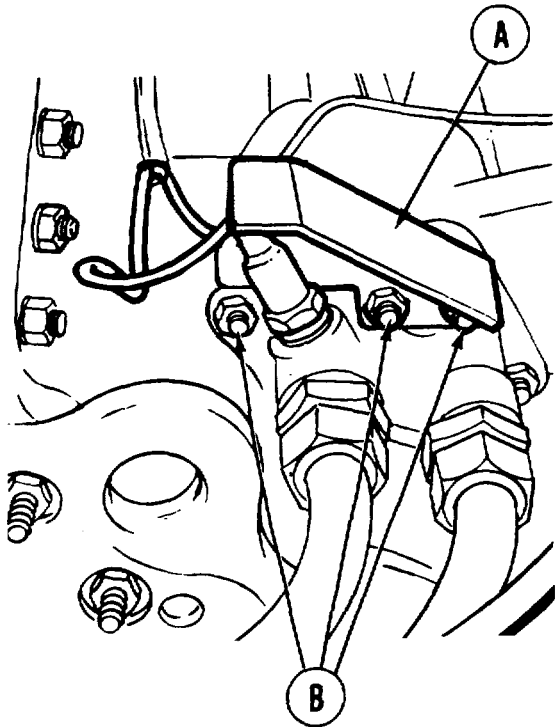
Go on to Sheet 2

TA147322

## TRANSMISSION OIL TEMPERATURE TRANSMITTER PROTECTOR REPLACEMENT (Sheet 2 of 2)

### REMOVAL:

1. Using socket and extension or wrench, remove two nuts (A) holding transmission oil temperature transmitter protector (B) to transmission.
2. Manually lift transmission oil temperature transmitter protector (B) away from transmission.



### INSTALLATION:

1. Position transmission oil temperature transmitter protector (A) onto transmission.
2. Manually start two nuts (B) to hold oil temperature transmitter protector (A) in place.
3. Using socket and extension or wrench, install two nuts (B).
4. Install transmission shroud (page 9-23).

End of Task

TA147323

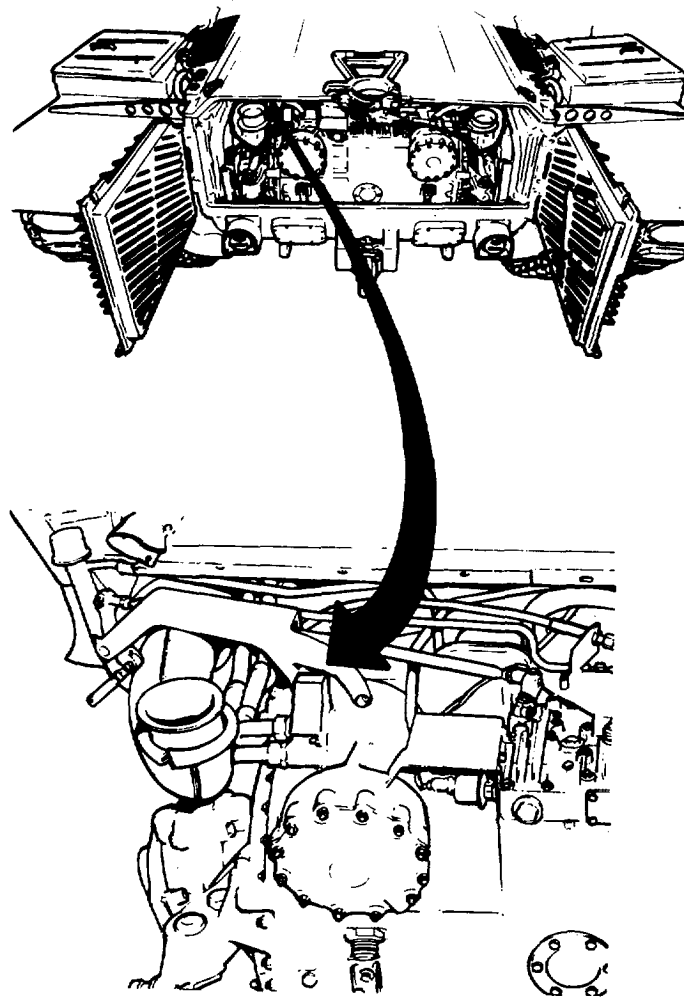
**TRANSMISSION OIL TEMPERATURE TRANSMITTER REPLACEMENT (Sheet 1 of 2)**

TOOLS: 15/16 in. combination box and open end wrench

SUPPLIES: Rags (Item 65, Appendix D)  
Sealing compound (Item 20, Appendix D)

REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURE: Remove transmission shroud (page 9-20)

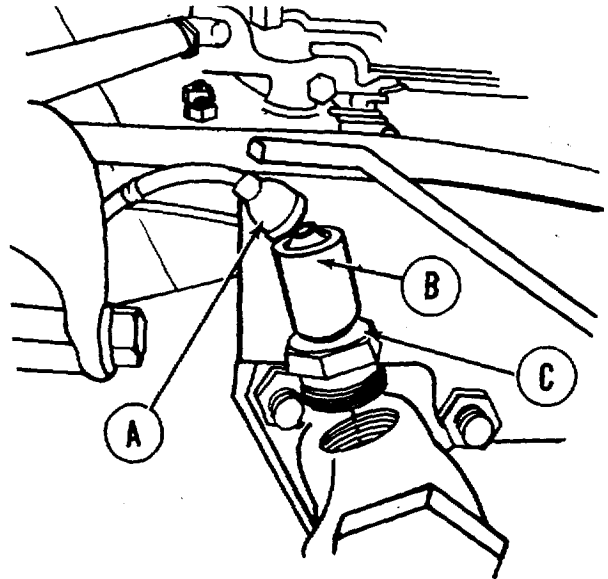


Go on to Sheet 2

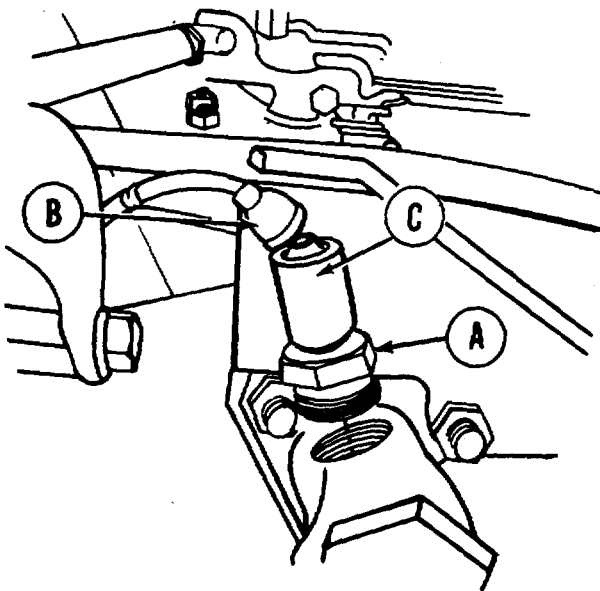
TA147324

**TRANSMISSION OIL TEMPERATURE TRANSMITTER REPLACEMENT (Sheet 2 of 2)****REMOVAL:**

1. Place rags under transmitter.
2. Pull socket of rubber insulated connector (A) from switch cap (B).
3. Using wrench, remove transmitter (C) from transmission.

**INSTALLATION:**

1. Lightly coat threads of transmitter with sealing compound (Item 20, Appendix D).



2. Using wrench, install transmitter (A) into transmission.
3. Push socket of rubber insulated connector (B) into switch cap (C).
4. Remove rags from under transmitter.

5. Start and run engine. Observe oil temperature Indicator for normal oil temperature (TM 9-2350-260-10).
6. Shut down engine (TM 9-2350-260-10).
7. Install transmission shroud (page 9-23).

End of Task

TA147325

**DISCONNECT BATTERY GROUND STRAPS (Sheet 1 of 1)**

TOOLS: 9/16 in. socket with 1/2 in. drive  
Ratchet  
5 in. extension with 1/2 in. drive

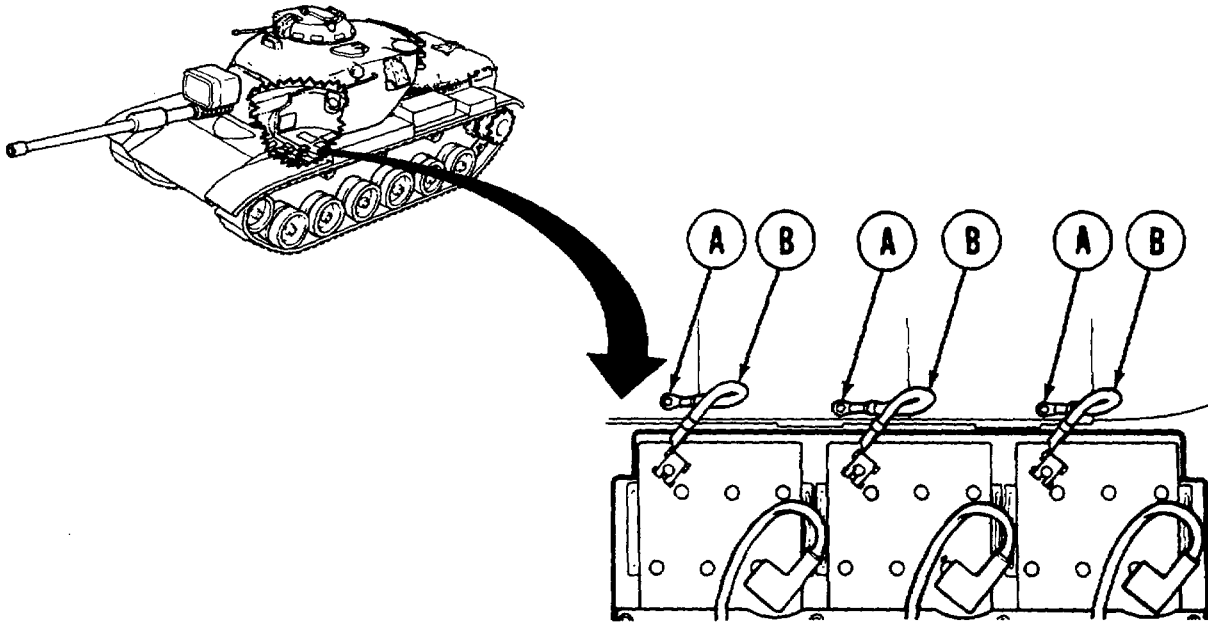
SUPPLIES: Rags (Item , Appendix D)

**CAUTION**

**As each cable is removed, cover cable with rags to prevent contact with floor or battery box which may cause arcing.**

**DISCONNECT:**

Using socket, remove three screws and washers (A) securing three ground straps (B) to hull floor.

**CONNECT:**

1. Remove cloth from each cable (B) and place in position.
2. Using socket, install three screws and washers (A) securing cables B) to hull floor.

End of Task

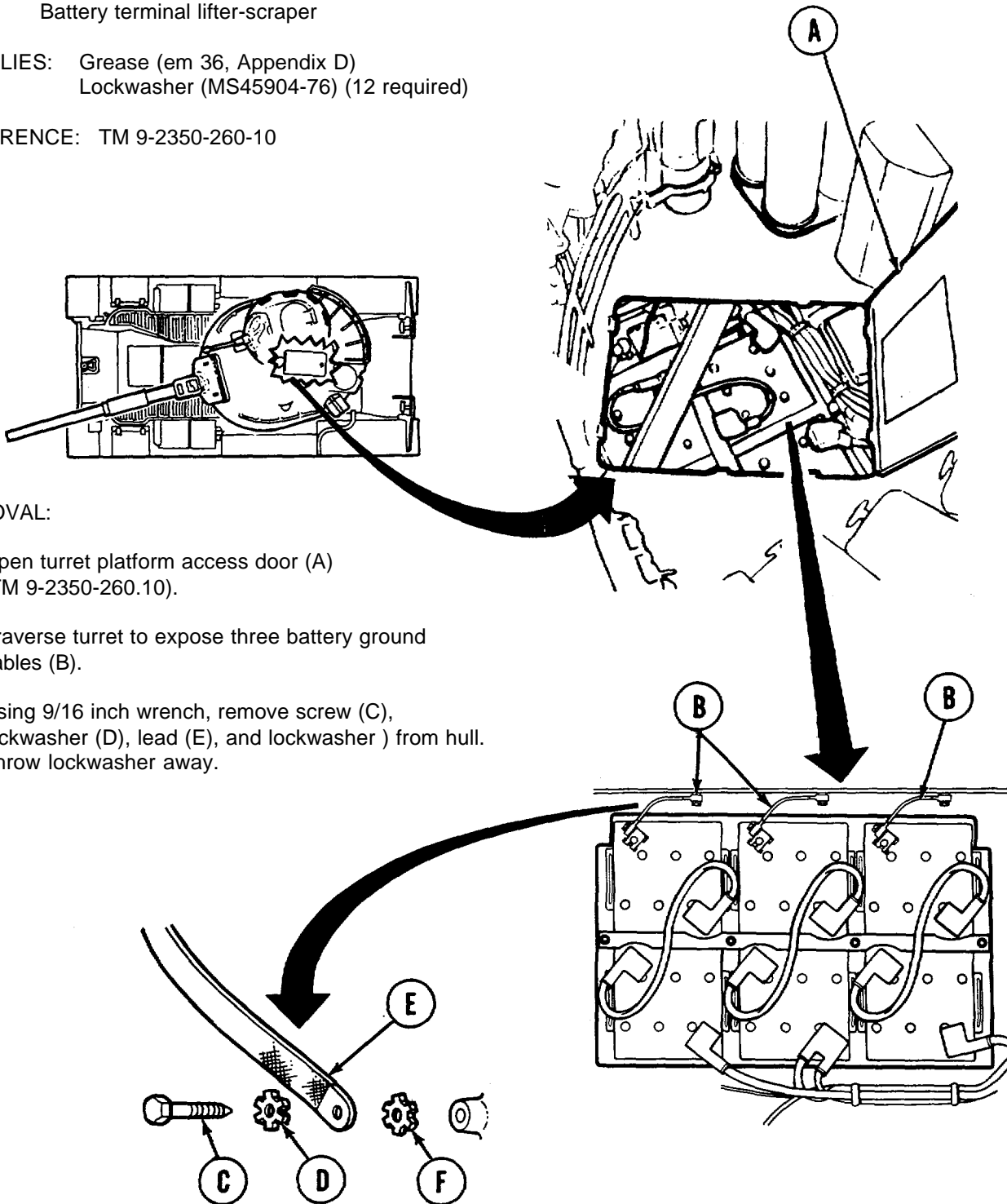
TA147326

**BATTERY GROUND CABLE REPLACEMENT (Sheet 1 of 3)**

**TOOLS:** 1/2 in. combination box and open end wrench  
 9/16 in. combination box and open end wrench  
 Battery terminal lifter-scraper

**SUPPLIES:** Grease (em 36, Appendix D)  
 Lockwasher (MS45904-76) (12 required)

**REFERENCE:** TM 9-2350-260-10



**REMOVAL:**

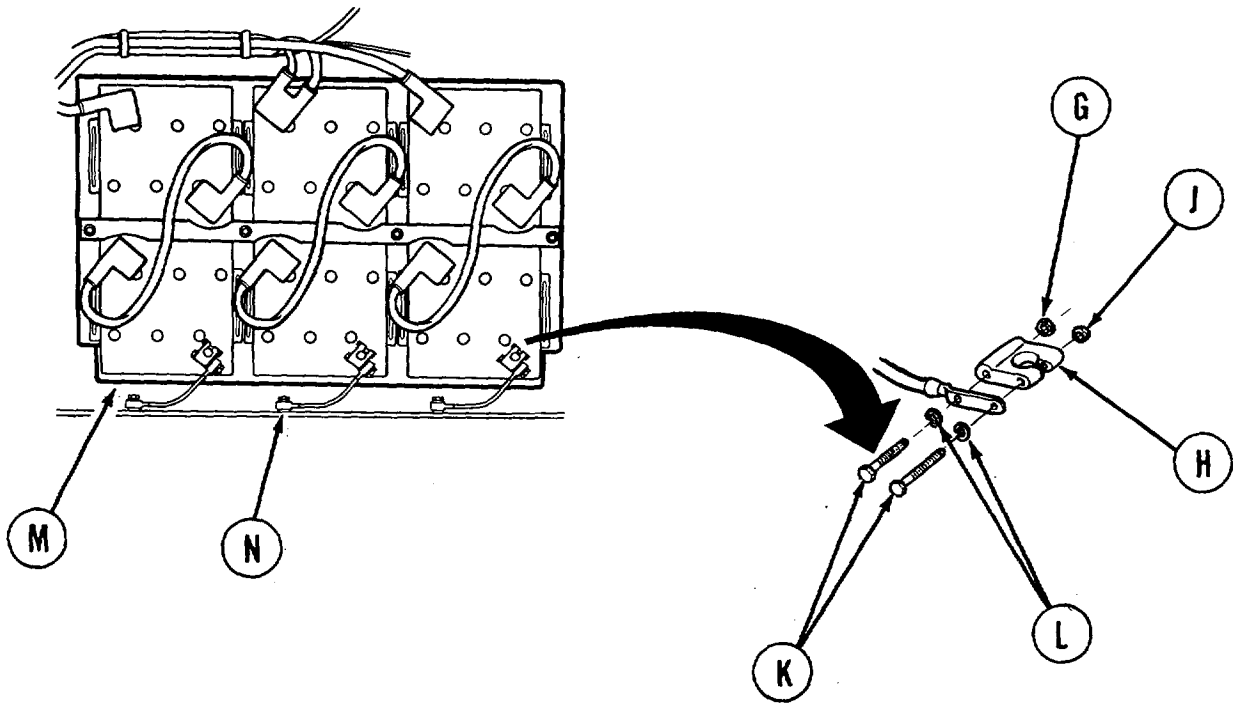
1. Open turret platform access door (A) (TM 9-2350-260.10).
2. Traverse turret to expose three battery ground cables (B).
3. Using 9/16 inch wrench, remove screw (C), lockwasher (D), lead (E), and lockwasher (F) from hull. Throw lockwasher away.

Go on to Sheet 2

TA147327

**BATTERY GROUND CABLE REPLACEMENT (Sheet 2 of 3)**

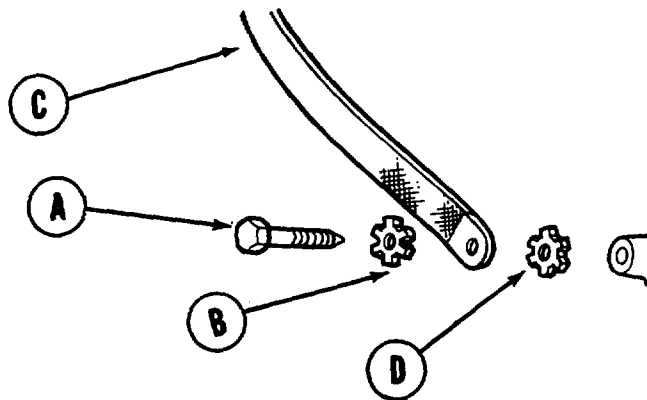
4. Using 9/16 inch wrench, remove nut (G) from terminal (H).
5. Using 1/2 inch wrench, remove nut (J) from terminal (H).
6. Remove two screws (K) and lockwashers (L) from terminal (H). Throw lockwashers away.
7. Using lifter-scraper, remove terminal (H) from battery (M).



8. Remove battery ground cables (B).

**INSTALLATION:**

1. Using 9/16 inch wrench, install screw (A), new lockwasher (B), lead (C), and new lockwasher (D) to hull.



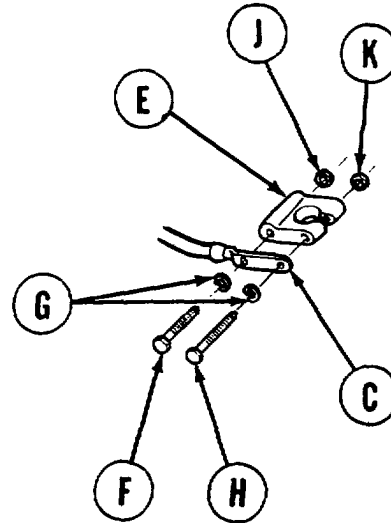
Go on to Sheet 3

TA147328



**BATTERY GROUND CABLE REPLACEMENT (Sheet 3 of 3)**

2. Place lead (C) in position on terminal (E).
3. Place screw (F) and new lockwasher (G) in position in terminal (E).
4. Place screw (H) and new lockwasher (G) in position in terminal (E).
5. Install terminal (E) on battery.
6. Using 9/16 inch wrench, install nut (J) on screw (F).
7. Using 1/2 inch wrench, install nut (K) on screw (H).
8. Apply small amount of grease (Item 36, Appendix D) to terminal (E) to stop possible corrosion.
9. Close turret platform access door.



End of Task

TA147329

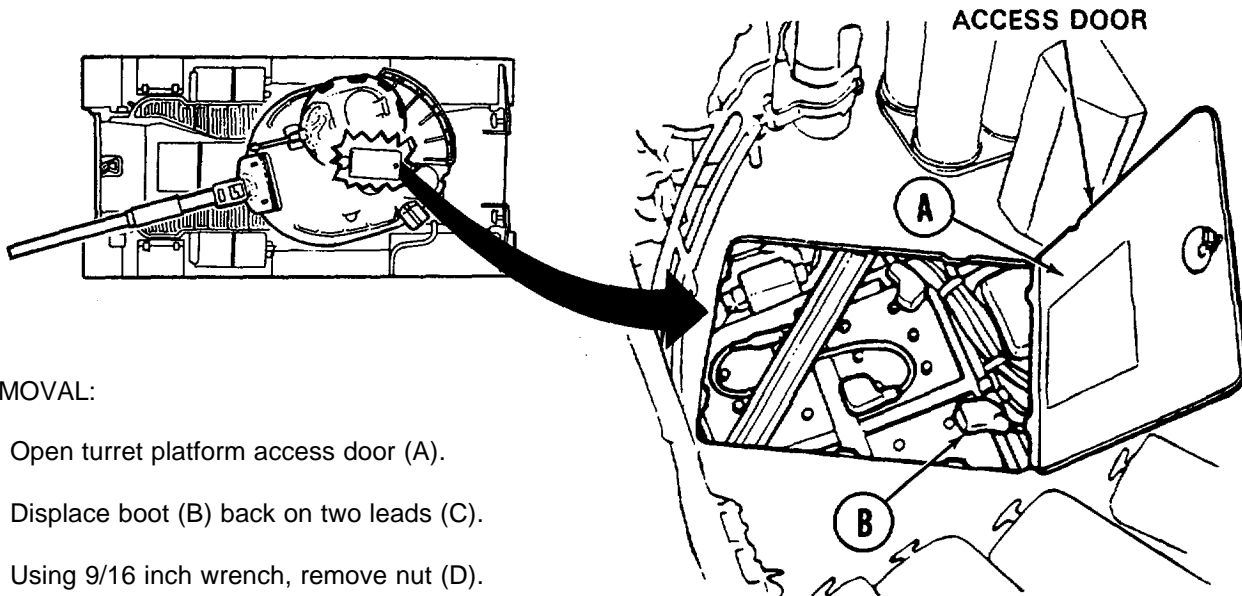
**BATTERY TERMINAL BOOT REPLACEMENT (Sheet 1 of 2)**

**TOOLS:** 1/2 in. combination box and open end wrench  
 9/16 in. combination box and open end wrench  
 Slip joint pliers

**SUPPLIES:** Lockwasher (MS45904-76) (6 required)

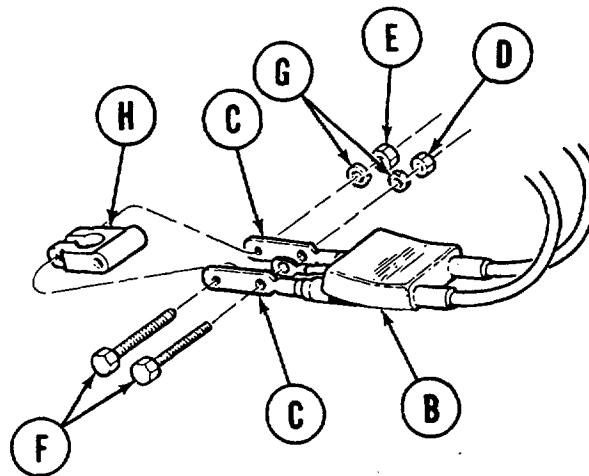
**REFERENCE:** TM 9-2350-260-10

**PRELIMINARY PROCEDURE:** Disconnect three battery ground straps (page 10-93)



**REMOVAL:**

1. Open turret platform access door (A).
2. Displace boot (B) back on two leads (C).
3. Using 9/16 inch wrench, remove nut (D).
4. Using 1/2 inch wrench, remove nut (E).
5. Using pliers pull two leads (C), screws (F), and washers (G) away from terminal (H).
6. Separate two screws (F) and lockwashers (G) from two leads (C).  
 Throw lockwashers away.
7. Slide boot (B) down and off two leads (C).

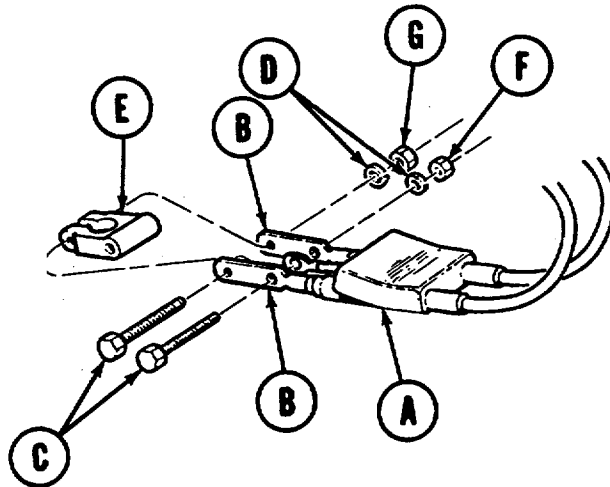


Go on to Sheet 2

TA147330

**BATTERY TERMINAL BOOT REPLACEMENT (Sheet 2 of 2)****INSTALLATION:**

1. Place boot (A) in position by sliding onto two leads (B).
2. Place two screws (C), new lockwashers (D), and leads (B) in position on terminal (E).
3. Using 9/16 inch wrench, install nut (F).
4. Using 1/2 inch wrench, install nut (G).
6. Slide boot (A) over assembled terminal (E).
6. Connect three battery ground straps (page 10-294).
7. Close turret platform access door.



End of Task

TA147331

**BATTERY TESTING AND REPLACEMENT (Sheet 1 of 13)**

PROCEDURE INDEX

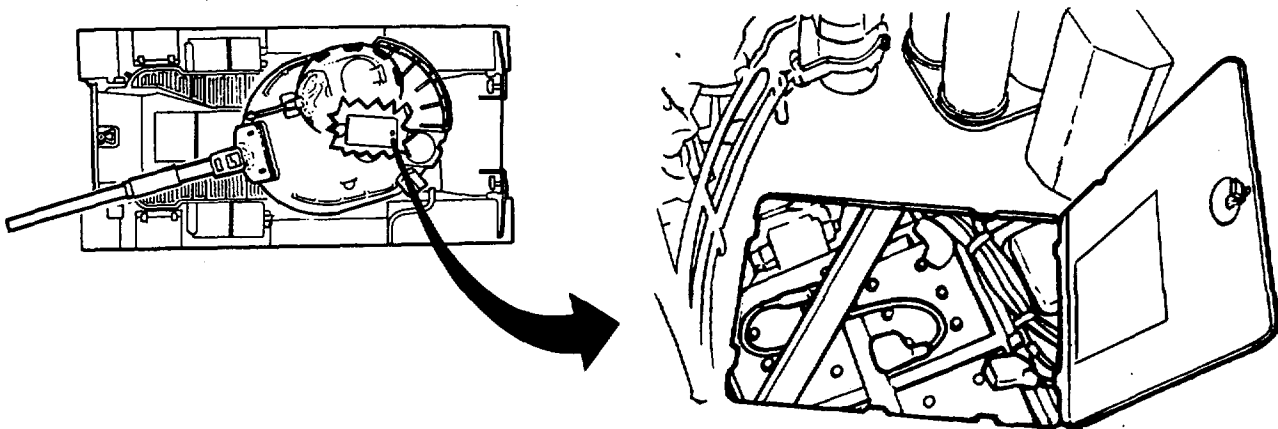
PROCEDURE	PAGE
Test	10-301
Removal	10-304
Cleaning and Inspection	10-307
Installation	10-309

TOOLS: 9/16 in. combination box and open end wrench  
 1/2 in. combination box and open end wrench  
 Wire brush  
 Storage battery carrier  
 Brush  
 Antifreeze and battery tester  
 Battery terminal puller  
 Battery post and terminal cleaner

SUPPLIES: Bicarbonate of soda  
 Rags (Item 65, Appendix D)  
 Water  
 Pencil and paper  
 Black paint (Item 44, Appendix D)  
 Grease (Item 36, Appendix D)

REFERENCES: TM 9-2350-260-10  
 TM 9-6140-200-14

PRELIMINARY PROCEDURE: Traverse turret to expose batteries (TM 9-2350-260-10)  
 Set MASTER CONTROL switch to OFF (TM 9-2350-260-10)



Go on to Sheet 2

TA147332

**BATTERY TESTING AND REPLACEMENT (Sheet 2 of 13)**

TEST:

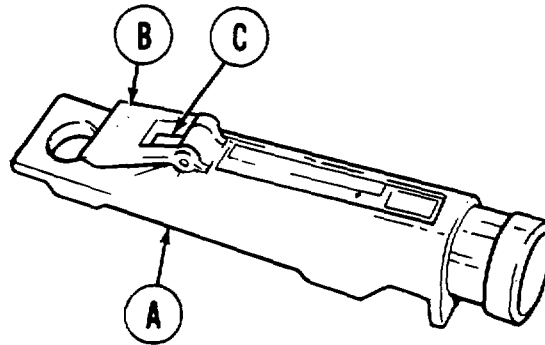
**WARNING**

Acid fumes and copper sulphate particles are injurious to eyes and skin. Upon contact, immediately flush contacted area with water and immediately obtain medical attention.

**NOTE**

If using STE/ICE to test batteries, refer to test no. 77 for internal Battery Resistance (page 4-77), test no. 79 for Battery Resistance Change (page 4-80), test no. 74 for Starter Circuit Resistance (page 4-80), and test no. 72 for Starter Current First Peak (page 4-77).

1. Before each use of battery tester (A), open plastic cover (B). Clean measuring window (C) and cover with clean, soft cloth and dry thoroughly.



Go on to Sheet 3

TA147333

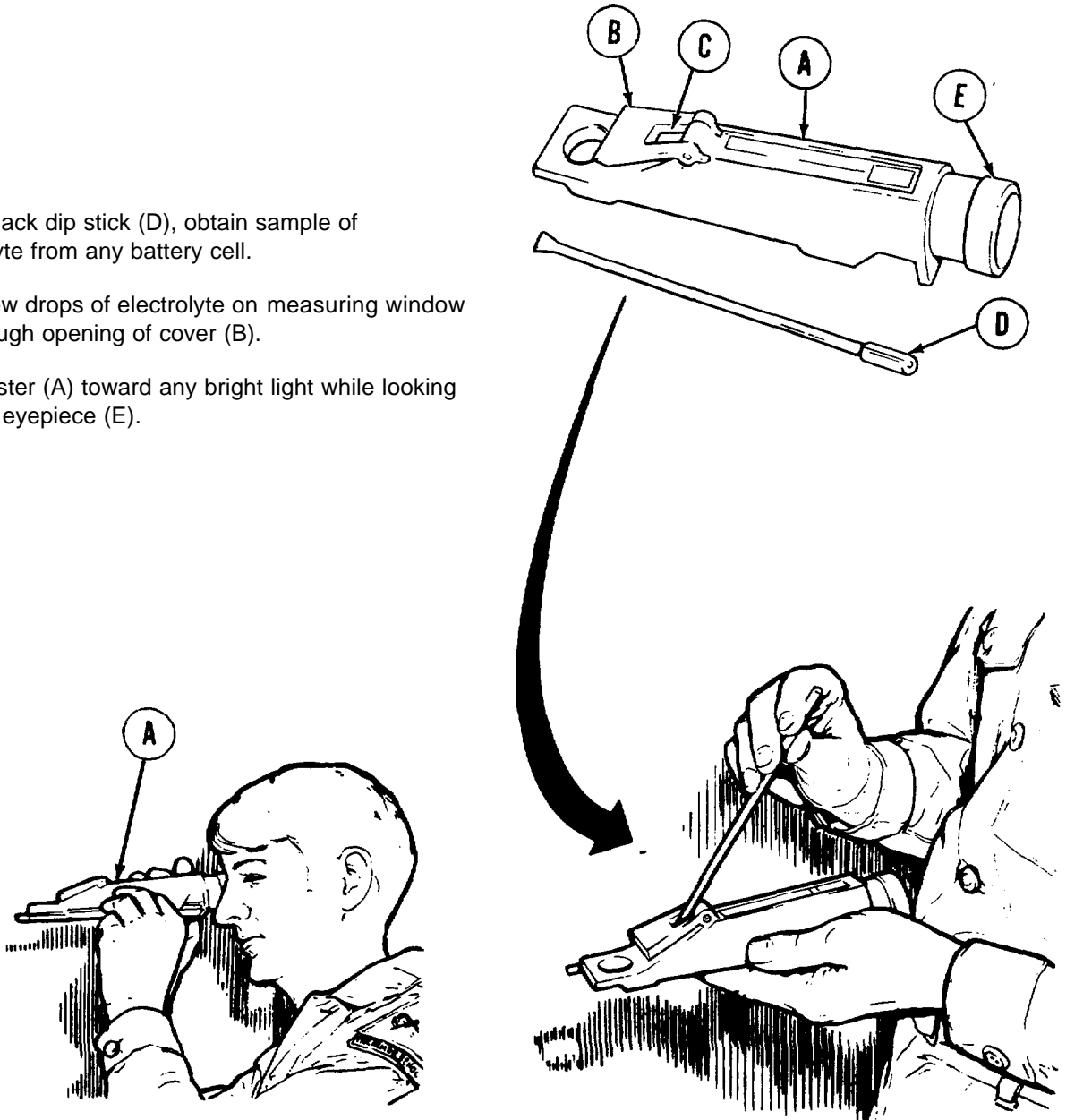
10-301

## BATTERY TESTING AND REPLACEMENT (Sheet 3 of 13)

## NOTE

Measuring surface must be clean before each reading. Do not add water to battery before test.

2. Using black dip stick (D), obtain sample of electrolyte from any battery cell.
3. Place few drops of electrolyte on measuring window (C) through opening of cover (B).
4. Point tester (A) toward any bright light while looking through eyepiece (E).



Go on to Sheet 4

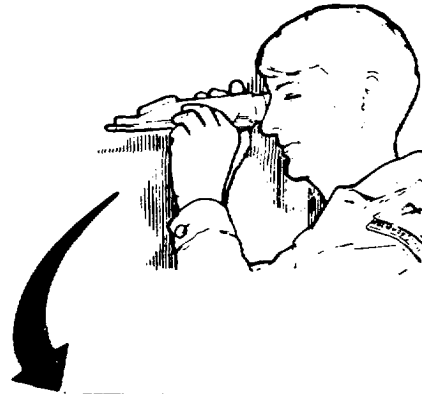
TA147334

**BATTERY TESTING AND REPLACEMENT (Sheet 4 of 13)**

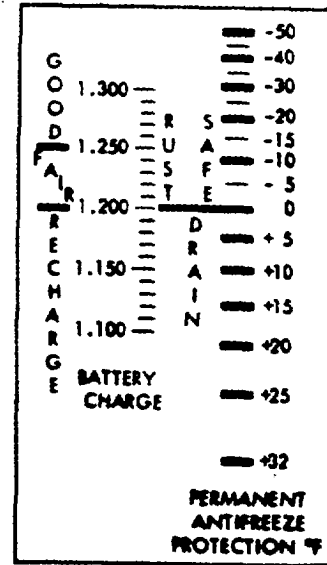
5. Read battery charge (specific gravity) on left scale at point where dividing line between light and dark (edge of shadow) crosses scale.

**NOTE**

**If shadow edge is not sharp measuring surfaces were not sufficiently cleaned or dried. Clean measuring surfaces and make new test.**



6. Using pencil and paper, record reading.
7. Repeat steps 1 thru 6 for each battery cell.



8. Check your recorded readings for all six cells of each battery against the following table. Readings should be approximately the same.

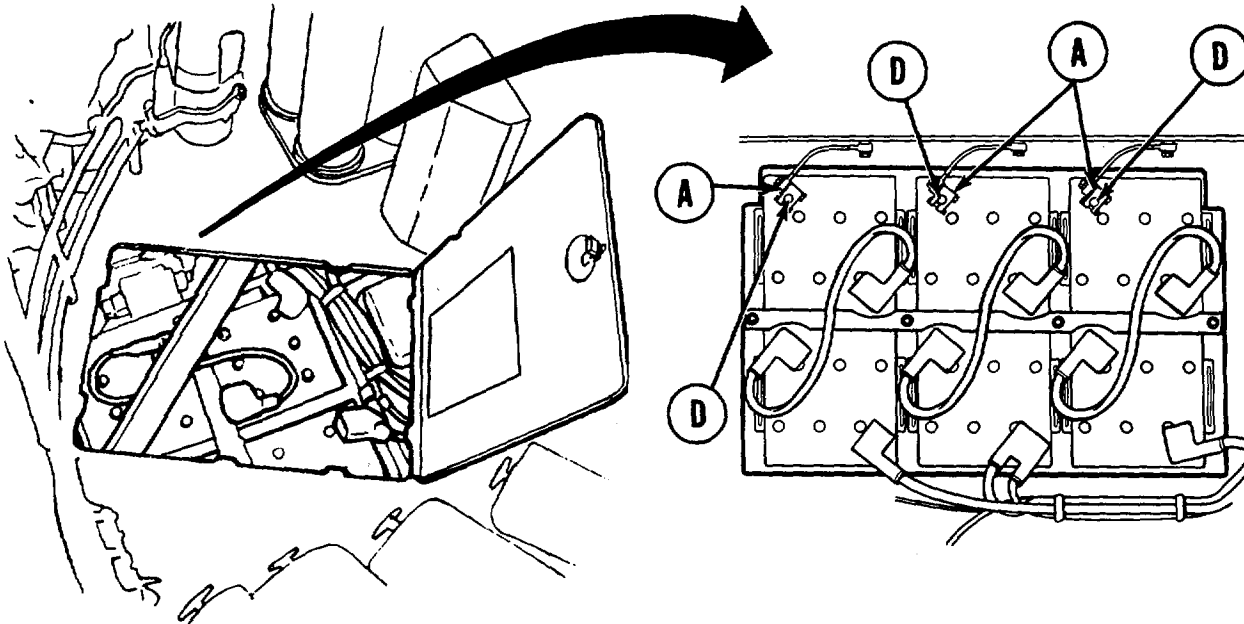
Specific Gravity	Charge on Battery
1.280	Fully charged
1.250	Three-fourths charged
1.220	One-half charged
1.190	One-fourth charged
1.160	Little useful charge
1.130	Discharged

9. If readings are approximately the same but are below 1.225 for any one battery, charge battery and recheck.

**BATTERY TESTING AND REPLACEMENT (Sheet 5 of 13)**

10. Readings between cells of any one battery must be within 0.025 of each other. If they are not, replace battery.

**REMOVAL:**

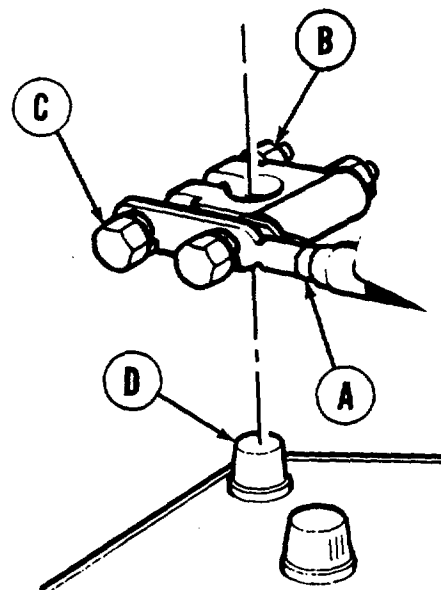


1. Locate three battery ground cable terminals (A).
2. Using 1/2 inch box wrench on nut (B) and 1/2 inch open end wrench on bolt (C), loosen nut (B) and bolt (C) on three battery ground cable terminals (A).

**CAUTION**

**As each cable is removed, cover battery ground cable with rags and position cable to prevent contact with battery box or batteries to prevent arcing.**

3. Using battery terminal puller, move three battery ground terminals (A) from at post (D). Lay terminals and cables aside.



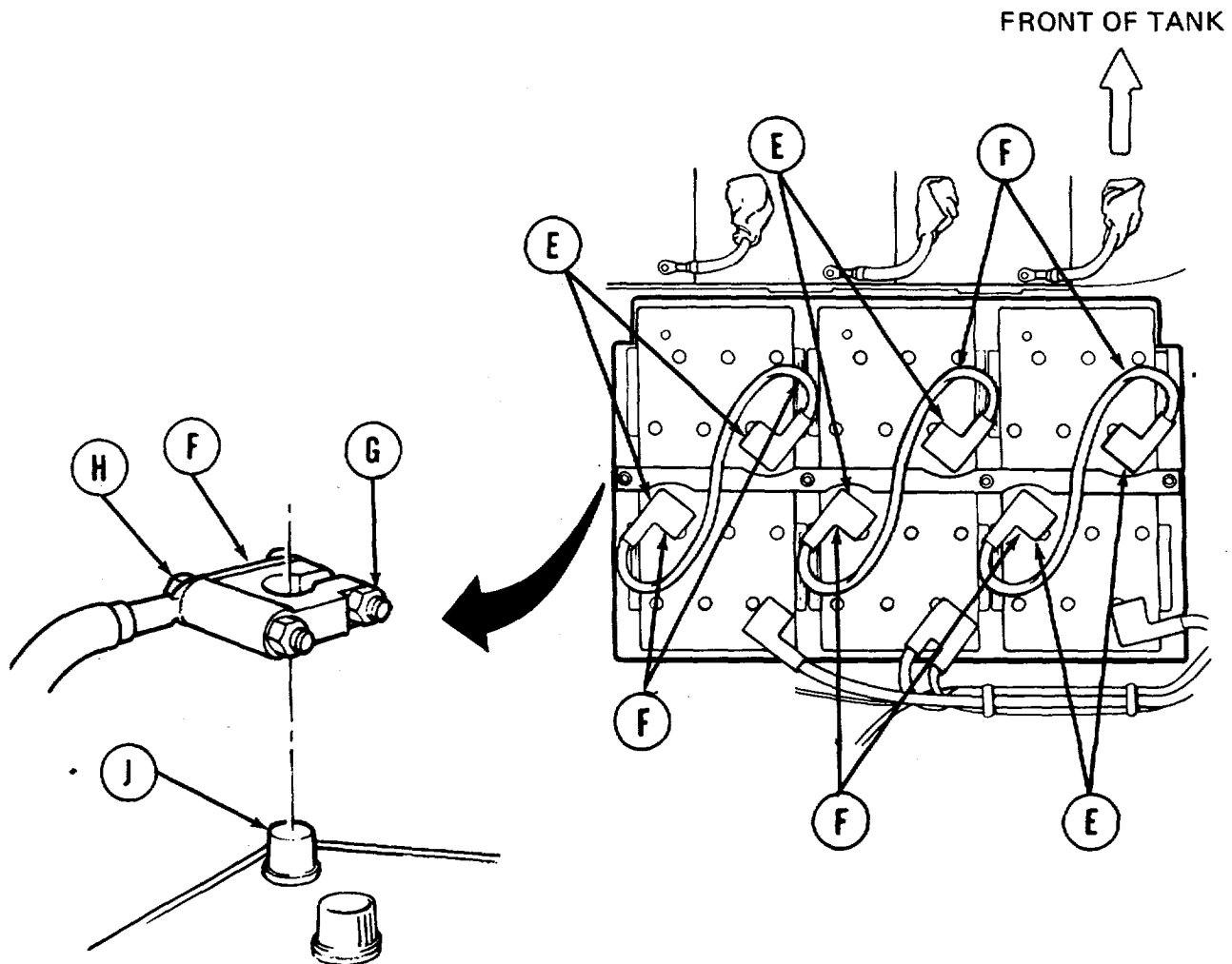
Go on to Sheet 6

TA147336



**BATTERY TESTING AND REPLACEMENT (Sheet 6 of 13)**

- Lift up and slide back six protective boot (E) from six terminals (F).



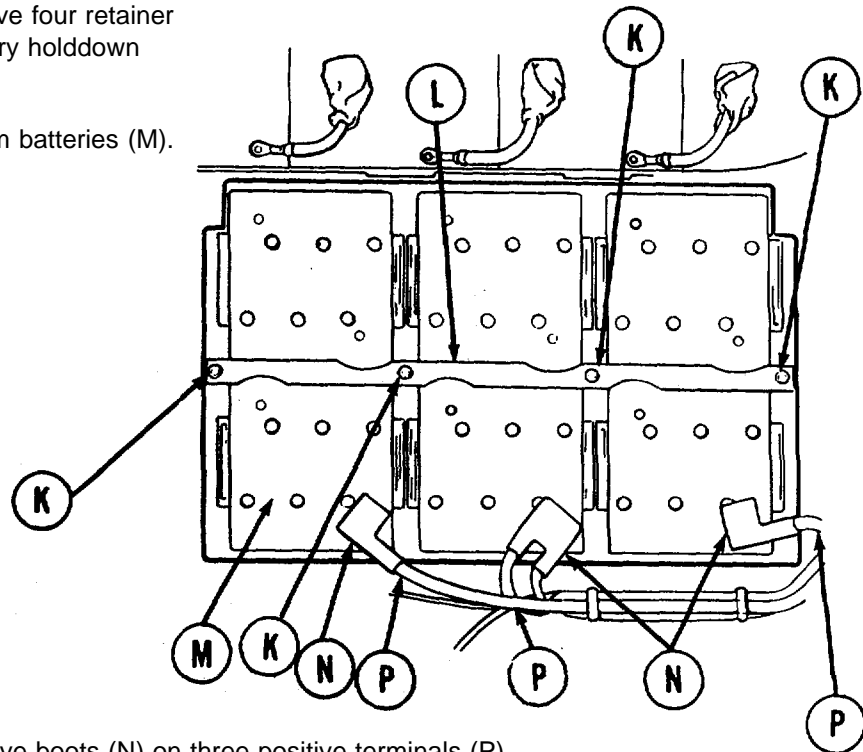
- Using 1/2 inch box wrench on nuts (G) and 1/2 inch open end wrench on bolts (H), loosen nuts (G) and bolts (H) on six battery lead assemblies (F).
- Using battery terminal puller, remove s battery terminals (F) from battery post (J).

Go on to Sheet 7

TA147337

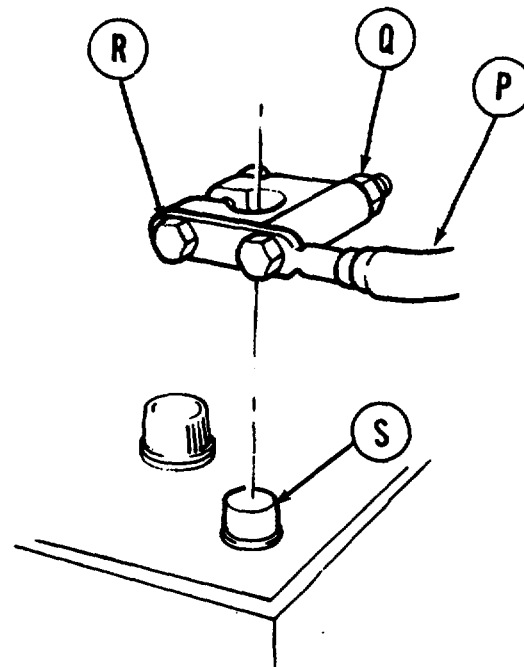
**BATTERY TESTING AND REPLACEMENT (Sheet 7 of 13)**

7. Using 9/16 inch box wrench, remove four retainer bolt and washers (K) holding battery holddown retainer (L).
8. Remove holddown retainer (L) from batteries (M).



9. Lift up and slide back three protective boots (N) on three positive terminals (P).
10. Using 1/2 inch box wrench on nut (Q) and 1/2 inch open end wrench on bolts (R), loosen nut (Q) and bolts (R) on three positive terminals (P).

11. Using battery terminal puller, remove three positive terminals (P) from battery post (S). Cover positive terminals with rags and position away from battery box and batteries.

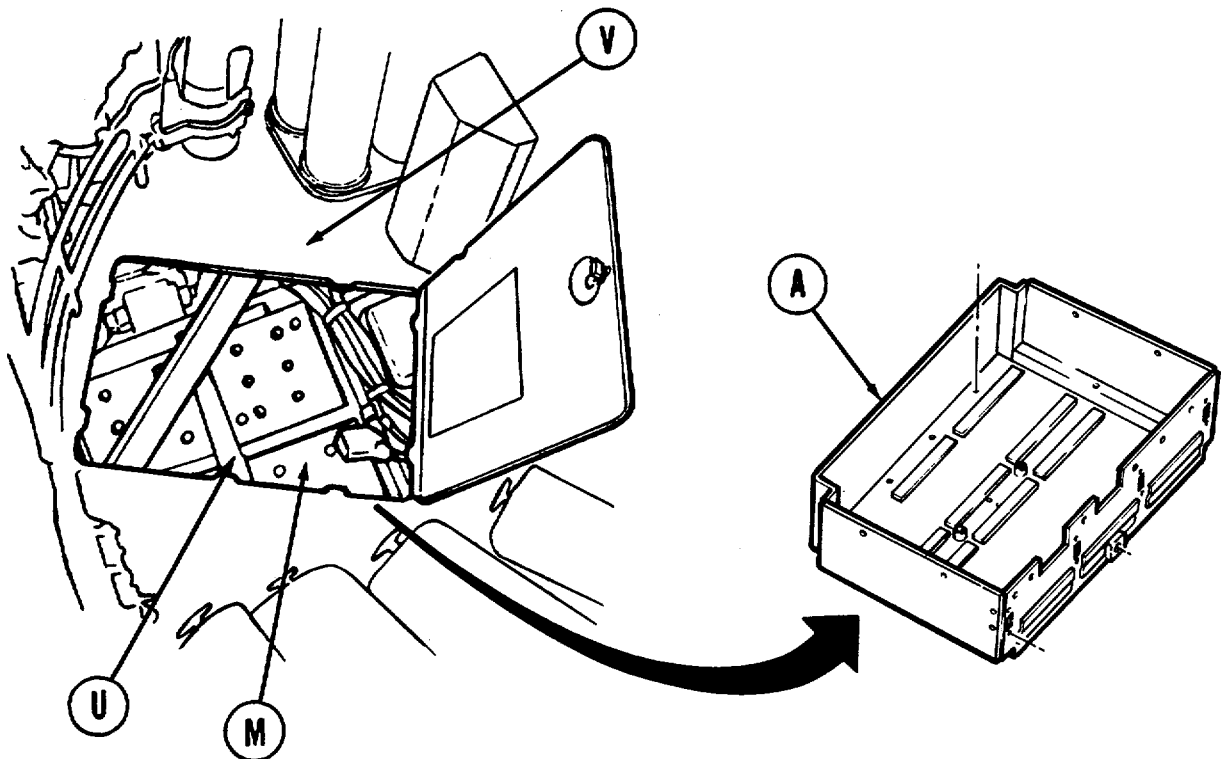
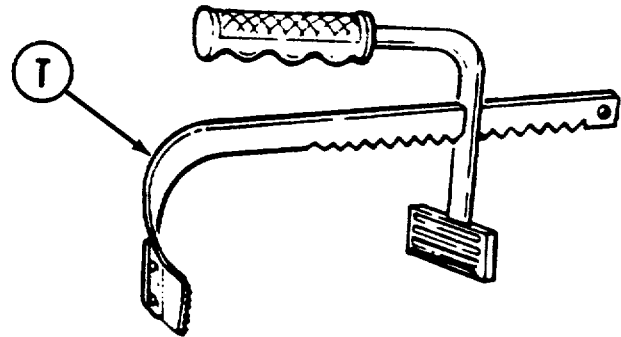


Go on to Sheet 8

TA147338

**BATTERY TESTING AND REPLACEMENT (Sheet 8 of 13)**

12. Using two handles on battery (M), lift battery from compartment (U) to turret floor (V). Using battery carrier remove batteries from tank



**CLEANING AND INSPECTION:**

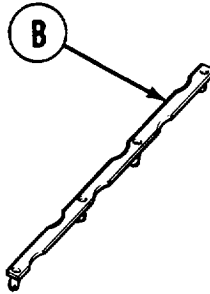
1. Using stiff wire brush, bicarbonate of soda, and water, clean battery box (A). Wipe dry with rags.
2. Using brush, coat battery box (A) with black acid-resistant paint (Item 44, Appendix D).

Go on to Sheet 9

TA147339

**BATTERY TESTING AND REPLACEMENT (Sheet 9 of 13)**

2. Using stiff wire brush, clean retainer (B) with bicarbonate of soda and water.
3. Using brush, coat retainer (B) with black acid-resistant paint (Item 46, Appendix D).



4. Using terminal and post cleaner, clean battery posts and terminals.
5. Inspect bolts, nuts, washers, and retainer for bent or stripped threads or rounding-off bolt heads.
6. Inspect rubber boots for cracks or deterioration.
7. Replace parts found unserviceable.

**NOTE**

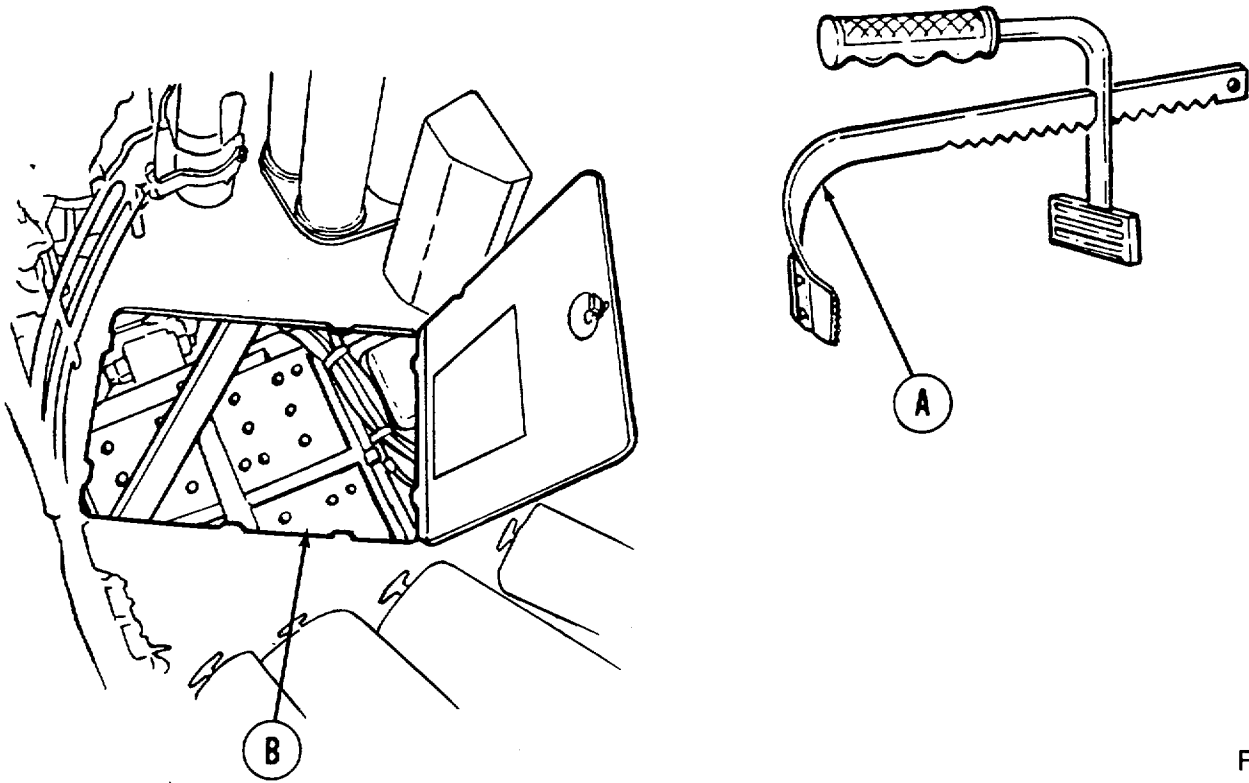
**For detailed instructions in proper care and maintenance of batteries, see TM 9-6140-200-14.**

Go on to Sheet 10

TA147340

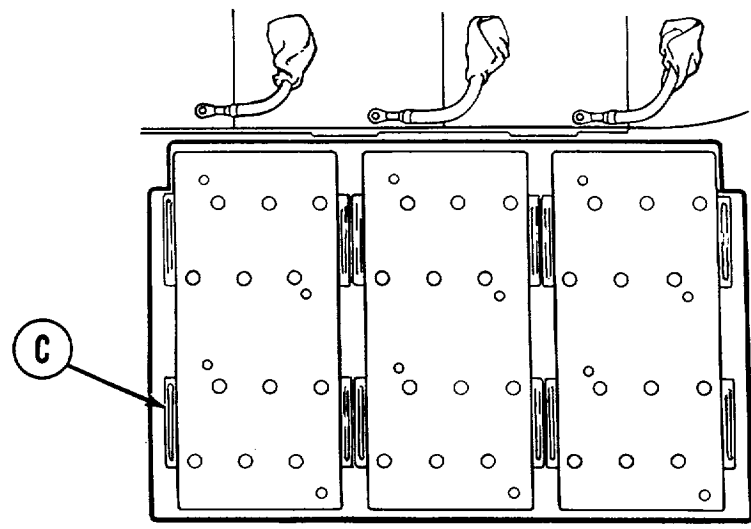
**BATTERY TESTING AND REPLACEMENT (Sheet 10 of 13)**

**INSTALLATION:**



1. Using battery carrier (A), install batteries through turret floor (B).
2. Position six batteries (C) on support. Terminals must be oriented as shown.

FRONT  
OF  
TANK  
↑

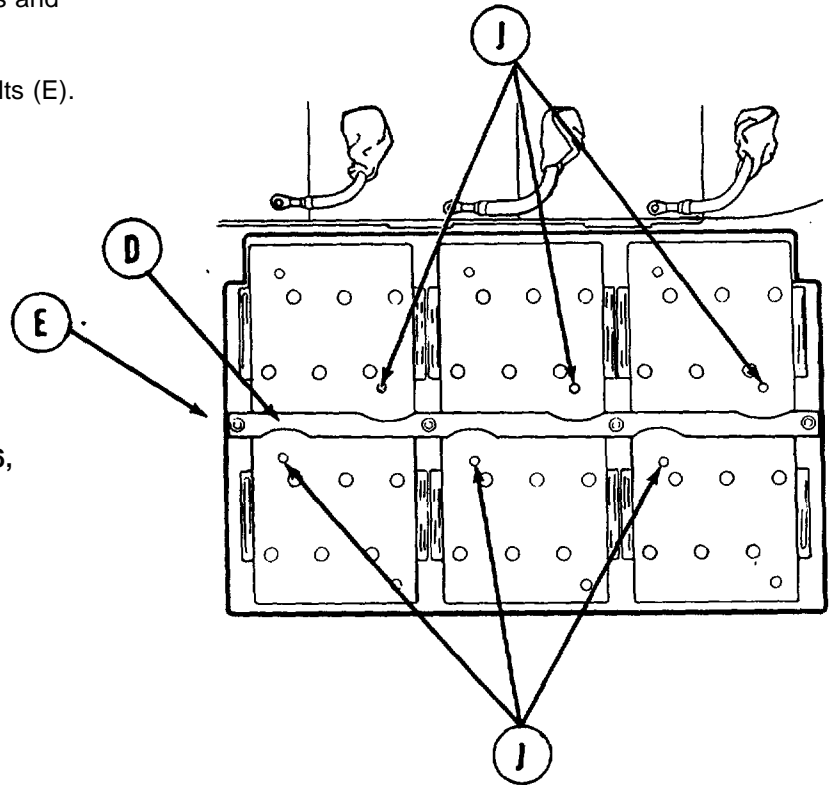


Go on to Sheet 11

TA147341

**BATTERY TESTING AND REPLACEMENT (Sheet 11 of 13)**

3. Install holddown retainer (D) using four bolts and eight washers.
4. Using 9/16 inch box wrench, tighten four bolts (E).



**NOTE**

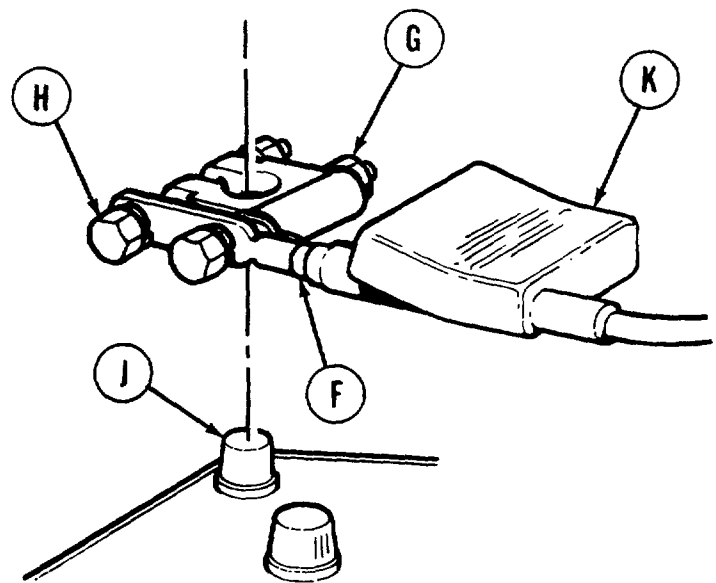
Apply light coat of grease (Item 36, Appendix D) to battery terminals.

5. Install six terminal (F) to battery posts (J).

**NOTE**

Do not force terminals onto battery posts.

6. Using 1/2 inch box wrench on nuts (G) and 1/2 inch open end wrench on bolts (H), tighten nuts (G) and bolts (H) on six terminals (F) to battery posts (J).
7. Position six rubber boot (K) over terminals (F).

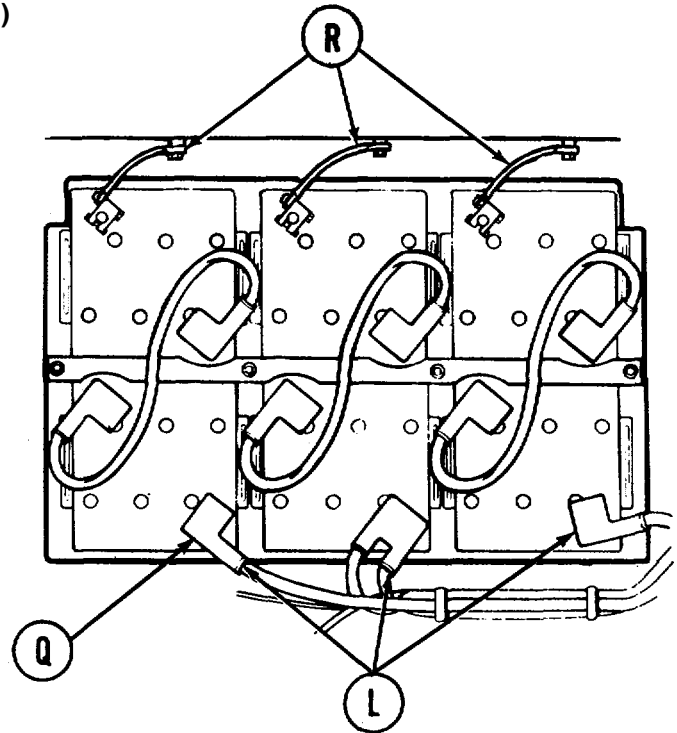
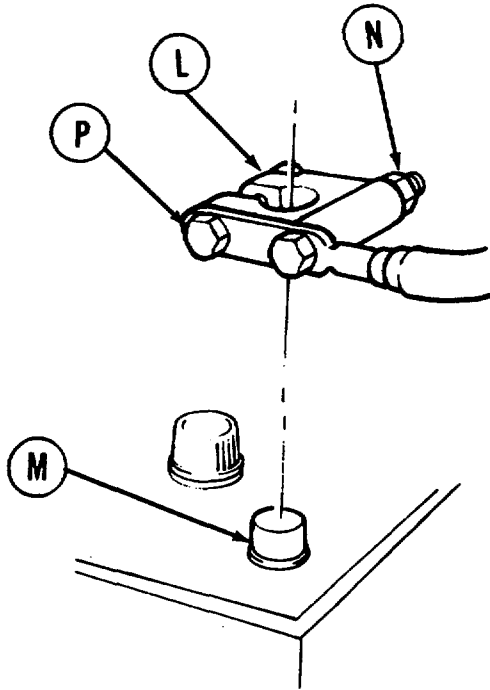


Go on to Sheet 12

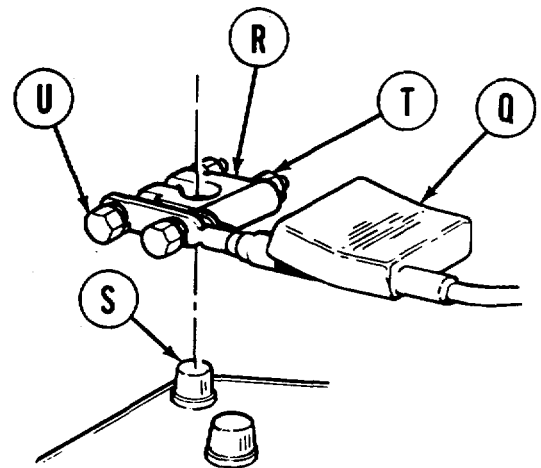
TA147342

**BATTERY TESTING AND REPLACEMENT (Sheet 12 of 13)**

8. Install three positive terminals (L) to battery posts (M).



9. Using 1/2 inch box wrench on nuts (N) and 1/2 inch open end wrench on bolts (P), tighten nuts (N) and bolts (P) on three terminals (L).
10. Position three rubber boot (Q) over three terminals (L).
11. Install three negative terminals (R) to battery posts (S).
12. Using 1/2 inch box wrench on nuts (T) and 1/2 inch open end wrench on bolts (U), tighten nut (T) and bolts (U) on three terminals (R) securing terminals (R) to battery posts (S).



Go on to Sheet 13

TA147343

**BATTERY TESTING AND REPLACEMENT (Sheet 13 of 13)**

13. Close turret access door (TM 9-2350-260-10).
14. Set MASTER CONTROL switch to ON (TM 9-2350-260-10).
15. Check battery generator indicator for condition of batteries (TM 9-2350-260-10).

End of Task



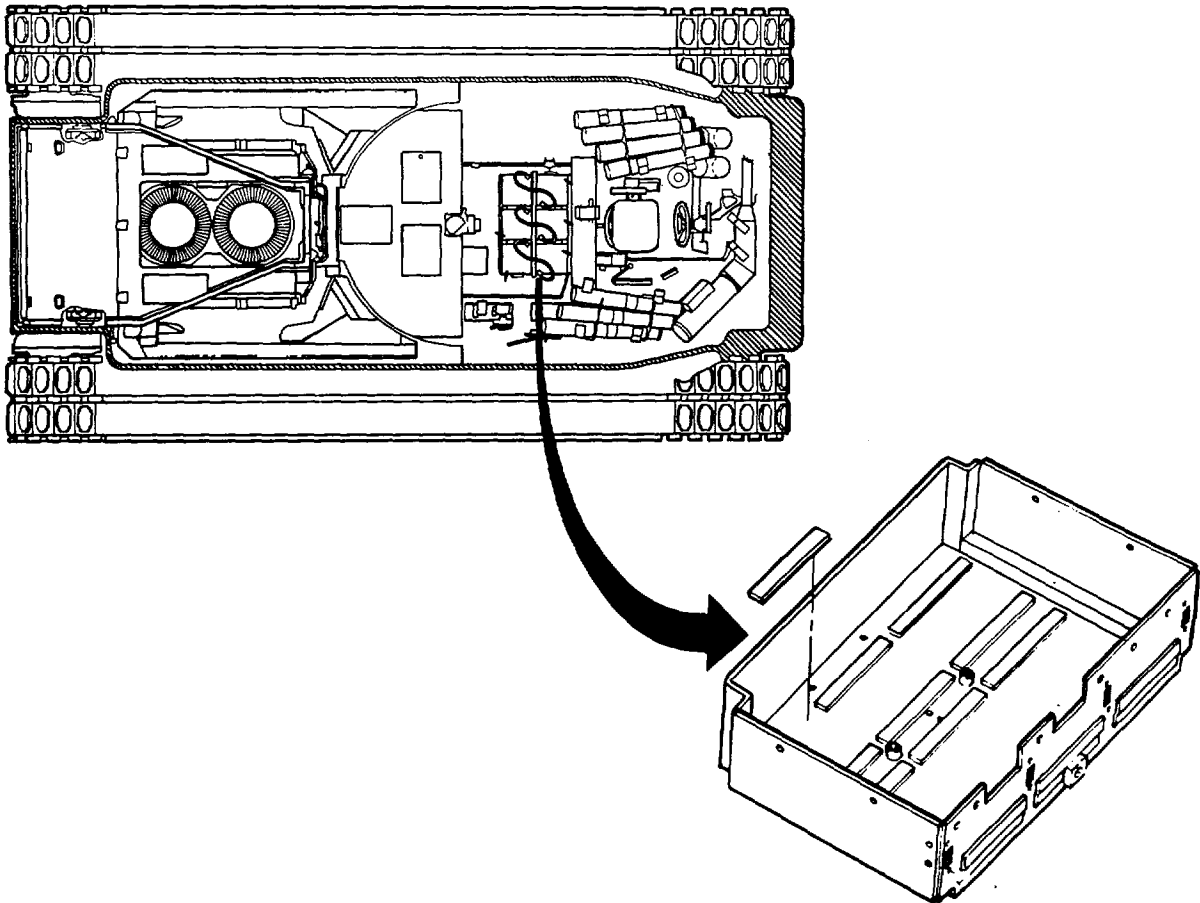
**BATTERY BOX REPAIR (Sheet 1 of 2)**

TOOLS: Putty knife  
Wire brush

SUPPLIES: Adhesive (Item 4, Appendix D)  
Bicarbonate of soda  
Paint brush (Item 10, Appendix D)  
Cushioning pad (11590685) (12 required)

REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURE: Remove batteries (page 10-304)

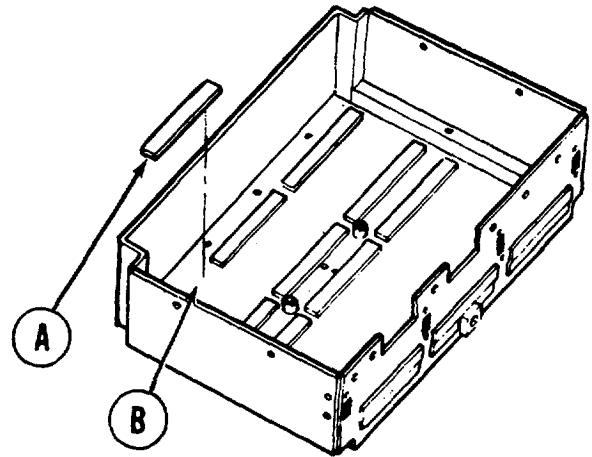


Go on t Sheet 2

TA147345

**BATTERY BOX REPAIR (Sheet 2 of 2)****REMOVAL:**

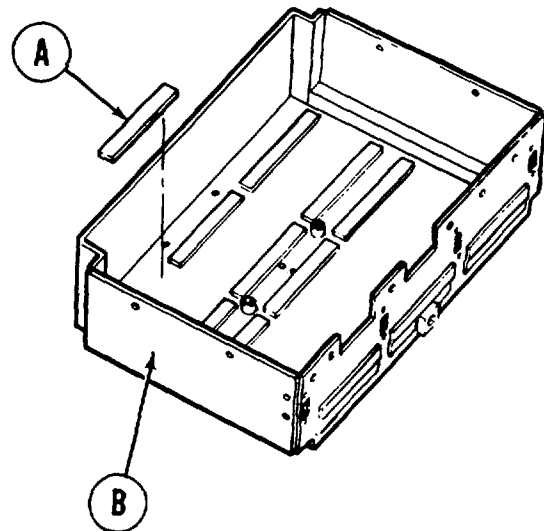
1. Remove defective old pad(s) (A) and throw away.
2. Using putty knife, scrape dried adhesive from location of pads (A) on battery box (B).

**CLEANING AND INSPECTION:**

1. Clean box assembly with wire brush, bicarbonate of soda, and water.
2. Dry thoroughly.
3. Visually inspect box assembly for dents or other damage. Repair as needed.

**INSTALLATION:**

1. Using brush (Item 10, Appendix D), apply adhesive (Item 4, Appendix D) to new pads (A).
2. Place pads (A) in position i battery box (B).
3. Install batteries (page 10-309).



End of Task

TA147346

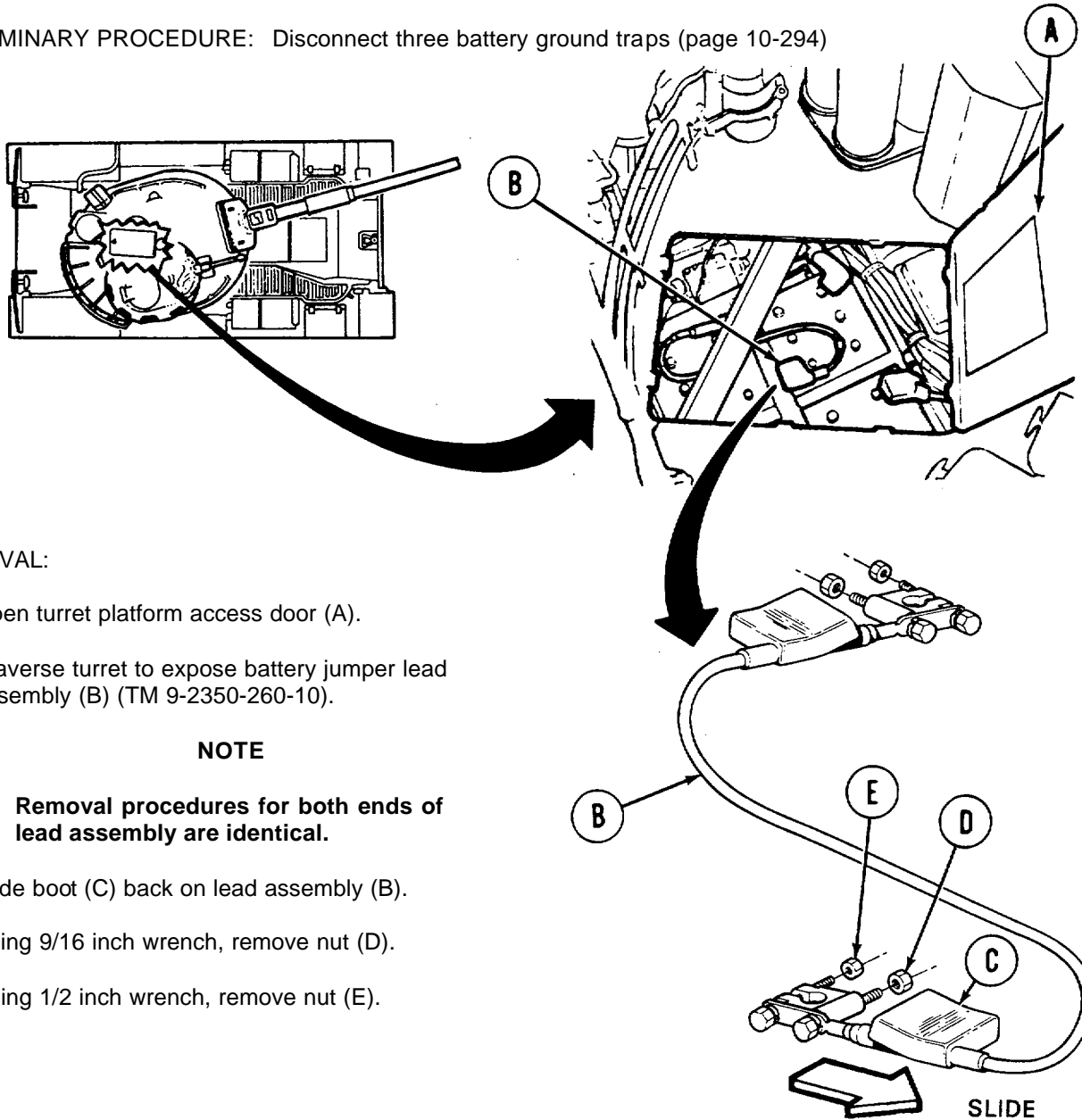
**BATTERY JUMPER LEAD ASSEMBLY REPLACEMENT (Sheet 1 of 3)**

**TOOLS:** 1/2 in. combination box and open end wrench  
 9/16 in. combination box and open end wrench  
 Lifter-scraper, battery terminal  
 Slip joint pliers

**SUPPLIES:** Grease (Item 36, Appendix D)  
 Lockwasher (MS45904-76) (12 required)

**REFERENCE:** TM 9-2350-260-10

**PRELIMINARY PROCEDURE:** Disconnect three battery ground traps (page 10-294)



**REMOVAL:**

1. Open turret platform access door (A).
2. Traverse turret to expose battery jumper lead assembly (B) (TM 9-2350-260-10).

**NOTE**

**Removal procedures for both ends of lead assembly are identical.**

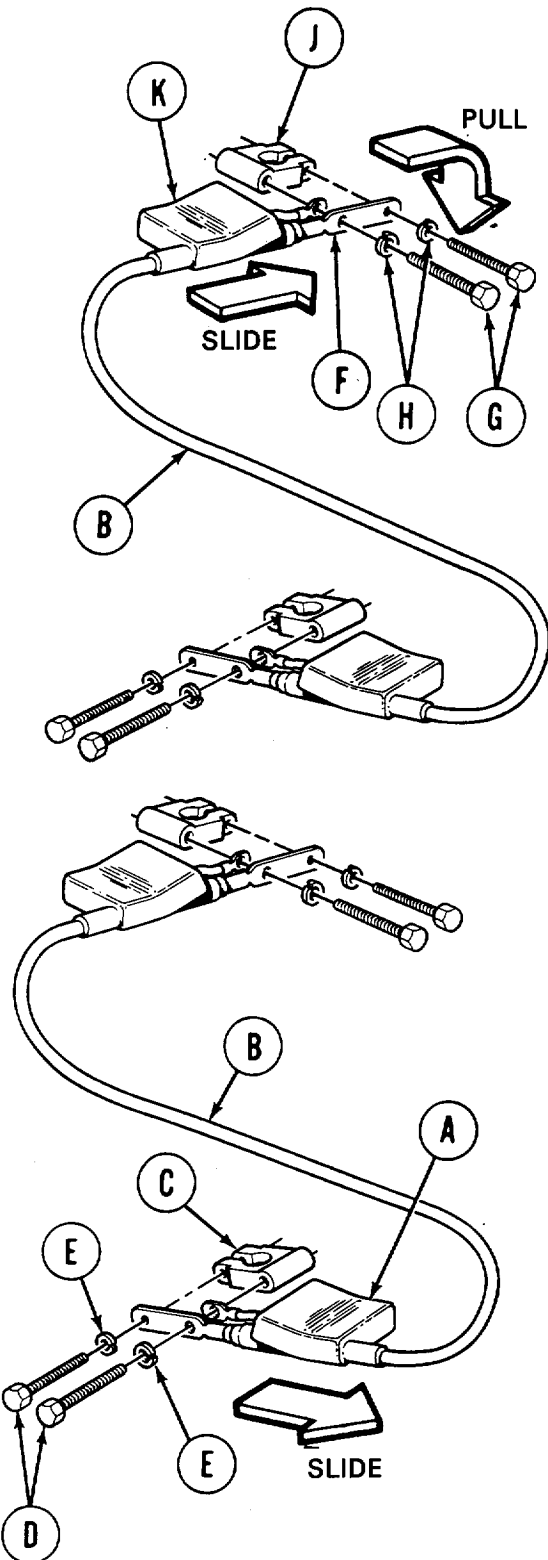
3. Slide boot (C) back on lead assembly (B).
4. Using 9/16 inch wrench, remove nut (D).
5. Using 1/2 inch wrench, remove nut (E).

Go on to Sheet 2

TA147347

**BATTERY JUMPER LEAD ASSEMBLY REPLACEMENT (Sheet 2 of 3)**

6. Using pliers, pull lead (F) along with two screws, (G) and washers (H) away from terminal (J).
7. Remove two screws (G) and washers (H) from lead (F). Throw lockwashers away.
8. Using lifter, remove terminal (J) from battery.
9. Slide boot (K) down and off lead (F).
10. Remove other end of lead assembly (B) (steps 3 through 9).



**INSTALLATION:**

**NOTE**

**Installation is identical for both ends of lead assembly.**

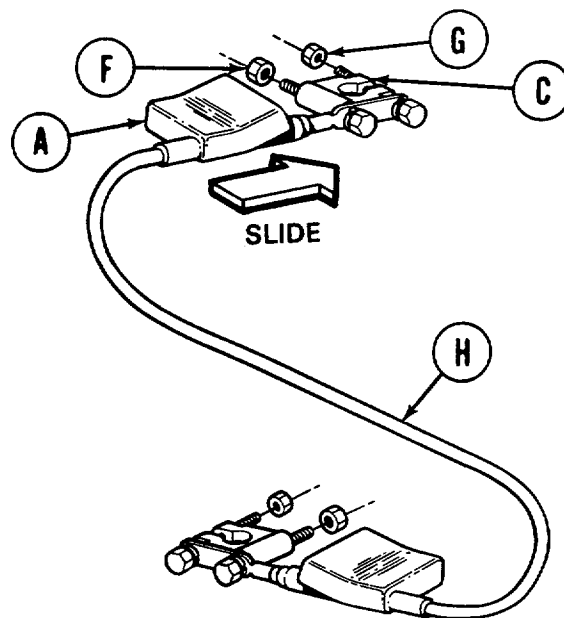
1. Slide boot (A) on lead (B).
2. Place terminal (C) on battery.
3. Place lead (B) in position on terminal (C).
4. Place two screws (D) and new lockwashers (E) through lead (B) and terminal (C).

Go on to Sheet 3

TA147348

**BATTERY JUMPER LEAD ASSEMBLY REPLACEMENT (Sheet 3 of 3)**

5. Using 9/16 inch wrench, install nut (F).
6. Using 1/2 inch wrench, install nut (G).
7. Apply light coat of grease (Item 36, Appendix D) on terminal (C) to stop corrosion.
8. Slide boot (A) over terminal (C).
9. Install other end of lead assembly (H) (steps 1 through 8).
10. Connect three battery ground straps (page 10-294).



11. Close turret platform access door (TM 9-2350-260-10).

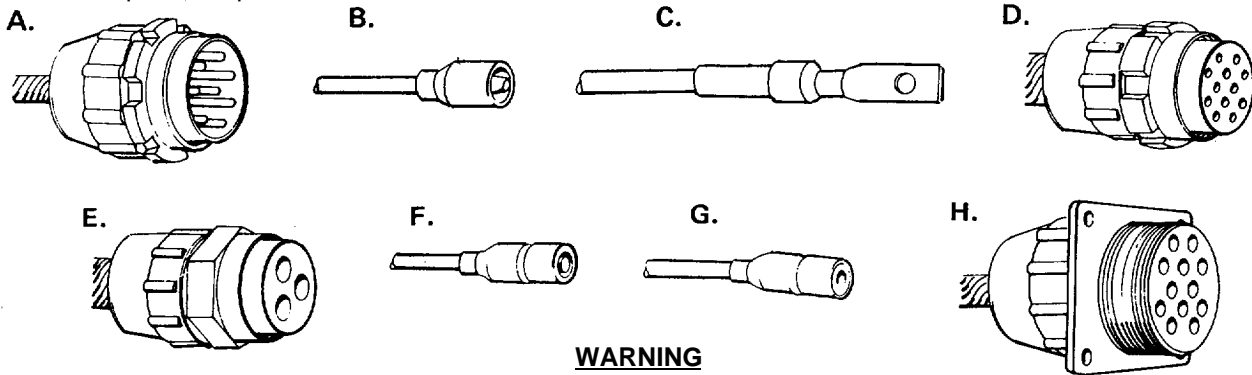
End of Task

TA147349

ELECTRICAL WIRING HARNESS AND CABLE CONNECTOR REPAIR (Sheet 1 of 2)

PROCEDURE INDEX

<u>PAGE</u>	
A.	Male Plug Repair 10-320
B.	Male Connector Repair 10-323
C.	Terminal Connector Repair 10-324
D.	Female Plug Repair 10-326
E.	Female Plug Repair 10-329
F.	Female Connector with Washer (12 Gage Cable) Repair 10-332
G.	Female Connector with Sleeve (14 and 16 Gage Cable) Repair 10-333
H.	Female Receptacle Repair 10-334



**WARNING**

Some wiring harnesses and cables are hot even if MASTER CONTROL switch is set to OFF. Make sure the three battery ground cable assemblies are disconnected before disconnecting any wiring harness or cable (page 10-294).

**NOTE**

When replacing a bad pin or contact, the opposite pin or contact at the other end of the cable must also be replaced. Do not disassemble the harness. Use a jumper wire of the same gage wire being replaced, cut to the length of the affected cable. When repairs to both connectors are complete, tape the jumper wire to the outside of the cable with friction tape. The jumper wire should be taped at least every six to eight inches, but in no case should any part of the wire be allowed to hang loose.

**NOTE**

After a plug, receptacle, or connector in the engine compartment has been repaired and the cable or jumper wire has been installed, brush or spray the cable or jumper wire with electrical insulating compound. Allow the compound to dry for about 24 hours before handling. The compound is an insulator of electricity, so care must be taken to keep from overspraying the compound on contacting surfaces of wire terminals, connector pins or contacts, or similar parts where it will prevent the flow of electricity.

**ELECTRICAL WIRING HARNESS AND CABLE CONNECTOR REPAIR (Sheet 2 of 2)**

TOOLS: Electrical connector repair tool kit  
Soldering gun  
Slip joint pliers with plastic jaw inserts  
Diagonal cutting pliers  
Heat gun  
Multimeter  
Pocketknife

SUPPLIES: Silicone compound (Item 32, Appendix D)  
Electricians tape (Item 58, Appendix D)  
Jumper wire  
Heat-shrink tubing

**NOTE**

**Identify the cable or harness connector which you are to repair, then go to that page for repair procedures.**

End of Task

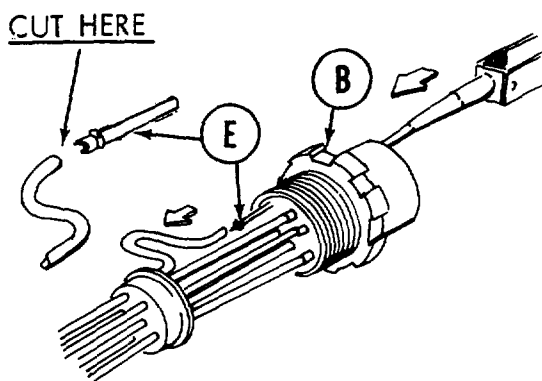
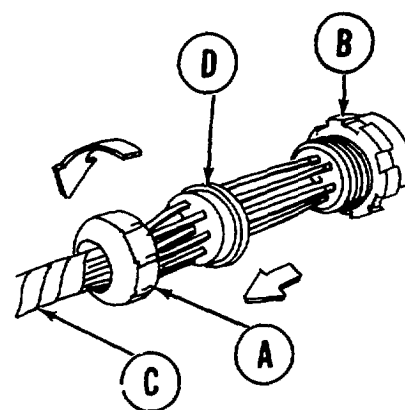
**ELECTRICAL WIRING HARNESS AND CABLE CONNECTOR REPAIR**  
**Male Plug Repair (Sheet 1 of 3)**

**TOOLS:** Electrical connector repair tool kit  
 Soldering gun  
 Slip joint pliers with plastic jaw inserts  
 Diagonal cutting pliers  
 Pocketknife  
 Multimeter

**SUPPLIES:** Silicone compound (Item 32, Appendix D)  
 Electricians tape (Item 58, Appendix D)  
 Jumper wire

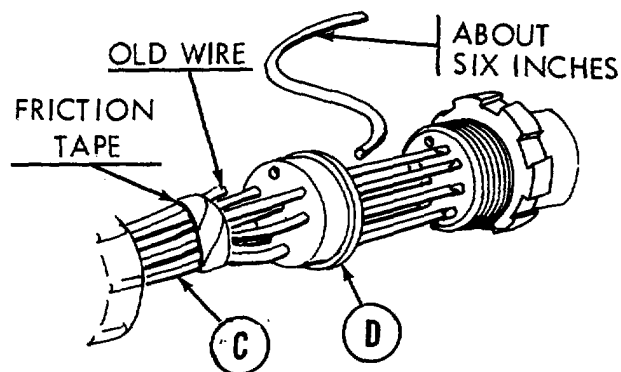
**PRELIMINARY PROCEDURES:** Disconnect three battery ground straps (page 10-294)  
 Loosen or remove cable clamps as required  
 Disconnect connectors at each end of affected cable

1. Manually thread grommet retaining nut (A) from plug assembly (B).
2. Slide grommet retaining nut (A) back along cable (C).



3. Using slip joint pliers, work grommet (D) back and forth and out of plug assembly (B).
4. Using remover, push contact (E) with damaged wire out of back of plug assembly (B).

5. Using diagonal cutting pliers, cut wire from contact (E). Throw away contact (E).
6. Pulling cut wire out of grommet (D), use diagonal cutting pliers to shorten wire about 6 inches. Fasten new end of cut wire to cable (C) with electricians tape (Item 58, Appendix D).



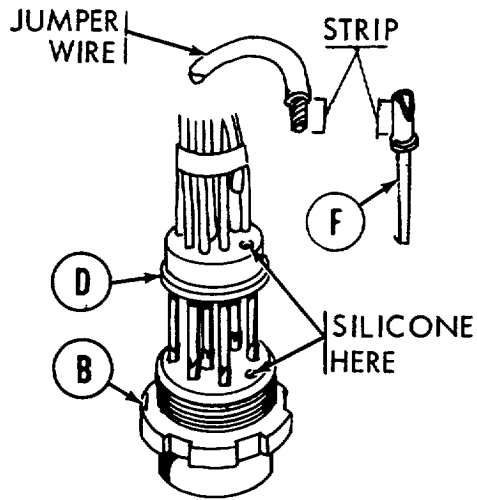
Go on to Sheet 2

TA147352



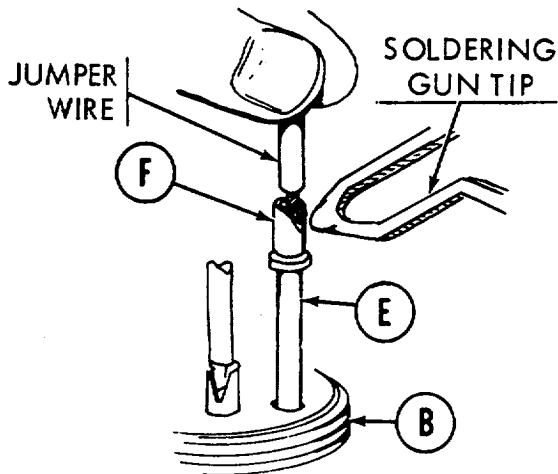
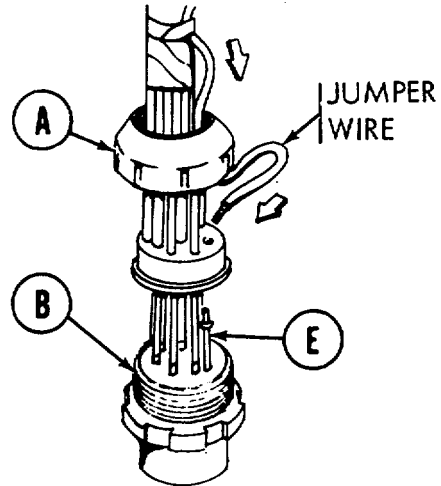
**ELECTRICAL WIRING HARNESS AND CABLE CONNECTOR REPAIR**

**Male Plug Repair (Sheet 2 of 3)**



7. Using hand wire stripper, strip insulation from jumper wire equal to depth of contact solder well (F).
8. Placing connector face down on flat surface, apply a small amount of silicone (Item 32, Appendix D) to empty holes on back of plug assembly (B) and on front of grommet (D).

9. Push new contact (E) into hole back of plug assembly (B) far enough so it will remain standing.
10. Push jumper wire end, first through grommet retaining nut (A) and then through hole in grommet (D).



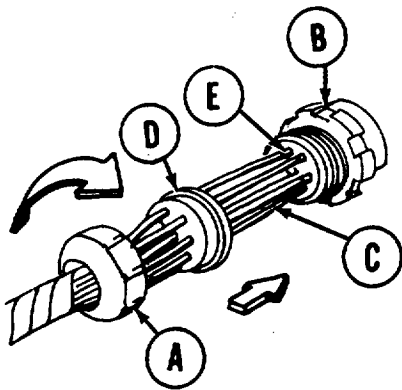
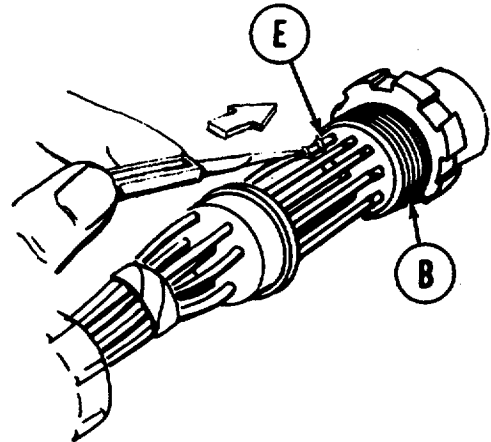
11. Hold jumper wire so wire end is pushing down onto solder in contact solder well (F).
12. Hold soldering gun tip against side of contact (E) until solder begins to melt and wire slips into contact solder well (F).
13. Removing soldering gun from side of contact (E), continue holding wire until solder has cooled and set.

Go on to Sheet 3

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**ELECTRICAL WIRING HARNESS AND CABLE CONNECTOR REPAIR**  
**Male Plug Repair (Sheet 3 of 3)**

14. Using remover, push contact (E) into lug assembly (B).



15. Sliding grommet (D) forward along cable (C), set grommet (D) firmly against contacts (E).
16. Manually thread grommet retaining nut (A) onto plug assembly (B).

17. Using multimeter, check continuity of repaired circuit.
18. Tighten or install cable clamps as required.
19. Connect connectors at each end of affected cable.
20. Connect three battery ground straps (page 10-294).

End of Task

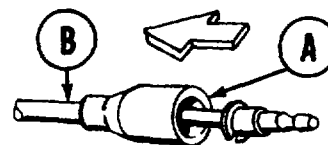
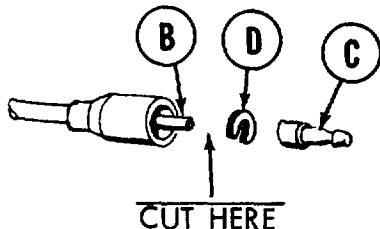
TA147354

**ELECTRICAL WIRING HARNESS AND CABLE CONNECTOR REPAIR**  
**Male Connector Repair (Sheet 1 of 1)**

TOOLS: Electrical connector repair tool kit  
 Diagonal cutting pliers  
 Multimeter

PRELIMINARY PROCEDURE: Disconnect three battery straps (page 10-294)

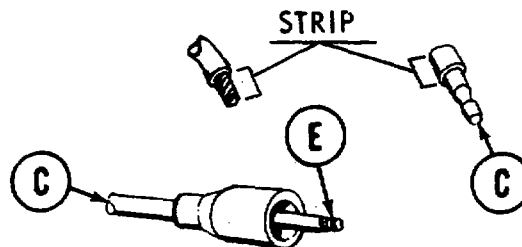
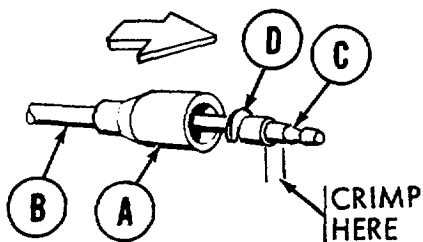
1. Slide shell (A) back along cable (B).



2. Using diagonal cutting pliers, cut terminal (C) and C-washer (D) from cable (B). Throw terminal (C) and C-washer (D) away.

3. Using hand wire stripper, strip insulation from cable (B) equal to well depth in terminal (C).

4. Insert stripped cable end (E) into well in terminal (C).



5. Using crimping tool, crimp terminal (C).
6. Push new C-washer (D) onto cable (B) at rear of terminal.

7. Slide shell (A) forward along cable (B) until tight against C-washer (D).

8. Using multimeter, check continuity of repaired circuit.

9. Connect three battery ground straps (page 10-294).

End of Task

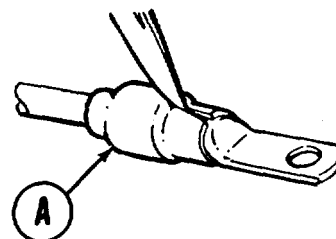
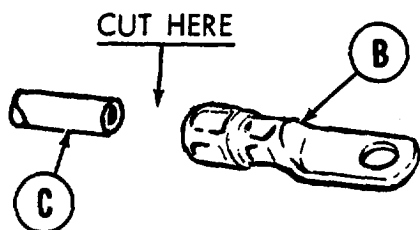
**ELECTRICAL WIRING HARNESS AND CABLE CONNECTOR REPAIR**  
**Terminal Connector Repair (Sheet 1 of 2)**

TOOLS: Electrical connector repair tool kit  
 Diagonal cutting pliers  
 Heat gun  
 Pocketknife  
 Multimeter

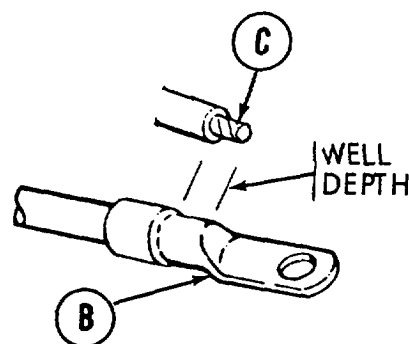
SUPPLIES: Heat-shrink tubing

PRELIMINARY PROCEDURES: Disconnect three battery ground straps (page 10-294)  
 Loosen or remove cable clamps as required

1. Using knife, slit heat-shrink tubing (A) along its entire length. Throw heat-shrink tubing (A) away.



2. Using diagonal cutting pliers, cut terminal (B) from cable (C). Throw terminal (B) away.



3. Using hand wire stripper, strip insulation from cable (C) equal to well depth in terminal (B).

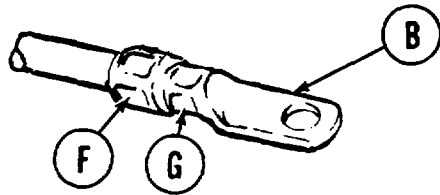
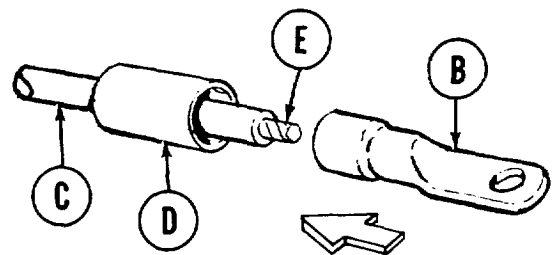
Go on to Sheet 2

TA147356

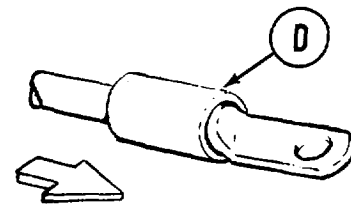
**ELECTRICAL WIRING HARNESS AND CABLE CONNECTOR REPAIR**

**Terminal Connector Repair (Sheet 2 of 2)**

4. Slide new heat-shrink tubing (D) onto and back along cable (C).
5. Slide new terminal (B) over stripped cable end (E) and onto cable (C).



6. Using crimping tool, crimp terminal (B) at (F) and (G).



7. Slide heat-shrink tubing (D) over crimps (F) and (G).
8. Using heat gun, shrink tubing (D).
9. Using multimeter, check continuity of repaired circuit.
10. Tighten or install cable clamps as required.
11. Connect three battery ground straps (page 10-294).

End of Task

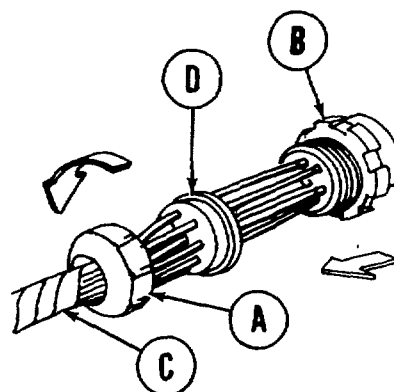
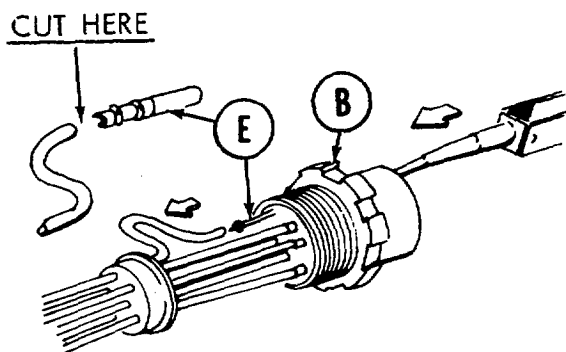
**ELECTRICAL WIRING HARNESS AND CABLE CONNECTOR REPAIR**  
**Female Plug Repair (Sheet 1 of 3)**

**TOOLS:** Electrical connector repair tool kit  
 Soldering gun  
 Slip joint pliers with plastic jaw inserts  
 Diagonal cutting pliers  
 Multimeter

**SUPPLIES:** Silicone compound (Item 32, Appendix D)  
 Electricians tape (Item 58, Appendix D)  
 Jumper wire

**PRELIMINARY PROCEDURE:** Disconnect three battery strap (page 10-294)  
 Loosen or remove cable amps as required  
 Disconnect connectors at each end of affected cable

1. Manually thread grommet retaining nut (A) from plug assembly (B).
2. Slide grommet retaining nut (A) back along cable (C).



3. Using slip joint pliers, work grommet (D) back and forth and out of plug assembly (B).
4. Using remover, push contact (E) with damaged wire out of back of plug assembly (B).

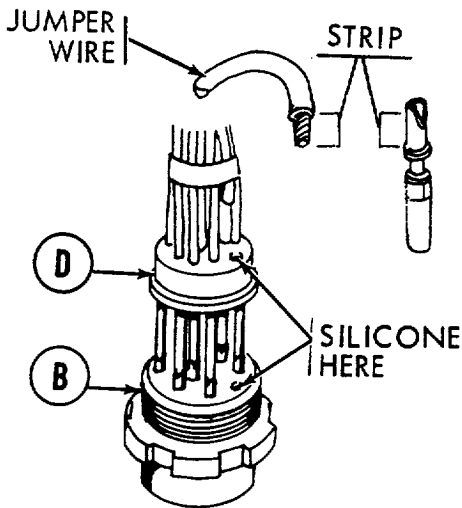
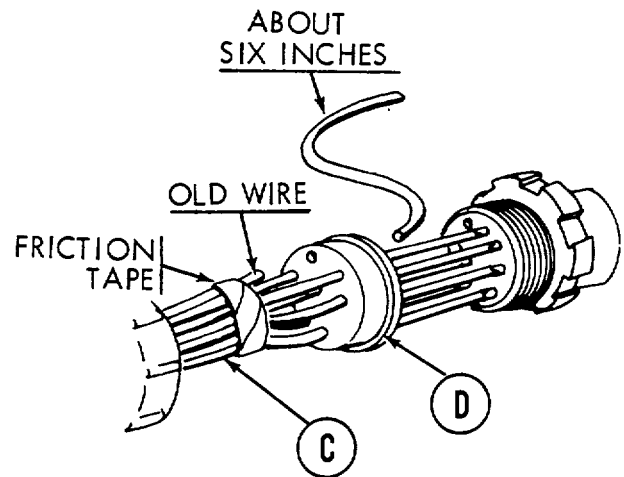
Go on to Sheet 2

TA147358

**ELECTRICAL WIRING HARNESS AND CABLE CONNECTOR REPAIR**

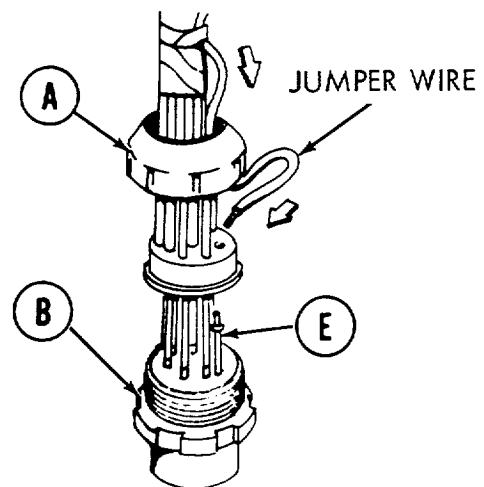
**Female Plug Repair (Sheet 2 of 3)**

5. Using diagonal cutting pliers, cut wire from contact (E). Throw away contact (E).
6. Pulling cut wire out of grommet (D), use diagonal cutting pliers to shorten wire about 6 inches. Fasten new end of cut wire to cable (C) with electricians tape.



7. Using hand wire stripper, strip insulation from jumper wire equal to depth of contact solder well (F).
8. Placing connector face down on flat surface, apply a small amount of silicone (Item 32, Appendix D) to empty holes on back of plug assembly (B) and on front of grommet (D).

9. Push new contact (E) into hole in back of plug assembly (B) far enough so it will remain standing.
10. Push jumper wire end through grommet retaining nut (A) and then through hole in grommet (D).

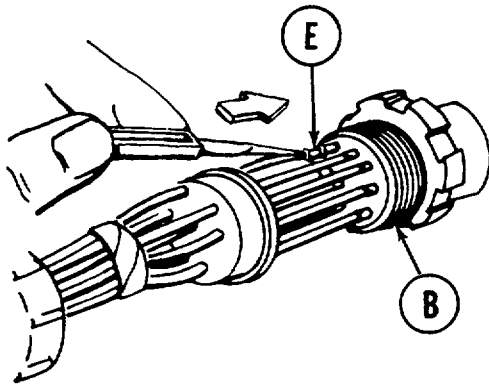
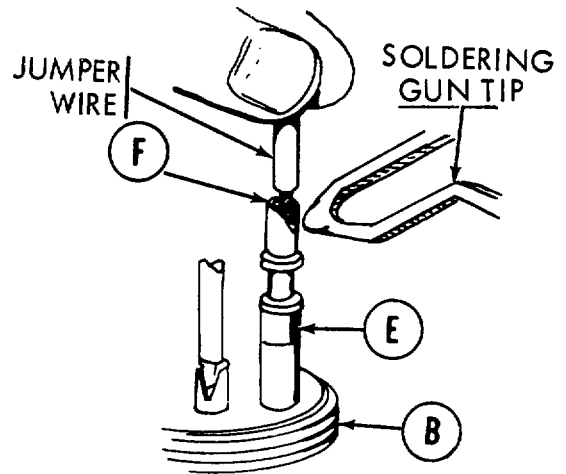


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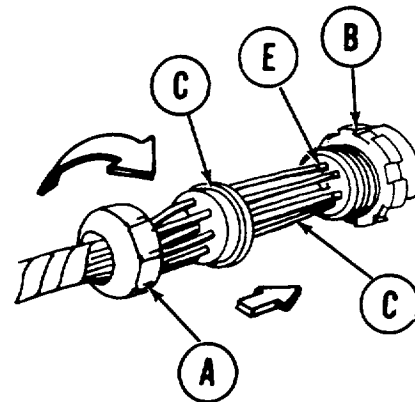
**ELECTRICAL WIRING HARNESS AND CABLE CONNECTOR REPAIR**

**Female Plug Repair (Sheet 3 of 3)**

11. Hold jumper wire so wire end is pushing down onto solder in contact solder well (F).
12. Hold soldering gun tip against side of contact (E) until solder begins to melt and wire slips into contact solder well (F).
13. Removing soldering gun from side of contact (E), continue holding wire until solder has cooled and set.



14. Using remover, push contact (E) into plug assembly (B).



15. Sliding grommet (D) forward along cable (C), set grommet (D) firmly against contacts (E).
16. Manually thread grommet retaining nut (A) onto plug assembly (B).
17. Using multimeter, check continuity of repaired circuit.
18. Tighten or install cable clamps as required.
19. Connect connectors at each end of affected cable.
20. Connect three battery ground straps (page 10-294).

End of Task

TA147360



**ELECTRICAL WIRING HARNESS AND CABLE CONNECTOR REPAIR**  
**Female Plug Repair (Sheet 1 of 3)**

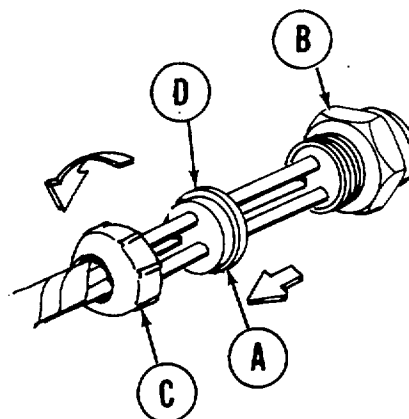
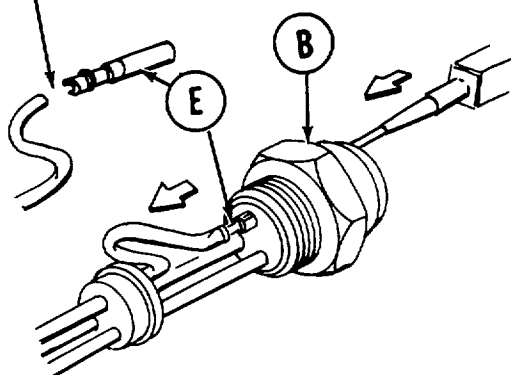
TOOLS: Electrical connector repair tool kit  
 Soldering gun  
 Slip joint pliers with plastic jaw inserts  
 Diagonal cutting pliers  
 Multimeter

SUPPLIES: Silicone compound (Item 32, Appendix D)  
 Electricians tape (Item 38, Appendix D)  
 Jumper wire

PRELIMINARY PROCEDURES: Disconnect three battery ground straps (page 10-294)  
 Loosen or remove cable clamps as required  
 Disconnect connectors at each end of affected cable

1. Manually thread grommet retaining nut (A) from plug assembly (B).
2. Slide grommet retaining nut (A) back along cable (C).

CUT HERE



3. Using slip joint pliers, work grommet (D) back and forth and out of plug assembly (B).
4. Using remover, push contact (E) with damaged wire out of back of plug assembly (B).

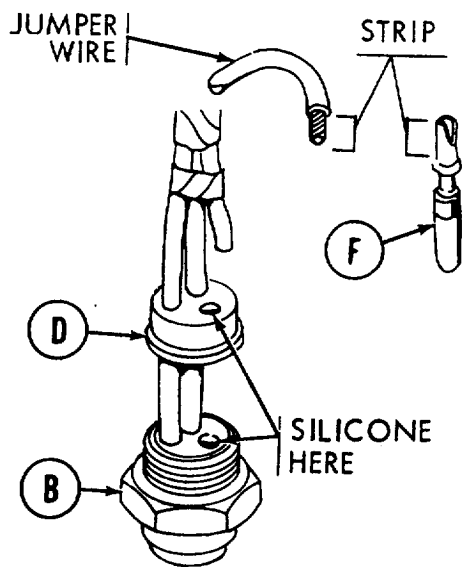
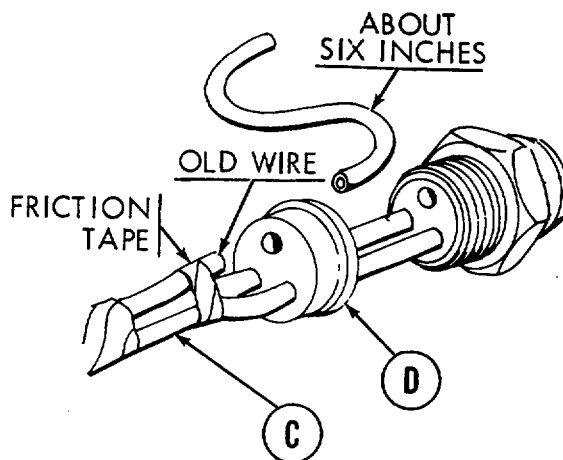
Go on to Sheet 2

TA147361

10-329

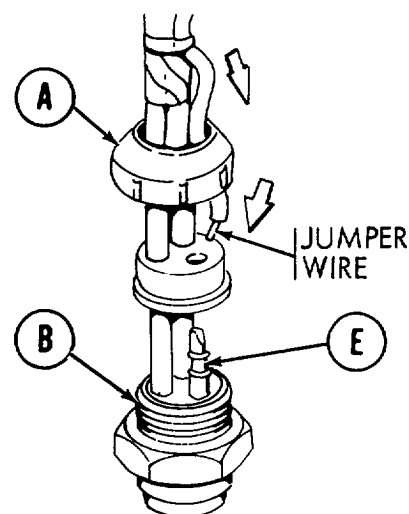
**ELECTRICAL WIRING HARNESS AND CABLE CONNECTOR REPAIR**  
**Female Plug Repair (Sheet 2 of 3)**

5. Using diagonal cutting pliers, cut wire from contact (E). Throw away contact (E).
6. Pulling cut wire out of grommet (D), use diagonal cutting pliers to shorten wire about 6 inches. Fasten new end of cut wire to cable (C) with electricians tape.



7. Using hand wire stripper, strip insulation from jumper wire equal to depth of contact solder well (F).
8. Placing connector face down on flat surface, apply a small amount of silicone (Item 32, Appendix D) to empty holes on back of plug assembly (B) and on front of grommet (D).

9. Push new contact (E) into hole in back of plug assembly (B) far enough so it will remain standing.
10. Push jumper wire end through grommet retaining nut (A) and then through hole in grommet (D).

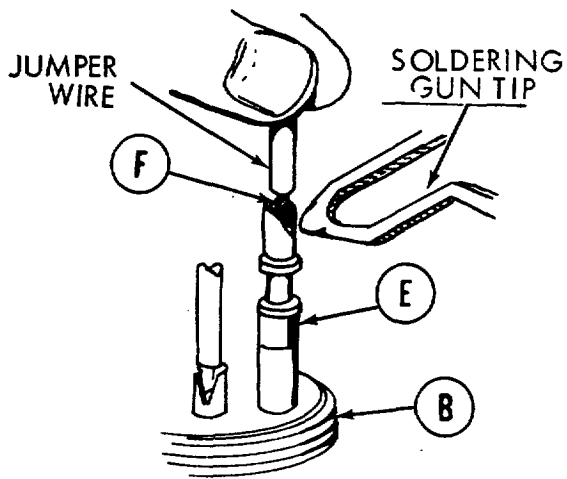


Go on to Sheet 3

TA147362

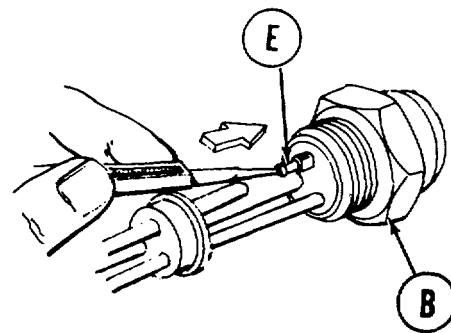
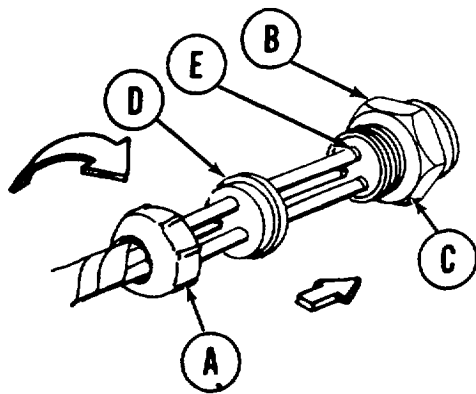
**ELECTRICAL WIRING HARNESS AND CABLE CONNECTOR REPAIR**

**Female Plug Repair (Sheet 3 of 3)**



11. Hold jumper wire so wire end is pushing down onto solder in contact solder well (F).
12. Hold soldering gun tip against side of contact (E) until solder begins to melt and wire slips into contact solder well (F).
13. Removing soldering gun from side of contact (E), continue holding wire until solder has cooled and set.

14. Using remover, push contact (E) into plug assembly (B).



15. Sliding grommet (D) forward along cable (C), set grommet (D) firmly against contacts (E).
16. Manually thread grommet retaining nut (A) onto plug assembly (B).

17. Using multimeter, check continuity of repaired circuit.
18. Tighten or install cable clamps as required.
19. Connect connectors at each end of affected cable.
20. Connect three battery ground straps (page 10-294).

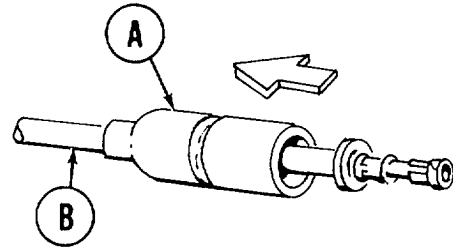
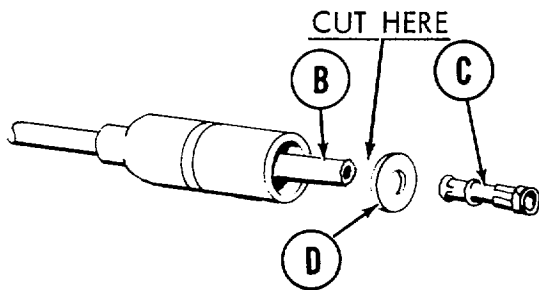
End of Task

**ELECTRICAL WIRING HARNESS AND CABLE CONNECTOR REPAIR**  
**Female Connector With Washer (12 Gage Cable) Repair (Sheet 1 of 1)**

TOOLS: Electrical connector repair tool kit  
 Diagonal cutting pliers  
 Multimeter

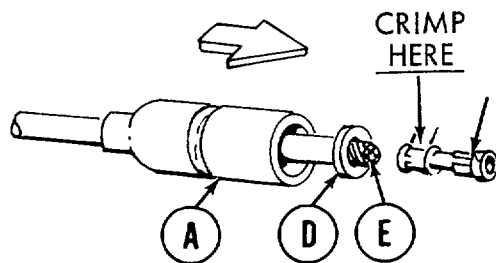
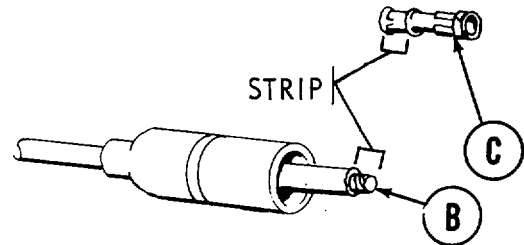
PRELIMINARY PROCEDURES: Disconnect three battery ground straps (page 10-294)  
 Loosen or remove cable clamps as required

1. Slide shell (A) back along cable (B).



2. Using diagonal cutting pliers, cut terminal (C) and washer (D) from cable (B). Throw terminal (C) and washer (B) away.

3. Using hand wire stripper, strip insulation from cable (B) equal to well depth in terminal (C).
4. Slide new washer (D) onto stripped cable end (E) back to cable insulation.



5. Insert stripped cable end (E) into well in terminal (C).
6. Using crimping tool, crimp terminal (C).

7. Slide shell (A) forward until tight against washer (D).
8. Using multimeter, check continuity of repaired circuit.
9. Tighten or install cable clamps as required.
10. Connect three battery ground straps (page 10-294).

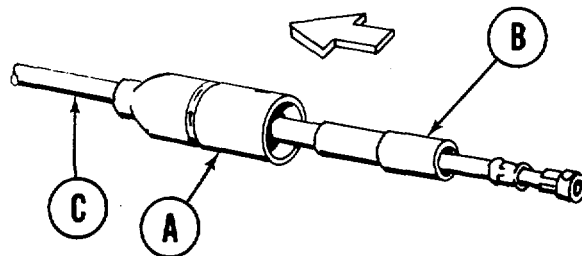
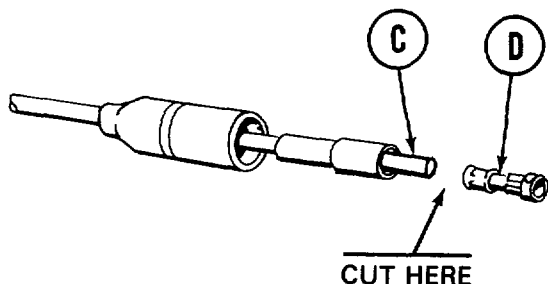
End of Task

**ELECTRICAL WIRING HARNESS AND CABLE CONNECTOR REPAIR**  
**Female Connector With Sleeve (14 and 16 Gage Cable) Repair (Sheet 1 of 1)**

TOOLS: Electrical connector repair tool kit  
 Diagonal cutting pliers  
 Multimeter

PRELIMINARY PROCEDURES: Disconnect three battery ground straps (page 10-294)  
 Loosen or remove cable clamps as required

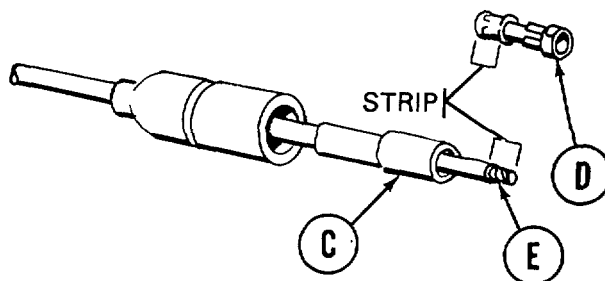
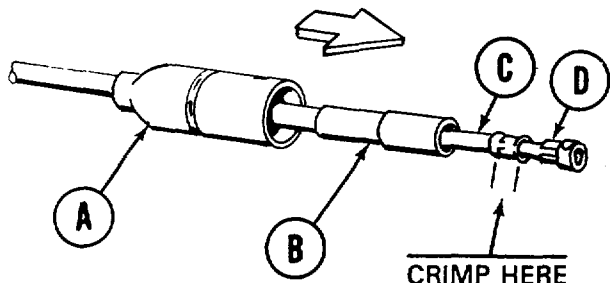
1. Slide shell (A) and sleeve (B) back along cable (C).



2. Using diagonal cutting pliers, cut terminal (D) from cable (C). Throw terminal (D) away.

3. Using hand wire stripper, strip insulation from cable (C) equal to well depth in terminal (D).

4. Insert stripped cable end (E) into well in terminal (D).



5. Using crimping tool, crimp terminal (D).
6. Slide sleeve (B) forward along cable (C) until tight against terminal (D).

7. Slide shell (A) forward along cable (C) until tight against sleeve (B).
8. Using multimeter, check continuity of repair circuit.
9. Tighten or install cable clamps as required.
10. Connect three battery ground traps (page 10-294).

End of Task

**ELECTRICAL WIRING HARNESS AND CABLE CONNECTOR REPAIR**  
**Female Receptacle Repair (Sheet 1 of 3)**

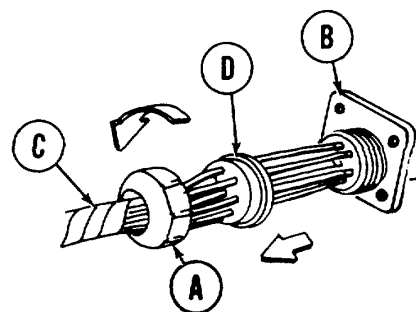
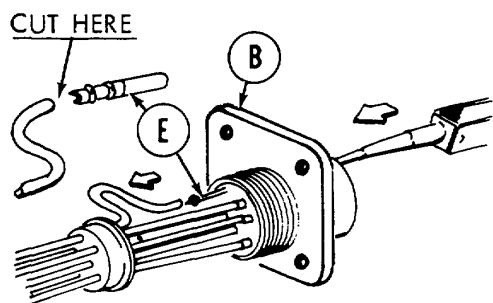
**TOOLS:** Electrical connector repair tool kit  
 Soldering gun  
 Slip joint pliers with plastic jaw inserts  
 Diagonal cutting pliers  
 Pocketknife  
 Multimeter

**SUPPLIES:** Silicone compound (Item 32, Appendix D)  
 Electricians tape (Item 58, Appendix D)  
 Jumper wire  
 Heat-shrink tubing

**REFERENCE:** TM 9-2350-260-10

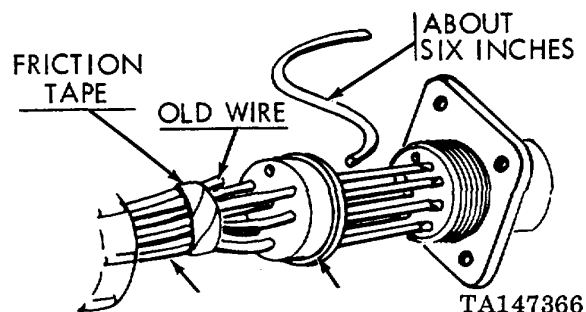
**PRELIMINARY PROCEDURES:** Disconnect three battery ground straps (page 10-294)  
 Loosen or remove cable clamps as required  
 Disconnect connectors at each end of affected cable

1. Manually thread grommet retaining nut (A) from plug assembly (B).
2. Slide grommet retaining nut (A) back along cable (C).



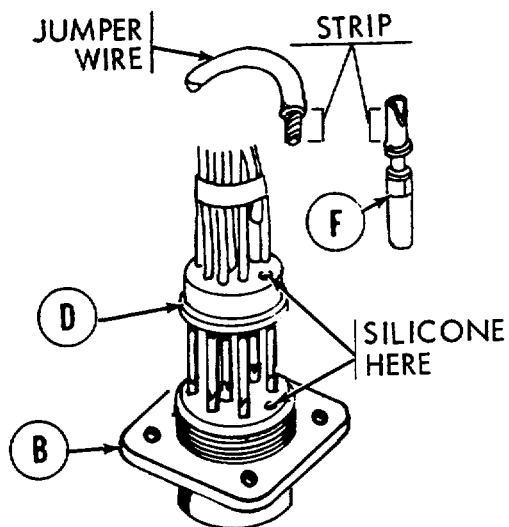
3. Using slip joint pliers, work grommet (D) back and forth and out of plug assembly (B).
4. Using remover, push contact (E) with damaged wire out of back of plug assembly (B).

5. Using diagonal cutting pliers, cut wire from contact (E). Throw away contact (E).
6. Pulling cut wire out of grommet (D), use diagonal cutting pliers to shorten wire about 6 inches. Fasten new end of cut wire to cable (C) with electrical tape (Item 58, Appendix D).

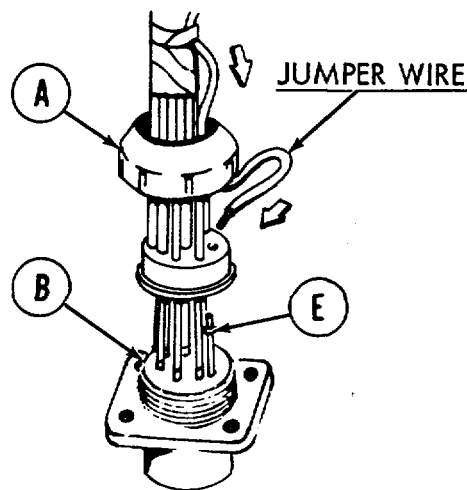


Go on to Sheet 2

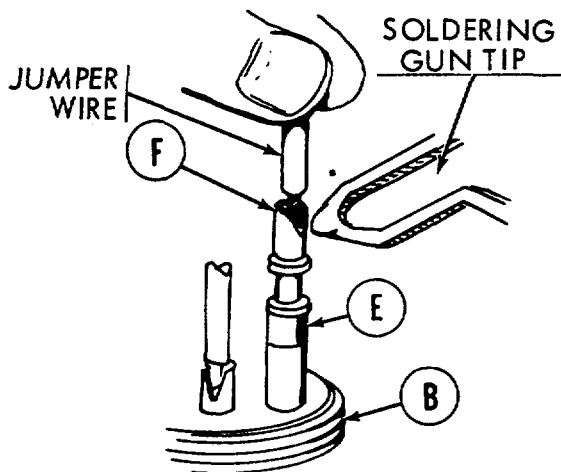
**ELECTRICAL WIRING HARNESS AND CABLE CONNECTOR REPAIR**  
**Female Receptacle Repair (Sheet 2 of 3)**



7. Using hand wire stripper, strip insulation from jumper wire equal to depth of contact solder well (F).
8. Placing connector face down on flat surface, apply a small amount of silicone (Item 32, Appendix D) to empty holes on back of plug assembly (B) and on front of grommet (D).



9. Push new contact (E) into hole in back of plug assembly (B) far enough so it will remain standing.
10. Push jumper wire end through grommet retaining nut (A) and then through hole in grommet (D).



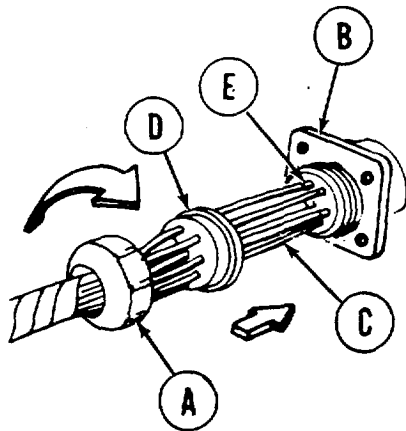
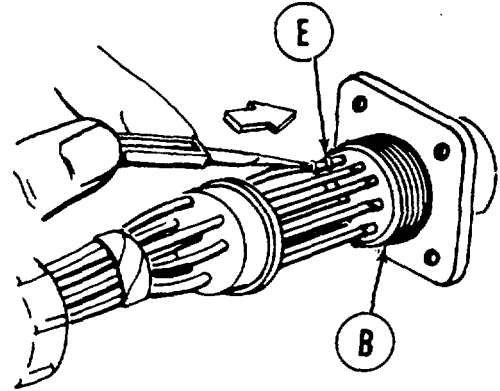
11. Hold jumper wire so wire end is pushing down into solder in contact solder well (F).
12. Hold soldering gun tip against side of contact (E) until solder begins to melt and wire slips into contact solder well (F).
13. Removing soldering gun from side of contact (E), continue holding wire until solder has cooled and set.

Go on to Sheet 3

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**ELECTRICAL WIRING HARNESS AND CABLE CONNECTOR REPAIR**  
**Female Receptacle Repair (Sheet 3 of 3)**

14. Using remover, push contact (E) into plug assembly (B).



15. Sliding grommet (D) forward along cable (C), set grommet (D) firmly against contacts (E).
16. Manually tread grommet retaining nut (A) onto plug assembly (B).

17. Using multimeter, check continuity of repaired circuit.
18. Tighten or install cable clamps as required.
19. Connect connectors at each end of affected cable.
20. Connect tree battery ground straps (page 10-294).

End of Task

TA147368



## ENGINE WIRING HARNESS REPLACEMENT (2A ENGINE)(Sheet 1 of 13)

## PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-338
Installation	10-344

TOOLS: 3/8 in. combination box and open end wrench  
 7/16 in. combination box and open end wrench  
 9/16 in. combination box and open end wrench  
 3/4 in. combination box and open end wrench  
 7/16 in. socket with 1/2 in. drive  
 1/2 in. socket with 1/2 in. drive  
 3/4 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 5 in. extension with 1/2 in. drive  
 Slip joint pliers  
 Flat-tip screwdriver

SUPPLIES: Self-locking nuts (MS20365-B1032A)(2 required)  
 Silicone compound (Item 32, Appendix D)  
 Lockwasher (MS35338-63)(2 required)  
 Lockwasher (MS35338-43)(4 required)  
 Lockwasher (MS21045-4)  
 Lockwasher (MS35338-45)(7 required)

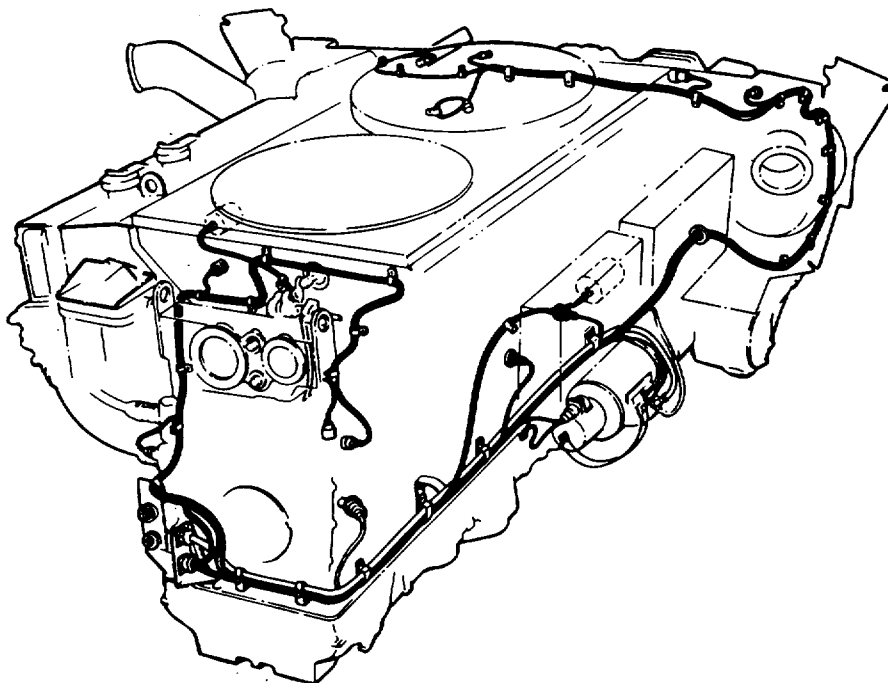
PRELIMINARY PROCEDURE: Remove powerplant (page 5-2).

Go on to Sheet 2

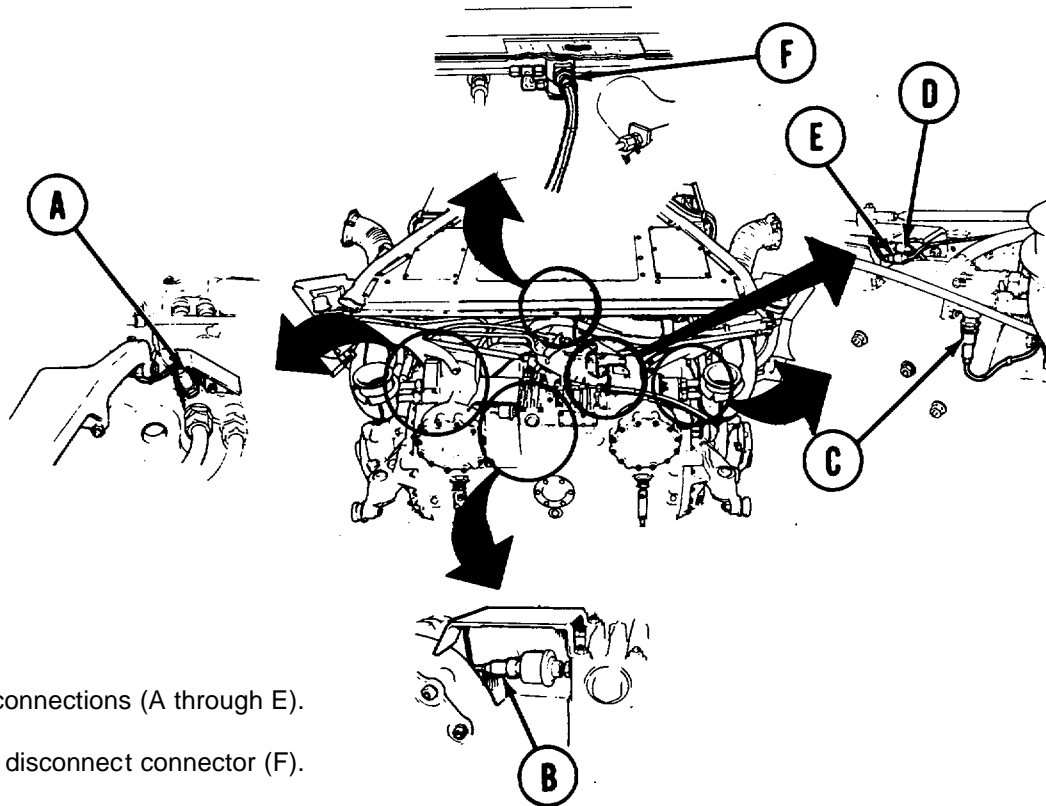
TA147369

10-337

ENGINE WIRING HARNESS REPLACEMENT (2A ENGINE)(Sheet 2 of 13)



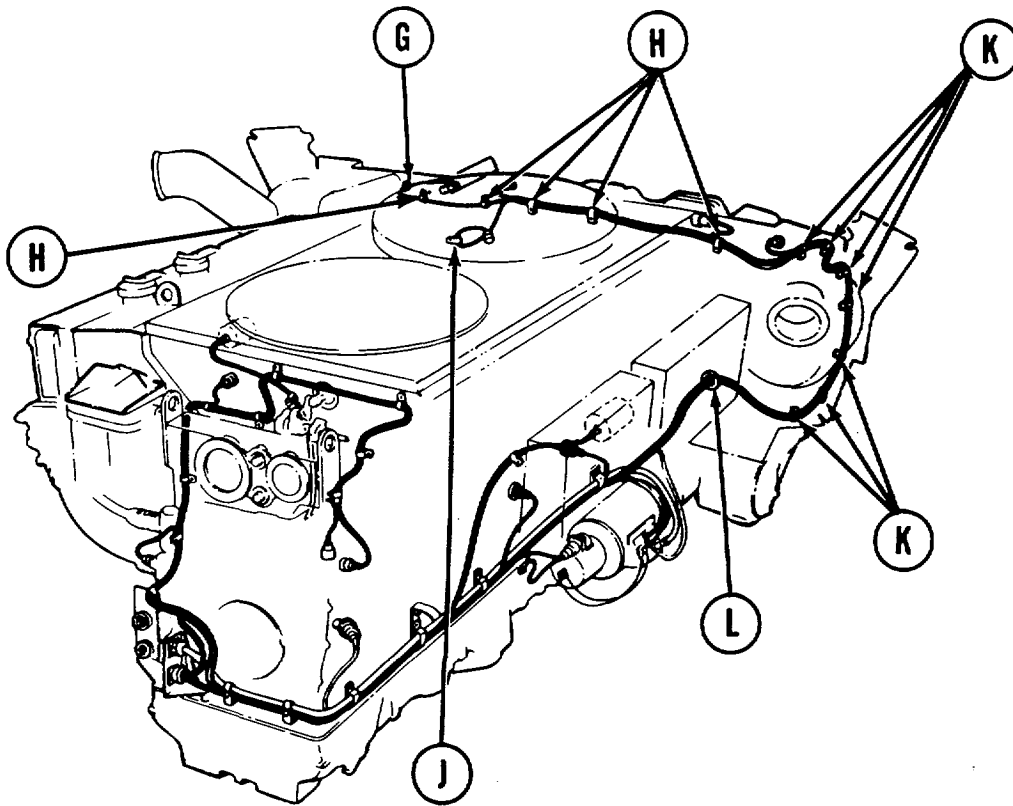
REMOVAL:



1. Disconnect connections (A through E).
2. Using pliers, disconnect connector (F).

Go on to Sheet 3

## ENGINE WIRING HARNESS REPLACEMENT (2A ENGINE)(Sheet 3 of 13)



3. Using 3/4 inch socket, remove nut securing clamp (G). Remove clamp.
4. Using 3/4 inch wrench, remove nut securing clamp (H). Remove clamp.
5. Using 7/16 inch wrench, remove screw securing clamp (J). Remove clamp.
6. Using 3/4 inch socket remove nuts securing clamps (K). Remove clamps.
7. Remove wiring from transmission and pull through grommet (L) in shroud.

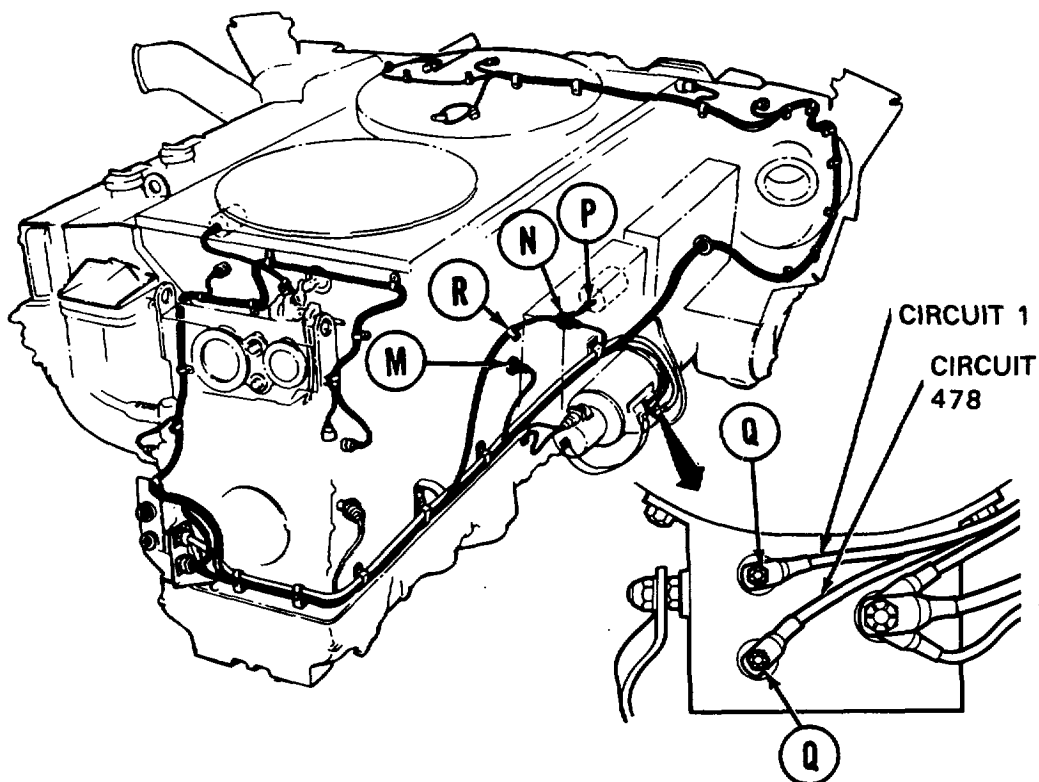
Go on to Sheet 4

TA147371

10-339

**ENGINE WIRING HARNESS REPLACEMENT (2A ENGINE)(Sheet 4 of 13)**

8. Disconnect connectors (M) and (N).
9. Using pliers, disconnect connector (P).



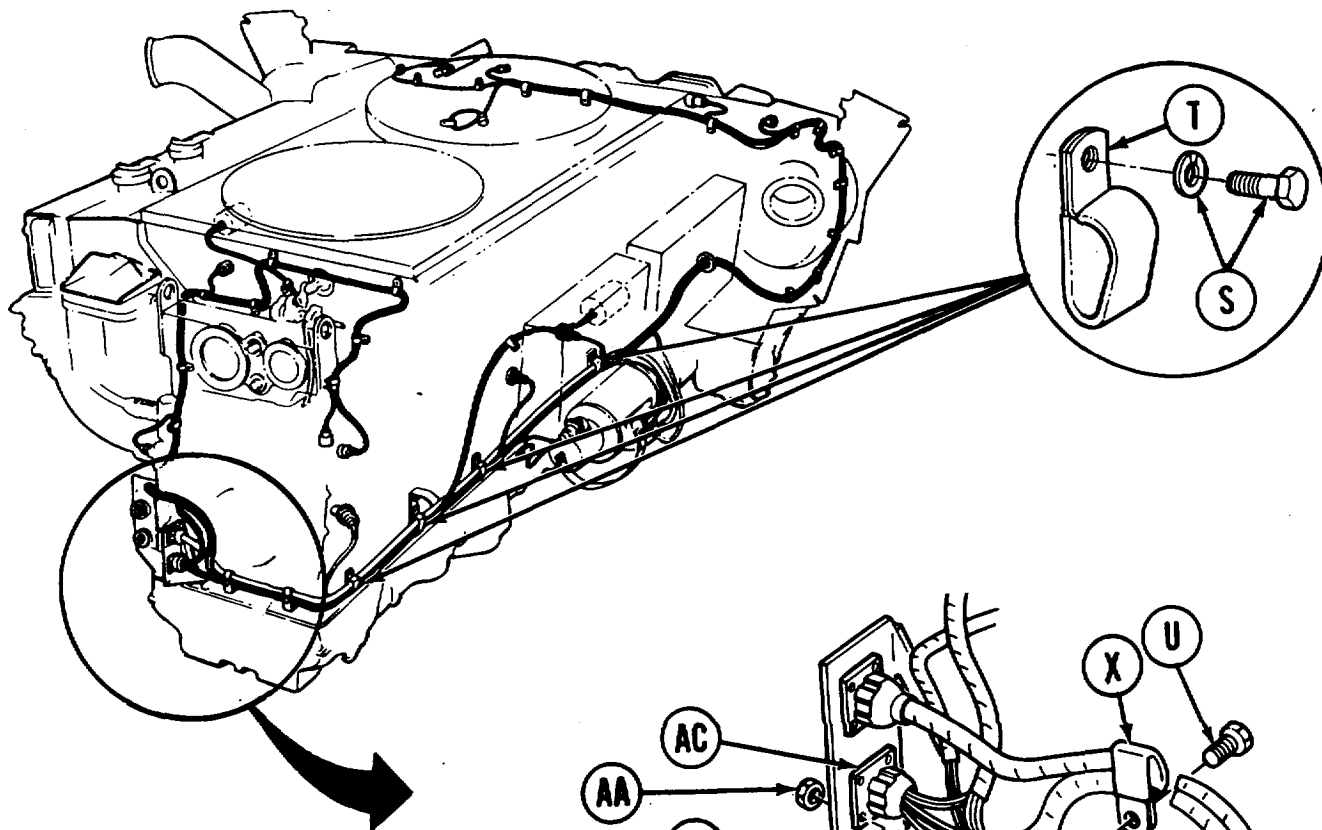
10. Using 3/8 inch wrench, remove nuts and flat washers (Q) securing circuit 1 and 478 to generator. Throw nuts away.
11. Remove circuit leads 1 and 478 from generator.
12. Using 9/16 inch wrench, remove nut securing clamp (R). Remove clamp.

Go on to Sheet 5

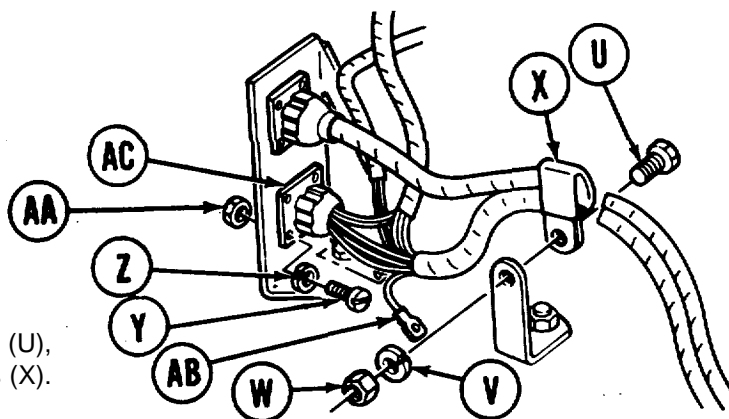
TA147372

**ENGINE WIRING HARNESS REPLACEMENT (2A ENGINE)(Sheet 5 of 13)**

13. Using 1/2 inch socket, remove four screws and washers (8) securing clamps (T) to engine.



14. Using two 7/16 inch wrenches, remove screw (U), lockwasher (V) and nut (W) securing two clamps (X). Throw lockwasher away.



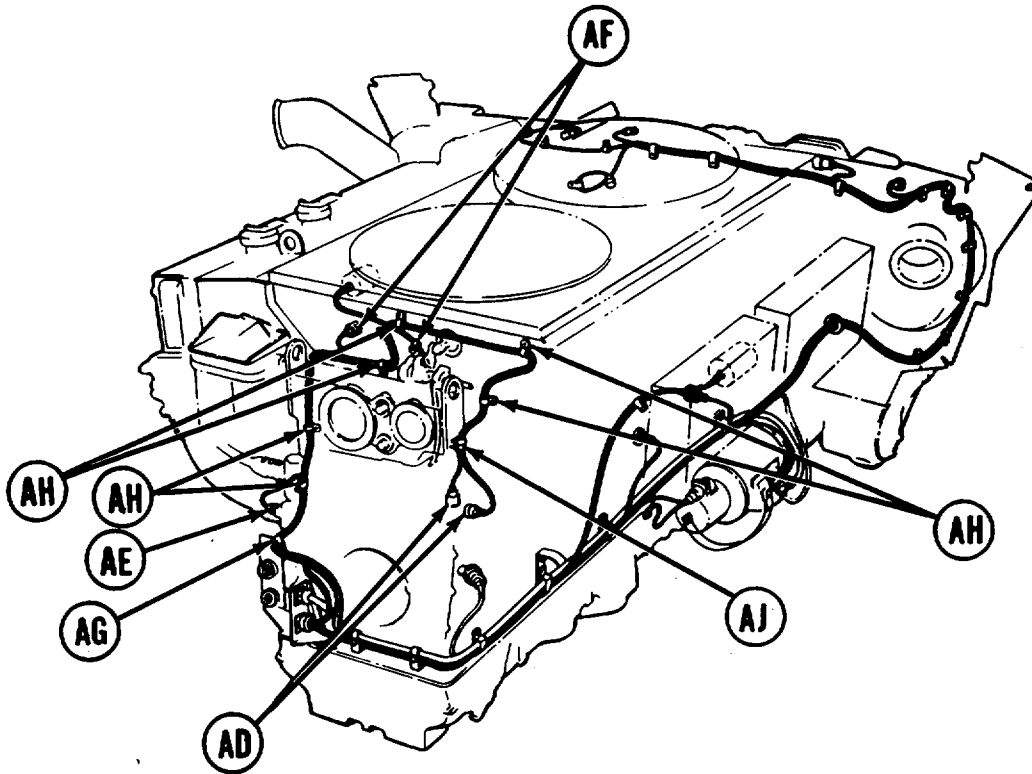
15. Using screwdriver and 3/8 inch wrench, remove four screws (Y), lockwashers (Z), and nuts (AA), securing ground lead cable connector (AC) to bracket. Throw lockwashers away.

Go on to Sheet 6

TA147373

**ENGINE WIRING HARNESS REPLACEMENT (2A ENGINE)(Sheet 6 of 13)**

16. Disconnect connectors (AD).
17. Using pliers, disconnect connectors (AE) and (AF).



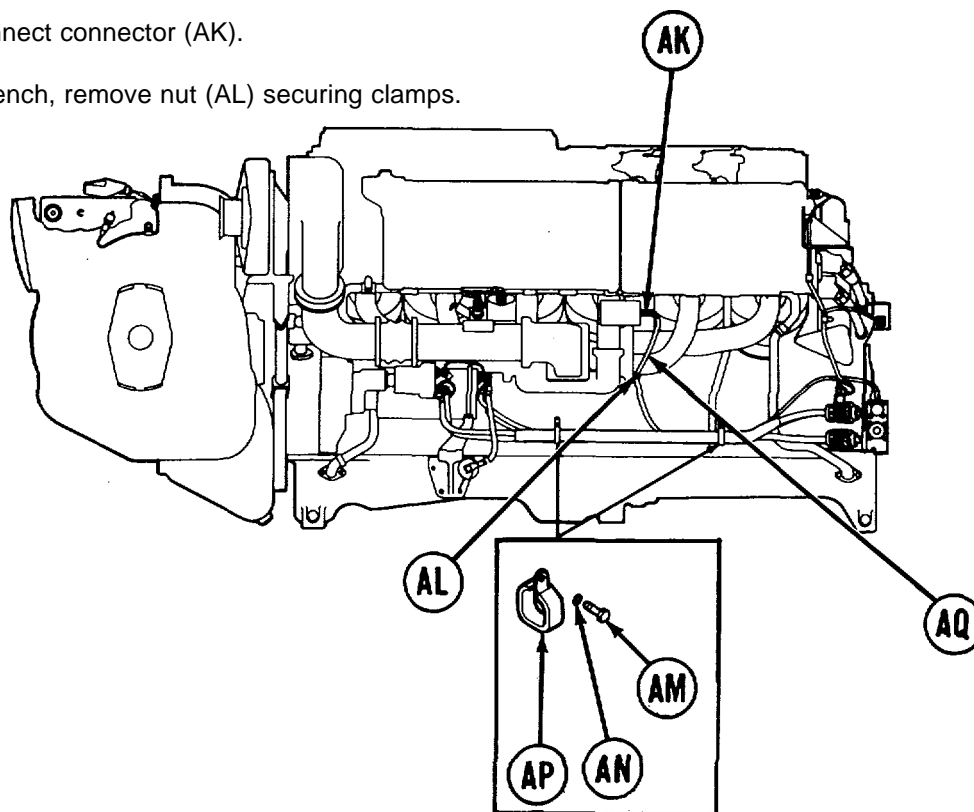
18. Using 1/2 inch socket, remove screw and washer securing clamp (AG). Remove clamp.
19. Using screwdriver, remove seven screws securing clamps (AH). Remove clamps.
20. Using 7/16 inch socket, remove screw and lockwasher securing clamp (AJ). Remove clamp. Throw lockwasher away.

Go on to Sheet 7

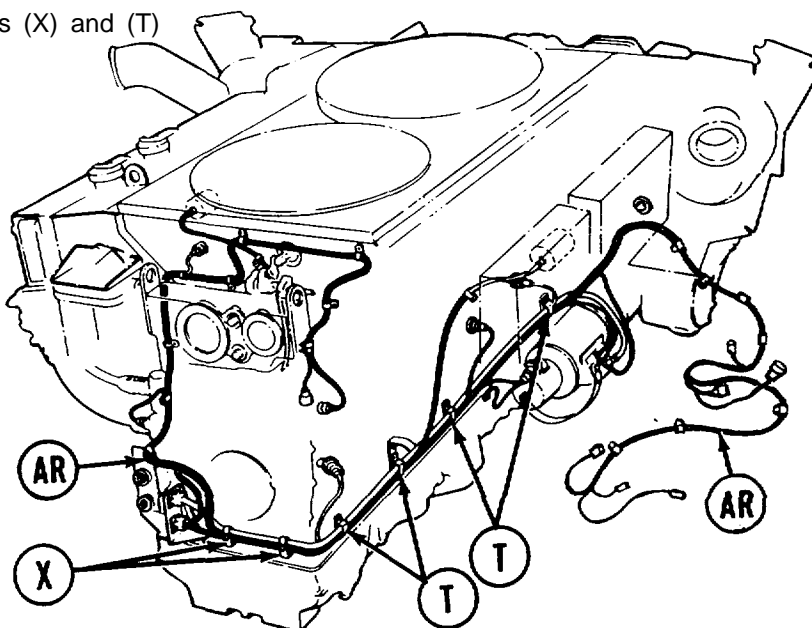
TA147374

**ENGINE WIRING HARNESS REPLACEMENT (2A ENGINE)(Sheet 7 of 13)**

21. Using pliers, disconnect connector (AK).
22. Using 9/16 inch wrench, remove nut (AL) securing clamps.



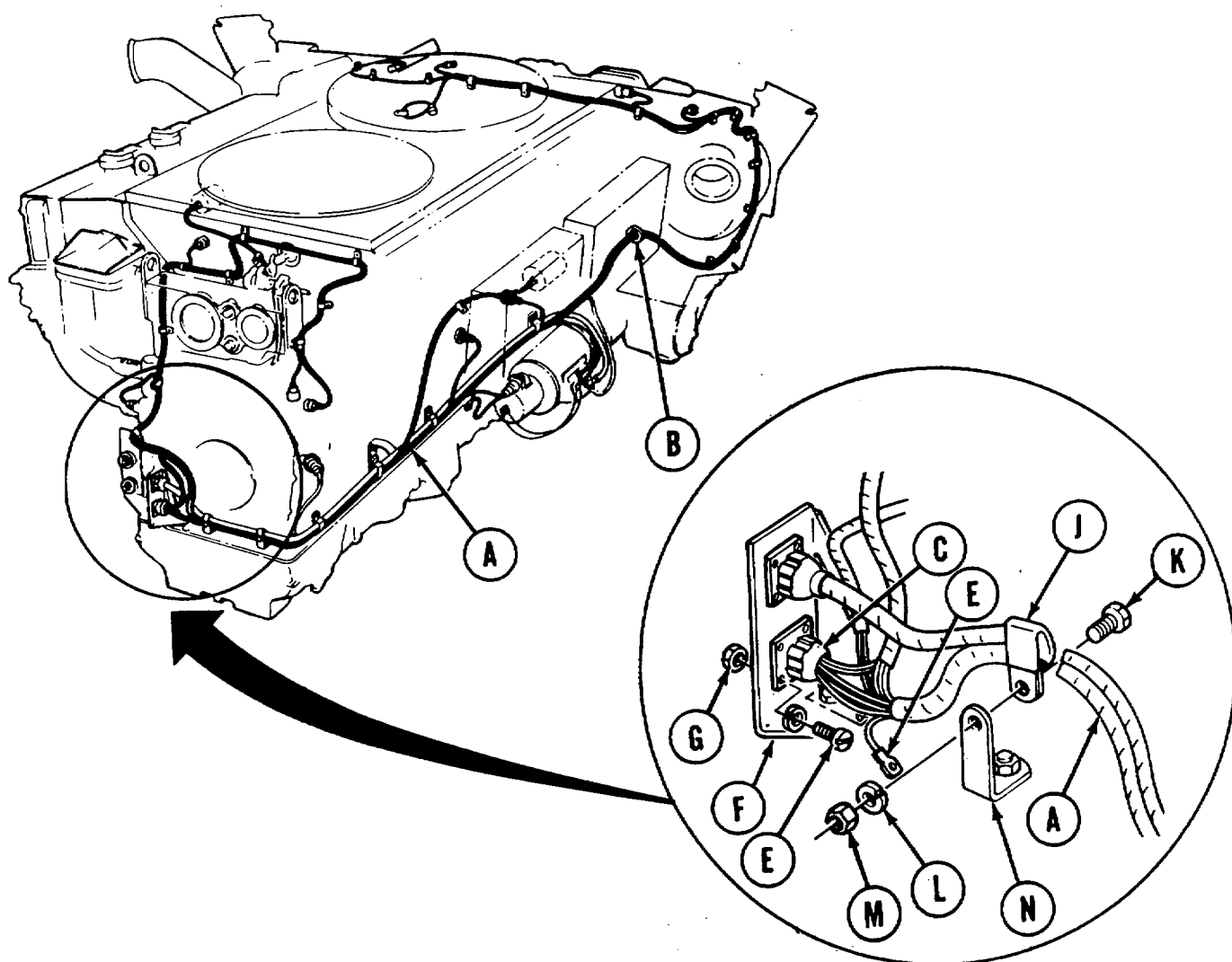
23. Using 1/2 inch socket, remove screw (AM) and lockwashers (AN) securing clamp (AP). Throw lockwashers away.
24. Slip lead (AQ) out of clamp (AP).
25. Slip wiring harness (AR) out of clamps (X) and (T) and remove from engine.



Go on to Sheet 8

**ENGINE WIRING HARNESS REPLACEMENT (2A ENGINE)(Sheet 8 of 13)****INSTALLATION:**

1. Position engine wiring harness (A) onto engine, through grommet (B) in shroud, and onto transmission.
2. Position cable connector (C) onto bracket (D).
3. Using screwdriver and 3/8 inch wrench, install and tighten four screws (E), new lockwashers (F), and nuts (G) to secure connector (C) and ground lead (H) to bracket (D).
4. Install harness (A) cable into clamps (J).
5. Using two 7/16 inch wrenches, install and tighten screws (K), lockwashers (L) and nuts (M), securing clamps (J) to brackets (N).



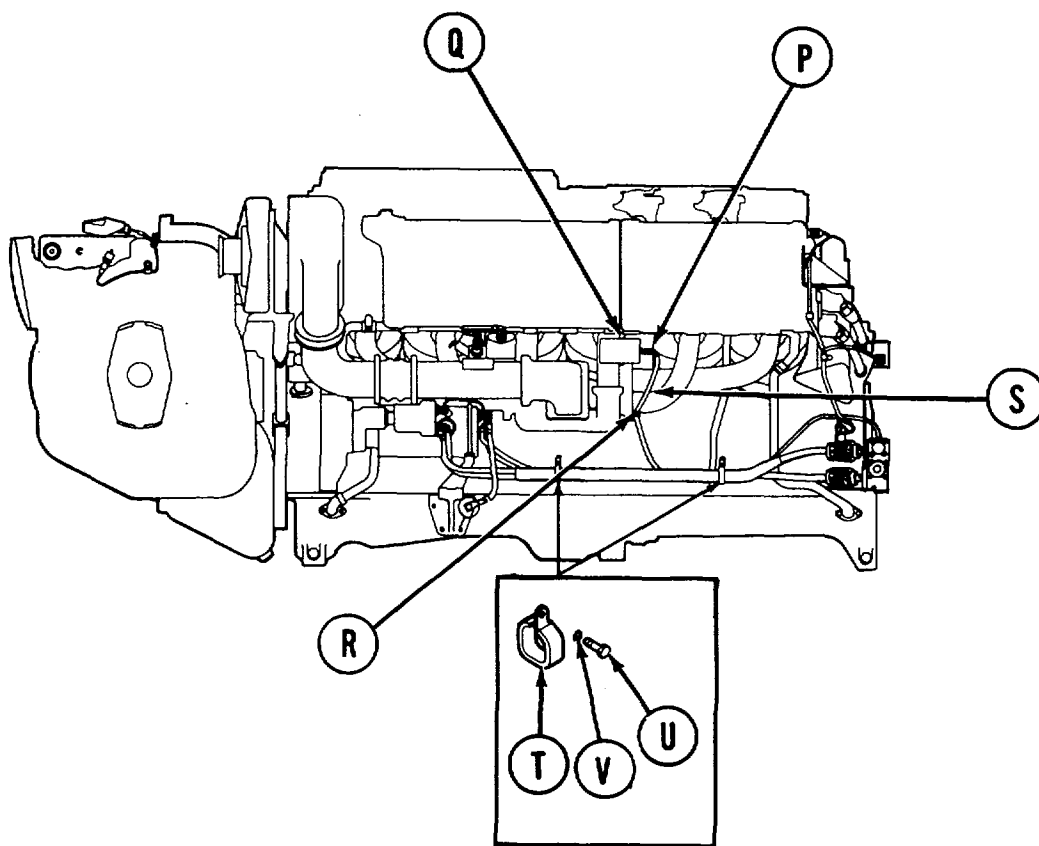
Go on to Sheet 9

TA147376



**ENGINE WIRING HARNESS REPLACEMENT (2A ENGINE)(Sheet 9 of 13)**

6. Connect connector (P) to coil (Q).
7. Install clamp (R) onto lead (S). Using 9/16 inch wrench, install and tighten nut securing clamp (R).
8. Install lead (S) into clamp (T). Using 1/2 inch socket, install and tighten screw (U) and new lockwasher (V) securing clamp (T).



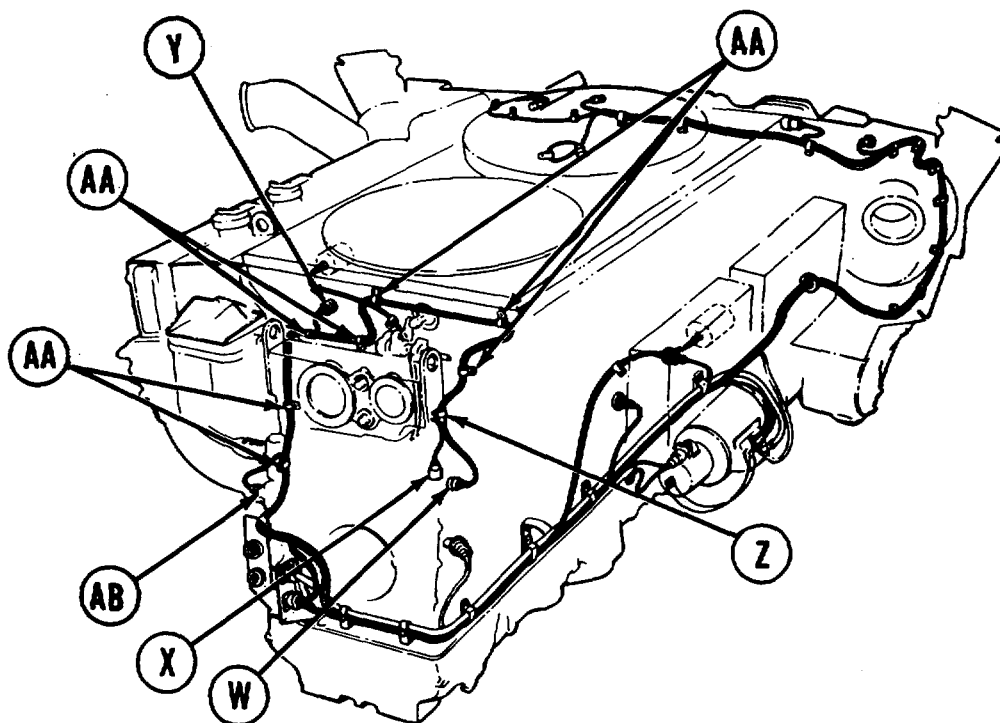
Go on to Sheet 10

TA147377

10-345

**ENGINE WIRING HARNESS REPLACEMENT (2A ENGINE)(Sheet 10 of 13)**

9. Apply silicone compound (Item 32, Appendix D) to connectors (W) and (X).
10. Connect connector (W, circuit 33) to oil temperature transmitter.
11. Connect connector (X, circuit 509L) to oil high temperature switch.



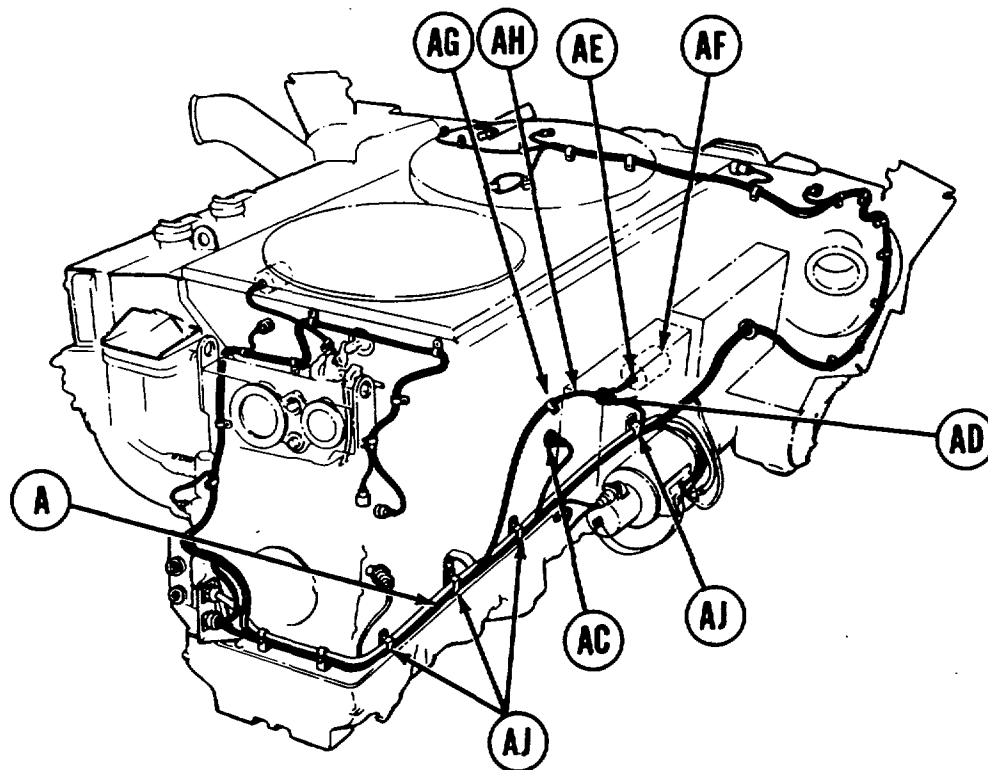
12. Connect connector (Y, circuit 54A) to bulkhead connector.
13. Install damp (Z) onto wiring harness. Using 7/16 inch socket install, screw and new lockwasher securing clamp (Z).
14. Install seven clamps (AA) onto wiring harness. Using screwdriver, install and tighten screws securing clamps (AA).
15. Connect connector (AB, circuit 486/GRD) to solenoid.

Go on to Sheet 11

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**ENGINE WIRING HARNESS REPLACEMENT (2A ENGINE)(Sheet 11 of 13)**

16. Apply silicone compound (Item 32, Appendix D) to connectors (AC) and (AD).
17. Connect connector (AC, circuit 509L) to oil low pressure switch.
18. Connect connector (AD, circuit 36) to oil pressure transmitter.



19. Connect connector (AE) to coil (AF).
20. Install clamp (AG) on lead (AH). Using 7/16 inch wrench, install and tighten nut securing clamp (AG).
21. Install wiring harness (A) into clamps (AJ). Using 1/2 inch socket, install and tighten screws and new lockwashers securing clamps (AJ).

Go on to Sheet 12

TA147379

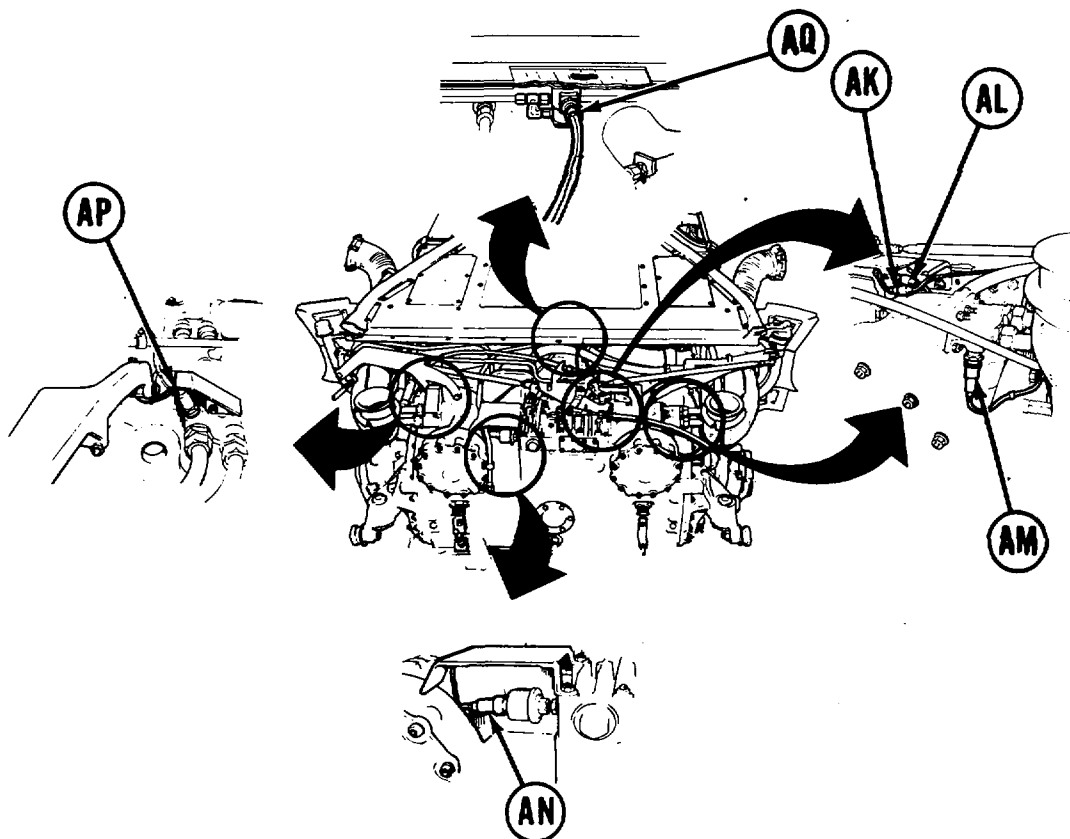
10-347

**ENGINE WIRING HARNESS REPLACEMENT (2A ENGINE)(Sheet 12 of 13)**

22. Apply silicone compound (Item 32, Appendix D) to connectors (AK) thru (AP).

23. Connect connectors (AK thru AP) as shown.

- Connector AK circuit 14.
- Connector AL circuit 14A.
- Connector AM circuit 509L.
- Connector AN circuit 321.
- Connector AP circuit 324.



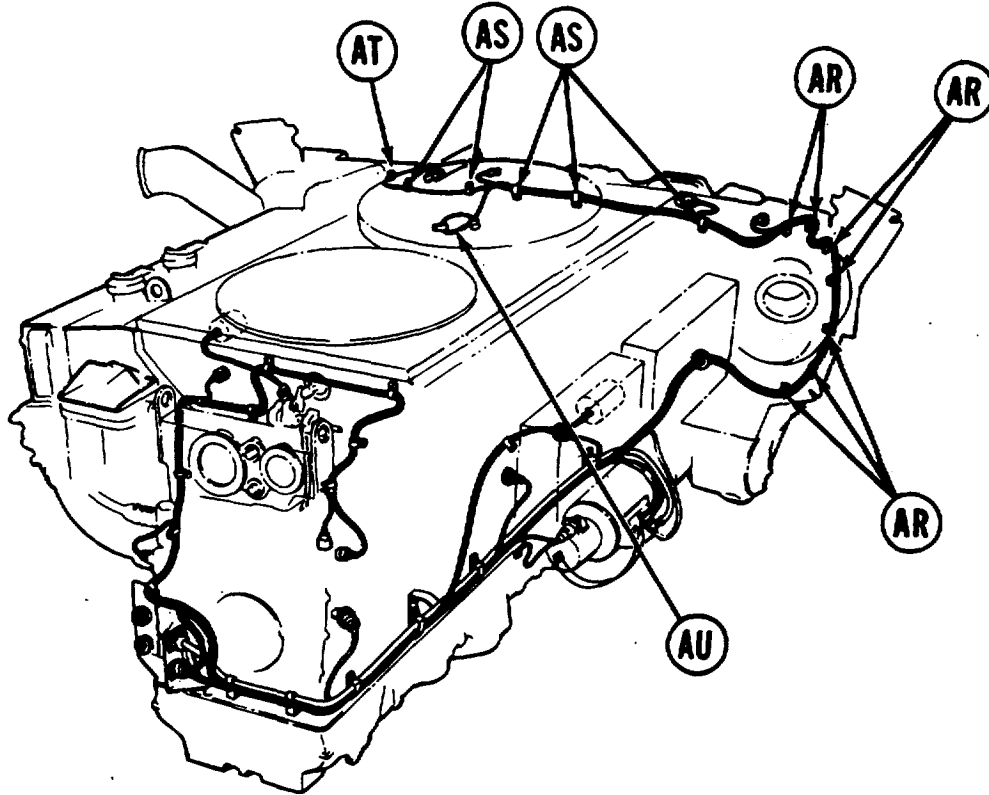
24. Connect connector (AQ) to solenoid.

Go on to Sheet 13

TA147380

**ENGINE WIRING HARNESS REPLACEMENT (2A ENGINE)(Sheet 13 of 13)**

25. Install seven clamps (AR) onto wiring harness. Using 3/4 inch socket, install and tighten nuts securing clamps (AG).
26. Install five clamps (AS) onto wiring harness. Using 3/4 inch wrench, install and tighten nuts securing clamps (AS).



27. Install clamp (AT) onto wiring harness. Using 3/4 inch socket, install and tighten nut securing clamp (AT).
28. Install clamp (AU) and using 7/16 inch wrench, install and tighten screw securing clamp (AU).
29. Install powerplant (page 5-14).

End of Task

TA147381

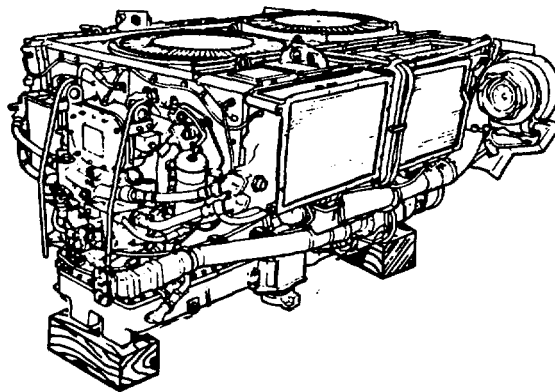
**ENGINE WIRING HARNESS REPLACEMENT (2D ENGINE)(Sheet 1 of 12)**

PROCEDURE	PROCEDURE INDEX	PAGE
Removal		10-351
Installation		10-356

- TOOLS:**
- |   |  |
|---|--|
| Spanner wrench                                | Cross-tip screw driver                       |
| 3/8 in. combination box and open end wrench   | Flat-tip screwdriver                         |
| 3/4 in. combination box and open end wrench   | Slip joint pliers                            |
| 7/8 in. combination box and open end wrench   | Diagonal cutting pliers                      |
| 1 in. open end wrench                         | Adjustable wrench                            |
| 1-1/8 in. combination box and open end wrench | 9/16 in. combination box and open end wrench |
| 7/16 in. socket with 1/2 in. drive            |  |
| 1/2 in. socket with 1/2 in. drive             |  |
| 2 in. extension with 1/2 in. drive            |  |
| Ratchet with 1/2 in. drive                    |  |

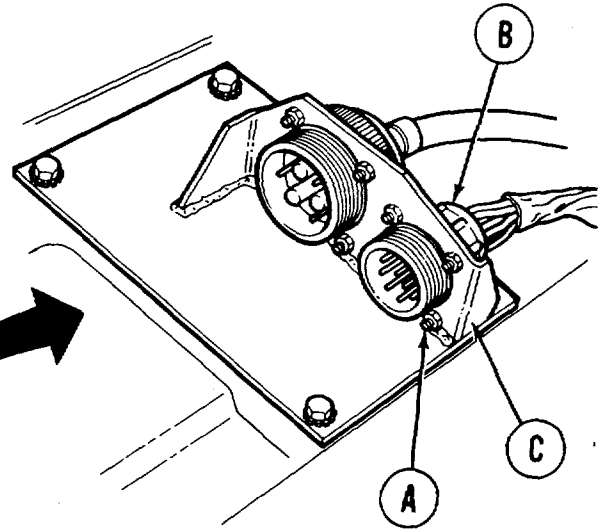
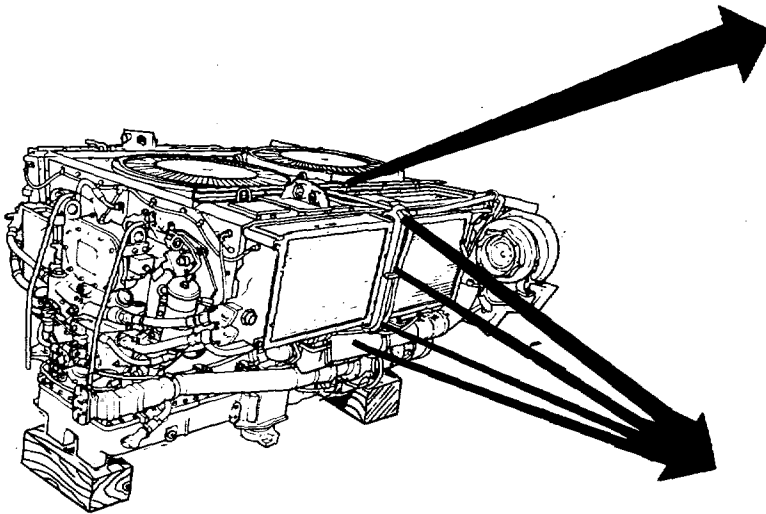
- SUPPLIES:**
- Silicone compound (Item 32, Appendix D)
  - Lockwasher (MS35335-34) (4 required)
  - Lockwasher (7410218) (3 required)
  - Lockwasher (11657469-3) (14 required)
  - Lockwasher (MS45904-76) (2 required)
  - Lockwasher (MS35338-43) (4 required)
  - Lockwasher (MS35338-45) (2 required)

**PRELIMINARY PROCEDURE:** Remove powerplant (page 5-27)

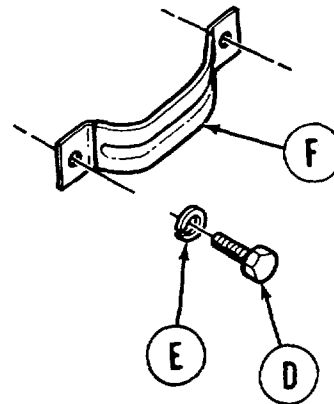


**ENGINE WIRING HARNESS REPLACEMENT (2D ENGINE)(Sheet 2 of 12)****REMOVAL:**

1. Using flat-tip screwdriver and 3/8 inch wrench, remove four screws, lockwashers, and nuts (A). Throw lockwashers away.
2. Remove engine harness (B) from mounting bracket (C).



3. Using 7/16 inch socket, remove eight screws (D) and lockwashers (E) securing four clamps (F). Throw lockwashers away.
4. Remove four clamps (G) from engine.

**NOTE**

**Engine wiring harness is wrapped, while other two harness leads are covered with insulation.**

5. Separate and remove engine wiring harness (B) from top of engine.

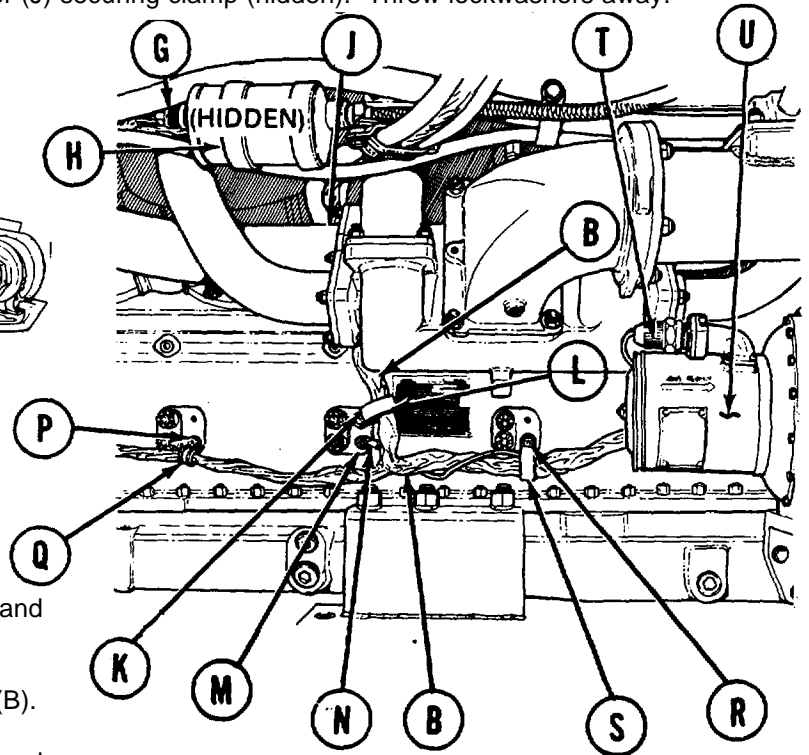
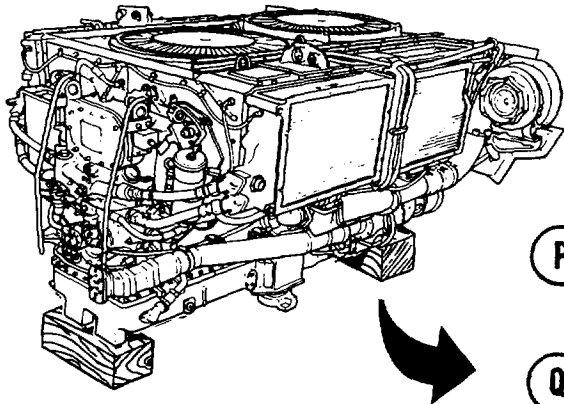
Go on to Sheet 3

TA147383

10-351

**ENGINE WIRING HARNESS REPLACEMENT (2D ENGINE)(Sheet 3 of 12)**

6. Using slip joint pliers and hands to loosen, disconnect electrical lead (CKT 86/GND)(G) from ignition unit (H).
7. Using 1/2 inch socket, remove nut and lockwasher (J) securing clamp (hidden). Throw lockwashers away.
8. Remove clamp from wiring harness (B).



(AIR DUCT REMOVED FOR CLARITY)

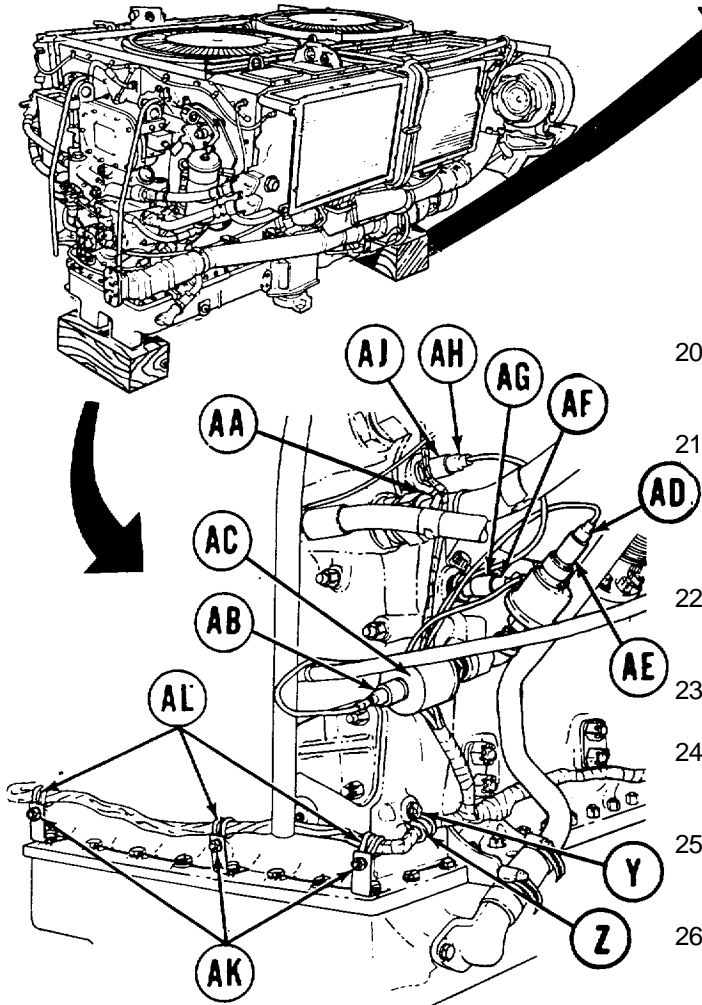
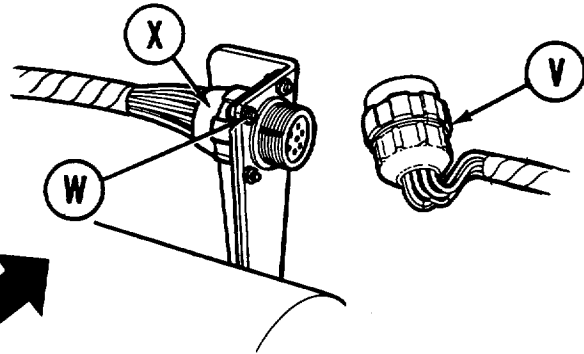
9. Using 1/2 inch socket, remove screw and lockwasher (K). Throw lockwasher away.
10. Remove clamp (L) from electrical wiring harness (B).
11. Using 1/2 inch socket, remove screw and lockwasher (M) securing ground lead (N). Throw lockwasher away.
12. Using 1/2 inch socket, remove screw and lockwasher (P). Throw lockwasher away.
13. Remove clamp (Q) from wiring harness (B).
14. Using 1/2 inch socket, remove screw and lockwasher (R). Throw lockwasher away.
15. Remove clamp (S) from engine wiring harness (B).
16. Using 1 inch wrench, disconnect electrical connector (T) from generator (U).

Go on to Sheet 4



**ENGINE WIRING HARNESS REPLACEMENT (2D ENGINE)(Sheet 4 of 12)**

- 17. Using spanner wrench, disconnect electrical connector (V).
- 18. Using cross-tip screwdriver and adjustable wrench, remove four screws, lockwashers, and nuts (W). Throw lockwashers away.
- 19. Remove cable connector (X) from bracket.



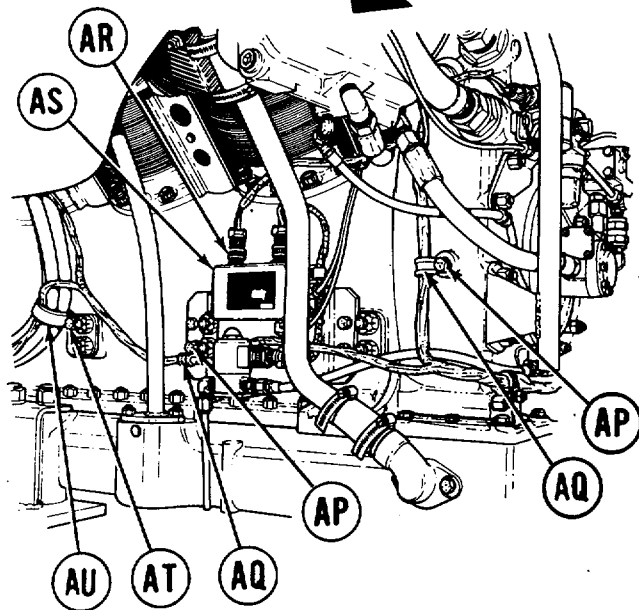
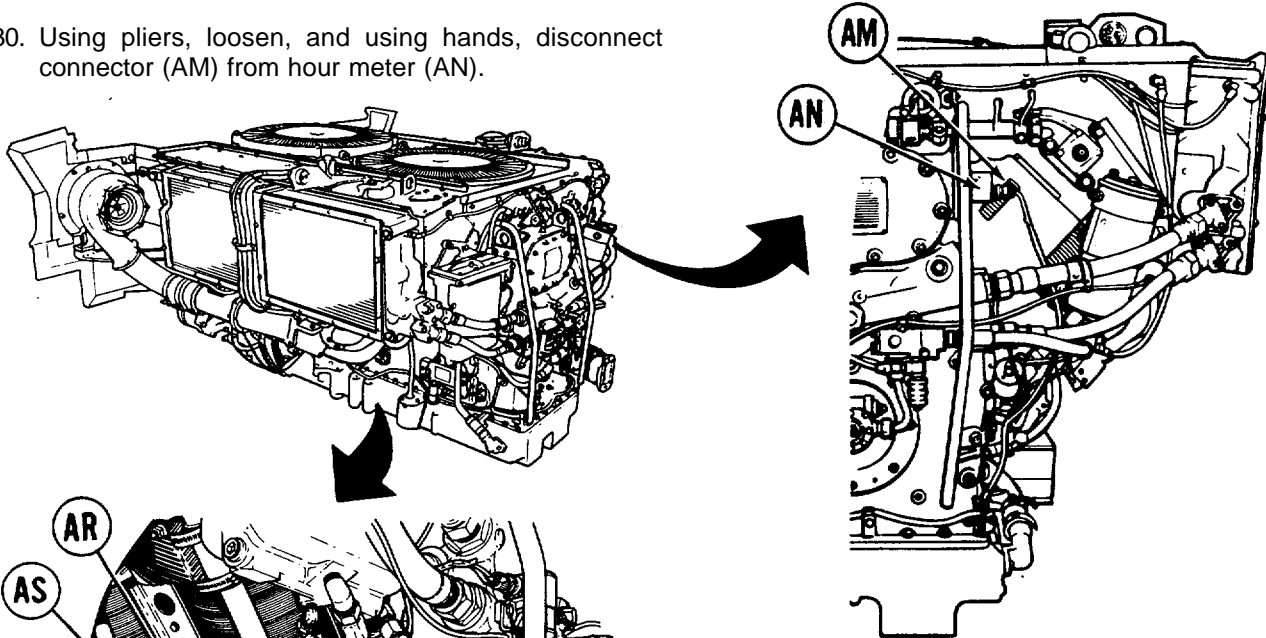
- 20. Using 1/2 inch socket, remove screw and lockwasher (Y). Throw lockwasher away.
- 21. Remove clamp (Z).
- 22. Using 1/2 inch socket with extension, remove nut (AA) securing clamp (hidden).
- 23. Remove clamp.
- 24. Disconnect electrical connector (AB) from engine oil pressure switch (AC).
- 25. Disconnect electrical connector (AD) from engine oil pressure transmitter (AE).
- 26. Disconnect electrical connector (AF) from engine oil temperature thermostatic switch (AG).

- 27. Disconnect electrical connector (AH) from engine oil temperature transmitter (AJ).
- 28. Using 7/16 inch socket and wrench, remove three screws, lockwashers, and nuts (AK). Throw lockwashers away.
- 29. Remove three clamps (AL).

Go on to Sheet 5

**ENGINE WIRING HARNESS REPLACEMENT (2D ENGINE)(Sheet 5 of 12)**

30. Using pliers, loosen, and using hands, disconnect connector (AM) from hour meter (AN).



31. Using 1/2 inch socket with extension, remove two screws and lockwashers (AP). Throw lockwashers away.

32. Remove two clamps (AQ).

33. Using slip joint pliers, loosen, and using hands, disconnect connector (AR) from fuel-water separator control (AS).

34. Using 1/2 inch socket with extension, remove screw and lockwasher (AT) securing clamp (AU). Throw lockwasher away.

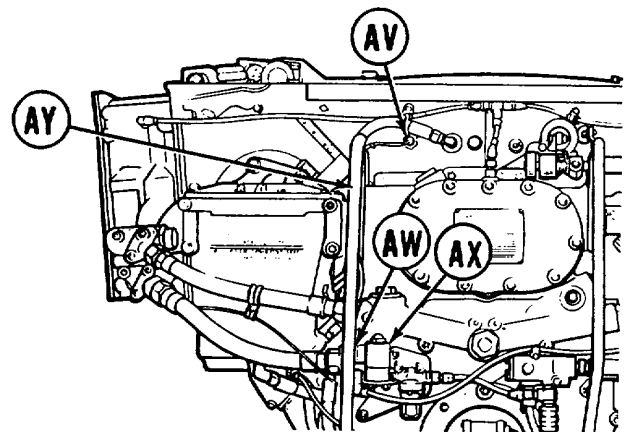
35. Remove clamp (AU).

36. Using 7/8 inch wrench, disconnect electrical lead (AV) from front of engine.

37. Using slip joint pliers, loosen, and using hands, disconnect electrical connector (AW) from solenoid valve (AX).

38. Using 9/16 inch wrench, remove nut (AY) securing clamp (hidden).

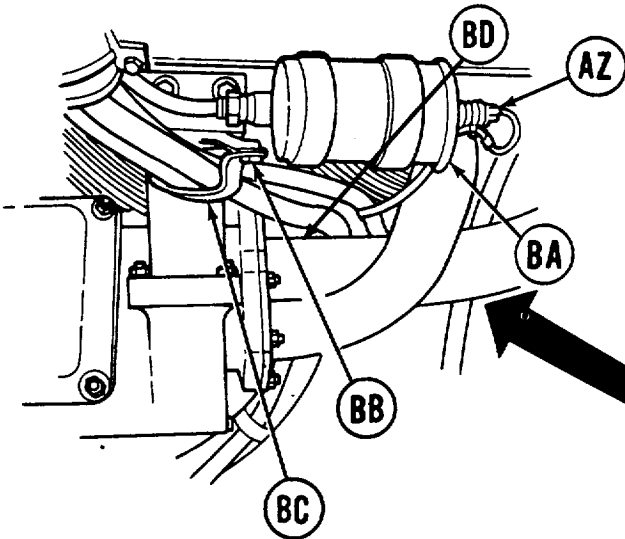
39. Remove clamp.



Go on to Sheet 6

TA147386

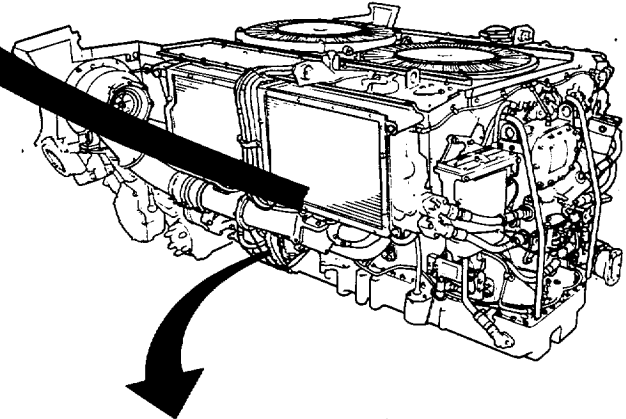
ENGINE WIRING HARNESS REPLACEMENT (2D ENGINE) (Sheet 6 of 12)



40. Using slip joint pliers, remove electrical connector (AZ) from ignition unit (BA).

41. Using 7/16 inch socket, remove two screws and lockwashers (BB) security clamp (BC). Throw lockwashers away.

42. Remove clamp.



43. Using 1/2 inch socket, remove nut (BD) securing clamp (hidden).

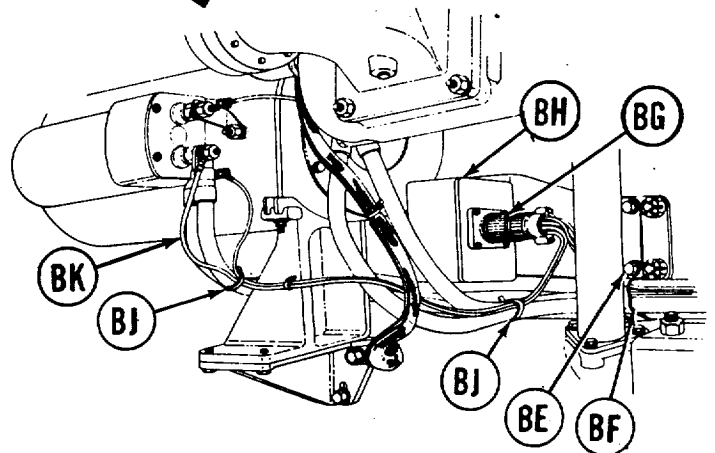
44. Remove clamp.

45. Using 1/2 inch socket with extension, remove screw and lockwasher (BE) securing clamp (BF). Throw lockwasher away.

46. Remove clamp (BF).

47. Using spanner wrench, disconnect electrical connector (BG) from low voltage protection relay (BH).

48. Using cutting pliers, cut and remove two plastic straps (BJ) from cables (BK).



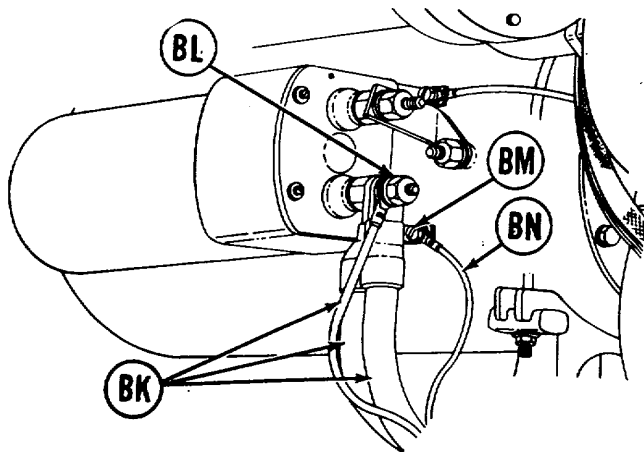
49. Using 3/4 inch wrench, remove nut and lockwasher (BL). Throw lockwasher away.

50. Remove three cables (BK).

51. Using flat-tip screwdriver, remove screw (BM).

52. Remove electrical cable (BN).

53. Remove engine wiring harness from engine.

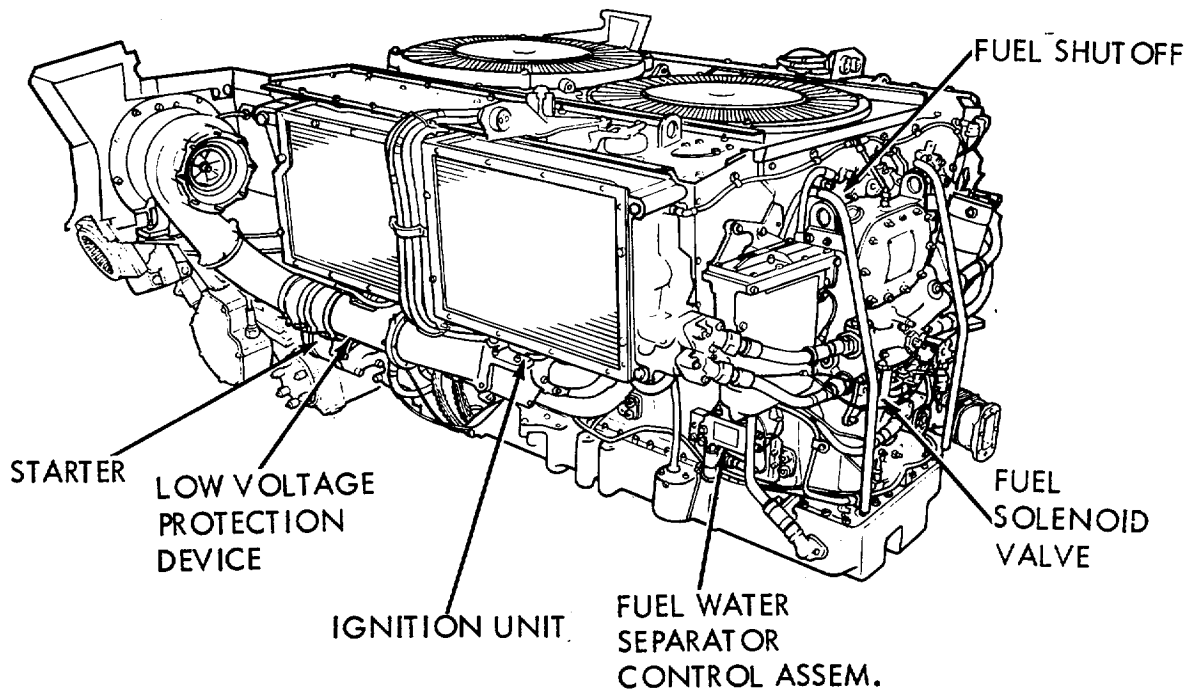
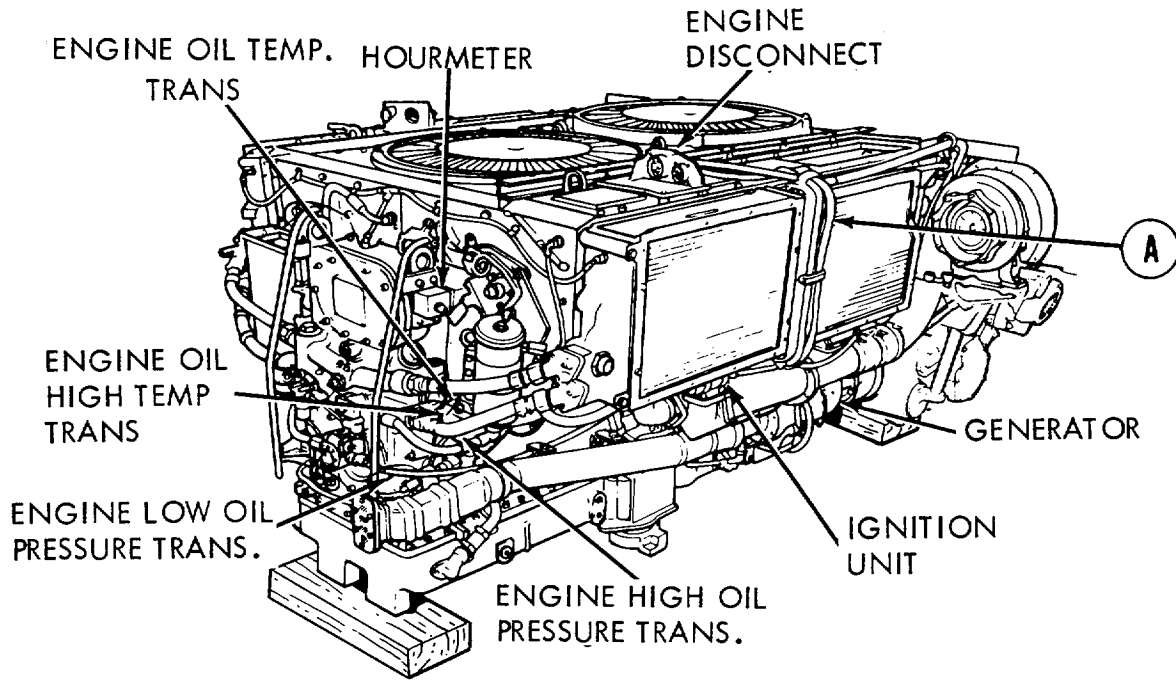


Go on to Sheet 7

**ENGINE WIRING HARNESS REPLACEMENT (2D ENGINE) (Sheet 7 of 12)**

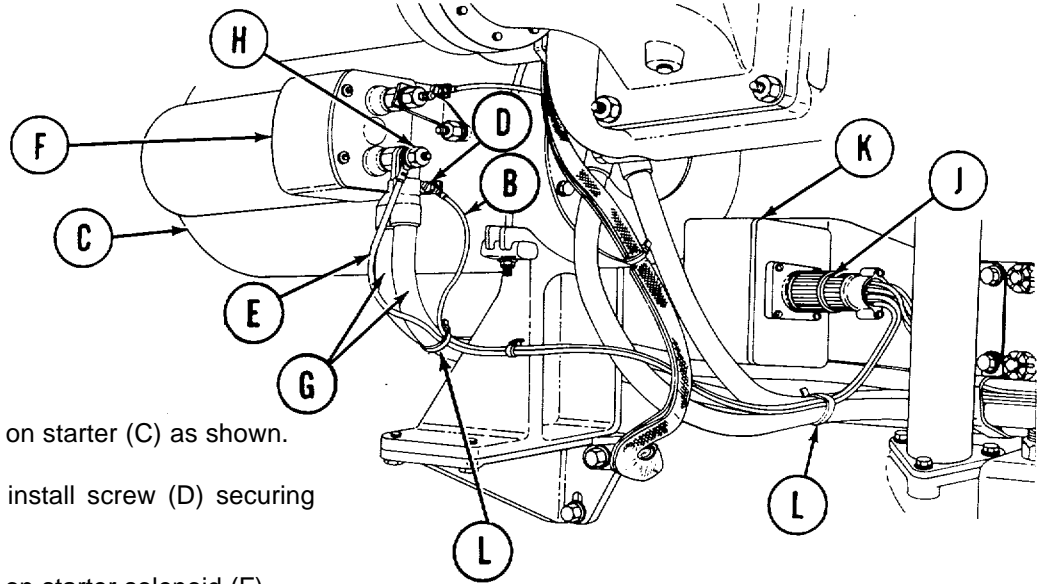
**INSTALLATION:**

1. Place engine wiring harness (A) in position on engine.

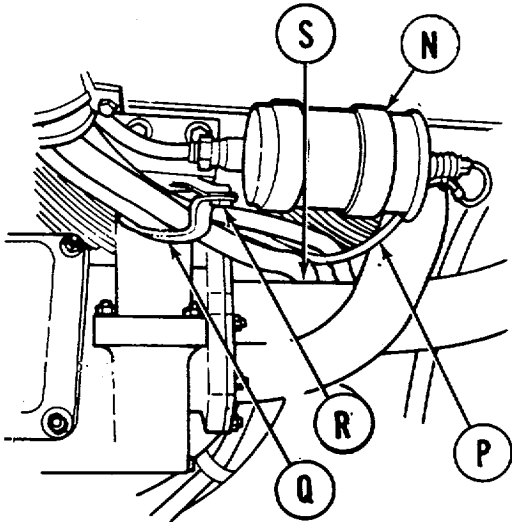
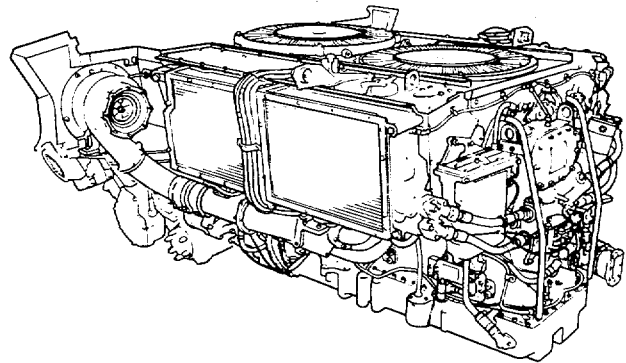


Go on to Sheet 8

ENGINE WIRING HARNESS REPLACEMENT (2D ENGINE)(Sheet 8 of 12)



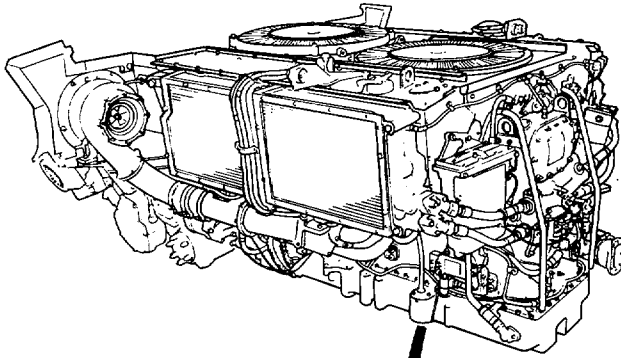
2. Place cable (B) in position on starter (C) as shown.
3. Using flat-tip screwdriver, install screw (D) securing cable (B) to starter (C).
4. Place cable (E) in position on starter solenoid (F).
5. Place two other cables (G) on starter solenoid (F).
6. Using 3/4 inch wrench, install nut and new lockwasher (H).
7. Using spanner wrench, connect connector (J) to low voltage protection device (K).
8. Install two new plastic straps (L) around cables (B), (E), and (G).



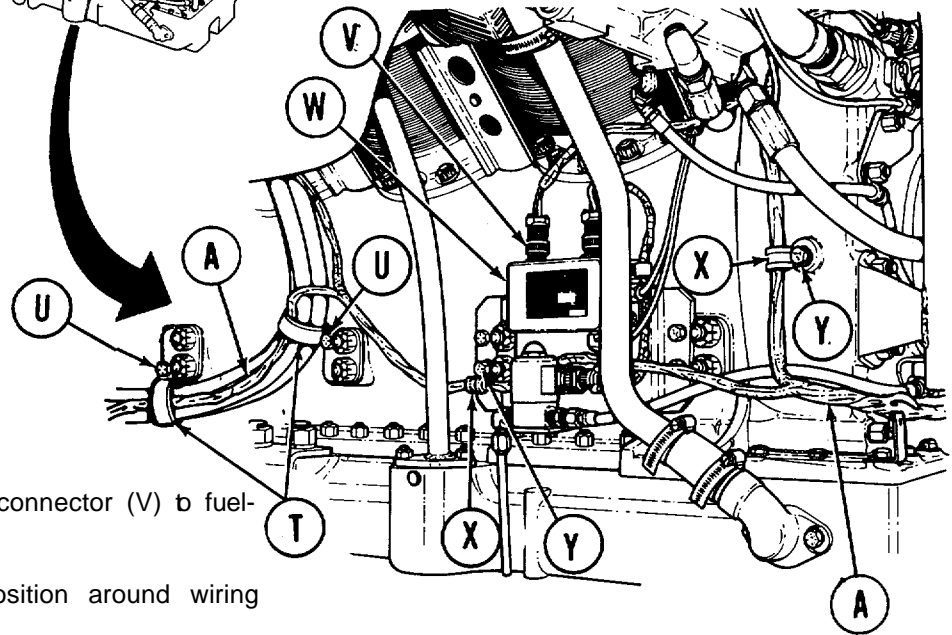
9. Place connector to ignition unit (N).
10. Place cable (P) and clamp (Q) in position.
11. Using 7/16 inch socket, install two screws and new lockwashers (R) securing cable (P) and clamp (Q).
12. Place clamp (S)(hidden) in position over cables.
13. Using 1/2 inch socket, install nut securing cables and clamp (S).

Go on to Sheet 9

**ENGINE WIRING HARNESS REPLACEMENT (2D ENGINE)(Sheet 9 of 12)**

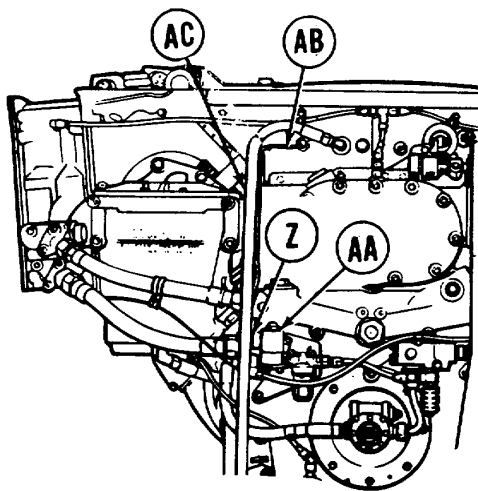


14. Place wiring harness (A) in position.
15. Place two clamps (T) in position around wiring harness (A).
16. Using 1/2 inch socket with extension, install two screws and new lockwashers (U) securing two clamps (T) to engine.



17. Using slip joint pliers, install connector (V) to fuel-water separator control (W).
18. Place two clamps (X) in position around wiring harness (A).
19. Using 1/2 inch socket with extension, install two screws and new lockwashers (Y) securing clamps (X) to engine.

20. Using slip joint pliers, install connector (Z) to fuel solenoid valve (AA).
21. Using 7/8 inch wrench, install fuel shutoff lead (AB) to front of engine.
22. Place clamp (AC)(hidden) in position on cable.
23. Using 9/16 inch wrench, install nut securing cable and clamp (AC).

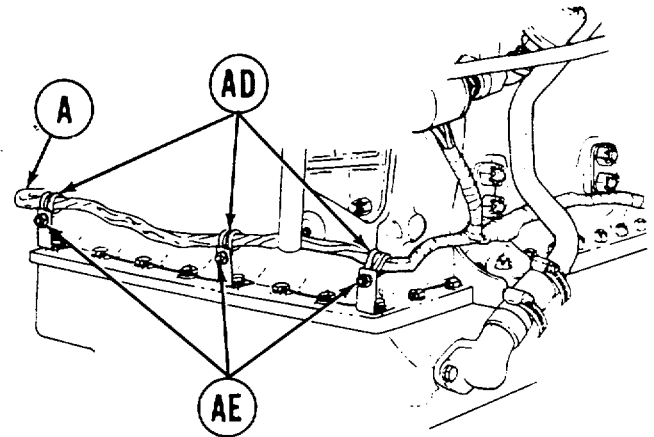


Go on to Sheet 10

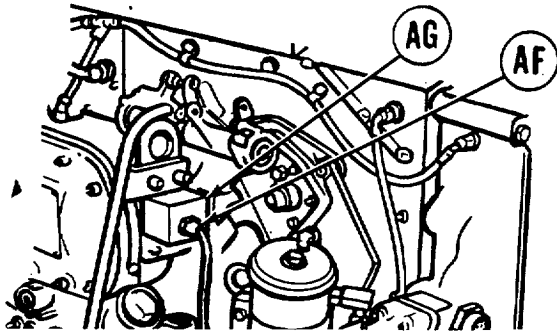
TA147390

**ENGINE WIRING HARNESS REPLACEMENT (2D ENGINE) (Sheet 10 of 12)**

24. Place wiring harness (A) in position along bottom of engine.
25. Place three clamps (AD) in position around wiring harness (A).
26. Using 7/16 inch socket and wrench, install three screws, new lockwashers, and nuts (AE) securing three clamps (AD) and wiring harness to engine.



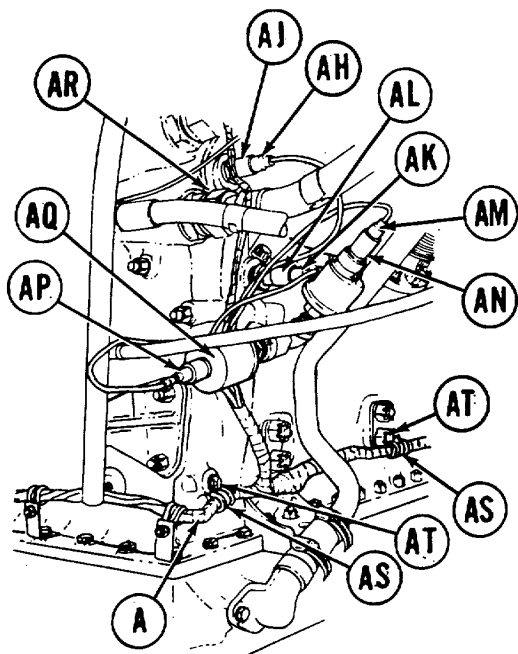
(AIR DUCT REMOVED FOR CLARITY)



27. Using slip joint pliers, install connector (AF) to hour meter (AG).

**NOTE**

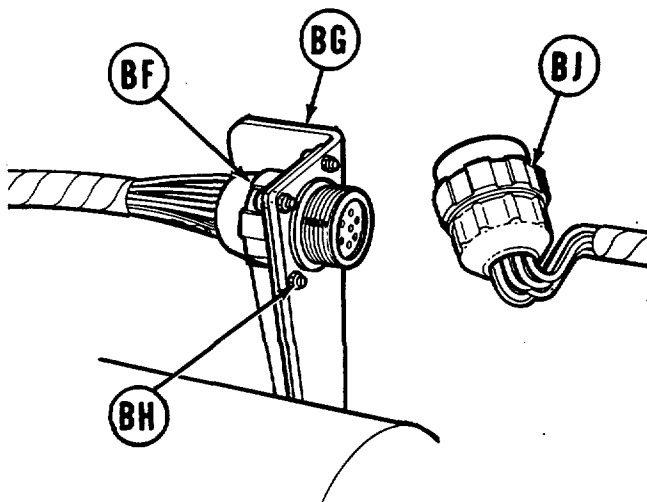
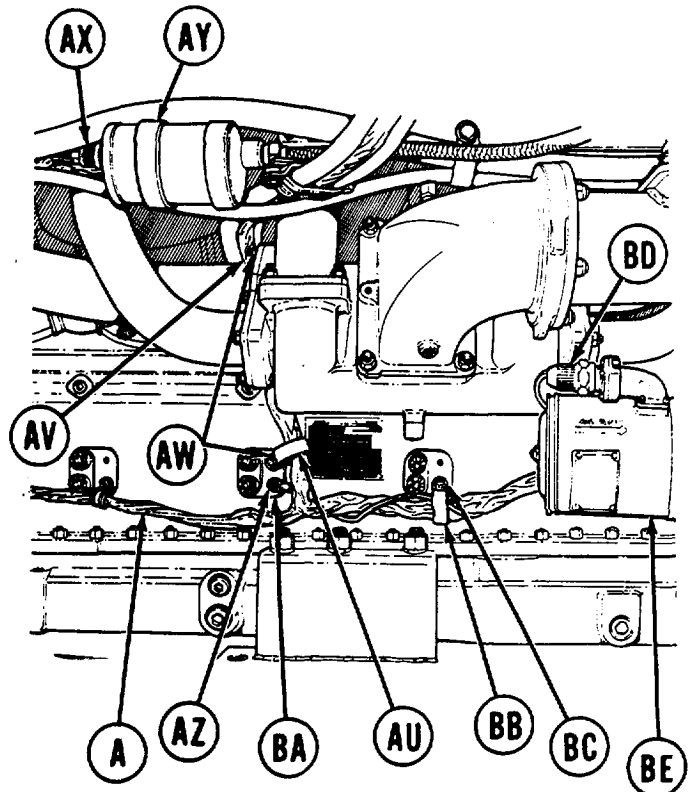
Apply silicone compound (Item 32, Appendix D) to all male connectors in steps 28 thru 31.



28. Connect electrical lead (AH)(CKT 33) to engine oil temperature transmitter (AJ).
29. Connect electrical lead (AK)(CKT 509L) to engine oil temperature thermostatic switch (AL).
30. Connect electrical lead (AM)(CKT 36) to engine oil pressure transmitter (AN).
31. Connect electrical lead (AP)(CKT 509L) to engine oil pressure transmitter (AQ).
32. Place clamp (AR)(hidden) in position on wiring harness (A).
33. Using 1/2 inch socket with extension, install nut securing wiring harness (A) and clamp (AR).
34. Place two clamps (AS) in position on wiring harness (A).
35. Using 1/2 inch socket, install two screws and new lockwashers (AT).

**ENGINE WIRING HARNESS REPLACEMENT (2D ENGINE)(Sheet 11 of 12)**

36. Place wiring harness (A) in position.
37. Place clamp (AU) and clamp (AV), which is hidden, in position around wiring harness (A).
38. Using 1/2 inch socket with extension, install two screws and new lockwashers (AW) securing two clamps (AU) and (AV).
39. Using slip joint pliers, install connector (AX) to ignition unit (AY).
40. Using 1/2 inch socket with extension, install screw and new lockwasher (AZ) securing ground strap (BA) to engine.
41. Place clamp (BB) in position around wiring harness (A).
42. Using 1/2 inch socket with extension, install screw and new lockwasher (BC) securing clamp (BB).



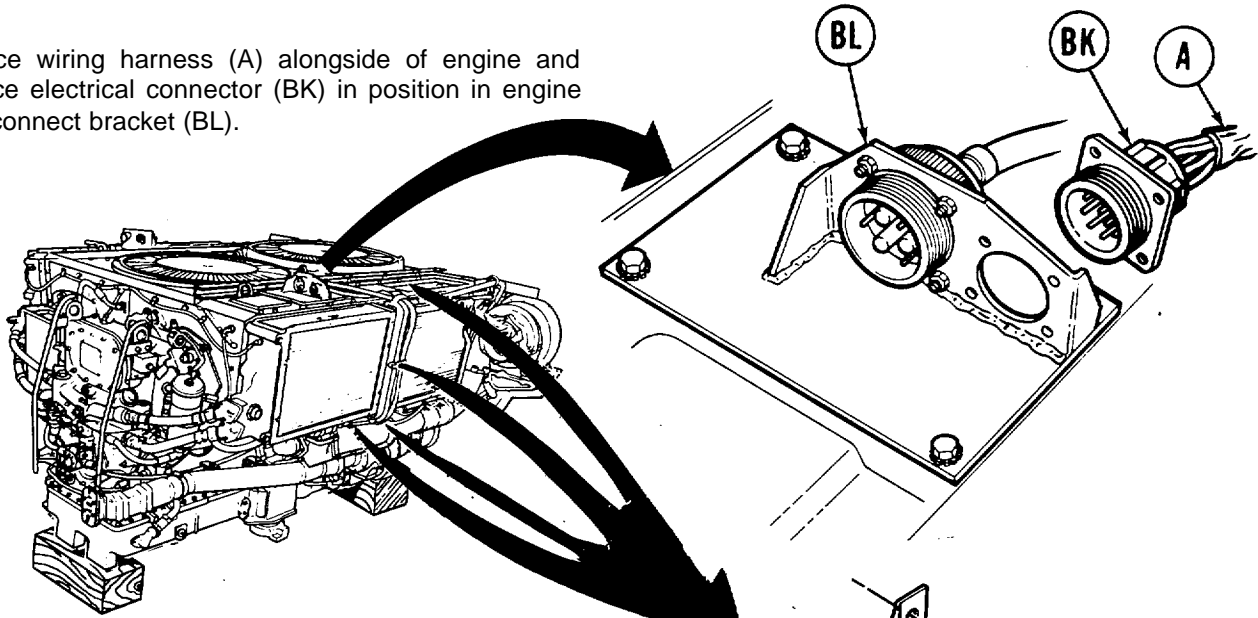
43. Using 1 inch wrench, connect connector (BD) to end of generator (BE).
44. Position connector (BF) in bracket (BG).
45. Using cross-tip screwdriver and adjustable wrench, install four screws, new lockwashers, and nuts (BE).
46. Using spanner wrench, install connector (BJ).

Go on to Sheet 12



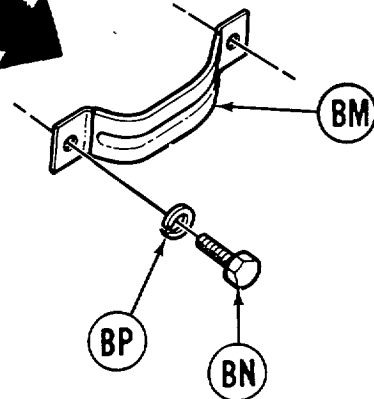
**ENGINE WIRING HARNESS REPLACEMENT (2D ENGINE)(Sheet 12 of 12)**

47. Place wiring harness (A) alongside of engine and place electrical connector (BK) in position in engine disconnect bracket (BL).



48. Place four camps (BM) over wiring harness (A).

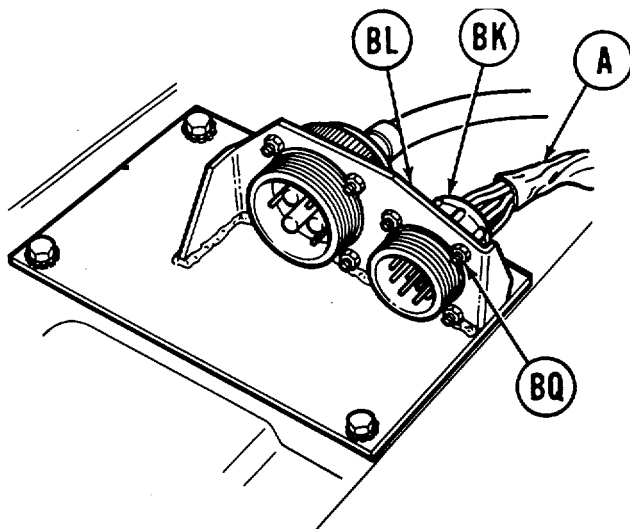
49. Using 7/8 inch wrench, install eight screws (BN) and new lockwashers (BP).



50. Make sure wiring harness (A) and electrical connector (BK) are in position in engine disconnect mounting bracket (BL).

51. Using screwdriver and 3/8 inch wrench, install four screws, new lockwashers, and nuts (BQ).

52. Install powerplant (page 5-40).



End of Task

TA147393

10-361

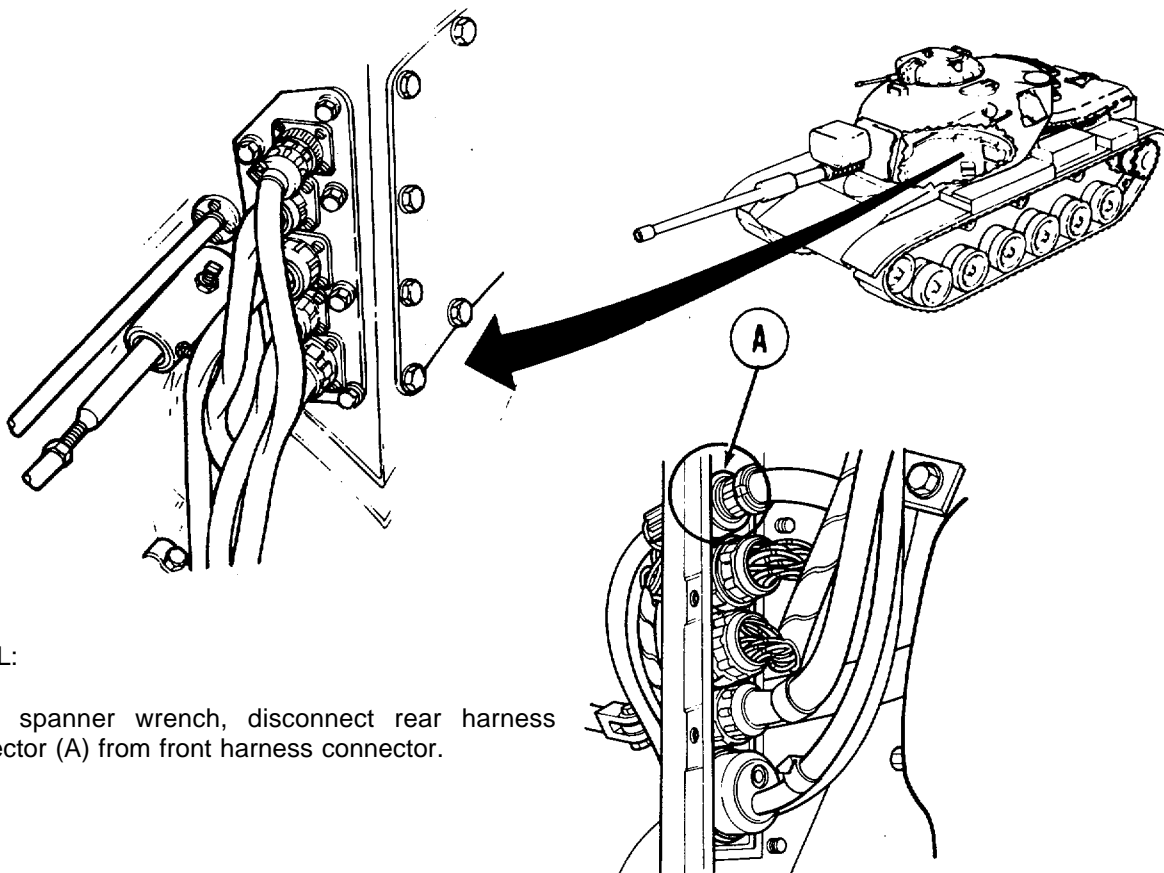
**FRONT INTERPHONE CABLE ASSEMBLY REPLACEMENT (Sheet 1 of 5)**

PROCEDURE	PROCEDURE INDEX	PAGE
Removal		10-362
Installation		10-364

**TOOLS:** 7/16 in. socket with 1/2 in. drive  
 Spanner wrench  
 Ratchet with 1/2 in. drive  
 5 in. extension with 1/2 in. drive  
 flat-tip screwdriver

**SUPPLIES:** Lockwasher (MS35338-65)(4 required)  
 Lockwasher (MS35338-44)(7 required)  
 Gasket (MS51007-10)

**PRELIMINARY PROCEDURE:** Remove interphone connectors from interphone cables  
 (page 10-354, step 6)

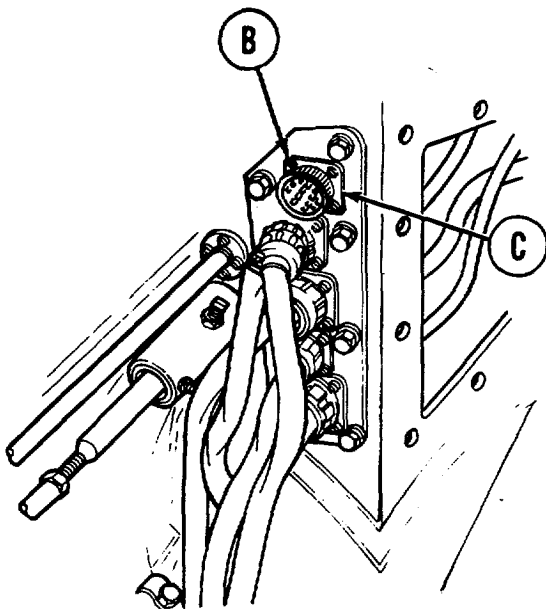


**REMOVAL:**

1. Using spanner wrench, disconnect rear harness connector (A) from front harness connector.

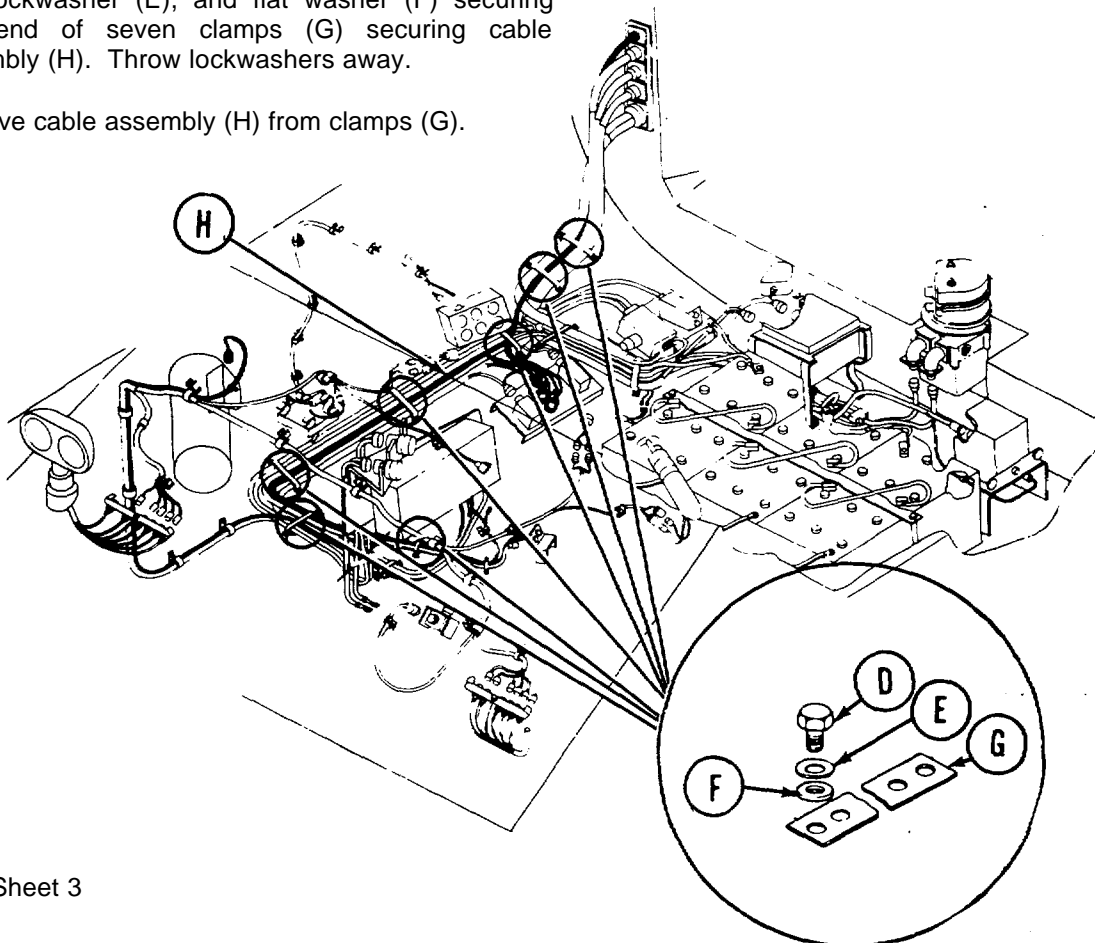
Go on to Sheet 2

FRONT INTERPHONE CABLE ASSEMBLY REPLACEMENT (Sheet 2 of 5)



2. Using screwdriver, remove four screws and lockwashers (B). Throw lockwashers away.
3. Remove cable connector and gasket (C) from bulkhead plate.

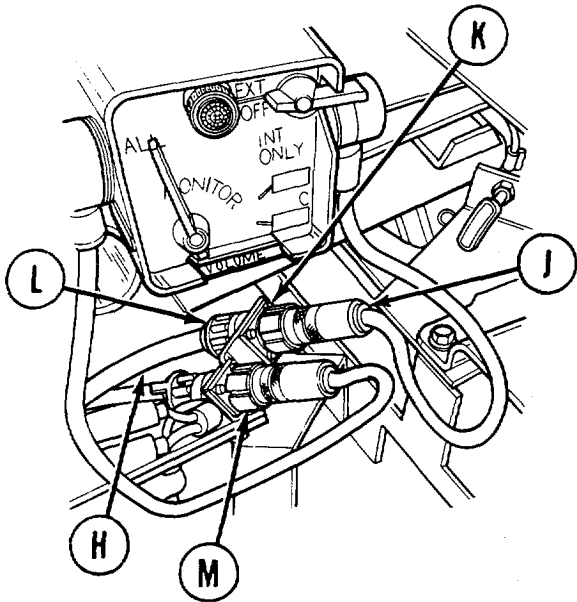
4. Using socket with extension, remove seven screws (D), lockwasher (E), and flat washer (F) securing one end of seven clamps (G) securing cable assembly (H). Throw lockwashers away.
5. Remove cable assembly (H) from clamps (G).



Go on to Sheet 3

TA147395

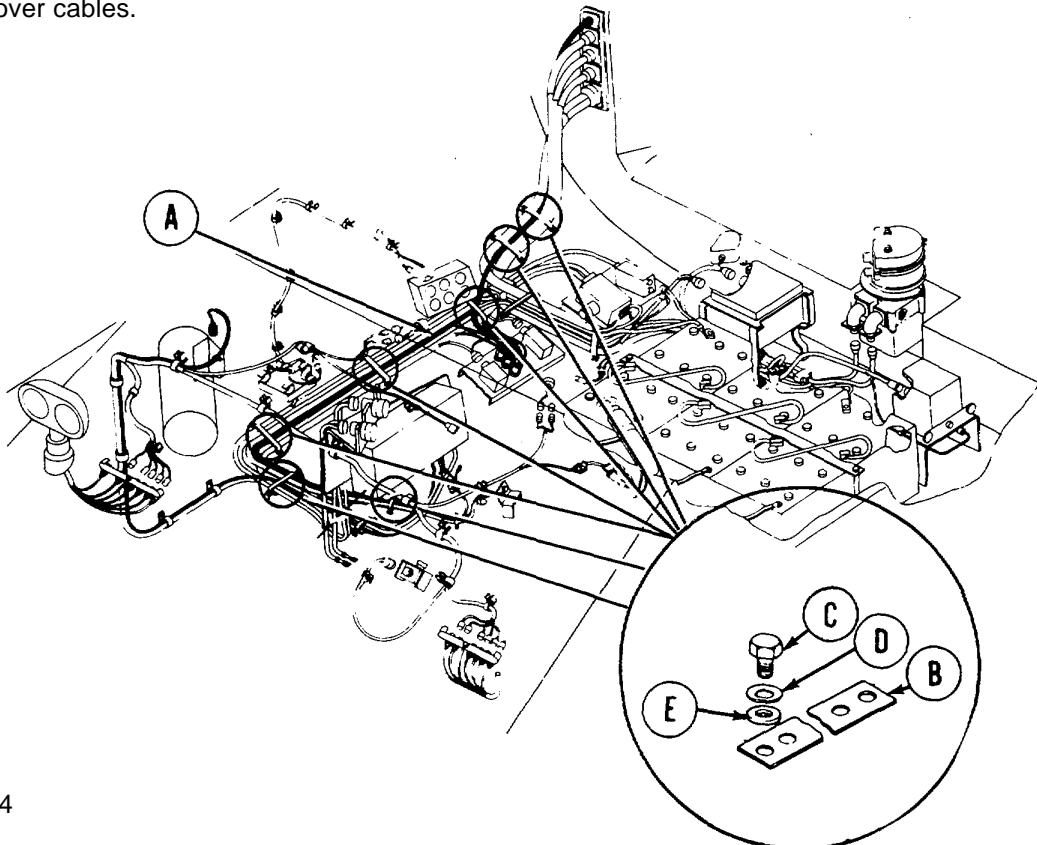
FRONT INTERPHONE CABLE ASSEMBLY REPLACEMENT (Sheet 3 of 5)



6. Using spanner wrench, remove cable connector (J).
7. Using screwdriver, remove bur screws and lockwasher (K). Throw lockwashers away.
8. Remove cable connector (L) from bracket (M).
9. Remove cable assembly (H) from tank.

INSTALLATION:

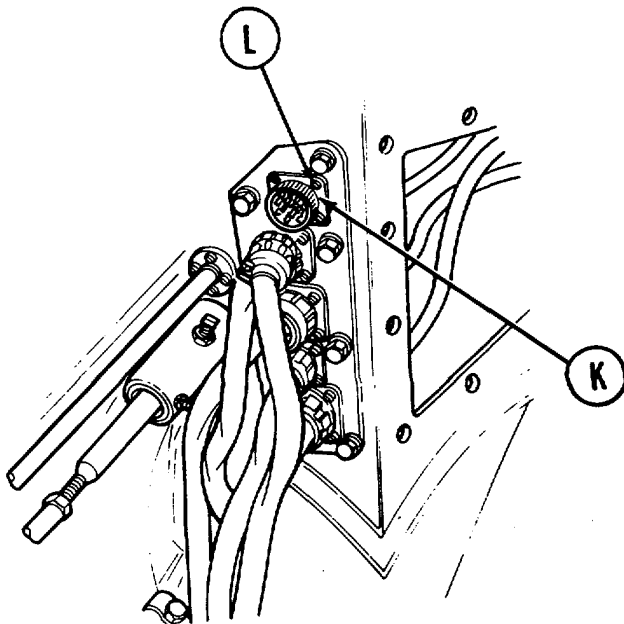
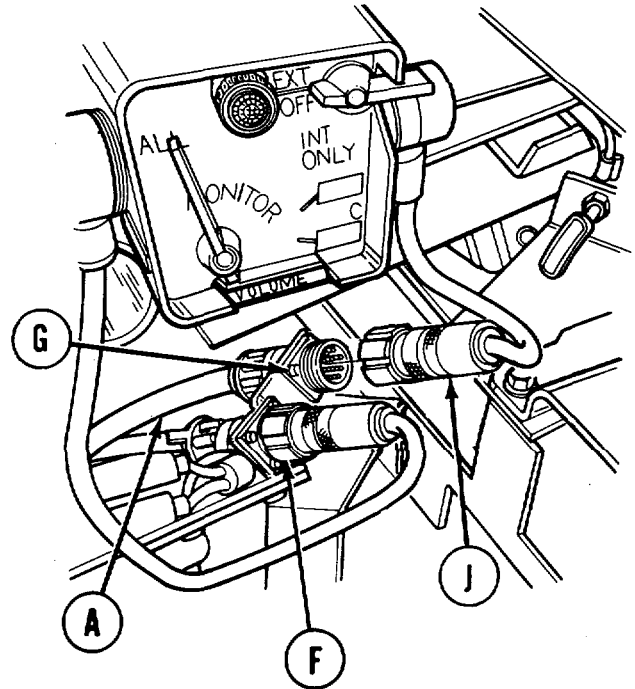
1. Position cable assembly (A) into tank and under seven clamps (B).
2. Using socket with extension, install seven screws (C), new lockwashers (D), and flat washers (E) to secure seven clamps (B) over cables.



Go on to Sheet 4

**FRONT INTERPHONE CABLE ASSEMBLY REPLACEMENT (Sheet 4 of 5)**

3. Position cable assembly (A) connector into mounting bracket (F).
4. Using screwdriver, install four screws and new lockwashers (G) to secure cable assembly (A) to connector to bracket (F).
5. Using spanner wrench, connect control box cable connector (J) to cable assembly (A) connector.

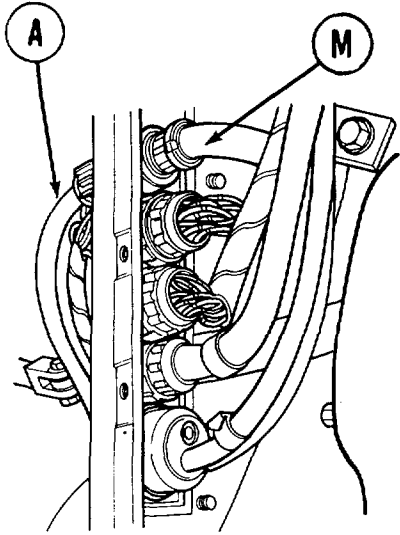


6. Position gasket and cable assembly connector (K) to bulkhead.
7. Using screwdriver, install four screws (L) to secure cable assembly connector (K) to bulkhead.

Go on to Sheet 5

TA147397

## FRONT INTERPHONE CABLE ASSEMBLY REPLACEMENT (Sheet 5 of 5)



8. Using spanner wrench, connect cable assembly (M) to cable assembly (A) connector (top connector on bulkhead).
9. Install right side bulkhead access cover (page 16-38).

End of Task

TA147398

**GENERATOR ELECTRICAL LEADS REPLACEMENT (2A ENGINE)(Sheet 1 of 5)**

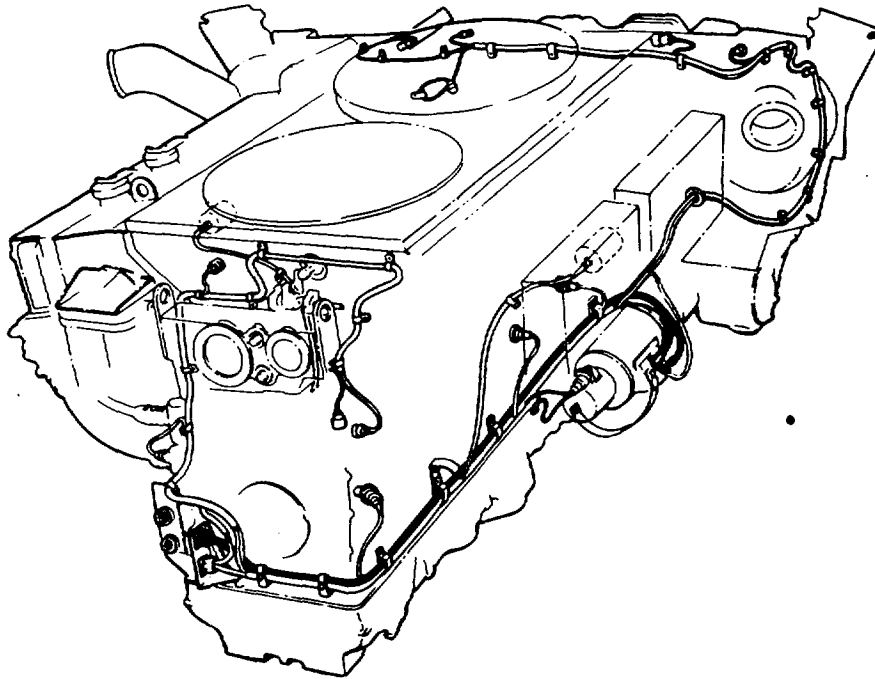
PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-368
Installation	10-370

TOOLS: 9/16 combination box and open end wrench  
 7/16 combination box and open end wrench (Required)  
 11/32 combination box and open end wrench  
 1/2 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 5 in. extension with 1/2 in. drive

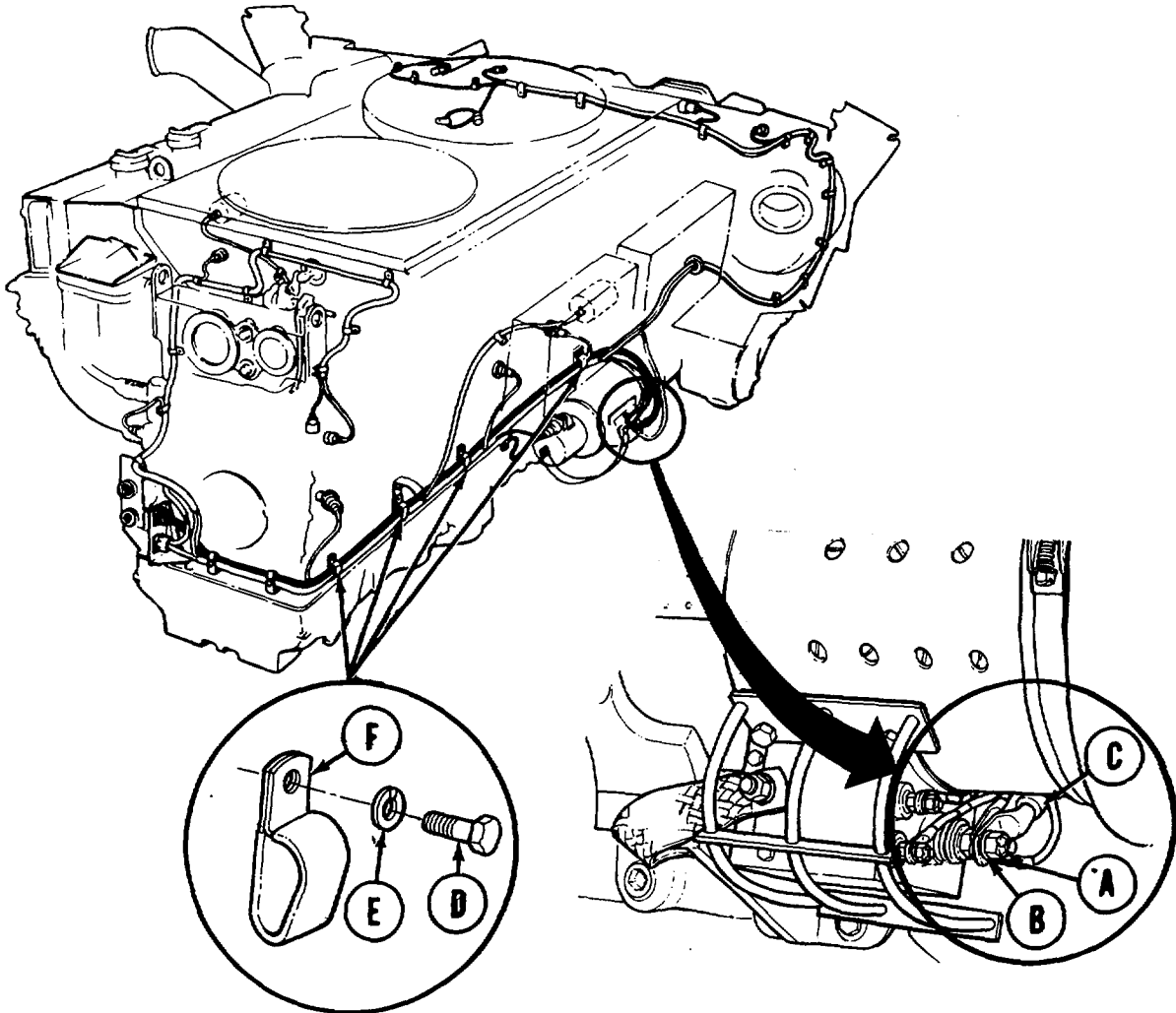
SUPPLIES: Self-locking nut (503354)  
 Lockwasher (MS35338-48)(4 required)  
 Lockwasher (MS35338-63)(2 required)  
 lockwasher (MS35649-282)(4 required)

PRELIMINARY PROCEDURE: Remove powerplant (page 5-2)



## GENERATOR ELECTRICAL LEADS REPLACEMENT (2A ENGINE)(Sheet 2 of 5)

## REMOVAL:



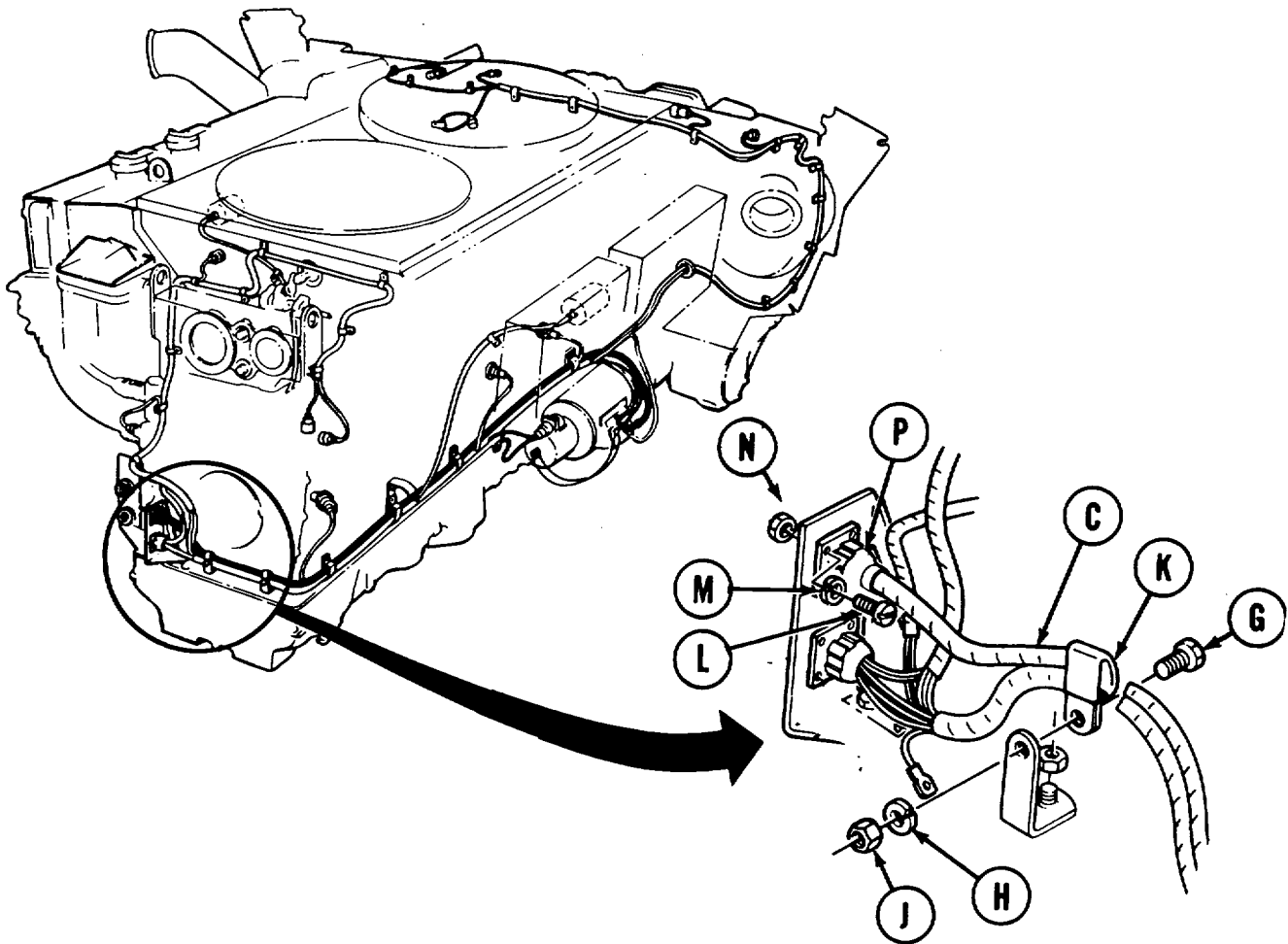
1. Using 9/16 inch wrench remove self-locking nut (A) and washer (B). Throw self-locking nut away.
2. Remove lead (C) from generator.
3. Using 1/2 inch socket, remove four screws (D) and lockwashers (E) securing clamps (F) to engine. Throw lockwashers away.
4. Slip lead (C) out of clamps (F).

Go on to Sheet 3

TA147400



## GENERATOR ELECTRICAL LEADS REPLACEMENT (2A ENGINE)(Sheet 3 of 5)



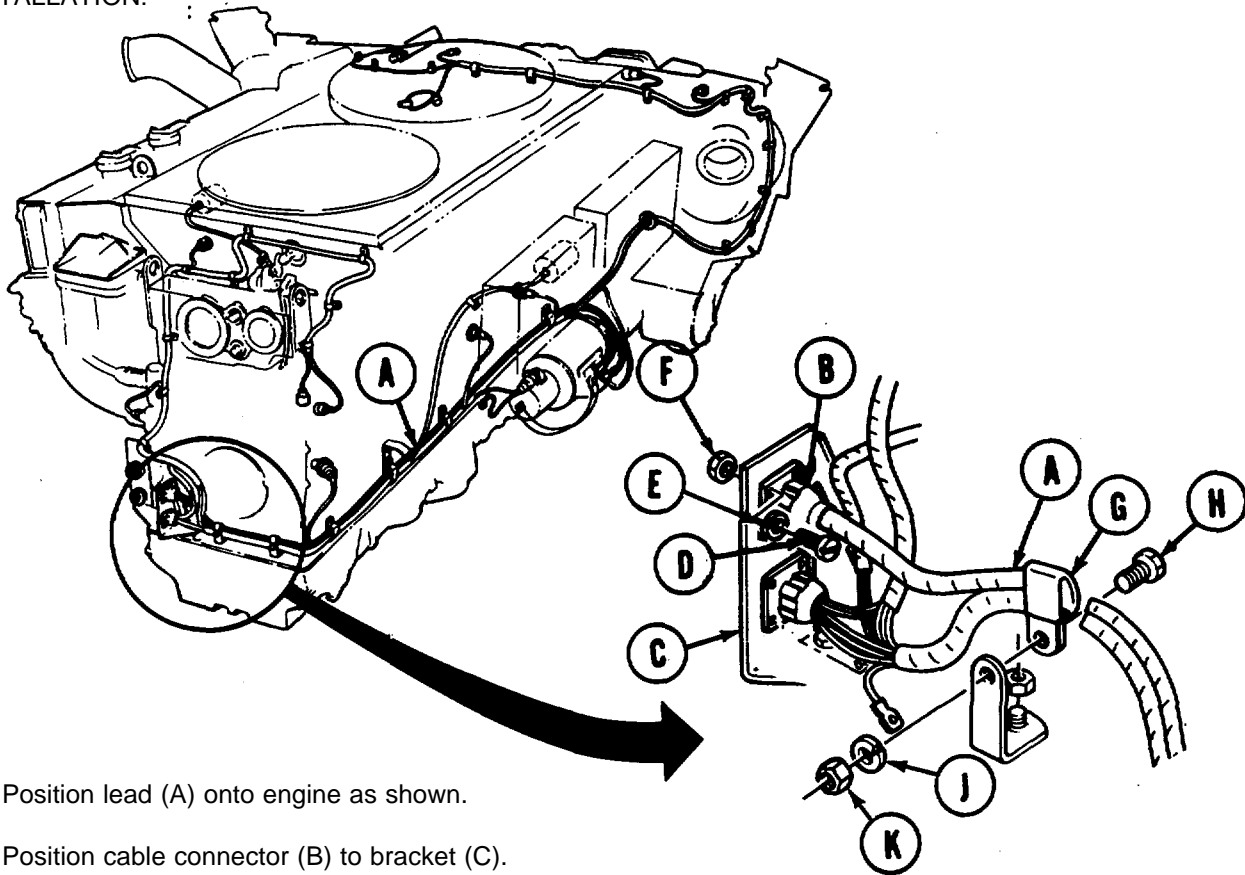
5. Using two 7/16 inch wrenches, remove screw (G), lockwasher (H) and nut (J) securing two clamps (K). Throw lockwashers away.
6. Using screwdriver and 11/32 inch wrench, remove four screws (L), lockwashers (M), and nuts (N), securing cable connector (P) to bracket. Throw lockwashers away.
7. Slip lead (C) out of clamps (K).
8. Remove lead (C) from engine.

Go on to Sheet 4

TA147401

## GENERATOR ELECTRICAL LEADS REPLACEMENT (2A ENGINE)(Sheet 4 of 5)

## INSTALLATION:

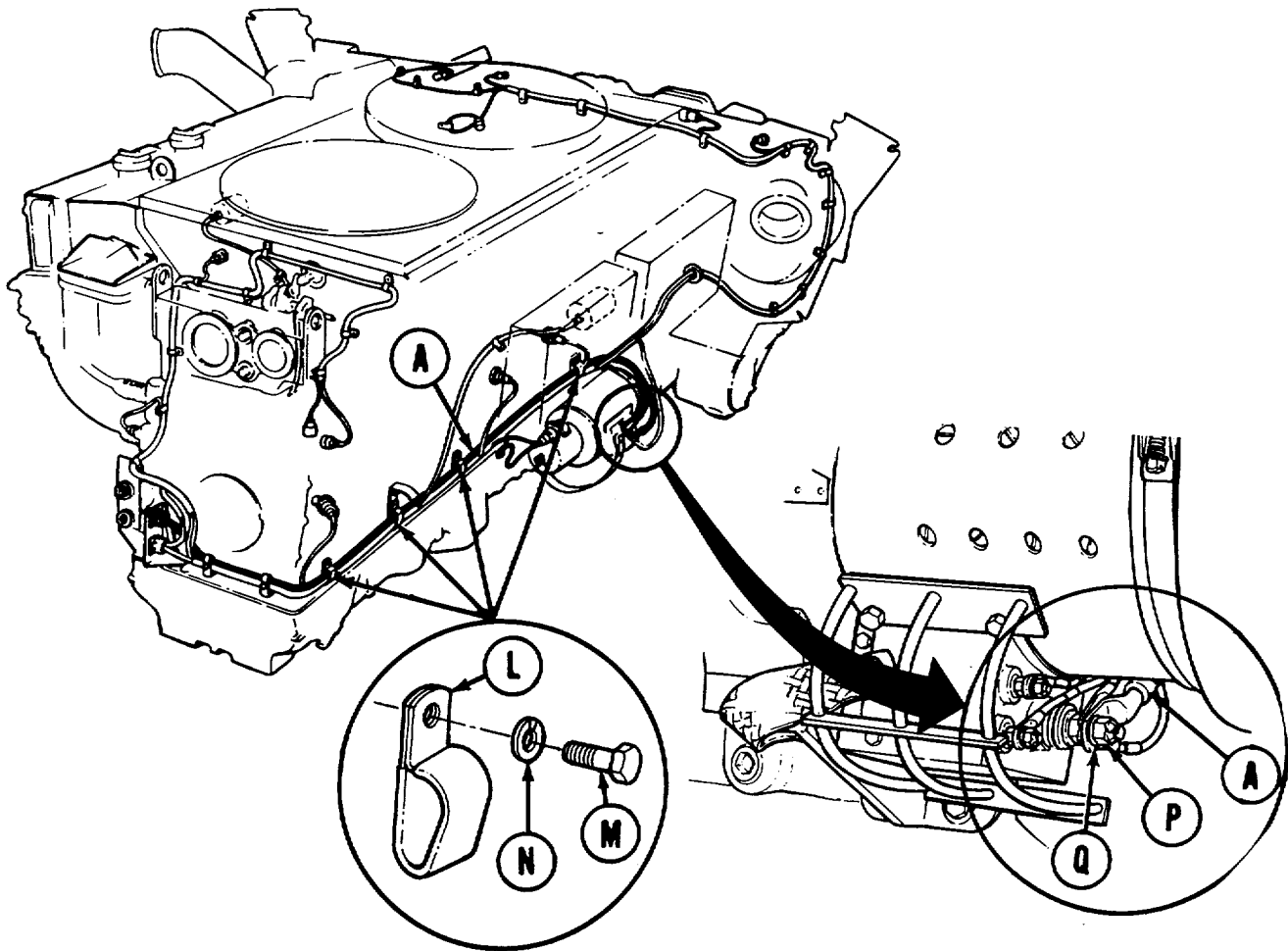


1. Position lead (A) onto engine as shown.
2. Position cable connector (B) to bracket (C).
3. Using screwdriver and 11/32 inch wrench, install and tighten four screws (D), new lockwashers (E), and nut (F) securing connector (B) to bracket.
4. Install lead (A) into clamps (G).
5. Using two 7/16 inch wrenches, install and tighten screw (H), new lockwashers (J), and nut (K).

Go on to Sheet 5

TA147402

## GENERATOR ELECTRICAL LEADS REPLACEMENT (2A ENGINE)(Sheet 5 of 5)



6. Install lead (A) into clamps (L).
7. Using 1/2 inch socket, install and tighten screws (M) and new lockwashers (N) securing clamps (L).
8. Position end of lead (A) onto stud of generator.
9. Using 9/16 inch wrench, install and tighten new self-locking nut (P) and washers (Q) securing lead (A).
10. Install powerplant (page 5-14).

End of Task

TA147403

**GENERATOR ELECTRICAL LEADS REPLACEMENT (2D ENGINE)(Sheet 1 of 4)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-372
Installation	10-374

**TOOLS:** Flat-tip screwdriver  
 3/8 in. combination box and open end wrench  
 9/16 in. combination box and open end wrench  
 7/16 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive

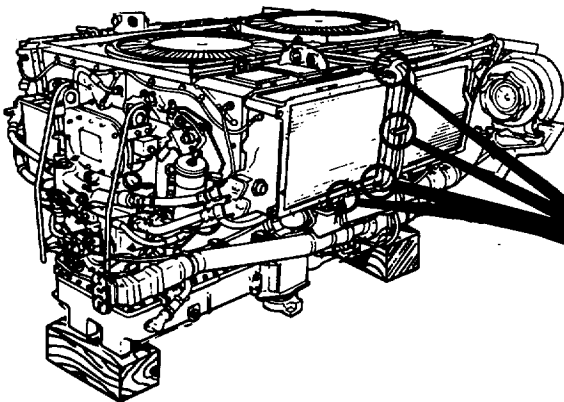
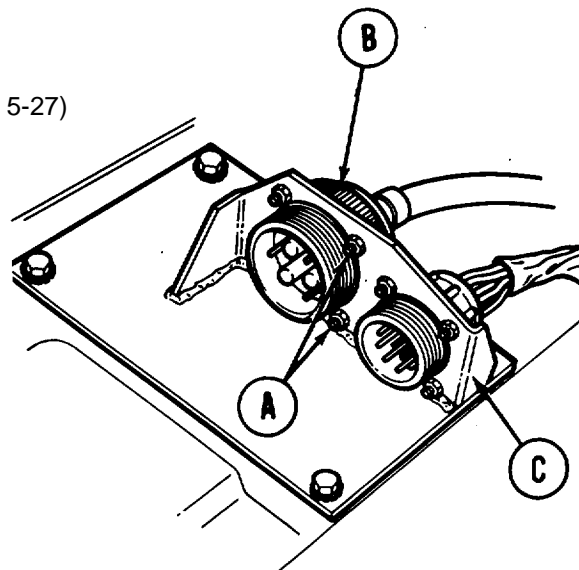
5 in. extension with 1/2 in. drive  
 1/2 in. socket with 1/2 in. drive  
 9/16 in. socket with 1/2 in. drive  
 Pocketknife

**SUPPLIES:** Lockwasher (MS35338-42)(4 required)  
 Lockwasher (MS35338-44)(11 required)  
 Self-locking nut (503354)

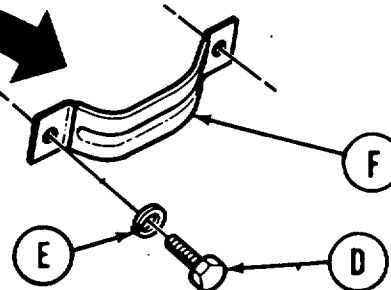
**PRELIMINARY PROCEDURE:** Remove powerplant (page 5-27)

**REMOVAL:**

1. Using flat-tip screwdriver and 3/8 inch wrench, remove four screws, lockwashers, and nuts (A). Throw lockwashers away.
2. Remove electrical lead (B) from mounting bracket (C).



3. Remove four clamps (F) from engine.
4. Using 7/16 inch socket, remove eight screws (D) and lockwasher (E) securing four clamps (F). Throw lockwashers away.

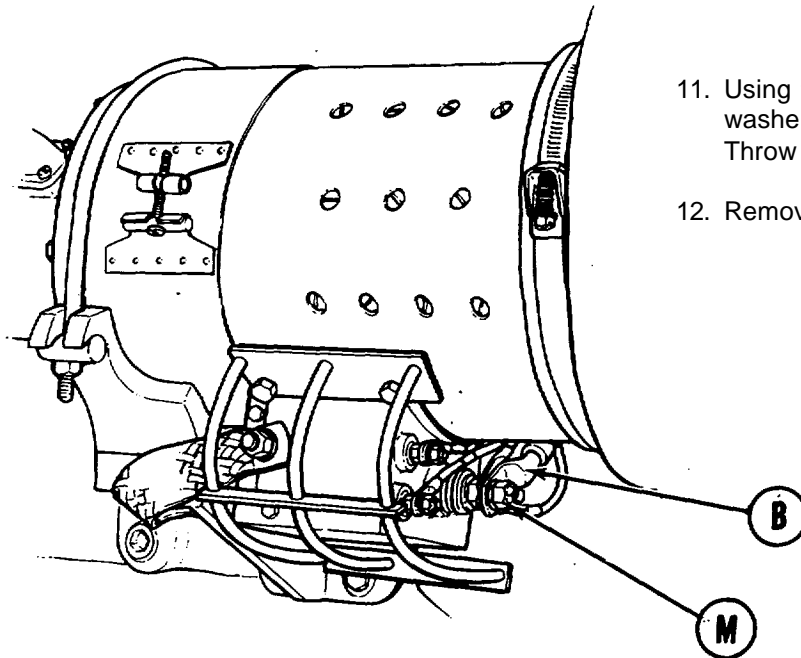
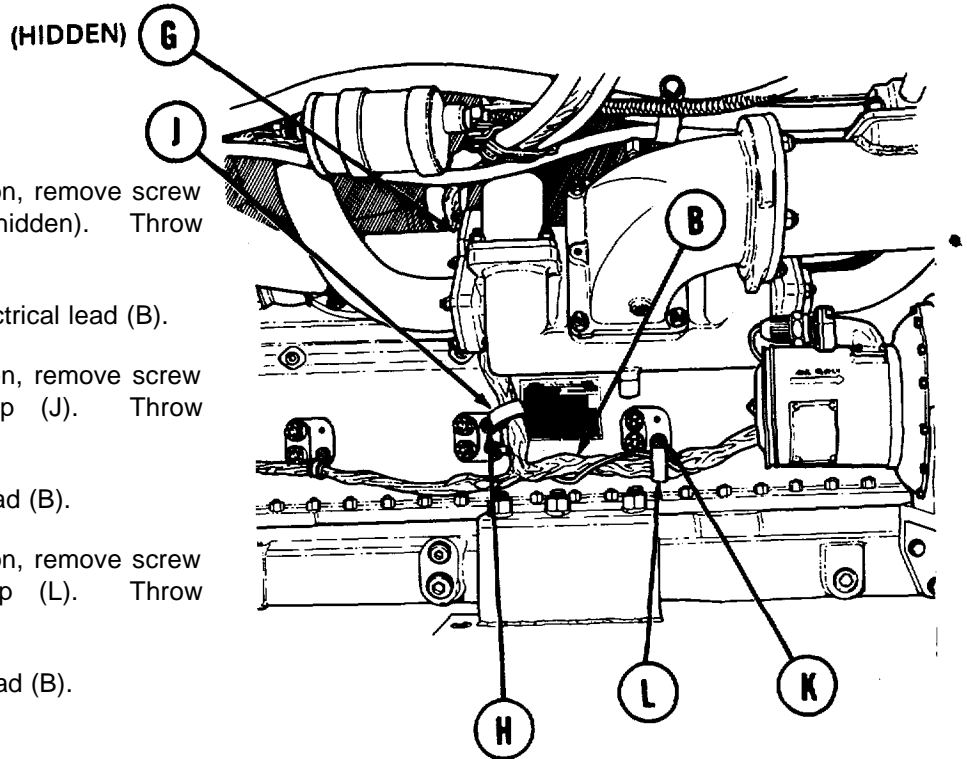


Go on to Sheet 2

TA147404

GENERATOR ELECTRICAL LEADS REPLACEMENT (2D ENGINE)(Sheet 2 of 4)

5. Using 1/2 inch socket with extension, remove screw and lockwasher from clamp (G-hidden). Throw lockwasher away.
6. Remove clamp (G-hidden) from electrical lead (B).
7. Using 1/2 inch socket with extension, remove screw and lockwasher (H) from clamp (J). Throw lockwasher away.
8. Remove clamp (J) from electrical lead (B).
9. Using 1/2 inch socket with extension, remove screw and lockwasher (K) from clamp (L). Throw lockwasher away.
10. Remove clamp (L) from electrical lead (B).



11. Using 9/16 inch wrench, remove self-locking nut and washer (M) securing electrical lead (B) to generator. Throw self-locking nut away.
12. Remove electrical lead (B) from powerplant.

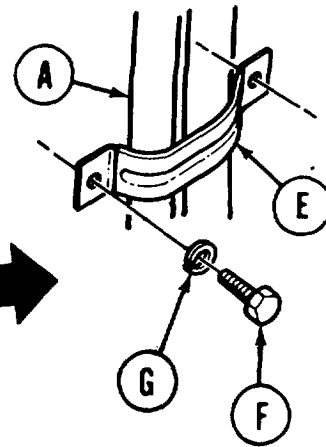
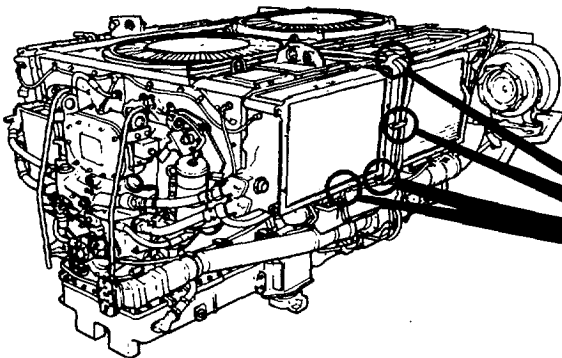
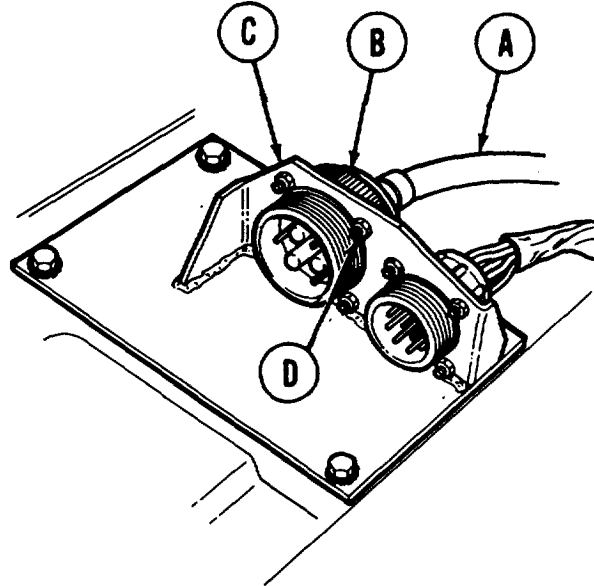
Go on to Sheet 3

TA147405

10-373

**GENERATOR ELECTRICAL LEADS REPLACEMENT (2D ENGINE)(Sheet 3 of 4)****INSTALLATION:**

1. Position electrical lead (A) on powerplant.
2. Position electrical connector (B) in engine disconnect bracket (C).
3. Using screwdriver and 3/8 inch wrench, install for crews, new lockwashers, and nuts (D).



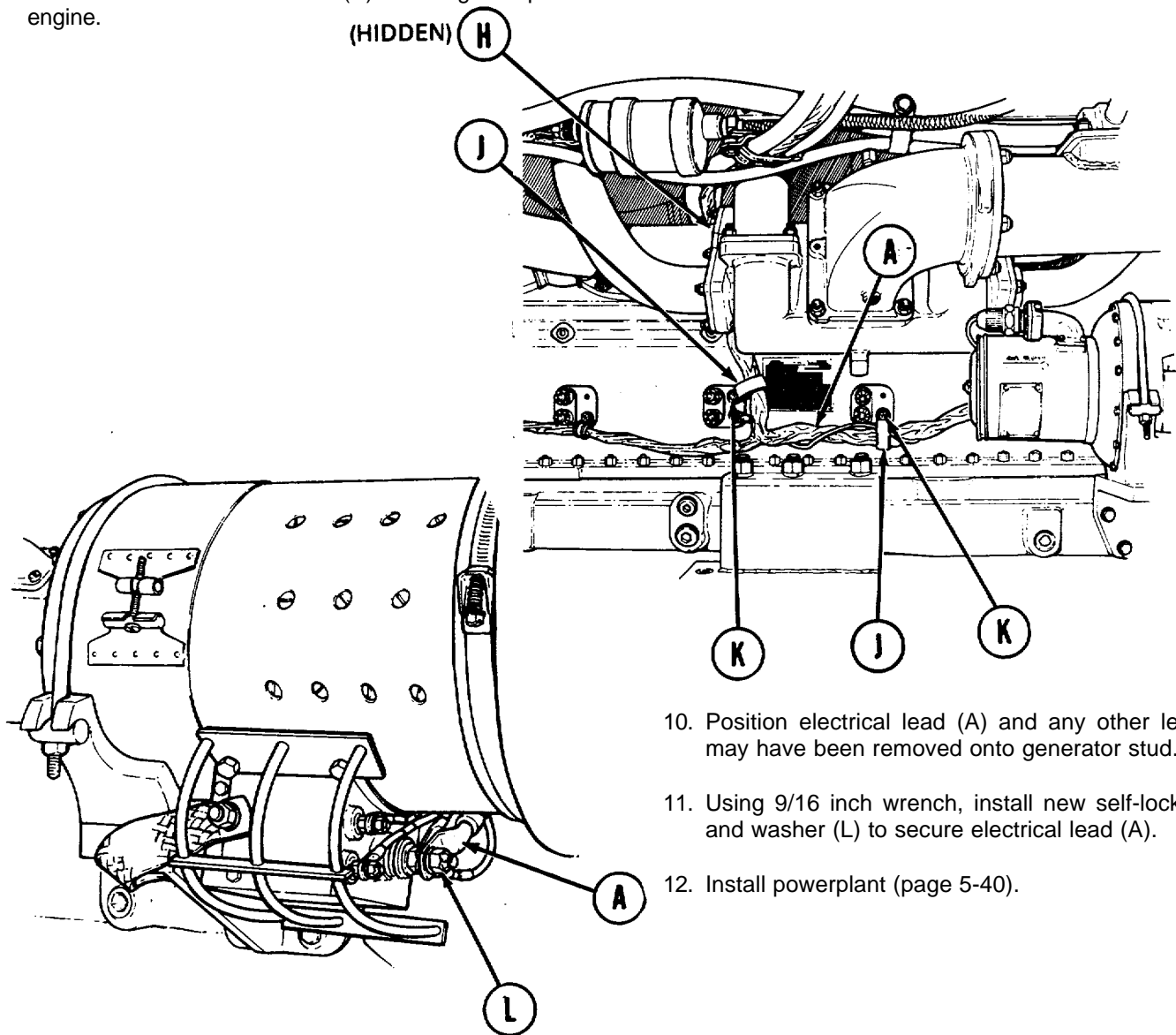
4. Place four clamps (E) over electrical leads (A).
5. Using 7/16 inch socket, install eight screws (F) and new lockwashers (G).

Go on to Sheet 4

TA147406

**GENERATOR ELECTRICAL LEADS REPLACEMENT (2D ENGINE)(Sheet 4 of 4)**

6. Place clamp (H-hidden) over electrical leads (A).
7. Using 1/2 inch socket with extension, install screw and new lockwasher to secure clamp (H-hidden).
8. Position two clamps (J) around electrical lead (A).
9. Using 1/2 inch socket with extension, install two screws and new lockwashers (K) securing clamps to engine.



10. Position electrical lead (A) and any other lead that may have been removed onto generator stud.
11. Using 9/16 inch wrench, install new self-locking nut and washer (L) to secure electrical lead (A).
12. Install powerplant (page 5-40).

End of Task

TA147407

**ENGINE STARTER WIRING HARNESS REPLACEMENT (2A ENGINE)(Sheet 1 of 4)**

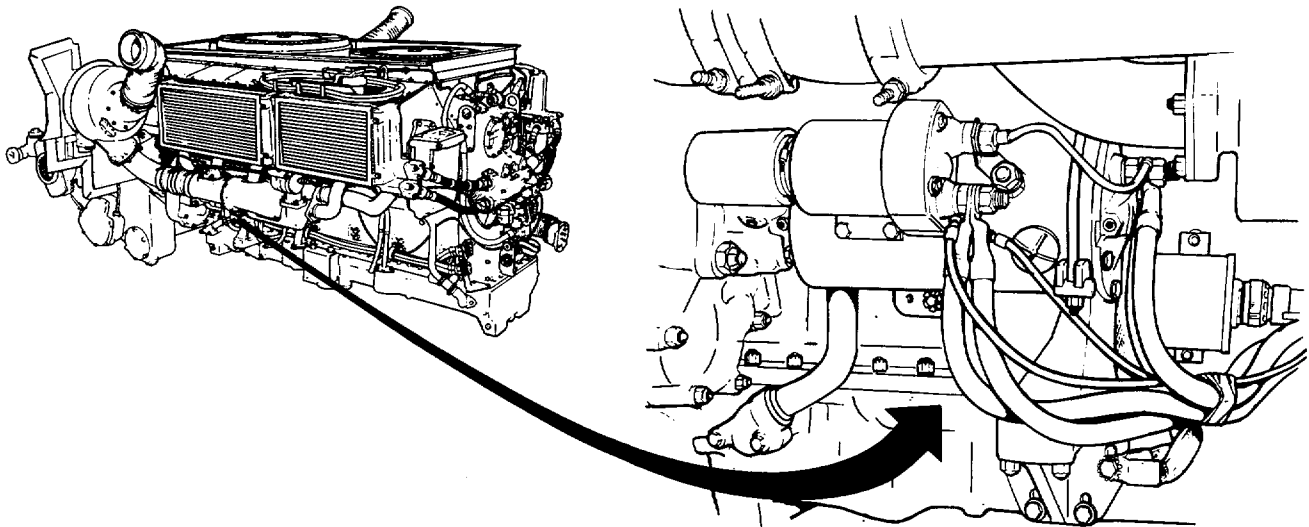
PROCEDURE	PROCEDURE INDEX	PAGE
Removal		10-377
Installation		10-378

TOOLS: Flat-tip screwdriver  
 Cross-tip screwdriver (Phillips)  
 1/2 in. combination box and open end wrench  
 3/8 in. combination box and open end wrench  
 7/16 in. combination box and open end wrench  
 3/4 in. combination box and open end wrench  
 Pocketknife

SUPPLIES: Glyptol (Item 38, Appendix D)  
 Lockwire (Item 60, Appendix D)  
 I.D. tags  
 Lockwasher (MS45904-76).  
 Lockwasher (MS35338-45)(2 required)  
 Lockwasher (MS35338-43)(8 required)  
 Lockwasher (MS35338-45)(3 required)

REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURE: Remove powerplant (page 5-2)



Go on to Sheet 2

TA147408



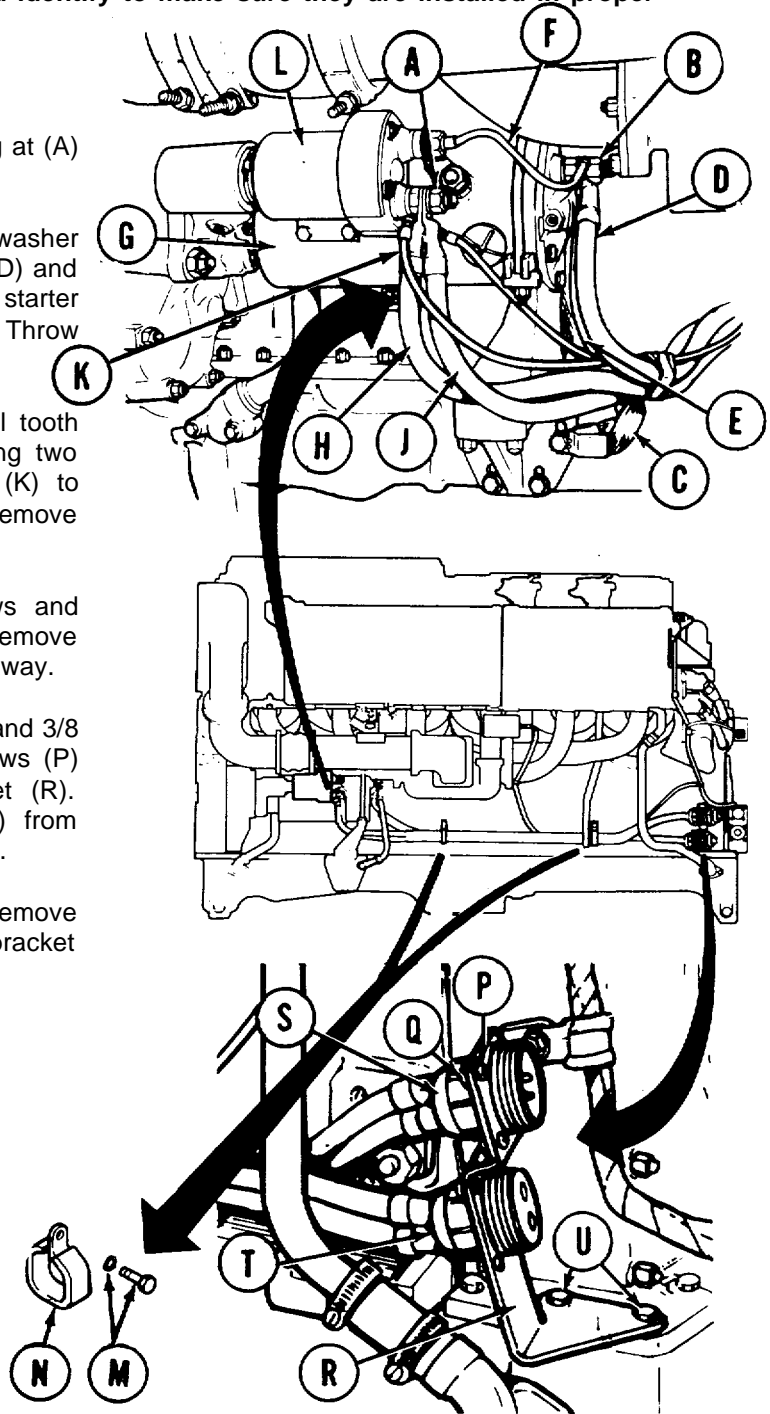
**ENGINE STARTER WIRING HARNESS REPLACEMENT (2A ENGINE)(Sheet 2 of 4)**

**NOTE**

**When removing cables, tag and identify to make sure they are installed in proper position.**

**REMOVAL:**

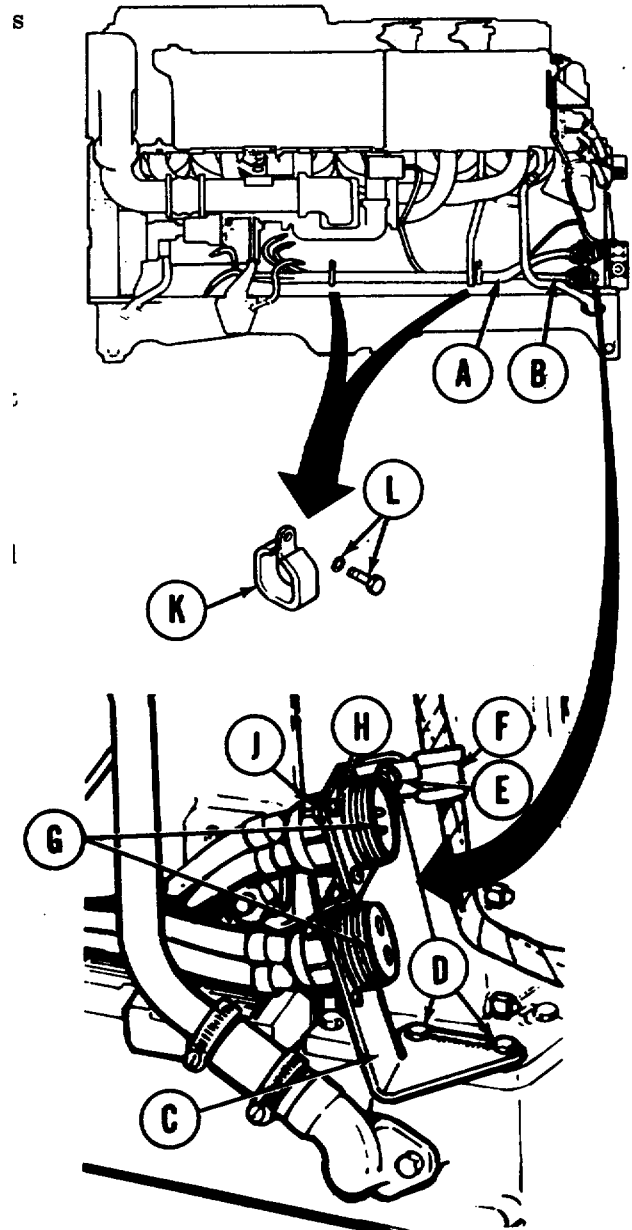
1. Using pocketknife, remove protective covering at (A) and (B).
2. Using 3/4 inch wrench, remove nut and lockwasher (B) securing ground straps (C), large cables (D) and (E), and small cable (F) to terminal on front of starter (G). Remove cables from terminal. Throw lockwasher away.
3. Using 3/4 inch wrench, remove nut, external tooth lockwasher, and split lockwasher (A) securing two large cables (H) and (J) and small cable (K) to terminal on front of starter solenoid (L). Remove cables from terminal.
4. Using 1/2 inch wrench, remove two screws and lockwashers (M) from two clamps (N) and remove clamps (N) from cables. Throw lockwashers away.
5. Using flat-tip screwdriver on eight screws (P) and 3/8 inch wrench on eight nuts (Q), remove screws (P) and nut and lockwashers (Q) from bracket (R). Remove two cable assemblies (S) and (T) from bracket and engine. Throw lockwashers away.
6. Using 1/2 inch wrench on three screws (U), remove screws and three lockwashers (U). Remove bracket (R) from engine.



**ENGINE STARTER WIRING HARNESS REPLACEMENT (2A ENGINE)(Sheet 3 of 4)**

**INSTALLATION:**

1. Position two cable assemblies (A) and (B) onto engine with male connector on top. Install two screws and new lockwashers (D) through clamps (C) into engine.
2. Install two clamps (C) onto two cable assemblies (A) and (B) as shown.
3. Position bracket (E) onto engine as shown and install three screws and new lockwashers (F). Make sure upper screw (F) is installed through clamp (G).
4. Using 1/2 inch wrench on three screws (F), tighten screws.
5. Install cable receptacles into bracket (E) as shown and install eight screws (H), into bracket (E) and receptacles. Start eight nuts and new lockwashers (J) onto screws (H).
6. Using Phillips screwdriver on screws (H) and 3/8 inch wrench on nut (J), tighten screws and nuts.

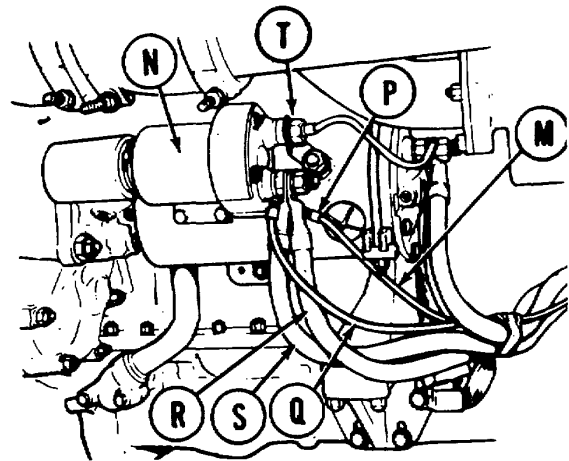
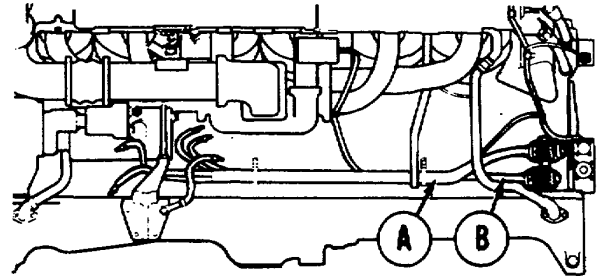


Go on to Sheet 4

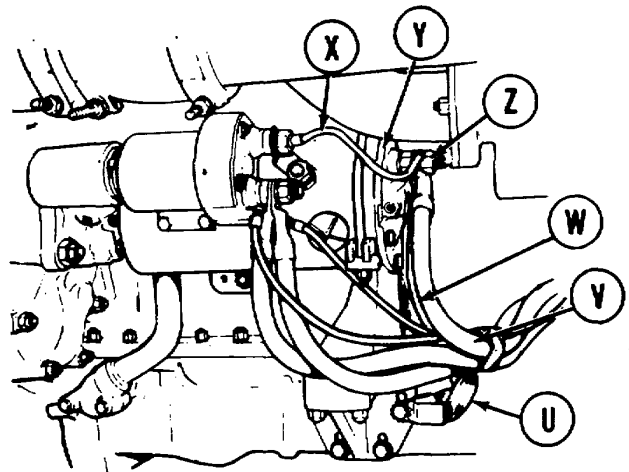
TA147410

**ENGINE STARTER WIRING HARNESS REPLACEMENT (2A ENGINE) (Sheet 4 of 4)**

7. Using flat-tip screwdriver, install small cable (K) onto bottom front mount of relay solenoid (L) with screw and external tooth lockwasher (M).
8. Install small cable (N) and two ends (P) and (Q) of cable (B) onto lower terminal of starter relay solenoid (L) with nut and two new lockwashers (R). Using 3/4 inch socket on nut and two lockwashers (R), tighten nut.
9. Install ground strap (S), two ends (T) and (U) of cable (C), and small cable (V) onto terminal on starter motor (W) with nut and two new lockwashers (X). Using 3/4 inch socket on nut and lockwashers (X), tighten nut.



10. Coat all exposed connections with glyptol (Item 38, Appendix D).
11. Install powerplant (page 5-14).



End of Task

TA147411

**ENGINE STARTER WIRING HARNESS REPLACEMENT (2D ENGINE) (Sheet 1 of 6)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-381
Installation	10-382

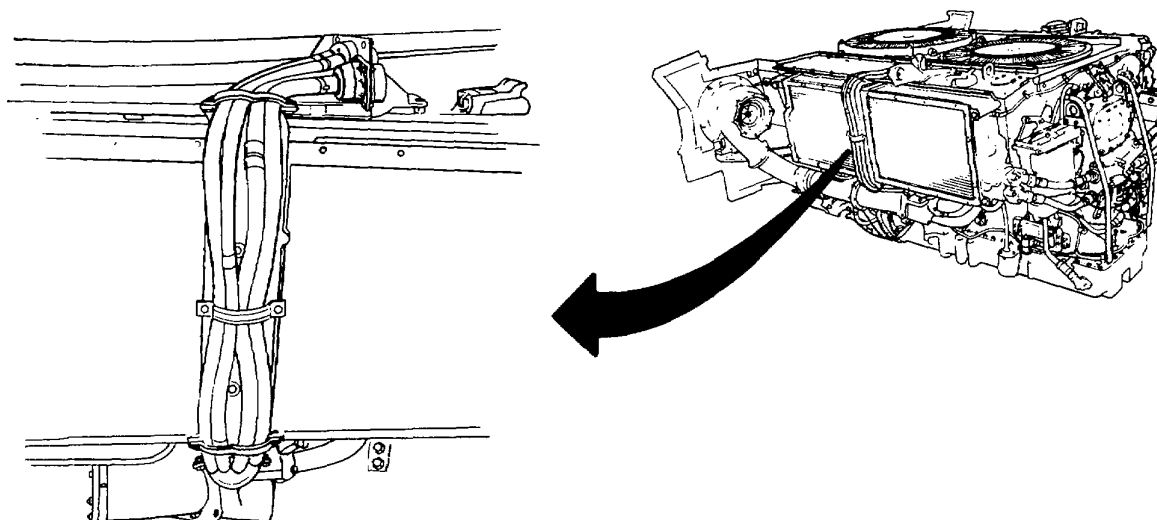
TOOLS: Ratchet with 1/2 in. drive  
 1/2 in. socket with 1/2 in. drive  
 5 in. extension with 1/2 in. drive  
 7/16 in. socket with 1/2 in. drive  
 3/4 in. combination box and open end wrench  
 3/8 in. combination box and open end wrench  
 Diagonal cutting pliers  
 Flat-tip screwdriver

SPECIAL TOOLS: Ground hop kit (Item 30, Chapter 3, Section I)

SUPPLIES: Glyptol (Item 38, Appendix D)  
 Cable ties  
 Lockwasher (MS45904-76)  
 Lockwasher (MS35333-39)  
 Lockwasher (MS35338-45) (3 required)  
 Lockwasher (MS35338-43) (8 required)  
 Lockwasher (11657469-3) (8 required)

REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURE: Remove powerplant (page 5-27)



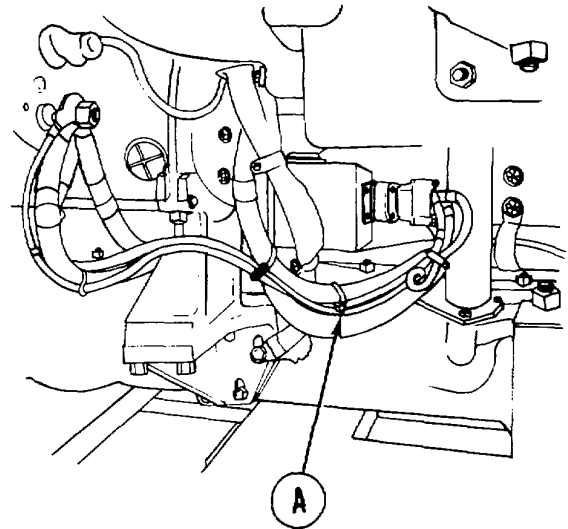
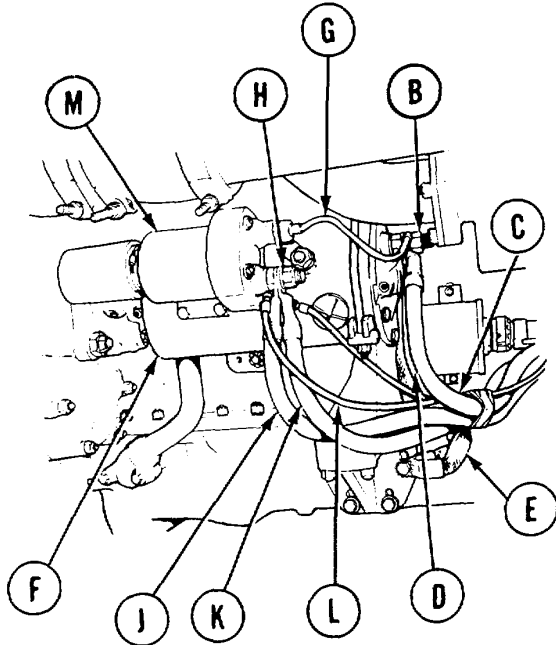
Go to Sheet 2

TA147412

**ENGINE STARTER WIRING HARNESS REPLACEMENT (2D ENGINE) (Sheet 2 of 6)**

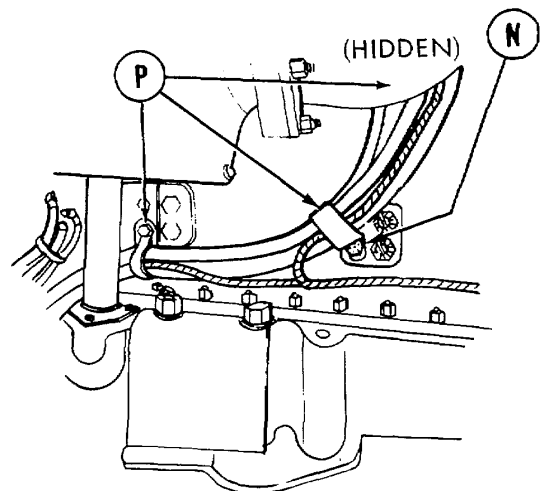
**REMOVAL:**

1. Using cutting pliers, cut all cable ties (A).



2. Using 3/4 inch wrench, remove nut and lockwasher (B). Remove heavy cables (C) and (D) and ground strap (E) from starter (F). Do not remove small cable (G). Throw lockwasher away .
3. Using 3/4 inch wrench, remove nut and lockwasher (H). Remove heavy cables (J) and (K) and light cable (L) from solenoid relay (M). Throw lockwasher away.

4. Using 1/2 inch socket, remove screws and lockwashers (N) from cable clamps (P); throw lockwashers away. Remove cable clamps.



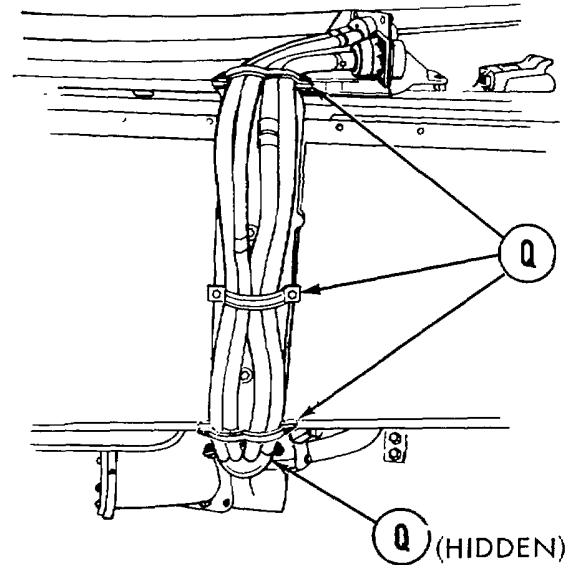
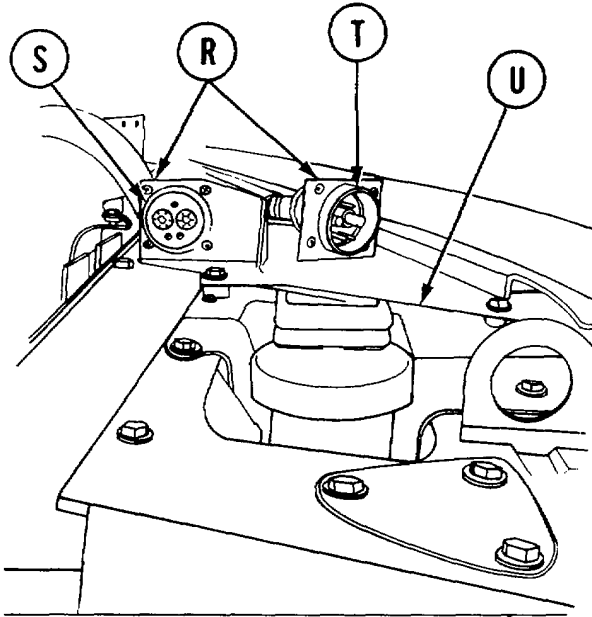
Go on to Sheet 3

TA147413

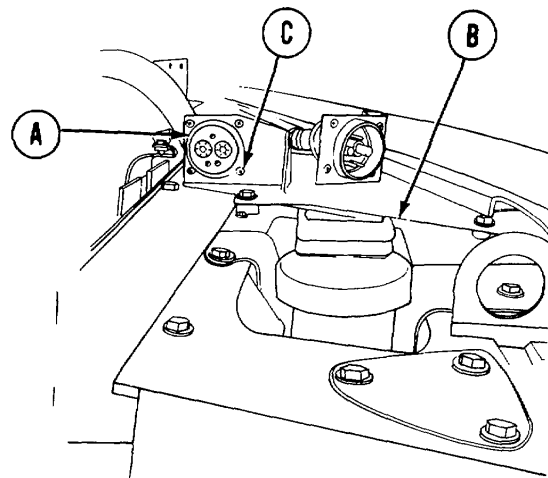
10-381

**ENGINE STARTER WIRING HARNESS REPLACEMENT (2D ENGINE) (Sheet 3 of 6)**

- Using 7/16 Inch socket, remove eight screws, eight lockwashers, and four clamps (Q). Throw lockwashers away.



- Using screwdriver and 3/8 inch wrench, remove eight screws, lockwashers, and nuts (R). Remove electrical connectors (S) and (T) from connector bracket (U). Throw lockwashers away.
- Remove cables from engine.



**INSTALLATION:**

**NOTE**

**Note position. Two small holes go on bottom.**

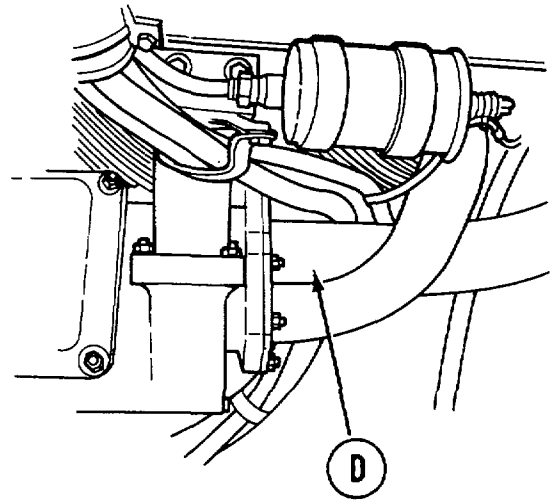
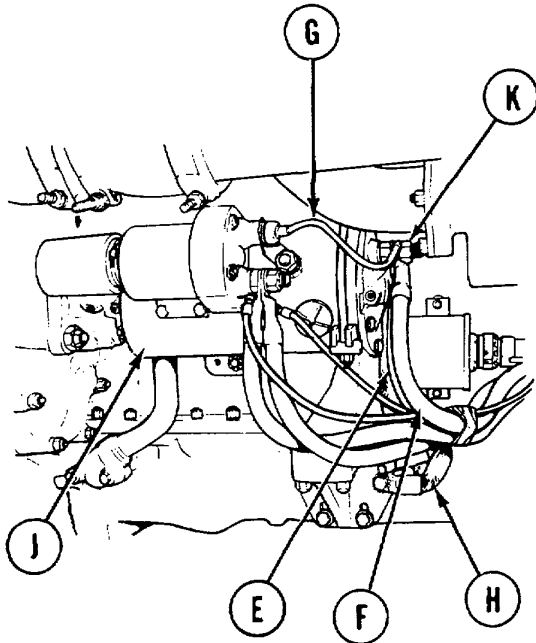
- Using screwdriver and 3/8 inch wrench, secure female connector (A) to bracket (B) with four lockwashers, and nuts (C).

Go on to Sheet 4

TA147414

**ENGINE STARTER WIRING HARNESS REPLACEMENT (2D ENGINE) (Sheet 4 of 6)**

2. Feed female connector cables between exhaust manifold (D) and engine.

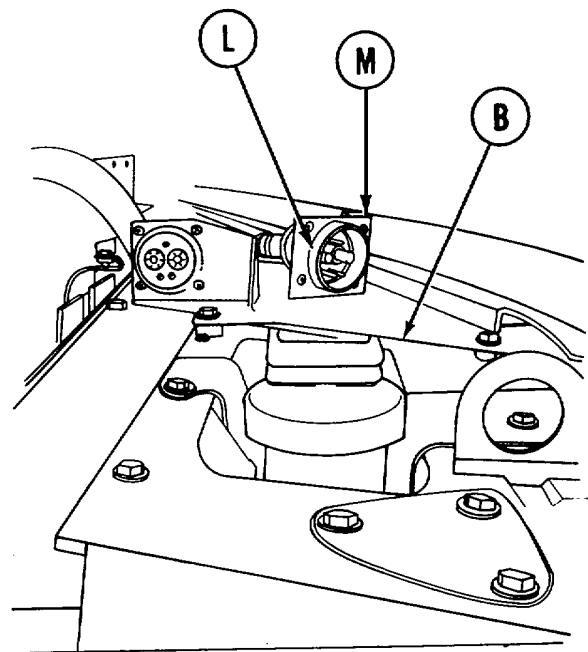


3. Using 3/4 inch wrench, secure female connector cables (E) and (F), light cable (G), and ground cables (H) to starter (J) with nut and new lockwasher (K).

**NOTE**

**Note position. Single male prong goes on top.**

4. Using screwdriver and 3/8 inch wrench, secure male connector (L) to bracket (B) with four screws, new lockwashers, and nuts (M).



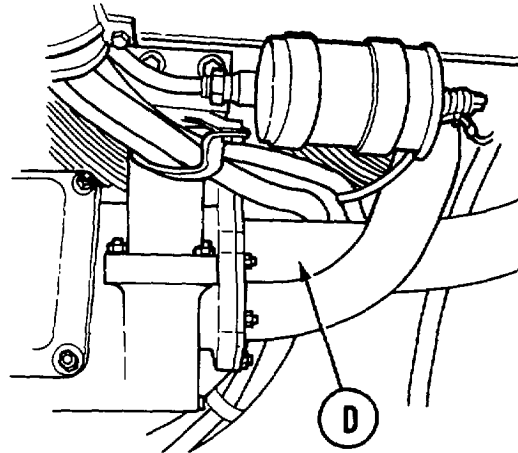
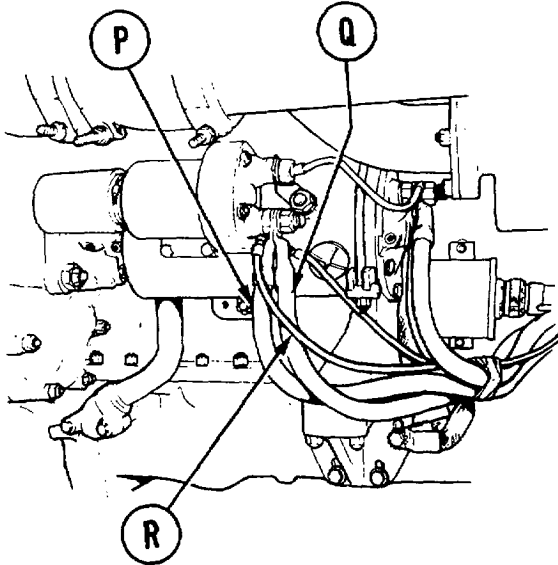
Go on to Sheet 5

TA147415

10-383

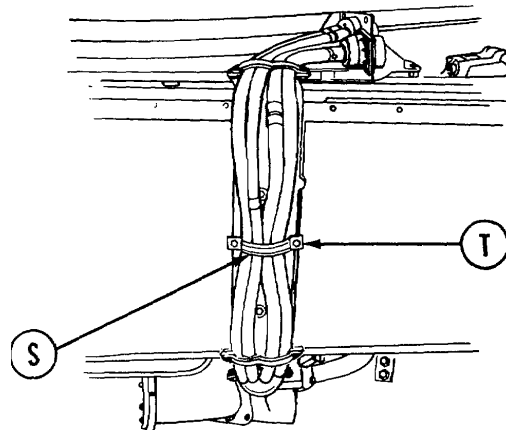
**ENGINE STARTER WIRING HARNESS REPLACEMENT (2D ENGINE) (Sheet 5 of 6)**

5. Feed male connector cables between exhaust manifold (D) and engine.



6. Using 3/4 inch wrench, secure male connector cables (P) and (Q) and light cable (R) with lockwasher and nut.

7. Using 7/16 inch socket, secure cables with four clamps (S) and eight new lockwashers and screws (T).



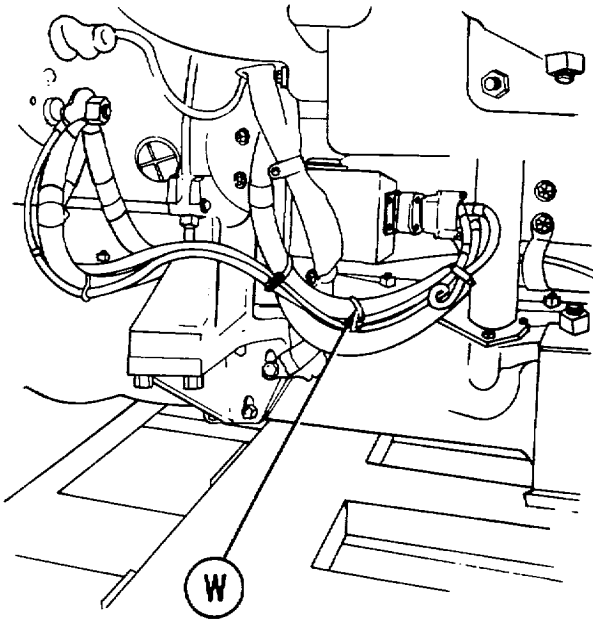
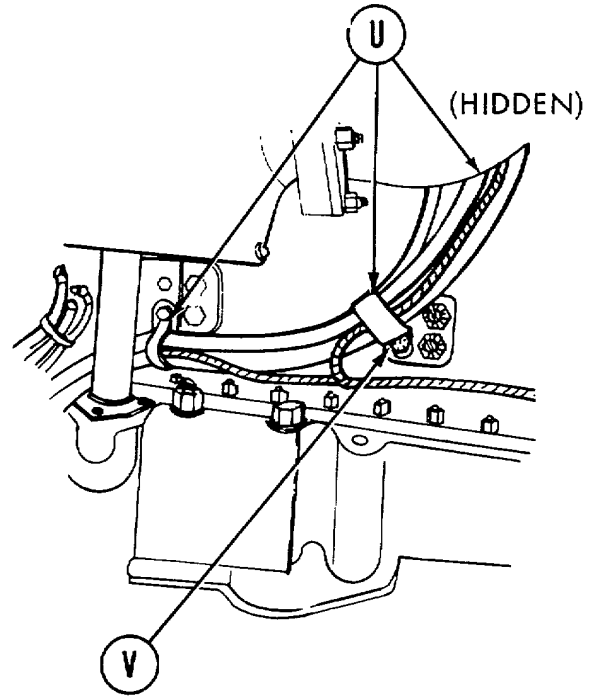
Go on to Sheet 6

TA147416



**ENGINE STARTER WIRING HARNESS REPLACEMENT (2D ENGINE) (Sheet 6 of 6)**

8. Using 1/2 inch socket, extension, and ratchet, secure cable clamps (U) with screws (V).
9. Secure cables with cable ties (W).
10. Connect powerplant for ground hop (page 5-54).
11. Start engine (TM 9-2350-260-10).
12. Stop engine (TM 9-2350-260-10).



13. Coat all exposed terminal fittings with glyptol (Item 38, Appendix D).
14. Disconnect powerplant from test set-up (page 5-67).
15. Install powerplant (page 5-40).

End of Task

TA147417

**TRANSMISSION WIRING HARNESS REPLACEMENT (Sheet 1 of 7)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-386
Installation	10-389

TOOLS: 3/4 in. combination box and open end wrench  
 7/16 in. combination box and open end wrench (2 required)  
 Slip joint pliers  
 9/16 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 Flat-tip screwdriver  
 Spanner wrench  
 3/4 in. socket with 1/2 in. drive

SUPPLIES: Identification tags  
 Grommet  
 Lockwasher (MS35338-42)

PRELIMINARY PROCEDURE: Remove powerplant (page 5-1)

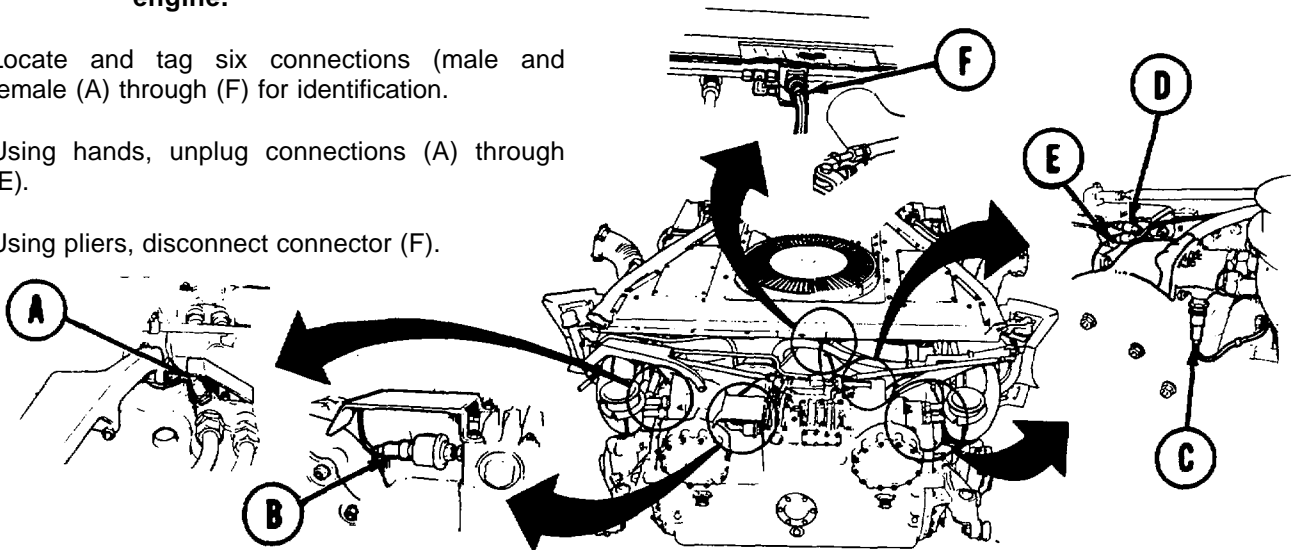
REMOVAL:

**NOTE**

**Perform steps 1 through 9 of transmission is mated to a 2D engine.**

**Perform steps 1, 2, and 3, and 10 through 14 if transmission is mated to a 2A engine.**

1. Locate and tag six connections (male and female (A) through (F) for identification.
2. Using hands, unplug connections (A) through (E).
3. Using pliers, disconnect connector (F).

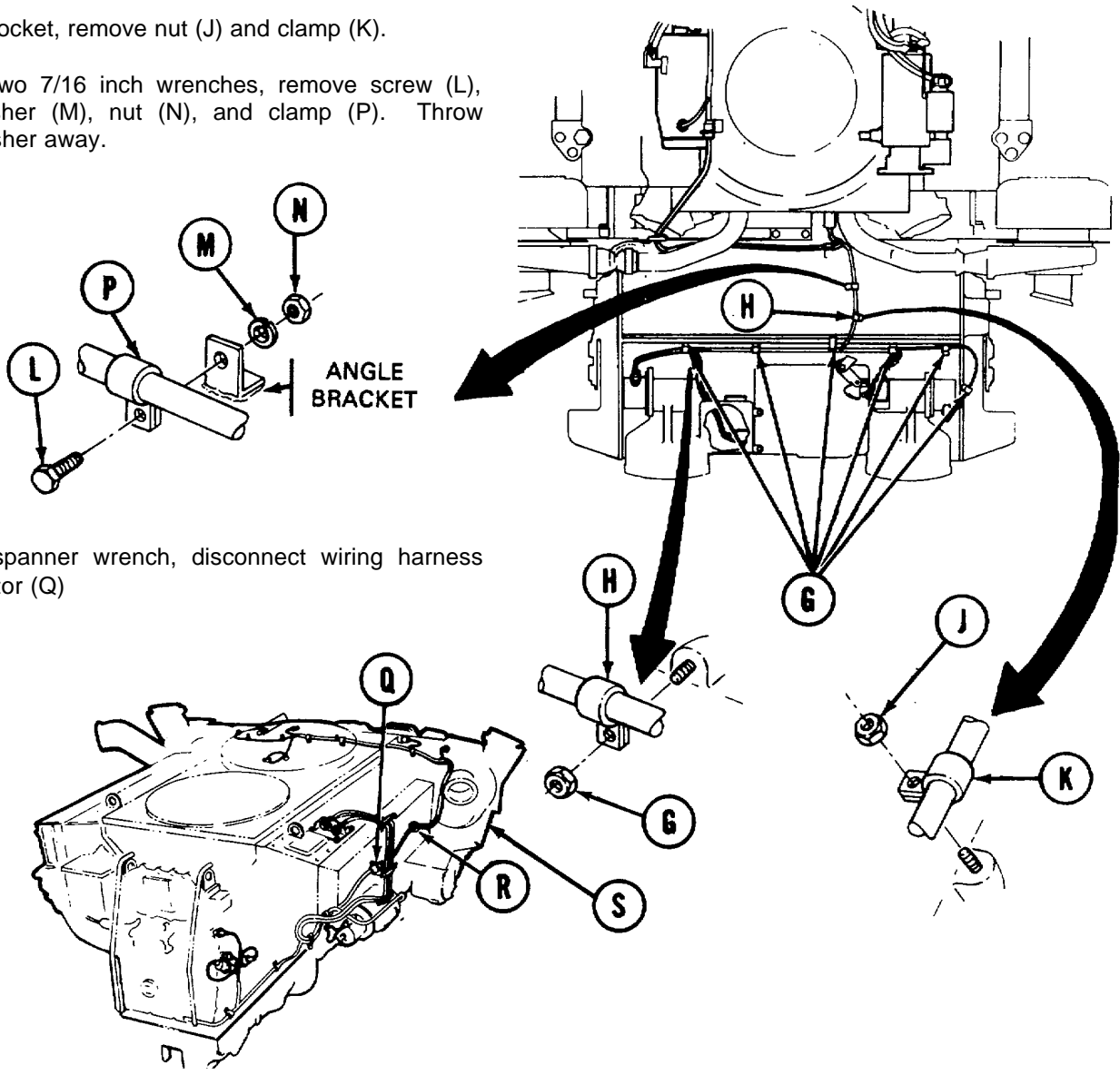


Go on to Sheet 2

TA147418

**TRANSMISSION WIRING HARNESS REPLACEMENT (Sheet 2 of 7)**

4. Using 3/4 inch wrench, remove six nuts (G) and clamps (H) securing wiring harness to transmission.
5. Using socket, remove nut (J) and clamp (K).
6. Using two 7/16 inch wrenches, remove screw (L), lockwasher (M), nut (N), and clamp (P). Throw lockwasher away.



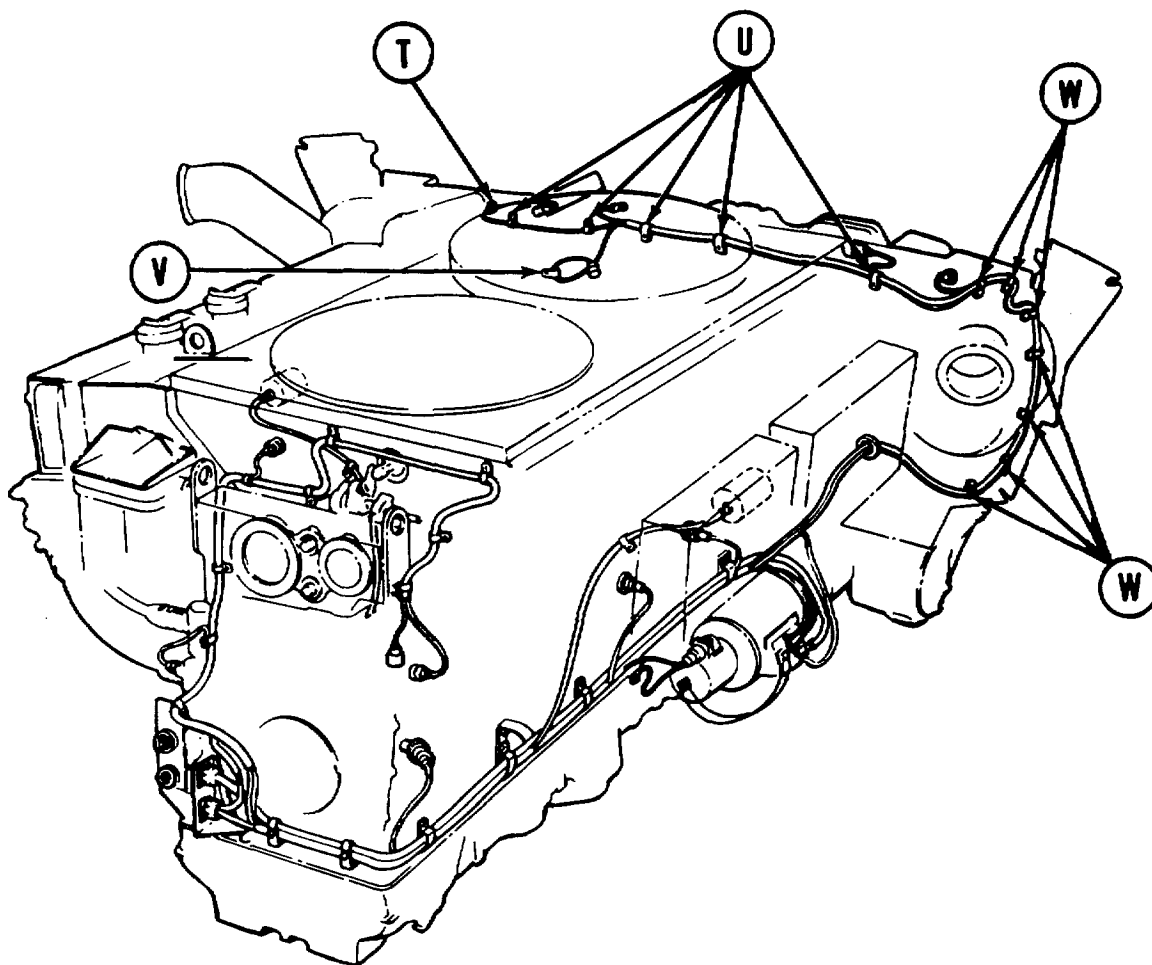
7. Using spanner wrench, disconnect wiring harness connector (Q)

8. Using screwdriver, remove grommet (R) from rear engine shroud (S). Throw grommet away.
9. Pull wiring harness connector (Q) through shroud (T) and remove wiring harness from transmission.

Go on to Sheet 3

TA147419

## TRANSMISSION WIRING HARNESS REPLACEMENT (Sheet 3 of 7)



10. Using 3/4 inch socket, remove nut securing clamp (T).
11. Using 3/4 inch wrench, remove nuts securing clamp (U).
12. Using 7/16 inch wrench, remove screw securing clamp (V).
13. Using 3/4 inch socket, remove nuts securing dampers (W).
14. Remove wiring harness from transmission and position aside.

Go on to Sheet 4

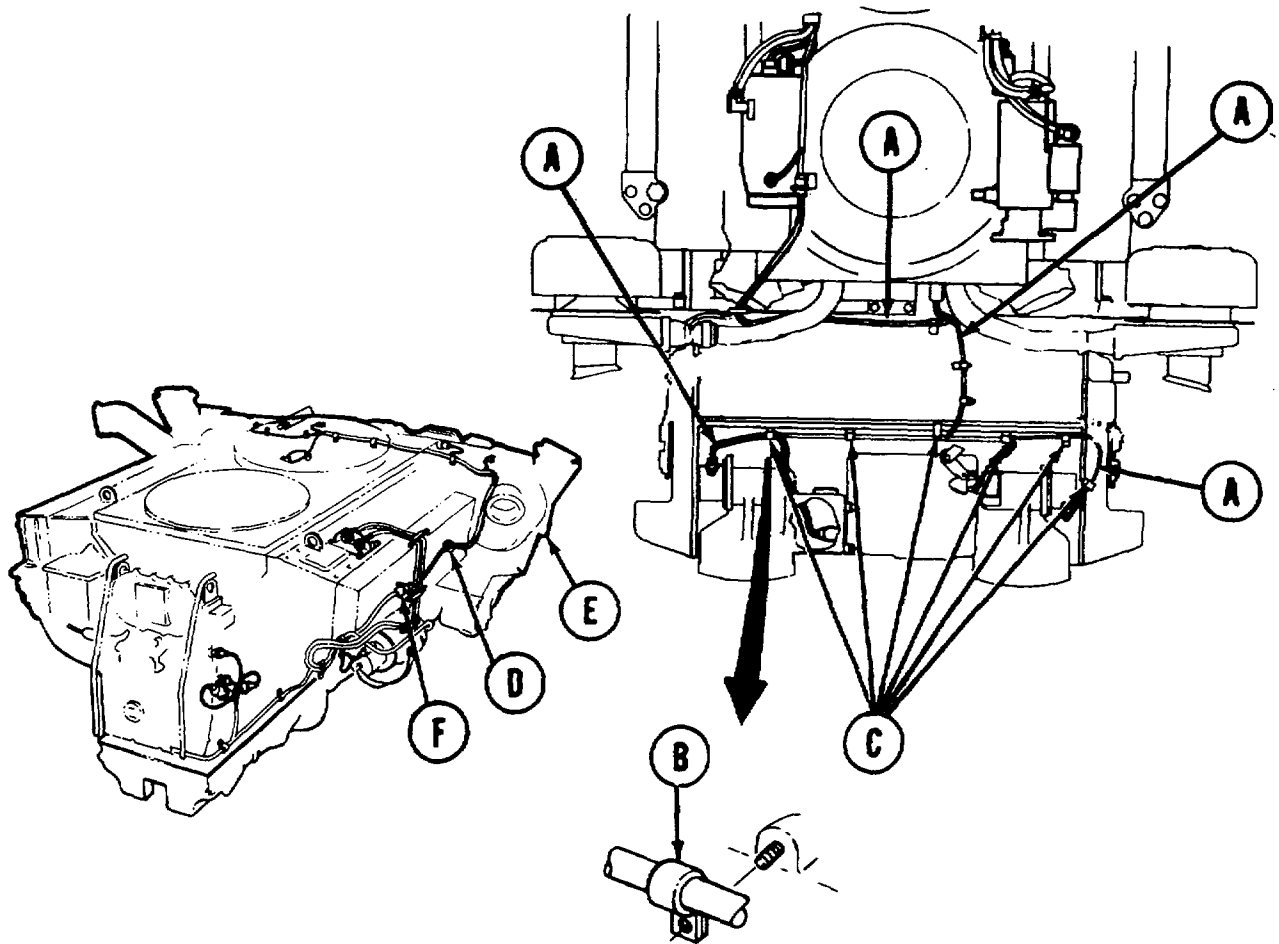
TA147420

**TRANSMISSION WIRING HARNESS REPLACEMENT (Sheet 4 of 7)****INSTALLATION:****NOTE**

Perform steps 1 through 9 and 15 through 18 when transmission is mated to 2D engine.

Perform steps 10 through 18 when transmission is mated to 2A engine.

1. Position wiring harness (A) onto powerplant as shown.
2. Place six clamps (B) onto wiring harness at positions (C).
3. Using hands, install new grommet (D) into rear engine shroud (E).
4. Using spanner wrench, connect wiring harness connector (F).

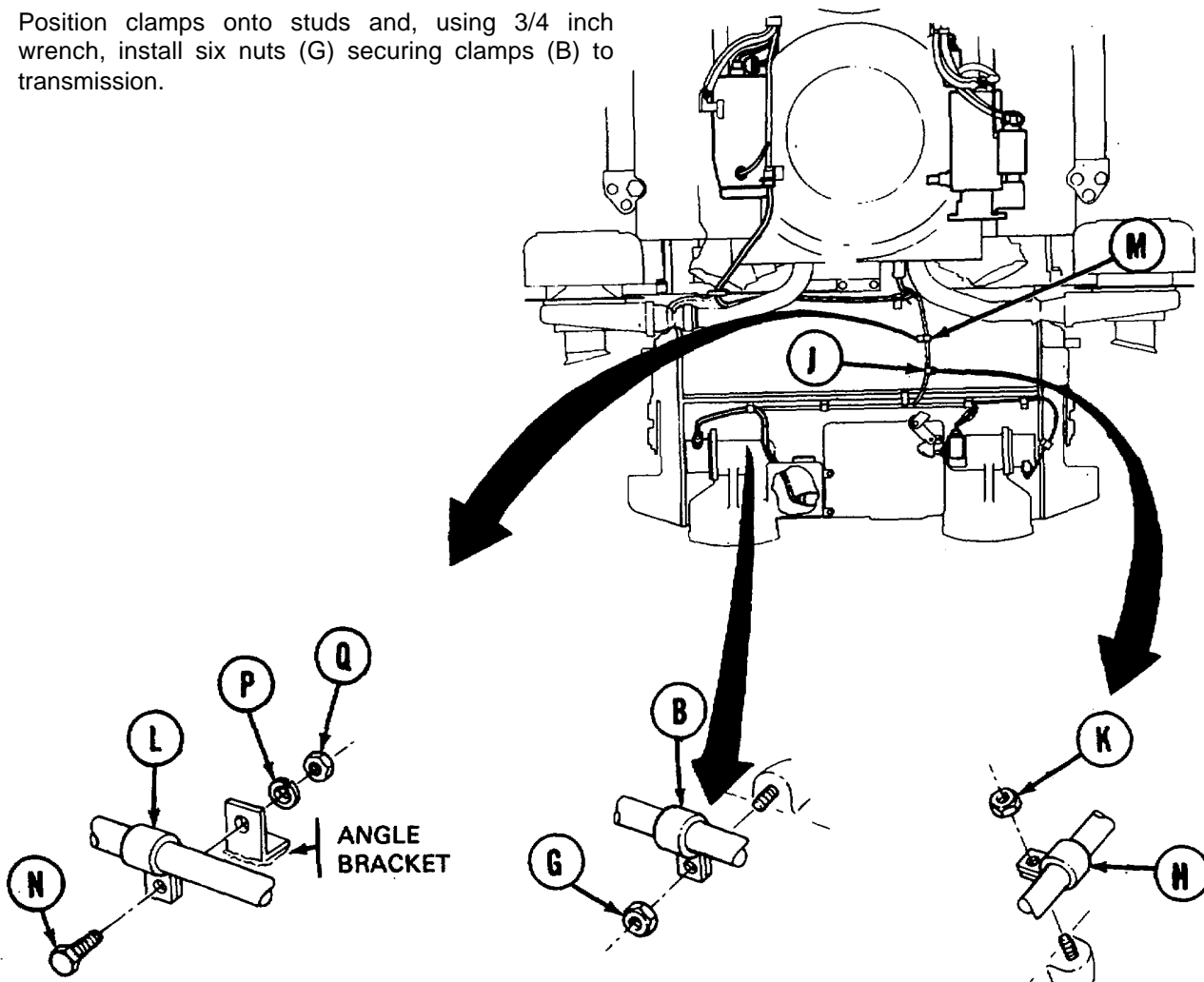


Go on to Sheet 5

TA147421

## TRANSMISSION WIRING HARNESS REPLACEMENT (Sheet 5 of 7)

5. Position clamps onto studs and, using 3/4 inch wrench, install six nuts (G) securing clamps (B) to transmission.

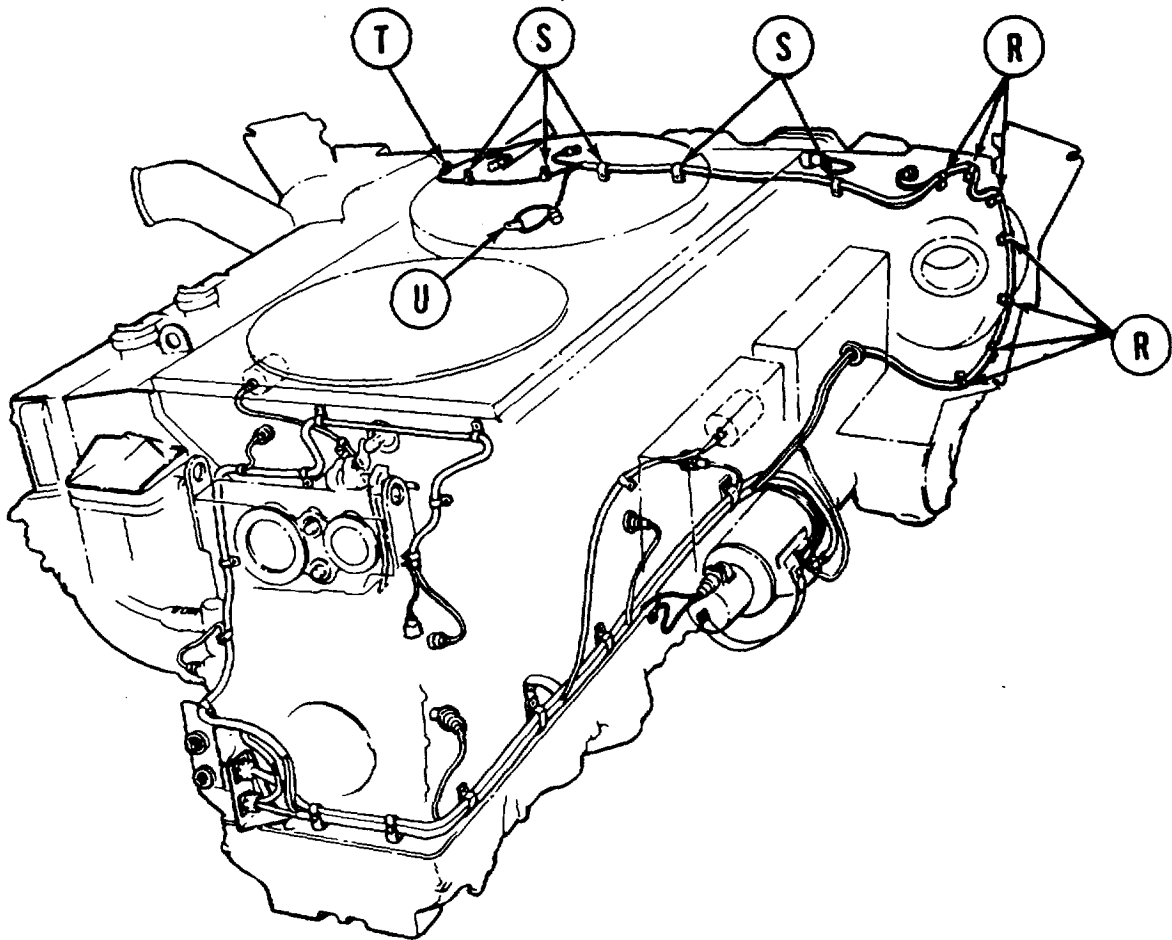


6. Place clamp (H) onto wiring harness at position (J).
7. Position clamp onto stud and, using socket, install nut (K) securing clamp (H) to transmission.
8. Place clamp (L) onto wiring harness at position (M).
9. Position clamp onto bracket and, using two 7/16 inch wrenches, install screw (N), new lockwasher (P), and nut (Q) securing clamp (L) to bracket.

Go on to Sheet 6

TA147422

## TRANSMISSION WIRING HARNESS REPLACEMENT (Sheet 6 of 7)



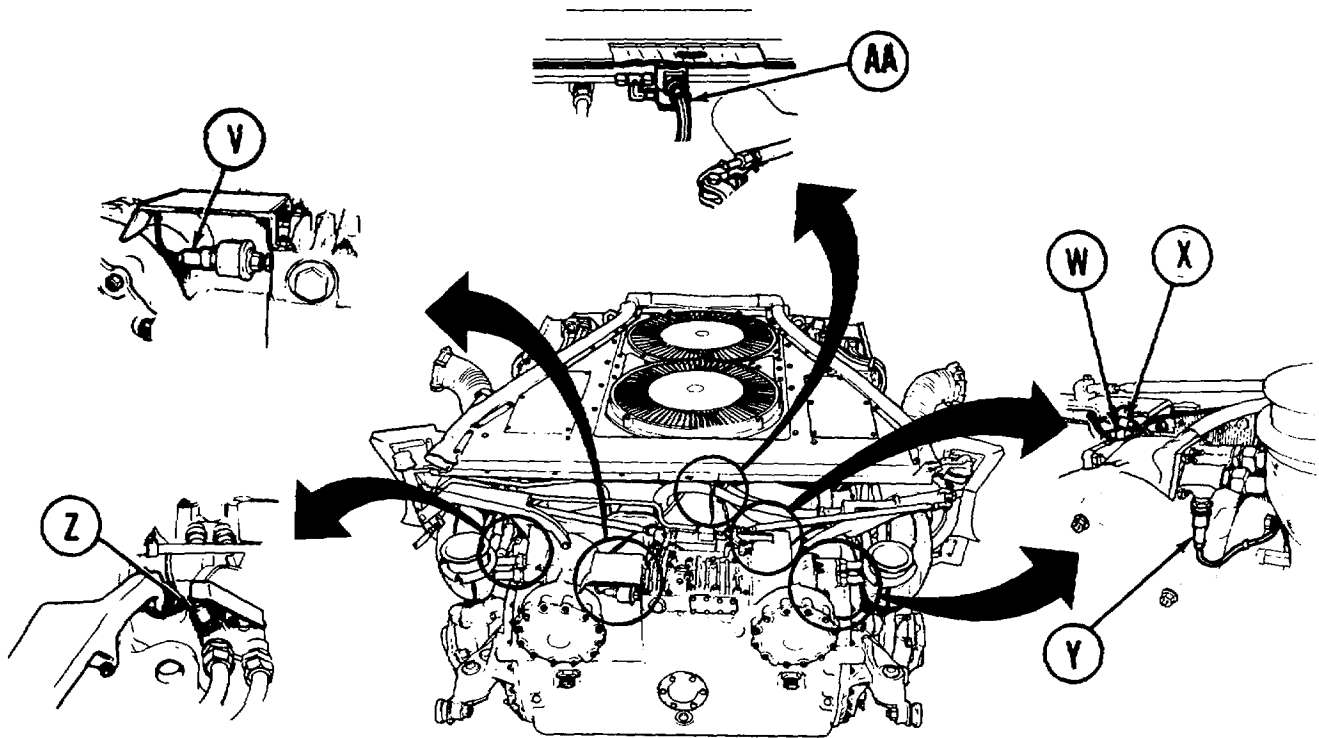
10. Position wiring harness onto transmission as shown.
11. Position clamps (R) onto studs and using 3/4 inch socket, install nuts to secure clamps.
12. Position clamps (S) onto studs and using 3/4 inch wrench, install nuts to secure clamps.
13. Position clamp (T) onto studs and using 3/4 inch socket, install nut to secure clamp.
14. Using 7/16 inch wrench, install screw to secure clamp (U).

Go on to Sheet 7

TA147423

**TRANSMISSION WIRING HARNESS REPLACEMENT (Sheet 7 of 7)**

15. Using hands, connect five leads (V) thru (Z) to their mating connections according to tags.
16. Using pliers, connect lead (AA) to its mating connection according to tags.
17. Remove all tags.



18. Install 2A powerplant (page 5-14) or 2D powerplant (page 5-40).

End of Task

TA147424



REAR INTERPHONE CABLE ASSEMBLY REPLACEMENT (Sheet 1 of 4)

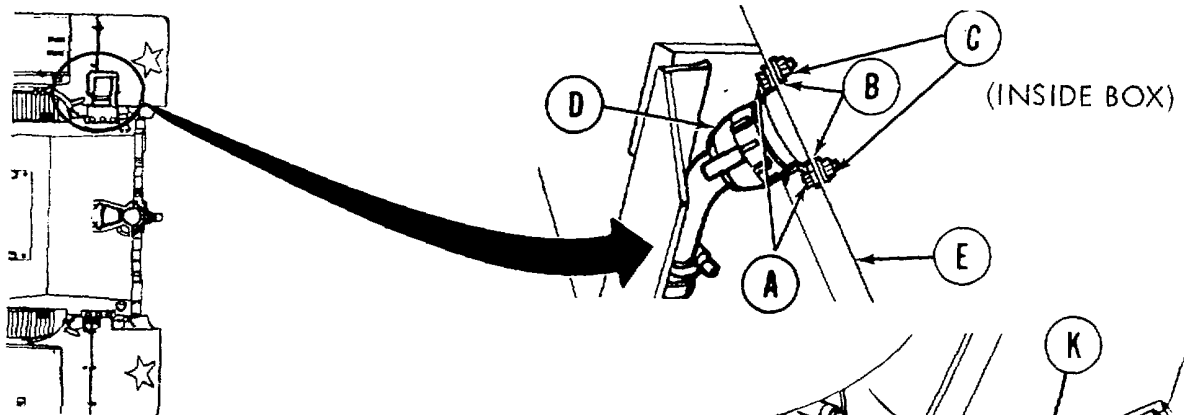
PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-393
Installation	10-395

TOOLS: Flat-tip screwdriver  
 Slip joint pliers  
 Adjustable spanner wrench  
 7/16 in. combination box and open end wrench  
 1 in. combination box and open end wrench

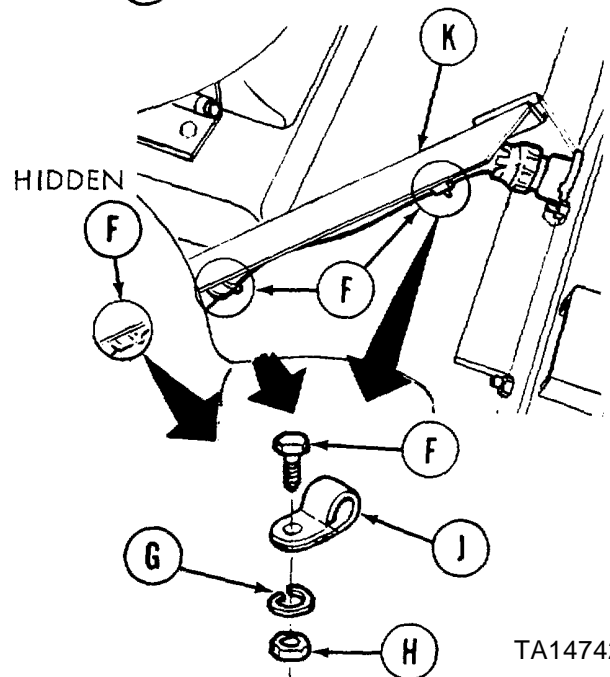
SUPPLIES: Silicone compound (Item 32, Appendix D)  
 Lockwasher (MS35338-44) (8 required)

PRELIMINARY PROCEDURE: Disconnect phone connector from rear connector (TM 9-2350-260-10)



REMOVAL:

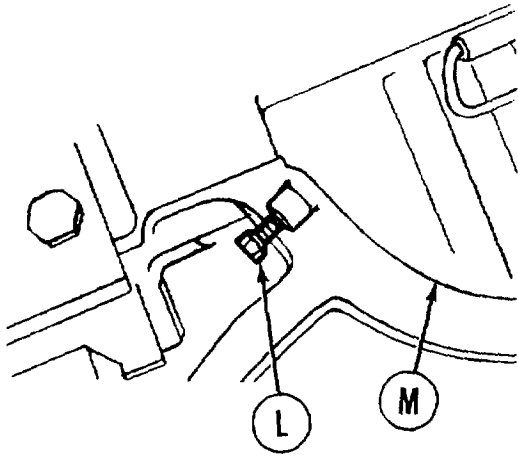
- Using screwdriver, remove four screws (A), lockwashers (B), and nuts (C) securing connector (D) to interphone box (E). Throw lockwashers away.
- Using 7/16 inch wrench, remove two screws (F), lockwashers (G), nuts (H), and clamps (J) securing cable assembly to shield (K). Throw lockwashers away.
- Using 7/16 inch wrench, remove one screw (F), lockwasher (G), nut (H), and clamp (J) which is mounted on outside of hull (hidden). Throw lockwashers away.



Go on to Sheet 2

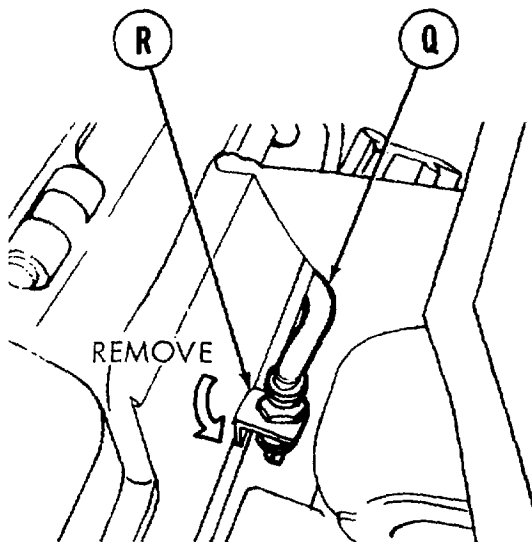
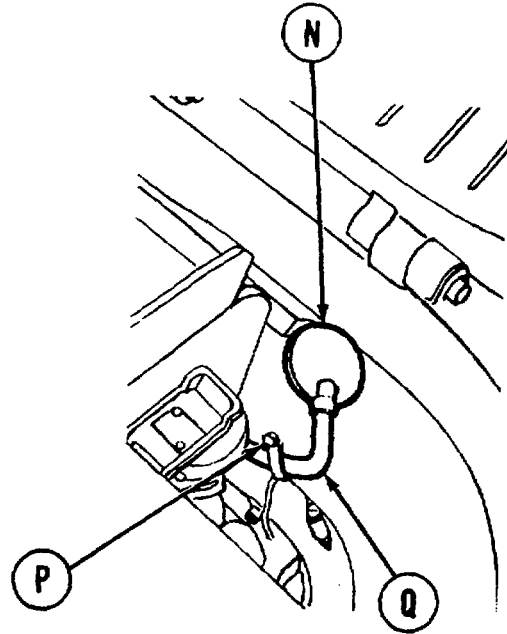
TA147425

REAR INTERPHONE CABLE ASSEMBLY REPLACEMENT (Sheet 2 of 4)



4. Using 1 inch wrench, unscrew bolt (L) until grille door assembly (M) can be opened.
5. Open grille door assembly (M).

6. Using screwdriver, remove rubber grommet (N) and cable assembly (Q) by prying out grommet from hull.
7. Using 7/16 inch wrench, remove nut and lockwasher (P) securing clamp and cable harness (Q) to hull. Throw lockwasher away.



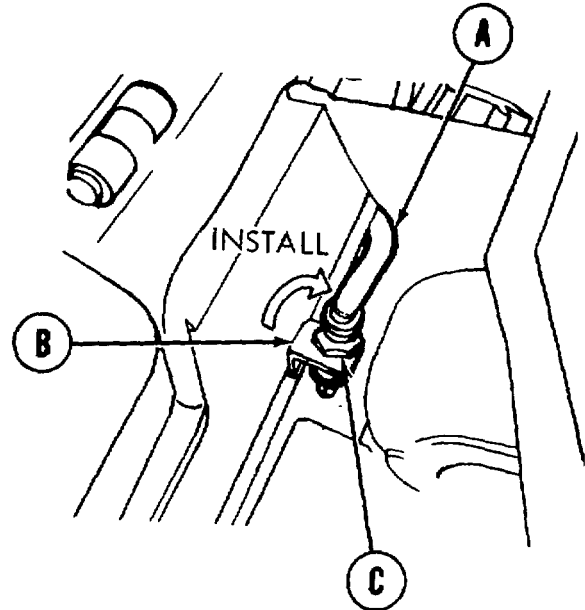
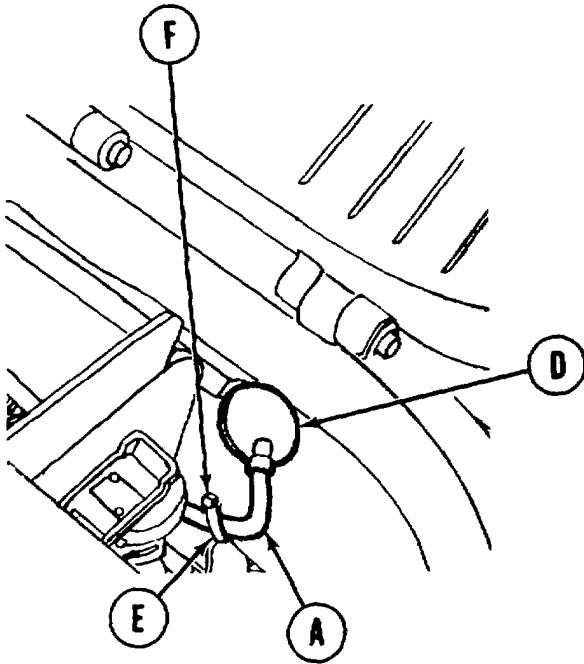
8. Using spanner wrench, disconnect other end of cable assembly (Q) at junction (R).
9. Remove cable assembly (Q).

Go on to Sheet 3

TA147426

**REAR INTERPHONE CABLE ASSEMBLY REPLACEMENT (Sheet 3 of 4)****INSTALLATION:**

1. Connect end of cable assembly (A) at junction (B).
2. Using spanner wrench, tighten cable assembly (A) connector (C).



3. Place new grommet (D) around cable assembly (A).
4. Apply silicone compound (Item 32, Appendix D) to grommet (D).
5. Install grommet (D) in cavity of hull wall.

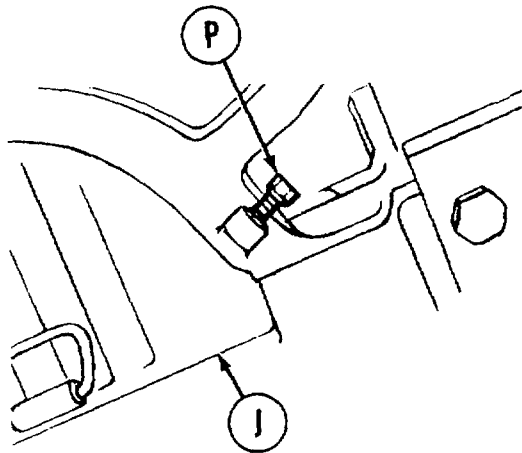
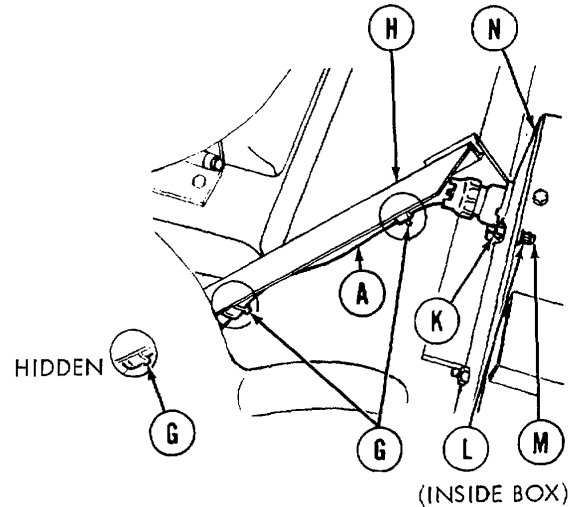
6. Place clamp (E) around cable assembly (A).
7. Using 7/16 inch wrench, install screw and new lockwasher (F) securing clamp (E) and cable assembly (A) to hull.

Go on to Sheet 4

TA147427

**REAR INTERPHONE CABLE ASSEMBLY REPLACEMENT (Sheet 4 of 4)**

8. Using 7/16 inch wrench, install two clamps, screws, new lockwashers, and nuts (G) securing cable assembly (A) to brace (H).
9. Close grille door assembly (J).
10. Using 7/16 inch wrench, install one clamp, screw, new lockwasher, and nut (G) which is hidden outside of hull.



11. Using screwdriver, install four screws (K), new lockwashers (L), and nut (M), securing connector to interphone box (N).
12. Using 1 inch wrench, screw in bolt (P) until hatch door assembly (J) is secure.
13. Connect phone connector to rear connector (TM 9-2350-260-10).

End of Task

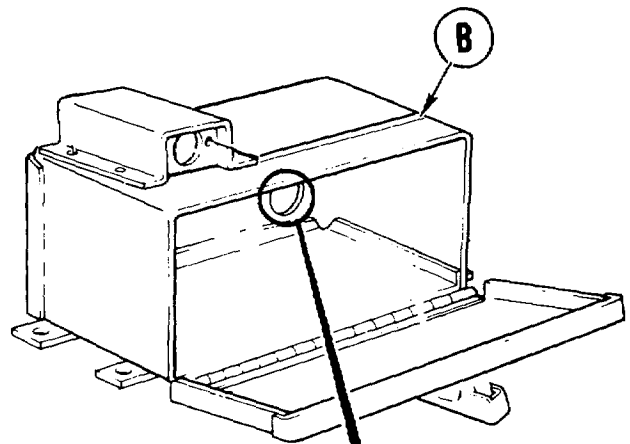
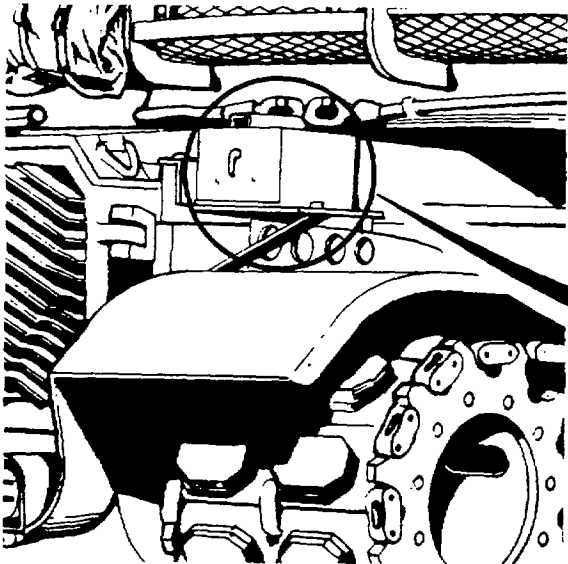
TA147428

**INTERPHONE CABLE RECEPTACLE DUST CAP AND GASKET REPLACEMENT (Sheet 1 of 2)**

TOOLS: Cross-tip screwdriver  
6 in. adjustable wrench

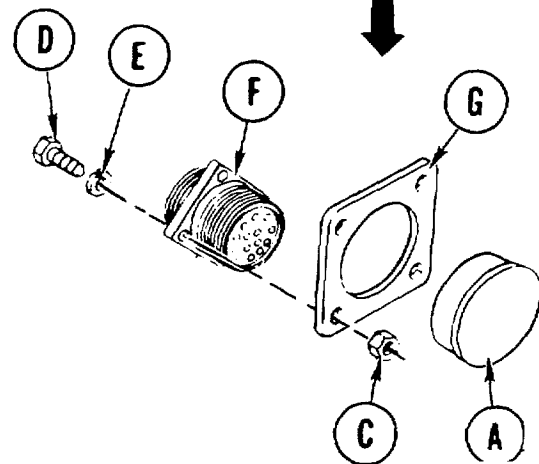
SUPPLIES: Lockwasher (MS35338-42)(4 required)

PRELIMINARY PROCEDURE: Disconnect rear interphone cable (page 10-393)



**REMOVAL**

1. Remove dust cap (A) from inside of interphone box (B).
2. Place wrench on nut (C) of interphone box (B).
3. Using screwdriver, remove four screws (D) and lockwashers (E) securing connector (F) and gasket (G) to rear of interphone box (B). Throw lockwashers away.
4. Remove connector (F), gasket (G), and nut (C).

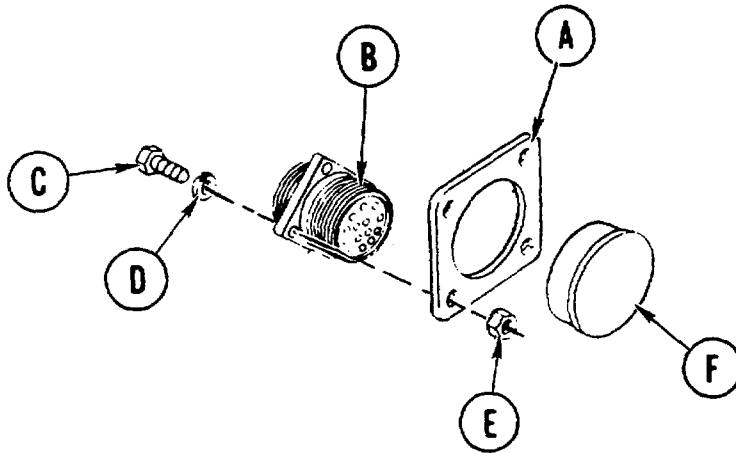


Go on to Sheet 2

TA147429

**INTERPHONE CABLE RECEPTACLE DUST CAP AND GASKET REPLACEMENT (Sheet 2 of 2)****INSTALLATION:**

1. Place new gasket (A) and connector (B) in position on rear of interphone box.
2. Install four screws (C), new lockwashers (D), and nuts (E) securing gasket (A) and connector (B) to interphone box.
3. Using screwdriver on screws (C) and wrench on nuts (E), tighten.
4. Install dust cap (F) in position inside of interphone box.



5. Connect rear interphone cable (page 10-395).

End of Task

TA147430

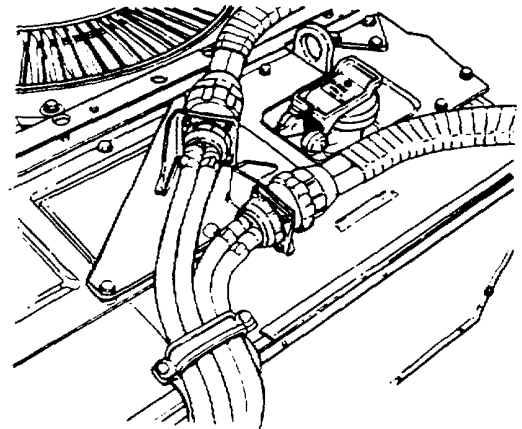
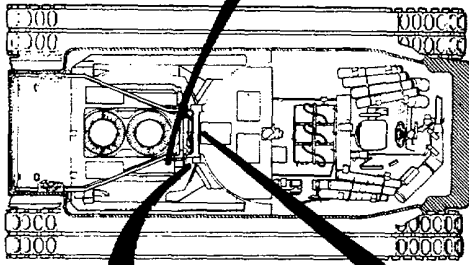
**ENGINE GROUND LEAD ASSEMBLY REPLACEMENT (Sheet 1 of 5)**

**TOOLS:** Ratchet with 1/2 in. drive  
 9/16 in. socket with 1/2 in. drive.  
 Spanner wrench  
 Wire brush

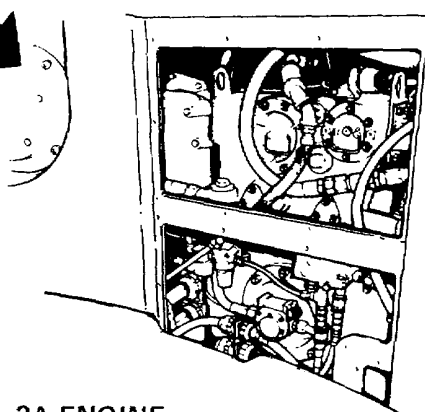
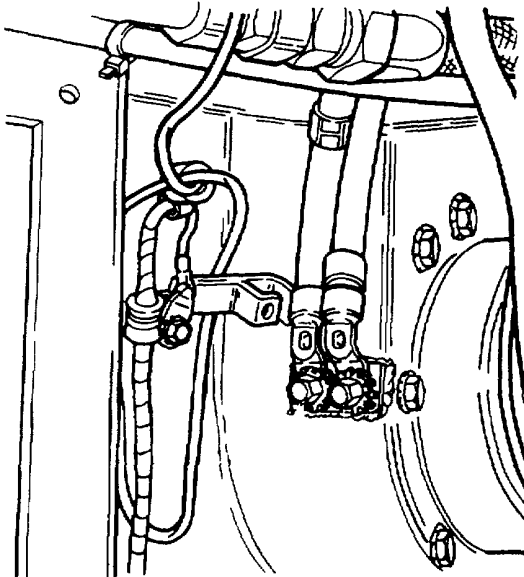
**SUPPLIES:** Lockwashers (MS35333-40)(4 required)

**REFERENCE:** TM 9-2350-260-10

**PRELIMINARY PROCEDURES:** Traverse turret for access to engine upper and lower access covers (TM 9-2350-260-10) Remove engine upper and lower access covers (page 16-44, 16-45)



**2D ENGINE**



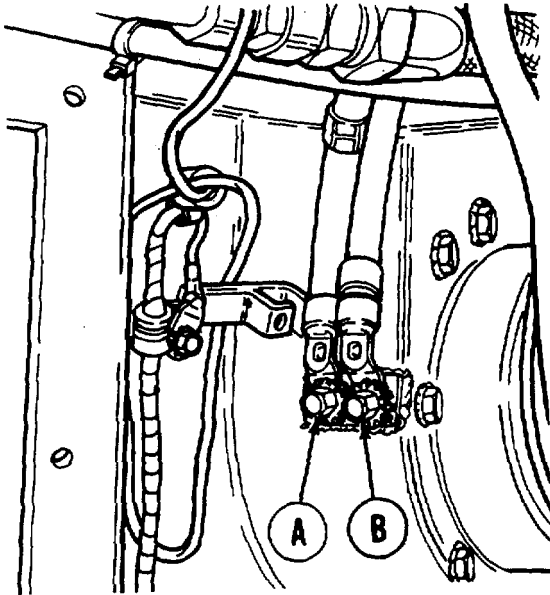
**2A ENGINE**

Go on to Sheet 2

TA147431

**ENGINE GROUND LEAD ASSEMBLY REPLACEMENT (Sheet 2 of 5)****REMOVAL:****CAUTION**

Make sure **MASTER CONTROL** switch is set to **OFF** before replacing engine ground lead assembly.

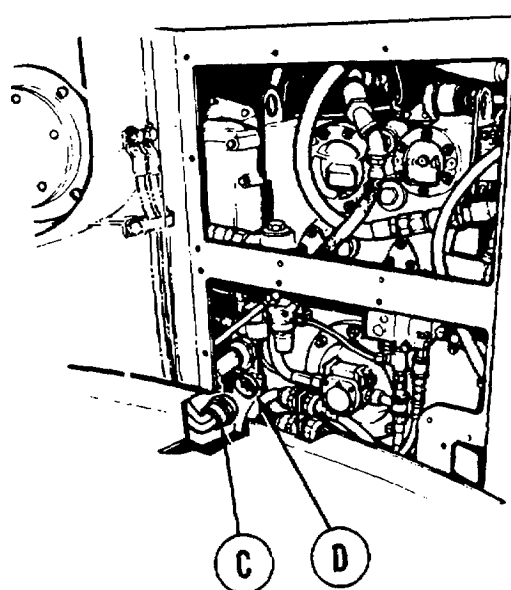


1. Reaching through upper engine access opening, use socket to remove screw (A) and screw (B), each with two lockwashers. Throw lockwashers away.

**NOTE**

If ground lead connector is located at bottom of engine, do steps 2 through 4. If ground lead is located on top of engine, go to step 5.

2. Reaching through engine access opening, use spanner wrench to loosen ground connector (C).
3. Manually remove ground connector (C) from engine connector (D).
4. Remove old engine ground lead from engine compartment.

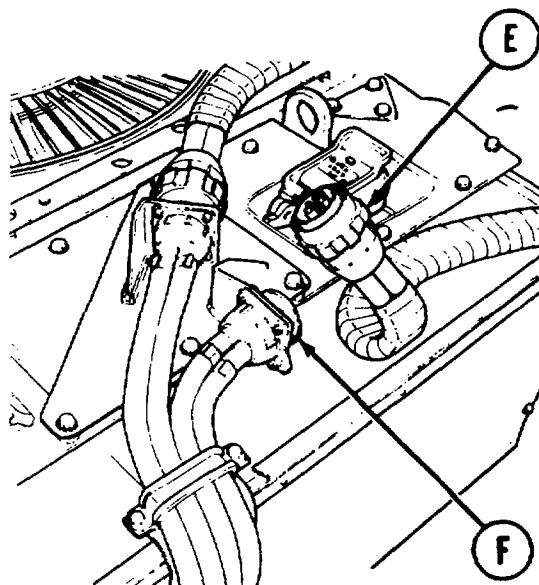


Go on to Sheet 3



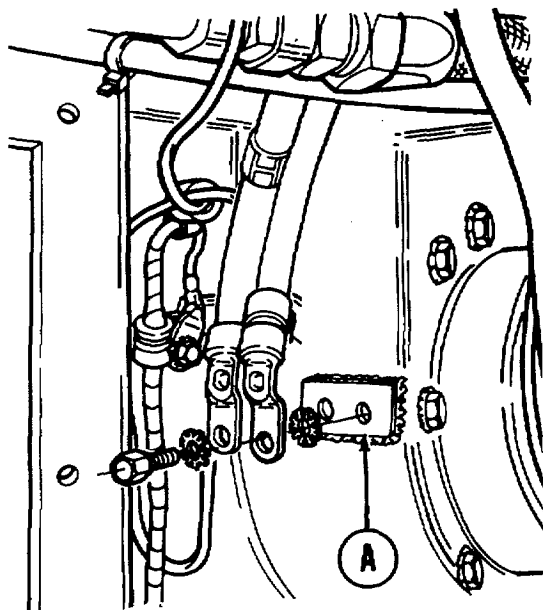
**ENGINE GROUND LEAD ASSEMBLY REPLACEMENT (Sheet 3 of 5)**

5. Manually traverse turret 90 degrees over left or right sponson box (TM 9-2350-260-10).
6. Open upper grille doors (TM 9-2350-260-10).
7. Using spanner wrench, loosen ground connector (E) from engine connector (F).
8. Manually remove ground connector (E) from engine.
9. Remove old engine ground lead from engine compartment.



**INSTALLATION:**

1. Position new engine ground lead assembly inside engine compartment.

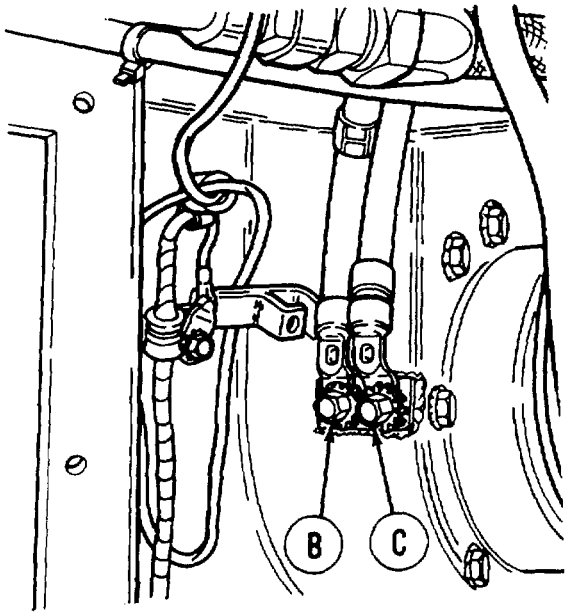


2. Reaching through engine access opening using wire brush to scrape ground lead assembly connect point (A) until free from paint, rust, and corrosion.

Go on to Sheet

TA147433

**ENGINE GROUND LEAD ASSEMBLY REPLACEMENT (Sheet 4 of 5)**

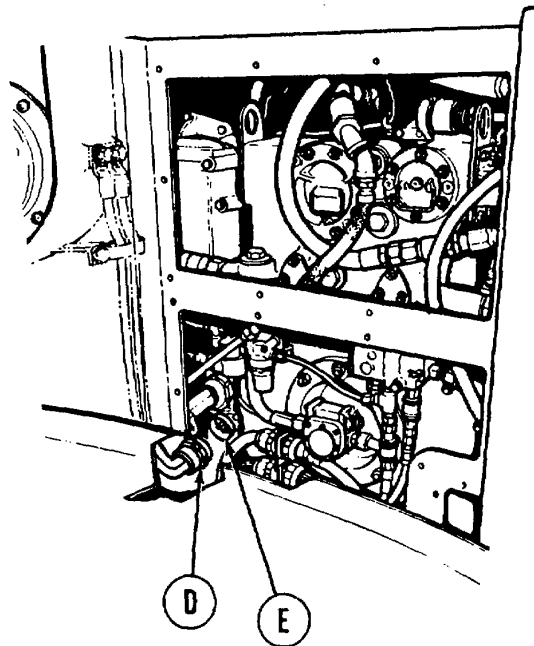


3. Position screw (B) and screw (C) through two new lockwashers, the ground leads, and two more new lockwashers, in that order.
4. Using socket, install screw (B) and screw (C) to hold ground leads to bulkhead.

**NOTE**

If ground lead connector is located at bottom of engine, do steps 5 through 7. If ground lead is located on top of engine go to step 8.

5. Manually install ground connector (D) to engine connector (E).
6. Check out engine electrical system (TM 9-2350-260-10).

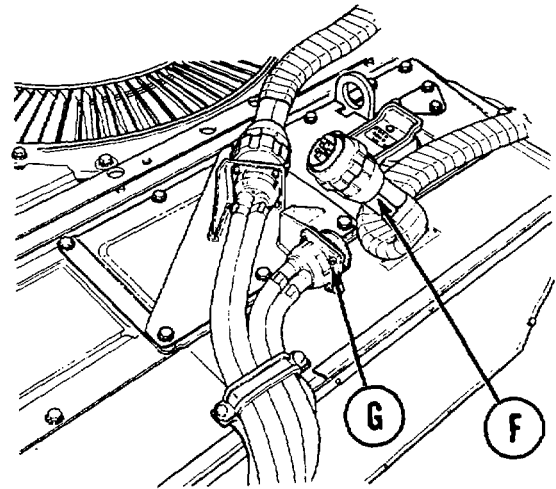


Go on to Sheet 5

TA147434

**ENGINE GROUND LEAD ASSEMBLY REPLACEMENT (Sheet 5 of 5)**

7. Make sure turret is traversed 90 degrees over left or right sponson box and upper grille doors are open (TM 9-2350-260-10).
8. Manually install ground connector (F) to engine connector (G).
9. Check out engine electrical system (TM 9-2350-260-10).
10. Install engine upper and lower access covers (page 16-44, 16-46).



End of Task

TA147435

10-403

**CAPACITOR AND HOUSING ASSEMBLY REPLACEMENT. LEFT FUEL TANK (Sheet 1 of 6)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-404
Cleaning and Inspection	10-407
Installation	10-407

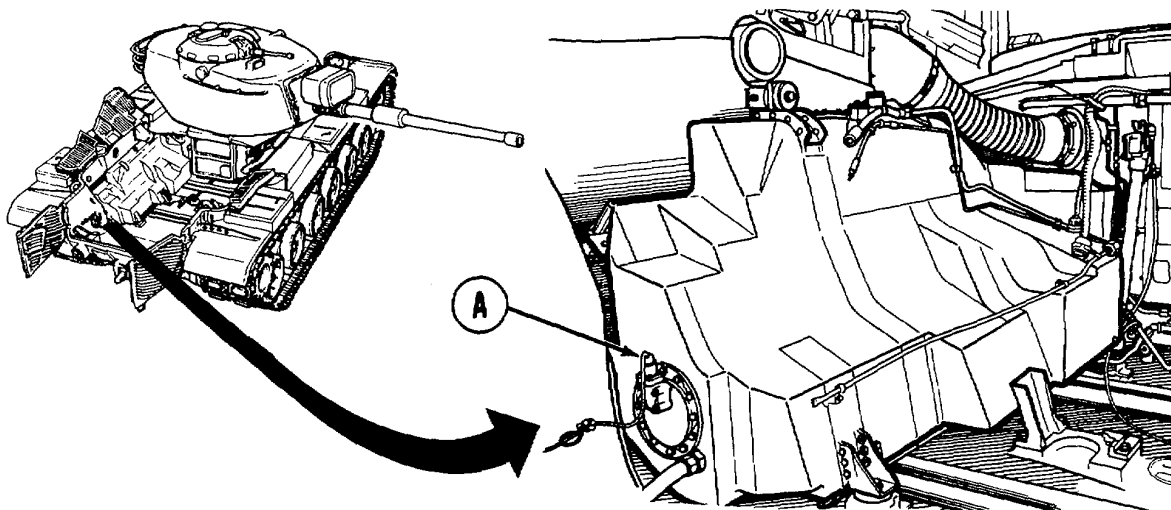
**TOOLS:** Flat-tip screwdriver  
 Diagonal cutting pliers  
 Putty knife  
 Slip joint pliers  
 1/2 in. socket with 3/8 in. drive  
 1/2 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 Torque wrench with 3/8 in. drive  
 (0-200 lb-in)(0-22.6 Nm)

**SUPPLIES:** Dry cleaning solvent (Item 54, Appendix D)  
 Rags (Item 65, Appendix D)  
 Lockwire (Item 58, Appendix D)  
 Gasket (10870952)  
 Lockwasher (MS35338-43)( required)  
 Gaskets (10864012)(2 required)  
 Lockwasher (MS35333-38)

**PRELIMINARY PROCEDURES:** Remove powerplant (page 5-1)  
 Isolate left fuel tank (TM 9-2350-260-10)  
 Drain left fuel tank (page 7-153)

**REMOVAL:**

1. Using hands, remove electrical connector (A) from mating connector.

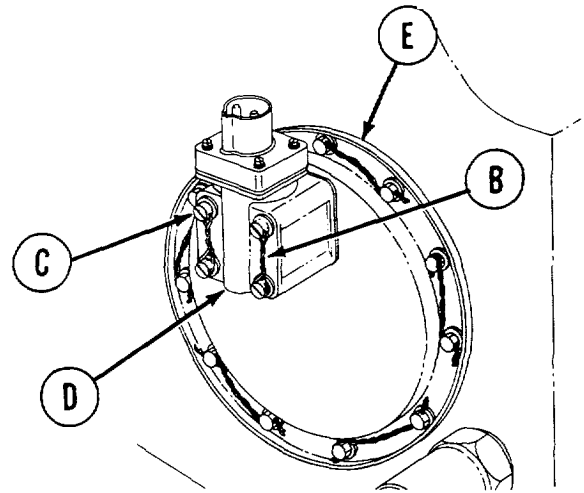


Go on to Sheet 4

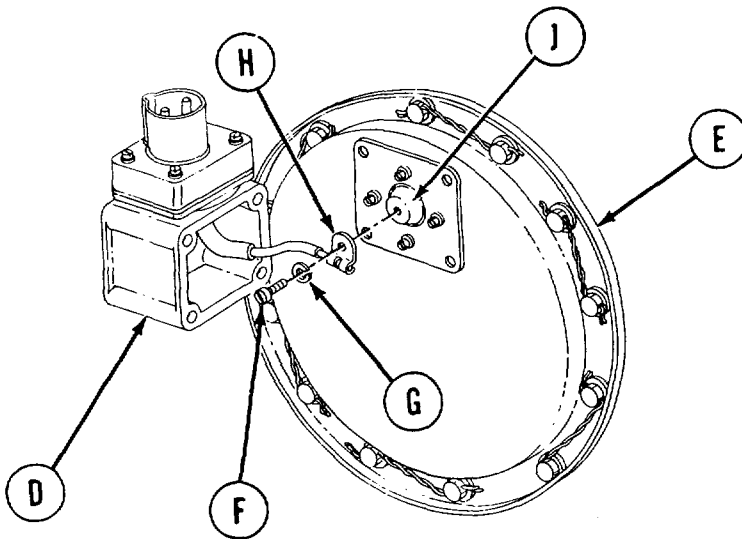
TA147436

**CAPACITOR AND HOUSING ASSEMBLY REPLACEMENT, LEFT FUEL TANK (Sheet 2 of 6)**

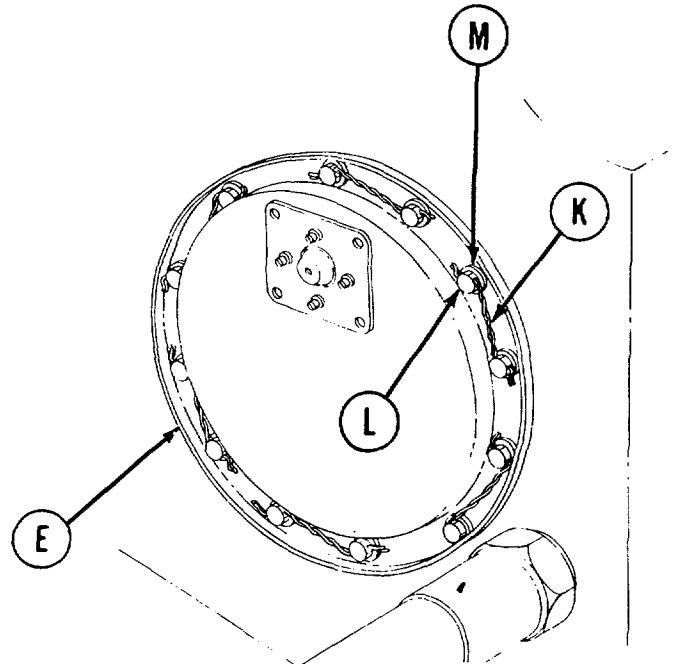
2. Using diagonal cutting pliers, remove lockwire (B) securing four screws (C) on capacitor and housing (D).
3. Using screwdriver, remove four screws (C) from capacitor and housing (D). Slowly separate capacitor and housing (D) from cover (E). Capacitor and housing (D) is connected to cover (E) with an electrical lead.



4. Using screwdriver, remove screw (F) and lockwasher (G) that secure electrical lead (H) to adapter (J). Remove capacitor and housing (D) from cover (E). Throw lockwasher (G) away.



5. Using diagonal cutting pliers, remove lockwire (K) securing 12 screws (L) on access cover (E).
6. Using 1/2 inch socket, remove 12 screws (L) and washers (M).

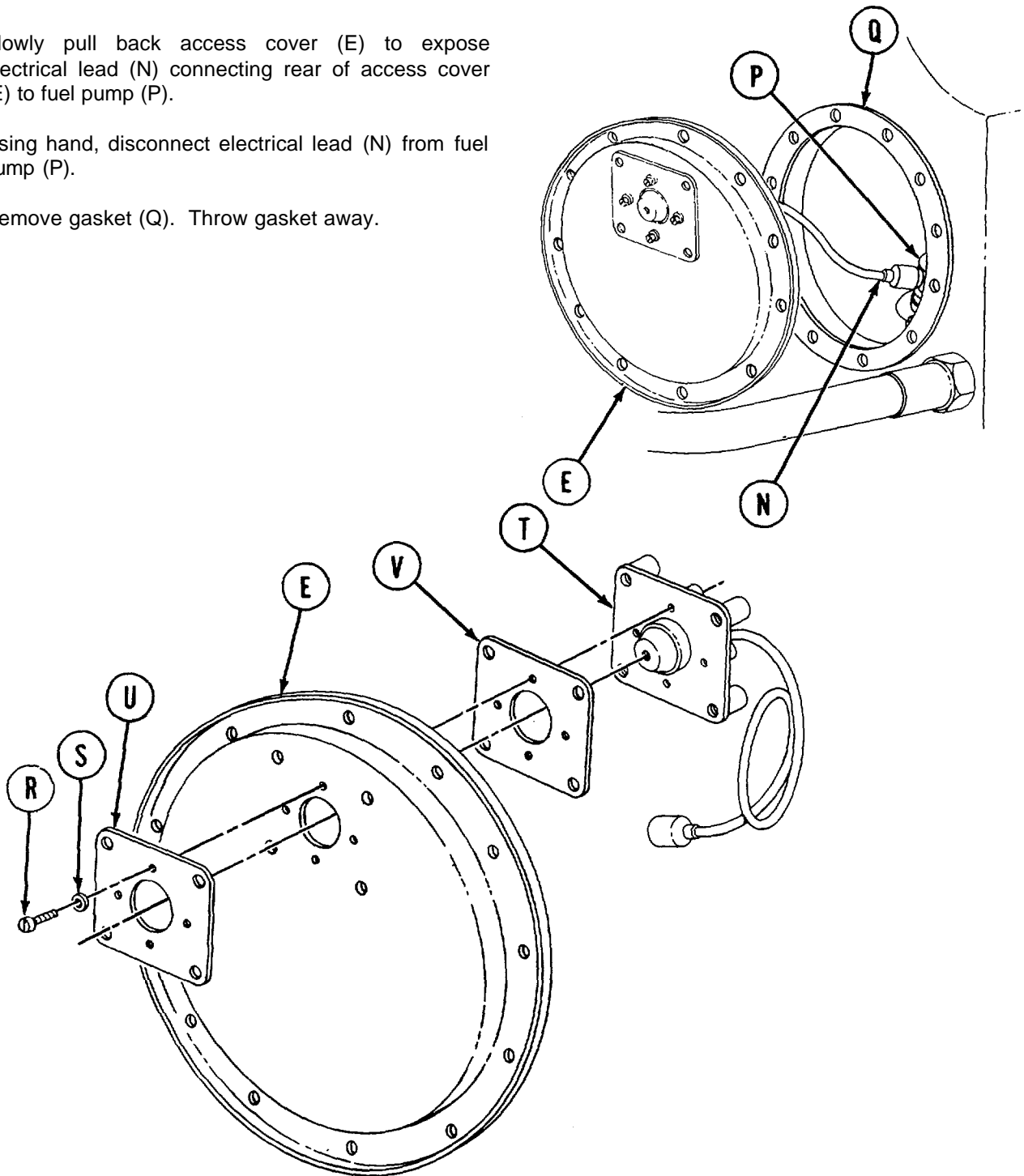


Go on to Sheet 3

TA147437

## CAPACITOR AND HOUSING ASSEMBLY REPLACEMENT, LEFT FUEL TANK (Sheet 3 of 6)

7. Slowly pull back access cover (E) to expose electrical lead (N) connecting rear of access cover (E) to fuel pump (P).
8. Using hand, disconnect electrical lead (N) from fuel pump (P).
9. Remove gasket (Q). Throw gasket away.



10. Using screwdriver, remove four screws (R) and lockwashers (S) from cover (E) and adapter (T).
11. Separate gasket (U), cover (E), gasket (V), and adapter (T). Throw gaskets (U) and (V) away.

Go on to Sheet 4

TA147438

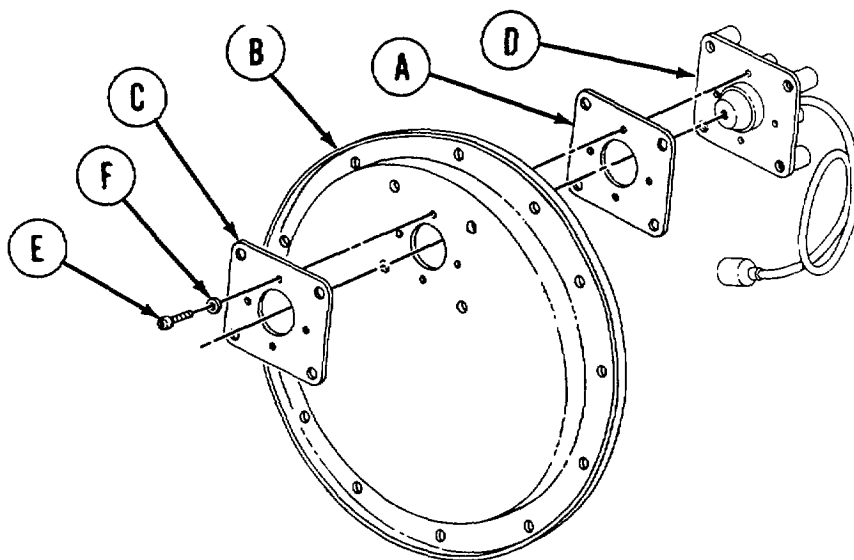
**CAPACITOR AND HOUSING ASSEMBLY REPLACEMENT, LEFT FUEL TANK (Sheet 4 of 6)**

**CLEANING AND INSPECTION:**

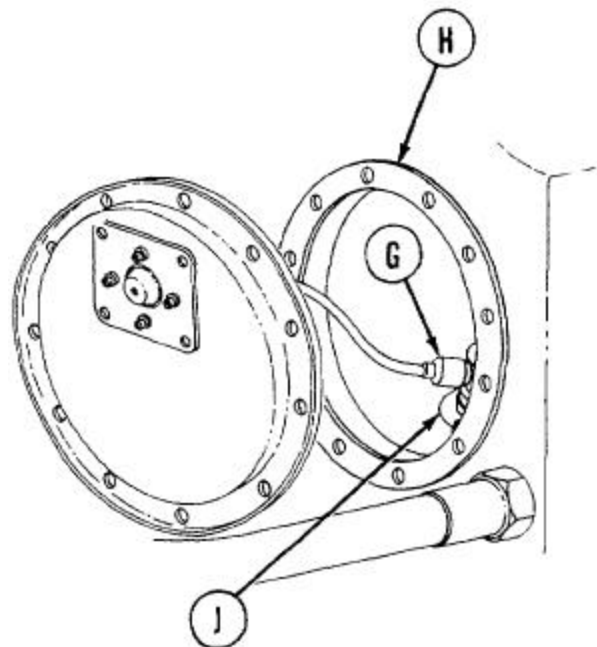
1. Using putty knife, clean all areas where gaskets were mounted.
2. Using dry cleaning solvent (Item 54, Appendix D) and rag, wipe gasket surfaces clean.
3. Inspect cable and adapter and cover for damages. Replace damaged parts.

**INSTALLATION:**

1. Position new gasket (A), cover (B), and new gasket (C) onto adapter (D). Aline screw holes. Using screwdriver, install four screws (E) and new lockwashers (F) securing cover and gaskets to adapter (D).



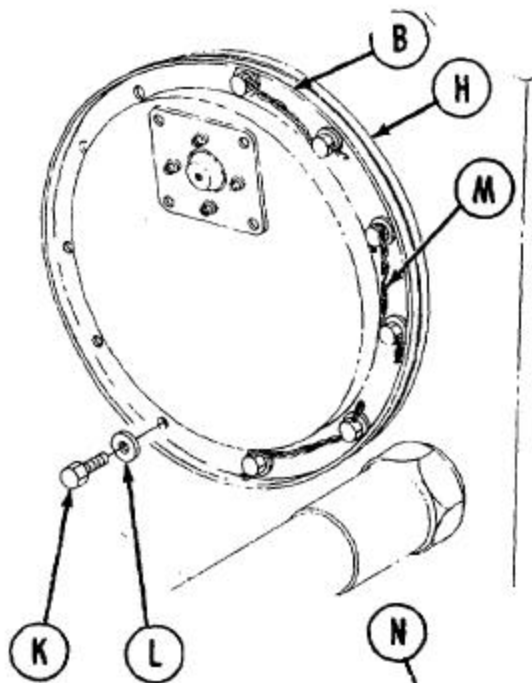
2. Position electrical lead (G) through new gasket (H) and, with hand, connect electrical lead (G) to fuel pump (J).



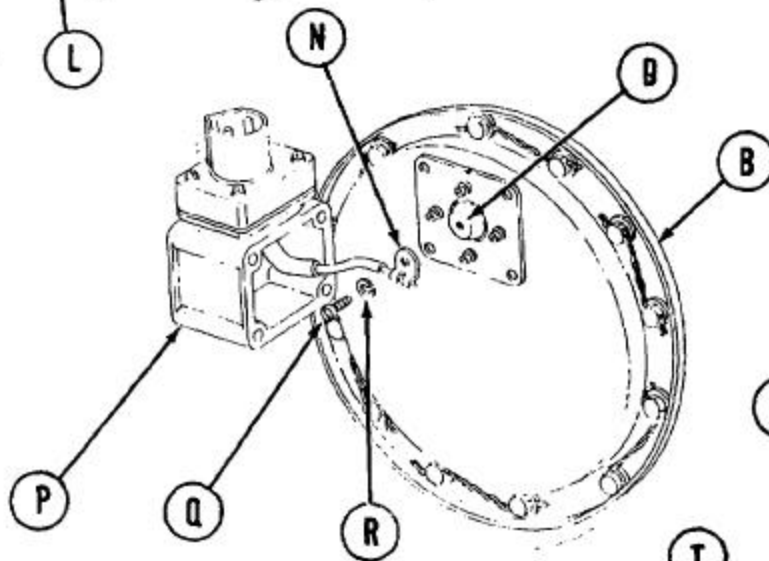
Go on to Sheet 5

TA147439

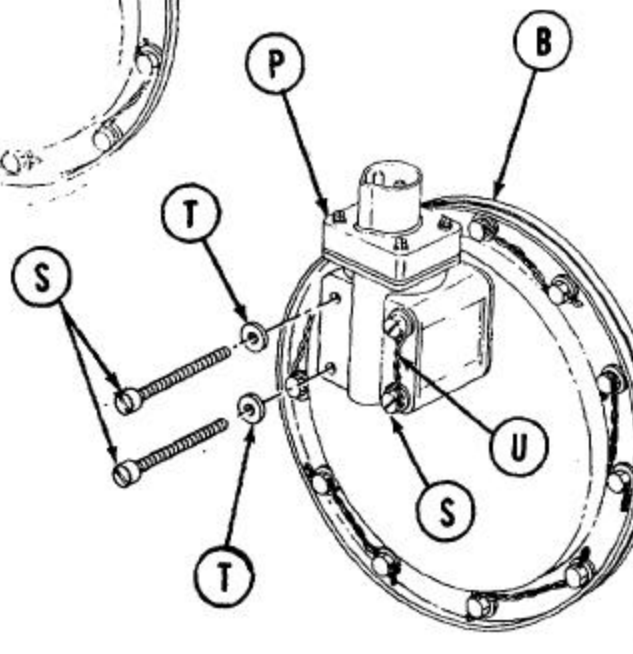
**CAPACITOR AND HOUSING ASSEMBLY REPLACEMENT, LEFT FUEL TANK (Sheet 5 of 6)**



- 3 Position new gasket (H) and cover (B) onto fuel tank and install 12 screws (K) and washers (L) securing cover (B) to fuel tank.
4. Using 1/2 inch socket and torque wrench, tighten screws (K) to 50-60 lb-in (6-7 N•m).
5. Using slip joint pliers, install lockwire (M) (Item 58, Appendix D) into screws (K).



6. Using screwdriver, secure electrical lead (N) of housing and capacitor (P) to adapter (D) with screw (Q) and new lockwasher (R).
7. Position capacitor and housing (P) onto cover (B) and, using screwdriver, install four screws (S) and washers (T) securing capacitor and housing (P) to cover (B).
8. Using slip joint pliers, install lockwire (U) (Item 58, Appendix D) into screws (S).



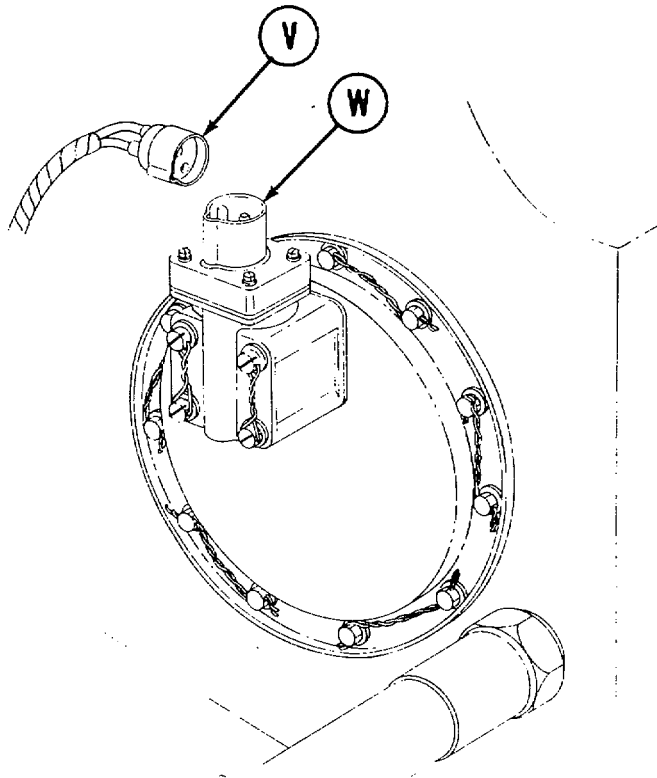
Go on to Sheet 6

TA147440



**CAPACITOR AND HOUSING ASSEMBLY REPLACEMENT. LEFT FUEL TANK (Sheet 6 of 6)**

9. With hand, connect electrical lead (V) to capacitor and housing electrical connector (W).
10. Refill fuel tank.
11. Turn isolate valves back to original position (TM 9-2350-260-10).
12. Install 2A powerplant (page 5-14) or powerplant 2D (page 5-40).



End of Task

TA147441

10-409

**CAPACITOR AND HOUSING ASSEMBLY REPLACEMENT, RIGHT FUEL TANK (Sheet 1 of 9)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	10-410
Cleaning and Inspection	10-414
Installation	10-415

**TOOLS:** Offset flat-tip screwdriver with 2 in. blade  
 Flat-tip screwdriver with 6 in. blade  
 Diagonal cutting pliers  
 Slip joint pliers  
 Putty knife  
 1/2 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 9/16 in. socket with 1/2 in. drive

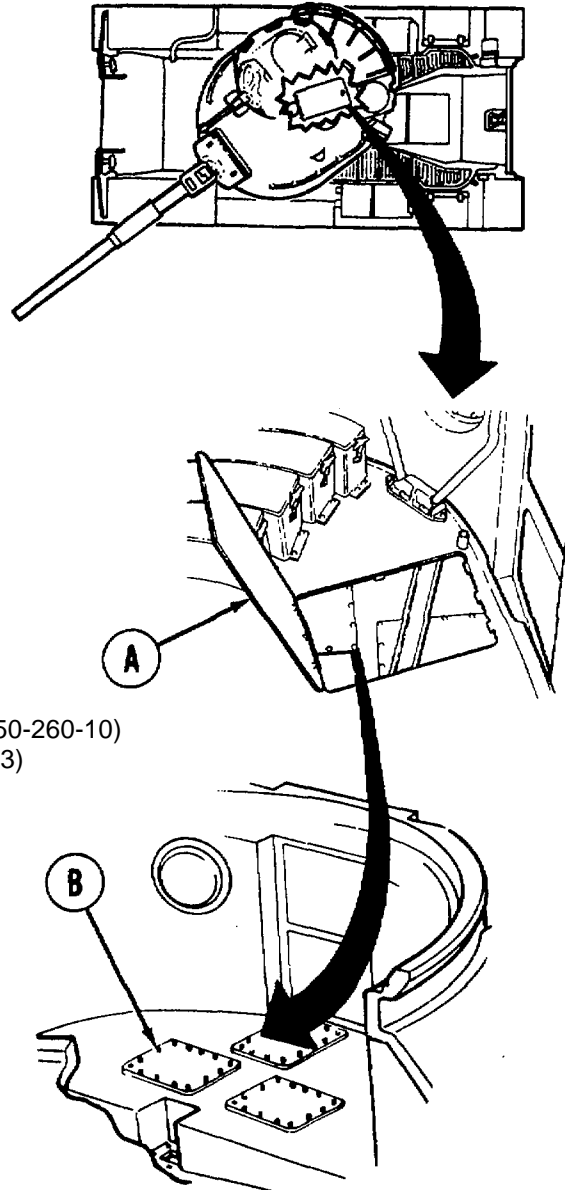
**SUPPLIES:** Gasket (10870952)  
 Lockwire (Item 58, Appendix D)  
 Gasket (10864012) (2 required)  
 Rags Dry cleaning solvent (Item 54, Appendix D)  
 Sealing compound (Item 21, Appendix D)  
 Silicone compound (Item 32, Appendix D)  
 Gasket (10864181)  
 Gasket (8722328)  
 Lockwasher (MS35338-38)  
 Lockwasher (MS35338-43) (4 required)  
 Gasket (10873918)

**REFERENCE:** TM 9-2350-260-10

**PRELIMINARY PROCEDURES:** Isolate right fuel tank (TM 9-2350-260-10)  
 Drain right fuel tank (page 7-153)

**REMOVAL:**

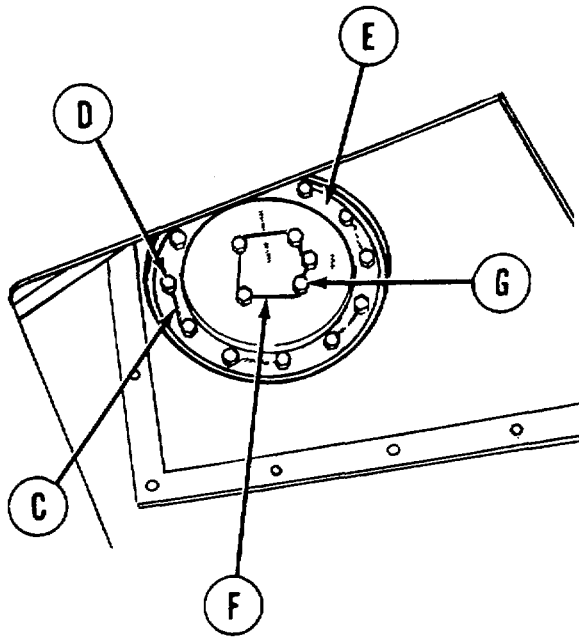
1. Open turret platform access door (A) (TM 9-2350-260-10).
2. Traverse turret get at access cover (B) in subfloor over right fuel tank (TM 9-2350-260-10).
3. Using offset flat-tip screwdriver, remove 14 screws securing access cover (B). Remove access cover and gasket (B). Throw gasket away.



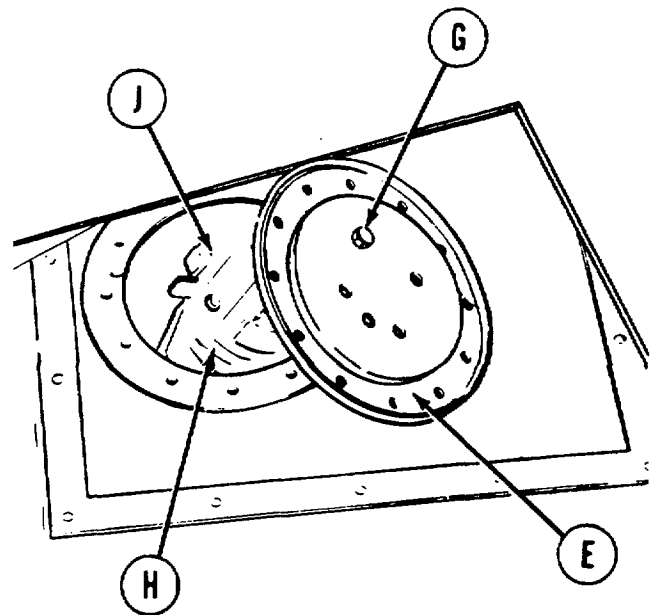
Go on to Sheet 2

TA147442

CAPACITOR AND HOUSING ASSEMBLY REPLACEMENT, RIGHT FUEL TANK (Sheet 2 of 9)



4. Using diagonal cutting pliers, cut lockwire (C). Using 1/2 inch socket and ratchet, remove 12 screws and washer (D) securing fuel pump access cover ).
5. Using diagonal cutting pliers, cut lockwire (F). Using 9/16 inch socket and ratchet, remove four of five screws (G) securing access cover (E) to fuel pump mounting bracket (H) (underneath cover). Loosen, but do not remove, fifth screw .



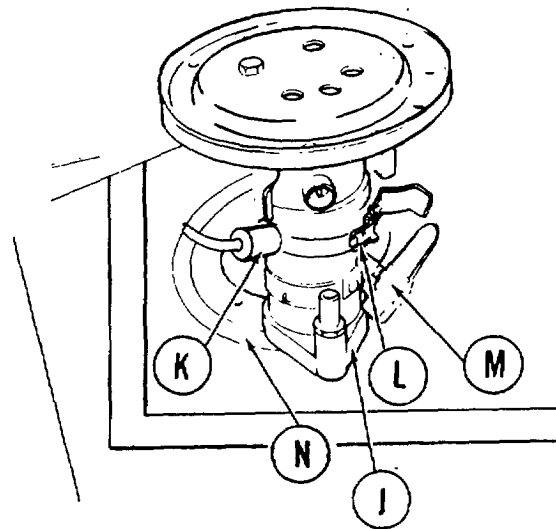
6. Swivel access cover (E) on fifth screw (G) until you can withdraw mounting bracket (H) with fuel pump (J) attached par way out of fuel tank.

Go on to Sheet 3

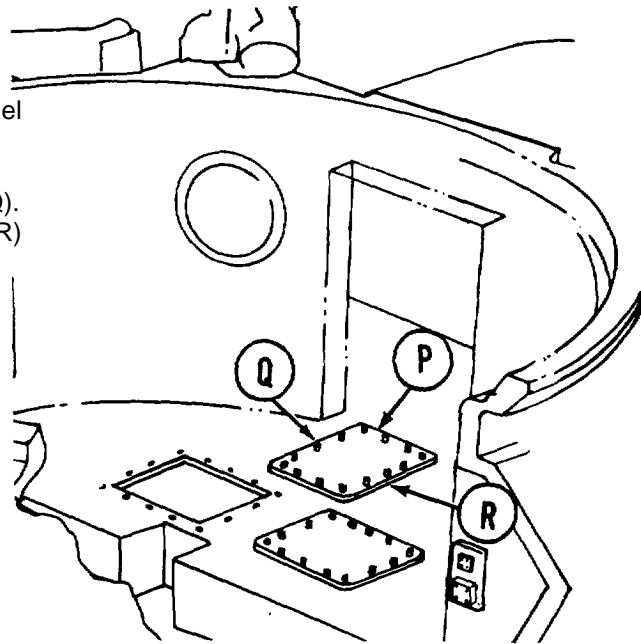
TA147443

**CAPACITOR AND HOUSING ASSEMBLY REPLACEMENT, RIGHT FUEL TANK (Sheet 3 of 9)**

7. Disconnect electrical connector (K).
8. Using flat-tip screwdriver, loosen hose clamp (L). Remove hose (M) from fuel pump (J).
9. Remove fuel pump (J) and gasket (N) from fuel opening in fuel tank. Throw gasket away.



10. Manually traverse turret to gain access to fuel crossover access cover (P).
11. Using flat-tip screwdriver, remove 14 screws (Q). Remove cover (P) and gasket (R). Throw gasket (R) away.

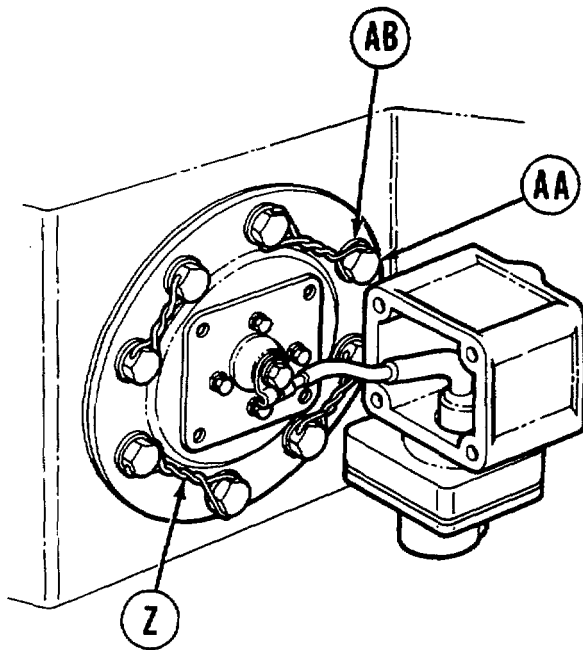
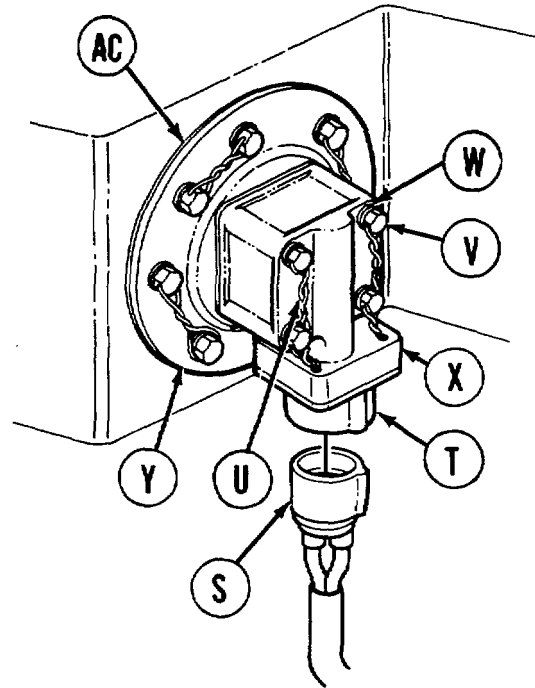


Go on to Sheet 4

TA147444

**CAPACITOR AND HOUSING ASSEMBLY REPLACEMENT. RIGHT FUEL TANK (Sheet 4 of 9)**

12. Using hands, disconnect cable (S) from electrical connector (T).
13. Using diagonal cutting pliers, remove lockwire (U) from screws (V).
14. Using flat-tip screwdriver, remove four screws (V) and washers (W) holding housing (X) to cover (Y).
15. Slowly separate capacitor and housing (X) from cover (Y). Capacitor and housing (X) are connected to cover (Y) with an electrical lead.



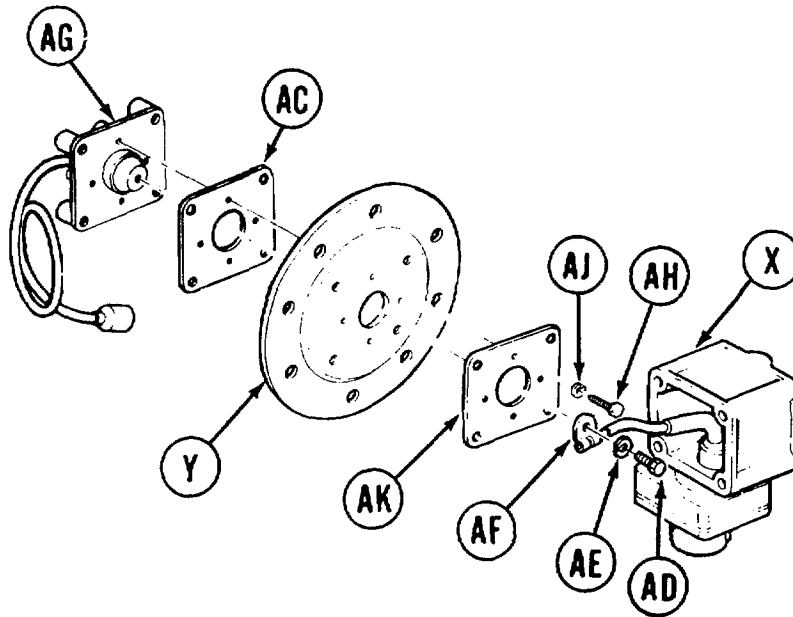
16. Using diagonal cutting pliers, remove lockwire (Z) from screws (AA).
17. Using 1/2 inch socket, remove eight screws (AA) and washers (AB).
18. Remove cover (Y) and gasket (AC) from fuel tank. Throw gasket away.

Go on to Sheet 5

TA147445

**CAPACITOR AND HOUSING ASSEMBLY REPLACEMENT, RIGHT FUEL TANK (Sheet 5 of 9)**

19. Using flat-tip screwdriver, remove screw (AD) and lockwasher (AE) that secure electrical lead (AF) to adapter (AG); throw lockwasher (AE) away. Remove capacitor and housing (X) from cover (Y).
20. Using screwdriver, remove four screws (AH) and lockwashers (AJ) from cover (Y) and adapter (AG); throw lockwashers (AJ) away. Separate gasket (AK), cover (Y), gasket (AC), and adapter (AG). Throw gaskets (AK) and (AC) away.



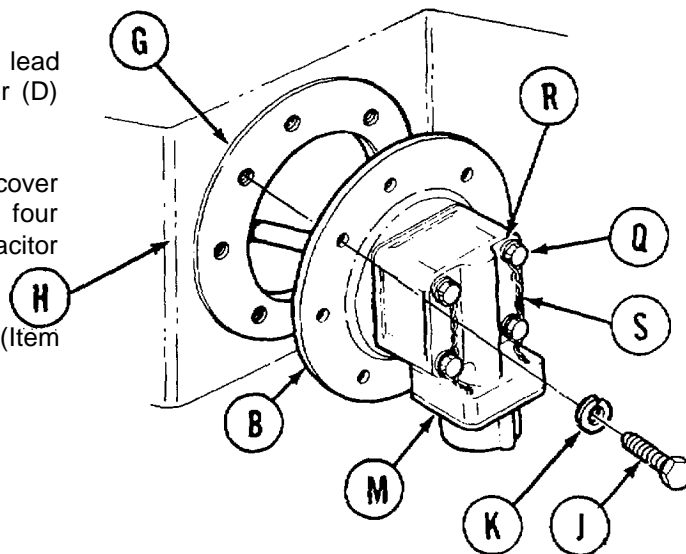
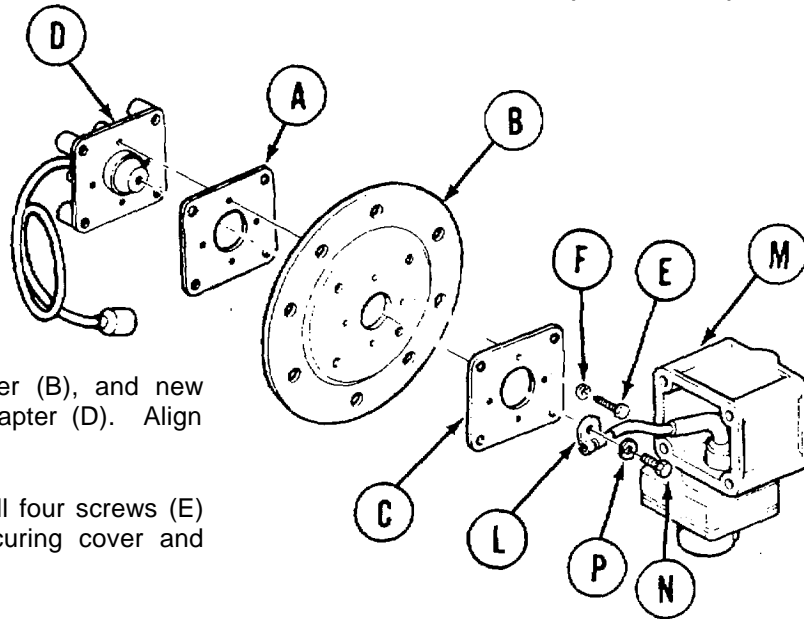
**CLEANING AND INSPECTION:**

1. Using putty knife, clean all areas where gaskets were mounted.
2. Using dry cleaning solvent (Item 54, Appendix D) and rag, wipe gasket surfaces clean.
3. Inspect cable, adapter, and cover for damages. Replace damaged parts.

**CAPACITOR AND HOUSING ASSEMBLY REPLACEMENT. RIGHT FUEL TANK (Sheet 6 of 9)**

**INSTALLATION:**

1. Position new gasket (A), cover (B), and new gasket (C) onto cable and adapter (D). Align screw holes.
2. Using flat-tip screwdriver, install four screws (E) and new lockwashers (F) securing cover and gaskets to adapter (D).
3. Position new gasket (G) between cover (B) and fuel tank (H).
4. Position cable that is attached to rear of cover (B) through gasket and lay in fuel tank.
5. Using 1/2 inch socket, install eight screws (J) and washers (K) securing cover (B) to fuel tank (H).
6. Using torque wrench, tighten screws (J) to 10-15 lb-ft (14-20 N•m).
7. Using flat-tip screwdriver, secure electrical lead (L) of housing and capacitor (M) to adapter (D) with screw (N) and new lockwasher (P).
8. Position capacitor and housing (M) onto cover (B). Using flat-tip screwdriver, install four screws (Q) and washers (R) securing capacitor and housing (M) to cover (B).
9. Using slip joint pliers, install lockwire (S) (Item 58, Appendix D) onto screws (Q).

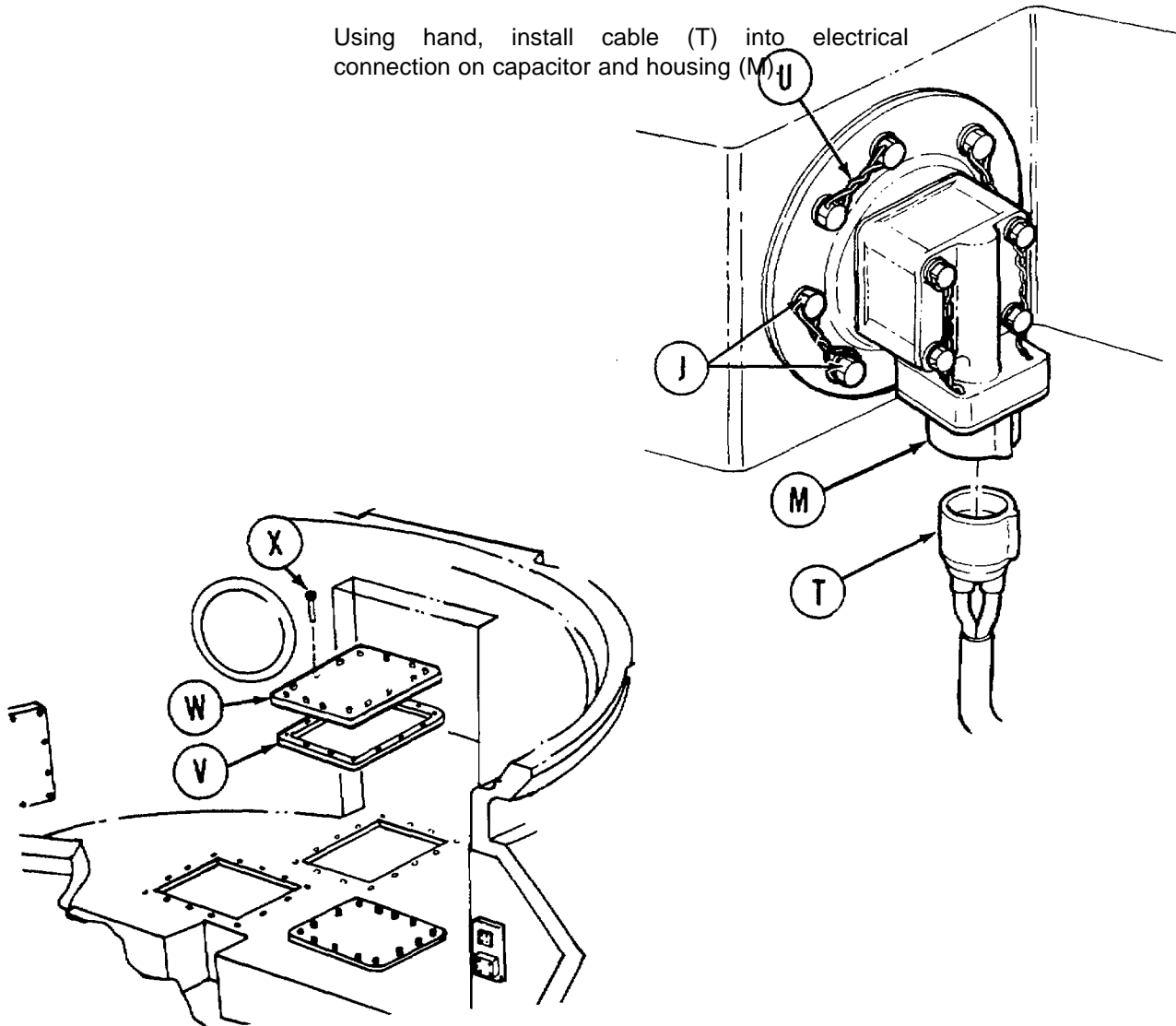


Go on to Sheet 7

TA147447

**CAPACITOR AND HOUSING ASSEMBLY REPLACEMENT, RIGHT FUEL TANK (Sheet 7 of 9)**

10. Using hand, install cable (T) into electrical connection on capacitor and housing (M).



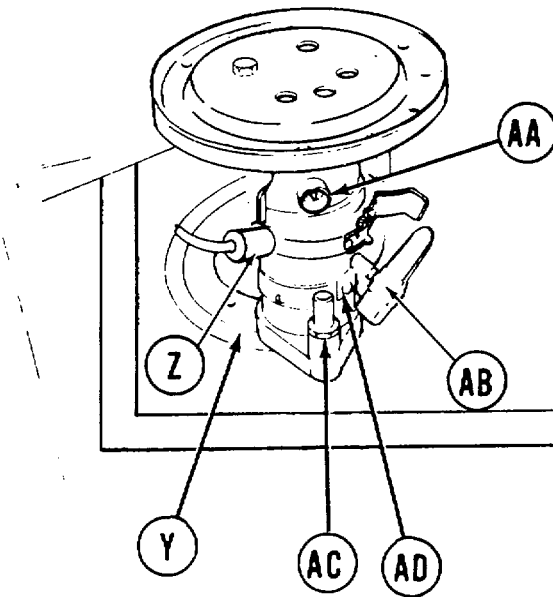
11. Using slip joint pliers, install lockwire (U) through screws (J).
12. Position new gasket (V) and cover (W) onto hull and, using fiat-tip screwdriver, install 14 screws (X) securing cover (W) to hull.

Go on to Sheet 8

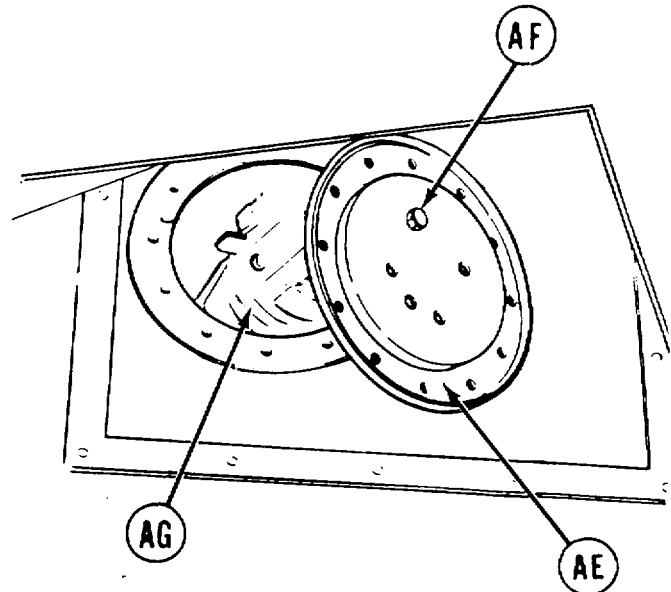
TA147448



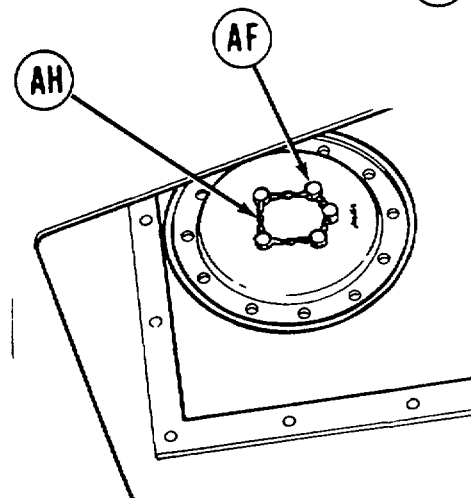
**CAPACITOR AND HOUSING ASSEMBLY REPLACEMENT, RIGHT FUEL TANK (Sheet 8 of 9)**



13. Place new gasket (Y) over opening in fuel tank.
14. Place silicone compound (Item 32, Appendix D) on electrical lead (Z).
15. Place fuel pump close to opening of fuel tank. Connect electrical lead (Z) to electrical connector (AA).
16. Place hose (AB) on pump outlet port (AC). Using flat-tip screwdriver, tighten clamp (AD) on hose.



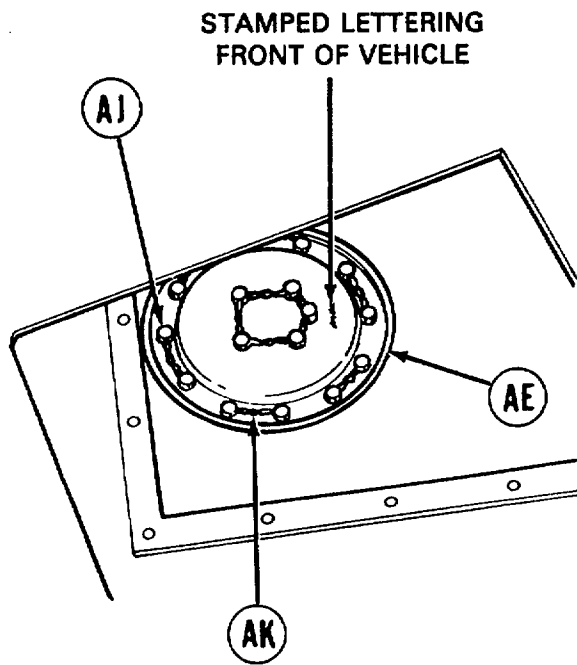
17. Swivel access cover (AE) on single installed screw (AF) to work fuel pump into position in fuel tank.
18. Position access cover and gasket on mounting bracket (AG).
19. Apply sealing compound (Item 21, Appendix D) to threads of remaining four screws (AF). Using 9/16 inch socket and ratchet, install and tighten all five screws (AF). Using slip joint pliers, secure screws with lockwire (AH) (Item 58, Appendix D).



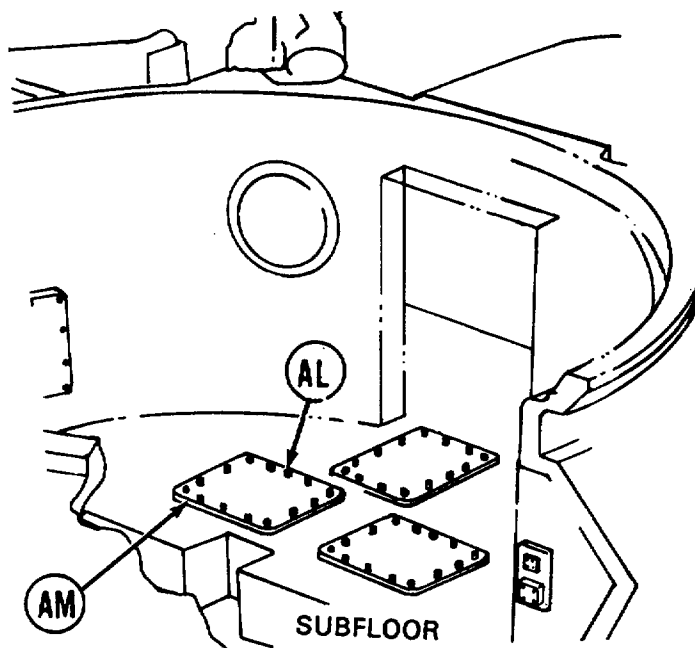
Go on to Sheet 9

TA147449

**CAPACITOR AND HOUSING ASSEMBLY REPLACEMENT. RIGHT FUEL TANK (Sheet 9 of 9)**



20. Position access cover (AE) over fuel tank opening so that lettering FRONT OF VEHICLE stamped on cover is facing toward front of tank.
21. Using 1/2 inch socket, install 12 screws and 12 washers (AJ) securing cover (AE).
22. Using torque wrench, tighten screws and lockwashers (AJ) to 10-15 lb-ft (14-20 Nm).
23. Using slip joint pliers, secure screws with lockwire (AK) (Item 58, Appendix D).
24. Using offset flat-tip screwdriver, install 14 screws (AL) securing access cover and new gasket (AM).
25. Open fuel tank crossover valve (TM 9-2350-260-10).
26. Fill fuel tank.



End of Task

TA147450

**CAPACITOR AND HOUSING ASSEMBLY REPAIR (Sheet 1 of 1]**

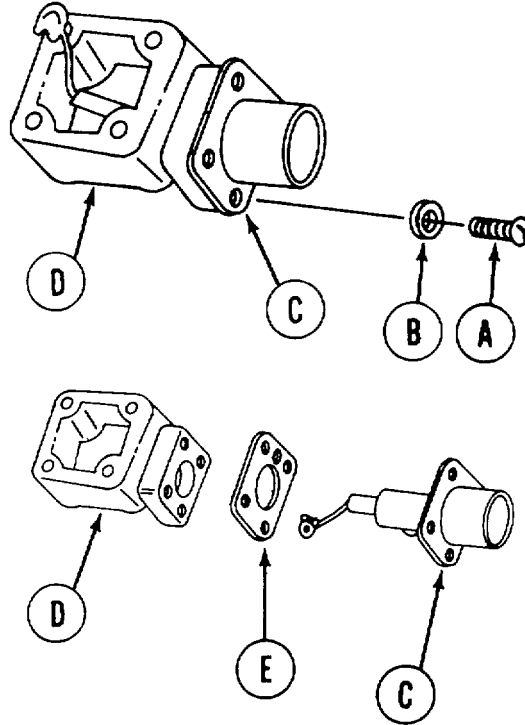
TOOLS: Flat-tip screwdriver

SUPPLIES: Gasket (7412721)

PRELIMINARY PROCEDURES: Remove left fuel tank capacitor and housing assembly (page 10-404) (as required)  
Remove right fuel tank capacitor and housing assembly (page 10-410) (as required)

**DISASSEMBLY:**

1. Using screwdriver, remove four screws (A) and washers (B) holding capacitor and connector assembly (C) to housing (D).
2. Separate capacitor and connector assembly (C) from housing (D).
3. Remove gasket (E). Throw gasket (E) away.



**ASSEMBLY:**

1. Position new gasket (E) onto housing (D). Secure connector (C) to housing using four screws (A) and washers (B).
2. Using screwdriver, tighten four screws (A).
3. Install left fuel tank capacitor and housing assembly (page 10-407) or install right fuel tank capacitor and housing assembly (page 10-415).

## CHAPTER 11

## SHIFTING SYSTEM MAINTENANCE INDEX

PROCEDURE	PAGE
Shift Linkage Adjustment	11-2
Neutral Shift Switch Adjustment	11-22
Shifting Control Base Assembly Repair and Replacement	11-25
Shifting Control Hand Lever Cam Assembly Replacement	11-31
Shifting Control Connecting Link Replacement	11-32
Shifting Control Bracket Assembly and Connecting Link Replacement	11-34
Shifting Control Bracket Assembly Repair	11-36
Shifting Control Rod Replacement	11-37
Shifting Control Shaft Assembly Replacement	11-41
Shifting Control Gasket Replacement	11-42
Shifting Control Bracket and Connecting Link Assembly Repair	11-44
Shifting Control Seal Assembly Replacement and Repair	11-53
Servobands Adjustment	11-55
Transmission Main Oil Filter Element Replacement	11-59
Transmission Side Oil Strainer Assembly Service	11-66
Transmission Oil Breather Tube Replacement	11-74

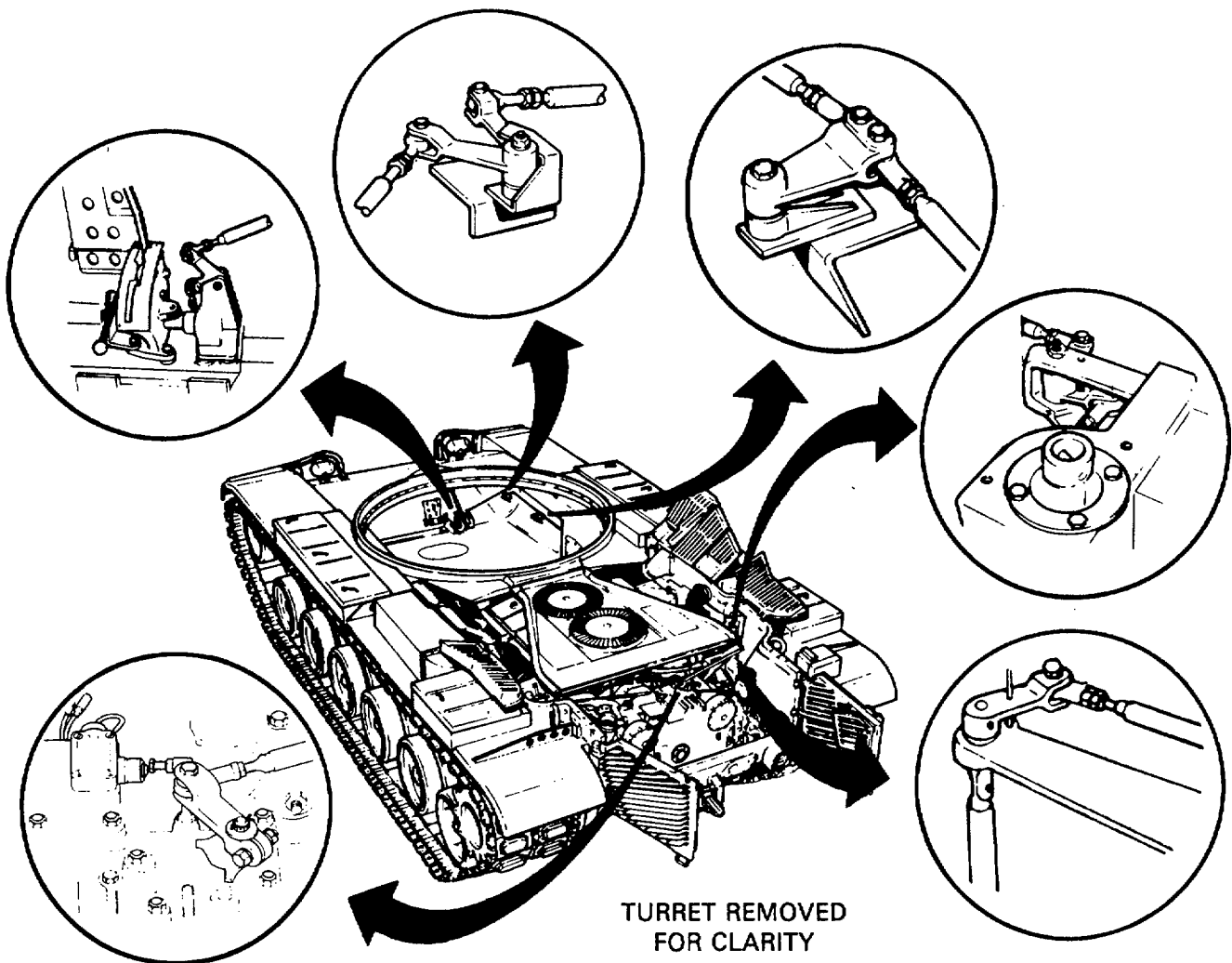
**SHIFT LINKAGE ADJUSTMENT (Sheet 1 of 20)**

**TOOLS:** 9/16 in. socket with 1/2 in. drive  
 7/16 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 9/16 in. combination box and open end wrench (2 required)  
 Torque wrench with 1/2 in. drive (0-175 lb-ft) (0-237 N•m)  
 7/16 in. combination box and open end wrench  
 6 in. rule

**SUPPLIES:** Locating pin (1/8 in. diameter by 2-1/2 in. long copper rod)  
 Wire (0.06 in. diameter by 2 in. long) (Item 60, Appendix D)

**REFERENCE:** TM 9-2350-260-10

**PRELIMINARY PROCEDURES:** Block tracks (TM 9-2350-260-10)  
 Remove transmission shroud (page 9-20)  
 Remove top deck (page 16-20)



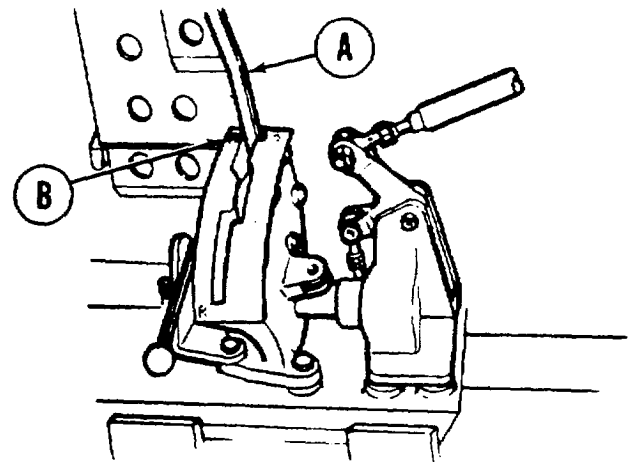
Go on to Sheet 2

TA146556

**SHIFT LINKAGE ADJUSTMENT (Sheet 2 of 20)**

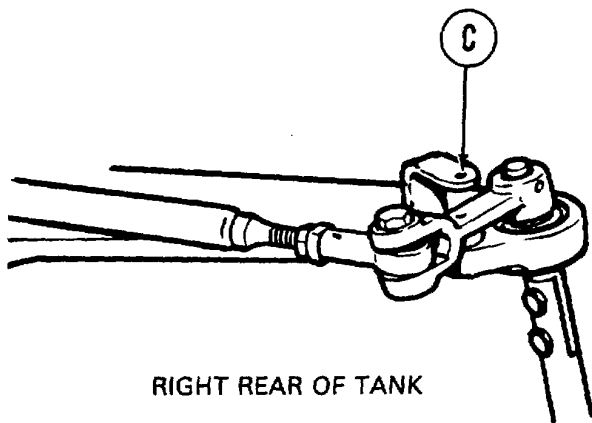
**ADJUSTMENT:**

1. Try to move transmission shift lever (A) to P position (B). If transmission shift lever cannot be moved to P position, go to step 4. If transmission shift lever can be moved to P position, go on to step 2.



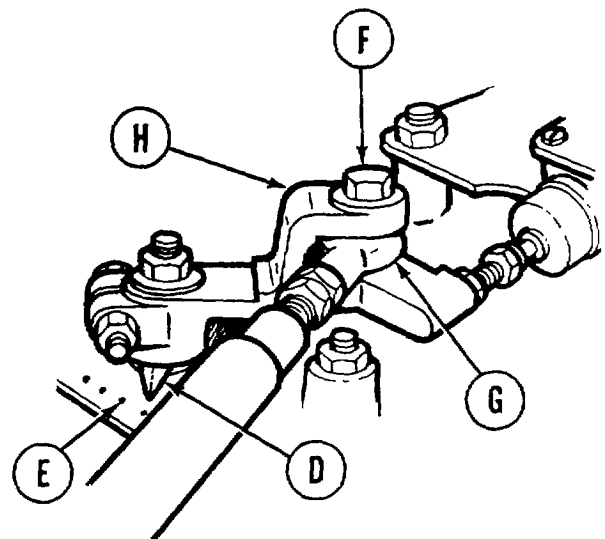
**DRIVER'S STATION**

2. Go to right rear of tank and try to insert locating pin into alignment hole (C). If locating pin cannot be inserted, go to step 7. If locating pin can be inserted, remove locating pin and go on to step 3.



**RIGHT REAR OF TANK**

3. At top of transmission, check position of shifting position indicator (D). If shifting position indicator (D) is pointing to most forward dot (E), notify support maintenance. If shifting position indicator (D) is not pointing to most forward dot, go to step 130.
4. At top of transmission, using 9/16 inch wrench, remove screw (F) and remove shifting rod bearing end (G) from clevis (H).
5. At driver's station, move transmission shift lever (A) to P position.



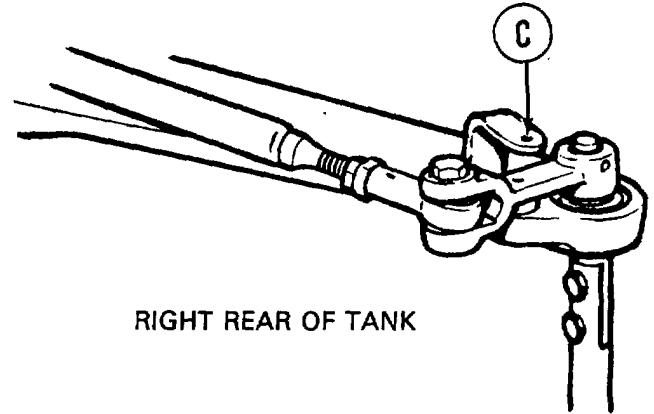
**TOP OF TRANSMISSION**

Go on to Sheet 3

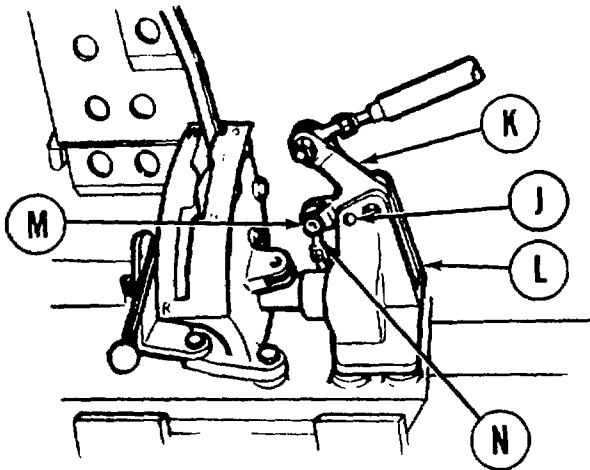
TA146557

**SHIFT LINKAGE ADJUSTMENT (Sheet 3 of 20)**

- Go to right rear of tank and try to insert locating pin into alignment hole (C). If locating pin cannot be inserted, go to step 7. If locating pin can be inserted, go to step 130.



**RIGHT REAR OF TANK**



**DRIVER'S STATION**

- At driver's station, try to insert locating pin into alignment holes (J) in link (K) and bracket (L). If locating pin (J) can be inserted, remove locating pin (J) and go to step 13. If locating pin (J) cannot be inserted, go on step 8.
- Using 9/16 inch wrench, remove screw (M).
- Manually move link (K) and insert locating pin in alignment hole (J).

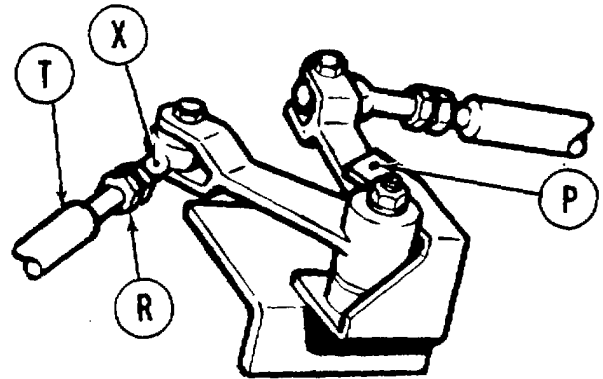
- Using 9/16 inch wrench, adjust shifting rod bearing end (N) by turning clockwise or counterclockwise until screw (M) will slip freely through link (K) and shifting rod bearing end (N).
- Remove locating pin from alignment hole (J).
- Using 9/16 inch wrench, install screw (M). Using 9/16 inch socket and torque wrench, tighten screw (M) to 15-20 lb-ft (20-27 N•m).

Go on to Sheet 4

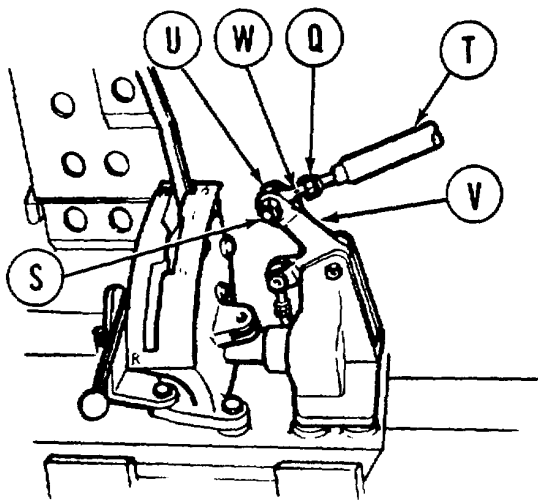
TA146558

**SHIFT LINKAGE ADJUSTMENT (Sheet 4 of 20)**

13. Forward of right ammo rack, try to insert locating pin into alignment hole (P). If locating pin can be inserted, remove locating pin and go to step 43. If locating pin cannot be inserted, go on to step 15.



**FORWARD OF RIGHT  
AMMO RACK**



**DRIVER'S STATION**

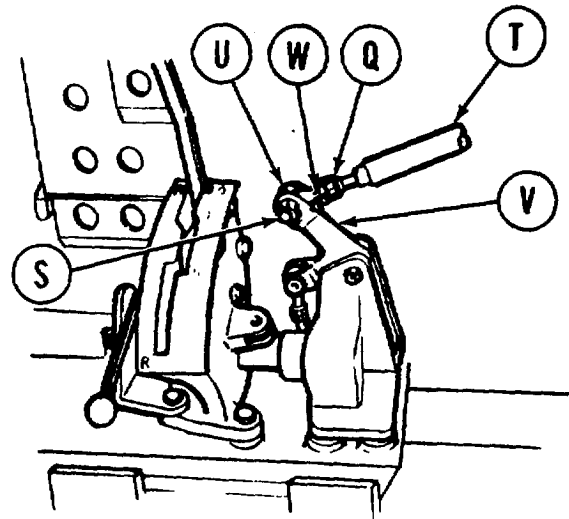
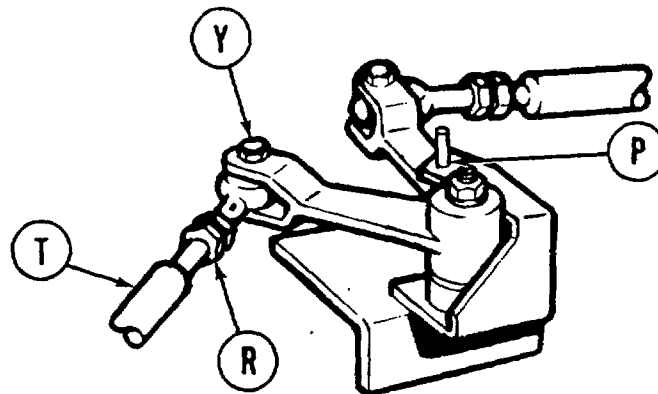
14. Using 9/16 inch wrench, loosen jamnuts (Q) and (R).
15. Using 9/16 inch wrench, remove screw (S).
16. Manually move shifting rod (T) and insert locating pin into alignment hole (P).
17. Using 9/16 inch wrench, adjust shifting rod bearing end (U) by turning clockwise or counterclockwise until screw (S) will slip freely through link (V) and shifting rod bearing end (U).

18. Using small diameter wire (Item 60, Appendix D), check to see if shifting rod (T) is past hole (W) and (X). If shifting rod (T) past holes (W) and (X), do steps 19 thru 22. If shifting rod (T) is not past hole (W), do steps 23 thru 32. If shifting rod (T) is not past hole (X), go on to step 33.



**SHIFT LINKAGE ADJUSTMENT (Sheet 5 of 20)**

19. Using 9/16 inch wrench, install screw (S) through link (V) and shifting rod bearing end (U).
20. Using 9/16 inch wrench, tighten jamnuts (Q) and (R).
21. Remove locating pin from alignment hole (P).
22. Using 9/16 inch socket and torque wrench, tighten screw (S) to 15-20 lb-ft (20-27 Nm) and go to step 43.
23. Using 9/16 inch wrench, adjust shifting rod bearing end (U) clockwise until shifting rod (T) is past hole (W).
24. Using 9/16 inch wrench, remove screw (Y).
25. Using 9/16 inch wrench, install screw (S) through link (V) and shifting rod bearing end (U).
26. Using 9/16 inch wrench, tighten jamnut (Q).
27. Using 9/16 inch socket and torque wrench, tighten screw (S) to 15-20 lb-ft (20-27 Nm).

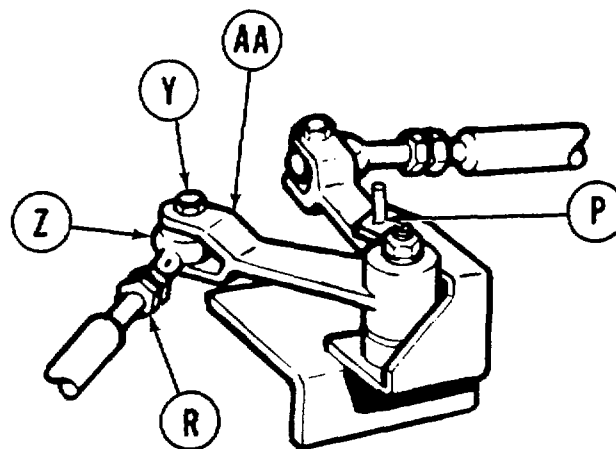
**DRIVER'S STATION****FORWARD OF RIGHT  
AMMO RACK**

Go on to Sheet 6

TA146560

**SHIFT LINKAGE ADJUSTMENT (Sheet 6 of 20)**

28. Using 9/16 inch wrench, adjust shifting rod bearing end (Z) by turning clockwise or counterclockwise until screw (Y) will drop freely through clevis (AA) and shifting rod bearing end (Z).
29. Using 9/16 inch wrench, install screw (Y) through clevis (AA) and shifting rod bearing end (Z).
30. Using 9/16 inch wrench, tighten jamnut (R).
31. Remove locating pin from alignment hole (P).
32. Using 9/16 inch socket and torque wrench, tighten screw (Y) to 15-20 lb-ft (20-27 N•m) and go to step 43.



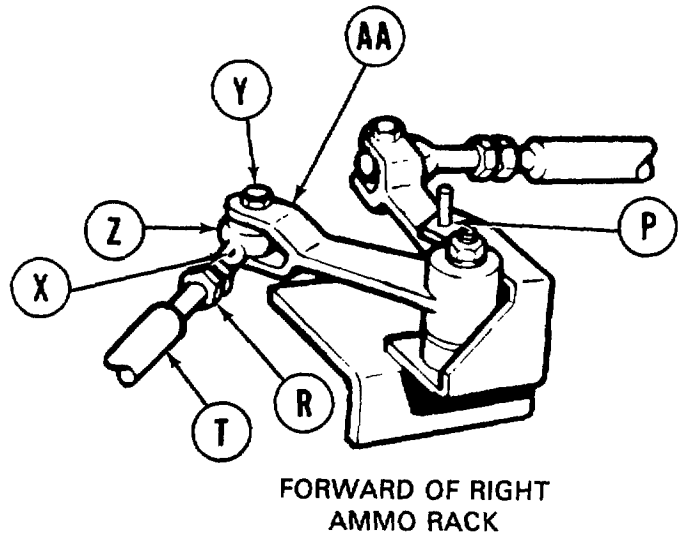
FORWARD OF RIGHT  
AMMO RACK

Go on to Sheet 7

TA146561

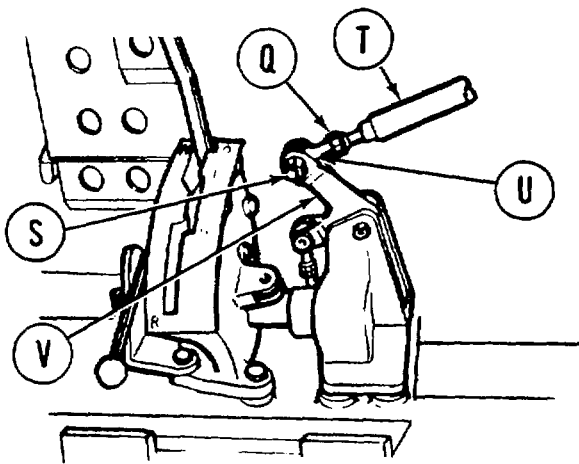
**SHIFT LINKAGE ADJUSTMENT (Sheet 7 of 20)**

33. Using 9/16 inch wrench, remove screw (Y) and remove shifting rod bearing end (Z) from clevis (AA).
34. Using 9/16 inch wrench, adjust shifting rod bearing end (Z) clockwise until shifting rod (T) is past hole (X).



35. Using 9/16 inch wrench, install screw (Y) through clevis (AA) and shifting rod bearing end (Z).
36. Using 9/16 inch wrench, tighten jamnut (R).
37. Using 9/16 inch socket and torque wrench, tighten screw (Y) to 15-20 lb-ft (20-27 N•m).

38. Using 9/16 inch wrench, adjust shifting rod bearing end (U) by turning clockwise or counterclockwise until screw (S) will slide freely through clevis (V) and shifting rod bearing end (U).



DRIVER'S STATION

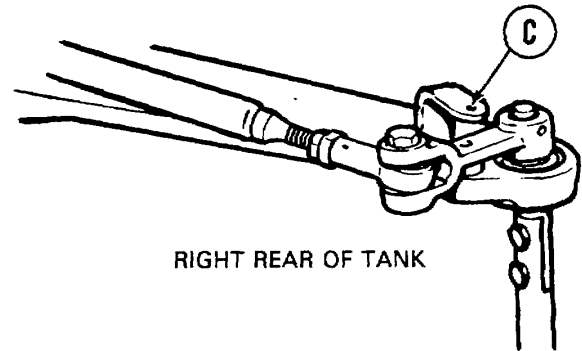
39. Using 9/16 inch wrench, install screw (S) through clevis (V) and shifting rod bearing end (U).
40. Using 9/16 inch wrench, tighten jamnut (Q).
41. Remove locating pin from alignment hole (P).
42. Using 9/16 inch socket and torque wrench, tighten screw (S) to 15-20 lb-ft (20-27 N•m).

Go on to Sheet 8

TA146562

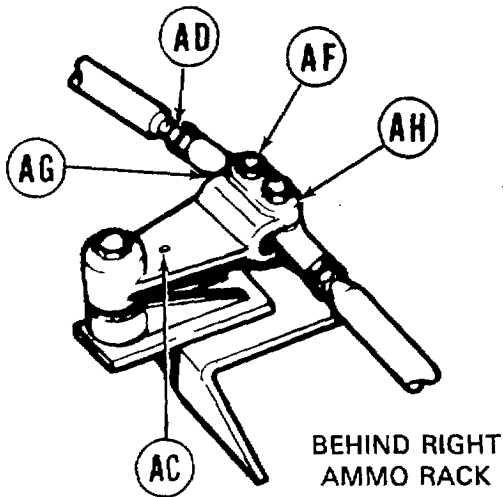
**SHIFT LINKAGE ADJUSTMENT (Sheet 8 of 20)**

43. Go to right rear of tank and try to insert locating pin into alignment hole (C) and through clevis (AB). If locating pin can be inserted, shift linkage is in adjustment. Remove locating pin and go to step 129. If locating pin cannot be inserted, go on to step 44.



RIGHT REAR OF TANK

44. Displace right hull ammo rack (page 17-15).



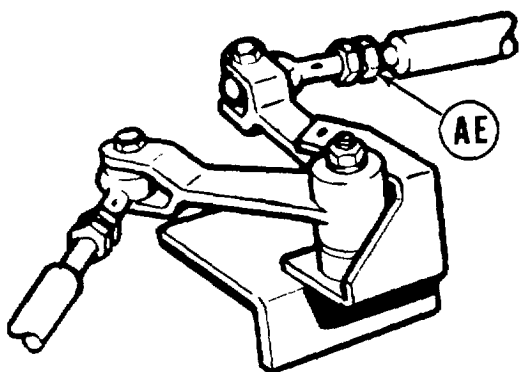
BEHIND RIGHT AMMO RACK

45. Try to insert locating pin into alignment hole (AC). If locating pin can be inserted, remove locating pin and go to step 73. If locating pin cannot be inserted, go on to step 46.

46. Using 9/16 inch wrench, loosen jamnuts (AD) and (AE).

47. Using 9/16 inch wrench, remove screw (AF) and remove shifting rod bearing end (AG) from clevis (AH).

48. Manually move clevis (AH) and insert locating pin into alignment hole (AC).



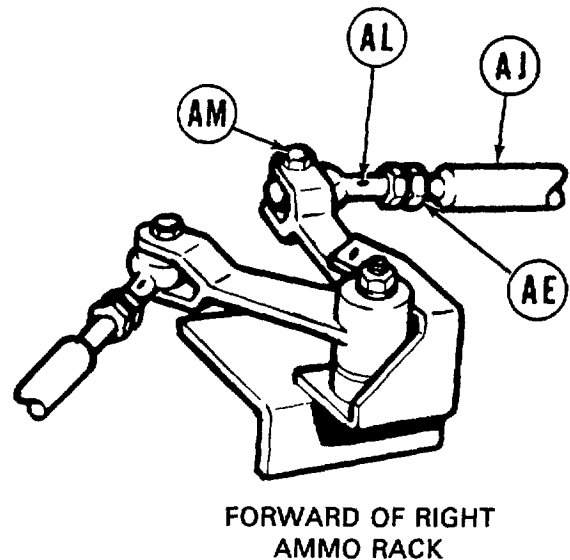
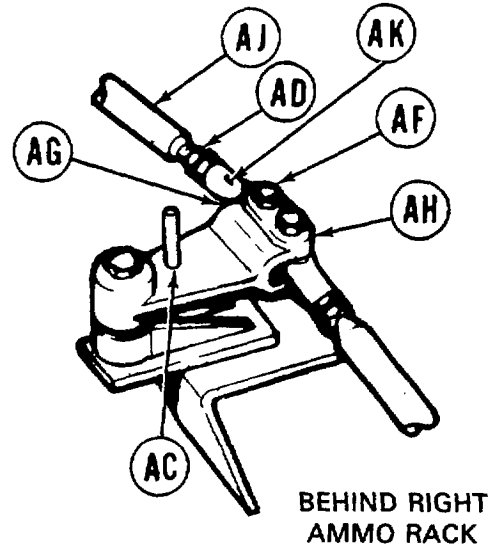
FORWARD OF RIGHT AMMO RACK

Go on to Sheet 9

TA146563

**SHIFT LINKAGE ADJUSTMENT (Sheet 9 of 20)**

49. Using 9/16 inch wrench, adjust shifting rod bearing end (AG) by turning clockwise or counterclockwise until screw (AF) will drop freely through clevis (AH) and shifting rod bearing end (AG).
50. Using small diameter wire (Item 82, Appendix D), check to see if shifting rod (AJ) is past holes (AK) and (AL). If shifting rod (AJ) is past holes (AK) and (AL), do steps 51 through 53. If shifting rod (AJ) is not past hole (AK), do steps 54 through 62. If shifting rod (AJ) is not past hole (AL), go to step 63.
51. Using 9/16 inch wrench, install screw (AF) through clevis (AH) and shifting rod bearing end (AG).
52. Using 9/16 inch wrench, tighten jamnuts (AD) and (AE) and remove locating pin from alignment hole (AC).
53. Using 9/16 inch socket and torque wrench, tighten screw (AF) to 15-20 lb-ft (20-27 N•m) and go on to step 73.
54. Using 9/16 inch wrench, adjust shifting rod bearing end (AG) clockwise until shifting rod (AJ) is past hole (AK).



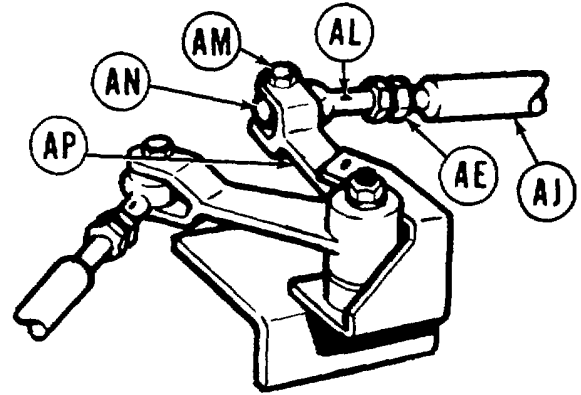
55. Using 9/16 inch wrench, remove screw (AM).
56. Using 9/16 inch wrench, install screw (AF) through clevis (AH) and shifting rod bearing end (AG).
57. Using 9/16 inch wrench, tighten jamnut (AD).
58. Using 9/16 inch socket and torque wrench, tighten screw (AF) to 15-20 lb-ft (20-27 N•m).

Go on to Sheet 10

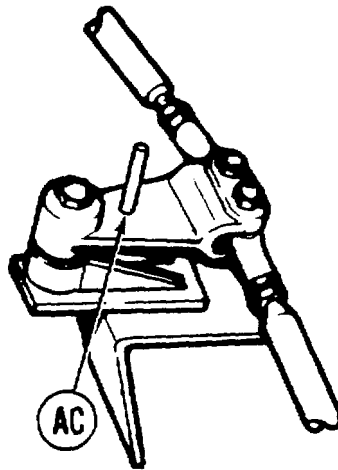
TA146564

**SHIFT LINKAGE ADJUSTMENT (Sheet 10 of 20)**

- 59. Using 9/16 inch wrench, adjust shifting rod bearing end (AN) by turning clockwise or counterclockwise until screw (AM) will drop freely through clevis (AP) and shifting rod bearing end (AN).
- 60. Using 9/16 inch wrench, install screw (AM).
- 61. Using 9/16 inch wrench, tighten jamnut (AE) and remove locating pin from alignment hole (AC).



**FORWARD OF RIGHT  
AMMO RACK**



**BEHIND RIGHT  
AMMO RACK**

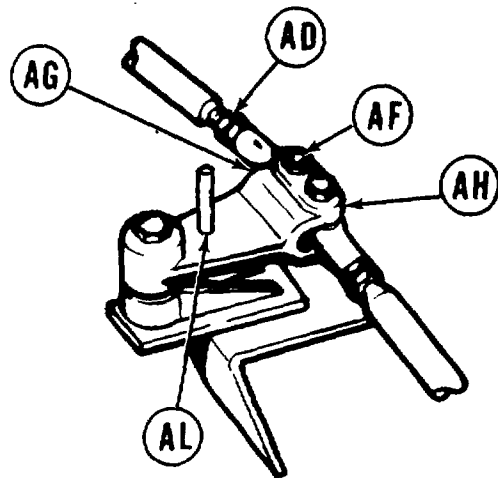
- 62. Using 9/16 inch socket and torque wrench, tighten screw (AM) to 15-20 lb-ft (20-27 N•m) and go to step 73.
- 63. Using 9/16 inch wrench, remove screw (AM).
- 64. Using 9/16 inch wrench, adjust shifting rod bearing end (AN) by turning clockwise until shifting rod (AJ) is past hole (AL).
- 65. Using 9/16 inch wrench, install screw (AM).
- 66. Using 9/16 inch wrench, tighten jamnut (AE).
- 67. Using 9/16 inch socket and torque wrench, tighten screw (AM) to 15-20 lb-ft (20-27 N•m).

Go on to Sheet 11

TA146565

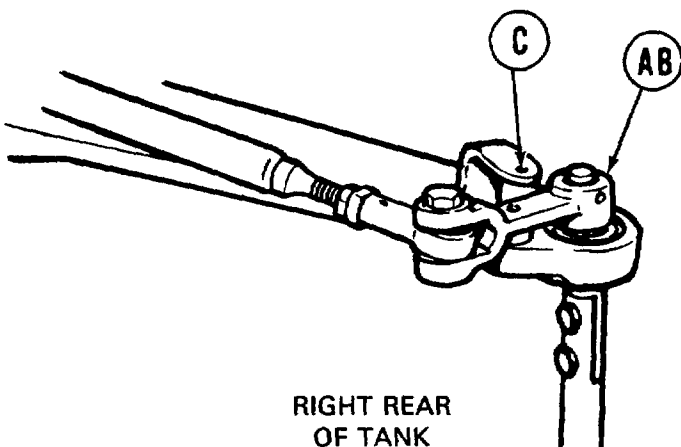
**SHIFT LINKAGE ADJUSTMENT (Sheet 11 of 20)**

- 68. Using 9/16 inch wrench, adjust shifting rod bearing end (AG) by turning clockwise or counterclockwise until crew (AF) will drop freely through clevis (AH) and shifting rod bearing end (AG).
- 69. Using 9/16 inch wrench, install screw (AF).
- 70. Using 9/16 inch wrench, tighten jamnut (AD).
- 71. Remove locating pin from alignment hole (AC).
- 72. Using 9/16 inch socket and torque wrench, tighten screw (A) to 15-20 lb-ft (20-27 N•m).



**BEHIND RIGHT AMMO RACK**

- 73. Go to right rear of tank and try to insert locating pin into alignment hole (C) and through clevis (AB). If locating pin can be inserted, shift linkage is in adjustment. Remove locating pin and go to step 129. If locating pin cannot be inserted, go on step 74.

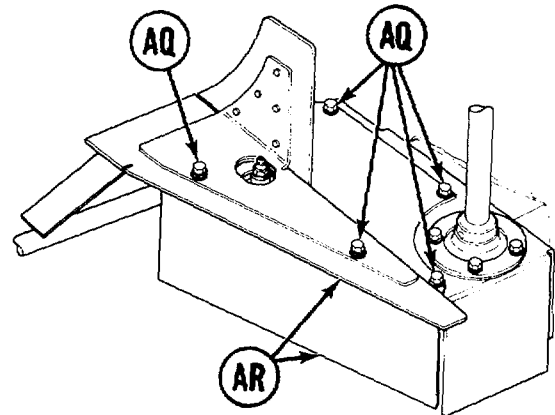


**RIGHT REAR OF TANK**

- 74. Remove powerplant (page 5-1).

**SHIFT LINKAGE ADJUSTMENT (Sheet 12 of 20)**

75. Using 9/16 inch wrench, remove five screws and ten washers (AQ).
76. Using hands, remove two shift linkage control cover plates (AR).
77. Try to insert locating pin in alignment hole (AS). If locating pin can be inserted, go to step 106. If locating pin cannot be inserted, go on to step 78.
78. Using 9/16 inch wrench, loosen jamnut (AT) and (AU).
79. Using 9/16 inch wrench, remove screw (AV). Manually move clevis (AW).
80. Insert locating pin into alignment hole (AS).

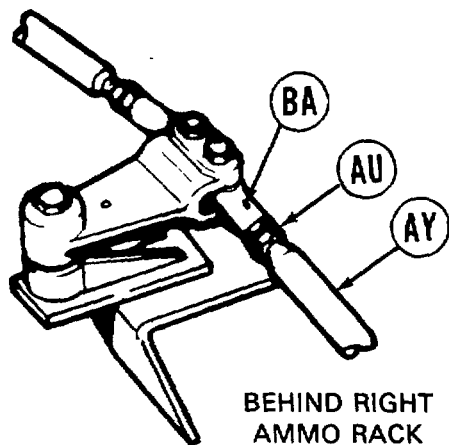
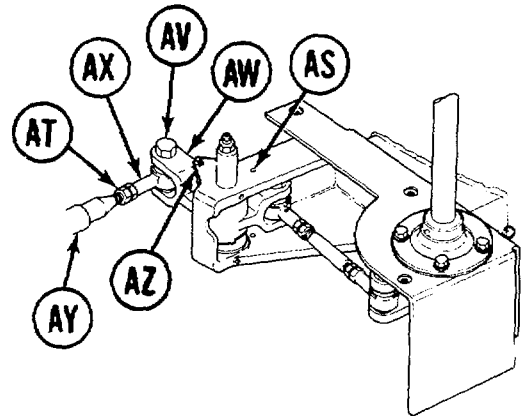


**RIGHT REAR OF ENGINE COMPARTMENT**

**CAUTION**

**Do not allow shift rod (AY) to turn while doing step 81. Shift rod (AY) is made up of more than one piece and may come apart if allowed to turn.**

81. Using 9/16 inch wrench, adjust shifting rod bearing end (AX) by turning clockwise or counterclockwise until screw (AV) will drop freely through clevis (AW) and shifting rod bearing end (AX).



**BEHIND RIGHT AMMO RACK**

82. Using small diameter wire (Item 82, Appendix D), check to see if shift rod (AY) is past holes (AZ) and (BA). If shifting rod (AY) is past holes (AZ) and (BA), do steps 83 through 86. If shifting rod (AY) is not past hole (AZ), do step 87 through 95. If shifting rod (A) is not past hole (BA), go on to step 96.
83. Using 9/16 inch wrench, install screw (AV).
84. Using 9/16 inch wrench, tighten jamnuts (AT) and (AU).
85. Remove locating pin from alignment hole (AS).
86. Using 9/16 inch socket and torque wrench, tighten screw (AV) to 15-20 lb-ft (20-27 N•m) and go to step 106.

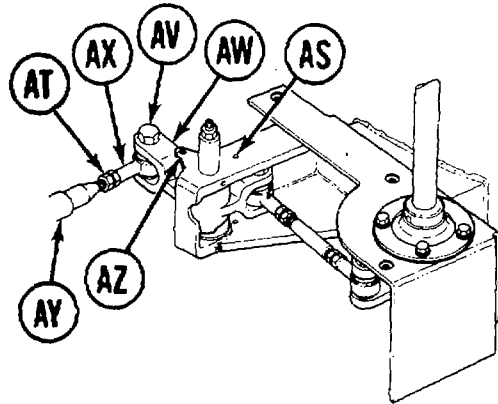
Go on to Sheet 13

TA146567

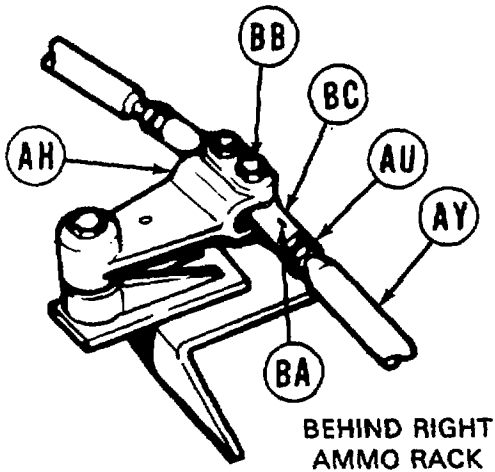


SHIFT LINKAGE ADJUSTMENT (Sheet 13 of 20)

- 87. Using 9/16 inch wrench, adjust shifting rod bearing end (AX) by turning clockwise until shifting rod (AY) is past hole (AZ).
- 88. Using 9/16 inch wrench, remove screw (BB) 89. Using 9/16 inch wrench, install screw (AV) through clevis (AW), and shifting rod bearing end (AX).
- 90. Using 9/16 inch wrench, tighten jamnut (AT).



**RIGHT REAR OF  
ENGINE COMPARTMENT.**



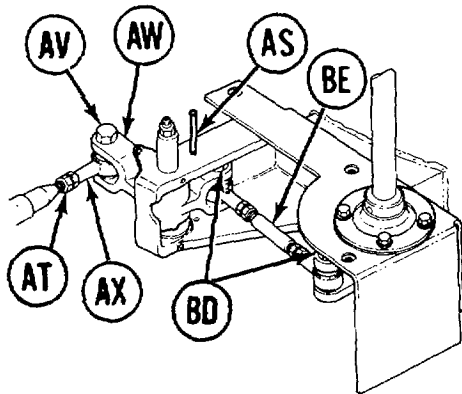
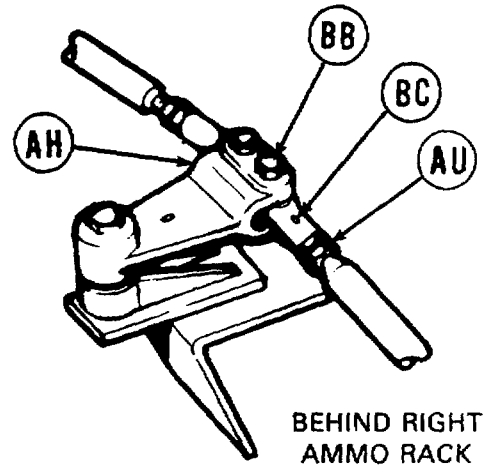
**BEHIND RIGHT  
AMMO RACK**

- 91. Using 9/16 inch socket and torque wrench, tighten screw (AV) to 15-20 lb-ft (20-27 N•m).
- 92. Using 9/16 inch wrench, adjust shifting rod bearing end (BC) by turning clockwise or counterclockwise until screw (BB) will drop freely through clevis (AH) and shifting rod bearing end (BC).
- 93. Using 9/16 inch wrench, install screw (BB).

- 94. Using 9/16 inch wrench, tighten jamnut (AU) and remove locating pin from alignment hole (AS).
- 95. Using 9/16 inch socket and torque wrench, tighten screw (BB) to 15-20 lb-ft (20-27 N•m) and go on to step 106.
- 96. Using 9/16 inch wrench, remove screw (BB).
- 97. Using 9/16 inch wrench, adjust shifting rod bearing end (BC) by turning clockwise until shifting rod (AY) is past hole (BA).

**SHIFT LINKAGE ADJUSTMENT (Sheet 14 of 20)**

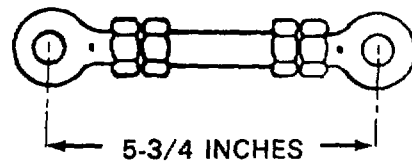
98. Using 9/16 inch wrench, install screw (BB) through clevis (AH) and shifting rod bearing end (BC).
99. Using 9/16 inch wrench, tighten jamnut (AU).
100. Using 9/16 inch socket and torque wrench, tighten screw (BB) to 15-20 lb-ft (20-27 N•m).



**RIGHT REAR OF  
ENGINE COMPARTMENT**

101. Using 9/16 inch wrench, adjust shifting rod bearing end (AX) by turning clockwise or counterclockwise until screw (AV) will drop freely through clevis (AW) and shifting rod bearing end (AX).
102. Using 9/16 inch wrench, install screw (AV) through clevis (AW) and shifting rod bearing end (AX).

103. Using 9/16 inch wrench, tighten jamnut (AT).
104. Remove locating pin from alignment hole (AS).
105. Using 9/16 inch socket and torque wrench, tighten screw (AV) to 15-20 lb-ft (20-27 N•m).
106. Using 9/16 inch wrench, remove two screws (BD).
107. Using hands, remove stud and rod end bearing assembly (BE).
108. Using rule, measure between center-to-center of rod end holes. If measurement is 5-3/4 inches, assembly is in adjustment, go to step 123. If measurement is not 5-3/4 inches, go on to step 109.

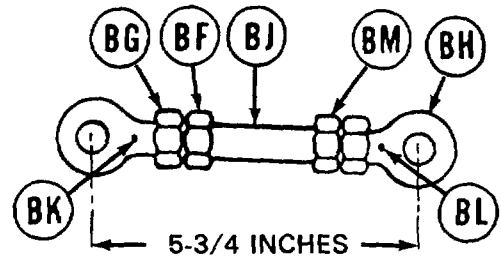


Go on to Sheet 15

TA146569

**SHIFT LINKAGE ADJUSTMENT (Sheet 15 of 20)**

109. Using two 9/16 inch wrenches, loosen jamnut (BF).
110. Using 9/16 inch wrench, adjust stud and rod end bearing assembly by turning rod bearing end (BG) clockwise or counterclockwise until distance between centers of rod bearing (BG) and (BH) measures 5-3/4 inches.



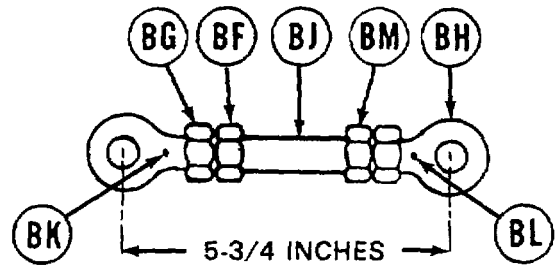
111. Using small diameter wire (Item 82, Appendix D), check to see if rod (BJ) is past holes (BK) and (BL). If rod (BJ) is past holes (BK) and (BL), go on to step 112. If rod (BJ) is not past hole (BK), do steps 113 through 117. If rod (BJ) is not past hole (BL), go on to step 118.
112. Using two 9/16 inch wrenches, tighten jamnut (BF) while maintaining 5-3/4 inch measurement and go to step 123.
113. Using 9/16 inch wrench, turn rod bearing end (BG) clockwise until rod (BJ) is past hole (BK).
114. Using two 9/16 inch wrenches, tighten jamnut (BF).
115. Using two 9/16 inch wrenches, loosen jamnut (BM).
116. Using 9/16 inch wrench, adjust stud and rod end bearing assembly by turning rod bearing end (BH) clockwise or counterclockwise until distance between centers of rod bearing ends (BG) and (BH) measures 5-3/4 inches.
117. Using two 9/16 inch wrenches, tighten jamnut (BM) while maintaining 5-3/4 inch measurement and go to step 123.

Go on to Sheet 16

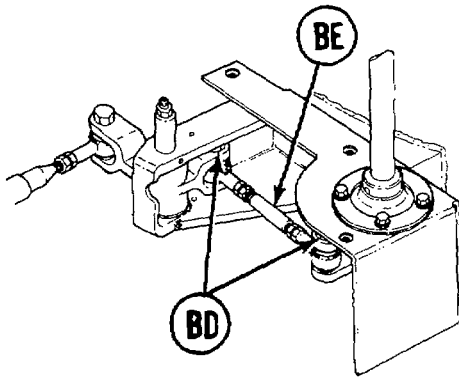
TA146570

**SHIFT LINKAGE ADJUSTMENT (Sheet 16 of 20)**

- 118. Using two 9/16 inch wrenches, loosen jamnut (BM).
- 119. Using 9/16 inch wrench, turn rod bearing end (BH) clockwise until rod (BJ) is past hole (BL).



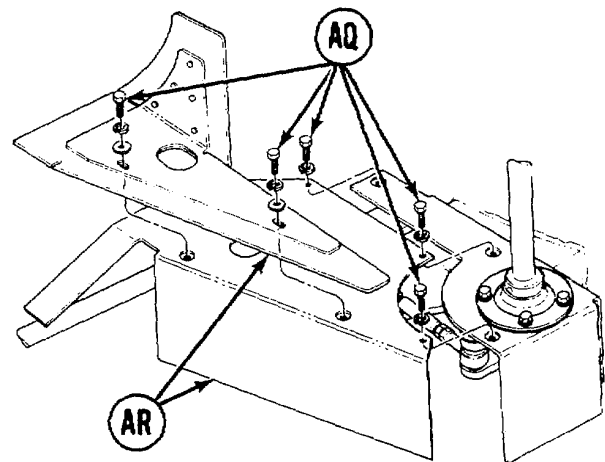
- 120. Using two 9/16 inch wrenches, tighten jamnut (BM).
- 121. Using 9/16 inch wrench, adjust stud and rod end bearing assembly by turning rod bearing end (BG) clockwise or counterclockwise until distance between centers of rod bearing ends (BG) and (BH) measures 5-3/4 inches.
- 122. Using two 9/16 inch wrenches, tighten jamnut (BF).



**RIGHT REAR OF  
ENGINE COMPARTMENT**

- 123. Using hands, install stud and rod bearing assembly (BE).
- 124. Using 9/16 inch wrench, install two screws (BD).

- 125. Using hands, install two shift linkage control cover plates (AR).
- 126. Using 7/16 inch wrench, install five screws and ten washers (AQ).

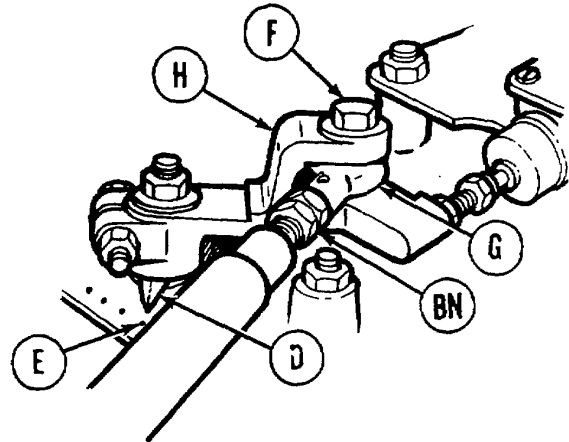
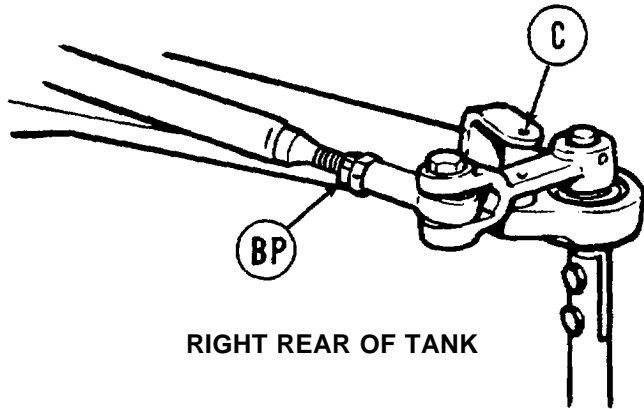


Go on to Sheet 17

TA146571

**SHIFT LINKAGE ADJUSTMENT (Sheet 17 of 20)**

- 127. Install 2A powerplant (page 5-14) or 2D powerplant (page 5-40).
- 128. At top of transmission, try to insert locating pin in alignment hole (C). If locating pin can be inserted, go on to step 129. If locating pin cannot be inserted, go to step 130.



**TOP OF TRANSMISSION**

- 129. At top of transmission, check position of shifting position indicator (D). If shifting position indicator (D) is pointing to most forward dot (E), linkage is in adjustment. Go to step 160. If shifting position indicator (D) is not pointing to most forward dot (E), go on to step 13.
- 130. Using 9/16 inch wrench, loosen jamnuts (BN) and (BP).

- 131. Using 9/16 inch wrench, remove screw (F) (if not removed in step 4).
- 132. Using hands move shifting position indicator (D) to most forward dot (E).
- 133. Insert locating pin in alignment hole (C) (If not inserted in step 128).

**NOTE**

**It may be necessary to move shifting position indicator (D) to most rear dot to adjust shifting rod bearing end (G) and then back to most forward dot (E) to check adjustment in step 134.**

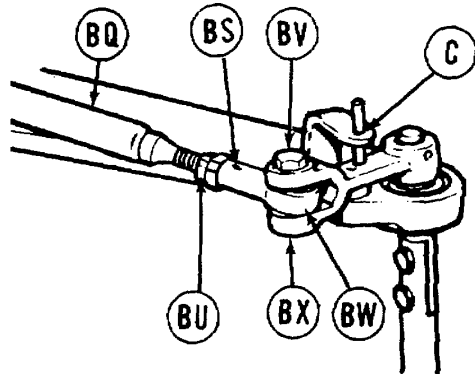
- 134. Using 9/16 inch wrench, adjust shifting rod bearing end (G) by turning clockwise or counterclockwise until screw (F) will drop freely through shifting rod bearing end (G) and clevis (H).

Go on to Sheet 18

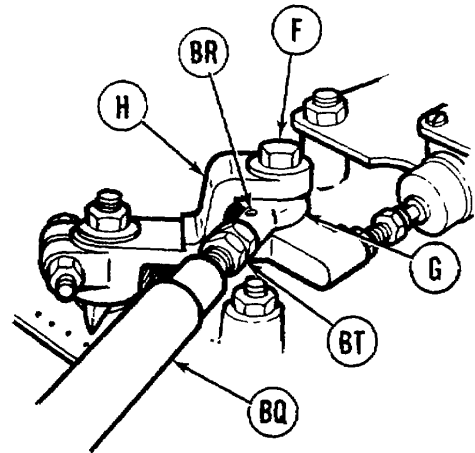
TA146572

**SHIFT LINKAGE ADJUSTMENT (Sheet 18 of 20)**

135. Using small diameter wire, check to see if shifting rod (BQ) is past holes (BR) and (BS). If shifting rod (BQ) is past holes (BR) and (BS), do steps 136 thru 139. If shifting rod (BQ) is not past hole (BR), do steps 140 through 149. If shifting rod (BQ) is not past hole (BS), go on to step 150.



RIGHT REAR OF TANK



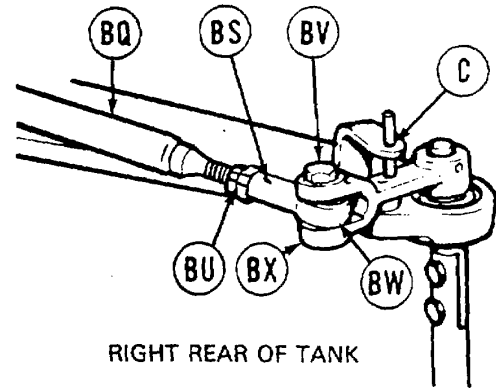
TOP OF TRANSMISSION

- 136. Using 9/16 inch wrench, install screw (F) through clevis (H) and shifting rod bearing end (G).
- 137. Using 9/16 inch wrench, tighten jamnuts (BT) and (BU).
- 138. Remove locating pin from alignment hole (C).
- 139. Using 9/16 inch socket and torque wrench, tighten screw (F) to 15-20 lb-ft (20-27 N•m) and go to step 160.
- 140. Using 9/16 inch wrench, adjust shifting rod bearing end (G) by turning clockwise until shifting rod (BQ) is past hole (BR).
- 141. Using 9/16 inch wrench, remove screw (BV) and remove shifting rod bearing end (BW) from clevis (BX).
- 142. Using 9/16 inch wrench, install screw (F) through clevis (H) and shifting rod bearing end (G).
- 143. Using 9/16 inch wrench, tighten jamnut (B).
- 144. Using 9/16 inch socket and torque wrench, tighten screw (F) to 15-20 lb-ft (20-27 N•m).

Go on to Sheet 19

**SHIFT LINKAGE ADJUSTMENT (Sheet 19 of 20)**

145. Using 9/16 inch wrench, adjust shifting rod bearing end (BW) by turning clockwise or counterclockwise until screw (BV) will drop freely through clevis (BX) and shifting rod bearing end (BW).
146. Using 9/16 inch wrench, install screw (BV) through clevis (BX) and shifting rod bearing end (BW).
147. Using 9/16 inch wrench, tighten jamnut (BU).
148. Remove locating pin from alignment hole (C).
149. Using 9/16 inch socket and torque wrench, tighten screw (BV) to 1520 lb-ft (20-27 N•m) and go on to step 160.
150. Using 9/16 inch wrench, remove screw (BV) and remove shifting rod bearing end (BW) from clevis (BX).
151. Using 9/16 inch wrench, adjust shifting rod bearing end (BW) by turning clockwise until shifting rod (BQ) is past hole (BS).
152. Using 9/16 inch wrench, install screw (BV) through clevis (BX) and shifting rod bearing end (BW).
153. Using 9/16 inch wrench, tighten jamnut (BU).
154. Using 9/16 inch socket and torque wrench, tighten screw (BV) to 15-20 lb-ft (20-27 N•m).



Go on to Sheet 20

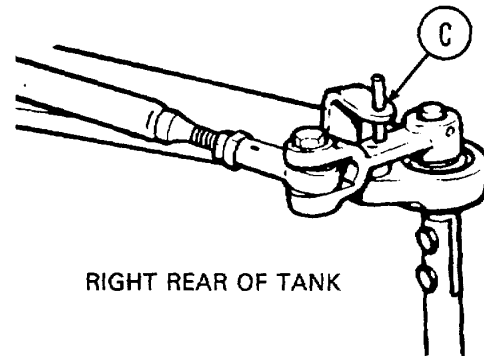
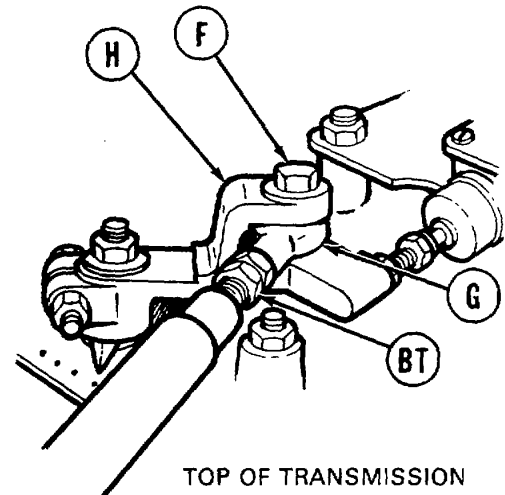
TA146574

## SHIFT LINKAGE ADJUSTMENT (Sheet 20 of 20)

## NOTE

It may be necessary to move indicator pointer to most rear-positioned dot to adjust rod end, and then back to most forward-positioned dot to check adjustment in step 155.

155. Using 9/16 inch wrench, adjust shifting rod bearing end (G) by turning clockwise or counterclockwise until screw (F) will drop freely through clevis (H) and shifting rod bearing end (G).
156. Using 9/16 inch wrench, install screw (F) through clevis (H) and shifting rod bearing end (G).
157. Using 9/16 inch wrench, tighten jamnut (BT).
158. Remove locating pin from alinement hole (C).



159. Using 9/16 inch socket and torque wrench, tighten screw (F) to 15-20 lb-ft (20-27 N•m).
160. Install right hull ammo rack (page 17-16).
161. Check shifting pattern response (TM 9-2350-260-10). If transmission still does not shift correctly, notify support maintenance. If transmission does shift correctly, go on to step 162.
162. Install top deck (page 16-22).
163. Install transmission shroud (page 9-23).

TA146575

End of Task



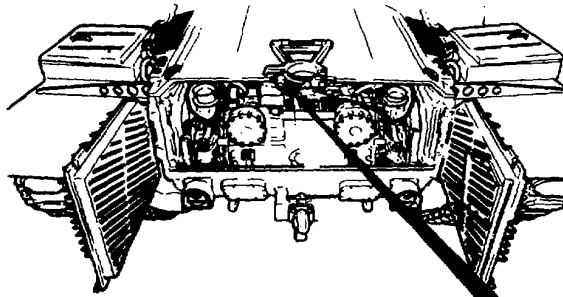
**NEUTRAL SHIFT SWITCH ADJUSTMENT (Sheet 1 of 3)**

TOOLS: 7/16 in. combination box and open end wrench (2 required)

TEST EQUIPMENT: Multimeter

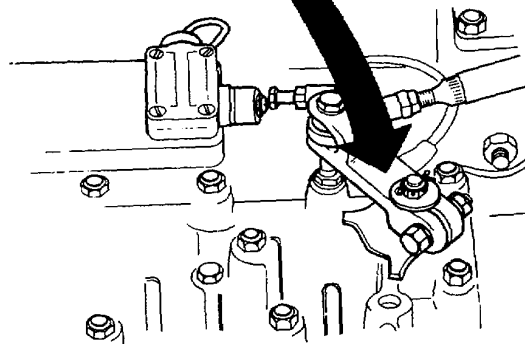
REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURES: Remove transmission shroud (page 9-20)  
Adjust shift linkage (page 11-2)



**ADJUSTMENT:**

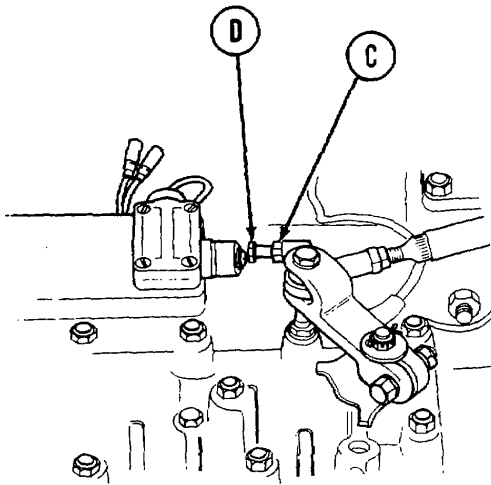
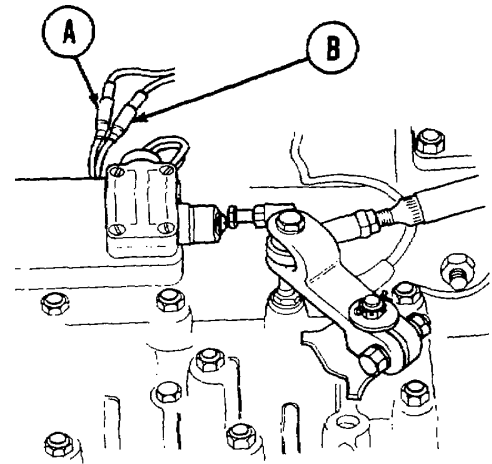
1. Set transmission lever to neutral (N) (TM 9-2350-260-10).



Go on to Sheet 2

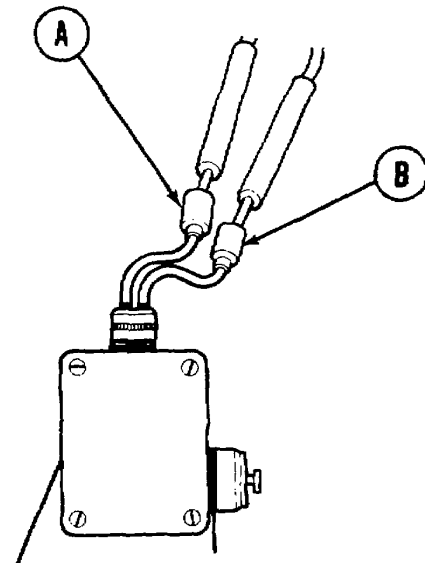
**NEUTRAL SHIFT SWITCH ADJUSTMENT (Sheet 2 of 3)**

2. Disconnect electrical connectors (A) and (B).
3. Set up multimeter for continuity test.



4. Using two wrenches, loosen jamnut (C) while holding screw (D).

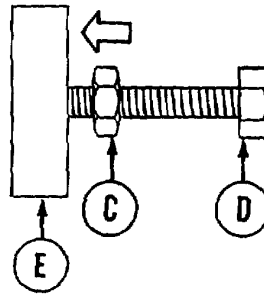
5. Connect multimeter leads to connectors (A) and (B). If meter needle does not move, go to step 7. If meter needle goes to zero, go to step 6.
6. Using wrench, shorten screw (D) until meter shows high resistance.



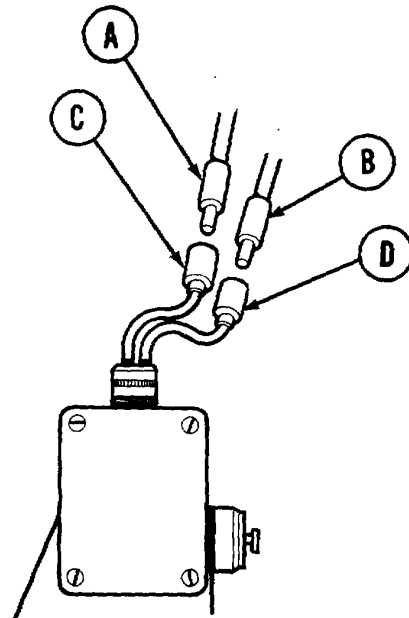
Go on to Sheet 3

**NEUTRAL SHIFT SWITCH ADJUSTMENT (Sheet 3 of 3)**

7. Lengthen screw (D) until meter just reads zero.
8. Lengthen screw (D) by three complete turns.
9. Using two wrenches, tighten jamnut (C) toward bracket (E) while holding screw (D).



10. Sit transmission lever to other positions, meter should read zero in neutral (N) and park (P) only. Replace neutral shift switch (page 10-282) if any other readings are found.
11. Disconnect meter probes from electrical connectors.
12. Connect connectors (A) and (B) to (C) and (D).
13. Test adjustment by attempting to start engine in all transmission lever positions. Engine should start only in neutral (N) and park (P) positions.
14. Install transmission shroud (page 9-23).



End of Task

TA146578

**SHIFTING CONTROL BASE ASSEMBLY REPAIR AND REPLACEMENT (Sheet 1 of 6)**

PROCEDURE INDEX

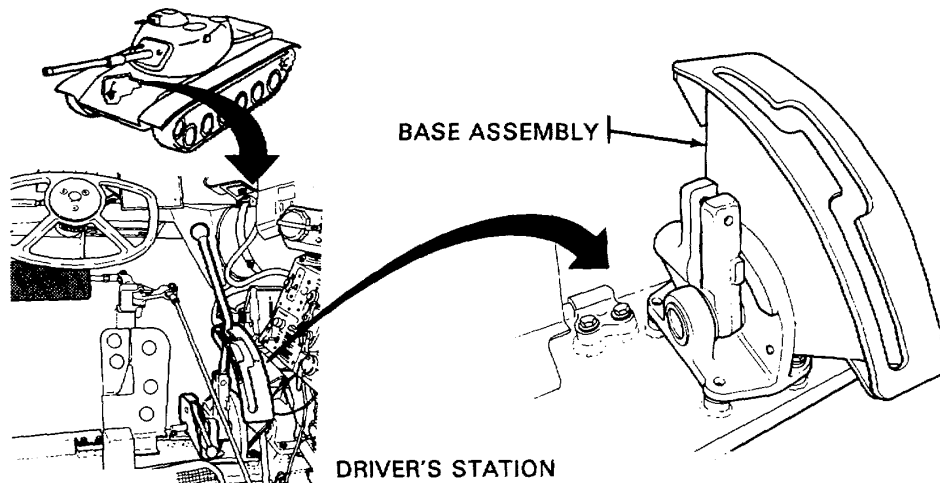
PROCEDURE	PAGE
Removal	11-26
Cleaning and Inspection	11-28
Installation	11-28

**TOOLS:** 9/16 in. socket with 1/2 in. drive  
 1/2 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 Hammer  
 Bras drift  
 Screwdriver

Vise  
 12 in. extension with 1/2 in. drive  
 Slip joint pliers  
 3/16 in. alining punch  
 6 in. chisel

**SUPPLIES:** Cotter pin (MS24665-132)(2 required)  
 Dry cleaning solvent (Item 54, Appendix D)  
 Rags  
 Bearing (M20161X08)  
 Pencil  
 Paper tags  
 Lockwasher (MS35338-45)(3 required)  
 Lockwasher (MS35338-46 (2 required)

**PRELIMINARY PROCEDURES:** Remove bracket assembly (page 11-34)  
 Remove accelerator foot pedal lock assembly (page 7-388)  
 Remove cam assembly (page 11-31)  
 Remove shifting control connecting link (page 11-32)



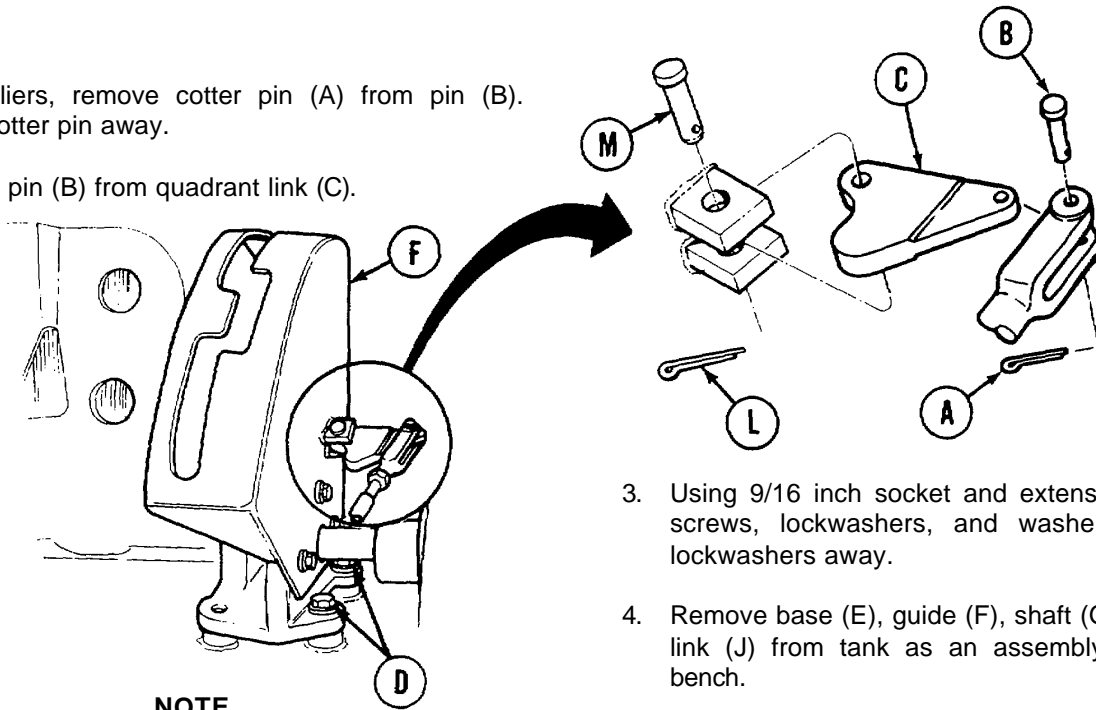
Go on to Sheet 2

TA146579

**SHIFTING CONTROL BASE ASSEMBLY REPAIR AND REPLACEMENT (Sheet 2 of 6)**

**REMOVAL:**

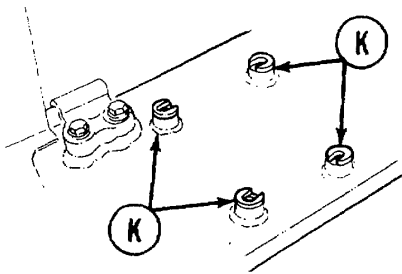
1. Using pliers, remove cotter pin (A) from pin (B). Throw cotter pin away.
2. Remove pin (B) from quadrant link (C).



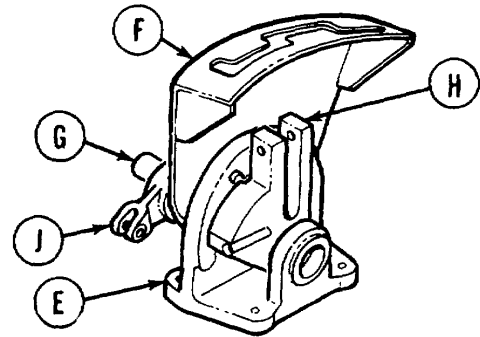
**NOTE**

There may be some shims between base and hull. These shims are used to aline base with bracket. If shims are present, remove as described in step 5.

5. Remove shims (K) from hull floor. Using pencil and paper, tag and identify the exact location of each shim.



3. Using 9/16 inch socket and extension, remove two screws, lockwashers, and washers (D). Throw lockwashers away.
4. Remove base (E), guide (F), shaft (G), pivot (H), and link (J) from tank as an assembly and take it to bench.



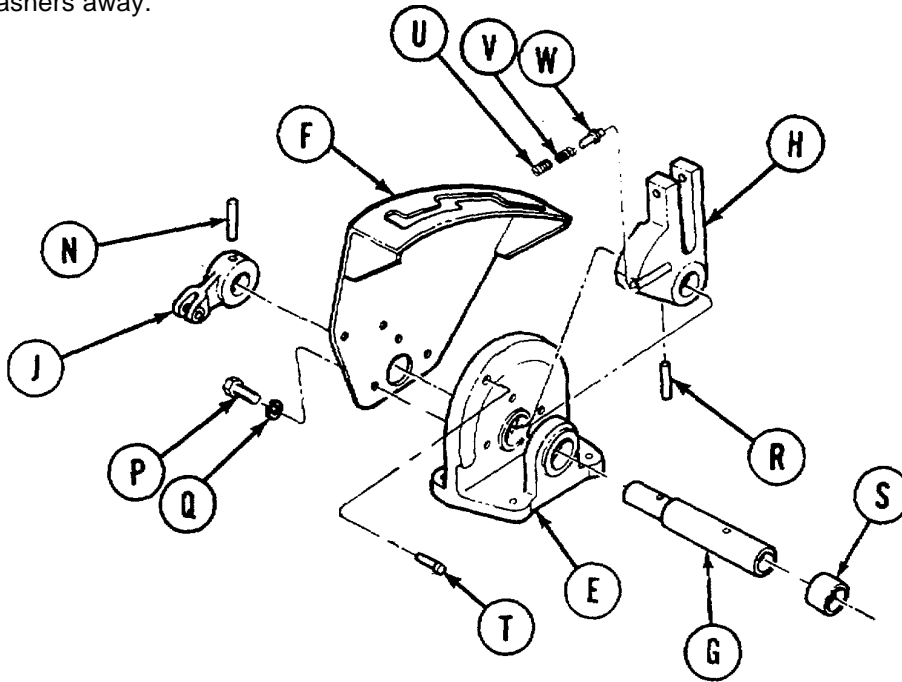
6. Using pliers, remove cotter pin (L) from pin (L). Throw cotter pin (L) away.
7. Remove pin (M) and quadrant link (C) from guide (F).

TA146580

Go on to Sheet 3

## SHIFTING CONTROL BASE ASSEMBLY REPAIR AND REPLACEMENT (Sheet 3 of 6)

8. Using hammer and punch, drive pin (N) from link (J) and shaft (G). Remove link (J) from shaft (G).
9. Using 1/2 inch socket, remove three screws (P) and lockwashers (Q). Separate base (E) from guide (F). Throw lockwashers away.



10. Secure base (E) in vise.
11. Using hammer and punch, remove pin (R) from pivot (K) and shaft (G).
12. Using hammer and drift, remove shaft (G) and bearing (S) from base (E) and pivot (H). Throw bearing away.
13. Remove parking brake actuator pin (T) from base (E).
14. Remove base (E) from vise.
15. Secure pivot (H) in vise.
16. Using hammer and chisel, remove stakes from pivot (H) that secures adjuster (U).
17. Using screwdriver, remove adjuster (U), spring (V), and plunger (W) from pivot (K).
18. Remove pivot (H) from vise.

TA146581

Go on to Sheet 4

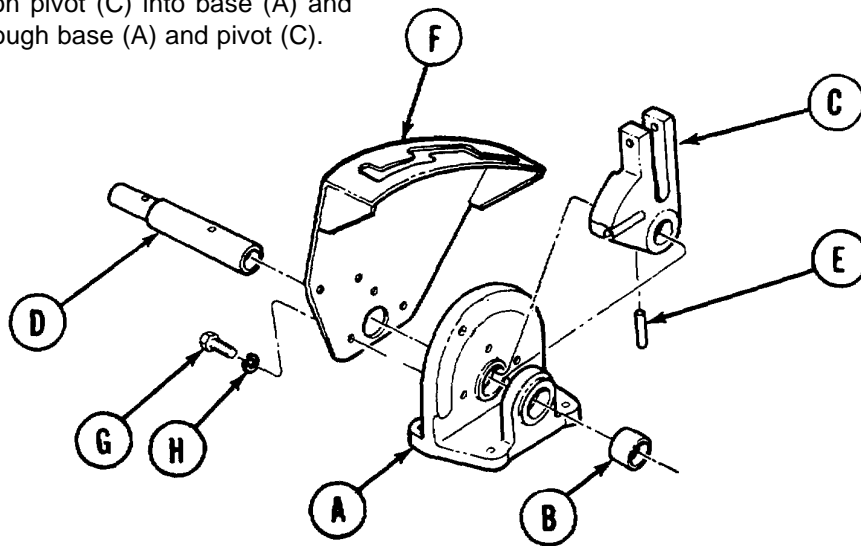
**SHIFTING CONTROL BASE ASSEMBLY REPAIR AND REPLACEMENT (Sheet 4 of 6)**

**CLEANING AND INSPECTION:**

1. Using rags and dry cleaning solvent (Item 54, Appendix D), clean bearing surface of base and shaft.
2. Inspect base, shaft, pivot, link, guide, quadrant link, and pins for cracks or damage. Replace part as necessary.

**INSTALLATION:**

1. With base (A) in vise and using hammer and drift, install new bearing (B) into base (A).
2. Remove base (A) from vise.
3. Using hand, position pivot (C) into base (A) and install shaft (D) through base (A) and pivot (C).



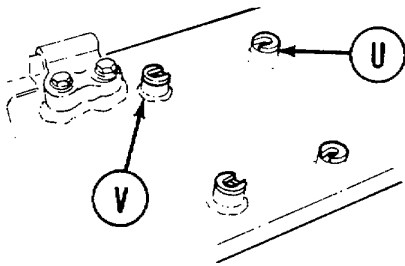
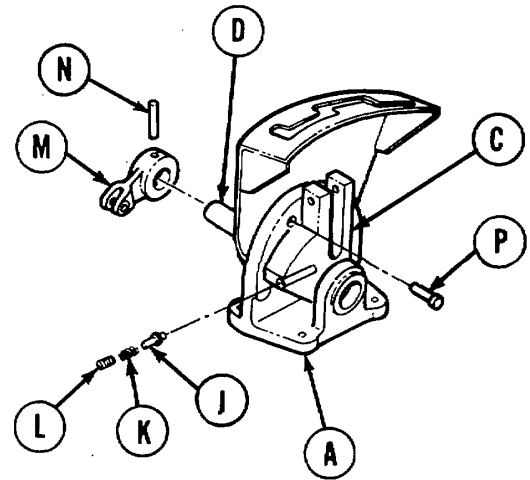
4. Aline holes in pivot (C) with hole in shaft (D).
5. Using hammer, install pin (E) through pivot (C) and shaft (D).
6. Position guide (F) onto base (A). Using 1/2 inch socket, install three screws (G) and new lockwashers (H) securing guide (F) to base (A).

Go on to Sheet 5

TA146582

**SHIFTING CONTROL BASE ASSEMBLY REPAIR AND REPLACEMENT (Sheet 5 of 6)**

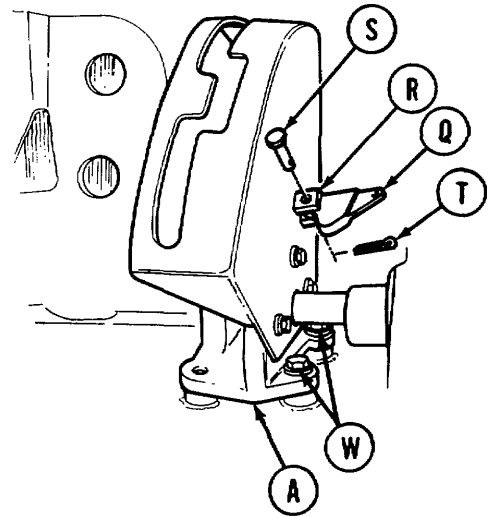
7. Using screwdriver, install plunger (J), spring (K), and adjuster (L) into pivot (C).
8. Use hammer and chisel stake pivot (C) to hold adjuster (L) in place.
9. Position link (M) onto shaft (D) and align hole in link (M) with hole in shaft (D).
10. Using hammer, install pin (N) through link (M) and shaft (D).
11. Install pin (P) into base (A).
12. Position quadrant link (Q) onto bracket (R). Install pin (S) through quadrant link (Q) and bracket (R) and, using pliers, install new cotter pin (T) through pin (S).



13. Take assembled base assembly to driver's station of tank.
14. Install shims (U) onto mounting blocks (V) exactly as they were removed.
15. Position base (A) onto blocks (V). Using 9/16 inch socket and extension, install two screws, new lockwashers (W) through base (A) and shims (U) into blocks (V).

**NOTE**

If shims were present when base was removed, go to step 14. If no shims were present when base was removed, go to step 15.

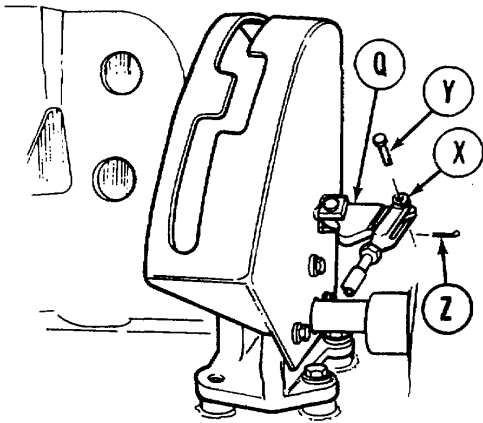


TA146583

Go on to Sheet 6



## SHIFTING CONTROL BASE ASSEMBLY REPAIR AND REPLACEMENT (Sheet 6 of 6)



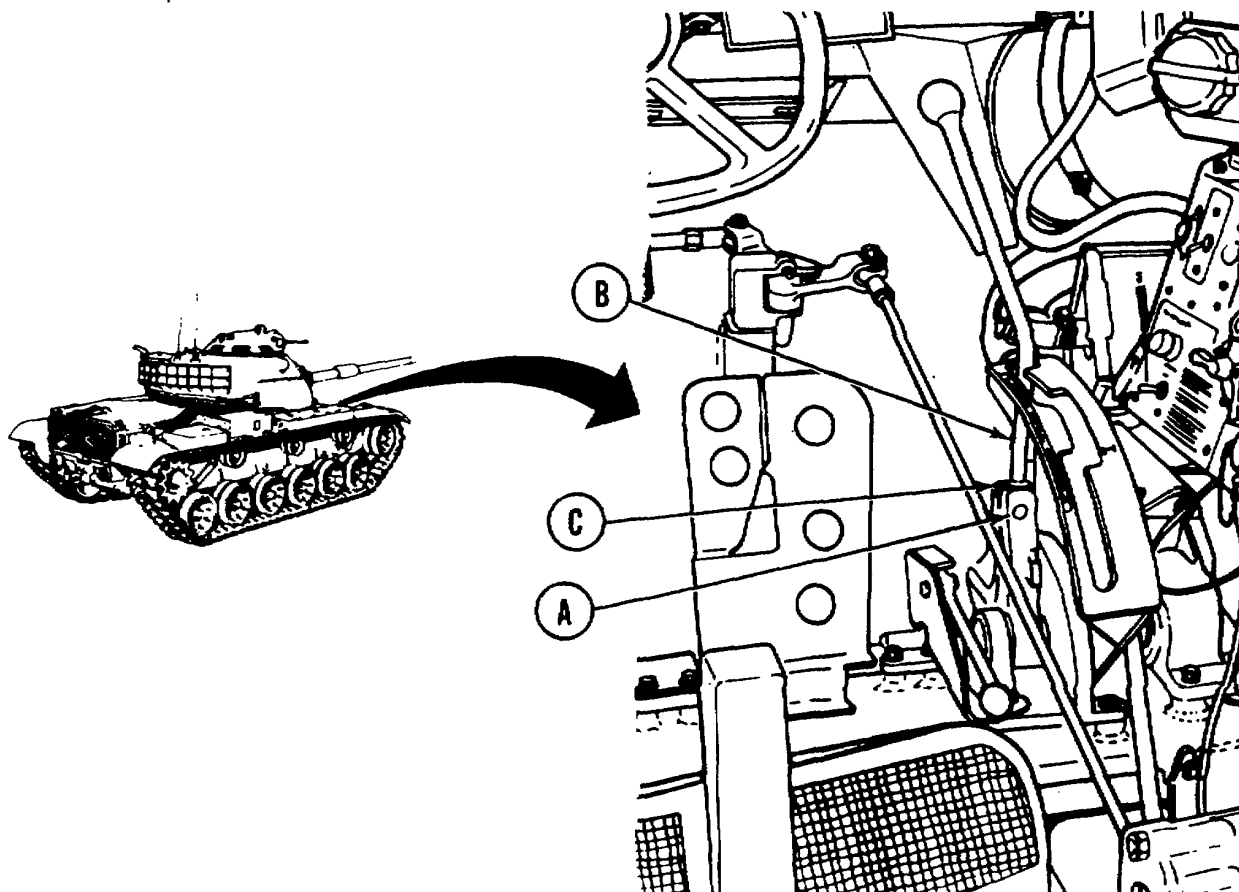
16. Position rod end (X) onto quadrant link (Q). Install pin (Y) through rod end (X) and quadrant link (Q) and, using pliers, install new cotter pin (Z) through pin (Y).

17. Install cam assembly (page 11-31).
18. Install bracket assembly (page 11-35).
19. Install shifting control connecting link (page 11-33).
20. Install accelerator foot pedal lock assembly (page 7-389).
21. Adjust shifting linkage (page 11-2).

End of Task

**SHIFTING CONTROL HAND LEVER CAM ASSEMBLY REPLACEMENT (Sheet 1 of 1)**

TOOLS: Hammer  
1/4 in. drive punch

**REMOVAL:**

1. Using hammer and punch, remove pin (A).
2. Remove lever (B) from pivot (C).
3. Inspect lever (B) and pin (A) for damage or wear. Replace as required.

**INSTALLATION:**

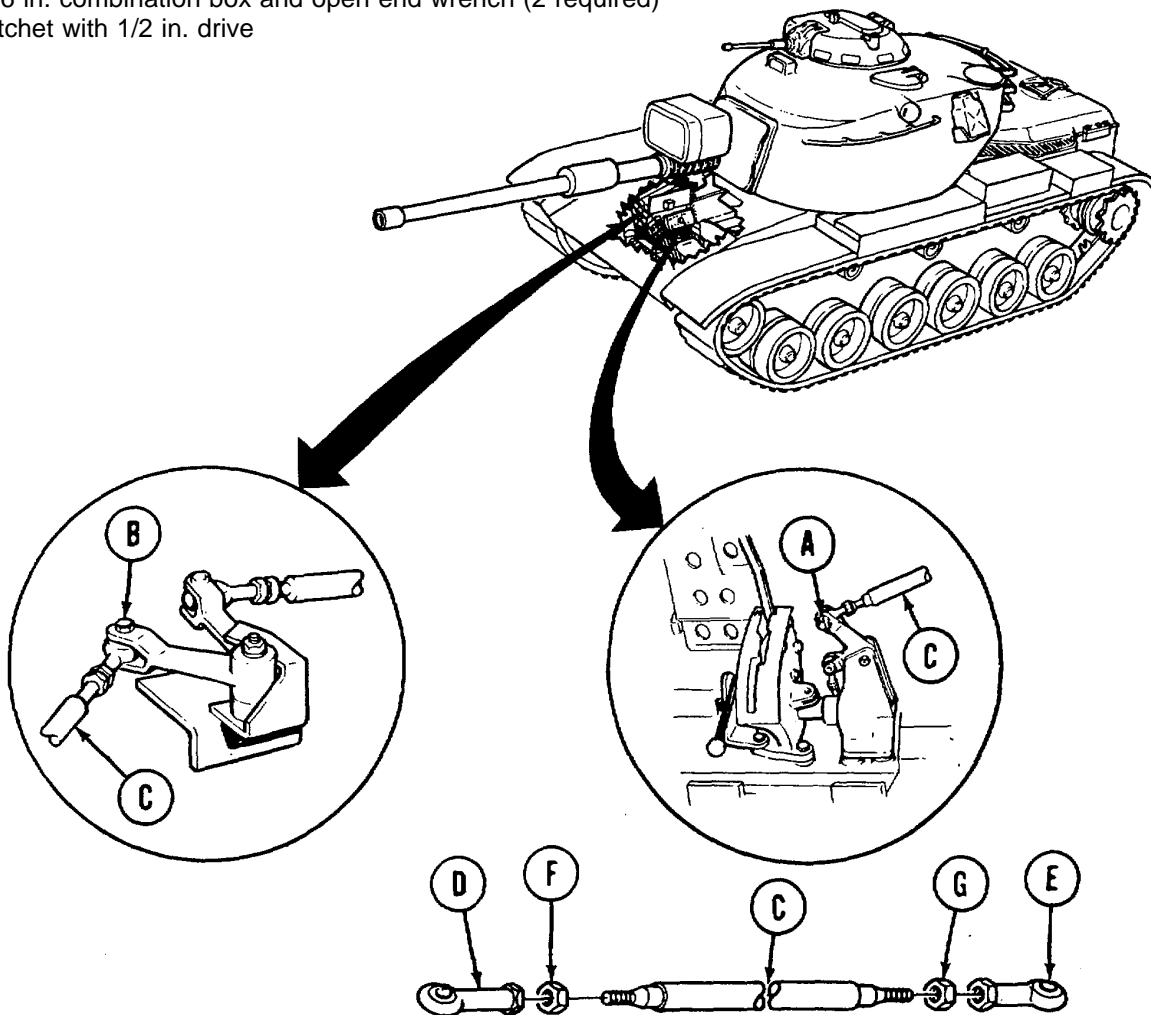
1. Position lever (B) in pivot (C) with holes lined up.
2. Using hammer, install pin (A) through pivot (C) and lever (B).

TA146585

End of Task

**SHIFTING CONTROL CONNECTING LINK REPLACEMENT (Sheet 1 of 2)**

TOOLS: 9/16 in. socket with 1/2 in. drive  
 9/16 in. combination box and open end wrench (2 required)  
 Ratchet with 1/2 in. drive

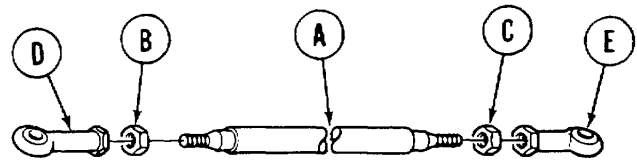
**REMOVAL:**

1. Using 9/16 inch socket, remove bolt (A) and bolt (B). Remove rod assembly (C) from tank.
2. Using 9/16 inch wrench to hold rod ends (D) and (E) and another 9/16 inch wrench on nuts (F) and (G), loosen nuts (F) and (G) from rod ends (D) and (E).
3. Using 9/16 inch wrench, remove rod ends (D) and (E) and nuts (F) and (G) from rod (C).

Go on to Sheet 2

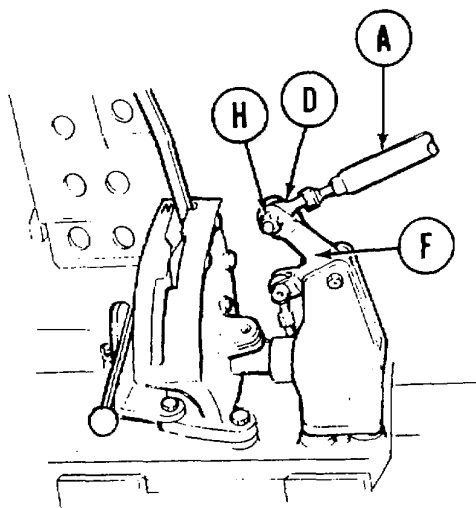
TA146586

**SHIFTING CONTROL CONNECTING LINK REPLACEMENT (Sheet 2 of 2)**

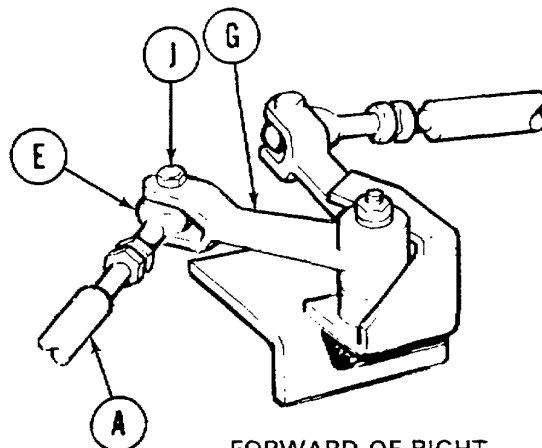


**INSTALLATION:**

1. Using 9/16 inch wrench, install nuts (B) and (C) onto rod (A).
2. Using 9/16 inch wrench, install rod ends (D) and (E) onto rod (A).



**DRIVER'S STATION**



**FORWARD OF RIGHT  
AMMO RACK**

3. Position rod assembly (A) into links (F) and (G) and, using 9/16 inch socket and ratchet, install screws (H) and (J) through links (F) and (G) and rod ends (D) and (E).
4. Adjust shifting linkage (page 11-2).

End of Task

**SHIFTING CONTROL BRACKET ASSEMBLY AND CONNECTING LINK REPLACEMENT (Sheet 1 of 2)**

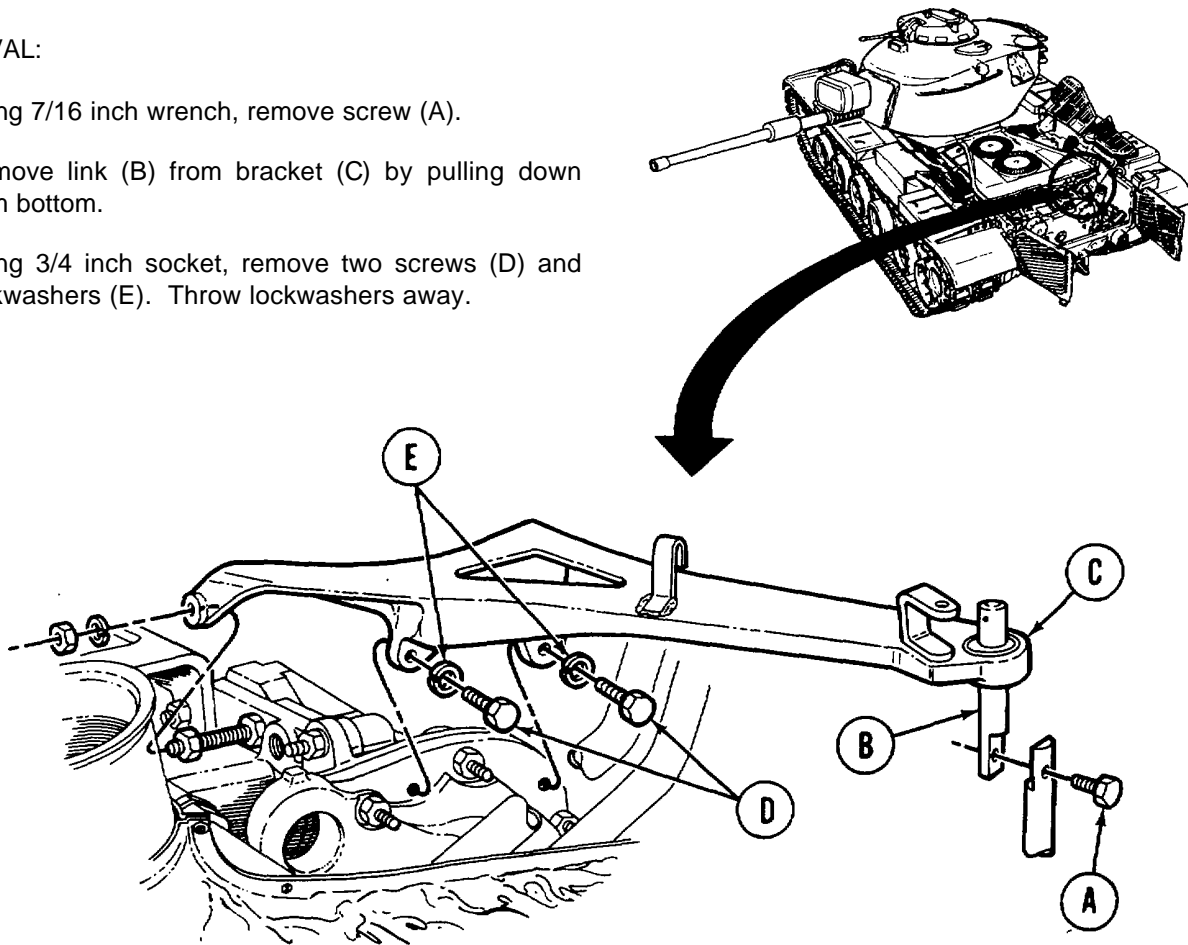
**TOOLS:** Ratchet with 1/2 in. drive  
 3/4 in. socket with 1/2 in. drive  
 2 in. extension with 1/2 in. drive  
 3/4 in. combination box and open end wrench (2 required)  
 7/16 in. combination box and open end wrench

**SUPPLIES:** Lockwasher (MS35338-48)(2 required)  
 Lockwasher (MS35338-67)(2 required)

**PRELIMINARY PROCEDURE:** Remove shifting control rod (page 11-37)

**REMOVAL:**

1. Using 7/16 inch wrench, remove screw (A).
2. Remove link (B) from bracket (C) by pulling down from bottom.
3. Using 3/4 inch socket, remove two screws (D) and lockwashers (E). Throw lockwashers away.



Go on to Sheet 2

TA146588

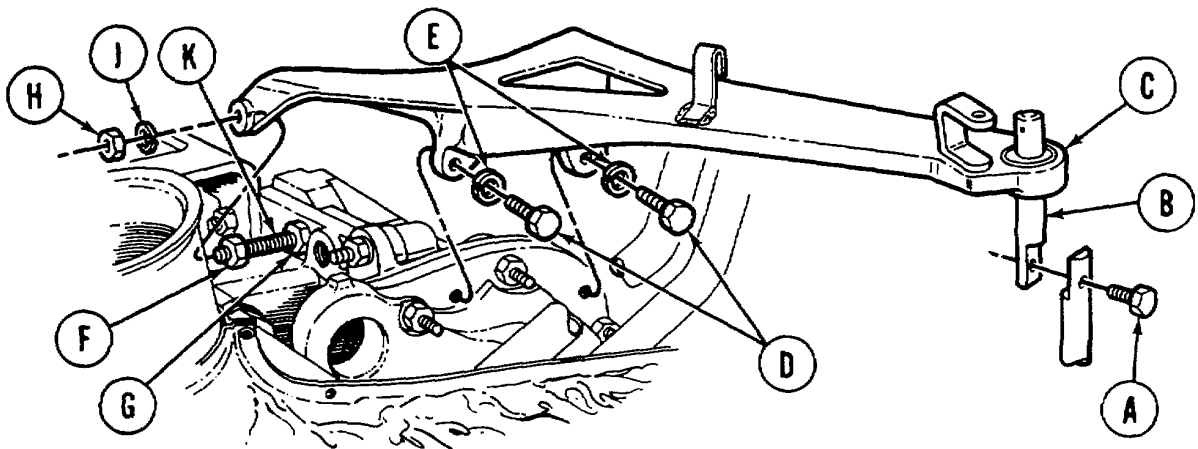
**SHIFTING CONTROL BRACKET ASSEMBLY AND CONNECTING LINK REPLACEMENT (Sheet 2 of 2)**

4. Using 3/4 inch wrench, tighten nut (F) against nut (G).
5. Using 3/4 inch wrench, remove nut (H) and lockwasher (J). Throw lockwasher away.

**NOTE**

**If stud (K) cannot be screwed in far enough in step 6, back off nuts (G) and (F) on stud (K) and repeat step 6.**

6. Using 3/4 inch wrench, turn nut (G) clockwise and screw stud (K) into transmission housing until stud (K) is out of hole in bracket assembly (C).
7. Remove bracket assembly (C) from transmission.

**INSTALLATION:**

1. Position bracket assembly (C) on transmission.
2. Using 3/4 inch socket, install two screws (D) and new lockwashers (E).
3. Using 3/4 inch wrench, turn nut (F) counterclockwise until nut (G) is against bracket assembly (C).
4. Using 3/4 inch wrench, install nut (H) and new lockwasher (J).
5. Using one 3/4 inch wrench to hold nut (G) and another 3/4 inch wrench on nut (F), tighten nut (F) against transmission housing.
6. Install link (B) in bracket (C).
7. Using 7/16 inch wrench, install screw (A) through both parts of connecting link (B).
8. Install shifting control rod (page 11-39).

End of Task

**SHIFTING CONTROL BRACKET ASSEMBLY REPAIR (Sheet 1 of 1)**

TOOLS: Micrometer set, inside  
2 lb hammer  
3/4 in. drive pin punch  
Vise

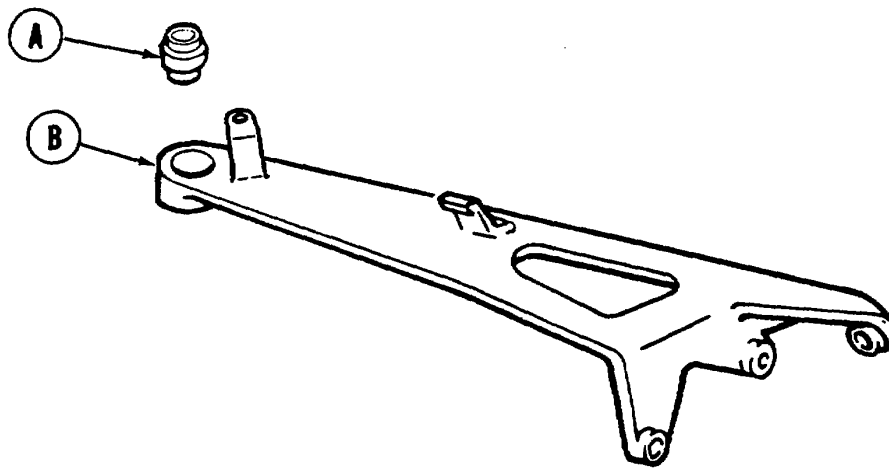
SUPPLIES: Bearing (7954792)

REFERENCE: LO 9-2350-260-12

PRELIMINARY PROCEDURE: Remove bracket from tank (page 11-34).

**INSPECTION:**

Inspect bearing (A) for damage or wear. Inside diameter must not be greater than 0.6290 inches.

**DISASSEMBLY:**

Using hammer and punch, remove bearing (A).

**ASSEMBLY:**

1. Using vise, press new bearing (A), if required, in bracket (B).
2. Install bracket in tank (page 11-35).
3. Lubricate (LO 9-2350-260-12).

End of Task

TA146590

**SHIFTING CONTROL ROD REPLACEMENT (Sheet 1 of 4)**

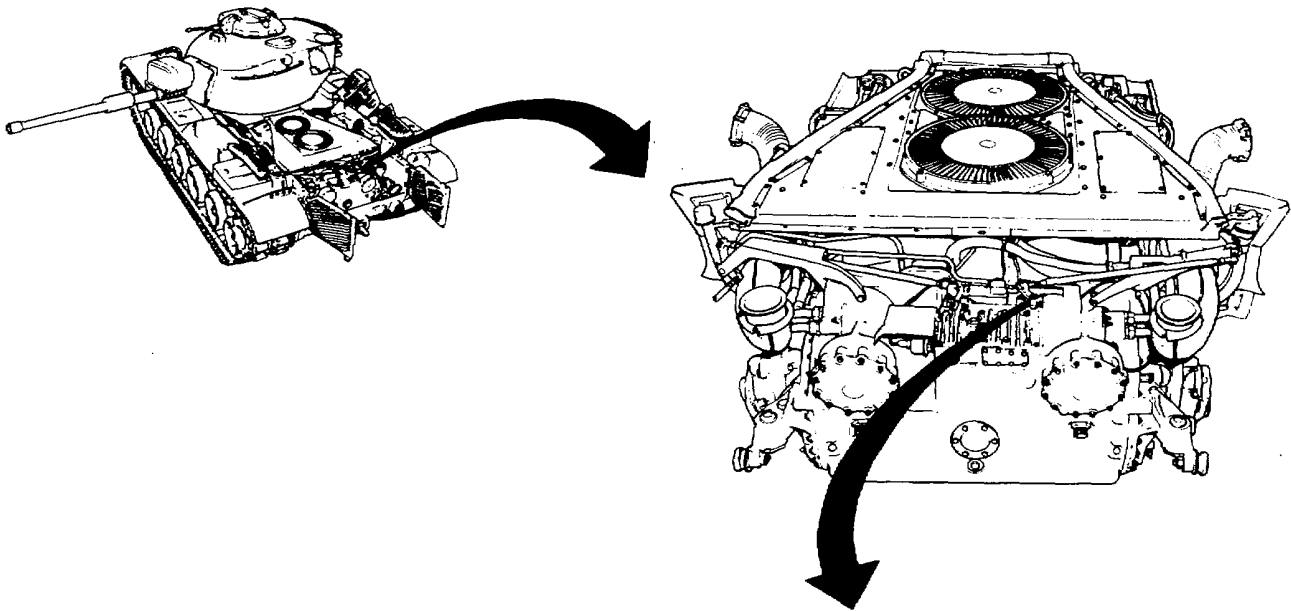
PROCEDURE INDEX

PROCEDURE	PAGE
Removal	11-37
Installation	11-39

TOOLS: Slip joint pliers  
 7/16 in. combination box and open end wrench  
 9/16 in. combination box and open end wrench (2 required)

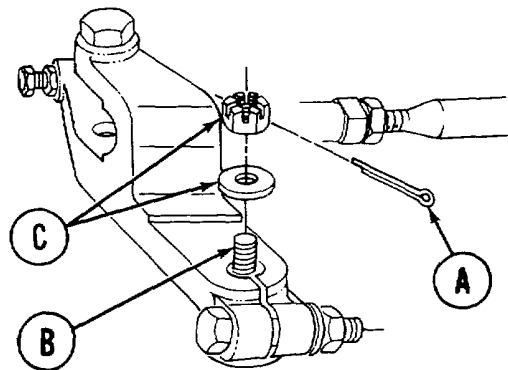
SUPPLIES: Cotter pin

PRELIMINARY PROCEDURES: Remove top deck (page 16-20)  
 Remove transmission shroud (page 9-20)



REMOVAL:

1. Using pliers, remove cotter pin (A) from transmission shaft stud (B).
2. Using 9/16 inch wrench, remove nut and washer (C) from transmission shaft stud (B).

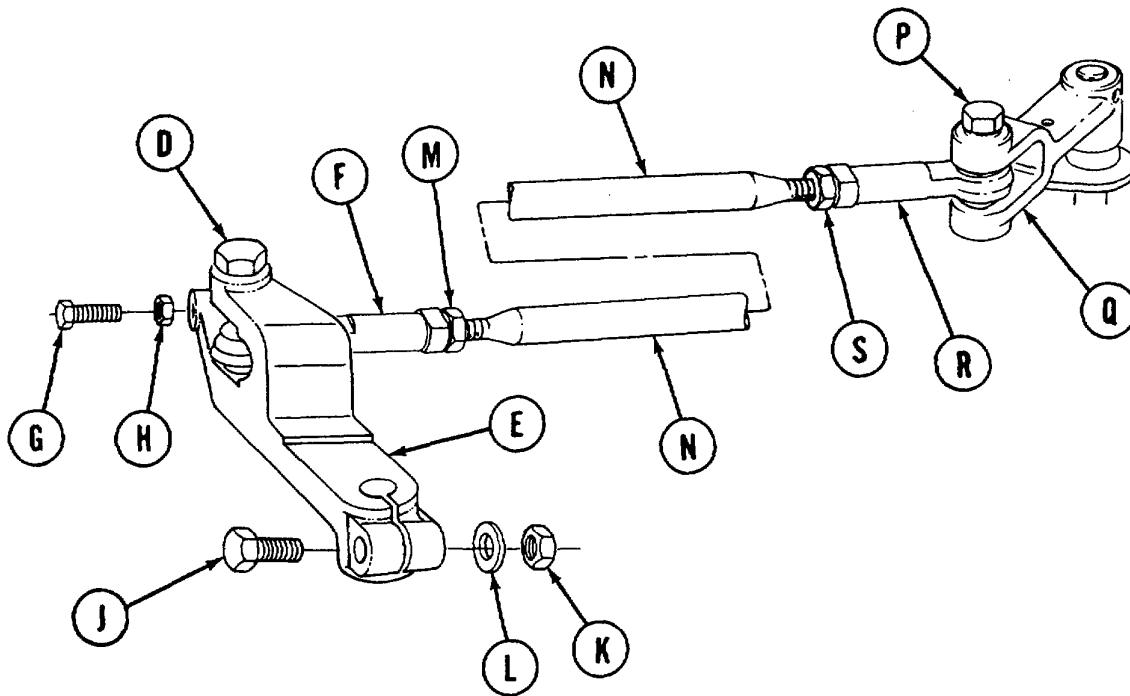


Go on to Sheet 2

TA146591



SHIFTING CONTROL ROD REPLACEMENT (Sheet 2 of 4)

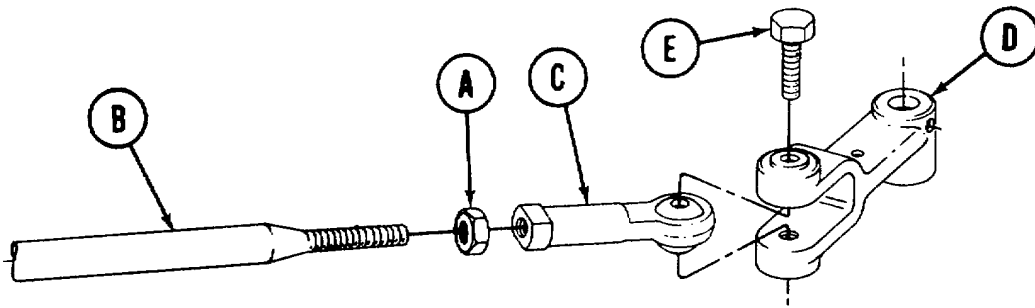


3. Using 9/16 inch wrench, remove bolt (D) from lever (E) and rod end (F), and separate rod end from clevis of lever (E).
4. Using 7/16 inch wrench, remove screw (G) and nut (H) from lever (E).
5. Using 9/16 inch wrench, hold screw (J). Using other 9/16 inch wrench, remove nut (K) and washer (L) from screw (J). Remove screw (J) and lever (E) from transmission shaft.
6. Using 9/16 inch wrench on flats of rod end (F) and 9/16 inch wrench on jamnut (M), loosen jamnut (M) and remove rod end (F) from rod (N).
7. Using 9/16 inch wrench, remove jamnut (M) from rod (N).
8. Using 9/16 inch wrench, remove bolt (P) from lever (Q) and remove rod end (R) from lever (Q).
9. Using 9/16 inch wrench on flats of rod end (R) and 9/16 inch wrench on jamnut (S), loosen jamnut (S) and remove rod end (R) from rod (N).
10. Using 9/16 inch wrench, remove jamnut (S) from rod (N).

Go on to Sheet 3

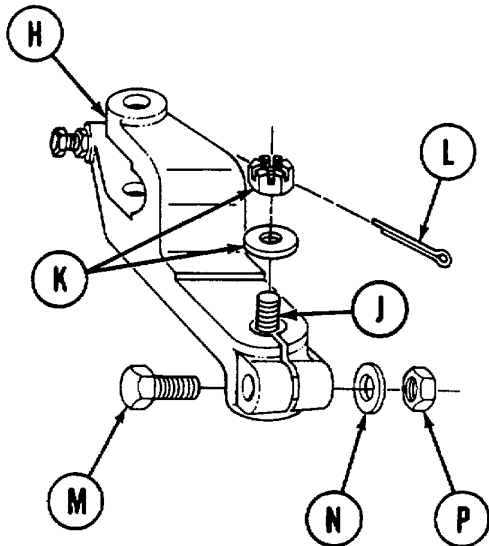
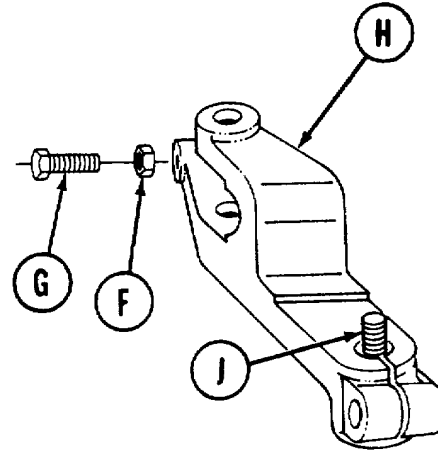
TA146592

SHIFTING CONTROL ROD REPLACEMENT (Sheet 3 of 4)



INSTALLATION:

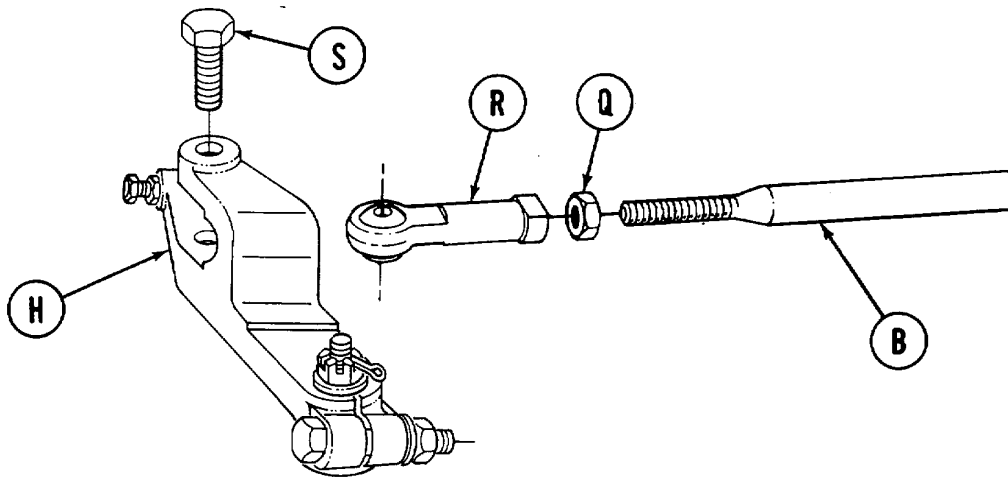
1. Using 9/16 inch wrench, install jamnut (A) onto rod (B).
2. Install rod end (C) onto rod (B).
3. Position rod end (C) into clevis of lever (D). Using 9/16 inch wrench, install bolt (E) through clevis of lever (D) and rod end (C).



4. Using hands, install jamnut (F) on screw (G).
5. Using 7/16 inch wrench, install screw (G) and jamnut (F) into lever (H).
6. Position lever (H) onto transmission shaft stud (J) as shown.
7. Using 9/16 inch wrench, install washer and nut (K) onto transmission shaft stud (J).
8. Using pliers, install new cotter pin (L) through nut (K) and transmission shaft stud (J).
9. Using two 9/16 inch wrenches, install screw (M), washer (N) and nut (P) through lever (H).

Go on to Sheet 4

## SHIFTING CONTROL ROD REPLACEMENT (Sheet 4 of 4)

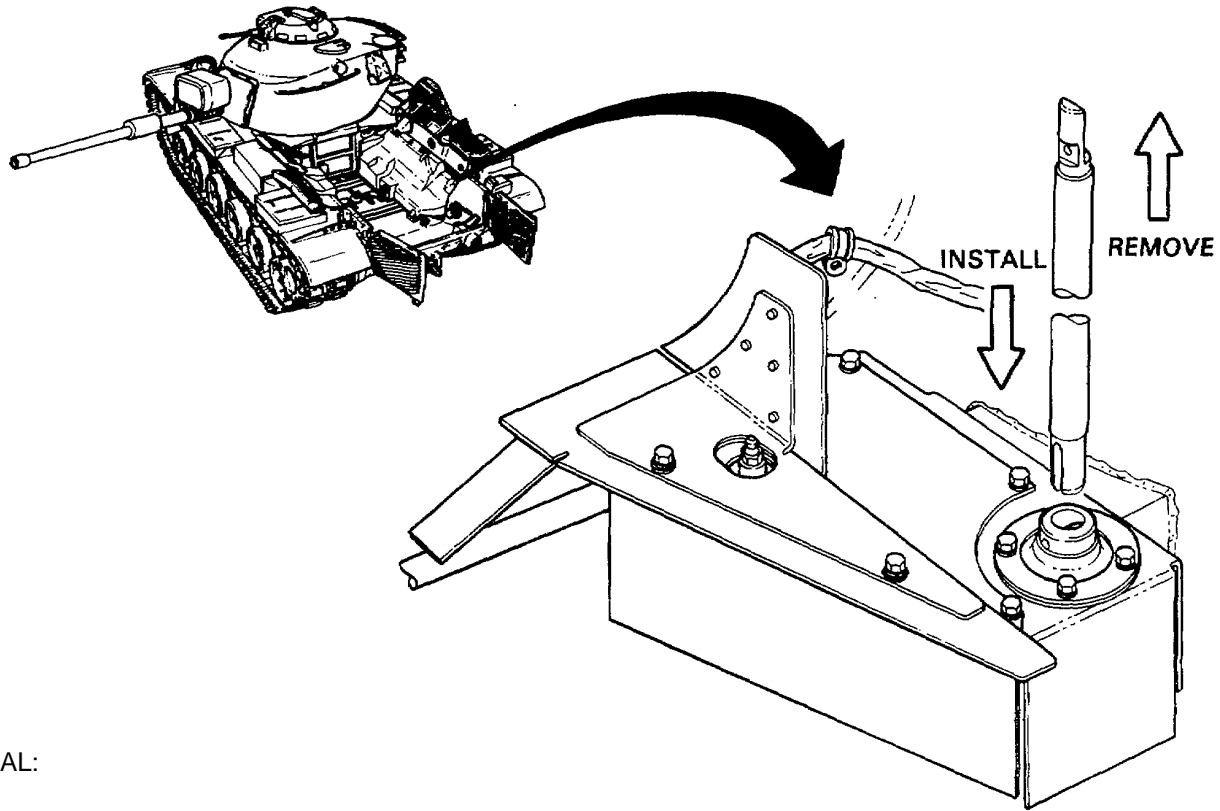


10. Using 9/16 inch wrench, install jamnut (Q) onto rod (B).
11. Using 9/16 inch wrench, install rod end (R) onto rod (B).
12. Adjust and position rod end (R) into clevis of lever (H). Using 9/16 inch wrench, install bolt (S) through clevis of lever (H) and rod end (R).
13. Adjust shifting linkage (page 11-2).
14. Replace transmission shroud (page 9-23).
15. Replace top deck (page 16-22).

End of Task

**SHIFTING CONTROL SHAFT ASSEMBLY REPLACEMENT (Sheet 1 of 1)**

PRELIMINARY PROCEDURE: Remove powerplant (page 5-1)



**REMOVAL:**

Grasp shaft (A) in both hands and lift up.

**INSPECTION:**

1. Inspect shaft for damage or wear.
2. Replace if required.

**INSTALLATION:**

1. Position slot in shaft (A) over pin (B) and push down.
2. Install 2A powerplant (page 5-14) or 2D powerplant (page 5-40).

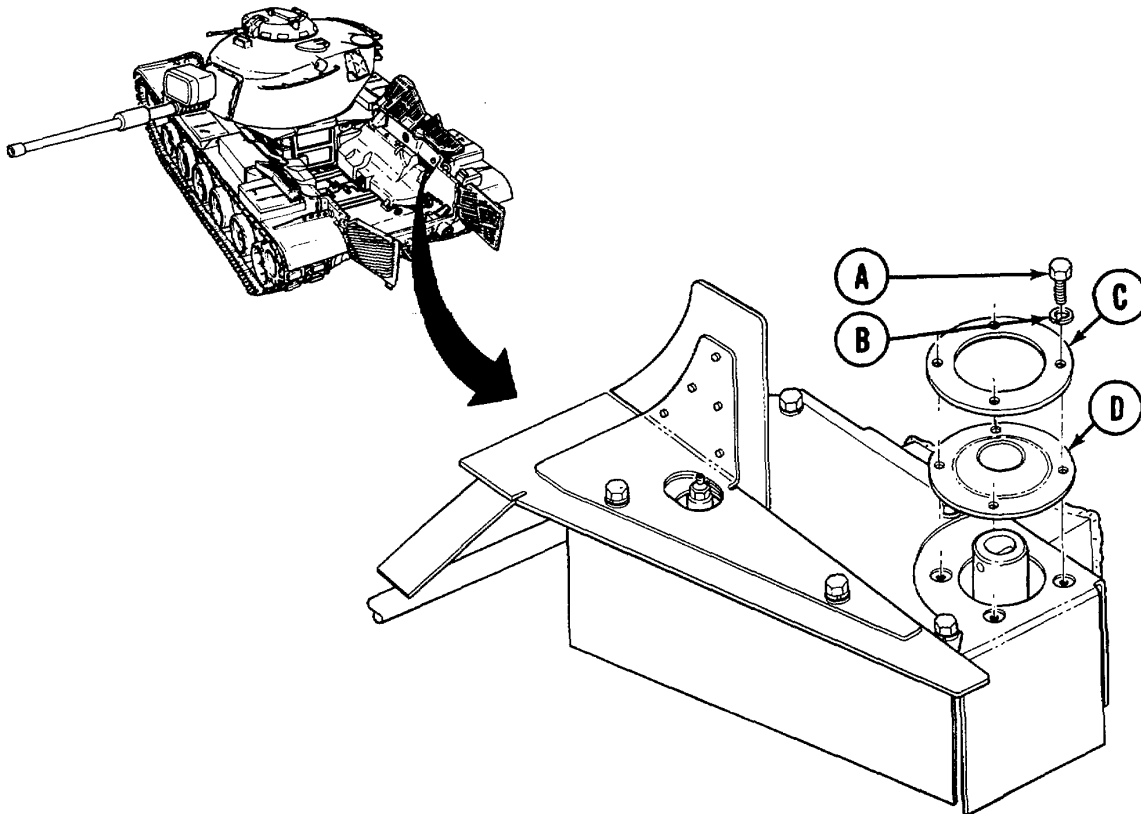
End of Task

**SHIFTING CONTROL GASKET REPLACEMENT (Sheet 1 of 2)**

TOOLS: 7/16 in. socket with 1/2 in. drive  
Ratchet with 1/2 in. drive  
Putty knife

SUPPLIES: Gasket (10911621)  
Lockwasher (MS35338-63)(4 required)

PRELIMINARY PROCEDURE: Remove powerplant (page 5-1)

**REMOVAL:**

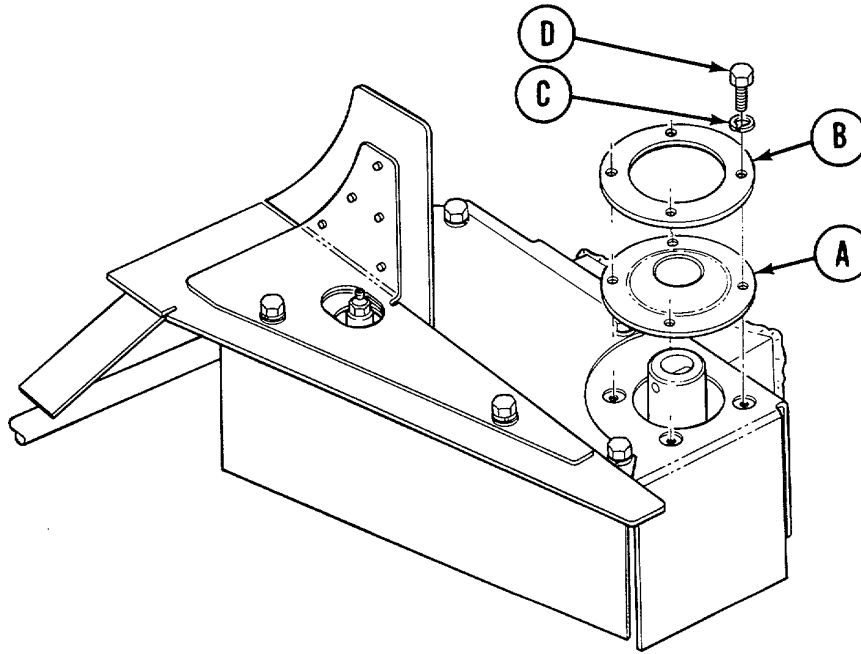
1. Using socket, remove four screws (A) and lockwashers (B). Throw lockwashers away.
2. Remove spacer (C) and gasket (D), use putty knife if necessary. Throw gasket away.

Go on to Sheet 2

TA146596

**SHIFTING CONTROL GASKET REPLACEMENT (Sheet 2 of 2)****INSTALLATION:**

1. Position new gasket (A) and spacer (B) over mounting holes.
2. Using socket, install four new lockwashers (C) and screws (D).
3. Install 2A powerplant (page 5-14) or 2D powerplant (page 5-40).



End of Task

**SHIFTING CONTROL BRACKET AND CONNECTING LINK ASSEMBLY REPAIR (Sheet 1 of 9)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	11-45
Disassembly	11-47
Assembly	11-50
Installation	11-51

TOOLS: 7/16 in. socket with 1/2 in. drive  
 9/16 in. socket with 1/2 in. drive  
 9/16 in. socket with 3/8 in. drive  
 Ratchet with 1/2 in. drive  
 1/8 in. drive punch  
 1/2 in. drive punch  
 9/16 in. combination box and open end wrench  
 3/4 in. combination box and open end wrench  
 7/16 in. combination box and open end wrench

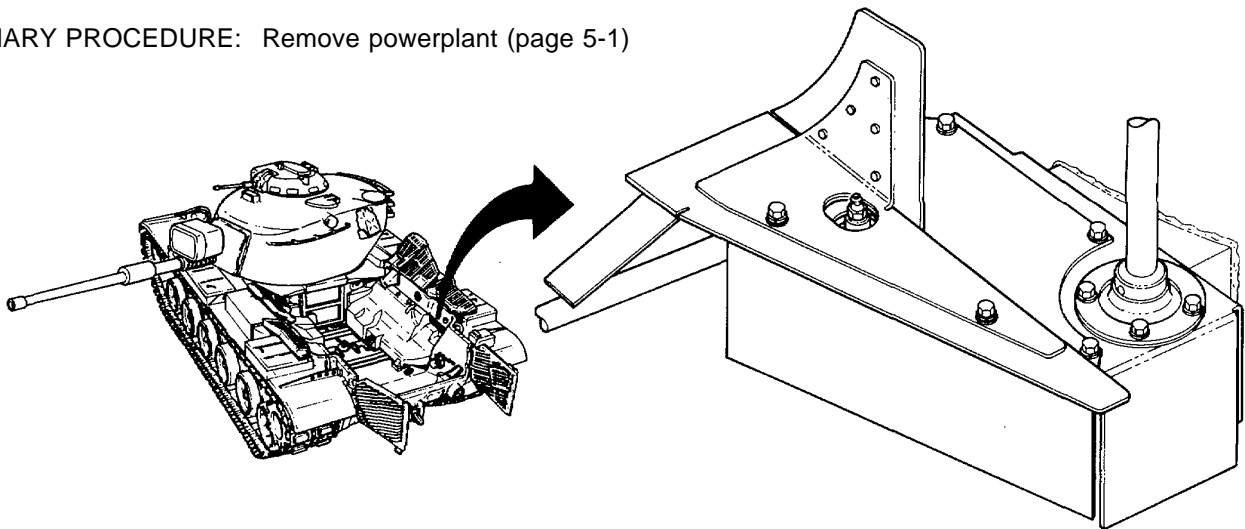
5/16 in. combination box and open end wrench  
 5 in. extension with 1/2 in. drive  
 Torque wrench with 3/8 in. drive (0-200 lb-in)  
 3/4 in. pin punch  
 6 in. rule  
 Grease gun  
 Vise  
 Hammer  
 2 in. extension with 3/8 in. drive  
 5 in. extension with 3/8 in. drive

SUPPLIES: Steel welding rod 1/8 in. dia.  
 Gasket (10911621)  
 Grease (Item 37, Appendix D)

Lockwasher (MS35338-63)(9 required)  
 Lockwasher (MS35338-46)(3 required)

REFERENCE: TM 9-2350-260-10

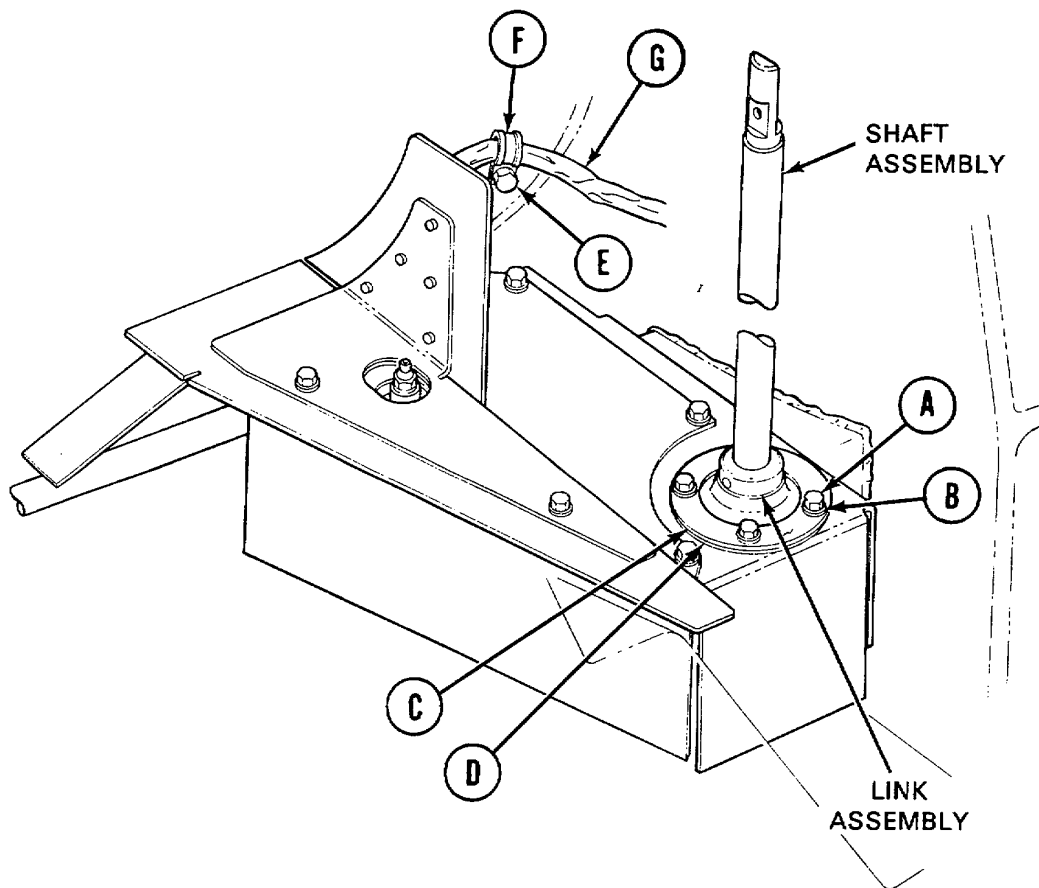
PRELIMINARY PROCEDURE: Remove powerplant (page 5-1)



Go on to Sheet 2

**SHIFTING CONTROL BRACKET AND CONNECTING LINK ASSEMBLY REPAIR (Sheet 2 of 9)****REMOVAL:**

1. Lift shaft assembly from link assembly.
2. Using 7/16 inch socket, remove four screws (A) and lockwashers (B) securing spacer (C) and gasket (D). Throw lockwashers away.
3. Remove spacer (C) and gasket (D). Throw gasket (D) away.
4. Using 7/16 inch socket, remove screw (E) from clamp (F).
5. Remove clamp (F).
6. Push cable (G) aside.



Go on to Sheet 3

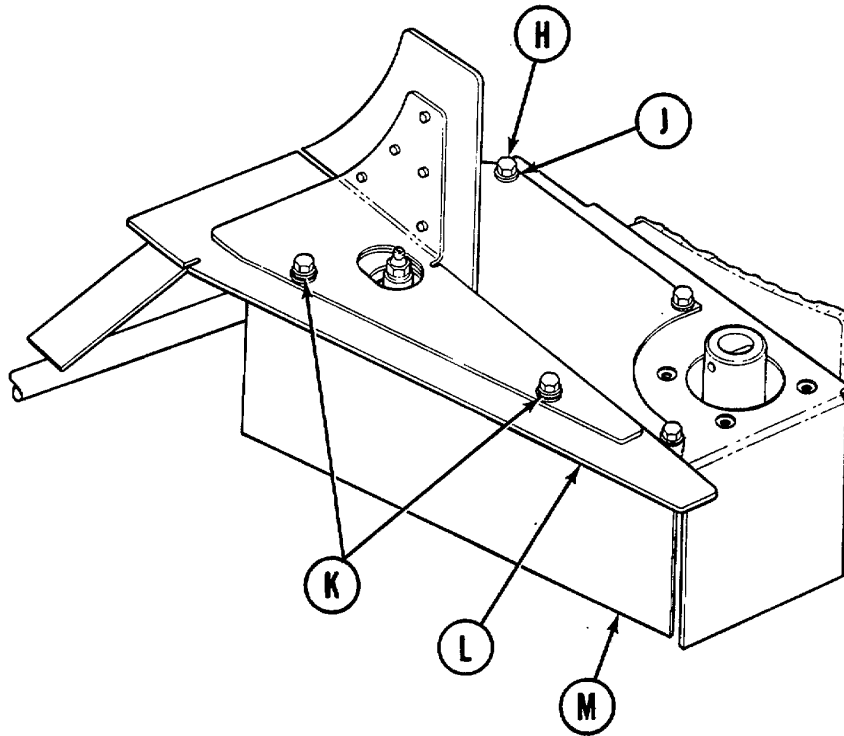
TA146599

11-45



**SHIFTING CONTROL BRACKET AND CONNECTING LINK ASSEMBLY REPAIR (Sheet 3 of 9)**

7. Using 7/16 inch socket, remove five screws (H), five lockwashers (J), and two flat washers (K).
8. Remove seal assembly (L).
9. Remove shield (M).

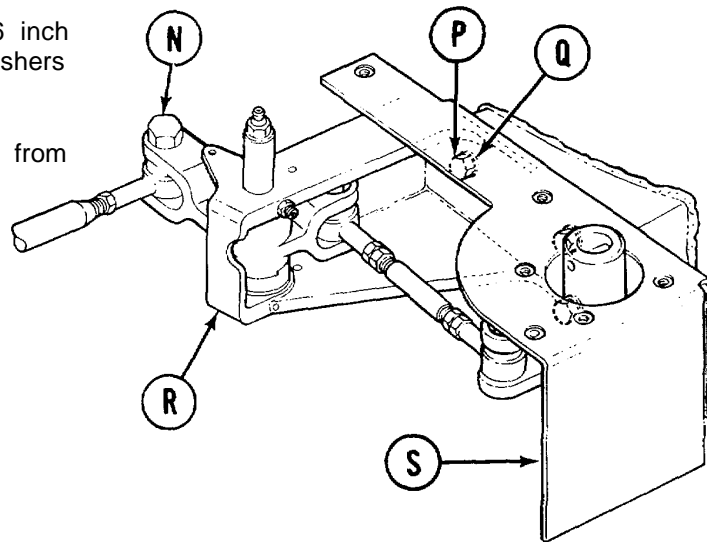


Go on to Sheet 4

TA146600

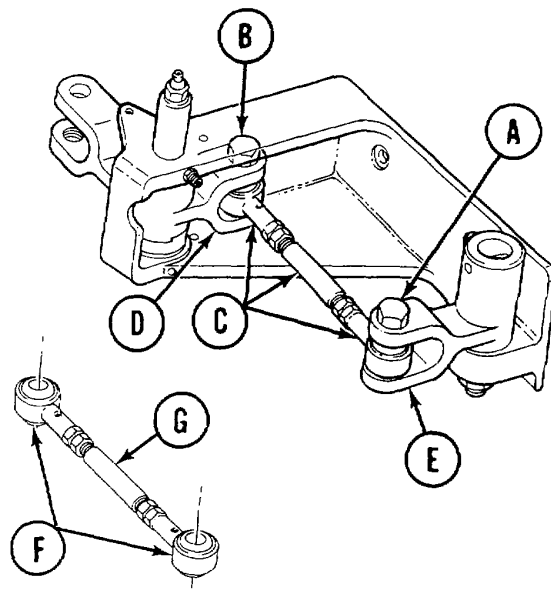
**SHIFTING CONTROL BRACKET AND CONNECTING LINK ASSEMBLY REPAIR (Sheet 4 of 9)**

10. Using 9/16 inch wrench, remove bolt (N).
11. Using 9/16 inch socket, extension, and 9/16 inch wrench, remove three screws (P) and lockwashers (Q) securing bracket assembly (R) to hull.
12. Remove bracket assembly (R) and shield (S) from hull wall.



**DISASSEMBLY:**

1. Using 9/16 inch socket, remove bolts (A) and (B).
2. Remove stud and rod end bearing assembly (C) from clevises (D) and (E).
3. Inspect rod end bearings (F). Replace if required.
4. Inspect stud (G) for cracks or bends. Replace if required.



**NOTE**

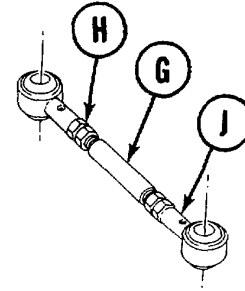
If replacement of parts on stud and rod end bearing assembly (C) is required, perform steps 5 through 7.

TA146601

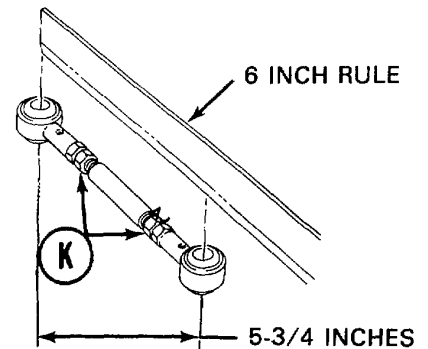
Go on to Sheet 5

**SHIFTING CONTROL BRACKET AND CONNECTING LINK ASSEMBLY REPAIR (Sheet 5 of 9)**

5. Using two 9/16 inch wrenches, remove rod ends (H) and (J) from stud (G) if necessary.
6. Using two 9/16 inch wrenches, install new rod ends (H) and (J) on stud (G) as required.
7. Using 6 inch rule, adjust length of rod assembly to 5-3/4 inches center-to-center of rod end holes.
8. Using two 9/16 inch wrenches, tighten jamnuts (K) while maintaining 5-3/4 in measurement.



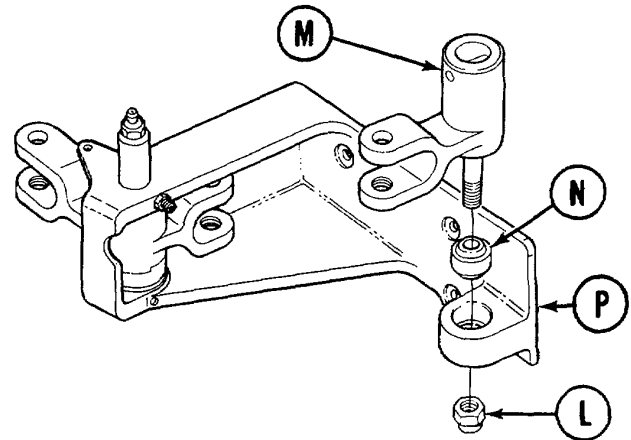
9. Using 3/4 inch wrench, remove nut (L).
10. Remove link assembly (M).
11. Inspect bearing (N) and link (M). Replace if required.



**NOTE**

**If bearing (N) is to be replaced, perform steps 12 and 13. If not, proceed to step 14.**

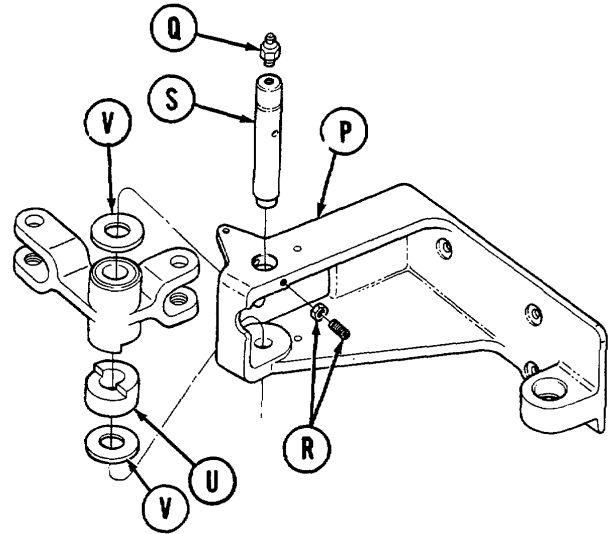
12. Using 3/4 inch punch and hammer, remove bearing (N) from bracket (P).
13. Using vise, press new bearing (N) in bracket (P).



Go on to Sheet 6

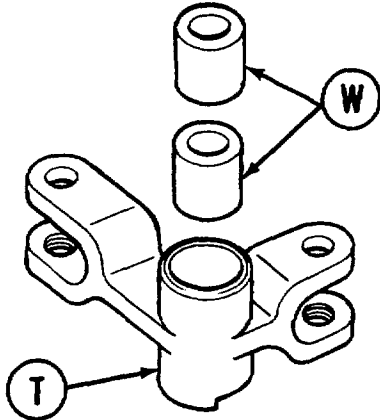
**SHIFTING CONTROL BRACKET AND CONNECTING LINK ASSEMBLY REPAIR**  
**(Sheet 6 of 9)**

14. Place bracket (P) into vise.
15. Using 5/16 inch combination wrench, remove grease fitting (Q).
16. Inspect grease fitting (Q) for blockage or damaged threads. Throw away if damaged.
17. Using 1/8 inch allen wrench and 7/16 inch wrench, remove setscrew and jamnut (R).
18. Turn bracket (P) over, and using hammer and 1/2 inch punch, remove shaft (S).
19. Remove connecting link (T) spacer (U) and two washes (V).
20. Inspect washes (V) and connecting link bearings (W).



**NOTE**

**If bearings (W) are to be replaced, perform steps 21 and 22.**



21. Using 1/2 inch punch and hammer, remove bearings (W).
22. Using vise, press new bearings (W) one at a time into connecting link (T) flush with outer surface of connecting link (T).

Go on to Sheet 7

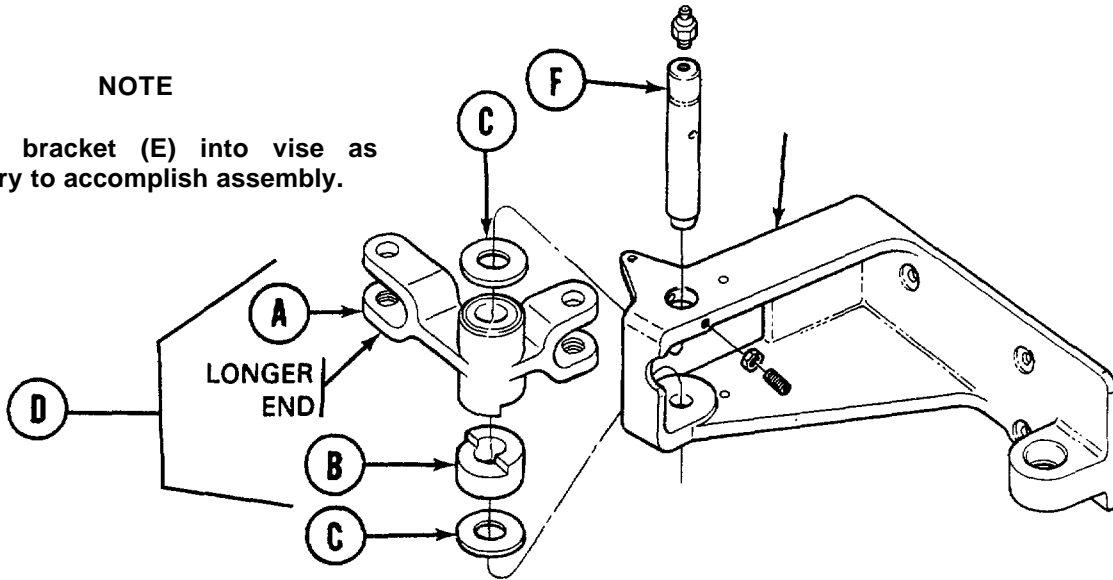
TA146603

**SHIFTING CONTROL BRACKET AND CONNECTING LINK ASSEMBLY REPAIR**  
 (Sheet 7 of 9)

ASSEMBLY:

**NOTE**

Position bracket (E) into vise as necessary to accomplish assembly.



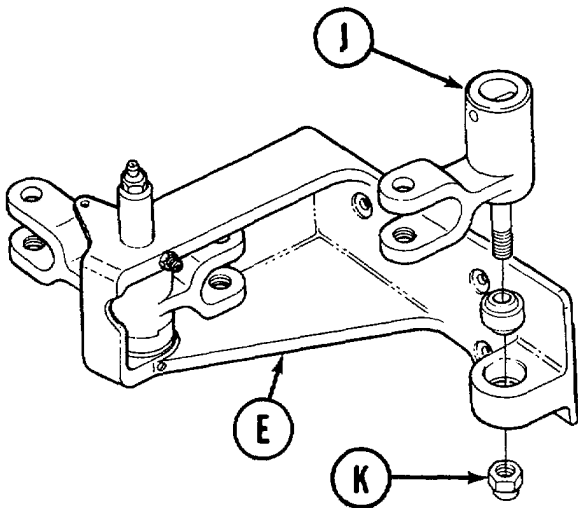
1. Assemble connecting link (A) and spacer (B).
2. Position two washers (C) on assembled link (D).
3. Carefully position washers (C) and assembled link (D) in bracket (E), making sure longer end of connecting link is inserted through bracket.
4. Position shaft (F) through bracket (E), washers (C), and assembled link (D), with shouldered end downward.

5. Using 1/8 inch allen wrench, install setscrew and jamnut (G) into bracket (E), with setscrew holding shaft (F) in bracket. Using 7/16 inch wrench and allen wrench, lock screw.

6. Using 5/16 inch wrench, install grease fitting (H).

7. Position link assembly (J) on bracket (E).

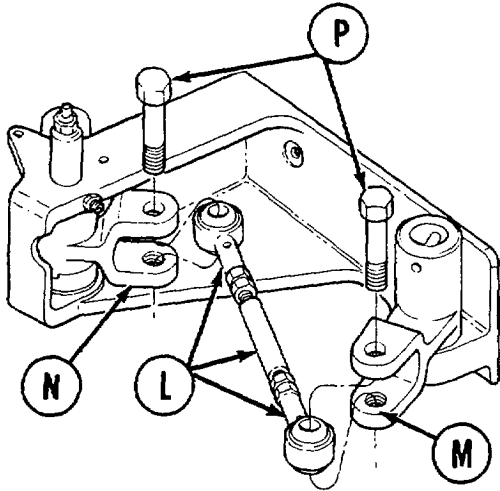
8. Using 3/4 inch wrench, install nut (K) on link assembly (J).



Go on to Sheet 8

TA146604

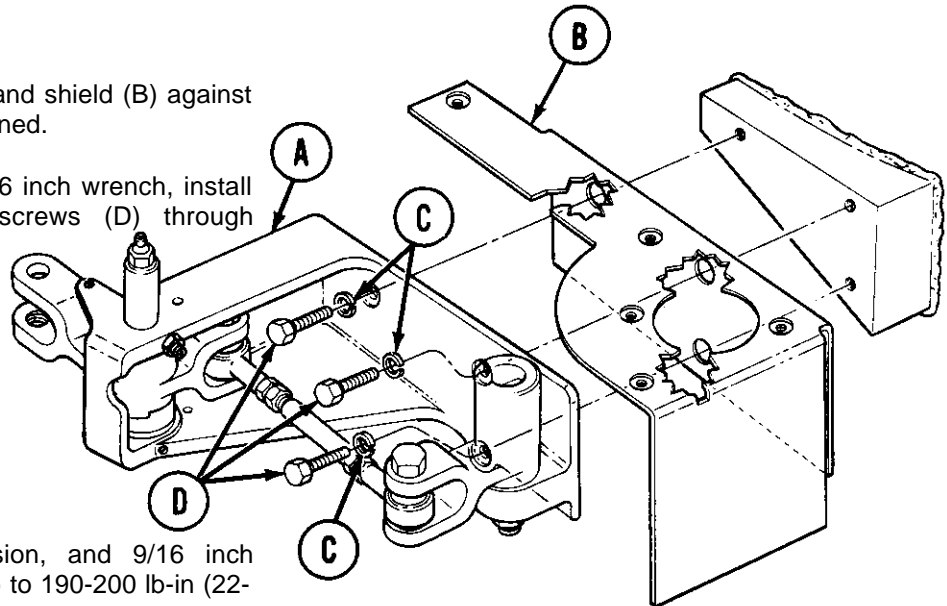
**SHIFTING CONTROL BRACKET AND CONNECTING LINK ASSEMBLY REPAIR**  
(Sheet 8 of 9)



9. Position stud and rod end bearing assembly (L) with rod end holes aligned with holes in clevises (M) and (N).
10. Using 9/16 inch socket, install two bolts (P) through clevises (M) and (N) and stud and rod end bearing assembly (L).
11. Using torque wrench and 9/16 inch socket, tighten two bolts (P) to 190-200 lb-in (22-23 N•m).

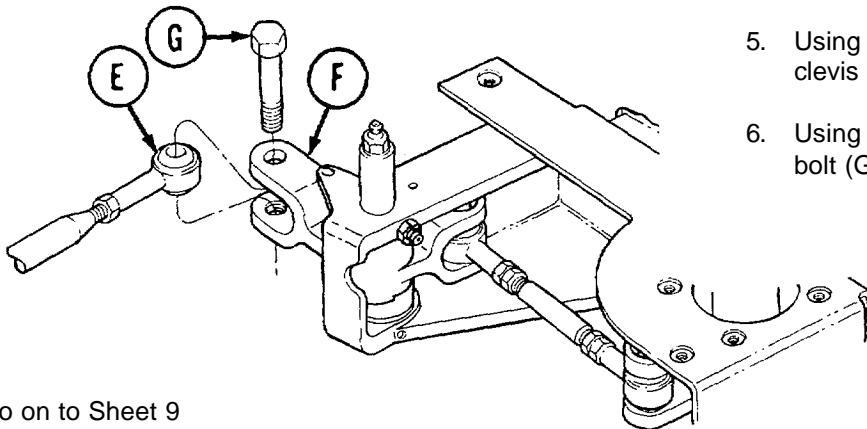
**INSTALLATION:**

1. Position bracket assembly (A) and shield (B) against hull wall with mounting holes aligned.
2. Using 9/16 inch socket and 9/16 inch wrench, install three lockwashers (C) and screws (D) through bracket (A).



3. Using torque wrench, extension, and 9/16 inch socket, tighten three screws (D) to 190-200 lb-in (22-23 N•m).

4. Position rod end (E) in clevis (F).
5. Using 9/16 inch wrench, install bolt (G) through clevis (F) and rod end (E).
6. Using torque wrench and 9/16 inch socket, tighten bolt (G) to 190-200 lb-in (22-23 N•m).

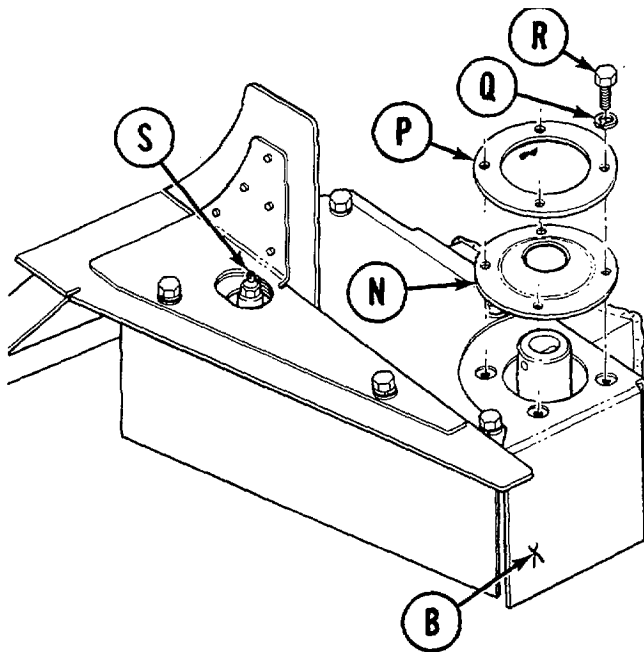
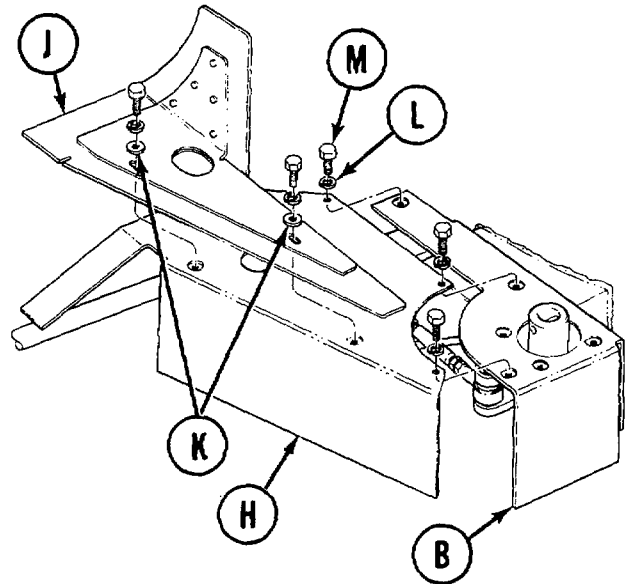


Go on to Sheet 9

TA146605

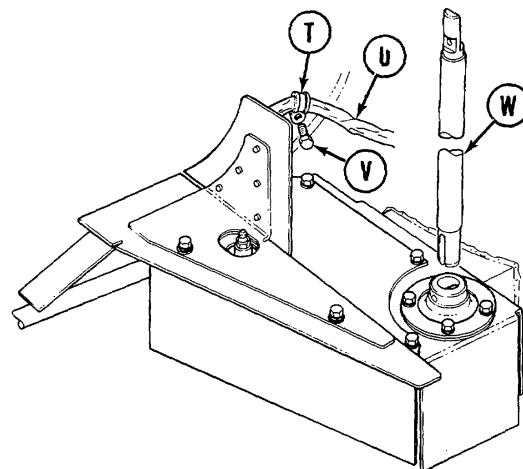
**SHIFTING CONTROL BRACKET AND CONNECTING LINK ASSEMBLY REPAIR**  
**(Sheet 9 of 9)**

7. Install shield (H) over shield (B) with holes alined.
8. Position seal assembly (J) over shield (H) with holes alined.
9. Position two flat washers (K) on seal assembly with holes alined.
10. Using 7/16 inch socket, install five lockwashers (L) and screws (M) and secure seal assembly (J) and shield (H) to shield (B).



11. Position new gasket (N) and spacer (P) on shield (B) with holes alined.
12. Using 7/16 inch socket, install four lockwashers (Q) and screws (R) through spacer (P) and gasket (N).
13. Lubricate connecting link at grease fitting (S) using grease (Item 37, Appendix D).

14. Position clamp (T) on cable (U).
15. Position cable (U) and clamp (T) on hull wall.
16. Using 7/16 inch wrench, install screw (V) through clamp (T).
17. Insert shaft assembly (W) into link assembly.
18. Install 2A powerplant (page 5-14) or 2D powerplant (page 5-40).
19. Check shifting pattern response (TM 9-2350-260-10). If transmission does not shift correctly, adjust shifting linkage (page 11-2).



End of Task

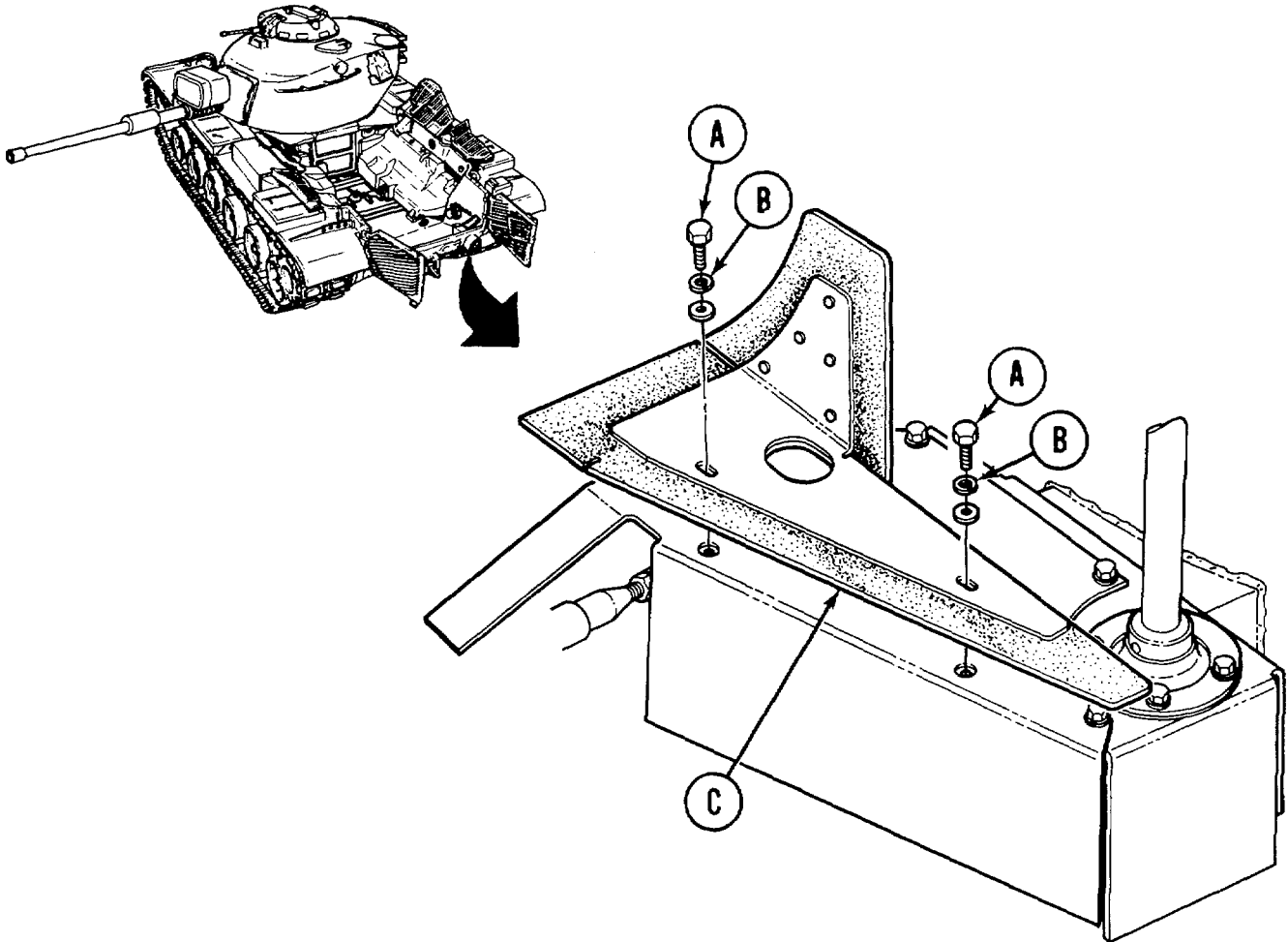
TA146606

**SHIFTING CONTROL SEAL ASSEMBLY REPLACEMENT AND REPAIR (Sheet 1 of 2)**

TOOLS: 7/16 in. combination box and open end wrench  
 7/16 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive

SUPPLIES: Lockwashers (MS35338-63) (2 required)

PRELIMINARY PROCEDURE: Remove powerplant (page 5-1)

**REMOVAL:**

1. Using socket and 7/16 inch wrench, remove two screws (A) and lockwashers (B).
2. Remove seal (C).

**INSPECTION:**

Inspect seal for damage and wear. Replace as required.

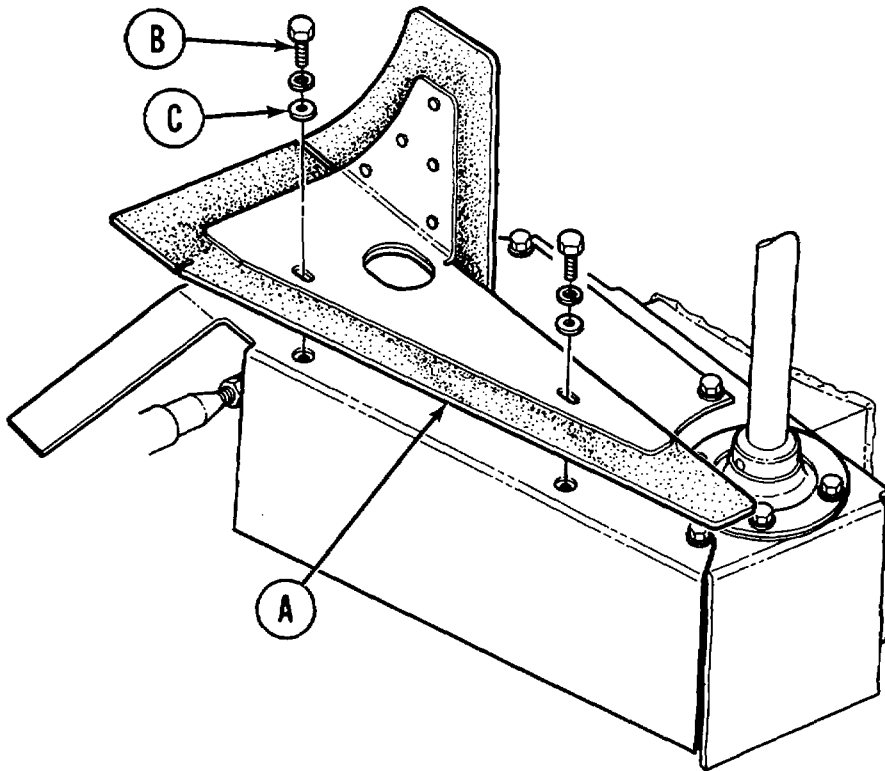
Go on to Sheet 2

TA146607



**SHIFTING CONTROL SEAL ASSEMBLY REPLACEMENT AND REPAIR (Sheet 2 of 2)****INSTALLATION:**

1. Position new seal (A).
2. Using socket and 7/16 inch wrench, install two screws (B) and new lockwashers (C) through seal assembly (A).



3. Install 2A powerplant (page 5-14) or 2D powerplant (page 5-40).

End of Task

TA146608

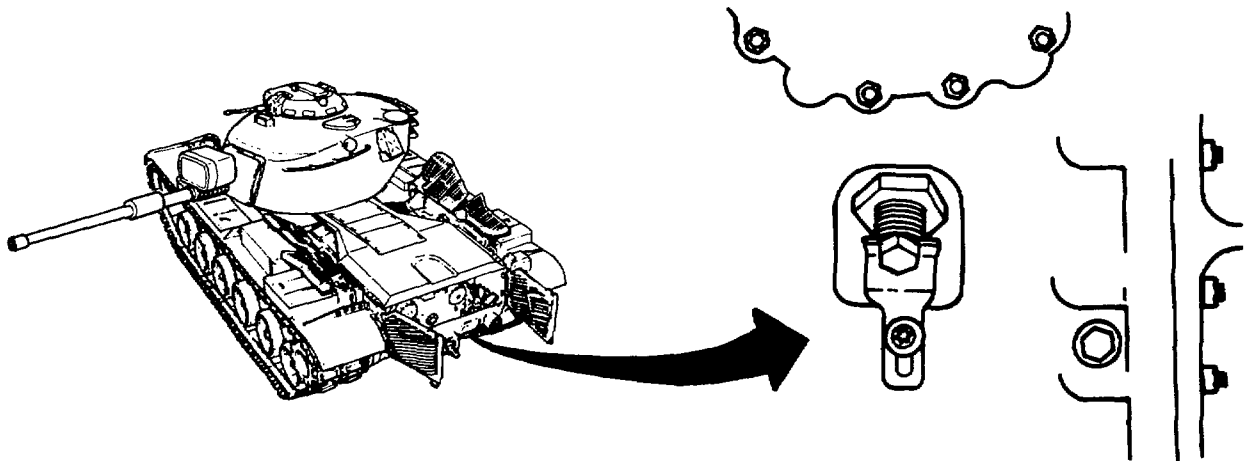
**SERVOBANDS ADJUSTMENT (Sheet 1 of 4)**

TOOLS: Torque wrench with 1/2 in. drive (0-175 b-ft)(0-237 Nm)  
 9/16 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 1-1/16 in. socket with 1/2 in. drive  
 1-1/16 in. open end wrench

SPECIAL TOOLS: Socket wrench (Item 6, Chapter 3, Section I)

REFERENCE: TM 9-2350-215-10

PRELIMINARY PROCEDURE Set shift lever in (P) park position (TM 9-2350-260-10)  
 Remove transmission shroud (page 9-20)



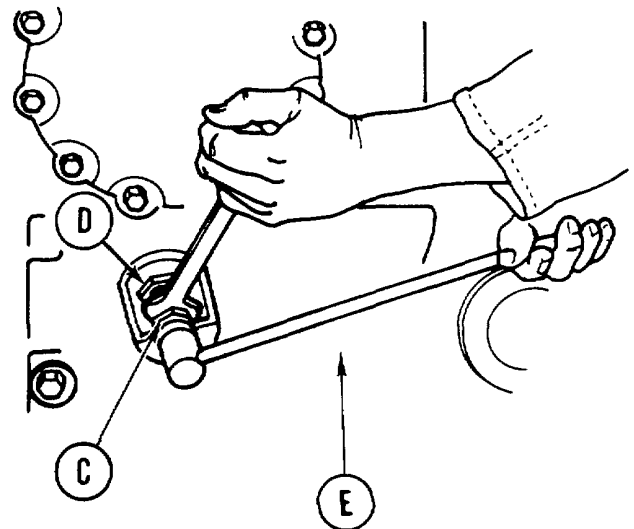
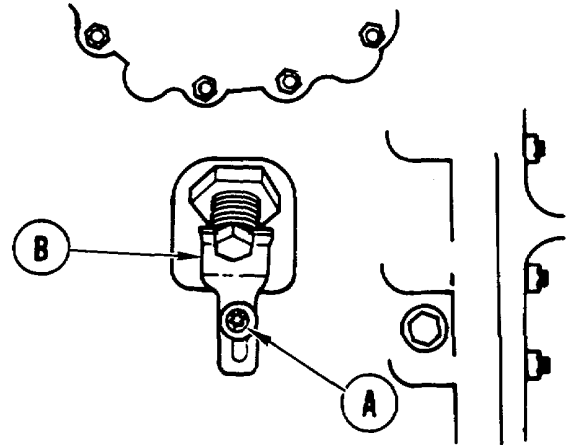
Go on to Sheet 2

TA146609

**SEROBANDS ADJUSTMENT (Sheet 2 of 4)****SEROBANDS ADJUSTMENT:****NOTE**

**Procedures are the same for adjustment of both the low and reverse bands.**

1. Using 9/16 inch socket, remove bolt and washer (A) holding lock plate (B). Remove lock plate.
2. Using 1-1/16 inch wrench on adjusting nut (C) and socket wrench (Item 6, Chapter 3, Section I) on locknut (D), loosen locknut (D) enough to allow adjustment of adjusting nut (C) without locknut (D) contacting transmission case (E).

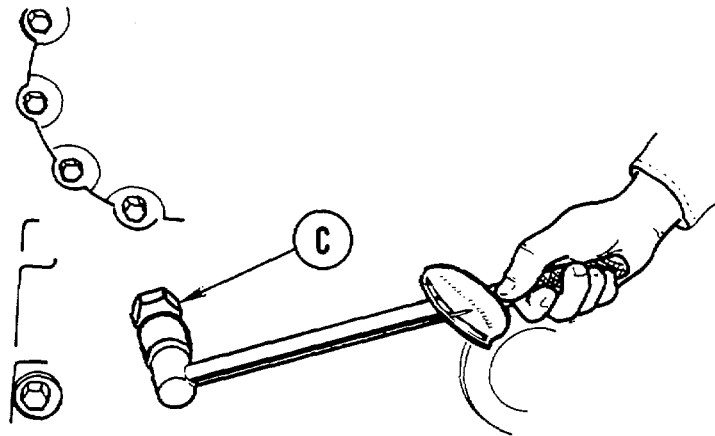


Go on to Sheet 3

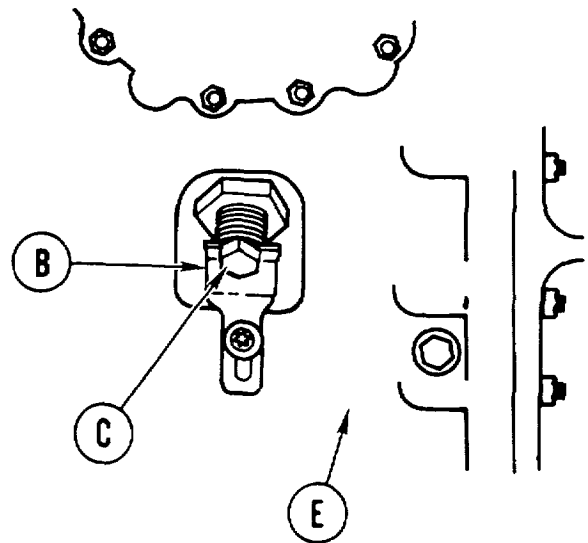
TA146610

**SERVOBANDS ADJUSTMENT (Sheet 3 of 4)**

- Using torque wrench and 1-1/16 inch socket on adjusting nut (C), torque adjusting nut to 150 lb-ft (203 N•m).



- Back off adjusting nut (C) approximately one full turn to nearest flat that will align lock plate (B) with adjusting nut when lock plate is installed.
- Scribe mark on adjusting nut (C) and transmission case (E) to record aligned position.

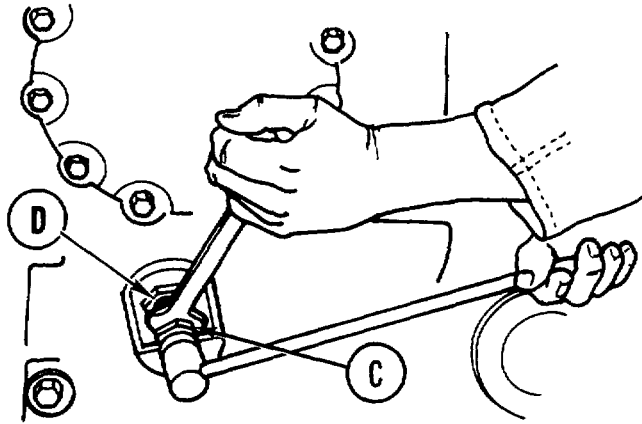


Go on to Sheet 4

TA146611

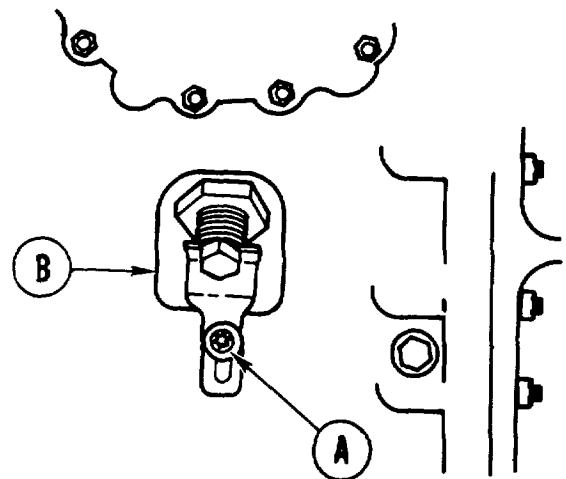
**SEROBANDS ADJUSTMENT (Sheet 4 of 4)**

6. Using socket (Item 6, Chapter 3, Section I) on locknut (D) and 1-1/16 inch wrench on adjusting nut (C), hold adjusting nut (C) stationary and tighten locknut (D).



7. Using torque wrench and socket (Item 6, Chapter 3, Section I), torque locknut (D) to 150 lb-ft (203 N•m).
8. Check scribe mark on adjusting nut (C) and transmission case for alignment and repeat complete adjustment procedure if out of alignment.
9. Using 9/16 inch socket, install lock plate (B) using bolt and washer (A).
10. Install transmission shroud (page 9-23).

End of Task



TA146612

**TRANSMISSION MAIN OIL FILTER ELEMENT REPLACEMENT (Sheet 1 of 7)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	11-59
Cleaning and Inspection	11-62
Installation	11-63

TOOLS: 9/16 in. socket with 1/2 in. drive  
 7/16 in. socket with 1/2 in. drive  
 5 in. extension with 1/2 in. drive  
 1 in. open end wrench  
 Torque wrench with 1/2 in. drive  
 Flat-tip screwdriver  
 Diagonal cutting pliers  
 Putty knife  
 Slip joint pliers  
 Retaining ring pliers  
 Ratchet with 1/2 in. drive

SUPPLIES: Gasket (7707232)  
 Transmission oil  
 Rags (Item 65, Appendix D)  
 Dry cleaning solvent (Item 54, Appendix D)  
 Lockwire (Item 60, Appendix D)  
 1/4 in. x 20 NF x 3 in. long screws (jackscrews)(2 required)  
 Lockwasher (MS35338-8 (10 required)

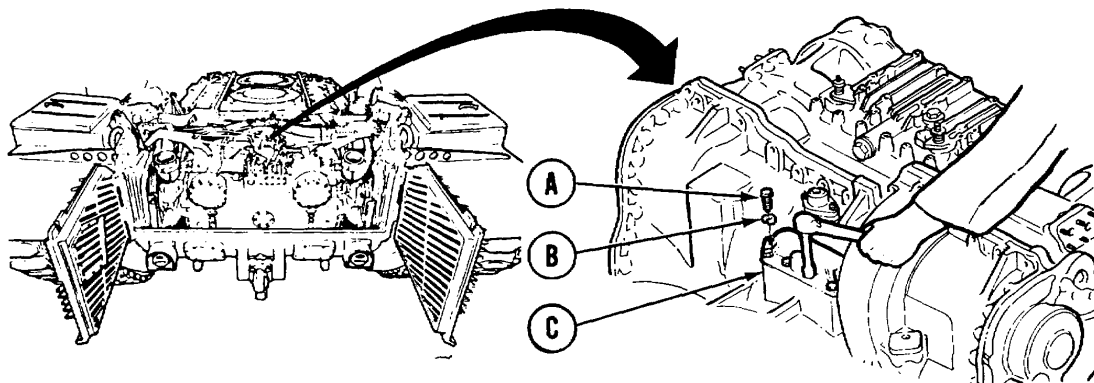
PRELIMINARY PROCEDURES: Remove top deck (page 16-20)  
 Remove transmission shroud (page 9-20)

REMOVAL:

**NOTE**

**Some filter assemblies are secured with nuts and threaded studs instead of bolts and lockwashers.**

1. Using 9/16 inch socket, remove 10 bolts (A) and lockwashers (B) holding filter assembly (C) to front of transmission. Throw lockwashers away.



Go on to Sheet 2

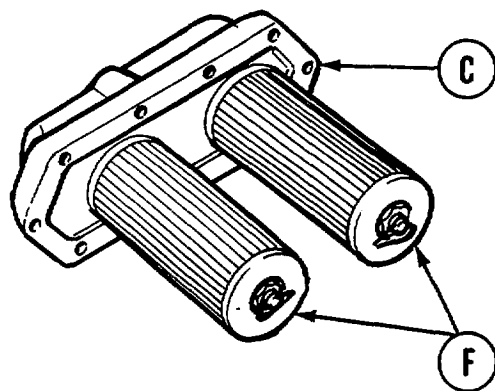
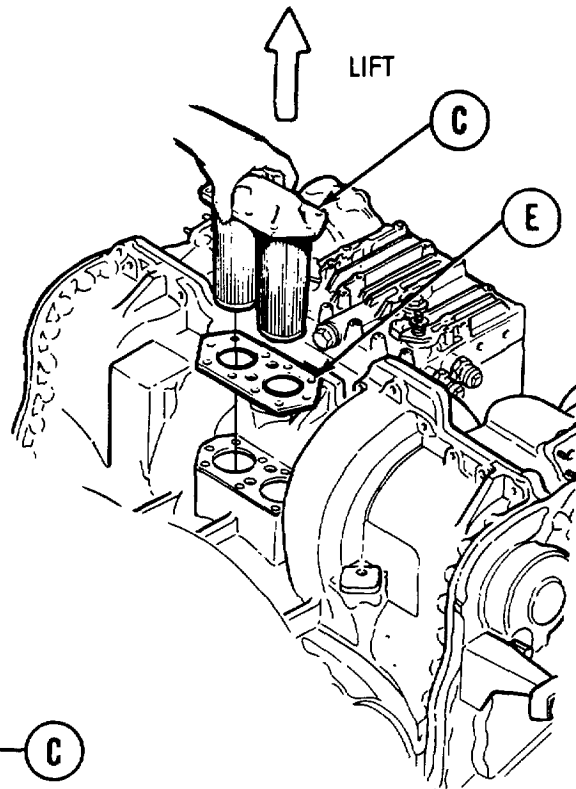
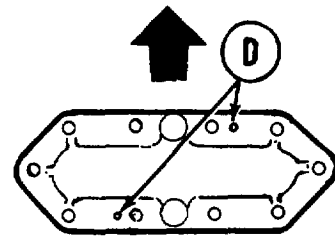
**TRANSMISSION MAIN OIL FILTER ELEMENT REPLACEMENT (Sheet 2 of 7)**

2. Using two jackscrews and 7/16 inch socket, loosen filter assembly by installing bolts in holes (D) and tightening evenly to withdraw filter assembly.
3. Using 7/16 inch socket, remove two 1/4 inch x 20 NF x 3 inch jackscrews (D) from filters.
4. Lift filter assembly (C) out of transmission and remove gasket (E). Throw gasket away.

**NOTE**

**Some filters are secured with self-locking nuts and do not require lockwiring.**

5. Using diagonal cutting pliers, remove lockwire (F), if present, securing nut on bottom of filter assembly (C).

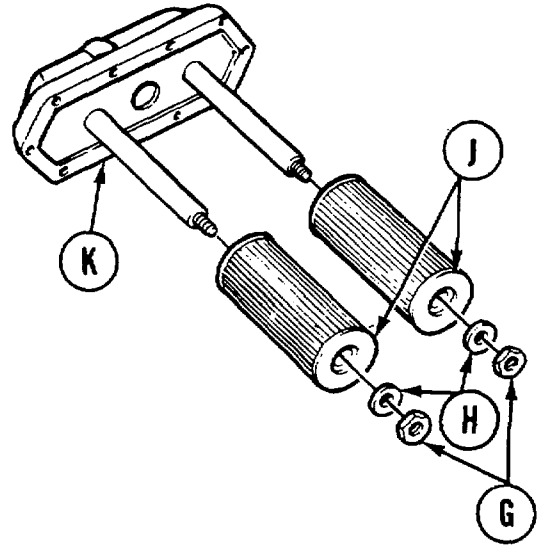


Go on to Sheet 3

TA146614

TRANSMISSION MAIN OIL FILTER ELEMENT REPLACEMENT (Sheet 3 of 7)

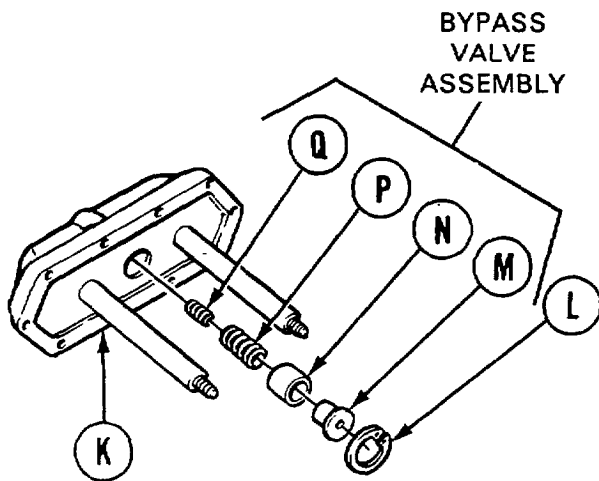
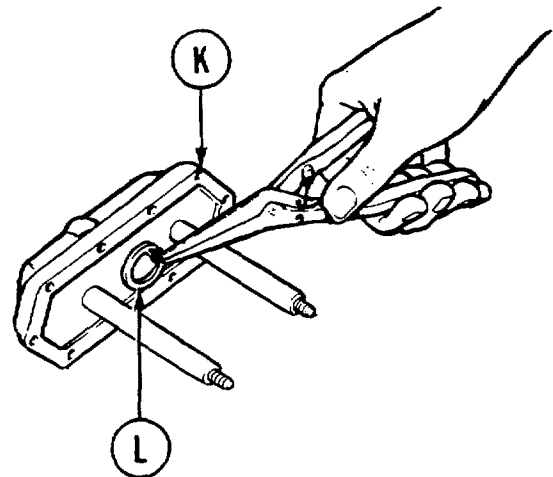
6. Using 1 inch wrench, remove two nuts (G) and two washers (H) holding filter elements (J) to filter assembly head (K).
7. Remove two filter elements (J) from filter assembly head (K).



**CAUTION**

**Bypass valve has spring tension. Hold hand over bypass valve while removing.**

8. Using retaining ring pliers, remove retaining ring (L) holding bypass valve in bottom of filter assembly head (K).



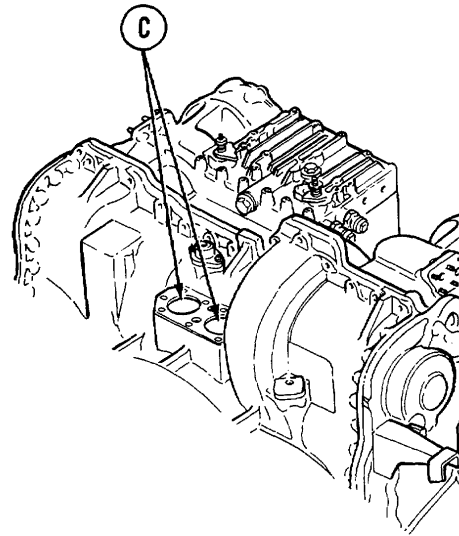
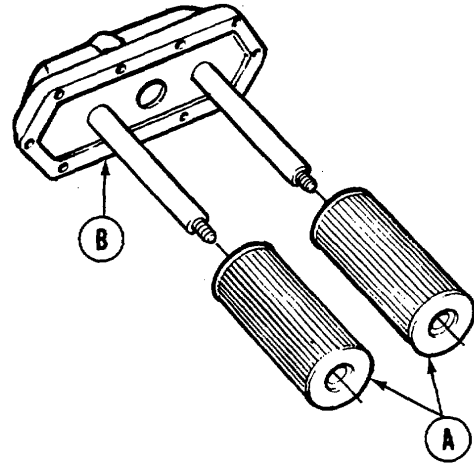
9. Remove washer (M), sleeve (N), outer spring (P), and inner spring (Q) from filter assembly head (K).



## TRANSMISSION MAIN OIL FILTER ELEMENT REPLACEMENT (Sheet 4 of 7)

## CLEANING AND INSPECTION:

1. Clean filter elements (A) using dry cleaning solvent (Item 54, Appendix D). If filter elements are damaged, throw them away.
2. Using putty knife, clean old gasket off filter assembly head (B) mounting surface.
3. Clean dirt and oil off filter assembly head (B).
4. Inspect bypass valve springs for damage. Replace if defective.
5. Stuff clean rags into filter assembly holes (C) on transmission.
6. Using putty knife, clean off gasket mounting surface on transmission.



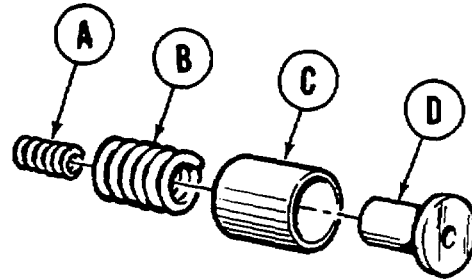
Go on to Sheet 5

TA146616

TRANSMISSION MAIN OIL FILTER ELEMENT REPLACEMENT (Sheet 5 of 7)

**INSTALLATION:**

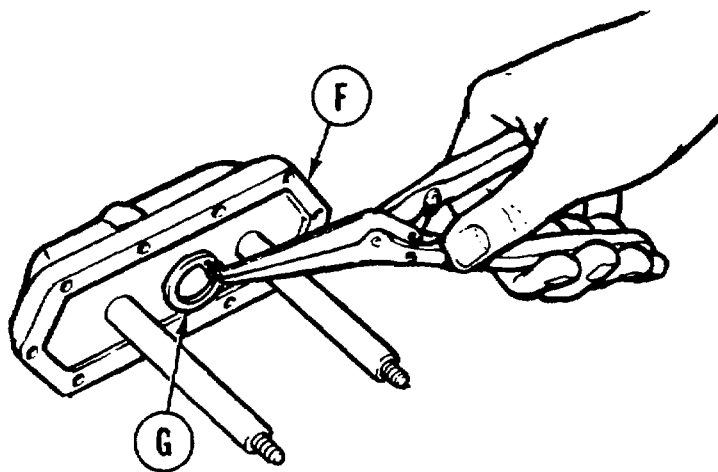
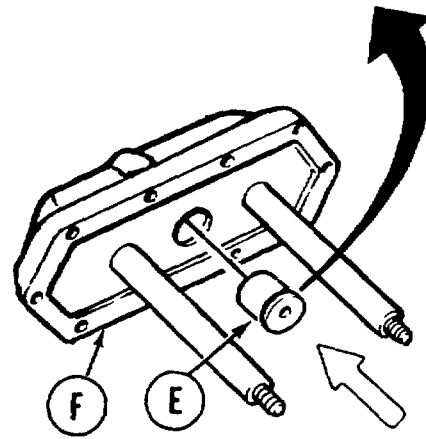
1. Assemble inner spring (A), outer spring (B), sleeve (C), and washer (D).
2. Install assembled bypass valve (E) into bottom of filter assembly head (F).



**NOTE**

**It may be necessary to maintain pressure on bypass valve with screwdriver to perform step 3.**

3. Using retaining ring pliers, install retaining ring (G) into filter assembly head (F) to hold bypass valve in place.

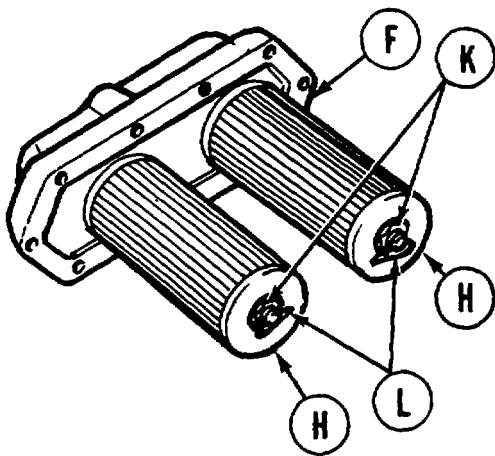
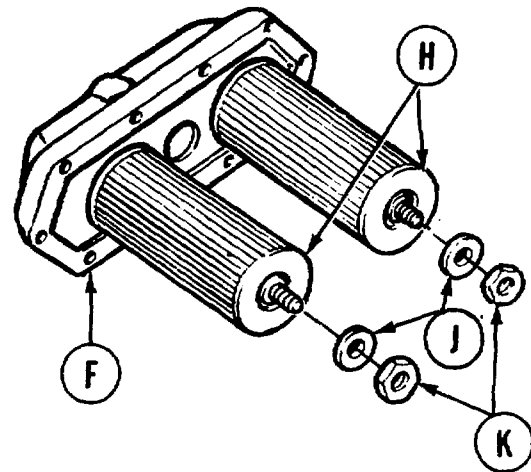
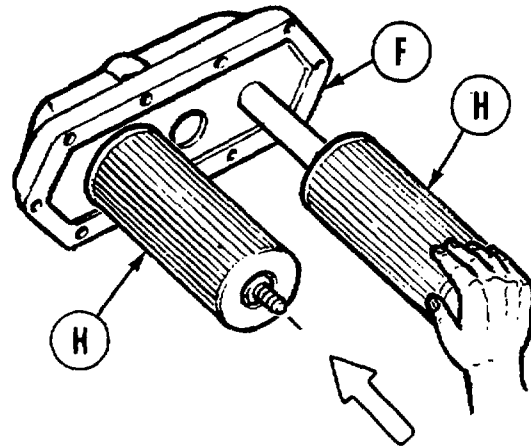


Go on to Sheet 6

TA146617

TRANSMISSION MAIN OIL FILTER ELEMENT REPLACEMENT (Sheet 6 of 7)

4. Place filter element (H) on filter assembly head (F).
5. Using 1 inch wrench, secure filter elements (H) with two washers (J) and two nuts (K).
6. Using lockwire (L)(Item 60, Appendix D), secure nuts (K) to filter assembly (H).

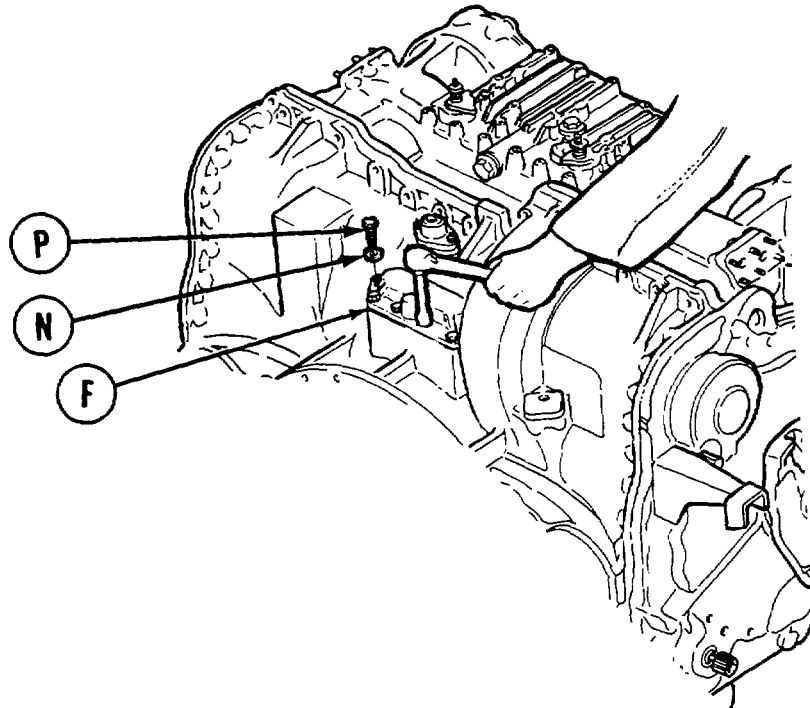
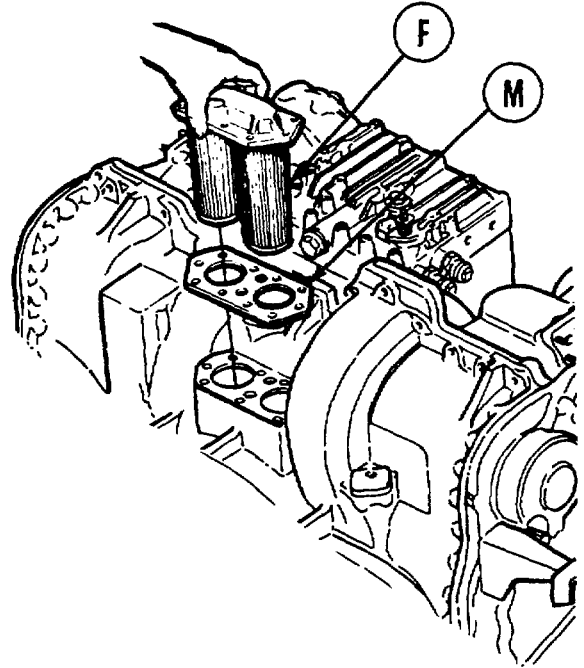


Go on to Sheet 7

TA146618

TRANSMISSION MAIN OIL FILTER ELEMENT REPLACEMENT (Sheet 7 of 7)

7. Remove rags from filter assembly holes.
8. Place new gasket (M) on transmission and install filter assembly (F).
9. Install ten lockwashers (N) and bolts (P) to hold filter assembly (F) to transmission.
10. Using a 9/16 inch socket wrench and torque wrench, alternately tighten ten bolts (N) to 20-35 lb-ft (27-47 N•m).
11. Operate engine and transmission, and check for leaks at gasket.
12. Install top deck (page 16-22).
13. Install transmission shroud (page 9-23).
14. Close rear grills doors (TM 9-2350-260-10).



End of Task

TA146619

**TRANSMISSION SIDE OIL STRAINER ASSEMBLY SERVICE (Sheet 1 of 8)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	11-67
Disassembly	11-69
Cleaning and Inspection	11-69
Assembly	11-70
Installation	11-71

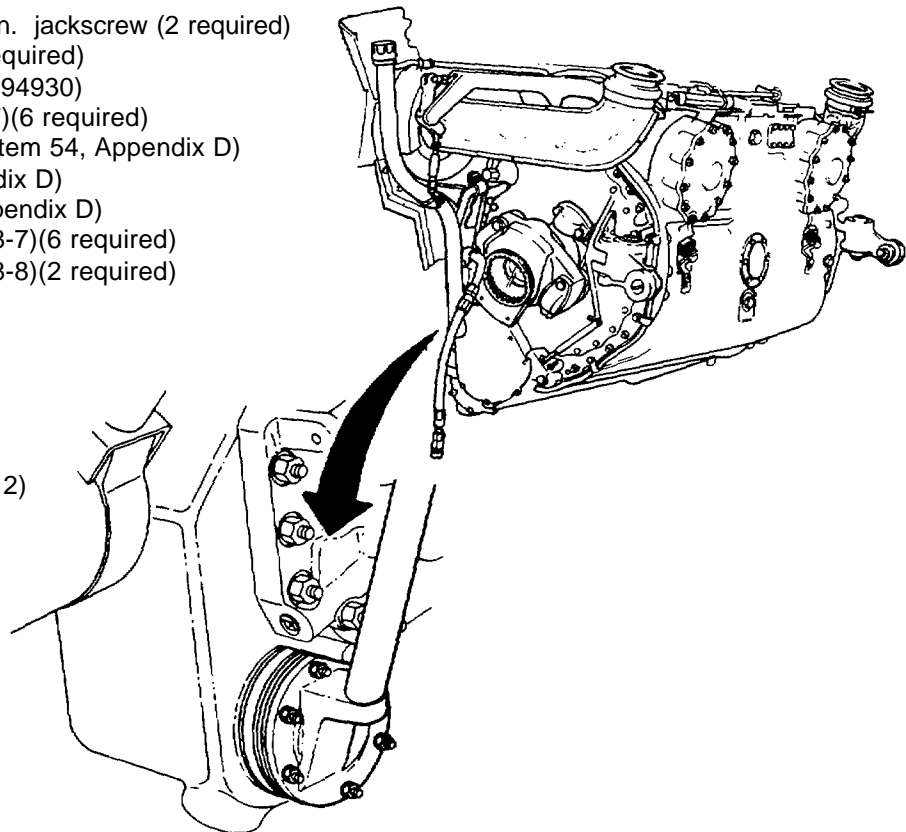
- TOOLS:**
- Slip joint pliers
  - 1/2 in. socket with 1/2 in. drive
  - 10 in. extension with 1/2 in. drive
  - Ratchet with 1/2 in. drive
  - 12 in. adjustable wrench
  - Torque wrench with 3/8 in. drive (0-200 lb-in)(0-23 N•m)
  - Hose clamp pliers
  - Diagonal cutting pliers
  - 7/16 in. socket with 3/8 in. drive
  - Putty knife
  - 3/4 in. socket with 1/2 in. drive
  - Tube bender
  - 9/16 in. socket with 1/2 in. drive

- SUPPLIES:**
- 5/16 in. X 18 NF X 3 in. jackscrew (2 required)
  - Gasket (8357269)(3 required)
  - Preformed packing (7994930)
  - Washer seal (7709597)(6 required)
  - Dry cleaning solvent (Item 54, Appendix D)
  - Rags (Item 65, Appendix D)
  - Lockwire (Item 62, Appendix D)
  - Lockwasher (MS35338-7)(6 required)
  - Lockwasher (MS35338-8)(2 required)

**REFERENCE:** LO 9-2350-260-12

**PRELIMINARY PROCEDURES:**

- Remove powerplant (page 5-1)
- Drain transmission (LO 9-2350-260-12)
- Remove left brake control housing (page 13-91, steps m1,2)

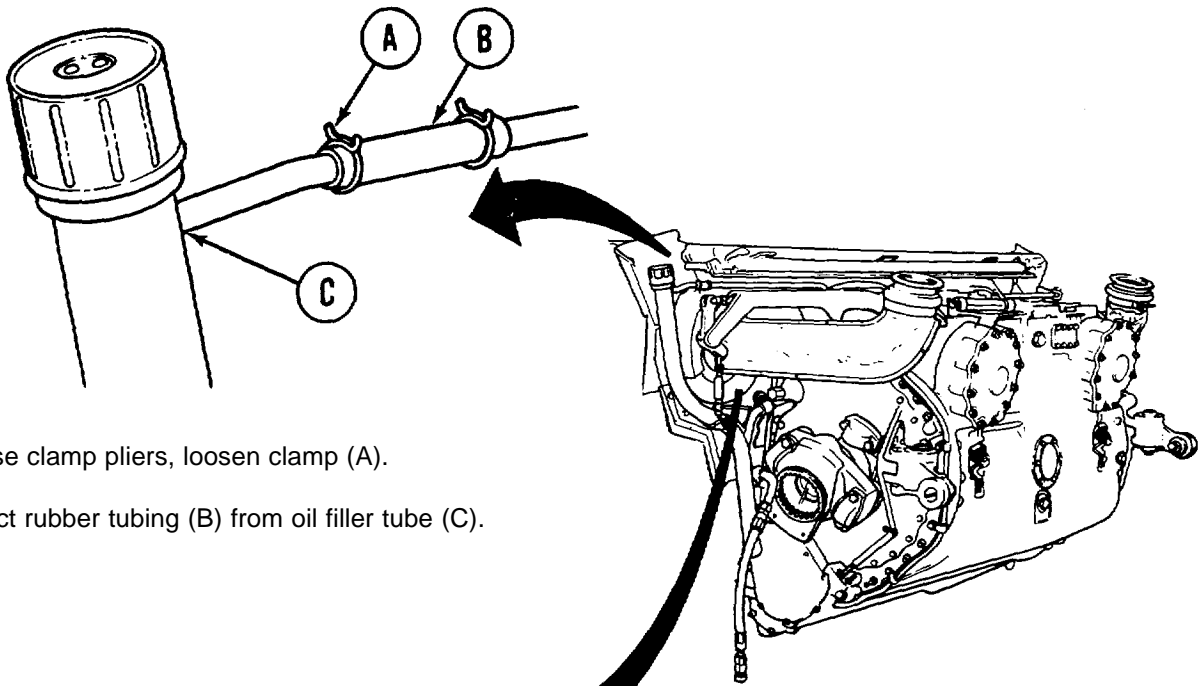


Go on to Sheet 2

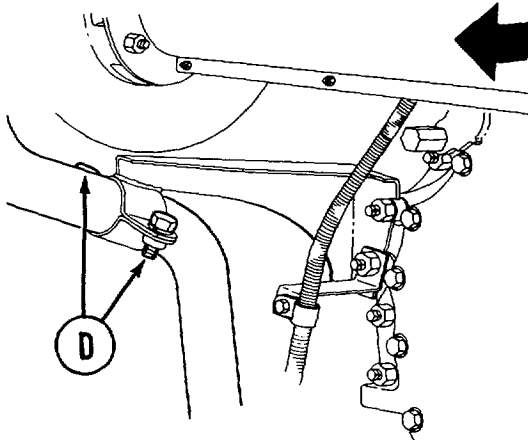
TA146620

TRANSMISSION SIDE OIL STRAINER ASSEMBLY SERVICE (Sheet 2 of 8)

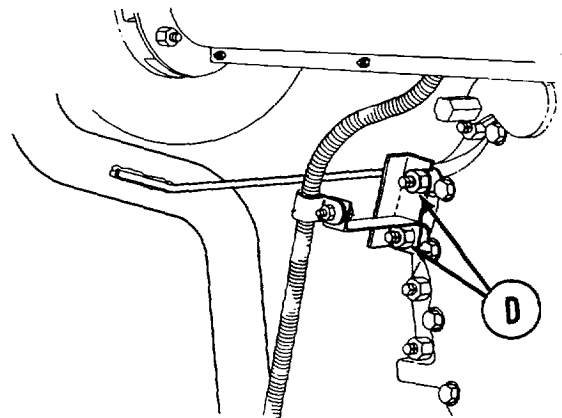
REMOVAL:



1. Using hose clamp pliers, loosen clamp (A).
2. Disconnect rubber tubing (B) from oil filler tube (C).



3. On earlier model transmissions, use 9/16 inch socket to remove two screws and lockwashers (D) securing bracket. Throw lockwashers away.



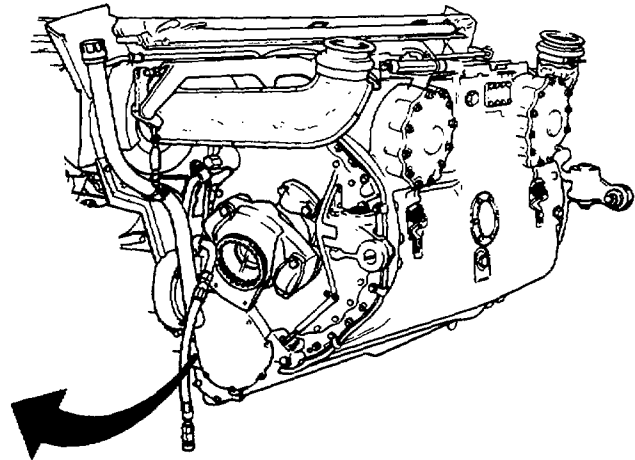
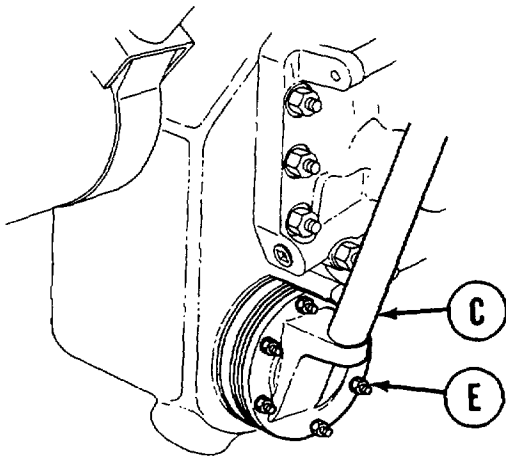
4. On later model transmissions, use 3/4 inch socket to remove two nuts (D) securing bracket to transmission.

Go on to Sheet 3

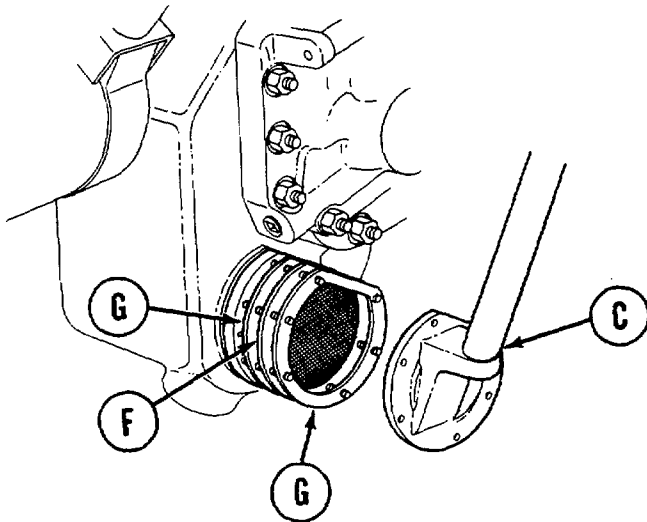
TA146621

11-67

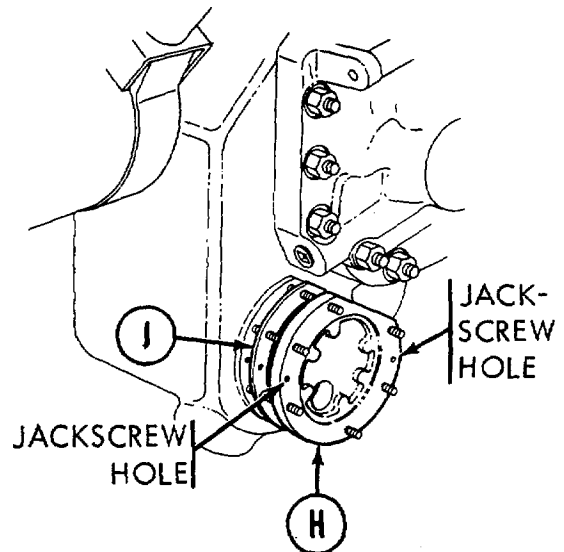
TRANSMISSION SIDE OIL STRAINER ASSEMBLY SERVICE (Sheet 3 of 8)



5. Using 1/2 inch socket and 1/2 inch wrench, remove six nuts and lockwashers (E) securing oil filler tube (C) to transmission. Throw lockwashers away.
6. Remove oil filler tube (C) from transmission.
7. Using putty knife, remove strainer (F) and two gaskets (G) off mounting studs. Throw gaskets away.



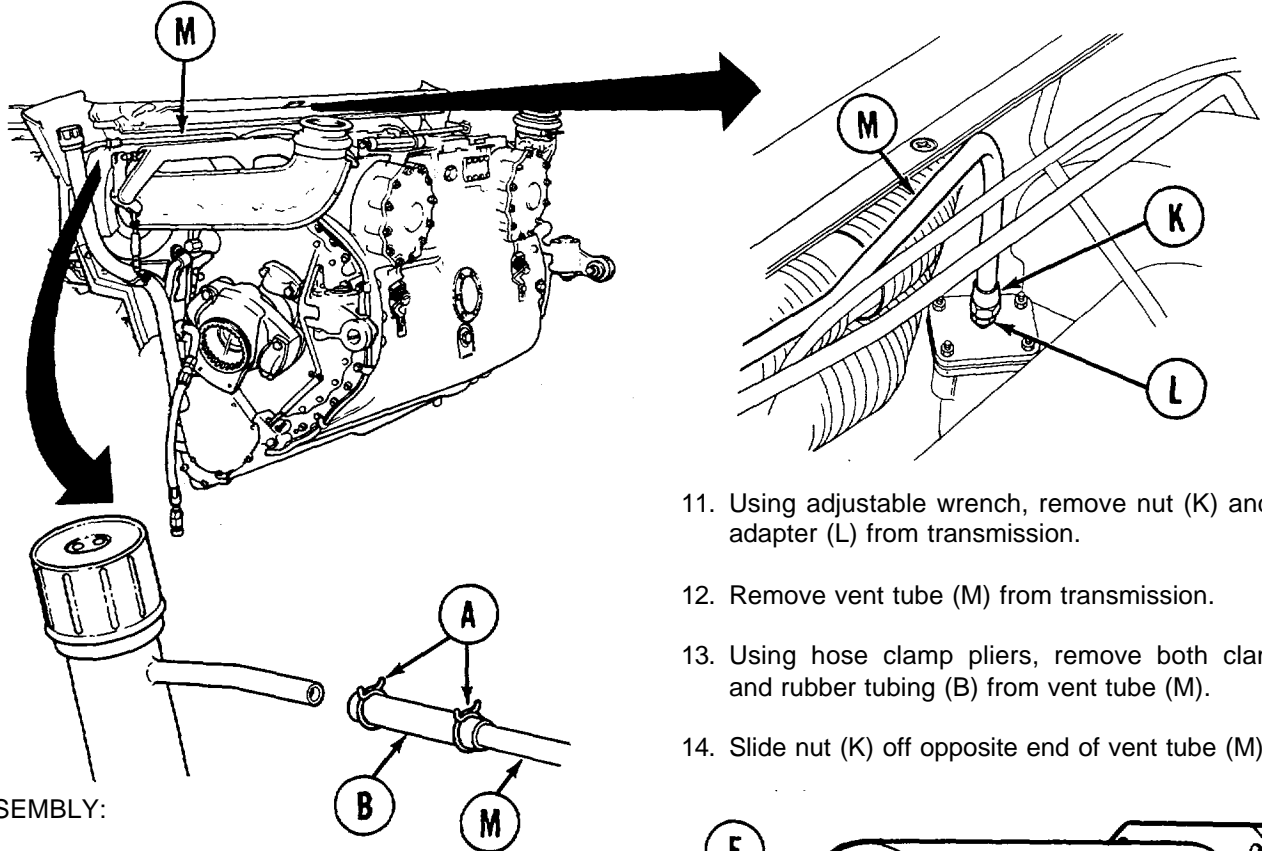
8. Using two 5/16-18 jackscrews and 1/2 inch socket, tighten jackscrews alternately, remove side oil strainer assembly (H).
9. Remove jackscrews.
10. Using putty knife, remove gasket (J). Throw gasket away.



Go on to Sheet 4

TA146622

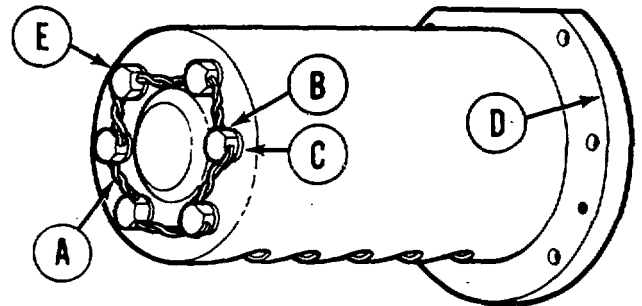
TRANSMISSION SIDE OIL STRAINER ASSEMBLY SERVICE (Sheet 4 of 8)



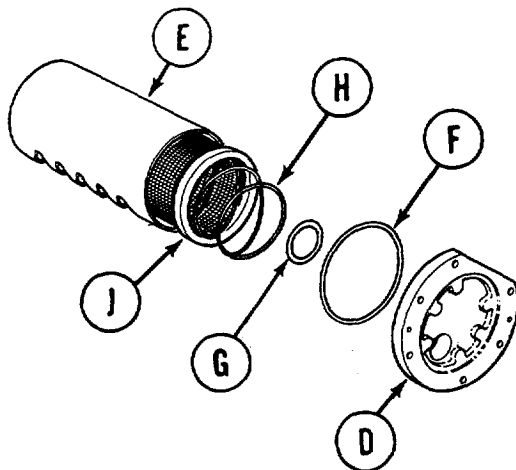
11. Using adjustable wrench, remove nut (K) and nipple adapter (L) from transmission.
12. Remove vent tube (M) from transmission.
13. Using hose clamp pliers, remove both clamps (A) and rubber tubing (B) from vent tube (M).
14. Slide nut (K) off opposite end of vent tube (M).

DISASSEMBLY:

1. Using diagonal pliers, cut lockwire (A) from six screws (B).
2. Using 7/16 inch socket, remove six screws (B) and washer seals (C) securing element cover (D) to oil screen shell (E). Throw seals away.
3. Using putty knife, remove cover (D) and gasket (F). Throw gasket away.



4. Remove preformed packing (G), reinforcement (H), and element (J) from shell (E). Separate reinforcement from shell. Throw packing away.



CLEANING AND INSPECTION:

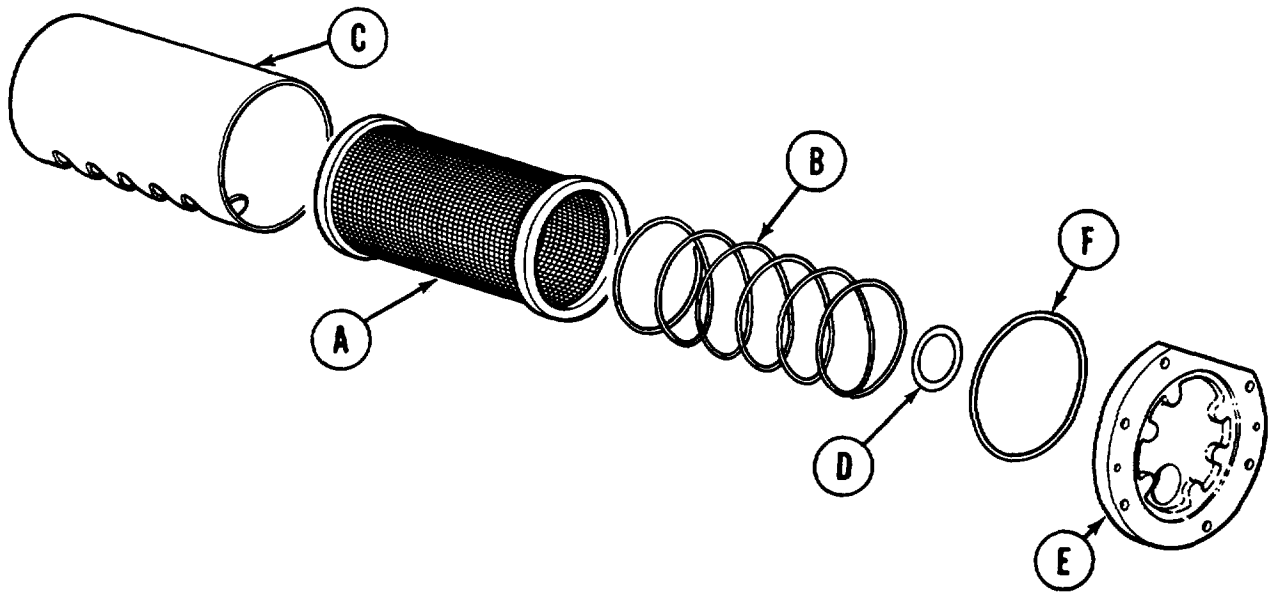
1. Using dry cleaning solvent (Item 54, Appendix D) and rags, clean all parts.
2. Inspect all parts for defects.
3. Replace parts found defective.

Go on to Sheet 5

TA146623

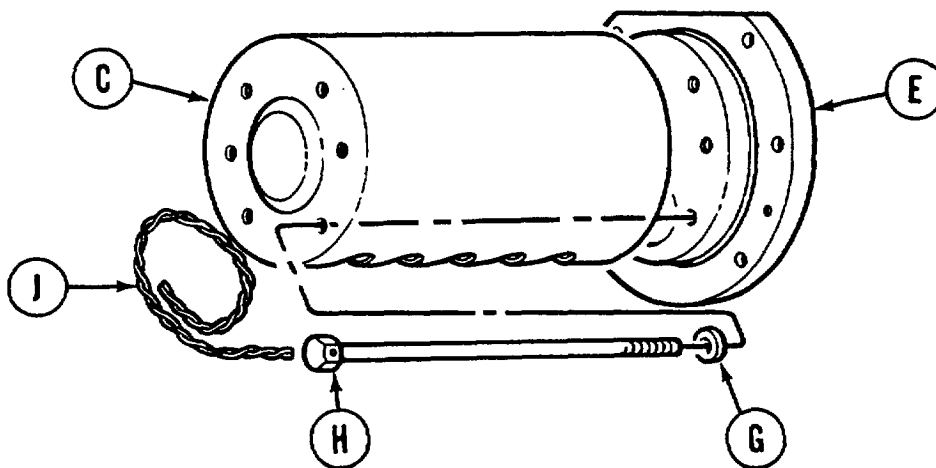


TRANSMISSION SIDE OIL STRAINER ASSEMBLY SERVICE (Sheet 5 of 8)



ASSEMBLY:

1. Install element (A) with reinforcement (B) into shell (C).
2. Put new preformed packing (D) into groove of shell (C).
3. Position cover (E) with new gasket (F) to shell (C).



4. Install six new washer seals (G) and new screws (H) securing cover (E) to shell (C).
5. Using torque wrench and 7/16 inch socket, tighten six screws (H) to 20-25 b-in (2-3 Nm).
6. Secure screws (H) in sets of three (or in pairs) with lockwire (J) (Item 62, Appendix D) (page C-42, Appendix C).

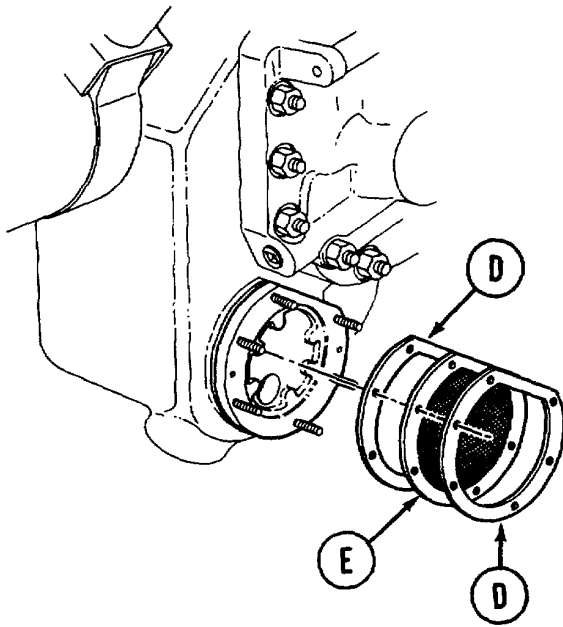
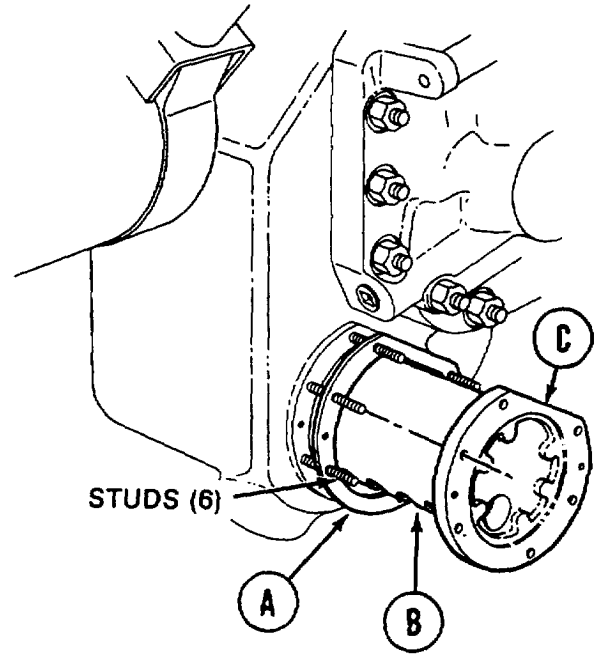
Go on to Sheet 6

TA146624

**TRANSMISSION SIDE OIL STRAINER ASSEMBLY SERVICE (Sheet 6 of 8)**

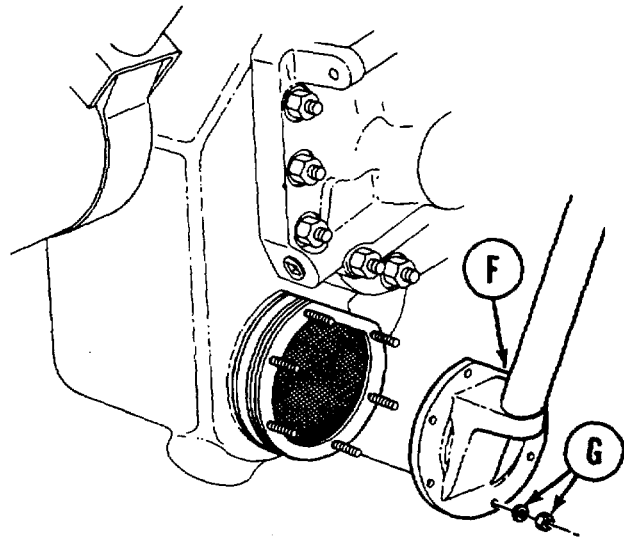
**INSTALLATION:**

1. Install new gasket (A) to mounting studs.
2. Install side oil strainer assembly (B) into transmission opening with cover (C) flange mounted to studs.



3. Mount new gasket (D), strainer (E), and another new gasket (D) onto studs.

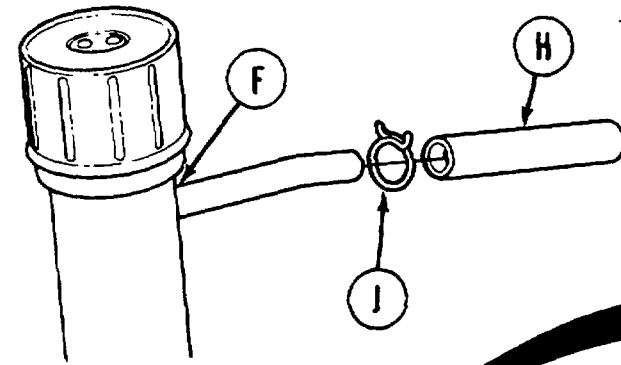
4. Mount oil filler tube (F) onto transmission studs and secure tube (F) with six new lockwashers and nuts (G).
5. Using 1/2 inch socket, tighten six nuts (G).
6. Install brake control housing (page 13-94, steps 14 thru 17).



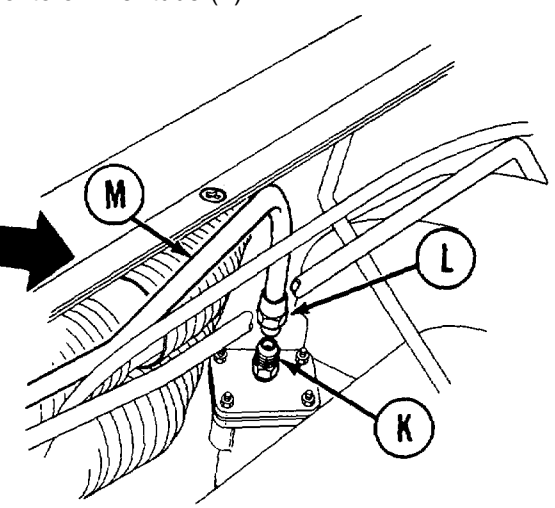
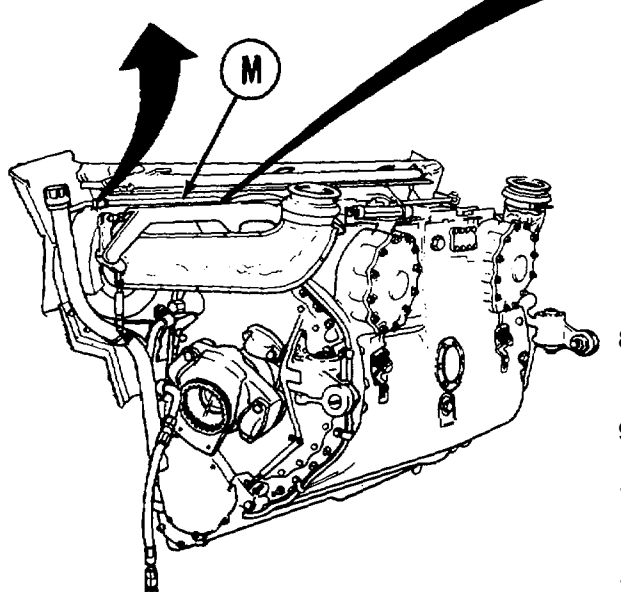
Go on to Sheet 7

TA146625

TRANSMISSION SIDE OIL STRAINER ASSEMBLY SERVICE (Sheet 7 of 8)

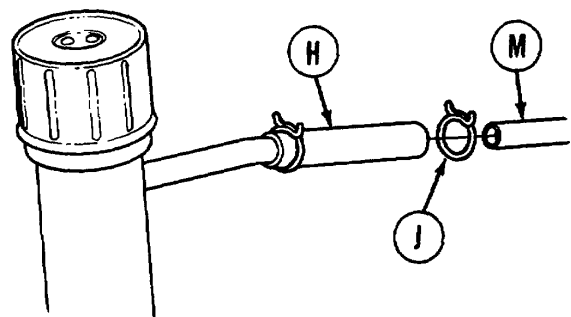


- Using hose damp pliers, install rubber tubing (H) with clamp (J) onto oil filler tube (F).



- Using adjustable wrench, install nipple adapter (K) into transmission.
- Slide nut (L) onto new vent tube (M).
- Using tube bender, bend new vent tube (M) of same length as old tube into same shape as old tube.
- Install nut (L) end of vent tube (M) onto nipple adapter (K). Using wrench, tighten nut (L).

- Using hose clamp pliers, secure vent tube (M) into rubber tubing (H) with clamp (J).

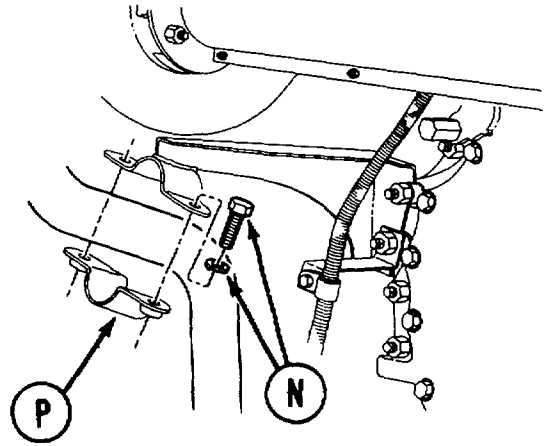
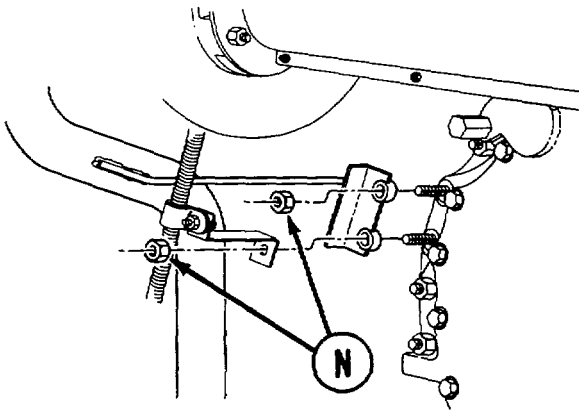


Go on to Sheet 8

TA146626

## TRANSMISSION SIDE OIL STRAINER ASSEMBLY SERVICE (Sheet 8 of 8)

13. Position oil filler tube bracket (P). Secure bracket with two new lockwashers and screws (N) or two nuts (N) on later transmission models.
14. Using 9/16 inch socket, tighten screws (N).



15. On later models, use 3/4 inch socket to tighten two nuts (N).

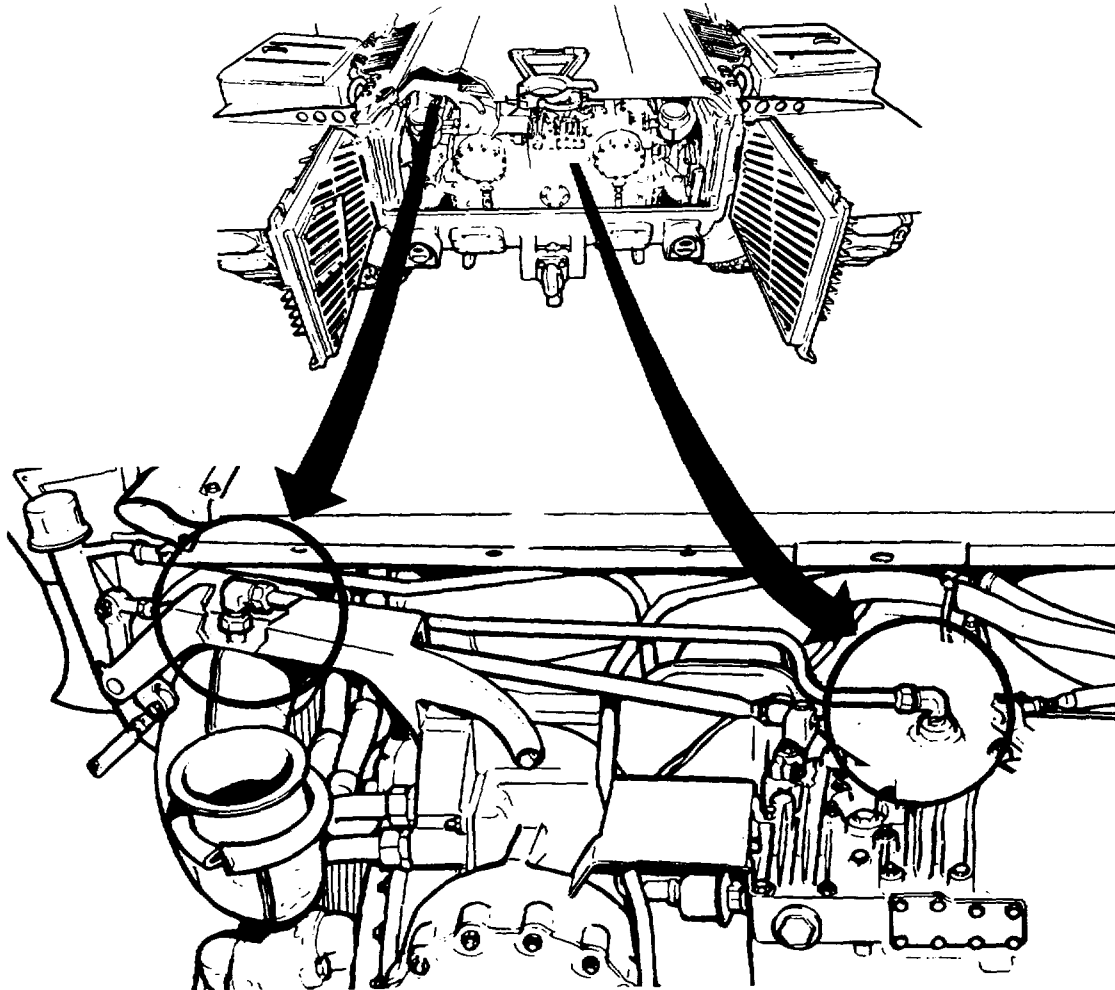
16. Fill transmission with oil (LO 9-2350-260-12).
17. Install 2A powerplant (page 5-14) or 2D powerplant (page 5-40).

End of Task

**TRANSMISSION OIL BREATHER TUBE REPLACEMENT (Sheet 1 of 3)**

TOOLS: 3/4 in. combination box and open end wrench  
7/8 in. combination box and open end wrench

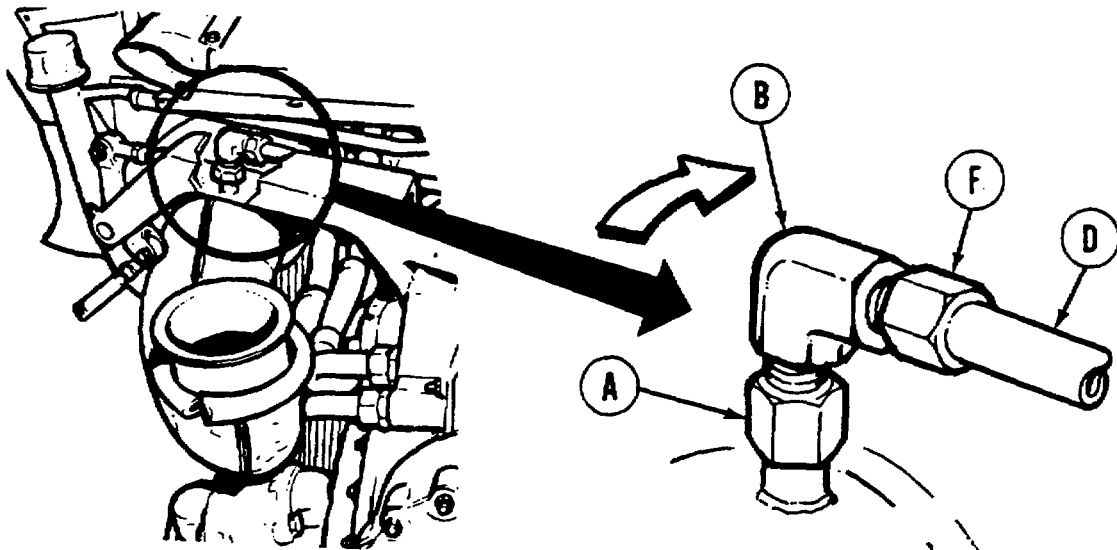
PRELIMINARY PROCEDURE: Remove transmission shroud (page 9-20)



Go on to Sheet 2

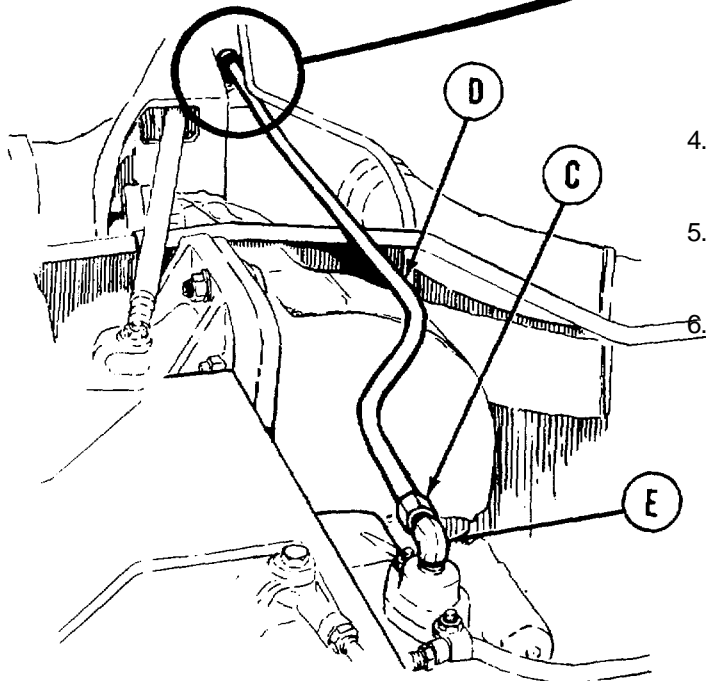
TA146628

TRANSMISSION OIL BREATHER TUBE REPLACEMENT (Sheet 2 of 3)



REMOVAL:

1. Using 7/8 inch wrench, turn nut (A) clockwise until it falls free.
2. Lift elbow (B) off nut (A).
3. Using 7/8 inch wrench, remove coupling nut (C) and transmission oil breather tube (D) from elbow (E).



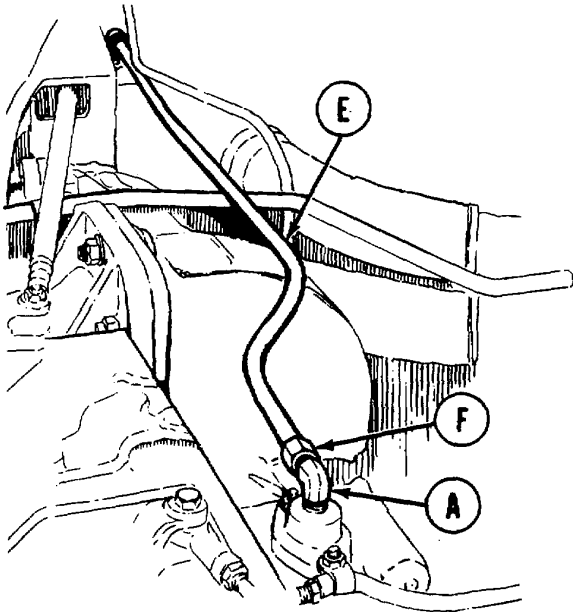
4. Remove transmission oil breather tube (D) from tank.
5. Using 7/8 inch wrench on nut (F) and 3/4 inch wrench on elbow (B), remove elbow (B).
6. Using 3/4 inch wrench, remove elbow (E) from transmission.

Go on to Sheet 3

TA146629

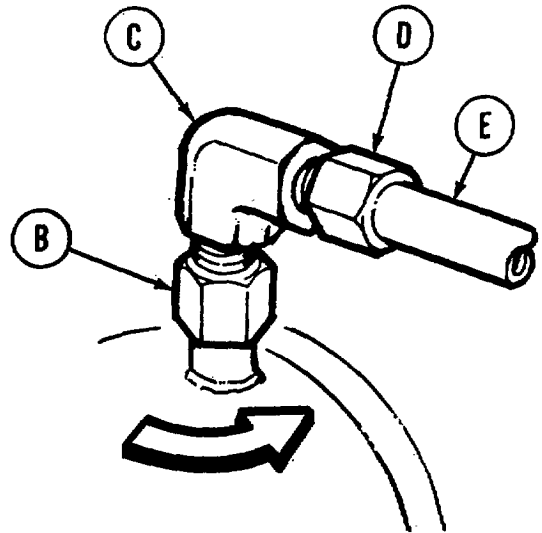
**TRANSMISSION OIL BREATHER TUBE REPLACEMENT (Sheet 3 of 3)**

**INSTALLATION:**



1. Manually start elbow (A) into transmission.
2. Using 3/4 inch wrench, install elbow (A). Make sure hole in elbow (A) is pointing toward nut (B).
3. Manually install elbow (C) into nut (D).
4. Using 7/8 inch wrench on nut (D) and 3/4 inch wrench on elbow (C), tighten nut (D).
5. Position tube (E) between elbow (A) and nut (B). If necessary, use 3/4 inch wrench to aline elbow (A) with nut (F).
6. Manually start nut (F) onto elbow (A) and tighten with 7/8 inch wrench.

7. Manually start nut (B) onto elbow (C).
8. Using 7/8 inch wrench, install coupling nut (B) onto elbow (C).
9. Start engine. Check for exhaust leaks at transmission oil breather tube (E) connections.
10. Install transmission shroud (page 9-23).



End of Task

TA146630

## CHAPTER 12

## FINAL DRIVE MAINTENANCE INDEX

PROCEDURE	PAGE
Final Drive (Left and Right) Replacement	12-2
Final Drive Stud Replacement	12-6
Final Drive Air Pressure Relief Valve (Left and Right) Replacement	12-8
Final Drive Adapter Assembly and Oil Seal Replacement	12-9
Universal Joint Replacement	12-11
Universal Joint Repair	12-18



**FINAL DRIVE (LEFT AND RIGHT) REPLACEMENT (Sheet 1 of 4)**

## PROCEDURE INDEX

PROCEDURE	PAGE
Removal	12-3
Installation	12-4

**TOOLS:** Hoist (capable of 1100 lb minimum capacity)  
 Pinch bar  
 Socket wrench handle with 3/4 in. drive  
 1-1/2 in. socket with 3/4 in. drive  
 Torque wrench with 3/4 in. drive (0-600 ft)(0-813 Nm)  
 1-1/2 in. hand impact wrench offset link with 3/4 in. drive  
 36 in. extension bar (cheater bar)

**SUPPLIES:** Sealing compound (Item 27, Appendix D)  
 Oil (Item 44, Appendix D)  
 1-1/2 in. locknuts (10870133)  
 Small brush (Item 10, Appendix D)

**PERSONNEL:** Two

**REFERENCES:** TM 9-2350-260-10  
 LO 9-2350-260-12

**PRELIMINARY PROCEDURES:** Remove powerplant (page 5-1)  
 Remove rear powerplant guide (page 6-4)  
 Remove adapter assembly (page 12-9)  
 Remove rear fender handset box (right side only)  
 (page 16-193)  
 Remove sprocket assembly (page 14-73)  
 Drain oil from final drive (LO 9-2350-260-12)  
 Remove rear outrigger (page 16-77)

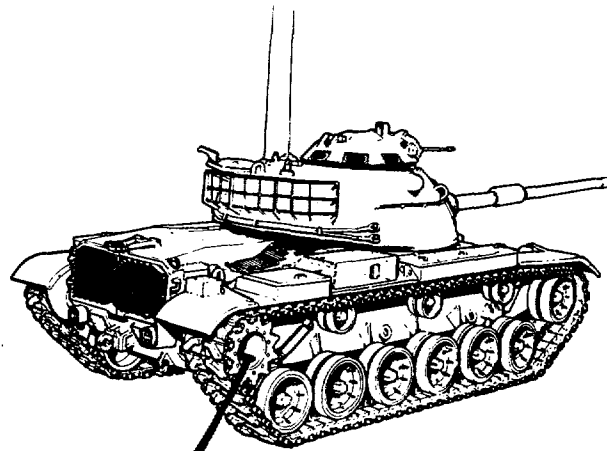
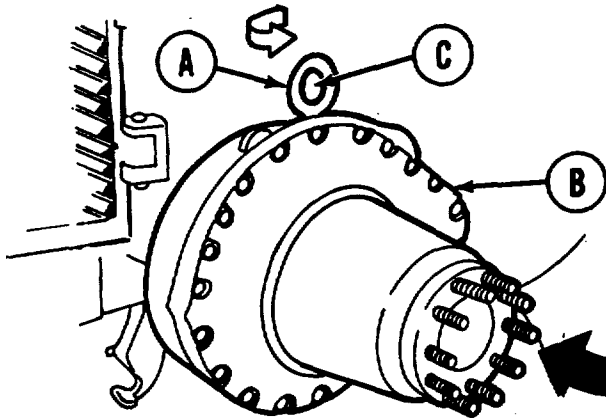
Go on to Sheet 2

TA146633

**FINAL DRIVE (LEFT AND RIGHT) REPLACEMENT (Sheet 2 of 4)**

**REMOVAL**

1. Check whether lifting eye (A) is installed in final drive (B).
2. If lifting eye (A) is installed in final drive (B), check it for distortion or cracks.



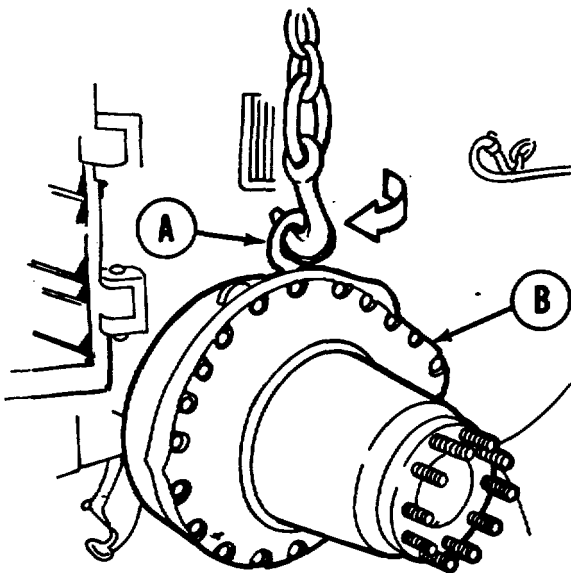
3. If lifting eye (A) is distorted or cracked, using pinch bar through eyehole (C), turn and remove lifting eye (A) from final drive (B).
4. Using fingers, star threads of new lifting eye (A) into final drive (B).

5. Using pinch bar, turn and tighten lifting eye (A).
6. If lifting eye (A) is not installed in final drive (B), using socket wrench handle, remove plug from lifting eyehole in final drive (B).
7. Install new lifting eye (A) as in steps 4 and 5 above.

**CAUTION**

**Use hoist with 1100 pounds minimum capacity.**

8. Connect hoist to lifting eye (A) on final drive (B).



Go on to Sheet 3

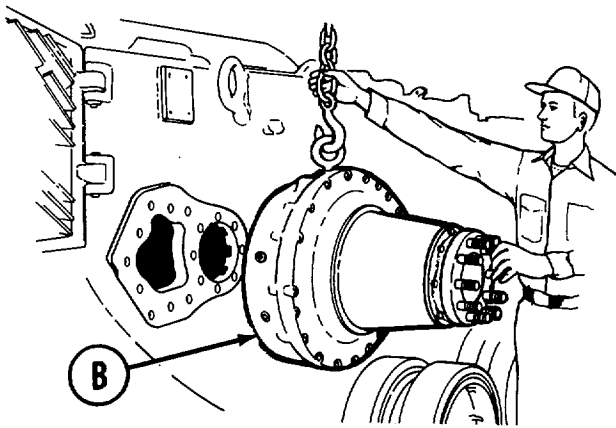
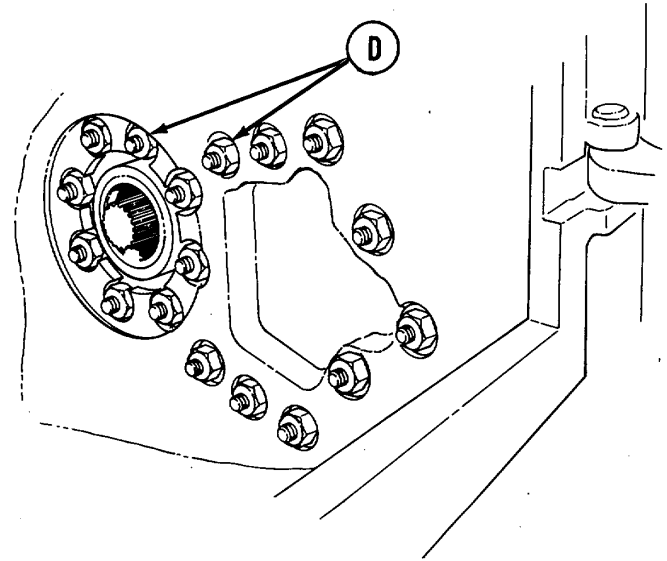
TA146634

**FINAL DRIVE (LEFT AND RIGHT) REPLACEMENT (Sheet 3 of 4)**

- Using socket, cheater bar, and offset link as required, remove 17 self-locking nut (D) holding final drive (B) to hull. Throw self-locking nuts (D) away.

**WARNING**

**Keep hands clear of areas where final drive could swing and crush them. Do not stand where final drive could fall on feet or legs.**



- Keeping hoist chain tight, slowly pull final drive (B) from hull.
- Using hoist, slowly lower final drive (B) to a solid surface.

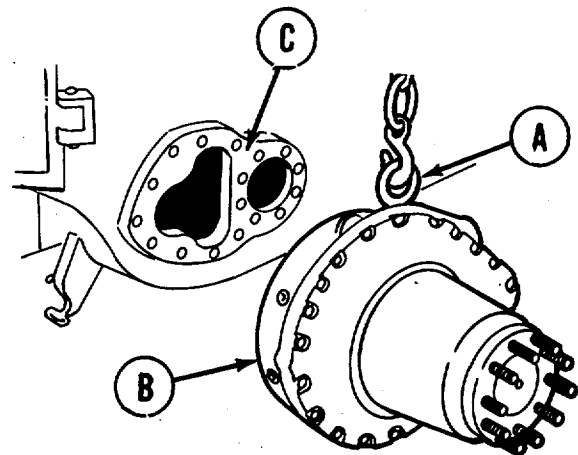
**INSTALLATION:**

- Using hoist, attach hook to lifting eye (A) on final drive (B). Take slack out of hoist chain.
- Using brush (Item 10, Appendix D) and sealing compound (Item 27, Appendix D), coat final drive mating surface on hull (C).

**WARNING**

**Keep hands and feet from under final drive and from between hull and final drive to prevent injury in case final drive slips.**

- Using hoist, lift final drive (B) and position it so that studs are in alignment with mating surface on hull (C).



Go on to Sheet 4

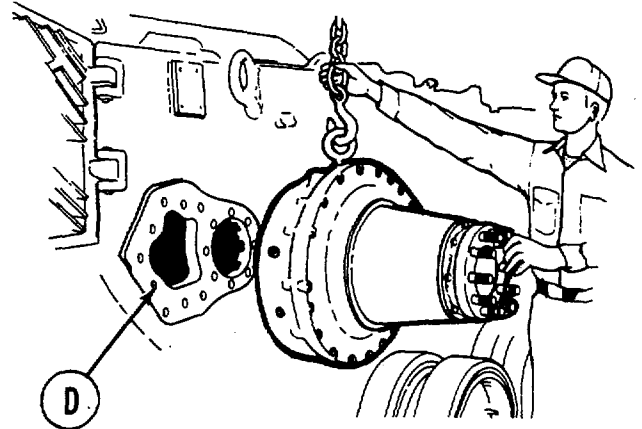
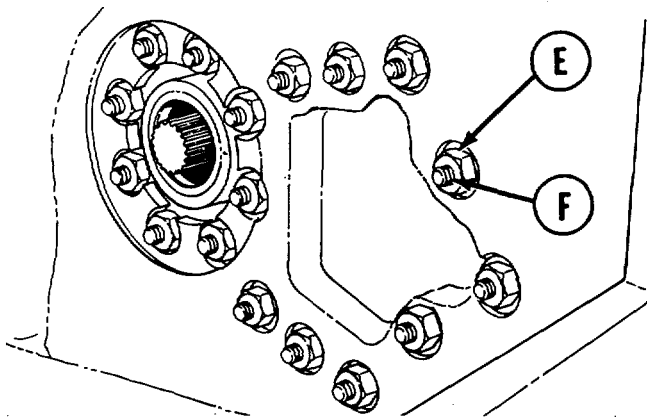
TA146635

## FINAL DRIVE (LEFT AND RIGHT) REPLACEMENT (Sheet 4 of 4)

**CAUTION**

**Do not damage threads on mounting studs when installing studs through mounting holes.**

4. Carefully guide mounting studs through mounting holes (D) in side of hull.
5. Using lubricating oil (Item 44, Appendix D), oil 17 new self-locking nuts (E).
6. Using fingers, start threads of 17 new self-locking nuts (E) onto final drive studs (F).



7. Using socket or offset link, install 17 new self-locking nuts (E).

**NOTE**

**Use hand impact wrench offset link with torque wrench where torque wrench cannot be used due to lack of space.**

8. Using torque wrench, tighten 17 new self-locking nuts (E) to 460-500 lb-ft (625-680 N•m).

9. Remove hoist hook from final drive lifting eye.
10. Install hub and sprockets assembly (page 14-79).
11. Install track assembly (page 14-84).
12. Install rear outrigger (page 16-80).
13. Install rear fender stowage box (page 16-185).
14. Install rear fender handset box (right side only) (page 16-196).
15. Install adapter assembly (page 12-10).
16. Install rear powerplant guides (page 6-5).
17. Install 2A powerplant (page 5-14), or 2D powerplant (page 5-40).
18. Fill final drive with oil (Item 44, Appendix D).
19. Drive tank to perform operational check (TM 9-2350-260-10).

End of Task

TA146636

**FINAL DRIVE STUD REPLACEMENT (Sheet 1 of 2)**

**TOOLS:** 1-1/2 in. open end wrench (2 required)  
 Ball peen hammer  
 Pipe wrench (2 in. opening)  
 Ruler

**SUPPLIES:** Primer (Item 49, Appendix D)  
 Sealing compound (Item 26, Appendix D)  
 Two small brushes (Item 10, Appendix D)  
 Penetrating oil (Item 43, Appendix D)

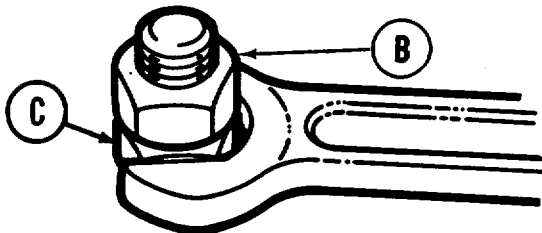
**PRELIMINARY PROCEDURE:** Remove final drive (page 12-3)

**REMOVAL:**

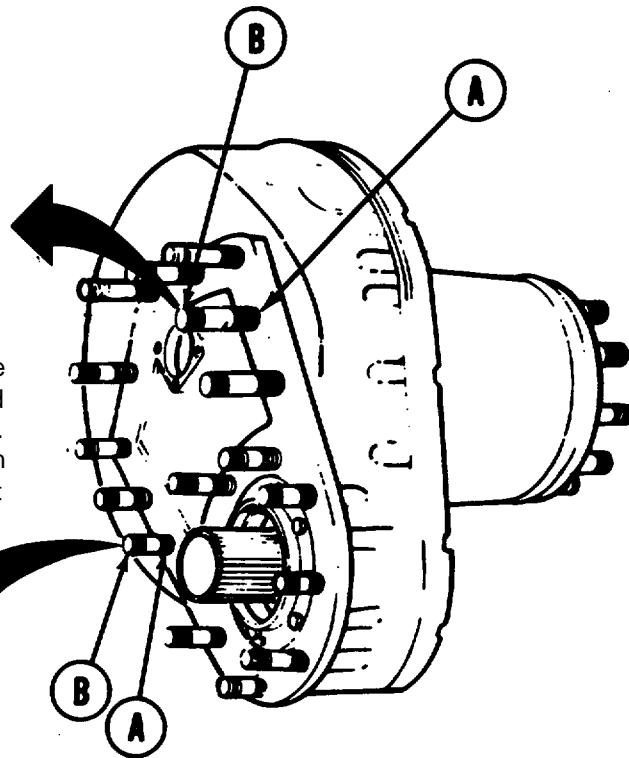
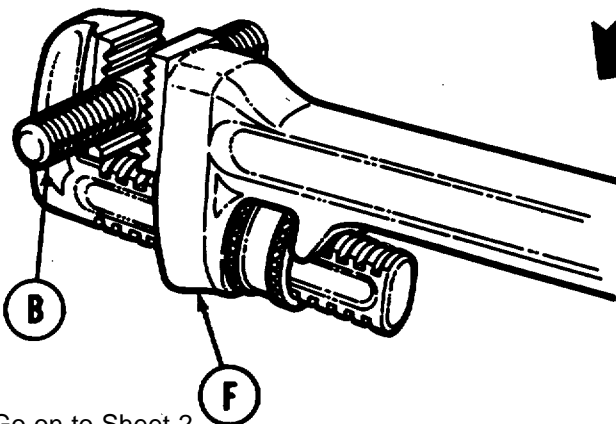
**NOTE**

**If stud is bent or cracked, go to step 1.  
 If stud has damaged threads or is broken off below threads, go to step 2.**

**If stud is broken off flush with final drive housing, notify support maintenance.**



1. Apply penetrating oil (Item 43, Appendix D) to base of stud (A). Thread two hex nub on stud (B) and using both 1-1/2 inch wrenches, jam the nuts. Sharply tap head of stud (B) several times with hammer. Using 1-1/2 inch wrench, turn lower nut (C) to remove stud.



2. Apply penetrating oil to be of stud (A). Sharply tap head of stud (B) with hammer. Using pipe wrench (F), remove stud.

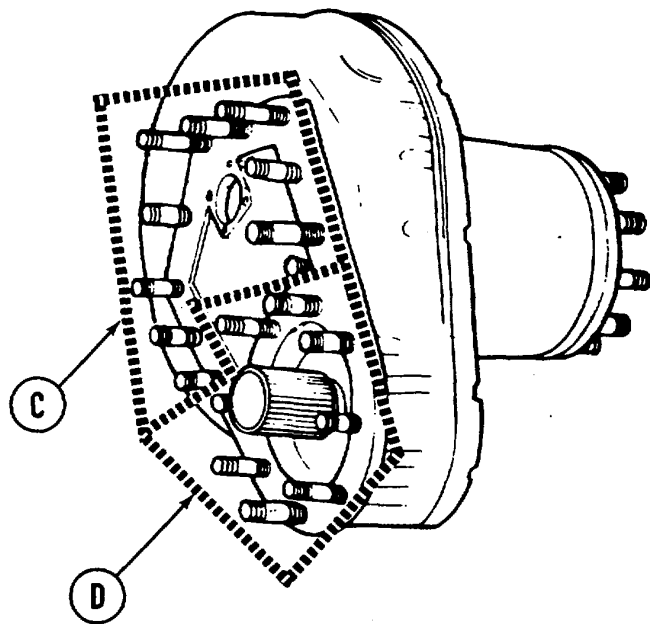
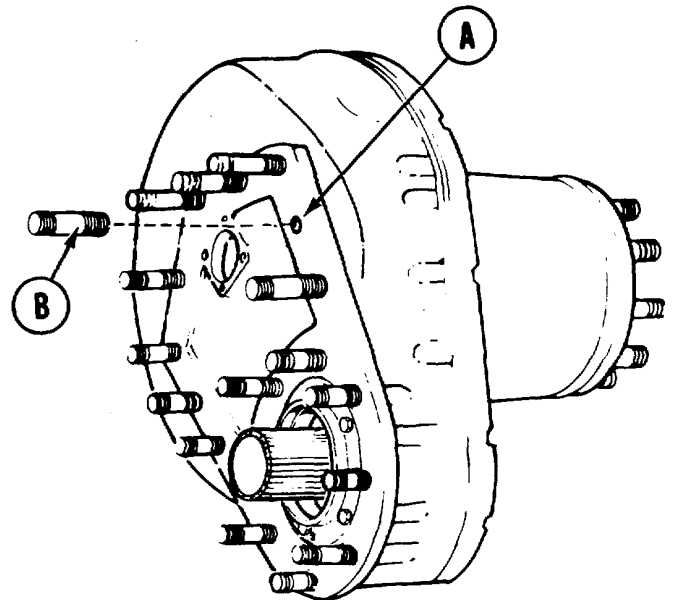
Go on to Sheet 2

TA146637

**FINAL DRIVE STUD REPLACEMENT (Sheet 2 of 2)**

**INSTALLATION:**

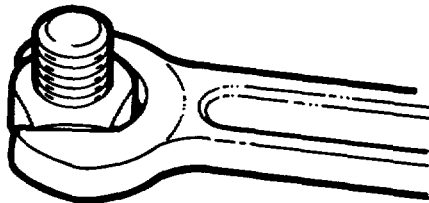
1. Using clean brush (Item 10, Appendix D), lightly coat tapped stud holes (A) with primer (Item 49, Appendix D).
2. Using dean brush, lightly coat threads of studs (B) with sealing compound (Item 26, Appendix D).



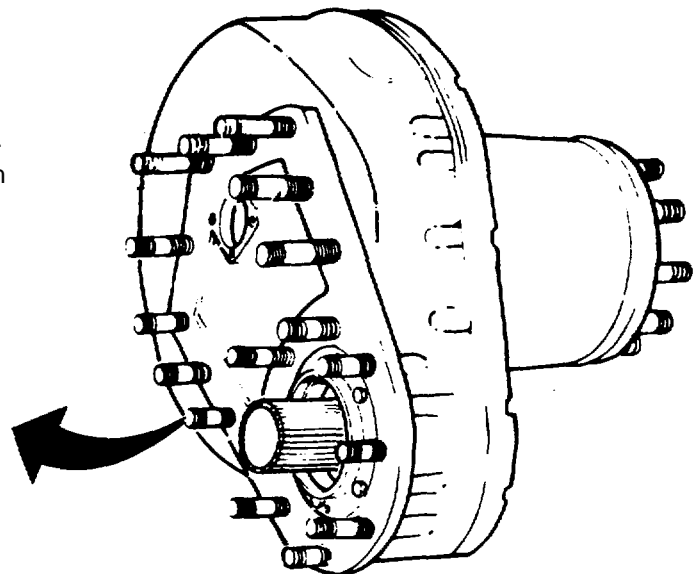
**NOTE**

Any stud installed in area (C) must protrude 2-15/16 inches out of tapped stud hole. Any stud installed in area (D) must protrude 2-1/4 inches out of tapped stud hole.

3. Thread two hex nuts on new stud and using both 1-1/2 inch wrenches, jam the nuts. Using 1-1/2 inch wrench on top nut, install new stud.



4. Install final drive (page 12-4).



End of Task

TA146638

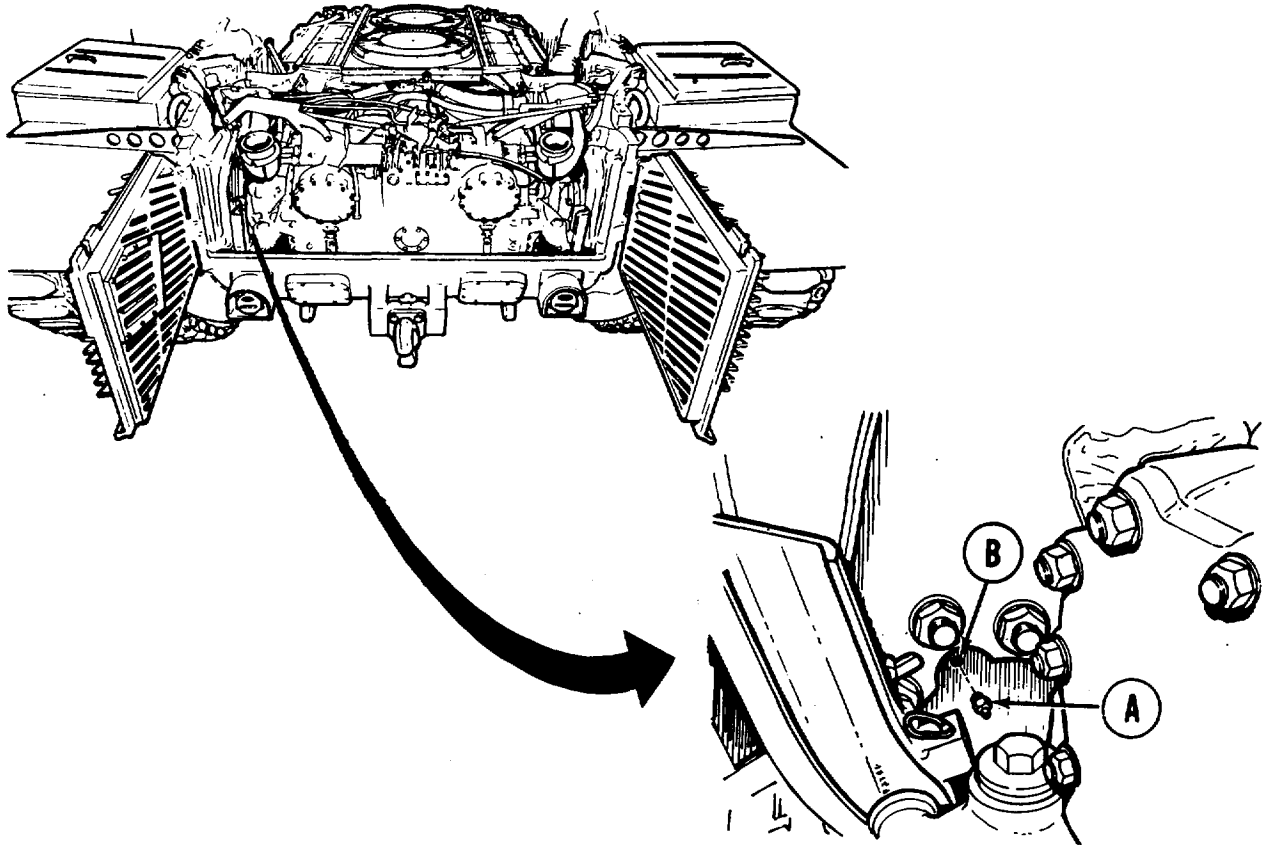
**FINAL DRIVE AIR PRESSURE RELIEF VALVE (LEFT AND RIGHT) REPLACEMENT (Sheet 1 of 1)**

TOOLS: 7/16 in. combination box and open end wrench

PRELIMINARY PROCEDURE: Remove transmission shroud (page 9-20)

**REMOVAL:**

1. Using wrench, remove air pressure valve (A) from installation hole (B) in drive housing.



2. Inspect air pressure valve to insure that vent cap is free to move on the valve. Replace as required.

**INSTALLATION:**

1. Using wrench, install air pressure valve (A) into installation hole (B).
2. Install transmission shroud (page 9-23).

End of Task

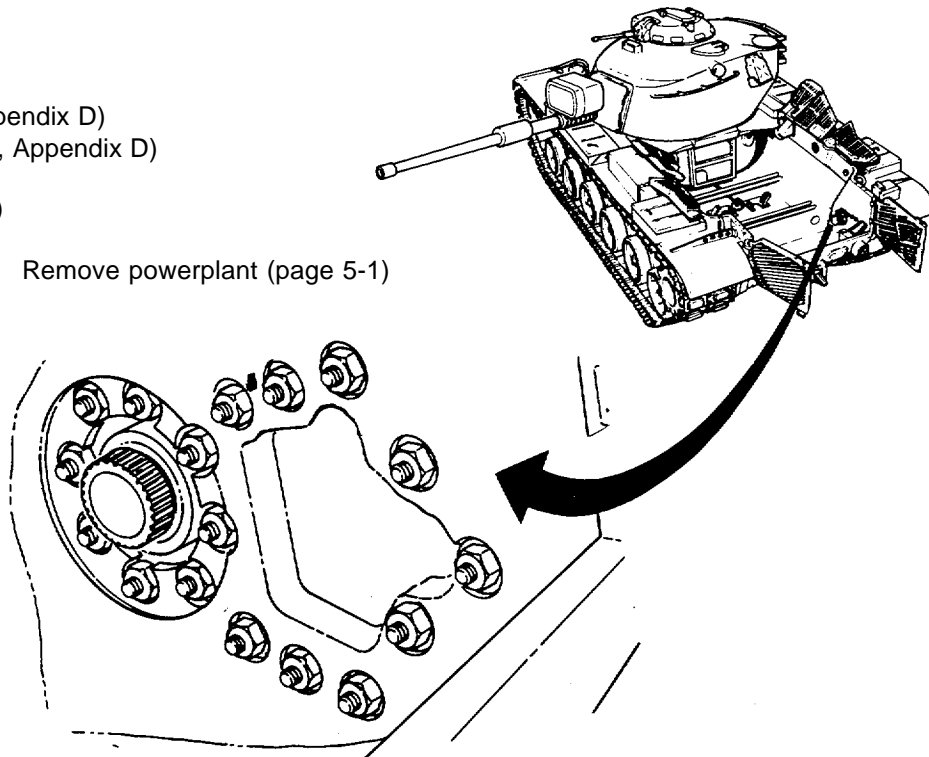
TA146639

**FINAL DRIVE ADAPTER ASSEMBLY AND OIL SEAL REPLACEMENT (Sheet 1 of 2)**

**TOOLS:** Pinch bar  
Hammer

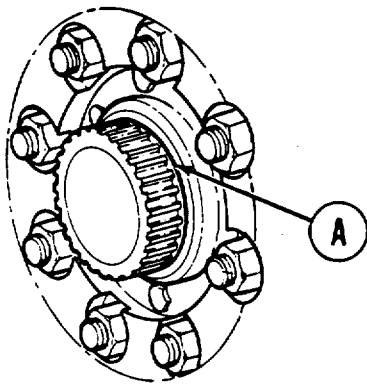
**SUPPLIES:** Oil (Item 44, Appendix D)  
Grease (Item 38, Appendix D)  
Block of wood  
Seal (11668698)

**PRELIMINARY PROCEDURE:** Remove powerplant (page 5-1)

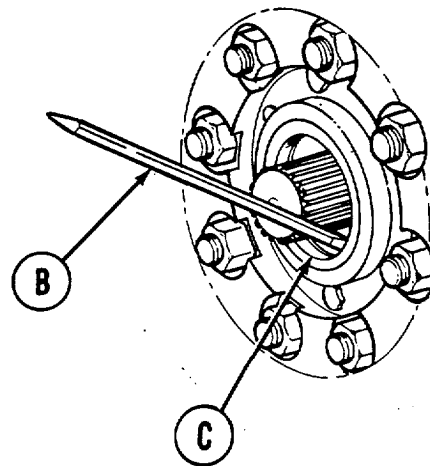


**REMOVAL:**

1. Remove final drive adapter assembly (A) from final drive assembly input shaft by manually pulling final drive adapter assembly (A) straight out.



2. Using pinch bar (B), remove seal (C) by prying around entire seal (C). Throw seal away.



Go on to Sheet 2

TA146640



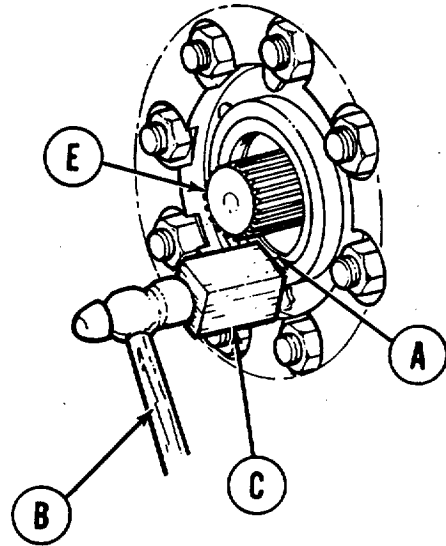
**FINAL DRIVE ADAPTER ASSEMBLY AND OIL SEAL REPLACEMENT (Sheet 2 of 2)**

**INSTALLATION:**

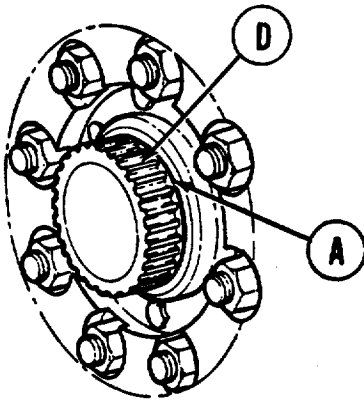
1. Position new seal (A) in tank.
2. Make sure rubber lip of seal (A) is toward inside of tank hull.
3. Using hammer (B) and block of wood (C), tap seal (A) into place.

**NOTE**

**Seal is seated when tapped in as far as it will go**



4. Make sure all sand, grit, and accumulated debris has been removed from the final drive adapter assembly (D).



5. Apply grease (Item 38, Appendix D) inside final drive adapter assembly (D) and on final drive assembly spline (E).
6. Using oil (Item 44, Appendix D), lightly coat outside surface of final drive adapter assembly (D).
7. Aligning internal splines in final drive adapter assembly (D) with splines on input shaft, slide final drive adapter assembly (D) onto input shaft and into seal (A).
8. Install 2A powerplant (page 5-14) or 2D powerplant (page 5-40).

End of Task

TA146641

UNIVERSAL JOINT REPLACEMENT (Sheet 1 of 7)

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	12-12
Inspection	12-14
Installation	12-14.2

TOOLS: 13/16 in. socket with 1/2 in. drive  
 2 in. extension with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 Hinged socket wrench handle with 1/2 in. drive  
 Torque wrench with 1/2 in. drive  
 (0-175 lb-ft) (0-237 Nm)  
 Diagonal cutting pliers  
 Slip joint pliers  
 Aligning punch  
 Pinch bar  
 Crowbar  
 Hammer  
 Screwdriver

Thickness gage  
 Oxy-acetylene welding equipment  
 10 in. flat file  
 92 lb. minimum capacity hoist  
 3/4 in. socket with 1/2 in. drive  
 1-1/2 in. open end wrench

SPECIAL TOOLS: Center punch (Figure F-9, Appendix F)

SUPPLIES: Lockwire (Item 60, Appendix D)  
 Dry cleaning solvent (Item 54, Appendix D)  
 Rags (Item 65, Appendix D)  
 Rope (Item 64, Appendix D)  
 Rubber gloves (Item 74, Appendix D)

Paint brush (Item 70, Appendix D)  
 Brazing alloy (Item 71, Appendix D)  
 Welding flux (Item 72, Appendix D)  
 Industrial goggles (Item 73, Appendix D)

PERSONNEL: Two

REFERENCES: TM 9-2350-260-10  
 LO 9-2350-260-12

PRELIMINARY PROCEDURES: Remove top deck (page 16-20)  
 Remove transmission shroud (page 9-20)  
 Remove transmission shroud support (page 9-38)  
 Remove exhaust pipe (left, page 8-6) or (right, page 8-10)  
 Block both tracks front and rear, place transmission selector lever  
 in neutral (N), and make sure brake is released so transmission  
 output flange can be turned to loosen all four screws  
 (TM 9-2350-260-10)  
 Pull transmission mounting guide toward rear (page 5-10)

Go on to Sheet 2

**UNIVERSAL JOINT REPLACEMENT (Sheet 2 of 7)**

**REMOVAL:**

**NOTE**

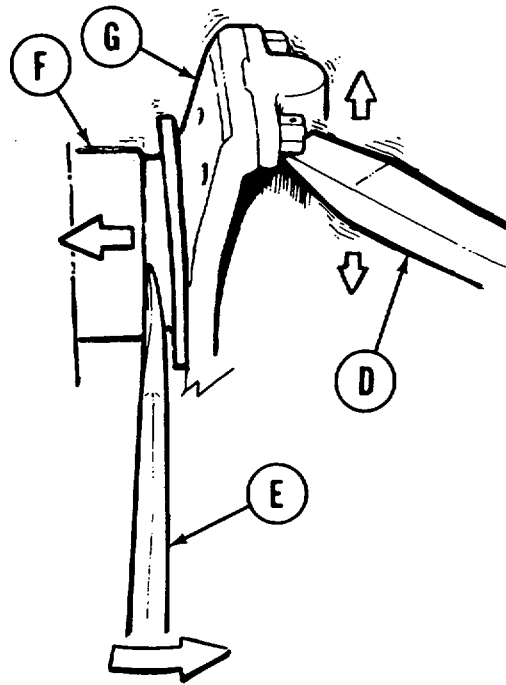
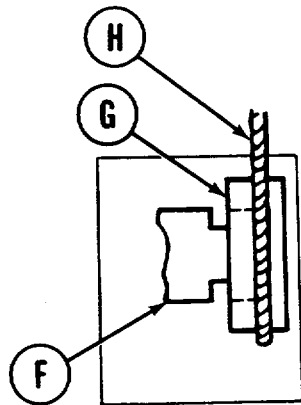
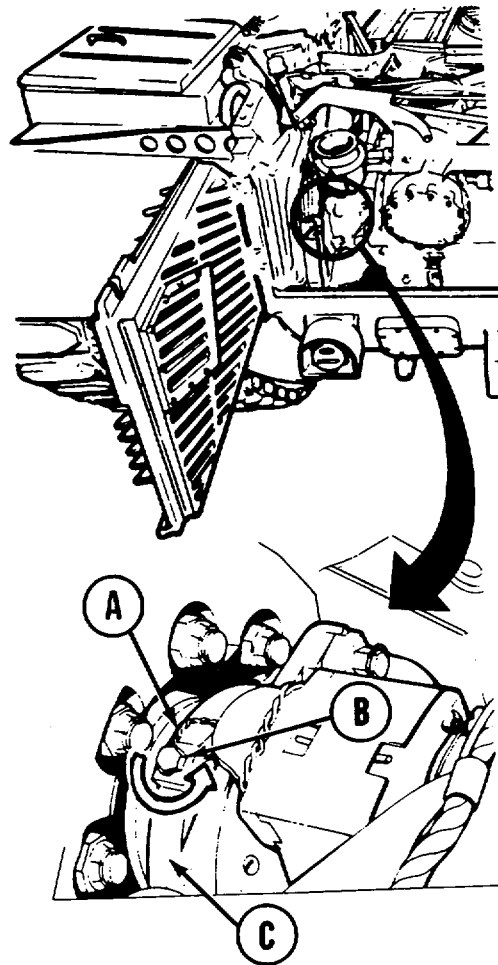
Turn quick-disconnect clamp until it is in working position.

1. Using cutting pliers, cut lockwire (A).
2. Using 3/4 inch socket, remove screw (B).
3. Open quick-disconnect clamp (C).
4. Remove quick-disconnect clamp (C).
5. Place large crowbar (D) in position to support final drive.
6. While holding down on large crowbar (D), use small pinch bar (E) to pry final drive adapter assembly (F) until it comes loose from final drive flange (G).

**CAUTION**

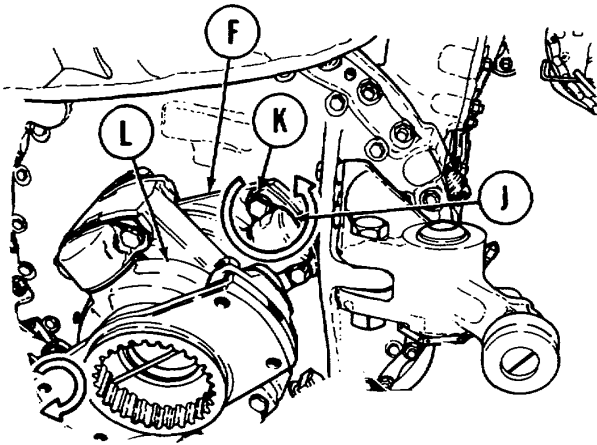
Use rope capable of picking up and holding at least 92 pounds.

7. Attach rope (H) (Item 64, Appendix D) loosely to universal joint.



Go on to Sheet 3

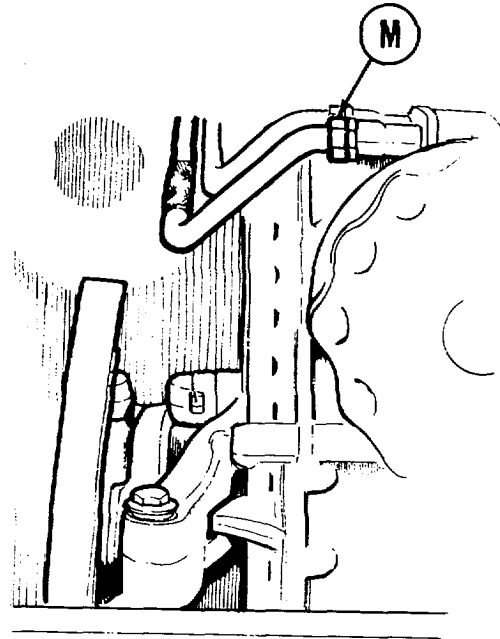
UNIVERSAL JOINT REPLACEMENT (Sheet 3 of 7)



8. Using cutting pliers, cut two lockwires (J). Remove lockwires.

**NOTE**

Turn final drive adapter assembly (F) left or right to remove all four screws (K). It may be necessary to use crowbar to wedge universal joint to prevent it from turning while removing screws (K).



9. Using 13/16 inch socket, remove three of four screws (K).
10. Tighten rope to universal joint (L).
11. Using 13/16 inch socket, remove fourth screw (K).
12. Using 1-1/2 inch wrench, loosen connector (M). Move oil cooler tube to one side.
13. Using rope and crowbar, lift universal joint from tank and place in work area.
14. Remove rope from universal joint.
15. Using cutting pliers, cut lockwire (N). Remove lockwire.
16. Using 13/16 inch socket, and hammer if required, loosen four screws (P).
17. Using 13/16 inch socket, remove four screws (P).

Go on to Sheet 4

## UNIVERSAL JOINT REPLACEMENT (Sheet 4 of 7)

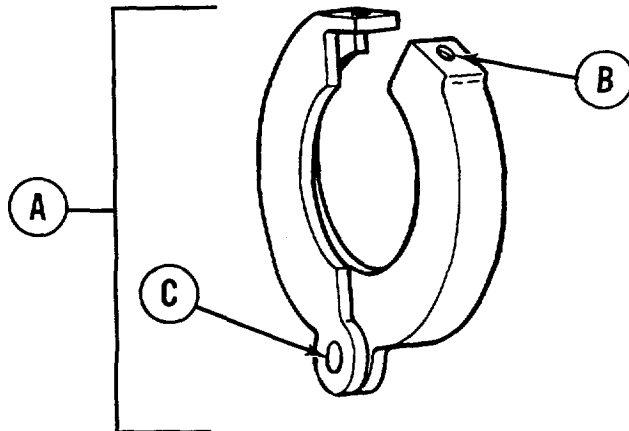
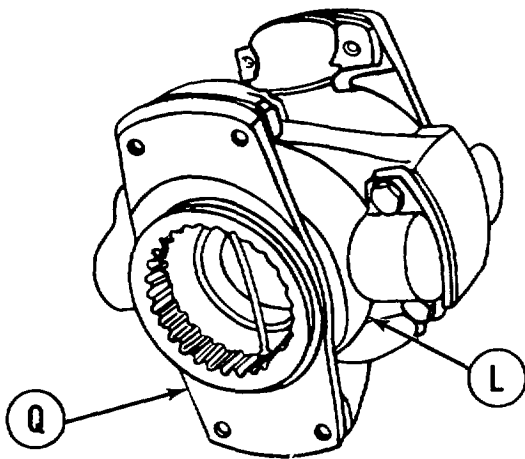
18. Using hammer, tap final drive flange (Q) loose from universal joint (L).
19. Remove final drive flange (Q) from universal joint (L).

**WARNING**

Dry cleaning solvent P-D-680 is toxic and flammable. To prevent personal injury, wear protective goggles and gloves and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes and don't breathe vapors. Do not use near open flame or excessive heat. The flash point for Type #1 Dry Cleaning Solvent is 100 ° F (38 ° C) and for Type #2 is 138 ° F (50 ° C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

20. Wearing rubber gloves (Item 74, Appendix D) and using rags (Item 65, Appendix D) and dry cleaning solvent (Item 54, Appendix D), clean final drive flange (Q).

21. Check final drive flange (Q) for cracks and breaks. Replace if necessary.



## INSPECTION:

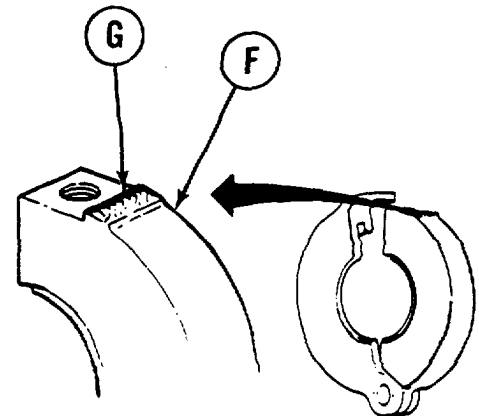
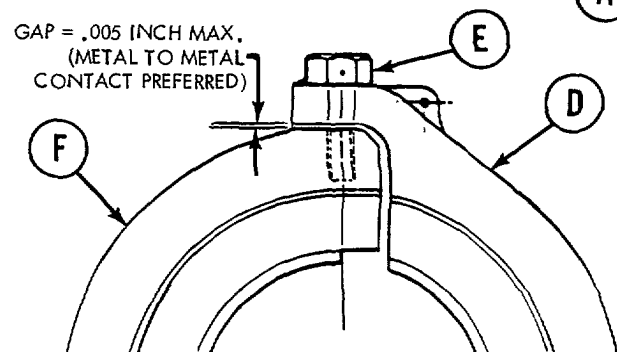
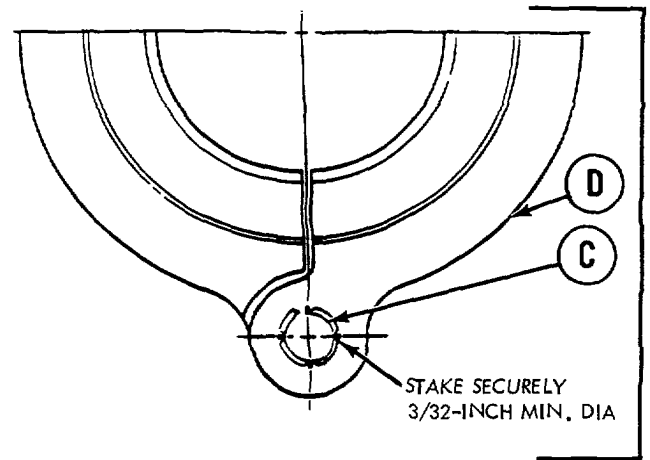
1. Using brush (Item 70, Appendix D) and solvent (Item 54, Appendix D) clean quick-disconnect clamp (A). Be sure tapped hole (B) is free of grease and dirt.
2. Inspect tapped hole (B) for cross-threaded or stripped threads. If threads are damaged, replace quick-disconnect clamp (A).
3. Check for looseness of pin (C). If pin (C) is loose, replace quick-disconnect clamp (A).

Go on to Sheet 4.1

## UNIVERSAL JOINT REPLACEMENT (Sheet 4.1 of 7)

## NOTE

4. Check staking of pin (C). Stake marks should be on flange (D) and overlapping pin (C) on four sides.
5. If not staked properly, use fabricated center punch and stake pin (C) four places, equally spaced on flange (D). If chamfer on flange (D) is so large that metal does not mushroom over pin (C) when staked, replace quick-disconnect clamp (A).
6. Inspect quick-disconnect clamp (A) for cracks, breaks, or sprung hinge. If damaged, replace quick-disconnect clamp (A).
7. Close quick-disconnect clamp (A) and install screw (E) finger tight.
8. Using thickness gage, check clearance between flange (F) and flange (D). Clearance must be 0.000 to 0.005 inch. If more than 0.005 inch, proceed to step 9. If clearance is within tolerance, go to sheet 4.2.
9. Using oxy-acetylene welding equipment, brazing alloy (Item 71, Appendix D) and welding flux (Item 72, Appendix D), braze a bead (G) across top of flange (F).
10. Using file, file bead (G) down until metal to metal contact exists between flange (F) and flange (D).

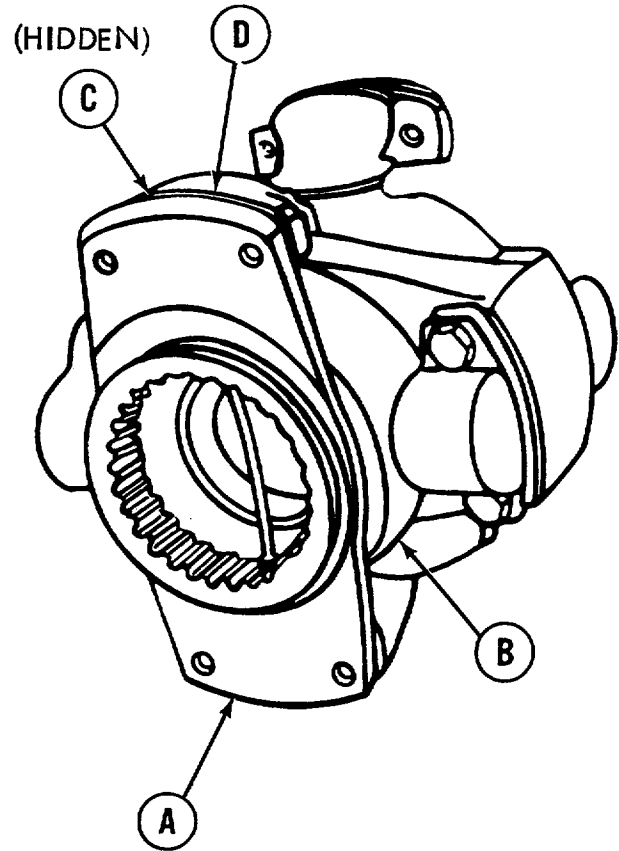


Go on to Sheet 4.2

**UNIVERSAL JOINT REPLACEMENT (Sheet 4.2 of 7)**

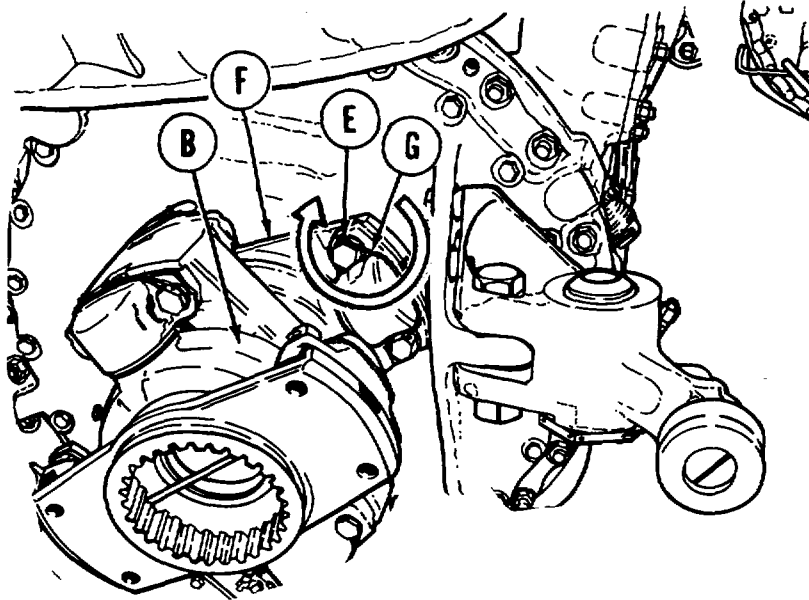
## INSTALLATION:

1. Position final drive flange (A) to universal joint (B).
2. Using 13/16 inch socket, install four screws (C).
3. Using torque wrench, tighten four screws (C) to 110-130 lb-ft (146-173 N•m).
4. Using slip joint pliers, install lockwires (D) (Item 60, Appendix D) to each two adjacent screws (C).



Go on to Sheet 5

## UNIVERSAL JOINT REPLACEMENT (Sheet 5 of 7)

**CAUTION**

Use rope capable of picking up and holding at least 92 pounds.

5. Using rope (Item 65, Appendix D) and crowbar, position universal joint (B) into general position in tank.
6. Inset aligning punch through one screw hole (E) and into corresponding final drive adapter assembly screw hole to align universal joint

**NOTE**

Turn final drive adapter assembly (F) left or right to install four screws (E) and two lockwires (G) (Item 60, Appendix D).

7. Align three remaining screw holes (E) with final drive adapter assembly (F).
8. Start threads of three screws (E) by hand.
9. Remove aligning punch from fourth screw hole.
10. Start threads of fourth screw (E) by hand.

Go on to Sheet 6

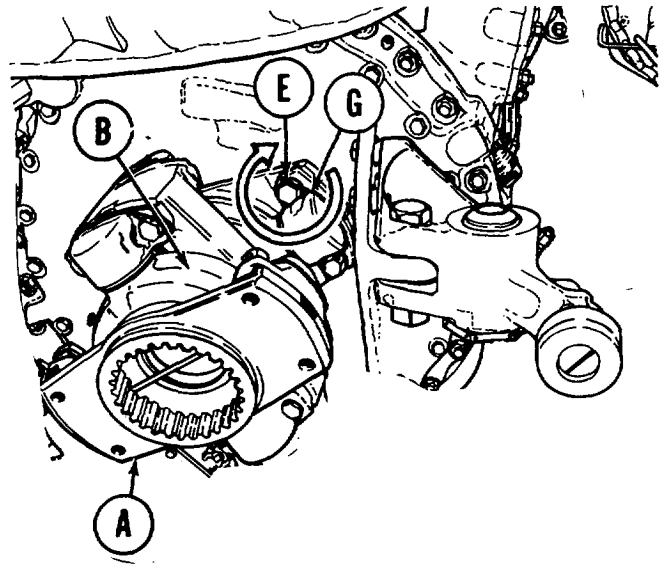
TA146646



## UNIVERSAL JOINT REPLACEMENT (Sheet 6 of 7)

## NOTE

It may be necessary to use prybar to wedge universal joint to prevent it from turning while tightening screws (E).

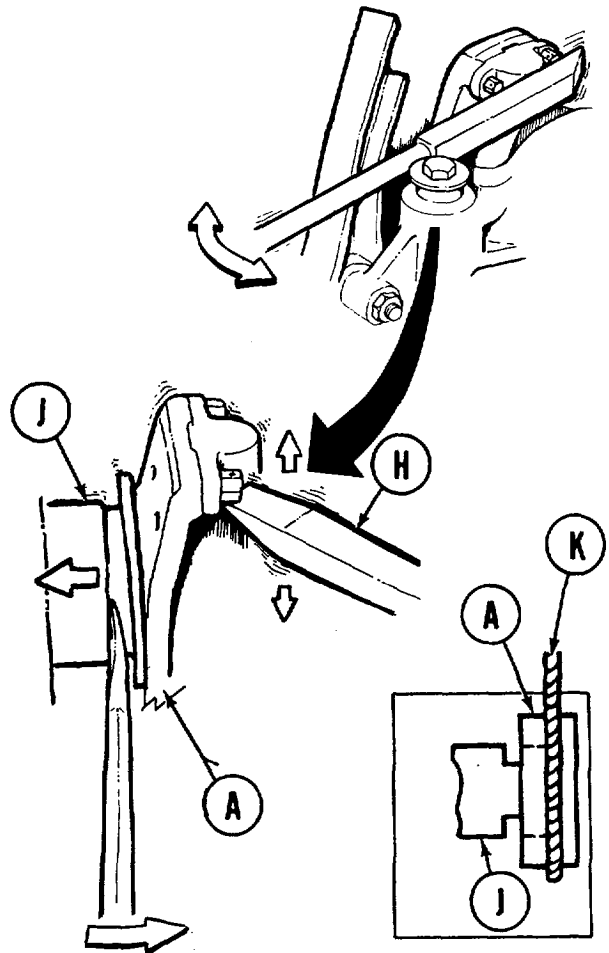


11. Using 13/16 inch socket, tighten four screws (E).
12. Using 13/16 inch socket and torque wrench, tighten four screws (E) to 110-130 lb-ft (146-173 N•m).
13. Using slip joint pliers, install lockwire (G) (Item 60, Appendix D) to each two adjacent screws (E).

## NOTE

Two persons are needed to perform steps 14 and 15. After splines are lined up (in step 14), person using crowbar (H) will have to move handle of crowbar (H) repeatedly, left and right, to strike flange (A) to have final drive flange (A) engage final drive adapter (J).

14. Position universal joint (B) so final drive flange (A) splines match up with final drive adapter assembly (J) splines. Manually turn universal joint (B) left or right to match up splines.
15. Using rope (K) and crowbar (H), slide final drive adapter assembly (J) away from final drive to engage final drive flange (A).

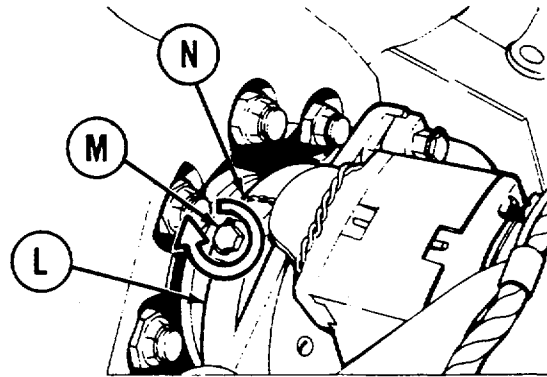


Go on to Sheet 7

TA146647

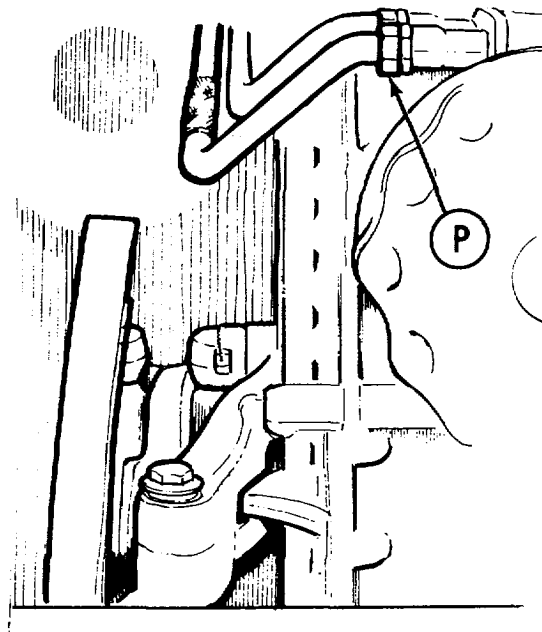
**UNIVERSAL JOINT REPLACEMENT (Sheet 7 of 7)**

- 16. Remove rope from universal joint.
- 17. Fit quick-disconnect clamp (L) over grooves in final drive flange and final drive adapter assembly.
- 18. Hold quick-disconnect clamp (L) over grooves in final drive flange and final drive adapter assembly.



- 19. Close quick-disconnect clamp (L).
- 20. Using 3/4 inch socket, install one screw (M).
- 21. Using torque wrench, torque screw (M) to 25 lb-ft (34 N•m).
- 22. Using slip joint pliers, install lockwire (N) (Item 60, Appendix D) to screw (M) and quick-disconnect clamp (L).
- 23. Using 1-1/2 inch wrench, install tube (P) to transmission.
- 24. Install right exhaust pipe (page 8-11) or left exhaust pipe (page 8-7).
- 25. Lubricate (LO 9-2350-260-12).
- 26. Install transmission shroud support (page 9-38).
- 27. Push transmission mounting guide towards transmission and lock into place (page 5-18).

- 28. Install transmission shroud (page 9-23).
- 29. Install top deck (page 16-22).
- 30. Remove track blocks.



End of Task

TA146648

**UNIVERSAL JOINT REPAIR (Sheet 1 of 2)**

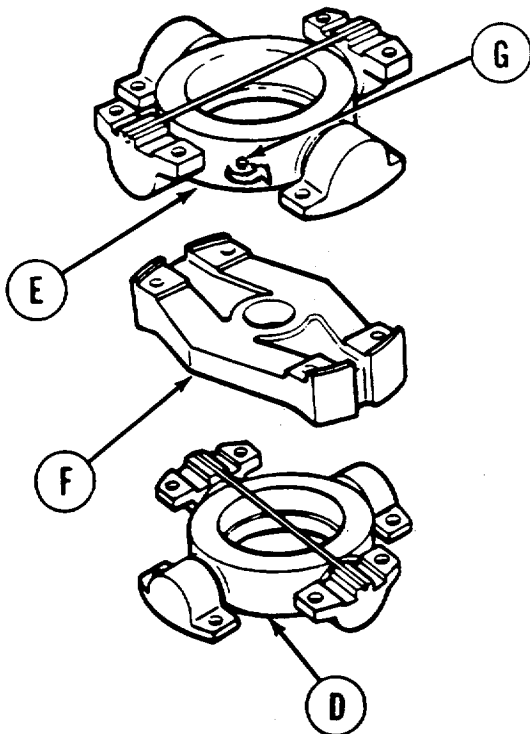
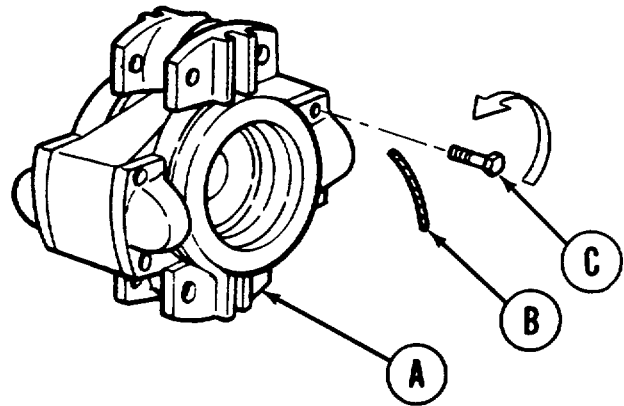
**TOOLS:** Torque wrench with 1/2 in. drive (0-175 lb-ft)  
 13/16 in. socket with 1/2 in. drive  
 18 in. hinged handle with 1/2 in. drive  
 3/8 in. combination box and open end wrench  
 Diagonal cutting pliers  
 Slip joint pliers  
 Hammer  
 26 in. pinch bar

**SUPPLIES:** Lockwire (Item 60, Appendix D)  
 Oil (Item 44, Appendix D)

**PRELIMINARY PROCEDURE:** Remove universal joint from tank (page 12-12)

**DISASSEMBLY:**

1. Place universal joint on end (A).
2. Using cutting pliers, cut four lockwires (B). Remove lockwires.
3. Using socket and hinged handle, loosen eight screws (C). Using hammer, gently tap hinge handle to loosen screws, if necessary.



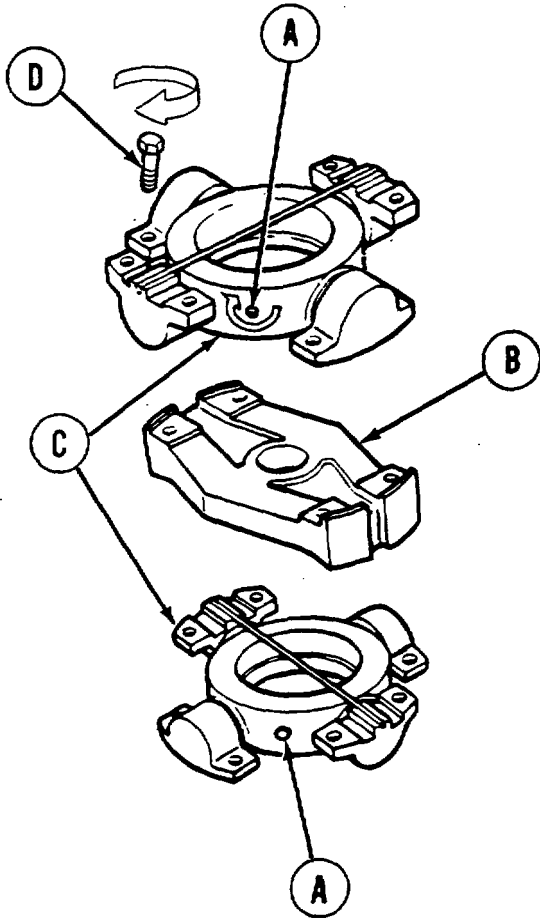
4. Place universal joint on side (D).
5. Using socket and hinged handle, remove four screws (C).
6. Using pinch bar, pry loose spider assembly (E) from coupling plate (F).
7. Lift spider assembly (E) from coupling plate (F).
8. Using wrench, remove two lubrication fittings (G) if damaged or broken.

Go on to Sheet 2

TA146649

UNIVERSAL JOINT REPAIR (Sheet 2 of 2)

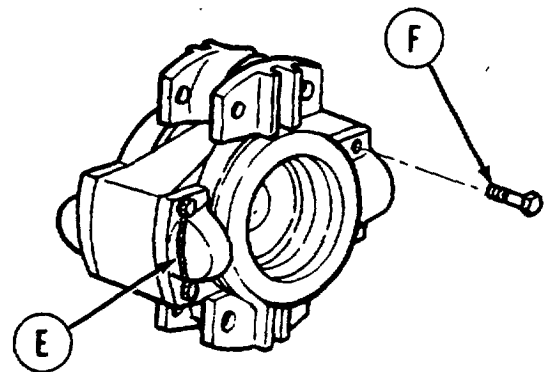
9. Turn universal joint over. Repeat steps 5 thru 8 to remove second spider assembly from coupling plate.
10. Replace coupling plate and each spider in its entirety if any component within an assembly is cracked or broken.



ASSEMBLY:

1. Using wrench, replace lubrication fitting (A), if removed.
2. Place coupling plate (B) and either spider assembly (C) on side.
3. Place spider assembly (C) into position on coupling plate (B).
4. Using hammer, gently tap spider assembly (C) and coupling plate (B) into snug fit.
5. Using socket install four screws (D).
6. Using socket and torque wrench, tighten screws (D) to 115-130 lb-ft (155-175 N•m).
7. Turn universal joint over. Repeat steps 1 through 6.
8. Place universal joint on end.
9. Using slip joint pliers, attach lockwire (E) (Item 60, Appendix D) to each two adjacent screws (F).

10. Using lubricating oil (Item 44, Appendix D), oil universal joint assembly.
11. Install universal joint (page 12-14).



End of Task

TA146650

## CHAPTER 13

## BRAKE SYSTEM MAINTENANCE INDEX

PROCEDURE	PAGE
Brakes Adjustment	13-2
Brake Linkage Adjustment	13-10
Brake Pedal and Rod Assemblies Repair and Replacement	13-27
Brake Lever and Rod Assemblies Repair and Replacement	13-35
Parking Brake Guide and Rod Assemblies Repair and Replacement	13-42
Brake Adjuster, Enclosure, and Linkage Repair and Replacement Index	13-56
Brake Enclosure Assembly Replacement	13-57
Brake Adjuster Assembly Repair and Replacement	13-60
Brake Equalizer Assembly and Linkage Assemblies Repair and Replacement	13-66
Brake Lever and Linkage Assemblies (Let and Right) Repair and Replacement	13-78
Brake Lever Assembly Replacement	13-90

**BRAKES ADJUSTMENT (Sheet 1 of 8)**

**TOOLS:** 7/16 in. combination box and open end wrench  
 15/16 in. combination box and open end wrench  
 7/8 in. combination box and open end wrench  
 Diagonal cutting pliers  
 1 in. combination box and open end wrench  
 Slip joint pliers

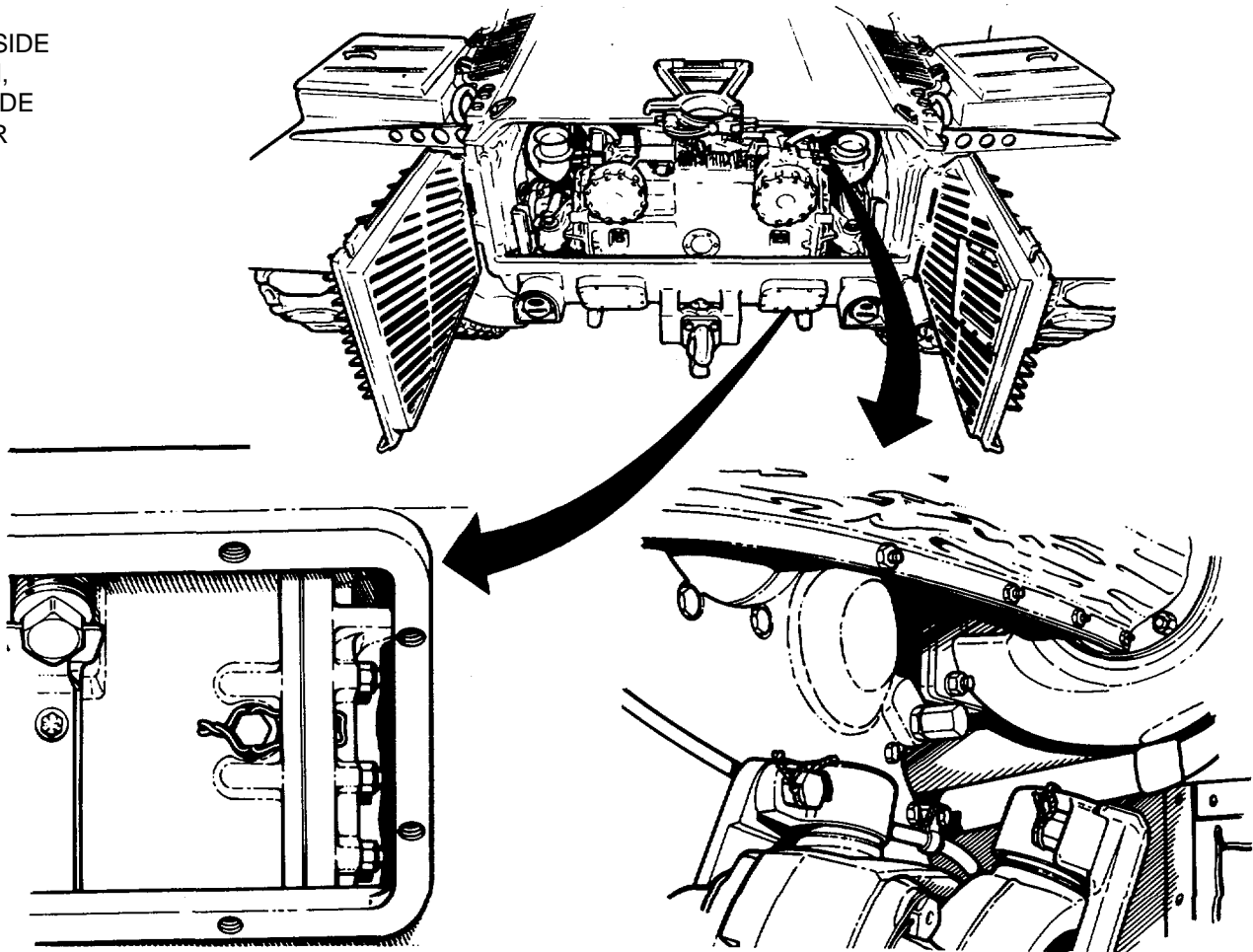
**SUPPLIES:** Lockwire (Item 60, Appendix A)  
 Gasket (MS35769-21) (2 required)

**PERSONNEL:** Two

**REFERENCE:** TM 9-2350-260-10

**PRELIMINARY PROCEDURES:** Block tank tracks (TM 9-2350-260-10)  
 Place transmission in (N) neutral (TM 9-2350-260-10)  
 Remove transmission shroud (page 9-20)  
 Remove rear transmission access covers (page 16-42)

RIGHT SIDE  
 SHOWN,  
 LEFT SIDE  
 SIMILAR



Go on to Sheet 2

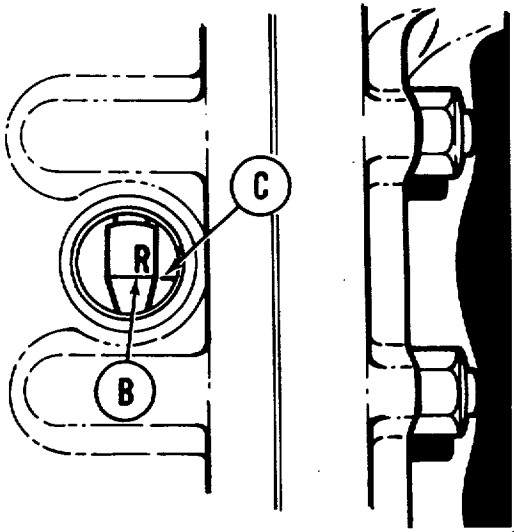
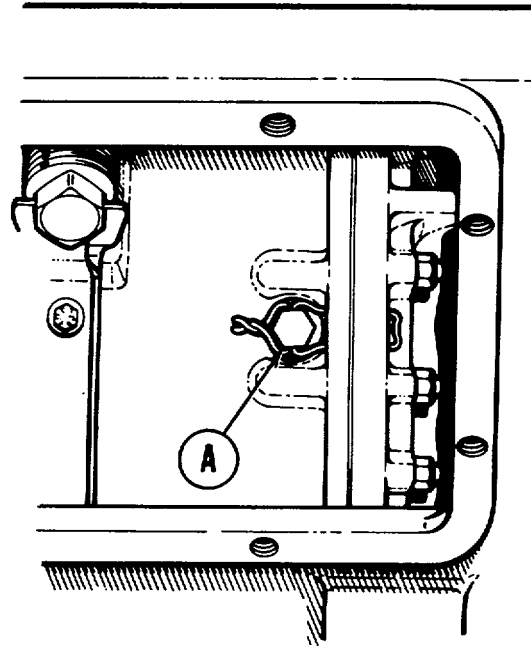
TA146290

**BRAKES ADJUSTMENT (Sheet 2 of 8)**

**NOTE**

**Both right and left brakes must be adjusted. Left brake adjustment is located equally opposite right brake adjustment on transmission.**

1. Using pliers, cut two lockwires holding two brake inspection hole plugs (A). Remove lockwires.
2. Using 7/8 inch wrench, remove two brake inception hole plugs and gasket (A). Throw gaskets away.

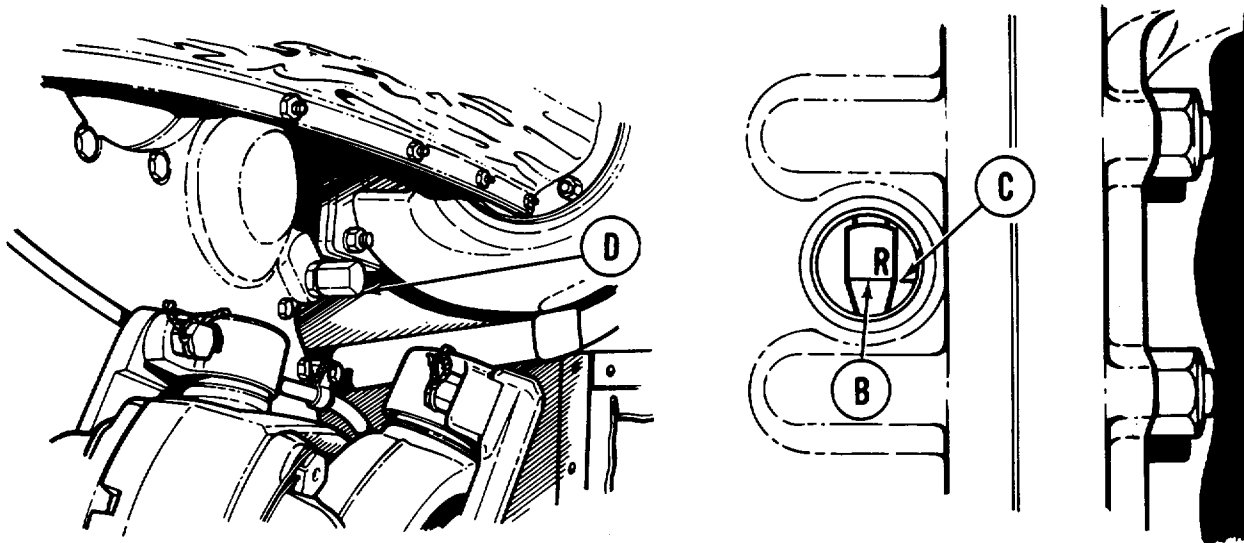


3. Check whether Index line (B) marked R and index mark (C) are lined up.

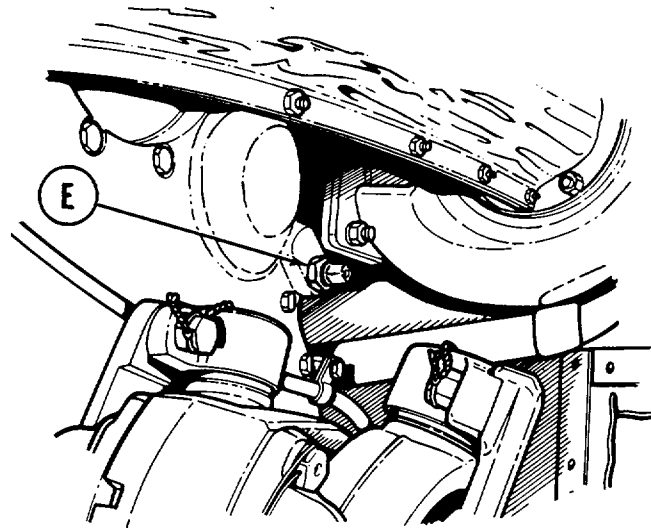
**BRAKES ADJUSTMENT (Sheet 3 of 8)**

**NOTE**

If index line (B) marked R, and index mark (C) are lined up, skip step 4 and go to step 10. If they are not lined up, go on to step 4.



4. Using 7/8 inch wrench, remove brake adjustment worm cap (D).
5. Using 15/16 inch wrench, loosen locknut (E).



Go on to Sheet 4

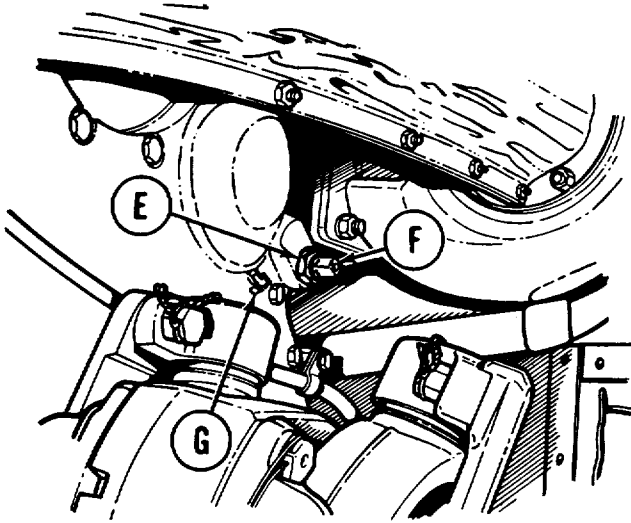
TA146292



## BRAKES ADJUSTMENT (Sheet 4 of 8)

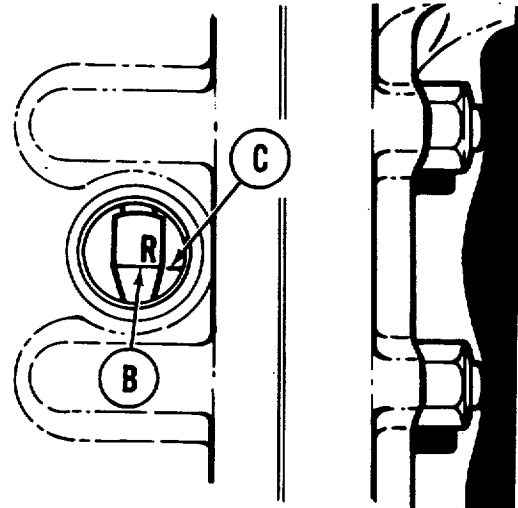
## CAUTION

Make sure brakes are fully released before making brake adjustment. Failure to fully release brakes can cause internal damage to cross-drive transmission.



6. Using 7/16 inch wrench, turn brake adjusting worm (F) about 25 turns in opposite direction of arrow (G).
7. Using 7/16 inch wrench, attempt to line up index line (B) marked R with index mark (C) by turning brake adjustment worm (F) in direction of arrow (G).

8. If index line (B) marked R, and index mark (C) are lined up, using 7/16 inch wrench, hold brake adjusting worm (F). Using 15/16 inch wrench, tighten locknut (E).



## NOTE

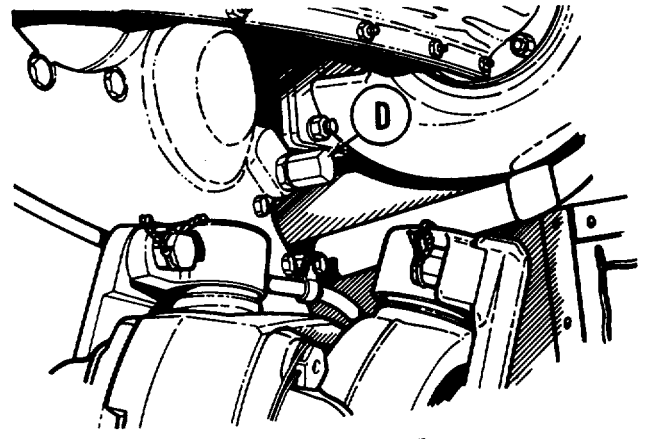
If index line (B) marked R, and index mark (C) are not lined up, notify supervisor that brakes require higher level maintenance.

Go on to Sheet 5

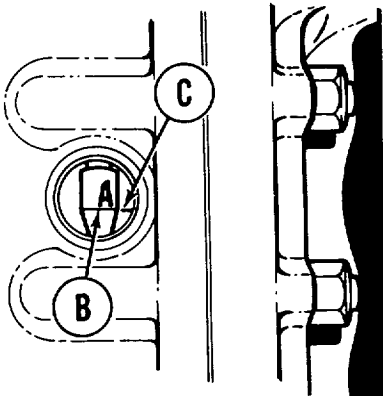
TA146293

**BRAKES ADJUSTMENT (Sheet 5 of 8)**

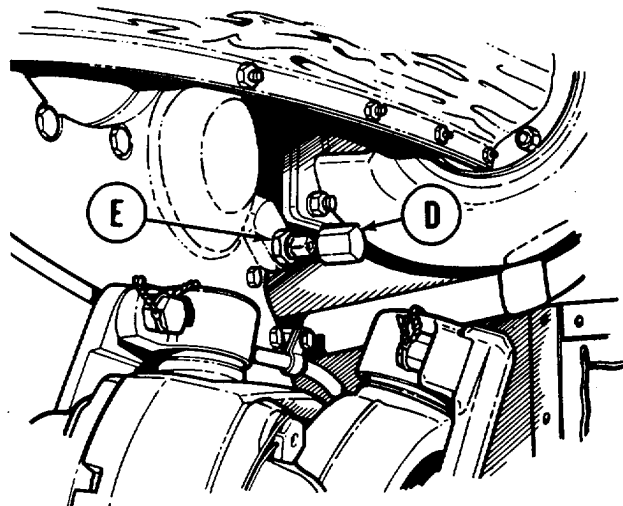
9. Using 7/8 inch wrench, install brake adjusting worm cap (D).
10. Fully apply brakes (TM 9-2350-260-10).
11. Check whether index line (B) marked A and index mark (C) are lined up.
12. If index line (B) marked A and index mark (C) are lined up within 1/64 inch brakes are adjusted. Release brakes and go to step 24.



13. If index line (B) marked A, and index mark (C) are not lined up within 1/64 inch, release brakes and go to step 14.



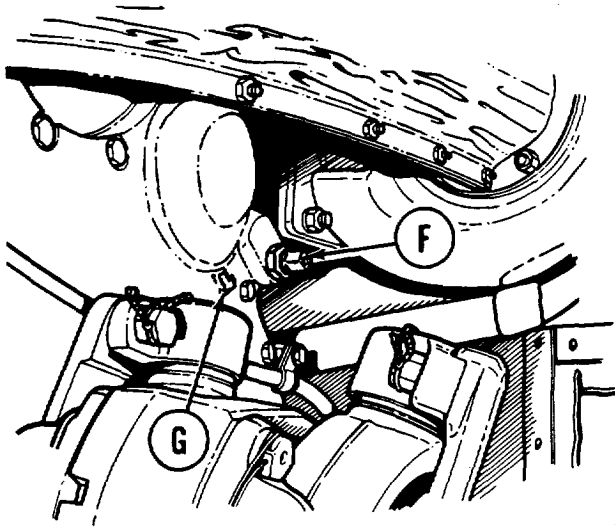
14. Using 7/8 inch wrench, remove brake adjusting worm cap (D).
15. Using 15/16 inch wrench, loosen locknut (E).
16. Fully apply brakes (TM 9-2350-260-10). If index line (B) marked A, moves past index mark (C), brake is too loose.



Go on to Sheet 6

TA146294

## BRAKES ADJUSTMENT (Sheet 6 of 8)

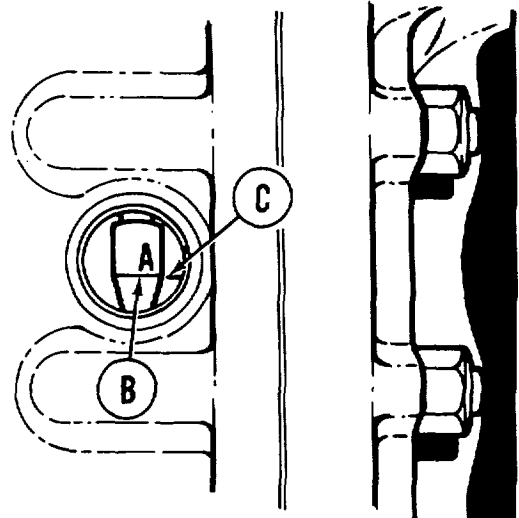


17. Release brakes.

18. Using 7/16 inch wrench, turn brake adjusting worm (F) in direction of arrow (G) until index line (B) lines up with index mark (C).

19. If index line (B) marked A does not move back to index mark (C), brake is too tight.

20. Using 7/16 inch wrench, turn brake adjusting worm (F) about 25 turns toward opposite direction of arrow (G).



## NOTE

Always try to bring index line (B) marked A, and index mark (C) into line by turning brake adjusting worm (F) counterclockwise.

## CAUTION

Always release brakes before making adjustments.

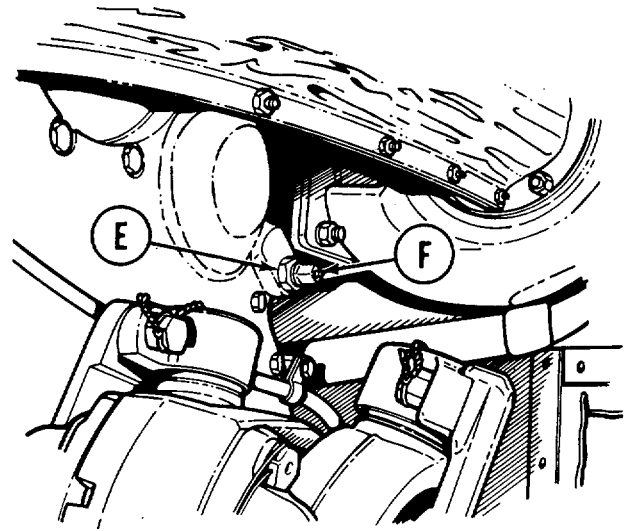
21. Using 7/16 inch wrench, turn brake adjusting worm (F) in direction of arrow (G) until index line (B) marked A, lines up with index mark (C) when brakes are applied.

Go on to Sheet 7

TA146295

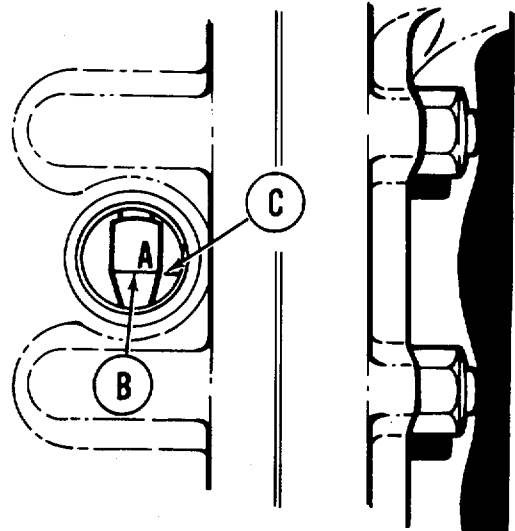
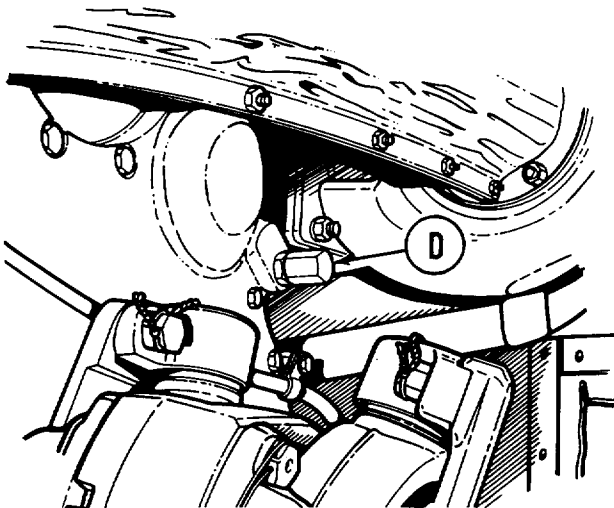
**BRAKES ADJUSTMENT (Sheet 7 of 8)**

22. When brakes have been adjusted, using 7/16 inch wrench, hold adjusting worm (F). Using 15/16 inch wrench, tighten locknut (E).



**NOTE**

If index line (B) marked A cannot be lined up with index mark (C) within 1/64 inch, notify supervisor that brakes require higher level maintenance.

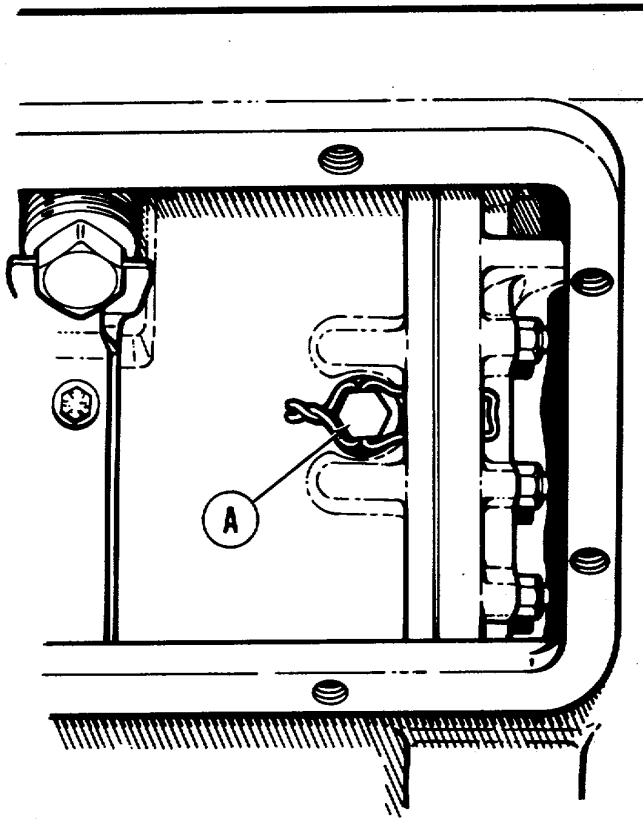


23. Using 1 inch wrench, install brake adjusting worm cap (D).

Go on to Sheet 8

TA146296

## BRAKES ADJUSTMENT (Sheet 8 of 8)



24. Using 7/8 inch wrench, install two brake inspection hole plugs and new gaskets (A).
25. Using pliers, install lockwire (Item 60, Appendix D) to two brake inspection hole plugs.

26. Install rear transmission access covers (page 16-42).
27. Install transmission shroud (page 9-23).
28. Road test tank to check brakes adjustment (TM 9-2350-260-10).

End of task

TA146297

**BRAKE LINKAGE ADJUSTMENT (Sheet 1 of 17)**

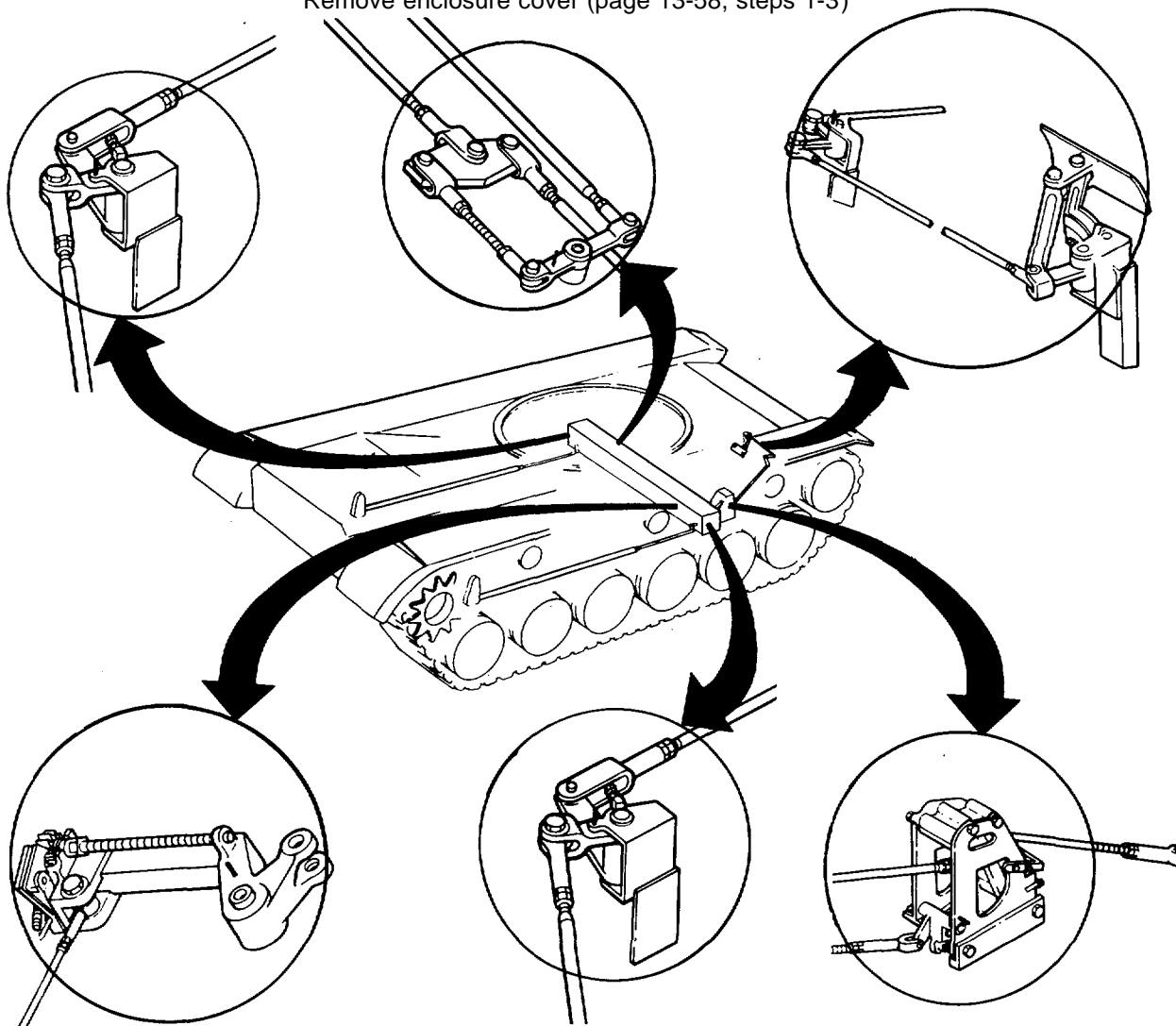
**TOOLS:** 3/4 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 3/4 in. combination box and open end wrench  
 6 in. rule  
 9/16 in. socket with 1/2 in. drive  
 5 in. extension with 1/2 in. drive

7/16 in. combination box and open end wrench  
 9/16 in. combination box and open end wrench  
 Diagonal cutting pliers  
 Long round nose pliers  
 Slip joint pliers

**SUPPLIES:** Locating pins (1/8 in. diameter by 6 in.) (3 required)  
 Wire (1/16 in. diameter by 2 in. long)  
 Cotter pin (MS34665-132)  
 Cotter pins (MS24665-353) (2 required)  
 Lockwasher (MS35335-37) (8 required)

**REFERENCE:** TM 9-2350-260-10

**PRELIMINARY PROCEDURES:** Block tracks (TM 9-2350-260-10)  
 Remove enclosure cover (page 13-58, steps 1-3)

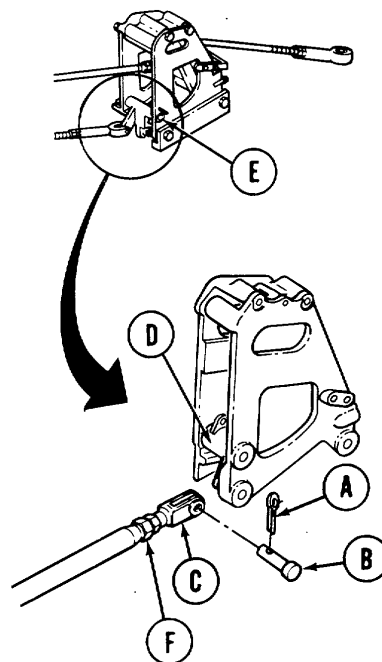


Go on to Sheet 2

TA146298

**BRAKE LINKAGE ADJUSTMENT (Sheet 2 of 17)**

1. Place transmission shift lever in 'N' position. If parking brake will not release, go to step 2. If parking brake releases, go to step 12.
2. Using diagonal pliers, remove cotter pin (A). Throw cotter pin away.
3. Using long nose pliers, remove pin (B).
4. Remove clevis (C) from lever (D).
5. Install alinement pin (E) into alinement hole.
6. Using 7/16 inch wrench, loosen jamnut (F).
7. Place shift lever into 'N' position and hold.
8. Adjust clevis (C) until pin (B) can be installed through clevis (C) and lever (D).
9. Install pin (B) and, using long nose pliers, install new cotter pin (A).
10. Release shift lever, shift lever should remain in 'N' position.
11. Using 7/16 inch wrench, tighten jamnut (F) up against clevis (C). Remove alinement pin (E).

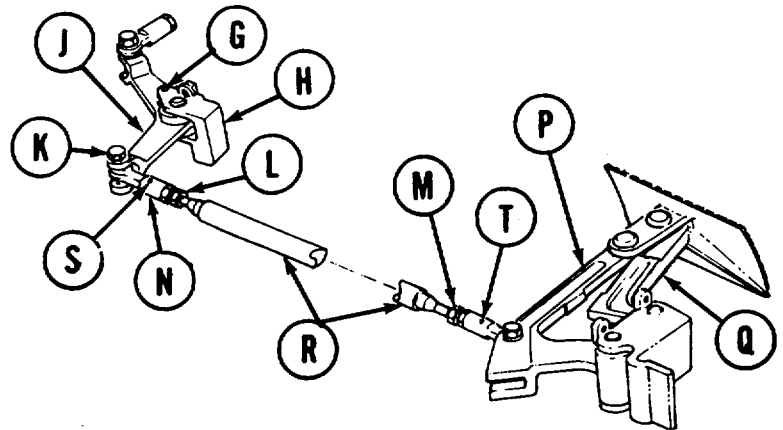


Go on to Sheet 3

TA146299

**BRAKE LINKAGE ADJUSTMENT (Sheet 3 of 17)**

12. Try to insert alignment pin through alignment hole (G) in bracket (H) and lever (J). If alignment pin cannot be inserted, go to step 13. If alignment pin can be inserted, go to step 40.
13. Using 3/4 inch socket, remove screw and lockwasher (K). Throw lockwasher away.
14. Manually move lever (J) and insert alignment pin into alignment hole (G).
15. Using 3/4 inch wrench, loosen jamnuts (L) and (M).



16. Using 3/4 inch wrench, adjust rod end bearing (N) by turning clockwise or counterclockwise until screw (K) will slip freely through lever (J) and rod end bearing (N).
17. Check if brake pedal levers (P) and (Q) are touching. If levers are touching, go to step 18. If levers are not touching, go to step 22.
18. Using 1/16 inch diameter wire, check to see if rod (R) is past holes (S) and (T). If rod (R) is past holes (S) and (T), go to step 19. If rod (R) is not past hole (S), do steps 24 through 30. If rod (R) is not past hole (T), go on to step 32.
19. Install screw and new lockwasher (K). Using 3/4 inch socket, tighten screw (K).
20. Using 3/4 inch wrench, tighten jamnuts (L) and (M).
21. Remove alignment pin from alignment hole (G).

Go on to Sheet 4

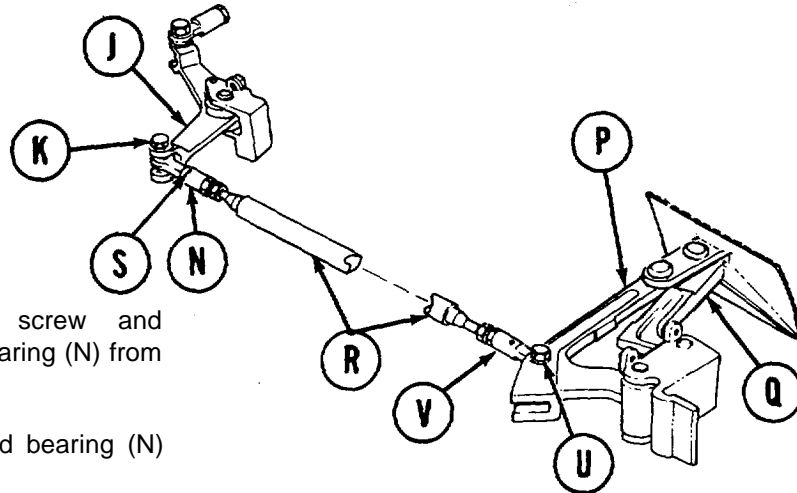
TA146300



**BRAKE LINKAGE ADJUSTMENT (Sheet 4 of 17)**

22. Using slip joint pliers, rotate rod (R) clockwise or counterclockwise until brake levers (P) and (Q) are touching.

23. Perform step 18.



24. Using 3/4 inch socket, remove screw and lockwasher (K) and remove rod end bearing (N) from lever (J).

25. Using 3/4 inch wrench, adjust rod end bearing (N) clockwise until rod (R) is past hole (S).

26. Using 3/4 inch socket, remove screw and lockwasher (U) and remove rod end bearing (V) from lever (P). Throw lockwasher away.

27. Using 3/4 inch socket, install new lockwasher and screw (K) through rod end bearing (N) and lever (J).

28. Using 3/4 inch wrench, adjust rod end bearing (V) by turning clockwise or counterclockwise until screw (U) will drop freely through rod end bearing (V) and lever (P).

Go on to Sheet 5

TA146301

**BRAKE LINKAGE ADJUSTMENT (Sheet 5 of 17)**

29. Using 3/4 inch socket, install new lockwasher and screw (U) through lever (P) and rod end bearing (V).

30. Using 3/4 inch wrench, tighten jamnuts (L) and (M) up against rod end bearings (N) and (V).

31. Remove alinement pin from alinement hole (G). Go on to step 40.

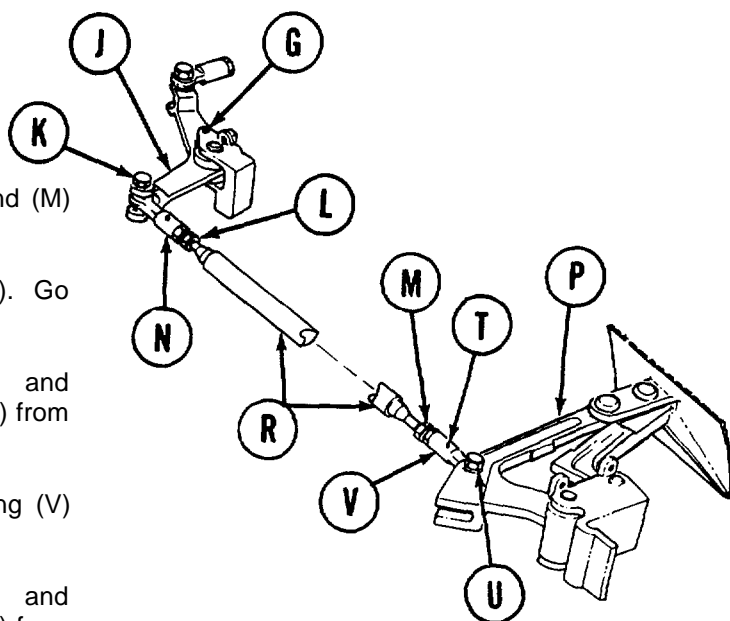
32. Using 3/4 inch socket, remove screw and lockwasher (U) and remove rod end bearing (V) from lever (P). Throw lockwasher away.

33. Using 3/4 inch wrench, adjust rod end bearing (V) clockwise until rod (R) is past hole (T).

34. Using 3/4 inch socket, remove screw and lockwasher (K) and remove rod end bearing (N) from lever (J). Throw lockwasher away.

35. Using 3/4 inch socket, install new lockwasher and screw (U) through rod end bearing (V) and lever (P).

36. Using 3/4 inch wrench, adjust rod end bearing (N) by turning clockwise or counterclockwise until screw (K) will drop freely through rod end bearing (N) and lever (J).

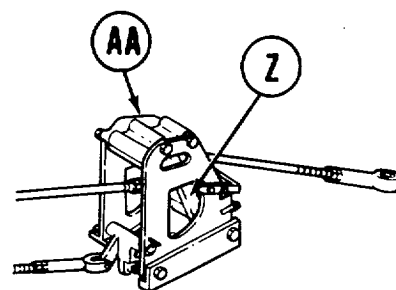
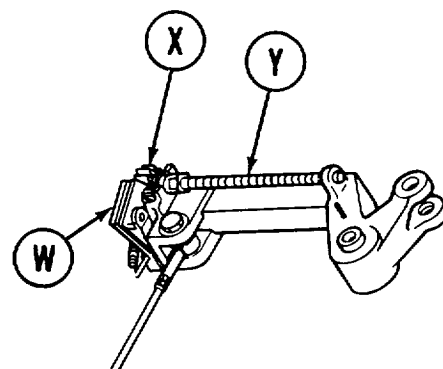
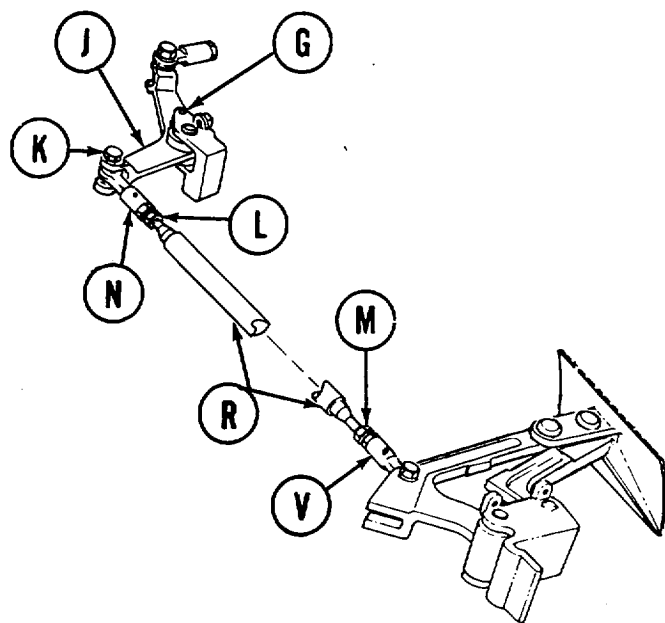


Go on to Sheet 6

TA146302

**BRAKE LINKAGE ADJUSTMENT (Sheet 6 of 17)**

37. Using 3/4 inch socket, install new lockwasher, and screw (K) through lever (J) and rod end bearing (N).
38. Using 3/4 inch wrench, tighten jamnuts (L) and (M) up against rod end bearings (N) and (V).
39. Remove alinement pin from alinement hole (G). Go on to step 40.
40. Lift pawls (W) and rotate ratchet (X) until it is approximately centered on stud (Y).
41. Check that lever assembly (Z) in guide assembly (AA) is completely back. If lever assembly is completely back, go on to step 55. If lever assembly is not completely back, perform steps 42 through 54.



Go on to Sheet 7

TA146303

**BRAKE LINKAGE ADJUSTMENT (Sheet 7 of 17)**

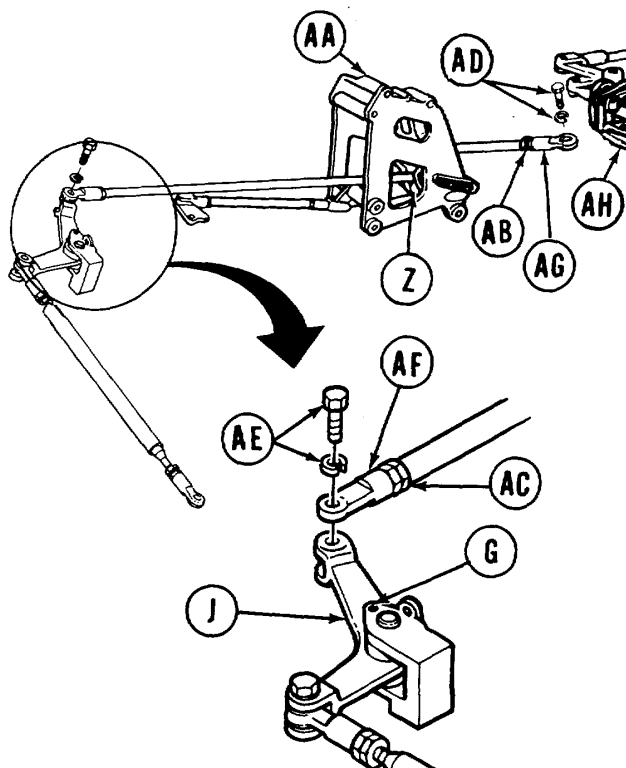
42. Using 3/4 inch wrench, loosen jamnuts (AB) and (AC).

43. Using 3/4 inch socket, remove screw and lockwasher (AD) and screw and lockwasher (AE). Throw lockwashers away.

44. Using 3/4 inch wrench, remove rod end bearing (AF) from lever (J) and rod end bearing (AG) from adjuster (AH).

45. Insert alinement pin in alinement hole (G).

46. Position lever assembly (Z) completely back in guide assembly (AA).



47. Using 3/4 inch wrench, adjust rod end bearing (AF) counterclockwise until screw (AE) can be slipped freely through lever (J) and rod end bearing (AF).

48. Using 3/4 inch socket, install new lockwasher and screw (AE) through rod end bearing (AF) and lever (J).

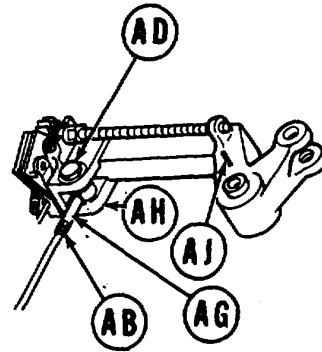
49. Using 3/4 inch wrench, tighten jamnut (AC) up against rod end bearing (AF). Remove alinement pin from alinement hole (G).

Go on to Sheet 8

TA146304

**BRAKE LINKAGE ADJUSTMENT (Sheet 8 of 17)**

50. Insert alinement pin into alinement hole (AJ).
51. Using 3/4 inch wrench, adjust rod end bearing (AG) clockwise until screw (AD) can be slipped freely through adjuster (AH) and rod end bearing (AG).
52. Using 3/4 inch socket install new lockwasher and screw (AD) through adjuster (AB) and rod end bearing (AG).
53. Using 3/4 inch wrench, tighten jamnut (AB) up against rod end bearing (AG).
54. Remove alinement pin from alinement hole (AJ). Go on to step 55.



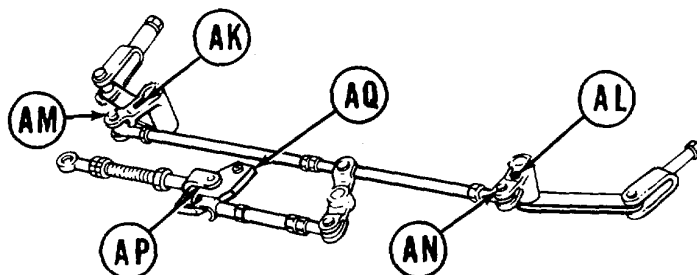
Go on to Sheet 9

TA146305

**BRAKE LINKAGE ADJUSTMENT (Sheet 9 of 17)**

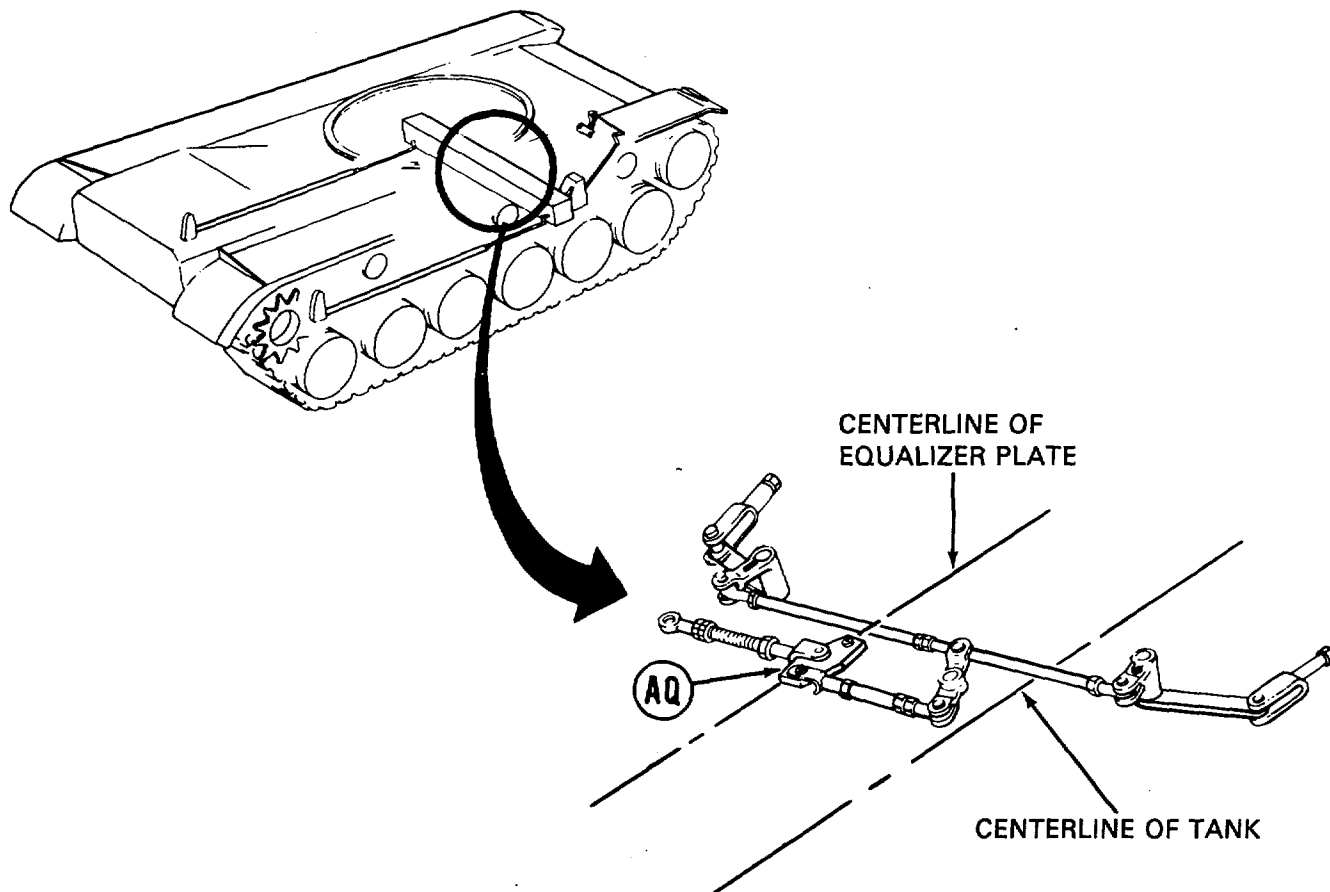
55. Try to insert alignment pins into alignment holes (AK) and (AL). If alignment pin can be inserted, go on to step 109. If both or either alignment pin cannot be inserted, go to step 56.

56. Using 3/4 inch socket, remove screw and lockwasher (AM) and screw and lockwasher (AN). Throw lockwashers away.



57. Insert alignment pin into alignment hole (AP).

58. Check to see if centerline of equalizer plate (AQ) is parallel with centerline of tank. If centerlines are parallel, go to step 76. If centerlines are not parallel, go to step 59.



Go on to Sheet 10

TA146306

**BRAKE LINKAGE ADJUSTMENT (Sheet 10 of 17)**

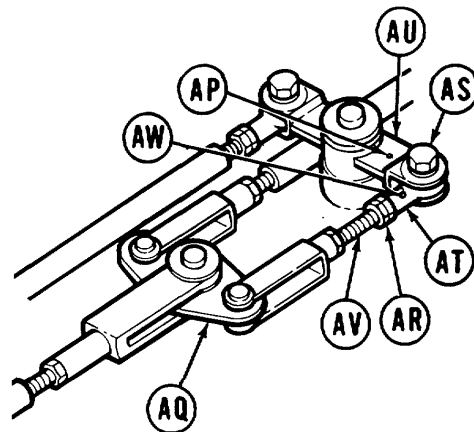
59. Using 3/4 inch wrench, loosen jamnut (AR).

60. Using 3/4 inch socket, remove screw and lockwasher (AS). Throw lockwasher away.

61. Remove rod end bearing (AT) from link (AU).

62. Insert alinement pin into alinement hole (AP) in link (AU) and into casting boss.

63. Using 3/4 inch wrench, adjust rod end bearing (AT) until screw (AS) can be slipped freely through link (AU) and rod end bearing (AT) and equalizer plate (AQ) centerline is parallel with centerline of tank.



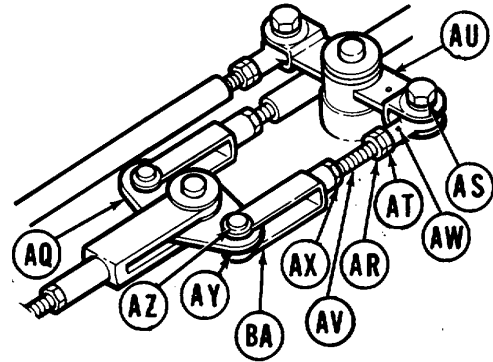
64. Using 1/16 inch diameter wire, check to see if rod (AV) is past hole (AW). If rod (AV) is past hole (AW), go to step 76. If rod (AV) is not past hole (AW), do steps 65 through 75.

Go on to Sheet 11

TA146307

**BRAKE LINKAGE ADJUSTMENT (Sheet 11 of 17)**

65. Using 3/4 inch wrench, loosen jamnut (AX).
66. Remove screw (AS) and remove rod end bearing (AT) from link (AU).
67. Using 9/16 inch wrench, adjust rod end (AT) clockwise until rod (AV) is past alignment hole (AW).
68. Using diagonal pliers, remove cotter pin (AY) and remove pin (AZ). Throw cotter pin away.
69. Remove clevis (BA) from equalizer plate (AQ).
70. Using 3/4 inch socket, install screw and new lockwasher (AS) through link (AU) and rod end bearing (AT).
71. Position equalizer plate (AQ) centerline to be parallel with centerline of tank.
72. Adjust clevis (BA) counterclockwise until pin (AZ) can be slipped freely through clevis (BA) and equalizer plate (AQ).
73. Install pin (AZ) through clevis (BA) and equalizer plate (AQ).
74. Using long nose pliers, install new cotter pin (AY) through pin (AZ).
75. Using 3/4 inch wrench, tighten jamnuts (AX) and (AR) against shanks of clevis (BA) and rod end bearing (AT). Go on to step 76.



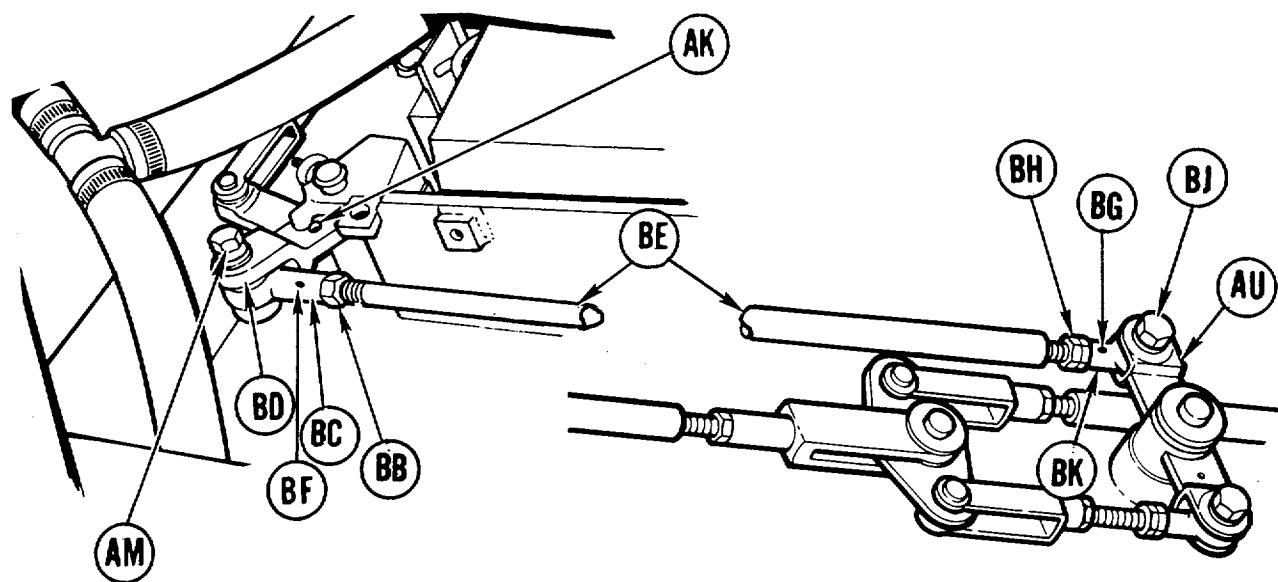
Go on to Sheet 12

TA146308



**BRAKE LINKAGE ADJUSTMENT (Sheet 12 of 17)**

76. Insert alinement pin into alinement hole (AK).
77. Using 3/4 inch wrench, loosen jamnut (BB).
78. Using 3/4 inch wrench, adjust rod end bearing (BC) until screw (AM) can be slipped freely through lever (BD) and rod end bearing (BC).
79. Using 1/16 inch diameter wire, check to see if rod (BE) is past holes (BF) and (BG). If rod (BE) is past holes (BF) and (BG), go to step 96. If rod (BE) is not past hole (BF), do steps 80 through 88. If rod (BE) is not past hole (BG), go on to step 89.
80. Using 3/4 inch wrench, loosen jamnut (BH).
81. Using 3/4 inch socket, remove screw and lockwasher (AM) and remove rod end bearing (BC) from lever (BD).
82. Using 3/4 inch wrench, adjust rod end bearing (BC) clockwise until rod (BE) is past hole (BF).
83. Using 3/4 inch socket, remove screw and lockwasher (BJ) and remove rod end bearing (BK) from link (AU). Throw lockwasher away.
84. Using 3/4 inch socket, install new lockwasher and screw (AM) through rod end bearing (BC) and lever (BD).
85. Using 3/4 inch wrench, adjust rod end bearing (BK) by turning clockwise or counterclockwise until screw (BJ) will drop freely through rod end bearing (BK) and link (AU).

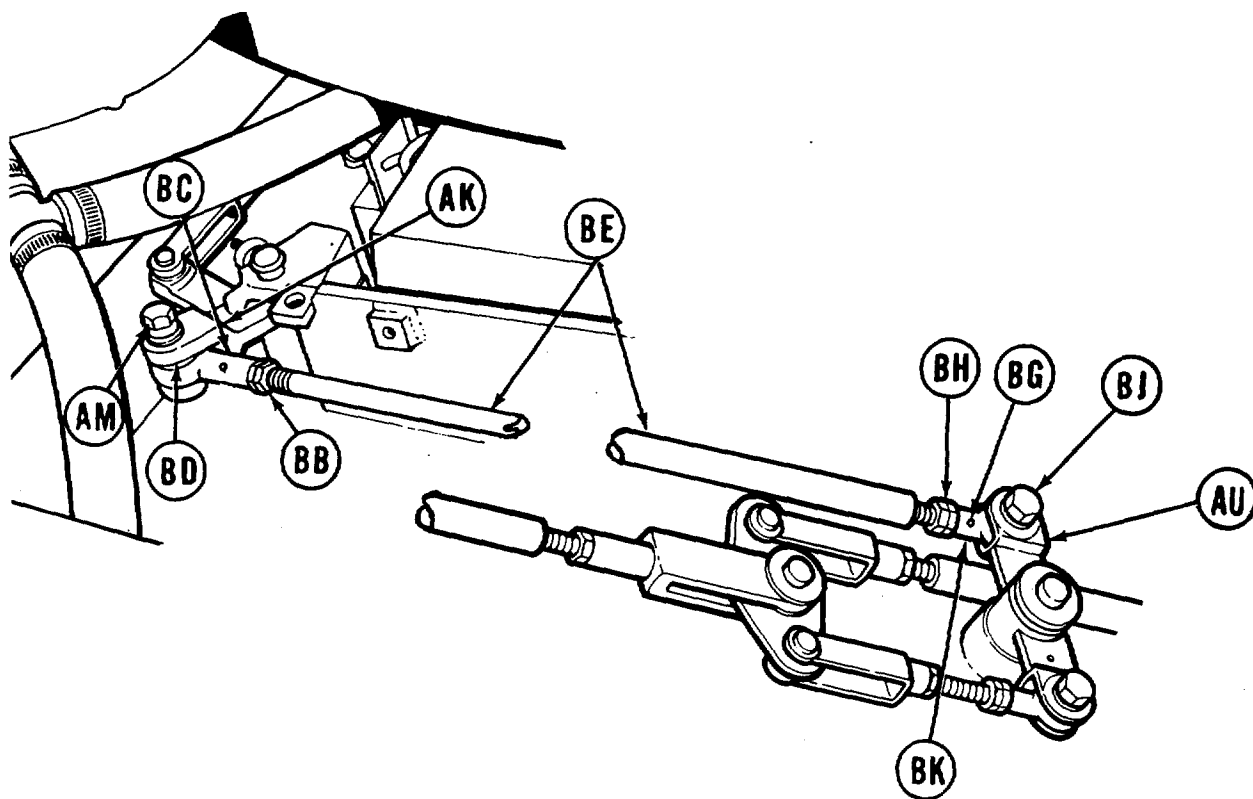


Go on to Sheet 13

TA146309

**BRAKE LINKAGE ADJUSTMENT (Sheet 13 of 17)**

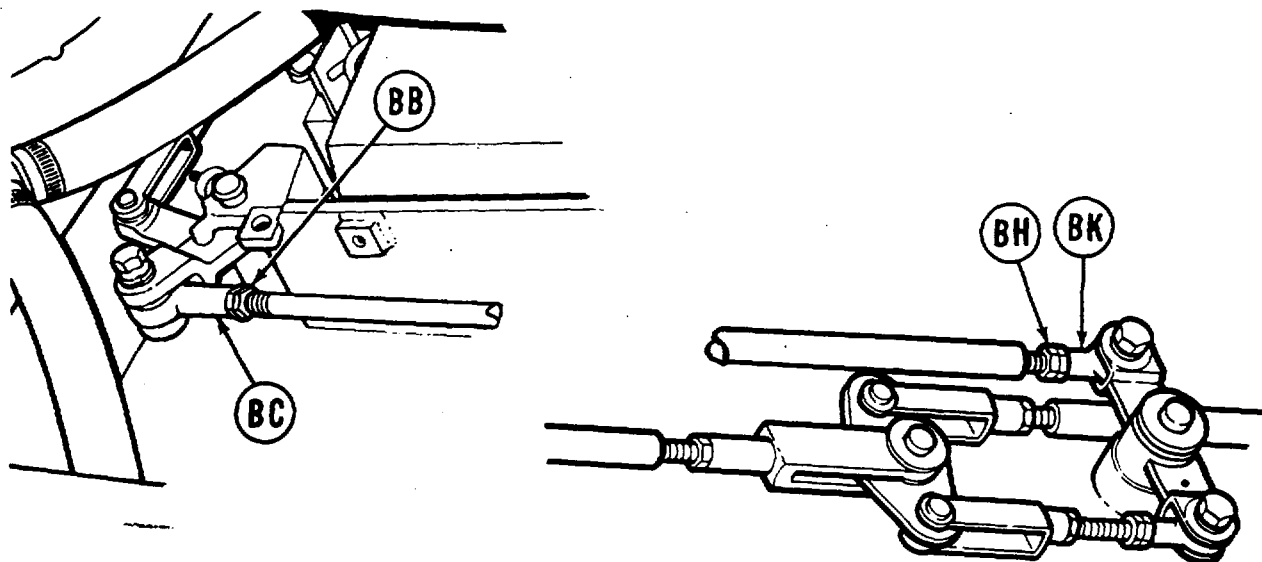
86. Using 3/4 inch socket, install new lockwasher and screw (B) through link (AU) and rod end bearing (BK).
87. Using 3/4 inch wrench, tighten jamnuts (BB) and (BH) up against rod end bearings (BC) and (BK).
88. Remove alinement pin from alinement hole (AK). Go on to step 96.
89. Using 3/4 inch socket, remove screw and lockwasher (BJ) and remove rod end bearing (BK) from link (AU). Throw lockwasher away.
90. Using 9/16 inch wrench, adjust rod end bearing (BK) clockwise until rod (BE) is past hole (BG).
91. Using 3/4 inch socket, remove screw and lockwasher (AM) and remove rod end bearing (BC) from lever (BD). Throw lockwasher away.
92. Using 3/4 inch socket, install new lockwasher and screw (BJ) through rod end bearing (BK) and link (AU).
93. Using 3/4 inch wrench, adjust rod end bearing (BC) by turning clockwise or counterclockwise until screw (AM) will drop freely through rod end bearing (BC) and lever (BD).
94. Using 3/4 inch socket install new lockwasher and screw (AM) through lever (BD) and rod end bearing (BC).



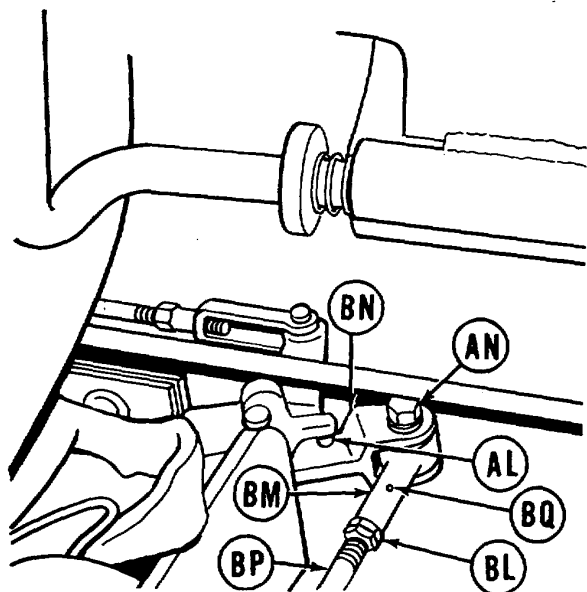
Go on to Sheet 14

TA146310

**BRAKE LINKAGE ADJUSTMENT (Sheet 14 of 17)**



95. Using 3/4 inch wrench, tighten jamnut (BB) and (BH) up against rod end bearings (BC) and (BK). Go on to step 96.



96. Using 3/4 inch wrench, loosen jamnut (BL).

97. Insert alinement pin into alinement hole (AL).

98. Using 3/4 inch wrench, adjust rod end bearing (BM) until screw (AN) can be slipped freely through lever (BN) and rod end bearing (BM).

99. Using 1/16 inch diameter wire, check to see if rod (BP) is past hole (BQ). If rod (BP) is past hole (BQ), do step 104. If rod (BP) is not past hole (BQ), do steps 100 through 108.

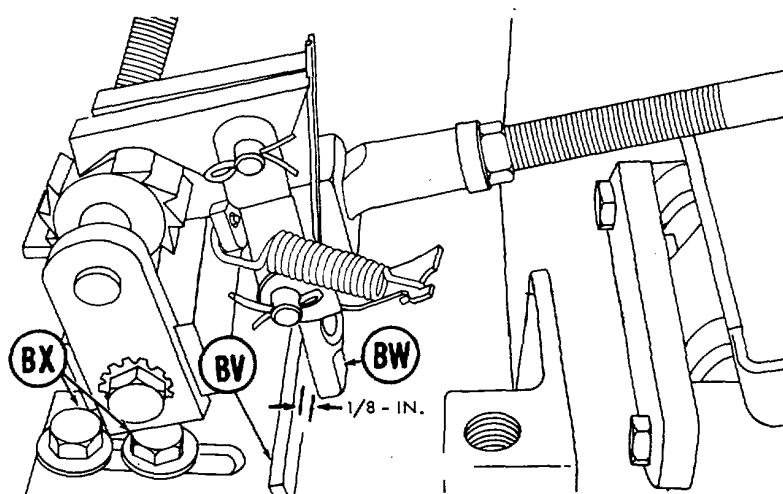
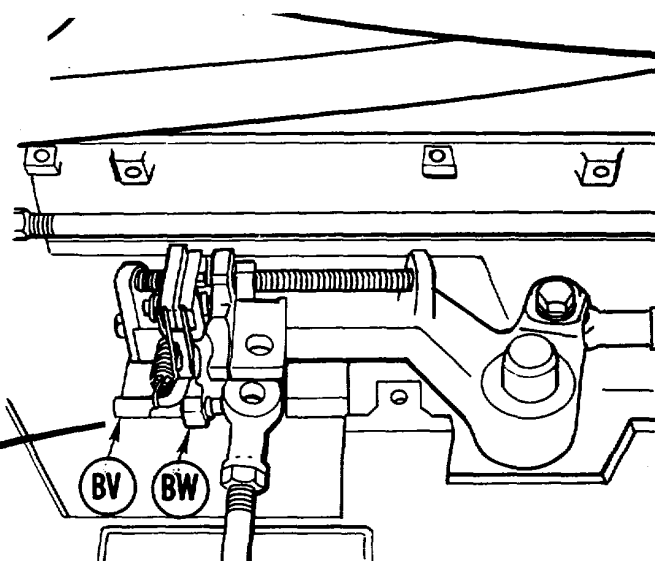
Go on to Sheet 15

TA146311



**BRAKE LINKAGE ADJUSTMENT (Sheet 16 of 17)**

109. Remove all alignment pins.
110. Check clearance between stop (BV) and lever assembly (BW). Clearance should be approximately 1/8 inch. If clearance is proper go on to step 112. If clearance must be corrected, go on to step 111.

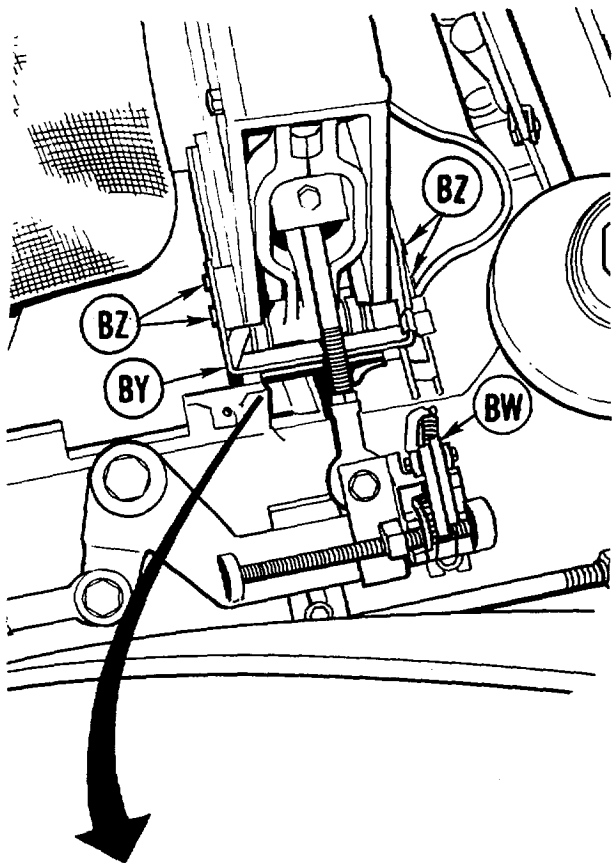


111. Using 9/16 inch wrench, loosen screws (BX) and adjust stop (BV) to clear lever assembly (BW) by approximately 1/8 inch. Tighten screws (BX) when adjustment is made. Go on to step 112.

Go on to Sheet 17

TA146313

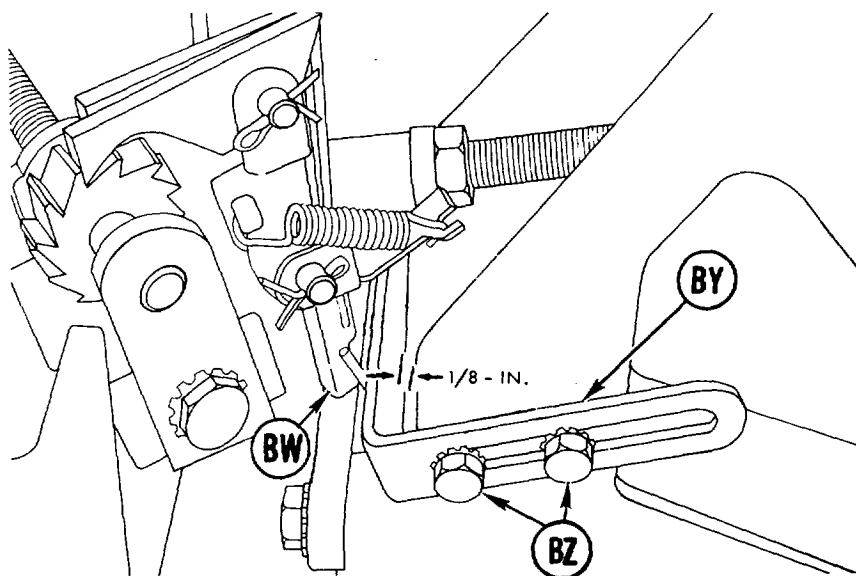
**BRAKE LINKAGE ADJUSTMENT (Sheet 17 of 17)**



112. Depress brake pedal and check clearance of bracket (BY) and lever assembly (BW). Clearance should be approximately 1/8 inch. If clearance is proper, go to step 114. If clearance must be corrected, go to step 113.

113. Using 7/16 inch wrench, loosen screws (BZ). Depress brake pedal and adjust bracket (BY) to clear lever assembly (BW) by approximately 1/8 inch. Tighten screws (BZ) when bracket is adjusted. Go on to step 114.

114. Install enclosure cover (page 13-59, steps 9-10).



End of Task

TA146314

## BRAKE PEDAL AND ROD ASSEMBLIES REPAIR AND REPLACEMENT (Sheet 1 of 8)

## PROCEDURE INDEX

PROCEDURE	PAGE
Removal	13-28
Disassembly	13-30
Cleaning and Inspection	13-31
Repair	13-31
Assembly	13-32
Installation	13-33

TOOLS: 3/4 in. combination box and open end wrench (2 required)  
 7/16 in. combination box and open end wrench  
 1/4 in. combination box and open end wrench  
 Diagonal cutting pliers  
 Slip joint pliers  
 Hammer  
 Drive pin punch  
 Vise

SUPPLIES: Lockwashers (MS35335-37) (3 required)  
 Cotter pins (MS24665-421)(2 required)  
 Dry cleaning solvent (Item 55, Appendix D)  
 Rags  
 Pencil  
 Paper

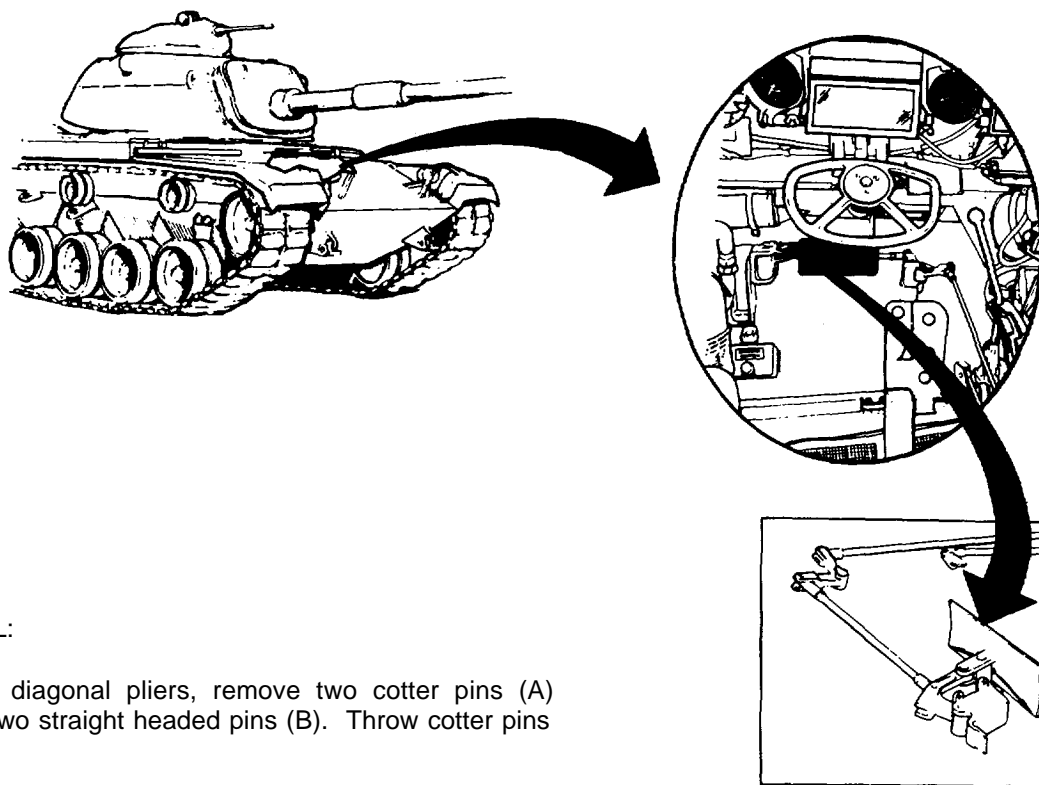
REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURES: Block tracks (TM 9-2350-260-10)  
 Release parking brake (TM 9-2350-260-10)

Go on to Sheet 2

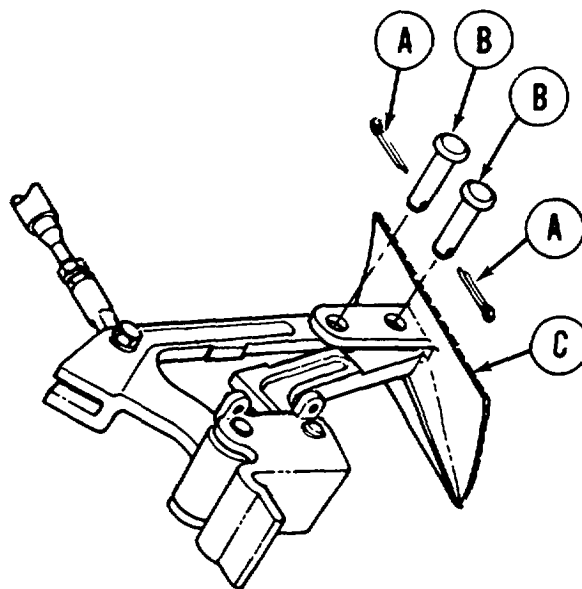
TA146315

**BRAKE PEDAL AND ROD ASSEMBLIES REPAIR AND REPLACEMENT (Sheet 2 of 8)**



**REMOVAL:**

1. Using diagonal pliers, remove two cotter pins (A) from two straight headed pins (B). Throw cotter pins away.
2. Using slip joint pliers, remove two straight headed pins (B).
3. Remove brake pedal (C).

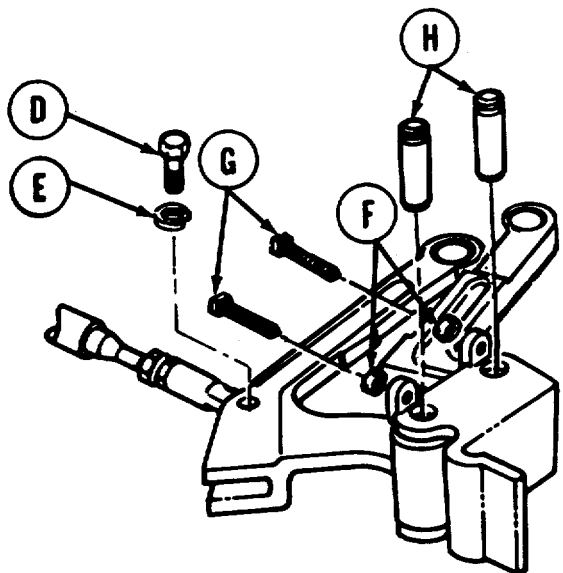


Go on to Sheet 3

TA146316

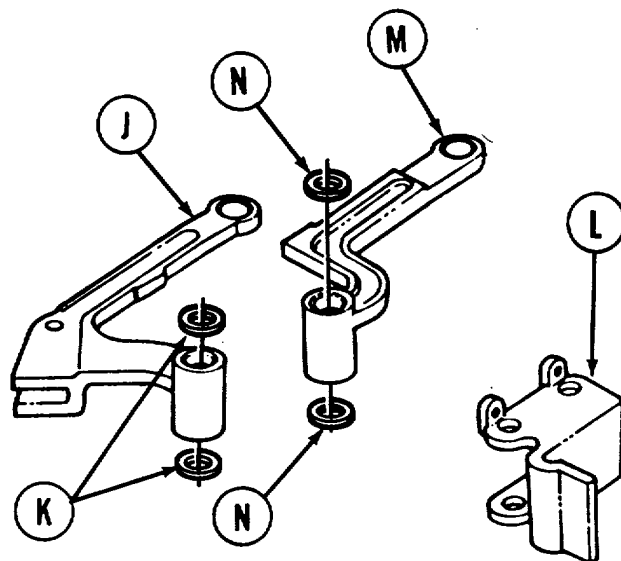


**BRAKE PEDAL AND ROD ASSEMBLES REPAIR AND REPLACEMENT (Sheet 3 of 8)**



4. Using 3/4 inch wrench, remove screw (D) and lockwasher (E). Throw lockwasher away.
5. Using 7/16 inch wrench, loosen nuts (F).
6. Using 1/4 inch wrench, back off setscrews (G) from pins (H).
7. Using slip joint pliers, remove two straight headed pins (H).

8. Using hands, remove lever (J) and two flat washers (K) from bracket (L).
9. Using hands, remove lever (M) and two flat washers (N) from bracket (L).



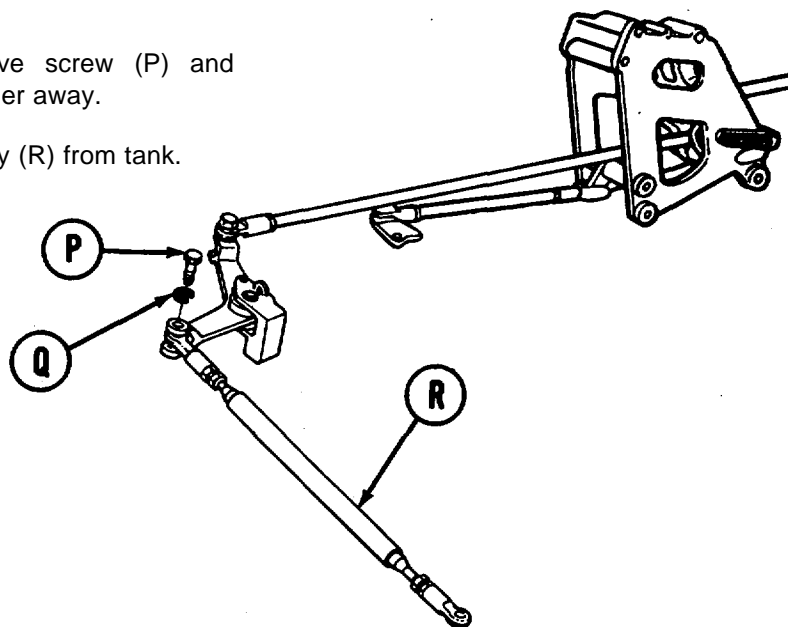
Go on to Sheet 4

TA146317

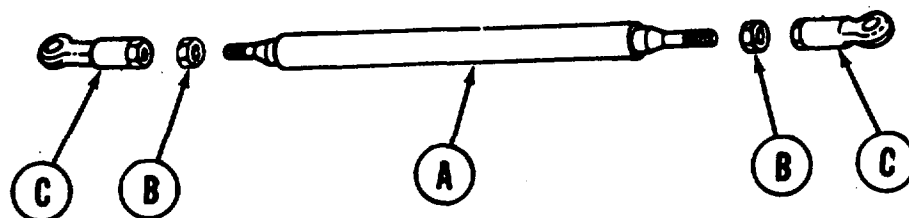
**BRAKE PEDAL AND ROD ASSEMBLIES REPAIR AND REPLACEMENT (Sheet 4 of 8)**

10. Using 3/4 inch wrench, remove screw (P) and lockwasher (Q). Throw lockwasher away.

11. Remove connecting rod assembly (R) from tank.



**DISASSEMBLY:**



1. Secure rod assembly (A) in vise.
2. Using one 3/4 inch wrench on nut (B) and another 3/4 inch wrench on rod end bearings (C), loosen two jamnuts (B).

**NOTE**

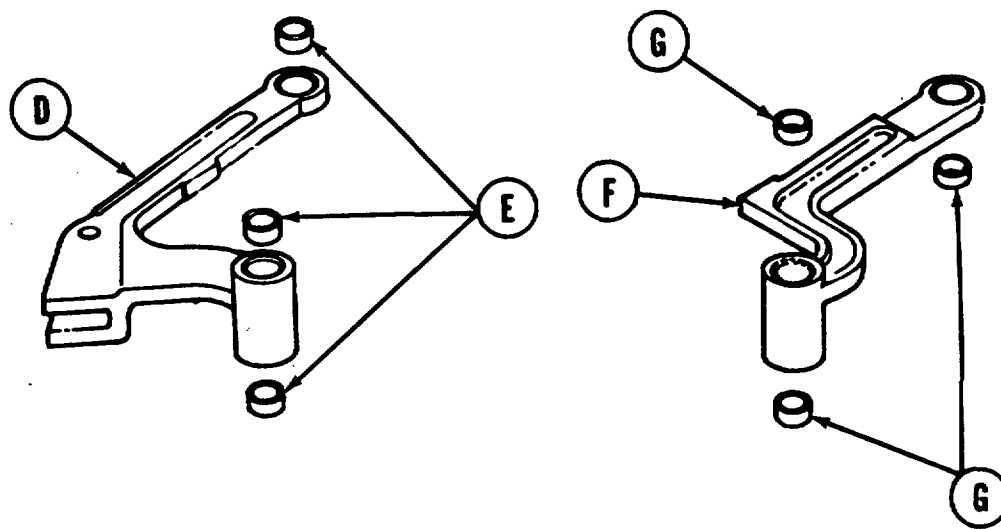
**Count and write down number of turns required to remove rod end bearings from rod.**

3. Using 3/4 inch wrench, remove rod end bearings (C) and jamnuts (B) from rod (A).
4. Remove rod (A) from vise.

Go on to Sheet 5

TA146318

## BRAKE PEDAL AND ROD ASSEMBLES REPAIR AND REPLACEMENT (Sheet 5 of 8)



5. Secure lever assembly (D) in vise. Using hammer and punch, remove three bearings (E).
6. Remove lever (D) from vise.
7. Secure lever assembly (F) in vise. Using hammer and punch, remove three bearings (G).
8. Remove lever (F) from vise.

## CLEANING AND INSPECTION:

1. Clean parts in dry cleaning solvent (Item 54, Appendix D).
2. Inspect all parts for damage. Replace all unserviceable parts.

## REPAIR:

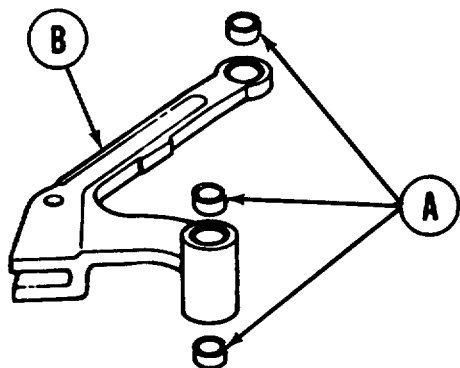
1. Repair consists of replacing any worn or damaged part.

Go on to Sheet 6

TA146319

**BRAKE PEDAL AND ROD ASSEMBLIES REPAIR AND REPLACEMENT (Sheet 6 of 8)**

ASSEMBLY:



1. Using vise, install three bearings (A) in lever (B).

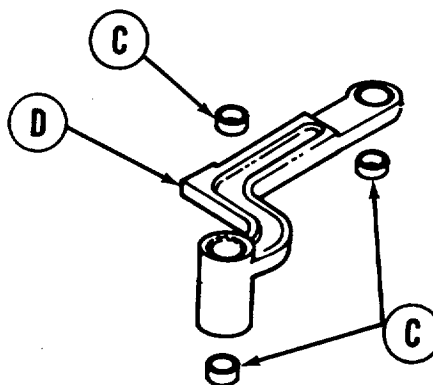
**NOTE**

Bearings (A) must be flush with surface of lever assembly (B).

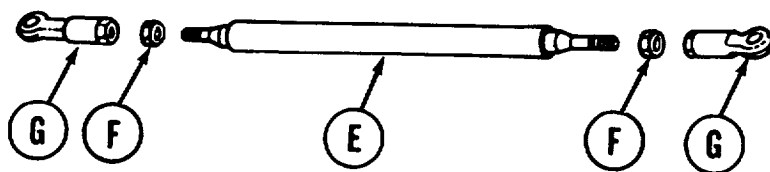
2. Using vise, install three bearings (C) in lever (D).

**NOTE**

Bearing (C) must be flush with surface of lever assembly (D).



3. Place rod (E) in vise.



4. Install two jamnuts (F) on rod (E).
5. Install two rod end bearings (G) on rod (E) the same number of turns recorded during removal.
6. Using 3/4 inch wrench to hold rod end bearing (G) and another 3/4 inch wrench on jamnut (F), tighten two jamnuts (F) against rod end bearings (G).
7. Remove rod assembly (E) from vise.

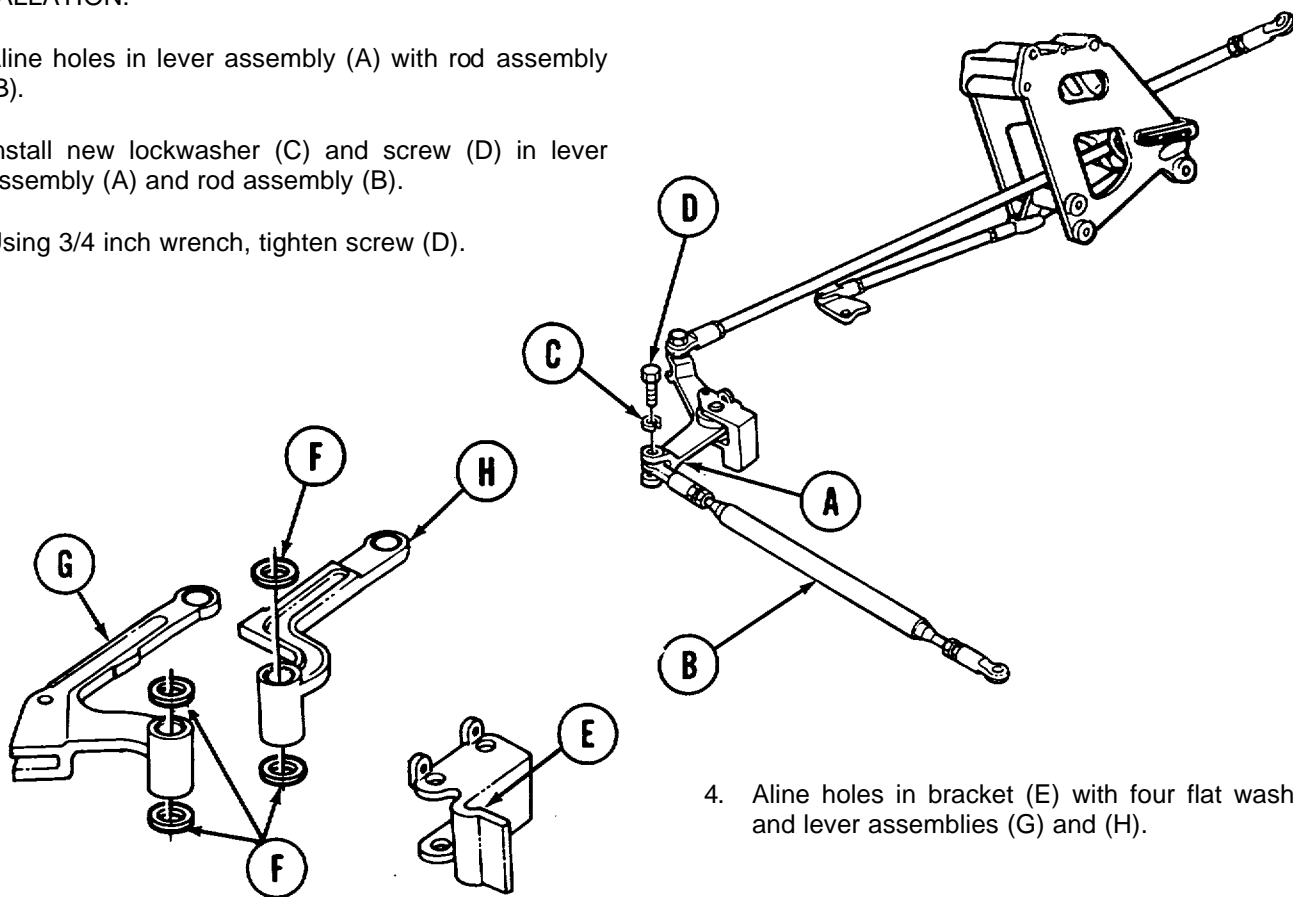
Go on to Sheet 7

TA146320

**BRAKE PEDAL AND ROD ASSEMBLES REPAIR AND REPLACEMENT (Sheet 7 of 8)**

**INSTALLATION:**

1. Aline holes in lever assembly (A) with rod assembly (B).
2. Install new lockwasher (C) and screw (D) in lever assembly (A) and rod assembly (B).
3. Using 3/4 inch wrench, tighten screw (D).



4. Aline holes in bracket (E) with four flat washers (F) and lever assemblies (G) and (H).

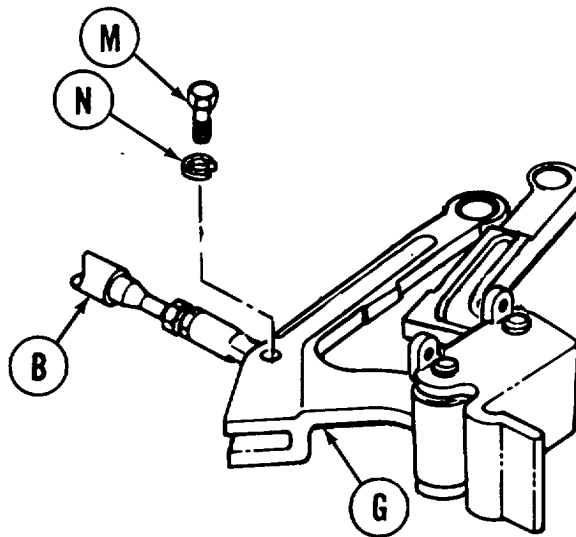
5. Install two pins (J).
6. Aline grooves of pins (J) with setscrews (K).
7. Using 1/4 inch wrench, tighten setscrews (K).
8. Using 7/16 inch wrench, tighten jamnuts (L).

Go on to Sheet 8

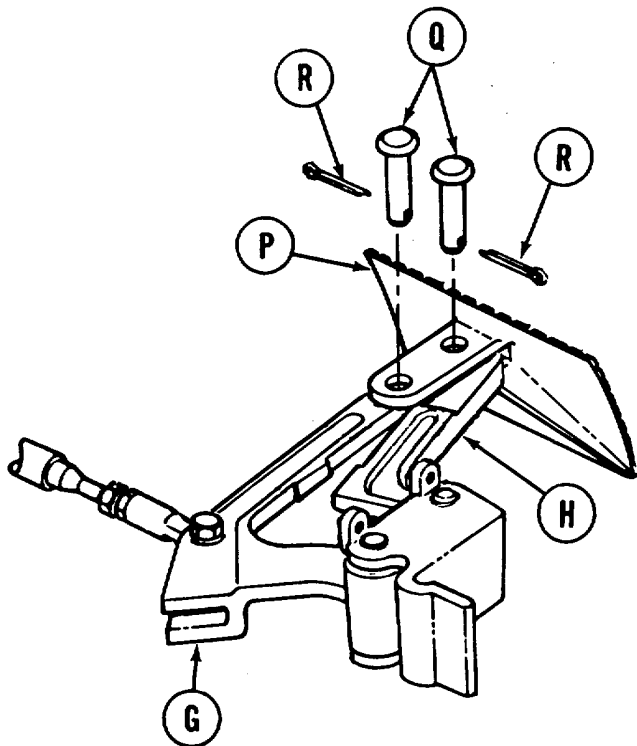
TA146321

**BRAKE PEDAL AND ROD ASSEMBLIES REPAIR AND REPLACEMENT (Sheet 8 of 8)**

9. Aline hole in lever assembly (G) with rod assembly (B).
10. Install screw (M) and new lockwasher (N) through lever assembly (G) and rod assembly (B).
11. Using 3/4 inch wrench, tighten screw (M).



12. Aline holes in pedal (P) with lever assemblies (G) and (H).
13. Install two straight headed pins (Q) through pedal (P) and lever assemblies (G) and (H).



14. Using pliers, install two new cotter pins (R) through two straight headed pins (Q).
15. Adjust brake linkage if required (page 13-10).

End of Task

TA146322

**BRAKE LEVER AND ROD ASSEMBLIES REPAIR AND REPLACEMENT (Sheet 1 of 7)**

PROCEDURE INDEX

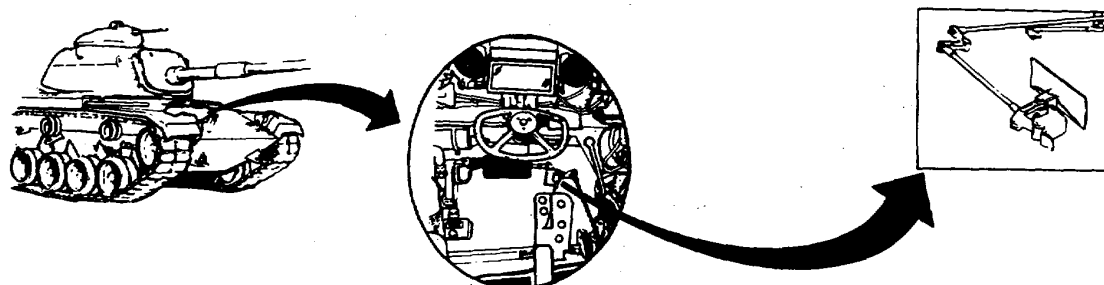
PROCEDURE	PAGE
Removal	13-36
Disassembly	13-38
Cleaning and Inspection	13-38
Repair	13-39
Assembly	13-39
Installation	13-40

TOOLS: 3/4 in. combination box and open end wrench  
 7/16 in. combination box and open end wrench  
 1/4 in. combination box and open end wrench  
 3/4 in. socket with 1/2 in. drive  
 3 in. extension with 1/2 in. drive  
 Ratchet with 1/2 in drive  
 Slip joint pliers  
 Hammer  
 Drive pin punch  
 Vise

SUPPLIES: Lockwashers (MS35335-37)(2 required)  
 Dry cleaning solvent (Item 54, Appendix D)  
 Rags  
 Pencil  
 Paper

REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURES: Block tracks (TM 9-2350-260-10)  
 Release parking brake (TM 9-2350-260-10)

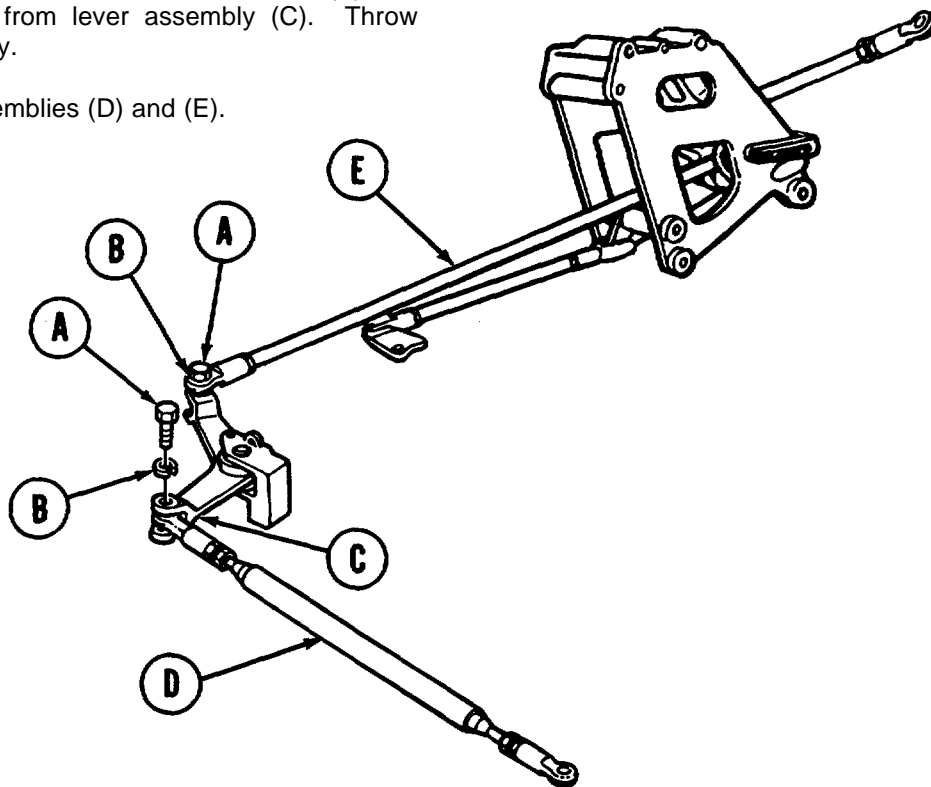


Go on to Sheet 2

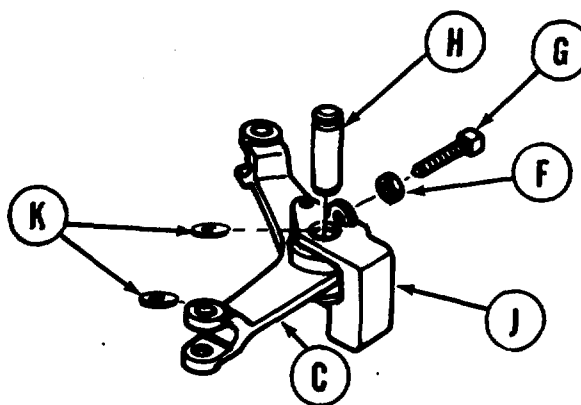
**BRAKE LEVER AND ROD ASSEMBLIES REPAIR AND REPLACEMENT (Sheet 2 of 7)**

**REMOVAL:**

1. Using 3/4 inch wrench, remove two screws (A) and lockwashers (B) from lever assembly (C). Throw lockwashers away.
2. Displace rod assemblies (D) and (E).



3. Using 7/16 inch wrench, loosen jamnut (F).
4. Using 1/4 inch wrench, back off setscrew (G) from pin (H).
5. Using slip joint pliers, remove pin (H) from bracket (J).
6. Remove lever assembly (C) and two flat washers (K) from bracket (J).



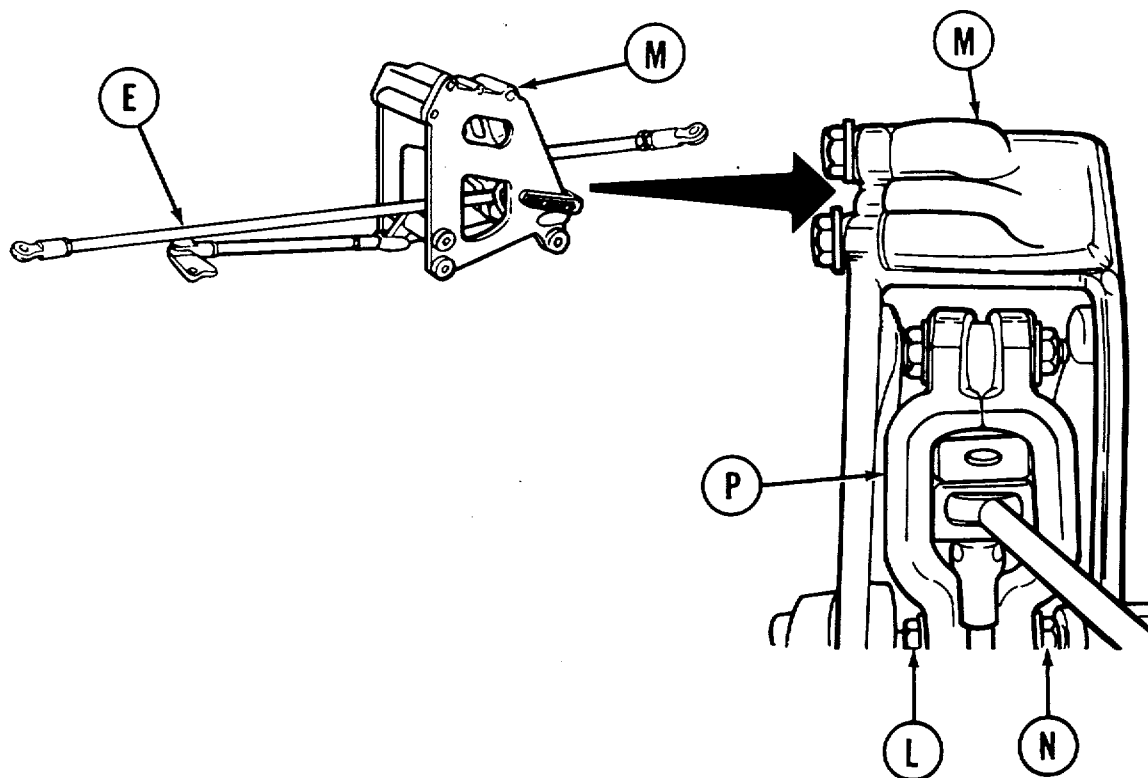
Go on to Sheet 3

TA146324



**BRAKE LEVER AND ROD ASSEMBLIES REPAIR AND REPLACEMENT (Sheet 3 of 7)**

7. Pull rod (E) forward until nut (L) can be seen through cutaway portion of guide assembly (M).



8. Using 3/4 inch wrench to hold screw (N), use 3/4 inch socket to remove nut (L).
9. Remove screw (N) from lever (P).
10. Remove rod assembly (E) from guide assembly (M).

Go on to Sheet 4

TA146325

**BRAKE LEVER AND ROD ASSEMBLIES REPAIR AND REPLACEMENT (Sheet 4 of 7)**

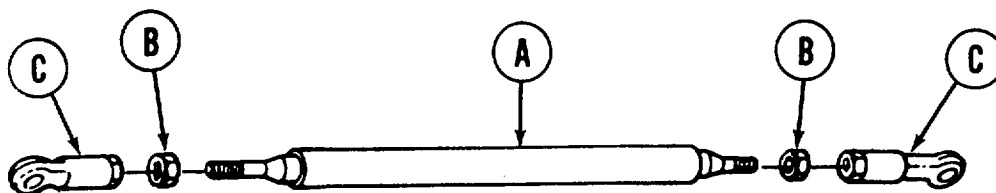
**DISASSEMBLY:**

1. Secure rod assembly (A) in vise.
2. Using one 3/4 inch wrench on jamnut (B) and another 3/4 inch wrench on bearing (C), loosen two jamnuts (B).

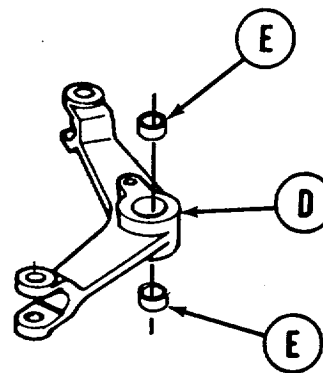
**NOTE**

**Count and write down number of turns required to remove rod end bearing from rod.**

3. Using 3/4 inch wrench, remove two rod end bearings (C) and two jamnut (B) from rod (A).



4. Remove rod (A) from vise.
5. Secure lever assembly (D) in vise.
6. Using hammer and punch, remove two bearings (E).
7. Remove lever (D) from vise.



**CLEANING AND INSPECTION:**

1. Clean parts in dry cleaning solvent (Item 54, Appendix D).
2. Inspect all parts for damage. Replace all unserviceable parts.

Go on to Sheet 5

TA146326

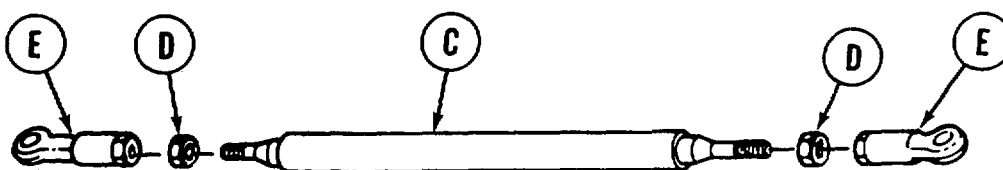
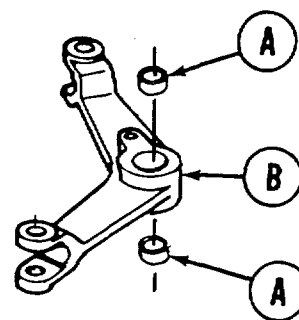
**BRAKE LEVER AND ROD ASSEMBLIES REPAIR AND REPLACEMENT (Sheet 5 of 7)****REPAIR:**

Repair consists of replacing any worn or damaged part.

**ASSEMBLY:****CAUTION**

**Bearings (A) must be flush with surface of lever assembly (B).**

1. Using vise, install two bearings (A) in lever (B).



2. Place rod (C) in vise.
3. Install two jamnuts (D) on rod (C).
4. Install two rod end bearings (E) on rod (C) the same number of turns recorded during removal.
5. Using 3/4 inch wrench to hold rod end bearings (E) and another 3/4 inch wrench on jamnuts (D), tighten two jamnuts (D) against rod end bearing (E).
6. Remove rod assembly (C) from vise.

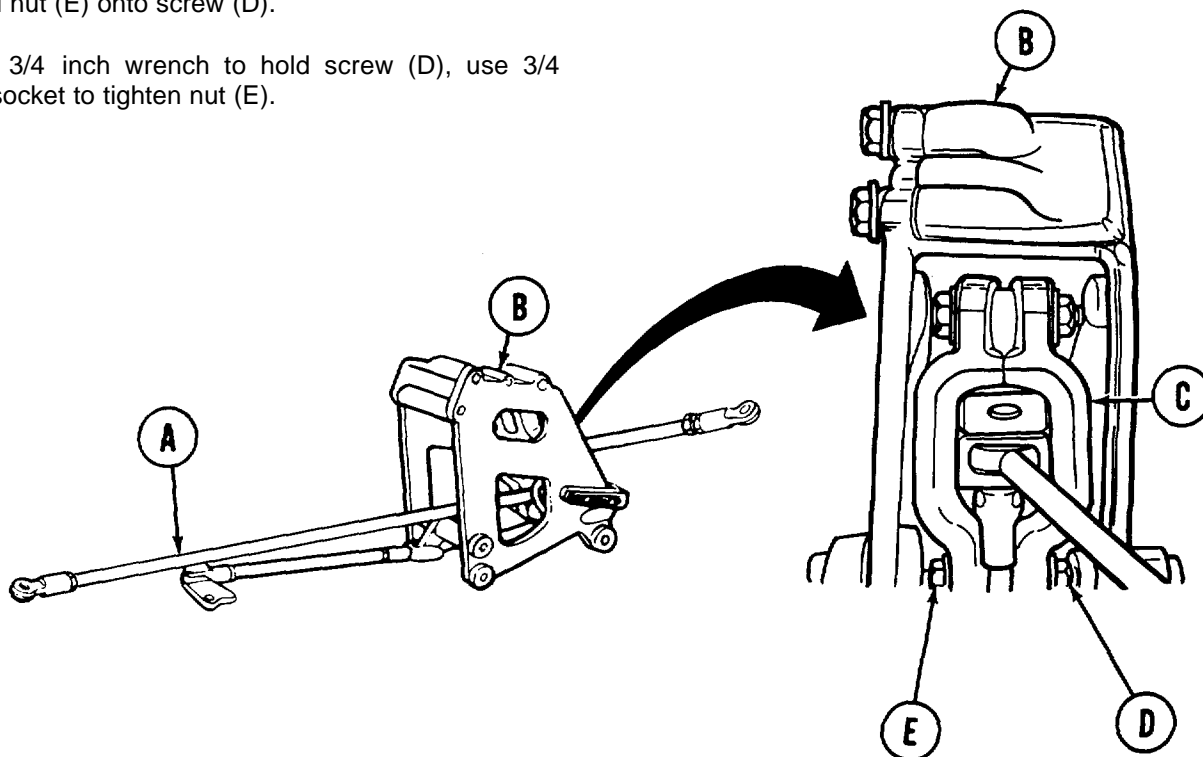
Go on to Sheet 6

TA146327

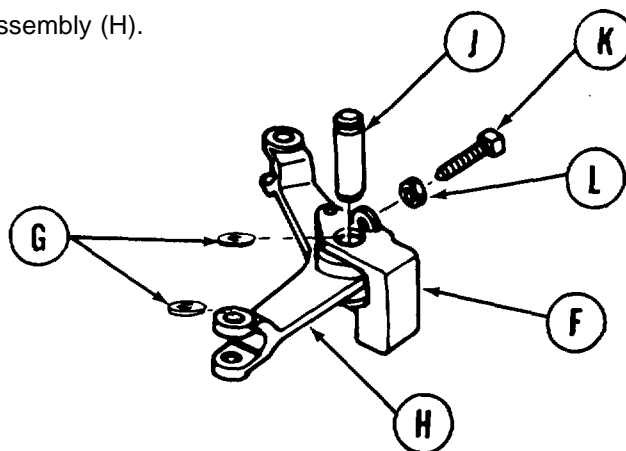
**BRAKE LEVER AND ROD ASSEMBLIES REPAIR AND REPLACEMENT (Sheet 6 of 7)**

**INSTALLATION:**

1. Position rod assembly (A) through guide assembly (B) and into lever (C).
2. Place screw (D) through lever (C) and rod assembly (A).
3. Install nut (E) onto screw (D).
4. Using 3/4 inch wrench to hold screw (D), use 3/4 inch socket to tighten nut (E).



5. Aline holes in bracket (F), two flat washers (G), and lever assembly (H).
6. Install pin (J).
7. Aline groove in pin (J) with setscrew (K).
8. Using 1/4 inch wrench, tighten setscrew (K).
9. Using 7/16 inch wrench, tighten jamnut (L).

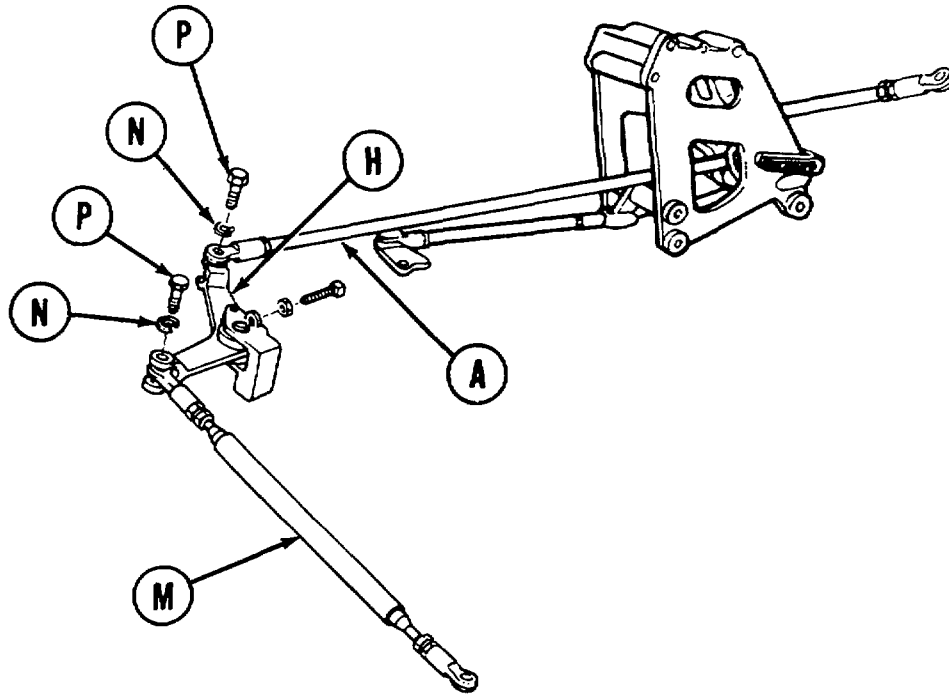


Go on to Sheet 7

TA146328

**BRAKE LEVER AND ROD ASSEMBLES REPAIR AND REPLACEMENT (Sheet 7 of 7)**

10. Aline holes in lever assembly (H) with two rod assemblies (A) and (M).
11. Install two new lockwashers (N) and two screws (P) in lever assembly (H).
12. Using 3/4 inch wrench, tighten two screws (P).
13. Adjust brake linkage if required (page 13-10).



End of Task

TA146329

**PARKING BRAKE GUIDE AND ROD ASSEMBLIES REPAIR AND REPLACEMENT (Sheet 1 of 14)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	13-43
Disassembly	13-45
Cleaning and Inspection	13-48
Repair	13-48
Assembly	13-49
Installation	13-53

- TOOLS:
- 9/16 in. socket with 1/2 in. drive
  - 7/16 in. combination box and open end wrench
  - 3/4 in. combination box and open end wrench (2 required)
  - Diagonal cutting pliers
  - Long round nose pliers
  - Slip joint pliers
  - 3/4 in. socket with 1/2 in. drive
  - 1/4 in. socket head screw key (allen wrench)
  - 5 in. extension with 1/2 in. drive
  - Ratchet with 1/2 in. drive
  - Hammer
  - Vise
  - 10 in. adjustable wrench

- SUPPLIES:
- Dry cleaning solvent
  - Lockwasher (MS35335-37)
  - (Item 54, Appendix D)
  - Lockwashers (MS35338-48)(4 required)
  - Rags
  - Cotter pins (MS24665-132) (2 required)
  - Cotter pin (MS24665-353)
  - Pencil
  - Paper

REFERENCE: TM 9-2350-260-10

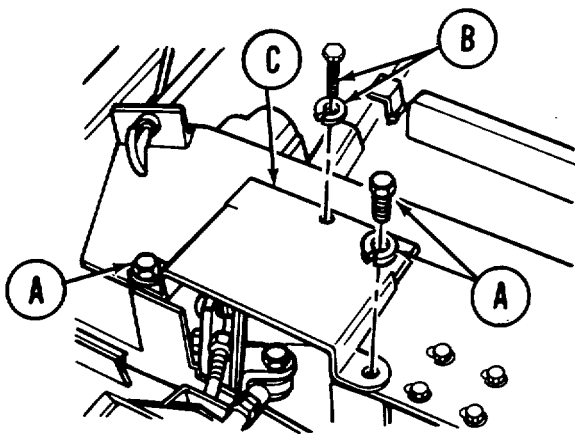
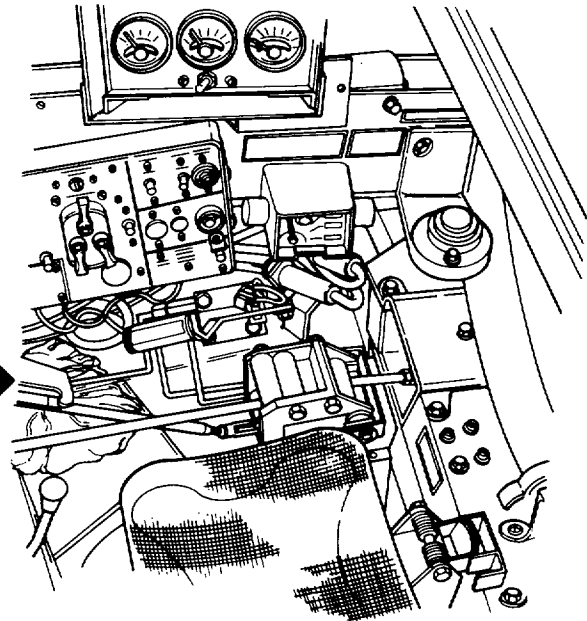
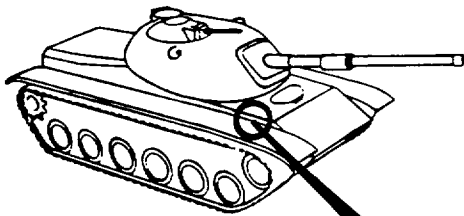
- PRELIMINARY PROCEDURES:
- Block tracks (TM 9-2350-260-10)
  - Release parking brake (TM 9-2350-260-10)
  - Remove brake control rod assembly (page 13-36, steps 1, 2, 7-10)

Go on to Sheet 2

TA146330

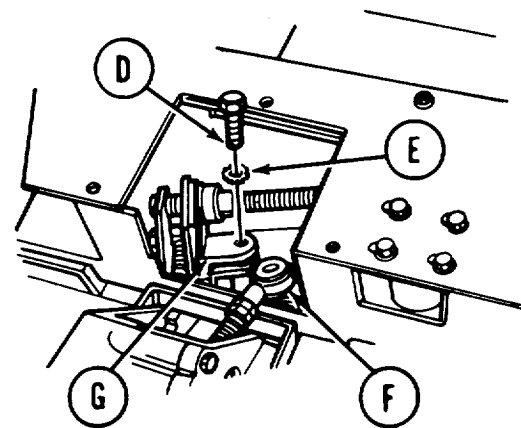
PARKING BRAKE GUIDE AND ROD ASSEMBLES REPAIR AND REPLACEMENT (Sheet 2 of 14)

REMOVAL:



1. Using 9/16 inch socket, remove two screws and lockwashers (A).
2. Using 7/16 inch wrench, remove screw and lockwasher (B).
3. Remove cover (C).

4. Using 3/4 inch socket remove screw (D) and lockwasher (E). Throw lockwasher away.
5. Remove connecting rod (F) from adjuster assembly (G).

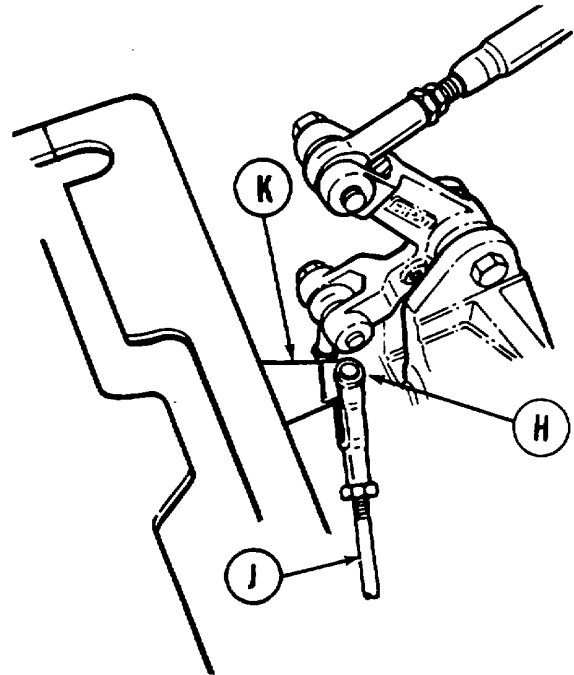
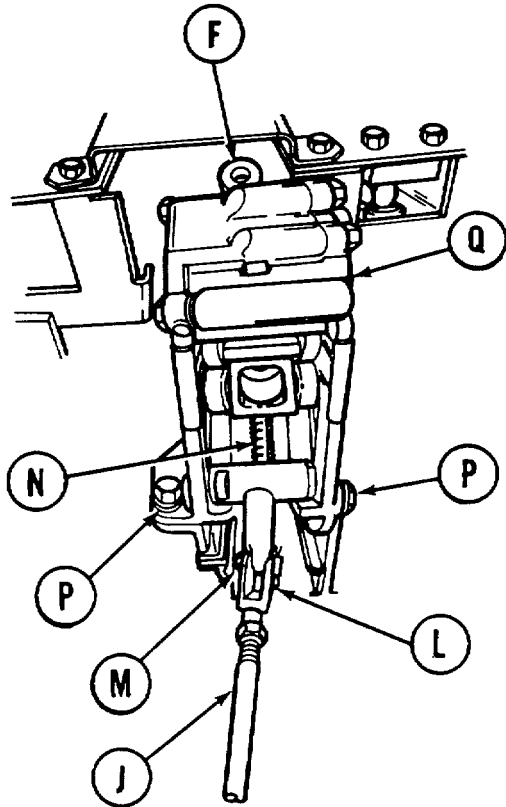


Go on to Sheet 3

TA146331

## PARKING BRAKE GUIDE AND ROD ASSEMBLES REPAIR AND REPLACEMENT (Sheet 3 of 14)

6. Using diagonal cutting pliers, remove cotter pin from straight headed pin (H). Throw cotter pin away.
7. Using slip joint pliers, remove pin (H).
8. Disconnect parking brake rod assembly (J) from shift quadrant link (K).



9. Using diagonal cutting pliers, remove cotter pin (L). Throw cotter pin away.
10. Using slip joint pliers, remove straight headed pin (M).
11. Remove parking brake rod assembly (J) from tank.
12. Using long nose pliers, remove spring (N).

13. Using 3/4 inch wrench, remove four screws, flat washers, and lockwashers (P) securing brake guide assembly (Q) to hull mounting bracket. Throw lockwashers away.
14. Remove brake guide assembly (Q) and connecting rod (F) from tank.

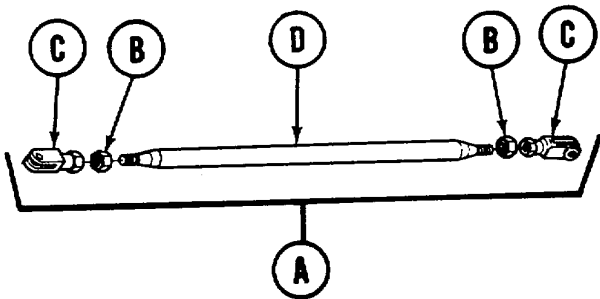
Go on to Sheet 4

TA146332



**PARKING BRAKE GUIDE AND ROD ASSEMBLES REPAIR AND REPLACEMENT (Sheet 4 of 14)**

DISASSEMBLY:



1. Secure parking brake rod assembly (A) in vise.

2. Using 7/16 inch wrench, back off two jamnuts (B).

**NOTE**

**Record number of turns required to remove rod and clevises (C).**

3. Using adjustable wrench, remove two clevises (C).

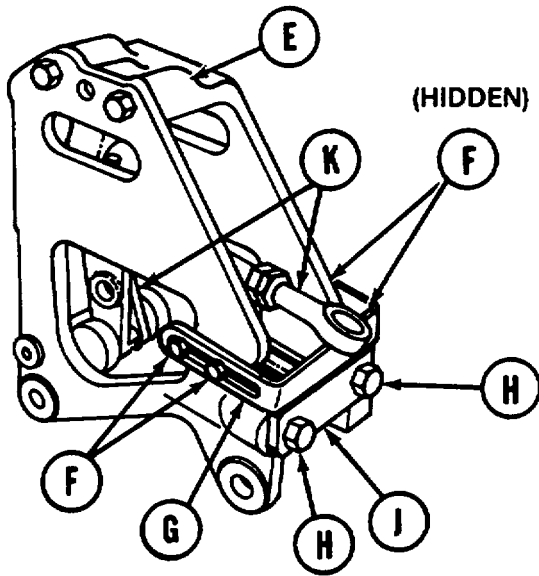
4. Using 7/16 inch wrench, remove two jamnuts (B).

5. Remove rod (D) from vise.

Go on to Sheet 5

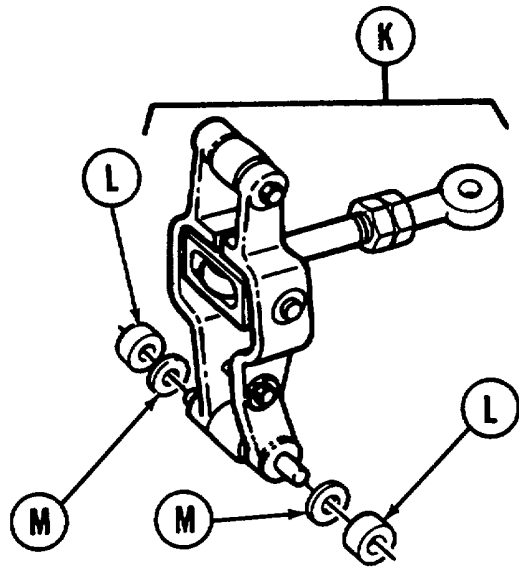
TA146333

PARKING BRAKE GUIDE AND ROD ASSEMBLIES REPAIR AND REPLACEMENT (Sheet 6 of 14)

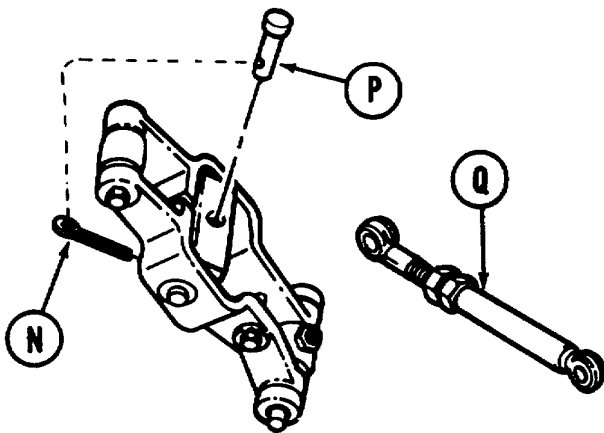


6. Place guide assembly (E) on bench.
7. Using 7/16 inch wrench, remove four screws (F) from bracket (G).
8. Remove bracket (G).
9. Using 9/16 inch wrench, remove two screws (H).
10. Remove stop (J).

11. Remove guide lever assembly and connecting rod assembly (K).
12. Remove two rollers (L) and washers (M).



13. Using diagonal cutting pliers, remove cotter pin (N). Throw cotter pin away.
14. Using slip joint pliers, remove pin (P).
15. Remove connecting rod assembly (Q).

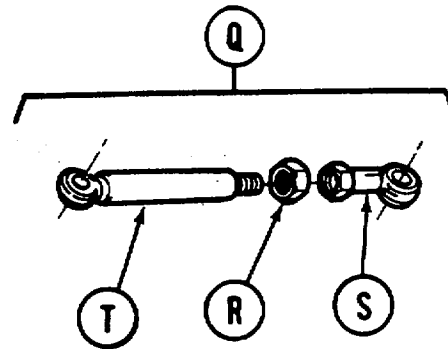


Go on to Sheet 6

TA146334

**PARKING BRAKE GUIDE AND ROD ASSEMBLIES REPAIR AND REPLACEMENT (Sheet 6 of 14)**

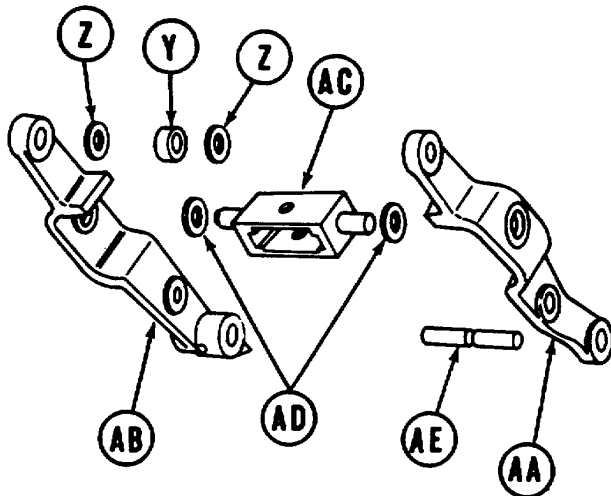
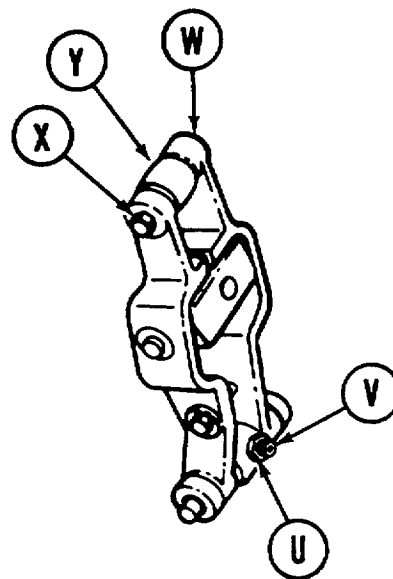
- Secure connecting rod assembly (Q) in vise and, using two 3/4 inch wrenches, loosen jamnut (R) from rod end bearing (S).



**NOTE**

**Record number of turns required to remove rod end bearing (S).**

- Using 3/4 inch wrench, remove rod end bearing (S).
- Using 3/4 inch wrench, remove jamnut (R).
- Remove rod (T) from vise.
- Using 7/16 inch wrench, loosen jamnut (U).
- Using 1/4 inch allen wrench, remove setscrew (V).
- Remove jamnut (U) from screw (V).
- Using 3/4 inch wrench on screw (W) and 3/4 inch socket on nut (X), remove screw (W) and nut (X).



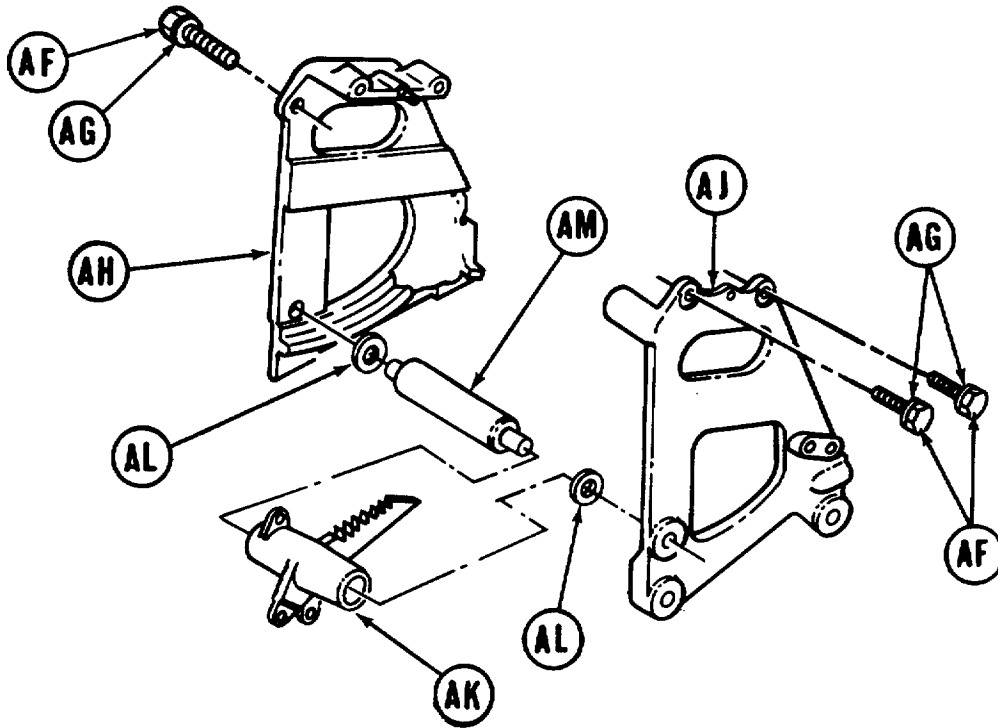
- Remove roller (Y) and two thrust washers (Z).
- Pull levers (AA) and (AB) apart.
- Remove link (AC) and two thrust washers (AD).
- Remove shaft (AE).

Go on to Sheet 7

TA146335

**PARKING BRAKE GUIDE AND ROD ASSEMBLIES REPAIR AND REPLACEMENT (Sheet 7 of 14)**

28. Using 9/16 inch wrench, remove three screws (AF) and lockwashers (AG).
29. Using hammer, tap guides (AH) and (AJ) apart.
30. Remove safety lock (AK) and two thrust washers (AL).
31. Using hammer, tap shaft (AM) to remove it from safety lock (AK).

**CLEANING AND INSPECTION:**

1. Clean parts in dry cleaning solvent (Item 54, Appendix D).
2. Inspect all parts for damage. Replace unserviceable parts.

**REPAIR:**

Repair consists of replacing any worn or damaged part.

Go on to Sheet 8

TA146336

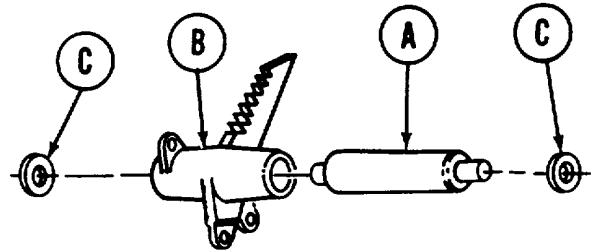
**PARKING BRAKE GUIDE AND ROD ASSEMBLIES REPAIR AND REPLACEMENT (Sheet 8 of 14)**

**ASSEMBLY:**

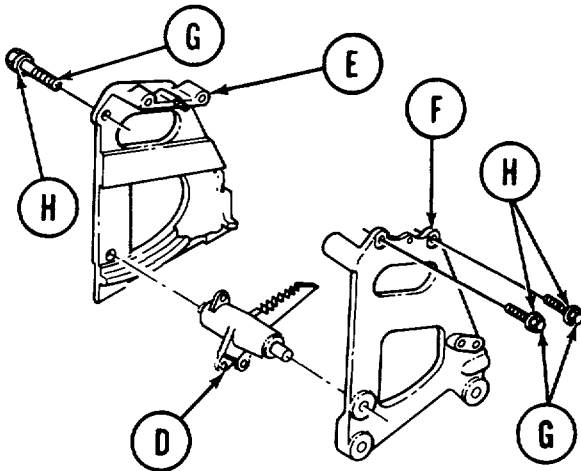
**NOTE**

**Use new cotter pins during installation.**

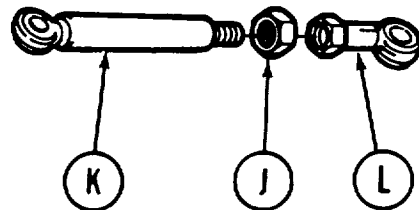
1. Insert shaft (A) in safety lock (B).
2. Install thrust washer (C) on each end of shaft (A).



3. Insert safety lock assembly (D) into guide assembly (E) or (F).
4. Assemble guide assembly (E) and (F).
5. Using 9/16 inch wrench, install three screws (G) and lockwashers (H).



6. Install jamnut (J) on connecting rod (K).
7. Install rod end bearing (L) on connecting rod (K) the same number turns recorded during removal.
8. Aline holes in connecting rod (K) and bearing (L) as shown.
9. Using two 3/4 inch wrenches, tighten jamnut (J) against bearing (L).

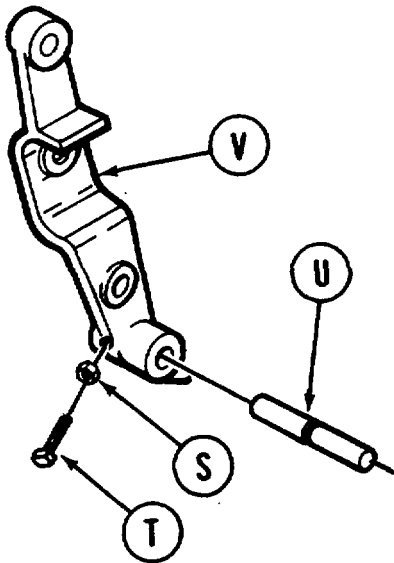
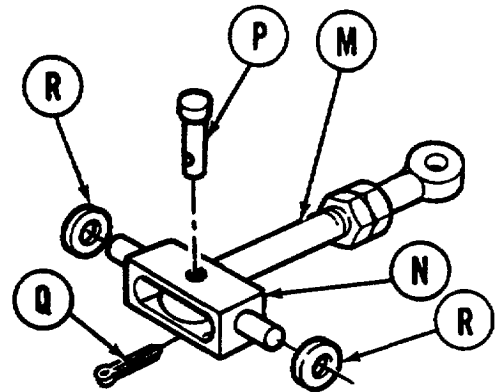


Go on to Sheet 9

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**PARKING BRAKE GUIDE AND ROD ASSEMBLIES REPAIR AND REPLACEMENT (Sheet 9 of 14)**

10. Install connecting rod assembly (M) in link (N).
11. Install straight headed pin (P) through hole in link (N) and connecting rod assembly (M).
12. Using slip joint pliers, install new cotter pin (Q) in straight headed pin (P).
13. Install thrust washer (R) on each end of link (N).



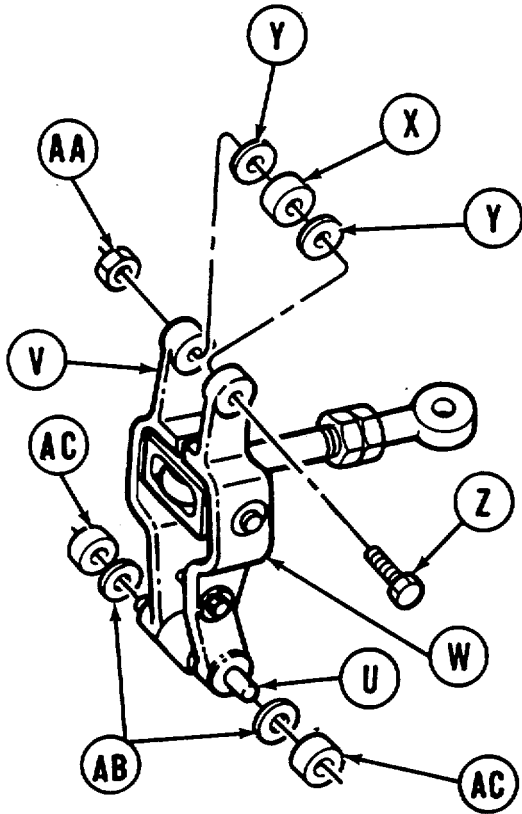
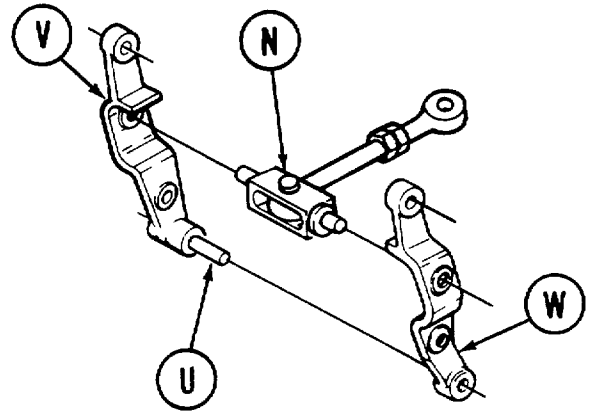
14. Install jamnut (S) on setscrew (T).
15. Insert pin (U) in lever (V).
16. Aline groove on pin (U) with threaded hole in lever (V).
17. Install setscrew (T) in lever (V).
18. Using 1/4 inch allen wrench, tighten setscrew (T).
19. Using 7/16 inch wrench, tighten jamnut (S).

Go on to Sheet 10

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**PARKING BRAKE GUIDE AND ROD ASSEMBLES REPAIR AND REPLACEMENT (Sheet 10 of 14)**

- 20. Insert shaft of link (N) in lever (V).
- 21. Install lever (W) on pin (U) and shaft of link (N).

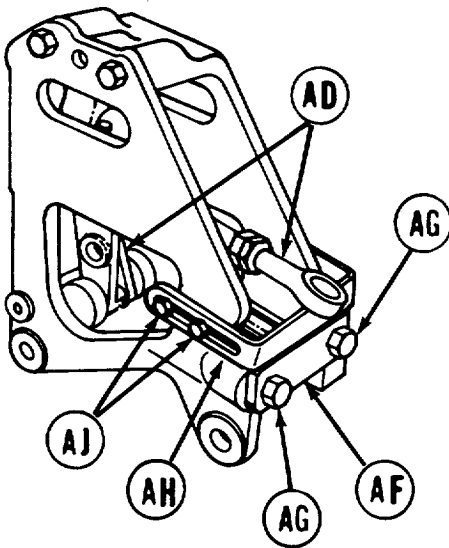
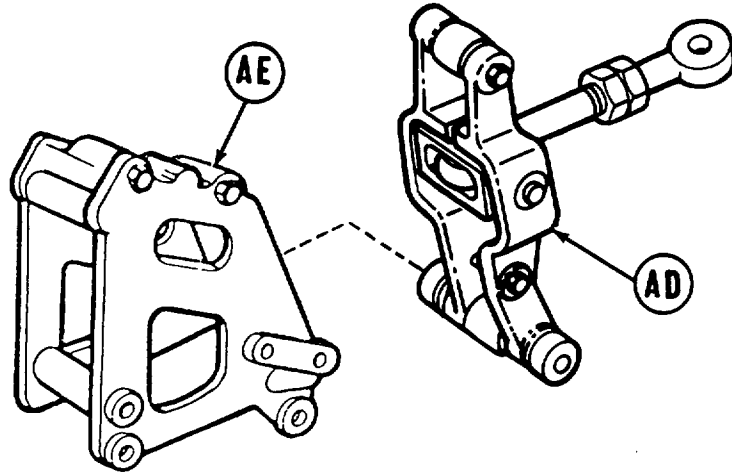


- 22. Position roller X) and two thrust washers (Y) between levers (V) and (W).
- 23. Insert screw (Z) trough hole in levers (V) and (W), roller (X), and two thrust washers(Y).
- 24. Using hand, install nut (AA) on screw (Z).
- 25. Using 3/4 inch wrench and 3/4 inch socket, tighten nut (AA) on screw (Z) until levers (V) and (W) start to separate at pin (U).

- 26. Install thrust washer (AB) and roller (AC) on each end of pin (U).

**PARKING BRAKE GUIDE AND ROD ASSEMBLES REPAIR AND REPLACEMENT (Sheet 11 of 14)**

27. Position rod guide lever assembly (AD) in brake guide assembly (AE).



28. Position stop (AF) on brake guide assembly (AE).

29. Using 9/16 inch wrench, install two screws (AG).

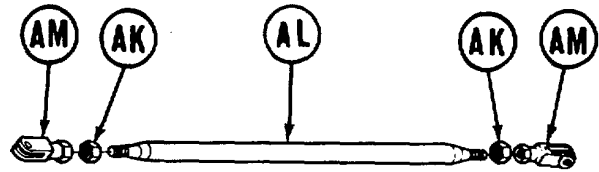
30. Position bracket (AH) on brake guide assembly (AE).

31. Using 7/16 inch wrench, install four screws (AJ).

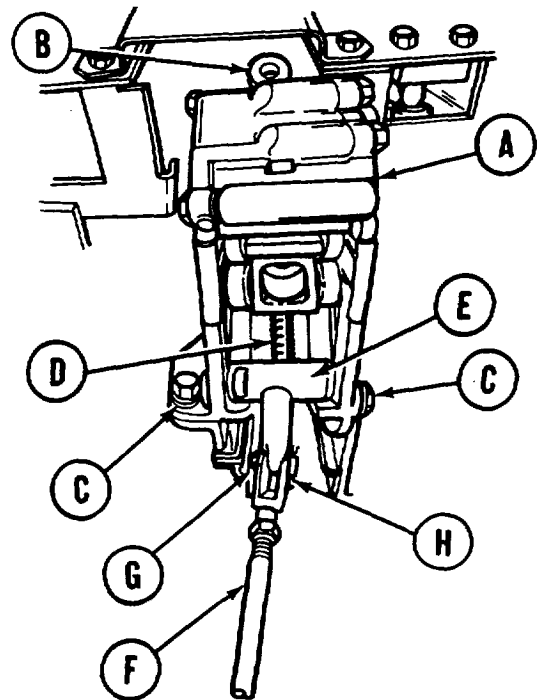


**PARKING BRAKE GUIDE AND ROD ASSEMBLIES REPAIR AND REPLACEMENT (Sheet 12 of 14)**

32. Install two jamnut (AK) on parking brake rod (AL).
33. Install two rod end clevises (AM) on parking brake rod (AL) the same number turns recorded during removal.
34. Position holes in two rod end clevises as shown.
35. Holding clevises (AM) with adjustable wrench, and using 7/16 inch wrench, tighten two jamnut (AK) against two rod end clevises (AM).

**INSTALLATION:**

1. Position brake guide assembly (A) and connecting rod assembly (B) in tank as shown.
2. Using 3/4 inch wrench, install four screws, new lockwashers, and flat washers (C) securing brake guide assembly (A) to hull.
3. Using long nose pliers, install spring (D). Hook spring (D) between bottom of safety lock (E) and bracket on bulkhead.
4. Position parking brake rod assembly (F) on safety lock (E).



5. Install straight headed pin (G) to secure parking brake rod assembly (F) to safety lock (E).
6. Using long nose pliers, install new cotter pin (H) through straight headed pin (G).

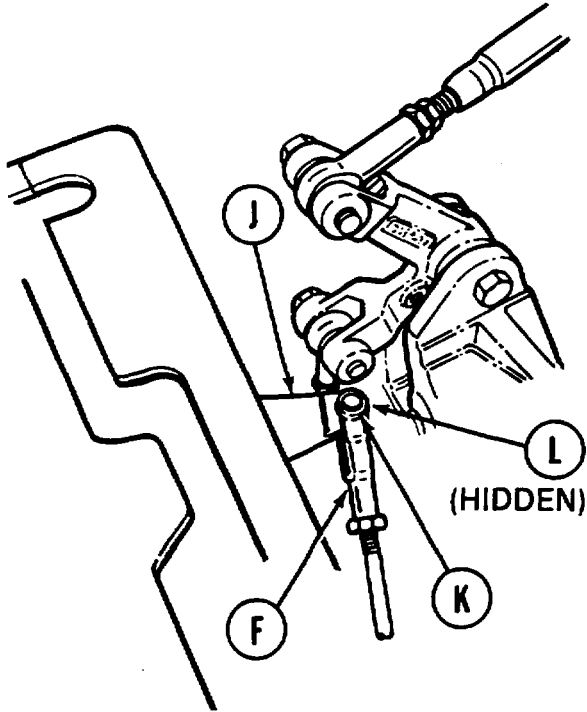
Go on to Sheet 13

TA146341

PARKING BRAKE GUIDE AND ROD ASSEMBLIES REPAIR AND REPLACEMENT (Sheet 13 of 14)

NOTE

Be sure shifting lever is in neutral position.

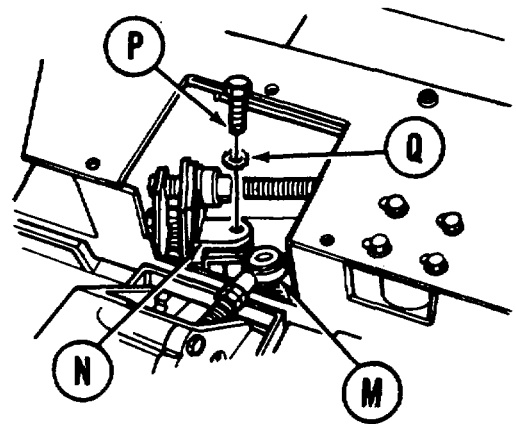


7. Position parking brake rod assembly (F) to shift quadrant lever (J).
8. Using slip joint pliers, install straight headed pin (K) to secure parking brake rod assembly (F) to shift quadrant lever (J).
9. Using long nose pliers, install new cotter pin (L) through straight headed pin (K).

10. Position connecting rod assembly (M) to adjuster assembly (N).

11. Install screw (P) and new lockwasher (Q).

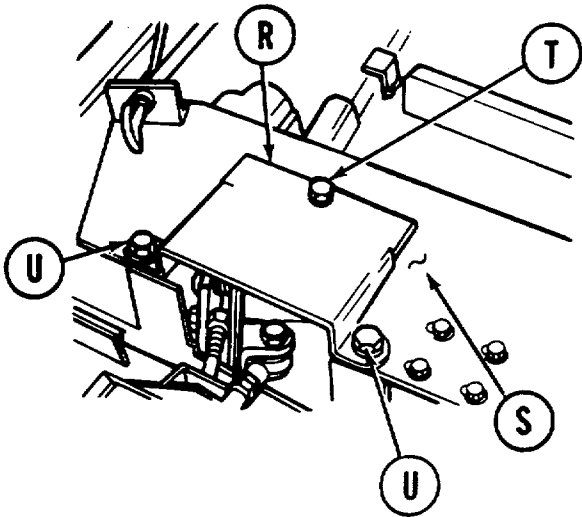
12. Using 3/4 inch socket tighten screw (P).



Go on to Sheet 14

TA146342

PARKING BRAKE GUIDE AND ROD ASSEMBLES REPAIR AND REPLACEMENT (Sheet 14 of 14)



13. Position cover (R) on cover plate (S).

14. Using 7/16 inch wrench, install screw and lockwasher (T).

15. Using 9/16 inch wrench, install two screws and lockwashers (U).

16. Install brake control rod assembly (page 13-40, steps 1-4, 10-13).

17. Adjust brake linkage (page 13-10).

18. Set parking brake (TM 9-2350-260-10).

19. Remove blocks from tracks (TM 9-2350-260-10).

End of Task

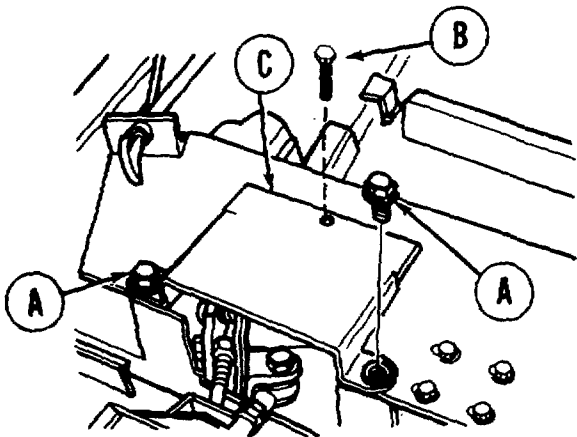
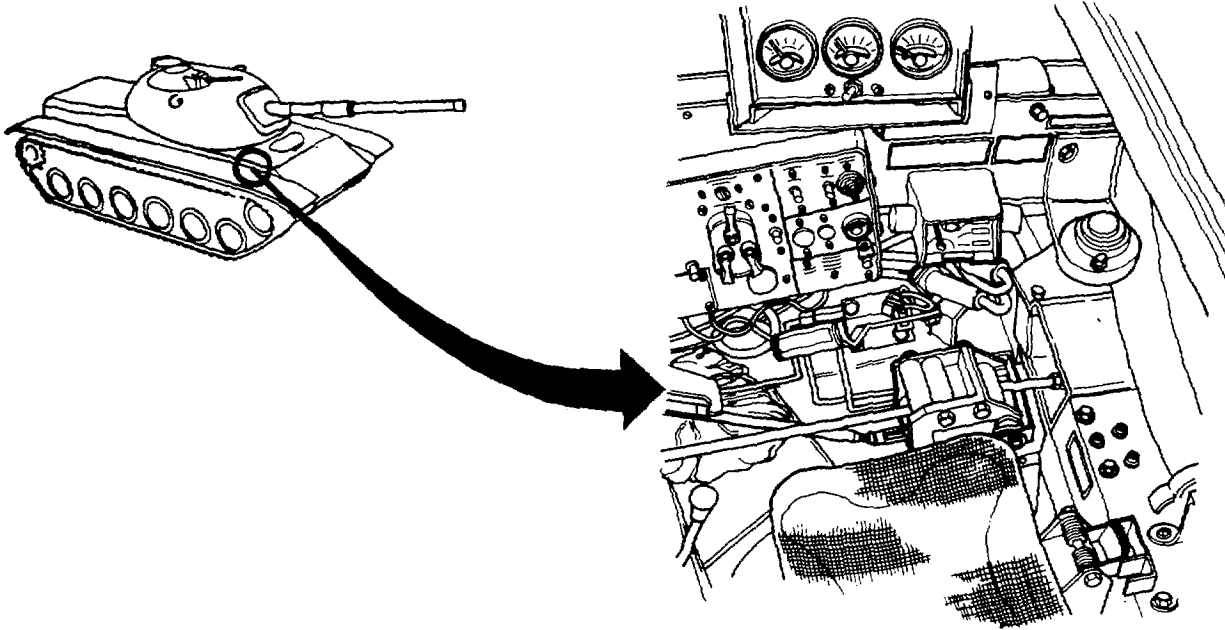
TA146343

**BRAKE ADJUSTER, ENCLOSURE AND LINKAGE REPAIR AND REPLACEMENT INDEX (Sheet 1 of 1)**

PROCEDURE INDEX	PAGE
Brake Enclosure Assembly Replacement	13-57
Brake Adjuster Assembly Repair and Replacement	13-60
Brake Equalizer Assembly and Linkage Assemblies Repair and Replacement	13-66
Brake Lever and Linkage Assemblies Left and Right Repair and Replacement	13-78

**BRAKE ENCLOSURE ASSEMBLY REPLACEMENT (Sheet 1 of 3)**

TOOLS: Ratchet with 1/2 in. drive  
 9/16 in. socket with 1/2 in. drive  
 7/16 in. socket with 1/2 in. drive  
 6 in. flat-tip screwdriver  
 7/16 in. combination box and open end wrench  
 9/16 in. combination box and open end wrench



**REMOVAL:**

1. Using 9/16 inch socket, remove two screws (A).
2. Using 7/16 inch socket, remove screw (B).
3. Remove cover (C).

Go on to Sheet 2

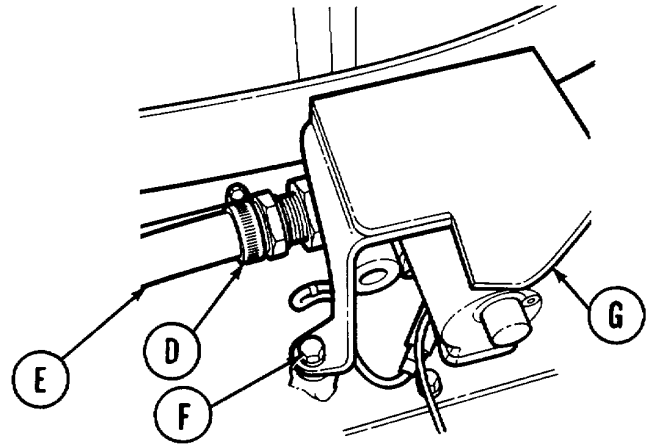
TA146345

**BRAKE ENCLOSURE ASSEMBLY REPLACEMENT (Sheet 2 of 3)**

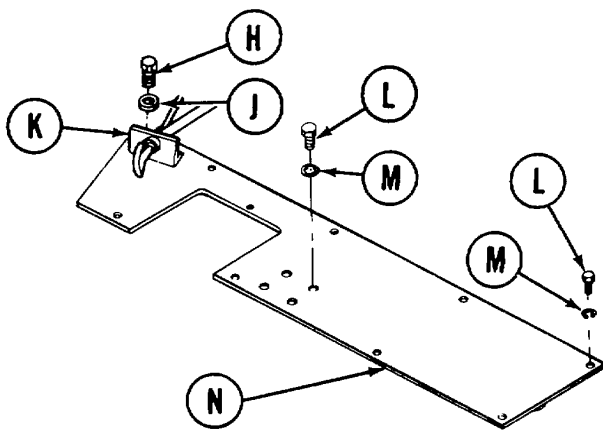
**NOTE**

If your tank is not equipped with gas particulate system, skip steps 4, 5, and 6, and go on to step 7.

4. Using screwdriver, loosen clamp (D) and remove hose (E).
5. Using 9/16 inch wrench, remove three screws and lockwashers (F).
6. Displace gas particulate heater unit (G).

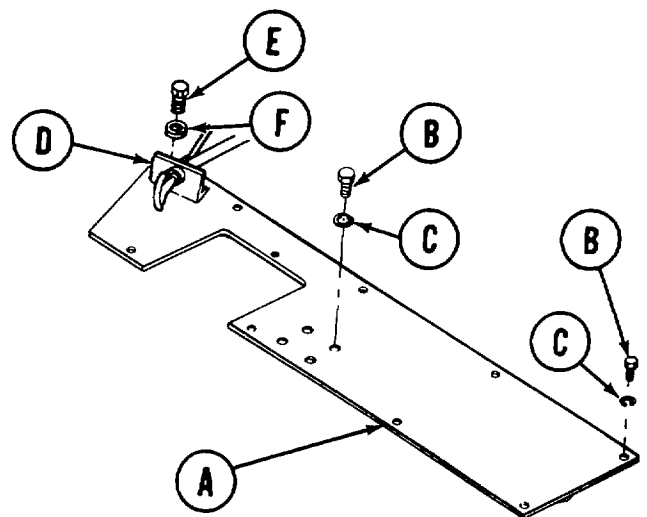


7. Using 7/16 inch wrench, remove two screws (H) and lockwashers (J).
8. Displace manual fuel shutoff (K).
9. Using 9/16 inch socket, remove ten screws (L) and lockwashers (M).
10. Remove cover (N).



**INSTALLATION:**

1. Position cover (A) in tank.
2. Using 9/16 inch socket, install ten screws (B) and lockwashers (Q).
3. Position manual fuel shutoff (D) on cover (A).
4. Using 7/16 inch wrench, install two screws (E) and lockwashers (F).



Go on to Sheet 3

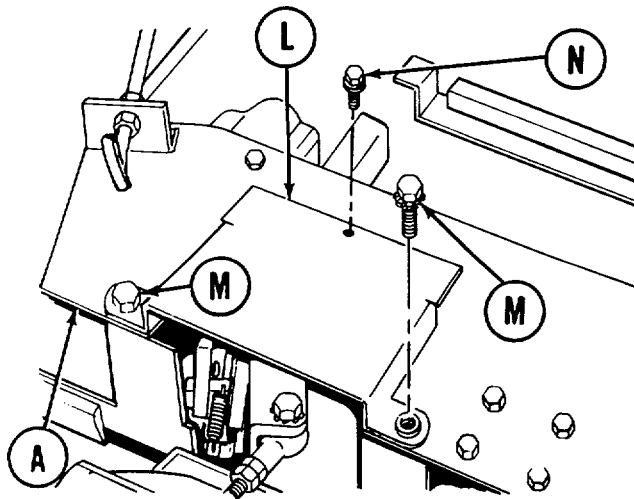
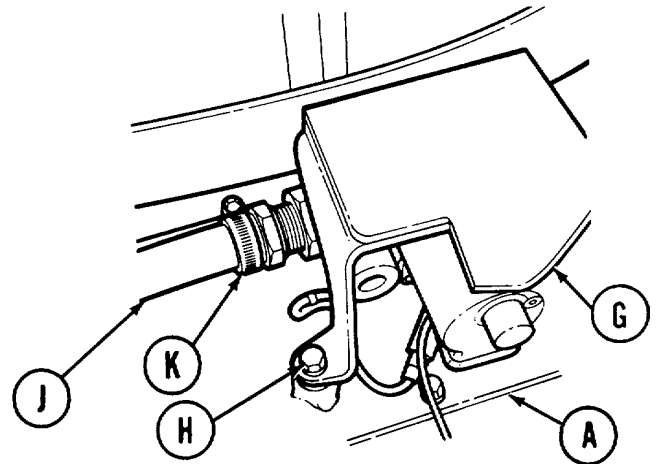
TA146346

**BRAKE ENCLOSURE ASSEMBLY REPLACEMENT (Sheet 3 of 3)**

**NOTE**

**If gas particulate heater unit (G) was not removed, skip steps 5 through 8, and go on to step 9.**

5. Position gas particulate heater unit (G) on cover (A).
6. Using 9/16 inch wrench, install three screws and lockwashers (H).
7. Install hose (J) on gas particulate heater unit (G).
8. Using screwdriver, install clamp (K) securing hose (J).



9. Position cover (L) on cover (A).
10. Using 9/16 inch socket install two screws (M).
11. Using 7/16 inch socket, install screw (N).

End of Task

TA146347

**BRAKE ADJUSTER ASSEMBLY REPAIR AND REPLACEMENT (Sheet 1 of 6)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	13-61
Cleaning and Inspection	13-63
Installation	13-63

TOOLS: Ratchet with 1/2 in. drive  
 15/16 in. socket with 1/2 in. drive  
 3/4 in. socket with 1/2 in. drive  
 9/16 in. socket with 1/2 in. drive  
 9/16 in. combination box and open end wrench  
 5 in. extension with 1/2 in. drive  
 Slip joint pliers  
 Long round nose pliers  
 Diagonal cutting pliers  
 Hammer  
 1/8 in. drive pin punch

SUPPLIES: Cotter pins (MS24665-283)(3 required)  
 Lockwasher (MS35335-37)  
 Lockwasher (MS35338-50)  
 Rags  
 Dry cleaning solvent (Item 54, Appendix D)

REFERENCE: TM 9-2350-260-10

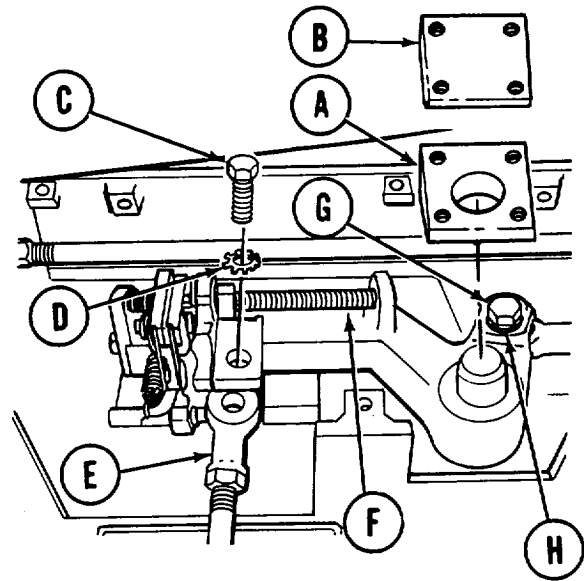
PRELIMINARY PROCEDURES: Block tracks (TM 9-2350-260-10)  
 Release parking brakes (TM 9-2350-260-10)  
 Remove enclosure assembly (page 13-57)



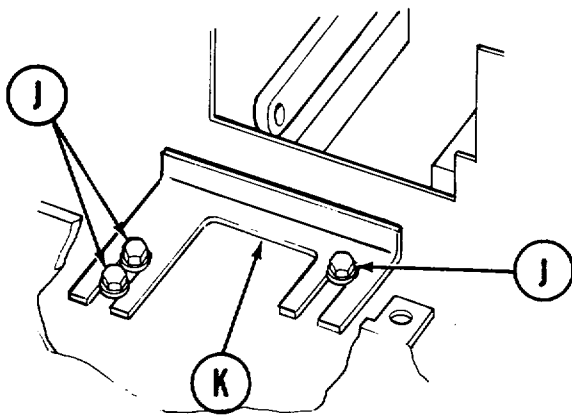
**BRAKE ADJUSTER ASSEMBLY REPAIR AND REPLACEMENT (Sheet 2 of 6)**

**REMOVAL:**

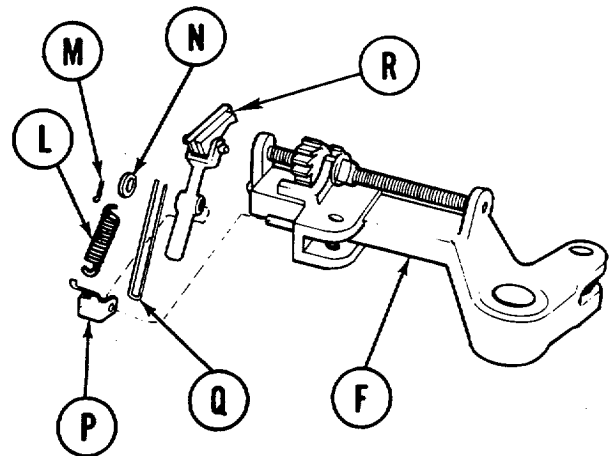
1. Remove block (A) and gasket (B).
2. Using 3/4 inch socket, remove screw (C) and lockwasher (D). Throw lockwasher away.
3. Remove connecting rod (E) from adjuster assembly (F).
4. Using 15/16 inch socket, remove screw (G) and lockwasher (H). Throw lockwasher away.
5. Remove adjuster assembly (F) from enclosure.



6. Using 9/16 inch socket, loosen three screws (J).
7. Slide stop (K) from under screws (J).
8. Remove adjuster assembly (F) from tank to work bench.



9. Using long nose pliers, remove spring (L) from adjuster assembly (F).
10. Using diagonal cutting pliers, remove cotter pin (M). Throw cotter pin away.
11. Remove washer (N), bracket (P), clip (Q), and lever assembly (R).

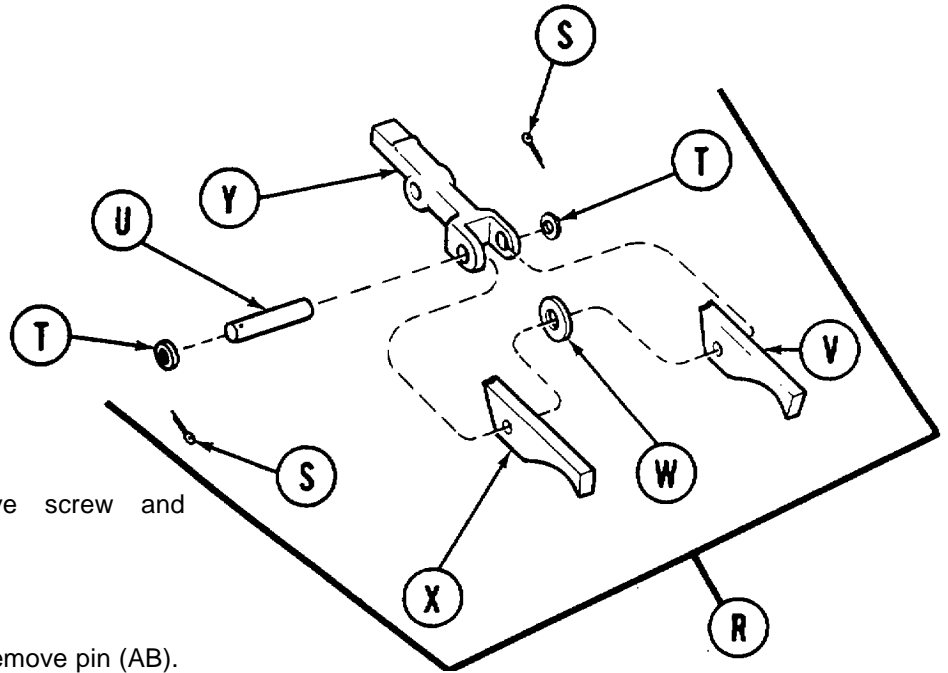


Go on to Sheet 3

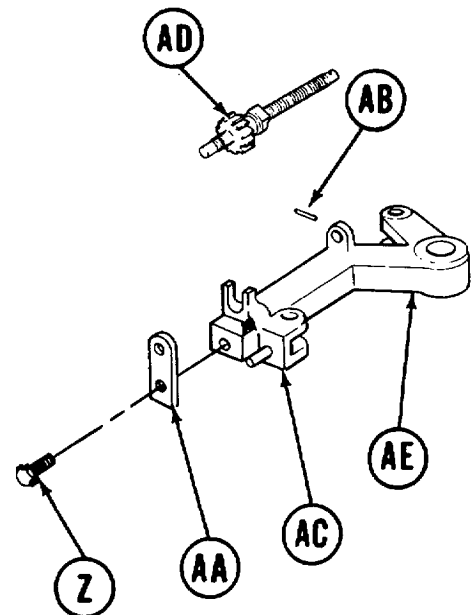
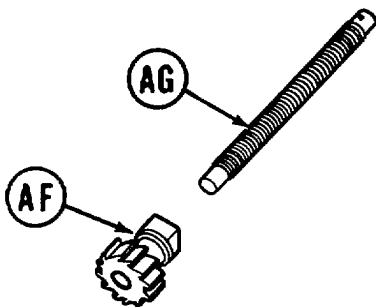
TA146349

**BRAKE ADJUSTER ASSEMBLY REPAIR AND REPLACEMENT (Sheet 3 of 6)**

12. Using diagonal cutting pliers, remove two cotter pins (S) from lever assembly (R). Throw cotter pins away.
13. Remove two flat washers (T), pin (U) longer pawl (V), shim (W), and pawl (X) from lever (Y).



14. Using 9/16 inch wrench, remove screw and lockwasher (Z).
15. Remove plate (AA).
16. Using hammer and 1/8 inch punch, remove pin (AB).
17. Remove guide assembly (AC) and ratchet assembly (AD) from adjuster assembly (AE).
18. Remove ratchet (A) from stud (AG).



Go on to Sheet 4

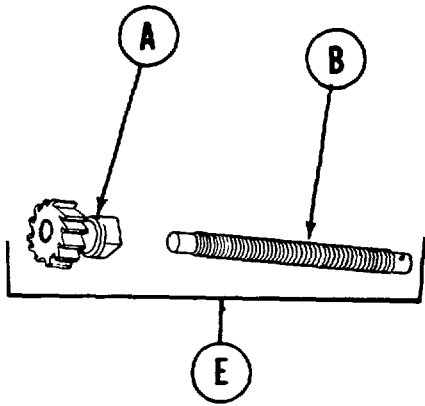
TA146350

**BRAKE ADJUSTER ASSEMBLY REPAIR AND REPLACEMENT (Sheet 4 of 6)**

**CLEANING AND INSPECTION:**

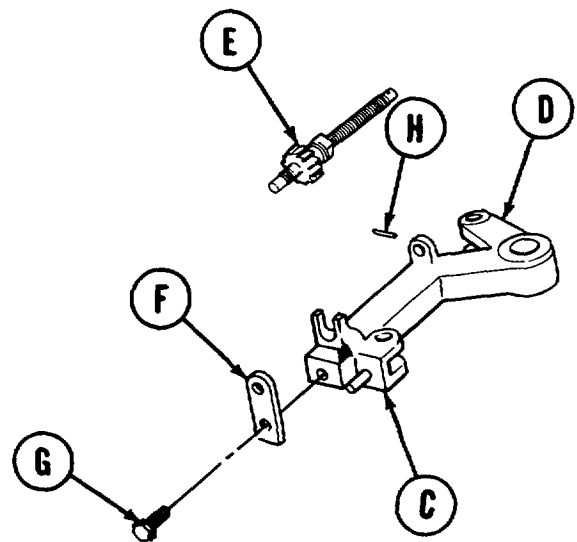
1. Clean parts in dry cleaning solvent (Item 54, Appendix D).
2. Inspect all parts for damage. Replace all defective parts.

**INSTALLATION:**



1. Install ratchet (A) on stud (B).

2. Slide guide assembly (C) on adjuster (D).
3. Install stud and ratchet assembly (E) to adjuster (D).
4. Position plate (F) on adjuster (D) and stud and ratchet assembly (E).



5. Using 9/16 inch wrench, install screw and washer (G) to secure plate (F) to adjuster (D).
6. Aline holes of stud and ratchet assembly (E) and adjuster (D). Using hammer, install pin (H) to secure stud and ratchet assembly (E) to adjuster (D).

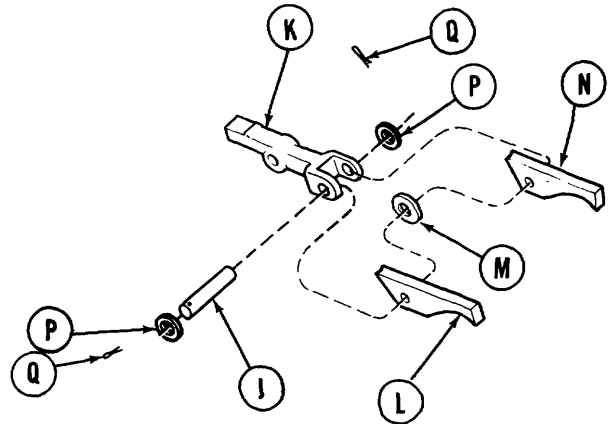
Go on to Sheet 5

TA146351

**BRAKE ADJUSTER ASSEMBLY REPAIR AND REPLACEMENT (Sheet 5 of 6)**

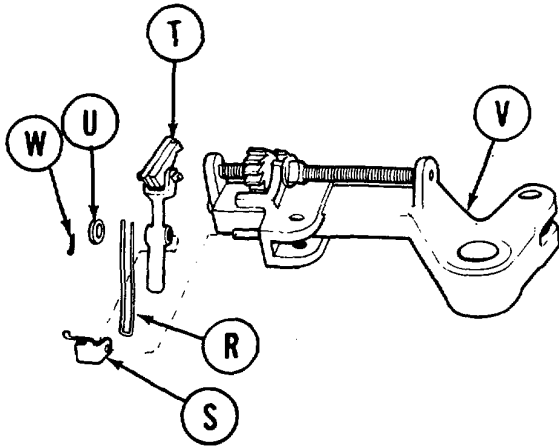
7. Install pin (J) through holes in lever (K), pawl (L), shim (M), and longer pawl (N).

8. Install flat washers (P) on each end of pin (J).



9. Using long nose pliers, install two new cotter pins (Q).

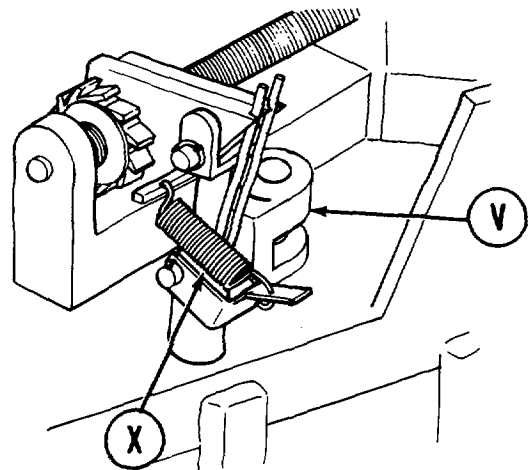
10. Position clip (R) and bracket (S) on lever assembly (T).



11. Install clip (R), bracket (S), lever assembly (T), and flat washer (U) on adjuster assembly (V).

12. Using slip joint pliers, install new cotter pin (W).

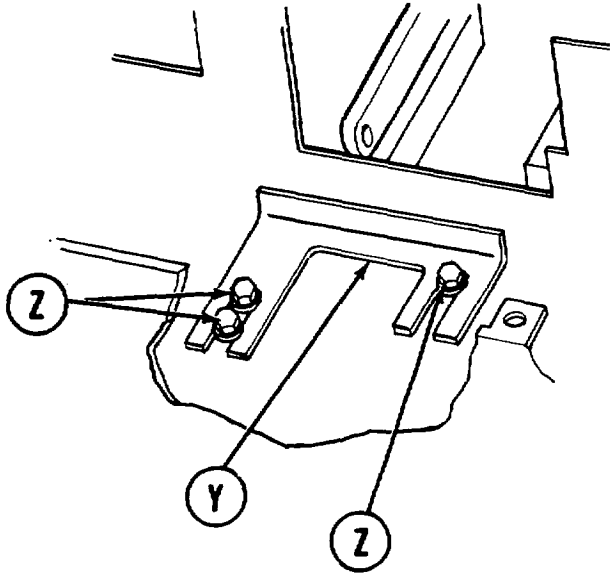
13. Using long nose pliers, install spring (X) on adjuster assembly (V).



Go on to Sheet 6

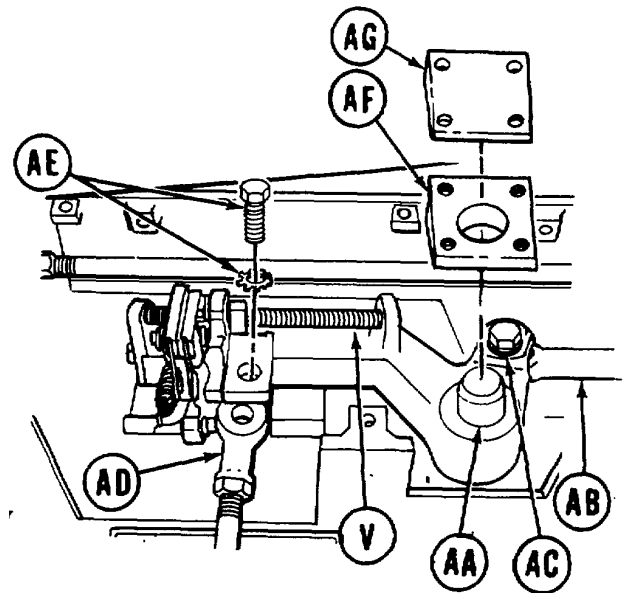
TA146352

**BRAKE ADJUSTER ASSEMBLY REPAIR AND REPLACEMENT (Sheet 6 of 6)**



14. Return all parts to tank.
15. Install enclosure assembly (page 13-58).
16. Slide stop (Y) under three screws and lockwashers (Z).
17. Using 9/16 inch socket, tighten screws (Z).

18. Position adjuster assembly (V) onto shaft (AA) of enclosure.
19. Position rod assembly (AB) to adjuster assembly (V).
20. Using 15/16 inch socket, install screw and lockwasher (AC) to secure rod assembly (AB) to adjuster assembly (V).
21. Position rod assembly (AD) to adjuster assembly (V).
22. Using 3/4 inch socket, install screw and lockwasher (AE) to secure rod assembly (AD) to adjuster assembly (V).
23. Install block (AF) and gasket (AG) on shaft (AA).
24. Adjust brake linkage (page 13-10).



End of Task

TA146353

**BRAKE EQUALIZER ASSEMBLY AND LINKAGE ASSEMBLIES REPAIR AND REPLACEMENT (Sheet 1 of 12)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	13-66
Cleaning and Inspection	13-71
Installation	13-71

TOOLS: Ratchet with 1/2 in. drive  
 5/16 in. socket with 1/2 in. drive  
 3/4 in. socket with 1/2 in. drive  
 3/4 in. combination box and open end wrench ( required)  
 7/8 in. combination box and open end wrench  
 5/16 in. combination box and open end wrench  
 Slip joint pliers  
 Diagonal cutting pliers  
 Long round nose pliers  
 Steel rule  
 2 in. extension with 1/2 in. drive

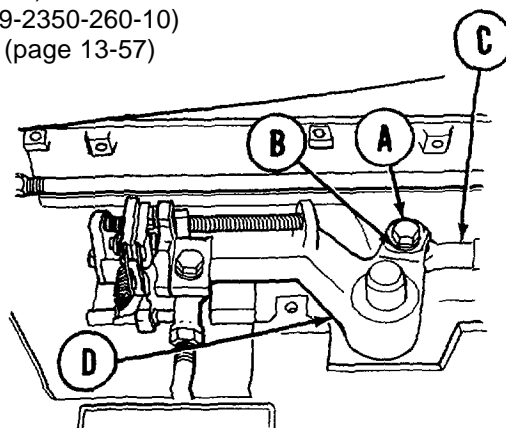
SUPPLIES: Cotter pins (MS24665-353) (3 required)  
 Rags  
 Dry cleaning solvent (Item 54 Appendix D)  
 Pencil  
 Tape  
 Lockwashers (MS35335-37) (2 required)  
 Lockwasher (MS35338-50)

REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURE: Block tracks (TM 9-2350-260-10)  
 Release parking brakes (TM 9-2350-260-10)  
 Remove enclosure assembly (page 13-57)

REMOVAL:

1. Using 15/16 inch socket, remove screw (A) and lockwasher (B). Throw lockwasher away.
2. Remove connecting rod assembly (C) from adjuster assembly (D).

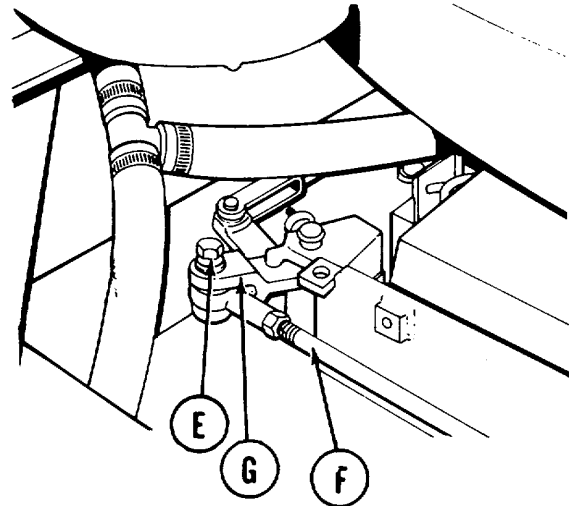


Go on to Sheet 2

TA146354

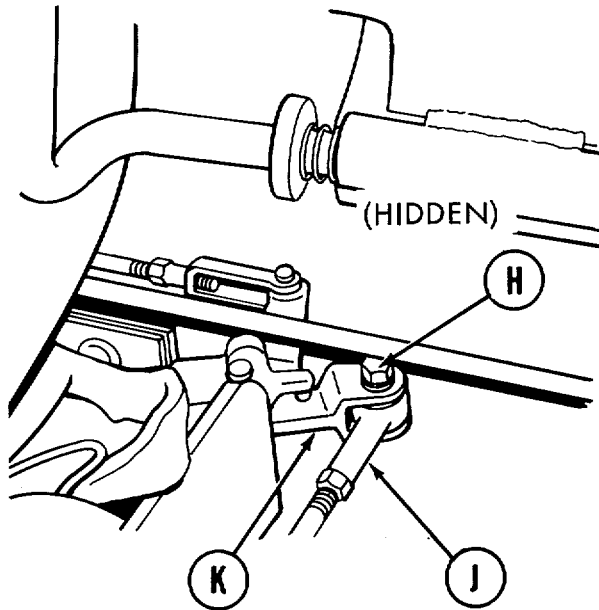
**BRAKE EQUALIZER ASSEMBLY AND LINKAGE ASSEMBLES REPAIR AND REPLACEMENT (Sheet 2 of 12)**

3. Using 3/4 inch socket, remove screw and lockwasher (E). Throw lockwasher away.
4. Remove connecting rod assembly (F) from lever (G).



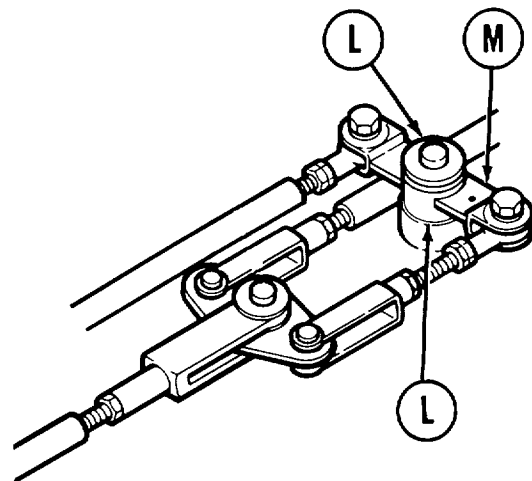
BEHIND RIGHT AMMO RACK

5. Using 3/4 inch socket, remove screw and lockwasher (H). Throw lockwasher away.
6. Remove connecting rod assembly (J) from lever (K).



BEHIND LEFT AMMO RACK

7. Remove two flat washers (L) and linkage assembly (M) from enclosure.
8. Remove linkage assembly (M) from tank to work bench.



Go on to Sheet 3

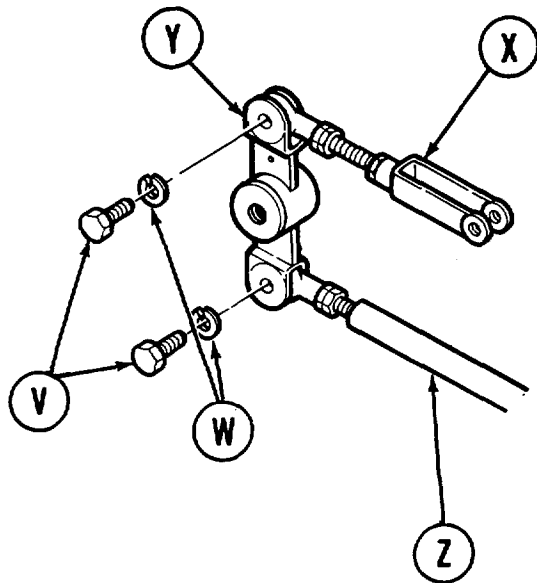
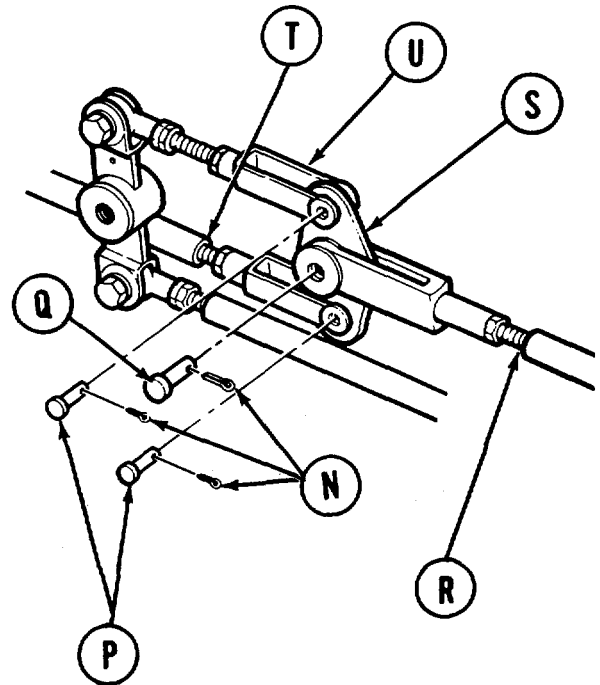
TA146355

**BRAKE EQUALIZER ASSEMBLY AND LINKAGE ASSEMBLES REPAIR AND REPLACEMENT (Sheet 3 of 12)**

**NOTE**

Perform the following steps on a work bench with a vise. Using pencil and tape, label each rod assembly so it can be identified for assembly.

9. Using diagonal cutting pliers, remove three cotter pins (N). Throw cotter pins away.
10. Using slip joint pliers, remove two pins (P) and pin (Q).
11. Remove rod assembly (R) and plate assembly (S) from rods (T) and (U).



12. Using 3/4 inch socket, remove two screws (V) and lockwashers (W). Throw lockwashers away.
13. Remove rod assembly (X) from link assembly (Y).
14. Remove rod assembly (Z) from link assembly (Y).

Go on to Sheet 4

TA146356



**BRAKE EQUALIZER ASSEMBLY AND LINKAGE ASSEMBLIES REPAIR AND REPLACEMENT (Sheet 4 of 12)**

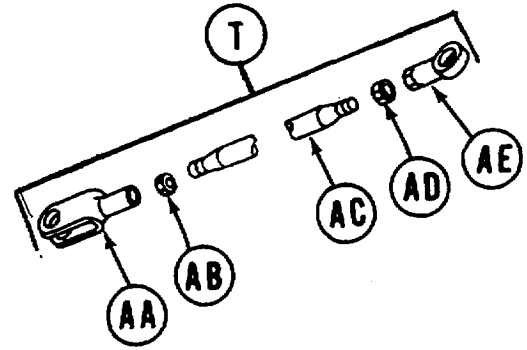
15. Using slip joint pliers to hold clevis (AA) and 3/4 inch wrench on jamnut (AB), loosen jamnut (AB) on connecting rod (AC).

16. Using slip joint pliers, remove clevis (AA).

17. Using two 3/4 inch wrenches, loosen jamnut (AD) from rod end bearing (AE).

18. Using 3/4 inch wrench, remove rod end bearing (AE).

19. Using 3/4 inch wrench, remove two jamnuts (AB) and (AD) from rod (AC).



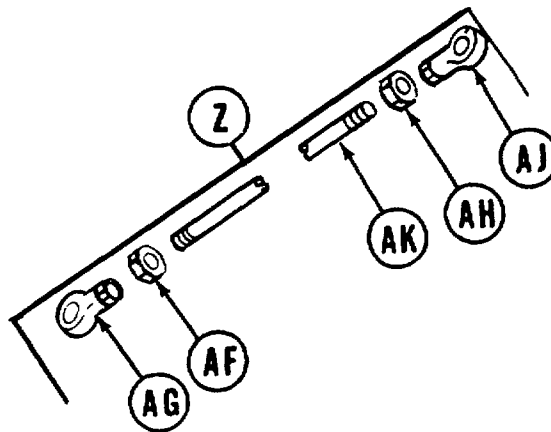
20. Using two 3/4 inch wrenches, loosen jamnut (AF) from rod end bearing (AG).

21. Using 3/4 inch wrench, remove rod end bearing (AG).

22. Using two 3/4 inch wrenches, loosen jamnut (AH) from rod end bearing (AJ).

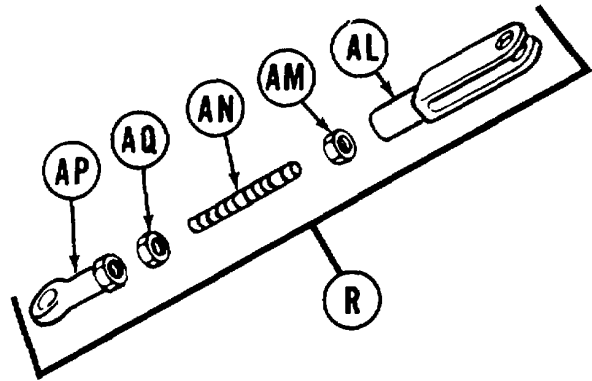
23. Using 3/4 inch wrench, remove rod end bearing (AJ).

24. Using 3/4 inch wrench, remove two jamnuts (AF) and (AH) from rod (AK).

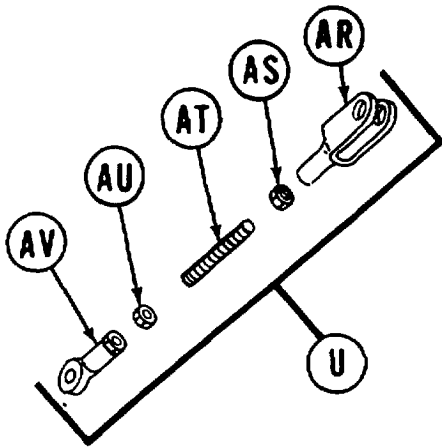


**BRAKE EQUALIZER ASSEMBLY AND LINKAGE ASSEMBLES REPAIR AND REPLACEMENT (Sheet 5 of 12)**

25. Using slip joint pliers to hold clevis (AL) and 15/16 inch wrench on jamnut (AM), loosen nut (AM) on connecting rod (AN).
26. Using slip joint pliers, remove clevis (AL).



27. Using 7/8 inch wrench to hold rod end bearing (AP) and 15/16 inch wrench on jamnut (AQ), loosen jamnut (AQ) on connecting rod (AN).
28. Using 7/8 inch wrench, remove rod end bearing (AP).
29. Using 15/16 inch wrench, remove two jamnuts (AM) and (AQ) from connecting rod (AN).



30. Using slip joint pliers to hold clevis (AR) and 3/4 inch wrench on nut (AS), loosen nut (AS) on connecting rod (AT).
31. Using slip joint pliers, remove clevis (AR).

32. Using two 3/4 inch wrenches, loosen jamnut (AU) from rod end bearing (AV).
33. Using 3/4 inch wrench, remove rod end bearing (AV).
34. Using 3/4 inch wrench, remove two jamnuts (AS) and (AU) from rod (AT).

Go on to Sheet 6

TA146358

## BRAKE EQUALIZER ASSEMBLY AND LINKAGE ASSEMBLES REPAIR AND REPLACEMENT (Sheet 6 of 12)

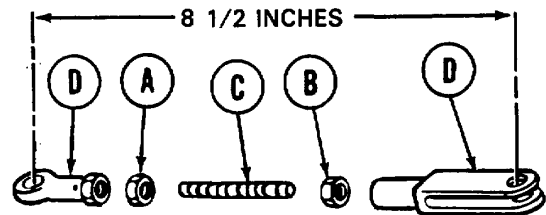
### CLEANING AND INSPECTION:

1. Clean parts in dry cleaning solvent (Item 54, Appendix D).
2. Inspect all parts for damage. Replace all defective parts.

### INSTALLATION:

#### NOTE

Steps 1 through 6 are procedures for assembly of rod assembly identified as rod assembly (R) during removal.



1. Install jamnut (A) and (B) onto rod (C).
2. Install rod end bearing (D) onto rod (C). Adjust rod end bearing (D) on rod (C) so a 1/16 inch wire will not pass through inspection hole in the shank of the rod end bearing (D).
3. Install clevis (E) onto rod (C). Adjust clevis until a measurement of 8-1/2 inches is obtained between end centers of clevis (E) and rod end bearing (D).
4. Aline clevis (E) and rod end bearing (D) of rod assembly as shown.
5. Using slip joint pliers to hold clevis (E) and 15/16 inch wrench on jamnut (B), tighten jamnut (B) against clevis (E).
6. Using 7/8 inch wrench to hold rod end bearing (D) and 15/16 inch wrench on jamnut (A), tighten jamnut (A) against rod end bearing (D).

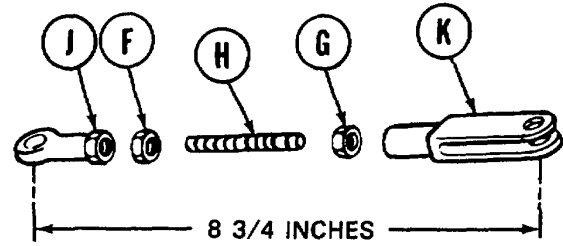
Go on to Sheet 7

TA146359

**BRAKE EQUALIZER ASSEMBLY AND LINKAGE ASSEMBLES REPAIR AND REPLACEMENT**  
**(Sheet 7 of 12)**

**NOTE**

Steps 7 through 12 are procedures for assembly of rod assembly identified as rod assembly (U) during removal.



7. Install jamnuts (F) and (G) onto rod (H).
8. Install rod end bearing (J) onto rod (H). Adjust rod end bearing (J) on rod (H) so a 1/16 inch wire will not pass through inspection hole in the shank of the rod end bearing.
9. Install clevis (K) onto rod (H). Adjust clevis until a measurement of 8-3/4 inches obtained between end centers of clevis (K) and rod end bearing (J).
10. Aline clevis (K) and rod end bearing (J) of rod assembly as shown.
11. Using slip joint pliers to hold clevis (K) and 3/4 inch wrench on jamnut (G), tighten jamnut (G) against clevis (K).
12. Using two 3/4 inch wrenches, tighten jamnut (F) against rod end bearing (J).

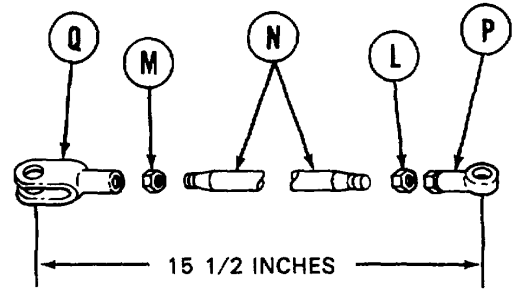
Go on to Sheet 8

TA146360

**BRAKE EQUALIZER ASSEMBLY AND LINKAGE ASSEMBLIES REPAIR AND REPLACEMENT**  
**(Sheet 8 of 12)**

**NOTE**

Steps 13 through 18 are procedures for assembly of rod assembly identified as rod assembly (T) during removal.



13. Install jamnuts (L) and (M) onto rod (N).
14. Install rod end bearing (P) onto rod (N). Adjust rod end bearing (P) on rod (N) so a 1/16 inch wire will not pass through inspection hole in the shank of the rod end bearing.
15. Install clevis (Q) onto rod (N). Adjust clevis until a measurement of 15-1/2 inches is obtained between end centers of clevis (Q) and rod end bearing (P).
16. Aline clevis (Q) and rod end bearing (P) of rod assembly as shown.
17. Using slip joint pliers to hold clevis (Q) and 3/4 inch wrench on jamnut (M), tighten jamnut (M) against clevis (Q).
18. Using two 3/4 inch wrenches, tighten jamnut (L) against rod end bearing (P).

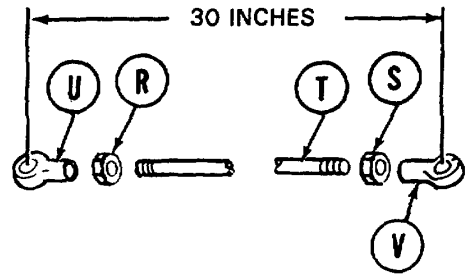
Go on to Sheet 9

TA146361

**BRAKE EQUALIZER ASSEMBLY AND LINKAGE ASSEMBLES REPAIR AND REPLACEMENT**  
**(Sheet 9 of 12)**

**NOTE**

Steps 19 through 23 are procedures for assembly of rod assembly identified as rod assembly (Z) during removal.



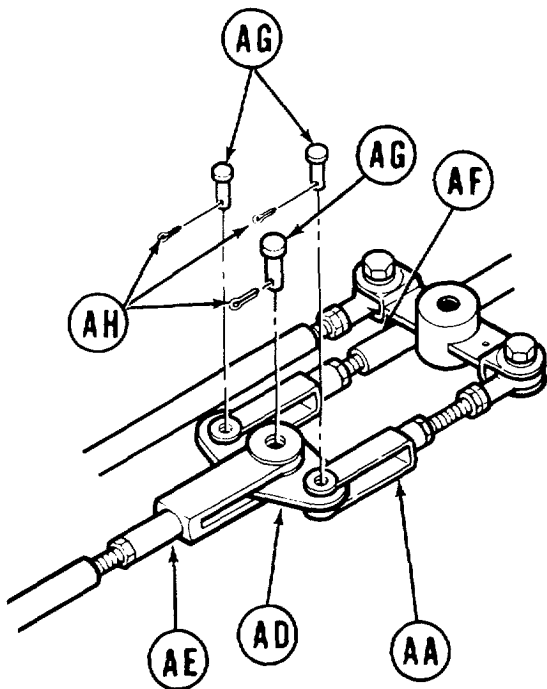
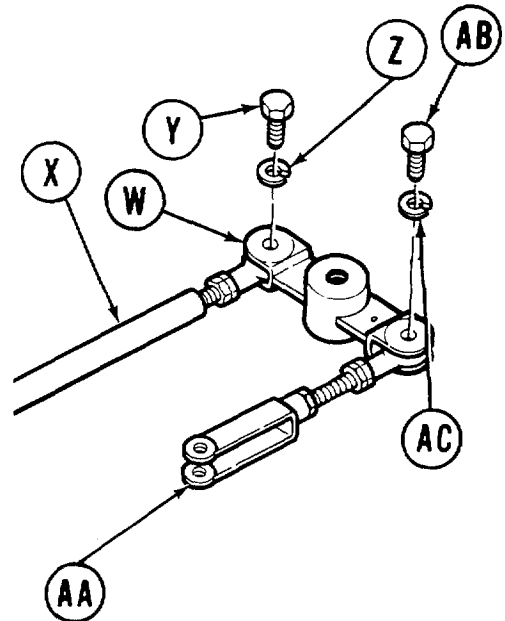
19. Install jamnut (R) and (S) onto rod (T).
20. Install rod end bearing (U) onto rod (T). Adjust rod end bearing (U) on rod (T) so a 1/16 inch wire will not pass through inspection hole in the shank of the rod end bearing.
21. Install rod end bearing (V) onto rod (T). Adjust rod end bearing (V) until a measurement of 30 inches is obtained between centers of rod end bearings (U) and (V).
22. Aline rod end bearings (U) and (V) as shown.
23. Using two 3/4 inch wrenches, tighten jamnuts (R) and (S) against rod end bearings (U) and (V).

Go on to Sheet 10

TA146362

**BRAKE EQUALIZER ASSEMBLY AND LINKAGE ASSEMBLIES REPAIR AND REPLACEMENT**  
**(Sheet 10 of 12)**

24. Aline hole in link assembly (W) with rod end of 30 inch connecting rod (X).
25. Install screw (Y) and new lockwasher (Z) through link assembly (W) and connecting rod (X).
26. Aline hole in link assembly (W) rod end of 8-3/4 inch connecting rod (AA).
27. Install screw (AB) and new lockwasher (AC) through link assembly (W) and connecting rod (AA).
28. Using 3/4 inch socket, tighten screws (Y) and (AB).



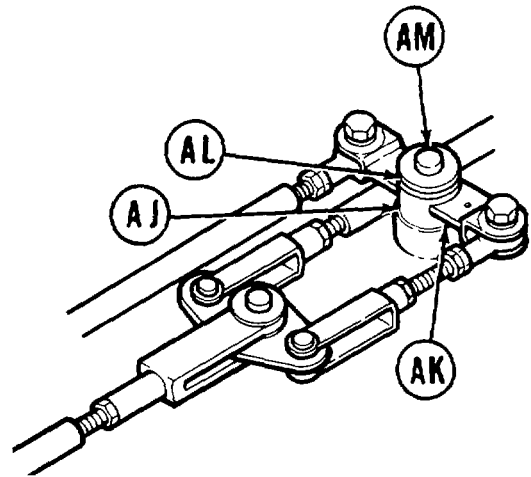
29. Aline holes in plate assembly (AD) with holes in clevis ends of connecting rods (AA), (AE), (AF).
30. Install three pins (AG).
31. Using long nose pliers, install three new cotter pins (AH).
32. Return adjuster and all linkage to tank.
33. Install enclosure assembly (page 13-58).

Go on to Sheet 11

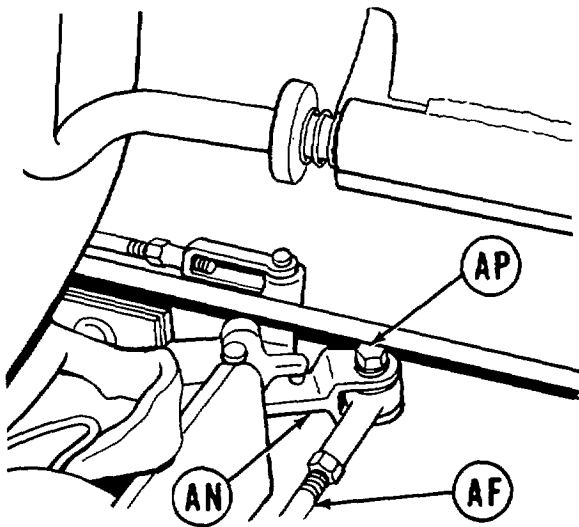
TA146363

**BRAKE EQUALIZER ASSEMBLY AND LINKAGE ASSEMBLES REPAIR AND REPLACEMENT**  
 (Sheet 11 of 12)

34. Install one flat washer (AJ), link assembly (AK), and another flat washer (AL) onto stud (AM).



35. Position rod assembly (AF) to lever assembly (AN).
36. Using 3/4 inch socket install screw and new lockwasher (AP) to secure rod assembly (AF) to lever assembly (AN).



BEHIND LEFT AMMO RACK

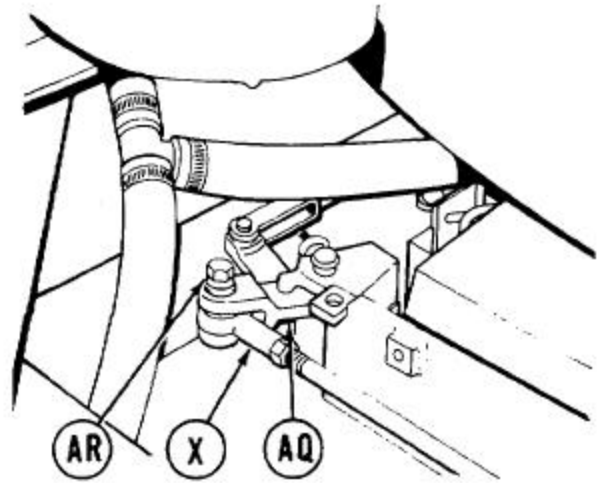
Go on to Sheet 12

TA146364

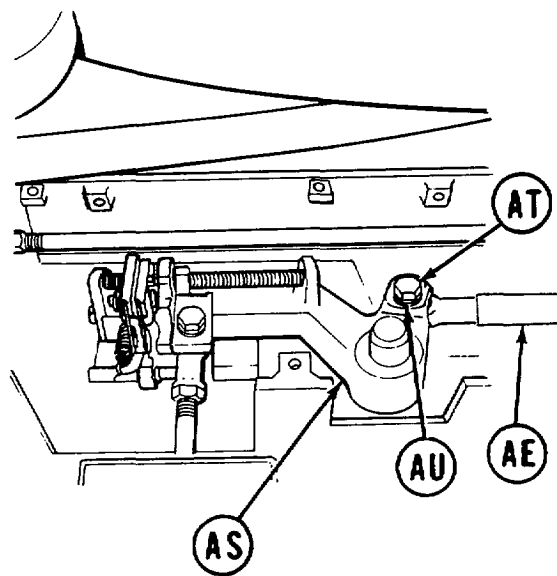


**BRAKE EQUALIZER ASSEMBLY AND LINKAGE ASSEMBLES REPAIR AND REPLACEMENT**  
 (Sheet 12 of 12)

37. Position rod assembly (X) to lever assembly (AQ).
38. Using 3/4 inch socket, install screw and new lockwasher (AR) to secure rod assembly (X) to lever assembly (AQ).



BEHIND RIGHT AMMO RACK



39. Position rod assembly (AE) to adjuster assembly (AS).
40. Using 15/16 inch socket, Install screw (AT) and new lockwasher (AU).
41. Adjust brake linkage (page 13-10).

End of Task

TA146365

**BRAKE LEVER AND LINKAGE ASSEMBLES (LEFT AND RIGHT) REPAIR AND REPLACEMENT**  
 (Sheet 1 of 12)

PROCEDURE INDEX

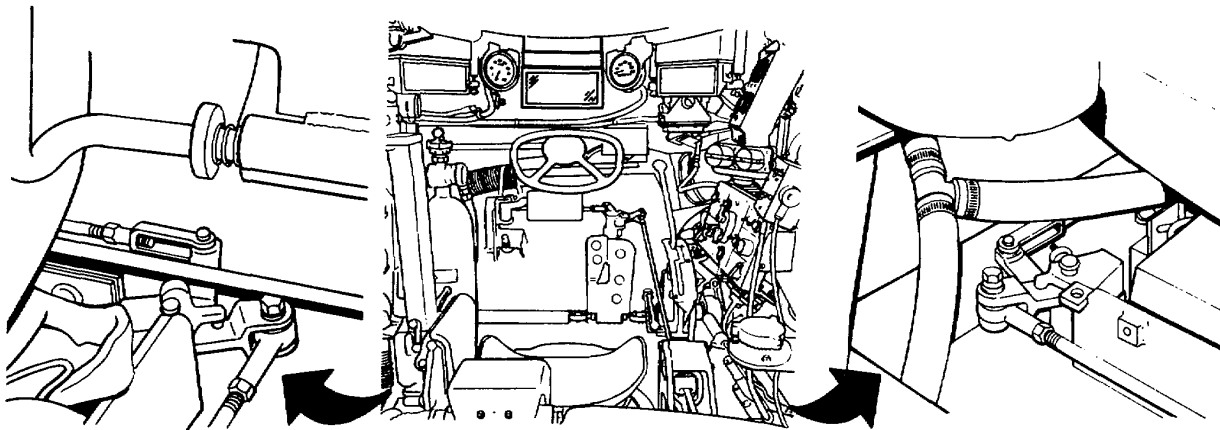
PROCEDURE	PAGE
Removal	13-79
Cleaning and Inspection	13-84
Installation	13-84

TOOLS: Ratchet with 1/2 in. drive  
 3/4 in. socket with 1/2 in. drive  
 3/4 in. combination box and open end wrench  
 7/16 in. combination box and open end wrench (2 required)  
 1/4 in. open end wrench  
 Slip joint pliers  
 Diagonal cutting pier  
 Steel rule  
 10 in. adjustable wrench

SUPPLIES: Lockwasher (MS35335-37)  
 Cotter pins (MS24665-353)(3 required)  
 Rags  
 Dry cleaning solvent (Item 54, Appendix D)

REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURES: Block tracks (TM 9-23560-10)  
 Release parking brakes (TM 9-2350-260-10)



(BEHIND LEFT AMMO RACK)

(BEHIND RIGHT AMMO RACK)

Go on to Sheet 2

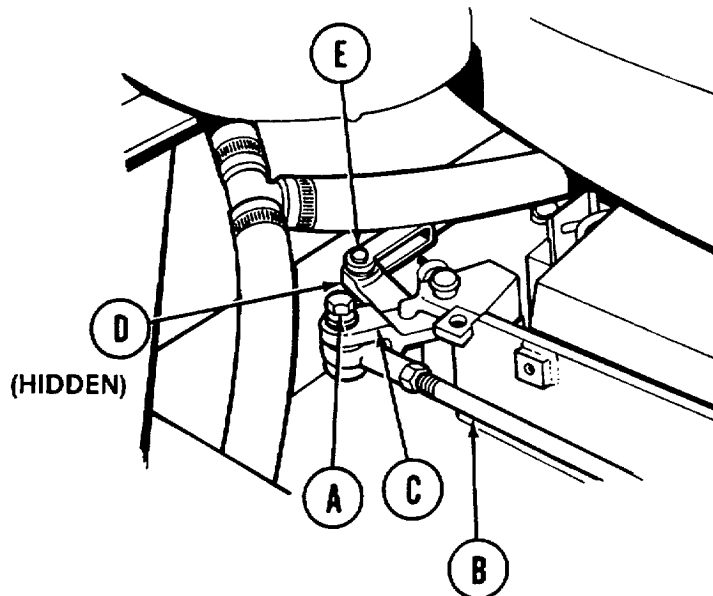
**BRAKE LEVER AND LINKAGE ASSEMBLES (LEFT AND RIGHT) REPAIR AND REPLACEMENT**  
(Sheet 2 of 12)

## REMOVAL:

**NOTE**

Since the removal procedure for both left or right lever assemblies are the same only the procedure for the right side is given.

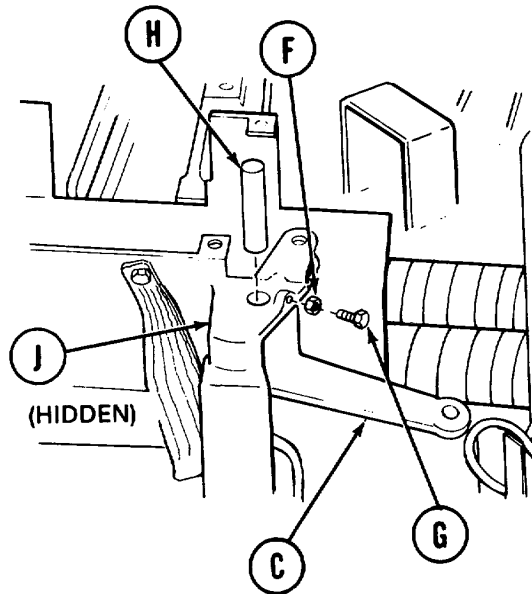
1. Using 3/4 inch socket, remove screw and lockwasher (A). Throw lockwasher away.
2. Remove connecting rod assembly (B) from lever assembly (C).
3. Using diagonal cutting pliers, remove cotter pin (D) (hidden). Throw cotter pin away.
4. Using slip joint pliers, remove pin (E).



Go on to Sheet 3

TA146367

13-79

**BRAKE LEVER AND LINKAGE ASSEMBLIES (LEFT AND RIGHT) REPAIR AND REPLACEMENT**  
(Sheet 3 of 12)

(RIGHT SIDE SHOW FROM TURRET)

5. Using 7/16 inch wrench, loosen nut (F).
6. Using 1/4 inch wrench, remove screw (G) and nut (F).
7. Using 7/16 inch wrench to hold nut (F), use 1/4 inch wrench and remove screw (G) from nut (F).
8. Remove pin (H).

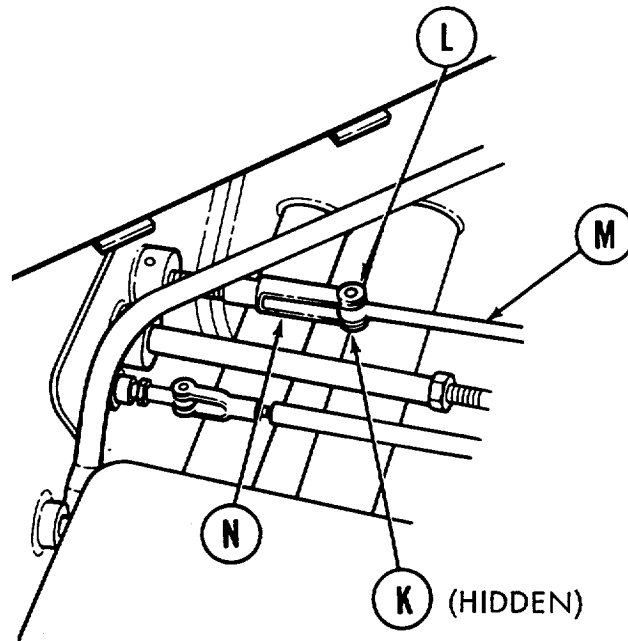
9. Remove lever assembly (C) and two flat washers (J) from enclosure.

Go on to Sheet 4

TA146368

**BRAKE LEVER AND LINKAGE ASSEMBLES (LEFT AND RIGHT) REPAIR AND REPLACEMENT  
(Sheet 4 of 12)**

10. Open turret platform access door (TM 9-2350-260-10).
11. Traverse turret to expose connecting rod assembly on left side of tank (TM 9-2350-260 10).
12. Using diagonal cutting pliers, remove cotter pin (K) (hidden). Throw cotter pin away.
13. Using slip joint pliers, remove pin (L).



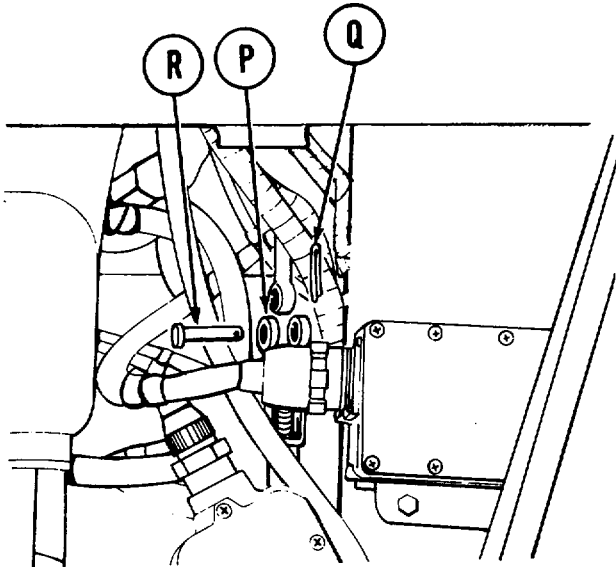
14. Remove connecting rod assembly (M) from clevis (N).
15. Remove connecting rod assembly (M) through turret access door.
16. Remove connecting rod assembly (M) from tank to work bench.

Go on to Sheet 5

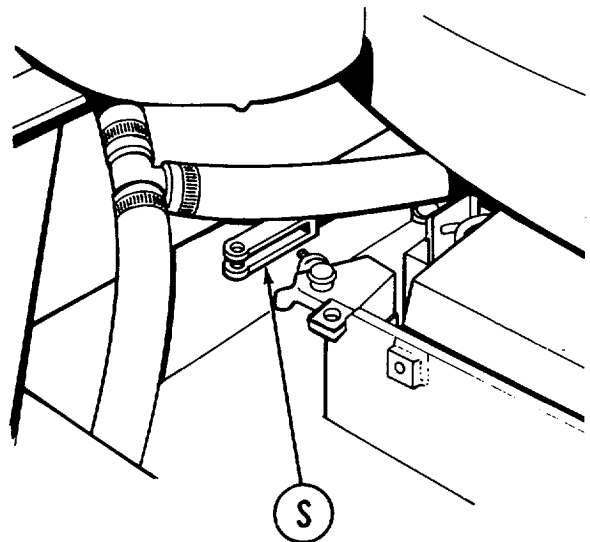
TA146369

**BRAKE LEVER AND LINKAGE ASSEMBLES (LEFT AND RIGHT) REPAIR AND REPLACEMENT**  
 (Sheet 5 of 12)

17. Traverse turret to expose connecting rod assembly (P) on right side of tank.
18. Using diagonal cutting pliers, remove cotter pin (Q).  
Throw cotter pin away.
19. Using slip joint pliers, remove pin (R).



20. In driver's compartment, pull rod assembly (S) into driver's compartment.
21. Remove rod assembly (S) from tank to work bench.

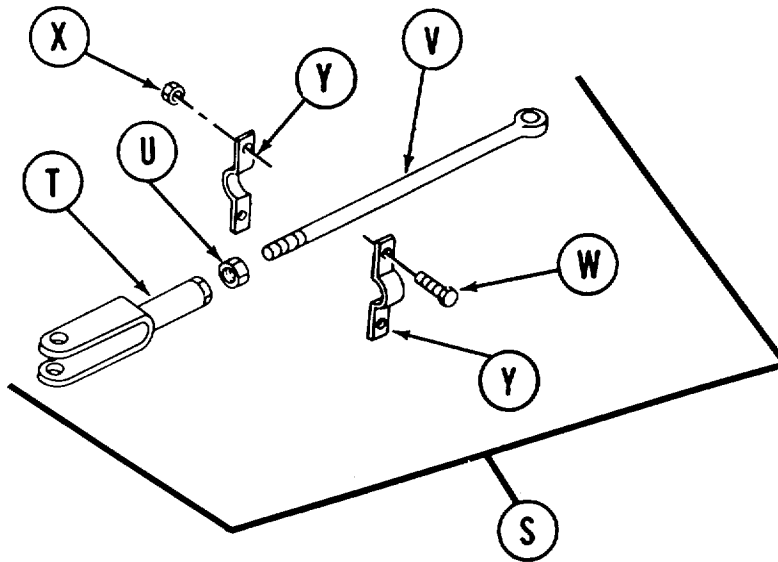


Go on to Sheet 6

TA146370

**BRAKE LEVER AND LINKAGE ASSEMBLIES (LEFT AND RIGHT) REPAIR AND REPLACEMENT**  
 (Sheet 6 of 12)

22. Using adjustable wrench to hold clevis (T) and 3/4 inch wrench on nut (U) loosen jamnut (U) on connecting rod (V).
23. Using adjustable wrench, remove clevis (T).



24. Using 3/4 inch wrench, remove jamnut (U).
25. Using two 7/16 inch wrenches, remove two screws (W) and nuts (X).
26. Remove two straps C(Y) from rod (V).

Go on to Sheet 7

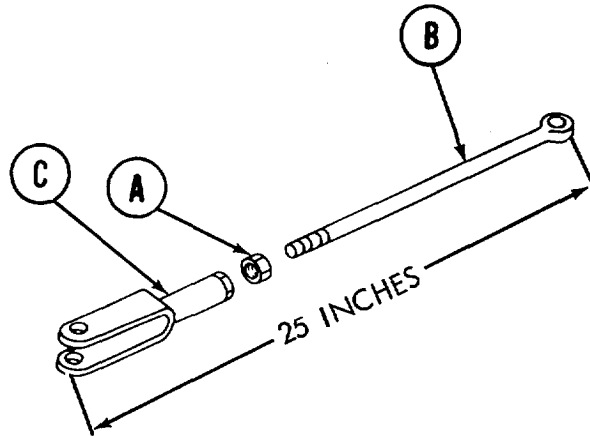
TA146371

**BRAKE LEVER AND LINKAGE ASSEMBLIES (LEFT AND RIGHT) REPAIR AND REPLACEMENT  
(Sheet 7 of 12)**

**CLEANING AND INSPECTION:**

1. Clean parts in dry cleaning solvent (Item 54, Appendix D) .
2. Inspect all parts for damage. Replace all defective parts.

**INSTALLATION:**



1. Using 3/4 inch wrench, install jamnut (A) on rod (B).
2. Install clevis (C) onto rod (B). Adjust clevis (C) for a measurement of 25 inches between holes, as shown.
3. Using adjustable wrench to hold clevis (C) and 3/4 inch wrench on jamnut (A), tighten jamnut (A) up to clevis (C).

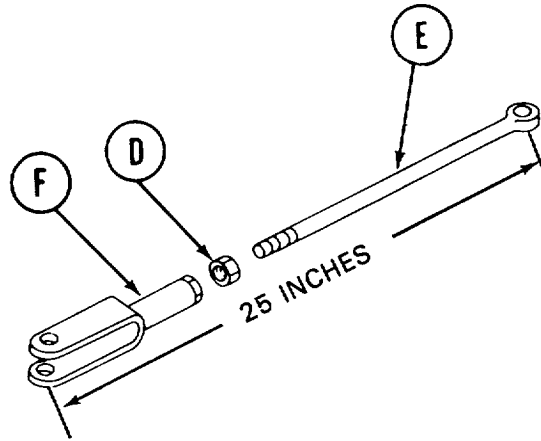
Go on to Sheet 8

TA146372

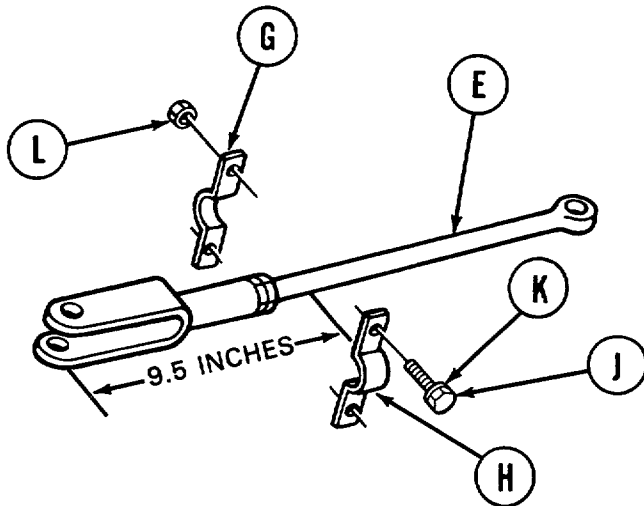


**BRAKE LEVER AND LINKAGE ASSEMBLIES (LEFT AND RIGHT) REPAIR AND REPLACEMENT**  
**(Sheet 8 of 12)**

4. Using 3/4 inch wrench, install jamnut (D) on rod (E).
5. Install clevis (F) onto rod (E). Adjust clevis (F) for a measurement of 25 inches between holes, as shown.
6. Using adjustable wrench to hold clevis (F) and 3/4 inch wrench on jamnut (D), tighten jamnut (D) up to clevis (F).



7. Position two straps (G) and (H) around rod (E).



8. Using hands, install two screws (J), with lockwashers (K), and nuts (L) to loosely secure straps (G) and (H).
9. Position straps (G) and (H) 9.5 inches from clevis end of connecting rod assembly (M).
10. Using two 7/16 inch wrenches, tighten two screws (J).
11. Return all linkage to tank.

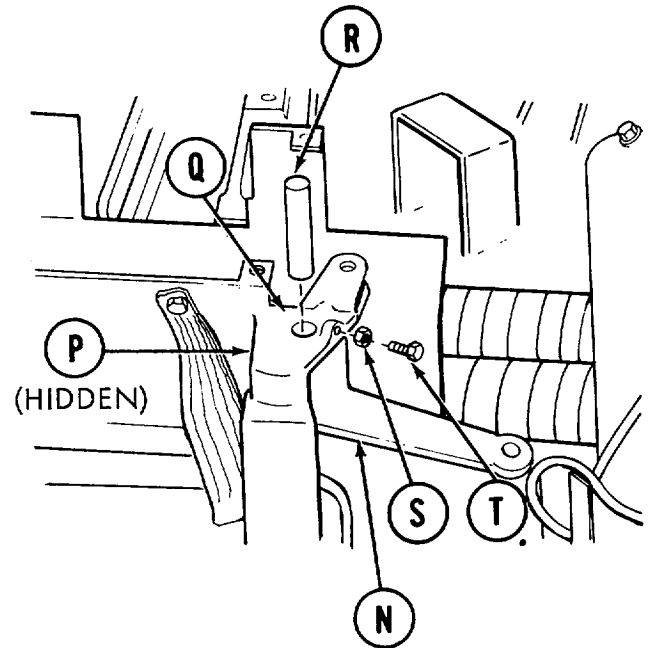
Go on to Sheet 9

**BRAKE LEVER AND LINKAGE ASSEMBLIES (LEFT AND RIGHT) REPAIR AND REPLACEMENT**  
**(Sheet 9 of 12)**

**NOTE**

Since the installation procedure for both left and right lever assemblies (N) are the same, only the procedure for the right side is given.

12. Position lever assembly (N) and two thrust washers (P) in bracket (Q). Aline holes in bracket (Q) with holes in thrust washers (P) and lever assembly (N).

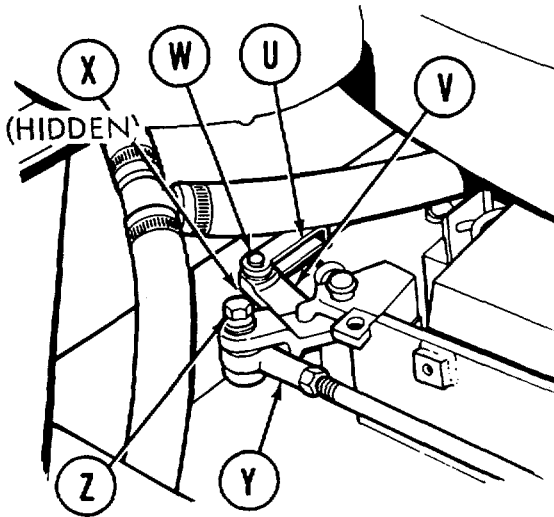


13. Install pin (R) through alined holes.
14. Install nut (S) on setscrew (T).
15. Start setscrew (T) into bracket (Q).
16. Aline groove in pin (R) with setscrew (T).
17. Using 1/4 inch wrench, tighten setscrew (T) to secure pin (R).
18. Using 7/16 inch wrench, tighten nut (S) against bracket (Q).

Go on to Sheet 10

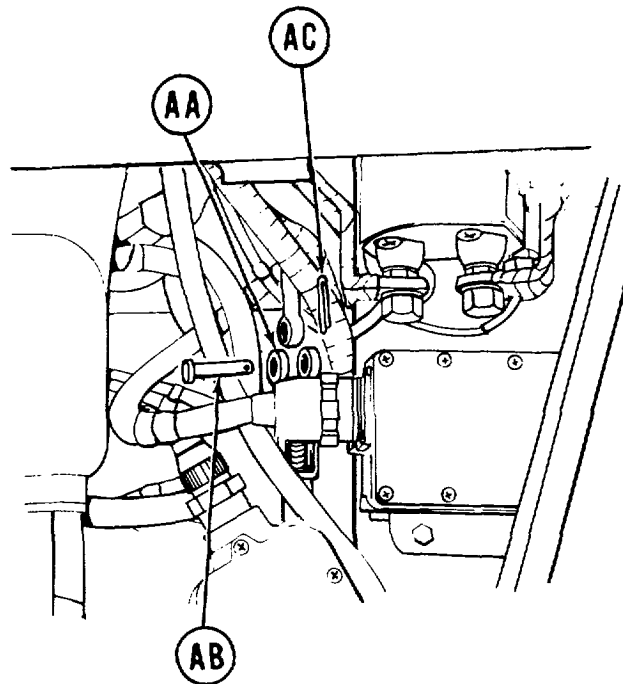
TA146374

**BRAKE LEVER AND LINKAGE ASSEMBLIES (LEFT AND RIGHT) REPAIR AND REPLACEMENT**  
 (Sheet 10 of 12)



19. From right side of driver's compartment, install rod assembly (U) under turret platform.
20. Position rod assembly (U) to lever assembly (V) and install pin (W).
21. Using long nose pliers, install new cotter pin (X) (hidden) through pin (W).
22. Position rod assembly (Y) to lever assembly (V).
23. Using 3/4 inch socket, install screw and new lockwasher (Z).

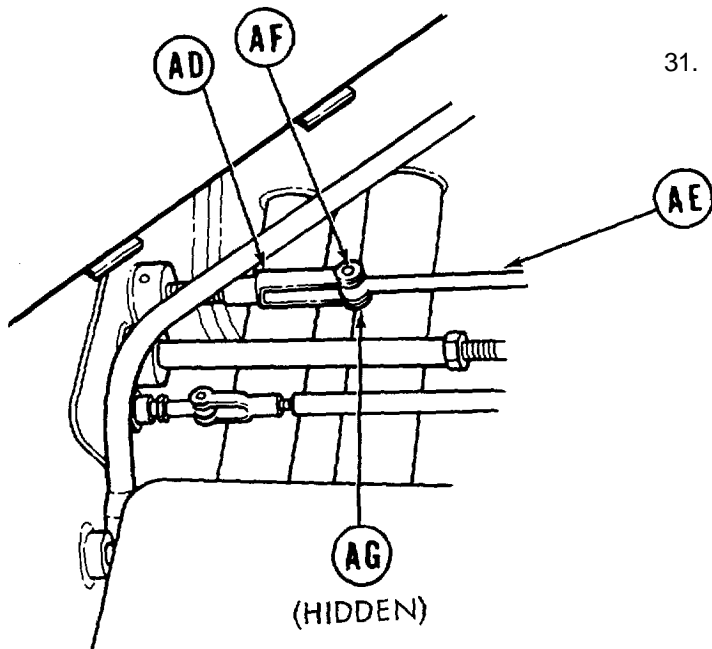
24. In turret compartment, open turret platform access door and traverse turret (TM 9-2350-260-10) to expose rod assembly (U) on right side.
25. Position rod assembly (U) to rod assembly (AA) and install pin (AB).
26. Using long nose pliers, install new cotter pin (AC) through pin (AB).



Go on to Sheet 11

**BRAKE LEVER AND LINKAGE ASSEMBLIES (LEFT AND RIGHT) REPAIR AND REPLACEMENT**  
 (Sheet 11 of 12)

27. Traverse turret (TM 9-2350-260-10) to expose rod assembly (AD) on left side.
28. Install rod assembly (AE) through turret platform access door opening, under turret, and into driver's compartment.
29. Position rod assembly (AE) to rod assembly (AD) and install pin (AF).
30. Using long nose pliers, install new cotter pin (AG) (hidden) through pin (AF).
31. Close turret platform access door (TM 9-2350-260-10).

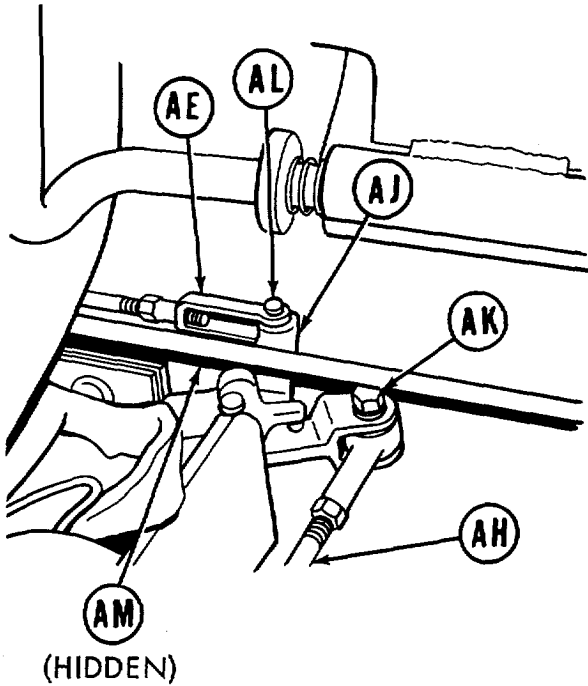


Go on to Sheet 12

TA146376

**BRAKE LEVER AND LINKAGE ASSEMBLIES (LEFT AND RIGHT) REPAIR AND REPLACEMENT**  
 (Sheet 12 of 12)

32. Position rod assembly (AH) to lever assembly (AJ).



33. Using 3/4 inch socket, install screw and new lockwasher (AK) to secure rod assembly (AH) to lever assembly (AJ).

34. Position rod assembly (AE) to lever assembly (AJ) and install pin (AL).

35. Using long nose pliers, install cotter pin (AM) (hidden) through pin.

36. Adjust brake linkage (page 13-10).

End of Task

TA146377

**BRAKE LEVER ASSEMBLY REPLACEMENT (Sheet 1 of 4)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	13-90
Cleaning and Inspection	13-91
Installation	13-92

TOOLS: Snap ring pliers  
 Flat-tip screwdriver  
 7/16 in. open end wrench

3/4 in. combination box and open end wrench  
 1/4 in. drive punch

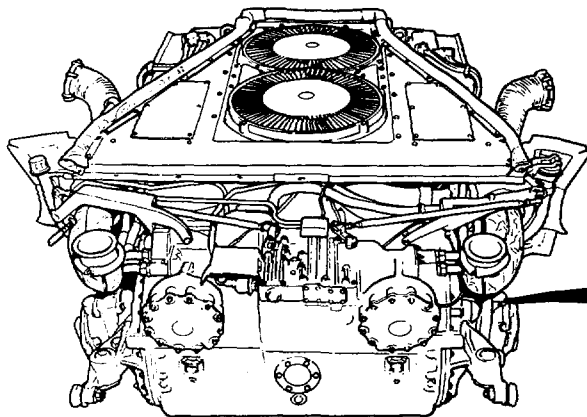
SUPPLIES: Gasket (10911782) Rags  
 Gasket (10911845) Lockwashers (MS35335-33)(10 required)  
 Dry cleaning solvent (Item 54, Appendix D) Lockwashers (MS3335-37)(2 required)

PRELIMINARY PROCEDURES: Remove powerplant (page 5-1)

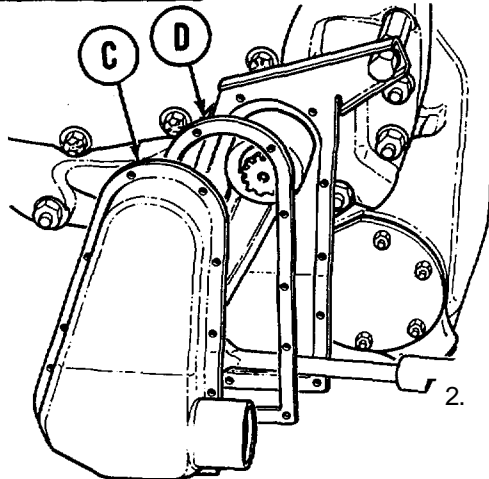
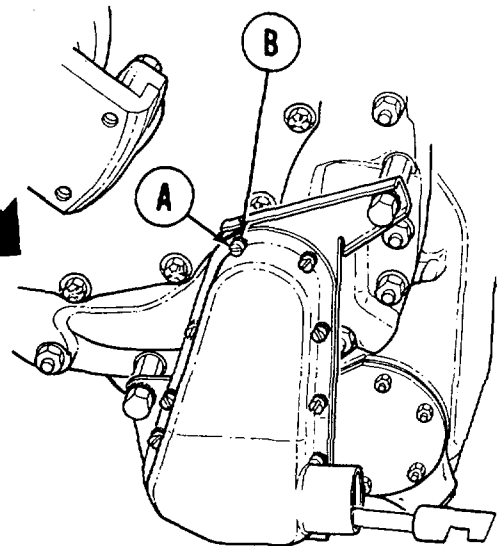
REMOVAL:

**NOTE**

**Left side illustrated - removal and installation of the right side is the same.**



1. Using screwdriver, remove ten screws (A) and lockwashers (B). Throw lockwashers away.



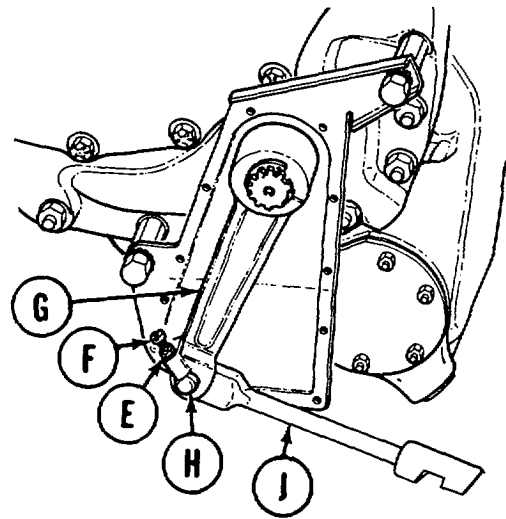
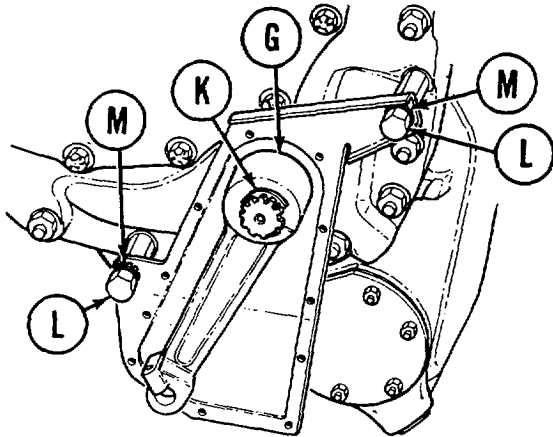
2. Remove shield (C) and gasket (D). Throw gasket (D) away.

Go on to Sheet 2

TA146378

**BRAKE LEVER ASSEMBLY REPLACEMENT (Sheet 2 of 4)**

3. Using 7/16 inch wrench, loosen nut (E).
4. Using screwdriver, remove screw (F) and nut (E) from lever (G).
5. Using hammer and punch, remove pin (H) and rod (J) from lever (G).

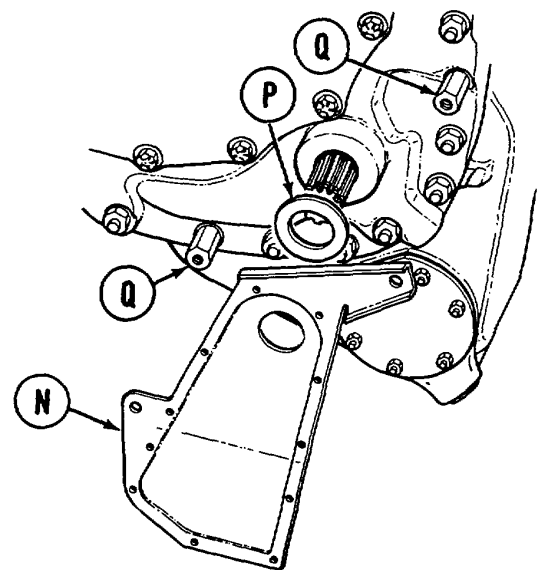


6. Using snap ring pliers, remove snap ring (K).
7. Remove lever (G).
8. Using 3/4 inch wrench, remove two screws (L) and two lockwashers (M). Throw lockwashers away.

9. Remove cover (N) and gasket (P). Throw gasket (P) away.
10. Using 3/4 inch wrench, remove two nut (Q).

**CLEANING AND INSPECTION:**

1. Using dry cleaning solvent (Item 55, Appendix D) and rags, clean all metal parts.
2. Inspect all parts for damage. Replace parts as required.

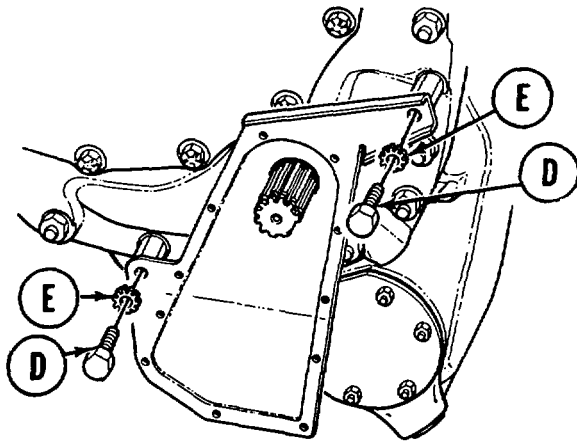
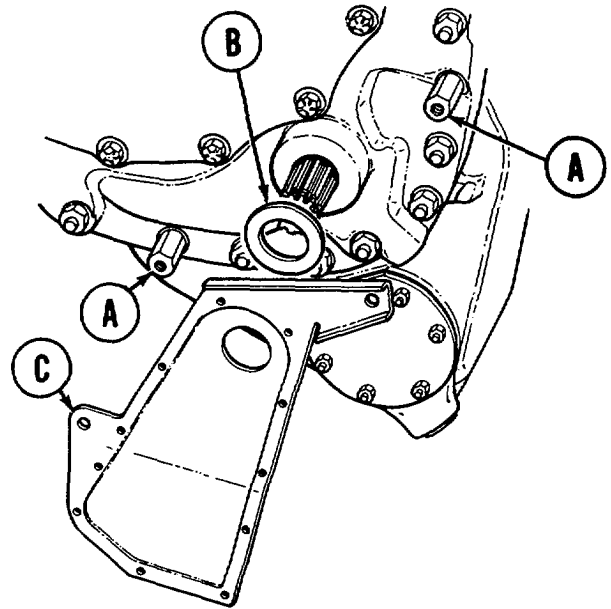


Go on to Sheet 3

**BRAKE LEVER ASSEMBLY REPLACEMENT (Sheet 3 of 4)**

**INSTALLATION:**

1. Using 3/4 inch wrench, install two nuts (A).
2. Install new gasket (B).
3. Install cover (C).

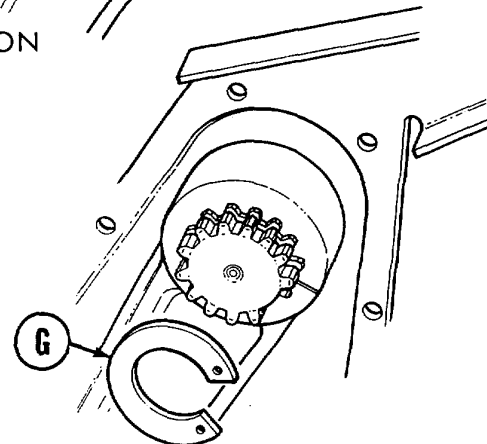
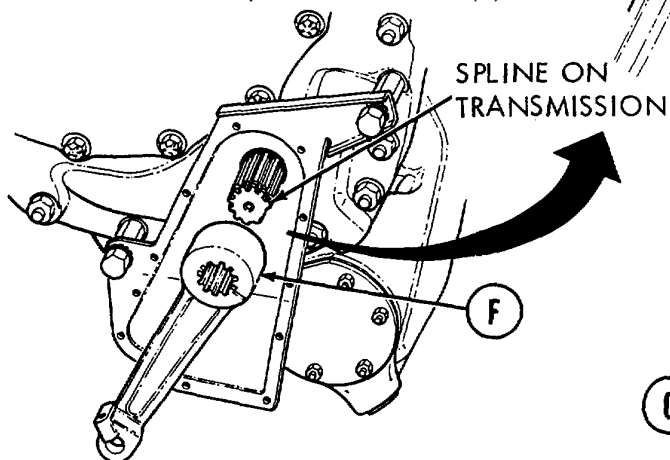
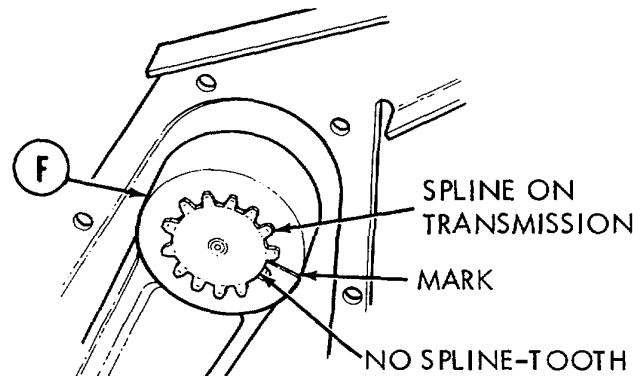


4. Install two screws (D) and two new lockwashers (E).
5. Using 3/4 inch wrench tighten two screws (D).

**NOTE**

**Aline lever assembly with spline on transmission as shown.**

6. Mark on lever assembly to be aligned with missing spline tooth on transmission spline. Install lever (F).



7. Using snap ring pliers, install snap ring (G).

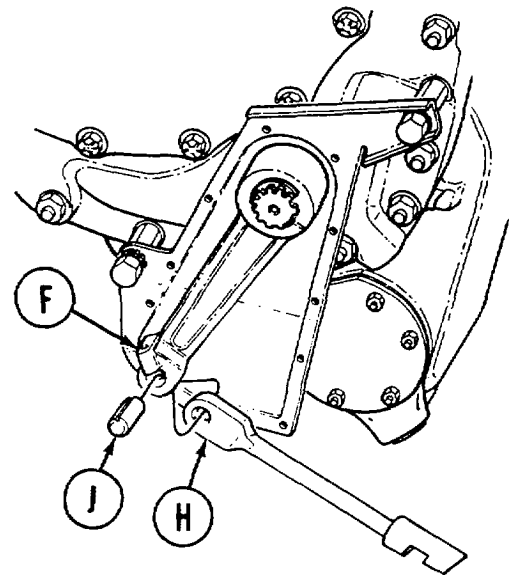
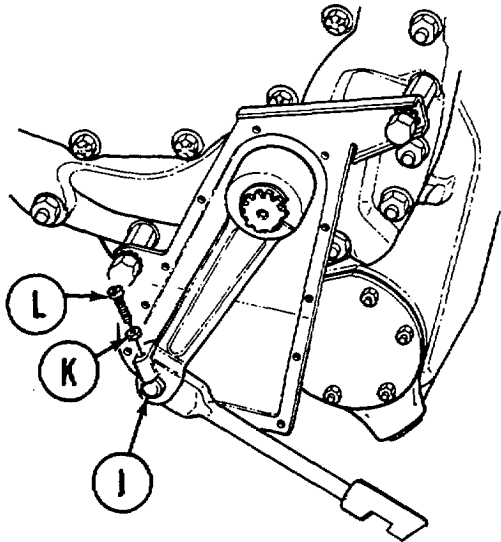
Go on to Sheet 4

TA146380



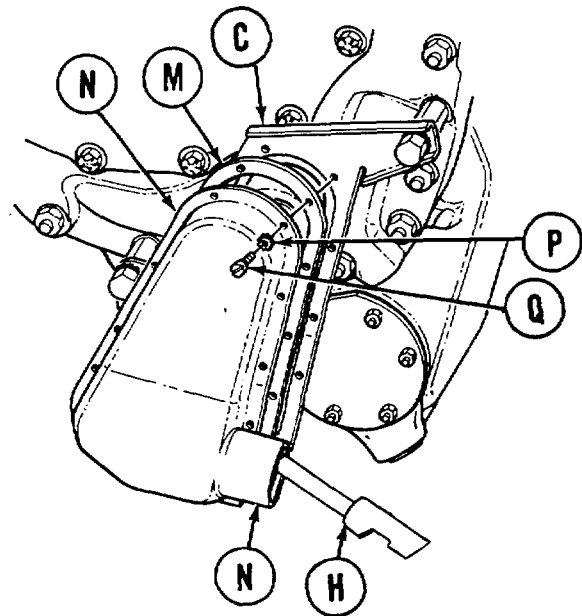
**BRAKE LEVER ASSEMBLY REPLACEMENT (Sheet 4 of 4)**

8. Aline holes in lever (F) with rod (H).
9. Install pin (J).



10. Install nut (K) on screw (L).
11. Aline groove in pin (J) with hole for screw (L).
12. Using screwdriver, install screw (L).
13. Using 7/16 inch wrench, tighten nut (K).

14. Place gasket (M) and shield (N) on cover (C).
15. Aline holes thru shield (N), gasket (M), and cover (E). Put lever (H) through hole in shield (N).
16. Using screwdriver, Install ten new lockwashers (P) and screws (Q) loosely.
17. Using screwdriver, tighten the screws (Q).
18. Install 2A powerplant (page 514) or 2D powerplant (page 5-40).



End of Task

TA146381

**STOPLIGHT SWITCH ADJUSTMENT (Sheet 1 of 1)**

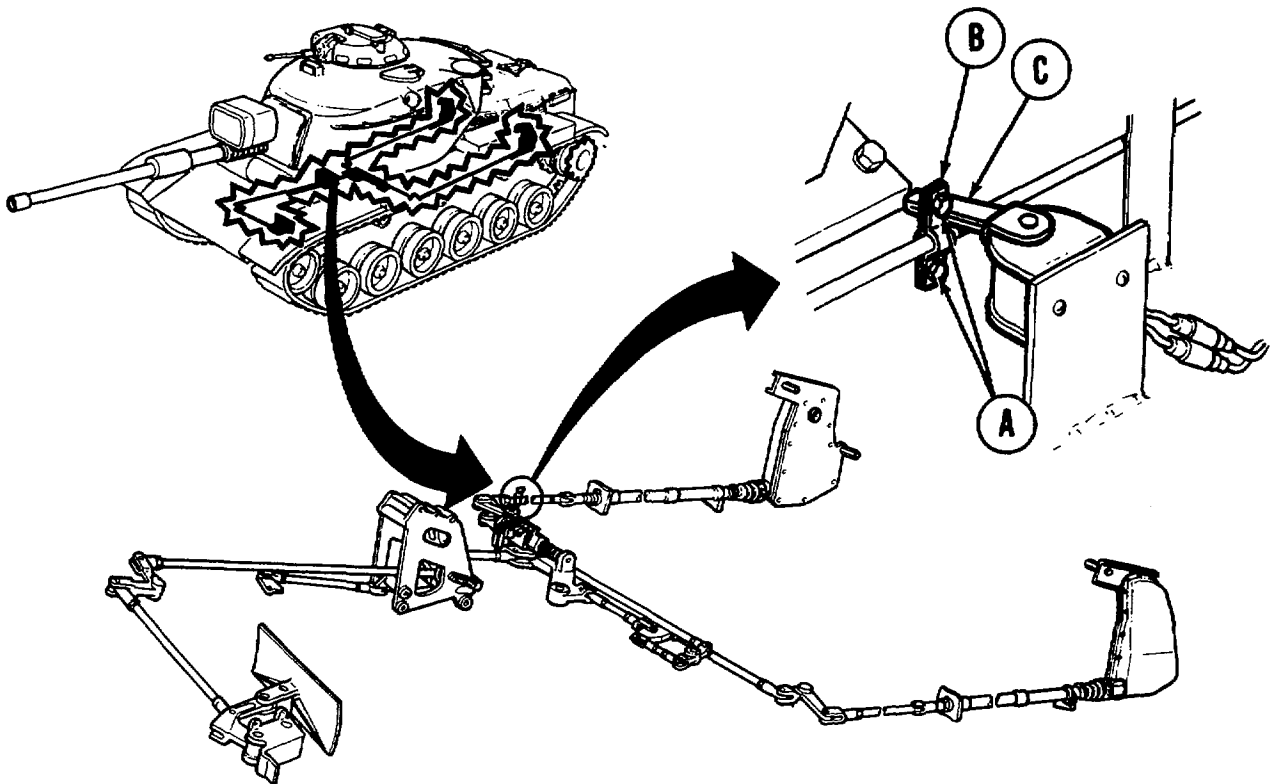
TOOLS: 1/2 in. combination box and open end wrench ( required)

REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURES: Set MASTER CONTROL SWITCH to OFF  
(TM 2350-260-10)  
Block tracks TM 9-2350-260-10)  
Open turret platform access door and traverse turret to expose  
stoplight switch (TM 9-2350-260-10).

**ADJUSTMENT:**

1. Release brakes (TM 9-2350-260-10).
2. Using wrenches, loosen two assembled washer screws and nut (A) on clamp (B).
3. Move stoplight switch arm (C) to center position.
4. Slide damp (B) up against switch arm (C).
5. Using wrenches, tighten two assembled washer screws and nut (A).



End of Task

TA147801

## CHAPTER 14

## TRACK AND SUSPENSION SYSTEM MAINTENANCE INDEX

PROCEDURE	PAGE
Roadwheel Arm Replacement	14-2
Roadwheel Arm Repair	14-9
Hub Assembly Replacement	14-15
Roadwheel Support Housing Assembly Repair and Replacement	14-22
Suspension Torsion Bar Replacement	14-24
Torsion Bar Anchor Replacement	14-31
Track Support Roller Replacement	14-34
Track Support Roller Wheel and Hub Repair	14-45
Compensating Idler Wheel and Roadwheel Replacement	14-50
Compensating Idler Wheel and Roadwheel Repair	14-54
Mechanical Track Adjusting Link Replacement	14-56
Mechanical Track Adjusting Link Repair	14-61
Grease Actuated Track Adjusting Link Replacement	14-64
Grease Actuated Track Adjusting Link Repair	14-64.7
Compensating Idler Hub and Arm Replacement	14-64.12
Compensating Idler Arm Assembly Repair	14-67
Track Drive Sprocket Repair and Replacement	14-72
Track Assembly Replacement	14-81
Track Shoe Pad Replacement	14-91
T142 Track Link Replacement	14-92
Shock Absorber Replacement	14-95
Shock Absorber Bearing Repair	14-97
Volute Spring Replacement	14-99

**ROADWHEEL ARM REPLACEMENT (Sheet 1 of 7)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	14-4
Installation	14-6

TOOLS: Punch  
 Hammer  
 3/4 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 Torque wrench with 1/2 in. drive (0-175 lb-ft)(0-273 N•m)  
 Internal puller  
 3/4 in. crowfoot wrench with 1/2 in. drive  
 3/4 in. combination box and open end wrench  
 Automotive wrench  
 Crowbar  
 5/8 in. socket with 1/2 in. drive

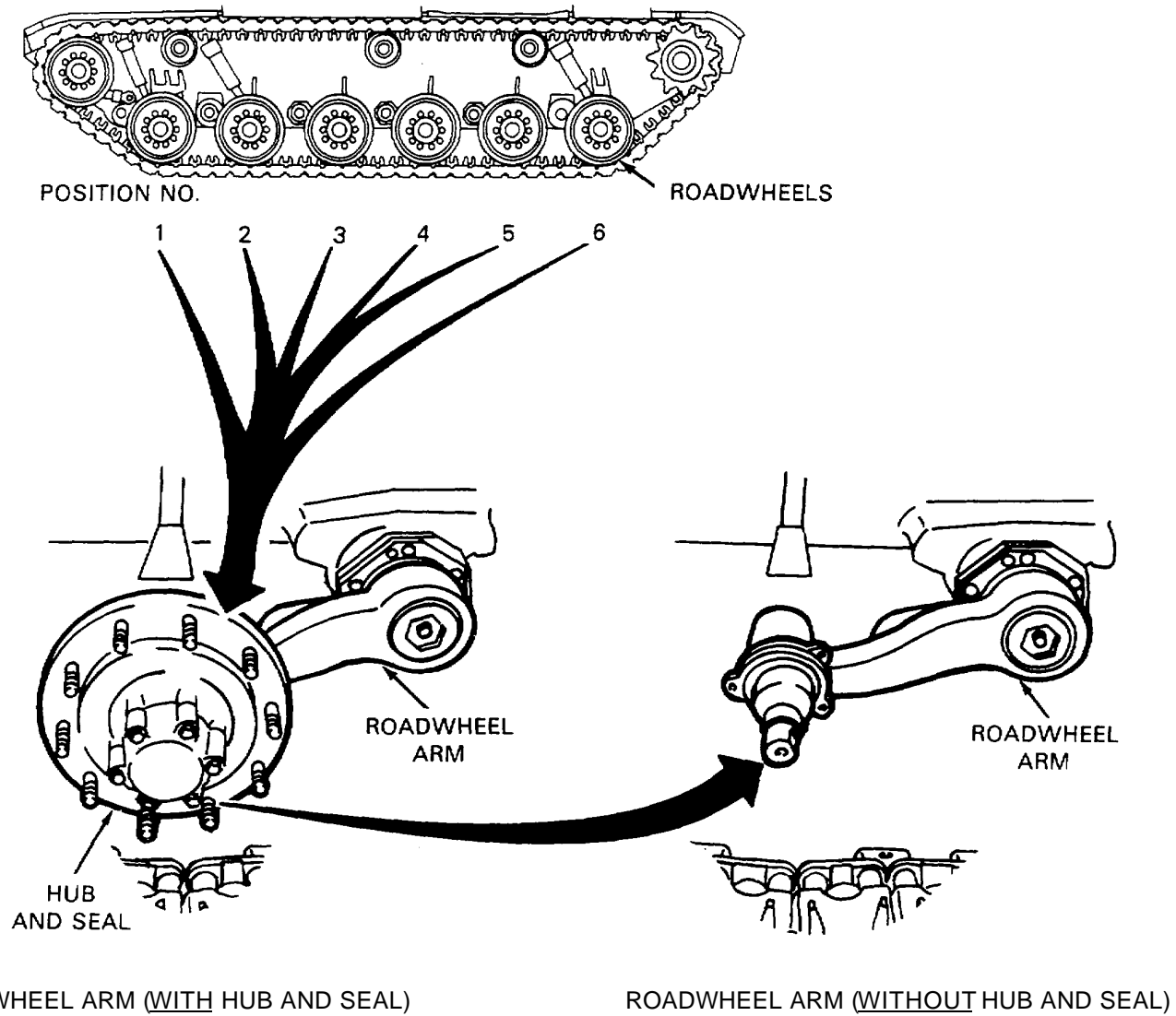
SPECIAL TOOLS: Adapter (Item 6, Chapter 3, Section I)  
 Side hammer puller (Item 12, Chapter 3, Section I)  
 Oil Seal replacer (Item 20, Chapter 3, Section I)  
 Handle (Item 9, Chapter 3, Section I)

SUPPLIES: Gasket (8387093)  
 Seal (7364672)  
 Grease (Item 37, Appendix D)  
 5/8-13 UNC threaded screws (2 required)  
 Lockwashers (MS35340-48)(6 required)

PERSONNEL: Three

PRELIMINARY PROCEDURES: Remove roadwheels (page 14-51)  
 Remove wheel hub if necessary (page 14-15)  
 Remove torsion bar (page 14-24)  
 Remove shock absorbers when removing arms at roadwheel positions No. 1, 2, and 6 (page 14-95)  
 Disconnect track adjusting link at No. 1 roadwheel position (page 14-57)

ROADWHEEL ARM REPLACEMENT (Sheet 2 of 7)



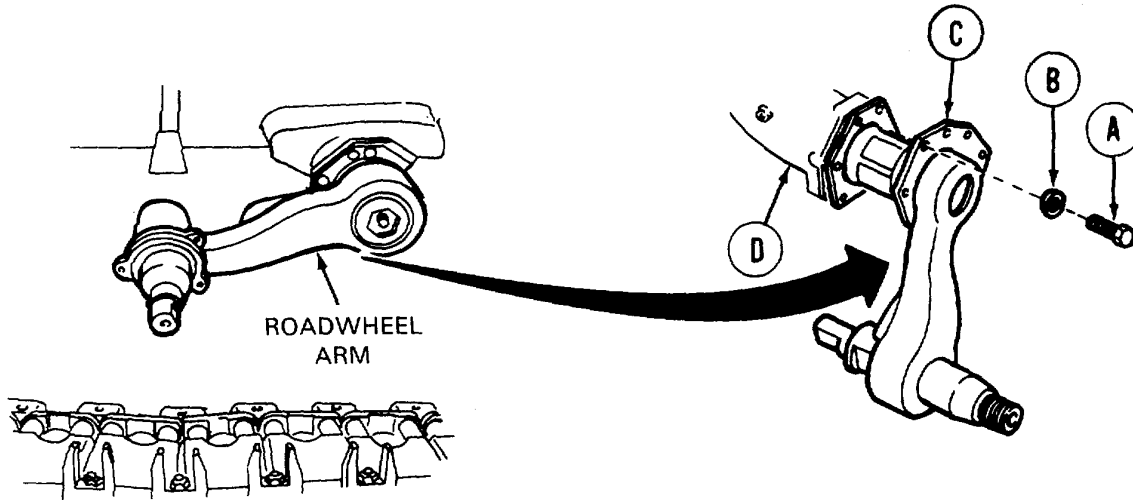
NOTE

Hub and seal assemblies are on all left and right roadwheels at positions No. 1 thru 6. They may or may not be removed from roadwheel arm before removing arm itself. It is easier to remove arm with hub and seal off.

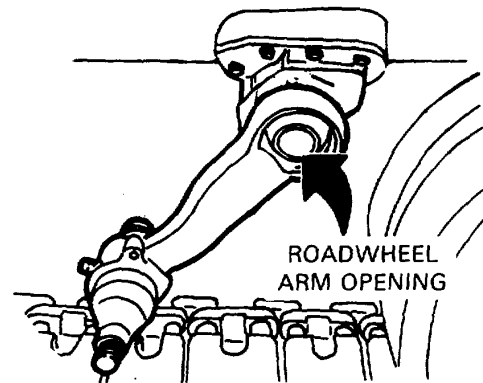
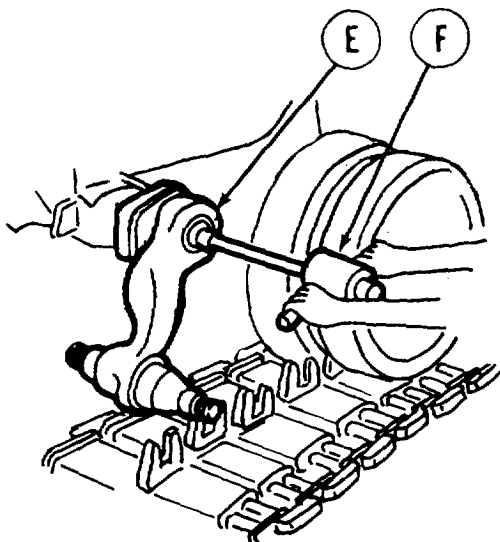
**ROADWHEEL ARM REPLACEMENT (Sheet 3 of 7)**

**REMOVAL:**

- 1 Using 3/4 inch wrench, remove six screws (A) and lockwashers (B) securing arm retainer (C) to support housing (D). Throw lockwashers (B) away.



- 2 Using automotive wrench, screw adapter (E) (Item 6, Chapter 3, Section I) all the way into roadwheel arm opening.



3. Install slide hammer (F)(Item 12, Chapter 3, Section I) to adapter (E).

**NOTE**

**There should be no side-to-side movement of slide hammer. If there is, remove and reinstall adapter and slide hammer.**

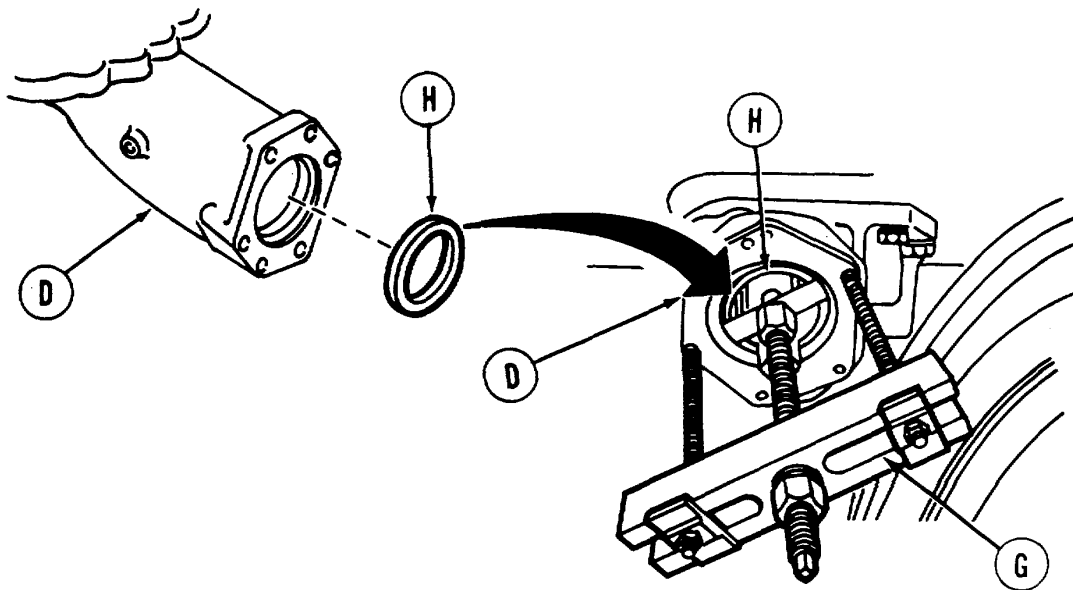
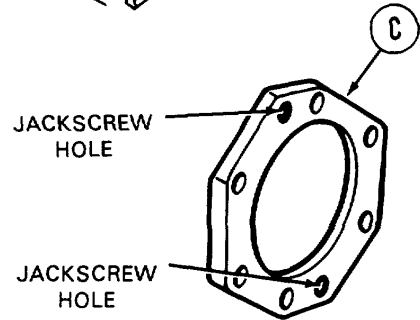
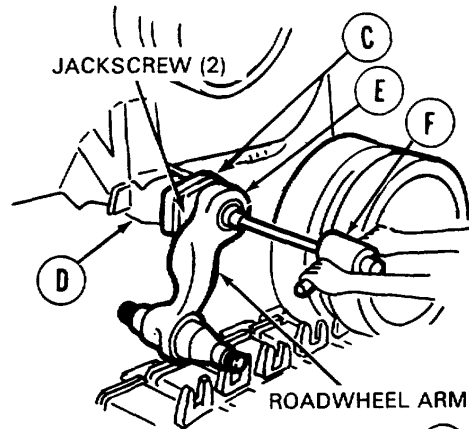
4. Have second person use crowbar and support roadwheel arm.
5. Using both hands, operate slide hammer on puller from adapter end with force (away from hull).

Go on to Sheet 4

TA147805

**ROADWHEEL ARM REPLACEMENT (Sheet 4 of 7)**

6. If roadwheel arm does not come out of support housing (D) after repeated hits with slide hammer, perform steps 7, 8, and 9.
7. Screw two 5/8-13 UNC threaded screws into two retaining jackscrew holes.
8. Using 5/8 inch socket, alternately and evenly tighten jackscrews.
9. Use slide hammer (F) while tightening jackscrews, if used, to free arm from support housing (D).
10. When arm is loose in support housing (D), remove slide hammer (F) and adapter (E).
11. Using another person, remove roadwheel arm and gasket to clean working area. Throw gasket away.
12. Using internal puller (G), remove inner grease seal (H) from support housing (D). Throw seal away.



13. Cover up opening in roadwheel support housing so dirt will not get into housing (D).

Go on to Sheet 5

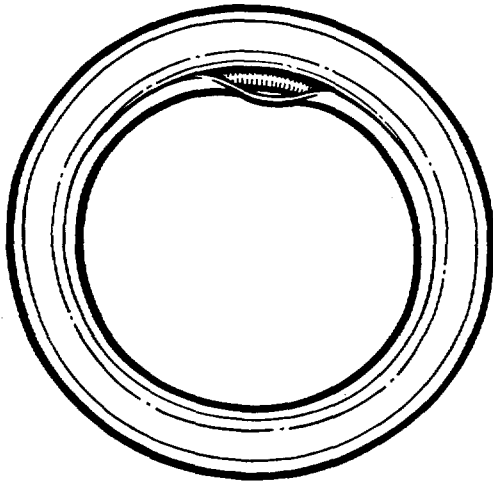
TA147806

## ROADWHEEL ARM REPLACEMENT (Sheet 5 of 7)

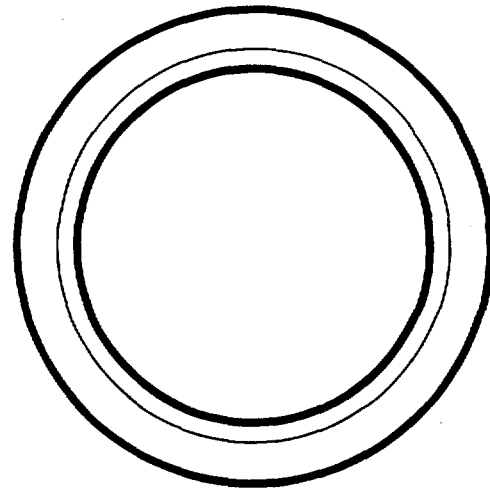
INSTALLATION:

## NOTE

Identify FRONT and BACK of inner grease seal. Rubber grease seal retaining lip can be pulled away from metal inner edge on FRONT of seal. Pull back retaining lip on seal and expose garter spring. BACK of seal has rubber grease retainer bonded to metal case and cannot be pulled away.



FRONT VIEW



BACK VIEW

INNER GREASE SEAL

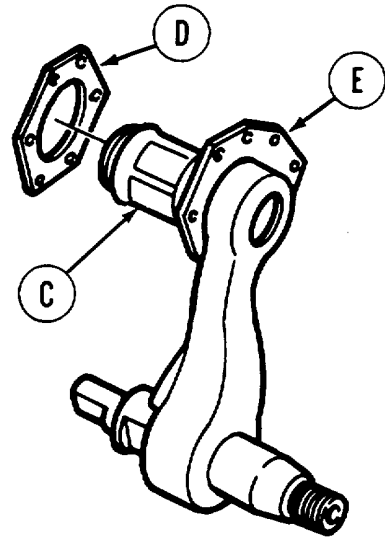
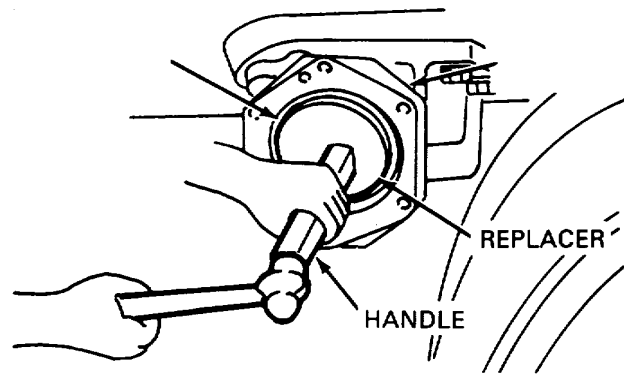
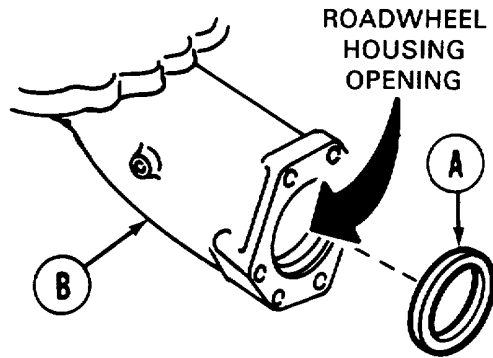
Go on to Sheet 6

TA147807



**ROADWHEEL ARM REPLACEMENT (Sheet 6 of 7)**

1. Remove covering from roadwheel support housing opening.
2. Apply a light coat of grease (Item 37, Appendix D) to outer edge of new inner grease seal.
3. Position inner grease seal (A) into roadwheel housing (B) opening so BACK of seal (A) goes in towards hull. You should be able to see FRONT of seal (A) as you look into housing.
4. Using oil seal replacer and handle (Items 20 and 9, Chapter 3, Section I), tap lightly on handle with hammer until inner seal has bottomed in housing (B).
5. Coat all parts on upper spindle (C) with grease (Item 37, Appendix D).



6. Install new gasket (D) to mounting face of retainer (E).

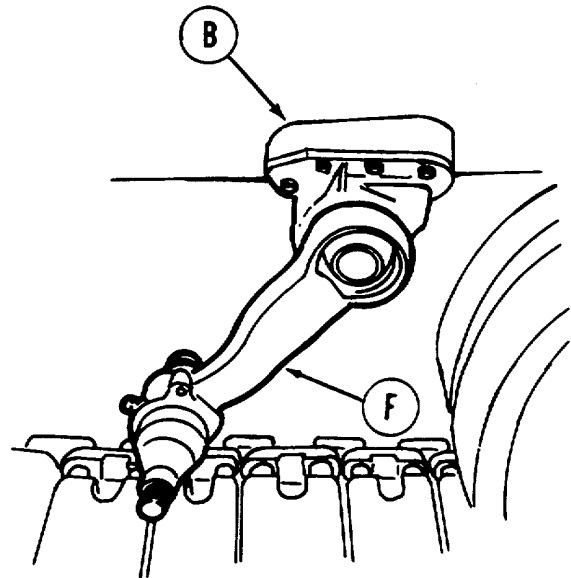
**NOTE**

Upper spindle (C) must be properly aligned with support housing (B) while roadwheel arm (F) is being installed.

**CAUTION**

Do not use excessive force while installing roadwheel arm; damage to seal may result.

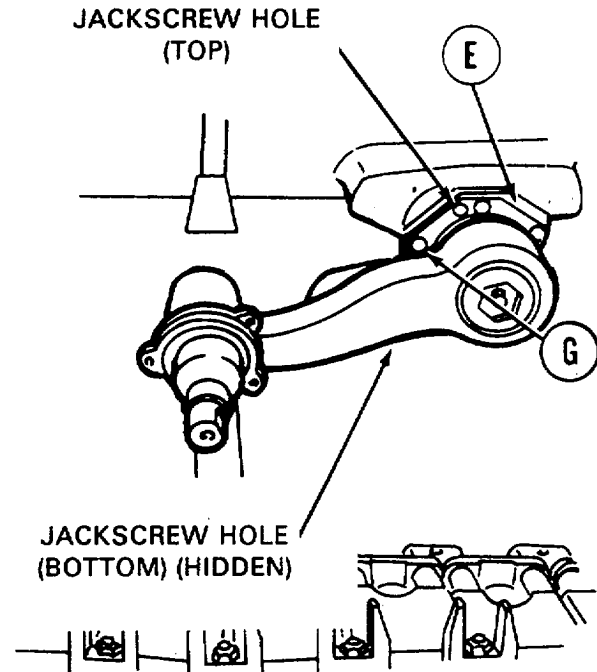
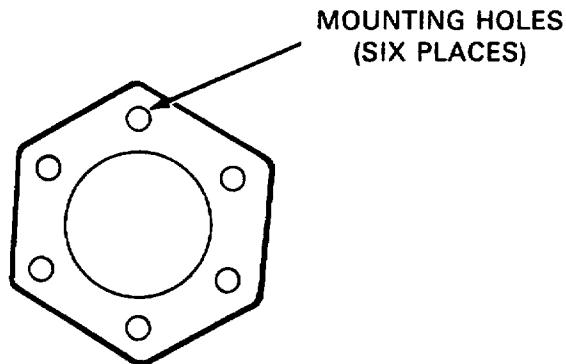
7. Using two persons, install upper spindle (C) completely into support housing (B).



Go on to Sheet 7

**ROADWHEEL ARM REPLACEMENT (Sheet 7 of 7)**

8. Position retainer (E) so that its jackscrew holes are at top and bottom of upper spindle.
9. Using pin punch, align six mounting holes in retainer (E) to holes in housing.
10. Put six new lockwasher and screws (G) into mounting holes.



11. Using crowfoot wrench and torque wrench, tighten six screws (G) alternately and evenly to 95-125 lb-ft (129-169 Nm).
12. Connect adjusting link at No. 1 roadwheel position, if necessary (page 14-59).
13. Install shock absorbers if roadwheel arms were removed from positions No. 1, 2, and 6 (page 14-96).
14. Install suspension torsion bar (page 14-27).

End of Task

TA147809

**ROADWHEEL ARM REPAIR (Sheet 1 of 6)**

PROCEDURE INDEX

PROCEDURE	PAGE
Disassembly	14-10
Cleaning and Inspection	14-11
Assembly	14-12

TOOLS: Pry bar  
 Hammer  
 Long round nose pliers  
 File

SPECIAL TOOLS: Oil seal replacer (Item 20, Chapter 3, Section I)  
 Handle (Item 9, Chapter 3, Section I)  
 Spindle nut wrench (Item 27, Chapter 3, Section I)

SUPPLIES: Seals (MS51000-76-2)  
 Key washer (6295381)  
 Dry cleaning solvent (Item 54, Appendix D)  
 Grease (Item 36, Appendix D)  
 Washer (6295383)

PRELIMINARY PROCEDURE: Remove roadwheel arm (page 14-2)

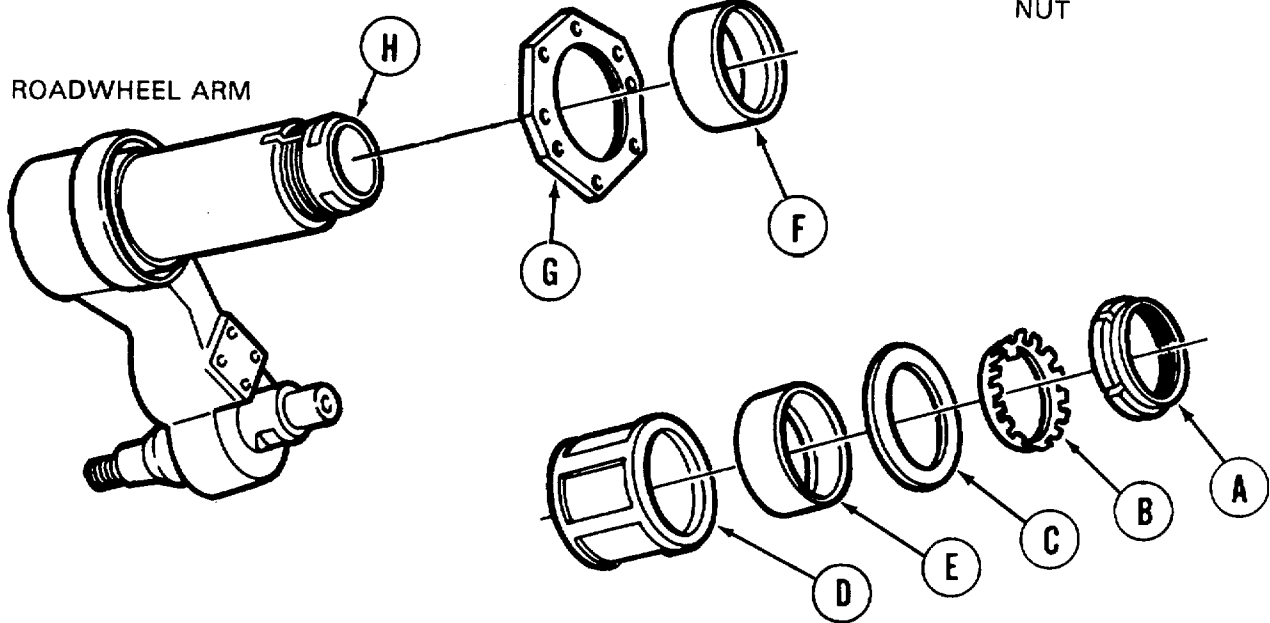
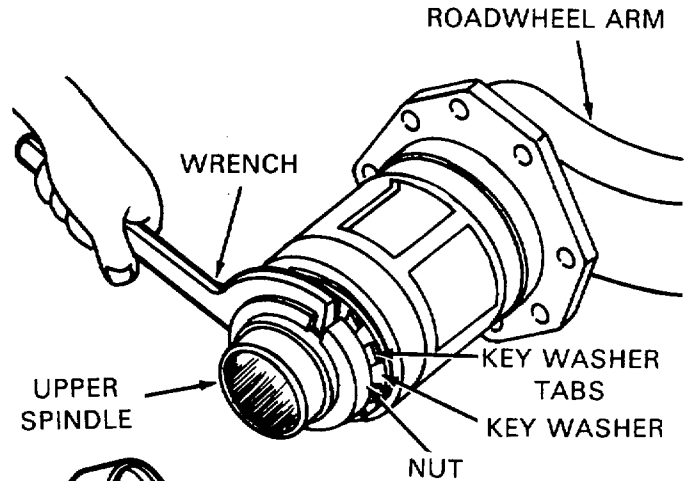
Go on to Sheet 2

TA147810

**ROADWHEEL ARM REPAIR (Sheet 2 of 6)**

**DISASSEMBLY:**

1. Using pliers, bend key washer tabs back out of slot in nut.
2. Using spindle nut wrench (Item 27, Chapter 3, Section I), loosen nut (A). Remove nut.
3. Remove key washer (B) and bearing washer (C). Throw bearing washer away.



**NOTE**

**Keep inner and outer races of bearings together as matched set. If you throw away one race, throw away other one.**

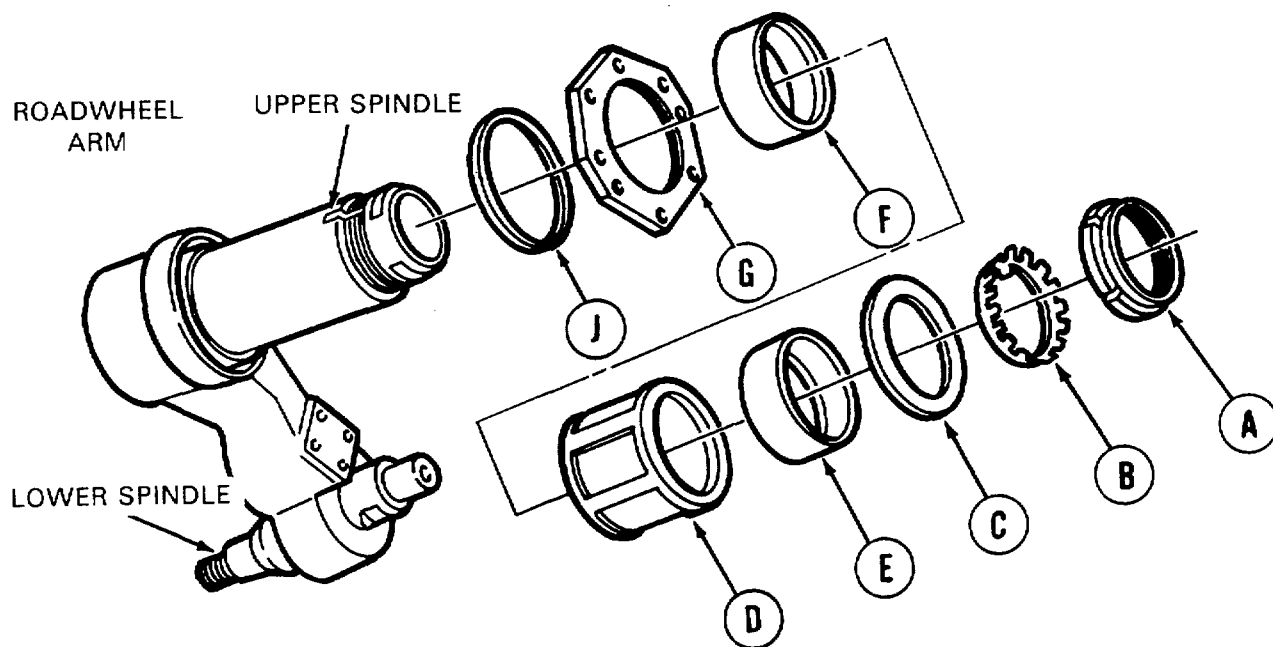
4. Use sleeve spacer (D) like a slide hammer to loosen inboard bearing (E). Remove bearing.
5. Remove sleeve spacer (D) and outboard bearing (F).
6. Pull oil seal retainer (G) off upper spindle (H).

Go on to Sheet 3

TA147811

**ROADWHEEL ARM REPAIR (Sheet 3 of 6)**

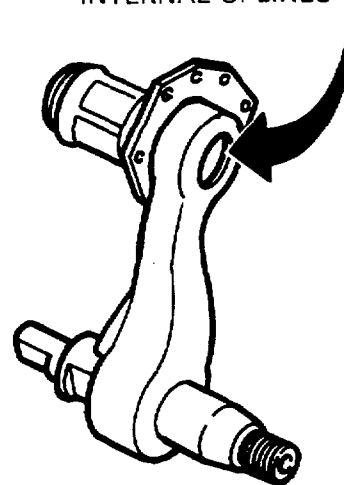
- Using pry bar, remove seal (J) from retainer (G) with care. Do not damage retainer. Throw seal away.



**CLEANING AND INSPECTION:**

- Using dry cleaning solvent (Item 54 Chapter 3, Section I) clean all parts, especially bearings.
- Check arm for cracks. If arm is cracked or bad, turn in to support maintenance and replace with new arm.
- Inspect both upper and lower spindles of arm, especially threads.
- Check internal splines of arm for broken, cracked, or deformed splines. If bad, replace arm.
- Using file, smooth out any rust spots, pits, or other damaged places on arm. Do not file spindle.
- Inspect bearings (E) and (F) for missing needle rollers and scuffs or scratches, especially on inner races.
- Replace defective parts as required.

**INTERNAL SPLINES**



Go on to Sheet 4

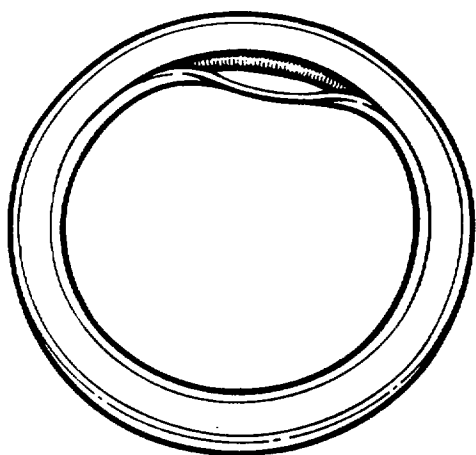
TA147812

## ROADWHEEL ARM REPAIR (Sheet 4 of 6)

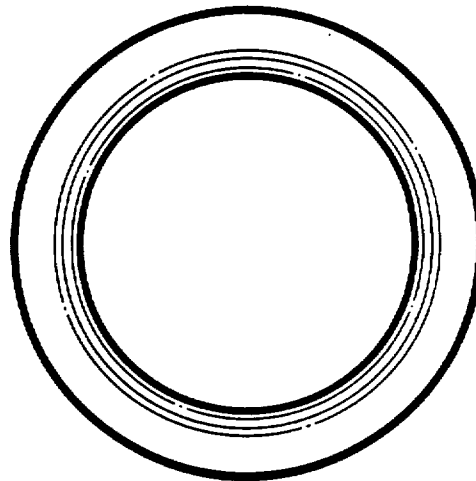
ASSEMBLY:

## NOTE

Identify FRONT and BACK of outer grease seal. Rubber grease seal retaining lip can be pulled away from metal inner edge on FRONT of seal. Pull back retaining lip on seal and expose garter spring. BACK of seal has rubber grease retainer bonded to metal case and cannot be pulled away.



FRONT VIEW



BACK VIEW

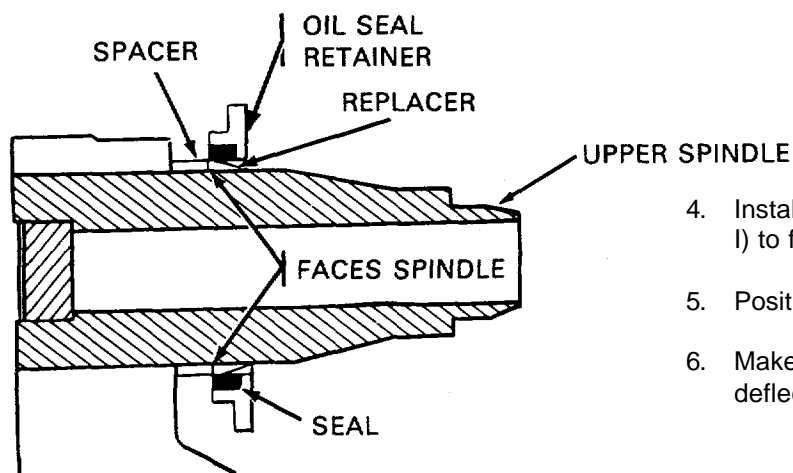
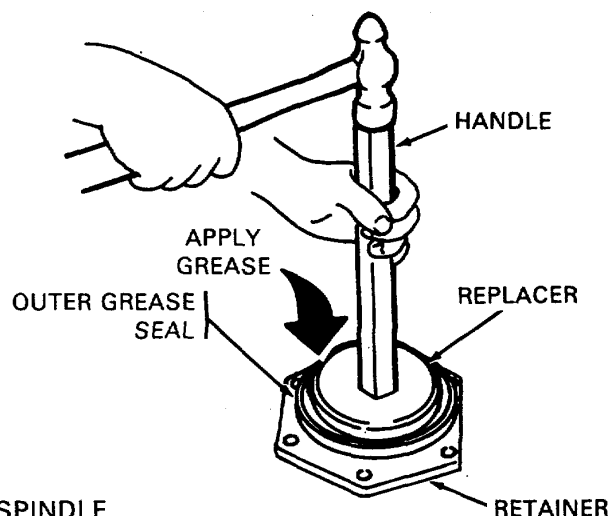
OUTER GREASE SEAL

Go on to Sheet 5

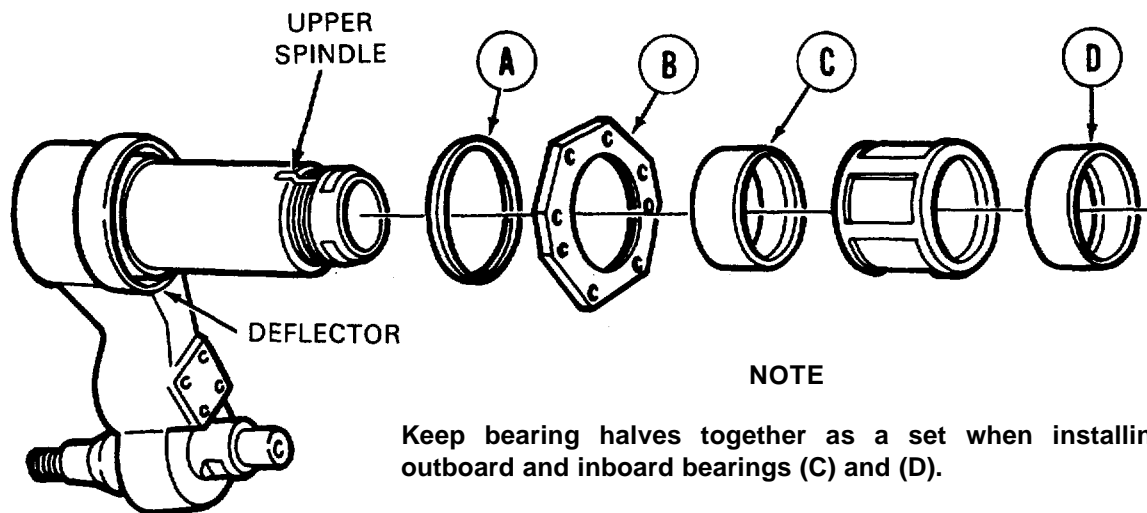
TA147813

**ROADWHEEL ARM REPAIR (Sheet 5 of 6)**

1. Coat outer edge of seal with grease (Item 36, Appendix D).
2. Position seal (A) into retainer with front of seal facing upward.
3. Using replacer and handle, tap handle with hammer to install seal (A).



4. Install oil seal replacer (Item 20, Chapter 3, Section I) to face with spacer on upper spindle of arm.
5. Position retainer (B) onto upper spindle.
6. Make sure seal in retainer (B) fits into open end of deflector on roadwheel arm.

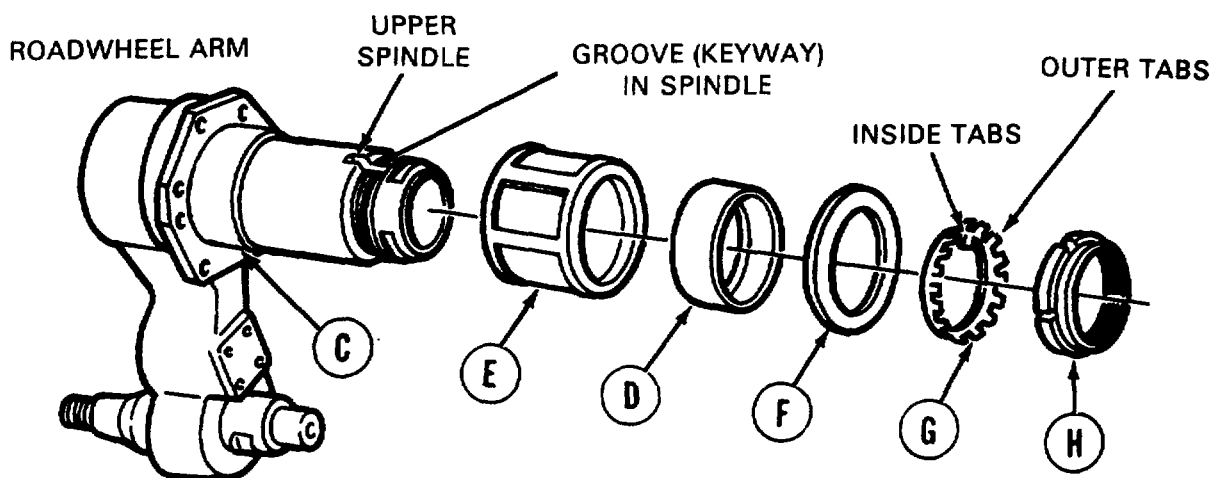


7. Coat inner and outer races of outboard bearings (C) with grease (Item 36, Appendix D). Install inner race on spindle. Install outer race over it.

Go on to Sheet 6

TA147814

ROADWHEEL ARM REPAIR (Sheet 6 of 6)

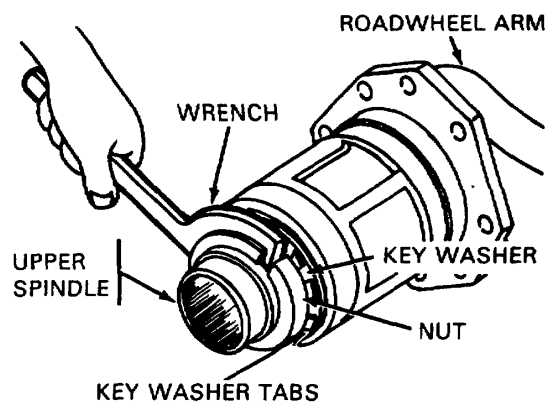


8. Apply grease (Item 36, Appendix D) to bearing spacer (E) and bearing washer (F).
9. Install bearing spacer (E) onto spindle up against outboard bearing (C).
10. Repeat step 7 to install inboard bearings (D).
11. Install key washer (G) on spindle of arm so that inside tab fits into groove.

**NOTE**

**Make sure outer tabs of key washer are pointing towards nut (H).**

12. Screw nut (H) onto threaded end of spindle.
13. Using spindle nut wrench (Item 27, Chapter 3, Section I), tighten nut (H) until parts on spindle cannot be turned by hand.
14. Back off nut (H) just enough so parts can be turned by hand through one complete turn on spindle.
15. Using pliers, bend tab on key washer (G) into aligning slot on nut (H).
16. Install roadwheel arm (page 14-6).



End of Task

TA147815



**HUB ASSEMBLY REPLACEMENT (Sheet 1 of 7)**

PROCEDURE INDEX

PROCEDURE	PAGE
Disassembly	14-15
Cleaning and Inspection	14-17
Assembly	14-18

TOOLS: 9/16 in. socket with 1/2 in. drive  
 Drift punch  
 Ratchet with 1/2 in. drive  
 Hammer  
 Hinged handle with 1/2 in. drive  
 Long round nose pliers  
 2 1/2 in. socket with 3/4 in. drive  
 Ratchet with 3/4 in. drive  
 Pinch bar  
 Torque wrench with 3/4 in. drive (0-600 lb-ft)(0-814 Nm)

SPECIAL TOOLS: Replacer (Item 20, Chapter 3, Section I)  
 Spanner wrench (Item 27, Chapter 3, Section I)  
 Handle (Item 10, Chapter 3, Section I)  
 Remover-replacer (Item 16, Chapter 3, Section I)  
 Remover-replacer (Item 15, Chapter 3, Section I)

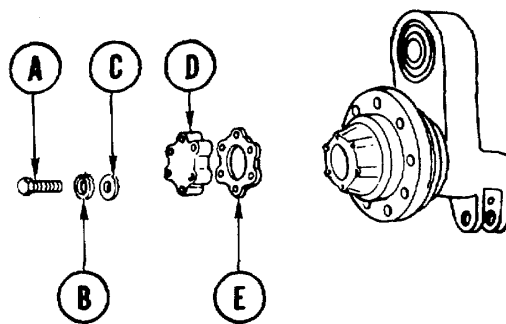
SUPPLIES: Grease (Item 37, Appendix D)  
 Gaskets  
 Seal  
 Preformed packing  
 Bearing nut lock  
 Lockwashers (MS35338-65)(12 required)

REFERENCE: LO 9-2350-260-12

PRELIMINARY PROCEDURE: Remove roadwheels (page 14-51)

DISASSEMBLY:

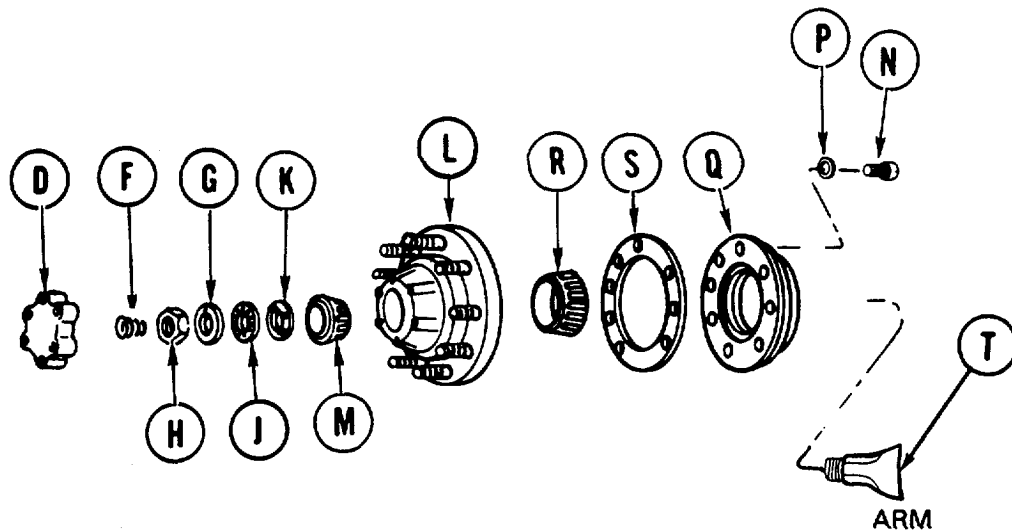
- Using 9/16 inch socket, remove six screws (A), lockwasher (B), and washers (C). Throw lockwashers (B) away.
- Remove cover plate (D) and gasket (E). Throw gasket away.



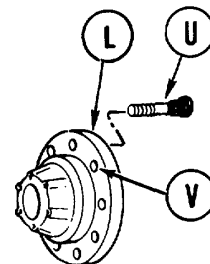
Go on to Sheet 2

**HUB ASSEMBLY REPLACEMENT (Sheet 2 of 7)**

3. Remove spring (F) from inside of cover plate (D).



4. Using hammer and drift punch, bend back tab of bearing nut lock (G).
5. Using 2-1/2 inch socket, loosen nut (H). Remove nut (H), bearing nut lock (G), and lock (J). Throw bearing nut lock (G) away if used more than four times.
6. Using spanner wrench (Item 27, Chapter 3, Section I) with 3/4 inch ratchet, remove nut (K).
7. Using pinch bar on hub, if necessary, remove hub (L) and bearing (M).
8. Using 9/16 inch socket with hinged handle, remove eight screws (N) and lockwashers (P) securing seal assembly (Q) to hub (L). Throw lockwasher (P) away.
9. Remove inner bearing (R), gasket (S), and seal assembly (Q). Throw gasket away.
10. Separate preformed packing (T) from arm assembly. Throw packing away.
11. Using hammer and drift punch, drive out any bolts (U) with stripped threads or other damage. Throw bolts away.
12. If inserts (V) are stripped or damaged, turn hub into support maintenance for repair.

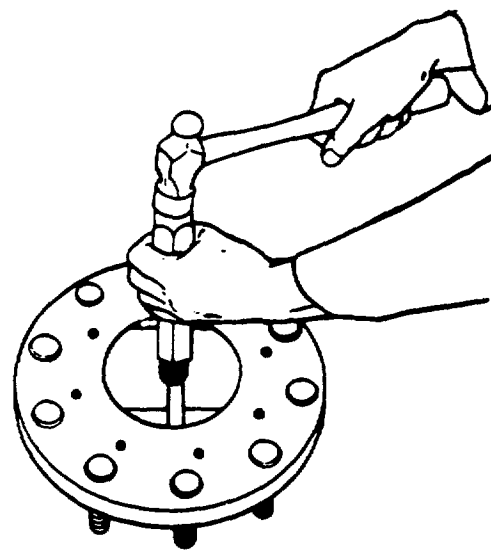
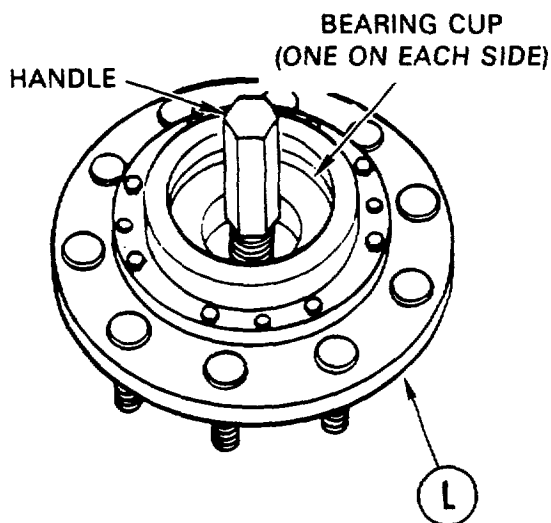
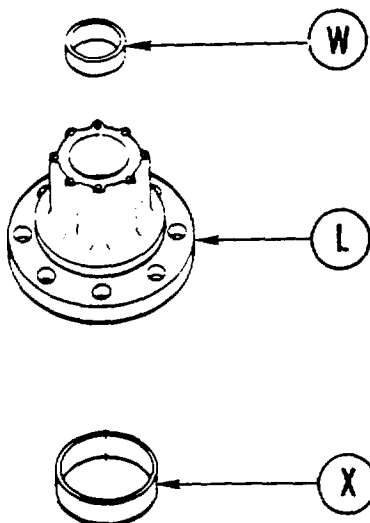


Go on to Sheet 3

TA147817

**HUB ASSEMBLY REPLACEMENT (Sheet 3 of 7)**

13. Position remover-replacer (Item 15, Chapter 3, Section I) onto inner edge of outer bearing cup (W) in hub (L).
14. Using hammer, tap handle to drive outer bearing cup (W) from hub (L).
15. Repeat steps 13 thru 14 to remove inner bearing cup (X) from hub (L), using other remover - replacer tool (Item 16, Chapter 3, Section I).



**CLEANING AND INSPECTION:**

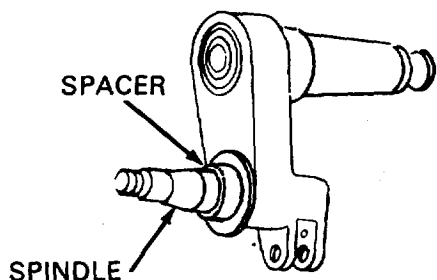
1. Clean all parts including bearings.
2. Inspect hub and cover plate for cracks or damage. There should be no cracks.
3. Minor nicks, scratches, gouges, and pitting are okay if they are not on machined surfaces.

Go on to Sheet 4

TA147818

**HUB ASSEMBLY REPLACEMENT (Sheet 4 of 7)**

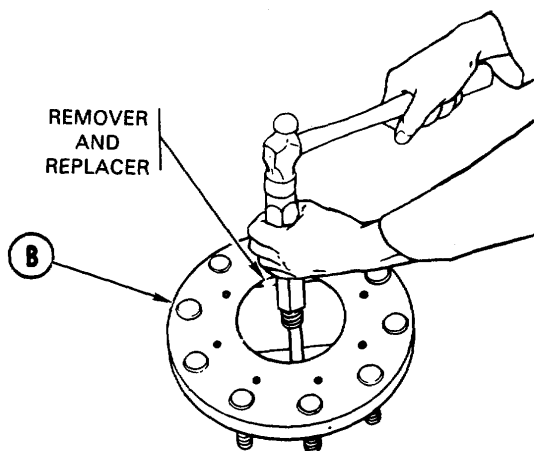
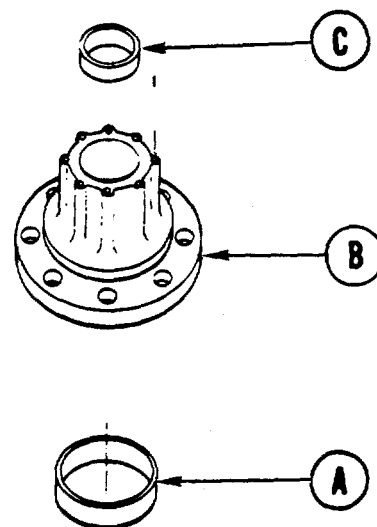
4. Inspect bearings and cups for damage. Replace as necessary.
5. Check seal assembly for rust, missing rivets, or other damage. Replace seal as required.



6. Inspect all nuts, washers, and screws for wear and damaged threads.
7. Inspect spacer on spindle for scratches, nicks, or dents. If damaged, notify support maintenance.

**ASSEMBLY:**

1. Grease (Item 36, Appendix D) both bearing cups. Position remover-replacer tool (Item 18, Chapter 3, Section I) to inner cup (A) in hub (B).
2. Using hammer, tap remover-replacer to seat inner cup (A) into place in hub (B).
3. Using other remover-replacer tool (Item 15, Chapter 3, Section I) with hammer, repeat steps 1 and 2 to seat outer cup (C) in hub (B).

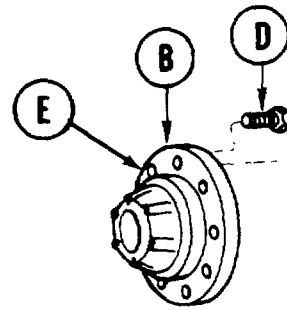


Go on to Sheet 5

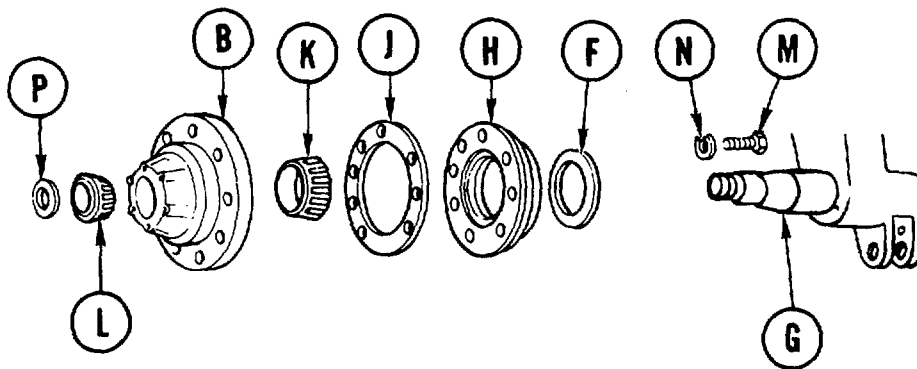
TA147819

**HUB ASSEMBLY REPLACEMENT (Sheet 5 of 7)**

- Using hammer and drift punch, install new (if required) bolts (D) into hole (E) of hub (B).



- Grease (Item 36, Appendix D) new preformed packing (F). Install packing into groove on arm assembly (G).
- Install seal assembly (H) with new gasket (J) onto arm (G) lower spindle.
- Pack both inner (K) and outer bearings (L) with grease (Item 36, Appendix D).
- Position inner bearing (K) on arm (G) lower spindle.
- Install hub (B) onto arm spindle (G), making sure seal assembly (H) aligns to five pins on interface of arm assembly (G).



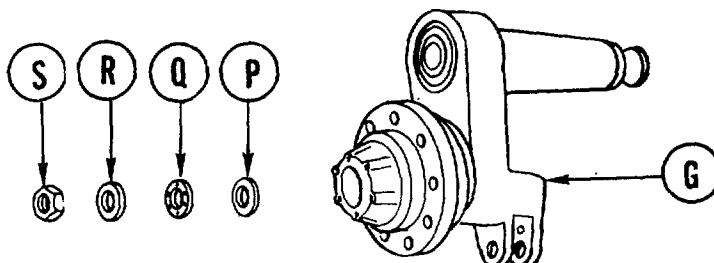
- Install eight screws (M) and new lockwashers (N) to secure seal assembly (H) to hub (B).
- Using 9/16 inch socket, tighten screws (M) alternately.
- Install outer bearing (L) onto spindle. Push hub (B) onto spindle and bearing until bearing seats.
- Install round nut (P) with dowel. Using spanner wrench (Item 27, Chapter 3, Section I) with 3/4 inch drive ratchet, tighten nut (P) while rotating hub one way, then opposite.

Go on to Sheet 6

TA147820

**HUB ASSEMBLY REPLACEMENT (Sheet 6 of 7)**

14. When nut (P) is tight and parts seem to be seated, back off nut and, using torque wrench, tighten nut (P) to 50-70 lb-ft (68-95 N•m).



15. Back off round nut (P) 1/4 turn.
16. Install lock (Q) so that hole of lock fits over nut (P) dowel.

**NOTE**

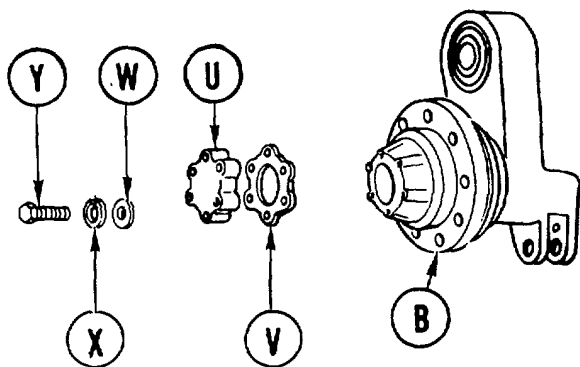
**If lock hole does not line up to dowel of nut, turn lock over and try other side.**

17. Position new bearing nut lock (R) to one of holes in lock (Q).
18. Screw nut (S) onto arm (G) lower spindle. Tighten nut up against bearing nut lock (R).
19. Using 2-1/2 inch socket, tighten nut (S).
20. Using hammer and drift punch, bend one end of bearing nut lock (R) back over nut (S).

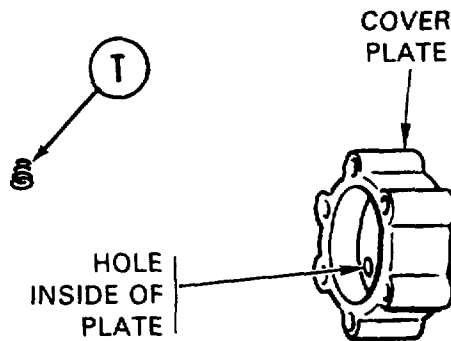
Go on to Sheet 7

TA147821

HUB ASSEMBLY REPLACEMENT (Sheet 7 of 7)



21. Install spring (T) into cover plate (U). Tang of large end of spring goes into hole inside of cover plate.
22. Install cover plate (U) with new gasket (V) to hub (B).
23. Install six washers (W), new lockwashers (X), and screws (Y) to secure cover plate (U) to hub (B).
24. Using 9/16 inch socket, tighten six screws (Y).
25. Service hub and arm assembly (LO 9-2350-260-12).
26. Install roadwheels (page 14-53).



End of Task

TA147822

**ROADWHEEL SUPPORT HOUSING ASSEMBLY REPAIR AND REPLACEMENT (Sheet 1 of 2)**

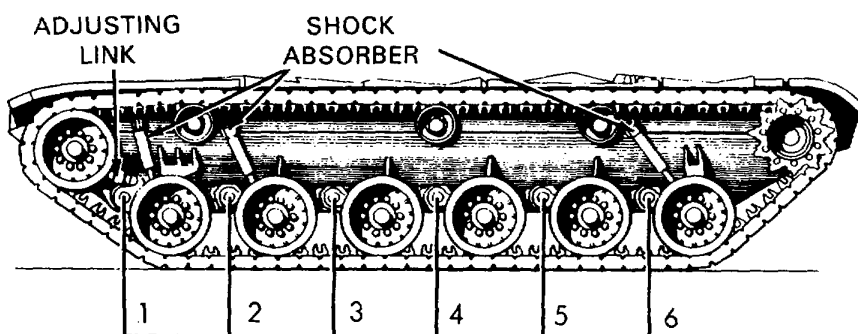
**TOOLS:** 1-5/16 in. socket with 3/4 in. drive  
 Ratchet with 3/4 in. drive  
 Hammer  
 36 in. extension bar  
 Drift pin punch

10 in. adjustable wrench  
 Slip joint pliers  
 Torque wrench with 3/4 in. drive (0-600 lb-ft)  
 (0-814 N•m)

**SUPPLIES:** Gasket (10911460)  
 Grease (Item 37, Appendix D)  
 Sealing compound (Item 25, Appendix D)  
 Lockwashers (MS35340-52)(9 required)

**PERSONNEL:** Two

**PRELIMINARY PROCEDURES:** Remove roadwheel arm (page 14-2)  
 Remove torsion bar anchor (page 14-31)

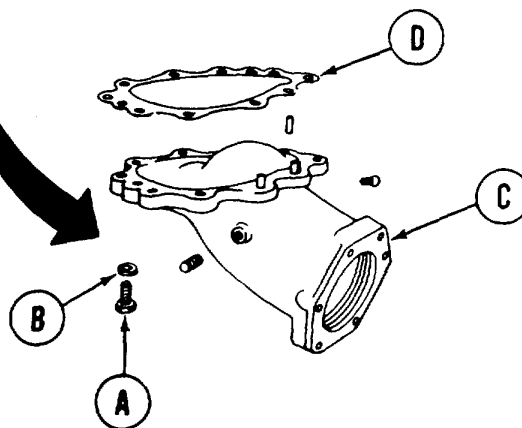


**NOTE**

There are six support housings on each side of tank. The procedures for all six are identical except that no. 1 housing is not interchangeable.

**NOTE**

Use jack to support housing during removal and installation.



**REMOVAL:**

1. Using socket with ratchet, remove nine screws (A) and lockwashers (B) securing roadwheel support housing (C) to hull. Throw lockwashers (B) away.
2. Remove housing (C) and gasket (D) from hull mounting place. Throw gasket (D) away.

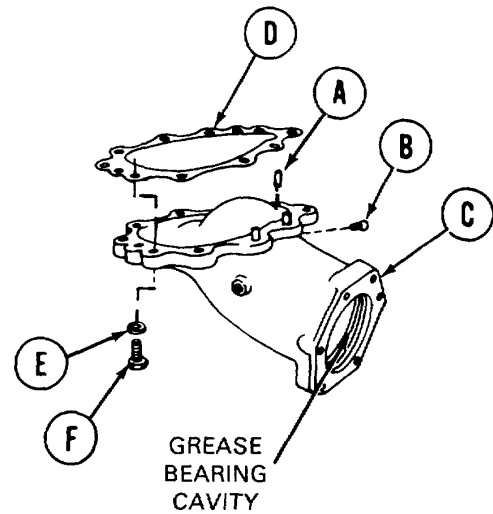
Go on to Sheet 2

TA147823



**ROADWHEEL SUPPORT HOUSING ASSEMBLY REPAIR AND REPLACEMENT (Sheet 2 of 2)****REPAIR:**

1. Using hammer, tap two straight pins (A) to loosen them. Using pliers, pull pins out.
2. Using adjustable wrench, remove plug (B) from housing.
3. Inspect housing (C). Replace if necessary.
4. Coat support housing bearing cavity with grease (Item 37, Appendix D).
5. Using adjustable wrench, install plug (B).
6. Inspect grease fitting. Replace if necessary.

**INSTALLATION:**

1. Using hammer and drift punch, drive two pins (A) into place.
2. Apply sealing compound (Item 25, Appendix D) to mating surfaces of hull and housing (C).
3. Lift housing (C) and new gasket (D) and position to mounting place.
4. Aline holes in gasket and housing with holes in hull mounting place.
5. Install nine new lockwashers (E) and screws (F) securing housing (C) to hull.
6. Using socket, alternately tighten nine screws (F).
7. Using torque wrench, socket, and extension bar, tighten screws (F) to 450-475 lb-ft (610- 644 N•m).
8. Install torsion bars (page 14-27).
9. Install roadwheel arm (page 14-6).

End of Task

TA147824

**SUSPENSION TORSION BAR REPLACEMENT (Sheet 1 of 7)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	14-24
Installation	14-27

TOOLS: 3/4 in. deep sock with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 Mallet  
 Crowbar (or pinch bar)  
 Rod (or drift pin)  
 Blocks  
 15 in. adjustable wrench  
 36 in. extension bar

SPECIAL TOOLS: Plug wrench (Item 26, Chapter 3, Section I)  
 Roadwheel arm lifter (Item 11, Chapter 3, Section I)  
 Slide hammer puller (Item 12, Chapter 3, Section I)  
 Mechanical puller adapter (Item 6, Chapter 3, Section I)

SUPPLIES: Grease (Item 37, Appendix D)  
 Blocks  
 Lockwasher (MS35338-7)

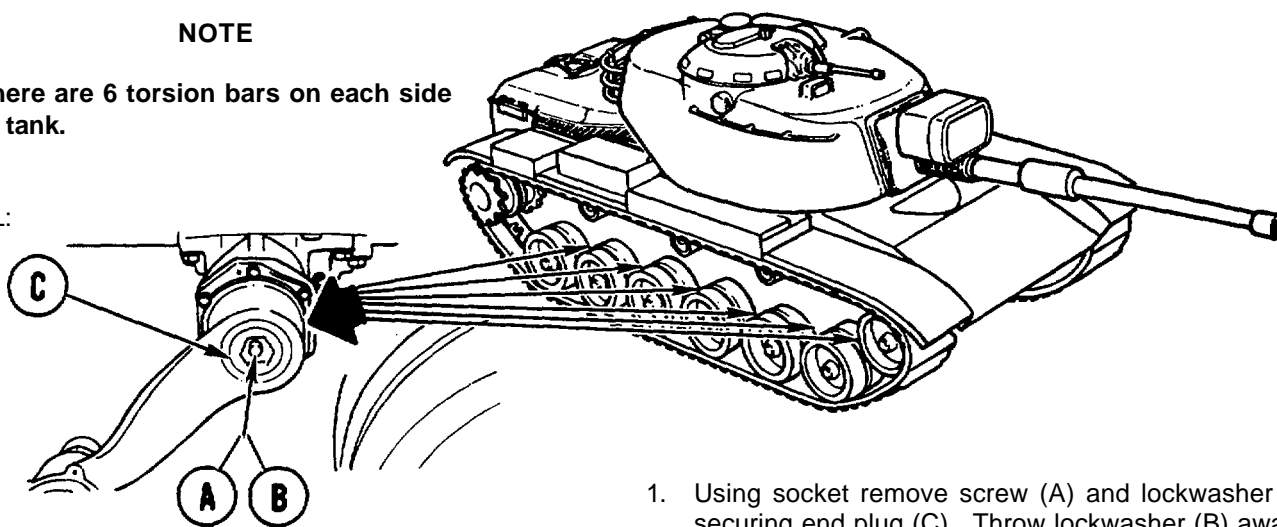
PERSONNEL: Two

PRELIMINARY PROCEDURES: Remove hub (page 14-15)

**NOTE**

There are 6 torsion bars on each side of tank.

REMOVAL:



1. Using socket remove screw (A) and lockwasher (B) securing end plug (C). Throw lockwasher (B) away.

Go on to Sheet 2

TA147825

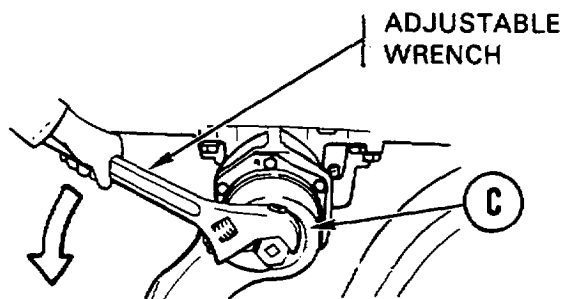
**SUSPENSION TORSION BAR REPLACEMENT (Sheet 2 of 7)**

2. Install special wrench (Item 26, Chapter 3, Section I) into end plug (C).

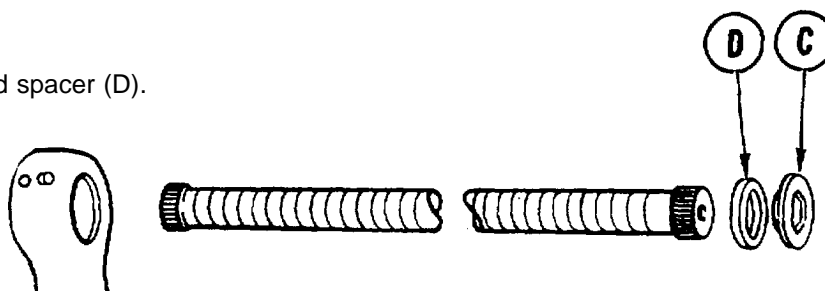
**NOTE**

**It may be necessary to use 6 inch bar extension.**

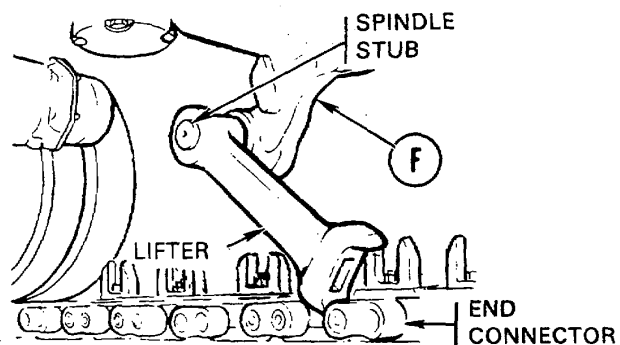
3. Using adjustable wrench or special wrench, loosen end plug (C).



4. Remove end plug (C) and spacer (D).



5. Have second person start engine. Then shift transmission into reverse and slowly back tank up.
6. Direct second person to stop tank when support arm (F) is in down position.



7. Using mallet, tap special roadwheel lifter off spindle stub. Remove lifter.

Go on to Sheet 3

TA147826

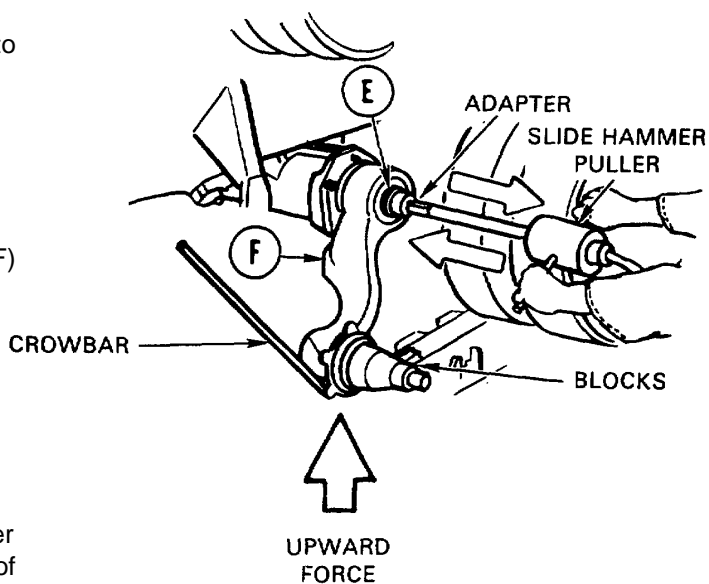
**SUSPENSION TORSION BAR REPLACEMENT (Sheet 3 of 7)**

8. Using crowbar (or pinch bar), apply upward force to bottom of roadwheel arm (F).

9. Have second person position blocks under arm (F) while force is being applied.

10. Remove crowbar.

11. Using automotive wrench, screw special adapter (Item 6, Chapter 3, Section I) into threaded hole of torsion bar (E).



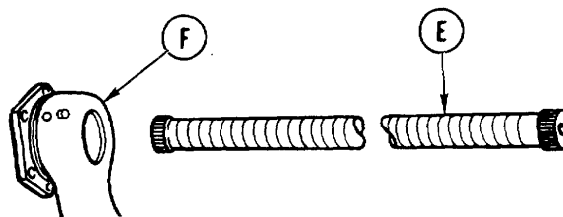
**NOTE**

**Adapter must be tightened after each striking movement.**

12. Using slide hammer puller (Item 12, Chapter 3, Section I) with adapter, strike torsion bar (E) with slide hammer by sliding slide hammer puller along slide hammer rod.

13. Keep on striking torsion bar (E) with slide hammer. Hammer with some force until torsion bar (E) spline is free from side of hull.

14. Pull bar (E) out of support arm (F).



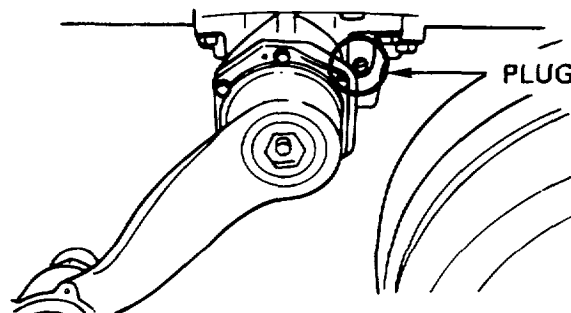
Go on to Sheet 4

TA147827

**SUSPENSION TORSION BAR REPLACEMENT (Sheet 4 of 7)**

15. If torsion bar is broken, use adjustable wrench to remove plug at opposite side of tank.

16. Stick rod through plug hole. Using mallet, tap rod to drive torsion bar out from other end.

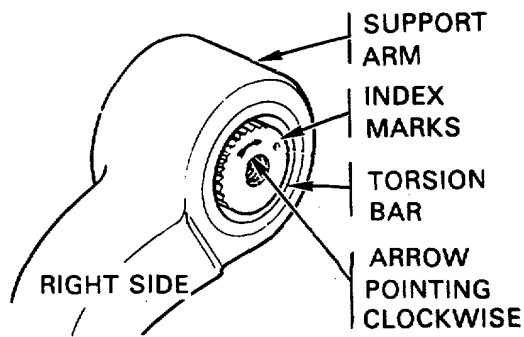
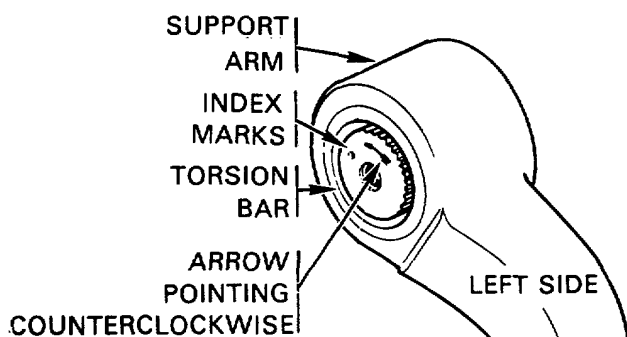


17. Replace torsion bar or other parts found defective.

**INSTALLATION:**

**CAUTION**

Six torsion bars (E) on one side of tank are different from six bars on other side. Left side bars have arrow pointing counterclockwise. Right side bars have arrows pointing clockwise.

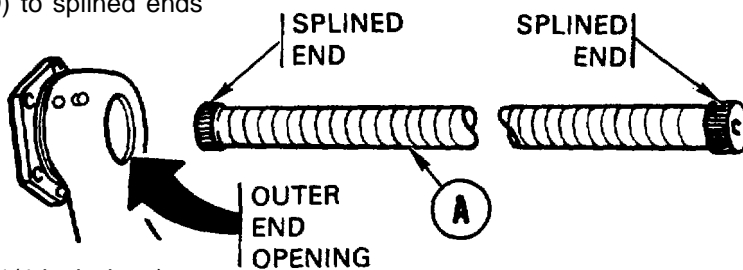


Go on to Sheet 5

TA147828

**SUSPENSION TORSION BAR REPLACEMENT (Sheet 5 of 7)**

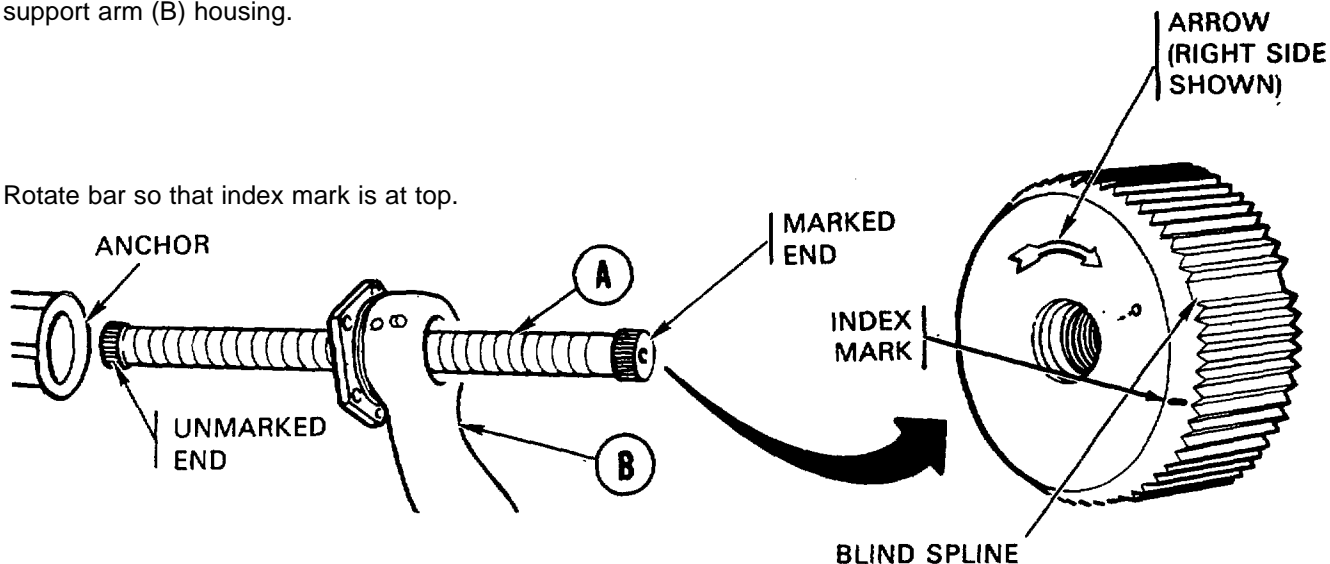
1. Apply grease (Item 36, Appendix D) to splined ends of torsion bar (A).



2. Fill outer end opening with grease (1/4-inch deep).

3. Insert unmarked end of bar (A) into roadwheel support arm (B) housing.

4. Rotate bar so that index mark is at top.



5. Push bar (A) through housing until inside end enters anchor on other side of tank. When this is done, about 1/2 inch of bar will be out of housing.

Go on to Sheet 6

TA147829

**SUSPENSION TORSION BAR REPLACEMENT (Sheet 6 of 7)**

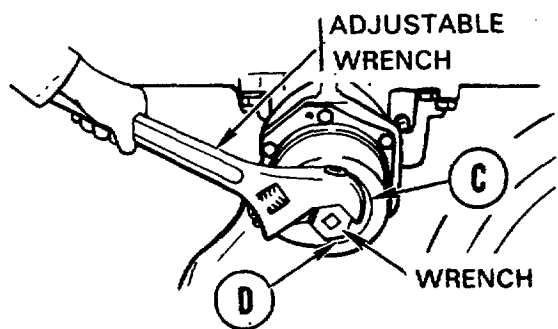
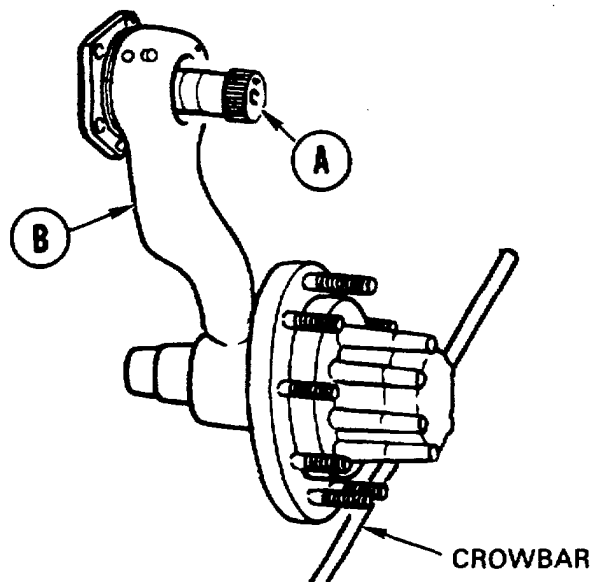
6. Using crowbar (or pinch bar), apply upward pressure to support arm (B) until blind spline on bar (A) and index marks on support arm (B) are aligned.

7. Using slide hammer puller (Item 12, Chapter 3, Section I) and adapter (Item 6, Chapter 3, Section I), push end of bar (A) in as far as it will go. Remove blocks and crowbar.

8. Remove slide hammer and adapter.

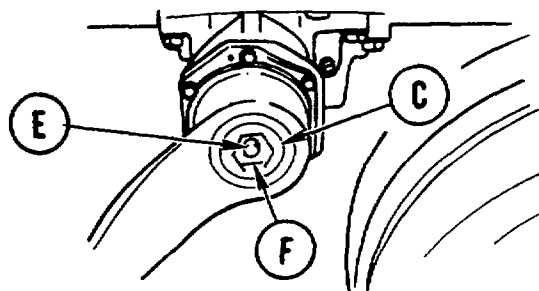
9. Apply grease (Item 36, Appendix D) to end of bar (A).

10. Using adjustable wrench with special wrench (Item 26, Chapter 3, Section I), screw end plug (C) and spacer (D) into place. Remove special wrench.



11. Secure spacer (D) and end plug (C) with new lockwasher (E) and screw (F).

12. Using deep socket with ratchet, tighten screw (F).



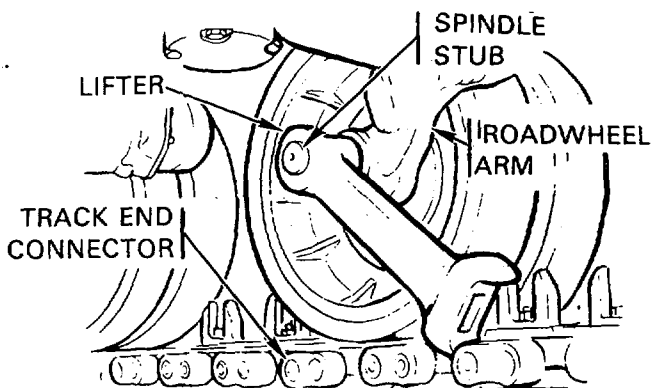
Go on to Sheet 7

TA147830

**SUSPENSION TORSION BAR REPLACEMENT (Sheet 7 of 7)**

13. Position lifter (Item 11, Chapter 3, Section I) to inside of roadwheel over spindle stub and onto track end connector.

14. Make sure that lifter is correctly placed.



FORWARD  
→

15. Have second person get into driver's seat and start tank.

16. Direct person to drive tank forward slowly.

17. When lifter is straight up and down, tell second person to stop tank.

18. Install hub assembly (page 14-18)

End of Task

TA147831



**TORSION BAR ANCHOR REPLACEMENT (Sheet 1 of 3)**

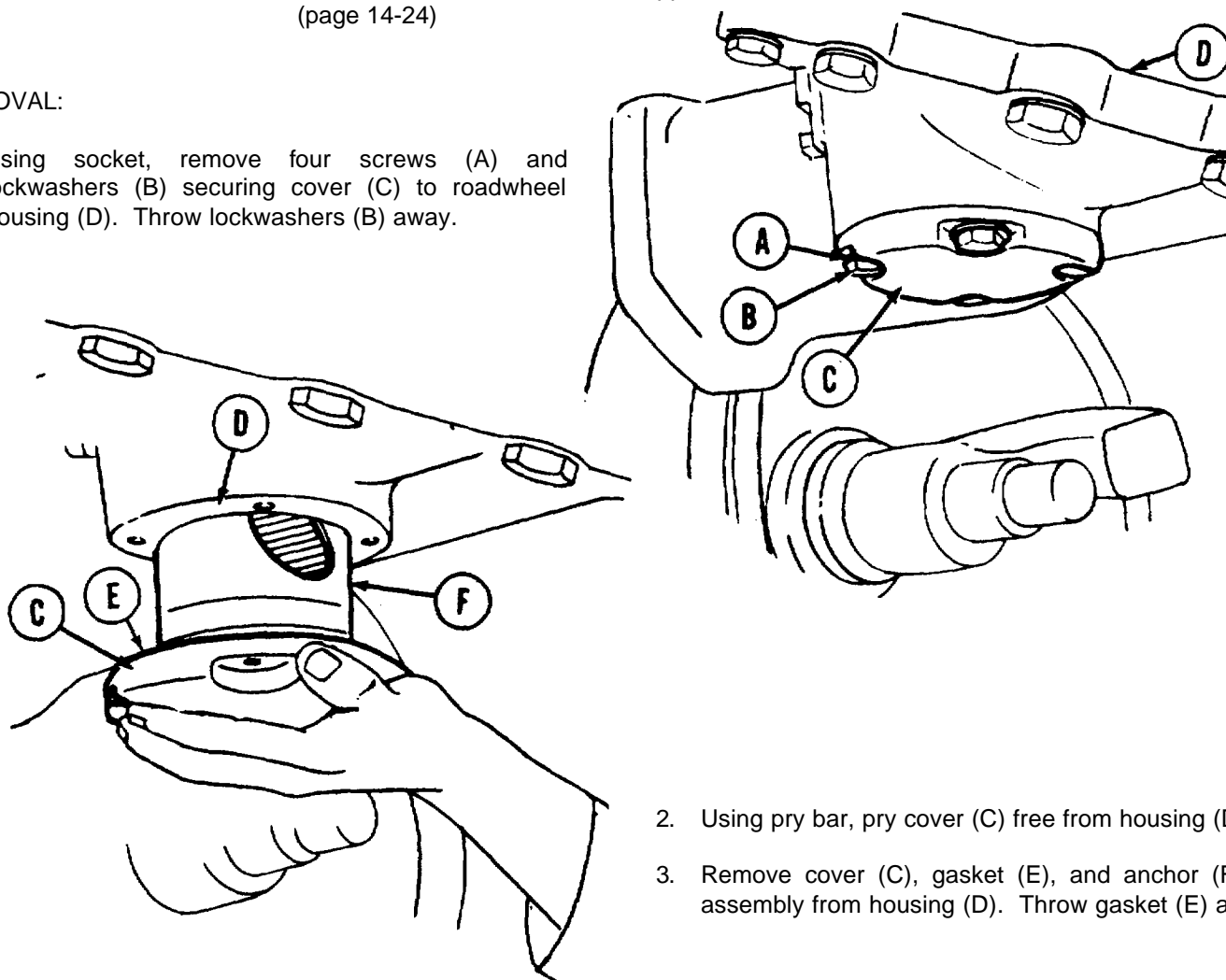
**TOOLS:** 3/4 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 Putty knife  
 Extractor tool set  
 Portable drill and drill set  
 Crowbar  
 Pry bar

**SUPPLIES:** Gasket (7014010)  
 Pins (141238)(2 required)  
 Lockwashers (MS35340-48)(4 required)

**PRELIMINARY PROCEDURE:** Remove torsion bar from exact opposite side of tank  
 (page 14-24)

**REMOVAL:**

1. Using socket, remove four screws (A) and lockwashers (B) securing cover (C) to roadwheel housing (D). Throw lockwashers (B) away.



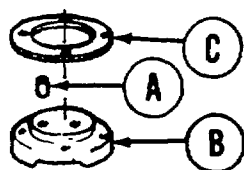
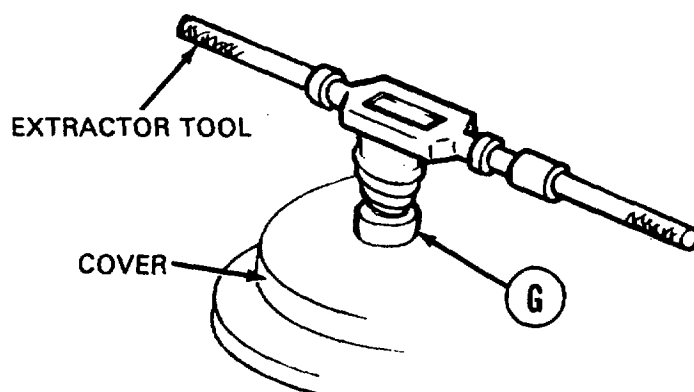
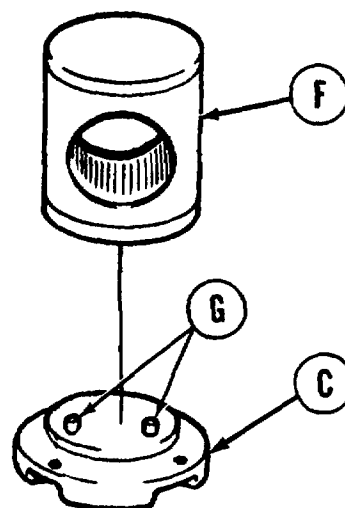
2. Using pry bar, pry cover (C) free from housing (D).
3. Remove cover (C), gasket (E), and anchor (F) as assembly from housing (D). Throw gasket (E) away.

Go on to Sheet 2

TA147832

**TORSION BAR ANCHOR REPLACEMENT (Sheet 2 of 3)**

4. Separate anchor (F) from cover (C).
5. If pins (G) must be removed from cover, using drill, make 1/4 inch hole in top of pin.
6. Using extractor tool, remove pins (G) from cover.
7. There are 12 covers and anchors on tank (one for each torsion bar).
8. Remove them, as necessary, to repair suspension system.



**INSTALLATION:**

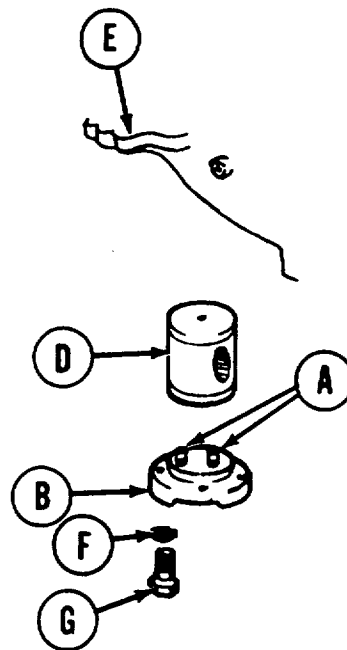
1. Press two pins (A) into cover (B), if they were removed.
2. Install gasket (C) to cover (B).

Go on to Sheet 3

TA147833

**TORSION BAR ANCHOR REPLACEMENT (Sheet 3 of 3)**

3. Position anchor (D) onto cover (B) so that two pins (A) fit into holes in anchor.
4. Lift cover (B) and anchor (D) as assembly. Mount in roadwheel housing (E) opening.
5. Install four new lockwashers (F) and screws (G) to secure cover (B) to housing (E).
6. Using socket wrench, tighten four screws (G).



7. There are 12 anchors and covers. Install as many as necessary to repair suspension system.
8. Install torsion bar at opposite side of tank (page 14-27).

End of Task

TA147834

**TRACK SUPPORT ROLLER REPLACEMENT (Sheet 1 of 11)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	14-35
Installation	14-40

TOOLS: Ratchet with 1/2 in. drive  
 9/16 in. socket with 1/2 in. drive  
 2-1/2 in. socket with 3/4 in. drive  
 Hydraulic jack  
 Hammer  
 Flat-tip screwdriver

Ratchet with 3/4 in. drive  
 Pliers  
 3/16 in. alining punch  
 3/8 in. punch  
 1/2 in. rod  
 Straight punch 3/4 in. dia. 10 in. long

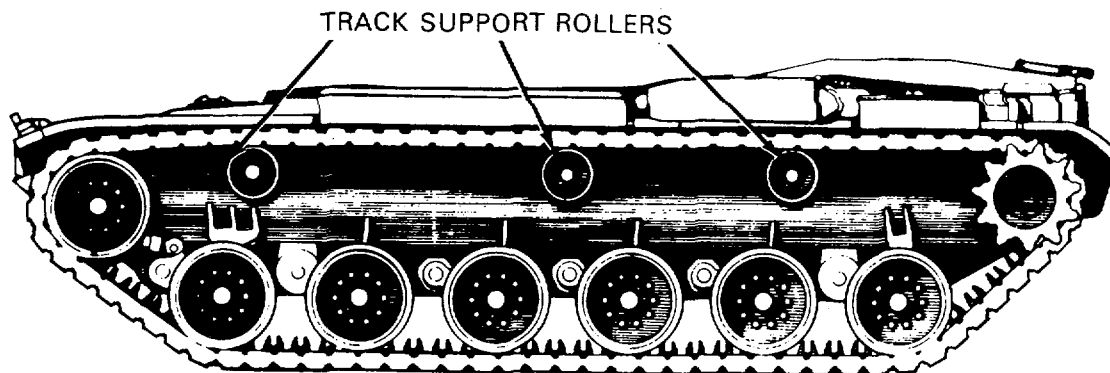
SPECIAL TOOLS: Slide hammer puller (Item 12, Chapter 3, Section I)  
 Spanner wrench (Item 27, Chapter 3, Section I)  
 Replacer (Item 21, Chapter 3, Section I)

FABRICATED TOOLS: Mechanical puller (Figure F-6, Appendix F)

SUPPLIES: Gaskets (7364115)(2 required)  
 Grease (Item 36, Appendix D)  
 Rags  
 Spring pins (10911924 or MS35648-7)  
 Seals (545222)  
 Nut lock (5146157)  
 Cotter pin (MS24665-212)  
 Wooden planks 2 in. by 6 in. by 4 ft. (or metal plates (2 required)  
 Wooden safety block 2 in. by 6 in. by 2 ft.  
 Lockwashers (MS35338-65)(6 required)

PERSONNEL: Two

REFERENCES: TM 9-2350-260-10  
 LO 9-2350-260-12



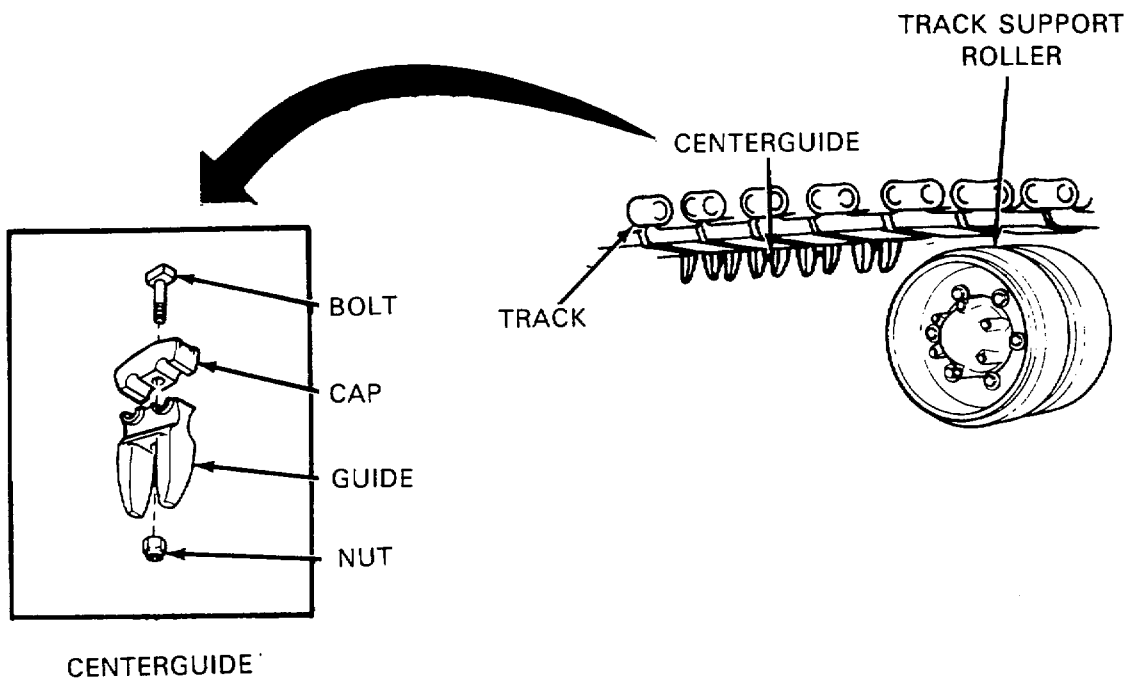
Go on to Sheet 2

TA147835

**TRACK SUPPORT ROLLER REPLACEMENT (Sheet 2 of 11)**

**REMOVAL:**

1. Remove two track centerguides (TM 9-2350-260-10) just in front of support roller to be removed.



2. Have second person start engine (TM 9-2350-260-10).
3. Have second person drive tank slowly until area where centerguides were removed is over track support roller.
4. Have second person stop tank and shut engine off (TM 9-2350-260-10).
5. Apply parking brake (TM 9-2350-260-10).
6. Loosen track tension (TM 9-2350-260-10).

Go on to Sheet 3

TA147836

TRACK SUPPORT ROLLER REPLACEMENT (Sheet 3 of 11)

NOTE

If plank or base plate is not available, position jack on roadwheel near roller and raise track.

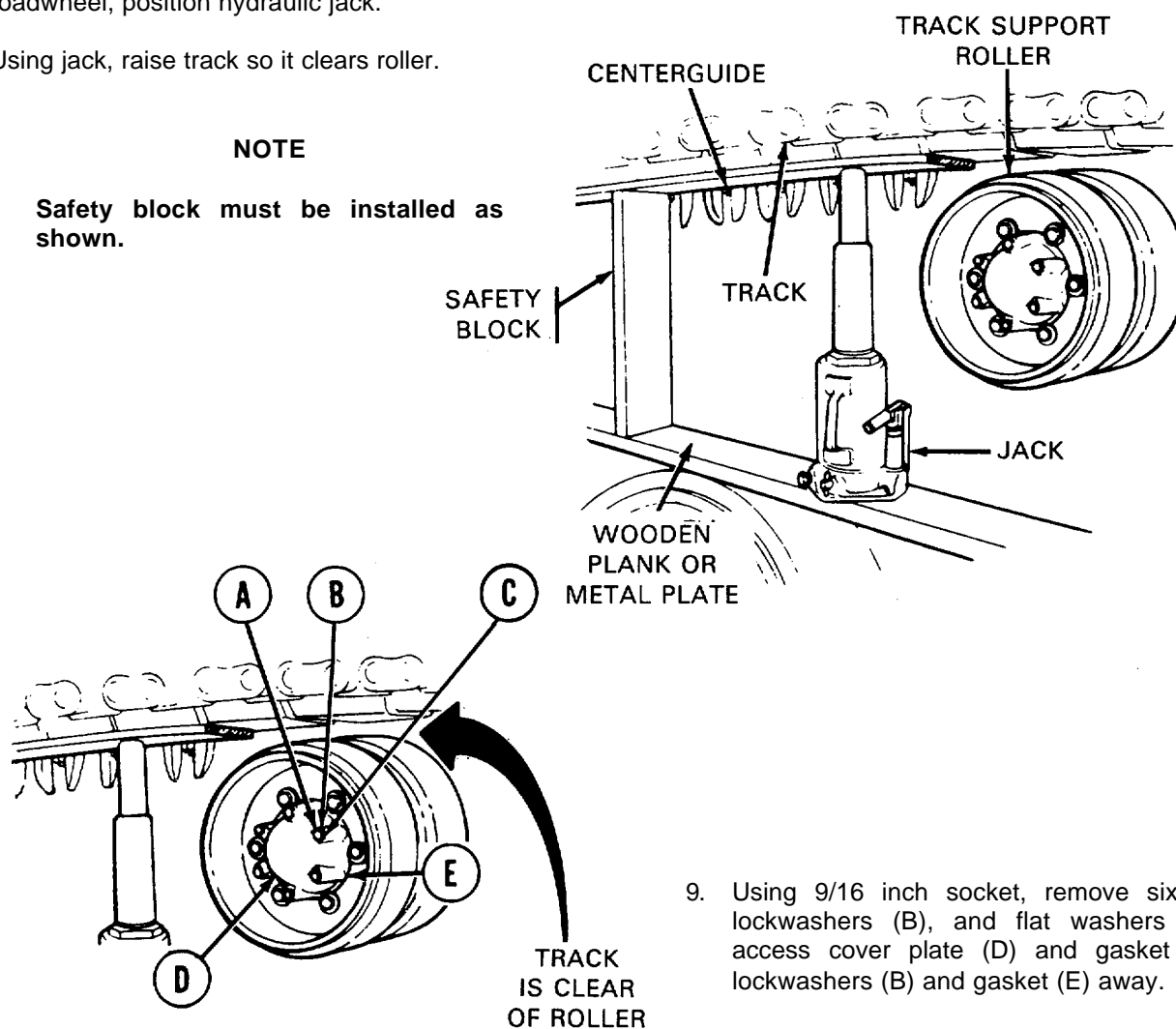
NOTE

If hydraulic jack is not available, disconnect track (TM 9-2350-260-10). Then move tank in reverse until track is off roller.

7. Using wooden plank or metal plate as base on roadwheel, position hydraulic jack.
8. Using jack, raise track so it clears roller.

NOTE

Safety block must be installed as shown.



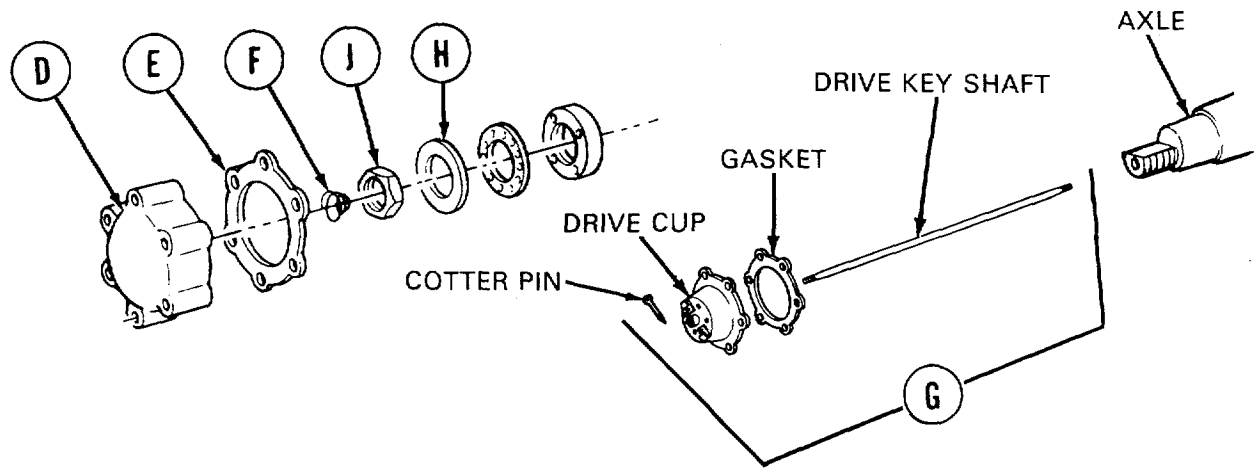
9. Using 9/16 inch socket, remove six screws (A), lockwashers (B), and flat washers (C) securing access cover plate (D) and gasket (E). Throw lockwashers (B) and gasket (E) away.

Go on to Sheet 4

TA147837

**TRACK SUPPORT ROLLER REPLACEMENT (Sheet 4 of 11)**

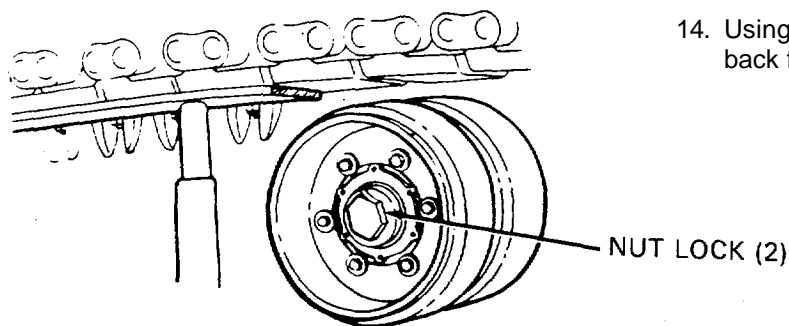
10. Remove access cover plate (D) and gasket (E). Throw gasket away.



11. On all support rollers except left front, remove static ground spring (F) from cover plate (D).

12. On left front support roller ONLY, pull speedometer drive assembly (G) from support axle.

13. Using pliers, remove cotter pin from speedometer drive assembly (G). Throw cotter pin away.



14. Using hammer and straight punch, bend nut lock (H) back from hex nut (J).

Go on to Sheet 5

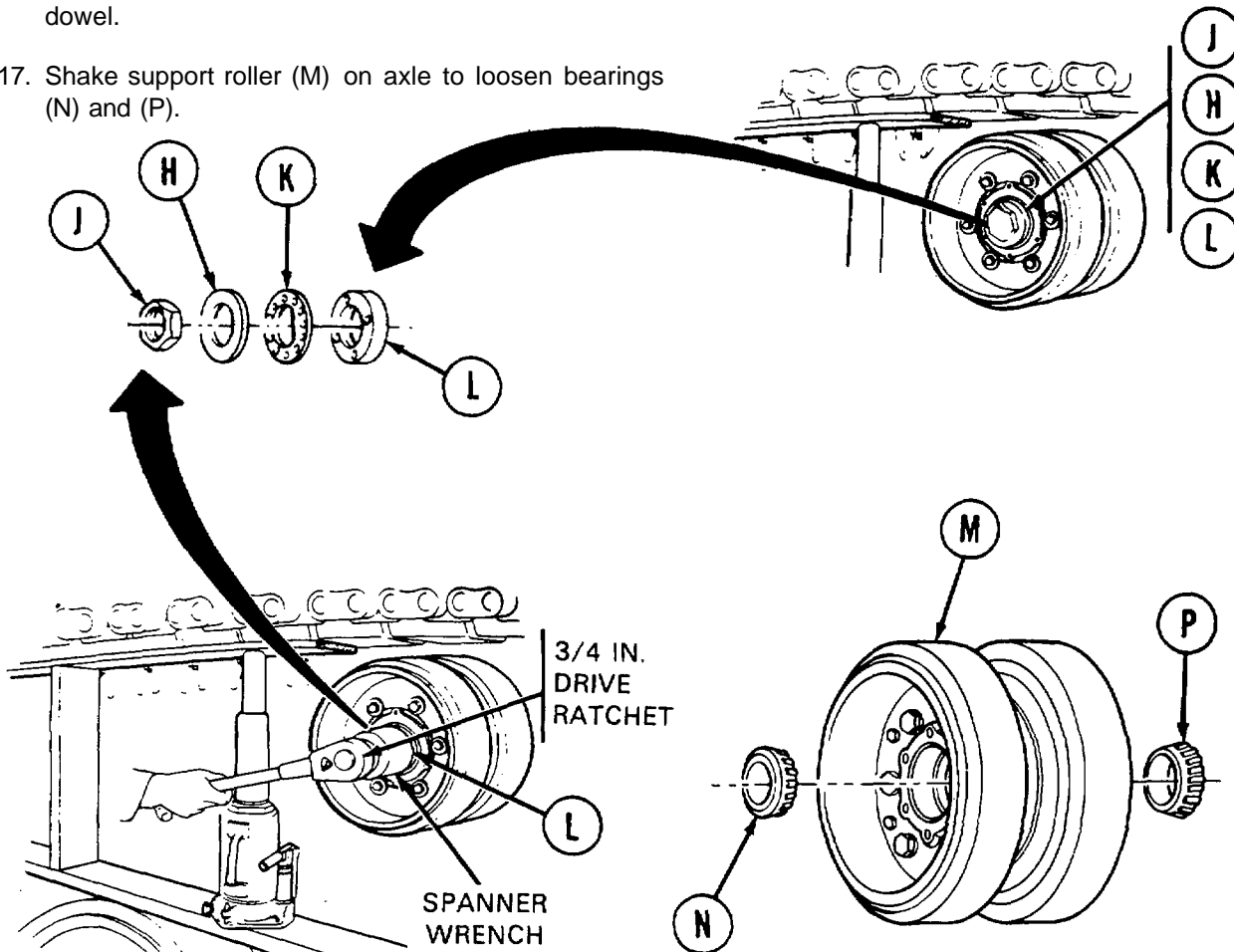
TA147838

TRACK SUPPORT ROLLER REPLACEMENT (Sheet 5 of 11)

NOTE

It may be necessary to start nut lock (H) with screwdriver.

15. Using 2-1/2 inch socket, remove nut (J), nut lock (H), and lock (K). Throw nut lock (H) away.
16. Using special spanner wrench (Item 27, Chapter 3, Section I) and 3/4 inch drive ratchet, remove locknut (L) with dowel.
17. Shake support roller (M) on axle to loosen bearings (N) and (P).



CAUTION

Do not damage axle when removing support roller parts.

18. Pull outer bearing (N) and roller (M) off axle.
19. Pull inner bearing (P) off axle.

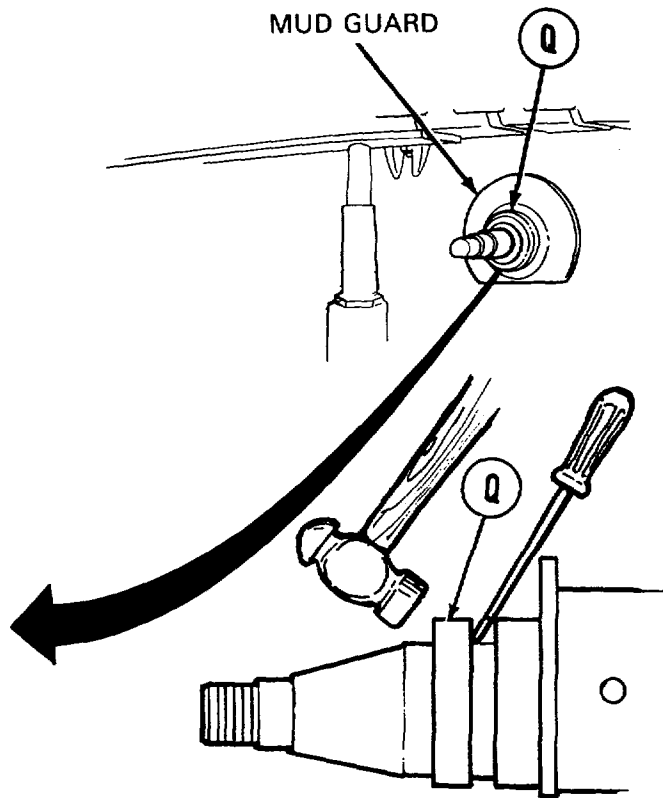
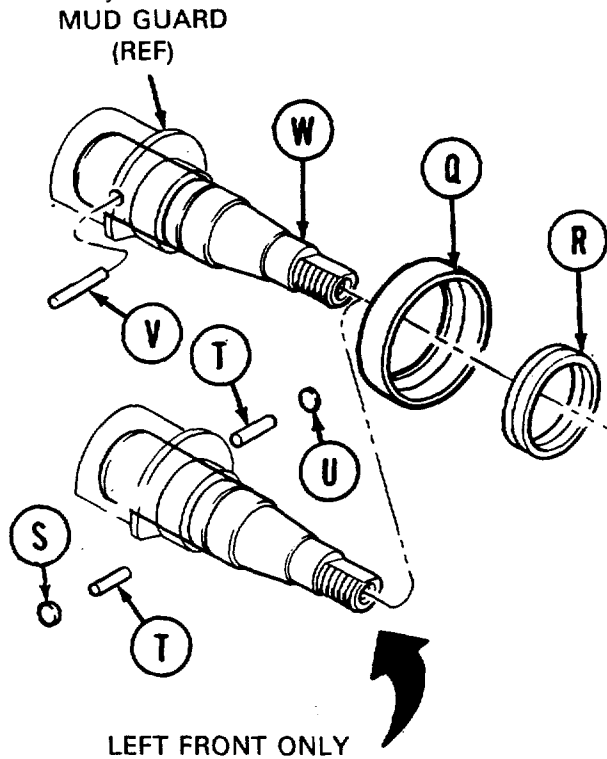
Go on to Sheet 6

TA147839



**TRACK SUPPORT ROLLER REPLACEMENT (Sheet 6 of 11)**

20. Using hammer, tap around deflector (Q) to free it and seal (R).
21. Using screwdriver, pry deflector (Q) and seal (R) from axle as shown.
22. Remove deflector (Q) and seal (R) from axle. Throw seal away.



23. On left front support roller ONLY, using 3/16 inch alining punch and hammer, tap around edges of plug (S) until plug can be pried free with screwdriver.

**NOTE**

If plugs in steps 23 and 24 cannot be removed as written, drill a hole in one or the other plug and use a 1/2 inch rod to punch out plug. Replace plug which has been drilled.

24. Using hammer and 3/8 inch punch, drive two spring pins (T) and other plug (U) out of axle. Throw pins away.
25. Using hammer and 3/8 inch punch, drive pin (V) out of other axles. Throw pins away.
26. Using mechanical puller (Figure F-5, Appendix F) and slide hammer puller (Item 12, Chapter 3, Section I), remove axle (W).

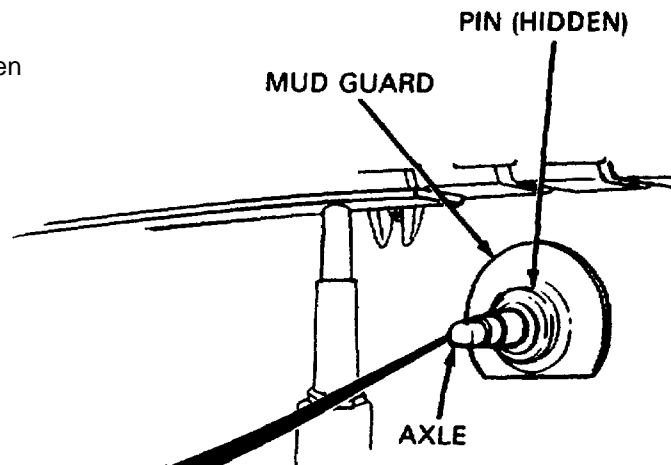
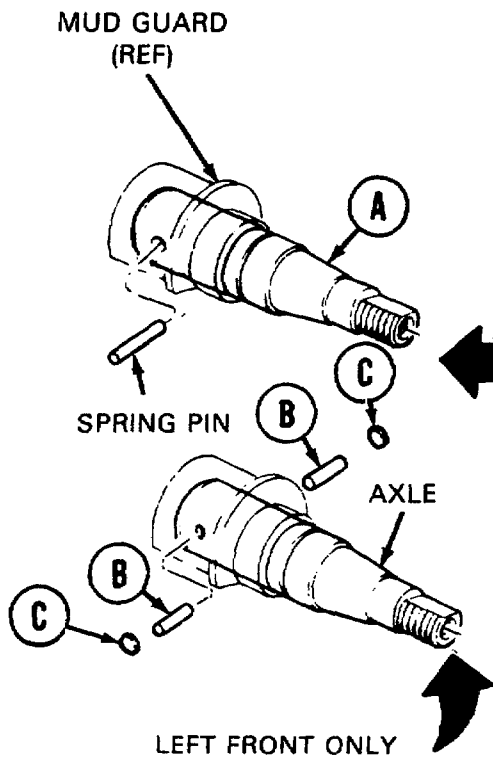
Go on to Sheet 7

TA147840

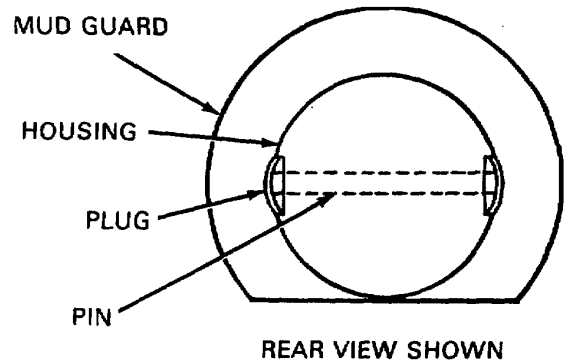
**TRACK SUPPORT ROLLER REPLACEMENT (Sheet 7 of 11)**

**INSTALLATION:**

1. Aline hole in axle (A) with hole in housing when mounting axle.



2. On left front support roller ONLY, using hammer, drive two new spring pins through housing into axle (one from each side).



3. Continue driving spring pins (B) in until they are both flush (even) with housing surface, as shown.
4. Position dome of both plugs (C) to outside. Using hammer and 3/4 inch punch, drive plugs into place (both sides).
5. When plugs are fully seated, using hammer and 3/16 inch alining punch, force edges of dome into hull housing (this is called 'dimpling').

Go on to Sheet 8

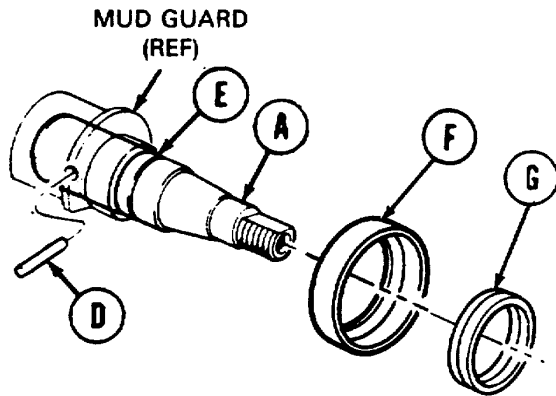
TA147841

**TRACK SUPPORT ROLLER REPLACEMENT (Sheet 8 of 11)**

6. On other support rollers, using hammer, tap new spring pin (D) through hole in housing and axle (A).
7. Make sure spacer (E) is correctly installed on axle (A).

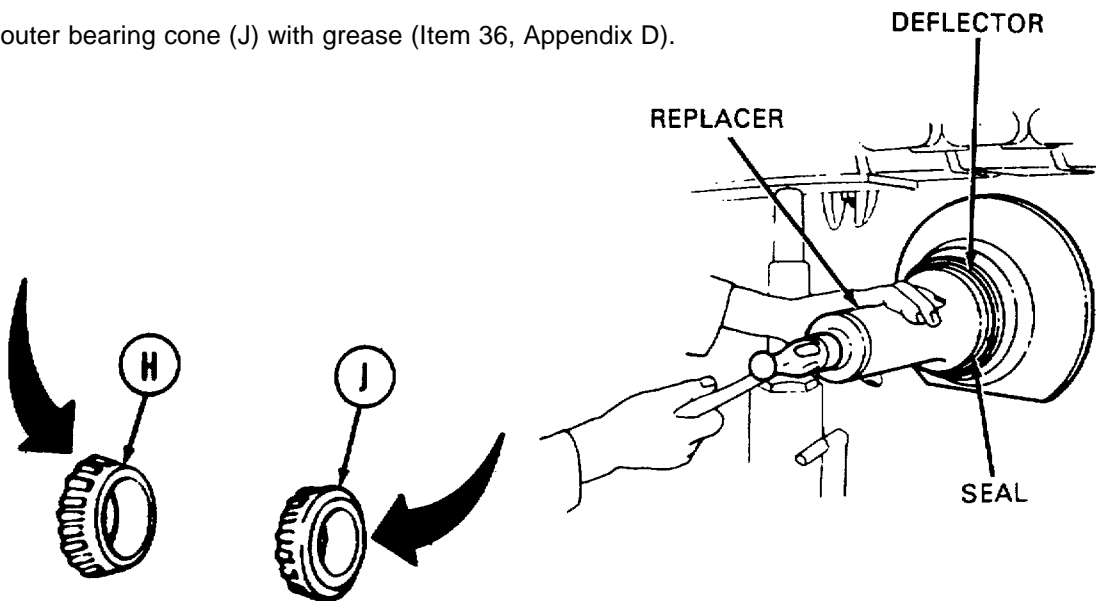
**NOTE**

**Open groove of deflector (F) and lip seal (G) must face outward.**



8. Mount deflector (F) and new seal (G) over axle (A).
9. Using hammer and special replacer tool (Item 21, Chapter 3, Section I), tap deflector and seal into place.

10. Pack inner bearing cone (H) with grease (Item 36, Appendix D).
11. Pack outer bearing cone (J) with grease (Item 36, Appendix D).

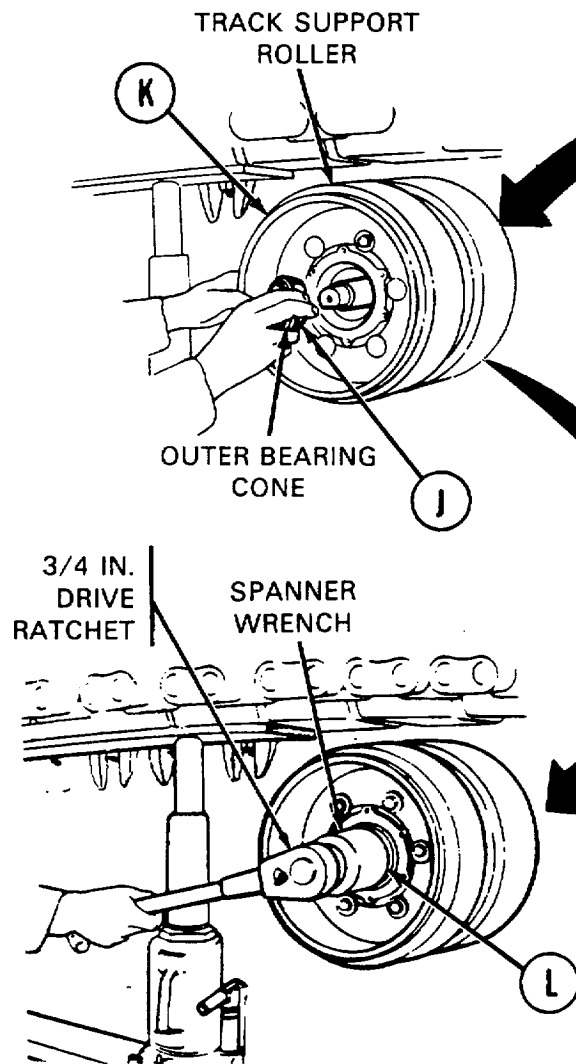
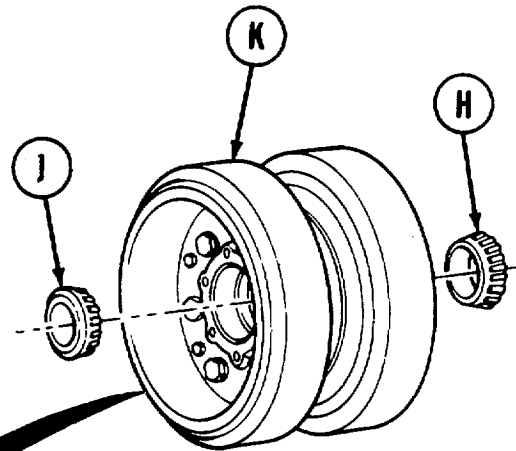


Go on to Sheet 9

TA147842

**TRACK SUPPORT ROLLER REPLACEMENT (Sheet 9 of 11)**

12. Position inner bearing (H) to support roller assembly (K).
13. Have second person position support roller (K) and inner bearing (H) on support axle.



14. Install outer bearing cone (J) into position on axle.
15. Screw round nut (L) onto shaft. Using special spanner wrench (Item 27, Chapter 3, Section I), tighten round nut (L).

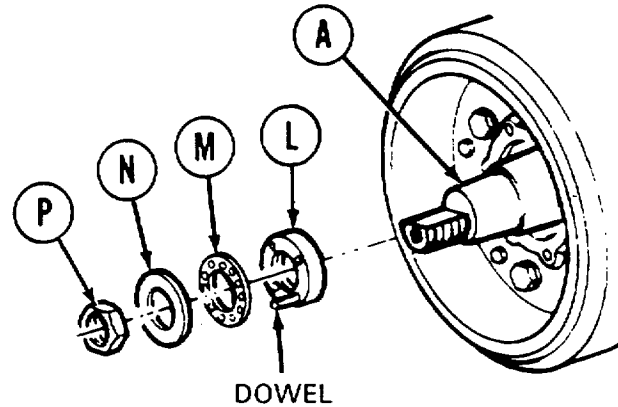
16. Loosen round nut (L) about 1/2 turn so support roller (K) turns easily.
17. Rotate support roller (K) while retightening nut (L) until bearings bind. Back nut off 1/4 turn.

**TRACK SUPPORT ROLLER REPLACEMENT (Sheet 10 of 11)**

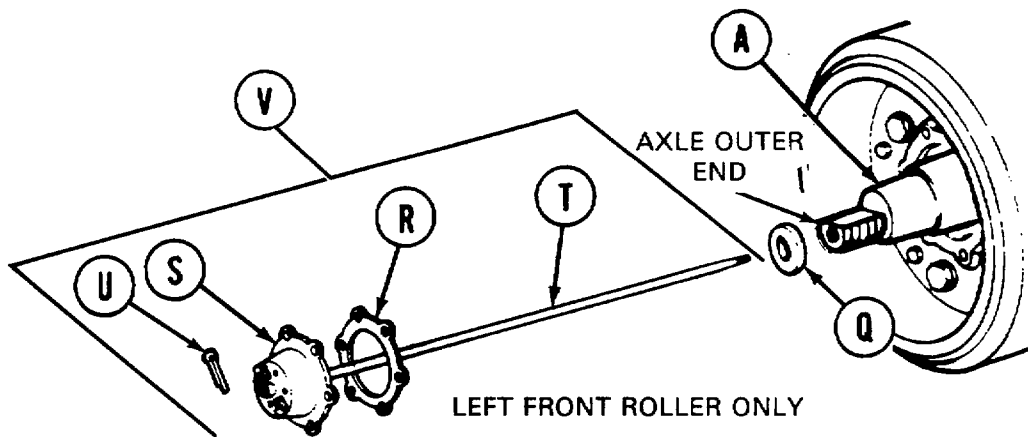
18. Install lock (M) and align hole in lock (M) to dowel of nut (L).

**NOTE**

If hole in lock (M) does not line up to dowel of nut (L) turn lock over for closer alignment.



19. Install new nut lock (N) onto axle (A).
20. Make sure detent of nut lock (N) seats in hole of lock (M).
21. Install hex nut (P). Using 2-1/2 inch socket, tighten nut.
22. Using hammer and screwdriver, bend nut lock (N) around hex nut (P).
23. Grease seal (Q) with grease (Item 36, Appendix D).
24. Install seal (Q) to axle outer end with lip facing out.



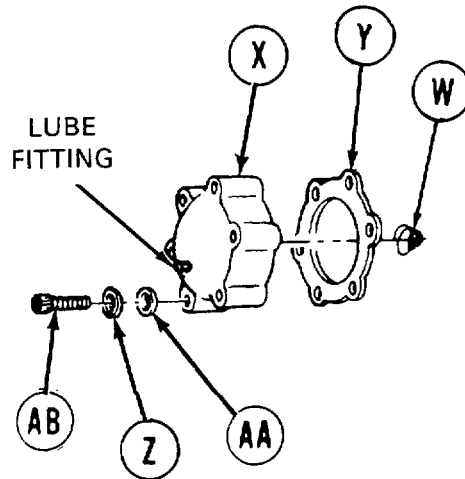
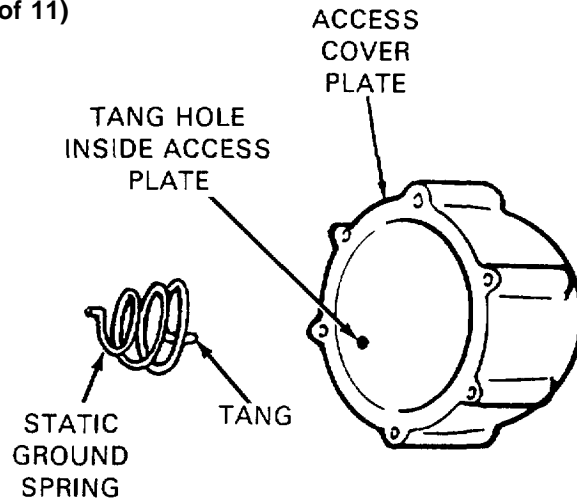
25. Install new gasket (R) to drive cup (S).
26. Push drive key shaft (T) through cup (S) and install new cotter pin (U) with pliers.
27. Install speedometer drive assembly (V) through seal (Q) and into axle (A). Rotate shaft (T) until splines on its end mate to keyway in hull mounted adapter.

Go on to Sheet 11

TA147844

**TRACK SUPPORT ROLLER REPLACEMENT (Sheet 11 of 11)**

28. Place static ground spring (W) into access cover plate (X) so tang is in hole inside cover plate.
29. Twist spring (W) into place.
30. Position new gasket (Y) and cover (X) to hub and secure to hub with six new lockwashers (Z), flat washers (AA), and screw (AB).
31. Using 9/16 inch socket, tighten screws alternately.
32. Using grease gun to lube fitting on cover plate, lube roadwheel (LO 9-2350-260-12).
33. If jack was used, lower it. Remove jack and planks (or plates).
34. Have second person start engine and move tank so two centerguides can be installed (TM 9-2350-260-12).
35. Install centerguides (TM 9-2350-260-10).
36. Test drive tank a short way (TM 9-2350-260-10).
37. Adjust track tension (TM 9-2350-260-10).



End of Task

TA147845

**TRACK SUPPORT ROLLER WHEEL AND HUB REPAIR (Sheet 1 of 5)**

PROCEDURE INDEX

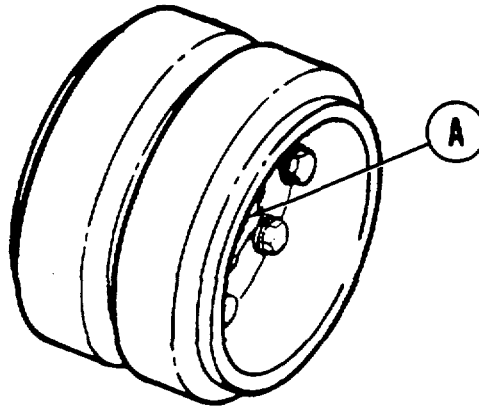
PROCEDURE	PAGE
Disassembly	14-45
Assembly	14-48

**TOOLS:** 13/16 in. socket with 1/2 in. drive  
 10 in. extension with 1/2 in. drive  
 Ball peen hammer  
 Torque wrench with 1/2 in. drive (0-175 lb-ft)(0-237 N•m)

**SPECIAL TOOLS:** Remover-replacer (Item 17, Chapter 3, Section I)  
 Remover-replacer (Item 15, Chapter 3, Section I)  
 Handle (Item 10, Chapter 3, Section I)

**SUPPLIES:** Grease (Item 36, Appendix D)  
 Dry cleaning solvent (Item 54, Appendix D)  
 Shop towel

**PRELIMINARY PROCEDURE:** Remove track support roller (page 14-35).



**DISASSEMBLY:**

**NOTE**

**Do not use dry cleaning solvent on rubber.**

1. Using shop towel and dry cleaning solvent (Item 54, Appendix D), wipe wheel and hub assembly (A) clean.

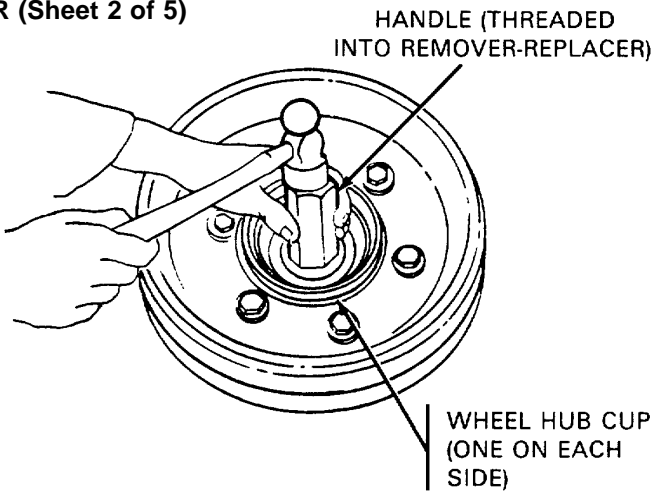
Go on to Sheet 2

TA147846

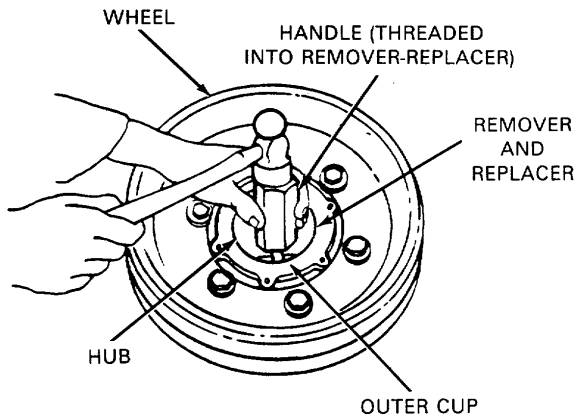
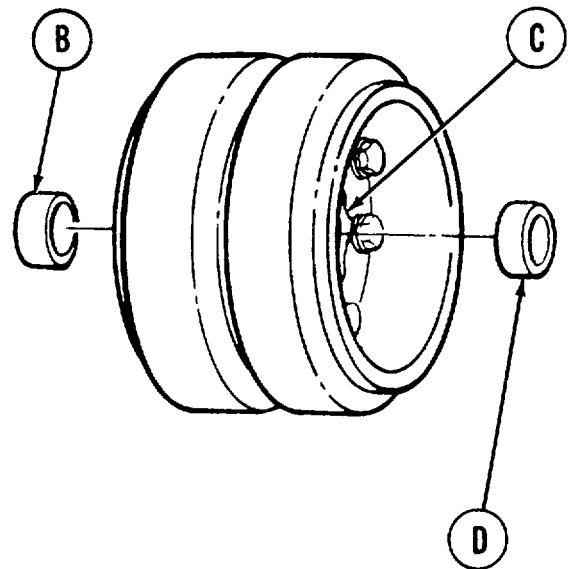
TRACK SUPPORT ROLLER WHEEL AND HUB REPAIR (Sheet 2 of 5)

**NOTE**

If special tools do not fit into hub, stop work and order a complete new support roller assembly, then install support roller on tank (page 14-45).



2. Position remover-replacer (Item 15, Chapter 3, Section I) to inside of inner wheel hub cup (B).
3. Screw handle (Item 10, Chapter 3, Section I) into remover-replacer from other side of hub (C).
4. Using hammer, tap handle to drive inner bearing cup (B) out of hub. Remove cup.
5. Position other remover-replacer (Item 17, Chapter 3, Section I) to inner edge of outer bearing cup (D).



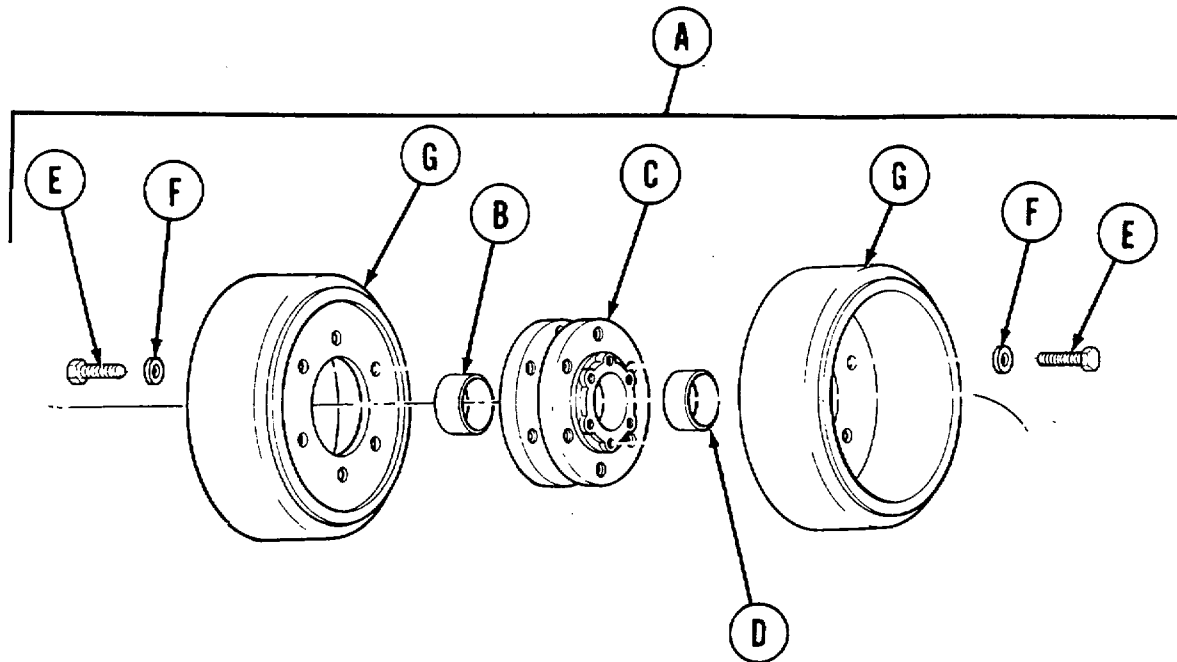
6. Screw handle into remover-replacer from other side of hub (C).
7. Using hammer, tap handle to drive outer bearing cup (D) from hub (C). Remove cup.

Go on to Sheet 3

TA147847

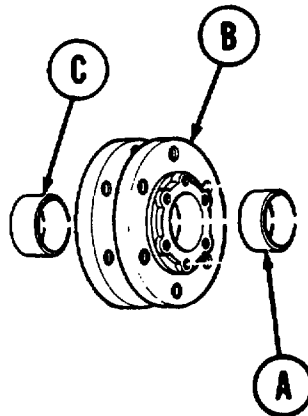


TRACK SUPPORT ROLLER WHEEL AND HUB REPAIR (Sheet 3 of 5)



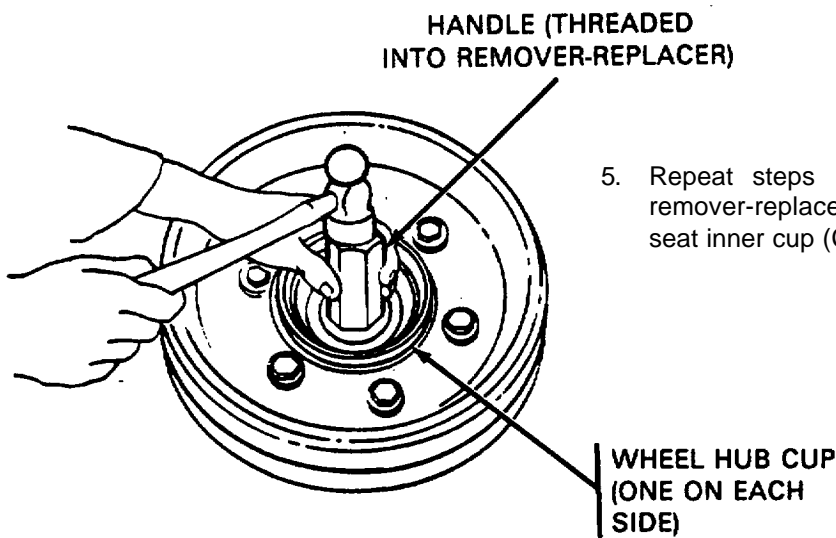
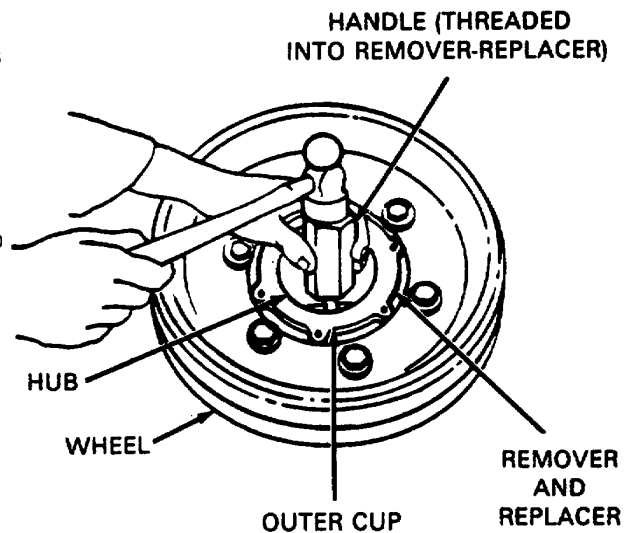
8. Using socket with ratchet and 10 inch extension, remove six screws (E) and flat washer (F) securing wheel (G) on one side of hub (C).
9. Repeat step 8 to wheel (G) on other side of hub (C).

TRACK SUPPORT ROLLER WHEEL AND HUB REPAIR (Sheet 4 of 5)



ASSEMBLY

1. Position outer wheel bearing cup (A) with its smallest end toward center of hub (B).
2. Install remover-replacer (Item 17, Chapter 3, Section I) over edge of cup (A).
3. Screw handle (Item 10, Chapter 3, Section I) into remover replacer.
4. Tap handle to seat outer cup (A) in hub (B).

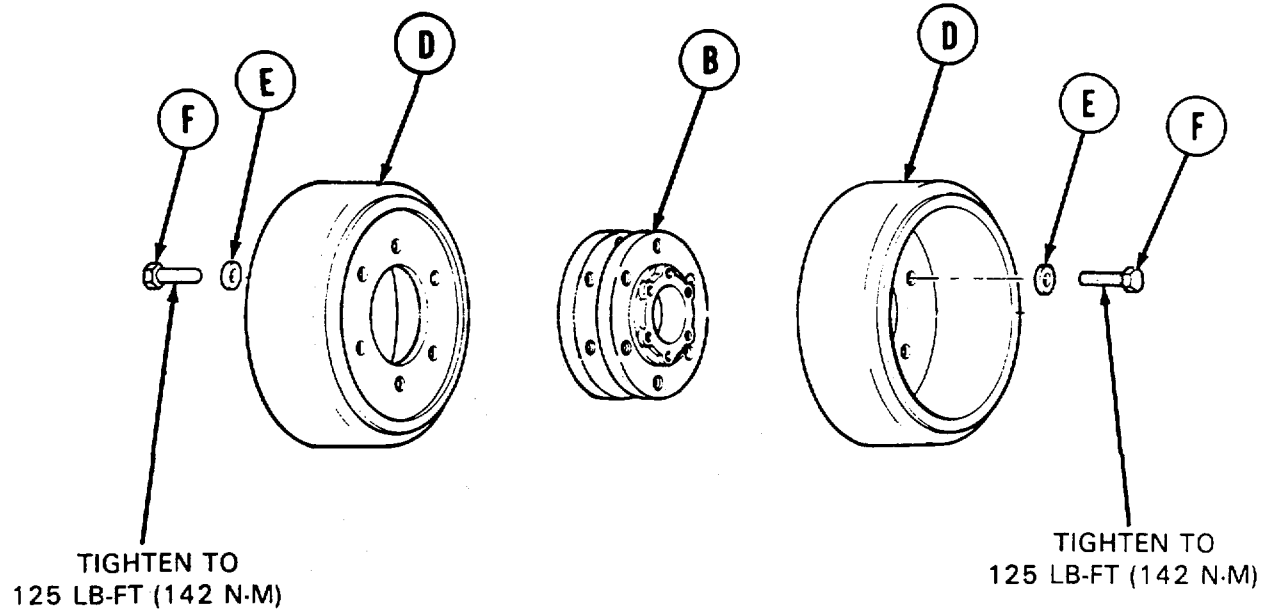


5. Repeat steps 1 thru 4 using hammer with handle and remover-replacer items 10 and 15, Chapter 3, Section I) to seat inner cup (C) in hub (B).

Go on to Sheet 5

TA147849

## TRACK SUPPORT ROLLER WHEEL AND HUB REPAIR (Sheet 5 of 5)



6. Position wheels (D) to hub (B).
7. Install six washers (E) and screws (F) to secure one wheel (D) to hub (B).
8. Install six washers (E) and screws (F) to secure second wheel (D) to other side of hub (B).
9. Using torque wrench with socket and extension, tighten all 12 screws (F) alternately to 125 lb-ft (142 N·m).
10. Install track support roller to tank (page 14-40).

End of Task

TA147850

**COMPENSATING IDLER WHEEL AND ROADWHEEL REPLACEMENT (Sheet I of 4)**

## PROCEDURE INDEX

PROCEDURE	PAGE
Removal	14-51
Cleaning and Inspection	14-53
Installation	14-53

TOOLS: 1-9/16 in. socket with 3/4 in. drive  
 Ratchet with 3/4 in. drive  
 16 in. extension with 3/4 in. drive  
 Hinged handle with 3/4 in. drive  
 Torque wrench with 3/4 in. drive (0-600 lb-ft)(0-814 N•m)  
 Wire brush

SPECIAL TOOL: Roadwheel arm lifter (Item 11, Chapter 3, Section I)

PERSONNEL: Two

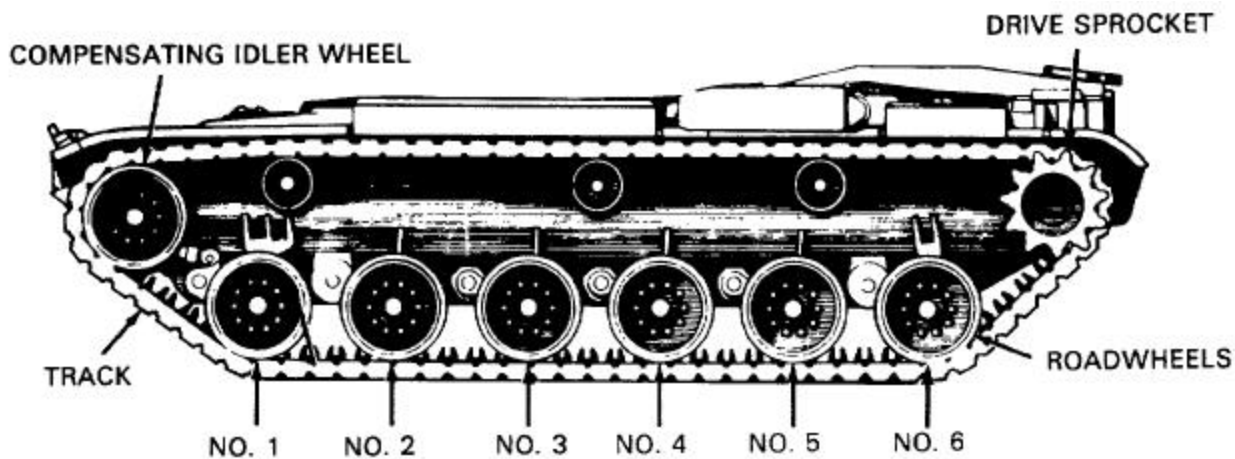
SUPPLIES: Rags (Item 65, Appendix D)

REFERENCE: TM 9-2350-260-10

Go on to Sheet 2

TA147851

COMPENSATING IDLER WHEEL AND ROADWHEEL REPLACEMENT (Sheet 2 of 4)

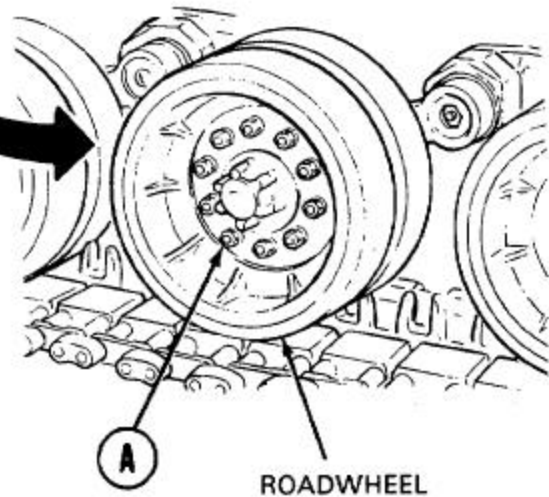


REMOVAL:

NOTE

There are six roadwheel positions -No. 1 thru No. 6 -on each side of tank.

There are two roadwheels at each of these 12 positions for 24 roadwheels at ground level. In addition, there is a compensating idler wheel at front top on each side of tank. Each compensating idler consists of two roadwheels. Thus, there are four roadwheels in addition to 24 at ground level -28 roadwheels in all.



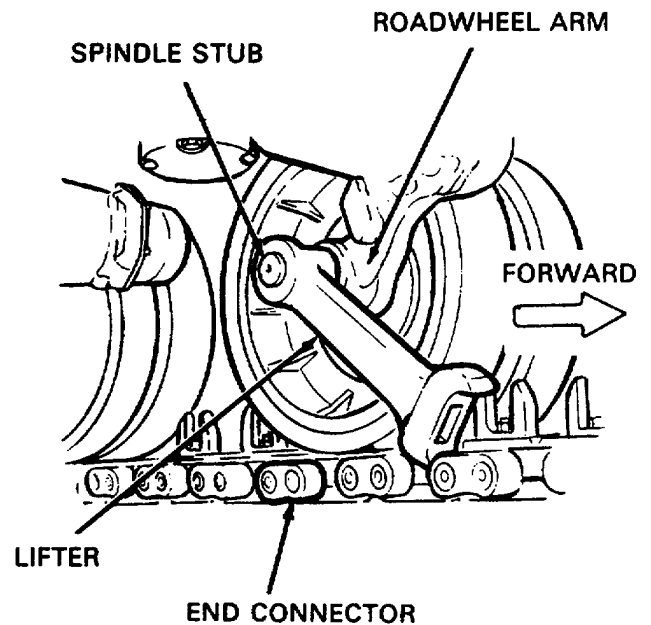
1. Using 1-9/16 inch socket wrench, loosen 10 nuts (A). Do not remove.

NOTE

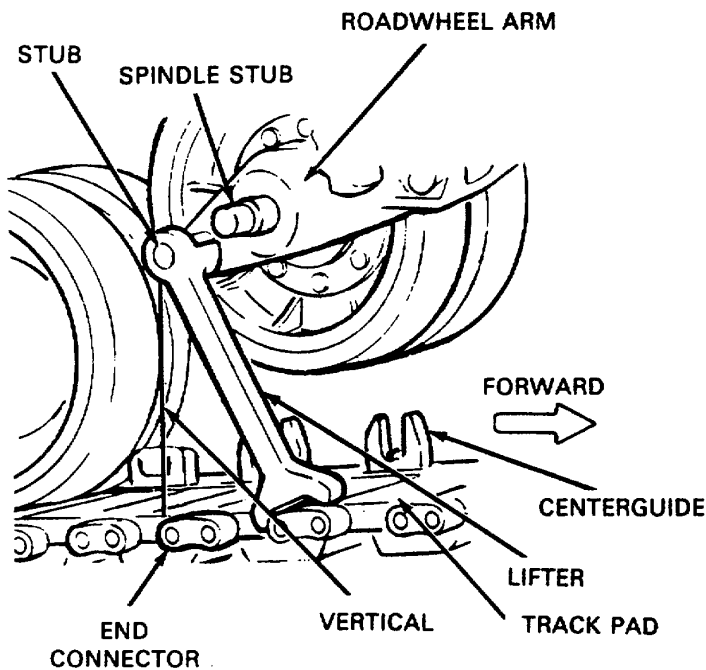
On compensating idler wheel only, disconnect track (TM 9-2350-260-10) and proceed to step 9.

**COMPENSATING IDLER WHEEL AND ROADWHEEL REPLACEMENT (Sheet 3 of 4)**

2. Get roadwheel arm lifter tool (Item 13, Chapter 3, Section I).
3. Place lifter to inside of track over spindle stub, track pad, and end connector that is forward of roadwheel.
4. Have second person start engine and drive tank forward slowly.
5. Direct second person to top tank when lifter is straight up and down.



6. Roadwheel should be up off track centerguides.
7. Set tank brakes (TM 9-2350-260-10).
8. Shut engine off (TM 9-2350-260-10).



Go on to Sheet 4

TA147853

**COMPENSATING IDLER WHEEL AND ROADWHEEL REPLACEMENT (Sheet 4 of 4)**

9. Using 1-9/16 inch socket with extension and hinged handle, remove 10 nuts (A) and flat washers (B) securing roadwheel (C) to wheel hub (D).
10. Using second person for help, pull one roadwheel, then the other, off mounting studs. Do not damage studs.

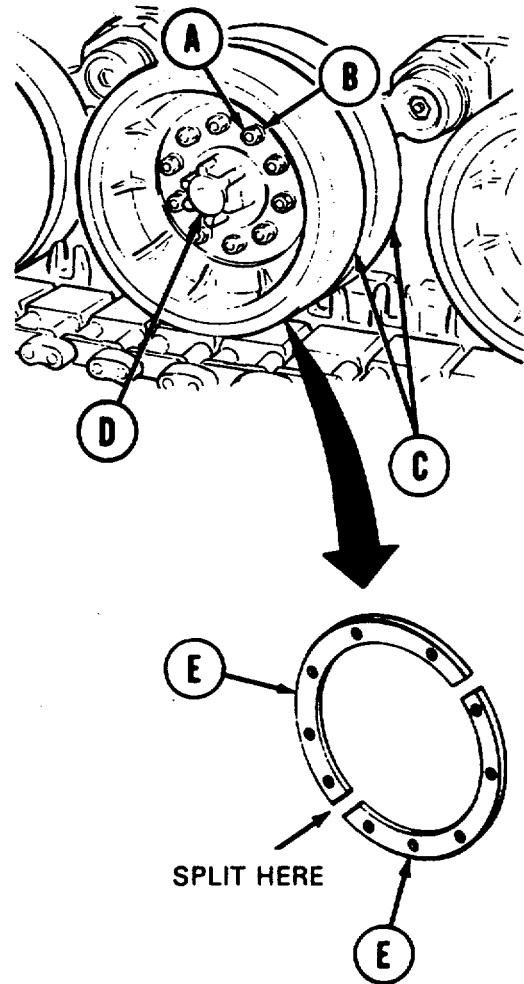
**CLEANING AND INSPECTION:**

1. Replace worn-out wear plates (page 14-60).
2. Inspect and clean mounting hub surface with wire brush and rag prior to mounting roadwheels.

**INSTALLATION:****NOTE**

**Do not damage hub mounting studs when installing roadwheels.**

1. Position inside roadwheel (C) with wear plate (E) facing out.
2. Position outside roadwheel (C) with wear plate (E) facing in.

**NOTE**

**There is split wear plate (E) on each roadwheel (C).**

3. Install 10 flat washers (B) and nuts (A).
4. Have second person back tank up so lifting arm can be removed.
5. If track was removed or disconnected, replace or reconnect (TM 9-2350-260-10).
6. Using 1-9/16 inch socket wrench with extension and torque wrench, tighten nuts (A) to 375-385 lb-ft (506-521 N•m).

End of Task

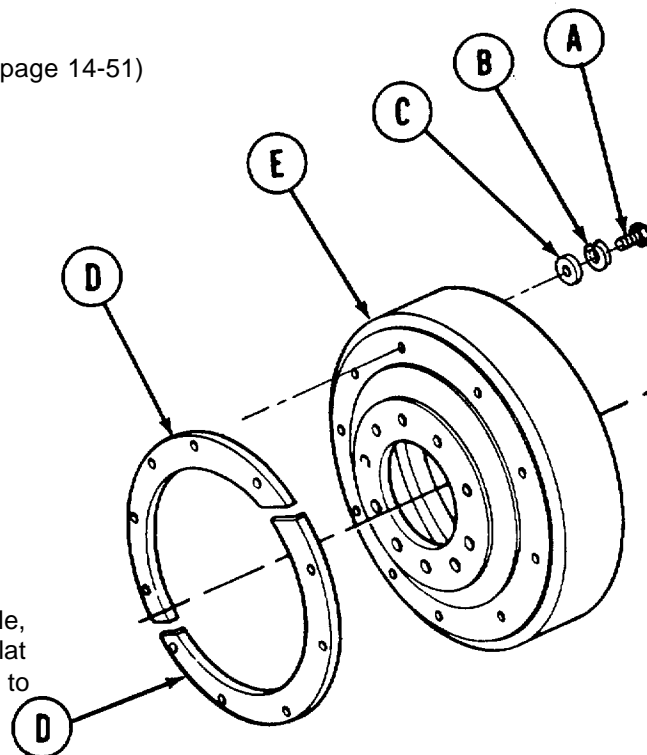
TA147854

**COMPENSATING IDLER WHEEL AND ROADWHEEL REPAIR (Sheet 1 of 2)**

**TOOLS:** 9/16 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 Brush  
 Hinged handle with 1/2 in. drive  
 10 in. extension with 1/2 in. drive

**SUPPLIES:** Primer (Item 49, Appendix D)  
 Sealing compound (Item 25, Appendix D)  
 Parts kit

**PRELIMINARY PROCEDURE:** Remove roadwheels (page 14-51)

**DISASSEMBLY:**

1. Using socket with extension and hinged handle, remove 10 screws (A), lockwashers (B), and flat washers (C) securing split wear plate (D) to roadwheel (E). Throw screws and washers away.
2. Remove split wear plates (D) from roadwheel (E). Throw wear plates away.

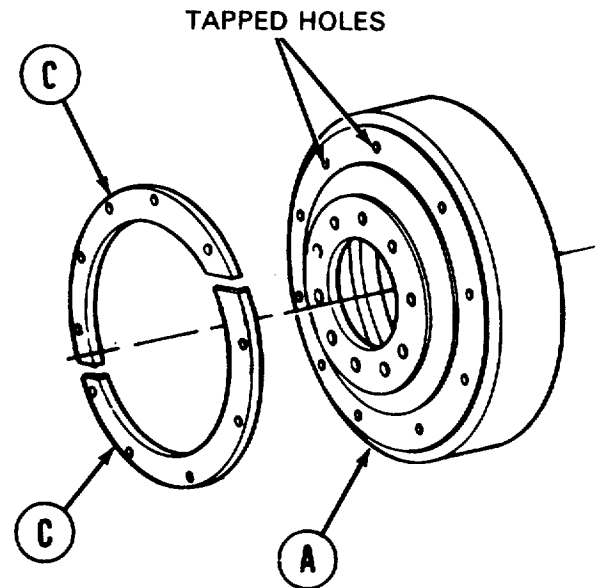
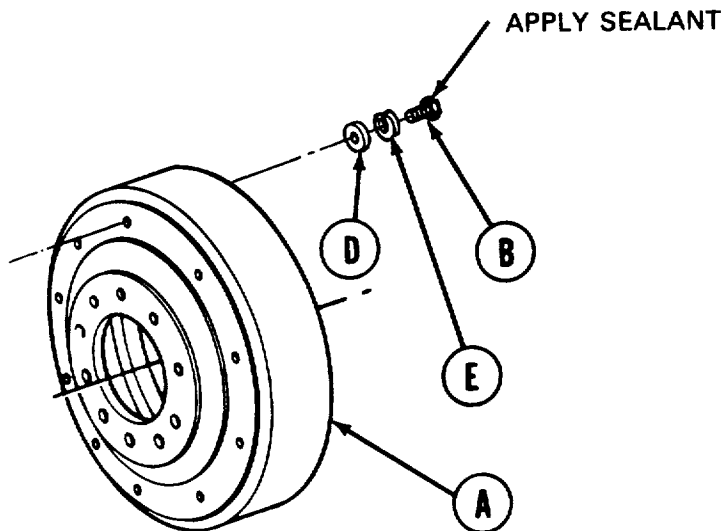
Go on to Sheet 2

TA147855



**COMPENSATING IDLER WHEEL AND ROADWHEEL REPAIR (Sheet 2 of 2)****ASSEMBLY:**

1. Using brush, apply primer (Item 49, Appendix D) to 10 tapped holes in roadwheel (A).



2. Apply sealant (Item 25, Appendix D) to threads of new screws (B).
3. Position both halves of new wear plate (C) to roadwheel.
4. Install 10 new washers (D), lockwashers (E), and screws (B) to secure plates (C) to roadwheel.
5. Using socket with extension and hinged handle, tighten 10 screws (B).

**NOTE**

**Grind ends of screws (B) if they stick out of wear plates (C) more than 1/8 inch or use optional shorter screws from parts kit.**

6. Install roadwheels on tank (page 14-53).

End of Task

TA147856

**MECHANICAL TRACK ADJUSTING LINK REPLACEMENT (Sheet 1 of 5)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	14-57
Installation	14-59

TOOLS: Slip joint pliers  
 Ratchet with 3/4 in. drive  
 3/4 in. socket with 3/4 in. drive  
 1-1/8 in. socket with 3/4 in. drive  
 Pry bar  
 Wire brush  
 Soft mallet

SPECIAL TOOLS: Slide hammer puller (Item 12, Chapter 3, Section I)  
 Roadwheel arm adapter (Item 7, Chapter 3, Section I)

SUPPLIES: Cotter pins (two)  
 Rags (Item 65, Appendix D)  
 Lockwashers (MS35338-67)(2 required)

PERSONNEL: Three

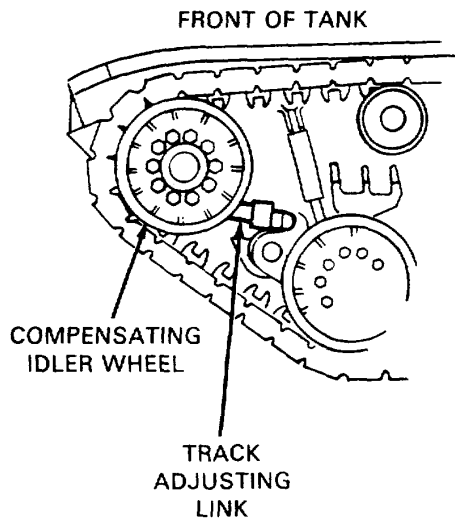
REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURES: Disconnect track (TM 9-2350-260-10)  
 Remove front fender (page 16-64)

**NOTE**

**This adjusting link replacement procedure is for left side of tank. Right side adjusting link procedure is similar.**

MECHANICAL TRACK ADJUSTING LINK REPLACEMENT (Sheet 2 of 5)



REMOVAL:

1. Using wire brush and rag, clean off both ends of adjusting link (A).

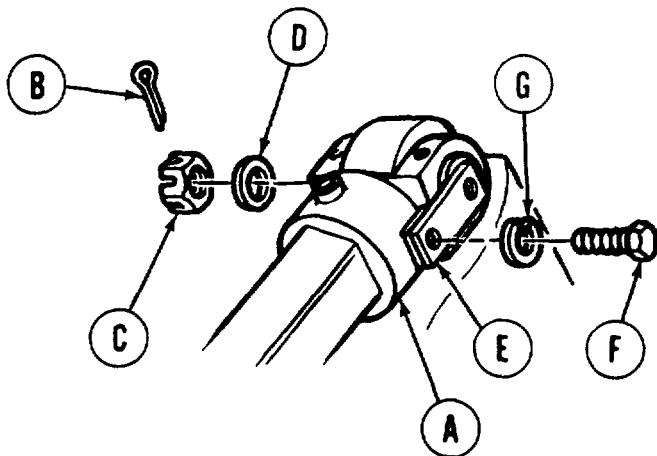
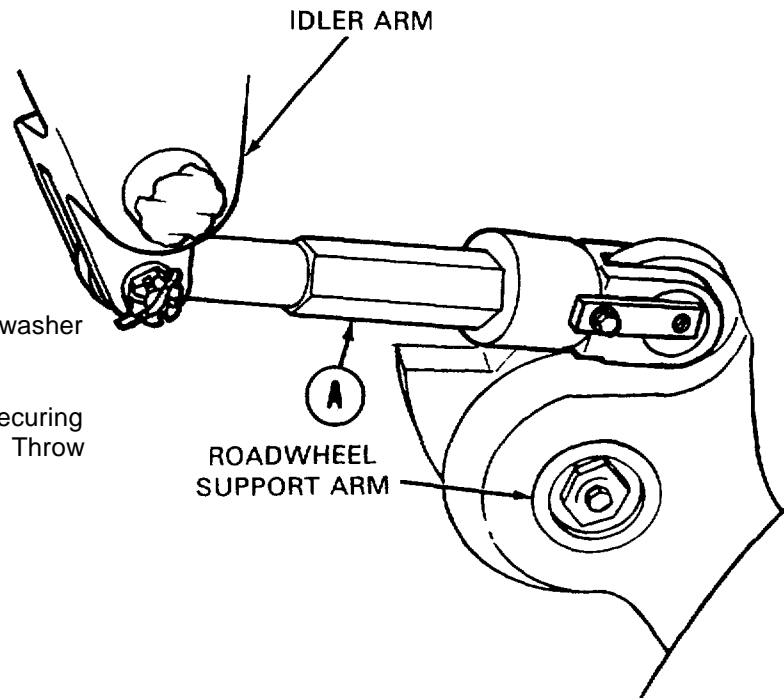
NOTE

Due to a configuration change, link pin that secures adjusting link to roadwheel arm was reversed and is now installed with threaded end toward hull of tank.

2. Using pliers, straighten cotter pin (B) and remove it from slotted nut (C) at roadwheel support arm. Throw cotter pin away.

3. Using 1-1/8 inch socket remove nut (C) and washer (D) from pin (E).

4. Using 3/4 inch socket, remove screw (F) securing pin (E) to link (A). Remove lockwasher (G). Throw lockwasher (G) away.



■ **MECHANICAL TRACK ADJUSTING LINK REPLACEMENT (Sheet 3 of 5)**

5. Go to other end of adjusting link (A).
6. Using pliers, straighten cotter pin (H) and remove it from slotted nut (J). Throw cotter pin away.
7. Using 1-1/8 inch socket with ratchet, loosen nut (J).
8. Remove nut (J) and washer (K).
9. Using 3/4 inch socket, remove screw (L). Remove lockwasher (M). Throw lockwasher (M) away.
10. Pick up nut (J) and screw it a couple of turns onto pin (N).
11. Using hammer, tap pin (N) to loosen it.
12. Screw adapter into end of pin (E). Screw end of slide hammer puller (Item 12, Chapter 3, Section I) into adapter (Item 7, Chapter 3, Section I) and, using slide hammer puller, remove pin (E) and shim (P) from link (A).
13. Using second person to hold link (A), rotate arm so that pin (N) will be over front slope of tank.
14. Remove nut (J) from pin (N).

**NOTE**

**Have third person hold link when pin (N) is removed.**

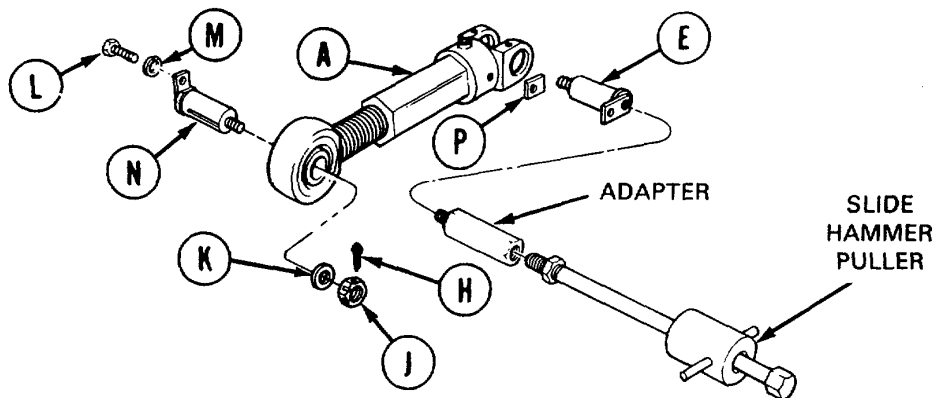
**NOTE**

**Use caution when removing pin (N) because link (A) may fall away.**

15. Using pry bar, remove pin (N) from link (A).
16. Remove link (A) from tank. Lower idler arm to normal position.

**NOTE**

**If pin (N) is hard to remove, screw adapter onto pin (N). Screw end of slide hammer puller into adapter and use slide hammer puller to remove pin (N) from link (A).**



Go on to Sheet 4

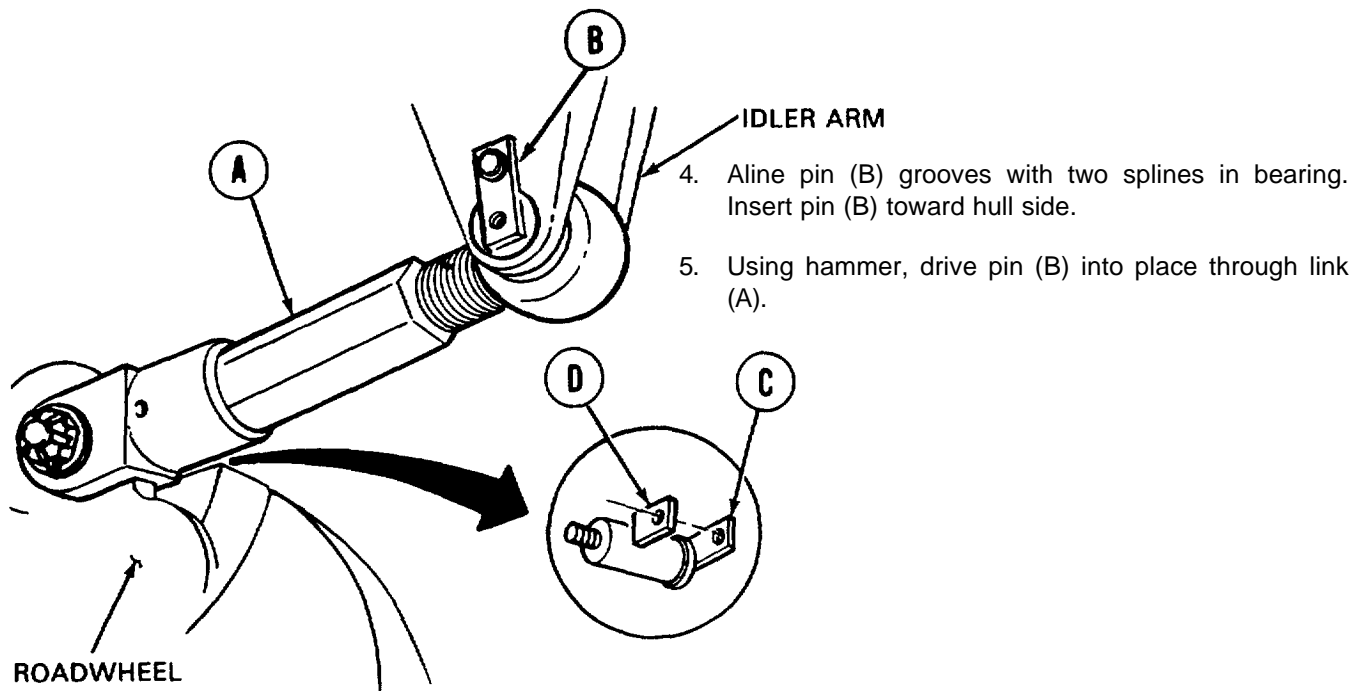
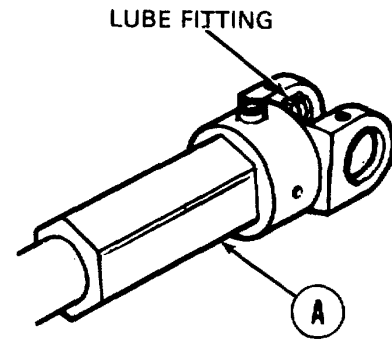
14-58 Change 1

■ TA248455

**MECHANICAL TRACK ADJUSTING LINK REPLACEMENT (Sheet 4 of 5)**

**INSTALLATION:**

1. Before mounting link (A), position it so lube fitting is on top (pointing outward).
2. Rotate arm until link mount is above slope at front of tank.
3. With help of second person, lift link (A) into mounted position on tank.



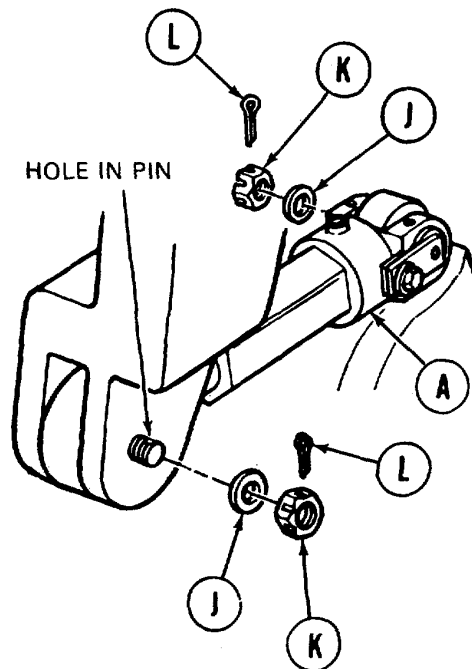
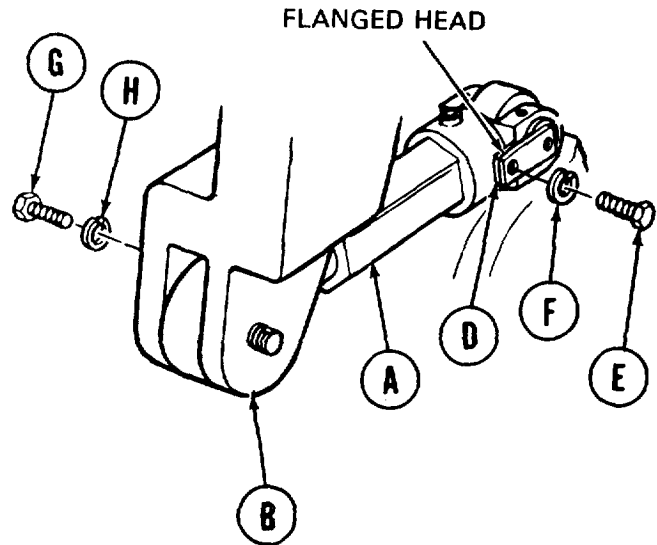
4. Aline pin (B) grooves with two splines in bearing. Insert pin (B) toward hull side.
5. Using hammer, drive pin (B) into place through link (A).
6. Lower arm and position other end of link (A) on mount at roadwheel.
7. Aline pin (C) with two splines in bearing. Insert pin (C) from outside.
8. Using hand to hold shim (D) in place between mount and pin (C), use hammer and drive pin (C) through link (A).

Go on to Sheet 5

■ TA248456

■ MECHANICAL TRACK ADJUSTING LINK REPLACEMENT (Sheet 5 of 5)

9. Aline flanged head of pin (C) with hole for screw (E). Insert screw (E) through new washer (F), flanged head of pin (C), and shim (D).
10. Using 3/4 inch socket with ratchet, tighten screw (E).
11. Aline flanged head of pin (B) with hole for screw (G). Insert screw (G) through new washer (H) and flanged head of pin (B).
12. Using 3/4 inch socket with ratchet, tighten screw (G).
13. Using 1-1/8 inch socket, install both washers (J) and nuts (K) onto pins (B) and (C).
14. Using pliers, install new cotter pins (L) through slots in nuts (K) and holes in pins (B) and (C).
15. Install compensating idler wheels (page 14-53).
16. Install front fender (page 16-68).
17. Connect track (TM 9-2350-260-10).
18. Adjust track (TM 9-2350-260-10).



End of Task

■ TA248457

14-60 Change 1

**MECHANICAL TRACK ADJUSTING LINK REPAIR (Sheet 1 of 3)** ■

TOOLS: 3/4 in. sliding tee  
 7/16 in. combination box and open end wrench  
 9/16 in. combination box and open end wrench  
 Hammer  
 Center punch  
 Chisel  
 Grease gun  
 Mounted vise

SPECIAL TOOL: Bearing driver (Item 29.1, Chapter 3, Section I) ■

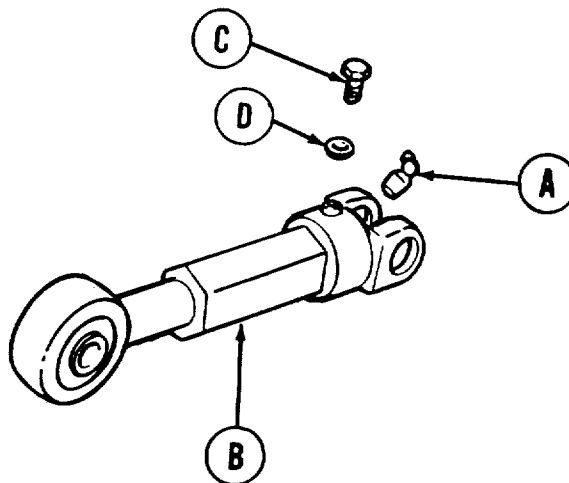
SUPPLIES: Lube fitting (MS15003-4)  
 Rags (Item 65, Appendix D)  
 Grease (Item 36, Appendix D)  
 Lockwasher (MS35338-46)

REFERENCE: (TM 9-2350260-10)

PRELIMINARY PROCEDURES: Disconnect track (TM 9-2350-260-10)  
 Remove compensating idler wheel (page 14-51)  
 Remove mechanical track adjusting link assembly (page 14-56) ■

**DISASSEMBLY:**

1. Using 7/16 inch wrench, remove grease fitting (A) from link (B).
2. Using 9/16 inch wrench, remove bolt (C) and lockwasher (D). Throw lockwasher (D) away.



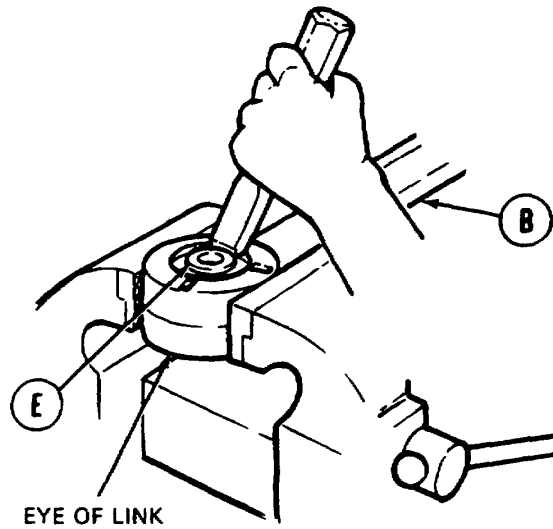
Go on to Sheet 2

■ TA248458

Change 1 14-61

■ MECHANICAL TRACK ADJUSTING LINK REPAIR (Sheet 2 of 3)

3. Using hammer and chisel, cut stakes at three places (both sides) that hold bearing (E) in eye end of link (B).
- 4. Using bearing driver (Item 29.1, Chapter 3, Section I) to bearing in link (B). Using 3/4 inch sliding tee, press bearing out of link eye.
5. Inspect parts (A) through (E). Replace them as necessary.



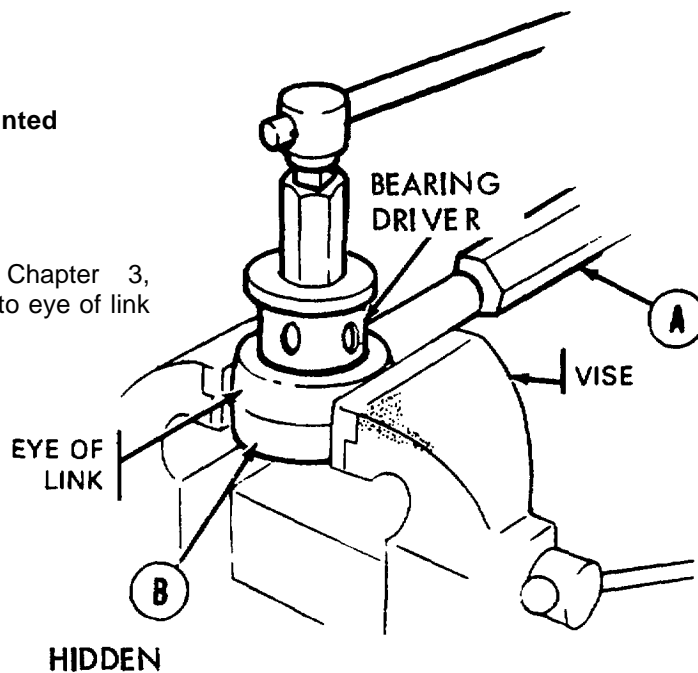
ASSEMBLY:

1. Position link (A) so eye end is facing upward.

**NOTE**

**Make sure bearing is evenly mounted in link eye.**

- 2. Using bearing driver (Item 29.1, Chapter 3, Section I), carefully press bearing (B) into eye of link (A).



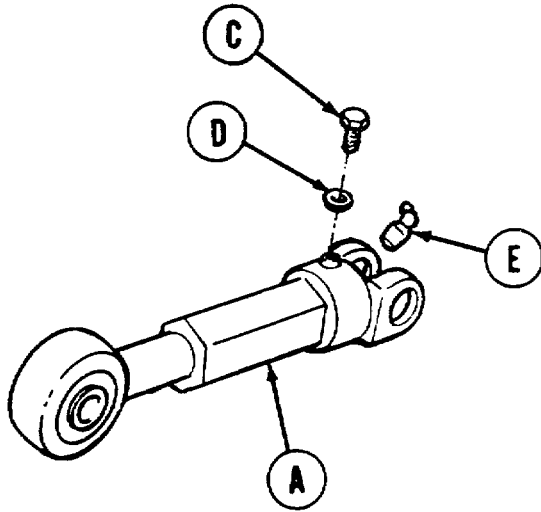
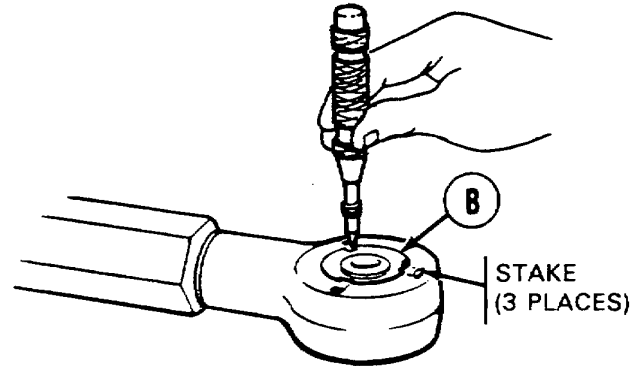
Go on to Sheet 3

■ TA248459



**MECHANICAL TRACK ADJUSTING LINK REPAIR (Sheet 3 of 3)**

3. Using hammer and center punch, stake bearing (B) into link (A) in three places (both sides).
4. Install bolt (C) and new lockwasher (D) at other end of link.



5. Using 9/16 inch wrench, tighten bolt (C) in place.
6. Using 7/16 inch wrench, tighten new grease fitting (E) into position in link (A).

**NOTE**

**For easy access with grease gun, fitting (E) should be pointing outward when link (A) is installed to tank.**

7. Using grease gun, squirt grease (Item 36, Appendix D) through fitting (E) to make sure it is not plugged.
8. Install mechanical track adjusting link assembly (page 14-59).

End of Task

■ TA248460

Change 1 14-63

**GREASE ACTUATED TRACK ADJUSTING LINK REPLACEMENT (Sheet 1 of 7)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	14-64.1
Installation	14-64.4

**TOOLS:** 15/16 in. socket with 1/2 in. drive  
 15/16 in. socket with 3/4 in. drive  
 1-1/8 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 Ratchet with 3/4 in. drive  
 5 in. extension with 1/2 in. drive  
 5 in. extension with 3/4 in. drive  
 12 in. adjustable wrench

Slip joint pliers  
 3/8 in. combination box and open end wrench  
 3/4 in. combination box and open end wrench  
 Torque wrench with 3/4 in. drive (0-600 ft-lb)(0-813 N•m)  
 Lifting device (2,000 lbs. capacity)

**SPECIAL TOOLS:** Slide hammer puller (Item 12, Chapter 3, Section I)  
 Remover and replacer tool (Item 18, Chapter 3, Section I)  
 Wire rope assembly (Item 23, Chapter 3, Section I)

**SUPPLIES:** Grease (Item 36, Appendix D)  
 Lockwasher (MS35338-67)  
 Pin, cotter (MS24665-497)

**REFERENCE:** TM 9-2350-260-10

**PERSONNEL:** Two

**PRELIMINARY PROCEDURES:** Loosen track tension (TM 9-2350-260-10)  
 Disconnect track between compensating idler wheel and number 1 roadwheel (TM 9-2350-260-10)  
 Remove front fender (page 16-64)  
 Remove shock absorber (page 14-95)  
 Remove compensating idler wheel (page 14-50)

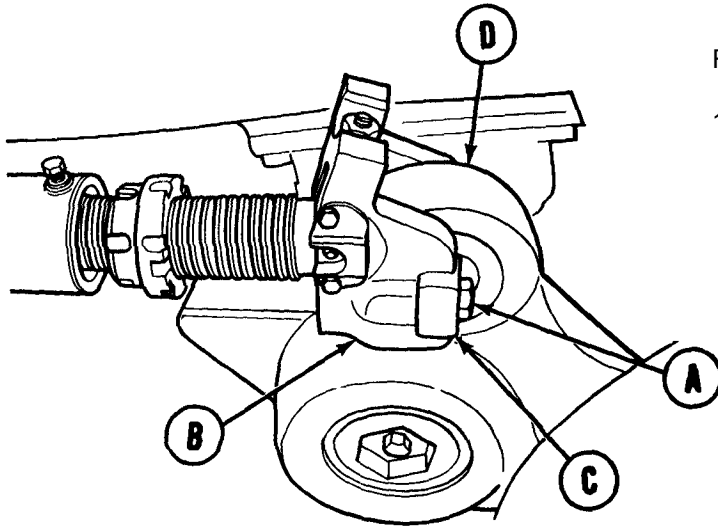
**NOTE**

**This adjusting link replacement procedure is for left side of tank. Right side adjusting link procedure is similar.**

Go on to Sheet 2

TA248468

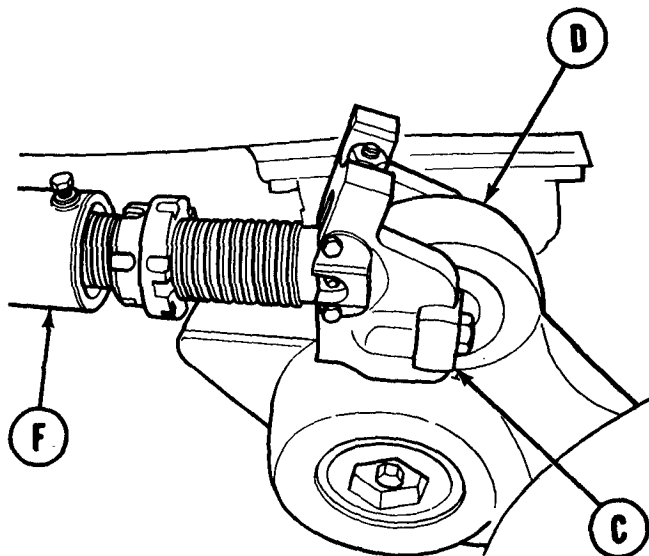
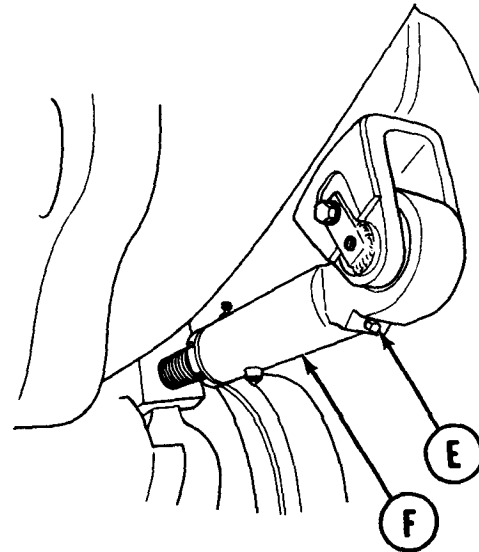
GREASE ACTUATED TRACK ADJUSTING LINK REPLACEMENT (Sheet 2 of 7)



REMOVAL:

1. Using 15/16 inch socket, remove two cap screws (A) that secure shaft yoke (B) to roadwheel bearing (C) in number 1 roadwheel support arm (D).

2. Using 3/8 inch wrench, remove pipe plug (E) and collapse grease actuated adjusting link (F).



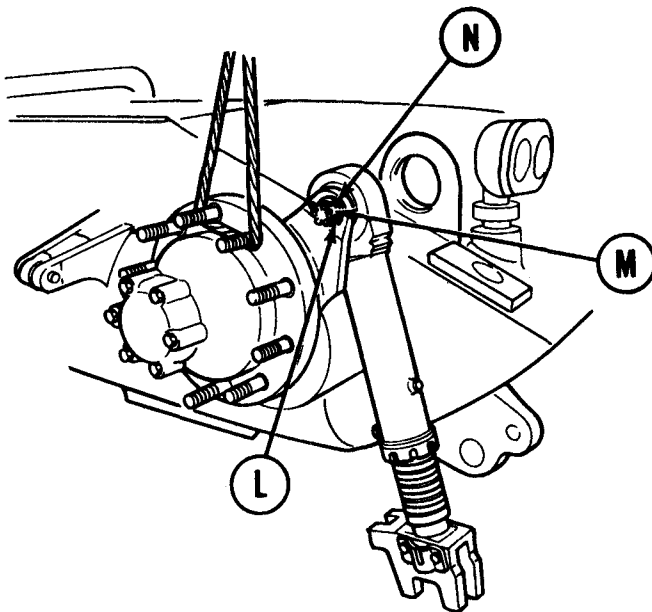
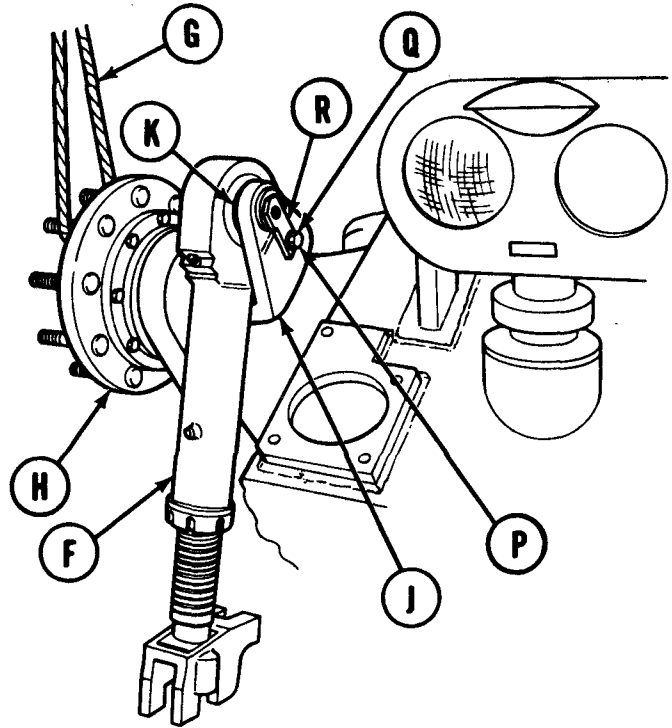
3. Remove adjusting link (F) from bearing (C) in number 1 roadwheel support arm (D).

Go on to Sheet 3

TA248462

**GREASE ACTUATED TRACK ADJUSTING LINK REPLACEMENT (Sheet 3 of 7)**

4. Attach wire rope assembly (G) to compensating idler wheelhub (H). Using lifting device, raise compensating idler arm (J) until adjusting link mounting eye (K) is positioned above the front slope of the tank.
5. Position adjusting ink (F) as shown.
6. Using slip Joint pliers, straighten and remove cotter pin (L). Throw pin away.
7. Using 1-1/8 inch socket, remove nut (M) and washer (N).
8. Using 3/4 inch wrench, remove capscrew (P) and lockwasher (Q) securing tab on pin assembly (R) to inner face of compensating idler arm (J). Throw lockwasher away.

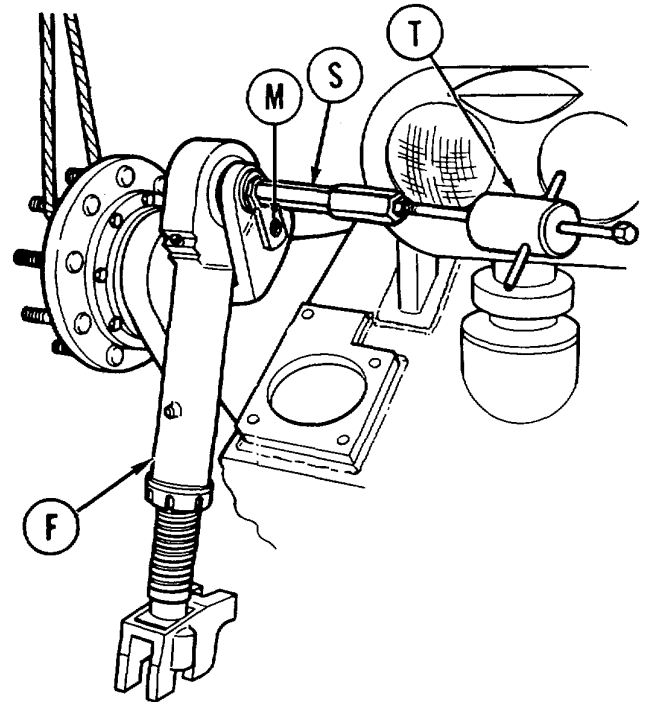


Go on to Sheet 4

TA248463

**GREASE ACTUATED TRACK ADJUSTING LINK REPLACEMENT (Sheet 4 of 7)**

9. Using adjustable wrench, screw remover and replacer tool (S) (Item 18, Chapter 3, Section I) on pin assembly (M) .
10. Secure slide hammer puller (T) (Item 12, Chapter 3, Section I) on remover and replacer tool (S) (Item 18, Chapter 3, Section I) .
11. Have second person hold and support track adjusting link (F) .
12. Using slide hammer puller (T) , tap pin assembly (M) from adjusting link (F) .



13. Remove slide hammer puller (T) from remover and replacer tool (S) using adjustable wrench.
14. Remove pin assembly (M) from remover and replacer tool (S).
15. Remove grease actuated track adjusting link (F) from vehicle.

Go on to Sheet 5

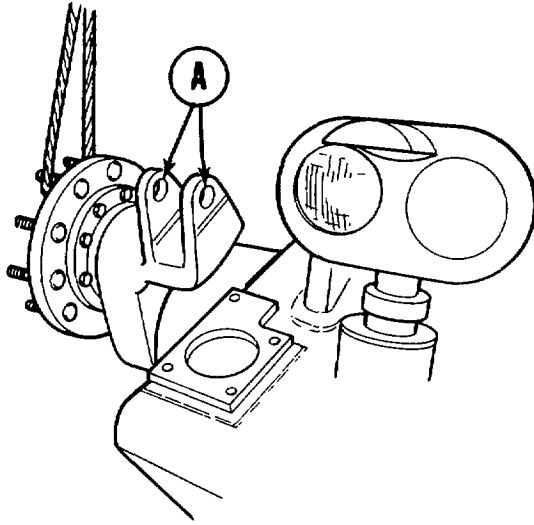
TA248464

Change 1 14-64.3

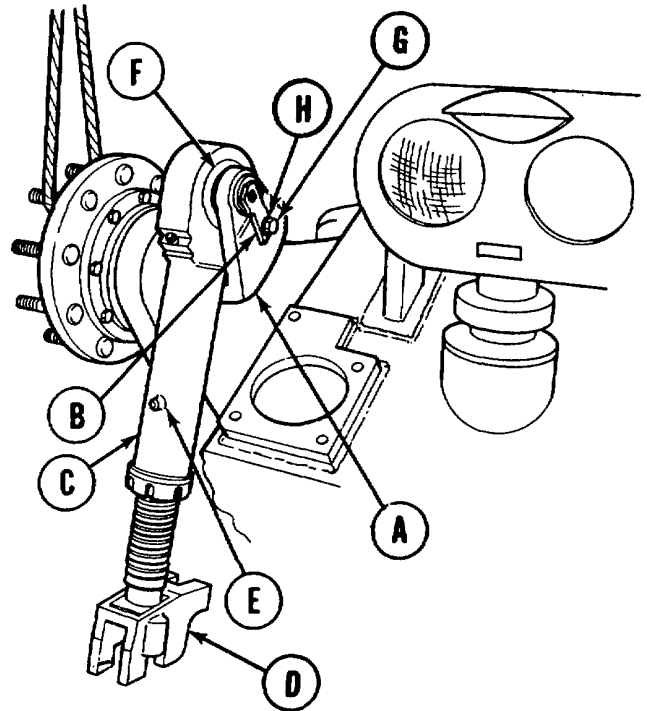
**GREASE ACTUATED TRACK ADJUSTING LINK REPLACEMENT ( Sheet 5 of 7)**

**INSTALLATION:**

1. Put a light coat of grease (Item 36, Appendix D) on two mounting eyes of compensating idler arm (A) .



2. Put a light coat of grease on pin assembly (B) .
3. Using second person, position grease actuated track adjusting link (C) with yoke (D) facing down and safety relief valve (E) facing up as shown.
4. Using second person, put adjusting link (C) between two eyes of compensating idler arm (A) .
5. Align keyways in pin assembly (B) with splines in adjusting link bearing (F) and install pin assembly (B) from hull side to secure adjusting link (C) to compensating idler arm (A) .



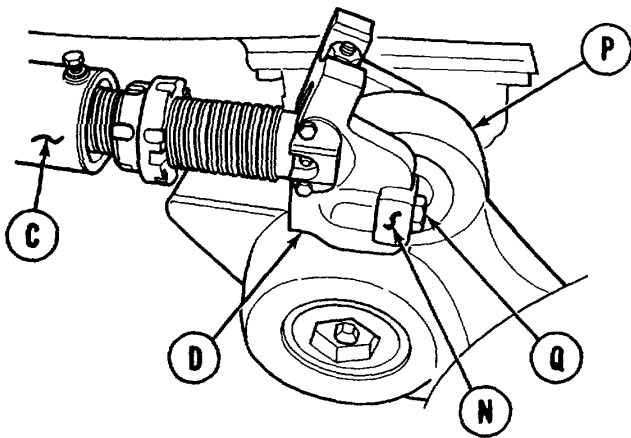
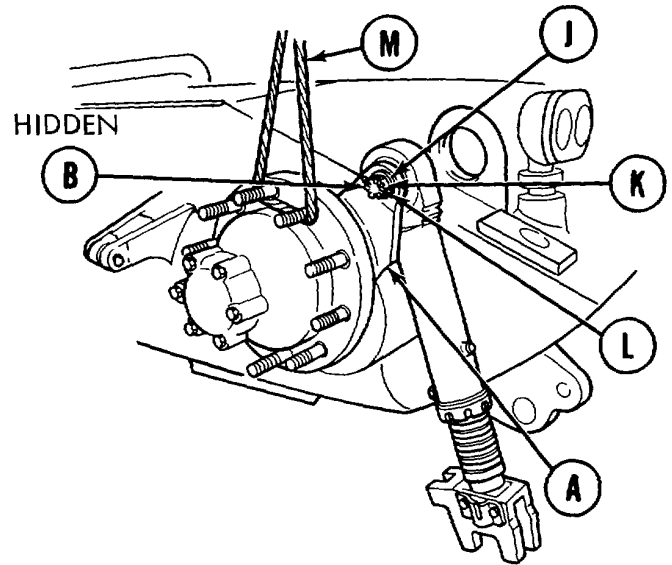
6. Align tab on pin assembly (B) with threaded hole in compensating idler arm (A) and install capscrew (G) and new lockwasher (H) . Using 3/4 inch wrench, tighten capscrew (G) .

Go on to Sheet 6

TA248465

**GREASE ACTUATED TRACK ADJUSTING LINK REPLACEMENT (Sheet 6 of 7)**

7. Install flat washer (J) and nut (K) on threaded end of pin assembly (B) .
8. Using 1-1/8 inch socket, tighten nut (K) and align slot in nut (K) with hole in pin assembly (B) .
9. Using pliers, install new cotter pin (L) .
10. Using wire rope assembly (M) and lifting device, lower compensating idler arm (A) .



11. Aline slots of yoke (D) on adjusting link (C) with bearing (N) on number 1 roadwheel support arm (P).
12. Using 15/16 inch socket and extension, install and tighten two cap screws (Q) to secure adjusting link (C) to bearing (N) .

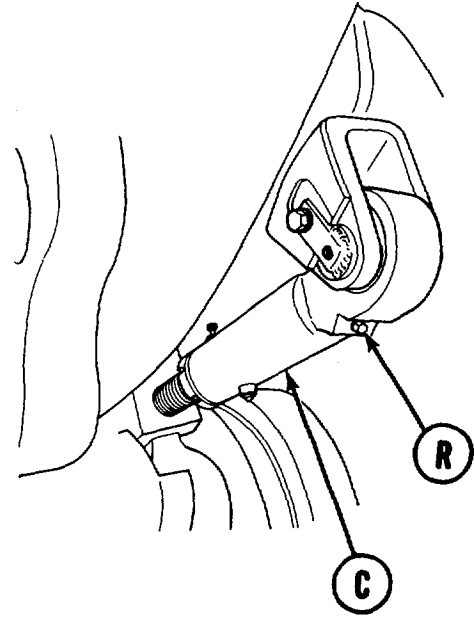
13. Using torque wrench, tighten cap screws (Q) 150-200 lb.ft. (203-271 N•m) .
14. Remove wire rope assembly (M) and lifting device.

Go on to Sheet 7

TA248466

**GREASE ACTUATED TRACK ADJUSTING LINK REPLACEMENT (Sheet 7 of 7)**

15. Using 3/8 inch wrench, install pipe plug (R) in adjusting link (C).
16. Install compensating idler wheel (page 14-53).
17. Install shock absorber (page 14-96).
18. Install front fender (page 16-68).
19. Connect track (TM 9-2350-260-10).
20. Adjust track tension (TM 9-2350-260-10).



End of Task

TA248467



**GREASE ACTUATED TRACK ADJUSTING LINK REPAIR (Sheet 1 of 4)**

PROCEDURE INDEX

PROCEDURE	PAGE
Disassembly	14-64.8
Inspection	14-64.9
Assembly	14-64.9

TOOLS: 7/16 in. socket with 1/2 in. drive  
 3/4 in. socket with 1/2 in. drive  
 15/16 in. socket with 1/2 in. drive  
 Gloves, rubber  
 Goggles, industrial  
 Ratchet with 1/2 in. drive  
 Torque wrench with 1/2 in. drive (0-175 lb-ft) (0-236 N•m)  
 10 in. adjustable wrench  
 Hammer  
 Chisel  
 Center punch  
 Bench vise with soft jaws

SPECIAL TOOLS: Bearing driver (Item 29.1, Chapter 3, Section I)

SUPPLIES: Brush (Item 10, Appendix D)  
 Rag, wiping (Item 65, Appendix D)  
 Dry cleaning solvent (Item 54, Appendix D)  
 Packing (NAS1523C-10B)  
 Lockwasher (MS35338-44) (2 required)

REFERENCES: None

PRELIMINARY PROCEDURE: Remove grease actuated track adjusting link from vehicle (page 14-64)

Go on to Sheet 2

TA248469

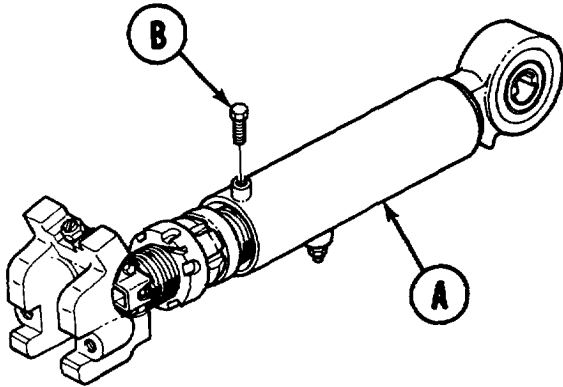
**Change 1 14-64.7**

## GREASE ACTUATED TRACK ADJUSTING LINK REPAIR (Sheet 2 of 4)

## DISASSEMBLY:

**WARNING**

Drycleaning solvent P-D-680 is toxic and flammable. Wear protective goggles and gloves and use only in a well ventilated area. Avoid contact with skin, eyes, and clothes and don't breathe vapors. Do not use near open flame or excessive heat. The flash point 100°F-138°F (38°C-50°C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.



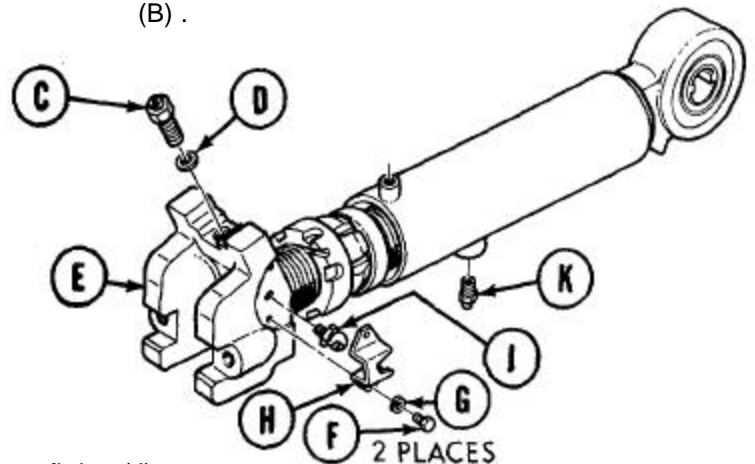
1. Clean grease actuated adjusting link (A) with solvent (Item 54, appendix D) , brush (Item 10, appendix D) , and rag (Item 65, appendix D) .
2. Using 3/4 inch socket, remove collar locking screw (B) .

3. Using 15/16 inch socket, remove pressure relief valve (C) and packing (D) from yoke (E) . Throw packing (D) away.

4. Using 7/16 inch socket, remove two screws (F) and lockwashers (G) from support link assembly (H). Throw lockwashers (G) away.

5. Using 7/16 inch socket, remove grease fitting (J) . Throw fitting (J) away.

6. Using 7/16 inch socket, remove safety relief valve (K) .



Go on to Sheet 3

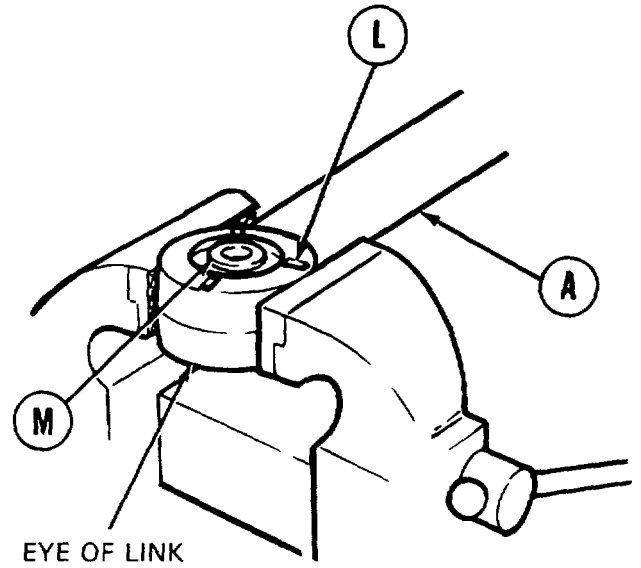
TA248470

**GREASE ACTUATED TRACK ADJUSTING LINK REPAIR (Sheet 3 of 4)**

7. Position adjusting link (A) in vise.
8. Using hammer and chisel, cut stakes (L) at three places (both sides) that hold bearing (M) in eye end of link.
9. Using bearing driver tool (Item 29.1, Chapter 3, Section I) and adjustable wrench, remove bearing (M) from adjusting link (A) . Throw bearing (M) away.

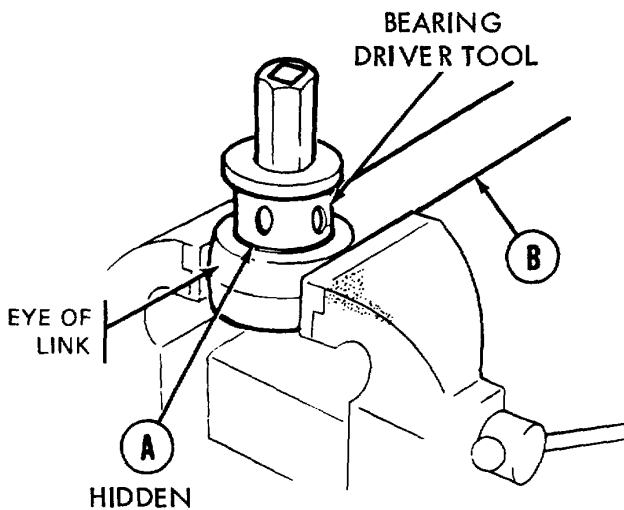
**INSPECTION:**

1. Inspect all parts removed for cracks, breaks, crossed or stripped threads, or missing items. Replace damaged or missing parts as necessary.
2. Inspect adjusting link for cracks, mechanical damage, or corrosion. Cracks are not permissible. Turn damaged adjusting link in to next higher level maintenance.



**ASSEMBLY:**

1. Using bearing driver tool (Item 29.1, Chapter 3, Section I) and adjustable wrench, install new bearing (A) in adjusting link (B) .
2. Using hammer and center punch, stake bearing (A) in adjusting link (B) in three places (both sides) .



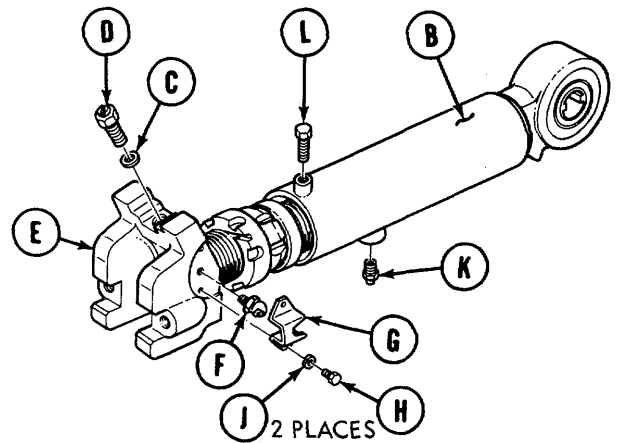
Go on to Sheet 4

TA248471

Change 1 14-64.9

**GREASE ACTUATED TRACK ADJUSTING LINK REPAIR (Sheet 4 of 4)**

3. Put thin coat of grease (Item 36, Appendix D) on new packing (C) .
4. Install new packing (C) and pressure relief valve (D) in yoke (E) .
5. Using 0-175 foot-pound torque wrench and 15/16 inch socket, torque valve (D) between 40-60 pound-feet.
6. Using 7/16 inch socket, install grease fitting (F) in yoke (E) .



7. Position support link assembly (G) on yoke (E) . Using 7/16 inch socket, install two screws (H) and new lockwashers (J).
8. Using 7/16 inch socket, install safety relief valve (K) in adjusting link (B) .
9. Install locking collar screw (L) in adjusting link (B) , but do not tighten.
10. Install grease actuated track adjusting link (page 14-64.4) .

End of Task

TA248472

**COMPENSATING IDLER HUB AND ARM REPLACEMENT (Sheet 1 of 3)**

**TOOLS:** 15/16 in. socket with 3/4 in. drive  
 Ratchet with 3/4 in. drive  
 Torque wrench with 3/4 in. drive  
 Universal joint with 3/4 in. drive  
 7/8 in. combination box and open end wrench  
 36 in. extension with 3/4 in. drive  
 T-bar with 3/4 in. drive

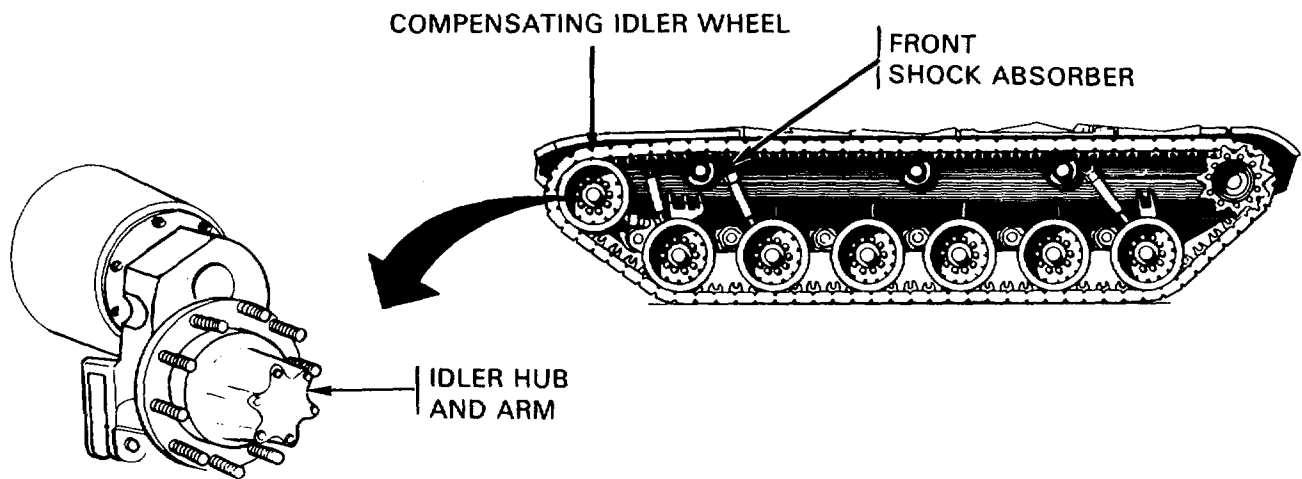
**SUPPLIES:** Preformed packing (8387481)  
 5/8-11 UNC capscrews, 2 in. long (2 required)  
 Grease (Item 36, Appendix D)  
 Lockwashers (MS35340-50) (6 required)

**PERSONNEL:** Three

**REFERENCES:** TM 9-2350-260-10  
 LO 9-2350-260-12

**PRELIMINARY PROCEDURE:** Remove track adjusting link (page 14-57)

**REMOVAL:**



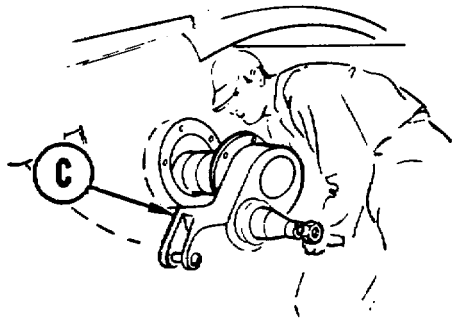
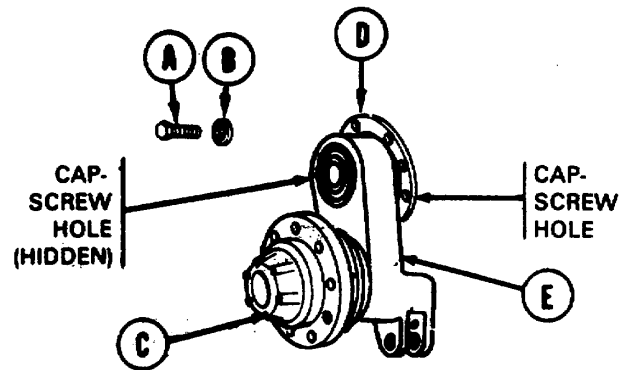
**NOTE**

**When removing screws in next step, have second person move hub to align screws with removal slots.**

Go on to Sheet 2

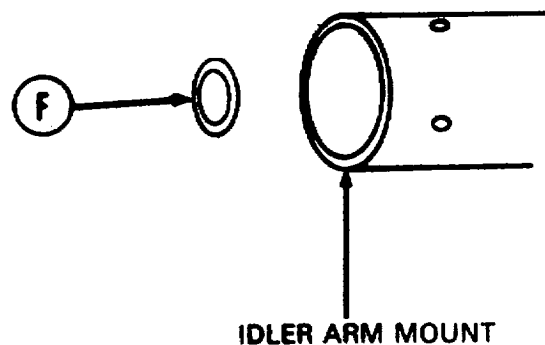
**COMPENSATING IDLER HUB AND ARM REPLACEMENT (Sheet 2 of 3)**

1. Using socket, remove six screws (A) and lockwashers (B) securing hub and arm assembly (C) to hull. Throw lockwashers (B) away.
2. Install two capscrews into holes in oil seal retainer (D) of idler arm (E) .



3. Using two other persons, support hub and arm assembly.
4. Screw two capscrews alternately into retainer (D)

5. Using two persons, remove hub and arm assembly (C).
6. Remove preformed packing (F) from groove in idler arm mount. Throw packing away.
7. Remove capscrews from retainer (D) .

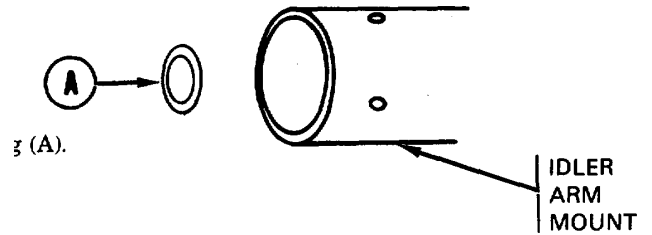
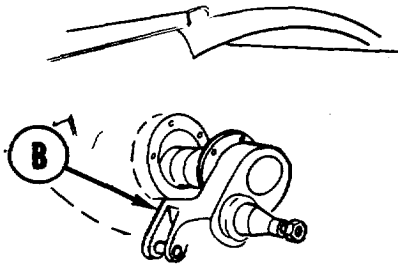


Go on to Sheet 3

**COMPENSATING IDLER HUB AND ARM REPLACEMENT (Sheet 3 of 3)**

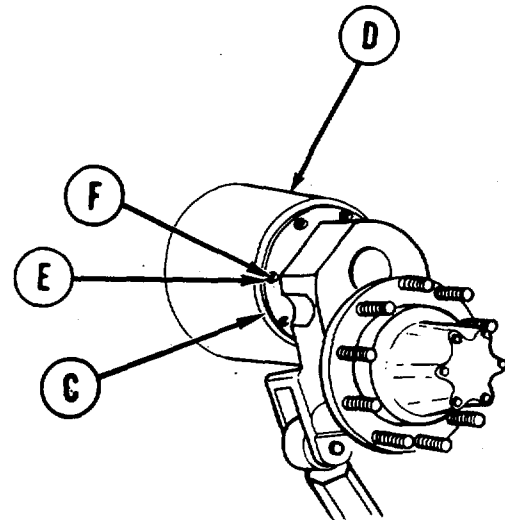
**INSTALLATION:**

1. Grease (Item 36, Appendix D) new packing (A).  
Install it to groove in idler arm mount.



2. Using three persons, lift hub and arm assembly (B) to mounting position.
3. Push arm of assembly (B) into mount opening.
4. Aline holes in grease seal retainer (C) with mounting holes on hub (D) .

5. Install six new lockwashers (E) and screws (F) .
6. Using socket with torque wrench, tighten screws (E) to 140-165 lb-ft (190-224 N•m).
7. Using grease gun to fitting, shoot grease (Item 36, Appendix D) into idler arm mount housing (LO 9-2350-260-10).
8. Install adjusting link (page 14-59) .
9. Test drive tank a short way (TM 9-2350-260-10) .



End of Task

TA147867

**COMPENSATING IDLER ARM ASSEMBLY REPAIR (Sheet 1 of 5)**

PROCEDURE INDEX

PROCEDURE	PAGE
Disassembly	14-68
Cleaning and Inspection	14-69
Assembly	14-69

TOOLS: 9/16 in. socket with 1/2 in. drive  
 Drift punch  
 Ratchet with 1/2 in. drive  
 Hammer  
 1/2 in. hinged handle  
 Needle nose pliers

Pinch bar  
 Ratchet with 3/4 in. drive  
 Impact wrench with 1 in. drive  
 Flat-tip screwdriver  
 Torque wrench with 3/4 in. drive (0-600 lb-ft)  
 (0-814 N•m)  
 2-1/2 in. socket with 1 in. drive

SPECIAL TOOLS: Handle, remover and replacer (Item 9, Chapter 3, Section I)  
 Replacer, oil seal (Item 19, Chapter 3, Section I)  
 Replacer, oil seal and retainer (Item 22, Chapter 3, Section I)  
 Wrench, hook spanner (Item 25, Chapter 3, Section I)

SUPPLIES: Grease (Item 36, Appendix D)  
 Seal (MS51912-2-9)

REFERENCES: TM 9-2350-260-10  
 LO 9-2350-260-12

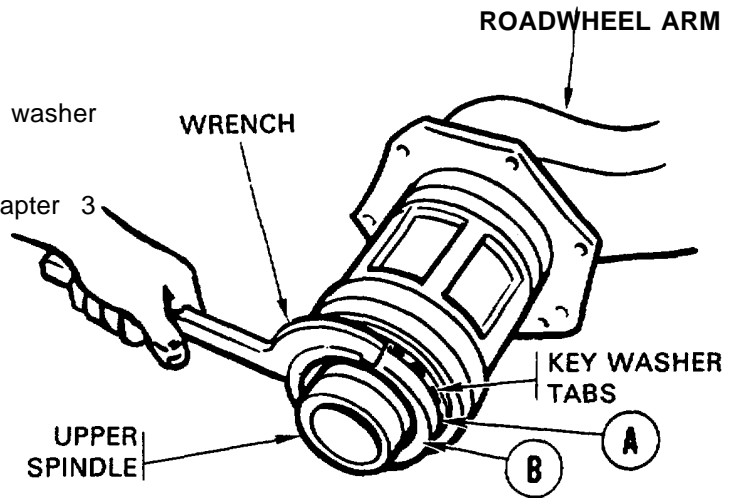
PRELIMINARY PROCEDURE: Remove compensating idler arm assembly (page 14-64)



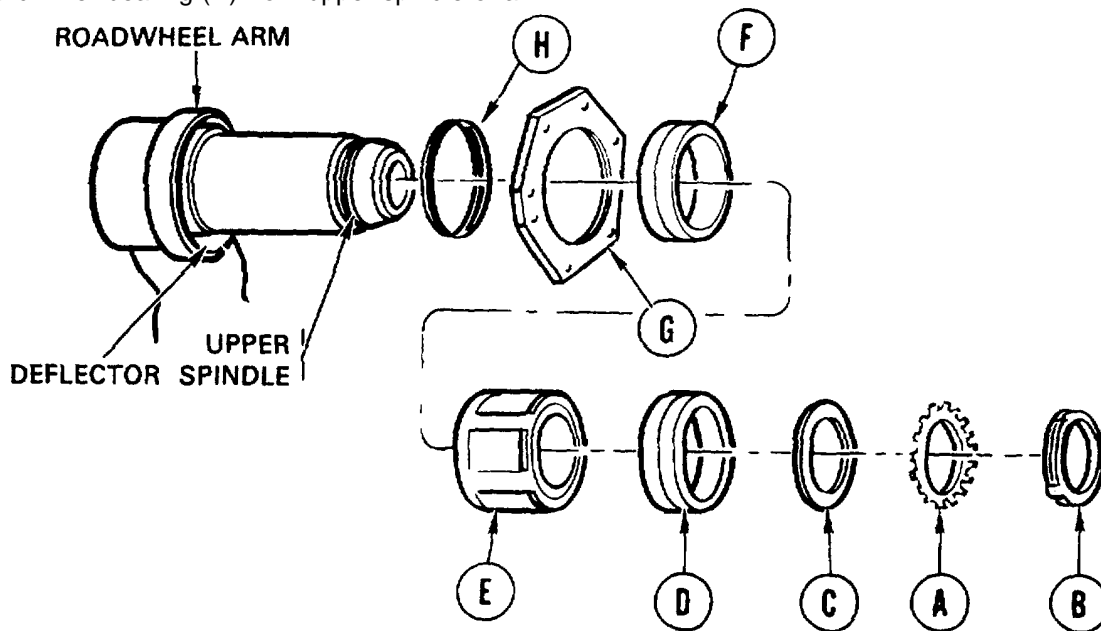
**COMPENSATING IDLER ARM ASSEMBLY REPAIR (Sheet 2 of 5)**

**DISASSEMBLY:**

1. Using hammer and punch, bend tabs of key washer (A) back from nut (B) .
2. Using spindle nut wrench (Item 25, Chapter 3 Section I) , loosen nut (B) .



3. Remove nut (B) , key washer (A), bearing washer (C , and inner bearing (D) from upper spindle of arm.



**NOTE**

**It may be necessary to tap oil seal retainer (G) lightly with hammer to aid in removing outer bearing (F) .**

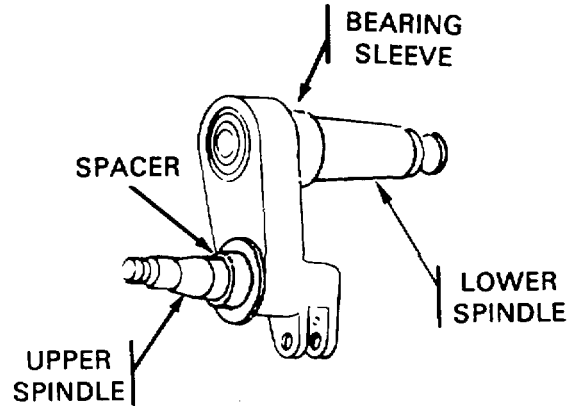
4. Remove spacer (E) and outer bearing (F) from upper spindle.
5. Slide oil seal retainer (G) off upper spindle.
6. Using screwdriver, pry seal (H) out of retainer (G) . Throw seal away.

Go on to Sheet 3

**COMPENSATING IDLER ARM ASSEMBLY REPAIR (Sheet 3 of 5)**

**CLEANING AND INSPECTION:**

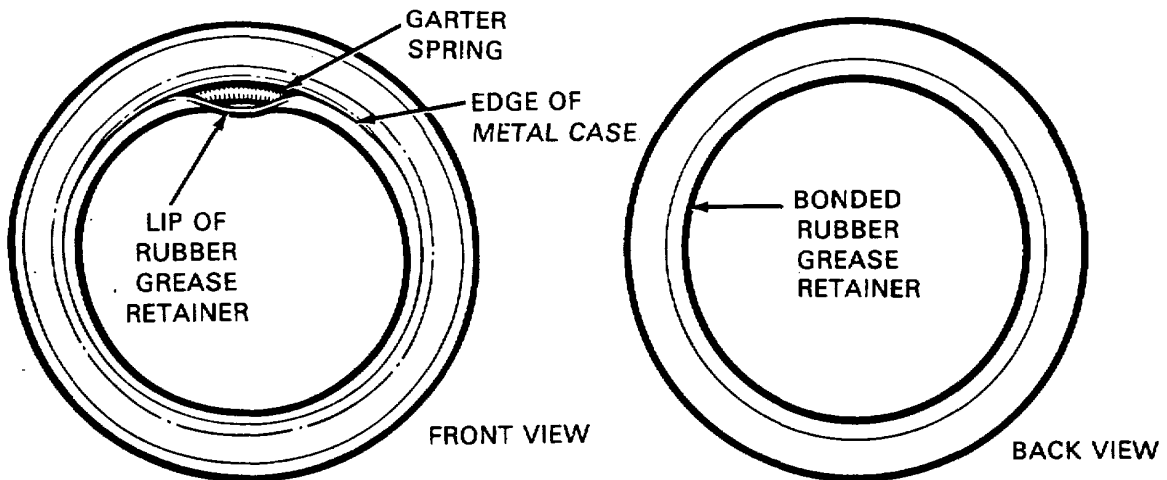
1. Clean all part including bearings.
2. Minor nicks, scratches, gouges, and pitting are okay if they are not on machined surfaces.
3. Inspect bearings and cups for damage. Replace as necessary.
4. Check seal assembly for rust, missing rivets, or other damage. Replace seal where required.
5. Inspect all nuts, washers, and screws for wear and damaged threads.
6. Inspect spacer and bearing sleeve on spindles for scratches, nicks, or dents. If damaged, notify support maintenance.



**ASSEMBLY:**

**NOTE**

Identify **FRONT** and **BACK** of outer grease seal. Rubber grease seal retaining lip can be pulled away from metal inner edge on **FRONT** of seal. Pull back retaining lip on seal and expose garter spring. **BACK** of seal has rubber grease retainer bonded to metal case and cannot be pulled away.

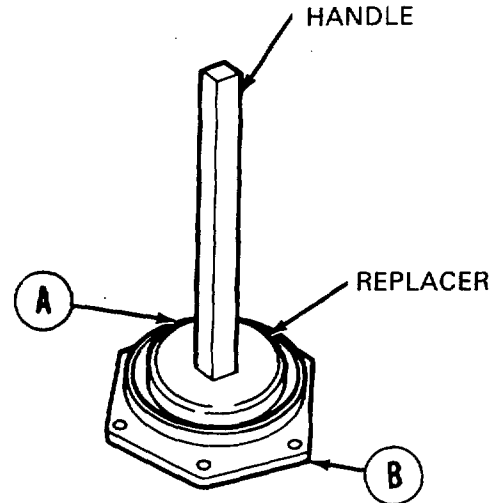


**OUTER GREASE SEAL**

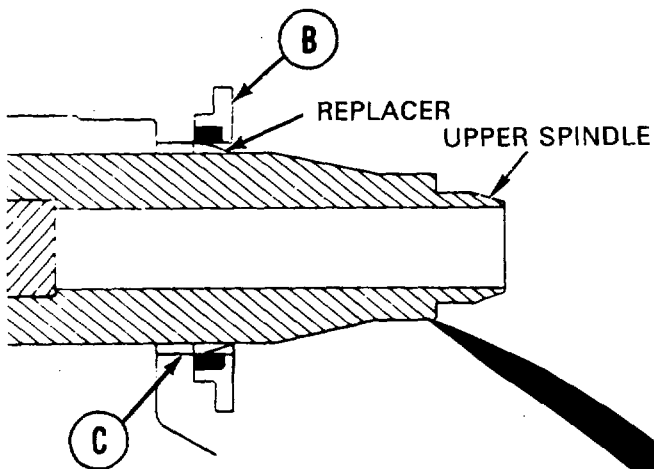
Go on to Sheet 4

**COMPENSATING IDLER ARM ASSEMBLY REPAIR (Sheet 4 of 5)**

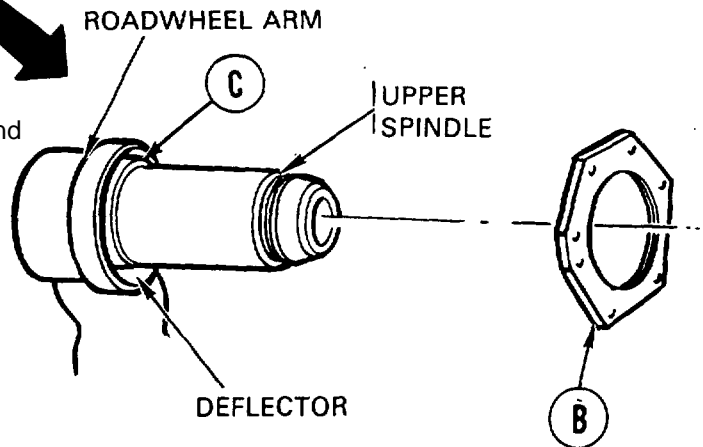
1. Apply a light coat of grease (Item 36, Appendix D) to outside of seal (A) .
2. Position new outer grease seal (A) into retainer (B) so BACK of seal is into retainer and FRONT is facing away from retainer.



3. Using replacer and handle (Item 19 and 9, Chapter 3, Section I) , tap seal (A) into place in seal retainer (B) .
4. Coat upper spindle or arm, replacer, and seal retainer (B) with grease (Item 36, Appendix D) .
5. Position replacer (Item 22, Chapter 3, Section I) on upper spindle, flush with spacer (C) .



6. Slide seal retainer (B) over upper spindle and replacer until it is seated on spacer (C) .

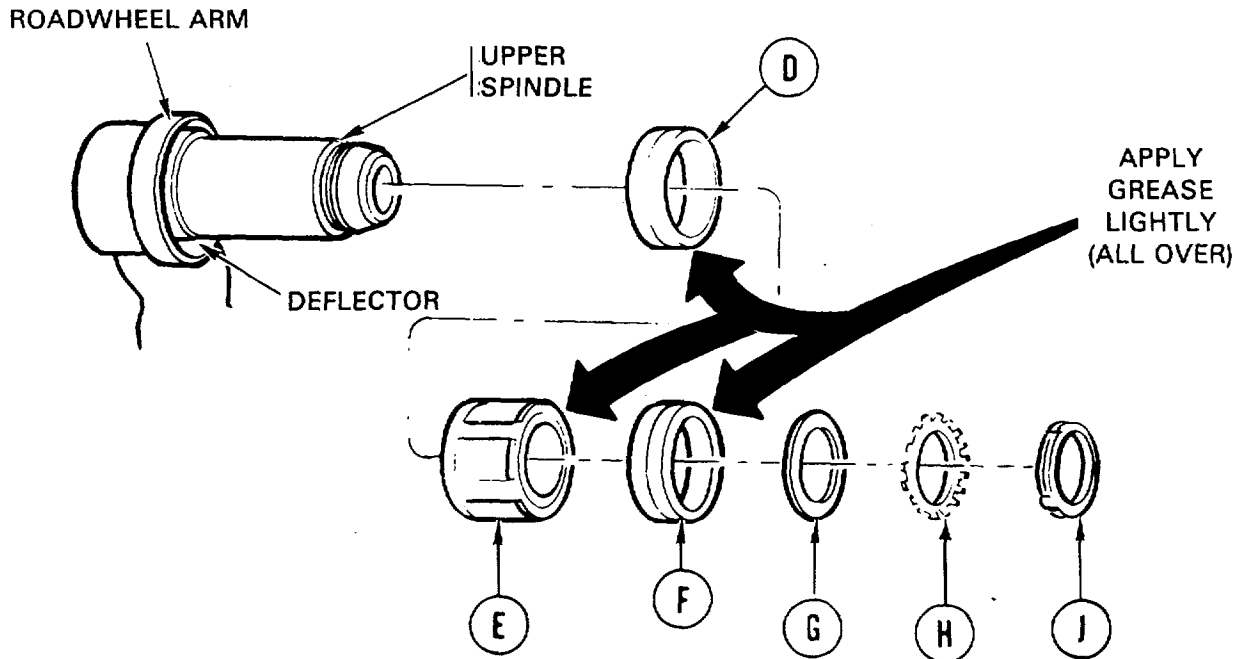


Go on to Sheet 5

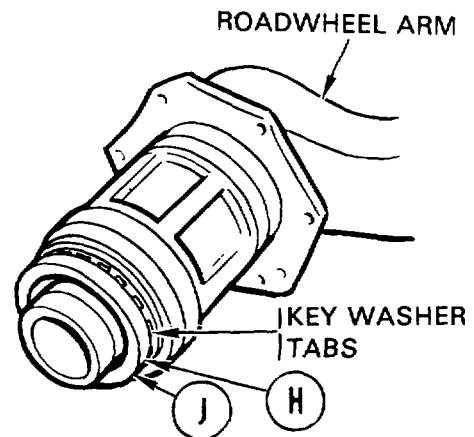
TA147871

COMPENSATING IDLER ARM ASSEMBLY REPAIR (Sheet 5 of 5)

7. Remove replacer from upper spindle.



8. Apply light coat of grease to outer bearing (D) , bearing spacer (E) , and inner bearing (F). Install them on arm upper spindle.
9. Install bearing washer (G) , key washer (H) with tabs toward nut (J) , and screw nut (J) onto end of upper spindle.
10. Using spanner wrench (Item 25, Chapter 3, Section I) tighten nut (J) until bearing assembly cannot be turned.
11. Back nut (J) off just enough so bearing assembly can be turned by hand through one complete turn on spindle.
12. Using hammer and punch, bend tab of key washer (H) so it fits in one of our slots in nut (J) .
13. Service hub and arm assembly (LO 9-2350-260-12).
14. Install compensating idler arm assembly (page 14-16) .



End of Task

**TRACK DRIVE SPROCKET REPAIR AND REPLACEMENT (Sheet 1 of 9)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	14-73
Disassembly	14-75
Inspection	14-77
Assembly	14-77
Installation	14-79

TOOLS: 1-7/16 in. socket with 3/4 in. drive  
 Impact wrench with 3/4 in. drive  
 16 in. extension with 3/4 in. drive  
 15/16 in. socket with 3/4 in. drive (2 required)  
 Ratchet with 3/4 in. drive  
 Sledge hammer  
 Pinchbar  
 Torque wrench with 3/4 in. drive (0-600 lb-ft) ( 0-814 Nm)  
 3/8 in. drift

SPECIAL TOOLS: Sling (Item 23, Chapter 3, Section I)  
 Remover (Item 13, Chapter 3, Section I)

SUPPLIES: Chalk (Item 11, Appendix D)  
 Lubricant (Item 40, Appendix D)  
 5/8-18 UNF bolt (3 in. long) (3 required)  
 Self-locking nuts (10870133) (10 required)  
 Wood block

PERSONNEL: Three

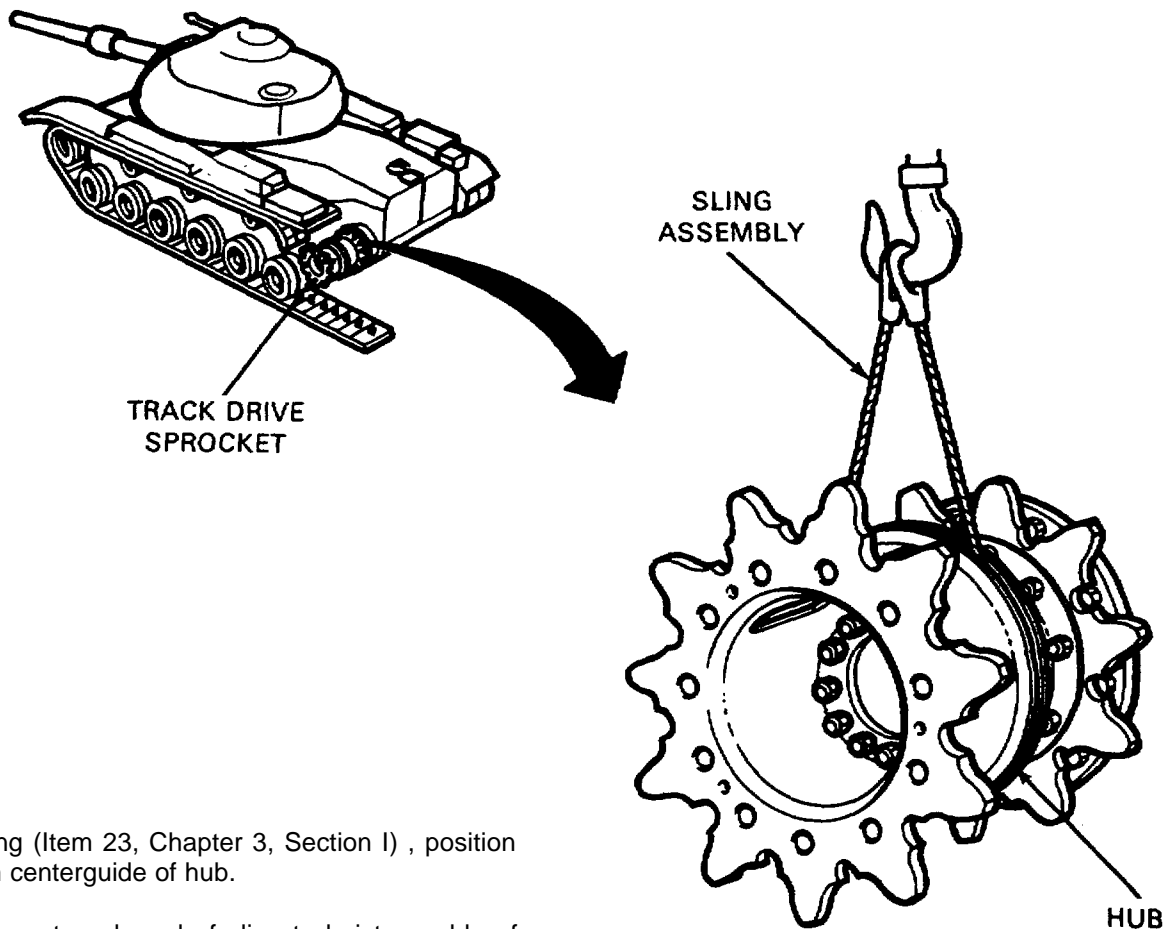
REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURE: Remove track from drive sprocket (page 14-81)

Go on to Sheet 2

TA147873

## TRACK DRIVE SPROCKET REPAIR AND REPLACEMENT (Sheet 2 of 9)



## REMOVAL:

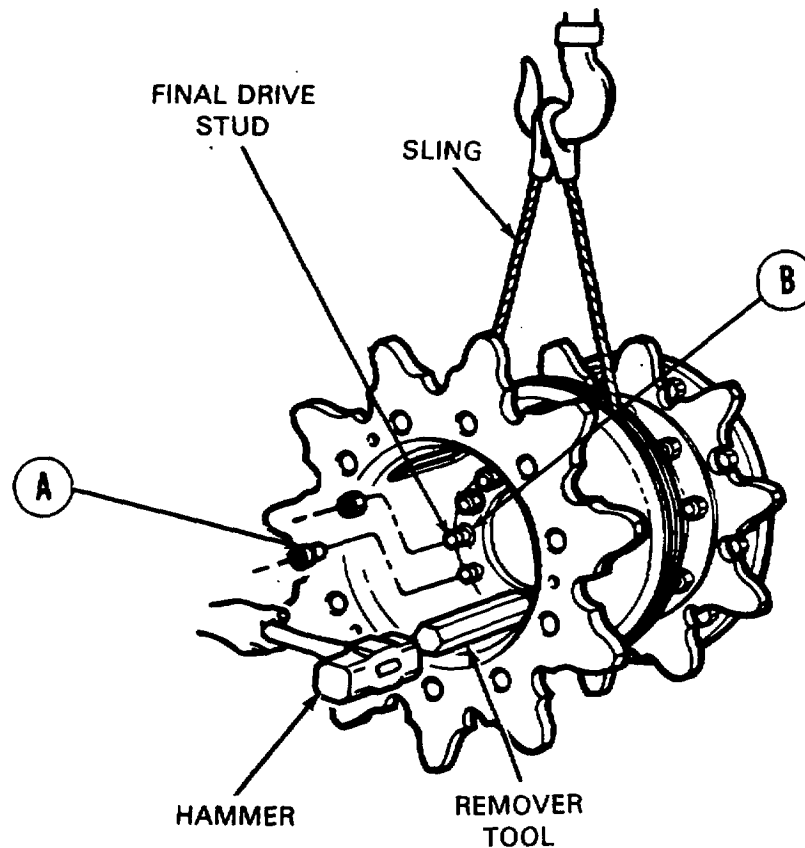
1. Using sling (Item 23, Chapter 3, Section I) , position it through centerguide of hub.
2. Attach loop at each end of sling to hoist capable of lifting 600 pounds.
3. Use three persons, two on ground and one operating hoist.
4. Direct person operating hoist to take up slack of sling.
5. Check sling for tightness around sprocket. Make sure sling is tight and secure.

Go on to Sheet 3

TA147874

14-73

## TRACK DRIVE SPROCKET REPAIR AND REPLACEMENT (Sheet 3 of 9)



6. Using 1-7/16 inch socket with extension and handle, remove 10 nuts (A) securing sprocket and hub assembly to final drive hub.
7. Throw nut (A) away.
8. Thread special remover tool (Item 13, Chapter 3, Section I) tightly onto stud. Using sledge hammer, strike remover tool to loosen tapered bushing (B) from final drive studs.
9. Remove tool. Remove bushing.
10. Do steps 8 and 9 to remove other nine hub tapered bushings (B) . Replace bushings if needed.

**NOTE**

**If sprocket has been on hub for long period of time, it may be necessary to strike it repeatedly with 20 pound sledge hammer until it becomes unsealed from hub.**

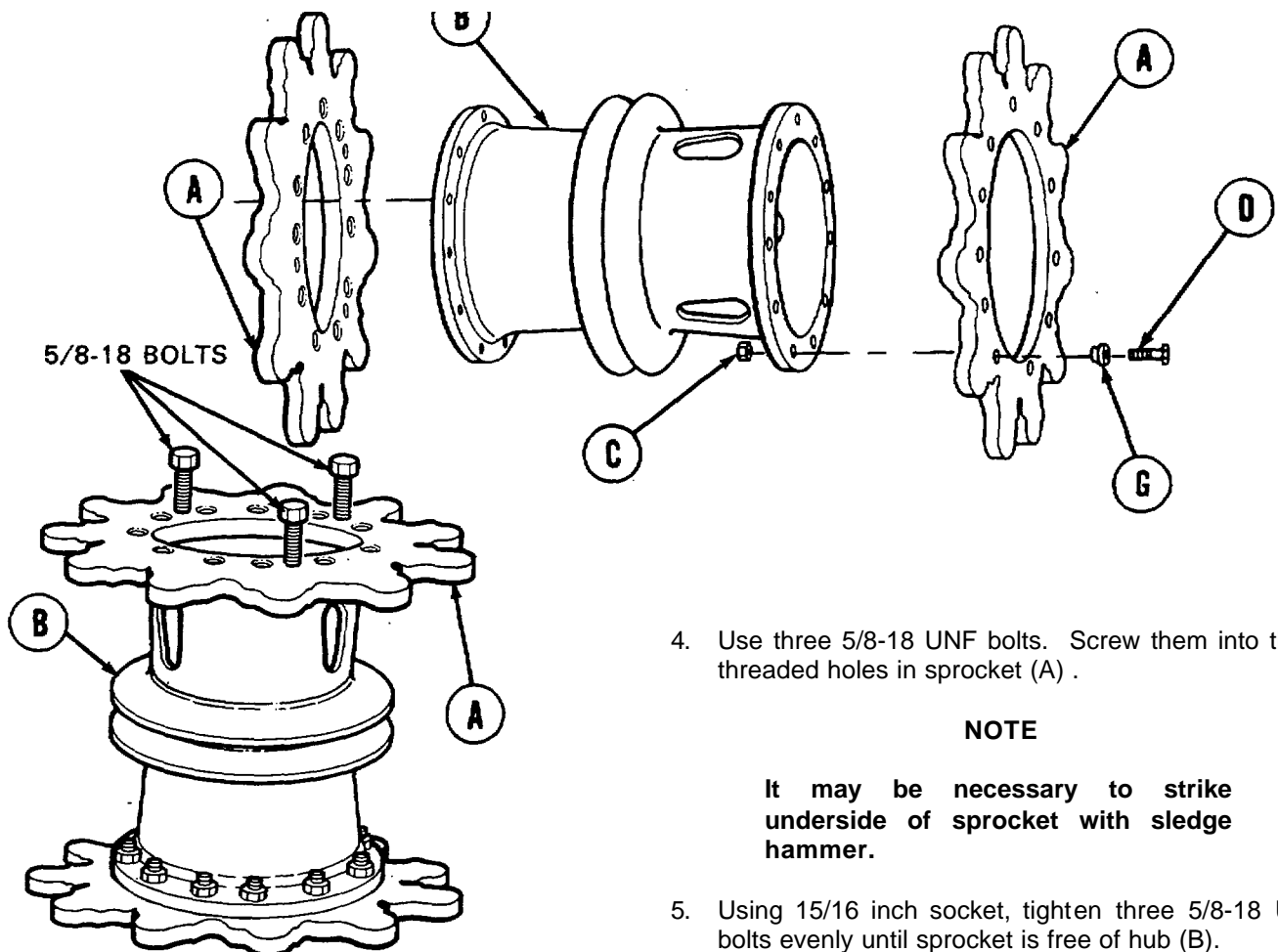
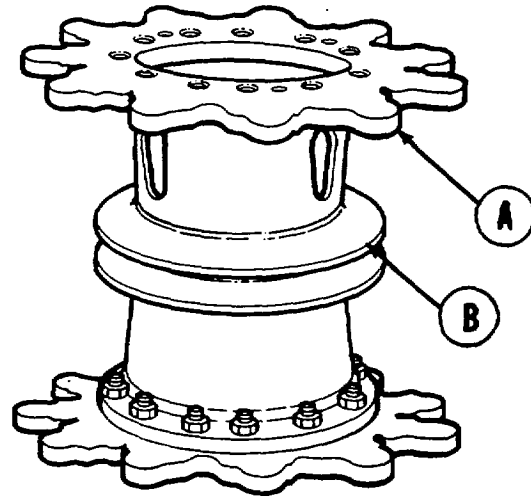
11. Using second person to assist, pull sprocket and hub assembly free of mounting place on tank.
12. Using hoist and sling, move sprocket and hub assembly away from tank.

Go on to Sheet 4

**TRACK DRIVE SPROCKET REPAIR AND REPLACEMENT (Sheet 4 of 9)**

**DISASSEMBLY:**

1. With help of other two persons, sit sprocket and hub assembly on end so sprocket (A) faces up.
2. Using 15/16 inch socket, remove 11 nut (C) .
3. Using 15/16 inch socket, remove 11 bolts (D) .



4. Use three 5/8-18 UNF bolts. Screw them into three threaded holes in sprocket (A) .

**NOTE**

**It may be necessary to strike underside of sprocket with sledge hammer.**

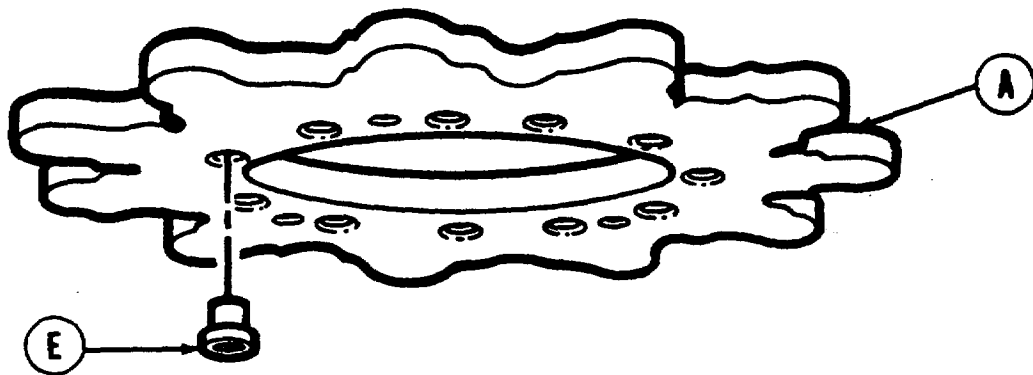
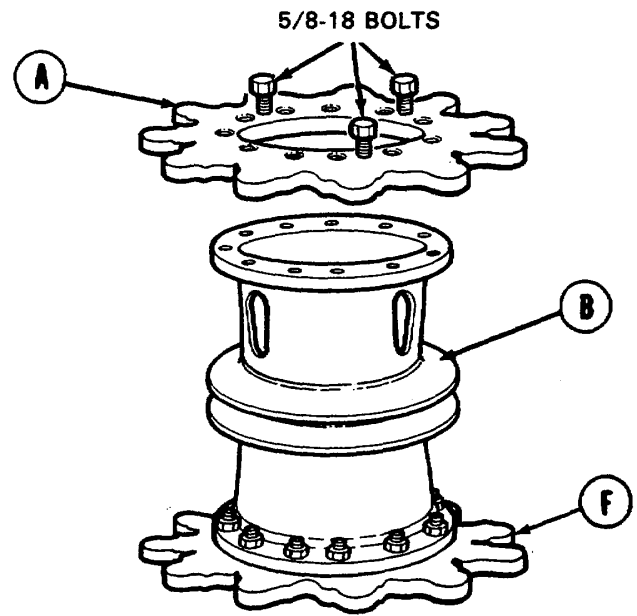
5. Using 15/16 inch socket, tighten three 5/8-18 UNF bolts evenly until sprocket is free of hub (B).

Go on to Sheet 5



TRACK DRIVE SPROCKET REPAIR AND REPLACEMENT (Sheet 5 of 9)

6. Using two other persons, lift sprocket (A) off hub (B).
7. Using chalk (Item 11, Appendix D), mark sprocket (A) either 'INNER' or 'OUTER' depending on where it was mounted to hub (B) .
8. Remove three 5/8-18 UNF bolts from sprocket (A).



9. Using hammer and punch to drive, drive 11 tapered bushings (E) out of sprocket (A) . Replace bushings if needed.
10. With help from one other person, use pinchbar to set hub so other sprocket (F) faces up.
11. Repeat steps 2 thru 10 to remove other sprocket (F) .

Go on to Sheet 6

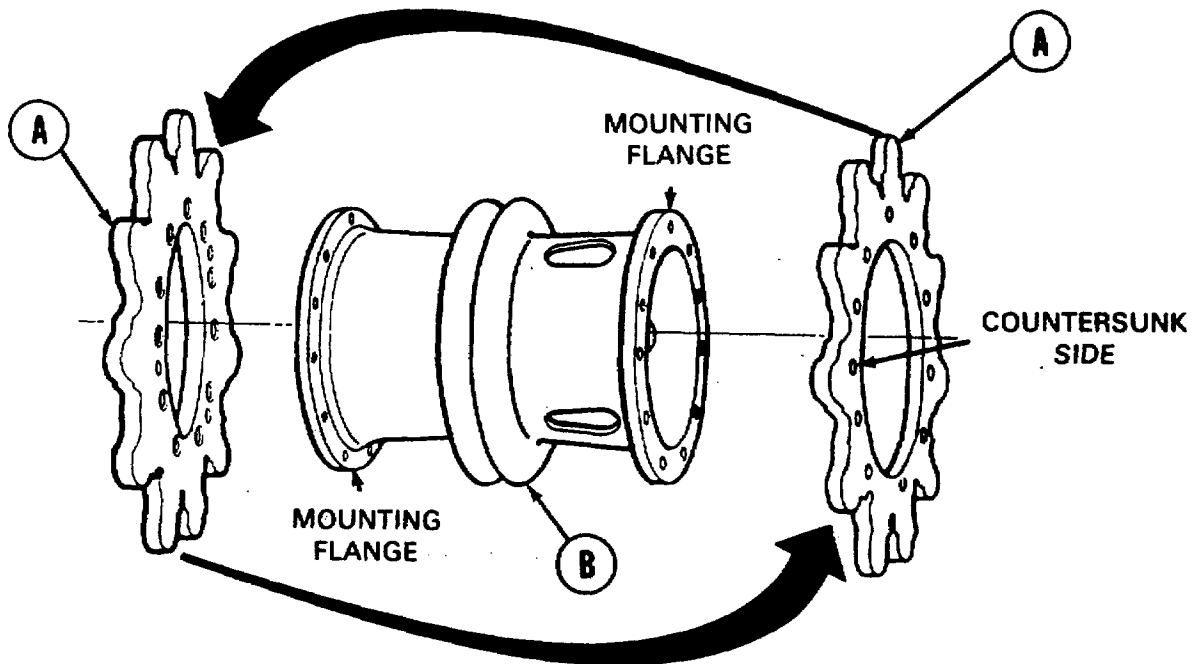
TA147877

**TRACK DRIVE SPROCKET REPAIR AND REPLACEMENT (Sheet 6 of 9)****INSPECTION:**

1. Inspect sprockets for wear by checking wear marks or by using wear gage.
2. Inspect all parts for damage. Replace any damaged or worn parts.

**ASSEMBLY:**

1. If two sprockets (A) are not replaced, reverse them when reassembling.

**NOTE**

**Sprocket marked 'OUTER' becomes inner one. Sprocket marked 'INNER' becomes outer one.**

2. Mounting flange of hub (B) should be facing up.
3. Mount sprocket (A) into position to hub (B) with countersunk side of hole facing up.

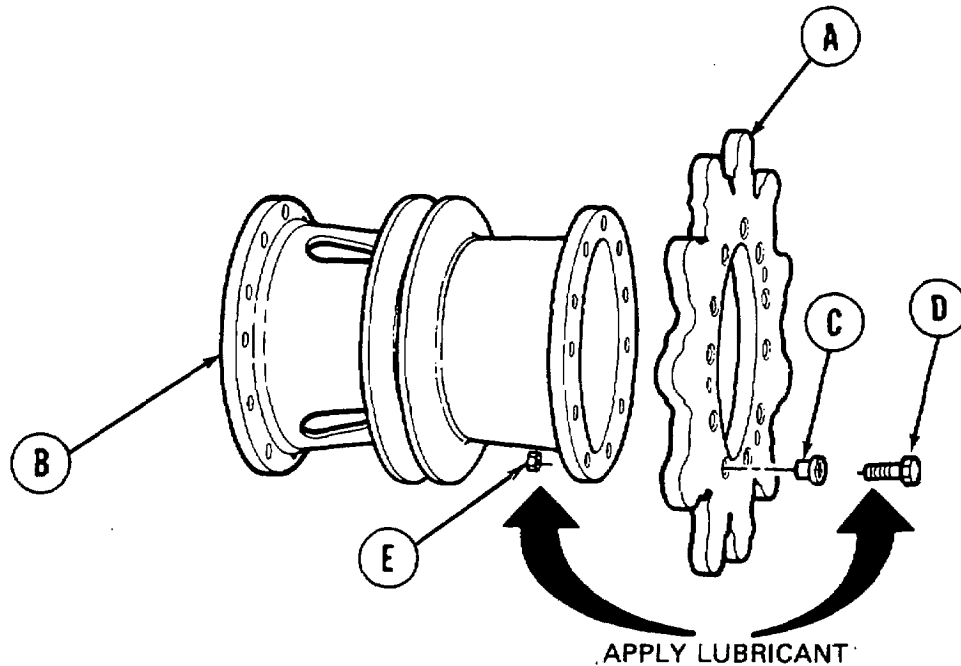
Go on to Sheet 7

TA147878

14-77

**TRACK DRIVE SPROCKET REPAIR AND REPLACEMENT (Sheet 7 of 9)**

4. Using hammer and block, tap all 11 tapered bushings (C) into place in sprocket.
5. Apply light coat of lubricant (Item 40, Appendix D) to 11 new bolts (D) and nut (E) threads before installing them.
6. Install 11 bolts (D) to secure sprocket (A) to hub (B) .

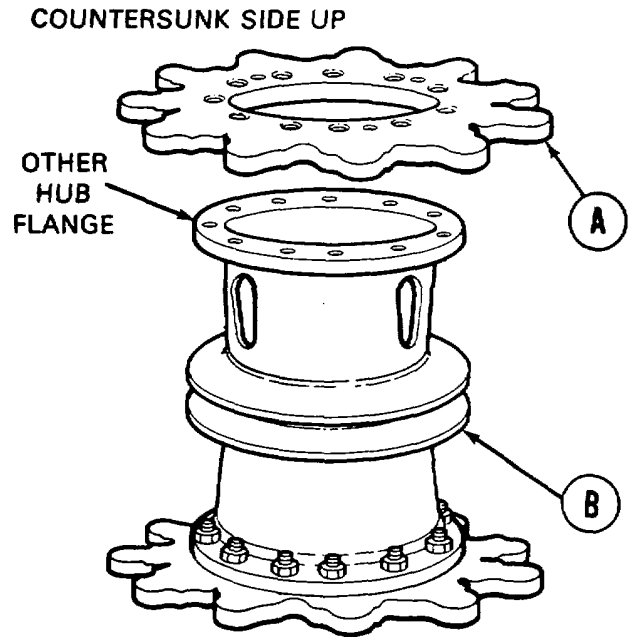


8. Install nuts (E) onto bolts (D) .
9. Using 15/16 inch socket and torque wrench, tighten nuts (E) to 135-145 lb-ft (183-225 Nm).

Go on to Sheet 8

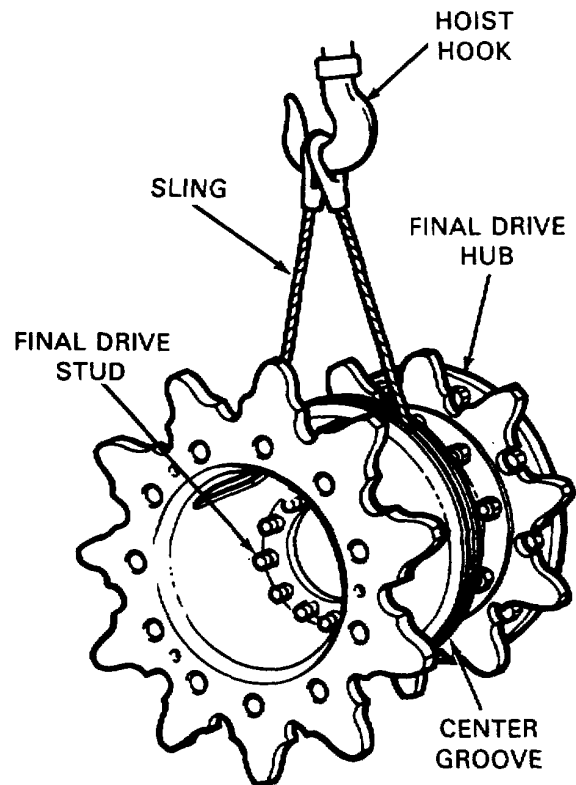
**TRACK DRIVE SPROCKET REPAIR AND REPLACEMENT (Sheet 8 of 9)**

10. Using pinchbar and two other persons for assistance, stand hub on end so other flange faces up.
11. Three persons lift other sprocket (A) onto hub (B) flange.
12. Repeat steps 4 through 9 to install other sprocket (A) to hub (B) .



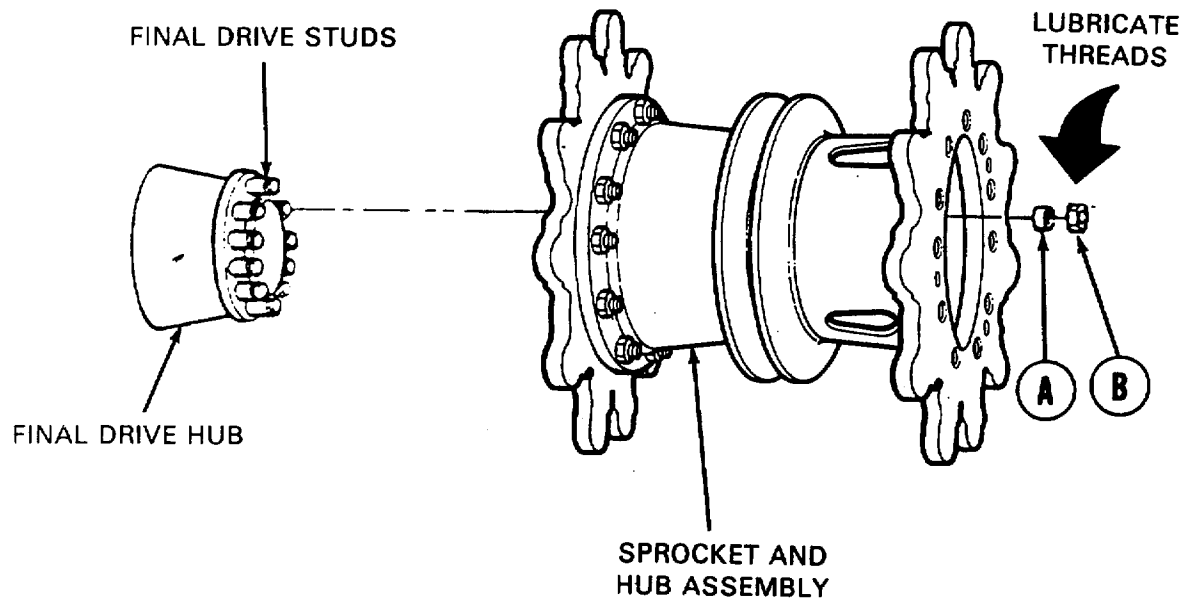
**INSTALLATION:**

1. Position sling through center groove of hub.
2. Place loop at both ends of sling over hook of hoist.
3. Using second person to guide sprocket and hub assembly, carefully lift it into mounting position.



Go on to Sheet 9

## TRACK DRIVE SPROCKET REPAIR AND REPLACEMENT (Sheet 9 of 9)



4. Mount sprocket and hub assembly onto final drive studs.
5. Install 10 new tapered bushings (A) into hub mounting holes.
6. Apply lubricant (Item 40, Appendix D) to nuts (B).
7. Screw 10 new self-locking nuts (B) onto studs.
8. Using 1-1/2 inch socket with extension and impact wrench (or 3/4 inch drive handle if impact wrench cannot be found), tighten nut alternately (in crisscross pattern).
9. Using torque wrench and extension, tighten nuts to 425-450 lb-ft (576-610 N•m).
10. Install track on rear sprocket.

End of Task

TA147881

**TRACK ASSEMBLY REPLACEMENT (Sheet 1 of 10)**

PROCEDURE INDEX

PROCEDURE	PAGE
Removal	14-82
Installation	14-84

- TOOLS: Sledge hammer  
 15/16 in. socket with 3/4 in. drive  
 Hinged handle ('breaker' bar) with 3/4 in. drive  
 Ratchet with 3/4 in. drive  
 2 lb hammer  
 Crowbar, pinch point  
 1-5/16 in. socket with 3/4 in. drive  
 1-1/2 in. socket with 3/4 in. drive  
 Torque wrench with 3/4 in. drive (0-600 lb-ft) (0-814 N•m)  
 10 in. extension with 3/4 in. drive

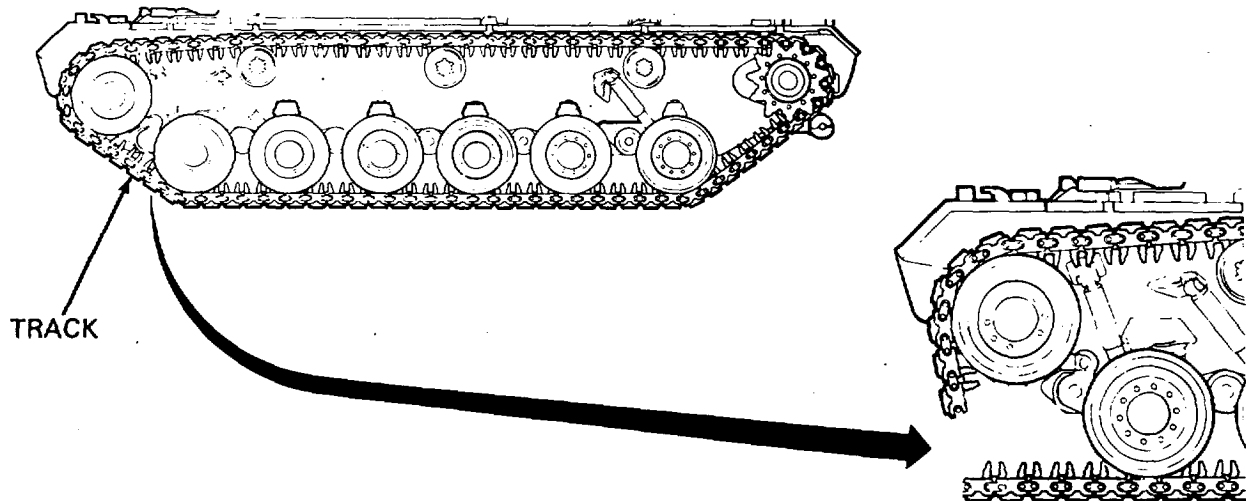
SPECIAL TOOLS: End connector puller (Item 8, Chapter 3, Section I)

SUPPLIES: Rope (Item 64, Appendix D) (50 ft.)

PERSONNEL: Three

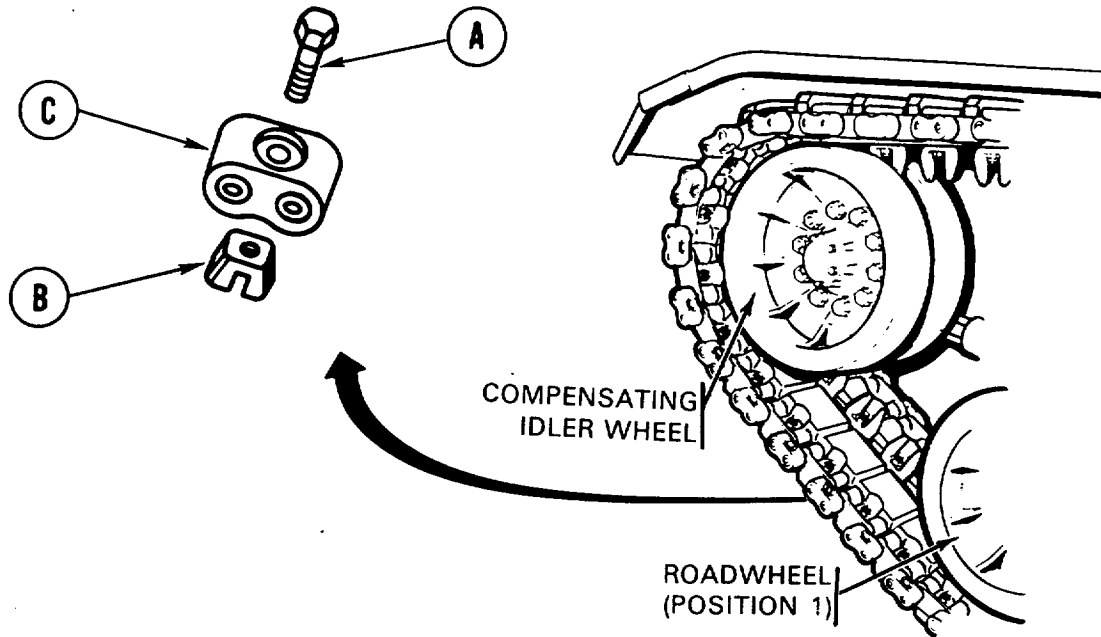
REFERENCE: TM 9-2350-260-10

PRELIMINARY PROCEDURES: Loosen track tension (TM 9-2350-260-10)  
 Remove rear fender and shield (If required) (page 16-75)



Go on to Sheet 2

TRACK ASSEMBLY REPLACEMENT (Sheet 2 of 10)

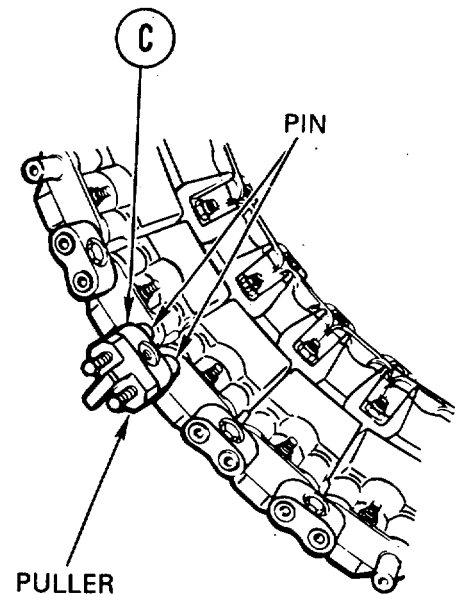


NOTE

Disconnect track up front between compensating idler wheel and roadwheel at position No. 1 (on either side) .

REMOVAL:

1. Using 15/16 inch socket with ratchet, loosen bolt (A) securing wedge (B) to end connector (C) .
2. Using hammer, tap wedge (B) to loosen it.
3. Remove bolt and wedge. Throw both parts away.
4. Repeat steps 1 thru 3 to remove bolt and wedge at opposite side of track.
5. Install end connector puller (Item 8, Chapter 3, Section I) into end connector (C) .
6. Using 1-1/2 inch socket, tighten two screws of puller evenly.

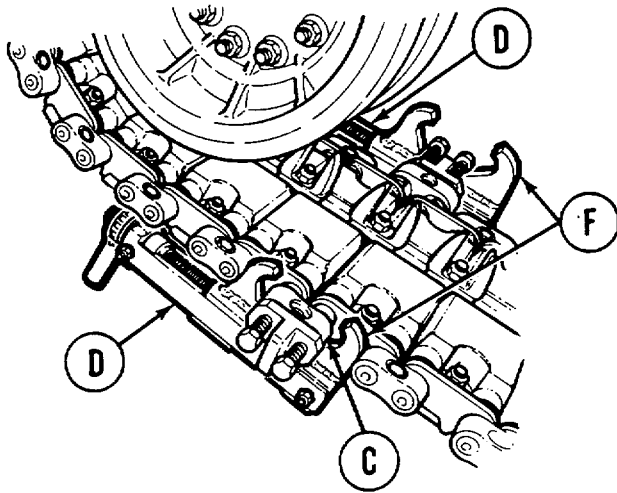
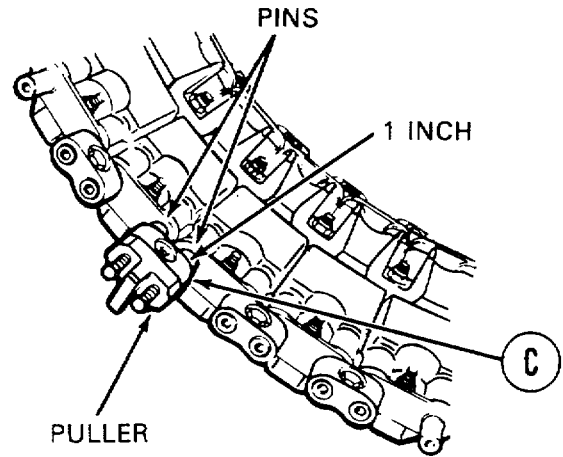


Go on to Sheet 3

TA147883

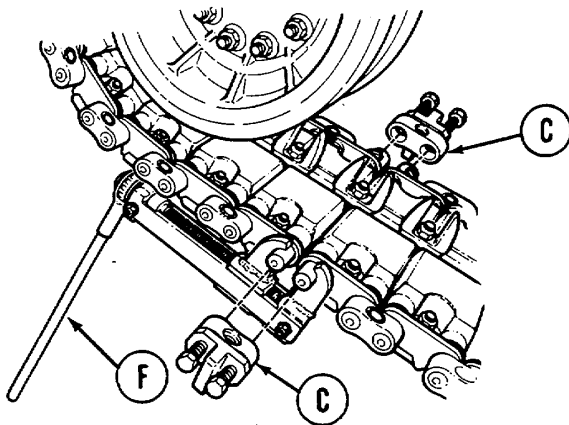
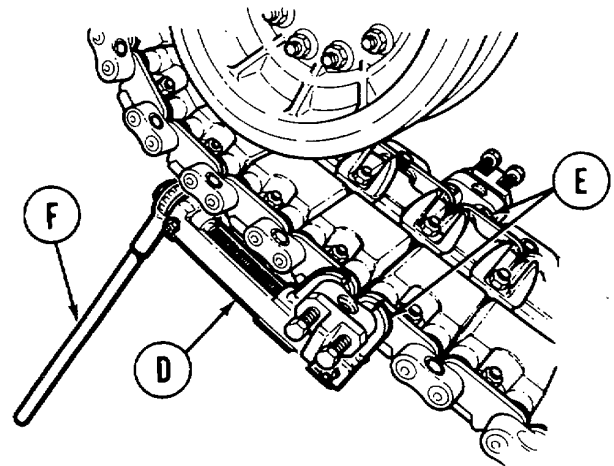
**TRACK ASSEMBLY REPLACEMENT (Sheet 3 of 10)**

7. Keep on tightening puller screws until end connector (C) is 1 inch out of track pins.
8. Repeat steps 5 thru 7 at opposite side of track.



9. Install track connecting fixtures (D) on both sides of track so that clamps (E) fit around two pins of track.

10. Using tool handle (F), tighten up on both fixtures (D) until pins are squeezed together by clamps (E).



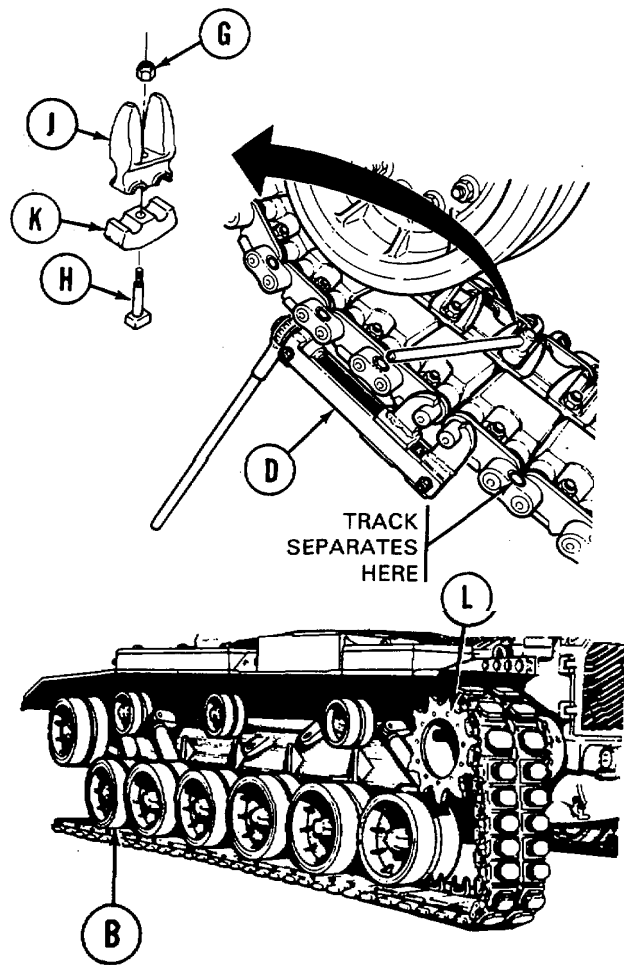
11. Using 1-1/2 in. socket again, go back to tightening puller screws on both sides to remove both end connectors (C).
12. Remove pullers from end connectors.

Go on to Sheet 4



**TRACK ASSEMBLY REPLACEMENT (Sheet 4 of 10)**

13. Using 1-5/16 inch socket with hinge handle and extension, loosen nut (G) securing centerguide bolt (H).
14. Using sledge hammer, strike centerguide (J) to loosen it.
15. Remove nut (G) , centerguide (J) , cap (K) , and bolt (H).
16. Using tool handle, loosen both track fixtures (D).
17. Using crowbar to support track, remove fixtures (D). Let track fall free to separate.
18. Start engine and put transmission in R (reverse) (TM 9-2350-260-10) .
19. Move steering control handle away from track being removed. Use brake to control slow speed until track is off sprocket (L) .



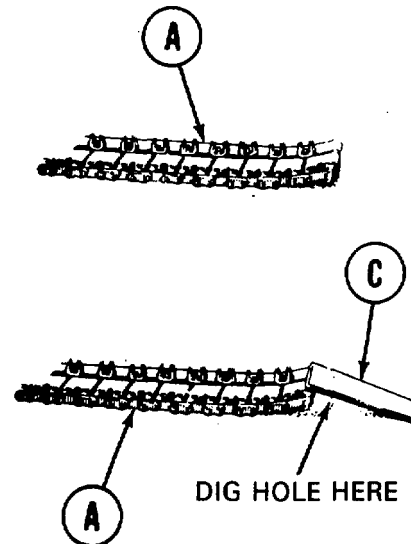
**INSTALLATION:**

1. If track is to be replaced and roadwheels are still on track, position new track (A) to mate with old track (B) as shown.
2. If roadwheels are on ground (old track (B) removed), use plank (C) as shown.

**NOTE**

**If plank (C) or similar object is not available, dig a hole under first few links of new track.**

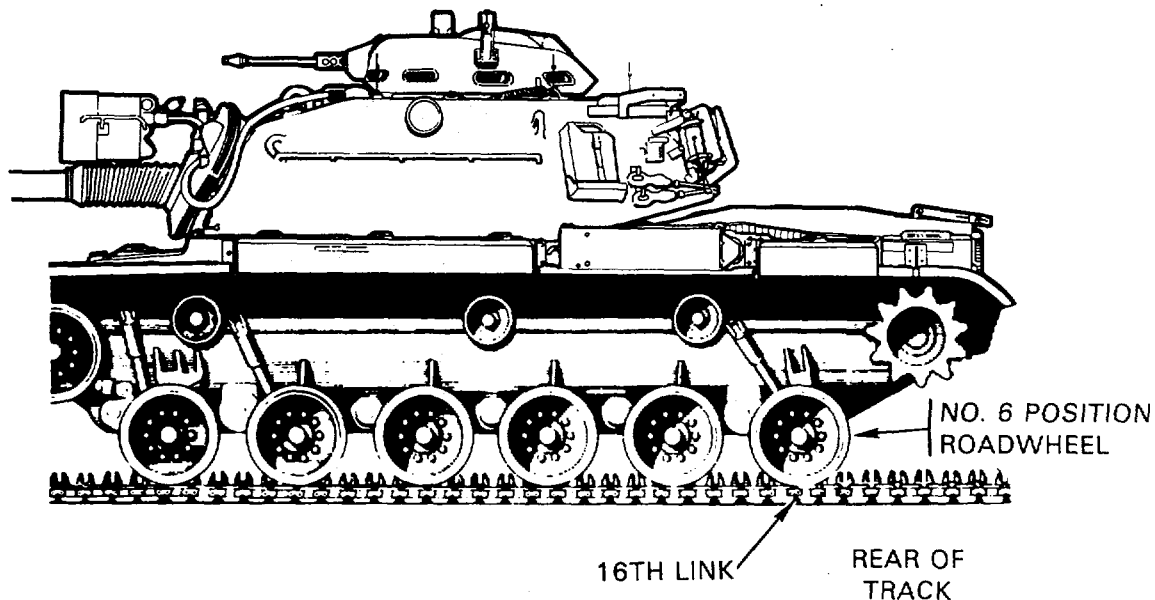
3. Make sure new track (A) is in line with roadwheels (B).
4. Start engine (TM 9-2350-260-10).



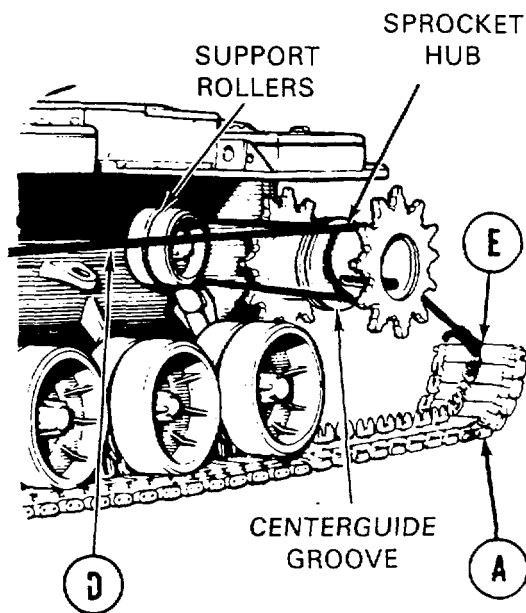
Go on to Sheet 5

**TRACK ASSEMBLY REPLACEMENT (Sheet 5 of 10)**

5. Drive tank onto new track (A). Keep moving tank until number 6 position roadwheel is on 16th link from rear of track.



6. Stop tank and shut off engine (TM 9-2350-260-10).
7. Apply parking brake (TM 9-2350-260-10).
8. Tie rope (D) to center of link pin (E) at rear of new track (A).
9. Place rope (D) over centerguide groove of sprocket hub.
10. String rope (D) through center groove between two rear support rollers.
11. Bring rope (D) back from support roller wheels to sprocket hub once again and wrap rope under and around sprocket hub (two turns).

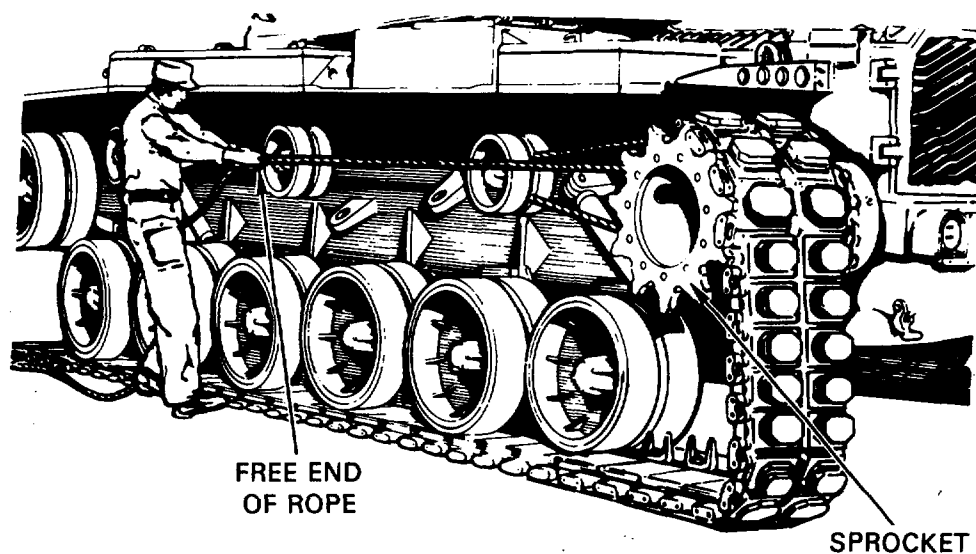


Go on to Sheet 6

TA147886

**TRACK ASSEMBLY REPLACEMENT (Sheet 6 of 10)**

12. Have person pull on free end of rope.



13. Have another person start engine (TM 9-2350-260-10).

14. Run engine at idle speed. Release parking brake (TM 9-2350-260-10).

15. Place transmission shift lever in N (neutral)(TM 9-2350-260-10).

16. Position steering control to LEFT PIVOT STEER if track is being installed to right side.

17. Position steering control to RIGHT PIVOT STEER if track is being installed to left side.

18. While person pulls on free end of rope, driver in tank slowly speeds up engine to rotate sprocket.

19. When sprocket teeth have picked up three track links, have driver apply parking brakes.

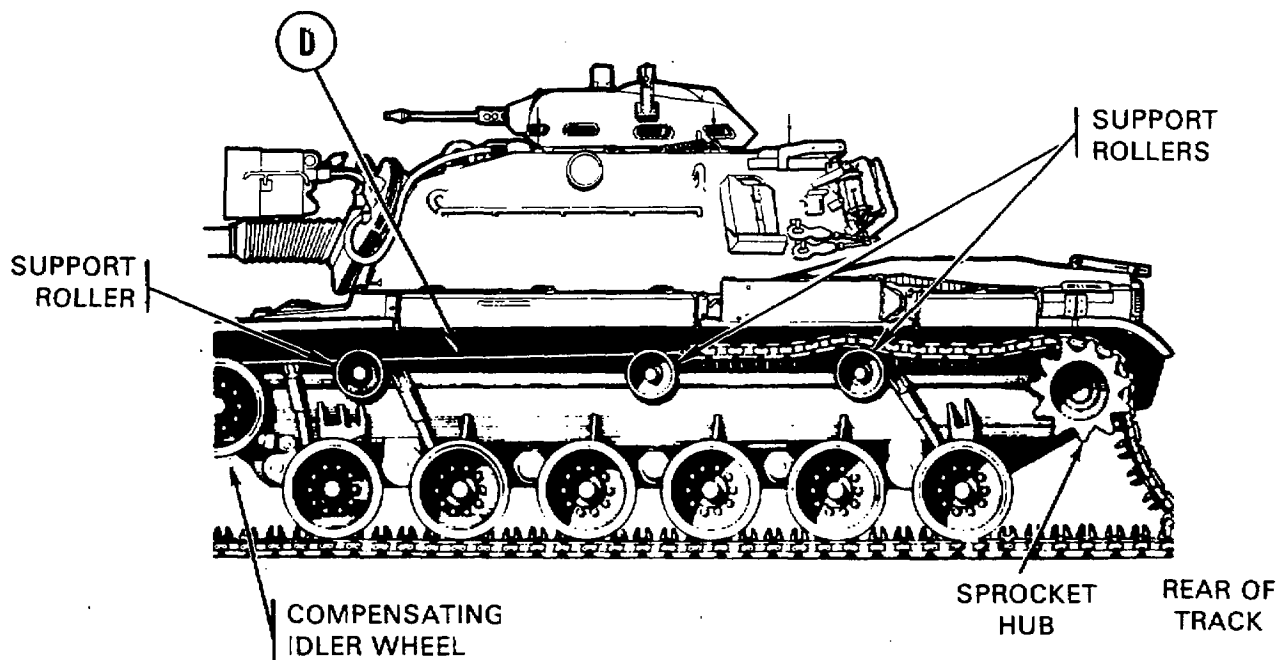
20. Place transmission shift lever in P (park)(TM 9-2350-260-10).

Go on to Sheet 7

TA147887

## TRACK ASSEMBLY REPLACEMENT (Sheet 7 of 10)

21. Remove rope (D) from around sprocket hub and rear support roller.



22. With rope still attached to rear of track, pull rope forward over all three support rollers and compensating idler wheels.

## NOTE

**Make sure rope goes between groove in support roller and compensating idler wheels.**

23. Have driver start engine and idle it (TM 9-2350-260-10).

24. Release parking brake (TM 9-2350-260-10).

25. Shift transmission lever to L (low) (TM 9-2350-260-10).

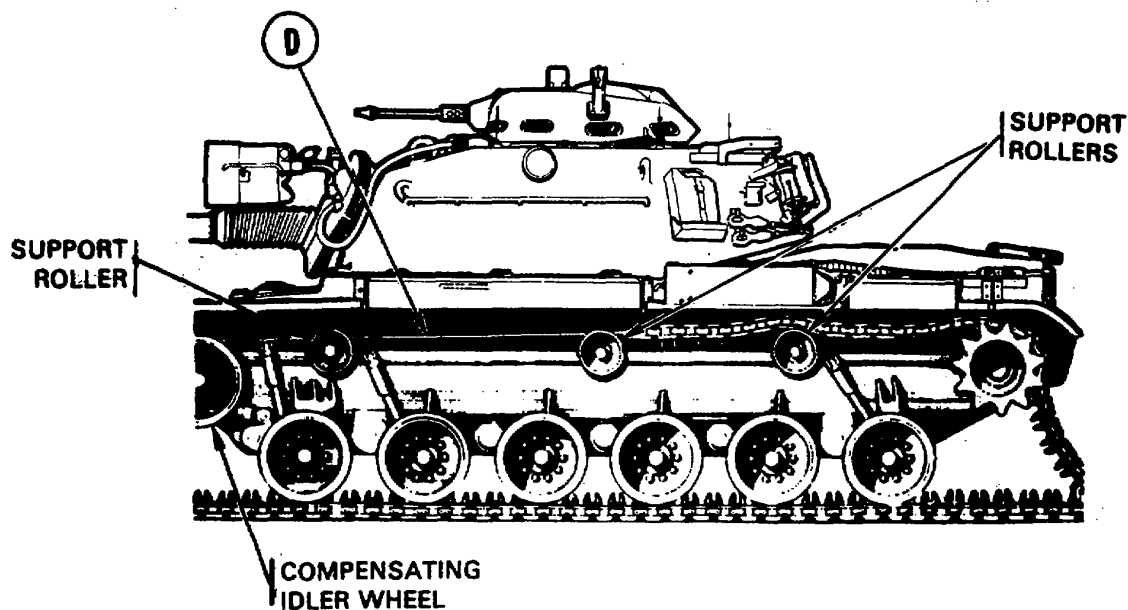
26. Have person pulling on rope walk in front of and to one side of tank as it moves forward slowly.

Go on to Sheet 8

TA147888

**TRACK ASSEMBLY REPLACEMENT (Sheet 8 of 10)**

27. Speed engine just enough so person pulling on rope can steer track up over all support rollers and compensating idler wheel.



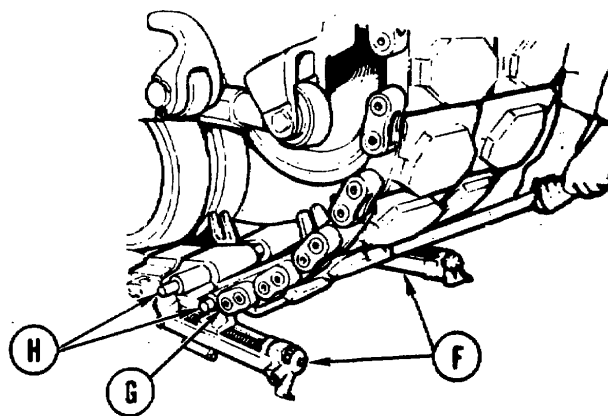
28. When track is over compensating idler wheel, is tight around sprocket, and is ready to be connected, shut down engine. Apply parking brake (TM 9-2350-260-10).

29. Shorten track adjusting link as much as possible (TM 9-2350-260-10).

30. Using crowbar lift lower end of track up.

31. Connect track connecting fixtures (F) to sides of track. Make sure fixtures are around end pins (H) and remove rope (D).

32. Using tool handle, tighten up both fixtures (F) until end connector (G) can be started over track end pins (H).

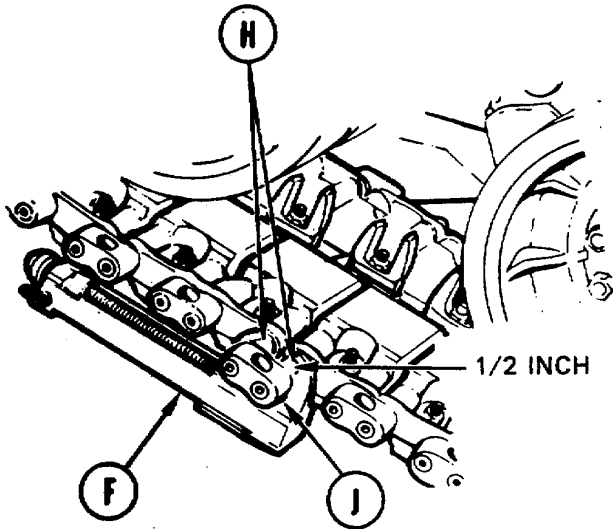


Go on to Sheet 9

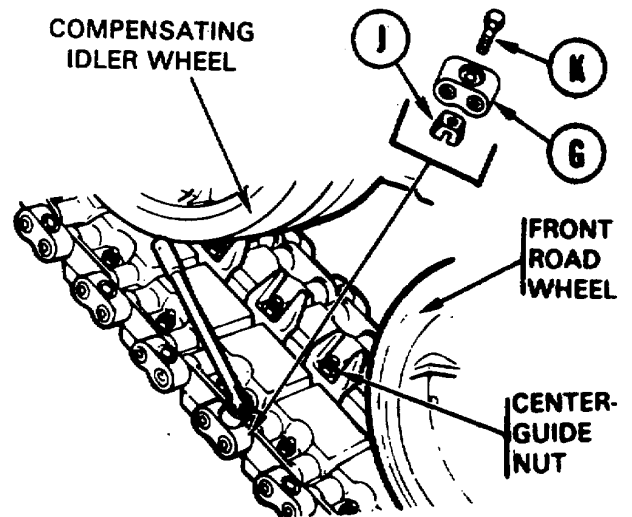
TA147889

**TRACK ASSEMBLY REPLACEMENT (Sheet 9 of 10)**

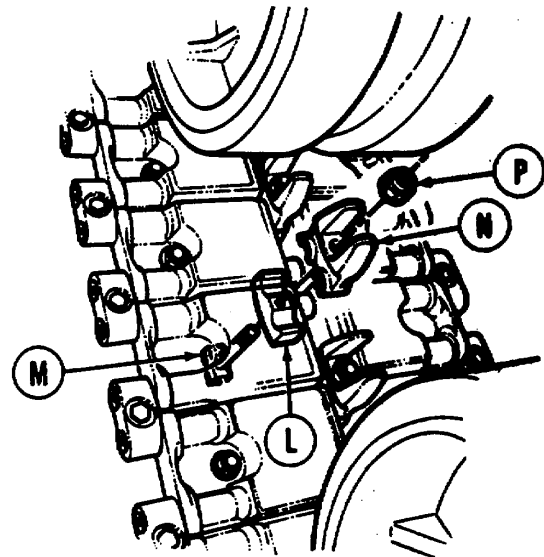
33. Using hammer, drive two end connectors (G) onto two pins (H) held together by fixture (F) clamps.
34. Leave 1/2 inch space between end connector (G) and fixture (F).



35. Remove track connecting fixtures (F).
36. Using hammer, drive both end connectors (G) all the way onto link pins (H).



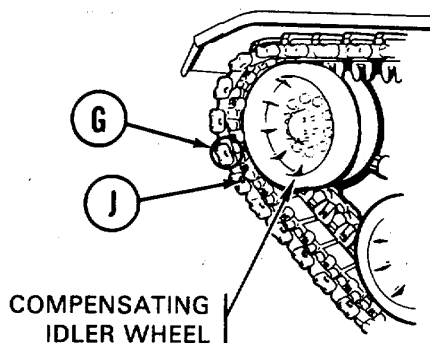
37. Place wedge (J) to under side of end connector (G).
38. Using 15/16 inch socket, install bolt (K) through wedge (J). Tighten bolt snug.
39. Install cap (L), bolt (M), centerguide (N), and nut (P).
40. Using 1-5/16 inch socket and extension, tighten nut (P) to secure centerguide (N) in place.
41. Using 1-5/16 inch socket and torque wrench, torque nut (P) to 15-20 lb-ft (20-27 N•m).



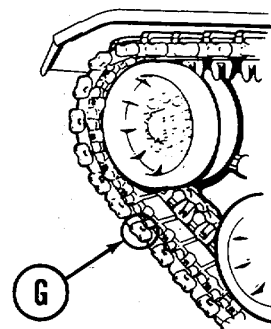
Go on to Sheet 10

**TRACK ASSEMBLY REPLACEMENT (Sheet 10 of 10)**

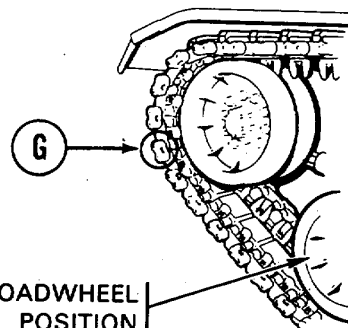
- 42. Have other person start engine (TM 9-2350-260-10). Slowly drive tank until end connectors (G), just installed, are positioned so they are just over compensating idler wheel.
- 43. Using torque wrench with 15/16 inch socket, tighten end connector wedge (J) bolts to 180-200 lb-ft (244-271 N•m).



- 44. Move tank until end connector (G) is in lower position.



- 45. Move tank until end connector (G) is located in same position as step 41. Using torque wrench, tighten to 180-200 lb-ft (244-271 N•m).



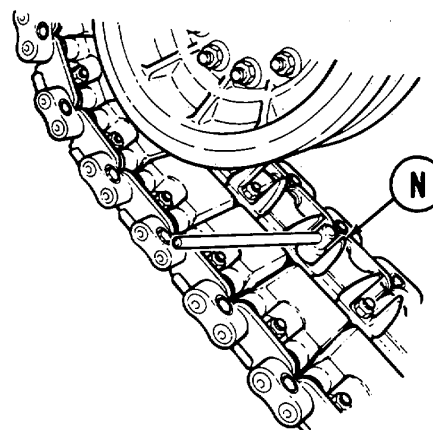
- 46. Repeat steps 42 thru 44 until torque stays at 180-200 lb-ft (244-271 N•m).

- 47. Move tank until centerguide (N) is between compensating idler wheel and No. 1 roadwheel position.

- 48. Using torque wrench, tighten centerguide nut (P) to 350-380 lb-ft (474-515 N•m).

- 49. Tighten track tension (TM 9-2350-260-10).

- 50. Install rear fender and shield (if required) (page 16-78).



End of Task

TA147891

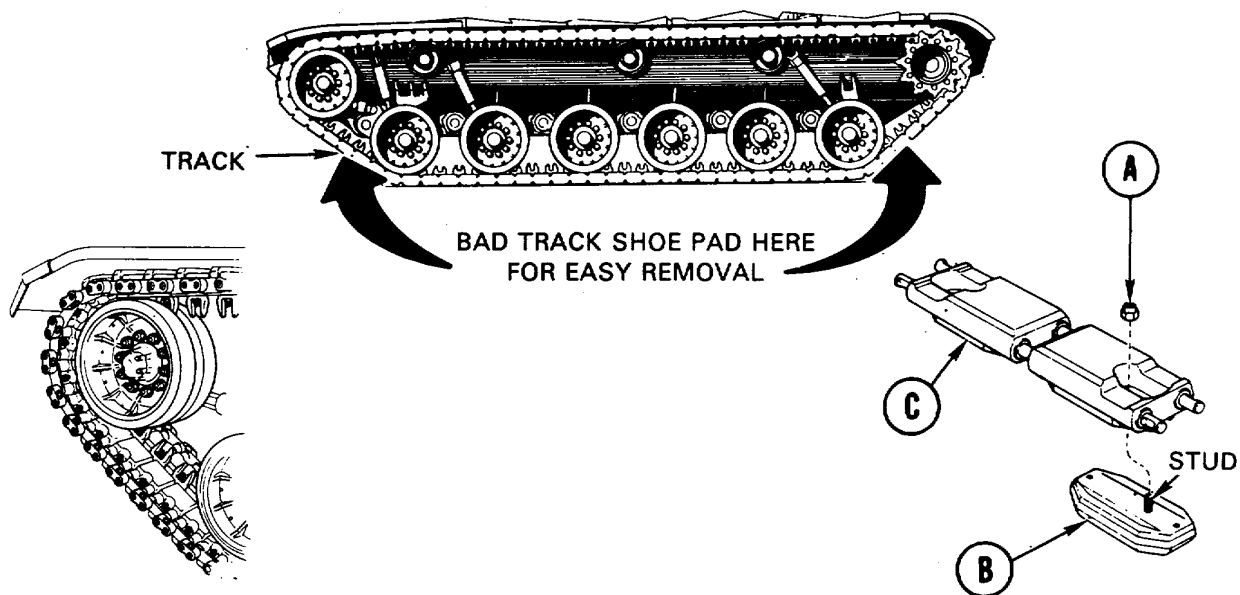
**TRACK SHOE PAD REPLACEMENT (Sheet 1 of 1)**

**TOOLS:** 1-1/8 in. socket with 3/4 in. drive  
 Ratchet with 3/4 in. drive  
 Ball peen hammer  
 T-handle with 3/4 in. drive  
 Torque wrench with 3/4 in. drive (0-600 lb-ft)(0-814 N•m)

**SUPPLIES:** Track pad parts kit (5704208)

**REFERENCE:** (TM 9-23502060-10).

**PRELIMINARY PROCEDURES:** Position tank for easy removal and installation of track shoe pad (TM 9-2350-260-10).  
 Apply parking brake (TM 9-2350-260-10).

**NOTE**

**Track shoe pads can be removed from T142 tracks. Pads can be removed from tank or from link (off tank).**

**REMOVAL:**

1. Using socket with ratchet (or T-handle), loosen nut (A). Remove nut. Throw nut away.
2. Using hammer, drive shoe pad (B) out of link (C). Throw pad away.

**INSTALLATION:**

1. Position pad (B) in link (C). Screw nut (A) onto pad (B) stud.
2. Using torque wrench, tighten nut to 260-280 ft (352-379 N•m).

End of Task

TA147892



**T142 TRACK LINK REPLACEMENT (Sheet 1 of 3)**

**TOOLS:** 15/16 in. socket with 3/4 in. drive  
 Ratchet with 3/4 in. drive  
 1-5/16 in. socket with 3/4 in. drive  
 Hammer  
 Hinged handle with 3/4 in. drive  
 1-1/2 in. socket with 3/4 in. drive  
 10 in. extension with 3/4 in. drive  
 T-Slide handle with 3/4 in. drive  
 End connector puller

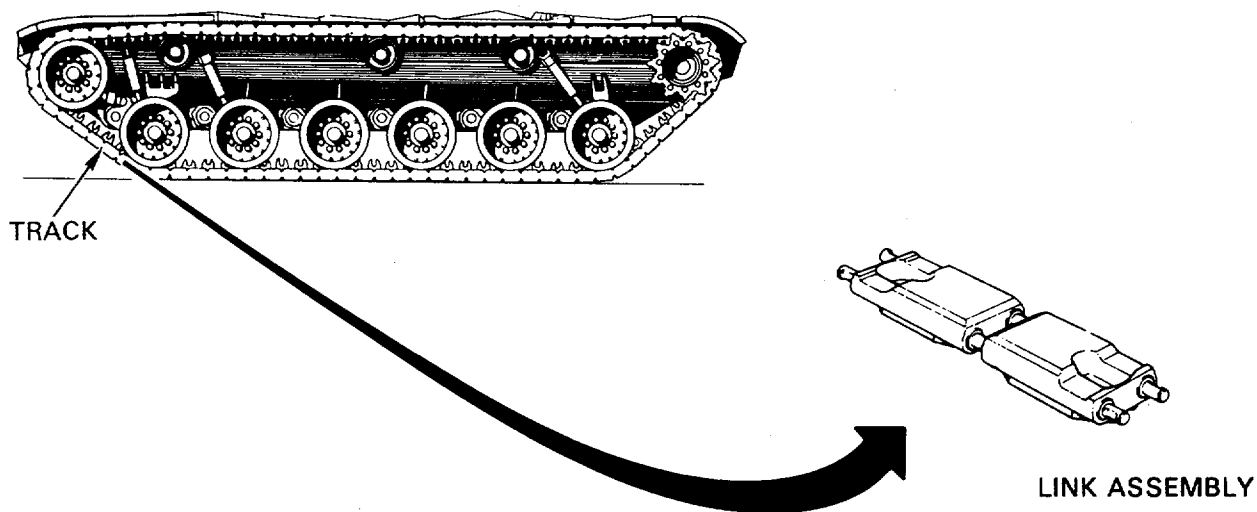
**SPECIAL TOOLS:** Hydraulic end connector puller (Item 8, Chapter 3, Section I)

**REFERENCE:** TM 9-2350-260-10

**PRELIMINARY PROCEDURE:** Disconnect track (TM 9-2350-260-10).

**NOTE**

**There are two track designs - T142 and T97. Do not mix tracks on same tank.**



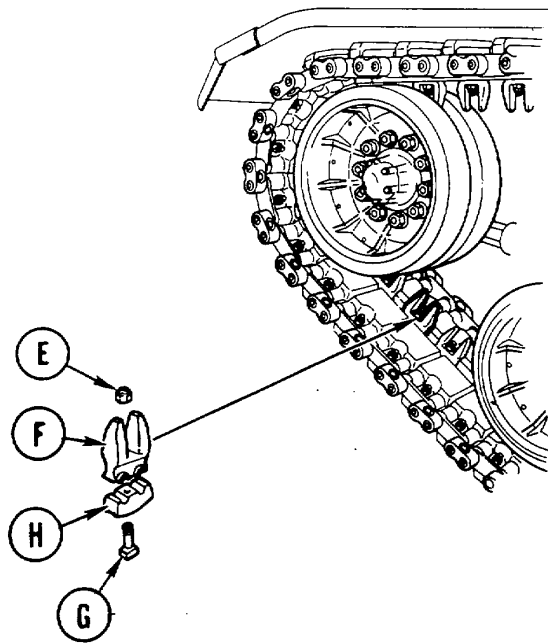
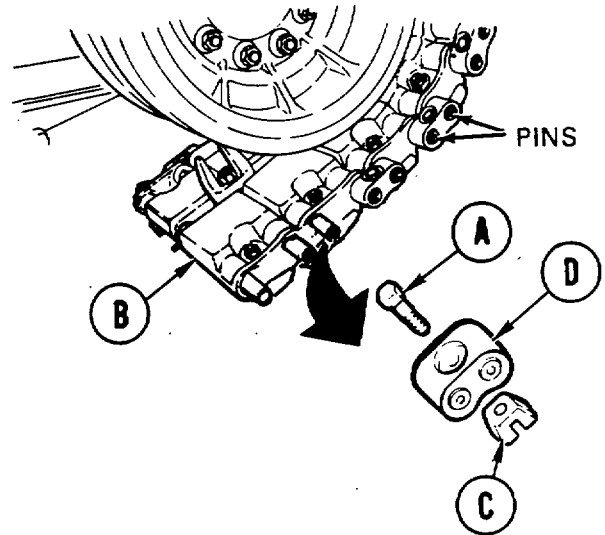
Go on to Sheet 2

TA147893

**T142 TRACK LINK REPLACEMENT (Sheet 2 of 3)**

**REMOVAL:**

1. Using 15/16 inch socket, loosen end connector bolt (A) approximately 1/4 inch on both sides of bad link (B).
2. Using hammer, hit bolts (A) to loosen wedges (C).
3. Remove bolts and wedges at both sides of track link (B). Throw bolts and wedges away.
4. Using puller tool or hydraulic end connector puller (if available), (Item 8, Chapter 3, Section I) remove end connectors (D) from both sides of link (B). Throw end connectors away.



5. Using 1-5/16 inch socket, T-slide handle, and extension, loosen nut (E).
6. Remove nut (E) and centerguide (F). Throw nut and centerguide away.
7. Using hammer, tap bolt (G) loose.
8. Remove bolt (G) and cap (H). Throw bolt and cap away.

9. Remove link assembly from track. Throw link assembly away.

Go on to Sheet 3

TA147894

**T142 TRACK LINK REPLACEMENT (Sheet 3 of 3)**

INSTALLATION:

**CAUTION**

**Replace link with one that has same thickness as other links in track. Thicker link can cause vibration.**

1. Connect track with new track shoe assembly (TM 9-2350-260-10).
2. Torque new end connector and centerguides (page 14-90, steps 41 thru 48).
3. Tighten track tension (TM 9-2350-260-10).

End of Task

**SHOCK ABSORBER REPLACEMENT (Sheet 1 of 2)**

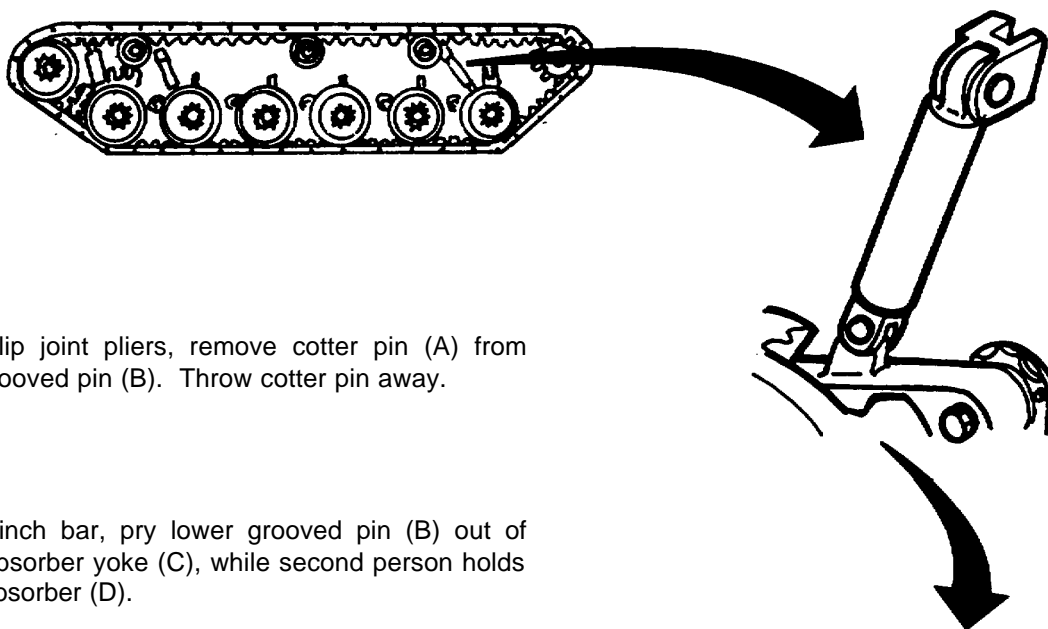
TOOLS: Slip joint pliers  
Pinch bar, 26 in. long  
12 lb. hammer  
Long round nose pliers

PERSONNEL: Two

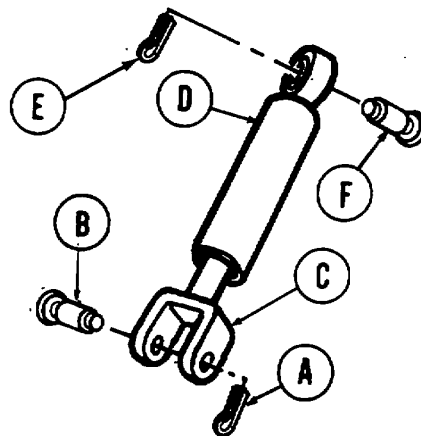
REFERENCE: (TM 9-2350-260-10)

SUPPLIES: Cotter pins (two)

PRELIMINARY PROCEDURE: Put transmission lever in park position (TM 9-2350-260-10)

**REMOVAL:**

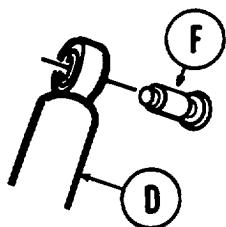
1. Using slip joint pliers, remove cotter pin (A) from lower grooved pin (B). Throw cotter pin away.
2. Using pinch bar, pry lower grooved pin (B) out of shock absorber yoke (C), while second person holds shock absorber (D).
3. Using long round nose pliers, remove cotter pin (E) from upper grooved pin (F). Throw cotter pin away.



Go on to Sheet 2

TA147896

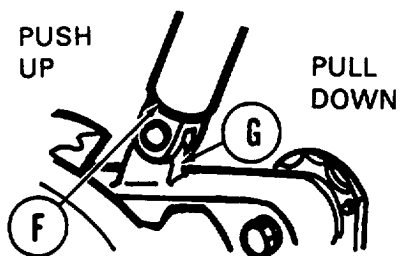
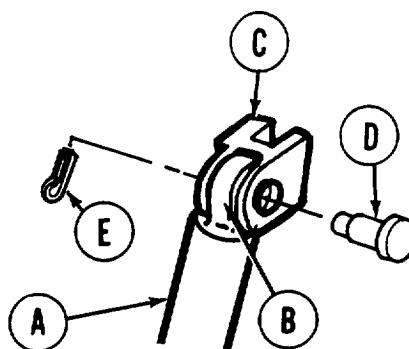
**SHOCK ABSORBER REPLACEMENT (Sheet 2 of 2)**



4. While one person holds shock absorber (D), second person, using hammer, drive out upper grooved pin (F).
5. Remove shock absorber (D).

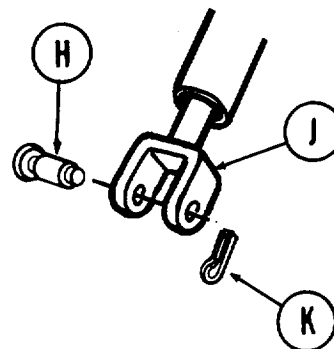
**INSTALLATION:**

1. With one person holding shock absorber (A), align upper eye (B) with hull mounting yoke (C) and with keyways.
2. Using fingers, insert upper grooved pin (D) in position through yoke (C) and eye (B).
3. Using pliers, install new cotter pin (E).



4. Aline lower shock absorber yoke (F), with roadwheel support arm (G). Aline keyways by pushing up or pulling down on yoke.

5. Using fingers, install lower grooved pin (H) through shock absorber yoke (J), with cotter pin hole facing out.
6. Using pliers, install new cotter pin (K).



End of Task

TA147897

**SHOCK ABSORBER BEARING REPAIR (Sheet 1 of 2)**

**TOOLS:** Hammer  
 Chisel  
 1-1/2 in. socket with 3/4 in. drive  
 Ratchet with 3/4 in. drive  
 Vise  
 Center punch

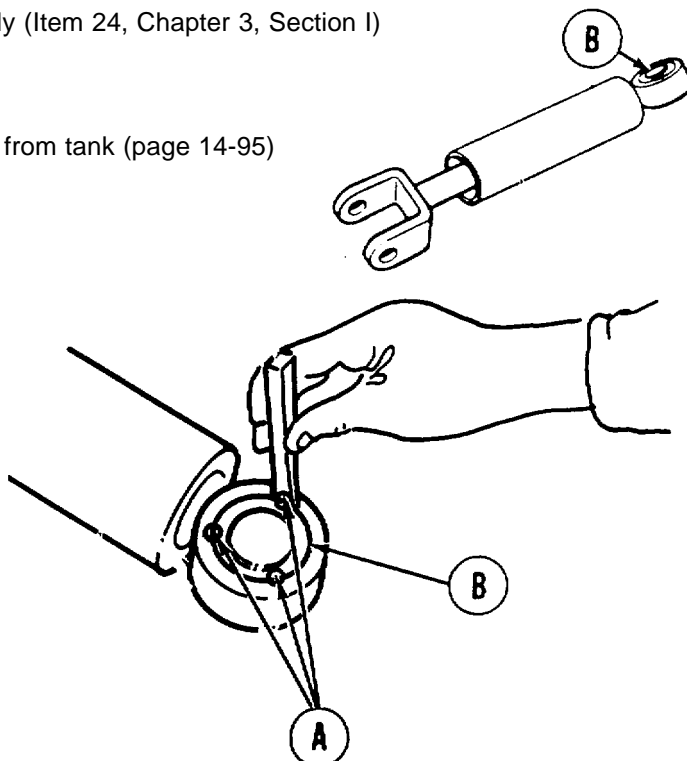
**SPECIAL TOOLS:** Shock absorber bearing tool assembly (Item 24, Chapter 3, Section I)

**SUPPLIES:** Bearing (7974760)

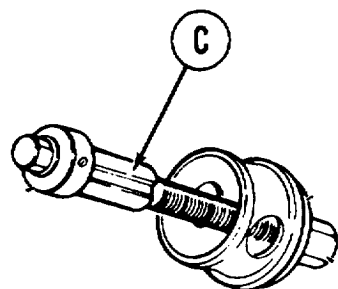
**PRELIMINARY PROCEDURE:** Remove shock absorber from tank (page 14-95)

**DISASSEMBLY:**

1. Using hammer and chisel, cut off stakes (A) (three places, each side).

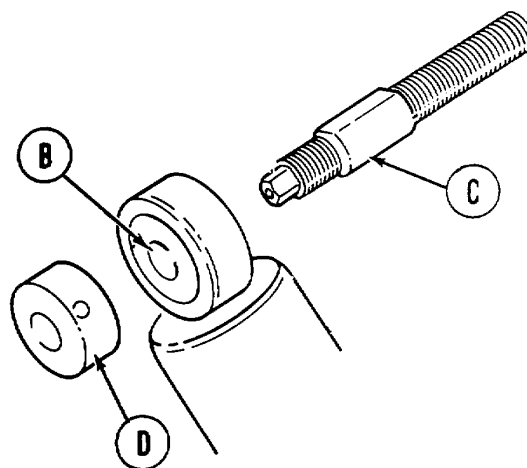


2. Get special tool assembly (Item 24, Chapter 3, Section D for removing bearing (B)).



**SPECIAL TOOL ASSEMBLY**

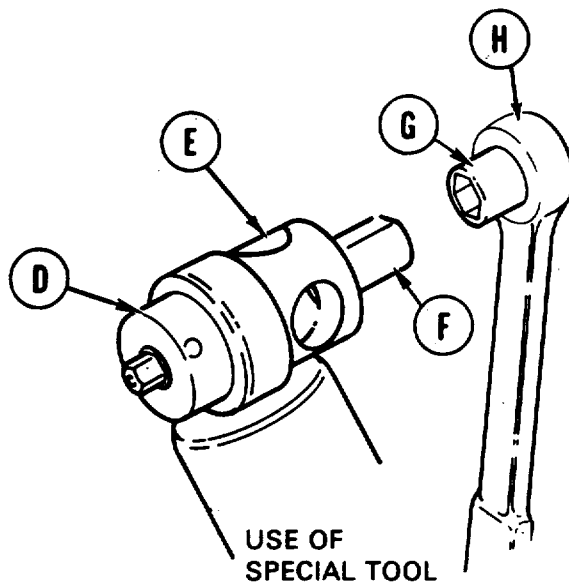
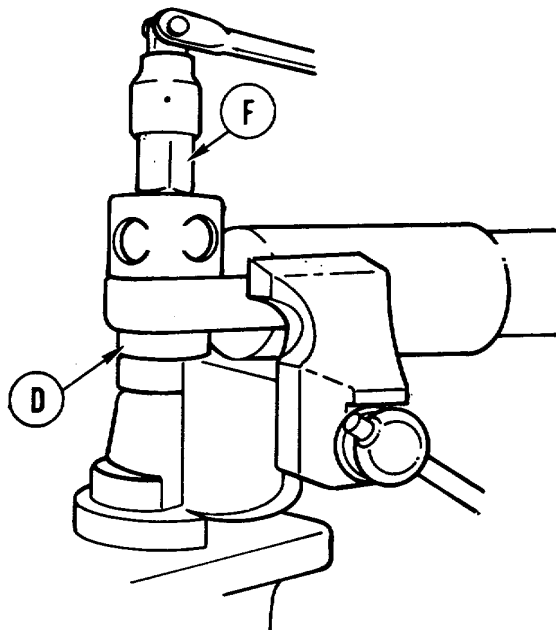
3. Put shorter threaded end of screw (C) through bore of bearing (B).
4. Screw base (D) of special tool onto shorter end. Base should mate to one side of bearing bore.



Go on to Sheet 2

**SHOCK ABSORBER BEARING REPAIR (Sheet 2 of 2)**

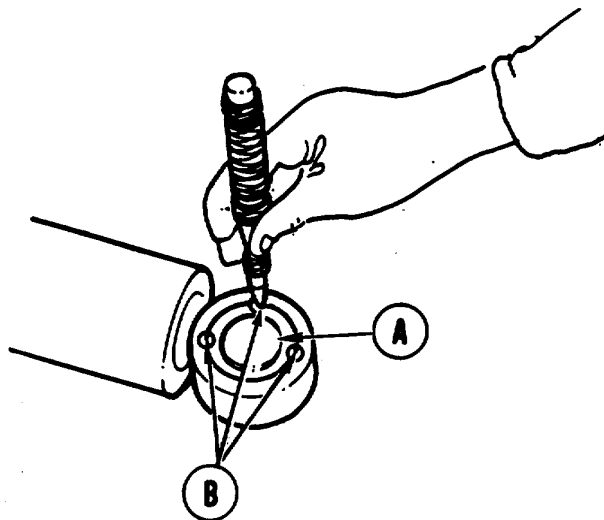
5. Position remover (E) onto longer threaded end of screw. Remover (E) should mate to surface of bearing (B) at other side.
6. Screw nut (F) onto longer end until it mates with remover.
7. Put shock absorber in vise.



8. Using socket (G) with ratchet (H), turn nut (F) of special tool to force bearing (B) out of shock absorber.
9. Throw bearing away.

**ASSEMBLY:**

1. Using special tool (Item 24, Chapter 3, Section I) as shown, install new bearing (A) in shock absorber.
2. Using hammer and center punch, stake (B) bearing (three places, each side) to hold bearing in place.
3. Install shock absorber (page 14-96).



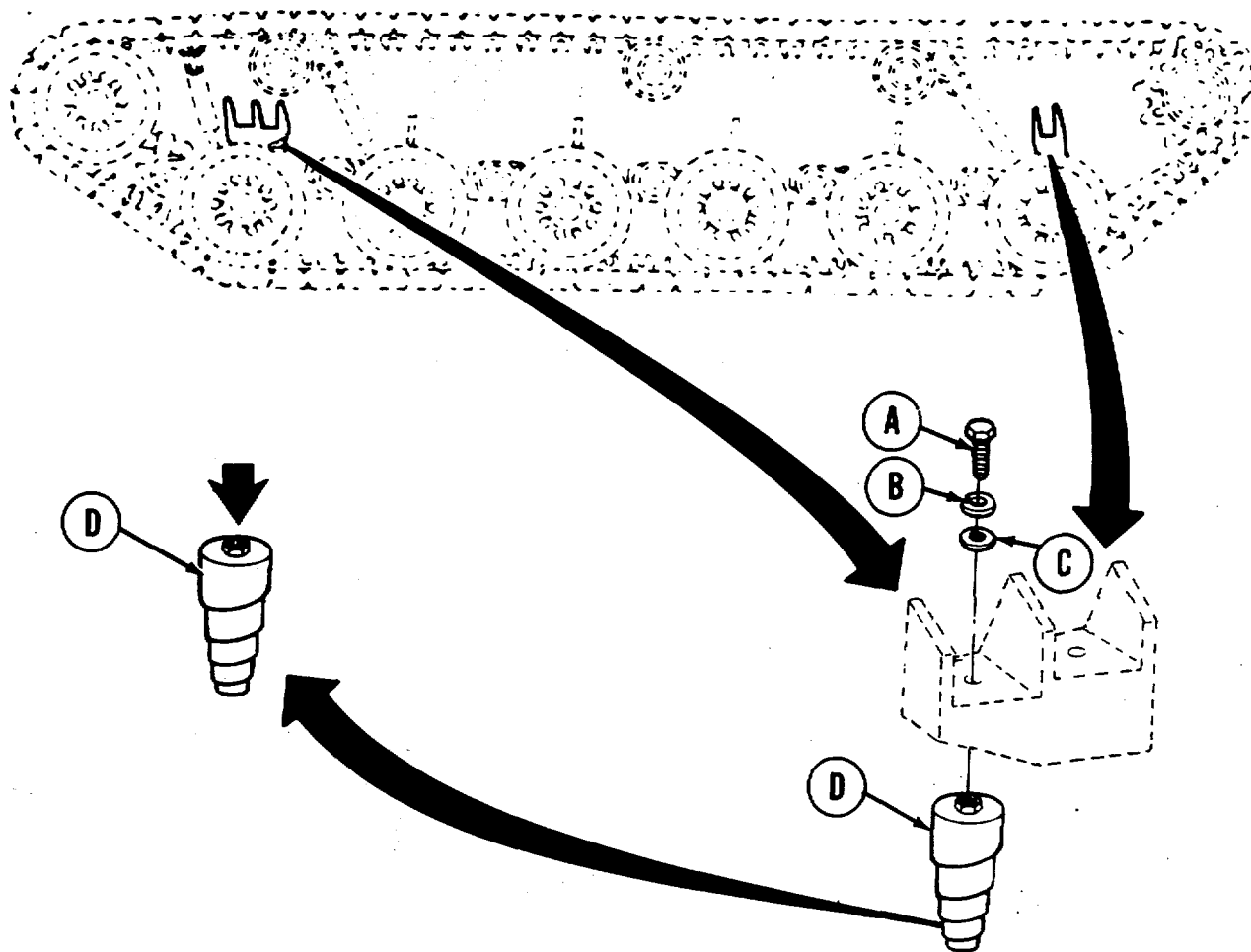
End of Task

TA147899

**VOLUTE SPRING REPLACEMENT (Sheet 1 of 2)**

TOOLS: Ratchet with 1/2 in. drive  
15/16 in. socket with 1/2 in. drive  
Hammer  
Hinged handle with 1/2 in. drive

SUPPLIES: Lockwasher (MS35340-50)

**REMOVAL:**

1. Using socket, remove screw (A), lockwasher (B), and washer (C) securing spring (D) to mounting bracket. Throw lockwasher away.
2. Remove spring from mounting bracket. Throw spring away.

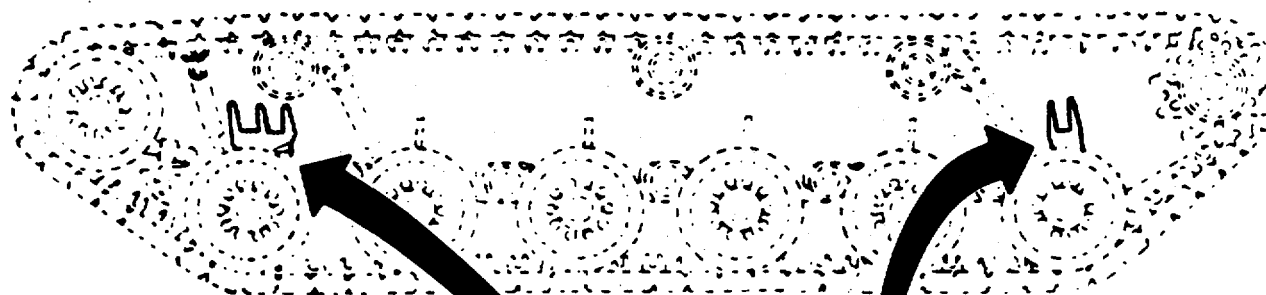
Go on to Sheet 2

TA147900

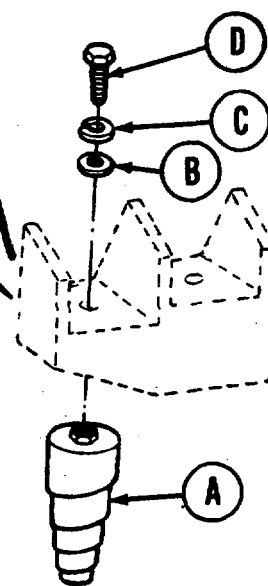


**VOLUTE SPRING REPLACEMENT (Sheet 2 of 2)**

**INSTALLATION:**



1. Position spring (A) to mounting bracket on tank.
2. Secure spring to bracket with washer (B), new lockwasher (C), and screw (D).
3. Using socket tighten screw (D).



End of Task

TA147901

## CHAPTER 15

## STEERING CONTROL MAINTENANCE INDEX

PROCEDURE	PAGE
Steering Control Linkage Adjustment	15-2
Steering Wheel Assembly Replacement	15-15
Front Steering Control Rod Assembly Replacement	15-19
Front Steering Control Connecting Link Replacement	15-22
Steering Control Intermediate Link Assembly Replacement	15-24
Steering Control Intermediate Link Assembly Repair	15-26
Steering Control Link to Bulkhead Shaft Rod Replacement	15-27
Steering Control Extension Stud Replacement	15-29
Steering Control Connecting Link Replacement	15-30
Steering Control Connecting Link Repair	15-32
Steering Control Connecting Link (Riser Link to Transmission Shaft Link) Replacement	15-33
Steering Control Bracket Replacement	15-36
Steering Control to Transmission Shaft Connecting Link Replacement	15-38
Steering Control Link Assembly Replacement	15-40
Steering Control Link Assembly Repair	15-43

**STEERING CONTROL LINKAGE ADJUSTMENT (Sheet 1 of 13)**

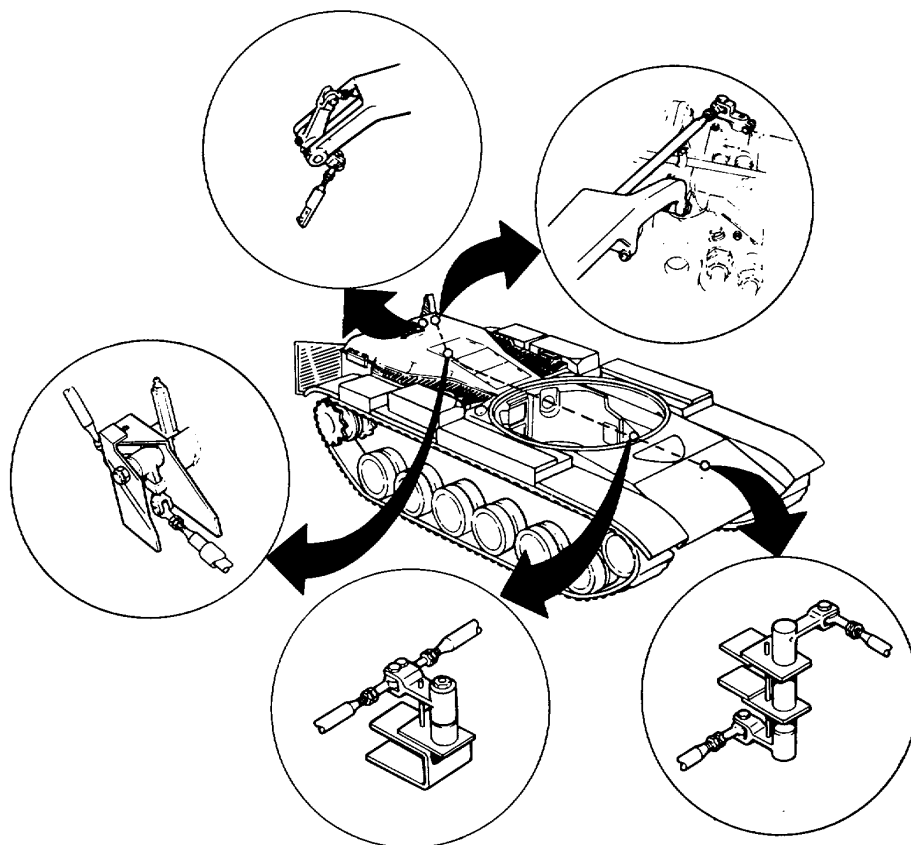
**TOOLS:** 7/16 in. combination box and open end wrench  
 9/16 in. combination box and open end wrench  
 3/4 in. combination box and open end wrench  
 Torque wrench with 1/2 in. drive (0 to 175 lb-ft)(0-237 N•m)  
 9/16 in. socket with 1/2 in. drive  
 Needle nose pliers  
 1/4 in. socket head screw key (Allen wrench)

**SUPPLIES:** Cotter pin (MS24665-287)  
 Metal locating pins (four required - 1/8 in. by 2-1/2 in. long)  
 Metal pin (1/16 in. by 2 in. long)

**REFERENCE:** TM 9-2350-260-10

**PRELIMINARY PROCEDURES:** Adjust track tension (TM 9-2350-260-10)  
 Block tracks (TM 9-2350-260-10)  
 Remove transmission shroud (page 9-19)

**TURRET REMOVED  
 FOR CLARITY**



Go on to Sheet 2

TA146430

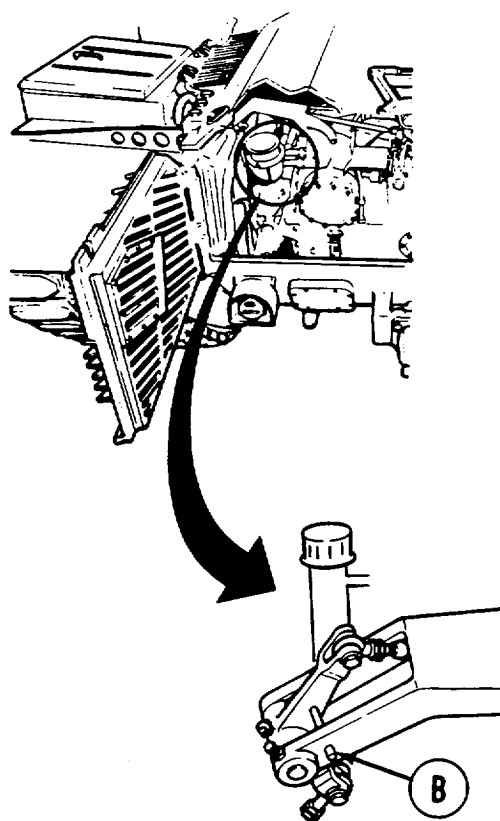
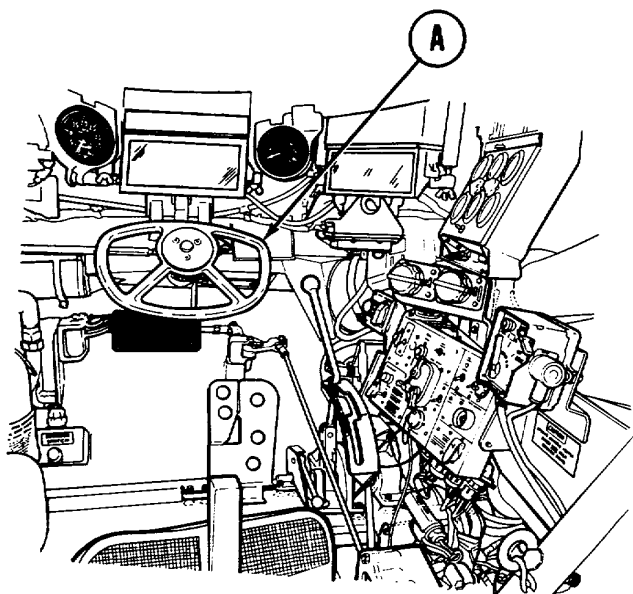
**STEERING CONTROL LINKAGE ADJUSTMENT (Sheet 2 of 13)****ADJUSTMENT:****NOTE**

When engine, transmission, or entire powerplant is exchanged, driver's steering control must be checked for centering and adjustment. Go to steps 1 and 2.

**NOTE**

Check to make sure rod end bearings are serviceable before proceeding with any linkage adjustments.

1. While seated in driver's station, move steering wheel (A), then release and check that it centers.

**DRIVER'S STATION**

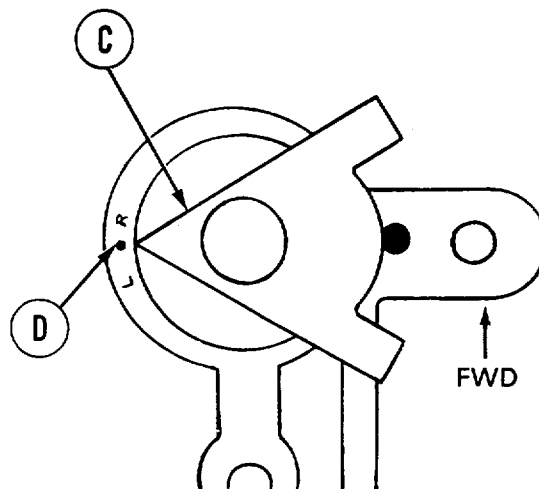
2. If driver's steering wheel does not center, insert locating pin (B). If it does, go to step 20.

Go on to Sheet 3

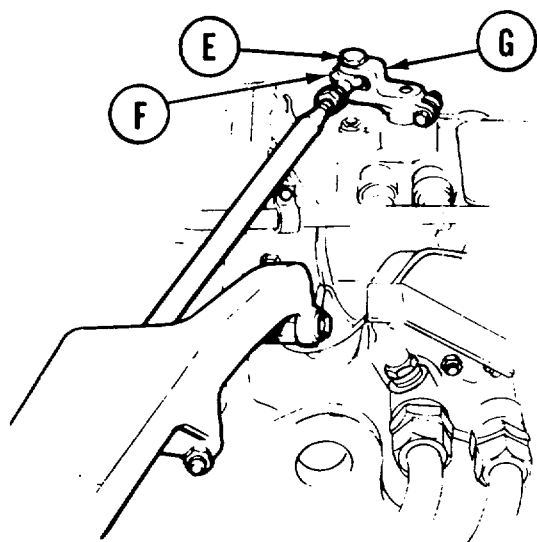
TA146431

**STEERING CONTROL LINKAGE ADJUSTMENT (Sheet 3 of 13)**

3. Check if indicator (C) on top of transmission is pointing to index mark (D). If it is, go to step 20. If it is not, go to step 4.
4. Remove locating pin (B).

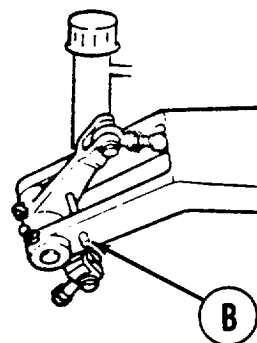


TOP OF TRANSMISSION



TOP OF TRANSMISSION

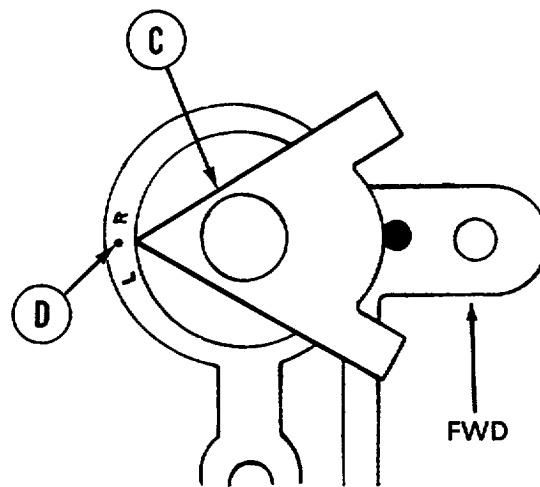
Go on to Sheet 4



5. Using 9/16 inch wrench, remove screw (E).
6. Remove steering rod end bearing (F) from clevis (G).

**STEERING CONTROL LINKAGE ADJUSTMENT (Sheet 4 of 13)**

7. Make sure indicator (C) points to index mark (D). If indicator still does not point to index mark (D), notify support maintenance personnel.
8. If indicator (C) points to index mark (D), go on to step 9.



TOP OF TRANSMISSION

Go on to Sheet 5

TA146433

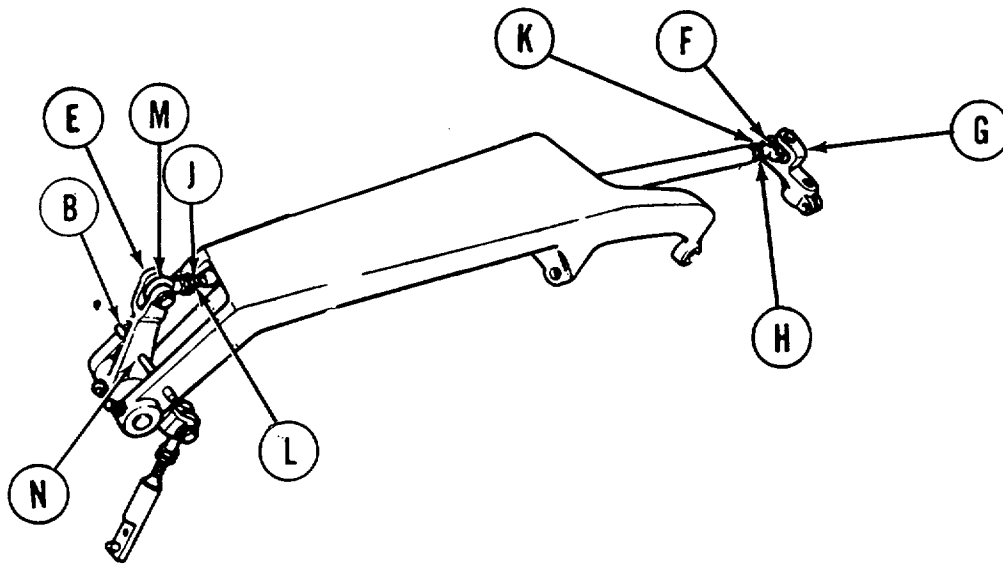
## STEERING CONTROL LINKAGE ADJUSTMENT (Sheet 5 of 13)

## NOTE

When adjusting all steering rod end bearings, steering rods must go into steering rod and sleeves past check holes. When wire will not go through the check holes, there are sufficient threads remaining.

9. Using 9/16 inch wrench, loosen jamnuts (H) and (J).

10. Using 9/16 inch wrench, remove screw (E).



11. Remove steering rod end bearings from clevis. Insert locating pin (B).

12. Using 9/16 inch wrench on steering rod end bearings fats (K) and (L), turn clockwise or counterclockwise until steering rod end bearing (F) and clevis (G) holes line up and steering rod bearing (M) and clevis (N) holes line up (one end at a time).

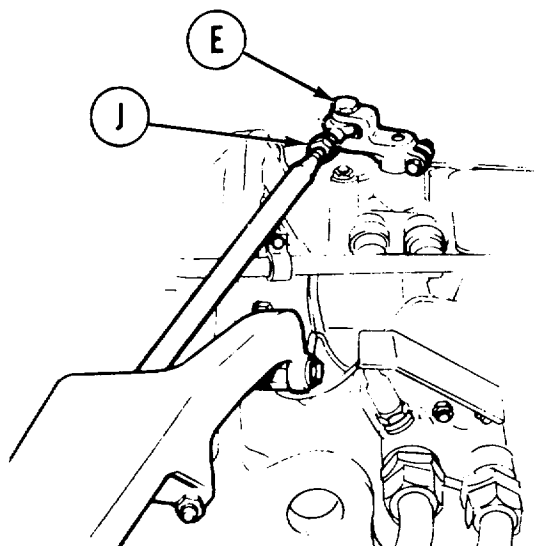
13. Place steering rod end bearings (F) and (M) into devises (G) and (N).

Go on to Sheet 6

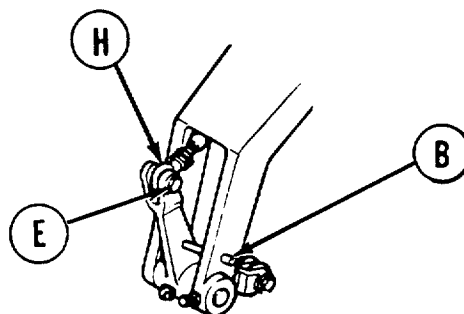
TA146434

**STEERING CONTROL LINKAGE ADJUSTMENT (Sheet 6 of 13)**

14. Insert screws (E).
15. Remove locating pin (B).
16. Using 9/16 inch wrench, tighten screws (E).



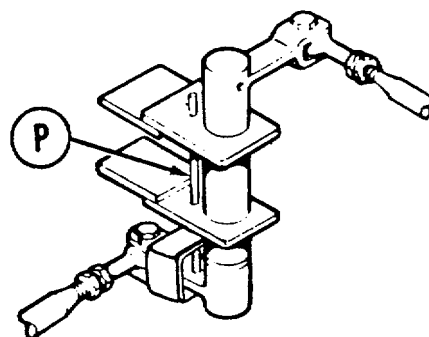
TOP OF TRANSMISSION



LEFT SIDE OF TRANSMISSION

17. Using 9/16 inch wrench, tighten jamnuts (H) and (J).
18. Using torque wrench with socket, tighten screws (E) to 15-20 lb-ft (20-27 N•m).

19. Remove fixed fire extinguisher control valve (page 20-38).
20. Remove fixed fire extinguisher cylinders (page 20-50).
21. Displace left ammo rack (page 17-8).
22. Insert locating pin (B).
23. Attempt to insert locating pin (P).
24. If locating pin (P) can be inserted, go on to step 36.  
If locating pin (P) cannot be inserted, go to step 25.
25. Remove locating pin (B).



DRIVER'S STATION  
LEFT FRONT

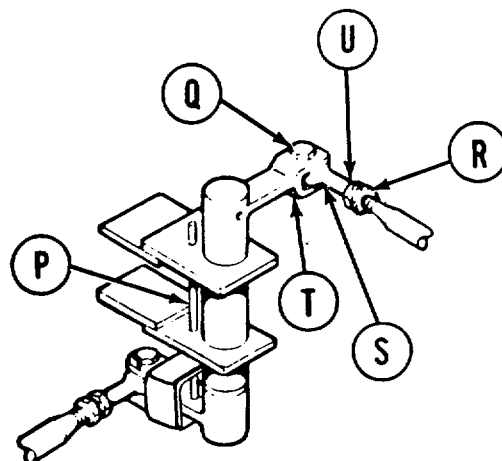
Go on to Sheet 7

TA146435



**STEERING CONTROL LINKAGE ADJUSTMENT (Sheet 7 of 13)**

26. Using 9/16 inch wrench, remove screw (Q).
27. Using 9/16 inch wrench, loosen jamnut (R).
28. Remove steering rod end bearing (S) from clevis (T).
29. Insert locating pin (P).
30. Using 9/16 inch wrench on steering rod end bearing flat (U), turn clockwise or counterclockwise until steering control is centered when screw (Q) is installed through rod end bearing (S) and clevis (T).
31. Install screw (Q) finger tight through rod end bearing (S) and clevis (T).
32. Using 9/16 inch wrench, tighten jamnut (R).
33. Remove locating pin (P).
34. Using torque wrench with socket, tighten screw (Q) to 15-20 lb-ft (20-27 N•m).
35. Insert locating pin (P)

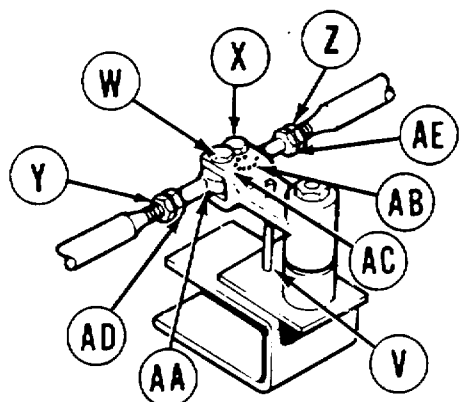


DRIVER'S STATION

Go on to Sheet 8

TA146436

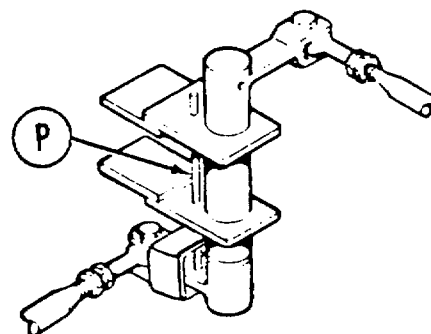
STEERING CONTROL LINKAGE ADJUSTMENT (Sheet 8 of 13)



BEHIND LEFT AMMUNITION RACK

36. Attempt to insert locating pin (V).
37. If locating pin (V) can be inserted with locating pin (P) inserted, go to step 47.
38. If locating pin (V) cannot be inserted with locating pin (P) inserted, remove locating pin (P) and use 9/16 inch wrench to remove screws (W) and (X).
39. Using 9/16 inch wrench, loosen jamnuts (Y) and (Z).

40. Remove steering rod end bearings (AA) and (AB) from clevis (AC).
41. Insert locating pins (P) and (V).
42. Using 9/16 inch wrench on steering rod end bearing flat (AD) and (AE), turn clockwise or counterclockwise until screws (W) and (X) will pass freely through steering rod end bearing (AA) and (AB) and holes in clevis (AC).
43. Insert screws (W) and (X) finger tight through rod end bearings (AA) and (AB) and clevis (AC).
44. Remove locating pins (P) and (V).
45. Using 9/16 inch wrench, tighten jamnuts (Y) and (Z).
46. Using torque wrench with socket torque screws (W) and (X) to 15-20 lb-ft (20-27 N•m).

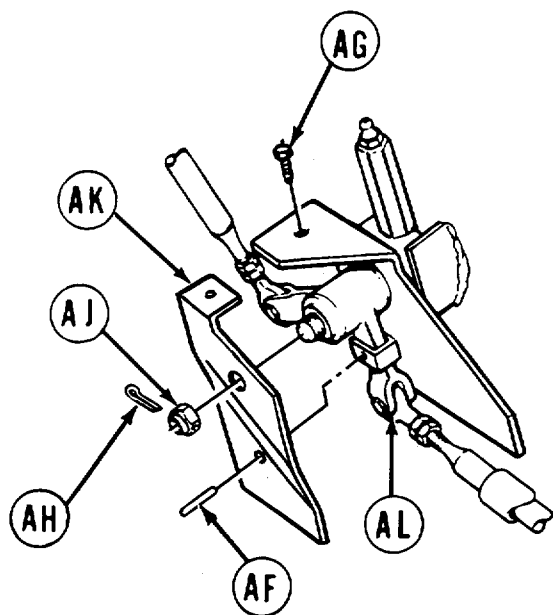


DRIVER'S STATION  
LEFT FRONT

Go on to Sheet 9

TA146437

STEERING CONTROL LINKAGE ADJUSTMENT (Sheet 9 of 13)



LEFT SIDE OF HULL (TO REAR OF FUEL TANK)

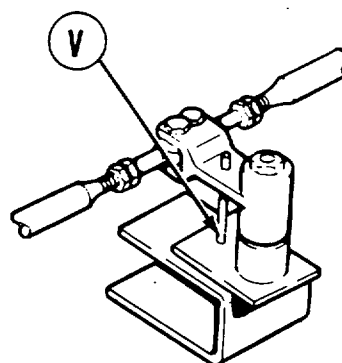
47. Remove 2A powerplant (page 5-2) or 2D powerplant (page 5-27).
48. Insert locating pin (V).
49. Attempt to insert locating pin (AF).
50. If locating pin (AF) can be inserted, go to step 70.
51. If locating pin (AF) cannot be inserted, use 7/16 inch wrench and remove screw (AG).
52. Using pliers, remove cotter pin (AH). Throw cotter pin away.

53. Using 3/4 inch wrench, remove nut (AJ).
54. Pull plate (AK) out and away from linkage assembly.
55. Install nut (AJ) finger tight.
56. Remove locating pin (V).

**NOTE**

**If required, pull rod toward rear of tank while performing step 57.**

57. Using 9/16 inch wrench, remove screw (AL).

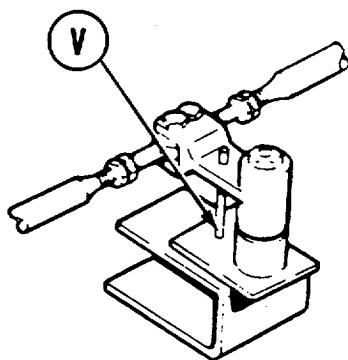


BEHIND LEFT AMMUNITION RACK

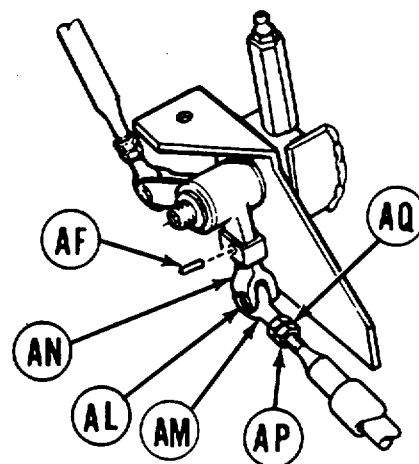
Go on to Sheet 10

**STEERING CONTROL LINKAGE ADJUSTMENT (Sheet 10 of 13)**

58. Remove steering rod end bearing (AM) from clevis (AN).
59. Using 9/16 inch wrench, loosen jamnut (AP).
60. Insert locating pins (V) and (AF).
61. Using allen wrench through steering rod end bearing (AM), turn clockwise or counterclockwise until screw (AL) will pass freely through steering rod end bearing (AM) and clevis (AN).



BEHIND LEFT AMMUNITION RACK



LEFT SIDE OF HULL  
(TO REAR OF FUEL TANK)

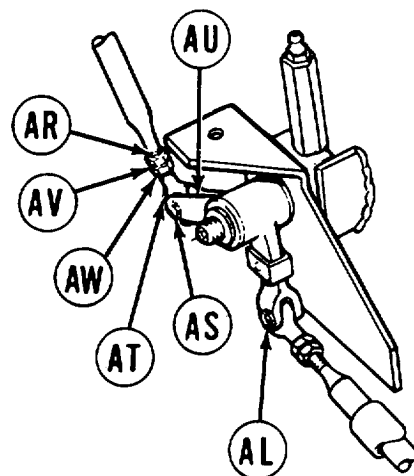
62. Place steering rod end bearing (AM) into clevis (AN).
63. Remove locating pins (V) and (A).
64. Using 9/16 inch wrench, install screw (AL).
65. Using 9/16 inch wrench, tighten jamnut (AP) onto rod end bearing flat (AQ).

Go on to Sheet 11

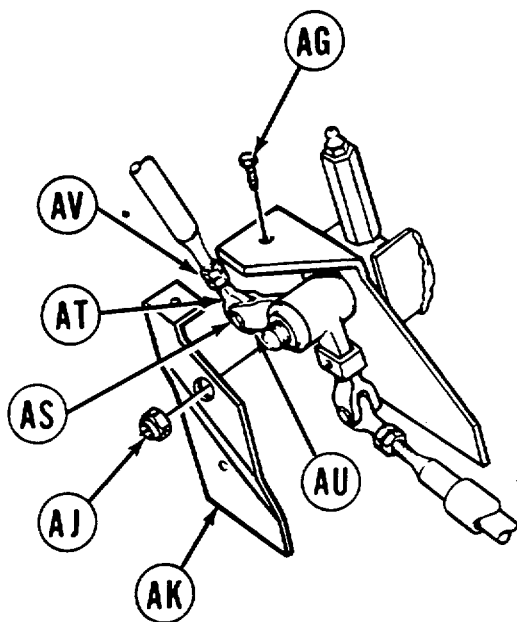
TA146439

**STEERING CONTROL LINKAGE ADJUSTMENT (Sheet 11 of 13)**

66. Using 9/16 inch wrench, tighten screw (AL).
67. Check threads at end of steering rod (AR) to make sure threads are past check hole.
68. If threads are not showing, using 9/16 inch wrench, remove screw (AS).
69. Remove steering rod end bearing (AT) from clevis (AU).
70. Using 9/16 inch wrench, loosen jamnut (AV).
71. Using 9/16 inch wrench on steering rod end bearing flat (AW), turn counterclockwise or clockwise until threads are showing past check hole.



LEFT SIDE OF HULL  
(TO REAR OF FUEL TANK)



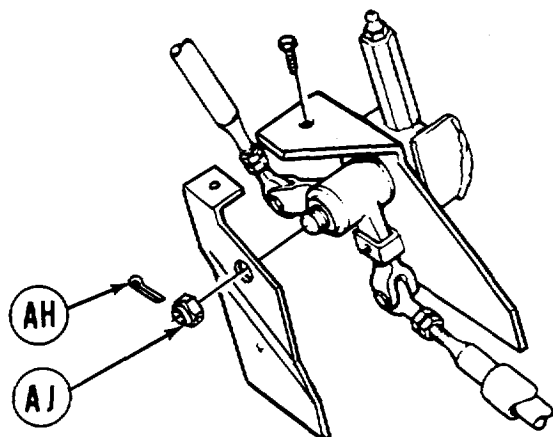
LEFT SIDE OF HULL (TO REAR OF FUEL TANK)

72. Place steering rod end bearing (AT) into clevis (AU).
73. Using 9/16 inch wrench, install screw (AS).
74. Using 9/16 inch wrench, tighten jamnut (AV).
75. Using torque wrench with socket, tighten screw (AS) to 15-20 lb-ft (20-27 N•m).
76. Using fingers, remove nut (AJ).
77. Position plate (AK) to linkage assembly.
78. Using 7/16 inch wrench, install screw (AG).

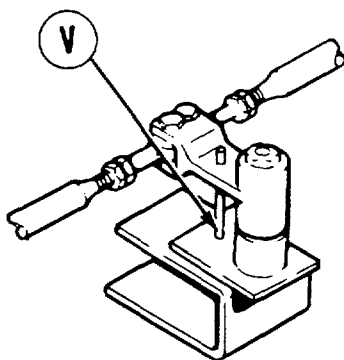
Go on to Sheet 12

TA146440

STEERING CONTROL LINKAGE ADJUSTMENT (Sheet 12 of 13)

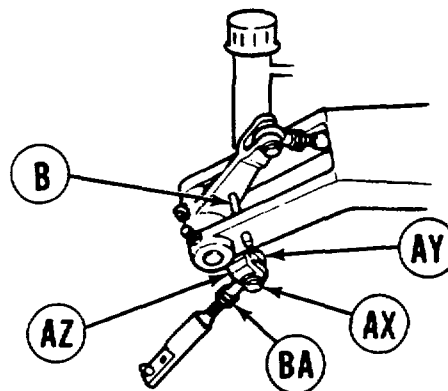


LEFT SIDE OF HULL  
(TO REAR OF FUEL TANK)



BEHIND LEFT AMMUNITION RACK

79. Using 3/4 inch wrench, install nut (AJ).
80. Using pliers, install new cotter pin (AH).
81. Install 2A powerplant (page 14) or 2D powerplant (page 5-40).
82. Insert locating pin (V).



LEFT SIDE OF TANK

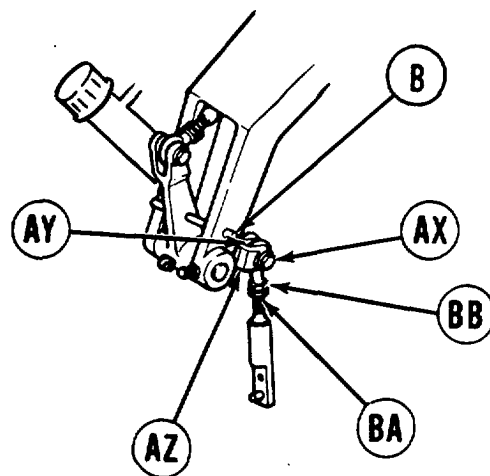
83. Attempt to insert locating pin (B).
84. If locating pin (B) can be inserted, remove locating pin (B) and go to step 94.
85. If locating pin (B) cannot be inserted, remove locating pin (V) and use 9/16 inch wrench to remove screw (AX).
86. Remove steering rod end bearing (AY) from clevis (AZ).
87. Using 9/16 inch wrench, loosen jamnut (BA).
88. Insert locating pins (B) and (V).

Go on to Sheet 13

TA146441

**STEERING CONTROL LINKAGE ADJUSTMENT (Sheet 13 of 13)**

- 89. Using 9/16 inch wrench on steering rod end bearing fiat (BB), turn clockwise or counterclockwise until screw (AX) will pass freely through steering rod end bearing (AY) and clevis (AZ).
- 90. Using fingers, install screw (AX) through steering rod end bearing (AY) and clevis (AZ).
- 91. Using 9/16 inch wrench, tighten jamnut (BA).
- 92. Remove locating pins (B) and (V).
- 93. Using torque wrench with socket, tighten screw (AX) to 15-20 lb-ft (20-27 N•m).

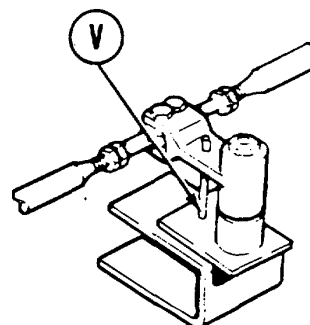


LEFT SIDE OF TRANSMISSION

**NOTE**

**If steering is unacceptable, notify support maintenance personnel.**

- 94. Check steering controls with tank operating (TM 9-2350-260-10).
- 95. Install transmission shroud (page 9-20).
- 96. Install fixed fire extinguisher control valve (page 20-42).
- 97. Install fixed fire extinguisher cylinders (page 20-51).
- 98. Install left ammo rack (page 17-9).
- 99. Unblock tracks (TM 9-2350-260-10).



End of Task

TA146442

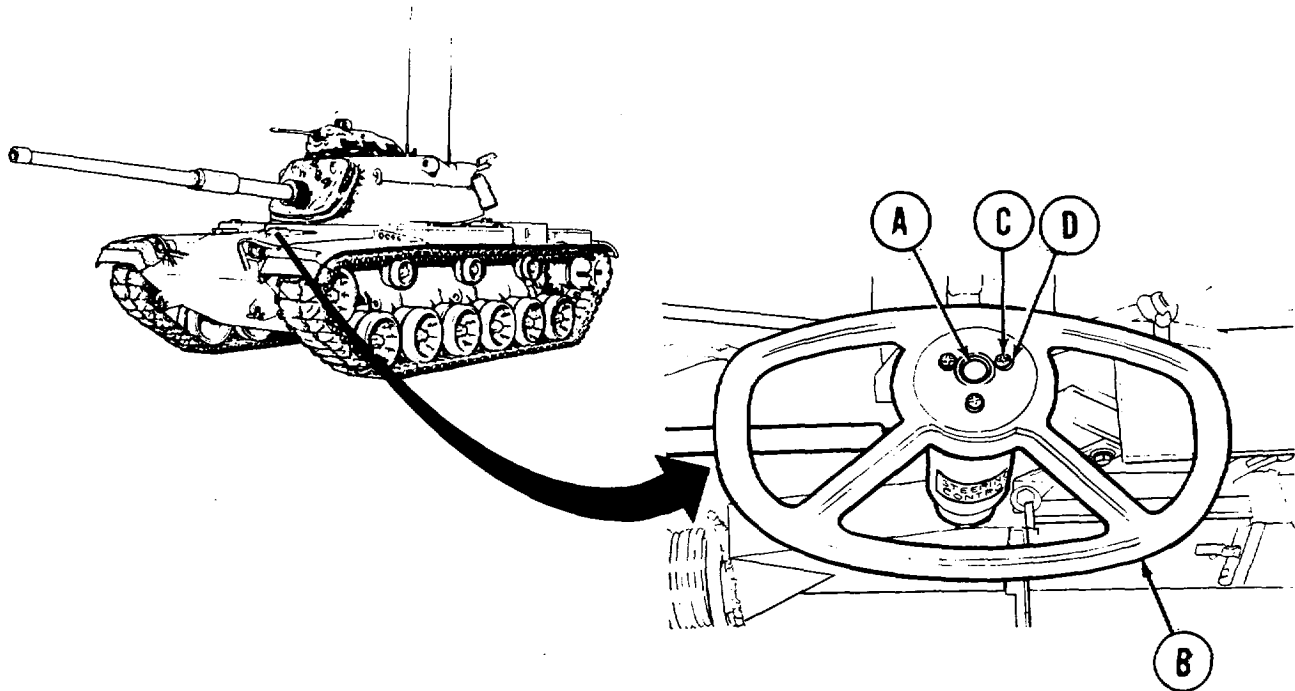
## STEERING WHEEL ASSEMBLY REPLACEMENT (Sheet 1 of 4)

## PROCEDURE INDEX

PROCEDURE	PAGE
Removal	15-15
Cleaning and Inspection	15-16
Installation	15-17

TOOLS: Slip joint pliers'  
Snap ring pliers  
Flat-tip screwdriver

SUPPLIES: Cotter pin (MS24665-132)  
Cotter pin (MS24665-281)  
Rags (Item 65, Appendix D)  
Dry cleaning solvent (Item 54, Appendix D)



## REMOVAL:

1. Go to driver's seat and, using screwdriver, pry button (A) from wheel assembly (B).
2. Using screwdriver, remove three screws (C) and washers (D) from wheel (B). Remove wheel assembly (B).

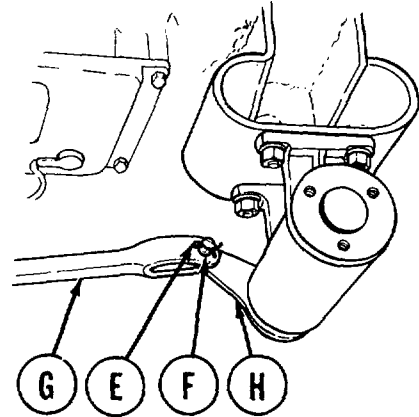
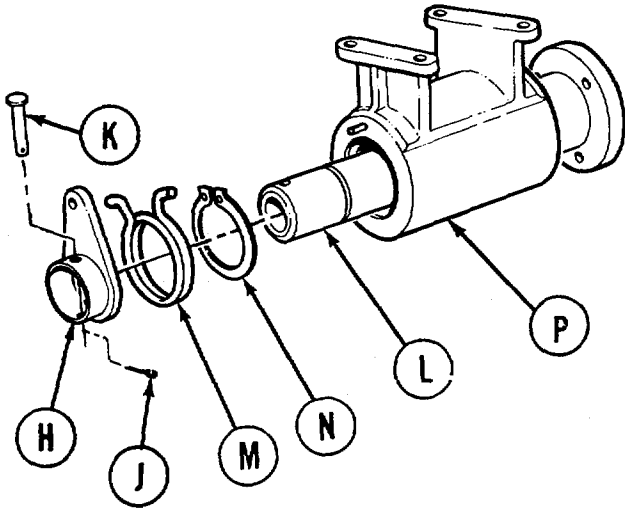
Go on to Sheet 2

TA146443



**STEERING WHEEL ASSEMBLY REPLACEMENT (Sheet 2 of 4)**

- Using pliers, remove cotter pin (E) from pin (F). Remove pin (F) from rod (G) and lever (H). Throw cotter pin away.



- Using pliers, remove cotter pin (J) from pin (K). Remove pin (K) from lever (H). Throw cotter pin away.
- Using hand, remove lever (H) from sleeve (L).
- Using hand, remove spring (M) from sleeve (L).

- Using snap ring pliers, remove retaining ring (N) from sleeve (L).

- Using hands, remove sleeve (L) from mount (P).

**CLEANING AND INSPECTION:**

- Using rags (Item 65, Appendix D) and dry cleaning solvent (Item 54, Appendix D), clean sleeve and lever.
- Inspect sleeve and lever for abnormal wear. Replace if abnormal wear is noted.

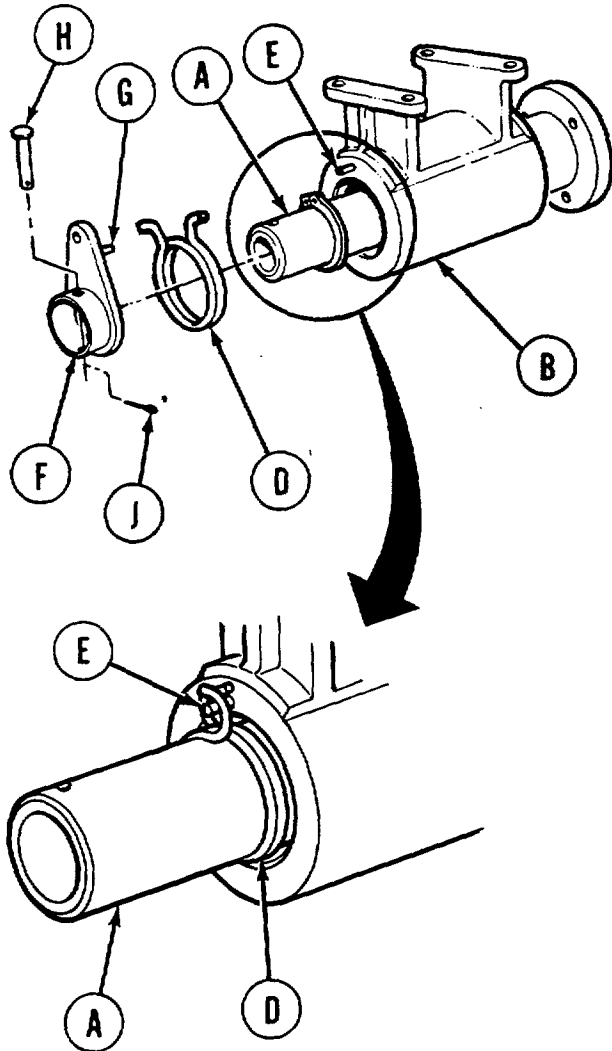
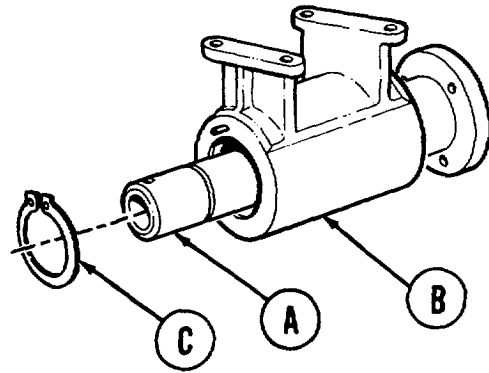
Go on to Sheet 3

TA146444

**STEERING WHEEL ASSEMBLY REPLACEMENT (Sheet 3 of 4)**

**INSTALLATION:**

1. Position sleeve (A) into mount (B).
2. Using snap ring pliers, install retaining ring (C) onto sleeve (A).

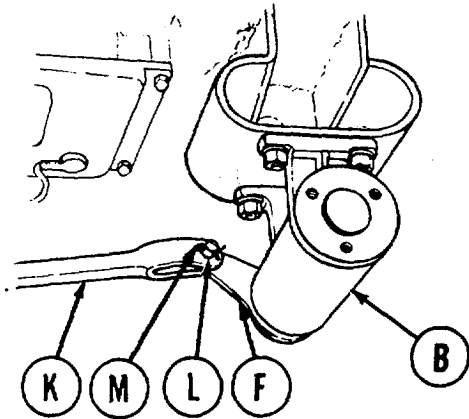


3. Position spring (D) on sleeve (A) and stud (E) as shown.
4. Position lever (F) on sleeve (A) so stud (G) is directly above stud (E) and between arms of spring (D).
5. Install pin (H) through hole in lever (F) and sleeve (A).
6. Using pliers, install new cotter pin (J) through pin (H).

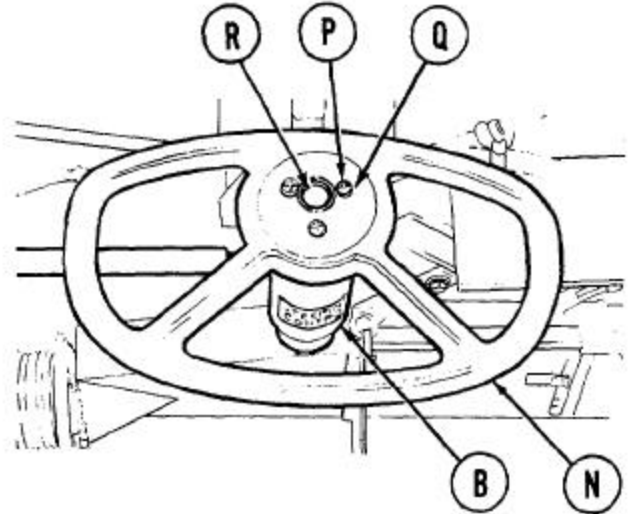
Go on to Sheet 4

TA146445

STEERING WHEEL ASSEMBLY REPLACEMENT (Sheet 4 of 4)



7. Position rod (K) onto lever (F) and install pin (L) through rod (K) and lever (F). Using pliers, install new cotter pin (M) into pin (L).



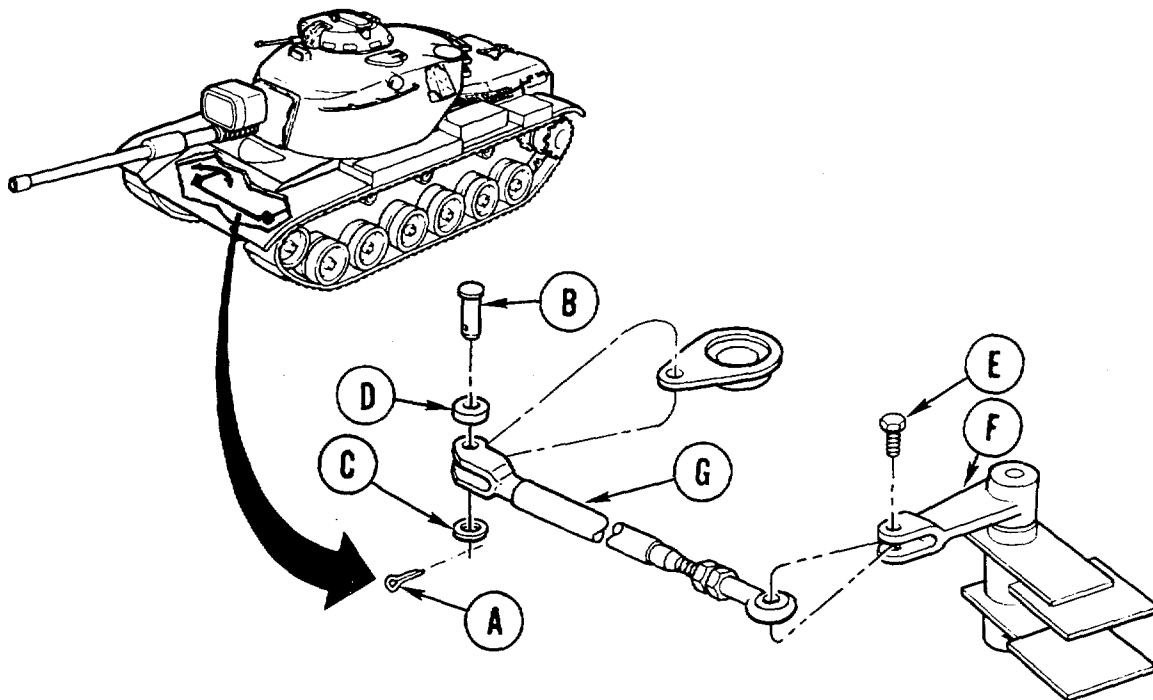
8. Position wheel (N) onto mount (B) and, using screwdriver, install three screws (P) and washers (Q).
9. Using hand, press button (R) into wheel assembly (N).

End of Task

**FRONT STEERING CONTROL ROD ASSEMBLY REPLACEMENT (Sheet 1 of 3)**

**TOOLS:** Slip joint pliers  
 Torque wrench with 3/8 in. drive (0-200 lb-in.)(0-23 N•m)  
 9/16 in. combination box and open end wrench (2 required)  
 9/16 in. crowfoot adapter with 3/8 in. drive  
 6 ft steel tape  
 Hammer  
 1/8 in. punch

**SUPPLIES:** Cotter pin (MS24665-281)  
 Pencil  
 Paper

**REMOVAL:**

1. Using pliers, remove cotter pin (A) from pin (B). Throw cotter pin away.
2. Using pliers, remove pin (B), washer (C), and washer (D).
3. Using wrench, remove bolt (E) from link (F).
4. Remove rod assembly (G).

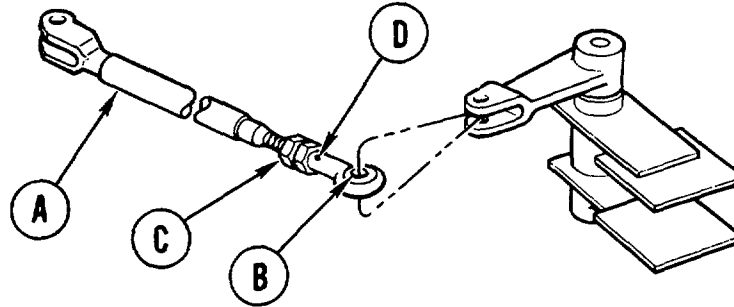
Go on to Sheet 2

TA146447

**FRONT STEERING CONTROL ROD ASSEMBLY REPLACEMENT (Sheet 2 of 3)**

**INSPECTION AND REPAIR:**

1. Inspect removed pin, washers, and bolt for wear or damage. Replace if required.

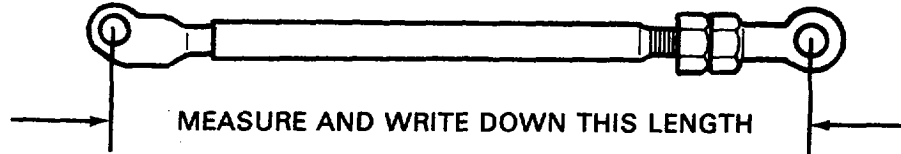


2. Inspect rod assembly (A), rod end bearing (B), and jamnut (C) for damage and wear.

**NOTE**

**If rod assembly (A) or rod end bearing (B) is to be replaced, perform steps 3 thru 7.**

3. Measure and write down length of rod assembly between centers of the two holes.

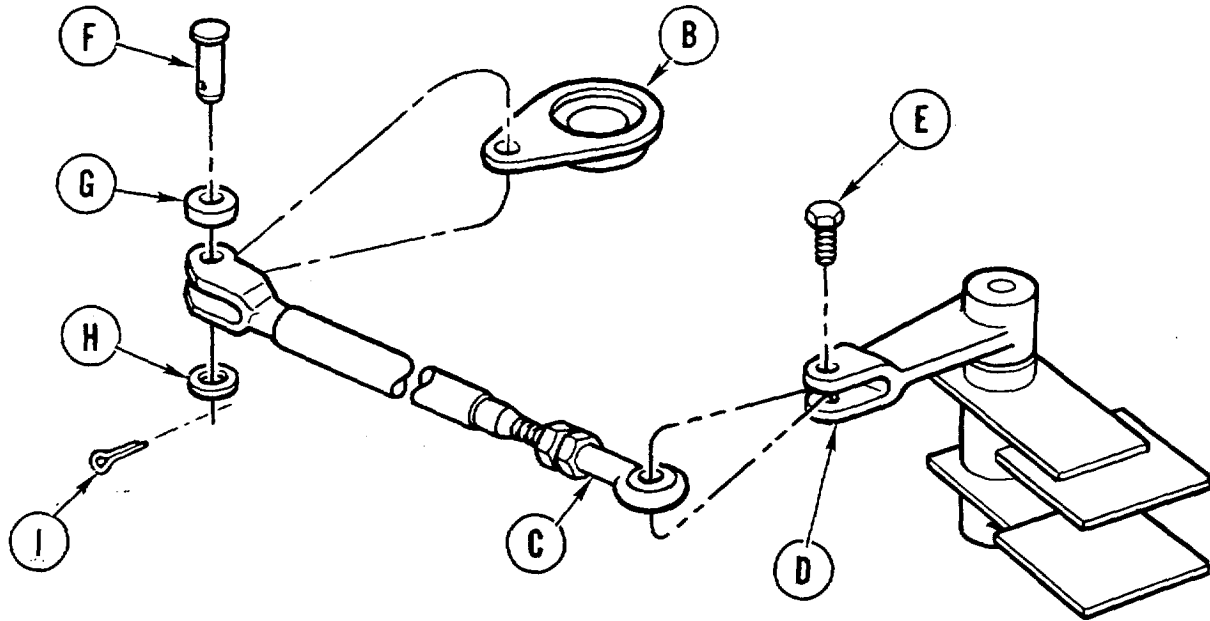


4. Using hammer and punch, remove pin (D).
5. Using two wrenches, remove rod end bearing (B).
6. Replace rod assembly (A) or rod end bearing (B) as required.
7. Obtain length between holes same as that recorded in step 3.
8. Install pin (D).
9. Using torque wrench and adapter, tighten jamnut (C) to 190-195 lb-in. 21-22 N•m).

Go on to Sheet 3

TA146448

## FRONT STEERING CONTROL ROD ASSEMBLY REPLACEMENT (Sheet 3 of 3)



## INSTALLATION:

1. Position rod assembly (A) with clevis end over lever (B) and rod end bearing (C) in link (D).
2. Install bolt (E) through link (D) and rod end bearing (C).
3. Using pliers, install pin (F) through washer (G), lever (B), rod assembly (A), and washer (H).
4. Using pliers, install new cotter pin (J) in pin (F).
5. Using torque wrench, tighten bolt (E) to 190-195 lb-in. (21-22 N•m).
6. Operate steering linkage and adjust if required (page 15-2).

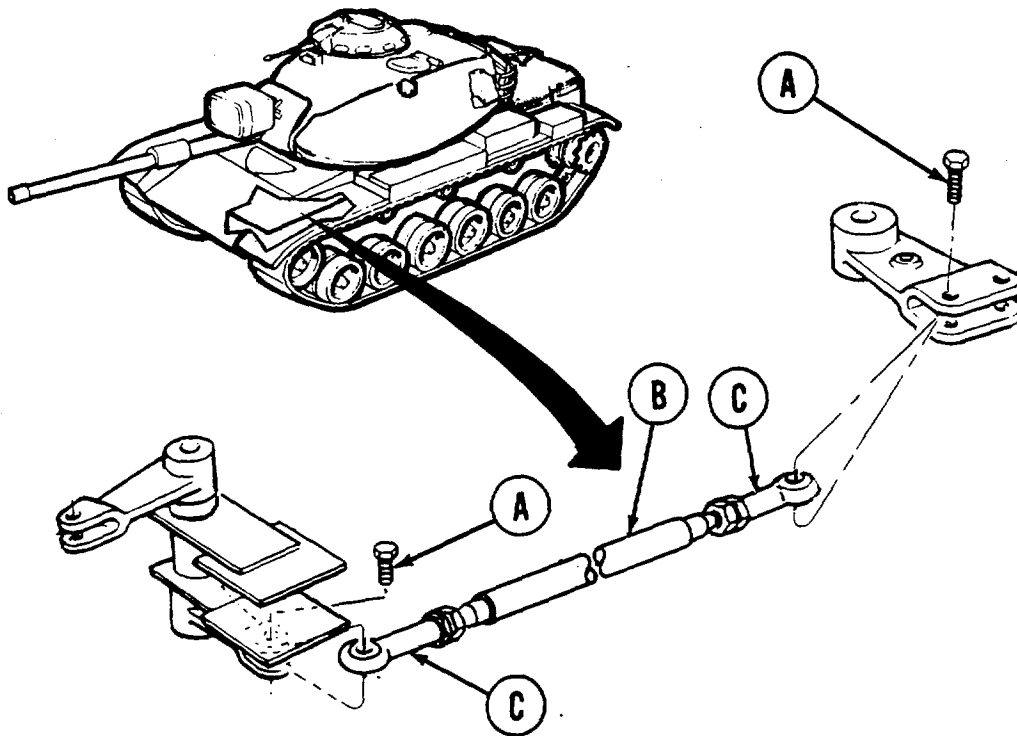
End of Task

TA146449

**FRONT STEERING CONTROL CONNECTING LINK REPLACEMENT (Sheet 1 of 2)**

TOOLS: 9/16 in. combination box and open end wrench (2 required)  
 9/16 in. with 3/8 in. drive crowfoot adapter  
 Torque wrench with 3/8 in. drive (200 lb-in.)(0-23 Nm)  
 9/16 in. socket with 3/8 in. drive

PRELIMINARY PROCEDURE: Displace left ammunition rack (page 17-8)

**REMOVAL:**

1. Using 9/16 inch wrench, remove two bolts (A).
2. Remove connecting link (B).

**INSPECTION:**

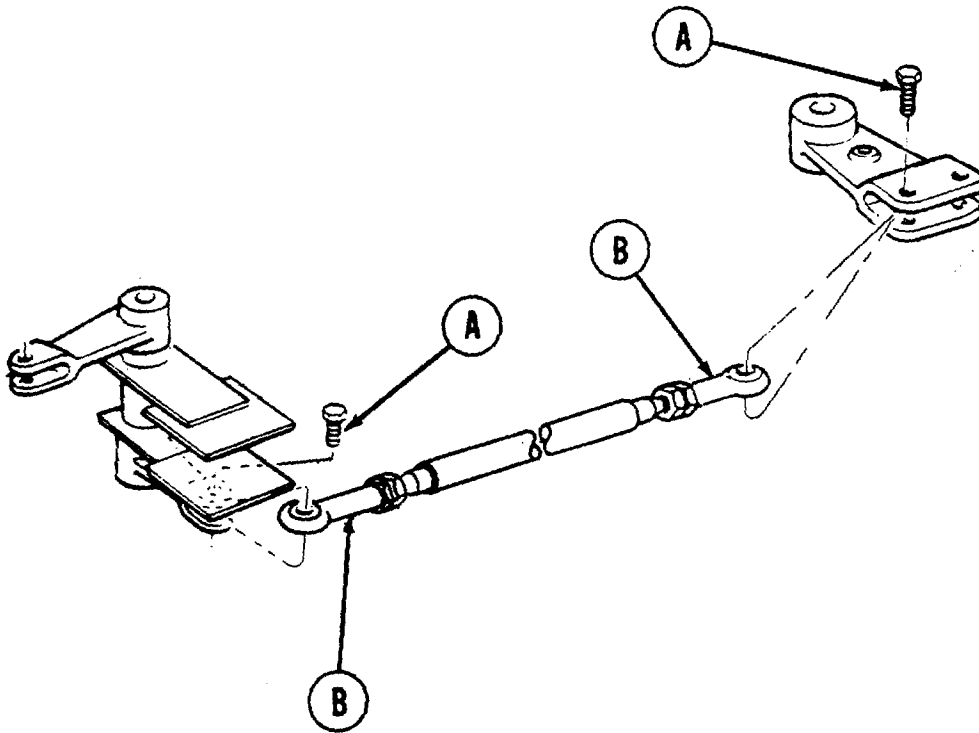
1. Inspect rod end bearings (C).
2. Inspect rod (B) for bends, twist, cracks, or damaged threads.
3. Using two 9/16 inch wrenches, replace rod or rod end bearings if required.

Go on to Sheet 2

TA146450

**FRONT STEERING CONTROL CONNECTING LINK REPLACEMENT (Sheet 2 of 2)****INSTALLATION:**

1. Adjust connecting link length if required (page 15-9, steps 38-46).
2. Using 9/16 inch wrench, install two bolts (A) through rod ends (B).
3. Using torque wrench and socket, tighten two bolts (A) to 192 lb-in. (22 N•m).
4. Install left ammunition rack (page 17-9).



End of Task

TA146451

15-23

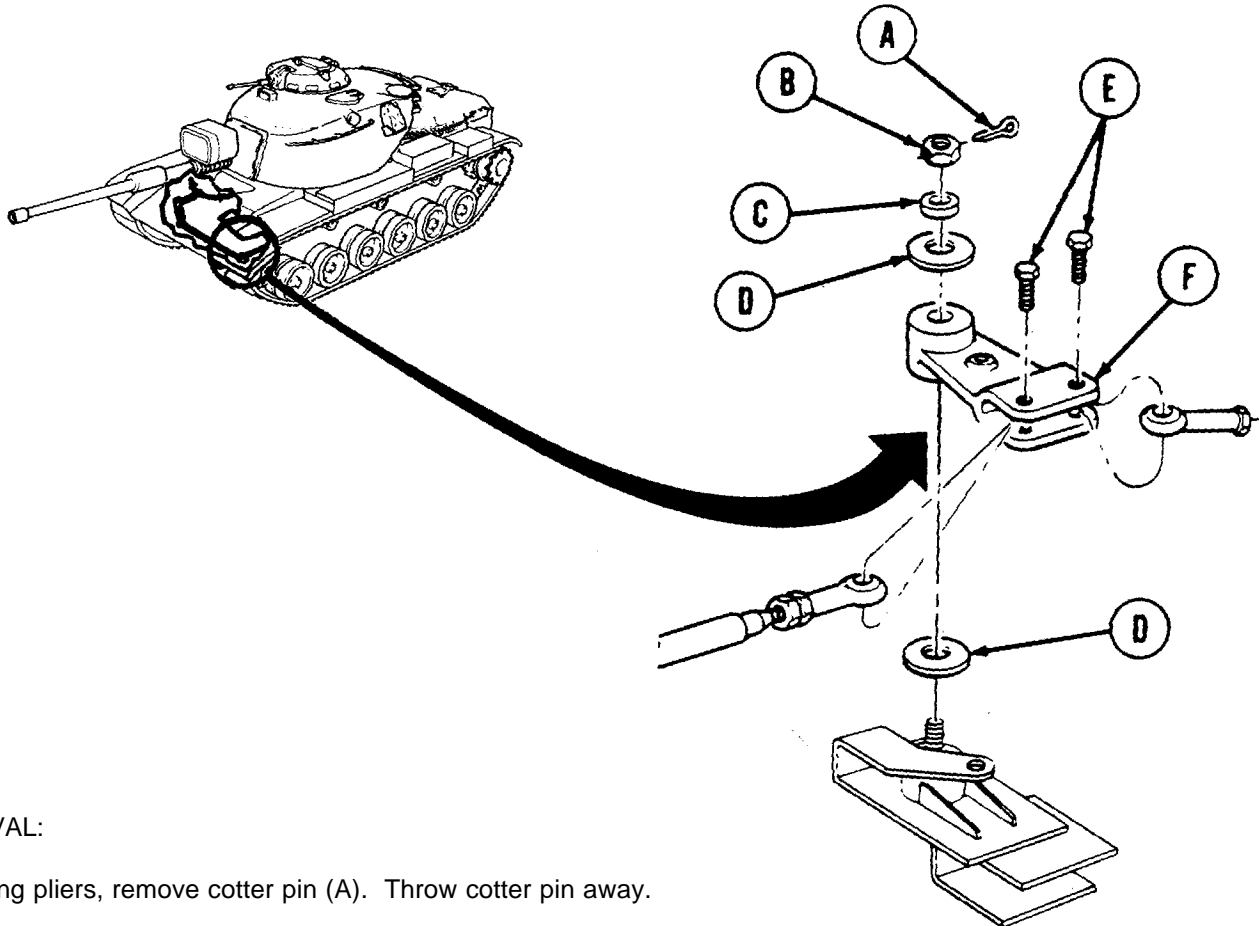


**STEERING CONTROL INTERMEDIATE LINK ASSEMBLY REPLACEMENT (Sheet 1 of 2)**

**TOOLS:** Slip joint pliers  
 9/16 in. open end wrench (2 required)  
 9/16 in. socket with 3/8 in. drive  
 Torque wrench with 3/8 in. drive (0-200 lb-in.)(0-23 N•m)

**SUPPLIES:** Cotter pin (MS24665-283)

**PRELIMINARY PROCEDURE:** Displace left ammunition rack (page 17-8)

**REMOVAL:**

1. Using pliers, remove cotter pin (A). Throw cotter pin away.
2. Using wrench, remove nut (B), washer (C), and two washers (D).
3. Using wrench, remove two bolts (E).
4. Remove link assembly (F).

Go on to Sheet 2

TA146452

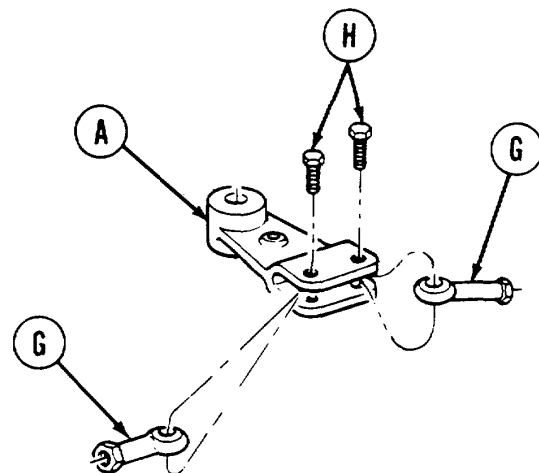
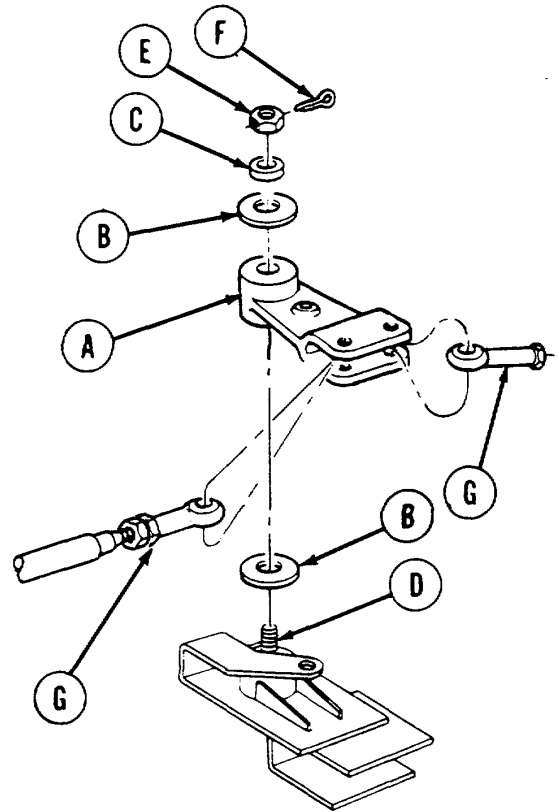
## STEERING CONTROL INTERMEDIATE LINK ASSEMBLY REPLACEMENT (Sheet 2 of 2)

### INSPECTION:

1. Inspect bearing of link assembly (A).
2. Replace bearing if required.

### INSTALLATION:

1. Position link assembly (A), two washers (B), and washer (C) on stud (D).
2. Using wrench, install nut (E).
3. Using pliers, install new cotter pin (F).
4. Position two rod ends (G) in link assembly (A).
5. Install two bolts (H) through link assembly (A) and rod ends (G).
6. Using torque wrench and socket tighten bolts (H) to 185-195 lb-in. (21-22 N•m).
7. Install left ammunition rack (page 17-9).



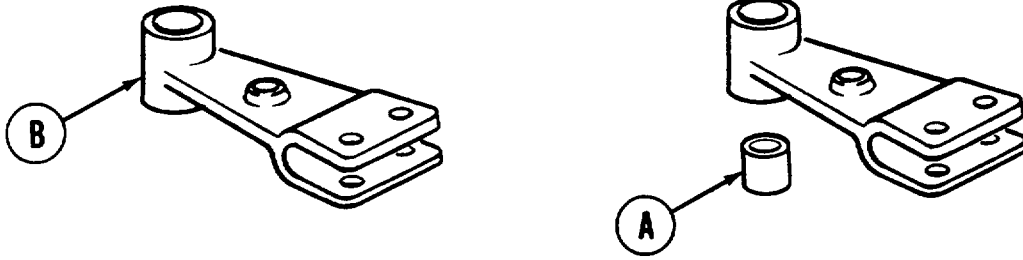
End of Task

TA146453

**STEERING CONTROL INTERMEDIATE LINK ASSEMBLY REPAIR (Sheet 1 of 1)**

TOOLS: Hand hammer  
 Brass bar 11/16 in. diameter  
 Vise

PRELIMINARY PROCEDURE: Remove intermediate link (page 15-24)



**DISASSEMBLY:**

1. Inspect bearing (A). Replace if required.

**NOTE**

**If bearing is to be replaced, perform step 2.**

2. Using hammer and brass bar, drive bearing from link from top or bottom of link.

**ASSEMBLY:**

1. Using vise, press bearing (A) in link (B) flush with both sides of link.
2. Install intermediate link (page 15-25).

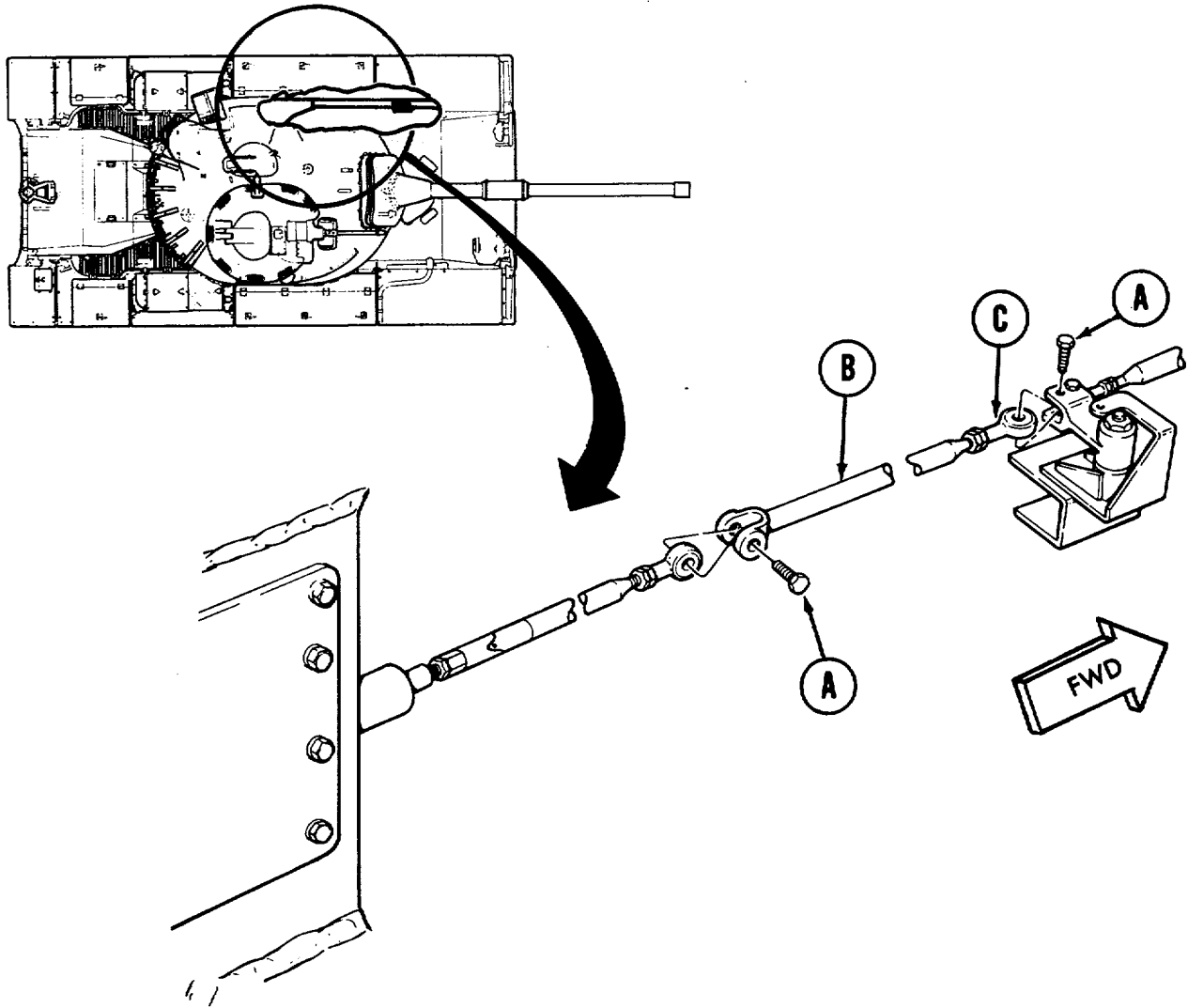
End of Task

TA146454

**STEERING CONTROL LINK TO BULKHEAD SHAFT ROD REPLACEMENT (Sheet 1 of 2)**

TOOLS: 9/16 in. combination box and open end wrench (2 required)

PRELIMINARY PROCEDURE: Displace left ammunition rack (page 17-8)



**REMOVAL:**

1. Using wrench, remove two bolts (A).
2. Remove rod (B).
3. Inspect rod end bearing (C).
4. Inspect rod for bends, twists, or damaged threads.

Go on to Sheet 2

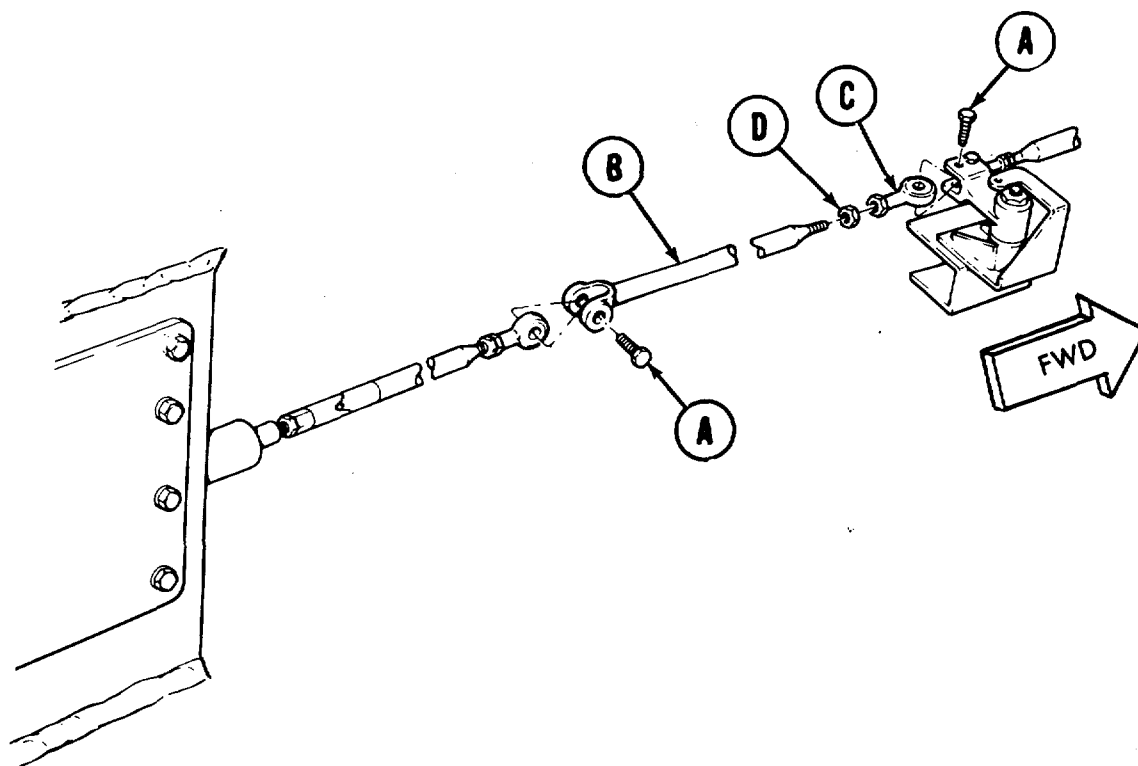
TA146455

## STEERING CONTROL LINK TO BULKHEAD SHAFT ROD REPLACEMENT (Sheet 2 of 2)

## NOTE

If rod (B) or rod end bearing (C) must be replaced, perform steps 5 thru 7.

- Using one wrench on jamnut (D) and one wrench on rod end (C), remove rod end bearing (C).



- Replace rod (B) or rod end bearing (C) as required.
- Using one wrench on jamnut (D) and one wrench on rod end bearing (C), install rod end bearing.

## INSTALLATION:

- Using wrench, install two bolts (A).
- Install left ammunition rack (page 17-9).

End of Task

TA146456

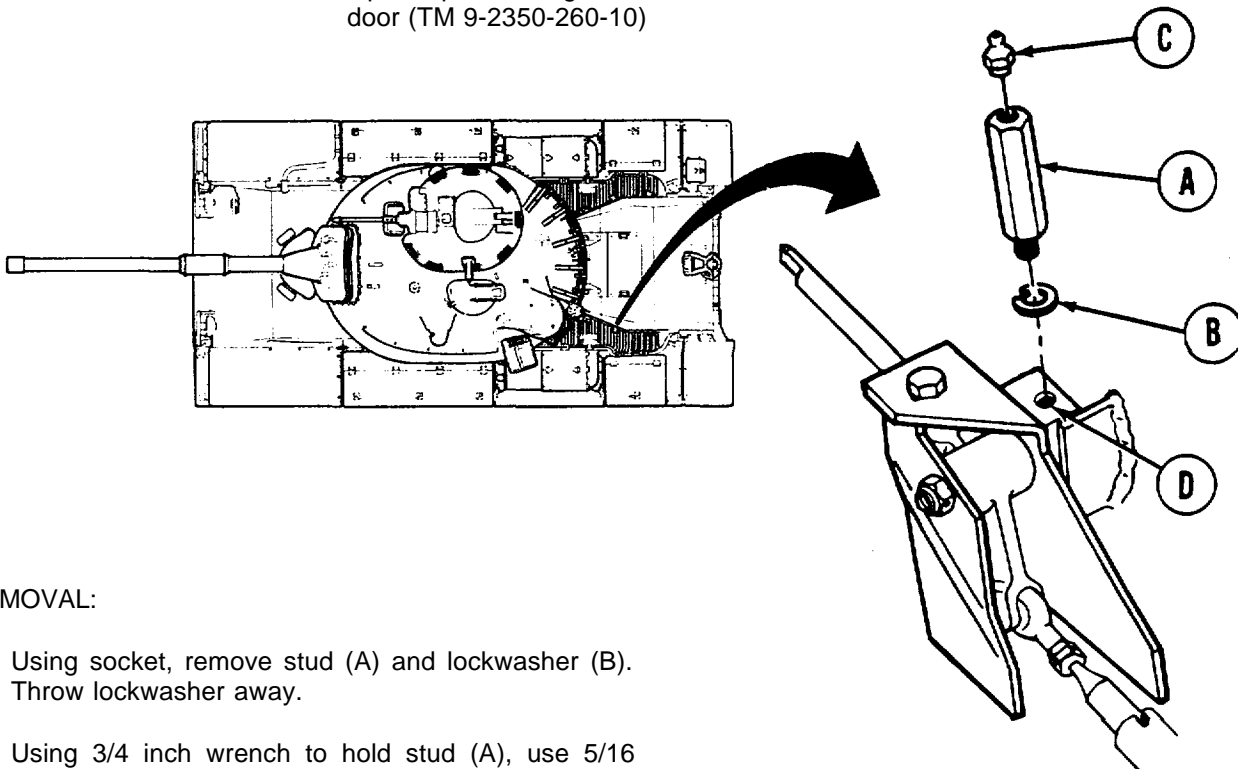
**STEERING CONTROL EXTENSION STUD REPLACEMENT (Sheet 1 of 1)**

**TOOLS:** Droplight/flashlight  
 3/4 in. socket with 1/2 in. drive (deep well)  
 5/16 in. combination box and open end wrench  
 Ratchet with 1/2 in. drive  
 10 in. extension with 1/2 in. drive  
 3/4 In. combination box and open end wrench

**SUPPLIES:** Lockwasher (MS35338-29)

**REFERENCE:** TM 9-2350-260-10

**PRELIMINARY PROCEDURE:** Open top left rear grille door (TM 9-2350-260-10)



**BEHIND LEFT REAR  
 FUEL TANK ON HULL WALL**

**REMOVAL:**

1. Using socket, remove stud (A) and lockwasher (B). Throw lockwasher away.
2. Using 3/4 inch wrench to hold stud (A), use 5/16 inch wrench and remove fitting (C) from stud (A).

**INSTALLATION:**

1. Using 3/4 inch wrench to hold stud (A), use 5/16 inch wrench and install fitting (C) into stud (A).
2. Position new lockwasher (B) onto bracket (D). Using socket, install stud (A) into bracket (D).

End of Task

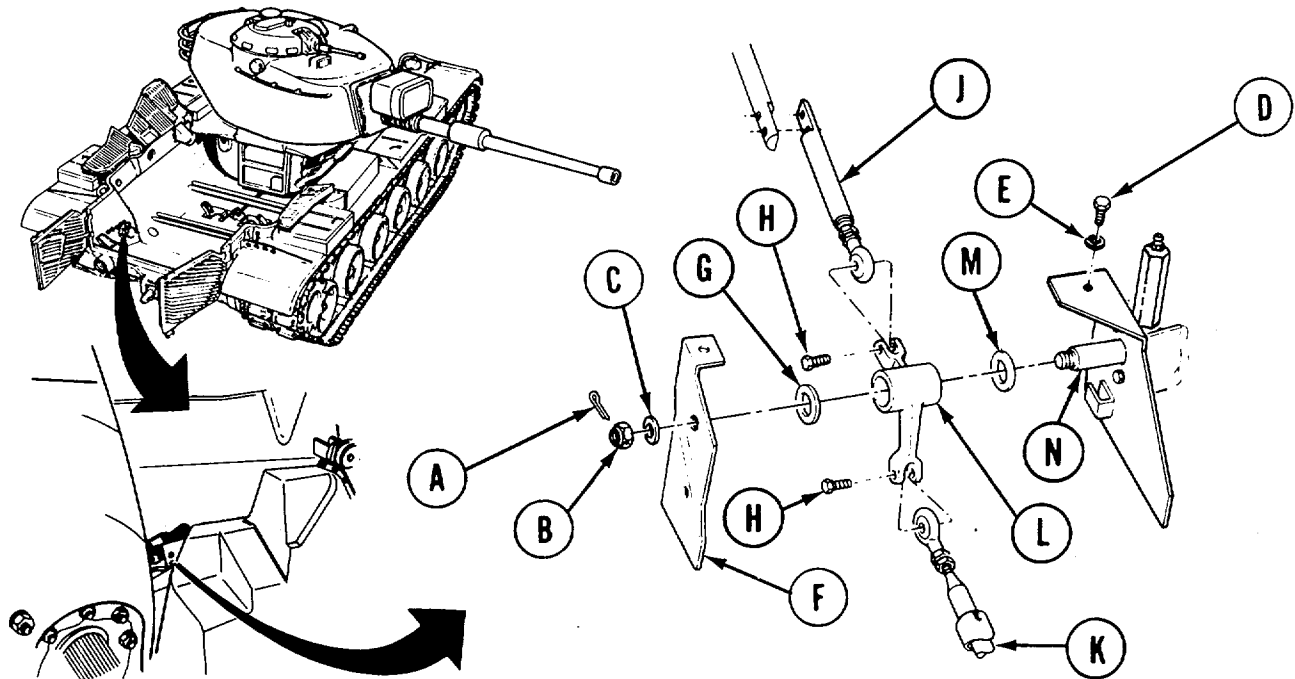
TA146457

**STEERING CONTROL CONNECTING LINK REPLACEMENT (Sheet 1 of 2)**

**TOOLS:** Flashlight  
 5 in. extension with 1/2 in. drive  
 Slip joint pliers  
 7/16 in. socket with 1/2 in. drive  
 3/4 in. combination box and open end wrench  
 9/16 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive

**SUPPLIES:** Cotter pin (MS24665-287)

**PRELIMINARY PROCEDURE:** Remove powerplant (page 5-1)

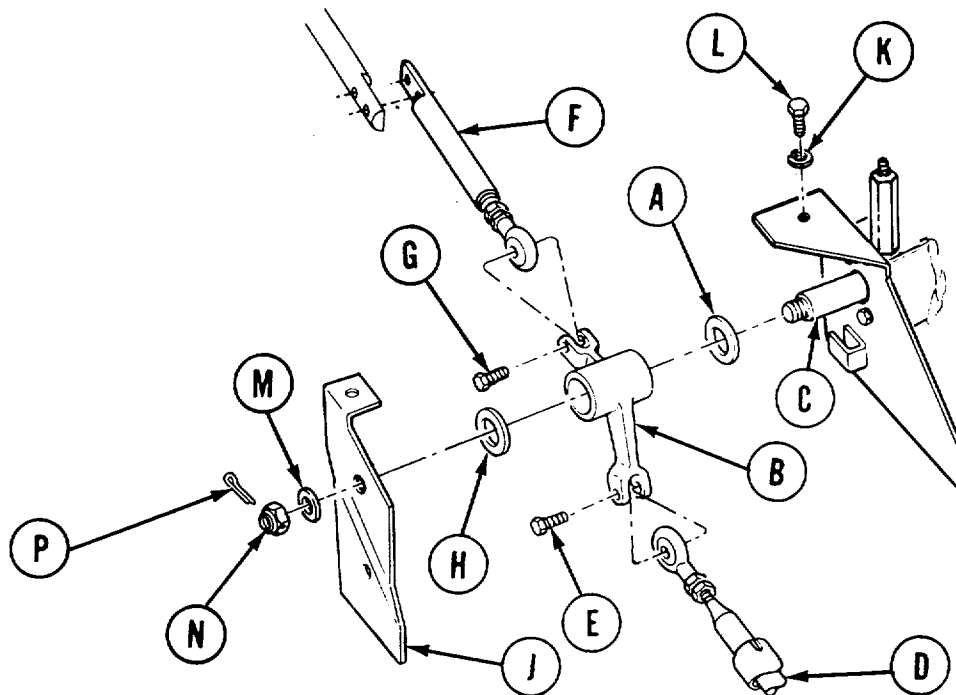
**REMOVAL:**

1. Using pliers, remove cotter pin (A). Throw pin (A) away.
2. Using wrench, remove nut (B) and washer (C).
3. Using 7/16 inch socket, remove screw (D) and washer (E).
4. Remove shield (F) and washer (G).
5. Using 9/16 inch socket remove two bolts (H) from connecting rods (J) and (K) and link (L).
6. Remove connecting rods (J) and (K) from link (L).
7. Using hands, remove connecting link (L) and washer (M) from shaft (N).

Go on to Sheet 2

TA146458

## STEERING CONTROL CONNECTING LINK REPLACEMENT (Sheet 2 of 2)



## INSTALLATION:

1. Position washer (A) and connecting link (B) onto shaft (C).
2. Position connecting rod (D) onto clevis of connecting link (B) and secure with bolt (E).
3. Install connecting rod (F) onto connecting link (B) and secure with bolt (G).
4. Using 9/16 inch socket, tighten bolts (E) and (G).
5. Install washer (H) and shield (J) onto shaft (C) and, using 7/16 inch socket, install washer (K) and screw (L) into shield (J).
6. Using wrench, install washer (M) and nut (N).
7. Using pliers, install new cotter pin (P).
8. Install 2A powerplant (page 5-14) or 2D powerplant (page 5-40).

End of Task

TA146459



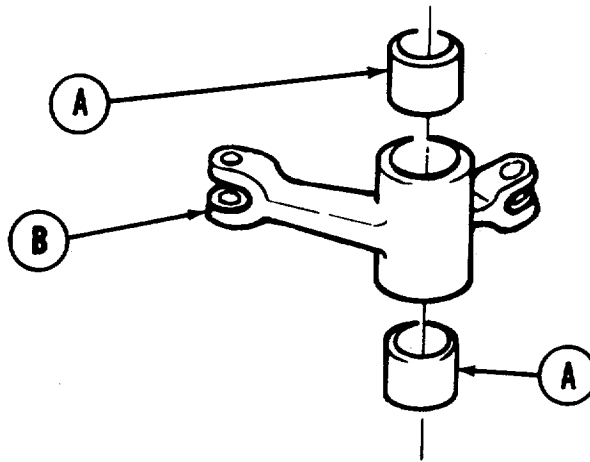
**STEERING CONTROL CONNECTING LINK REPAIR (Sheet 1 of 1)**

TOOLS: 2 lb hammer  
 3/8 in. drive punch  
 Vice

SUPPLIES: Bearings (8762130)(2 required)

REFERENCE: LO 9-2350-260-12

PRELIMINARY PROCEDURE: Remove connecting link from tank (page 15-30)

**INSPECTION:**

Inspect bearings.

**DISASSEMBLY:**

Using hammer and punch, drive bearings (A) out of link (B).

**ASSEMBLY:**

1. Position one new bearing (A) over connecting link (B).
2. Using vise, press bearing (A) flush with outer surface of link (B).
3. Turn link over. Repeat step 1 with other bearing.
4. Install link in tank (page 15-31).
5. Lubricate (LO 9-2350-260-12).

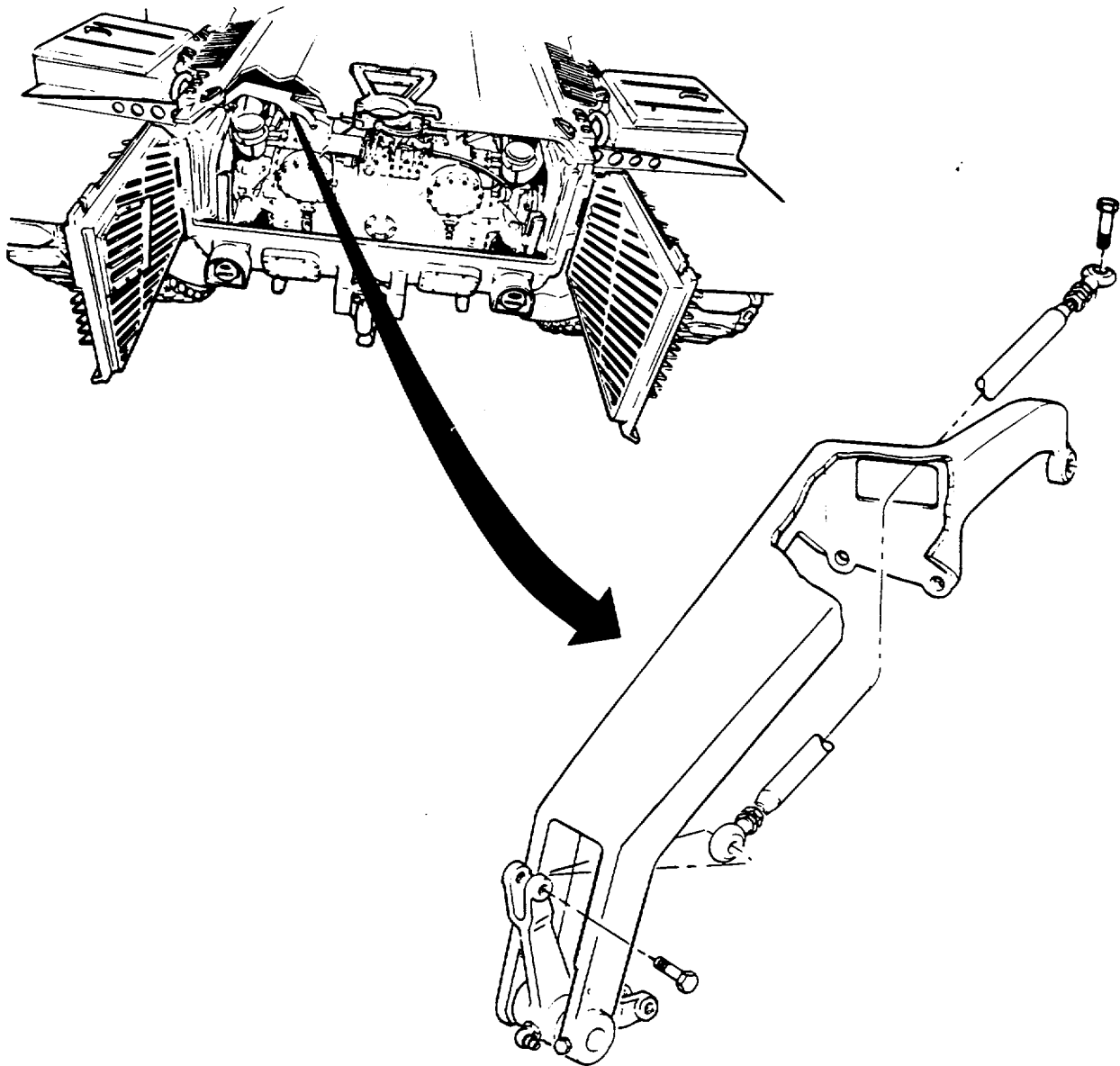
End of Task

TA146460

**STEERING CONTROL CONNECTING LINK (RISER LINK TO TRANSMISSION SHAFT LINK)  
REPLACEMENT (Sheet 1 of 3)**

**TOOLS:** 9/16 in. combination box and open end wrench (2 required)  
Torque wrench with 3/8 in. drive (0-200 lb-in.)(0-23 N•m)  
9/16 in. socket with 3/8 in. drive

**PRELIMINARY PROCEDURES:** Remove top deck (page 16-20)  
Remove transmission shroud (page 9-20)



Go on to Sheet 2

TA146461

15-33

**STEERING CONTROL CONNECTING LINK (RISER LINK TO TRANSMISSION SHAFT LINK)  
REPLACEMENT (Sheet 2 of 3)**

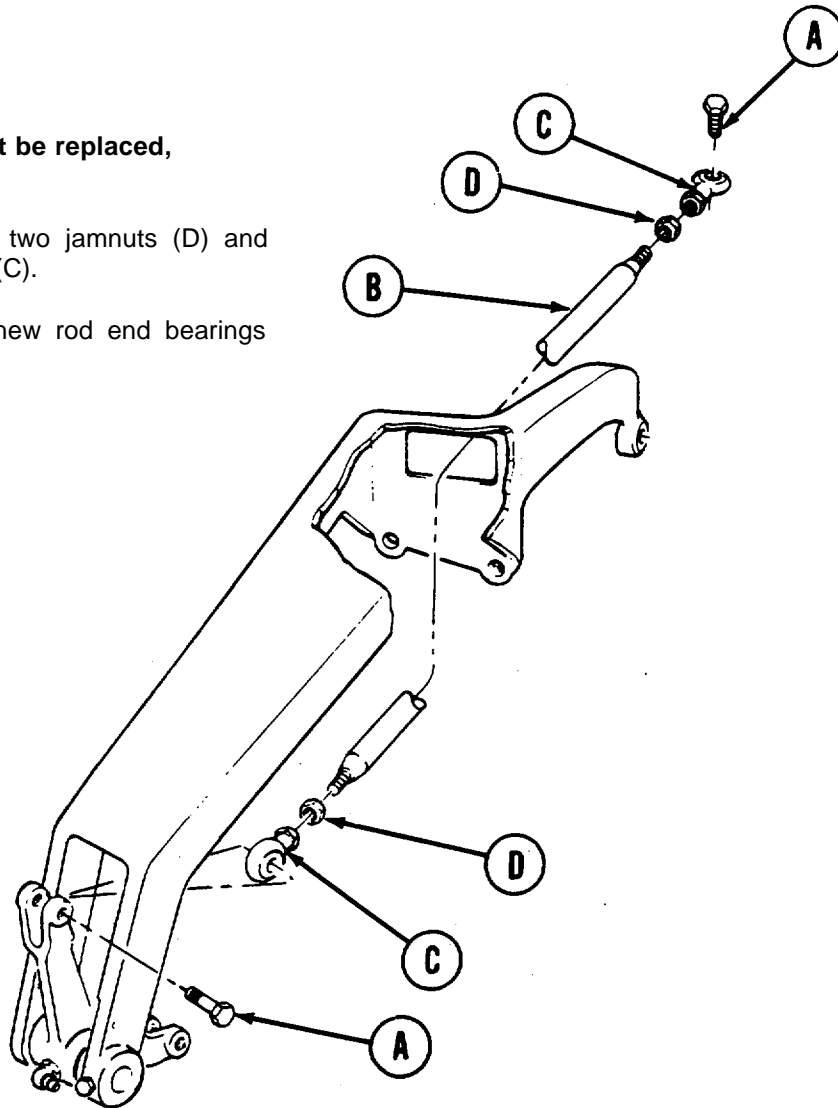
**REMOVAL:**

1. Using wrench, remove two bolts (A).
2. Remove connecting link (B).
3. Inspect rod end bearings (C).

**NOTE**

**If rod end bearings must be replaced,  
perform steps 4 and 5.**

4. Using two wrenches, loosen two jamnuts (D) and remove two rod end bearings (C).
5. Using two wrenches, install new rod end bearings (C).

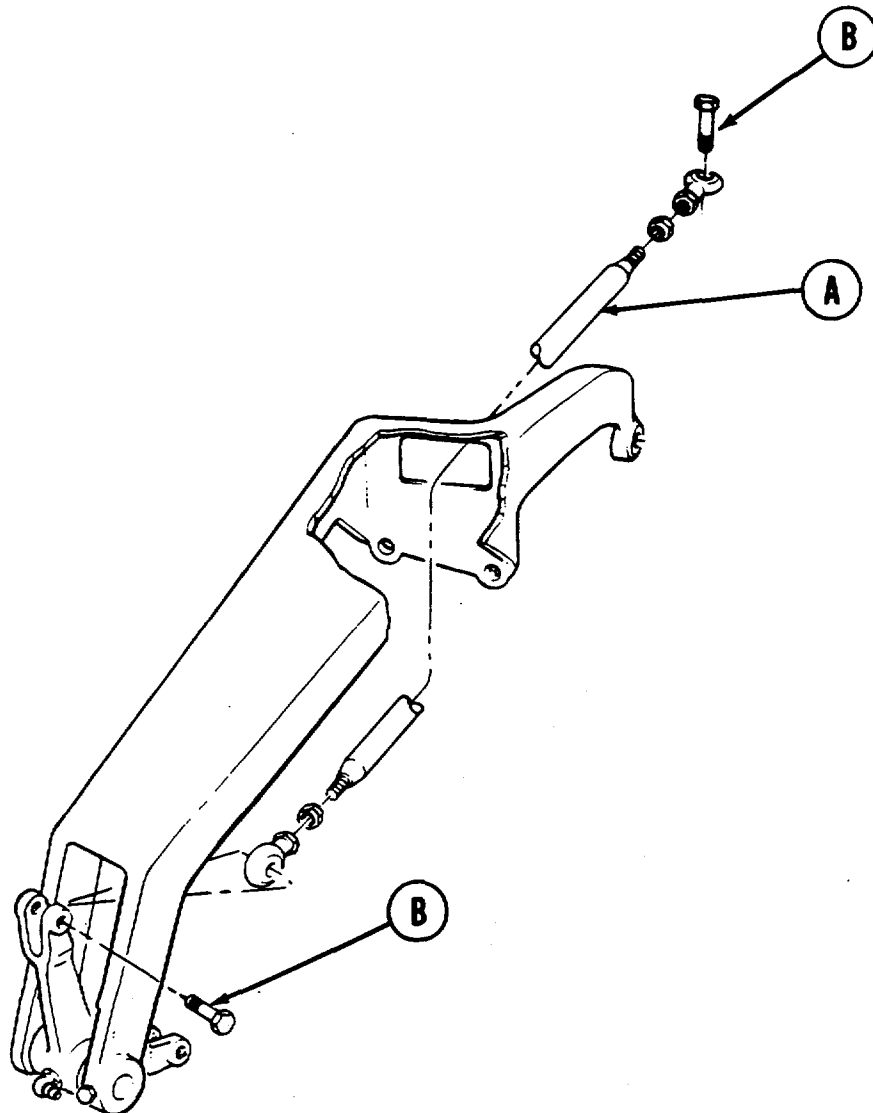


Go on to Sheet 3

TA146462

**STEERING CONTROL CONNECTING LINK (RISER LINK TO TRANSMISSION SHAFT LINK)  
REPLACEMENT (Sheet 3 of 3)****INSTALLATION:**

1. Position connecting link (A) on transmission.
2. Install two bolts (B) finger tight. Using torque wrench, tighten to 187-197 lb-in. (21-22 N•m).
3. Install transmission shroud (page 9-23).
4. Install top deck (page 16-22).



End of Task

TA146463

**STEERING CONTROL BRACKET REPLACEMENT (Sheet 1 of 2)**

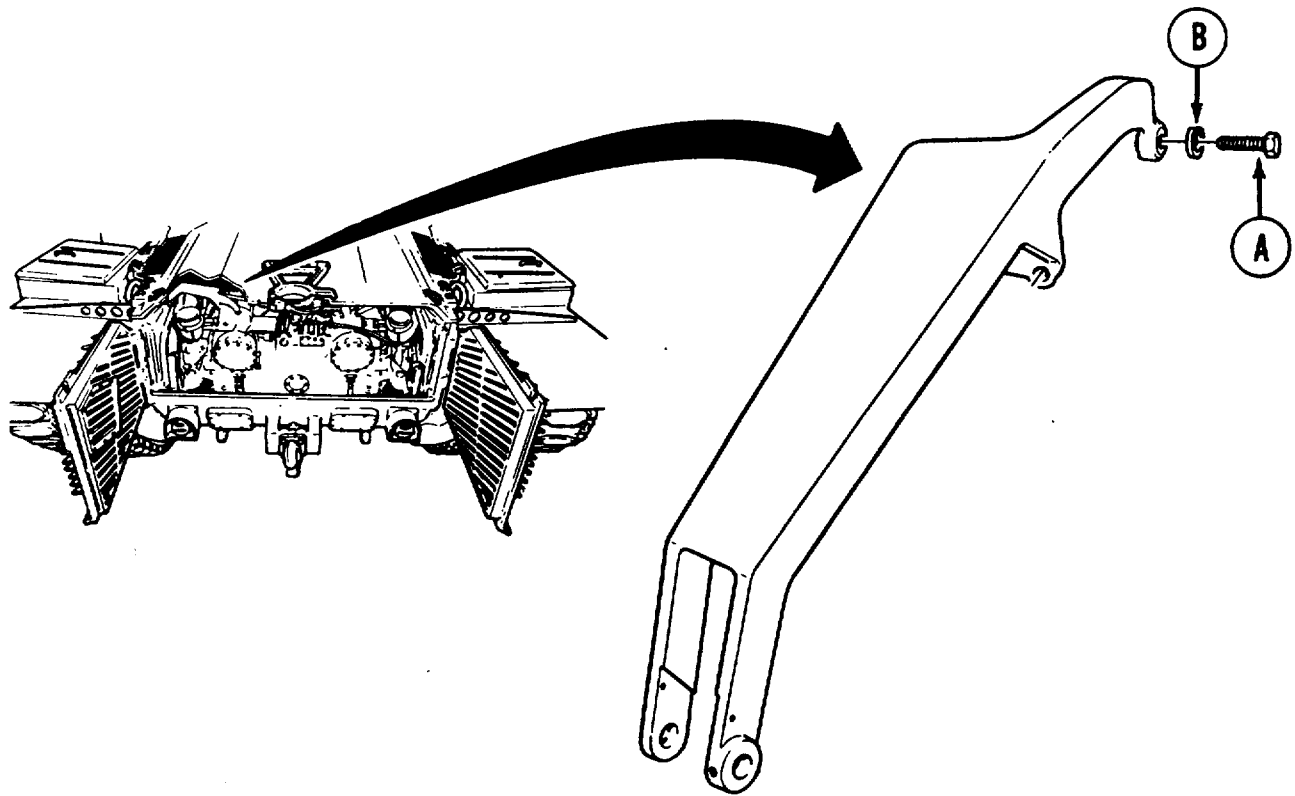
**TOOLS:** 13/16 in. socket with 1/2 in. drive  
 Ratchet with 1/2 in. drive  
 3/4 in. combination box and open end wrench  
 Hinged handle with 1/2 in. drive

**SUPPLIES:** Lockwasher (MS35338-67) (3 required)

**PRELIMINARY PROCEDURES:** Remove transmission shroud (page 9-20)  
 Remove transmission shaft linkage (pages 15-34, 15-40)

**REMOVAL:**

1. Using wrench, remove one screw (A) and lockwasher (B) holding bracket to transmission. Throw lockwasher away.

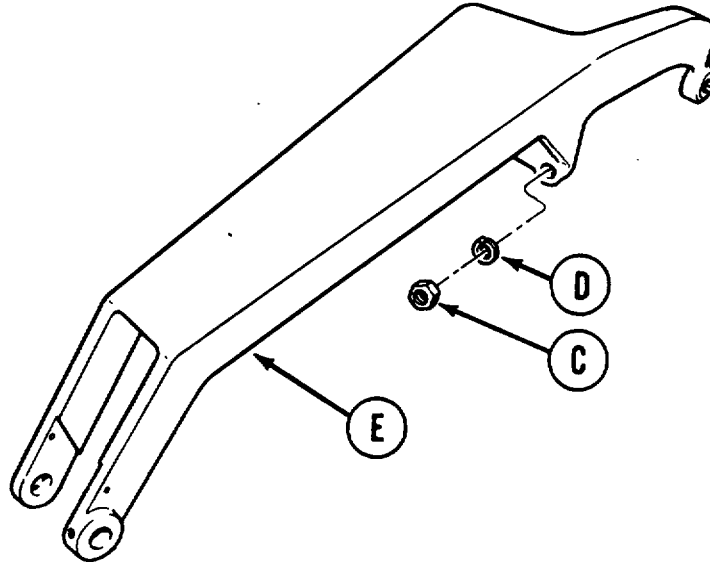


Go on to Sheet 2

TA146464

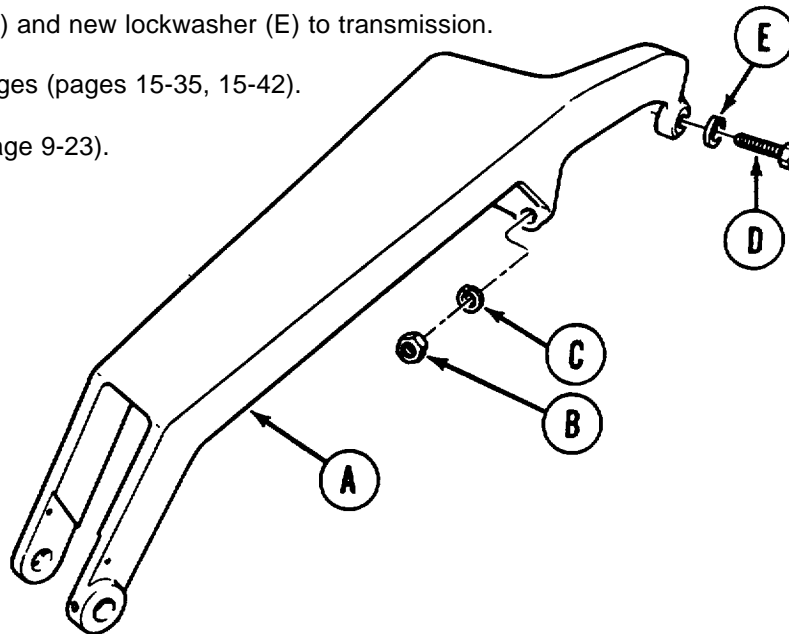
**STEERING CONTROL BRACKET REPLACEMENT (Sheet 2 of 2)**

2. Using socket, remove two nut (C) and lockwashers (D) holding bracket (E) to transmission. Throw lockwashers away.
3. Remove bracket (E) from transmission.



**INSTALLATION:**

1. Using socket, install bracket (A) to transmission with two nuts (B) and new lockwashers (C).
2. Using wrench, install screw (D) and new lockwasher (E) to transmission.
3. Install transmission shaft linkages (pages 15-35, 15-42).
4. Install transmission shroud (page 9-23).



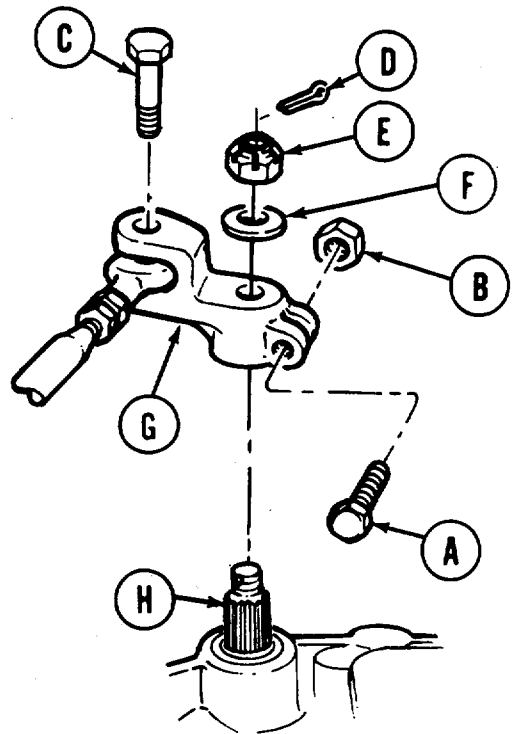
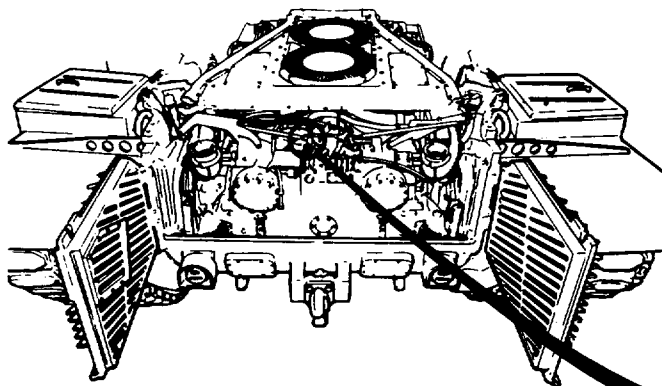
End of Task

**STEERING CONTROL TO TRANSMISSION SHAFT CONNECTING LINK REPLACEMENT  
(Sheet 1 of 2)**

**TOOLS:** Torque wrench with 1/2 in. drive (0-175 lb-ft)(0-237 N•m)  
Slip joint pliers  
9/16 in. socket with 1/2 in. drive  
9/16 in. combination box and open end wrench  
Ratchet with 1/2 in. drive

**SUPPLIES:** Cotter pin (MS24665-283)  
Self-locking nut (MS21045-6)

**PRELIMINARY PROCEDURES:** Remove transmission shroud (page 9-20)  
Remove top deck (page 16-20)



**REMOVAL:**

1. Using socket and wrench on screw (A) and nut (B), remove self-locking nut and screw. Throw self-locking nut away.
2. Using wrench on bolt (C), remove bolt.
3. Using pliers, remove cotter pin (D). Throw cotter pin away.
4. Using wrench on nut (E), remove nut (E) and washer (F).
5. Remove link (G) from transmission stud (H).

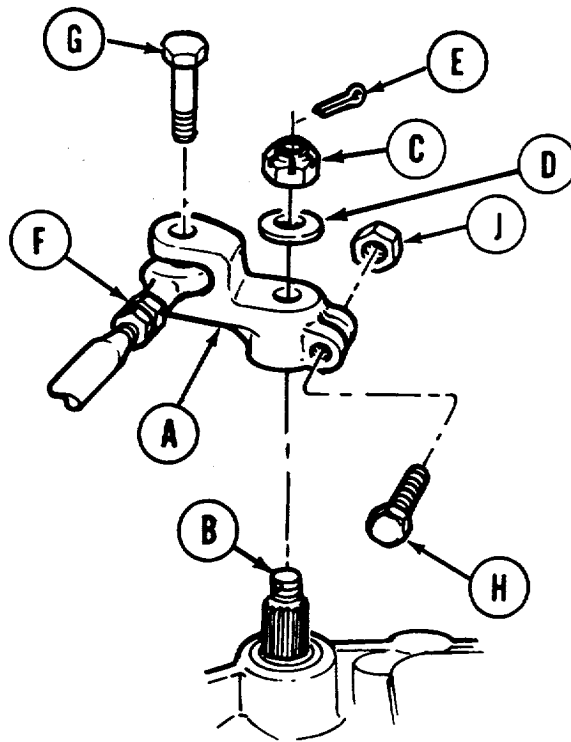
Go on to Sheet 2

TA146466

## STEERING CONTROL TO TRANSMISSION SHAFT CONNECTING LINK REPLACEMENT (Sheet 2 of 2)

### INSTALLATION:

1. Position link (A) over stud (B) with blind splines alined.
2. Using wrench, install nut (C) and washer (D) on stud (B). Using socket and torque wrench, tighten nut (C) to 15-20 lb-ft (20-27 N•m).
3. Using pliers, install new cotter pin (E) through nut (C) and stud (B).
4. Position rod (F) in link (A).
5. Using wrench, install bolt (G). Using socket and torque wrench, tighten bolt (G) to 15-20 lb-ft (20-27 N•m).
6. Using socket and wrench on screw (H) and new self-locking nut (J), install screw and nut on link (A).
7. Install transmission shroud (page 9-23).
8. Install top deck (page 16-22).



End of Task

TA146467

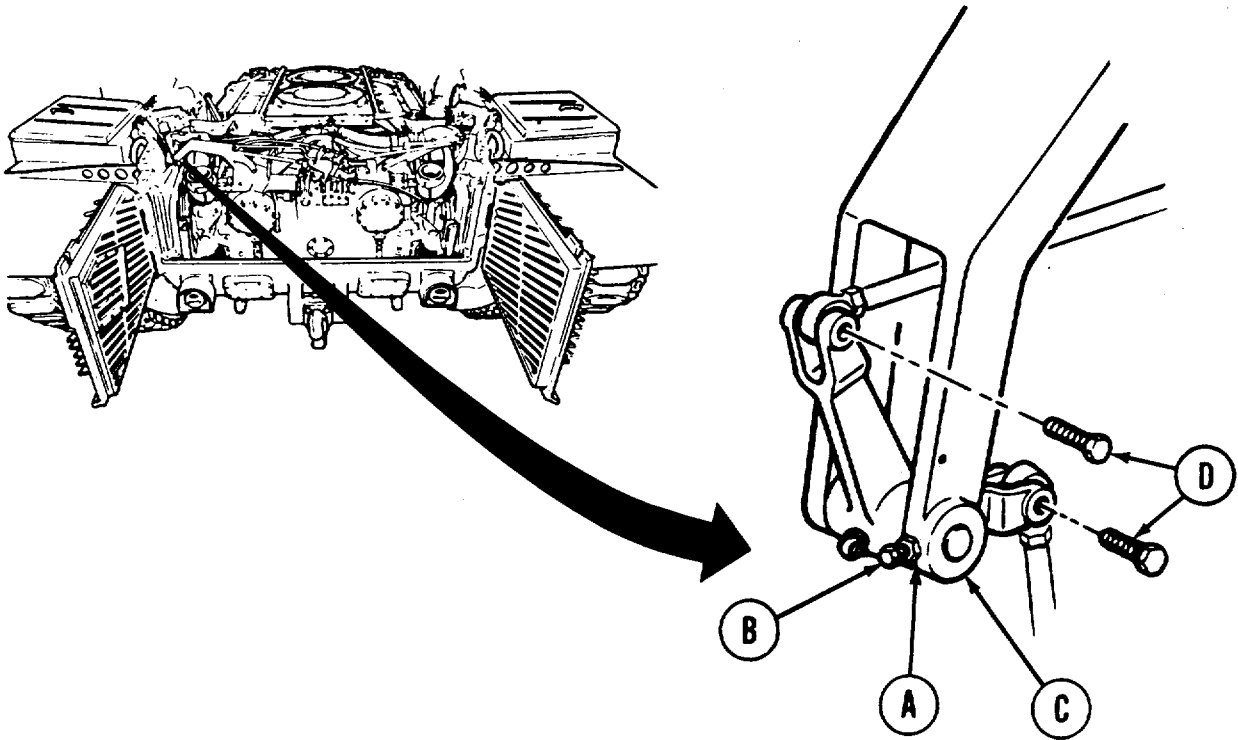


**STEERING CONTROL LINK ASSEMBLY REPLACEMENT (Sheet 1 of 3)**

**TOOLS:** 1/4 in. drive punch  
 9/16 in. socket with 3/8 in. drive  
 7/16 in. combination box and open end wrench  
 8 in. adjustable wrench  
 Hammer  
 Ratchet with 3/8 in. drive  
 Torque wrench with 3/8 in. drive (0-200 lb-in.)(0-23 N•m)  
 5/16 in. combination box and open end wrench

**REFERENCE:** TM 9-2350-260-10

**PRELIMINARY PROCEDURES:** Remove transmission shroud (page 9-20)  
 Open number 5 top deck grille door (TM 9-2350-260-10)

**REMOVAL:**

1. Using 7/16 inch wrench, loosen locknut (A).
2. Using adjustable wrench, remove setscrew (B) and nut (A) from control bracket (C).
3. Using socket, remove two bolts (D).

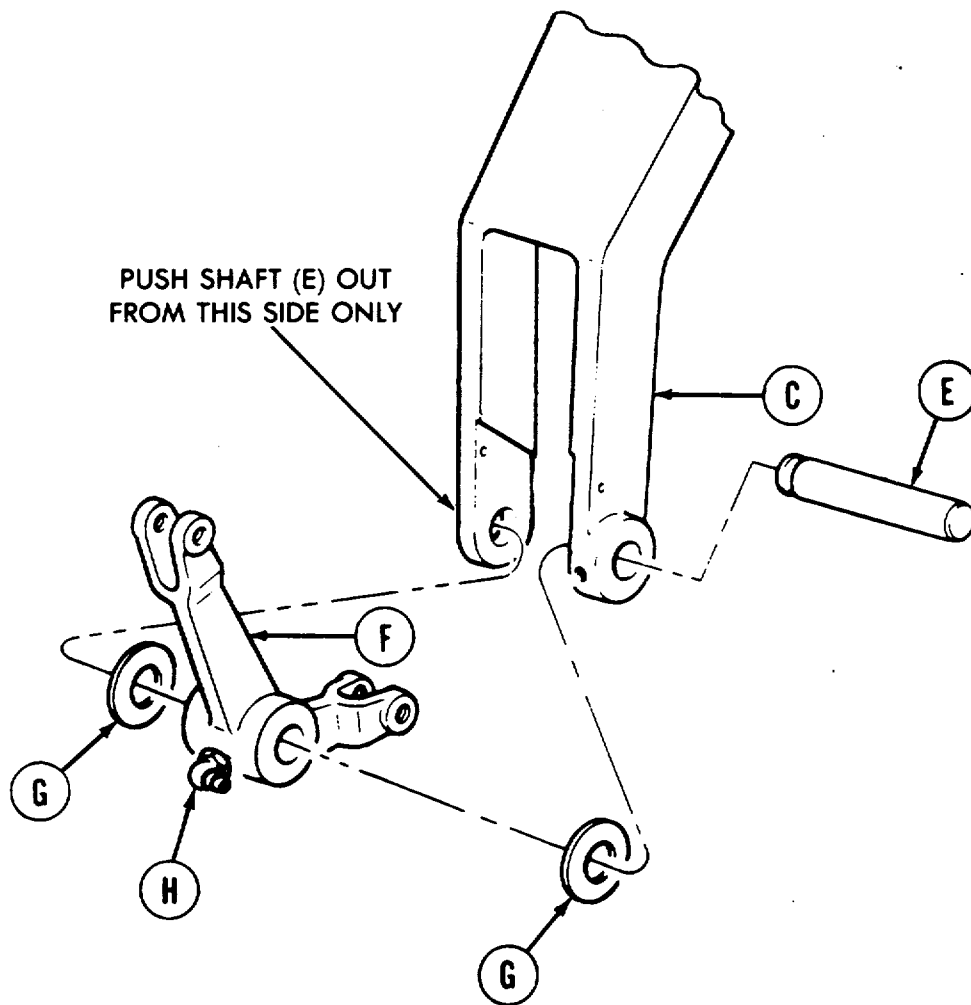
Go on to Sheet 2

TA146468

## STEERING CONTROL LINK ASSEMBLY REPLACEMENT (Sheet 2 of 3)

## NOTE

Support link (F) with free hand to prevent link from falling under transmission. If necessary, use pin punch and hammer on this side as indicated in step 4 to loosen shaft (E).



4. Remove shaft (E) from control bracket (C) and link (F).
5. Remove link (F) and washers (G) from link (C).
6. Using 5/16 inch wrench, remove grease fitting (H) from link (F).

Go on to Sheet 3

TA146469

15-41

## STEERING CONTROL LINK ASSEMBLY REPLACEMENT (Sheet 3 of 3)

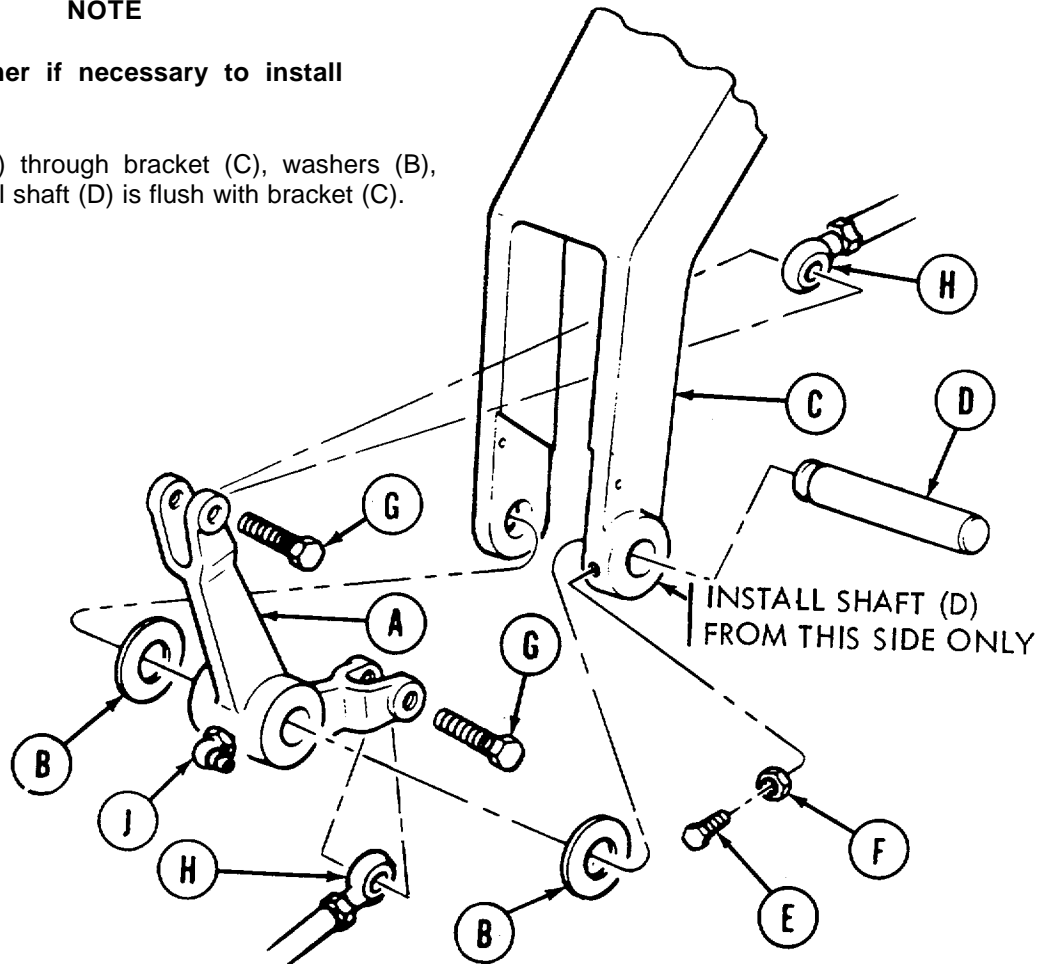
## INSTALLATION:

1. Position link (A) and two washers (B) in control bracket (C).

**NOTE**

**Use hammer if necessary to install shaft (D).**

2. Install shaft (D) through bracket (C), washers (B), and link (A) until shaft (D) is flush with bracket (C).



3. Using adjustable wrench, install setscrew (E) and locknut (F) into bracket (C). Using 7/16 inch wrench to hold locknut (F), tighten setscrew (E) into groove of shaft (D). Tighten locknut (F) against bracket (C).
4. Using socket, install two bolts (G) through link (A) and two rod end bearings (H). Using torque wrench, tighten bolts (G) to 11-21 lb-ft (15-28 N•m).
5. Using 5/16 inch wrench, install grease fitting (J) into link (A).
6. Close number 5 top deck grille door (TM 9-2350-260-10).
7. Install transmission shroud (page 9-23).

End of Task

TA146470

**STEERING CONTROL LINK ASSEMBLY REPAIR (Sheet 1 of 1)**

TOOLS: Hammer, hand 2 lb.  
Punch, drive pin, 3/8 in.  
Vise

SUPPLIES: Bearings (8762130)(2 required)

REFERENCE: LO 9-2350-260-12

PRELIMINARY PROCEDURE: Remove link from steering control bracket (page 15-40)

**INSPECTION:**

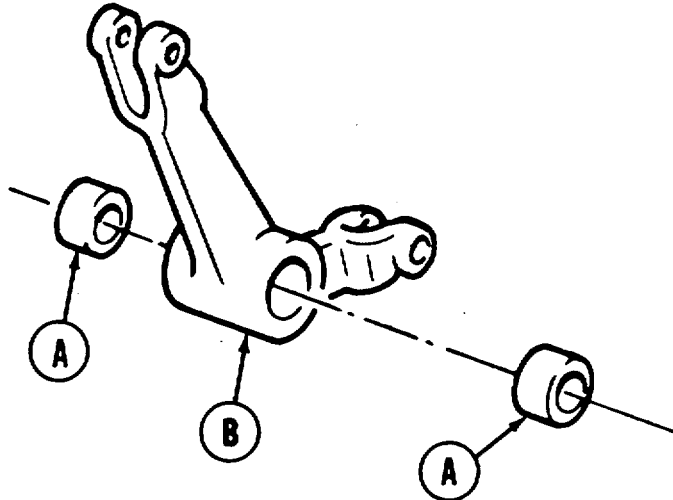
Inspect bearings (A) for damage or wear.

**DISASSEMBLY:**

Using hammer and punch, remove bearings (A).

**ASSEMBLY:**

1. Using vise, press bearing (A) into link (B) flush with outer surface of link.
2. Turn link over. Repeat step 1 for other bearing.
3. Install link in steering control bracket (page 15-42).
4. Lubricate (LO 9-2350-260-12).



End of Task

TA146471

15-43/(15-44 blank)

By Order of the Secretary of the Army:


E. C. Meyer  
*General, United States Army*  
*Chief of Staff*

Official:

J. C. PENNINGTON  
*Major General, United States Army*  
*The Adjutant General*

To be distributed in accordance with DA Form 12-37, Organizational Maintenance requirements for Combat Engineer,  
Full-Tracked: 105MM, M60, M60A1.

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



**SOMETHING WRONG WITH THIS PUBLICATION?**

THEN... JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT. FOLD IT AND DROP IT IN THE MAIL!

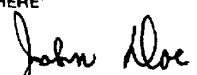
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PUBLICATION NUMBER TM 9-2350-260-20-1-3	PUBLICATION DATE Feb 1981	PUBLICATION TITLE Organizational Maintenance Tank, Combat, M60 (HULL)
--	------------------------------	--

BE EXACT PIN-POINT WHERE IT IS				IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO	
3		2		Item 10. Change illustration. Reason: Tube end shown assembled on wrong side of lever cam.
09		51		Item 3. The NSN and P/N are not listed on the AMDF nor the MCRL. Request correct NSN and P/N be furnished.
2-8			2-1	Preventive Maintenance Checks and Services. Item 7 under "Items to be inspected" should be changed to read as follows: Firing linkage and firing mechanism pawl.
12	1-6a			Since there are both 20- and 30- round magazines for this rifle, data on both should be listed.

SAMPLE

PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER JOHN DOE SP/4 123-4567	SIGN HERE 
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RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

 <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>THEN... JOT DOWN THE DOPE ABOUT IT ON THIS FORM, CAREFULLY TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL!</p> </div>		SOMETHING WRONG WITH THIS PUBLICATION?	
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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

**WEIGHTS**

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces  
 1 Kilogram = 1000 Grams = 2.2 Lb  
 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

**SQUARE MEASURE**

1 Sq. 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

**TEMPERATURE**

$5/9 (°F - 32) = °C$   
 212° Fahrenheit is equivalent to 100° Celsius  
 90° Fahrenheit is equivalent to 32° Celsius  
 32° Fahrenheit is equivalent to 0° Celsius  
 $9/5 °C + 32 = °F$

**APPROXIMATE CONVERSION FACTORS**

<b>TO CHANGE</b>	<b>TO</b>	<b>MULTIPLY BY</b>
Inches .....	Centimeters .....	2.540
Feet .....	Meters .....	0.305
Yards .....	Meters .....	0.914
Miles .....	Kilometers .....	1.609
Square Inches .....	Square Centimeters .....	6.451
Square Feet .....	Square Meters .....	0.093
Square Yards .....	Square Meters .....	0.836
Square Miles .....	Square Kilometers .....	2.590
Acres .....	Square Hectometers .....	0.405
Cubic Feet .....	Cubic Meters .....	0.028
Cubic Yards .....	Cubic Meters .....	0.765
Fluid .....	Ounces Milliliters .....	29.573
Pints .....	Liters .....	0.473
Quarts .....	Liters .....	0.946
Quarts .....	Liters .....	0.946
Gallons .....	Liters .....	3.785
Ounces .....	Grams .....	28.349
Pounds .....	Kilograms .....	0.45
Short Tons .....	Metric Tons .....	0.907
Pound-Feet .....	Newton-Meters .....	1.356
Pounds per Square Inch .....	Kilopascals .....	6.895
Miles per Gallon .....	Kilometers per Liter .....	0.425
Miles per Hour .....	Kilometers per Hour .....	1.609

<b>TO CHANGE</b>	<b>TO</b>	<b>MULTIPLY BY</b>
Centimeters .....	Inches .....	0.394
Meters .....	Feet .....	3.280
Meters .....	Yards .....	1.094
Meters .....	Yards .....	1.094
Kilometers .....	Miles .....	0.621
Square Centimeters .....	Square Inches .....	0.155
Square Meters .....	Square Feet .....	10.764
Square Meters .....	Square Yards .....	1.195
Square Kilometers .....	Square Miles .....	0.386
Square Hectometers .....	Acres .....	2.471
Cubic Meters .....	Cubic Feet .....	35.315
Cubic Meters .....	Cubic Yards .....	1.308
Milliliters Fluid .....	Ounces .....	0.034
Liters .....	Pints .....	2.113
Liters .....	Quarts .....	1.057
Liters .....	Gallons .....	0.264
Grams .....	Ounces .....	0.035
Kilograms .....	Pounds .....	2.205
Metric Tons .....	Short Tons .....	1.102
Newton-Meters .....	Pound-Feet .....	0.738
Kilopascals .....	Pounds per Square Inch .....	0.145
Kilometers per Liter .....	Miles per Gallon .....	2.354
Kilometers per Hour .....	Miles per Hour .....	0.621

