

**TM 9-4910-587-14&P**

**DEPARTMENT  
OF THE ARMY TECHNICAL MANUAL**

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**OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT  
AND GENERAL SUPPORT MAINTENANCE  
MANUAL INCLUDING REPAIR PARTS LIST**

**FOR**

**HOIST UNIT, AUTOMOTIVE MAINTENANCE**

**(NEAL MACHINE CORPORATION)**

**(4910-00-448-0254)**

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**HEADQUARTERS,  
DEPARTMENT OF THE ARMY**

**APRIL 1978**



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You can help improve this manual by calling attention to errors and by recommending improvements and by stating your reasons for the recommendations. Your letter or DA Form 2028.2 Recommended Changes to Publications and Blank Forms) should be mailed directly to Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-MAS, Rock Island, IL 61299. A reply will be furnished directly to you. For your convenience, preaddressed DA Form 2028-2's are included as final pages of this manual.

Operator, Organizational, Direct Support and General Support  
Maintenance Manual Including Repair Parts List for:

Hoist Unit, Automotive, Maintenance  
(4910-00-448-0254)

### NOTE

This manual is published for the purpose of identifying an authorized commercial manual for the use of the personnel to whom the hoist unit is issued.

Manufactured by: Neal Machine Corporation  
Lima, OH 45804

Procured under Contract No: DAAA09-75-C-6501

## SECTION I

### INTRODUCTION AND DESCRIPTION

#### 1-1. INTRODUCTION.

1-2. This manual provides Operation, Maintenance and Repair Instructions, and an Illustrated Parts Break-down, for the Automotive Maintenance Hoist Unit, Ordnance Part No. 8387771, Figure 1 provides a general view of the unit.



01854A

Figure 1. Hoist Unit, Automotive Maintenance

### 1-3. DESCRIPTION.

1-4. The Hoist Unit is a manually operated portable device which provides a lifting capability of 1000 pounds. General specifications of the unit are listed below:

Lifting capacity	1000 pounds
Length	41-1/2 inches
Width	19 inches
Height	22 inches
Weight	71 pounds

1-5. The unit consists of a metal frame containing the winch mechanism, supported by four telescoping legs. (See figure 2). A square drum shaft is mounted between the ends of the frame, on bronze bushings. A cable drum on the square shaft is mounted on ball bearing rollers so that it may be positioned at any point along the square shaft. The cable drum is wound with 100 inches of 1/4 inch wire rope, with a cable hook swaged on the free end, providing a means for engaging the load.

1-6. Operation of the unit is accomplished by turning a crankshaft which protrudes through the top of the end cover. This crankshaft terminates in a hexagon shape where a box-end wrench or other tool may be engaged to turn the shaft. The crankshaft drives the drum shaft through a worm gear and wheel arrangement, with a gear reduction of 29:1 (29 full turns of the crankshaft = 1 full revolution of cable drum.)

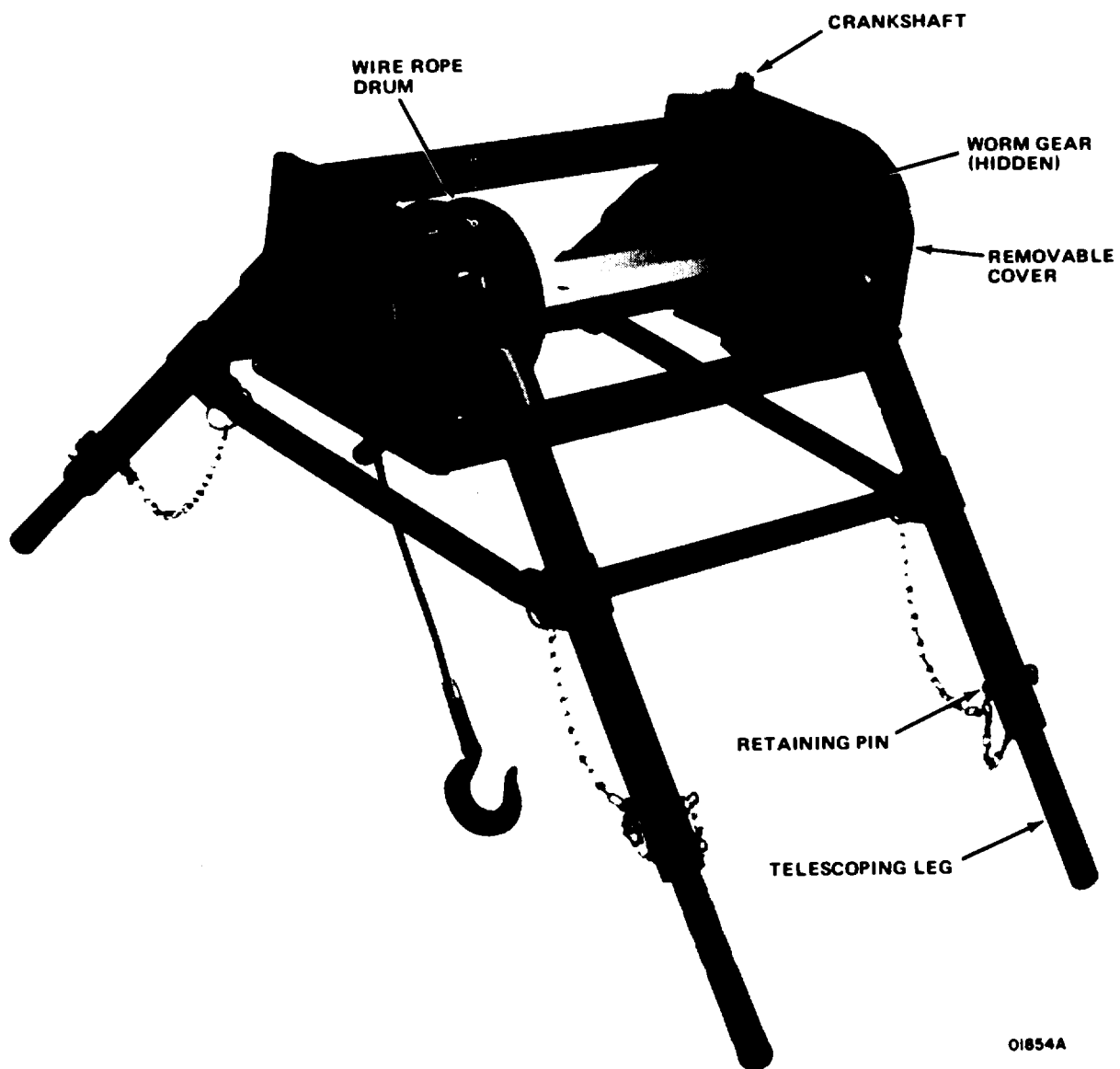


Figure 2. Hoist Unit Details

## **SECTION II**

### **PREPARATION FOR USE AND OPERATION**

#### **2-1. PREPARATION FOR USE.**

2-2. Prior to use, it will be necessary to assemble the unit to the configuration shown in figure 2. Install the legs and reinforcing braces as shown and tighten hardware securely. Install the telescoping leg ends and secure with retaining pins. If wire rope is not installed, slip the end with the ball fitting through the slot on the edge of the cable drum, and seat the ball snug while winding the wire rope onto the drum in a clockwise direction as viewed from the gear end of the drum shaft.

2-3. Examine all parts for wear or damage while setting up the unit. Make certain that cable, shaft, and worm gear are greased as specified in Section III.

#### **2-4. OPERATION.**

2-5. Before applying a load, make certain the legs are set up to provide firm and level support for the hoist unit. If necessary, remove the hairpin clips and retaining pins, and adjust the length of one or more legs as necessary to level the unit. Install retaining pins and hairpin clips to secure the legs in the desired position.

2-6. Set the unit in position, making sure that each leg rests upon a firm support, and lower, or extend the wire rope by applying a wrench or other tool to the crankshaft, and rotate the crankshaft in the counter-clockwise direction.

2-7. When the hook is lowered sufficiently, engage the hook to the load. Make certain the wire rope is not kinked or twisted. Raise the load as desired by turning the crankshaft in the clockwise direction.



## SECTION III

### MAINTENANCE AND REPAIR

#### 3-1. GENERAL.

3-2. This section covers maintenance and repair of the hoist unit. The only scheduled maintenance procedures to be performed are a thorough inspection and lubrication to be performed every six months. Corrective maintenance (repair) is accomplished through removal and replacement of defective parts in accordance with instructions outlined in this section,

#### 3-3. INSPECTION AND LUBRICATION.

3-4. Every six months, remove the end cover to expose the worm wheel and gear, and clean the gear train, square shaft, wire rope and drum thoroughly by wiping with a clean cloth dampened in Solvent, Federal Specification P-D-680. Inspect all parts in accordance with Table I.

3-5. After inspection, if all parts are found to be satisfactory, lubricate the unit as shown in figure 3. If parts replacement is required, refer to paragraph 3-7.

**TABLE I. INSPECTION**

Item to be Inspected (Refer to Figure 4)	Inspection Procedure	Action
Overall assembly	Check for dents, cracks, obvious physical damage, loose or missing hardware,	Replace damaged parts as outlined in this section. Replace and tighten hardware.
Legs (Item 2 and 3)	Check for cracks around drilled holes in legs. Check legs for bent condition.	Replace legs if cracks are found. Slightly bent legs may be straightened.
Braces (Items 4 and 5)	Check braces for cracks or bent condition.	Replace braces if cracks are found. Slightly bent braces may be straightened
Worm gear and wheel (Items 18 and 21)	Check for cracks, missing teeth, signs of excessive wear.	Replace worn or damaged parts.
Square shaft (24)	Check for cracks, wear, or bent condition.	Replace if cracked or worn. A slightly bent shaft may be straightened.
Drum (27)	Check for cracks or damaged areas. Check mounting security and condition of bearings (30).	Replace a damaged drum. Replace defective bearings.
Wire Rope assembly (26)	Check for kinked or frayed cable. Check for broken strands over entire length. Check security of attachment of hook and end fittings. Check hook for cracks.	Replace damaged wire rope assembly.
Body assembly 31)	Check bushings for wear. Check end frames for cracks or deformation, around hushing bores and leg sockets.	Replace damaged body.

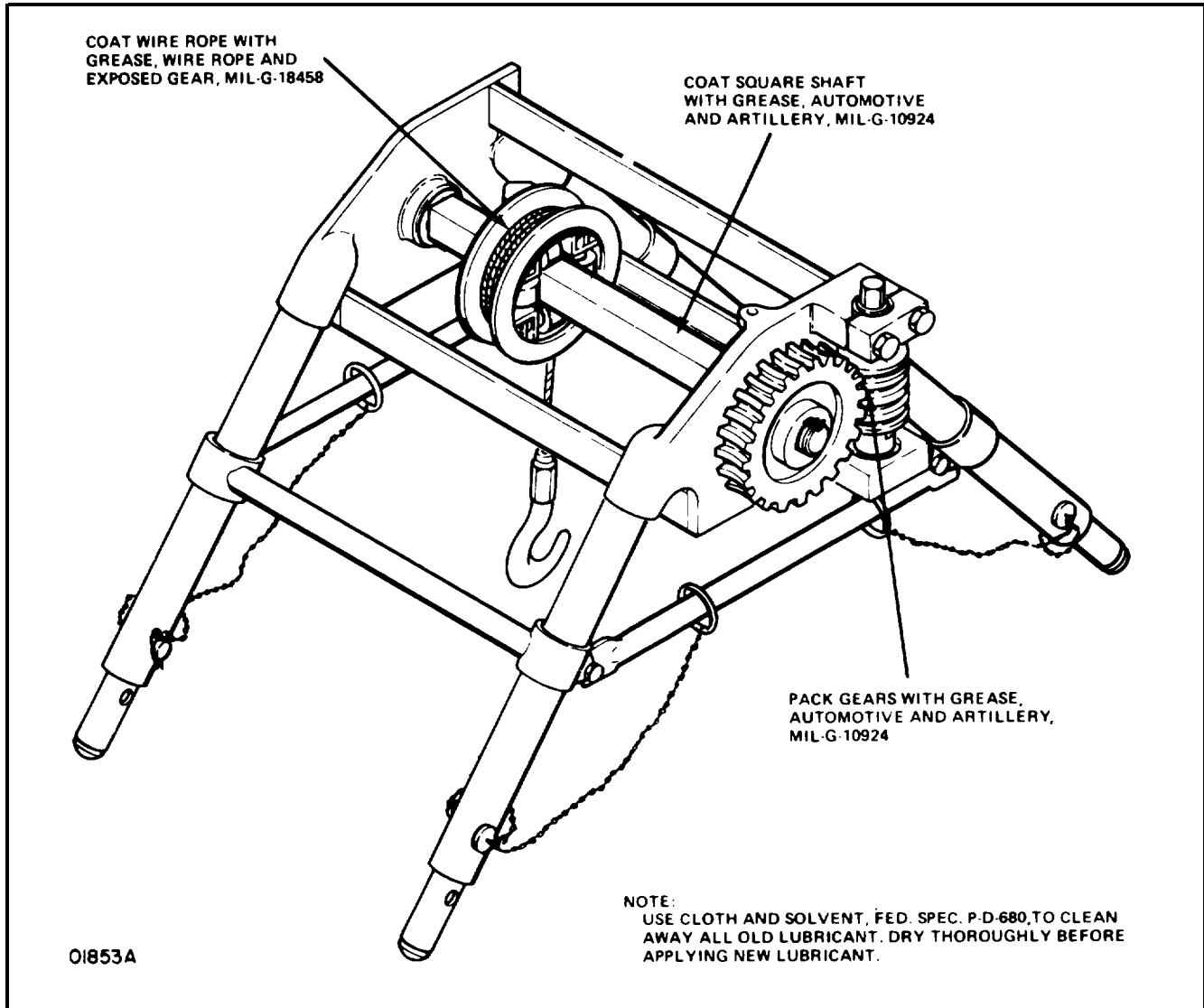


Figure 3. Lubrication

### **3-6. REPAIR.**

3-7. Repair of the hoist unit consists of inspection and checkout to locate and identify defective parts, disassembly to the extent required to remove these parts, installation of new parts, and reassembly. Refer to the exploded view illustration, figure 4, for parts identification during the disassembly/assembly procedures.

3-8. DISASSEMBLY. Refer to figure 4 and proceed as follows:

1. Disengage clips (11) and retaining pins (9) and remove telescoping legs (2). If required, remove plugs (1) from end of legs (2).
2. Remove screws (6), nuts (8) and flat washers (7). Remove braces (4 and 5). Disengage legs from sockets in body (31).
3. Remove screws (13), washers (14), nuts (15), and lift off cover (12).
4. Remove retaining ring (20) and pull off worm wheel (21) and remove key (22).
5. Tap lightly with mallet and wooden drift from worm wheel end to drive out shaft (24) with bushing (35) and retaining ring (25) in place. Bushing (23) may now be removed from body (31).
6. Remove screws (32), washers (33) and nuts (34) to free bearing cap. Remove shaft (16), bushing (17), worm gear (18) and key (19). Remove flanged bushing (36).
7. Unwind and disconnect wire rope assembly (26) from drum (27). If necessary for replacement, remove bolts (28), washers (29), and bearings (30) from drum (27).

-7. ASSEMBLY. Refer to figure 4 and proceed as follows:

1. Install bearings (30) in drum (27), and secure with bolts (28) and washers (29).
2. Install bushing (35) in idler end of body (31). Install square shaft (24) through drive end bore of body, passing it through the drum (27) and into the idler end bushing (35). Install retaining ring (25).
3. Install bushing (23) over drive end of square shaft. Install worm wheel (21) and key (22) on end of shaft, and secure by installing retaining ring (20).
4. Install flanged bushing (36) into body assembly (31). Assemble gear (18) and key (19) over shaft (16). Slip bushing (17) over end of shaft (16), and install the worm wheel and shaft into body assembly (31). Install screws (32), washers (33), and nuts (34) to secure bearing cap.
5. Lubricate shaft, wire rope, and worm gears in accordance with figure 3.
6. Install cover (12), and secure with screws (13), washers (14) and nuts (15).
7. Slip legs (3) into body sockets. Install braces (4 and 5), and retaining pin assemblies (9) and secure braces with screws (6), washers (7), and nuts (8).
8. Install telescoping legs (2) and secure in position inside legs (3) by inserting retaining pins (9) through both legs, and securing with clips (11).

## SECTION IV

### ILLUSTRATED PARTS BREAKDOWN

#### 4-1. GENERAL.

4-2. This parts list illustrates and describes all parts of the Automotive Maintenance Hoist Unit, Ordnance Part No. 8387771,

#### 4-3. HOW TO USE PARTS LIST.

4-4 Parts are listed in order of disassembly, and items are indented to show relationship to the end item or next higher assembly. Attaching parts are identified (AP) in the description column. Where known, Military Standard part numbers have been listed for hardware items.

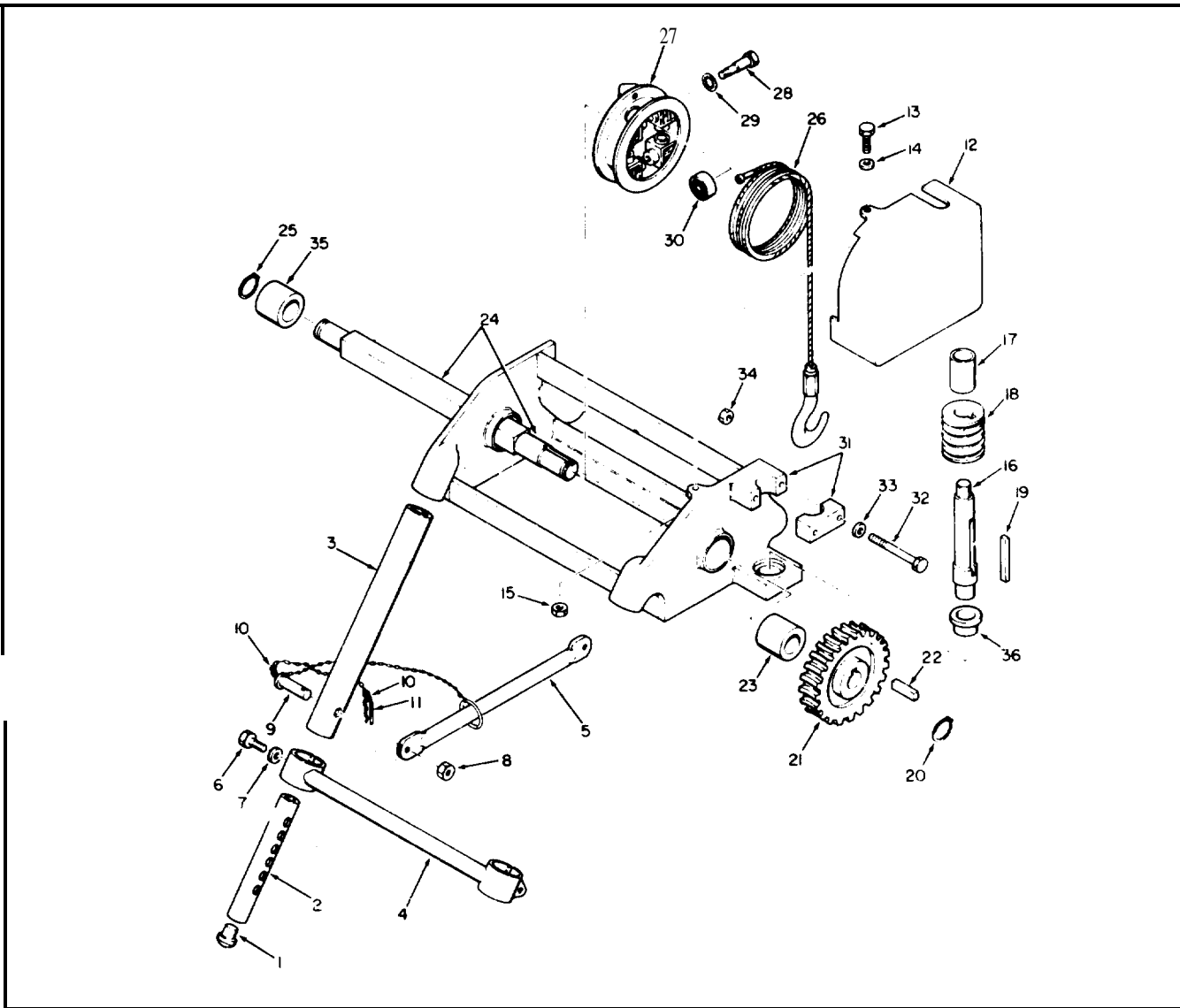


Figure 4. Hoist Unit, Exploded View

FIG. & INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6	UNITS PER ASSY	USABLE ON CODE
4-	8387771	HOIST UNIT,AUTOMOTIVE MAINTENANCE	1	
	8387754	.LEG, TELESCOPING	4	
- 1	8387753	..PLUG	1	
-2	8387752	..LEG	1	
-3	8387751	.LEG	4	
-4	8387748	.BRACE, REINFORCING	2	
-5	8387750	.BRACE, REINFORCING	2	
-6	MS90726-62	.SCREW, CAP, HEX (AP)	4	
-7	MS27183-14	.WASHER,FLAT (AP)	4	
-8	MS51922-21	.NUT, HEX, LOXK (AP)	4	
-9	8387768	.PIN ASSEMBLY, LEG	4	
-10	MS87006-3	.HOOK, "S"	2	
-11	7550232	.CLIP, HAIRPIN	1	
-12	8387770	.COVER, END	1	
-13	MS90726-9	.SCREW, CAP, HEX (AP)	2	
-14	MS27183-10	.WASHER, FLAT (AP)	2	
-15	MS51922-5	.NUT, HEX, LOCK (AP)	2	
-16	8387745	.SHAFT, SHOULDERED	1	
-17	8387744	.BUSHING, SLEEVE	1	
-18	8387755	.GEAR, WORM	1	
-19	MS20066-261	.KEY, MACHINE	1	
-20	MS16624-1150	.RING, RETAINING, EXTERNAL	1	
-21	8387756	.GEAR, WORM WHEEL	1	
-22	MS20066-258	.KEY, MACHINE	1	
-23	8387741	.BUSHING, SLEEVE	1	
-24	8387765	.SHAFT, SQUARE	1	
-25	MS16624-1125	.RING,RETAINING EXTERNAL	1	
-26	8387761	.WIRE ROPE ASSEMBLY	1	
-27	8387759	.DRUM, WIRE ROPE	1	
-28	8387764	.BOLT, SHOULDER	4	
-29	MS35333-29	.WASHER, LOCK	4	
-30	7550216	.BEARING, BALL	4	
-31	8387736	.BODY ASSEMBLY (INCLUDES CAP)	1	
-32	MS90726-75	..SCREW, CAP, HEX	2	
-33	MS27183-14	..WASHER, FLAT	2	
-34	MS51922-21	..NUT, HEX, LOCK	2	
-35	8387741	..BUSHING, SLEEVE	1	
-36	8387743	..BUSHING, SLEEVE, FLANGED	1	



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Unit, Automotive Maintenance  
(4910-00-448-0254)

PAGE  
NO.

PARA-  
GRAPH

FIGURE  
NO.

TABLE  
NO.

2

1-4

Lifting capacity is given as 100 pounds. The correct  
lifting capacity is 1000 pounds.

7

3-8


Under item 7, bearings are called out as item 29 on  
figure 4. The correct callout is item 30, as shown on  
figure 4. Item 29 is washers.

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