DEPARTMENT OF THE ARMY TECHNICAL MANUAL

TECHNICAL MANUAL

ORGANIZATIONAL, DIRECT SUPPORT

AND GENERAL SUPPORT

MAINTENANCE MANUAL

SPREADER, AGGREGATE; TOWED; FORCE FEED;

PNEUMATIC TIRES; 8-FT. WIDTH

(BURCH CORP MODEL FF-8)

FSN 3895-130-3633

HEADQUARTERS, DEPARTMENT OF THE ARMY
26 JUNE 1971

WARNING

Make certain that all air its expelled from the transport tire assemblies and the traction tire assemblies before attempting to remove the tire from the rim.

DEATH

or severe injury may result if personnel fail to observe safety precaution. Stand clear of the spreader two hitch while the towing vehicle is backing for a hookup. Make certain towing vehicle is stopped and the clutch control lever is in neutral before making adjustments or removing foreign material from the hopper.

SEVERE INJURY

may result if personnel fail to observe safety precautions. Do not attempt to insert back off plates while roller is turning.

Severe injury may result if personnel fail to observe safety precautions.

TECHNICAL MANUAL

N0. 5-3895-330-24

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINCTON,D.C., 26 June 1971

ORGANIZATIONAL, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL

SPREADER, AGGREGATE; TOWED; FORCE FEED; PNEUMATIC TIRES; 8-FT WIDTH (BURCH CORP MODEL FF-8) FSN 3895-130-3633

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***This manual together with TM 5-3895-330-10 17 May 1971 supersedes TM 5-3895-330-15, 6 November 1969.**

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CHAPTER 1
INTRODUCTION

Section I. GENERAL

1-1. Scope

This manual is published for the use of organizational, direct support, and general support maintenance personnel responsible for maintenance of the force feed spreader. Instruction for destruction of materiel to prevent enemy use will be found in TM 750-244-3. Instruction for preparation for shipment and limited storage will be found in TM 740-90-1.

1-2. Maintenance Forms and Records

Maintenance forms, records, and reports which are to be used by maintenance personnel at all maintenance levels are listed in and prescribed by TM 38-750.

1-3. Reporting of Errors

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 Publications) and forwarded direct to Commanding General, U S. Army Mobility Equipment Command, ATTN: AMSME-MPP, 4300 Goodfellow Boulevard, St. Louis, Mo. 63120.
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Section II. DESCRIPTION AND DATA

1-4. Description

A general description of the spreader is contained in TM 5-3895-330-10. A more detailed description of specific components and assemblies is contained in the applicable maintenance paragraphs of this manual.

1-5. Tabulated Data

Refer to TM 5-3895-330-10 for tabulated data for the spreader.

CHAPTER 2
ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF MATERIEL

2-1. Inspection and Servicing the Equipment

a. Inspect the aggregate spreader for broken or missing parts.

b. Make a complete visual inspection to see that the publications and attachments are on or with spreader.

c. Lubricate the spreader in accordance with current lubrication order, LO 5-3895-330-12.

d. Inflate traction drive tires to 65 lbs. psi pressure.

2-2. Installation

a. Transport Wheels. Remove the transport wheels as follows:

(1) Remove the operator's platform and all other hardware from the hopper.

(2) Attach four (4) slings or chains (having a minimum length of ten (10) feet) to the four (4) lifting attachments.

(3) Using a suitable lifting device (crane loader, wrecker, etc.), raise the spreader one (1) inch off the ground.

(4) Remove bolts from the right side of the transport wheels assembly support bracket (fig. 2-1).

(5) Remove bolts from the left side of the transport wheel assembly support bracket.

(6) Raise spreader to clear the axle of the transport assembly.

(7) Roll the transport assembly out from under the spreader.

(8) Lower the spreader to the ground and complete assembly operation.

b. Platform Assembly. Install the platform assembly on the right side of the spreader by hooking it over the lip on the top of the spreader.

c. Transport Tongue. Remove the cotter pins and pins (fig. 2-2).

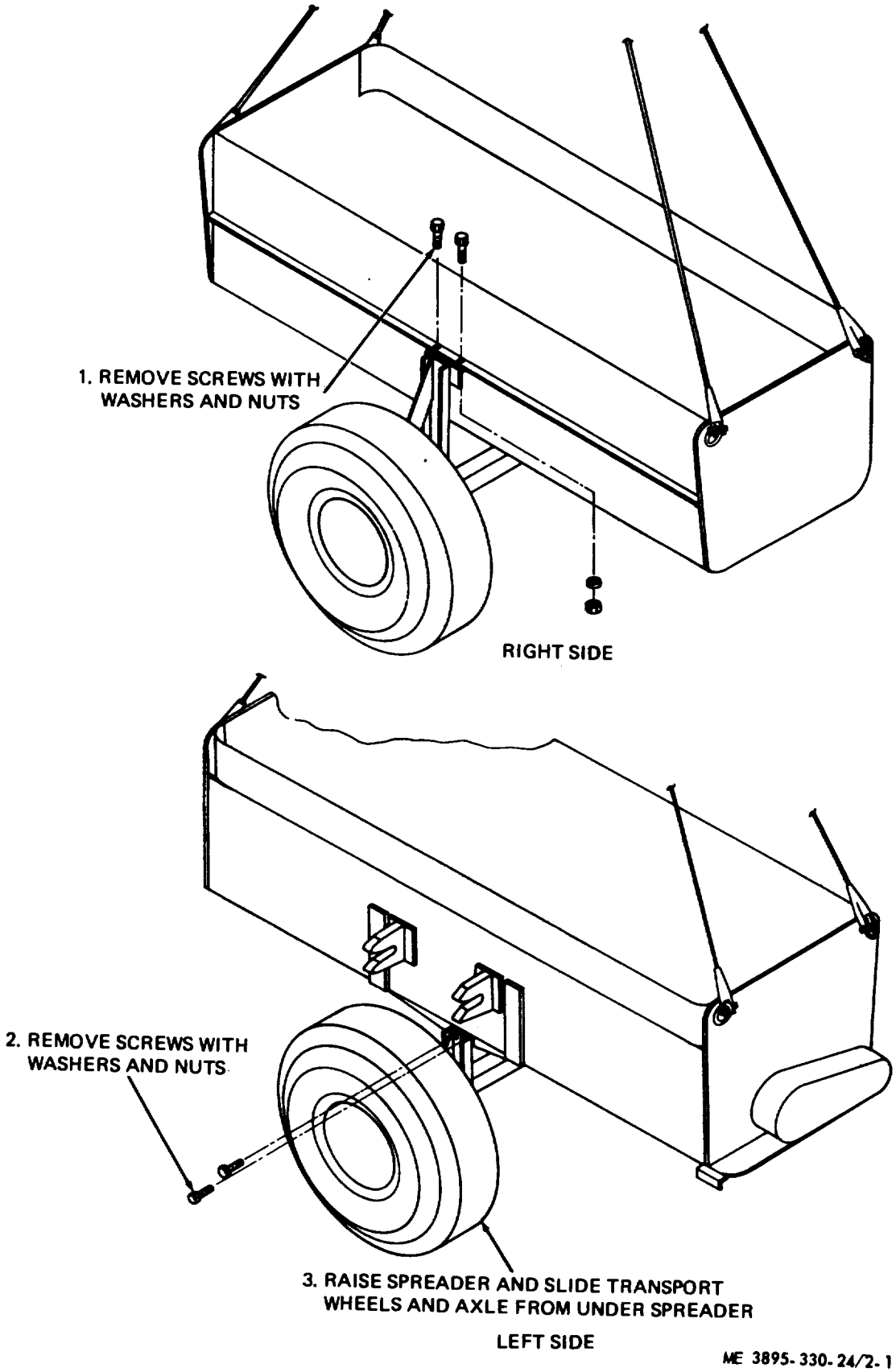


Figure 2-1. Transport wheel assembly removal and installation.

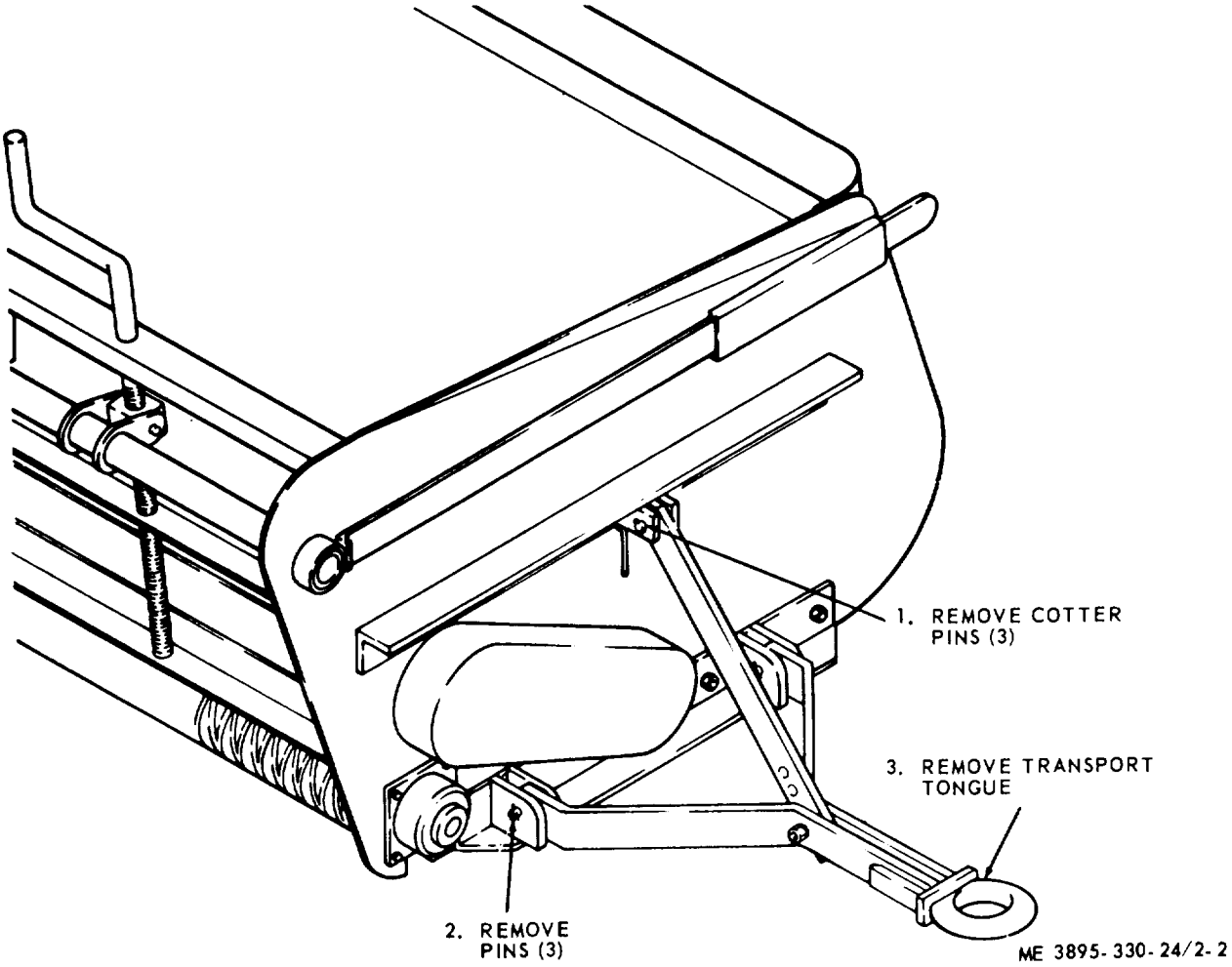


Figure 2-2. Transport tongue and installation.

Section II. MOVEMENT TO A NEW WORKSITE

2-3. Dismantling for Movement

Depending on distance to be traveled, the spreader is readied for movement as follows:

a. Short Move. Refer to chapter 2 of TM 5-3895-330-10.

b. Long Move. The transport wheel assembly is used when moving a long distance. The transport wheel assembly is installed as follows.

(1) Remove the operator's platform.

(2) Attach four (4) slings or chains (having a minimum length of ten (10) feet) to the four (4) lifting attachment.

(3) Using a suitable lifting device (crane loader, wrecker, etc.) raise the spreader to sufficient height to clear the axle of the transport wheel assembly.

(4) Roll the transport wheel assembly under the spreader.

(5) Attach the transport wheel assembly with the attaching hardware as illustrated in figure 2-1.

2-4. Reinstallation After Movement to a New Worksite

For reinstallation after movement, refer to paragraph 2-2.

Section III. REPAIR PARTS, SPECIAL TOOLS AND EQUIPMENT

2-5. Tools and Equipment
There are no special tools on equipment required for the aggregate spreader.

2-6. Special Tools and Equipment
There are no special tools and equipment required for maintenance of the spreader.

2-7. Repair Parts Organizational
Maintenance repair parts are listed and illustrated in TM 5-3896-8380-24P.

Section IV. LUBRICATION INSTRUCTION

2-8. General Lubrication Information
This section provides organizational maintenance personnel with the necessary instruction to clean and lubricate the spreader.

2-9. Detailed Lubrication Information
a. *Care of Lubricants*. When storing and handling lubricants, make certain containers are clean and securely covered to prevent dirt, dust, or other foreign material from entering. Be sure the lubricant is clean before using it.

b. *Cleaning.* Clean all surfaces surrounding the point to be lubricated before applying the lubricant. Use a clean cloth dampened in cleaning solvent to clean the surfaces and lubrication fittings before lubricating. Remove all excess lubricant after lubricating.

c. *Points of Lubrication*. Lubricate the spreader at the points shown in the lubrication order, LO 5-8895-880-12. Do not over lubricate. This is not only wasteful, but it will cause dirt to collect on vital parts and cause undue wear. Apply grease to a fitting until it appears around the part being lubricated, unless otherwise specified. Do not underl ubricate since this will cause wear to moving parts.

d. *Special Lubrication* Instructions for Unusual Conditions. Lubrication intervals will be more frequent when operating the spreader in sand, or in rainy, humid, or salt-water areas.

Section V. PREVENTIVE MAINTENANCE CHECKS AND SERVICE

2-10. General
To insure that the spreader is ready for operation at all times, it must be inspected systematically so that defects may be discovered and corrected before they result in serious damage or failure. The preventive maintenance checks and services to be performed are listed as described in paragraph 2-11. The item numbers indicate the sequence of inspection requirements. Defects discovered during operation of the unit will be noted for future correction, to be made as soon as operation has ceased. Stop operation immediately if a deficiency is noted during operation which would damage the equipment if operation were continued. All deficiencies and shortcomings will be recorded, together with the corrective action taken on the spreader, at the earliest possible opportunity.

2-11. Preventive Maintenance Checks and Services
To perform preventive maintenance checks and services, refer to table 2-1.

Table 2-1. Preventive Maintenance Checks and Services.

Organizational Maintenance Category *Monthly Schedule (or quarterly)*

Sequence number	Item to be Inspected	Procedures	Paragraph reference
1	Publications	See that a copy of the current lubrication order LO 5-3895-330-12 is with the equipment.	
2	Appearance	Inspect the general appearance of the spreader, paying particular attention to the legibility of instruction and data plates and cleanness of the unit. Also, the condition of the paint. Correct any deficiencies noticed or report to Direct Support Maintenance.	
3	Modification work orders	See that all modification work orders applying to the force feed spreader have been completed and recorded.	DA Forms 2407, 2408-5 or 2409 as applicable.
4	Levers and linkage	Check all levers and linkage for proper operation. Repair or report any deficiencies noticed to, Direct Support Maintenance.	Refer to paragraphs 2-19 and 2-28.
5	Bearings and shafts	Inspect the bearings and shaft on the roller. Make sure that the bearings turn easily and the shaft is not bent. Repair all deficiencies or report to Direct Support Maintenance.	Refer to paragraph 2-21.
6	Frame	Check the hopper for cracks, breaks or broken welds. Report any deficiencies to Direct Support Maintenance.	Refer to paragraph 2-25.
7	Transport wheels assembly	Check the transport wheels assembly for cracks, breaks, or bends. Repair any deficiencies noticed.	Refer to paragraph 2-13.
8	Traction wheel assembly	Inspect the traction wheel assemblies for cracks, breaks, or bends. Check for separation of the two rims. Repair any deficiencies or report to Direct Support Maintenance.	Refer to paragraph 2-24.
9	Clutch	Check the jaw-type clutch to insure that it engages the forward and reverse sprockets properly.	Refer to paragraph 2-29.
10	Truck hitch	Inspect the truck hitch for breaks, damaged hardware or connections. Repair or report any deficiencies to Direct Support Maintenance.	Refer to paragraph 2-15.
11	Spreader hitch	Inspect the spreader hitch for breaks, damaged hardware or connections Repair or report any deficiencies to Direct Support Maintenance.	Refer to paragraph 2-18.
12	Gear box assembly	Inspect the sprockets for chipped or cracked teeth.	Refer to paragraph 2-30.
13	Chains	Inspect the chains for cracked otr broken links. Replace defective chain.	Refer to paragraph 2-22.

Section VI. TROUBLESHOOTING

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the spreader and its components. Malfunctions which may occur are listed in chart 2-1.

Each malfunction stated is followed by a list of probable causes of the trouble. The corrective action recommended is described opposite the probable cause.

Chart 2-1. Troubleshooting.

Malfunction	Probable cause	Corrective action
1. Roller does not operate	a. Chain broken	a. Replace chain (para 2-22).
	b. Chain off sprocket	b. Install chain (para 2-22).
	c. Chain broken on traction drive axle.	c. Replace chain (para 2-22).
2. Traction wheels binding	a Pillow block bearings stuck.	a. Replace pillow block bearings (para 2-23).
	b. Chain in chain drive transmission broken.	b Replace chain (para 2-22).
3. Transport wheel binding	Bearing not turning freely.	Replace wheel bearing (para 2-13.)
4. Gate does not open	a. Foreign matter holding gate.	a. Clean out gate opening (para 2-26).
	b. Gate bent or broken.	b. Repair gate (para 2-26)

Section VII. MAINTENANCE OF AGGREGATE SPREADER

2-12. General

This section provides repair instruction for all items which are the responsibility of organizational maintenance as authorized by the maintenance allocation chart.

2-13. Transport Wheel Assembly

a. Removal. Remove the wheel assembly as described in paragraph 2-2.

b. Disassembly. Disassemble the wheel assembly as illustrated in figure 2-3.

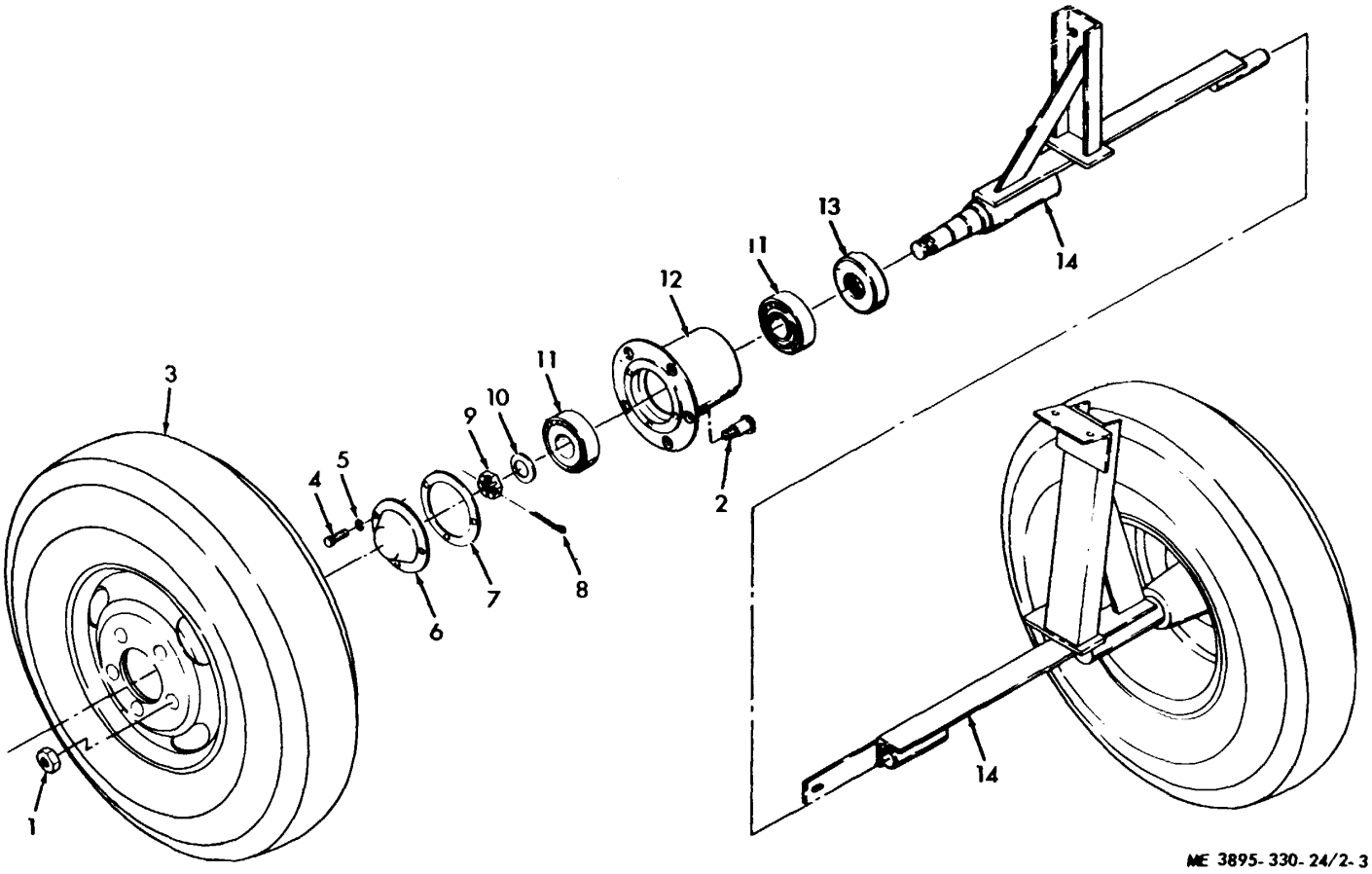
c. Cleaning. Clean the metal components in cleaning solvent and dry thoroughly.

d. *Inspection*. Inspect the assembly as described in table 2-2. Visually inspect bearings for wear.

c. Repair or Replacement. Repair or replace defective components. If bearings are worn excessively, replace them.

f. Reassembly. Reassemble the wheel assembly in the reverse order of the disassembly.

g. Installation. Install the wheel assembly as illustrated in paragraph 2-2.



1	Nut	6	Cap	11	Bearing
2	Bolt	7	Gasket	12	Hub
3	Wheel	8	Cotter pin	13	Seal
4	Screw	9	Nut	14	Axle assembly
5	Lockwasher	10	Washer		

Figure 2-3. Transport wheel assembly.

2-14. Tires and Tubes

a. Remove the tires and tubes.

b. Repair any holes or punctures in the tires and tubes. See TM 9-1870-1.

c. Replace the tires and tubes if needed.

2-15. Truck Hitch Assembly

a. Removal. Remove the truck hitch assembly as shown in figure 2-4.

b. Installation. Install the truck hitch assembly as shown in figure 2-4.

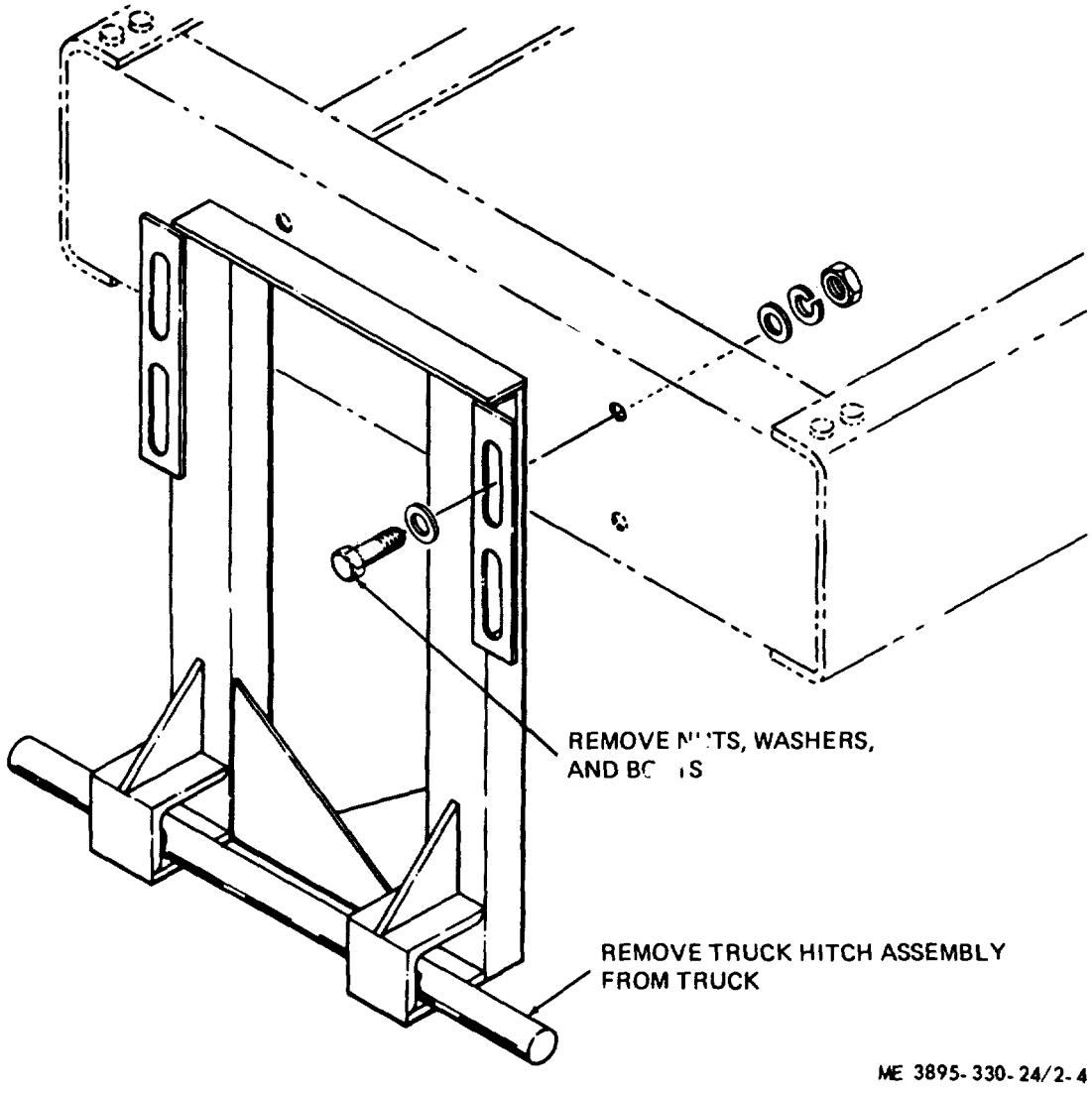


Figure 2-4. Truck hitch assembly, removal and installation.

2-16. Transport Tongue

a. Removal. Remove the transport tongue as shown in figure 2-2.

b. Replacement. Replace the transport tongue as shown in figure 2-2.

2-17. Roller Assembly

a. Removal. Remove the roller assembly as shown in figure 2-5.

b. Installation. Install the roller assembly as shown in figure 2-5.

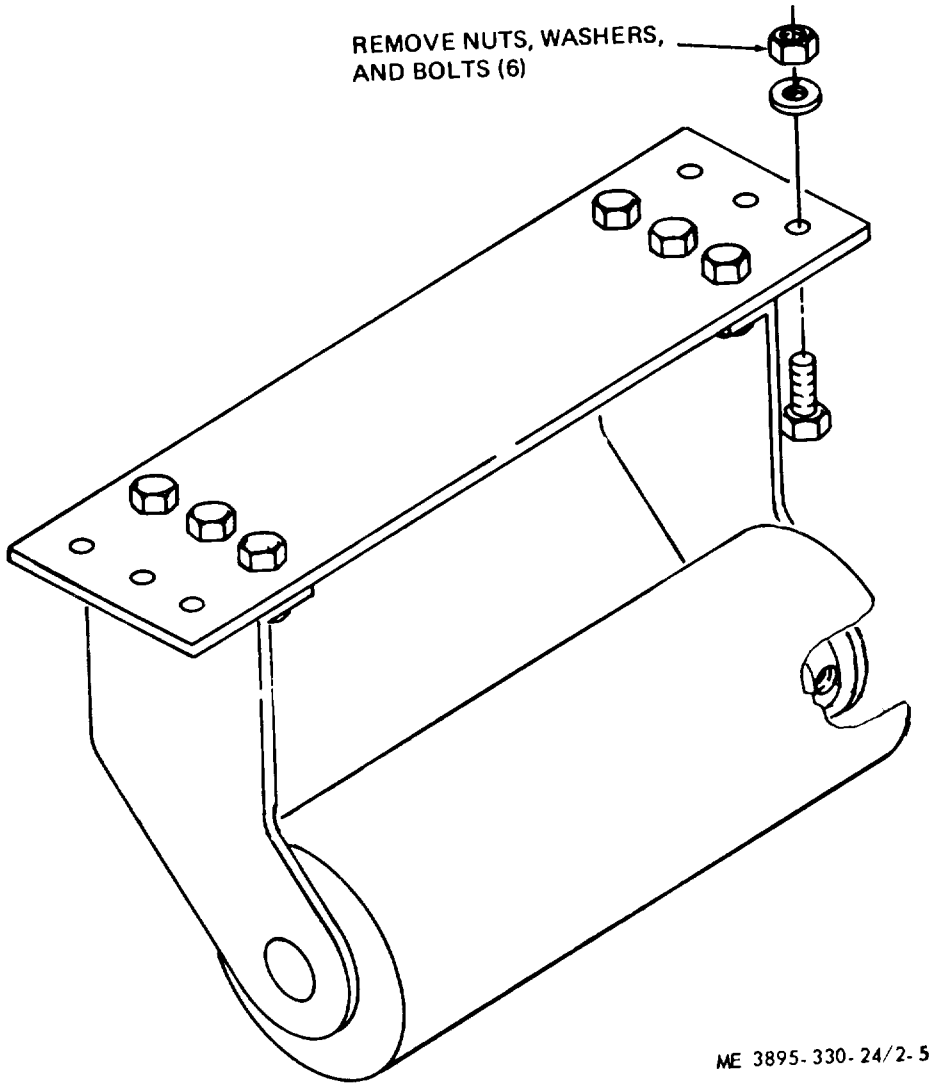


Figure 2-5. Roller assembly.

2-18. Spreader Hitch Assembly

The spreader hitch is a welded frame with spring-loaded latches. When the towing vehicle is backed into it, the spreader hitch locks both together.

a. *Inspection*. Inspect the hitch assembly for breaks or bends. Inspect the hardware for stripped threads or broken pieces.

b. *Service*. Make sure the hitch is properly lubricated at all times. Refer to LO 5-3895-33012 for lubrication instructions.

2-19. Gate Adjustment Lever

a. *Removal*. Remove the gate adjustment lever by removing the attaching hardware which holds it to the gate assembly.

b. *Repair*. Repair any cracks or bends in the gate adjustment lever.

c. *Replacement.* If the gate adjustment lever is broken or badly worn, replace the lever with a new one.

2-20. Agitator Assembly

The agitator assembly operates at the bottom of the hopper to deliver an even flow of material into the feed roll.

a. Inspect the agitator assembly to insure that it is not bent or broken. Make sure that the assembly does not bind or make excessive noise when rotated.

b. Lubricate bearings in pillow block assembly. See LO 5-3895-330-12.

c. Report to direct support maintenance for replacement of damaged agitator assembly.

2-21. Feed Roll Assembly

The feed roll assembly is located at the bottom

and to the front of the hopper. It operates to spread an even amount of material on the ground.

a. *Inspection*. Inspect the feed roll for any damage such as breaks or bends. The feed roll assembly cannot be regrooved.

b. *Service*. Make sure the feed roll bearings are properly lubricated at all times. Refer to LO 5-3895-330-12.

2-22. Chains

Repair or replace any broken chains on the aggregate spreader.

2-23. Wheel Bearings

The pillow block bearing function is to hold the wheel assemblies to the spreader.

a. *Inspection*. Inspect the wheel bearings for cracks or breaks. Include servicing the pillow block bearings see LO 5-8895-330-12.

b. *Replacement*. Reference figure 2-6 for replacement of pillow block bearings and seals.

2-24. Traction Wheel Assembly

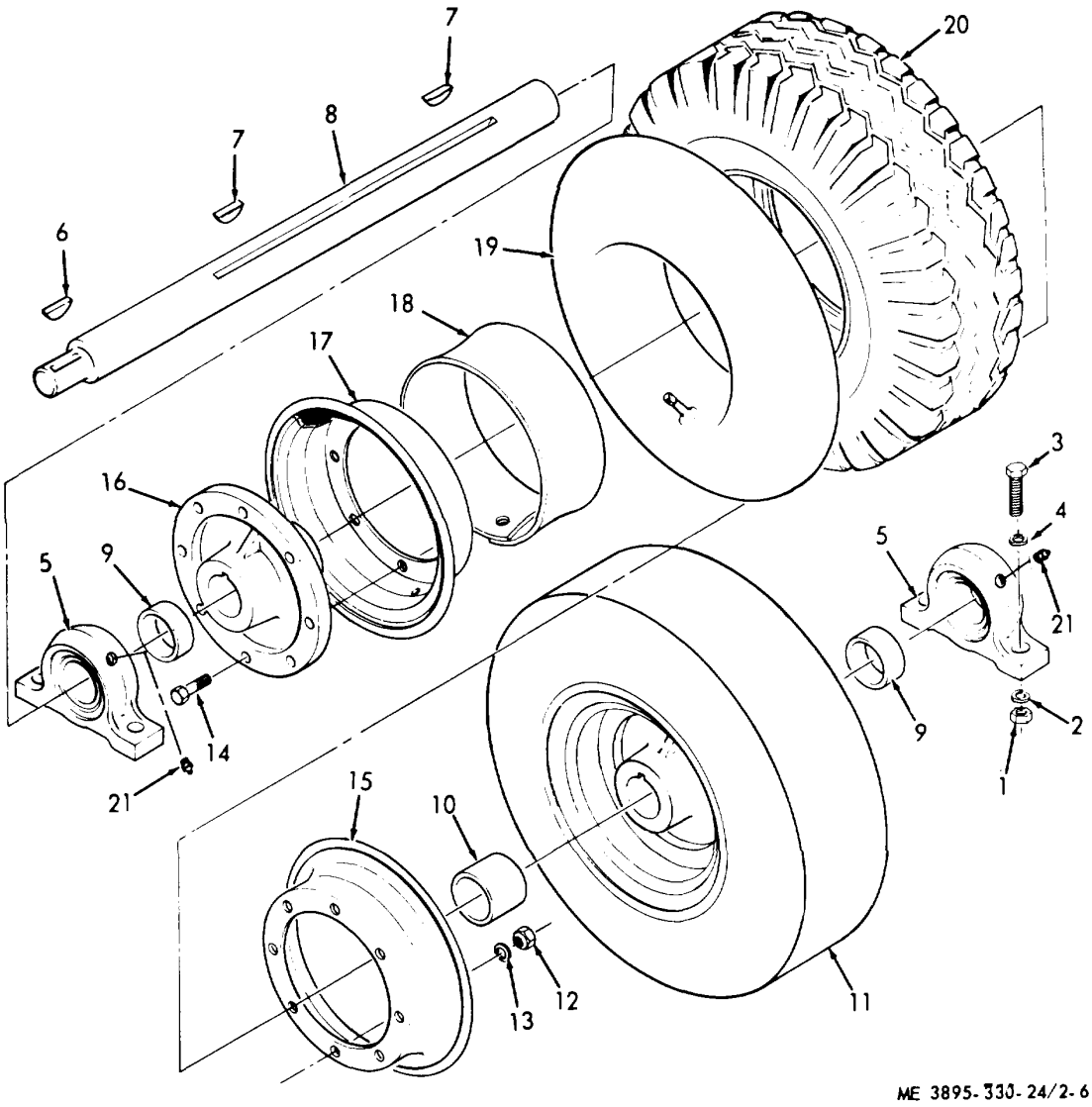
a. *Removal*. Remove the traction wheel assembly as shown in figure 2-6.

b. *Inspection*. Inspect the assembly for any breaks or broken welds. Inspect the attaching hardware for stripped threads.

c. *Adjustment*. Make sure that the spacers are in place and all attaching hardware is tight.

d. *Repair*. Repair any breaks or cracks in the welds. Replace any parts that are badly bent.

e. *Replacement.* Replace the wheel assembly as illustrated in figure 2-6.



1	Nut	11	Wheel
2	Lockwasher	12	Nut
3	Bolt	13	Lockwasher
4	Flatwasher	14	Bolt
5	Pillowblock bearing	15	Rim
6	Key	16	Hub
7	Key	17	Rim
8	Axle	18	Flap
9	Spacer	19	Tube
10	Spacer	20	Tire

Figure 2-6. Traction wheel assembly.

2-25. Hopper Assembly

The hopper assembly is a welded frame which holds the material to be spread.

a. Inspection. Inspect the hopper assembly for cracks or dents that may cause operational trouble.

b. Repair. Repair any breaks or cracks in welds on the hopper assembly.

2-26. Gate Assembly

The purpose of the gate assembly is for the even distribution of material from the hopper.

a. *Inspection*. Inspect the gate assembly for any damage, such as bends, breaks, or cracks.

b. *Repair*. Repair any broken welds or pieces of the gate assembly to insure proper operation of the gate.

2-27. Drive Shaft

The drive shaft is located between the gear box and the traction wheels and powers the gear box.

a. *Inspection*. Inspect the drive shaft for bends or breaks.

b. *Service*. Make sure that the drive shaft is properly lubricated at all times. Refer to LO 5-3895-330-12.

2-28. Clutch Control Lever

The clutch control lever is used to engage and disengage the clutch.

a. *Inspection*. Inspect the clutch lever for cracks or bends.

b. *Service*. Insure that all of the attaching hardware is tight at all times.

2-29. Clutch

a. *Inspection*. Inspect the clutch to insure that it engages the forward and reverse sprocket properly. Reference servicing the shifter yoke. See LO 5-3895-330-12.

b. *Adjustment*. The clutch is made up of a yoke which has a threaded rod running through it. This rod also runs through a spring which keeps tension on the clutch control lever. The tension can be adjusted by either tightening or loosening the locknuts on the end of the rod. To increase the tensions, turn the locknut clockwise; to decrease the tension, turn the nut counterclockwise.

2-30. Gear Box Assembly

The gear box assembly is a combination of gear shafts and a clutch which drive the feed roll and agitator assemblies of the spreader.

a. *Inspection*. Inspect the gear box assembly for cracks or breaks. Inspect gear box to see if gears will turn. Inspect sprocket for broken or missing teeth.

b. *Service*. Check the level of oil in the gear box and make sure a proper level is maintained at all times. Refer to LO 5-3895-330-12.

c. *Repair or Replacement*. Replace the gear box assembly if damaged to the extent that the gears will not turn. Replace sprocket if teeth are missing or if sprocket is damaged in any way. Reference figure 3-4.

CHAPTER 3

DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

Section I. REPAIR PARTS, SPECIAL TOOLS AND EQUIPMENT

3-1. Tools and Equipment
Tools and equipment authorized for maintenance of the spreader are listed in the applicable "TOE" for direct and general support maintenance units responsible for maintaining the spreader.

3-2. Special Tools and Equipment
There are no special tools and equipment required for direct and general support maintenance of the spreader.

3-3. Direct Support and General Support Maintenance Repair Parts
Direct and general support maintenance repair parts are listed and illustrated in TM 5-3895330-24P.

Section II. TROUBLESHOOTING

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the spreader and its components. Malfunctions which may occur are listed in Chart 8-1.

Each malfunction stated is followed by a list of probable causes of the trouble. The corrective action recommended is described opposite the probable cause.

Chart 8-1. Troubleshooting.

Malfunction	Probable cause	Corrective action
1. Coupler hitch assembly does not latch	a. Broken tension spring	a. Replace spring (para 4-2).
	b. Bent or broken hitch	b. Repair or replace the hitch (para 4-2).
2. Chain not contacting sprocket properly	a. Chain broken	a. Replace chain (para 2-22).
	b. Sprocket teeth broken	b. Replace sprocket (pars 2-30).

Section III. REMOVAL AND INSTALLATION OF MAJOR COMPONENTS

3-4. Coupler Hitch Assembly

a. Removal. Remove the coupler assembly as shown in figure 3-1.

b. Installation. Install the coupler hitch assembly in the reverse order of the sequence shown in figure 3-1.

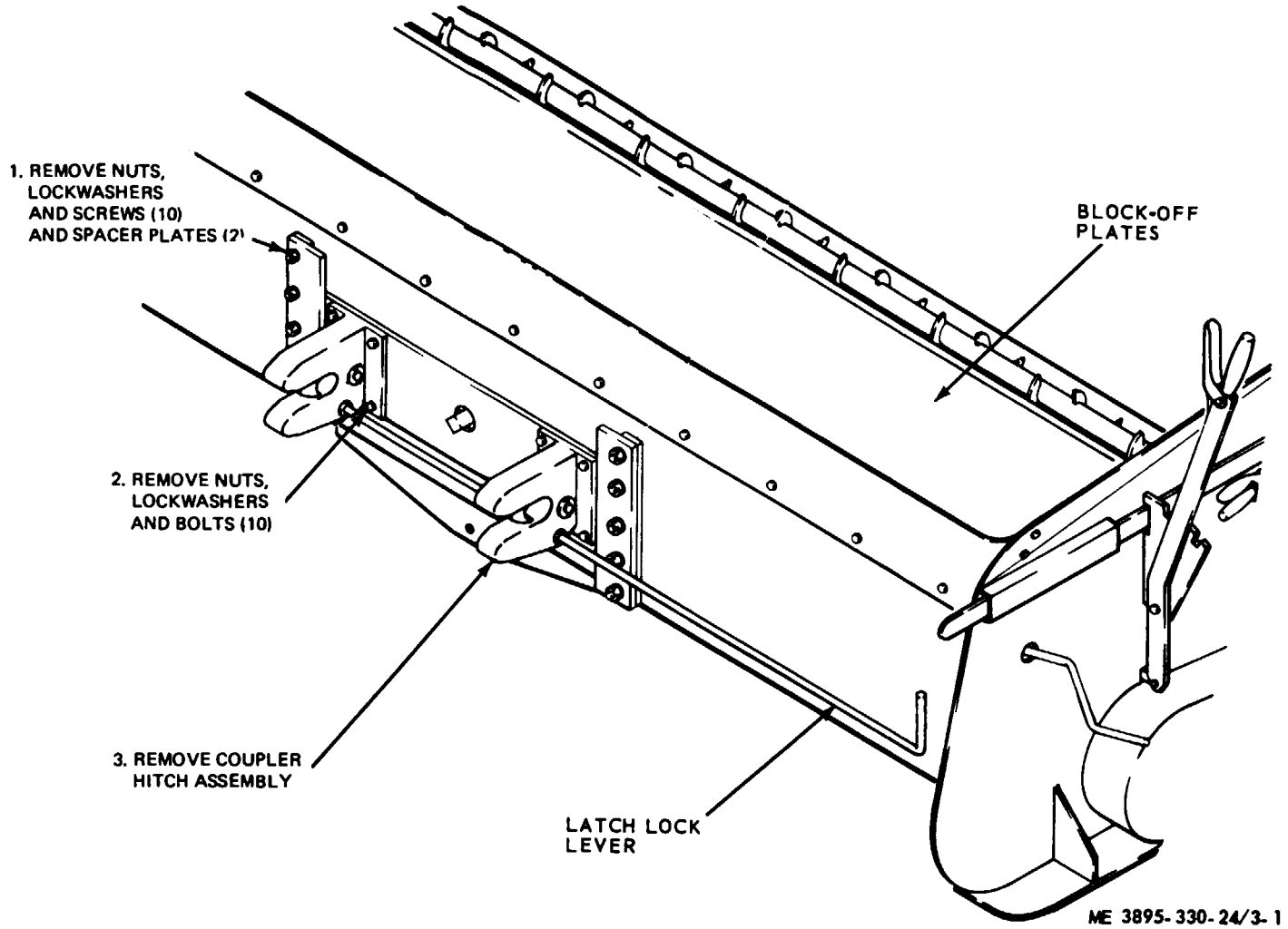


Figure 3-1. Coupler hitch assembly removal and installation.

3-5. Agitator Assembly

a. Removal. Remove the agitator assembly as shown in figure 3-2.

b. Installation. Install the agitator assembly in the reverse order of the sequence shown in figure 3-2.

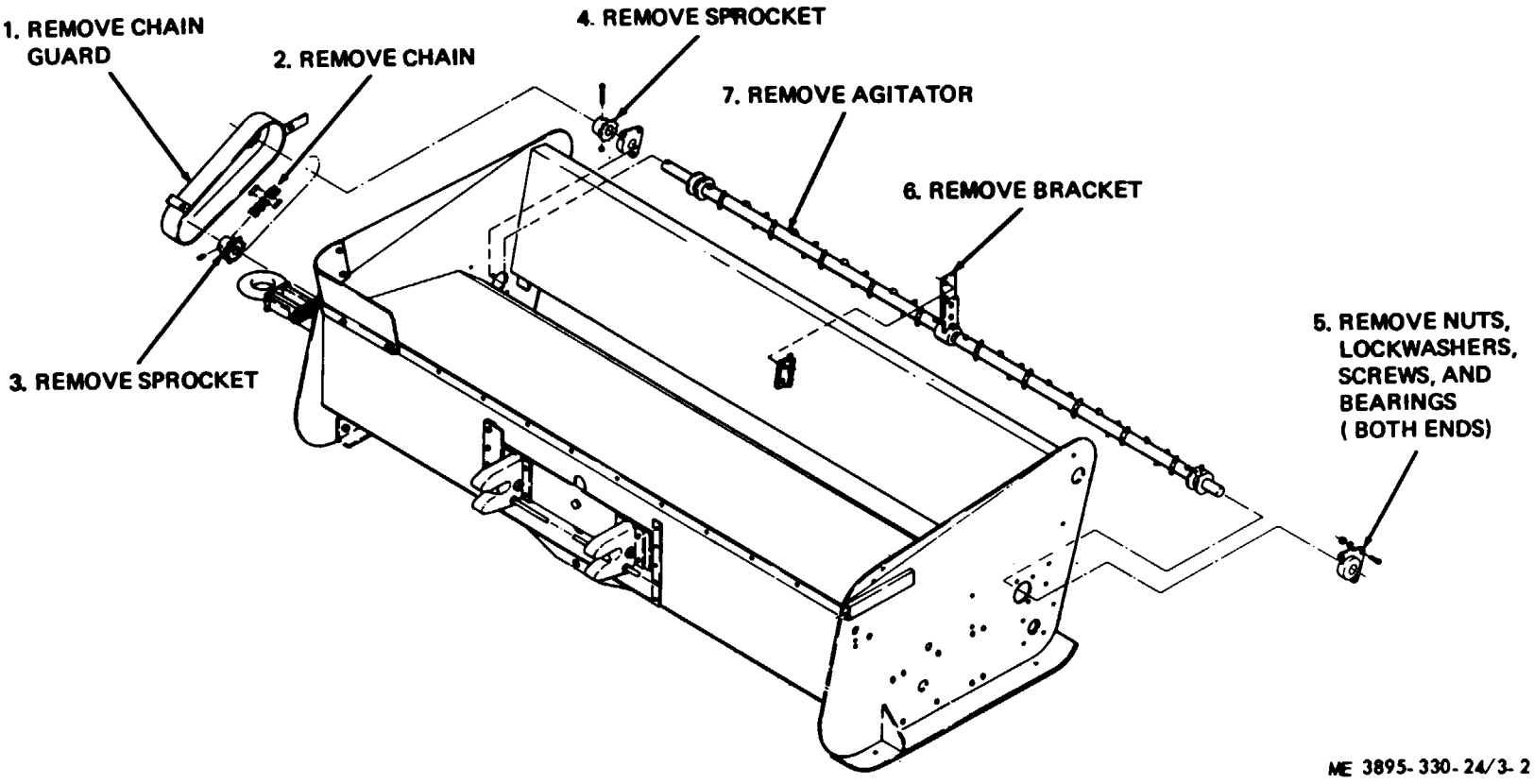


Figure 3-2. Agitator assembly removal and installations

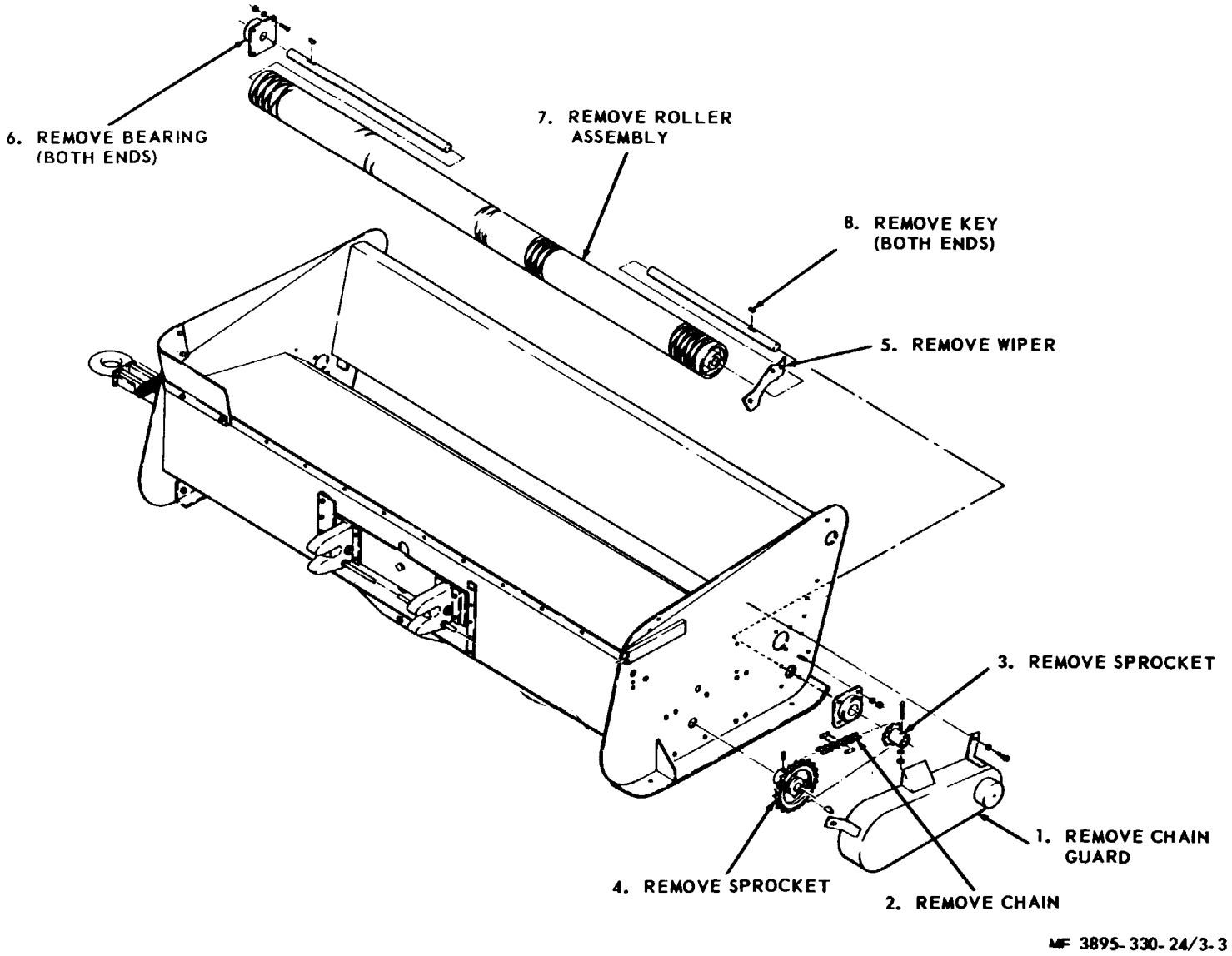


Figure 3-3. Feed roll assembly removal and installation

3-6. Feed Roll Assembly

a. Removal. Remove the feed roll assembly as shown in figure 3-3.

b. Installation. Install the feed roll assembly in the reverse order of the sequence shown in figure 3-3.

3-7. Gear Box Assembly

a. Removal. Remove the gear box assembly as shown in figure 3-4.

b. Installation. Install the gear box assembly in the reverse order of the sequence shown in figure 3-4.

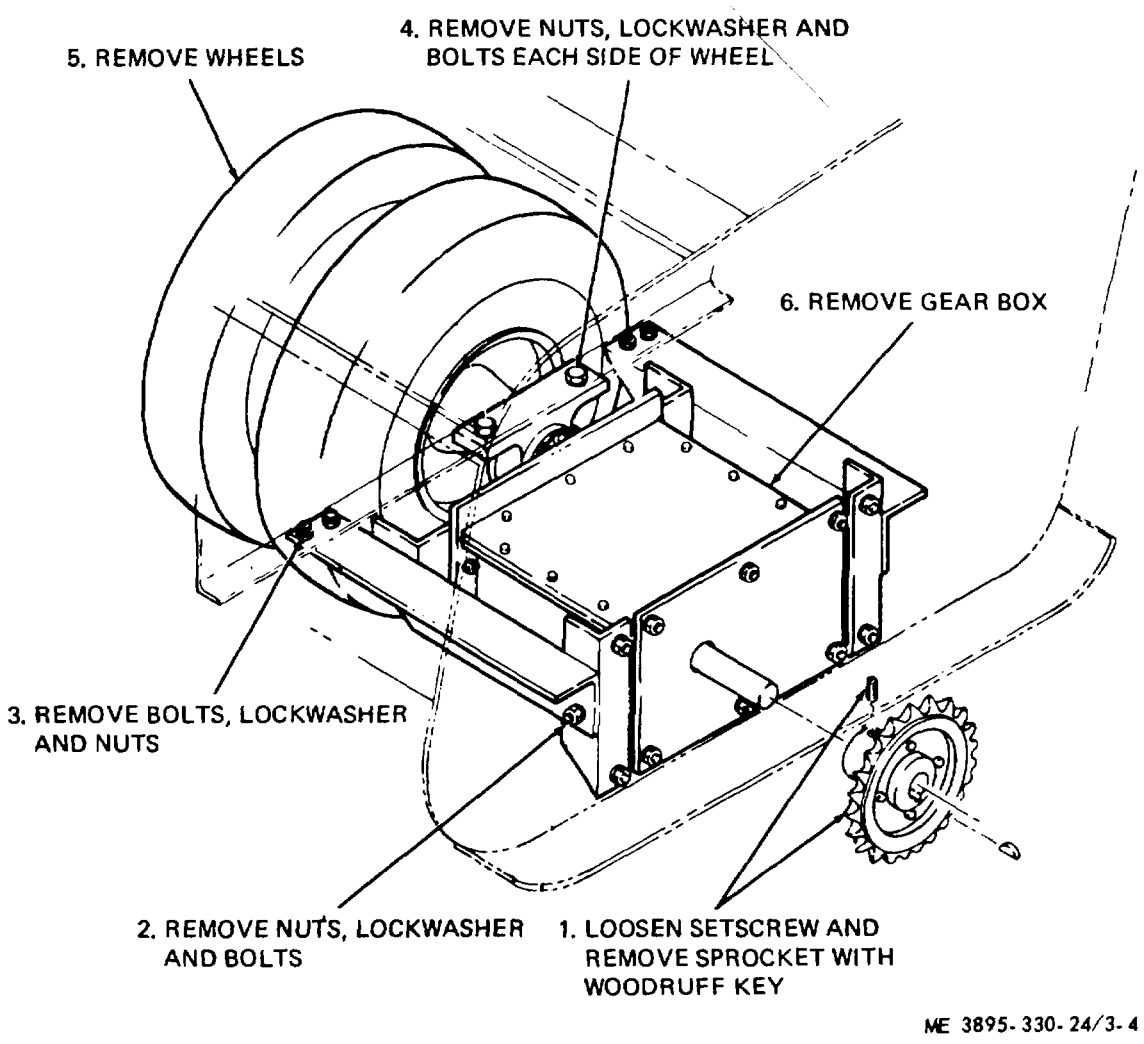


Figure 3-4. Gear Box assembly removal and installation.

CHAPTER 4
REPAIR INSTRUCTIONS

4-1. General

This chapter covers the removal, disassembly, cleaning, inspection, repair or replacement, reassembly, and installation of components of the spreader as authorized by the maintenance allocation chart.

4-2. Roller Assembly

a. *Removal.* Remove the roller assembly as described in paragraph 2-17.

b. *Disassembly*. Disassemble the roller assembly as illustrated in figure 4-1.

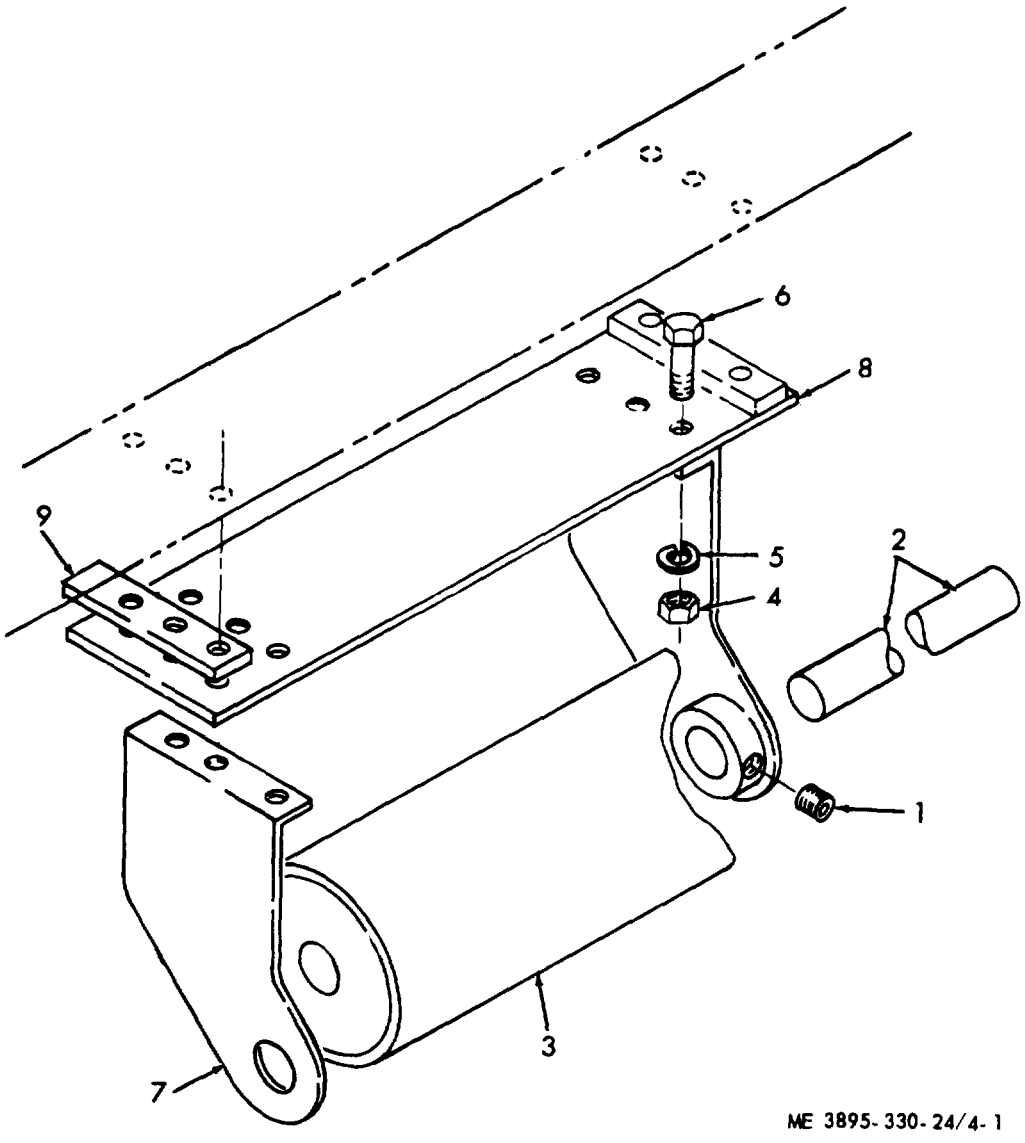
c. *Cleaning*. Clean all parts of the roller assembly in cleaning solvent and dry thoroughly.

d. *Inspection*. Inspect the roller assembly for cracks, breaks, or damaged shaft.

e. *Repair or Replacement*. Repair or replace all parts that are not able to operate properly.

f. *Reassembly*. Reassemble the roller assembly in the reverse order of the disassembly.

g. *Installation*. Install the roller assembly as described in paragraph 2-17.



1	Setscrew	3	Roller	5	Lockwasher	7	Bracket	9	Spacer
2	Shaft	4	Nut	6	Bolt	8	Plate		

Figure 4-1. Roller assembly

4-3. Coupler Hitch Assembly

a. *Removal*. Remove the coupler hitch assembly as described in paragraph 3-4.

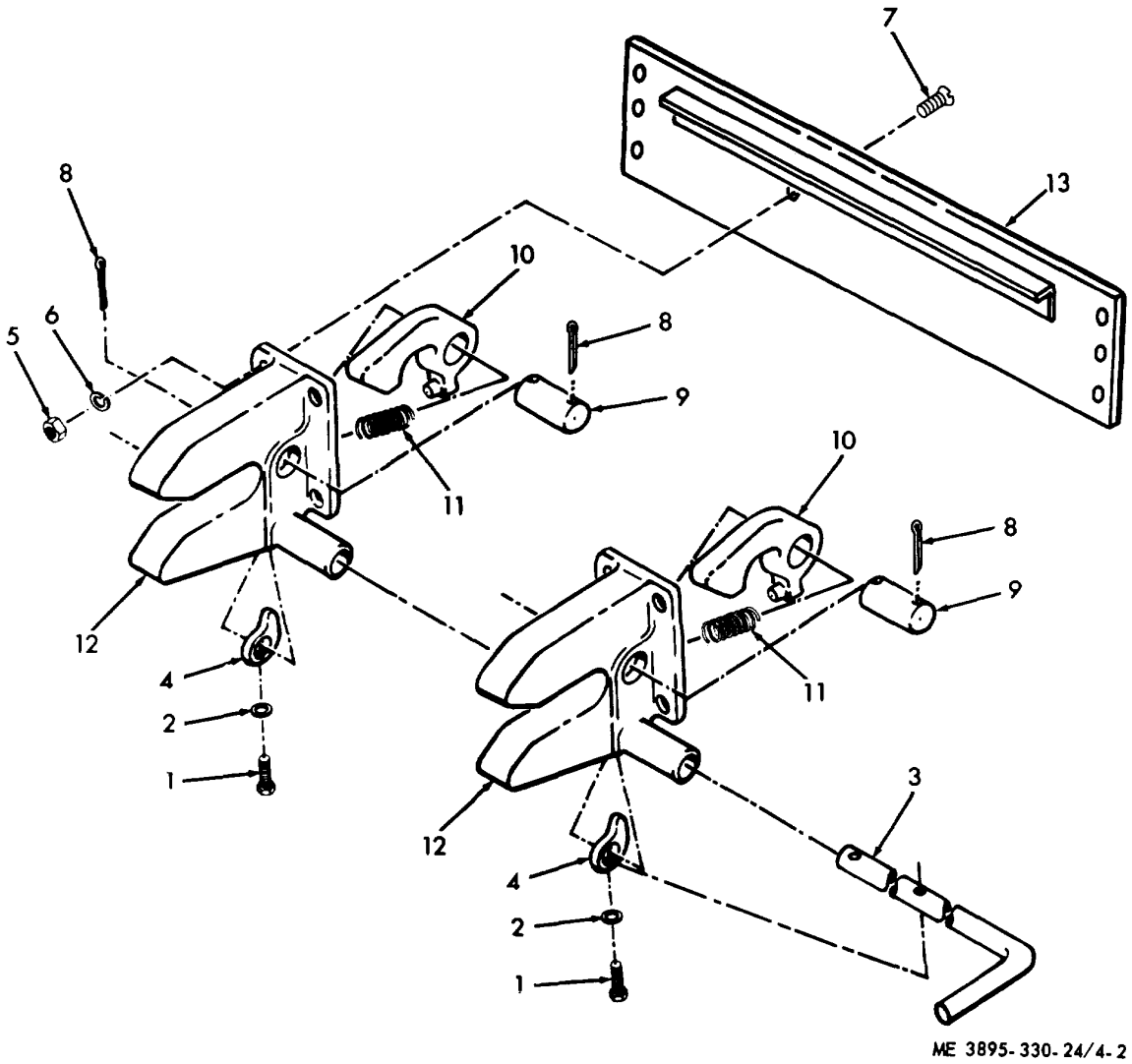
b. *Disassembly.* Disassemble the coupler hitch assembly as illustrated in figure 4-2 c. Cleaning. Clean all parts of the coupler hitch assembly in cleaning solvent and dry thoroughly.

d. *Inspection.* Inspect the coupler hitch assembly as described in paragraph 2-19.

e. *Repair or Replacement.* Repair or replace any broken or badly worn parts.

f. *Reassembly.* Reassemble the coupler hitch assembly in the reverse order of disassembly.

g. *Installation.* Install the coupler hitch as described in paragraph 3-4.



1 Screw
2 Flatwasher
3 Lever
4 Latch
5 Nut
6 Lockwasher
7 Bolt
8 Cotter pin
9 Shaft
10 Dog
11 Spring
12 Housing
13 Bar assembly

Figure 4-2. Coupler hitch assembly.

4-4. Agitator

a. *Removal.* Remove the agitator assembly as described in paragraph 3-5.

b. *Disassembly.* Disassemble the agitator assembly as illustrated in figure 4-3.

c. *Cleaning.* Clean all parts of the agitator assembly in cleaning solvent and dry thoroughly.

d. Inspection. Inspect the agitator assembly to insure that it is not bent or broken.

e. Repair or Replacement. Repair or replace any broken or badly worn parts.

f. Reassembly. Reassemble the agitator assembly in the reverse order of the disassembly.

g. Installation. Install the agitator assembly as described in paragraph 3-5.

Key to figure 4-3
1 Shaft (RH)
2 Collar
3 Setscrew
4 Agitator shaft (RH)
6 Bearing
6 Bolt
7 Lockwasher
8 Nut
9 Shaft (Center)
10 Agitator shaft (LH)
11 Bolt
12 Lockwasher
13 Nut
14 Shaft (LH)

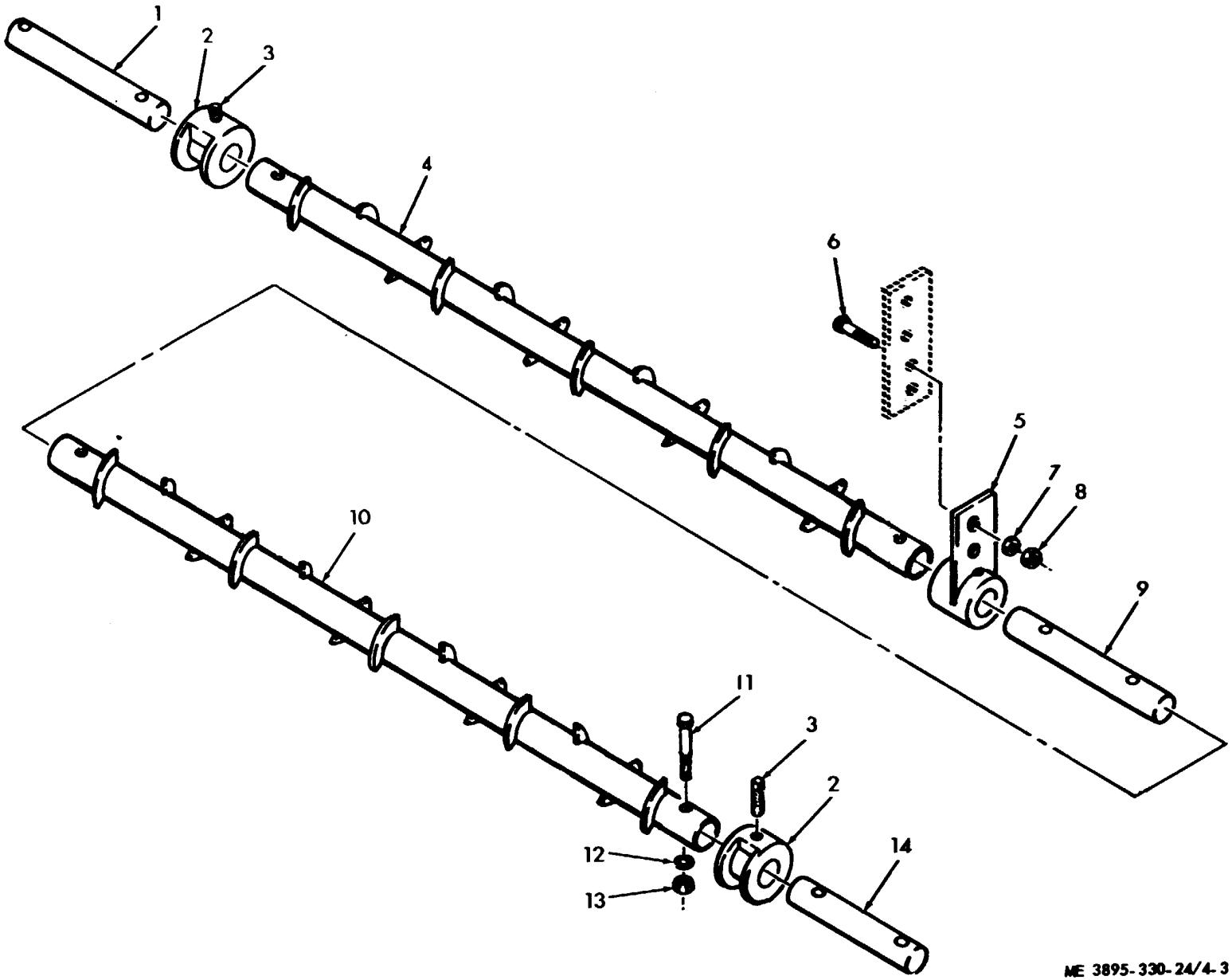


Figure 4-3. Agitator assembly.

4-5. Feed Roll Assembly

a. *Removal.* Remove the feed roll assembly as described in paragraph 3-6.

b. *Disassembly.* Disassemble the feed roll assembly as illustrated in figure 3-3.

c. *Cleaning.* Clean all parts of the feed roll assembly with cleaning solvent and dry thoroughly.

d. *Inspection.* Inspect the feed roll assembly as described in paragraph 2-22.

e. *Repair or Replacement.* Repair or replace the feed roll if damaged to the extent that it will cause improper operation. The feed roll cannot be regrooved.

f. *Reassembly.* Reassemble the feed roll assembly in the reverse order of the disassembly.

g. *Installation.* Install the feed roll assembly as described in paragraph 3-6.

4-6. Gear Box Assembly

a. *Removal.* Remove the gear box assembly as described in paragraph 3-7.

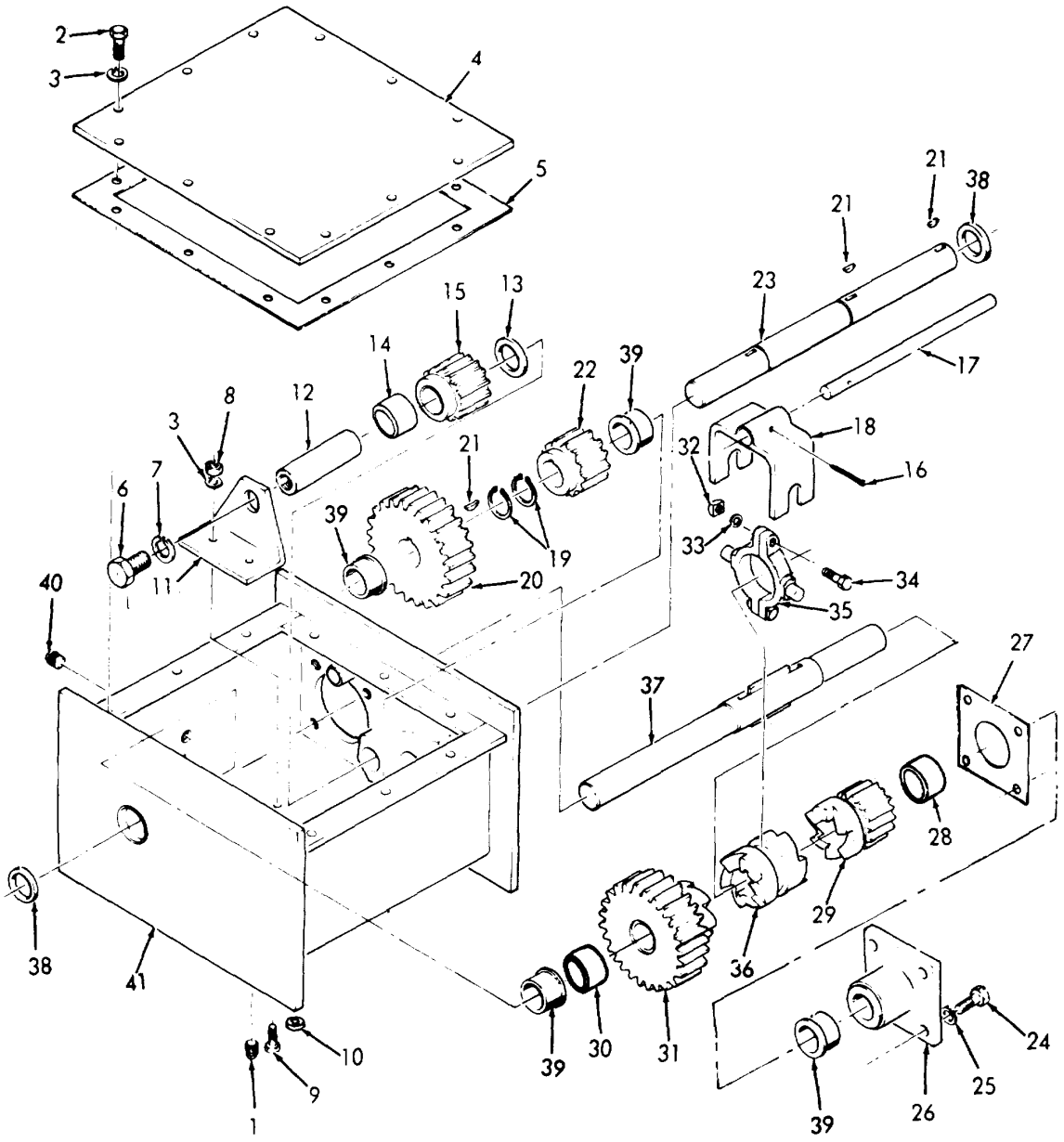
b. *Disassembly.* Disassemble the gear box assembly as illustrated in figure 4-4.

c. *Cleaning.* Clean all parts of the gear box assembly in cleaning solvent and dry thoroughly.

d. *Inspection.* Inspect the gear box assembly as described in paragraph 2-31.

e. *Reassembly.* Reassemble the gear box assembly in the reverse order of the disassembly.

f. *Installation.* Install the gear box assembly as described in paragraph 3-7.



1	Plug	15	Idler gear	29	Clutch gear
2	Screw	16	Cotter pin	30	Bearing
3	Lockwasher	17	Throw-out shaft	31	Feed roll gear
4	Cover	18	Clutch throw-out yoke	32	Nut
5	Gasket	19	Retaining ring	33	Washer
6	Screw	20	Reverse drive gear	34	Screw
7	Lockwasher	21	Key	35	Clutch collar
8	Nut	22	Forward drive gear	36	Jaw clutch
9	Screw	23	Transmission drive shaft	37	Drive shaft
10	Washer	24	Screw	38	Seal
11	Support	25	Lockwasher	39	Bushing
12	Idler gear shaft	26	Drive shaft bearing	40	Plug
13	Thrust washer	27	Gasket	41	Gear box
14	Bearing	28	Bearing		

Figure 4-4. Gear box assembly.

APPENDIX A

REFERENCE

A 1. Lubrication

C9100-IL	Fuels, Lubricants, Oils, and Waxes.
LO 8895-880-12	Lubrication Order.

A 2. Maintenance

TM 88-750	Army Equipment Records Procedure.
TM 6-8896-880-10	Operator's Manual.
TM 6-8896-880-24P	Organizational, Direct: Support, General Support and Depot Maintenance Repair Parts
TM 5-331D	Utilization of Engineer Construction Equipment, Asphalt and Concrete Equipment.
TM 9-1870-1	Care and Maintenance of Pneumatic Tires.

A-3. Shipment and Storage

TM 740-90-1	Administrative Storage of Equipment.

A-4. Painting

TM 9-218	Painting Instruction for Field Use.

A-5. Demolition

TM 760-244-8	Destruction of Material 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 levels.

b. Section II designates overall responsibility for the performance of maintenance functions on the identified end item or component. The implementation of the maintenance functions upon the end item of component will be consistent with the assigned maintenance functions.

c. Section III not applicable.

d. Section IV not applicable.

B-2. Explanation of Columns In Section II

a. *Group Number*, *Column* (1). The assembly group is a numerical group assigned to each assembly in a top down breakdown sequence. The applicable assembly group are listed on the MAC in disassembly sequence beginning with the first assembly removed in a top down disassembly sequence.

b. *Assembly Group, Column* (2). This column contains a brief description of the components of each assembly group.

c. *Maintenance Functions, Column* (3). This column lists the various maintenance functions (A through K) and indicates the lowest maintenance level authorized to perform these functions. The symbol designations for the various maintenance levels are as follows:

Code	*Explanation*
C	Operator or crew
O	Organizational maintenance
F	Direct support maintenance
H	General support maintenance
D	Depot maintenance

The maintenance functions are defined as follows:

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.

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.

. 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 like items.

I Repair. Those maintenance operations necessary to restore an item of serviceable condition through correction of material damage or a specific failure. Repair may be accomplished at each level 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 zero 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 level. Rebuild reduces to zero the hours of miles the equipment, or component thereof, has been in use.

d. Tools and Equipment. Column (4). This column not applicable.

e. Remarks, Column (5). This column not applicable.

Section II. MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) Functoinal Group	(3) Maintenance functions											(4) Tools and equipment	(5) Remarks
		A	B	C	D	E	F	G	H	I	J	K		
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD		
01	TRANSPORT TRUCK ASSEMBLY													
	Axle	C							O					
	Bearing	O		O					O					
	Seals								O					
	Wheels.	C							O	O				
	Tires, Tubes	C		C					O	O				
02	TRUCK HITCH ASSEMBLY								O					
03	TONGUE AND PLATFORM ASSEMBLY	C							O	F				
04	ROLLER ASSEMBLY	O							O	F				
05	CRANK AND COUPLER HITCH ASSEMBLY			C					F	F				
06	CONTROLS													
	Gate Lever	O		C					O	O				
	Shifting Arm	O		C					F	F				
	Clutch Lever	O		C					F	F				
07	MAIN DRIVE													
	Cover	O							O					
	Agitator	O		C					F	F				
	Feed Roller	O		C					F	F				
	Sprockets, Idlers .	O							F					
	Gear Box Assembly	O		C					F	F	H			
	Clutch .				O				F					
	Chains	O		O					O	O				
	Wheels	C							O	O				
	Bearings			C					F					
	Tires Tubes	C		C					O	O				
	Seals	F							F					
08	HOPPER, GA'I'ES, CHUTES	O							F					

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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 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

Liquid Measure

1 centiliter = 10 milliters = .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

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
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			

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