

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

**OPERATOR AND ORGANIZATIONAL MAINTENANCE MANUAL
INCLUDING REPAIR PARTS AND SPECIAL TOOLS LISTS
JACK, HYDRAULIC, TRIPOD, 12-TON FIXED-HEIGHT
PART NO. 1214-151
(FSN 1730-554-5436)**

Headquarters, Department of the Army, Washington, D.C.
6 November 1969

**WARNING
PRECAUTIONARY DATA**

Personnel performing operations involving instructions, procedures, and practices which are included or implied in this technical manual shall observe the following instructions. Disregard of these warnings and precautionary information can cause serious injury, death, or an aborted mission.

USING TOXIC/FLAMMABLE MATERIALS.

Due to the toxicity and flammability of the solvents and solutions used in the cleaning procedures, adequate ventilation must be provided. Avoid prolonged contact with solutions and chemicals. Do not use drycleaning solvent or flammable cleaners near open flame or in areas where high temperatures prevail.

ASSEMBLING JACK.

Tighten all attaching hardware when assembling the jack to prevent failure of structural members under load.

HYDRAULIC PRESSURE.

Hydraulic pressures up to 3182 psi are required in procedures outlined in this manual. Exercise approved shop practices when using high-pressure fluids. Secure all high-pressure connections. Safety glass shall be worn when inspecting components under pressure.

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CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. SCOPE.

a. These instructions are published for the use of operating and maintenance personnel to whom the tripod hydraulic jack is assigned. They contain information on operation, lubrication, preventive maintenance, servicing, and maintenance of the equipment. Uncrating procedures are also provided. No special tools or equipment are required to perform organizational maintenance of this tripod hydraulic jack.

b. Appendix A provides a standard list of all publications applicable to this manual.

c. Appendix B consists of the Maintenance Allocation Chart.

d. Appendix C consists of a Repair Parts and Special Tools Listing.

2. REPORTING OF IMPROVEMENTS.

Report of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to DA Publications) and forwarded directly to: Commanding General, U.S. Army Aviation Systems Command, ATTN: AMSAV-R-M, P. O. Box 209, St. Louis, Missouri 63166.

3. EQUIPMENT RECORDS

The Army equipment record system and procedures established in TM 38-750 apply to this equipment. The applicable forms as required by TM 38750 shall be used.

Section II. DESCRIPTION AND DATA

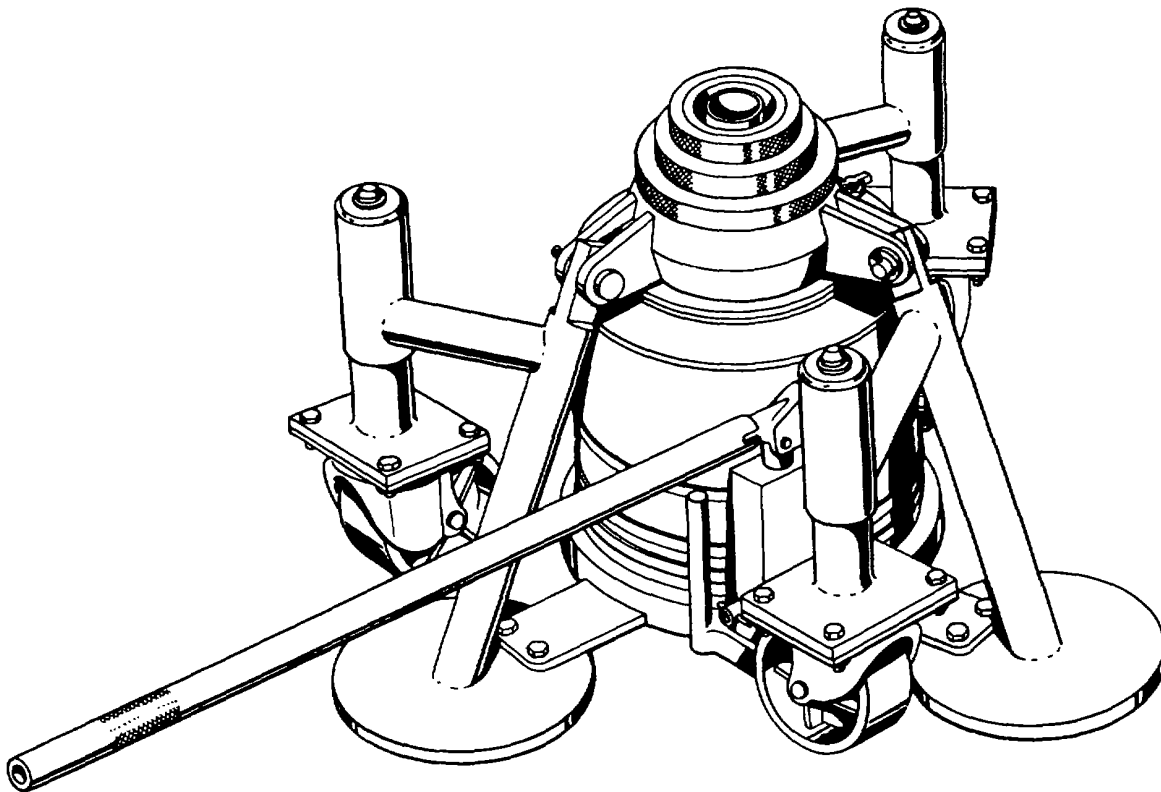


Figure 1. 12-Ton Fixed-height Tripod Jack Assembly.

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4. DESCRIPTION.

This manual contains overhaul instructions for the 12-Ton Fixed-Height Tripod Jack Assembly, manufactured by Sancor, Inc., El Segundo, California, under part number 1214-151.

5. IDENTIFICATION.

The jack is an integral unit consisting of multiple extension ram and plungers, reservoir, hand pump, and three tripod legs. Each leg is equipped with a spring-loaded caster to provide mobility when the jack is unloaded. As the load is applied, the casters retract and permit the feet to take the load.

6. DIFFERENCE IN MODELS.

This manual covers only the 12-ton hydraulic tripod jack, P/N 1214-151. No known unit differences exist for the model covered by this manual.

7. TABULATED DATA.

Manufacturer	Sancor Inc.	Working Pressure.....	2893 PSI
Part Number	1214-151	Relief Pressure.....	3182 PSI
Load capacity	12 tons	Hydraulic Fluid	
Hydraulic Lift	23 in.	Above 28.9 C (-20° F).....	MIL-H-5606
Screw Extension.....	3 in.	Below 28.9 C (-20°F) 75%	MIL-H-5606
Extended Height	40 in.	Plus Naptha 25%	
Collapsed Height.....	14 in.	Reservoir Capacity.....	1.7 Gal
		Weight Including Oil	207 lb.

CHAPTER 2

OPERATING INSTRUCTIONS

Section I. CONTROLS

8. GENERAL.

This section furnishes the operator or crew with sufficient information for proper operation of the tripod hydraulic jack.

9. FILLER AND VENT ASSEMBLY.

The air vent assembly (33, figure 2) located in the top of the reservoir (23) is provided to establish a zero pressure condition in the reservoir during operation of the pump assembly, permitting a free flow of fluid. The air vent must be closed when the jack is not in use to prevent fluid leakage and contamination of the fluid by dirt and moisture.

10. VALVE BODY.

The valve (11, figure 3), located at the lower front side of the pump assembly (8), controls the return flow of fluid from the cylinder and ram assembly. The valve must be closed to raise the ram. Opening the valve allows fluid to flow from the cylinder to the reservoir, causing the ram to lower.

11. HANDLE.

The handle (1, figure 3), is actuated to give the pump piston the necessary reciprocating action required to force fluid into the cylinder and raise the ram.

Section II. OPERATION UNDER USUAL CONDITIONS

12. GENERAL.

These instructions are intended for personnel responsible for the operation of this equipment. It is essential the operator be able to perform every operation of which the tripod hydraulic jack is capable.

13. OPERATING DETAILS

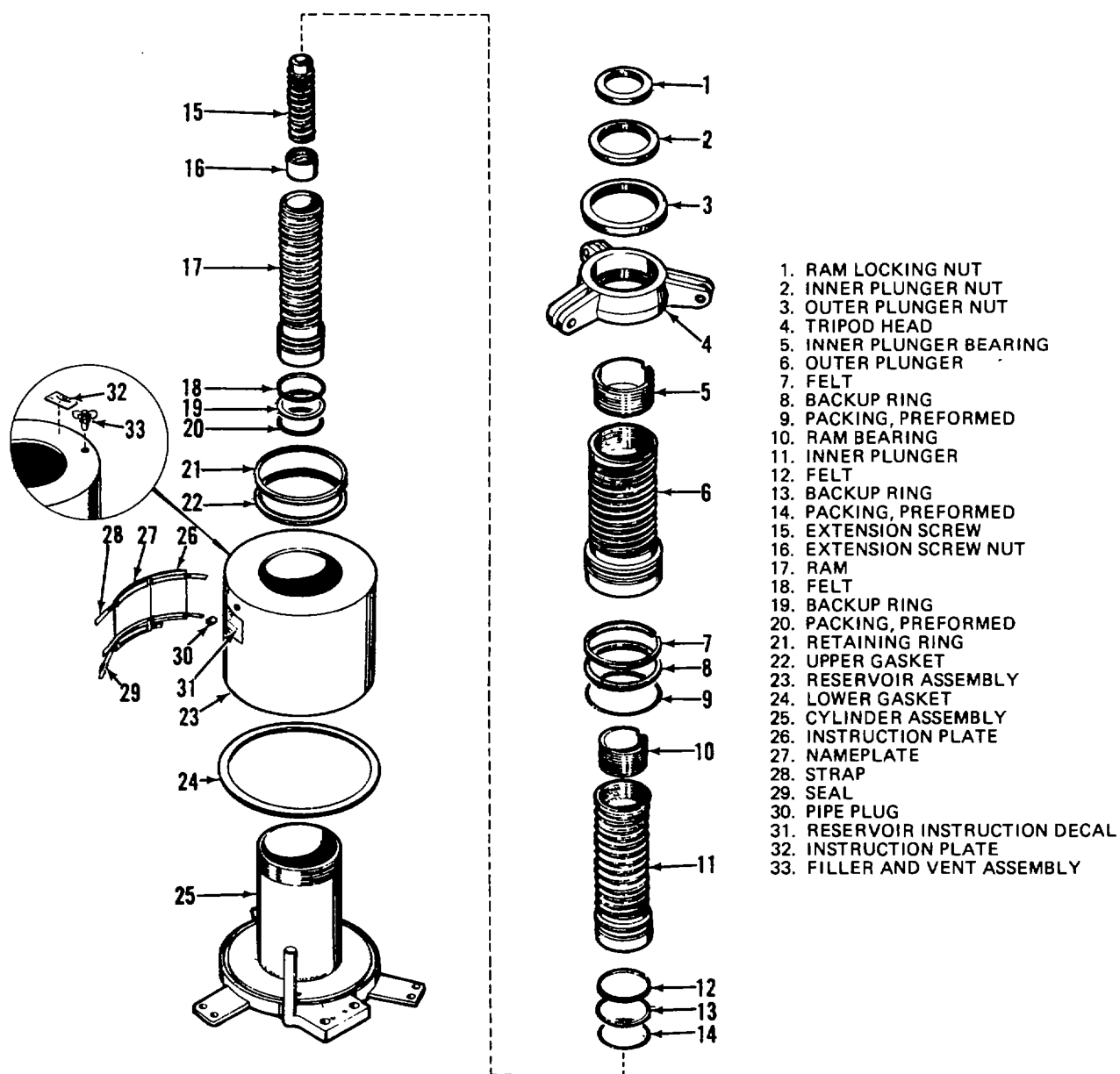
a. Positioning. The ground surface under the jack shall be level. If the ground is soft, a board shall be placed under each foot. The jack shall be placed so that a line drawn through the center of two of the feet is parallel to the fuselage of the airplane or load to be lifted.

b. Raising.

- (1) Loosen air vent (33, figure 2) and tighten valve (11, figure 3).
- (2) Actuate handle (1) to raise load.

c. Lowering.

- (1) Slowly open valve (11, figure 3) until desired lowering rate of speed is obtained.
- (2) After ram is completely lowered, close air vent assembly (33, figure 2), valve (11, figure 3), and lower extension screw (15, figure 2).



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Figure 2. Ram and Reservoir Assembly.

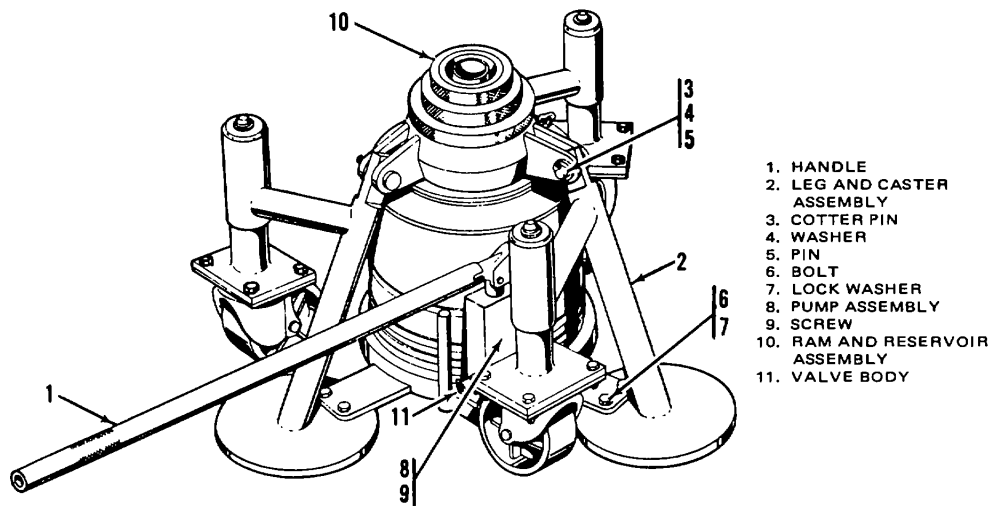


Figure 3. Complete Jack Assembly.

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Section III. OPERATION UNDER UNUSUAL CONDITIONS

14. OPERATION IN DUSTY OR SANDY AREAS.

a. Lubricate the jack in accordance with lubrication instructions contained in paragraph 23. Keep lubricant containers clean and covered to prevent contamination.

b. Protect the jack from dust and sand as much as possible. Clean jack frequently and cover jack with tarpaulin when not in use.

15. OPERATION UNDER HUMID CONDITIONS.

a. Clean all exposed areas frequently and apply a thin film of oil to all exposed metal surfaces.

b. To minimize moisture contamination of the hydraulic fluid, open the air vent only when required for operation.

16. OPERATION IN SALT WATER AREAS.

a. Protect all exposed metal surfaces from the corrosive action of salt air with a thin film of oil.

b. Retouch or repaint the jack as required to protect painted areas from corrosion.

CHAPTER 3

MAINTENANCE INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF EQUIPMENT

17. UNCRATING EQUIPMENT

CAUTION

Exercise care in removal of the crate top to prevent damaging the equipment with the prying tool.

a. Pry the top from the crate's sides and remove the jack and allied parts from the crate.

b. Remove the pressure-sensitive tape from all sealed openings. Remove preservatives from all unpainted metal surfaces with cleaning solvent (Federal Specification P-D-680).

18. INSPECTION OF NEW EQUIPMENT.

a. Perform the before-operation services described in paragraph 25.

b. Make a thorough visual inspection of the equipment for cracks, breaks, distortion, and loose or missing parts.

c. Inspect all parts and assemblies for correct and secure mountings.

d. Correct all deficiencies or report them to the proper authority.

19. SERVICING NEW EQUIPMENT.

a. *Pump assembly.* Remove filler and vent assembly (33, figure 2) from top of reservoir. Fill with hydraulic fluid up to filler hole.

b. *Cylinder and ram assembly.*

(1) Stand jack in an upright position. Pour hydraulic fluid into filler hole (33, figure 2) expelling all air from reservoir and cylinder.

(2) Actuate pump to fill cylinder assembly with fluid, (figure 3).

(3) Use handle (1) for tool to move valve body (11) to open or close position.

20. INSPECTION OF USED EQUIPMENT.

a. Inspect used tripod hydraulic jack, following the instructions in paragraph 25. Pay particular attention to the components which may be worn, such as the extension screw (15, figure 2) and leg and caster assembly (2, figure 3).

b. Correct or report all deficiencies to proper authority.

21. SERVICING USED EQUIPMENT.

a. Service used tripod hydraulic jack in accordance with instructions contained in paragraph 19.

b. Pay particular attention to filling the cylinder and ram assembly with fluid.

Section II. SPECIAL TOOLS AND EQUIPMENT

None required

Section III. LUBRICATION.

22. GENERAL

Table 1 is a lubrication chart. It is supplemented by the detailed lubrication information in paragraph 23.

23. DETAILED LUBRICATION INFORMATION.

a. *Care of Lubricants.* Replace covers on lubricant containers after use and store in a clean, dry place. Keep all containers used for handling oil and fluid clean and ready for use.

b. *Cleaning.* Clean all lubrication fittings or points of application with a cloth dampened in cleaning solvent (Federal Specification P-D-680) before applying lubricant.

Table 1. Lubrication Chart

LUBRICANTS	EXPECTED TEMPERATURE			INTERVALS
	ABOVE +32°F	+32°F to -10°F	-10 to -65°F	
OH-HYDRAULIC FLUID, Hydraulic Cylinder and Pump Assembly	MIL-H- 5606	MIL-H- 5606	MIL-H- 5606	500 hrs.
OE-OIL, Engine, Extension screw Caster Wheels	All temperatures			Monthly
GREASE, MIL-G-10924 Caster leg	All temperatures			Monthly

c. *Points of application.*

(1) Clean extension screw (15, figure 2) and ram (17) thoroughly and apply lubricating oil as directed in the lubrication chart (table 1).

(2) Apply grease to caster legs of foot assemblies (8, figure 4) and oil caster wheels in accordance with lubrication chart (table 1).

(3) Increase the frequency of steps 1 and 2 above when operating under unusual conditions, paying particular attention to thorough cleaning prior to lubrication.

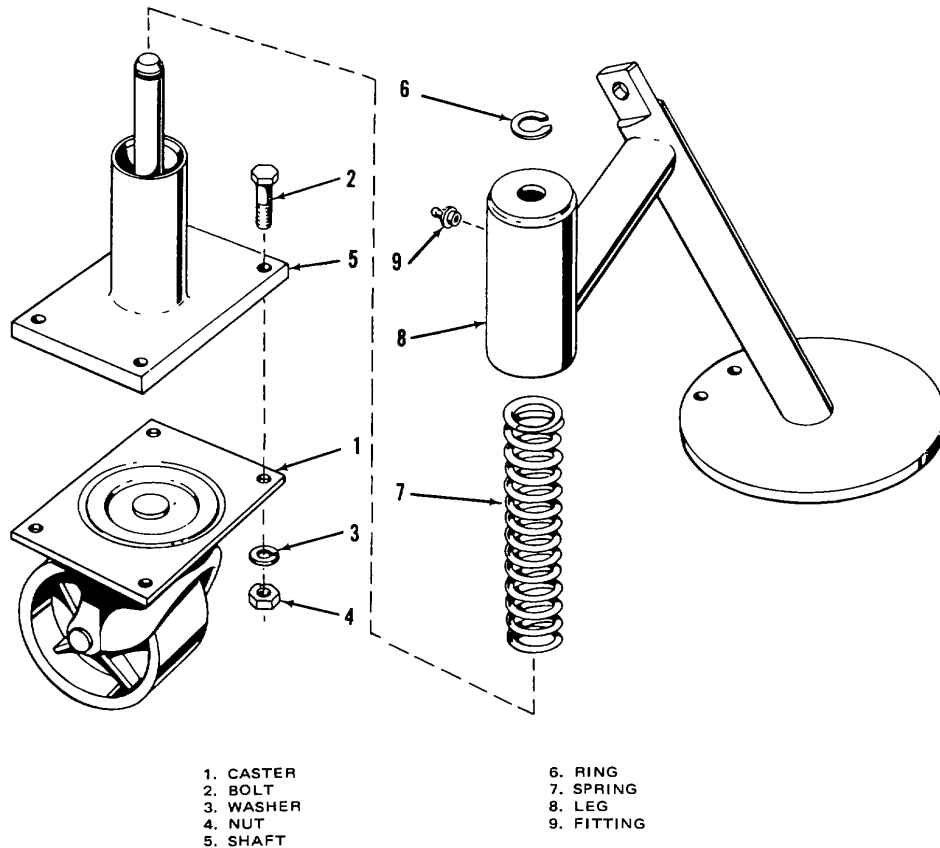


Figure 4. Leg and Caster Assembly.

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Section IV. PREVENTIVE MAINTENANCE SERVICES

24. GENERAL.

To ensure that the equipment is ready for operation at all times, it must be inspected systematically before operation, during operation, and after operation, so defects may be discovered and corrected before resulting in serious damage or failure. The necessary preventive maintenance services will be performed before operation. Defects discovered during operation of unit will be corrected as soon as operation has ceased. Stop operation immediately if a deficiency is noticed which would damage the equipment if operation were continued. After-operation services will be performed by operator after every operating period. After-operation services will be performed at intervals based on the

normal operations of the equipment. Reduce interval to compensate for abnormal conditions. Defects or unsatisfactory operating characteristics beyond the scope of the operator to correct must be reported at the earliest opportunity to organizational maintenance. Responsibility for performance of preventive maintenance services rests not only with the operator, but with the entire chain of command from section chief to commanding officer (AR 750-5).

25. OPERATOR'S DAILY SERVICES.

INTERVALS			PROCEDURE
Before operation	During operation	After operation	
X	X		Visual inspection. Make general inspection of the entire jack for obvious deficiencies, such as fluid leaks, loose or missing bolts, nuts, and any damage that may have occurred since the equipment was last operated. Correct or report any deficiencies to proper authority.
X			Fluid level. Check the fluid level in the reservoir and add fluid (paragraph 19) as required.
X	X	X	Leaks. Check the pump assembly and the cylinder and ram assembly for signs of leaks. Correct or report any deficiencies to proper authority.
X		X	Foot assemblies. Check the casters of the foot assemblies for free movement and rotation of the wheels. Lubricate as required.

Section V. TROUBLESHOOTING

26. GENERAL.

The following paragraphs provide information useful in diagnosis and correction of deficiencies revealed upon inspection, operation, or failure of the tripod hydraulic jack or any of its components. Each trouble symptom stated is followed by a list of probable causes of the trouble. The possible remedy recommended is described opposite the probable cause.

27. RAM WILL NOT RISE.

PROBABLE CAUSE	POSSIBLE REMEDY
Valve open	Close valve (paragraph 13)
Fluid level low	Refill with fluid (paragraph 19) and check for leaks (paragraph 25)
Air under the ram	Bleed the system (paragraph 39)
Pump assembly screen clogged	Report the malfunction to DS and GS maintenance
Intake ball bearing defective (7, figure 5)	Replace pump assembly (paragraph 37) or report to DS and GS maintenance
Discharge ball bearing defective (16, figure 5)	Replace pump assembly (paragraph 37) or report to DS and GS maintenance

28. JACK WILL NOT RAISE CAPACITY LOAD.

PROBABLE CAUSE	POSSIBLE REMEDY
Pump assembly defective	Replace (paragraph 37)
Ram defective	Replace (paragraph 38)

29. JACK WILL NOT RISE TO CAPACITY HEIGHT.

PROBABLE CAUSE	POSSIBLE REMEDY
Fluid level low.....	Refill with fluid (paragraph 19) and check for leaks (paragraph 25)
Closed air vent assembly	Open air vent assembly (paragraph 13)
Sticking intake valve in pump assembly	Pump rapidly to dislodge. Report to DS and GS maintenance if malfunction persists

30. RAM RISES AND FALLS DURING EACH STROKE.

PROBABLE CAUSE	POSSIBLE REMEDY
Release valve open slightly	Close valve (paragraph 13)
Pump assembly defective.....	Replace (paragraph 37)

31. JACK WILL NOT HOLD UP LOAD.

PROBABLE CAUSE	POSSIBLE REMEDY
Valve leaking	Tighten valve (paragraph 13)
Cylinder defective.....	Replace (paragraph 38)
Pump assembly defective.....	Replace (paragraph 37)

32. JACK WILL NOT LOWER THE LOAD.

PROBABLE CAUSE	POSSIBLE REMEDY
Ram distorted	Replace (paragraph 38)
Valve defective.....	Replace pump assembly (paragraph 37) or report to DS and GS maintenance

33. JACK WILL NOT COMPLETELY CLOSE.

PROBABLE CAUSE	POSSIBLE REMEDY
Air under the ram.....	Bleed the system (paragraph 39)
Ram distorted.....	Replace cylinder and ram (paragraph 38)

34. HANDLE STROKE PARTIALLY INEFFECTIVE.

PROBABLE CAUSE	POSSIBLE REMEDY
Air in pump chamber	Open valve (paragraph 13) and pump rapidly
Air vent assembly closed	Open air vent assembly (paragraph 13)
Pump assembly screen clogged	Report to DS and GS maintenance

35. HANDLE MOVES UP.

PROBABLE CAUSE	POSSIBLE REMEDY
Air in pump chamber	Open valve (paragraph 18) and pump rapidly
Pump assembly defective.....	Replace pump assembly (paragraph 37)

Section VI. STRUCTURAL MEMBERS

36. LEG AND CASTER ASSEMBLY.

- a. *Disassembly.*
- (1) Remove cotter pin (3, figure 3), washer (4), and pin (5).
 - (2) Remove leg assembly.
 - (3) Compress spring (7, figure 4) and remove retaining ring (6).
 - (4) Remove leg (8) and spring (7) from shaft (5).
 - (5) Remove nut (4), washers (3), and bolts (2); separate shaft from caster (1).
 - (6) Do not remove lubrication fitting (9) unless replacement is necessary.

b. Cleaning.

WARNING

USING TOXIC/FLAMMABLE MATERIALS. Due to the toxicity and flammability of the solvents and solutions used in the cleaning procedures, adequate ventilation shall be provided. Avoid prolonged contact with solutions and chemicals. Do not use drycleaning solvent or flammable cleaners near open flame or in areas where high temperatures prevail.

(1) Wash all parts except casters in drycleaning solvent, Federal Specification P-D-680, and dry thoroughly.

(2) Blow out passages with compressed air.

c. Inspection.

(1) Check painted surfaces for deterioration.

(2) Tubes for bending.

(3) Shaft for scoring on rubbing surfaces and damaged threads.

(4) Caster for flat spots on wheel or damaged swivel bearings.

(5) Springs for weakness.

d. Repair or Replacement.

(1) Replace weak or damaged springs.

(2) Retouch or repaint all painted surfaces as required. Restore unpainted surfaces with Parker Lubrite.

e. Reassembly.

(1) Bolt caster (1, figure 4) to shaft (5).

(2) Lubricate the shaft and inside of tube with grease, MIL-G-10924.

(3) Place spring (7) over shaft and assemble into tube.

(4) Compress spring and install retaining ring (6) on shaft.

37. PUMP ASSEMBLY.

a. Disassembly.

(1) Remove leg assembly (2, figure 3).

(2) Remove handle (1).

(3) Remove the two screws attaching pump to cylinder base and lift off pump.

(4) Drain the hydraulic fluid through the pump passage. Remove reservoir fill plug to speed up flow of fluid.

(5) Remove the fulcrum (1, figure 5) by disconnecting links (2) and pins (4).

(6) Remove plunger (6), plug (11), cotter pin (12), and ball (7).

(7) Pry out wiper (10), backup ring (9), and preformed packing (8).

(8) Remove packing (14), spring (15), screen (17), and ball (16).

(9) Unscrew the valve assembly and press out pin (18).

(10) Remove screw (20), packing (21), spring (22), and needle (23).

(11) Remove packing (24), from body (25).

b. Cleaning.

WARNING

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(1) Wash all parts in drycleaning solvent, Federal Specification P-D-680, and dry thoroughly.

(2) Blow out passages with compressed air.

c. Inspection.

(1) Finish for corrosion or deterioration.

(2) Linkage pivot holes for visible elongation.

(3) Pins for wear grooves.

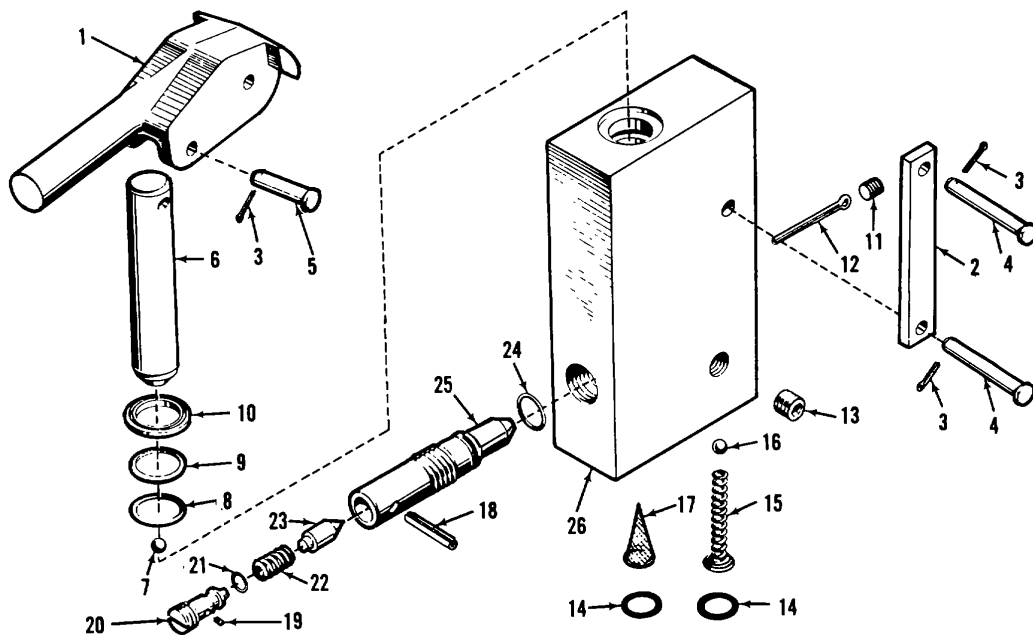
(4) Surface of plunger for scratches or nicks. Check diameter according to the table of limits (figure 6).

(5) Threads for damage.

(6) Spring (22, figure 5) load of 64 + 4 pounds at 0.675 inch in length.

(7) Spring (15) load of 3/8 to 3/4 pound at 1 3/4 inch free length.

(8) Tips of needle (23) and body (25) for wear or scratches.



1. FULCRUM
2. LINK
3. COTTER PIN
4. PIN
5. PIN
6. PLUNGER
7. BEARING, BALL
8. PACKING, PREFORMED
9. BACKUP RING

10. WIPER
11. PIPE PLUG
12. COTTER PIN
13. PIPE PLUG
14. PACKING, PREFORMED
15. SPRING
16. BEARING, BALL
17. SCREEN
18. ROLL PIN

19. RUBBER STRIP
20. SETSCREW
21. PACKING, PREFORMED
22. SPRING
23. NEEDLE
24. PACKING, PREFORMED
25. VALVE BODY
26. PUMP BASE

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Figure 5. Pump Assembly.

- (9) Balls (7) and (16) and ball seats for roughness.
- (10) Screen for clogging or bending.

d. Repair and Replacement.

- (1) Replace screen if it cannot be cleaned and restored to original shape.
- (2) Replaced weak or damaged springs.
- (3) Replace damaged balls and clean damaged seats. Reset balls by tapping a new ball into the seat with a brass drift to form a ring approximately 1/64th of an inch. Discard the ball used for seating

- (4) Needle tips (23) shall have a 10 finish and valve seats shall have a 32 finish. Replace rough or pitted parts.

e. Reassembly.

- (1) Place packing (24, figure 5) on body (25). Place needle (23) and spring (22) in body. Install packing (21) and rubber strip (19) on screw (20); thread screw into body. Turn approximately 4 turns after contacting spring. Install pin (18) and thread assembly into base.

NOTE

Further setting of screw (20) shall be made during test after reassembly to obtain correct bypass pressure.

either. (2) Install packing (8) and backup ring (9) in groove of pump cylinder. Exercise caution to avoid damage to

(3) Press wiper (10) into recess at top of pump cylinder.

(4) Drop ball (7) into cylinder and insert plunger (6).

(5) Install cotter pin (12) and plug (11).

(6) Install fulcrum (1) with link (2) and pins (3, 4, and 5).

(7) Install ball (16) and spring (15).

(8) Install pipe plug (13).

(9) Install screen (17) and packing (14) as pump is placed on jack base.

(10) With the screen and two preformed packings in place, attach pump (8, figure 3) to cylinder with the two flathead screws (9). Tighten securely and stake at slots.

(11) Install handle (1, figure 3).

(12) Replace leg and caster assembly (paragraph 36).

PART	INDEX NO	DESCRIPTION AND FINISH	DIMENSION LIMITS	
			MAX.	MIN.
RAM	1	OD THREAD 100 $\sqrt{\quad}$	-	2.994
BEARING	2	ID 100 $\sqrt{\quad}$	3.008	-
RAM	3	OD LOWER END 100 $\sqrt{\quad}$	-	3.267
PLUNGER	4	ID 16 $\sqrt{\quad}$	3.279	-
PLUNGER	5	OD THREAD 100 $\sqrt{\quad}$	-	3.994
BEARING	6	ID 100 $\sqrt{\quad}$	4.008	-
PLUNGER	7	OD LOWER END 100 $\sqrt{\quad}$	-	4.268
PLUNGER	8	ID 18 $\sqrt{\quad}$	4.280	-
PLUNGER	9	OD THREAD 100 $\sqrt{\quad}$	-	4.994
HEAD	10	ID 100 $\sqrt{\quad}$	5.008	-
PLUNGER	11	OD LOWER END 100 $\sqrt{\quad}$	-	5.268
CYLINDER	12	ID 20 $\sqrt{\quad}$	5.281	-
PLUNGER	13	OD 16 $\sqrt{\quad}$	-	0.872
BASE	14	ID BORE	0.878	-

$\sqrt{\quad}$ Denotes finish of surface

NOTE: Dimension limits are in inches

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Figure 6. Table of Limits

38. RAM AND RESERVOIR ASSEMBLY.

a. *Disassembly.*

- (1) Remove leg and caster assembly (paragraph 36).
- (2) Remove pump assembly (paragraph 37).
- (3) The threads above nuts (1, 2, and 3, figure 2) are staked to prevent accidental removal. To remove nuts, clear the staked portion of the thread and unscrew.
- (4) Unscrew head (4) from cylinder (25).
- (5) Lift out entire assembly of plungers and ram.
- (6) Separate plungers (6), (11), and ram (17).
- (7) Remove the felts, backup rings and packing from plungers, and rams.
- (8) Remove bearings (5 and 10) from plungers if replacement is necessary.
- (9) Remove nut (16) only if replacement is necessary.
- (10) Remove retaining ring (21) and gaskets (22 and 24).

b. *Cleaning.*

WARNING

USING TOXIC/FLAMMABLE MATERIALS, Due to the toxicity and flammability of the solvents and solutions used in the cleaning procedures, adequate ventilation shall be provided. Avoid prolonged contact with solutions and chemicals. Do not use drycleaning solvent or flammable cleaners near open flame or in areas where high temperatures prevail.

- (1) Wash all parts in drycleaning solvent, Federal Specification P-D-680, and dry thoroughly.
- (2) Blow out passages with compressed air.

c. *Inspection.*

- (1) Check protective finish for corrosion, chipping or other damage.
- (2) Inspect threads for distortion or other visible damage.
- (3) Use table of limits (figure 6) to check dimensions at various points along each surface.
- (4) Inspect rubbing surfaces for smoothness of original quality.

- (5) Discard all gaskets, seals and packing.

d. *Repair and Replacement.*

- (1) Replace gaskets, seals, and packing.
- (2) Replace parts worn beyond specified limits, including scratched parts which cannot be restored without exceeding limits.
- (3) Restore surfaces contacting packing with number 600 crocus cloth, Federal Specification P-C458 or equivalent. Do not exceed allowable limits.

NOTE

The quality of the original finish is shown in the table of limits (figure 6). For example, 10 indicates 10 microinches root mean square.

e. *Reassembly.*

- (1) Soak all preformed packings, backup rings, and felt in hydraulic fluid, Specification MILH-6083 before reassembly. Apply thin film of preservative oil to all unpainted surfaces.
- (2) Press nut (16, figure 2) into ram (17).
- (3) Thread bearings (5 and 10) into plungers (6 and 11).
- (4) Install packing and backup rings in lower grooves of ram and plunger.
- (5) Install felts in groove above packing.
- (6) Install extension screw (15) in ram.
- (7) Telescope the ram and plungers together by sliding the smaller into the larger from the bottom. Use caution to avoid damaging the felt or packing.
- (8) Place gasket (24) on cylinder and install reservoir (23).
- (9) Place the assembly of ram and plungers in the cylinder. Use caution with the packing and felt.
- (10) Place gasket (22) and ring (21) over cylinder and install head (4). Tighten head firmly against gasket with the lugs lining up with the feet position.
- (11) Replace pump assembly (paragraph 37).
- (12) Replace leg and caster assembly paragraph 36.

39. PREPARATION FOR USE AFTER REASSEMBLY.

- a. Fill the reservoir with 1.7 gallons of hydraulic fluid, specification MIL-H-5606 or equivalent.

NOTE

For temperatures below -28.9°C (29°F) use 3 parts of hydraulic fluid to 1 parts of naphtha, specification TT-N95.

- b. Check tightness of bolts.
- c. Check operation of retractable casters.
- d. Operate jack several times to bleed out trapped air. If air is still present, pump jack to full extension, remove plunger, open the valve (11, figure 3). Lower jack as rapidly as possible without overflowing the pump. With fluid level at the top of the reservoir, replace the plunger.

40. TEST AFTER OVERHAUL.

- a. Install a pressure gage in either pipe plug opening in pump. The gage must be able to indicate 3500 psi.
- b. Pump jack up to full extension. Continue operating pump until gage indicates 3182 psi. At this point the relief valve should bypass fluid to the reservoir and prevent further increase. Raise or lower the setting to obtain correct pressure. (See paragraph 37).
- c. At this pressure, check all points for leaks. The most likely source of leaks are packings damaged during assembly.
- d. Open valve (11, figure 3) to lower jack. Tighten valve after ram and plungers are retracted.
- e. Remove gage and install plug.

Section VII. NUMERICAL PARTS LISTING

FIG. AND INDEX NO.	PART NO.	FMC
3-3	AN380-4-6	88044
5-4	AN395-65	88044
2-18	AN6232-10	88044
2-12	AN6232-13	88044
2-7	AN6232-16	88044
4-1	H5991-2	06004
3-5	MS20392-10-87	96906
5-5	MS20392-4C49	96906
5-3	MS24665-302	96906
2-13	MS28782-47	96906
3-10	MS35338-51	96906
5-13	MS49005-4	96906
4-6	XSC-135	76665
2-16	100-23	22598
2-1	110-71	22598
2-2	110-72	22598
2-3	110-73	22598
2-10	130-27	22598
2-5	130-128	22598
2-31	160-52	22598
2-32	160-9-03	22598
2-26	160-9-13	22598
2-27	160-9-25	22598

FIG. AND INDEX NO.	PART NO.	FMC
4-8	170-291	22598
4-5	190-205	22598
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APPENDIX A

REFERENCES

1. **DICTIONARIES OF TERMS AND ABBREVIATIONS.**
 AR 320-50 Authorized Abbreviations and Brevity Codes.
 AR 320-5 Dictionary of United States Army Terms.
2. **FIRE PROTECTION.**
 AR 420-90 Repair and Utilities; Fire Protection Equipment and Appliances; Inspections, Operations, and Preventive Maintenance.
3. **PREVENTIVE MAINTENANCE.**
 AR 750-5 Organization, Policies, and Responsibilities for Maintenance Operation.
4. **PAINTING.**
 TM 9-213 Painting Instructions for Field Use.
5. **PUBLICATION INDEXES.**
 DA Pam 310-4 Index of Technical Manuals, Technical Bulletins, Supply Manuals (Types 4, 6, 7, 8, and 9), Supply Bulletins, Lubrication Orders, and Modification Work Orders.
6. **TRAINING AIDS.**
 FM 5-25 Explosives and Demolitions.
7. **RECORDS AND REPORTS.**
 TM 38-750 Army Equipment Record Procedures.

APPENDIX B

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. GENERAL.

The purpose of the maintenance allocation chart is to provide all activities with maintenance functions to be performed at each level of maintenance.

B-2. MAINTENANCE FUNCTIONS.

- a. *Inspect.* To determine serviceability of an item by comparing its physical, mechanical, and electrical characteristics with established standards.
- b. *Test.* To verify serviceability and to detect electrical or mechanical failure by use of test equipment.
- c. *Service.* To clean, to preserve, to charge, and to add fuel, lubricants, cooling agents, and air. If it is desired that elements, such as painting and lubricating, be defined separately, they may be so listed.
- d. *Adjust.* To rectify to the extent necessary to bring into proper operating range.
- e. *Align.* To adjust specified variable elements of an item to bring to optimum performance.
- f. *Calibrate.* To determine the corrections to be made in the readings of instruments or test equipment used in precise measurement. Consists of the comparison 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 with the certified standard.
- g. *Install.* To set up for use in an operational environment such as an emplacement, site, or vehicle.
- h. *Replace.* To replace unserviceable items with serviceable assemblies, sub-assemblies, or parts.

i. Repair. Those maintenance operations necessary to restore an item to serviceable condition through correction of material damage or a specific failure. Repair may be accomplished at each category of maintenance.

j. Overhaul. Normally, the highest degree of maintenance performed by the Army in order to minimize time work in process is consistent with quality and economy of operation. It consists of that maintenance necessary to restore an item to completely serviceable condition as prescribed by maintenance standards in technical publications for each item of equipment. Overhaul normally does not return an item to like new, zero mileage, or hour condition.

k. Rebuild. The highest degree of materiel maintenance. It consists of restoring equipment as nearly as possible to new condition in accordance with original manufacturing standards. Rebuild is performed only when required by operational considerations or other paramount factors and then only at the depot maintenance category. Rebuild reduces to zero the hours of miles the equipment, or component thereof, has been in use.

l. Symbol. The uppercase letter placed in the appropriate column indicates the lowest level at which the particular maintenance function is to be performed.

B-3. EXPLANATION OF FORMAT.

a. Column 1, Group Number. Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies, and modules with the next higher assembly.

b. Column 2, Functional Group. Column 2 lists the noun names of components, assemblies, sub-assemblies, and modules of which maintenance is authorized.

c. Column 3, Maintenance Functions. (See MAC Chart.)

d. Column 4, Tools and Equipment. This column will be used to specify, by code, those tools and test equipment required to perform the designated function.

e. Column 5, Remarks. Self-explanatory.

Section II. MAINTENANCE ALLOCATION CHART

MAINTENANCE ALLOCATION CHART FOR JACK, HYDRAULIC, TRIPODI 12-TON

(1) GROUP NUMBER	(2) Functional group	(3) Maintenance functions										(4) Tools and equipment	(5) Remarks
		A	B	C	D	E	F	G	H	I	J		
		I N S P E C T	T E S T	S E R V I C E	A D J U S T	A L I G N	F C A L I B R A T E	I N S T A L L	R E P L A C E	R E P A I R	O V E R H A U L	R E B U I L D	
00	Jack, Hydraulic, Tripodi 12-ton	0		0	0					0			Clean P-D- 380 Oil Mil-G 10924
01	Leg and Caster Assembly			0	0	0				0			
	Caster	0											
	Shaft, Caster	0											
	Spring	0											
02	Pump Assembly			0	0				0	0			Clean Fill Mil-H 5606
	Plunger	0											
	Body, Valve	0											
	Spring	0											
	Screen	0											
03	Ram and Reservoir (Assembly)			0						0			Clean Fill Mil-H 5606
	Ram	0											
	Reservoir Assembly	0											

LEGEND:

- C - Operator/crew
- O - Organizational maintenance
- F - Direct support maintenance
- H - General support maintenance
- D - Depot maintenance

APPENDIX C
REPAIR PARTS AND SPECIAL TOOLS LISTS
 (Current as of 16 June 1969)

Section I. INTRODUCTION**C-1. SCOPE.**

This appendix lists the repair parts required for the performance of organizational maintenance of the jack, hydraulic, tripod, 12-ton, fixed-height, FSN 1730-554-5436.

C-2. GENERAL.

This Repair Parts and Special Tools Listing is divided into the following sections:

- a. *Basic Issue Items Section II.* (Not applicable)
- b. *Maintenance and Operating Supplies Section III.* (Not applicable)
- c. *Prescribed Load Allowance (PLA) Section IV.* (Not applicable)
- d. *Repair Parts Section V.* A list of repair parts authorized for the performance of maintenance at the organizational level in alphabetical sequence within each functional group.
- e. *Special Tools, Test and Support Equipment (ORG) - Section VI.* (Not applicable)
- f. *Federal Stock Number and Reference Number Index - Section VII.* This section is divided into the following parts:
 - (1) *Federal Stock Number Index Part 1.* A list of Federal Stock numbers in ascending numerical sequence appearing in all listings cross-referenced to figure and item number.
 - (2) *Reference Number Index Part 2.* A list of reference numbers in alpha-numerical sequence appearing in all listings cross-referenced to manufacturer's code, figure and item number.

C-3. EXPLANATION OF COLUMNS.

The following provides an explanation of columns in the tabular lists in Section V.

- a. *Source, Maintenance, and Recoverability Codes (SMR).*

- (1) *Source Code.* Indicates the selection status for the listed item. The source Code used is:

CODEEXPLANATION

P - Applies to repair parts which are stocked or supplied from General Services Administration Defense Supply Agency or Army Supply System and authorized for use at indicated maintenance categories.

(2) *Maintenance Code.* Indicates the lowest category of maintenance authorized to install the listed item. The maintenance level code used is:

CODEEXPLANATION

O - Organizational Maintenance.

(3) *Recoverability Code.* Indicates whether unserviceable items should be returned for recovery or salvage. Items not coded are expendable.

The recoverability code used is:

<u>CODE</u>	<u>EXPLANATION</u>
R -	Applies to repair parts and assemblies which are economically repairable at DS and GS activities and normally are furnished by supply on an exchange basis.
b. <i>Federal Stock Number.</i>	Indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.
c. <i>Description.</i>	Indicates the Federal item name and any additional description of the item required. Items are indented under assemblies and/or subassemblies to clarify parts relationship in an alphabetical sequence. The Reference Number and MFR Code subcolumn indicates the part number or other reference number of an item followed by the Federal Supply Code for manufacturers in parentheses.
d. <i>Unit of Issue (U/I).</i>	A two character alphabetic abbreviation indicating amount or quantity in which the item is issued, e.g. EA, HD, Gr, etc.
e. <i>Quantity Incorporated in Unit.</i>	Indicates the quantity of the item used in each assembly and/or subassembly within the function group.
f. <i>Fifteen day Organizational Maintenance Allowances.</i>	<p>(1)The allowance column is divided into four subcolumns. Indicated in each subcolumn opposite the first appearance of each item is the total quantity of items authorized for the number of equipments supported. Subsequent appearances of the same item will have an entry of REF in the allowance column. Items authorized for use as required but not for initial stockage are identified with an asterisk (*) in the allowance column.</p> <p>(2)The quantitative allowances for organizational level of maintenance represent one initial prescribed load for a 15-day period for the number of equipments supported. Units and organizations authorized additional prescribed loads will multiply the number of prescribed loads authorized by the quantity of repair parts reflected in the appropriate density column to obtain the total quantity of repair parts authorized.</p> <p>(3)Organizational units providing maintenance for more than 100 of these equipments shall determine the total quantity of parts required by converting the equipment quantity to a decimal factor by placing a decimal point before the next-to-last digit of the number to indicate hundredths, and multiplying the decimal factor by the parts quantity authorized in the 51-100 allowance column. Example: authorized allowance for 51-100 equipments is 12; for 140 equipments, multiply 12 by 1.40 or 16.80 rounded off to 17 parts required.</p> <p>(4)Subsequent changes to allowances will be limited as follows: No change in the range of items is authorized. If additional items are considered necessary, recommendation should be forwarded to U. S. Army Aviation Systems Command for exception or revision to the allowance list. Revisions to the range of items authorized will be made by the U.S. Army Aviation Systems Command based upon engineering experience, demand data, or TAERS information.</p>
g. <i>Illustration.</i>	<p>(1)<i>Figure Number.</i> Indicates the figure number of the illustration in which the item is shown.</p> <p>(2)<i>Item Number.</i> Indicates the call-out number used to reference the item in the illustration.</p>

C-4. ABBREVIATIONS.

<u>Abbreviations</u>	<u>Explanation.</u>
assy	Assembly (ies)
C/O	consists of
EA	Each
HD	Hundred
incl	include (s) (ed) (sive) (ing)
mtg	mounting (s)

C-5. FEDERAL SUPPLY CODE FOR MANUFACTURERS.

<u>CODE</u>	<u>MANUFACTURER</u>
22598	Sancor Inc. 12600 Yukon Ave., Hawthorne, Calif. Zip Code 90250
88044	Aeronautical Standards Group Dept. of Navy and Air Force
96906	Military Standards Promulgated by Standardization Div. Directorate of Logistic Services DSA.

(1)			(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER AND MFG CODE		(4) UNIT OF ISSUE	(5) QTY INC IN	(6)				(7)		
(A) SOU- RCE CODE	(B) MAINT CODE	(C) REC. CODE						15-DAY ORG MAINT. ALW.				ILLUSTRATION		
								(A) 1-5	(B) 6-20	(C) 21- 50	(D) 51- 100	(A) FIG NO.	(B) ITEM NO.	
P	O	R	1730-554-5436	1214-151	(22598)	JACK, HYDRAULIC, TRIPOD, 12 ton, fixed height Section V REPAIR PARTS Group 02 Pump Assembly	EA						1	
P	O		4320-534-1253	566-01T	(22598)	PUMP, HYDRAULIC RAM.....	EA	1	*	*	*	*	5	
P	O		3110-100-6151	MS19059-49	(96906)	.BALL BEARING..... 1 EA intake valve.....	HD	2	*	*	*	*	5	7
P	O		5330-260-9311			1 EA discharge valve.....			*	*	*	*	5	16
P	O		5330-250-0226	AN6227-5	(88044)	.PACKING, PREFORMED	EA	1	*	*	*	*	5	21
P	O		5330-582-2856	MS29513-212	(96906)	.PACKING, PREFORMED	EA	1	*	*	*	*	5	8
				MS28775-113	(96909)	.PACKING, PREFORMED	EA	3	*	*	*	*		
						.2 ea. screen.....							5	14
P	O		5315-019-0777			.1 ea. discharge valve.....							5	24
P	O		5330-171-5069	MS24665-291	(96906)	.PIN, COTTER.....	HD	1	*	*	*	*	5	12
P	O		1730-534-1228	MS28782-17	(96906)	.RETAINER, PACKING.....	EA	1	*	*	*	*	5	9
				250-24	(22598)	.SCREEN, JACK PUMP.....	EA	1	*	*	*	*	5	17
P	O		5305-864-5721	20-2-51	(22598)	.SETSCREW	EA	1	*	*	*	*	5	20
P	O		5340-986-1257	240-14	(22598)	.SPRING	EA	1	*	*	*	*	5	15
P	O		1730-534-1222	151-9-01	(22598)	.WIPER	EA	1	*	*	*	*	5	10
						Group 03 Ram and Reservoir Assembly								
P	O		5120-319-0105	250-10-13	(22598)	.FILLER AND VENT ASSEMBLY	EA	1	*	*	*	*	2	33
P	O		1730-534-1221	150-36	(22598)	.GASLET, lower	EA	1	*	*	*	*	2	24
P	O		5330-534-1220	150-35	(22598)	.GASKET, upper	EA	1	*	*	*	*	2	22
P	O		5330-641-8339	AN6227-39	(88044)	.PACKING, PREFORMED	EA	1	*	*	*	*	2	20
P	O		5330-231-4114	AN6227-47	(88044)	.PACKING, PREFORMED	EA	1	*	*	*	*	2	14
P	O		5330-196-5339	AN6227-54	(88044)	.PACKING, PREFORMED	EA	1	*	*	*	*	2	9
P	O		5330-171-6764	MS28782-39	(96906)	.RETAINER, PACKING.....	EA	1	*	*	*	*	2	19
P	O		5330-171-6750	MS27782-54	(96906)	.RETAINER, PACKING.....	EA	1	*	*	*	*	2	8

Section VII

Part I

FEDERAL STOCK NUMBER INDEX

STOCK NUMBER	FIGURE NUMBER	ITEM NUMBER	STOCK NUMBER	FIGURE NUMBER	ITEM NUMBER
1730-534-1220	2	22			
1730-534-1221	2	24			
1730-534-1222	5	10			
1730-534-1228	5	17			
1730-534-1253	5				
1730-554-5436	1				
3110-100-6151	5	7			
	5	16			
5120-319-0105	2	33			
5305-864-5721	5	20			
5315-019-0777	5	12			
5330-171-6750	2	8			
5330-171-6764	2	19			
5330-171-5069	5	9			
5330-196-5339	2	9			
5330-231-4114	2	14			
5330-250-0226	5	8			
5330-260-9311	5	21			
5330-582-2855	5	14			
	5	24			
5330-641-8339	2	20			
5340-986-1257	5	15			

Section VII

Part 2

REFERENCE NUMBER INDEX

REFERENCE NUMBER	MFG. CODE	FIG. NO.	ITEM NO.	REFERENCE NUMBER	MFG. CODE	FIG. NO.	ITEM NO.
AN6227-39	88044	2	20				
AN6227-47	88044	2	14				
AN6227-5	88044	5	21				
AN6227-54	88044	2	9				
MS19059-49	96906	5	16				
		5	7				
MS24665-291	96906	5	12				
MS28775-113	96906	5	14				
		5	24				
MS28782-17	96906	5	9				
MS28782-39	96906	2	19				
MS28782-54	96906	2	8				
MS29513-212	96906	5	8				
1214-151	22598	1					
150-35	22598	2	22				
150-36	22598	2	24				
151-9-01	22598	5	10				
20-2-51	22598	5	20				
240-14	22598	5	15				
250-10-13	22598	2	33				
250-24	22598	5	17				
566-OIT	22598	5	7				

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The Metric System and Equivalents

Linear Measure

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

Weights

1 centigram = 10 milligrams = .15 grain
 1 decigram = 10 centigrams = 1.54 grains
 1 gram = 10 decigrams = .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

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
 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

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
 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

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

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	cubic 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 temperature	5/9 (after subtracting 32)	Celsius temperature	°C
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