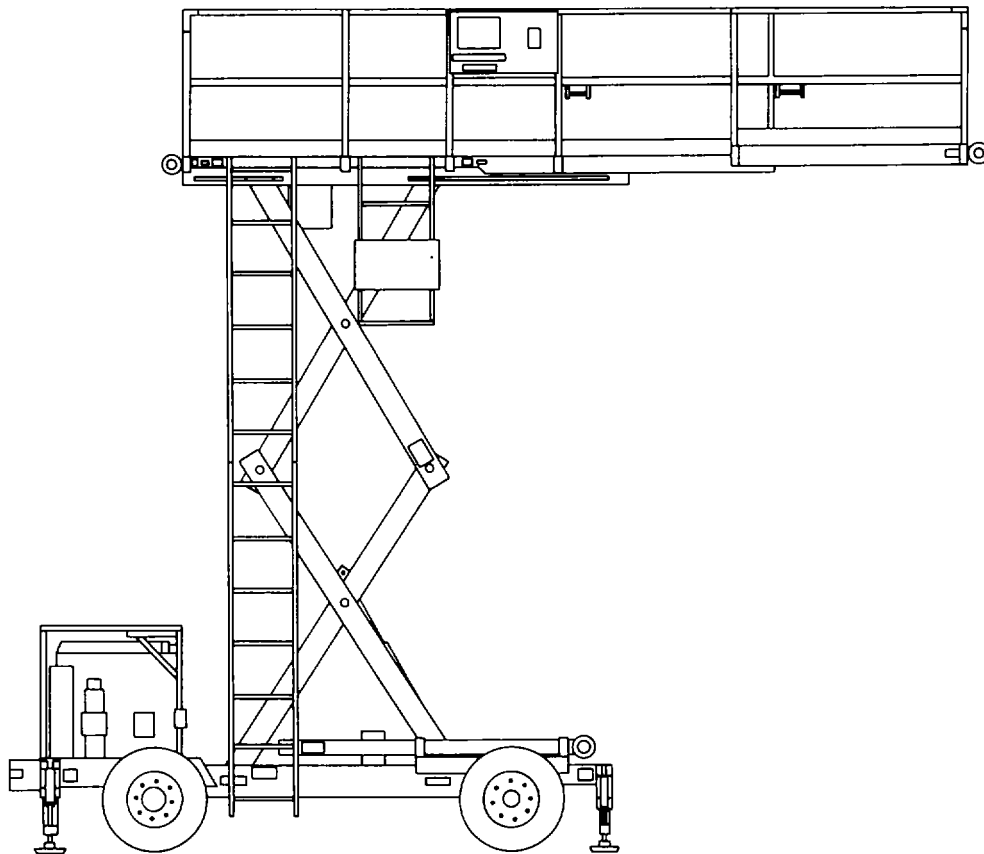

TECHNICAL MANUAL
OPERATOR'S, ORGANIZATIONAL AND
DIRECT SUPPORT MAINTENANCE
(INCLUDING REPAIR PARTS
AND SPECIAL TOOLS LIST)

FOR
SELF-PROPELLED ELEVATED
MAINTENANCE STAND
MODEL NO. SPM-1

NSN 1730-01-105-9140



HEADQUARTERS, DEPARTMENT OF THE ARMY
20 FEBRUARY 1987

WARNINGS AND FIRST AID DATA

Do not operate the SPEMS in an enclosed area. Carbon monoxide may build up to dangerous levels. 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, coma. Brain damage or death can result from severe exposure.

WARNING

The SPEMS must be operated only by authorized personnel who have satisfactorily completed a program of training which must include familiarity with safe operating procedures, characteristics, and a knowledge of applicable codes, regulations, and facilities directives. Untrained personnel subject themselves and others to the possibility of death or serious injury from the improper operation of this SPEMS. Understand the SPEMS, its function, and the controls before operations are begun.

WARNING

Do not use ladders, boxes, or similar objects to gain additional reach on the platform. Keep platform clear and free of oils and debris. Failure to do so may result in severe personal injury.

WARNING

Never stand on the guardrails to reach the work site. Remember: Keep both feet firmly on the platform at all times. Failure to do so may result in severe personal injury.

WARNING

Do not use the railings to support and carry material and loads. Do not permit any materials to overhang the platform. Materials supported on the railing and/or overhanging the platform pose a serious threat to personnel.

WARNING

Never lean out over the railings. If the work cannot be safely reached, re-position the SPEMS for safe access. Failure to do so may result in severe personal injury.

WARNING

Supporting surfaces must be sufficiently firm to hold both the SPEMS and its full rated load safely. Never attempt to raise the platform until the base of the SPEMS is level. Do not raise the platform when the base is mounted on an irregular or sloping surface. Failure to do so may result in severe personal injury.

WARNING

Stabilizers provide supplemental support only. They are not intended to level the base. The SPEMS is equipped with stabilizers which must be extended before raising the platform, but first be certain base is level. Failure to do so may result in severe personal injury.

WARNING

Platform Positioning-Scissors Members: When raising or lowering the platform, be certain that all personnel are well clear of the scissors mechanism. Stay clear of scissors and base when unit is in service Especially when the platform is being raised or lowered. Failure to do so may result in severe personal injury.

WARNING

The rated load capacity for the SPEMS, shown on the serial number plate and data plate **MUST NOT** be exceeded under any circumstances, either raising, lowering or holding. Failure to do so may result in severe personal injury.

WARNING

Never climb on the scissors mechanism. Use the platform ladders mounting or dismounting the SPEMS. Failure to do so may result in severe personal injury.

WARNING

Be sure the area around the SPEMS is clear of personnel before operation. Failure to do so may result in severe personal injury.

WARNING

Stop operation of SPEMS immediately if it is not functioning correctly. Failure to do so may result in severe personal injury.

WARNING

Before moving the SPEMS be sure you have an unobstructed view of the travel path. When moving, stay a safe distance from obstacles, hazardous surface conditions, personnel and other equipment. Failure to do so may result in severe personal injury.

WARNING

Be alert for surface condition changes and hazards such as slopes, soft spots, curbs, holes and drop-offs. Avoid those areas. Failure to do so may result in severe personal injury.

WARNING

Platform is not electrically insulated. Therefore, contact with, or closeness to any overhead wires or any other actual or potential electrical conductors is highly dangerous.

WARNING

Do not operate the SPEMS unless all guardrails and safety chains are properly installed and fixed in place. Failure to do so exposes the operator to potential injury caused by falling from the platform.

WARNING

Hearing protection must be worn while operating the SPEMS within 50 ft (15 m). Failure to do so may result in a serious hearing injury.

WARNING

Keep away from moving machine parts (scissors, stabilizers, etc.) Moving parts can crush fingers, hands, etc, resulting in a serious personal injury.

WARNING

When replacing wires, disconnect the battery ground cable. Failure to do so may result in serious injury or burns.

WARNING

Do not allow engine or hydraulic oils to come in contact with your eyes; to do so may result in a serious eye injury.

FIRST AID

Refer to FM21-11 for applicable first aid information.

TECHNICAL MANUAL
OPERATOR'S, ORGANIZATIONAL AND DIRECT SUPPORT MAINTMMANCE
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)

FOR

SELF-PROPELLED ELEVATED MAINTENANCE STAND

MODEL NO. SPM-1, NSN 1730-01-105-9140

REPORTING ERRORS AND RECO-ENDING IMPROVE INTS

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 direct to: Commander, US Army Aviation Systems Command, ATTN: AMSAV-MPSD, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. A reply will be mailed directly to you.

TABLE OF CONTENTS

	PAGE
CHAPTER 1 INTRODUCTION	1-1
Section I General Information.....	1-1
Section II Equipment Description and Data.....	1-2
Section III Technical Principles of Operation	1-10
CHAPTER 2 OPERATING INSTRUCTIONS	2-1
Section I Description and Use of Operator's Controls and Indicators.....	2-1
Section II Preventive Maintenance Checks and Services	2-6
Section III Operation Under Usual Conditions.....	2-12
Section IV Operation Under Unusual Conditions	2-48
CHAPTER 3 ORGANIZATIONAL MAINTENANCE INSTRUCTIONS.....	3-1
Section I Repair Parts, Special Tools, TMDE and Support Equipment.....	3-1
Section II Service Upon Receipt.....	3-1
Section III Lubrication.....	3-3
Section IV Troubleshooting.....	3-9
Section V Maintenance Procedures	3-42
CHAPTER 4 DIRECT SUPPORT MAINTENANCE INSTRUCTIONS.....	4-1
Section I Repair Parts, Special Tools, TMDE and Support Equipment.....	4-1
Section II Troubleshooting.....	4-1
Section III Maintenance Procedures	4-18

TABLE OF CONTENTS, Continued

	PAGE
APPENDIX A REFERENCES	A-1
APPENDIX B MAINTENANCE ALLOCATION CHART	B-1
Section I Introduction.....	B-1
Section II Maintenance Allocation Chart	B-4
Section III Tools and Test Equipment	B-8
Section IV Supplemental Instructions.....	B-9
APPENDIX C ORGANIZATIONAL AND DIRECT SUPPORT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST	C-1
Section I Introduction.....	C-1
Section II Repair Parts Lists	C-8
Section III Special Tools List	C-120
Section IV National Stock Number and Part Number Index.....	C-120
APPENDIX D EXPENDABLE SUPPLIES AND MATERIALS	D-1
APPENDIX E MANUFACTURED ITEMS LIST	E-1
APPENDIX F TORQUE LIMITS	F-1
ALPHABETICAL INDEX.....	INDEX-1
FOLDOUTS	FP-1

**CHAPTER 1
INTRODUCTION**

Section I. GENERAL INFORMATION

1-1. SCOPE. 1-1

a. Type of Manual. This manual contains operation and maintenance instructions for the self-propelled Elevated Maintenance Stand (SPEMS), model number SPM-1, NSN 1730-01-105-9140.

b. Purpose of Equipment. The SPEMS is a complete, self-contained, self-propelled maintenance stand designed primarily for rotor maintenance on CH-47 and CH-54 helicopters. It can be used for other various maintenance tasks where a self-propelled, elevated maintenance stand is required.

1-2. MAINTENANCE FORKS, RECORDS, AND REPORTS. 1-2

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-751, The Army Maintenance Management System- Aviation (TAMMS-A).

1-3. CALIBRATION. 1-3

No calibrations are required on the SPEMS.

1-4. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE. 1-4

Procedures for destroying Army materiel to prevent enemy use are described in TM 750-244-1-3.

1-5. PREPARATION FOR STORAGE OR SHIPMENT. 1-5

For storage and shipment information, refer to Chapter 2, para. 2-14.

1-6. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).**1-6**

If your SPEMS needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your SPEMS. Let us know why you don't like the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at-Commander, US Army Aviation Systems Command ATTN: AMSAV-MPSD, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798.

1-7. WARRANTY INFORMATION.**1-7**

Report all defects in materiel or workmanship to your supervisor who will take appropriate action.

Section II. EQUIPMENT DESCRIPTION AND DATA

1-8. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES.**1-8**

a. Characteristics

- (1) Self propelled.
- (2) Variable speed controls.
- (3) Platform raises vertically.
- (4) Platform moves horizontally.
- (5) Wide stance platform support.
- (6) Automatic braking.

b. Capabilities

- (1) 2000 lb (907 kg) maximum lifting capacity (platform and extensions).
- (2) 500 lb. (227 kg) maximum extended deck capacity.
- (3) 4 mph (6.4kph) maximum travel speed (platform lowered with 2000 lb load).
- (4) 2 mph (3.2kph) maximum travel speed (platform raised with 2000 lb load).
- (5) 20 mph (32 kph) maximum towing speed.

GO ON TO NEXT PAGE

(6) Transports equipment and personnel.

(7) 30% gradeability.

c. Features

(1) Hydraulic stabilizers for maximum stability.

(2) Adjustable height for easy maneuverability.

(3) Proportional, deadman type controls.

(4) Automatic throttle, choke and brake for two hand, walk-behind operation.

(5) Base remote control at ground level overrides platform control for operation in emergency situations.

(6) Service accessibility to all machine components.

(7) Hydrostatic drive system for greater torque and smooth power transfer.

(8) Microswitches in platform bumpers stop SPEMS movement when activated.

(9) Removable platform for helicopter maintenance interface.

(10) Grounding reel prevents static discharges.

(11) Unit can be repositioned when raised.

(12) Retractable ladder allows boarding when unit is raised.

(13) Operator selectable HI speed/HI torque drive modes.

(14) Emergency hand pump for platform retraction in the event of a power failure.

(15) Manually operated platform extensions for increased versatility.

1-9. LOCATION AND DESCRIPTION OF MAJOR C\$PNTS.

1-9

a. Engine Enclosure (1, Figure 1-1). Provides access to engine, hydraulic pump, hydrostatic transmission, hydraulic oil cooler, hydraulic reservoir, remote control unit, and hydraulic control valves.

b. Stabilizers (2). Stabilizes SPEMS on level ground before platform can be raised. Stabilizers provide supplemental support only and are not intended to level the base.

GO ON TO NEXT PAGE

c. Platform (3). Work platform for tools, equipment and personnel. Removable section allows for maintenance on helicopter rotors. Horizontally adjustable platform and deck extensions increase usability and allow for easier SPEMS positioning. Removable, split guardrails make the SPEMS more compact for work approach, storage, and shipment.

d. Towing Hitch (4). Pintel type towing hitch for moving the SPEMS during shipping, storage and for transferring to and from work locations where selfpropulsion is impractical. The entire hitch assembly stores on the frame and can be quickly removed or installed by two persons.

e. Ladder (5). Retractable ladder allows boarding from any height when the unit is raised. When not in use, the ladder stores completely on the platform.

f. Platform Controls (6). Platform controls allow operation from the platform. Controls may be positioned anywhere on the guardrails.

g. Scissors (7). Twin hydraulic cylinders provide the power needed by the scissors to raise and lower the platform.

h. Base Controls (8). Base controls allow walk-behind operation from the ground. Base Controls can override the platform controls in emergency situations.

i. Frame (9). The frame houses the final drive line components as well as the steering assembly.

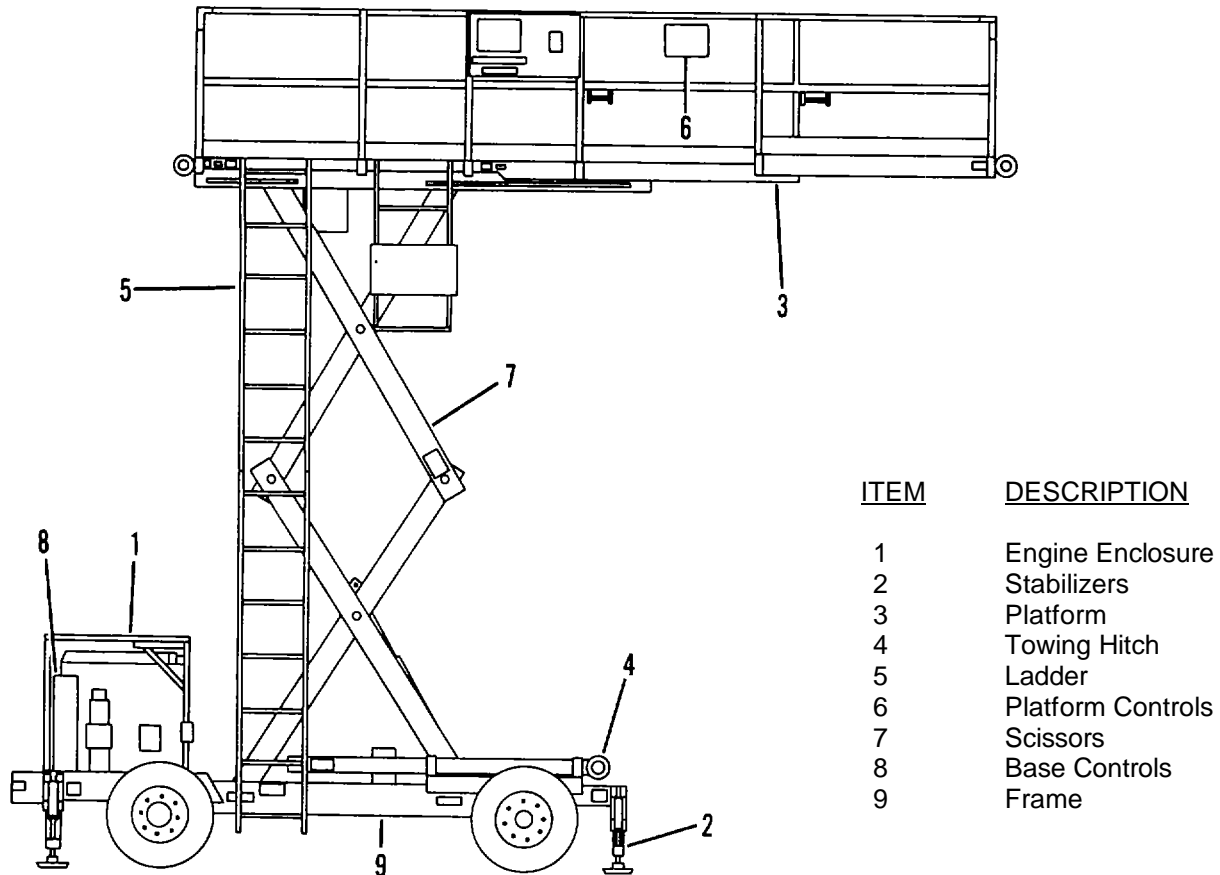


Figure 1-1. Major Components.

1-10. EQUIPMENT DATA.

1-10

Refer to Table 1-1 for a summary of specific capabilities, limitations, and other critical operation and maintenance data.

Table 1-1. Equipment Data

WEIGHTS AND DIMENSIONS

General

Length Overall	210 1/2 in.(535 cm)
Width:	
Stabilizers retracted	96 in.(244 cm) nominal
Stabilizers extended.....	112 in.(285 cm)
Height Overall:	
Platform shut.....	8 ft. 10 1/2 in.(270 cm)
Platform fully raised	18 ft.(5.5 m)
Wheelbase.....	7 ft. 11 1/2 in.(243 cm)
Turning Radius.....	34 ft. 7 in.(10.54 m)
Shipping Weight.....	8500 lbs.(3856 kg)
Shipping Volume.....	822 cu. ft.(23.3 cu. m)

Platform

Maximum Height.....	14 ft, 7 in. (4.5 m)
Width	8 ft (2.4 m)
Length (deck extensions retracted).....	13 ft (3.9 m)
Maximum Load Capacity:	
Platform and deck extensions	2000 lbs (907 kg)
Extension only	500 lbs each (227 kg)

GENERAL SPECIFICATIONS

Operating Modes Forward, Reverse, HI Speed, HI Torque,
 Raise Platform, Lower Platform, Move Deck
 Forward, Move Deck Backward, Steer,
 Extend Stabilizers, Retract Stabilizers,
 Start Engine, Stop Engine, Emergency
 Lower Platform, Override Platform Control

Operating Temperature Range 25° F to 120° F
 (-31° C to 48° C)

Tires

Size	31x15.50-15NHS
Type.....	Flotation, XTL, 8 ply, tubeless
Working Pressure.....	45 psi
Manufacturer.....	Goodyear
Model Number	310508700
Part Number	FW69

GO ON TO NEXT PAGE

Table 1-1. Equipment Data (Continued)

Electrical System	
Control System Voltage.....	24 VDC
Alternator Output.....	24 VDC, 10 AMP
Battery:	
Size	10 1/4 in. x 5 1/4 in. x 8 1/2 in.
Output.....	24 VDC, 21 ampere hour
Maximum Travel Speed (HI Speed Mode)	
Forward (platform lowered)	4 mph (6.4 kph)
Forward (platform raised).....	2 mph (3.2 kph)
Reverse (platform lowered).....	4 mph (6.4 kph)
Reverse (platform raised).....	2 mph (3.2 kph)
Towing (maximum)	20 mph (32 kph)

MAJOR COMPONENT SPECIFICATIONS

End Item	
Manufacturer.....	Lift-A-Loft Corp.
Model Number	SPM-1
Type.....	SPEMS
Engine	
Manufacturer.....	Military Standard
Model Number	4A084-3
Type.....	4-cycle, 4-stroke air cooled
Starter.....	Electric
Fuel	Gasoline
Horsepower.....	20 at 3600 rpm
NSN.....	2805-00-872-5972
Hydraulic Pump	
Manufacturer.....	Rexroth
Model Number	S15S-4-AHI-3R
Type.....	Gear
Displacement	0.43 in ³ /revolution (7.05 cm ³ /revolution)
Flow	4 gpm at 2000 rpm (100 psi) (15 lpm at 2000 rpm)
Part Number	HP54

GO ON TO NEXT PAGE

Table 1-1. Equipment Data (Continued)

Hydrostatic Transmission Pump

Manufacturer.....	Rexroth
Model Number	IR3C1A1124V-DC-TP
Type.....	Axial Piston
Part Number	HYT2
Displacement:	
Main	2.44 in ³ /revolution (40 cm ³ /revolution)
Auxiliary.....	0.51 in ³ /revolution (8.4 cm ³ /revolution)
Flow, Main	39 gpm (147 lpm)
Auxiliary.....	8 gpm (20 lpm)

Series/Parallel Valve

Manufacturer.....	Lift-A-Loft
Model.....	HV93
Flow	4-10.8 gpm (15-40.9 lpm)
Relief Pressure Setting.....	2500 psi
Part Number	19077

Final Drive Motors

Manufacturer.....	Char-Lynn
Model Number	104-1216
Type.....	Hydraulic
Displacement	4.9 in ³ /revolution (80.3 cm ³ /revolution)
Working Pressure.....	3000 psi
Part Number	HP53

Brakes

Manufacturer.....	Ausco
Model Number	32550
Type.....	Spring applied, pressure released
Working Pressure.....	3000 psi
Brake Release Pressure.....	180 psi
Part Number	FD15

Drive Wheel Gear Reducer

Manufacturer.....	Borg Warner
Model.....	14-02-000-021
Type.....	Planetary
Ratio	15.88:1
Part Number	GR12

GO ON TO NEXT PAGE

Table 1-1. Equipment Data (Continued)

Stabilizer Cylinders

Manufacturer..... Hydro-Line/Rockford
 Model Number251030
 Type..... - Double acting
 Bore x Stroke2-1/2 in. X 8 in. (6.4 X 20.3 cm)
 Rod Diameter..... 1-1/16 in. (2.7 cm)
 Working Pressure..... 2500 psi
 Part Number HCM85A

Stabilizer Cylinder Control Valve

Manufacturer Sun
 Model..... CBCH-LCN-YEJ
 Type..... Cross pilot assist
 Flow 15 gpm (56.8 lpm)
 Relief Pressure Setting..... 3800psi
 Part NumberHV89

Steering Cylinder

Manufacturer..... Victor Fluid Power
 Model Number WFC-2508
 Type.....Double Acting

 Bore x Stroke 1-1/2 in. X 8 in.
 (6.35 cm X 20.32 cm)
 Rod Diameter..... 1-1/8 in. (2.86 cm)
 Working Pressure..... 2000 psi
 Part Number HCM85B

Deck Extension Cylinder

Manufacturer..... Hydro-Line/Rockford
 Model Number201042
 Type..... Double acting
 Bore x Stroke 2 in. x 12 in. (5 cm X 30.5 cm)
 Rod Diameter..... 1-1/16 in. (2.7 cm)
 Working Pressure..... 2500 psi
 Part NumberHCM86

Lift Cylinder

Manufacturer..... Martner Products
 Model Number ST-4016-B
 Type.....Double Action
 Bore X Stroke.....4 in. X 16 in. (10.2 cm X 40.6 CM)
 Rod Diameter.....2 in. (5 cm)
 Working Pressure..... 3000 psi
 Part NumberHCM87

GO ON TO NEXT PAGE

Table 1-1. Equipment Data (Continued)

Return Line Filter	
Manufacturer.....	Lenz Co.
Model Number	CP-1280-10P-50
Type.....	Spin-on
Flow.....	50 gpm (189 lpm)
Filtration.....	10 micron
Part Number	HF20
Suction Line Filter	
Manufacturer.....	Lenz Co.
Model Number	CP-1280-10V-50
Type.....	Spin-on
Flow.....	50 gpm (189 lpm)
Filtration.....	10 micron
Part Number	HF21
Emergency Hand Pump	
Manufacturer.....	Power-Packer
Model Number	HP3006-01-03
Type.....	Piston
Displacement	60 in ³ /Stroke (9.8 cm ³ /Stroke)
Operating Pressure	3000 psi
Part Number	HV92
Hydraulic Control Valve	
Manufacturer.....	Waterman
Model Number	17511
Type.....	Pilot operated, series/parallel
Flow.....	15 gpm (56.8 lpm)
Operating Pressure	2500 psi
Relief Pressure Setting.....	2500 psi
Part Number	C19077-1
Hydraulic Oil Cooler	
Manufacturer.....	Dunham-Bush
Model Number	CP-1280DB-1242
Type.....	6-tube, swirl
Flow.....	16 gpm (60.5 lpm)
Part Number	M684

1-11. SAFETY, CARE, AND HANDLING.

1-11

The SPEMS is subject to certain hazards in the hands of untrained or careless personnel. The SPEMS must be operated only by authorized personnel who have satisfactorily completed a program of training which must include familiarity with safe operating procedures, characteristics of the SPEMS, and a knowledge of applicable codes, regulations, and facilities directives. Regular lubrication and service of the SPEMS at prescribed intervals by qualified personnel is an essential element of a proper maintenance program; and it is equally essential for operator safety and long service life. Refer to the Warning and First Aid Data Page for a summary of operation and maintenance warnings.

Section III. TECHNICAL PRINCIPLES OF OPERATION

1-12. FUNCTIONAL DESCRIPTION.

1-12

a. General. The SPEMS (Figure 1-2) is a gasoline engine powered, 4-wheeled, hydraulic maintenance stand equipped with an adjustable platform and stabilizers. The SPEMS is designed to help maintenance personnel in the performance of overhead maintenance tasks, especially CH-47 and CH-54 helicopter rotor maintenance, in the easiest, safest, and most efficient manner possible. The SPEMS consists of four major assemblies; platform assembly, scissors assembly, frame assembly, and engine rack assembly.

b. Platform. The platform is divided into two parts, the basic deck and the deck extensions.

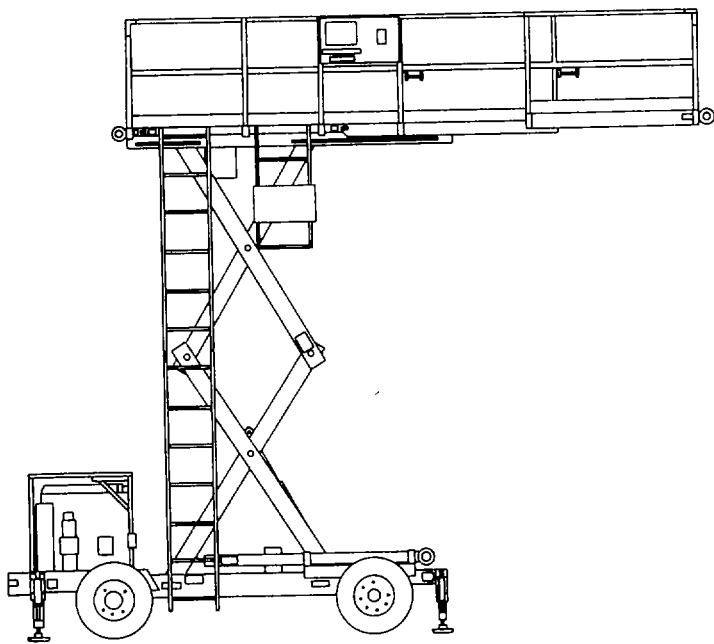
(1) Basic Deck. The large, flat, rectangular platform is equipped with removable, split guardrails around the platform. The guardrails can be completely removed, if needed, for compact storage and shipment. In addition, the top half of the railing can be removed for rotor blade or other obstacle clearance when approaching or withdrawing from the work. Female receptacles with self-closing covers are flush-mounted on the floor and provide power to the work lights. Two work lights and four work light brackets are provided. The work lights are secured to the brackets with thumb screws. A grounding reel mounted to the guardrail is connected between an approved grounding source and the aircraft to prevent static electrical discharges. The platform control box is equipped with a bracket that allows the control box to be positioned anywhere on the guardrailing. A removable deck plate allows for the SPEMS to interface with Chinook CH47 helicopters. Contact bumpers at the front and rear of the platform, and all three sides of the cutout (with the deck plate removed), override the SPEMS controls when activated with two pounds of pressure. If the front bumper touches an obstacle while moving forward, all SPEMS operating modes, except reverse movement and deck traverse backward (if moved forward), are rendered inoperative.

(2) Deck Extensions. Two manually operated deck extensions are located at the left and right sides at the front of the platform. A spring-loaded pin secures the extension in the retracted or extended position. Each extension is equipped with a contact bumper that overrides SPEMS controls when activated.

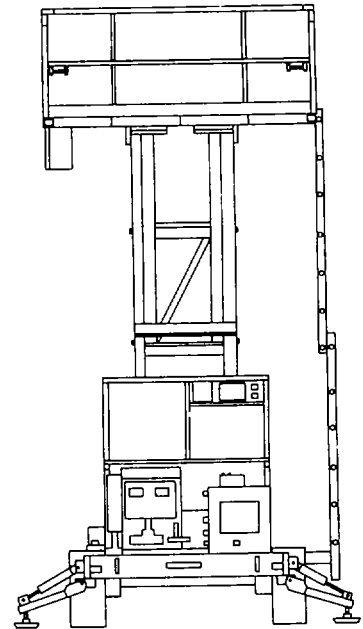
c. Scissors. Platform lifting is accomplished with the scissors assembly. Twin hydraulic cylinders supply the force needed to extend the scissors thereby lifting the platform. Each cylinder is supplied with a hold valve to prevent free descent of the platform at all times, even in the event of a downstream hose rupture or other component failure. In emergency operation (loss of power), when the platform is elevated, the emergency hand pump releases the hold valve and allows the platform to be lowered.

d. Frame Assembly. The frame assembly is designed to support the platform with personnel and equipment. The frame assembly, wheels and tires are designed for traveling in any terrain; however, must be on firm level ground when raising or lowering the platform. Stabilizers provide supplemental support only and are not intended to level the base.

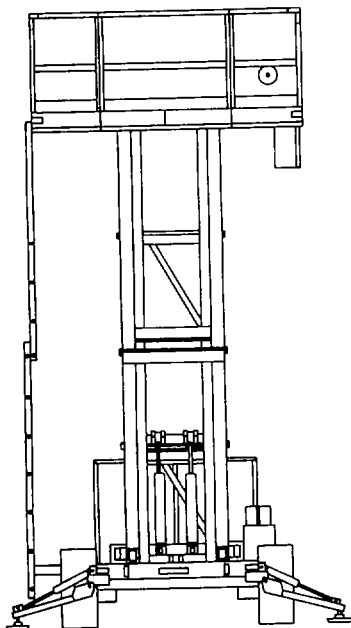
e. Engine Enclosure. The engine enclosure is assigned to give convenient access to the engine and allow easy engine and transmission removal.



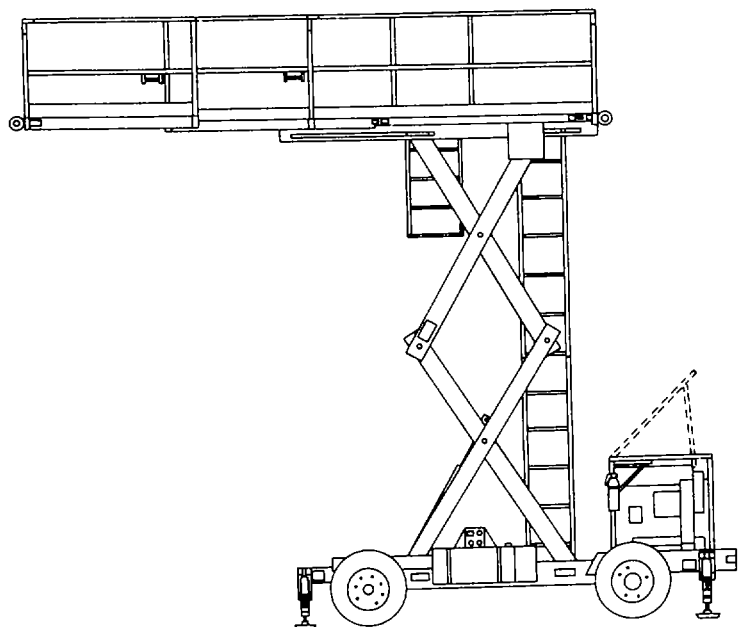
RIGHT SIDE



REAR



FRONT



LEFT SIDE

Figure 1-2. SPEMS Overall Views (Elevated).

CHAPTER 2
OPERATING INSTRUCTIONS

Section I. DESCRIPTION AND USE
OF OPERATOR'S CONTROLS AND INDICATORS

2-1. GENERAL.

2-1

This chapter contains all instructions necessary for operating the SPEMS.

2-2. OPERATOR'S CONTROLS

2-2

a. Control Boxes.

(1) There are two operator control boxes on the SPEMS: One is located on the platform. The second control box is located on the electrical junction box at the rear of the SPEMS. The platform control is equipped with a bracket that allows the control box to be positioned anywhere on the guardrailing. The base control is pinned in position and must be removed when used. When operating with the base control, the operator walks behind the SPEMS. Normal operation is with the platform control.

(2) Both control boxes contain identical controls with three exceptions.

(a) The platform control (Figure 2-1) contains a key switch for engine starting whereas the base control (Figure 2-2) uses a spring loaded toggle type starting switch.

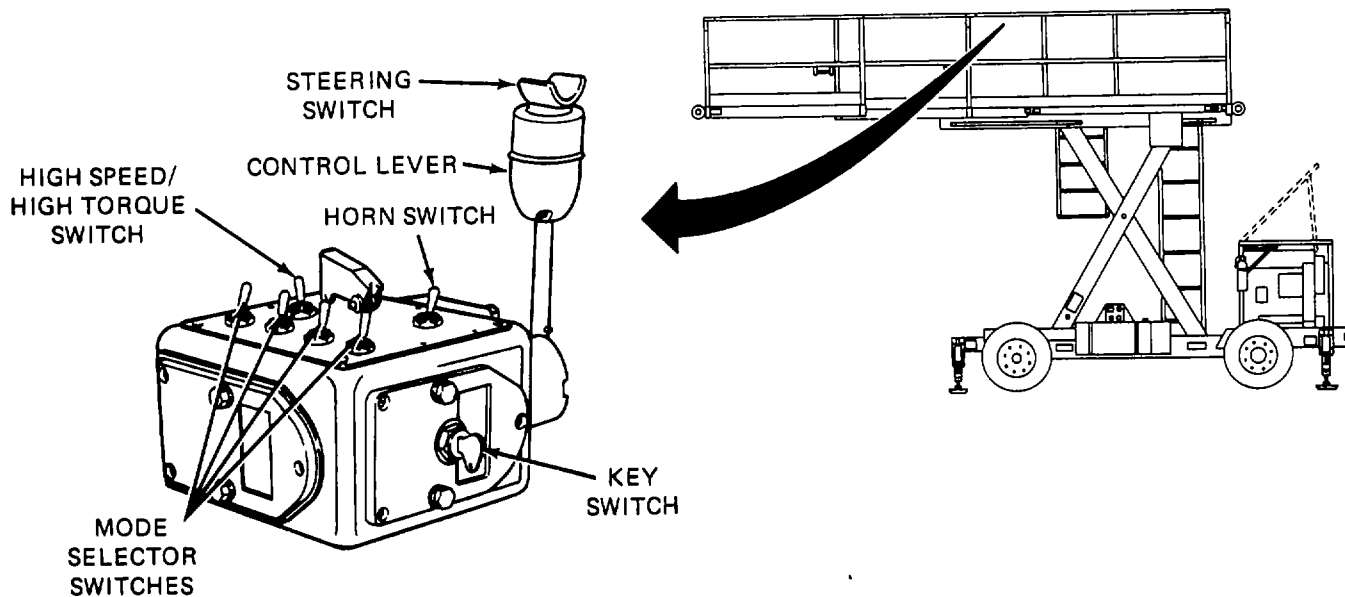


Figure 2-1. Operator's Controls Located on Platform (Platform Control Box).

(b) The platform control contains a toggle type horn switch whereas the base control has no horn switch.

(c) The base control is equipped with a switch to override the platform control in the event of an emergency such as personnel rendered unconscious due to an accident while working on the platform.

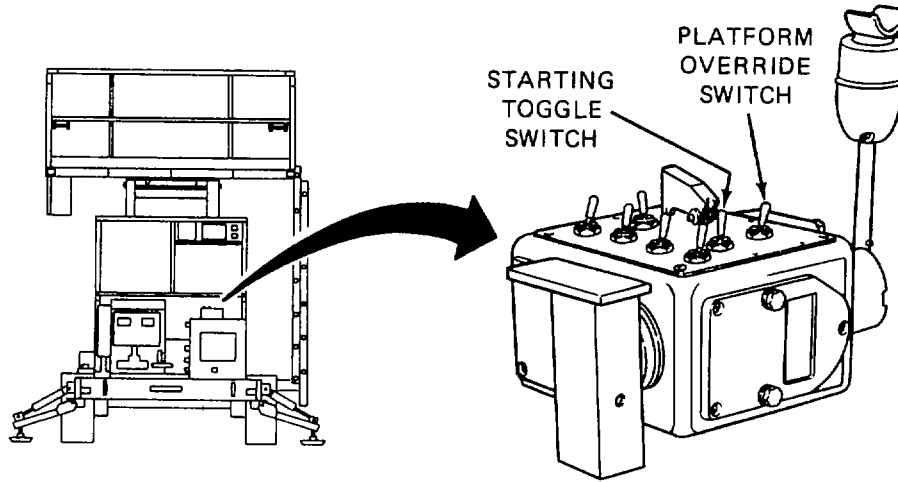


Figure 2-2. Operator's Controls Located On Base (Base Control Box).

b. Controls. The operator's controls (Figures 2-1 and 2-2) are listed below.

(1) **MODE SELECTOR SWITCHES**-These switches are used to select the operating mode (controlled by the control lever) for the SPEMS. Operate the mode selector switch with your left hand thumb. See Figure 2-3.

- **DRIVE MODE**-Select this switch for forward or reverse travel of the SPEMS.
- **STABILIZER MODE**- Select this switch to extend and retract the stabilizers.
- **LIFT MODE**-Select this switch to raise and lower the platform.
- **DECK MODE**-Select this switch to move the platform 1 ft (30.5 cm) forward or back to the original position.

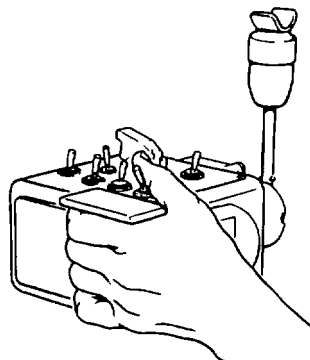


Figure 2-3. Operating Mode Switches.

(2) CONTROL SWITCHES-These switches are used to control various SPEMS functions.

HI SPEED/HI TORQUE-Select Hi Speed to drive fast. Select Hi Torque to travel over rough terrain.

- HORN-Select to sound horn (platform control only).
- PLATFORM/BASE-Use to select functional control (base control only).
- EMERGENCY STOP-Use to stop SPEMS in emergency situations (immediate stoppage of all functions).
- STOP/RUN/START-Use to start and stop the engine (key on platform control toggle, switch on base control).

(3) CONTROL LEVER-Use this lever to control the function of the selected operating mode. On top of the control lever is a rocker type steering switch used to steer the SPEMS. Operate the control lever with your right hand. See Figure 2-4. To use the control lever:

- Selecting the drive mode switch and moving the control lever forward or backward will move the SPEMS forward or backward.
- Selecting the drive mode switch and pushing the rocker switch on top of the control lever left or right will turn the SPEMS left or right.
- Selecting the stabilizer mode switch and moving the control lever forward or backward will extend or retract the stabilizers.
- Selecting the lift mode switch and moving the control lever forward or backward will raise or lower the platform.
- Selecting the deck mode switch and moving the control lever forward or backward will move the deck forward or backward.

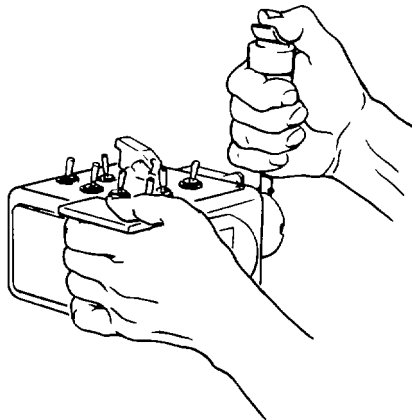


Figure 2-4. Operating Control Lever.

(4) FUEL TANK VENT-Use this valve when operating the SPEMS. Turn counterclockwise to open, clockwise to close. See Figure 2-5.

c. Indicators. Operator indicators are listed below. See Figures 2-5 and 2-6.

(1) FUEL GAGE-Shows how much fuel is left in the fuel tank. Fill tank when needle is at or below 1/4.

(2) HYDRAULIC OIL FILTER RESTRICTION PRESSURE GAGE-Indicates when filter needs to be changed. Change filter when needle points in red area. Both hydraulic suction and return filters each have a gage.

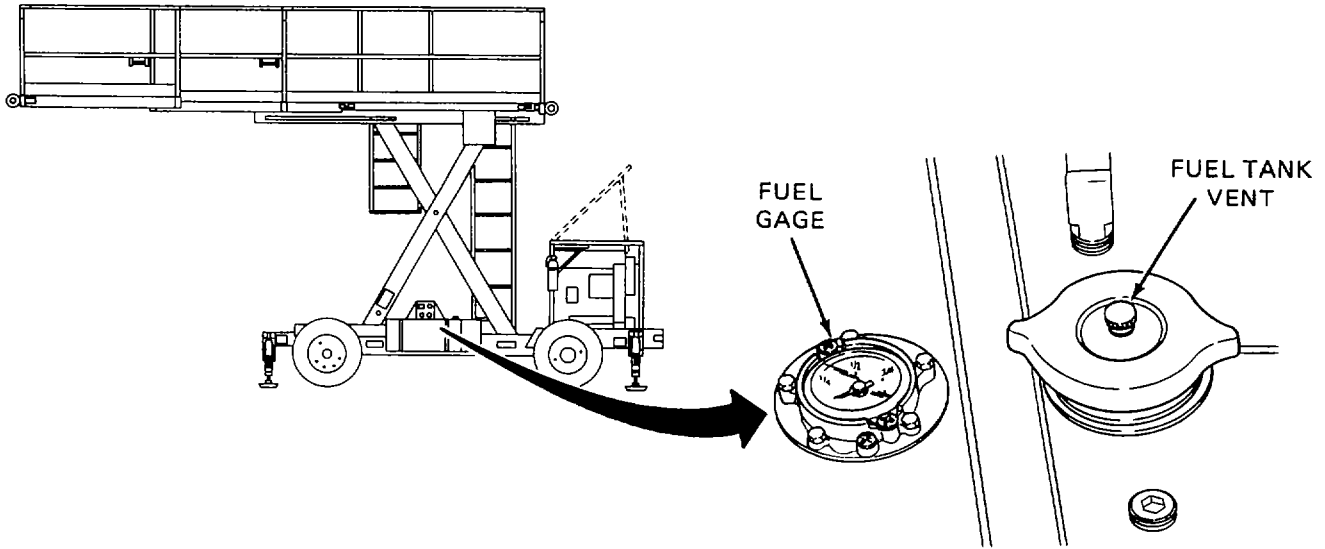


Figure 2-5. Fuel Tank.

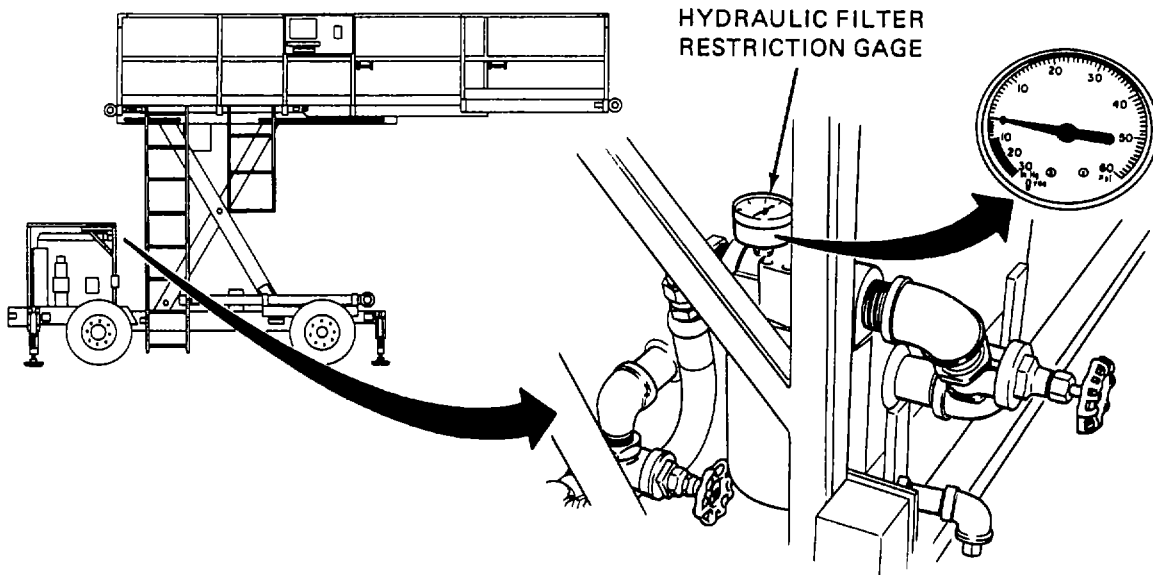


Figure 2-6. Hydraulic Filter.

2-3. EMERGENCY CONTROLS.**2-3**

The SPEMS is equipped with emergency controls that can be used to perform certain operations if operational power is lost. See Figures 2-7 and 2-8.

- **HAND OPERATED PUMP**-Used to lower the platform if normal controls do not function to lower it (no operational power is necessary).
- **STEERING BYPASS VALVE**. Open this valve to neutralize (bypass) the steering cylinder, if you are going to tow the SPEMS.

CAUTION

Failure to open (bypass) the steering bypass valve then towing may damage the SPEMS. Always open the steering bypass valve when towing to avoid conditions that may result in equipment damage.

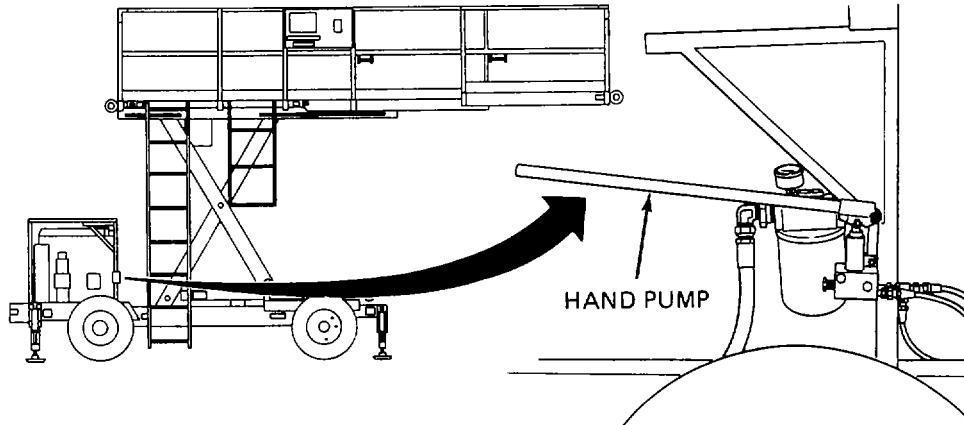


Figure 2-7. Hand Pump.

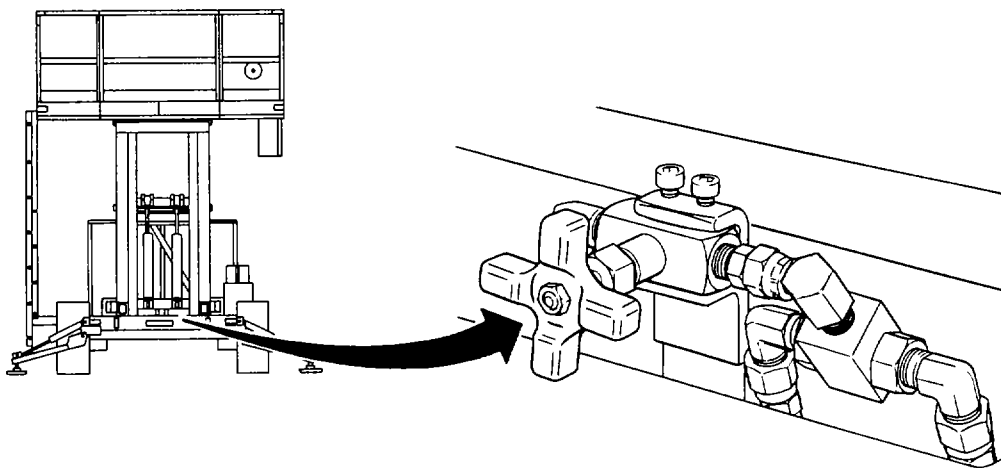


Figure 2-8. Steering Bypass Valve.

Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2-4. GENERAL.

2-4

To ensure that the SPEMS is ready for operation at all times, it must be inspected systematically so that the defects may be discovered and corrected before they result in serious damage or failure. Defects discovered during operation of the SPEMS shall be noted for future corrections, to be made as soon as an operation has stopped. Stop operation which would damage the SPEMS if operation were to continue. All deficiencies and shortcomings shall be recorded together with the corrective action taken on DA Form 2404, Equipment Inspection and Maintenance Worksheet, at the earliest opportunity. When performing your Before (B) Operation PMCS, always keep in mind the CAUTIONS and WARNINGS. After operation, be sure to perform your After (A) PMCS. If your SPEMS fails to operate, refer to troubleshooting chart in Chapter 3. Report any deficiencies using the proper forms, see TM 38-750.

2-5. OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES.

2-5

Refer to Table 2-1 for Preventive Maintenance Checks and Services.

- a. Item Number Column. Checks and services are numbered in chronological order regardless of interval. This column will be used as source of item numbers for the "TM Item Number" column on DA Form 2404 in recording results of PMCS.
- b. Interval Columns. The columns headed B, D, A, W and M, will contain a dot (-) opposite the appropriate check indicating it is to be performed Before (B), During (D), After (A), Weekly (W), or Monthly (M).
- c. Item to be Inspected Column. The items listed in this column are divided into groups and identify the items to be inspected.
- d. Procedures Column. This column contains a brief description of the procedure by which the check is to be performed.
- e. For Readiness Reports. Equipment is Not Ready/Available if: column. This column contains the criteria which will cause the SPEMS to be classified as Not Ready/Available because of inability to perform its primary mission.

NOTE

If the SPEMS must be kept in continuous operation, check and service only those items that can be checked and serviced without disturbing operation. Make the complete checks and services when the SPEMS can be shut down.

Table 2-1. Preventive Maintenance Checks and Services

NOTE

Within designated intervals, these checks are to be performed in the order listed.

Item No.	Interval					Item To Be Inspected	Procedures	Equipment Will Be Reported Not Ready/ Available if:
	B	D	A	W	M			
1	.		.			Engine, stub shaft and coupling.	Inspect for missing or loose parts (including cowling), oil or fuel leakage. Refer to TM5-2805-259-14.	Missing parts or leakage.
2	.					Engine oil level gage.	Check oil level. Add oil as necessary. Refer to TM5-2805-259-14.	
3	.			.		Engine fuel sediment bowl.	Check for water or sediment. necessary. Refer to TM5-2805-259-14.	Leaking or damaged. Clean as
4				.		Engine oil filter.	Inspect. Refer to TM5-2805-259-14.	Leaking or damaged.
5	.					Muffler and spark arrestor.	Inspect for damage, missing parts and wear (rust, holes, etc.).	Damaged, missing parts or worn.

Table 2-1. Preventive Maintenance Checks and Service - (Continued)

Item No.	Interval					Item To Be Inspected	Procedures	Equipment Will Be Reported Not Ready/ Available if:
	B - Before	D - During	A - After	W - Weekly	M - Monthly			
6	.					Hydraulic reservoir and fill cap.	Service reservoir. Check oil level. Oil should be within 1-2 inches of top of reservoir cover. Add oil as necessary.	Leaking or damaged.
7			.			Hydraulic suction and discharge filters.	Inspect for leakage. Check gages for proper readings. Change filter(s) if necessary.	Filters leaking or clogged.
8	.					Transmission oil cooler.	Visually inspect.	Leaking or damaged.
9	.					Transmission and hydraulic pump.	Visually inspect.	Leaking or damaged.
10	.					Directional control valves, cartridges and solenoid valves.	Visually inspect.	Leaking or damaged.
11	.		.			Scissors, arm rollers and shafts.	Inspect for missing or damaged guard rails. Check that platform is clean. Inspect scissors for damage.	Missing parts or structural damage.
12				.		Hand pump.	Visually inspect.	Leaking or damaged.
13				.		Lift and traverse cylinders, cam rollers.	Inspect rollers and cylinder rods for alinement and accumulation of debris. Check for leakage.	Misaligned or damaged rods and rollers, leakage.
14				.		Steering assembly and stabilizers.	Visually inspect.	Leaking or damaged.

Table 2-1. Preventive Maintenance Checks and Service - (Continued)

Item No.	Interval					Item To Be Inspected	Procedures	Equipment Will Be Reported Not Ready/ Available if:
	B - Before	D - During	A - After	W - Weekly	M - Monthly			
15					•	Steering wheel hubs and bearings.	Inspect for smooth operation. bearings if necessary. to para 2-7.	Wheels fail to Service turn easily or noise is heard. Refer
16					•	Towing assembly/tow bar.	Visually inspect.	Damaged or missing parts.
17					•	Tire/wheel assemblies.	Service tires. Check inflation and inspect tread. Replace tire/wheel assembly if necessary. Refer to para 2-6.	Tread is damaged or worn severely. Wheel are damaged.
18					•	Hydraulic motor.	Visually inspect.	Leaking, loose or damaged parts.
19					•	Hydraulic parking brake.	Visually inspect.	Leaking, loose or damaged parts.
20					•	Drive hub.	Visually inspect.	Leaking or missing parts.
21					•	Hydraulic hoses/fittings.	Visually inspect.	Leaking, loose or damaged parts.
22					•	Electrical wiring.	Visually inspect.	Broken or damaged connectors; exposed wiring.
23					•	Battery.	Service battery. Check each cell for proper electrolyte levels (1/2" from top of cell). Fill with distilled water if levels are low. Coat terminals with corrosion preventive compound. Inspect battery cables for damage.	Battery or terminals damaged.

Table 2-1. Preventive Maintenance Checks and Service - (Continued)

Item No.	Interval					Item To Be Inspected	Procedures	Equipment Will Be Reported Not Ready/ Available if:
	B	D	A	W	M			
24	.					Fuel tank.	Inspect for leakage and damage.	Leaking or damaged.
25	.					Platform/ladder and deck extensions.	Inspect for missing or damaged guard-rails or chains. Check that platform is clean. Inspect Ladder for damage.	Missing parts or structural damage.
26			.			Lights.	Plug in each light and check for operation. Inspect cables for damage.	Lights do not operate.
27	.					Base and Platform Controllers.	Refer to paras 2-11 and 2-12.	Any one function fails on either control box.

2-6. TIRE/WHEEL ASSEMBLIES-REPLACE

2-6

This Task Covers:

- a. Removal
- b. Installation

INITIAL-SETUP

Special Tools/Test Equipment

Floor Jack, 6,000 lb capacity
 Jack Stands, 6,000 lb capacity

Materials/Parts

Tire/Wheel Assembly (Left Side), Part Number B19057GA
 Tire/Wheel Assembly (Right Side), Part Number B19057GB

Personnel Required

One MOS 67U/67X Mechanic

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2-6. TIRE/WHEEL ASSEMBLIES-REPLACE (Continued)

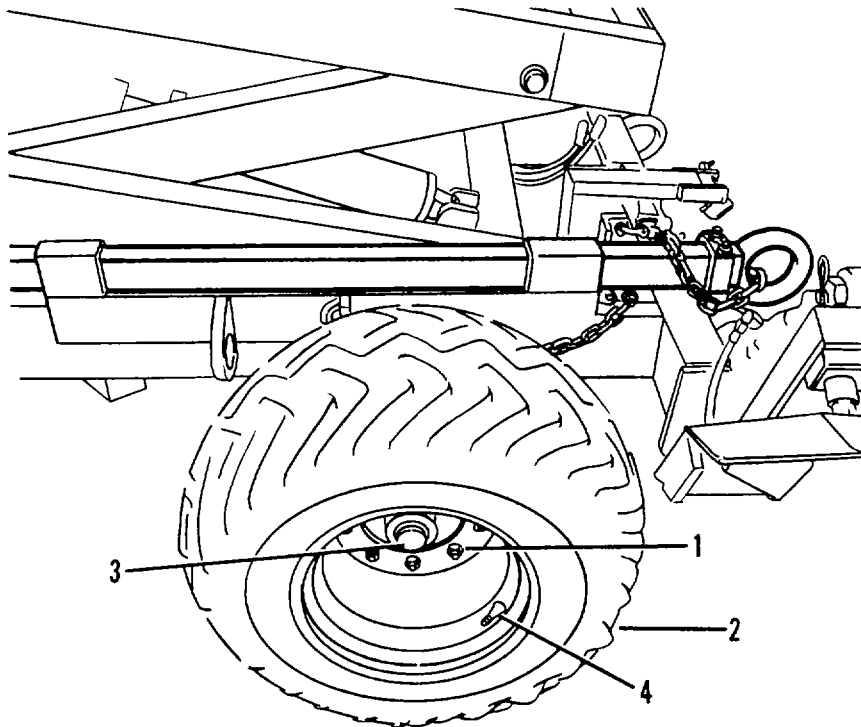
a. REMOVAL:

- (1) Loosen nine lugnuts (1, Figure 2-9) on tire/wheel assembly (2) one turn each.
- (2) Raise SPEMS with floor jack until tire just comes off floor. Support SPEMS frame with jack stands and remove floor jack.
- (3) Remove nine lugnuts (1).
- 4) Remove tire/wheel assembly (2).
- (5) Evacuate tire/wheel assembly (2) to Direct Support Maintenance for repair.

b. INSTALLATION:

- (1) Place tire/wheel assembly (2) in position on hub (3) with the valve stem (4) facing out.
- (2) Install nine lugnuts (1) and hand tighten.
- (3) Raise SPEMS with floor jack, remove jack stands and lower SPEMS to ground.
- (4) Tighten nine lugnuts (1) securely. Refer to Appendix F, Torque Limits.

END OF TASK

**Figure 2-9. Tire/Wheel Assembly.**

Section III. OPERATION UNDER USUAL CONDITIONS.

This section contains instructions for the operator to use the SPEMS under usual (normal) conditions.

2-7. GENERAL.**2-7**

WARNING

The SPEMS must be operated only by authorized personnel who have satisfactorily completed a program of training which must include familiarity with safe operating procedures, characteristics, and a knowledge of applicable codes, regulations, and facilities directives. Untrained personnel subject themselves and others to the possibility of death or serious injury from the improper operation of this SPEMS. Understand the SPEMS, its function, and the controls before operations are begun.

WARNING

Do not operate the SPEMS unless all guardrails are properly installed and fixed in place. Failure to do so may result in severe personal injury. Never use the SPEMS without the platform railings or with only partial railings. Remember: A complete set of platform guardrails is essential for personnel safety

WARNING

The platform is not electrically insulated. Therefore, contact with, or closeness to any overhead wires or any other actual or potential electrical conductors must be considered as highly dangerous and may result in severe personal injury or death. A minimum distance of 10 to 12 feet must be kept between the SPEMS and actual or potential conductors.

WARNING

Hearing protection must be worn while operating the SPEMS. Failure to do so may result in a loss of hearing.

WARNING

Do not use ladders, boxes, or similar objects to gain additional reach on the platform. Keep platform clear and free of oils and debris. Failure to do so may result in severe personal injury.

WARNING

Never stand on the guardrails to reach the work site. Remember: Keep both feet firmly on the platform at all times! Failure to do so may result in severe personal injury.

WARNING

Do not use the guardrails to support and carry material and loads. Do not permit any materials to overhang the platform. Materials supported on the guardrailing and/or overhanging the platform pose a serious threat to personnel.

WARNING

Never lean out over the guardrails! If the work cannot be safely reached, re-position the SPEMS for safe access. Failure to do so may result in severe personal injury.

WARNING

Supporting surfaces must be sufficiently firm to hold both the SPEMS and its full rated load safely! Never attempt to raise the platform until the base of the SPEMS is level. Do not raise the platform when the base is mounted on a irregular or sloping surface! Failure to do so may result in severe personal injury.

WARNING

Stabilizers provide supplemental support only. They are not intended to level the base. The SPEMS is equipped with stabilizers which must be extended before raising the platform, but first be certain base is level! Failure to do so may result in severe personal injury.

WARNING

Platform Positioning-Scissors Members: When raising or lowering the platform, be certain that all personnel are well clear of the scissors mechanism. Stay clear of scissors and base when unit is in service especially when the platform is being raised or lowered. Failure to do so may result in severe personal injury.

CAUTION

If the SPEMS is left in the raised position at the equipment for an extended period of time, check and adjust platform elevation every 12 hours to avoid damage to the equipment from the platform due to lift cylinder leak-down. Failure to do so may result in SPEMS damage.

CAUTION

Surface Conditions: The high torque and gradeability characteristics of the SPEMS are intended for travel between overhead work locations only. Before raising the platform, it is essential that the SPEMS be on a hard and level surface. Failure to do so may result in SPEMS damage.

2-8. PLATFORM SAFETY SUMMARY**2-8**

A continued attitude of, and commitment to safety is essential for the proper and safe use of the SPEMS. Remember- Any Equipment in Unsafe Hands Is Dangerous. Overhead safety depends largely on operator safety!

WARNING

The rated load capacity of the SPEMS, shown on one serial number plate and data plate **MUST NOT** be exceeded under any circumstances, either raising, lowering or holding. Failure to do so may result in severe personal injury.

WARNING

Never climb on the scissors mechanism. Use the platform ladders mounting or dismounting the SPEMS. Failure to do so may result in severe personal injury.

WARNING

Be sure the area around the SPEMS is clear of personnel before operation. Failure to do so may result in severe personal injury. Stop operation of SPEMS immediately if it is not functioning correctly. Failure to do so may result in severe personal injury.

WARNING

Before moving the SPEMS be sure you have an unobstructed view of the travel path. When moving, stay a safe distance from obstacles, hazardous surface conditions, personnel and other equipment. Failure to do so may result in severe personal injury.

WARNING

Be alert for surface condition changes and hazards such as slopes, soft spots, curbs, holes and drop-offs. Avoid those areas. Failure to do so may result in severe personal injury.

2-9. ASSEMBLY AND PREPARATION FOR USE**2-9**

Your DA forms 2258, Depreservation Guide for Vehicles and Equipment Attached to the SPEMS contains the check list of items that must be done for preparation for use. All items on DA form 2258 must be done properly before the SPEMS can be operated.

2-10. INITIAL ADJUSTMENTS AND DAILY CHECKS**2-10**

a. Adjustments. There are no adjustments to be made to the SPEMS.

b. Daily Checks. See Table 2-1, Preventive Maintenance Checks And Services (PMCS) for daily checks to be performed by the operator before operating the SPEMS.

WARNING

Continually demonstrate a positive attitude of safety by avoiding stunt driving, slamming the controls, racing or any other form of horseplay for which the SPEMS is not intended! Failure to do so may result in severe personal injury.

WARNING

Exercise intelligent care, practical common sense and be mentally alert when operating the SPEMS. Failure to do so may result in severe personal injury.

NOTE

All adjustments on the SPEMS are pre-set by the manufacturer and must not be altered under any circumstances.

2-11. OPERATING PROCEDURES-PLATFORM CONTROLS**2-11****WARNING**

Protective safety equipment including hearing protection is required for SPEMS operation. Failure to do so may result in severe personal injury.

a. Starting The Engine.

- (1) Perform your Before (B) PMCS (See Table 2-1).
- (2) Open the fuel tank vent fully (turn counterclockwise).
- (3) Check throttle for full open position.
- (4) Check air cleaner intake shutter for summer position.
- (5) Switch the platform/base switch on the BASE control in PLATFORM position.
- (6) Be sure that the EMERGENCY STOP switches on both the base and platform controls are in the armed position. See Figure 2-10.
- (7) Insert key into start switch and turn to START. Release key when engine starts.

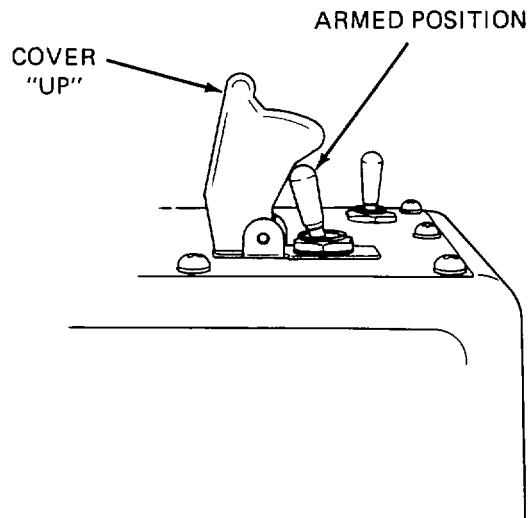


Figure 2-10. Emergency Stop Switch.

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b. Driving The SPEMS.

NOTE

To operate the MODE switches, you must SHIFT them from their stationary positions and HOLD them in their operating mode positions. (This does not apply to the EMERGENCY STOP or HI TORQUE/HI SPEED switches).

- (1) Shift the DRIVE mode switch into the operating position and hold.

WARNING

Never switch modes when the control handle is not in the center, detected position. Failure to do so will result in sudden, unexpected machine movement and may result in serious personal injury or machine damage.

NOTE

You must select a MODE before you can operate the control lever.

- (2) Smoothly and carefully move the control lever in the desired direction.

NOTE

The control lever is a proportional/variable speed control. The farther you move the handle, the faster you'll go.

- (a) Forward to drive forward.
- (b) Backward to drive in reverse.

NOTE

When the platform is in the fully lowered position there is more torque (Drive power) available for negotiating uneven surfaces or driving up ramps.

NOTE

Braking is automatic on the SPEMS. When you shift the control lever into one of the drive modes; forward or reverse, the brakes are released. When you center the control lever, the brakes are activated and the SPEMS will stop.

GO ON TO NEXT PAGE

c. To Operate The Stabilizers.

- (1) Shift the STABILIZER mode switch into the operating position and hold.
- (2) Smoothly and carefully move the control lever in the desired direction.
 - (a) Forward to extend (down) the stabilizers.
 - (b) Backward to retract (up) the stabilizers.

WARNING

Do not operate in LIFT mode unless the stabilizers are extended. Failure to do so may result in severe personal injury.

NOTE

The stabilizers will stop automatically at the end of their travel.

NOTE

Do not drive the SPEMS unless the stabilizers are fully retracted (up).

d. To Lift or Lower The Platform.

WARNING

Do not operate in LIFT mode unless the stabilizers are extended. Failure to do so may result in severe personal injury.

- (1) Shift the LIFT mode switch into the operating position and hold.
- (2) Smoothly and carefully move the control lever in the desired direction.
 - (a) Forward to raise the platform.
 - (b) Backward to lower the platform.

e. To Steer The SPEMS.

- (1) Shift the DRIVE mode switch into the operating position and hold.

GO ON TO NEXT PAGE

- (2) Press the rocker type steering switch on top of the control lever in the direction in which you want to turn.
 - (a) Press to the right to turn to the right.
 - (b) Press to the left to turn to the left.
- (3) Release the rocker switch to keep wheels in the selected position.

f. To Move The Platform.

- (1) Shift the DECK mode switch into the operating position and hold.
- (2) Smoothly and carefully move the control lever in the desired direction.
 - (a) Forward to move the platform forward (if platform is in back position).
 - (b) Backward to move the platform back (if platform is in front position).

g. To Operate The Horn. Shift the HORN switch and hold. The horn will sound until you release the switch.

h. Stopping The Engine.

NOTE

If either a MODE switch or the CONTROL LEVER becomes stuck in the operating position, the SPEMS can be stopped by switching the functioning control Start Switch to the OFF position or by flipping the cover of the Emergency Stop switch down.

- (1) Flip over the cover on the engine EMERGENCY STOP switch. This will stop the engine.
- (2) Turn the key to the STOP position.
- (3) Close the fuel tank vent fully (turn clockwise).
- (4) Perform your After (A) PMCS (See Table 2-1).

END OF TASK

2-12. OPERATING PROCEDURES-BASE CONTROLS**2-12**

WARNING

Protective safety equipment including hearing protection is required when operating the SPEMS. Failure to do so may result in severe personal injury.

NOTE

The base controls are identical to the platform controls except for the PLATFORM/BASE switch, and, instead of a key operated start switch, a spring released toggle type START/RUN/STOP switch.

a. Starting The Engine.

- (1) Perform your Before (B) PMCS (See Table 2-1).
- (2) Open the fuel tank vent fully (turn counterclockwise).
- (3) Check throttle for full idle position.
- (4) Switch the platform/base switch on the BASE control in BASE position.
- (5) Be sure that the EMERGENCY STOP switch on the BASE control is in the armed (up) position. See Figure 2-10.
- (6) Shift the engine switch to the start position and hold until engine starts. Release switch when engine starts. Use choke as required.

NOTE

Allow engine to idle for 15 minutes and then advance throttle to full open. Use choke as required.

- (7) Perform operational check procedures in accordance with para. 3-5b.

b. Stopping The Engine.

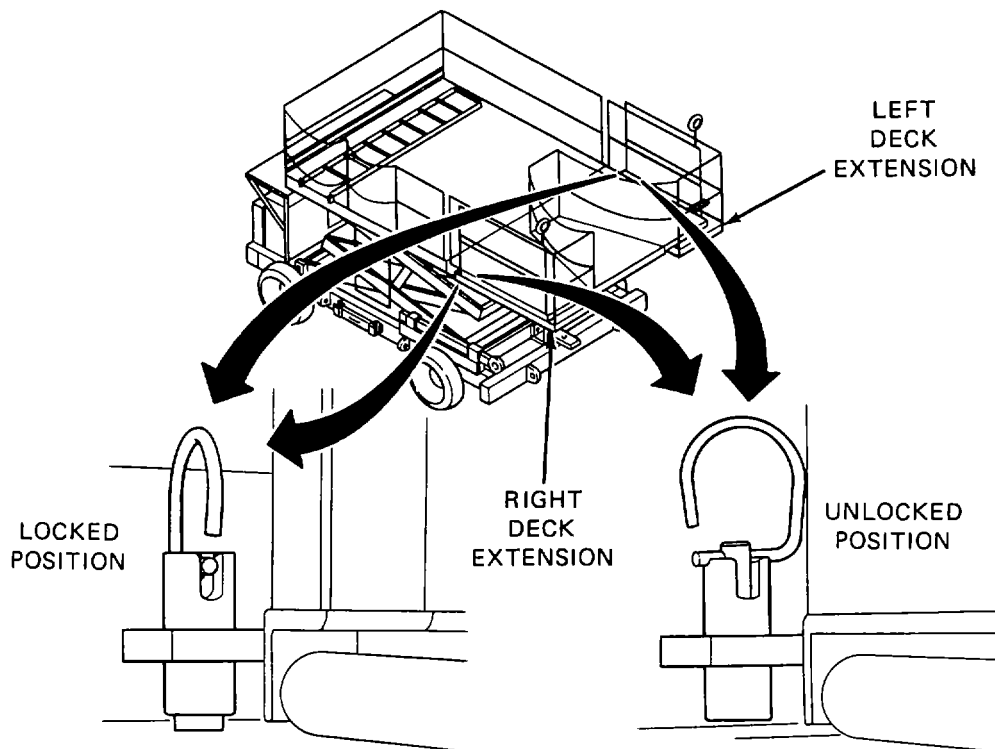
- (1) Flip the cover on the engine START/RUN/STOP switch down. This will stop the engine.
- (2) Close the fuel tank vent fully (turn clockwise).
- (3) Perform your After (A) PMCS (See Table 2-1).

2-13. ADDITIONAL OPERATING PROCEDURES**2-13****a. To Use Deck Extension(s) (Figure 2-11).****(1) To extend deck extension:**

- (a) Detach chains from deck guardrails.
- (b) Pull spring loaded toggle pin up and turn 180° to holding position.
- (c) Slide the deck(s) forward to the end of its travel.
- (d) Reinstall toggle pin in hole in deck.

(2) To retract deck:

- (a) Pull spring loaded toggle pin up and turn 180° to holding position.
- (b) Slide the deck(s) back fully to the end of its travel.
- (c) Reinstall toggle pin in hole in deck.
- (d) Reattach chains to deck guardrails.

**Figure 2-11. Deck Extension Toggle Pin.**

GO ON TO NEXT PAGE

b. Platform Lights.

CAUTION

The plug is keyed to the socket and can be inserted only one way. Be sure to plug-in the lights properly.

- (1) Plug in the lights to turn them on. See Figure 2-12.
- (2) Use handle to turn lights to desired position. See Figure 2-13.
- (3) Loosen thumbscrew and remove light for use as hand light or to relocate on deck extension bracket.
- (4) Unplug lights to turn them off.

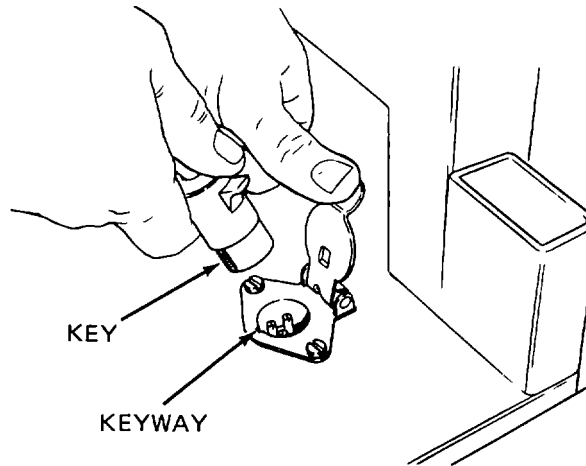


Figure 2-12. Platform Light Connection.

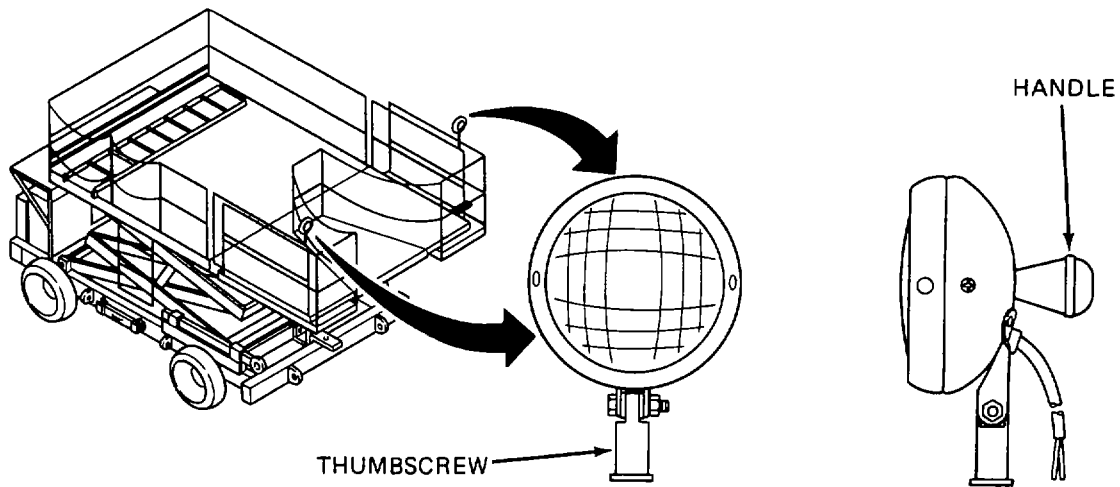


Figure 2-13. Platform Light.

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WARNING

Do not let go of the cables when rewinding. Hold on to the alligator clamps and guide them to the reel. Failure to do so may result in damage to the SPEMS or injury to personnel.

c. Static Discharge Grounding Reel. Pull cables out to desired length. See Figure 2-14. Attach one alligator clamp to an approved grounding point and the other alligator clamp to a good contact point on the equipment you're working on. To rewind cables, disconnect the alligator clamps, pull the cables and allow them to rewind.

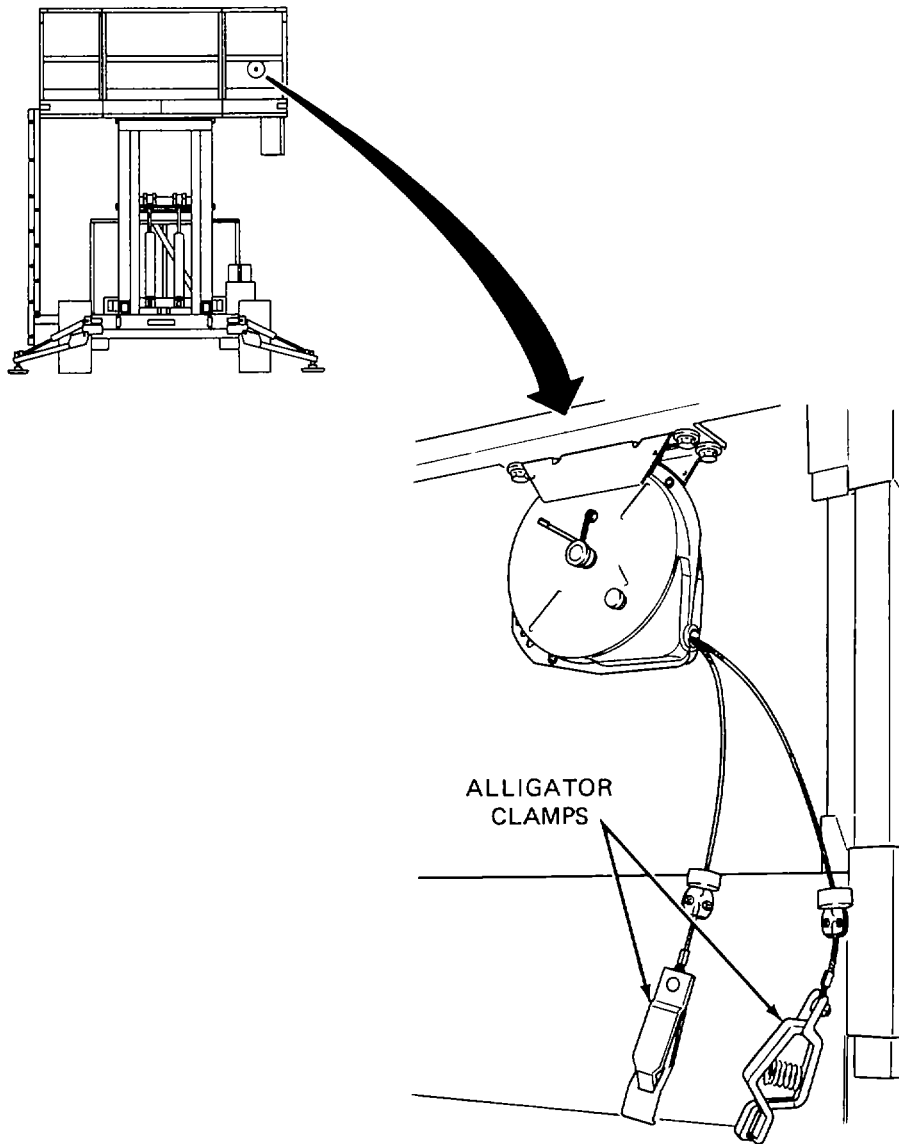


Figure 2-14. Static Discharge Grounding Reel.

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d. Removable Platform Section.

(1) To remove section:

- (a) Disconnect bumper sensing switch wire under the removable section. See Figure 2-15.
- (b) Detach guardrail chains to gain access to the platform section.
- (c) Remove four retaining capscrews, lockwashers and flatwashers. See Figure 2-16.

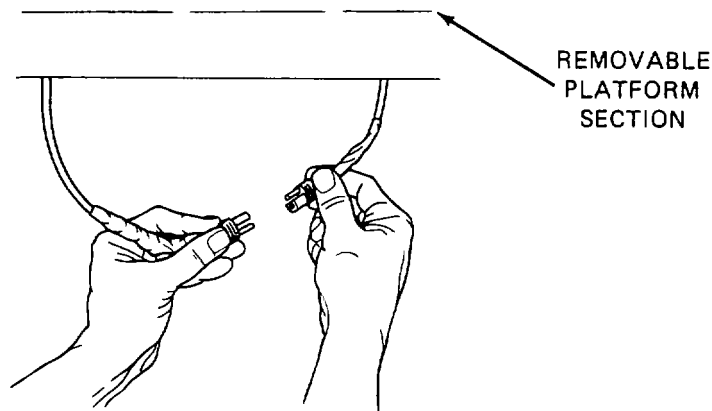


Figure -2-15. Bumper Wire.

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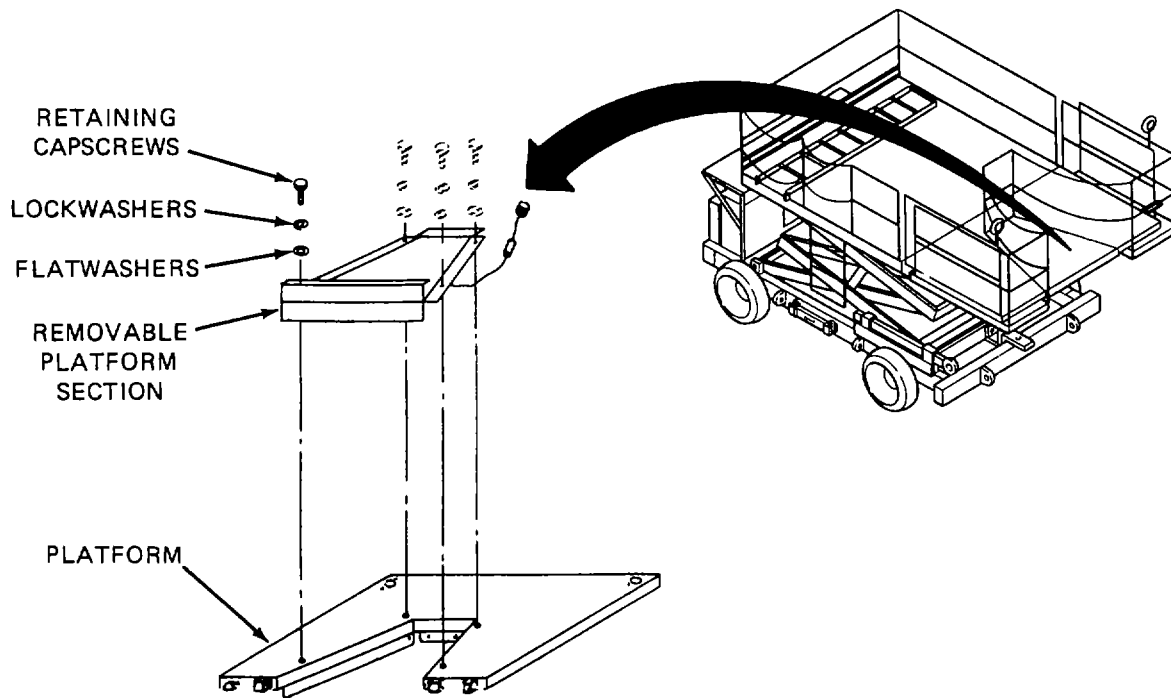


Figure 2-16. Removable Platform Section.

WARNING

Removable platform section weighs 70 lbs. (32 kg). Do not attempt to move it by yourself. Get help to move it. Failure to do so may result in severe personal injury.

- (d) Remove platform section and store in brackets at the rear of the platform. See Figure 2-17.
- (e) Attach guardrail chains.

(2) To install section:

- (a) Detach guardrail chains to gain access to the area.
- (b) Place the platform section in position and align holes. See Figure 2-16.
- (c) Install four retaining capscrews with lockwashers and flatwashers. Tighten screws.
- (d) Attach guardrail chains.
- (e) Connect bumper sensing switch wire. See Figure 2-15.

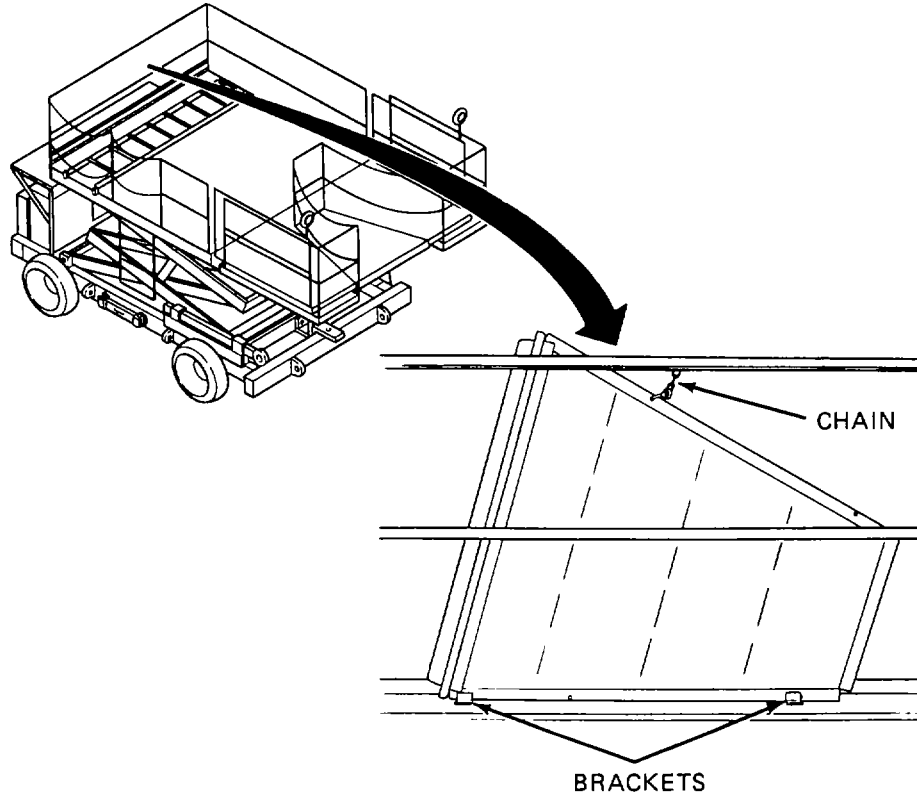


Figure 2-17. Platform Section Storage Brackets.

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e. Guardrails.**NOTE**

The platform guardrails for the SPEMS consist of upper and lower sections for easy removal. In some circumstances, you will have to remove the upper section of guardrails to move the SPEMS under an obstruction.

NOTE

If necessary, remove any chains, lights and control box from the guardrail before removing guardrail.

- (1) Lift the section up to remove.
- (2) Reinstall the section(s) immediately after positioning the SPEMS.

f. Telescoping Platform Ladder.

(1) To deploy ladder:

- (a) Remove lock clip securing support pin. See Figure 2-18.
- (b) Remove support pin and extend ladder support.
- (c) Install support pin and secure with lock clip.
- (d) Disconnect guardrail chains above ladder.
- (e) Remove ladder lock clip. See Figure 2-19.
- (f) Swing ladder over edge of platform and place the bottom rung of the INSIDE section of ladder on the ladder support.
- (g) Remove two ladder quick release locking pins (Figure 2-19) and place the bottom rung of the OUTSIDE ladder section on rollers of ladder support (Figure 2-20). Reinstall the quick release locking pins in the first two holes only.
- (h) Reinstall guardrail chains above ladder.

NOTE

The platform may be raised, lowered and traversed with the ladder in the deployed position.

(2) To store ladder:

- (a) Lower platform fully.

GO ON TO NEXT PAGE

- (b) Detach guardrail chains above ladder.
- (c) Lift OUTSIDE section of ladder and install two ladder quick release locking pins. See Figure 2-19.
- (d) Lift ladder up and swing on platform.
- (e) Align hole in top rung of inside section of ladder with pin on platform. Install lock clip in pin to secure ladder to platform. See Figure 2-20.
- (f) Install guardrail chains above ladder.
- (g) Remove lock clip securing support pin. See Figure 2-18.
- (h) Slide support in to retracted position.
- (i) Install support pin and secure with lock clip.

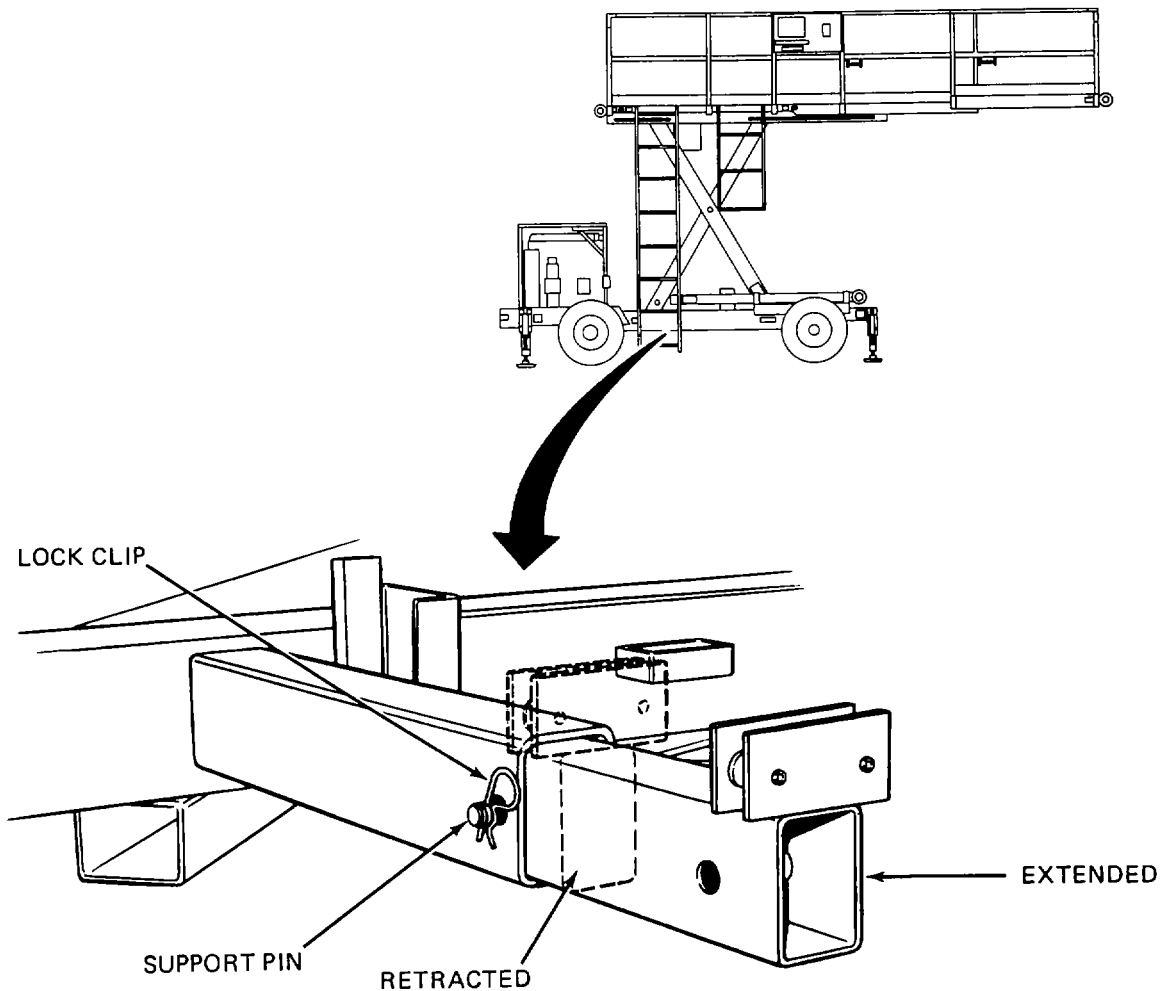


Figure 2-18. Ladder Support.

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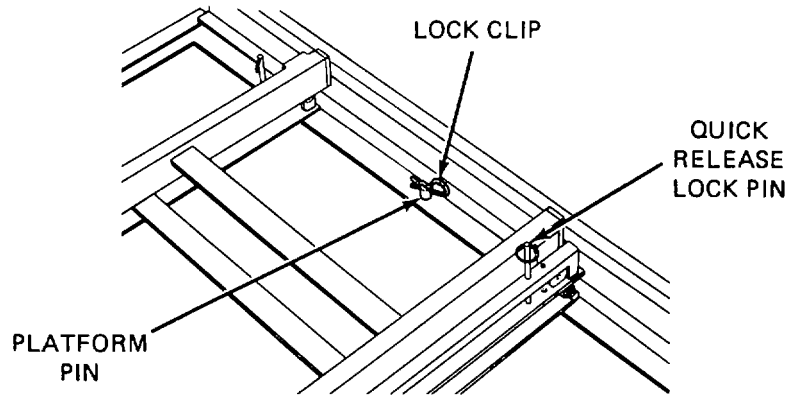


Figure 2-19. Ladder Lock Clip

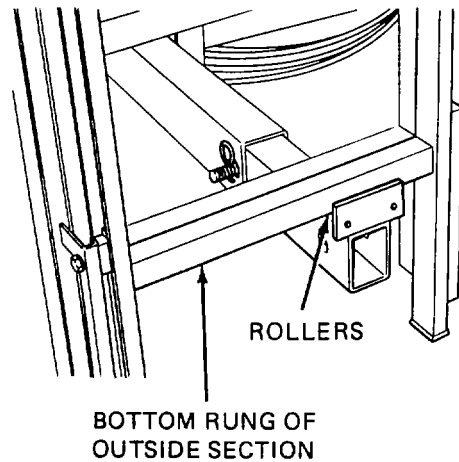


Figure 2-20. Platform Ladder and Support.

g. Service/Inspection Safety Brace.

WARNING

When checking, inspecting, or servicing components with the platform raised, even slightly, the safety brace must be installed for personnel safety. Failure to do so may result in severe personal injury.

WARNING

Do not attempt to hold the scissors open during maintenance, inspection or service work by hydraulic pressure, blocking, or other potentially hazardous means. Failure to do so may result in severe personal injury.

GO ON TO NEXT PAGE

WARNING

Never reach inside or around the scissors framework unless the structure is held open mechanically with the safety brace. Failure to do so may result in severe personal injury.

- (1) The safety brace, when not in use, is stored in brackets on the right hand side of the frame. See Figure 2-21.

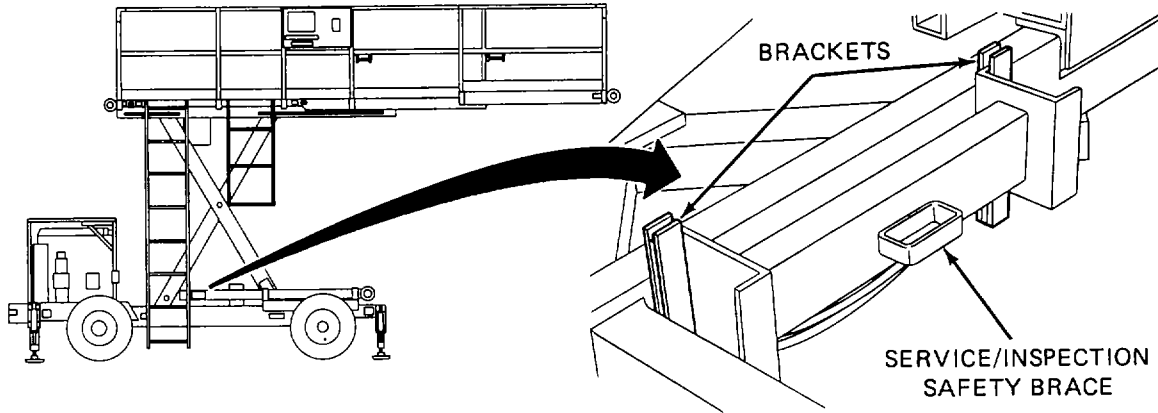


Figure 2-21. Service/Inspection Safety Brace (Stored).

- (2) To install the safety brace, raise the platform sufficiently to install the brace between lower and center crossmembers of inside scissor at rear of SPEMS. Lower the platform to lock the brace in position. See Figure 2-22.

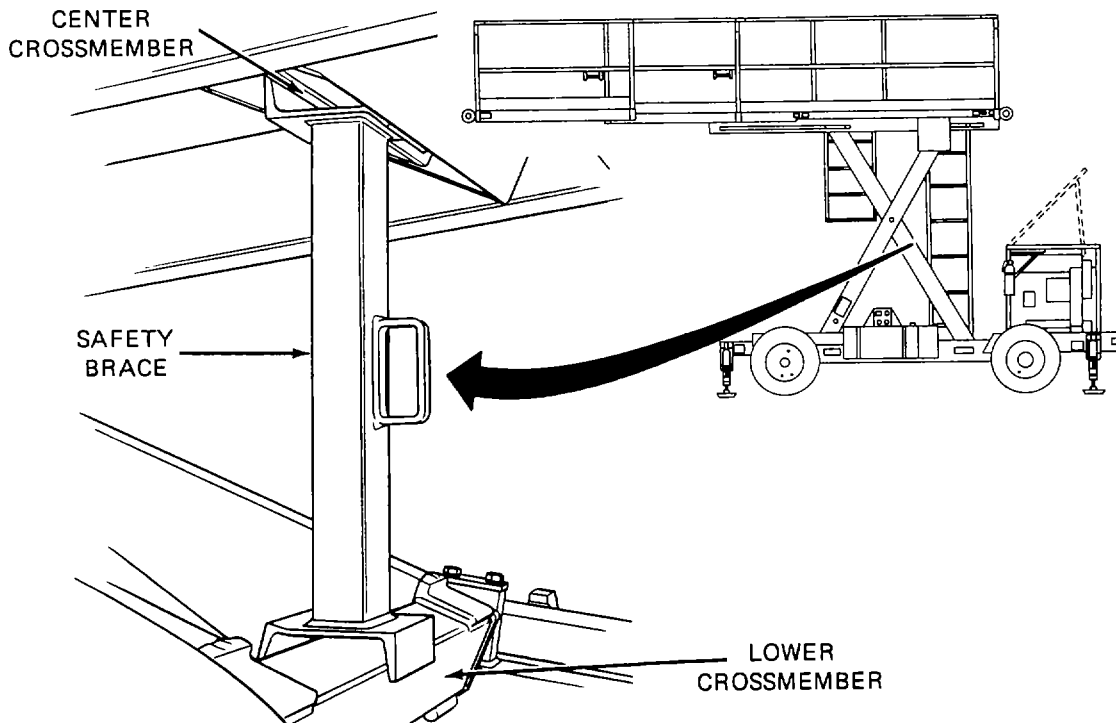


Figure 2-22. Service/Inspection Safety Brace (Installed).

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h. Positioning SPEMS for Aircraft Servicing.

(1) Aft Positioning (Figure 2-23):

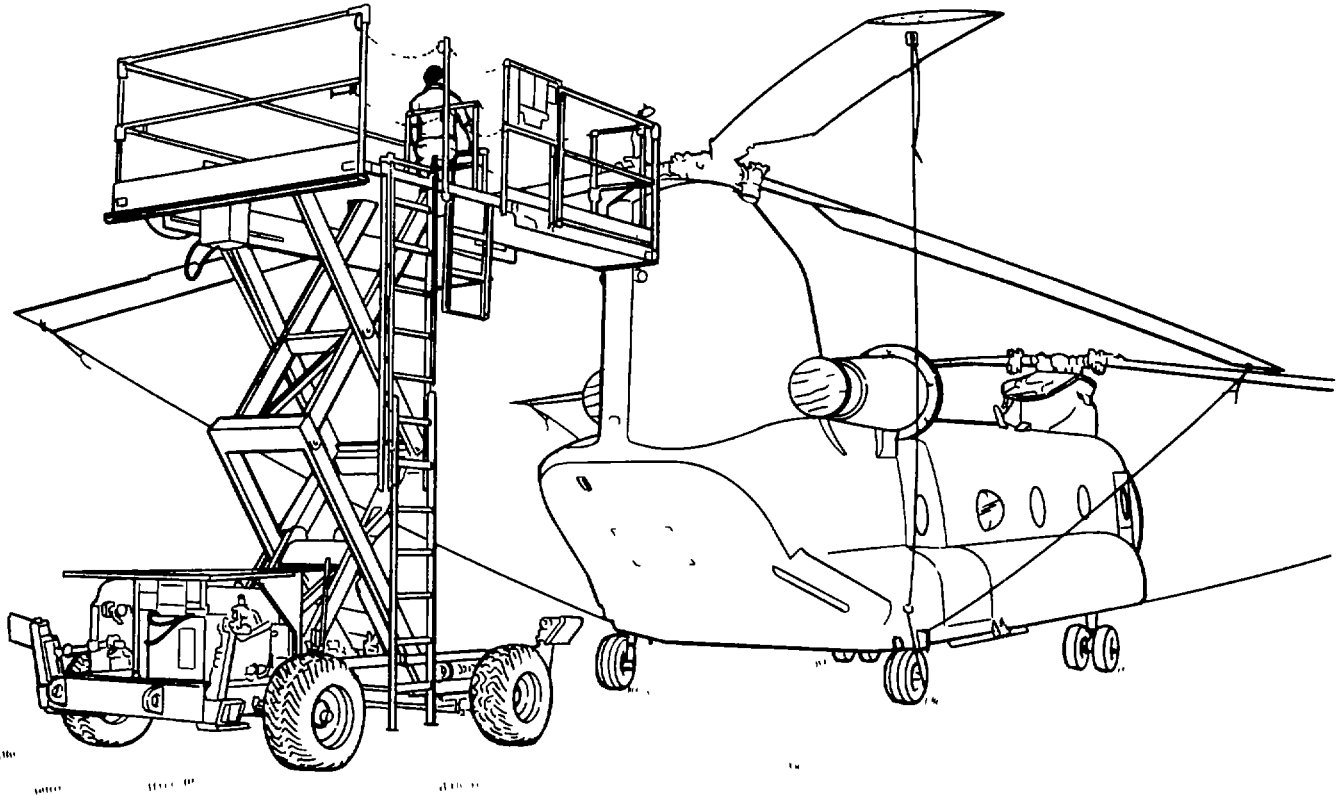


Figure 2-23. Aft Positioning of SPEMS.

WARNING

Attach all safety chains to SPEMS guardrails before operating. Failure to do so may result in severe personal injury.

- (a) Remove deck panel and stow at the rear of the platform.
- (b) While approaching aircraft, center SPEMS platform opening with the aircraft.

CAUTION

DO NOT hit radar antennas or rotors. Rotors may have to be rotated to allow access. If this is not possible, remove the guard rails from the top section of SPEMS.

GO ON TO NEXT PAGE

- (c) Raise the platform to approximately 14.5 feet (4.4 meters). The ladder may be adjusted to the correct height as SPEMS nears the aircraft.
- (d) Align the opening of the elevated SPEMS deck while slowly approaching the aircraft from approximately 10 feet (3 meters) away.

NOTE

For better visibility, the SPEMS platform controller may be moved to the center guard rail position.

- (e) Stop forward drive motion when SPEMS is centered and the platform is 8 to 12 inches (20 to 30 cm) away from the aircraft.
 - (f) Lower Stabilizers.
 - (g) Check vertical alignment to aircraft. Adjust if necessary.
 - h) Traverse platform forward.
 - (i) Shutdown SPEMS.
 - (j) Unhook chains from deck extension guardrails.
 - (k) Extend deck extensions.
- (1) Attach static discharge lines.
 - (2) Backing SPEMS Away From Work Area (Aft Position):
 - (a) Remove tools and materials from deck extensions.
 - (b) Disconnect static discharge lines.
 - (c) Retract both deck extensions
 - (d) Attach chains to guardrails.
 - (e) Start SPEMS and allow to idle for 15 minutes to warm up.

WARNING

Tools and obstructions on or around SPEMS could injure personnel and/or damage equipment.

- (f) Traverse platform back.
- (g) Raise stabilizers.

GO ON TO NEXT PAGE

WARNING

Make sure area behind SPEMS is clear of personnel and obstructions.

(h) Back SPEMS approximately 10 feet (3 meters) away from aircraft.

(i) Lower SPEMS platform.

(3) Forward Positioning (Figure 2-24):

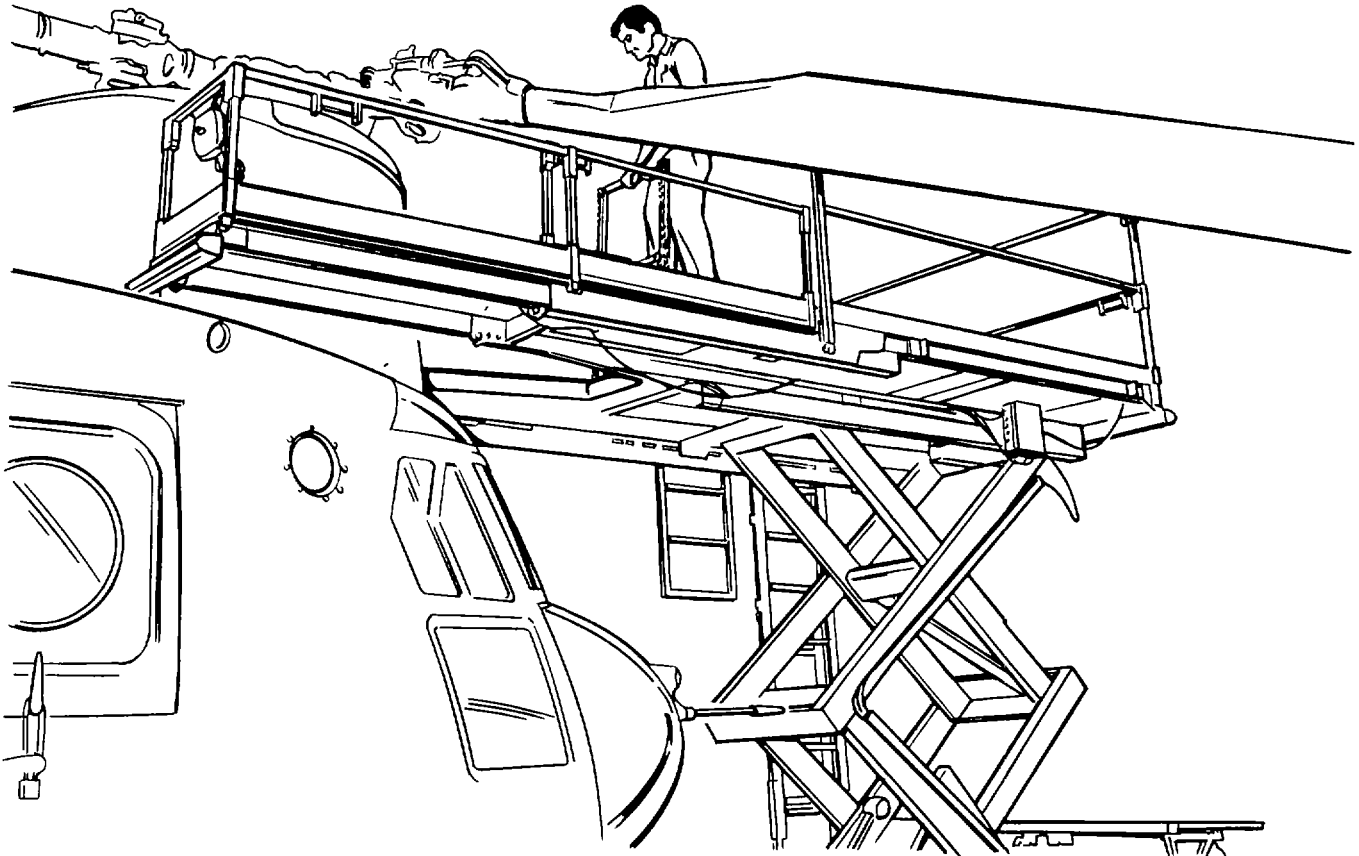


Figure 2-24. Forward Positioning of SPEMS.

WARNING

Attach all guardrail chains to SPEMS before operating to avoid injury to personnel.

CAUTION

DO NOT hit radar antennas or rotors. Rotors may have to be rotated to allow access. If this is not possible, remove the top section of guard rails from the SPEMS.

GO ON TO NEXT PAGE

- (a) While approaching the aircraft, center SPEMS platform with the aircraft.
- (b) Elevate SPEMS to approximately 11 feet (3.4 meters). The platform height may be adjusted approaching the aircraft so platform will clear the fuselage.

CAUTION

It is critical that SPEMS be centered to the aircraft. The total clearance between the deck extension opening and the aircraft is approximately two inches (5 cm). Failure to do so will result in extensive aircraft damage.

- (c) Unhook guardrail chains and remove top section of extendable deck guardrails only.

NOTE

The top section of the deck extension guardrails cannot be removed or reinstalled to clear the rotor if the platform is closer than four inches (10 cm) to aircraft.

- (d) Slowly drive forward keeping SPEMS centered with the aircraft. Stop forward motion 8 to 12 inches (20 to 30 cm) from the aircraft.
- (e) Traverse deck to four inches (10 cm) of aircraft forward crown.
- (f) Lower stabilizers.
- (g) Shutdown SPEMS.

CAUTION

Push deck extensions slowly. The height of SPEMS platform is critical. Take care to prevent grounding of SPEMS extensions on the aircraft.

- (h) Extend deck extensions.
- (i) Attach static discharge lines.

GO ON TO NEXT PAGE

(4) Backing SPEMS Away From Work Area (Forward Position):

- (a) Remove tools and materials from deck extensions.
- (b) Detach static discharge lines.
- (c) Retract both deck extensions.
- (d) Start SPEMS and allow to idle for 15 minutes to warm up.
- (e) Traverse deck back.
- (f) Raise stabilizers.

WARNING

Tools and obstructions on or around SPEMS could injure personnel and/or damage equipment. Make sure area behind SPEMS is clear of personnel and obstructions.

- (g) Back SPEMS approximately 10 feet (3 meters) away from aircraft.
- (h) Attach top section of guardrails on deck extensions.
- (i) Lower platform.

2-14. PREPARATION FOR MOVEMENT

2-14

a. Towing.

WARNING

Improper towing of the SPEMS can result in conditions which may be hazardous to personnel. To prevent hazards to personnel and equipment, the following towing procedures must be followed.

CAUTION

If the SPEMS is towed improperly, extensive damage can result.

WARNING

Never use a lift (fork) truck to position the SPEMS. Extensive damage can result.

GO ON TO NEXT PAGE

CAUTION

If you use the SPEMS for towing or pushing another vehicle, extensive damage to the drive train can result.

- (1) Lower platform fully and remove all tools and equipment.
- (2) Remove tow bar from its stored position in the base brackets. See Figure 2-25.

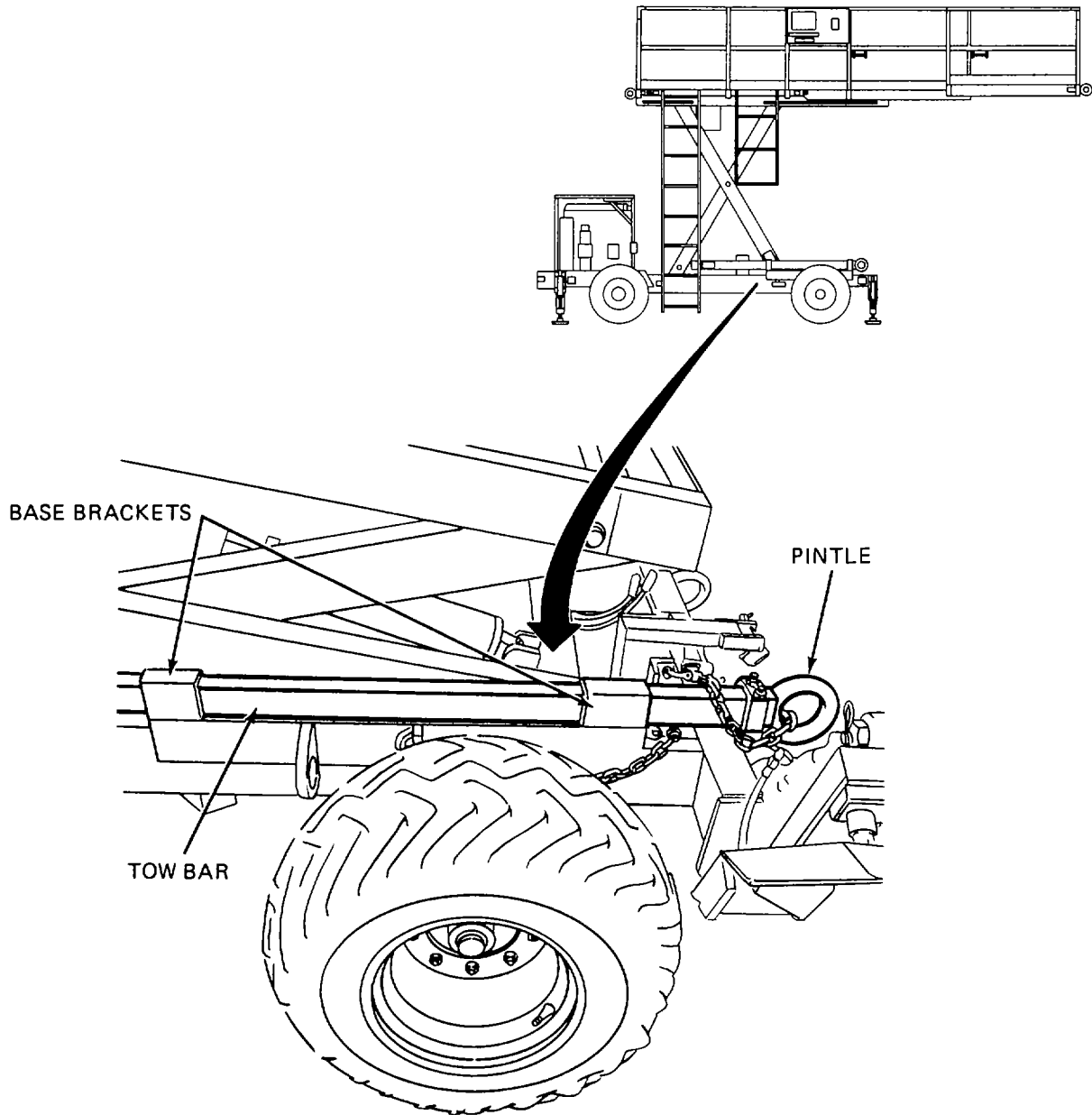


Figure 2-25. Tow Bar (Stored).

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- (3) Install tow bar at the link in the front of the SPEMS frame using tow bar pin. Lock pin in position with clip. See Figure 2-26.

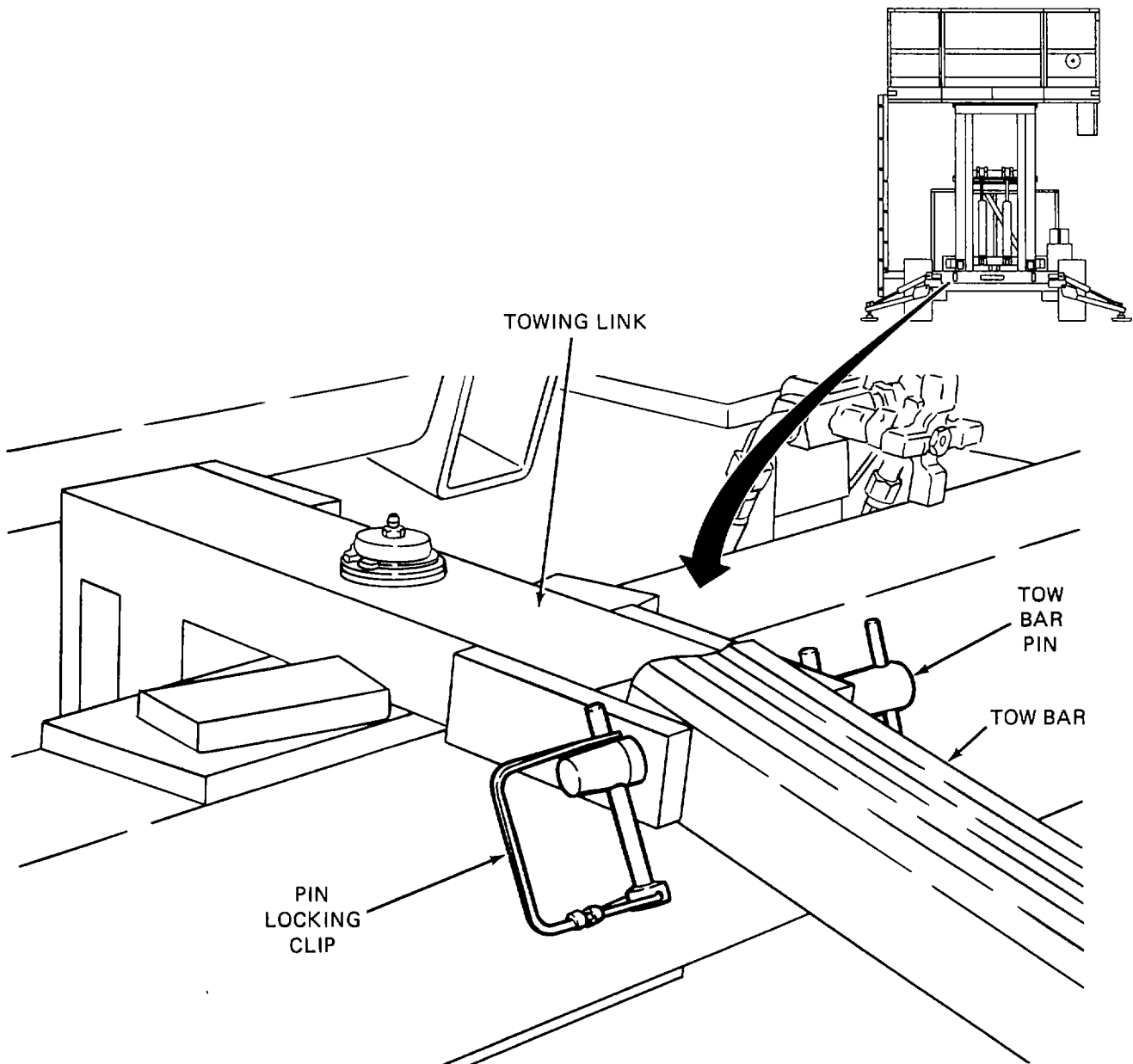


Figure 2-26. Tow Bar (Installed).

- (4) Install pintle on hitch of towing vehicle.
 (5) Attach safety chains to towing vehicle.

CAUTION

Both drive wheel hubs must be in the free-wheeling position before the SPEMS can be towed or extensive drive train damage will result.

GO ON TO NEXT PAGE

- (6) Disengage the left rear drive wheel hub so it is in the free-wheel mode.
 - (a) Remove red protective cap. This will expose the handle of the lock-out mechanism. See Figure 2-27.
 - (b) Turn handle to the right (clockwise) 5-6 times until you feel firm resistance. The hub is now in the disengaged (lock-out) position. Rock wheel forward and aft to ensure that the wheel is fully disengaged.
 - (c) Reinstall the red protective cap.
 - (d) Do steps a, b, and c for the right rear drive wheel hub.

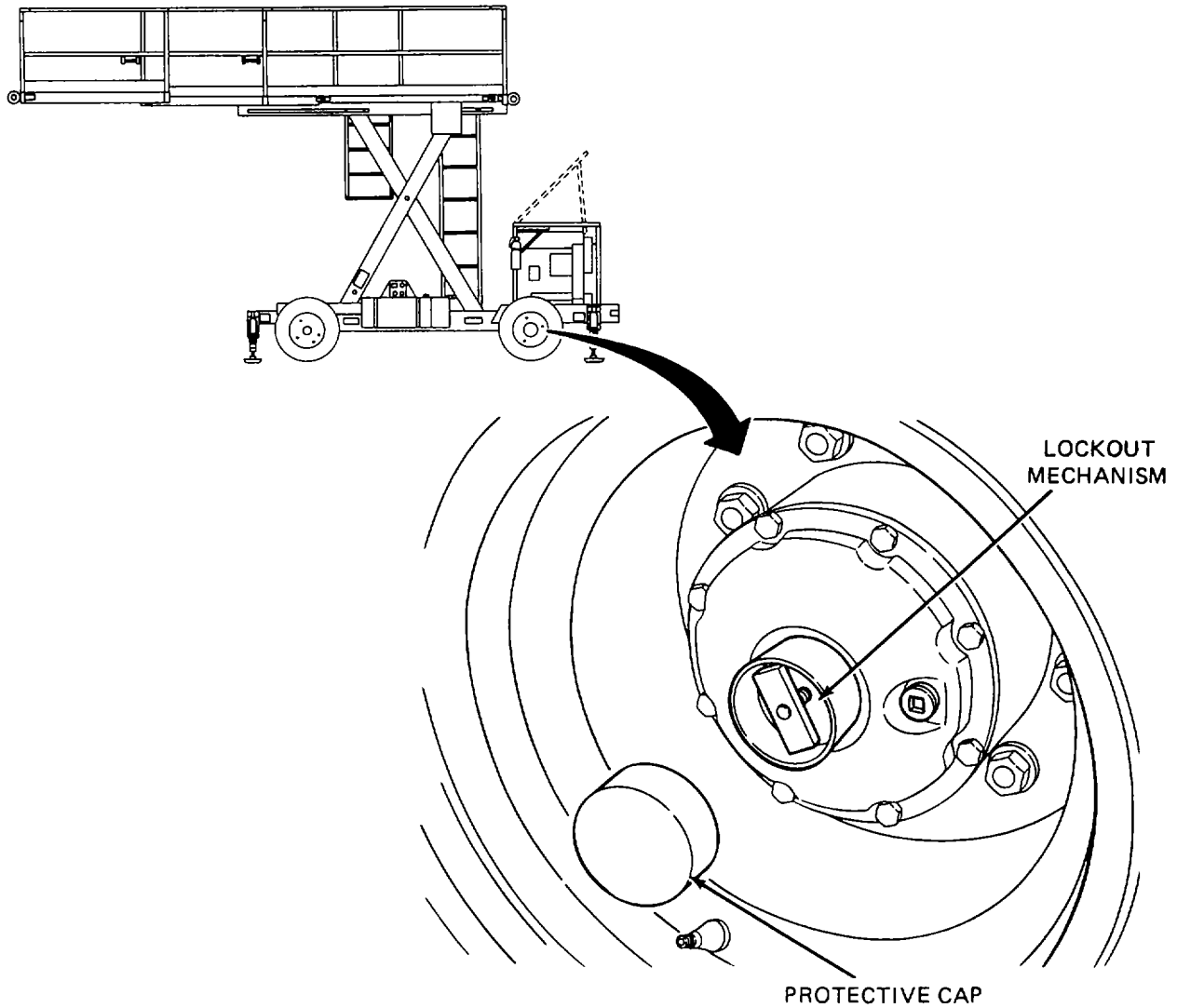


Figure 2-27. Drive Wheel Hub.

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Be sure no personnel are allowed on the SPEMS platform or frame, while towing or serious injury may result.

- (7) Turn steering bypass valve handle (located on the front frame) fully counterclockwise to neutralize the steering cylinder. See Figure 2-28.

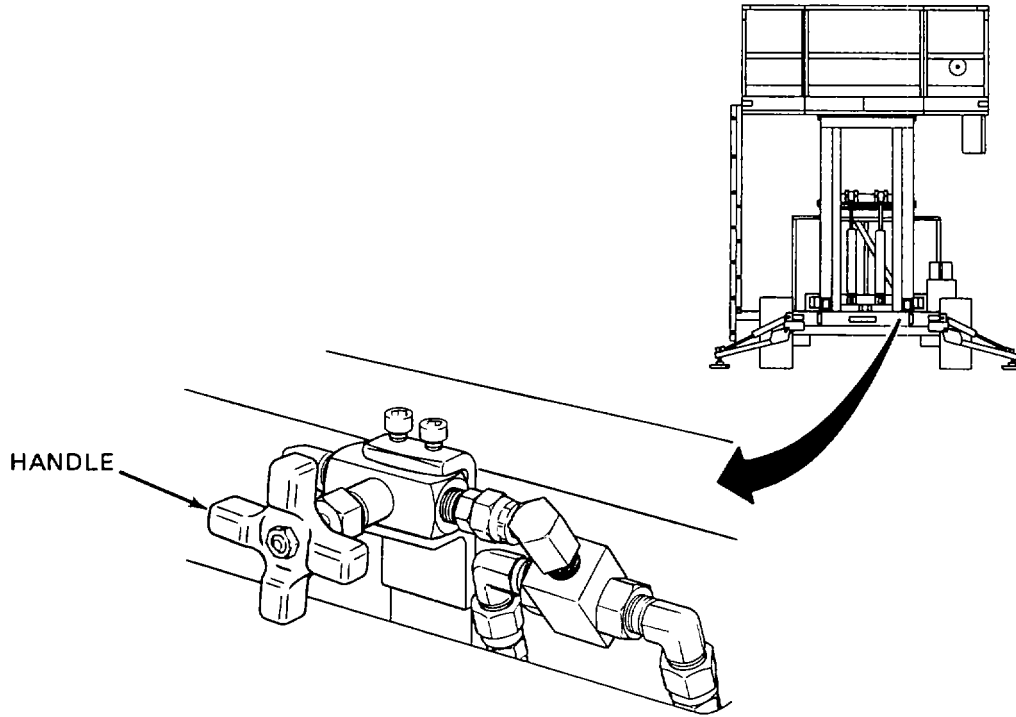


Figure 2-28. Steering Bypass Valve.

CAUTION

Towing speed must never exceed 20 MPH (32 Km/hr). Extensive damage will result to the SPEMS.

CAUTION

Be sure towing travel surface is hard, firm, and free of dips, depressions and slopes.

- (8) Tow SPEMS slowly and carefully to site.

NOTE

If the SPEMS has to be moved long distances it should be hauled on a suitable flatbed vehicle.

GO ON TO NEXT PAGE

b. After Towing.

- (1) Re-engage the left rear drive wheel hub.
 - (a) Remove the red protective cap.
 - (b) Turn the handle of the lock-out mechanism to the left (counterclockwise) fully until you feel firm resistance. Rock the wheel forward and aft until a click is heard.
 - (c) Reinstall the red protective cap.
 - (d) Do steps a, b, and c for the right rear drive wheel hub.
- (2) Remove the tow bar (Figure 2-26) and store in brackets on frame. See Figure 2-25.
- (3) Turn the steering bypass valve fully clockwise. See Figure 2-28.

c. Preparation For Movement By Flatbed Or Air Transport.**NOTE**

If SPEMS is shipped by rail, inflate all tires to 55 psi (380 kPa).

NOTE

Reference to box in this procedure is intended to mean weather resistant corrugated box. Reference to corrugated material is intended to mean weather resistant corrugated material.

- (1) Review Final Inspection Report to be sure all items are signed off.
- (2) Check Serial Plate (see para 2-16) to be sure serial number corresponds with the paper work.
- (3) Disconnect and remove two spot work lights (1, Figure 2-29) located on platform guardrails and place in space parts box.
- (4) Remove one platform guardrail (2) positioned to the right of fixed access ladder. Wrap four corners with protective material. Lay on platform deck at front putting two pieces of 2 x 4 approximately 90" (230 cm) long under guardrail, one piece at each end. Position 2 x 4 left to right with the width of the platform
- (5) Remove two end guardrail pieces (3) (23 1/2" x 42" (1.5 m x 2.2 m) and wrap four corners with protective material. Lay on each side of platform guardrail in Step 4.

GO ON TO NEXT PAGE

- (6) Remove two single post with chains (4) that are located left of platform fixed access ladder. Wrap each end with protective material and place beside the two guardrails listed in Step 5. Slide the pockets over ends of guardrails to prevent them from moving.
- (7) Remove two extendable deck side guardrails (5) (60" x 44" (150 x 112 cm)), wrap four corners with protective material, and lay left to right as shown on middle of platform.
- (8) Remove center guardrail (6) (22" x 47" (55 x 120 cm)) and lay between two guardrails in Step 7 on top of two pieces of 2 x 4 wood 23" (58 cm)) long one piece at each end. Position wood front to rear.
- (9) Remove two inside front guardrails (7) (42 1/2" x 58" (108 cm x 147 cm)), wrap four corners with the protective material, and lay on top of guardrails in Step 7.
- (10) Remove two piece left rear guardrail (8) (47 1/2" x 97" (120 cm x 246 cm)) and wrap with protective material at points where contact with (47 1/2" x 97" (120 cm x 246 cm)) guardrails will be made. Lay these guardrails atop the other two as shown.
- (11) Remove rear kickplate (9) and wrap both ends with protective material. With face opening downward, secure to kickplate in Step 10.
- (12) Remove two single rear end rails (10) and wrap both pieces together with protective material in shape of an "I". Lay guardrails between the guardrail in Step 10, on deck.
- (13) Place two pieces of 2 x 4 (11) approximately 60" (152 cm) long across guardrails at rear of stack, left to right.
- (14) Place one 2 x 4 (12) approximately 48" (122 cm) long on top of stacked guardrails in front. Place a second 2 x 4 approximately 96" (244 cm) long on top of the first piece. Position the 2 x 4 left to right for metal bands.
- (15) Wrap all loose chains with protective material and tape to guardrails.
- (16) Place two 3/4" steel bands (13) 7'0" (213 cm) long on both sides of platform around two 2 x 4 in Step 4, making a loop from top of stacked guardrails to underside of 2 x 4 on platform.
- (17) Place one 3/4" steel band (14) 18'0" (548 cm) long at front of platform making a loop running the width of the platform around top side of stacked 2 x 4 (Step 13) to bottom side of platform.
- (18) Place two 3/4" steel bands (15) 17'0" (518 cm) at front of platform, making a loop running the width of the platform around top side of 60" (152 cm) long 2 x 4 (Step 13) to bottom side of platform.
- (19) Using nylon filament tape (16), secure scissor spreader (17) in its hanger using two wraps each side.

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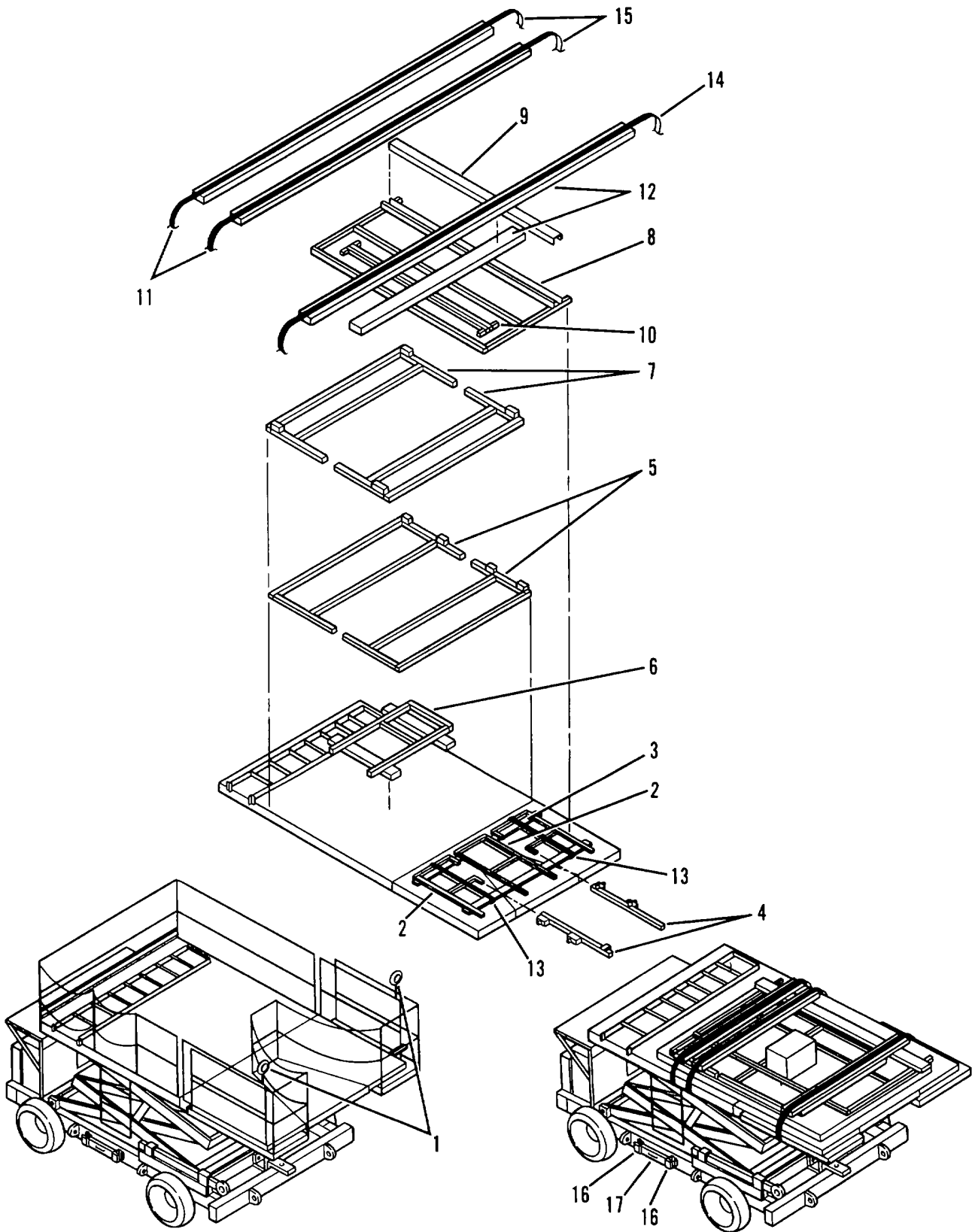


Figure 2-29. Storage for Transport .

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- (20) Place platform controller in weatherproof box and place on deck between the stacked guardrails. Secure to guardrails using nylon filament tape.

NOTE

The weatherproof box is a corrugated box securely wrapped in plastic bag to prevent water damage.

- (21) Using base controller, drive SPEMS onto truck using portable ramp, and position unit in center of truck bed.
- (22) Remove test gasoline tank and install new gas tank with no gas in it. Fog new gas tank with P10 preservative oil.
- (23) Remove test battery and secure battery cables. Reinstall and secure battery cover.
- (24) Check brakes and make sure they are in locked position, and then place wheel chocks in front of two front tires and behind the two rear tires.
- (25) Remove all spark plugs, fog engine cylinders with P10 preservative oil, and reinstall spark plugs.

NOTE

If SPEMS is shipped by rail, inflate all tires to 55 psi (380 kPa).

- (26) Chain SPEMS unit down and cover entire unit with tarp to protect from water damage.

d. Preparation For Sling Load Movement By Helicopter.

- (1) Stow the guardrails (See Para 2-12c).
- (2) Fasten the chains to the lifting eyes. See Figure 2-30.
- (3) Arrange the chains so they will be held in place by the chain catches on the sides of the platform.

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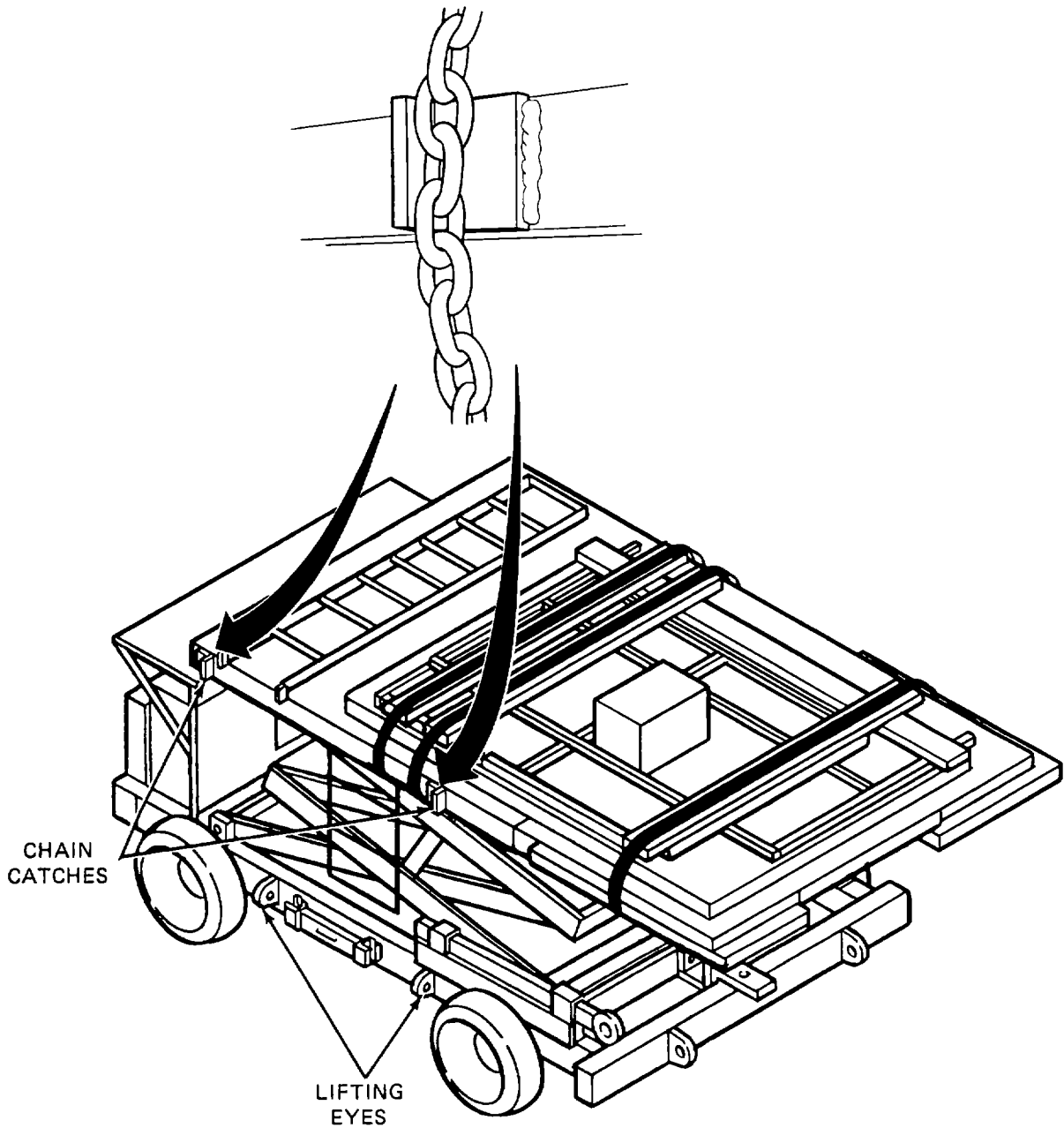


Figure 2-30 . SPEKS Sling Loading .

2-15. DBCALS AND WARNING PLATES

2-15

The following (Figures 2-31, 32, 33 and 34) are the decals and warning plates found on the SPEMS.

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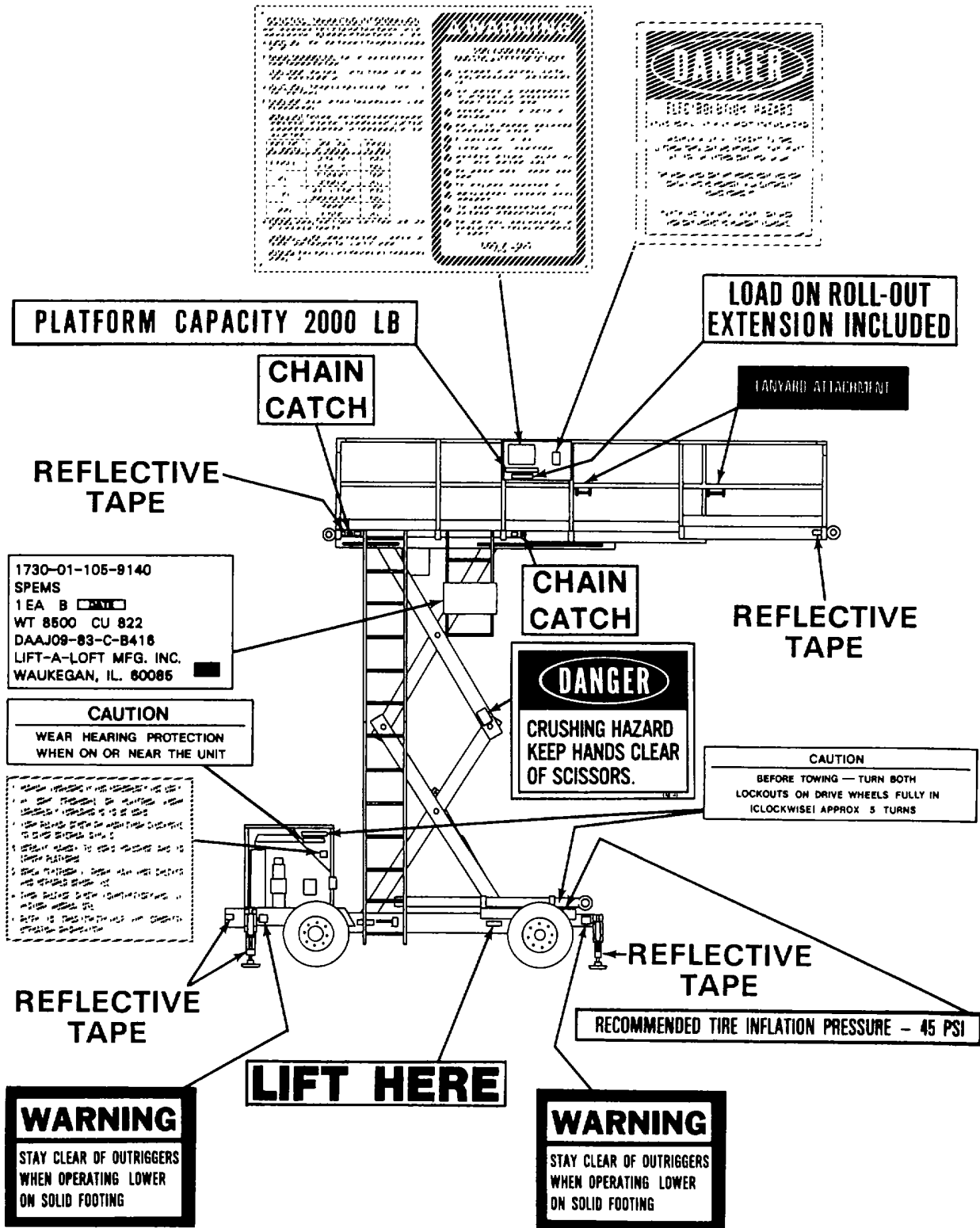


Figure 2-31 . Decals and Warning Plates (Right Side) .

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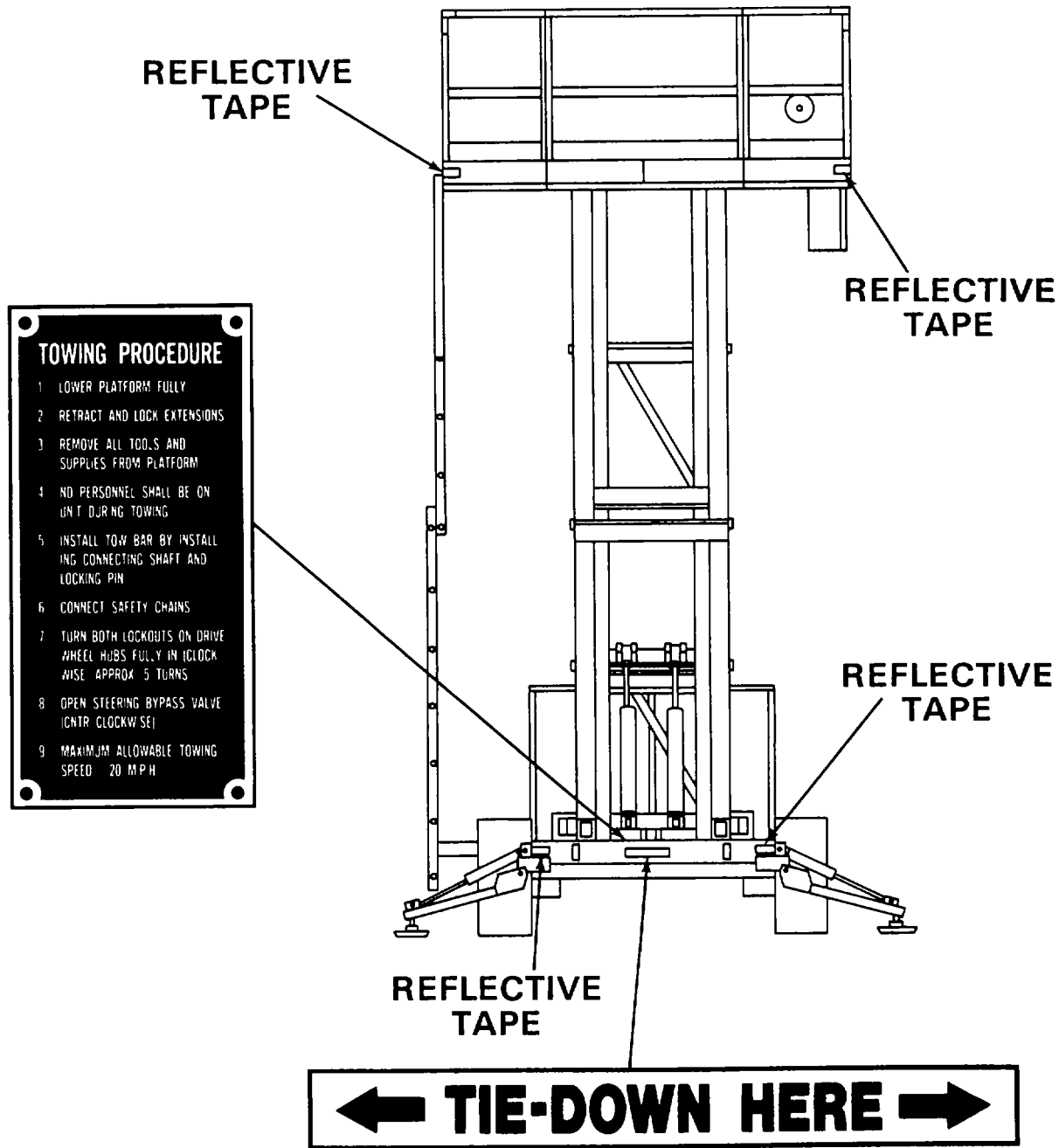


Figure 2-32. Decals and Warning Plates (Front) .

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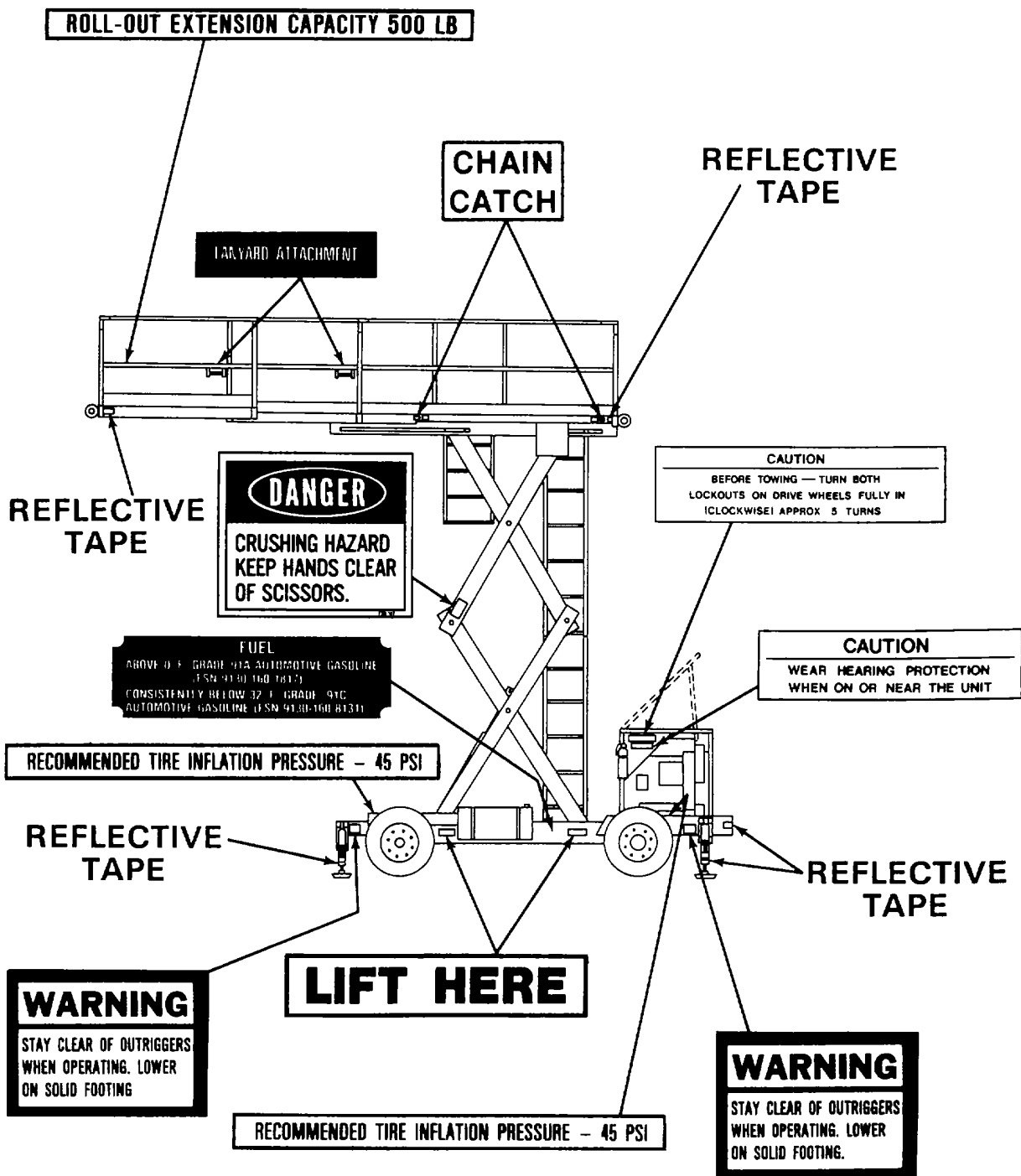


Figure 2-33 . Decals and Warning Plates (Left Side) .

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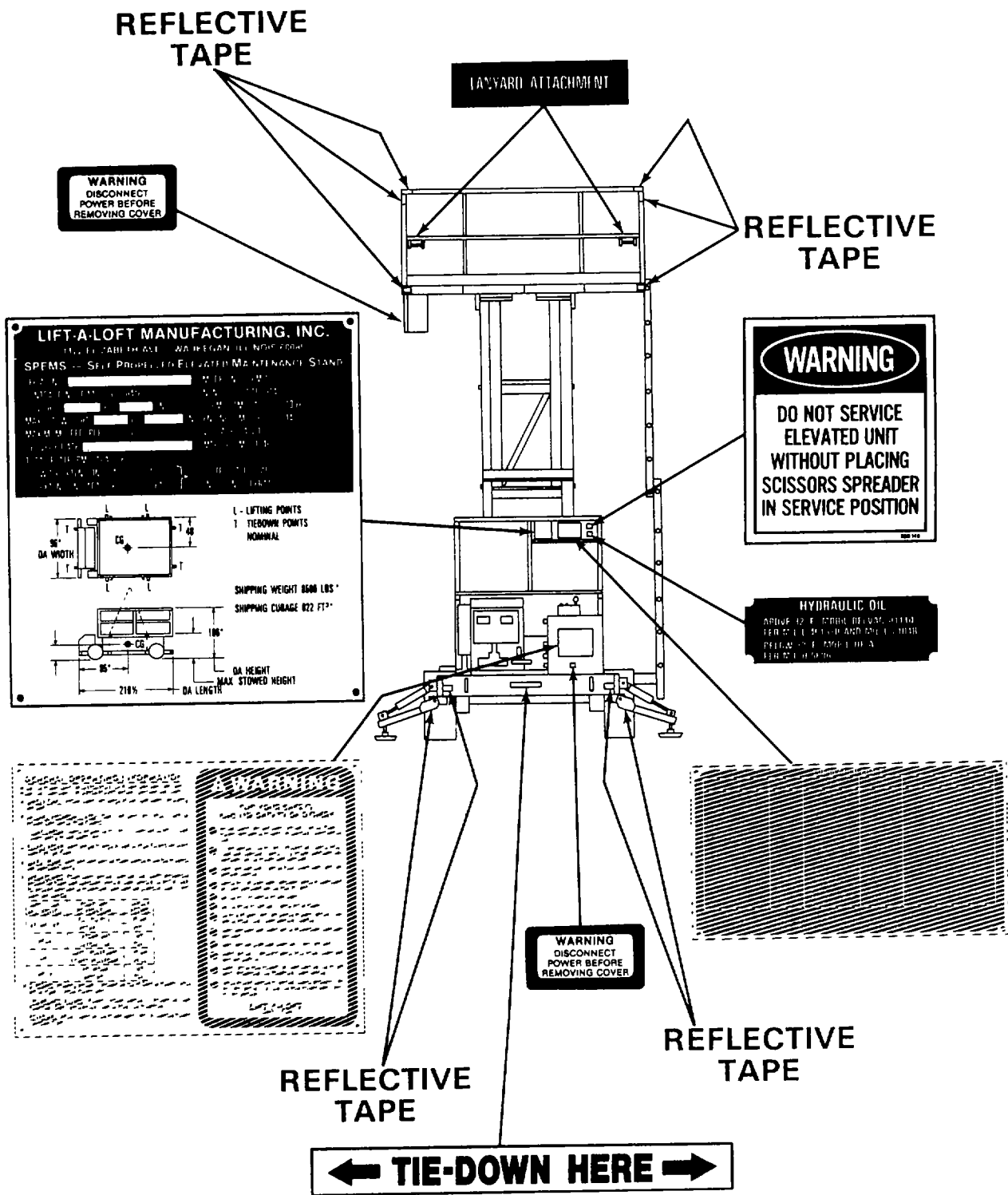


Figure 2-34. Decals and Warning Plates (Rear) .

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Section IV. OPERATION UNDER UNUSUAL CONDITIONS

2-16. OPERATION IN UNUSUAL WEATHER AND T IN.

2-16

- a. Operation In Extreme Moist Heat.
- (1) Check oil levels in engine and reservoir more frequently.
 - (2) Be sure engine cooling fan is clean and unobstructed.
 - (3) Maintain proper pressure in tires (45 psi 310 kPa).
 - (4) Keep hydraulic cylinder rods clean and clear of rust.
- b. Operation In Extreme Dry Heat.
- (1) Maintain the proper oil levels.
 - (2) Check engine cooling fan frequently.
 - (3) Be sure cooling fan is clean and unobstructed.
- c. Operation In Extreme Cold.
- (1) You may need to use ether to start the engine in cold weather.
 - (2) At temperatures below 320F (0°C) replace engine oil per L05-2805-259-12.
 - (3) Check air cleaner intake shutter for winter position.
 - (4) Allow engine to warm up until it will run without the aid of the choke.
 - (5) Replace gasoline with grade 91C (NSN 9130-00-160-8131).
 - (6) Allow engine to idle for at least 15 minutes before shutting down.
- d. Jump Starting The Engine In Extreme Cold Weather.

NOTE

The operator should be aware that in extreme cold weather the cranking power of the batteries can be reduced by 50% or more.

NOTE

In extremely cold weather it is advisable to remove the battery from the SPEMS and store in a warm room until needed.

- (1) Connect the red, positive (+) cable to the positive (+) terminal of the 24 VDC starting source first.
- (2) Connect the other end of the positive cable to a positive terminal of the unit battery.

WARNING

Never connect the negative cable to the negative (-) terminal of the weak battery.

- (3) Connect the black, negative (-) cable to the negative terminal of the starting source battery.
- (4) Connect the other end of the negative cable to a good grounding point on the engine block.
- (5) Start the unit engine and allow it to charge at high idle for two minutes.
- (6) Disconnect the negative cable from the engine block and then from the starting source.
- (7) Disconnect the positive cable from the battery and then from the 24 VDC starting source.

e. Operation In Salt Air, Sea Spray.

- (1) Operations in salt air and sea spray can be damaging to the SPEMS because of salt water corrosive effects.
- (2) Be particularly aware of the potential for rust.
- (3) Check twice a day for water in the oil of both engine and hydraulic reservoir.
- (4) Keep cylinder rods clean and clear of rust spots.

f. Operation In Duststorms, Sandstorms.

- (1) In dust or sandstorms you must guard against dust or sand getting into the engine compartment.
- (2) Lubricate and change oil more often (See L05-2805-259-12).
- (3) Clean all filler caps frequently. Be sure to tighten securely.
- (4) Change or clean engine air filter as needed, not according to operating hours.
- (5) Change engine oil filters as needed, not according to operating hours.

- (6) Clean cooling fan frequently.
- (7) Keep hydraulic cylinder rods clean.

CAUTION

Once the SPEMS has been removed from the dusty, sandy environment, it must be thoroughly cleaned. Dirt and dust will prevent the transfer of heat to the cooling air.

- (8) Clean engine cooling fins (See TM5-2805-259-14).
- (9) Change hydraulic system filters as needed, not according to operating hours.

g. Operation At High Altitude.

- (1) Be aware that at high altitudes the SPEMS may operate more slowly because the engine has a reduced air intake causing a corresponding reduction in available horsepower.
- (2) The engine will be more likely to overheat at high altitudes. Be sure to idle for a sufficient time (at least 15 minutes)to cool off, after a work period.

h. Operation In Snow or Mud.

- (1) Keep the SPEMS clean and free of accumulations of snow or mud.
- (2) Be sure cooling fan is clean and unobstructed.
- (3) Be sure engine cooling fins are clean and unobstructed.

2-17. EMERGENCY PROCEDURES.

2-17

Lowering Platform Manually With Emergency Hand Pump.

NOTE

The hand pump is used to lower the platform in circumstances where the platform has been raised and the normal controls do not function to lower it.

NOTE

The hand pump cannot be used to raise the platform or to raise or lower stabilizers.

- a. Turn the release screw fully clockwise. See Figure 2-35.
- b. Operate handle of pump (pull until stop, push until stop) until the platform begins to come down and then stop pumping.

NOTE

It may be necessary to operate the hand pump several times to fully lower the platform.

- c. When the platform is completely lowered, turn the release screw counterclockwise two complete turns ONLY.

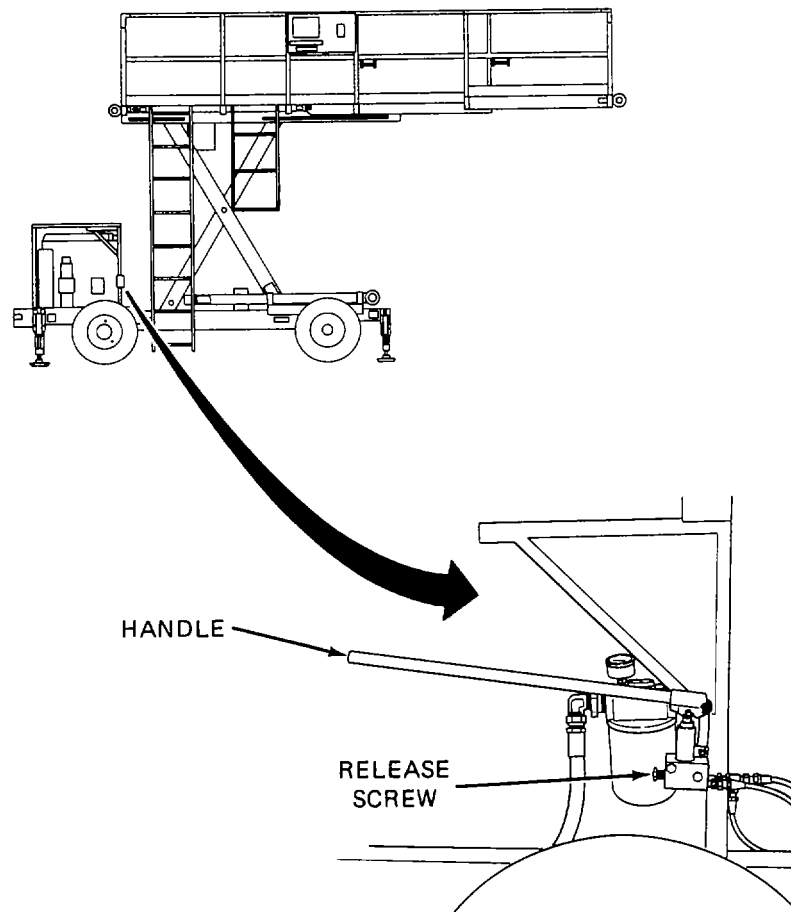


Figure 2-35. Emergency Hand Pump.

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CHAPTER 3**ORGANIZATIONAL MAINTENANCE INSTRUCTIONS**

This chapter contains maintenance procedures for Organizational Maintenance personnel.

**Section I. REPAIR PARTS, SPECIAL TOOLS,
TMDE AND SUPPORT EQUIPMENT**

3-1. COMMON TOOLS AND EQUIPMENT**3-1**

For authorized common tools and equipment refer to the Modified Table of Organization and Equipment (MTOE) applicable to your SPEMS.

3-2. SPECIAL TOOLS**3-2**

No special tools are required for maintenance of the SPEMS.

3-3. SPARES AND REPAIR PARTS**3-3**

Spares and repair parts are listed and illustrated in the Repair Parts and Special Tools List (RPSTL, Appendix C) covering Organizational Maintenance for the SPEMS.

Section II. SERVICE UPO(N RECEIPT

3-4. SERVICE UPON RECEIPT OF MATERIEL**3-4**

- a. Check fluid levels.
 - (1) Engine oil sump.
 - (2) Hydraulic oil reservoir.
 - (3) Battery cells.
- b. Inspect all lubrication points (see para 3-9, Lubrication Chart).

GO ON TO NEXT PAGE

- c. Check all hydraulic lines and couplings for leaks. Tighten couplings and/or connections if necessary.
- d. Check all electrical connections for damage. Be sure all plugs and connectors are connected.
- e. Inspect the SPEMS thoroughly for any signs of damage from shipment. Notify your supervisor if you find any signs of damage.

END OF TASK

3-5. OPERATIONAL TEST

3-5

- a. Start engine:
 - (1) Start engine at base control (see para 2-12).
 - (2) Start engine at platform control (see para 2-11).
- b. After warm-up, operate the SPEMS through the full range of its normal cycle:
 - (1) Drive forward and backward (see para 2-11).
 - (2) Lift and lower platform (see para 2-11).
 - (3) Extend and retract stabilizers (see para 2-11).
 - (4) Move platform forward and backward (see para 2-11).
 - (5) Lift platform and drive forward and backward.
- c. Turn the engine OFF when the platform is lifted and platform is moved forward. Use the emergency platform lowering system to lower the platform (see para 2-17).
- d. During the operational test cycle, observe the SPEMS carefully. Notify your supervisor if the SPEMS operates in any way you feel is incorrect. For example, if you can drive the SPEMS at top speed while the deck is raised, something is wrong.

END OF TASK

Section III. LUBRICATION

3-6. LUBRICATION INSTRUCTIONS**3-6**

a. General Information. Regular lubrication and service of the SPEMS at prescribed intervals is an essential element of a preventive maintenance program.

WARNING

Neglected or delayed lubrication and service can cause excessive wear on components and machine members, and can compromise SPEMS safety and reliability.

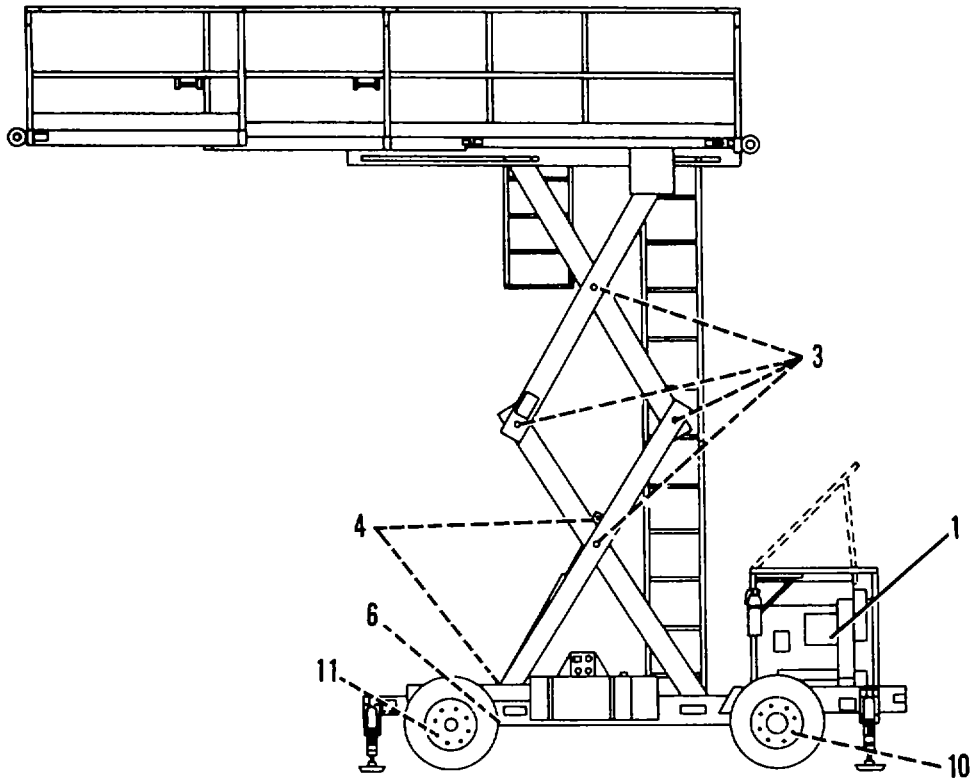
b. Lubrication/Service Interval. Table 3-1 helps to identify the areas and components which require lubrication; and indicates the frequency of service in typical SPEMS use.

- (1) Actual SPEMS usage, environmental conditions, and other factors will tend to alter the actual service and lubrication interval. The information provided in the Lubrication and Service Chart should be considered the MAXIMUM time between lubrication and service activities.
- (2) The lubrication interval information is expressed in both Hours and Months.
- (3) After cleaning the SPEMS with steam process, solvents, or similar methods, the SPEMS must be re-lubricated to maintain safety and performance standards. Re-lubrication before use is also required if the SPEMS has not been used for one month or more.
- (4) After any lubrication or service activity, and before the SPEMS is returned to service, it must be given the before operation inspection (see para 2-5, PMCS), and the lubrication and service performed should be entered on Form 2404 and the Maintenance Record.

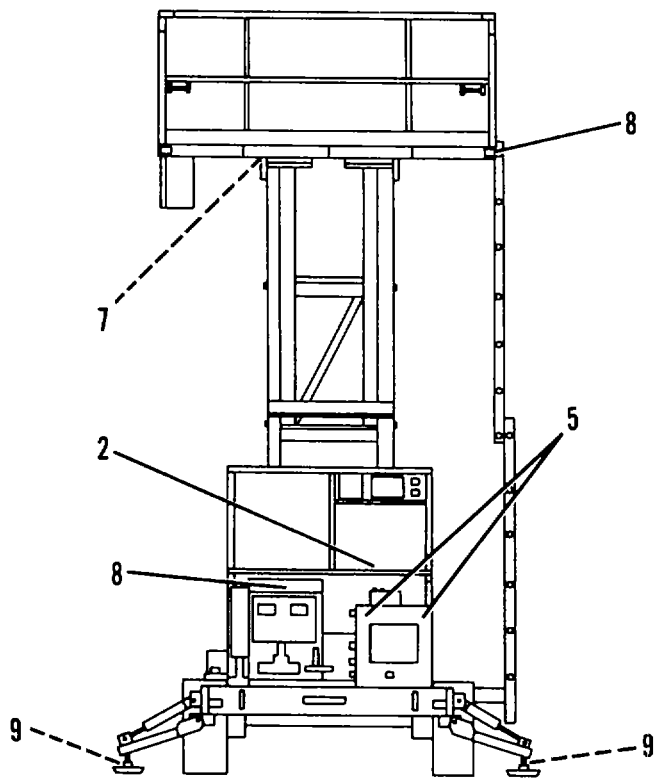
WARNING

Lubricate the SPEMS at specified intervals and after cleaning or after a period of long-term storage. Proper Lubrication Is Essential For Safety!

GO ON TO NEXT PAGE



LEFT SIDE VIEW



REAR VIEW

Figure 3-1. SPEMS Lubrication Points .

GO ON TO NEXT PAGE

c. Lubrication/Service Points. Use Figure 3-1, SPEMS Lubrication Points, to identify the general area. Item numbers on Figure 3-1 correspond to the item numbers in Table 3-1, Lubrication and Service.

CAUTION

Clean fittings before lubricating with a clean cloth. Clean parts with dry cleaning solvent (SD), type II or equivalent. Dry before lubricating. Dotted leader lines on Figure 3-1 indicate that lubrication is required on both sides of the SPEMS.

Table 3-1. Lubrication and Service

ITEM	PROCEDURE	INTERVAL
1 Engine Oil	Check oil level and add as needed. See TM5-2805-259-14.	8 hours or Daily
2 Hydraulic Oil	<p>a. Check level of fluid in reservoir at rear of frame by removing filler/breather cap. Fluid should be within 1-2 inches of top of reservoir cover.</p> <p>b. Add oil OE/HDO-15/40 for temperatures 32°F to 120°F (0°C to 49°C) or OE/HDO-10 for temperatures -25°F to 32°F (-32°C to 0°C) per specification MIL-L-46152 as required to bring to proper level.</p>	8 hours or Daily

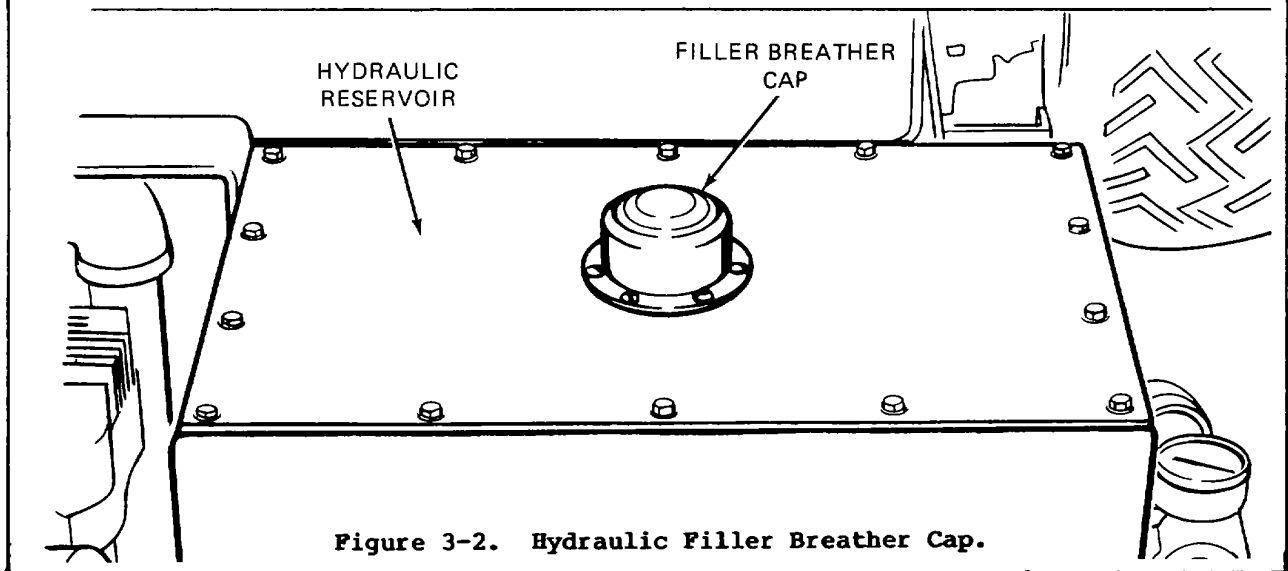


Figure 3-2. Hydraulic Filler Breather Cap.

GO ON TO NEXT PAGE

Figure 3-2. Hydraulic Filler Breather Cap.

Table 3-1. Lubrication and Service, Continued.

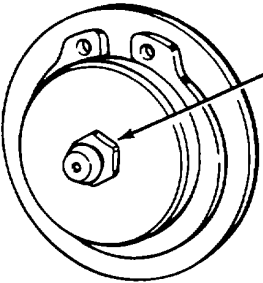
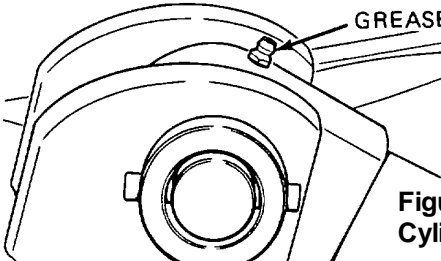
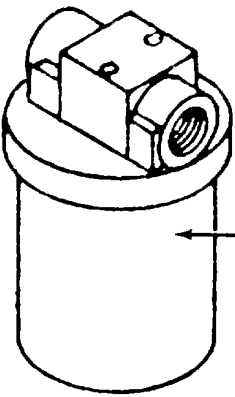
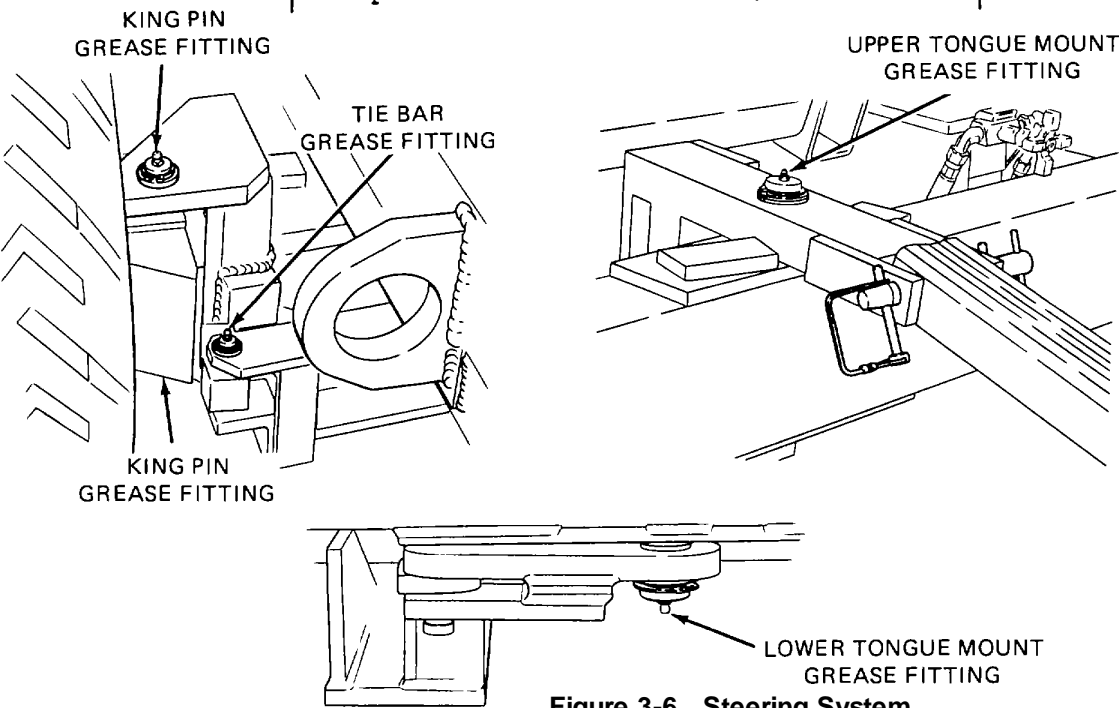
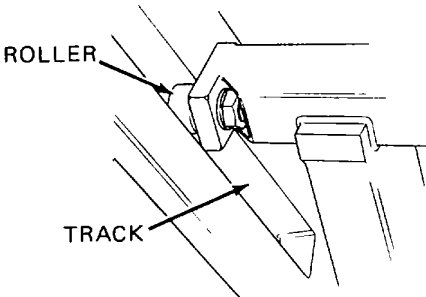
ITEM	PROCEDURE	INTERVAL
<p>3 Scissor Shafts</p>	<p>Grease 10 scissor pivot points with GAA per specification MIL-G-10924 for temperatures -25°F to 120°F (-32°C to 49°C).</p>  <p>GREASE FITTING</p> <p>Figure 3-3. Scissor Pivot Point.</p> <p>Figure 3-3. Scissor Pivot Point.</p>	<p>100 hours or Monthly</p>
<p>4 Lift Cylinder Pins</p>	<p>Grease 4 points with GAA per specification MIL-G-10924 for temperatures -25°F to 120 °F (-32°C to 49° C).</p>  <p>GREASE FITTING</p> <p>Figure 3-4. Lift Cylinder Pin</p> <p>Figure 3-4. Lift Cylinder Pin.</p>	<p>100 Hours or Monthly</p>
<p>5 Filters</p>	<p>Change hydraulic suction and return filter elements with same size and specifications as original.</p>  <p>FILTER</p> <p>Figure 3-5. Hydraulic Filter</p> <p>Figure 3-5. Hydraulic Filter.</p>	<p>300 Hours or Quarterly</p>

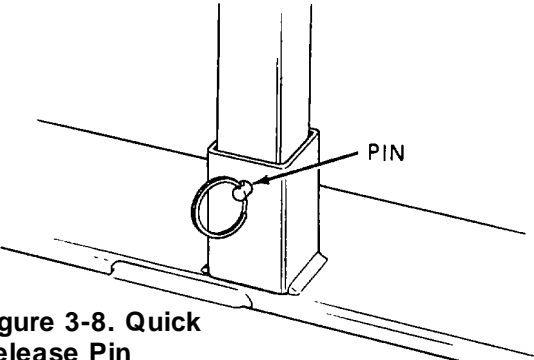
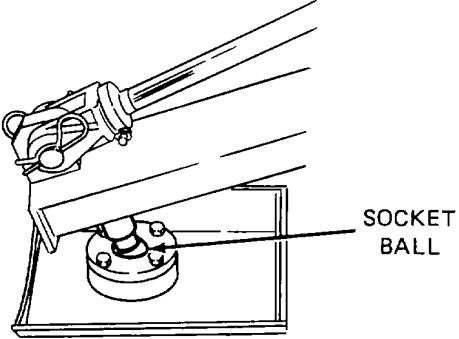
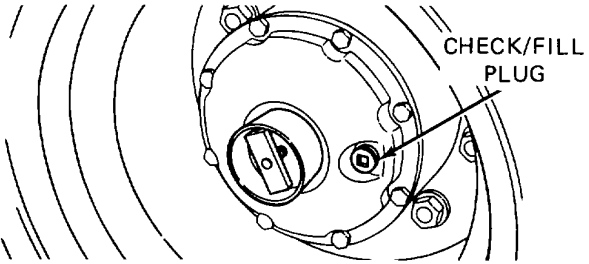
Table 3-1. Lubrication and Service, Continued.

ITEM	PROCEDURE	INTERVAL
<p>6 Steering System</p> 	<p>Grease 4 king pin points, 2 tie bar points 2 tongue mount pivot points, with GAA per specification MIL-G-10924 for temperatures -25°F to 120°F (-32° to 49°C).</p> <p>Figure 3-6. Steering System.</p>	<p>300 Hours or Quarterly</p>
<p>7 Platform Rollers and Tracks</p> 	<p>Raise platform. Apply OE/HDO-15/40 for temperatures 32°F to 120°F (0°C to 49°C) or OE/HDO-10 for temperatures -25°F to 32°F (-32°C to 0°C) per specification MIL-L-46152 to rollers and tracks.</p> <p>Figure 3-7. Platform.</p>	<p>300 Hours or Quarterly</p>

GO ON TO NEXT PAGE

Figure 3-7. Platform.

Table 3-1. Lubrication and Service, Continued.

ITEM	PROCEDURE	INTERVAL
<p>8 Quick Release Pins</p>	<p>Spray all pins with penetrating oil.</p>  <p>Figure 3-8. Quick Release Pin Figure 3-8. Quick Release Pin.</p>	<p>300 Hours or Quarterly</p>
<p>9 Stabilizer Pads</p>	<p>Apply GAA per specification MIL-G-10924 for temperatures -25°F to 120°F (-32°C to 49°C) to socket ball. Swivel pad to work in lubricant.</p>  <p>Figure 3-9. Stabilizer. Figure 3-9. Stabilizer.</p>	<p>300 Hours or Quarterly</p>
<p>10 Drive Hubs</p>	<p>Drain oil and add GO 90 for temperatures -25°F to 120°F (-32°C to 49°C).</p>  <p>Figure 3-10. Drive Hub.</p>	<p>600 Hours or Every 6 Months</p>

GO ON TO NEXT PAGE

Figure 3-10. Drive Hub.

Table 3-1. Lubrication and Service, Continued.

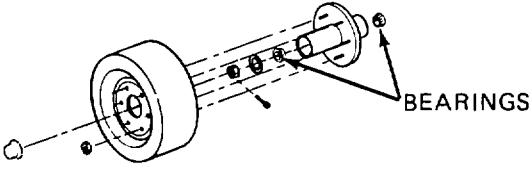
ITEM	PROCEDURE	INTERVAL
11 Steer Wheel Bearings	Remove hub cover, remove wheel and repack bearings with GAA per specification MIL-G-10924 for temperatures -25°F to 120°F (-32°C to 49°C). 	600 Hours or Every 6 Months

Figure 3-11. Steer Wheel Bearings.

Section IV. TROUBLESHOOTING

3-7. GENERAL

3-7

a. The symptoms index for Organizational Maintenance Troubleshooting starts on page 3-13. It lists the malfunctions (symptoms), checks or inspections and corrective actions that the organization can perform.

b. Keep in mind that it is not possible to list all malfunctions that may develop. If a problem develops that is not included in the symptoms index, notify your supervisor who will take the appropriate action.

3-8. MULTIMETER FUNCTION AND USE (Figure 3-12)

3-8

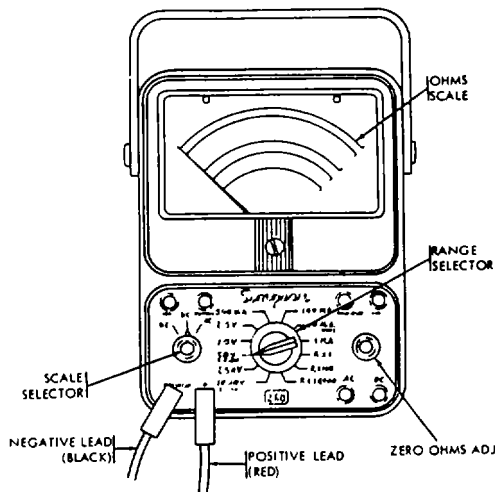


Figure 3-12. Multimeter.

GO ON TO NEXT PAGE

NOTE

Multimeter is a component of Tool Kits, Automotive Maintenance, Organizational: Set no. 1, supplemental (SC4910-95-CL-A73), and set no. 2, supplemental (SC4910-95-CL-A08).

- a. Voltmeter. The voltmeter has four meter ranges (2, 5, 10 and 50 volts). Two additional ranges (250 and 1000 volts) are useful in checking electronic equipment. Ranges are selected by the range selector switch.
- b. Ohmmeter. The ohmmeter is used for making resistance and continuity checks. The ohmmeter is basically a voltmeter and internal battery connected in series, so that when the two test leads are connected together, the voltmeter reads the battery voltage. When a conductive circuit is connected between the test leads, the voltmeter will indicate how much voltage is being lost (voltage drop) in the circuit. In the case of a length of wire, there will be little or no voltage drop; for a small coil or a resistor, there may be considerable voltage drop. The amount of voltage drop is directly related to the resistance (in ohms) of the component being checked.
- c. Other Scales Since the multimeter is a general purpose instrument intended primarily for electronic checking, other scales and ranges are provided. These ranges are not normally used for this type of electrical troubleshooting, and are beyond the scope of this manual.

3-9. GENERAL INSTRUCTIONS FOR USE OF MULTIMETER

3-9

CAUTION

Before proceeding with electrical troubleshooting procedures, paragraphs 3-10 through 3-13 must be read and understood by all personnel using the multimeter. Incorrect connections to the multimeter could result in costly damage to test equipment or vehicle components.

- a. Be sure of the check to be made and the procedure to be used. Follow the step-by-step procedure given for each individual check.
- b. Always select a meter range higher than the expected reading. Set the meter for this range before connecting it into the circuit.
- c. Be sure to read the correct row of meter scale figures which correspond to the selected range. The range selector switch or the binding post marking always shows the right-hand figure of the row to be used. For example, if the range selector is set for 50 volts, read the row of meter scale figures that ends with 50 on the right-hand end.
- d. When checking with an ammeter or ammeter shunt, always connect it in series with circuit to be checked. For maximum safety, the power should be turned OFF when connecting or disconnecting the ammeter or ammeter shunt.

GO ON TO NEXT PAGE

e. When checking with a voltmeter, always connect it in parallel with (across) the terminals of the component to be checked. Where the terminals are easily accessible, the power need not be turned off to make voltage checks. Where there is a possibility of touching an adjacent terminal or the SPEMS frame when attaching the positive lead clip, the power should be OFF and the meter lead clipped securely to the terminal to be checked before restoring power.

CAUTION

Never attempt to make resistance checks until all sources of power connected to the circuit or device to be checked are disconnected. The multimeter will be damaged if this procedure is not followed.

f. When checking with an ohmmeter, always connect it in parallel with (across) the terminals of the component to be checked. If the component has only a single terminal, connect between the terminal and the frame of the component or SPEMS. The component being checked must be removed from the circuit. Remove all connections to the component before making any resistance or continuity checks. One terminal of most electrical components is connected to the SPEMS frame. However, the component may remain mounted in the SPEMS provided all other circuit connections have been removed.

CAUTION

Always handle the meter sets carefully. although they are ruggedly built, the meters are delicate instruments and can be damaged easily by rough handling. Be sure to stow all leads and adapters in their proper compartments after the checks have been completed.

CAUTION

In choosing a location for the low voltage circuit checker, on the vehicle or service bench, be sure to place the meter in a position that will not restrict the air flow through the bottom and top openings. Do not exceed the duty cycle of 3 minutes ON and 27 minutes OFF.

3-10. SPECIFIC INSTRUCTIONS FOR USE OF THE MULTIMETER

3-10

Paragraphs 3-11 through 3-13 cover specific multimeter checks that can be made.

GO ON TO NEXT PAGE

3-11. VOLTAGE CHECKS (DC) (Figure 3-13)

3-11

- a. Determine exactly what is to be checked, where the meter leads will be connected, and what voltage to expect.
- b. Resistance of poor wiring, connections, and switch contacts can cause errors when voltages are measured.
- c. Plug the voltmeter leads into the multimeter lacks. Plug the black lead into the lack marked COMMON and the red lead into the jack marked +.



Set the voltage range selector switch to a range higher than the expected voltage. Determine exactly which row of figures you will read.

**Quick Reference
DC VOLTAGE CHECK**

- (1) SET SCALE SELECTOR ON +DC.
- (2) SET RANGE SELECTOR SWITCH ON A SCALE HIGHER THAN KNOWN CIRCUIT VOLTAGE.
- (3) CONNECT NEGATIVE LEAD (BLACK) TO SPEMS FRAME.
- (4) TOUCH POSITIVE LEAD (RED) TO TERMINAL POST OF BATTERY. NEEDLE SHOULD MOVE TOWARD CENTER OF SCALE TO INDICATE VOLTAGE.

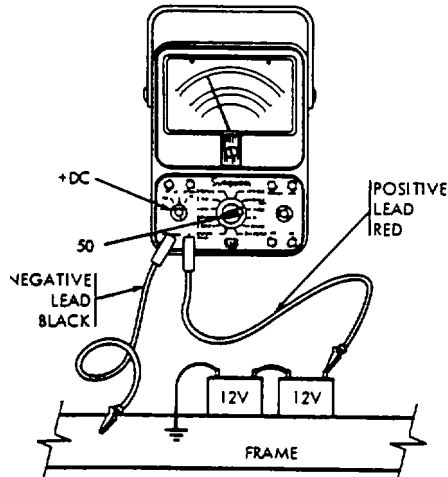


Figure 3-13. DC Voltage Check With Multimeter.

GO ON TO NEXT PAGE

CAUTION

Never attempt to make resistance checks until all sources of power connected to the circuit or device to be checked are disconnected. The multimeter will be damaged if this procedure is not followed.

- a. All electrical circuits have some resistance. Some resistances, however, are so small and others so large they cannot be read on the same scale. When a reading is obtained, it indicates the circuit has continuity (no breaks or openings). The following procedure must be followed to perform resistance or continuity checks:
 - (1) Place the SCALE SELECTOR switch in the +DC position.
 - (2) Rotate the range selector switch to the required range:
 - (a) R x 1 to measure resistance between 0 and 2,000 ohms and to test for continuity.
 - (b) R x 100 to measure resistance between 0 to 200,000 ohms.
 - (c) R x 10,000 to measure resistance between 0 and 20 megohms.
- b. Plug the black lead into the Jack marked COMMON and the red lead into the Jack marked +. Touch the ends of the leads together and turn the ZERO OHMS knob until the pointer is at zero.
- c. Separate the ends of the meter leads, and clip the leads across the portion of the circuit or component being checked. (Either of the leads may be clipped to the measurement points.)

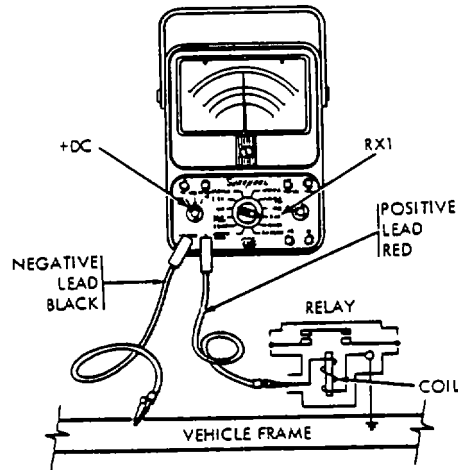


Figure 3-14. Resistance Check With Multimeter.

GO ON TO NEXT PAGE

**Quick Reference
RESISTANCE CHECK**

- (1) SET SCALE SELECTOR SWITCH ON +DC.
 - (2) SET RANGE SELECTOR SWITCH ON R x 1.
 - (3) TOUCH METER LEADS TOGETHER AND TURN ZERO OHMS ADJUST UNTIL NEEDLE IS 0 OHMS.
 - (4) BE SURE THERE IS NO BATTERY VOLATAGE CONNECTED TO CIRCUIT TO BE CHECKED.
 - (5) ATTACH NEGATIVE LEAD (BLACK) TO VEHICLE FRAME.
 - (6) TOUCH POSITIVE LEAD (RED) TO TERMINAL OF COMPONENT BEING CHECKED.
 - (7) READ RESISTANCE ON METER SCALE.
 - (8) IF METER NEEDLE DOES NOT MOVE, CIRCUIT IS OPEN.
 - (9) IF METER NEEDLE MOVES COMPLETELY ACROSS SCALE TO 0 THERE IS EITHER A SHORT CIRCUIT OR A HEAVY-DUTY COMPONENT WITH VERY LOW RESISTANCE.
- d. Read the ohms on the black area at the top of the scale.

NOTE

For range R x 1, read the figures directly; for range R x 100 multiply the reading indicated by 100 or add two zeros to the reading; for range R x 10,000 multiply the reading indicated by 10,000 or add four zeros to the reading.

- e. An infinite reading is an open circuit reading. There will be no movement of the multimeter pointer on the R x 1 range scale when an open circuit exists. This usually indicates a broken connection somewhere. Infinite position on the ohmmeter range scale is marked with the symbol
- f. A zero reading indicates a continuous circuit with resistance too low to be measured with the multimeter. Where two cable wires, or a circuit wire and ground connection are being checked this usually indicates a short circuit somewhere.

3-13 CONTINUITY CHECK (Figure 3-15)

3-13

- a. Set up and zero the multimeter.

GO ON TO NEXT PAGE

CAUTION

Failure to do the following step can damage the multimeter.

- b. Disconnect the circuit being checked. To be safe, disconnect the battery ground cable.
- c. Connect the meter probes to both terminals of the circuit being checked.
- d. Observe needle movement.
 - (1) If the needle swings to the far right over the 0 on the top scale, the circuit has continuity.
 - (2) If the needle doesn't move, the circuit is open (broken).
 - (3) If the needle jumps or flickers, there is a loose connection in the circuit being checked.

**Quick Reference
CONTINUITY CHECK**

- (1) SET SCALE SELECTOR ON +DC.
- (2) SET RANGE SELECTOR SWITCH ON R x 1.
- (3) BE SURE THERE IS NO BATTERY VOLTAGE CONNECTED TO CIRCUIT TO BE CHECKED.
- (4) ATTACH NEGATIVE LEAD (BLACK) TO ONE END OF CIRCUIT.
- (5) TOUCH POSITIVE LEAD (RED) TO OTHER END OF CIRCUIT. NEEDLE SHOULD MOVE TO RIGHT HAND END OF SCALE.
- (6) IF NEEDLE DOESN'T MOVE, CIRCUIT IS OPEN.
- (7) IF NEEDLE FLICKERS, OR JUMPS BACK AND FORTH, CHECK FOR LOOSE CONNECTIONS IN THE CIRCUIT.

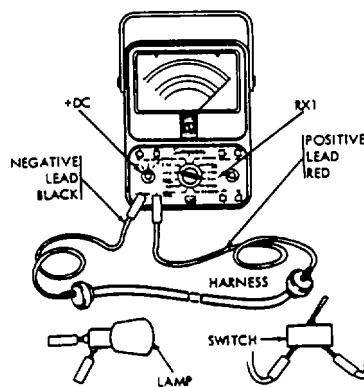


Figure 3-15. Continuity Check With Multimeter.

- a. Each major SPEMS system is listed, specific symptoms for each system are indented below the appropriate heading. Refer to the page indicated for the proper troubleshooting procedure.

NOTE

Before you begin troubleshooting, be sure all preliminary maintenance checks and services (PMCS) have been done. Refer to Chapter 2, Table 2-1.

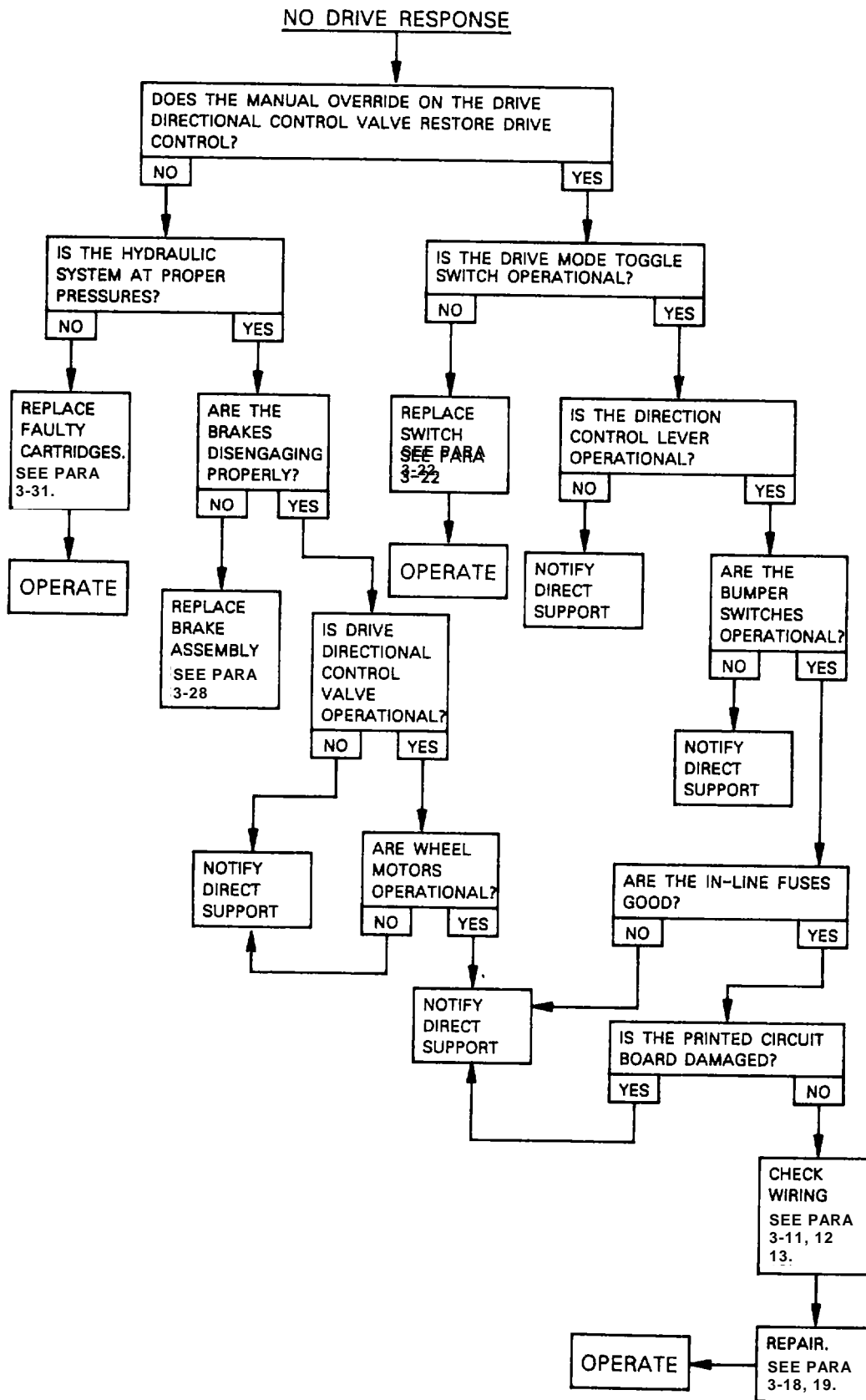
- b. When troubleshooting the SPEMS, keep the following in mind:
 - (1) Always use the electrical schematic when troubleshooting the electrical system. See Foldouts in the back of this manual.
 - (2) Hydraulic pressure varies by design from one branch of the hydraulic system to another. Always refer to the hydraulic schematic to determine proper system pressures at various locations to compare with measured values. See Foldouts in the back of this manual.
 - (3) A multimeter (VOM) is necessary for checking electrical circuits and components. Refer to para 3-8, Multimeter Function and Use.

Troubleshooting Symptoms Index

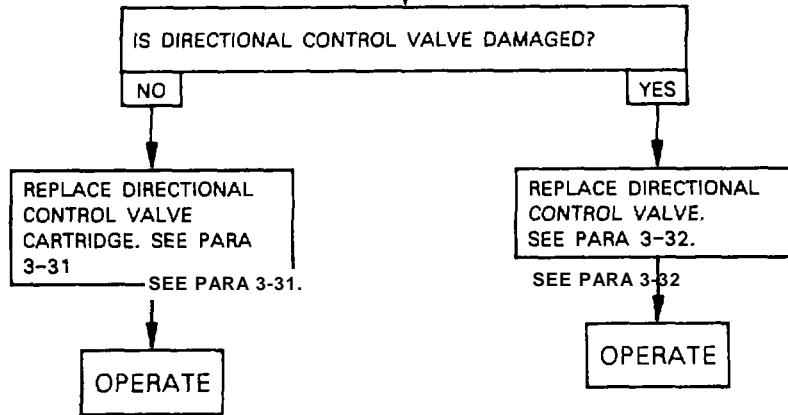
SYSTEM SYMPTOM	PAGE
ELECTRICAL SYSTEM	
Battery Overcharges.....	3-40
Battery Will Not Charge.....	3-34
Brakes Do Not Engage.....	3-35
Deck Will Not Traverse.....	3-28
Electrical System Will Not Operate.....	3-40
Engine Will Not Start.....	3-35
High Torque Control Does Not Work.....	3-23
Horn Does Not Operate.....	3-41
Motion Continues After Bumper Contacts Object.....	3-32
No Drive Response.....	3-18
No Movement In High Speed.....	3-26
No Steering Control.....	3-21
Platform Will Not Lower.....	3-33
Platform Will Not Raise.....	3-27
Platform Will Not Remain Raised.....	3-29
SPEMS Travels At A Slow or Erratic Rate.....	3-36
SPEMS Travels At High Speeds With Platform Up.....	3-31
SPEMS Will Travel In One Direction Only.....	3-37
Stabilizer Controls Raise The Platform.....	3-34
Stabilizers Will Not Extend.....	3-38
Stabilizers Will Not Remain Up.....	3-24,25
Stabilizers Will Not Retract.....	3-39

Troubleshooting Symptoms Index, Continued

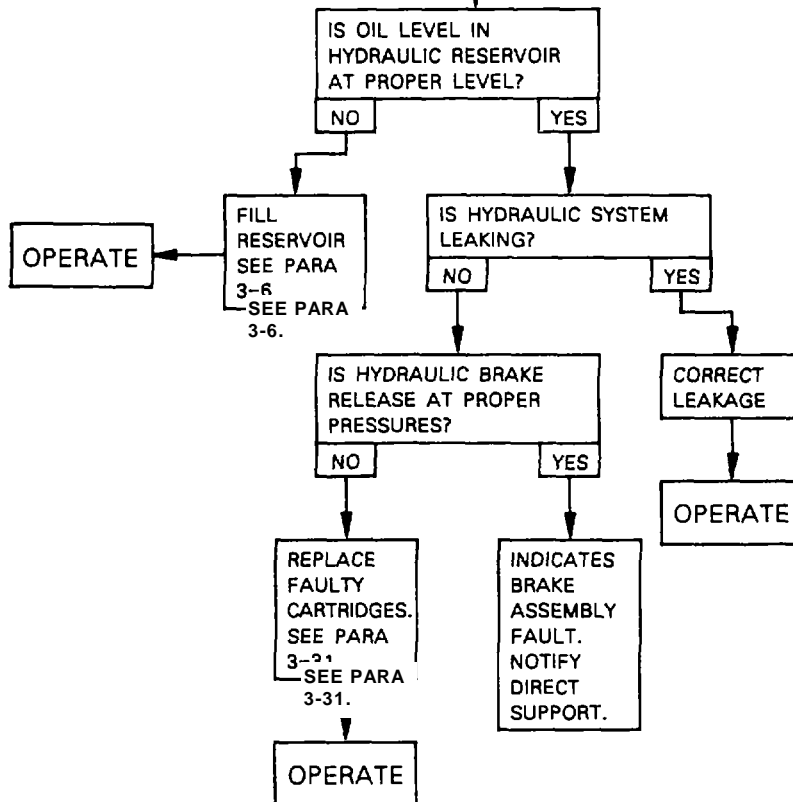
SYSTEM	SYMPTOM	PAGE
ELECTRICAL SYSTEM, Continued		
	Stabilizers Will Not Remain Up.....	3-24
		3-25
	Stabilizers Will Not Retract.....	3-39
	Transmission Drives In Wrong Direction.....	3-20
DRIVE SYSTEM		
	Brakes Do Not Engage.....	3-35
	Brakes Do Not Release.....	3-19
	No Drive Response.....	3-18
	SPEMS Travels At A Slow or Erratic Rate.....	3-36
	SPEMS Will Travel In One Direction Only.....	3-37
HYDRAULIC SYSTEM		
	Deck Will Not Traverse.....	3-28
	High Torque Control Does Not Work.....	3-23
		3-24
	Hydraulic Fluid Temperature Exceeds Recommended Limit.....	3-39
	Hydraulic Pump Operates At High Noise Level.....	3-22
	Hydraulic System Will Not Operate.....	3-30
	No Steering Control.....	3-21
	Platform Will Not Lower.....	3-33
	Platform Will Not Raise.....	3-27
	Platform Will Not Remain Raised.....	3-29
	Platform Will Not Traverse.....	3-29
	SPEMS Does Not Move In High Speed.....	3-26
	SPEMS Does Not Respond to Drive Control.....	3-19
	Stabilizers Will Not Extend.....	3-38
	Stabilizers Will Not Remain Up.....	3-24
		3-25
	Stabilizers Will Not Retract.....	3-39
	Transmission Drives In Wrong Direction.....	3-20
POWER SYSTEM		
	Engine Will Not Start.....	3-35
	Hydraulic Pump Operates At High Noise Level.....	3-22



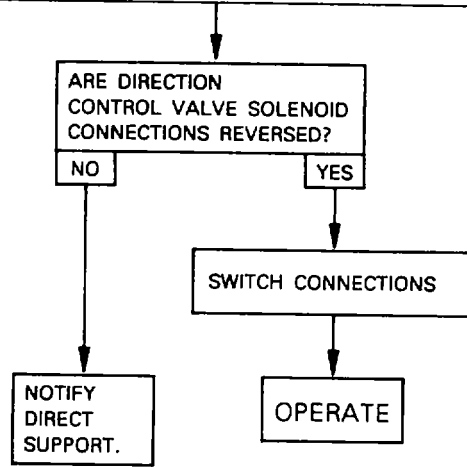
SPEMS DOES NOT RESPOND TO DRIVE CONTROL
(PROBLEM TRACED TO DIRECTIONAL CONTROL VALVE)

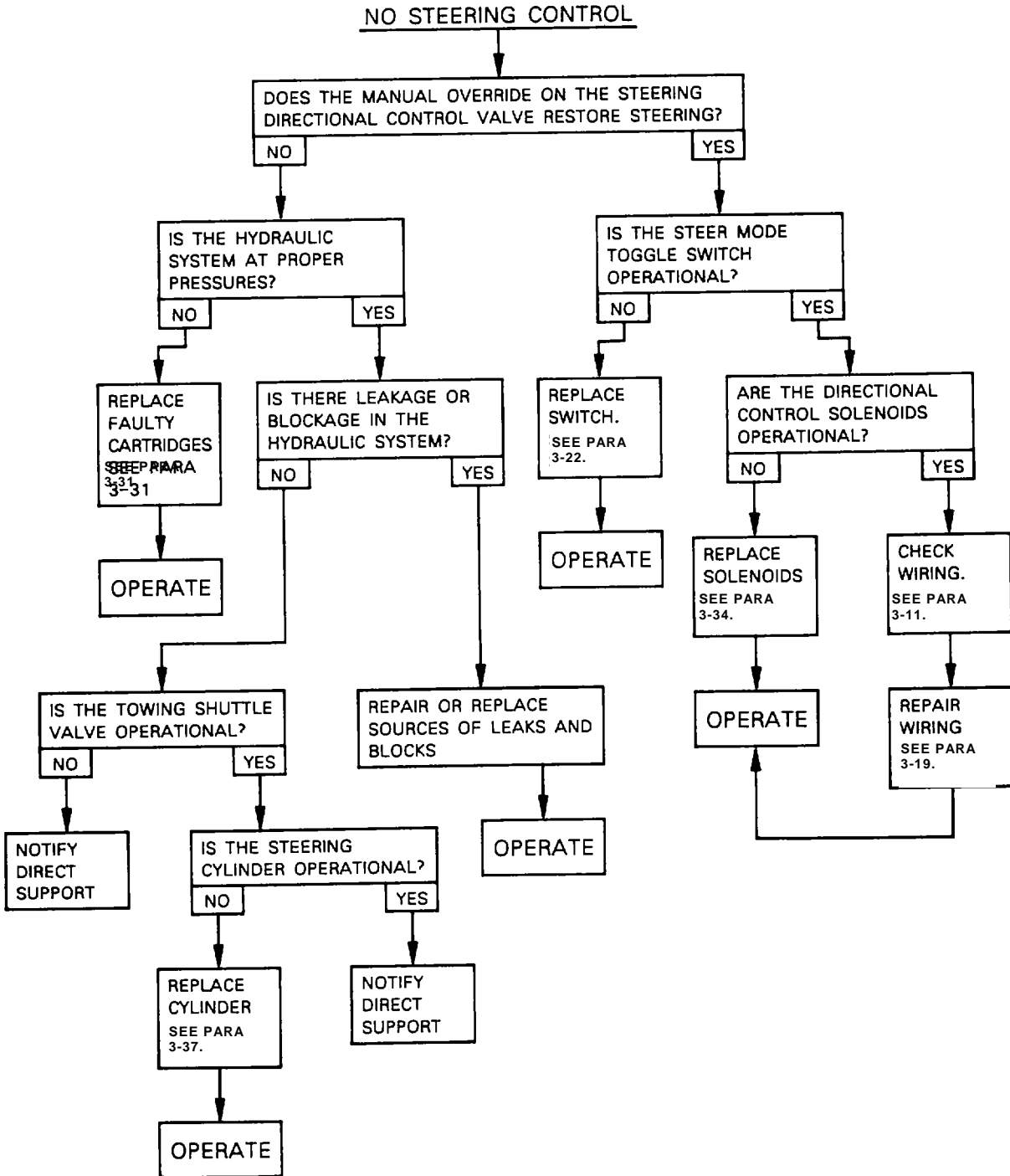


BRAKES DO NOT RELEASE

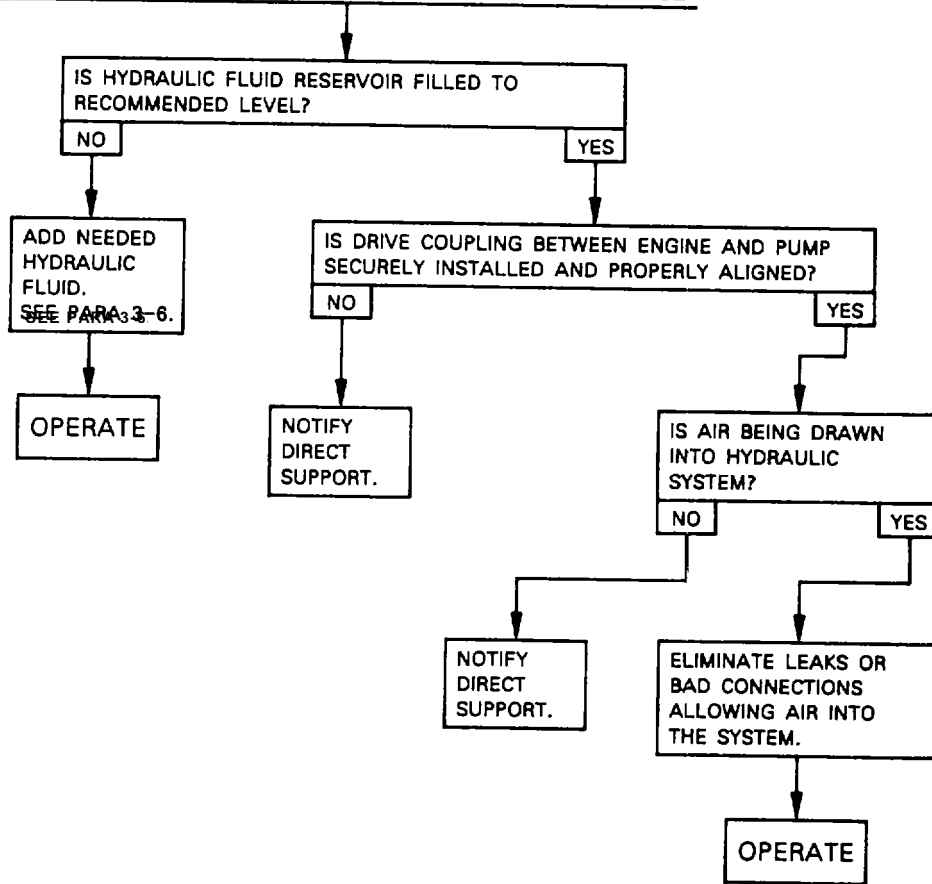


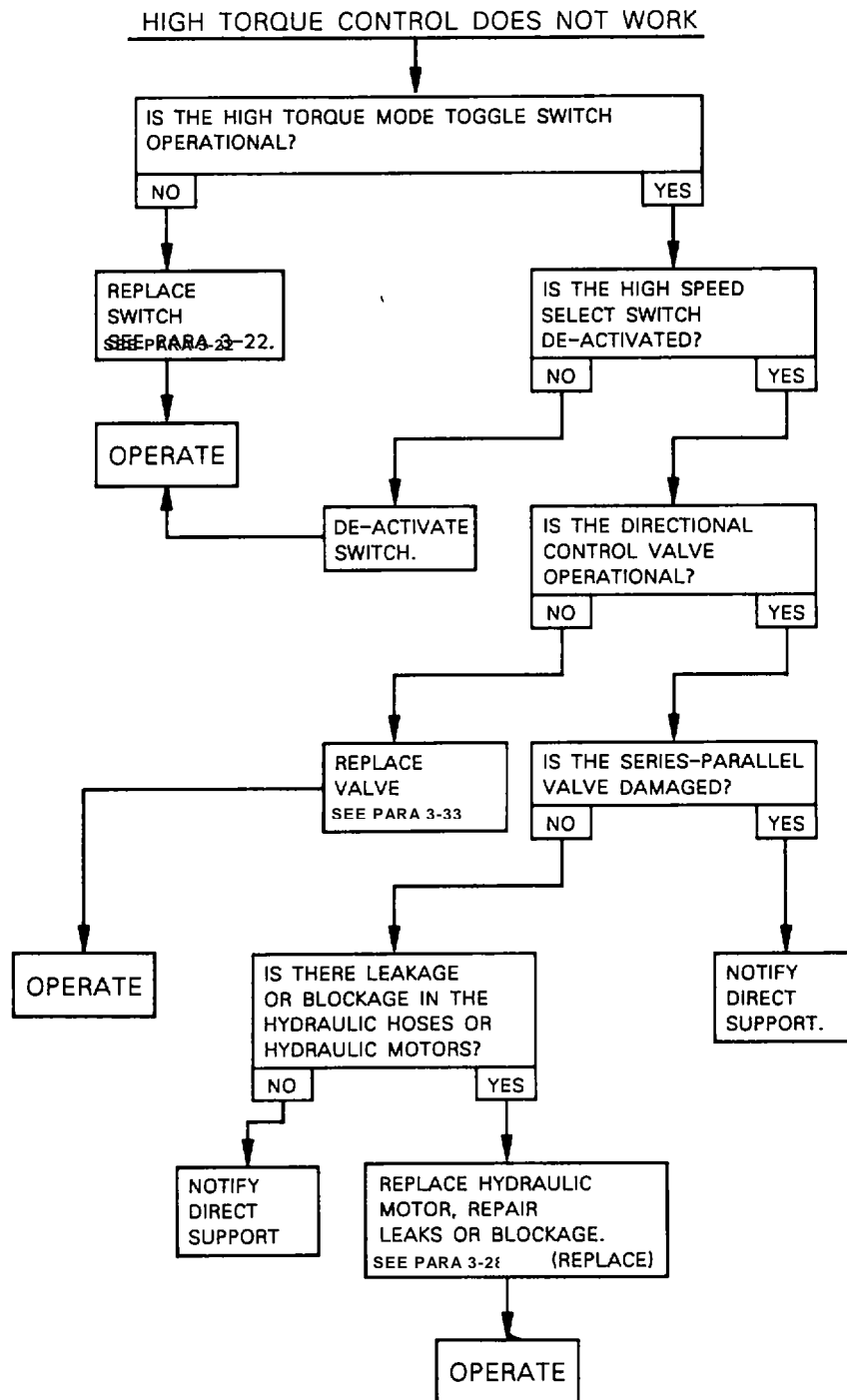
TRANSMISSION DRIVES IN WRONG DIRECTION



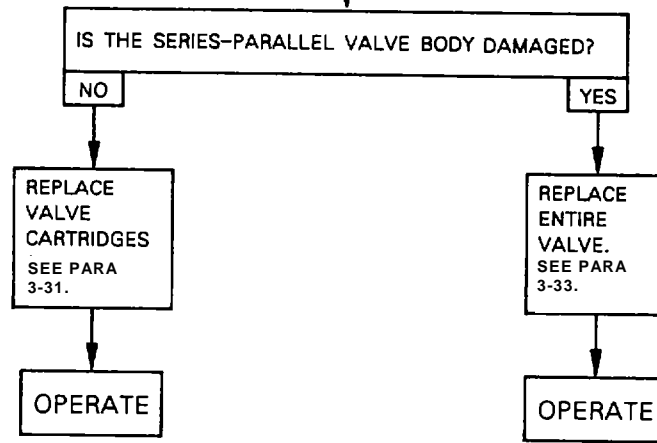


HYDRAULIC PUMP OPERATES AT HIGH NOISE LEVEL

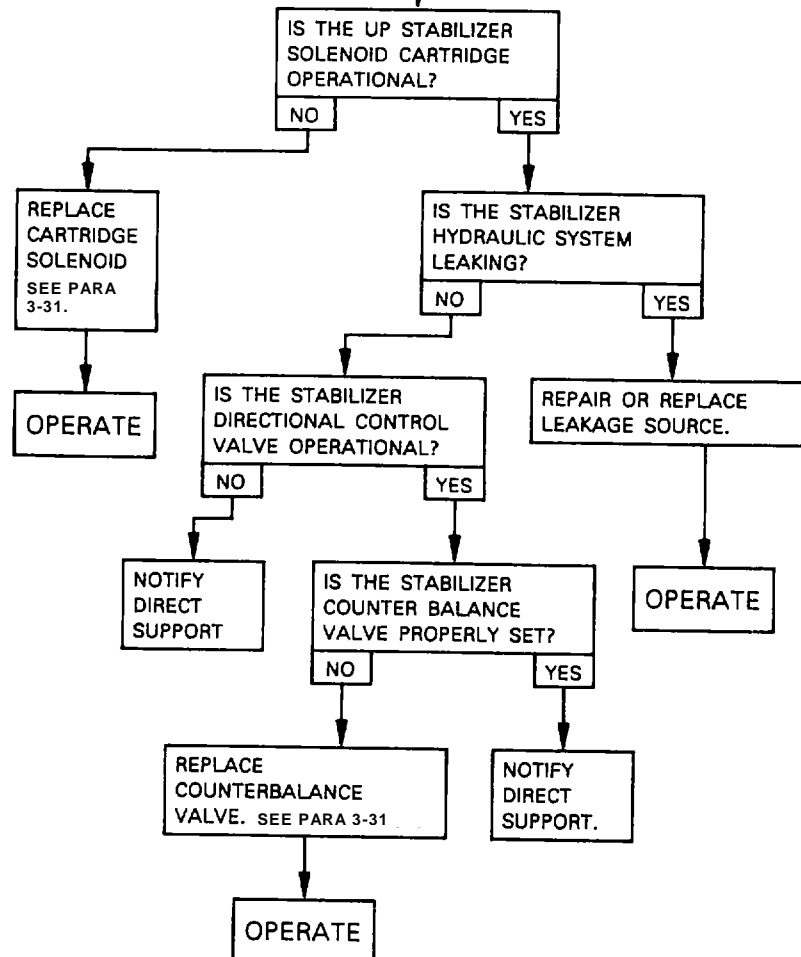




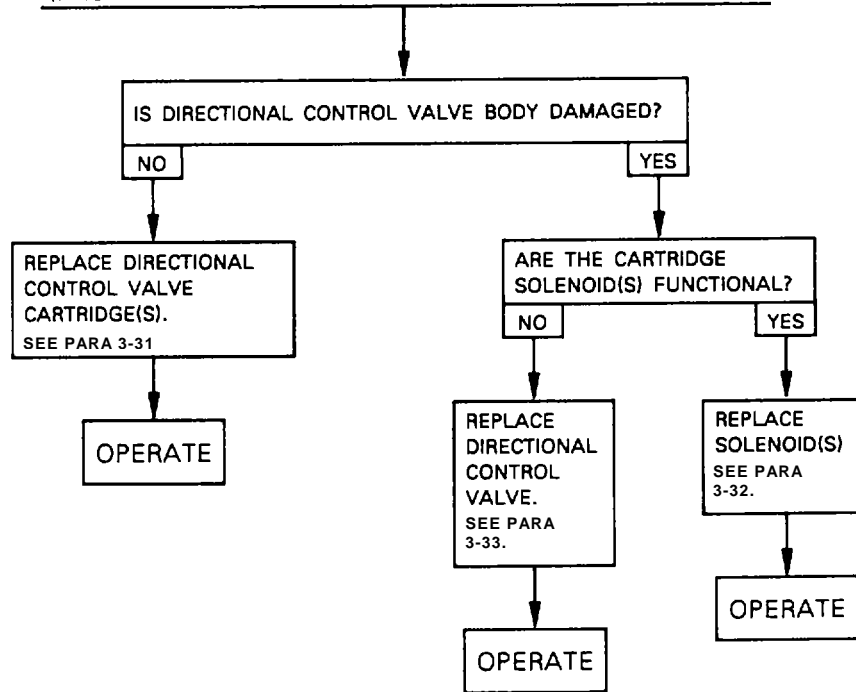
HIGH TORQUE CONTROL DOES NOT WORK
(PROBLEM TRACED TO SERIES-PARALLEL VALVE)

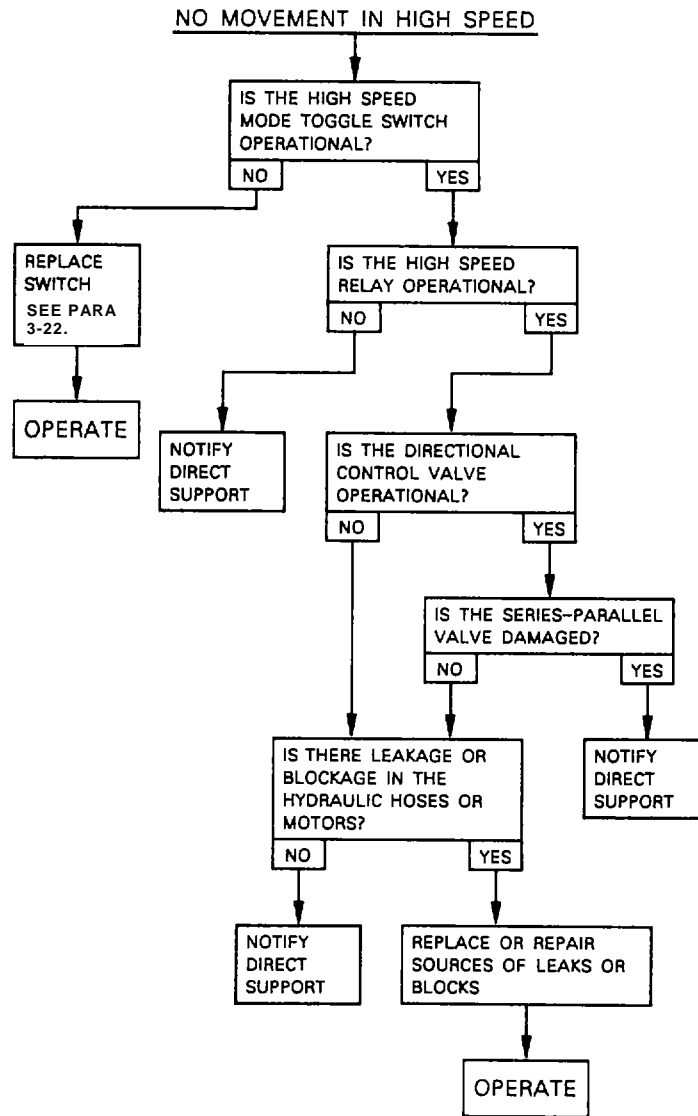


STABILIZERS WILL NOT REMAIN UP

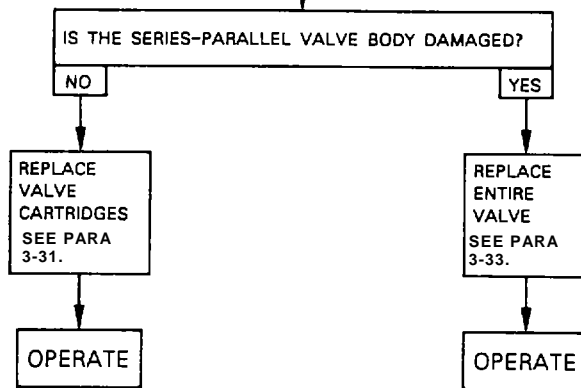


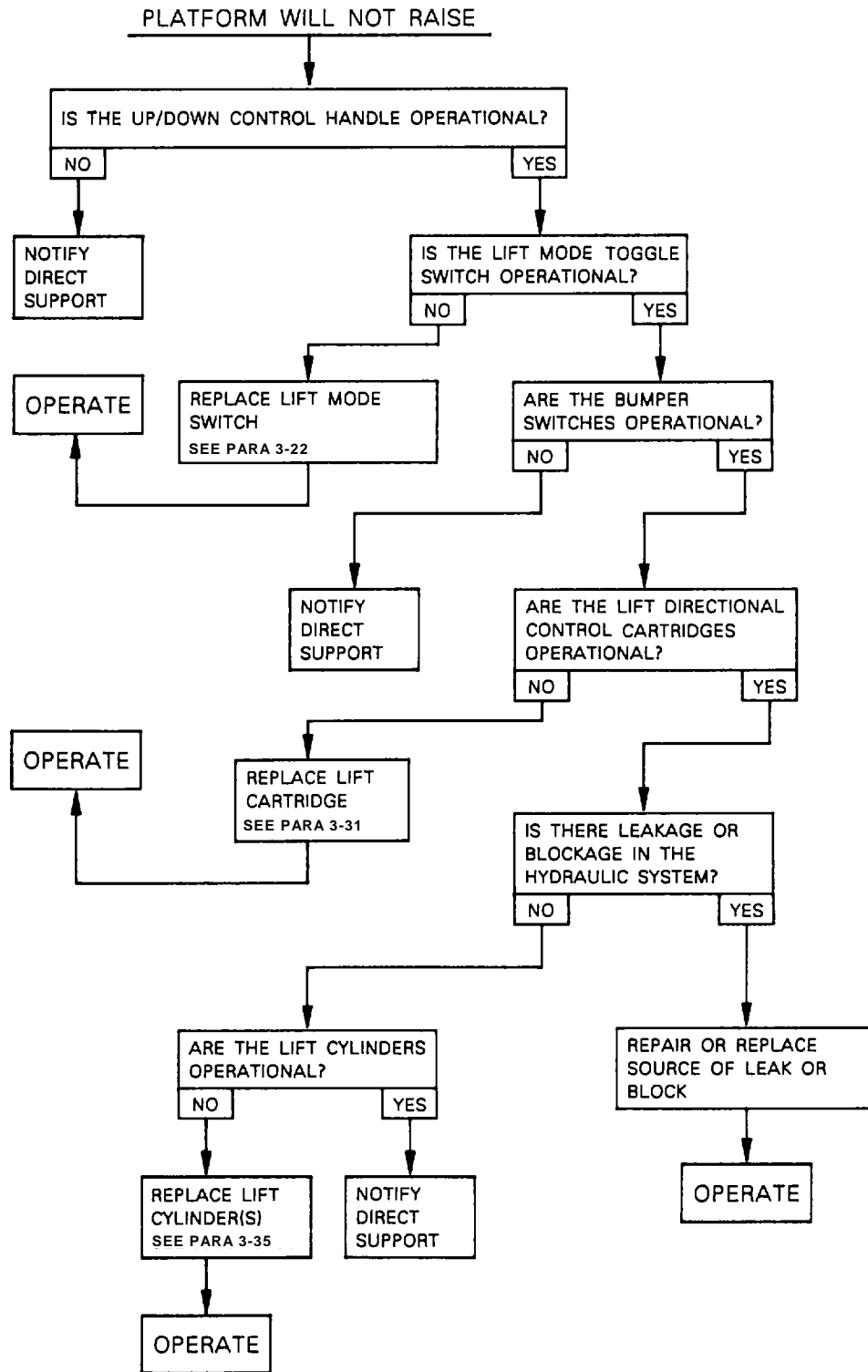
STABILIZERS WILL NOT REMAIN UP
(PROBLEM TRACED TO DIRECTIONAL CONTROL VALVE)

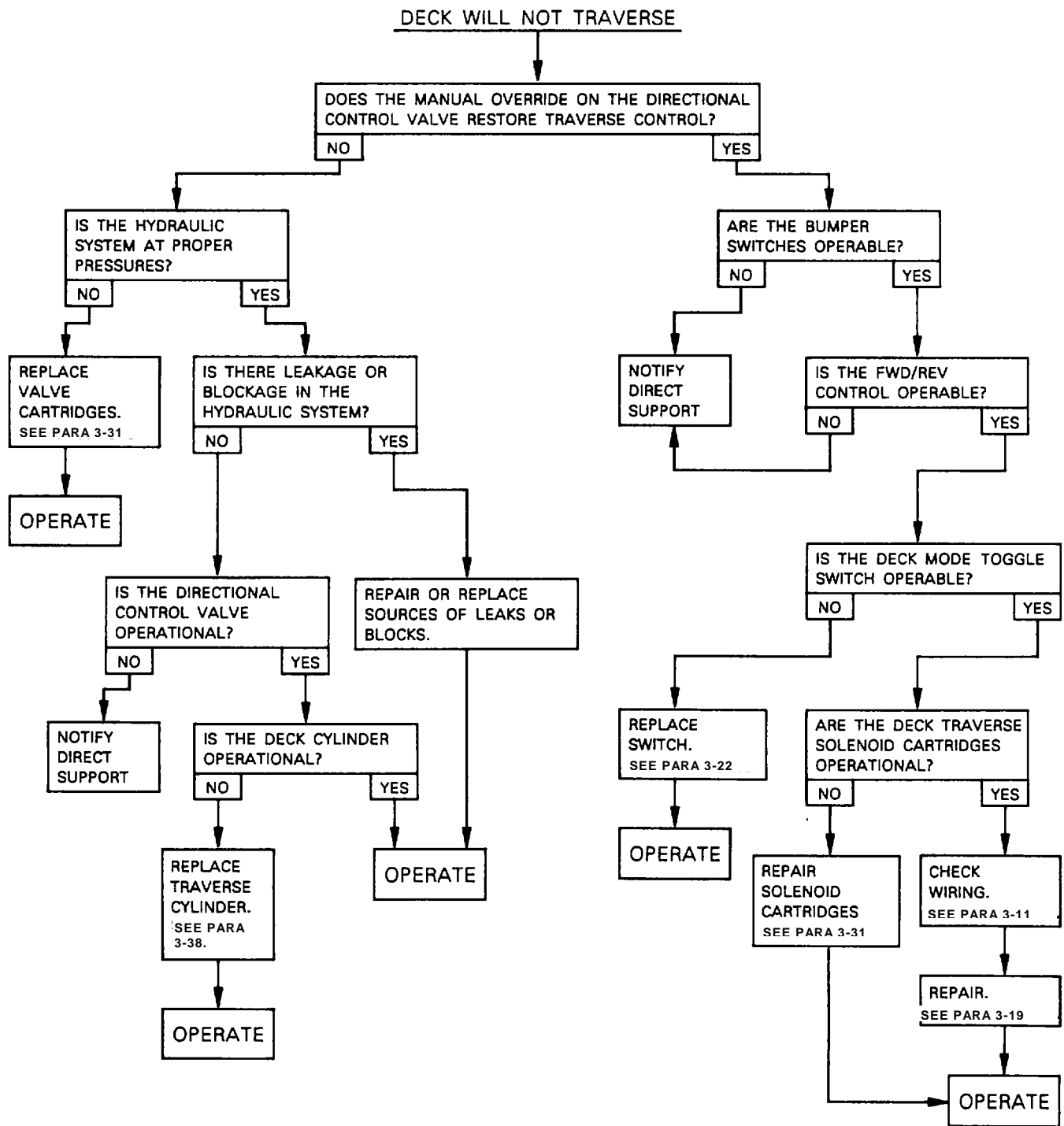




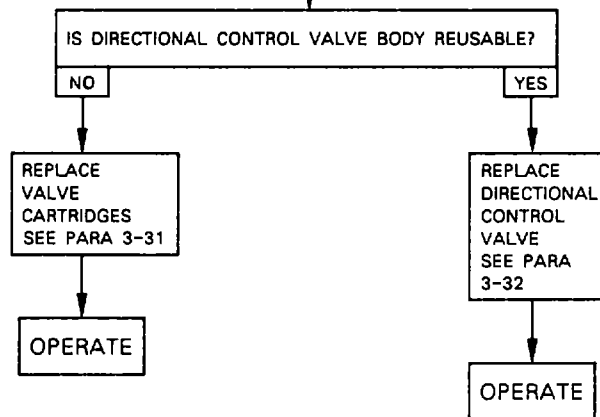
SPEMS DOES NOT MOVE IN HIGH SPEED
(PROBLEM TRACED TO SERIES-PARALLEL VALVE)



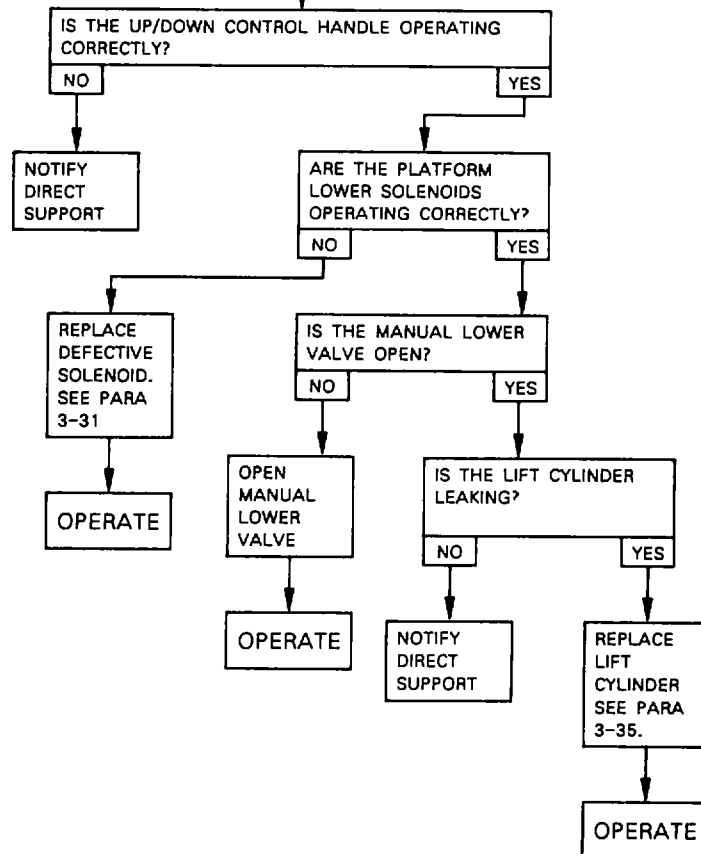


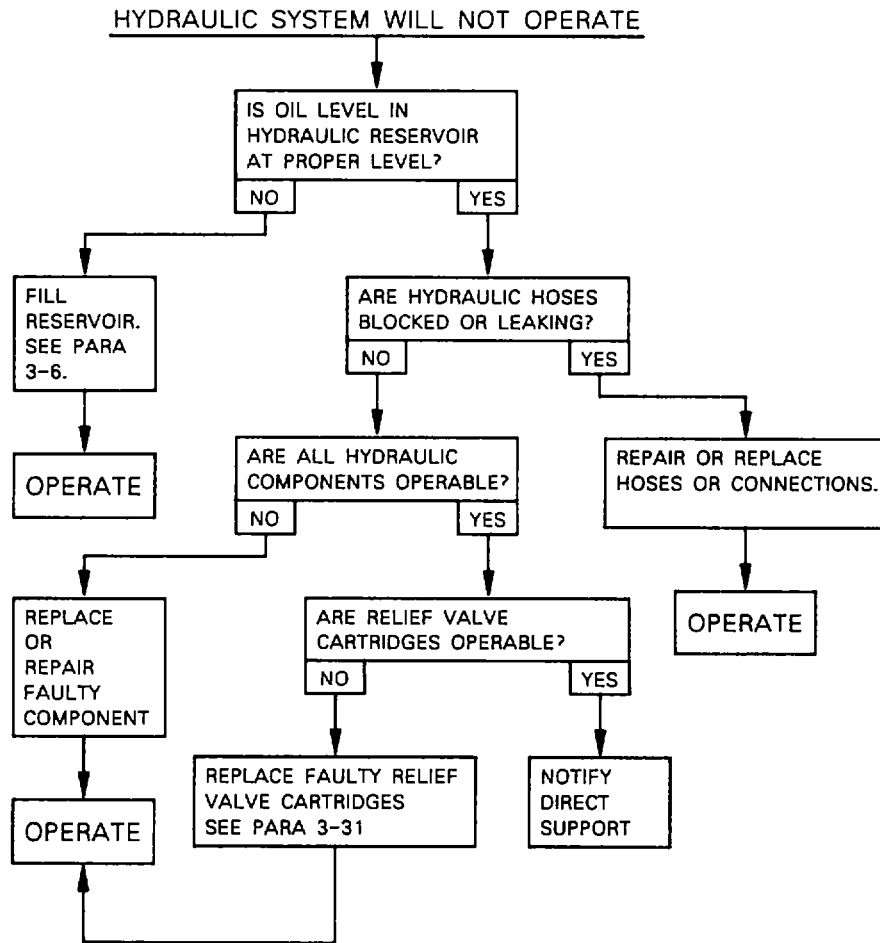


PLATFORM WILL NOT TRAVERSE
(PROBLEM TRACED TO DIRECTIONAL CONTROL VALVE)

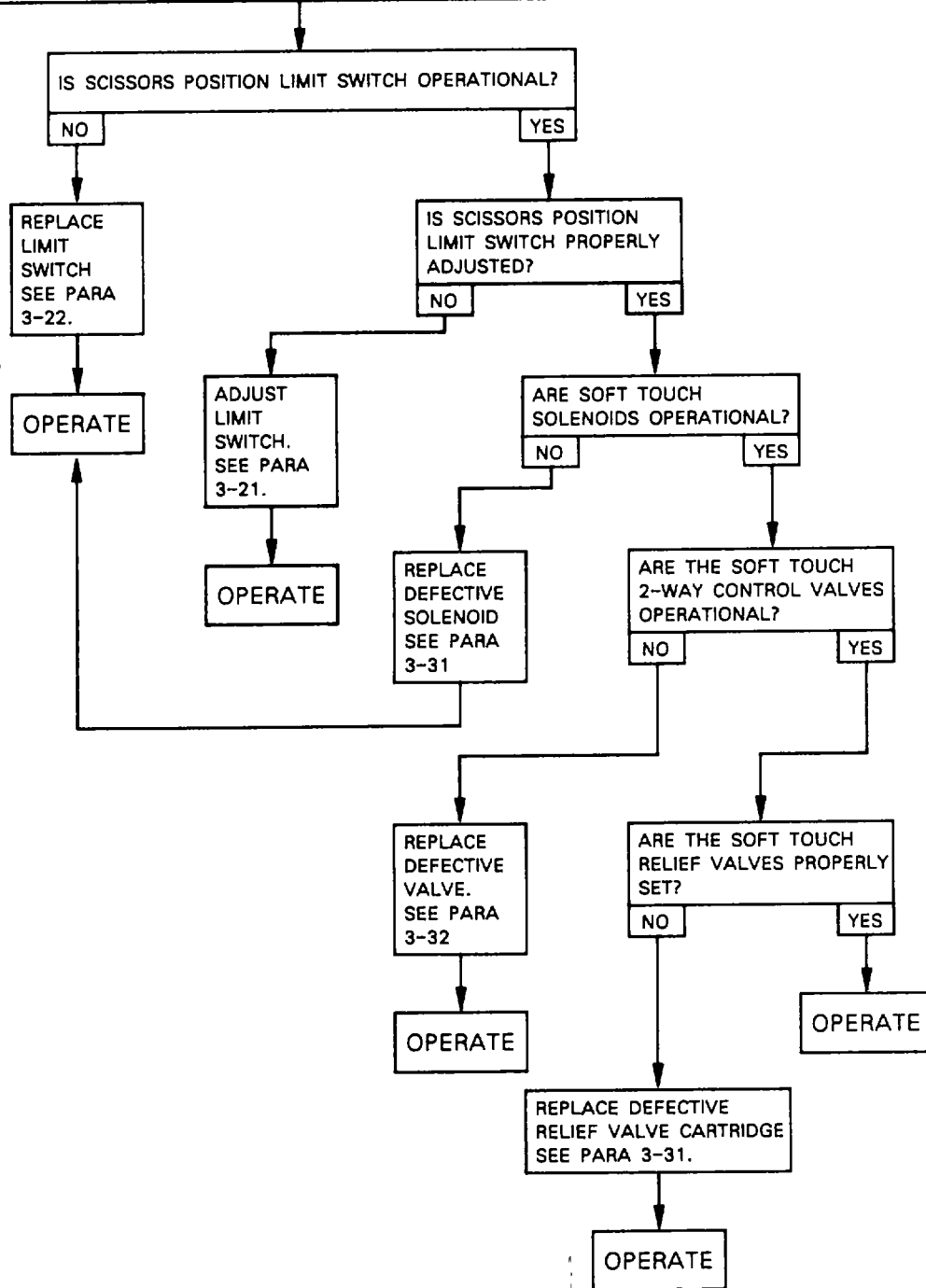


PLATFORM WILL NOT REMAIN RAISED

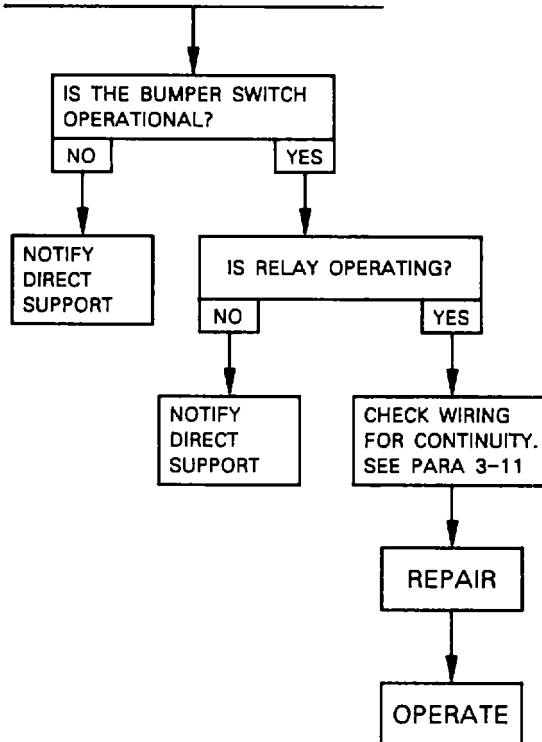


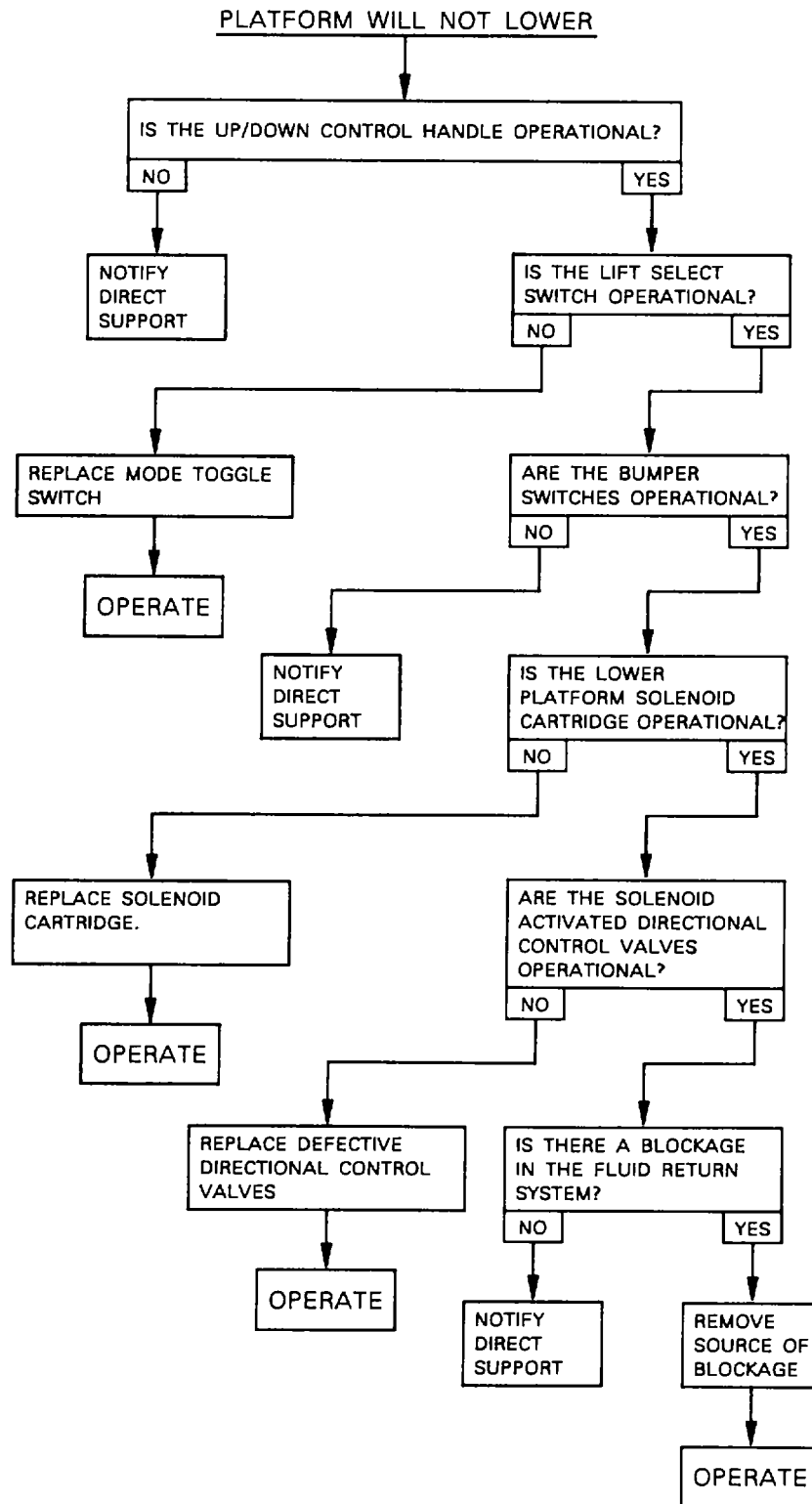


SPEMS TRAVELS AT HIGH SPEEDS WITH PLATFORM UP



SPEMS OR PLATFORM MOTION CONTINUES AFTER
BUMPER CONTACTS OBJECT





STABILIZER CONTROLS RAISE THE PLATFORM

THIS SYMPTOM OCCURS WHEN THE STABILIZER RELIEF VALVE IS SET AT A PRESSURE EXCEEDING 1000 PSI

REPLACE STABILIZER RELIEF VALVE CARTRIDGE

OPERATE

BATTERY WILL NOT CHARGE

IS BATTERY FLUID AT PROPER LEVEL?

NO

YES

ADD DISTILLED WATER TO SPECIFIED LEVEL SEE PARA 2-5.

OPERATE

IS BATTERY WITHIN SPECIFIED SERVICE LIFE?

NO

YES

REPLACE BATTERY SEE PARA 3-16

ARE TERMINALS FREE OF CORROSION?

NO

YES

CLEAN TERMINALS

OPERATE

DO CABLES AND CONNECTIONS FORM A COMPLETE CIRCUIT?

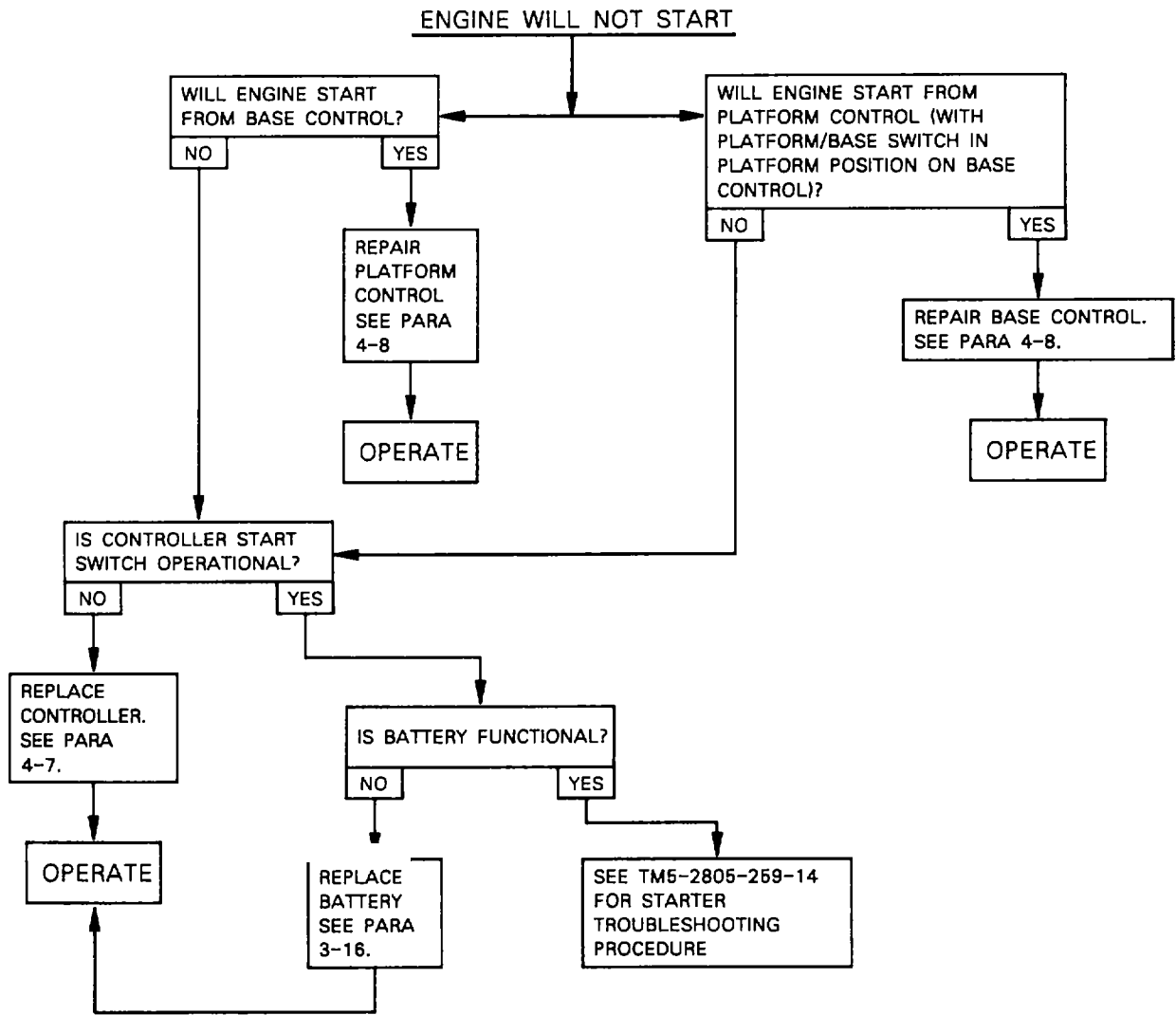
NO

YES

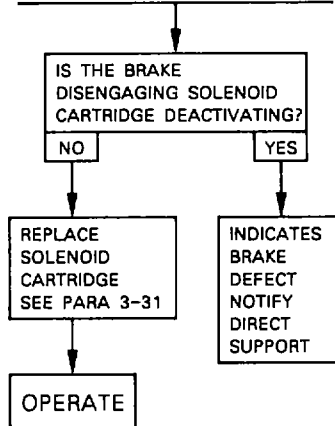
REPLACE/TIGHTEN CABLE OR CONNECTORS CAUSING OPEN CIRCUIT REF TM-2805-259-14

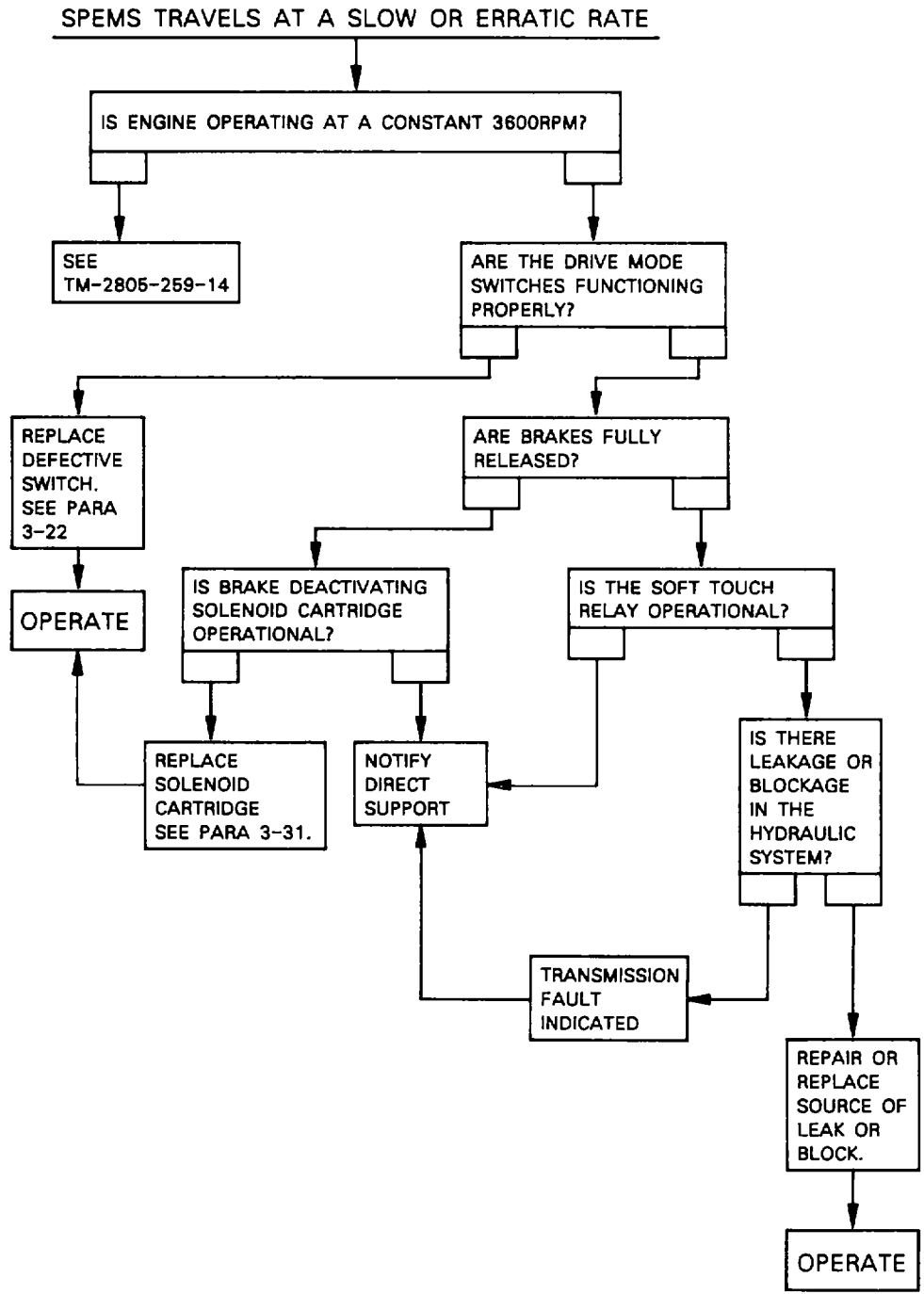
OPERATE

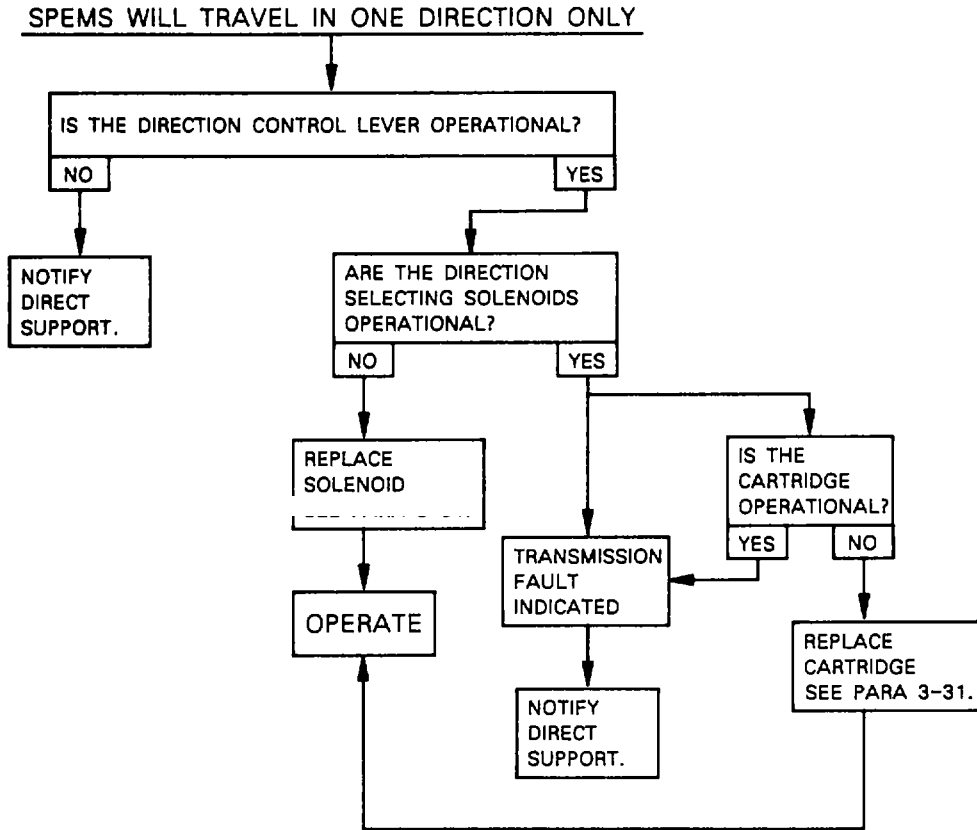
REFER TO TM5-2805-259-14 FOR TROUBLESHOOTING PROCEDURE FOR VOLTAGE REGULATOR AND ALTERNATOR.

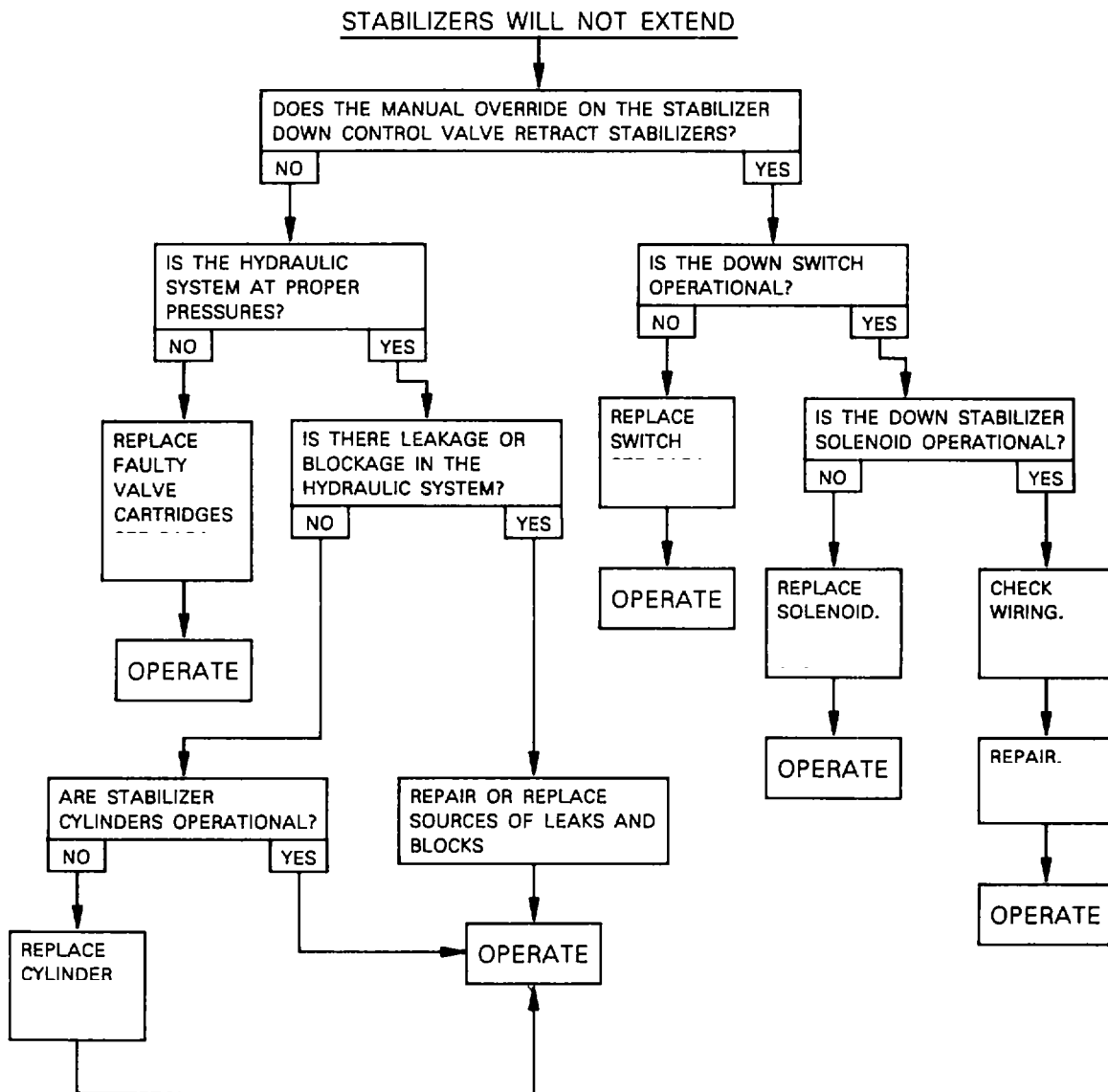


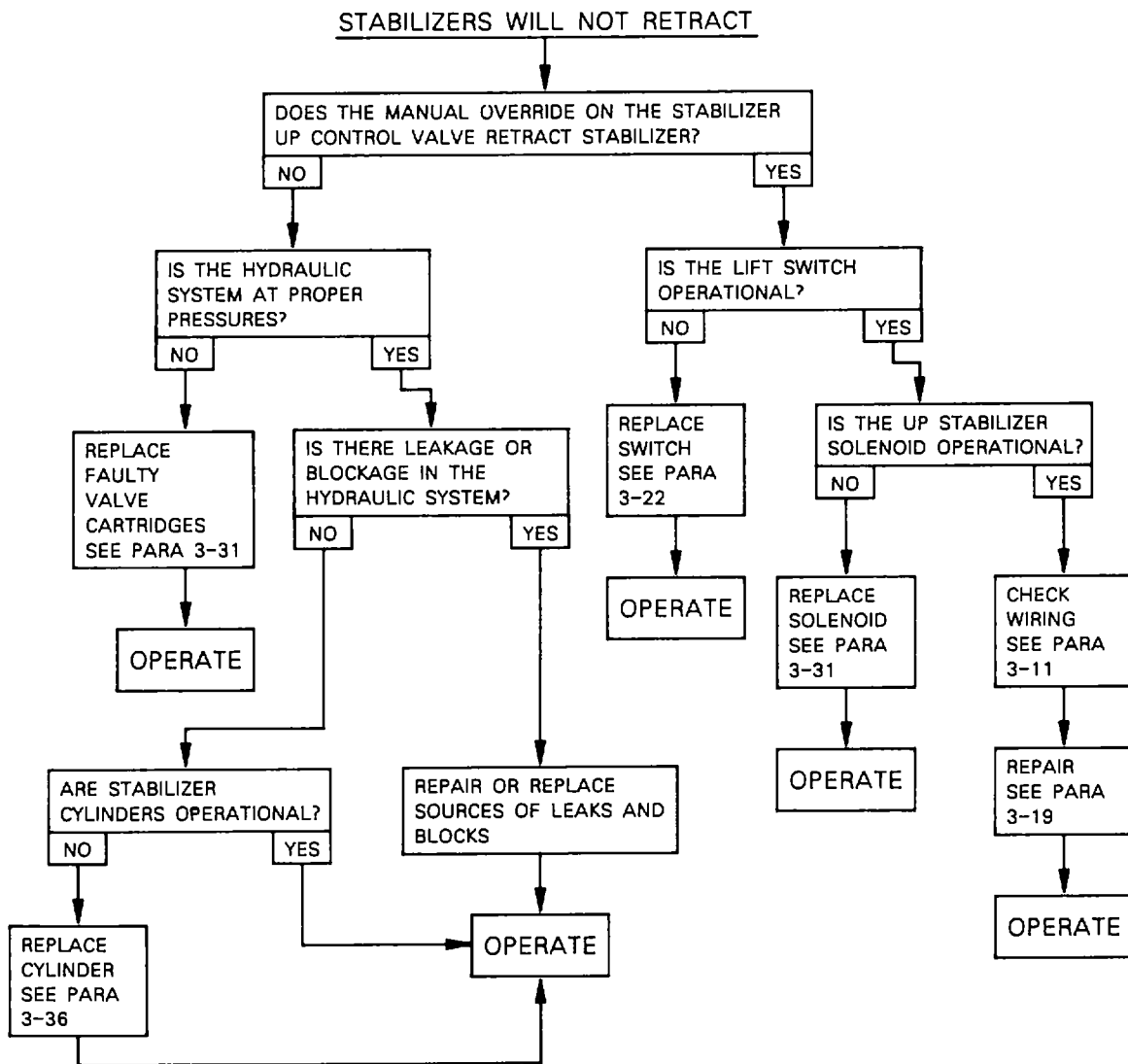
BRAKES DO NOT ENGAGE



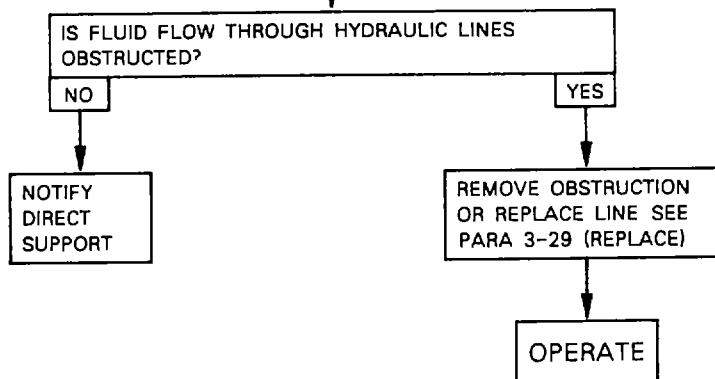


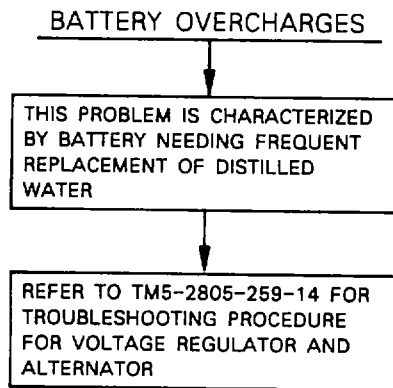
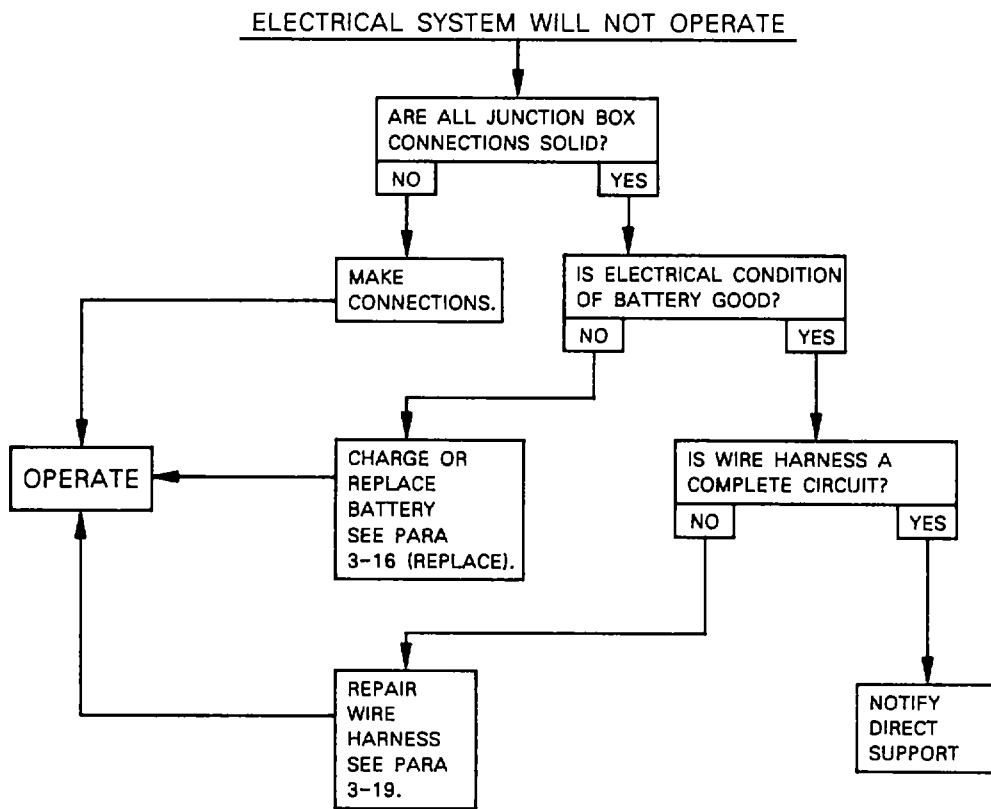


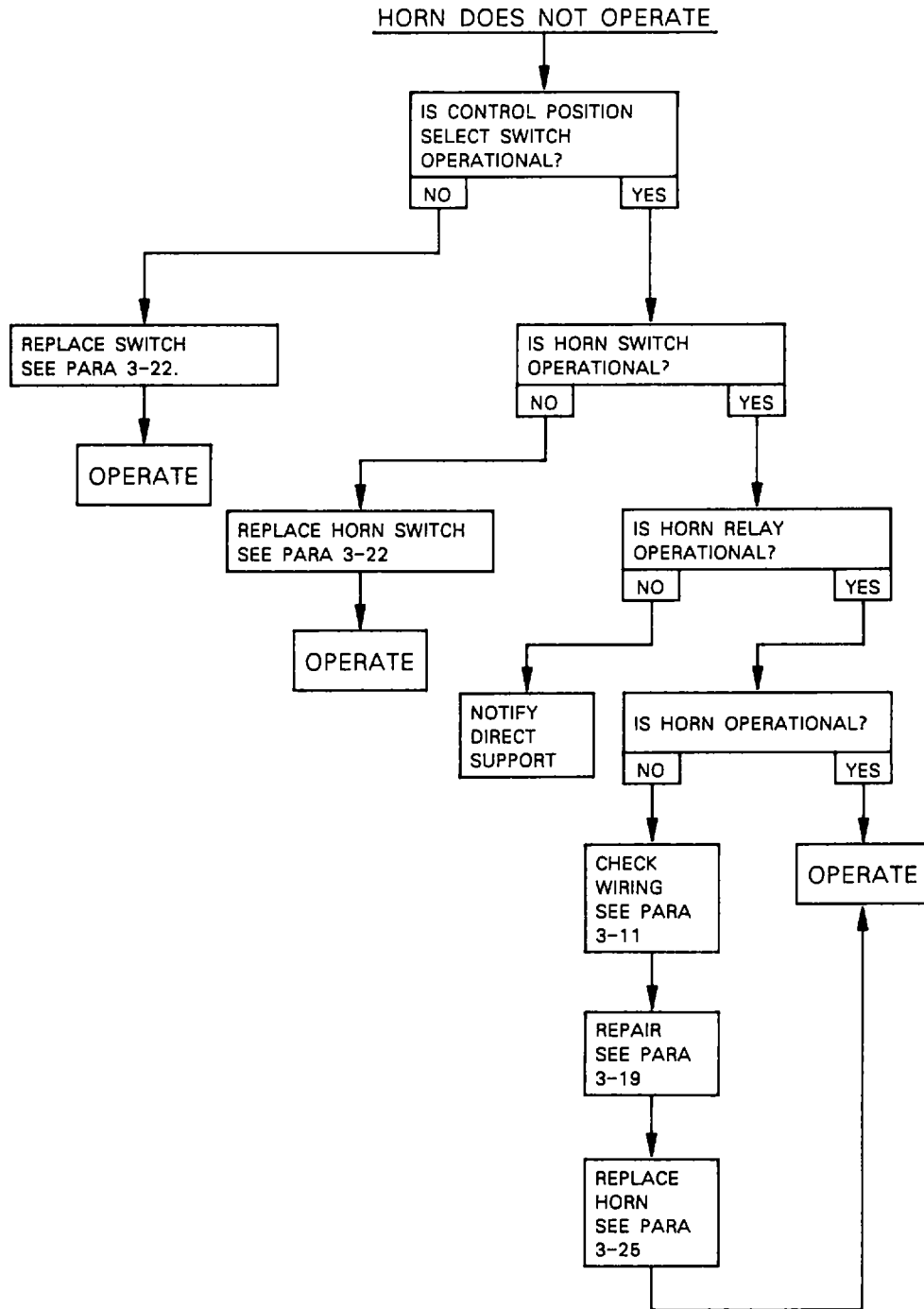




HYDRAULIC FLUID TEMPERATURE EXCEEDS RECOMMENDED LIMIT







Section V. MAINTENANCE PROCEDURES

3-15. GENERAL

3-15

a. This section contains maintenance procedures which are the responsibility of Organizational Maintenance as authorized by the Maintenance Allocation Chart (MAC, Appendix B).

b. The maintenance procedures for this section are as follows:

TASK	PARA	PAGE
Battery - Replace	3-16	3-43
Battery Cables - Replace.....	3-17	3-45
Control Boxes - Inspect.....	3-20	3-50
Directional Control Valves - Repair	3-34	3-85
Directional Control Valves - Replace	3-33	3-82
Engine - Adjust.....	3-46	3-120
Fuel Tank - Repair	3-45	3-118
Fuel Tank - Replace	3-44	3-116
Guardrails - Replace	3-42	3-111
Hand Pump - Replace	3-40	3-106
Horn - Replace.....	3-25	3-61
Hoses and Fittings - Replace	3-29	3-71
Hydraulic Motor, Brake and Drive Hub Assembly - Inspect.....	3-26	3-63
Hydraulic Motor, Brake and Drive Hub Assembly - Replace	3-28	3-66
Hydraulic Motor, Brake and Drive Hub Assembly - Service	3-27	3-64
Hydraulic Pump - Replace.....	3-39	3-102
Lift Cylinders - Replace	3-35	3-87
Lights - Repair.....	3-24	3-59
Lights - Replace	3-23	3-57
Limit Switches - Adjust.....	3-21	3-51
Limit Switches/Toggle Switches - Replace	3-22	3-53
Muffler - Replace	3-47	3-121
Solenoid valves - Repair	3-32	3-80
Solenoid Valves/Cartridges - Replace	3-31	3-77
Stabilizer Cylinders - Replace	3-36	3-92
Steering Cylinder - Replace.....	3-37	3-95
Steering Wheel Hubs and Bearings - Replace	3-41	3-108
Suction and Inlet Filters - Replace	3-30	3-74
Towing Assembly - Replace	3-43	3-113
Traverse Cylinder - Replace	3-38	3-99
Wiring - Repair	3-19	3-49
Wiring - Replace	3-18	3-48

NOTE

Resources required are not listed unless they apply to the procedure.

c. Personnel required for each task are listed in the Initial Setup.

d. The normal standard equipment condition to start a maintenance task is power OFF. EQUIPMENT CONDITION is not listed unless some other condition is required other than power off.

GO ON TO NEXT PAGE

3-16. BATTERY - REPLACE

3-16

This task covers:

- a. Removal
- b. Installation

INITIAL SETUP

Tools Required

Tool Kit, TI5180-00-177-7033

Personnel Required

MOS 63B, 1 Mechanic working near the battery.

General Safety Instructions

Do not allow smoking or sparks while

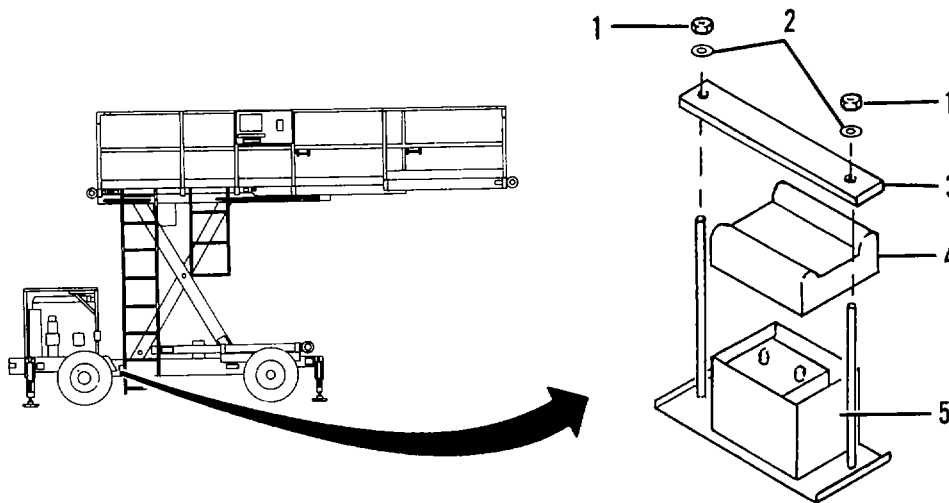


Figure 3-16. Battery Installation (Sheet 1 of 2).

WARNING

Always begin at the battery ground (-) when removing battery cables.

a. REMOVAL:

- (1) Remove two nuts (1, Figure 3-16), two washers (2), strap (3) and cover (4) from battery box (5).

GO ON TO NEXT PAGE

3-16. BATTERY - REPLACE (Continued)

3-16

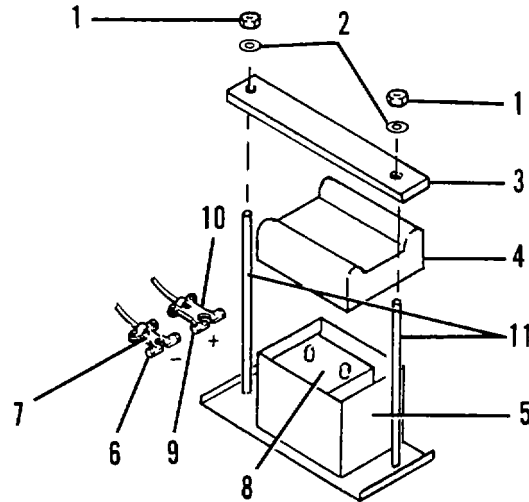


Figure 3-16. Battery Installation (Sheet 2 of 2).

- (2) Loosen negative (-) terminal nut (6) and remove negative cable (7) from battery (8).
- (3) Loosen positive (+) terminal nut (9) and remove positive cable (10) from battery (8).
- (4) Remove battery (8) from battery box (5).

b. INSTALLATION:

- (1) Place battery (8) in battery box (5).
- (2) Reinstall positive cable (10) on positive (+) post of battery (8). Tighten terminal nut (9).
- (3) Reinstall negative cable (7) on negative (-) post of battery (8). Tighten terminal nut (6).
- (4) Reinstall battery box cover (4) on battery box (5). Install strap (3) on rods (11) and install washers (2) and nuts (1).
- (5) Perform operational check for proper function.

END OF TASK

3-17. BATTERY CABLES - REPLACE

3-17

This task covers:

- a. Removal
- b. Installation

INITIAL SETUP

Materials/Parts

Positive Cable, Part Number W08WC-0050
 Negative Cable, Part Number W08WC-0066
 Tiestraps (Item 1, Appendix D)

Tools Required

Tool Kit, TI5180-00-177-7033

Personnel Required

MOS 63B, 1 Mechanic

General Safety Instructions

Do not allow smoking or sparks while working near battery.

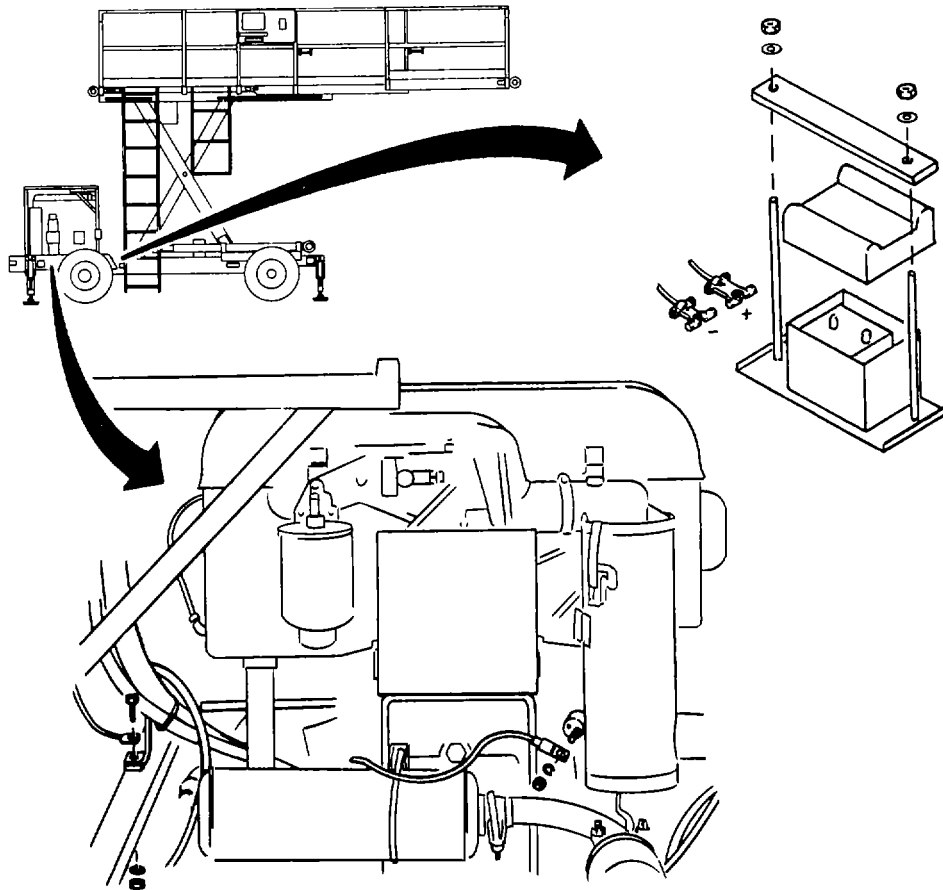


Figure 3-17. Battery Cable Replacement (Sheet 1 of 2).

GO ON TO NEXT PAGE

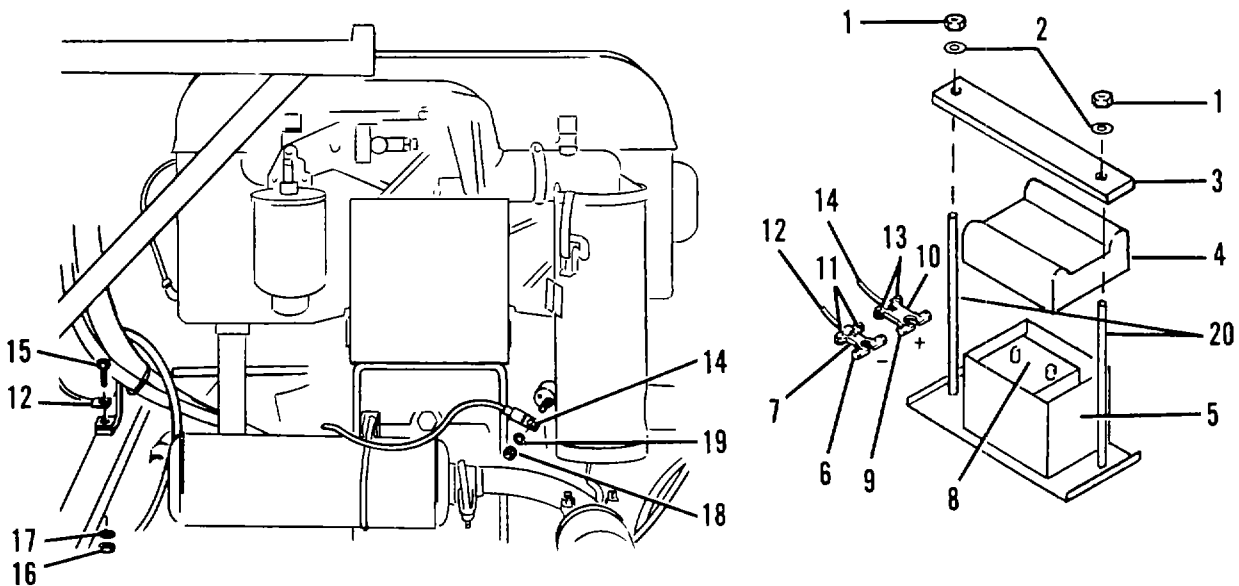


Figure 3-17. Battery Cable Replacement (Sheet 2 of 2).

WARNING

Always begin at the battery ground (-) when removing battery cables.

a. REMOVAL:

- (1) Remove two nuts (1, Figure 3-17), two washers (2), strap (3) and cover (4) from battery box (5).
- (2) Loosen the negative (-) cable terminal nut (6) at negative post of battery and remove terminal (7) from battery (8).
- (3) Loosen positive (+) cable terminal nut (9) at positive post of battery and remove terminal (10) from battery (8).
- (4) Loosen two negative terminal cable clamp bolts (11) and remove terminal (7) from cable (12).
- (5) Loosen two positive terminal cable clamp bolts (13) and remove terminal (10) from cable (14).
- (6) Remove any tiestraps that may be securing cables (12 and 14) to frame and discard.
- (7) Remove capscrew (15), nut (16) and lockwasher (17) from frame. Remove negative (-) cable (12) and discard.
- (8) Remove nut (18) and lockwasher (19) from starter solenoid. Remove positive (+) cable (14) and discard.

GO ON TO NEXT PAGE

3-17. BATTERY CABLES REPLACE (Continued)

3-17**b. INSTALLATION:**

- (1) Secure positive (+) cable (14) on starter solenoid with lockwasher (19) and nut (18).
- (2) Secure negative (-) cable (12) on frame with capscrew (15) lockwasher (17) and nut (16).
- (3) Route positive cable (14) to battery box (5). Guide cable through hole in battery box. Slide exposed end of cable into clamp of positive terminal (10) and tighten both clamp bolts (13).
- (4) Route negative cable (12) to battery box (5). Guide cable through hole in battery box. Slide exposed end of cable into clamp of negative terminal (7) and tighten both clamp bolts (11).
- (5) Install positive terminal (10) on positive post of battery (8). Tighten terminal nut (9) to secure terminal (10).
- (6) Install negative terminal (7) on negative post of battery (8). Tighten terminal nut (6) to secure terminal (7).
- (7) Reinstall cover (4) on battery box (5) and install strap (3) on rods (20). Secure with two washers (2) and two nuts (1).
- (8) Install tiestraps as needed to keep cables (12 and 14) from rub points.
- (9) Perform operational check for proper function.

END OF TASK

3-18. WIRING - REPLACE

3-18

This task covers:

- a. Removal**
 - b. Installation**
-

INITIAL SETUP

Materials/Parts

As Required

Equipment

Condition

Para

3-17

Condition Description

Battery ground cable disconnected.

Tools Required

Tool Kit, TI5180-00-177-7033

Personnel Required

MOS63B, 1 Mechanic

NOTE

See Foldouts, located in back of this manual, Figures OF-1, OF-2, OF-3 and OF-4 for wiring schematics.

- a. REMOVAL: Disconnect faulty wire(s) from terminal(s) as required.
- b. INSTALLATION:
 - (1) Install wire(s) on proper terminal(s). Be sure good contact is made.
 - (2) Connect ground cable to battery. Refer to para 3-17.
 - (3) Install tiestraps as needed to keep wire(s) from rub points.
 - (4) Perform operational check for proper function.

END OF TASK

3-19. WIRING-REPAIR

3-19

**This task covers:
Repair**

INITIAL SETUP:

Materials/Parts

As required

Equipment
Condition

Tools Required

Tool Kit TI 5180-00-177-7033

Para

3-17

Condition Description

Battery ground cable disconnected.

Personnel Required

MOS 63B, 1 Mechanic

REPAIR:

- a. Fabricate a replacement wire the correct length, and with the correct terminals. See Appendix E, Manufactured Items List, for wire fabrication procedures.
- b. Perform operational check for proper function.

END OF TASK

3-20. CONTROL BOXES-INSPECT

3-20

This task covers:
Inspection

INITIAL SETUP:

Personnel Required
MOS 63B, 1 Mechanic

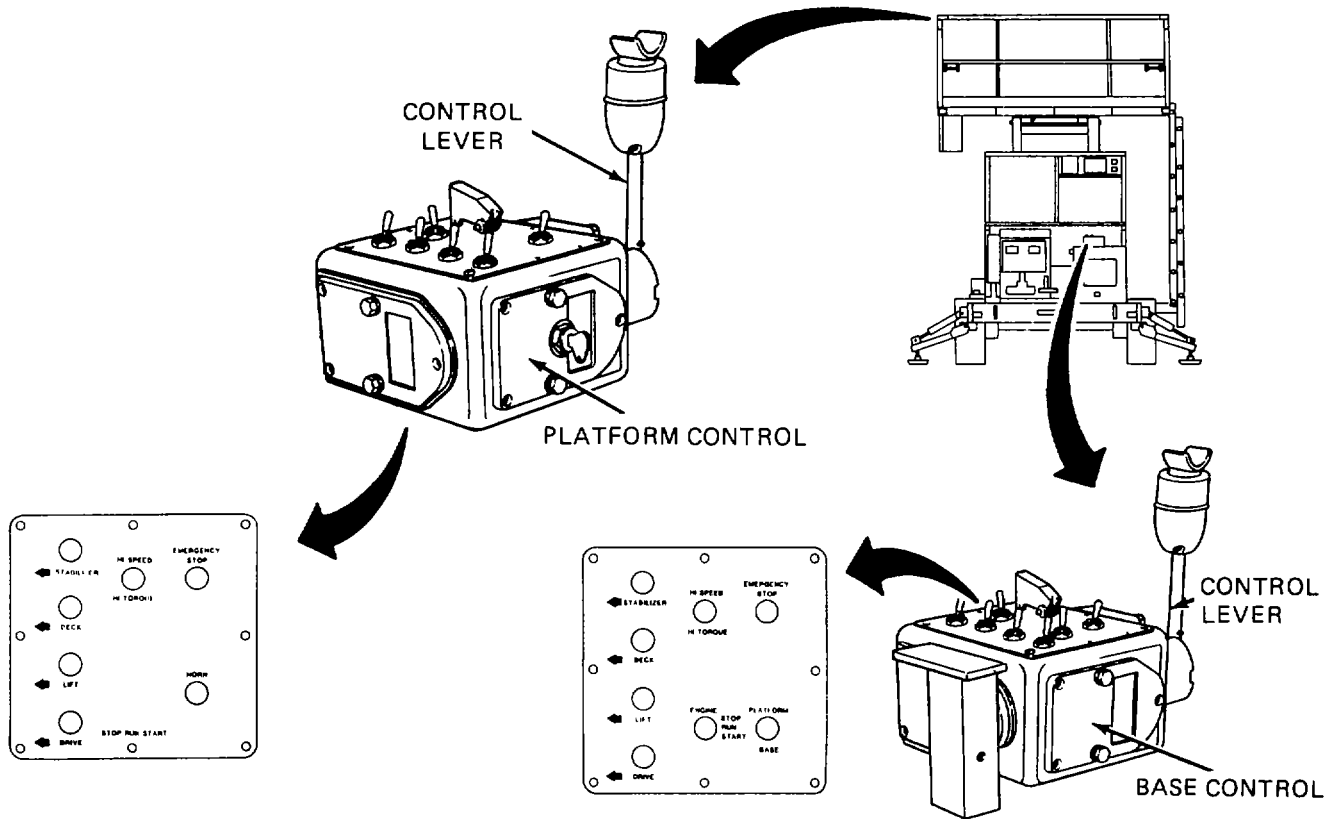


Figure 3-18. Control Boxes.

INSPECTION:

- a. Inspect outside of control boxes (Figure 3-18) for obvious damage.
- b. Perform operational check of each control on both boxes. Notify Direct Support to repair or replace control boxes as required.

END OF TASK

3-21. LIMIT SWITCHES- ADJUST

3-21

This task covers:
Adjustment

INITIAL SETUP:

Tools Required
Tool Kit TI 5180-00-177-7033

<u>Equipment</u>	<u>Condition</u>
<u>Para</u>	<u>Condition Description</u>
3-17	Battery ground cable disconnected.

Personnel Required
MOS 63B, 1 Mechanic

General Safety Instructions
Service/inspection safety brace must be installed. Refer to para 2-13.

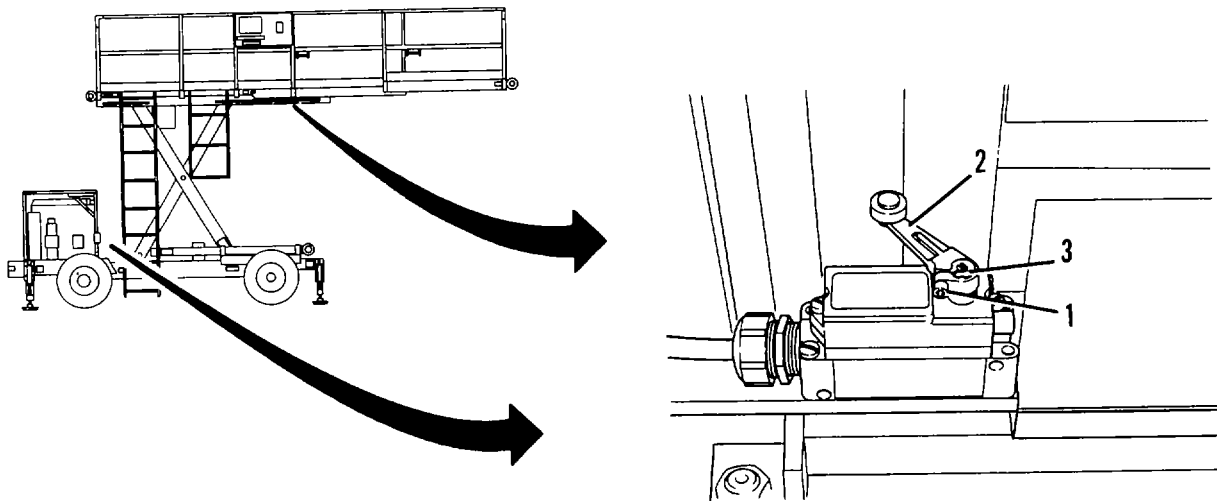


Figure 3-19. Limit Switch Adjustment (Sheet 1 of 2).

ADJUSTMENT:

- a. With switch mounted in position, loosen socket head screw (1, Figure 3-19) on lever arm (2).
- b. Use a screwdriver to turn shaft (3) clockwise until a click is heard.

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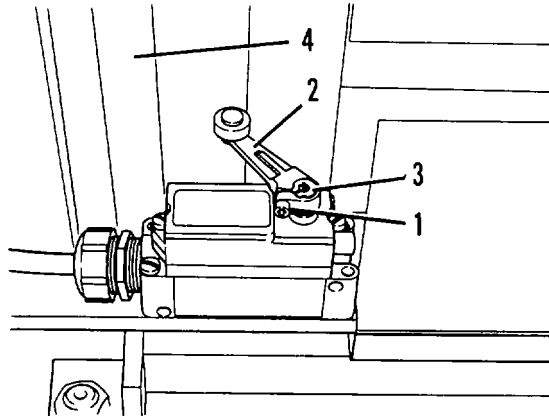


Figure 3-19. Limit Switch Adjustment (Sheet 2 of 2).

- c. Hold shaft (3) in position. Position lever arm (2) until it contacts the moving machine member (4) and tighten screw (1).
- d. Connect ground cable to battery. Refer to para 3-17.
- e. Operate moving machine member. Click should be heard when machine member makes contact with lever roller.
- f. Operational check the switch for proper function. Readjust if necessary.

END OF TASK

3-22. LIMIT SWITCHES/ TOGGLE SWITCHES REPAIR

3-22

This task covers:

- a. Limit Switches
 - (1) Removal
 - (2) Installation
- b. Toggle Switches
 - (1) Removal
 - (2) Installation

INITIAL SETUP:

Materials/Parts

Limit Switch, Part Number ESL 2
As Required

Equipment Condition

Para
3-17

Condition Description
Battery ground cable disconnected.

Personnel Required

MOS 63B, 1 Mechanic

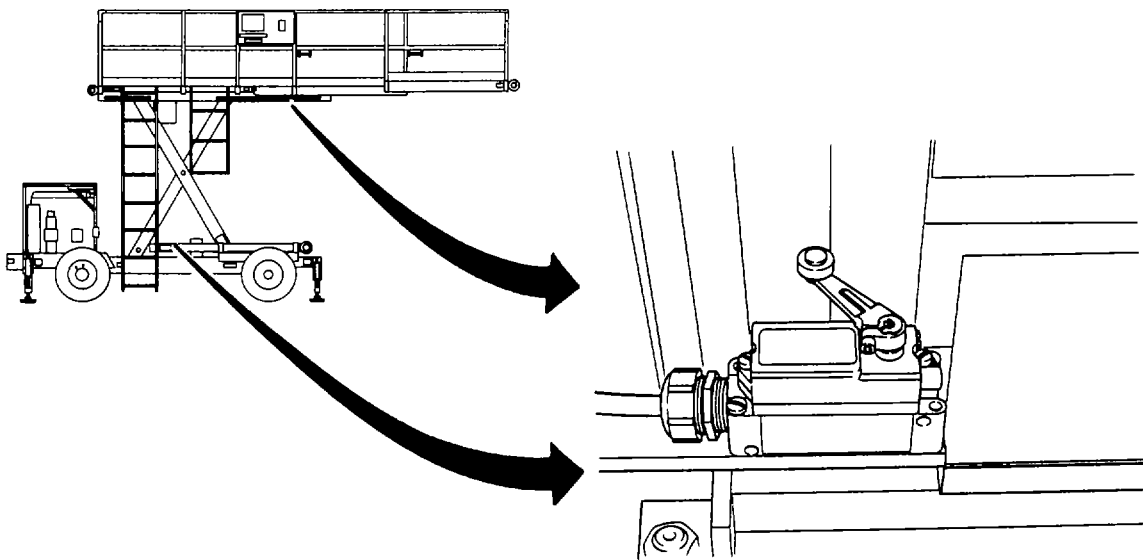


Figure 3-20. Limit Switch Replacement (Sheet 1 of 2).

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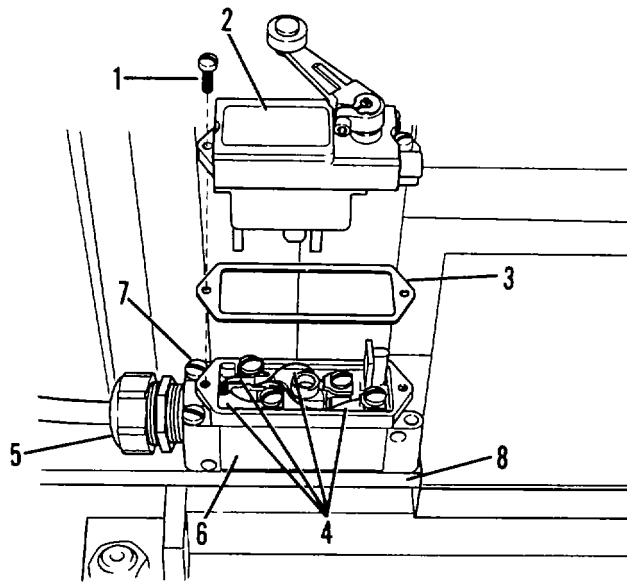


Figure 3-20. Limit Switch Replacement (Sheet 2 of 2).

a. LIMIT SWITCH:

(1) Removal:

- (a) Remove two screws (1, Figure 3-20) from limit switch cover (2). Remove limit switch cover (2) and gasket (3).
- (b) Tag and disconnect wires (4) from limit switch.
- (c) Remove strain relief nut (5) from limit switch housing (6). Pull wires out of housing (6).
- (d) Remove two screws (7) from limit switch housing (6). Remove housing (4) from mounting bracket (8).

(2) Installation:

- (a) Position limit switch housing (6). Install two screws (7) to secure housing to mounting bracket (8).
- (b) Thread wires into limit switch housing (6). Install strain relief nut (5).
- (c) Connect wires (4) to limit switch using the tags for identification.
- (d) Position limit switch cover (2) with gasket (3) and install two screws (1).
- (e) Adjust limit switch. Refer to para 3-21.
- (f) Connect battery ground cable. Refer to para 3-17.
- (g) Perform operational check for proper function.

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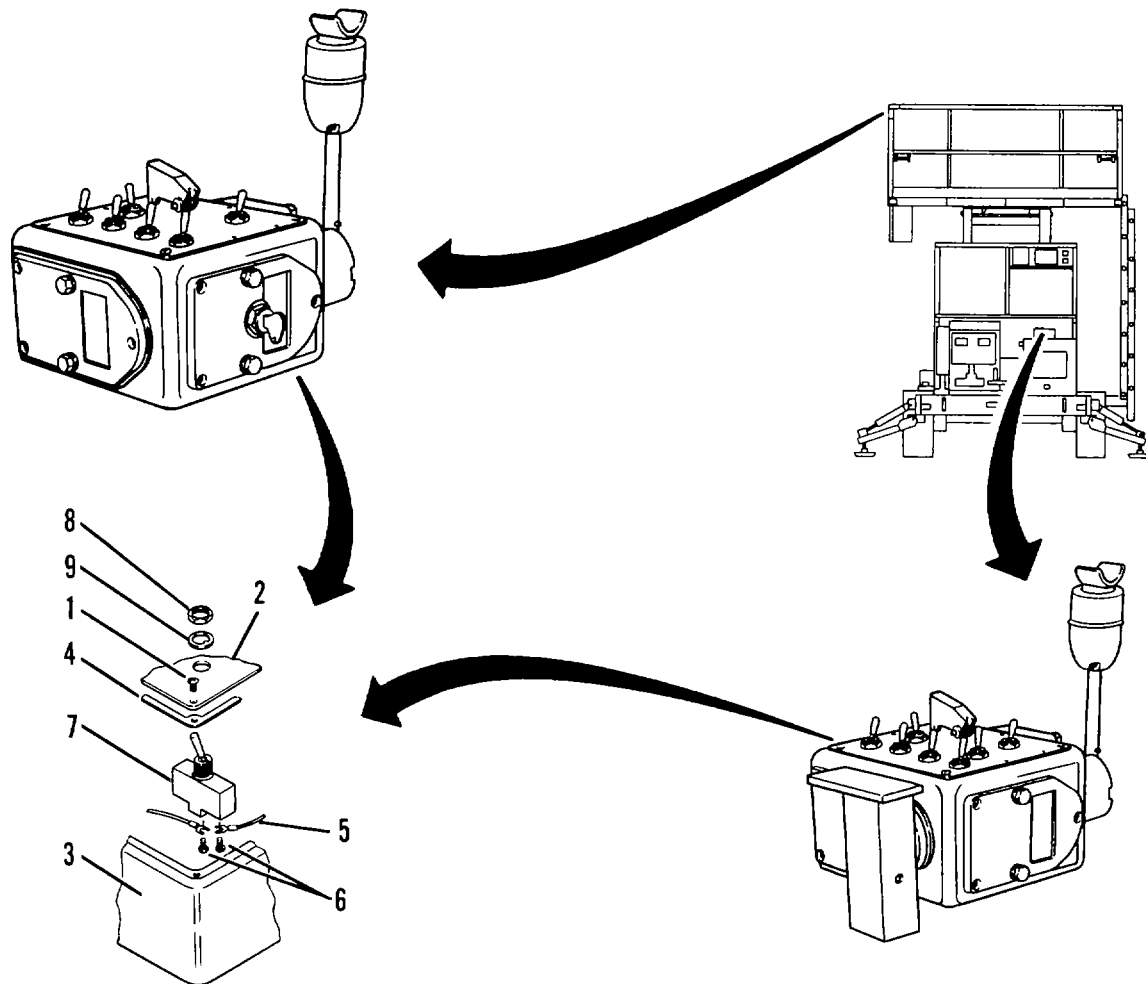
b. TOGGLE SWITCH:

Figure 3-21. Toggle Switch Replacement (Sheet 1 of 2).

(1) Removal:

- (a) Remove eight screws (1, Figure 3-21) from switch panel (2) on control console (3).
- (b) Remove switch panel (2) and gasket (4).

NOTE

Tag wires for ease of identification during installation.

- (c) Tag wires (5) at the switch (7). Remove screws (6) and disconnect wires.
- (d) Remove the switch fastening nut (8) and washer (9).
- (e) Remove the switch (7).

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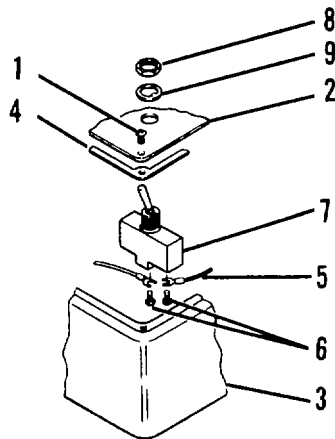


Figure 3-21. Toggle Switch Replacement (Sheet 2 of 2).

(2) Installation:

NOTE

Switch can only be installed one way.

- (a) Place the switch (7) in same position in switch panel (2).
- (b) Install washer (9) and nut (8) on the face of panel (2).
- (c) Connect wires (5) to same positions as marked on switch (7) and secure with screws (6). Use tags for terminal identification.
- (d) Position switch panel (2) and gasket (4) on control console (3).
- (e) Install eight screws (1) securing switch panel (2) to control console (3).
- (f) Connect ground cable to battery. Refer to para 3-17.
- (g) Perform operational check for proper function.

END OF TASK

3-23. LIGHTS-REPLACE**3-25**

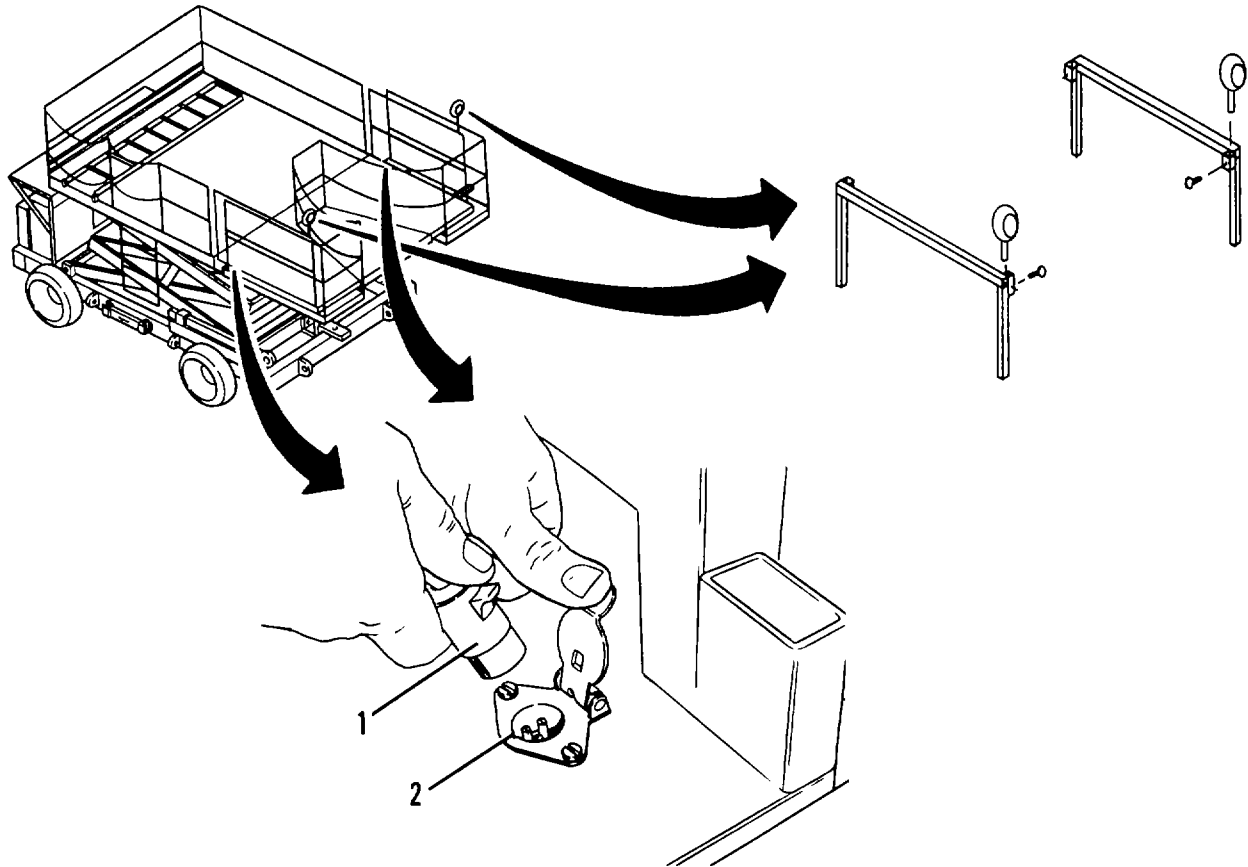
This task covers:

a. Removal**b. Installation****INITIAL SETUP:**Materials/Parts

Light Assy., Part Number B19030

Personnel Required

MOS 63B, 1 Mechanic

**Figure 3-22. Work Light Replacement (Sheet 1 of 2).****a. REMOVAL:**

- (1) Unplug light cord (1, Figure 3-22) from socket (2).

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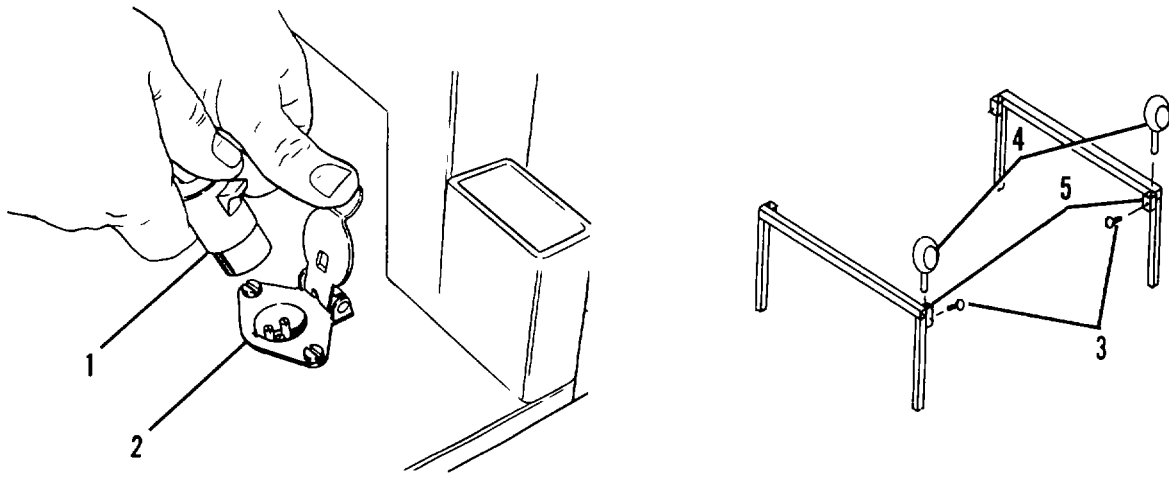


Figure 3-22. Worklight Replacement (Sheet 2 of 2).

- (2) Loosen thumb screw (3).
- (3) Lift light assembly (4) out of bracket (5).

b. INSTALLATION:

- (1) Insert light assembly (4) into bracket (5).
- (2) Tighten thumb screw (3).
- (3) Plug light cord (1) into socket (2).
- (4) Perform operational check of light. Refer to para 2-14.

END OF TASK

3-24. LIGHTS-REPAIR

3-24

This task covers:

- a. Disassembly
- b. Assembly

INITIAL SETUP:

Materials/Parts
Light Bulb, Part Number 4589

Equipment
Condition

Para
3-23

Condition Description
Light removed.

Tools Required
Tool Kit TI 5180-00-177-7033

Personnel Required
MOS 63B, 1 Mechanic

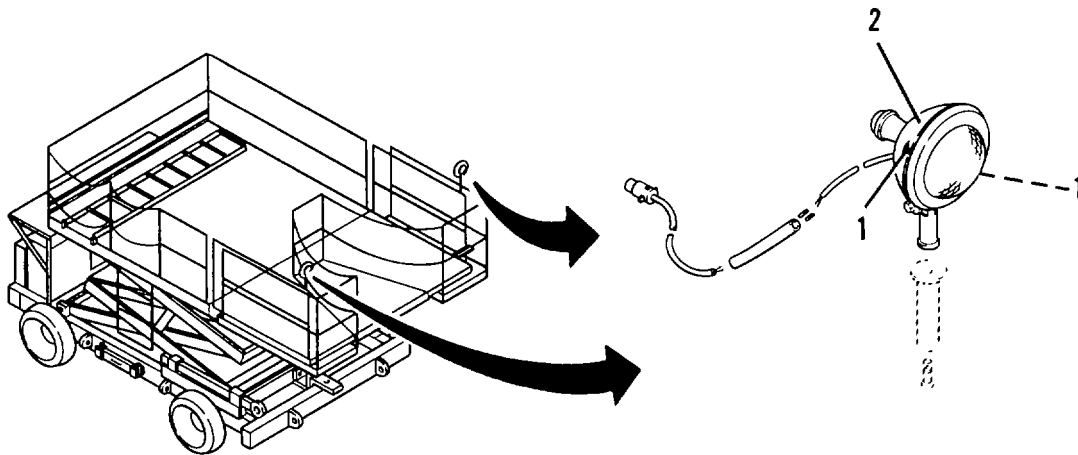


Figure 3-23. Work Light Repair (Sheet 1 of 2).

a. DISASSEMBLY:

- (1) Remove two screws (1, Figure 3-23) from back housing (2).

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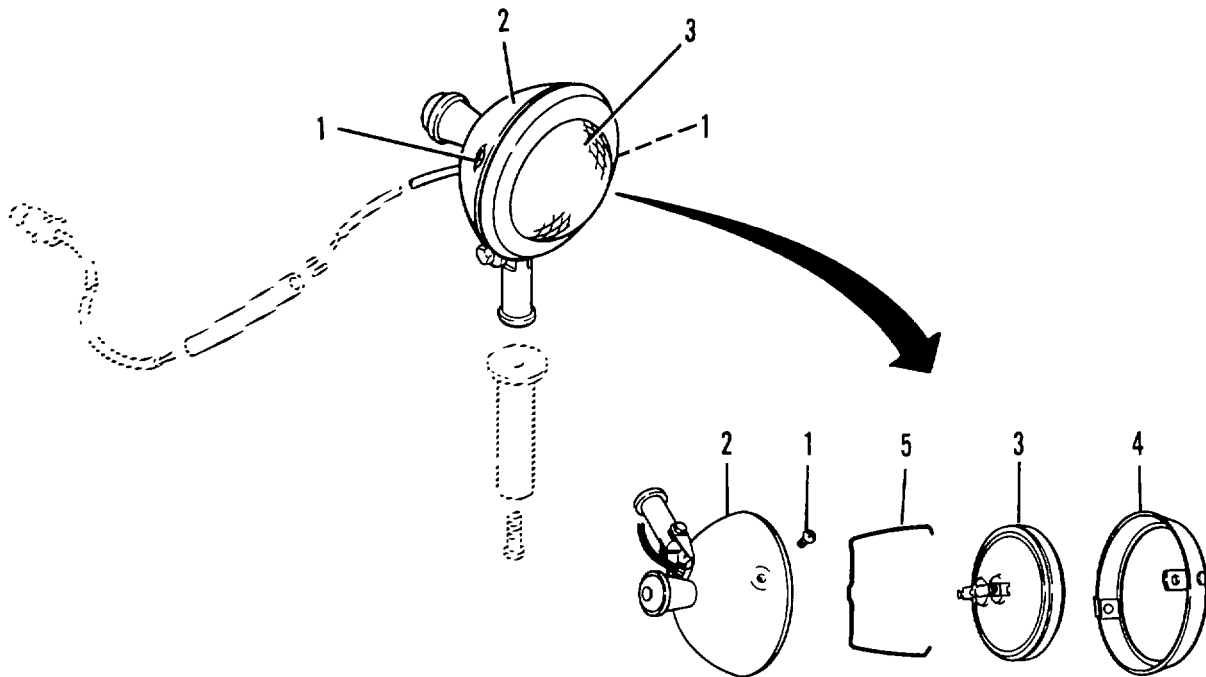


Figure 3-23. Work Light Repair (Sheet 2 of 2).

- (2) Separate the front housing (4) and back housing (2) of the light assembly.
- (3) Remove two leads from back of bulb (3).
- (4) Remove tension spring (5) securing bulb (3).
- (5) Remove bulb (3).

b. ASSEMBLY:

- (1) Clean contacts thoroughly.
- (2) Position bulb (3) in place.
- (3) Install spring (5) to secure bulb (3) in front housing (4).
- (4) Connect leads and position bulb (3).
- (5) Position the front housing (4) and back housing (2) of light assembly together and align screw holes.
- (6) Install two screws (1) and tighten.
- (7) Perform operational check. Refer to para 2-14.

END OF TASK

3-25. HORN-REPLACE

3-25

This task covers:

- a. Removal
- b. Installation

INITIAL SETUP:

Materials/Parts

Horn, Part Number EH5

Silicone Sealer (Item 2, Appendix D)

Equipment
Condition

Para
3-17

Condition Description
Battery ground cable
disconnected.

Tools Required

Tool Kit TI 5180-00-177-7033

Personnel Required

MOS 63B, 1 Mechanic

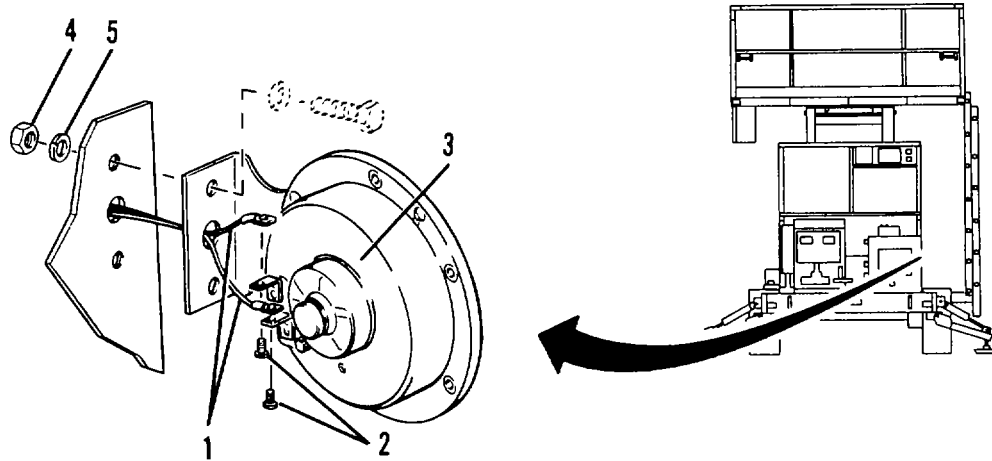


Figure 3-24. Horn Replacement (Sheet 1 of 2).

a. REMOVAL:

- (1) Tag and disconnect two wires (1, Figure 3-24) by removing screws (2) from horn (3).
- (2) Remove two nuts (4) and two lockwashers (5).

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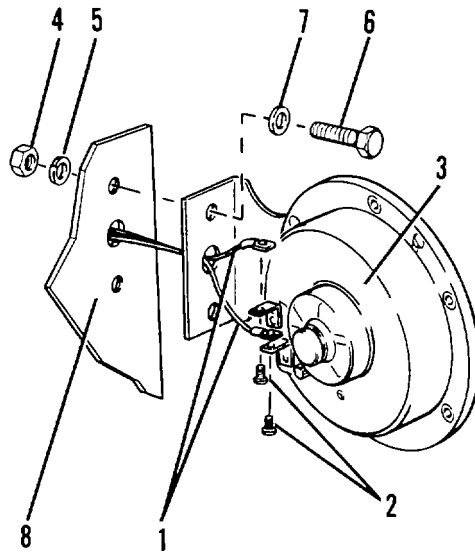


Figure 3-24. Horn Replacement (Sheet 2 of 2).

- (3) Remove two bolts (6) and two flat washers (7).
- (4) Remove horn (3) from junction box (8).

b. INSTALLATION:

- (1) Position horn (3) on side of junction box (8).
- (2) Install two flat washers (7) and two bolts (6).
- (3) Install two lock washers (5) and two nuts (4). Tighten nuts (4).
- (4) Connect two wires (1) to horn (3) with two screws (2). Use tags for identification.
- (5) Coat wire connections with silicone sealer.
- (6) Connect battery ground cable. Refer to para 3-17.
- (7) Perform operational check for proper function.

END OF TASK

3-26. HYDRAULIC MOTOR, BRAKE, AND DRIVE HUB ASSEMBLY-INSPECT**3-26**

This task covers:
Inspection

INITIAL SETUP:

Tools Required
Tool Kit TI 5180-00-177-7033

Personnel Required
MOS 63B, 1 Mechanic

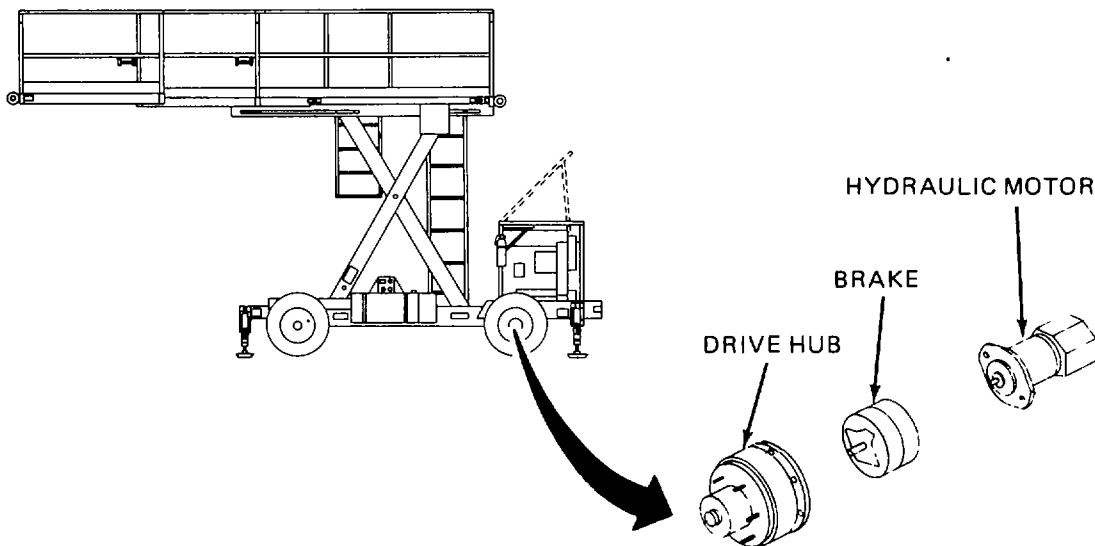


Figure 3-25. Hydraulic Motor, Brake, and Drive Hub Assembly.

INSPECTION:

- Visually inspect hydraulic motor, brake, and drive hub assemblies (Figure 3- 25) for leakage, obvious damage and loose hardware.
- Tighten any leaking hose connections or loose hardware.
- Replace the assembly if leakage is seen between components. See para 3-28.

END OF TASK

3-27. HYDRAULIC MOTOR, BRAKE AND DRIVE HUB ASSEMBLY- SERVICE**3-27**

This task covers:
Service of Drive Hub

INITIAL SETUP:Materials/Parts

GO-90 Oil (Item 3, Appendix D)

Tools Required

Tool Kit TI 5180-00-177-7033

Drip Pan

Personnel Required

MOS 63B, 1 Mechanic

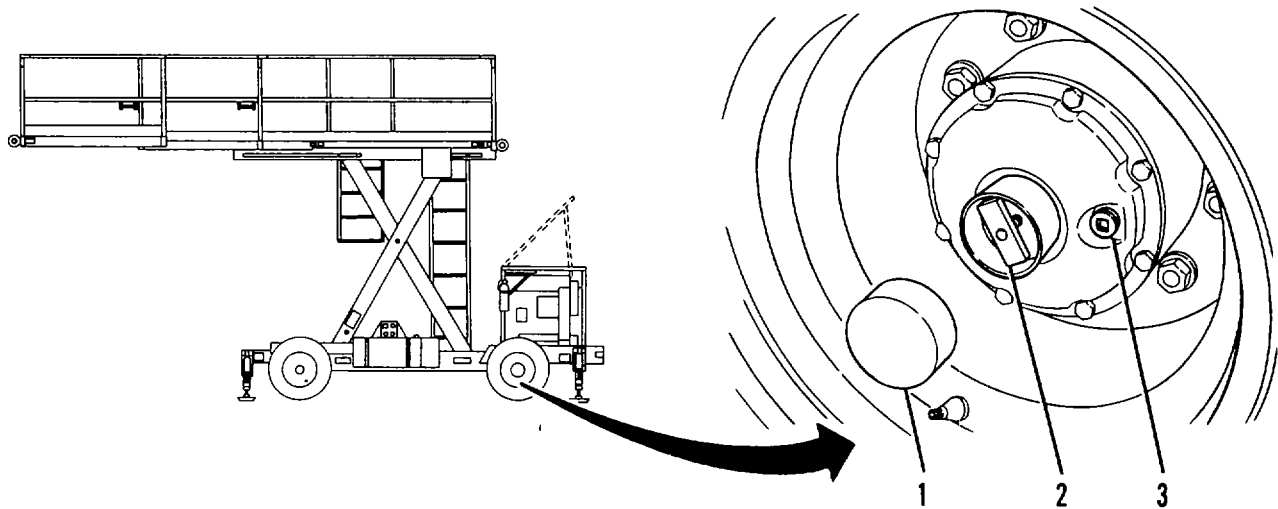


Figure 3-26. Drive Hub Service.

SERVICE:**NOTE**

Install chocks on steering wheels.

- a. Position floor jack under frame near wheel and raise SPEMS until tire is just off floor. Install jack stands.
- b. Remove dust cover (1, Figure 3-26).

GO ON TO NEXT PAGE

3-27. HYDRAULIC MOTOR, BRAKE AND DRIVE HUB ASSEMBLY- SERVICE (Continued)

3-27

- c. Disengage drive hub(s) (2). Refer to para 2-15.
- d. Rotate wheel until the check/fill plug (3) is at 6 o'clock position.
- e. Remove plug (3) and drain oil into drip pan.
- f. Rotate wheel until check/fill plug hole is at either 3:00 or 9:00 o'clock position.
- g. Fill to lip of hole with gear oil (GO-90).
- h. Install check/fill plug (3) in fill hole.
- i. Remove jack stands.
- j. Lower SPEMS and remove jack.
- k. Engage drive hub(s) (2). Refer to para 2-15.
- l. Reinstall dust cover (1).
- m. Perform operational check for proper function.

END OF TASK

3-28. HYDRAULIC MOTOR, BRAKE AND DRIVE HUB ASSEMBLY- REPLACE

3-28

This task covers:

- a. Removal
- b. Installation

INITIAL SETUP:

Materials/Parts

Hydraulic Oil (Item 4, Appendix D)
 Hydraulic Motor, Part Number 104-1216
 Brake, Part Number FD15
 Drive Hub, Part Number 14-02-000-021
 Gasket, Part Number 28426
 Preformed Packing,
 Part Number C19138-4

Equipment
 Condition

Para
 2-6

Condition Description
 Tire/Wheel assembly
 removed.

Tools Required

Tool Kit TI 5180-00-177-7033
 Drip Pan

Personnel Required

MOS 63B, 2 Mechanics

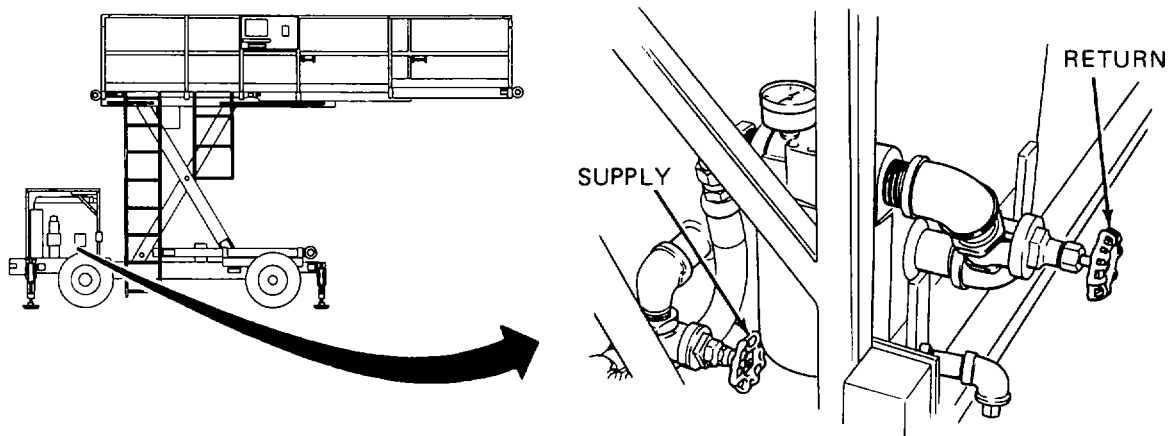


Figure 3-27. Hydraulic System Gate Valves.

a. REMOVAL:

WARNING

Some hoses may contain small amounts of trapped hydraulic pressure. Wear protective clothing including a face shield, head gear and gloves. Fine streams of hydraulic fluid under pressure cannot be readily seen but can easily penetrate the skin causing severe personal injury. Use extreme caution and be alert whenever breaking into a hydraulic system.

GO ON TO NEXT PAGE

WARNING

Hydraulic fluid may be extremely hot. Allow the SPEMS to stand fifteen minutes before breaking into hydraulic system.

- (1) Close (turn fully clockwise) both the supply and return line gate valves (Figure 3-27).

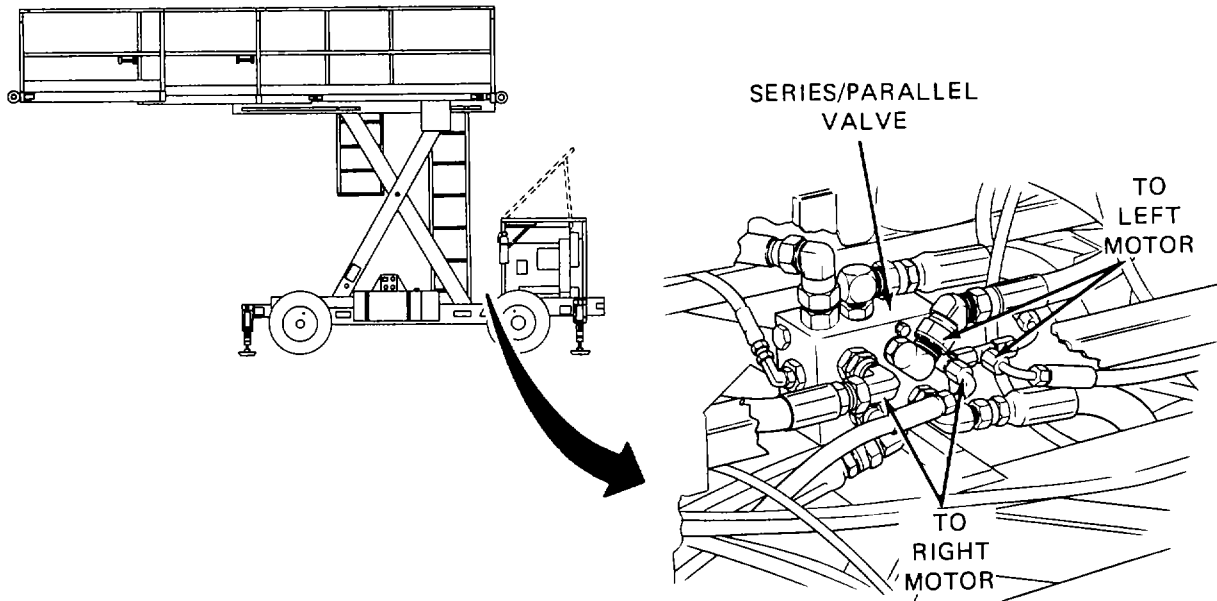


Figure 3-28. Series/Parallel Valve Connections.

- (2) Tag the hydraulic motor hoses at the series/parallel valve (Figure 3-28) for ease of identification during installation.
- (3) Place a drip pan underneath the series/parallel valve. Disconnect the hydraulic hoses for the motor at the series/parallel valve. Plug the hydraulic hoses and valve to prevent foreign matter from entering the system.

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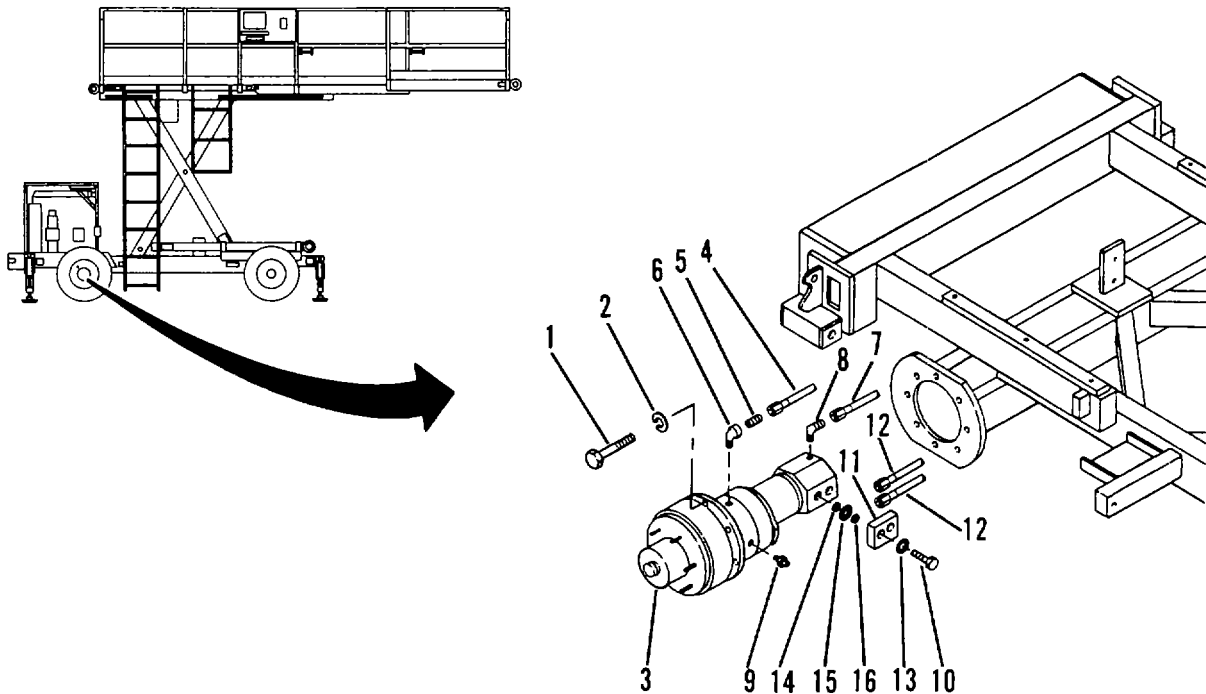


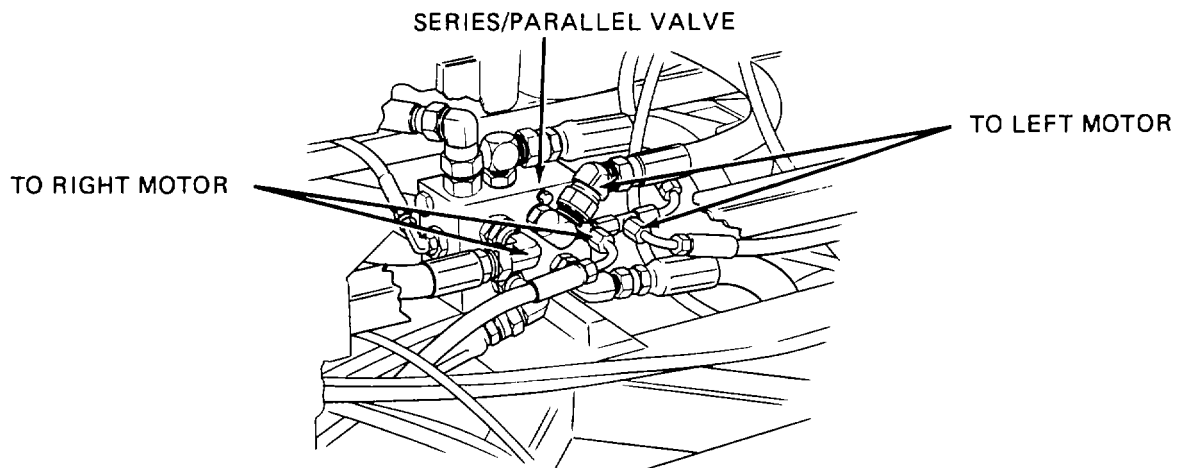
Figure 3-29. Hydraulic Motor, Brake, and Drive Hub, Replacement.

- (4) Remove eight capscrews (1, Figure 3-29) and washers (2) securing the hub assembly (3) to the flange.
- (5) Place a drip pan under the frame member. Disconnect brake hose (4) and fitting (5) from elbow (6). Plug the line to prevent foreign matter from entering.
- (6) Slide hub assembly out 3" (76 mm). Remove case drain hose (7) from elbow (8).
- (7) Remove elbow (6) from brake housing. Plug housing to prevent foreign matter from entering.
- (8) Turn the assembly 900 counterclockwise and remove bleeder valve (9).
- (9) Use an overhead hoist and suitable straps to support the drive hub. Install a strap between wheel hub and mounting flange.
- (10) Slide the assembly from frame housing about 15 inches. Reinstall bleeder valve (9) in brake housing.
- (11) Tag the hydraulic hoses at the adapter block (11) for ease of identification during reassembly. Remove two banjo fittings (10) securing drive motor adapter block (11). Remove block (11), hydraulic hoses (12) and spacers (13). Remove preformed packing (14), washer (15) and preformed packing (16). Plug the block, motor and hoses to prevent foreign matter from entering.

GO ON TO NEXT PAGE

3-28. HYDRAULIC MOTOR, BRAKE AND DRIVE HUB ASSEMBLY- REPLACE (Continued)**3-28****b. INSTALLATION:**

- (1) Using the identification tags, position adapter block (11, Figure 3-29), preformed packing (16), washer (15), preformed packing (14), spacers (13) and hoses (12) on drive motor. Using two banjo fittings (10), attach block to motor and tighten.
- (2) Suspend the hub assembly (3) at the frame. Remove bleeder valve (9) from brake valve housing. Slide the hub assembly into the frame.

**Figure 3-29.1. Series/Parallel Valve Connections.**

- (3) Using the tags for identification, attach hydraulic hoses to series/parallel valve (Figure 3-29.1) using 2 wrenches.
- (4) Turn the drive hub/brake/motor assembly as needed and install bleeder valve (9, Figure 3-29) and elbow (6). Attach hydraulic brake hose (4) and fitting (5) to elbow (6).
- (5) Attach motor case drain hose (7) to elbow (8) and tighten.
- (6) Secure the assembly to the flange with eight capscrews (1) and washers (2).
- (7) Install tire/wheel assembly. Refer to para 2-6.
- (8) Service hub. Refer to para 3-27.

CAUTION

Gate valves must be opened prior to startup to prevent pump damage.

GO ON TO NEXT PAGE

3-28. HYDRAULIC MOTOR, BRAKE AND DRIVE HUB ASSEMBLY- REPLACE (Continued)**3-28**

- (9) Open (turn fully counterclockwise) the supply and return line gate valves (1 and 2, Figure 3-29.2).

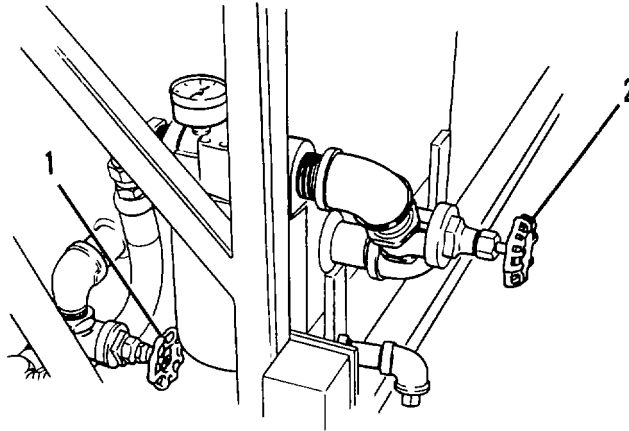


Figure 3-29.2. Hydraulic System Gate Valves.

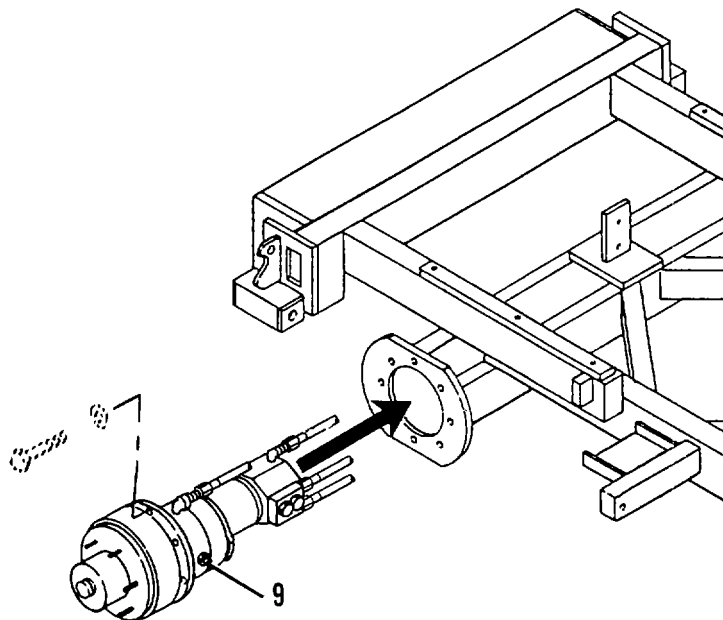


Figure 3-29.3. Hydraulic Motor, Brake and Drive Hub, Replacement.

- (10) Loosen the bleeder valve (9, Figure 3-29.3).
- (11) Start the SPEMS and flick the drive mode switch until fluid is seen at the bleeder valve. Tighten the bleeder valve.
- (12) Start the SPEMS and check for proper operation and leakage. Tighten fittings if necessary.

END OF TASK

3-29. HOSES AND FITTINGS - REPLACE

3-29

This task covers:

- a. Removal
- b. Installation

INITIAL SETUPMaterials/Parts

Hose with fittings (as required)
Hydraulic Oil (Item 4, Appendix D)
Tie Straps (Item 1, Appendix D)

Tools Required

Tool Kit TI 5180-00-177-7033
Drip Pan

Personnel Required

MOS 63B, 1 Mechanic

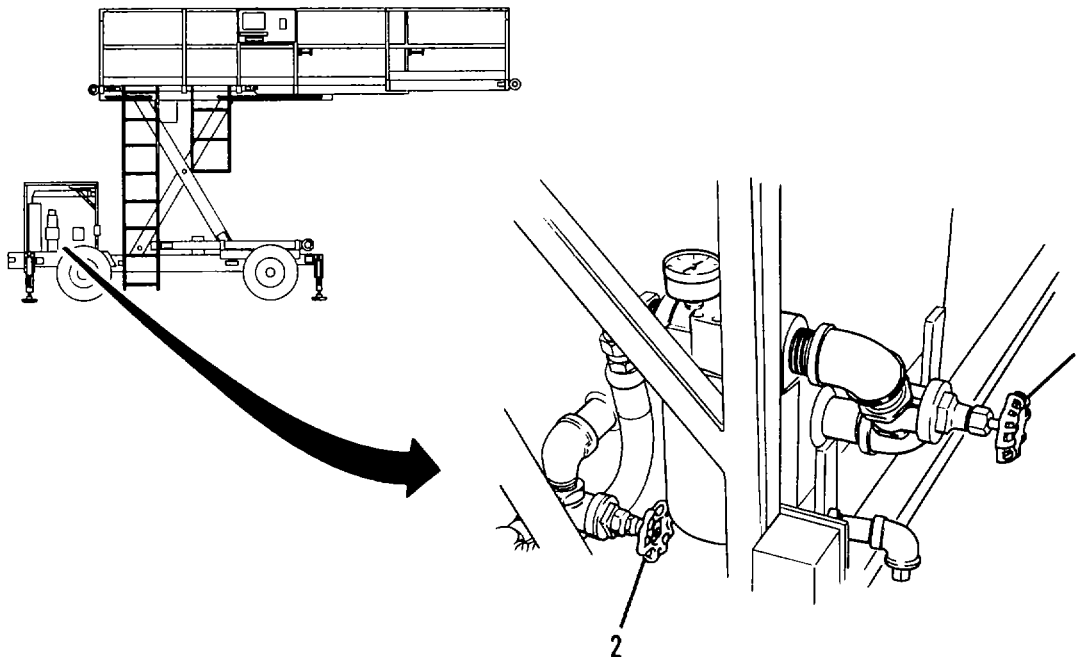


Figure 3-30. Hydraulic System Gate Valves (Sheet 1 of 2).

GO ON TO NEXT PAGE

a. REMOVAL:**WARNING**

Some hoses may contain small amounts of trapped hydraulic pressure. Wear protective clothing including a face shield, head gear and gloves. Fine streams of hydraulic fluid under pressure cannot be readily seen but can easily penetrate the skin causing severe personal injury. Use extreme caution and be alert whenever breaking into a hydraulic system.

WARNING

Hydraulic fluid may be extremely hot. Allow the SPEMS to stand fifteen minutes before breaking into hydraulic system.

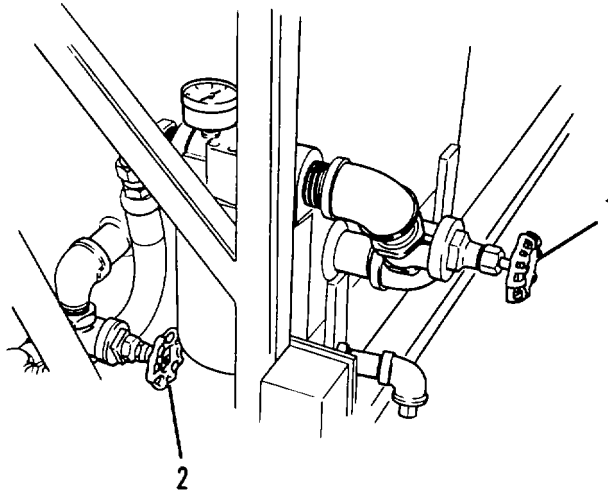


Figure 3-30. Hydraulic System Gate Valves (Sheet 2 of 2).

- (1) Close (turn fully clockwise) the suction and return gate valves (1 and 2, Figure 3-30) at the hydraulic reservoir.
- (2) Place a drip pan below the swivel end of the hose.
- (3) Disconnect the hose at the swivel end. Use two wrenches, one on the fitting and the other on the swivel connector. Allow the fluid to drain into the drip pan.

NOTE

See Foldouts, Figures FO-5, for hydraulic schematic.

GO ON TO NEXT PAGE

3-29. HOSES AND FITTINGS - REPLACE (Continued)

3-29

- (4) Use two wrenches to disconnect the opposite end of the hose.
- (5) Plug all hose connections to keep foreign matter from entering the system.
- (6) Remove fitting(s) if necessary. b.

b. INSTALLATION:**NOTE**

Replace hose and fittings. Do not attempt to repair hose by replacing a fitting.

- (1) Install fitting(s) if removed.
- (2) Route the hose in position, be sure there are no sharp bends or kinks.
- (3) Dip each hose end in clean hydraulic fluid.
- (4) Install one end and tighten with two wrenches.
- (5) Ensure that the hose will not interfere with movable components or rub on sharp corners.
- (6) Install the opposite end of the hose and tighten with two wrenches.
- (7) Use plastic tie straps as necessary to keep the hose away from sharp corners or movable components. Gate valves must be opened prior to startup to prevent pump damage.

CAUTION

Gate valves must be opened prior to startup to prevent pump damage.

- (8) Open (turn fully counterclockwise) the reservoir suction and return gate valves (1 and 2, Figure 3-30).
- (9) Start SPEMS and operate in all modes several times.
- (10) With SPEMS OFF, check hydraulic reservoir level and add oil as needed. Refer to para 2-5, PMCS.
- (11) Perform operational check for proper function.

END OF TASK

3-30. SUCTION AND INLET FILTERS - REPLACE

3-30

This task covers:

- a. Removal
- b. Installation

INITIAL SETUP**Materials/Parts**

Return Filter, Part Number HF20
Suction Filter, Part Number HF21
Hydraulic Oil (Item 4, Appendix D)

Tools Required

Tool Kit TI 5180-00-177-7033
Drip Pan

Personnel Required

MOS 63B, 1 Mechanic

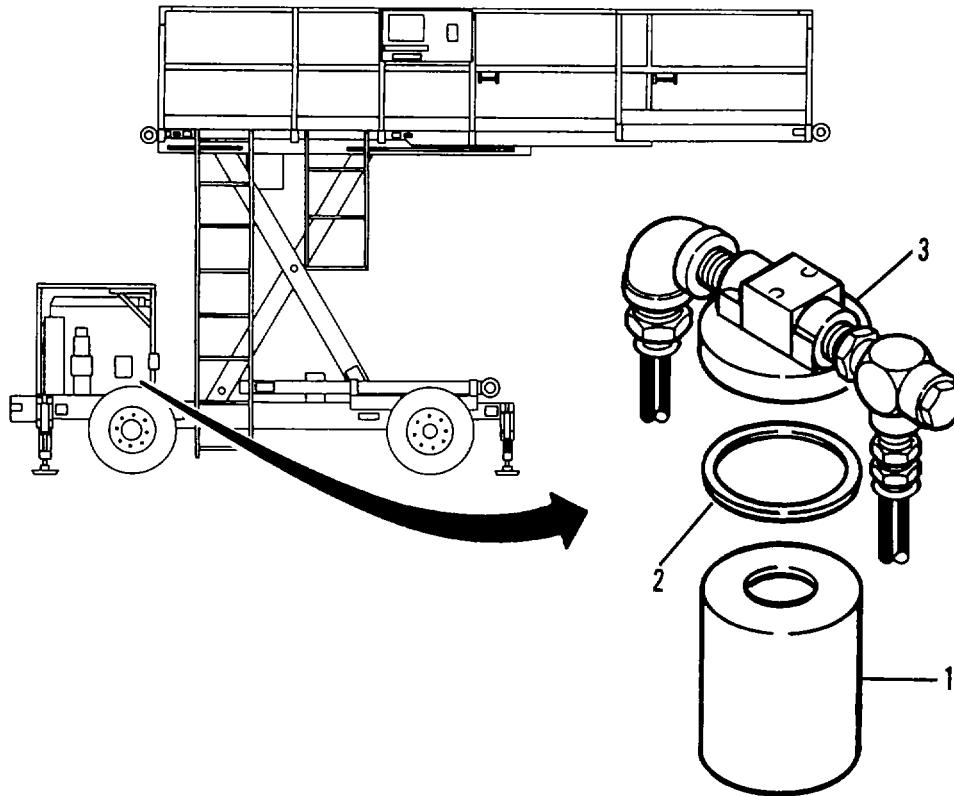


Figure 3-31. Hydraulic System Filters.

GO ON TO NEXT PAGE

3-30. SUCTION AND INLET FILTERS - REPLACE (Continued)**3-30****a. REMOVAL:****WARNING**

Some hoses may contain small amounts of trapped hydraulic pressure. Wear protective clothing including a face shield, head gear and gloves. Fine streams of hydraulic fluid under pressure cannot be readily seen but can easily penetrate the skin causing severe personal injury. Use extreme caution and be alert whenever breaking into a hydraulic system.

WARNING

Hydraulic fluid may be extremely hot. Allow the SPEMS to stand fifteen minutes before breaking into hydraulic system. Figure 3-31.1. Gate Valves.

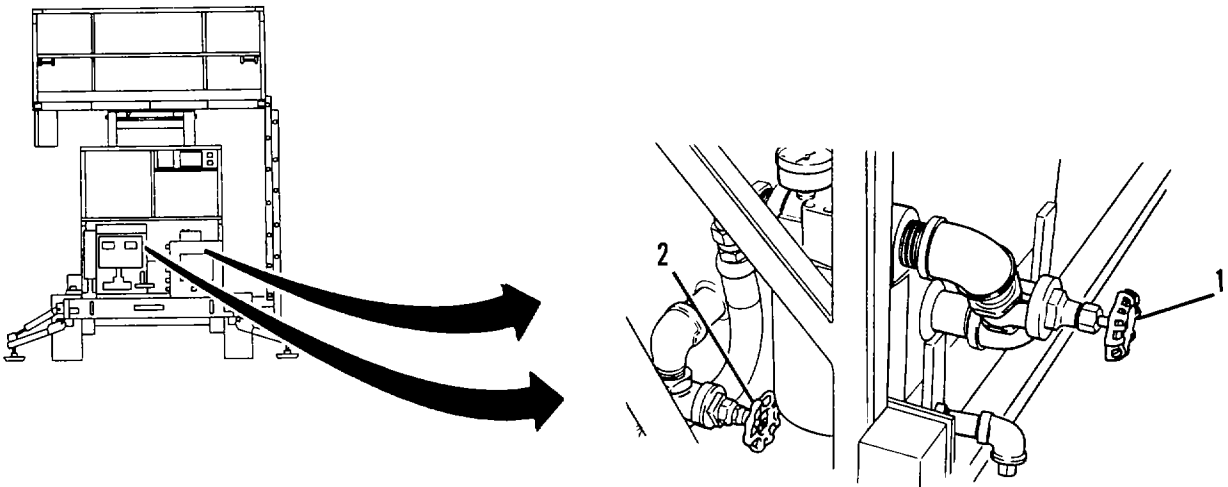


Figure 3-31.1. Gate Valves.

- (1) Close (turn fully clockwise) the suction and return gate valves (1 and 2, Figure 3-31.1).
- (2) Place a drip pan under the filter.
- (3) Using strap wrench, unscrew filter element (1, Figure 3-31) and discard.
- (4) Remove gasket (2) from filter base (3) and discard.

b. INSTALLATION:

- (1) Lubricate gasket (2) with clean hydraulic fluid and install in filter base (3).

GO ON TO NEXT PAGE

3-30. SUCTION AND INLET FILTERS - REPLACE (Continued)**3-30****CAUTION**

Do not overtighten filter or damage will occur.

- (2) Fill filter approximately half-way with clean hydraulic fluid and screw filter element (1) onto base (3) until it is hand tight; then 1/4 turn more using strap wrench.

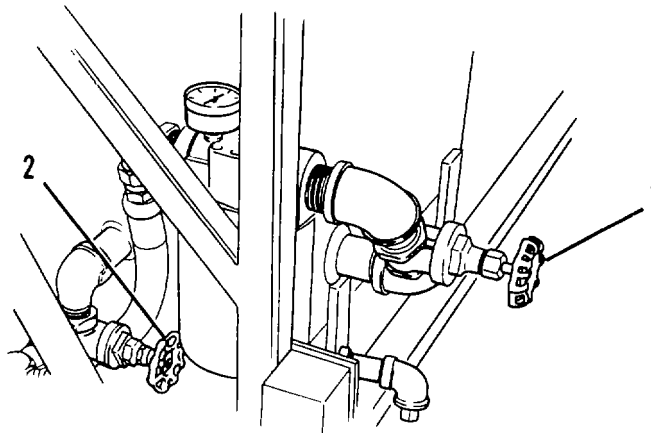


Figure 3-31.2. Hydraulic System Gate Valves.

CAUTION

Gate valves must be fully opened prior to startup to prevent pump damage.

- (3) Open (turn fully counterclockwise) the suction and return gate valves (1 and 2, Figure 3-31.2).
- (4) Operate hydraulic system and check filters for leaks.
- (5) Check hydraulic reservoir for proper fluid level. Refer to para 2-5, PMCS.
- (6) Perform operational check for proper function.

END OF TASK

3-31. SOLENOID VALVES/ CARTRIDGES - REPLACE

3-31

This task covers:

- a. Solenoid Valves
 - (1) Removal
 - (2) Installation
- b. Cartridges
 - (1) Removal
 - (2) Installation

INITIAL SETUP

Materials/Parts

As Required

Hydraulic Oil (Item 4, Appendix D)

Tools Required

Tool Kit TI 5180-00-177-7033

Drip Pan

Personnel Required

MOS 63B, 1 Mechanic

Equipment

Condition

Para

3-17

Condition Description

Battery ground cable disconnected.

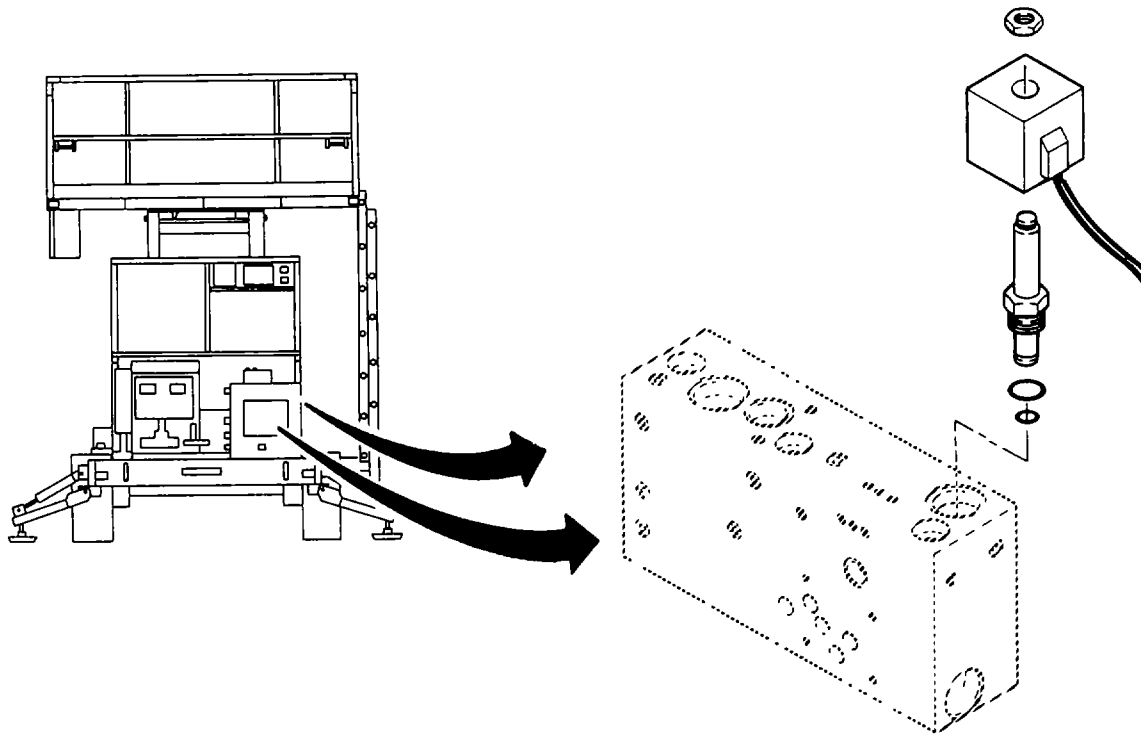


Figure 3-32. Solenoid Valve/Cartridge Assembly (Sheet 1 of 2).

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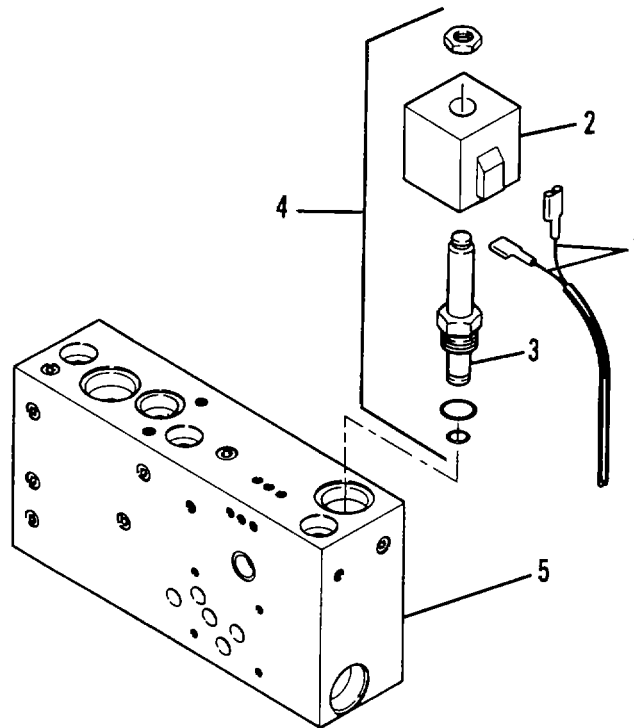


Figure 3-32. Solenoid Valve/Cartridge Assembly (Sheet 2 of 2).

a. SOLENOID VALVES:

(1) Removal:

WARNING

Some hoses may contain small amounts of trapped hydraulic pressure. Wear protective clothing including a face shield, head gear and gloves. Fine streams of hydraulic fluid under pressure cannot be readily seen but can easily penetrate the skin causing severe personal injury. Use extreme caution and be alert whenever breaking into a hydraulic system.

WARNING

Hydraulic fluid may be extremely hot. Allow the SPEMS to stand fifteen minutes before breaking into hydraulic system.

- (a) Tag and remove the leads (1, Figure 3-32) from the solenoid (2).

NOTE

On lift cylinder solenoids a connector is used. Remove the screw securing the connector to the solenoid and pull straight off.

- (b) Unscrew the solenoid cartridge (3) using a wrench on the large hex fitting closest to the valve body. Remove the solenoid valve/cartridge assembly (4).

- (c) Plug the valve body (5) to keep foreign matter from entering the system.

GO ON TO NEXT PAGE

3-31. SOLENOID VALVES/ CARTRIDGES - REPLACE (Continued)

3-31

(2) Installation:

- (a) Dip the cartridge (3) in clean hydraulic oil and screw into valve body (5).
- (b) Tighten the cartridge (3) using a wrench on the large hex fitting closest to the valve body (5).
- (c) Attach leads (1) to solenoid (2) using the tags for identification. On lift cylinder solenoids, attach the connector and secure with screw.
- (d) Connect battery ground cable. Refer to para 3-17.
- (e) Perform operational check for proper function.

b. CARTRIDGES:

(1) Removal:

WARNING

Some hoses may contain small amounts of trapped hydraulic pressure. Wear protective clothing including a face shield, head gear and gloves. Fine streams of hydraulic fluid under pressure cannot be readily seen but can easily penetrate the skin causing severe personal injury. Use extreme caution and be alert whenever breaking into a hydraulic system.

WARNING

Hydraulic fluid may be extremely hot. Allow the SPEMS to stand fifteen minutes before breaking into hydraulic system.

- (a) Unscrew the cartridge (3) using a wrench on the large hex fitting closest to the valve body (5).
- (b) Remove the cartridge (3) from the valve body (5).
- (c) Plug the valve body to keep foreign matter from entering the system.

(2) Installation:

- (a) Dip the cartridge (3) in clean hydraulic oil and screw the cartridge into the valve body (5).
- (b) Tighten the cartridge (3) using a wrench on the large hex fitting closest to the valve body.
- (c) Connect battery ground cable. Refer to para 3-17.
- (d) Perform operational test for proper function.

END OF TASK

3-32. SOLENOID VALVES - REPAIR**3-32**

This task covers:

- a. Disassembly
- b. Assembly

INITIAL SETUP**Materials/Parts**

As Required

Tools Required

Tool Kit TI 5180-00-177-7033

Personnel Required

MOS 63B, 1 Mechanic

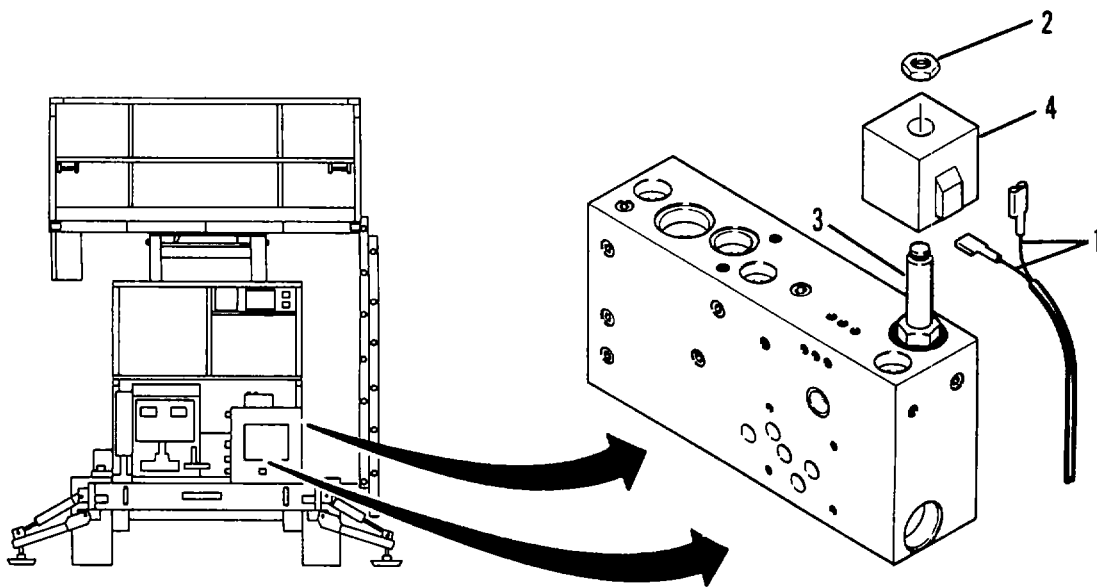


Figure 3-33. Solenoid Valve Repair.

a. **DISASSEMBLY:**

- (1) Tag and disconnect wires (1, Figure 3-33).

GO ON TO NEXT PAGE

3-32. SOLENOID VALVES - REPAIR (Continued)

3-32

- (2) Remove nut (2) from cartridge (3).
- (3) Remove solenoid coil (4) from cartridge (3).

b. ASSEMBLY:

- (1) Slide coil (4) on cartridge (3).
- (2) Secure coil (4) with nut (2).
- (3) Install cartridge. Refer to para 3-31a.
- (4) Connect wires (1) using tags for identification.
- (5) Perform operational check for proper function.

END OF TASK

3-33. DIRECTIONAL CONTROL VALVES - REPLACE

This task covers:

- a. Removal
- b. Installation

INITIAL SETUP

Equipment
Condition

Para
3-17

Condition Description

Battery ground cable
disconnected.

Materials/Parts

As Required

Directional Control Valve, Platform Traverse, Part Number HV108

Directional Control Valve, Platform Lift, Part Number HV108

Directional Control Valve, Stabilizers, Part Number HV106

Tools Required

Tool Kit TI 5180-00-177-7033

Drip Pan

Personnel Required

MOS 63B, 1 Mechanic

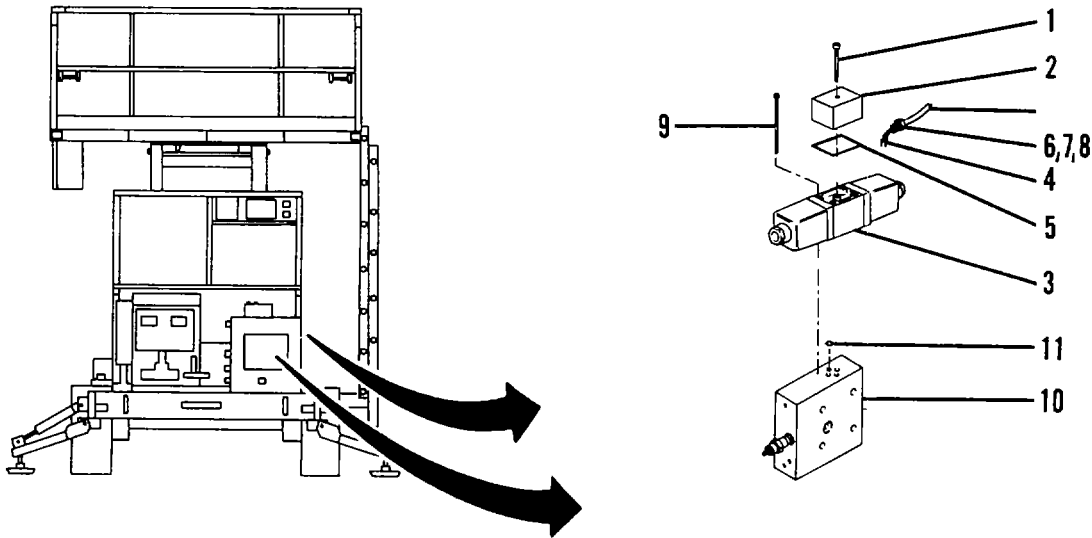


Figure 3-34. Directional Control Valve Replacement. (Sheet 1 of 2)

GO ON TO NEXT PAGE

3-33. DIRECTIONAL CONTROL VALVES - REPLACE (Continued)

3-33**a. REMOVAL:****WARNING**

Some hoses may contain small amounts of trapped hydraulic pressure. Wear protective clothing including a face shield, head gear and gloves. Fine streams of hydraulic fluid under pressure cannot be readily seen but can easily penetrate the skin causing severe personal injury. Use extreme caution and be alert whenever breaking into a hydraulic system.

WARNING

Hydraulic fluid may be extremely hot. Allow the SPEMS to stand fifteen minutes before breaking into hydraulic system.

(1) Remove screw(s) (1, Figure 3-34) securing cover (2) to valve body (3).

NOTE

The stabilizer directional control valve, located in the base junction box, has four screws securing the cover, the others have a single screw.

(2) Tag the leads (4) for identification during installation. Disconnect leads (4).

(3) Remove gasket (5) from valve (3).

(5) Remove strain relief cover (6), strain relief (7), and fitting (8) from cover (2).

(6) Remove four socket head screws (9) securing the valve (3) and remove valve (3) from manifold block (10).

(7) Remove four preformed packings (11) and discard.

b. INSTALLATION:

(1) Check to see that the preformed packings (11) are securely seated in the valve ports.

(2) Carefully place the valve (3) in position and align the mounting holes with those in the manifold block (10).

(3) Secure valve (3) to manifold block (10) with four socket head screws (9).

NOTE

The stabilizer directional control valve, located in the base junction box, has four screws securing the cover, the others have a single screw.

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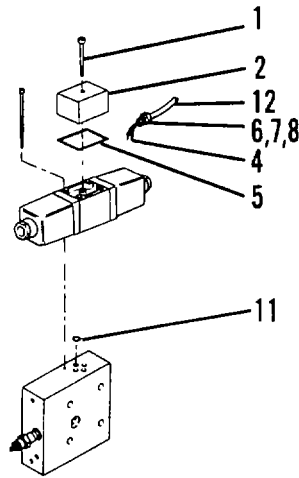


Figure 3-34. Directional Control Valve Replacement. (Sheet 2 of 2)

- (4) Install fitting (8) in cover (2).
- (5) Slide strain relief cover (6) and strain relief (7) on cable (12).
- (6) Slide cable (12) through fitting (8) in cover (2).
- (7) Connect the leads (4) using the tags for identification.
- (8) Slide cover (6) and strain relief (7) to fitting (8) and tighten cover (6).
- (9) Install cover (2) and gasket (5) and secure with screw(s) (1).
- (10) Perform operational check for proper function.

END OF TASK

3-34. DIRECTIONAL CONTROL VALVES - REPAIR

3-34

This task covers:

- a. Disassembly
- b. Assembly

INITIAL SETUP

Materials/Parts

As Required

Tools Required

Tool Kit TI 5180-00-177-7033

Personnel Required

MOS 63B, 1 Mechanic

Equipment
Condition

Para
3-33

Condition Description

Directional control
valve removed.

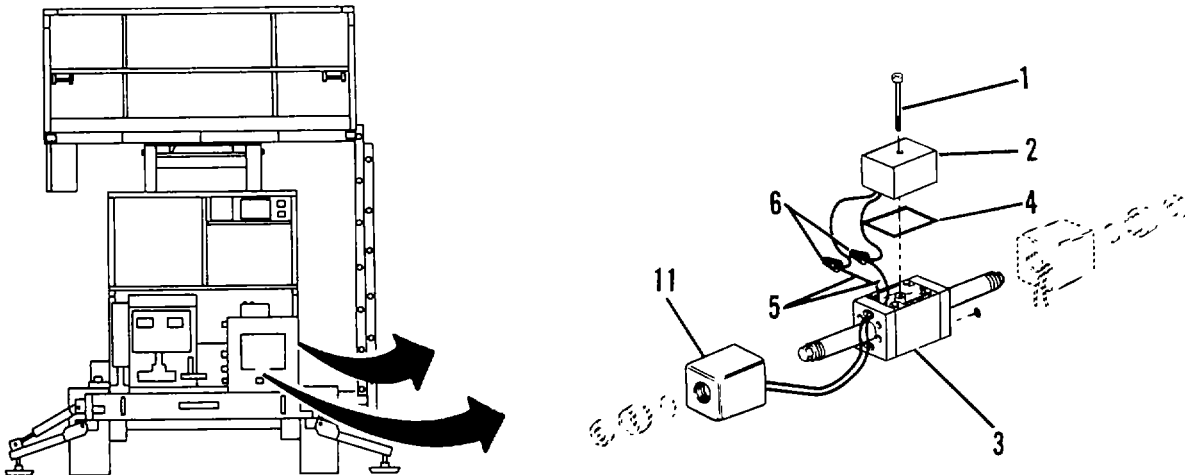


Figure 3-35. Directional Control Valve Repair. (Sheet 1 of 2)

a. DISASSEMBLY:

- (1) Remove screw(s) (1, Figure 3-35) securing cover (2) to valve body (3). Remove gasket (4).
- (2) Tag and disconnect the leads (5) by removing wire nuts (6).

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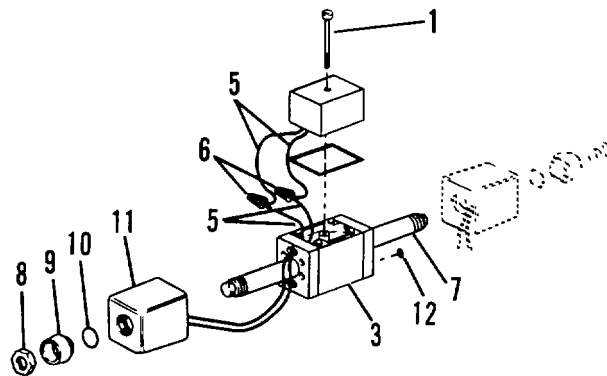


Figure 3-35. Directional Control Valve Repair. (Sheet 2 of 2)

- (3) Using one wrench to hold the flat part of spool (7), use another wrench to loosen solenoid lock nut (8).
- (4) Remove lock nut (8) and collar (9).
- (5) Remove preformed packing (10) and discard.
- (6) Remove solenoid (11) from valve body (3).
- (7) Remove grommet (12) from valve body (3).

b. ASSEMBLY:

- (1) Install grommet (12) in lead opening in valve body (3).
- (2) Slide solenoid (11) on spool (7). Be sure to guide solenoid leads through the grommet (12) in valve body (3).

NOTE

Groove on collar must face solenoid.

- (3) Install preformed packing (10), collar (9), and lock nut (8) on spool (7).
- (4) Using one wrench to hold the flat of the spool (7), use another wrench to tighten lock nut (8).
- (5) Connect the leads (5) using the tags for identification. Secure with wire nuts (6).
- (6) Install cover (2) gasket (4) and secure with screw(s) (1).
- (7) Install control valve. Refer to para 3-33.
- (8) Perform operational check for proper function.

END OF TASK

3-35. LIFT CYLINDERS - REPLACE

3-35

This task covers:

- a. Removal
- b. Installation

INITIAL SETUP

Materials/Parts

Lift Cylinder, Part Number HCM87

Tools Required

Tool Kit TI 5180-00-177-7033
Drip Pan

Personnel Required

MOS 63W, 2 Mechanics

Equipment
Condition

Para
2-13

Condition Description

Inspect/Service
brace installed.

General Safety Instructions
Support the cylinder when removing
the retaining pins.

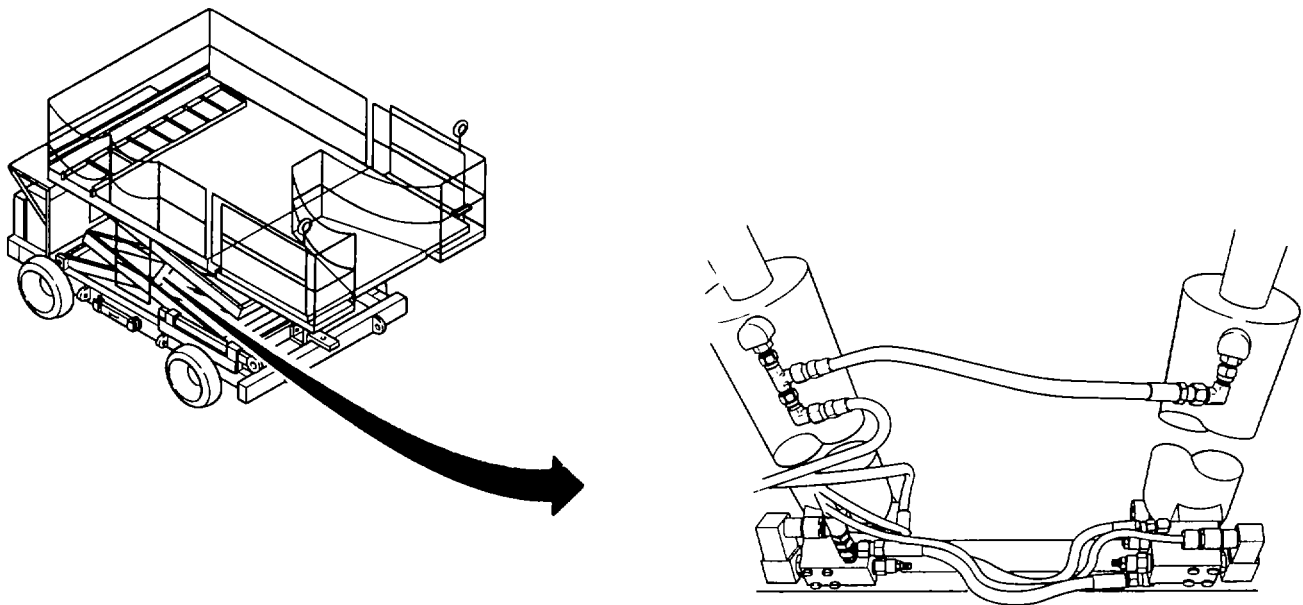


Figure 3-36. Lift Cylinders Replacement (Sheet 1 of 2).

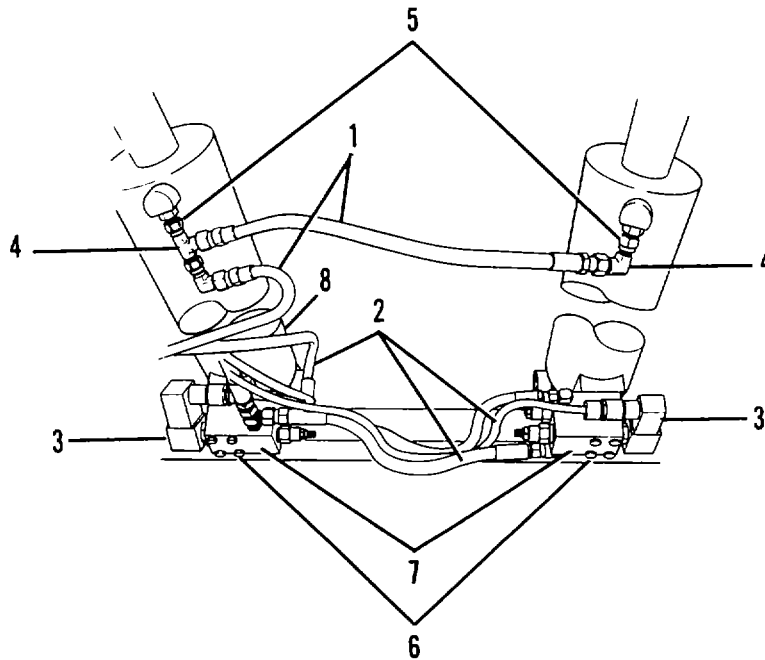


Figure 3-36. Lift Cylinders Replacement (Sheet 2 of 2).

a. REMOVAL:

WARNING

Some hoses may contain small amounts of trapped hydraulic pressure. Wear protective clothing including a face shield, head gear and gloves. Fine streams of hydraulic fluid under pressure cannot be readily seen but can easily penetrate the skin causing severe personal injury. Use extreme caution and be alert whenever breaking into a hydraulic system.

WARNING

Hydraulic fluid may be extremely hot. Allow the SPEMS to stand fifteen minutes before breaking into hydraulic system.

- (1) Tag cylinder ports and valve hoses for ease of identification during installation.
- (2) Using two wrenches, disconnect cylinder hoses (1, Figure 3-36), hold valve hydraulic hoses (2) and solenoid connectors (3). Drain waste hydraulic fluid into a drip pan.
- (3) Remove elbow and tee fitting (4).

GO ON TO NEXT PAGE

- (4) Remove fittings (5) from cylinder ports. Install plugs in ports and hoses to prevent foreign matter from entering the system.
- (5) Remove four bolts (6) with washers. Remove hold valve (7) from cylinder (8) and allow to hang.
- (6) Remove and discard preformed packings (not shown) between hold valve (7) and cylinder (8).

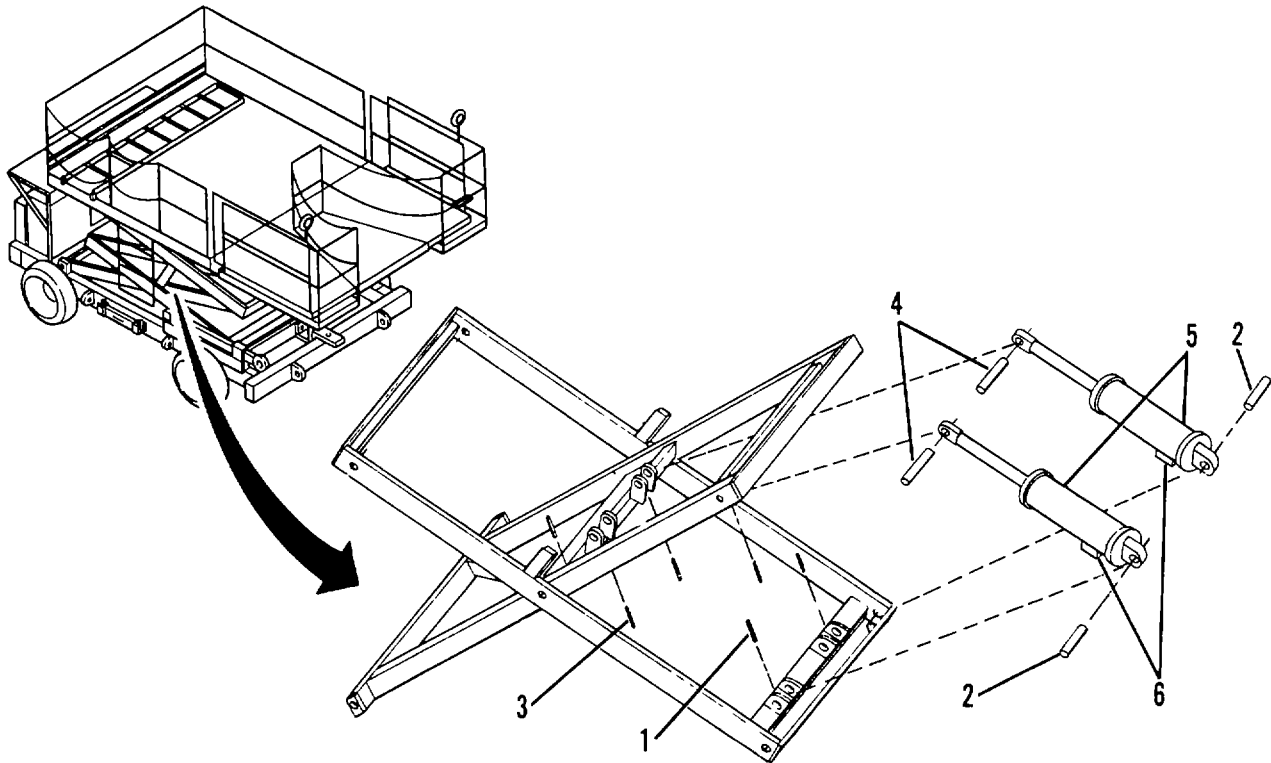


Figure 3-37. Lift Cylinders.

- (7) Remove two roll pins (1, Figure 3-37) from the cylinder end retaining pins (2).
- (8) Remove two roll pins (3) from the rod end retaining pins (4).

WARNING

Support the cylinder by strapping the rod end to the scissors when removing the eye pins.

- (5) Remove the cylinder eye pins (2 and 4) with a 3/4" brass drift and hand sledge one at a time while helper supports cylinder.
- (6) Remove the cylinder (5).

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b. INSTALLATION:

- (1) Install fittings (5, Figure 3-37.2) in cylinder.

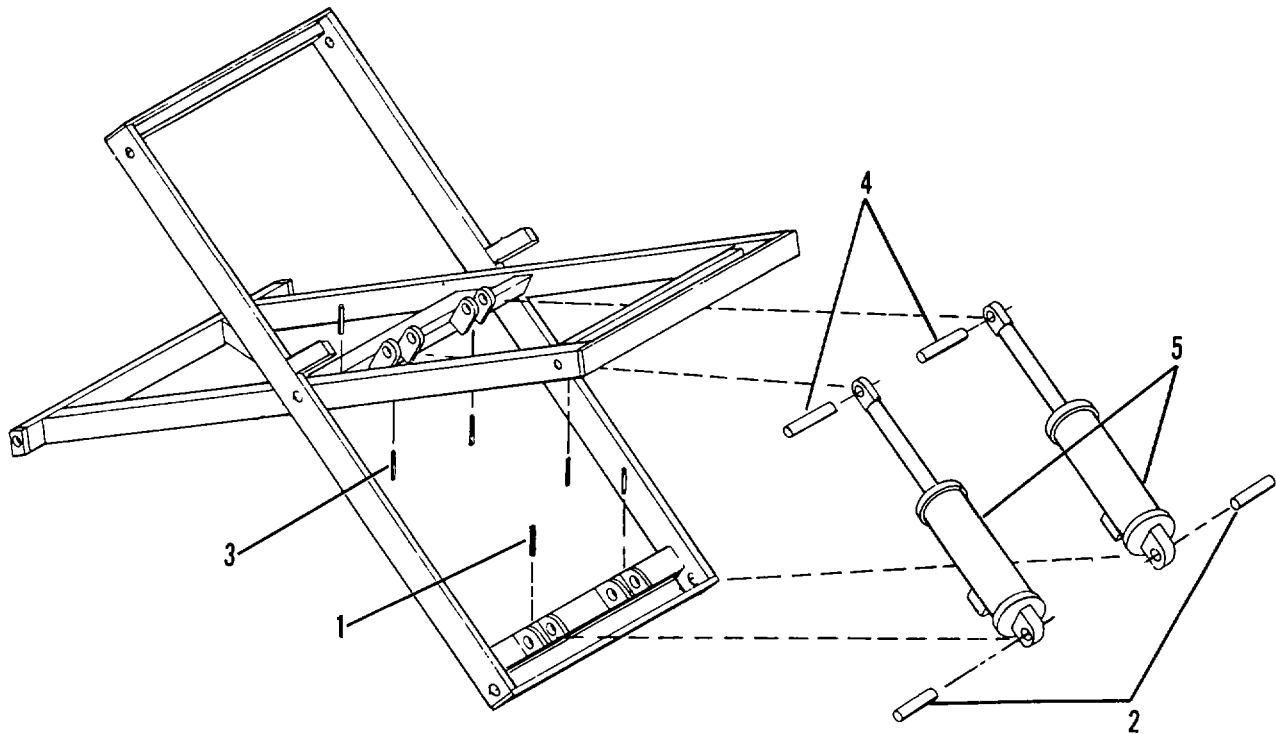


Figure 3-37.1. Lift cylinders.

- (2) Place cylinder (5, Figure 3-37.1) in position.

NOTE

Be sure to align roll pin holes.

- (3) Clean retaining pins (2 and 4) with cleaning solvent and apply a light coat of GAA grease.
- (4) Install retaining pins (2 and 4) to hold cylinder in place.

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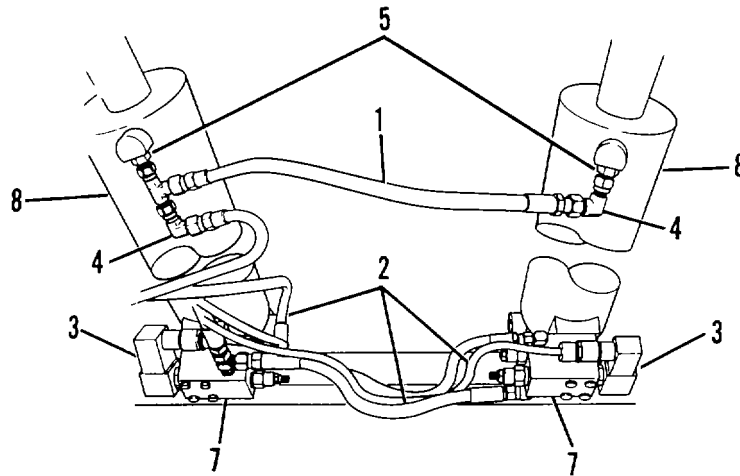


Figure 3-37.2. Lift Cylinders, Replacement.

WARNING

Check pin alignment with a drift through the lock collar before installing roll pins.

- (5) Install roll pins (1 and 3).
- (6) Put preformed packing (not shown) in position between hold valve (7, Figure 3-37.2) and cylinder (8).
- (7) Put hold valve (7) in position on cylinder (8) and install four bolts with washers.
- (8) Install elbow and tee fittings (4) on cylinder (8).
- (9) Connect hydraulic hoses (1) and (2) and solenoid connectors (3) to the cylinder (8) and hold valve (7) using the tags for identification.
- (10) Lubricate fittings at both ends of cylinder with GAA grease.
- (11) Start SPEMS and remove inspection/service brace.
- (12) Check hydraulic reservoir and refill if necessary. Refer to para 2-5, PMCS.
- (13) Perform operational check for proper function.

END OF TASK

3-36. STABILIZER CYLINDERS-REPLACE

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Materials/Parts

Stabilizer Cylinder, Part Number 19054GA (RR,LF)
19054GB (LR,RF)

Tools Required

Tool Kit, TI 5180-00-177-7033
Drip Pan

Personnel Required

MOS 63B, 1 Mechanic

General Safety Instructions

Support cylinder when removing retaining pins.

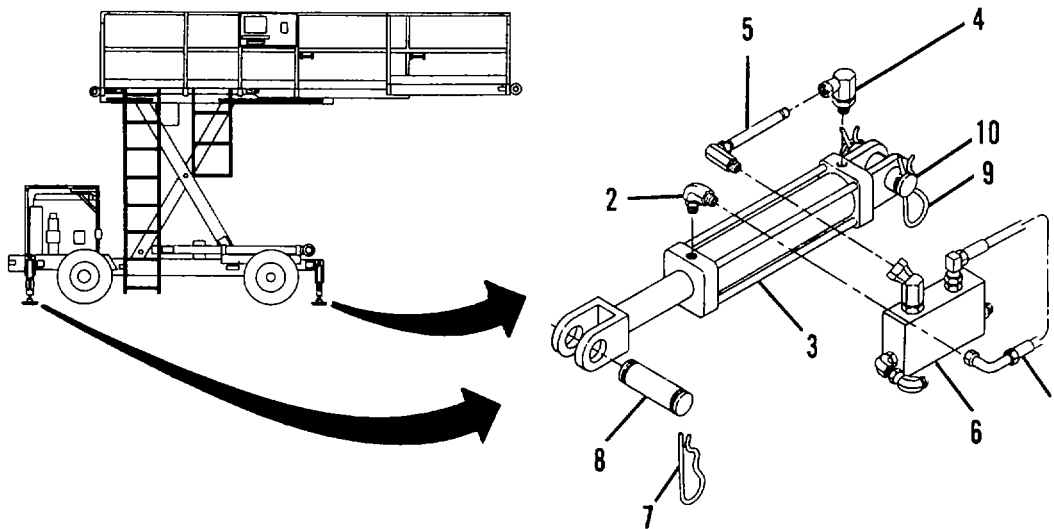


Figure 3-38. Stabilizer Cylinder (Sheet 1 of 2).

GO ON TO NEXT PAGE

a. REMOVAL:**WARNING**

Some hoses may contain small amounts of trapped hydraulic pressure. Wear protective clothing including a face shield, head gear and gloves. Fine streams of hydraulic fluid under pressure cannot be readily seen but can easily penetrate the skin causing severe personal injury. Use extreme caution and be alert whenever breaking into a hydraulic system.

WARNING

Hydraulic fluid may be extremely hot. Allow the SPEMS to stand fifteen minutes before breaking into the hydraulic system.

- (1) Extend stabilizers until stabilizer pad rests on the ground with no pressure on it.

NOTE

When the inlet hydraulic line is disconnected, there will be oil spillage.

- (2) Install drip pan under stabilizer cylinder.
- (3) Disconnect hydraulic hose (1, Figure 3-38) from elbow (2).
- (4) Remove elbow (2) from cylinder (3).
- (5) Remove swivel elbow (4) from pipe assembly (5). Let valve body assembly (6) hang out of the way of supply hoses.
- (6) Remove swivel elbow (4) from cylinder (3). Plug cylinder ports to prevent foreign matter from entering the system.
- (7) Use helper. Remove pin clip (7) and pivot pin (8) from cylinder (3). Let stabilizer rest on floor.
- (8) Remove pin clip (9) from pivot pin (10).
- (9) Remove pivot pin (10) and remove cylinder (3) from frame.

b. INSTALLATION:

- (1) Position cylinder body eye over frame eye, align holes and install pivot pin (10). Install pin clip (9) on pivot pin (10).
- (2) Use helper. Pick up stabilizer and align stabilizer eye with cylinder rod eye and install pivot pin (8). Install pin clip (7) on pivot pin (8).
- (3) Install elbow (2) and swivel elbow (4) on cylinder (3).

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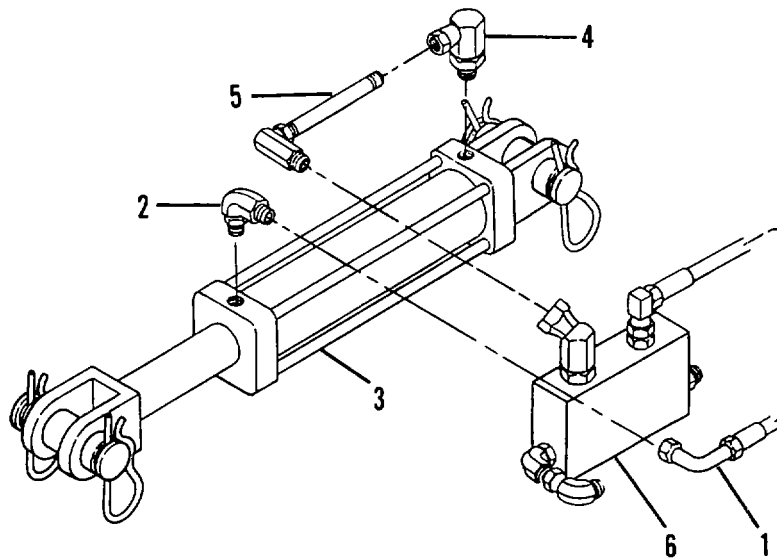


Figure 3-38. Stabilizer Cylinder (Sheet 2 of 2).

- (4) Position valve body (6) close to cylinder (3). Install swivel elbow nut (4) on pipe assembly (5).
- (5) Install hydraulic hose (1) on elbow (2).
- (6) Start the SPEMS and operate the stabilizers several times.
- (7) Check for leakage.
- (8) With SPEMS OFF, check hydraulic reservoir level and add as needed. Refer to para 3-6, Lubrication.
- (9) Perform operational check for proper function.

END OF TASK

3-37. STEERING CYLINDERS-REPLACE

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Materials/Parts

- Steering Cylinder, Part Number HCM85B
- GAA Grease (Item 5, Appendix D)
- Cleaning Solvent (Item 6, Appendix D)

Equipment Condition

Platform fully lowered

Tools Required

- Tool Kit, TI 5180-00-177-7033
- Drip Pan

Personnel Required

MOS 63B, 1 Mechanic

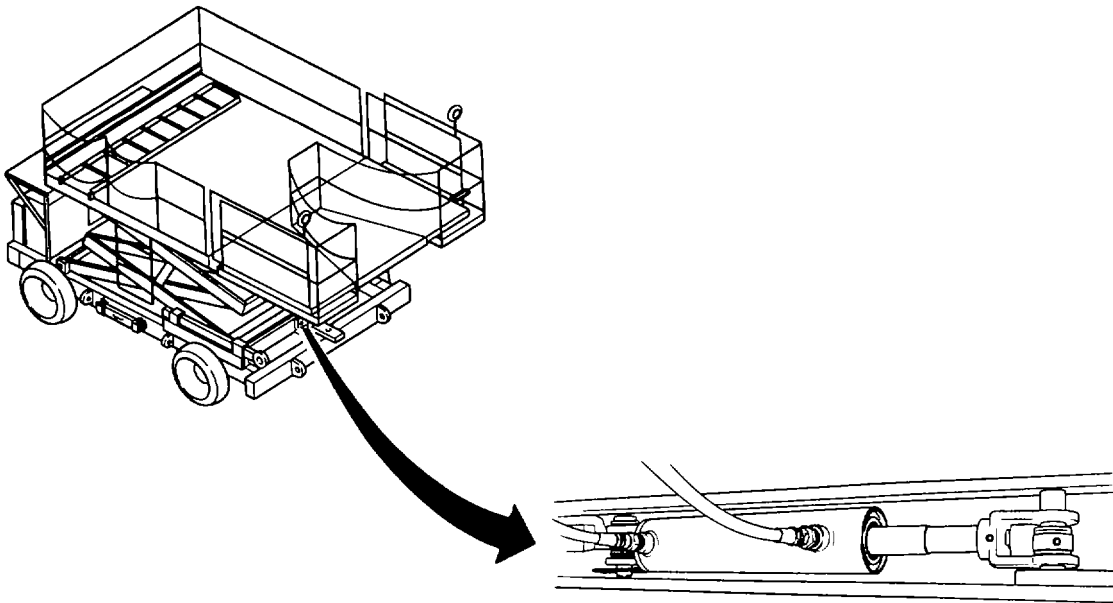


Figure 3-39. Steering Cylinder (Sheet 1 of 2).

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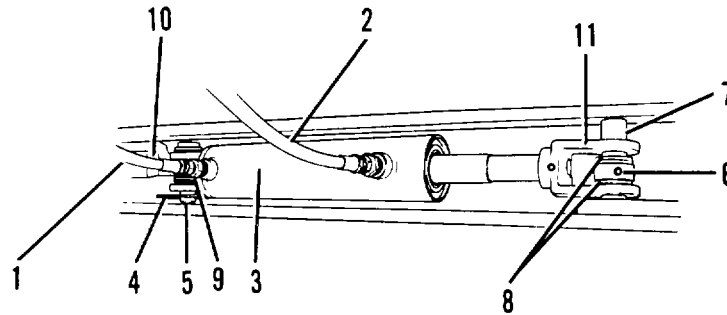


Figure 3-39. Steering Cylinder (Sheet 2 of 2).

a. REMOVAL:

WARNING

Some hoses may contain small amounts of trapped hydraulic pressure. Wear protective clothing including a face shield, head gear and gloves. Fine streams of hydraulic fluid under pressure cannot be readily seen but can easily penetrate the skin causing severe personal injury. Use extreme caution and be alert whenever breaking into a hydraulic system.

WARNING

Hydraulic fluid may be extremely hot. Allow the SPEMS to stand fifteen minutes before breaking into hydraulic system.

- (1) Tag the cylinder hydraulic hoses (1 and 2, Figure 3-39) for easy identification during installation. Place a suitable container under the cylinder ports to catch fluid.
- (2) Using two wrenches, disconnect the hydraulic hoses (1 and 2) to the cylinder (3). Plug the cylinder ports and hoses to prevent foreign matter from entering the system.

NOTE

Note the location of spacer sets and tag each set during removal for easy identification during installation.

- (3) Remove the pin clip (4) from the cylinder eye pin (5).
- (4) Place a prybar under the cylinder tube between the tie rod member and cylinder for support.
- (5) Remove the cylinder eye pin (5) from the top.

GO ON TO NEXT PAGE

3-37. STEERING CYLINDER - REPLACE (Continued)

- (6) Remove the set screw (6) from collar securing the rod eye.
- (7) Remove the rear tie rod link pin (7).

NOTE

You may have to raise the front of the frame and turn the wheels to gain access to the rod eye pin.

- (8) Remove the spacer sets (8 and 9) from each end of the cylinder (3). Tag spacers.
- (9) Remove the cylinder (3).
- (10) Repair tag the cylinder and return to tech supply.

b. INSTALLATION:

- (1) Clean eye pin (5) and link pin (7) in cleaning solvent and lubricate with a light film of GAA grease.
- (2) Position the cylinder within the steering assembly. The cylinder eye is secured to the eye weldment (10) on the right side of the pivoting axle; the rod eye is secured to the center of the tie bar assembly and the cylinder ports face towards the rear.
- (3) Align the cylinder eye with the eye weldment. Install the spacers (9).
- (4) Install the cylinder eye pin (5) from the top.
- (5) Secure the pin with pin clip (4).
- (6) Align the rod eye (11) and tie rod link with the center hole in the tie bar assembly.

NOTE

Move the rod in or out as needed to align the rod eye.

- (7) Install the spacer set (8) and collar.
- (8) Install the rear tie rod link pin (7) with the hole offset towards the bottom.
- (9) Install set screw (6) in collar and tighten.

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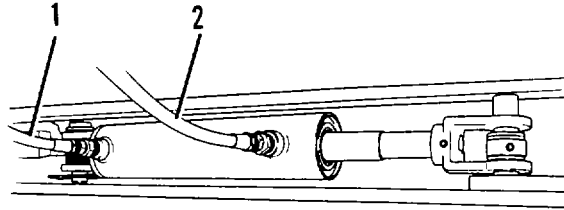


Figure 3-39.1. Steering Cylinder Hoses.

CAUTION

Be sure that set screw aligns with hole in rear tie rod link pin before tightening.

- (10) Attach the cylinder hoses (1 and 2, Figure 3-39.1) to the cylinder ports using the identification tags. Use two wrenches to tighten the fittings.
- (11) Start the SPEMS and turn the wheels fully to the left (left hand turn). Loosen the fitting closest to the cylinder rod 1/4 turn to vent entrapped air; then tighten the fitting.
- (12) Turn the wheels fully to the right (right hand turn). Loosen the fitting farthest from the cylinder rod 1/4 turn to vent entrapped air; then tighten the fitting.
- (13) Repeat steps 10 and 11 until no air remains in the cylinder. Check hydraulic reservoir level and refill if necessary. Refer to para 3-6, Lubrication.
- (14) Perform operational check for proper function.

END OF TASK

3-38. PLATFORM CYLINDERS-REPLACE

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Materials/Parts

Platform Extension Cylinder,
Part Number HCM86

Tools Required

Tool Kit, TI 5180-00-177-7033
Drip Pan

Personnel Required

MOS 63B, 2 Mechanics

Equipment

Condition

Para
2-14

Condition Description

Inspection/Service
brace installed.

General Safety Instructions

Support cylinder while removing
retaining pins.

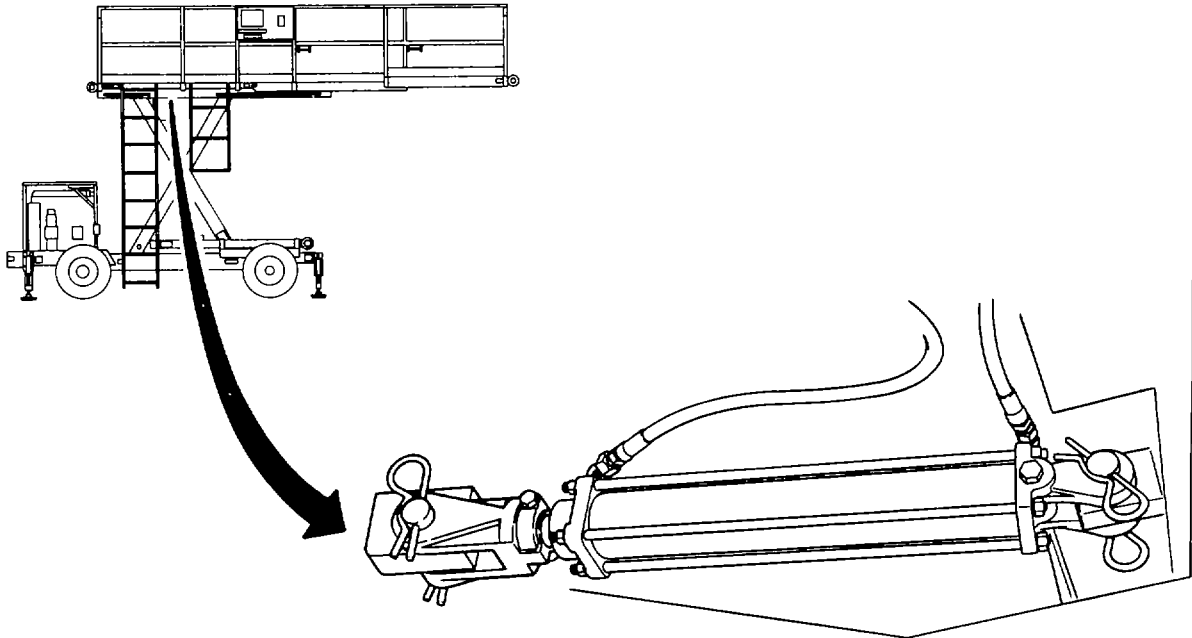


Figure 3-40. Platform Cylinder (Sheet 1 of 2).

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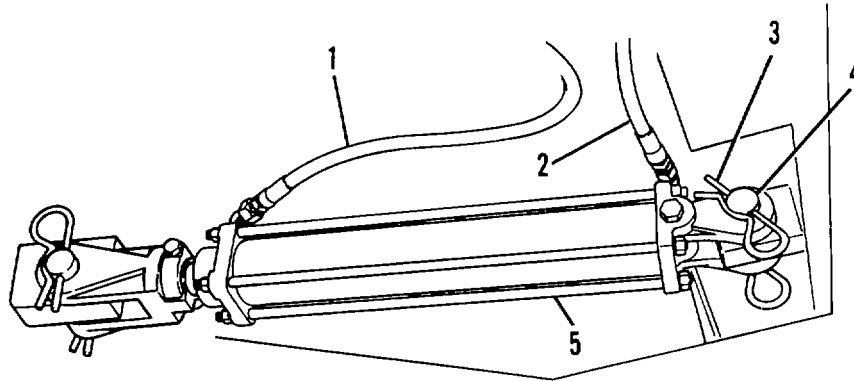


Figure 3-40. Platform Cylinder (Sheet 2 of 2).

a. REMOVAL:

WARNING

Some hoses may contain small amounts of trapped hydraulic pressure. Wear protective clothing including a face shield, head gear and gloves. Fine streams of hydraulic fluid under pressure cannot be readily seen but can easily penetrate the skin causing severe personal injury. Use extreme caution and be alert whenever breaking into a hydraulic system.

WARNING

Hydraulic fluid may be extremely hot. Allow the SPEMS to stand fifteen minutes before breaking into hydraulic system.

- (1) Tag cylinder ports and hydraulic hoses for ease of identification during installation.
- (2) Using two wrenches, disconnect hydraulic hoses (1 and 2, Figure 3-40). Drain waste hydraulic fluid into a drip pan.
- (3) Remove two retaining clips (3) from retaining pins (4) at each end of cylinder (5).
- (4) Remove two retaining pins (4), one at a time, and remove cylinder (5).

b. INSTALLATION:

- (1) Thoroughly clean retaining pins (4) and lubricate with a light film of GAA grease.

GO ON TO NEXT PAGE

3-38. PLATORM CYLINDER - REPLACE (Continued)

- (2) Place cylinder (5) in position.
- (3) Install cylinder end retaining pin (4).
- (4) Install retaining clips (3) in pins (4).
- (5) Align rod eye holes and install retaining pin (4).
- (6) Install retaining clips (3) in pins (4).
- (7) Connect hydraulic hoses (1 and 2) using the tags for identification.
- (8) Start SPEMS, remove inspection/service brace. Refer to para 2-13.
- (9) Traverse platform several times.
- (10) Check hydraulic reservoir and refill if necessary. Refer to para 3-6, Lubrication.
- (11) Perform operational check for proper function.

END OF TASK

3-39. HYDRAULIC PUMP

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Materials/Parts

Hydraulic Pump, Part Number 19113GA
 Performed Packing, Part Number 1501-076-001
 Plastic bags (Item 7, Appendix D)
 Packing Tape (Item 8, Appendix D)
 Hydraulic Oil (Item 4, Appendix D)

Tools Required.

Tool Kit, TI 5180-00-177-7033
 Drip Pan

Personnel Required

MOS 63B, 1 Mechanic

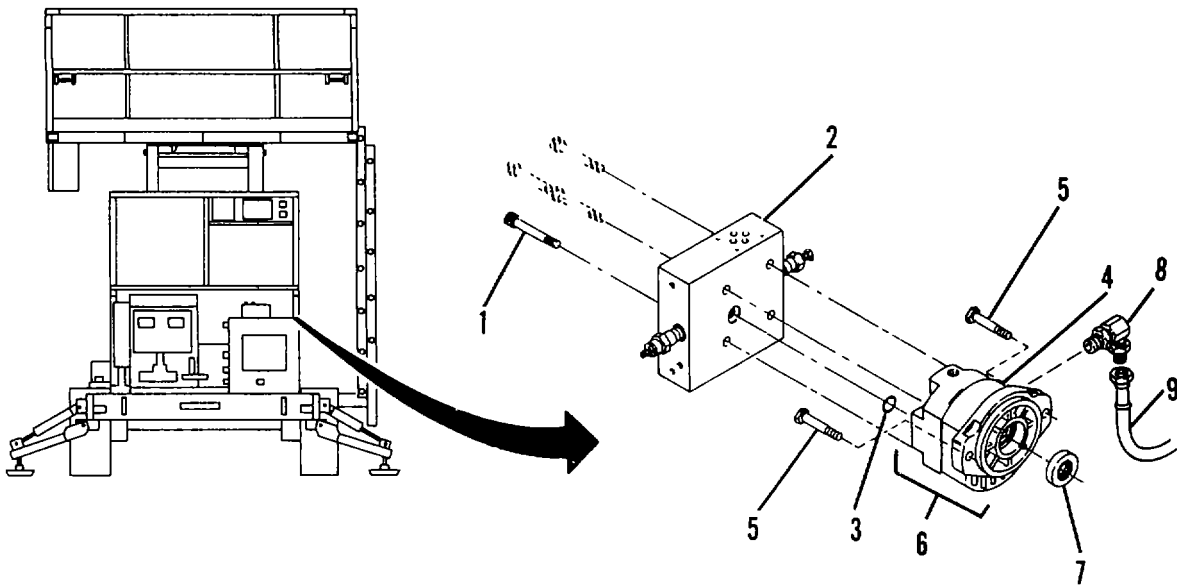


Figure 3-41. Hydraulic Pump (Sheet 1 of 2).

GO ON TO NEXT PAGE

a. REMOVAL:**WARNING**

Some hoses may contain small amounts of trapped hydraulic pressure. Wear protective clothing including a face shield, head gear and gloves. Fine streams of hydraulic fluid under pressure cannot be readily seen but can easily penetrate the skin causing severe personal injury. Use extreme caution and be alert whenever breaking into a hydraulic system.

WARNING

Hydraulic fluid may be extremely hot. Allow the SPEMS to stand fifteen minutes before breaking into hydraulic system.

NOTE

Disconnect hydraulic hoses as required.

- (1) Remove four socket head cap screws (1, Figure 3-41) that are inset in the hydraulic manifold block (2). Remove preformed packing (3) and discard.

NOTE

Lay the hydraulic manifold block down and out of the way. Be careful not to damage the hydraulic hoses.

- (2) Place a drip pan under the hydraulic pump. Use two wrenches to disconnect the hydraulic discharge hose from outlet port (4) at the swivel connection.
- (3) Remove the two hydraulic pump retaining capscrews (5).
- (4) Remove the hydraulic pump (6) from the transmission. Remove preformed packing (7) and discard.

CAUTION

Take steps to ensure no dust or debris gets into the transmission or hydraulic manifold block.

- (5) Remove elbow fitting (8) from body.
- (6) Repair tag pump and return to tech supply.

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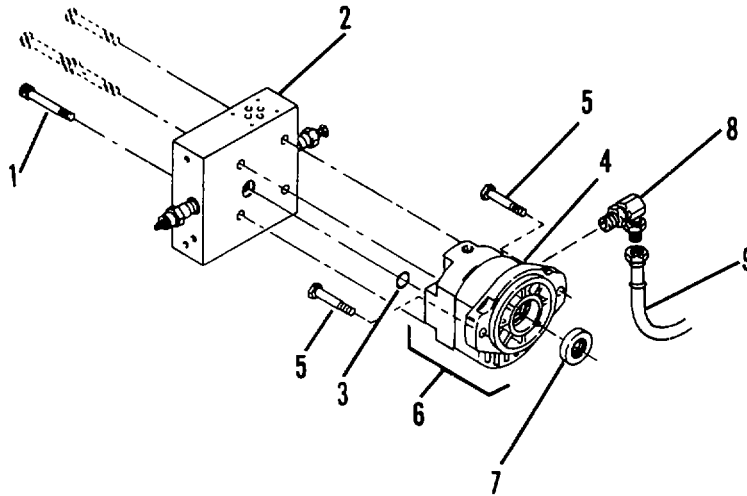


Figure 3-41. Hydraulic Pump (Sheet 2 of 2).

b. INSTALLATION:

NOTE

Lubricate all new preformed packings with clean hydraulic oil before installation.

- (1) Remove four shipping capscrews holding pump body together and install in old pump body.
- (2) Place a new preformed packing (7) in position on the hydraulic pump.
- (3) Place the hydraulic pump (6), with preformed packing, in position on the transmission.
- (4) Install capscrews (5).
- (5) Place a new preformed packing (3) in position on the hydraulic manifold block (2).
- (6) Place the hydraulic block (2) in position on the hydraulic pump.
- (7) Install elbow fitting (8) in pump body (6) port (4).
- (8) Install four socket head capscrews (1) through hydraulic manifold block (2) and into hydraulic pump body (6).

GO ON TO NEXT PAGE

3-39. HYDRAULIC PUMP - REPLACE (Continued)

3-39

- (9) Connect the hydraulic discharge hose (9) to elbow (8). Use two wrenches to tighten the swivel connection.
- (10) Perform operational check for proper function.

END OF TASK

3-40. HAND PUMP

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Materials/Parts

Hand Pump, Part Number 19141GA

Tools Required

Tool Kit, TI 5180-00-177-7033

Drip Pan

Personnel Required

MOS 63B, 1 Mechanic

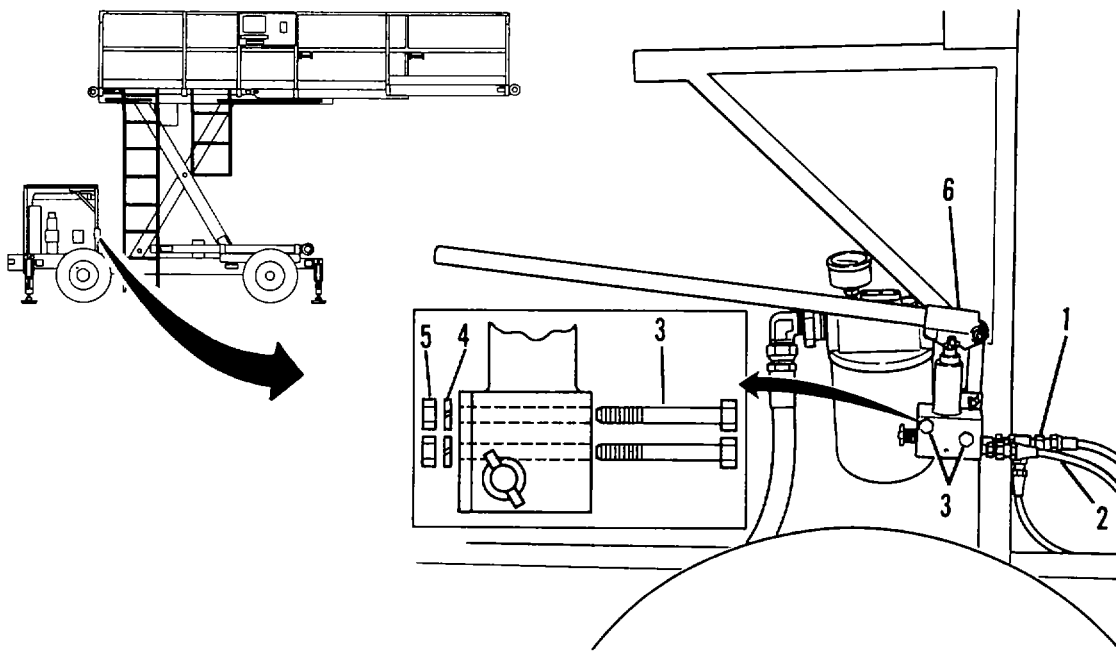


Figure 3-42. Hand Pump.

GO ON TO NEXT PAGE

a. REMOVAL:**WARNING**

Some hoses may contain small amounts of trapped hydraulic pressure. Wear protective clothing including a face shield, head gear and gloves. Fine streams of hydraulic fluid under pressure cannot be readily seen but can easily penetrate the skin causing severe personal injury. Use extreme caution and be alert whenever breaking into a hydraulic system.

WARNING

Hydraulic fluid may be extremely hot. Allow the SPEMS to stand fifteen minutes before breaking into hydraulic system.

CAUTION

Take steps to ensure that no dust or debris enters the pump or hoses. Use tape, plastic or plugs as required.

- (1) Using two wrenches, loosen the hydraulic inlet tee (1, Figure 3-42) slightly, until all pressure is relieved.
- (2) Disconnect inlet tee (1) and return hose (2).
- (3) Remove capscrews (3) with washers (4) and nuts (5) that hold hand pump (6) to frame. Remove hand pump (6).

b. INSTALLATION:

- (1) Place pump (6) in position on frame.
- (2) Install retaining capscrews (3) with washers (4) and nuts (5).
- (3) Connect pump tee (1) and hose (2) and tighten with two wrenches.
- (4) Perform operational check for proper function.

END OF TASK

3-4. STEERING WHEEL, HUBS AND BEARINGS - SERVICE

This task covers:

- a. Removal
- b. Installation

INITIAL SETUP:

Materials/Parts

- Cotter Pin, Part Number YC103387
- Grease Seal, Part Number C19060GA
- Hub, Part Number C19060GA
- GAA Grease (Item 5, Appendix D)
- Cleaning Solvent (Item 6, Appendix D)
- Rags (Item 9, Appendix D)

Equipment

Condition

Para
2-6

Condition Description

Tire/Wheel assembly removed.

Tools Required

Tool Kit, TI 5180-00-177-7033

Personnel Required

MOS 63B, 1 Mechanic

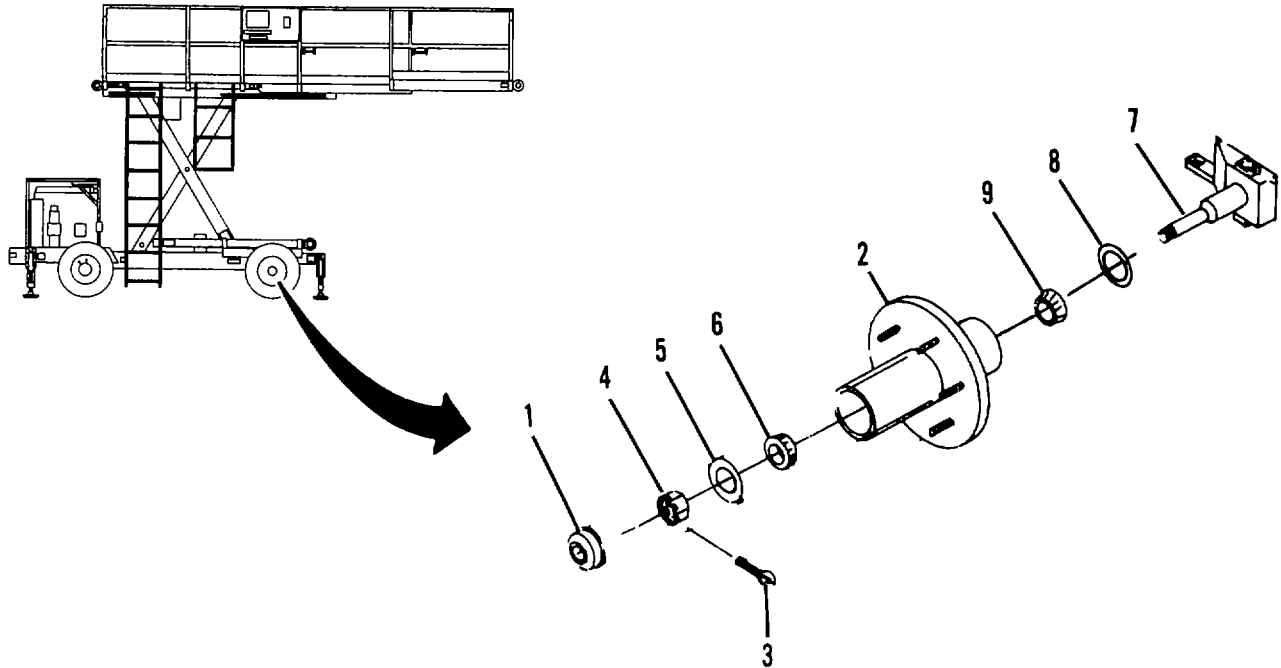


Figure 3-43. Steering Wheel Hubs and Bearings (Sheet 1 of 2).

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3-41. STEERING WHEEL HUBS AND BEARINGS - SERVICE (Continued)**3-41****a. REMOVAL:**

- (1) Remove dust cap (1, Figure 3-43) from hub (2).
- (2) Remove cotter pin (3) from spindle nut (4).
- (3) Remove spindle nut (4) washer (5) and bearing (6) from spindle (7).
- (4) Remove hub (2) from spindle (7).

CAUTION

Do not mix bearings and races. Tag each for ease of identification during assembly.

- (5) Remove grease seal (8) from hub (2) and discard.
- (6) Remove bearing (9) from hub (2) and tag for identification.

b. INSTALLATION:**CAUTION**

Be sure that spindle, bearings and bearing races are clean and free of contamination.

- (1) Inspect bearings (6) and (9) and races for signs of wear and damage. Replace bearings and races if necessary.
- (2) Thoroughly clean hub (2), bearings (6) and (9) and races in cleaning solvent.
- (3) Pack bearings (6) and (9) with GAA grease.
- (4) Install bearing (9) in inner race in hub (2)
- (5) Install new grease seal (8) in inner side of hub (2). Install seal snugly against shoulder in hub by tapping in place with a plastic mallet.
- (6) Fill space between bearing races about 1/2 full with GAA grease.
- (7) Lubricate spindle (7) with a light film of GAA grease.
- (8) Carefully slide assembled hub (2) on spindle (7).
- (9) Install bearing (6) in outer race in hub (2).
- (10) Place washer (5) on spindle (7).
- (11) Screw spindle nut (4) on spindle (7) until finger tight. Tighten with wrench until snug, and then back off until cotter pin holes are aligned.

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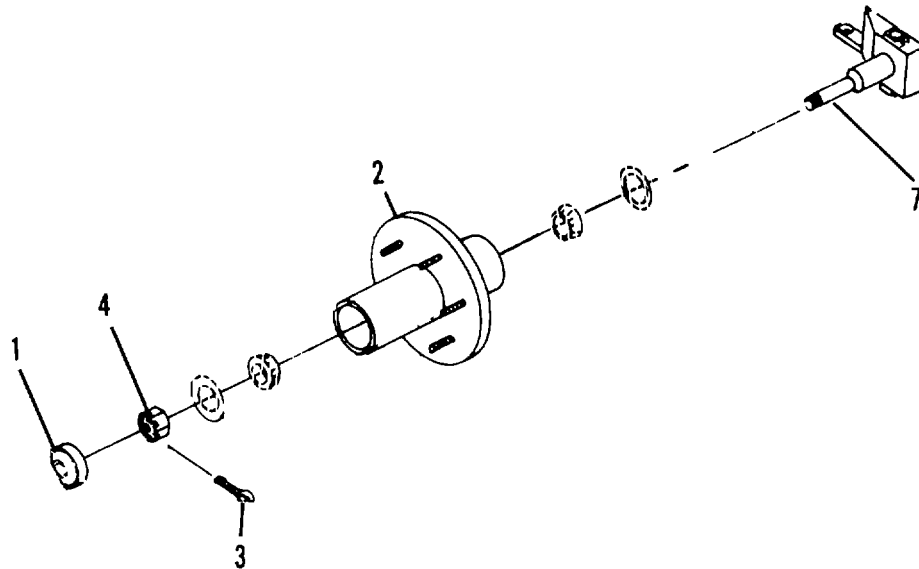


Figure 3-43. Steering Wheel Hubs and Bearings (Sheet 2 of 2).

- (12) Install new cotter pin (3) through nut (4) and spindle (7).
- (13) Clean and install dust cap (1) in hub (2).
- (14) Install tire/wheel assembly. Refer to para 2-6.
- (15) Perform operational check for proper function.

END OF TASK

3-42. GUARDRAILS - REPLACE

3-42

This task covers:

a. Removal

b. Installation

INITIAL SETUP:Materials/Parts

As Required

Tools Required

Tool Kit, TI 5180-00-177-7033

Personnel RequiredMOS 63B, 2 Mechanics
on platform without guard rails.General Safety InstructionsUse extreme caution when working

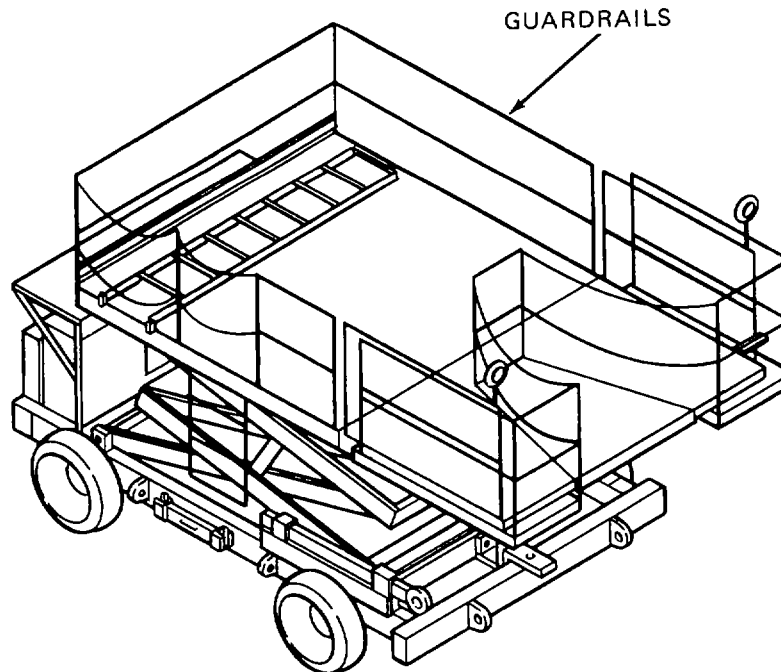


Figure 3-44. Guard Rails (Sheet 1 of 2).

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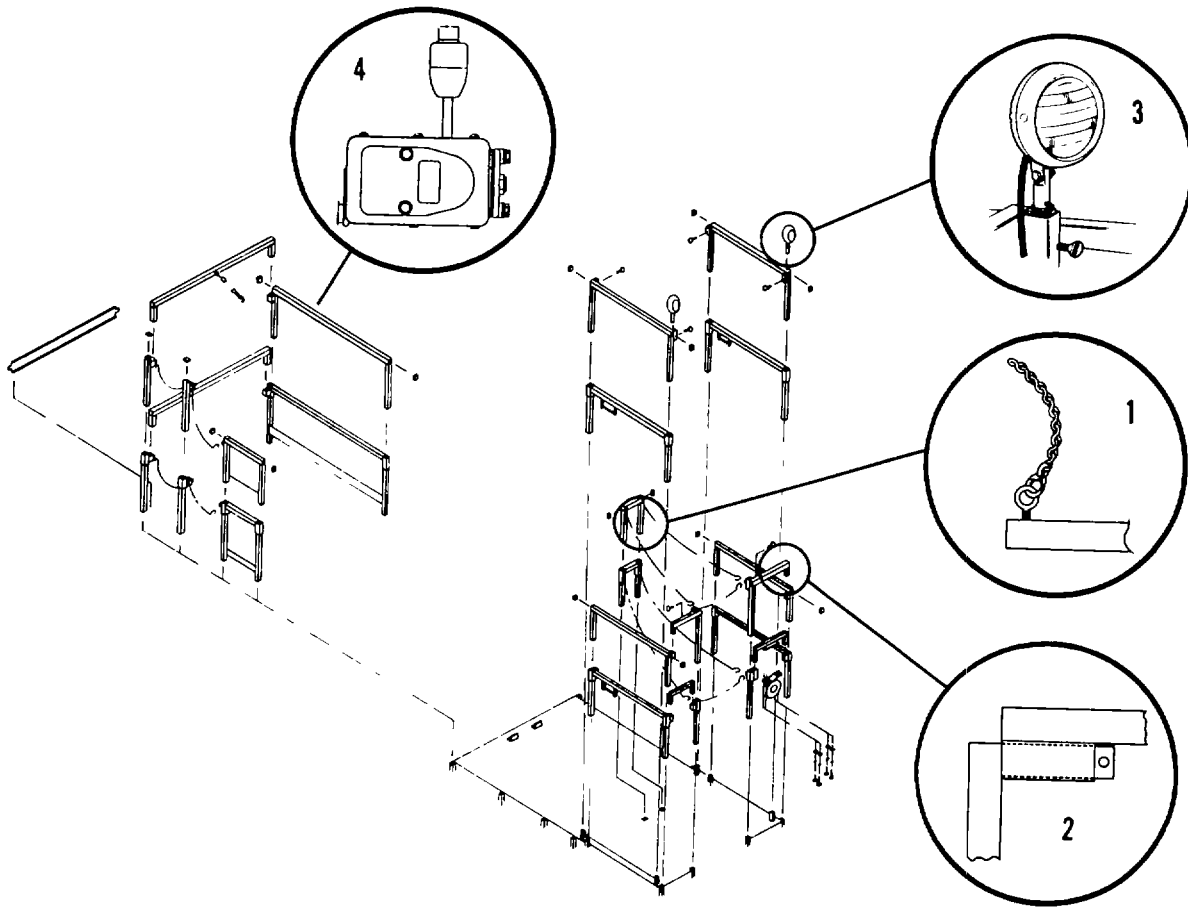


Figure 3-44. Guard Rails (Sheet 2 of 2).

a. REMOVAL:

- (1) Disconnect all chains (1, Figure 3-44) from guard rail sections (2).
- (2) Remove platform lights (3) and platform control (4) and place on platform.
- (3) Remove first the top and then the bottom of each guard rail section (2).

b. INSTALLATION:

- (1) Place the bottom of each guard rail section (2) in position, aligning legs with mounting brackets.
- (2) Place the top of each guard rail section in position, aligning legs with the mounting brackets in bottom half.
- (3) Install the platform lights (3) and the platform control (4) on guard rail.
- (4) Connect all chains (1) on guard rail sections (2).

END OF TASK

3-43. TOWING ASSEMBLY - REPLACE

3-43

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Materials/Parts

As Required

GAA Grease (Item 5, Appendix D)

Cleaning Solvent (Item 6, Appendix D)

Tools Required

Tool Kit, TI 5180-00-177-7033

Personnel Required

MOS 63B, 2 Mechanics

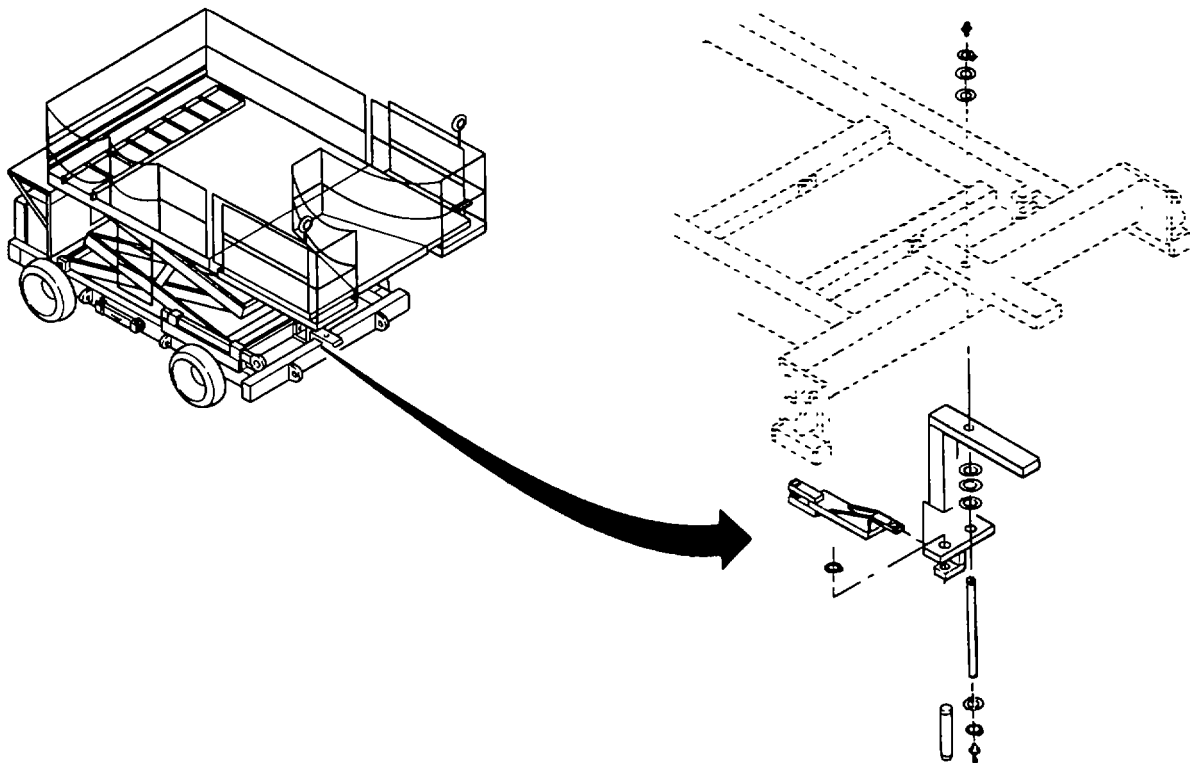


Figure 3-45. Towing Assembly (Sheet 1 of 2).

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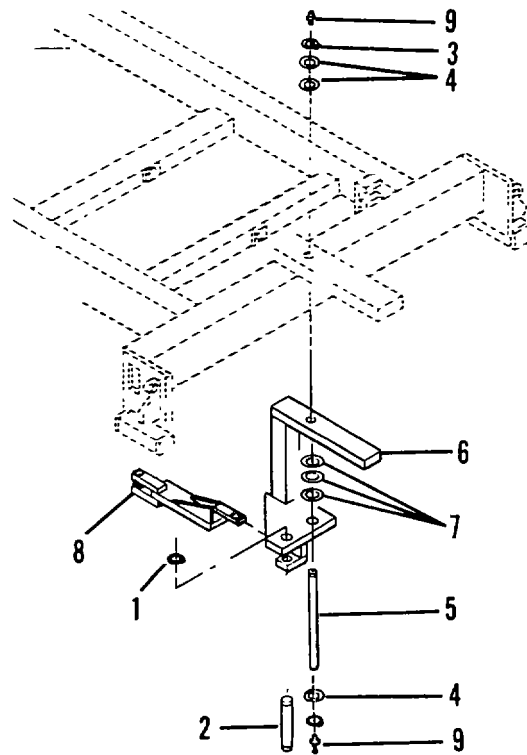


Figure 3-45. Towing Assembly (Sheet 2 of 2).

a. REMOVAL:

NOTE

Install towbar and turn wheels fully to the left.

- (1) Remove retaining ring (1, Figure 3-45) from front drag link pin (2).
- (2) Remove front drag link pin (2) from towing tongue (6).
- (3) Remove retaining ring (3) and washers (4) from tongue pivot pin (5).
- (4) Remove tongue pivot pin (5) from towing tongue (6).
- (5) Remove towing tongue assembly (6) and spacers (7).

b. INSTALLATION:

- (1) Position towing tongue assembly (6) behind frame member and align the pivot holes.
- (2) Insert spacer set (7) between the top of the frame member and the towing tongue.

GO ON TO NEXT PAGE

3-43. TOWING ASSEMBLY - REPLACE (Continued)

3-43

- (3) Thoroughly clean the pivot pin (5) with cleaning solvent and lubricate with a light film of GAA grease.
- (4) Install the tongue pivot pin (5) from the bottom.
- (5) Install washers (4) and retaining ring (3) on tongue pivot pin (5).
- (6) Pivot the towing tongue link (8) to align the hole with those in the towing tongue assembly (6).
- (7) Thoroughly clean the drag link pin (2) with cleaning solvent and lubricate with a light film of GAA grease.
- (8) Install the front drag link pin (2) and secure with retaining ring (1).
- (9) Lubricate fittings (9) with GAA grease. Refer to para 3-6, Lubrication.
- (10) Perform operational check for proper function.

END OF TASK

3-44. FUEL TANK - REPLACE

3-44

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Materials/Parts

Fuel Tank, Part Number M715
Teflon Tape (Item 12, Appendix E)

Equipment

Condition

Para

3-17

Condition Description

Battery ground cable disconnected.

Tools Required

Tool Kit, TI 5180-00-177-7033
Fuel Transfer Pump

Personnel Required

MOS 63B, 1 Mechanic

General Safety Instructions

Work in a well ventilated area.
Keep away from smoking materials, sparks or open flames when working on the fuel system.

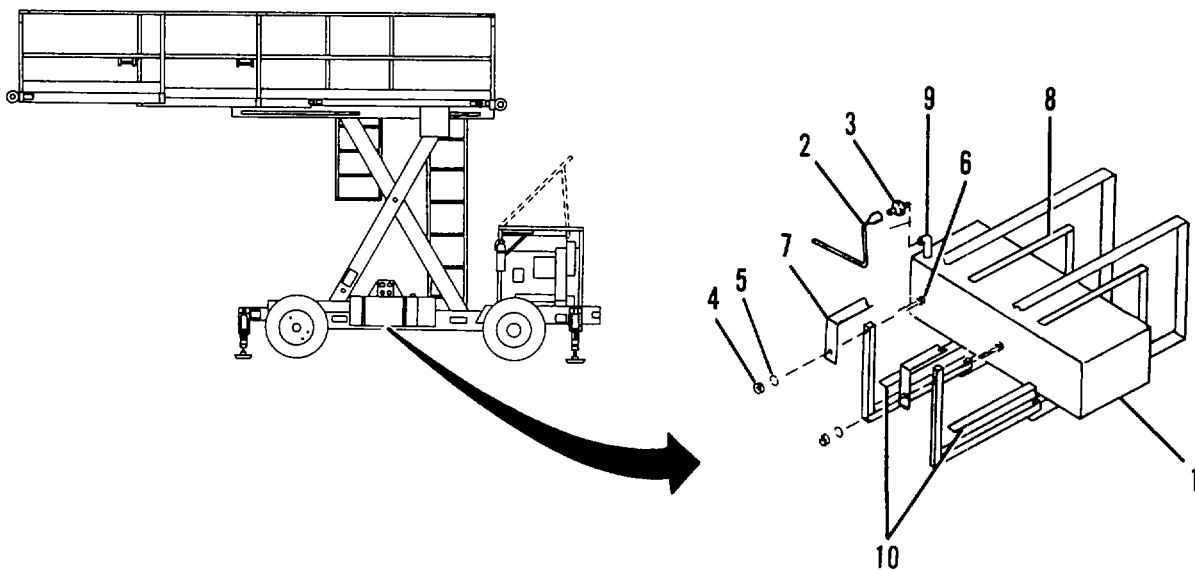


Figure 3-46. Fuel Tank, Replace.

a. REMOVAL:

- (1) Remove all fuel from fuel tank (1, Figure 3-46) with a fuel transfer pump.

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3-44. FUEL TANK - REPLACE (Continued)

3-44

- (2) Disconnect fuel line (2) from fitting (3) using two wrenches.
- (3) Remove two nuts (4) washers (5) and capscrews (6) securing straps (7) to frame.
- (4) Bend straps (7) down and remove fuel tank (1).
- (5) Remove gaskets (8) from tank (1).
- (6) Remove fitting (3) from elbow (9).
- (7) Remove gaskets (10) from fuel tank (1).

b. INSTALLATION:

- (1) Put gaskets (10) in position on fuel tank (1).
- (2) Bend straps (7) around fuel tank (1) and secure to frame using capscrews (6), washers (5) and nuts (4). Be sure straps (7) are centered on gaskets (10).
- (3) Wrap threads of fitting (3) with teflon tape and install fitting (3) in elbow (9).
- (4) Connect fuel line (2) to fitting (3)
- (5) Fill fuel tank. Perform operational check for proper function.

END OF TASK

3-44. FUEL TANK - REPAIR

3-45

This task covers:

- a. Disassembly b. Assembly

INITIAL SETUP:

Materials/Parts

Fuel Gage, Part Number

Gasket, Part Number

Tools Required

Tool Kit, TI 5180-00-177-7033

Fuel Transfer Pump

Equipment
Condition

Para

3-17

Condition Description

Battery ground cable disconnected.

Personnel Required

MOS 63W, 1 Mechanic

General Safety Instructions

Work in a well ventilated area.

Keep away from smoking materials, sparks or open flames when working on the fuel system.

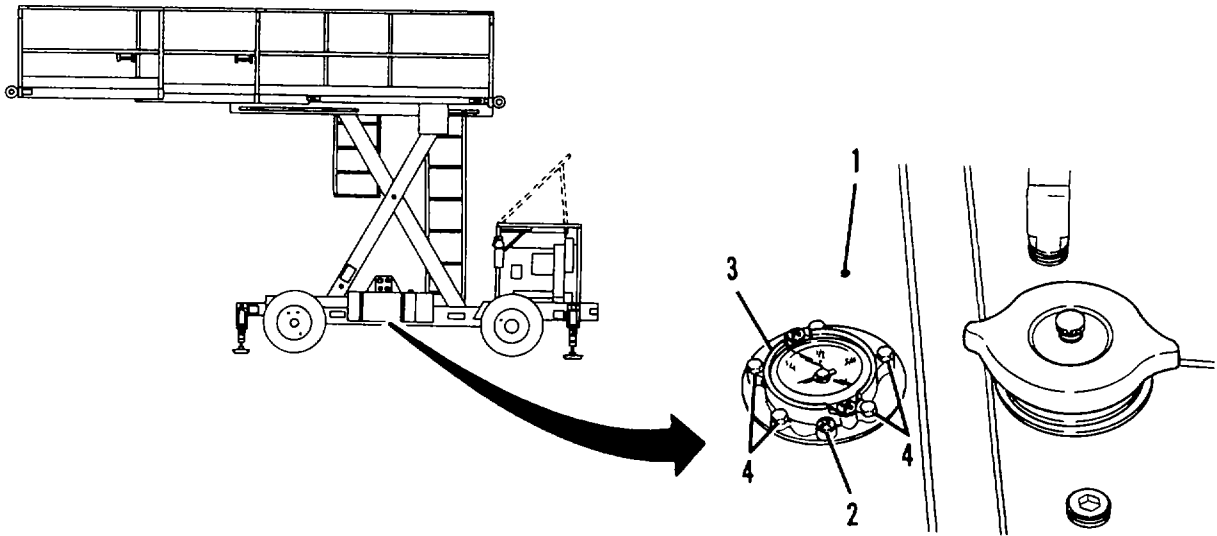


Figure 3-47. Fuel Tank, Repair.

a. DISASSEMBLY:

- (1) Remove all fuel from the fuel tank (1, Figure 3-47) with a fuel transfer pump.

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3-45. FUEL TANK - REPAIR (Continued)

3-45

- (2) Note relation of locator screw (2) with arrow on tank (1).
- (3) Remove five capscrews (4) from gage (3).
- (4) Remove gage (3) and gasket from fuel tank (1).

b. ASSEMBLY:

- (1) Position gage (3) and gasket in fuel tank aligning locator screw (2) with arrow on tank.
- (2) Install five capscrews (4) in gage (3).
- (3) Tighten all screws securely.
- (4) Fill fuel tank. Check gage for proper indication.

END OF TASK

3-46. ENGINE - ADJUST

3-46

Refer to TM5-2805-259-14 for engine adjustment procedures.

END OF TASK

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Materials/Parts

Muffler, Part Number EXH2

Spark Arrestor, Part Number EXH3

Extension Pipe, Part Number EXH4

1-7/8 in. Muffler Clamp, Part Number EXH5

1-1/2 in. Muffler Clamp, Part Number EXH6

1-3/4 in. Reducer, Part Number EXH8

1-1/2 in. Reducer, Part Number EXH9

Tools Required

Tool Kit, TI 5180-00-177-7033

Personnel Required

MOS 63B, 1 Mechanic

General Safety Instructions

Be sure that components are cool enough to touch.

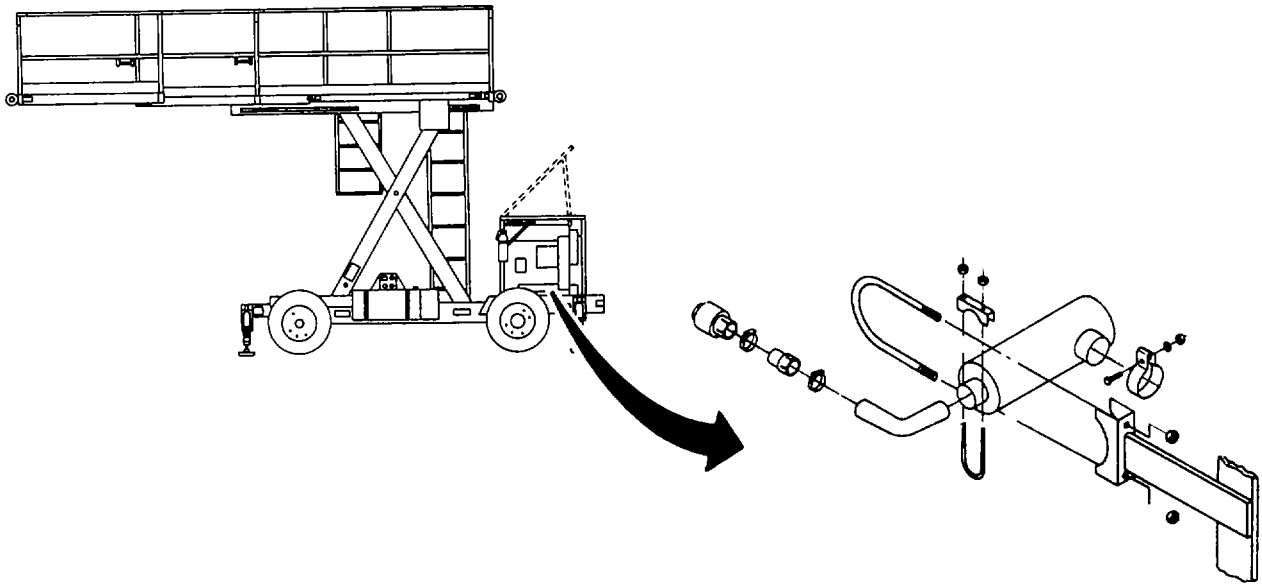


Figure 3-48. Muffler, Replacement (Sheet 1 of 2).

GO ON TO NEXT PAGE

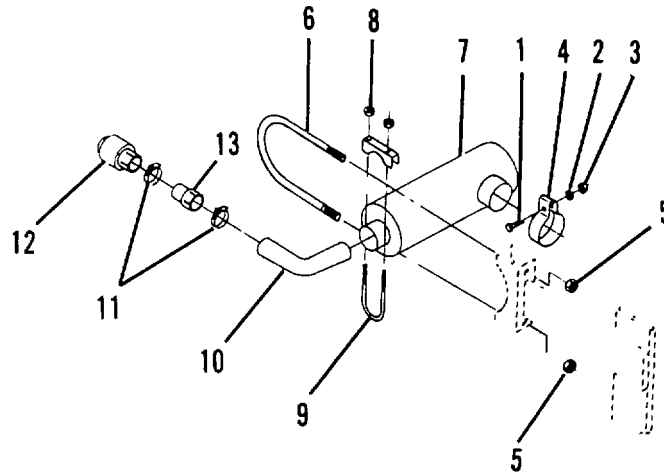


Figure 3-48. Muffler, Replacement (Sheet 2 of 2).

a. REMOVAL:

- (1) Remove capscrew (1, Figure 3-48), washer (2) and nut (3) from exhaust manifold muffer clamp (4).
- (2) Loosen clamp (4).
- (3) Remove nuts (5) from large U-bolt (6).
- (4) Remove U-bolt (6).
- (5) Remove muffer (7) from exhaust manifold.
- (6) Loosen nuts (8) of U-bolts (9) on either end of extension pipe (10).
- (7) Slide extension pipe (10) out of muffer (7).
- (8) Loosen clamps (11).
- (9) Remove and separate spark arrestor (12) and adapter (13).

b. INSTALLATION:

- (1) Place clamps (11) in position and slide inlet of spark arrestor (12) over adapter (13).
- (2) Slide adapter (13) over extension pipe (10).
- (3) Tighten clamps (11).
- (4) Slide extension pipe (10) into outlet of muffer (7).

GO ON TO NEXT PAGE

3-47. MUFFLER - REPLACE (Continued)

3-47

- (5) Slide inlet of adapter (13) over extension pipe (10).
- (6) Put extension pipe clamps and U-bolts (9) in position on muffler outlet and spark arrestor (10).
- (7) Install clamp nuts (8).
- (8) Slide muffler clamp (4) onto muffler inlet.
- (9) Slide inlet of muffler (7) over manifold. Be sure body of muffler fits properly into large clamp.
- (10) Install large U-bolt (6) and nuts (5).
- (11) Install muffler clamp capscrew (1), washer (2) and nut (3).
- (12) Perform operational check for proper function.

END OF TASK

CHAPTER 4

DIRECT SUPPORT MAINTENANCE INSTRUCTICINS

4-1. GENERAL

4-1

This chapter contains maintenance procedures for Direct Support maintenance personnel as authorized by the Maintenance Allocation Chart (MAC, Appendix B).

Section I. REPAIR PARTS, SPECIAL TOOLS, TMDE AND SUPPORT EQUIPMENT

4-2. COMMON TOOLS AND EQUIPMNT

4-2

For authorized common tools and equipment refer to the Modified Table of Organization and Equipment (MTOE) applicable for your unit.

4-3. SPECIAL TOOLS

4-3

No special tools are required for maintenance of the SPEMS.

4-4. SPARES AND REPAIR PARTS

4-4

Spares and repair parts are listed and illustrated in the Repair Parts and Special Tools List (RPSTL, Appendix C) covering organizational and Direct Support maintenance for the SPEMS.

Section II. TROUBLESHOOTING

4-5. GENERAL

4-5

- a. The symptoms index for Direct Support maintenance is given in Table 4-1. It lists the symptoms (malfunctions), tests or inspections, and corrective actions to be taken.

GO ON TO NEXT PAGE

- b. Troubleshooting charts follow the symptoms index.
- c. Keep in mind that it is not possible to list all malfunctions that may develop. If a problem develops that is not included in the symptoms index, notify your supervisor who will take the appropriate action.
- d. Each major SPEMS system is listed in the Symptoms Index. Specific symptoms for each symptom are indented below the appropriate heading. Refer to the page indicated for the proper troubleshooting procedure.

NOTE

Before you begin troubleshooting, be sure all the preliminary maintenance checks and services (PMCS) have been done. Refer to Chapter 2, Table 2-1.

- e. When troubleshooting the SPEMS, keep the following in mind:
 - (1) Always use the electrical schematic when troubleshooting the electrical system. See Foldouts (back of this manual).
 - (2) Hydraulic pressure varies by design from one branch of the hydraulic system to another. Always refer to the hydraulic system schematic to determine proper system pressures at various locations to compare with measures values. See Foldouts (back of this manual).
 - (3) A multimeter (VOM) is necessary for checking electrical circuits and components. Refer to para 3-8, Multimeter Function and Use.

SYMPTONS INDEX

SYSTEM	SYMPTOM	PAGE
ELECTRICAL SYSTEM		
	SPEMS does not respond to drive control	4-4
		4-5
	Pump does not find or hold neutral	4-9
	Platform will not traverse	4-16
	Engine will not stop	4-17
DRIVE SYSTEM		
	SPEMS does not respond to drive control	4-4
		4-5
	Brakes do not release	4-6
	Brakes do not engage	4-7
	SPEMS travels at a slow or erratic rate	4-4
		4-8
	SPEMS will travel in one direction only	4-4
HYDRAULIC SYSTEM		
	SPEMS does not respond to drive control	4-4
		4-5

GO ON TO NEXT PAGE

SYMPTOMS INDEX, Continued

HYDRAULIC SYSTEM, Continued

SPEMS travels at a slow or erratic rate	4-4
	4-8
Pump does not find or hold neutral	4-9
Pump does not develop maximum pressure	4-9

SYSTEM

SYMPTOM	PAGE
Stabilizers will not extend	4-11
Stabilizers will not retract	4-12
Base does not respond to steer control.....	4-10
Hydraulic fluid temperature exceeds maximum limit	4-11
Platform will not raise	4-13
Deck will not traverse	4-16
SPEMS will travel in one direction only	4-4
Hydraulic Pump operates at high noise level	4-17
Platform will not remain raised	4-14
Platform lowers too quickly or slowly	4-15

POWER SYSTEM

Pump does not find or hold neutral	4-9
Pump does not develop maximum pressure	4-9
SPEMS travels at slow or erratic rate	4-4
	4-8

SPEMS TRAVELS AT A SLOW OR ERRATIC RATE
(PROBLEM TRACED TO ENGINE)

FOR ENGINE TROUBLESHOOTING
PROCEDURES
SEE TM5-2805-259-14

SPEMS WILL TRAVEL IN ONE DIRECTION ONLY
(PROBLEM TRACED TO TRANSMISSION)

WITH HIGH PRESSURE RELIEF VALVES SWITCHED,
DOES TRANSMISSION DRIVE IN THE OTHER
DIRECTION ONLY?

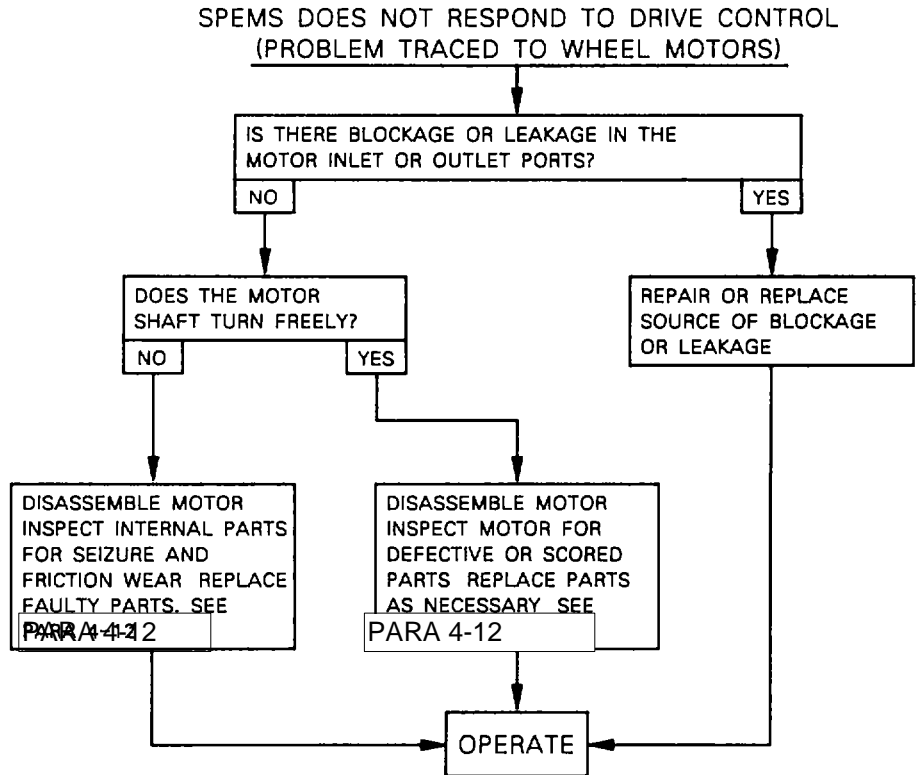
REPLACE TRANSMISSION

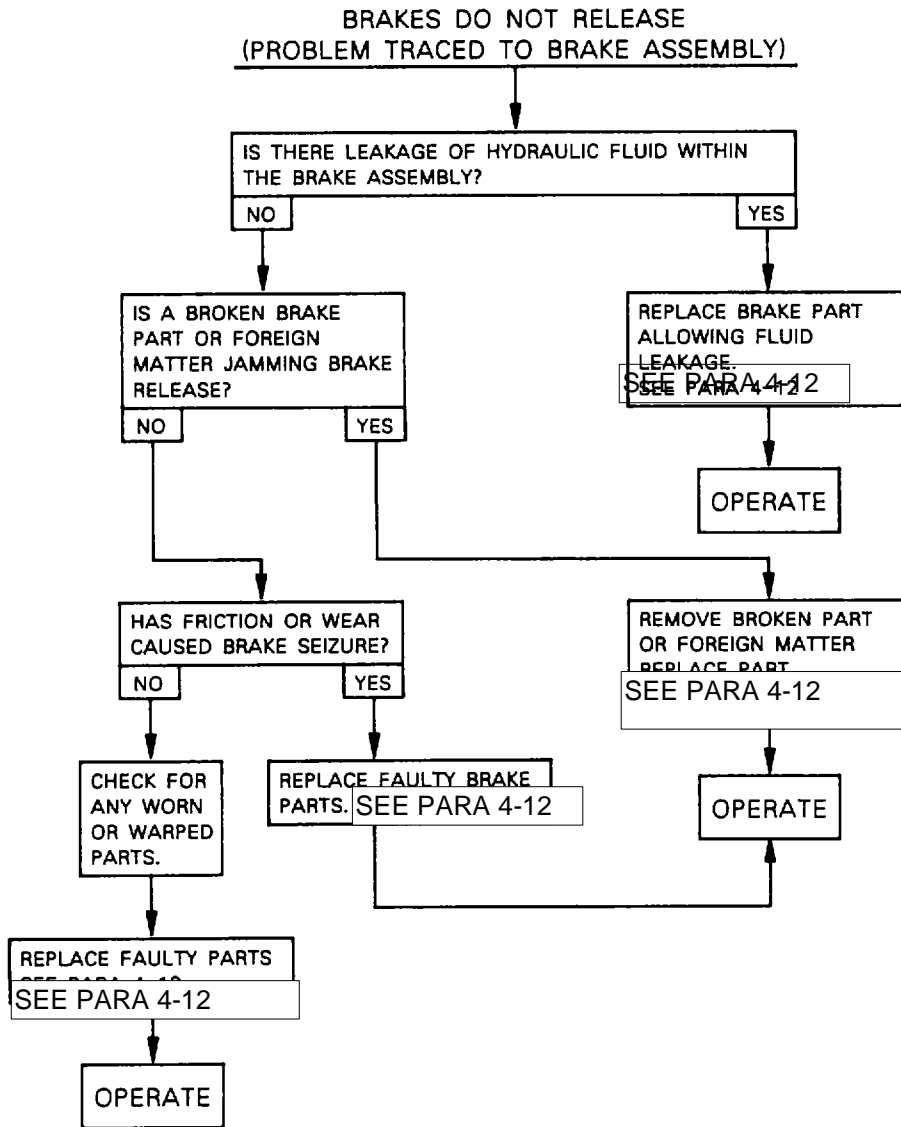
OPERATE

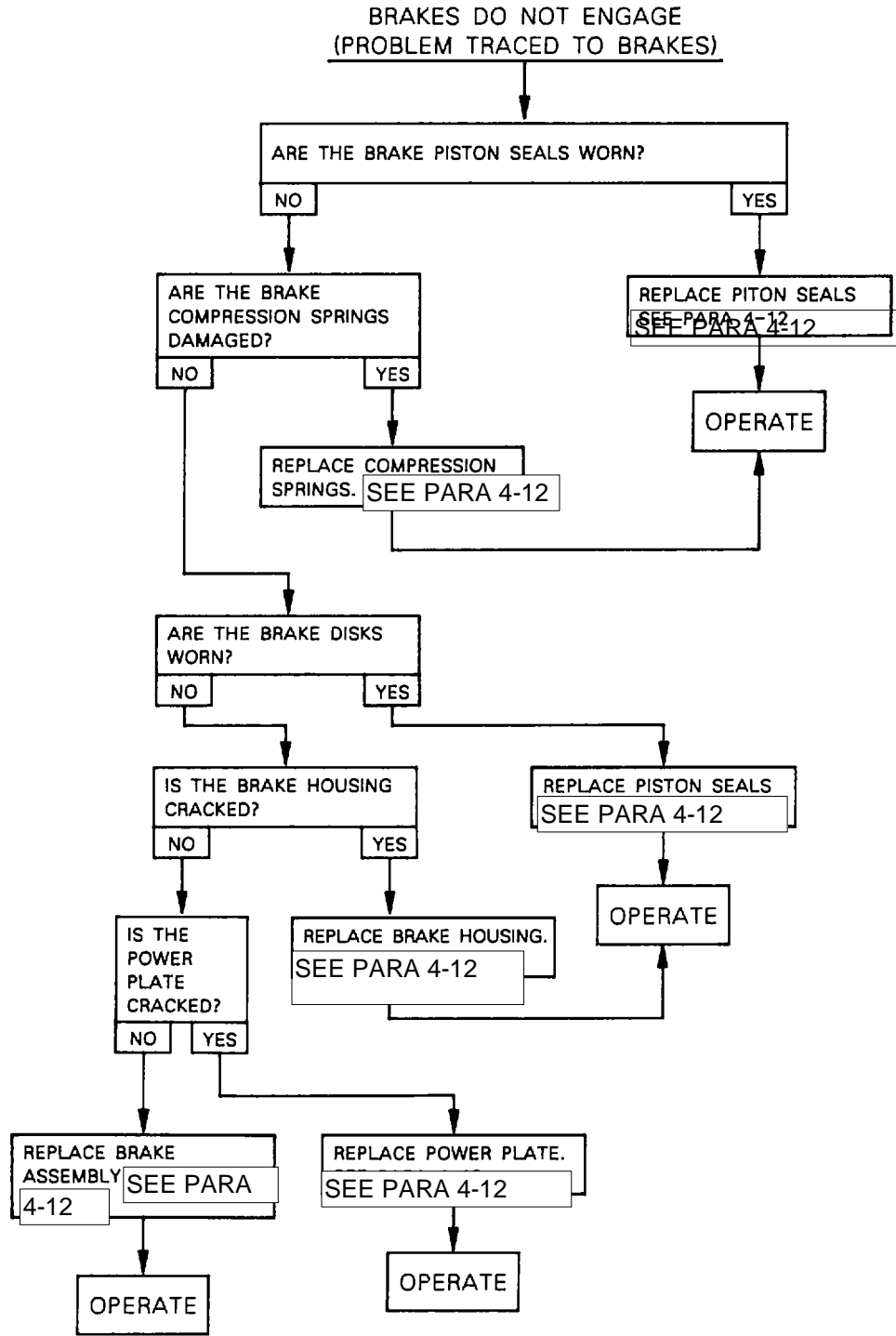
SPEMS DOES NOT RESPOND TO DRIVE CONTROL
(PROBLEM TRACED TO PRINTED CIRCUIT BOARD)

REPLACE THE PRINTED CIRCUIT BOARD
IF ADJUSTMENT CANNOT BE
OBTAINED REF PARA 4-11

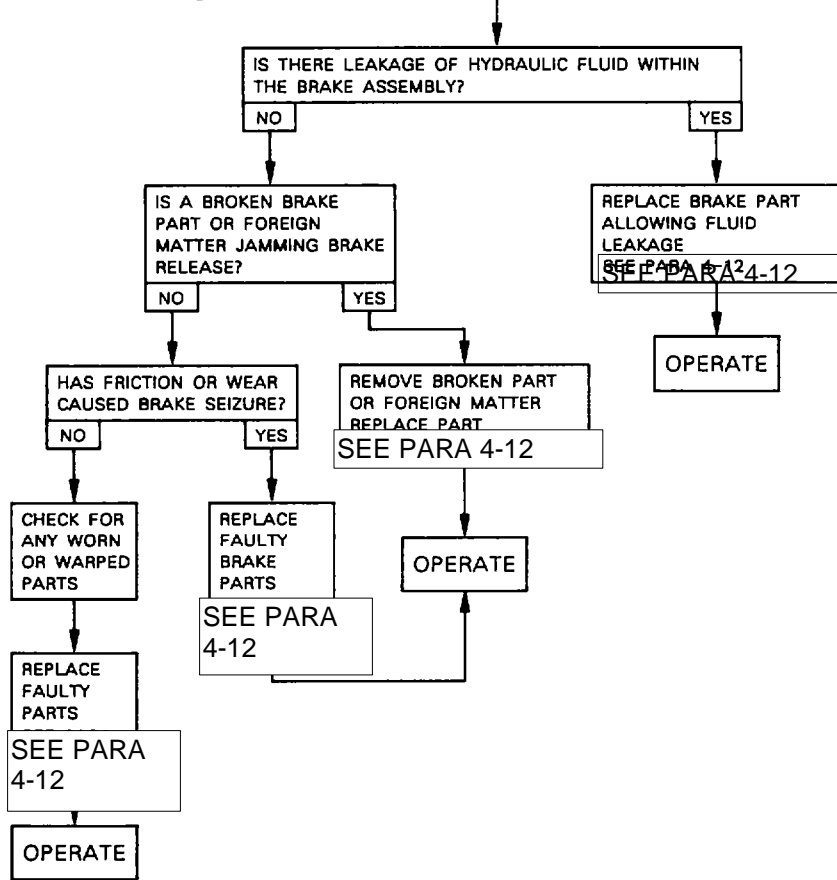
OPERATE



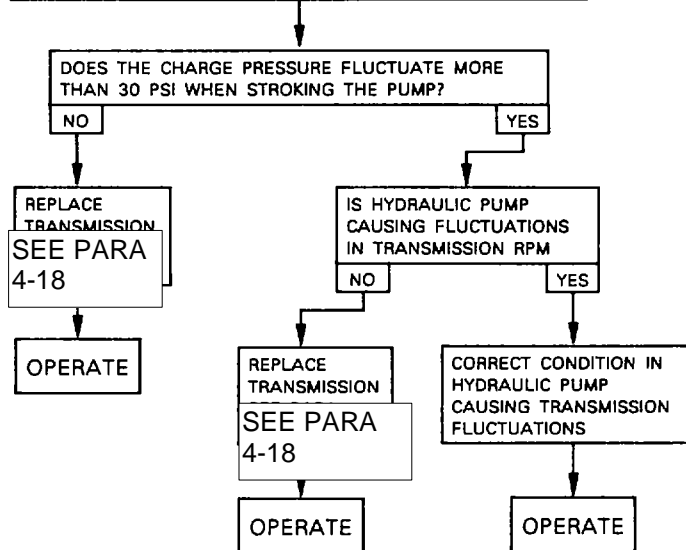


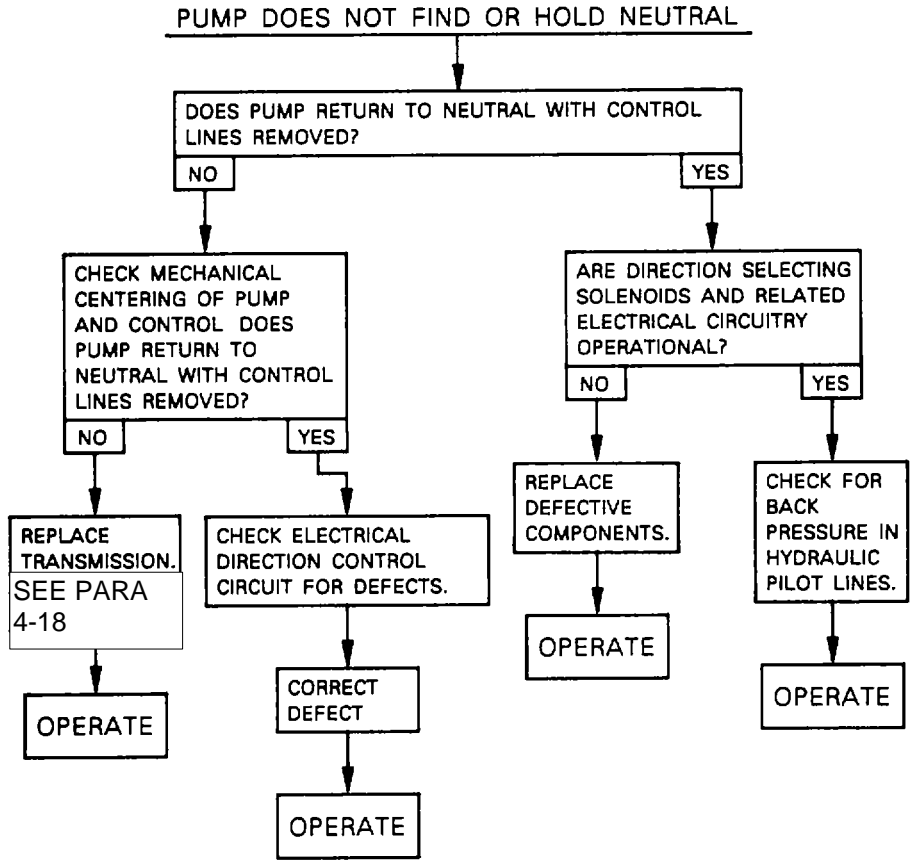


SPEMS TRAVELS AT A SLOW OR ERRATIC RATE
(PROBLEM TRACED TO BRAKE ASSEMBLY)



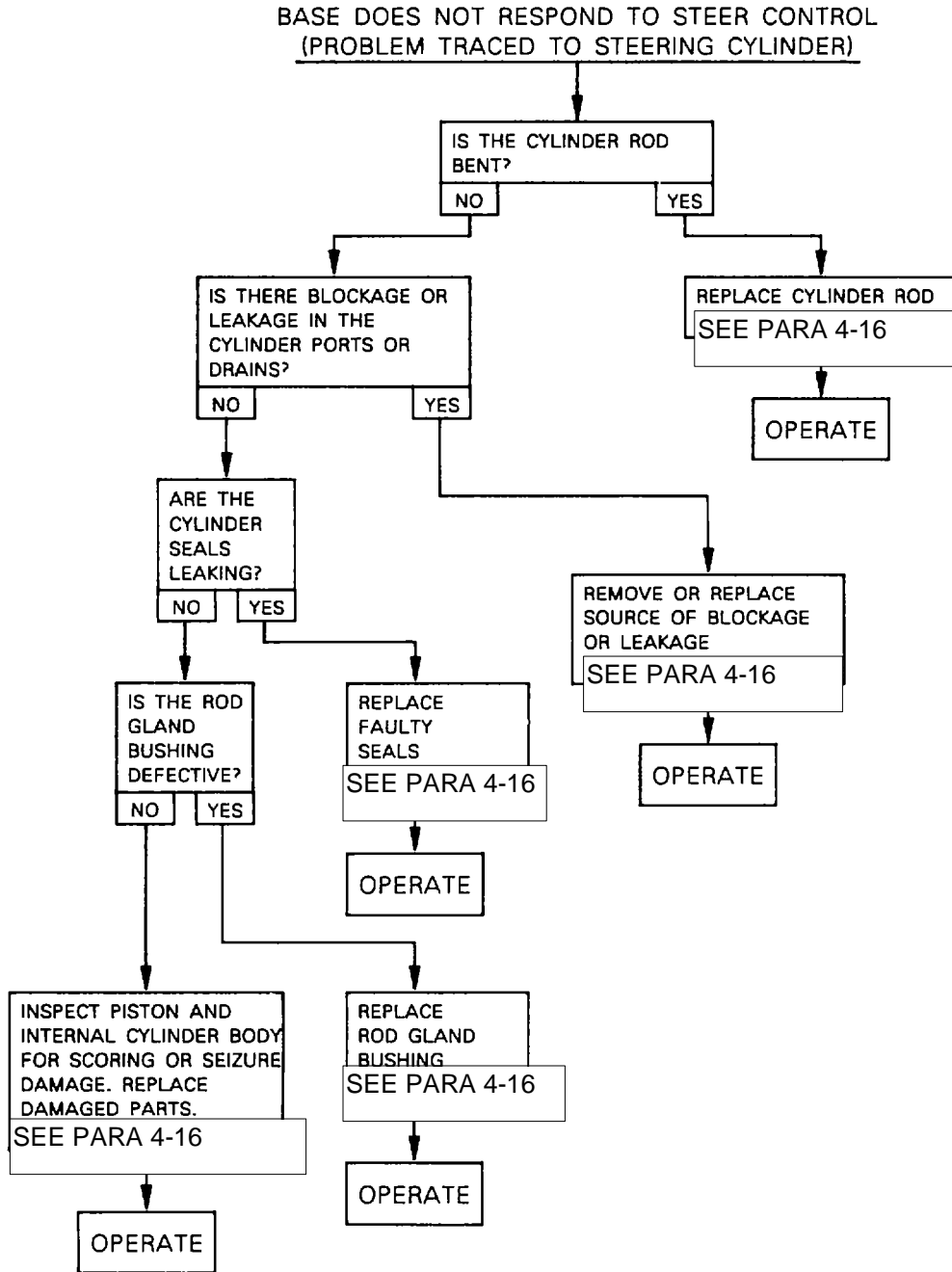
SPEMS TRAVELS AT A SLOW OR ERRATIC RATE
(PROBLEM TRACED TO TRANSMISSION)



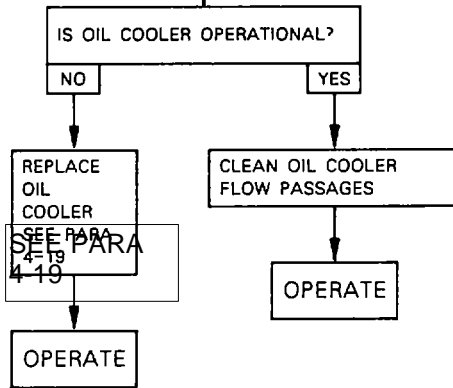


PUMP DOES NOT DEVELOP MAXIMUM PRESSURE

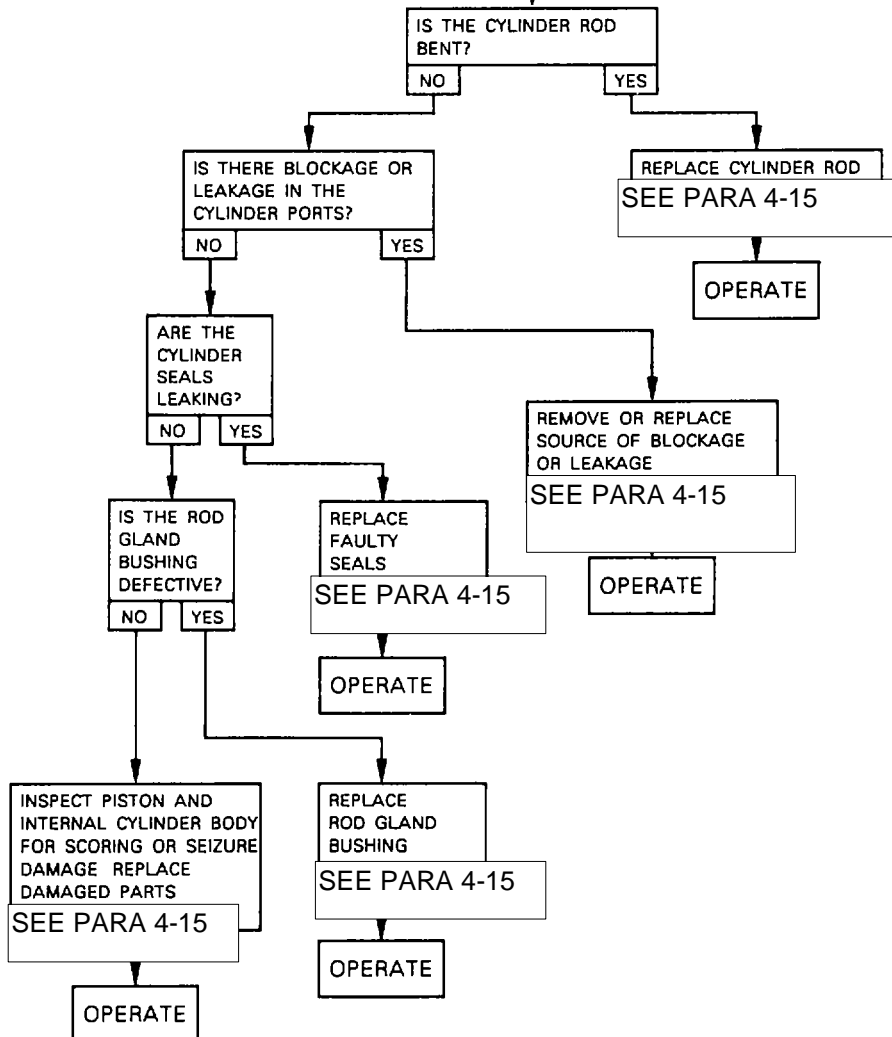
WHEN ORGANIZATIONAL MAINTENANCE INSPECTIONS INDICATE TRANSMISSION DEFECT, REPLACE THE TRANSMISSION REF PARA 4-18

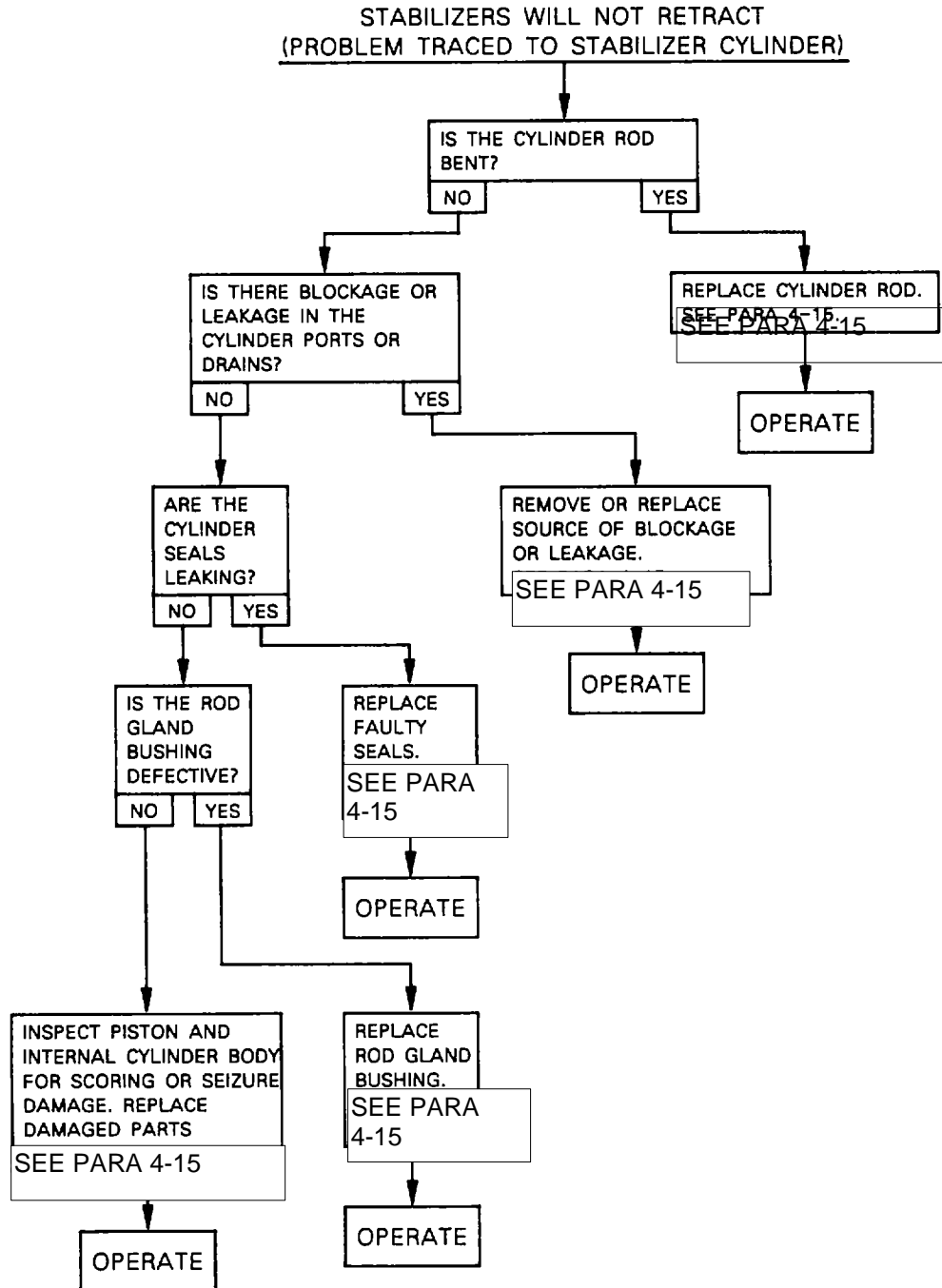


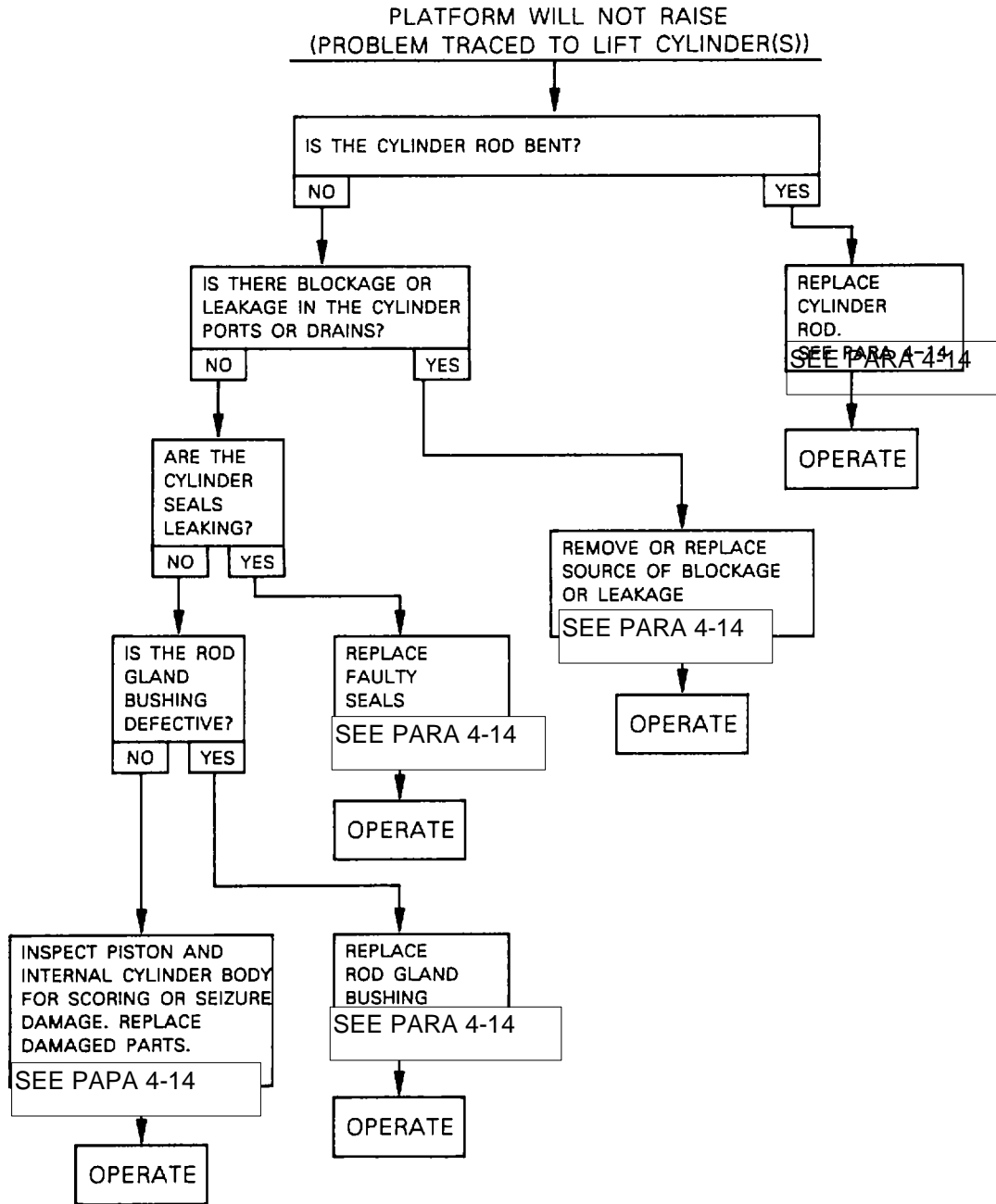
HYDRAULIC FLUID TEMPERATURE EXCEEDS RECOMMENDED LIMIT
(PROBLEM TRACED TO OIL COOLER)

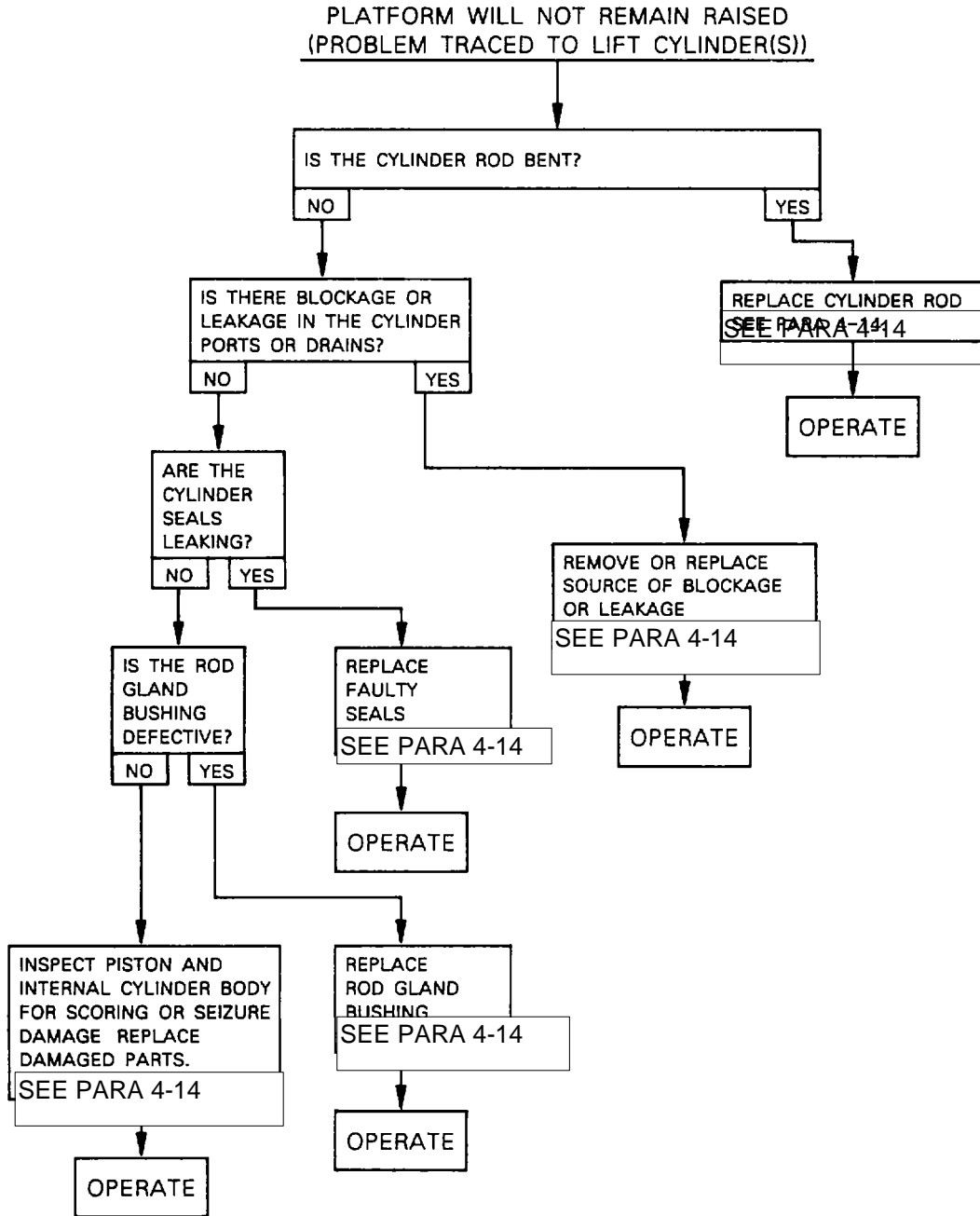


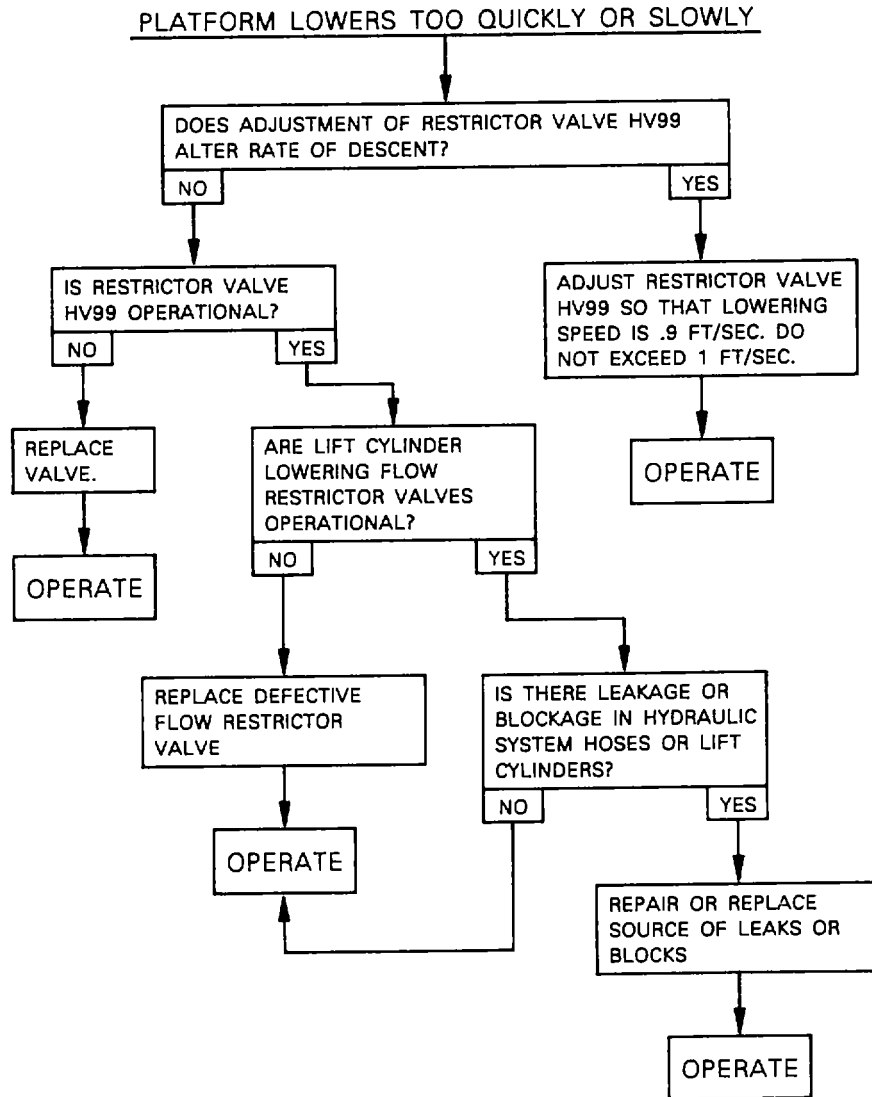
STABILIZERS WILL NOT EXTEND
(PROBLEM TRACED TO STABILIZER CYLINDER)

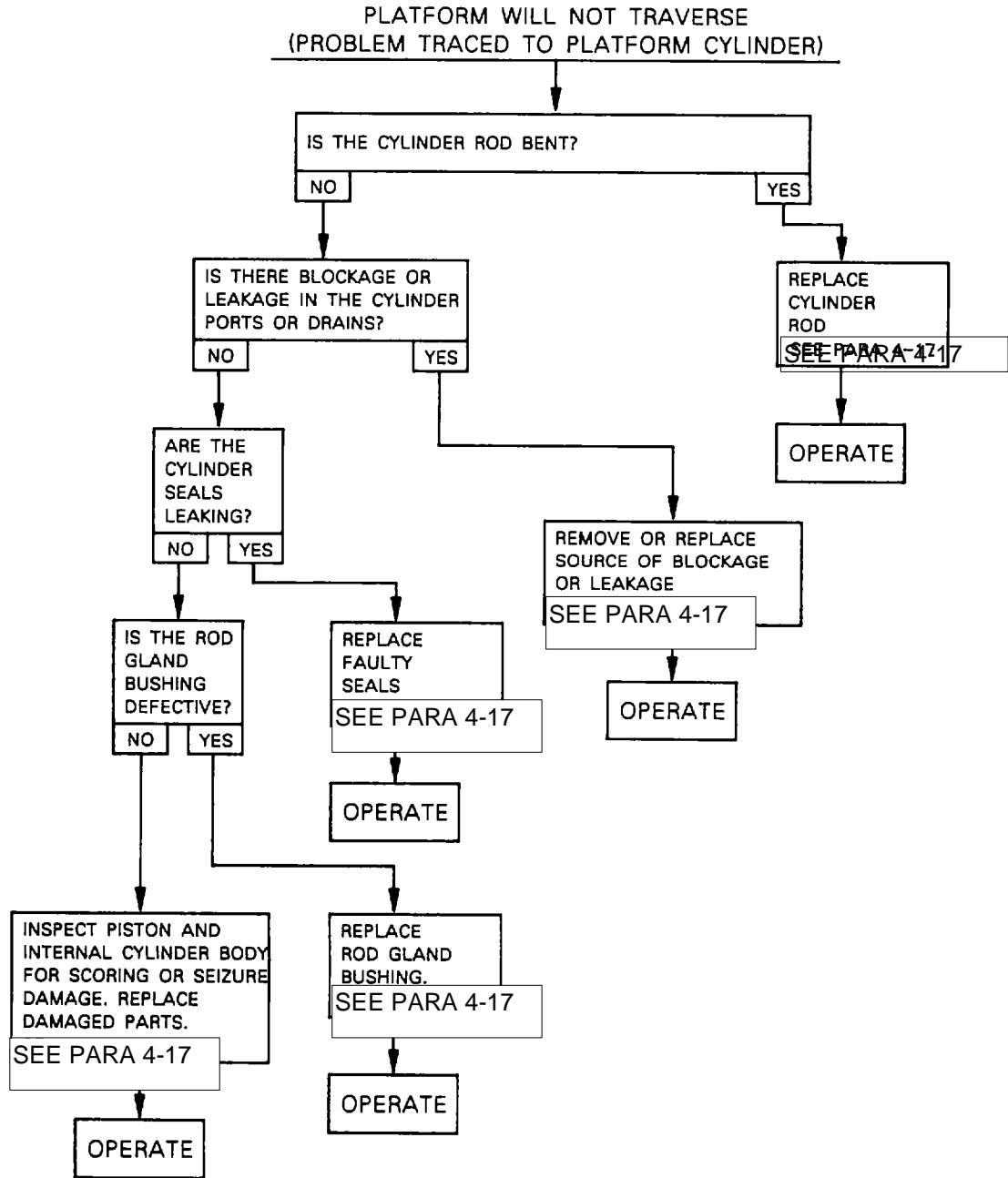




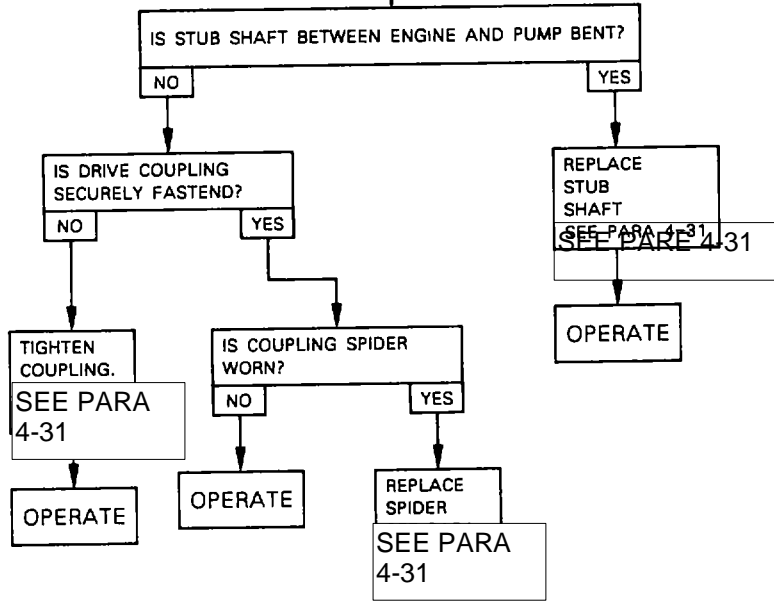




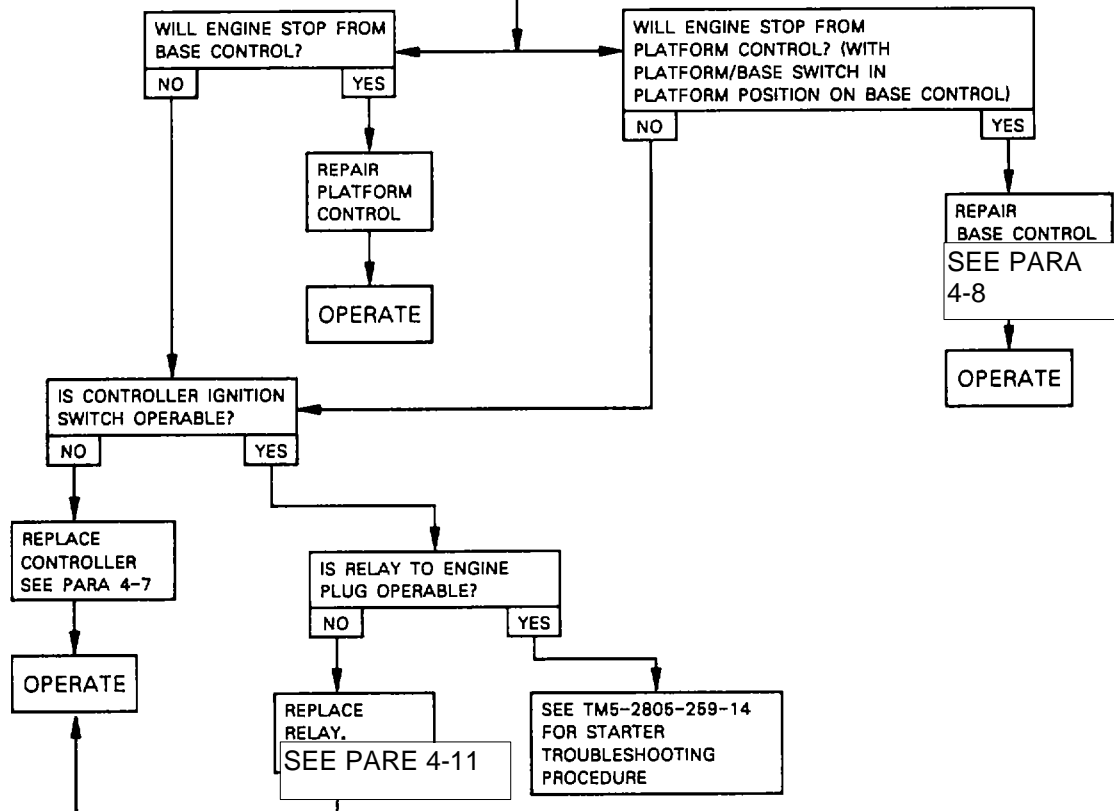




HYDRAULIC PUMP OPERATES AT HIGH NOISE LEVEL
(PROBLEM TRACED TO DRIVE COUPLING BETWEEN ENGINE AND PUMP)



ENGINE WILL NOT STOP



Section III. MAINTENANCE PROCEDURES

4-6. GNERAL

a. This section describes the maintenance actions to be performed by Direct Support Maintenance personnel.

TASK	PARA	PAGE
Control Boxes - Repair	4-8	4-21
Control Boxes - Replace	4-7	4-19
Deck Extensions - Repair	4-29	4-98
Deck Extensions - Replace	4-26	4-86
Engine - Repair	4-34	4-122
Engine - Replace	4-33	4-114
General - Maintenance Procedures	4-6	4-18
Hydraulic Motor, Brake and Drive Hub Assembly - Repair	4-12	4-32
Hydraulic Pump - Repair	4-20	4-69
Hydraulic Reservoir - Repair	4-13	4-47
Junction Boxes - Adjust	4-10	4-26
Junction Boxes - Inspect	4-9	4-24
Junction Boxes - Repair	4-11	4-28
Ladder - Repair	4-28	4-96
Ladder - Replace	4-25	4-84
Lift Cylinders - Repair	4-14	4-50
Platform - Repair	4-30	4-100
Platform - Replace	4-27	4-88
Scissors, Scissors Arm Rollers and Shafts - Repair	4-32	4-110
Scissors, Scissors Arm Rollers and Shafts - Replace	4-31	4-102
Stabilizers - Replace	4-24	4-82
Stabilizer Cylinders - Repair	4-15	4-53
Steering Cylinder - Repair	4-16	4-56
Steering Assembly - Replace	4-23	4-77
Steering Wheel Hubs and Bearings - Repair	4-22	4-74
Stub Shaft and Coupling - Replace	4-35	4-123
Tire/Wheel Assemblies - Repair	4-21	4-72
Transmission - Replace	4-18	4-62
Transmission Oil Cooler	4-19	4-66
Traverse Cylinder - Repair	4-17	4-59

b. Personnel required for each task are listed in the Initial Setup.

GO ON TO NEXT PAGE

4-7. CONTROL BOXES - REPLACE

4-7

This task covers:

- a. Removal
- b. Installation

INITIAL SETUP:

Equipment
Condition

Para
3-17

Condition Description

Battery ground cable
disconnected.

Materials/Parts

Base Control Box, Part Number 200-52
Platform Control Box, Part Number 200-51

Tools Required

Tool Kit, TI 5180-00-177-7033

Personnel Required

MOS 63G, 1 Mechanic

a. REMOVAL:

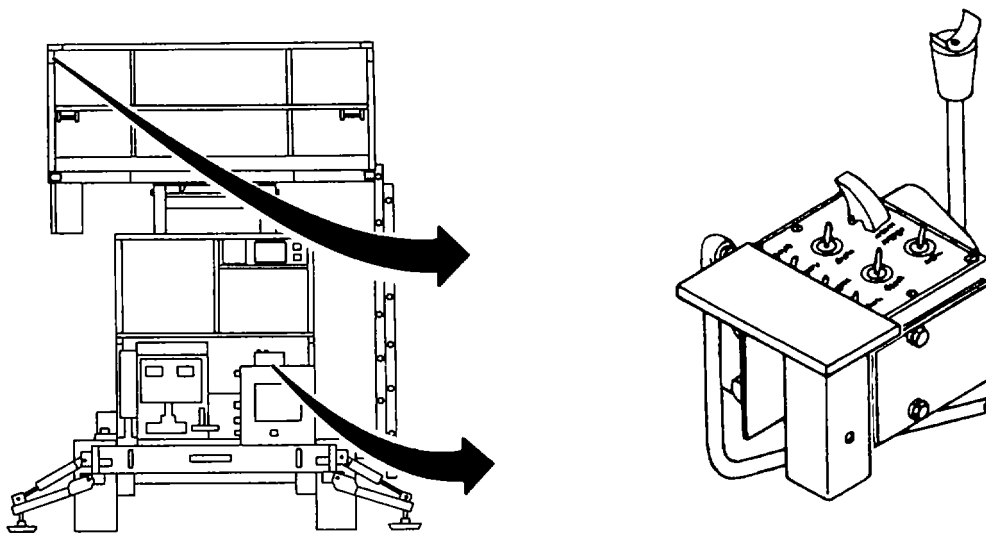


Figure 4-1. Control Box Replacement (Sheet 1 of 2) .

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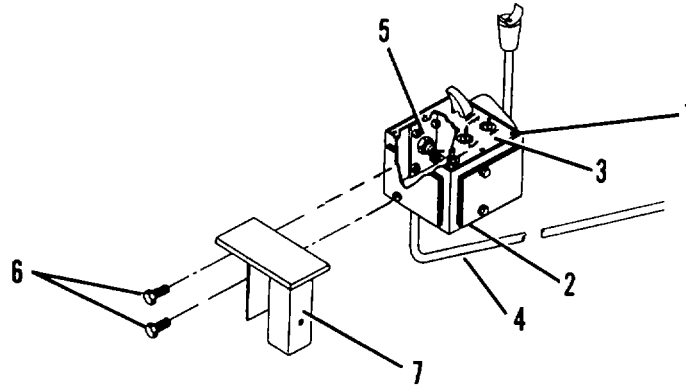


Figure 4-1 . Control Box Replacement (Sheet 2 of 2) .

- (1) Remove eight screws (1, Figure 4-1) from control box (2).
- (2) Lift cover and gasket (3) and allow to hang.
- (3) Tag each wire in cable (4) for ease of reassembly.
- (4) Disconnect each wire in cable (4).
- (5) Remove elbow (5) with cable (4) from control box (2).
- (6) Carefully pull cable (4) out of control box (2).
- (7) Remove two capscrews (6) securing bracket (7) to control box (2).

b. INSTALLATION:

- (1) Attach bracket (7) to control box (2) with two capscrews (6).
- (2) Carefully insert cable (4) with elbow (5) through hole in control box (2).
- (3) Screw control box (2) onto elbow (5).
- (4) Connect each wire in cable (4) using the tags for terminal identification.
- (5) Position cover and gasket (3) on control box (2) and secure with eight screws (1).
- (6) Perform operational check for proper function.

END OF TASK

4-8. CONTROL BOXES - REPAIR

4-8

This task covers:

- a. Disassembly
- b. Inspection
- c. Assembly

INITIAL SETUP

Equipment
Condition

Para
3-17

Condition Description
Battery ground cable
disconnected.

Materials/Parts
As Required

Tools Required
Tool Kit, TI 5180-00-545-8645

Personnel Required
MOS 63G, 1 Mechanic

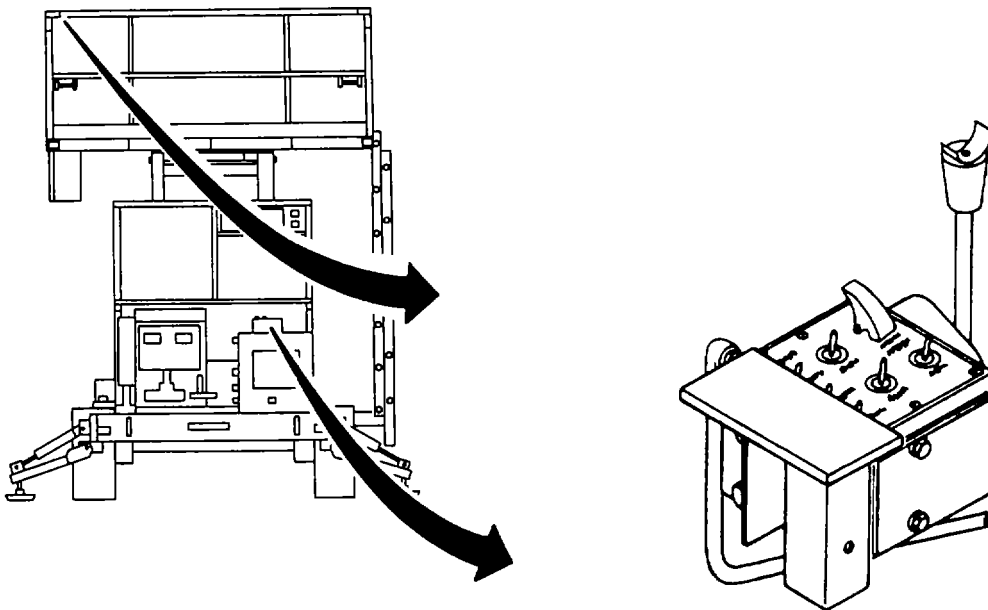


Figure 4-2 . Control Box Repair (Sheet 1 of 2) .

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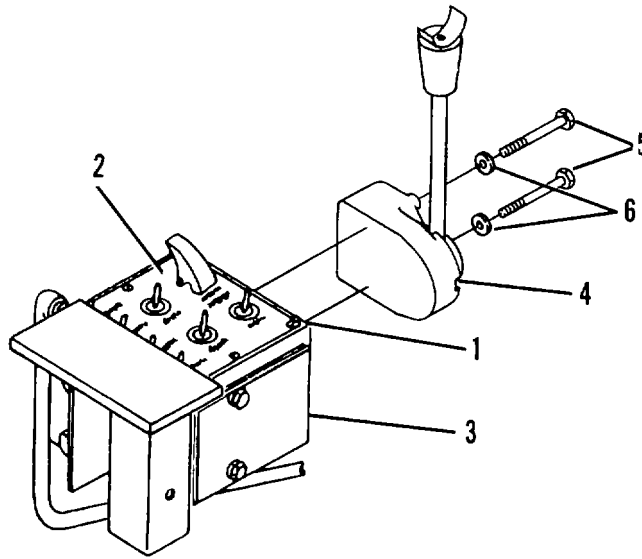


Figure 4-2. Control Box Repair (Sheet 2 of 2) .

NOTE

Refer to para 3-22 for toggle switch replacement.

a. DISASSEMBLY:

- (1) Remove eight screws (1, Figure 4-2) securing cover and gasket (2) to control box (3).
- (2) Lift cover and gasket (2) and allow to hang.
- (3) Identify the wires coming from the control lever (4) and tag for ease of reassembly.
- (4) Disconnect the wires coming from the control lever (4).
- (5) Identify the wires coming from the micro switch and tag for ease of reassembly.
- (6) Disconnect the wires coming from the micro switch at the barrier strip.
- (7) Remove two capscrews (5) with lockwashers (6) securing control lever assembly (4) to control box (3).
Remove control lever assembly (4).

b. INSPECTION.

- (1) Clean all parts with cleaning solvent and dry with a lint-free cloth.
- (2) Inspect moving parts for evidence of wear, burrs, nicks, chips, scoring and other damage.
- (3) Replace damaged parts with new parts.

GO ON TO NEXT PAGE

4-8. CONTROL BOXES - REPAIR (Continued)

4-8c. ASSEMBLY:

- (1) Position control lever assembly (4) on control box (3) and secure with capscrews (5) and lockwashers (6).
- (2) Connect the wires coming from the control lever (4) to the barrier strip using the tags for identification.
- (4) Position cover and gasket (2) over control box (3) and secure with eight screws (1).
- (5) Perform operational check for proper function.

END OF TASK

4-9. JUNCTION BOXES - INSPECT

This task covers:
Inspection

INITIAL SETUP

Special Tools/Test Equipment
Multimeter

Equipment
Condition

Para
3-17

Condition Description
Battery ground cable
disconnected.

Tools Required

Tool Kit, TI 5180-00-545-8645

Personnel Required

MOS 63G, 1 Mechanic

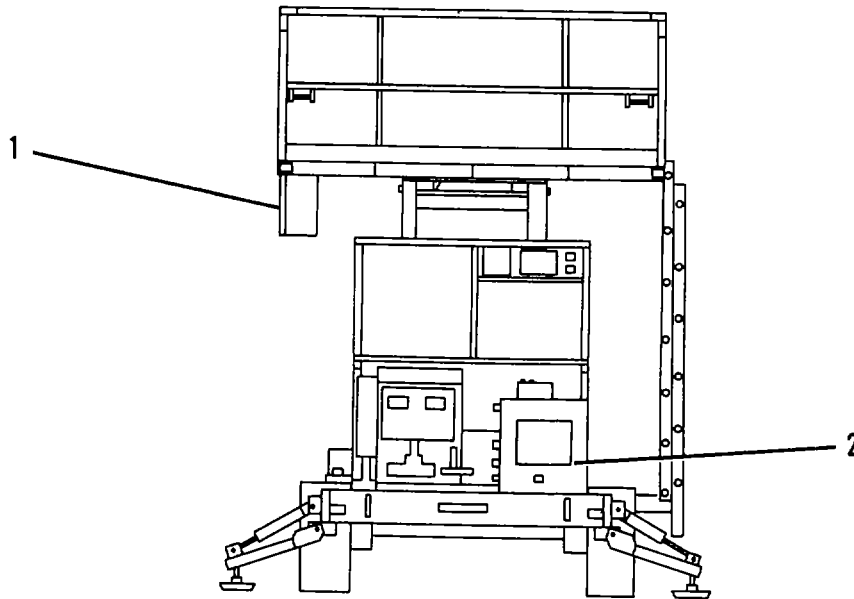


Figure 4-3. Junction Boxes .

GO ON TO NEXT PAGE

4-9. JUNCTION BOXES - INSPECT (Continued)

4-9**INSPECTION:**

- a. Inspect the boxes (1 and 2, Figure 4-3) for external damage. If there is external damage, check components inside, next to the damaged area, to see if they also sustained damage.
- b. Inspect gaskets for proper sealing. Replace gaskets if leakage is evident. See para 4-11.
- c. Inspect the printed circuit board for damage. Replace printed circuit board if damaged. See para 4-11.
- d. Inspect relays for damage. Replace relays if damaged. See para 4-11.
- e. Inspect fuses for opens. Replace fuses if open. See para 4-11.
- f. Use the multimeter to check damaged components and wires for proper function (see para 3-8 thru 3-13).

END OF TASK

4-10. JUNCTION BOXES - ADJUST**4-10**

This task covers:
Circuit Board Adjustment

INITIAL SETUPTools Required

Tool Kit, TI 5180-00-545-8645

Personnel Required

MOS 63G, 2 Mechanic

General Safety Instructions

Use extreme caution and be alert
when operating and adjusting.

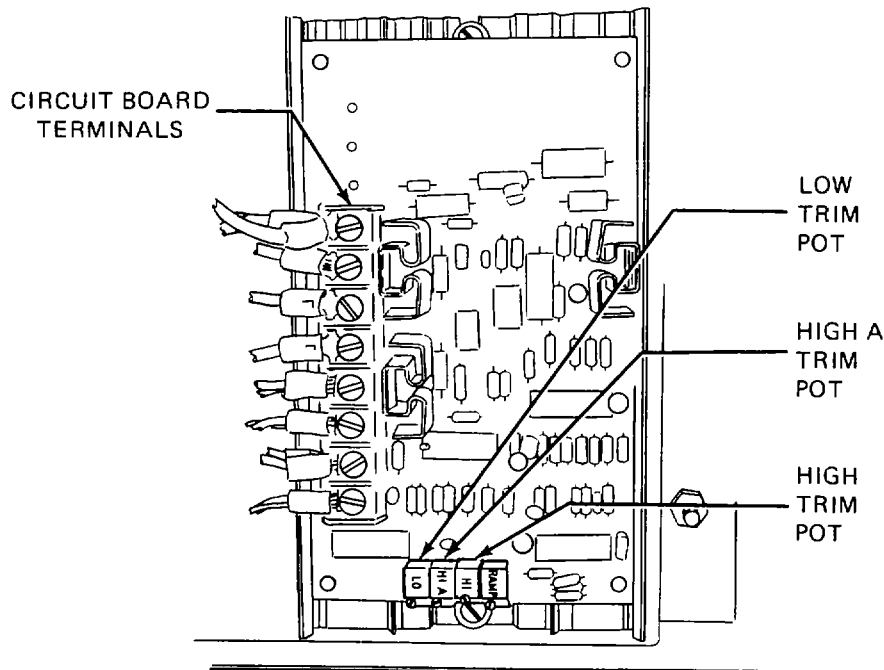


Figure 4-4. Circuit Board Adjustments.

ADJUSTMENT:

- a. Trim pot adjustments are made utilizing the base controller, with the SPEMS fully lowered and the engine OFF.
- b. Set the base controller with:
 - (1) Platform base selector at BASE.
 - (2) EMERGENCY STOP in OPERATING position.
 - (3) ENGINE STOP-START to RUN position.

GO ON TO NEXT PAGE

4-10. JUNCTION BOXES - ADJUST (Continued)

4-10

- c. Using a multimeter, place negative (-) probe at ground and positive (+) probe at "B" terminal on circuit board (Figure 4-4).
- (1) Engage DRIVE toggle and pull handle to reverse just past the point at which a reading occurs on the meter. Hold handle in this position.
 - (2) Adjust LOW (LO) trim pot to 5 volts. (Clockwise increases voltage, counterclockwise decreases voltage.)
 - (3) Push handle full forward.
 - (4) Adjust HIGH (HI) trim pot to 12 volts.
- d. Using a multimeter, place negative (-) probe at ground and positive (+) probe on the "A" terminal on the circuit board.
- (1) Engage drive toggle and push handle full forward.
 - (2) Adjust HIGH (HI A) trim pot to 12 volts.
- e. Start the SPEMS and raise the platform off the scissors position limit switch.
- (1) Drive the SPEMS over a smooth, measured level course in full reverse and measure elapsed time. The desired speed is 1 foot per second (ft/sec).
 - (2) Adjust the HIGH trim pot to 1 ft/sec. (Clockwise increases speed, counterclockwise decreases speed).
 - (3) Over the same course, measure elapsed time in full forward. Desired speed is 1 ft/sec.
 - (4) Adjust HIGH (HI) trim pot to 1 ft/sec. (Clockwise increases speed, counterclockwise decreases speed.)
- f. Check adjustments in the following sequence: LOW, HIGH, HIGH-A (Note: Adjustment of one pot may affect the others; therefore several times through may be anticipated).
- (1) Desired readings are:
 - (a) LOW - 5V at point meter first records a reading.
 - (b) HIGH - 1 ft./sec. travel speed with platform raised.
 - (c) HIGH-A - 1 ft./sec. travel speed with platform raised.
 - (2) If all adjustments are correct, then adjustment is complete.
 - (3) If any adjustment is necessary, repeat step f.
- g. Operational test for proper function.

END OF TASK

4-11. JUNCTION BOXES - REPAIR

4-11

This task covers:

- a. Testing
- b. Replacement of Printed Circuit Board
- c. Replacement of Relays
- d. Replacement of Gasket
- e. Replacement of Fuses

INITIAL SETUP

Equipment
Condition

Para
3-17

Condition Description
Battery ground cable
disconnected.

Materials/Parts

Cleaning Solvent (Item 6, Appendix D)
As required
Printed Circuit Board, Part Number 505-02-24-05
Relay, Part Number A314XBX48P-24V/0
Gasket
Fuse, Part Number 71607

Tools Required

Tool Kit, TI 5180-00-545-8645

Personnel Required

MOS 63G, 1 Mechanic

a. TESTING:

NOTE

It is improbable that a circumstance exists in which it would be necessary to replace an entire junction box. Rather, you will replace components and wires within the box.

- (1) Use the multimeter to check for failed components and/or wires. Consult the electrical schematic for component/wire identification. Refer to Foldouts (in back of this manual).
- (2) Try to determine the cause of the failure. Was the component faulty? Was there a short in the circuit? Was the circuit overloaded for some reason? and if so; how or why?
- (3) Talk with the operator. An alert operator can often give you clues to the failure that can prove invaluable. Remember, even if he has nothing unusual to report, this is an indicator itself.

GO ON TO NEXT PAGE

(4) Refer to the electrical troubleshooting information for general procedures on circuit testing.

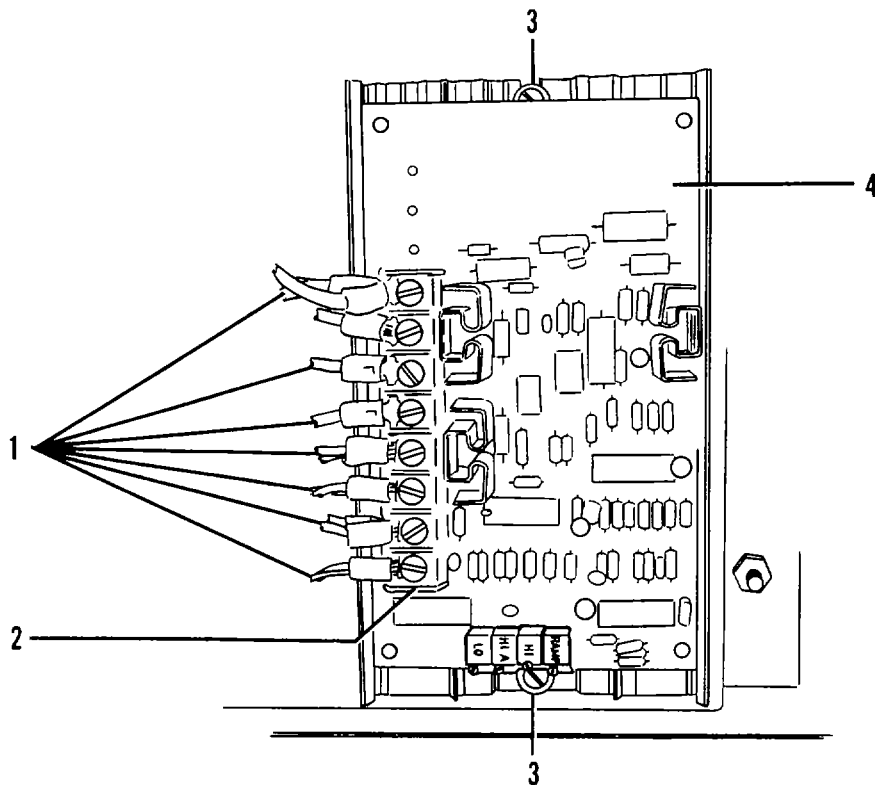


Figure 4-5. Printed Circuit Board Replacement.

b. REPLACEMENT OF PRINTED CIRCUIT BOARD:

(1) Removal:

NOTE

Tag all wires for ease in reassembly.

- (a) Tag and remove eleven wires (1, Figure 4-5) from printed circuit board terminal strip (2).
- (b) Remove two screws (3) from printed circuit board (4), remove board and discard.

(2) Installation:

- (a) Position new printed circuit board (4) in junction box and install two screws (3).
- (b) Connect previously tagged wires (1) to printed circuit board terminal strip (2).
- (c) Adjust printed circuit board. See para 4-10.

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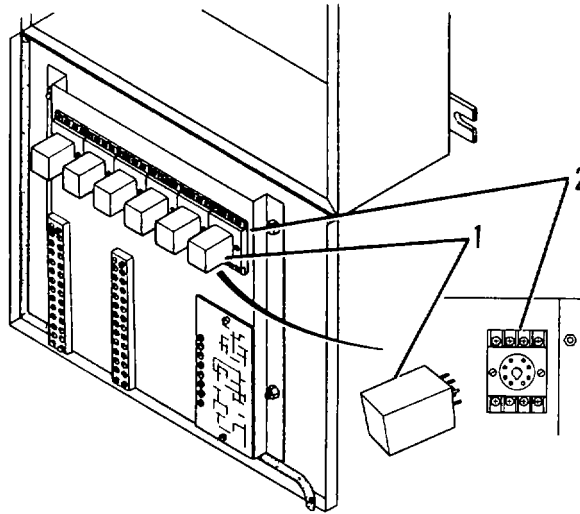


Figure 4-6. Relay Replacement.

c. REPLACEMENT OF RELAYS.

- (1) Removal. Relays are plug-in type relays. To remove, pull relay (1, Figure 4-6) from mount (2). Discard relay.
- (2) Installation. Align pins on relay (1) with holes in mount (2). Press relay firmly into mount.

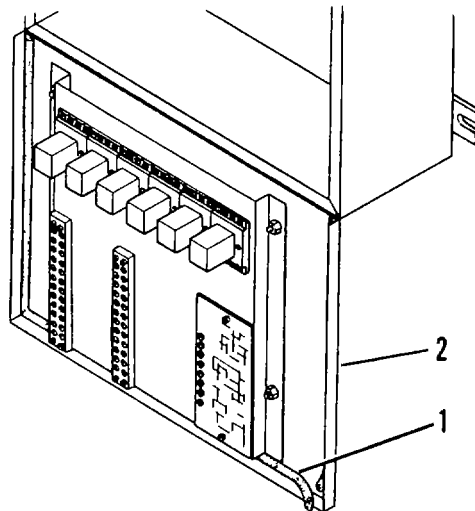


Figure 4-7. Junction Box Gasket Replacement.

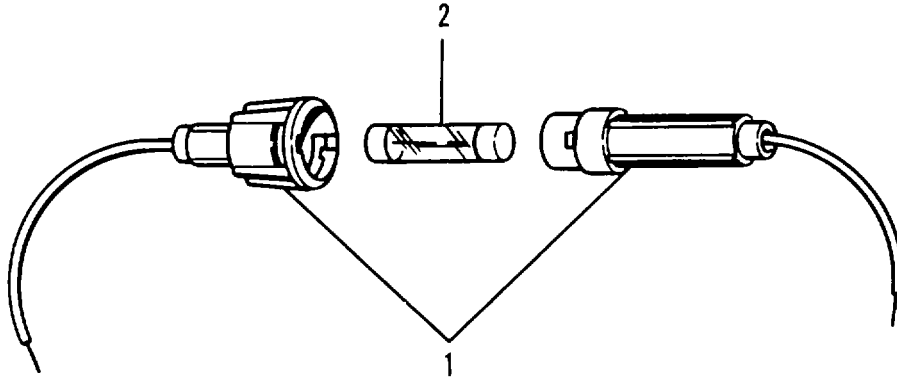
d. REPLACEMENT OF GASKETS:

- (1) Removal:
 - (a) Pull old gasket material (1, Figure 4-7) from junction box cover (2).
 - (b) Thoroughly clean all traces of old adhesive from junction box cover (2) with cleaning solvent.

GO ON TO NEXT PAGE

4-11. JUNCTION BOXES - REPAIR (Continued)**4-11****(2) Installation:**

- (a) Cut appropriate lengths of gasketing material.
- (b) Remove adhesive backing tape.
- (c) Starting at one corner of junction box cover (2), carefully place material (1) in position.

**Figure 4-8. Fuse Replacement.****e. REPLACEMENT OF FUSES:****(1) Removal:**

- (a) Grasp each half of in-line fuse holder (1, Figure 4-8), push the halves together and rotate one half turn counterclockwise.
- (b) Remove fuse (2).

(2) Installation:

- (a) Insert a new fuse (2) of the correct size and rating into the longer half of fuse holder (1).
- (b) Align the two halves together, push in, and rotate one half turn clockwise.

END OF TASK

4-12. HYDRAULIC MOTOR, BRAKE AND DRIVE HUB ASSEMBLY- REPAIR

4-12

This task covers:

- a. Hydraulic Motor - Repair
- b. Hydraulic Brakes - Repair
- c. Drive Hub - Repair

INITIAL SETUP

Special Tools/Test Equipment
 Table vise with soft jaws

Equipment
 Condition
Para
 3-28

Condition Description
 Drive Hub/Brake/Motor
 assembly removed.

Materials/Parts

As Required
 Rags (Item 9, Appendix D)
 Hydraulic Oil (Item 4, Appendix D)
 GAA Grease (Item 5, Appendix D)

Tools Required

Tool Kit, TI 5180-00-177-7033

Personnel Required

MOS 63W, 2 Mechanics

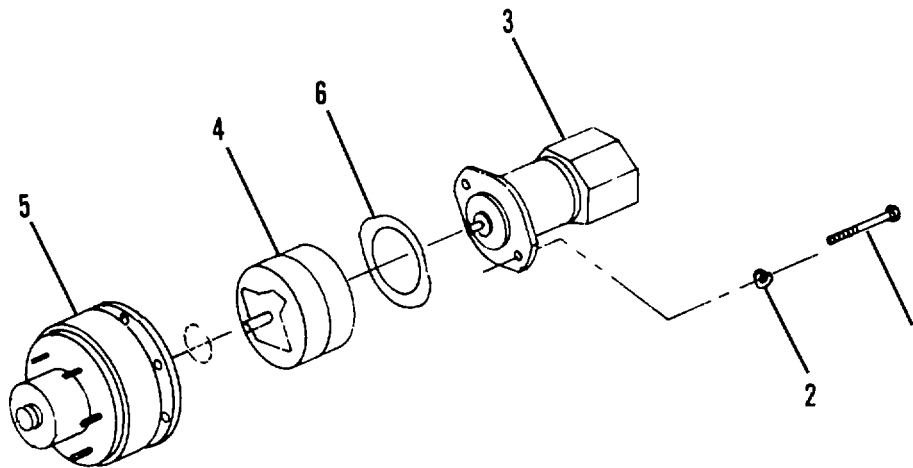


Figure 4-9. Hydraulic Motor Removal.

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a. HYDRAULIC MOTOR:

(1) Disassembly:

- (a) Secure motor, brake and hub assembly in a bench vise with soft jaws.
- (b) Remove two capscrews (1, Figure 4-9) and washers (2) securing motor (3) to brake (4) and drive hub (5). Tap lightly with a mallet to break loose and separate.
- (c) Remove gasket (6) and discard.

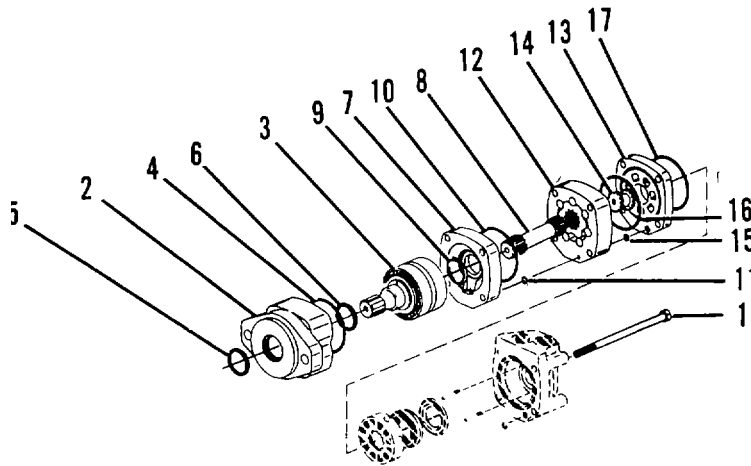


Figure 4-10. Hydraulic Motor Assembly.

- (d) Scribe the motor case for ease of reassembly.
- (e) Remove four bolts (1, Figure 4-10).
- (f) Mount motor in vise with shaft up.
- (g) Slide off bearing housing (2) and press the shaft and bearing assembly (3) from the housing.
- (h) Remove preformed packing (4) and seals (5 and 6) and discard.
- (i) Remove the wear plate (7) and drive shaft (8).
- (j) Remove and discard seal (9) and preformed packings (10 and 11).
- (k) Remove the geroler assembly (12) being careful not to upset the rotor or rollers within.
- (l) Remove valve plate (13) and drive (14).
- (m) Remove and discard preformed packings (15, 16 and 17).

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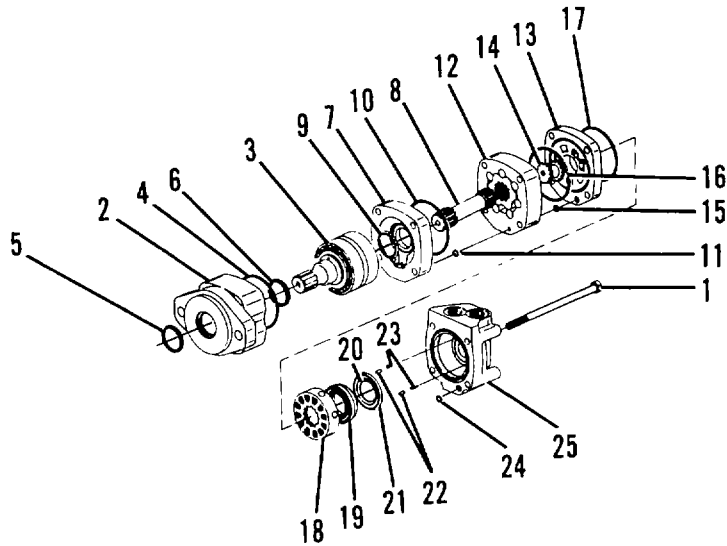


Figure 4-10.1. Hydraulic Motor Assembly.

(n) Remove valve (18, Figure 4-10.1) balance ring (19), seals (20 and 21), two pins (22) and two springs (23). Discard seals.

(o) Remove preformed packing (24) from valve housing (25).

(2) Inspection:

(a) Clean all parts with cleaning solvent and dry with a lint-free cloth.

(b) Inspect moving parts for evidence of wear, burrs, nicks, chips, scoring and other damage.

(c) Replace damaged parts with new parts.

(3) Assembly:

CAUTION

Internal components of hydraulic assemblies are machined to very close tolerances and can be damaged by rough handling or forced assembly. If a component doesn't seem to fit properly, don't force it, it may be slightly out of alignment. Remove the component and try again until it slides easily into position.

NOTE

Lubricate all parts with clean hydraulic oil before assembly.

(a) Install two springs (23) two pins (22), and new preformed packing (24) in valve housing (25).

(b) Place preformed packing (17) into position on the face of the valve housing.

GO ON TO NEXT PAGE

4-12. HYDRAULIC MOTOR, BRAKE AND DRIVE HUB ASSEMBLY- REPAIR (Continued)**4-12**

- (c) Install inner seal (20) and outer seal (21) on balance ring (19) and install in valve housing. Be sure that the notches in the balance ring align with the pins in the valve housing.
- (d) Install valve (18) in the housing so that the splined face can be seen.
- (e) Install preformed packings (15 and 16) in the valve plate (13). Place valve in position on valve housing so that the flared ports can be seen.
- (f) Install drive (14) through the valve plate and align the splines with the valve (18) splines.

NOTE

Use scribe marks for alignment.

- (g) Place geroler assembly (12) into position being careful not to disturb the rotor or rollers. Align the splines with drive shaft (14).
- (h) Install seal (9) and preformed packing (11) in wear plate (7) and position plate on geroler assembly.
- (i) Install drive shaft (8) through wear plate with the short splined end down and align splines with geroler assembly.
- (j) Install dust seal (5) in bearing housing (2).
- (k) Place preformed packing (4) in position on bearing assembly (2).
- (l) Install shaft seal (6) on bearing assembly (3) and install bearing assembly in housing.
- (m) Install bearing housing (2) with bearing assembly (3) on wear plate (7) aligning internal splines of bearing assembly with splines of drive shaft (8).
- (n) Install four capscrews (1) and tighten evenly by alternating between them.
- (o) Turn shaft by hand and check for evidence of mechanical bind.
- (p) Place new gasket (6, Figure 4-10.2) in position on face of motor assembly.

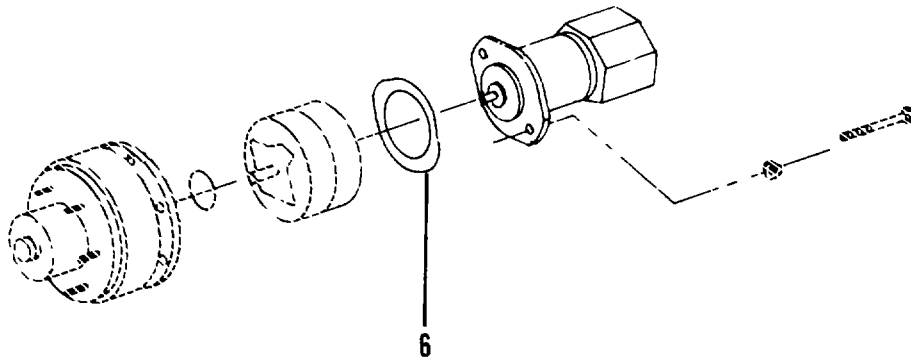


Figure 4-10.2. Hydraulic Motor Assembly.

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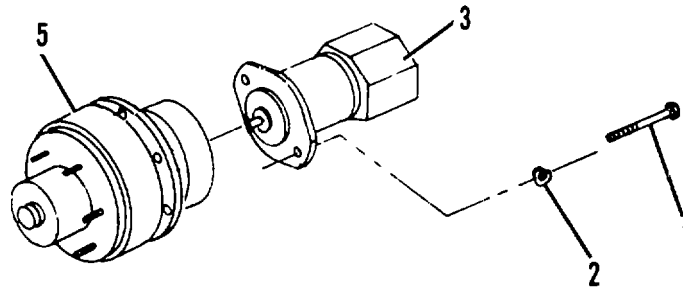


Figure 4-10.3. Hydraulic Motor Assembly.

NOTE

You may have to turn motor shaft to mesh splining.

- (q) Mate motor assembly (3, Figure 4-10.3) to brake/drive hub (5) assembly. Secure motor assembly with two capscrews (1) and washers (2).

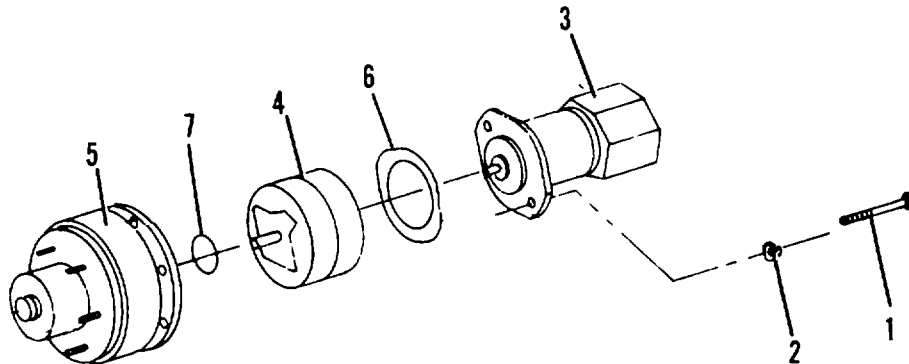


Figure 4-11. Hydraulic Brake Replacement.

b. HYDRAULIC BRAKE - REPAIR.

(1) Disassembly:

- (a) Remove two capscrews (1, Figure 4-11) and washers (2) securing drive motor assembly (3) to brake assembly (4) and drive hub (5).
- (b) Remove motor assembly (3), remove gasket (6) and discard.
- (c) Remove brake assembly (4) from drive hub (5).
- (d) Remove preformed packing (7) and discard.
- (e) Scribe the brake housing for ease of reassembly.

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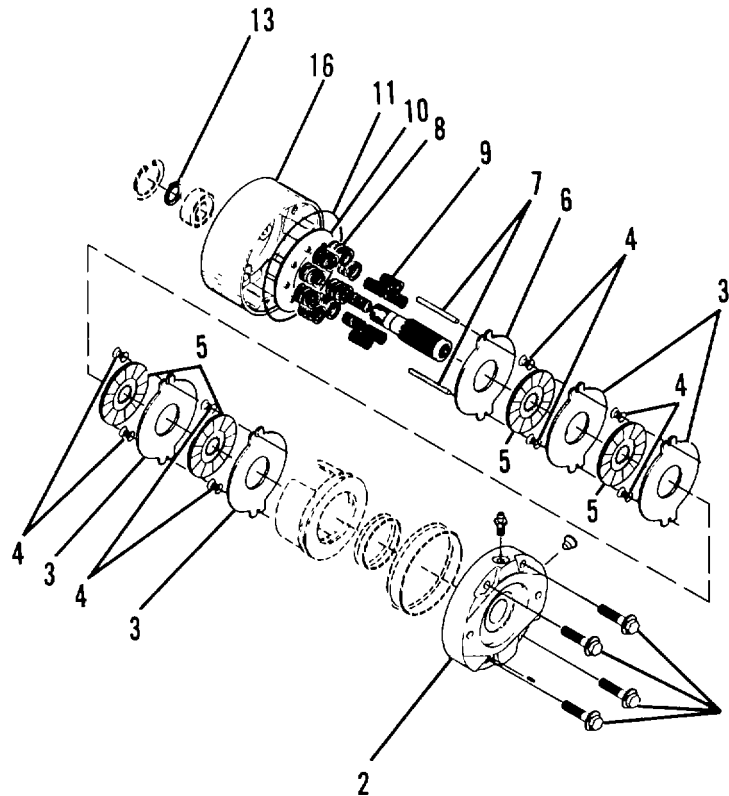


Figure 4-12. Hydraulic Brake Assembly (Sheet 1 of 2).

WARNINGS

Brake assembly under spring pressure. Use extreme caution when disassembling the brake assembly. Failure to do so may result in severe personal injury.

- (f) Remove capscrews (1, Figure 4-12) alternately. Loosen each screw 3-4 turns and tap the housing lightly with a soft faced mallet so that the face of the power plate comes up against the capscrew heads. Repeat this procedure until the capscrews can be removed.
- (g) Remove power plate (2), four stationary discs (3), eight springs (4), four rotating discs (5), primary disc (6), two pins (7), eight springs (8), eight springs (9) and spring retainer (10).
- (h) Remove preformed packing (11) from housing and discard.
- (i) Remove retaining ring (13).

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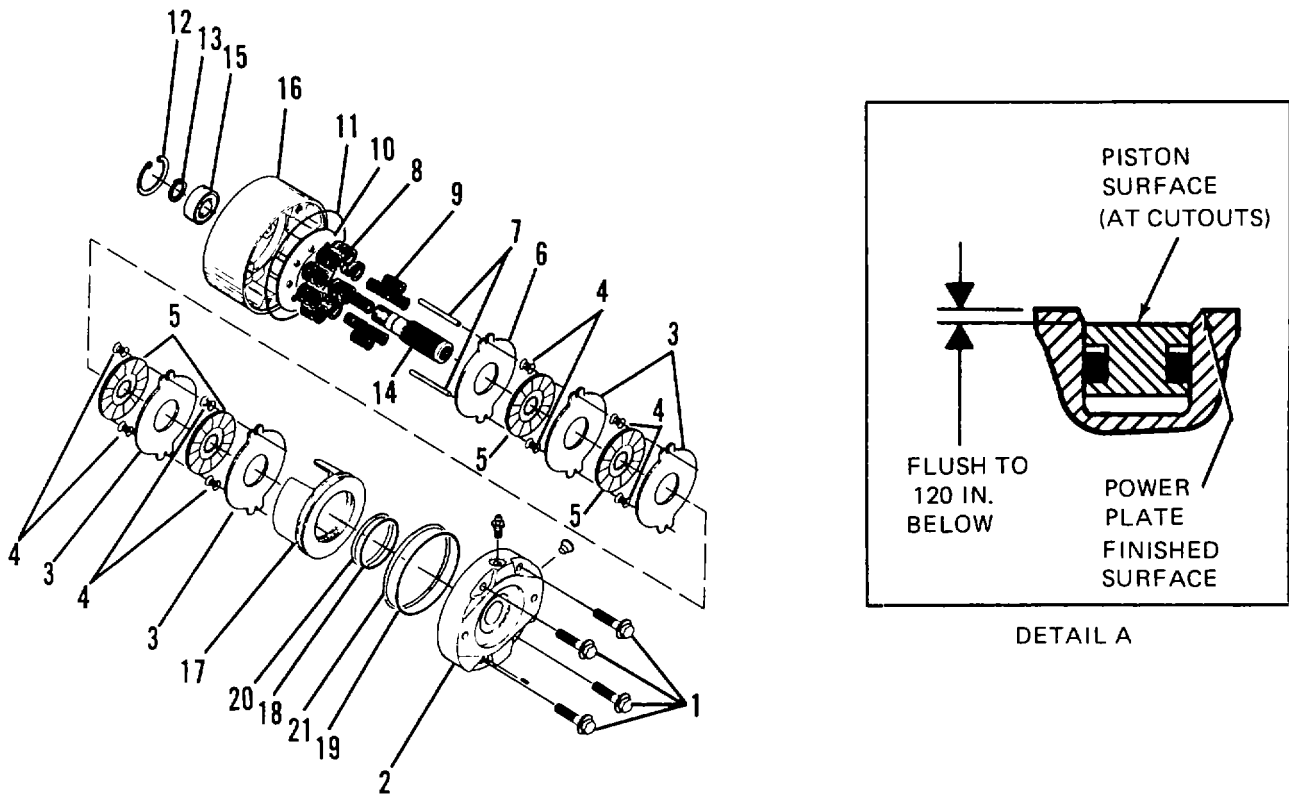


Figure 4-12. Hydraulic Brake Assembly (Sheet 2 of 2).

- (j) Remove shaft (14) from bearing (15) by lightly tapping shaft with soft faced mallet.
- (k) Remove retaining ring (12) and press bearing (15) from housing (16). Be sure piston is directed away from personnel during removal. Failure to do so may result in personnel injury.
- (l) Remove piston (17) from power plate (2) by introducing low pressure air (15 psi max.) into the hydraulic inlet.
- (m) Remove preformed packing (18) and back-up ring (20) from inside piston and discard.
- (n) Remove preformed packing (19) and back-up ring (21) from piston and discard.
- (2) Inspection:
 - (a) Clean all parts with cleaning solvent and dry with a lint-free cloth.
 - (b) Inspect moving parts for evidence of wear, burrs, nicks, chips, scoring and other damage.
 - (c) Replace damaged parts with new parts.

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(3) Assembly:

- (a) Press bearing (15, Figure 4-12) in housing (16). Install retaining ring (12).

NOTE

Lubricate all packings with clean hydraulic oil before installing.

- (b) Assemble new back-up ring (21) and preformed packings (19) on piston (17). Assemble new back-up ring (20) and preformed packing (18) in piston (17). Lube packings with clean hydraulic oil.
- (c) Position the piston on power plate visually aligning the center of the cut-outs in the piston with the torque pin (7) holes in the power plate.

WARNINGS

Installation depth of piston into power plate is critical to proper brake function . Do not exceed .120 in. depth or piston will cock, resulting in a complete loss of braking.

- (d) Carefully press piston into power plate so that the piston surface (at cutouts) is flush to .120 in. below the finished inner surface of the plate. See detail A.
- (e) Install shaft (14) through bearing from inside of housing (16).
- (f) Install retaining ring (13) on shaft (14).
- (g) Install new preformed packing (11) in housing (16).
- (h) Install two torque pins (7) into their respective holes in the housing (16).
- (i) Place spring retainer (10) in housing (16).

NOTE

Discs (rotating and stationary) must be clean, dry and free of oil.

- (j) Place eight springs (8) in position on spring retainer and insert eight springs (9) inside springs (8).
- (k) Install largest stationary disc (6) first. Align stationary disc (6) with the torque pins, rotating disc with splined shaft (14), and one spring on each torque pin between each stationary disc.
- (l) Install remaining four friction disc sets composed of a stationary disc, friction disc, and springs in the same manner as step (k).
- (m) Install final stationary disc.
- (n) Place power plate/piston assembly on housing and align holes.
- (o) Install capscrews (1). Tighten capscrews sequentially, one turn at a time, until power plate is properly seated on housing. Torque capscrews to 50-60 ft-lb (68-82 Nm).

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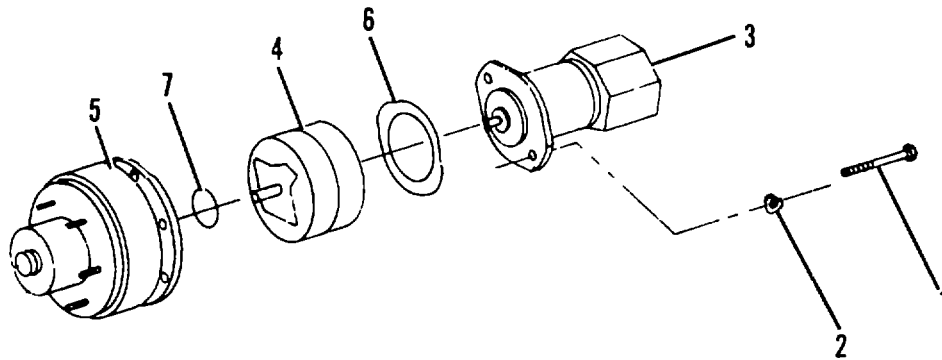


Figure 4-12.1. Hydraulic Brake Replacement.

- (p) Place new preformed packing (7, Figure 4-12.1) on face of brake assembly (4).
- (q) Place new gasket (6) on face of drive motor (3).
- (r) Assemble drive hub (5), brake assembly (4) and drive motor (3). Install two capscrews (1) and washers (2). Tighten capscrews securely.

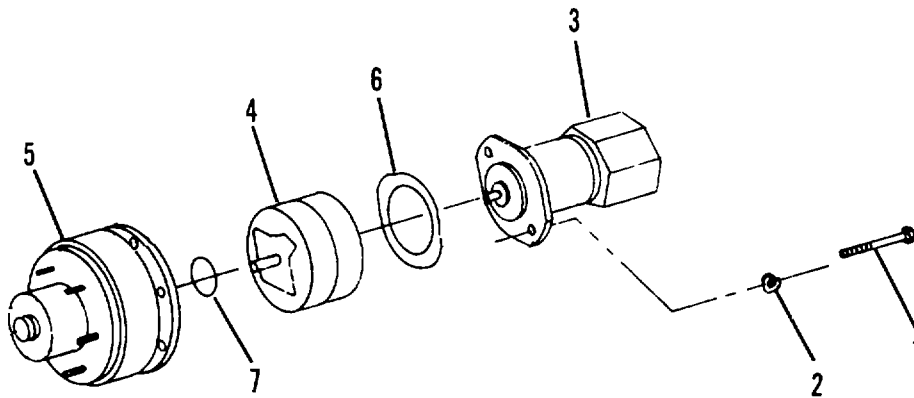


Figure 4-13. Drive Hub Replacement.

c. DRIVE HUB - REPAIR

(1) Disassembly:

- (a) Remove two capscrews (1, Figure 4-13) and washers (2).

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4-12. HYDRAULIC MOTOR, BRAKE AND DRIVE HUB ASSEMBLY- REPAIR (Continued)

4-12

- (b) Remove drive motor assembly (3). Remove gasket (6) and discard.
- (c) Separate brake assembly (4) from drive hub (5). Remove preformed packing (7) and discard.

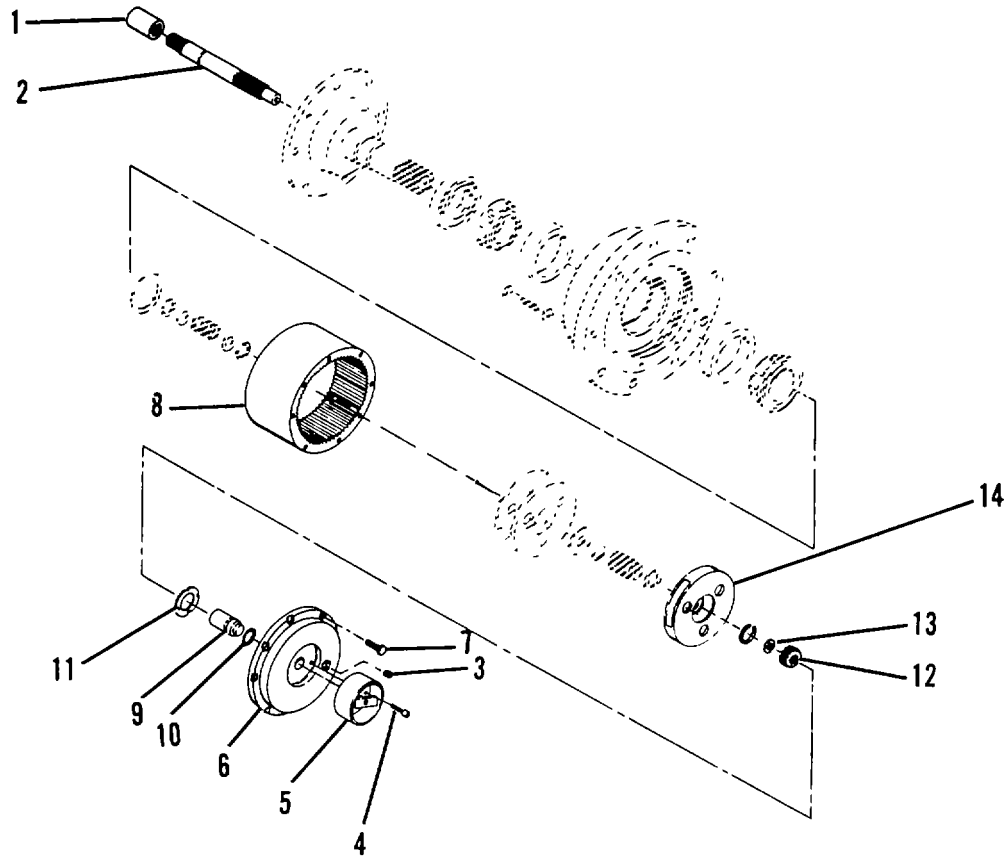


Figure 4-14. Drive Hub Assembly (Sheet 1 of 3).

- (d) Slide coupling (1, Figure 4-14) off input shaft (2).
- (e) Remove plug (3) and drain gear lube into a suitable container.
- (f) Remove two socket head capscrews (4) securing lockout mechanism (5) to cover (6).
- (g) Remove eight capscrews (7) securing cover (6) to ring gear (8). Tap cover with soft faced mallet and remove.
- (h) Remove disengage plunger (9), preformed packing (10) and thrust washer (11).
- (i) Remove small sun gear (12) and thrust washer (13) from end of input shaft (2).
- (j) Remove primary carrier assembly (14).

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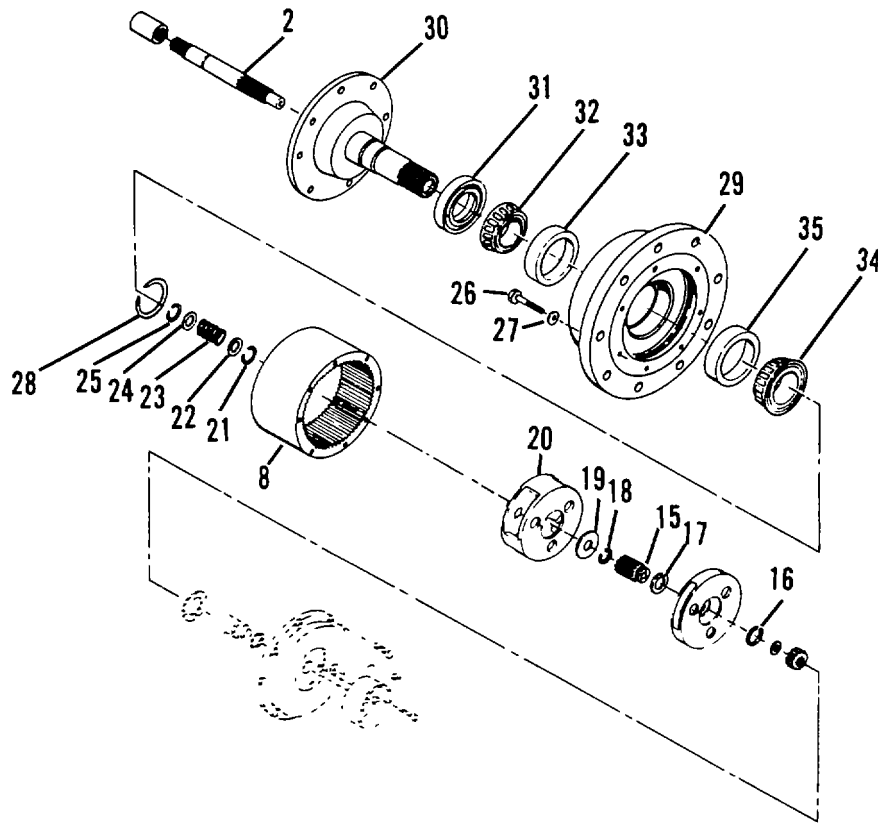


Figure 4-14. Drive Hub Assembly (Sheet 2 of 3).

NOTE

Large sun gear (15) will come out with carrier.

- (k) Expand retaining ring (16) and remove large sun gear (15).
- (l) Remove retaining ring (16).
- (m) Remove retaining ring (17) from large sun gear (15).
- (n) Remove retaining ring (18) and thrust washer (19) from input shaft (2).
- (o) Remove secondary carrier assembly (20).
- (p) Remove input shaft assembly (2).
- (q) Disassemble input shaft assembly.
 - 1 Remove retaining ring (21).
 - 2 Remove washer (22) and spring (23) and washer (24).
 - 3 Remove retaining ring (25).
- (r) Remove capscrews (26) and washers (27) securing ring gear (8). Tap ring gear with a soft faced mallet and remove gear.
- (s) Remove retaining ring (28).

GO ON TO NEXT PAGE

NOTE

Bearing cones (32) and (34) and cups (33) and (35) will come out with hub.

- (t) Remove hub (29) from spindle (30).
- (u) Disassemble hub (29).
 - 1 Pull oil seal (31) from hub and discard.
 - 2 Remove bearing cone (32) and bearing cup (33) from hub.
 - 3 Remove bearing cone (34) and bearing cup (35) from hub.

(2) Inspection:

- (a) Clean all parts with cleaning solvent and dry with a lint-free cloth.
- (b) Inspect moving parts for evidence of wear, burrs, nicks, chips, scoring and other damage.
- (c) Replace damaged parts with new parts.

(3) Assembly:

- (a) Press new bearing cups (33 and 35, Figure 4-14) in each side of hub (29).
- (b) Install a bearing cone (32) in cup (33) on spindle (30) side of hub (29).

NOTE

Channel in oil seal faces hub. Press seal flush with surface of hub.

- (c) Press new oil seal (31) in spindle side of hub.
- (d) Lubricate lips of oil seal (31) with gear lube.

NOTE

Hub should be centered as it is lowered over spindle to prevent seal damage.

- (e) With spindle (30) upright, carefully lower hub (29) onto spindle.
- (f) Install bearing cone (34) over spindle and into bearing cup (35) in hub (29).

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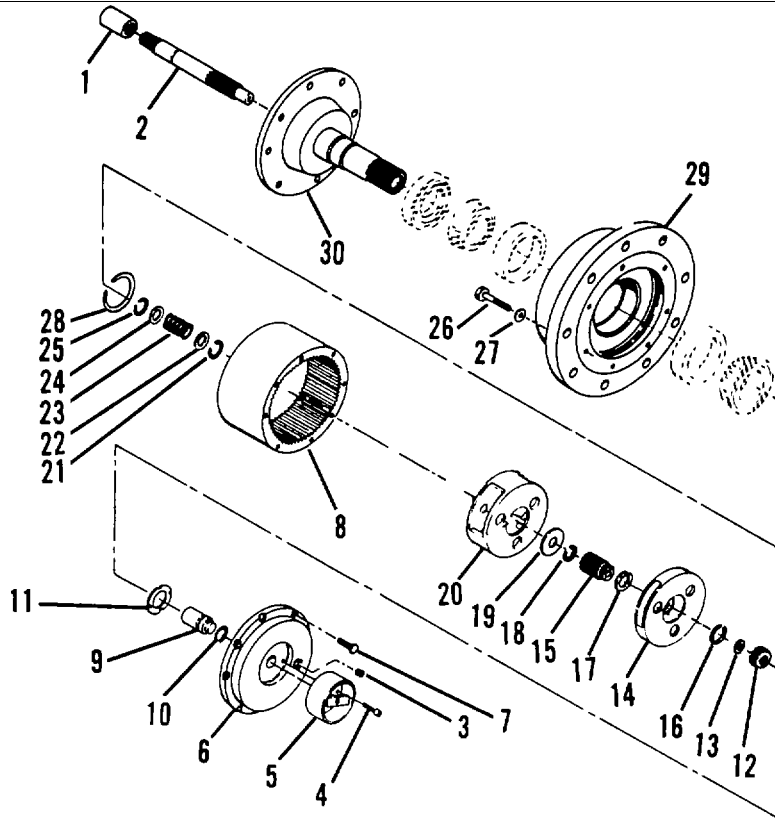


Figure 4-14. Drive Hub Assembly (Sheet 3 of 3).

NOTE

Bearing should have .000-.012 inches (.00-0.3 mm) of end play when proper snap ring is installed.

- (g) Select the thickest retaining ring (28) that will fit in the ring groove of spindle above the bearing cone.
- (h) Assemble input shaft (2).
 - 1 Install retaining ring (25) on input shaft.
 - 2 Assemble washer (24), spring (23) and washer (22) on shaft. Secure with retaining ring (21).
- (i) Install the splined end of input shaft assembly (2) down through spindle (30).
- (j) Install secondary carrier assembly (20) over splined end of spindle (30).

NOTE

Install carrier with the pinion shaft retaining rings down.

- (k) Thoroughly clean the surface and apply a continuous bead of silicone sealer to the face of hub (29) that mates with the ring gear (8). Center the bead on the sealing surface staying inside of bolt holes.

GO ON TO NEXT PAGE

4-12. HYDRAULIC MOTOR, BRAKE AND DRIVE HUB ASSEMBLY- REPAIR (Continued)

4-12

- (l) Assemble the face of the ring gear (8) having six holes against the hub (29). Be sure bolt holes are aligned.
- (m) Install six capscrews (26) with washers (27) to secure ring gear to hub. Torque between 40 and 48 ft lbs (53 and 67 Nm).
- (n) Install to thrust washer (19) retaining ring (18) on end of input shaft (2).
- (o) Install retaining ring (17) on lower groove of large sun gear (15).
- (p) Position large sun gear assembly (15) in primary carrier assembly (14) and secure with retaining ring (16).
- (q) Install primary carrier assembly (14) in ring gear (8). Rotate the carrier as necessary to mesh the sun gear (14) with the secondary carrier (20) and the primary carrier gears (14) with the ring gear (8).

NOTE

Install carrier with pinion shaft retaining rings down.

- (r) Install thrust washer (13) over input shaft (2) against shoulder of shaft.
- (s) Install small sun gear (12) over input shaft (2) and rotate to mesh with planet gears.
- (t) Install preformed packing (10) in groove of disengage plunger (9).
- (u) Lubricate plunger assembly with a light film of GAA grease and install over input shaft (2).
- (v) Lubricate thrust washer (11) with a light film of GAA grease and assemble to cover (6) so that the tangs of the thrust washer engage with cover.
- (w) Thoroughly clean the surfaces of cover and ring seal and apply a continuous bead of silicone sealer to the face of the ring gear (8). Center the bead on the surface staying inside of bolt holes.
- (x) Install cover (6) on ring gear (8) aligning bolt holes.
- (y) Install eight capscrews (7). Torque capscrews between 21 and 25 ft lbs (28 and 32 Nm).
- (z) Position lockout mechanism (5) on cover and secure with two socket head capscrews (4). Torque capscrews between 10 and 20 ft lbs (15 and 27 Nm).

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NOTE

Install coupling so that counterbore of coupling faces out.

(aa) Slide coupling (1) on input shaft (2).

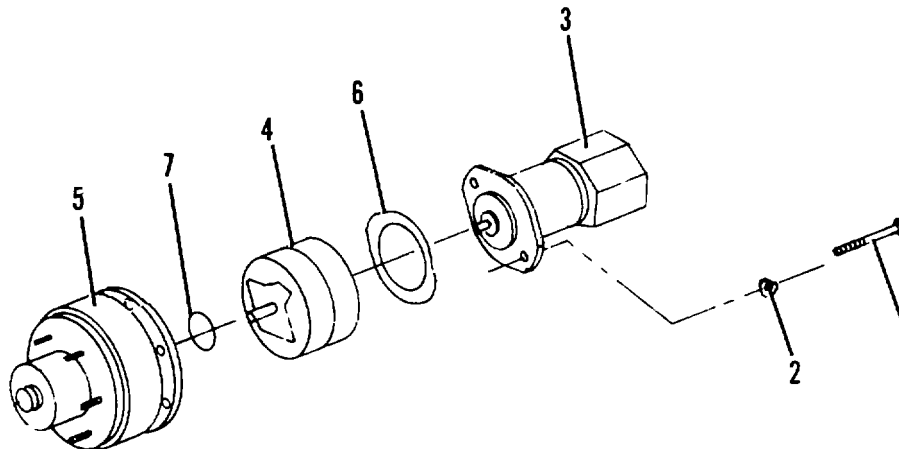


Figure 4-14 . 1 . Drive Hub Replacement .

- (ab) Place a new gasket (6, Figure 4-14.1) on the face of the drive motor assembly (3).
- (ac) Place a new preformed packing (7) on the face of the brake assembly (4).
- (ad) Align the holes of the drive hub assembly (5), brake assembly (4) and drive motor assembly (3) and install two capscrews (1) and washers (2). Tighten capscrews securely.
- (ae) Service drive hub. See para 3-27.
- (af) Perform operational check for proper function.

END OF TASK

4-13. HYDRAULIC RESERVOIR - REPAIR

4-13

This task covers:

- a. Removal
- b. Installation

INITIAL SETUP:

Materials/Parts

- Reservoir Fill Cap, Part Number HF17
- Silicone Sealer (Item 2, Appendix D)
- Rags (Item 9, Appendix D)
- Cleaning Solvent (Item 6, Appendix D)

Tools Required

Tool Kit, TI 5180-00-177-7033

Personnel Required

MOS 63B, 1 Mechanic

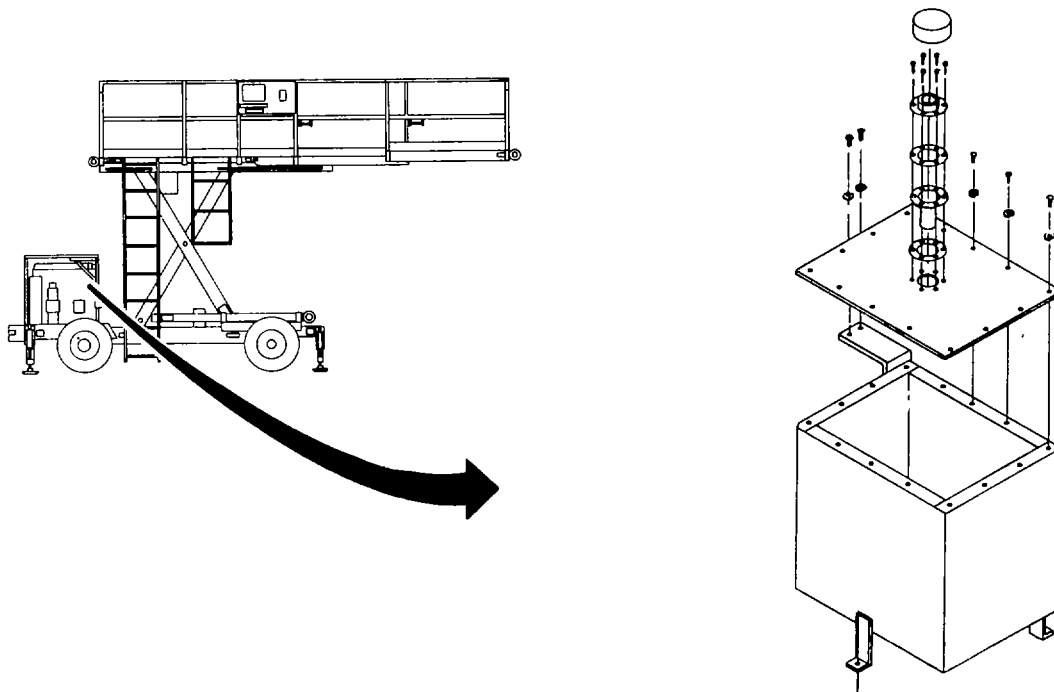


Figure 4-15 . Hydraulic Reservoir (Sheet 1 of 2) .

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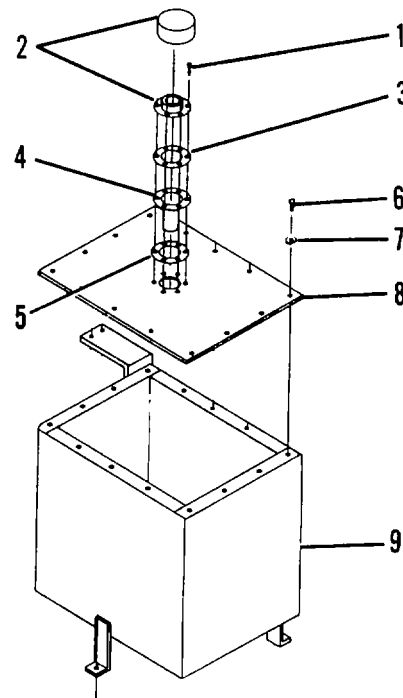


Figure 4-15 . Hydraulic Reservoir (Sheet 2 of 2) .

a. REMOVAL:

- (1) Remove six retaining screws (1, Figure 4-15) from filler neck (2).
- (2) Remove cap and filler neck (2) from cover (8).
- (3) Remove gasket (3) and discard.
- (4) Remove strainer (4) from cover (8).
- (5) Remove gasket (5) and discard.
- (6) Remove fourteen capscrews (6) and washers (7).
- (7) Remove cover (8) from tank (9).

b. INSTALLATION:

- (1) Thoroughly clean inside surface of top (8) and top surface of tank (9) with cleaning solvent and rags. Apply a continuous bead of silicone sealer to top surface of tank staying inside bolt holes.
- (2) Carefully position cover (8) on tank (9). Be sure to align holes.
- (3) Install fourteen capscrews (6) and washers (7). Tighten capscrews securely.

GO ON TO NEXT PAGE

4-13. HYDRAULIC RESERVOIR - REPAIR (Continued)

4-13

- (4) Place new gasket (5) in position on cover (8).
- (5) Place strainer (4) in position.
- (6) Place new gasket (3) on top of strainer flange.
- (7) Place cap and filler neck (2) in position.

NOTE

After you place cap and filler neck in position, be sure screw holes are aligned by using an awl.

- (8) Install six capscrews (1) and tighten securely.
- (9) Allow silicone sealer to cure for 25 hours.

END OF TASK

4-14. LIFT CYLINDERS - REPAIR

4-14

This task covers:

- a. Disassembly
- b. Inspection
- c. Assembly

INITIAL SETUP:

Special Tools/Test Equipment

Table Vise With Soft Jaws
Condition

Equipment

Para
3-35

Condition Description
Lift cylinders removed.

Materials/Parts

As Required
Rags (Item 9, Appendix D)
Hydraulic Oil (Item 4, Appendix D)

Tools Required

Tool Kit, TI 5180-00-177-7033

Personnel Required

MOS 63G, 1 Mechanic

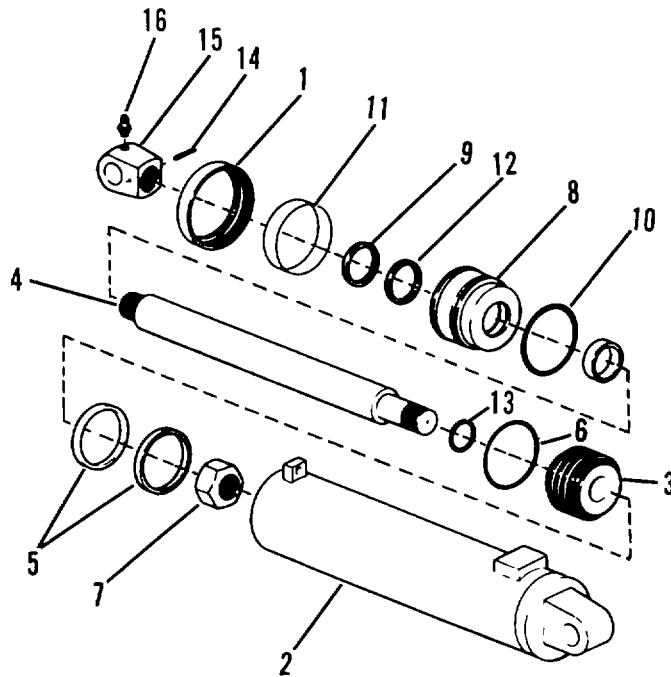


Figure 4-16 . Lift Cylinder Assembly (Sheet 1 of 2) .

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a. DISASSEMBLY:

- (1) Secure lift cylinder in bench vise with soft jaws.
- (2) Unscrew locking ring (1, Figure 4-16) from cylinder barrel (2) with a spanner wrench.
- (3) Carefully remove piston (3) and piston rod (4) from cylinder.

NOTE

Gland (8) will come out with rod.

- (4) Remove piston nut (7) from rod (4).
- (5) Remove piston (3) from rod (4).
- (6) Remove two piston wear rings (5) from piston (3).
- (7) Remove preformed packing (6) from piston (3).
- (8) Remove gland (8) from rod.
- (9) Remove rod wiper (9) from gland (8).
- (10) Remove preformed packing (10) from gland (8).
- (12) Remove wear ring (11) and seal (12) from gland (8).
- (13) Remove preformed packing (13) from inside of piston (3).

NOTE

If necessary retaining pin (14) can be removed and tang (15) can be unscrewed from rod (4). Also grease fitting (16) may be removed.

b. INSPECTION:

- (1) Clean all parts with cleaning solvent and dry with a lint-free cloth.
- (2) Inspect moving parts for evidence of wear, burrs, nicks, chips, scoring and other damage.
- (3) Replace damaged parts with new parts.

c. ASSEMBLY:

- (1) Install wear ring (11) and seal (12) to gland (8).

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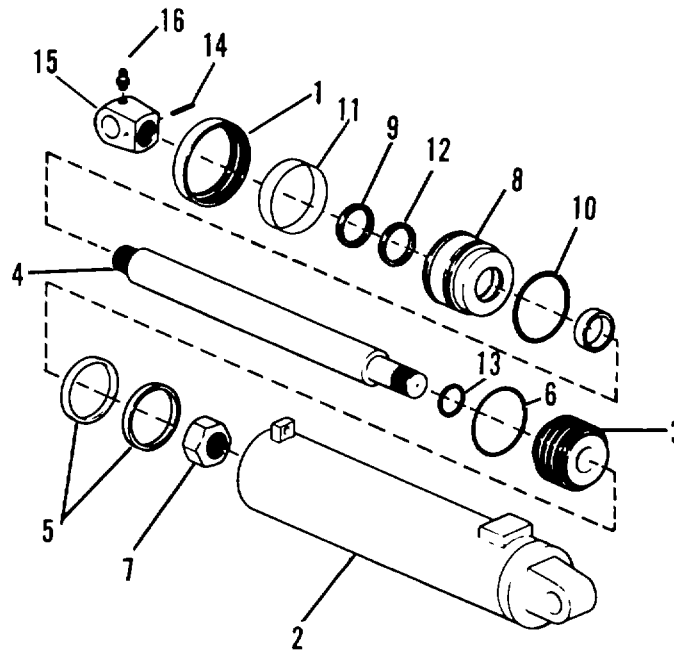


Figure 4-16 . Lift Cylinder Assembly (Sheet 2 of 2) .

- (2) Lubricate the preformed packing (10) with clean hydraulic oil and install preformed packing (10) on gland (8).
- (3) Lubricate rod wiper (9) with clean hydraulic oil and install on gland (8).
- (4) Install gland (8) on rod (4) and slide down the rod until it is about one foot (30 cm) from the rod eye.
- (5) Install preformed packing (6) on piston (3).
- (6) Install two piston wear rings (5) on piston (3).
- (7) Install preformed packing (13) into piston (3).
- (8) Place piston (3) on rod (4).
- (9) Install self-locking piston nut (7) on rod (4).
- (10) Lubricate piston assembly and cylinder barrel thoroughly with clean hydraulic oil. Carefully slide piston and rod assembly into cylinder.
- (11) Slide gland (8) into cylinder until it fits snugly against lip of cylinder.
- (12) Install locking ring (1) and tighten with spanner wrench.
- (13) Plug cylinder ports to prevent foreign matter from entering.

END OF TASK

4-15. STABILIZER CYLINDERS - REPAIR

4-15

This task covers:

- a. Disassembly
- b. Inspection
- c. Assembly

INITIAL SETUP:

Special Tools/Test Equipment

Table Vise With Soft Jaws

Equipment
Condition

<u>Para</u>	<u>Condition Description</u>
3-36	Stabilizer cylinder removed.

Materials/Parts

Rags (Item 9, Appendix D)
Hydraulic Oil (Item 4, Appendix D)

Tools Required

Tool Kit, TI 5180-00-177-7033

Personnel Required

MOS 63G, 1 Mechanic

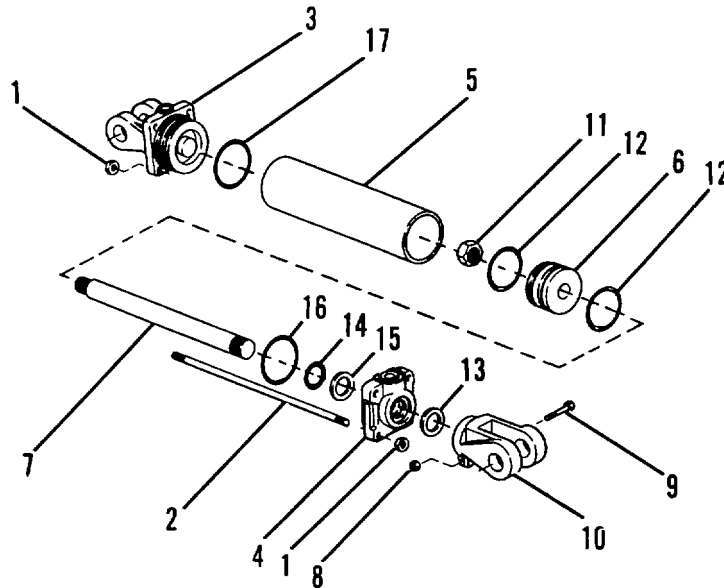


Figure 4-17 . Stabilizer Cylinder Assembly (Sheet 1 of 2) .

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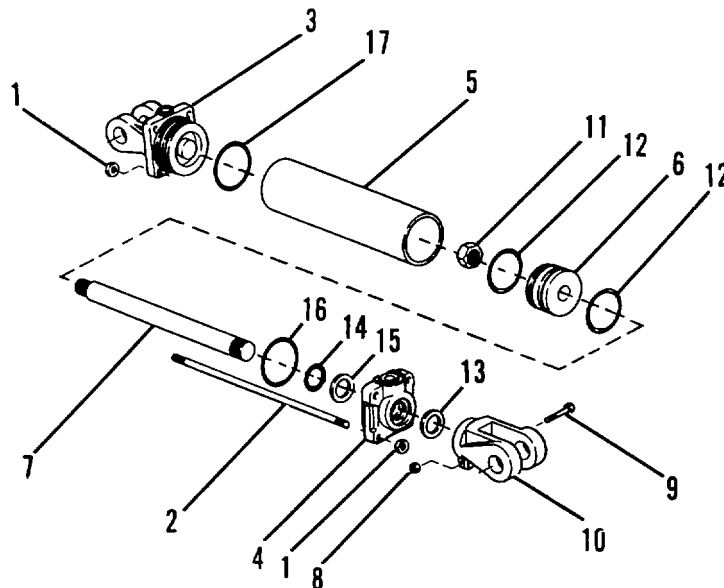


Figure 4-17 . Stabilizer Cylinder Assembly (Sheet 2 of 2) .

a. DISASSEMBLY:

NOTE

Scribe mark the end caps and tube for correct alignment during assembly.

- (1) Remove four tie rod nuts (1, Figure 4-17) from four tie rods (2).
- (2) Remove four tie rods (2) from end caps (3) and (4).
- (3) Remove end cap (3) from cylinder tube (5).
- (4) Slide piston (6) and rod assembly (7) out of tube (5).

NOTE

End cap (4) will come off with piston.

- (5) Remove nut (8) and capscrew (9). Unscrew rod eye (10) from rod (7).
- (6) Remove nut (11) from rod (7) and remove piston (6).
- (7) Remove piston seals (12) from piston (6).
- (8) Slide rod (7) out of end cap (4).
- (9) Remove rod wiper (13) from end cap (4) and lubricate with clean hydraulic oil.
- (10) Remove rod seal (14) and backup washer (15) from end cap (4).
- (11) Remove tube seal (16) from end cap (4).
- (12) Remove tube seal (17) from end cap (3).

GO ON TO NEXT PAGE

4-15. STABILIZER CYLINDERS - REPAIR (Continued)

4-15

b. INSPECTION:

- (1) Clean all parts with cleaning solvent and dry with a lint-free cloth.
- (2) Inspect moving parts, especially the rod and tube, for evidence of wear, burrs, nicks, chips, scoring and other damage.
- (3) Replace damaged parts with new parts.

c. ASSEMBLY:**NOTE**

Lubricate all seals and preformed packings with hydraulic fluid prior to installation of parts and final assembly.

- (1) Install tube seal (17) on end cap (3).
- (2) Install tube seal (16) on end cap (4).
- (3) Install rod seal (14) and backup washer (15) in end cap (4).
- (4) Install rod wiper (13) in end cap (4) and lubricate with clean hydraulic oil.
- (5) Install end cap (4) on rod (7).
- (6) Install piston seals (12) on piston (6).
- (7) Position piston assembly (6) on rod (7) and secure with nut (11).
- (8) Screw rod eye (10) on rod (7).
- (9) Install capscrew (9) and nut (8) on rod eye (10).
- (10) Slide piston and rod assembly into tube (5).
- (11) Install end cap (3) on cylinder tube (5).
- (12) Install four tie rods (2) on end caps (3) and (4).
- (13) Install tie rod nuts (1) on tie rods (2).
- (14) Plug cylinder ports to prevent foreign matter from entering.

END OF TASK

4-16. STEERING CYLINDER - REPAIR

4-16

This task covers:

- a. Disassembly
- b. Inspection
- c. Assembly

INITIAL SETUP:

Special Tools/Test Equipment

Table Vise With Soft Jaws

Equipment
Condition

<u>Para</u>	<u>Condition Description</u>
3-37	Steering cylinder removed.

Materials/Parts

As Required
Rags (Item 9, Appendix D)
Hydraulic Oil (Item 4, Appendix D)

Tools Required

Tool Kit, TI 5180-00-177-7033

Personnel Required

MOS 63G, 1 Mechanic

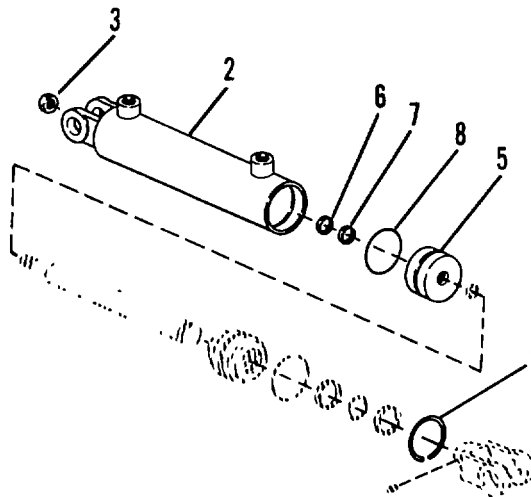


Figure 4-18 . Steering Cylinder Assembly (Sheet 1 of 2) .

4-16. STEERING CYLINDER - REPAIR (Continued)

4-16

a. DISASSEMBLY:

- (1) Remove retaining ring (1, Figure 4-18) from piston end of cylinder barrel (2).
- (2) Remove nut (3).
- (3) Remove rod (4) and piston assembly (5) from barrel (2).
- (4) Unscrew piston (5) off rod (4).
- (5) Remove backup rings (6 and 7) and preformed packing (8) from piston and discard.
- (6) Slide cylinder head (9) off rod (4).
- (7) Remove preformed packings (10 and 11), backup rings (12 and 13) and preformed packing (14) from cylinder head (9) and discard.
- (8) Remove rod wiper (15) from cylinder head (9).
- (9) Remove set screw (16) and slide clevis (17) off rod (4).

b. INSPECTION:

- (1) Clean all parts with cleaning solvent and dry with a lint-free cloth.
- (2) Inspect moving parts, especially the rod and barrel, for evidence of wear, burrs, nicks, chips, scoring and other damage.
- (3) Replace damaged parts with new parts.

c. ASSEMBLY:**NOTE**

Lubricate all seals and preformed packings with hydraulic fluid before installation.

- (1) Position clevis (17) on rod (4) and secure with set screw (16).
- (2) Install new preformed packing (11) and backup ring (13) from the outside face of the cylinder head (9).
- (3) Install new rod wiper (15) in cylinder head (9).
- (4) Install new backup ring (12) and preformed packing (14) from the inside face of the cylinder head (9).

GO ON TO NEXT PAGE

CAUTION

Do not slide the head assembly all the way to the clevis. Leave 5 6 inches (12-15 cm) of rod between head and clevis. Allowing head to touch clevis may damage the rod wiper.

- (5) Lubricate inside bore of cylinder head (9) and rod wiper (15) with clean hydraulic oil. Carefully slide the gland assembly onto the rod so that rod wiper faces clevis (15).
- (6) Install new preformed packing (10) inside piston (5).

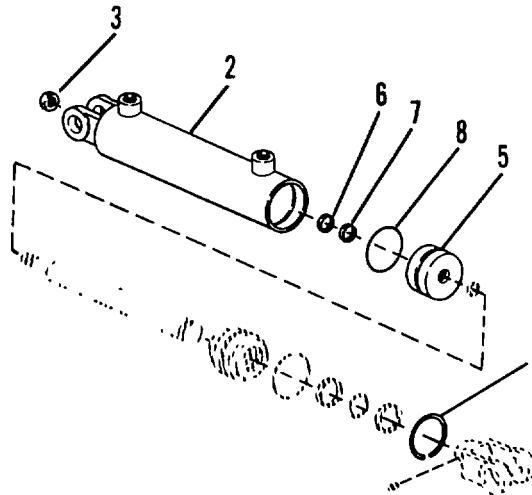


Figure 4-18 . Steering Cylinder Assembly (Sheet 2 of 2) .

NOTE

The backup rings must be placed on each side of the preformed packing on the outside diameter of the piston.

- (7) Install new preformed packing (8) and backup ring (6) on piston (5).
- (8) Lubricate inside bore of piston with clean hydraulic oil. Carefully slide piston assembly on rod so that backup ring (7) is closest to the head assembly.
- (9) Lubricate inner bore of tube (2) thoroughly with clean hydraulic oil. Carefully install rod and piston assembly in bore of tube. Align the piston with bore, check that piston is aligned to tube and push straight in. Use the same procedure to install the head assembly in tube. Push head in until retaining ring groove can be seen.
- (10) Install nut (3).
- (11) Install retaining ring (1).
- (12) Plug the cylinder ports to prevent foreign matter from entering.

END OF TASK

4-17. PLATFORM CYLINDER - REPAIR

4-17

This task covers:

- a. Disassembly
- b. Inspection
- c. Assembly

INITIAL SETUP:

Special Tools/Test Equipment

Table Vise With Soft Jaws

Equipment
Condition

<u>Para</u>	<u>Condition Description</u>
3-38	Platform traverse cylinder removed.

Materials/Parts

Rags (Item 9, Appendix D)
Hydraulic Oil (Item 4, Appendix D)

Tools Required

Tool Kit, TI 5180-00-177-7033

Personnel Required

MOS 63G, 1 Mechanic

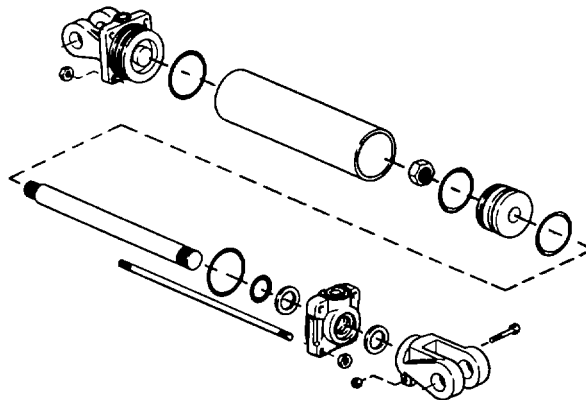


Figure 4-19 . Platform Cylinder Assembly (Sheet 1 of 2) .

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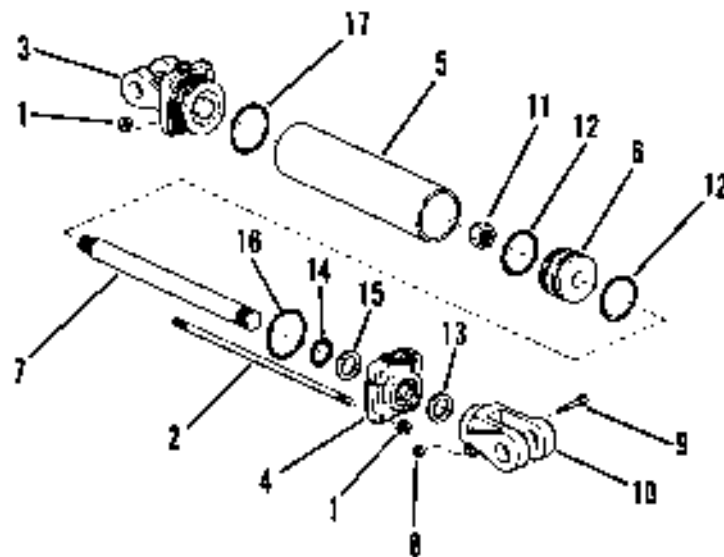


Figure 4-19 . Platform Cylinder Assembly (Sheet 2 of 2) .

a. DISASSEMBLY:

- (1) Remove four tie rod nuts (1, Figure 4-19) from four tie rods (2) on rod end of cylinder.
- (2) Remove four tie rods (2) from end caps (3) and (4).
- (3) Remove end cap (3) from cylinder tube (5).
- (4) Slide piston (6) and rod assembly (7) out of tube (5).

NOTE

End cap (4) will come off with piston.

- (5) Remove nut (8) and capscrew (9). Unscrew rod eye (10) from rod (7).
- (6) Remove nut (11) from rod (7) and remove piston assembly (6).
- (7) Remove piston seals (12) from piston (6).
- (8) Slide rod (7) out of end cap (4).
- (9) Remove rod wiper (13) from end cap (4) and discard.
- (10) Remove rod seal (14) and backup washer (15) from end cap (4).
- (11) Remove tube seal (16) from end cap (4).
- (12) Remove tube seal (17) from end cap (3).

GO ON TO NEXT PAGE

4-17. PLATFORM CYLINDER - REPAIR (Continued)

4-17

b. INSPECTION:

- (1) Clean all parts with cleaning solvent and dry with a lint-free cloth.
- (2) Inspect moving parts, especially the rod and barrel for evidence of wear, burrs, nicks, chips, scoring and other damage.
- (3) Replace damaged parts with new parts.

c. ASSEMBLY:**NOTE**

Lubricate all seals and preformed packings with hydraulic fluid before installation.

- (1) Install tube seal (17) on end cap (3).
- (2) Install tube seal (16) on end cap (4).
- (3) Install rod seal (14) and backup washer (15) in end cap (4).
- (4) Install new rod wiper (13) in end cap (4) and lubricate with clean hydraulic oil.
- (5) Install end cap (4) on rod (7).
- (6) Install piston seals (12) on piston (6).
- (7) Position piston assembly (12) on rod (7) and secure with nut (11).
- (8) Screw rod eye (10) on rod (7).
- (9) Install capscrew (9) and nut (8) on rod eye (10).
- (10) Slide piston and rod assembly into barrel (5).
- (11) Install end cap (3) on cylinder barrel (5).
- (12) Install four tie rods (2) on end caps (3) and (4).
- (13) Install tie rod nuts (1) on tie rods (2).
- (14) Plug cylinder ports to prevent foreign matter from entering.

END OF TASK

4-18. TRANSMISSION - REPLACE

4-18

This task covers:

- a. Disassembly
- b. Inspection
- c. Assembly

INITIAL SETUP:Special Tools/Test Equipment

Drip Pan

Materials/Parts

Transmission, Part Number HYT2

Rags (Item 9, Appendix D)

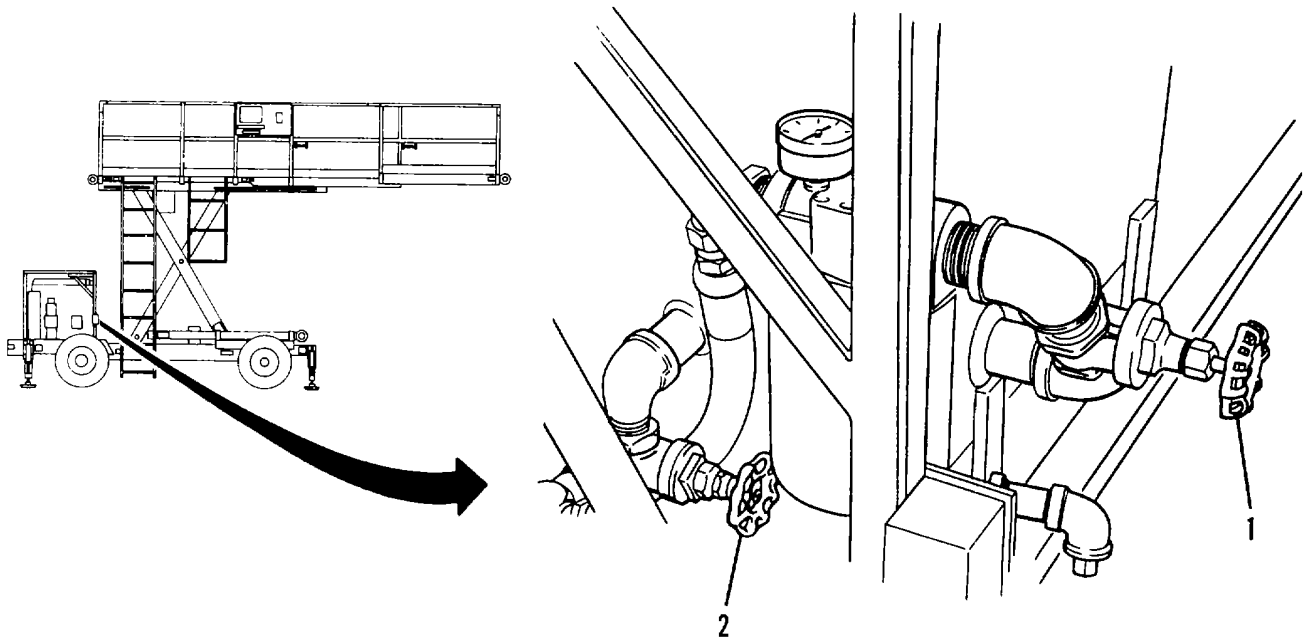
Hydraulic Oil (Item 4, Appendix D)

Tools Required

Tool Kit, TI 5180-00-177-7033

Personnel Required

MOS 63W, 2 Mechanics

**Figure 4-20 . Hydraulic System Gate Valves .**

GO ON TO NEXT PAGE

4-18. TRANSMISSION - REPLACE (Continued)**4-18****a. REMOVAL:**

- (1) Close suction gate valves (1 and 2, Figure 4-20) fully clockwise.

NOTE

Tie handle of emergency hand pump up and out of the way.

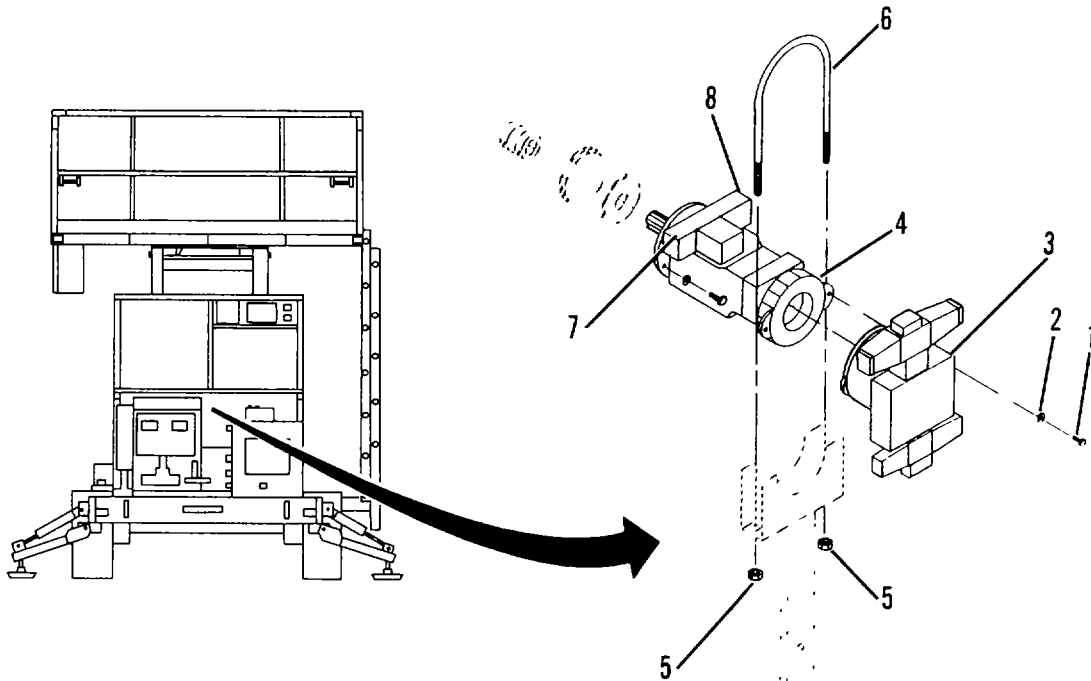


Figure 4-21 . Transmission Mounting (Sheet 1 of 2) .

- (2) Remove two capscrews (1, Figure 4-21) and washers (2) securing hydraulic pump manifold block assembly (3) to transmission (4).
- (3) Carefully lay manifold block assembly (3) to one side.
- (4) Remove nuts (5) from u-bolt (6). Remove u-bolt (6).
- (5) Tag seven hydraulic hoses to transmission for ease of identification during installation.
- (6) Remove seven hydraulic hoses from transmission. Plug hoses and ports to prevent foreign matter from entering the system.
- (7) Tag the two transmission control solenoid connections (7 and 8) and remove screws securing the connectors.

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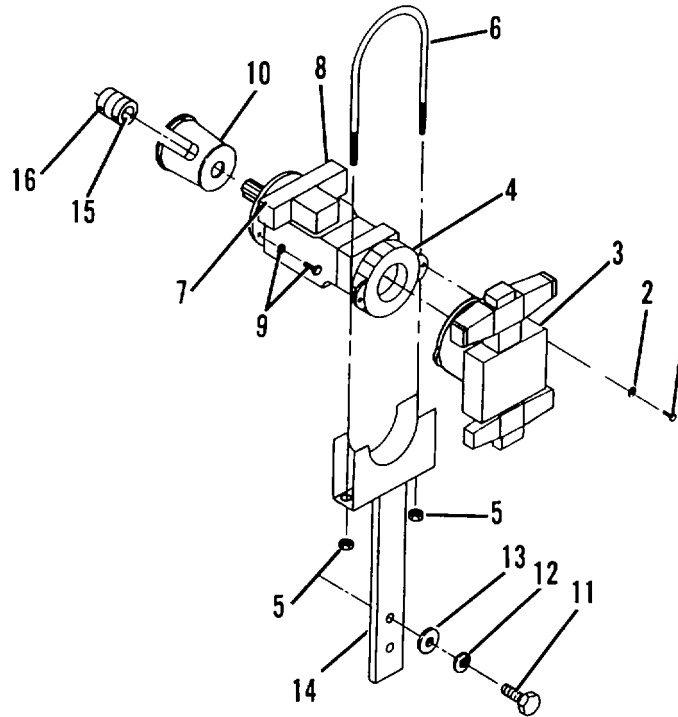


Figure 4-21 . Transmission Mounting (Sheet 2 of 2) .

WARNING

Weight of transmission is 64 lb (29 kg).

- (8) Remove two socket head capscrews and washers (9) that fasten transmission to adapter (10).
 - (9) Remove two capscrews (11) lockwashers (12) and washers (13) securing transmission support (14).
 - (10) Move the transmission (4) horizontally away from the engine until the transmission input shaft (or stub shaft) is completely separated.
 - (11) Lift transmission (4) from SPEMS.
 - (12) Loosen three setscrews (15) from transmission end of flexible coupling (16).
 - (13) Tag and remove hose fittings from transmission (4).
- b. INSTALLATION:
- (1) Install fittings in transmission ports, use tags for identification.
 - (2) Slide coupling (16, Figure 4-21) on transmission input shaft.
 - (3) Tighten three setscrews (15) in the flexible coupling (16).

GO ON TO NEXT PAGE

4-18. TRANSMISSION - REPLACE (Continued)**4-18**

- (4) Maneuver the transmission (4) until you can insert the engine output shaft (or stub shaft) into the flexible coupling (16).
- (5) Install transmission support (14) and capscrews (11), washers (13) and lockwashers (12). Tighten capscrews securely.
- (6) Install two socket head capscrews and washers (9) that hold transmission (4) to adapter (10). Tighten socket head capscrews securely.
- (7) Place large u-bolt (6) in position and install nuts (5).
- (8) Remove plugs and install transmission hydraulic hoses. Use tags for identification.
- (9) Install cables to transmission control solenoids (7 and 8) using the tags for identification and secure with screws.

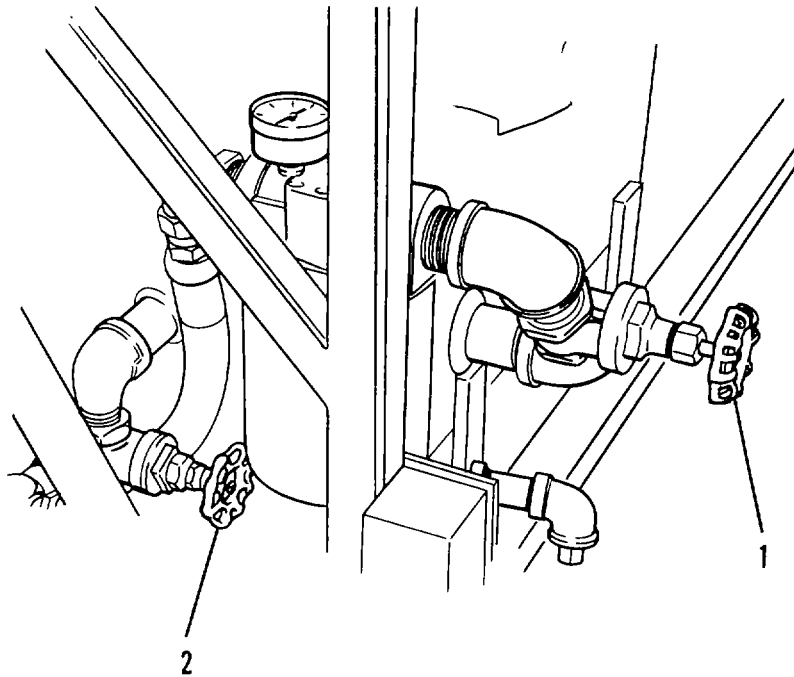


Figure 4-21.1. Hydraulic System Gate Valves.

- (10) Carefully position the manifold block (3) on the transmission (4).
- (11) Install capscrews (1) and washers (2).
- (12) Open suction gate valves (1 and 2, Figure 4-21.1) fully counterclockwise.
- (13) Start and run SPEMS. Check for oil leaks.
- (14) Check hydraulic reservoir level and refill if necessary.

END OF TASK

4-19. TRANSMISSION OIL COOLER - REPLACE

4-19

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Special Tools/Test Equipment

Drip Pan

Equipment Condition

Para
4-18

Condition Description
Transmission removed.

Materials/Parts

- Plastic Tie Straps (Item 1, Appendix D)
- Clean Rags (Item 9, Appendix D)
- Oil Cooler, Part Number DB-1242

Tools Required

Tool Kit, TI 5180-00-177-7033

Personnel Required

MOS 63W, 1 Mechanic

General Safety Instructions

Oil cooler may be hot. Do not work on cooler until it is no longer warm to the touch.

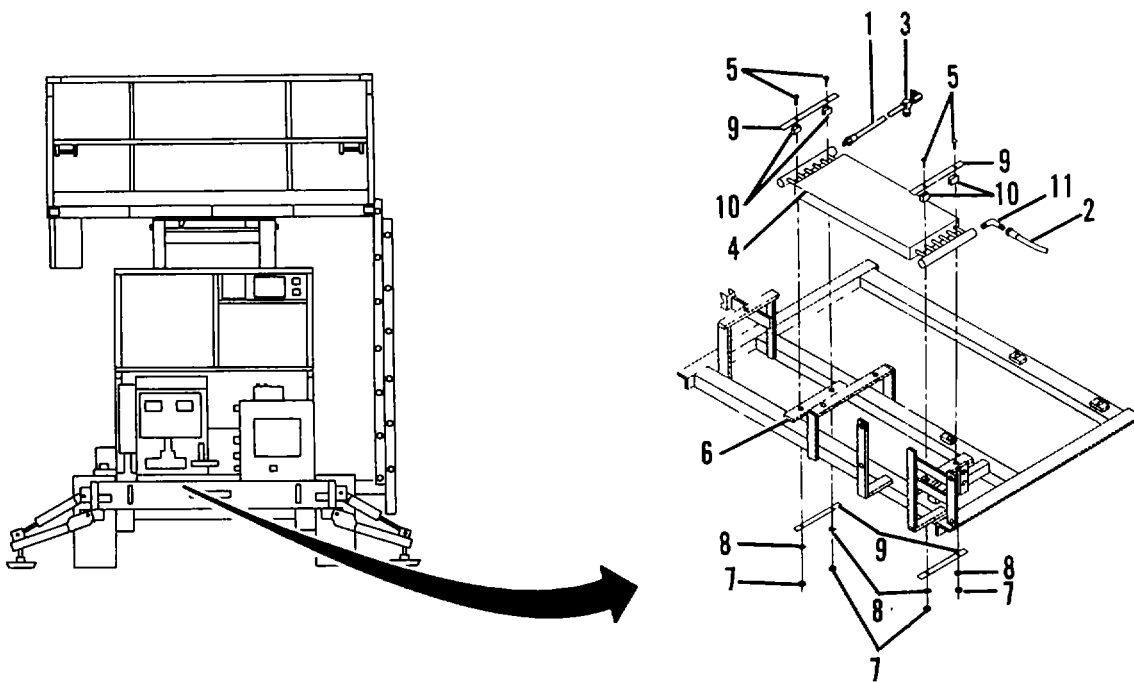


Figure 4-22. Oil Cooler Replacement (Sheet 1 of 2).

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4-19. TRANSMISSION OIL COOLER - REPLACE (Continued)

4-19**a. REMOVAL:**

- (1) Tag the outlet hose (1, Figure 4-22) to the return filter for ease of identification during installation. Place a drip pan beneath the oil cooler to catch waste hydraulic fluid.
- (2) Using two wrenches, disconnect outlet (1) hydraulic hose at the swivel fitting (3). Access hose from below.
- (3) Remove any plastic tie straps that may be attached to oil cooler (4) or hoses and discard.
- (4) Remove outlet (1) and inlet (2) hoses from oil cooler (4).
- (5) Loosen capscrews (5) securing cooler (4) to frame (6).

WARNING

Cooling fins are sharp. Wear gloves when replacing cooler. Failure to do so may result in serious personal injury.

CAUTION

Be careful not to damage fins on oil cooler.

NOTE

You do not have to remove capscrews (5) to remove the oil cooler.

- (4) Move hydraulic hoses aside and carefully slide oil cooler (4) out of frame (6).
- (5) Remove four nuts (7), four lockwashers (8), four straps (9), four rubber blocks (10) and four capscrews (5) from sides of the cooler (4).
- (6) Remove elbow fitting (11) from oil cooler (4).

NOTE

Oil cooler is non-repairable.

b. INSTALLATION:

- (1) Install four rubber blocks (10) between the cooler tubes as shown. Secure blocks with four straps (9), four capscrews (5), four lockwashers (8) and four nuts (7).

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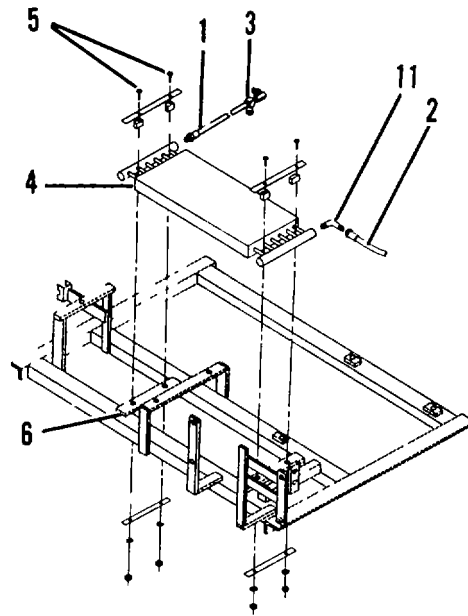


Figure 4-22. Oil Cooler Replacement (Sheet 2 of 2).

- (2) Install elbow fitting (11) in oil cooler (4).

WARNING

Cooling fins are sharp. Wear gloves when replacing cooler. Failure to do so may result in serious personal injury.

- (3) Carefully place oil cooler (4) in position on frame (6) using care not to damage cooling fins.
- (4) Secure cooler (4) to frame (6) by tightening four capscrews (5).
- (5) Using two wrenches, connect inlet (1) and outlet (2) hoses to cooler using the tags for identification.
- (6) Connect outlet hose (1) to swivel fitting (3) using two wrenches.
- (7) Use plastic ties and secure any hydraulic hoses that may rub on structural components.
- (8) Start the SPEMS and check for leakage.
- (9) Check hydraulic reservoir level and refill if necessary.

END OF TASK

4-20. HYDRAULIC PUMP - REPAIR

4-20

This task covers:

a. Disassembly

b. Inspection

c. Assembly

INITIAL SETUP:

Special Tools/Test Equipment

Vise with soft jaws

Equipment
Condition

Para
3-39

Condition Description
Hydraulic pump removed.

Materials/Parts

As Required

Rags (Item 9, Appendix D)

Hydraulic Oil (Item 4, Appendix D)

GAA Grease (Item 5, Appendix D)

Tools Required

Tool Kit, TL 5180-00-177-7033

Personnel Required

MOS 63W, 1 Mechanic

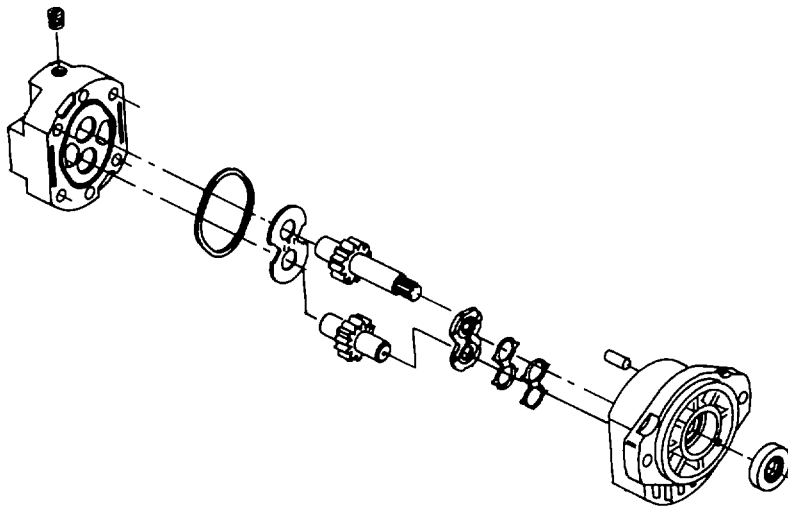


Figure 4-23. Hydraulic Pump Assembly (Sheet 1 of 2).

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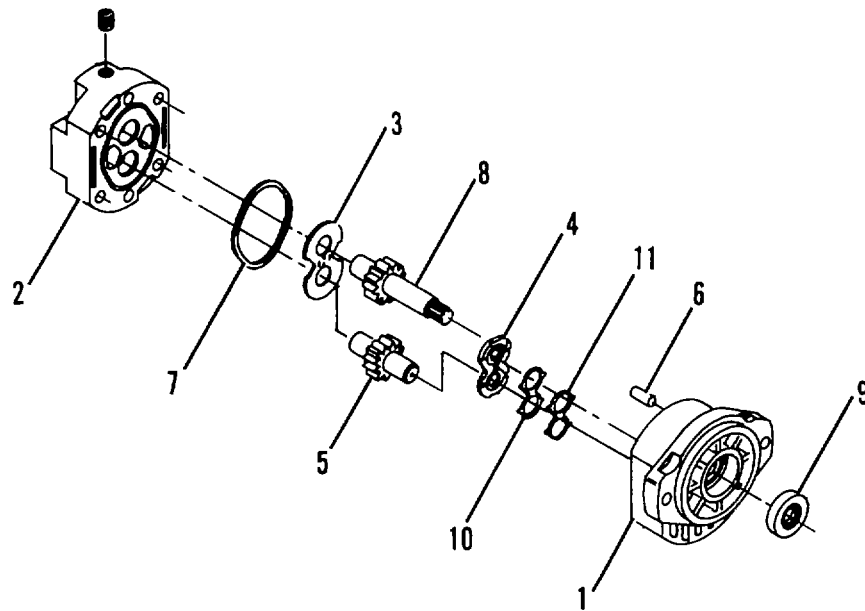


Figure 4-23. Hydraulic Pump Assembly (Sheet 2 of 2).

a. DISASSEMBLY:

- (1) Scribe match marks on body (1, Figure 4-23) and cover (2) to ensure proper assembly.

NOTE

During disassembly, take special note of the wear patterns on the wear plate (3) and thrust plate (4). Relate these patterns to the inlet and outlet sides of the pump. The large port in the rear cover (2) always corresponds to the inlet side of the pump. The inlet side can be further identified by the gear contact pattern in the gear bore. The wear plate (3) will have a somewhat heavier wear pattern on the inlet side. The thrust plate (4) will also have a pattern that can be established for assembly. Also note that the long journal of the driven gear (5) is toward the front of the pump.

- (2) Separate rear cover (2) from body (1) by supporting pump, shaft end up, on mounting flanges and pressing on drive shaft end in arbor press.
- (3) Holding pump shaft end down, remove rear cover (2). Dowel pins (6) may remain either with body or rear cover.

NOTE

Cover gasket (7) and thrust plate (3) may or may not remain with rear cover. Should they remain with body, remove gasket and lift out thrust plate before proceeding.

- (4) Lift out driven gear (5), drive gear (8), and wear plate (4).
- (5) Remove spacers (10) and (11).

- (6) Invert pump body with shaft seal up. Remove shaft seal (9) by prying it out with a roll pin bar.

GO ON TO NEXT PAGE

CAUTION

Care should be taken not to damage the shaft seal bore as this would result in seal leakage. If in doubt, replace the seal.

b. INSPECTION:

- (1) Clean all parts with cleaning solvent and dry with a lint-free cloth.
- (2) Inspect moving parts for evidence of wear, burrs, nicks, chips, scoring and other damage.
- (3) Replace damaged parts with new parts.

c. ASSEMBLY:**NOTE**

Lubricate all preformed packings with clean hydraulic oil before assembly.

- (1) Place body (1) on flat plate with shaft seal bore up. Install new shaft seal (9). Press seal in approximately 1/16 inch (1.52 mm). Pack the area between the double lip of the seal with GAA grease.
- (2) Invert body so that gear bores are up. Install wear plate (4) in bottom of bore, making sure that spacers (10 and 11) are positioned properly in seal grooves and installed against bottom of bore surface.
- (3) Lubricate bushings in body and face of wear plate with clean hydraulic oil.
- (4) Apply GAA grease to outer surface of drive gear (8). Install drive gear (8). Install driven gear (5), with long journal toward front of pump.
- (5) Lubricate rear gear faces and journals with clean hydraulic oil and install thrust plate (3) in position, bronze face toward gears.
- (6) Apply a small amount of GAA grease to rear cover (2) seal groove and install new rear cover seal (7) into groove.
- (7) Lubricate rear cover bushings with clean hydraulic oil.
- (8) Position pump with shaft end down, install the rear cover (2). Matching scribe marks on cover and body (1).
- (9) Check that drive shaft turns with adjustable wrench without evidence of mechanical bind.

END OF TASK

4-21. TIRE/WHEEL ASSEMBLIES - REPAIR

4-21

This task covers:

a. Disassembly

b. Inspection

c. Assembly

INITIAL SETUP:

Equipment
Condition

Para
2-6

Condition Description
Tire/Wheel assembly
removed.

Materials/Parts

Tire, Part Number 310508700
Wheel, Part Number B19111GB
Stem, Part Number M722

Tools Required

Tool Kit, TI 5180-00-177-7033

Personnel Required

MOS 63W, 1 Mechanic
dismounting tires.

General Safety Instructions

Always use care when mounting or

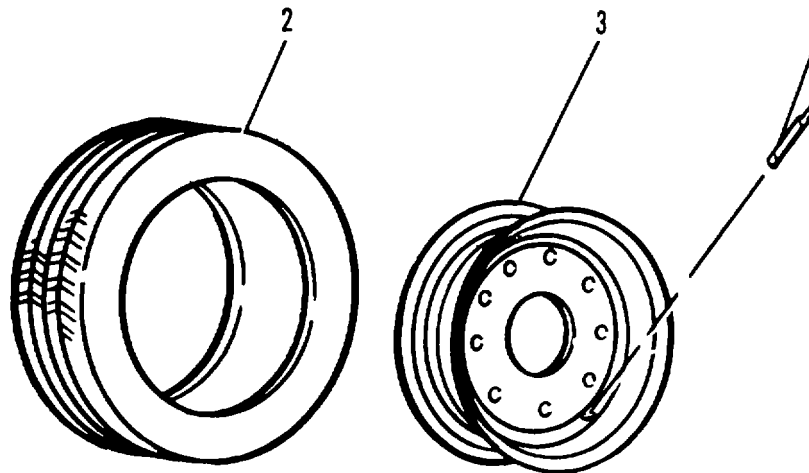


Figure 4-24. Tire and Wheel Assembly.

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4-21. TIRE/WHEEL ASSEMBLIES - REPAIR (Continued)

4-21

a. DISASSEMBLY:

- (1) Remove valve core from valve stem (1, Figure 4-24) with valve core tool.
- (2) Remove tire (2) from rim (3) using tire tools.
- (3) Remove valve stem (1) from rim (3) and discard.

b. INSPECTION:

- (1) Clean all parts with cleaning solvent and dry with a lint-free cloth.
- (2) Inspect tire and rim for damage.
- (3) Replace damaged parts with new parts.

c. ASSEMBLY:

- (1) Install new valve stem (1) in rim (3).
- (2) Install tire (2) on rim (3) with tire tools.
- (3) Inflate tire to 45 psi (310 kPa).
- (4) Submerge tire in water and check for air leakage.

END OF TASK

4-22. STEERING WHEEL HUBS AND BEARINGS - REPAIR

4-22

This task covers:

a. Disassembly

b. Inspection

c. Assembly

INITIAL SETUP:

Equipment
Condition

Para
2-6

Condition Description
Tire/Wheel assembly
removed.

Materials/Parts

- As Required
- Cleaning Solvent (Item 6, Appendix D)
- Lint Free Cloth (Item 10, Appendix D)
- Rags (Item 9, Appendix D)
- GAA Grease (Item 5, Appendix D)
- Grease Seal, Part Number 17746
- Cotter Pin, Part Number YC103387

Tools Required

Tool Kit, TI 5180-00-177-7033

Personnel Required

MOS 63W, 1 Mechanic

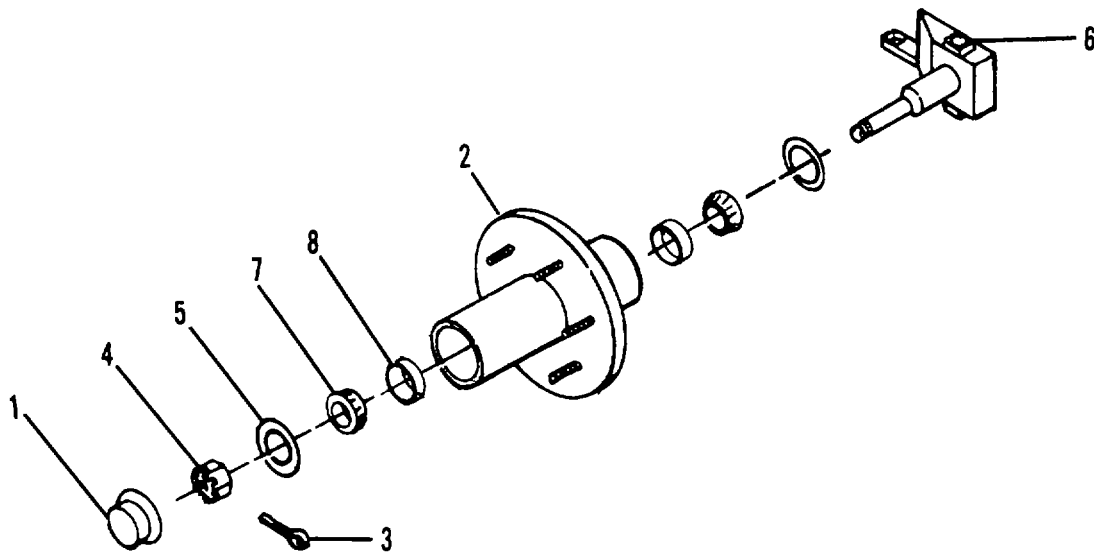


Figure 4-25. Steering Wheel Hubs and Bearings (Sheet 1 of 2).

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4-22. STEERING WHEEL HUBS AND BEARINGS - REPAIR (Continued)**4-22****a. DISASSEMBLY:**

- (1) Remove dust cap (1, Figure 4-25) from hub (2).
- (2) Remove cotter pin (3) from spindle nut (4).
- (3) Remove spindle nut (4) and washer (5) from spindle (6).
- (4) Remove hub (2).
- (5) Remove bearing (7) and outer race (8) from hub (2) with a soft drift and hammer.
- (6) Remove grease seal (9) from hub (2) and discard.
- (7) Remove bearing (10) and inner race (11) from hub (2) with soft drift and hammer.

b. INSPECTION:

- (1) Clean all parts with cleaning solvent and dry with a lint-free cloth.
- (2) Inspect spindles and bearing races for evidence of wear, burrs, nicks, chips, scoring and other damage.
- (3) Replace damaged parts with new parts.

c. ASSEMBLY:**NOTE**

Be sure that spindle, bearings and bearing races are clean and free of contamination. Use cleaning solvent and rag.

- (1) Install outer race (8) in hub (2) with soft drift and hammer.

CAUTION

Be sure race seats snugly against shoulder in hub or damage will occur.

- (2) Install inner race (11) in hub (2) with soft drift and hammer.
- (3) Pack bearing (10) with GAA grease and install in inner race (11).
- (4) Install new grease seal (9) until it seats snugly against the shoulder with soft faced mallet.

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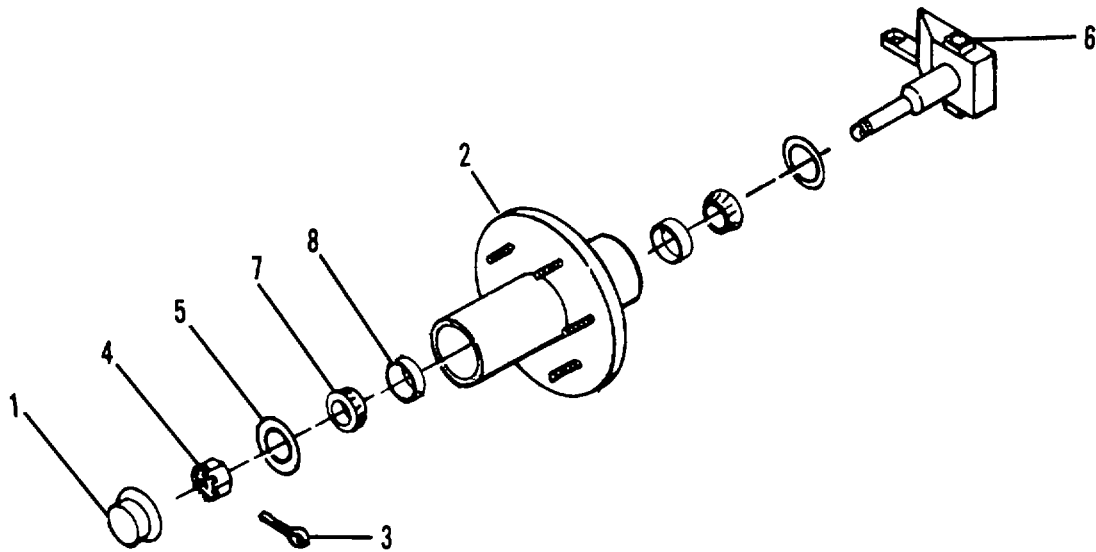


Figure 4-25. Steering Wheel Hubs and Bearings (Sheet 2 of 2).

NOTE

Fill space between bearing races about 1/2 full of GAA grease.

- (5) Pack bearing (7) with GAA grease and install in outer race (8).

NOTE

Wipe the spindle clean with a lint-free cloth and lubricate spindle with a light film of GAA.

- (6) Carefully slide assembled hub (2) onto spindle (6).
- (7) Place washer (5) on spindle (6).
- (8) Screw spindle nut (4) onto spindle (6) until finger tight. Tighten with wrench until snug, and then "back-off" until cotter pin holes are aligned.
- (9) Install new cotter pin (3) through nut (4) and spindle (6).
- (10) Clean and install dust cap (1) on hub (2).
- (11) Install tire/wheel assembly (see para 2-6).
- (12) Operational check for proper function.

END OF TASK

4-23. STEERING ASSEMBLY - REPLACE

4-23

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Equipment Condition

<u>Para</u>	<u>Condition Description</u>
3-37	Steering cylinder removed.
2-6	Front wheels removed.
2-13	Service /Inspection brace installed
3-43	Towing assembly removed.

Materials/Parts

As Required

Tools Required

Tool Kit, TI 5180-00-177-7033

Floor Jack (10 ton capacity)

Jack Stands

Slings

Personnel Required

MOS 63W, 2 Mechanics

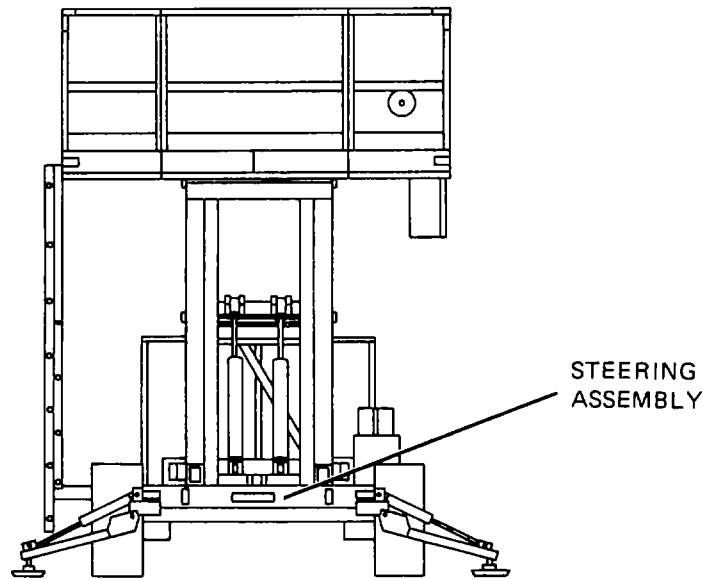


Figure 4-26. Steering Assembly (Sheet 1 of 3).

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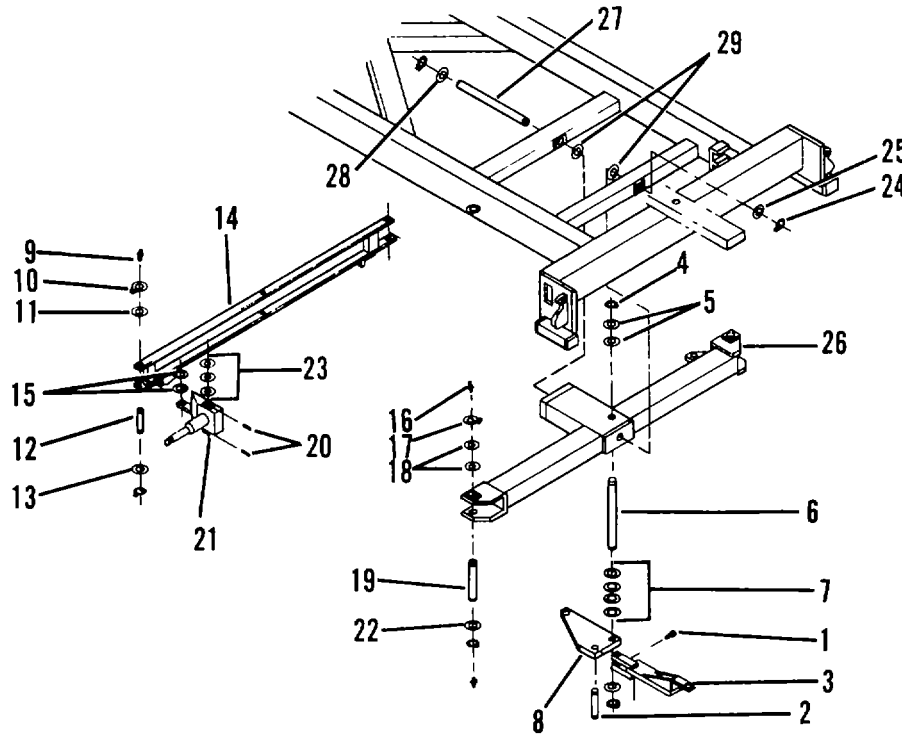


Figure 4-26. Steering Assembly (Sheet 2 of 3).

a. REMOVAL:**WARNING**

Do not depend on a floor jack to support the SPEMS. Use jack stands for this purpose.

NOTE

Both sides of steering assembly are removed the same way, right side is illustrated.

NOTE

During removal, tag and note the locations and quantities of spacers for ease of reassembly.

- (1) Place the floor jack under the front frame member and raise SPEMS.
- (2) Support the frame with jack stands. Position the stands under the support to the rear of the steering assembly. Remove the floor jack.
- (3) Remove set screw (1, Figure 4-26) and rear drag link pin (2).
- (4) Remove towing tongue link (3).
- (5) Remove retaining ring (4) and spacer set (5).
- (6) Remove front tie rod link pin (6) and spacer set (7).
- (7) Remove tie rod link (8).

GO ON TO NEXT PAGE

CAUTION

Protect the spindle assemblies from dust, dirt and damage or bearings will be damaged.

- (8) Remove grease fittings (9).
- (9) Remove retaining rings (10) and spacers (11) from pins (12).
- (10) Remove pins (12) and spacers (13) with a soft drift.
- (11) Remove tie bar (14). Spacers (15) will come out with tie bar.
- (12) Remove grease fittings (16).
- (13) Remove retaining rings (17) and spacers (18) from pins (19).
- (14) Loosen set screws (20).
- (15) With the second mechanic supporting the spindles (21), remove pins (19) and spacer (22) with a soft drift.
- (16) Remove spindles (21). Spacers (23) will come out with spindle.
- (17) Remove spindle on left side by repeating steps (8) thru (16).
- (18) Remove retaining ring (24) and spacers (25).
- (19) Support the axle assembly (26) with slings to the scissors assembly.
- (20) Remove pin (27) and spacers (28) with a soft drift.
- (21) Remove axle assembly (26). Spacers (29) will come out with axle assembly.

b. INSTALLATION:**NOTE**

Both sides of steering assembly are installed the same way, right side is illustrated.

- (1) Position axle assembly (26) under frame. Sling axle assembly to scissors assembly.
- (2) Place spacers (29) in position using tags for identification.
- (3) Install pin (27) and spacers (28) with a soft drift.
- (4) Install spacers (25) and retaining ring (24) on pin (27).

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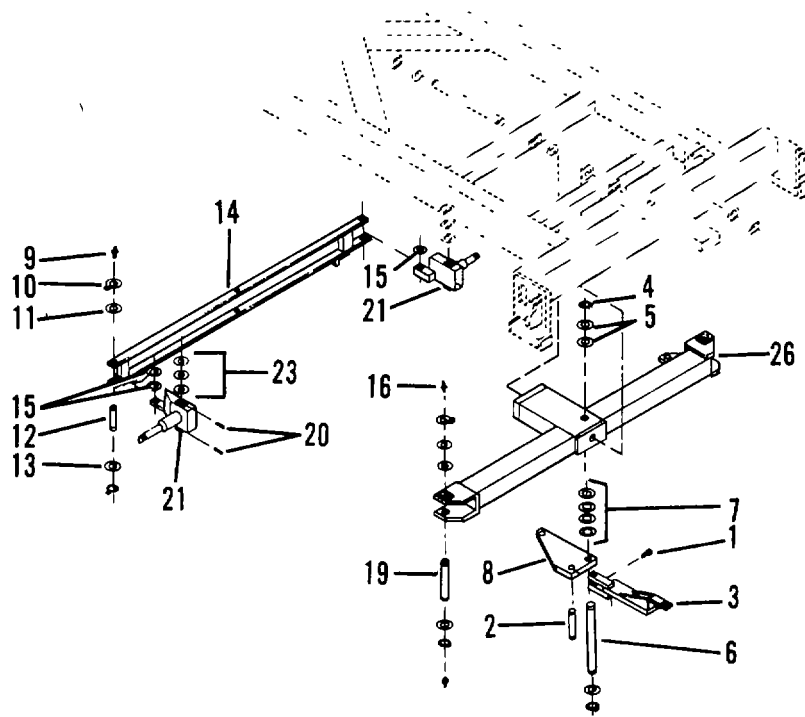


Figure 4-26. Steering Assembly (Sheet 3 of 3).

- (5) Position spindles (21) and spacers (23) in axle assembly (26). Use the tags for spacer identification.
- (6) Install pins (19) and spacers (22) with a soft drift.
- (7) Install spacers (18) and retaining rings (17) on pins (19).
- (8) Tighten set screws (20).
- (9) Install grease fittings (16) in pins (19).
- (10) Position tie bar (14) and spacers (15) on spindles (21). Use the tags for spacer identification.
- (11) Install pins (12) and spacers (13) with a soft drift.
- (12) Install spacers (11) and retaining rings (10) on pins (12).
- (13) Install grease fittings (9) in pins (12).
- (14) Install left side by repeating steps (5) thru (13).
- (15) Slide tie rod link (8) in position within the axle assembly (26).

GO ON TO NEXT PAGE

4-23. STEERING ASSEMBLY - REPLACE (Continued)

4-23

- (16) Align tie rod link (8) pivot hole with the hole in the axle assembly (26) and insert spacer set (7) between link and axle assembly. Use tags for spacer identification.
- (17) Install front tie rod link pin (6) from the bottom of the link.
- (18) Add spacer set (5) and secure with retaining ring (4).
- (19) Position towing tongue link (3) on tie rod link (8) and align holes.
- (20) Install rear drag link pin (2) and secure with set screw (1).
- (21) Remove slings.
- (22) Install steering cylinder (para 3-37).
- (23) Install front wheels (para 2-6).
- (24) Install floor jack and raise unit off jack stands. Remove jack stands, lower unit with floor jack and remove floor jack.
- (25) Lubricate fittings. See para 3-6, Lubrication.
- (26) Operational test for proper function.

END OF TASK

4-24. STEERING ASSEMBLY - REPLACE

4-24

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Equipment
Condition

Para	Condition Description
3-36	Stabilizer cylinder removed (if not damaged).

Materials/Parts

As Required

GAA Grease (Item 5, Appendix D)

Tools Required

Tool Kit TI 5180-00-177-7033

Overhead Hoist and Slings

Personnel Required

MOS 63W, 2 Mechanics

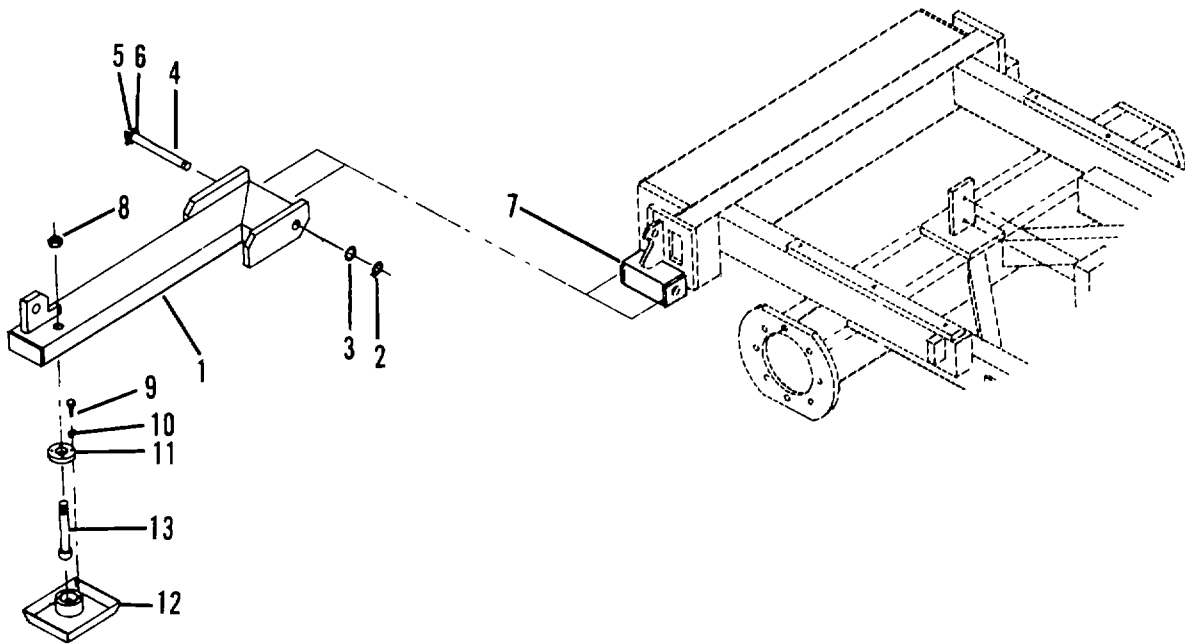


Figure 4-27. Stabilizer Assembly.

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4-24. STEERING ASSEMBLY - REPLACE (Continued)

4-24**a. REMOVAL:**

- (1) Support stabilizer (1, Figure 4-27) with a suitable hoist and sling assembly.
- (2) Remove retaining ring (2), and washer (3).
- (3) Drive retaining pin (4) toward opposite retaining ring. Remove pin with retaining ring (5) and washer (6).
- (4) Remove stabilizer (1) from frame member (7) with hoist and sling assembly.
- (5) Remove nut (8) and pad assembly.
- (6) Remove four capscrews (9) and washers (10) securing stud cover (11) to pad (12).
- (7) Remove stud (13) and cover (11).

b. INSTALLATION:

- (1) Slide stud cover (11) over stud (13) and position in pad (12).
- (2) Secure stud cover (11) with four capscrews (9) and washers (10). Tighten screws securely.
- (3) Slide pad assembly through stabilizer and secure with nut (8).
- (4) With stabilizer (1) supported with a suitable hoist, and sling assembly, align holes of frame member (7) and stabilizer.
- (5) Install retaining pin (4) with washer (6) and retaining ring (5) through stabilizer (1) and frame (7).
- (6) Install washer (3) and retaining ring (2).
- (7) Remove hoist and sling assembly.
- (8) Install the stabilizer cylinder (see para 3-36).
- (9) Lubricate stud ball (12) with a light film of GAA grease.

END OF TASK

4-25. LADDER - REPLACE

4-25

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Materials/Parts

Spray Lubricant (Item 11, Appendix D)
As Required

Tools Required

Tool Kit, TI 5180-00-177-7033

Personnel Required

MOS 63W, 2 Mechanics

Equipment
Condition

Para
2-13

Condition Description

Platform ladder in
stored position.

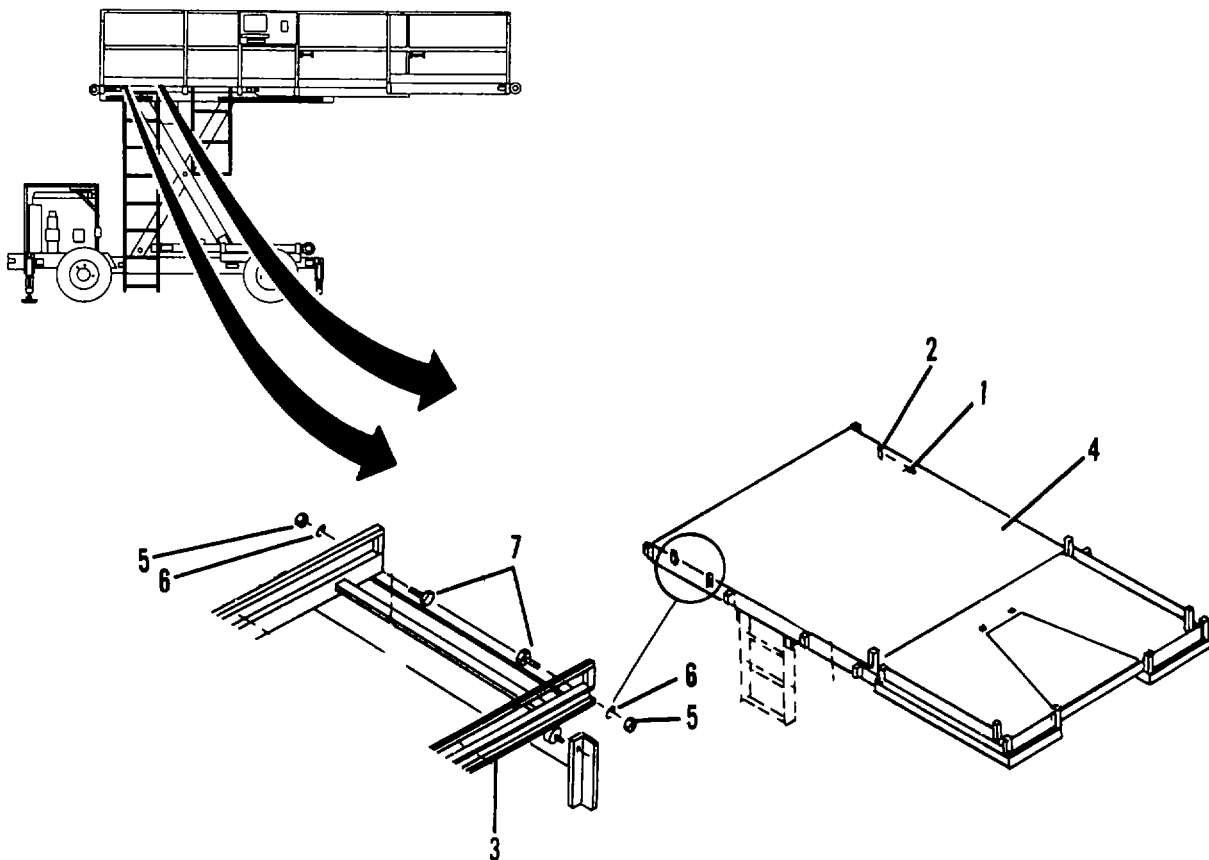


Figure 4-28. Ladder Replacement.

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4-25. LADDER REPLACE (Continued)

4-25**a. REMOVAL:**

- (1) Remove lock clip (1, Figure 4-28) from pin (2) securing ladder (3) to platform (4).
- (2) Remove two nuts (5), two washers (6) and two capscrews (7).
- (3) Slide ladder (3) out and off platform (4).

b. INSTALLATION:

- (1) Position ladder (3) on platform (4).
- (2) Install two capscrews (7) and secure with washers (6) and nuts (5).
- (3) Lubricate ladder rails with spary lubricant.
- (4) Perform operational check for proper function.
- (5) Store ladder (3) on platform (4) and secure with lock clip (1) through pin (2).

END OF TASK

4-26. DECK EXTENSIONS - REPLACE

4-26

This task covers:

- a. Remove
- b. Installation

INITIAL SETUP

Special Tools/Test Equipment

Overhead Hoist and Slings
2" x 4" x 12" Hardwood Block

Equipment
Condition

Para
3-42

Condition Description
Guardrails removed (from deck extension).

Materials/Parts

Tie Straps (Item 1, Appendix D)
Cleaning Solvent (Item 6, Appendix D)
Spray Lubricant (Item 11, Appendix D)
As Required

Tools Required

Tool Kit, T1 5180-00-177-7033

Personnel Required

MOS 63W, 2 Mechanics

General Safety Instructions

Be sure you use a hoist and slings of suitable lifting capacity to support extensions.

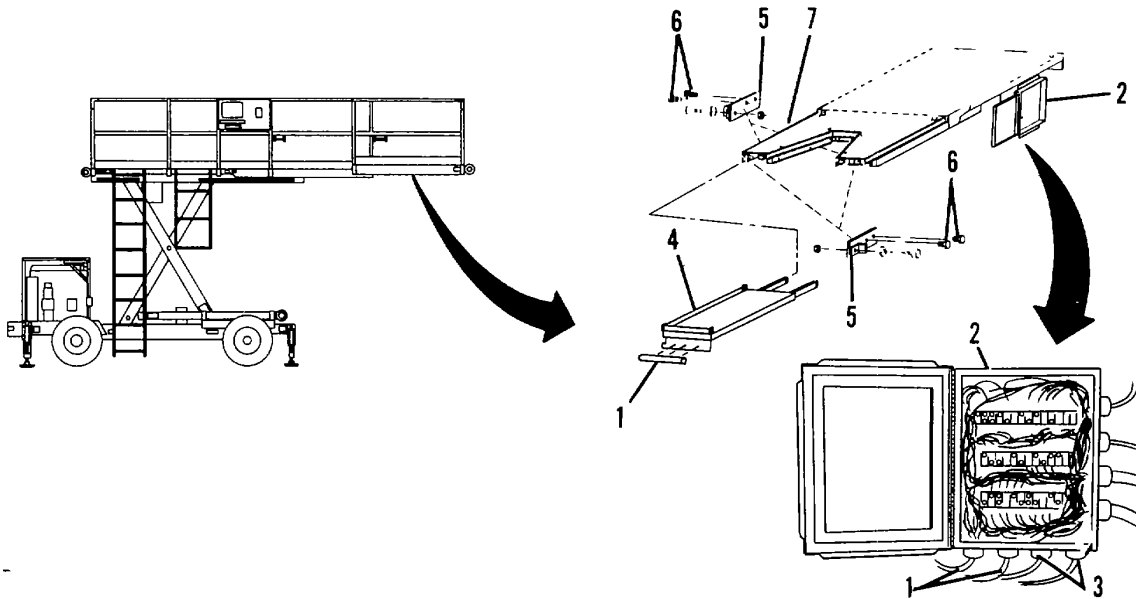


Figure 4-29. Deck Extension.

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4-26. DECK EXTENSIONS - REPLACE (Continued)

4-26**a. REMOVAL:**

- (1) Remove plastic ties that secure bumper wires to the deck and discard.
- (2) Tag deck extension bumper wires at the platform junction box for ease of identification during installation.
- (3) Disconnect the bumper wires (1, Figure 4-29) at the platform junction box (2).
- (4) Cut terminals from wires. Remove strain relief (3). Tie about 20 ft (6 m) of string to wires and pull wires through conduit.
- (5) Extend the deck (4) approximately 3/4 of its length.
- (6) Install a 2 x 4 x 12" block between platform and frame.
- (7) Support deck extension using chains and slings.
- (8) Tag camfollower assemblies (5) left and right for ease of reassembly.
- (9) Remove four capscrews (6) securing four camfollower assemblies (5) to platform frame. Remove camfollower assemblies.

CAUTION

Guide the bumper wires to prevent damage during removal.

- (10) Lift deck extension (4) away from platform (7).

b. INSTALLATION:

- (1) Use hoist and lift deck extension (4) into position about 1/4 of its length retracted into the platform (7).
- (2) Clean and lubricate camfollowers with multipurpose spray lubricant.
- (3) With one mechanic lifting up on deck extension (4), refer to identification tags and place camfollower assemblies (5) in position and secure with four capscrews (6).
- (4) Route the bumper wires (1) through the conduit and strain relief fitting (3) using string to pull through.
- (5) Remove hoist and slings.
- (6) Remove 2 X 4 X 12" block from between platform and frame.
- (7) Install new terminals on bumper wires (1).
- (8) Using identification tags, position each wire on its proper terminal and tighten. Extend deck fully.
- (9) Secure bumper wires with plastic tie straps as required.
- (10) Install guard rails. See para 3-42.

END OF TASK

4-27. PLATFORM - REPLACE

4-27

This task covers:

- a. Removal
 - b. Installation
-

INITIAL SETUP

Special Tools/Test Equipment

Overhead Hoist, Slings and Chains

Equipment
Condition

Para

Condition Description

3-42	Guardrails removed
2-13	Platform section removed.
4-26	Deck Extensions removed.
4-25	Extension Ladder removed.
4-7	Platform control box removed.
3-23	Platform lights removed.
3-22	Platform limit switches removed.

Materials/Parts

- GAA Grease (Item 5, Appendix D)
- Tie Straps (Item 1, Appendix D)
- Cleaning Solvent (Item 6, Appendix D)
- Spray Lubricant (Item 11, Appendix D)
- As Required

Tools Required

Tool Kit, TI 5180-00-177-7033

Personnel Required

MOS 63W, 2 Mechanics

General Safety Instructions

Be sure you use a hoist and slings of suitable lifting capacity to support platform.

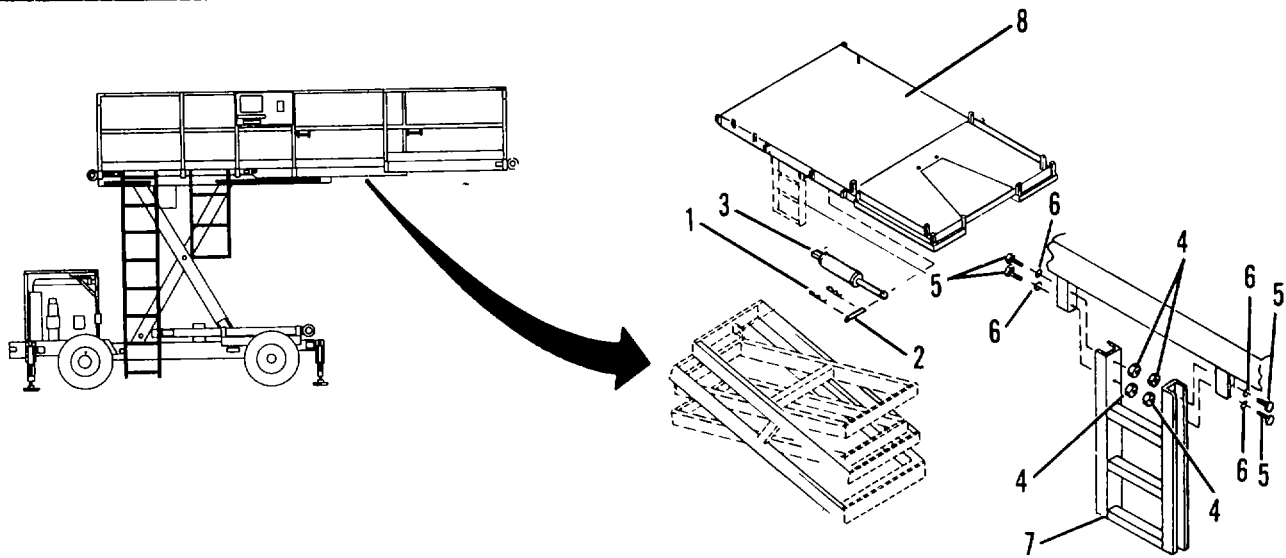


Figure 4-30. Platform Assembly.

a. REMOVAL:

- (1) Remove lock clip (1, Figure 4-30) from front cylinder rod eye pin (2).
- (2) Remove front cylinder rod eye pin (2) with a drift. Allow cylinder (3) to hang.
- (3) Remove four nuts (4), capscrews (5) and washers (6) securing ladder (7) to platform (8). Remove ladder (7).

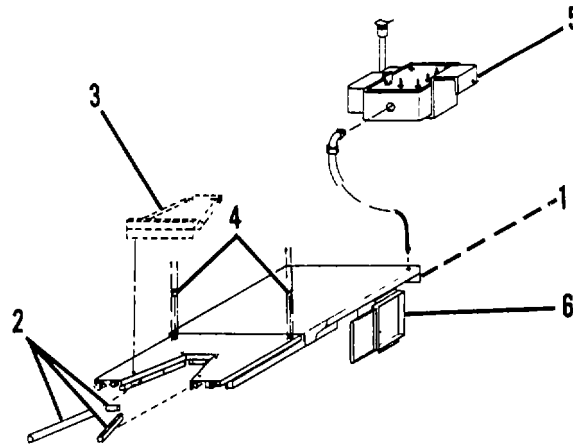


Figure 4-31. Platform Cables (Sheet 1 of 2).

- (4) Identify and tag the cables for the safety bumpers (1 and 2, Figure 4-31), removable platform section bumper (3), platform lights (4), platform control box (5) and platform limit switches at junction box (6).

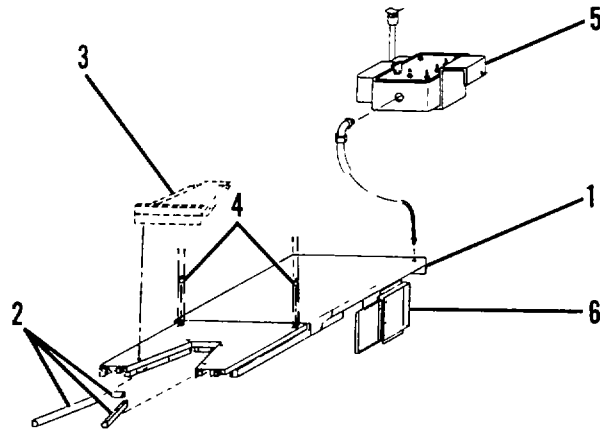


Figure 4-31. Platform Cables (Sheet 2 of 2).

NOTE

Loosen strain relief covers (1, Figure 4-32) and pull tagged cables far enough to install tags on individual wires for ease of installation.

(5) Disconnect cable wires for the safety bumpers (1 and 2) at the junction box (6) for ease of installation.

(6) Repeat step (5) for the removable platform section (3), platform limit switches, platform lights (4) and platform control box (5).

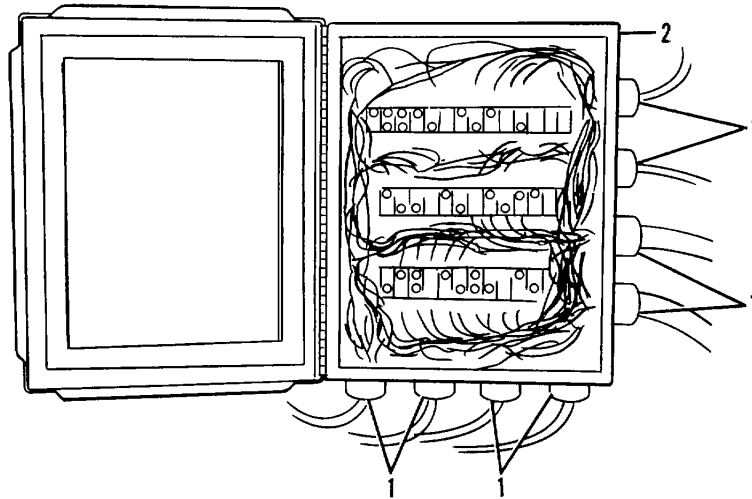


Figure 4-32. Junction Box.

(7) Cut terminals from all disconnected wires.

(8) Carefully pull from junction box (2, Figure 4-32) and tag each cable for ease of installation.

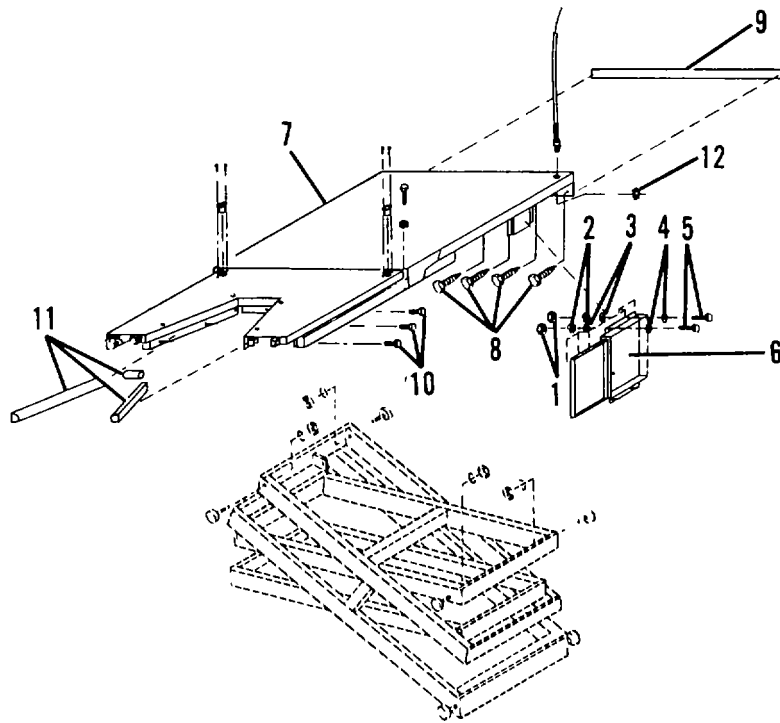


Figure 4-33. Platform Mounting (Sheet 1 of 2).

- (9) Remove four nuts (1, Figure 4-33), lockwashers (2), washers (3), washers (4) and capscrews (5) securing junction box (6). Remove junction box and allow to hang.
- (10) Remove any tie straps securing cables to platform (7).
- (11) Remove two limit switch cables from platform (7).
- (12) Remove six screws (8) securing rear bumper (9) to platform (7).
- (13) Remove rear bumper and cable (9) from platform (7).
- (14) Remove screws (10) securing three safety bumpers (11) to platform (7).
- (15) Remove safety bumpers and cables (11) from platform (7).
- (16) Remove nut securing platform control cable strain relief fitting (12) to platform (7).

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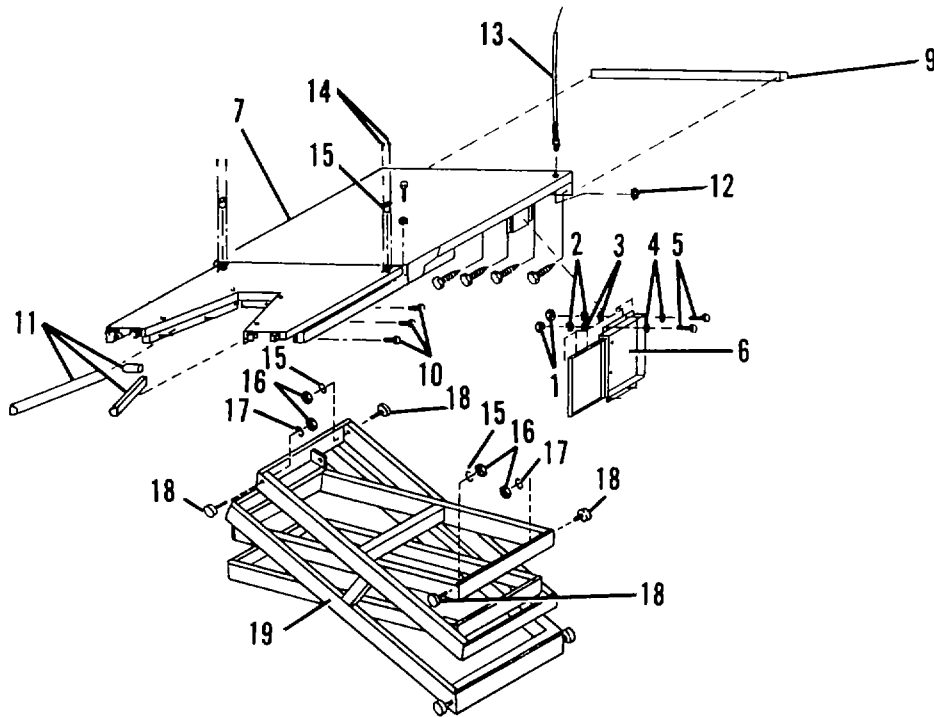


Figure 4-33. Platform Mounting (Sheet 2 of 2).

- (17) Remove platform control box cable (13) from platform (7).
- (18) Remove screws (14) securing platform light socket (15). Remove light socket.
- (19) Position overhead hoist over platform (7) and install slings around platform.
- (20) Take slack out of slings to take weight off platform (7).
- (21) Remove four nuts (16) and four washers (17) securing four camfollowers (18) to scissors (19). Remove camfollowers.
- (22) Use hoist and remove platform.

b. INSTALLATION:

- (1) Use hoist and carefully position platform (7, Figure 4-33) over scissors (19).

NOTE

Maneuver platform so the camfollower tracks are aligned with scissors.

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4-27. PLATFORM - REPLACE (Continued)

4-27

- (2) Place four camfollowers (18) in position on scissors (19) and install four washers (17), and four nuts (16).
- (3) Remove hoist and slings.
- (4) Install junction box (6) and secure with four capscrews (5), washers (4), washers (3), lockwashers (2) and nuts (1).
- (5) Install platform control box cable (13) through platform (7).
- (6) Install nut securing strain relief fitting (12) to platform (7).
- (7) Position safety bumpers and cables (11) on platform (7) and secure with screws (10).
- (8) Route two limit switch cables on platform (7) to junction box (6).
- (9) Secure bumper and limit switch cables to platform (7) with tie straps.
- (10) Install bumper (9) on platform (7) using screw (8).
- (11) Reinstall platform light socket.

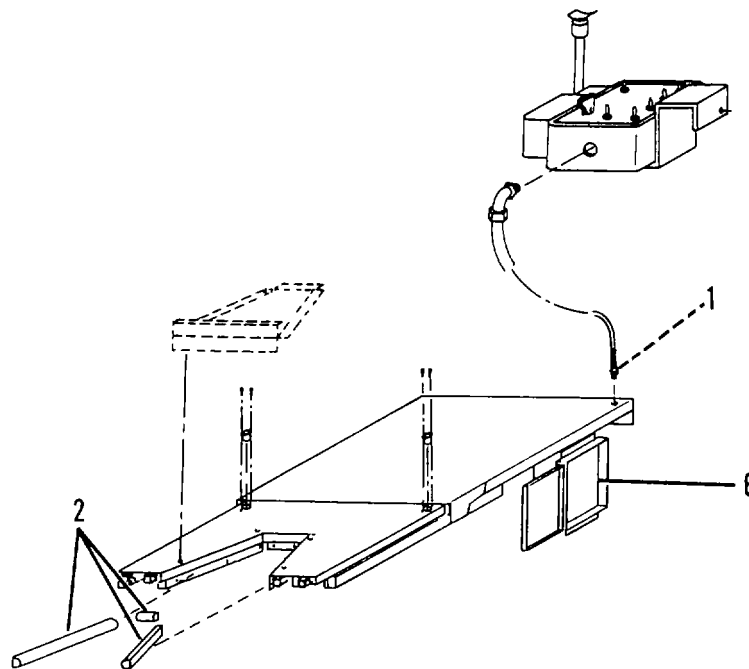


Figure 4-33.1. Platform Cables.

- (12) Install bumper (1 and 2, Figure 4-33.1) and limit switch cables through fittings in junction box (6) using tags for identification.
- (13) Install the strain relief covers (1, Figure 4-33.2) for the control box, bumper, platform light and limit switch cables on the fittings of junction box (2).

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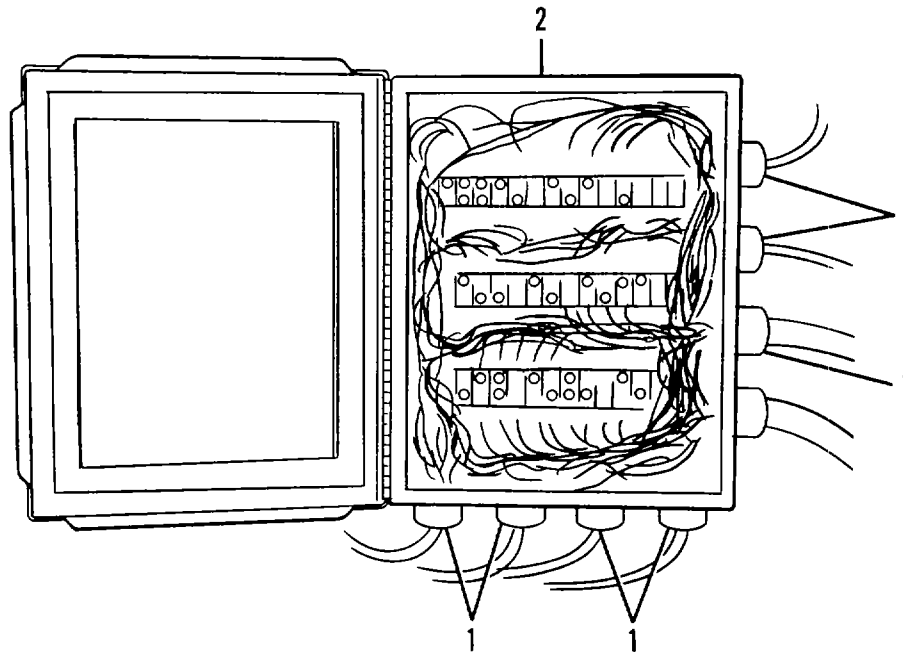


Figure 4-33.2. Junction Box.

(14) Connect terminals to wires and leads going to junction box.

(15) Connect the wires for the control box, bumper, platform light and limit switch cables at the junction box (2) using the tags for identification.

NOTE

Refer to foldouts, Figure F0-3 for wire identification if tags are lost.

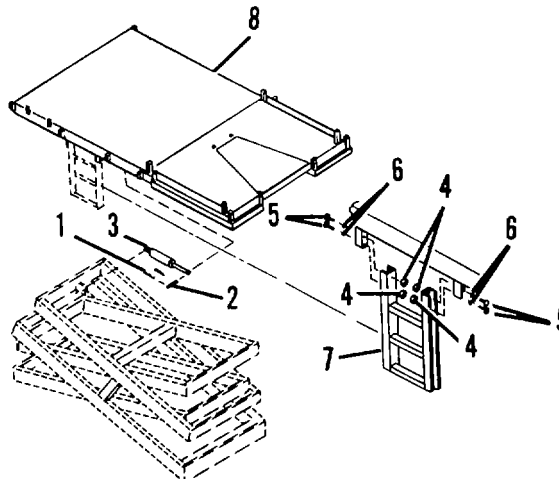


Figure 4-33.3. Platform Assembly.

(16) Position ladder (7, Figure 4-33.3) on platform (8) and secure with four capscrews (5), washers (6) and nuts (4).

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4-27. PLATFORM - REPLACE (Continued)

4-27

- (17) Position front cylinder rod eye in platform bracket (8) and install pin (2).
- (18) Install lock clip (1) in pin (2) to secure cylinder (3).
- (19) Install deck extensions. Refer to para 4-26.
- (20) Install platform limit switches. Refer to para 3-22.
- (21) Install ladder. Refer to para 4-25.
- (22) Install guardrails. Refer to para 3-42.
- (23) Install platform section. Refer to para 2-13.
- (24) Install platform control box. Refer to para 4-7.
- (25) Install platform lights. Refer to para 3-23.
- (26) Lubricate SPEMS. Refer to para 3-6, Lubrication Instructions.

END OF TASK

4-27. LADDER - REPAIR

4-28

This task covers:

- a. Disassembly
- b. Inspection
- c. Assembly

INITIAL SETUP

Equipment
Condition

Para
4-25

Condition Description
Ladder removed.

Materials/Parts

Spray Lubricant (Item 11, Appendix D)

Tools Required

Tool Kit, TI 5180-00-177-7033

Personnel Required

MOS 63W, 1 Mechanic

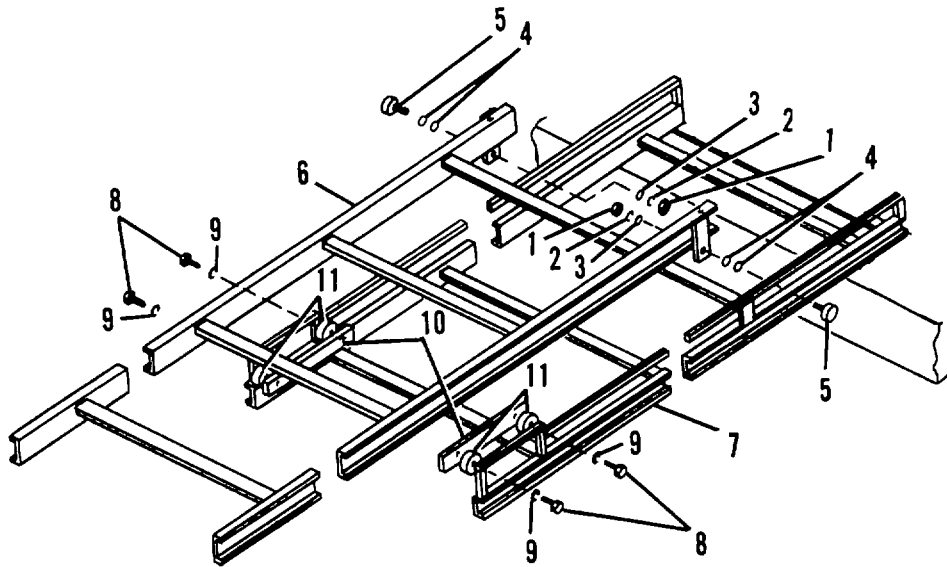


Figure 4-34. Ladder Rollers.

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4-28. LADDER - REPAIR (Continued)**4-28****a. DISASSEMBLY:**

- (1) Remove two nuts (1, Figure 4-34), lockwashers (2), flatwashers (3) and shims (4).
- (2) Remove rollers (5).
- (3) Slide outside section (6) off inside section (7).
- (4) Remove four capscrews (8), four washers (9), two blocks (10) and four spacers (11).

b. INSPECTION:

- (1) Clean all parts with cleaning solvent and dry with a lint-free cloth.
- (2) Inspect moving parts for evidence of wear, burrs, nicks, chips, scoring and other damage.
- (3) Replace damaged parts with new parts.

c. ASSEMBLY:

- (1) Insert four capscrews (8) with four washers (9) through bracket on inside section (7).
- (2) Place four spacers (11) on capscrews (8).
- (3) Place two blocks (10) in position and tighten capscrews (8).
- (4) Alining channels of outside section (6) with blocks (10), slide outside section (6) on inside section (7) fully.
- (5) Position rollers (5) in channels of inside section (7), install shims (4) and slide stud through bracket on outside section (6).
- (6) Secure rollers (5) with flatwashers (3), lockwashers (2) and nuts (1).
- (7) Lubricate rollers with spray lubricant.
- (8) Install ladder. Refer to para 4-25.
- (9) Operational check for proper function.

END OF TASK

4-29. DECK EXTENSIONS - REPAIR

4-27

This task covers:

- a. Disassembly
- b. Inspection
- c. Assembly

INITIAL SETUP

Equipment
Condition

Para
4-26

Condition Description
Deck extension removed.

Materials/Parts

Spray Lubricant (Item 11, Appendix D)

Tools Required

Tool Kit, TI 5180-00-177-7033

Personnel Required

MOS 63W, 1 Mechanic

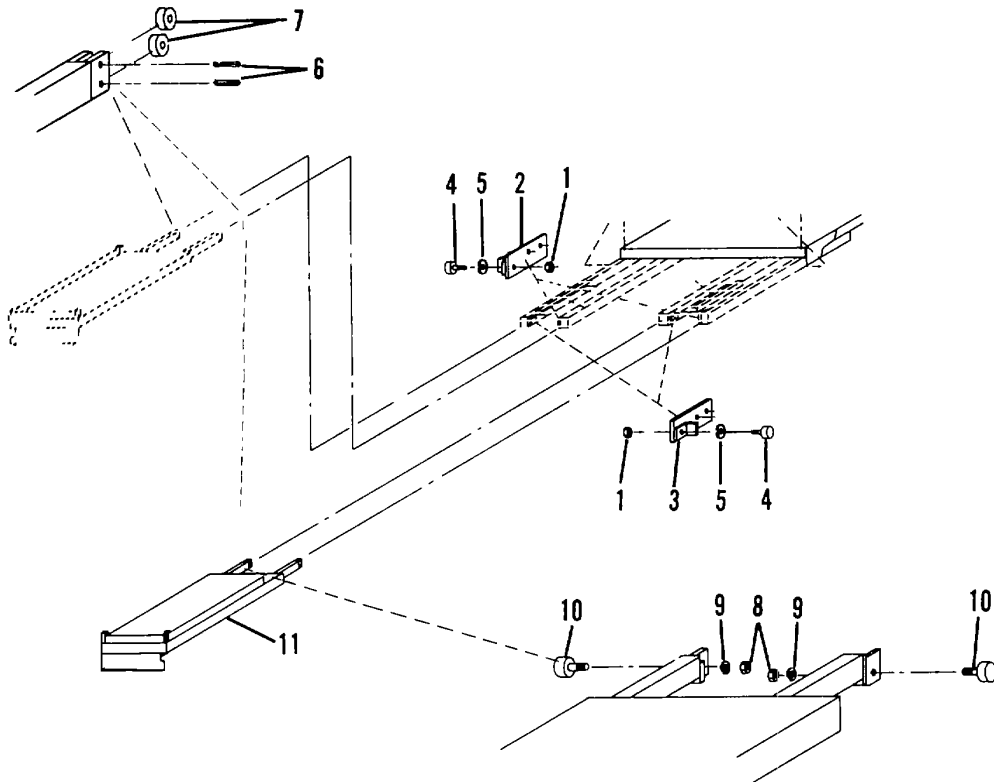


Figure 4-35. Deck Extension Rollers.

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4-29. DECK EXTENSIONS - REPAIR (Continued)

4-27

a. DISASSEMBLY:**NOTE**

Procedures are given for left side rollers. Right side rollers are replaced using the same procedures.

- (1) Remove nuts (1, Figure 4-35) from camfollower assemblies (2 and 3).
- (2) Remove rollers (4) and lockwashers (5).
- (3) Remove roll pins (6) and rollers (7).
- (4) Remove nuts (8), and lockwashers (9) and rollers (10) from left side deck extension (11).
- (5) Remove right side roller, repeat steps a(1) through a(4).

b. INSPECTION:

- (1) Clean all parts with cleaning solvent and dry with a lint-free cloth.
- (2) Inspect rollers for evidence of wear, burrs, nicks, chips, scoring and other damage.
- (3) Replace damaged parts with new parts.

c. ASSEMBLY:

- (1) Position rollers (10) in left side deck extension (11).
- (2) Install lockwasher (9) on roller studs and secure with nuts (8).
- (3) Place rollers (7) in position between frame rails.
- (4) Install roll pins (6) through rollers (7).
- (5) Position rollers (4) in camfollower assemblies (2 and 3) and secure with nuts (1) and lockwashers (5).
- (6) Install deck extensions. Refer to para 4-26.
- (7) Lubricate rollers with spray lubricant.
- (8) Install right side roller, repeat steps c(1) through c(7).
- (9) Operational check for proper function.

END OF TASK

4-30. PLATFORM - REPAIR

4-30

This task covers:

- a. Disassembly
 - b. Inspection
 - c. Assembly
-

INITIAL SETUP**Materials/Parts**

Spray Lubricant (Item 11, Appendix D)

Tools Required

Tool Kit, TI 5180-00-177-7033

Overhead Hoist, Slings and Chains

Personnel Required

MOS 63W, 1 Mechanic

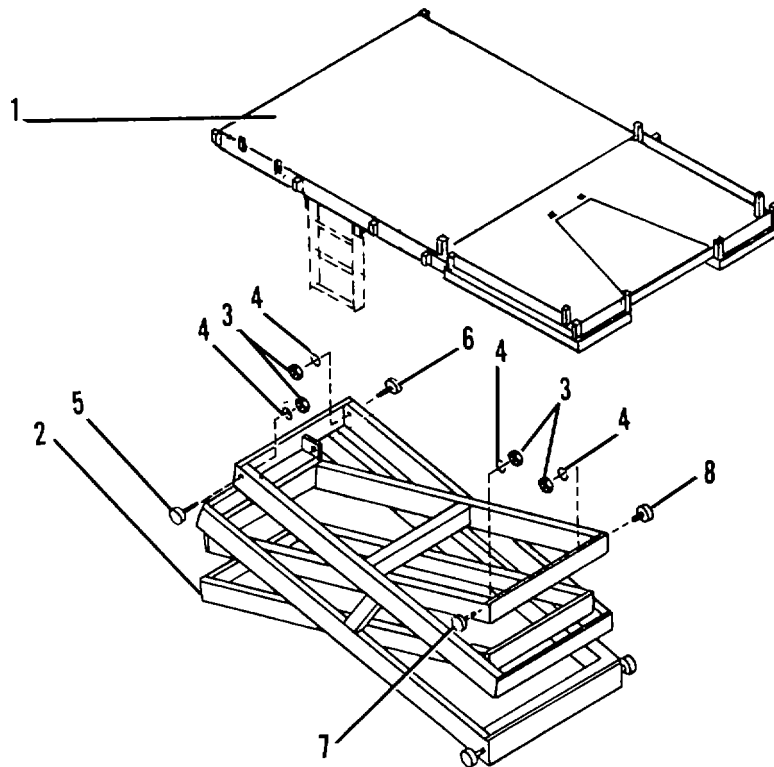


Figure 4-36. Platform Rollers.

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NOTE

Use a hoist to take tension off platform.

a. DISASSEMBLY:

- (1) Install slings on platform (1, Figure 4-36). Use care not to lift on scissors (2).
- (2) Take slack out of slings.
- (3) Remove nut (3) and lockwasher (4) from damaged roller(s) (5, 6, 7 or 8) from scissors (2). Remove roller(s).

b. INSPECTION:

- (1) Clean all parts with cleaning solvent and dry with a lint-free cloth.
- (2) Inspect moving parts for evidence of wear, burrs, nicks, chips, scoring and other damage.
- (3) Replace damaged parts with new parts.

c. ASSEMBLY:

- (1) Place roller(s) (5, 6, 7 or 8) in position in position in scissors (2) through track in platform (1).
- (2) Install lockwasher (4) and secure with nut (3).
- (3) Lubricate roller(s) with spray lubricant.
- (4) Remove slings.
- (5) Perform operational check for proper function.

END OF TASK

4-31. SCISSORS, SCISSORS ARM ROLLERS AND SHAFTS - REPLACE

4-31

This task covers:

- a. Scissors Arm Rollers and Shafts - Replace
- b. Scissors - Replace

INITIAL SETUP

Equipment
Condition

<u>Para</u>	<u>Condition Description</u>
	Replace Scissors Arm Rollers and Shafts:
3-42	Guardrails removed.
3-35	Lift cylinders Removed (If required).
4-25	Platform assembly. removed (if required).
4-25	Replace Scissors: Platform removed.
3-35	Lift cylinders removed.
3-38	Platform cylinder removed.
3-43	Towing assembly removed.

Materials/Parts

- As Required
- 4-4" X 4" (same length as safety brace)
- Hardwood Blocking (notched at both ends)
- GAA Grease (Item 5, Appendix D)

Tools Required

- Tool Kit, TI 5180-00-177-7033
- Overhead Hoist (10 ton capacity) and Slings

Personnel Required

- MOS 63W, 1 Mechanic

General Safety Instructions

- Use a hoist and slings of suitable lifting capacity.

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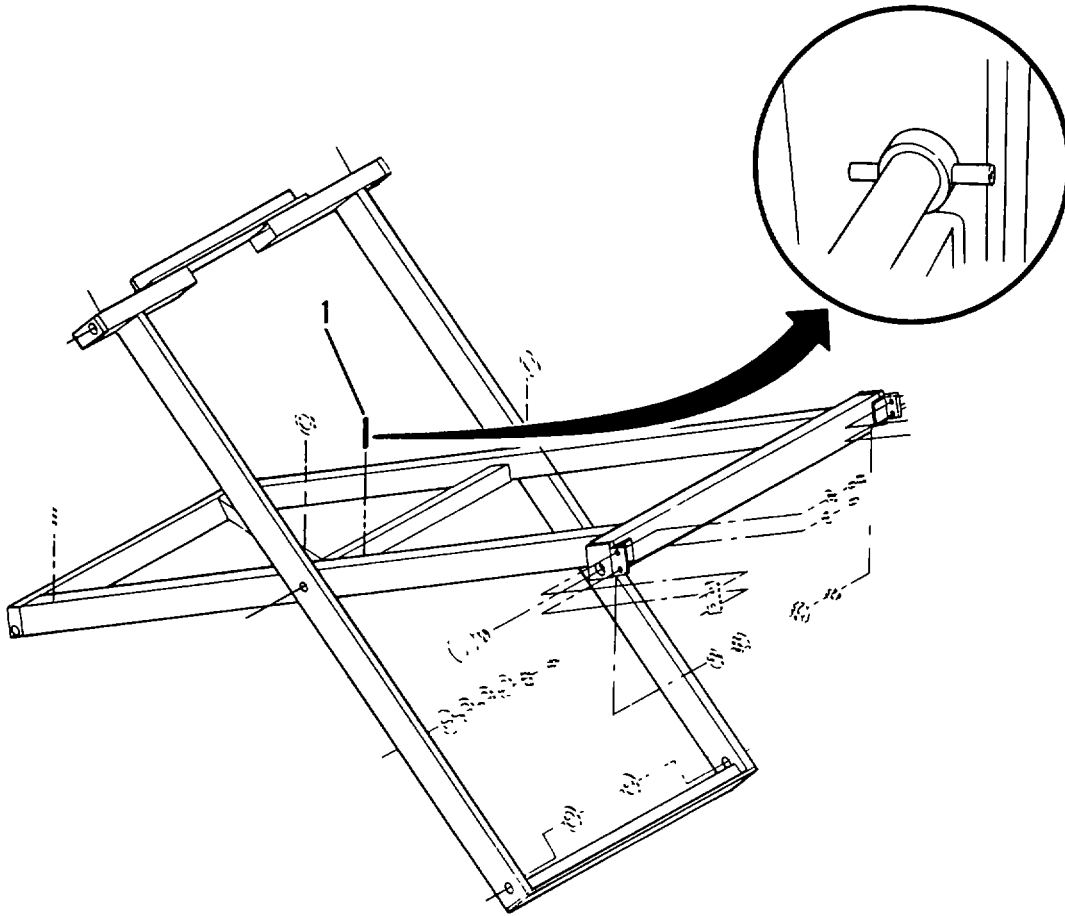


Figure 4-37. Scissor Shafts and Arm Rollers (Sheet 1 of 2).

a. **SCISSORS ARM ROLLERS AND SHAFTS:**

(1) Removal:

NOTE

Use a hoist to take tension off the platform.

(a) Install slings on platform. Take slack out of slings.

(b) To remove scissors shafts:

1 Remove roll pin (1, Figure 4-37) from shaft locking collar weldment.

NOTE

When removing shafts, make a note of the locations and quantity of washers at each affected shaft location(s).

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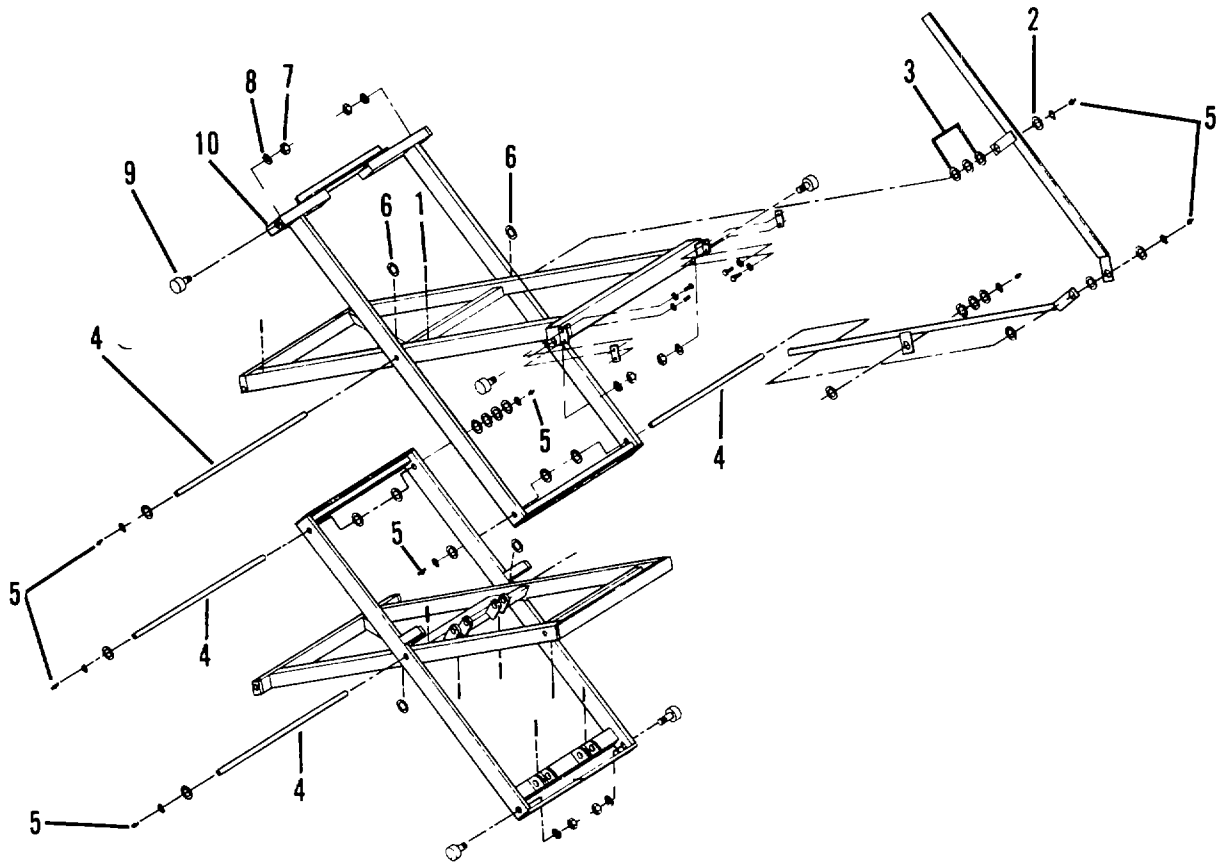


Figure 4-37. Scissors Shafts and Arm Rollers (Sheet 2 of 2).

- 2 Remove retaining ring (2) and washers (3) on one end of affected shaft(s) (4).
- 3 Remove grease fitting(s) (5) from affected shaft(s) (4).
- 4 Install hardwood blocking between scissors sections to take tension off shafts.
- 5 Drive affected shaft (4) out of scissors from opposite side using a hammer and drift pin.

NOTE

Washers (6) will come out with shaft.

(c) To remove scissor arm rollers:

- 1 Remove nut (7) and washer (8) from camfollower (9).
- 2 Remove camfollower (9) from arm (10).

GO ON TO NEXT PAGE

4-31. SCISSORS, SCISSORS ARK ROLLERS AND SHAFTS - REPLACE (Continued)**4-31**

3 Inspect bushings for scoring and damage. Press new bushings in if required.

(2) Installation:

(a) To install scissor arm rollers:

1 Clean and lubricate camfollowers (9) with multipurpose spray lubricant.

2 Place camfollower (9) in position in outside scissor arm (10).

3 Install washer (8) and nut (7) on camfollower (9).

4 Tighten nut (7) securely.

(b) To install shaft(s) into scissors:

1 Align scissors joint.

2 Lubricate the shaft with a thin film of GAA grease.

NOTE

While installing shaft, be sure that the hole in the shaft, and the hole in the collar are aligned.

3 Start shaft (4) in joint and install washers (6) while driving shaft with remaining hardware in position.

4 Install washers (3) and retaining ring (2) on shaft (4).

5 Use a tapered drift to check locking collar to shaft alignment.

6 Install new roll pin (1) in shaft locking collar weldment.

7 Install grease fittings (5) on shaft (4).

NOTE

The lower shaft of the bottom, inside scissor assembly has no locking collar. Remove the capscrews (2) and washers (3) securing blocks (4) to frame.

(c) Remove hardwood blocking.

(d) Remove slings and hoist.

(e) Install lift cylinders if removed. Refer to para 4-14.

(f) Lubricate fittings (5) on each side of affected shaft(s) with GAA grease.

(g) Start SPEMS and check for proper operation.

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b. SCISSORS:

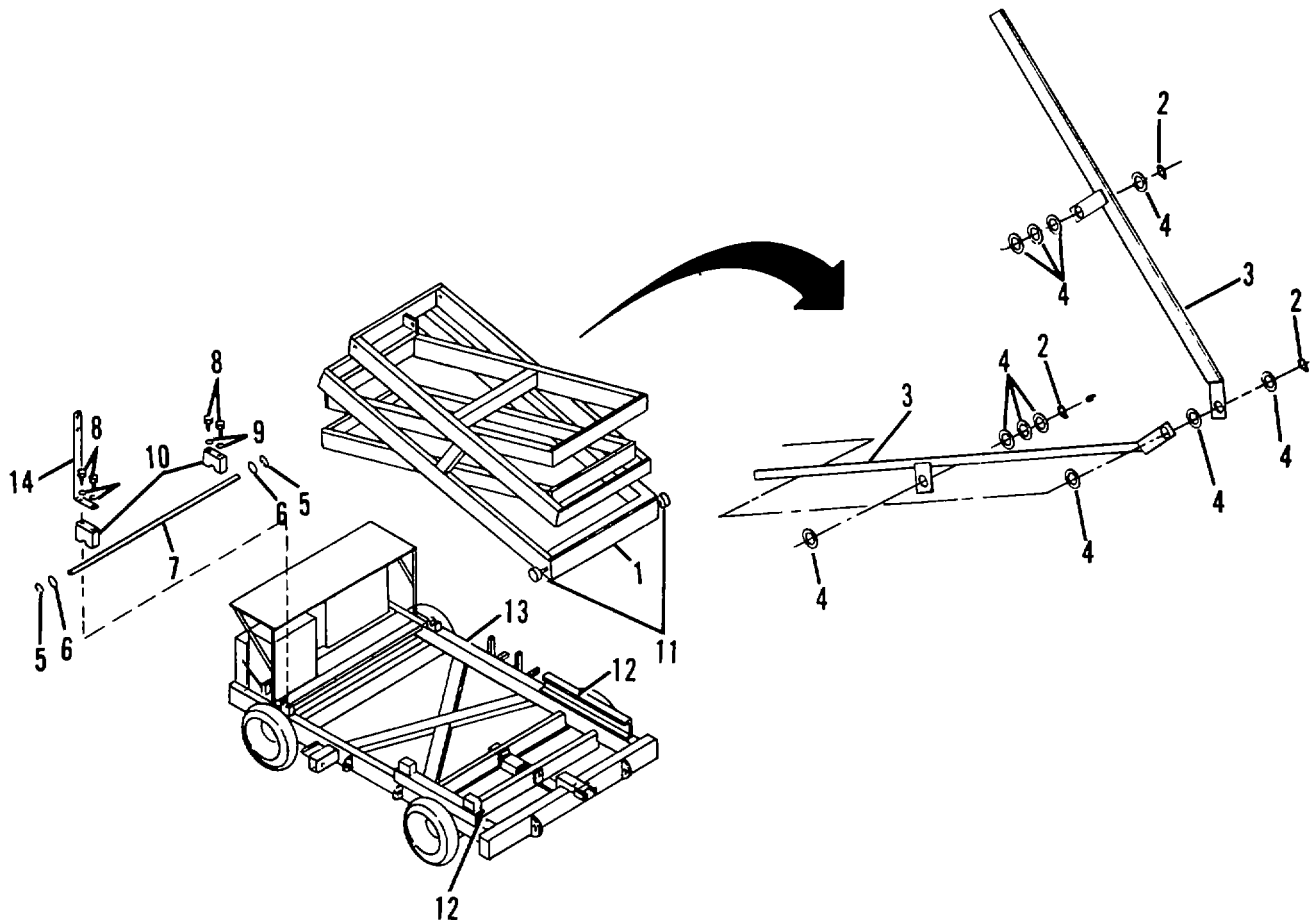


Figure 4-38. Scissors Mounting.

(1) Removal:

WARNING

Use a hoist and slings of suitable lifting capacity to prevent possible personal injury.

(a) Attach hoist and slings to scissors assembly (1, Figure 4-38) at the middle of the scissors.

NOTE

Be sure to chain both scissors sections together at the center scissors crossmembers.

(b) Remove four retaining rings (2) securing cable conduit (3) to scissors (1).

(c) Note the quantity and location of spacers (4) both inside and outside of conduit (3). Remove spacers and conduit. Carefully lay conduit on ground.

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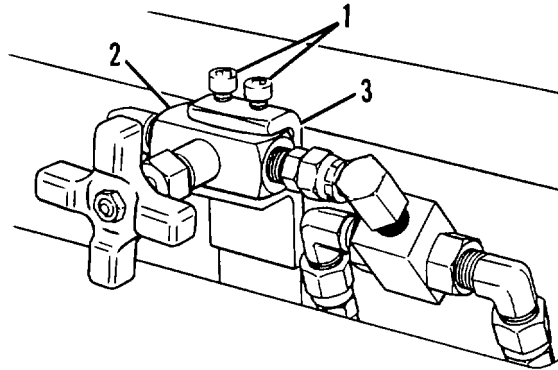


Figure 4-39. Bypass Valve.

- (d) Loosen two socket head screws (1, Figure 4-39) securing bypass valve (2) to bracket (3). Remove bypass valve and allow to hang.
- (e) Take slack out of slings.

NOTE

Block on right hand side secures the limit switch bracket. Remove the bracket and carefully set it to one side.

- (f) Remove retaining rings (5, Figure 4-38), spacers (6) and rod (7).
- (g) Remove capscrews (8) and washers (9) from scissors mounting blocks.
- (h) Remove mounting block caps (10).
- (i) Lift scissors (1) to take the weight off the front camfollowers (11).

CAUTION

Be sure that scissors assembly clears the engine enclosure.

- (j) Remove scissors assembly (1) by swinging the assembly to the rear front about six inches until camfollowers (7) clear cam follower track (12).
- (k) Remove scissors (1) from frame (13).

(2) Installation:

NOTE

Be sure to sling the scissors at the center.

Be sure to chain both scissors sections together at the center scissors crossmembers.

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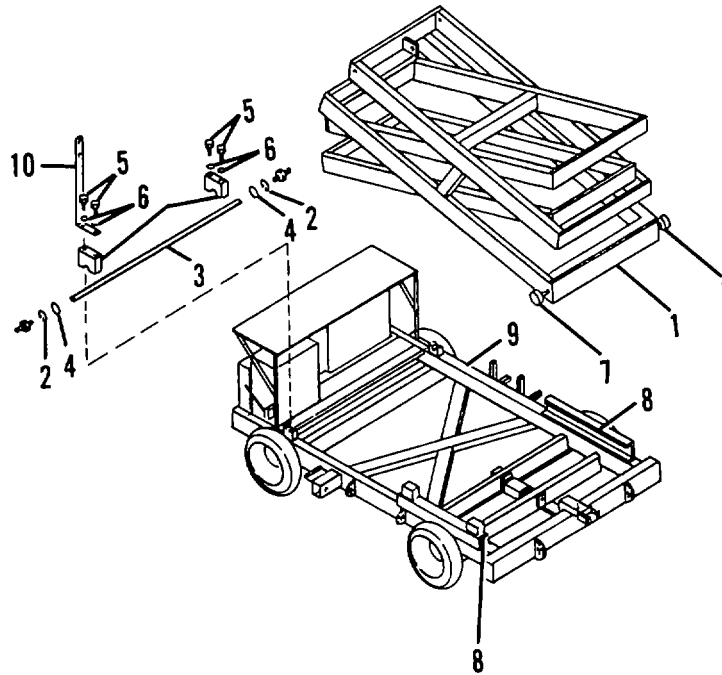


Figure 4-39.1. Scissors Mounting.

- (a) Use hoist and carefully place scissors assembly (1, Figure 4-39.1) in position at the front of the tracks.
- (b) Carefully guide camfollowers (11, Figure 4-38) into camfollower tracks (12). Gradually lower scissors assembly so that the rear scissors shaft rests in the scissors hinge blocks.
- (c) Place scissors mounting block caps (10) in position.

NOTE

Be sure that limit switch bracket (14) is positioned properly on right side block.

- (d) Install capscrews (8) and washers (9) and tighten securely.
- (e) Install rod (7), spacers (6), and retaining rings (5).
- (f) Remove hoist, slings and chains.
- (g) Install platform. See para 4-27.
- (h) Install platform cylinder. See para 3-38.

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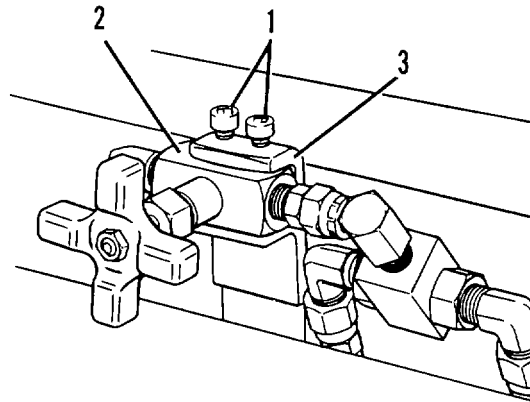


Figure 4-39.2. Bypass Valve.

- (i) Position bypass valve (2, Figure 4-39.2) in bracket (3) and tighten two socket head capscrews (1).
- (j) Install inside spacers (4, Figure 4-38) on scissors shafts. Place conduit (3) in position on shafts.
- (k) Install outside spacers (4). Secure with retaining rings (2).
- (l) Install lift cylinders. See para 4-14.
- (m) Install towing assembly. See para 3-43.
- (n) Lubricate scissors with GAA grease. See para 3-6, Lubrication Instructions.
- (o) Perform operational check for proper function.

END OF TASK

4-32. SCISSORS, SCISSORS ARM ROLLERS AND SHAFTS - REPAIR

4-32

This task covers:

- a. Scissors - Repair
- b. Scissors Arm Rollers - Repair
- c. Scissors Shafts - Repair

INITIAL SETUP:

Special Tools/Test Equipment

Soft Drift

Equipment
Condition

Para Condition Description

Materials/Parts

- Spray Lubricant (Item 11, Appendix D)
- GAA Grease (Item 5, Appendix D)
- Cleaning Solvent (Item 6, Appendix D)
- Lint Free Cloth (Item 10, Appendix D)
- Bushings

4-27

Scissors Repair:
Scissors removed (if
required).

Tools Required

Tool Kit, TI 5180-00-177-7033

Personnel Required

MOS 63W, 2 Mechanics

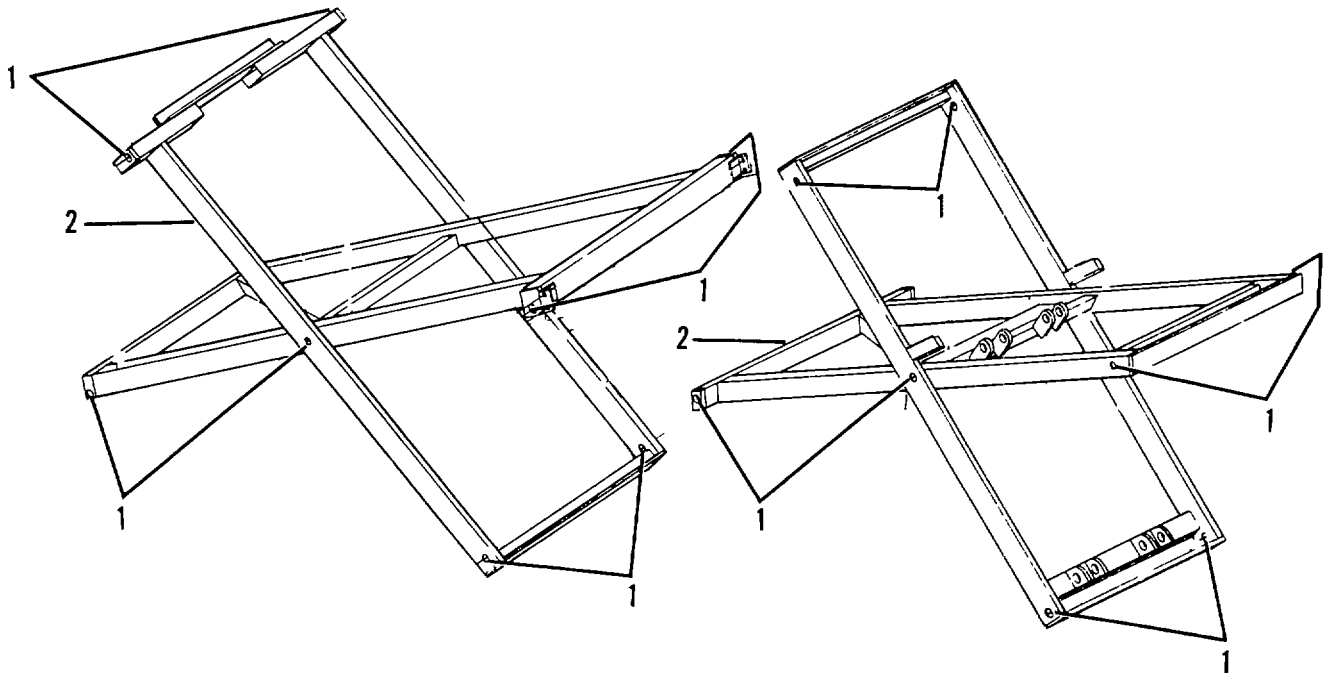


Figure 4-40. Scissors Bushings.

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a. SCISSORS BUSHINGS:**(1) Disassembly:**

- (a) Remove affected scissors shaft(s). Refer to para 4-28.
- (b) Using a hammer and soft drift, remove bushing(s) (1, Figure 4-40) from scissors frame (2) by tapping evenly on the face of the bushing at points 90° from one another.

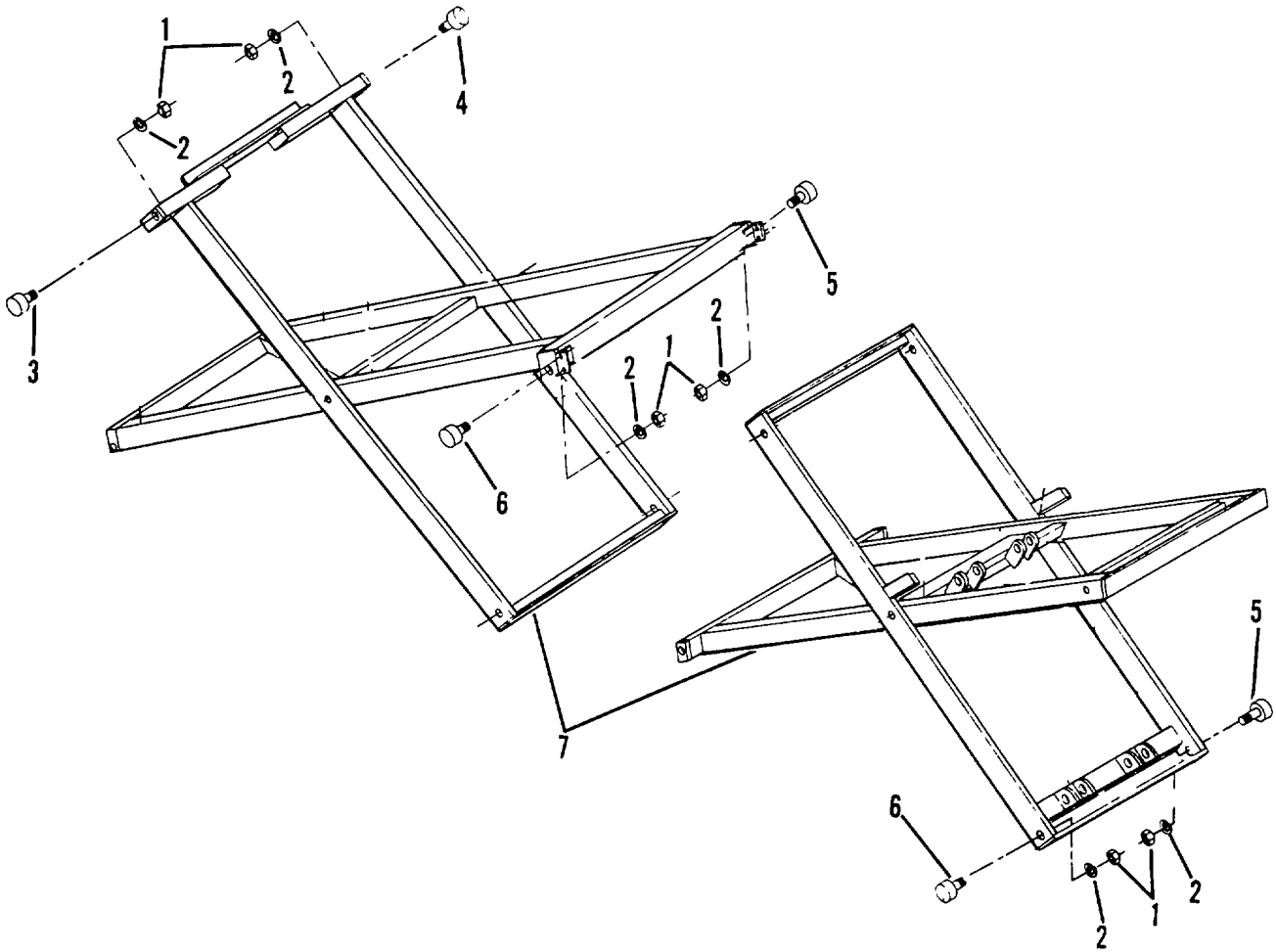
(2) Inspection:

- (a) Clean all parts with cleaning solvent and dry with a lint-free cloth.
- (b) Inspect shafts and bushings for evidence of wear, burrs, nicks, chips, scoring and other damage.
- (c) Replace damaged parts with new parts.

(3) Assembly:

- (a) Lubricate bushing bores in scissors frame.
- (b) Drive-in bushing(s) (1) with soft drift until face of bushing is flush with scissors frame (2).
- (c) Install scissors shafts. Refer to para 4-28.
- (d) Install scissors assembly. Refer to para 4-28.
- (e) Lubricate scissors assembly. Refer to para 3-6, Lubrication Instructions.
- (f) Perform operational check for proper function.

GO ON TO NEXT PAGE

b. SCISSORS ARM ROLLERS:**Figure 4-41. Scissors Arm Rollers.**

(1) Disassembly:

- (a) Remove nut(s) (1, Figure 4-41) and lockwashers (2) from damaged rollers (3, 4, 5 and 6).
- (b) Remove roller(s) (3, 4, 5 or 6) from scissors (7).

(2) Inspection:

- (a) Clean all parts with cleaning solvent and dry with a lint-free cloth.
- (b) Inspect rollers for evidence of wear, burrs, nicks, chips, scoring and other damage.
- (c) Replace damaged parts with new parts.

(3) Assembly:

- (a) Place roller(s) (3, 4, 5, or 6) in position on scissors (7).

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4-32. SCISSORS, SCISSORS ARM ROLLERS AND SHAFTS - REPAIR (Continued)

- (b) Install lockwasher(s) (2) and secure with nut(s) (1).
- (c) Lubricate roller(s) (3, 4, 5 or 6) with spray lubricant.
- (d) Operational check for proper function.

c. SCISSORS SHAFTS GREASE FITTINGS:

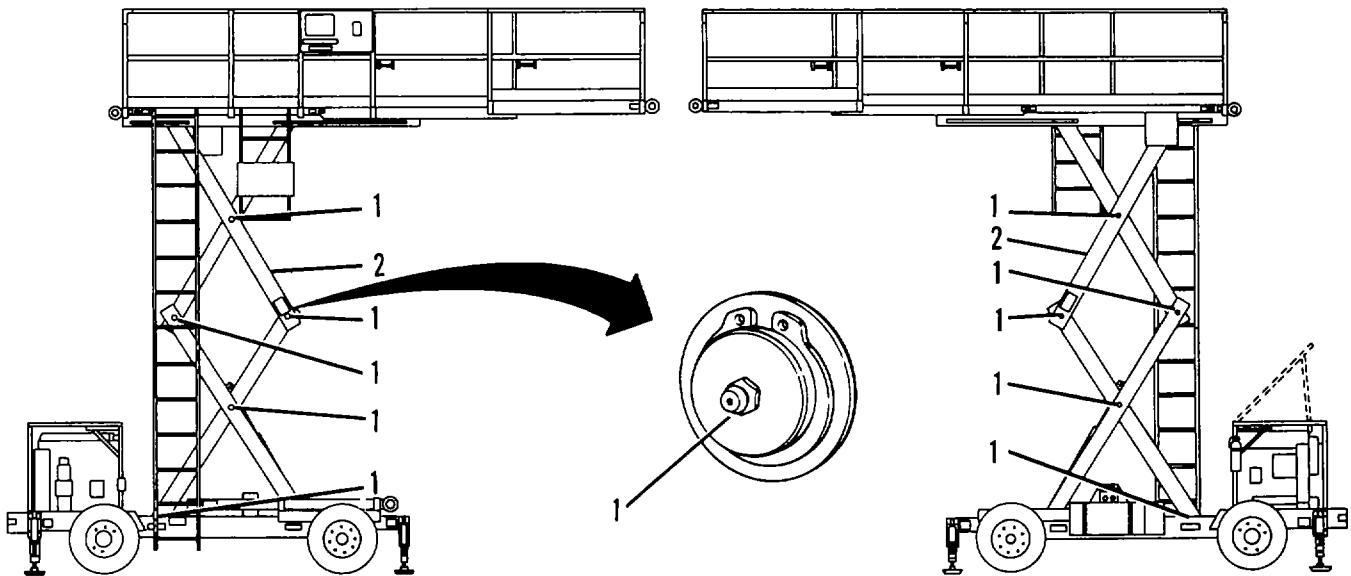


Figure 4-42. Scissors Shafts, Grease Fittings.

- (1) Disassembly: Remove grease fitting(s) (1, Figure 4-42) from scissors (2).
- (2) Assembly:
 - (a) Install grease fitting(s) (1) in scissors (2).
 - (b) Lubricate scissors shafts. Refer to para 3-6, Lubrication Instructions.

END OF TASK

4-33. ENGINE - REPLACE**4-33**

This task covers:

- a. Removal
- b. Installation

INITIAL SETUP:Special Tools/Test Equipment

Overhead Hoist and Slings

Equipment
Condition

<u>Para</u>	<u>Condition Description</u>
3-17	Battery ground cable disconnected.
3-47	Muffler removed.

Materials/Parts

Engine, Part Number FSN 2805-872-5972

Tools Required

Tool Kit, TI 5180-00-177-7033

Personnel Required

MOS 63W, 2 Mechanics

General Safety Instructions

Weight of engine is 265 lb (120 kg)
Be sure you use a hoist and slings
of suitable lifting capacity.

a. REMOVAL:

- (1) Remove two nuts (1, Figure 4-43), washers (2) and capscrews (3) securing hood (4) to brackets (5).
- (2) Remove hood (4).
- (3) Disconnect fuel hose (6) at fitting (7).
- (4) Remove screw (8), ground connector (9), washer (10) and nut (11).
- (5) Disconnect engine electrical connector (12).
- (6) Remove nut (13), washer (14) and positive cable (15).

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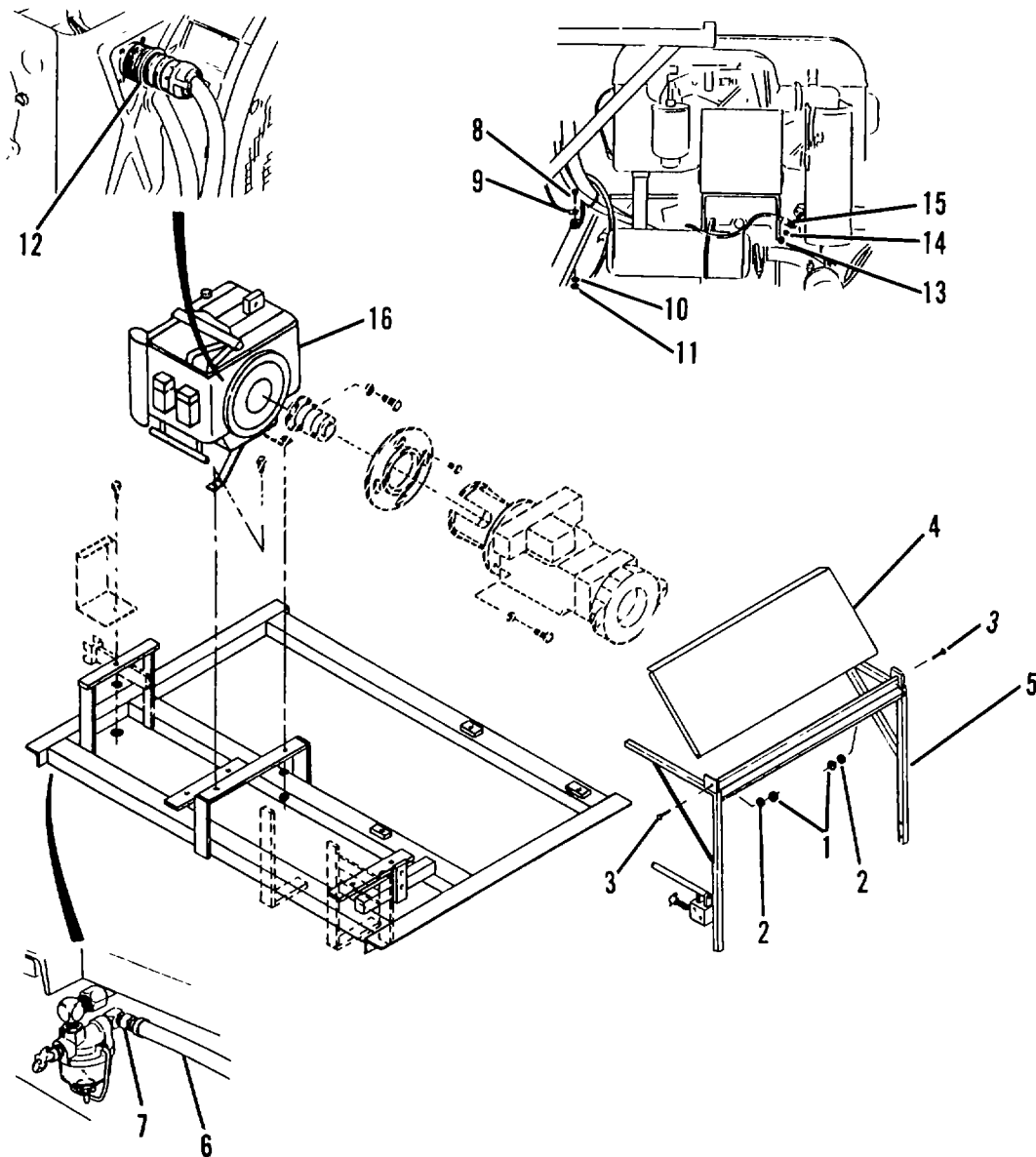


Figure 4-43. Engine Mounting.

WARNING

Weight of engine is 265 lb (120 kg). Be sure you use a hoist and slings of suitable lifting capacity.

- (7) Place hoist of suitable lifting capacity over engine (16).
- (8) Install slings.
- (9) Take slack out of slings.

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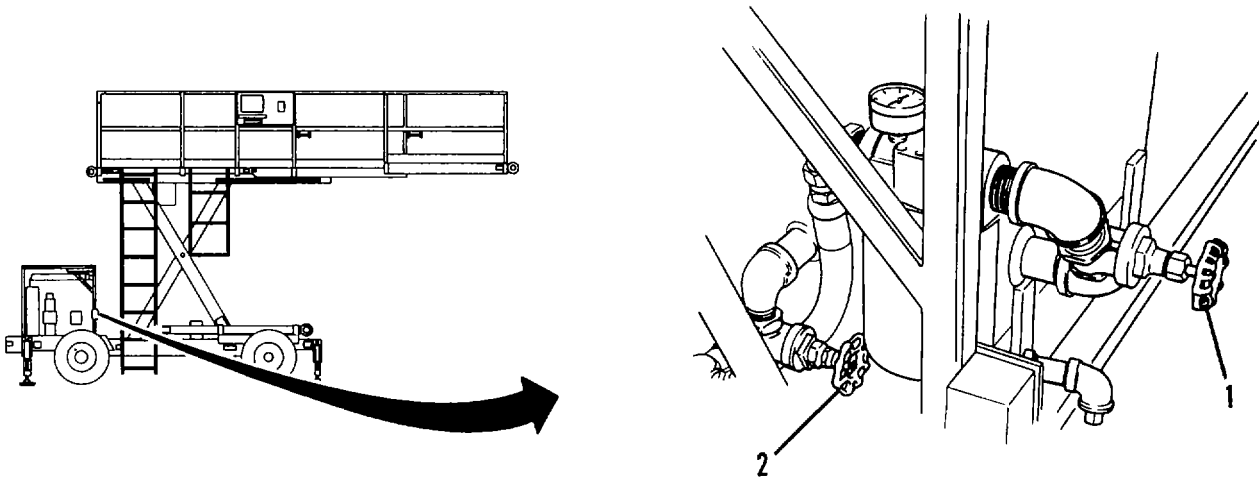


Figure 4-44. Gate Valves.

(10) Close suction gate valves (1 and 2, Figure 4-44) fully.

NOTE

Tie handle of emergency hand pump up and out of the way.

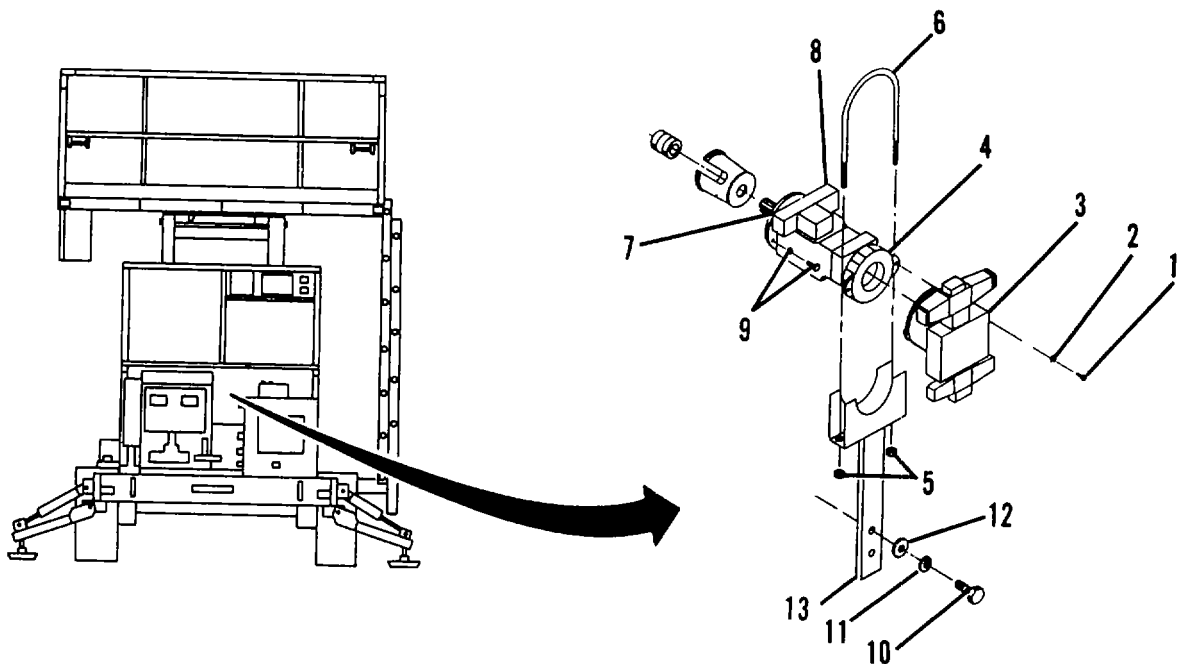
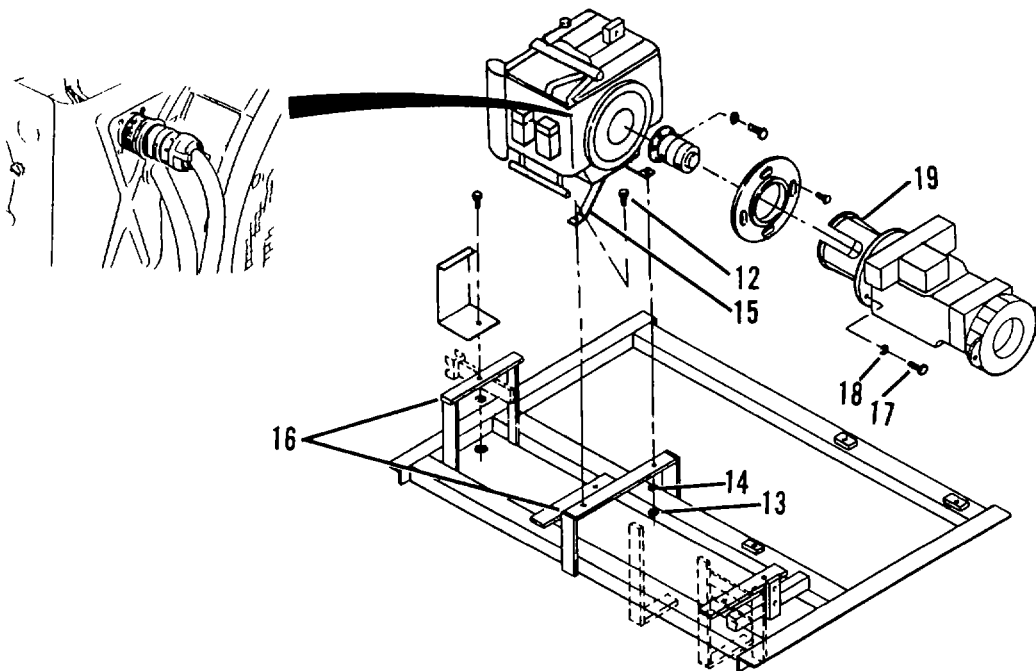


Figure 4-45. Transmission Mounting.

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4-33. ENGINE - REPLACE (Continued)**4-33**

- (11) Remove two capscrews (1, Figure 4-45) and washers (2) securing hydraulic pump manifold block assembly (3) to transmission (4).
- (12) Carefully lay manifold block assembly (3) to one side.
- (13) Remove nuts (5) on U-bolt (6). Remove U-bolt (6).
- (14) Tag seven hydraulic hoses to transmission for ease of identification during installation.
- (15) Remove seven hydraulic hoses from transmission. Plug hoses and ports to prevent foreign matter from entering system.
- (16) Tag the two transmission control solenoid connections (7 and 8) and remove screws securing the connectors.

**Figure 4-45.1. Engine Mounting.**

- (17) Remove three capscrews (12, Figure 4-45.1), nuts (13) and washers (14) securing engine mounts (15) to engine rack mounting brackets (16).
- (18) Lift engine and transmission vertically and remove to suitable work area.

NOTE

Install suitable sling and hoist around transmission for support.

- (19) Remove four capscrews (17) and lockwashers (18) securing transmission mount (19).
- (20) Set transmission on clean surface. Care must be taken so that spider coupling between transmission and engine draft coupling is not lost.

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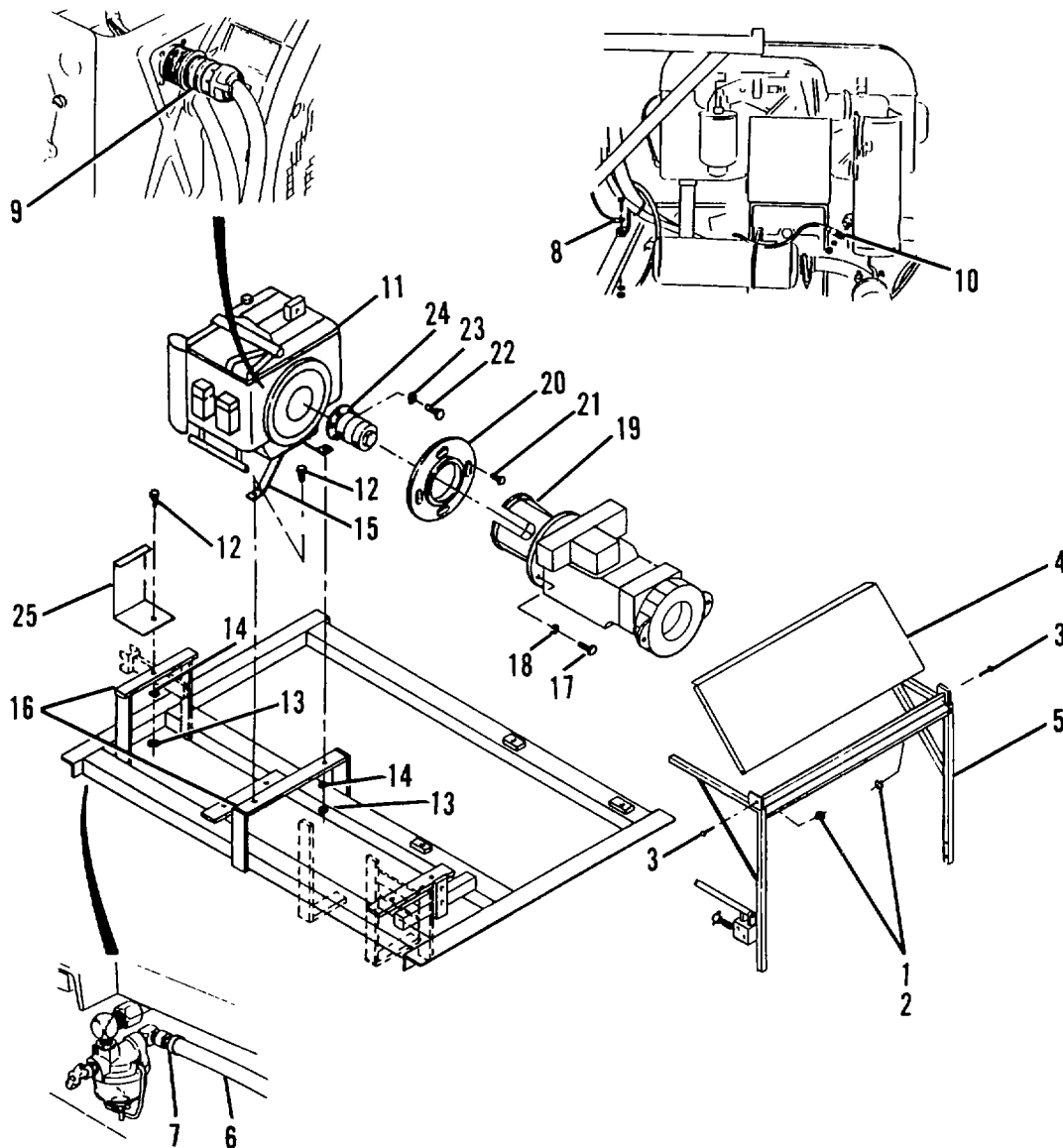


Figure 4-45.2. Engine Mounting.

(21) Remove eight socket head capscrews (21, Figure 4-45.2) and adapter plate (20).

(22) Remove six capscrews (22) and washers (23) from stub shaft (24).

(23) Remove stub shaft and coupling (24).

b. INSTALLATION:

(1) Position stub shaft and coupling (24) on engine (11) and secure with six capscrews (22) and washers (23).

(2) Position adapter plate (20) on engine (11) and secure with eight socket head capscrews (21).

GO ON TO NEXT PAGE

NOTE

Be sure spider between engine and transmission draft coupling is in position.

- (3) Position transmission and mount (19) on adapter plate (20), align drive adapters and secure with four capscrews (17) and lockwashers (18).
- (4) Remove slings and hoist from transmission.
- (5) Place hoist of suitable lifting capacity over engine (11). Install slings.
- (6) Place rope starter guard (25) on frame.
- (7) Carefully lower engine/transmission assembly on engine rack mounting brackets (16).

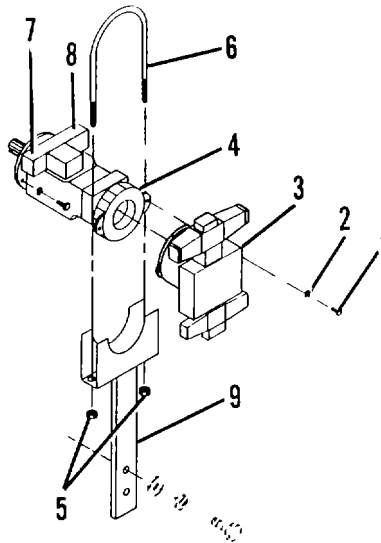


Figure 4-45.3. Transmission Mounting.

- (8) Secure engine (11) to mounting brackets (16) with three capscrews (12), washers (14) and nuts (13).
- (9) Remove slings and hoist.
- (10) Connect two transmission control solenoid connections (7 and 8, Figure 445.3) using the tags for identification. Secure connections with screws.
- (11) Remove plugs from transmission ports. Connect seven hydraulic hoses to transmission using the tags for identification.
- (12) Install u-bolt (6) around transmission (4) and into bracket (9).
- (13) Secure u-bolt (6) with two nuts (5).
- (14) Carefully position hydraulic pump/manifold block assembly (3) on end of transmission (4). Be sure drive shaft of hydraulic pump is fully engaged with transmission.
- (15) Secure hydraulic pump/manifold block assembly (3) with two capscrews (1) and washers (2).

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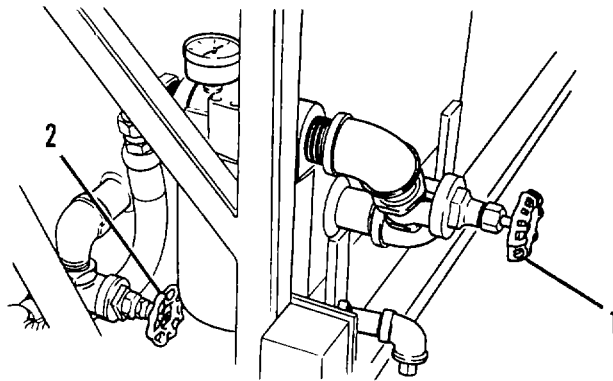


Figure 4-45.4. Gate Valves.

(16) Open suction gate valves (1 and 2, Figure 4-45.4) fully.

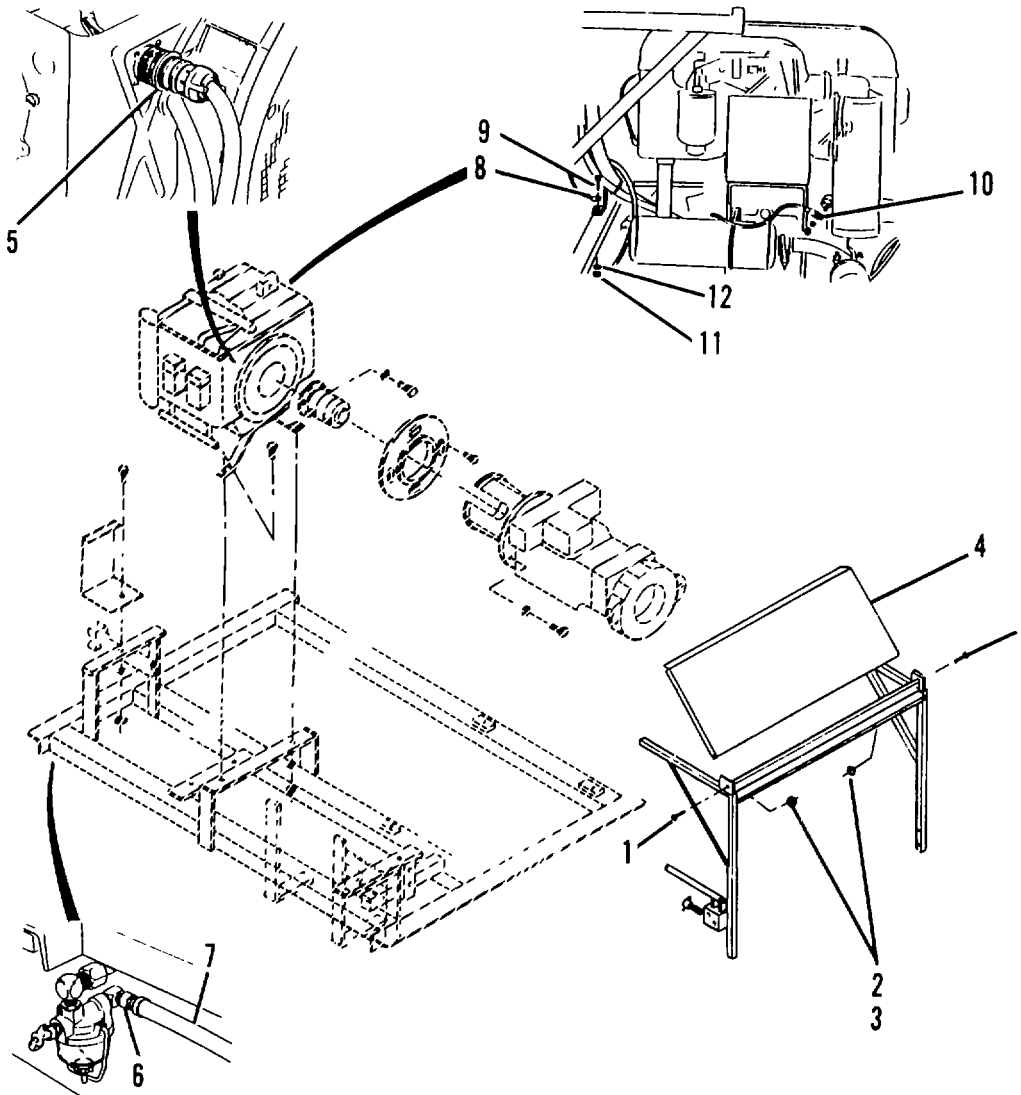


Figure 4-45.5. Engine Mounting.

(17) Connect positive cable (10, Figure 4-45.5) to starter terminal.

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4-33. ENGINE - REPLACE (Continued)

4-33

- (18) Place ground cable (8) in position and install capscrew (9), lockwasher (12) and nut (11).
- (19) Connect fuel line (7) to fitting (6).

CAUTION

Wipe up all traces of spilled fuel with a rag.

- (20) Install muffler. See para 3-47.
- (21) Plug in electrical connector (5) to engine.

NOTE

Be sure you screw the retaining ring all the way on.

- (22) Start engine to ensure proper operation.
- (23) With engine OFF, place hood (4) in position.
- (24) Install capscrews (1), washers (2) and nuts (3).

END OF TASK

4-34. ENGINE - REPAIR

4-34

Refer to TM5-2805-259-14 for engine repair procedures.

END OF TASK

4-35. STUB SHAFT AND COUPLING - REPLACE

4-35

This task covers:

- a. Removal
- b. Inspection
- c. Installation

INITIAL SETUP:

Equipment
Condition

<u>Para</u>	<u>Condition Description</u>
4-29	Engine removed.

Materials/Parts

Stub Shaft, Part Number 19094-1
Flexible Coupling, Part Number M693

4-18	Transmission removed.
------	-----------------------

Tools Required.

Tool Kits, TI 5180-00-177-7033

Personnel Required

MOS 63W, 1 Mechanic

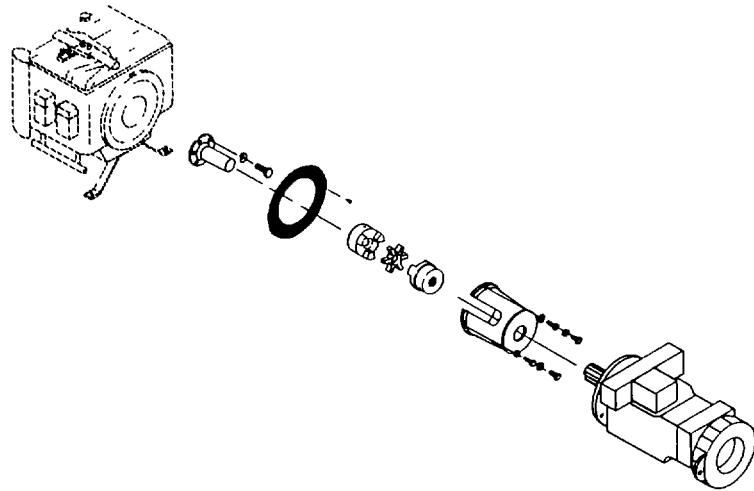


Figure 4-46. Stub Shaft and Coupling (Sheet 1 of 2).

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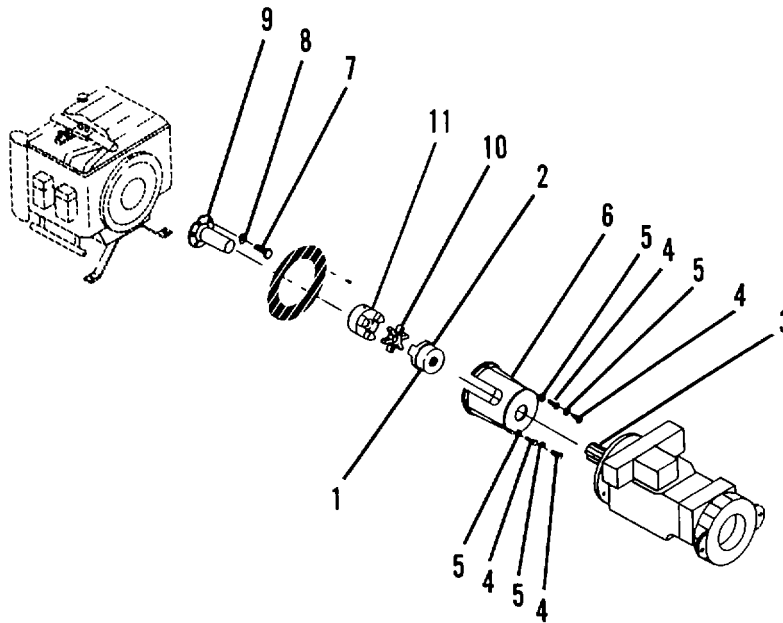


Figure 4-46. Stub Shaft and Coupling (Sheet 2 of 2).

a. REMOVAL:

- (1) Loosen setscrew (1, Figure 4-46) in coupling (2) on the transmission side.
- (2) Slide coupling (2) off the transmission input shaft (3).
- (3) Remove capscrews (4) and washers (5) securing guard (6) and remove guard (6).
- (4) Remove capscrews (7) and washers (8) securing stub shaft (9) and remove stub shaft (9).
- (5) Separate coupling (10) and coupling (11).

b. INSPECTION:

- (1) Examine stub shaft (9) for missing teeth, nicks, deep scratches, evidence of misalignment or other damage. Replace if necessary.
- (2) Examine the flexible coupling (10) for damage to metal parts. Check the urethane spider. If it is damaged, it must be replaced. If the spider is damaged, examine the metal areas where it makes contact. If the spider is so badly damaged that the damage extends to the metal areas, the entire coupling must be replaced.

c. INSTALLATION:

- (1) Install stub shaft (9) and secure with capscrews (7) and washers (8).

GO ON TO NEXT PAGE

- (2) Install guard (6) and secure with four capscrews (4) and washers (5).
- (3) Slide flexible coupling (2) into position.

NOTE

Keyway should be aligned with setscrew.

- (4) Tighten setscrew (1) on engine stub shaft side.
- (5) Install transmission. See para 4-18.
- (6) Perform operational check for proper function.

END OF TASK

APPENDIX A

REFERENCES

A-1. DICTIONARIES OF TEILS AND ABBREVIATIONS.

AR 310-25 Dictionary of United States Army Terms
 AR 310-50 Authorized Abbreviations and Brevity Codes

A-2. PUBLICATION INDEXES.

DA PAM 310-1..... Consolidated Index of Army Publications and Blank
 Forms

A-3. LOGISTICS AND STORAGE.

TM 740-90-1 Administrative Storage of Equipment
 TM 743-200-1 Storage and Materials Handling

A-4. MAINTENANCE OF SUPPLIES AND EQUIPMENT.

AR 750-1 Army Material Maintenance Concepts and Policies
 DA PAM 738-751 The Army Maintenance Management System-Aviation
 (TAMMS-A)
 TM 55-1500-204-25/1..... Painting Operations Instructions for Field Use

A-5. OTHER PUBLICATIONS.

AR 420-90 Fire Prevention and Protection
 AR 55-38 Reporting of Transportation Discrepancies in Shipments
 AR 700-58 Packaging Improvement Report
 FM-21-11 First Aid for Soldiers
 TM 43-180 Calibration Requirements for the Maintenance of
 of Army Materiel
 TM 750-244-1-4 Procedures for the Destruction of Aviation
 Ground Support Equipment (FSC 1730) to Prevent
 Enemy Use

APPENDIX B**MAINTENANCE ALLOCATION CHART****SECTION I. INTRODUCTION****B-1. GENERAL.**

- a. This section provides a general explanation of all maintenance and repair functions authorized at various maintenance categories.
- b. The Maintenance Allocation Chart (MAC) in section II designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component will be consistent with the capacities and capabilities of the designated maintenance categories.
- c. Section III lists the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from section II.
- d. Section IV contains supplemental instructions and explanatory notes for a particular maintenance function.

B-2. MAINTENANCE FUNCTIONS. Maintenance functions will be limited to and defined as follows:

- a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel).
- b. Test. To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards.
- c. Service. Operations required periodically to keep an item in proper operating condition, i.e., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases.
- d. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.
- e. Aline. To adjust specified variable elements of an item to bring about optimum or desired performance.

- f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test, measuring, and diagnostic equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.
- g. Remove/Install. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.
- h. Replace. To remove an unserviceable item and install a serviceable counterpart in its place "Replace" is authorized by the MAC and is shown as the 3d position code of the SMR code.
- j. Repair. The application of maintenance services, including fault location/troubleshooting, removal/installation, and disassembly/assembly procedures, and maintenance actions to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.
- k. Overhaul. That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational conditions as required by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.
- l. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles, etc.) considered in classifying Army equipment/components.

B-3. EXPLANATION OF COLUWIS IN THE MAC, SECTION II.

- a. Column 1, Group Number. Column 1 lists functional group code numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the next higher assembly. End item group number shall be "00."
- b. Column 2, Component/Assembly. Column 2 contains the names of components assemblies, subassemblies, and modules for which maintenance is authorized.
- c. Column 3, Maintenance Function. Column 3 lists the functions to be performed on the item listed in Column 2. (For detailed explanation of these functions, see paragraph B-2).

- d. Column 4, Maintenance Category. Column 4 specifies, by the listing of a work time figure in the appropriate subcolumn(s), the category of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate work time figures will be shown for each category. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. The symbol designations for the various maintenance categories are as follows:

C	Operator or Crew
O	Organizational Maintenance
F	Direct Support Maintenance
D	Depot Maintenance

- e. Column 5, Tools and Equipment. Column 5 specifies, by code, those common tool sets (not individual tools) and special tools, TMDE, and support equipment required to perform the designated function.
- f. Column 6, Remarks. This column shall, when applicable, contain a letter code, in alphabetic order, which shall be keyed to the remarks contained in Section IV.

B-4. EXPLANATION OF COLUMNS IN TOOL AND TEST EQUIPMENT REQUIREMENTS, SECTION III.

- a. Column 1, Reference Code. The tool and test equipment reference code correlates with a code used in the MAC, Section II, Column 5.
- b. Column 2, Maintenance Category. The lowest category of maintenance authorized to use the tool. The "O" code corresponds to Organizational Maintenance and the "F" code corresponds to Direct Support Maintenance.
- c. Column 3, Nomenclature. Name or identification of the tool.
- d. Column 4, National Stock Number. The National Stock Number of the tool.

B-5. EXPLANATION OF COLUMNS IN REMARKS, SECTION IV.

- a. Column 1, Reference Code. The code recorded in Column 6, Section II.
- b. Column 2, Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC, Section II.

SECTION II. MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
00	SPEMS								
01	ELECTRICAL SYSTEM								
0101	Battery	Service Replace	0.25	0.5				1,2 1,2	
0102	Battery Cables	Inspect Replace	0.1	0.5				1,2	
0103	Wiring	Inspect Replace	0.25					1,2	
0104	Control Boxes	Repair Inspect Replace		1.25 0.75 0.25		0.5 1.0		1,2 1,2 1,3	A
0105	Limit Switches/Toggle Switches	Adjust Replace		0.3 0.3				1,2 1,2	B
0106	Junction Boxes	Inspect Adjust Repair			0.25 0.5 2.0			1,3 1,3	C
0107	Lights	Inspect Replace Repair	0.1	0.25 0.5				1,2 1,2	
0108	Horn	Inspect Replace	0.1	0.5				1,2	
02	DRIVE SYSTEM								
0201	Hydraulic Motor, Brake & Drive Hub Assembly	Inspect Service Replace Repair		0.5 0.75 1.3		2.5		1,2 1,2 1,3	
03	HYDRAULIC SYSTEM								
0301	Reservoir	Service Repair	0.25		1.0			1,3	D
0302	Hoses & Fittings	Inspect Replace	0.25	0.4				1,2	

MAINTENANCE ALLOCATION CHART - Continued

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
03	HYDRAULIC SYSTEM CONTINUED								
0303	Suction & Inlet Filters	Inspect Replace	0.10	0.3				1,2	
0304	Solenoid Valves/Cartridges	Inspect Replace Repair	0.1	0.5 0.5				1,2 1,2 1,2	
0305	Directional Control Valves	Inspect Replace Repair	0.1	1.0	0.5			1,2 1,2	
0306	Lift Cylinders	Inspect Replace Repair	0.1	2.0	2.0			1,2 1,3	
0307	Stabilizer Cylinders	Inspect Replace Repair	0.1	0.5	1.0			1,2 1,3	
0308	Steering Cylinder	Inspect Replace Repair	0.1	1.0	1.0			1,2 1,3	
0309	Traverse Cylinder	Inspect Replace Repair	0.1	0.5	1.0			1,2 1,3	
0310	Transmission	Inspect Replace	0.1	1.5				1,2	
0311	Transmission Oil Cooler	Inspect Replace	0.1	0.5				1,3	
0312	Hydraulic Pump	Inspect Replace Repair	0.1	1.0	1.0			1,2 1,3	
0313	Hand Pump	Inspect Replace	0.1	0.5				1,2	

MAINTENANCE ALLOCATION CHART - Continued

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
04	CHASSIS								
0401	Tire/Wheel Assemblies	Inspect Service Replace Repair	0.1 0.1 0.5		1.0			1,2 1,2 1,3	
0402	Steering Wheel Hubs & Bearings	Inspect Service Repair	0.5	0.75	1.5			1,2 1,3 E	
0403	Guard Rails	Inspect Replace	0.25	1.0				1,2	
0404	Towing Assembly/Tow Bar	Inspect Replace	0.25	1.0				1,2	
0405	Steering Assembly	Inspect Replace	0.25		2.5			1,3	
0406	Stabilizers	Inspect Replace	0.1		0.75			1,3	
0407	Platform/Ladder & Deck Extensions	Inspect Replace Repair	0.25		3.5 2.0			1,3 1,3 F	
0408	Scissors, Arm Rollers & Shafts	Inspect Replace Repair	0.25		3.5 2.0			1,3 1,3 G	
0409	Fuel Tank	Inspect Replace Repair	0.1	0.5	0.5			1,2 1,2 H	
05	POWER SYSTEM								
0501	Engine	Inspect Service Adjust Replace Repair	0.1 0.25	1.5	1.0 2.0			1,2 1,2 1,3 1,3 I I I I	

MAINTENANCE ALLOCATION CHART - Continued

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
05	POWER SYSTEM CONTINUED								
0502	Stub Shaft and Coupling	Inspect Replace	0 1	1.5				1,3	
0503	Muffler	Inspect Replace	0.1	0.5				1,2	

SECTION III TOOL AND TEST EQUIPMENT REQUIREMENTS

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/ NATO STOCK NUMBER	TOOL NUMBER
1	C, O	TOOL KIT, GENERAL MECHANIC'S. Automotive General Purpose Tool Kit	5180-00-177-7033	
2	O	SHOP EQUIPMENT, AUTOMOTIVE MAINTENANCE AND REPAIR' Organizational Maintenance, Common No 1, Less Power, General Purpose Tool Kit	4910-00-754-0654	
3	F	TOOL KIT, ELECTRICIANS	5180-00-545-8645	

SECTION IV. REMARKS

REFENCE CODE	REMARKS
A	Repair by replacing wire and connectors.
B	Repair by replacing toggle switches and control lever.
C	Repair by replacing relays and circuit board.
D	Repair by replacing fill cap.
E	Repair by replacing bearings, races and lugs
F	Repair by replacing rollers and bumpers.
G	Repair by replacing rollers and pins
H	Repair by replacing fuel gage and fittings
I	Refer to TM 5-2805-259-14.

APPENDIX C

REPAIR PARTS AND SPECIAL TOOLS LIST

SECTION I. INTRODUCTION

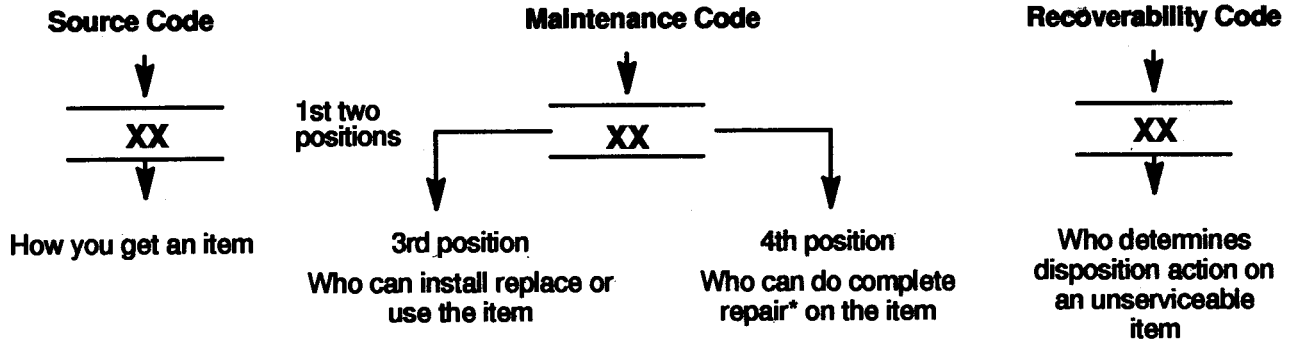
C-1. Scope. This RPSTL lists and authorizes spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of Organizational and Direct Support maintenance of the Self Propelled Elevated Maintenance Stand. It authorizes the requisitioning, issue, and disposition of spares, repair parts and special tools as indicated by the source, maintenance and recoverability (SMR) codes.

C-2. General. In addition to Section I, Introduction, this Repair Parts and Special Tools List is divided into the following sections

- a. *Section II. Repair Parts List.* A list of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. The list also includes parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending alphanumeric sequence, with the parts in each group listed in ascending figure and item number sequence. Bulk materials are listed in item name sequence. Repair parts kits are listed separately in their own functional group within Section II. Repair parts for repairable special tools are also listed in this section. Items listed are shown on the associated illustration(s)/figure(s)
- b. *Section III. Special Tools List.* A list of special tools, special TMDE, and other special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in DESCRIPTION AND USABLE ON CODE column) for the performance of maintenance. (Not applicable)
- c. *Section IV. National Stock Number and Part Number Index.* A list, in National Item Identification Number (NIIN) sequence, of all National stock numbered items appearing in the listing, followed by a list in alphanumeric sequence of all part numbers appearing in the listings. National stock numbers and part numbers are cross-referenced to each illustration figure and item number appearance.

C-3. Explanation of Columns (Sections II and III).

- a. *Item No. (Column (1))* Indicates the number used to identify items called out in the illustration.
- b. *SMR Code (Column (2)).* The Source, Maintenance, and Recoverability (SMR) code is a 5-position code containing supply/requisitioning information, maintenance category authorization criteria, and disposition instruction, as shown in the following breakout:



* Complete Repair: Maintenance capacity, capability, and authority to perform all corrective maintenance tasks of the "Repair" function in a use/user environment in order to restore serviceability to a failed item

(1) *Source Code.* The source code tells you how to get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source codes follows:

Explanation

PA
 PB
 PC**
 PD
 PE
 PF
 PG

Stocked items; use the applicable NSN to request/requisition items with these source codes. They are authorized to the category indicated by the code entered in the 3d position of the SMR code.

**NOTE: Items coded PC are subject to deterioration.

KD
 KF
 KB

Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance category indicated in the 3d position of the SMR code. The complete kit must be requisitioned and applied.

Code

MO--(Made at org. AVUM Level
 MF--(Made at DS/ AVUM Level
 MH--(Made at GS Level)
 ML--Made at Specialized Repair Activity (SRA)
 MD--(Made at Depot)

Explanation

Items with these codes are not to be requested/requisitioned individually They must be made from bulk material which is identified by the part number in the DESCRIPTION AND USABLE ON CODE (UOC) column and listed in the Bulk Material group of the repair parts list in this RPSTL. If the item is authorized to you by the 3d position code of the SMR code, but the source code indicates It is made at a higher level, order the item from the higher level of maintenance.

Code

Explanation

AO--(Assembled by
org/AVUM Level)
AF--(Assembled by
DS/AVIM Level)
AH--(Assembled by
GS Category)
AL--(Assembled by
SRA)
AD--(Assembled by
Depot)

Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the level of maintenance indicated by the source code. If the 3d position code of the SMR code authorizes you to replace the item, but the source code indicates the item is assembled at a higher level, order the item from the higher level of maintenance.

- XA - Do not requisition an "XA"-coded item. Order its next higher assembly. (Also, refer to the NOTE below.)
- XB - If an "XB" item is not available from salvage, order it using the FSCM and part number given.
- XC - Installation drawing, diagram, Instruction sheet, field service drawing, that is identified by manufacturer's part number.
- XD - Item is not stocked. Order an "XD"-coded item through normal supply channels using the FSCM and part number given, if no NSN is available.

NOTE

Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes, except for those source coded "XA" or those aircraft support items restricted by requirements of AR 700-42.

- (2) *Maintenance Code.* Maintenance codes tell you the level(s) of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and fourth positions of the SMR Code as follows:
 - (a) The maintenance code entered in the third position tells you the lowest maintenance level authorized to remove, replace, and use an item. The maintenance code entered in the third position will indicate authorization to one of the following levels of maintenance:

Code

Application/Explanation

- C -Crew or operator maintenance done within organizational or aviation unit maintenance
- O -Organizational or aviation unit category can remove, replace, and use the item.
- F -Direct support or aviation intermediate level can remove, replace, and use the item
- H -General support level can remove, replace, and use the item.
- L -Specialized repair activity can remove, replace, and use the item.
- D -Depot level can remove, replace, and use the item.

- (b) The maintenance code entered in the fourth position tells whether or not the item is to be repaired and identifies the lowest maintenance level with the capability to do complete repair (i.e., perform all authorized repair functions.) (NOTE: Some limited repair may be done on the item at a lower level of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes.) This position will contain one of the following maintenance codes.

Code	Application/Explanation
O	-Organizational or (aviation unit) is the lowest level that can do complete repair of the item.
F	-Direct support or aviation Intermediate is the lowest level that can do complete repair of the item.
H	-General support is the lowest level that can do complete repair of the item.
L	-Specialized repair activity (designate the specialized repair activity) is the lowest level that can do complete repair of the item.
D	-Depot is the lowest level that can do complete repair of the item.
Z	-Nonreparable. No repair is authorized.
B	-No repair is authorized. (No parts or special tools are authorized for the maintenance of a "B" coded item) However, the item may be reconditioned by adjusting, lubricating, etc., at the user level.

(3) Recoverability Code. Recoverability codes are assigned to items to indicate the disposition action on unserviceable items. The recoverability code is entered in the fifth position of the SMR Code as follows:

Recoverability Codes	Application/Explanation
Z	-Nonreparable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in 3d position of SMR Code
O	-Reparable item When uneconomically reparable, condemn and dispose of the item at organizational or aviation unit level.
F	-Reparable item. When uneconomically reparable, condemn and dispose of the item at the direct support or aviation intermediate level.
H	-Reparable item. When uneconomically reparable, condemn and dispose of the item at the general support level.
D	-Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item not authorized below depot level.
L	-Reparable item. Condemnation and disposal not authorized below specialized repair activity (SRA).
A	-Item requires special handling or condemnation procedures because of specific reasons (e.g., precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

c. FSCM (Column 3). The Federal Supply Code for Manufacturer (FSCM) is a 5-digit numeric code which is used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

d. Part Number (Column (4)). Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specification standards, and inspection requirements to identify an item or range of items.

NOTE

When you use a NSN to requisition an item, the item you receive may have a different part number from the part ordered

e. Description and Usable On Code (UOC) (Column (5)). This column includes the following information:

- (1) The Federal item name and, when required, a minimum description to identify the item.
- (2) The physical security classification of the item is indicated by the parenthetical entry (insert applicable physical security classification abbreviation, e.g., Phy Sec C1 (C)-Confidential, Phy Sec C1 (S) Secret, Phy Sec C1 (T)-Top Secret).
- (3) Items that are included in kits and sets are listed below the name of the kit or set.
- (4) Spare/repair parts that make up an assembled item are listed immediately following the assembled item line entry
- (5) Part numbers for bulk materials are referenced in this column in the line item entry for the item to be manufactured/fabricated,
- (6) When the item is not used with all serial numbers of the same model, the effective serial numbers are shown on the last line(s) of the description (before UOC).
- (7) The usable on code, when applicable (see paragraph 5, Special information).
- (8) In the Special Tools List section, the basis of issue (BOI) appears as the last line(s) in the entry for each special tool, special TMDE, and other special support equipment. When density of equipments supported exceeds density spread indicated in the basis of issue, the total authorization is increased proportionately.
- (9) The statement "END OF FIGURE" appears just below the last item description in Column 5 for a given figure in both Section II and Section III.

f. QTY (Column (6)). The QTY (quantity per figure column) indicates the quantity of the item used in the breakout shown on the illustration figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column in lieu of a quantity indicates that the quantity is variable and the quantity may vary from application to application.

C-4. Explanation of Columns (Sect. IV).

a. National Stock Number (NSN) Index.

(1) Stock Number Column. This column lists the NSN by National item identification number (NIIN) sequence. The NIIN consists of the last nine digits of the NSN (i.e., $\frac{\text{NSN}}{\text{NIIN}}$ 5305-01-674-1467). When using this column to locate an item, ignore the first 4 digits of the NSN. However, the complete NSN should be used when ordering items by stock number.

(2) Fig. Column. This column lists the number of the figure where the item is identified /located. The figures are in numerical order in Section II and Section III.

(3) Item Column. The Item number identifies the item associated with the figure listed in the adjacent FIG. column. This item is also identified by the NSN listed on the same line.

b. Part Number Index. Part numbers in this index are listed by part number in ascending alphanumeric sequence (i.e., vertical arrangement of letter and number combination which places the first letter or digit of each group in order A through Z, followed by the numbers 0 through 9 and each following letter or digit in like order).

(1) FSCM Column. The Federal Supply Code for Manufacturer (FSCM) is a 5-digit numeric code used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

(2) Part Number Column. Indicates the primary number used by the manufacturer (individual, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications standards, and inspection requirements to identify an item or range of Items.

(3) Stock Number Column. This column lists the NSN for the associated part number and manufacturer identified in the Part Number and FSCM Columns to the left.

(4) FIG. Column. This column lists the number of the figure where the item is identified/located in Section II and III.

(5) Item Column. The item number is that number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

C-5. Special Information. Use the following subparagraphs as applicable:

a. Usable On Code. Not applicable.

b. Index Numbers. Items which have the word BULK in the figure column will have an index number shown in the item number column. This index number is a cross-reference between the National Stock Number/Part Number Index and the bulk material list in Section II.

c. Associated Publications. Not applicable.

C-6. How to Locate Repair Parts.

a. When National Stock Number or Part Number is Not Known.

(1) First. Using the table of contents, determine the assembly group or subassembly group to which the item belongs. This is necessary since figures are prepared for assembly groups and subassembly groups, and listings are divided into the same groups.

(2) Second. Find the figure covering the assembly group or subassembly group to which the item belongs.

(3) Third. Identify the item on the figure and note the item number.

(4) Fourth. Refer to the Repair Parts List for the figure to find the part number for the item number noted on the figure.

(5) Fifth. Refer to the Part Number Index to find the NSN, if assigned.

b. *When National Stock Number or Part Number is Known:*

- (1) *First.* Using the Index of National Stock Numbers and Part Numbers, find the pertinent National Stock Number or Part Number. The NSN index is in National Item Identification Number (NIIN) sequence (see C-4.a(1)). The part numbers in the Part Number index are listed in ascending alphanumeric sequence (see 4.b). Both indexes cross-reference you to the illustration figure and item number of the item you are looking for.
- (2) *Second.* After finding the figure and item number, verify that the item is the one you're looking for, then locate the item number in the repair parts list for the figure.

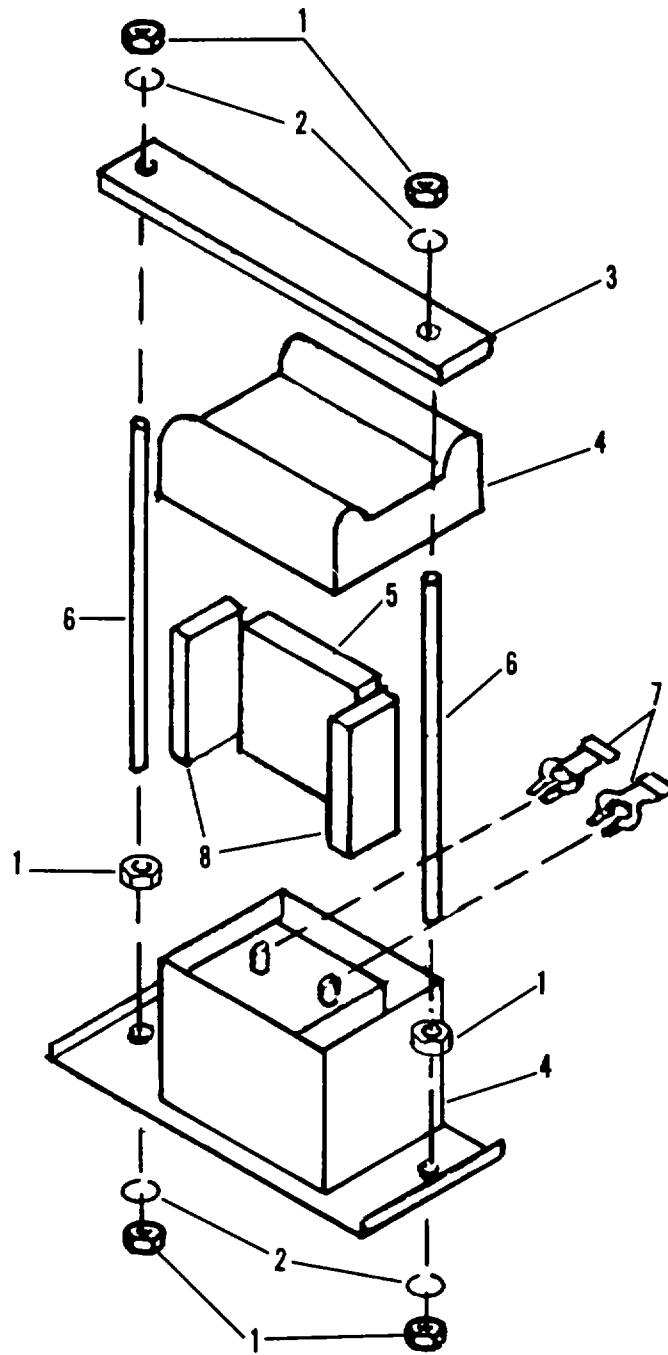


Figure C-1. Battery.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
GROUP 01. ELECTRICAL SYSTEM					
FIGURE C-1. BATTERY					
1	PAOZZ	96906	MS35649-2382	NUT, PLAIN, HEXAGON	8
2	PAOZZ	96906	MS35338-46	WASHER, LOCK.....	12
3	PAOZZ	51548	A19198-1	RETAINER, BATTERY	1
4	PAOZZ	51548	A19199-1	BATTERY BOX	1
5	MOOZZ	51548	X41002-010	RUBBER, FOAM.....	1
6	MFOZZ	51548	X35004-012.000	ROD THREADED.....	2
7	PAOZZ	33609	BTSD2/0	TERMINAL, LUG	2
8	MOOZZ	51548	X41002-011	RUBBER, FOAM	2

END OF FIGURE

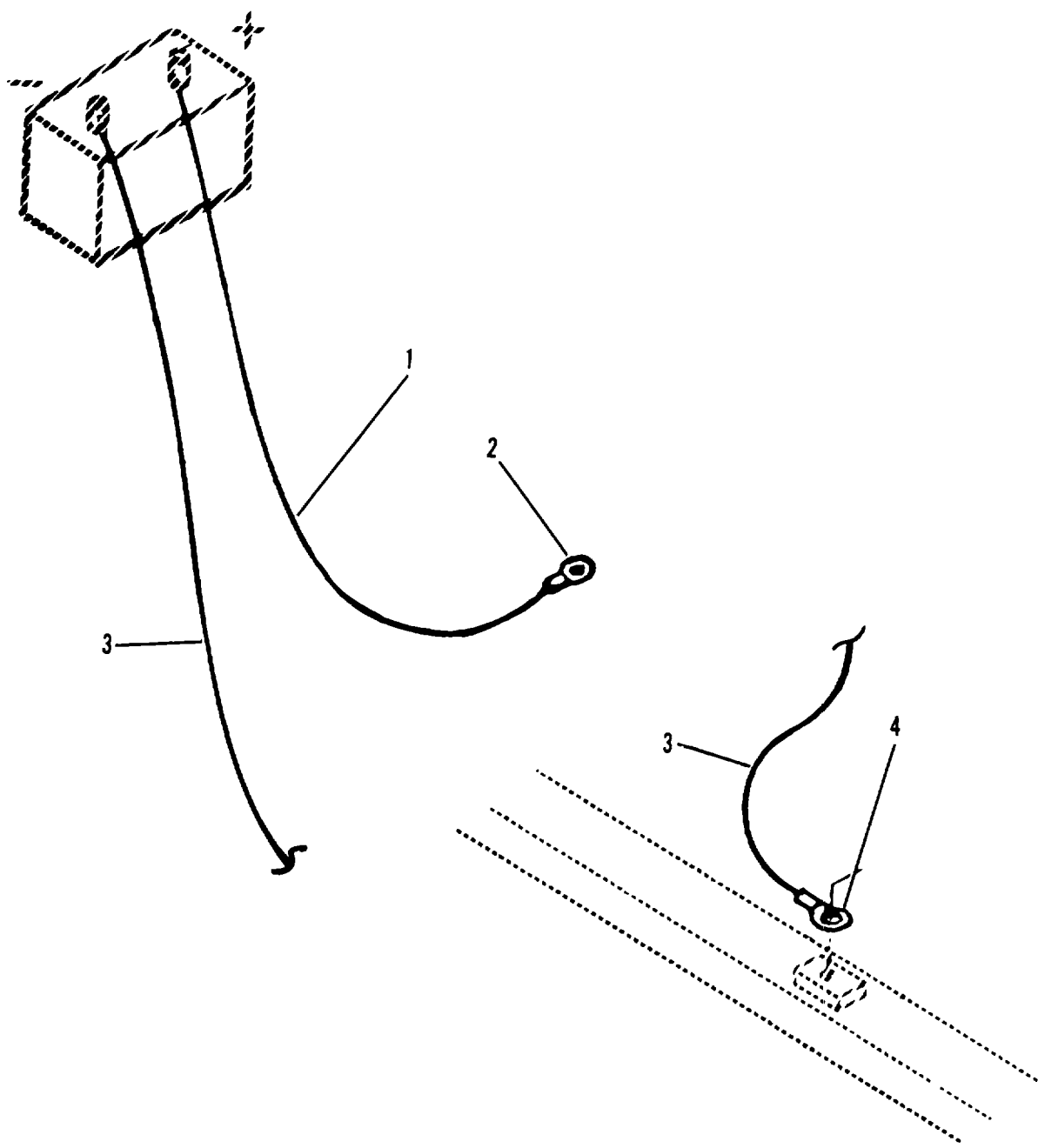


Figure C-2. Battery Cables.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
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FIGURE C-2. BATTERY CABLES

1	PAOZZ	79277	BRONCO66WELDINGC ABLESIZEN08	WIRE, ELECTRICAL.....	1
2	PAOZZ	51548	EBR0856	CLIP, ELECTRICAL.....	1
3	PAOZZ	79277	BRONCO66WELDINGC ABLESIZEN08	WIRE, ELECTRICAL.....	1
4	PAOZZ	51548	EBR0838	CLIP, ELECTRICAL.....	1

END OF FIGURE

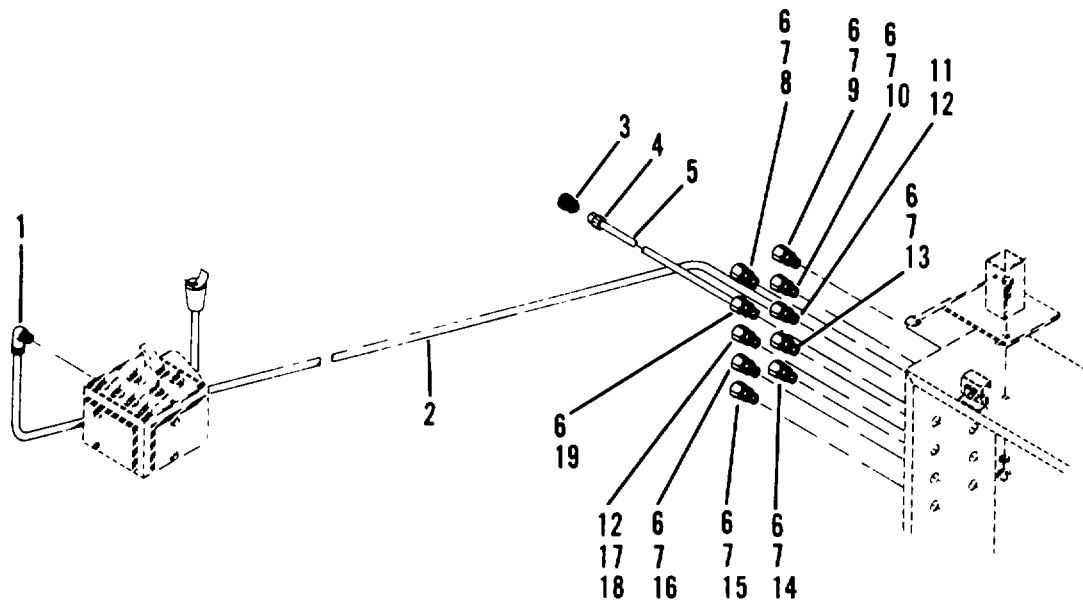


Figure C-3. Wiring (Sheet 1 of 2).

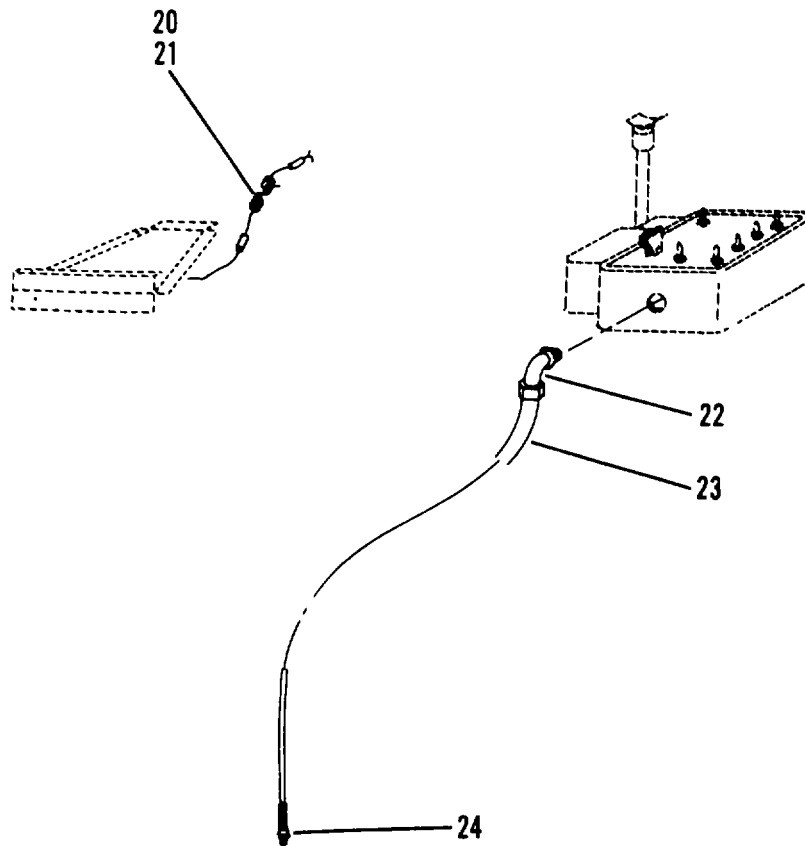


Figure C-3. Wiring (Sheet 2 of 2).

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
	PAOZZ	22421	2250	BOX CONNECTOR, ELECT.....	1
2	PAOZZ	51548	W1619UL	CABLE, POWER, ELECTRI.....	1
3	PAOZZ	96906	MS3106A18-1P	CONNECTOR, PLUG, ELEC.....	1
4	PAOZZ	81349	M85049/1-108	CLAMP, CABLE, ELECTRI.....	1
5	PAOZZ	51548	W1610	CABLE, POWER, ELECTRI.....	1
6	PAOZZ	03743	BL50	LOCKNUT, ELECTRICAL.....	8
7	PAOZZ	5973G	2521	BOX CONNECTOR, ELECT.....	7
8	PAOZZ	51548	W1602-0060	CABLE, POKER, ELECTRI.....	1
9	PAOZZ	81348	J-C-580SJ03CK3/1 6SRNJ	CABLE, POWER, ELECTRI.....	1
10	PAOZZ	51548	W1602-0065	CABLE, POWER, ELECTRI.....	1
11	PAOZZ	59730	2534	BOX CONNECTOR, ELECT.....	1
12	PAOZZ	03743	BL75	LOCKNUT, ELECTRICAL.....	2
13	PAOZZ	51548	W1602-0192	CABLE, POWER, ELECTRI.....	1
14	PAOZZ	81348	J-C-580SJ03CK3/1 6SRNJ	CABLE, POWER, ELECTRI.....	1
15	PAOZZ	51548	W16GN	WIRE, ELECTRICAL.....	12
16	PAOZZ	51548	W1602-0174	CABLE, POWER, ELECTRI.....	1
17	PAOZZ	15235	CG8296	BOX CONNECTOR, ELECT.....	1
18	PAOZZ	51548	W1624UL	CABLE, POWER, ELECTRI.....	1
19	PAOZZ	15235	CGB194	BOX CONNECTOR, ELECT.....	1
20	XDOZZ	09079	FIT-700-21	TUBING, SHRINK.....	36
21	PAOZZ	81348	J-C-580SJ03CK3/1 6SRNJ	CABLE, POWER, ELECTRI.....	6
22	PAOZZ	22421	2250	BOX CONNECTOR, ELECT.....	1
23	PAOZZ	81992	074-01-018	GRIP, CORD.....	1
24	PAOZZ	51548	W1619UL	CABLE, POWER, ELECTRI.....	1

FIGURE C-3. WIRING

END OF FIGURE

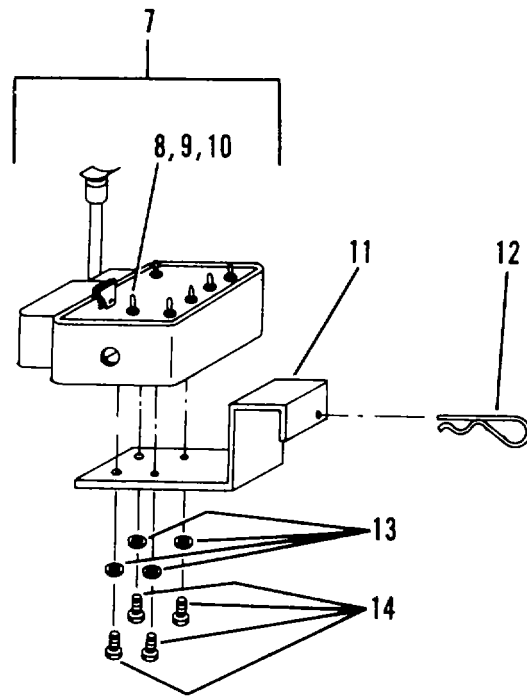
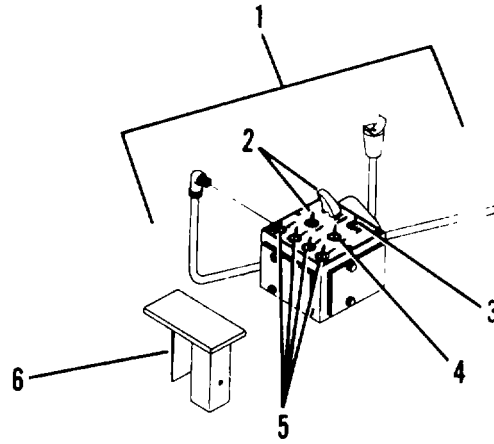


Figure C-4. Control Boxes.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
1	XDFFF	62246	200-52	CONTROLLER, BASE.....	1
2	PAFZZ	96906	MS24523-22	.SWITCH, TOGGLE	2
3	PAFZZ	96906	MS24523-23	.SWITCH, TOGGLE	1
4	PAFZZ	96906	MS274C7-2	.SWITCH, TOGGLE	1
5	PAFZZ	96906	MS24524-26	.SWITCH, TOGGLE	4
6	XDOZZ	51548	B18967GA	BRACKET, MTG	1
7	XDFFF	62246	200-51	CONTROLLER PLATFORM.....	1
8	PAFZZ	96906	MS24524-26	.SWITCH, TOGGLE	4
9	PAFZZ	96906	MS24523-22	.SWITCH, TOGGLE	2
10	PAFZZ	96906	MS24523-30	.SWITCH, TOGGLE	1
11	XDFZZ	51548	B18151-1	BRACKET, MTG	1
12	PAOZZ	96652	21-06	PIN.....	1
13	PAOZZ	96906	MS35338-43	WASHER, LOCK.....	4
14	PAOZZ	96906	MS90728-3	SCREW, CAP, HEXAGON H.....	4

FIGURE C-4. CONTROL BOXES

END OF FIGURE

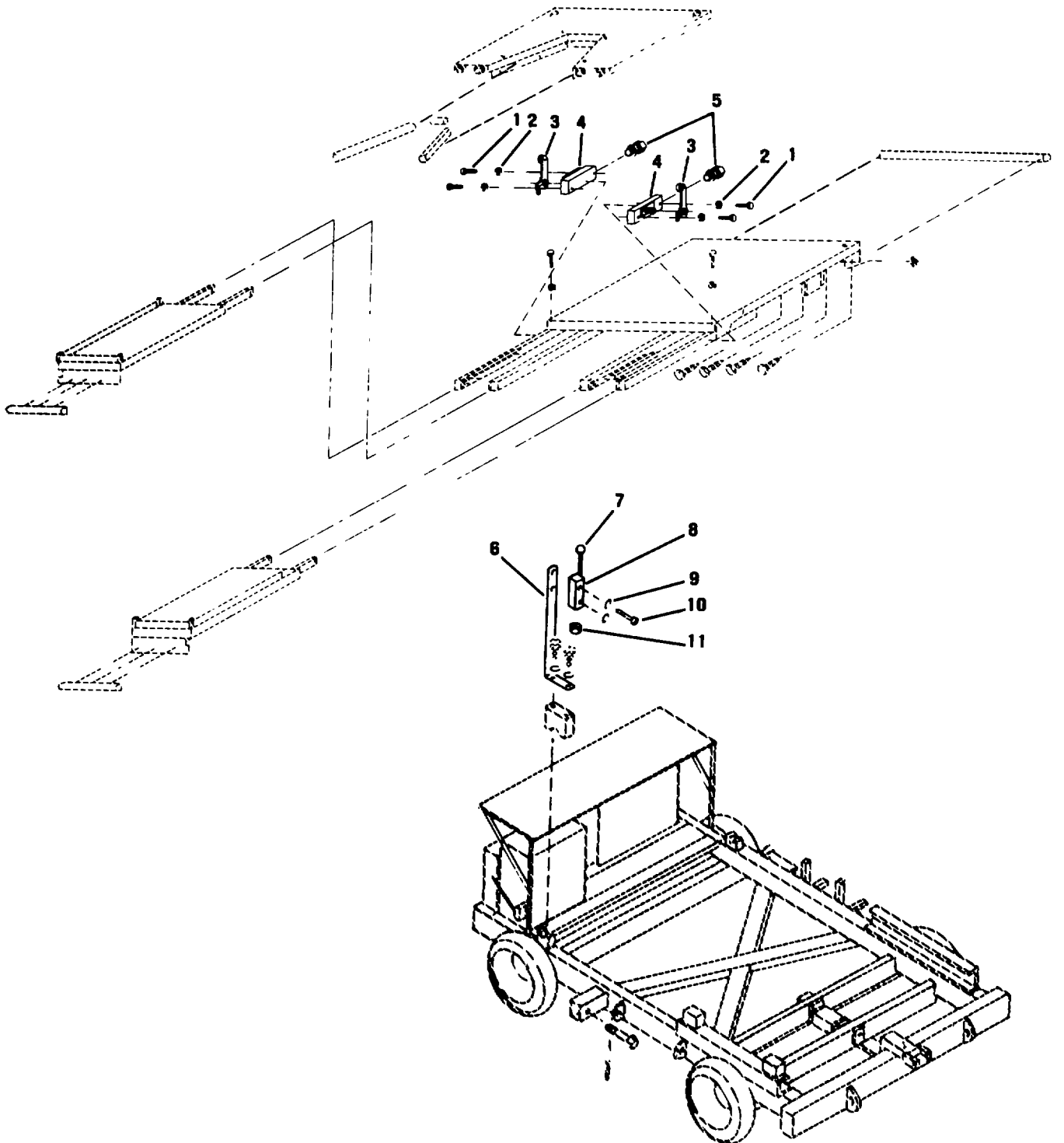


Figure C-5. Limit Switches.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-5. LIMIT SWITCHES					
1	PAOZZ	96906	MS51957-70	SCREW, MACHINE.....	4
2	PAFZZ	51548	YM120380	WASHER, LOCK.....	4
3	PAOZZ	05684	9007-CA-1	ARM, SWITCH ACTUATOR.....	2
4	PAOZZ	56365	90C7AW12	SWITCH, SENSITIVE.....	2
5	PBOZZ	59730	2521	BOX CONNECTOR, ELECT.....	2
6	PBOZZ	51548	B19032-1	BRACKET, ANGLE.....	1
7	PAOZZ	05684	90C7-CA-1	ARM, SWITCH ACTUATOR.....	1
8	PAOZZ	51548	W16WH	WIRE, ELECTRICAL.....	1
9	PAOZZ	96906	MS35338-43	WASHER, LOCK.....	2
10	PAOZZ	96906	MS51957-70	SCREW, MACHINE.....	2
11	PBOZZ	59730	2521	BOX CONNECTOR, ELECT.....	1

END OF FIGURE

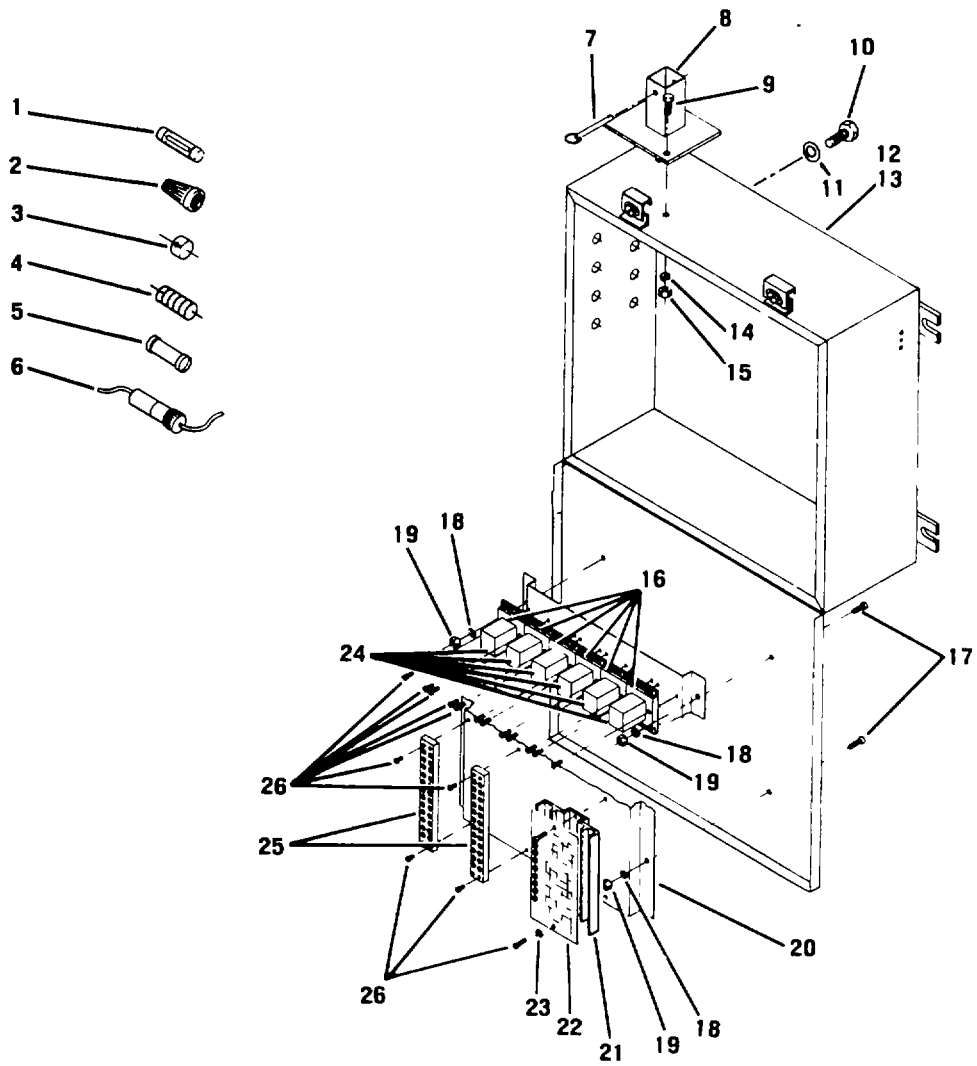


Figure C-6. Junction Boxes (Sheet 1 of 2).

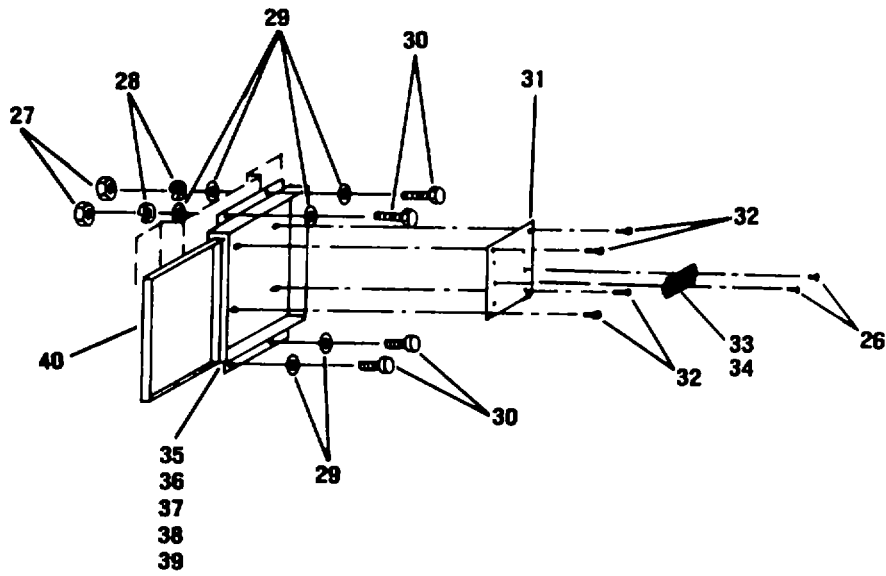


Figure C-6. Junction Boxes (Sheet 2 of 2).

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
1	PAOZZ	75915	311005	FUSE, CARTRIDGE	2
2	PAOZZ	90008	HS7	SPLICE, CONDUCTOR.....	3
3	PAOZZ	04713	MR751	SEMICONDUCTOR DEVIC	4
4	PAOZZ	81349	RCR20G473JS	RESISTOR, FIXED, COMP	2
5	PAOZZ	51548	EAS1616	SPLICE, CONDUCTOR.....	7
6	XDOZZ	51548	EF13	HOLDER, FUSE.....	2
7	XDOZZ	96652	30-08	PIN, HITCH	1
8	XDOZZ	51548	B18968GA	MOUNT, CONTROLLER	1
9	PAOZZ	53711	5979393-1	SCREW, CAP, HEXAGON H.....	2
10	PAOZZ	96906	MS90728-31	BOLT, MACHINE.....	3
11	PAOZZ	96906	MS3533845	WASHER, LOCK.....	3
12	XDOOO	51548	D19091-1	ENCLOSURE, MO	1
13	XDOOO	00843	A20C16ALP	ENCLOSURE.....	1
14	PAOZZ	51548	YM120380	WASHER, LOCK.....	4
15	PAOZZ	51548	YT120375	NUT, PLAIN, HEXAGON	2
16	PAOZZ	77342	27E122	SOCKET, PLUG-IN ELEC	6
17	PAOZZ	96906	MS51957-65	SCREW, MACHINE.....	4
18	PAOZZ	96906	MS35338-43	WASHER, LOCK.....	4
19	PAOZZ	51548	YS120361	NUT, HEX.....	4
20	XDOZZ	51548	C19142-1	PLATE, RELAY MTG	1
21	XDOZZ	51548	B18S78	MOUNT, CIRCUIT BD	1
22	PAOZZ	62246	505-02-PB-05	CIRCUIT CARD ASSEMB	1
23	PAOZZ	51548	YN131014	WASHER, FLAT.....	2
24	PAOZZ	78290	A314XBX48P-24V/D C	RELAY, ELECTROMAGNET	6
25	PAOZZ	00779	TB24W6	TERMINAL BOARD.....	2
26	PAOZZ	96906	MS51957-30	SCREW, MACHINE.....	18
27	PAOZZ	51548	YT120375	NUT, PLAIN, HEXAGON	4
28	PAOZZ	51548	YM120380	WASHER, LOCK.....	12
29	PAOZZ	88044	ANS6C-416	WASHER, FLAT.....	12
30	PAOZZ	96906	MS90728-60	SCREW, CAP, HEXAGON H.....	4
31	XDFZZ	51548	A19082-1	PLATE, MTG.....	1
32	PAOZZ	96906	MS51861-47	SCREW, TAPPING, THREA	4
33	PAOZZ	00779	TB24W6	TERMINAL, BOARD.....	3
34	PAOZZ	96906	MS25036-106	TERMINAL, LUG	70
35	PAOZZ	15235	CGB296	BOX CONNECTOR, ELECT.....	1
36	PAOZZ	03743	BL50	LOCKNUT, ELECTRICAL.....	11
37	XDOZZ	51548	W1602-0092	CABLE, POWER, ELECTRI.....	2
38	PAOZZ	59730	2534	BOX CONNECTOR, ELECT.....	1
39	XDOZZ	51548	W1602-0156	CABLE, POWER, ELECTRI.....	2
40	XDFZZ	51548	B19170-1	BOX, JUNCTION.....	1
	PAOZZ	00779	TB24W6	TERMINAL BOARD.....	3

FIGURE C-6. JUNCTION BOXES

END OF FIGURE

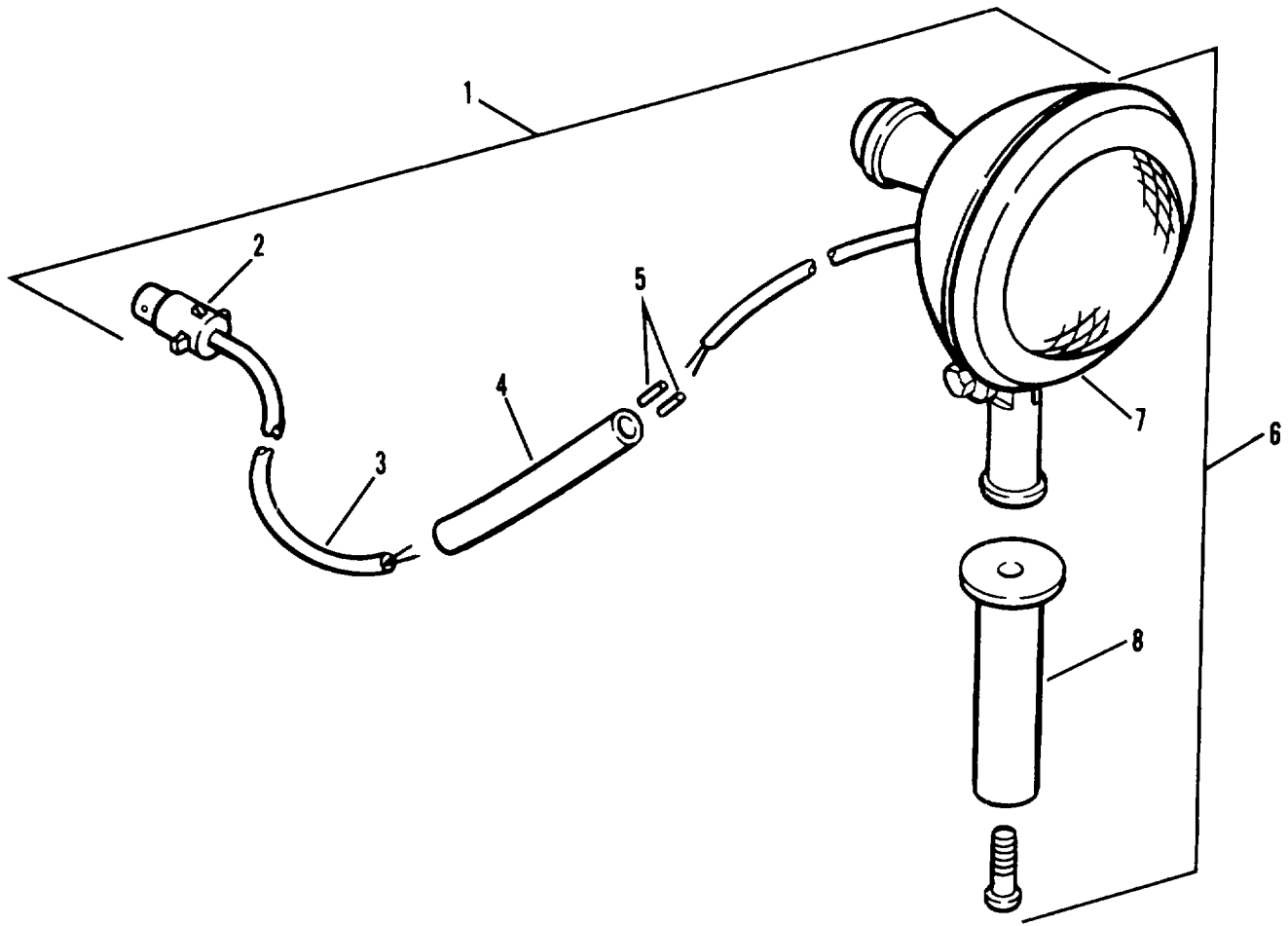


Figure C-7. Lights.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
1	PAOZZ	51548	B19030GA	WORKLIGHT ASSEMBLY.....	2
2	PAOZZ	77326	11-4G9	CONNECTOR, PLUG, ELEC.....	1
3	XDOZZ	51548	W1602-0180	WIRE, 16/2 MAKE FROM 180 IN. (458	1
	XDOZZ	09079	FIT-700-21	CM) 51548 P/N W1602-0180.....	4
5	XDOZZ	51548	EAS1bl6	TUBING, SHRINK	6
6	PAOZZ	78422	4589	SPLICE	2
7	PAOZZ	51548	EW10	BEAM, SEALED.....	1
8	PAOZZ	51548	A19029GA	LAMP HOLDER.....	1
				HANDLE, EXT, LIGHT.....	1

FIGURE C-7. LIGHTS

END OF FIGURE

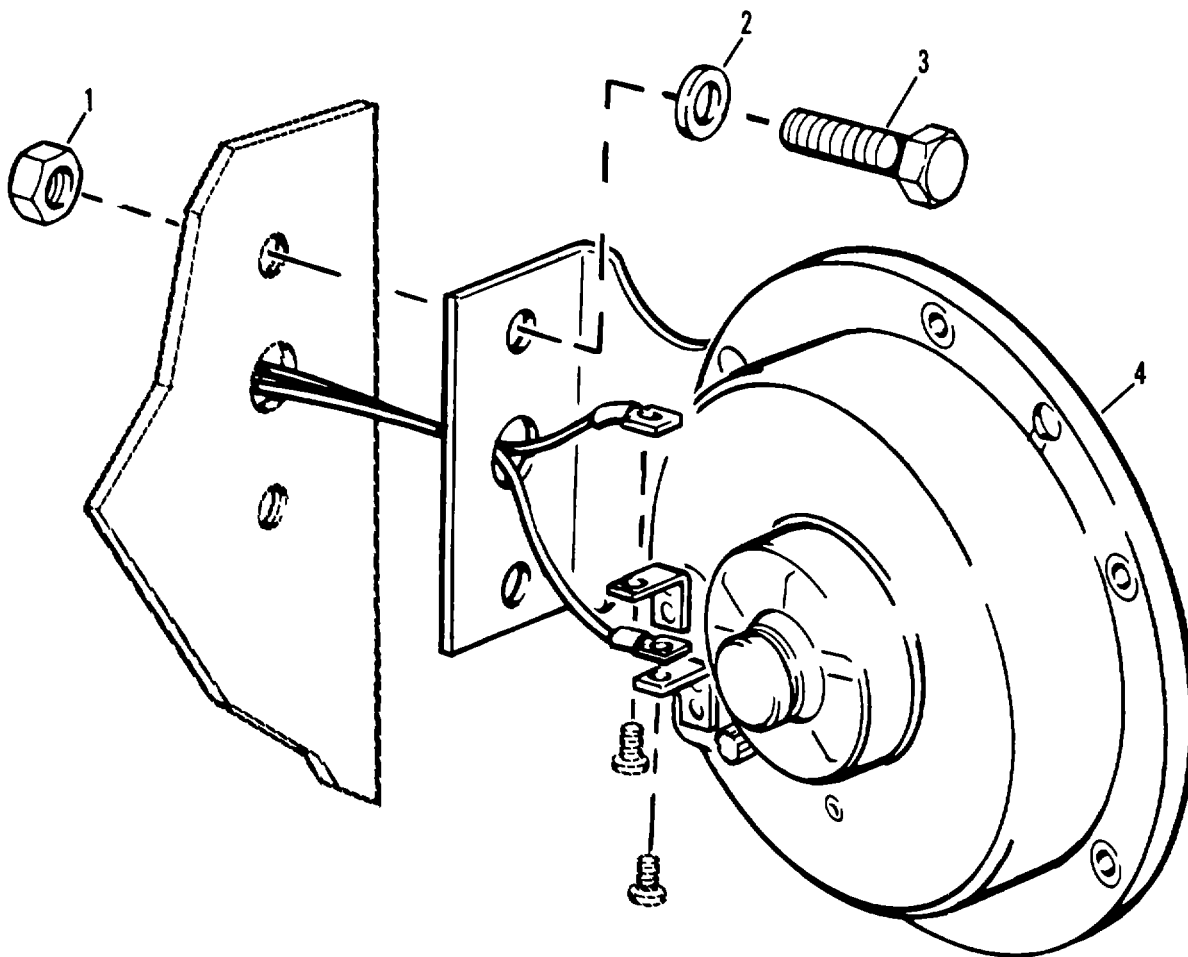


Figure C-8. Horn.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
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FIGURE C-8. HORN

1	PAOZZ	51548	YT120375	NUT, PLAIN HEXAGON	2
2	PAOZZ	51548	YM120380	WASHER LOCK.....	2
3	XDOZZ	51548	YE123316	SCREW, CAP HH	2
4	XDOZZ	21003	A24428	HORN.....	1

END OF FIGURE

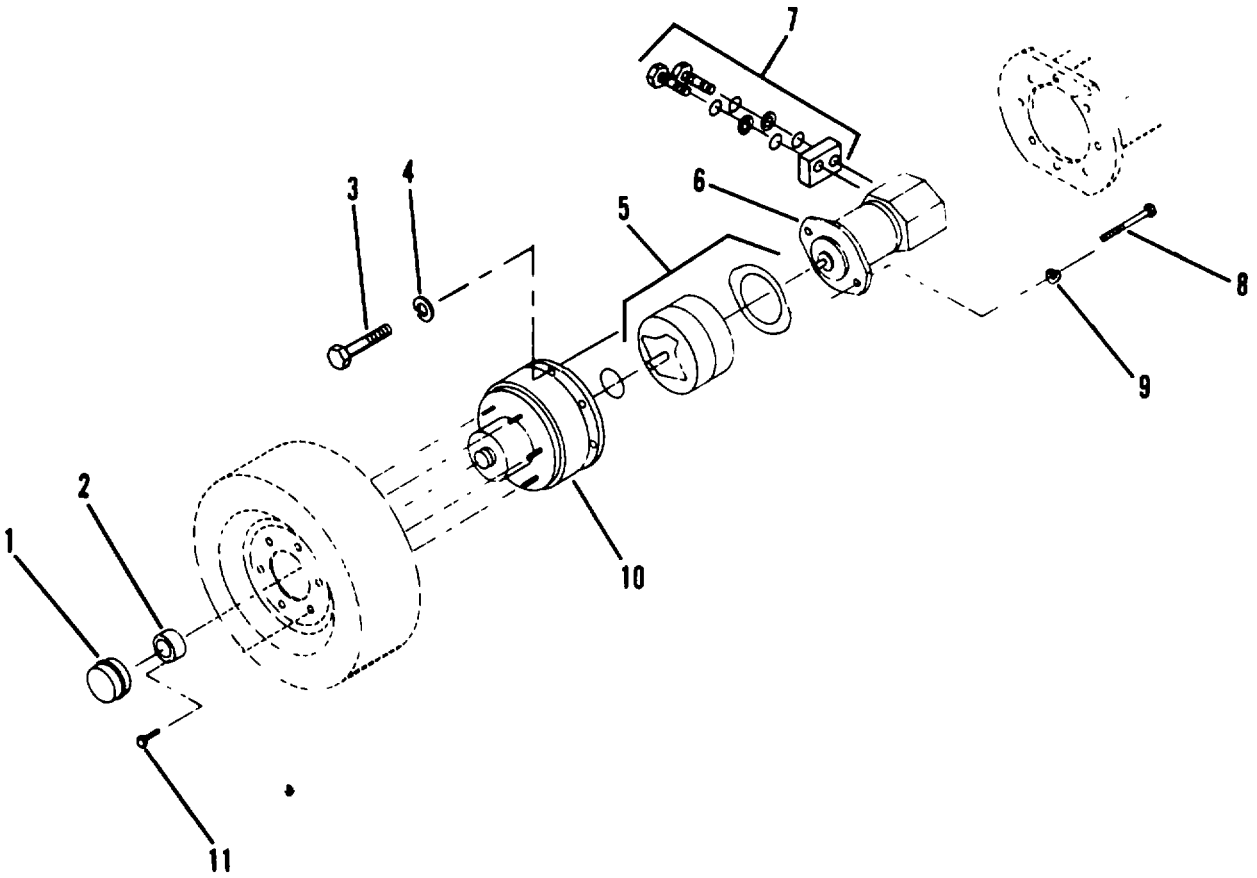


Figure C-9. Drive Components.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
GROUP 02. DRIVE SYSTEM					
FIGURE C-9. DRIVE COMPONENTS					
1	PAOZZ	51548	M685	CAP, PROTECTIVE,DUST.....	2
2	PAFZZ	51548	C19068GA	DRIVE DISCONNECT	2
3	PAFZZ	51548	YE271547	SCREW,CAP, HEXAGON.....	16
4	PAFZZ	96906	MS35338-50	WASHER, LOCK.....	16
5	PAOFF	51548	FD15	BRAKE SEE FIGURE C-12 FCR BREAKDOWN.....	2
6	PAOFF	96151	104-1216	MOTOR, HYDRAULIC SEE FIGURE C-10	2
7	PAOZZ	51548	C19138GA	FOR BREAKDOWN.	
				ACAPTOR, MOTOR SEE FIGURE C-11 FOR	2
				BREAKDOWN.....	
8	PAFZZ	51548	YE443734	SCREW, CAP, HEXAGON H.....	4
9	PAOZZ	96906	NS35338-48	WASHER, LOCK.....	10
10	PAOFF	27995	14-02-000-021	REDUCER, GEAR SEE FIGURE C-13 FCR.....	2
				BREAKDOWN.....	
11	PAOZZ	51548	YG9421622	SCREW, CAP, SCCKET HE	4

END OF FIGURE

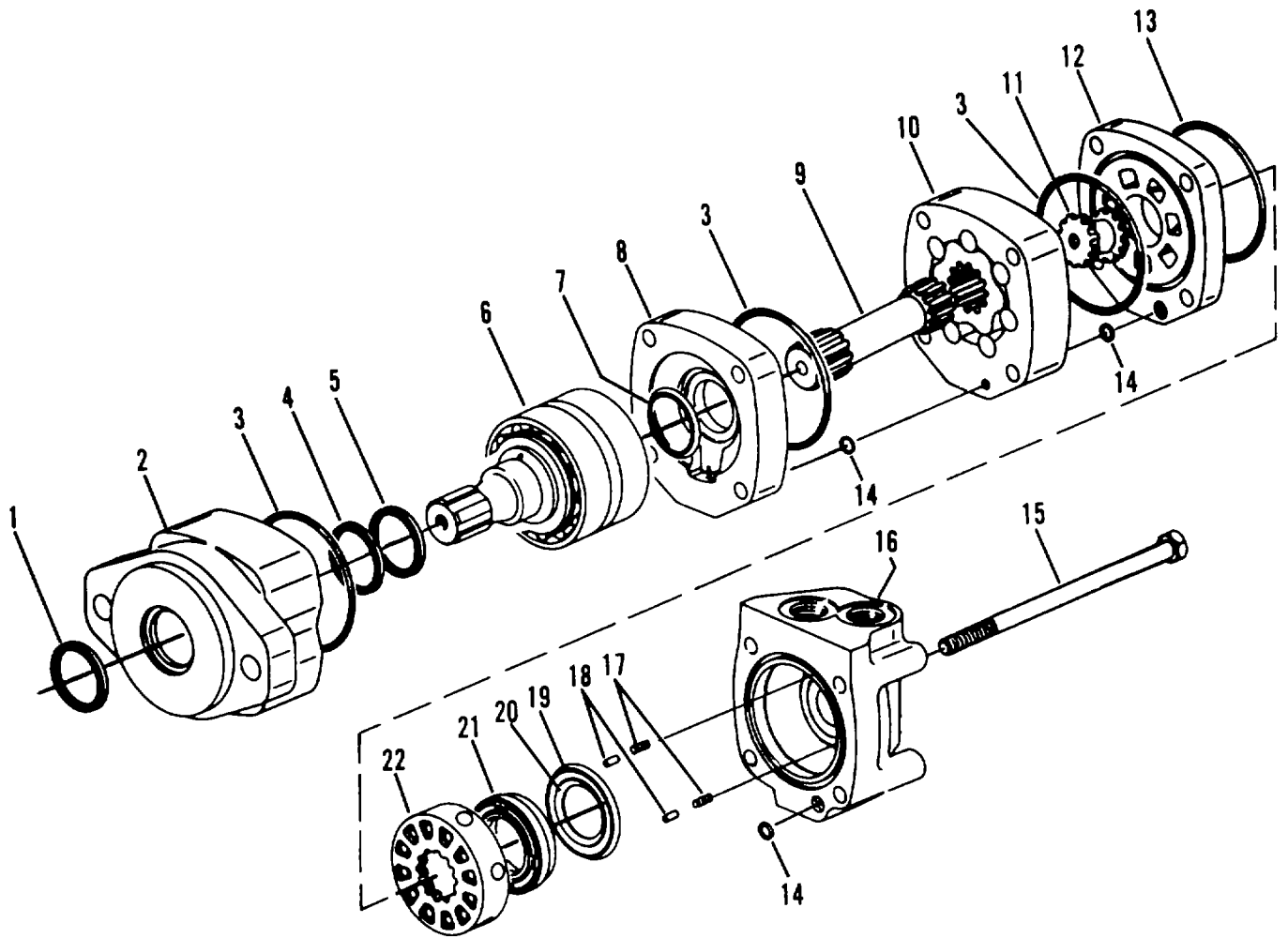


Figure C-10. Drive Motor.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-10. DRIVE MOTOR					
1	PAFZZ	96151	9121-1	SEAL, PLAIN.....	1
2	PAFZZ	96151	7385	HOUSING,BEARING UNI.....	1
3	PAFZZ	96151	9022-6	SEAL.....	3
4	PAFZZ	96151	9057-4	SEAL, PLAIN.....	1
5	PAFZZ	96151	9117-4	SEAL, PLAIN.....	1
6	PAFZZ	96151	7404-2	SHAFT AND BEARING K.....	1
7	PAFZZ	96151	9050	SEAL.....	1
8	PAFZZ	96151	7390	SPACER, PLATE.....	1
9	PAFZZ	96151	8434-1	GEARSHAFT, BEVEL.....	1
10	PAFZZ	96151	8789-1	PUMP,ROTARY.....	1
11	PAFZZ	96151	8433	SHAFT, DRIVE, FLEXIBI.....	1
12	PAFZZ	96151	8432	VALVE PLATE, HYDRAUL.....	1
13	PAFZZ	96151	9022-2	SEAL.....	1
14	PAFZZ	96151	15006	PACKING, PREFORMED.....	3
15	PAFZZ	96151	14300	BOLT, MACHINE.....	4
16	PAFZZ	96151	8356-1	VALVE HEAC, HYDRAULI.....	1
17	PAFZZ	96151	7383	SPRING.....	2
18	PAFZZ	96151	14351	PIN.....	2
19	PAFZZ	96151	9048-1	SEAL.....	1
20	PAFZZ	96151	9049-1	SEAL.....	1
21	PAFZZ	96151	8915	WEIGHT, BALANCE.....	1
22	PAFZZ	96151	8435	VALVE, FLOW CONTRL.....	1

END OF FIGURE

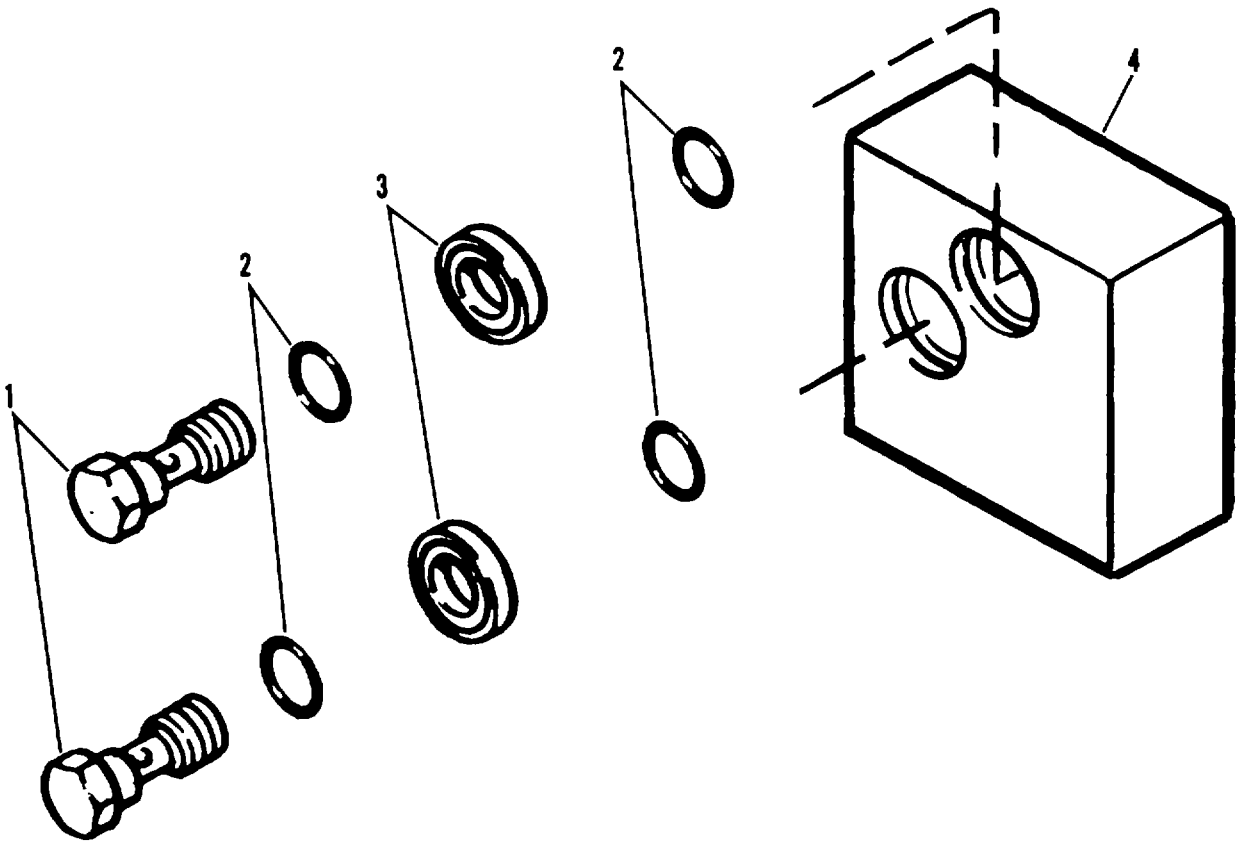


Figure C-11. Adaptor, Motor.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-11. ADAPTOR, MOTOR					
1	PAOZZ	51548	C19138-3	BOLT.....	2
2	PAOZZ	51548	C19138-4	PACKING, PREFORM ED.....	4
3	PAOZZ	51548	C19138-2	WASHER, FLAT.....	2
4	XAOZZ	51548	C19138-1	BLOCK, PORT	1

END OF FIGURE

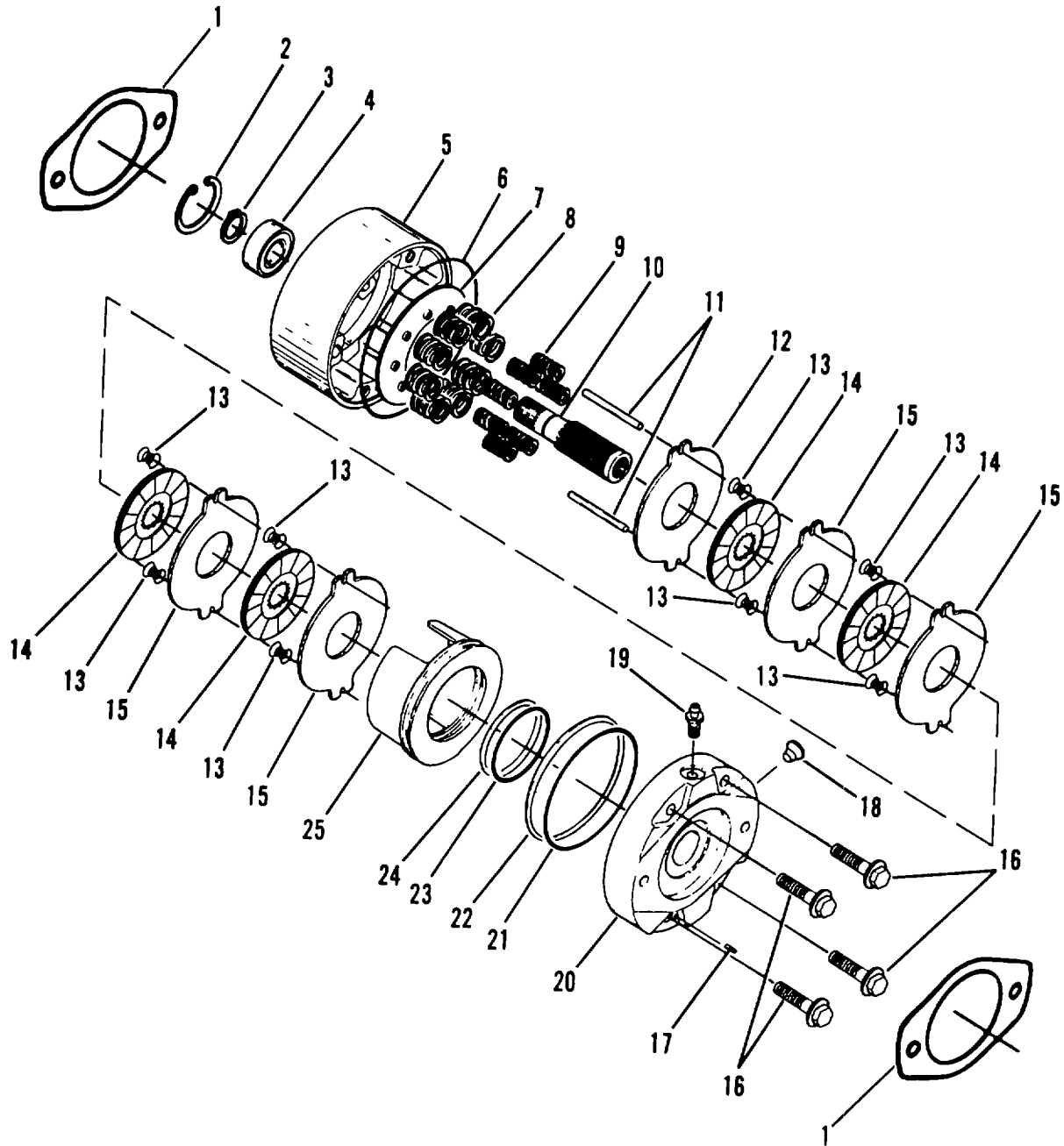


Figure C-12. Brake Assembly.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
1	PAFZZ	06239	28426	GASKET.....	2
2	PAFZZ	06239	28004	RING, RETAINING	1
3	PAFZZ	04720	28005	RING, RETAINING	1
4	PAFZZ	04720	28003	BEARING, BALL, ANNULA	1
5	PAFZZ	04720	27806	HOLSING, BRAKE	1
6	PAFZZ	06239	30947	PACKING,PREPCRED.....	1
7	PAFFF	04720	31771	RING, RETAINING	1
8	PAFZZ	06239	28963	SPRING,HELICAL,CCMHP.	8
9	PAFZZ	04720	289962	SPRING,HELICAL, CCMP	8
10	PAFFF	04720	27927	SHAFT,SHOULDERED.	1
11	PAFZZ	06239	27928	PIN,STRAIGHT,HEADLE	2
12	PAFZZ	04720	27603	DISK, BRAKE.....	1
13	PAFZZ	04720	29283	SPRING, HELICAL, COMP	8
14	PAFZZ	06239	27519	DISK, BRAKE.....	4
15	PAFZZ	06239	29487	DISK, BRAKE.....	4
16	PAFZZ	06239	0-200-31219	SCREW, CAP, HEXAGON H.....	4
17	PAFZZ	06239	34151	PLUG, VINYL	1
18	PAFZZ	06239	28435	PLUG, PROTECTIVE, DUS.....	1
19	PAFZZ	04720	29035	BLEEDER VALVE, HYDRA	1
20	PAFFF	04720	27804	PLATE, RETAINING,SHA	1
21	PAFZZ	06239	27777	PACKING, PREFORMED	1
22	PAFZZ	06239	27966	RETAINER, PACKING	1
23	PAFZZ	06239	27808	PACKING, PREFORMED	1
24	PAFZZ	06239	27967	RETAINER, PACKING	1
25	PAFFF	04720	27807	PISTON, HYDRAULIC BR	1

FIGURE C-12. BRAKE ASSEMBLY

END OF FIGURE

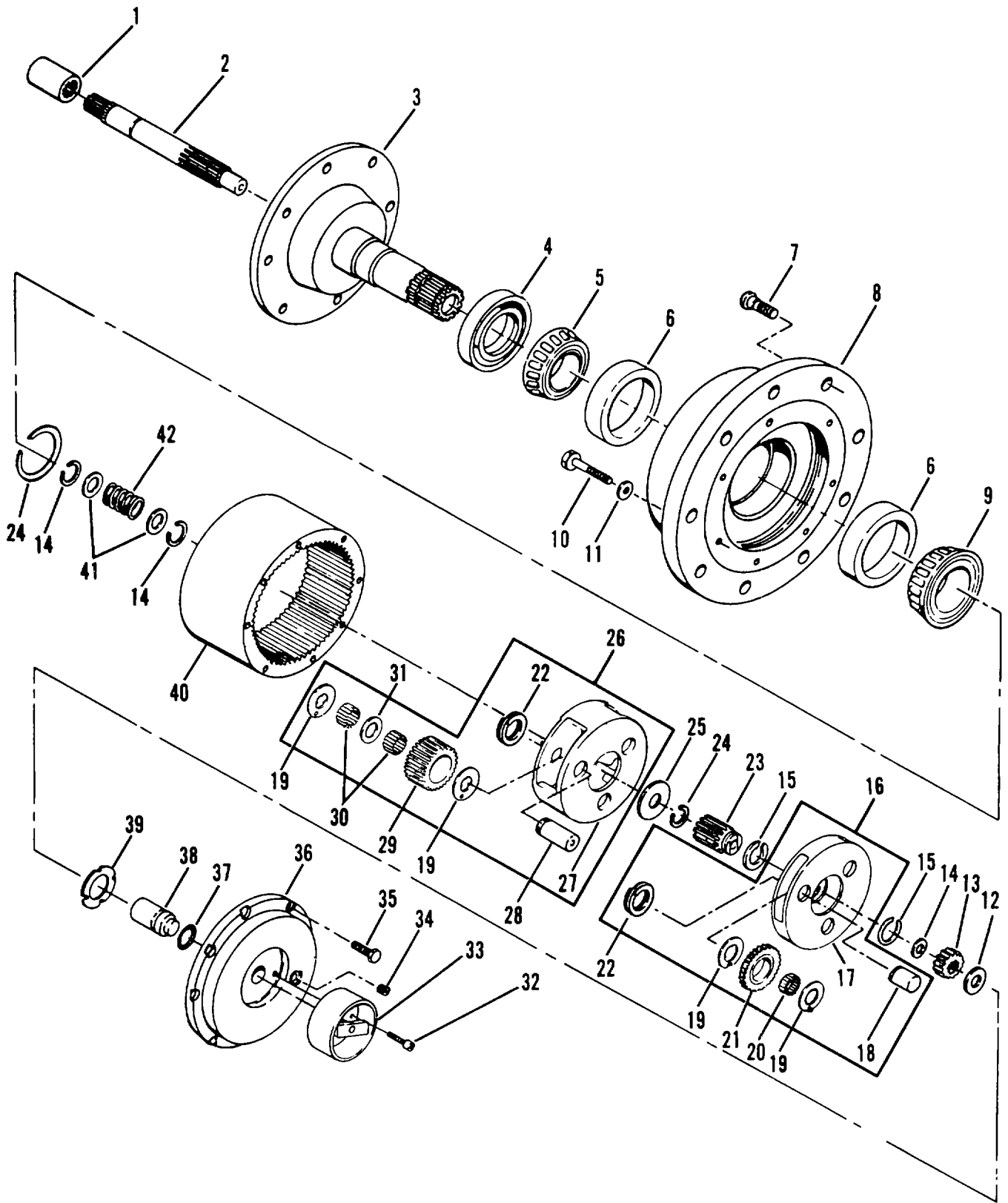


Figure C-13. Power Wheel.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-13. POWER WHEEL					
1	PAFZZ	64462	14-02-089-003	COUPLING, SHAFT, RIG	1
2	PAFZZ	64462	14-02-042-002	SHAFT, SHOULDERED	1
3	PAFZZ	27995	14-02-079-005	SPINDLE, WHEEL, DRIV	1
4	PAFZZ	27995	10-00-044-010	PACKING, PREFORMED	1
5	PAFZZ	64462	04-01-101-35	CONE AND ROLLERS, TA.....	1
6	PAFZZ	84243	04-01-102-12	CUP, TAPERED ROLLER	1
7	PAFZZ	64462	14-00-183-005	BOLT, MACHINE.....	9
8	PAFZZ	64462	14-02-179-004	HUB, BODY.....	1
9	PAFZZ	27995	04-01-101-17	CONE AND ROLLERS, TA.....	1
10	PAFZZ	27995	0009430215	BOLT, MACHINE.....	6
11	PAFZZ	27995	14-00-047-002	WASHER, FLAT.....	6
12	PBFZZ	27995	14-02-193-003	WASHER, FLAT.....	1
13	PAFZZ	27995	14-02-165-008	GEAR, HELICAL	1
14	PAFZZ	27995	95-04-138-01	RING, RETAINING	3
15	PAFZZ	27995	14-00-139-033	RING, RETAINING.	2
16	PAFZZ	64462	14-02-659-012	.HOUSING, PLANETARY G	1
17	PAFZZ	64462	14-02-159-007	.HOUSING, PLANETARY G	1
18	PAFZZ	64462	14-02-042-001	.SHAFT, STRAIGHT.....	3
19	PBFZZ	84243	14-02-193-001	.WASHER, FLAT	12
20	PAFZZ	84243	14-02-659-012-5	.BEARING, ROLLER, NEED	51
21	PAFZZ	27995	14-02-163-008	.GEAR, HELICAL	3
22	PAFZZ	27995	14-00-139-040	.RING, RETAI/ING	6
23	PAFZZ	27995	14-02-165-009	GEAR,HELICAL	1
24	PAFZZ	27995	14-00-139-042	RING, RETAINING.	1
24	PAFZZ	27995	14-00-139-043	RING, RETAINING	1
24	PAFZZ	27995	14-03-139-045	RING, RETAINING	1
24	PAFZZ	27995	14-00-139-046	RING, RETAINING	1
25	PBFZZ	27995	14-02-193-004	WASHER, FLAT.....	1
26	PAFZZ	64462	14-02-659-013	.HOUSING, PLANETARY G	1
27	PAFZZ	64462	14-02-159-008	.HOUSING, PLANETARY G	1
28	PAFZZ	27995	14-02-042-002	.SHAFT, STRAIGHT.....	3
29	PAFZZ	27995	14-02-163-007	.GEAR, HELICAL	3
30	PAFZZ	84243	14-00-131-003	.ROLLER, BEARING	102
31	PAFZZ	27995	14-02-053-001	RING, RETAINING	3
32	PAFZZ	96906	MS90728-32	BOLT, MACHINE.....	2
33	PAFZZ	27995	14-02-039-005	COVER, ACCESS.....	1
34	PBFZZ	27995	14-02-052-002	PLUG, MACHINE THREAD	1
35	PAFZZ	96906	MS90728-34	BULT, MACHINE.....	8
36	XDFZZ	27995	14-02-039-004	COVER, LARGE.....	1
37	PAFZZ	279S5	10-00-141-113	PACKING, PREFORMED	1
38	PAFZZ	27995	14-02-193-005	PLUNGER, DETENT	1
39	PAFZZ	79410	95-04-115-01	WASHER, KEY	1
40	PAFZZ	27995	14-02-162-003	GEAR SET, BEVEL MATC	1
41	PAFZZ	27995	14-02-193-002	WASHER, FLAT.....	2
42	PAFZZ	27995	14-02-156-001	SPRING, HELICAL, COMP.	1

END OF FIGURE

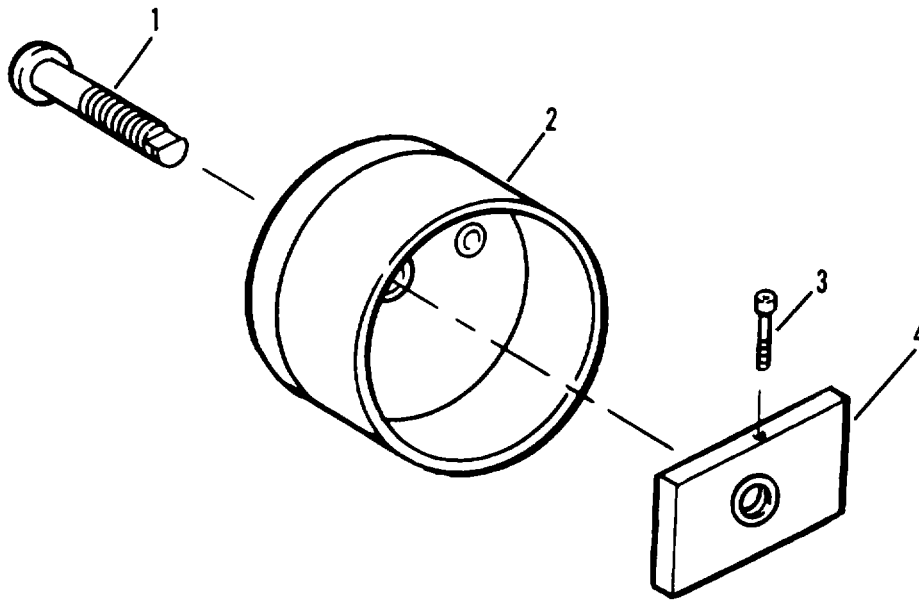


Figure C-14. Drive Disconnect.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-14. DRIVE DISCONNECT					
1	PAFZZ	51548	A19066-1	SCREW,CAP,HEXAGON H.....	1
2	PAFZZ	51548	B19064GA	HOUSING ASSEMBLY	1
3	PAFZZ	51548	YF102570L	SCREW, CAP HEXAGON H.....	1
4	PAFZZ	51548	A19069-1	SCREW DOWN	

END OF FIGURE

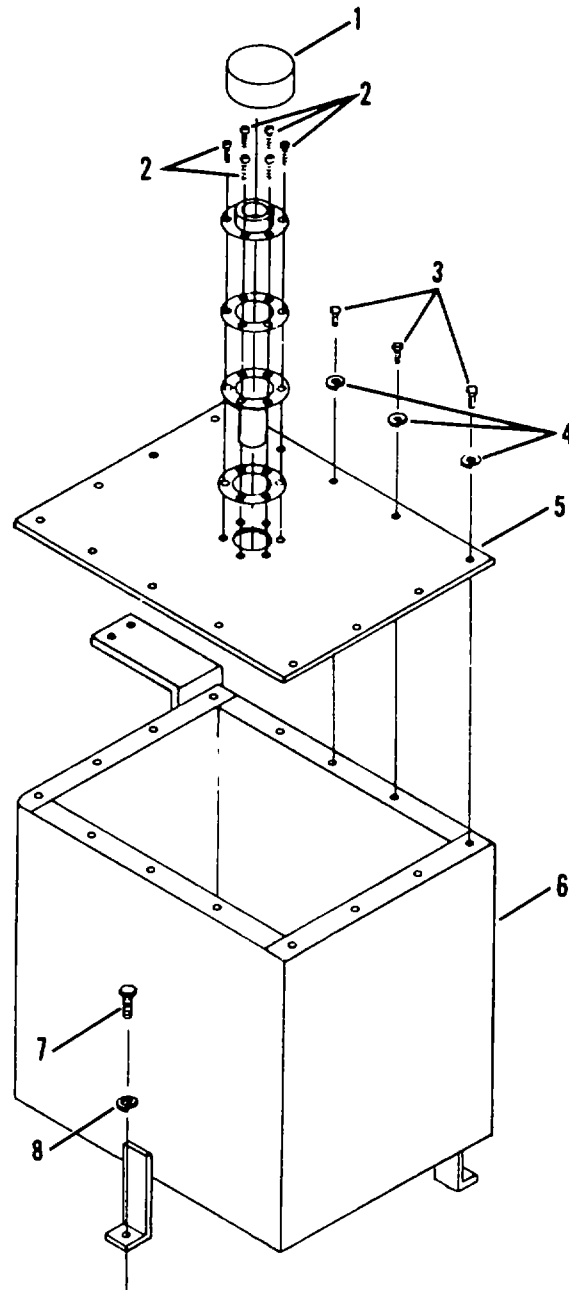


Figure C-15. Hydraulic Reservoir.

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
GROUP 03. HYDRAULIC SYSTEM					
FIGURE C-15. HYDRAULIC RESERVOIR					
1	PAFZZ	97576	FCS537W	FILLER NECK	1
2	PAFZZ	80205	NAS106-3-10	SCREW, MACHINE.....	6
3	PAFZZ	96906	MSS0727-3	SCREW, CAP,HEXAGON H.....	14
4	PAFZZ	51548	YM120380	WASHER, LOCK.....	18
5	XDFZZ	51548	B19098-1	TOP RESERVOIR	1
6	XDFFF	51548	C19096GA	RESERVOIR HYD.....	1
7	PAFZZ	96906	MS90728-58	SCREW, CAP, HEXAGON H.....	3
8	PAOZZ	96906	MS35338-46	WASHER, LOCK.....	17

END OF FIGURE

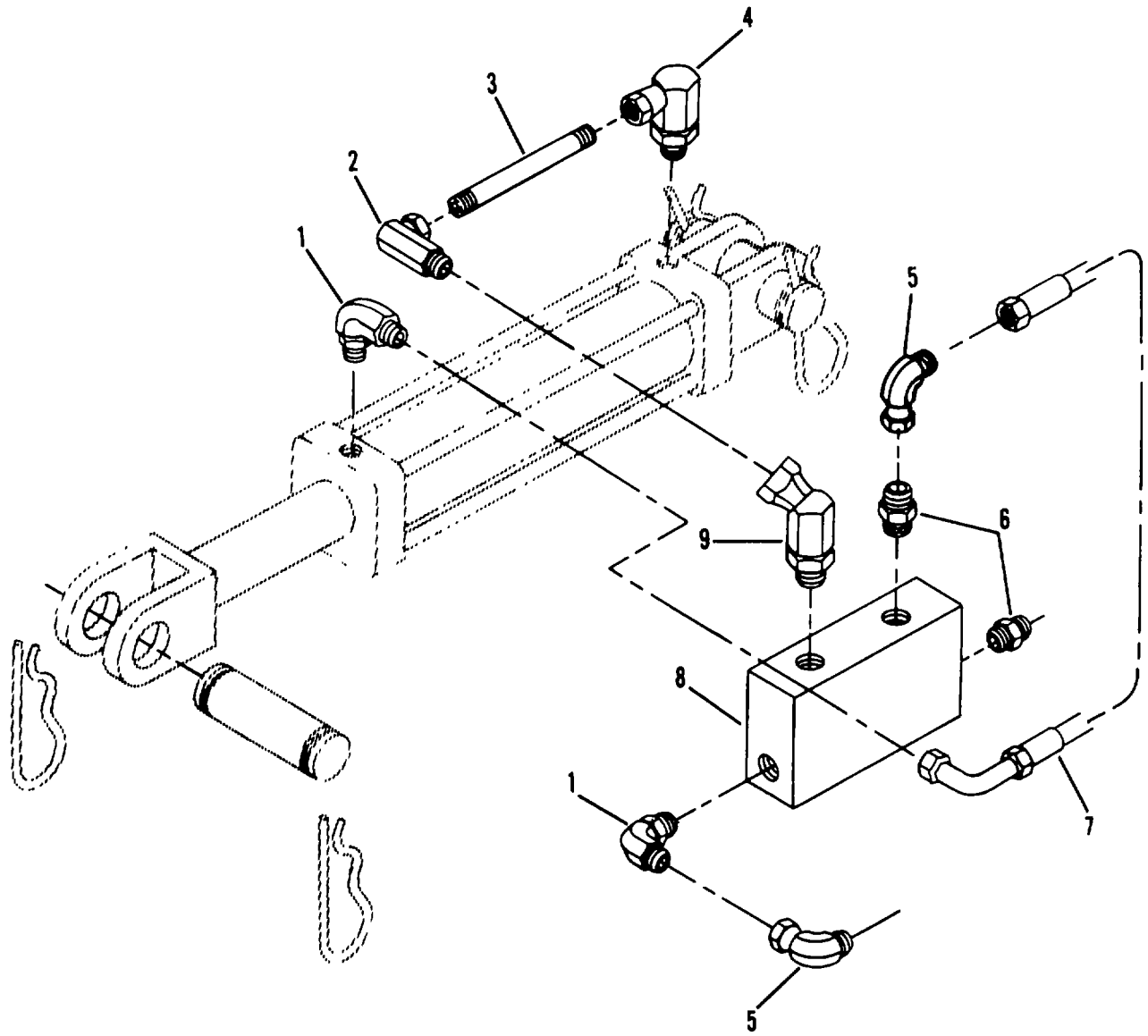


Figure C-16. Hydraulic Hoses and Fittings.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-16. HYDRAULIC HOSES AND FITTINGS					
1	PAOZZ	79470	C5515X6X8	ELBOW, TUBE TO BOSS	2
2	PAOZZ	79470	9405X6X8	ELBOW, PIPE	1
3	PAOZZ	96906	MS51873-86B	NIPPLE, PIPE	1
4	PAOZZ	79470	S515X8XU	ELBOW, PIPE TO BOSS	1
5	PAOZZ	30780	MS51521A6	ELBOW, TUBE.....	2
6	PAOZZ	96906	MS1525A6-8	ADAPTER, STRAIGHT, TU	2
7	PAOZZ	51548	D17110GEN	HOSE ASSEMBLY, METAL	1
8	PAOZZ	54035	CBCH-LCN-YEJ	VALVE, CHECK	1
9	PAOZZ	79470	9365X8X8	ELBOW, SWIVEL.....	1

END OF FIGURE

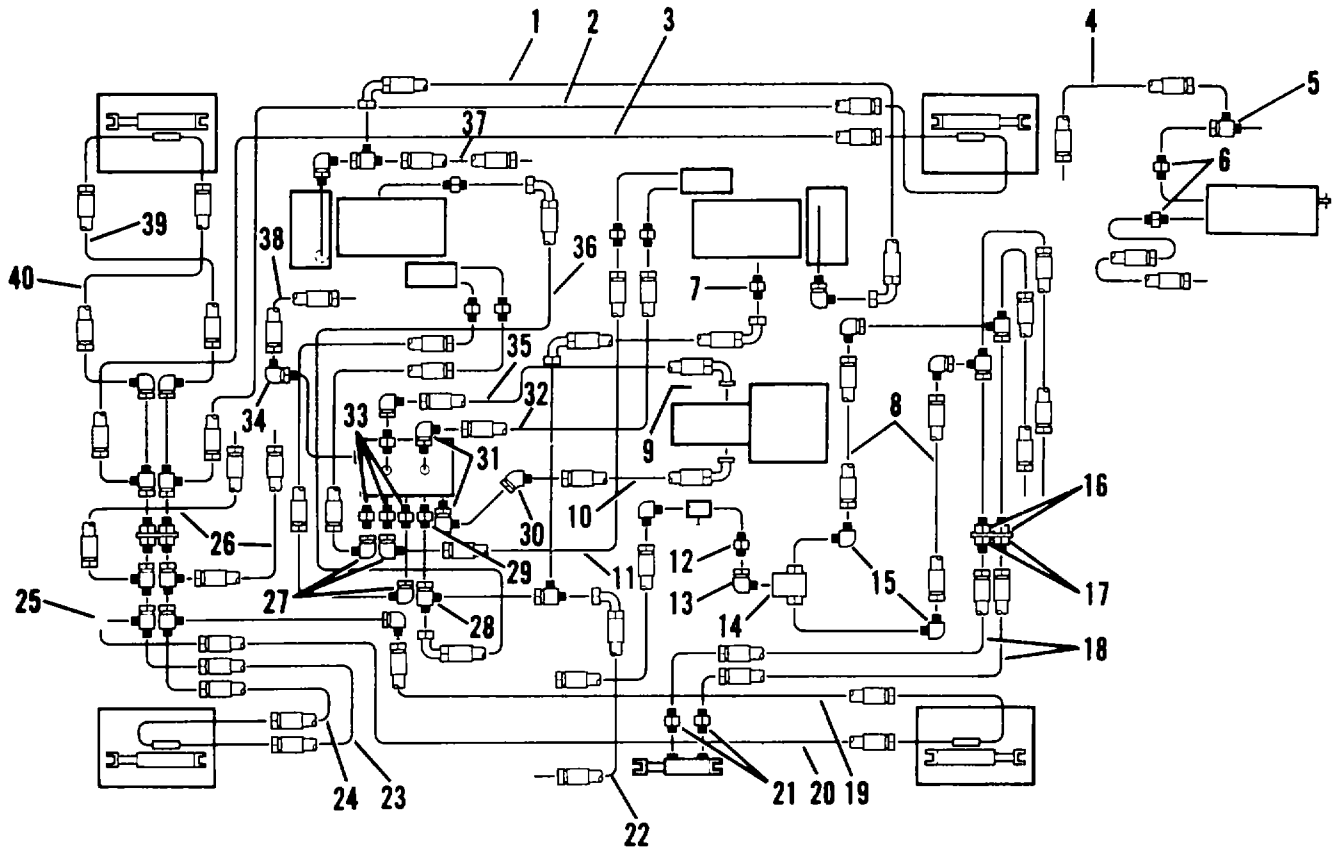


Figure C-17. Base Assembly Hydraulics.

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-17. BASE ASSEMBLY HYDRAULICS					
1	PAOZZ	51548	D17109GBD	HOSE ASSEMBLY, NONM	1
2	PAOZZ	51548	D17109GBG	HOSE ASSEMBLY, NONM.	3
3	PAOZZ	51548	D17109GM	HOSE ASSEMBLY, NONM	2
4	PAOZZ	51548	D17109GBE	HOSE ASSEMBLY, NONME	1
5	PAOZZ	96906	MS51523A6	TEE, TUBE.....	9
6	PAOZZ	96906	MS51500A6	ADAPTER, STRAIGHT, PI	3
7	PAOZZ	79470	C5315X4	ADAPTER, STRAIGHT, TU	2
8	PAOZZ	51548	D17109GF	HOSE ASSEMBLY, NONM	2
9	PAOZZ	87373	6-10-F50X-S	ADAPTER, STRAIGHT, TU	1
10	PAOZZ	51548	D17252GG	HOSE ASSEMBLY, NONME	1
11	PAOZZ	51548	D17252GD	HOSE ASSEMBLY, NONME	2
12	PAOZZ	79470	C3C69X4	NIPPLE, PIPE	1
13	PAOZZ	79470	9405X4X4	ELBOW, SWIVEL.....	1
14	PAOZZ	54846	DSV1-8-B-2	VALVE, SHUTTLE.....	1
15	PAOZZ	79470	C35405X6	ELBOW, PIPE TO TUBE	3
16	PAOZZ	79470	5924X6	NUT, STEERING GROUP	4
17	PAOZZ	96906	MS51520A6	NIPPLE, TUBE	4
18	PAOZZ	51548	D-171D9GAY	HOSE ASSEMBLY, NONME	3
19	PAOZZ	51548	D17109GBJ	HOSE, ASSEMBLY, NON	1
20	PAOZZ	51548	D17109GBH	HOSE ASSEMBLY, NONM	1
21	PAOZZ	96906	MS51525A6-8	ADAPTER, STRAIGHT, TU	2
22	PAOZZ	51548	D17109G8A	HOSE ASSEMBLY, NONME	1
23	PAOZZ	51548	D17149GBF	HOSE ASSEMBLY, NONME	1
24	PAOZZ	51548	D-171D9GAF	HOSE ASSEMBLY, NONME	1
25	PAOZZ	30780	MS51521A6	ELBOW, TUBE.....	7
26	PAOZZ	51548	D171D9GX	HOSE ASSEMBLY, NONME	2
27	PAOZZ	79470	C5506X12	ELBOW, TUBE.....	4
28	PAOZZ	30780	4R6XS	TEE, TUBE.....	3
29	PAOZZ	79470	C5315X4X6	ADAPTER, STRAIGHT, TU	1
30	PAOZZ	96906	MS51522A12	ELBOW, TUBE.....	1
30	PAOZZ	96906	MS51522A12	ELBOW, TUBE.....	1
31	PAOZZ	79470	C5515X12X10	ELBOW, TUBE TO BOSS	2
32	PAOZZ	51548	D17252GE	HOSE ASSEMBLY, NONME	2
33	PAOZZ	79470	C5315X12X10	NIPPLE, PIPE	8
34	PAOZZ	87373	4-C5OX-S	ELBOW, TUBE TC BCSS	3
35	PAOZZ	51548	D17252GF	HOSE ASSEMBLY, NONME	1
36	PAOZZ	51548	D17109GBB	HOSE ASSEMBLY, NONME	2
37	PAOZZ	51548	D17109GBC	HOSE ASSEMBLY, NONME	1
38	PAOZZ	51548	D-17109CBK	HOSE ASSEMBLY, NONME	1
39	PAOZZ	51548	D-17109GAZ	HOSE ASSEMBLY, NONME	1
40	PAOZZ	51548	D-17109GY	HOSE ASSEMBLY, NONME	1

END OF FIGURE

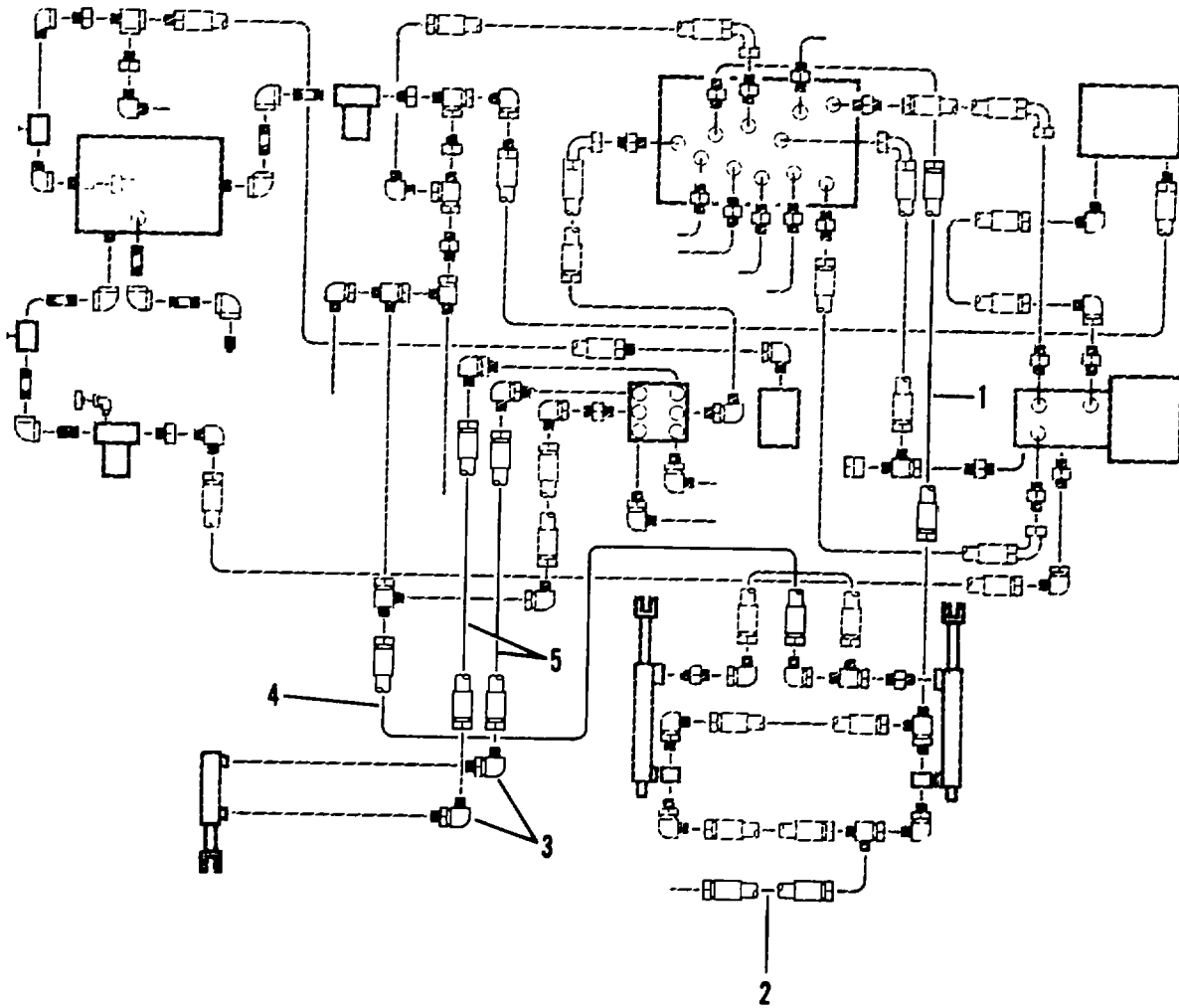


Figure C-18. F.A. Hydraulic Hoses and Fittings.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
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FIGURE C-18. F.A HYDRAULIC HOSES AND FITTINGS

1	PAOZZ	51548	D17110GER	HOSE ASSEMBLY	1
2	PAOZZ	51548	D17109GBR	HOSE ASSEMBLY	1
3	PAOZZ	79470	C5515X6X8	ELBO, TUBE TO BOSS	2
4	PAOZZ	51548	017109GBP	HOSE ASSEMBLY	1
5	PAOZZ	51548	D17109GBS	HOSE ASSEMBLY	2

END OF FIGURE

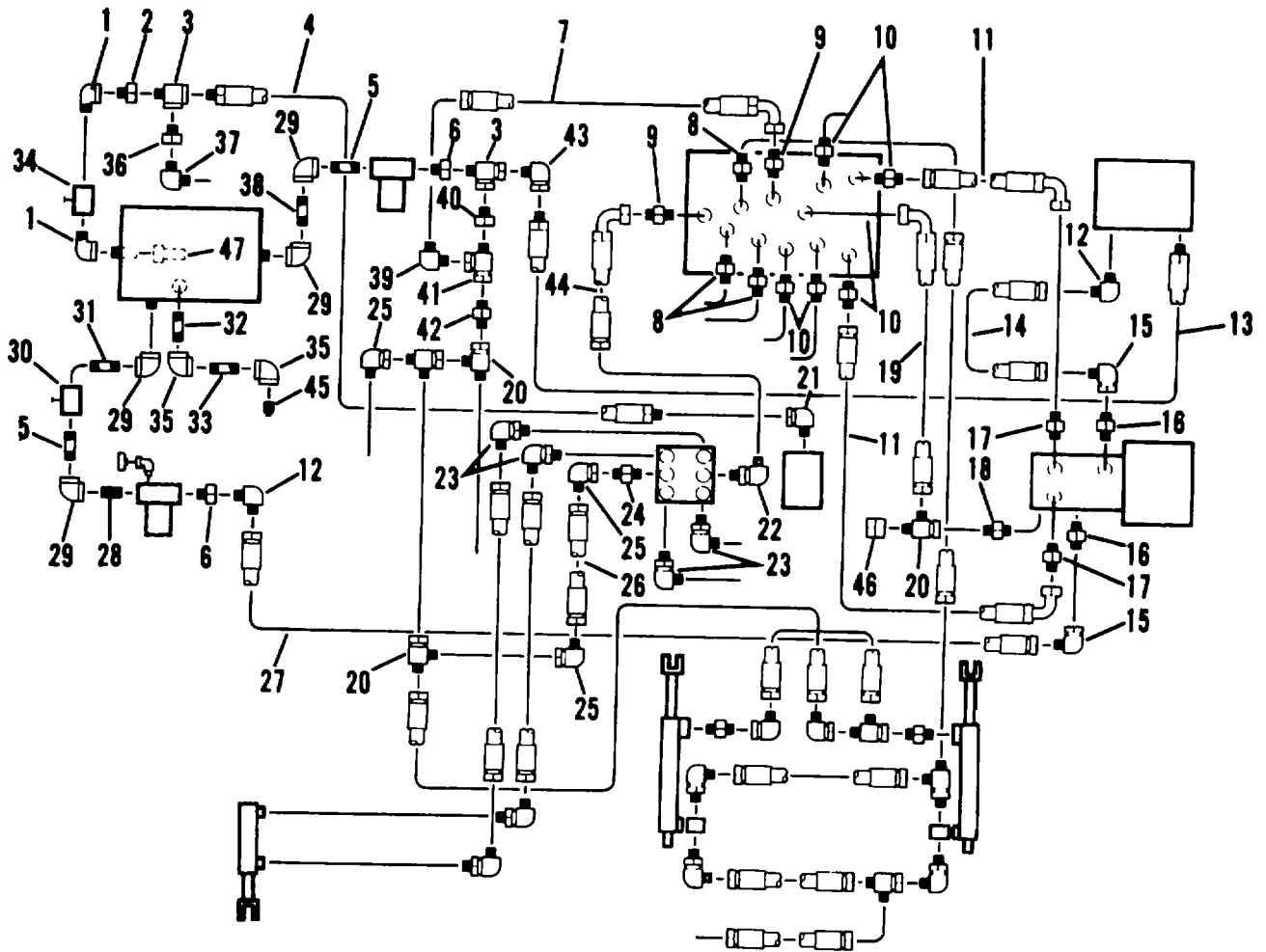


Figure C-19. Engine Rack Hydraulic Hoses and Fittings.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-19. ENGINE RACK HYDRAULIC HOSES AND FITTINGS					
1	PAOZZ	51548	PF804	ELBOW PIPE	2
2	PAOZZ	79470	C3109X16X12	BUSHING,PIPE	1
3	PAOZZ	63906	12MT12FI2F	TEE PIPE	2
4	PAOZZ	51548	017252GH	HOSE ASSEMBLY,NONME	1
5	PAOZL	51548	PFICO10	NIPPLE,PIPE	2
6	PAOZZ	79470	7350912	BUSHING,PIPE	2
7	PAOZZ	51548	017110GEP	HOSE ASSEMBLY,NONME	1
8	PAOZZ	96906	MS51525A6-8	ADAPTER, STRAIGHT TU	3
9	PAOZZ	96906	MS51525A8	ADAPTER, STRAIGHT, TU	2
10	PAOZZ	79470	C5315X4	ADAPTER, STRAIGHT, TU	6
11	PAOZZ	51548	D-171D9GBN	HOSE ASSEMBLY,NONME	2
12	PAOZZ	96906	MS51504A12	ELBOW,PIPE TC TUBE	2
13	PAOZZ	51548	D17252GL	HOSE ASSEMBLY,NONME	1
14	PAOZZ	51548	017252GJ	HOSE ASSEMBLY,NONME	1
15	PAOZZ	79470	C5506X12	ELBCW, TUBE	2
16	PAOZZ	79470	C5315X12X10	NIPPLE, PIPE	2
17	PAOZZ	87373	4-8F50X-S	ADAPTER, STRAIGHT, TU	2
18	PAOZZ	51548	A19227GA	NIPPLE, TAK.....	1
19	PAOZZ	51548	D17109GBM	HOSE ASSEMBLY,NONME	1
20	PAOZZ	96906	MS51523A6	TEE, TUBE	4
21	PAOZZ	7947C	9515X12X12	ELBOW, PIPE IC BGSS.....	1
22	PAOZZ	7947C	C5515X8	ELBOW, TUBE TC BGSS	1
23	PAOZZ	51548	HHF337	ELBOW, PIPE	4
24	PAOZZ	51548	HHF330	NIPPLE, PIPE	1
25	PAOZZ	30760	MS51521A6	ELBOW, TUBE	3
26	PAOZZ	51548	017109GBL	HOSE ASSEMBLY NOMNE	1
27	PAOZZ	51548	D17252GK	HOSE ASSEMBLY,NOMNE	1
28	PAOZZ	51548	PF1012	NIPPLE, PIPE	1
29	PAOZZ	51548	PFIO03	ELBOW, PIPE	4
30	PAOZZ	14448	FIG60-1 1/4	VALVE, GATE	1
31	PAOZZ	51548	PF100125	NIPPLE, TUBE	2
32	PAOZZ	51548	PF6012	NIPPLE, PIPE	1
33	PAOZZ	51548	PF6013	NIPPLE, PIPE	1
34	PAOZZ	14448	FIG606-1	VALVE, GATE	1
35	PAOZZ	51548	PF603	ELBOW, PIPE	2
36	PAOZZ	81343	12-4140140C	BUSHING, PIPE	1
37	PAOZZ	79470	C35405X6	ELBOW, PIPE TC TU:EE	1
38	PAOZZ	51548	PF100112	NIPPLE, TUBE.....	1
39	PAOZZ	79470	5405X8X8	ELBOW, PIPE IC TBE	1
40	PAOZZ	79470	C3109X12X8	BUSHING, PIPE	1
41	PAOZZ	80713	8MT8F8F	TEE, PIPE	1
42	PAOZZ	96906	MS51500A6-8	ADAPTER, STRAIGHT, PI	1
43	PAOZZ	7947C	9405X12X12	ELBOW, PIPE	1
44	PAOLL	51548	DI7110GEQ	HOSE ASSEMBLY,NONME	1
45	PAOZZ	23619	HC-MP-12	PLUG, PIPE	1
46	PAOZZ	79470	C5129X6	CAP, TUBE	1
47	PAOZZL	97576	49-10	STRAINER, SUCTION	1

END OF FIGURE

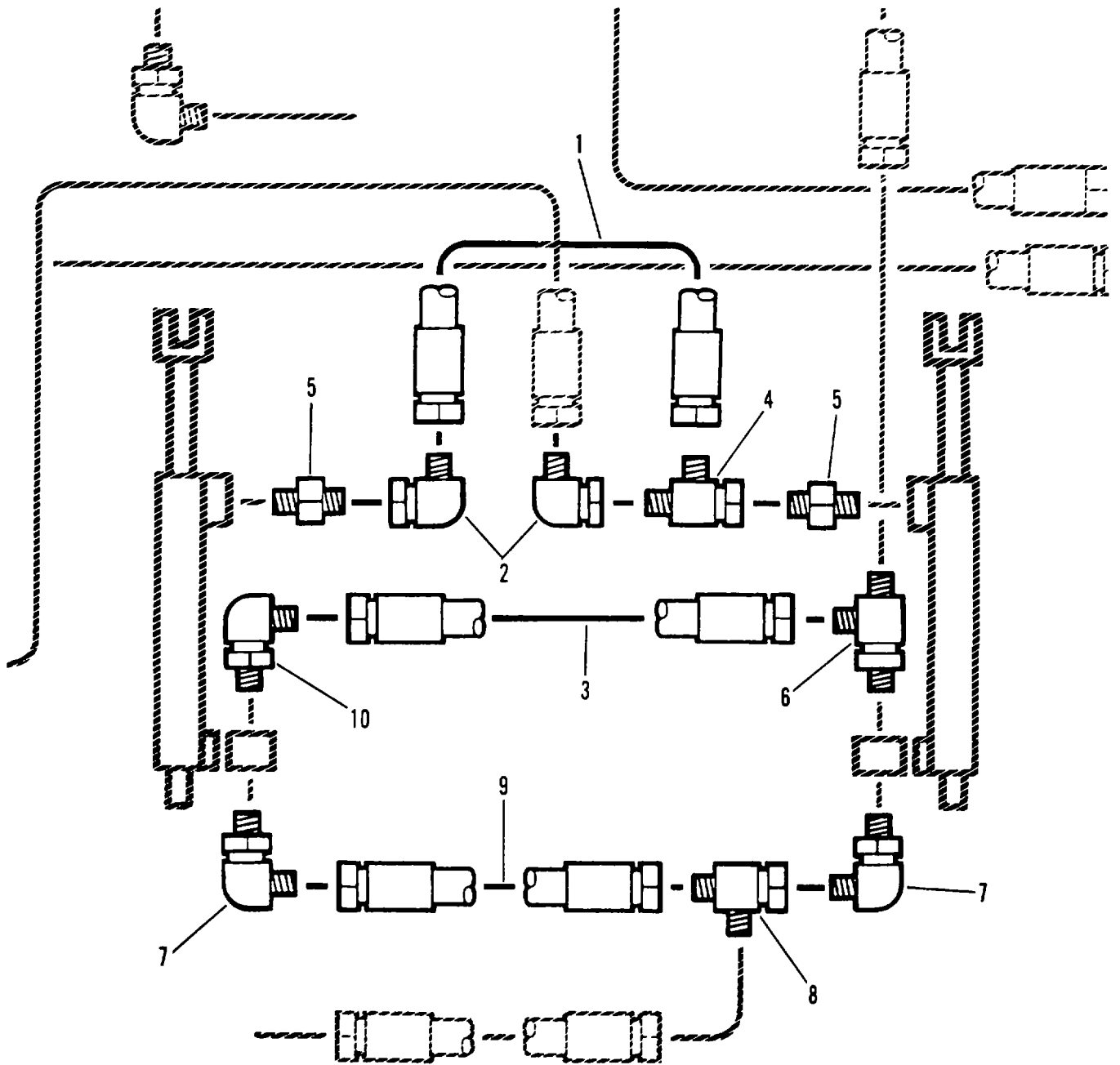


Figure C-20. Scissor Hydraulic Hoses and Fittings.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
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FIGURE C-20. SCISSOR HYDRALIC HOSES AND FITTINGS

1	PAOZZ	51548	D17109GAM	HOSE ASSEMBLY,NONME	1
2	PAOZZ	30780	MS51521A6	ELBOW,TUBE	2
3	PAOZZ	51548	D17110OGES	HOSE ASSEMBLY NONME	1
4	PAOZZ	969C6	MS51523A6	TEE,TUBE.....	1
5	PAOZZ	51548	HHF330	NIPPLE PIPE	2
6	PAOZZ	51548	HHF346	TEE PIPE	1
7	PAOZZ	87373	4-C50X-S	ELBOW,TUBE TC BCSS	2
8	PAOZZ	30780	4R6XS	TEE,TUBE.....	1
9	PAOZZ	51548	D17IG9GBQ	HOSE ASSEPBLYNONE	1
10	PAOZZ	51548	HHF337	ELBOW,PIPE	1

END OF FIGURE

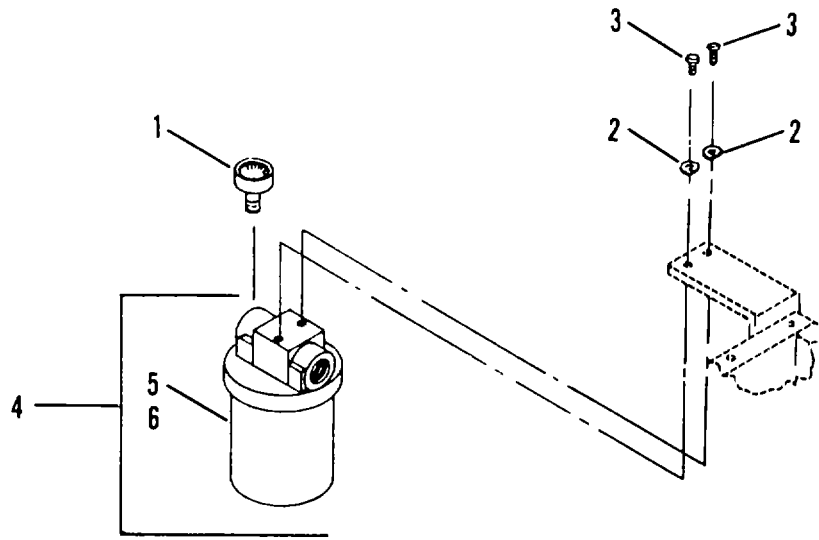


Figure C-21. Hydraulic Filter.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
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FIGURE C-21. HYDRAULIC FILTER

1	XDOZZ	97576	CP-2	GAGE,VACUUM,OIAL IN	1
2	PAOZZ	96906	M535338-45	WASHER LCCK	3
3	PAFZZ	96906	MS90728-32	BOLT,MACHINE	2
4	PAOZZ	97576	CP-1280-10V-50	FILTER BODY,FLUID	1
5	PAOZZ	97576	CP-1280-10P-53	FILTER,FLUID	1
6	PAOZZ	30780	3/4HHPS	PLUG,PIPE	1

END OF FIGURE

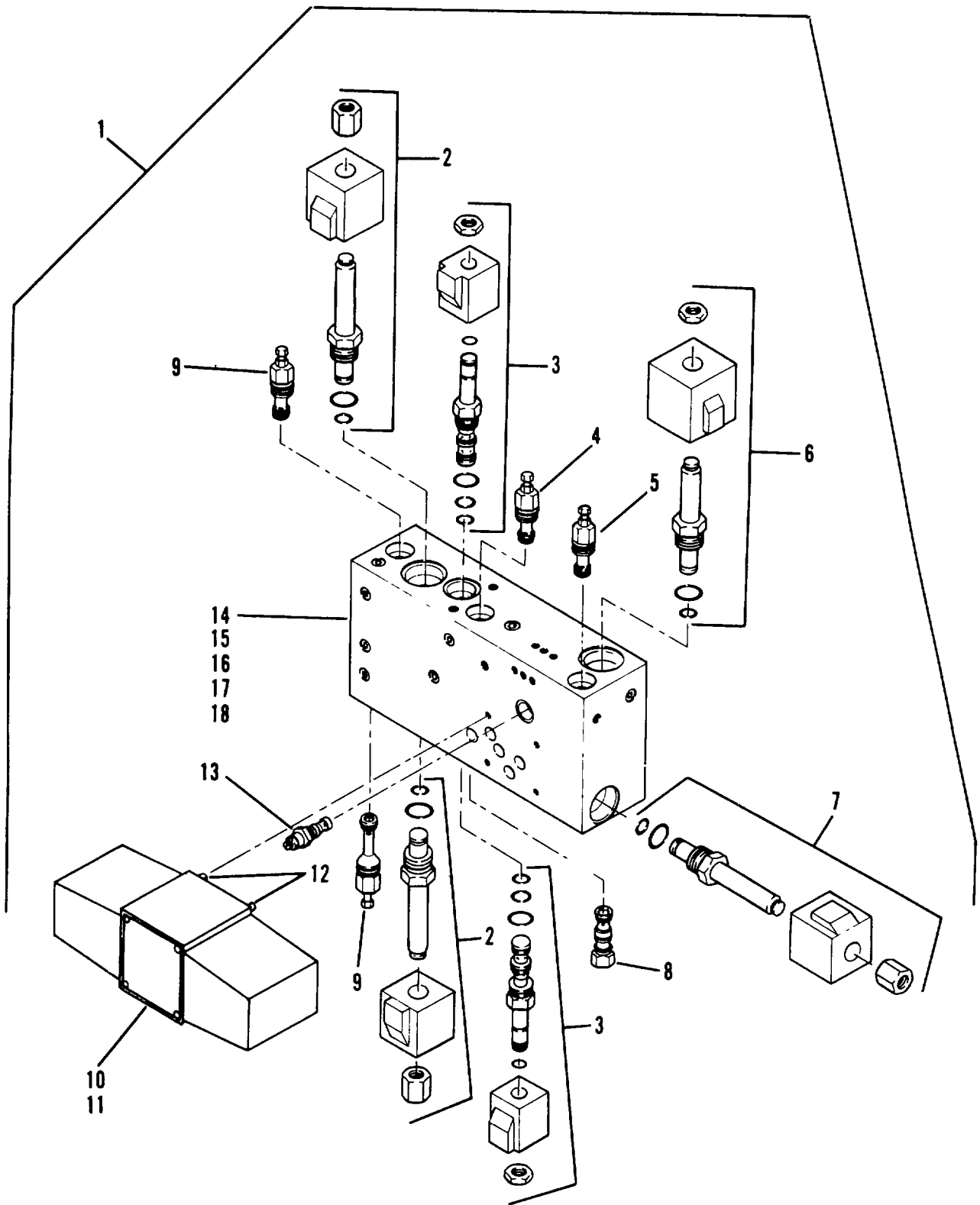


Figure C-22. Hydraulic Block Assembly.
C-54

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-22. HYDRALIC BLOCK ASSEMBLY					
1	XDOOO	51548	C19119GA	MANIFLOD BLCKK	1
2	PAOOO	B2271	14C12S-A24	•VALVE,SOLENOID	2
3	PAOZZ	82271	12C34S-A24	•SOLENOID,ELECTRICAL.....	2
4	PAOZZ	54035	RPEC-FAN	•CARTRIDGE, VALVE, REL.....	1
5	PAOZZ	54035	RPEC-FAN	•CARTRIDGE VALVE REL.....	1
6	PAOZZ	82271	14C1S-A24	•VALVE,SOLENCID	1
7	PAOZZ	82271	14CIIS-A24	•VALVE,SCLECID	1
8	PAOZZ	54035	CKCA-XAN	•VALVE9 CHECK.....	1
9	PAOZZ	54035	RPEC-FAN	•CARTRIDGE, VALVEP REL.....	2
10	PAOOO	51548	HV106	•VALVE,LINEAR,DIRECT.....	1
11	XOOZZ	51548	C18956-12	•LABEL,COMPONET	1
12	PAOZZ	51548	YG186923	•SCREW	4
13	PAOZZ	54035	NCCA-LAN	•VALVE,RESTRICTCR	1
14	XOOOO	51548	D19118GA	•BLOCK, VALVE	1
15	PAOZZ	79470	C3169X2	•PLUG,PIPE	8
16	PAOZZ	79470	C3169X4	•PLUG,PIPE	11
17	PAOZZ	79470	C3169X1	•PLUG, PIPE	8
18	PAOZZ	87373	3/8 HHP-S	•PLUG,PIPE	1

ENO CF FIGURE

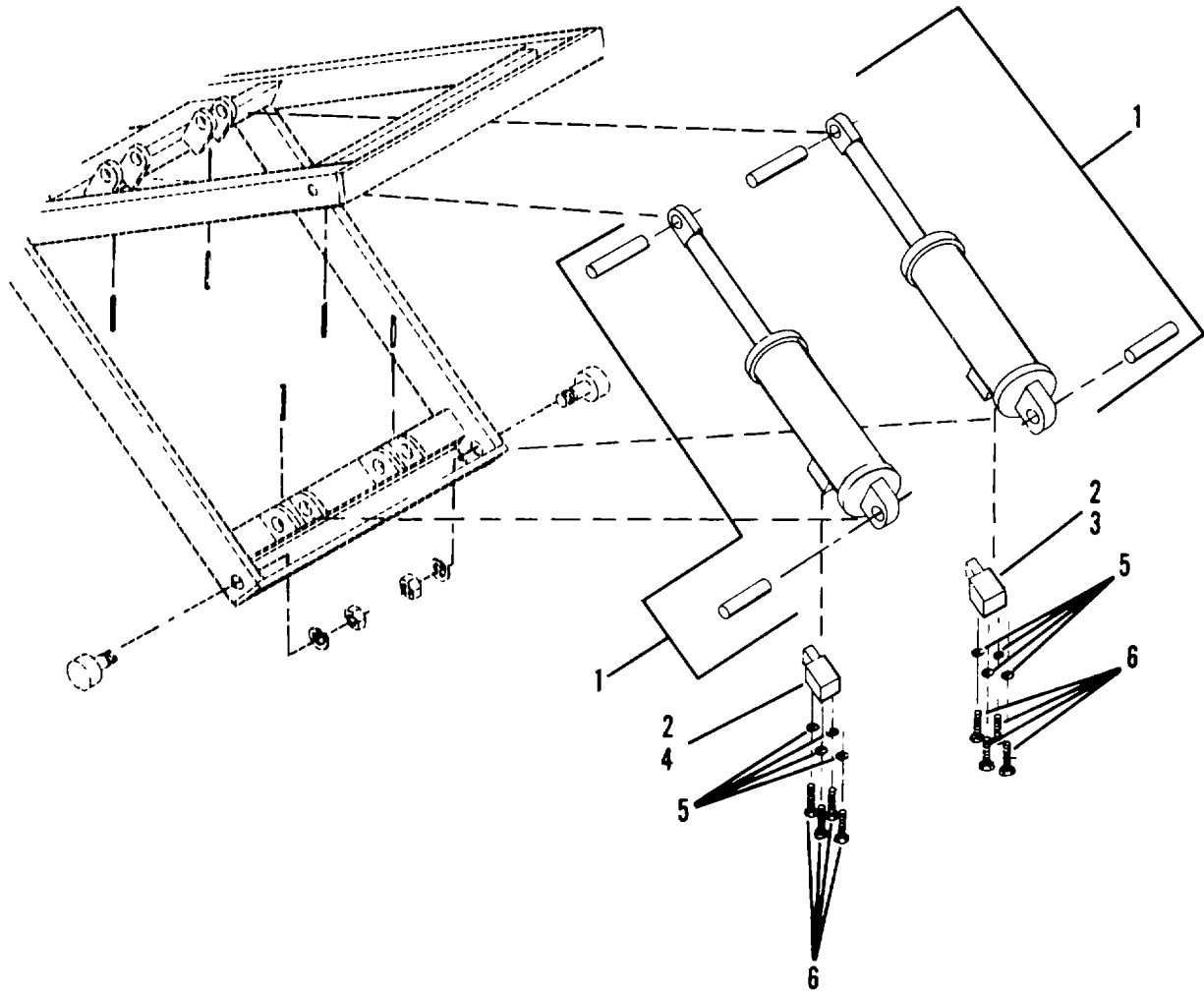


Figure C-23. Lift Cylinder Installation.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
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**FIGURE C-23. LIFT CYLINDER
INSTALLATION**

1	PAFFZ	51548	HCM87	CYLINDER ASSEMBLY A SEE FIGURE C- 24 FOR BREAKDOWN	2
2	PAOOO	54035	8307-13F-A1L	VALVE, HCLDING	2
3	PAOZZ	54035	CBCA LAN	CARTRIDGE VALVE	1
4	PAOLZ	54035	FCCB LAN	CARTRIDGE VALVE	1
5	PAOZZ	51548	YM120380	WASHER,LCKK	8
6	PAOZZ	96906	MSS0727-17	SCREWCAP,HEXAGON H.	8

END CF FIGURE

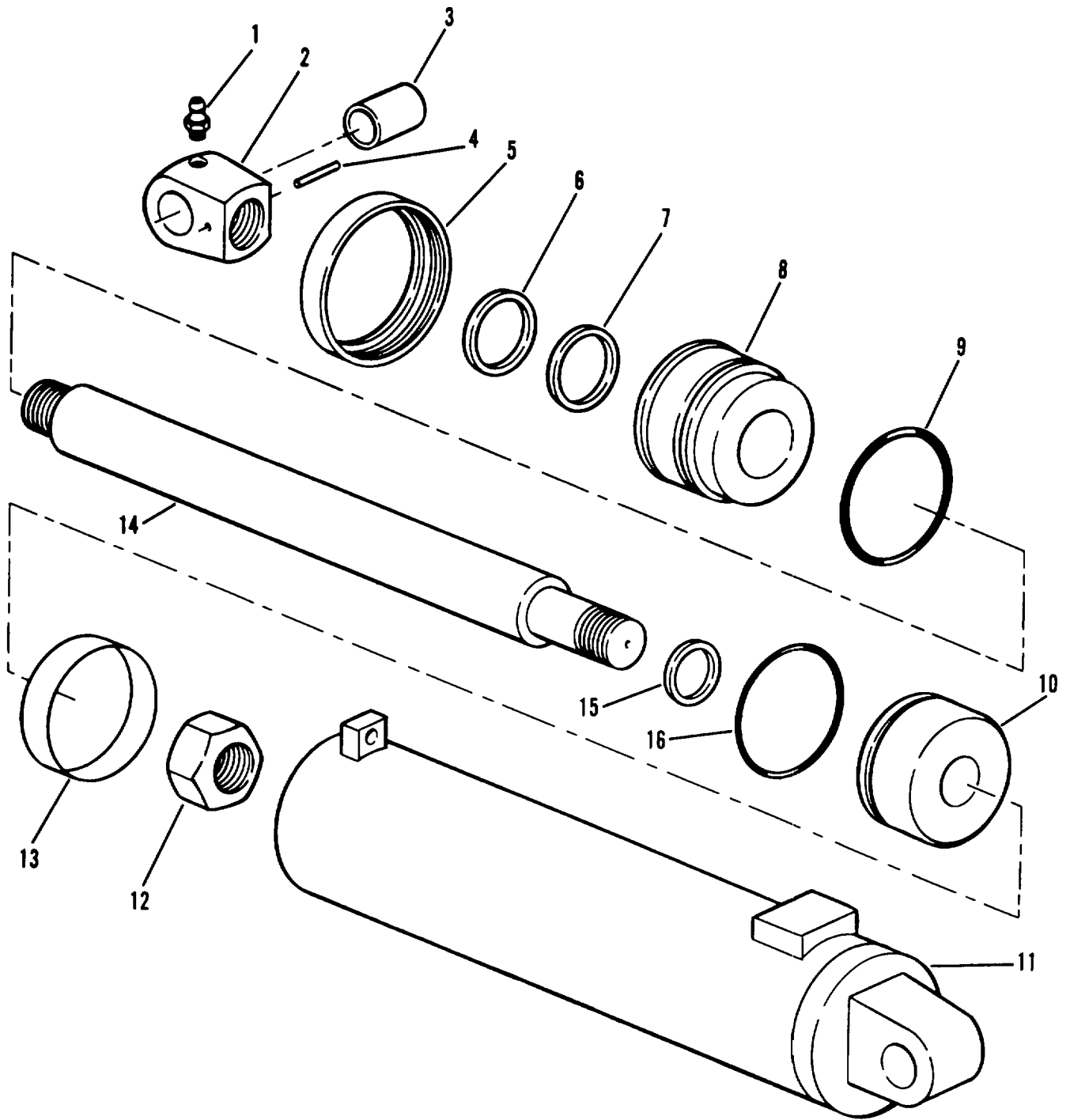


Figure C-24. Lift Cylinder Assembly

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-24. LIFT CYLINDER ASSEMBLY					
1	PAFZZ	96906	MS15002-1	FITTING,LUBRICATION	1
2	PAFZZ	51548	HCM87-i5	CONNECTOR,RCO END	1
3	PAFZZ	51548	HCM87-17	BUSHING1SLEEVE	2
4	PAFZZ	51548	HCM87-12	WEAR RING,CYLINDER	1
5	PAFZZ	51548	HCM87-13	PACKINGTPPEFCRMED	1
6	PAFZZ	51548	HCM87-10	RING,WIPER	1
7	PAFZZ	51548	HCM87-14	SEAL PLAIN.....	1
8	PAFZZ	51548	HCM87-16	PIN SPRIG	1
9	PAFZZ	51548	HCM87-11	PACKING,PREFORMED	1
10	PAFZZ	51548	HCM87-2	PISTON,LINEAR ACTUA	1
11	XAFZZ	51548	HCM87-6	BARREL ASSEMBLY	1
12	PAFZZ	51548	HCM87-1	NUT PISTON	1
13	PAFLZ	51548	HCM87-4	WEAR RING PISTON	1
14	PAFZZ	51548	HCM87-7	ROD,PISTC LINEAR A	1
15	XAFZZ	99997	BMT-4016-10	WIPER.ROD	1
16	PAFZZ	51548	HCM87-3	SEAL,PLAIN.....	1

END CF FIGURE

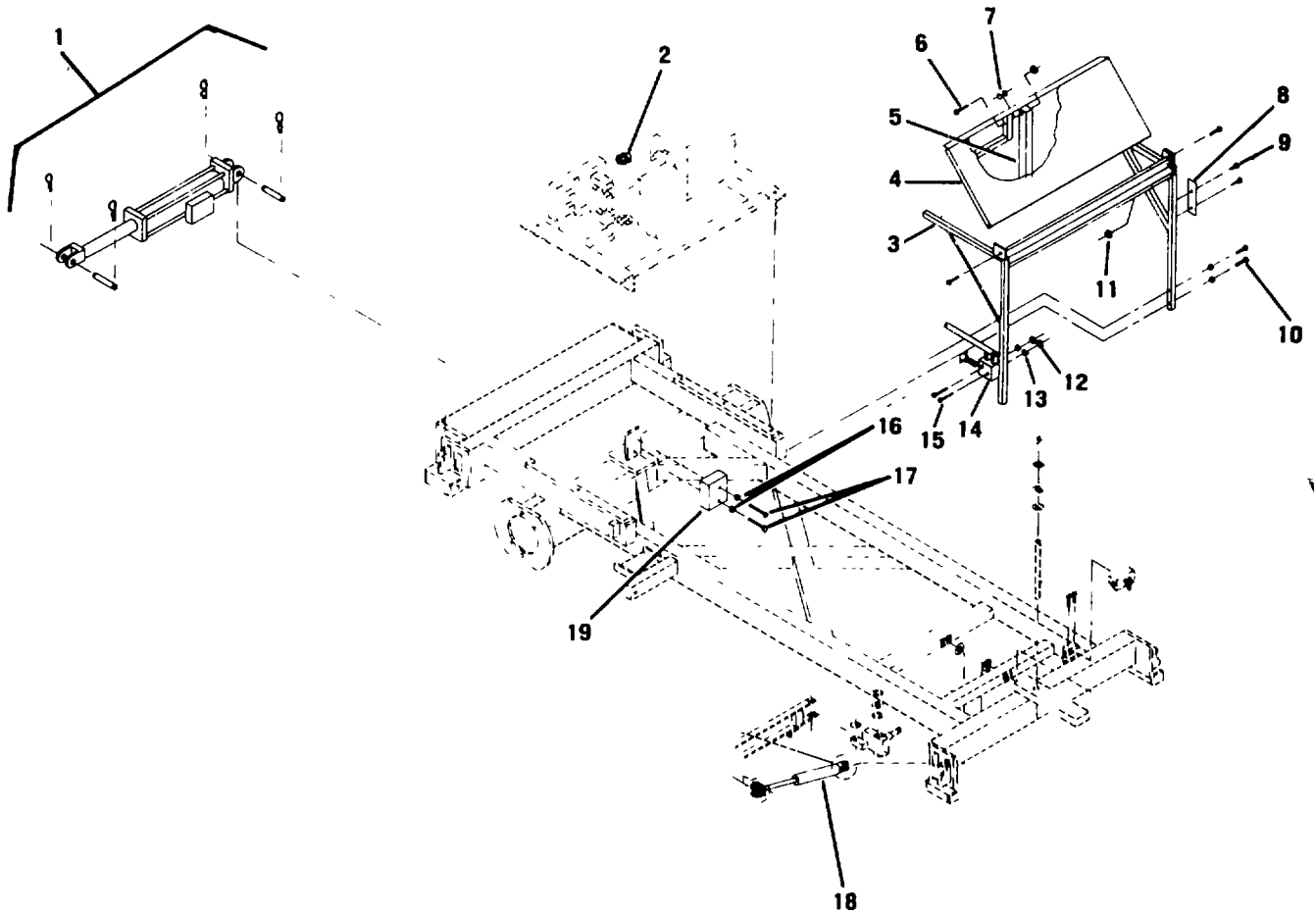


Figure C-25. Frame Assembly Hydraulic Components.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-25. FRAME ASSEPLBY HYDRAULIC COMPONENTS					
1	PAOOO	51548	C19054GA	CYL ASSEPL-R R-FSEE FIGURE C-27	2
1	PAOO	51548	C19054GB	FOR BREAKCEWN..... CYL ASSEMR-R L-FSEE FIGURE C-26.....	2
2	PAOZZ	87373	SFH-12H	FOR BREAKDOWN	2
3	XDOZZ	51548	C19104GA	FLANGE, SPLIT	2
4	XDOOZ	51548	C19102GA	SUPPORT COVER ENG 1	1
5	XDOZZ	51548	819101-1	COVER, ENGI NE	1
6	PAOZZ	51548	YE180191	SUPPORT* CCOVER	1
7	PAOZZ	88044	ANC60-816	SCREW,CAP,HEXAGON H	3
8	PAOZZ	05646	MB-250	WASER,FLAT	2
9	PAOLZ	51548	YK0011	BRACKET1FIRE EXTING*	1
10	PAOZZ	51548	YE180130	SCREW,TAPPING THPEA.....	2
11	PAOZZ	96906	MS51922-33	SCREW,CAP,HEXAGON H.....	4
12	PAOZZ	969C6	M5S51967-8	NUT#SELF -LOCKING, HE	3
13	PAFZZ	51548	YM120382	NUT PLAIN HEXAGON	2
14	PAOZZ	26953	HP3006-01-03	WASHER, LOCK.....	2
15	PAOZZ	51548	YE180134	PUMP,HYDRAULIC RAMN1	1
16	PAOZZ	96906	MS35338-45	SCREW,CAP,HEXGON H.....	2
17	PAOZZ	51548	YE173C63	WASHER LOCK.....	2
18	PAFZZ	16294	1407502	SCREW,CAP,HEXAGON H.....	2
19	PAOZZ	51548	019077-1	CYLINDER ASSEMBLY,A SEE FIGURE C- 28 FOR BREAK DOWN	1
				VALVE,SERIES PARAL	1

END OF FIGURE

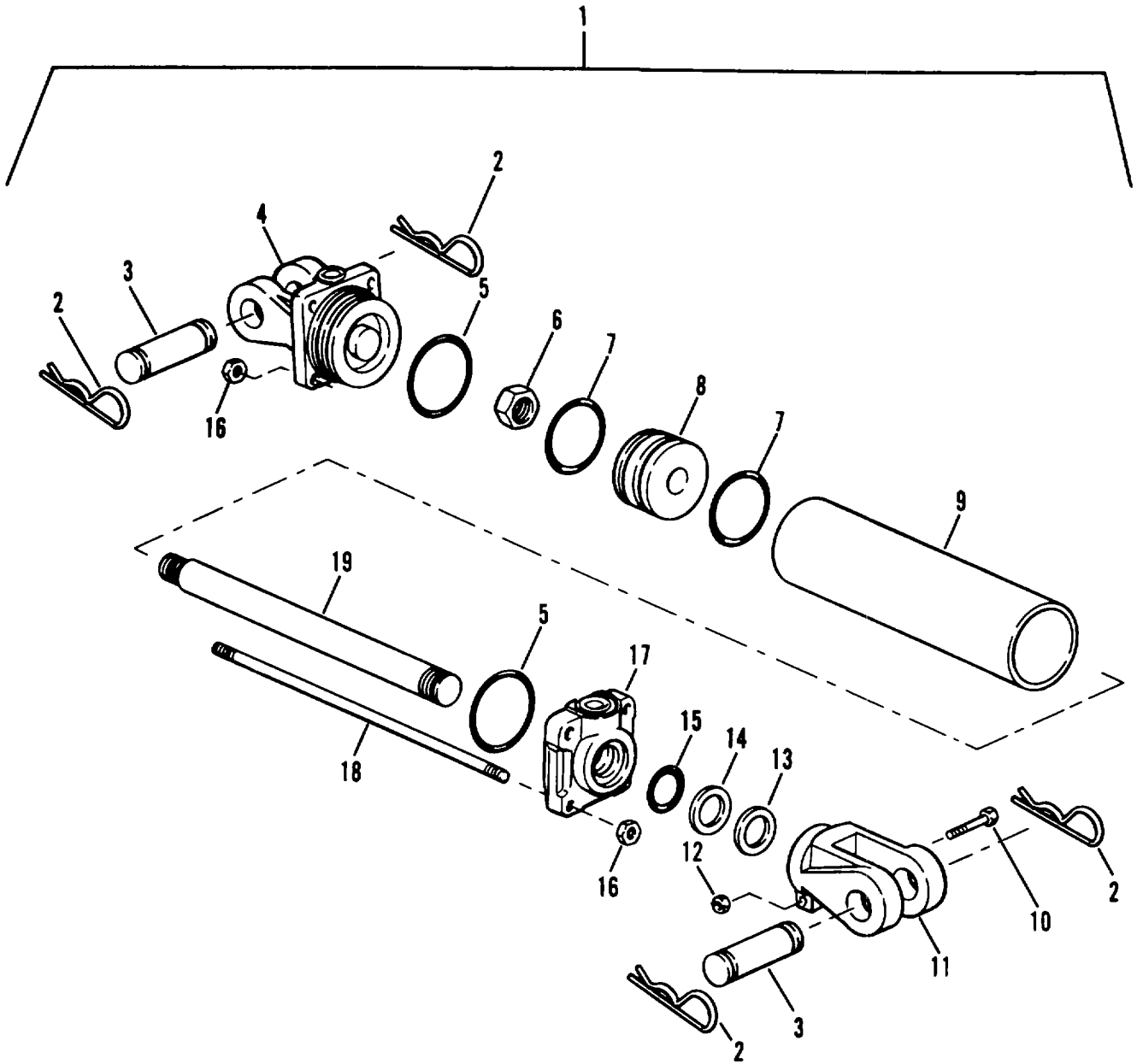


Figure C-26. Stabilizer Cylinder Assembly, Right Rear - Left Front.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-26. STABILIZER CYLINDER ASSEMBLY, - LEFT FRONT					
1	PAOFF	51548	C19054GB	CYLINDER ASSEMBLY,A	1
2	PAOZZ	98153	4070000001	•CLIP SPRING TENSION	4
3	PAOZZ	98153	4040000027	•PIN, PIVOT	2
4	PAFZZ	98153	0021000192 .	•CAP,LINEAR ACTUAT	1
5	PAOZZ	98153	2510000330	•SEAL	2
6	PAFZZ	98153	3510000173	•NUT PISTON	1
7	PAFZA	98153	2500000157	•SEAL,PISTON.....	1
8	PAFZZ	98153	0261000095 .	•PISTON, LINEAR	1
9	PAFZZ	98153	0031041016 .	•TUBE	1
10	PAFZZ	98153	3900000001	•SCREW,CAP,HEXAGON H	1
11	PAFZZ	98153	4060000014 .	•CLEVIS RCD END	1
12	PAFZZ	98153	3510000156 .	•NLT,PLAIN HEXAGON H.....	1
13	PAFZZ	98153	2550000056	•RING,WIPER	1
14	PAFZZ	98153	2520000023 .	•WASHER, BACK-UP.....	1
15	PAFZZ	98153	3510000215	•SEAL ROD.....	1
16	PAFZZ	98153	3510000004	•NUT,PLAIN,HEXAGON	8
17	PAFZZ	98153	0011000192	•HEAD LINEAR ACTUAT	1
18	PAFZZ	98153	0050061224	•ROD,TIE	4
19	PAFZZ	98153	0041030811	•ROD, PISTON LINEAR	1

END OF FIGURE

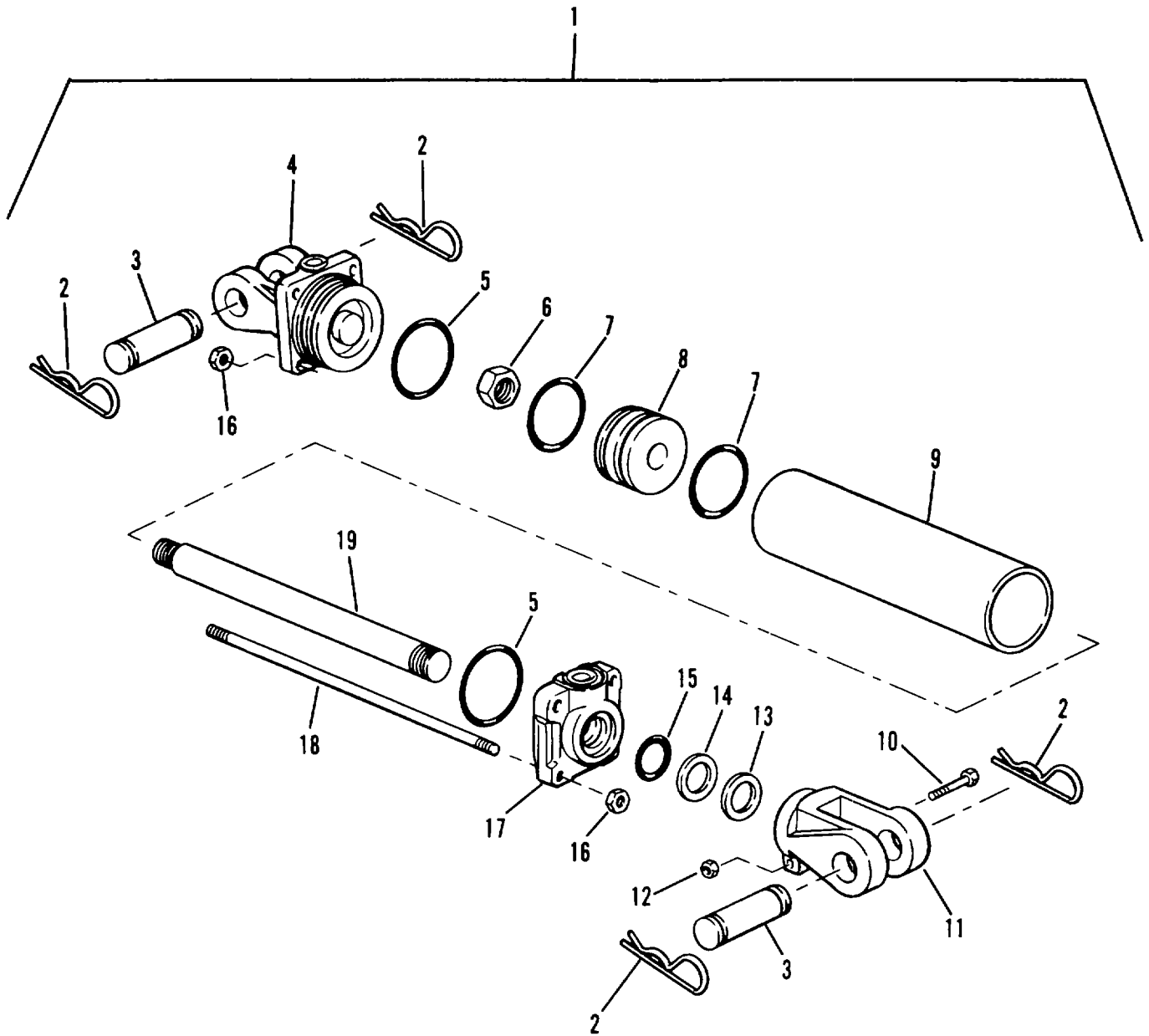


Figure C-27. Stabilizer Cylinder Assembly, Left Rear - Right Front.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-27. STABILIZER CYLINDER ASSEMBLY, LEFT FEAR - RIGHT FRONT					
1	PAOFF	51548	C19054GA	CYLINDER ASSEMBLY,A	1
2	PAOZZ	98153	4C7GOC001	•CLIP SPRING TENSION	4
3	PAOLL	98153	404C000027	•PIN, PIVOT	2
4	PAFZZ	98153	0021000192	•CAP,LINEAR ACTUAT	1
5	PAOZZ	98153	2510000330	•SEAL PLAIN ENCASED	2
6	PAFZZ	98153	3510000173	•NUT,PISTON	1
7	PAFZA	98153	2500000157	•SEAL PISTON.....	1
8	PAFZZ	98153	0261000095	•PISTON, LIEAR	1
9	PAFZZ	98153	0031041016	•TUBE	1
10	PAFZL	98153	3900000001	•SCREW,CAP,HEXAGON P	1
11	PAFZZ	98153	4060000014	•CLEVIS,RCD END	1
12	PAFZZ	98153	3510000156	•NUT PLAIN HEXAGCN	1
13	PAFZZ	98153	2550000056	•RING,WIPER	1
14	PAFZZ	98153	2520000023	•WASHER, BACK-UP	1
15	PAFZZ	98153	3510000215	•SEAL,ROD	1
16	PAFZZ	98153	3510000004	•NUT,PLAIN,HEXAGCN	8
17	PAFZZ	98153	0011000192	•HEAD,LINEAR ACTUAT	1
18	PAFZZ	98153	0C50061224	•ROD TIE	4
19	PAFZZ	98153	0041030811	•ROD, PISTON ,LINEAR	1

END OF FIGURE

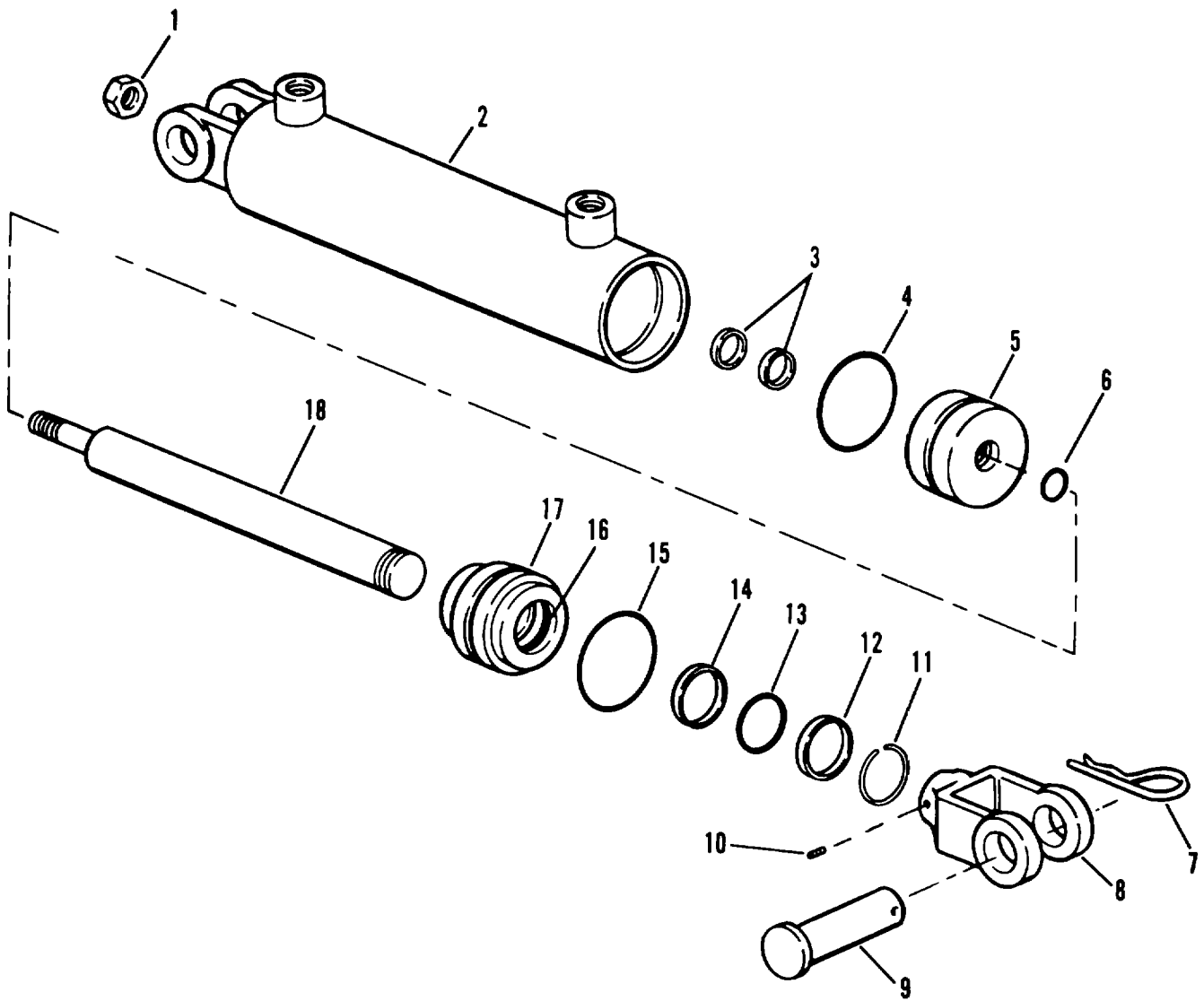


Figure C-28. Steering Cylinder.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-28. STEERING CYLINDER					
1	PAFZZ	16294	5020007	NUT,PLAIN HEXAGON	1
2	XDFZZ	16294	14076C6	BODY CYLINDER	1
3	PAFZZ	16294	5038330	RETAINER, PACKING	1
4	PAFZZ	162S4	5009330	PACKING,PPEFCRMED	1
5	PAFZZ	16294	1405871	PISTON, LINEAR ACTUA	1
6	PAFZZ	162S4	5009114	PACKING,PREFORMEC.....	1
7	PAOLZ	98153	4070000001	PIN, LOCK.....	1
8	PAFZZ	16294	1400973	CLEVIS,ROD END	1
9	PAOZZ	51548	C19059-6	PIN, GROOVED, HEADLES	1
10	PAFZZ	16294	5U92351	SCREW,SET	1
11	PAFZZ	16294	5082243	RING, RETAINING	1
12	PAFZZ	16294	5037216	RETAINER,PACKING	1
13	PAFZZ	16294	50C9216	PACKING,PREFCRMEDO	1
14	PAFZZ	16294	5037228	RETAINER,PACKING	1
15	PAFZZ	16294	509228	PACKING,PREFCRMED	1
16	PAFZZ	16294	1401444	RING,WIPER	1
17	PAFZZ	16254	14C5875	HEAD,LINEAR ACTUATI.....	1
18	PAFZZ	16294	1407903	ROD, PISTON, LINEAR A	1

END OF FIGURE

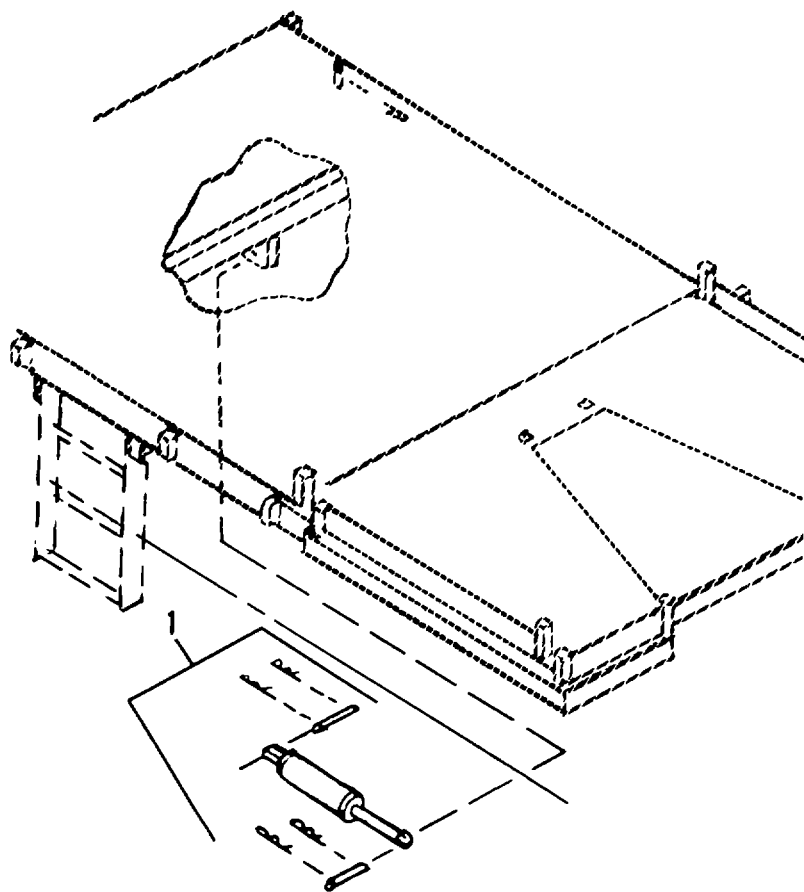


Figure C-29. Platform Cylinder.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
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FIGURE C-29. PLATFORM CYLINDER

1	PAOFF	98153	201042	CYLINDER,ACTUATING, SEE FIGURE C- 30 FOR BREAKDOWN	1
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END OF FIGURE

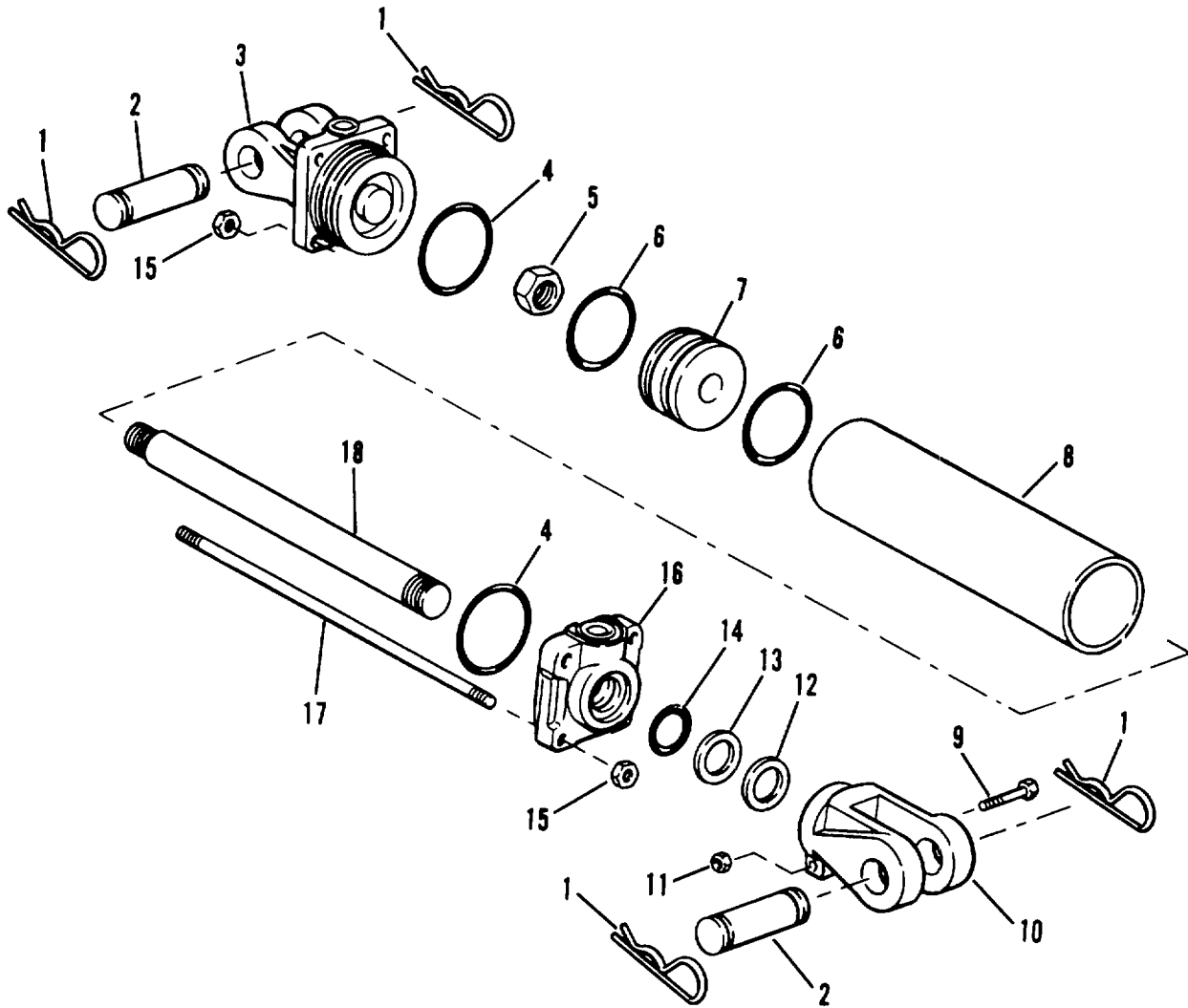


Figure C-30. Platform Cylinder Assembly.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-30. PLATFORM CYLINDER ASSEMBLY					
1	PAOZZ	98153	4070Q00001	CLIP SPRING TENSION	4
2	PAOZZ	98153	4040O00027	PIN, PIVOT	2
3	PBFZZ	98153	0021CCC101	CAP, LINEAR, ACTU	1
4	PAFZZ	98153	251000C326	SEAL, PLAIN ENCASED	2
5	PAFZZ	98153	35100CC173	NUT, PISTON.....	1
6	PAFZZ	98153	2500000C156	SEAL, PISTON.....	2
7	PAFZZ	98153	026t1C0094	PISTON, LIEAR.....	1
8	PAFZZ	98153	00o1031416	TUBE	1
9	PBFZZ	98153	390o00CO01	SCREW, CAP, HEXAGONH	1
10	PAFZZ	98153	4060C000014	CLEVIS, ROD END	1
11	PBFZZ	98153	3510&3C156	NUT PLAIN, HEXAGON	1
12	PAFZZ	98153	2550000056	RING, WIPER	1
13	PAFZZ	98153	2520000023	WASHER, BACK-UP	1
14	PAFZZ	98153	251000C215	SEAL, ROD	1
15	PBFZL	98153	35100C0004	NUT, PLAIN, HEXAGON	8
16	PAFZZ	98153	OC11OOCI01	HEAD, LINEAR ACTUATI	1
17	PBFZZ	98153	0050061624	ROD, TIE	4
18	PAFZZ	98153	0041031219	ROD, PISTCN, LINEAR	1

END OF FIGURE

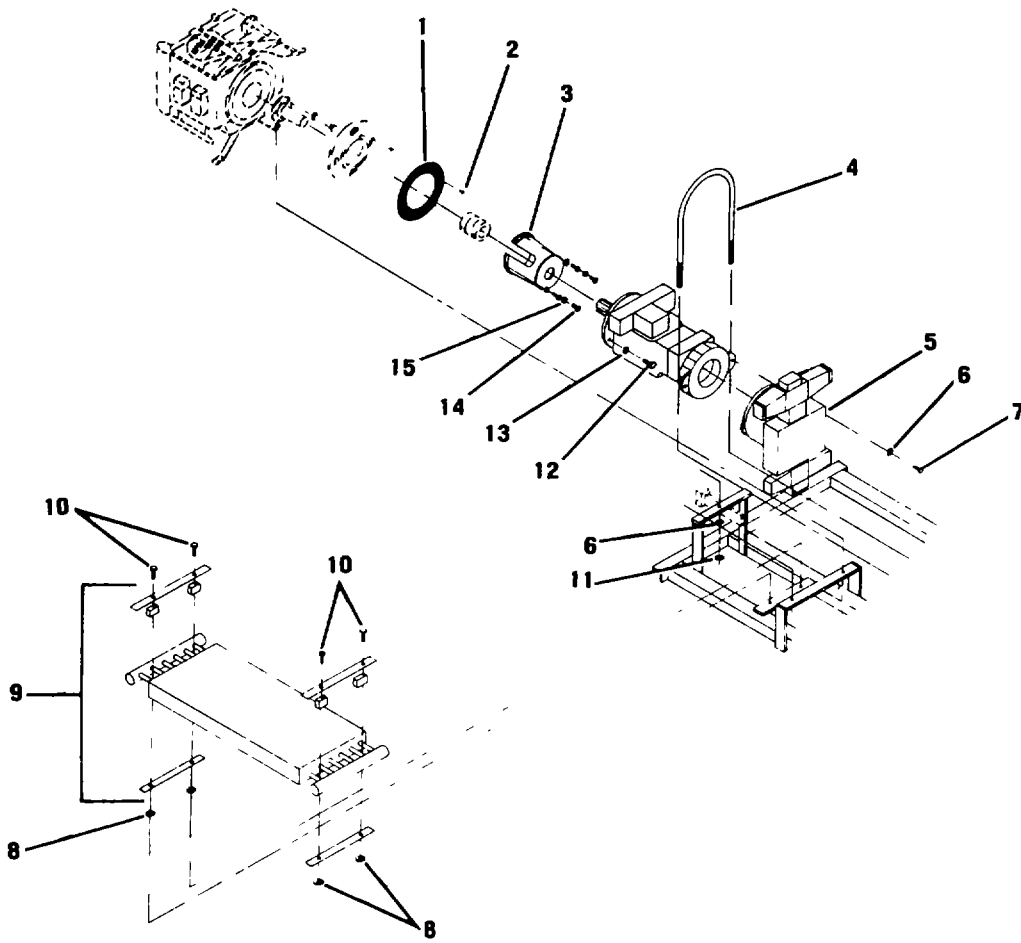


Figure C-31. Transmission Oil Cooler and Hydraulic Pump

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-31. TRANSMISSION OIL COOLER AND HYDRAULIC PUMP					
1	PAFZZ	51548	A19087-1	WIRE FABRIC	1
2	PAFZZ	51548	YZOO04	RIVET,BLIND	8
3	PAFZZ	25817	F2-2C	MOUNT,RESILIENT	1
4	XDFZZ	72741	CLA-5OOHD	CLAMP	1
5	PAOFF	51548	D19113GA	PUMP MANIFOLD AS SEE FIGURE C-34	1
				FOR BREADOWN.....	
6	PAOZZ	51548	YM120382	WASER LOCK	2
7	PAOZZ	51548	YE180124	SCREW, CAP, 1EXAGCN.....	3
8	PAFZZ	51548	YM120380	WASIER,LCCK.....	2
9	XDFZZ	10119	DB-1242	EXCHANGER, 1EAT	1
10	PAFZZ	96906	MS90728-16	SCREW,CAP,HEXAGON H	4
11	PAOZZ	96906	MS35649-2382	NUT PLAIN,HEXAGON	9
12	PAFZZ	80205	NAS1352-10-24P	SCREW,CAP,SCCKET	2
13	PAFZZ	96906	MS35338-50	WASPER,LCCK	2
14	PAFZZ	969C6	MS353C7-411	SCREW,CAP,HEXAGON h.....	4
15	PAFZZ	96906	MS35338-48	WASFER,LCCK	4

END OF FIGURE

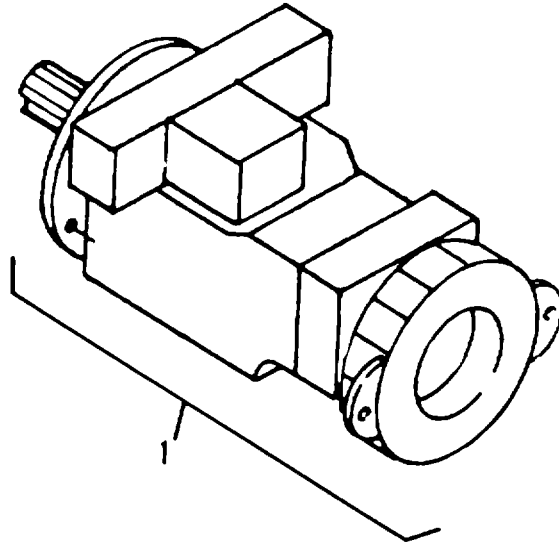


Figure C-32. Transmission Assembly.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
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FIGURE C-32. TRANSHISSICN ASSEMBLY

1	PAFDD	51548	HYT2	TRANSMISSION, HYDRA	1
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END OF FIGURE

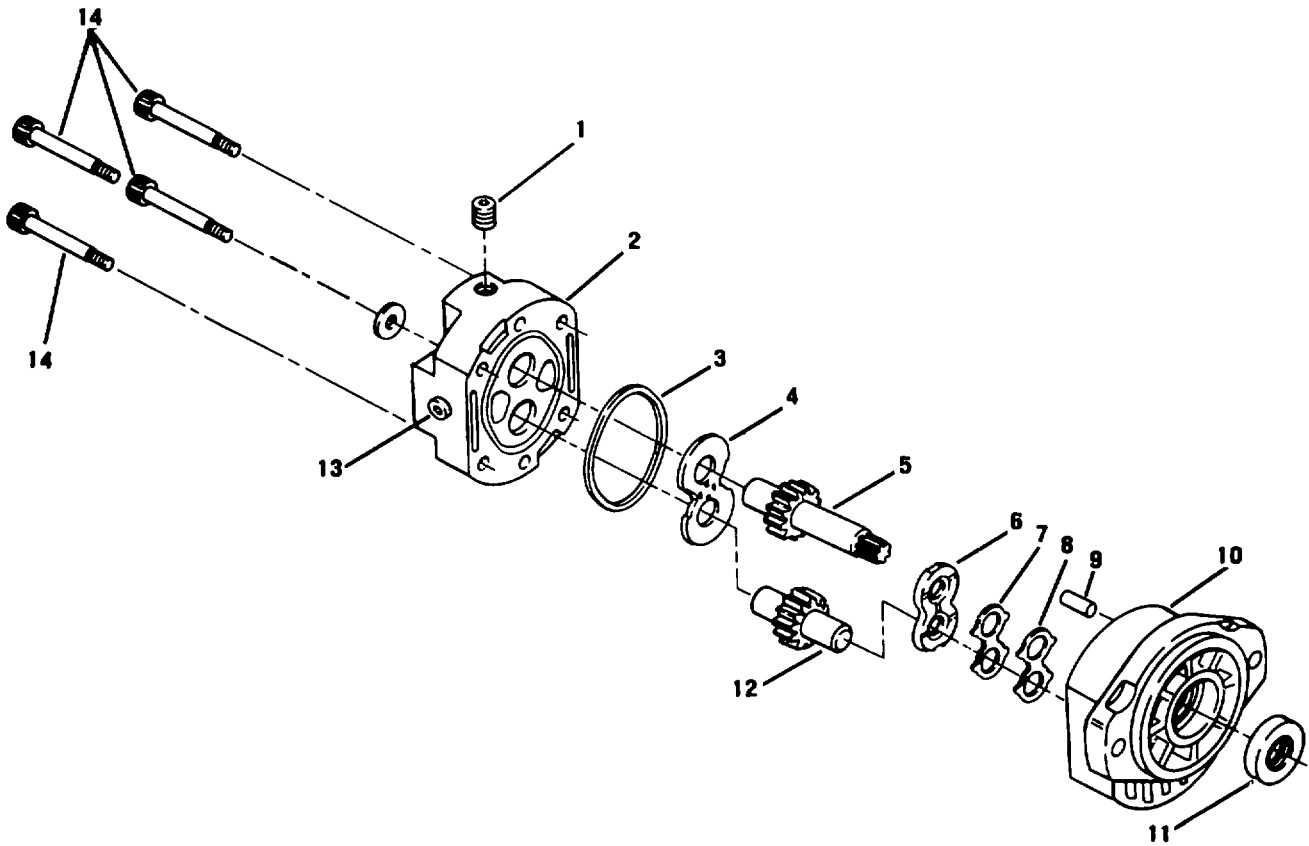


Figure C-33. Hydraulic Pump Assembly.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-33. HYGRAULIC PUMP ASSEMBLY					
1	XAOZZ	58114	76105-003	PLUG, PIPE	1
2	XAOZZ	58114	1501-542-001	COVER	1
3	PAFZZ	58114	62102-004	RETAINER,PACKING	1
4	PAFZZ	58114	1501-047-001	PLATE THRLST	1
5	PAFZZ	58114	1501-031-001	GEARSHAFT,SPUR.....	1
6	PAFZZ	58114	15C1-048-001	PLATE,WEAR.....	1
7	PAFZZ	58114	1501-0177-002	GASKET.....	1
8	PAFZZ	58114	1501-077-002	GASKET	1
9	PAFZZ	27005	69201-001	PIN,STRAIGHT HEADLE	2
10	PAFZZ	58114	15C1-553-001	BODY	1
11	PAFZZ	58114	1501-076-001	SEAL,PLAIN ENCASED	1
12	XDFZZ	58114	1501-032-001	GEAR,SPUR	1
13	PAFZZ	79470	7230X10	PACKING PREFORMED	1
14	PAOZZ	51548	YG147126	SCREW,CAP,SOCKET HE	4

END OF FIGURE

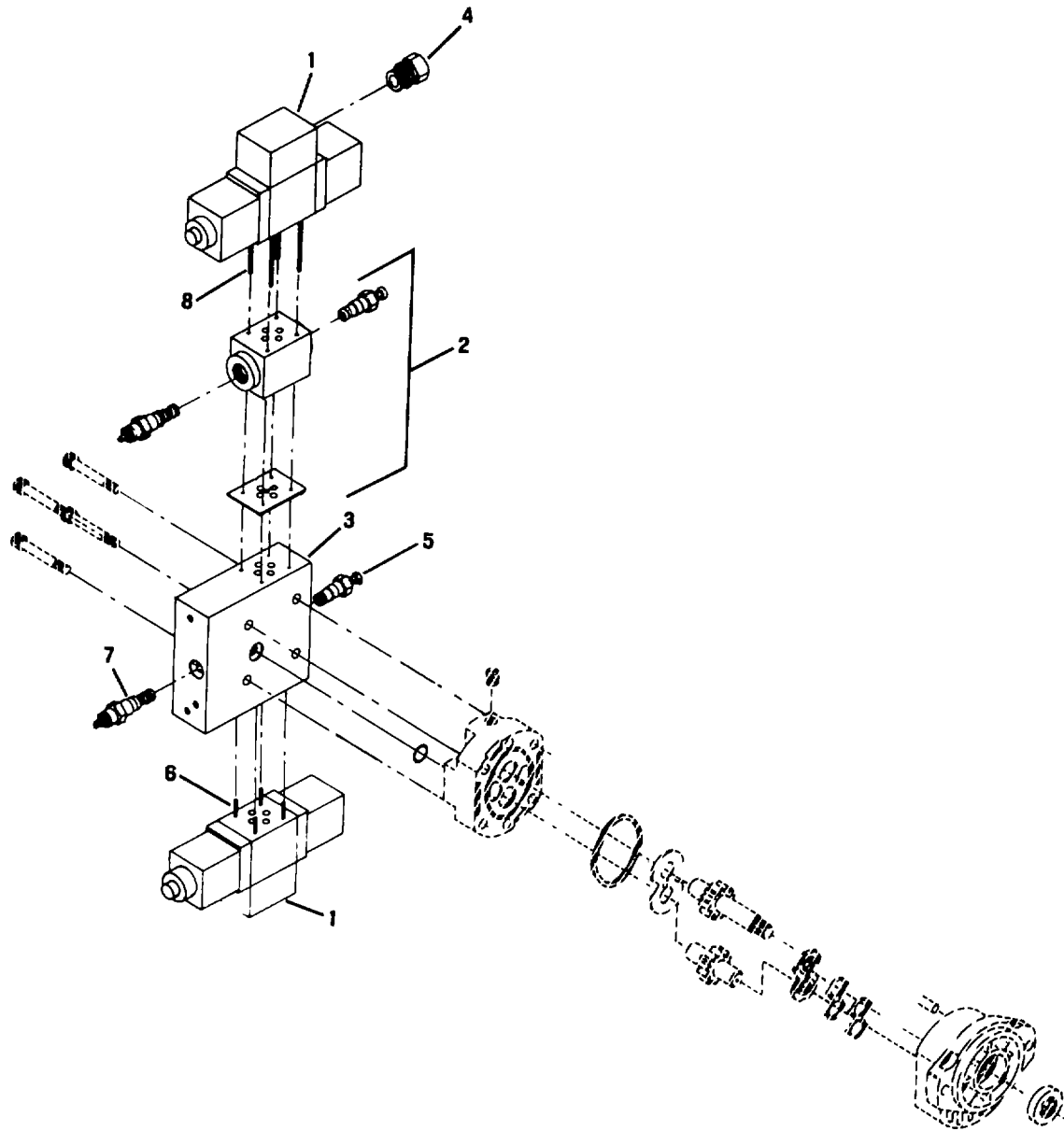


Figure C-34. Hydraulic manifold.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
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FIGURE C-34. HYCRAULIC MANIFOLD

1	PAOOO	51548	HV1C8	VALVE, LINEAR, DIRECT	2
2	XDOZZ	54035	RPEC-FAN-FBY	VALVE RELIEF, PRESSU	1
3	XDFZZ	51548	D19116GA	BLOCK ASSEVBLY.....	1
4	PAFZZ	79470	C3169X1	PLUG, PI PE	9
5	PAOZZ	54035	RPECFAN	CARTRIDGE, VALVE, REL	1
6	PAOZZ	80205	NAS1352-3-32P	SCREW,CAP,SOCKET	4
7	PAOZZ	54035	FRCA-LAN-1.0	VALVE, REGULATING, FL	1
8	PAOZZ	51548	YG100COO	SCREW,CAP,SOCKET h	4

END OF FIGURE

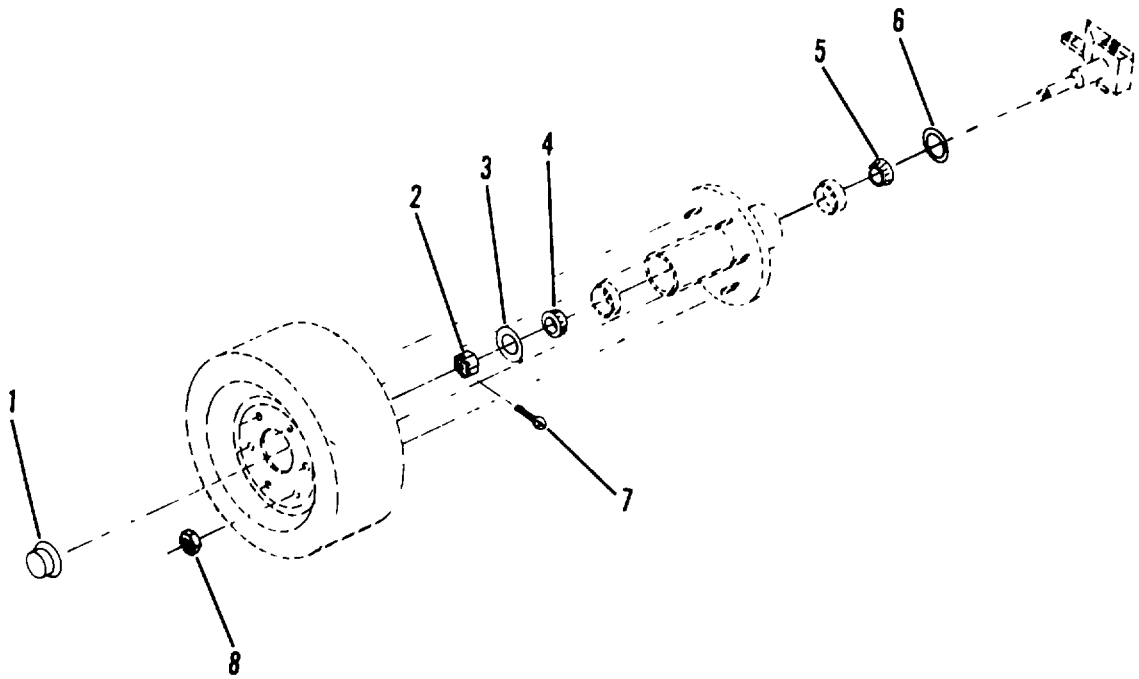


Figure C-35. Steering Wheel Bearings.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
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GROUP 04. CHASSIS

FIGURE C-35. STEERING WHEEL BEARINGS

1	PAOZZ	94189	14286	CAP DUST	2
2	PAOZZ	96906	MS356S2-61	NUT, PLAIN, SLOTTED, H	2
3	PAOZZ	96906	MS27183-23	WASHER, FLAT	2
4	PAFZZ	60038	L4464S	CGNE AND PCLLERS,TA	2
5	PAFZZ	60038	335	CONE AND ROLLERS,TA.....	2
6	PAOZZ	73680	63X3885	SEALTPLAIN ENCASED.....	2
7	PAOZZ	96906	MS24665-357	PIN,COTTER.....	2
8	PAFZZ	66080	913549	NUT LUG	36

END OF FIGURE

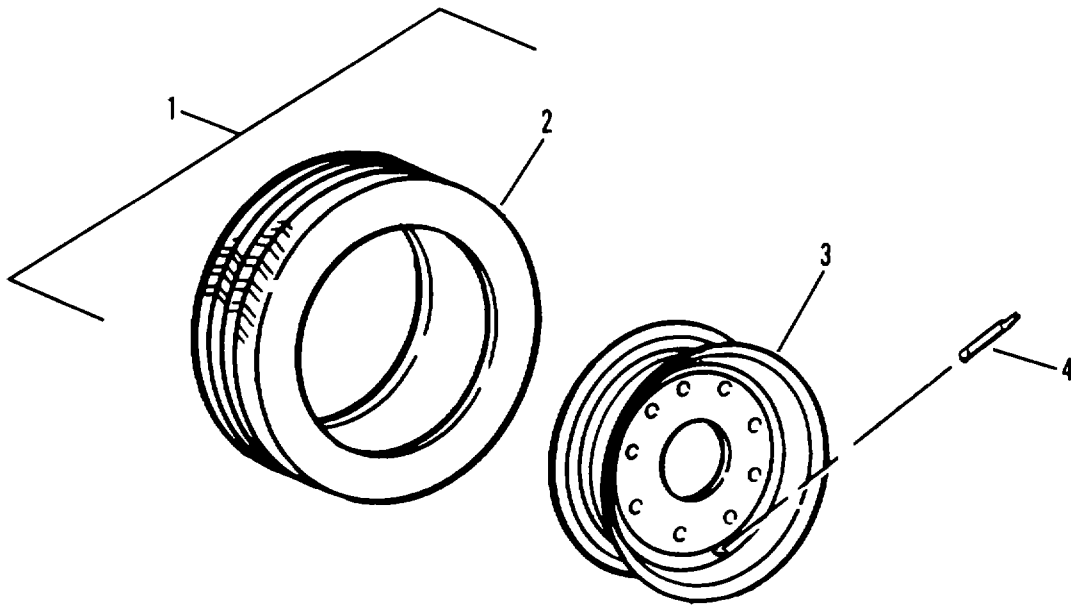


Figure C-36. Wheel and Tire.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
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FIGURE C-36. WHEEL AND TIRE

1	PAOFF	51548	819057GA	WHEEL , PNEUMATIC TIR	4
2	PAFZZ	73842	310508700	•TIRE,PNEUMATIC	1
3	PAFZZ	51548	B19111GB	•RIM,WHEEL PNEUATIC	1
4	PAFZZ	27783	595	•VALVE, PNEUMATIC TIR	1

END OF FIGURE

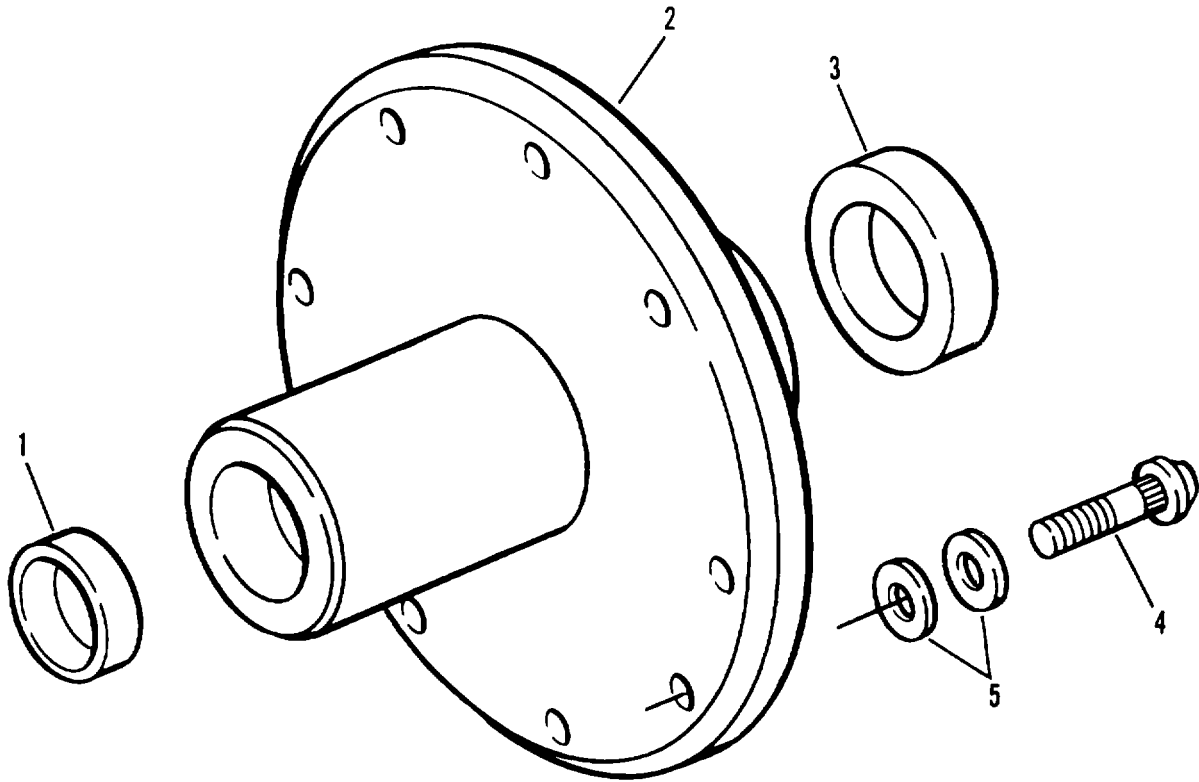


Figure C-37. Steering Wheel Hub.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
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FIGURE C-37. STEERING WHEEL HUB

1	PAFZZ	60038	L44610	CUP TAPEREC ROLLER.....	1
2	PAOFF	51548	CI9060GA	HUB,BODY.....	2
3	PAFZZ	60038	332	CUP,TAPERED ROLLER.....	1
4	PAFZZ	51548	M724	STUD,SELF-LCCKIG	9
5	PAFZZ	30876	TWE3	BEARING, WASHER, THRU	18

END OF FIGURE

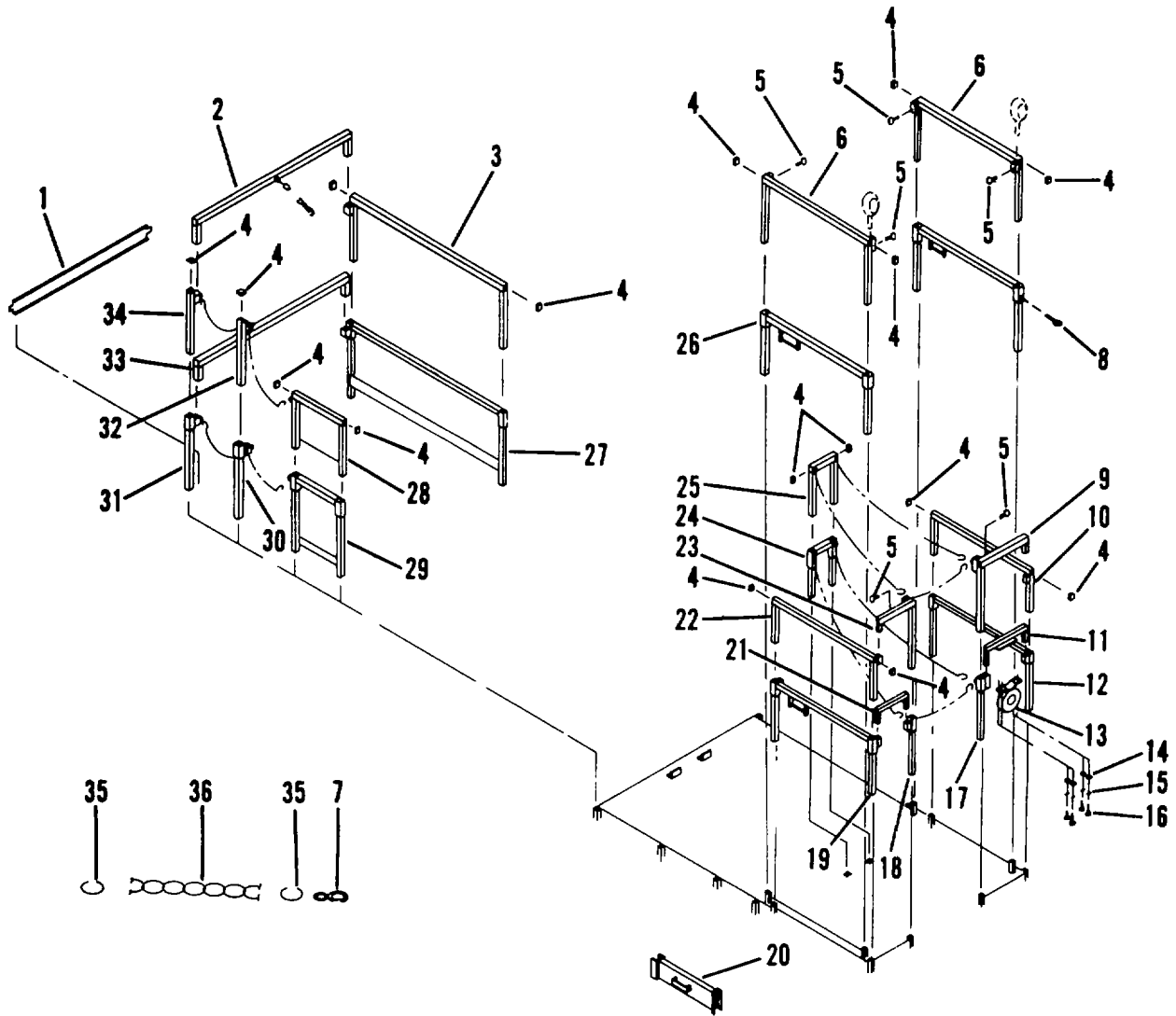


Figure C-38. Guard Rail Assembly.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-38. GUARD RAIL ASSEMBLY					
1	PAOZZ	51548	B15317GA	KICKPLATE, REAR	1
2	PAOZZ	51548	B19192GB	RAIL, GUARD RU	1
3	PAOZZ	51548	B19191GA	RAIL, GUARD LU	1
4	XDOZZ	99017	FP-204	CAP-PLUG, PROTECTIVE	16
5	PAOZZ	96906	MS21316-57	THUMBSCREW	6
6	PBOZZ	51548	819184GA	RAIL, GUARD UP	2
7	PBOZZ	39428	39G5T14	SNAP, HOOK	10
8	XDOZZ	96652	30-08	CLAMP, CABLE, ELECTRI	36
9	PAOZZ	51548	C19038GB	RAIL, GUARD L	1
10	PAOZZ	51548	C19036GB	RAIL, GUARD LU	1
11	PBOZZ	51548	A19040GA	RAIL, GUARD FL	1
12	PAOZZ	51548	C19037GB	RAIL, GUARD LL	1
13	PAOZZ	82366	2050-Y	GROUNDING SET TRAN	1
14	PAOZZ	88044	ANS60-616	WASHER, FLAT	4
15	PAOZZ	96906	MS35338-46	WASHER, LOCK	4
16	PAOZZ	96906	MS90728-55	SCREW, CAP, HEXAGON H	4
17	PAOZZ	51548	B19039GB	RAIL, GUARD LL	1
18	PAOZZ	51548	B19039GA	RAIL, GUARD RL	1
19	PAOZZ	51548	CL9037GA	RAIL, GUARD RL	1
20	PAOZZ	51548	B19033GA	SPACER, PLATE	1
21	PAOZZ	51548	A1904OGB	RAIL, GUARD FR	1
22	PAOZZ	51548	C19036GA	RAIL, GUARD RU	1
23	PAOZZ	51548	C19038GA	RAIL, GUARD L	1
24	PAOZZ	51548	A1S193GA	RAIL, GUARD RL	1
25	PAOZZ	51548	A19194GA	RAIL, GUARD RU	1
26	PAOZZ	51548	819183GA	RAIL, GUARD TOW	2
27	PAOZZ	51548	B1919CGA	RAIL, GUARD LL	1
28	PAOZZ	51548	A19186GA	RAIL, GUARD RU	1
29	PAOZZ	51548	A19185GA	RAIL, GUARD RL	1
30	PAOZZ	51548	A19189GB	RAIL, GUARD ENT L	1
31	PAOZZ	51548	A19189GA	RAIL, GUARD LRR	1
32	PAOZZ	51548	A1S188GB	RAIL, GUARD ENT U	1
33	PAOZZ	51548	819192GA	RAIL, GUARD RL	1
34	PAOZZ	51548	A1S188GA	RAIL, GUARD URR	1
35	PBOZZ	93922	84090	LINK, CHAIN, LAP	20
36	PAOZZ	19207	81c886	CHAIN, WELDED	2

END OF FIGURE

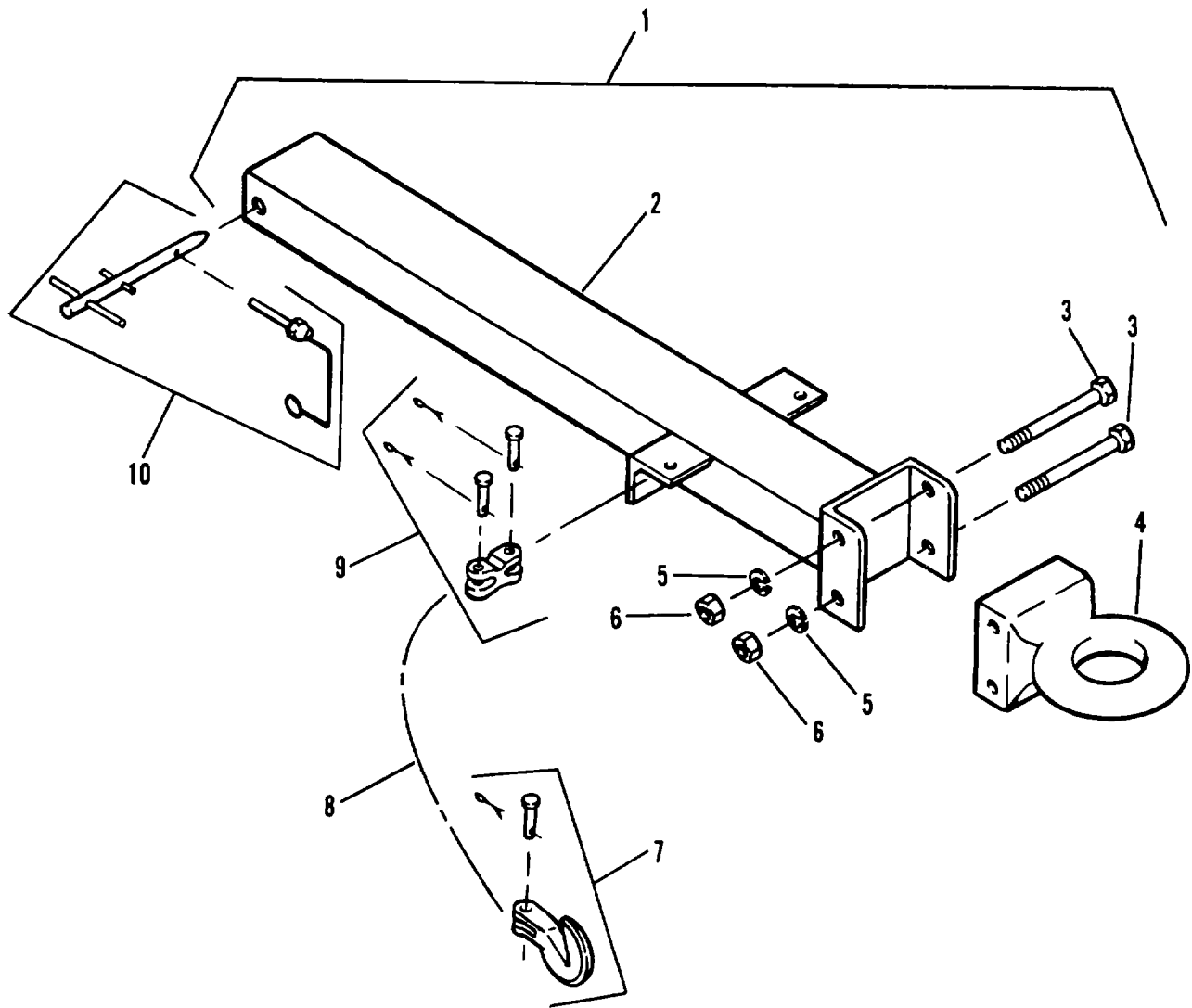


Figure C-39. Towing Assembly.

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC) FIGURE C-39. TOWING ASSEMBLY	(6) QTY
1	PAOZZ	51548	B19310GA	TOWBAR AIRCRAFT	1
2	XAOZZ	51548	B1891CGA	.WELDMENT, TCNGUE	1
3	PAOZZ	96906	MS90728-174	.SCREW, CAP, HEXAGON H.....	2
4	PAOZZ	33155	16137	.EYE, LUNNETTE	1
5	PAOZZ	96906	NS35338-50	.WASHER, LCCK	2
6	PAOZZ	96906	MS356i1-49	.NUT, PLAIN, HEXAGON	2
7	PAOZZ	51548	M681	.HOOK, GRAB	2
8	PAOZZ	51548	M682-024	.CHAIN, WELDED MAKE FROM 24 IN. (61 CM) 51548 P/N M682	
9	XDOZZ	51548	M714	.CLEVIS AND U-BOLT	2
10	PAOZZ	51548	A90O85GA	PIN, STRAIGHT, HEADED	1

END OF FIGURE

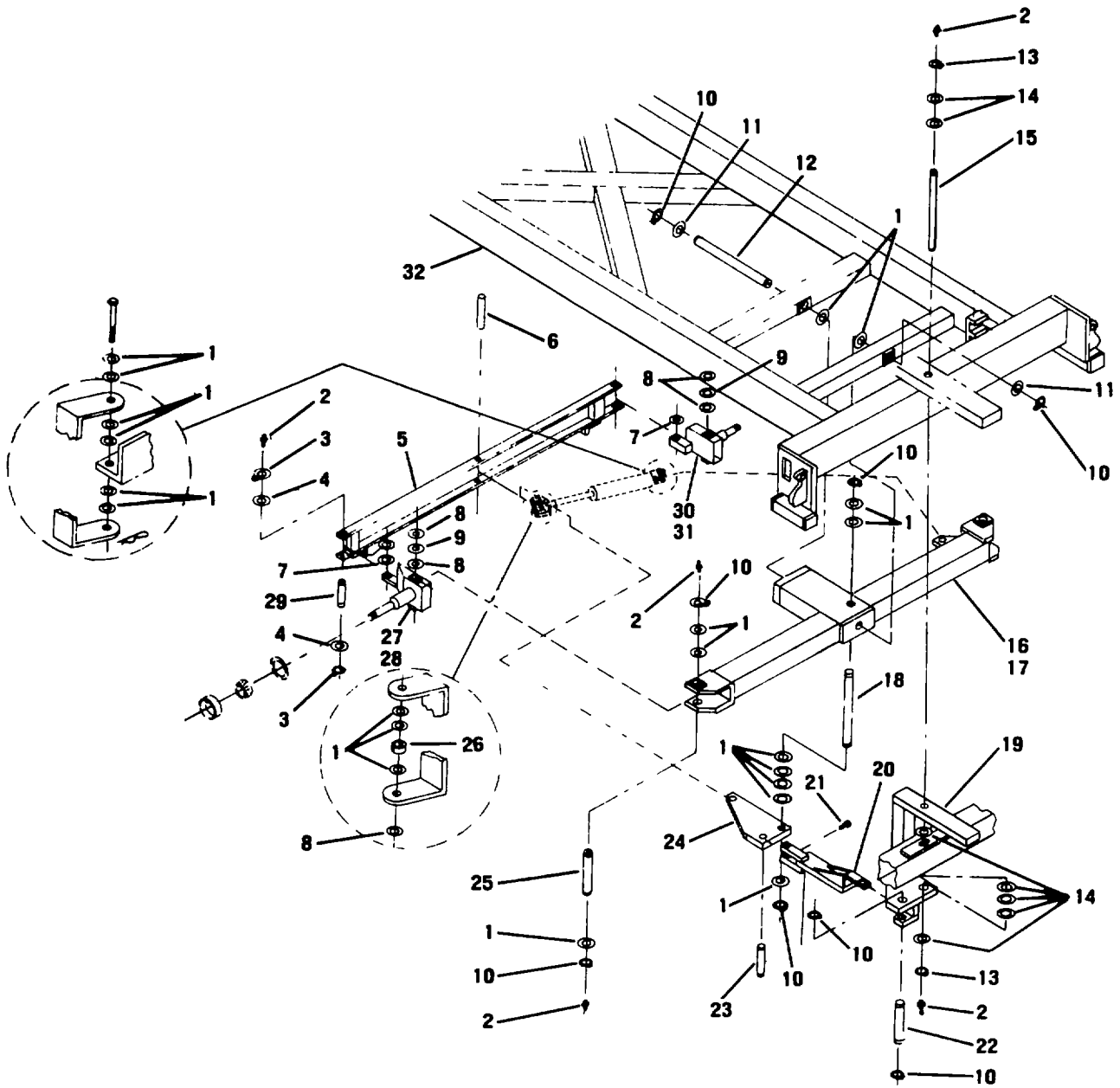


Figure C40. Steering Assembly.

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-40. STEERING ASSEMBLY					
1	PAFZL	96652	37-03	WASHER, FLAT.....	33
2	PAOZZ	96906	MS15002-1	FITTING, LUBRICATION	8
3	PAFZZ	54963	1460-62	RING, RETAINER	4
4	PAOZZ	96652	36-03	WASHER, FLAT.....	4
5	PAFZZ	51548	B18906GA	TIE ROD ASSEMBLY	1
6	PAOZZ	51548	A19062-2	PIN, STRAIGHT, HEADLE	1
7	PAFZZ	30876	TW63	BEARING, WASHER, THR	8
8	PBFZZ	96652	40-05	WASHER, FLAT	4
9	PAFZZ	09455	LTD-1632	BEARING, WASHER, THRU	2
10	PAOZZ	54963	1460-75	RING, RETAINER	2
11	PAOZZ	96652	35-06	WASHER, FLAT.....	2
12	PAFZZ	51548	C19059-1	SHAFT, STRAIGHT	1
13	PAOZZ	79136	5160-125	RING, RETAINING	2
14	PBOZZ	96652	37-05	SPACER PLATE	7
15	PAOZZ	51548	C19059-2	PIN, GROOVED, HEADLES	1
16	PBFZZ	51548	C18862GA	AXLE, PIVOTING	1
17	PAFZL	70417	AA-1110-1	BEARING, SLEEVE	4
18	PAOZZ	51548	C19059-4	PIN, GROOVED, HEADLES	1
19	PBOZZ	51548	C18911GA	TONGUE TOWING	1
20	PBOZZ	51548	818912GA	TONGUE, TOWING	1
21	PAOZZ	51548	YF139013L	SCREW, SELF-LOCKING	2
22	PAOZZ	51548	C19059-3	PIN, GROOVED, PEACLES.....	1
23	PAOZZ	51548	A19062-1	PIN, STRAIGHT, HEADLE	1
24	PAOZZ	51548	A18924GA	LINK, TIE ROD	1
25	PAFZZ	51548	C19C59-6	PIN, GROOVED, HEADLES.....	2
26	PAOZZ	71041	SC100	COLLAR, SHAFT	1
27	PBFZL	51548	C18750GA	SPINDLE, WHEEL, DRIVE	1
28	PAFZZ	70417	AA-710-04	BEARING, SLEEVE	1
29	PAFZZ	51548	C19059-5	PIN, GROOVED, HEADLES	2
30	PBFZZ	51548	C1675CGB	SPINDLE, WHEEL, DRIVE.....	1
31	PAFZZ	70417	AA-710-04	BEARING, SLEEVE	1

END OF FIGURE

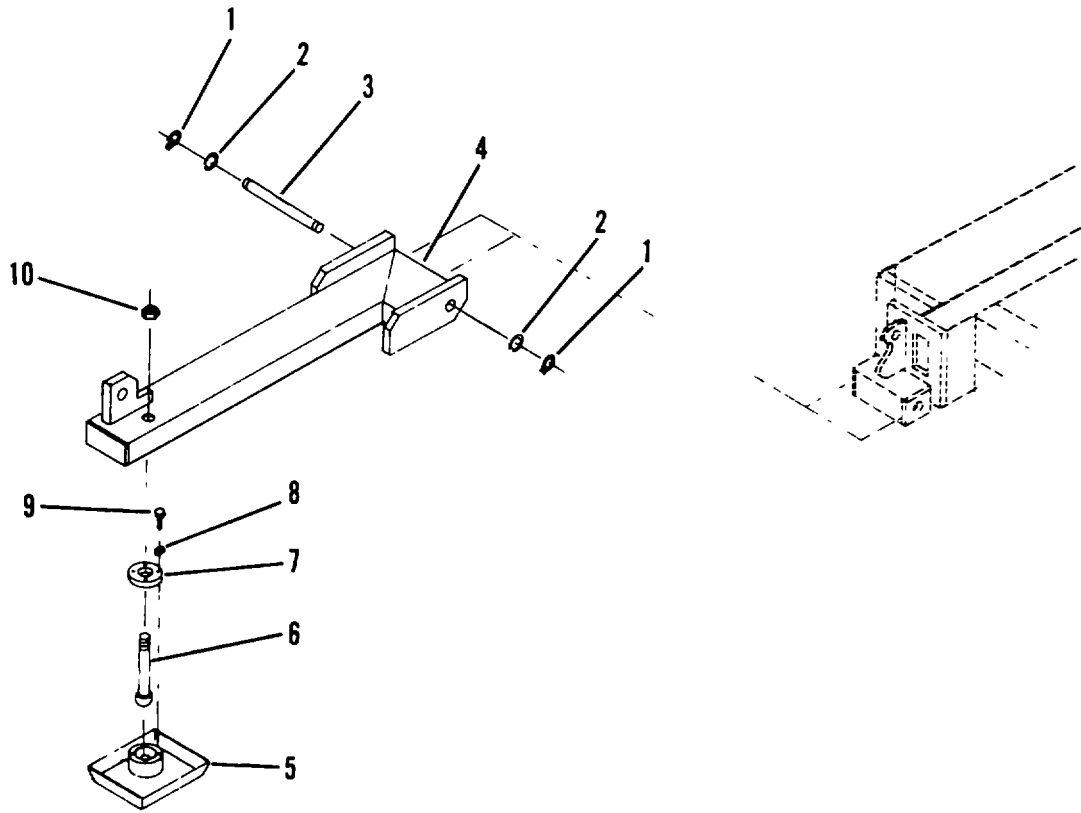


Figure C-41. Stabilizer Assembly.

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-41. STABLIZER ASSEMBLY					
1	PAFZZ	79136	5160-S8	RING, RETAINING	16
2	PAFZZ	96652	37-C3	BUSHING	43
3	PAFZZ	51548	C19C59-7	PIN, GROOVED, FEACLES	4
4	PAFZL	51548	C19C78GA	LEG, STABILIZER.....	2
4	PAFZZ	51548	C19078GB	LEG, STABILIZER.....	2
5	PAFZZ	51548	B19093GA	PAD, STABILIZER	4
6	PAFZZ	51548	BJS088-1	STUD, BALL.....	4
7	PBFZZ	51548	A1909G-1	COVER, ACCESS.....	4
8	PAFZZ	96906	MS35338-46	WASHER, LCCK.....	22
9	PAFZZ	51548	YE180124	SCREW, CAP, HEXAGON.....	16
10	PAFZZ	96906	MHS35691-93	NUT, PLAIN, HEXAGON	4

END OF FIGURE

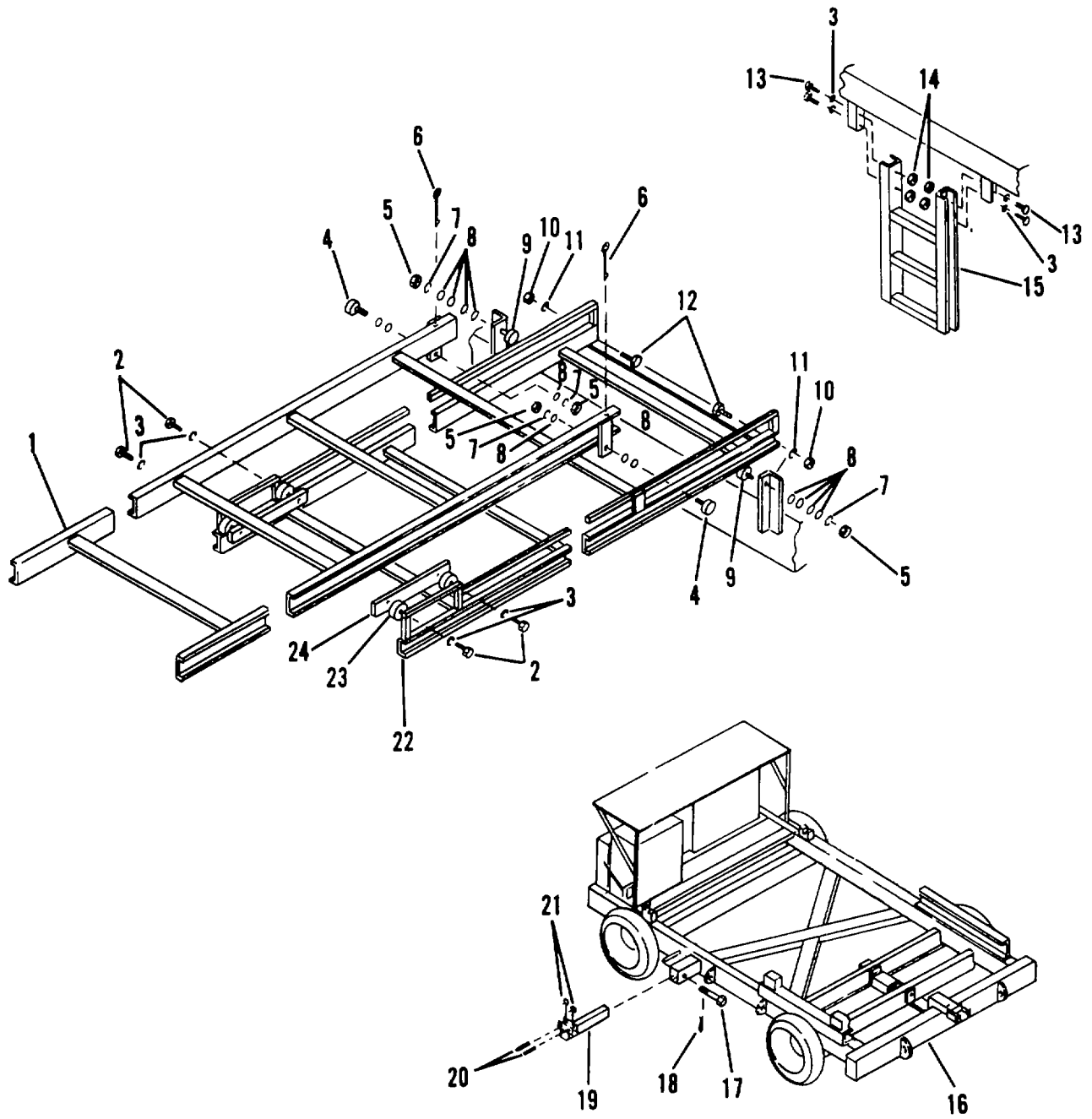


Figure C-42. Ladder Assembly.

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-42. LAODER ASSEMBLY					
1	PBFZZ	51548	C18931GA	LADDER, TELESCOPING	1
2	PAOZZ	5154B	YE180130	SCREW, CAP, HEXAGON H.....	4
3	PAOZZ	51548	YHM120382	WASHER, LOCK.....	12
4	PAOZZ	51588	H-32-L	CAM FOLLOWER, NEEDLE	2
5	PAOZZ	96906	MS35691-53	NUT, PLAIN, HEXAGON	4
6	PAOZZ	96652	30-09	PIN, QUICK RELEASE	2
7	PAOZZ	96906	MS35338-50	WASHER, LOCK.....	4
8	PAOZZ	96906	MS27183-22	WASHER, FLAT.....	8
9	PAOZZ	51588	S52-L	CAM FOLLOWER, NEEDLE	2
10	PAOZZ	96906	MS35691-35	NUT, PLAIN, HEXAGON	2
11	PAOZZ	96906	MS35338-48	WASHER, LOCK.....	2
12	PAOZZ	96906	MS35307-411	SCREW, CAP, HEXAGON H	2
13	PAOZZ	96906	MS35307-360	SCREW, CAP, HEXAGON H	4
14	PAOZZ	96906	MS35649-2382	NUT, PLAIN, HEXAGON	4
15	PBFZZ	51548	C1905OGA	LADDER, VEHICLE 8CA.....	1
16	XCOZZ	51548	019055	FRAME ASSEMBLY	1
17	PAOZZ	51548	A19028-1	PIN, RETAINING	1
18	PAOZZ	96652	21-06	PIN.....	2
19	XDOZZ	51548	C18982GA	SUPPORT LADDER	1
20	PAFZZ	96906	MS16562-72	PIN.SPRING	2
21	PAOZZ	51588	Y-32-L	BEARING, ROLLER, NEED	2
22	PBFZZ	51548	C18929GA	LADDER, TELESCOPING.....	1
23	XDOZZ	51548	A18933-1	SPACER, SLIDE	4
24	XDOZZ	51548	A18932-1	SLIDE, LADDER.....	2

END OF FIGURE

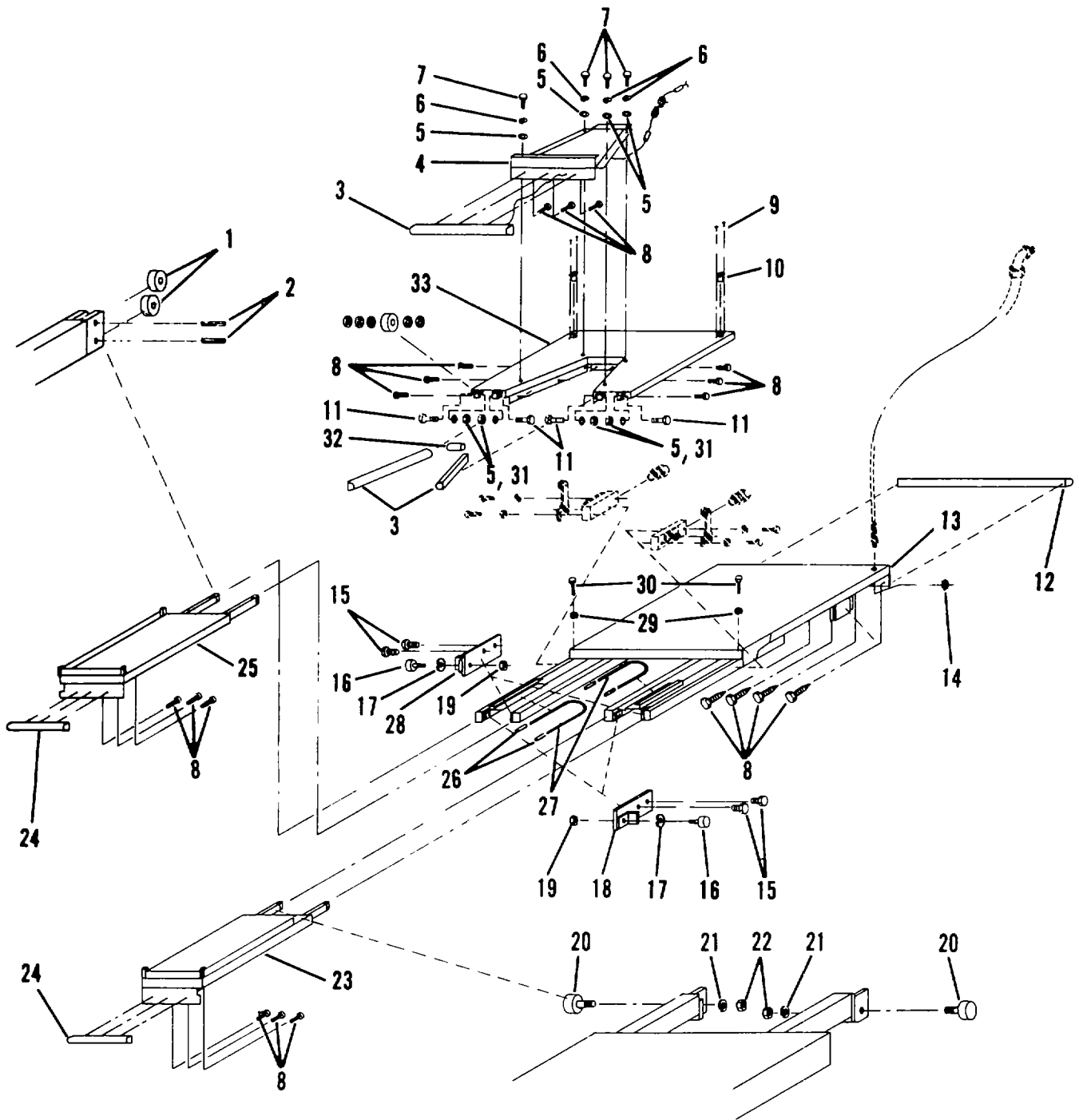


Figure C-43. Platform Assembly.

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-43. PLATFGRP ASSEMBLY					
1	PAFZZ	51588	Y-32-L	BEARING, ROLLER, NEED	8
2	PAOZZ	96906	MS16562-72	PIN, SPRING.....	8
3	PAFZZ	51548	B19176GA	BUMPER, 45 INCH.....	3
4	XDFZZ	51548	C19202GA	PANEL, REMOVABLE.....	1
5	PAOZZ	88044	ANS60-416	WASHER, FLAT	12
6	PAOZZ	96906	M535338-43	WASHER, LOCK.....	4
7	PAOZZ	969C6	MS353C7-313	SCREW, CAP, HEXAGON H.....	4
8	PAOZZ	96906	MS35492-50	SCREW, WOOD	21
9	PAOZZ	96906	MS51861-35	SCREW, TAPPING, THREAT	4
10	PAOZZ	77326	11-410	CONNECTOR, RECEPTACL	2
11	PAOZZ	51548	YE180C89	SCREW, CAP, HEXAGON H	4
12	PAFZZ	51548	BI9177GA	BUMPER,95 INCH
13	XDFZZ	51548	D1e739GA	MAIN DECK	1
14	PAOZZ	03743	BL75	LOCKNUT, ELECTRICAL.....	3
15	PAOZZ	96906	MS35307-360	SCREW, CAP, HEXAGON H	8
16	PAFZZ	51588	H-40-L	CAM FOLLOWER NEEDLE	4
17	PAOZZ	51548	YM131046	WASHER, LOCK.....	4
18	XDFZZ	51548	A18013GA	STOP, RH EXT	2
19	PAOZZ	969G6	MS35691-61	NUT, PLAIN, HEXAGON	4
20	PAFZZ	51588	H-32-L	CAM FOLLOWER, NEEDLE	4
21	PAOZZ	96906	MS35338-50	WASHER, LOCK	4
22	PAOZZ	96906	MS35691-53	NUT, PLAIN, HEXAGON	4
23	XDFZZ	51548	D18988GA	DECK, EXT LH.....	1
24	PAFZZ	51548	B19175GA	BUMPER, 25 INCH.....	2
25	XDFZZ	51548	D18989GA	DECK, EXT RH-	11
26	XAOZZ	87373	540N-6	HOSE, HYDRAULIC MAKE FROM 72 IN. (182 CM) 87373 P/N 540N-6.....	2
27	PAOZZ	09079	FIT-700-21	INSULATION SLEEVING	36
28	XDFZZ	51548	A18012GA	STOP LH EXT	2
29	PAOZZ	96906	MS35338-46	WASHER, LOCK.....	2
30	PAOZZ	969C6	MS90728-65	SCREW, CAP, HEXAGON H.....	2
31	PAOZZ	96906	MS356S1-61	NUT, PLAIN, HEXAGON	4
32	PAFZZ	51548	819174GA	BUMPER, 14 INCH.....	1
33	XOFZZ	51548	D19151GA	FOREDECK	1

END OF FIGURE

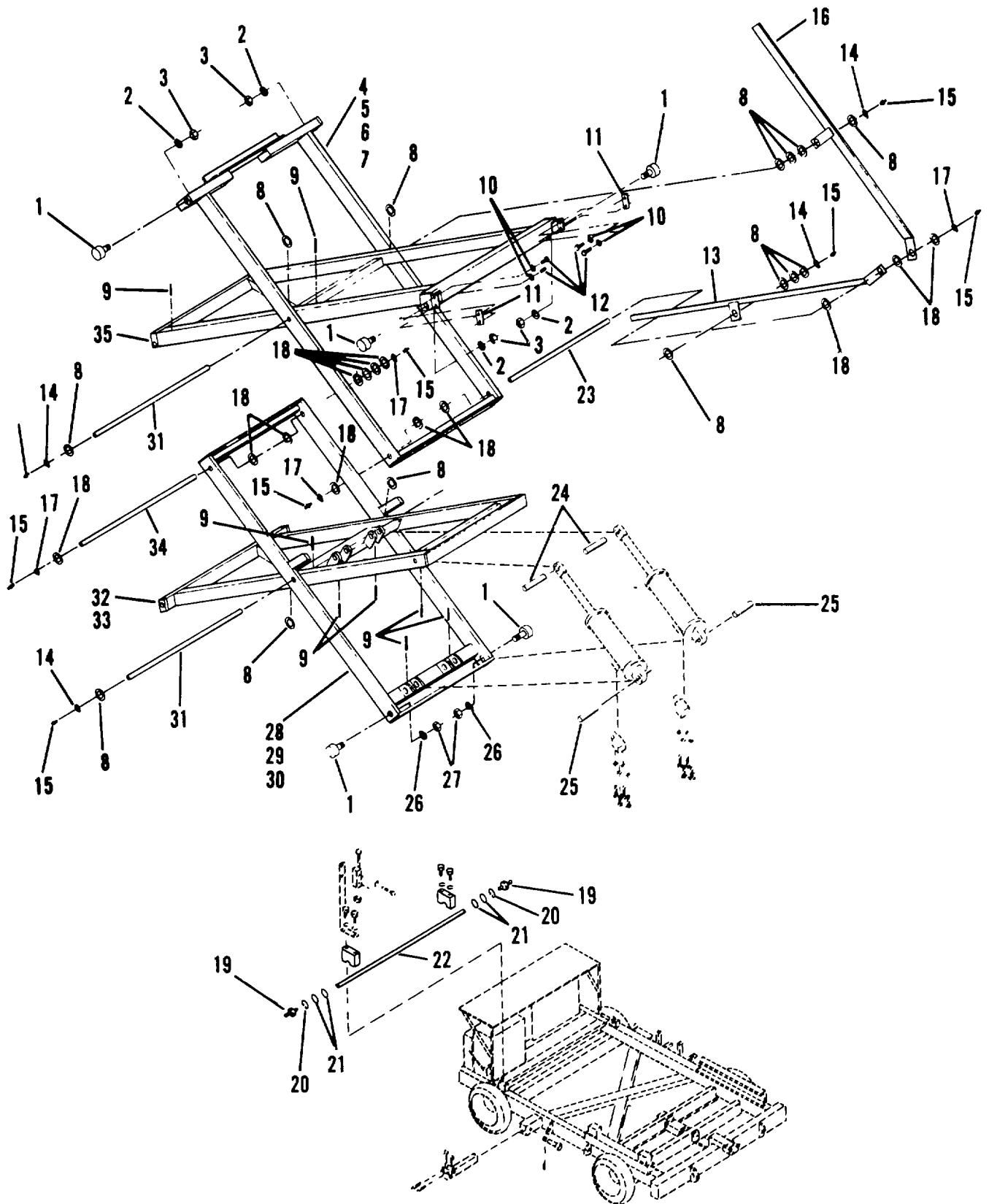


Figure C-44. Scissors Assembly.

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-44. SCISSORS ASSEMBLY					
1	PAOZZ	51588	H-72-L	CAM FOLLOWER, NEEDLE	4
2	PAOZZ	96906	MS35338-54	WASHER, LOCK	4
3	PAOZZ	96906	MS35691-85	NUT, PLAIN, HEXAGON	4
4	PAFZZ	51548	C18941GA	SCISSOR, TOP CUT	1
5	PAFZZ	70417	AA-1512-2	BEARING, SLEEVE	4
6	XDFZZ	70417	AA1704-9	BEARING, SLEEVE	2
7	PAFZZ	70417	AA-1110-1	BEARING, SLEEVE	1
8	PAFZZ	96652	37-07	SPACER, SLEEVE.....	14
9	XAFZZ	99997	YB273880	PIN, ROLL;.....	8
10	PAOZZ	96906	MS35338-46	WASHER, LOCK.....	4
11	PAOZZ	51548	A19122-1	NUT STRIP	2
12	PAOZZ	96906	MS35309-358	SCREW, CAP, HEXAGON H	4
13	XDFZZ	51548	B1S158GA	CORD CARR-UPP	1
14	PAFZZ	79136	516C-150	RING, RETAINING	4
15	PAFZZ	96906	MS15002-1	FITTING, LUBRICATION	8
16	XDFZZ	51548	B19157GA	CORD CARR-LOW	1
17	PAFZZ	79136	5160-125	RING, RETAINING	4
18	PAFZZ	96652	37-05	SPACER PLATE	13
19	PAOZZ	96906	MS150C2-1	FITTING, LUBRICATION	2
20	PAOZZ	79136	5160-125	RING, RETAINING	2
21	PBFZZ	96652	37-05	WASHER, FLAT.....	4
22	PAOZZ	51548	C19059-11	PIN, SHOULDER HEADLE	1
23	PAFZZ	51548	C1905S-10	SHAFT, STRAIGHT.....	1
24	PAFZZ	51548	A17985-3	PIN, STRAIGHT, HEADLE	2
25	PAFZZ	51548	A17985-2	PIN, STRAIGHT, HEADLE	2
26	PAFZZ	969G6	M535338-54	WASHER, LOCK	6
27	PAFZZ	96906	MS35691-53	NUT, PLAIN, HEXAGON	6
28	XOFFF	51548	C18943GA	SCISSORE8FI OLT	1
29	PAFZZ	70417	AA1512-2	BEARING, SLEEVE	4
30	XOFZZ	70417	AA1704-9	BEARING, SLEEVE	2
31	PAFZZ	51548	C1905c9	SHAFT, STRAIGHT.....	2
32	XDFFF	51548	C18942GA	SCISSOR, BOT IN	1
33	PAFZZ	70417	FF-1506-4	BEARING, SLEEVE	2
34	PAFZZ	51548	C19059-8	SHAFT, STRAIGHT.....	1
35	XDFFF	51548	C18940GA	SCISSOR, TOP IN	1

END OF FIGURE

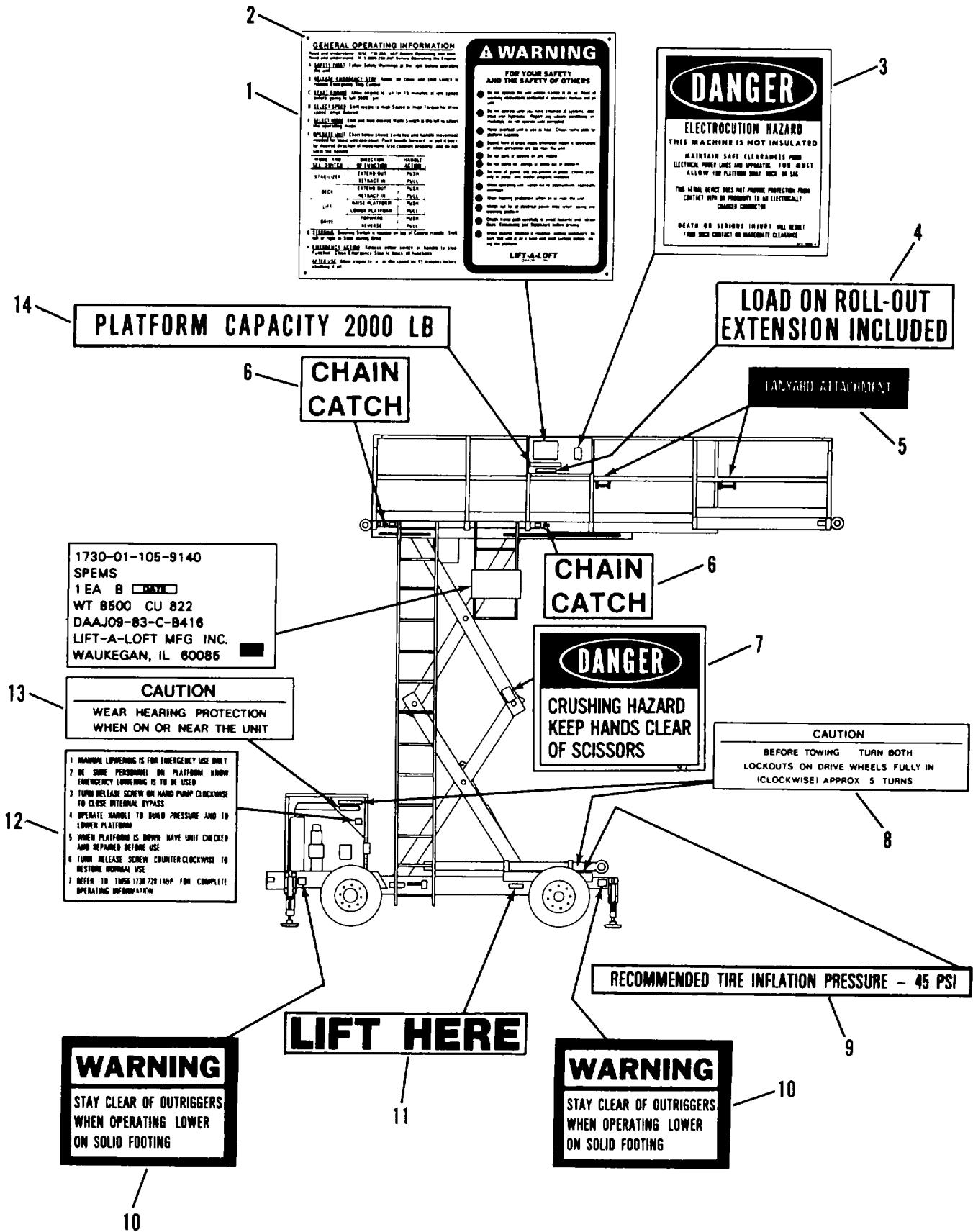


Figure C-45. SPEMS Dress Package (Sheet 1 of 4)

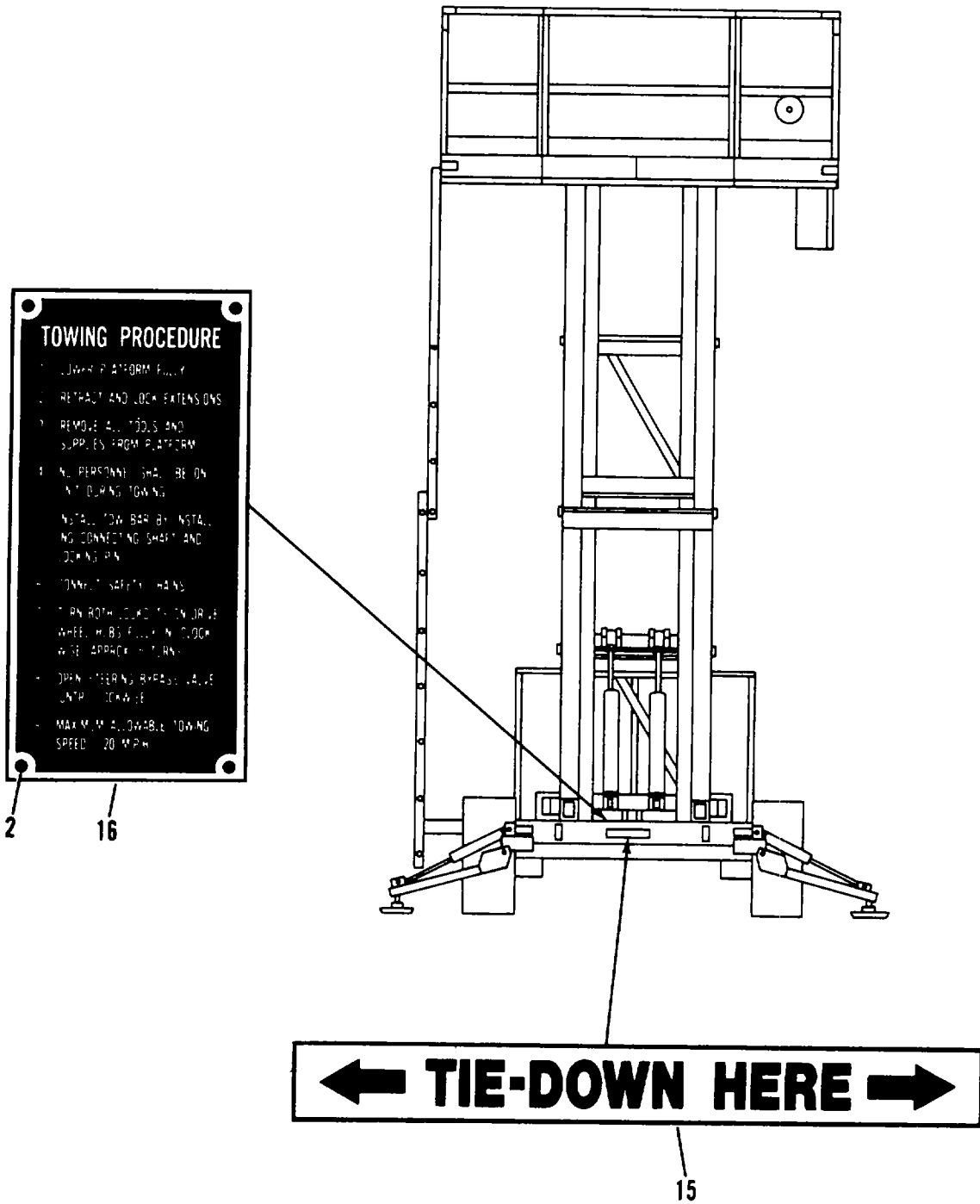


Figure C-45. SPEMS Dress Package (Sheet 2 of 4).

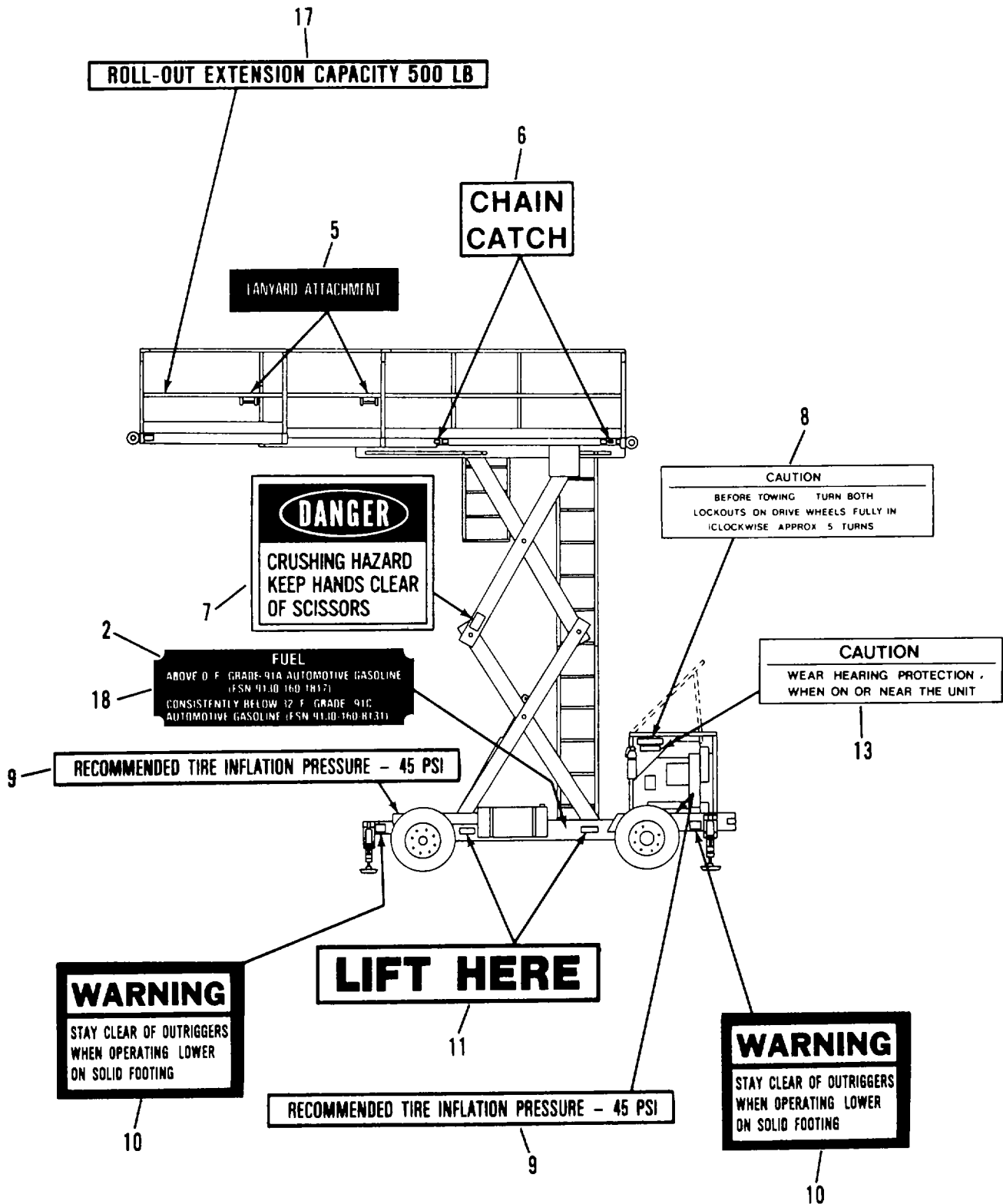


Figure C-45. SPEMS Dress Package (Sheet 3 of 4).

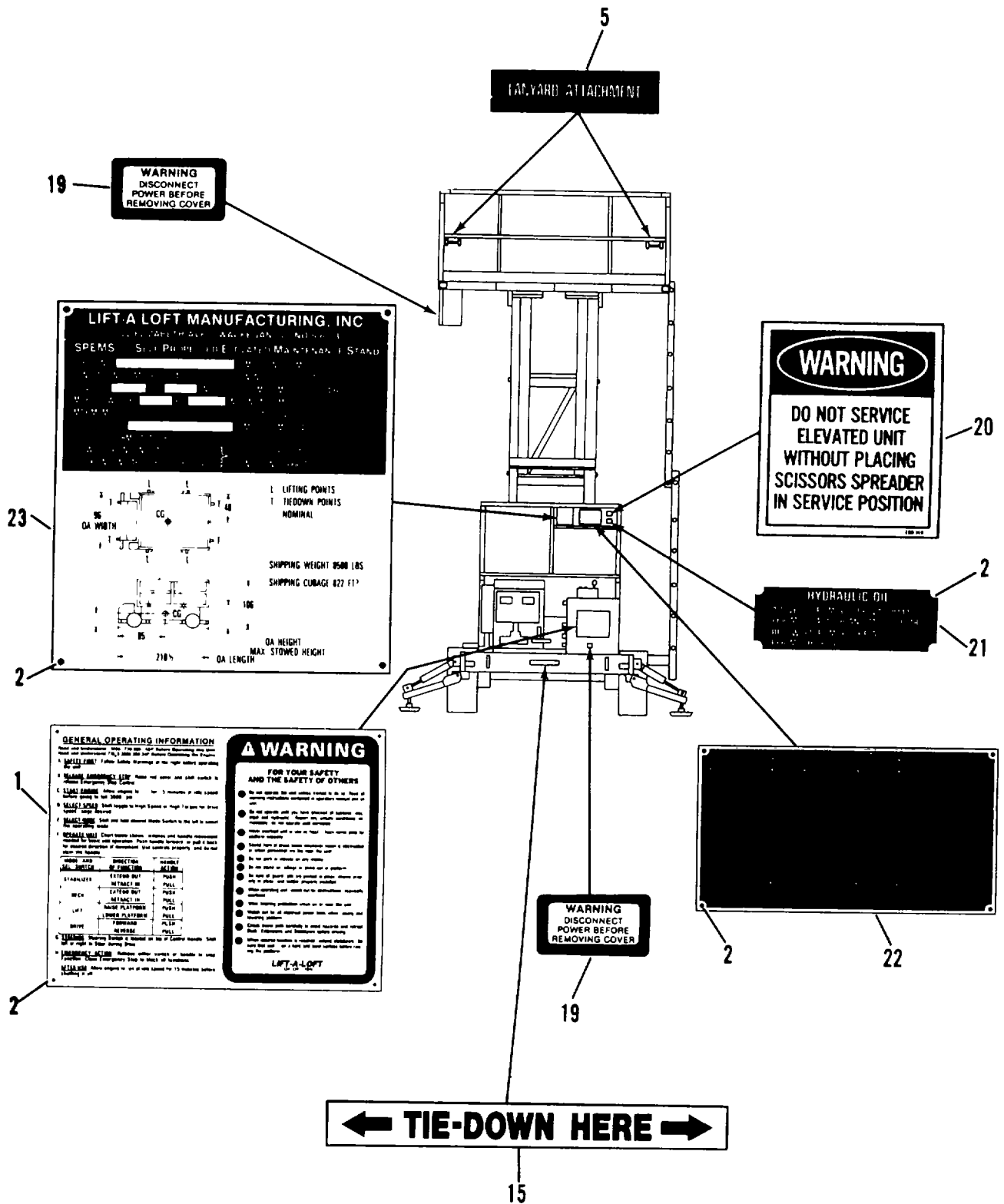


Figure C-45. SPEMS Dress Package (Sheet 4 of 4).

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-45. SPEMS DRESS PACKAGE					
1	XCOZZ	51548	C19309-1	PLATE, INSTRUCTION	3
2	PAOZZ	61957	AD446S	RIVET, BLIND	28
3	XCOZZ	51548	ESBS8	DECAL, CANGER,	2
4	XDOZZ	51548	ESB154	DECAL	2
5	XCOZZ	51548	ESBli1A	DECAL, ATTACHMENT	6
6	XDOZZ	51548	A19320-1	DECAL	4
7	XCOZZ	51548	ESB148	DECAL, DANGER	2
8	XCOZZ	51548	B19247-1	DECAL, CAUTION	4
9	XDOZZ	51548	A18961-1	DECAL, TIRE PRESS	4
10	XCOZZ	51548	ESB112	DECAL, WARNING	4
11	XDOZZ	51548	A18962-1	DECAL, LIFT	4
12	XDOZZ	51548	A19308-1	DECAL, INSTRUCTION	1
13	XDOZZ	51548	B1S248-1	DECAL, HEARING PROTE	2
14	XDOZZ	51548	ESB172	DECAL, CAPACITY	2
15	XDOZZ	51548	A18962-2	DECAL, TIE-DOWN	2
16	XDOZZ	51548	A18880-1	DECAL, TOWING	i
17	XDOZZ	51548	ESB162A	DECAL, CAPACITY	2
18	XDOZZ	51548	A18957-1	DECAL, FUEL	1
19	XDOZZ	51548	ESB113A	DECAL, WARNING	2
20	XCOZZ	51548	ESB14S	DECAL, WARNING	1
21	XDOZZ	51548	A18958-1	DECAL, HYD OIL	1
22	XDOZZ	51548	618959-1	CHART LUBRICACIEN	1
23	XDOZZ	51548	818960-1	PLATE, NAME	1
END OF FIGURE					

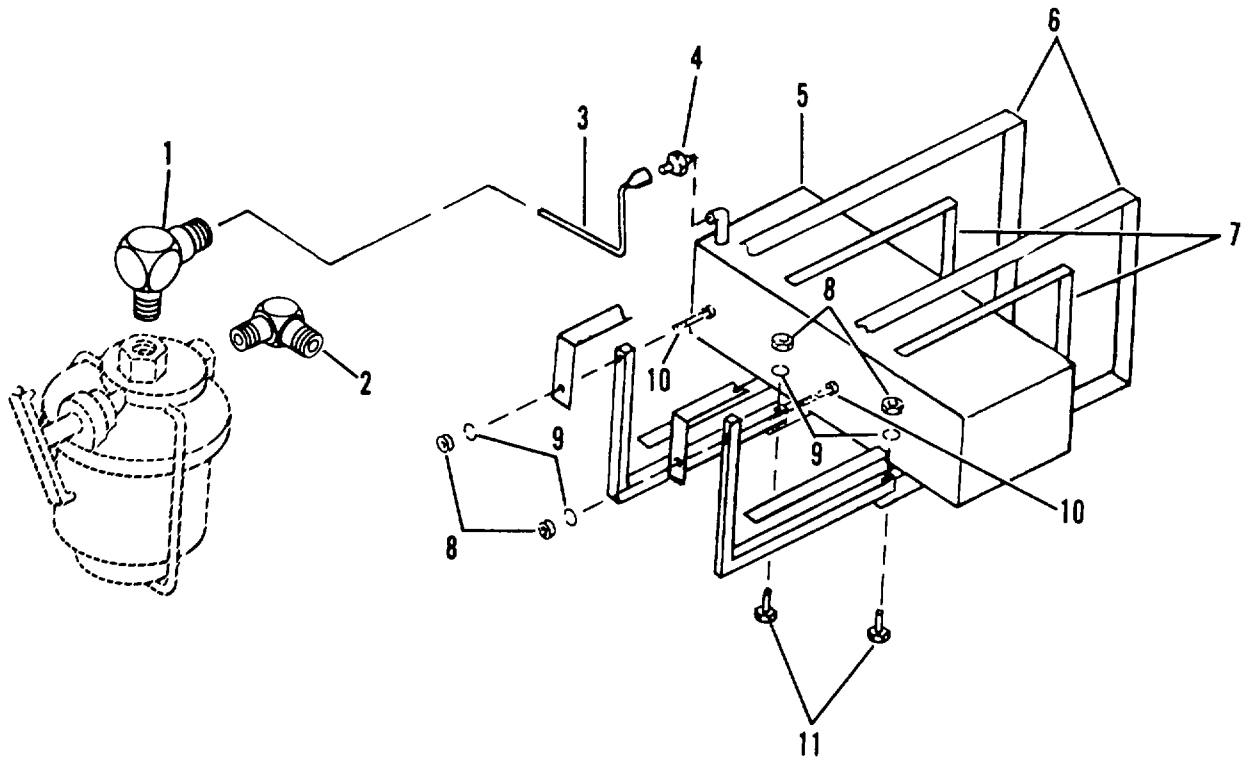


Figure C-46. Fuel Tank Assembly

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-46. FUEL TASK ASSEMBLY					
1	PAOZZ	79470	C35404X6	ELBOW, PIPE TO TUBE	1
2	PAOZZ	96906	MS51504A4	ELBOW, PIPE TO TUBE	1
3	PAOZZ	51548	B19314GA	TUBE ASSEMBLY METAL	1
4	PAOZZ	96906	MS5150CA6	ADAPTER, STRAIGHT, PI	1
5	PBOO	85717	DH-18	TANK,FUEL, ENGINE	1
6	PAOZZ	51548	A19201-1	STRAP, RETAINING	2
7	MFOZZ	51548	X36011-024.000	STRIP, RUBBER	2
8	PAOZZ	51548	YT120375	NUT,PLAIN, HEXAGON	4
9	PAOZZ	51548	YM120380	WASFER, LOCK	4
10	PAOZZ	96906	MS35307-314	SCREW, CAP, HEXAGON H.....	2
11	PAOZZ	96906	MS35307-313	SCREW, CAP, HEXAGON H.....	2

END OF FIGURE

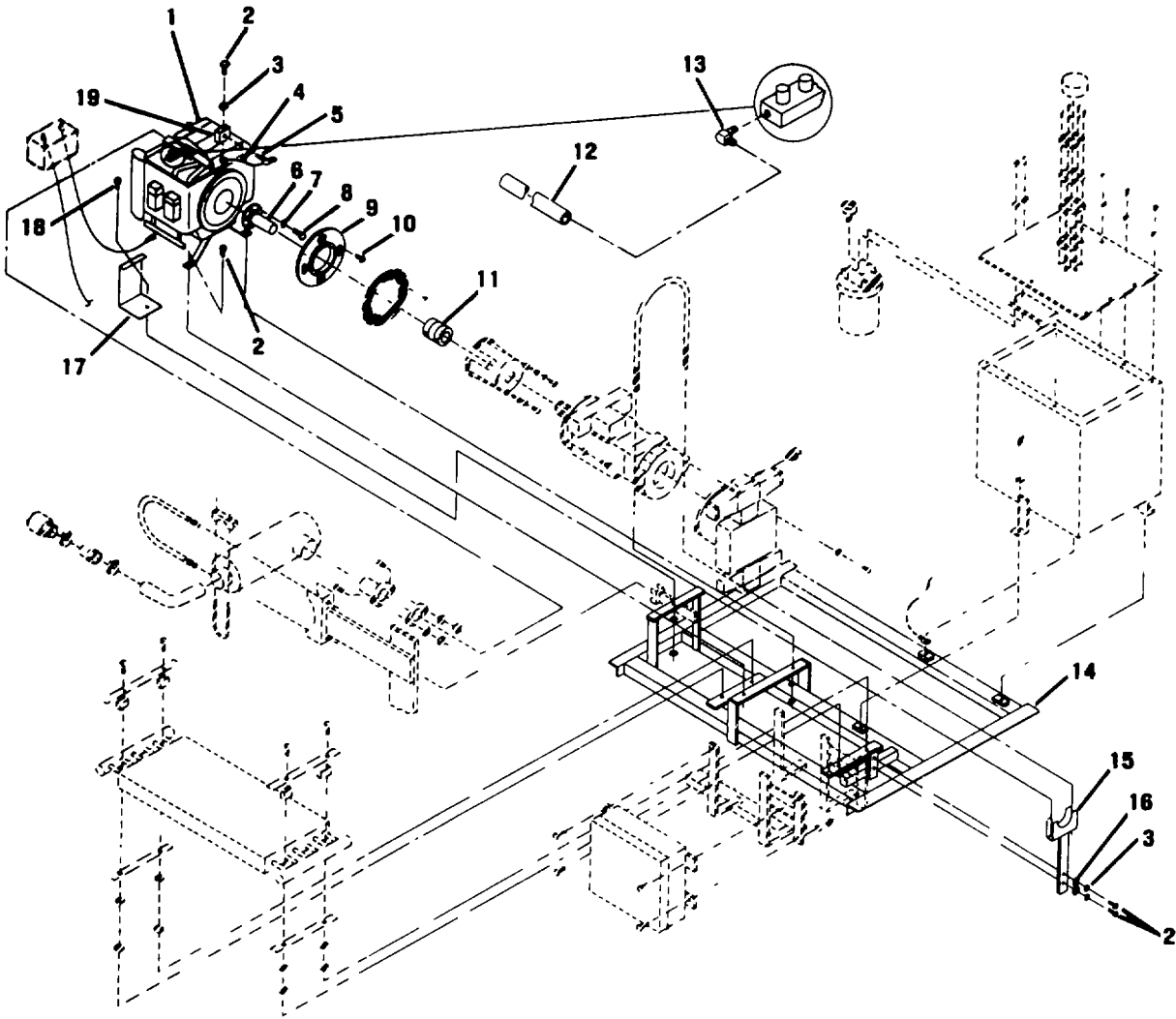


Figure C47. Engine Rack Assembly.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
GROUP 05. PCWER SYSTEM					
FIGURE C-47. ENGINE RAC9 ASSEMBLY					
1	PAFZZ	81349	MIL-E-46717	ENGINE, GASOLINE	1
2	PAOZZ	96906	MS35307-360	SCREW, CAP, HEXAGON H.....	11
3	PAOZZ	51548	YM120382	WASHER, LCCK.....	3
4	PAOZZ	16003	C43974	CHAIN, WELDLESS.....	1
5	PAOLZ	60808	7340	SNAP HOOK.....	1
6	PAFZZ	51548	C19094-1	ADAPTER STRAIGHT.....	1
7	PAFZZ	96906	MS35338-45	WASHER, LCCK.....	6
8	PAFZZ	96906	MS90728-36	BOLT, MACHINE.....	4
9	PAFZZ	51548	CI9095-1	RING, AOAPTER	1
10	PAFZZ	80205	NAS1352-5-16	SCREW, CAP, SCCKET HE	8
11	PAFZZ	76371	170032000	COUPLING, SHAFT, FLEX	1
12	PAFZZ	72741	503-105	HOSE, NONMETALLIC MAKE FROM 54 IN	1
				(137 CM) 18291 P/N 503-105	
13	PAFZZ	96906	MS51504A4	ELBOW, PIPE TO TUBE	1
14	PAFZZ	51548	C18747GA	MOUNT, RESILIENT	1
15	XDFZZ	51548	B19133GA	SUPPORT, TRANS	1
16	PAFZZ	88044	AN960-616	WASHER, FLAT.....	2
17	PAOZZ	51548	B15137-1	GUARD, MECHANICAL DR	1
18	PAOZZ	51548	YE180124	SCREW, CAP, HEXAGON H.....	1
19	XAOZZ	51548	B19135GA	SUPPORT, ENG COVER.....	1

END OF FIGURE

C-109

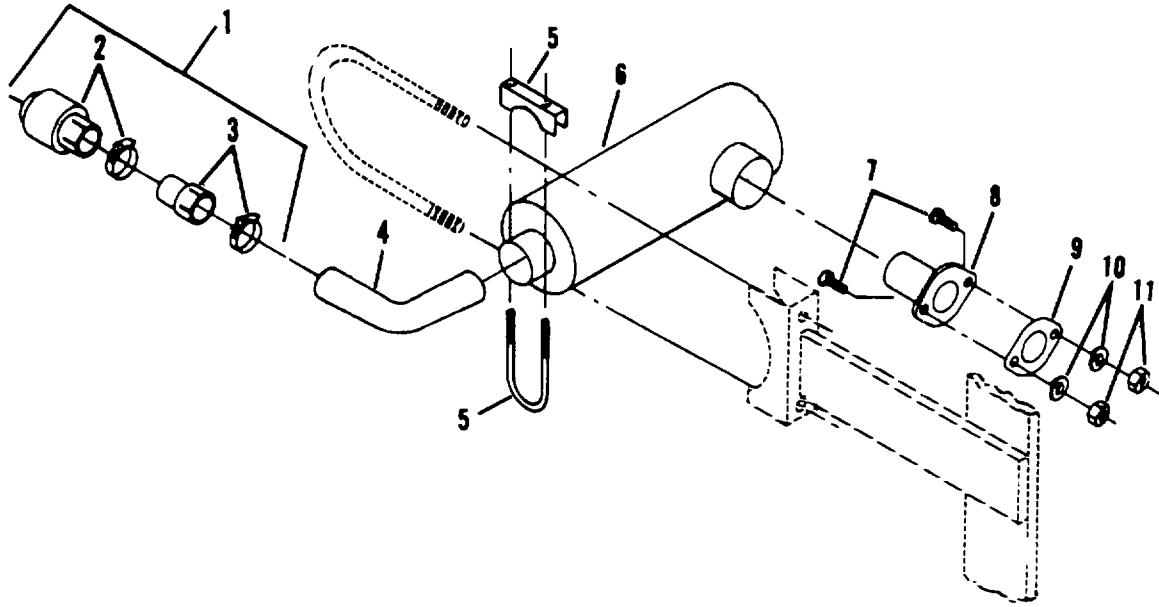


Figure C48. Muffler Assembly.

SECTION II

TM 55-1730-228-13&P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
FIGURE C-48. MUFFLER ASSEMBLY					
1	PAOZZ	51548	B16977GA	MUFFLER,EXHAUST	1
2	PAOZZ	04147	3CIP	.ARRESTOR,SPARK, EXHA	1
3	PAOZZ	04147	3C1P	.ARRESTOR,SPARK, EXHA	1
4	PAOZZ	51548	A19230	ELBOW , PIPE, EXHAUST.....	1
5	XDOZZ	72741	CLA-178HD	CLAMP, LOOP	1
6	PAOZZ	66289	WD72	MUFFLER, EXHAUST-INT	1
7	PAOZZ	51548	YE180124	SCREW, CAP, HEXAGON H.....	2
8	PAOZZ	51548	B193239A	FLANGE,EXHAUST, PIPE	1
9	PAOZZ	51548	A19321-1	GASKET.....	1
10	PAOZZ	51548	YM120382	WASHER,LOCK	2
11	PAOZZ	96906	MS35649-2382	NUT, PLAIN,HEXAGON	2

END OF FIGURE

C-111

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5305-00-021-3801	C-31	14	5306-00-226-4827	C-13	35
	C-42	12	5006-00-226-4829	C-47	8
4010-00-033-6986	C-38	36	6145-00-230-2600	C-2	1
5310-00-045-3296	C-4	13		C-2	3
	C-5	9	5975-00-231-0773	C-3	23
	C-6	18	5340-00-253-1910	C-35	1
	C-43	6	4730-00-258-1864	C-17	29
5305-00-050-9231	C-6	17	5305-00-267-8952	C-15	3
5305-00-050-9236	C-5	1	5305-00-267-8961	C-23	6
	C-5	10	4730-00-278-3144	C-19	2
5305-00-054-6654	C-6	26	4730-00-278-3145	C-19	6
5310-00-056-3395	C-1	1	4730-00-278-3722	C-17	12
	C-31	11	4730-00-278-3888	C-19	4C
	C-42	14	4730-00-278-3917	C-19	36
	C-48	11	5935-00-280-1936	C-3	4
5305-00-068-0510	C-6	30	5975-00-280-7763	C-3	19
5305-00-071-2506	C-4	14	5940-00-283-5280	C-6	34
5305-00-071-2513	C-31	10	4730-00-289-0382	C-19	42
5945-00-075-7695	C-6	24	4730-00-289-4912	C-19	12
4730-00-080-7040	C-16	6	5975-00-296-1669	C-3	7
	C-17	21		C-5	5
	C-19	8		C-5	11
3120-00-097-6380	C-44	33	5975-00-296-9437	C-3	11
3110-00-100-0202	C-35	5		C-6	38
3110-00-100-0799	C-37	3	5315-00-298-1481	C-35	7
4730-00-117-3958	C-19	9	5330-00-354-6509	C-10	14
5365-00-117-4583	C-40	3	4730-00-370-2874	C-17	31
4730-00-133-2304	C-19	21	5330-00-397-4589	C-33	13
4730-00-133-3196	C-17	27	2990-00-401-0594	C-48	2
	C-19	15		C-48	3
5905-00-141-0596	C-6	4	5310-00-407-9566	C-6	11
5310-00-141-1795	C-6	29		C-21	2
	C-43	5		C-25	16
5975-00-152-1075	C-3	6		C-47	7
	C-6	36	4730-00-419-3031	C-19	43
5310-00-167-0821	C-38	14	5365-00-420-3857	C-40	13
	C-47	16		C-44	17
5310-00-167-0823	C-25	7		C-44	2C
4730-00-172-0010	C-24	1	3120-00-430-6846	C-44	5
	C-40	2		C-44	29
	C-44	15	5305-00-432-4170	C-43	9
	C-44	19	5305-00-432-4203	C-6	32
5935-00-201-7969	C-3	3	4730-00-434-6394	C-17	30
4730-00-202-9389	C-22	16	5305-00-459-9828	C-47	10
4730-00-203-0554	C-19	41	3120-00-497-4748	C-40	17
5305-00-225-3843	C-6	9		C-44	7
5310-00-225-6993	C-25	11	5975-00-539-6912	C-3	17
5306-00-226-4824	C-6	10		C-6	35
5306-00-226-4825	C-13	32	4730-00-540-1525	C-19	46
	C-21	3	5305-00-543-4372	C-15	7

SECTION IV

TM 55-1730-228-13&P

NATIONAL STOCK NUMBER AND PART NUMBER INDEX
NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5305-00-543-4718	C-44	12	5305-00-802-2764	C-38	16
2640-00-555-2838	C-36	4	3110-00-808-2816	C-42	9
3010-00-557-9715	C-47	11	4730-00-808-6668	C-17	28
5305-00-576-5417	C-42	13		C-20	8
	C-43	15	4730-00-808-6814	C-22	15
	C-47	2	5310-00-809-8533	C-35	3
5310-00-584-5272	C-9	9	5305-00-812-8645	C-15	2
	C-31	15	5310-00-820-6653	C-9	4
	C-42	11		C-31	13
4010-00-585-210B	C-47	4		C-39	5
5305-00-616-6370	C-43	7		C-42	7
	C-46	11		C-43	21
4730-00-618-5372	C-16	5	5305-00-821-3869	C-43	30
	C-17	25	4730-99-826-2347	C-17	17
	C-19	25	3110-00-827-8648	C-37	1
	C-20	2	5310-00-835-2037	C-42	5
4730-00-618-5381	C-17	5		C-43	22
	C-19	20		C-44	27
	C-20	4	5310-00-842-1190	C-43	19
4730-00-623-7721	C-15	1		C-43	31
5930-00-629-8334	C-5	4	5315-00-844-5830	C-42	20
5310-00-637-9541	C-1	2		C-43	2
	C-15	8	5310-00-850-1611	C-44	2
	C-25	13		C-44	26
	C-31	6	5310-00-851-2677	C-39	6
	C-38	15	3110-00-860-2318	C-43	16
	C-41	8	2805-00-872-5972	C-47	1
	C-42	3	6145-00-889-1491	C-3	9
	C-43	29		C-3	14
	C-44	10		C-3	21
	C-47	3	5310-00-891-3430	C-44	3
	C-48	10	4730-00-892-2066	C-19	22
5975-00-642-7261	C-3	12	5305-00-901-3106	C-43	8
	C-43	14	4730-00-903-4846	C-17	7
4730-00-647-3207	C-46	2		C-19	10
	C-47	13	4730-00-903-7175	C-19	39
5930-00-655-4245	C-4	5	5305-00-904-0254	C-38	5
	C-4	8	5930-00-906-3477	C-4	4
5940-00-665-9559	C-6	2	5365-00-920-5476	C-44	14
5930-00-683-1626	C-4	10	3110-00-926-1379	C-35	4
5930-00-683-1628	C-4	2	5310-00-951-7209	C-42	8
	C-4	9	5310-00-989-5945	C-42	10
5930-00-683-1629	C-4	3	4730-00-990-2392	C-19	3
5330-00-710-6657	C-35	6	4730-00-995-1559	C-17	6
5305-00-721-8010	C-46	10		C-46	4
3040-00-723-4088	C-40	26	5310-00-997-6903	C-41	10
5305-00-724-7264	C-39	3	5310-00-998-0608	C-35	2
5310-00-732-0558	C-25	12	4730-01-015-9268	C-16	3
3110-00-738-1715	C-13	5	2990-01-019-4776	C-48	4
5935-00-763-8699	C-6	16	5320-01-023-2529	C-31	2

NATIONAL STOCK NUMBER AND PART NUMBER INDEX
NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5320-01-023-2529	C-45	2	1730-01-204-6591	C-38	26
5330-01-033-1206	C-33	7	1730-01-204-6552	C-38	6
	C-33	8	6135-01-204-6661	C-1	3
5330-01-051-9916	C-33	3	6135-01-204-6688	C-1	4
5975-01-054-6966	C-3	1	2910-01-204-6785	C-46	5
	C-3	22	3040-01-204-6786	C-29	1
4730-01-054-9828	C-16	1	3040-01-204-6809	C-25	1
	C-18	3		C-27	1
4730-01-067-7545	C-16	4	3040-01-204-6811	C-25	1
5315-01-067-9597	C-4	12		C-26	1
	C-42	18	4810-01-205-2269	C-34	1
5365-01-071-9006	C-41	1	1730-01-205-3925	C-38	34
5920-01-083-1878	C-6	1	173G-01-205-3926	C-38	30
5310-01-083-4542	C-17	16	1730-01-205-3527	C-38	32
5310-01-098-9966	C-13	39	1730-01-205-3928	C-38	29
5330-01-100-8759	C-12	23	1730-01-205-3929	C-38	28
5330-01-100-8760	C-12	21	1730-01-205-3930	C-38	11
5365-01-101-0618	C-12	3	173C-01-205-3931	C-39	4
5330-01-101-1371	C-12	1	1730-01-205-3932	C-38	27
5365-01-102-1986	C-40	10	1730-01-205-3933	C-38	3
5330-01-103-8754	C-12	22	1730-01-205-3934	C-38	33
5330-01-103-8755	C-12	24	1730-01-205-3935	C-38	2
4010-01-112-8084	C-38	35	1730-01-205-3936	C-38	1
4730-01-118-6860	C-21	6	1730-01-205-3937	C-38	18
4720-01-125-4474	C-47	12	1730-01-205-3938	C-38	17
5305-01-144-5587	C-34	6	1730-01-205-3939	C-38	19
5305-01-147-4032	C-31	12	1730-01-205-3940	C-38	12
4820-01-173-8438	C-22	4	173C-01-205-3941	C-38	22
	C-22	5	1730-01-205-3942	C-38	10
	C-22	9	1730-01-205-3943	C-38	23
	C-34	5	1730-01-205-3944	C-38	9
4820-01-175-7102	C-12	19	1730-01-205-3945	C-41	5
5330-01-177-7958	C-10	13	1730-01-205-3946	C-9	2
5360-01-177-7959	C-10	17	1730-01-205-3947	C-44	4
5330-01-177-7960	C-10	20	473C-01-205-3961	C-22	18
5330-01-177-7961	C-10	19	4730-01-205-3967	C-19	17
5330-01-178-1586	C-1C	3	3110-01-205-5532	C-13	6
5315-01-178-1587	C-10	18	4820-01-205-8111	C-23	2
5330-01-178-1589	C-10	7	4810-01-205-8141	C-22	2
4820-01-180-9824	C-10	22	2620-01-205-8142	C-36	2
5961-01-181-1200	C-6	3	4810-01-205-8177	C-22	10
5340-01-190-0435	C-42	6	1730-01-206-4946	C-38	21
4320-01-195-4419	C-33	6	3040-01-206-4947	C-9	10
4320-01-195-4420	C-33	4	3040-01-206-4948	C-9	5
5310-01-201-8995	C-13	19	2520-01-206-5000	C-9	6
3110-01-202-3456	C-13	30	3040-01-206-6589	C-12	20
5315-01-203-2530	C-33	9	2530-01-206-6602	C-12	25
3110-01-204-3427	C-13	20	1730-01-206-8613	C-42	1
1730-01-204-6589	C-38	31	4320-01-206-9951	C-31	5
1730-01-204-6590	C-38	24	5360-01-207-1457	C-12	13

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5360-01-207-1458	C-12	8	5310-01-217-6990	C-35	8
5360-01-207-1459	C-12	9	4810-01-217-6048	C-16	8
4730-01-207-2353	C-17	34	4810-01-217-8049	C-22	8
	C-20	7	4730-01-217-8058	C-19	5
3110-01-207-2710	C-12	4	4730-01-217-8060	C-19	18
3010-01-208-1873	C-32	1	4720-01-217-8064	C-17	38
2530-01-211-0928	C-12	14	4720-01-217-8065	C-17	19
1730-01-211-2419	C-39	1	4720-01-217-8066	C-17	18
4730-01-212-2601	C-17	15	4720-01-217-8067	C-17	20
	C-19	37	4720-01-217-8068	C-17	8
1730-01-213-5812	C-42	22	4720-01-217-8069	C-17	2
1730-01-214-0139	C-38	25	4720-01-217-8070	C-17	3
3040-01-214-0261	C-37	2	4720-01-217-8071	C-17	23
2530-01-214-4968	C-36	1	4720-01-217-8072	C-17	24
6230-01-215-7582	C-7	8	4720-01-217-8073	C-17	40
5940-01-216-3396	C-1	7	4720-01-217-8074	C-17	39
5999-01-216-6117	C-2	4	4720-01-217-8075	C-17	4
2530-01-216-6829	C-40	16	4720-01-217-8076	C-17	1
2590-01-216-8567	C-41	4	4720-01-217-8077	C-17	36
2540-01-216-8568	C-40	19	4720-01-217-6078	C-17	22
2540-01-216-8569	C-40	20	4720-01-217-8079	C-17	26
2590-01-216-8570	C-40	24	4720-01-217-8080	C-17	11
2530-01-216-8589	C-28	5	4720-01-217-8083	C-16	7
2590-01-216-8590	C-28	17	3040-01-217-6111	C-47	9
2990-01-216-8599	C-48	6	3020-01-217-8186	C-13	29
5930-01-216-8872	C-5	3	3020-01-217-8187	C-13	23
	C-5	7	3020-01-217-8188	C-13	21
4730-01-216-9355	C-22	17	3020-01-217-8189	C-13	13
	C-34	4	3020-01-217-8190	C-13	40
4730-01-216-9364	C-25	2	4730-01-217-9921	C-19	24
6670-01-216-9419	C-1C	21		C-20	5
1650-01-216-9732	C-28	16	4730-01-217-9923	C-2C	6
3040-01-217-1151	C-28	18	4730-01-217-9932	C-16	2
4730-01-217-2609	C-17	33	4730-01-217-9933	C-16	9
	C-19	16	4720-01-217-9936	C-17	10
4720-01-217-2614	C-17	37	4720-01-217-9937	C-17	35
3040-01-217-2707	C-10	11	4720-01-217-9938	C-17	32
2540-01-217-2807	C-42	15	4720-01-217-9939	C-19	7
4710-01-217-2819	C-46	3	4720-01-217-9940	C-19	44
2530-01-217-3760	C-40	5	4720-01-217-9941	C-20	3
5999-01-217-3969	C-6	22	4720-01-217-9943	C-18	4
2815-01-217-4836	C-47	6	4720-01-217-9944	C-18	2
4820-01-217-4837	C-34	7	4720-01-217-9945	C-18	5
4820-01-217-4877	C-25	19	4720-01-217-9946	C-18	1
4820-01-217-4878	C-22	13	4720-01-217-9947	C-19	4
3040-01-217-4988	C-26	9	4720-01-217-9948	C-19	14
	C-27	9	4720-01-217-9949	C-19	13
5935-01-217-5238	C-43	10	5306-01-218-1096	C-10	15
4820-01-217-5713	C-17	14	5315-01-218-1107	C-39	10
2990-01-217-5752	C-48	8	5330-01-218-1184	C-11	2

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
3110-01-218-1533	C-44	1	3040-01-218-6543	C-26	18
3110-01-218-1534	C-42	4		C-27	18
	C-43	20	3040-01-218-6823	C-26	4
3120-01-218-1536	C-40	28		C-27	4
	C-40	31	3040-01-218-6825	C-26	1S
3120-01-218-1553	C-37	5		C-27	19
	C-40	7	3040-01-218-6826	C-26	17
4030-01-218-1567	C-39	7		C-27	17
4730-01-218-1824	C-19	38	3040-01-218-6845	C-25	18
4730-01-218-1825	C-19	32	4320-01-218-6889	C-25	14
4730-01-218-1826	C-19	31	3120-01-218-7171	C-40	S
4730-01-218-1827	C-19	33	5310-01-218-7540	C-40	14
4730-01-218-1828	C-19	28		C-44	18
4730-01-218-1832	C-17	9		C-44	21
4720-01-218-1833	C-19	26	4820-01-218-7941	C-19	34
4720-01-218-1834	C-19	19	5310-01-218-8298	C-40	1
4720-01-218-1835	C-19	11		C-41	2
4720-01-218-1836	C-20	9	4730-01-219-1376	C-19	35
4720-01-218-1837	C-20	1	4730-01-219-1377	C-19	1
3010-01-218-1870	C-13	26	4820-01-219-1983	C-19	30
3010-01-218-1871	C-13	27	4730-01-219-2069	C-19	45
3010-01-218-1872	C-13	16	4320-01-219-2147	C-33	1C
3010-01-218-1873	C-13	17	5305-01-219-2376	C-14	3
4720-01-218-2458	C-19	27	5306-01-219-2377	C-11	1
4320-01-218-24S5	C-10	10	5305-01-219-2390	C-28	10
3010-01-218-2559	C-9	7	5310-01-219-2481	C-6	15
4810-01-218-2562	C-22	7		C-6	27
2530-01-218-2713	C-40	27		C-8	1
2530-01-218-2714	C-40	30		C-46	8
3020-01-218-2729	C-47	17	5315-01-219-2500	C-40	6
4320-01-218-2731	C-10	12	5330-01-219-2540	C-13	4
4320-01-218-2733	C-1C	16	5330-01-219-2541	C-13	37
5305-01-218-3135	C-33	14	5330-01-219-2616	C-28	3
5305-01-218-3136	C-22	12	5330-01-219-2617	C-28	14
6145-01-218-3331	C-3	5	5330-01-219-2618	C-28	12
6145-01-218-3332	C-3	2	5307-01-219-2681	C-37	4
	C-3	24	5340-01-219-2702	C-13	38
6145-01-218-3333	C-3	18	4330-01-219-3255	C-21	4
6145-01-218-3335	C-5	8	5310-01-219-3474	C-14	4
4730-01-218-3352	C- 1	29	5340-01-219-3763	C-44	22
4910-01-218-3489	C-41	4	5340-01-219-3829	C-38	7
2990-01-218-3658	C-48	1	5340-01-219-3834	C-46	6
2530-01-218-3705	C-36	3	5365-01-219-3984	C-13	34
5999-01-218-3755	C-2	2	5365-01-219-4016	C-13	31
5305-01-218-4544	C-42	17	5365-01-219-4017	C-13	22
3040-01-218-4696	C-26	8	5365-01-219-4018	C-13	15
	C-27	8	5365-01-219-4063	C-10	8
4210-01-218-4743	C-25	8	5365-01-219-5328	C-28	11
5340-01-218-4753	C-9	1	3040-01-219-5637	C-13	28
5315-01-218-5810	C-40	23	3040-01-219-5638	C-13	18

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
3040-01-219-5642	C-13	2	5305-01-219-9117	C-25	10
3040-01-219-5698	C-13	3		C-42	2
3040-01-219-5725	C-13	8	5305-01-219-9118	C-25	6
5330-01-219-5985	C-33	11	5305-01-220-0194	C-9	8
5340-01-219-6053	C-5	6	5330-01-220-0225	C-28	4
3130-01-219-6130	C-10	2	5330-01-220-0226	C-28	6
5315-01-219-6147	C-41	3	5330-01-220-0227	C-28	15
5315-01-219-6146	C-40	29	5330-01-220-0228	C-28	13
3040-01-219-6636	C-33	5	5315-01-220-0294	C-28	9
5330-01-219-6846	C-26	7		C-40	25
	C-27	7	5306-01-220-2449	C-13	10
5330-01-219-6647	C-26	15	6145-01-220-2974	C-3	10
	C-27	15	3110-01-220-3150	C-42	21
5330-01-219-6853	C-26	5		C-43	1
	C-27	5	5335-01-220-3161	C-31	1
5940-01-219-6960	C-6	5	5305-01-220-3450	C-25	15
6145-01-219-6966	C-3	8	5365-01-220-4154	C-13	14
6145-01-219-6967	C-3	16	5340-01-220-4176	C-47	5
6145-01-219-6968	C-3	13	5315-01-220-5200	C-40	22
6145-01-219-7014	C-3	15	5360-01-220-5325	C-13	42
5330-01-219-7048	C-10	1	5305-01-220-9697	C-40	21
5330-01-219-7049	C-10	4	5305-01-220-9703	C-9	11
5330-01-219-7050	C-10	5	5310-01-220-5723	C-40	8
5305-01-219-7173	C-14	1	5340-01-220-9836	C-41	7
5310-01-219-7216	C-5	2	5340-01-220-9837	C-13	33
	C-6	14	5330-01-221-0685	C-48	9
	C-6	28	3040-01-221-5481	C-30	3
	C-8	2	3040-01-221-5482	C-30	7
	C-15	4	3040-01-221-5483	C-30	18
	C-23	5	3040-01-221-5485	C-30	16
	C-31	8	6220-01-221-5933	C-7	7
	C-46	9	3010-01-221-7146	C-13	1
5315-01-219-7333	C-40	18	3040-01-221-7796	C-10	9
5315-01-219-7334	C-40	15	3040-01-222-0737	C-30	17
5315-01-219-7338	C-44	24	2590-01-222-2742	C-26	13
5315-01-219-7339	C-44	25		C-27	13
3130-01-219-7366	C-14	2		C-30	12
5340-01-219-7374	C-28	8	2530-01-222-4595	C-12	15
5305-01-219-7656	C-34	8	2530-01-222-5483	C-12	12
1730-01-219-8638	C-43	32	4710-01-222-7422	C-30	8
1730-01-219-8639	C-43	24	5310-01-222-8012	C-44	11
1730-01-219-8640	C-43	3	5310-01-222-9019	C-13	11
1730-01-219-8641	C-43	12	5310-01-222-9020	C-13	41
3043-01-219-8757	C-23	1	5310-01-222-9021	C-13	25
5305-01-219-9114	C-31	7	5310-01-222-9022	C-13	12
	C-41	9	5310-01-223-1693	C-44	8
	C-47	18	4730-01-223-3752	C-19	47
	C-48	7	3110-01-223-4302	C-13	9
5305-01-219-9115	C-9	3	5306-01-223-4304	C-13	7
5305-01-219-9116	C-25	17	5305-01-223-4377	C-26	10

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5305-01-223-4377	C-27	10	4330-11-228-3815	C-21	5
	C-30	9	3040-01-228-6690	C-40	12
5305-01-223-4378	C-12	16	3040-01-228-7753	C-44	23
5935-01-223-8572	C-7	2	3040-01-228-7754	C-44	31
5340-01-223-9695	C-12	18	3040-01-228-9173	C-44	34
5315-01-223-9960	C-26	2	5310-01-229-2037	C-6	23
	C-27	2	3110-01-229-6117	C-1	6
	C-28	7	6220-01-229-6118	C-7	1
	C-30	1	5310-01-229-6144	C-26	6
5315-01-223-9961	C-12	11		C-27	6
5330-01-224-2314	C-30	4		C-30	5
5330-01-224-2322	C-30	6	5970-01-231-5750	C-43	27
5330-01-224-2323	C-3C	14	5310-01-231-5759	C-40	4
3040-01-224-3000	C-12	10	4730-01-232-4406	C-17	13
5305-01-224-3732	C-25	9	5310-01-232-4486	C-40	11
5307-01-224-5999	C-41	6	4920-01-232-7694	C-38	13
4820-01-225-1479	C-23	3	5940-01-233-1814	C-6	
5310-01-226-1736	C-26	14		C-6	25
	C-27	14		C-6	3'
	C-30	13	4810-01-233-1858	C-22	6
5310-01-226-1792	C-26	16	5305-01-233-1865	C-43	11
	C-27	16	5310-01-234-0462	C-24	12
	C-30	15	3040-01-234-0463	C-24	13
5310-01-226-1793	C-26	12	3040-01-234-0464	C-24	4
	C-27	12	5340-01-234-0488	C-24	2
	C-30	11	5330-01-234-0490	C-24	7
5310-01-226-1794	C-6	19	5330-01-234-0491	C-24	16
4820-01-226-3759	C-23	4	5330-01-234-0492	C-24	5
5365-01-226-5835	C-13	24	5330-01-234-0493	C-24	9
5365-01-226-5836	C-13	24	3120-01-234-0499	C-24	3
5365-01-226-5837	C-13	24	5310-01-234-0500	C-43	17
5365-01-226-5838	C-13	24	2590-01-234-0508	C-24	6
5330-01-226-6750	C-12	6	3040-01-234-0522	C-24	10
5315-01-226-6796	C-26	3	3040-01-234-0523	C-24	14
	C-27	3	5315-01-234-2978	C-24	6
	C-30	2	4730-01-234-6724	C-46	1
5340-01-226-6821	C-26	11	4010-01-234-7317	C-39	8
	C-27	11	4320-01-234-7328	C-11	3
	C-30	10			
5365-01-226-6840	C-12	2			
5310-01-227-6198	C-28	1			
2510-01-227-7855	C-47	14			
5340-01-227-9632	C-12	17			
3040-01-227-9633	C-12	5			
5945-01-227-9660	C-22	3			
1730-01-228-0269	C-38	20			
1730-01-228-1091	C-31	3			
1730-01-228-1639	C-7	6			
4730-01-228-3533	C-19	23			
	C-20	10			

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
70417	AA-1110-1		3120-00-497-4748	C-40	17
				C-44	7
70417	AA-1512-2		3120-00-430-6846	C-44	5
70417	AA-710-04		3120-01-218-1536	C-40	28
				C-40	31
70417	AA1512-2		3120-00-430-6846	C-44	29
70417	AA1704-9			C-44	6
				C-44	30
61957	AD44BS		5320-01-023-2529	C-45	2
88044	AN960-416		5310-00-141-1795	C-6	29
				C-43	5
88044	AN960-616		5310-00-167-0821	C-38	14
				C-47	16
88044	AN960-816		5310-00-167-082	C-25	7
51548	A17985-2		5315-01-219-7339	C-44	25
51548	A17985-3		5315-01-219-7338	C-44	24
51548	A18012GA			C-43	28
51548	A18013GA			C-43	18
51548	A18880-1			C-45	16
51548	A18924GA		2590-01-216-8570	C-40	24
51548	A18932-1			C-42	24
51548	A18933-1			C-42	23
51548	A18957-1			C-45	18
51548	A18958-1			C-45	21
51548	A18961-1			C-45	9
51548	A18962-1			C-45	11
51548	A18962-2			C-45	15
51548	A19028-1		5305-01-218-4544	C-42	17
51548	A19029GA		6230-01-215-7582	C-7	8
51548	A19040GA		1730-01-205-3930	C-38	11
51548	A19040GB		1730-01-2064946	C-38	21
51548	A19062-1		5315-01-218-5810	C-40	23
51548	A19062-2		5315-01-219-2500	C-40	6
51548	A19066-1		5305-01-219-7173	C-14	1
51548	A19069-1		5310-01-219-3474	C-14	4
51548	A19082-1			C-6	31
51548	A19085GA		5315-01-218-1107	C-39	10
51548	A19087-1		5335-01-220-3161	C-31	1
51548	A19090-1		5340-01-220-9836	C-41	7
51548	A19122-1		5310-01-222-8012	C-44	11
51548	A19185GA		1730-01-205-3928	C-38	29
51548	A19186GA		1730-01-205-3929	C-38	28
51548	A19188GA		1730-01-205-3925	C-38	34
51548	A19188GB		1730-01-205-3927	C-38	32
51548	A19189GA		1730-01-204-6589	C-38	31
51548	A19189GB		1730-01-205-3926	C-38	30
51548	A19193GA		1730-01-204-6590	C-38	24
51548	A19194GA		1730-01-214-0139	C-38	25
51548	A19198-1		6135-01-204-6661	C-1	3
51548	A19199-1		6135-01-204-6688	C-1	4
51548	A19201-1		5340-01-219-3834	C-46	6

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
51548	A19227GA		4730-01-217-8060	C-19	18
51548	A19230		2990-01-019-4776	C-48	4
51548	A19308-1			C-45	12
51548	A19320-1			C-45	6
51548	A19321-1		5330-01-221-0685	C-48	9
00843	A20CI6ALP			C-6	13
21003	A24428			C-8	4
78290	A314XBX48P-24V/D C		5945-00-075-7695	C-6	24
03743	BL50		5975-00-152-1075	C-3	6
				C-6	36
03143	BL75		5975-00-642-7261	C-3	12
				C-43	14
99997	BMT-4016-10			C-24	15
79277	BRONCO66WELDINGC ABLESIZEN08		6145-00-230-2600	C-2	1
				C-2	3
33609	BTSD2/0		5940-01-216-3396	C-1	7
51548	B18151-1			C-4	11
51548	B18906GA		2530-01-217-3760	C-40	5
51548	B18910GA			C-39	2
51548	B18912GA		2540-01-216-8569	C-40	20
51548	B18959-1			C-45	22
51548	B18960-1			C-45	23
51548	B18967GA			C-4	6
51548	B18S68GA			C-6	8
51548	B18577GA		2990-01-218-3658	C-48	1
51548	B18S78			C-6	21
51548	B19030GA		6220-01-229-6118	C-7	1
51548	B19032-1		5340-01-219-6053	C-5	6
51548	B19033GA		1730-01-228-0269	C-38	20
51548	B19039GA		1730-01-205-3937	C-38	18
51548	B19039GB		1730-01-205-3938	C-38	17
51548	B19057GA		2530-01-214-4968	C-36	1
51548	B819064GA		3130-01-219-7366	C-14	2
51548	B19088-1		5307-01-224-5999	C-41	6
51548	B19093GA		1730-01-205-3945	C-41	5
51548	B19098-1			C-15	5
51548	B19101-1			C-25	5
51548	B19111GB		2530-01-218-3705	C-36	3
51548	B19133GA			C-47	15
51548	B19135GA			C-47	19
51548	B19137-1		3020-01-218-2729	C-47	17
51548	B19 157GA			C-44	16
51548	B19158GA			C-44	13
51548	B19170-1			C-6	40
51548	B19174GA		1730-01-215-8638	C-43	32
51548	B19175GA		1730-01-219-8639	C-43	24
51548	B19176GA		1730-01-219-8640	C-43	3
51548	B19177GA		1730-01-219-8641	C-43	12
51548	B19183GA		1730-01-204-6591	C-38	26

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
51548	B19184GA		1730-01-204-6552	C-38	6
51548	B19190GA		1730-01-205-3932	C-38	27
51548	B19191GA		1730-01-205-3933	C-38	3
51548	B19192GA		1730-01-205-3534	C-38	33
51548	B19192GB		1730-01-205-3935	C-38	2
51548	B19247-1			C-45	8
51548	B19248-1			C-45	13
51548	B19310GA		1730-01-211-2419	C-39	1
51548	B19314GA		4710-01-217-2819	C-46	3
51548	B19317GA		1730-01-205-3S36	C-38	1
51548	8193239A		2990-01-217-5752	C-48	8
54035	CBCA LAN		4820-01-225-1479	C-23	3
54035	CBCH-LCN-YEJ		4810-01-217-8048	C-16	8
15235	CGB194		5975-00-280-7763	C-3	19
15235	CGB2S6		5975-00-539-6912	C-3	17
				C-6	35
54035	CKCA-XAN		4810-01-217-8049	C-22	8
72741	CLA-17810			C-48	5
72741	CLA-500HO			C-31	4
97576	CP-128C-100P-50		4330-01-228-3815	C-21	5
97576	CP-1280-10V-50		4330-01-219-3255	C-21	4
97576	CP-2			C-21	1
51548	C18747GA		2510-01-227-7855	C-47	14
51548	C18750GA		2530-01-218-2713	C-40	27
51548	C18750GB		2530-01-218-2714	C-40	30
51548	C18862GA		2530-01-216-6829	C-40	16
51548	C18911GA		2540-01-216-8568	C-40	19
51548	C18929GA		1730-01-213-5812	C-42	22
51548	C18931GA		1730-01-206-8613	C-42	1
51548	C18940GA			C-44	35
51548	C18941GA		1730-01-205-3547	C-44	4
51548	C18942GA			C-44	32
51548	C18943GA			C-44	28
51548	C18956-12			C-22	11
51548	C18982GA			C-42	19
51548	C19036GA		1730-01-205-3941	C-38	22
51548	C19036GB		1730-01-205-3942	C-38	10
51548	C19037GA		1730-01-205-3939	C-38	19
51548	C19037G6B		1730-01-205-3940	C-38	12
51548	C19038GA		1730-01-205-3943	C-38	23
51548	C19038GB		1730-01-205-3944	C-38	9
51548	C19050GA		2540-01-217-2807	C-42	15
51548	C19054GA		3040-01-204-6809	C-25	1
				C-27	1
51548	C19054GB		3040-01-204-6811	C-25	1
				C-26	1
51548	C19059-1		3040-01-22E-6690	C-40	12
51548	C19059-10		3040-01-228-7753	C-44	23
51548	C19059-11		5340-01-219-3763	C-44	22
51548	C19059-2		5315-01-219-7334	C-40	15
51548	C19059-3		5315-01-220-5200	C-40	22

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
51548	C19059-4		5315-01-219-7333	C-40	18
51548	C190595		5315-01-219-6148	C-40	29
51548	C19059-6		5315-01-220-0294	C-28	9
				C-40	25
51548	C19059-7		5315-01-219-6147	C-41	3
51548	C19059-8		3040-01-228-9173	C-44	34
51548	C19059-9		3040-01-226-7754	C-44	31
51548	C19060GA		3040-01-214-0261	C-37	2
51548	C19068GA		1730-01-205-3946	C-9	2
51548	C19077-1		4820-01-217-4877	C-25	19
51548	C19078GA		2590-01-216-8567	C-41	4
51548	C19078GB		4910-01-216-3489	C-41	4
51548	C19094-1		2815-01-217-4836	C-47	6
51548	C19095-1		3040-01-217-8111	C-47	9
51548	C19096GA			C-15	6
51548	C19102GA			C-25	4
51548	C191G4GA			C-25	3
51548	C19119GA			C-22	1
51548	C19138-1			C-11	4
51548	C19138-2		4320-01-234-7328	C-11	3
51548	C19138-3		5306-01-219-2377	C-11	1
51548	C19138-4		5330-01-218-1184	C-11	2
51548	C19138GA		3010-01-218-2559	C-9	7
51548	C19142-1			C-6	20
51548	C19202GA			C-43	4
51548	C19309-1			C-45	1
79470	C3069X4		4730-00-278-3722	C-17	12
79470	C3109X12X8		4730-00-278-3888	C-19	40
79470	C3109X16X12		4730-00-278-3144	C-19	2
79470	C3169X1		4730-01-216-9355	C-22	17
				C-34	4
79470	C3169X2		4730-00-808-6814	C-22	15
79470	C3169X4		4730-00-202-9389	C-22	16
79470	C35404X6		4730-01-234-6724	C-46	1
79470	C35405X6		4730-01-212-2601	C-17	15
				C-19	37
16003	C43974		4010-00-585-2108	C-47	4
79470	C5129X6		4730-00-540-1525	C-19	46
79470	C5315X12X10		4730-01-217-2609	C-17	33
				C-19	16
79470	C5315X4		4730-00-903-4846	C-17	7
				C-19	10
79470	C5315X4X6		4730-00-258-1864	C-17	29
79470	C5506X12		4730-00-133-3196	C-17	27
				C-19	15
79470	C5515X12X10		4730-00-370-2874	C-17	31
79470	C5515X6X8		4730-01-054-9828	C-16	1
				C-18	3
79470	C5515X8		4730-00-802-2066	C-19	22
51548	0-171D9CBK		4720-01-217-8064	C-17	38
51548	0-171D9GAF		4720-01-217-8072	C-17	24

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
51548	D-71D9GAY		4720-01-217-8066	C-17	18
51548	D-171D9GAZ		4720-01-217-8074	C-17	39
51548	D-171D9GBN		4720-01-218-1835	C-19	11
51548	D-171D9GY		4720-01-217-8073	C-17	40
10119	DB-1242			C-31	9
85717	DH-18	2910-01-204-6785		C-46	5
54846	DSVI-8-B-2	4820-01-217-5713		C-17	14
51548	D17109GB8	4720-01-217-8077		C-17	36
51548	D1719G8L	4720-01-218-1833		C-19	26
51548	D171D9GX	4720-01-217-8079		C-17	26
51548	D17109GAM	4720-01-218-1837		C-20	1
51548	D17109GBA	4720-01-217-8078		C-17	22
51548	D17109GBC	4720-01-217-2614		C-17	37
51548	D17109GBO	4720-01-217-8076		C-17	1
51548	D17109GBE	4720-01-217-8075		C-17	4
51548	D171C9GBF	4720-01-217-8071		C-17	23
51548	D17109GBG	4720-01-217-8069		C-17	2
51548	D017109GBH	4720-01-217-8067		C-17	20
51548	D17109GBJ	4720-01-217-8065		C-17	19
51548	D071C9GBM	4720-01-2184834		C-19	19
51548	D17109GBP	4720-01-217-9943		C-18	4
51548	D17109GBQ	4720-01-218-1836		C-20	9
51548	D17109GBR	4720-01-217-9944		C-18	2
51548	D17109GBS	4720-01-217-5945		C-18	5
51548	D17109GF	4720-01-217-8068		C-17	8
51548	D17109GM	4720-01-217-8070		C-17	3
51548	D17110GEN	4720-01-217-8083		C-16	7
51548	D17110GEP	4720-01-217-S939		C-19	7
51548	D17110GEQ	4720-01-217-9940		C-19	44
51548	D17110GER	4720-01-217-9946		C-18	1
51548	D17110GES	4720-01-217-9941		C-20	3
51548	D17252G0	4720-01-217-8080		C-17	11
51548	D17252GE	4720-01-217-9938		C-17	32
51548	D17252GF	4720-01-217-9937		C-17	35
51548	D17252GG	4720-01-217-9936		C-17	10
51548	D17252GH	4720-01-217-5947		C-19	4
51548	D17252GJ	4720-01-217-9548		C-19	14
51548	D17252GK	4720-01-218-2458		C-19	27
51548	D017252GL	4720-01-217-9549		C-19	13
51548	018739GA			C-43	13
51548	D18988GA			C-43	23
51548	D18989GA			C-43	25
51548	D19055			C-42	16
51548	D19091-1			C-6	12
51548	D19113GA	4320-01-206-9951		C-31	5
51548	D19116GA			C-34	3
51548	D19118GA			C-22	14
51548	D19151GA			C-43	33
51548	EAS1616	5940-01-21S6960		C-6	5
				C-7	5
51548	EBR0838	5999-01-216-6117		C-2	4

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX STOCK NUMBER	FIG.	ITEM
51548	EBRO856	5999-01-218-3755	C-2	2
51548	EF13		C-6	6
51548	ESBI11A		C-45	5
51548	ESBI12		C-45	10
51548	ESB113A		C-45	15
51548	ESB148		C-45	7
51548	ESB149		C-45	20
51548	ESB154		C-45	4
51548	ESB162A		C-45	17
51548	ESB172		C-45	14
51548	ESBS8		C-45	3
51548	EW10	6220-01-221-5933	C-7	7
54035	FCCB LAN	4820-01-226-3759	C-23	4
97576	FCS537W	4730-00-623-7721	C-15	1
51548	FD15	3040-01-206-4948	C-9	5
70417	FF-1506-4	3120-00-097-6380	C-44	33
14448	FIG606-1	4820-01-218-7941	C-19	34
14448	FIG606-1 1/4	4820-01-219-1983	C-19	30
09079	FIT-700-21		C-3	20
			C-7	4
		5970-01-231-5750	C-43	27
99017	FP-204		C-38	4
54035	FRCA-LAN-1.0	4820-01-217-4837	C-34	7
25817	F2-2C	1730-01-226-1091	C-31	3
51588	H-32-L	3110-01-218-1534	C-42	4
			C-43	20
51588	H-40-L	3110-00-860-2318	C-43	16
51588	H-72-L	3110-01-218-1533	C-44	1
23619	HC-MP-12	4730-01-219-2069	C-19	45
51548	HCM87	3040-01-219-8757	C-23	1
51548	HCM87-1	5310-01-234-0462	C-24	12
51548	HCM87-10	2590-01-234-0508	C-24	6
51548	HCM87-11	5330-01-234-0493	C-24	9
51548	HCM87-12	3040-01-234-0464	C-24	4
51548	HCM87-13	5330-01-234-0492	C-24	5
51548	HCM87-14	5330-01-234-0490	C-24	7
51548	HCM87-15	5340-01-234-0488	C-24	2
51548	HCM87-16	5315-01-234-2978	C-24	8
51548	HCM87-17	3120-01-234-0499	C-24	3
51548	HCM87-2	3040-01-234-0522	C-24	10
51548	HCM87-3	5330-01-234-0491	C-24	16
51548	HCM87-4	3040-01-234-0463	C-24	13
51548	HCM87-6		C-24	11
51548	HCM87-7	3040-01-234-0523	C-24	14
51548	HHF330	4730-01-217-9921	C-19	24
			C-20	5
51548	HHF337	4730-01-228-3533	C-19	23
			C-20	10
51548	HHF346	4730-01-217-9923	C-20	6
26953	HP3006-01-03	4320-01-218-6889	C-25	14
90008	HS7	5940-00-665- 559	C-6	2

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
51548	HV106		4810-01-205-8177	C-22	10
51548	HV108		4810-01-205-2269	C-34	1
51548	HYT2		3010-01-208-1873	C-32	1
81348	J-C-580SJ03CK3/1 6SRNJ		6145-00-889-1491	C-3	9
				C-3	14
				C-3	21
09455	LTD-1632		3120-01-218-7171	C-40	9
60038	144610		3110-00-827-8648	C-37	1
60038	144649		3110-00-926-1379	C-35	4
05646	MB-250		4210-01-218-4743	C-25	8
81349	MIL-E-46717		2805-00-872-5972	C-47	1
04713	MR751		5961-01-181-1200	C-6	3
96906	MS15002-1		4730-00-172-0010	C-24	1
				C-40	2
				C-44	15
				C-44	19
96906	MS16562-72		5315-00-844-5830	C-42	20
				C-43	2
96906	MS21316-57		5305-00-904-0254	C-38	5
96906	MS24523-22		5930-00-683-1628	C-4	2
				C-4	9
96906	MS24523-23		5930-00-683-1629	C-4	3
96906	MS24523-30		5930-00-683-1626	C-4	10
96906	MS24524-26		5930-00-655-4245	C-4	5
				C-4	8
96906	MS24665-357		5315-00-298-1481	C-35	7
96906	MS25036-106		5940-00-283-5280	C-6	34
96906	MS27183-22		5310-00-951-7209	C-42	8
96906	MS27183-23		5310-00-809-8533	C-35	3
96906	MS27407-2		5930-00-906-3477	C-4	4
96906	MS3106A18-1P		5935-00-201-7969	C-3	3
96906	MS35307-313		5305-00-616-6370	C-43	7
				C-46	11
96906	MS35307-314		5305-00-721-8010	C-46	10
96906	MS35307-360		5305-00-576-5417	C-42	13
				C-43	15
				C-47	2
96906	M535307-411		5305-00-021-3801	C-31	14
				C-42	12
96906	MS35309-358		5305-00-543-4718	C-44	12
96906	MS35338-43		5310-00-045-3296	C-4	13
				C-5	9
				C-6	18
				C-43	6
96906	MS35338-45		5310-00-407-9566	C-6	11
				C-21	2
				C-25	16
				C-47	7
96906	MS35338-46		5310-00-637-9541	C-1	2
				C-15	8

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
96906	MS35338-46		5310-00637-5541	C-38	15
				C-41	8
				C-43	29
				C-44	10
96906	MS35338-48		5310-00-584-5272	C-9	9
				C-31	15
				C-42	11
96906	MS35338-50		5310-00-820-6653	C-9	4
				C-31	13
				C-39	5
				C-42	7
96906	MS35338-54		5310-00-850-1611	C-43	21
				C-44	2
				C-44	26
				C-43	8
96906	MS35492-50		5305-00-901-3106	C-43	8
96906	MS35649-2382		5310-00-056-3395	C-1	1
96906	MS35691-35		5310-00-985-5945	C-31	11
				C-42	14
				C-48	11
				C-42	10
96906	MS35691-49		5310-00-851-2677	C-39	6
96906	MS35691-53		5310-00-835-2037	C-42	5
96906	MS35651-61		5310-00-842-1190	C-43	22
				C-44	27
				C-43	19
				C-43	31
96906	MS35691-85		5310-00-891-3430	C-44	3
96906	MS35691-93		5310-00-997-6903	C-41	10
96906	MS35692-61		5310-00-998-0608	C-35	2
96906	MS51500A6		4730-00-595-1559	C-17	6
96906	MS51500A6-8		4730-00-289-0382	C-46	4
				C-19	42
				C-19	12
				C-46	2
96906	MS51504A12		4730-00-289-4912	C-47	13
96906	MS51504A4		4730-00-647-3207	C-17	17
96906	MS51520A6		4730-00-826-2347	C-17	17
30780	MS51521A6		4730-00-618-5372	C-16	5
96906	MS51522A12		4730-00-434-6394	C-17	25
				C-19	25
				C-20	2
				C-17	30
96906	MS51523A6		4730-00-618-5381	C-17	5
96906	MS51525A6-8		4730-00-080-7040	C-19	20
				C-20	4
				C-16	6
				C-17	21
96906	MS51525A8		4730-00-117-3958	C-19	8
				C-19	9
				C-43	5
				C-6	32
96906	MS51861-35		5305-00-432-4170	C-16	3
96906	MS51861-47		5305-00-432-4203		
96906	MS51873-86B		4730-01-015-5268		

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
96906	MS51922-33		5310-00-225-6993	C-25	11
96906	MS51957-30		5305-00-054-6654	C-6	26
96906	MS51957-65		5305-00-050-9231	C-6	17
96906	MS51957-70		5305-00-050-9236	C-S	1
				C-5	10
96906	MS51967-8		5310-00-732-0558	C-25	12
96906	MS90727-11		5305-00-267-8961	C-23	6
96906	MS90727-3		5305-00-267-8952	C-15	3
96906	MS90728-16		5305-00-071-2513	C-31	10
96906	MS90728-174		5305-00-724-7264	C-39	3
96906	MS90728-3		5305-00-071-2506	C-4	14
96906	MS90728-31		5306-00-226-4824	C-6	10
96906	MS90728-32		5306-00-226-4825	C-13	32
				C-21	3
96906	MS90728-34		5306-00-226-4627	C-13	35
96906	MS90728-36		5306-00-226-4829	C-47	8
96906	MS90728-55		5305-00-802-2764	C-38	16
96906	MS90728-58		5305-00-543-4372	C-15	7
96906	MS90728-60		5305-00-068-0510	C-6	30
96906	MS90728-65		5305-00-821-3869	C-43	30
51548	M681		4030-01-218-1567	C-39	7
51548	M682-024		4010-01-234-7317	C-39	8
51548	M685		5340-01-218-4753	C-9	1
51548	M714			C-39	9
51548	M724		5307-01-219-2681	C-37	4
81349	M85049/1-108		5935-00-280-1936	C-3	4
80205	NAS1096-3-10		5305-00-812-8645	C-15	2
80205	NAS1352-10-24P		5305-01-147-4032	C-31	12
80205	NAS1352-3-32P		5305-01-144-5587	C-34	6
80205	NAS1352-5-16		5305-00-459-9828	C-47	10
54035	NCCA-LAN		4820-01-217-4878	C-22	13
51548	PFIOOIO		4730-01-217-8058	C-19	5
51548	PF100112		4730-01-218-1824	C-19	38
51548	PF100125		4730-01-216-1826	C-19	31
51548	PF1003		4730-01-218-3352	C-19	29
51548	PF1012		4730-01-218-1828	C-19	28
51548	PF6012		4730-01-218-1825	C-19	32
51548	PF6013		4730-01-218-1827	C-19	33
51548	PF603		4730-01-219-1376	C-19	35
51548	PF804		4730-01-219-1377	C-19	1
81349	RCR2OG473JS		5905-00-141-0596	C-6	4
54035	RPEC-FAN		4820-01-173-8438	C-22	4
				C-22	5
				C-22	9
54035	RPEC-FAN-FBY			C-34	2
54035	RPECFAN		4820-01-173-8438	C-34	5
71041	SC100		3040-03-723-4088	C-40	26
87373	SFH-12H		4730-01-216-9364	C-25	2
51588	S52-L		3110-00-808-2616	C-42	9
00779	T824W6		5940-01-233-1814	C-6	
				C-6	25

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX STOCK NUMBER	FIG.	ITEM
00779	TB24k6	5940-01-233-1814	C-6	33
30876	TW63	3120-01-218-1553	C-37	5
			C-40	7
66289	WD72	2990-01-216-8559	C-48	6
51548	W16GN	6145-01-219-7014	C-3	15
51548	W16WH	6145-01-218-3335	C-5	8
51548	W1602-0060	6145-01-219-6S66	C-3	8
51548	W1602-0065	6145-01-220-2S74	C-3	10
51548	W1602-0092		C-6	37
51548	W1602-0156		C-6	39
51548	W1602-0174	6145-01-219-6S67	C-3	16
51548	W1602-0180		C-7	3
51548	W1602-0192	6145-01-219-6968	C-3	13
51548	W1610	6145-01-218-3331	C-3	5
51548	W1619UL	6145-C1-218-3332	C-3	2
			C-3	24
51548	W1624UL	6145-01-218-3333	C-3	18
51548	X35004-012.000		C-1	6
51548	X36011-024.000		C-46	7
51548	X41002-010		C-1	5
51548	X41002-011		C-1	8
51588	Y-32-L	3110-01-220-3150	C-42	21
			C-43	1
99997	YB273880		C-44	9
51548	YE123316		C-8	3
51548	YE173063	5305-01-219-9116	C-25	17
51548	YE180089	5305-01-233-1865	C-43	11
51548	YE180124	5305-01-219-9114	C-31	7
			C-41	9
			C-47	18
			C-48	7
51548	YE180130	5305-01-219-9117	C-25	10
			C-42	2
51548	YE180134	5305-01-220-3450	C-25	15
51548	YE180191	5305-01-219-9118	C-25	6
51548	YE271547	5305-01-219-9115	C-9	3
51548	YE443734	5305-01-220-0194	C-9	8
51548	YF102570L	5305-01-219-236	C-14	3
51548	YF139013L	5305-01-220-9697	C-40	21
51548	YG1000000	5305-61-215-7656	C-34	8
51548	YG147126	5305-01-218-3135	C-33	14
51548	YG186923	5305-01-218-3136	C-22	12
51548	YG9421622	5305-01-220-9703	C-9	11
51548	YK0011	5305-01-224-3732	C-25	9
51548	YM120380	5310-01-219-7216	C-5	2
			C-6	14
			C-6	28
			C-8	2
			C-15	4
			C-23	5
			C-31	8

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
51548	YM120380		5310-01-219-7216	C-46	9
51548	YM120382		5310-C0-637-9541	C-25	13
				C-31	6
				C-42	3
				C-47	3
				C-48	10
51548	YM131046		5310-01-234-0500	C-43	17
51548	YN131014		5310-01-229-2037	C-6	23
51548	YS120361		5310-01-226-1794	C-6	15
51548	YT120375		5310-01-219-2481	C-6	15
				C-6	27
				C-8	1
				C-46	8
51548	YZ0004		5320-01-023-2529	C-31	2
06239	0-200-31219		5305-01-223-4378	C-12	16
27995	0009430215		5306-01-220-2449	C-13	10
98153	0011000101		3040-01-221-5465	C-30	16
98153	0011000192		3040-01-21E-6826	C-26	17
				C-27	17
98153	0021000101		3040-01-221-5481	C-30	3
98153	0021000192		3040-01-218-6823	C-26	4
				C-27	4
98153	0031031416		4710-01-222-7422	C-30	8
98153	0031041016		3040-01-217-4988	C-26	9
				C-27	9
98153	0041030811		3040-01-218-6825	C-26	19
				C-27	19
98153	004103121S		3040-01-221-5483	C-30	18
98153	0050061224		3040-01-218-6543	C-26	18
				C-27	18
98153	0050061624		3040-01-222-0737	C-30	17
98153	0261000094		3040-01-221-5482	C-30	7
98153	026100C095		3040-01-218-4696	C-26	8
				C-27	8
27995	04-01-101-17		3110-01-223-4302	C-13	9
64462	04-01-10135		3110-00-738-1715	C-13	5
84243	04-01-102-12		3110-01-205-5532	C-13	6
81992	074-01-018		5975-00-231-0773	C-3	23
27995	10-00-044-010		5330-01-219-2540	C-13	4
27995	10-00-141-113		5330-01-219-2541	C-13	37
96151	104-1216		2520-01-206-5000	C-9	6
77326	11-409		5935-01-223-8572	C-7	2
77326	11-410		5935-01-217-5238	C-43	10
81343	12-4140140C		4730-00-278-3917	C-19	36
82271	12C34S-A24		5945-01-227-9660	C-22	3
63906	12MT12F12F		4730-00-990-2392	C-19	3
27995	14-00-047-002		5310-01-222-9019	C-13	11
84243	14-00-131-003		3110-01-202-3456	C-13	30
27995	14-00-139-033		5365-01-219-4018	C-13	15
27995	14-00-139-040		5365-01-219-4017	C-13	22
27995	14-00-139-042		5365-01-226-5838	C-13	24

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
27995	14-00-139-043		5365-01-226-5835	C-13	24
27995	14-00-139-045		5365-01-226-5836	C-13	24
27995	14-00-139-046		5365-01-226-5837	C-13	24
64462	14-00-183-005		5306-01-223-4304	C-13	7
27995	14-02-000-021		3040-01-206-4947	C-9	10
27995	14-02-039-004			C-13	36
27995	14-02-039-005		5340-01-220-9837	C-13	33
64462	14-02-042-001		3040-01-219-5638	C-13	18
64462	14-02-042-002		3040-01-219-5642	C-13	2
			3040-01-219-5637	C-13	28
27995	14-02-052-002		5365-01-219-3984	C-13	34
27995	14-02-053-001		5365-01-219-4016	C-13	31
27995	14-02-079-005		3040-01-215-5698	C-13	3
64462	14-02-089-003		3010-01-221-7146	C-13	1
27995	14-02-156-001		5360-01-220-5325	C-13	42
64462	14-02-159-007		3010-01-218-1873	C-13	17
64462	14-02-159008		3010-01-218-1871	C-13	27
27995	14-02-162-003		3020-01-217-8190	C-13	40
27995	14-02-163-007		3020-01-217-8186	C-13	29
27995	14-02-163-008		3020-01-217-8188	C-13	21
27995	14-02-165-008		3020-01-217-8189	C-13	13
27995	14-02-165-009		3020-01-217-8187	C-13	23
64462	14-02-179-004		3040-01-219-5725	C-13	8
84243	14-02-193-001		5310-01-201-8995	C-13	15
27995	14-02-193002		5310-01-222-9020	C-13	41
27995	14-02-193-003		5310-01-222-9022	C-13	12
27995	14-02-193-004		5310-01-222-9021	C-13	25
27995	14-02-193-005		5340-01-219-2702	C-13	38
64462	14-02-659-012		3010-01-218-1872	C-13	16
84243	14-02-655-012-5		3110-01-204-3427	C-13	20
64462	14-02-65S-013		3010-01-218-1870	C-13	26
82271	14CIS-A24		4810-01-233-1858	C-22	6
82271	14C11S-A24		4810-01-218-2562	C-22	7
82271	14C12S-A24		4810-01-205-8141	C-22	2
16294	1400973		5340-01-219-7374	C-28	8
16294	1405871		2530-01-216-8589	C-28	5
16294	1405875		2590-01-216-8590	C-28	17
16294	1407444		1650-01-216-9732	C-28	16
16294	1407502		3040-01-218-6845	C-25	18
16294	1407606			C-28	2
16294	1407903		3040-01-217-1151	C-28	18
94189	14286		5340-00-2534910	C-35	1
96151	14300		5306-01-218-1096	C-10	15
96151	14351		5315-01-178-1587	C-10	18
54963	1460-62		5365-00-117-4583	C-40	3
54963	1460-75		5365-01-102-1986	C-40	10
96151	15006		5330-00-354-6509	C-10	14
58114	1501-031-001		3040-01-215-6636	C-33	5
58114	1501-032-001			C-33	12
58114	1501-047-001		4320-01-195-4420	C-33	4
58114	1501-048-001		4320-01-195-4419	C-33	6

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX STOCK NUMBER	FIG.	ITEM
58114	1501-076-001	5330-01-219-5985	C-33	11
58114	1501-077-002	5330-01-033-1206	C-33	7
			C-33	8
58114	1501-542-001		C-33	2
58114	1501-553-001	4320-01-219-2147	C-33	10
33195	16137	1730-01-205-3931	C-39	4
76371	170032000	3010-00-557-9715	C-47	11
62246	200-51		C-4	7
62246	200-52		C-4	1
98153	201042	3040-01-204-6786	C-29	1
82366	2050-Y	4920-01-232-7694	C-38	13
96652	21-06	5315-01-067-9597	C-4	12
			C-42	18
22421	2250	5975-01-054-6966	C-3	1
			C-3	22
98153	2500000156	5330-01-224-2322	C-30	6
98153	2500000157	533C-01-219-846	C-26	7
			C-27	7
98153	2510000215	5330-01-224-2323	C-30	14
98153	2510000326	5330-01-224-2314	C-30	4
98153	2510000330	5330-01-219-6853	C-26	5
			C-27	5
98153	2520000023	5310-01-226-1736	C-26	14
			C-27	14
			C-30	13
59730	2521	5975-00-296-1669	C-3	7
			C-S	5
			C-5	11
59730	2534	5975-00-296-9437	C-31	1
			C-6	38
98153	2550000056	2590-01-222-2742	C-26	13
			C-27	13
			C-30	12
77342	27E122	5935-00-763-8699	C-6	16
06239	27519	2530-01-211-0928	C-12	14
04720	27603	2530-01-222-5483	C-12	12
06239	27777	5330-01-100-8760	C-12	21
04720	27804	3040-01-206-6589	C-12	20
04720	27806	3040-01-227-9633	C-12	5
04720	27807	2530-01-206-6602	C-12	25
06239	27808	5330-01-100-6759	C-12	23
04720	27927	3040-01-224-3000	C-12	10
06239	27928	5315-01-223-9561	C-12	11
06239	27966	5330-01-103-8754	C-12	22
06239	27967	5330-01-103-8755	C-12	24
04720	28003	3110-01-207-2710	C-12	4
06239	28004	5365-01-226-6840	C-12	2
04720	28005	5365-01-101-0618	C-12	3
06239	28426	5330-01-101-1371	C-12	1
06239	28435	5340-01-223-9655	C-12	18
06239	28963	5360-01-207-1458	C-12	8

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX STOCK NUMBER	FIG.	ITEM
04720	289962	5360-01-207-1459	C-12	9
04720	29035	4820-01-175-7102	C-12	19
04720	29283	5360-01-207-1457	C-12	13
06239	29487	2530-01-222-4595	C-12	15
30780	3/4HHPS	4730-01-118-6860	C-21	6
87373	3/8 HHP-S	4730-01-205-3961	C-22	18
04147	3C1P	2990-00-401-0594	C-48	2
			C-48	3
96652	30-08		C-6	7
			C-38	8
96652	30-09	5340-01-150-0435	C-42	6
06239	30947	5330-01-226-6750	C-12	6
73842	310508700	2620-01-205-8142	C-36	2
75915	311005	5920-01-083-1878	C-6	1
04720	31771		C-12	7
60038	332	3110-00-100-07S9	C-37	3
60038	335	3110-00-100-0202	C-35	5
06239	34151	5340-01-227-9632	C-12	17
96652	35-06	5310-01-232-4486	C-40	11
98153	3510000004	5310-01-226-1792	C-26	16
			C-27	16
			C-30	15
98153	3510000156	5310-01-226-1793	C-26	12
			C-27	12
			C-30	11
98153	3510000173	5310-01-229-6144	C-26	6
			C-27	6
			C-30	5
98153	3510000215	5330-01-219-6847	C-26	15
			C-27	15
96652	36-03	5310-01-231-5759	C-40	4
96652	37-03	5310-01-218-8258	C-40	i
			C-41	2
96652	37-05	5310-01-218-7540	C-40	14
			C-44	18
			C-44	21
96652	37-07	5310-01-223-1693	C-44	8
98153	3900000001	5305-01-223-4377	C-26	10
			C-27	10
			C-30	9
39428	3905T14	5340-01-219-3829	C-38	7
87373	4-C50X-S	4730-01-207-2393	C-17	34
			C-20	7
87373	4-8-F50X-S	4730-01-205-3967	C-19	17
30780	4R6XS	4730-00-808-6668	C-17	28
			C-20	8
96652	40-05	5310-01-220-9723	C-40	8
98153	4040000027	5315-01-226-6796	C-26	3
			C-27	3
			C-30	2
98153	4060000014	5340-01-226-6821	C-26	11

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
98153	4060000014		5340-01-226-6821	C-27	11
				C-30	10
98153	4070000001		5315-01-223-9960	C-26	2
				C-27	2
				C-28	7
				C-30	1
78422	4589		1730-01-228-1639	C-7	6
97576	49-10		4730-01-223-3752	C-19	47
16294	5009114		5330-01-220-0226	C-28	6
16294	5009216		5330-01-220-0228	C-28	13
16294	5009228		5330-01-220-0227	C-28	15
16294	5009330		5330-01-220-0225	C-28	4
16294	5020007		5310-01-227-6158	C-28	1
72741	503-105		4720-01-125-4474	C-47	12
16294	5C37216		5330-01-219-2618	C-28	12
16294	5037228		5330-01-219-2617	C-28	14
16294	5038330		5330-01-219-2616	C-28	3
62246	505-02-PB-05		5999-01-217-3969	C-6	22
16294	5082243		5365-01-219-5328	C-28	11
16294	5092351		5305-01-219-2390	C-28	10
79136	5160-125		5365-00-420-3857	C-40	13
				C-44	17
				C-44	20
79136	5160-150		5365-00-920-5476	C-44	14
79136	5160-58		5365-01-071-9006	C-41	1
87373	540N-6			C-43	26
79470	5405X8X8		4730-00-903-7175	C-19	35
79470	5924X6		5310-01-083-4542	C-17	16
27783	595		2640-00-555-2838	C-36	4
53711	5979393-1		5305-00-225-3843	C-6	9
87373	6-10-F50X-S		4730-01-218-1832	C-17	9
58114	62102-004		5330-01-051-9916	C-33	3
73680	63X3885		5330-00-710-6657	C-35	6
27005	69201-001		5315-01-203-2530	C-33	9
79470	7230X10		5330-00-397-4589	C-33	13
60808	7340		5340-01-220-4176	C-47	5
79470	7350912		4730-00-278-3145	C-19	6
96151	7383		5360-01-177-7959	C-10	17
96151	7385		3130-01-219-6130	C-10	2
96151	7390		5365-01-2194063	C-10	8
96151	7404-2		3110-01-229-6117	C-10	6
58114	76105-003			C-33	1
80713	8MT8F8F		4730-00-203-0554	C-19	41
19207	819886		4010-00-033-6986	C-38	36
54035	8307-13F-A11		4820-01-205-8111	C-23	2
96151	8356-1		4320-01-218-2733	C-10	16
93922	84090		4010-01-112-8084	C-38	35
96151	8432		4320-01-218-2731	C-10	12
96151	8433		3040-01-217-2707	C-10	11
96151	8434-1		3040-01-221-7796	C-10	9
96151	8435		4820-01-180-9824	C-10	22

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
96151	8789-1		4320-01-218-2495	C-10	10
96151	8915		6670-01-216-9419	C-10	21
05684	9007-CA-1		5930-01-216-ee72	C-5	3
				C-5	7
56365	9007AW12		5930-00-629-8334	C-5	4
96151	9022-2		5330-01-177-7S58	C-10	13
96151	9022-6		5330-01-176-1586	C-10	3
96151	9048-1		5330-01-177-7961	C-10	19
96151	9049-1		5330-01-177-7960	C-10	20
96151	9050		5330-01-178-1589	C-10	7
96151	9057-4		5330-01-219-7049	C-10	4
96151	9117-4		5330-01-21S-7050	C-10	5
96151	9121-1		5330-01-219-7048	C-10	1
66080	913549		5310-01-217-6990	C-35	8
79470	9365X8X8		4730-01-217-9933	C-16	9
79470	9405X12X12		4730-00-419-3031	C-19	43
79410	9405X4X4		4730-01-232-4406	C-17	13
79470	9405X6X8		4730-01-217-9932	C-16	2
79410	95-04-115-01		5310-01-098-9966	C-13	39
27995	95-04-138-01		5365-31-220-4154	C-13	14
79470	9515X12X12		4730-00-133-2304	C-19	21
79470	9515X8X8		4730-01-067-7545	C-16	4

APPENDIX D

EXPENDABLE SUPPLIES AND MATERIALS LISTS

D-1. SCOPE. This appendix lists expendable supplies and materials you will need to operate and maintain the SPEMS. These items are authorized to you by CTA 50-970, Expendable Items (except Medical, Class V, Repair Parts, and Heraldic Items).

D-2. EXPLANATION OF COLUMNS:

- a. Item Number (Column 1). This number is assigned to the entry in the listing.
- b. Level (Column 2). This column identifies the lowest level of maintenance that requires the listed item.

C.....Operator/Crew
 O.....Organizational Maintenance
 F.....Direct Support Maintenance

c. National Stock Number (Column 3). This is the National stock number NSN assigned to the item; use it to request or requisition the item.

d. Description (Column 4). Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the part number followed by the Federal Supply Code for Manufacturer (FSCM) in parentheses, if applicable.

e. Unit of Measure (U/M) (Column 5). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Table E-1. Expendable Supplies and Materials List.

(1) Item Numbers	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
1	O		Tiestraps	
2	O		Silicone Sealer	
3	O		G0-90 (Gear Oil)	
4	O		Hydraulic Oil	
5	O		Grease (GAA)	
6	O		Cleaning Solvent (PD 680)	
7	O		Plastic Bag	
8	O		Packing Tape	
9	O		Rag	
10	F		Lint free cloth	
11	F		Spray Lubricant	
12	O		Teflon Tape	

APPENDIX E
MANUFACTURED ITEMS LIST

E-1. GENERAL**E-1**

This appendix contains the procedures for fabricating the manufactured items you are authorized to make.

E-2. WIRING-MANUFACTURE**E-2**

This task covers:
Fabrication

INITIAL SETUP

Personnel Required
MOS 63G, 1 Mechanic

FABRICATION:

- (1) Cut a suitable length of wire from a spool of bulk wire.

NOTE

Be sure the wire you cut is the same gage as the wire you are replacing. Identify wire by using color coded tape, the same color as the wire you are replacing.

- (2) Note what type and size of connector the old wire had and match them for the new wire.
- (3) Measure the length of the old wire. When cutting the new wire, add 6 in. To this length.

NOTE

If splicing a wire, use heat shrink tubing over spliced area.

- (4) Fasten the first connector splice to one end of the wire.

GO ON TO NEXT PAGE

NOTE

Check new wire for continuity before installation.

- (5) Install the wire, following the path of the old wire as ~~much~~ as possible.
- (6) Fasten the wire in place with tape, nylon ties or shrink wrap.
- (7) Install the other connector.
- (8) If wire is spliced and heat shrink tubing is used, shrink tubing using a suitable heat source.

END OF TASK

APPENDIX F

TORQUE LIMITS

Table F-1 gives the standard torque values for capscrews, nuts and lock studs of SAE Grade 5 or better. Exceptions to the following values are given in the maintenance task where appropriate.

Table F-1. Standard Torque Limits

THREAD DIAMETER		STANDARD TORQUE	
inches	millimeters	lb. ft.	N-m
Use these torques for bolts and nuts with standard threads.			
1/4	6.35	9 ± 3	12 ± 4
5/16	7.94	18 ± 5	24 ± 7
3/8	9.53	32 ± 5	43 ± 7
7/16	11.11	50 ± 10	68 ± 14
1/2	12.70	75 ± 10	100 ± 14
9/16	14.29	110 ± 15	150 ± 20
5/8	15.88	150 ± 20	205 ± 27
3/4	19.05	265 ± 35	360 ± 47
7/8	22.23	420 ± 60	570 ± 80
1	25.40	640 ± 80	870 ± 110
1-1/8	28.58	800 ± 100	1085 ± 135
1-1/4	31.75	1000 ± 120	1355 ± 165
1-3/8	34.93	1200 ± 150	1625 ± 205
1-1/2	38.10	1500 ± 200	2035 ± 270
Use these torques for bolts and nuts on hydraulic valve bodies with standard threads			
5/16	7.94	13 ± 2	18 ± 3
3/8	9.53	24 ± 2	33 ± 3
7/16	11.11	39 ± 2	53 ± 3
1/2	12.70	60 ± 3	80 ± 4
5/8	15.88	118 ± 4	160 ± 5

INDEX

Subject	Paragraph or Appendix Number
A	
Additional Operating Procedures.....	2-13
Adjustments, Initial.....	2-10
Assembly	2-9
Assembly and Preparation For Use.....	2-9
B	
Base Controls.....	12
Battery, Replace	3-16
Battery Cables, Replace.....	3-17
Boxes, Control	
Inspect.....	20
Repair	4-8
Replace	4-7
Boxes, Junction	
Adjust	10
Inspect.....	4
Repair	11
C	
Cable, Battery Replace.....	3-17
Calibration.....	1-3
Cartridges/Solenoid Valves, Replace.....	3-31
Controls	
Base	2-12
Emergency	2-3
Operator's.....	2-2
Platform	2-11
Control Boxes	
Inspect.....	20
Repair	4-8
Replace	4-7
Control Valves, Directional	
Repair	3-34
Replace	3-33
Cooler, Transmission Oil.....	4-19
Coupling and Stub Shaft, Replace.....	4-35
Cylinders, Lift	
Repair	4-14
Replace	3-35
Cylinders, Stabilizer	
Repair	4-15
Replace	3-36
Cylinder, Steering	
Repair	4-16
Replace.....	3-37

INDEX-Continued

Subject	Paragraph or Appendix Number
Cylinder, Traverse	
Repair	4-17
Replace	3-38
D	
Daily Checks	2-10
Decals 2-15	
Decals and Warning Plates	2-15
Deck Extensions	
Repair	4-29
Replace	4-26
Destruction of Army Materiel to Prevent Enemy Use	1-4
Directional Control Valves	
Repair	3-34
Replace	3-33
E	
Emergency Controls	2-3
Emergency Procedures	2-17
Engine	
Adjust	3-46
Repair	4-34
Replace	4-33
Equipment Characteristics, Capabilities and Features	1-8
Equipment Data	1-10
Equipment Improvement Recommendations (EIR)	1-6
Expendable Supplies and Materials	D-1
Extensions, Deck	
Repair	4-29
Replace	4-26
F	
Filters, Inlet and Suction, Replace	3-30
Fittings and Hoses, Replace	3-29
Fuel Tank	
Repair	3-45
Replace	3-44
Functional Description	1-12
G	
Guardrails, Replace	3-42

INDEX-Continued

Subject	Paragraph or Appendix Number
H	
Hand Pump, Replace.....	3-40
Horn, Replace.....	3-25
Hoses and Fittings, Replace.....	3-29
Hubs and Bearings, Steering Wheel, Repair.....	4-22
Hydraulic Motor, Brake and Drive Hub Assembly	
Inspect.....	3-26
Repair.....	4-12
Replace.....	3-28
Service.....	3-27
Hydraulic Pump	
Repair.....	4-20
Replace.....	3-39
Hydraulic Reservoir, Repair.....	4-13
I	
Initial Adjustments and Daily Checks.....	2-10
Inlet and Suction Filters.....	3-30
J	
Junction Box	
Adjust.....	4-10
Inspect.....	4-9
Repair.....	4-11
L	
Ladder	
Repair.....	4-28
Replace.....	4-25
Lift Cylinders	
Repair.....	4-24
Replace.....	3-23
Lights	
Repair.....	3-24
Replace.....	3-23
Limit Switches	
Adjust.....	3-21
Replace.....	3-22
Limit Switches/Toggle Switches, Replace.....	3-22
Location and Description of Major Components.....	1-9

INDEX-Continued

Subject	Paragraph or Appendix Number
M	
Maintenance Allocation Chart.....	B-1
Maintenance Forms, Records and Reports.....	1-2
Major Components, Location and Description.....	1-9
Manufactured Items List.....	E-1
Movement, Preparation For.....	2-14
Muffler, Replace.....	3-47
O	
Operation in Unusual Weather and Terrain.....	2-16
Operator/Crew Preventive Maintenance Checks and Services.....	2-5
Operator's Controls.....	2-2
P	
Plates, Decals and Warning.....	2-15
Platform	
Repair	4-30
Replace	4-27
Platform Controls.....	2-11
Platform Safety Summary.....	2-8
Preparation For Movement.....	2-14
Preparation For Storage or Shipment.....	1-5
Preparation For Use.....	2-9
Preventive Maintenance Checks and Services, Operator/Crew.....	2-5
Pump, Hand, Replace.....	3-40
Pump, Hydraulic	
Repair	4-20
Replace	3-39
R	
References.....	A-1
Repair Parts and Special Tools List.....	C-1
Reservoir, Hydraulic, Repair.....	4-13
S	
Safety, Care and Handling.....	1-11
Safety Summary, Platform.....	2-8
Scissors Arm Rollers, Shafts and Scissors.....	
Repair	4-32
Replace	4-31
Scissors, Scissors Arm Rollers and Shafts.....	
Repair	4-32
Replace	4-31
Scope	1-1

INDEX-Continued

Subject	Paragraph or Appendix Number
Shafts, Scissors and Scissors Arm Rollers	
Repair	4-32
Replace	4-31
Solenoid Valves	
Repair	3-32
Replace	3-31
Solenoid Valves/Cartridges, Replace.....	3-31
Solenoid Valves/Cartridges, Replace.....	3-31
Stabilizers, Replace.....	4-24
Stabilizer Cylinders	
Repair	4-15
Replace	3-36
Steering Assembly, Replace.....	4-23
Steering Cylinder	
Repair	4-16
Replace	3-37
Steering Wheel Hubs and Bearings	
Repair	4-22
Replace	3-41
Stub Shaft and Coupling, Replace.....	4-35
Suction and Inlet Filters, Replace.....	3-30
Switches, Limit	
Adjust	3-21
Replace	3-22

T

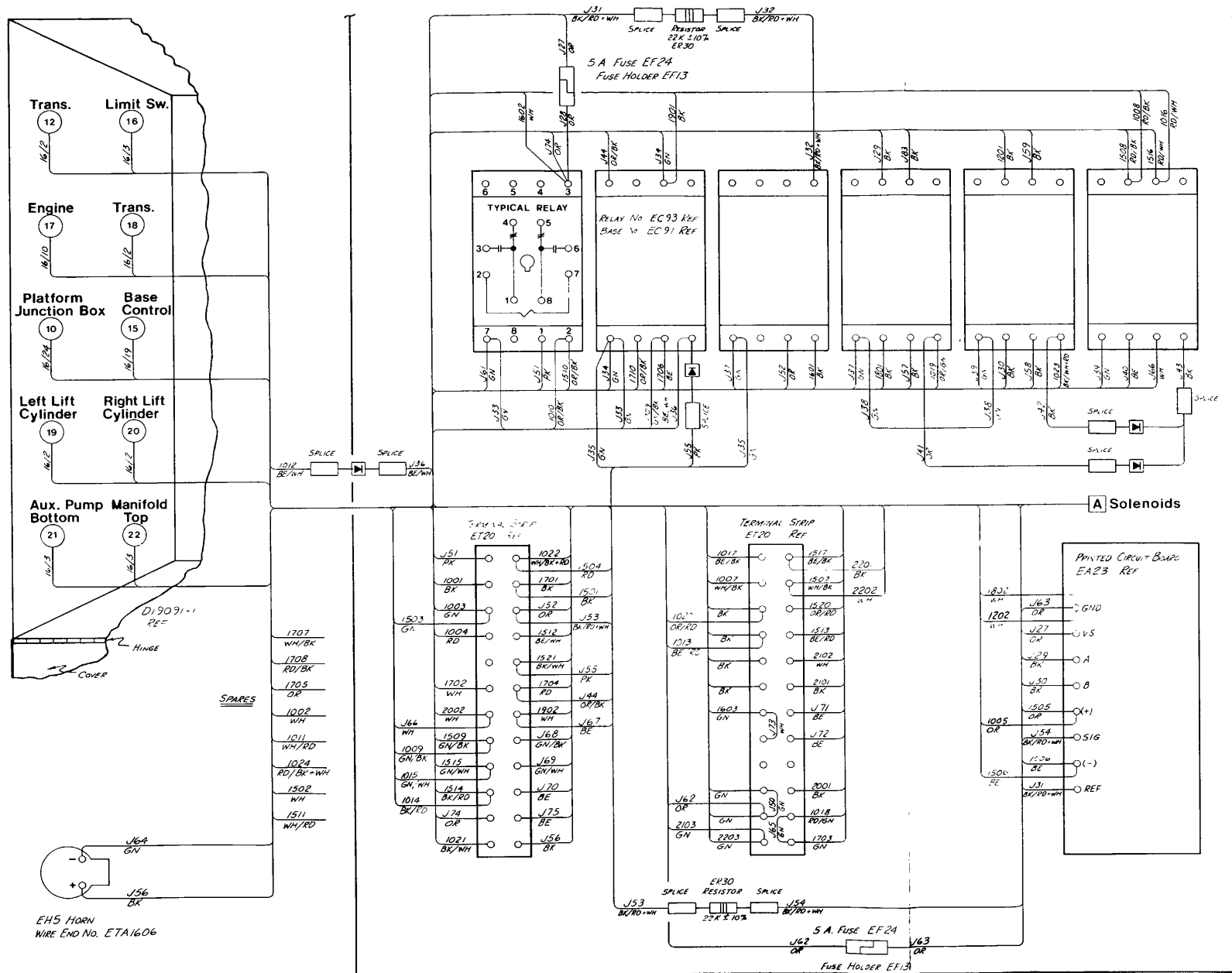
Tank, Fuel	
Repair	3-45
Replace	3-44
Tire/Wheel Assembly	
Repair	4-21
Replace	2-6
Toggle Switches/Limit Switches, Replace.....	3-22
Torque Limits	F-1
Towing Assembly, Replace.....	3-43
Transmission, Replace.....	4-18
Transmission Oil Cooler.....	4-19
Traverse Cylinder	
Repair	4-17
Replace	23-38

U

Unusual Weather and Terrain, Operation In.....	2-16
--	------

INDEX-Continued

Subject	Paragraph or Appendix Number
V	
Valve, Directional Control	
Repair	3-34
Replace	3-33
Valves, Solenoid	
Repair	3-32
Replace	3-31
W	
Warning Plates	2-15
Warranty Information.....	1-7
Wheel/Tire Assembly	
Repair	4-21
Replace	2-6
Wiring	
Repair	3-19
Replace	3-18



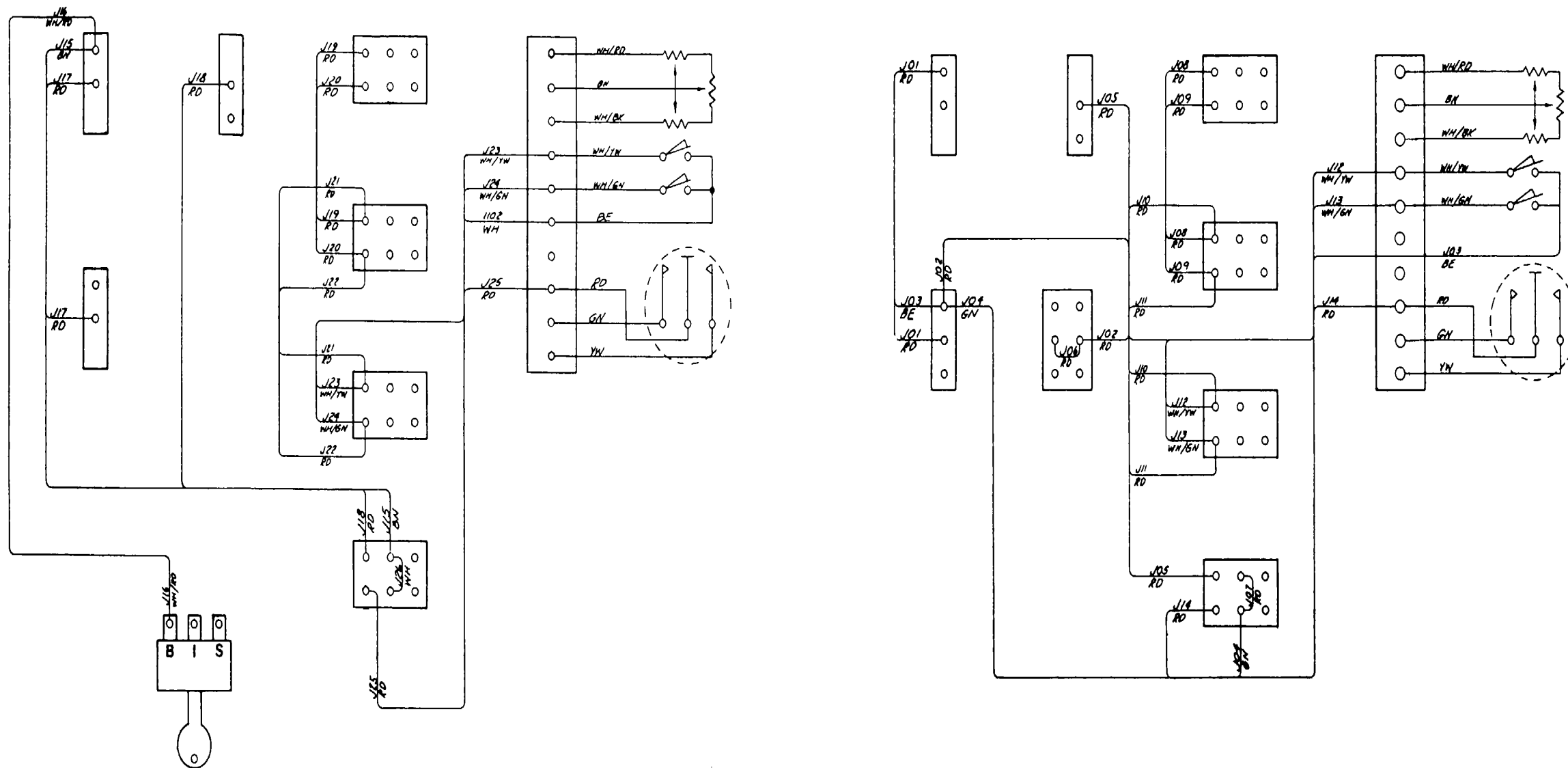
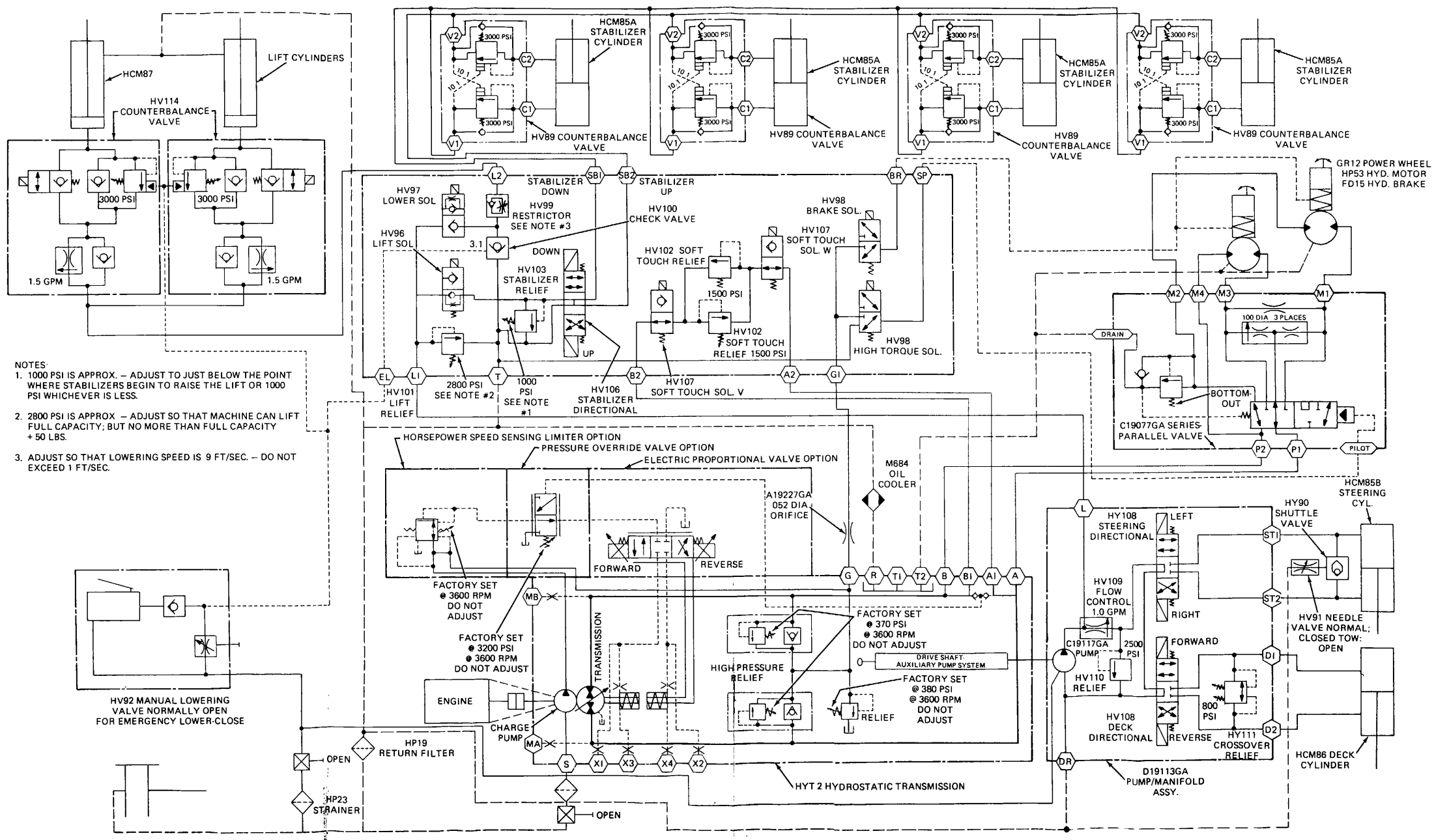


Figure FO-2. Base & Platform Controller Wiring Diagram.
FP-3/(FP-4 Blank)



- NOTES:
1. 1000 PSI IS APPROX. - ADJUST TO JUST BELOW THE POINT WHERE STABILIZERS BEGIN TO RAISE THE LIFT OR 1000 PSI WHICHEVER IS LESS.
 2. 2800 PSI IS APPROX - ADJUST SO THAT MACHINE CAN LIFT FULL CAPACITY; BUT NO MORE THAN FULL CAPACITY + 50 LBS.
 3. ADJUST SO THAT LOWERING SPEED IS 9 FT/SEC. - DO NOT EXCEED 1 FT/SEC.

Figure FO-5. Hydraulic Schematic
FP-11/(FP-12 Blank)

By Order of the Secretary of the Army:

JOHN A. WICKHAM, Jr.
General, United States Army
Chief of Staff


Official:

R.L. DILWORTH
Brigadier General, United States Army
The Adjutant General

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The Metric System and Equivalents

Linear Measure

1 centiliter = 10 milliliters = .34 fl. ounce
 1 centimeter = 10 millimeters = .39 inch
 1 decimeter = 10 centimeters = 3.94 inches
 1 meter = 10 decimeters = 39.37 inches
 1 dekameter = 10 meters = 32.8 feet
 1 hectometer = 10 dekameters = 328.08 feet
 1 kilometer = 10 hectometers = 3,280.8 feet

Square Measure

Weights

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
 1 centigram = 10 milligrams = .15 grain
 1 decigram = 10 centigrams = 1.54 grains
 1 gram = 10 decigram = .035 ounce
 1 decagram = 10 grams = .35 ounce
 1 hectogram = 10 decagrams = 3.52 ounces
 1 kilogram = 10 hectograms = 2.2 pounds
 1 quintal = 100 kilograms = 220.46 pounds
 1 metric ton = 10 quintals = 1.1 short tons
 1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
 1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
 1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Liquid Measure

1 deciliter = 10 centiliters = 3.38 fl. ounces
 1 liter = 10 deciliters = 33.81 fl. ounces
 1 dekaliter = 10 liters = 2.64 gallons
 1 hectoliter = 10 dekaliters = 26.42 gallons
 1 kiloliter = 10 hectoliters = 264.18 gallons

1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
 1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
 1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
 1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
 1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

Approximate Conversion Factors

<i>To change</i>	<i>To</i>	<i>Multiply by</i>	<i>To change</i>	<i>To</i>	<i>Multiply by</i>
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	square meters	cubic feet	35.315
fluid ounces	milliliters	29.573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit	5/9 (after	Celsius	°C
temperature	subtracting 32)	temperature		

