

**TECHNICAL MANUAL**  
**VOLUME 2 OF 2**  
**PART 3 OF 3**  
**MAINTENANCE**  
**DIRECT SUPPORT AND GENERAL SUPPORT LEVEL**  
**2 1/2-TON, 6X6, M44A1 AND M44A2 SERIES TRUCKS**  
**(MULTIFUEL)**  
  
**TRUCK, CARGO: M35A1,**  
**M35A2, M35A2C, M36A2; TRUCK,**  
**TANK, FUEL: M49A1C, M49A2C; TRUCK, TANK,**  
**WATER: M50A1, M50A2, M50A3; TRUCK, VAN,**  
**SHOP: M109A2, M109A3; TRUCK, REPAIR SHOP:**  
**M185A2, M185A3; TRUCK, TRACTOR: M275A1,**  
**M275A2; TRUCK, DUMP: M342A2; TRUCK,**  
**MAINTENANCE, PIPELINE CONSTRUCTION:**  
**M756A2; TRUCK, MAINTENANCE,**  
**EARTH BORING AND POLESETTING: M764**

Chapter 18  
Winch, Hoist  
and Power  
Takeoff Assemblies

Chapter 19  
Bumper and  
Guards

Chapter 20  
Body  
Accessory  
Items

Chapter 21  
Maintenance of  
Material used  
in Conjunction  
with Major  
Items

Appendix A  
References

**NOTE:**

THE STYLE OF THIS TM IS  
EXPERIMENTAL. IT IS BEING TRIED  
BY THE ARMY ONLY ON  
A LIMITED BASIS

**\*TM 9-2320-209-34-2-3**  
**T.O. 36A12-1B-1092-2-2**

TECHNICAL MANUAL  
NO. 9-2320-209-34-2-3  
TECHNICAL ORDER  
NO. 36A12-1B-1092-2-2

DEPARTMENTS OF THE ARMY  
AND  
THE AIR FORCE  
Washington, DC, 20 May 1981

**TECHNICAL MANUAL**

**VOLUME 2 OF 2**

**PART 3 OF 3**

**MAINTENANCE**

**DIRECT SUPPORT AND GENERAL SUPPORT LEVEL**  
**2 1/2-TON, 6X6, M44A1 AND M44A2 SERIES TRUCKS**

**(MULTIFUEL)**

| Model                                           |        | NSN without Winch | NSN with Winch   |
|-------------------------------------------------|--------|-------------------|------------------|
| Truck, Cargo                                    | M35A1  | 2320-00-542-5633  | 2320-00-542-5634 |
|                                                 | M35A2  | 2320-00-077-1616  | 2320-00-077-1617 |
|                                                 | M35A2C | 2320-00-926-0873  | 2320-00-926-0875 |
|                                                 | M36A2  | 2320-00-077-1618  | 2320-00-077-1619 |
| Truck, Tank, Fuel                               | M49A1C | 2320-00-440-3349  | 2320-00-440-3346 |
|                                                 | M49A2C | 2320-00-077-1631  | 2320-00-077-1632 |
| Truck, Tank, Water                              | M50A1  | 2320-00-440-8307  | 2320-00-440-8305 |
|                                                 | M50A2  | 2320-00-077-1633  | 2320-00-077-1634 |
|                                                 | M50A3  | 2320-00-937-4036  | 2320-00-937-5264 |
| Truck, Van, Shop                                | M109A2 | 2320-00-440-8313  | 2320-00-440-8308 |
|                                                 | M109A3 | 2320-00-077-1636  | 2320-00-077-1637 |
| Truck, Repair Shop                              | M185A2 | 4940-00-987-8799  | 4940-00-987-8800 |
|                                                 | M185A3 | 4940-00-077-1638  | 4940-00-077-1639 |
| Truck, Tractor                                  | M275A1 | 2320-00-446-2479  |                  |
|                                                 | M275A2 | 2320-00-077-1640  | 2320-00-077-1641 |
| Truck, Dump                                     | M342A2 | 2320-00-077-1643  | 2320-00-077-1644 |
| Truck, Maintenance, Pipeline Construction       | M756A2 |                   | 2320-00-904-3277 |
| Truck, Maintenance, Earth Boring and Polesetter | M764   |                   | 2320-00-937-5980 |

\*This manual, together with TM 9-2320-209-34-1, 20 May 1981; TM 9-2320-209-34-2-1, 20 May 1981; and TM 9-2320-209-34-2-2, 20 May 1981, supersedes TM 9-2320-209-34, 30 March 1979.

## REPORTING OF 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 procedure, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publication and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, U.S. Army Tank Automotive Materiel Readiness Command, ATTN: DRSTA-MB, Warren, Michigan 48090. A reply will be furnished to you.

## TABLE OF CONTENTS

|                                                                          | Paragraph | Page   |
|--------------------------------------------------------------------------|-----------|--------|
| CHAPTER 18. WINCH, HOIST, AND POWER TAKEOFF ASSEMBLIES GROUP MAINTENANCE |           |        |
| Section I. Scope                                                         |           | 18-1   |
| Equipment Items Covered                                                  | 18-1      | 18-1   |
| Equipment Items Not Covered                                              | 18-2      | 18-1   |
| Section II. Winch and Hoist Assemblies                                   |           | 18-1   |
| Front Winch Repair                                                       | 18-3      | 18-1   |
| Preliminary Procedures                                                   | 18-3a     | 18-1   |
| Disassembly                                                              | 18-3b     | 18-2   |
| Cleaning                                                                 | 18-3c     | 18-15  |
| Inspection and Repair                                                    | 18-3d     | 18-15  |
| Assembly                                                                 | 18-3e     | 18-21  |
| Rear Winch Removal, Repair, Replacement and Test (Truck M756A2)          | 18-4      | 18-34  |
| Preliminary Procedure                                                    | 18-4a     | 18-34  |
| Removal                                                                  | 18-4b     | 18-35  |
| Disassembly                                                              | 18-4c     | 18-37  |
| Cleaning                                                                 | 18-4d     | 18-47  |
| Inspection and Repair                                                    | 18-4e     | 18-47  |
| Assembly                                                                 | 18-4f     | 18-54  |
| Replacement                                                              | 18-4g     | 18-66  |
| Test                                                                     | 18-4h     | 18-68  |
| Rear Winch Removal, Repair, and Replacement (Truck M764)                 | 18-5      | 18-70  |
| Preliminary Procedures                                                   | 18-5a     | 18-70  |
| Removal                                                                  | 18-5b     | 18-71  |
| Disassembly                                                              | 18-5c     | 18-73  |
| Cleaning                                                                 | 18-5d     | 18-99  |
| Inspection and Repair                                                    | 18-5e     | 18-99  |
| Assembly                                                                 | 18-5f     | 18-113 |
| Replacement                                                              | 18-5g     | 18-146 |
| Testing                                                                  | 18-5h     | 18-148 |
| Rear Winch Drive Chain Removal, Replacement, and Adjustment (Truck M764) | 18-6      | 18-154 |
| Removal                                                                  | 18-6a     | 18-154 |
| Replacement                                                              | 18-6b     | 18-161 |
| Adjustment                                                               | 18-6c     | 18-168 |

## TABLE OF CONTENTS-CONT

|                                                                                                    | Paragraph | Page   |
|----------------------------------------------------------------------------------------------------|-----------|--------|
| Hydraulic Hoist Removal, Repair, and Replacement (Truck M342A2) . . . . .                          | 18-7      | 18-169 |
| Preliminary Procedure . . . . .                                                                    | 18-7a     | 18-169 |
| Removal . . . . .                                                                                  | 18-7b     | 18-169 |
| Disassembly . . . . .                                                                              | 18-7c     | 18-172 |
| Cleaning . . . . .                                                                                 | 18-7d     | 18-176 |
| Inspection and Repair . . . . .                                                                    | 18-7e     | 18-176 |
| Assembly . . . . .                                                                                 | 18-7f     | 18-180 |
| Replacement . . . . .                                                                              | 18-7g     | 18-186 |
| Hydraulic Hoist Cylinder Assembly Removal, Repair, and Replacement (Truck M342A2) . . . . .        | 18-8      | 18-190 |
| Preliminary Procedures . . . . .                                                                   | 18-8a     | 18-190 |
| Removal . . . . .                                                                                  | 18-8b     | 18-191 |
| Disassembly . . . . .                                                                              | 18-8c     | 18-193 |
| Cleaning . . . . .                                                                                 | 18-8d     | 18-197 |
| Inspection . . . . .                                                                               | 18-8e     | 18-197 |
| Repair . . . . .                                                                                   | 18-8f     | 18-198 |
| Assembly . . . . .                                                                                 | 18-8g     | 18-198 |
| Replacement . . . . .                                                                              | 18-8h     | 18-203 |
| Hydraulic Hoist Pump Assembly Removal, Repair, and Replacement (Truck M342A2) . . . . .            | 18-9      | 18-205 |
| Preliminary Procedures . . . . .                                                                   | 18-9a     | 18-205 |
| Removal . . . . .                                                                                  | 18-9b     | 18-205 |
| Disassembly . . . . .                                                                              | 18-9c     | 18-206 |
| Cleaning . . . . .                                                                                 | 18-9d     | 18-209 |
| Inspection . . . . .                                                                               | 18-9e     | 18-209 |
| Repair . . . . .                                                                                   | 18-9f     | 18-210 |
| Assembly . . . . .                                                                                 | 18-9g     | 18-210 |
| Replacement . . . . .                                                                              | 18-9h     | 18-213 |
| Control Valve Removal and Replacement (Truck M342A2) . . . . .                                     | 18-10     | 18-214 |
| Preliminary Procedures . . . . .                                                                   | 18-10a    | 18-214 |
| Removal . . . . .                                                                                  | 18-10b    | 18-214 |
| Replacement . . . . .                                                                              | 18-10c    | 18-216 |
| Power Divider Input and Rear Output Shaft Oil Seals Removal and Replacement (Truck M764) . . . . . | 18-11     | 18-218 |
| Removal . . . . .                                                                                  | 18-11a    | 18-219 |
| Cleaning . . . . .                                                                                 | 18-11b    | 18-221 |
| Replacement . . . . .                                                                              | 18-11c    | 18-222 |
| Power Divider Removal, Repair, and Replacement (Truck M764) . . . . .                              | 18-12     | 18-224 |
| Preliminary Procedures . . . . .                                                                   | 18-12a    | 18-224 |
| Removal . . . . .                                                                                  | 18-12b    | 18-225 |
| Disassembly . . . . .                                                                              | 18-12c    | 18-230 |
| Cleaning . . . . .                                                                                 | 18-12d    | 18-245 |

**TABLE OF CONTENTS-CONT**

|              | Paragraph                                 | Page          |
|--------------|-------------------------------------------|---------------|
|              | Inspection and Repair . . . . .           | 18-12e 18-245 |
|              | Assembly . . . . .                        | 18-12f 18-250 |
|              | Replacement . . . . .                     | 18-12g 18-269 |
| Section III. | Power Takeoff Assembly . . . . .          | 18-274        |
|              | Transmission Front Winch Power Takeoff    |               |
|              | Removal and Replacement . . . . .         | 18-13 18-274  |
|              | Preliminary Procedures . . . . .          | 18-13a 18-274 |
|              | Removal . . . . .                         | 18-13b 18-275 |
|              | Replacement . . . . .                     | 18-13c 18-276 |
|              | Transmission Front Winch Power Takeoff    |               |
|              | Repair . . . . .                          | 18-14 18-277  |
|              | Transmission Power Takeoff Controls       |               |
|              | and Linkage Repair . . . . .              | 18-15 18-277  |
|              | Transmission Transfer Power Takeoff       |               |
|              | Removal, Repair and Replacement . . . . . | 18-16 18-277  |
|              | Preliminary Procedures . . . . .          | 18-16a 18-277 |
|              | Removal . . . . .                         | 18-16b 18-278 |
|              | Repair. . . . .                           | 18-16c 18-280 |
|              | Replacement . . . . .                     | 18-16d 18-280 |
|              | Transmission Transfer Power Takeoff       |               |
|              | Controls and Linkage Repair . . . . .     | 18-17 18-282  |
| CHAPTER 19.  | BUMPER AND GUARDS GROUP MAINTENANCE       |               |
| Section I.   | Scope . . . . .                           | 19-1          |
|              | Equipment Items Covered . . . . .         | 19-1 19-1     |
|              | Equipment Items Not Covered . . . . .     | 19-2 19-1     |
| Section II.  | Bumper, Brackets, Guards, and             |               |
|              | Protective Devices . . . . .              | 19-1          |
|              | Front Bumper and Reinforcing Gussets      |               |
|              | Removal, Repair, and Replacement (All     |               |
|              | Trucks Without Front Winch) . . . . .     | 19-3 19-1     |
|              | Preliminary Procedures. . . . .           | 19-3a 19-1    |
|              | Removal . . . . .                         | 19-3b 19-2    |
|              | Disassembly . . . . .                     | 19-3c 19-3    |
|              | Cleaning . . . . .                        | 19-3d 19-4    |
|              | Inspection and Repair . . . . .           | 19-3e 19-4    |
|              | Assembly . . . . .                        | 19-3f 19-5    |
|              | Replacement . . . . .                     | 19-3g 19-6    |
|              | Front Bumper and Reinforcing Gussets      |               |
|              | Removal, Repair and Replacement (All      |               |
|              | Trucks With Front Winch) . . . . .        | 19-4 19-7     |
|              | Preliminary Procedure . . . . .           | 19-4a 19-7    |
|              | Removal . . . . .                         | 19-4b 19-7    |
|              | Cleaning . . . . .                        | 19-4c 19-9    |
|              | Inspection and Repair . . . . .           | 19-4d 19-9    |
|              | Replacement . . . . .                     | 19-4e 19-10   |
|              | Radiator Brush Guard Removal, Repair,     |               |
|              | and Replacement . . . . .                 | 19-5 19-12    |
|              | Preliminary Procedures . . . . .          | 19-5a 19-12   |
|              | Removal . . . . .                         | 19-5b 19-12   |

## TABLE OF CONTENTS-CONT

|             |                                                                                                                | Paragraph | Page  |
|-------------|----------------------------------------------------------------------------------------------------------------|-----------|-------|
|             | Disassembly . . . . .                                                                                          | 19-5c     | 19-13 |
|             | Cleaning . . . . .                                                                                             | 19-5d     | 19-14 |
|             | Inspection and Repair . . . . .                                                                                | 19-5e     | 19-14 |
|             | Assembly . . . . .                                                                                             | 19-5f     | 19-15 |
|             | Replacement . . . . .                                                                                          | 19-5g     | 19-16 |
|             | Vehicle Fuel Tank Support Removal and<br>Replacement (All Trucks Except Trucks<br>M275A1 and M275A2) . . . . . | 19-6      | 19-17 |
|             | Preliminary Procedure . . . . .                                                                                | 19-6a     | 19-17 |
|             | Removal . . . . .                                                                                              | 19-6b     | 19-17 |
|             | Replacement . . . . .                                                                                          | 19-6c     | 19-19 |
|             | Rear Bumperettes Removal and Replacement<br>(All Trucks Except Trucks M275A1,<br>M275A2, and M342A2) . . . . . | 19-7      | 19-21 |
|             | Preliminary Procedure . . . . .                                                                                | 19-7a     | 19-21 |
|             | Removal . . . . .                                                                                              | 19-7b     | 19-21 |
|             | Replacement . . . . .                                                                                          | 19-7c     | 19-22 |
|             | Lamp Support Bracket Removal, Repair,<br>and Replacement (Early Model Trucks) . . . . .                        | 19-8      | 19-23 |
|             | Preliminary Procedures . . . . .                                                                               | 19-8a     | 19-23 |
|             | Removal . . . . .                                                                                              | 19-8b     | 19-24 |
|             | Cleaning . . . . .                                                                                             | 19-8c     | 19-27 |
|             | Inspection and Repair . . . . .                                                                                | 19-8d     | 19-27 |
|             | Replacement . . . . .                                                                                          | 19-8e     | 19-28 |
|             | Lamp Support Bracket Removal, Repair,<br>and Replacement (Late Model Trucks) . . . . .                         | 19-9      | 19-31 |
|             | Preliminary Procedures . . . . .                                                                               | 19-9a     | 19-31 |
|             | Removal . . . . .                                                                                              | 19-9b     | 19-32 |
|             | Cleaning . . . . .                                                                                             | 19-9c     | 19-36 |
|             | Inspection and Repair . . . . .                                                                                | 19-9d     | 19-36 |
|             | Replacement . . . . .                                                                                          | 19-9e     | 19-37 |
| CHAPTER 20. | BODY ACCESSORY ITEMS GROUP MAINTENANCE                                                                         |           |       |
| Section I.  | Scope . . . . .                                                                                                |           | 20-1  |
|             | Equipment Items Covered . . . . .                                                                              | 20-1      | 20-1  |
|             | Equipment Items Not Covered . . . . .                                                                          | 20-2      | 20-1  |
| Section II. | Canvas and Rubber Items . . . . .                                                                              |           | 20-1  |
|             | Body Cover Repair . . . . .                                                                                    | 20-3      | 20-1  |
|             | Body Curtain Repair . . . . .                                                                                  | 20-4      | 20-1  |
|             | Water Dispenser Hose Repair . . . . .                                                                          | 20-5      | 20-1  |
|             | Preliminary Procedures . . . . .                                                                               | 20-5a     | 20-1  |
|             | Cleaning . . . . .                                                                                             | 20-5b     | 20-1  |
|             | Inspection and Repair . . . . .                                                                                | 20-5c     | 20-2  |
| CHAPTER 21. | MAINTENANCE OF MATERIAL USED IN<br>CONJUNCTION WITH MAJOR ITEMS                                                |           |       |
| Section I.  | Scope . . . . .                                                                                                |           | 21-1  |
|             | Equipment Items Covered . . . . .                                                                              | 21-1      | 21-1  |
|             | Equipment Items Not Covered . . . . .                                                                          | 21-2      | 21-1  |
| Section II. | Winterization Kits . . . . .                                                                                   |           | 21-1  |
|             | Hot Water Personnel Heater Kit Installation. . . . .                                                           | 21-3      | 21-1  |

## TABLE OF CONTENTS-CONT

|                                                                                                    | Paragraph | Page   |
|----------------------------------------------------------------------------------------------------|-----------|--------|
| Engine Heater Kit Installation .. . . .                                                            | 21-4      |        |
| Powerplant Heater Test .. . . .                                                                    | 21-5      |        |
| Preliminary Procedure .. . . .                                                                     | 21-5a     |        |
| Testing .. . . .                                                                                   | 21-5b     | 21-2   |
| Powerplant Heater Removal, Repair,<br>and Replacement .. . . .                                     | 21-6      | 21-16  |
| Preliminary Procedures .. . . .                                                                    | 21-6a     | 21-16  |
| Removal .. . . .                                                                                   | 21-6b     | 21-17  |
| Disassembly into Subassemblies .. . . .                                                            | 21-6c     | 21-18  |
| Cleaning and Inspection of Subassemblies. . . . .                                                  | 21-6d     | 21-29  |
| Assembly .. . . .                                                                                  | 21-6e     | 21-51  |
| Replacement .. . . .                                                                               | 21-6f     | 21-63  |
| Fuel Burning Personnel Heater Installation. . . . .                                                | 21-7      | 21-64  |
| Fuel Burning Personnel Heater Test. . . . .                                                        | 21-8      | 21-64  |
| Fuel Burning Personnel Heater Removal<br>Repair, Test, and Replacement .. . . .                    | 21-9      | 21-64  |
| Preliminary Procedures .. . . .                                                                    | 21-9a     | 21-64  |
| Removal .. . . .                                                                                   | 21-9b     | 21-65  |
| Disassembly .. . . .                                                                               | 21-9c     | 21-66  |
| Disassembly, Inspection, Assembly,<br>and Adjustment of Flame Detector<br>Switch .. . . .          | 21-9d     | 21-76  |
| Disassembly, Inspection, Repair,<br>Assembly, and Test of Fuel Control<br>Valve .. . . .           | 21-9e     | 21-79  |
| General Cleaning, Inspection, and<br>Repair .. . . .                                               | 21-9f     | 21-91  |
| Assembly .. . . .                                                                                  | 21-9g     | 21-91  |
| Replacement .. . . .                                                                               | 21-9h     | 21-101 |
| Van Body Personnel Heater Installation .. . . .                                                    | 21-10     | 21-102 |
| Van Body Personnel Heater Test .. . . .                                                            | 21-11     | 21-102 |
| Van Body Personnel Heater Operating<br>Test (Trucks M109A2, M109A3, M185A2<br>and M185A3) .. . . . | 21-12     | 21-102 |
| Primary Van Body Personnel Heater .. . . .                                                         | 21-12a    | 21-103 |
| Secondary Van Body Personnel Heater. . . . .                                                       | 21-12b    | 21-111 |
| Van Body Personnel Heater Repair .. . . .                                                          | 21-13     | 21-119 |
| Van Body Secondary Heater Repair. . . . .                                                          | 21-14     | 21-119 |
| Hard Top Closure Kit Installation. . . . .                                                         | 21-15     | 21-119 |
| Preliminary Procedures .. . . .                                                                    | 21-15a    | 21-119 |
| Installation .. . . .                                                                              | 21-15b    | 21-119 |
| Hard Top Closure Kit Removal, Repair,<br>and Replacement .. . . .                                  | 21-16     | 21-120 |
| Removal .. . . .                                                                                   | 21-16a    | 21-120 |
| Disassembly .. . . .                                                                               | 21-16b    | 21-122 |
| Cleaning .. . . .                                                                                  | 21-16c    | 21-124 |
| Inspection and Repair .. . . .                                                                     | 21-16d    | 21-124 |
| Assembly .. . . .                                                                                  | 21-16e    | 21-125 |
| Replacement .. . . .                                                                               | 21-16f    | 21-127 |

## TABLE OF CONTENTS-CONT

|                                               | Paragraph | Page   |
|-----------------------------------------------|-----------|--------|
| Heater Control Box Assembly                   |           |        |
| Removal, Repair, Replacement,                 |           |        |
| and Test . . . . .                            | 21-17     | 21-130 |
| Removal . . . . .                             | 21-17a    | 21-130 |
| Disassembly . . . . .                         | 21-17b    | 21-131 |
| Inspection and Repair . . . . .               | 21-17c    | 21-134 |
| Assembly . . . . .                            | 21-17d    | 21-134 |
| Replacement . . . . .                         | 21-17e    | 21-138 |
| Functional Test . . . . .                     | 21-17f    | 21-139 |
| Slave Receptacle Kit Installation . . . . .   | 21-18     | 21-140 |
| Section III. Deep Water Fording Kit . . . . . |           | 21-140 |
| Deep Water Fording Kit Installation . . . . . | 21-19     | 21-140 |
| Deep Water Fording Kit Operating              |           |        |
| Tests . . . . .                               | 21-20     | 21-140 |
| Preliminary Procedure . . . . .               | 21-20a    | 21-140 |
| Intake Operating Test . . . . .               | 21-20b    | 21-140 |
| Vent Operating Test. . . . .                  | 21-20c    | 21-143 |
| Exhaust Operating Test . . . . .              | 21-20d    | 21-144 |
| Deep Water Fording Kit Removal, Repair,       |           |        |
| and Replacement . . . . .                     | 21-21     | 21-147 |
| Preliminary Procedures . . . . .              | 21-21a    | 21-147 |
| Removal . . . . .                             | 21-21b    | 21-148 |
| Cleaning . . . . .                            | 21-21c    | 21-160 |
| Inspection and Repair . . . . .               | 21-21d    | 21-160 |
| Replacement . . . . .                         | 21-21e    | 21-165 |
| Deep Water Fording Air Pressurizing           |           |        |
| System Shutoff Valve Removal and              |           |        |
| Replacement . . . . .                         | 21-22     | 21-177 |
| Removal . . . . .                             | 21-22a    | 21-177 |
| Replacement . . . . .                         | 21-22b    | 21-181 |
| Deep Water Fording Air Pressurizing           |           |        |
| System Regulator Valve Removal and            |           |        |
| Replacement. . . . .                          | 21-23     | 21-186 |
| Preliminary Procedure . . . . .               | 21-23a    | 21-186 |
| Removal . . . . .                             | 21-23b    | 21-186 |
| Replacement . . . . .                         | 21-23c    | 21-188 |
| Deep Water Fording Air Pressurizing           |           |        |
| System Hose Removal and Replacement           |           |        |
| (Trucks M35A1 and M35A2) . . . . .            | 21-24     | 21-191 |
| Removal . . . . .                             | 21-24a    | 21-191 |
| Replacement . . . . .                         | 21-24b    | 21-194 |
| Deep Water Fording Exhaust Extension          |           |        |
| Gasket Removal and Replacement . . . . .      | 21-25     | 21-197 |
| Removal . . . . .                             | 21-25a    | 21-197 |
| Replacement . . . . .                         | 21-25b    | 21-198 |
| Section IV. Special Purpose Kits . . . . .    |           | 21-199 |
| Decontamination Apparatus Mounting            |           |        |
| Bracket Installation . . . . .                | 21-26     | 21-199 |

TABLE OF CONTENTS-CONT

|                                           | Paragraph | Page    |
|-------------------------------------------|-----------|---------|
| Decontamination Apparatus Mounting        |           |         |
| Kit Installation . . . . .                | 21-27     | 21-205  |
| A-Frame Kit Installation . . . . .        | 21-28     | 21-205  |
| A-Frame Kit Repair . . . . .              | 21-29     | 21-205  |
| Electric Brake Kit Installation . . . . . | 21-30     | 21-205  |
| Engine Shipping and Storage               |           |         |
| Container Repair . . . . .                | 21-31     | 21-206  |
| Cleaning . . . . .                        | 21-31a    | 21-206  |
| Disassembly . . . . .                     | 21-31b    | 21-206  |
| Inspection and Repair . . . . .           | 21-31c    | 21-208  |
| Assembly . . . . .                        | 21-31d    | 21-210  |
| Pressure Check . . . . .                  | 21-31e    | 21-212  |
| APPENDIX A. REFERENCES. . . . .           |           | A-1     |
| INDEX . . . . .                           |           | Index 1 |

LIST OF TABLES

| Number | Title                                                                                            | Page   |
|--------|--------------------------------------------------------------------------------------------------|--------|
| 18-1   | Front Winch (Drum Shaft and Bearing) Wear Limits . . . . .                                       | 18-15  |
| 18-2   | Front Winch (Drum Sliding Clutch) Wear Limits . . . . .                                          | 18-16  |
| 18-3   | Front Winch (Gearcase and Gearcase Cover Bearings) Wear Limits . . . . .                         | 18-18  |
| 18-4   | Front Winch (Drum Lock Poppet Spring and Clutch Control Lever Ball Spring) Wear Limits . . . . . | 18-19  |
| 18-5   | Front Winch (Drag Brake Spring and End Frame Sleeve) Wear Limits . . . . .                       | 18-20  |
| 18-6   | Rear Winch (Drum Shaft and Bearings) Wear Limits. . . . .                                        | 18-49  |
| 18-7   | Rear Winch (First Reduction Drive Assembly) Wear Limits . . . . .                                | 18-101 |
| 18-8   | Rear Winch (Second Reduction Drive Assembly) Wear Limits . . . . .                               | 18-102 |
| 18-9   | Rear Winch (Cable Level Winder Assembly) Wear Limits . . . . .                                   | 18-105 |
| 18-10  | Rear Winch (Drum and Shaft) Wear Limits . . . . .                                                | 18-109 |
| 18-11  | Rear Winch (Automatic Brake Assembly) Wear Limits . . . . .                                      | 18-112 |

## CHAPTER 18

### WINCH, HOIST, AND POWER

### TAKEOFF ASSEMBLIES GROUP MAINTENANCE

---

#### Section I. SCOPE

18-1. EQUIPMENT ITEMS COVERED. This chapter gives equipment maintenance procedures for the winch and hoist assemblies, and power takeoff assembly for which there are authorized corrective maintenance tasks at the direct and general support maintenance levels.

18-2. EQUIPMENT ITEMS NOT COVERED. All equipment items for which corrective maintenance is authorized at the direct and general support maintenance levels are covered in this chapter.

#### Section II. WINCH AND HOIST ASSEMBLIES

##### 18-3. FRONT WINCH REPAIR.

TOOLS: No special tools required

SUPPLIES: Solvent, dry cleaning, type II (SD-2), Fed. Spec P-D-680  
Clean rags  
Gearcase cover gasket  
Bearing cap gasket  
Sliding clutch key (2)  
Brake case gasket  
Preformed packing  
Brake case cover gasket

PERSONNEL: Two

EQUIPMENT CONDITION: Truck parked, engine off, handbrake set.

a. Preliminary Procedures.

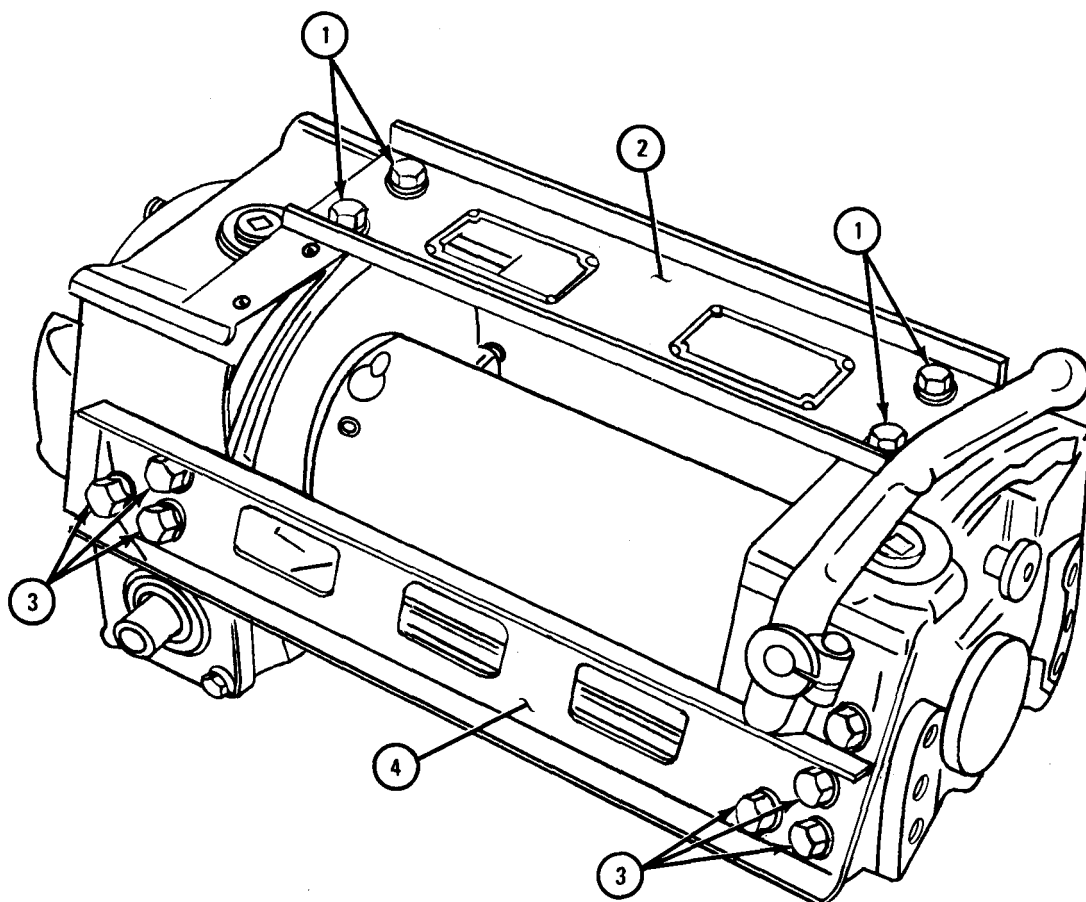
(1) Remove front winch. Refer to TM 9-2320-209-20.

(2) Drain front winch. Refer to LO 9-2320-209-12/1.

b. Disassembly.

FRAME 1

1. Take out four screws and washers (1) and take off top tension channel (2).
  2. Take out six screws and washers (3). Take off rear tension channel (4).
- GO TO FRAME 2

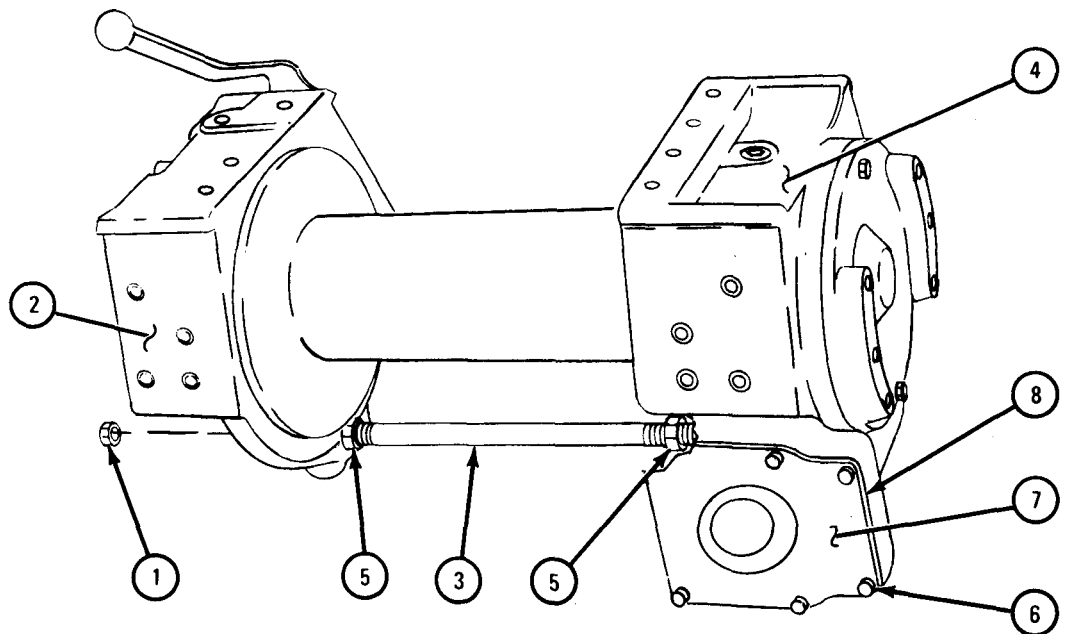


TA 088979

## FRAME 2

1. Take out locknut (1) and take off end frame assembly (2).
2. Take out rod (3) from gearcase assembly (4).
3. Loosen two locknuts (5).
4. Take out six screws and washers (6). Take off automatic brake case cover (7).
5. Take off and throw away gasket (8).

GO TO FRAME 3

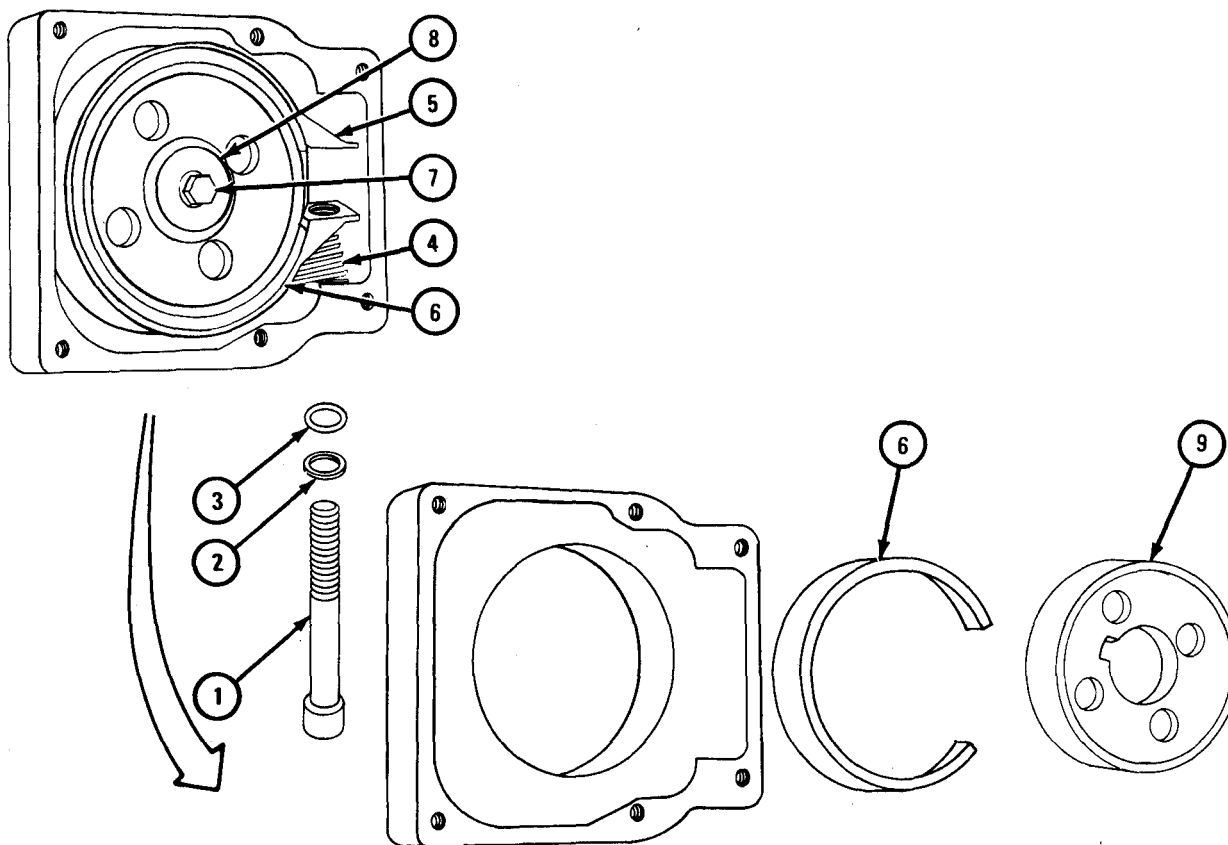


TA 088980

FRAME 3

1. Take out brake adjusting screw (1), washer (2), and preformed packing (3). Throw away preformed packing.
2. Take out adjusting screw spring (4), automatic brake band assembly (5), and brake lining (6).
3. Take out screw and washer (7) and take out brake disk retainer (8).
4. Take out automatic brake disk (9).

GO TO FRAME 4

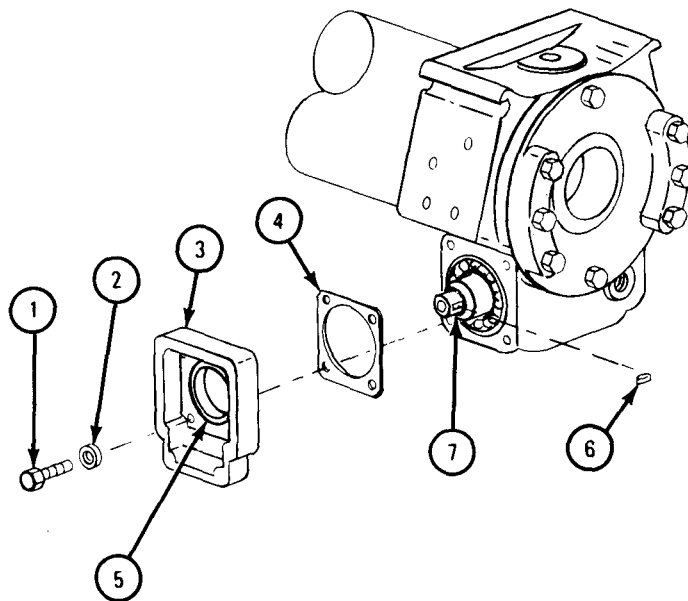


TA 088981

## FRAME 4

1. Take out four screws (1) and washers (2) and take off brake case assembly (3).
2. Take off and throw away brake case gasket (4).
3. Check that brake case oil seal (5) is not torn, damaged or leaking. If seal is damaged, take it out and throw it away.
4. Take woodruff key (6) out of shaft (7).

GO TO FRAME 5



TA 088982

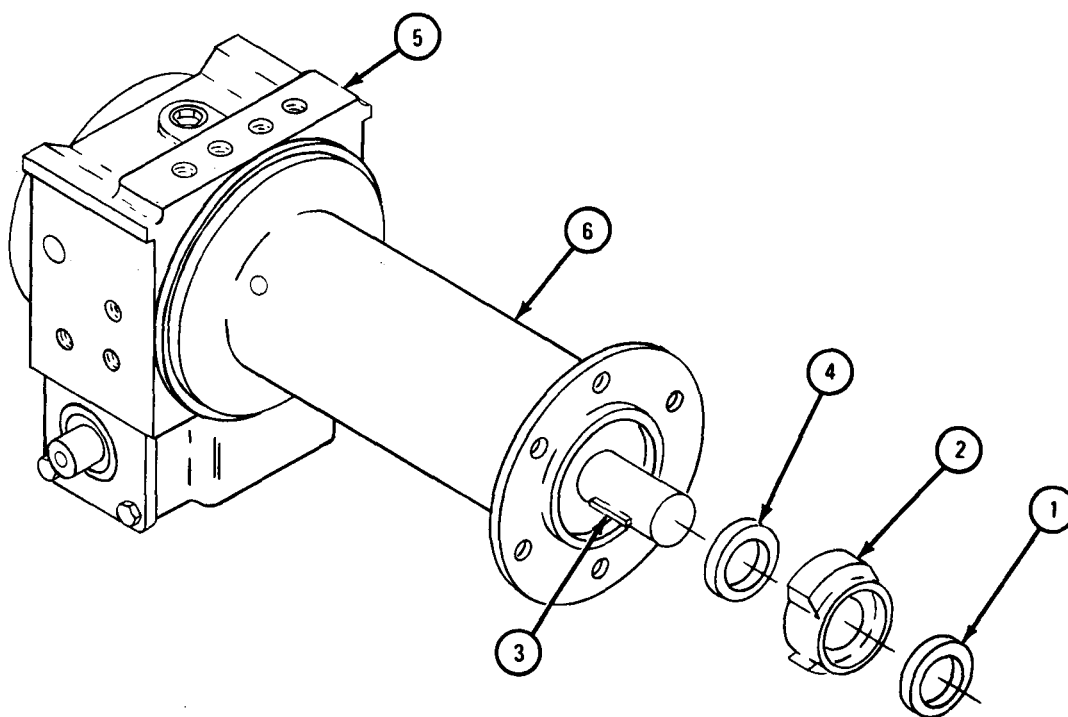
FRAME 5

- Soldier A 1. Take off end frame bearing thrust ring (1) and drum sliding clutch (2).
2. Take out and throw away two sliding clutch keys (3). Take off drum thrust ring (4).

Soldier B 3. Hold gearcase assembly (5).

Soldier A 4. Take drum (6) off gearcase assembly (5).

GO TO FRAME 6

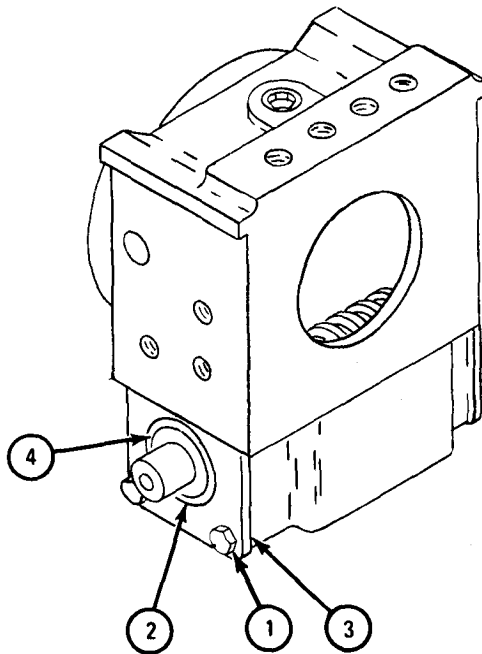


TA 088983

**FRAME 6**

1. Take out four screws and washers (1) and take off bearing cap (2).
2. Take off and throw away bearing cap gasket (3).
3. Check that bearing cap oil seal (4) is not torn, damaged or leaking. If oil seal (4) is damaged, take it out and throw it away.

GO TO FRAME 7

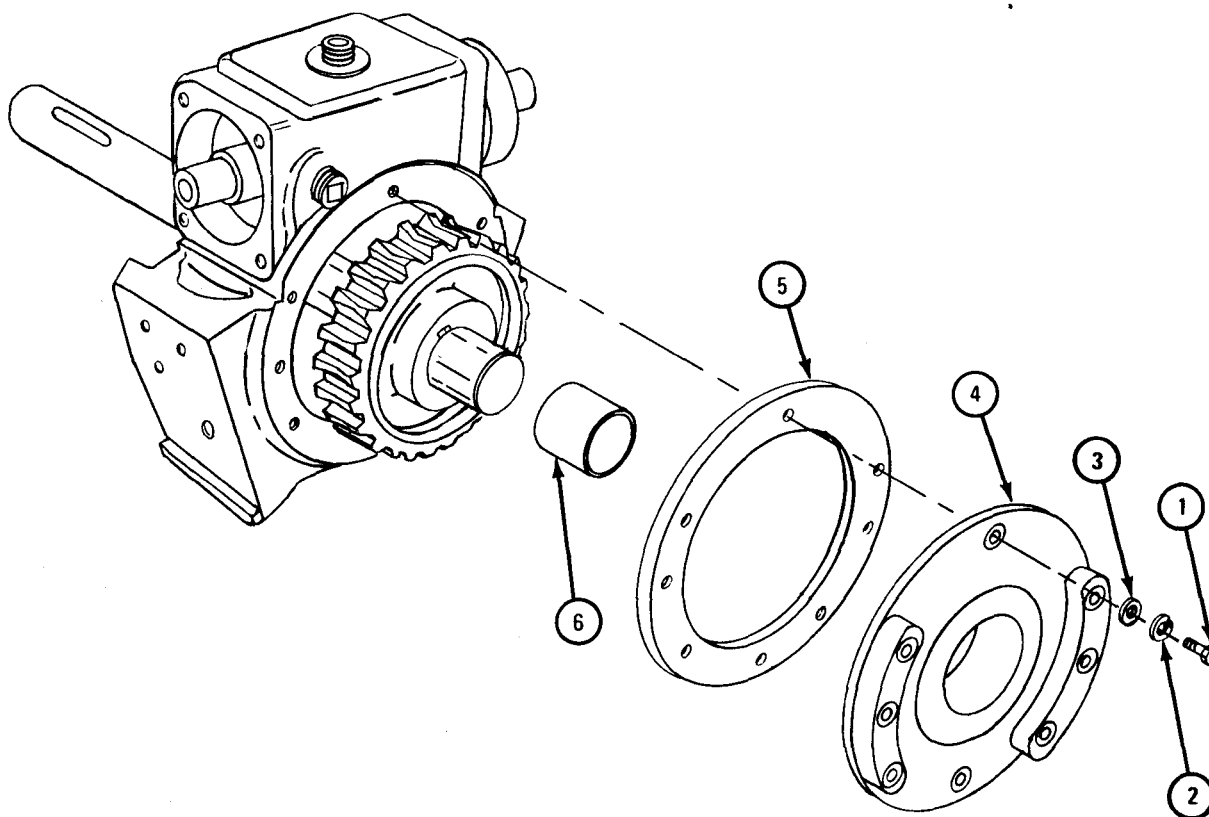


TA 088984

FRAME 7

1. Take out two screws (1), lockwashers (2), and washers (3).
- Soldiers A and B 2. Take off gearcase cover (4) and gearcase cover gasket (5). Throw away gasket.
- Soldier A 3. Check that gearcase cover bushing type bearing (6) is not cracked, scored or damaged. Check that bearing is within wear limits. Refer to para 18-3d. If bearing is damaged or worn, take out bearing and throw it away.

GO TO FRAME 8

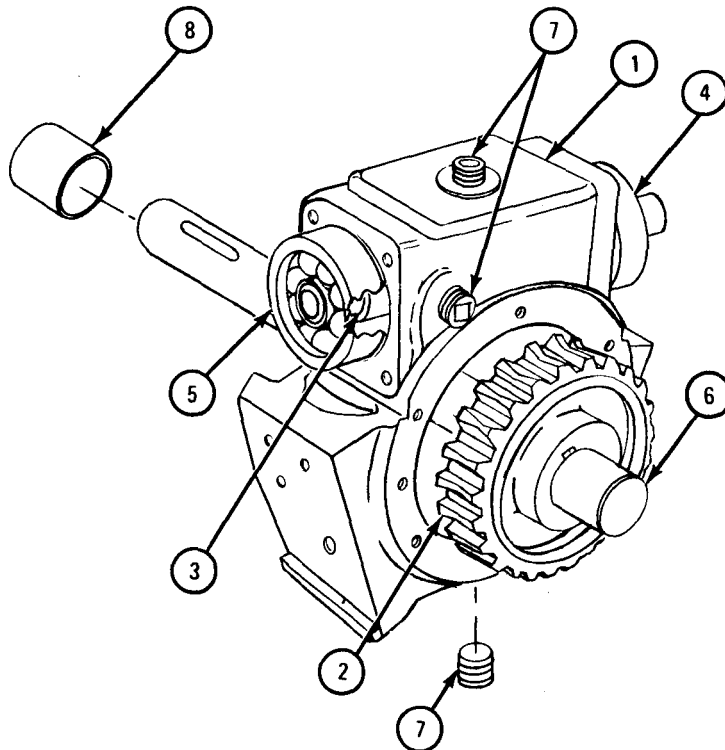


TA 088985

## FRAME 8

1. Mount dial indicator on gearcase (1) and check that backlash of drum shaft gear (2) is not more than 0.0625 inch.
2. Using rawhide mallet, tap gear end of drive worm (3) until front ball bearing (4) is free of gearcase (1) and take bearing off drive worm.
- Soldier A 3. Lift drive worm (3) and rear ball bearing (5) until they are clear of drum shaft gear (2).
- Soldier B 4. Take out drum shaft assembly (6).
- Soldier A 5. Take out drive worm (3) with rear ball bearing (5) and using puller, take bearing off drive worm.
6. If backlash of drum shaft gear (2) was more than 0.625 inch, get a new gear.
7. Take out three pipe plugs (7).
8. Check that gearcase bushing type bearing (8) is not cracked, scored or damaged. Check that bearing is within wear limits. Refer to table 18-1.
9. If bearing (8) is damaged or worn, take out bearing and throw it away.

GO TO FRAME 9

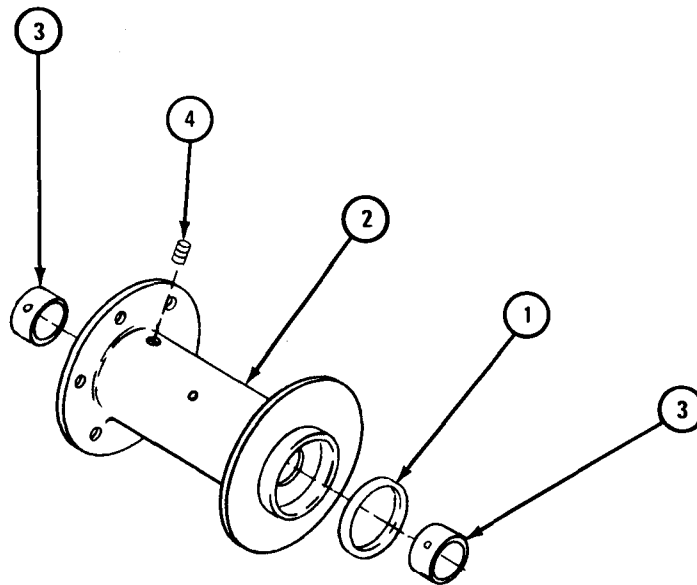


TA 088986

FRAME 9

1. Check that drum gearcase oil seal (1) is not torn, damaged or leaking. If oil seal is damaged, take seal out of drum (2) and throw it away.
2. Check that two drum bushing type bearings (3) are not cracked, scored or damaged. If bearings are damaged, take bearings out of drum (2) and throw them away.
3. Measure two bearings (3) to see that they are within wear limits. Refer to table 18-1. If bearings are not within given limits, throw them away.
4. Take out setscrew (4).

GO TO FRAME 10

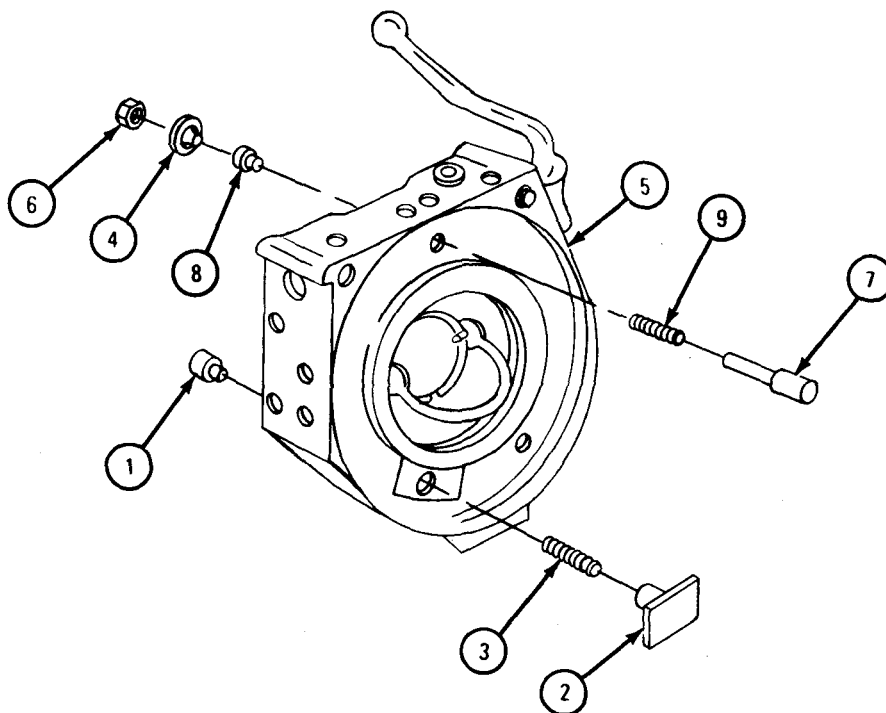


TA 088987

## FRAME 10

1. Take out drag brake adjusting screw (1) and take off drag brake assembly (2) and drag brake spring (3).
2. Put drum lock poppet knob (4) in lock position.
3. Punch stake marks on knob (4) and end frame assembly (5).
4. Take nut (6) off drum lock poppet (7) and take knob (4) off poppet.
5. Take off drum lock poppet nut (8) and take out drum lock poppet (7) and drum lock poppet spring (9).

GO TO FRAME 11



TA 088990