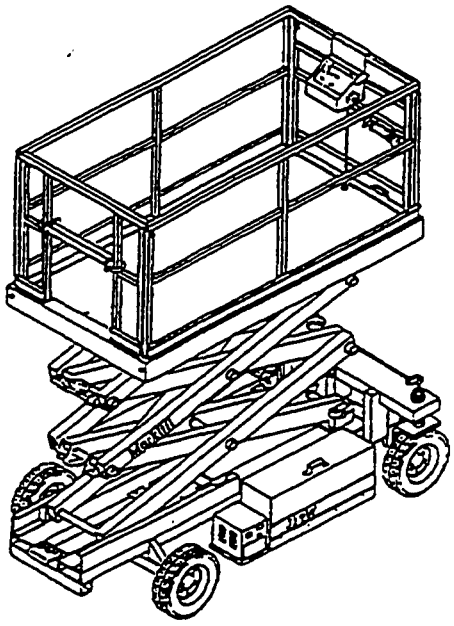
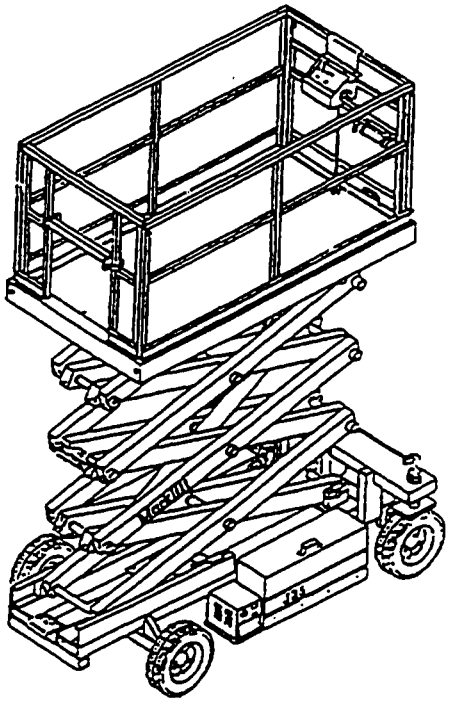
The Marklifts.®
A Product of Mark Industries

SELF-PROPELLED SCISSOR OPERATION MAINTENANCE AND PARTS MANUAL





THIS TECHNICAL MANUAL APPLIES TO THE J19W AND J25 MODELS

FIRST EDITION: JULY 1989

Mark Industries FIRST REV.: JANUARY 1990

P.O. Box 2255
Brea, California 92622
205 South Puente Street, Brea, California 92621
(714) 879-6275, FAX (714) 879-8884

TABLE OF CONTENTS

GENERAL

Introduction 3

Specifications 4

Warranty 6

Warranty Registration 7

New Equipment Condition Report 8

OPERATION

The MARKLIFT Safety 9

Division of Industrial Safety 11
Warning, Caution, Danger and Emergency Decals 13
General Decal Listing 14

Transporting 18

Inspection and Checkout 19

Operating Instructions 20

MAINTENANCE

Preventive Maintenance 22

Battery Maintenance 24

Battery Fill Instructions 24
Avoid Battery Hazards 24
Battery Hydrometer Reading 25

Trouble Shooting 26
Trouble Shooting Checklist 27

New Equipment Maintenance Record 28

Hydraulic Fluid Table 29

SCHEMATICS

Electrical Schematic — Page

J19W and J25 1
J19WEP and J25EP 2

Hydraulic Schematics

J19W, J25, J19WEP and J25EP 3

PARTS

The MARKLIFT Parts Catalog ..... Section 1

Final Assembly ..... Section 2

Frame Assembly ..... Section 3

Scissor Assembly ..... Section 4

Platform Assembly ..... Section 5

Options Assembly ..... Section 6

VENDOR

Mico Disc Brake ..... Section 7

Trojan Battery ..... Section 7

Ross Gear Drive Motor ..... Section 7

SERVICE BULLETINS

The purpose of this manual is to provide the customer with operation, safety, maintenance and parts information that will enhance the reliable performance of the **MARKLIFT**.
Schematic and vendor information is also furnished. If additional information is needed, we urge the customer to contact the local dealer. If this is impossible, please contact the Mark Industries Customer Service Department at (714) 879-6275.

WARNING: IMPROPER USE OF THIS MACHINE WILL RESULT IN **SERIOUS INJURY OR DEATH!** TO PROTECT YOURSELF AND THE EQUIPMENT, **STUDY THIS MANUAL BEFORE OPERATING THE MARKLIFT.**

The model capacity, pressure settings and serial number can be found on the ID plate mounted on the rear of the frame assembly. The serial number should be used when ordering parts. This will help our parts department give prompt and accurate service.

All **MARKLIFTS** are tested and operated to assure their proper operating condition before shipment. At this time, all necessary adjustments are made and an overall physical inspection is conducted. After the unit is delivered, some minor adjustments and inspections must be made before putting the unit into service. These are outlined in the **INSPECTION AND CHECKOUT** instructions in the operation section of this manual.

MARK INDUSTRIES reserves the right to continually make product and safety improvements. Your participation in implementing such improvements will be required.

Description	Model	
	J19W	J25
Height –		
Working (maximum)	25' (7.52m)	31' (9.45m)
Platform (maximum)	19 '(5.79m)	25' (7.62m)
Platform (minimum)	36"(.91m)	41" (1.04m)
Length (overall)	102"(2.6m)	102"(2.6m)
Width (overall)	48"(1.22)	48"(1.22m)
Platform –		
Dimenions (inside)	44.5" x 91.5"(1.13m x 2.32m)	44.5" x 91.5"(1.13m x 2.32m)
Safety Rail Height	42"(1.07m)	42"(1.07m)
Toeplate Height	4"(.10m)	4"(.10m)
Load Capacity (evenly distributed)	1000 lbs(454kg)	800 lbs(363kg)
Wheel Base	5'-10" (1.78m)	5'-10" (1.78m)
Wheel Track	3'-7" (1.09m))	3'-7" (1.09m)
Turning Radius (inside)	24" (.61m)	24" (.61m)
Low	1.0 mph (1.61 km/h)	1.0 mph (1.61 km/h)
High	3.4 mph (5.48 km/h)	3.4 mph (5.48 km/h)
High Speed cut-out	7'-0"(2.13m)	7'-0"(2.13m)
Lift/Lower Speed (maximum load)	37/30 seconds	46/37 seconds
Power System	24VDC	24 VDC
Battery Voltage	4 @ 6VDC (series)	4 @ 6 VDC (series)
Capacities		
Battery	250) amp/hr (4)	250 amp/hr (4)
Hydraulic Tank	10 gal (37.85 L)	10 gal (37.85 L)
Battery Charger	24 VDC @ 25 amps	24 VDC @ 25 amps
Tire Size	4x8" solid	4x8" Solid
Shipping Weight	3200 Lbs	3540 Lbs
Shipping cube	208.47cu. ft. (5.90m^3)	224.30 cu ft (6.35m^3)

Specifications are nominal and are subject to change due to continuous design improvements.

Description	Model	
	J19WEP	J25EP
Height –		
Working (maximum)	25' (7.52m)	31' (9.45m)
Platform (maximum)	19' 3" (5.87m)	25' (7.62m)
Platform (minimum)	36.62" (1.01m)	41" (1.04m)
Length (overall)	102"(2.6m)	102"(2.6m)
Width (overall)	48"(1.22m)	48"(1.22m)
Platform –		
Dimenions (inside)	44.5" x 91.5" (1.13m x 2.32m)	44.5" x 91.5"(1.13m x 2.32m)
Extends	36" forward (.91m)	36" forward (.91m)
Safety Rail Height	42" (1.07m)	42"(1.07m)
Toeplate Height	4" (1.22m)	4" (1.22m)
Load Capacity (evenly distributed)	800 lbs(363 kg)	800 lbs(363 kg)
Wheel Base	5'-10" (1.78m)	5'-10" (1.78m)
Wheel Track	3'7" (1.09m)	3'7" (1.09m)
Turning Radius (inside)	24" (.61m)	24" (.61m)
Drive Speed		
Low	1.0 mph (1.61 km/h)	1.0 mph (1.61 km/h)
High	3.2 mph (5.28 km/h)	3.2 mph (5.28 km/h)
High Speed cut-out	7'0" (2.13m)	7'0" (2.13m)
Lift/Lower Speed (maximum load)	37/30 seconds	46/37 seconds
Power System	24VDC	24 VDC
Battery Voltage	4 @ 6VDC (series)	4 @ 6 VDC (series)
Capacities		
Battery	250 amp/hr (4)	250 amp/hr (4)
Hydraulic Tank	10 gal. (37.85 L)	10 gal. (37.85 L)
Battery Charger	24 VDC @ 25 amps	24 VDC @ 25 amps
Tire Size	4 x 8" solid	4 x 8" Solid
Shipping Weight	3440 Lbs	3780 Lbs
Shipping cube	208.47 cu. ft. (5.90m^3)	224.30 cu ft (6.35m^3)

Specifications are nominal and are subject to change due to continuous design improvements.

MANUFACTURERS' LIMITED WARRANTY

Mark Industries makes no warranty, expressed or implied, on any product manufactured or sold by Mark Industries except for the following limited warranty against defect in materials and workmanship on products manufactured by Mark Industries.

> Mark Industries warrants the products manufactured by Mark Industries to be free from defects in material and workmanship under normal use and service for a period of one (1) year from the date of shipment. This limited warranty does not extend to any product of another manufacturer or to any part, component, accessory or attachment not manufactured by Mark Industries. The warranty, if any, with respect to any product of another manufacturer or to any part, component, accessory or attachment not manufactured by Mark Industries is limited to the warranty, if any, extended to Mark Industries by the manufacturer of the other product, part, component, accessory or attachment.

This limited warranty does not extend to any product (or any part or parts on any product) which has been subject to improper use or application, misuse, abuse, operation beyond its rated capacity, repair or maintenance except in accordance with the sales and service manuals and special instructions of Mark Industries, or modification without the prior written authorization of Mark Industries (whether by the substitution of nonapproved parts or otherwise).

The sole obligation and liability of Mark Industries under this limited warranty (and the exclusive remedy for any purchaser, owner or user of Mark Industries products) is limited to the repair or replacement, at the option of Mark Industries, of any product (or any part or parts on any product) manufactured by Mark Industries which, within one (1) year from the date of shipment, shall have been returned to the Mark Industries facility in Brea, California (or any other location within the United States as shall be designated by Mark Industries), at no expense to Mark Industries, and demonstrated to the satisfaction of Mark Industries as being defective in material or workmanship.

To make a claim under this limited warranty, contact Mark Industries or the Mark Industries distributor from whom the product was originally purchased. A statement giving the model and serial number of the allegedly defective product, the date and a description of the alleged defect, the date of the purchase and proof of purchase and purchase date must accompany the returned product (or any part or parts of any product). Any product (or any part or parts of any product) determined by Mark Industries to be defective will be repaired or replaced, at the option of Mark Industries, free of charge, f.o.b. Brea, California. No credit will be given for any allegedly defective product (or any part or parts of any product) not returned to Mark Industries.

There are no other warranties, expressed or implied, in addition to this limited warranty. **This limited warranty is exclusive and in lieu of all other warranties, expressed or implied (in fact or by operation of law or otherwise), including the implied warranties of merchantability and fitness for a particular purpose.**

Mark Industries shall not be liable for any special, indirect or consequential damages. Further, no representation or warranty made by any person, including any representative of Mark Industries, which is inconsistent or in conflict with, or in addition to the terms of the foregoing limited warranty (or the limitations of the liability of Mark Industries as set forth above) shall be binding upon Mark Industries unless reduced to writing and approved by an officer of Mark Industries.

Tires, batteries, filter elements, electrical components are specifically excluded from this limited warranty.

Mark Industries

P. O. Box 2255, Brea, CA 92622-2255
714-879-6275 800-448-MARK
TELEX 194402 FAX 1-714-879-8884

WARRANTY REGISTRATION

Purchaser

Company Name

Address

Telephone

Date shipment received

Date of invoice

Date unit put into service

Unit will be used

Unit will be sold

Unit will be used for:

- ☐ Inspection
- ☐ Mining
- ☐ Welding
- ☐ Construction
- ☐ Scaffolding
- ☐ Mechanical
- ☐ General maintenance
- ☐ Heating/Air conditioning
- ☐ Carpentry
- ☐ Plumbing
- ☐ Electrical
- ☐ Sprinkler
- ☐ Painting/Sandblast
- ☐ Steel fabrication
- ☐ Rigging
- ☐ Roofing
- ☐ Glazing
- ☐ Other

Comments

Inspection completed by: Title:

Warranty will be void unless this inspection report is postmarked to Mark Industries not more than fourteen (14) days from the date shipment is received.

Filling in the Warranty: Please refer to the applicable decals on your machine for the figures and quantities needed to fill in the blanks below (Items 1, 18, 24, 26, 32, 33,36).

		YES	NO
1.	Platform capacity decal _____ lbs.	☐	☐
2.	All warning, caution and emergency decals installed	☐	☐
3.	Operation instructions properly installed	☐	☐
4.	Operation and safety handbook received	☐	☐
5.	Electrical schematic received	☐	☐
6.	All controls (aerial & ground) are identified and operate correctly	☐	☐
7.	Stop switches operate properly (aerial & ground)	☐	☐
8.	Platform guard rails, secure and undamaged	☐	☐
9.	Platform access gate works properly	☐	☐
10.	Horn and beacon operate properly (optional)	☐	☐
11.	Brakes adjusted and operate correctly	☐	☐
12.	Circuit breakers operate properly	☐	☐
13.	All Hydraulic cylinders free of leaks	☐	☐
14.	All hydraulic cylinder rods free of paint or scratches	☐	☐
15.	Hydraulic pump free of leaks	☐	☐
16.	Hydraulic hoses and fittings tight	☐	☐
17.	Hydraulic oil level _____.	☐	☐
18.	Hydraulic tank and fittings free of leaks	☐	☐
19.	Drive motors free of leaks	☐	☐
20.	Battery water level	☐	☐
21.	Coolant hoses and fittings free of leaks	☐	☐
22.	Manual overrides operate properly	☐	☐
23.	All electrical connections tight	☐	☐
24.	Hydraulic manifold valve and fittings free of leaks	☐	☐
25.	110V generator operates properly (optional)	☐	☐
26.	Wheel lug nuts torqued to _____. lbs	☐	☐

MODEL	SERIAL NUMBER
INSPECTOR	OPTIONS

The MARKLIFT conforms to applicable ANSI and OSHA requirements. Since the safety requirements made by ANSI, OSHA and the various safety boards in your area are subject to change, it is the responsibility of the owner to instruct the operators about all such current requirements.

Every operator of the MARKLIFT must read, understand and follow the safety rules set forth herein. The **MARKLIFT** self-propelled aerial work platform is a personnel lifting device, and it is essential that it be properly maintained and operated to perform all functions with maximum safety and efficiency. The operation of any new and unfamiliar equipment can be hazardous in the hands of untrained operators.

1. Inspect the machine periodically as specified in the Inspection and Checkout, and Preventive Maintenance sections and as required by ANSI, OSHA, local safety boards and the owner. All unsafe items must be corrected by a qualified service person before use of the machine.

2. Only trained operators must be assigned to operate the **MARKLIFT.**

3. It is the responsibility of the operator to read and understand this manual and to follow all recommendations made.

4. Never exceed manufacturer's recommended platform load capacity. Remember, the load capacity of the MARKLIFT is the total combined weight of personnel and tools, fixtures, accessories, etc.

5. Always distribute the load evenly over the platform floor area.

6. It is recommended that head gear (hard hats) be worn by all personnel on the work platform.

7. **Do Not** change, alter, or vary the equipment in any way.

8. **Do Not** override any hydraulic, mechanical, or electrical safety devices.

9. **Do Not** store loose material in the work platform such as pipe, rope, extension cords, wire or miscellaneous boxes. If it is necessary to store such items, they must be positioned in such a way that no one will trip over them when operating or working in the platform.

10. **Do Not** work on the platform if your physical condition is such that you feel dizzy or unsteady in any way.

11. The **MARKLIFT** is a non-insulated personnel carrier and must not be operated within 10 feet of a 50,000 volt line. (See Division Of Industrial Safety for required clearances from overhead high voltage lines.)

12. Under no circumstances should horse play be tolerated on the **MARKLIFT.**

13. **Do Not** drive on uneven, sloping or soft terrain that sets the unit in an out-of-level condition of more than 6 degrees fore and aft, or 3 degrees side to side.

14. **Do Not** drive the platform into objects.

15. **Do Not** lean over platform guard railings to perform work.

16. **Do Not** use ladders or scaffolding on the platform to obtain greater height.

17. **Do Not** raise or lower scissor into objects.

18. The **MARKLIFT** structure must not be used as a welding ground. Disconnect both battery leads prior to performing any welding operations.

19. **Do Not** jump start other vehicles using the **MARKLIFT** battery.

20. When a machine is not in use, remove the key from the ground control panel to prevent unauthorized use.

21. When working under the elevated platform, always remember to raise the **Safety Support Arm** to prevent accidental platform descent.

TITLE 8 DIVISION OF INDUSTRIAL SAFETY 358.38.113
(Register 73, No. 30—7-28-73)

Article 86. Provisions for Preventing Accidents
Article 86. Provision for Preventing Accidents Due to Proximity to Overhead Lines

2946. Provisions for Preventing Accidents Due to Proximity to Overhead Lines.

(a) **General.** No person, firm, or corporation, or agent of same, shall require or permit any employee to perform any function in proximity to energized high-voltage lines; to enter upon any land, building, or other premises and thereto engage in any excavation, demolition, construction, repair, or other operation; or to erect, install, operate, or store in or upon such premises any tools, machinery, equipment, materials, or structures (including scaffolding, house moving, well drilling, pile driving, or hoisting equipment) unless and until danger from accidental contact with said high-voltage lines has been effectively guarded against.

(b) **Clearances or Safeguards Required.** Except where electrical distribution and transmission lines have been de-energized and visibly grounded or effective barriers have been erected to prevent physical and arcing contacts with the high-voltage lines, the following provisions shall be met:

(1) **Over Lines.** The operation, erection, or handling of tools, machinery, apparatus, supplies, or materials, or any part thereof, over energized high-voltage lines shall be prohibited.

(2) **Equipment and Materials in Use.** The operation, erection, or handling of tools, machinery, equipment, apparatus, materials, or supplies, or any part thereof within the minimum clearances from energized lines set forth in Table X shall be prohibited.

TABLE X
Required Clearances from Overhead High-Voltage Lines

Nominal Voltage (Phase to Phase)			Minimum Required Clearance (Feet)
	750 -	50,000	10
over	50,000 -	75,000	11
over	75,000 -	125,000	13
over	125,000 -	175,000	15
over	175,000 -	250,000	17
over	250,000 -	370,000	21
over	370,000 -	550,000	27
over	550,000 -	1,000,000	42

(3) **TRANSPORTATION OR TRANSIT.** The transportation or transit of any tool, machinery, equipment, or apparatus, or the moving of any house or other building in proximity to overhead high-voltage lines shall be expressly prohibited if at any time during such transportation or transit such tool, machinery, equipment, apparatus, or building, or any part thereof, can come closer to high-voltage lines than the minimum clearances set forth in Table Y.

Article 86. Provisions for Preventing Accidents

Except where the boom of boom-type equipment is lowered and no load is imposed thereon, the equipment in transit shall conform to the minimum required clearances set forth in Table X.

Table Y
Required Clearances from Energized High-Voltage Conductors
(While in Transit)

Nominal Voltage (Phase to Phase)			Minimum Required Clearance (Feet)
750	-	50,000	6
over 50,000	-	345,000	10
over 345,000	-	750,0000	16
over 750,000	-	1,000,000	20

(4) **Storage.** The storage of tools, machinery, equipment, supplies, materials, or apparatus under, by, or near energized high-voltage lines is hereby expressly prohibited if at any time during such handling or other manipulation it is possible to bring such tools, machinery, equipment, supplies materials, or apparatus, or any part thereof, within the minimum required clearances from high-voltage lines as set forth in Table X.

(C) The specified clearance shall not be reduced by movement due to any strains impressed (by attachments or otherwise) upon the structures supporting the high-voltage line or upon any equipment, fixtures, or attachments thereon.

(D) Insulated cage-type boom guards, boom stops, insulating links, or proximity warning devices may be used on cranes, but the use of such devices shall not alter the required clearances set forth in Table X.

(E) Any overhead conductor shall be considered to be energized unless and until the person owning or operating such line verifies that the line is not energized, and the line is visibly grounded at the work site.

2947. **Warning Signs Required.** The owner, agent, or employer responsible for the operations of equipment shall post and maintain in plain view of the operator and driver on each crane, derrick, power shovel, drilling rig, hay loader, hay stacker, pile driver, or similar apparatus, a durable warning sign legible at 12 feet reading: **"Unlawful To Operate This Equipment Within 10 Feet of High-Voltage Lines of 50,000 Volts or Less."**

In addition to the above wording, the following statement in small lettering shall be provided on the warning sign: **"For Minimum Clearances of High-Voltage Lines in Excess of 50,000 Volts, See Article 86, Title 8, High-Voltage Electrical Safety Orders."**

OBSERVE ALL DANGER, WARNING, CAUTION AND EMERGENCY DECALS AT THE VARIOUS LOCATIONS ON THE **MARKLIFT** IN ORDER TO TAKE TIMELY PREVENTIVE AND CORRECTIVE ACTIONS.

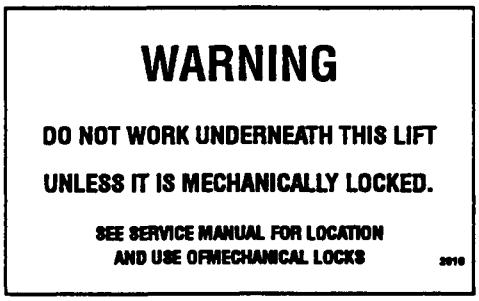
> It is the primary responsibility of the user and operator to be thoroughly knowledgeable of all decal information, definition and location.

The following page illustrates a chart in which decals for the **MARKLIFT** can be replaced if the existing decal(s) is worn-out, torn, or illegible.

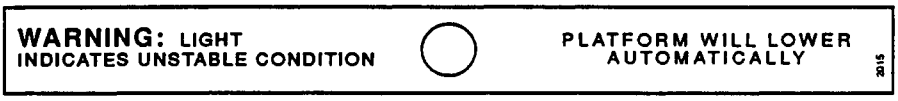
Fill in load capacity for your machine →















GENERAL DECALS
J19W

DECAL P/N	DECAL DESCRIPTION J19W	ASSEMBLY(LOCATION)	QTY
67826	Decal Set	All Standard Decals	1
2002	Forklift Boot	Final Assy	2
2003	Battery Water Level	Final Assy	1
2014	Caution, High Voltage	Aerial Control Panel	1
2015	Warning-Unstable condition	Aerial Control Panel	2
2016	Caution - Do not work Underneath	Final Assy	2
2017	Hydraulic System Fluid	Final Assy	2
20661	ANSI 92 Plate	Final Assy	1
31259	**MARKLIFT**	Final Assy	2
182740	Operation Instructions	Final Assy	1
130820	Operation & Safety Handbook	Final Assy	1
130937	J-Series	Final Assy	1
130596	A PRODUCT OF MARK IND	Final Assy	2
182739	Upper Control Box	Aerial Control Panel	1
182738	Ground Control Box	Ground Control Box	1
2024	Load Capacity 1000 lbs.	Final Assy	5
130938	Mark	Finaly Assy	1
181725	J19W	Final Assy	2
130782	Drive Upper Control Box	Final Assy	1
181728	Panel Strip	Final Assy	2
130949	Danger This is A Solid Tire	Final Assy	4
131061	Blue Stripe	Final Assy	1

GENERAL DECALS
J19WEP

DECAL P/N	DECAL DESCRIPTION J19WEP	ASSEMBLY(LOCATION)	QTY
600184	Decal Set	All Standard Decals	1
182738	Ground control panel	Ground control panel	1
182739	Warning - unstable condition	Final Assembly	1
130713	Descent override	Final Assembly	1
2014	Caution high voltage lines	Final Assembly	1
130782	Drive upper control box	Final Assembly	1
20556	Load capacity 800 Lbs.	Final Assembly	5
20661	Plate, ANSI A92	Final Assembly	1
20660	Nameplate, identification	Final Assembly	1
311259	MARKLIFT (small scissor machines)	Final Assembly	2
2003	Battery water level	Final Assembly	2
181775	J19WEP	Final Assembly	2
181728	Panel Strip	Final Assembly	2
2017	Hydraulic System Fluid	Final Assembly	1
130937	J-Series	Final Assembly	1
2016	'Do Not Work Under ...'	Final Assembly	2
182740	Operation Instructions	Final Assembly	1
130606	Free Wheeling Valve	Final Assembly	1
130820	Operation & Safety Handbook	Final Assembly	2
2041	'Do Not Lift This End	Final Assembly	1
130949	Danger, This is a solid tire	Final Assembly	2
31109	Caution Scissor Guard Rails	Final Assembly	2
131061	Blue Stripe	Final Assembly	1
160137	Warning	Final Assembly	2ft

DECAL P/N	DECAL DESCRIPTION J25	ASSEMBLY(LOCATION)	QTY
67827	Decal Set	All Standard Decals	1
2002	Forklift Boot	Final Assy	2
2003	Battery Water Level	Final Assy	1
2014	Caution, High Voltage	Aerial Control Panel	1
2015	Warning-Unstable condition	Aerial Control Panel	2
2016	Caution - Do not work Underneath	Final Assy	2
2017	Hydraulic System Fluid	Final Assy	2
20661	ANSI 92 Plate	Final Assy	1
31259	**MARKLIFT**	Final Assy	2
182740	Operation Instructions	Final Assy	1
130820	Operation & Safety Handbook	Final Assy	1
130937	J-Series	Final Assy	1
130596	A PRODUCT OF MARK IND	Final Assy	2
182739	Upper Control Box	Aerial Control Panel	1
130201	Ground Control Box	Ground Control Box	1
20556	Load Capacity 800 lbs.	Final Assy	5
130938	Mark	Finaly Assy	1
181727	J25	Final Assy	2
130782	Drive Upper Control Box	Final Assy	1
181728	Panel Strip	Final Assy	2
130949	Danger This Is A Solid Tire	Final Assy	4
131061	Blue Stripe	Final Assy	1
31109	Caution, Scissor Guard Rails	Final Assy	1

GENERAL DECALS
J25EP

DECAL P/N	DECAL DESCRIPTION J25EP	ASSEMBLY(LOCATION)	QTY
600183	Decal Set	All Standard Decals	1
182739	Upper Control Panel	Upper control panel	1
2015	Warning - Unstable condition	Final Assembly	1
130713	Descent override	Final Assembly	1
2014	Caution High Voltage Lines	Final Assembly	1
130782	Drive upper control box	Final Assembly	1
20556	Load Capacity 800 lbs.	Final Assembly	5
20661	Plate, ANSI A92	Final Assembly	1
20660	Nameplate, identification	Final Assembly	1
31259	MARKLIFT (Small scissor machines)	Final Assembly	2
2003	Battery water level	Final Assembly	2
181776	J25EP	Final Assembly	2
181728	Panel Strip	Final Assembly	2
2017	Hydraulic system fluid	Final Assembly	1
130937	J-Series	Final Assembly	1
2016	'Do not work under...'	Final Assembly	2
182740	Operation instructions	Final Assembly	1
130606	Free Wheeling valve	Final Assembly	1
130820	'Operation & Safety Handbook'	Final Assembly	1
2002	Forklift Boot	Final Assembly	2
2041	'Do not lift this end...'	Final Assembly	1
130949	'Danger, this is a solid tire...'	Final Assembly	4
130596	'A product of Mark Industries'	Final Assembly	2
31109	Caution scisssor guard rails	Final Assembly	2
130938	MARK	Final Assembly	1
131061	Blue Stripe	Final Assembly	1
160137	Warning tape	Final Assembly	2ft

UNLOADING

Before unloading the **MARKLIFT**, inspect it for any physical damage. Note any damage on the freight bill and report it to the carrier.

When a loading dock is unavailable and a forklift must be used, make sure that the forklift used has forks sufficiently long for the forklift boots at the ends of the unit. **Do Not** attempt to lift the machine from the side.

TRANSPORTING

The **MARKLIFT** may be freewheeled for loading and unloading or towing for a very short distance (maximum of one (1) mile), at a speed no greater than five (5) mph. (See illustration on the following page.) To transport the **MARKLIFT** over long distances, a truck or trailer must be used.

If a rollback truck with a winch is used, attach the winch cable to the tiedown brackets and pull the **MARKLIFT** onto the truck. Keep the winch cable taut at all times. Be sure to open the Freewheeling valve to set the brakes back into the normal mode (refer to brake adjustment procedure below).

When securing the **MARKLIFT** to the truck, put the chains or straps through the tiedown brackets only. **DO NOT CHAIN OR STRAP OVER THE THE PLATFORM OR GUARD RAILS.** Severe damage to the unit will result from excess pressure caused by improperly securing the machine.

Brake Adjustment

The **MARKLIFT** is equipped with both dynamic (hydro-static) and parking brakes. The parking brake is adjusted by turning the large red knob, located on the control valve, clockwise or counter-clockwise to regulate the speed at which the brake cylinder rod engages the brake sprochet on the rear wheel. **THE PARKING BRAKE IS NOT DESIGNED FOR DYNAMIC APPLICATION (WHILE THE MACHINE IS STILL IN MOTION!)** Adjust the brake control valve so that the cylinder rod engages the brake sprocket after the wheel has stopped turning. Mis-adjustment of the parking brake (cylinder rod engages brake sprochet while the wheel is still turning) WILL result in damage to the parking brake cylinder.

After the unit is delivered and unloaded, some minor inspections must be made before putting the unit into service. The following must be checked:

1. Visually inspect all exposed parts of the **MARKLIFT.** Secure any loose bolts and nuts. Replace any damaged hydraulic lines or broken wires. Check for any structural damage, including cut or damaged tires.

2. Check the hydraulic oil level - sight gauge shows full when the scissor stack is fully lowered.

3. Check the battery for a 1200 ± 50 on the hydrometer. Charge the battery if its reading is below 1100. If the battery requires water, fill to the proper level **AFTER** charging. **Do Not** overfill.

4. Check the hydraulic valve manifold for leaks, loose fittings or loose electrical connections.

5. Check hoses for leaks.

6. Make sure that the brakes will hold the unit on an incline of up to 3 degrees.

7. Test switches: Position the selector switch to "ground", then raise the platform up and down. Position the selector switch to "aerial" and test the "drive", "steering", and "raise platform" switches.

All operators of the **MARKLIFT** should be instructed by trained operators.

1. **STARTING**

Turn power switch at ground control station to "ON". Position selector switch to "AERIAL". Enter the platform, **MAKE SURE THE ENTRANCE SLIDE BAR ASSEMBLY IS IN THE PROPER POSITION.** Pull the emergency ON/OFF switch out to activate the aerial controls and warning devices.

2. **DRIVE**

Forward and reverse drive are operated from the aerial control box only. The **MARKLIFT** is equipped with a high and low speed for both forward and reverse drive. For forward drive, rotate the knob forward; the first position is low speed, the second position is high speed. For reverse drive, Rotate the knob reverse; the first position is low speed, the second position is high speed. Low speed is automatically selected whenever the platform is raised 7 feet.

3. **STEERING**

The unit may be steered from the aerial control panel only. Push the toggle switch to the left to turn the front wheels to the left. Pushing the switch to the right will cause the wheels to turn to the right. The toggle switch is a momentary switch which will automatically return to the "off" position when released. The wheels will remain at a steering direction until the toggle switch is activated again.

4. **RAISE PLATFORM**

To operate the platform from the aerial control box, position the selector switch to the "Aerial" position. Raise or lower the platform by operating the "Lift/Lower" toggle switch. To raise or lower the scissor from the ground control, set selector switch to the "Ground Control" position, then push the toggle switch up or down. The toggle switch is self centering. When it is released it will automatically set itself to center (the neutral position). The unit will remain stationary.

5. EXTEND PLATFORM

The J19WEP and J25EP may be manually extended from the aerial platform. To extend, raise the handles up from the lock position. Using the handles, push forward until the platform is fully extended. Lower the handles to the lock position.

To retract the platform, raise the handles from the lock position, then pull the platform inward until fully retracted. Lower the handles into the lock position.

6. WARNING LIGHT AND BUZZER

As a special safety feature, the **MARKLIFT** is equipped with an "out-of- level" sensor that will automatically lower the scissor whenever the **MARKLIFT** is in an unsafe out-of-level position.

An unsafe out-of-level condition is sensed by the mercury switches, located within the ground control box, when the machine is tilted 3° or more on either side or 6° front or rear. The unsafe condition is indicated by a red warning light and buzzer, located on the top center of the aerial control box. When the warning light and buzzer are on, "Lift: UP/ DOWN will not operate but the drive and steer functions will. Should the warning signals come on, maneuver the **MARKLIFT** until it is on a safe operating surface and all functions will be restored.

7. WARNING HORN (OPTION)

For some industrial applications, and to meet particular safety requirements, a warning horn may be needed. The warning horn option on the **MARKLIFT** can be used as an automatic movement indicator, or manually activated, as required. The horn is activated by a three-position switch on the aerial control panel. The middle position is "Off". When the switch is positioned to the right, the horn will sound when either the drive or lift function is activated (forward and reverse, up and down).

MARK INDUSTRIES recommends that the following items be checked periodically as stated below. Any machine not in safe operating condition must be removed from service until it is repaired by a qualified service person.

DAILY

1. Make sure that operation and safety decals are in place and easy to read.
2. Check hydraulic tank level.
3. Check the water level in the batteries
4. Check for loose or worn hardware.
5. Inspect the controls for proper operation.
6. Check for and correct any hydraulic leaks.
7. Check for and correct any structural damage.

WEEKLY

1. Check the condition of the tires. Make sure they are free of serious cuts or defects.
2. Check that operation and safety decals are in place and are easy to read.
3. Check for proper brake operation.
4. Record hour meter reading. (Optional)
5. Clean unit by removing all dirt, oil, and grease. The machine may be washed with soap and water. (Keep clear of the electrical panels and charging units.)
6. Check for and correct any hydraulic leaks.
7. Check for and correct any structural damage.
8. Check overall performance.
9. Check for wear on electrical cables and hoses.

MONTHLY (or first 50 hours)

1. Check and lubricate, if necessary.

2. Check battery condition.

3. Change the hydraulic oil return filter.

EVERY SIX MONTHS (or 100 hours)

1. Check and lubricate, if necessary.

2. Change the hydraulic oil return filter.

EVERY YEAR

1, Re-pack all wheel bearings.

2. Change the hydraulic oil.

3. Change the hydraulic oil return filter.

Battery Fill Instructions

Water or Acid Loss to Batteries

Water loss from the battery is mainly due to evaporation brought on by temperature rises during heavy charging cycles. A very small amount of water is lost due to hydrogen and oxygen formed during charging. Acid is lost if the case becomes cracked or if the battery is allowed to tip over. Therefore, acid is seldom needed.

Checking the Water Level

When checking the water level, don't allow dirt to enter into the battery cells once the caps have been removed. Take particular care to avoid setting the caps down on a dirty surface. Replace the caps immediately after checking the water level.

Materials and Equipment Required

1. Battery Filler Bottle
2. Distilled Water (if available)
3. Hydrometer

Filling the Battery

Use a hydrometer to see how much charge the battery has. A reading of 1.260 and above in all cells indicates fully charged. (See chart on following page.) If the battery is fully charged, add water up to the level indicator.
If the battery's water level is far below the lead plates, add only enough water to barely cover the plates.

Avoid Battery Hazards !

Batteries produce flammable and explosive gasses. Keep arcs, sparks, flames and lighted tobacco away from batteries.

Battery acid will damage eyes or skin on contact. Always wear a face shield during battery maintenance to avoid acid in eyes. Also wear rubber gloves and protective clothing to keep acid off skin.

Never check the battery by placing a metal object across the posts. Serious burns or an explosion can result.

Charge batteries only in a well ventilated area.

Either excessive overcharge or moderate undercharge can shorten battery life. With proper attention to water level and charging time, compared to hydrometer readings, the batteries should give a long useful life.

TEMPERATURE/SPECIFIC GRAVITY CORRECTION TABLE FOR BATTERIES

ACTUAL HYDROMETER READING AT ACTUAL TEMPERATURE°

80°F (27°C)	0°F (-18°C)	-10°F (-23°C)	-20°F (-29°C)	-30°F (-34°C)	-45°F (-43°C)	-65°F (-54°C)	Approx. State of Charge In%
1.280	1.312	1.316	1.320	1.324	1.330	1.338	100
1.250	1.282	1.286	1.290	1.294	1.300	1.308	75
1.220	1.252	1.256	1.260	1.264	1.270	1.278	50
1.190	1.222	1.226	1.230	1.234	1.240	1.248	25
1.160	1.192	1.192	1.200	1.204	1.210	1.218	0

Specific Gravity

Corrected to 80°F (17°C)	Freezing Temperature	
1,280	-90°F	-68°C
1.250	-62°F	-52°C
1.200	-16°F	-27°C
1.150	+ 5°F	-15°C
1.000	+19°F	- 7°C

Note: Cold temperatures have a numbing effect on the electromechanical action of the battery, greatly reducing its capacity. Therefore, it is highly recommended that the battery be kept in an almost fully charged condition during cold weather.

1. ELECTRICAL

Whenever trouble shooting any problem, begin by checking the basics. This means checking to make sure that the batteries are in good shape and have at least a three quarter charge, determined by using a hydrometer and battery maintenance instructions.

A large percentage of electrical problems are often due to poorly charged or defective batteries.

A. If a problem seems to be electrical, refer the schematic, (see the SCHEMATIC section for more information) and use a volt/ohm meter to trace power flow (electrical current) starting at the battery and continuing through the system until the problem is located.

B. Keep in mind, if you **DO NOT** have a good ground to a valve coil, relay, etc., (even if you have a enough electrical power to operate the coil or relay), these items will not operate properly.

C. Diodes can be thought of as "One way electrical check valves" they permit current to flow in one direction and stop it in the opposite direction.

D. The basic purpose of the relay is to remotely switch other electrical devices.

2. HYDRAULIC

A. The various hydraulic functions are controlled by electric solenoid valves. When a slower drive speed is needed, a portion of the hydraulic fluid is routed to the tank by the low speed priority valve, thus reducing the speed.

B. Directional valves (steering, drive, etc.) have two electrical coils with a moveable spool between the coils.

C. One way valves (lift, descent,and dump) are normally opened or closed to prevent or permit passage of fluid when electrically energized.

DRIVE MOTOR

Unit will not run.

A. Check ground control box circuit breaker.
B. Check for low battery reading.
C. Refer to your local service facility.

Unit will not go into high speed.

Refer to your local service facility.

Dies under load.

A. Check hydraulic pressure.
B. Refer to your local service facility.

DRIVE

A. Make sure hydraulic system is up to recommended pressure.
B. Refer to your local service facility.

HYDRAULIC PUMP

Pump producing excessive noise.

A. Check suction hose from tank to pump for kinks.
B. Check hydraulic oil level (sight gauge on tank.)
C. Check suction line fittings for tightness.
D. Check oil. See hydraulic fluid table.
E. Refer to your local service facility.

LIFT

Functions will not operate from aerial control console.

A. Check "Aerial/Ground" selector switch.
B. Check for loose wire in aerial control box.
C. Solenoid dump valve.

Functions will not operate from ground control box.

A. Check position of "Aerial/Ground" box selector switch.
B. Check for loose wire in ground control box.
C. Refer to your local service facility.

NEW EQUIPMENT MAINTENANCE RECORD

MODEL	SERIAL NUMBER
DATE	EQUIPMENT NUMBER
LOCATION	MECHANIC

ITEM	CODE	COMMENTS	ITEM	CODE	COMMENTS
Engine oil (gas units)			Safety cut-outs		
Engine oil filter(gas units)			Bushings		
Air filter (gas units)			Rollers		
Fuel filter (gas units)			Wear pad		
Tune-up (gas units)			Front end assembly		
Choke(gas units)			Tire pressure		
Engine RPM (gas units)			Tire condition		
Charging system (gas units)			Wheel nuts		
Fuel system (LPG/gas)			Wheel bearing		
Batteries			Nuts and bolts		
Battery terminals			Guard rails		
Motor brushes			Lubrication		
Hydraulic fluid			Warning decals		
Hydraulic oil filter			Operating inst.		
Hydraulic systems			General decals		
Hydraulic pressure			Paint		
Hydraulic hoses			All operations		
Cylinders			Lift		
Drive motors			Steering		
Brakes			Forward drive		
Aerial control box			Tilt switches		
Ground control box			Fuel level (gas units)		
Relays			Literature		
Wire connections			Options		

Code	Comments
F = Filled R = Repaired C = Checked A = Adjusted X = Needs repair	

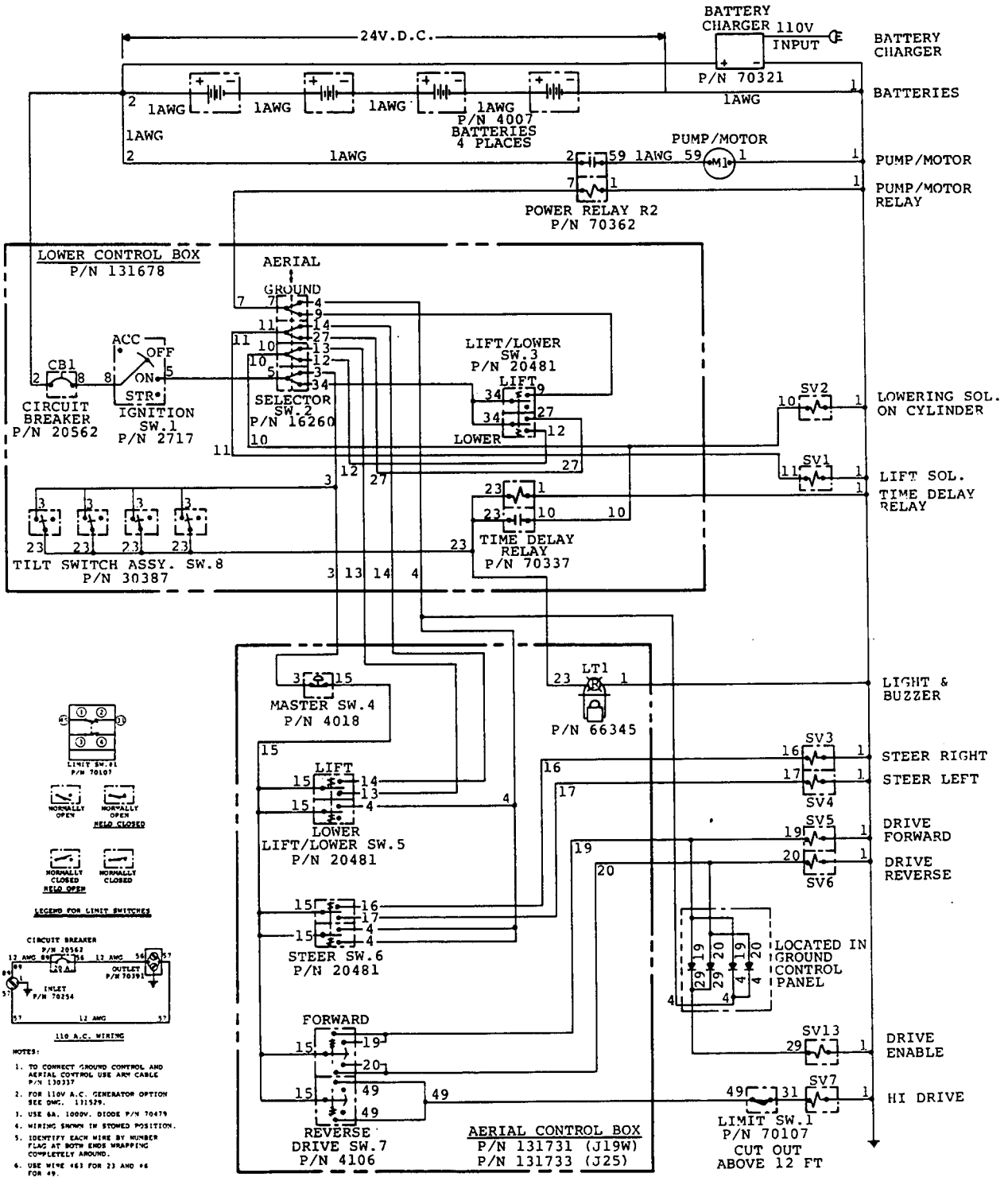
HYDRAULIC FLUID TABLE

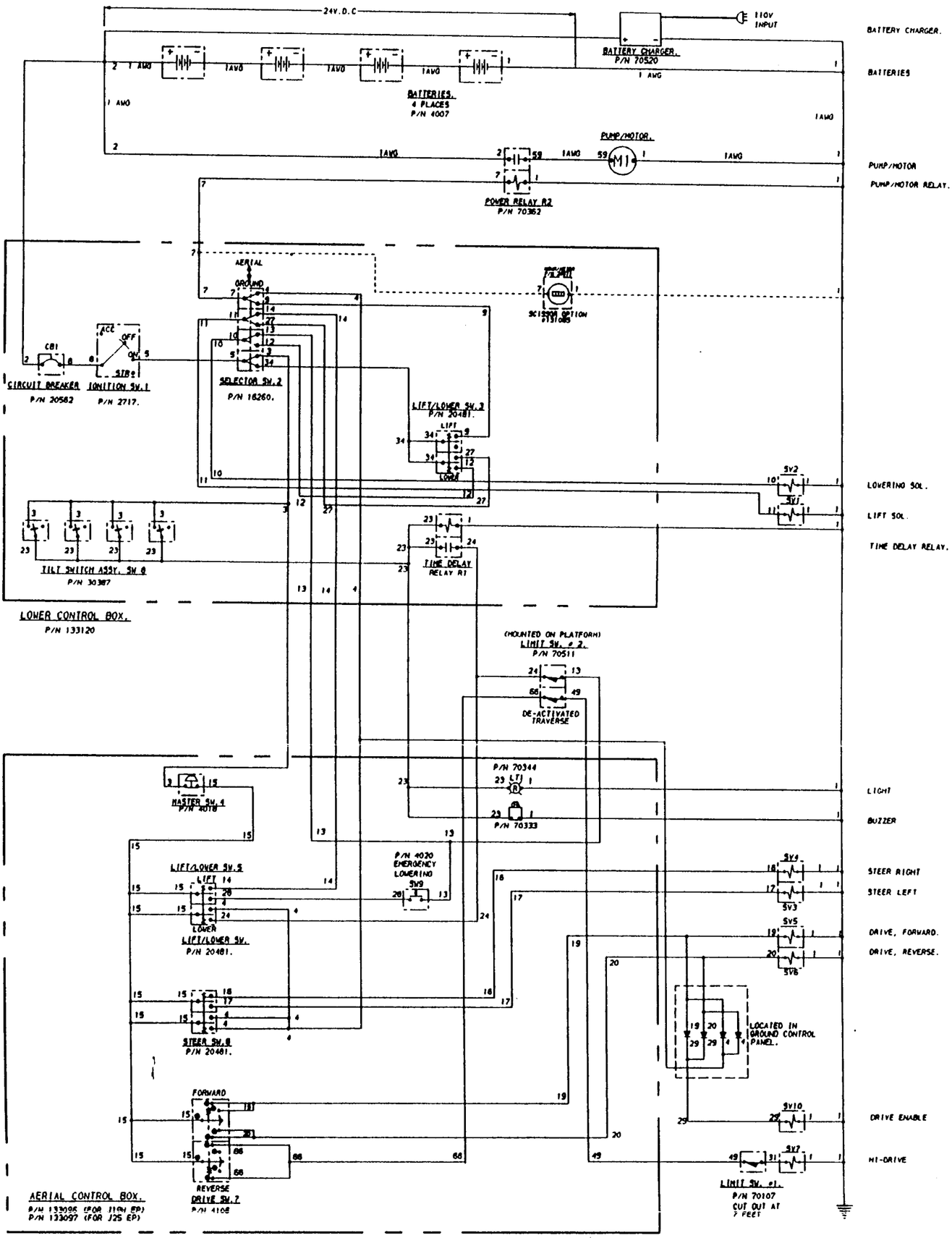
Milestone			Hydraulic fluid			
Oil company			Chevron	Gulf	Shell	Union
Brand Name			ATF Dexron II	ATF Dexron II	Donaz-T6	ATF Dexron
Viscosity	SUS AT 100°F (37.8°C)		187.4	195	200	200
	SUS AT 210°F (98.9°C)		49.2	50.4	50	52.3
	Index	°F	153°	155°	160°	172°
		°C	67.2°	68.3°	71.1°	77.8°
Flash point		°F	400°	405°	390°	395°
		°C	204.4°	207.2°	198.9°	201.7°
Pour point		°F	-40°	-50°	-50°	-45°
		°C	-40°	-45.6°	-45.6°	-42.8°

Mark Industries

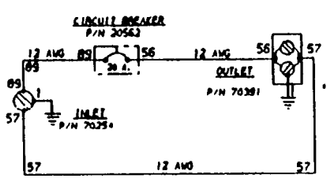
TITLE	ELECTRICAL SCHEMATIC
MODEL	J19W, J25
NOTES	

SCHEMATIC
PAGE
1

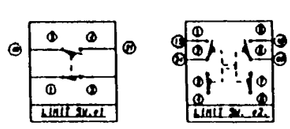




LEGEND FOR LIMIT SWITCHES.



115 A.C. WIRING.





NOTES.
1. TO CONNECT GROUND CONTROL AND AERIAL CONTROL USE ARM CABLE P/N 130228.
2. FOR 115V A.C. GENERATOR OPTION SEE DWG 131529.
3. USE 6A. 1000V DIODE P/N 70479.
4. WIRING AND SWITCHES ARE SHOWN IN STOWED POSITION.
5. IDENTIFY EACH WIRE BY NUMBER FLAG AT BOTH ENDS WRAPPING COMPLETELY AROUND.
6. USE WIRE #63 FOR 23 AND #8 FOR 49.
7. RUN SEPERATE CABLE FOR 115V A.C. ARE (12-3 CORD) SFT. EXTRA COILED AT BOTH ENDS.
8. RELABELED WIRE #64 TO WIRE #24.
9. RELABEL WIRE #56 IN ARM CABLE TO 32 TO BE USED IN SOLID STATE SLOPE SENSOR CIRCUIT.
10. RELABEL WIRE #57 IN ARM CABLE TO #21 TO BE USED IN TRAVEL WARNING HORN OPTION.

REV. 1

Mark Industries

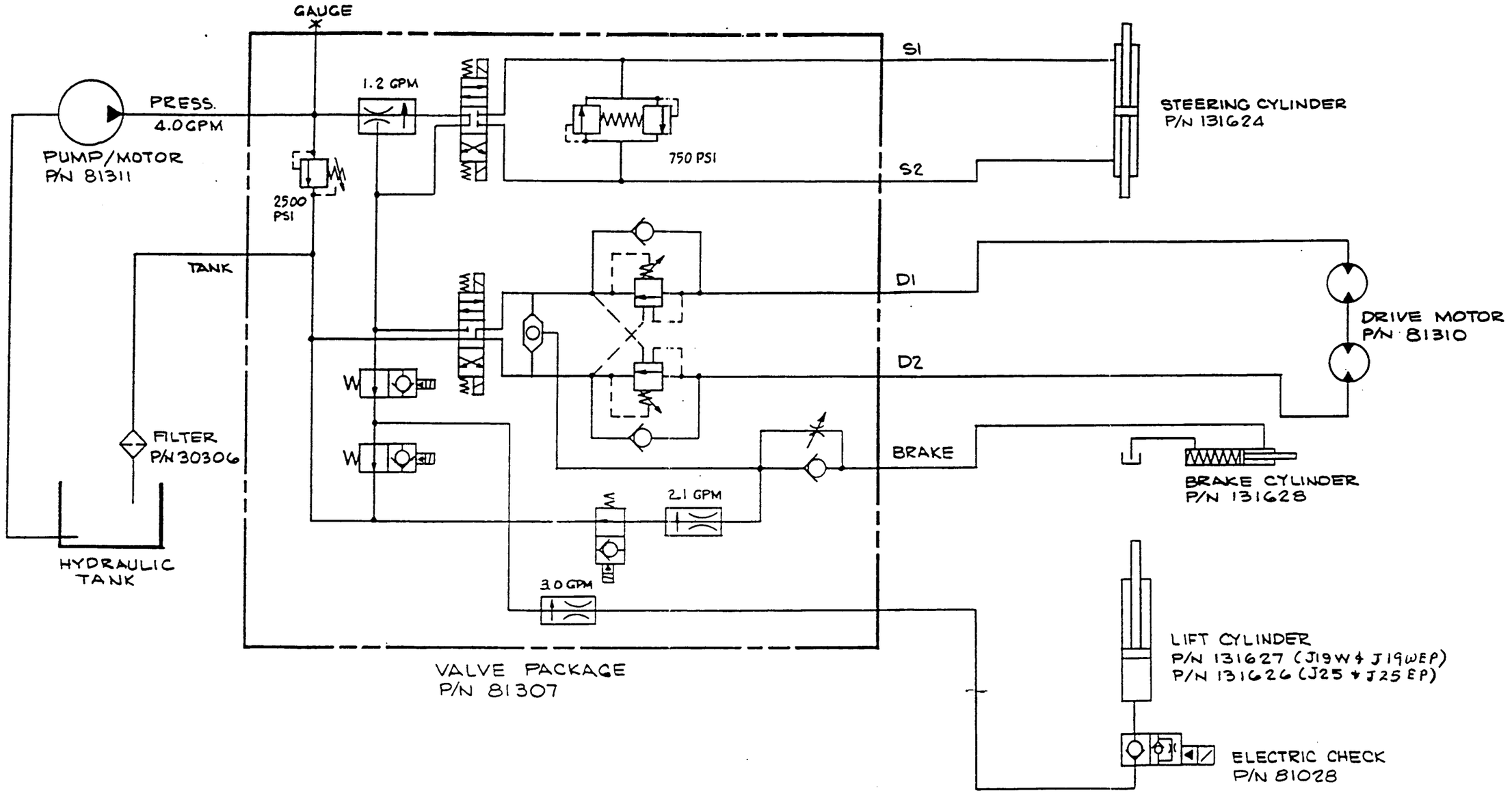
TITLE	ELECTRICAL SCHEMATIC
MODEL	J19WEP & J25EP
NOTES	

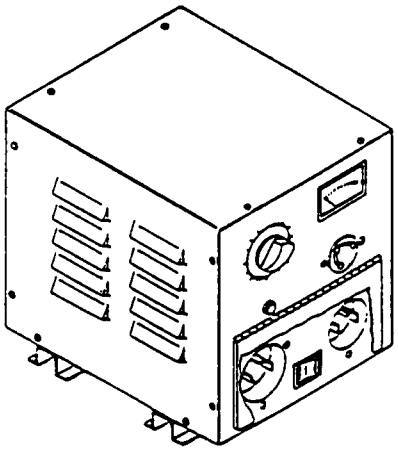
SCHEMATIC PAGE 2

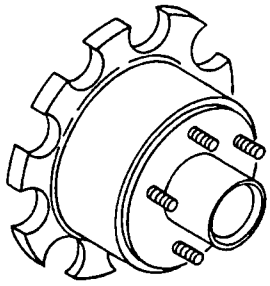
Mark Industries

TITLE	HYDRAULIC SCHEMATIC
MODEL	J19W, J25EP, J19WEP & J25EP
NOTES	

SCHEMATIC
PAGE 3

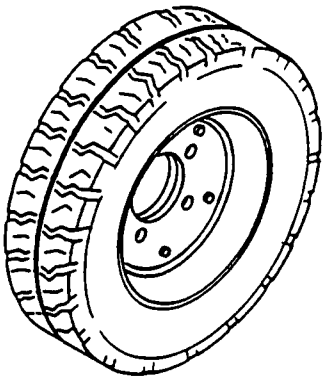


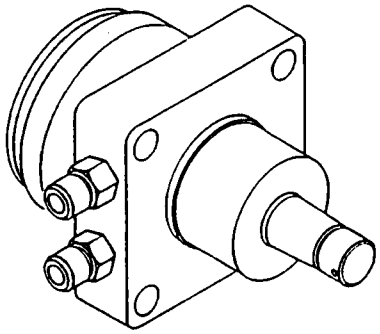


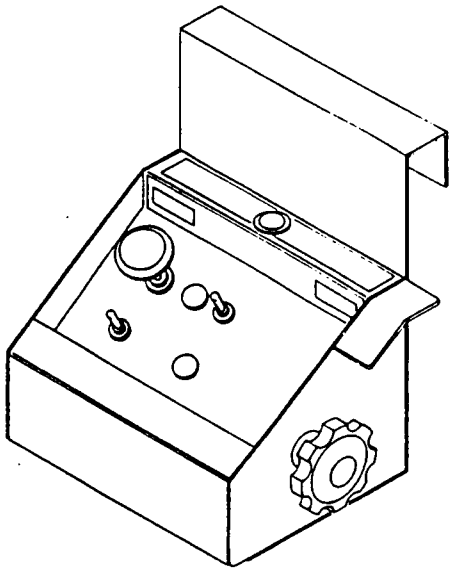


THIS SECTION 1 CONTAINS THE FOLLOWING FIGURES:

PAGE NO.	TITLE
1	TABLE OF CONTENTS (PARTS ONLY)
4	HOW TO USE PARTS CATALOG
7	HOW TO ORDER PARTS







THIS PARTS CHAPTER CONTAINS:

SECTION 1 THE MARKLIFT PARTS CATALOG

PAGE NO.	TITLE
1	TABLE OF CONTENTS (PARTS ONLY)
4	HOW TO USE PARTS CATALOG
7	HOW TO ORDER PARTS

SECTION 2 FINAL ASSEMBLY

FIG. NO.	TITLE
1	FINAL ASSEMBLY (J19W)
1A	FINAL ASSEMBLY (J25)
1B	FINAL ASSEMBLY (J19WEP)
1C	FINAL ASSEMBLY (J25EP)
2	DECAL SET (J19W)
2A	DECAL SET (J25)
2B	DECAL SET (J19WEP)
2C	DECAL SET (J25EP)
3	UPPER CONTROL BOX ASSEMBLY (J19W & J25)
3A	UPPER CONTROL BOX ASSEMBLY (J19WEP & J25EP)
4	HYDRAULIC HOSE DIAGRAM

SECTION 3 FRAME ASSEMBLY

FIG. NO.	TITLE
1	FRAME ASSEMBLY
2	TIRE AND WHEEL ASSEMBLY
3	HUB ASSEMBLY
4	BRAKE CYLINDER ASSEMBLY
5	STEERING CYLINDER ASSEMBLY
6	DRIVE MOTOR ASSEMBLY
7	CONTROL BOX ASSEMBLY
8	COMPONENT BOX ASSEMBLY
9	BATTERY CHARGER
10	PUMP/MOTOR ASSEMBLY
11	BATTERY CABLE KIT
12	TILT SWITCH ASSEMBLY

SECTION 3 FRAME ASSEMBLY (CONT'D)

FIG. NO.	TITLE
13	FILTER ASSEMBLY
14	VALVE PACKAGE ASSEMBLY

SECTION 4 SCISSOR ASSEMBLY

FIG. NO.	TITLE
1	SCISSOR ASSEMBLY (J19W & J19WEP)
1A	SCISSOR ASSEMBLY (J25 & J25EP)
2	INNER ARM FIRST STAGE WELDMENT
3	INNER ARM SECOND STAGE WELDMENT
4	INNER ARM THIRD STAGE WELDMENT
5	OUTER ARM ASSEMBLY
6	LIFT CYLINDER ASSEMBLY (J19W & J19WEP)
6A	LIFT CYLINDER ASSEMBLY (J25 & J25EP)
7	INNER ARM FOURTH STAGE WELDMENT

SECTION 5 PLATFORM ASSEMBLY

FIG. NO.	TITLE
1	PLATFORM (J19W & J25)
1A	PLATFORM (J19WEP & J25EP)
2	SLIDE BAR ASSEMBLY

SECTION 6 OPTIONAL ASSEMBLIES

FIG. NO.	TITLE
1	OPTIONAL ASSEMBLIES (J19W & J19WEP)
1A	OPTIONAL ASSEMBLIES (J25 & J25EP)
2	WARNING HORN ASSEMBLY
3	HOURMETER
4	REMOTE DRIVE KIT
5	ROTATING AMBER BEACON
6	24 VOLT PLATFORM WORK LIGHT
7	SWING GATE
8	FEMALE PLUG ONLY FOR REMOTE DRIVE
9	LANYARD/CONTROL BOX ONLY FOR REMOTE DRIVE

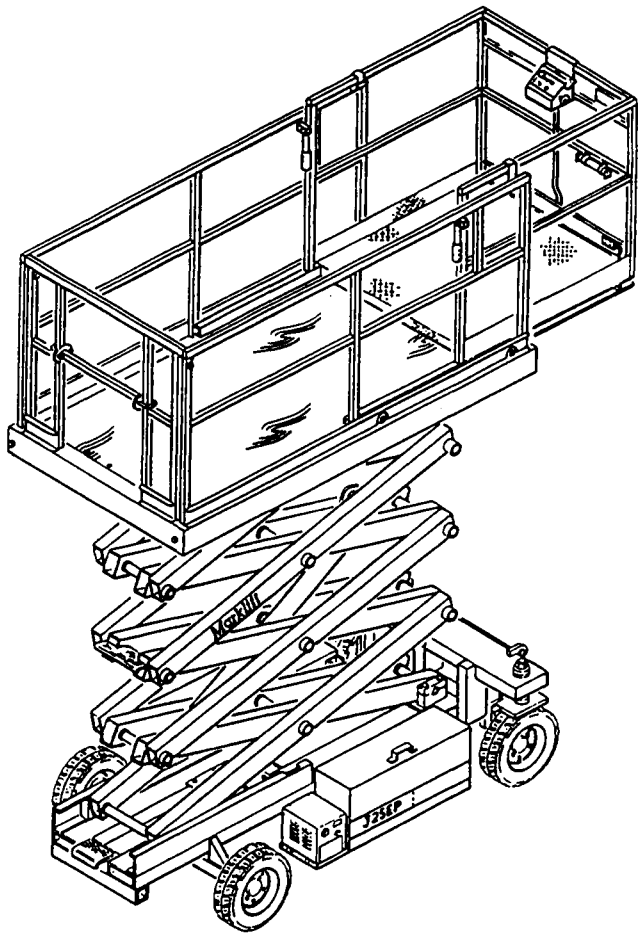
SECTION 6 OPTIONAL ASSEMBLIES (CONT'D)

FIG. NO.	TITLE
10	TUV PACKAGE
11	ALL MOTION ALARM
12	SOLID STATE SLOPE SENSOR
13	SOLID STATE DELUXE CHARGER

THE MARKLIFT FINAL ASSEMBLY

THIS SECTION 2 CONTAINS THE FOLLOWING FIGURES:

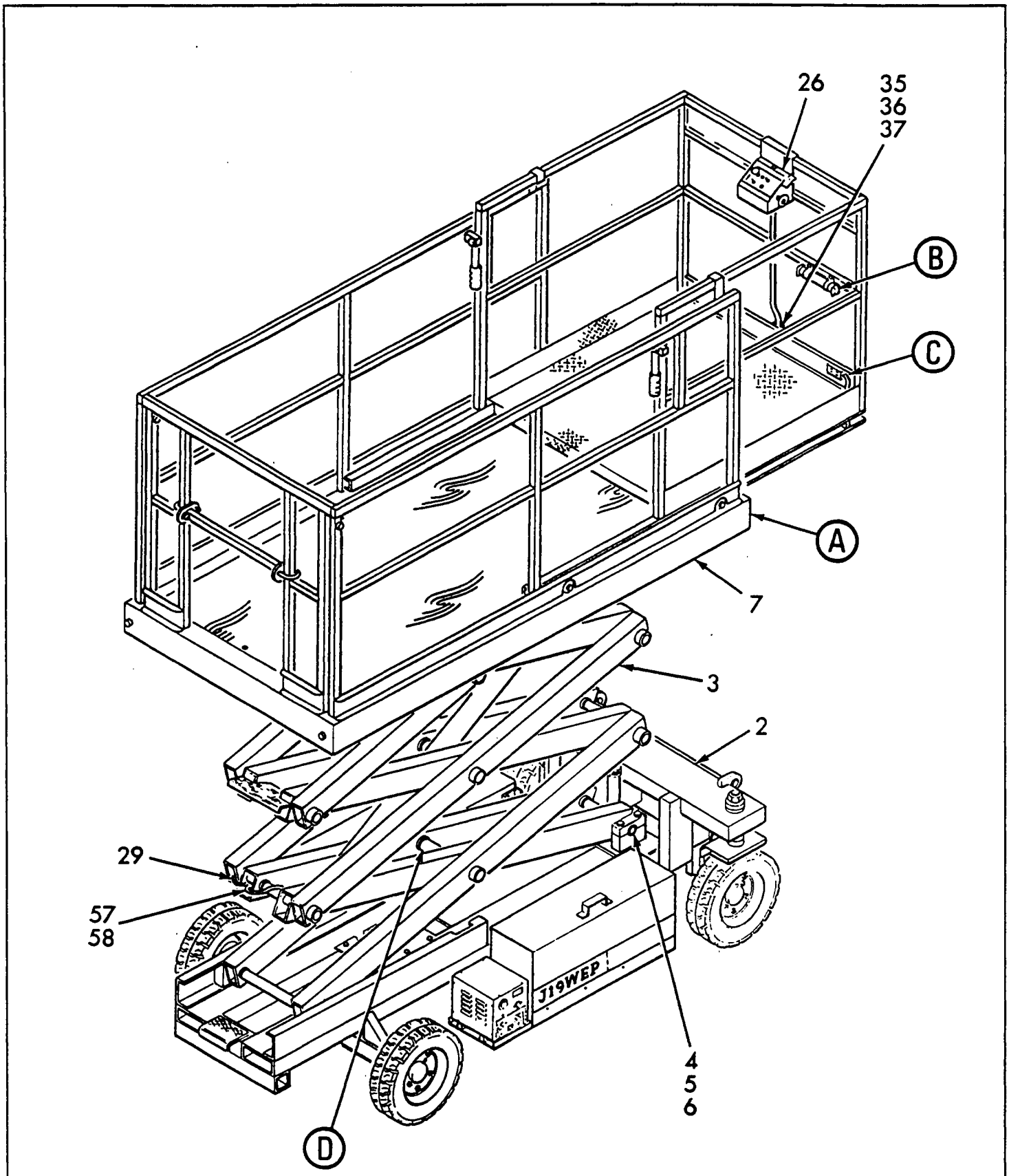
FIGURE NO.	TITLE
1	FINAL ASSEMBLY (J19W)
1A	FINAL ASSEMBLY (J25)
1B	FINAL ASSEMBLY (J19WEP)
1C	FINAL ASSEMBLY (J25EP)
2	DECAL SET (J19W)
2A	DECAL SET (J25)
2B	DECAL SET (J19WEP)
2C	DECAL SET (J25EP)
3	UPPER CONTROL BOX ASSEMBLY (J19W & J25)
3A	UPPER CONTROL BOX ASSEMBLY (J19WEP & J25EP)
4	HYDRAULIC HOSE DIAGRAM (J19W & J25)
4A	HYDRAULIC HOSE DIAGRAM (J19WEP & J25EP)



Mark Industries

TITLE	FINAL ASSEMBLY
MODEL	J19WEP
NOTES	

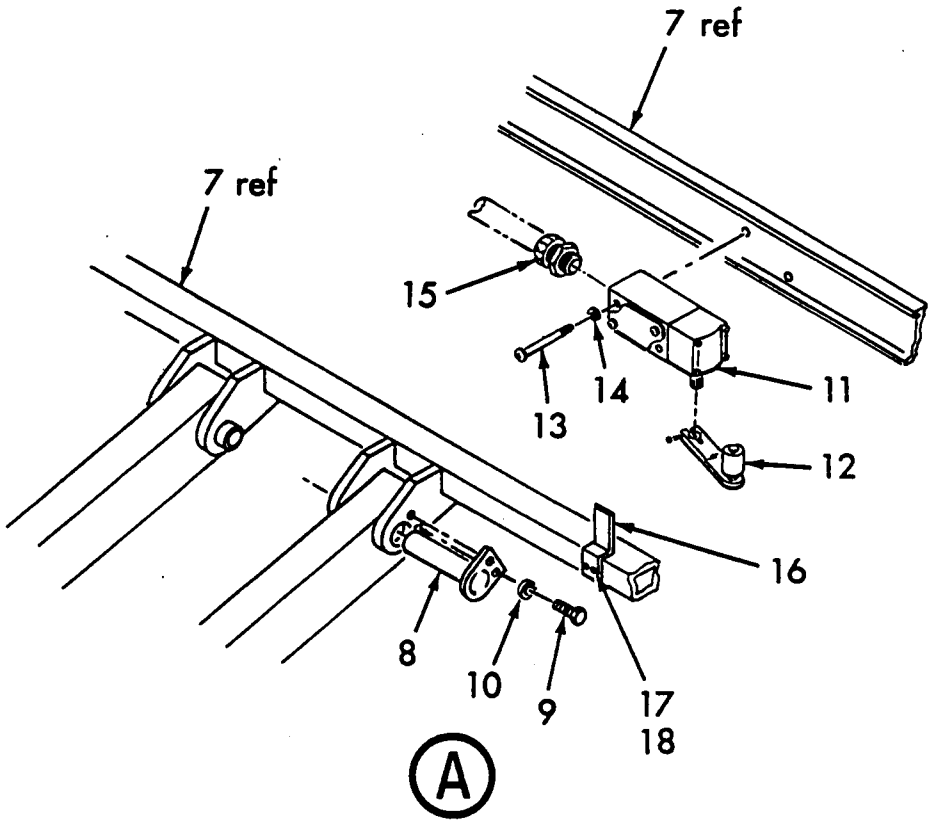
SECTION	2
FIGURE	1B
PAGE	1

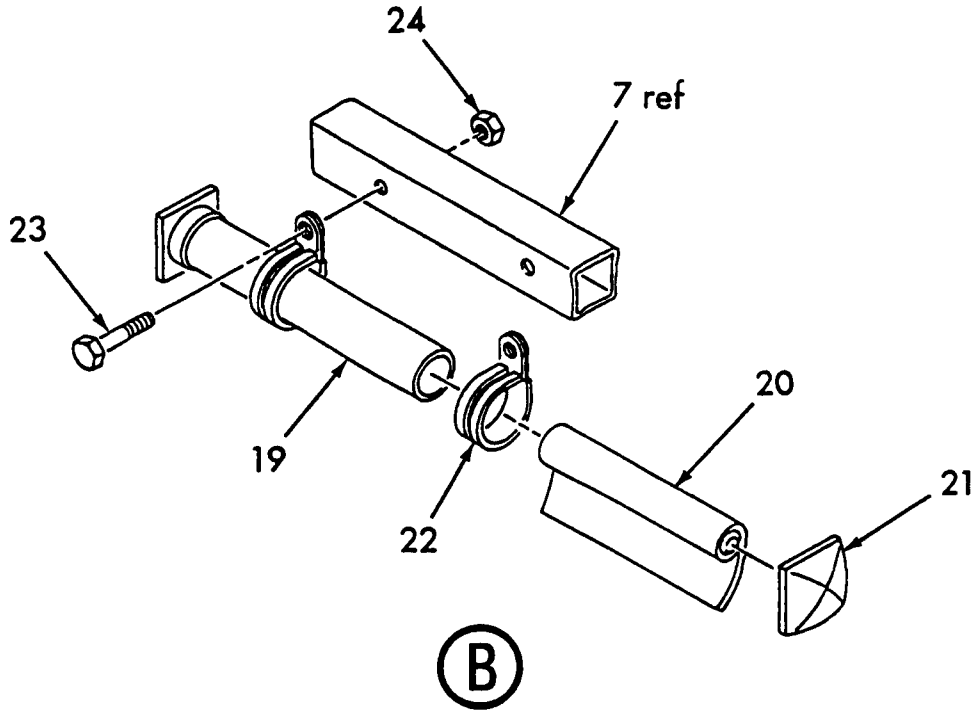


Mark Industries

TITLE	FINAL ASSEMBLY
MODEL	J19WEP
NOTES	

SECTION	2
FIGURE	1B
PAGE	2

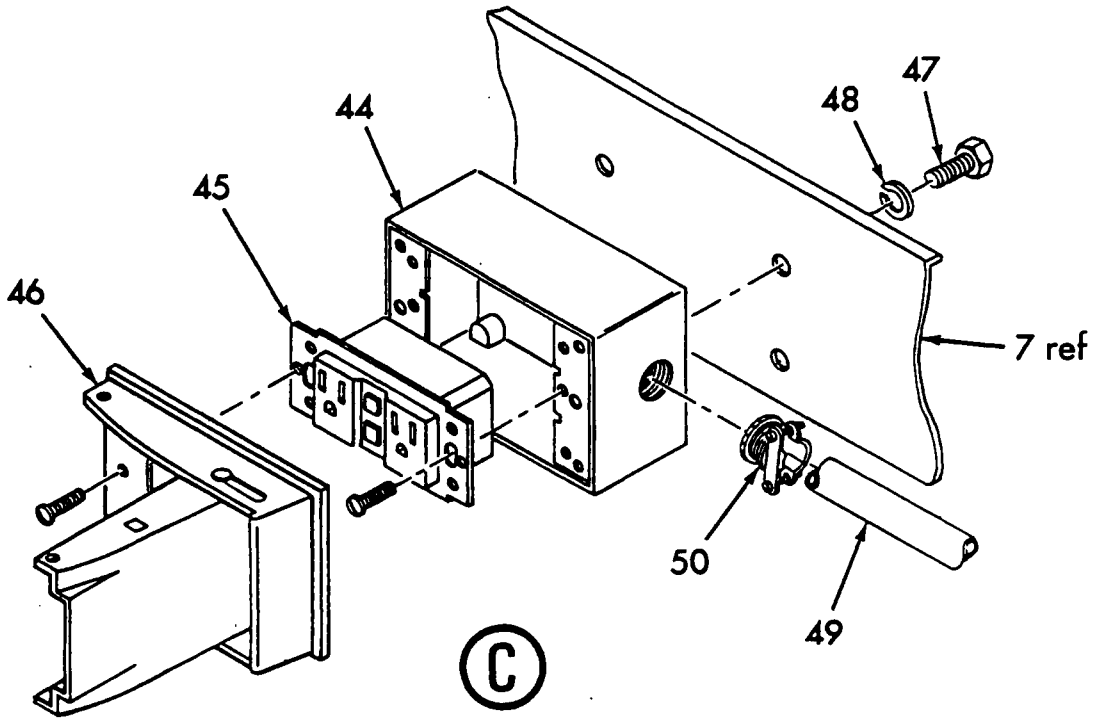


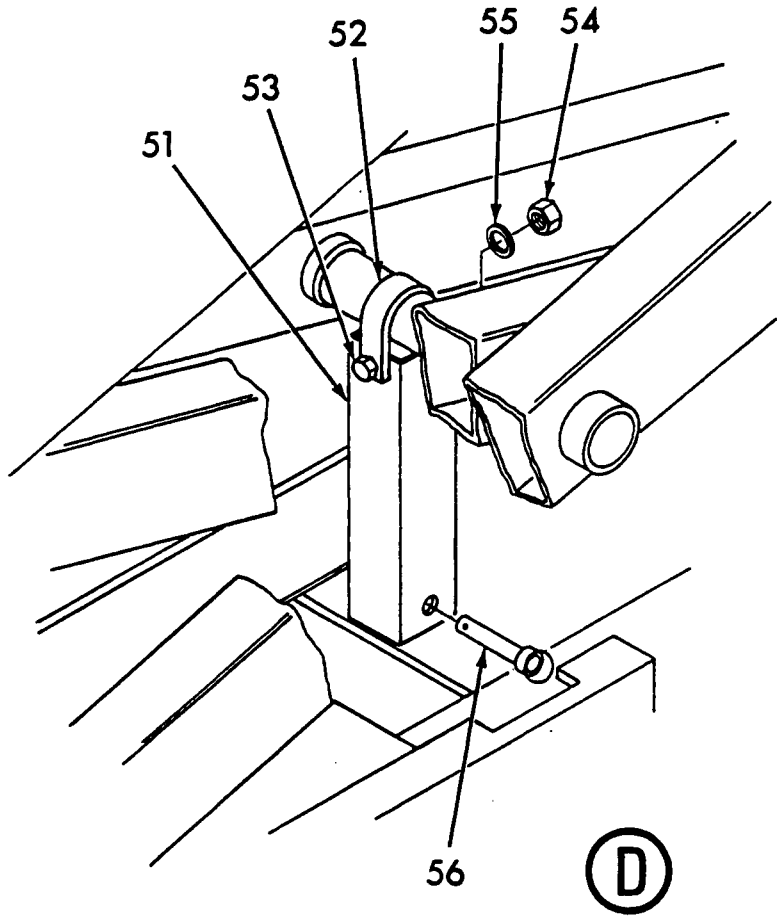


Mark Industries

TITLE	FINAL ASSEMBLY
MODEL	J19WEP
NOTES	

SECTION	2
FIGURE	1B
PAGE	3





Mark Industries

TITLE	FINAL ASSEMBLY	SECT.	2
MODEL	J19WEP	FIG.	1B
NOTES		PAGE	4

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	130062	FINAL ASSEMBLY	REF
2	131601	.FRAME ASSEMBLY (See Sect. 3, Fig. 1 for Details)	1
3	131681	.SCISSOR ASSEMBLY (See Sect. 4, Fig. 1 for Details)	1
4	160177	.SLEEVE BEARING	2
5	65577	.COLLAR SHAFT	2
6	62238	.SET SCREW	2
7	133060	.EXTENDABLE PLATFORM ASSEMBLY (See Sect. 5, Fig. 1A for Details)	1
8	131692	.ARM/DECK PIN	2
9	60353	.HEX HEAD CAP SCREW	4
10	63301	.LOCK WASHER	4
11	70173	.LIMIT SWITCH	4
12	70032	.OPERATING LEVER	1
13	62708	.MACHINE SCREW	1
14	63313	.LOCK WASHER	2
15	2807	.STRAIN RELIEF	1
16	133110	.LIMIT SWITCH STOP	1
17	60353	.CAP SCREW	2
18	63301	.LOCK WASHER	2
19	130927	.PLASTIC CONTAINER	1
20	17410	.OPERATION & SAFETY HANDBOOK	1
21	65842	.ANTI-ROLL CAP	2
22	65867	.CLAMP	2
23	60315	.HEX HEAD CAP SCREW	2
24	60711	.HEX NUT	2

DASH (-) INDICATES THE 'ITEM' IS NOT ILLUSTRATED

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-25	600184	.DECAL SET (See Sect. 2, Fig. 2B for Details)	1
26	133096	.UPPER CONTROL BOX ASSEMBLY (See Sect. 2, Fig. 3A for Details)	1
-27	2806	.STRAIN RELIEF (UPPER CONTROL BOX)	1
-28	2807	.STRAIN RELIEF (UPPER CONTROL BOX)	1
29	130228-40	.CONDUCTOR CABLE	40 FT
-30	764	.RUBBER CLAMP	7
-31	60342	.CAP SCREW	7
-32	63301	.LOCK WASHER	7
-33	60309	.CAP SCREW	2
-34	60711	.HEX NUT	2
35	133135	.CABLE BRACKET	1
36	160292	.CAP SCREW	2
37	63313	.LOCK WASHER	2
-38	133290	.HYDRAULIC HOSE (CONDUCTOR CABLE CONDUIT)	50 FT
-39	65451	.HOSE CLAMP	1
-40	160017	.U-BOLT	1
-41	61318	.LOCK NUT	2
-42	255	.CABLE TIE	23
-43	133098	.ELECTRICAL SCHEMATIC (See Schematic Section for Details)	1
44	70262	.UNIVERSAL BOX	1
45	70391	.RECEPTACLE DUPLEX	1
46	70392	.SNAP COVER	1
47	62607	.MACHINE SCREW	4
48	63313	.LOCK WASHER	4

DASH (-) INDICATES THE 'ITEM' IS NOT ILLUSTRATED

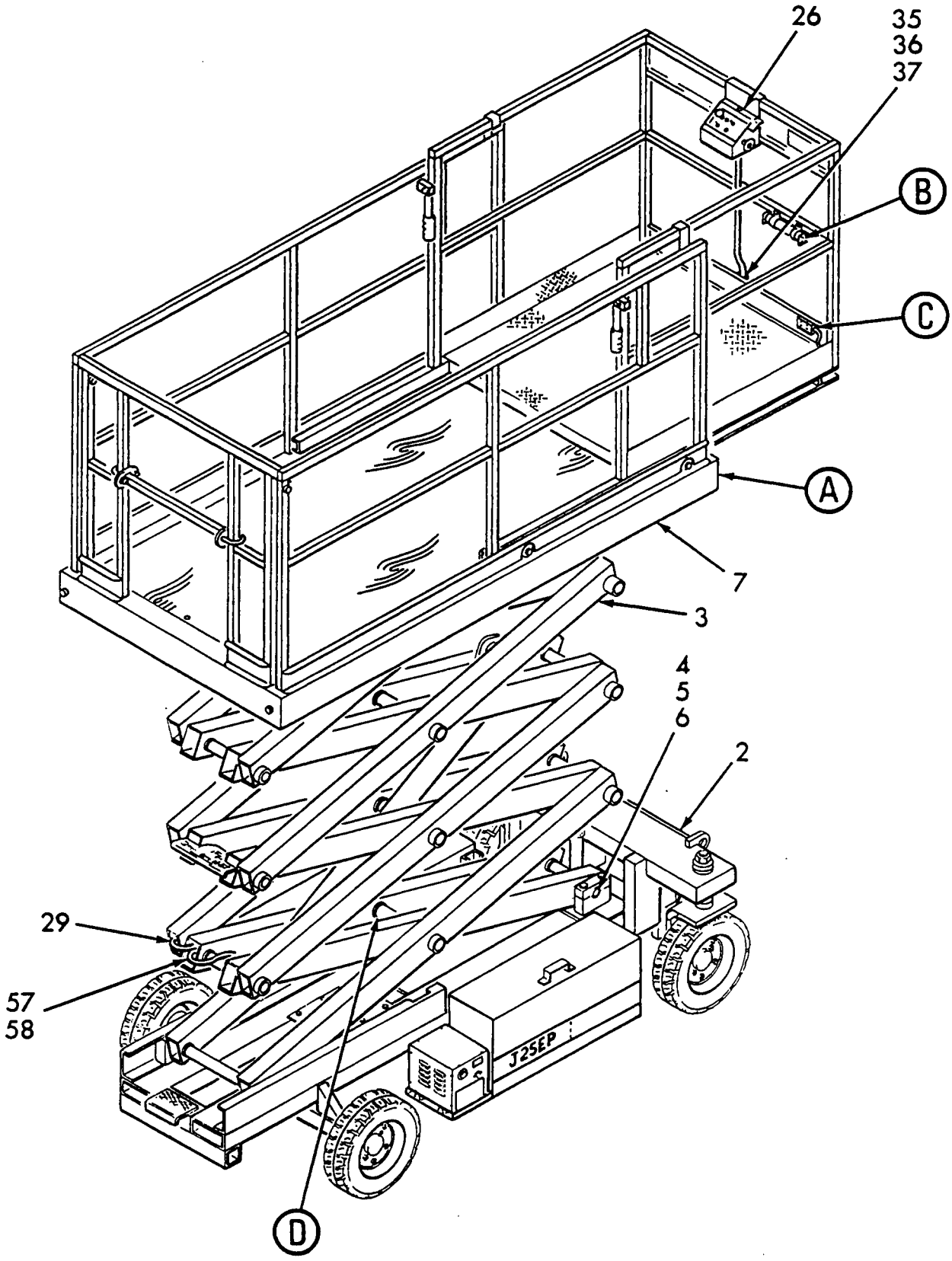
ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
49	4034	.CABLE	40 FT
50	2806	.STRAIN RELIEF	1
51	131767	.SERVICE STAND ARM	1
52	131766	.SERVICE STAND CLAMP	1
53	60341	.HEX HEAD CAP SCREW	1
54	60701	.HEX NUT	1
55	63301	.LOCK WASHER	1
56	30701	.PIN BALL-LOK DETENT	1
-57	131737	.HYDRAULIC SCHEMATIC (See Schematic Section for Details)	1
-58	131738	.HYDRAULIC HOSE DIAGRAM (See Sect. 2, Fig. 4A for Details)	1
-59	63654	.POP RIVET	9
-60	65116	.HYDRAULIC OIL	10
-61	2673	.WHITE PAINT	1
-62	65368	.BLUE PAINT	1
-63	16608	.WHITE WATER BASE PAINT	3
-64	65389	.BLUE WATER BASE PAINT	1
-65	17220	.MARKLIFT PARTS CATALOG	1

DASH (-) INDICATES THE 'ITEM' IS NOT ILLUSTRATED

Mark Industries

TITLE	FINAL ASSEMBLY
MODEL	J25EP
NOTES	

SECTION	2
FIGURE	1C
PAGE	1

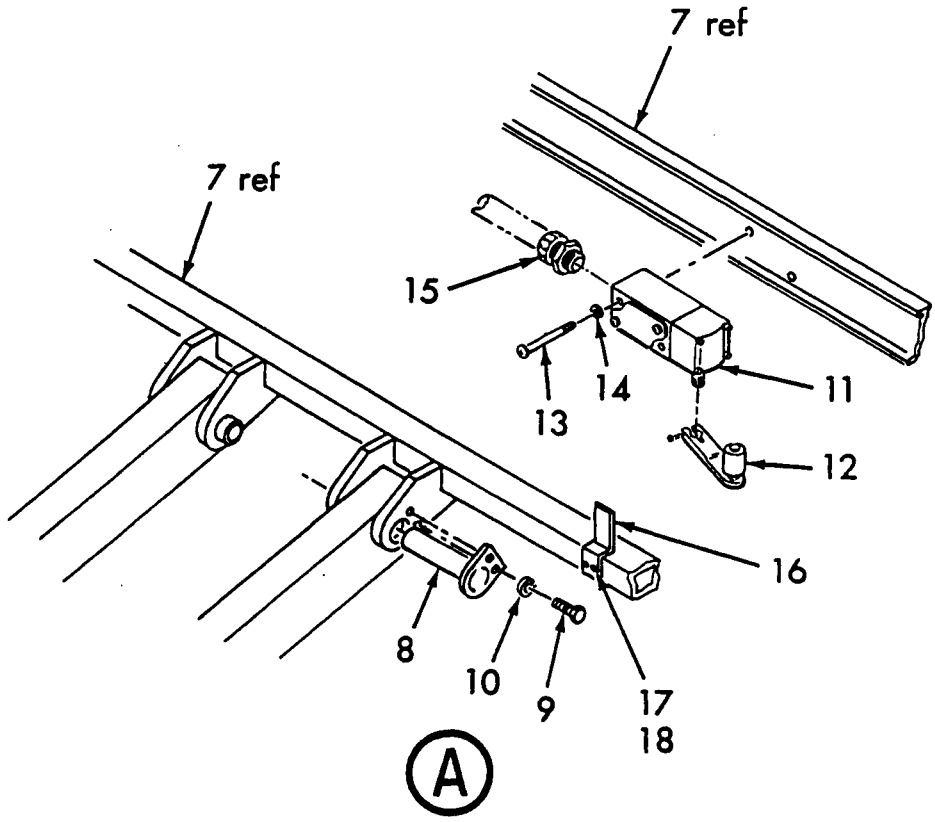


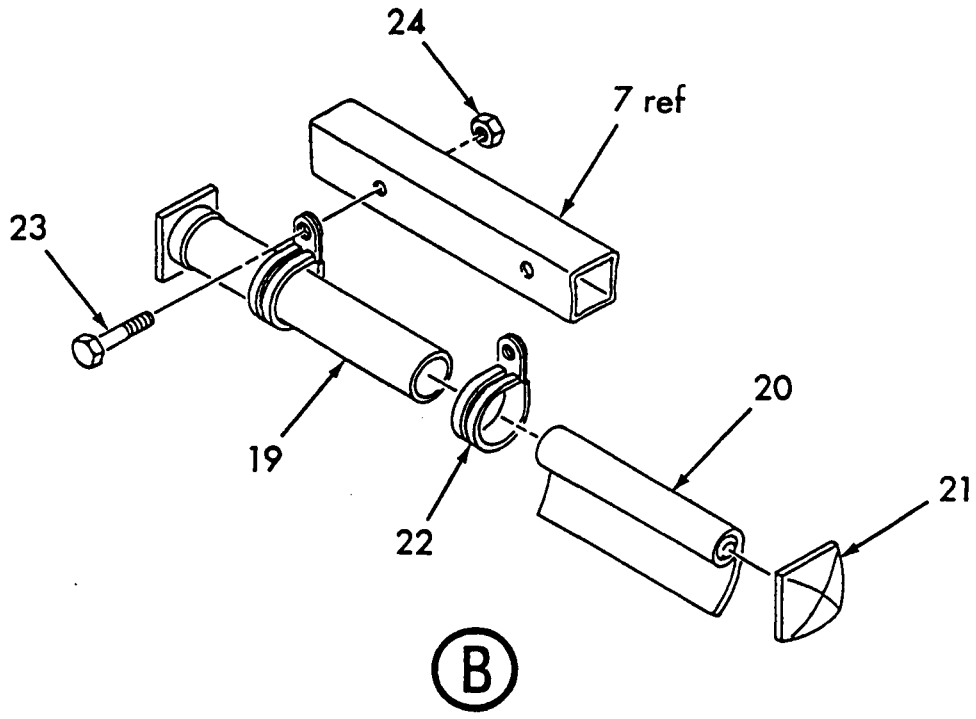
REV. 1

Mark Industries

TITLE	FINAL ASSEMBLY
MODEL	J25EP
NOTES	

SECTION	2
FIGURE	1C
PAGE	2

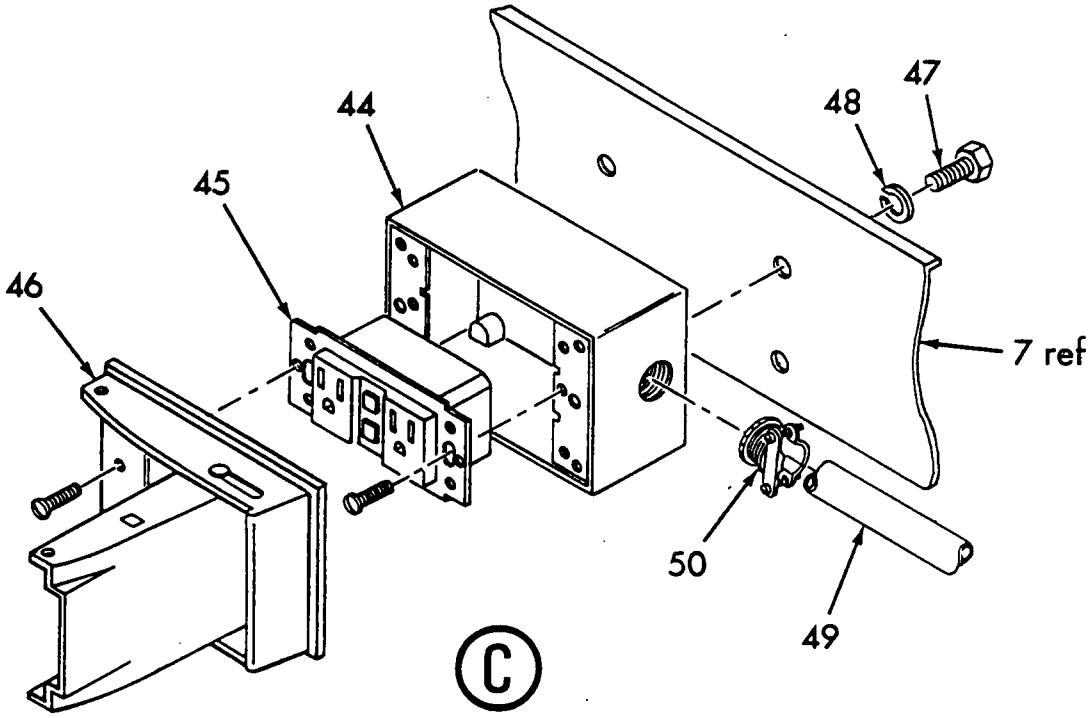


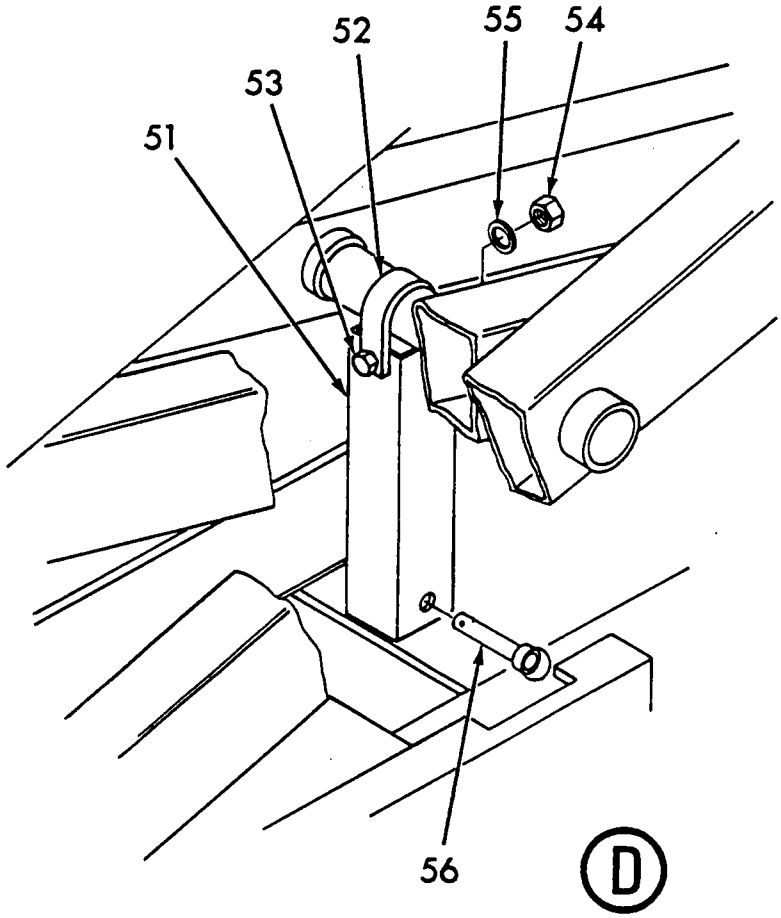


Mark Industries

TITLE	FINAL ASSEMBLY
MODEL	J25EP
NOTES	

SECTION	2
FIGURE	1C
PAGE	3





Mark Industries

TITLE	FINAL ASSEMBLY	SECT.	2
MODEL	J25EP	FIG.	1C
NOTES		PAGE	4

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	130063	FINAL ASSEMBLY	REF
2	131601	.FRAME ASSEMBLY (See Sect. 3, Fig. 1 for Details)	1
3	131680	.SCISSOR ASSEMBLY (See Sect. 4, Fig. 1A for Details)	1
4	160177	.SLEEVE BEARING	2
5	65577	.COLLAR SHAFT	2
6	62238	.SET SCREW	2
7	133060	.EXTENDABLE PLATFORM ASSEMBLY (See Sect. 5, Fig. 1A for Details)	1
8	131692	.ARM/DECK PIN	2
9	60353	.HEX HEAD CAP SCREW	4
10	63301	.LOCK WASHER	4
11	70173	.LIMIT SWITCH	4
12	70032	.OPERATING LEVER	1
13	62708	.MACHINE SCREW	1
14	63313	.LOCK WASHER	2
15	2807	.STRAIN RELIEF	1
16	133110	.LIMIT SWITCH STOP	1
17	60353	.CAP SCREW	2
18	63301	.LOCK WASHER	2
19	130927	.PLASTIC CONTAINER	1
20	17410	.OPERATION & SAFETY HANDBOOK	1
21	65842	.ANTI-ROLL CAP	2
22	65867	.CLAMP	2
23	60315	.HEX HEAD CAP SCREW	2
24	60711	.HEX NUT	2

DASH (-) INDICATES THE 'ITEM' IS NOT ILLUSTRATED

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-25	600183	.DECAL SET (See Sect. 2, Fig. 2C for Details)	1
26	133097	.UPPER CONTROL BOX ASSEMBLY (See Sect. 2, Fig. 3A for Details)	1
-27	2806	.STRAIN RELIEF (UPPER CONTROL BOX)	1
-28	2807	.STRAIN RELIEF (UPPER CONTROL BOX)	1
29	130228-51	.CONDUCTOR CABLE	51 FT
-30	764	.RUBBER CLAMP	6
-31	60342	.CAP SCREW	6
-32	63301	.LOCK WASHER	6
-33	60309	.CAP SCREW	4
-34	60711	.HEX NUT	4
35	133135	.CABLE BRACKET	1
36	160292	.CAP SCREW	2
37	63313	.LOCK WASHER	2
-38	133290	.HYDRAULIC HOSE (CONDUCTOR CABLE CONDUIT)	50 FT
-39	65451	.HOSE CLAMP	1
-40	160017	.U-BOLT	1
-41	61318	.LOCK NUT	2
-42	255	.CABLE TIE	23
-43	133098	.ELECTRICAL SCHEMATIC (See Schematic Section for Details)	1
44	70262	.UNIVERSAL BOX	1
45	70391	.RECEPTACLE DUPLEX	1
46	70392	.SNAP COVER	1
47	62607	.MACHINE SCREW	4
48	63313	.LOCK WASHER	4

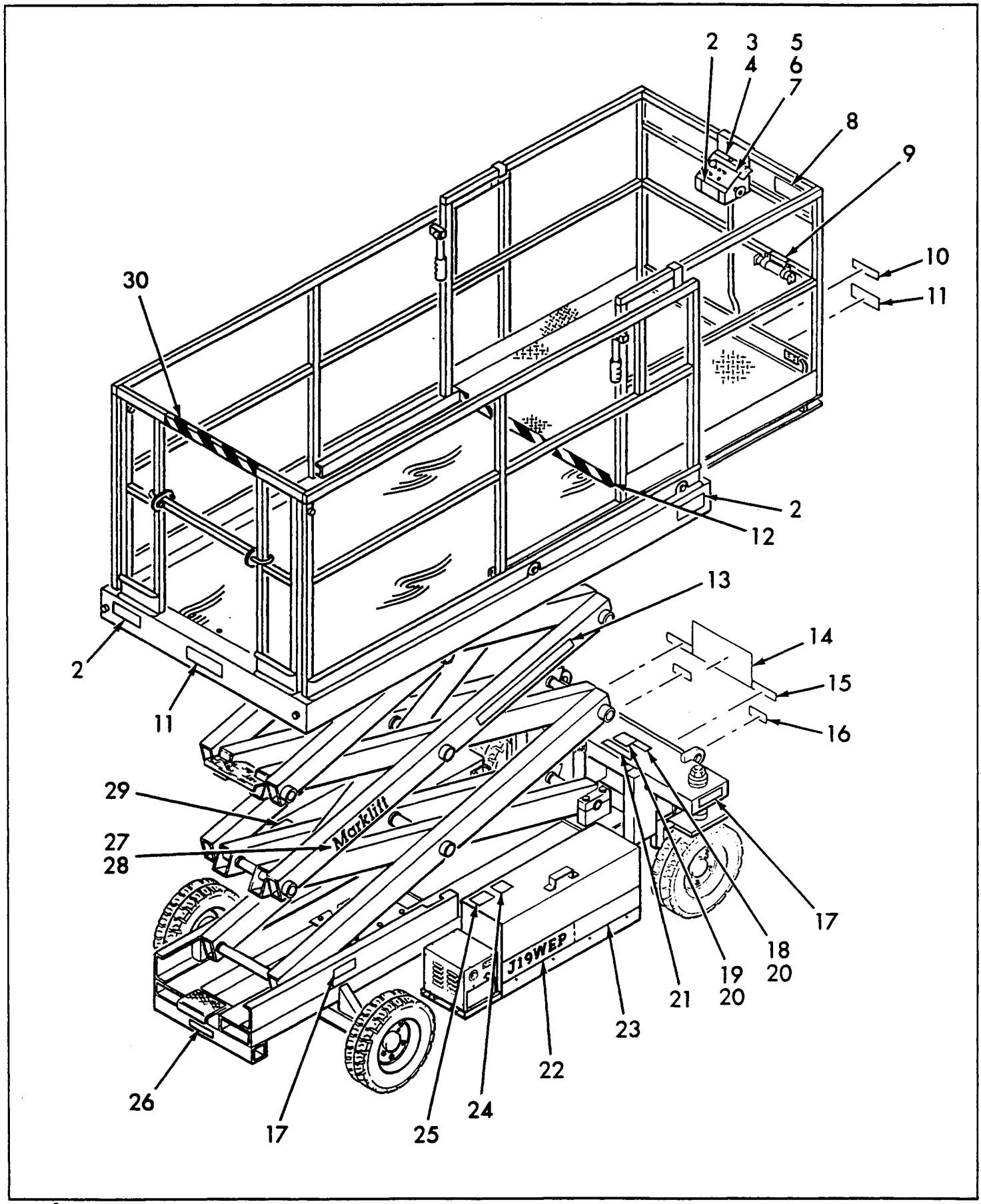
ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
49	4034	.CABLE	50 FT
50	2806	.STRAIN RELIEF	1
51	131767	.SERVICE STAND ARM	1
52	131766	.SERVICE STAND CLAMP	1
53	60341	.HEX HEAD CAP SCREW	1
54	60701	.HEX NUT	1
55	63301	.LOCK WASHER	1
56	30701	.PIN BALL-LOK DETENT	1
-57	131737	.HYDRAULIC SCHEMATIC (See Schematic Section for Details)	1
-58	131738	.HYDRAULIC HOSE DIAGRAM (See Sect. 2, Fig. 4A for Details)	1
-59	63654	.POP RIVET	9
-60	65116	.HYDRAULIC OIL	10
-61	2673	.WHITE PAINT	1
-62	65368	.BLUE PAINT	1
-63	16608	.WHITE WATER BASE PAINT	3
-64	65389	.BLUE WATER BASE PAINT	1
-65	17220	.MARKLIFT PARTS CATALOG	1

DASH (-) INDICATES THE 'ITEM' IS NOT ILLUSTRATED

Mark Industries

TITLE	DECAL SET
MODEL	J19WEP
NOTES	

SECTION	2
FIGURE	2B
PAGE	1



REV. 1

Mark Industries

TITLE	DECAL SET	SECT.	2
MODEL	J19WEP	FIG.	2B
NOTES		PAGE	2

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	600184	DECAL SET (See Sect. 2, Fig. 1B for NHA)	REF
2	20556	.DECAL: "LOAD CAPACITY 800 LBS."	5
3	2014	.DECAL: CAUTION HIGH VOLTAGE LINES (See Sect. 2, Fig. 3A for NHA)	1
4	2015	.DECAL: WARNING-UNSTABLE CONDITIONS (See Sect. 2, Fig. 3A for NHA)	1
5	182739	.DECAL: UPPER CONTROL BOX (See Sect. 2, Fig. 3A for NHA)	1
6	130782	.DECAL: UPPER CONTROL BOX (DRIVE) (See Sect. 2, Fig. 3A for NHA)	1
7	130713	.DECAL: DESCENT OVERRIDE (See Sect. 2, Fig. 3A for NHA)	1
8	182740	.DECAL: "OPERATING INSTRUCTIONS"	1
9	130820	.DECAL: "OPERATION & SAFETY HANDBOOK"	1
10	130937	.DECAL: "J-SERIES"	1
11	31109	.DECAL: "CAUTION SCISSOR GUARD RAILS"	2
12	160137-3.3	.WARNING TAPE	3.3 FT
13	130596	.DECAL: "A PRODUCT OF MARK INDUSTRIES"	2
14	130938	.DECAL: "MARK"	1
15	131061	.DECAL: BLUE STRIPE (CUT TO FIT)	1
16	2002	.DECAL: "FORKLIFT BOOT"	2
17	130949	.DECAL: "DANGER, THIS IS A SOLID TIRE"	4
18	20661	.PLATE: ANSI A92	1
19	20660	.IDENTIFICATION NAMEPLATE	1
20	63653	.POP RIVET	9
21	2017	.DECAL: "HYDRAULIC SYSTEM FLUID"	1
22	181775	.DECAL: "J19WEP"	2

DASH (-) INDICATES THE 'ITEM' IS NOT ILLUSTRATED

Mark Industries

TITLE	DECAL SET	SECT.	2
MODEL	J19WEP	FIG.	2B
NOTES		PAGE	3

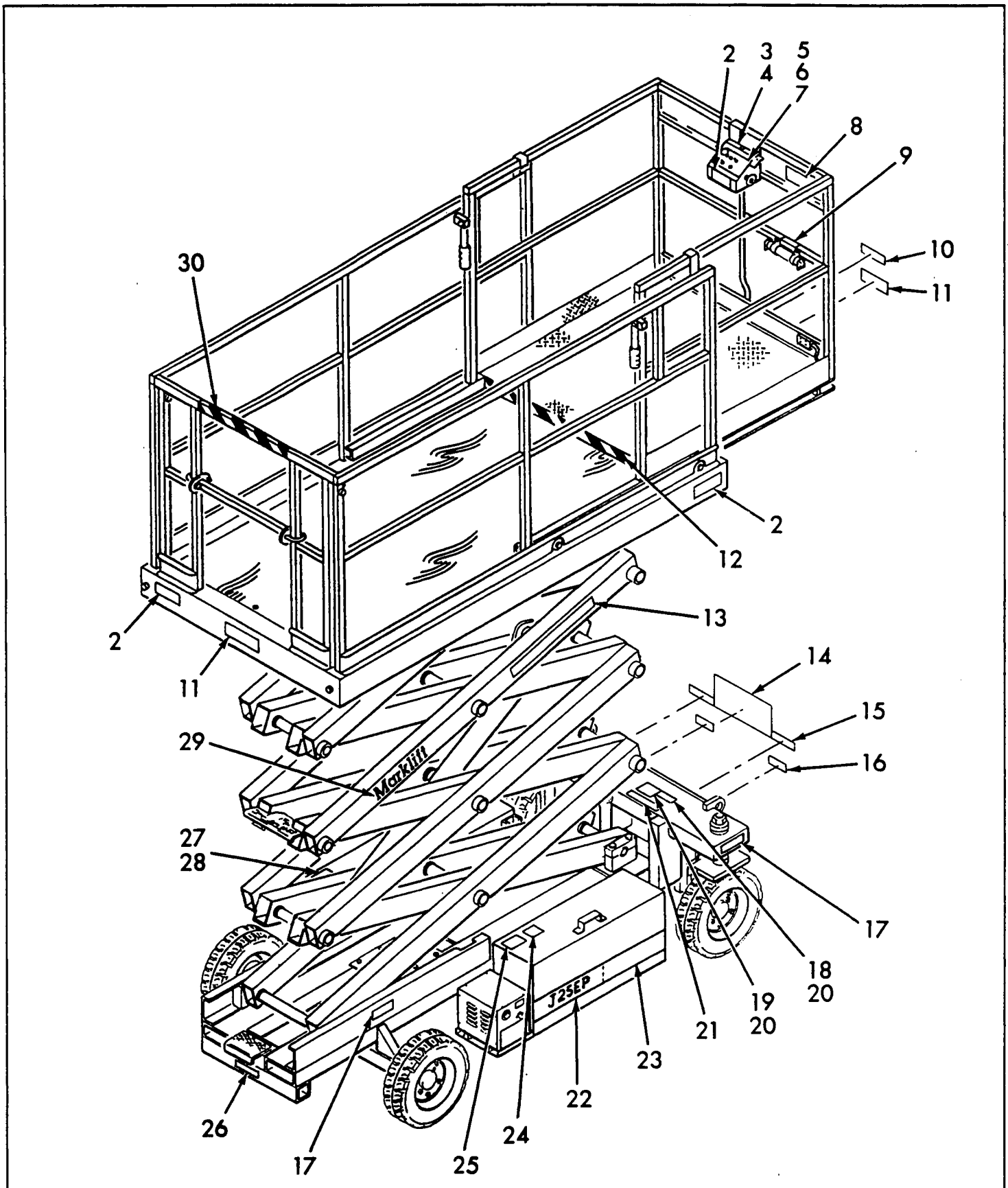
ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
23	181728	.DECAL: PANEL STRIP (CUT TO FIT)	2
24	2016	.DECAL: "DO NOT WORK UNDER"	2
25	2003	.DECAL: "BATTERY WATER LEVEL"	2
26	2041	.DECAL: "DO NOT LIFT THIS END"	1
27	182738	.DECAL: GROUND CONTROL PANEL (See Sect. 3, Fig. 7 for NHA)	1
28	130606	.DECAL: FREEWHEELING VALVE (See Sect. 3, Fig. 7 for NHA)	1
29	31259	.DECAL: "MARKLIFT"	2
30	160137-2.0	.WARNING TAPE	2 FT

DASH (-) INDICATES THE 'ITEM' IS NOT ILLUSTRATED

Mark Industries

TITLE	DECAL SET
MODEL	J25EP
NOTES	

SECTION	2
FIGURE	2C
PAGE	1



Mark Industries

TITLE	DECAL SET
MODEL	J25EP
NOTES	

SECT.	2
FIG.	2C
PAGE	2

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	600183	DECAL SET (See Sect. 2, Fig. 1C for NHA)	REF
2	20556	.DECAL: "LOAD CAPACITY 800 LBS."	5
3	2014	.DECAL: CAUTION HIGH VOLTAGE LINES (See Sect. 2, Fig. 3A for NHA)	1
4	2015	.DECAL: WARNING-UNSTABLE CONDITIONS (See Sect. 2, Fig. 3A for NHA)	1
5	182739	.DECAL: UPPER CONTROL BOX (See Sect. 2, Fig. 3A for NHA)	1
6	130782	.DECAL: UPPER CONTROL BOX (DRIVE) (See Sect. 2, Fig. 3A for NHA)	1
7	130713	.DECAL: DESCENT OVERRIDE (See Sect. 2, Fig. 3A for NHA)	1
8	182740	.DECAL: "OPERATING INSTRUCTIONS"	1
9	130820	.DECAL: "OPERATION & SAFETY HANDBOOK"	1
10	130937	.DECAL: "J-SERIES"	1
11	31109	.DECAL: "CAUTION SCISSOR GUARD RAILS"	2
12	160137-3.3	.WARNING TAPE	3.3 FT
13	130596	.DECAL: "A PRODUCT OF MARK..."	2
14	130938	.DECAL: "MARK"	1
15	131061	.DECAL: BLUE STRIPE (CUT TO FIT)	1
16	2002	.DECAL: "FORKLIFT BOOT"	2
17	130949	.DECAL: "DANGER, THIS IS A SOLID TIRE"	4
18	20661	.PLATE: ANSI A92	1
19	20660	.IDENTIFICATION NAMEPLATE	1
20	63653	.POP RIVET	8
21	2017	.DECAL: "HYDRAULIC SYSTEM FLUID"	1
22	181776	.DECAL: "J25EP"	2

DASH (-) INDICATES THE 'ITEM' IS NOT ILLUSTRATED

Mark Industries

TITLE	DECAL SET	SECT.	2
MODEL	J25EP	FIG.	2C
NOTES		PAGE	3

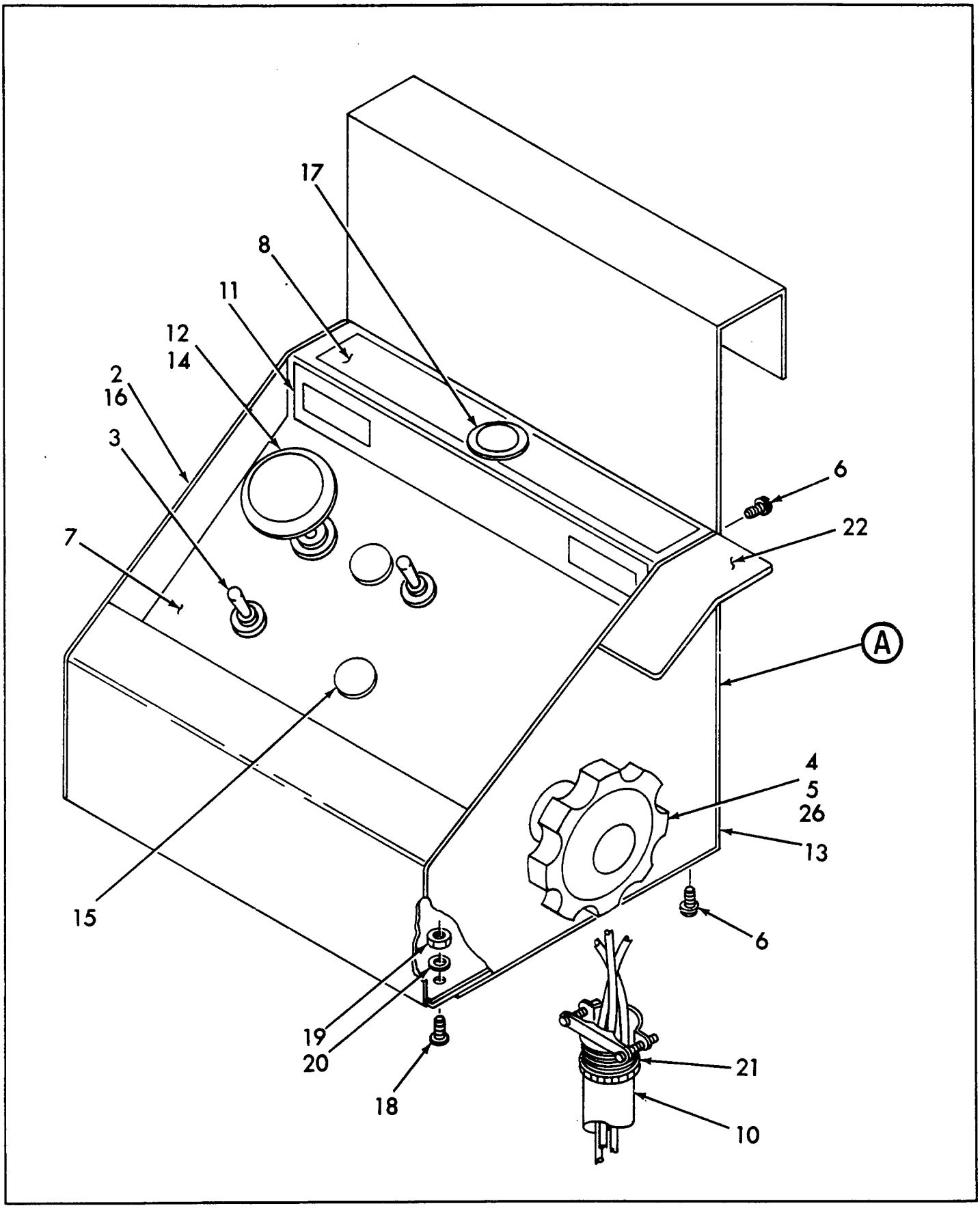
ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
23	181728	.DECAL: PANEL STRIP (CUT TO FIT)	2
24	2016	.DECAL: "DO NOT WORK UNDER"	2
25	2003	.DECAL: "BATTERY WATER LEVEL"	2
26	2041	.DECAL: "DO NOT LIFT THIS END"	1
27	182738	.DECAL: GROUND CONTROL PANEL (See Sect. 3, Fig. 7 for NHA)	1
28	130606	.DECAL: FREEWHEELING VALVE (See Sect. 3, Fig. 7 for NHA)	1
29	31259	.DECAL: "MARKLIFT"	2
30	160137-2.0	.WARNING TAPE	2 FT

DASH (-) INDICATES THE 'ITEM' IS NOT ILLUSTRATED

Mark Industries

TITLE	UPPER CONTROL BOX ASSEMBLY
MODEL	J19W, J25
NOTES	

SECTION	2
FIGURE	3
PAGE	1

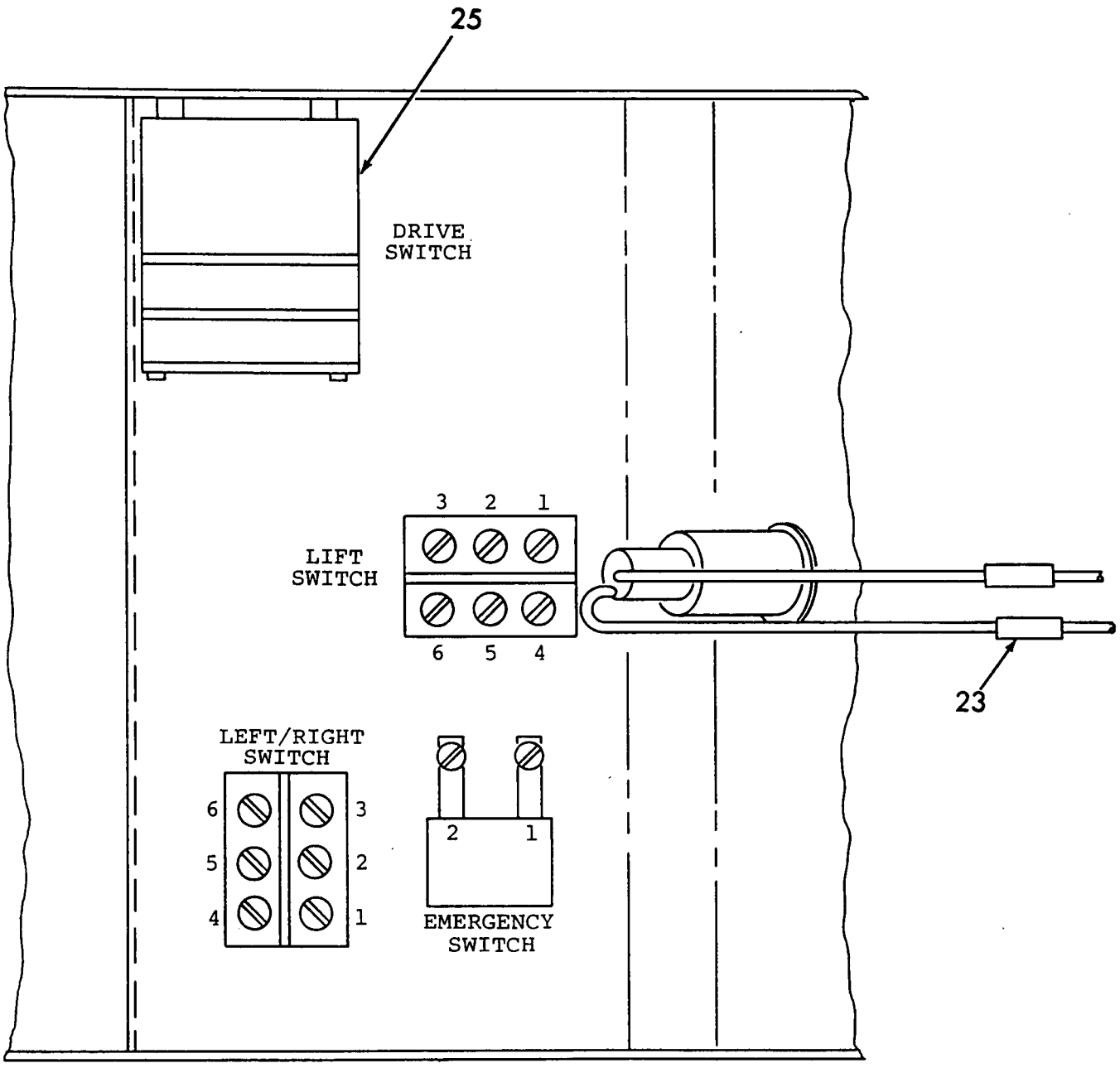


REV.

Mark Industries

TITLE	UPPER CONTROL BOX ASSEMBLY
MODEL	J19W,J25
NOTES	

SECTION	2
FIGURE	3
PAGE	2



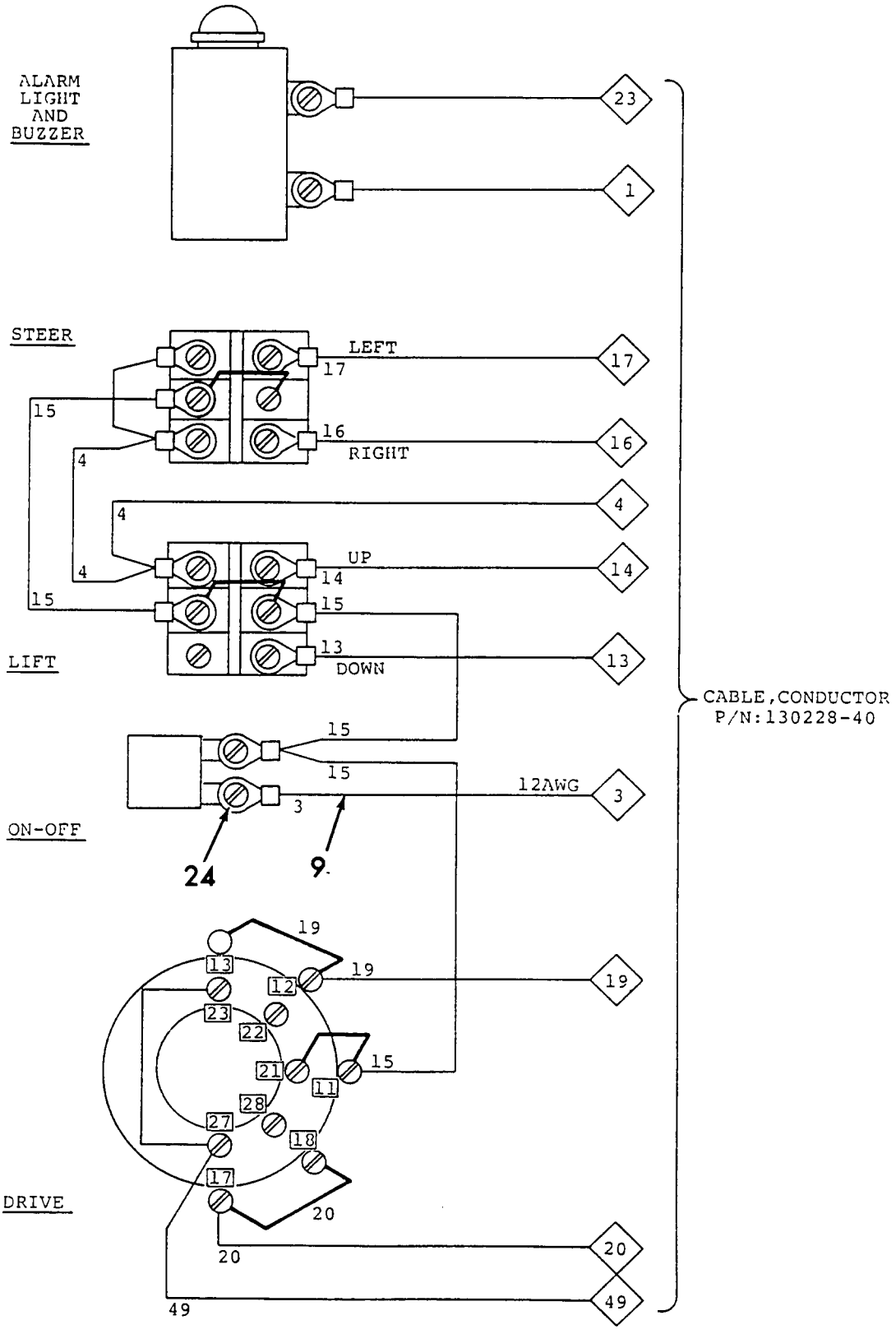
(A)

REV.

Mark Industries

TITLE	UPPER CONTROL BOX ASSEMBLY
MODEL	J19W, J25
NOTES	

SECTION	2
FIGURE	3
PAGE	3



REV.

Mark Industries

TITLE	UPPER CONTROL BOX ASSEMBLY	SECT. 2
MODEL	J19W, J25	FIG. 3
NOTES		PAGE 4

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	131731-J19W 131733-J25	UPPER CONTROL BOX ASSEMBLY (See Sect. 2, Fig. 1 or 1A for NHA)	REF
2	131730	.UPPER CONROL BOX	1
3	20481	.TOGGLE SWITCH	2
4	4106	.5 POSITION SWITCH ASSEMBLY	1
5	65753	.FLUTED TORQUE KNOB	1
6	61711	.SELF-TAPPING SCREW	6
7	182739	.CONTROL BOX OPERATING DECAL	1
8	2015	.WARNING UNSTABLE CONDITION DECAL	1
9	2991	.WHITE WIRE (1 FT.)	1
10	130228	.CONDUCTOR CABLE (~~10/4 SOC~~ 38/45	1
11	2014	.CAUTION HIGH BOLTAGE LINE DECAL	1
12	4018	.PUSH-PULL SWITCH	1
13	131732	.CONTROL BOX COVER	1
14	31080	.EMERGENCY ON/OFF KNOB	1
15	771	.WHITE PLUG	2
16	65131	.RUBBER COATED NUT	2
17	66345	.UNIVERSAL BUZZER Buzzer/Light 70333, 70394	1
18	62703	.SLOTTED ROUND HEAD SCREW	2
19	60802	.HEX NUT	2
20	63413	.FLAT WASHER	2
21	117-G	.STRAIN RELIEF	1
22	130782	.DRIVE DECAL	1
23	117-D	.BUTT CONNECTOR	2
24	117-C	.RING CONNECTOR	21
25	16228-1	.RING CONNECTOR	12

Mark Industries

TITLE	UPPER CONTROL BOX ASSEMBLY
MODEL	J19W, J25
NOTES	

SECT.	2
FIG.	3
PAGE	5

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
26	62209	.SET SCREW	1
-27	255	.CABLE TIE	2
-28	256	.CABLE TIE	10

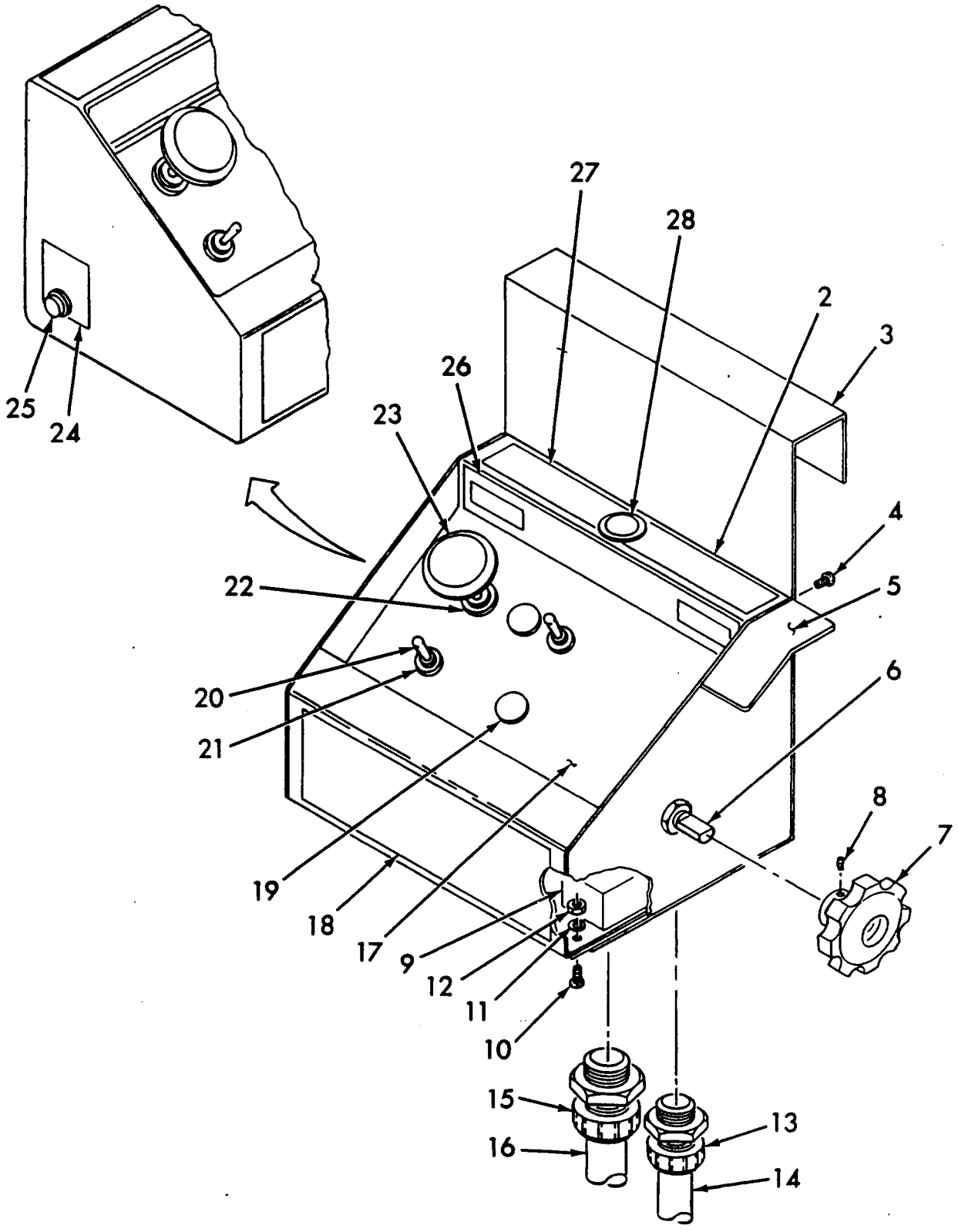
REV.

DASH (-) INDICATES THE 'ITEM' IS NOT ILLUSTRATED

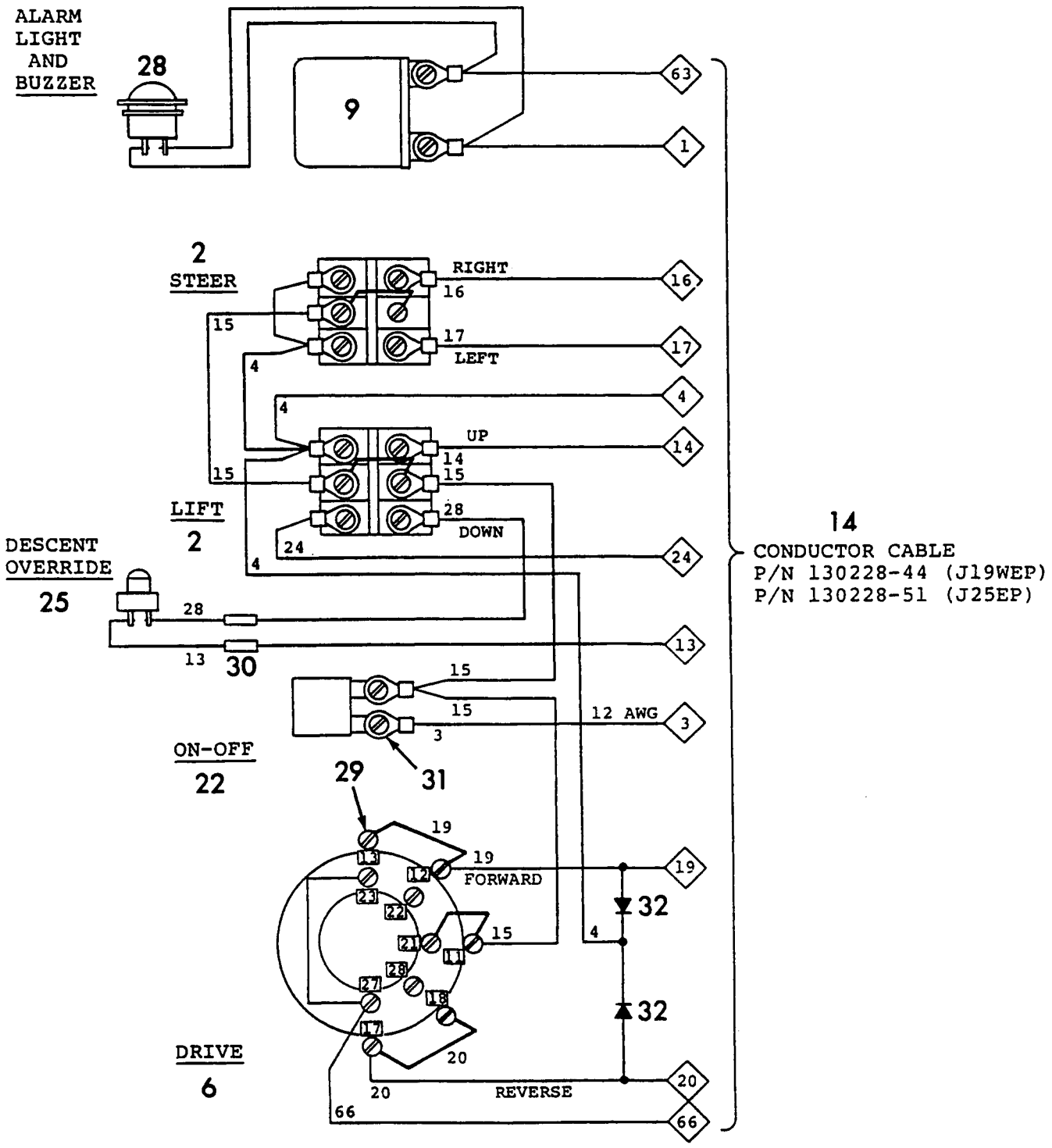
Mark Industries

TITLE	UPPER CONTROL BOX ASSEMBLY
MODEL	J19WEP & J25EP
NOTES	

SECTION	2
FIGURE	3A
PAGE	1



REV. 1


ALARM LIGHT AND BUZZER
28
9
63
1
2
STEER
RIGHT
16
15
17
LEFT
4
4
UP
14
14
15
LIFT
2
28
DOWN
24
DESCENT OVERRIDE
25
28
13
30
13
15
15
12 AWG
3
3
ON-OFF
22
29
31
19
19
FORWARD
19
32
15
4
32
DRIVE
6
20
20
REVERSE
66
66
14
CONDUCTOR CABLE
P/N 130228-44 (J19WEP)
P/N 130228-51 (J25EP)

Mark Industries

TITLE	UPPER CONTROL BOX ASSEMBLY
MODEL	J19WEP & J25EP
NOTES	

SECT.	2
FIG.	3A
PAGE	3

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	133096	UPPER CONTROL BOX ASSEMBLY (J19WEP) (See Sect. 2, Fig. 1B for NHA)	REF
-1	133097	UPPER CONTROL BOX ASSEMBLY (J25EP) (See Sect. 2, Fig. 1C for NHA)	REF
2	131730	.UPPER CONTROL BOX	1
3	133112	.CONTROL BOX COVER	1
4	61711	.SELF-TAPPING SCREW	6
5	130782	.DECAL: DRIVE	1
6	4106	.5 POSITION SWITCH	1
7	65753	.FLUTED TORQUE KNOB	1
8	62209	.SET SCREW	1
9	70333	.BUZZER (UNIVERSAL 24V) (66345 Buzz&Light)	1
10	62703	.SLOTTED ROUND HEAD SCREW	2
11	63413	.FLAT WASHER	2
12	60802	.HEX NUT	2
13	2806	.STRAIN RELIEF	1
14	90547-84	.CONDUCTOR CABLE	7 FT
15	2807	.STRAIN RELIEF	1
16	130228-44	.CONDUCTOR CABLE (J19WEP)	44 FT
16	130228-51	.CONDUCTOR CABLE (J25EP)	51 FT
17	182739	.DECAL: CONTROL BOX OPERATION	1
18	20556	.DECAL: LOAD CAPACITY 800 LBS.	1
19	771	.WHITE PLUG	2
20	20481	.TOGGLE SWITCH	2
21	65131	.RUBBER COATED NUT	2
22	4018	.PUSH-PULL SWITCH	1

DASH (-) INDICATES THE 'ITEM' IS NOT ILLUSTRATED

Mark Industries

TITLE	UPPER CONTROL BOX ASSEMBLY
MODEL	J19WEP & J25EP
NOTES	

SECT.	2
FIG.	3A
PAGE	4

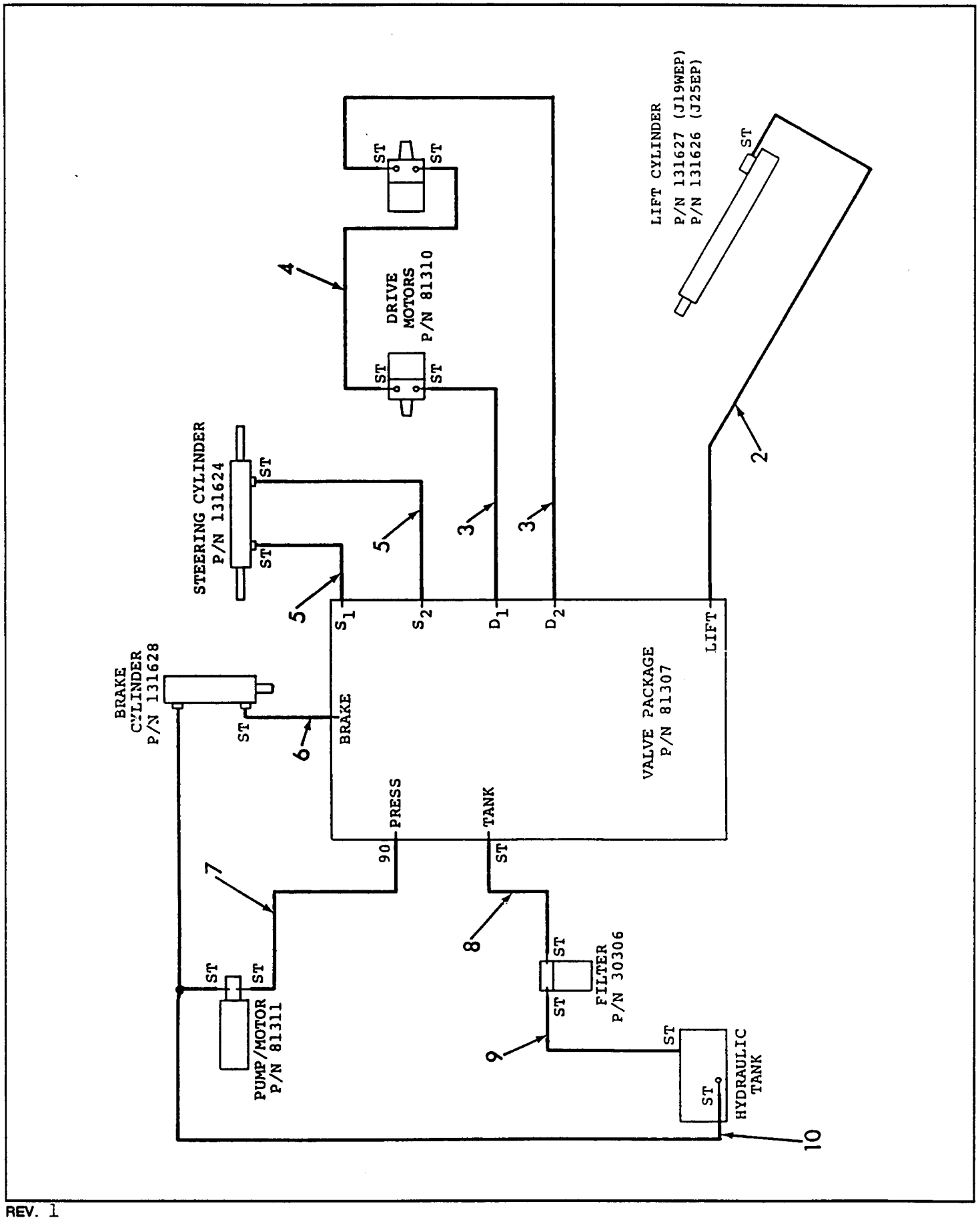
ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
23	31080	.EMERGENCY ON/OFF KNOB	1
24	130713	.DECAL: DESCENT OVERRIDE	1
25	4011	.PUSH BUTTON SWITCH	1
26	2014	.DECAL: "CAUTION" HIGH VOLTAGE LINE	1
27	2015	.DECAL: "WARNING" UNSTABLE CONDITION	1
28	70344	.PILOT INDICATOR LIGHT (066345 - Buzzer/Red light)	1
29	16228-1	.RING CONNECTOR	12
30	117-D	.BUTT CONNECTOR	2
31	117-C	.RING CONNECTOR	22
32	70479	.DIODE (6 AMP, 200V)	2
33	2991	.WHITE WIRE	1 FT
34	255	.CABLE TIE	1
35	256	.CABLE TIE	2

DASH (-) INDICATES THE 'ITEM' IS NOT ILLUSTRATED

Mark Industries

TITLE	HYDRAULIC HOSE DIAGRAM
MODEL	J19WEP & J25EP
NOTES	

SECTION	2
FIGURE	4A
PAGE	1



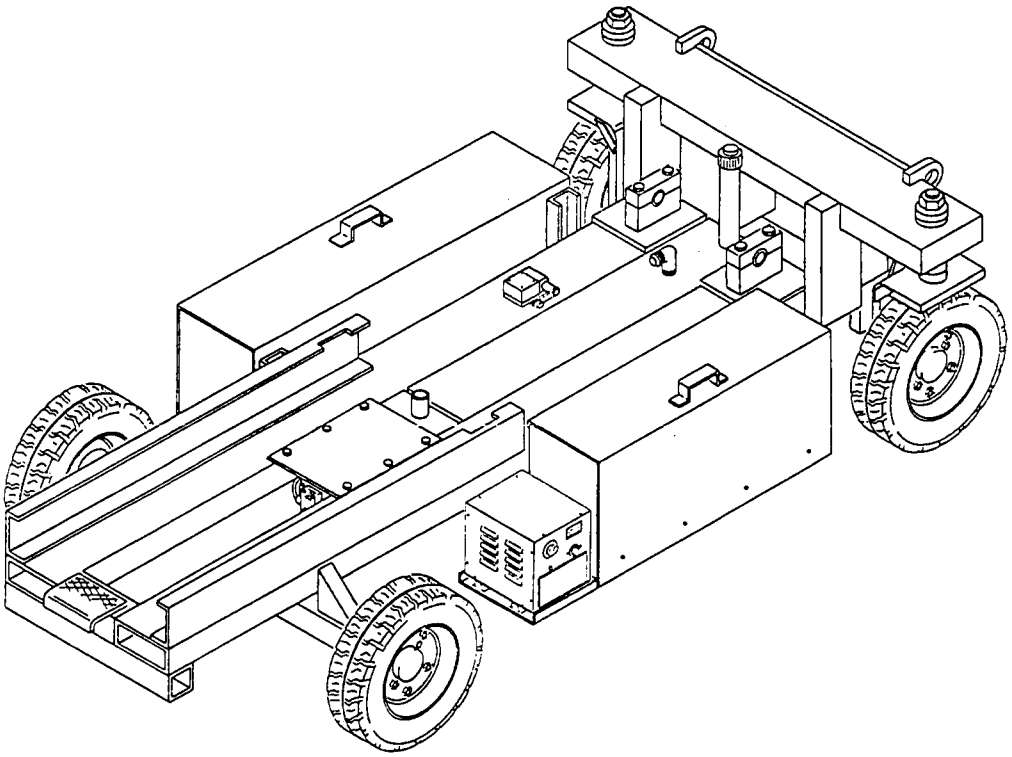
REV. 1

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	131738	HYDRAULIC HOSE DIAGRAM (See Sect. 2, Fig. 1B & 1C for NHA)	REF
2	13210-04-1900	.HOSE ASSEMBLY	1
3	13210-06-1000	.HOSE ASSEMBLY	2
4	13210-06-0850	.HOSE ASSEMBLY	1
5	13211-04-0660	.HOSE ASSEMBLY	2
6	13211-04-0360	.HOSE ASSEMBLY	1
7	13213-06-0360	.HOSE ASSEMBLY	1
8	13205-08-0140	.HOSE ASSEMBLY	1
9	13205-12-0390	.HOSE ASSEMBLY	1
10	13205-08-0400	.HOSE ASSEMBLY	1

THE MARKLIFT FRAME ASSEMBLY

THIS SECTION 3 CONTAINS THE FOLLOWING FIGURES:

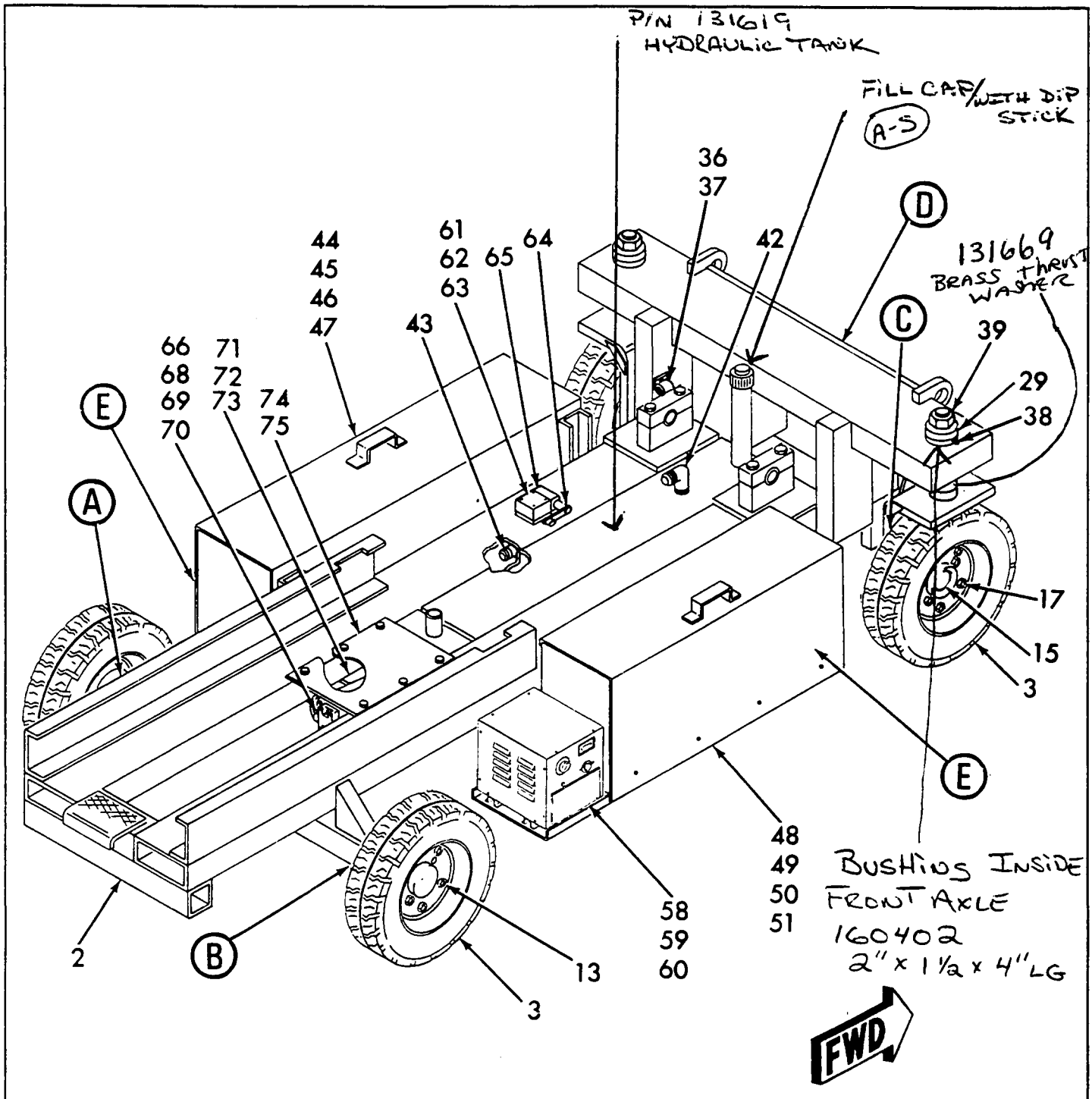
FIGURE NO.	TITLE
1	FRAME ASSEMBLY
2	TIRE AND WHEEL ASSEMBLY
3	HUB ASSEMBLY
4	BRAKE CYLINDER ASSEMBLY
5	STEERING CYLINDER ASSEMBLY
6	DRIVE MOTOR ASSEMBLY
7	CONTROL BOX ASSEMBLY
8	COMPONENT BOX ASSEMBLY
9	BATTERY CHARGER
10	PUMP/MOTOR ASSEMBLY
11	BATTERY CABLE KIT
12	TILT SWITCH ASSEMBLY
13	FILTER ASSEMBLY
14	VALVE PACKAGE ASSEMBLY



Mark Industries

TITLE	FRAME ASSEMBLY
MODEL	J19W, J25
NOTES	

SECTION	3
FIGURE	1
PAGE	1

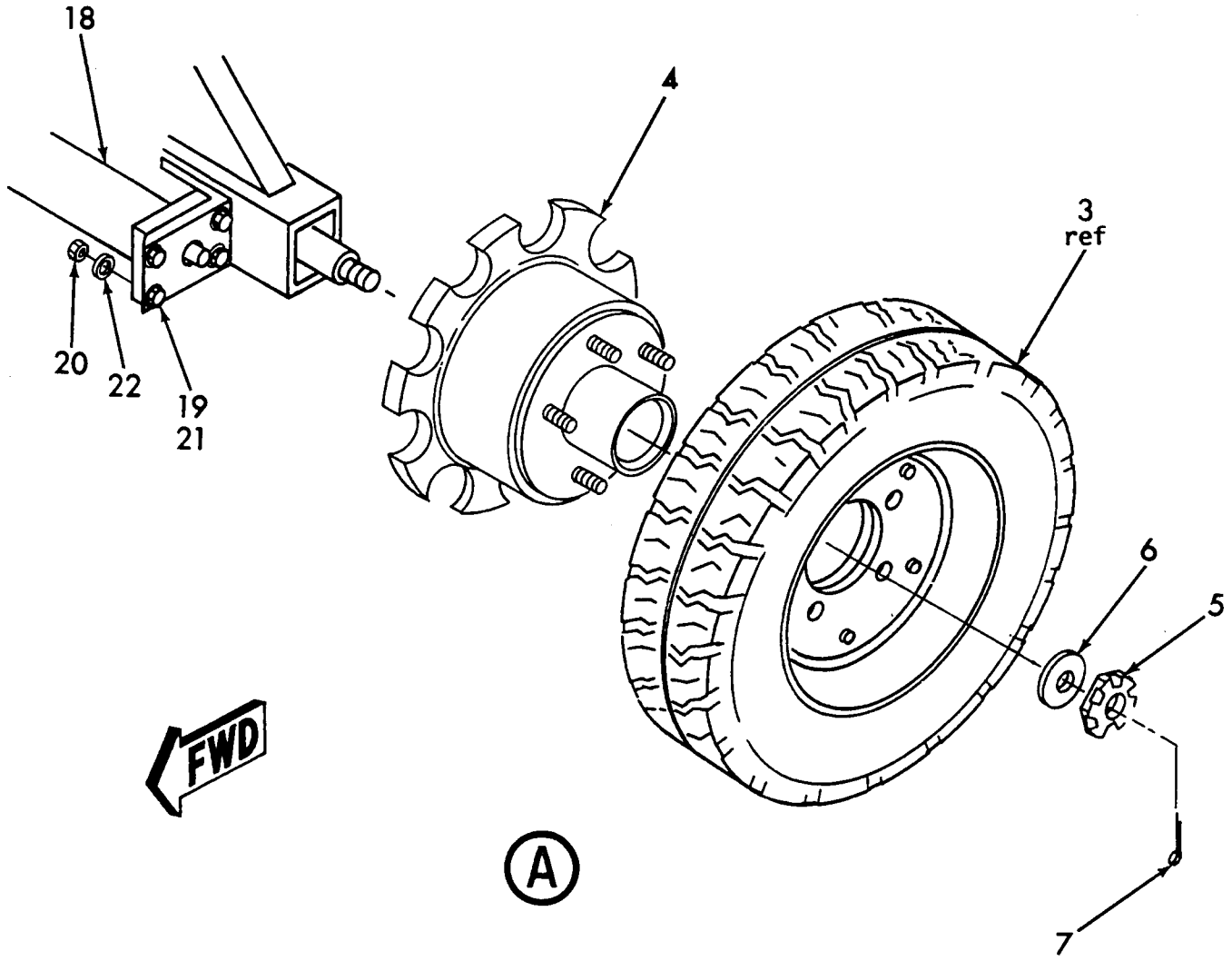


REV.

Mark Industries

TITLE	FRAME ASSEMBLY
MODEL	J19W, J25
NOTES	

SECTION	3
FIGURE	1
PAGE	2

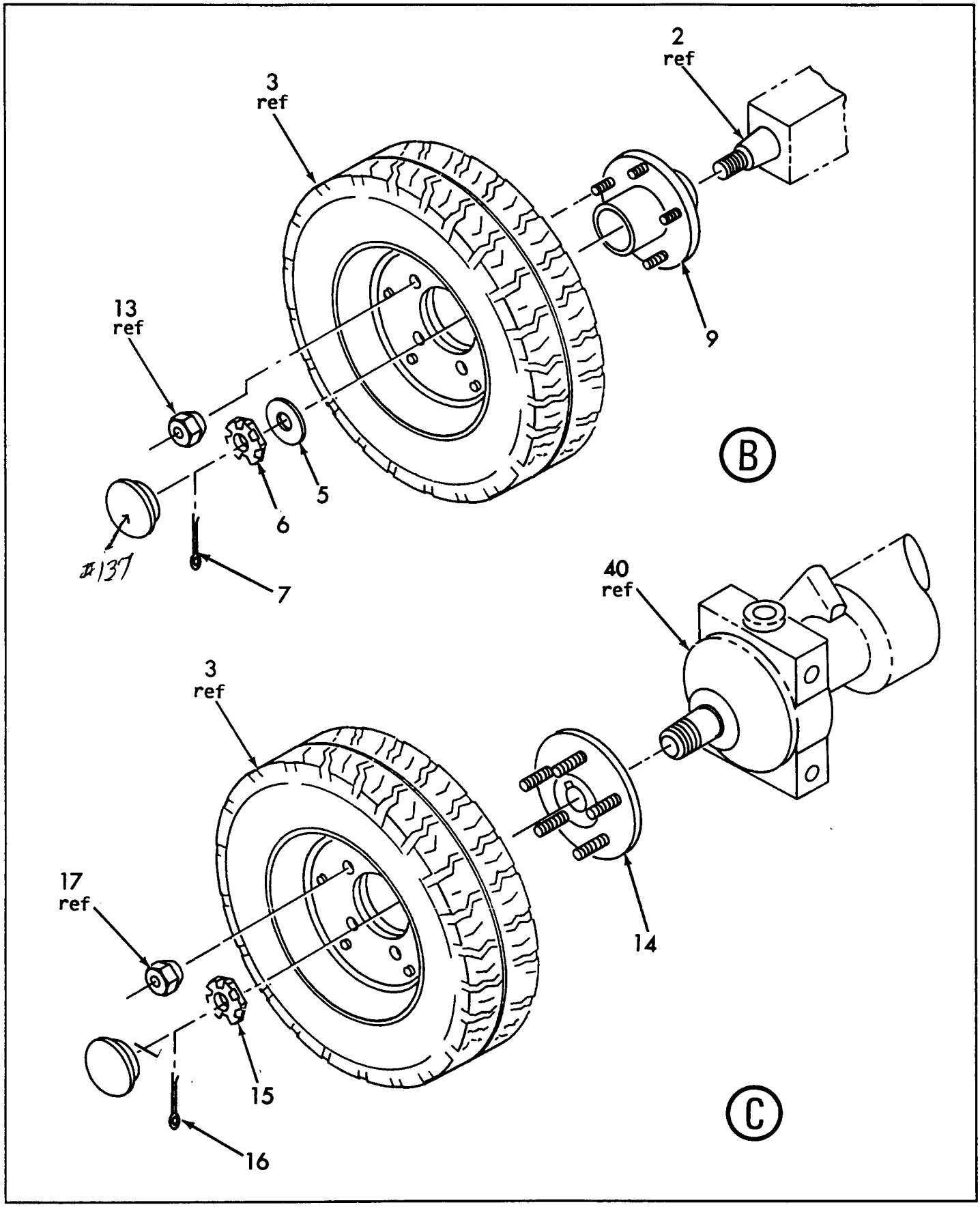


REV.

Mark Industries

TITLE	FRAME ASSEMBLY
MODEL	J19W, J25
NOTES	

SECTION	3
FIGURE	1
PAGE	3

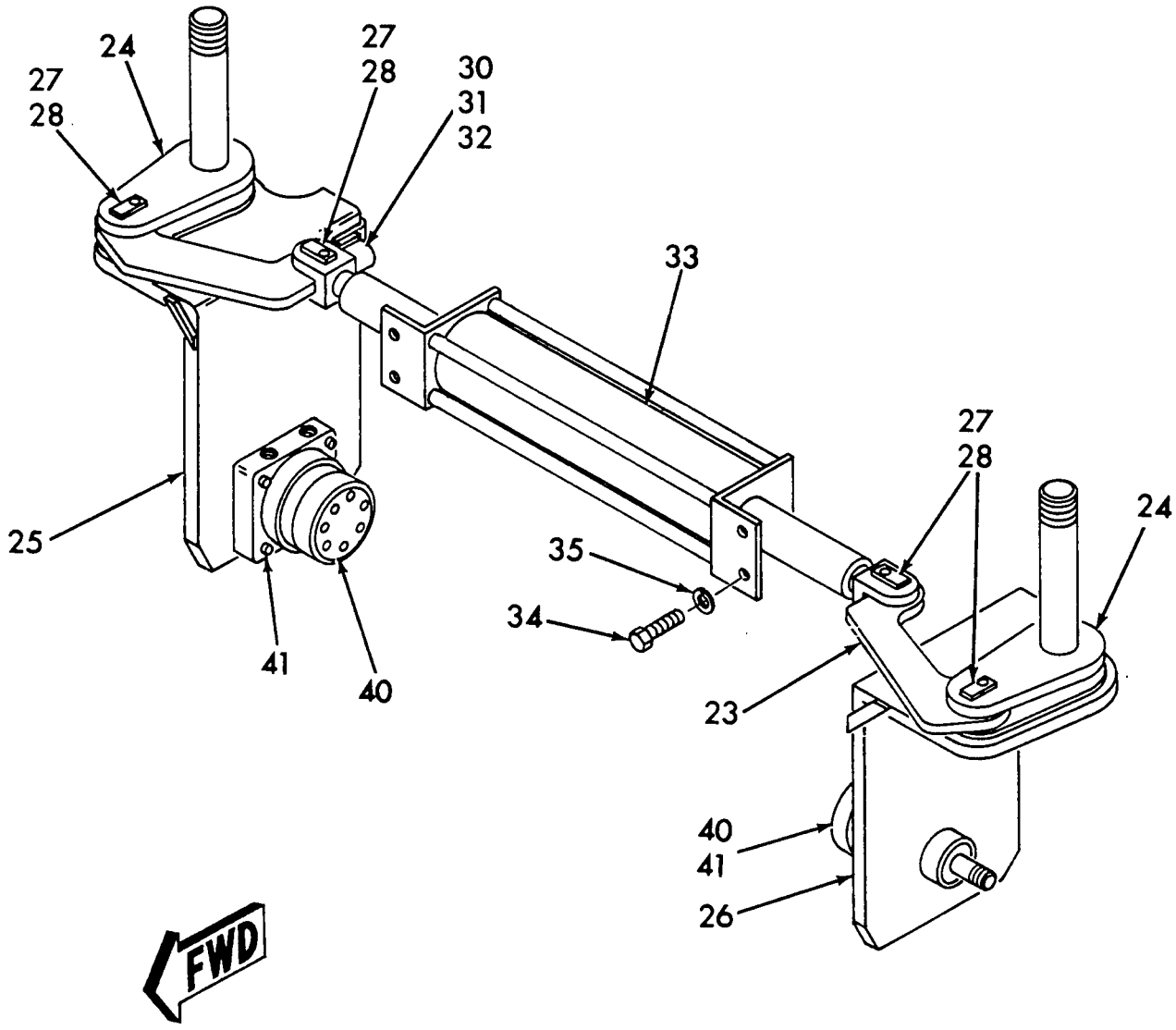


REV.

Mark Industries

TITLE	FRAME ASSEMBLY
MODEL	J19W, J25
NOTES	

SECTION	3
FIGURE	1
PAGE	4



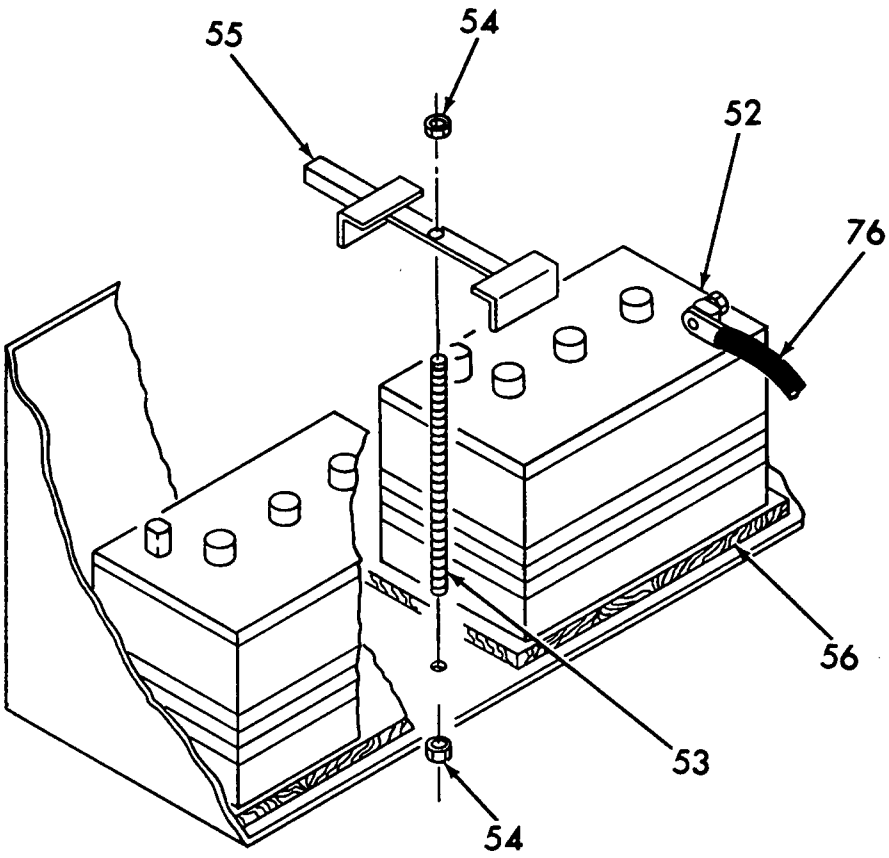
D

REV.

Mark Industries

TITLE	FRAME ASSEMBLY
MODEL	J19W, J25
NOTES	

SECTION	3
FIGURE	1
PAGE	5



E

REV.

Mark Industries

TITLE	FRAME ASSEMBLY	SECT.	3
MODEL	J19W, J25	FIG.	1
NOTES		PAGE	6

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	131601	FRAME ASSEMBLY (See Sect. 2, Fig. 1 or 1A for NHA)	REF
2	131602	.FRAME WELDMENT	1
3	131620	.TIRE AND WHEEL ASSEMBLY (See Sect. 3, Fig. 2 for Details)	4
4	131685	.BRAKE HUB WELDMENT	1
5	60811	.SLOTTED HEX NUT	1
6	63409	.FLAT WASHER	1
7	64306	.COTTER PIN	1
8	61316	.LUG NUT	5
9	134-1	.HUB ASSEMBLY (See Sect. 3, Fig. 3 for Details)	1
10	60811	.SLOTTED HEX NUT	1
11	63409	.FLAT WASHER	1
12	64306	.COTTER PIN	1
13	61316	.LUG NUT	5
14	131609	.DRIVE HUB	2
15	65174	.SLOTTED JAM NUT	2
16	64306	.COTTER PIN	2
17	65156	.LUG NUT	10
18	131698	.BRAKE CYLINDER ASSEMBLY (See Sect. 3, Fig. 4 for Details)	1
19	60357	.HEX HEAD CAP SCREW	4
20	60705	.HEX NUT	4
21	61305	.HEX HEAD LOCK NUT	4
22	63405	.FLAT WASHER	4
23	131618	.MACHINING ARM LINKAGE WITH BUSHING	2

Mark Industries

TITLE	FRAME ASSEMBLY	SECT.	3
MODEL	J19W, J25	FIG.	1
NOTES		PAGE	7

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
24	131669	.BEARING THRUST SPINDLE	2
25	131615 ~~N/A~~	.STEERING BRACKET R.H. WELDMENT (131607 ASSY)	1
26	131614 ~~N/A~~	.STEERING BRACKET L.H. WELDMENT use → (131606 ASSY)	1
27	131616	.STEERING PIN	4
28	60367	.HEX HEAD CAP SCREW	4
29	131670	.SPINDLE WASHER	2
30	65655	.CUSHIONED CLAMP	2
31	131860	.STEERING BRACKET COVER	2
32	60342	.HEX HEAD CAP SCREW	4
33	131697	.STEERING CYLINDER ASSEMBLY (See Sect. 3, Fig. 5 for Details)	1
34	60536	.HEX HEAD CAP SCREW	4
35	63305	.SPLIT LOCK WASHER	4
36	65655	.CUSHIONED CLAMP	2
37	60342	.HEX HEAD CAP SCREW	2
38	65103	.STRAIGHT GREASE FITTING	2
39	61310	.HEX HEAD LOCK NUT	2
40	131700	.DRIVE MOTOR ASSEMBLY (See Sect. 3, Fig. 6 for Details)	2
41	62005	.SOCKET HEAD BOLTS	8
42	80008-19	.MALE ELBOW	1
43	80008-15	.MALE ELBOW	1
44	131678	.CONTROL BOX ASSEMBLY (See Sect. 3, Fig. 7 for Details)	1
45	60326	.HEX HEAD CAP SCREW	4
46	60705	.HEX NUT	4
47	63305	.SPLIT LOCK WASHER	4

Mark Industries

TITLE	FRAME ASSEMBLY	SECT.	3
MODEL	J19W, J25	FIG.	1
NOTES		PAGE	8

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
48	131679	.COMPONENT BOX ASSEMBLY (See Sect. 3, Fig. 8 for Details)	1
49	60326	.HEX HEAD CAP SCREW	4
50	60705	.HEX NUT	4
51	63305	.SPLIT LOCK WASHER	4
52	4007	.BATTERY	4
53	160155	.THREADED ROD	2
54	61239	.LOCK NUT	4
55	131684	.BATTERY RETAINER WELDMENT	2
56	131570	.BATTERY PLYWOOD	4
-57	411	.RUBBER EXTRUSION (4.7" LONG)	1
58	70493	.BATTERY CHARGER (See Sect. 3, Fig. 9 for Details)	1
59	61239	.LOCK NUT	4
60	63401	.FLAT WASHER	4
61	70107	.LIMIT SWITCH	1
62	62615	.ROUND HEAD SLOT MACH. SCREW	2
63	63313	.SPLIT LOCK WASHER	2
64	70032	.OPERATING LEVER	1
65	70288	.STRAIN RELIEF	1
66	131699	.PUMP/MOTOR ASSEMBLY (See Sect. 3, Fig. 10 for Details)	1
-67	80015-05	.STRAIGHT THREAD ELBOW	1
68	60338	.HEX HEAD CAP SCREW	4
69	63402	.FLAT WASHER	4
70	61246	.LOCK NUT	4
71	131763	.PUMP/MOTOR BRACKET ASSEMBLY	1

Mark Industries

TITLE	FRAME ASSEMBLY
MODEL	J19W, J25
NOTES	

SECT.	3
FIG.	1
PAGE	9

ITEM	PART NUMBER	DESCRIPTION 1 2 3 4	UNITS PER ASSY
72	60338	.HEX HEAD CAP SCREW	4
73	63402	.FLAT WASHER	4
74	131764	.PUMP/MOTOR COVER ASSEMBLY	1
75	60353	.HEX HEAD CAP SCREW	6
76	131758	.BATTERY CABLE KIT (See Sect. 3, Fig. 11 for Details)	1
-77	80015-05	.ELBOW SWIVEL NUT	2
-78	411	.RUBBER EXTRUSION (23.8" LONG)	1

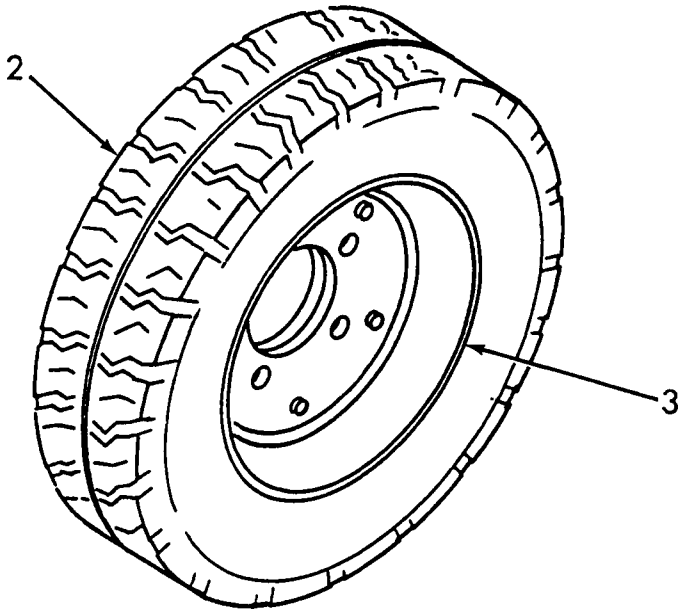
REV.

DASH (-) INDICATES THE 'ITEM' IS NOT ILLUSTRATED

Mark Industries

TITLE	TIRE AND WHEEL ASSEMBLY
MODEL	J19W, J25
NOTES	

SECTION	3
FIGURE	2
PAGE	1



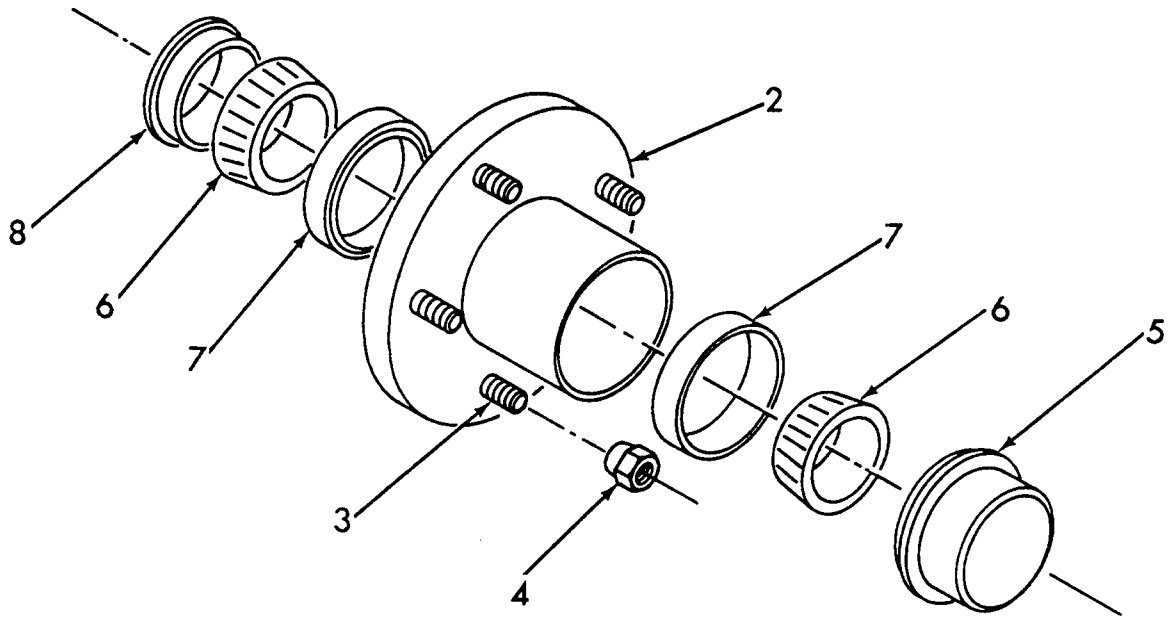
ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	131620	TIRE AND WHEEL ASSEMBLY (See Sect. 3, Fig 1 for NHA)	REF
2	131630	.TIRE	4
3	131631	.WHEEL	4

REV.

Mark Industries

TITLE	HUB ASSEMBLY
MODEL	J19W, J25
NOTES	

SECTION	3
FIGURE	3
PAGE	1



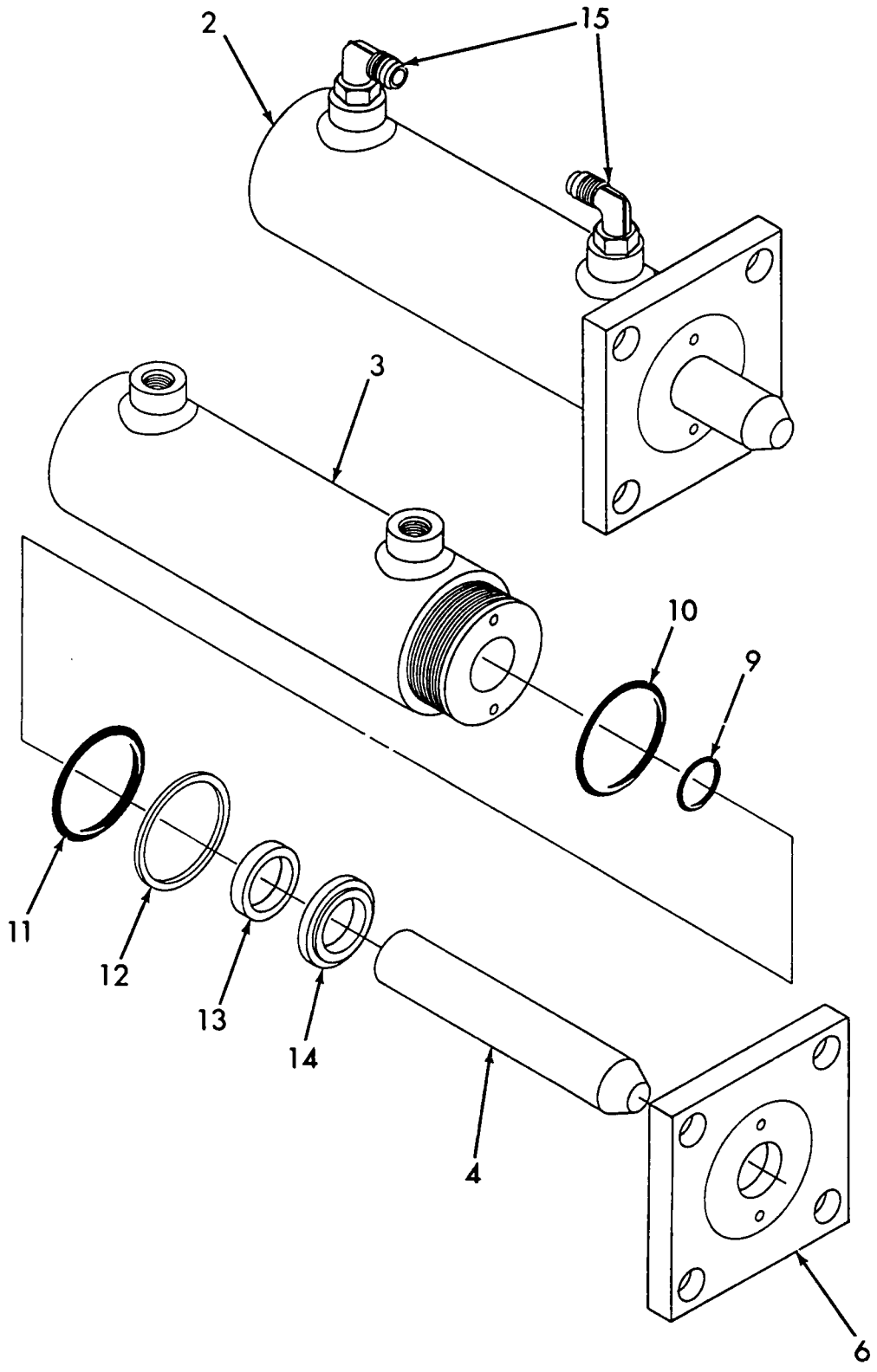
ITEM	PART NUMBER	DESCRIPTION 1 2 3 4	UNITS PER ASSY
-1	134-1	HUB ASSEMBLY (See Sect. 3, Fig. 1 for NHA)	REF
2	65684	.HUB	1
3	65685	.LUG BOLT	5
4	61316	.LUG NUT	5
5	137	.DUST CAP	1
6	65059	.BEARING	2
7	65686	.BEARING RACE	2
8	66113	.SEAL	1

REV.

Mark Industries

TITLE	BRAKE CYLINDER ASSEMBLY
MODEL	J19W, J25
NOTES	

SECTION	3
FIGURE	4
PAGE	1



REV.

Mark Industries

TITLE	BRAKE CYLINDER ASSEMBLY
MODEL	J19W, J25
NOTES	

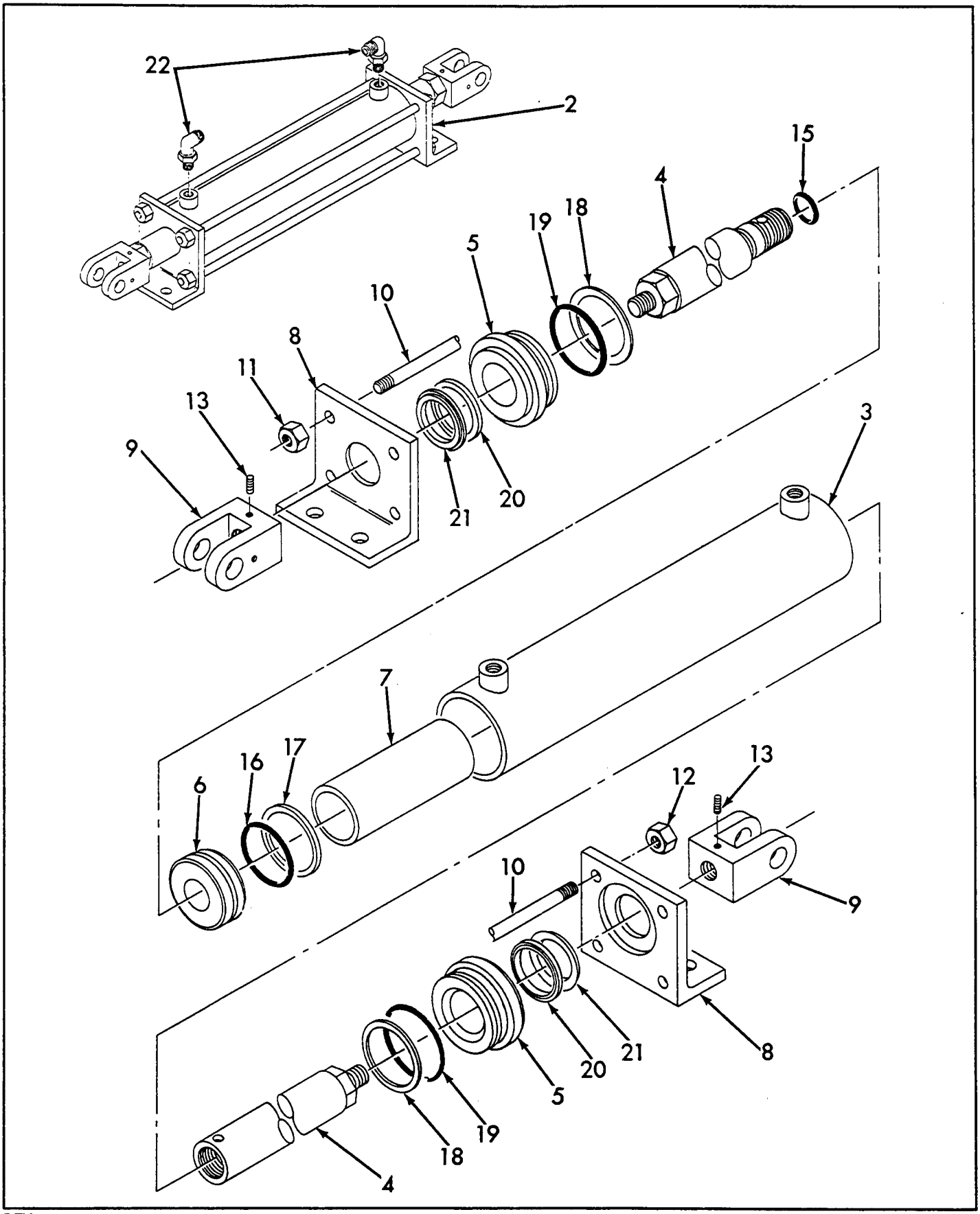
SECT.	3
FIG.	4
PAGE	2

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	131698	BRAKE CYLINDER ASSEMBLY (See Sect. 3, Fig. 1 for NHA)	REF
2	131628	.BRAKE CYLINDER	1
3	67849	..TUBE ASSEMBLY	1
4	67850	..ROD	1
-5	67857	..PISTON	1
6	67858	..HEAD	1
-7	67864	..SPRING	1
-8	67843	..SEAL KIT	1
9		...O-RING	1
10		...CROWN SEAL	1
11		...O-RING	1
12		...BACK-UP RING	1
13		...U-CUP (POLY PAK)	1
14		...ROD WIPER	1
15	80012-03	.ELBOW	2

Mark Industries

TITLE	STEERING CYLINDER ASSEMBLY
MODEL	J19W, J25
NOTES	

SECTION	3
FIGURE	5
PAGE	1



REV.

Mark Industries

TITLE	STEERING CYLINDER ASSEMBLY
MODEL	J19W, J25
NOTES	

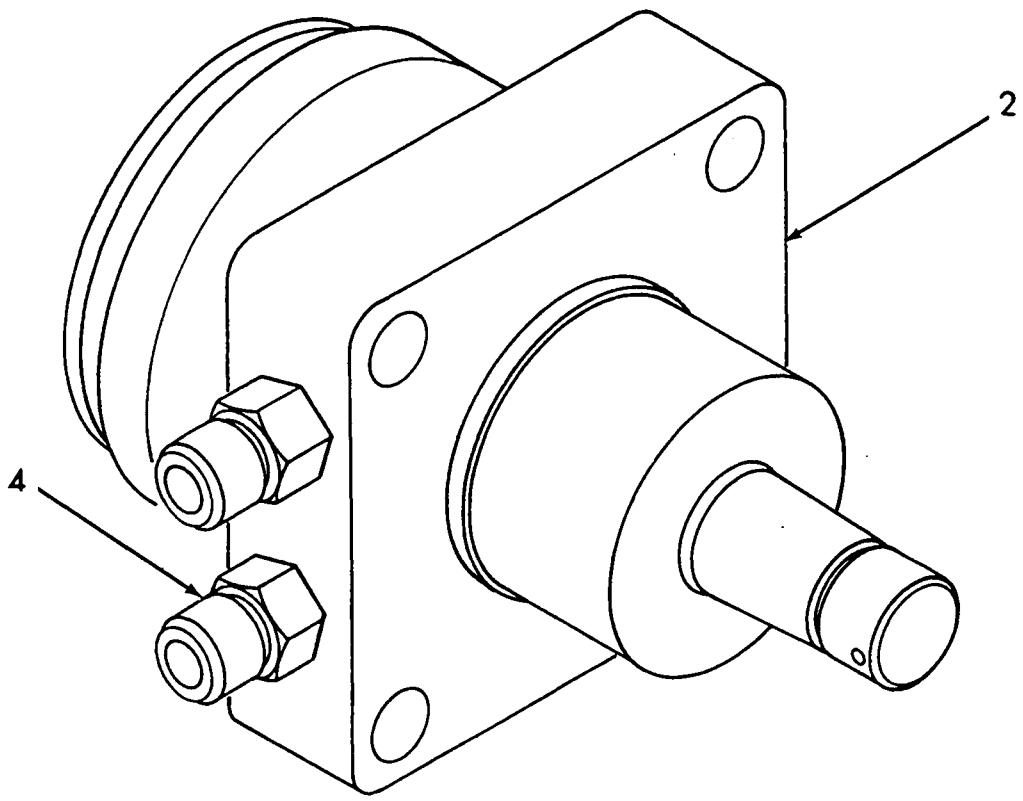
SECT.	3
FIG.	5
PAGE	2

ITEM	PART NUMBER	DESCRIPTION 1 2 3 4	UNITS PER ASSY
-1	131697	STEERING CYLINDER ASSEMBLY (See Sect. 3, Fig. 1 for NHA)	REF
2	131624	.STEERING CYLINDER	1
3	67848	..TUBE ASSEMBLY	1
4	67851	..ROD ASSEMBLY	1
5	67859	..HEAD	2
6	67856	..PISTON	1
7	67863	..SPACER	1
8	67865	..FOOT MOUNT	2
9	67866	..ROD CLEVIS	2
10		..TIE ROD	4
11		..NUT	4
12		..LOCK NUT	4
13	67867	..SET SCREW	2
-14	67842	..SEAL KIT	1
15		...O-RING	1
16		...O-RING	1
17		...CAP SEAL	1
18		...BACK-UP RING	2
19		...O-RING	2
20		...U-CUP (POLY PAK)	2
21		...ROD WIPER	2
22	80012-13	.ELBOW	2

Mark Industries

TITLE	DRIVE MOTOR
MODEL	J19W, J25
NOTES	

SECTION	3
FIGURE	6
PAGE	1



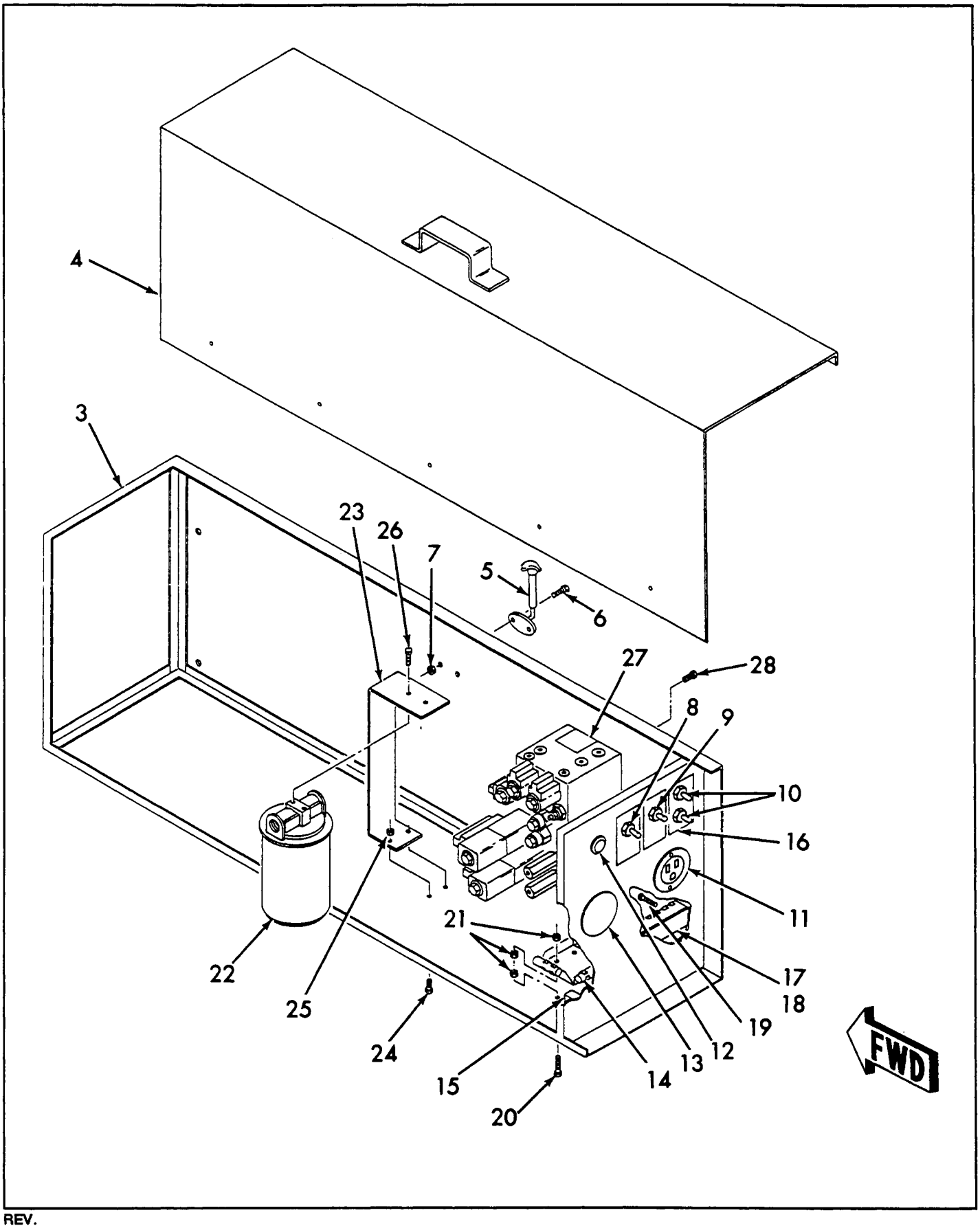
ITEM	PART NUMBER	DESCRIPTION 1 2 3 4	UNITS PER ASSY
-1	131700	DRIVE MOTOR ASSEMBLY (See Sect. 3, Fig. 1 for NHA)	REF
2	81310	.DRIVE MOTOR	1
-3	67841	..SEAL KIT	1
4	80004-10	.STRAIGHT THREAD CONNECTOR	2

REV.

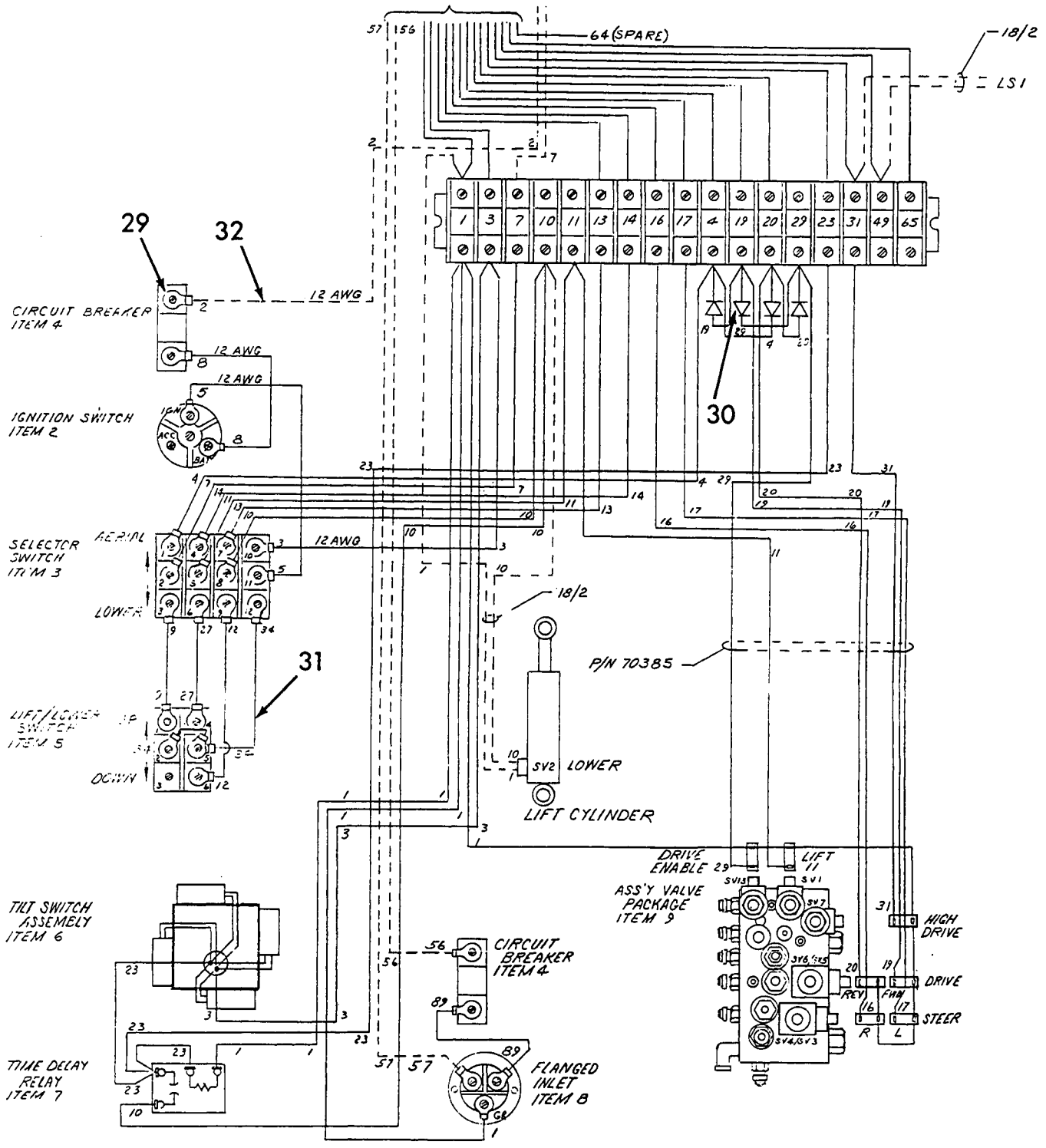
Mark Industries

TITLE	CONTROL BOX ASSEMBLY
MODEL	J19W, J25
NOTES	

SECTION	3
FIGURE	7
PAGE	1



REV.



ELECTRICAL DIAGRAM

REFER TO ELECTRIAL SCHEMATIC 131736

Mark Industries

TITLE	CONTROL BOX ASSEMBLY
MODEL	J19W, J25
NOTES	

SECT.	3
FIG.	7
PAGE	3

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	131678	CONTROL BOX ASSEMBLY (See Sect. 3, Fig. 1 for NHA)	REF
2	131717	.CONTROL BOX SUB-ASSEMBLY	1
3	131718	..CONTROL BOX WELDMENT	1
4	131722	..CONTROL BOX COVER WELDMENT	1
5	160169	..HOOD LATCH	1
6	60633	..HEX HEAD CAP SCREW	2
7	60701	..HEX NUT	2
8	16260	.TOGGLE SWITCH	1
9	20481	.TOGGLE SWITCH	1
10	20562	.CIRCUIT BREAKER	2
11	70409	.FLANGED INLET	1
12	~~2712~~ 2717	.IGNITION SWITCH	1
13	65244	.WHITE PLUG	1
14	130193	.TILT SWITCH ASSEMBLY (See Sect. 3, Fig. 12 for Details)	1
15	70337	.TIME DELAY RELAY	1
16	182738	.DECAL	1
17	4027	.TERMINAL BLOCK	17
18	117-A	.TERMINAL BLOCK END	2
19	62621	.ROUND HEAD SLOT MACH. SCREW	2
20	60340	.HEX HEAD CAP SCREW	2
21	60711	.HEX NUT	6
22	131774	.FILTER ASSEMBLY (See Sect. 3, Fig. 13 for Details)	1
23	131739	.FILTER MOUNTING BRACKET	1
24	60353	.HEX HEAD CAP SCREW	2

Mark Industries

TITLE	CONTROL BOX ASSEMBLY
MODEL	J19W, J25
NOTES	

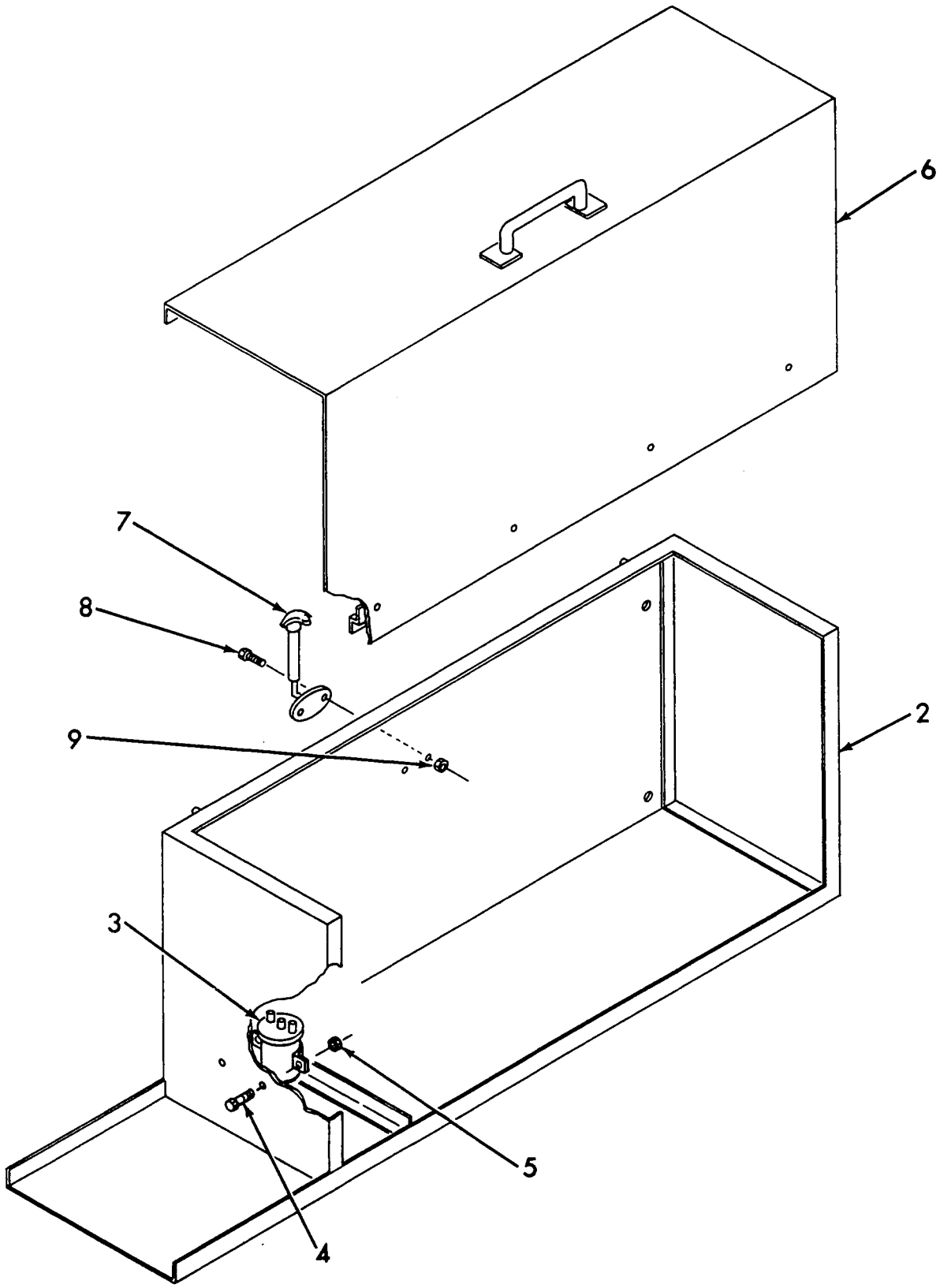
SECT.	3
FIG.	7
PAGE	4

ITEM	PART NUMBER	DESCRIPTION 1 2 3 4	UNITS PER ASSY
25	60711	.HEX NUT	2
26	60342	.HEX HEAD CAP SCREW	2
27	131729	.VALVE PACKAGE ASSEMBLY (See Sect. 3, Fig. 14 for Details)	1
28	60395	.HEX HEAD CAP SCREW	2
29	117-C	.RING CONNECTOR	26
30	70479	.DIODE	4
31	70232	.WHITE WIRE (4' LONG)	1
32	2991	.WHITE WIRE (4' LONG)	1

Mark Industries

TITLE	COMPONENT BOX ASSEMBLY
MODEL	J19W, J25
NOTES	

SECTION	3
FIGURE	8
PAGE	1



REV.

Mark Industries

TITLE	COMPONENT BOX ASSEMBLY	SECT.	3
MODEL	J19W, J25	FIG.	8
NOTES		PAGE	2

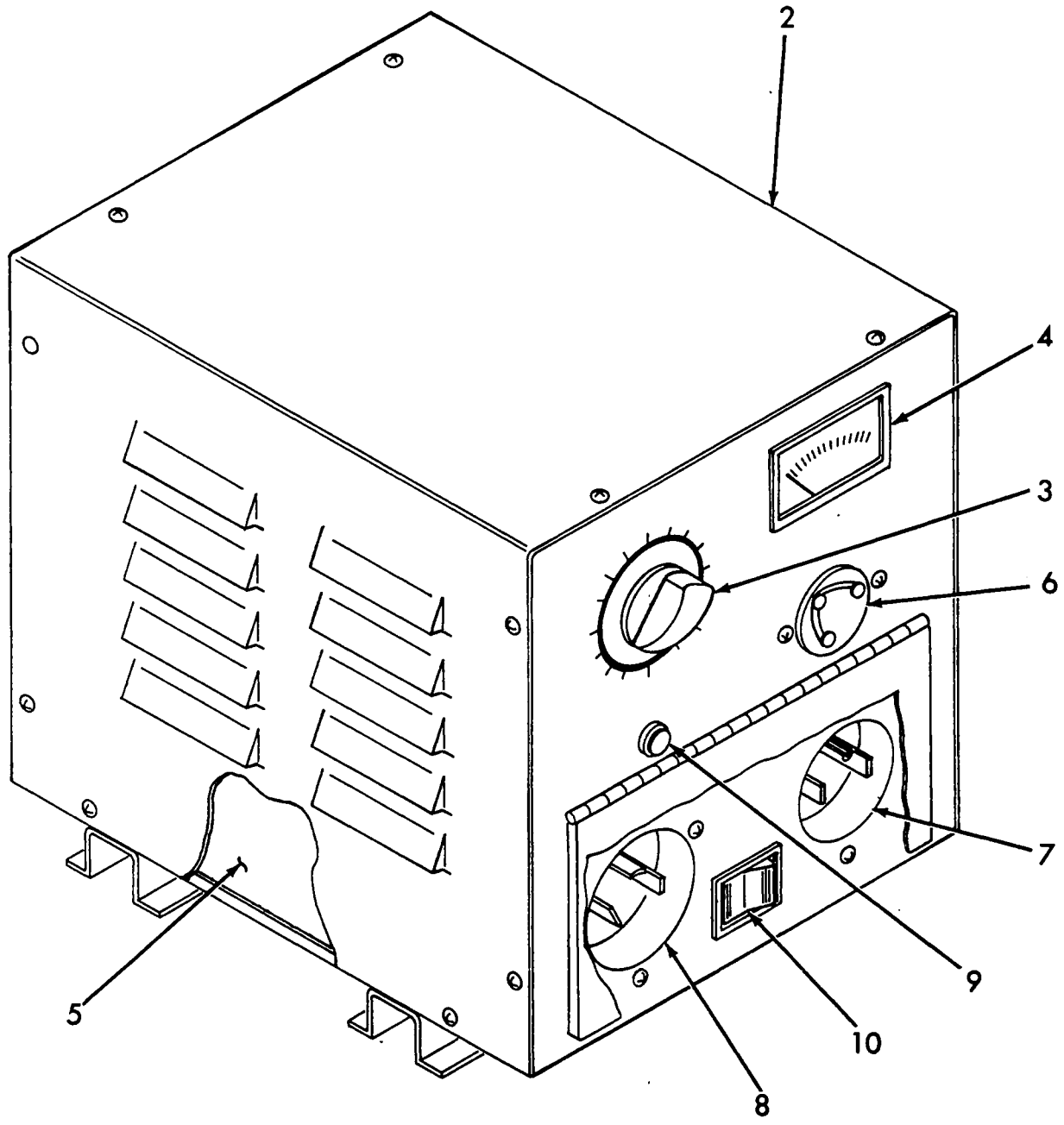
ITEM	PART NUMBER	DESCRIPTION 1 2 3 4	UNITS PER ASSY
-1	131679	COMPONENT BOX ASSEMBLY (See Sect. 3, Fig. 1 for NHA)	REF
2	131724	.COMPONENT BOX WELDMENT	1
3	70362	.POWER RELAY	1
4	63359	.HEX HEAD CAP SCREW	2
5	61312	.SELF-LOCKING HEX NUT	2
6	131728	.COMPONENT BOX COVER WELDMENT	1
7	160169	.HOOD LATCH	1
8	60633	.HEX HEAD CAP SCREW	2
9	60701	.HEX NUT	2

DASH (-) INDICATES THE 'ITEM' IS NOT ILLUSTRATED

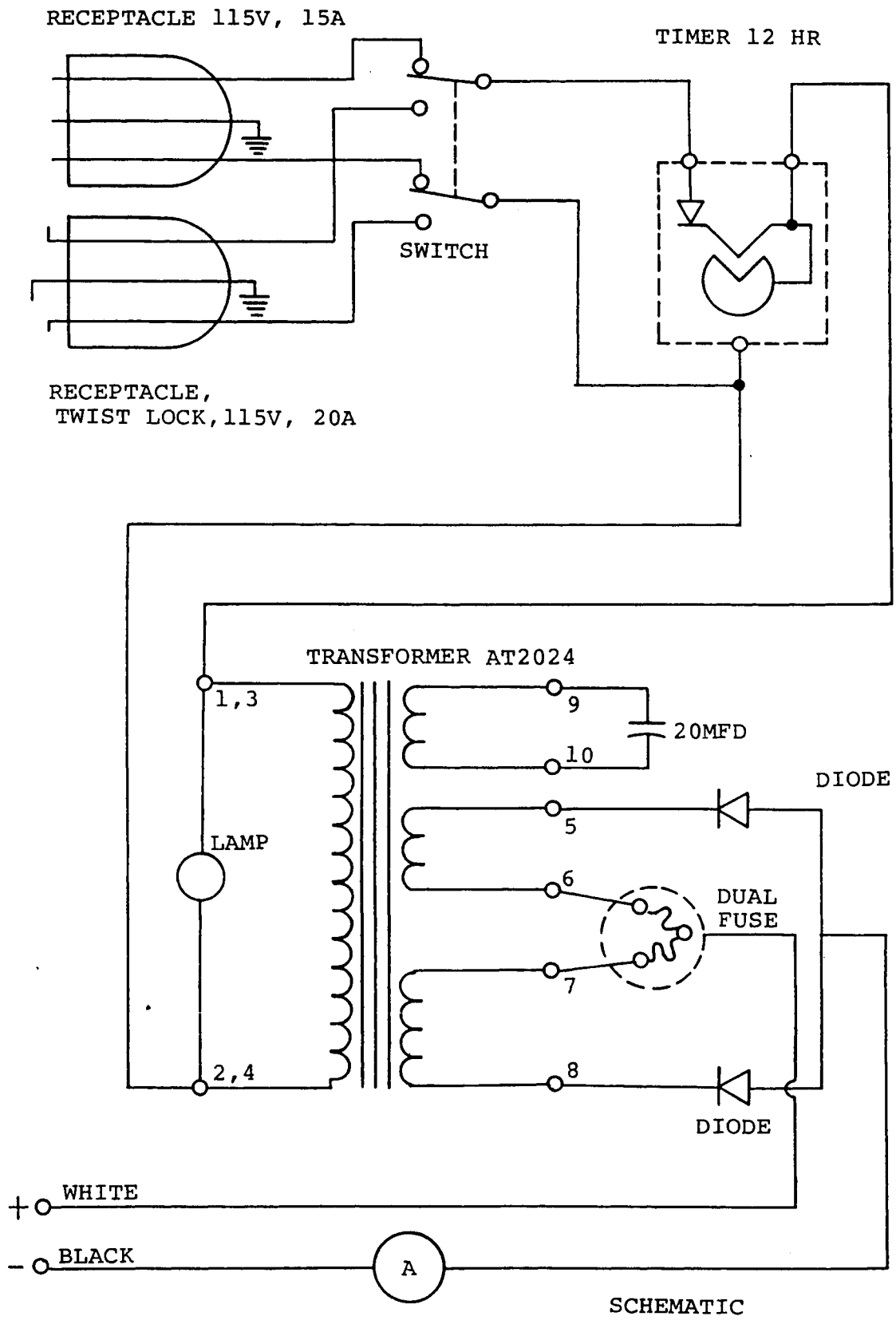
Mark Industries

TITLE	BATTERY CHARGER
MODEL	J19W, J25
NOTES	

SECTION	3
FIGURE	9
PAGE	1



REV.


RECEPTACLE 115V, 15A
TIMER 12 HR
SWITCH
RECEPTACLE,
TWIST LOCK,115V, 20A
TRANSFORMER AT2024
1,3
9
20MFD
10
DIODE
5
LAMP
6
DUAL
FUSE
7
2,4
8
DIODE
WHITE
BLACK
A

SCHEMATIC

Mark Industries

TITLE	BATTERY CHARGER
MODEL	J19W, J25
NOTES	

SECT.	3
FIG.	9
PAGE	3

ITEM	PART NUMBER	DESCRIPTION 1 2 3 4	UNITS PER ASSY
-1	70493	BATTERY CHARGER (See Sect. 3, Fig. 1 for NHA)	REF
2		.HOUSING	1
3	66732	.TIMER	1
4	67969	.AMMETER	1
5	67961	.TRANSFORMER	1
6	66727	.FUSE	1
7	70050	.AC RECEPTACLE (115V 15A)	1
8	66183	.TWISTLOCK (115V 20A)	1
9	67964	.INDICATOR LAMP	1
10	67963	.SWITCH DPDT	1
-11	67966	.SILICON RECTIFIER	2
-12	67967	.CAPACITOR	1
-13		.HEAT SINK	1
	66733	Knob/timer	

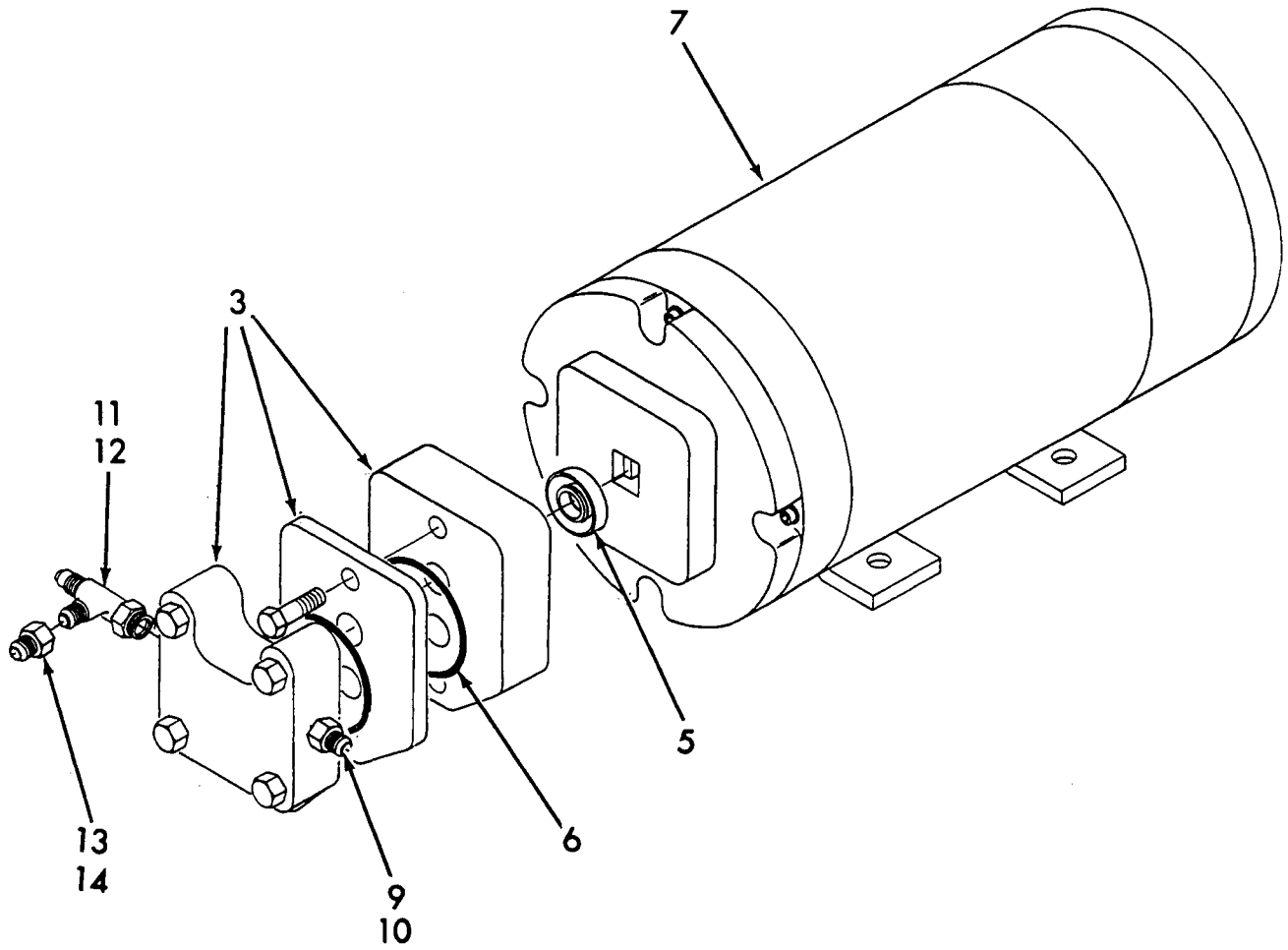
REV.

DASH (-) INDICATES THE 'ITEM' IS NOT ILLUSTRATED

Mark Industries

TITLE	PUMP/MOTOR ASSEMBLY
MODEL	J19W, J25
NOTES	

SECTION	3
FIGURE	10
PAGE	1



REV.

Mark Industries

TITLE	PUMP/MOTOR ASSEMBLY
MODEL	J19W, J25
NOTES	

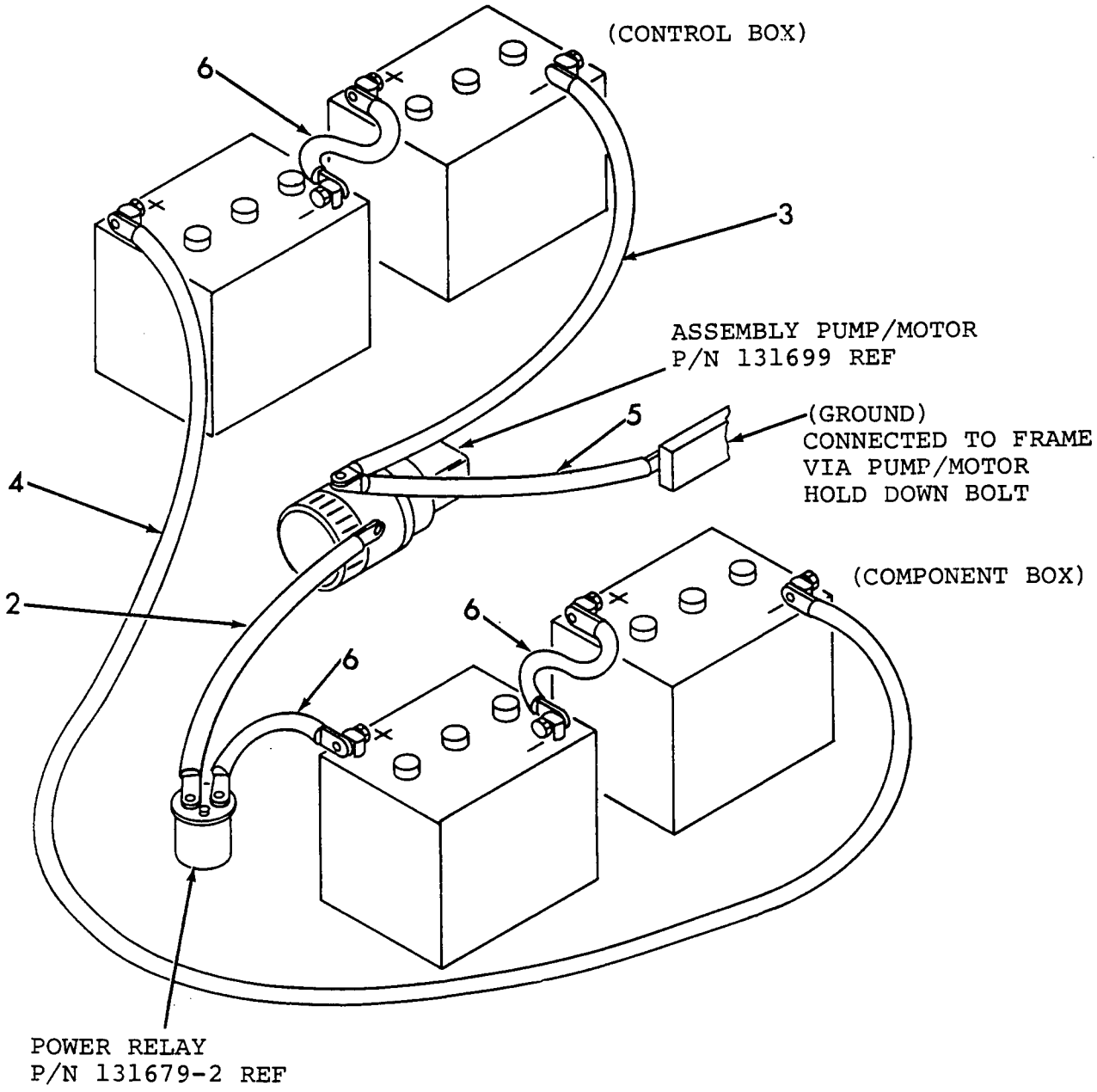
SECT.	3
FIG.	10
PAGE	2

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	131699	PUMP/MOTOR ASSEMBLY (See Sect. 3, Fig. 1 for NHA)	REF
-2	81311	.PUMP/MOTOR	1
3	67835	..PUMP	1
-4	81176	...SEAL KIT	1
5		....SHAFT SEAL	1
6		....O-RING	2
7	67836	..MOTOR	1
-8		...BRUSH SET	1
9	80004-05	.STRAIGHT THREAD CONNECTOR	1
10	65888	.PLUG	1
11	80033-11	.STRAIGHT THREAD RUN TEE	1
12	65759	.PLUG	1
13	80056-02	.TUBE END REDUCER	1
14	65857	.PLUG	1

Mark Industries

TITLE	BATTERY CABLE KIT
MODEL	J19W, J25
NOTES	

SECTION	3
FIGURE	11
PAGE	1



REV.

Mark Industries

TITLE	BATTERY CABLE KIT
MODEL	J19W, J25
NOTES	

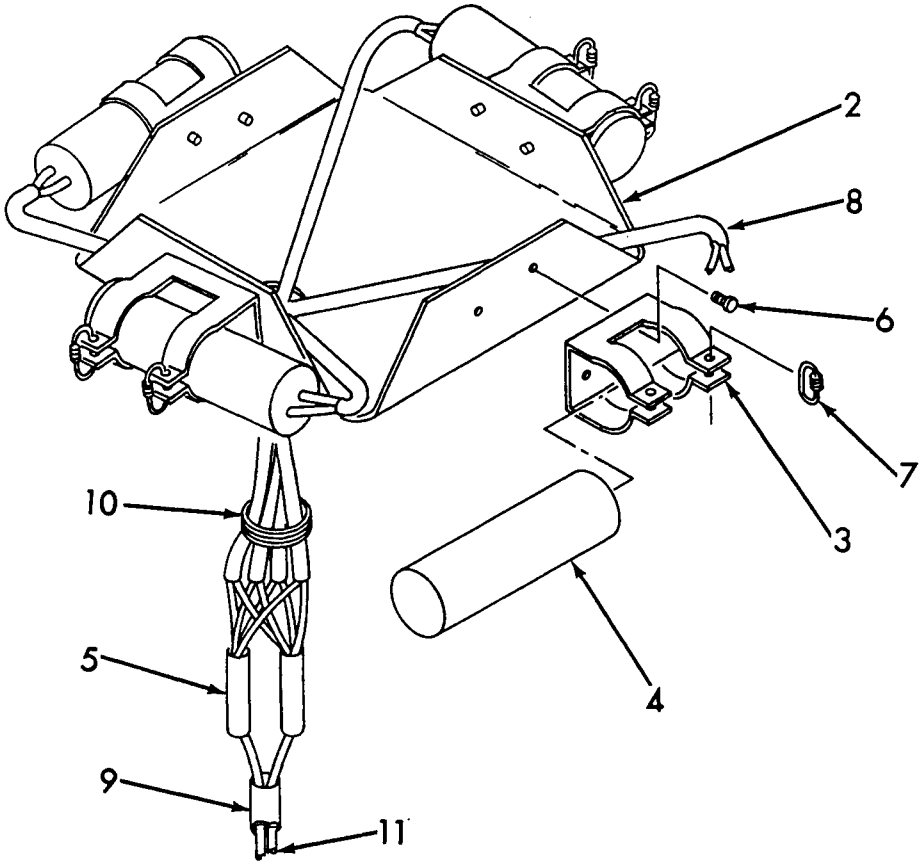
SECT.	3
FIG.	11
PAGE	2

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	131758	BATTERY CABLE KIT (See Sect. 3, Fig. 1 for NHA)	REF
2	13226-0280	.ELECTRICAL CABLE (28" LONG)	1
3	13226-0560	.ELECTRICAL CABLE (56" LONG)	1
4	13226-0720	.ELECTRICAL CABLE (72" LONG)	1
5	13226-0100	.ELECTRICAL CABLE (10" LONG)	1
6	13226-0120	.ELECTRICAL CABLE (12" LONG)	3

Mark Industries

TITLE	TILT SWITCH ASSEMBLY
MODEL	J19W, J25
NOTES	

SECTION	3
FIGURE	12
PAGE	1



REV.

Mark Industries

TITLE	TILT SWITCH ASSEMBLY
MODEL	J19W, J25
NOTES	

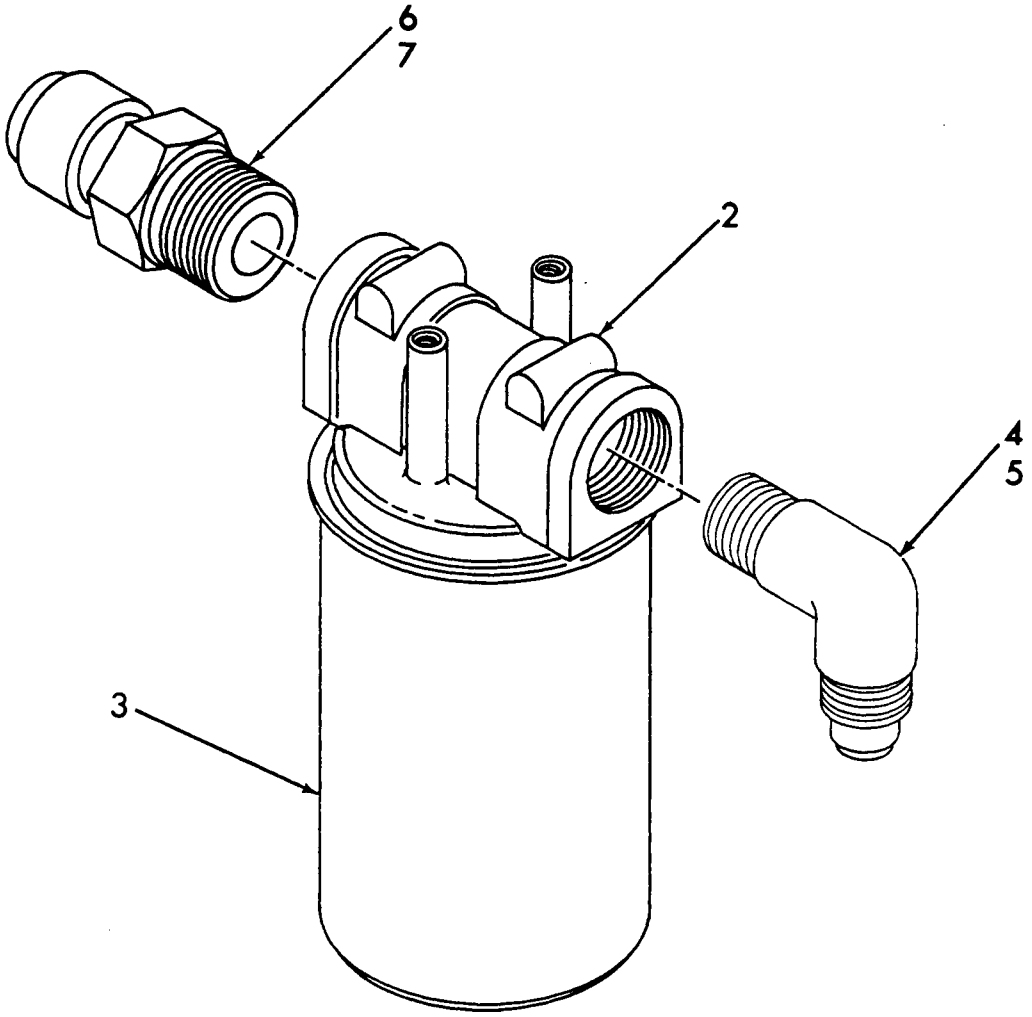
SECT.	3
FIG.	12
PAGE	2

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	130193	TILT SWITCH ASSEMBLY (See Sect. 3, Fig. 7 for NHA)	REF
2	30385	.TILT SWITCH BRACKET	1
3	199-A	.BRACKET	4
4	4014	.MERCURY SWITCH	4
5	70068	.BUTT CONNECTOR	2
6	62605	.MACH. SCREW	8
7	2626	.SAFETY WIRE (1' LONG)	1
8	16306	.HEAT SHRINK TUBE (1' LONG)	1
9	16307	.HEAT SHRINK TUBE (2' LONG)	1
10	70230	.RUBBER GROMMET	1
11	70023	.ELECTRICAL CABLE	1

Mark Industries

TITLE	FILTER ASSEMBLY
MODEL	J19W, J25
NOTES	

SECTION	3
FIGURE	13
PAGE	1



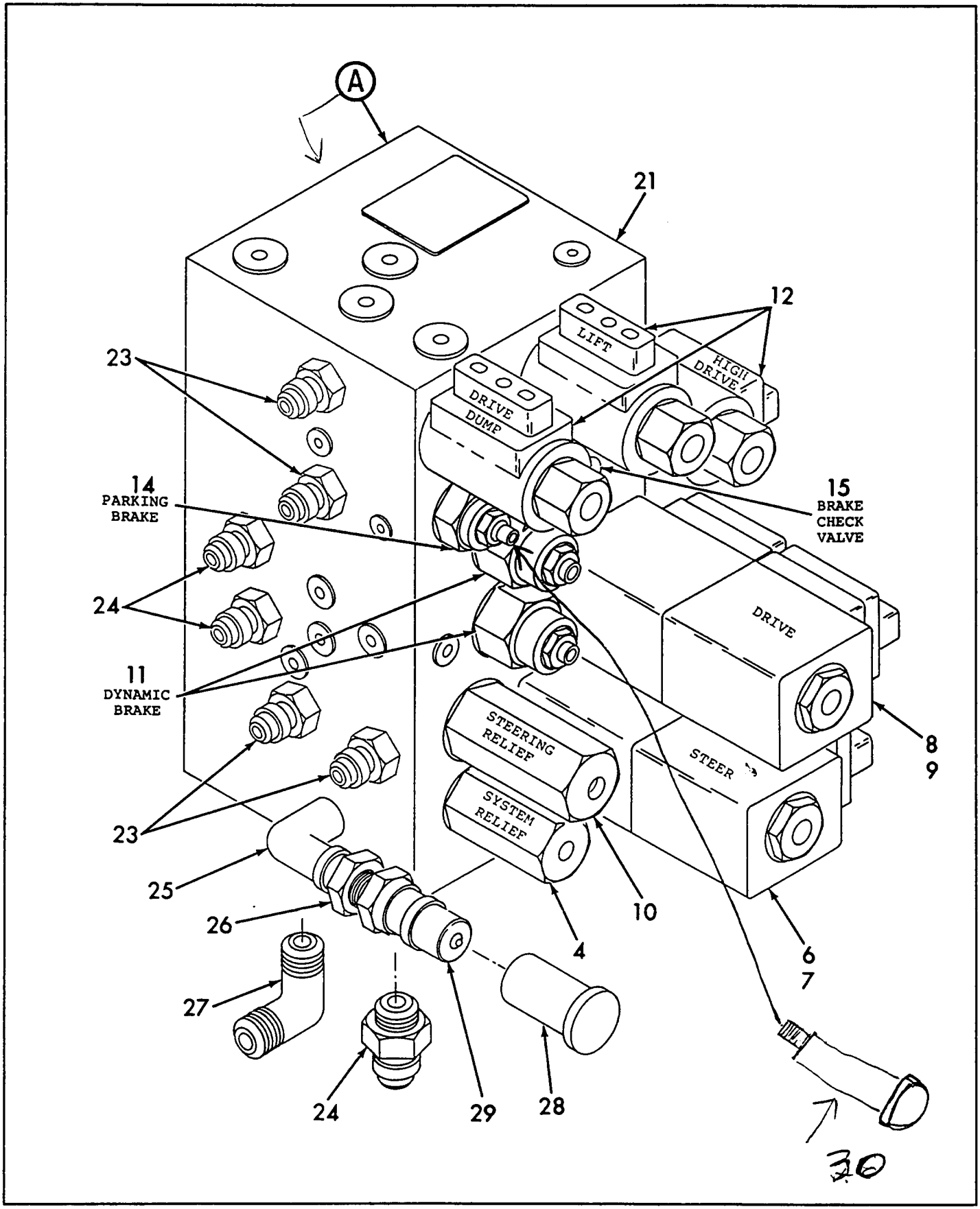
ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	131774	FILTER ASSEMBLY (See Sect. 3, Fig. 7 for NHA)	REF
2	30306	.FILTER CANISTER	1
3	16947	..FILTER ELEMENT	1
4	80008-15	.ELBOW, MALE	1
5	65759	.PLUG	1
6	80001-19	.MALE CONNECTOR	1
7	65761	.PLUG	1

REV.

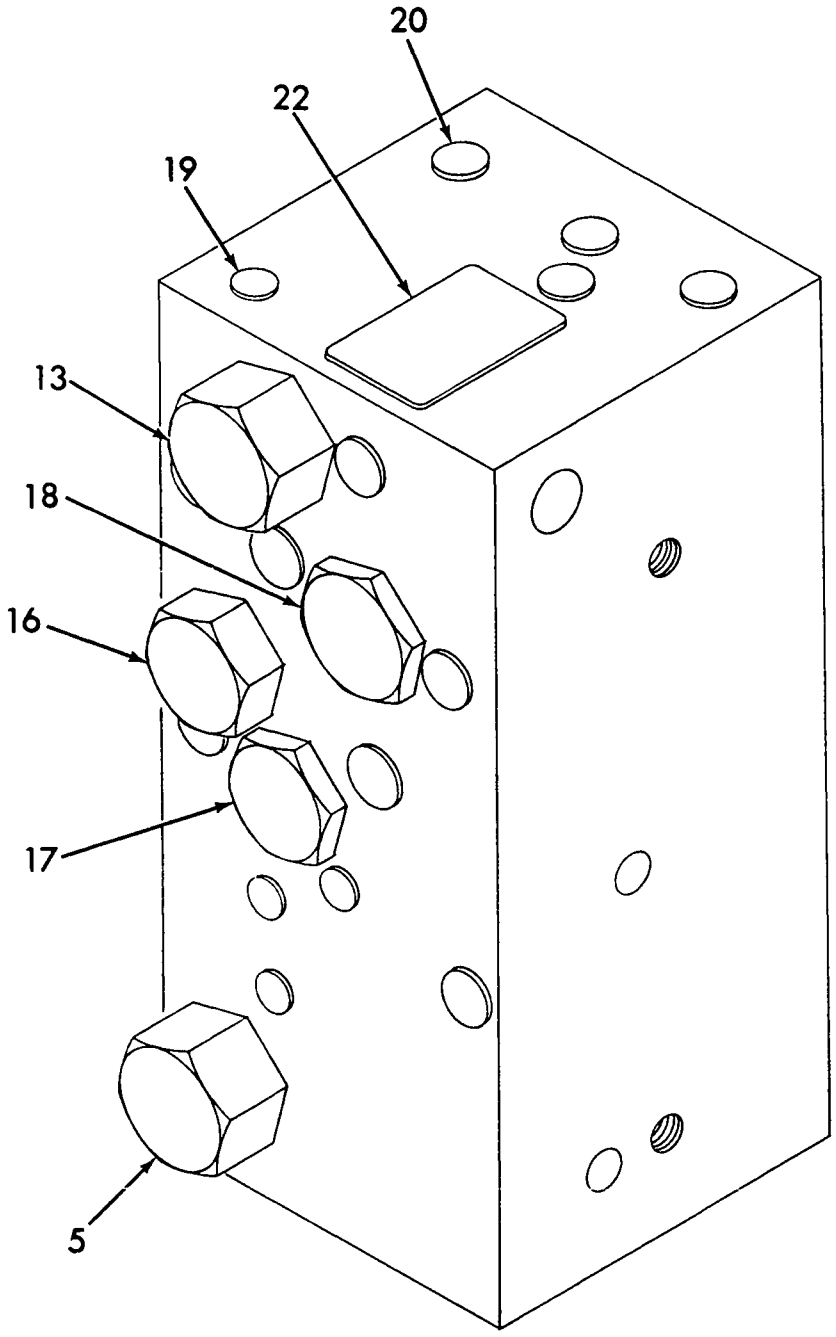
Mark Industries

TITLE	VALVE PACKAGE ASSEMBLY
MODEL	J19W, J25
NOTES	

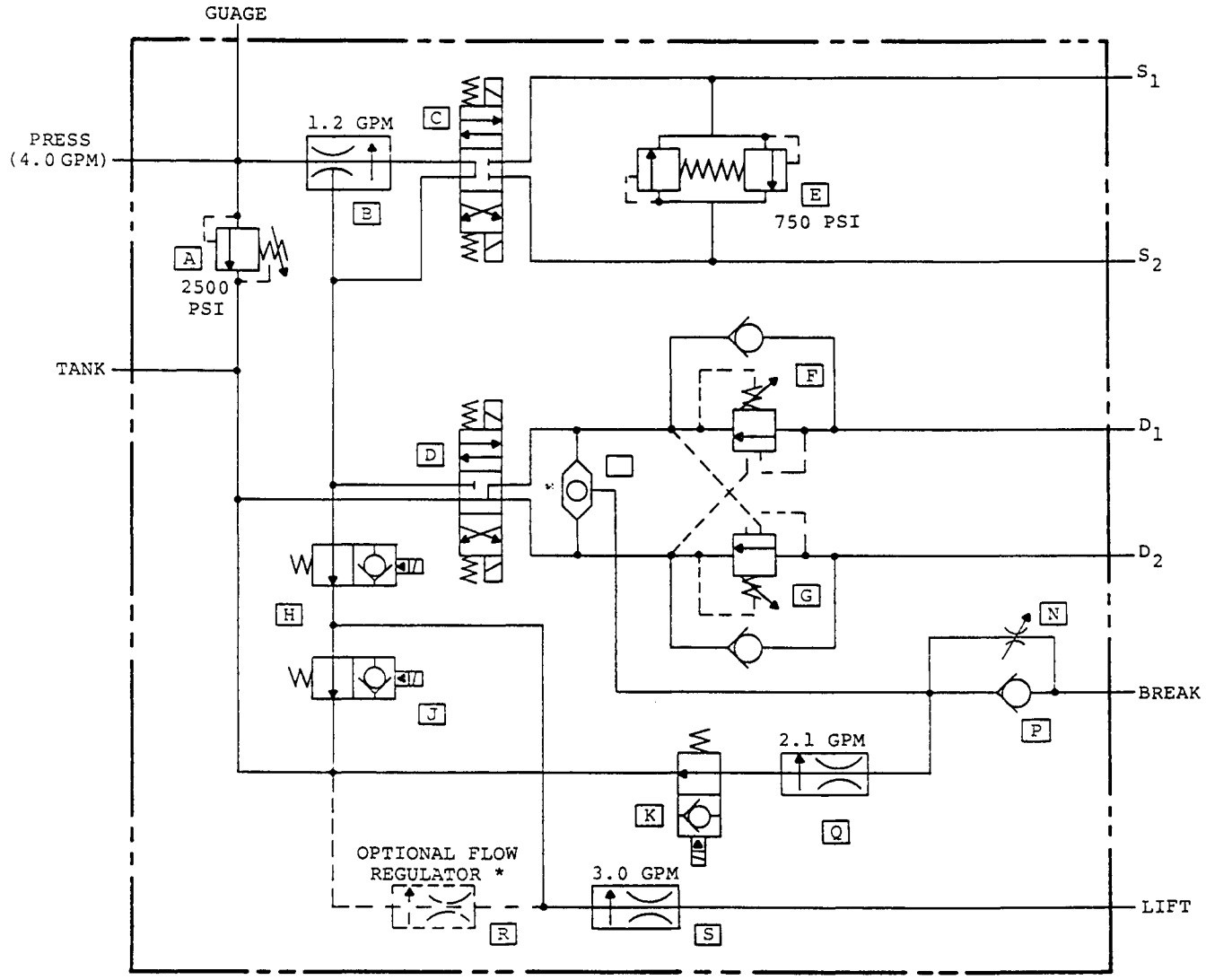
SECTION	3
FIGURE	14
PAGE	1



REV.


20
22
19
13
18
16
17
5

Ⓐ


GUAGE
PRESS
(4.0 GPM)
1.2 GPM
C
B
A
2500
PSI
E
750 PSI
S1
S2
TANK
F
D
D1
D2
G
H
J
N
BREAK
P
2.1 GPM
K
Q
OPTIONAL FLOW
REGULATOR *
3.0 GPM
R
S
LIFT

Mark Industries

TITLE	VALVE PACKAGE ASSEMBLY	SECT. 3
MODEL	J19W, J25	FIG. 14
NOTES		PAGE 4

ITEM	PART NUMBER	DESCRIPTION 1 2 3 4	UNITS PER ASSY
-1	131729	VALVE PACKAGE ASSEMBLY (See Sect. 3, Fig. 7 for NHA)	REF
2	81307/81381	.CONTROL VALVE	1
-3	67945	..SEAL KIT (COMPLETE VALVE PACKAGE)	1
4	67981	..SYSTEM RELIEF VALVE	1
5	67982	..1.2 GPM FLOW REGULATOR	1
6	67341	..STEERING DIRECTIONAL CONTROL VALVE	1
7	66865	...COIL	2
8	67983	..DRIVE DIRECTIONAL CONTROL VALVE	1
9	66865	...COIL	2
10	67984	..STEERING RELIEF VALVE	1
11	67985/600429	..OVERCENTER VALVE	2
12	67986 600028	..SOLENOID VALVE ... COIL, 20 VLT. ROUND (WIDE SPACED SPADES)	3 1
13	67025	..3.0 GPM FLOW REGULATOR	1
14	67987	..NEEDLE VALVE	1
15	67988	..BRAKE CHECK VALVE	1
16	67989	..2.1 GPM FLOW REGULATOR	1
17	67990	..BRAKE SHUTTLE VALVE	1
18		..PIPE PLUG	1
19		..#2 SAE PLUG	13
20		..#4 SAE PLUG	20
21		..BODY	1
22		..ID PLATE	1
23	80004-05	.STRAIGHT THREAD CONNECTOR	4
24	80004-08	.STRAIGHT THREAD CONNECTOR	3
25	80021-03	.¼ NPT STREET ELBOW	1
30	600032	KNOB KIT, EXTENSION (W/SET SCREWS)	

REV.

DASH (-) INDICATES THE 'ITEM' IS NOT ILLUSTRATED

Mark Industries

TITLE	VALVE PACKAGE ASSEMBLY
MODEL	J19W, J25
NOTES	

SECT.	3
FIG.	14
PAGE	5

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
26	80052-04	.PIPE NIPPLE	1
27	80012-12	.STRAIGHT THREAD ELBOW	1
28	845	.QUICK DISCONNECT CAP	1
29	2527	.QUICK DISCONNECT COUPLING	1

Mark Industries

TITLE	VALVE PACKAGE ASSEMBLY
MODEL	J19W, J25
NOTES	

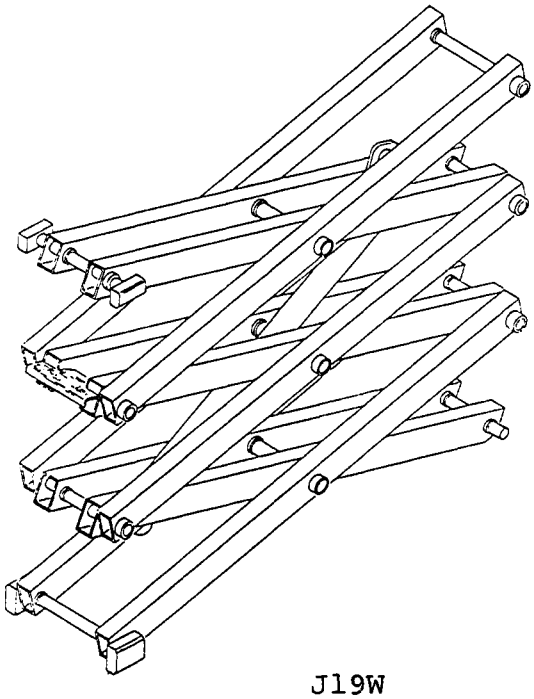
SECT.	3
FIG.	14
PAGE	4

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	131729	VALVE PACKAGE ASSEMBLY (See Sect. 3, Fig. 7 for NHA)	REF
2	81307	.CONTROL VALVE	1
-3	67945	..SEAL KIT (COMPLETE VALVE PACKAGE)	1
4	67981	..SYSTEM RELIEF VALVE (CP208-1-B-0-A-C-250)	1
5	67982	..1.2 GPM FLOW REGULATOR (CP310-1-B0-1.2)	1
6	67341	..STEERING DIRECTIONAL CONTROL VALVE	1
7	66865	...COIL	2
8	67983	..DRIVE DIRECTIONAL CONTROL VALVE	1
9	66865	...COIL	2
10	67984	..STEERING RELIEF VALVE	1
11	67985	..OVERCENTER VALVE	2
12	67986	..SOLENOID VALVE	3
	(600287)	→ Coil, 20 Vit Round (WIDE SPACED SPADE)	
13	67025	..3.0 GPM FLOW REGULATOR	1
14	67987	..NEEDLE VALVE (Comp.# CP618-2-B-0-E)	1
15	67988	..BRAKE CHECK VALVE	1
16	67989	..2.1 GPM FLOW REGULATOR	1
17	67990	..BRAKE SHUTTLE VALVE	1
18		..PIPE PLUG	1
19		..#2 SAE PLUG	13
20		..#4 SAE PLUG	20
21		..BODY	1
22		..ID PLATE	1
23	80004-05	.STRAIGHT THREAD CONNECTOR	4
24	80004-08	.STRAIGHT THREAD CONNECTOR	3
25	80021-03	.¼ NPT STREET ELBOW	1

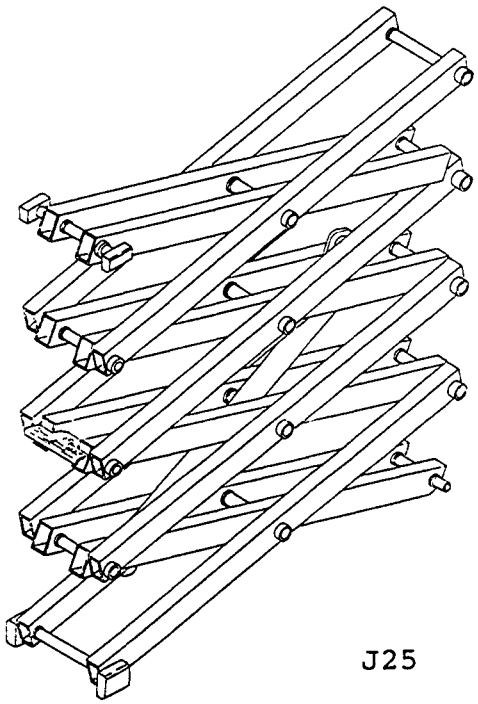
THE MARKLIFT SCISSOR ASSEMBLY

THIS SECTION 4 CONTAINS THE FOLLOWING FIGURES:

FIGURE NO.	TITLE
1	SCISSOR ASSEMBLY J19W
1A	SCISSOR ASSEMBLY J25
2	INNER ARM FIRST STAGE WELDMENT
3	INNER ARM SECOND STAGE WELDMENT
4	INNER ARM THIRD STAGE WELDMENT
5	OUTER ARM ASSEMBLY
6	LIFT CYLINDER ASSEMBLY J19W
6A	LIFT CYLINDER ASSEMBLY J25
7	INNER ARM FOURTH STAGE WELDMENT



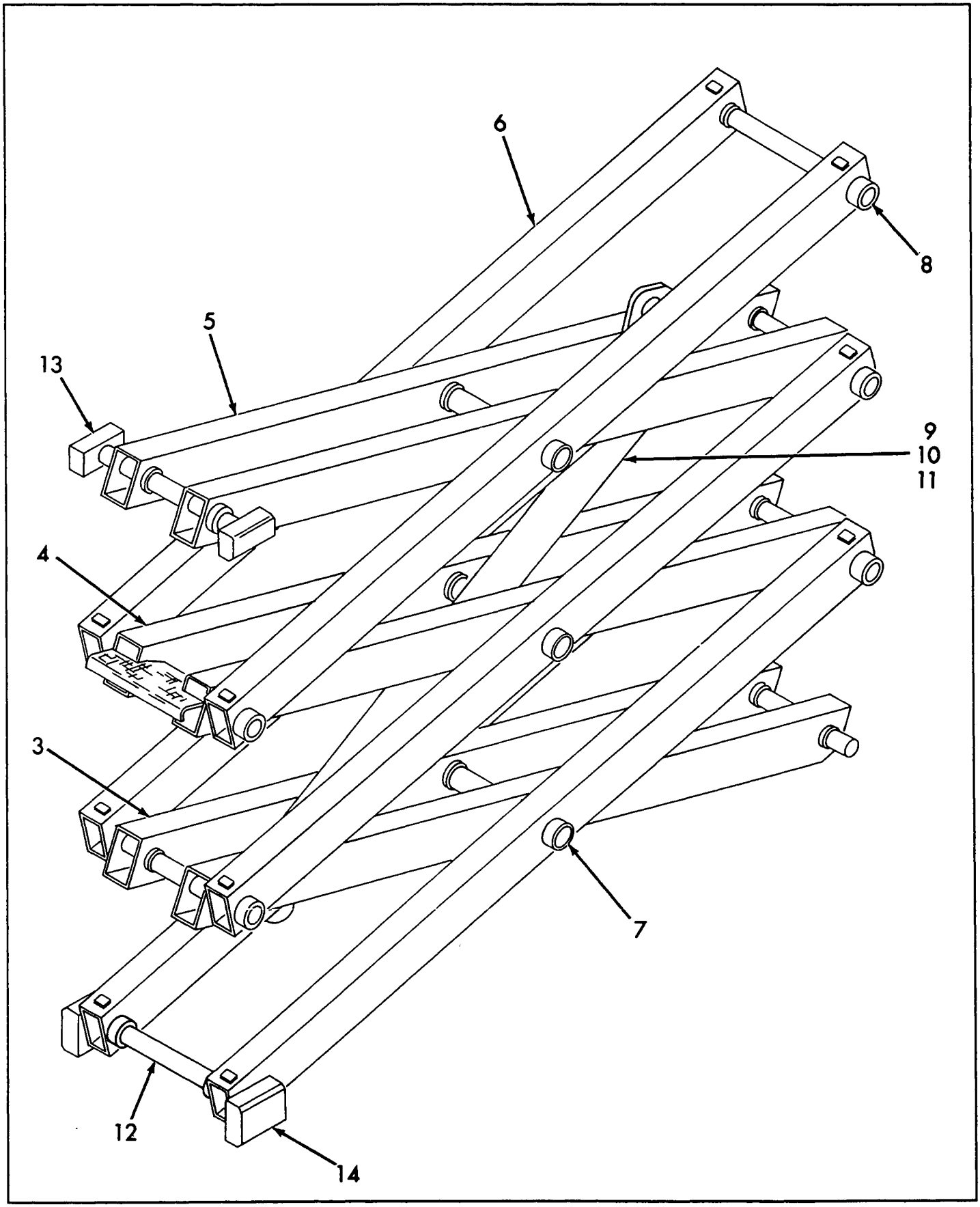
J19W



J25

Mark Industries

TITLE	SCISSOR ASSEMBLY	SECTION	4
MODEL	J19W	FIGURE	1
NOTES		PAGE	1



REV.

Mark Industries

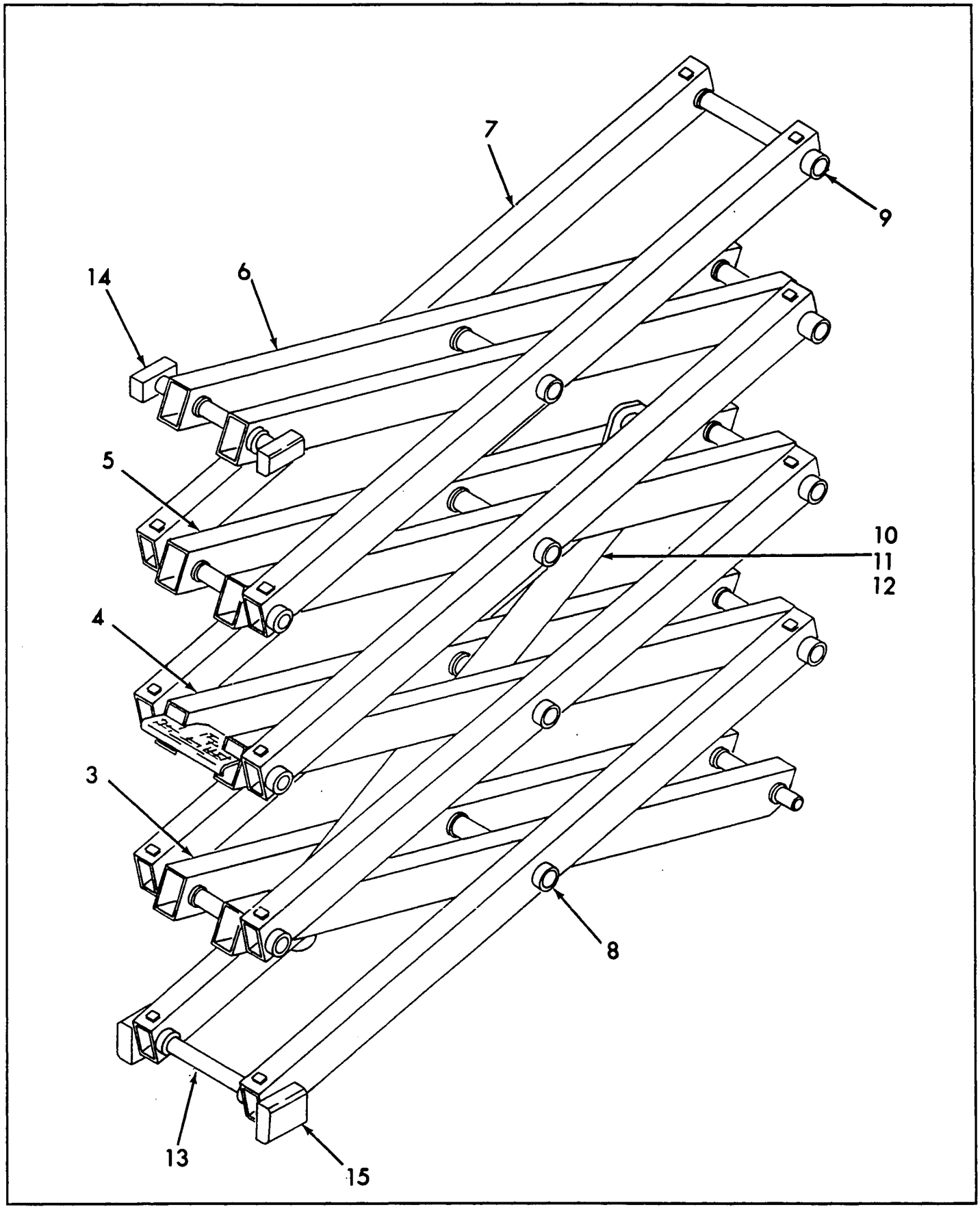
TITLE	SCISSOR ASSEMBLY	SECT.	4
MODEL	J19W	FIG.	1
NOTES		PAGE	2

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	131681	SCISSOR ASSEMBLY (See Sect. 2, Fig. 1 for NHA)	REF
2	131622	.SCISSOR SUB-ASSEMBLY	1
3	131671	..INNER ARM FIRST STAGE WELDMENT (See Sect. 4, Fig. 2 for Details)	1
4	131672	..INNER ARM SECOND STAGE WELDMENT (See Sect. 4, Fig. 3 for Details)	1
5	~~131675~~ 133216	..INNER ARM THIRD STAGE WELDMENT (See Sect. 4, Fig. 4 for Details)	1
6	131655	..OUTER ARM ASSEMBLY (See Sect. 4, Fig. 5 for Details)	6
7	2214	..COLLAR	6
8	65577	..COLLAR SHAFT	8
9	131695	.LIFT CYLINDER ASSEMBLY (See Sect. 4, Fig. 6 for Details)	1
10	131691	.CYLINDER PIN	2
11	61828	.CAP SCREW	4
12	131773	.WEAR PAD PIN	1
13	131694	.WEAR PAD	2
14	131693	.WEAR PAD	2

Mark Industries

TITLE	SCISSOR ASSEMBLY
MODEL	J25
NOTES	

SECTION	4
FIGURE	1A
PAGE	1



REV.

Mark Industries

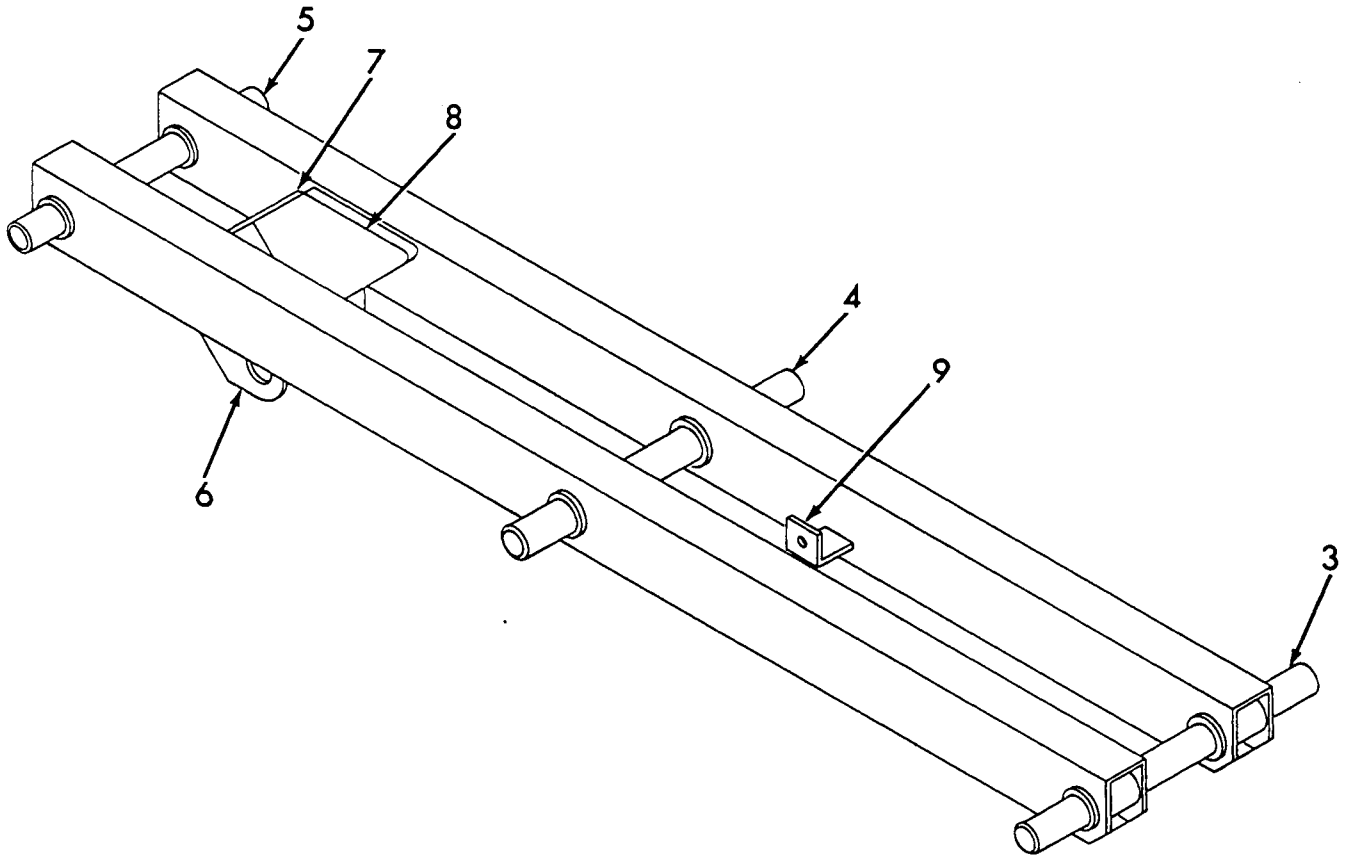
TITLE	SCISSOR ASSEMBLY	SECT.	4
MODEL	J25	FIG.	1A
NOTES		PAGE	2

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	131680	SCISSOR ASSEMBLY (See Sect. 2, Fig. 1A for NHA)	REF
-2	131621	.SCISSOR SUB-ASSEMBLY	1
3	131671	..INNER ARM FIRST STAGE WELDMENT (See Sect. 4, Fig. 2 for Details)	1
4	131672	..INNER ARM SECOND STAGE WELDMENT (See Sect. 4, Fig. 3 for Details)	1
5	131675	..INNER ARM THIRD STAGE WELDMENT (See Sect. 4, Fig. 4 for Details)	1
6	131655	..OUTER ARM ASSEMBLY (See Sect. 4, Fig. 5 for Details)	8
7	~~131674~~ New 133-294	..INNER ARM FOURTH STAGE WELDMENT (See Sect. 4, Fig. 7 for Details)	1
8	2214	..COLLAR	8
9	65577	..COLLAR SHAFT	12
10	131696	.LIFT CYLINDER ASSEMBLY (See Sect. 4, Fig. 6A for Details)	1
11	131691	.CYLINDER PIN	2
12	61828	.CAP SCREW	4
13	131773	.WEAR PAD PIN	1
14	131694	.WEAR PAD	2
15	131693	.WEAR PAD	2

Mark Industries

TITLE	INNER ARM FIRST STAGE WELDMENT
MODEL	J19W, J25
NOTES	

SECTION	4
FIGURE	2
PAGE	1



REV.

Mark Industries

TITLE	INNER ARM FIRST STAGE WELDMENT
MODEL	J19W, J25
NOTES	

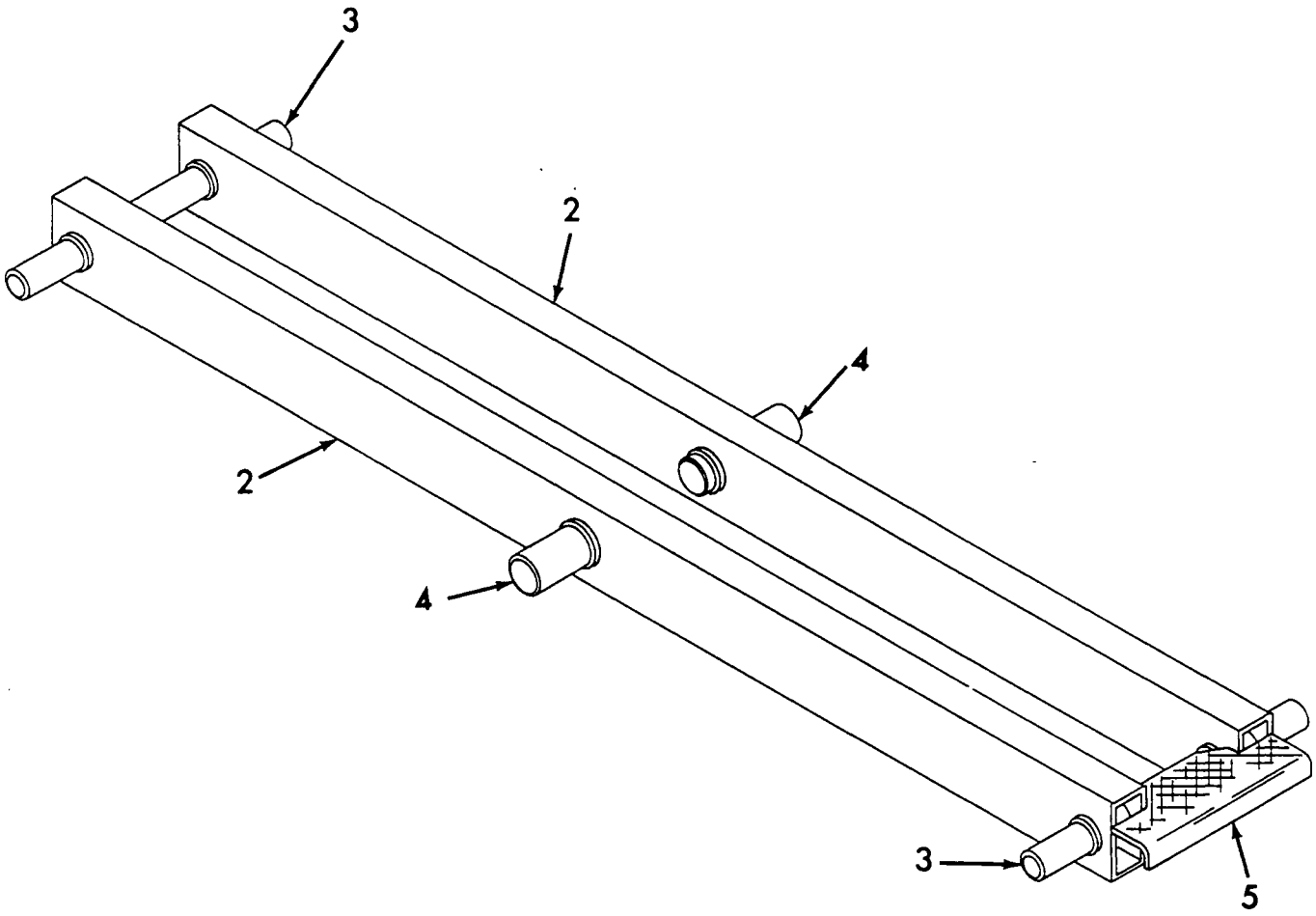
SECT.	4
FIG.	2
PAGE	2

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	131671	INNER ARM FIRST STAGE WELDMENT (See Sect. 4, Fig. 1 or 1A for NHA)	REF
2	131654	.INNER ARM MACHINING	2
3	131686	.LONG PIN-END	1
4	131688	.LONG PIN-CENTER	1
5	131689	.WEAR PAD PIN-END	1
6	131715	.L.H. CYLINDER BRACKET	1
7	37596	.PLATE TIE	1
8	131676	.R.H. CYLINDER BRACKET	1
9	131769	.ARM SUPPORT BRACKET	1

Mark Industries

TITLE	INNER ARM SECOND STAGE WELDMENT
MODEL	J19W, J25
NOTES	

SECTION	4
FIGURE	3
PAGE	1



REV.

Mark Industries

TITLE	INNER ARM SECOND STAGE WELDMENT
MODEL	J19W, J25
NOTES	

SECT.	4
FIG.	3
PAGE	2

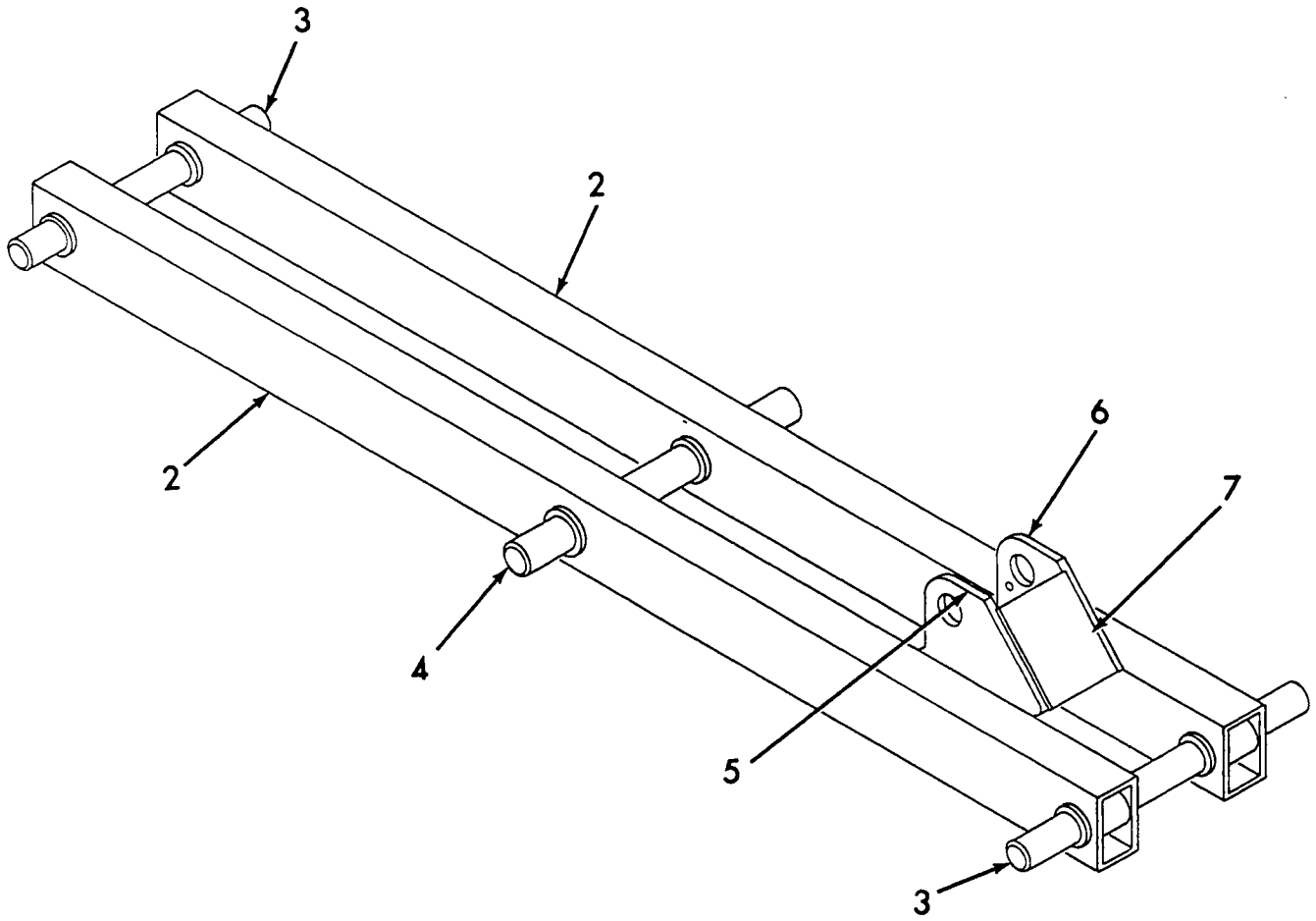
ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	131672	INNER ARM SECOND STAGE WELDMENT (See Sect. 4, Fig. 1 or 1A for NHA)	REF
2	131648	.INNER ARM MACHINING	2
3	131686	.LONG PIN-END	2
4	131687	.SHORT PIN-CENTER	2
5	131743	.STEP-PLATE FRAME	1

DASH (-) INDICATES THE 'ITEM' IS NOT ILLUSTRATED

Mark Industries

TITLE	INNER ARM THIRD STAGE WELDMENT
MODEL	J19W, J25
NOTES	

SECTION	4
FIGURE	4
PAGE	1



REV.

Mark Industries

TITLE	INNER ARM THIRD STAGE WELDMENT
MODEL	J19W, ~~525~~
NOTES	

SECT.	4
FIG.	4
PAGE	2

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	~~131675~~ 133216	INNER ARM THIRD STAGE WELDMENT (See Sect. 4, Fig. 1 or 1A for NHA)	REF
2	131651	.INNER ARM MACHINING	2
3	131686	.LONG PIN-END	1
4	131688	.LONG PIN-CENTER	1
5	131715	.L.H.CYLINDER BRACKET	1
6	131676	.R.H. CYLINDER BRACKET	1
7	37596	.PLATE TIE	1
8	133215		
		525	
	131675		

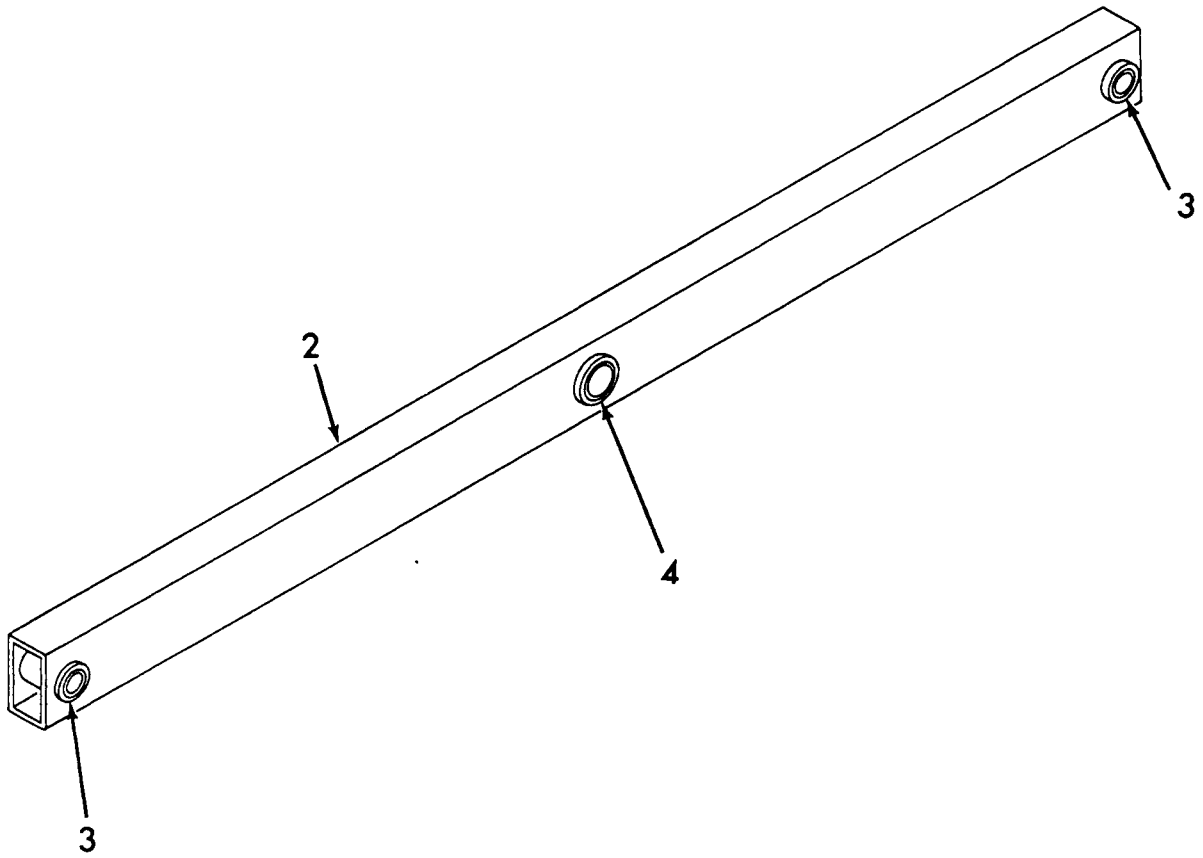
REV.

DASH (-) INDICATES THE 'ITEM' IS NOT ILLUSTRATED

Mark Industries

TITLE	OUTER ARM ASSEMBLY
MODEL	J19W, J25
NOTES	

SECTION	4
FIGURE	5
PAGE	1



REV.

Mark Industries

TITLE	OUTER ARM ASSEMBLY	SECT.	4
MODEL	J19W, J25	FIG.	5
NOTES		PAGE	2

ITEM	PART NUMBER	DESCRIPTION 1 2 3 4	UNITS PER ASSY
-1	131655	OUTER ARM ASSEMBLY (See Sect. 4, Fig. 1 or 1A for NHA)	REF
2	131623	.OUTER ARM MACHINING	1
3	160159	.BUSHING	2
4	160160	.BUSHING	1

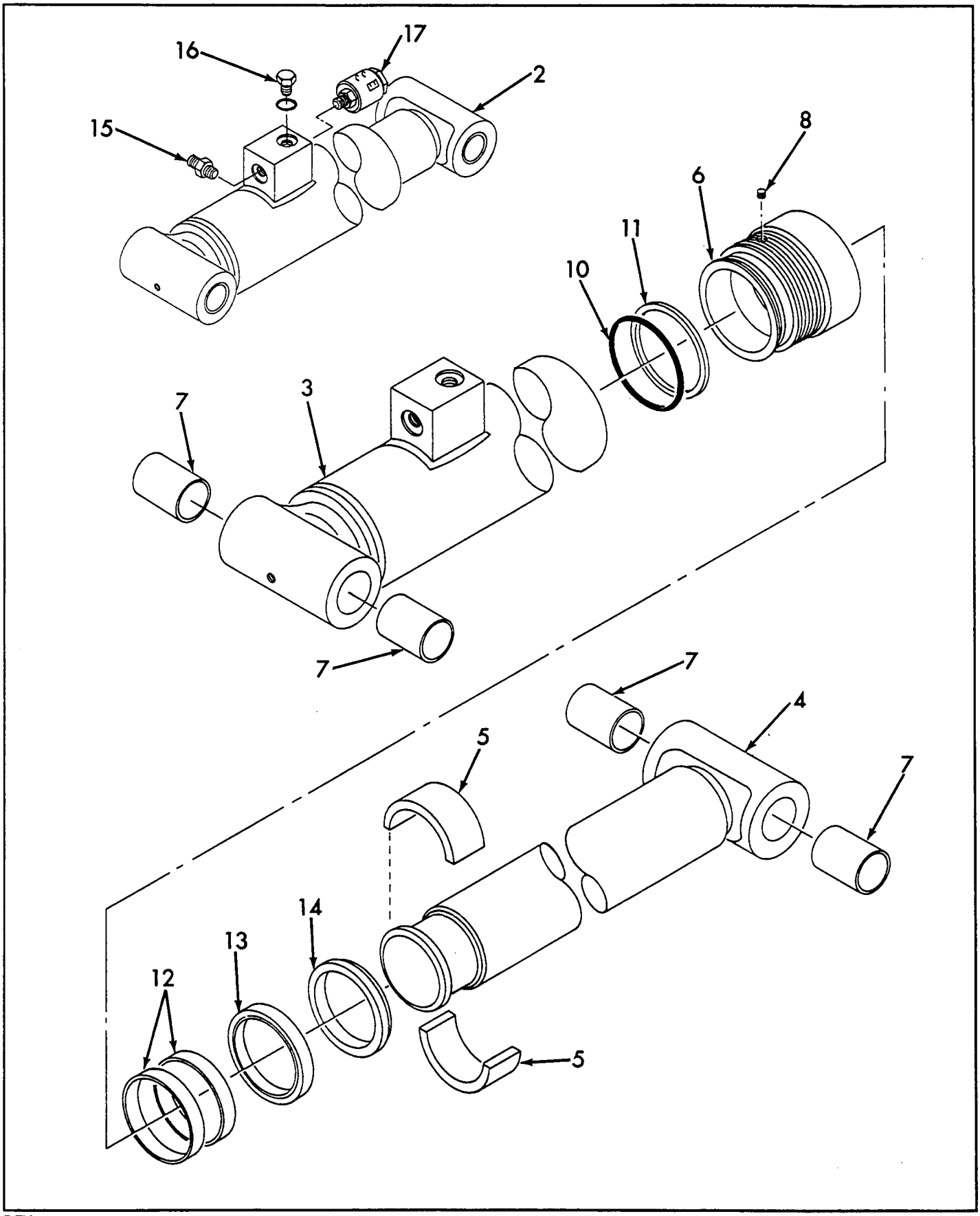
REV.

DASH (-) INDICATES THE 'ITEM' IS NOT ILLUSTRATED

Mark Industries

TITLE	LIFT CYLINDER ASSEMBLY
MODEL	J19W
NOTES	

SECTION	4
FIGURE	6
PAGE	1



REV.

Mark Industries

TITLE	LIFT CYLINDER ASSEMBLY	SECT.	4
MODEL	J19W	FIG.	6
NOTES		PAGE	2

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	131695	LIFT CYLINDER ASSEMBLY (See Sect. 4, Fig. 1 for NHA)	REF
2	131627	.LIFT CYLINDER	1
3	67847	..TUBE ASSEMBLY	1
4	67853	..ROD ASSEMBLY	1
5	67854	..PISTON	1
6	67861	..HEAD	1
7	600308	..BUSHING, BRONZE	4
8	67862	..NYLON PLUG	1
-9	67844	..SEAL KIT	1
10		...O-RING	1
11		...BACK-UP RING	1
12		...WEAR RING	1
13		...U-CUP (POLY PAK)	1
14		...ROD WIPER	1
15	80004-05	.STRAIGHT THREAD CONNECTOR	1
16	80050-03	.O-RING PLUG	1
17	81028	.ELECTRIC CHECK SOLENOID	1
	600472	BUSHING, FIBER	

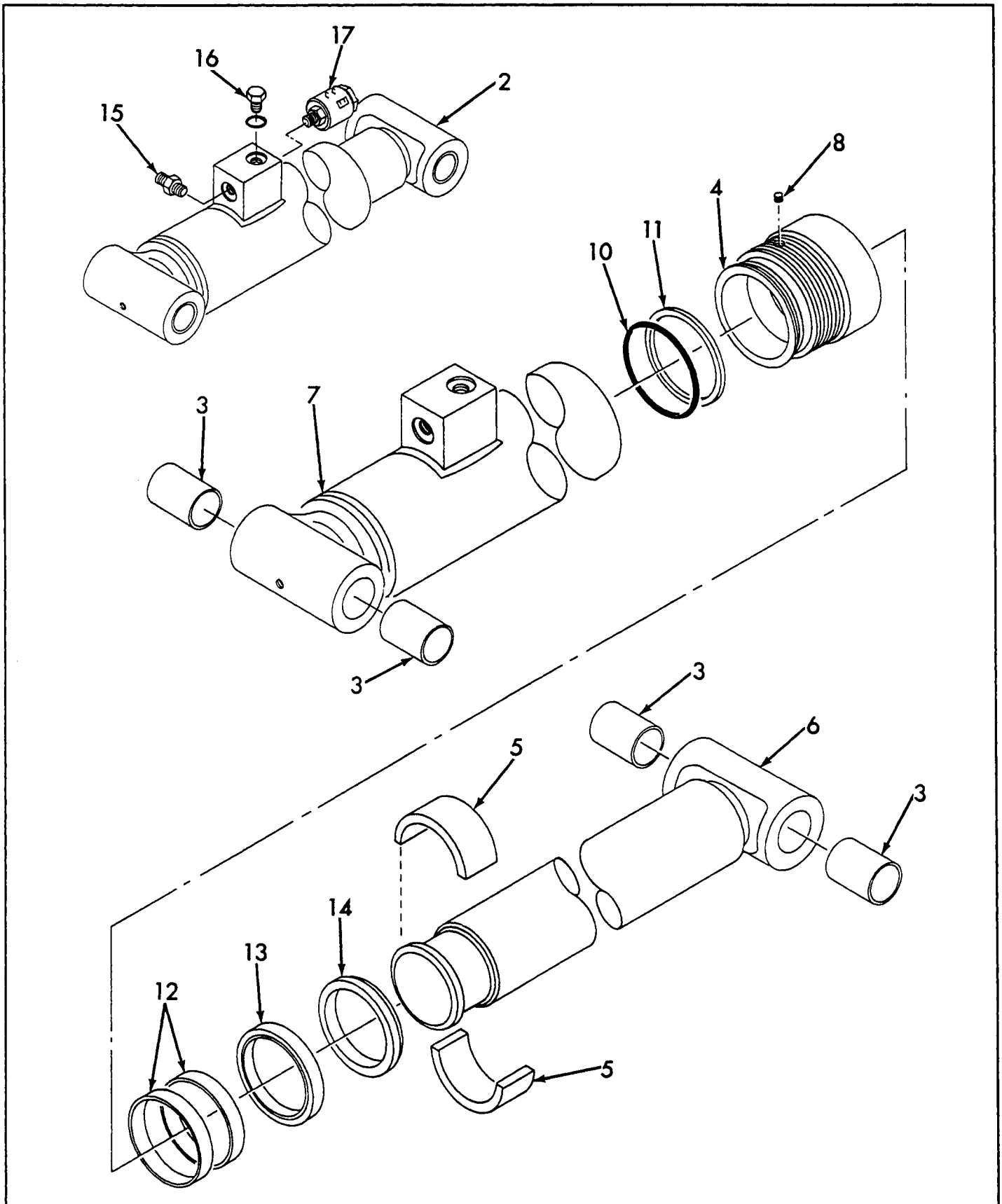
REV.

DASH (-) INDICATES THE 'ITEM' IS NOT ILLUSTRATED

Mark Industries

TITLE	LIFT CYLINDER ASSEMBLY
MODEL	J25
NOTES	

SECTION	4
FIGURE	6A
PAGE	1



REV.

Mark Industries

TITLE	LIFT CYLINDER ASSEMBLY
MODEL	J25
NOTES	

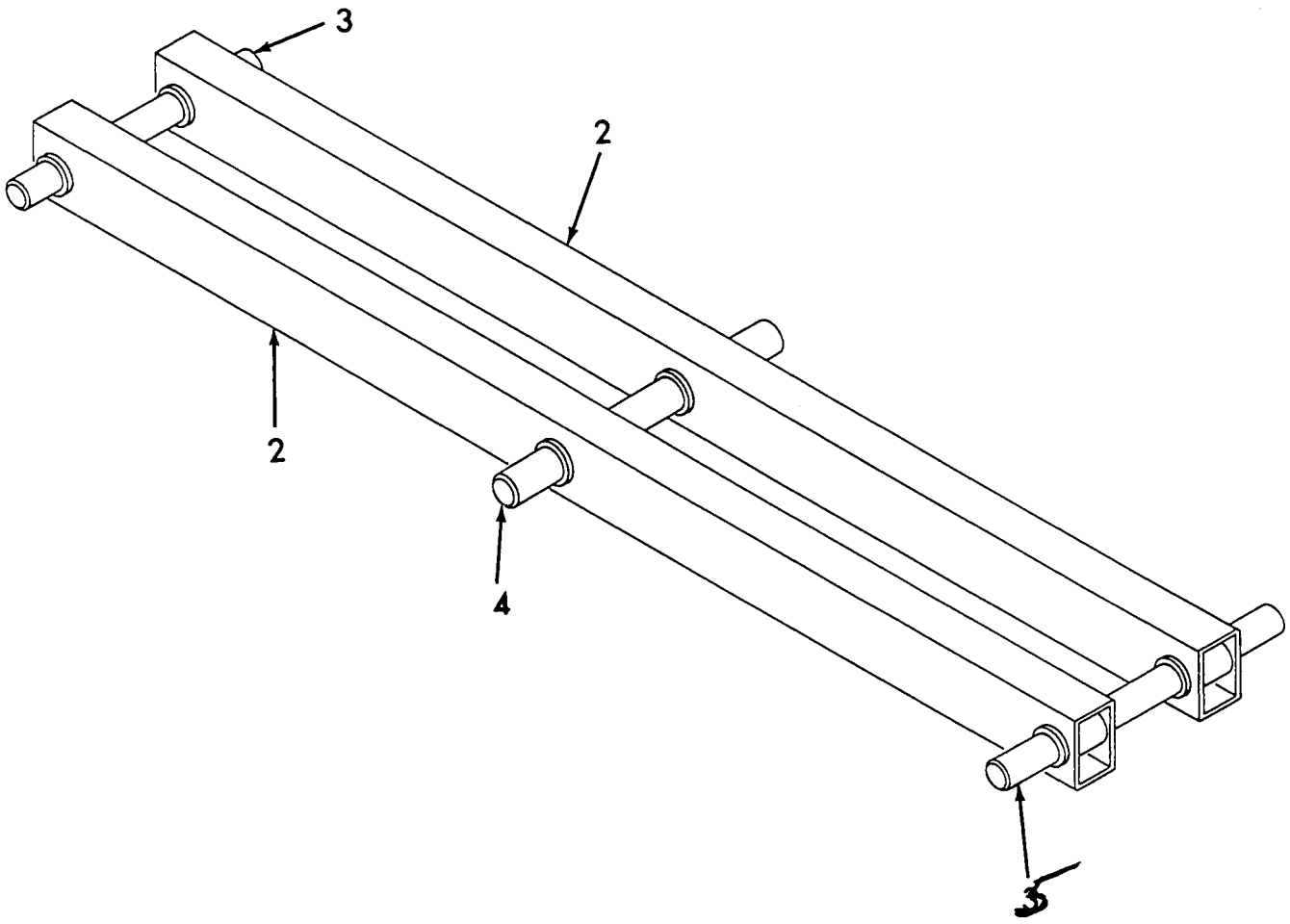
SECT.	4
FIG.	6A
PAGE	2

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	131696	LIFT CYLINDER ASSEMBLY (See Sect. 4, Fig. 1A for NHA)	REF
2	131626	.LIFT CYLINDER	1
3	600308	..BUSHING	4
4	67860	..HEAD	1
5	67855	..PISTON	1
6	67852	..ROD ASSEMBLY	1
7	67846	..TUBE ASSEMBLY	1
8	67862	..NYLON PLUG	1
-9	67845	..SEAL KIT	1
10		...O-RING	1
11		...BACK-UP RING	1
12		...WEAR RING	2
13		...U-CUP (POLY PAK)	1
14		...ROD WIPER	1
15	80004-05	.STRAIGHT THREAD CONNECTOR	1
16	80050-03	.O-RING PLUG	1
17	81028	.ELECTRIC CHECK SOLENOID	1

Mark Industries

TITLE	INNER ARM FOURTH STAGE WELDMENT
MODEL	J25
NOTES	

SECTION	4
FIGURE	7
PAGE	1



REV.

Mark Industries

TITLE	INNER ARM FOURTH STAGE WELDMENT
MODEL	J25
NOTES	

SECT.	4
FIG.	7
PAGE	2

ITEM	PART NUMBER	DESCRIPTION 1 2 3 4	UNITS PER ASSY
-1	131674 New a 133294	INNER ARM FOURTH STAGE WELDMENT (See Sect. 4, Fig. 1A for NHA)	REF
2	131647	.INNER ARM MACHINING	2
3	131686	.LONG PIN-END	#1
4	131688	.LONG PIN-CENTER	1
5	133215	Long Pin (=19N, J25)	

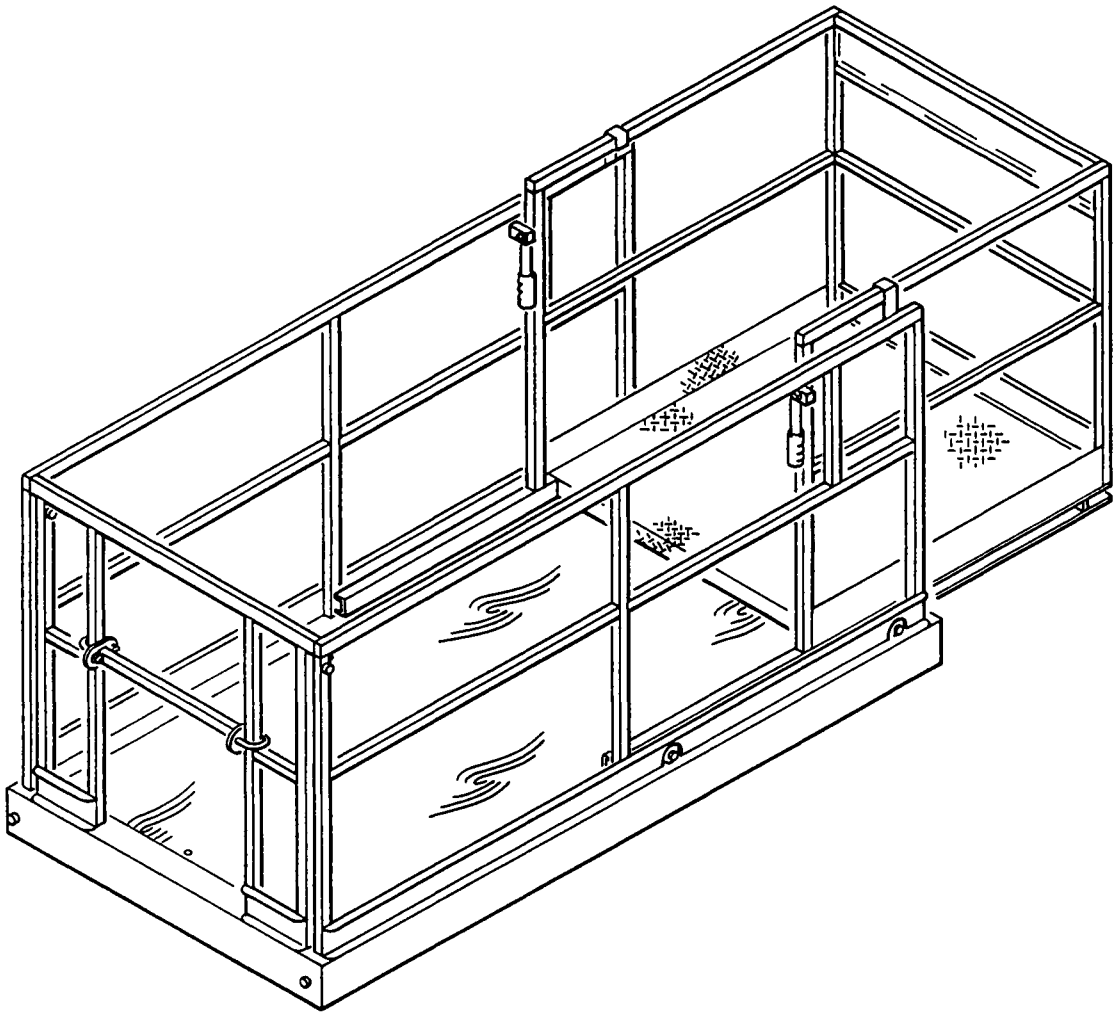
REV.

DASH (-) INDICATES THE 'ITEM' IS NOT ILLUSTRATED

THE MARKLIFT PLATFORM ASSEMBLY

THIS SECTION 5 CONTAINS THE FOLLOWING FIGURES:

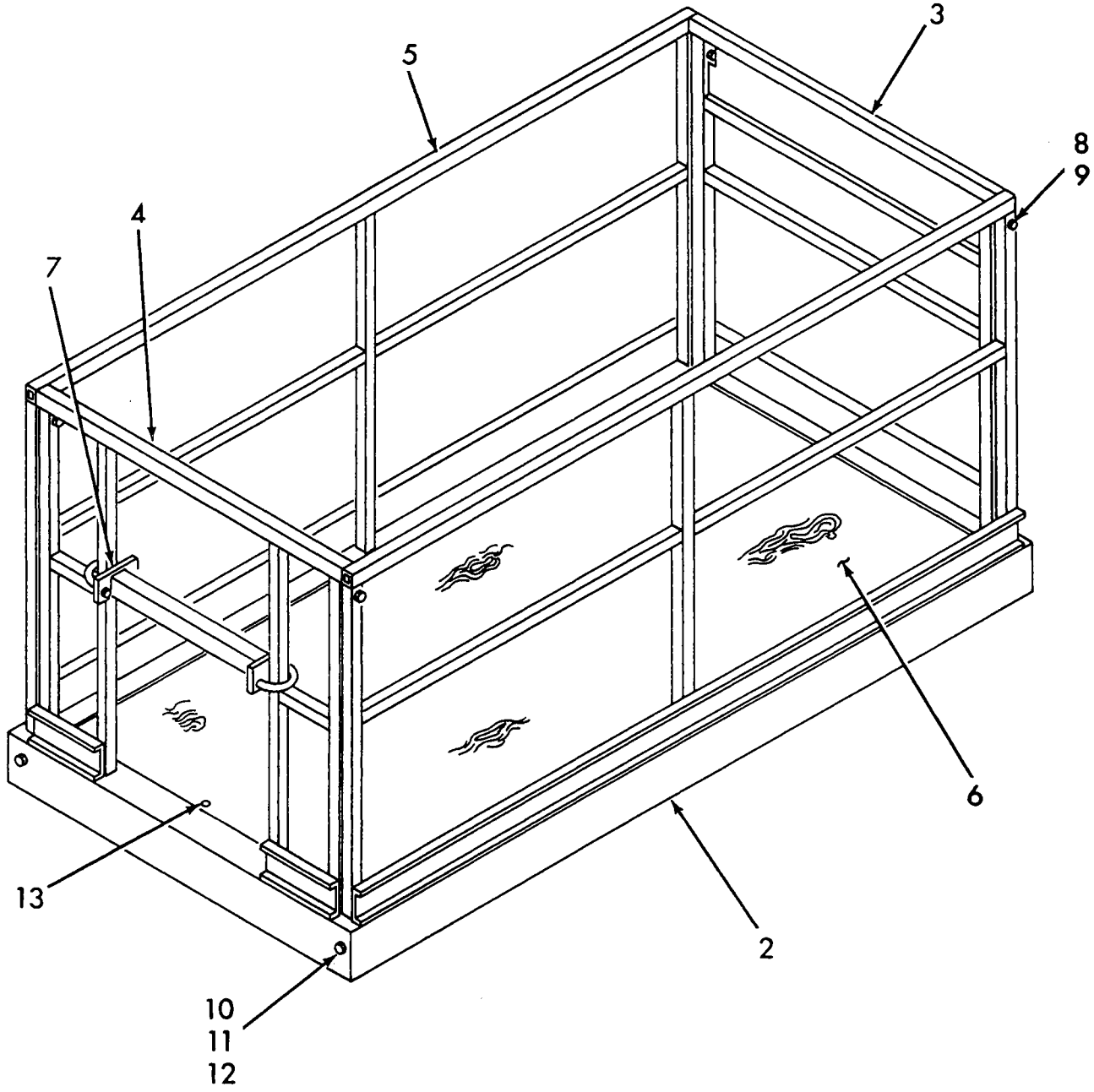
FIGURE NO.	TITLE
1	PLATFORM ASSEMBLY (J19W & J25)
1A	PLATFORM ASSEMBLY (J19WEP & J25EP)
2	SLIDE BAR ASSEMBLY



Mark Industries

TITLE	PLATFORM ASSEMBLY
MODEL	J19W, J25
NOTES	

SECTION	5
FIGURE	1
PAGE	1



REV.

Mark Industries

TITLE	PLATFORM ASSEMBLY
MODEL	J19W, J25
NOTES	

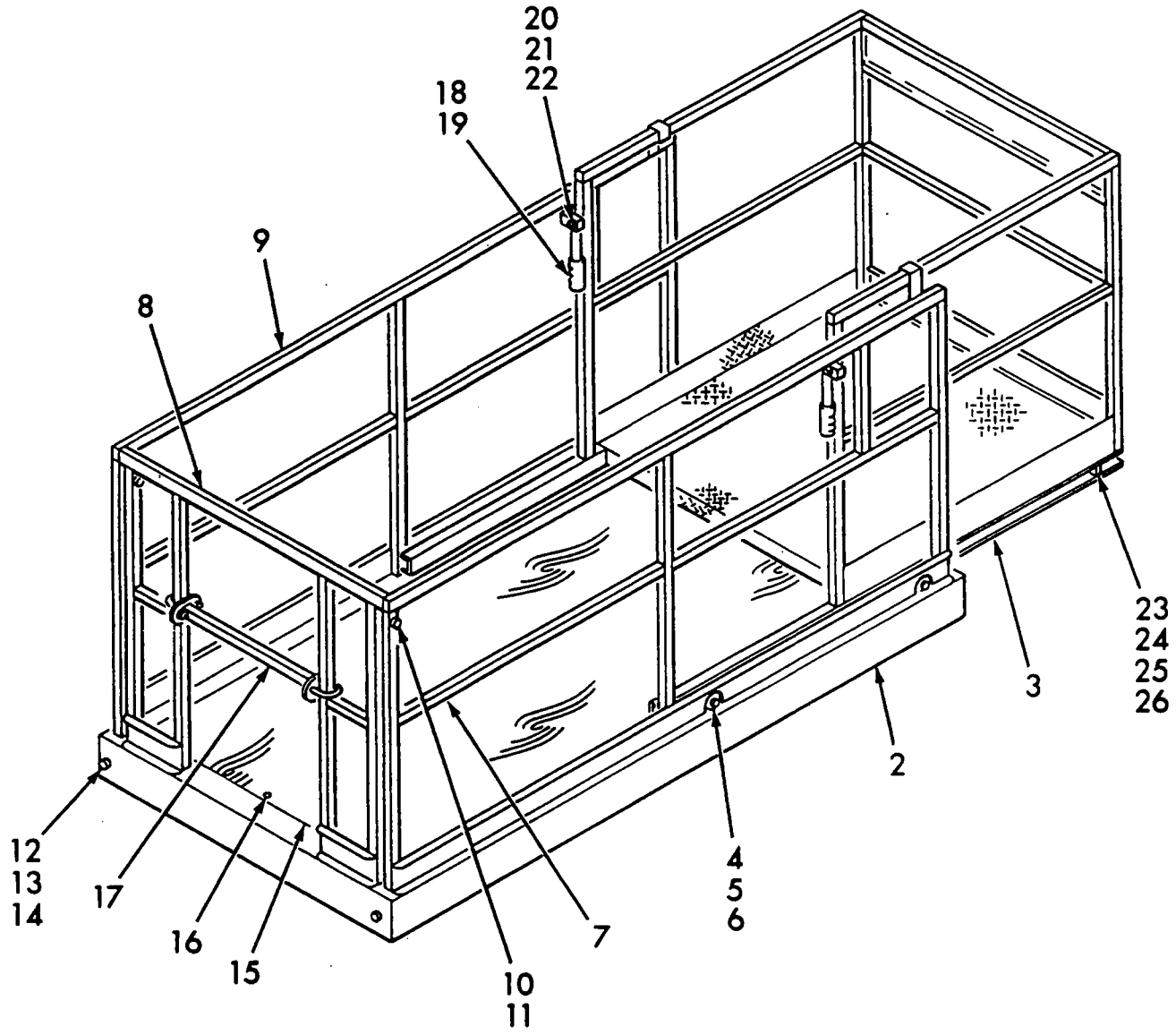
SECT.	5
FIG.	1
PAGE	2

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	131701	PLATFORM ASSEMBLY (See Sect. 2, Fig. 1 or 1A for NHA)	REF
2	131702	.PLATFORM WELDMENT	1
3	131703	.FRONT GUARD RAIL	1
4	131704	.REAR GUARD RAIL	1
5	131705	.SIDE GUARD RAIL	2
6	131706	.PLYWOOD, FLOOR	1
7	32741	.SLIDE BAR ASSEMBLY (See Sect. 5, Fig. for Details)	1
8	60337	.HEX HEAD CAP SCREW	4
9	61227	.LOCK HEX NUT	4
10	60337	.HEX HEAD CAP SCREW	4
11	60701	.HEX NUT	4
12	63301	.LOCK SPLIT WASHER	4
13	61713	.SELF-TAPPING SCREW	12

Mark Industries

TITLE	EXTENDABLE PLATFORM ASSEMBLY
MODEL	J19WEP & J25EP
NOTES	

SECTION	5
FIGURE	1A
PAGE	1



ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
-1	133060	EXTENDABLE PLATFORM ASSEMBLY (See Sect. 2, Fig. 1B or 1C for NHA)	REF
2	133061	.MAIN PLATFORM WELDMENT	1
3	133062	.EXTENDABLE PLATFORM WELDMENT	1
4	65555	.CAM FOLLOWER	4
5	37808	.ROUND TUBE	4
6	61315	.HEX NUT	4

Mark Industries

TITLE	EXTENDABLE PLATFORM ASSEMBLY
MODEL	J19WEP & J25EP
NOTES	

SECT.	5
FIG.	1A
PAGE	2

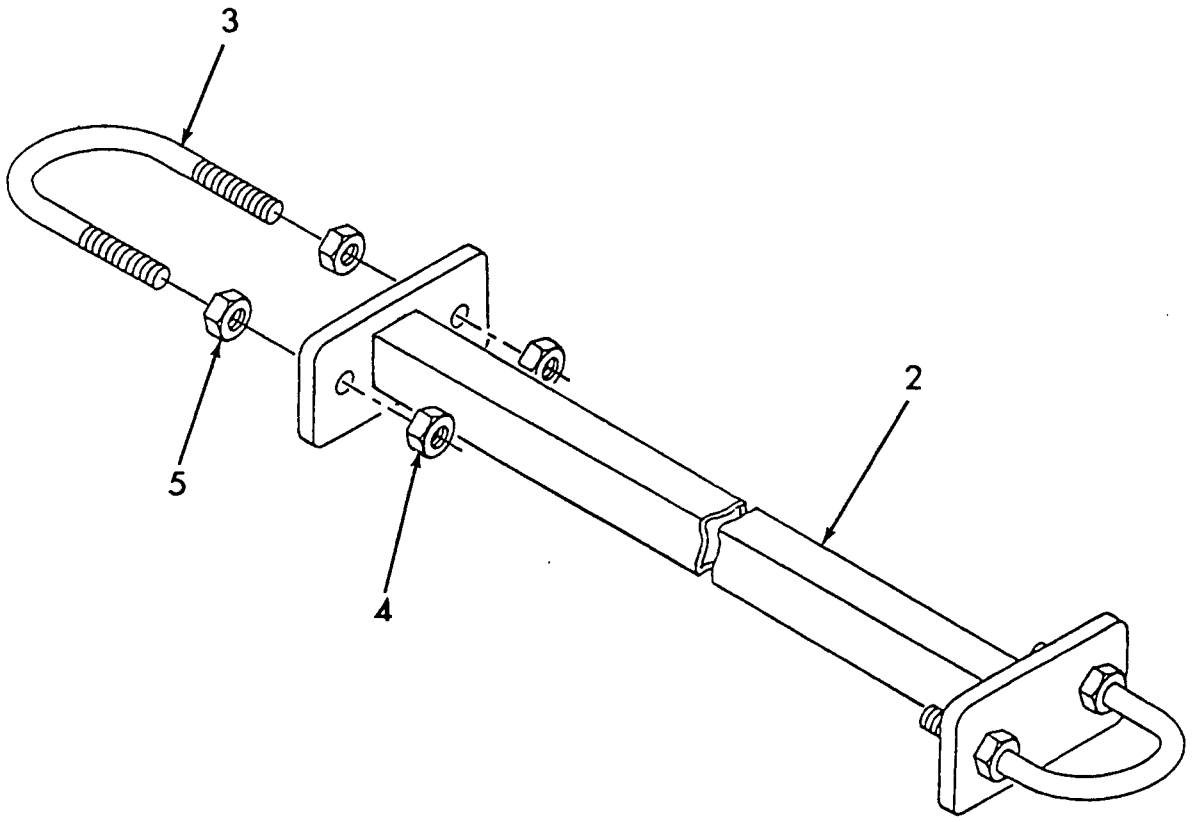
ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
7	133109	.SIDE GUARD RAIL (R.H.)	1
8	131704	.REAR GUARD RAIL	1
9	133108	.SIDE GUARD RAIL (L.H.)	1
10	60337	.CAP SCREW	2
11	61227	.LOCK NUT	2
12	60337	.CAP SCREW	4
13	63301	.LOCK WASHER	4
14	60701	.HEX NUT	4
15	133107	.PLYWOOD FLOOR	1
16	61713	.SELF TAP SCREW	16
17	32741	.SLIDE BAR ASSEMBLY (See Sect. 5, Fig. 2 for Details)	1
18	133119	.HAND RAIL HANDLE	2
19	160311	.HANDLE GRIP	2
20	160290	.SHOULDER SCREW	2
21	63403	.FLAT WASHER	2
22	61322	.LOCK NUT	2
23	133092	.STOP BRACKET	2
24	60343	.CAP SCREW	4
25	60333	.LOCK WASHER	4
26	60703	.HEX NUT	4

DASH (-) INDICATES THE 'ITEM' IS NOT ILLUSTRATED

Mark Industries

TITLE	SLIDE BAR ASSEMBLY
MODEL	J19W, J25
NOTES	

SECTION	5
FIGURE	2
PAGE	1



ITEM	PART NUMBER	DESCRIPTION 1 2 3 4	UNITS PER ASSY
-1	32741	SLIDE BAR ASSEMBLY (See Sect. 5, Fig. 1 for NHA)	REF
2	32740	.SLIDE BAR WELDMENT	1
3	160017	.U-BOLT	2
4	61318	.LOCK HEX NUT	4
5	60703	.HEX NUT	4

REV.

THE MARKLIFT OPTIONAL ASSEMBLIES

THIS SECTION 6 CONTAINS THE FOLLOWING FIGURES:

FIGURE NO.	TITLE
1	OPTIONAL ASSEMBLIES J19W*
1A	OPTIONAL ASSEMBLIES J25*
2	WARNING HORN ASSEMBLY*
3	HOURMETER*
4	REMOTE DRIVE KIT*
5	ROTATING AMBER BEACON*
6	24 VOLT PLATFORM WORK LIGHT*
7	SWING GATE* #132038
8	FEMALE PLUG ONLY FOR REMOTE DRIVE*
9	LANYARD/CONTROL BOX ONLY FOR REMOTE DRIVE*
10	TUV PACKAGE*
11	ALL MOTION ALARM*
12	SOLID STATE SLOPE SENSOR*
13	SOLID STATE DELUXE CHARGER*

* PART NUMBERS FOR THE ABOVE OPTIONS WERE NOT AVAILABLE AT PRESS TIME. PLEASE CONTACT YOUR NEAREST DEALER FOR THE PART NUMBER ON THE OPTION YOU ARE INTERESTED IN.

PRIOR TO DISASSEMBLY, CLEAN OFF THE EXTERIOR OF THE MOTOR. REMOVE KEY AND SNAP RING FROM SHAFT. IT MAY BE HELPFUL FOR LATER REFERENCE TO USE A FELT MARKER TO NOTE THE "TOP" AND "BOTTOM" OF EACH PIECE WITH RESPECT TO THE PIECE NEXT TO IT, AS PROPER REASSEMBLY IS CRITICAL IN THIS REGARD. THERE IS NO INTERNAL TIMING AND RADIAL LOCATION IS UNIMPORTANT.

DISASSEMBLY

(SEE FIGURE 1)

1. PLACE MOTOR IN VISE WITH SHAFT DOWN, CLAMPING AROUND MOTOR PORTS.
2. REMOVE BOLTS (19) AND END COVER (15).
3. REMOVE BALANCE PLATE TAKING CARE NOT TO DROP THE 4-3/8" BALLS (16) LOCATED IN 4 HOLES ON BALANCE PLATE (15).
4. REMOVE MOTOR ASSEMBLY (13), MANIFOLD BOOT (12), MANIFOLD (11), DRIVE LINK (9), SPACER (14), AND THRUST BEARING (7).
5. REMOVE SHAFT (8) UP THROUGH HOUSING (5).
6. TURN HOUSING OVER AND PRY OUT THE DUST SEAL (1).
7. PUSH THE SEAL CARRIER (6) AND THRUST BEARING (7) DOWN TOWARD THE ROLLER BEARING LOCATED IN HOUSING BORE, REMOVE SNAP RING (2), STEEL BACK-UP SHIM (3), AND LATHE CUT SEAL (4) FROM INNER BORE GROOVE WITH SMALL SCREWDRIVER.
8. LIFT OUT THE SEAL CARRIER (6) AND THRUST BEARING (7).

REASSEMBLY

(SEE FIGURE 2)

1. PLACE HOUSING IN VISE WITH FLANGE UP.
2. PLACE THRUST BEARING ON SHAFT.
3. PLACE THRUST WASHER (5) ON SHAFT.
4. PLACE THE PROTECTIVE SHAFT SEAL INSTALLATION SLEEVE WITH THE SHAFT SEAL STILL ON IT OVER SHAFT END. (APPLY OIL TO TEFLON BACK-UP (3) AND SEAL (4) PRIOR TO INSTALLATION).
5. INSTALL SEAL (4) OVER THE SLEEVE AND ONTO THE SHAFT DOWN TO THE THRUST WASHER (5) (ORIENTED AS SHOWN).
6. REMOVE INSTALLATION SLEEVE.
7. INSTALL THE TEFLON BACK-UP (3) ONTO THE SHAFT ORIENTED AS SHOWN. THE LIP ON THE TEFLON BACK-UP (3) SHOULD ENGAGE WITH THE SHAFT SEAL (4).
8. INSTALL BACK-UP EING (2) ONTO SHAFT AND DOWN AGAINST THE TEFLON BACK-UP (3).
9. PLACE SEAL CARRIER (1) ONTO THE SHAFT. WE RECOMMEND USING THE SEAL CARRIER INSTALLATION GUIDE (PE444501) TO PUSH THE SEAL CARRIER STRIGHT DOWN OVER THE SHAFT SEAL ASSEMBLY, TAKING CARE NOT TO

COCK THE CARRIER WHILE INSTALLING. IF SEAL CARRIER INSTALLATION GUIDE IS NOT AVAILABLE, YOU MAY USE YOUR FINGERS OR A SHORT PIECE OF PIPE TO CAREFULLY AND VERY GENTLY PUSH SEAL CARRIER OVER THE SEAL.

10. IF APPLICABLE, INSTALL .062 DIA. WIRE RING ONTO THE SHAFT BEING USED.

(SEE FIGURE 1)

11. SLIDE SHAFT ASSEMBLY (8) INTO THE HOUSING SO THAT SEAL CARRIER (6) IS BEYOND THE INNER BORE SEAL GROOVE.

12. INSTALL LATHE CUT SEAL (4) INTO GROOVE.

13. INSTALL THE STEEL BACK-UP SHIM (3) NEXT TO SEAL SHIM MUST BE FOLDED AND BENT SLIGHTLY AND WORKED INTO PLACE WITH A SMALL SCREWDRIVER.

14. INSTALL WIRE RETAINING RING.

15. PLACE HOUSING (5) AND SHAFT ASSEMBLY (8) IN VISE WITH SHAFT (8) DOWN.

16. INSTALL DRIVE LINK (9), TAP LIGHTLY ON DRIVE LINK END TO SEAT THE SHAFT ASSEMBLY INTO THE RETAINING RING. (SEE REVISION A)

17. PLACE THRUST BEARING ON SHAFT END, MAKE SURE THE BEARING SITS INSIDE THE HOUSING BORE WITH ROLLERS FLUSH OR SLIGHTLY BELOW FACE OF HOUSING.

18. INSTALL BODY SEAL (10) INTO GROOVE IN HOUSING (5).

19. PLACE MANIFOLD (11) ON HOUSING (5), ALIGNING BOLT HOLES.
NOTE: MANIFOLD SIDE WITH ONLY 7 VALVING HOLES GOES TOWARD HOUSING.

20. PLACE MANIFOLD BOOT (12) AROUND MANIFOLD.

21. INSTALL BODY SEAL (10) IN GROOVE IN THE "BOTTOM" SIDE OF ROTOR ASSEMBLY, BOTTOM SIDE HAS 1 DEEP GROOVE IN ROTOR. PLACE ROTOR ASSEMBLY ON MANIFOLD, ENGAGING THE DRIVE LINK SPLINES (9). TURN ROTOR ASSEMBLY (13) TO ALIGN BOLT HOLES.

22. IF MODEL REQUIRES A SPACER (14), PLACE SPACER ON DRIVE LINK END.

23. PLACE BALANCE PLATE (15) ONTO ROTOR ASSEMBLY (13) AND INSTALL 4-3/16" CHECK BALLS (16) INTO HOLES PROVIDED. NOTE: ONLY MOTORS WITH DATE CODES LATER THAN 030-5 HAVE THE BALL CHECK BALANCE PLATES (15).

24. INSTALL 3.125" O.D. BODY SEAL (10) INTO SEAL GROOVE IN END COVER
NOTE: ONE EXTRA 3.782" O.D. BODY SEAL (17) IS INCLUDED IN SEAL KITS FOR MOTORS BUILT PRIOR TO JUNE, 1984, 17. PLACE END COVER ON BALANCE PLATE AND ALIGN BOLT HOLES.

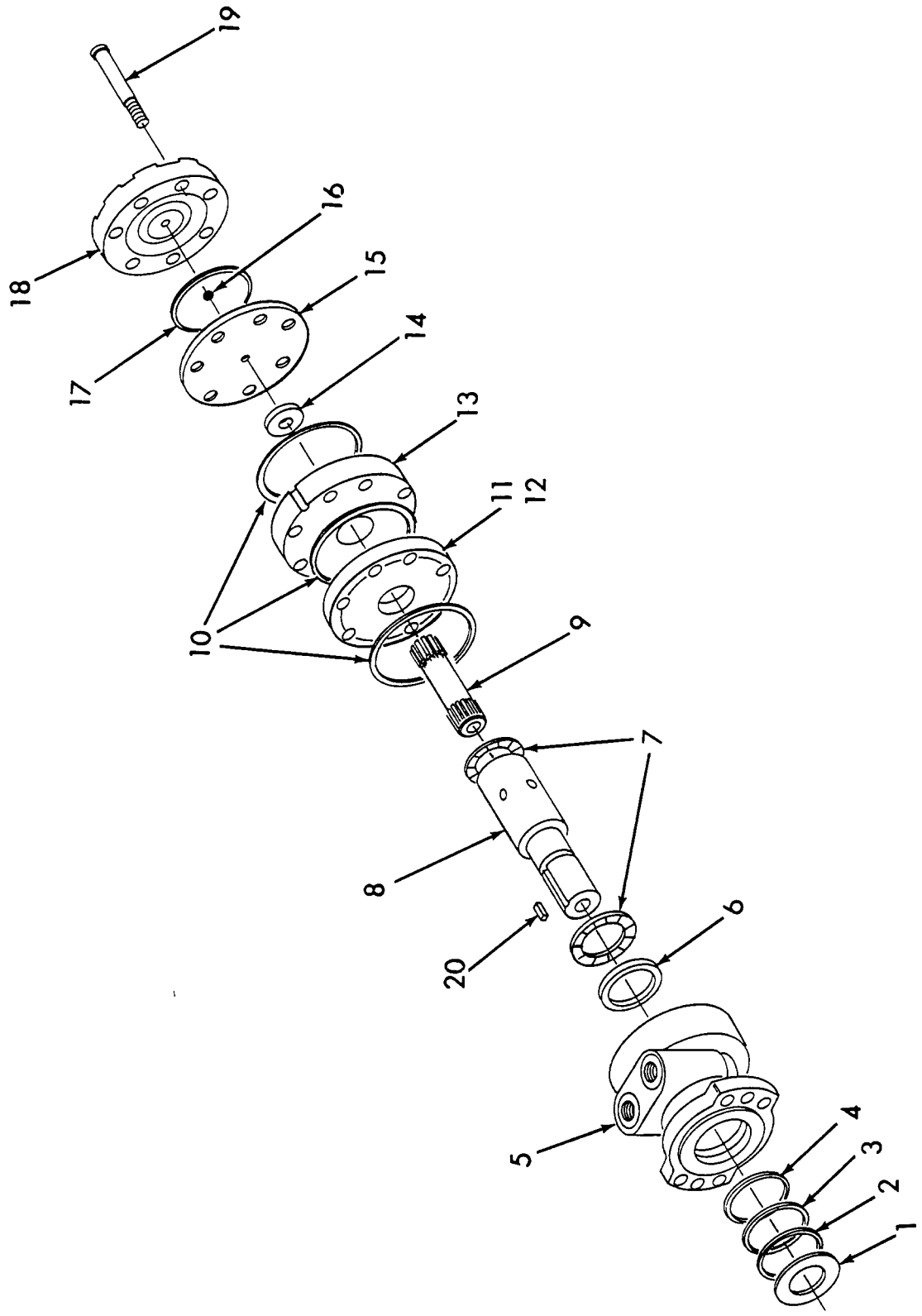
25. INSERT BOLTS (19) AND TORQUE IN A CRISSCROSS MANNER TO 60 FT. LBS. REMOVE MOTOR FROM VISE AND PLACE ON WORK BENCH WITH SHAFT UP.

26. INSTALL DUST SEAL (1) TO FLUSH WITH PILOT FACE.

Mark Industries

TITLE	DRIVE MOTOR
MODEL	J19W, J25
NOTES	

SECTION	7
FIGURE	1
PAGE	1



REV.

Mark Industries

TITLE	DRIVE MOTOR
MODEL	J19W, J25
NOTES	

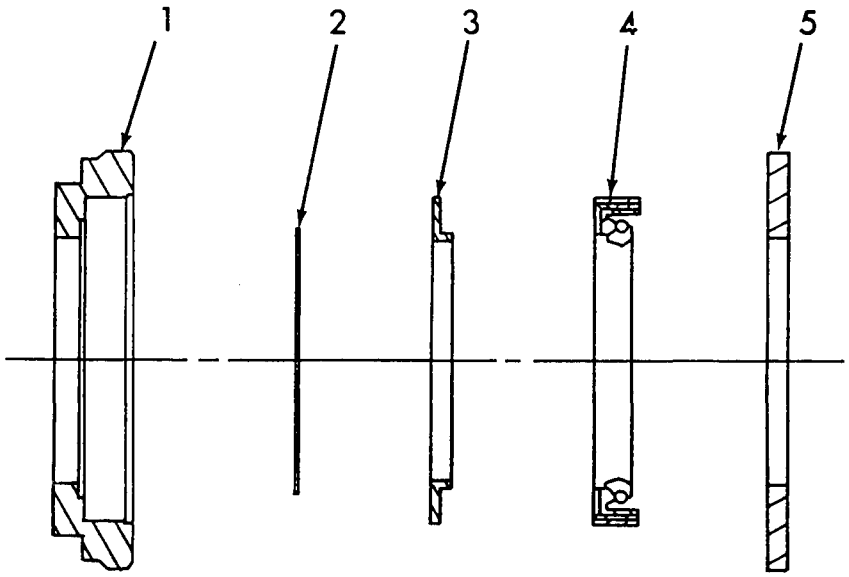
SECT.	7
FIG.	1
PAGE	2

ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
1		DUST SEAL	1
2		RETAINING RING	1
3		STEEL BACK-UP	1
4		SEAL	1
5		HOUSING	1
6		SEAL CARRIER ASSEMBLY	1
7		THRUST BEARING	2
8		SHAFT	1
9		DRIVE LINK	1
10		SEAL	3
11		MANIFOLD PLATE	1
12		MANIFOLD BOOT	1
13		ROLLER STATOR	1
14		SPACER	1
15		PRESSURE PLATE	1
16		3/16 DIA. BALL	4
17		SEAL	1
18		END COVER	1
19		BOLT	7
20		.3125 X .275 KEY .25 X 1.00 WOODRUFF KEY OR 1.00-20UNEF HEX NUT AND .3125 X 1.25 WOODRUFF KEY PROVIDED WITH APPROPRIATE SHAFT	1

Mark Industries

TITLE	DRIVE MOTOR
MODEL	J19W, J25
NOTES	

SECTION	7
FIGURE	2
PAGE	1



ITEM	PART NUMBER	DESCRIPTION 1234	UNITS PER ASSY
1		SEAL CARRIER	
2		BACK-UP RING	
3		TEFLON BACK-UP	
4		SHAFT SEAL	
5		THRUST WASHER	

REV.

THIS CHAPTER HAS BEEN PROVIDED TO KEEP **MARK INDUSTRIES** SERVICE BULLETINS THAT APPLY TO THE IMPROVEMENT OF YOUR **MARKLIFT.**