

Service Manual

X Series

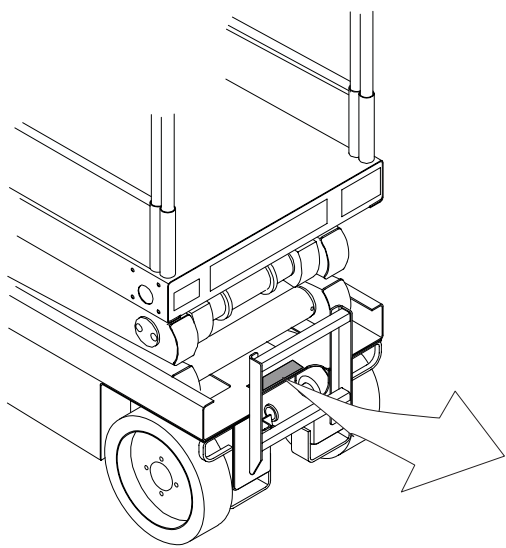
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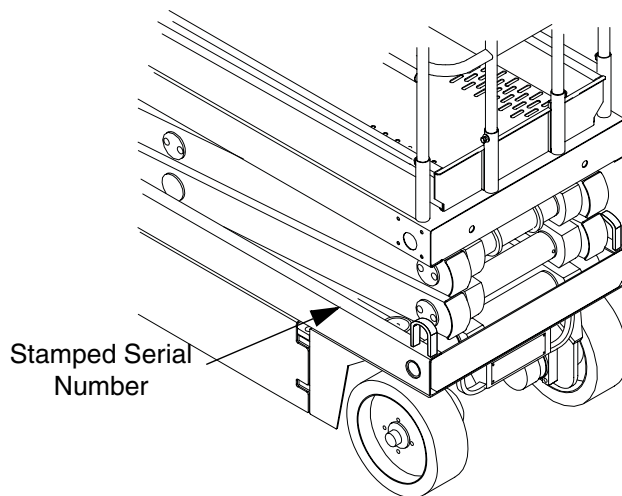
UpRight

X Series

When contacting UpRight for service or parts information, be sure to include the MODEL and SERIAL NUMBERS from the equipment nameplate. Should the nameplate be missing, the SERIAL NUMBER is also stamped on top of the right side elevating assembly guide channel.



UpRight, Inc.	
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MODEL NO. <input type="text"/>	MAX. PLATFORM HEIGHT <input type="text"/>
SERIAL NO. <input type="text"/>	BATTERY VOLTAGE <input type="text"/>
MAX. DISTRIBUTED LOAD <input type="text"/>	<input type="text"/>
CAUTION: CONSULT OPERATOR'S MANUAL BEFORE USE.	
THIS PLATFORM IS NOT ELECTRICALLY INSULATED	
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Introduction

HOW TO USE THIS MANUAL

This manual is divided into 7 sections. The first page of each section is marked with a black tab that lines up with one of the thumb index tabs on the right side of this page. You can quickly find the first page of each section without looking through the table of contents which follows this page. The section number printed at the top corner of each page can also be used as a quick reference guide.

SPECIAL INFORMATION



DANGER



Indicates the hazard or unsafe practice *will* result in severe injury or death.



WARNING



Indicates the hazard or unsafe practice *could* result in severe injury or death.



CAUTION



Indicates the hazard or unsafe practice could result in *minor* injury or property damage.

A NOTE: Gives helpful information.

WORKSHOP PROCEDURES

CAUTION: Detailed descriptions of standard workshop procedures, safety principles and service operations are not included. Please note that this manual does contain warnings and cautions against some specific service methods which could cause personal injury, or could damage a machine or make it unsafe. Please understand that these warnings cannot cover all conceivable ways in which service, whether or not recommended by UpRight, Inc., might be done, or of the possible hazardous consequences of each conceivable way, nor could UpRight Inc. investigate all such ways. Anyone using service procedures or tools, whether or not recommended by UpRight Inc., must satisfy themselves thoroughly that neither personal safety nor machine safety will be jeopardized.

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1.0 Introduction

PURPOSE

This manual provides illustrations and instructions for the operation and maintenance of the X-Series Work Platform manufactured by UpRight, Inc. Selma, California. (See Figure 1-1).

SCOPE

This manual includes both operation and maintenance responsibilities concerning the X-Series Work Platform's readiness. The Maintenance Section covers scheduled maintenance, troubleshooting, repair, adjustment and replacement.

1.1 General Information

DESCRIPTION

The X-Series Work Platform is a self-propelled aerial work platform designed to be used as a means of elevating personnel and equipment and to provide a mobile work platform. They are designed to provide mobility with the platform in a raised or lowered position. Travel with the platform elevated is limited to the low speed range.

PURPOSE AND LIMITATIONS

The objective of the X-Series Work Platform is to provide a quickly deployable, self-propelled, variable height work platform. The elevating function shall only be used when the work platform is on a firm level work area. The work platform is intended to be self-propelled when in relatively close proximity to the work area.

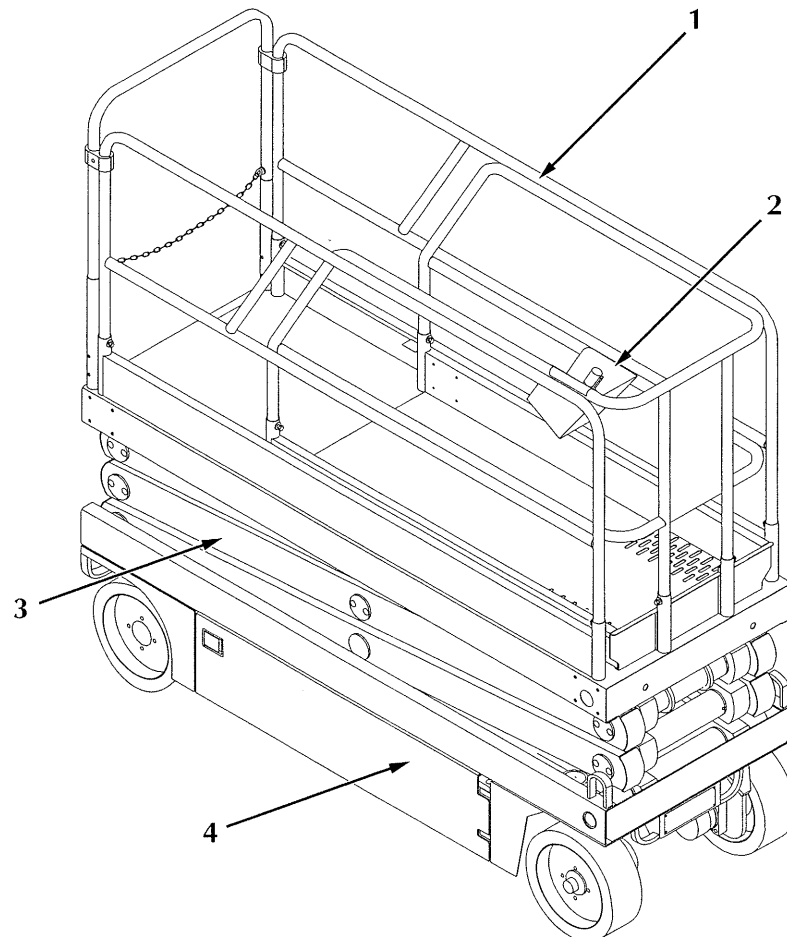


Figure 1-1: X-Series Work Platform

1.2 Specifications*

Table 1-1: Specifications

ITEM	X20N	X-20W	X-26N
Platform Size (inside Toeboards) w/ Deck Extended	28 in. x 87 in. (711 mm x 2.21 m) 28 in. x 124 in. (711 mm x 3.15 m)	44 in. X 87 in. (1.12 m x 2.21 m) 44 in. X 124 in. (1.12 m x 3.15 m)	44 in. X 87 in. (1.12 m x 2.21 m) 44 in. X 124 in. (1.12 m x 3.15 m)
Max. Platform Capacity on Slide Out Deck	750 lbs. (340 kg) 250 lbs. (110 kg)	1000 lbs. (453 kg) 250 lbs. (110 kg)	1000 lbs. (453 kg) 250 lbs. (110 kg)
Max. No. of Occupants On Slide Out Deck	3 people 1 person	4 people 1 person	4 people 1 person
Height			
Working Height	26 ft. (7.92 m)	26 ft. (7.92 m)	32 ft. (9.75 m)
Max. Platform Height	20 ft. (6.1 m)	20 ft. (6.1 m)	26 ft. (7.92 m)
Min. Platform Height	38 in. (.97 m)	38 in. (.97 m)	43 in. (1.09 m)
Weight	3,651 lbs. (1656 kg)	3,830 (1737 kg)	4,315 lbs. (1957 kg)
Dimensions			
Overall Width	32.5 in. (.83 m)	48 in. (1.22 m)	48 in. (1.22 m)
Overall Height	78.5 in. (1.99 m)	78.5 in. (1.99 m)	83.5 in. (2.12 m)
Overall Length	92.5 in. (2.35 m)	92.5 in. (2.35 m)	92.5 in. (2.35 m)
Driveable Height	20 ft. (6.1 m)	20 ft. (6.1 m)	26 ft. (7.92 m)
Surface Speed			
Platform Lowered	2.4 mph (3.9 km/h)	2.4 mph (3.9 km/h)	2.4 mph (3.9 km/h)
Platform Raised	.7 mph (1.1 km/h)	.7 mph (1.1 km/h)	.7 mph (1.1 km/h)
Energy Source	24 Volt Battery Pack (4-220 Amp Hour, 6 Volt Batteries, min. wt. 62 lbs. each (28.12 kg)), 4 HP DC Electric Motor	24 Volt Battery Pack (4-220 Amp Hour, 6 Volt Batteries, min. wt. 62 lbs. each (28.12 kg)), 4 HP DC Electric Motor	24 Volt Battery Pack (4-220 Amp Hour, 6 Volt Batteries, min. wt. 62 lbs. each (28.12 kg)), 4 HP DC Electric Motor
System Voltage	24 Volt DC	24 Volt DC	24 Volt DC
Battery Charger	25 AMP, 60 Hz 110 VAC	25 AMP, 60 Hz 110 VAC	25 AMP, 60 Hz 110 VAC
Battery Duty Cycle	25% for 8 Hours	25% for 8 Hours	25% for 8 Hours
Hydraulic Tank Capacity	4 Gallons (15.2 l)	4 Gallons (15.2 l)	4 Gallons (15.2 l)
Maximum Hydraulic System Pressure	2400 psi (165 Bar)	3400 psi (234 Bar)	3400 psi (234 Bar)
Hydraulic Fluid			
Normal (>32 °F [0 °C])	ISO #46	ISO #46	ISO #46
Low Temp. (-10 to 32 °F [-23 to 0 °C])	5W-20 Motor Oil	5W-20 Motor Oil	5W-20 Motor Oil
Lift System	One Single Stage Lift Cylinder	One Single Stage Lift Cylinder	One Single Stage Lift Cylinder
Drive Control	Two Speed	Two Speed	Two Speed
Control System	Joystick Controller with Interlock Lever, Toggle Selector Switch, Red Mushroom Emergency Stop	Joystick Controller with Interlock Lever, Toggle Selector Switch, Red Mushroom Emergency Stop	Joystick Controller with Interlock Lever, Toggle Selector Switch, Red Mushroom Emergency Stop
Horizontal Drive	Dual Front Wheel Hydraulic Motors	Dual Front Wheel Hydraulic Motors	Dual Front Wheel Hydraulic Motors
Tires	15 in. (381 mm) Diameter Solid Rubber, non-marking	15 in. (381 mm) Diameter Solid Rubber, non-marking	15 in. (381 mm) Diameter Solid Rubber, non-marking
Parking Brakes	Two, Spring Applied, Hydraulic Release Brake Shoes with Manual Brake Release	Two, Spring Applied, Hydraulic Release Brake Shoes with Manual Brake Release	Two, Spring Applied, Hydraulic Release Brake Shoes with Manual Brake Release
Turning Radius	90 in. (2.29 m) Outside	96 in. (2.44 m) Outside	96 in. (2.44 m) Outside
Gradeability	23 % (13 degrees)	23 % (13 degrees)	20 % (11 degrees)
Wheel Base	74.75 in. (1.9 m)	74.75 in. (1.9 m)	74.75 in. (1.9 m)
Guardrails	40 in. (1.02 m)	40 in. (1.02 m)	40 in. (1.02 m)
Toeboard	6 in. (152 mm) High	6 in. (152 mm) High	6 in. (152 mm) High

*Specifications subject to change without notice.

Read, understand and follow all safety rules and operating instructions before attempting to operate the machine.

2.1 Preparation for Use



WARNING



STAND CLEAR when cutting the metal banding to avoid being cut when the banding snaps back.

1. Remove the metal banding from the machine.
2. Lift the front of the machine and remove banding and blocks from front wheels.
3. Lower machine.
4. Connect the negative battery lead terminal (Figure 2-1).

2.2 Preparation For Shipment

1. Fully lower the platform.
2. Disconnect the battery negative (-) lead from the battery terminal (Figure 2-1).
3. Band the Platform Assembly to the Chassis.

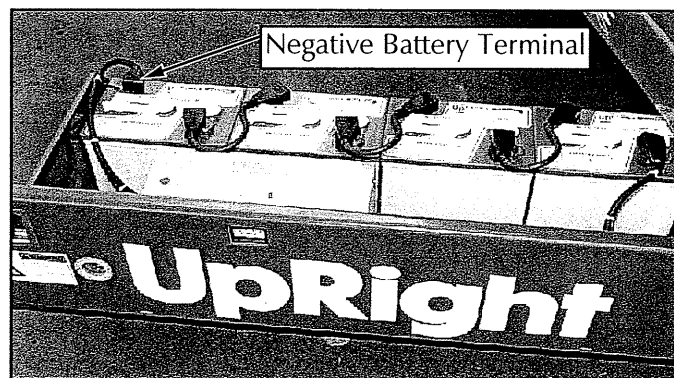




Figure 2-1: Chassis Module, Right Side

2.3 Forklifting Of Work Platform

NOTE: Forklifting is for transporting only.

 CAUTION 
<p>See specifications for weight of work platform and be certain that forklift is of adequate capacity to lift platform.</p>

Forklift from the side or rear by lifting under the Chassis (Figure 2-2).

2.4 Lifting Work Platform

Secure straps to chassis tie lift points **only** (Figure 2-2).

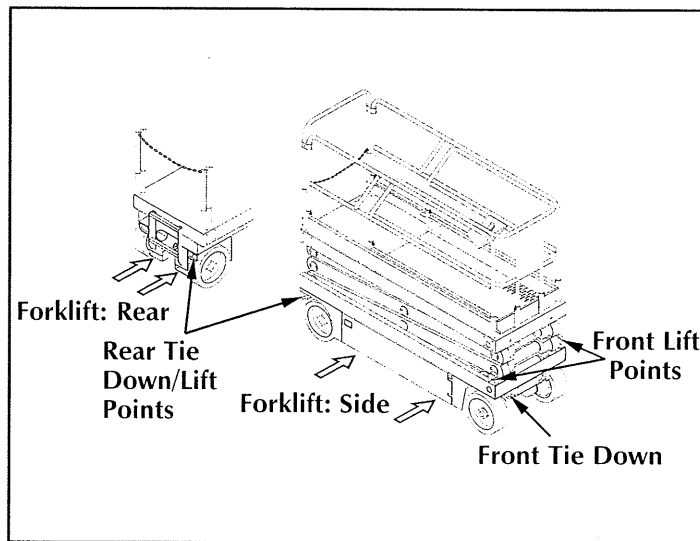




Figure 2-2: Transporting machine

2.5 Transport

1. Maneuver the work platform into transport position and chock wheels.
2. Secure the work platform to the transport vehicle with chains or straps of adequate load capacity attached to the chassis tie down points (Figure 2-2).

 CAUTION 
<p>Overtightening of chains or straps attached to tie down lugs may result in damage to work platform.</p>

2.6 Storage

No preparation is required for normal storage. Regular maintenance per Table 4-1 should be performed. If the work platform is to be placed in long term storage (dead storage) use the following preservation procedure.

PRESERVATION

1. Clean painted surfaces. If the paint surface is damaged, repaint.
2. Check the level of the hydraulic oil with the platform fully lowered. Open the Right Module and remove the reservoir cap, oil should be at the lower line on the dipstick. Add ISO #46 hydraulic oil if necessary.
3. Coat all exposed unpainted metal surfaces with preservative.

BATTERIES

1. Disconnect the Battery ground cable terminal and secure to the chassis.
2. Disconnect the remaining battery leads and secure to the chassis.
3. Remove the batteries and place in alternate service.

3.0 Introduction

GENERAL FUNCTIONING

The battery powered electric motor directly drives a two section hydraulic pump. The low section supplies oil under pressure to operate steering and low drive/lift, the high section flow provides oil for high drive/lift. The oil flow is directed to the different functions by electrically activated solenoid valves.

DESIGN FEATURES

The X-Series Work Platform has the following features:

- The drive speed is limited to low speed when operating the work platform while the platform is elevated.
- Parking brakes are automatically engaged when the Drive Switch is released and the machine comes to a full stop or if power is lost.
- The Chassis Controls and Controller are equipped with an Emergency Stop Switch for stopping all powered functions.
- The Interlock Lever must be depressed for the Controller to function.
- An alarm (60 Hz) is provided to signal when the platform is lowering.
- A Lift Switch is located in the Chassis Control Panel on the right side of the Chassis for lifting and lowering the Platform from ground level.
- Pothole Protection Supports rotate into position under the machine whenever the platform is raised. An alarm will sound and the Platform will not elevate if the Pothole Protection Supports do not fully deploy.
- The Tilt Alarm (600 Hz) is activated on slopes of 2 degrees side to side and fore and aft when the machine is elevated, cutting power to Lift and Drive functions.
- An Emergency Lowering Valve is provided to lower the Platform in the event electrical power is lost.

3.1 Safety Rules and Precautions

All personnel shall carefully read, understand and follow all safety rules, operating instructions and the Scaffold Industry Association's MANUAL OF RESPONSIBILITIES before performing maintenance on or operating any UpRight X-Series Work Platform:

NEVER operate the machine within ten feet of power lines. **THIS MACHINE IS NOT INSULATED.**

NEVER elevate the platform or drive the machine while elevated unless the machine is on firm level surface.

NEVER sit, stand or climb on guardrail or midrail.

NEVER operate the machine without first surveying the work area for surface hazards such as holes, drop-offs, bumps and debris.

NEVER operate the machine if all guardrails are not properly in place and secured with all fasteners properly torqued.

SECURE chain across entrance and lower the rear guardrail after mounting platform.

NEVER use ladders or scaffolding on the platform.

NEVER attach overhanging loads or increase platform size.

LOOK up, down and around for overhead obstructions and electrical conductors.

DISTRIBUTE all loads evenly on the platform. See the back cover for maximum platform load.

NEVER use damaged equipment. (Contact UpRight for instructions. See toll free number inside front cover.)

NEVER change operating or safety systems.

INSPECT the machine thoroughly for cracked welds, loose hardware, hydraulic leaks, damaged control cable, loose wire connections and wheel bolts.

NEVER climb down elevating assembly with the platform elevated.

NEVER perform service on machine while platform is elevated without blocking elevating assembly.

NEVER recharge batteries near sparks or open flame; batteries that are being charged emit highly explosive hydrogen gas.

AFTER USE secure the work platform against unauthorized use by turning key switch off and removing key.

NEVER replace any component or part with anything other than original UpRight replacement parts without the manufacturers consent.

3.2 Controls and Indicators

The controls and indicators for operation of the X-Series Work Platform are shown in Figure 3-1. The name and function of each control and indicator are listed in Table 3-1. The index numbers in the figure correspond to the index numbers in the table. **The operator should know the location of each control and indicator and have a thorough knowledge of the function and operation of each before attempting to operate the unit.**

Table 3-1: Controls and Indicators

Platform/Controller

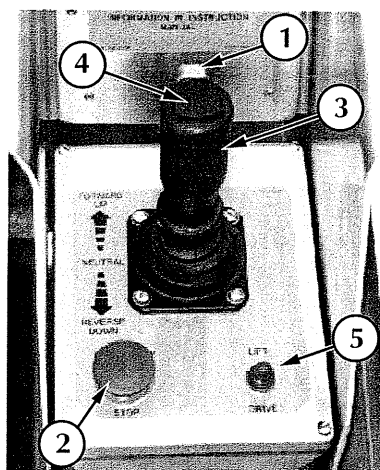
INDEX NO.	NAME	FUNCTION
1	Interlock Lever	Provides power to the Controller only when depressed, preventing inadvertent activation of the Controller.
2	Emergency Stop Switch	Push red button to cut off power to all functions (OFF). Pull up to provide power (ON).
3	Control Lever (Joystick)	Move joystick forward or backward to control Drive Valves or Lift and Down Valves depending on position of Drive/Lift Switch.
4	(Steering Switch)	Push switch right or left to control steering. Steering is not self-centering. Wheels must be returned to straight ahead position by operating Steering Switch.
5	Drive/Lift Switch	Selecting DRIVE allows the work platform to move forward or reverse. Selecting LIFT allows the platform to raise or lower.

Table 3-1: Controls and Indicators (cont'd.)

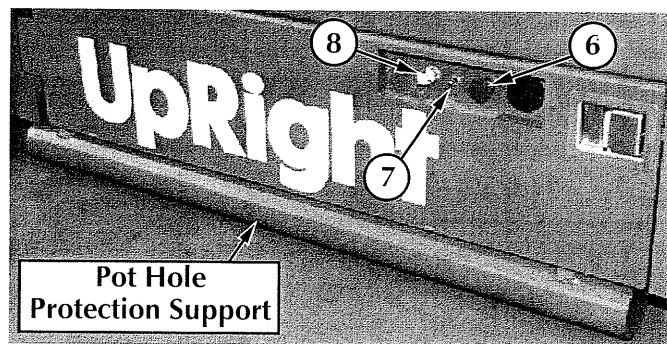
Chassis

INDEX NO.	NAME	FUNCTION
6	Emergency Stop Switch	Push red button to cut off power to all functions (OFF). Pull out to provide power (ON).
7	Chassis Lift Switch	Toggle switch to UP to lift the work platform and toggle switch to DOWN to lower the work platform.
8	Chassis Key Switch	Turn switch to PLATFORM to provide power to Controller, to CHASSIS to provide power to Chassis Controls and to OFF to prevent unauthorized use of the machine.
9	Emergency Lowering Valve	Pull handle out to lower the Platform. To close, release handle. The platform cannot be raised until this valve is closed.
10	Brake Release	Loosen locknut and turn Brake Release/Adjustment Bolt counterclockwise to release brakes. Turn Brake Release/Adjustment Bolt clockwise until brakes fully engage tires, secure bolt with locknut. DO NOT operate the machine with the Brakes disengaged.
11	Battery Charger	Charger turns on automatically after a short delay, the ammeter will indicate DC charging current. Charger turns off automatically when batteries are fully charged, on some models a green LED indicator will come on.
12*	Down Alarm (60 Hz)	Sounds an audible signal anytime the platform is lowering during normal operation. If the Emergency Lowering Valve is used the alarm does not sound.
13*	Tilt/Pothole Protection Alarm (600 Hz)	Sounds an audible signal when the platform is elevated and: on a slope of 2° side to side or fore and aft or; the Pothole Protection Supports do not fully deploy.

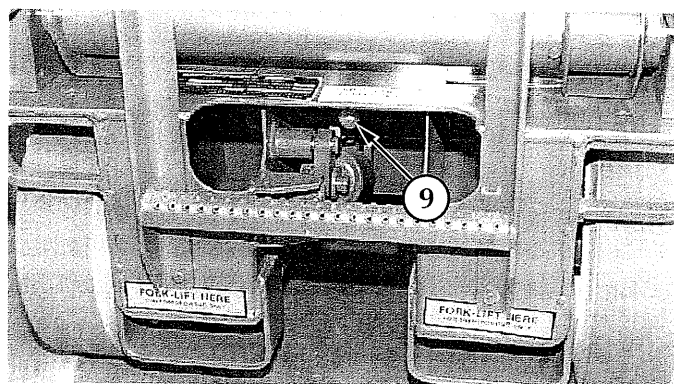
* Not shown in Figure 3-1, Items 12 & 13 are the same unit with two different inputs, mounted on the electrical box inside the left Chassis Door.



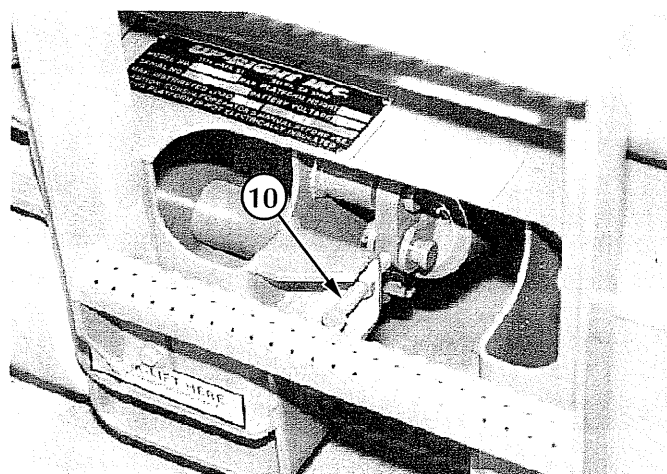
Controller



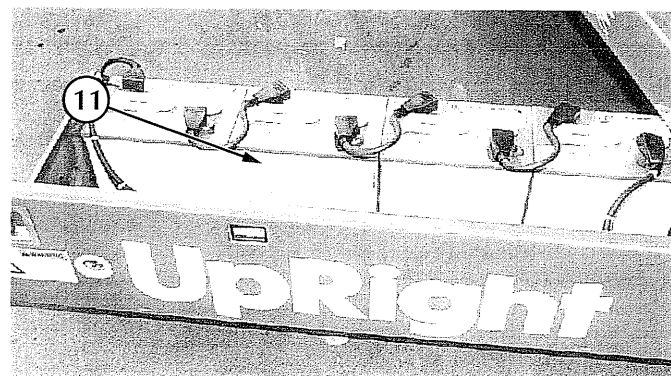
Chassis Module, Left Side



Emergency Lowering Valve Handle



Brake Release



Chassis Module, Right Side

Figure 3-1: Controls and Indicators

3.3 Pre-Operation Inspection

NOTE: Carefully read, understand and follow all safety rules, operating instructions, labels and the Scaffold Industry Association's **MANUAL OF RESPONSIBILITIES**. Perform the following steps each day before use.



WARNING



DO NOT perform service on or in the scissor assembly with the platform elevated unless the platform is properly blocked.

1. Open modules and inspect for damage, oil leaks or missing parts.
2. Check the level of the hydraulic oil with the platform fully lowered. Open the Left Module and remove the reservoir cap, oil should be at the lower line on the dipstick. Add ISO #46 hydraulic oil if necessary.
3. Check that fluid level in the batteries is correct (See Battery Maintenance, Section 4.3).
4. Verify batteries are charged.
5. Check that A.C. extension cord has been disconnected from charger plug.
6. Check that all guardrails are in place, the slide out deck extension is secured with the pin and all fasteners are properly tightened.
7. Carefully inspect the entire work platform for damage such as cracked welds or structural members, loose or missing parts, oil leaks, damaged cables or hoses, loose connections and tire damage.
8. Move machine, if necessary, to unobstructed area to allow for full elevation.
9. Turn Chassis and Platform Emergency Stop Switches ON (Figure 3-1) by pulling the button out.
10. Turn the Chassis Key Switch (Figure 3-1) to **CHASSIS**.
11. Push Chassis Lift Switch (Figure 3-1) to UP position and fully elevate platform.
12. Visually inspect the elevating assembly, lift cylinder, cables and hoses for damage or erratic operation. Check for missing or loose parts.
13. Verify that the Pothole Protection Supports have fully rotated into position under each module and that the Pothole Protection Support Alarm is operational by pushing in on each support. The alarm should sound and the support should freely rotate back into the deployed position.

14. Partially lower the platform by pushing Chassis Lift Switch to **DOWN** and check operation of the audible lowering alarm.
15. Open the Chassis Emergency Lowering Valve (Figure 3-1) to check for proper operation by pulling and holding the handle out. Once the platform is fully lowered, close the valve by releasing the handle.
16. Verify that the Pothole Protection Supports have rotated into the stowed position.
17. Turn the Chassis Key Switch to **DECK**.
18. Close and latch the module doors.
19. Check that route is clear of persons, obstructions, holes and drop-offs, is level and capable of supporting the wheel loads.
20. Unhook Controller from guardrail. Firmly grasp Controller while performing the following checks from the ground.



WARNING



STAND CLEAR of the work platform while performing the following checks.
Protect control console cable from possible damage while performing checks.

21. Pull Emergency Stop Button out to the ON position.
22. Position Drive/Lift Switch to **DRIVE**.
23. Grasp the Control Lever so the Interlock Lever is depressed (releasing the Interlock Lever cuts power to Controller), slowly position the Control Lever to **FORWARD** then **REVERSE** to check for speed and directional control. The farther you push or pull the Control Lever from center the faster the machine will travel.
24. Push Steering Switch RIGHT then LEFT to check for steering control.
25. Push the Emergency Stop Switch Button.
26. Rehook Controller at front guardrail.

3.4 Operation

Note: Before operating work platform ensure that pre-operation and safety inspection has been completed, any deficiencies have been corrected and the operator has been thoroughly trained on this machine.

TRAVEL WITH PLATFORM LOWERED

1. Check that route is clear of people, obstructions, holes and drop-offs, is level and capable of supporting wheel loads.
2. Verify Chassis Key Switch is turned to **DECK** and Chassis Emergency Stop Switch is ON, pull button out.
3. After mounting platform lower top rail across entrance and latch the chain. Check that guardrails are properly assembled and in position with the slide out deck extension secured with the pin. Attach Controller to guardrail.
4. Check clearances above, below and to the sides of platform.
5. Pull Controller Emergency Stop Button out to ON position. When button is pushed down Emergency Stop Switch will automatically go to OFF position.
6. Position Drive/Lift Switch to **DRIVE**.
7. Grasp the Control Lever so the Interlock Lever is depressed (releasing the Interlock Lever cuts power to Controller), slowly push or pull the Control Lever to **FORWARD** or **REVERSE** position to travel in the desired direction. The farther you push or pull the Control Lever from center the faster the machine will travel.

STEERING

1. Position Drive/Lift Switch to **DRIVE**.
2. While holding the Control Lever so that the Interlock Lever is depressed, push the Steering Switch to **RIGHT** or **LEFT** to turn wheels in the desired direction. Observe the tires while maneuvering the work platform to ensure proper direction.

NOTE: Steering is not self-centering. Wheels must be returned to straight ahead position by operating Steering Switch.

ELEVATING PLATFORM



WARNING



LOOK up and around for obstructions before performing the lift function.

DO NOT elevate the platform unless the work platform is on a firm and level surface.

DO NOT operate the work platform within ten feet of any electrical lines. **THIS WORK PLATFORM IS NOT INSULATED.**

NEVER enter the elevating assembly while the platform is elevated without first blocking the elevating assembly.

1. Position Drive/Lift Switch to **LIFT**.
2. While holding the Control Lever so that the Interlock Lever is depressed, push Control Lever forward to **UP**, the farther you push the Control Lever the faster the platform will elevate.
3. If the machine is not level or the Pot Hole Protection Supports do not fully deploy an Alarm will sound and the machine will not lift or drive. **If an Alarm sounds the platform must be lowered and the machine moved to a level location before attempting to re-elevate the platform or the Pot Hole Protection Supports must be repaired if they are not properly deploying.**

TRAVEL WITH PLATFORM ELEVATED



WARNING



Travel with platform elevated **ONLY** on firm and level surfaces.

NOTE: Work platform will travel at reduced speed when platform is elevated.

1. Check that route is clear of people, obstructions, holes and drop-offs, is level and capable of supporting the wheel loads.
2. Check clearances above, below and to the sides of platform.
3. Position Drive/Lift Switch to **DRIVE**.
4. Grasp the Control Lever so the Interlock Lever is depressed (releasing the Interlock Lever cuts power to Controller), push Control Lever to **FORWARD** or **REVERSE** for desired direction of travel.

5. If the machine is not level or the Pot Hole Protection Supports do not fully deploy an Alarm will sound and the machine will not lift or drive. **If an Alarm sounds the platform must be lowered and the machine moved to a level location before attempting to re-elevate the platform or the Pot Hole Protection Supports must be repaired if they are not properly deploying.**

LOWERING PLATFORM

1. Position Drive/Lift Switch to **LIFT**.
2. Grasp the Control Lever so the Interlock Lever is depressed, pull back Control Lever to **DOWN**.

EMERGENCY LOWERING

Ask a person on the ground to open the Emergency Lowering Valve (Figure 3-1) to lower the platform.

This valve is opened with the handle located at the rear of the machine.

1. Open the Emergency Lowering Valve by pulling on the handle.

Note: the Down Alarm will not sound when using the Emergency Lowering Valve.

2. To close, release the handle.

The platform will not elevate if the Emergency Lowering Valve is open.

AFTER USE EACH DAY

1. Ensure that the platform is fully lowered.
2. Park the machine on level ground, preferably under cover, secure against vandals, children or unauthorized operation.
3. Turn the Key Switch to **OFF** (center position) and remove the key to prevent unauthorized operation.
4. Plug in Battery Charger and verify charger is operating, see *Battery Charging*, Section 4.3.

PARKING BRAKE RELEASE (Figure 3-1)

Perform the following only when the machine will not operate under its own power and it is necessary to move the machine or when towing the machine up a grade or winching onto a trailer to transport.

The Brake Adjustment/Release Bolt is located at the rear of the machine between the rear wheels.

1. To release the brakes loosen the locknut and turn the bolt counterclockwise until the brakes disengage from the tires.
2. The machine will now roll when pushed or pulled.
3. To reengage the brakes tighten the bolt until the brakes have fully engaged the tires, secure the bolt with the locknut. Be sure to verify that the brakes have fully engaged the rear tires before the machine is operated.



WARNING



Never operate work platform with the Parking Brake released. Serious injury or damage could result.

Never tow faster than 1 Ft./sec. (.3 m/sec.).

4.0 Introduction

This section contains instructions for the maintenance of the X-Series Work Platform. Procedures for the operational checkout adjustment, scheduled maintenance, and repair/removal are included.

Referring to *Section 3.0* will aid in understanding the operation and function of the various components and systems of the X-Series Work Platform and help in diagnosing and repair of the machine.



SPECIAL TOOLS

The following is a list of special tools that are required to perform certain maintenance procedures. These tools may be purchased from your dealer.

Description	Part Number
Inclinometer	10119-000-00
Gauge, 0-3000 psi	14124-030-00
Gauge, 0-6000 psi	14124-060-00
Fitting, Quick Disconnect	63965-002-00

4.1 Preventative Maintenance (Table 4-1)

The complete inspection consists of periodic visual and operational checks, together with all necessary minor adjustments to assure proper performance. Daily inspection will prevent abnormal wear and prolong the life of all systems. The inspection and maintenance schedule is to be performed at regular intervals. Inspection and maintenance shall be performed by personnel who are trained and familiar with mechanical and electrical procedures. Complete descriptions of the procedures are in the text following the table.

	WARNING	
<p>Before performing preventative maintenance familiarize yourself with the operation of the machine.</p> <p>Always use the elevating assembly brace whenever it is necessary to enter the scissor assembly when the Platform is elevated.</p>		

The Preventative Maintenance Table has been designed to be used for machine service and maintenance repair. **Please copy the following page and use this table as a checklist when inspecting a machine for service.**

Maintenance

Preventative Maintenance Table Key

Interval

Daily=each shift or every day
50h/30d=every 50 hours or 30 days
250h/6m=every 250 hours or 6 months
1000h/2y=every 1000 hours or 2 years

Y=Yes/Acceptable

N=No/Not Acceptable

R=Repaired/Acceptable

Preventative Maintenance Report

Date: _____
Owner: _____
Model No: _____ Serial No: _____
Serviced By: _____
Service Interval: _____

Table 4-1: Preventative Maintenance

COMPONENT	INSPECTION OR SERVICES	INTERVAL	Y	N	R
Battery System	Check electrolyte level	Daily			
	Check battery cable condition	Daily			
	Charge batteries	Daily			
	Check charger condition & operation	Daily			
	Check specific gravity	50h/30d			
	Clean exterior	250h/6m			
	Clean terminals	250h/6m			
Hydraulic Oil	Check oil level	Daily			
	Change filter	250h/6m			
	Clean Reservoir Breather/Cap	250h/6m			
	Drain and replace oil (ISO #46)	1000h/2y			
Hydraulic System	Check for leaks	Daily			
	Check hose connections	50h/30d			
	Check for exterior wear	50h/30d			
Emergency Hydraulic System	Open the emergency lowering valve and check for serviceability	Daily			
Controller	Check condition & operation	Daily			
Control Cable	Check the exterior of the cable for pinching, binding or wear	Daily			
Platform Deck and Rails	Check fasteners for proper torque	Daily			
	Check welds for cracks	Daily			
	Check condition of deck	Daily			
	Check entry way closure	Daily			
Hydraulic Pump	Check for hose fitting leaks	Daily			
	Wipe clean	50h/30d			
	Check for leaks at mating surfaces	50h/30d			
	Check mounting bolts for proper torque	50h/30d			
Drive Motors	Check for operation and leaks	Daily			
Steering System	Lubricate pivot pins	250h/6m			
	Lubricate king pins	250h/6m			
	Check steering cylinder for leaks	50h/30d			
	Check hardware & fittings for proper torque	250h/6m			
Elevating Assembly	Inspect for structural cracks	Daily			
	Check pivot bearings for wear	50h/30d			
	Check pivot pin mounting bolts for proper torque	50h/30d			
	Check Scissor Arms for bending	250h/6m			
Chassis	Check hoses for pinch or rubbing points	Daily			
	Check welds for cracks	Daily			
	Check tires for damage	Daily			
	Check wheel bolts/nuts for proper torque	Daily			
	Check component mounting for proper torque	250h/6m			
Lift Cylinder	Check cylinder rod for wear	50h/30d			
	Check pivot pin retaining rings	50h/30d			
	Check seals for leaks	50h/30d			
	Check pivot points for wear	50h/30d			
	Check fittings for proper torque	50h/30d			
Entire Unit	Perform pre-operation inspection	Daily			
	Check for and repair collision damage	Daily			
	Lubricate	50h/30d			
	Check fasteners for proper torque	250h/6m			
	Check for corrosion-remove and repaint	250h/6m			
Labels	Check for peeling, missing, or unreadable labels & replace	Daily			

4.2 Blocking Elevating Assembly (Figure 4-1)



DANGER



Never perform service on the work platform in the Elevating Assembly area while platform is elevated without first blocking the Elevating Assembly.

DO NOT stand in Elevating Assembly area while installing or removing brace.

INSTALLATION

1. Park the work platform on firm level ground.
2. Verify Platform Emergency Stop Switch is ON.
3. Turn Chassis Key Switch to **CHASSIS**.
4. Position Chassis Lift Switch to UP and elevate platform approximately 9.5 Ft. (2.9 m).
5. Rotate Scissors Brace towards the front and allow it to hang vertical over the lower scissor pivot tube.
6. Push Chassis Lift Switch to DOWN position and gradually lower platform until brace rests on lower scissor arm pivot tube.

REMOVAL

1. Push Chassis Lift Switch to UP position and gradually raise platform until the lower end of the Scissors Brace will clear the lower scissor arm pivot tube.
2. Rotate Scissors Brace up and over towards the rear so that it rests on the cylinder mount, stowed position.
3. Push Chassis Lift Switch to DOWN position and completely lower platform.
4. Turn Chassis Key Switch to **DECK**.



Figure 4-1: Blocking the Elevating Assembly

4.3 Battery Maintenance

Electrical energy for the motor is supplied by four 6 volt batteries wired in series for 24 volts DC. Proper care and maintenance of the batteries and motor will ensure maximum performance from the work platform.



WARNING



Hazard of explosive gas mixture. Keep sparks, flame and smoking materials away from batteries.

Always wear safety glasses when working with batteries.

Battery fluid is highly corrosive. Rinse away any spilled fluid thoroughly with clean water.

BATTERY INSPECTION AND CLEANING

Check battery fluid level daily, especially if work platform is being used in a warm, dry climate. If required add distilled water only, use of tap water with high mineral content will shorten battery life.



CAUTION



If battery water level is not maintained, batteries will not fully charge, creating a low discharge rate which will damage Motor/Pump unit and void warranty.

Batteries should be inspected periodically for signs of cracks in the cases, electrolyte leakage and corrosion of the terminals. Inspect cables for worn spots or breaks in the insulation and for broken cable terminals.

Clean batteries that show signs of corrosion at the terminals or onto which electrolyte has overflowed during charging. Use a baking soda solution to clean the batteries, taking care not to get the solution inside the cells. Rinse thoroughly with clear water. Clean battery and cable contact surfaces to a bright metal finish whenever a cable is removed.

BATTERY CHARGING

(Figure 4-2)

Charge batteries at end of each work shift or sooner if batteries have been discharged.



CAUTION



Charge batteries in a well ventilated area.

Do not charge batteries when the work platform is in an area containing sparks or flames.

Permanent damage to batteries will result if batteries are not immediately recharged after discharging.

Never leave charger operating unattended for more than two days.

Never disconnect cables from batteries when charger is operating.

Keep charger dry.

When night air temperatures fall below 65°F (18°C) batteries charged in unheated areas should be placed on charger as soon after use as possible. Under such conditions a 4 hour equalize charge once a week in the early afternoon will improve state of charge and battery life.

1. Check battery fluid level. If electrolyte level is lower than $\frac{3}{8}$ in. (10 mm) above plates add distilled water only.
2. The battery charger is located inside the right chassis door. Connect extension cord (12 gauge (1.5 mm²) conductor minimum and 50 ft. (15 m) in length maximum) to the charger outlet plug located in the right chassis door. Connect other end of extension cord to properly grounded outlet of proper voltage and frequency.
3. Charger turns on automatically after a short delay, the ammeter will indicate DC charging current.
4. Charger turns off automatically when batteries are fully charged, on some models a green LED indicator will come on.

BATTERY CELL EQUALIZATION

The specific gravity of the electrolyte in the battery cells should be equalized monthly. To do this, charge batteries as outlined in Battery Charging. After this initial charge, check the electrolyte level in all cells and add distilled water as necessary. Then, turn the charger on for an additional eight hours. During this time, the charging current will be low (four amps) as cells are equalizing.

After equalization, the specific gravity of all cells should be checked with a hydrometer. The temperature corrected specific gravity in this state should be 1.260. If any corrected readings are below 1.230, the batteries containing such cells should be replaced.

Do not check the specific gravity in a cell to which water has just been added. If there is not enough electrolyte in a fully charged cell to obtain a sample for the hydrometer, add water and continue charging for one to two hours to adequately mix the water and electrolyte.

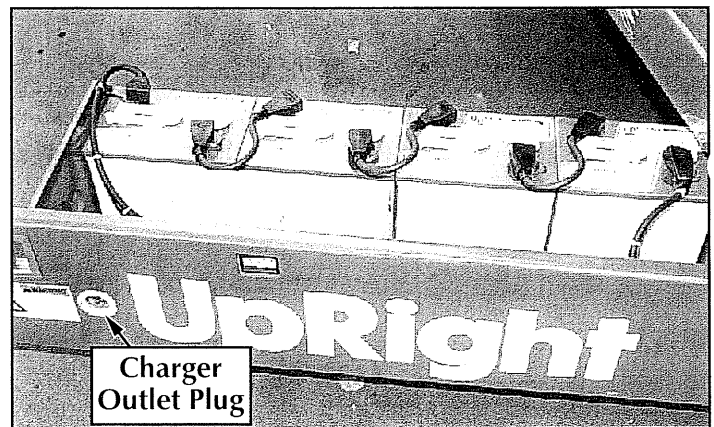


Figure 4-2: Battery Charger

4.4 Lubrication

STEERING LINKAGE

Apply two to three drops of oil to each linkage bearing. Use a grease gun with multipurpose grease and apply grease to the each zerk fitting at the steering pivots.

HYDRAULIC OIL TANK AND FILTER (Figure 4-3)

Fluid Level

With the platform fully lowered, open the Left Module and remove the reservoir breather/cap, oil should be at the full mark.

Oil and Filter Replacement

1. Operate the work platform for 10-15 minutes to bring the hydraulic oil up to normal operating temperature.



CAUTION



The hydraulic oil may be of sufficient temperature to cause burns. Wear safety gloves and safety glasses when handling hot oil.

2. Provide a suitable container to catch the drained oil. Hydraulic tank has a 7 liter capacity.
3. Open Left Module Door.
4. Remove the drain plug and allow all oil to drain. Dispose of hydraulic fluid properly, contact your local oil recycler.
5. Reinstall the drain plug.
6. Unscrew the filter from the Filter Assembly.
7. Apply a thin film of clean hydraulic oil (ISO #46) to the gasket of the replacement filter.
8. Screw the replacement filter onto the filter head until the gasket makes contact then rotate the filter $\frac{3}{4}$ of a turn further.
9. Fill the hydraulic reservoir with ISO #46 hydraulic oil until the oil is up to the full mark on the dipstick. Hydraulic tank has a 7 liter capacity.

Reservoir Breather/Cap

Clean breather/cap, when filter is replaced, with cleaning solvent and blow dry with clean dry compressed air.

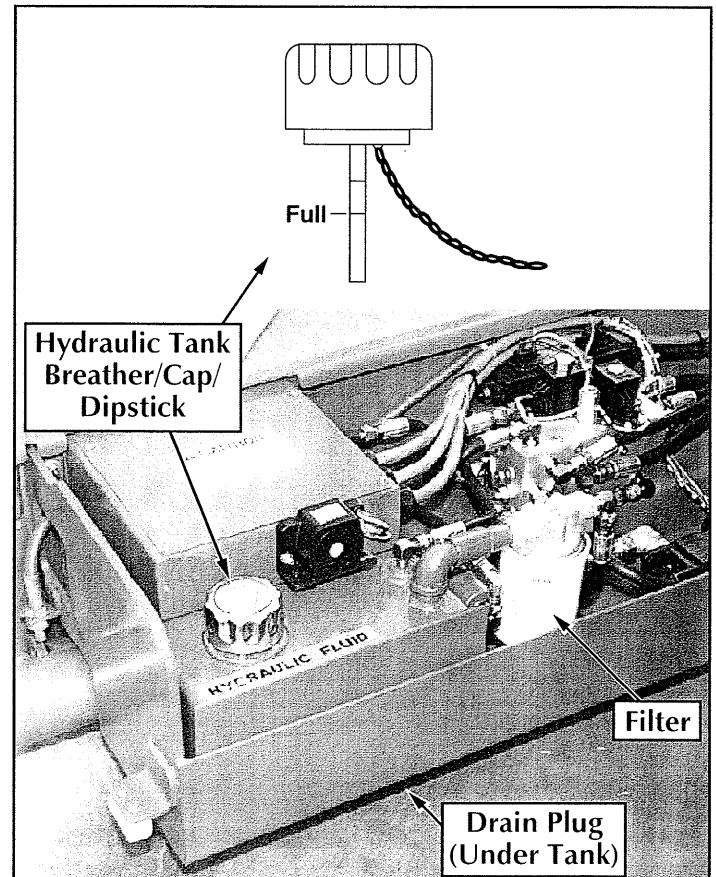


Figure 4-3: Hydraulic Oil Tank and Filter

4.5 Setting Hydraulic Pressures (Figure 4-4)

Check the hydraulic pressures whenever the pump, manifold or relief valves have been serviced or replaced.



WARNING



The hydraulic oil may be of sufficient temperature to cause burns. Wear safety gloves and safety glasses when handling hot oil.

The oil in the hydraulic system is under very high pressure which can easily cause severe cuts. **Obtain medical assistance immediately if cut by hydraulic oil.**

MAIN RELIEF VALVE (Figure 4-4)

X20N Machines

1. Operate the hydraulic system 10-15 minutes to warm the oil.
2. Remove high pressure gauge port cap and install the pressure gauge assembly.
3. Loosen locknut or remove cover on the Main Relief Valve and turn adjusting screw counterclockwise two full turns.
4. Place the maximum rated load, see *Table 1-1*, on the platform.
5. Turn the Chassis Key Switch to **CHASSIS**. Position the Chassis Lift Switch to **UP** position and hold it there.
6. Slowly turn the Main Relief Valve adjusting screw clockwise to increase the pressure until the platform just begins to raise. Check the gauge and verify the pressure does not exceed 2400 psi (165 bar). If it does readjust the Main Relief Valve to 2400 psi (165 bar) maximum.
7. Release the Chassis Lift Switch. Tighten locknut or replace Main Relief Valve cover and torque to 6 Ft/Lbs (8 Nm.).

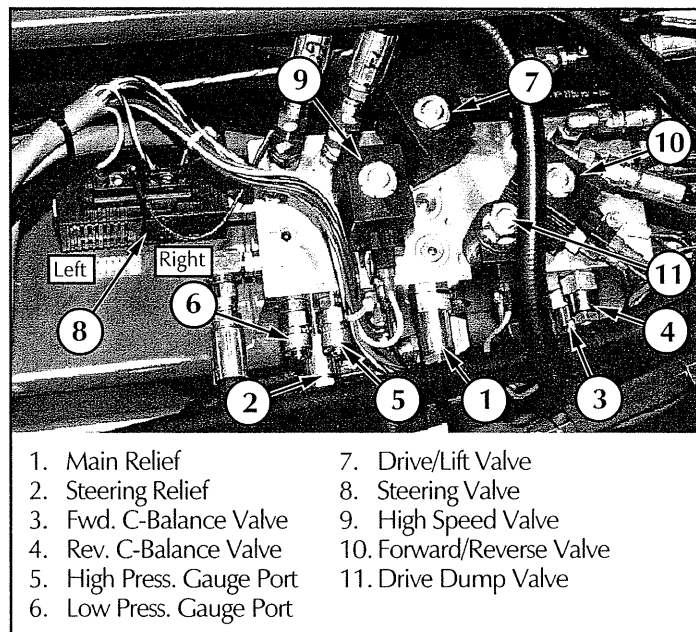


Figure 4-4: Hydraulic Manifold

X20W and X26N Machines

1. Operate the hydraulic system 10-15 minutes to warm the oil.
2. Remove high pressure gauge port cap and install the pressure gauge assembly.
3. Loosen locknut or remove cover on the Main Relief Valve and turn adjusting screw counterclockwise two full turns.
4. Slowly turn the Main Relief Valve adjusting screw clockwise to increase the pressure until the gauge reads 3400-3450 psi (234-238 bar).
5. Release the Chassis Lift Switch. Tighten locknut or replace Main Relief Valve cover and torque to 6 Ft/Lbs (8 Nm.).

STEERING RELIEF VALVE

1. Operate the work platform for 10-15 minutes to bring the hydraulic oil up to normal operating temperature.
2. Install gauge in low pressure gauge port.
3. Loosen locknut or remove cover on the Steering Relief Valve and turn adjusting screw counterclockwise two full turns.
4. While one person holds the Steering Switch to steer right or left, slowly turn the Steering Relief Valve adjusting screw clockwise to increase the pressure until the gauge reads 1500 psi (103 bar).
5. Tighten locknut or replace Steering Relief Valve cover and torque to 6 Ft/Lbs (8 Nm).
6. Remove gauge and replace cap.

COUNTERBALANCE VALVES (Figure 4-4)

1. Operate the work platform for 10-15 minutes to bring the hydraulic oil up to normal operating temperature.
2. Remove high pressure gauge port cap and install the pressure gauge assembly.
3. Lift work platform and block chassis so front wheels are off the ground.
4. Loosen the locknuts on Counterbalance Valves.
5. With the Chassis Key Switch on **DECK** and the Drive/Lift Switch in **DRIVE** depress the Interlock Lever and slowly pull the Control Lever to **REVERSE** to drive the wheels.
6. Adjust the Forward Counterbalance Valve by turning the adjustment screw until the pressure gauge indicates 325 psi (22.4 bar).
7. Slowly push the Control Lever to **FORWARD** to drive the wheels.
8. Adjust the Reverse Counterbalance Valve by turning the adjustment screw until the pressure gauge indicates 325 psi (22.4 bar).
9. Check the settings by slowly moving the Control Lever **FORWARD**, then **REVERSE** checking the gauge to ensure pressures are properly set. Readjust as needed.
10. Tighten locknuts on valves to 6 Ft/Lbs (8 Nm). Remove blocks and lower work platform to ground.
11. Remove the gauge from port and reinstall cap.
12. Check for proper operation of the drive system and brake.

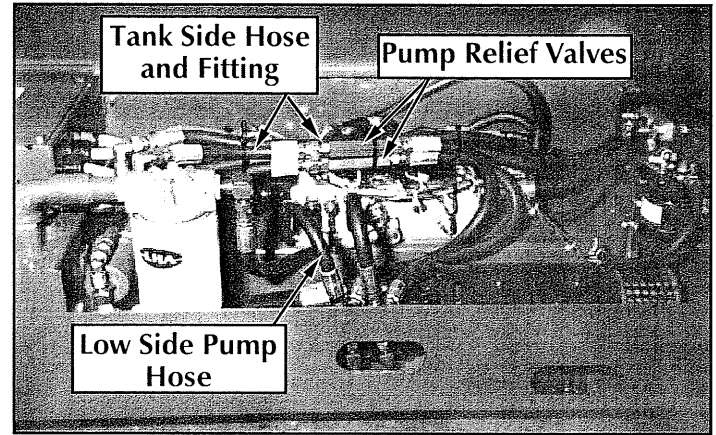


Figure 4-5: Pump Relief Valves

PUMP RELIEF VALVES (Figure 4-5)

1. Operate the work platform for 10-15 minutes to bring the hydraulic oil up to normal operating temperature.
2. Move the machine, if necessary, to a location that will allow the platform to be elevated.
3. Remove the low side pump hose from the valve block and install the 0-6000 pressure gauge assembly on the hose.
4. Remove the hose and fitting from the tank side of the pump relief valve connected to the low side of the pump.
5. Turn the adjustment screw, inside the tank side of the valve, counterclockwise two full turns.
6. Use a clean dry container or bucket (one gallon minimum). While pointing the relief valve into the container have another person hold the Chassis Lift Switch to the **UP** position, check the gauge.
7. With the pump off turn the adjusting screw slightly clockwise and repeat step 6 until gauge reads 3400 psi (234 bar) maximum. **Make certain the other person does not push the Chassis Lift Switch while the valve is being adjusted.**

Note: DO NOT continue with this adjustment if more than one gallon (3.8 l) of hydraulic oil has been discharged into the bucket without returning it to the hydraulic reservoir.

8. Remove the low side pump relief valve and exchange it for the high side pump relief valve (the valve that you just adjusted now becomes the high side relief valve).
9. Repeat steps 5, 6, & 7 for this relief valve.
10. Replace the hose and fitting on the relief valve, remove the gauge assembly and reinstall the hose on the valve block and return the hydraulic oil in the container to the hydraulic tank.
11. Operate the machine and verify it is working properly.

LIFT RELIEF VALVE, X20W AND X26N MACHINES (Figure 4-6)

This procedure is for X20W and X26N machines only.

1. Operate the work platform for 10-15 minutes to bring the hydraulic oil up to normal operating temperature.
2. Move the machine, if necessary, to a location that will allow the platform to be elevated and raise the platform fully.
3. Install gauge in high pressure gauge port.
4. Remove the hose and fitting from the tank side of the Lift Relief Valve.
5. Turn the adjustment screw, inside the tank side of the valve, counterclockwise two full turns.
6. Use a clean dry container or bucket (one gallon minimum). While pointing the relief valve into the container have another person hold the Chassis Lift Switch to the **UP** position, check the gauge.
7. With the pump off turn the adjusting screw slightly clockwise and repeat step 6 until gauge reads 2400 psi (165 bar) maximum. **Make certain the other person does not push the Chassis Lift Switch while the valve is being adjusted.**

Note: DO NOT continue with this adjustment if more than one gallon (3.8 l) of hydraulic oil has been discharged into the bucket without returning it to the hydraulic reservoir.

8. Replace the hose and fitting on the relief valve and return the hydraulic oil in the container to the hydraulic tank.
9. Operate the lift function and verify it is working properly.

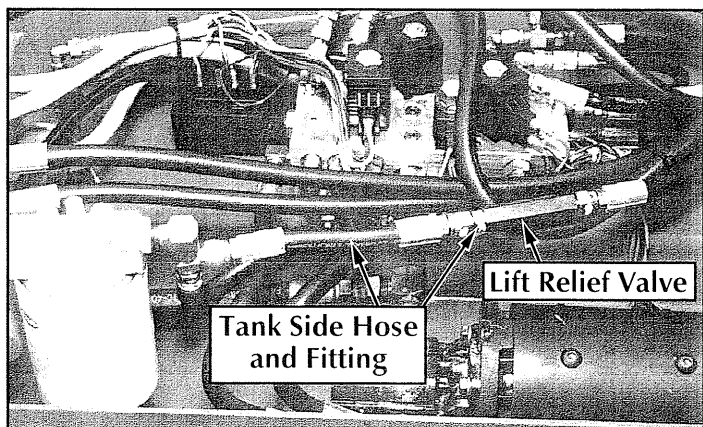


Figure 4-6: Lift Relief Valve (X20W and X26N Only)

4.6 Switch Adjustments

TILT SENSOR (Figure 4-7)

Introduction

The Tilt Sensor has three wires; red-power (24 v in), black-ground, white-output (24 v out). To verify the sensor is working properly there are two LED's under the sensor; green indicates the sensor is on (has power), red indicates the sensor is level and the white wire is 'hot' (24 v out).

Adjustment

1. Place machine on firm level surface $\pm 1/4^\circ$.
2. Use the Inclinator (P/N: 10119-000-00) to ensure front and rear of Chassis is level $\pm 1/4^\circ$.
3. Use the Chassis Controls to raise platform to approximately 9.5 feet (2.9 m).
4. Install the Scissors Brace, see page 4-3.
5. Remove Tilt Sensor Electrical Box cover at front of machine.
6. Adjust the three leveling locknuts until the bubble is centered in the circle on the attached bubble level.
7. Replace the Tilt Sensor Electrical Box cover.
8. Store the Scissors Brace and lower the Platform.

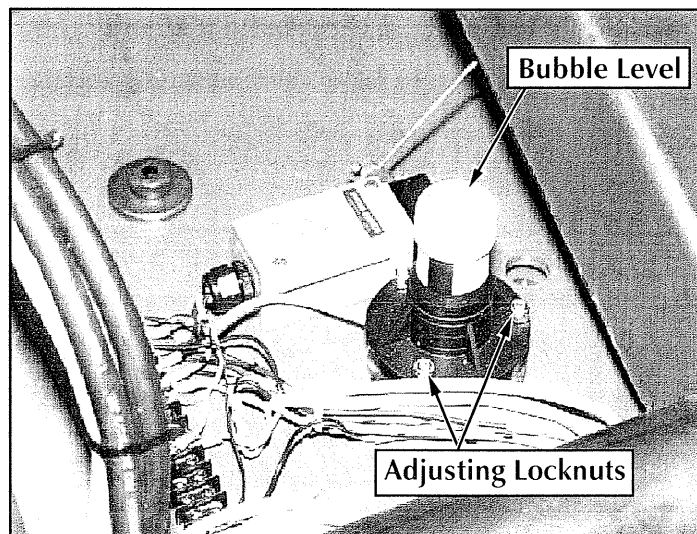


Figure 4-7: Tilt Sensor Adjustment

DOWN LIMIT SWITCH (Figure 4-8)

The Down Limit Switch cuts power to the High Speed Circuit and supplies power to the Tilt Sensor/Pothole Interlock Circuit when the Platform is elevated. The Down Limit Switch is located in the Tilt Sensor Electrical Box at the front of the machine.

Adjust the wand on the Down Limit Switch to just contact the Scissor Weldment at the same time the Pothole Protection Actuator Roller contacts the Scissor Weldment.



WARNING



Always use the Elevating Assembly Brace whenever it is necessary to enter the elevating assembly when the Platform is elevated.

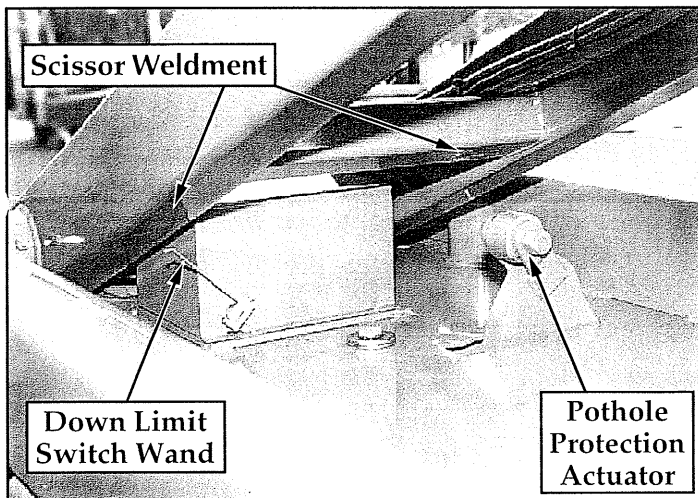


Figure 4-8: Down Limit Switch Adjustment

OPTIONAL PROPORTIONAL CONTROLLER (Figure 4-9)

To perform the adjustment the Controller (Control Box) must be opened by removing the screws at the corners of the Controller and rotating the top forward to expose the proportional controller. Remove the potting material from the LO potentiometer adjustment screw if necessary.

Only the LO potentiometer might require adjustment, DO NOT attempt to adjust the other potentiometers as they are preset at the factory.

1. With Drive/Lift Switch in DRIVE push Control Lever very slightly.
2. Turn the 'LO' pot screw so the motor turns on and the machine just starts to move.
3. Select Lift with Drive/Lift Switch and elevate platform 6 in. (152 mm).
4. Select Drive with Drive/Lift Switch.
5. Push Control Lever fully to forward or Reverse and check that machine speed is 20 ft. (6.1 m) in 18-22 seconds.
6. Adjust 'LO' trim pot if required, turning clockwise increases speed.

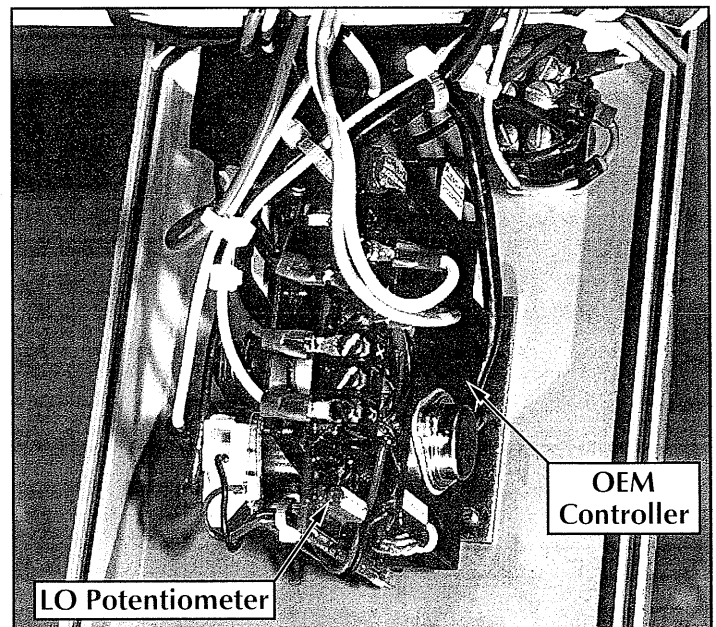


Figure 4-9: Proportional Controller Adjustment

4.7 Hydraulic Manifold (Figure 4-10)

Though it is not necessary to remove the manifold to perform all maintenance procedures, a determination should be made as to whether or not the manifold should be removed before maintenance procedures begin.

REMOVAL

1. Tag and disconnect the solenoid valve leads.
2. Tag, disconnect and plug hydraulic hoses.
3. Remove the bolts that hold the manifold to the module, being careful not to damage the ground wires.
4. Remove manifold block.

DISASSEMBLY

NOTE: Mark all components as they are removed so as not to confuse their location during assembly. Refer to Figure 4-10 often to aid in disassembly and assembly.

1. Remove coils from solenoid valves.
2. Remove solenoid valves, relief valves and counterbalance valves.
3. Remove fittings and plugs.

CLEANING AND INSPECTION

1. Wash the manifold in cleaning solvent to remove built up contaminants and then blow out all passages with clean compressed air.
2. Inspect the manifold for cracks, thread damage and scoring where O-rings seal against internal and external surfaces.
3. Wash and dry each component and check for thread damage, torn or cracked O-rings and proper operation.
4. Replace parts and O-rings found unserviceable.

ASSEMBLY

Note: Lubricate all O-rings before installation to prevent damage to O-rings.

1. Install fittings and plugs.
2. Install counterbalance valves, relief valves and solenoid valves.

Note: Refer to Table 4-2 for the proper torque values when installing any hydraulic component.

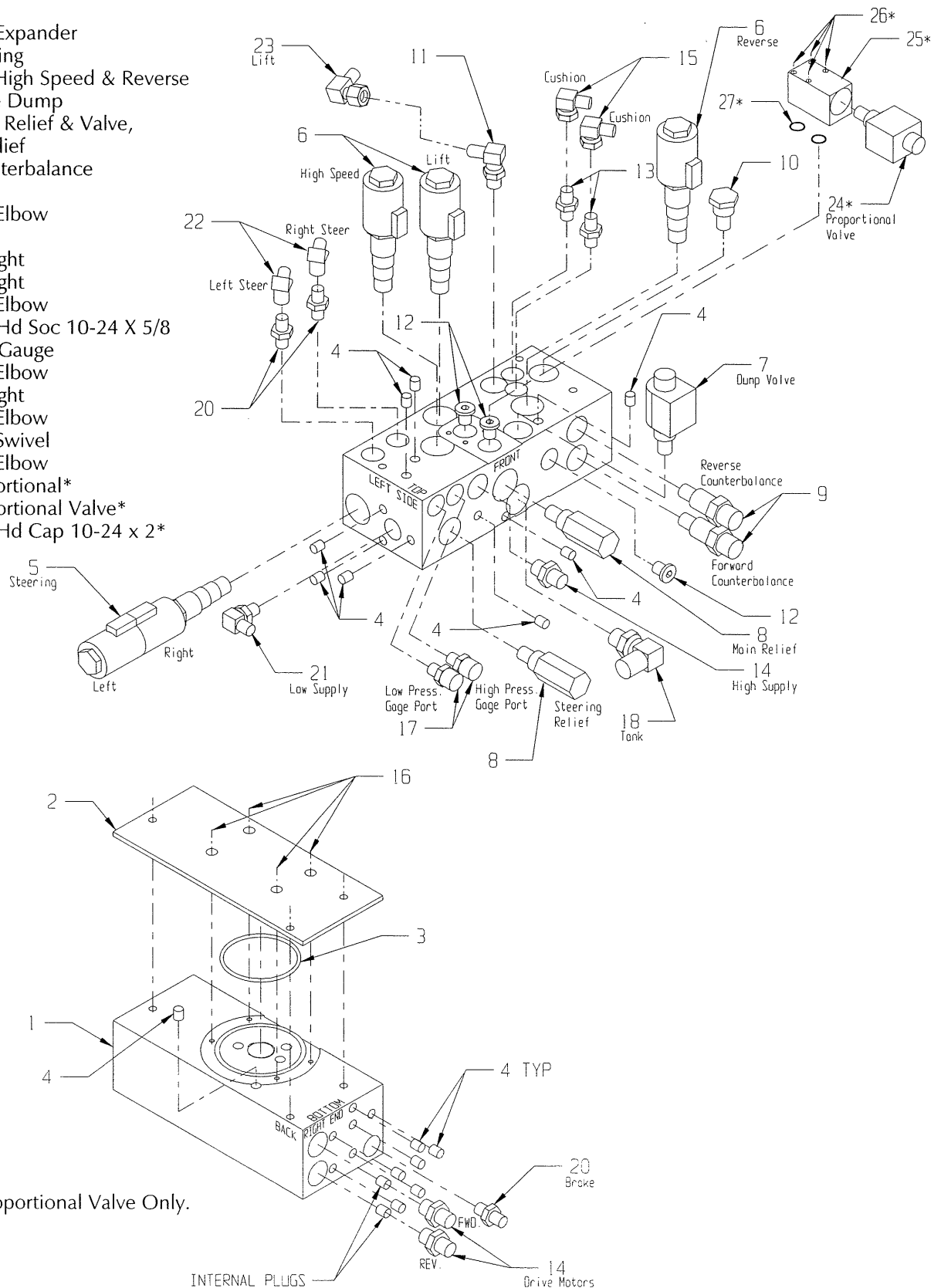
3. Install coils on solenoid valves.

INSTALLATION

Note: Refer to Table 4-2 for hydraulic component torque specifications.

1. Attach manifold assembly to module with bolts, make sure all the ground wires are attached with the front right hand bolt.
2. Connect solenoid leads (as previously tagged).
3. Connect hydraulic hoses. Be certain to tighten hoses to manifold.
4. Operate each hydraulic function and check for proper function and leaks.
5. Adjust all relief valves mounted on the Hydraulic Manifold according to instructions in Section 4.5.

1. Valve Block
2. Bottom Plate
3. O-Ring
4. Plug, 9mm Expander
5. Valve, Steering
6. Valve, Lift, High Speed & Reverse
7. Valve, Drive Dump
8. Valve, Main Relief & Valve, Steering Relief
9. Valve, Counterbalance
10. Plug, Cavity
11. Fitting, 90° Elbow
12. Plug, #4
13. Fitting, Straight
14. Fitting, Straight
15. Fitting, 90° Elbow
16. Screw, Flat Hd Soc 10-24 X 5/8
17. Connector, Gauge
18. Fitting, 90° Elbow
20. Fitting, Straight
21. Fitting, 90° Elbow
22. Fitting, 45° Swivel
23. Fitting, 90° Elbow
24. Valve, Proportional*
25. Block, Proportional Valve*
26. Screw, Soc Hd Cap 10-24 x 2*
27. O-Ring*



* Optional Proportional Valve Only.

Figure 4-10: Hydraulic Manifold

4.8 Hydraulic Pump (Figure 4-11)

REMOVAL

NOTE: If the hydraulic tank has not been drained, suitable means for plugging the hoses should be provided to prevent excessive fluid loss.

1. Mark, disconnect and plug the hose assemblies.
2. Loosen the capscrews and remove the pump assembly from the motor.

INSTALLATION

1. Lubricate the pump shaft with general purpose grease and attach the pump to the motor with the capscrews.
2. Using a crisscross pattern torque each capscrew a little at a time until all capscrews are torqued to 20 Ft/Lbs (27 Nm).
3. Unplug and reconnect the hydraulic hoses.
4. Check the oil level in the hydraulic tank before operating the work platform.

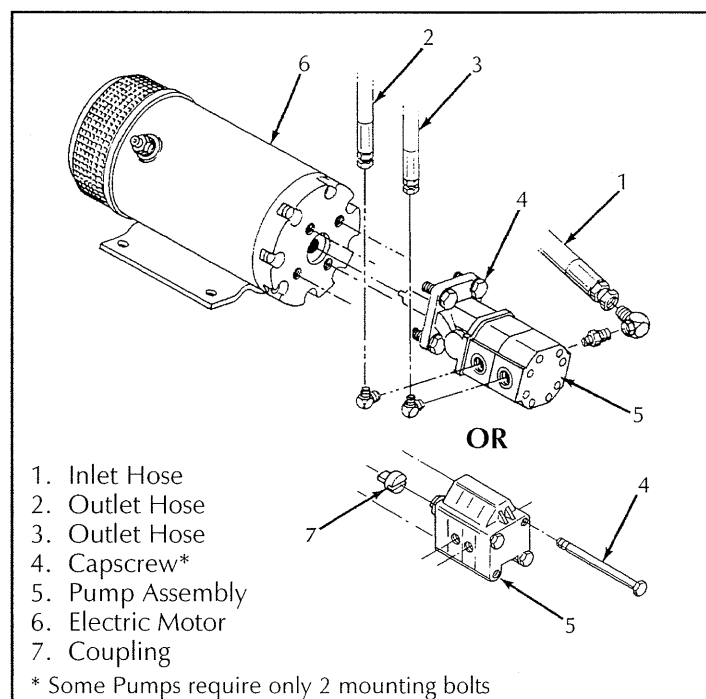


Figure 4-11: Hydraulic Pump

4.9 Hydraulic Drive Motors and Hubs (Figure 4-12)

REMOVAL

1. Use a 1 ton (1000 Kg) capacity jack to raise the front of the machine. Position blocks under the machine to prevent the work platform from falling if the jack fails.
2. Block the rear wheels to prevent the machine from rolling.
3. Remove the wheel bolts and wheel.
4. Remove the cotter pin, slotted nut, hub and shaft key.

NOTE: Before disconnecting hoses, thoroughly clean off all outside dirt around fittings. (After disconnecting hoses and before removing from vehicle, **IMMEDIATELY** plug port holes.)

5. Tag, disconnect and plug the hose assemblies to prevent foreign material from entering.
6. Remove the locknuts, capscrews and drive motor.

INSTALLATION

1. Position the drive motor in the wheel yoke and secure with capscrews and locknuts.
2. Install the shaft key, hub and slotted nut. Torque the slotted nut to 140 to 160 Ft/Lbs (190-217 Nm). Install a new cotter pin, **DO NOT** back-off the nut to install the cotter pin.

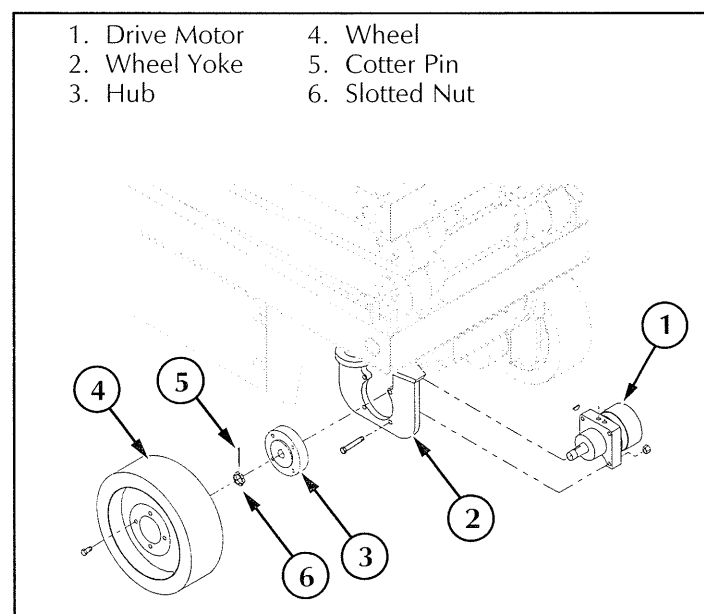


Figure 4-12: Drive Motor Installation

3. Remove the plugs from the hose assemblies and connect to the drive motor.
5. Install the wheel and secure with wheel bolts, torque to 80 Ft/Lbs (108 Nm).
6. Remove blocks, lower the jack and remove. Operate the drive system and check for leaks.

4.10 Brake Cylinder (Figure 4-13)

The brake cylinder is located between the rear wheels at the rear of the chassis.

REMOVAL

1. Block the wheels to prevent the work platform from rolling when the brake is removed.
2. Remove the adjustment nut and bolt.
3. Tag and disconnect the hose assemblies and cap the openings to prevent foreign material from entering.
6. Remove the shoulder bolt and locknut that mounts the cylinder rod to the brake tube.
7. Remove the cotter pin and pivot pin from the rear cylinder mount. Remove the cylinder.

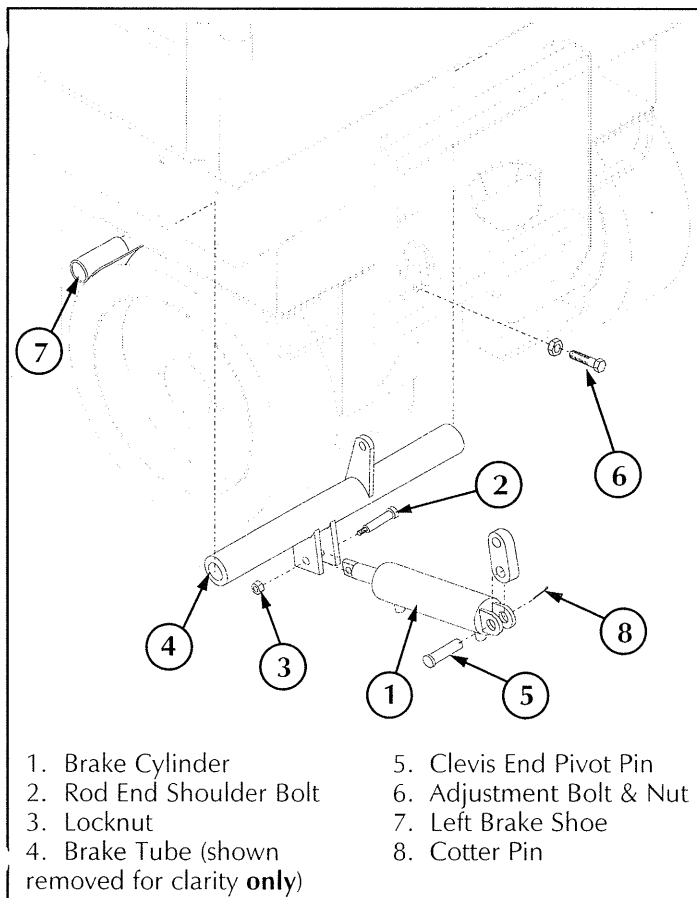


Figure 4-13: Brake Cylinder Installation

DISASSEMBLY

1. Remove the set screw from the outside barrel assembly and unscrew the cylinder.
2. Completely disassemble the cylinder including removing the piston nut and piston.
3. Remove all the seals and o-rings noting their location to aid in reassembly.

CLEANING AND INSPECTION

1. Wash all the metal parts in cleaning solvent and blow dry with filtered compressed air.
2. Inspect all the threaded components for stripped or damaged threads.
3. Check the inside surface of the cylinder barrel for scoring or excessive wear.
4. Check the piston and headcap for scoring or excessive wear.
5. Inspect the surface of the shaft for scoring or excessive wear.

ASSEMBLY

1. Lubricate and install new seals and o-rings.
2. Install the headcap onto the shaft.
3. Install the new internal backup rings and o-rings on the piston.
4. Install the piston on the shaft and secure with the piston nut, torque to 250 Ft/Lbs (339 Nm).
5. Lubricate the piston seal with clean hydraulic fluid and install the shaft assembly in the inner cylinder barrel.
6. Install the spring and screw the cylinder barrels together until tight and the ports are in-line.
7. Install the set screw.

INSTALLATION

1. Install the clevis end pivot pin through the cylinder clevis and cylinder link and secure with a new cotter pin.
2. Install the rod end shoulder bolt through the cylinder rod and brake tube mounting tabs and secure with the locknut.
3. Install the hydraulic hoses.
4. Install the adjustment bolt and locknut. Tighten the bolt until the brake shoes fully engage the tires, secure with the locknut.
5. Lower the machine and operate the drive circuit and check that the brake shoes retract and clear the tires when driving and fully engage the tires when stopped. Check for leaks.

4.11 Steering Cylinder (Figure 4-14)

REMOVAL

1. Turn the wheels to the straight position.
2. Elevate the platform and block the elevating assembly with the brace (see page 4-3).
3. Tag and disconnect the hose assemblies from the cylinder fittings and immediately cap the openings to prevent foreign material from entering.
4. Remove the cotter pins from the pivot pins.
5. Remove the pivot pins, straight up through the Chassis, while supporting the cylinder. Remove the cylinder.

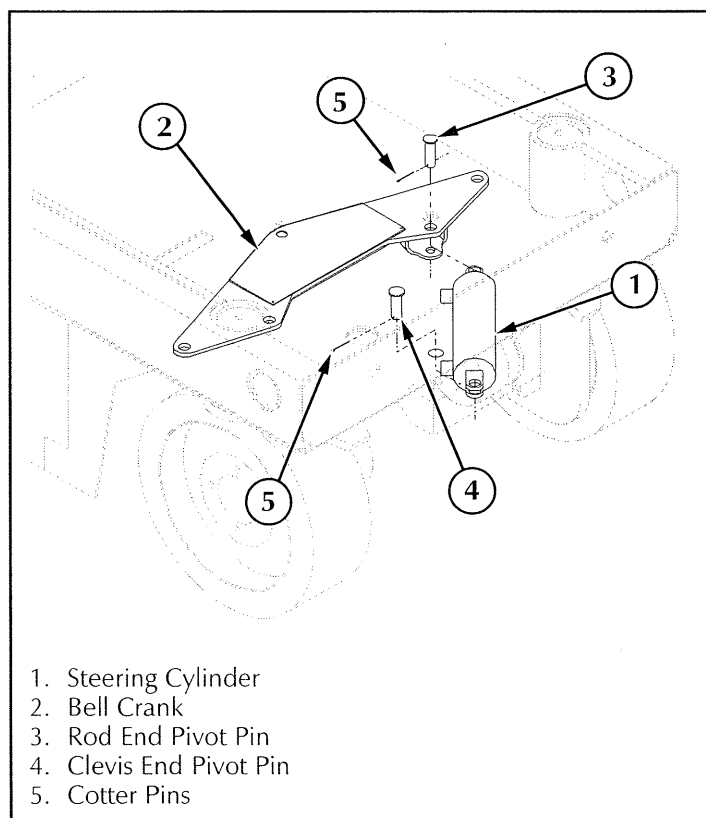


Figure 4-14: Steering Cylinder Installation

DISASSEMBLY

1. Remove the set screw that secures the thread cap on the cylinder barrel.
2. Unscrew the thread cap from the barrel.
3. Withdraw the head cap, piston and shaft assembly from the barrel tube.
4. Remove the piston nut, piston and head cap.
5. Remove the rod wiper, u-cup, o-ring and backup ring from the headcap and discard the seals.
6. Remove the internal backup rings, o-ring, and cast iron piston seals from the piston and discard.

CLEANING AND INSPECTION

1. Wash all the metal parts in cleaning solvent and blow dry with filtered compressed air.
2. Inspect all the threaded components for stripped or damaged threads.
3. Check the inside surface of the cylinder barrel for scoring or excessive wear.
4. Check the piston and headcap for scoring or excessive wear.
5. Inspect the surface of the shaft for scoring or excessive wear.

ASSEMBLY

1. Lubricate and install new rod wiper, u-cup, o-ring and backup ring on the headcap.
2. Install the headcap onto the shaft.
3. Install the new internal backup rings, o-ring and piston seal on the piston.
4. Install the piston on the shaft and secure with the piston nut, torque to 75 Ft/Lbs (102 Nm).
5. Lubricate the piston seal with clean hydraulic fluid and install the shaft assembly in the cylinder barrel.
6. Screw head cap into cylinder barrel until tight and secure with set screw.

INSTALLATION

1. Position the cylinder assembly in the chassis and insert pivot pins and secure with new cotter pins.
2. Connect the hose assemblies to the fittings.
3. Operate the steering circuit several times throughout its entire range of travel to expel trapped air and check for leaks.

4.12 Lift Cylinder (Figure 4-15)

REMOVAL

1. Elevate platform and install brace (see page 4-3).
2. Provide a suitable container to catch the hydraulic fluid, then disconnect the hydraulic hoses from the cylinder. Immediately plug hoses to prevent foreign material from entering.
3. Remove Emergency Lowering Valve Cable and Down Valve wires from the Emergency Lowering/Down Valve.
4. Remove retaining rings securing Lift Cylinder Pivot Pins. On X26N machines remove the left roll pin in the Upper Pivot Pin.
5. Remove lower Pivot Pin by driving pin towards Locking Pin side. Lower cylinder to rest on chassis.
6. Attach a suitable hoisting device and sling to the cylinder and remove upper Pivot Pin.
7. Carefully remove cylinder.

DISASSEMBLY

1. Remove the fittings and Down Valve from the cylinder assembly.

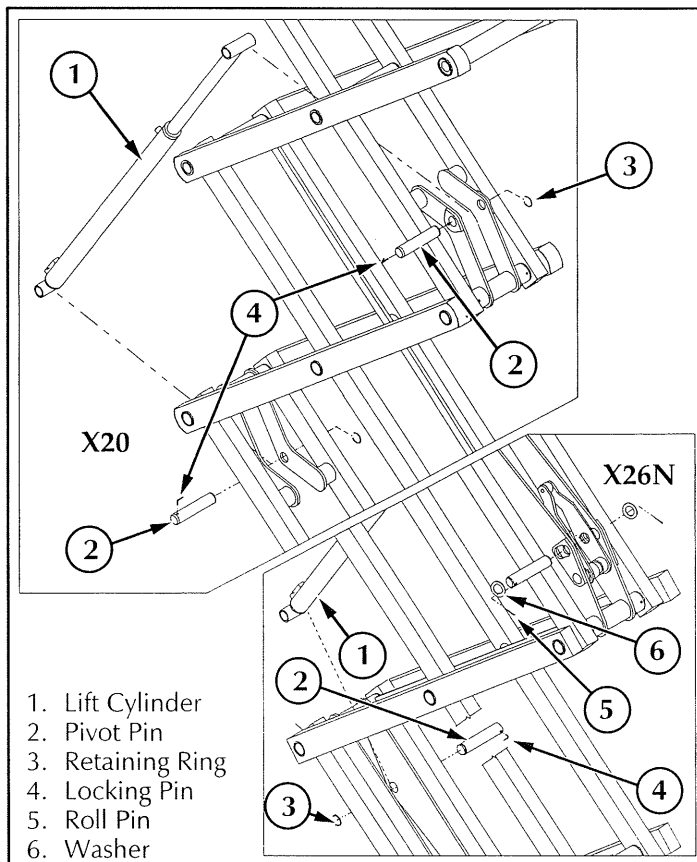


Figure 4-15: Lift Cylinder Installation

2. Unscrew the headcap and withdraw the rod and piston assembly from the barrel tube.
3. Unscrew the piston from the rod and then remove the head cap from the cylinder rod.
4. Remove all o-rings, seals and wipers from the head cap, piston and rod.

CLEANING AND INSPECTION

1. Clean all metal parts in solvent and blow dry with filtered compressed air.
2. Check all threaded parts for stripped or damaged threads.
3. Check the bearing surfaces inside of the head cap, inside of the cylinder barrel and the rod for signs of scoring or excessive wear.
4. Replace all seals and o-rings.

REASSEMBLY

1. Lubricate and install new o-rings, seals and wipers on the head cap and piston.

NOTE: Multipurpose lubricant should be used.

2. Install the headcap on the cylinder rod from the piston end.
3. Apply Loctite #262 to the threads on the piston and screw the piston on the rod.
4. Lubricate the piston and install the piston and rod assembly in the barrel tube.
6. Thread the head cap into the barrel tube and hand tighten, then turn $\frac{1}{4}$ turn further.
7. Install the Down Valve and fittings.

INSTALLATION

1. Attach a suitable hoisting device and sling to the cylinder. Carefully position cylinder in the Elevating Assembly and install the upper Pivot Pin.
2. On X20 machines make sure the Locking Pin fully engages the pivot and pin and install the retaining ring. On X26N machines install a new roll pin.
3. Carefully lift the cylinder and align the lower mount and install the Pivot Pin. Make sure Locking Pin is properly installed then install the retaining ring.
4. Connect the Emergency Lowering Valve Cable and Down Valve wires.
5. Unplug hydraulic hoses and attach to the cylinder.
6. Replace hydraulic fluid removed from Lift Cylinder.
7. Test with weight at rated platform load to check system operation. Check for leaks and level of fluid.

4.13 Electric Motor (Figure 4-16)

TROUBLESHOOTING

1. Read the nameplate to become familiar with the motor, especially the rated voltage.
2. Try to turn the shaft by hand. Keep motor leads separated while doing this. If the shaft turns freely go to step 3. If the shaft won't turn, proceed to step 2A.
- 2A. The shaft could be tight for a number of reasons, this check is to determine if the tightness is of a temporary nature only. Obtain power to produce the nameplate voltage. **Do Not Make A Permanent Connection.** First touch the motor leads quickly to the power supply just long enough to observe if the shaft runs. If it does turn, then hold the motor leads on the power supply for a longer time. If the motor sounds normal, go to step 3. If the motor sounds noisy, it should be taken apart as described in the disassembly section.
3. If the motor turned freely, connect an ammeter in the circuit as shown in Figure 4-16A. With rated voltage applied and the shaft running free, the ammeter should read less than 20% of the nameplate full load current. If the motor meets the above conditions then it can be assumed the original problem is external to the motor.

DISASSEMBLY

1. Remove thru bolts.
2. Remove pulley end cover.
3. Pull the armature out of the assembly in one swift motion.
4. Remove commutator end cover.

NOTE: Do not place the stator ring in any mechanical holding device during the disassembly or assembly operation. Permanent distortion or other damage will result.

INSPECTION

Once the motor has been disassembled, go through the following check list steps to determine where the problem lies.

1. Bearings should spin smoothly and easily and have ample lubrication and be free of corrosion.
2. Armature should be checked for grounds and shorted turns. Refinish commutator surface if pitted or excessively worn.

3. Brushes should be checked for wear and to ensure that they are free in the brush holders.

NOTE: Observe how brushes are assembled in brush holders and position of brush lead. New brushes must be installed in same manner. Brushes should be removed as follows:

- Remove brush spring clip from its mounting on brush assembly.
- Lift brush assembly from brush holder.
- Disconnect brush assembly lead.
- New brush assembly to be installed by reversing above procedure.

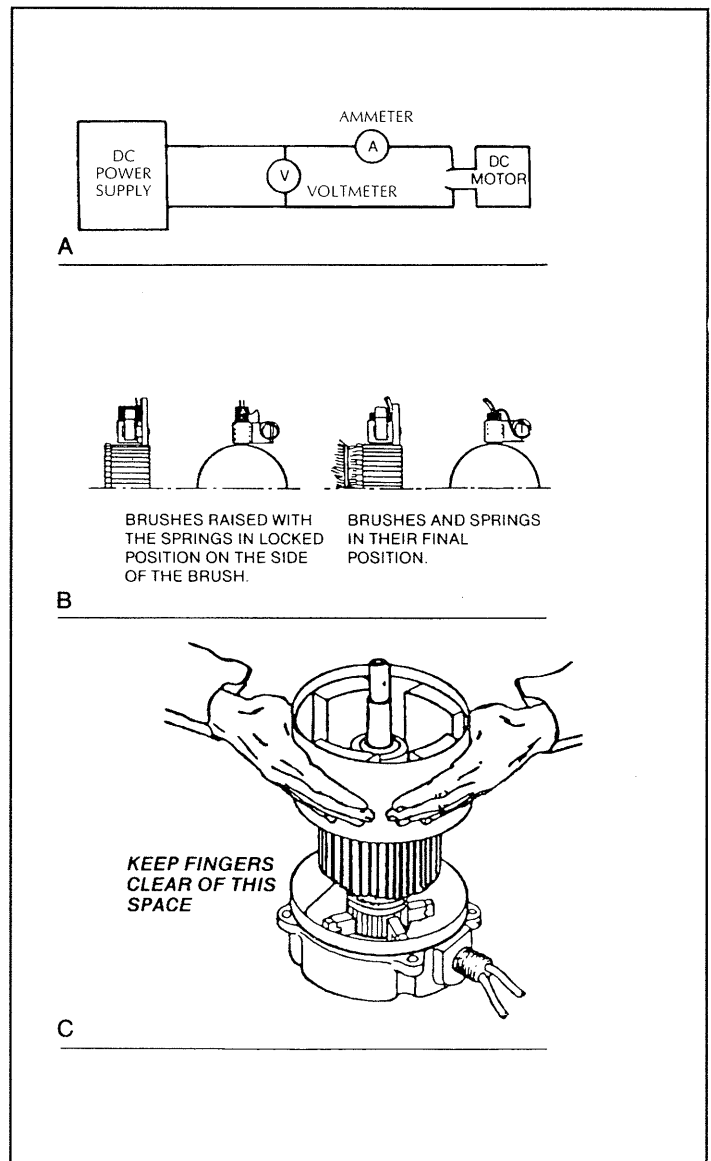


Figure 4-16: Electric Motor Service

4. Inspect wire harness and all connections for signs of damage due to overheating.
5. Check stator to see it is securely mounted.

REASSEMBLY

1. Install new brushes and be sure they are free in the holder. Install brush with the lead wires positioned as when received. Raise all brushes to the locked position. (See Figure 4-16B and step 3 in the Inspection section).
2. Place commutator cover on a work bench with brush assembly facing upward.
3. Place the bearing spring into the bearing bore.
4. Take a complete armature assembly, including bearings, and insert commutator end bearing into the bearing bore.

Note: Do not reuse bearings which have been removed from armature shaft. Keep assembly in a vertical position. Use extreme care not to damage armature with bearing pullers. New bearings should be installed by pressing inner race of bearing onto proper position on armature shaft.

5. Set the brushes to final position as shown in Figure 4-16B.
6. Place the complete stator down over the vertical armature, and into position on the commutator cover.
7. The stator assembly must be placed in a definite relationship with the commutator covers in order to obtain a neutral brush setting. There is a match-mark on both items. **These two marks must line up exactly. Rotate until they do.**
8. Assemble the pulley end cover in the proper relationship. Insert mounting bolts and tighten alternately to ensure a good mechanical alignment.
9. Spin the shaft by hand to see if it is free. Be sure motor leads (if used) are not touching together. If the leads are touching, a generator action will give the effect of friction in the motor. A no-load test can now be performed. At rated voltage, observe the no-load current. It should be less than 20% of the nameplate full load current. Anything higher indicates:
 - Brushes are not on neutral setting (check match-marks for exact alignment).
 - Faulty armature.

4.14 Torque Specifications

HYDRAULIC COMPONENTS

Use the following values to torque hydraulic components used on UpRight Work Platforms.

Note: Always lubricate threads with clean hydraulic oil prior to installation.

Table 4-2: Hydraulic Component Torque

TYPE: SAE PART SERIES	CARTRIDGE POPPET		FITTINGS		HOSES	
	(Ft/Lbs	Nm)	(Ft/Lbs	Nm)	(In/Lbs	Nm)
#4	N/A	N/A	N/A	N/A	135-145	15-16
#6	N/A	N/A	10-20	14-27	215-245	24-28
#8	25-30	34-41	25-30	34-41	430-470	49-53
#10	35-40	47-54	35-40	47-54	680-750	77-85
#12	85-90	115-122	85-90	115-122	950-1050	107-131
#16	130-140	176-190	130-140	176-190	1300-1368	147-155

Coil nuts: 30 IN/Lbs (3 Nm)

FASTENERS

Use the following values to torque fasteners used on UpRight Work Platforms unless a specific torque value is called out for the part being installed.

Table 4-3: Bolt Torque

THREAD SIZE <small>American National Standard-UNF (fine)</small>	WIDTH ACROSS FLATS	TORQUE VALUE	
		ENGLISH	METRIC
1/4	7/16	110 In/Lbs	12 Nm
5/16	1/2	190 In/Lbs	22 Nm
3/8	9/16	30 Ft/Lbs	41 Nm
7/16	5/8	50 Ft/Lbs	68 Nm
1/2	3/4	75 Ft/Lbs	102 Nm
5/8	15/16	150 Ft/Lbs	203 Nm
3/4	1 1/8	250 Ft/Lbs	339 Nm
7/8	1 5/16	400 Ft/Lbs	542 Nm
1	1 1/2	600 Ft/Lbs	813 Nm

NOTES

5.0 Introduction

Table 5-1 provides a logical sequence of tests that are designed to isolate problems with X-Series machines. This table includes a list of probable causes and remedies.



WARNING



When troubleshooting, ensure that the work platform is resting on a firm, level surface.

When performing any service on or in the Elevating Assembly area which requires the platform to be raised, the Elevating Assembly must be blocked.

Disconnect the batteries ground cable when replacing or testing the continuity of any electrical component.

GENERAL PROCEDURE

Troubleshooting should be carried out in two steps, first thoroughly study both hydraulic and electric schematics to determine possible causes. Loose terminal connections and short circuits are always a potential cause when troubleshooting. Secondly, check suspect components electrically, hydraulically and mechanically to determine if they are at fault. Refer to Tables 6-1 and 6-2 for Reference Designations used in Table 5-1.

Troubleshooting

Table 5-1: Troubleshooting

TROUBLE	PROBABLE CAUSE	REMEDY
All functions inoperable, Electric Motor does not start.	<ol style="list-style-type: none"> 1. Open control circuit Circuit Breaker (CB). 2. Blown Electric Motor Fuse (FU1). 3. Faulty Battery Charger. 4. Faulty Battery(ies) (BAT). 5. Faulty Electric Motor (MOT). 6. Faulty Motor Relay (R1). 7. Emergency Stop Switch failed open. 8. Faulty Down Limit Switch (LS1). 9. Faulty Tilt Alarm Relay (R3). 10. Faulty Interlock Switch. 11. Faulty Controller. 	<p>Check control circuit Circuit Breaker. Reset if open (button out).</p> <p>Check 175 amp Electric Motor Fuse. Replace if blown.</p> <p>Check the voltage output of the Battery Charger. If less than 24 VDC, repair or replace.</p> <p>After completely charging Batteries, test each Battery. Replace as required.</p> <p>While operating the steering function, check voltage across the Electric Motor terminals. If 24 VDC is present, replace the Motor.</p> <p>While operating the steering, check voltage across the coil terminals of Motor Relay. If no voltage is present, proceed with step 7. If 20 VDC or more, check continuity across the contact terminals of Motor Relay while still operating the steering function. If there is no continuity, replace the faulty Motor Relay.</p> <p>With the Emergency Stop Switch in the ON position, check continuity across the contacts. If none, replace.</p> <p>Check continuity of switch, replace if faulty.</p> <p>Test relay, replace if faulty.</p> <p>Check continuity of switch, replace if faulty.</p> <p>Check operation, adjust if necessary.</p>
All functions inoperable. Electric motor starts when control is actuated.	<ol style="list-style-type: none"> 1. Hydraulic Reservoir low. 2. Faulty Hydraulic Pump (PMP). 3. Faulty Controller switch (S1).* 4. Faulty Controller (CONT).** 5. Proportional Valve (V9,SOL8).** 	<p>Check hydraulic fluid level, top off as required.</p> <p>Check pressure and delivery of the Hydraulic Pump. Replace if required.</p> <p>Check continuity of switch, replace if faulty.</p> <p>Check operation, adjust if necessary. Replace if required.</p> <p>Check operation, replace if required.</p>
Electric Motor continues to run after controls are returned to the OFF position.	<ol style="list-style-type: none"> 1. Motor Relay (R1) contacts fused together. 	<p>Check operation. Adjust or replace if required.</p> <p>With 0 voltage at the coil terminals of the Motor Relay (R1) check continuity across the contact terminals. If there is continuity, replace the Motor Relay.</p>
Steering inoperable or functions sluggishly.	<ol style="list-style-type: none"> 1. Faulty Steering Switch. 2. Mechanical damage. 3. Steering Valve (V1) stuck. 4. Steering Cylinder (CYL1) piston seal leaking. 5. Steering Relief (RV2). 	<p>Test Steering Switch for continuity. Replace if faulty.</p> <p>Inspect all steering components. Replace damaged parts.</p> <p>Inspect Steering Valve. If spool is sticking, replace.</p> <p>Check Steering Cylinder for leakage from one port to another. Repair as required.</p> <p>Adjust the relief valve, if not adjustable replace.</p>

TROUBLE	PROBABLE CAUSE	REMEDY
Work platform will not steer right.	<ol style="list-style-type: none"> 1. Faulty Steering Switch. 2. Faulty Diode (D1). 3. Faulty Steer Right Solenoid (SOL1). 	<p>Test Steering Switch for continuity. Replace if faulty.</p> <p>Test Diode. Replace if faulty.</p> <p>Test Steer Right Solenoid. If the proper voltage is present and the coil is not magnetized, replace.</p>
Work platform will not steer left.	<ol style="list-style-type: none"> 1. Faulty Steering Switch. 2. Faulty Diode (D2). 3. Faulty Steer Left Solenoid (SOL2). 	<p>Test Steering Switch for continuity. Replace if faulty.</p> <p>Test Diode. Replace if faulty.</p> <p>Test Steer Left Solenoid. If the proper voltage is present and the coil is not magnetized, replace.</p>
Work platform will not drive FORWARD or REVERSE. Lift function operable.	<ol style="list-style-type: none"> 1. Faulty Drive/Lift Selector Switch (S5). 2. Faulty diode (D3). 3. Faulty Drive/Lift Relay (R2). 4. Mechanical failure. 5. Worn Drive Motors (MOT1, MOT2). 	<p>Check continuity of Drive/Lift Switch. Replace if faulty.</p> <p>Test diode, replace if faulty.</p> <p>Test Relay (R2). Replace if faulty.</p> <p>Inspect Drive Motor shafts, hubs, and keys.</p> <p>Check hydraulic pressure being delivered to the Drive Motors. If sufficient, replace Drive Motors.</p>
Work Platform will not drive while elevated.	<ol style="list-style-type: none"> 1. Faulty Down Limit Switch (LS1). 2. Level Sensor (SNSR) out of adjustment or faulty. 3. Level Sensor Fuse (FU2) blown. 4. Pothole protection system. 5. Faulty Tilt Alarm Relay (R3). 	<p>Adjust and test the Limit Switch, replace if faulty.</p> <p>Adjust and test the Level Sensor, replace if faulty.</p> <p>Replace fuse if necessary.</p> <p>Verify Pothole Protection Tube(s) have fully deployed. Test Limit Switches (LS2, LS3), replace if faulty.</p> <p>Test relay, replace if faulty.</p>
No high speed drive.	<ol style="list-style-type: none"> 1. Faulty Drive/Lift Switch. 2. Faulty Down Limit Switch (LS1). 3. Faulty High Speed Coil/Valve (SOL7/V6).* 4. Faulty Controller Switch (S4).* 5. Faulty Controller (CONT).** 6. Proportional Valve (V9,SOL8).** 	<p>Check continuity of Drive/Lift Switch. Replace if faulty.</p> <p>Check continuity of Down Limit Switch. Replace if faulty.</p> <p>Test coil and valve. If faulty, replace.</p> <p>Check continuity of switch, replace if faulty.</p> <p>Check operation, adjust if necessary. Replace if required.</p> <p>Check operation, replace if required.</p>
No drive FWD but drives in REV. Lift function operable.	<ol style="list-style-type: none"> 1. Faulty Drive/Lift Relay contacts (R2). 2. Faulty Forward/Reverse Valve (V5). 3. Faulty Counterbalance Valves (V2, V3). 	<p>Test Relay (R2). Replace if faulty.</p> <p>Check the Drive/Lift Valve. If the spool is not shifting, replace the valve.</p> <p>Check pressure of Counterbalance Valves. Replace or reset valves as required.</p>
No drive FWD but drives in REV. No lift function.	<ol style="list-style-type: none"> 1. Faulty Drive/Lift Relay contacts (R2) 2. Faulty Up/Forward Controller Switch (S9). 	<p>Test Relay (R2) Replace if faulty.</p> <p>Check operation of Controller switch. Replace if required.</p>

Table 5-1: Troubleshooting

TROUBLE	PROBABLE CAUSE	REMEDY
No drive REV but drives in FWD . Lift function operable.	<ol style="list-style-type: none"> 1. Faulty Drive/Lift Relay contacts (R2). 2. Faulty Forward/Reverse Solenoid/Valve (SOL3/V5). 3. Faulty Counterbalance Valves (V2, V3). 	<p>Test Relay (R2). Replace if faulty.</p> <p>Check the Drive/Lift Valve. If proper voltage is present and coil is not magnetized replace the coil, if the spool is not shifting, replace the valve.</p> <p>Check pressure of Counterbalance Valves. Replace or reset valves as required.</p>
No drive REV but drives in FWD . No down function.	<ol style="list-style-type: none"> 1. Faulty Drive/Lift Relay contacts (R2). 2. Faulty Down/Reverse Controller Switch (S2). 	<p>Test Relay (R2). Replace if faulty.</p> <p>Check operation of Controller switch. Replace if required.</p>
Platform will not elevate or elevates slowly.	<ol style="list-style-type: none"> 1. Emergency Down Valve (V7) open. 2. Platform overloaded. 3. Faulty Down/Reverse Controller Switch (S2).* 4. Faulty High Speed Controller Switch (S4).* 5. Faulty Controller (CONT).** 6. Proportional Valve (V9,SOL8).** 7. Faulty Drive/Lift Valve/Coil (V4/SOL5). 8. Faulty Drive/Lift Selector Switch. 9. Main Relief Valve (RV1) out of adjustment or faulty. 10. Faulty Down Limit Switch (LS1). 11. Faulty Drive/Lift Relay (R2). 12. Faulty Lift Cylinder (CYL3). 	<p>Close Emergency Down Valve, push in on knob.</p> <p>Observe maximum load rating (See Table 1-1).</p> <p>Check operation of Controller switch. Replace if required.</p> <p>Check operation of Controller switch. Replace if required.</p> <p>Check operation, adjust if necessary. Replace if required.</p> <p>Check operation, replace if required.</p> <p>Check the Drive/Lift Valve. If proper voltage is present and coil is not magnetized replace the coil, if the spool is not shifting, replace the valve.</p> <p>Test Drive/Lift Switch for continuity. Replace if faulty.</p> <p>Adjust the Main Relief Valve. If not adjustable, replace.</p> <p>Test Down Limit Switch for continuity. Replace if faulty.</p> <p>Test relay, replace if faulty.</p> <p>Check and replace seals in Lift Cylinder.</p>
Platform drifts down after being elevated.	Emergency Lowering/Down Valve (V7) partly open or faulty.	Ensure that the Emergency Lowering Valve is completely closed, push knob in. Replace the valve.
Platform will not lower. Drive function operable.	<ol style="list-style-type: none"> 1. Faulty Down Valve Coil (SOL6). 2. Down Valve (V7) stuck. 3. Plugged Down Orifice (ORF2). 	<p>Test Down Valve Coil. If proper voltage is present and coil is not magnetized, replace.</p> <p>Replace the Down Valve.</p> <p>Remove and clean Orifice.</p>

TROUBLE	PROBABLE CAUSE	REMEDY
Motion Alarm does not sound.	Faulty Down Alarm (ALM1).	Check voltage to Down Alarm . If proper voltage is present, replace the Alarm.
Brakes will not release.	<ol style="list-style-type: none"> 1. Brake Orifice (ORF1) plugged. 2. Faulty Brake Cylinder (CYL2). 3. Brakes out of adjustment. 	<p>Remove and clean Orifice.</p> <p>Check and replace seals in Brake Cylinder.</p> <p>Adjust brakes to disengage tires when driving only.</p>
Brake will not lock wheel.	<ol style="list-style-type: none"> 1. Brake Orifice (ORF1) plugged. 2. Faulty Brake Cylinder (CYL2). 3. Brake out of adjustment. 	<p>Remove and clean Orifice.</p> <p>Check and replace seals and spring in Brake Cylinder.</p> <p>Adjust brakes to engage tires when not driving .</p>

* On machines with standard two speed controller.

** On machines with optional proportional controller.

NOTES

6.0 Introduction

This section contains electrical and hydraulic power schematics, and associated information for maintenance purposes.

The diagrams are to be used in conjunction with Table 5-1: Troubleshooting Guide. They allow understanding of the makeup and functions of the systems for checking, tracing, and faultfinding during troubleshooting analysis.

The components that comprise the electrical and hydraulic systems are given a reference designation and are explained as to function and location in the following tables.

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6.1 Electrical Schematic

Table 6-1: Electrical Schematic Legend

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
ALM1	Alarm, Motion	Provides warning sound (60 Hz) when any function is activated.	In front of electrical box inside left Chassis Module. Red wire for 60 Hz.
ALM2	Alarm, Platform Tilt/Pothole Protection	Provides warning sound (600 Hz) when Platform is on slopes of 2° side to side and 2° fore and aft, or when the Pothole Protection Supports do not deploy properly.	In front of electrical box inside left Chassis Module. White wire for 600 Hz.
BAT	Batteries (4) 6 volts	To store energy.	Inside right Chassis Module.
CB	Circuit Breaker	Overload protection for the control circuit.	Chassis Control Panel.
D1	Diode	Supplies power to Motor Start circuit, from Steer Right circuit.	Controller terminal strip between C3 and C6.
D2	Diode	Supplies power to Motor Start circuit, from Steer Left circuit.	Controller terminal strip between C4 and C6.
D3	Diode	Provides power to Motor Start circuit through Controller Power On Switch from Drive/Lift Switch when in DRIVE .	In Controller between Drive/Lift Selector Switch and S1 and S2.
D4	Diode	Prevents feedback into the Chassis Lift Circuit from the Key Switch.	Connected between terminal A12 and the Chassis Lift Switch.
D5	Diode	Prevents feedback into the Controller Circuit from the Chassis Lift Circuit.	Connected between terminal A12 and the Key Switch.
D6	Diode	Provides power to Drive Dump Coil from Reverse Circuit.	On Chassis Terminal Strip between A3 and A4.
FU1	Fuse, 175 AMP	Overload protection for the electric motor.	Inside left Chassis Module on right bulkhead.
FU2	Fuse, 1 AMP	Overload protection for the Tilt Sensor.	In-line fuse on the Tilt Sensor.
LS1	Switch, Down Limit (Tilt/Pothole Interlock Circuit) (High Speed Drive Circuit)	Provides power to Tilt Alarm Relay when Platform is down. Cuts power to High Speed Coil when Platform is elevated.	Left rear corner of Tilt Sensor electrical box: Contacts 1,2,3&4; Contacts 6,7&8.
LS2	Switch, Right Pothole Interlock	In series with Left Pothole Interlock Switch, provides power to Tilt Alarm Relay from Level Sensor when machine is level and the Platform is elevated.	Mounted on front end of Right Module.

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
LS3	Switch, Left Pothole Interlock	In series with Right Pothole Interlock Switch, provides power to Tilt Alarm Relay from Level Sensor when machine is level and the Platform is elevated.	Mounted on front end of Left Module.
MOT	Motor, Electric	Provides power to Drive Hydraulic Pump.	Left Chassis Module.
MTR	Meter, Low Voltage/Hour (Optional)	Shows state of Battery charge and hours machine has been operated.	Chassis Control Panel.
R1	Relay, Motor Start	Connects Batteries to Motor.	Inside Left Chassis Module. Mounted on right bulkhead.
R2	Relay, Drive/Lift	Energized when Drive/Lift Switch is in DRIVE , provides power to Forward or Reverse Coils from Controller or to Up or Down Coils from Controller when not energized.	Right hand relay in Electrical Box, closest to side where cables enter box.
R3	Relay, Tilt Alarm	Energized by Tilt Sensor when level, or Down Limit Switch when Platform is down, provides power to Motor Start Relay or Tilt Alarm when not energized.	Left hand relay in Electrical Box, farthest from side where cables enter box.
S1	Switch, Joystick Power	Supplies power to Motor Start circuit.	Left rear switch when top of Controller is held in assembled position.
S2	Switch, Joystick Down/Reverse	Supplies power to Motor Start circuit or Down/Reverse circuits.	Left front switch when top of Controller is held in assembled position.
S3	Switch, Joystick Up/Forward	Supplies power to Up/Forward circuits.	Right rear switch when top of Controller is held in assembled position.
S4	Switch, Joystick High Speed	Supplies power to High Speed circuit.	Right front switch when top of Controller is held in assembled position.
S5	Switch, Chassis Emergency Stop	Control circuit shut off.	Chassis Control Panel.
S6	Switch, Chassis Selector Key	Provides power to either the Chassis Controls or the Controller.	Chassis Control Panel.
S7	Switch, Controller Emergency Stop Button.	Control circuit shut off.	Platform Controller bottom left.
S8	Switch, Interlock	Supplies power to Controller.	Front of joystick.

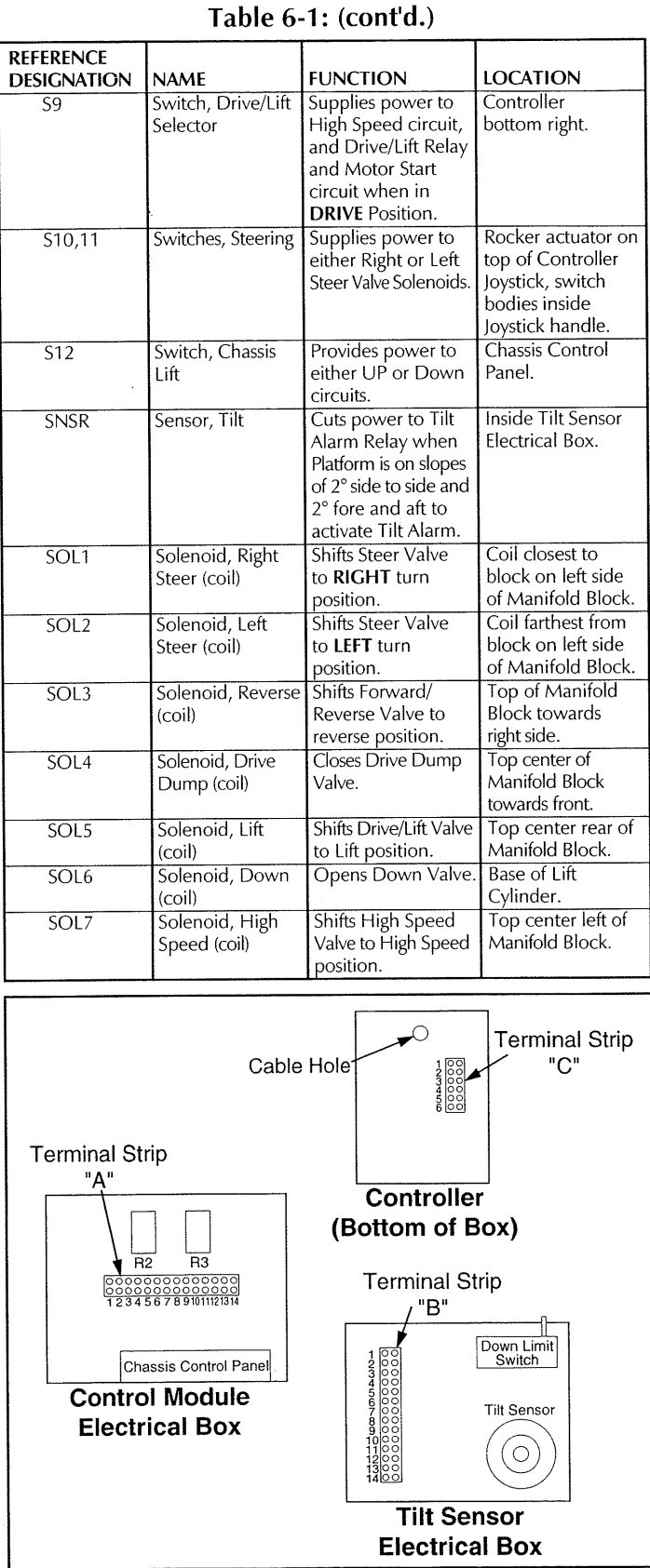


Figure 6-1: Terminal Strip Identification

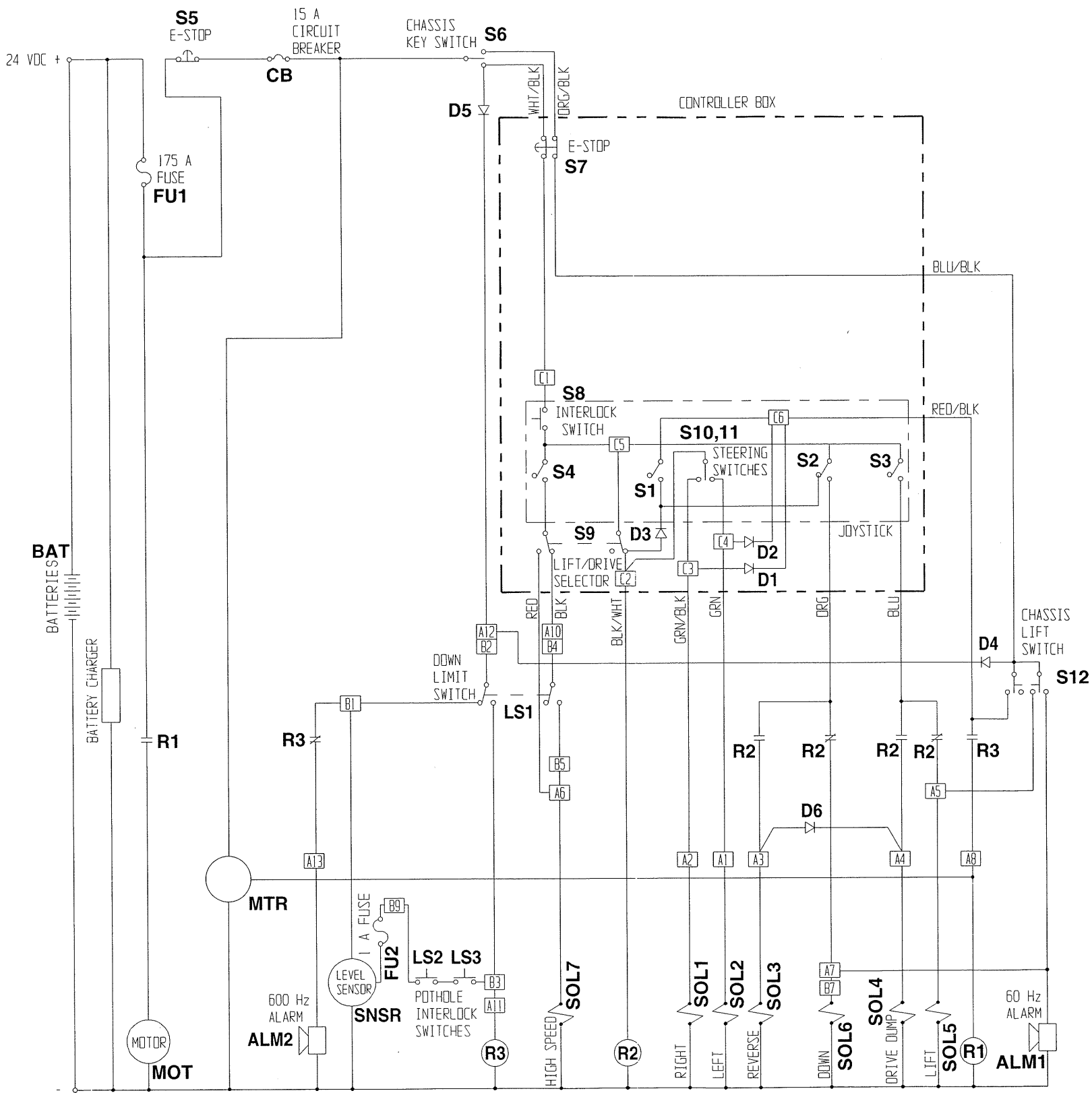
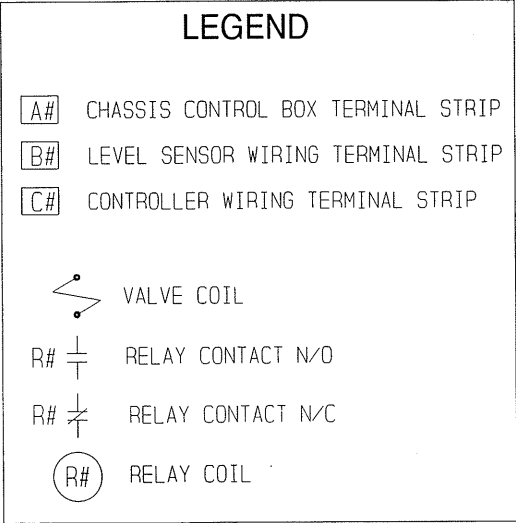


Figure 6-2: Electrical Schematic

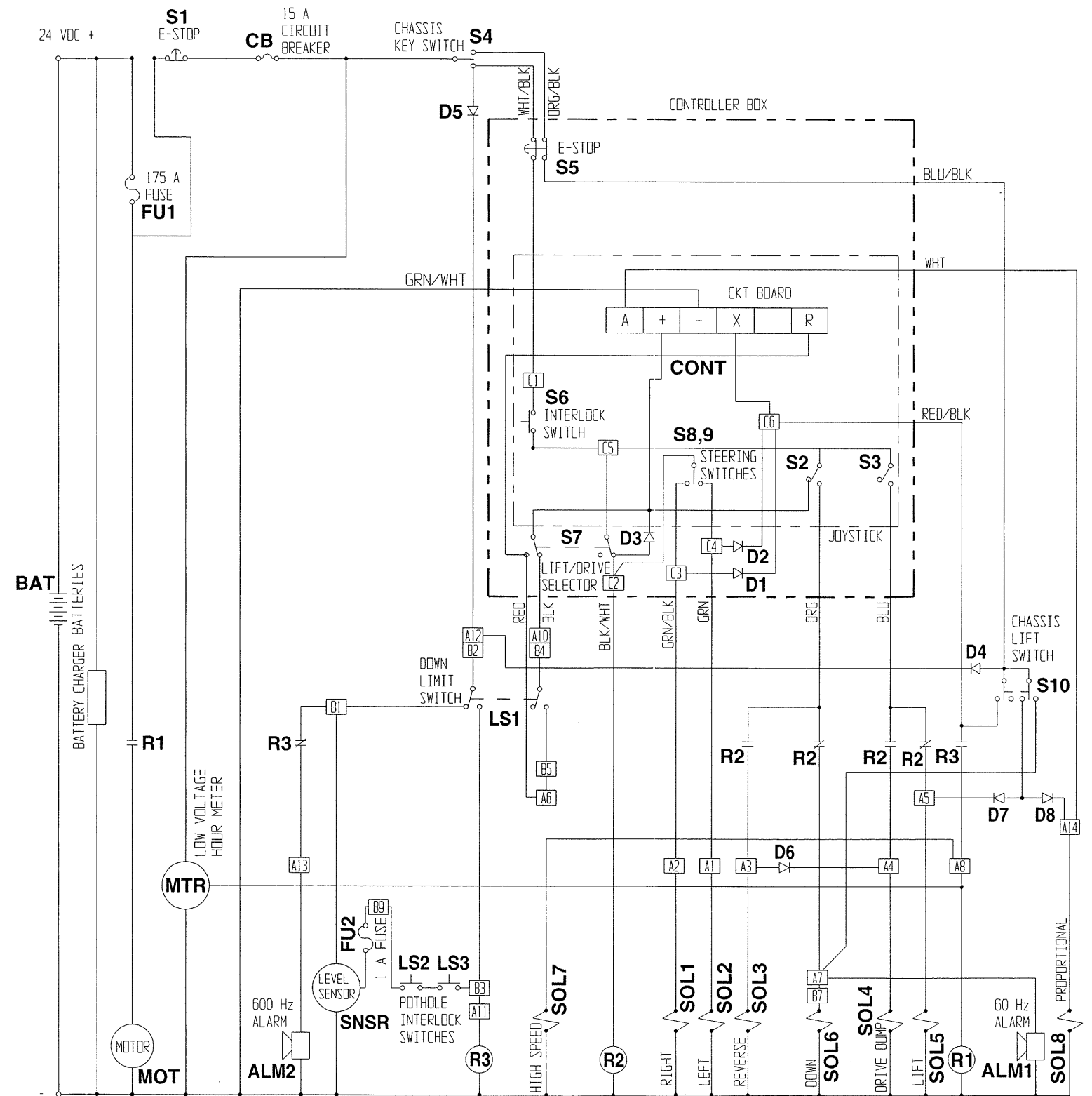
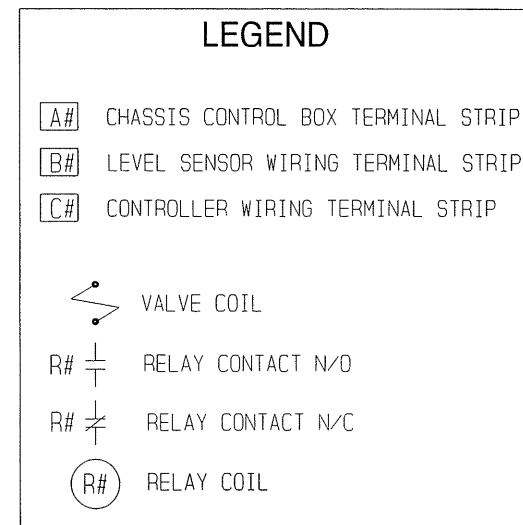
6.2 Electrical Schematic, Optional Proportional Controls

Table 6-2: Electrical Schematic Legend, Optional Proportional Controls

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
ALM1	Alarm, Motion	Provides warning sound (60 Hz) when any function is activated.	In front of electrical box inside left Chassis Module. Red wire for 60 Hz.
ALM2	Alarm, Platform Tilt/Pothole Protection	Provides warning sound (600 Hz) when Platform is on slopes of 2° side to side and 2° fore and aft, or when the Pothole Protection Supports do not deploy properly.	In front of electrical box inside left Chassis Module. White wire for 600 Hz.
BAT	Batteries (4) 6 volts	To store energy.	Inside right Chassis Module.
CB	Circuit Breaker	Overload protection for the control circuit.	Chassis Control Panel.
CONT	Controller, Joystick	Supplies power to; Motor Start Relay circuit, Proportional Coil, and Up/Forward or Down/Reverse circuits. Includes switches S2, S3, S6, S8, & S9.	Platform Controller center.
D1	Diode	Supplies power to Motor Start circuit, from Steer Right circuit.	Controller terminal strip between C3 and C6.
D2	Diode	Supplies power to Motor Start circuit, from Steer Left circuit.	Controller terminal strip between C4 and C6.
D3	Diode	Provides power to Joystick + terminal when Drive/Lift Switch is in DRIVE .	On Drive/Lift selector switch.
D4	Diode	Prevents feedback into the Chassis Lift Circuit from the Key Switch.	Connected between terminal A12 and the Chassis Lift Switch.
D5	Diode	Prevents feedback into the Controller Circuit from the Key Switch.	Connected between terminal A12 and the Key Switch.
D6	Diode	Provides power to Drive Dump Coil from Reverse Circuit.	On Chassis Terminal Strip between A3 and A4.
D7	Diode	Provides power to Lift Circuit from Chassis Lift Switch and prevents feedback into Proportional Circuit.	Between Chassis Lift Switch and terminal A5.
D8	Diode	Provides power to Proportional Circuit from Chassis Lift Switch and prevents feedback into Lift Circuit.	Between Chassis Lift Switch and terminal A14.
FU1	Fuse, 175 AMP	Overload protection for the electric motor.	Inside left Chassis Module on right bulkhead.
FU2	Fuse, 1 AMP	Overload protection for the Tilt Sensor.	In-line fuse on the Tilt Sensor.

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
LS1	Switch, Down Limit (Tilt/Pothole Interlock Circuit) (High Speed Drive Circuit)	Provides power to Tilt Alarm Relay when Platform is down. Cuts power to High Speed Coil when Platform is elevated.	Left rear corner of Tilt Sensor electrical box: Contacts 1,2,3&4; Contacts 6,7&8.
LS2	Switch, Right Pothole Interlock	In series with Left Pothole Interlock Switch, provides power to Tilt Alarm Relay from Level Sensor when machine is level and the Platform is elevated.	Mounted on front end of Right Module.
LS3	Switch, Left Pothole Interlock	In series with Right Pothole Interlock Switch, provides power to Tilt Alarm Relay from Level Sensor when machine is level and the Platform is elevated.	Mounted on front end of Left Module.
MOT	Motor, Electric	Provides power to Drive Hydraulic Pump.	Left Chassis Module.
MTR	Meter, Low Voltage/Hour (Optional)	Shows state of Battery charge and hours machine has been operated.	Chassis Control Panel.
R1	Relay, Motor Start	Connects Batteries to Motor.	Inside Left Chassis Module. Mounted on right bulkhead.
R2	Relay, Drive/Lift	Energized when Drive/Lift Switch is in DRIVE , provides power to Forward or Reverse Coils from Controller or to Up or Down Coils from Controller when not energized.	Right hand relay in Electrical Box, closest to side where cables enter box.
R3	Relay, Tilt Alarm	Energized by Tilt Sensor when level, or Down Limit Switch when Platform is down, provides power to Motor Start Relay or Tilt Alarm when not energized.	Left hand relay in Electrical Box, farthest from side where cables enter box.
S1	Switch, Chassis Emergency Stop	Control circuit shut off.	Chassis Control Panel.
S2	Switch, Joystick Down/Reverse	Provides power to Joystick + term. during LIFT operation or to Down/Reverse circuit when Joystick is pulled back.	Left front switch on Joystick when Joystick is held in assembled position.
S3	Switch, Joystick Lift/Forward	Provides power to Drive/Lift circuit when Joystick is pushed forward.	Left rear switch on Joystick when Joystick is held in assembled position.
S4	Switch, Chassis Selector Key	Provides power to either the Chassis Controls or the Controller.	Chassis Control Panel.

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
S5	Switch, Controller Emergency Stop Button.	Control circuit shut off.	Platform Controller bottom left.
S6	Switch, Interlock	Supplies power to Controller.	Front of joystick.
S7	Switch, Drive/Lift Selector	Supplies power to High Speed circuit, and Drive/Lift Relay and Motor Start circuit when in DRIVE Position.	Controller bottom right.
S8,9	Switches, Steering	Supplies power to either Right or Left Steer Valve Solenoids.	Rocker actuator on top of Controller Joystick, switch bodies inside Joystick handle.
S10	Switch, Chassis Lift	Provides power to either UP or Down circuits.	Chassis Control Panel.
SNSR	Sensor, Tilt	Cuts power to Tilt Alarm Relay when Platform is on slopes of 2° side to side and 2° fore and aft to activate Tilt Alarm.	Inside Tilt Sensor Electrical Box.
SOL1	Solenoid, Right Steer (coil)	Shifts Steer Valve to RIGHT turn position.	Coil closest to block on left side of Manifold Block.
SOL2	Solenoid, Left Steer (coil)	Shifts Steer Valve to LEFT turn position.	Coil farthest from block on left side of Manifold Block.
SOL3	Solenoid, Reverse (coil)	Shifts Forward/ Reverse Valve to reverse position.	Top of Manifold Block towards right side.
SOL4	Solenoid, Drive Dump (coil)	Closes Drive Dump Valve.	Top center of Manifold Block towards front.
SOL5	Solenoid, Lift (coil)	Shifts Drive/Lift Valve to Lift position.	Top center rear of Manifold Block.
SOL6	Solenoid, Down (coil)	Opens Down Valve.	Base of Lift Cylinder.
SOL7	Solenoid, High Speed (coil)	Shifts High Speed Valve to High Speed position.	Top center left of Manifold Block.
SOL8	Solenoid, Proportional (coil)	Closes Proportional Valve.	Top center of Manifold Block.



X-Series Work Platform

6.3 Hydraulic Schematic

Table 6-3: Hydraulic Schematic Legend

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
CYL1	Cylinder, Steering	Provides force to turn front wheels.	Under Chassis at front of machine.
CYL2	Cylinder, Brake	Stops machine from moving while parked.	Rear of machine between wheels.
CYL3	Cylinder, Lift	Provides force to lift Platform.	Inside the Elevating Assembly.
CYL4	Cylinder, Cushion	Provides smooth starting and stopping when driving.	Mounted to right side of Hydraulic Tank.
FL1	Filter	Filters oil returning to Tank.	Mounted to Hydraulic Tank.
FL2	Suction Screen	Traps particles in Hydraulic Tank.	Inside Hydraulic Tank at outlet.
MOT1	Drive Motor	Provides tractive effort for work	On left front Steering Spindle.
MOT2	Drive Motor	Provides tractive effort for work	On right front Steering Spindle.
ORF1	Orifice, Brake	Delays the engagement of the Brake Cylinder.	Under rod end fitting of Brake Cylinder.
ORF2	Orifice, Down	Controls the platform rate of descent.	Under fitting on base of Lift Cylinder.
ORF3,4	Orifice, Cushion Cylinder	Controls drive cushion rate.	Inside each end of Drive Cushion Cylinder.
PMP	Duplex Pump	Supplies hydraulic oil flow for all functions.	Inside left Chassis Module, right front.
RV1	Valve, Main Relief	Provides over pressure protection to Pump and limits Platform lifting capacity.	Center front of Manifold Block.
RV2	Valve, Steering Relief	Provides over pressure protection to steering components when steering.	Lower left front of Manifold Block.
RV3*	Valve, Lift	Provides over pressure protection to Lift Cylinder on X20W and X26N Machines only.	In-line valve mounted on hoses between lift port and return filter.
RV4	Valve, Lift	Provides over pressure protection to high side of Pump and.	In-line valve mounted on hoses between Pump and tank.
RV5	Valve, Lift	Provides over pressure protection to low side of Pump and.	In-line valve mounted on hoses between Pump and tank.
V1	Valve, Steering	Provides directional control for Steering Cylinder.	Left side of Manifold Block.

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
V2	Valve, Reverse Counterbalance	Prevents machine from running away on slopes and cushions stops.	Right front of Manifold Block, lower unit.
V3	Valve, Forward Counterbalance	Prevents machine from running away on slopes and cushions stops.	Right front of Manifold Block, upper unit.
V4	Valve, Drive/Lift	Provides control of oil for Drive or Lift functions.	Top center rear of Manifold Block.
V5	Valve, Forward/Reverse	Provides control of oil for Forward or Reverse drive.	Top of Manifold Block, towards right side.
V6	Valve, High Speed	Controls oil flow into Drive and Lift circuits by dumping oil back to tank.	Top left center of Manifold Block.
V7	Valve, Down and Emergency Lowering	Allows oil to flow out of Lift Cylinder to Tank, manually operated for Emergency Lowering.	Mounted on base of Lift Cylinder.
V8	Valve, Drive Dump	Allows oil to flow to Forward/Reverse Valve for Drive operation. During Lift, drive circuit oil is returned to tank.	Top right center of Manifold Block towards front.
V9**	Valve, Proportional (Optional)	Controls oil flow into Drive and Lift circuits by proportionally dumping oil back to tank.	Top center of Manifold Block.

* Used on X20W and X26 machines only.

** Optional

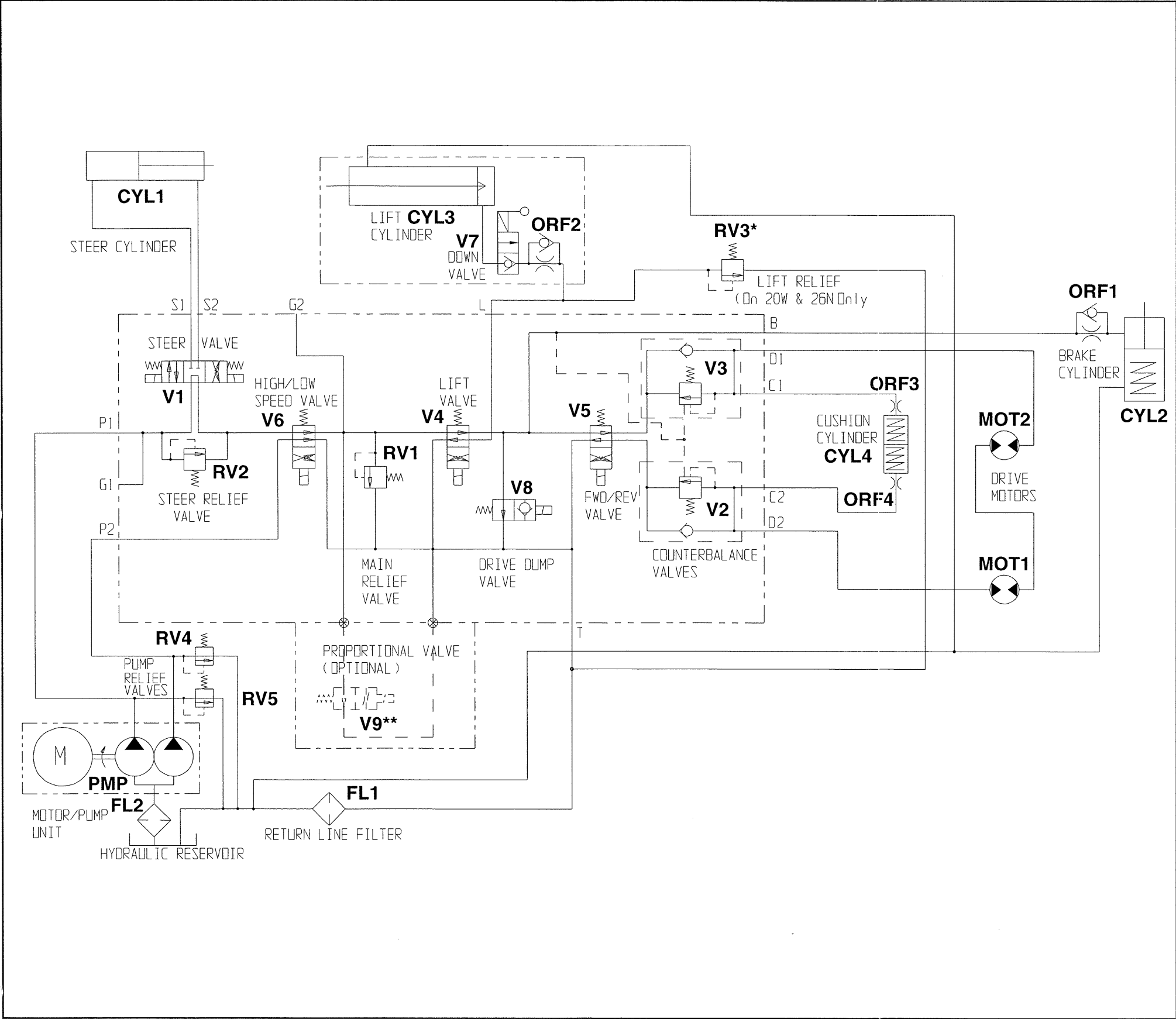


Figure 6-4: Hydraulic Schematic

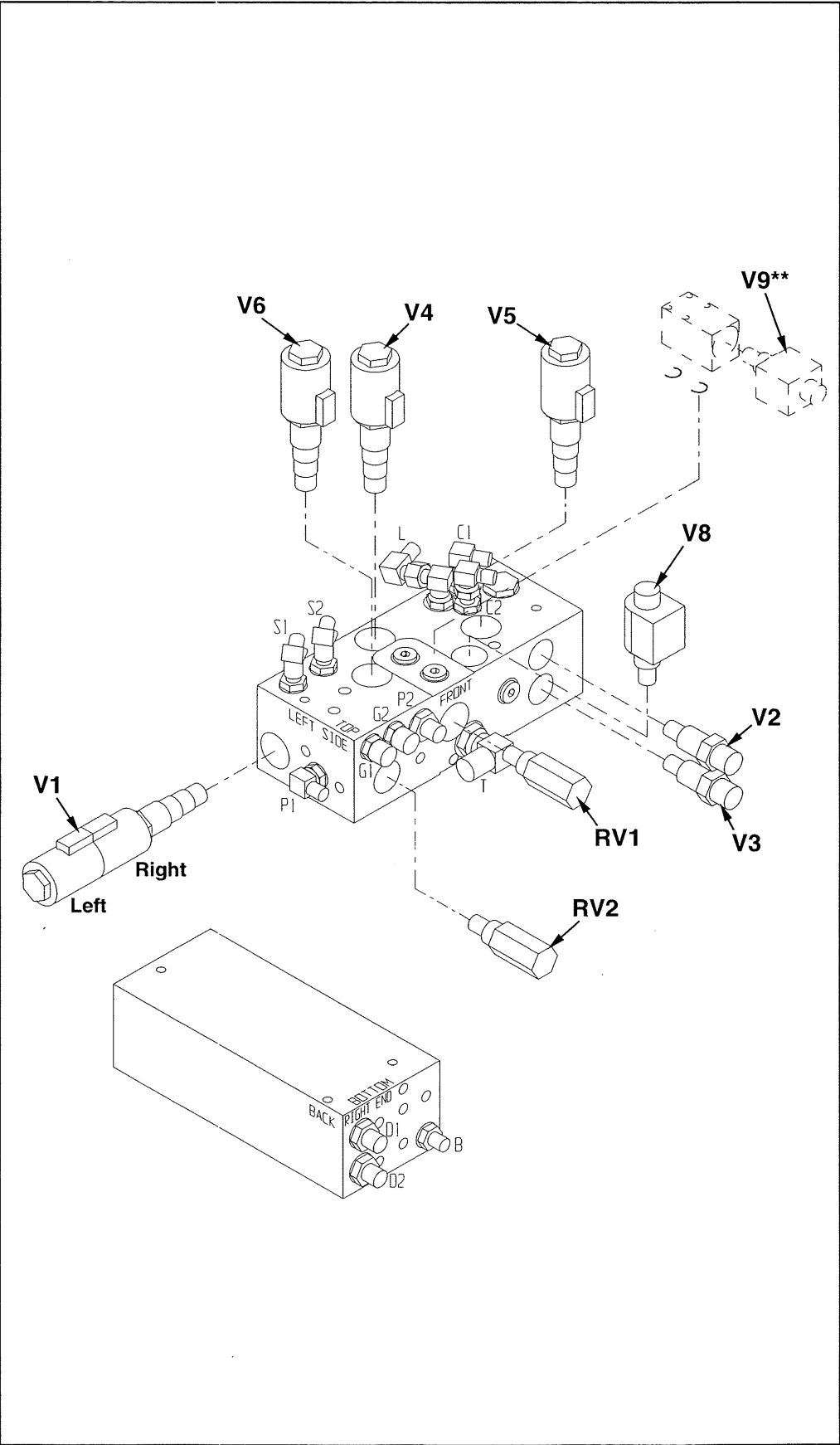


Figure 6-5: Hydraulic Manifold

NOTES

7.0 Introduction

This section lists and illustrates the replaceable assemblies and parts of the X20N/X20W/X26N Work Platforms, as manufactured by UpRight, Inc. Each parts list contains the component parts for that assembly indented to show relationship where applicable.

7.1 Index

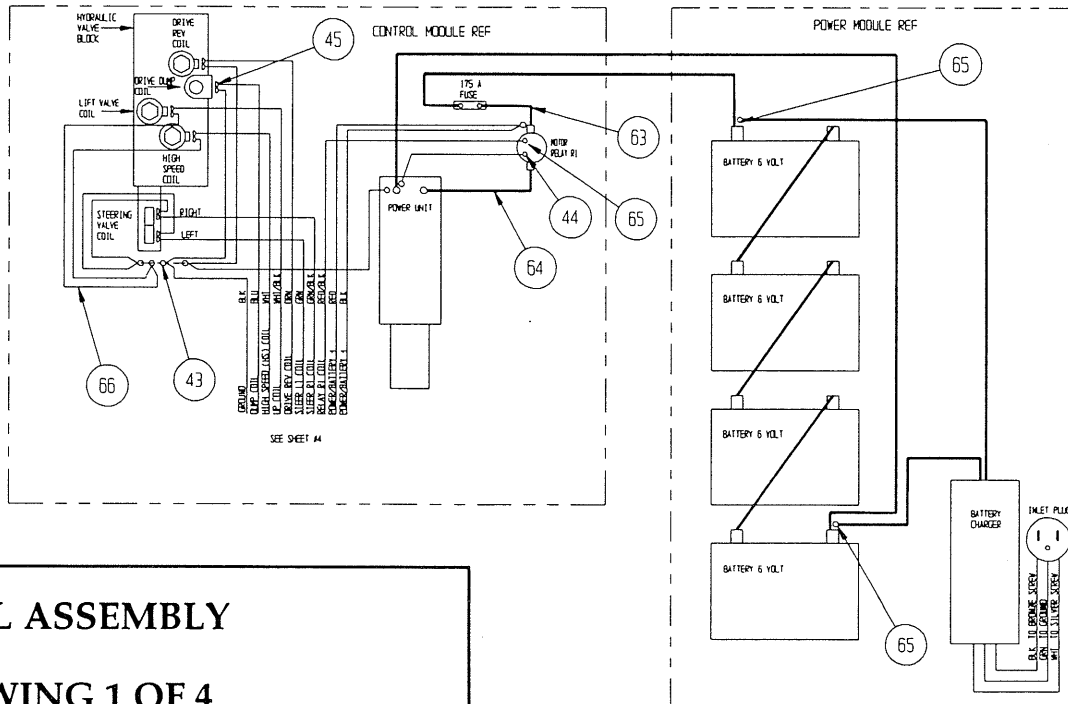
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Illustrated Parts Breakdown

FINAL ASSEMBLY X20N

ITEM	PART	DESCRIPTION	QTY.
1	66001-000	BASIC ASSEMBLY	1
2	66008-001	CONTROL MODULE	1
3	66009-000	POWER MODULE	1
4	66005-000	GUARDRAIL INSTALLATION	1
5	11828-008	SCREW, 1/4-20 X 1 FLAT HD SOC	2
6	05832-000	WASHER, LOCK 1/4	2
7	66010-000	LABEL KIT INSTALLATION	1
8	66012-000	CONTROL CABLE ASSY	1
9	66011-001	HOSE KIT INSTALLATION	1
10	66013-000	CONTROLLER ASSEMBLY	1
11	15796-000	BATTERY, 6V 220AMP	4
12	66166-000	CHARGER	1
13	11253-006	SCREW, HHC 5/16-18UNC X 3/4	8
14	11248-005	NUT, 5/16-18 HEX	8
15	64195-001	CABLE ASSY. X 12	3
16	64195-056	CABLE ASSY. X 56	1
17	64195-104	CABLE ASSY. X 104	1
18	66014-000	ELECTRICAL BOX ASSEMBLY	1
19	11728-004	SCREW, SOC HD #10-32 X 1/2	2
20	66017-000	CONTROL VALVE ASSEMBLY	1
21	11941-005	FITTING, STRAIGHT	2
22	65369-099	HOSE GUARD, NYLON	1.5FT
23	11252-006	SCREW, HHC 1/4-20UNC X 3/4	2
24	66696-001	RELIEF VALVE ASSY., PUMP	2
26	11252-032	SCREW, HHC GR5 1/4-20 X 4	3
27	11240-004	WASHER, FLAT 1/4 DIA	3
28	66179-000	VALVE, DOWN	1
29	65754-001	CABLE	1
30	66368-000	BRACKET	1
31	63664-008	ORIFICE	1
32	11248-004	NUT, 1/4-20 HEX	5

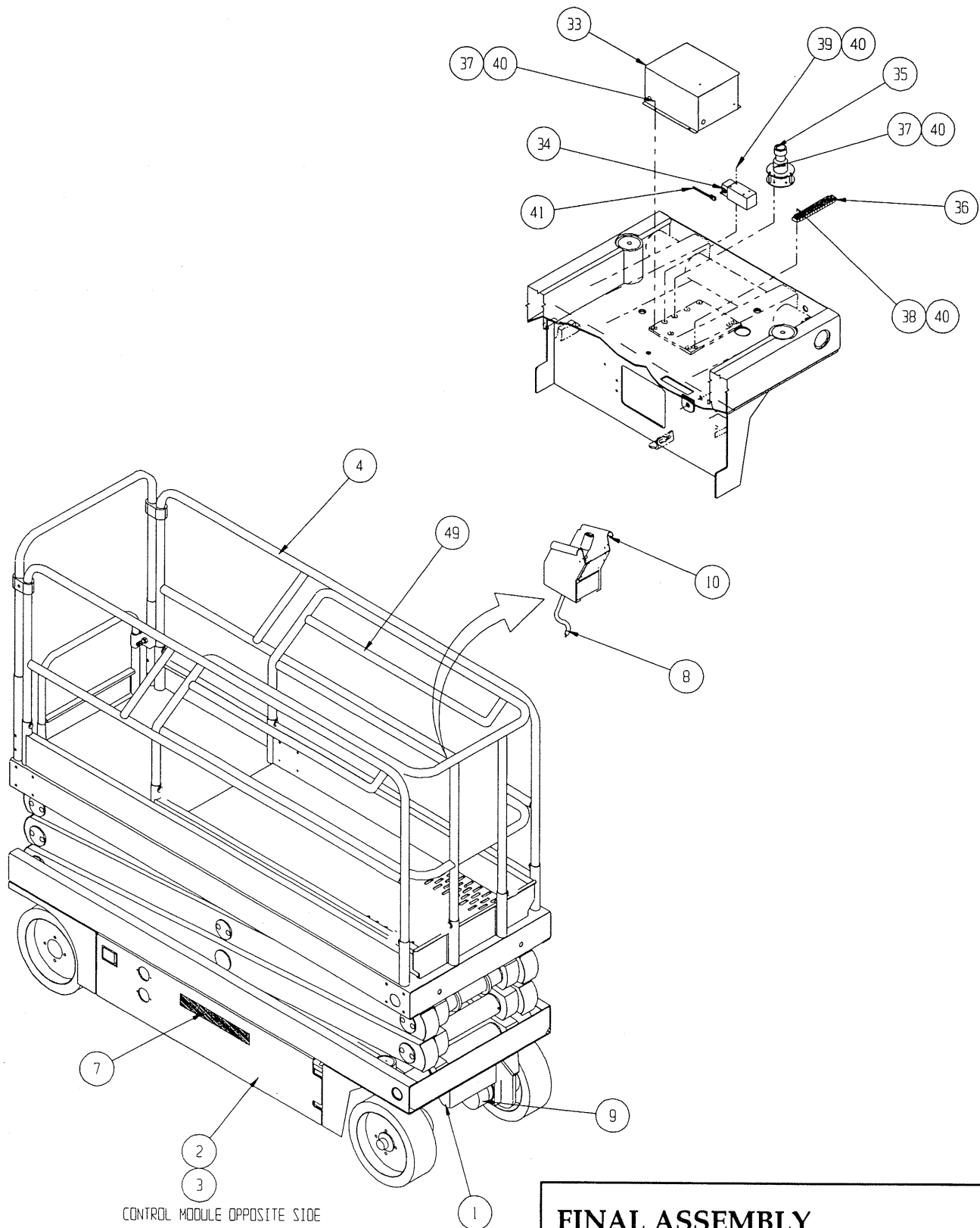
ITEM	PART	DESCRIPTION	QTY.
33	66399-000	WELDMENT COVER	1
34	15793-011	LIMIT SWITCH	1
35	29945-011	LEVEL SENSOR	1
36	29928-004	TERMINAL BLOCK	1
37	11275-003	SCREW, #10-32 X 3/8	6
38	11275-006	SCREW, #10-32 X 3/4	2
39	11275-012	SCREW, #10-32 X 1 3/4	2
40	11238-002	WASHER, #10 LOCK	10
41	15793-015	LEVER	1
43	29601-015	CONN., RING, 14-16 GA. 3/8	4
44	29601-013	CONN., RING, 14-16 GA. #10	4
45	29931-003	CONN., PUSH, 14-16 GA. .25	16
46	29610-002	CONN., FORK, 14-16 GA. #8	31
47	29601-019	CONN., FORK, 10-12 GA. .25	1
48	11252-008	SCREW, HHC GR5 1/4-20 UNC X 1	2
49	66006-000	DECK EXTENSION INSTALLATION	1
51	66516-002	PLUG, 1.75 DIA.	1
53	11248-047	NUT, HEX LOCK #6-32	2
54	11240-005	WASHER, 5/16 FLAT	2
55	13913-014	SPRING	1
56	29961-000	INLET PLUG	1
57	06464-004	SCREW, RH #6-32UNC X 1/2	2
58	10131-099	WIRE, 16 AWG 12 COND.	15FT
59	29961-001	SEAL, INLET PLUG	1
60	10154-000	TERM. COVER	8
63	64195-004	CABLE ASSY X 4	1
64	64195-009	CABLE ASSY X 9	1
65	29601-039	CONN., RING, 10-12 GA. 5/16	3
66	29452-099	WIRE, 16 AWG BLK	3FT
67	29496-099	WIRE, 16 AWG 2 COND.	5FT



FINAL ASSEMBLY
X20N
DRAWING 1 OF 4

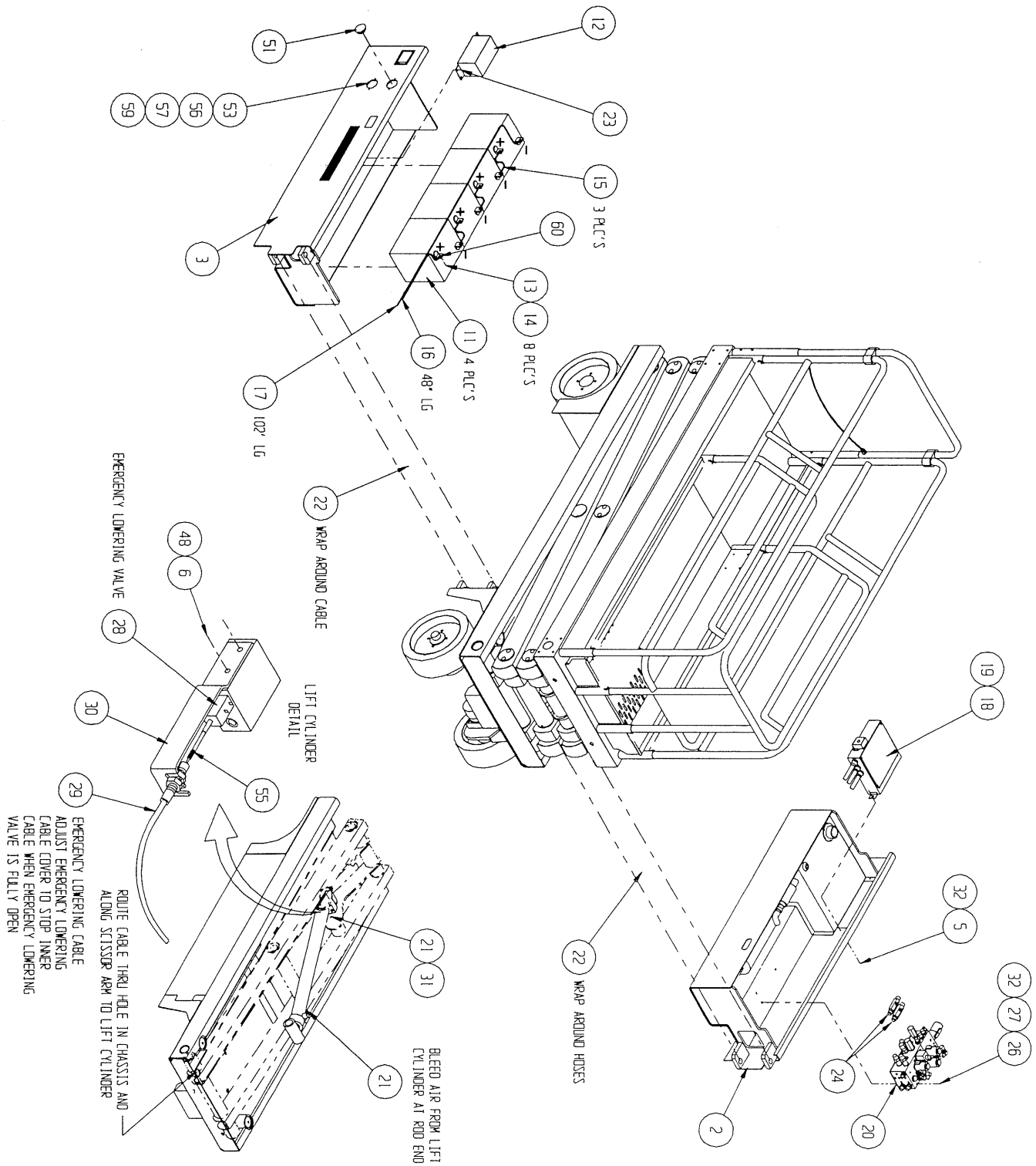
Illustrated Parts Breakdown

Section
7.2



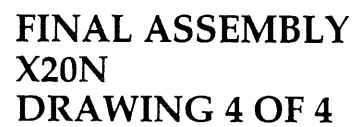
**FINAL ASSEMBLY
X20N
DRAWING 2 OF 4**

Illustrated Parts Breakdown



**FINAL ASSEMBLY
X20N
DRAWING 3 OF 4**

Section 7.2

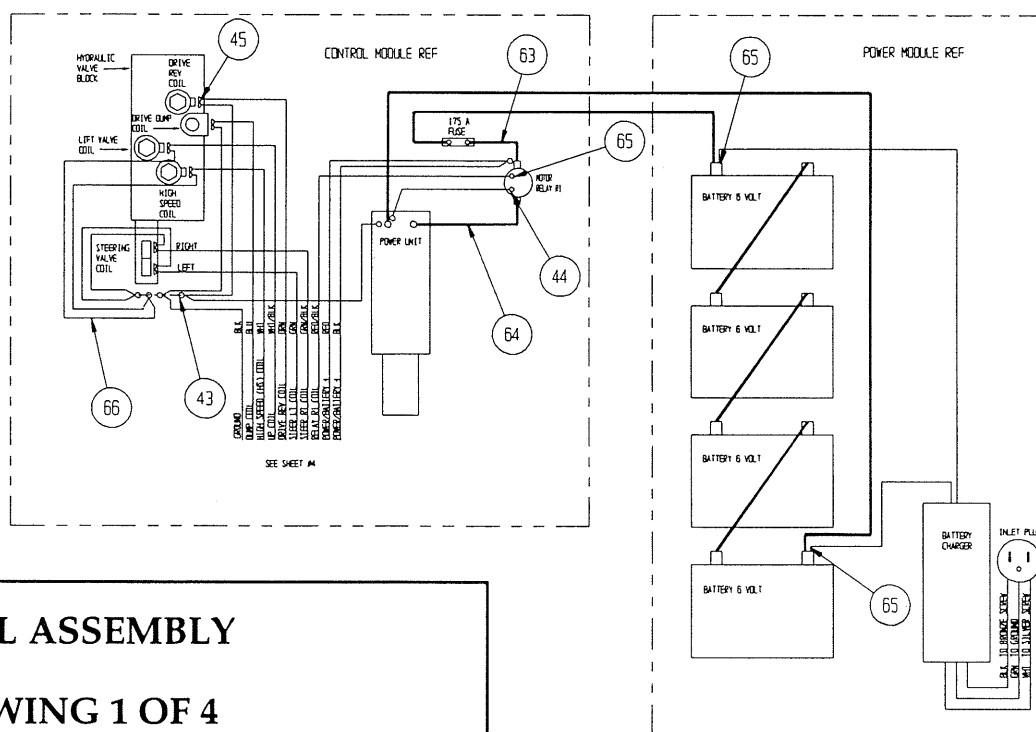


Illustrated Parts Breakdown

FINAL ASSEMBLY X20W

ITEM	PART	DESCRIPTION	QTY.
1	66051-000	BASIC ASSEMBLY	1
2	66058-001	CONTROL MODULE	REF
3	66059-000	POWER MODULE	REF
4	66055-000	GUARDRAIL INSTALLATION	1
5	11828-008	SCREW, 1/4-20 X 1 FLAT HD SOC	2
6	05832-000	WASHER, LOCK 1/4	2
7	66060-000	LABEL KIT INSTALLATION	1
8	66012-000	CONTROL CABLE ASSY.	1
9	66061-001	HOSE KIT INSTALLATION	1
10	66013-000	CONTROLLER ASSEMBLY	1
11	15796-000	BATTERY, 6V 220AMP	4
12	66166-000	CHARGER	1
13	11253-006	SCREW, HHC 5/16-18UNC X 3/4	8
14	11248-005	NUT, 5/16-18 HEX	8
15	64195-001	CABLE ASSY. X 12	3
16	64195-070	CABLE ASSY. X 70	1
17	64195-128	CABLE ASSY. X 128	1
18	66014-000	ELECTRICAL BOX ASSEMBLY	1
19	11728-004	SCREW, SOC HD #10-32 X 1/2	2
20	66017-000	CONTROL VALVE ASSEMBLY	1
21	11941-005	FITTING, STRAIGHT	2
22	65369-099	HOSE GUARD, NYLON	1.5FT
23	11252-006	SCREW, HHC 1/4-20UNC X 3/4	2
24	66696-001	RELIEF VALVE ASSY., PUMP	2
26	11252-032	SCREW, HHC GR5 1/4-20 X 4	3
27	11240-004	WASHER, FLAT 1/4 DIA	3
28	66179-000	VALVE, DOWN	1
29	65754-001	CABLE	1
30	66368-000	BRACKET	1
31	63664-008	ORIFICE	1
32	11248-004	NUT, 1/4-20 HEX	5

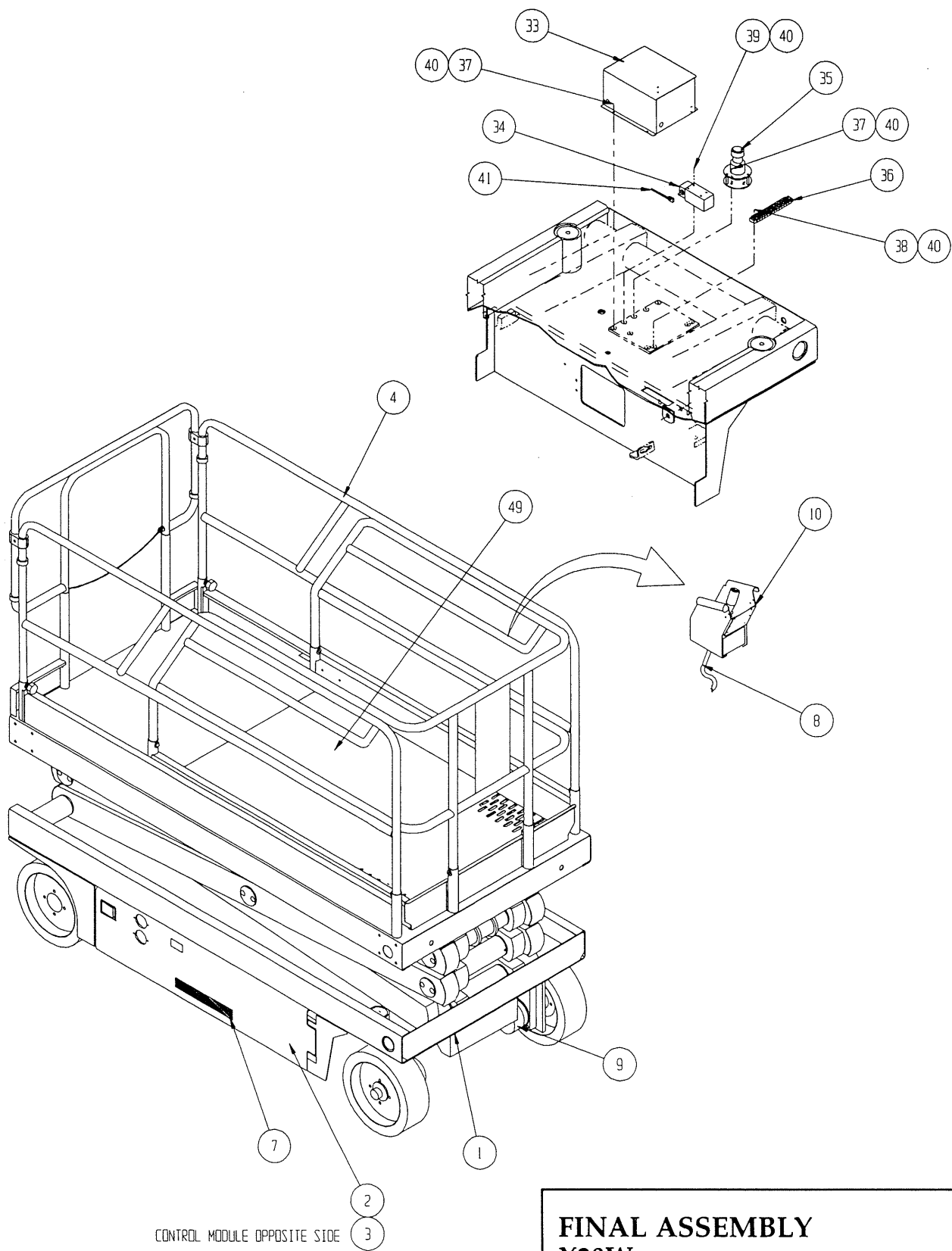
ITEM	PART	DESCRIPTION	QTY.
33	66399-000	WELDMENT, COVER	1
34	15793-011	LIMIT SWITCH	1
35	29945-011	LEVEL SENSOR	1
36	29928-004	TERMINAL BLOCK	1
37	11275-003	SCREW, #10-32 X 3/8	6
38	11275-006	SCREW, #10-32 X 3/4	2
39	11275-012	SCREW, #10-32 X 1 3/4	2
40	11238-002	WASHER, #10 LOCK	10
41	15793-015	LEVER	1
43	29601-015	CONN., RING, 14-16 GA. 3/8	4
44	29601-013	CONN., RING, 14-16 GA. #10	8
45	29931-003	CONN., PUSH, 14-16 GA. .25	16
46	29610-002	CONN., FORK, 14-16 GA. #8	31
47	29616-003	CONN., PUSH, 10-12 GA. .25	1
48	11252-008	SCREW, HHC GR5 1/4-20 UNC X 1	2
49	66056-000	DECK EXTENSION INSTALLATION	1
51	66516-002	PLUG, 1 3/4 DIA.	1
53	11248-047	NUT, #6-32UNC HEX LOCK	2
55	13913-014	SPRING	1
56	29961-000	INLET PLUG	1
57	06464-004	SCREW, RH MACH #6-32UNC X 1/2	2
58	10131-099	CABLE, 16 GA. 12 COND	15 FT
59	29961-001	SEAL	1
60	10154-000	COVER, BATTERY TERMINAL	8
63	64195-004	CABLE ASSY. X 4	1
64	64195-009	CABLE ASSY. X 9	1
65	29601-039	CONN, 5/16 RING - 10/12 GA	3
66	29452-099	WIRE, 16GA. BLK	3 FT
67	29496-099	WIRE, 16GA. 2 COND.	10 FT
68	66696-000	RELIEF VALVE ASSY.	1



FINAL ASSEMBLY
X20W
DRAWING 1 OF 4

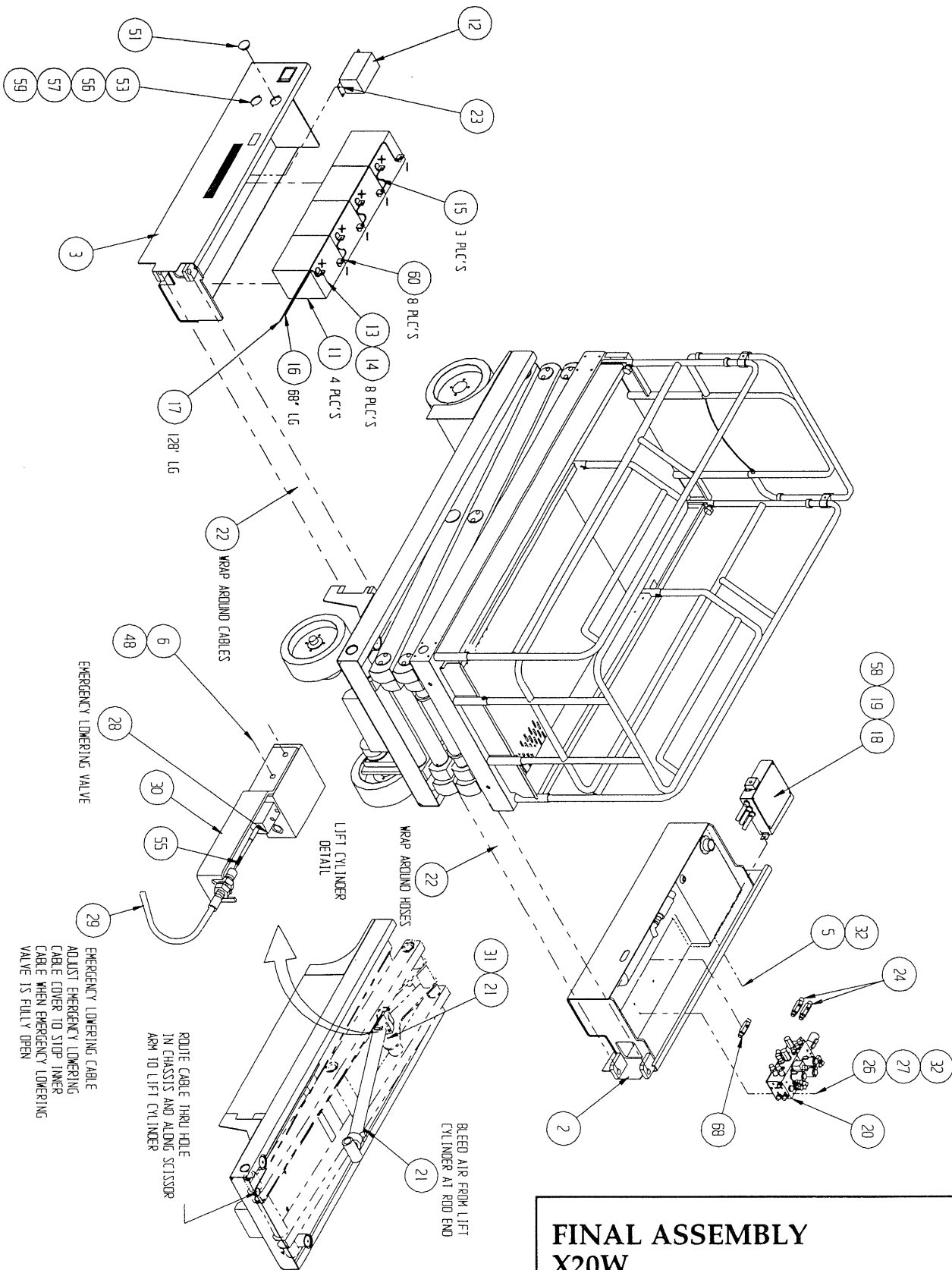
Illustrated Parts Breakdown

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FINAL ASSEMBLY
X20W
DRAWING 2 OF 4

Illustrated Parts Breakdown



**FINAL ASSEMBLY
X20W
DRAWING 3 OF 4**

Section 7.2

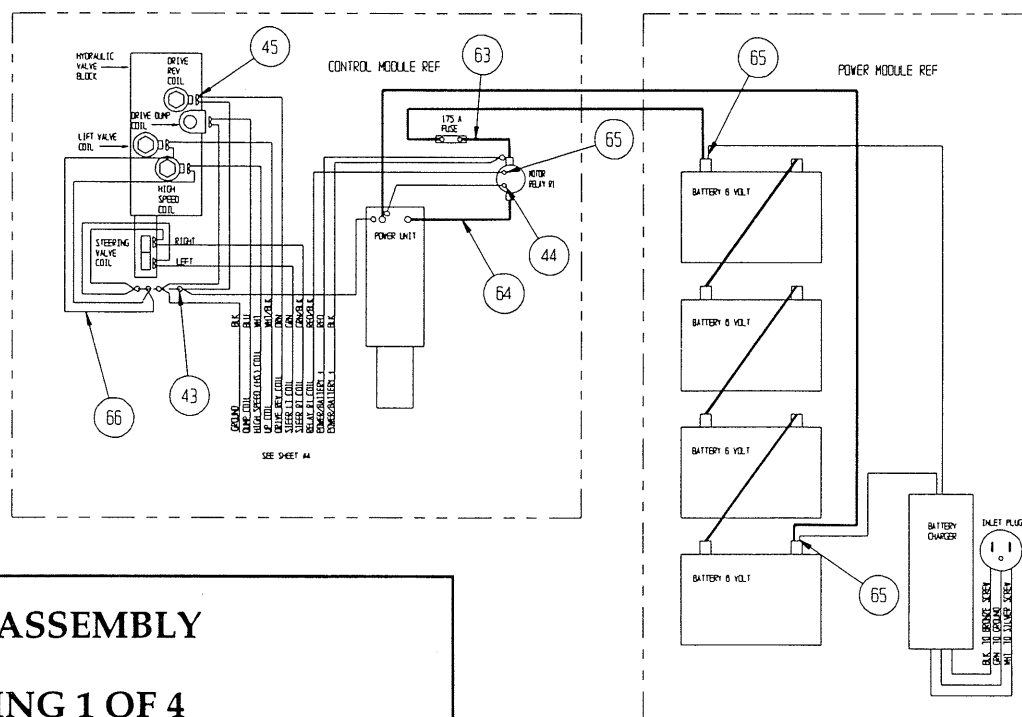


Illustrated Parts Breakdown

FINAL ASSEMBLY X26N

ITEM	PART	DESCRIPTION	QTY.
1	66101-000	BASIC ASSEMBLY	1
2	66058-001	CONTROL MODULE	REF
3	66059-000	POWER MODULE	REF
4	66055-000	GUARDRAIL INSTALLATION	1
5	11828-008	SCREW, 1/4-20 X 1 FLAT HD SOC	2
6	05832-000	WASHER, LOCK 1/4	2
7	66110-000	LABEL KIT INSTALLATION	1
8	66012-001	CONTROL CABLE ASSY	1
9	66061-001	HOSE KIT INSTALLATION	1
10	66013-000	CONTROLLER ASSEMBLY	1
11	15796-000	BATTERY, 6V 220AMP	4
12	66166-000	CHARGER	1
13	11253-006	SCREW, HHC 5/16-18UNC X 3/4	8
14	11248-005	NUT, 5/16-18 HEX	8
15	64195-001	CABLE ASSY. X 12	3
16	64195-063	CABLE ASSY. X 63	1
17	64195-128	CABLE ASSY. X 128	1
18	66014-000	ELECTRICAL BOX ASSEMBLY	1
19	11728-004	SCREW, SOC HD #10-32 X 1/2	2
20	66017-000	CONTROL VALVE ASSEMBLY	1
21	11941-005	FITTING, STRAIGHT	2
22	65369-099	HOSE GUARD, NYLON	1.5 FT
24	66696-001	RELIEF VALVE ASSY., PUMP	2
23	11252-006	SCREW, HHC 1/4-20UNC X 3/4	2
26	11252-032	SCREW, HHC GR5 1/4-20 X 4	3
27	11240-006	WASHER, FLAT 3/8 DIA	3
28	66179-000	VALVE, DOWN	1
29	65754-001	CABLE	1
30	66368-000	BRACKET	1
31	63664-008	ORIFICE	1
32	11248-004	NUT, 1/4-20 HEX	5

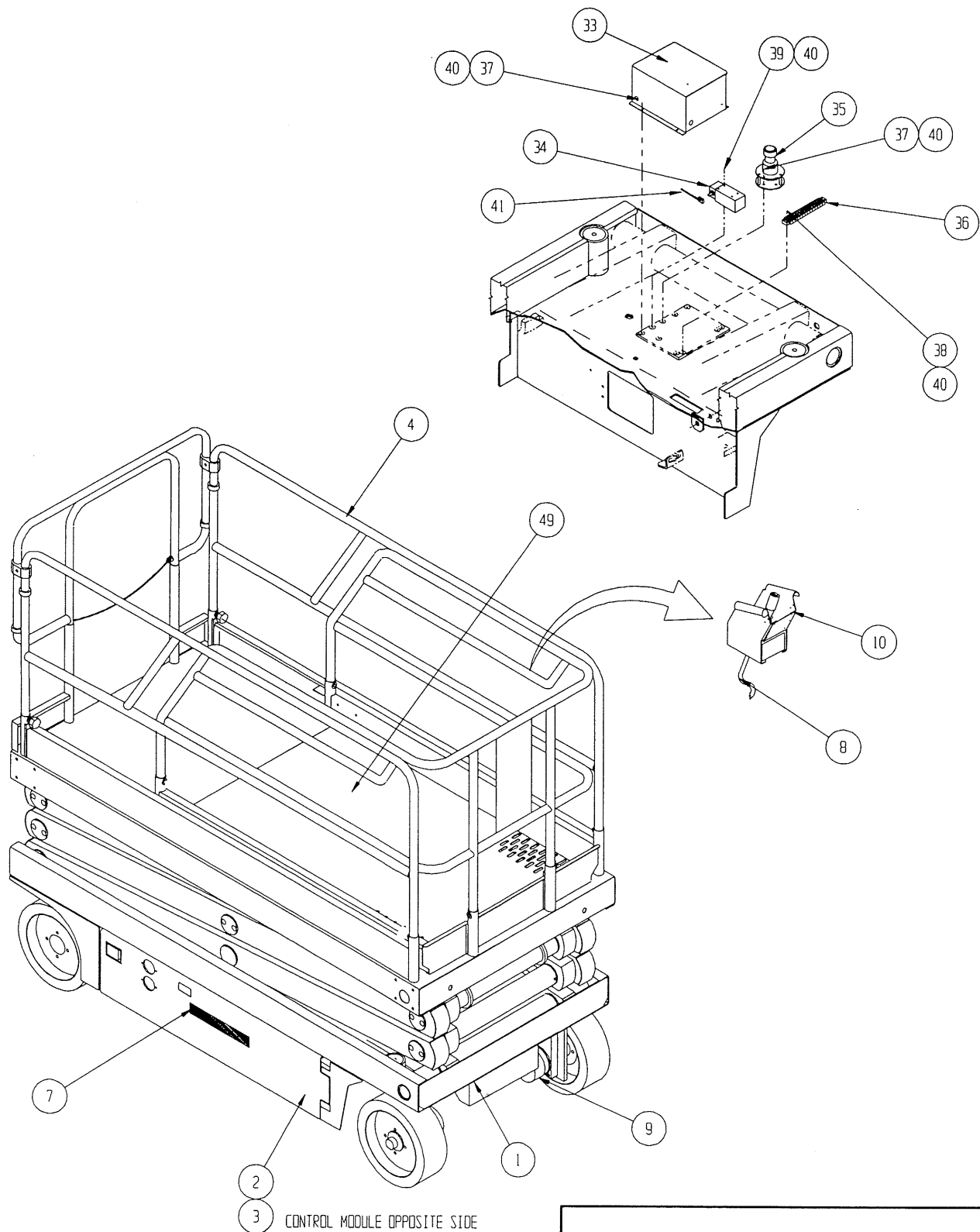
ITEM	PART	DESCRIPTION	QTY.
33	66399-000	WELDMENT, COVER	1
34	15793-011	LIMIT SWITCH	1
35	29945-011	LEVEL SENSOR	1
36	29928-004	TERMINAL BLOCK	1
37	11275-003	SCREW, #10-32 X 3/8	6
38	11275-006	SCREW, #10-32 X 3/4	2
39	11275-012	SCREW, #10-32 X 1 3/4	2
40	11238-002	WASHER, #10 LOCK	10
41	15793-015	LEVER	1
43	29601-015	CONN., RING, 14-16 GA. 3/8	4
44	29601-013	CONN., RING, 14-16 GA. #10	8
45	29931-003	CONN., PUSH, 14-16 GA. .25	16
46	29610-002	CONN., FORK, 14-16 GA. #8	31
47	29601-019	CONN., FORK, 10-12 GA. .25	1
48	11252-008	SCREW, HHC GR5 1/4-20 UNC X 1	2
49	66056-000	DECK EXTENSION INSTALLATION	1
51	66516-002	PLUG 1 3/4 DIA.	1
53	11248-047	NUT, #6-32UNC HEX LOCK	2
55	13913-014	SPRING	1
56	29961-000	INLET PLUG	1
57	06464-004	SCREW, RH MACH #6-32UNC X 1/2	2
58	10131-099	CABLE, 16 GA. 12 COND	15 FT
59	29961-001	SEAL	1
60	10154-000	COVER, BATTERY TERMINAL	8
63	64195-004	CABLE ASSY. X 4	1
64	64195-009	CABLE ASSY. X 9	1
65	29601-039	CONN, 5/16 RING - 16/14 GA	3
66	29452-099	WIRE, 16GA. BLK	3 FT
67	29496-099	WIRE, 16GA. 2 COND.	10 FT
68	66696-000	RELIEF VALVE ASSY.	1



**FINAL ASSEMBLY
X26N
DRAWING 1 OF 4**

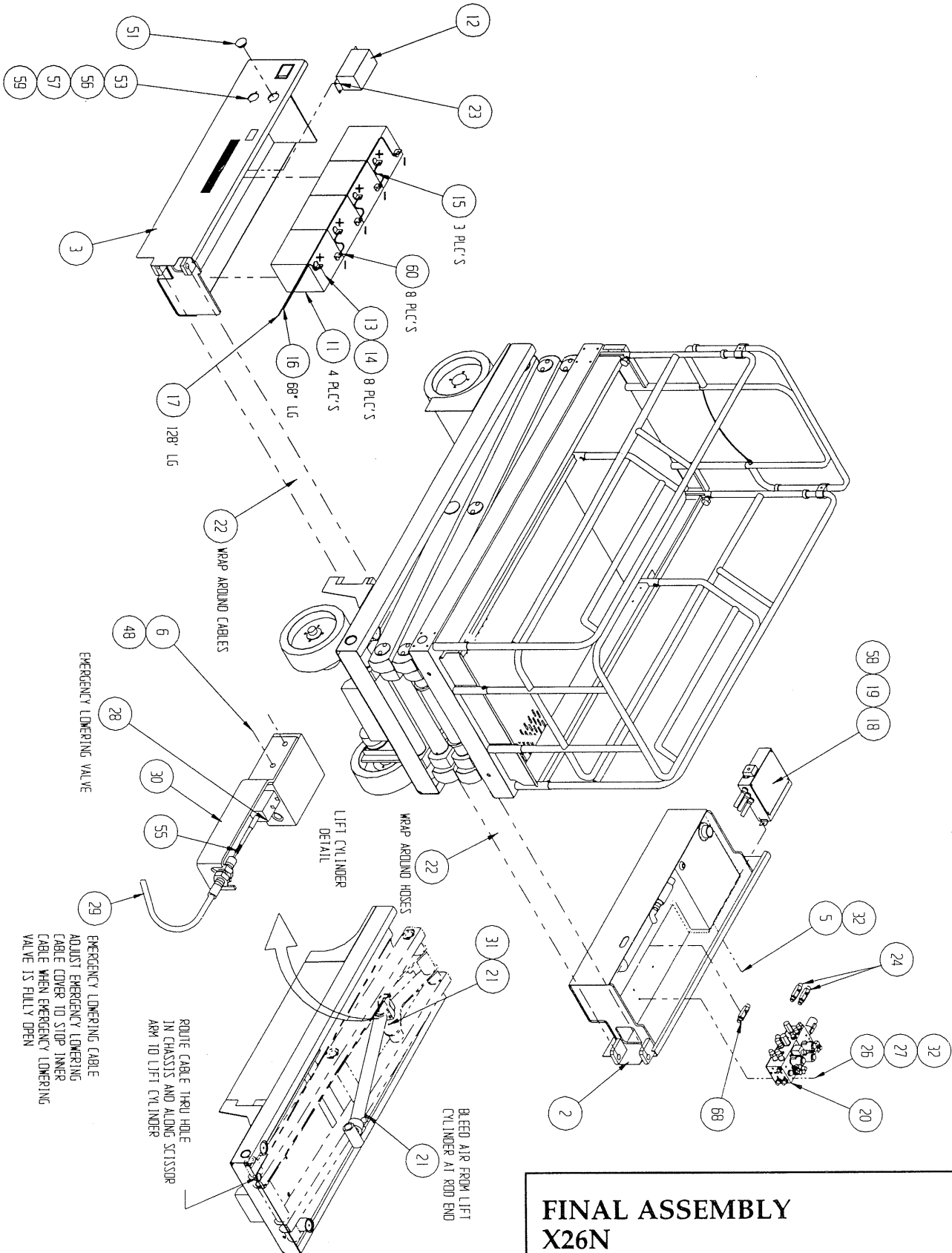
Illustrated Parts Breakdown

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FINAL ASSEMBLY
X26N
DRAWING 2 OF 4

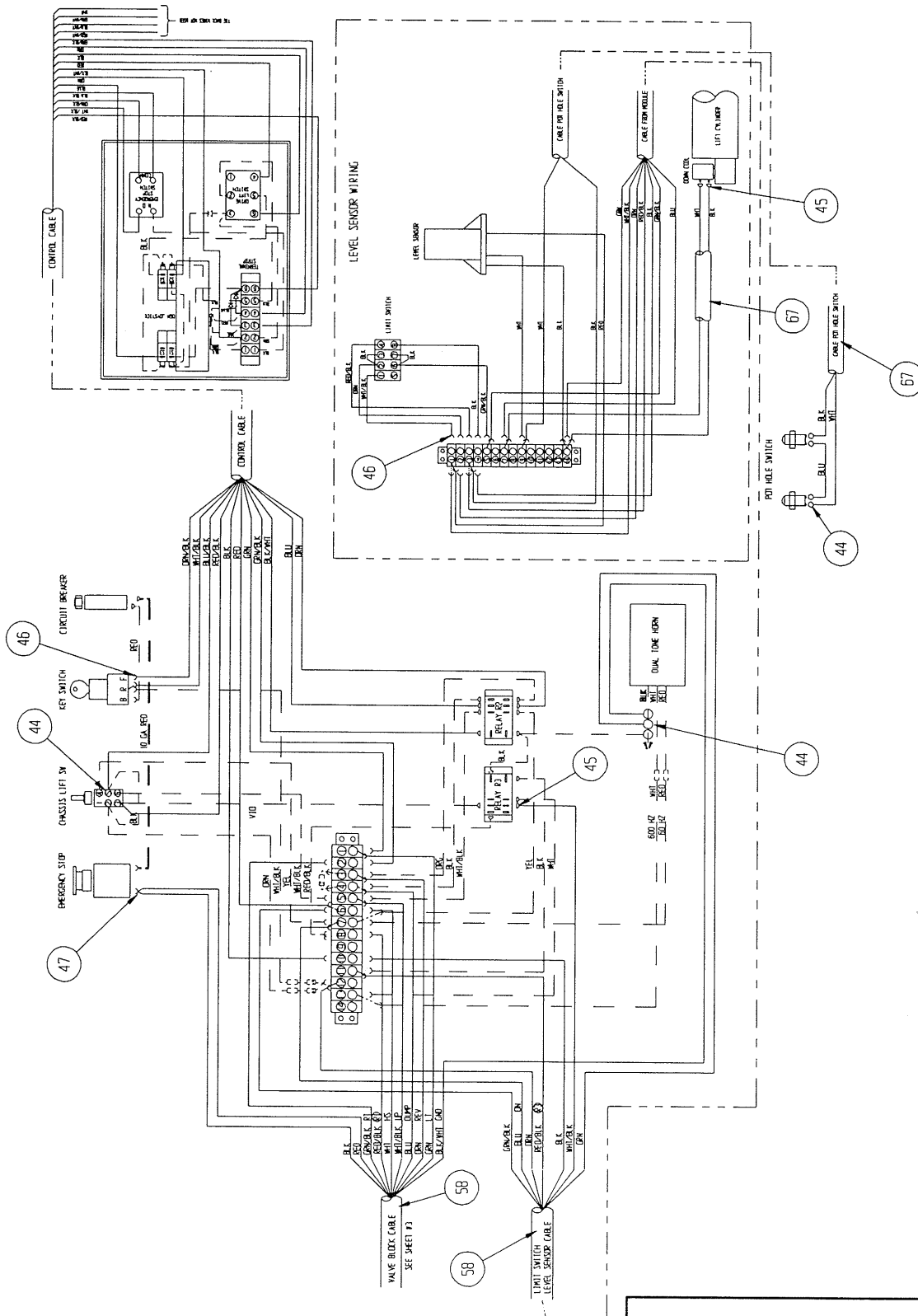
Illustrated Parts Breakdown



**FINAL ASSEMBLY
X26N
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FINAL ASSEMBLY
X26N
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Illustrated Parts Breakdown

BASIC ASSEMBLY

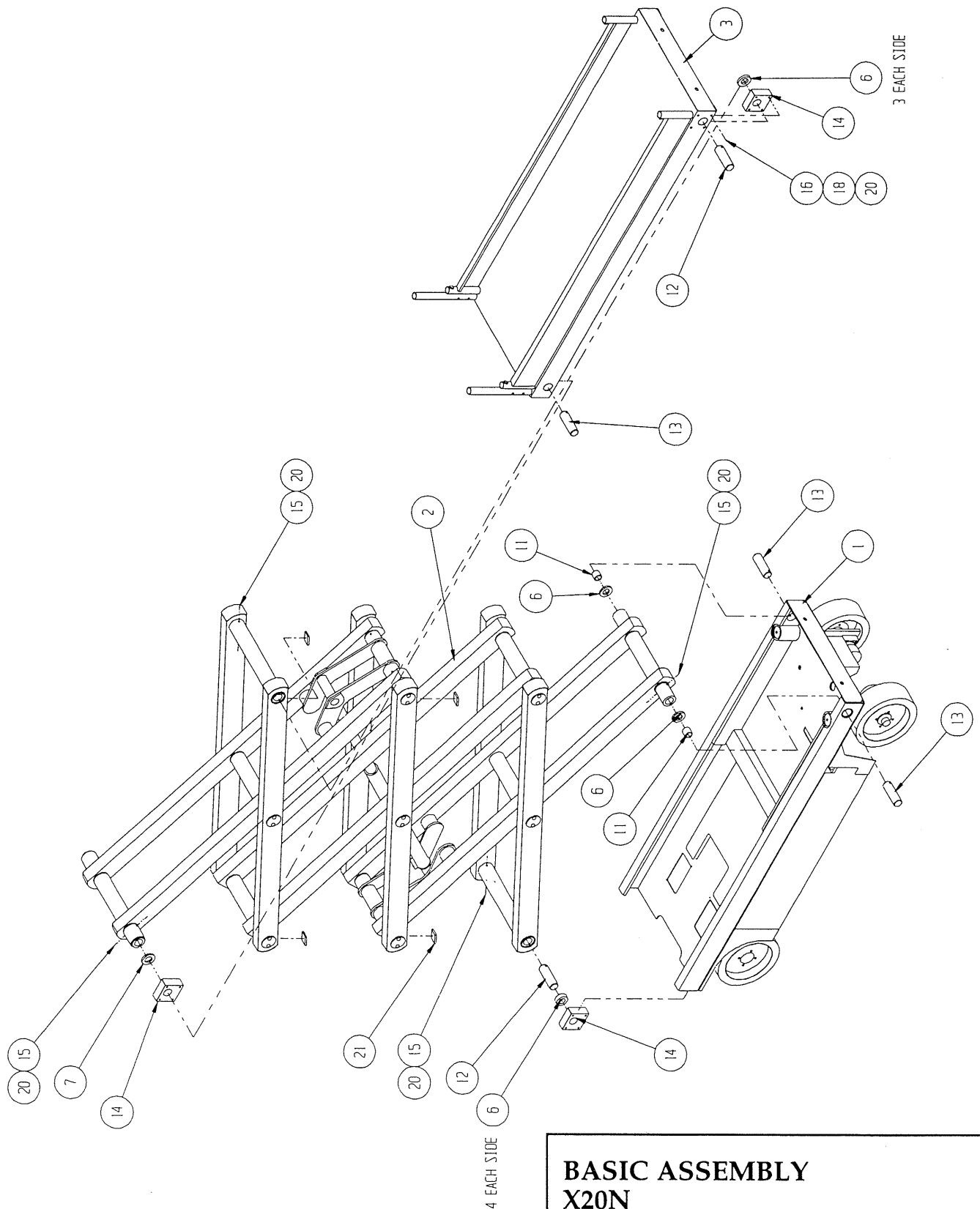
X20N

66001-000

ITEM	PART	DESCRIPTION	QTY.
1	66002-000	CHASSIS ASSEMBLY	1
2	66003-000	SCISSOR ASSEMBLY	1
3	66250-000	PLATFORM WELDMENT	1
6	66189-000	WEAR PAD, 1/4	16
7	66189-001	WEAR PAD, 3/8	2
11	66183-001	BEARING	2
12	66222-001	MOUNTING PIN	4
13	66222-002	MOUNTING PIN	4
14	66191-000	SLIDE BLOCK	6
15	11287-032	SCREW, SOC HD 3/8-16 X 4 LG	8
16	11254-024	SCREW, HHC 3/8-16 X 3 LG	8
18	11240-006	WASHER, 3/8 FLAT	8
20	11248-006	NUT, 3/8-16	16
21	66520-099	TAPE,PRESSURE SENSITIVE 2 X 2 X .060	FT 1.3

Illustrated Parts Breakdown

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**BASIC ASSEMBLY
X20N**

BASIC ASSEMBLY

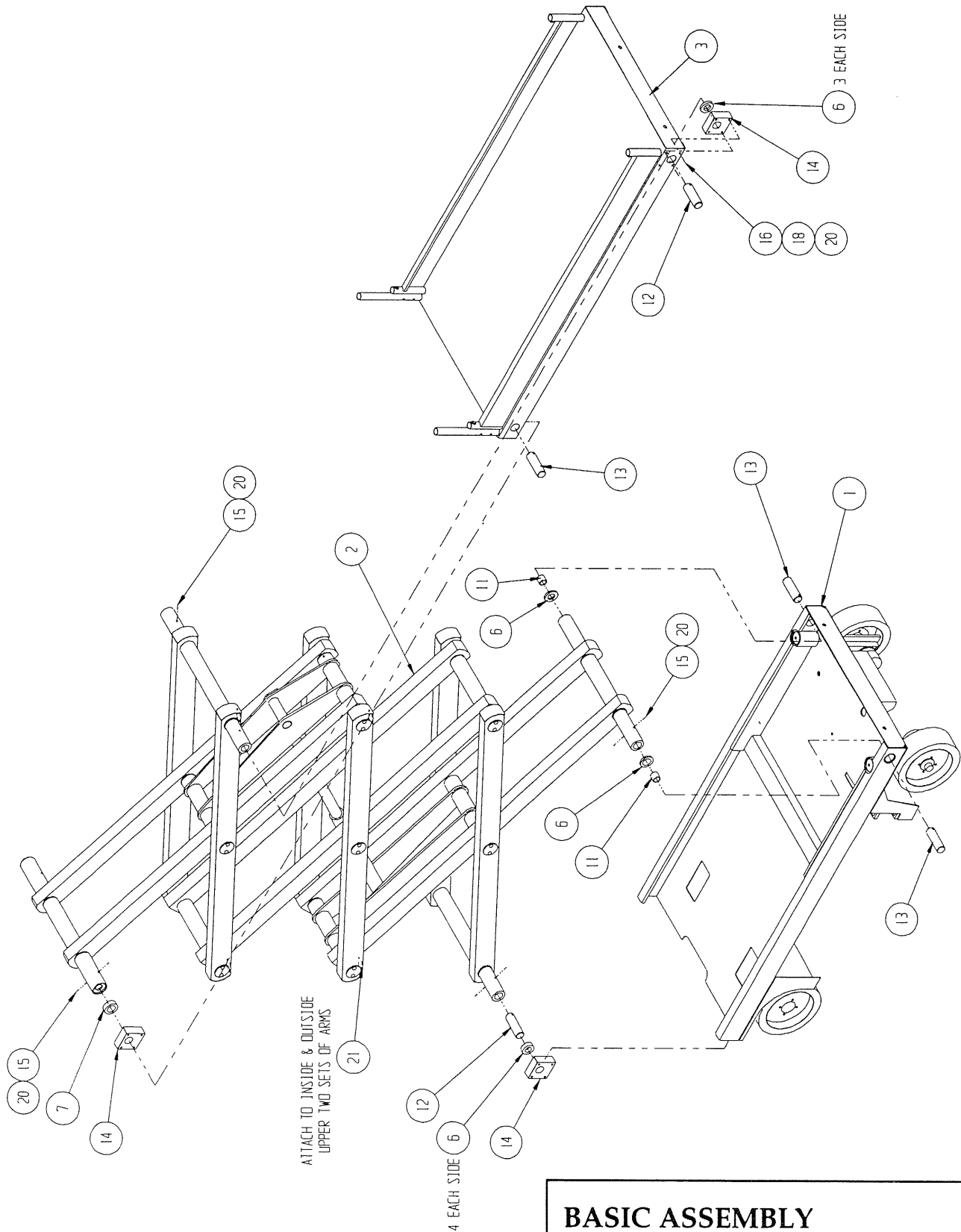
X20W

66051-000

ITEM	PART	DESCRIPTION	QTY.
1	66052-000	CHASSIS ASSEMBLY	1
2	66053-000	SCISSOR ASSEMBLY	1
3	66292-000	PLATFORM WELDMENT	1
6	66189-000	WEAR PAD, 1/4	16
7	66189-001	WEAR PAD, 3/8	2
11	66183-001	BEARING	2
12	66222-001	MOUNTING PIN	4
13	66222-002	MOUNTING PIN	4
14	66191-000	SLIDE BLOCK	6
15	11287-032	SCREW, SOC HD CAP 3/8-16 X 4 LG	8
16	11254-032	SCREW, HHC 3/8-16 X 4 LG	8
18	11240-006	WASHER, 3/8 FLAT	8
20	11248-006	NUT, 3/8-16	16
21	66520-099	TAPE, PRESSURE SENSITIVE 2 X 2 X .060	FT 1.3

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**BASIC ASSEMBLY
X20W**

Illustrated Parts Breakdown

BASIC ASSEMBLY

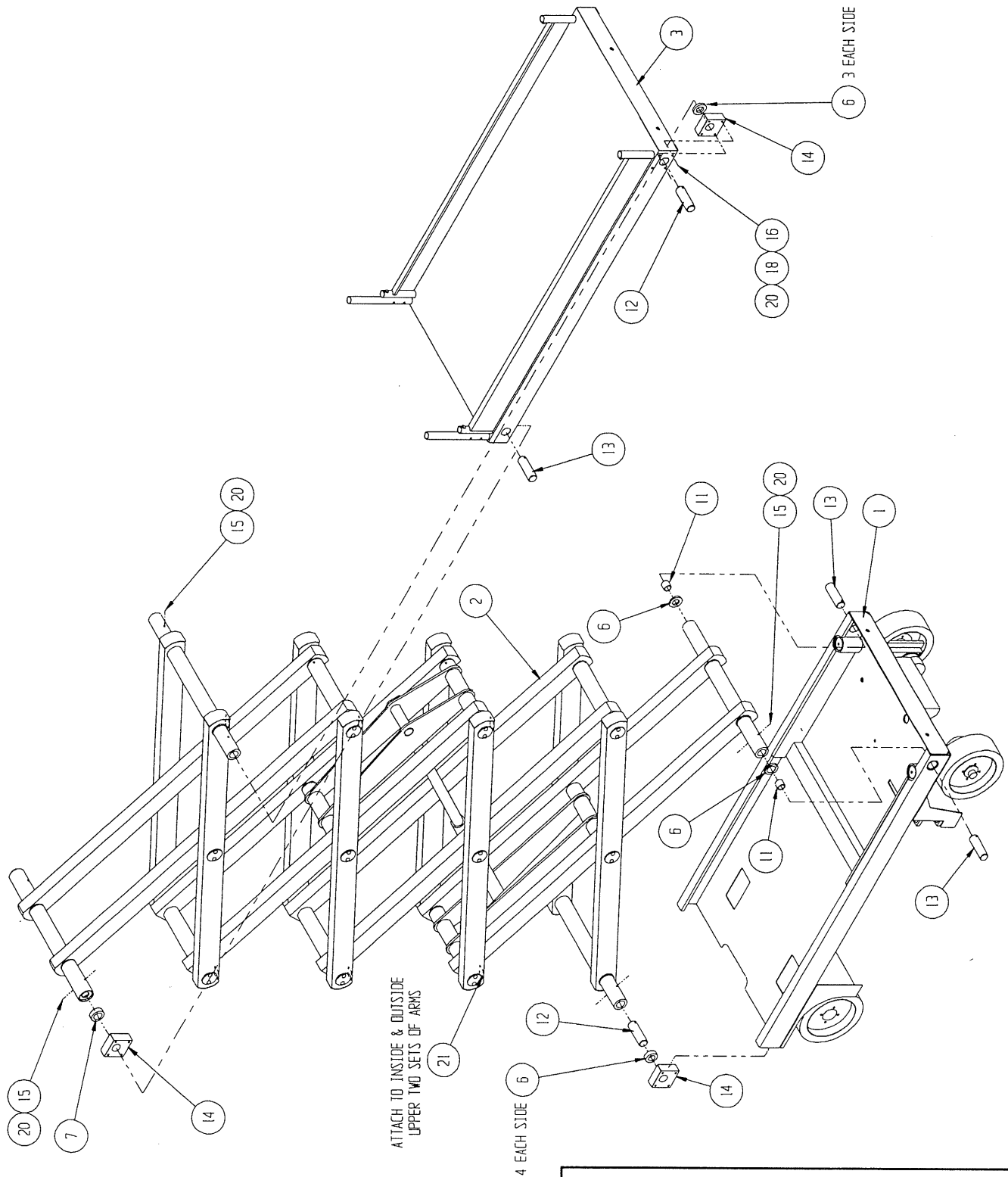
X26N

66101-000

ITEM	PART	DESCRIPTION	QTY.
1	66052-000	CHASSIS ASSEMBLY	1
2	66103-000	SCISSOR ASSEMBLY	1
3	66292-000	PLATFORM WELDMENT	1
6	66189-000	WEAR PAD, 1/4	16
7	66189-001	WEAR PAD, 3/8	2
11	66183-001	BEARING	2
12	66222-001	MOUNTING PIN	4
13	66222-002	MOUNTING PIN	4
14	66191-000	SLIDE BLOCK	6
15	11287-032	SCREW, SOC HD CAP 3/8-16 X 4 LG	8
16	11254-032	SCREW, HHC 3/8-16 X 4 LG	8
18	11240-006	WASHER, 3/8 FLAT	8
20	11248-006	NUT, 3/8-16	16
21	66520-099	TAPE, PRESSURE SENSITIVE 2 X 2 X .030	2 FT

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**BASIC ASSEMBLY
X26N**

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CHASSIS ASSEMBLY

X20N

66002-000

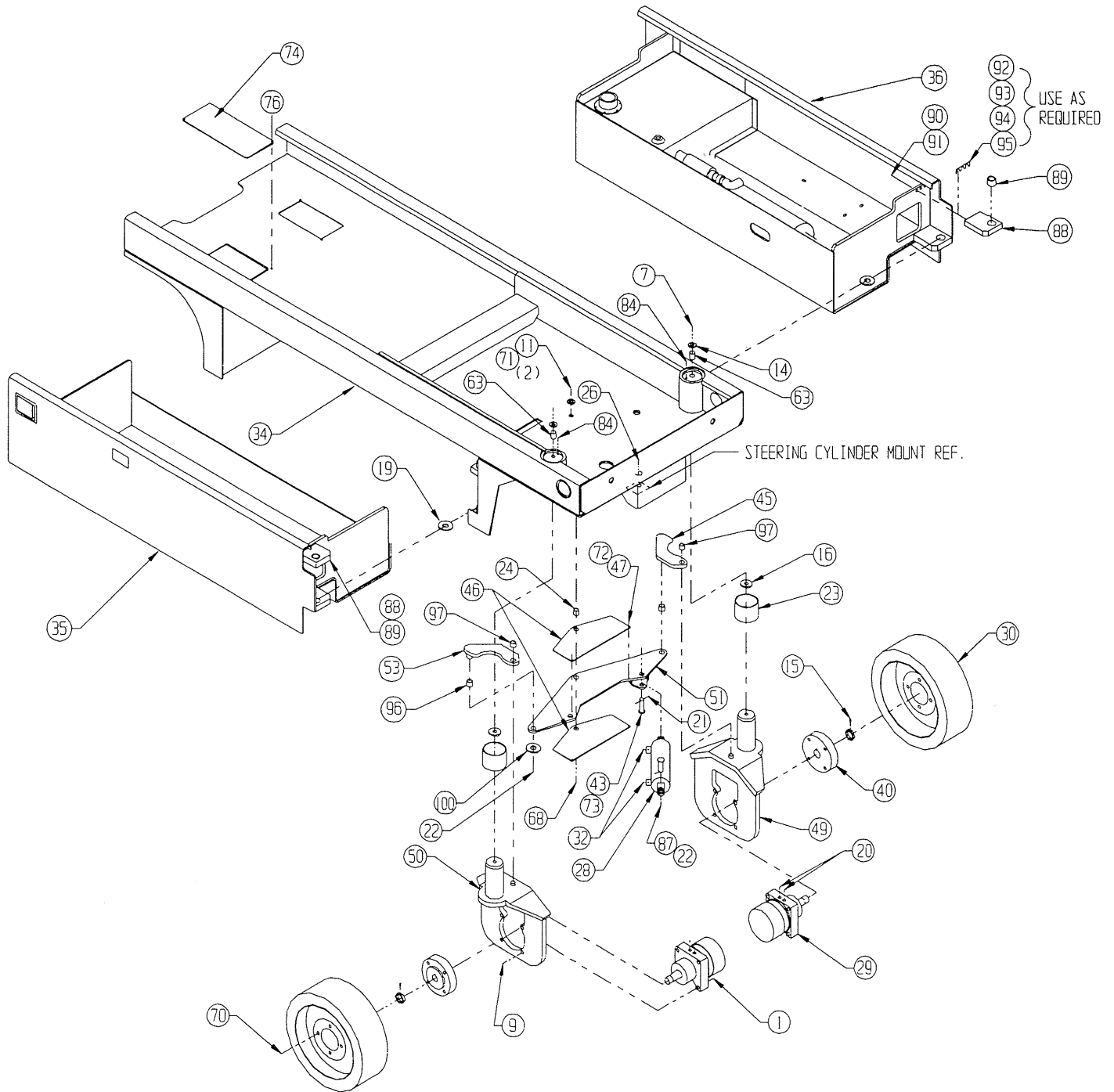
ITEM	PART	DESCRIPTION	QTY.
1	11248-008	NUT, HEX 1/2-13 UNC	8
2	11248-006	NUT, HEX 3/8-16 UNC	4
3	11248-004	NUT, HEX 1/4-20 UNC	2
4	11261-003	NUT, HEX #10-32 UNF	1
5	11252-008	SCREW, HHC GR5 1/4-20 UNC X 1	4
6	11254-008	SCREW, HHC GR5 3/8-16 UNC X 1	4
7	11256-010	SCREW, HHC GR5 1/2-13 UNC X 1 1/4	3
8	11275-008	SCREW, HHC GR5 #10-32 UNF X 1	1
9	11256-024	SCREW, HHC GR5 1/2-13 UNC X 3	8
11	63559-016	SHOULDER BOLT, 5/8-11UNC X 3/4 X 2	2
12	11240-004	WASHER, 1/4 FLAT	4
13	11240-006	WASHER, 3/8 FLAT	8
14	11240-008	WASHER, 1/2 FLAT	7
15	11753-012	COTTER PIN, 1/8 X 1 1/2	4
16	11782-008	BEARING (STEER)	2
17	11781-024	BEARING (DRIVE)	4
19	11154-020	THRUST WASHER, (MODULE)	2
20	11934-024	FITTING	4
21	11757-007	PIN, COTTER 5/8	2
22	11757-010	PIN, COTTER 3/4	5
23	27931-064	BEARING (STEERING)	2
24	27931-022	BEARING (BELL CRANK)	1
26	62881-001	SWITCH, BALL	2
27	18097-001	7/8 X .095W X 1 7/16 LG STL TUBE	2
28	66602-000	STEERING CYLINDER	1
*	66602-010	SEAL KIT, STEERING CYLINDER	1
29	61817-001	MOTOR HYD.	2
*	61817-010	SEAL KIT, MOTOR	1
-	61817-011	NUT, MOTOR SHAFT	1
*	61817-012	KEY, MOTOR SHAFT	1
30	61846-001	WHEEL & TIRE	4
31	66604-000	BRAKE CYLINDER	1
*	66604-010	SEAL KIT, BRAKE CYLINDER	1
32	11934-003	FITTING	2
33	63664-007	ORIFICE	1
34	66300-000	WELDMENT - CHASSIS	1
35	66009-000	POWER MODULE	1
36	66008-001	CONTROL MODULE	1
37	66510-000	SPRING	2
38	66541-000	HUB, SPRING RETAINER	1
39	66586-000	ACTUATOR WELDMENT	1
40	66325-000	HUB, FRONT	2
41	11254-026	SCREW, HHC GR5 3/8-16 X 3 1/4	1
42	63559-006	BOLT SHOULDER, 3/8 X 2	1
43	11848-009	CLEVIS PIN, 5/8 X 2	1
44	66322-000	CYLINDER LINK	1
45	66159-000	STEERING LINK WELDMENT L.H.	1
46	66190-000	BEARING - STRIP	2

ITEM	PART	DESCRIPTION	QTY.
47	26553-012	RIVET, 3/16 DIA X 1 1/8 GRIP	2
48	66542-000	DISK, SPRING RETAINER	2
49	66311-000	WELDMENT, STEERING ANGLE LH	1
50	66312-000	WELDMENT, STEERING ANGLE RH	1
51	66313-001	WELDMENT, BELL CRANK	1
52	11848-044	CLEVIS PIN, 3/4 X 3 1/2	1
53	66158-000	STEERING LINK WELDMENT, R.H.	1
54	66307-000	WELDMENT, LADDER	1
55	66303-000	WELDMENT, DRIVE SHAFT	2
56	66304-000	WELDMENT, BRAKE TUBE	1
57	66305-000	WELDMENT, BRAKE	2
58	66096-024	BOLT, 1/2-13 X 3 FULL THD	1
59	66514-000	CABLE	1
60	66515-000	CABLE	1
61	11240-016	WASHER, 1 FLAT	2
62	11274-016	NUT, HEX SLOTTED 1-14 UNF	2
63	18080-001	3/4 X .109 W X .56 LG STL TUBE	1
64	11254-022	SCREW, HHC GR5 3/8-16 X 2 3/4	2
65	63559-005	SHOLDER BOLT 5/8 X 3 1/2-13 THD	1
66	27931-071	BEARING (BRAKE)	2
67	27931-043	BEARING (ACTUATOR)	1
68	11246-010	LOCKNUT, 5/8-11UNC THIN ESNA	2
69	66414-000	WELDMENT, BRAKE SHOE	1
70	14122-003	WHEEL BOLT, 1/2-20 X 1	16
71	11240-012	WASHER, 3/4 FLAT	4
72	02186-000	WASHER, 3/16 FLAT	2
73	27931-061	BEARING, 3/4OD 5/8 ID	1
74	66396-000	COVER	2
75	66541-001	HUB, SPRING RETAINER	1
76	26554-003	RIVET, 1/4 DIA. X 3/8-1/2 GRIP	4
77	66585-000	ROLLER	1
78	61796-099	GROMMET	FT 3.5
79	11704-005	SCREW, 5/16-18 UNC X 5/16	2
80	66404-001	CABLE TIE	2
81	11764-020	RETAINING RING	2
82	11273-008	NUT, JAM 1/2-13	1
83	11246-006	NUT, THN 3/8-16 HEX	1
84	13336-011	FITTING, GREASE	2
85	64350-010	SHIM	A/R
86	11246-005	NUT, HEX ESNA 5/16-18	1
87	11848-041	CLEVIS PIN, 3/4 X 2	2
88	66346-001	BRACKET, DOOR PIVOT	2
89	27931-058	BEARING	2
90	11287-014	SCREW, SOC HD 3/8-16 X 1 3/4	2
91	11239-006	WASHER, FLAT ASTM A325 3/8 DIA	6
92	66153-060	DOOR SHIM, .060	2
93	66153-030	DOOR SHIM, .030	2
94	66153-015	DOOR SHIM, .015	2
95	66153-005	DOOR SHIM, .005	2
96	27931-054	BUSHING	2
97	62642-006	BUSHING	2
99	11246-008	LOCKNUT, 1/2-13UNC THIN ESNA	1
100	14996-012	WASHER, SAE 3/4 FLAT	4

*Not Shown

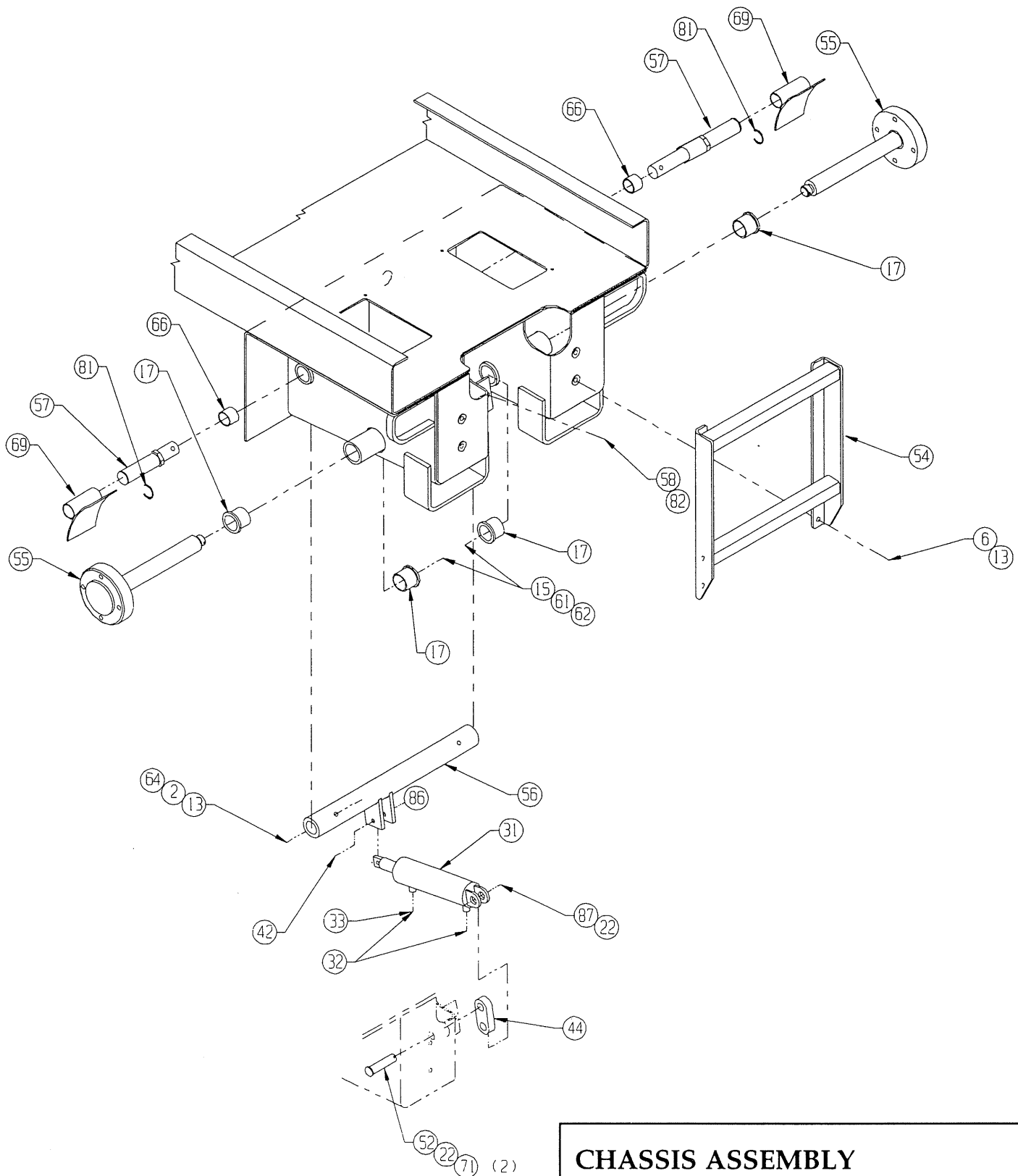
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CHASSIS ASSEMBLY
X20N
DRAWING 1 OF 3

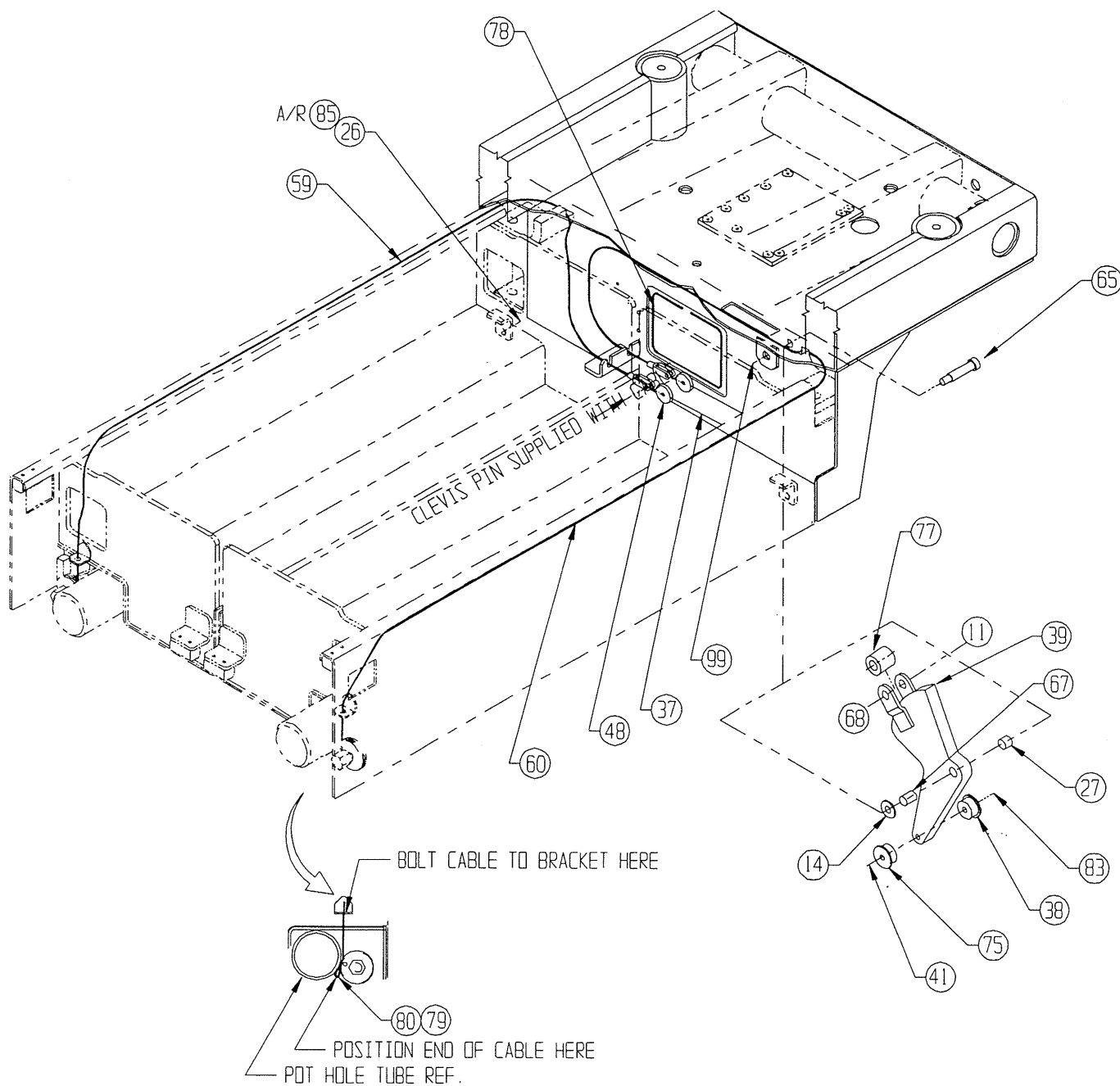
Illustrated Parts Breakdown



**CHASSIS ASSEMBLY
X20N
DRAWING 2 OF 3**

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**CHASSIS ASSEMBLY
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DRAWING 3 OF 3**

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CHASSIS ASSEMBLY X20W/X26N 66052-000

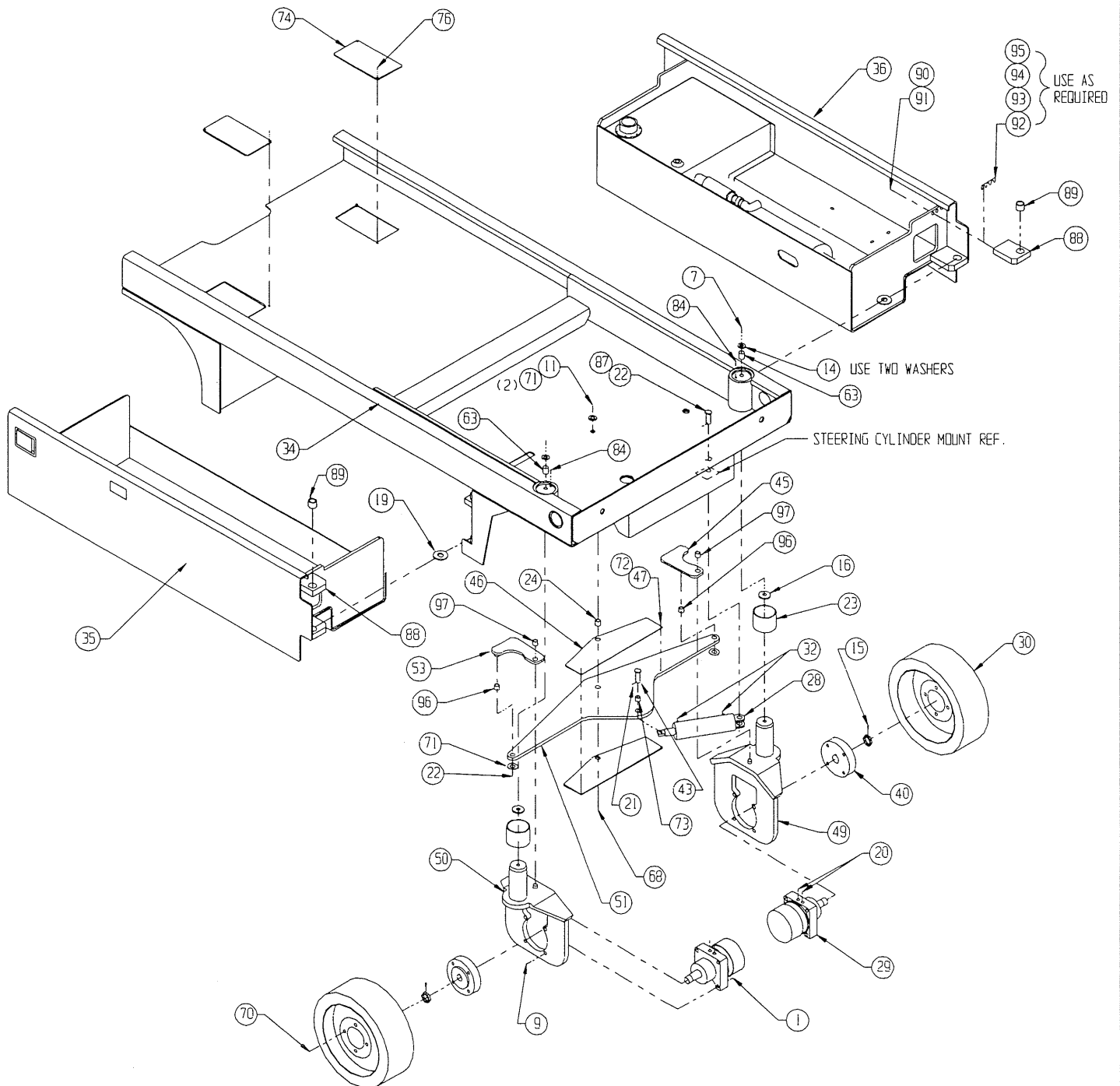
ITEM	PART	DESCRIPTION	QTY.
1	11248-008	NUT, HEX 1/2-13 UNC	8
2	11248-006	NUT, HEX 3/8-16 UNC	2
3	11248-004	NUT, HEX 1/4-20 UNC	2
4	11261-003	NUT, HEX #10-32 UNF	1
5	11252-008	SCREW, HHC GR5 1/4-20 UNC X 1	4
6	11254-008	SCREW, HHC GR5 3/8-16 UNC X 1	4
7	11256-010	SCREW, HHC GR5 1/2-13 UNC X 1 1/4	3
8	11275-008	SCREW, HHC GR5 #10-32 UNF X 1	1
9	11256-024	SCREW, HHC GR5 1/2-13 UNC X 3	8
11	63559-016	SHOULDER BOLT, 3/4 X 2 (5/8-11 THD)	2
12	11240-004	WASHER, 1/4 FLAT	4
13	11240-006	WASHER, 3/8 FLAT	8
14	11240-008	WASHER, 1/2 FLAT	7
15	11753-012	COTTER PIN, 1/8 X 1 1/2	4
16	11782-008	BEARING (STEER)	2
17	11781-024	BEARING (DRIVE)	4
19	11154-020	THRUST WASHER (MODULE)	2
20	11934-024	FITTING	4
21	11757-007	PIN, COTTER 5/8	2
22	11757-010	PIN, COTTER 3/4	5
23	27931-064	BEARING (STEERING)	2
24	27931-022	BEARING (BELL CRANK)	1
25	27931-070	BEARING (BELL CRANK)	1
26	62881-000	SWITCH, BALL	2
27	18097-001	7/8 X .095W X 1 7/16 LG STL TUBE	2
28	66609-000	STEERING CYLINDER	1
*	66602-010	SEAL KIT, STEERING CYLINDER	1
29	61817-001	MOTOR HYD.	2
*	61817-010	SEAL KIT, MOTOR	1
-	61817-011	NUT, MOTOR SHAFT	1
*	61817-012	KEY, MOTOR SHAFT	1
30	61846-001	WHEEL & TIRE	4
31	66604-000	BRAKE CYLINDER	1
*	66604-010	SEAL KIT, BRAKE CYLINDER	1
32	11934-003	FITTING	2
33	63664-007	ORIFICE	1
34	66070-000	WELDMENT, CHASSIS	1
35	66059-000	POWER MODULE	1
36	66058-001	CONTROL MODULE	1
37	66510-000	SPRING	2
38	66541-000	HUB, SPRING RETAINER	1
39	66586-000	ACTUATOR, POT HOLE	1
40	66325-000	HUB, FRONT	2
41	11254-026	SCREW, HHC GR5 3/8-16 UNC X 3 1/4	1
42	63559-006	BOLT SHOULDER, 3/8 X 2	1
43	11848-009	CLEVIS PIN, 5/8 X 2	1
44	66322-000	CYLINDER LINK	1
45	66152-000	STEERING LINK WELDMENT, L.H.	1

*Not Shown

46	66190-000	BEARING, STRIP	2
47	26553-012	RIVET, 3/16 DIA X 1 1/8 GRIP	2
48	66542-000	DISK, SPRING RETAINER	2
49	66311-000	WELDMENT, STEERING ANGLE LH	1
50	66312-000	WELDMENT, STEERING ANGLE RH	1
51	66069-001	WELDMENT, BELL CRANK	1
52	11848-044	CLEVIS PIN, 3/4 X 3 1/2	1
53	66151-000	STEERING LINK WELDMENT, R.H.	1
54	66307-000	WELDMENT, LADDER	1
55	66303-000	WELDMENT, DRIVE SHAFT	2
56	66073-000	WELDMENT, BRAKE TUBE	1
57	66305-000	WELDMENT, BRAKE	2
58	66096-024	BOLT, 1/2-13 X 3 FULL THD	1
59	66514-001	CABLE	1
60	66515-001	CABLE	1
61	11240-016	WASHER, 1 FLAT	2
62	11274-016	NUT, HEX SLOTTED 1-14 UNF	2
63	18080-001	3/4 X .109W X .56 LG STL TUBE	1
64	11254-022	SCREW, HHC GR5 3/8-16 X 2 3/4	2
65	63559-005	SHOLDER BOLT, 5/8 X 3 - 1/2-13	1
66	27931-071	BEARING (BRAKE)	2
67	27931-043	BEARING (ACTUATOR)	1
68	11246-010	NUT, 5/8-11 UNC THIN ESNA	2
69	66414-000	WELDMENT, BRAKE SHOE	2
70	14122-003	WHEEL BOLT, 1/2-20 X 1	16
71	11240-012	WASHER, 3/4 FLAT	4
72	02186-000	WASHER, 3/16 FLAT	2
73	27931-061	BEARING, 3/4OD 5/8 ID	1
74	66396-000	COVER	2
75	66541-001	HUB, SPRING RETAINER	1
76	26554-003	RIVET, 1/4 DIA X 3/8-1/2 GRIP	4
77	66585-000	ROLLER	1
78	61796-099	GROMMET	FT 3.5
79	11704-005	SCREW, SET 5/16-18 UNC X 5/16	2
80	66404-001	CABLE TIE	2
81	11764-020	RETAINING RING	2
82	11273-008	NUT, JAM 1/2-13	1
83	11246-006	NUT, 3/8-16 THIN HEX	1
84	13336-011	FITTING, GREASE	2
85	64350-010	SHIM	A/R
86	11246-005	NUT, HEX ESNA 5/16-18	1
87	11848-041	PIN, CLIVIS 3/4 X 2	2
88	66346-001	BRACKET, DOOR PIVOT	2
89	27931-058	BEARING, OILITE	2
90	11287-014	SCREW, SOC HD 3/8-16 X 1 3/4	6
91	11239-006	WASHER, FLAT ASTM A325 3/8 DIA	6
92	66153-060	DOOR SHIM, .060	2
93	66153-030	DOOR SHIM, .030	2
94	66153-015	DOOR SHIM, .015	2
95	66153-005	DOOR SHIM, .005	2
96	27931-054	BUSHING	2
97	62642-006	BUSHING	2
99	11246-008	LOCKNUT, 1/2-13UNC THIN ESNA	1
100	14996-012	WASHER, SAE 3/4 FLAT	4

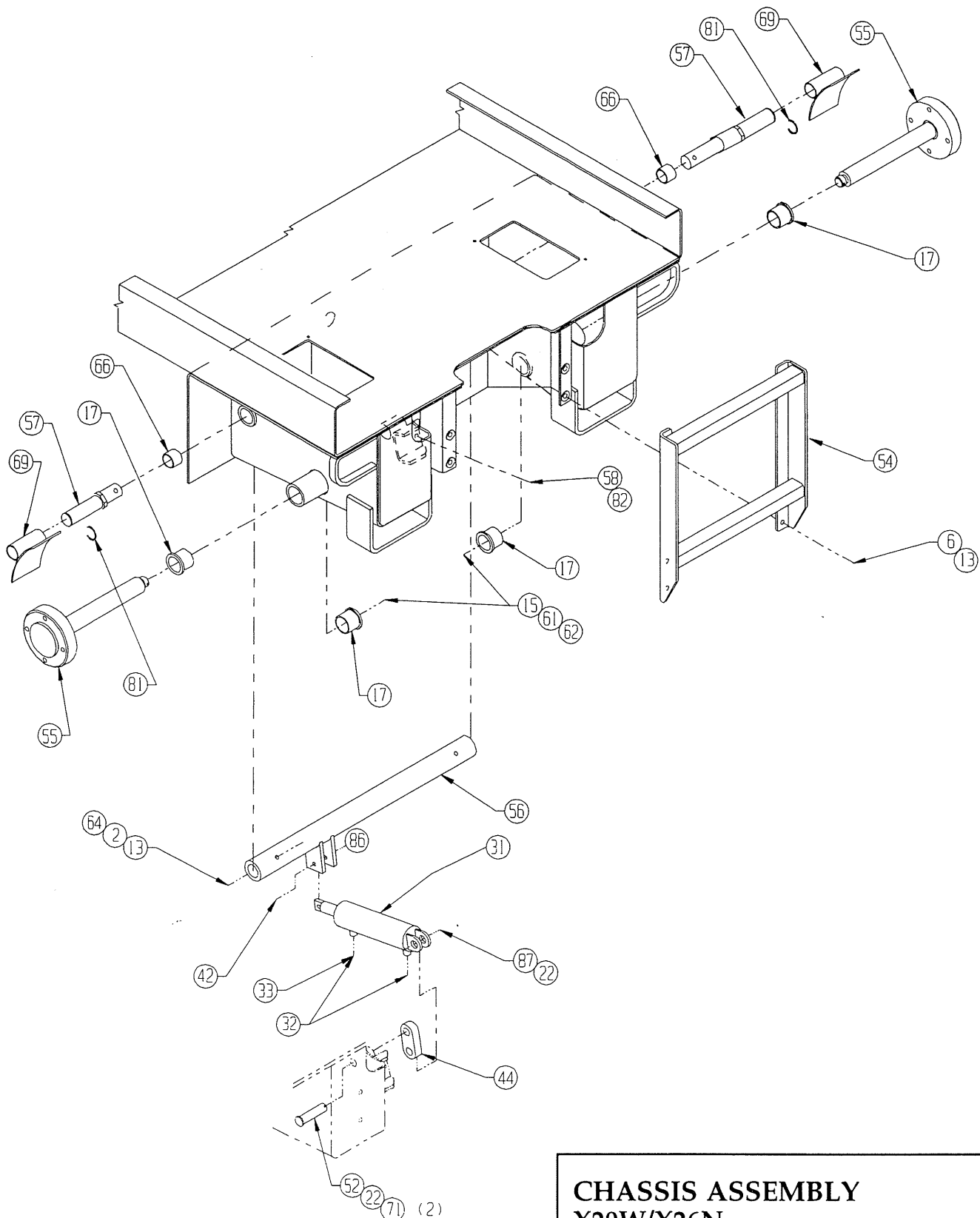
Illustrated Parts Breakdown

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CHASSIS ASSEMBLY
X20W/X26N
DRAWING 1 OF 3

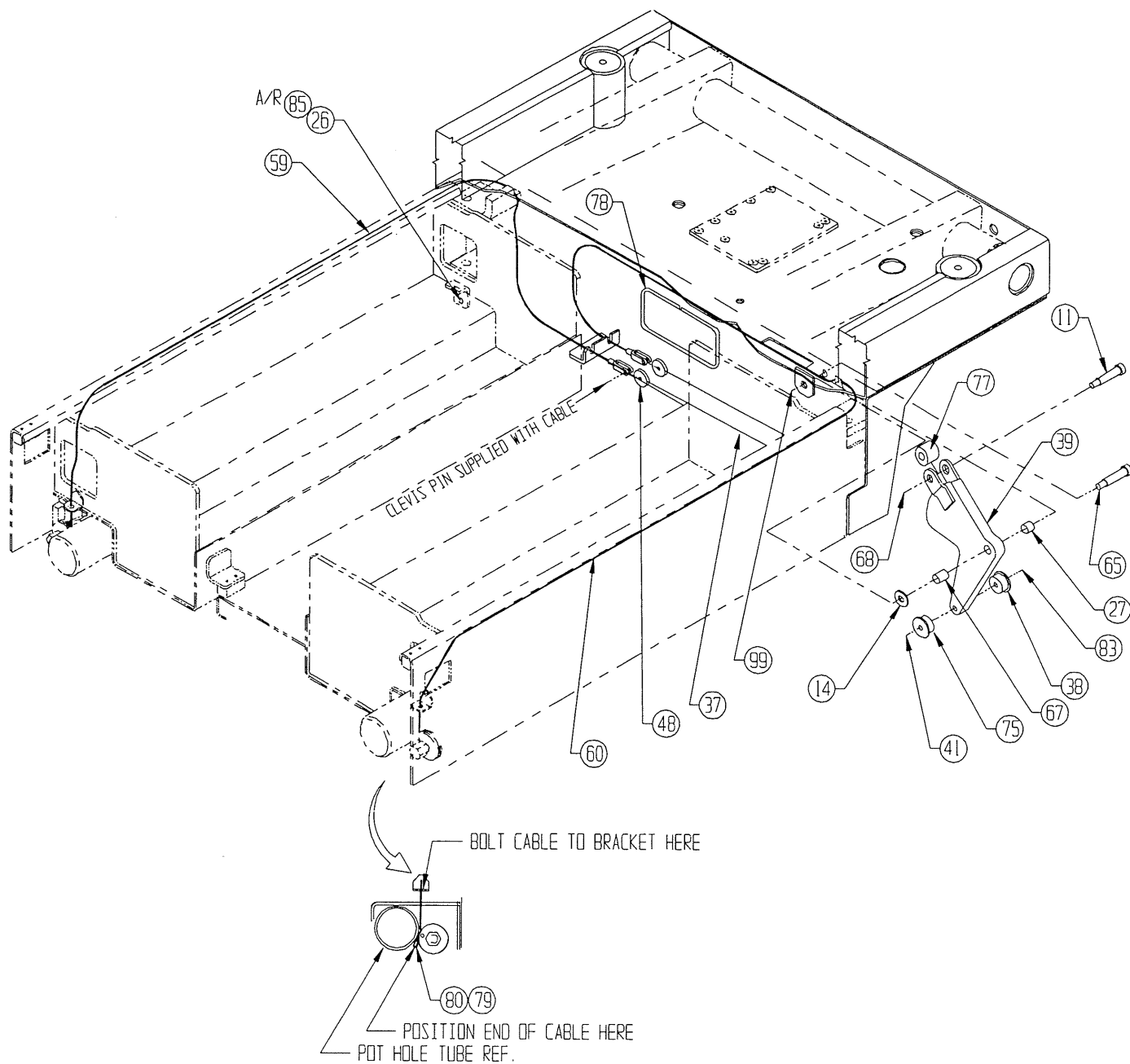
Illustrated Parts Breakdown



CHASSIS ASSEMBLY
X20W/X26N
DRAWING 2 OF 3

Illustrated Parts Breakdown

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**CHASSIS ASSEMBLY
X20W/X26N
DRAWING 2 OF 3**

Illustrated Parts Breakdown

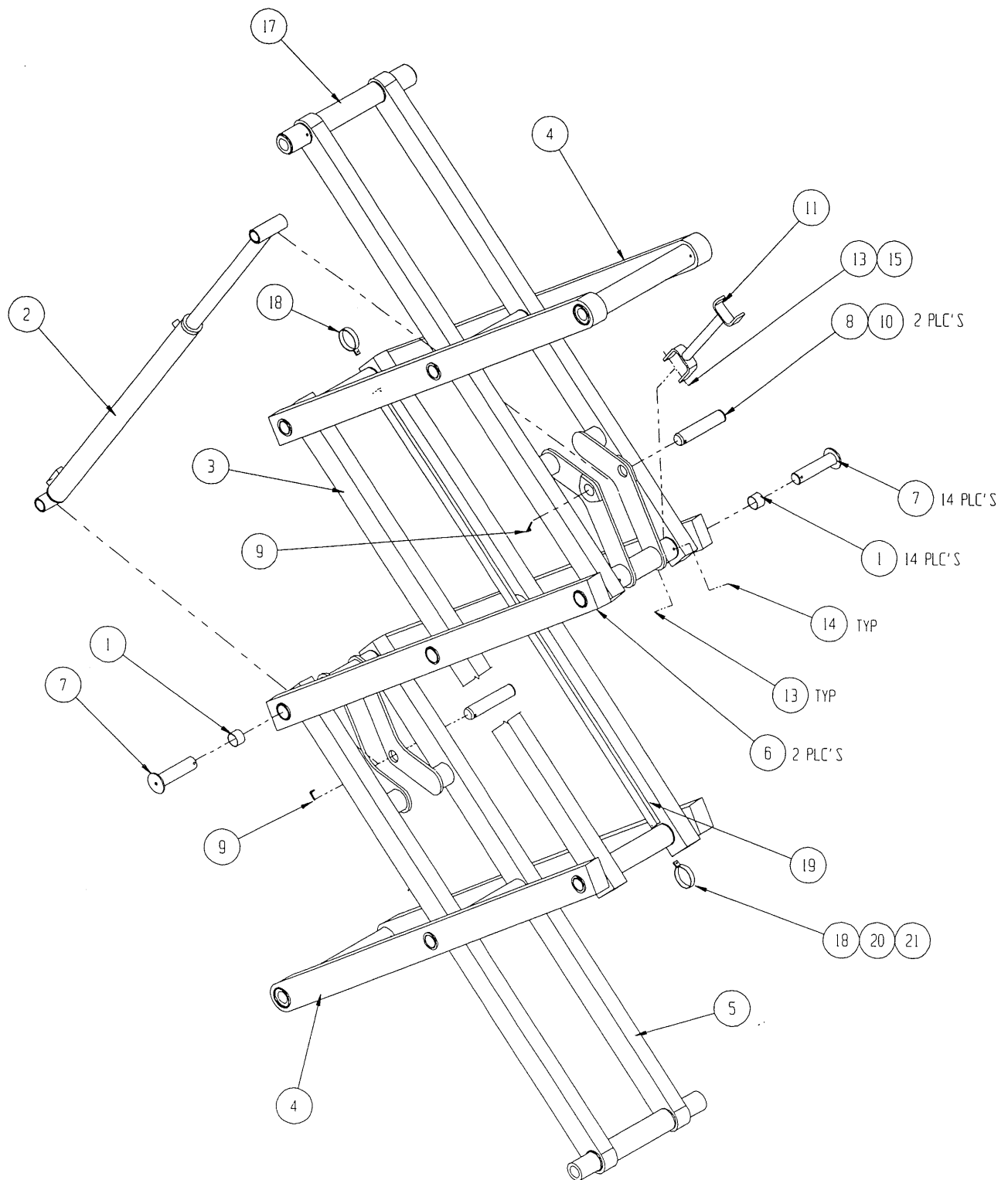
SCISSOR ARM ASSEMBLY X20N 66003-00

ITEM	PART	DESCRIPTION	QTY.
1	66183-000	BEARING, OILITE #EP3236-24	14
2	66168-000	LIFT CYLINDER	1
*	66168-010	SEAL KIT, LIFT CYLINDER	1
3	66201-000	WELDMENT, MID INNER TUBE	1
4	66202-000	WELDMENT, TOP & BOTTOM OUTER	2
5	66200-000	WELDMENT, BOTTOM INNER 1/4	1
6	66211-000	WELDMENT, MID OUTER	2
7	66210-000	WELDMENT, PIVOT PIN	14
8	66224-000	PIN, LIFT CYLINDER	2
9	66225-000	PIN, SHAFT LOCKING	2
10	11764-032	RETAINING RING	2
11	66214-000	WELDMENT, SAFETY STAND	1
13	11248-006	NUT, HEX 3/8-16	15
14	11287-032	SCREW, SOC HD 3/8-16 X 4	14
15	11254-044	SCREW, HHC GR5 3/8-16 X 5 1/2	1
17	66203-000	WELDMENT, TOP INNER 3/16	1
18	66199-000	PIPE RING	2
19	66226-000	CHANNEL, CABLE	1
20	11248-004	NUT, HEX 1/4-20	2
21	11252-006	SCREW, HHC GR5 1/4-20 X 3/4	2

*Not Shown

Illustrated Parts Breakdown

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**SCISSOR ARM ASSEMBLY
X20N**

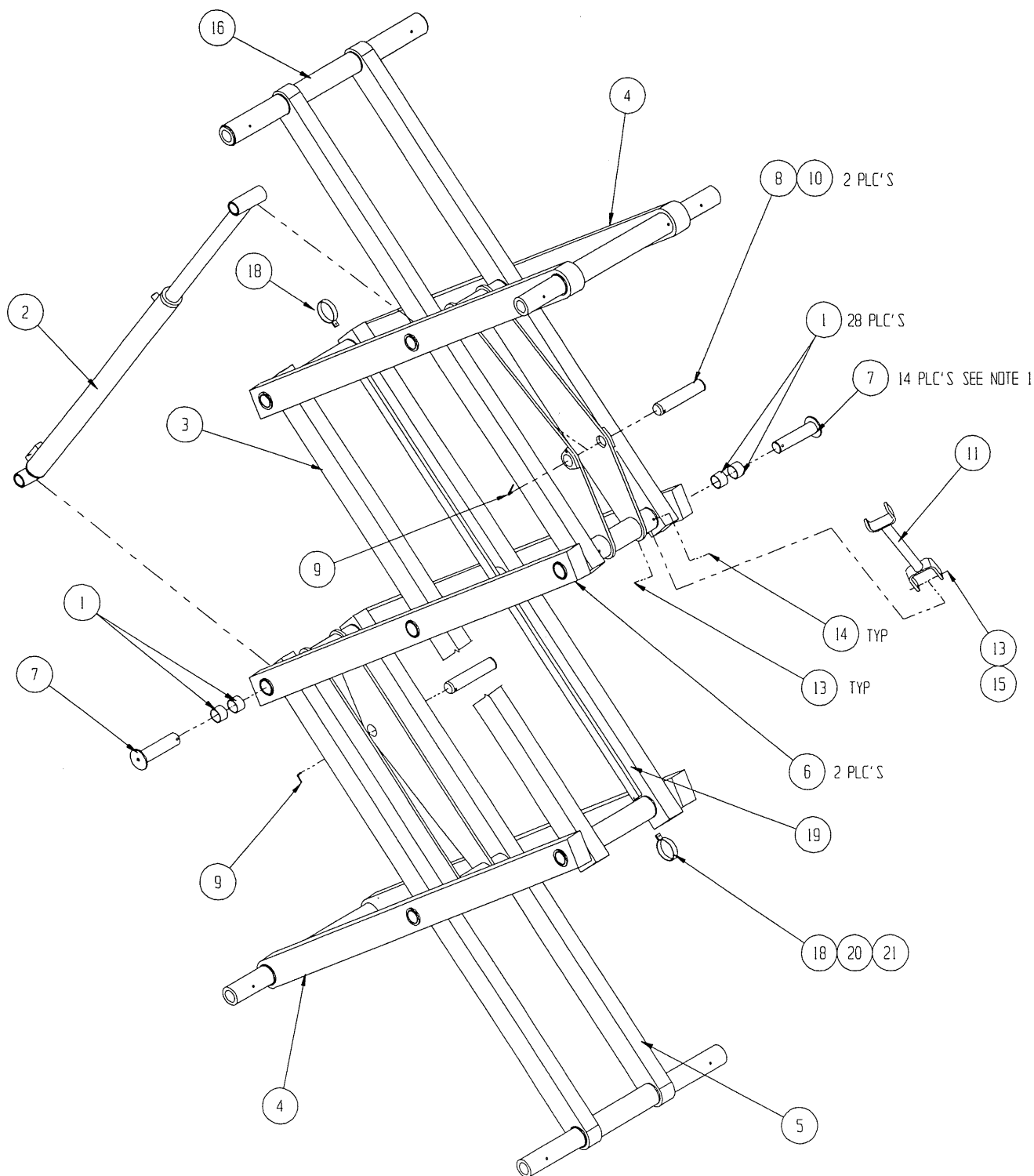
SCISSOR ARM ASSEMBLY
X20W
66053-00

ITEM	PART	DESCRIPTION	QTY.
1	66183-000	BEARING, OILITE #EP3236-24	28
2	66601-000	LIFT CYLINDER	1
*	66601-010	SEAL KIT, LIFT CYLINDER	1
3	66201-000	WELDMENT, MID INNER TUBE 1/8	1
4	66240-000	WELDMENT, TOP & BOTTOM OUTER 1/8	2
5	66238-000	WELDMENT, BOTTOM INNER 3/16	1
6	66211-003	WELDMENT, MID OUTER 1/8	2
7	66210-000	WELDMENT, PIVOT PIN	14
8	66224-000	PIN, LIFT CYLINDER	2
9	66225-000	PIN, SHAFT LOCKING	2
10	11764-032	RETAINING RING	2
11	66214-000	WELDMENT, SAFETY STAND	1
13	11248-006	NUT, HEX 3/8-16	15
14	11287-032	SCREW, SOC HD 3/8-16 X 4	14
15	11254-044	SCREW, HHC GR5 3/8-16 X 5-1/2	1
16	66238-003	WELDMENT, TOP ARM	1
18	66199-000	PIPE RING	2
19	66226-000	CHANNEL, CABLE	1
20	11248-004	NUT, HEX 1/4-20	2
21	11252-006	SCREW, HHC GR5 1/4-20 X 3/4	2

*Not Shown

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**SCISSOR ARM ASSEMBLY
X20W**

SCISSOR ARM ASSEMBLY

X26N

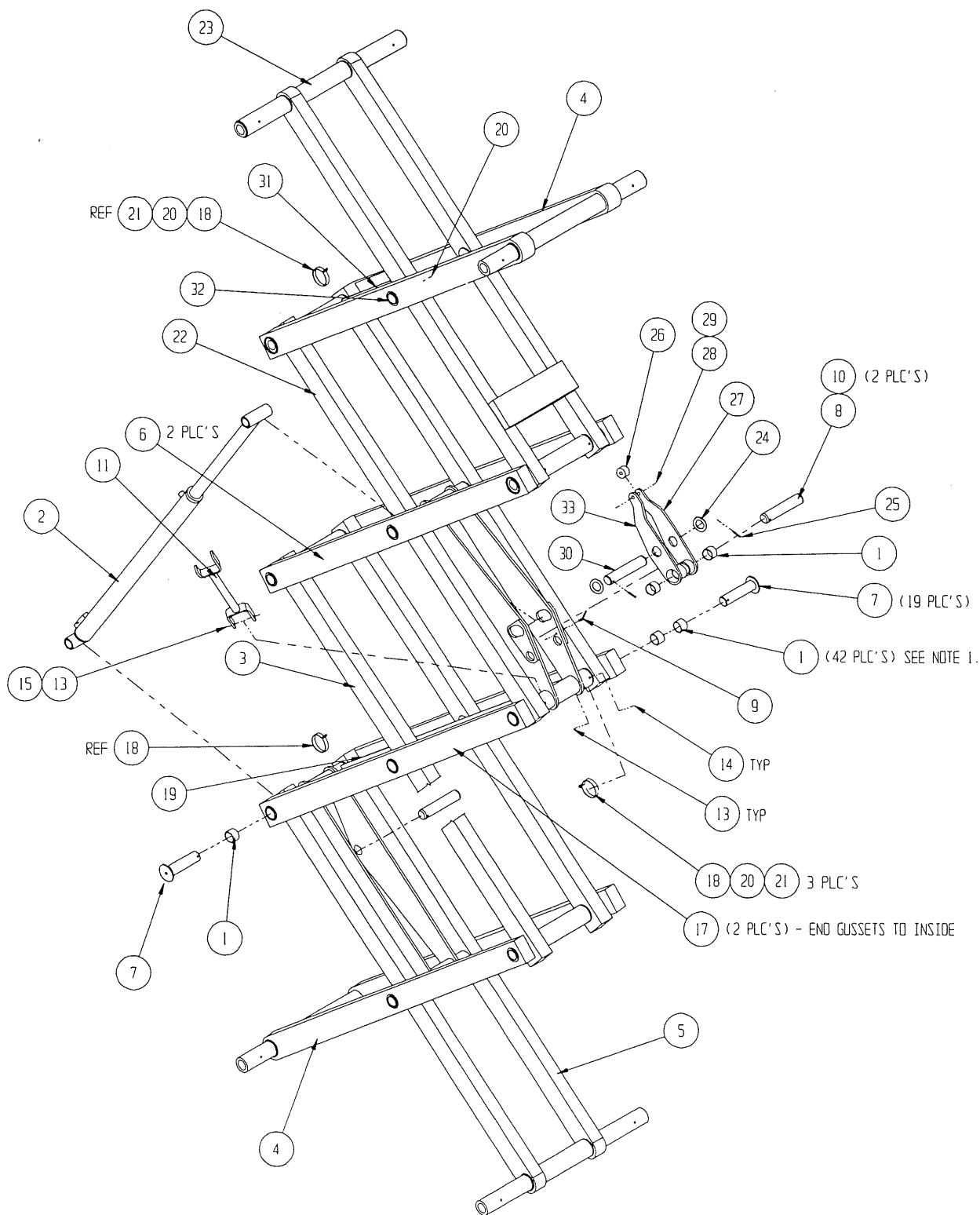
66103-00

ITEM	PART	DESCRIPTION	QTY.
1	66183-000	BEARING	42
2	66601-000	LIFT CYLINDER	1
*	66601-010	SEAL KIT, LIFT CYLINDER	1
3	66201-001	WELDMENT, MID INNER TUBE 1/8	1
4	66240-000	WELDMENT, TOP & BOTTOM OUTER 1/8	2
5	66238-000	WELDMENT, BOTTOM INNER 3/16	1
6	66211-002	WELDMENT, MID OUTER 1/4	2
7	66210-000	WELDMENT, PIVOT PIN	19
8	66224-000	PIN, LIFT CYLINDER	2
9	66225-000	PIN, SHAFT LOCKING	2
10	11764-032	RETAINING RING	2
11	66214-000	WELDMENT, SAFETY STAND	1
13	11248-006	NUT, HEX 3/8-16	21
14	11287-032	SCREW, SOC HD 3/8-16 X 4	20
15	11254-044	SCREW, HHC GR5 3/8-16 X 5 1/2	1
17	66211-001	WELDMENT, MID OUTER ARM 1/8	2
18	66199-000	PIPE RING	3
19	66226-000	CHANNEL, CABLE	1
20	11248-004	NUT, HEX 1/4-20	4
21	11252-008	SCREW, HHC GR5 1/4-20 X 1	3
22	66120-000	WELDMENT, MID INNER ARM 3/16	1
23	66121-000	WELDMENT, TOP INNER ARM 1/8	1
24	11239-002	WASHER, 2 DIA ASTM	2
25	11740-024	ROLL PIN, 1/2 X 3	2
26	65367-001	BEARING	1
27	66574-001	WELDMENT, TORSION ARM L.H.	1
28	11257-028	SCREW, HHC 5/8-11 X 3 1/2	1
29	11248-010	NUT, 5/8-11 HEX	1
30	66224-001	PIN, LIFT CYLINDER	1
31	66226-001	CHANNEL, CABLE	1
32	66210-002	WELDMENT, PIVOT PIN	1
33	66574-002	WELDMENT, TORSION ARM R.H.	1

*Not Shown

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**SCISSOR ARM ASSEMBLY
X26N**

GUARDRAIL ASSEMBLY

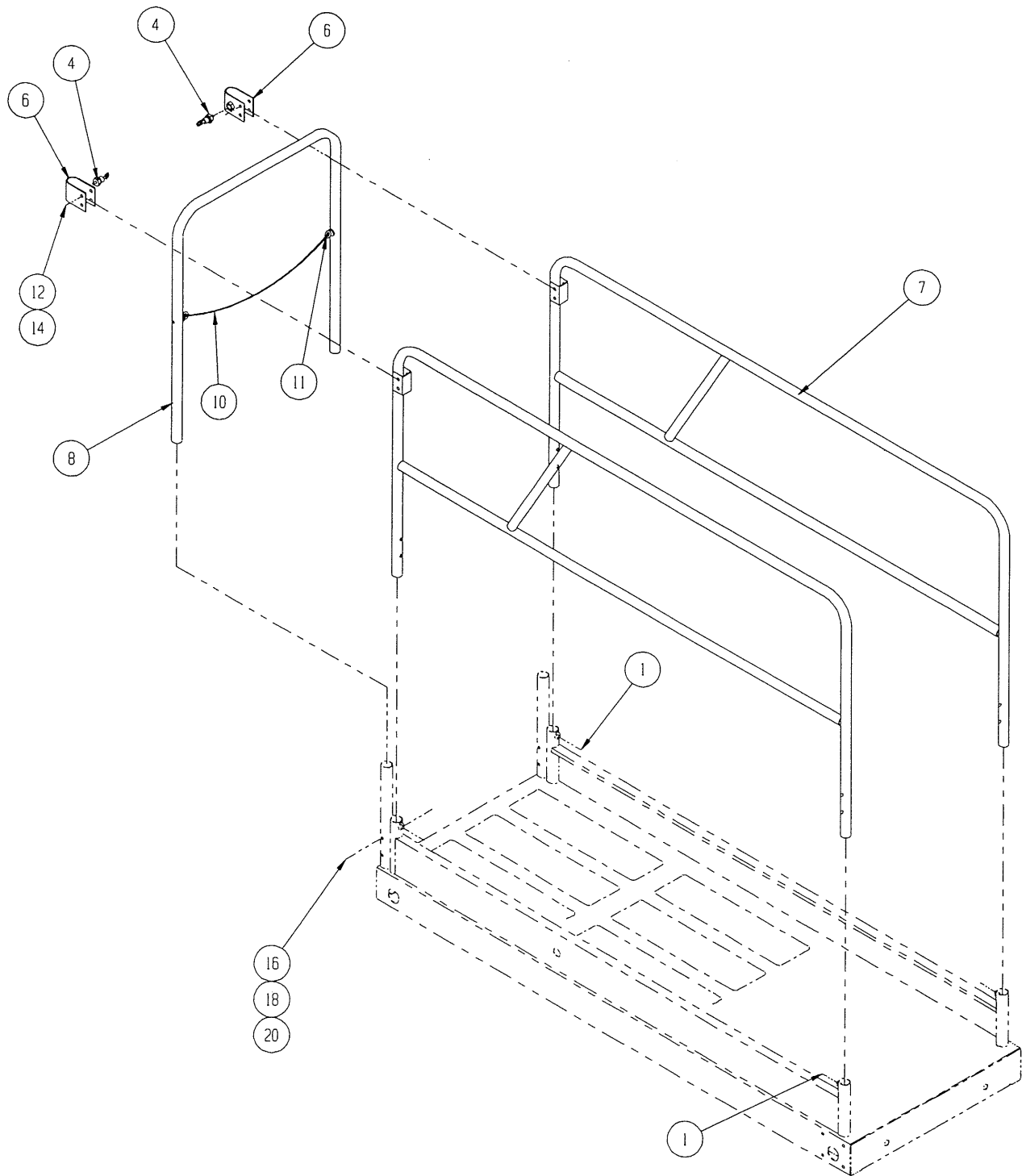
X20N

66005-000

ITEM	PART	DESCRIPTION	QTY.
1	66171-003	CAP SCREW, 3/8-16 X 2 1/2 (FULL THREAD)	4
4	03570-000	RETAINING PIN ASSY.	2
6	66498-000	WELDMENT, GATE LATCH	2
7	66257-000	WELDMENT, SIDE RAIL	2
8	66261-000	WELDMENT, END RAIL	1
10	63133-000	CHAIN ASSY.	1
11	15748-002	REPAIR LAPLINK	1
12	11248-005	NUT, 5/16-18	4
14	11253-016	SCREW, 5/16-18 HHC X 2	4
16	11254-020	SCREW, 3/8-16 HHC X 2 1/2	2
18	11240-006	WASHER, 3/8 FLAT	6
20	11248-006	NUT, 3/8-16 HEX	6

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**GUARDRAIL ASSEMBLY
X20N**

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GUARDRAIL ASSEMBLY X20W/X26N, W/DECK EXT. 66055-000

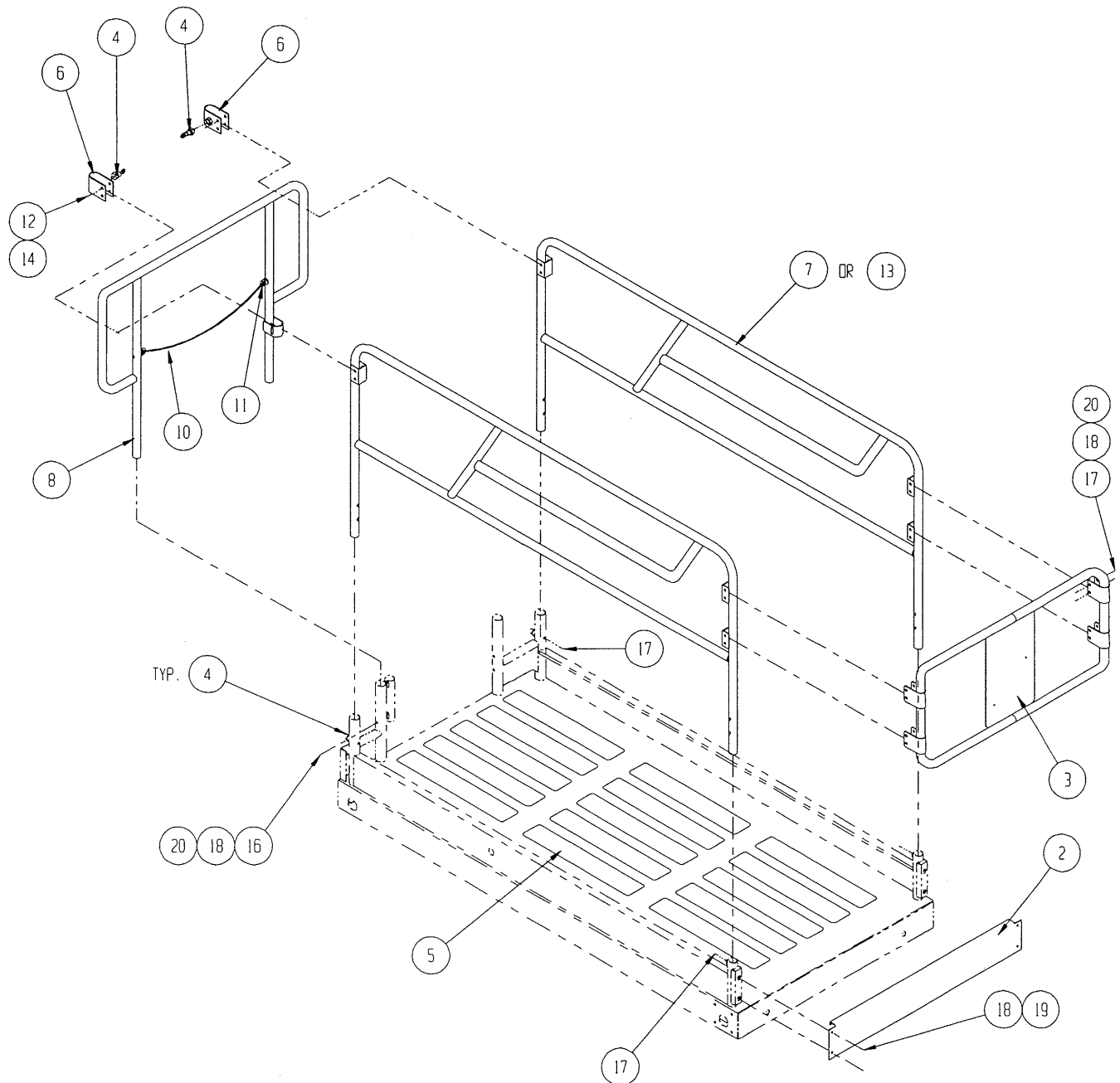
ITEM	PART	DESCRIPTION	QTY.
4	03570-000	RETAINING PIN ASSY.	6
6	66498-000	WELDMENT, GATE LATCH	2
7	66126-000	WELDMENT, SIDE RAIL	2
8	66125-000	WELDMENT, END RAIL	1
10	63133-000	CHAIN ASSY.	1
11	15748-002	REPAIR LAPLINK	1
12	11248-005	NUT, 5/16-18	4
14	11253-016	SCREW, 5/16-18 HHC X 2	4
16	11254-020	SCREW, 3/8-16 HHC X 2 1/2	2
17	11254-008	SCREW, 3/8-16 HHC X 1	4
18	11240-006	WASHER, 3/8 FLAT	6
20	11248-006	NUT, 3/8-16 HEX	6

GUARDRAIL ASSEMBLY X20W/X26N, W/O DECK EXT. 66055-004

ITEM	PART	DESCRIPTION	QTY.
2	66518-001	KICKRAIL	1
3	66525-001	FRONT GUARDRAIL WELDMENT	1
4	03570-000	RETAINING PIN ASSY.	6
5	27966-005	SAFETY WALK 4 X 24	15
6	66498-000	WELDMENT, GATE LATCH	2
8	66125-000	WELDMENT, END RAIL	1
10	63133-000	CHAIN ASSY.	1
11	15748-002	REPAIR LAPLINK	1
12	11248-005	NUT, 5/16-18	4
13	66126-001	WELDMENT, SIDE RAIL	2
14	11253-016	SCREW, 5/16-18 HHC X 2	4
16	11254-020	SCREW, 3/8-16 HHC X 2 1/2	2
17	11254-008	SCREW, 3/8-16 HHC X 1	12
18	11240-006	WASHER, 3/8 FLAT	18
19	11254-006	SCREW, 3/8-16 HHC X 3/4	4
20	11248-006	NUT, 3/8-16 HEX	14

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GUARDRAIL ASSEMBLY
X20W/X26N

DECK EXTENSION ASSEMBLY

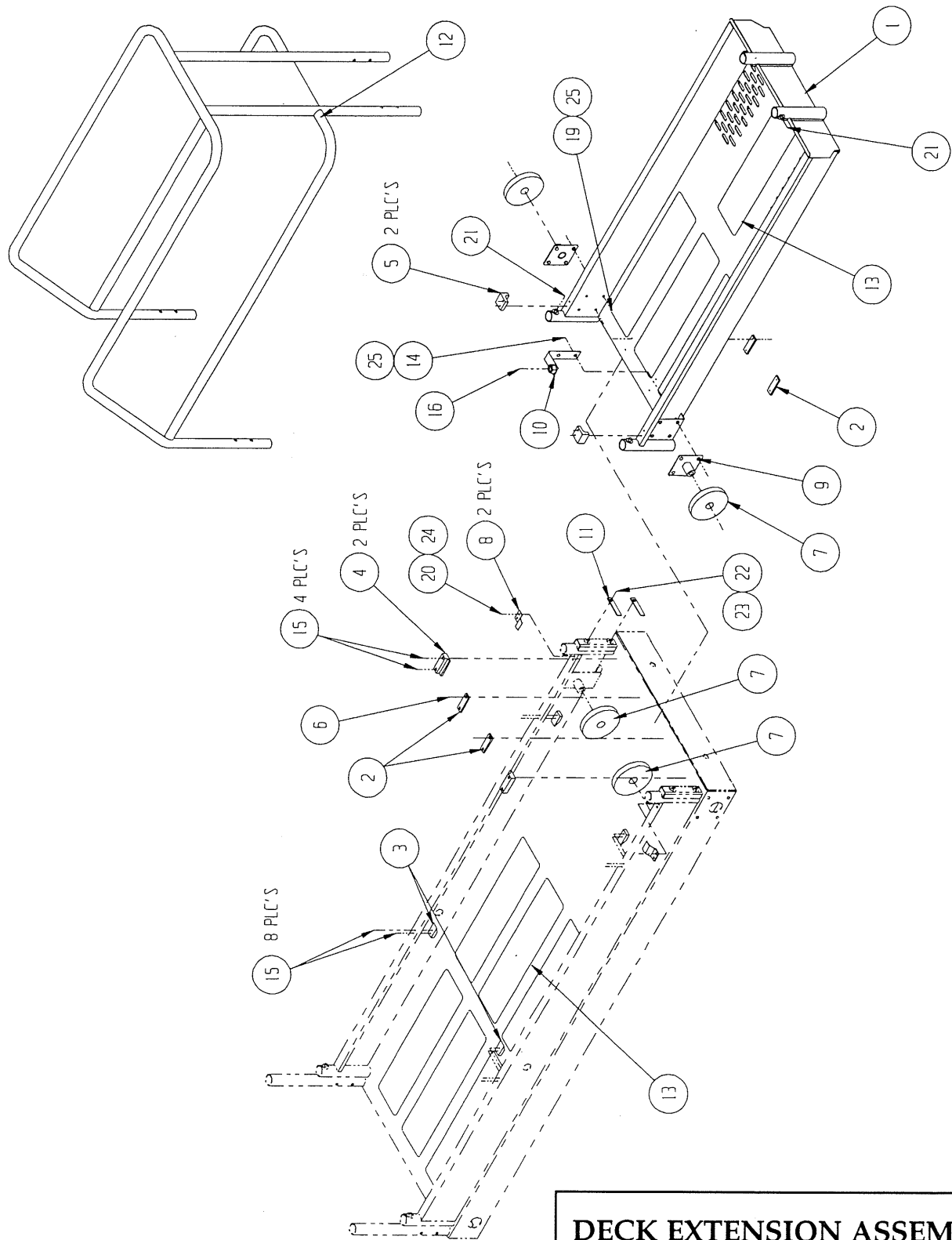
X20N

66006-000

ITEM	PART	DESCRIPTION	QTY.
1	66251-000	WELDMENT, DECK EXT.	1
2	66198-000	WEAR PAD	4
3	66193-000	STOP	4
4	66176-000	WEAR PAD	2
5	66170-000	WEAR PAD	2
6	26553-002	RIVET, 3/16 DIA X .126-.250 GRIP	8
7	66195-000	PLATFORM ROLLER	4
8	66407-000	BRACKET	2
9	66256-000	WELDMENT, ROLLER MOUNT	2
10	66410-000	WELDMENT, DECK STOP	1
11	66068-000	RETAINING STRAP	2
12	66260-000	WELDMENT, EXT. RAIL	1
13	27966-005	SAFTY WALK, 6 X 24	10
14	11254-016	SCREW, HHC 3/8-16 X 2	2
15	26553-008	RIVET, 3/16 DIA X 1/2 GRIP	16
16	03570-000	RETAINING PIN ASSY	1
19	11254-014	SCREW, HHC 3/8-16 X 1 3/4	6
20	11252-006	SCREW, HHC 1/4-20 X 3/4	4
21	66171-003	SCREW, HHC 3/8-16 X 2 1/2	4
22	11240-006	WASHER, 3/8 FLAT	2
23	11254-006	SCREW, HHC 3/8-16 X 3/4	2
24	11240-004	WASHER, 1/4 FLAT	4
25	11238-006	WASHER, 3/8 LOCK	8

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**DECK EXTENSION ASSEMBLY
X20N**

Illustrated Parts Breakdown

DECK EXTENSION ASSEMBLY

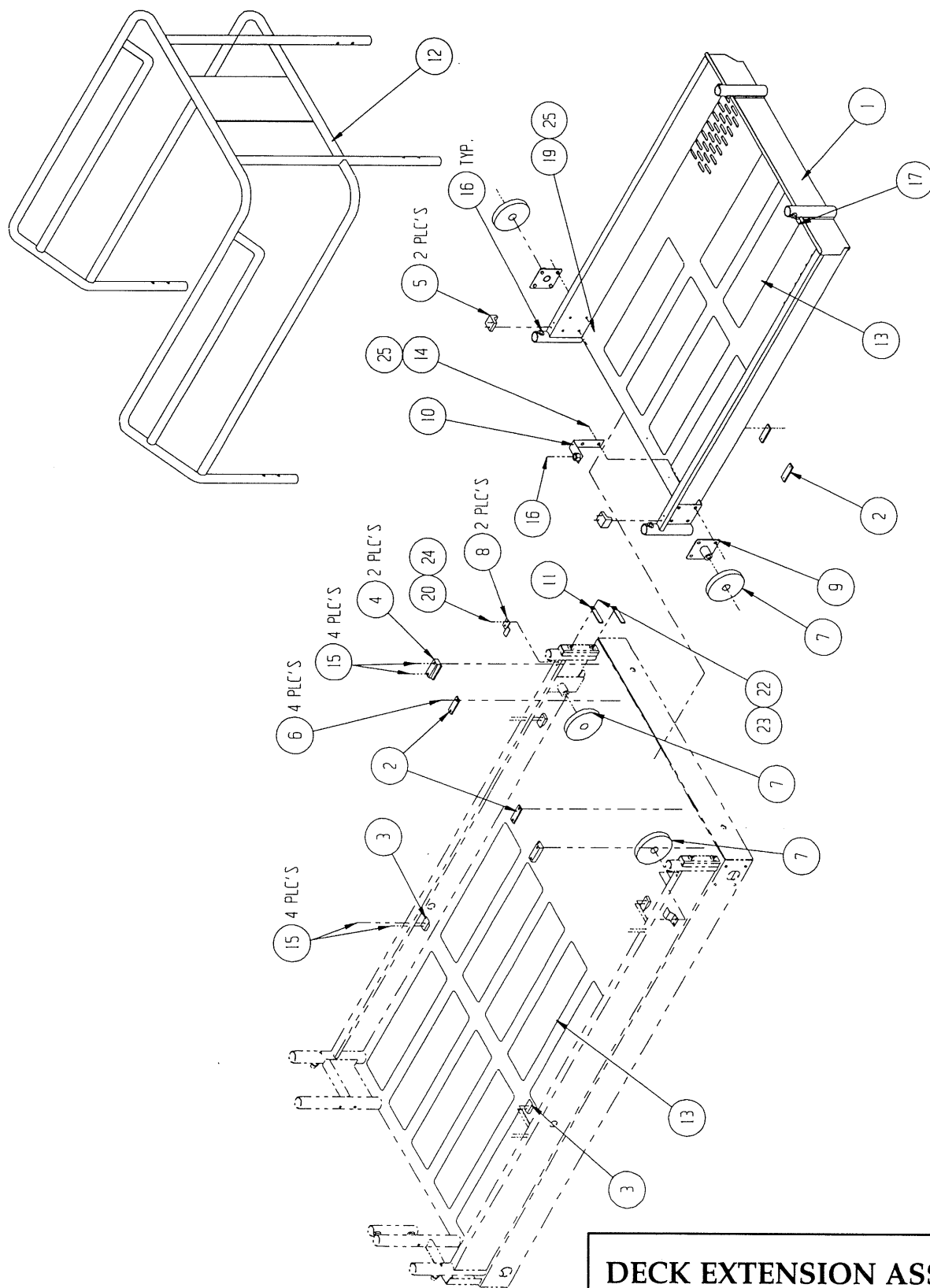
X20W/X26N

66056-000

ITEM	PART	DESCRIPTION	QTY.
1	66294-000	WELDMENT, DECK EXT.	1
2	66198-001	WEAR PAD	4
3	66193-000	STOP	4
4	66176-001	WEAR PAD	2
5	66170-001	WEAR PAD	2
6	26553-010	RIVET, 3/16 DIA X 5/8 GRIP	4
7	66195-000	PLATFORM ROLLER	4
8	66407-001	BRACKET	2
9	66256-000	WELDMENT, ROLLER MOUNT	2
10	66410-000	WELDMENT, DECK STOP	1
11	66068-000	RETAINING STRAP	2
12	66130-000	WELDMENT, EXT. RAIL	1
13	27966-005	SAFTY WALK, 6 X 24	16
14	11254-016	SCREW, HHC 3/8-16 X 2	2
15	26553-008	RIVET, 3/16 DIA X 1/2 GRIP	16
16	03570-000	RETAINING PIN ASSY.	5
17	11254-008	SCREW, HHC 3/8-16 X 1	4
19	11254-014	SCREW, HHC 3/8-16 X 1 3/4	6
20	11252-006	SCREW, HHC 1/4-20 X 3/4	4
22	11240-006	WASHER, 3/8 FLAT	2
23	11254-006	SCREW, HHC 3/8-16 X 3/4	2
24	11240-004	WASHER, 1/4 FLAT	4
25	11238-006	WASHER, 3/8 LOCK	8

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**DECK EXTENSION ASSEMBLY
X20W/X26N**

CONTROL MODULE ASSEMBLY

X20N

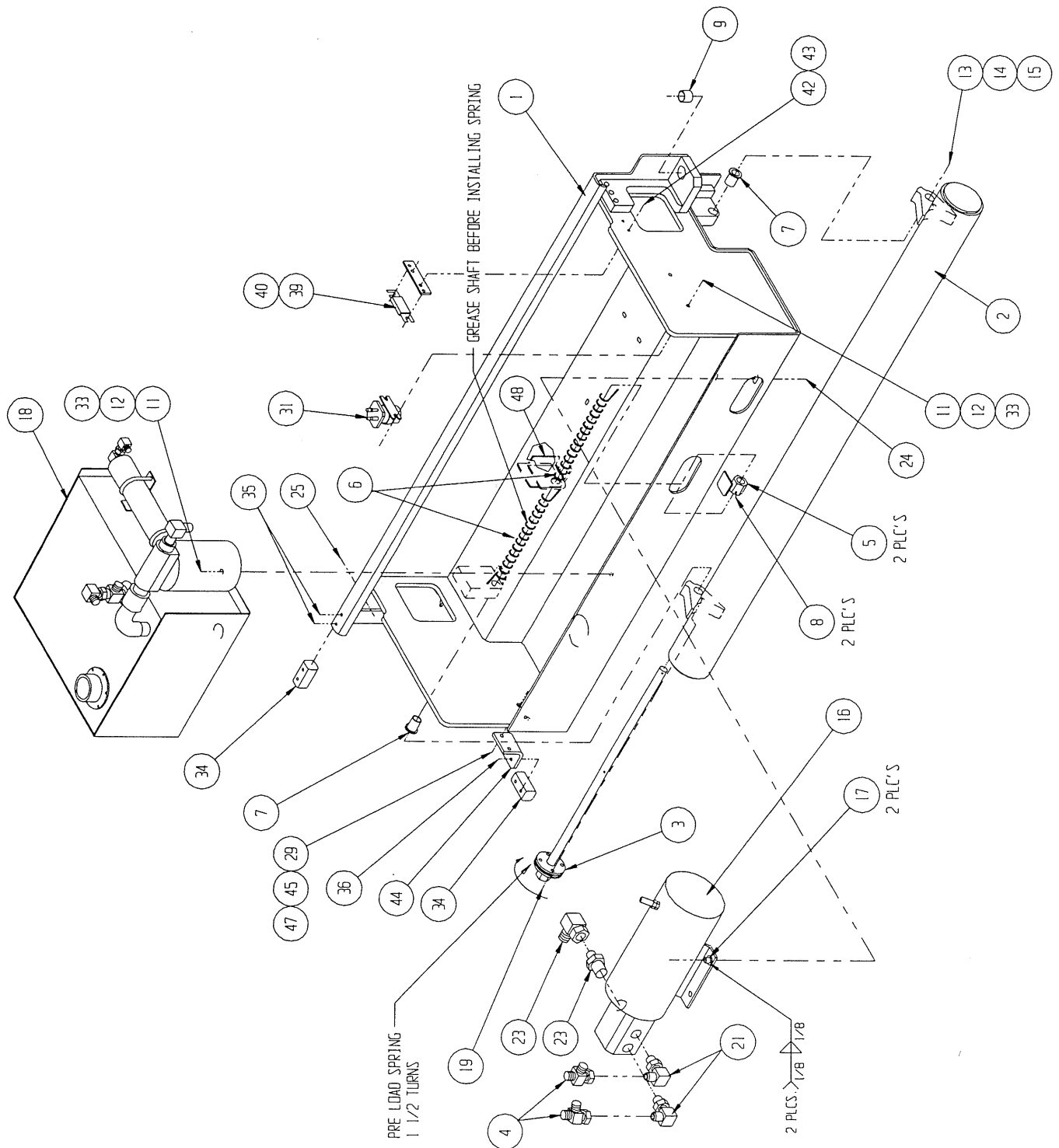
66008-001

ITEM	PART	DESCRIPTION	QTY.
1	66309-001	CONTROL MODULE WELDMENT	1
2	66314-000	WELDMENT, TUBE	1
3	66316-000	SHAFT, WELDMENT	1
4	20733-002	ADAPTER, SWIVEL TEE	2
5	66317-000	WELDMENT, BAR	2
6	66173-000	SPRING, TORSION L.H.	2
7	11781-011	BUSHING, FLANGE	2
8	11753-010	COTTER PIN, 1/8 X 1 1/4	2
9	27931-058	BUSHING, OILITE	1
11	11240-004	WASHER, 1/4 FLAT	3
12	11248-004	NUT, 1/4-20 HEX	3
13	63559-003	SHOULDER BOLT, 5/8 DIA X 2 1/4	1
14	11240-008	WASHER, 1/2 FLAT	1
15	11246-008	NUT, 1/2-13 HEX THIN	1
16	15797-000	POWER UNIT	1
-	15797-010	PUMP	1
-	15797-011	MOTOR	1
*	10145-001	BRUSHES (8), MOTOR	1
17	66184-004	WELD NUT, 5/16-18	2
18	66016-000	HYDRAULIC RESERVOIR ASSY.	1
19	11737-008	ROLL PIN, 1/4 DIA X 1 LG	1
21	11934-004	FITTING, ELBOW	2
22	11941-012	FITTING, ADAPTOR	1
23	11937-007	FITTING, 90° SWIVEL	1
24	11253-008	SCREW, HHC GR5 5/16-18 X 1	2
25	62791-002	LATCH, COVER	1
29	11248-006	NUT, ESNA 3/8-16	2
31	10122-000	SOLENOID, 24V	1
33	11252-010	SCREW, HHC GR5 1/4-20 X 1 1/4	3
34	66192-000	BLOCK, COVER	2
35	11828-008	SCREW, 1/4-20 X 1 FLAT HD SOC	2
36	14066-008	SCREW, 1/4-20 X 1 HEX HD	2
39	10149-000	FUSE BLOCK	1
40	10148-001	FUSE, 175 AMP	1
42	11709-010	SCREW, RD HD #10-24 X 1 1/4	2
43	11248-003	NUT, HEX #10-24	2
44	66342-000	ANGLE	1
45	11240-006	WASHER, 3/8 STD FLAT	2
47	11741-010	SCREW, 3/8-16 X 1 1/4 FLAT HD SOC	2
48	66157-000	WELDMENT, SPRING PLATE	1

*Not Shown

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**CONTROL MODULE ASSEMBLY
X20N**

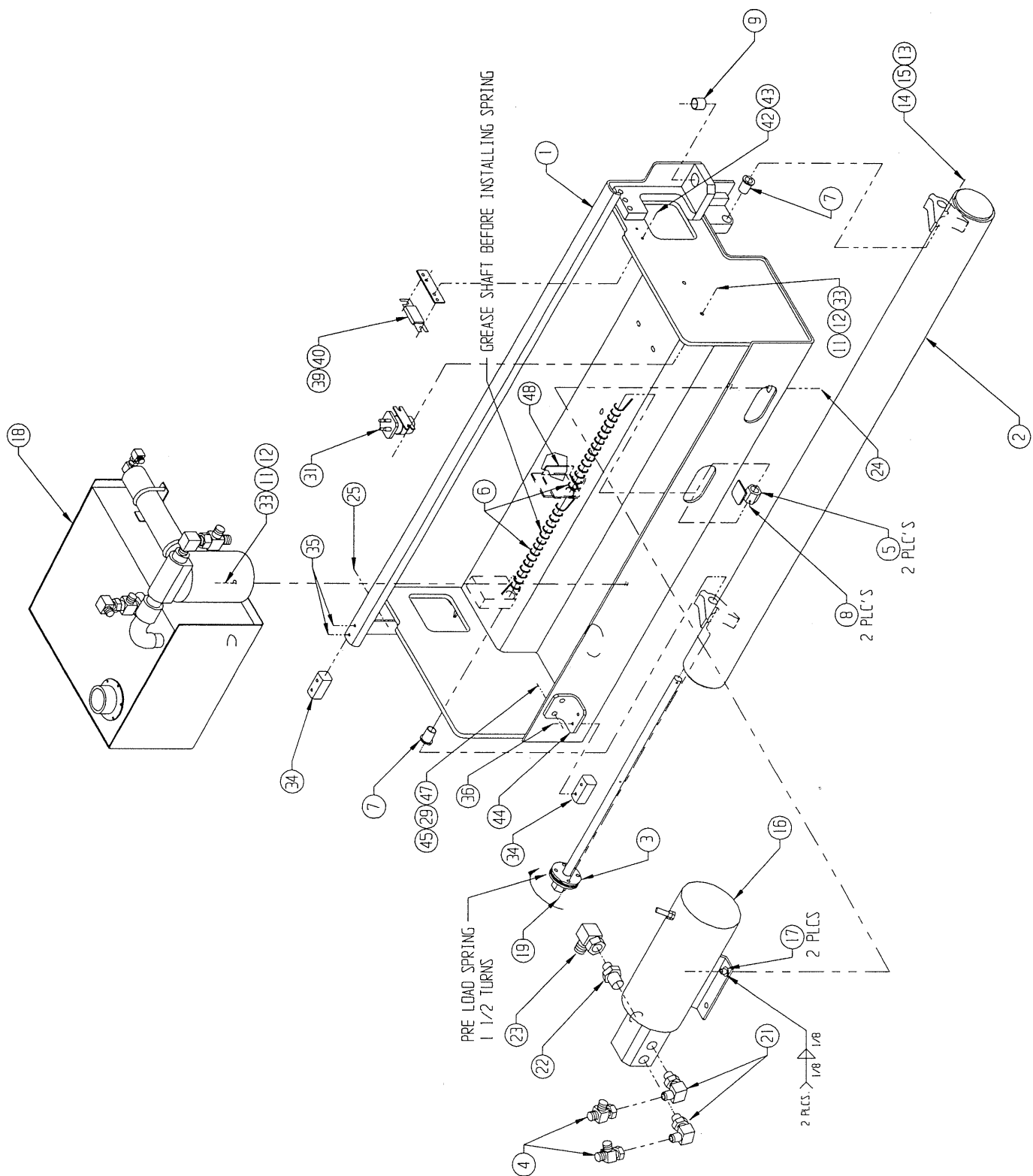
CONTROL MODULE ASSEMBLY X20W/X26N 66058-001

ITEM	PART	DESCRIPTION	QTY.
1	66309-001	CONTROL MODULE WELDMENT	1
2	66314-000	WELDMENT, TUBE	1
3	66316-000	SHAFT, WELDMENT	1
4	20733-002	ADAPTER, SWIVEL TEE	2
5	66317-000	WELDMENT, BAR	2
6	66173-000	SPRING, TORSION, L.H.	2
7	11781-011	BUSHING, FLANGE, OILITE	2
8	11753-010	COTTER PIN, 1/8 X 1 1/4	2
9	27931-058	BUSHING, OILITE	1
11	11240-004	WASHER, 1/4 FLAT	3
12	11248-004	NUT, 1/4-20 HEX	3
13	63559-003	SHOULDER BOLT, 5/8 DIA X 2 1/4	1
14	11240-008	WASHER, 1/2 FLAT	1
15	11246-008	NUT, 1/2-13 HEX THIN	1
16	15797-000	POWER UNIT	1
-	15797-010	PUMP	1
-	15797-011	MOTOR	1
*	10145-001	BRUSHES (8), MOTOR	1
17	66184-004	WELD NUT, 5/16-18	2
18	66016-001	HYDRAULIC RESERVOIR ASSY.	1
19	11737-008	ROLL PIN, 1/4 DIA X 1 LG	1
21	11934-004	FITTING, ELBOW	2
22	11941-012	FITTING, ADAPTOR	1
23	11937-007	FITTING, 90° SWIVEL	1
24	11253-008	SCREW, HHC GR5 5/16-18 X 1	2
25	62791-002	LATCH, COVER	1
29	11248-006	NUT, ESNA 3/8-16	2
31	10122-000	SOLENOID, 24V	1
33	11252-010	SCREW, HHC GR5 1/4-20 X 1 1/4	3
34	66192-000	BLOCK, COVER	2
35	11828-008	SCREW, 1/4-20 X 1 FLAT HD SOC	2
36	14066-008	SCREW, 1/4-20 X 1 HEX HD	2
39	10149-000	FUSE BLOCK	1
40	10148-001	FUSE, 175 AMP	1
42	13965-010	SCREW, HEX HD #10-24 X 1 1/4	2
43	11248-003	NUT, HEX #10-24	2
44	66342-000	ANGLE	1
45	11240-006	WASHER, 3/8 STD FLAT	2
47	11741-010	SCREW, 3/8-16 X 1 1/4 FLAT HD SOC	2
48	66157-000	WELDMENT, SPRING PLATE	1

*Not Shown

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CONTROL MODULE ASSEMBLY
X20W/X26N

Illustrated Parts Breakdown

HYDRAULIC TANK ASSEMBLY X20N 66016-000

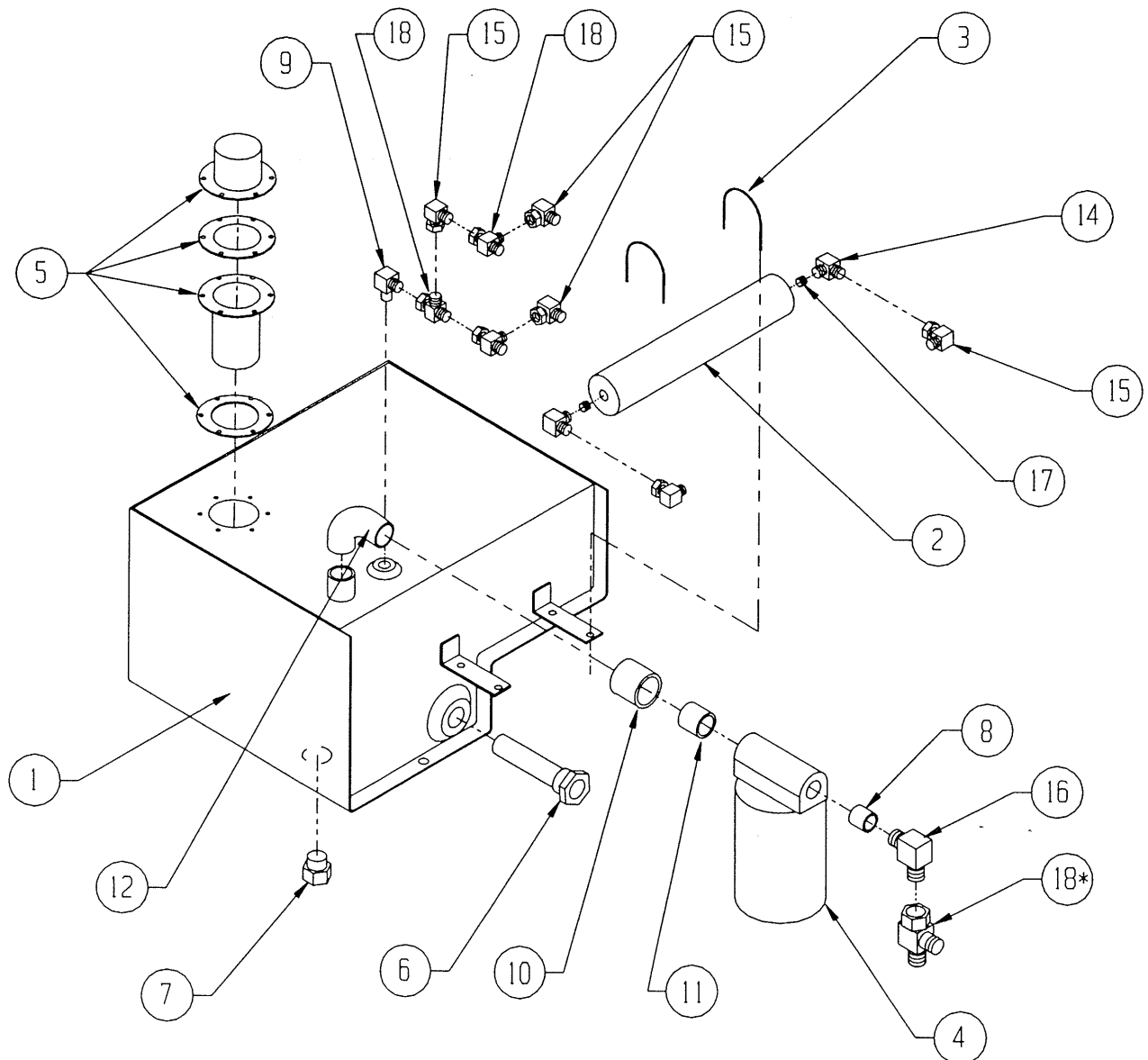
ITEM	PART	DESCRIPTION	QTY.
1	66308-000	WELDMENT, RESERVOIR	1
2	65396-000	CUSHION CYLINDER	1
3	14924-007	U BOLT, 1 1/2 - 5/16-18	2
4	05154-001	FILTER ASSY.	1
-	05154-002	FILTER	1
5	05963-001	FILLER / BREATHER	1
6	61818-000	SUCTION SCREEN	1
7	21305-006	PLUG, MAGNET	1
8	11661-006	BUSHING	1
9	11940-010	FITTING, 90° ELBOW	1
10	14123-006	3/4 PIPE CUPLER	1
11	14028-005	3/4 PIPE NIPPLE X 2-1/2	1
12	63931-012	FITTING, 3/4 ELBOW	1
14	11934-004	FITTING, 90° ELBOW	2
15	11937-003	FITTING, 90° ELBOW	5
16	11940-006	FITTING, 90° ELBOW	1
17	65556-001	FITTING, ORIFICE PLUG .046	2
18	20733-002	FITTING, SWIVEL TEE	3

HYDRAULIC TANK ASSEMBLY X20W/X26N 66016-001

ITEM	PART	DESCRIPTION	QTY.
1	66308-000	WELDMENT, RESERVOIR	1
2	65396-000	CUSHION CYLINDER	1
3	14924-007	U BOLT, 1 1/2 - 5/16-18	2
4	05154-001	FILTER ASSY.	1
-	05154-002	FILTER	1
5	05963-001	FILLER / BREATHER	1
6	61818-000	SUCTION SCREEN	1
7	21305-006	PLUG, MAGNET	1
8	11661-006	BUSHING	1
9	11940-010	FITTING, 90° ELBOW	1
10	14123-006	3/4 PIPE CUPLER	1
11	14028-005	3/4 PIPE NIPPLE X 2-1/2	1
12	63931-012	FITTING, 3/4 ELBOW	1
14	11934-004	FITTING, 90° ELBOW	2
15	11937-003	FITTING, 90° ELBOW	5
16	11940-006	FITTING, 90° ELBOW	1
17	65556-001	FITTING, ORIFICE PLUG .046	2
18	20733-002	FITTING, SWIVEL TEE	4

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* Item not used on X20N machines.

**HYDRAULIC TANK ASSEMBLY
X20N/X20W/X26N**

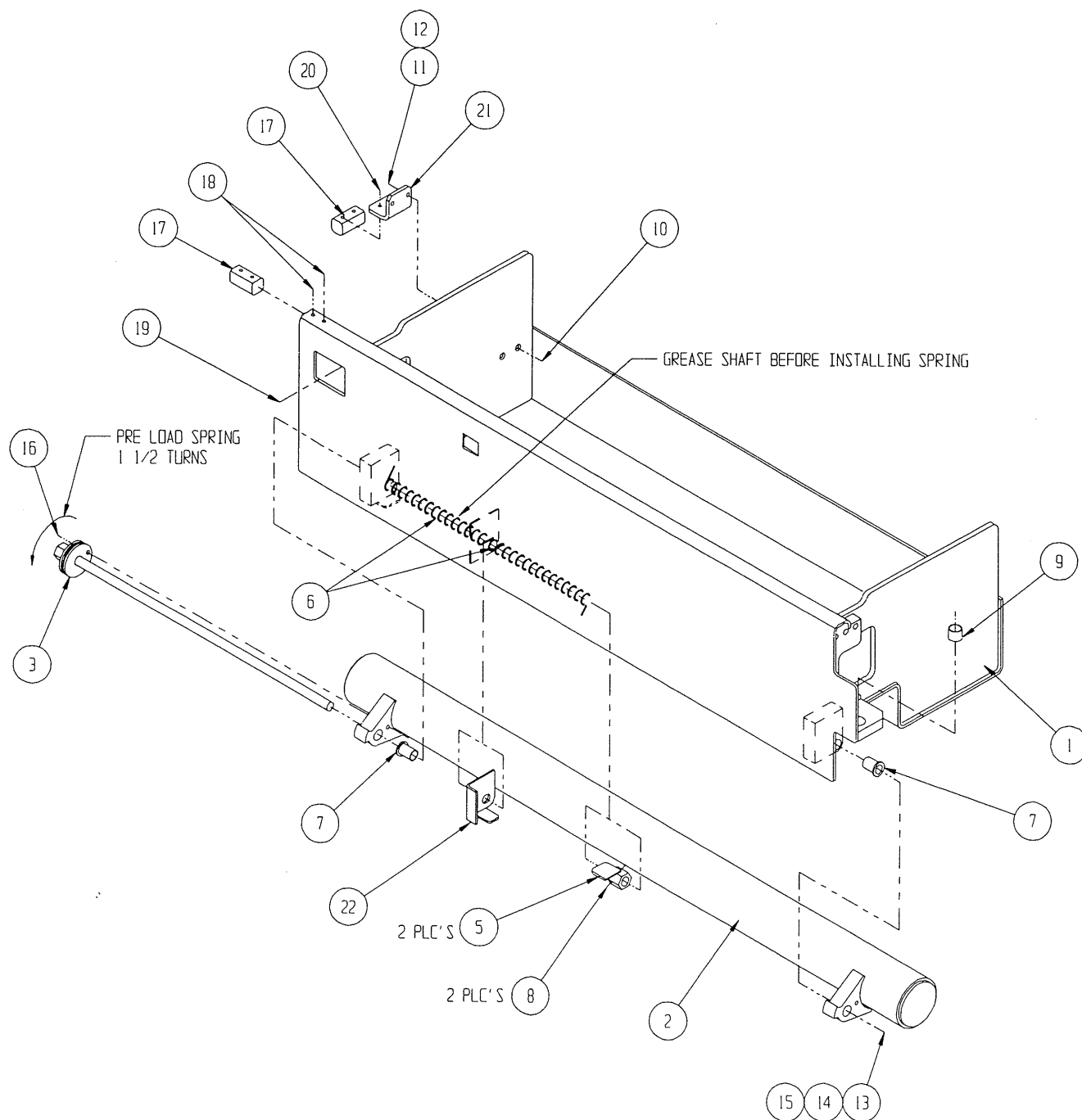
Illustrated Parts Breakdown

POWER MODULE ASSEMBLY X20N 66009-000

ITEM	PART	DESCRIPTION	QTY.
1	66310-000	POWER MODULE WELDMENT	1
2	66314-000	WELDMENT, TUBE	1
3	66316-000	WELDMENT, SPRING SHAFT	1
5	66318-000	WELDMENT, BAR	2
6	66172-000	SPRING, TORSION R.H.	2
7	11781-011	BUSHING, FLANGE	2
8	11753-010	COTTER PIN, 1/8 X 1 1/4	2
9	27931-058	BUSHING, OILITE	1
10	11741-010	SCREW, 3/8-16 X 1 1/4 FLAT HD SOC	2
11	11240-006	WASHER, 3/8 STD FLAT	2
12	11248-006	NUT, 3/8-16UNC HEX	2
13	63559-003	SHOULDER BOLT, 5/8 DIA X 2 1/4	1
14	11240-008	WASHER, 1/2 FLAT	1
15	11246-008	NUT, 1/2-13 HEX THIN	1
16	11737-008	ROLL PIN, 1/4 DIA X 1 LG	1
17	66192-000	BLOCK, COVER	2
18	11828-008	SCREW, 1/4-20 X 1 FLAT HD SOC	2
19	62791-002	LATCH, COVER	1
20	14066-008	SCREW, 1/4-20 X 3/4 HEX HD	2
21	66342-000	ANGLE	1
22	66156-000	WELDMENT, SPRING PLATE	1

Illustrated Parts Breakdown

Section
7.2



**POWER MODULE ASSEMBLY
X20N**

POWER MODULE ASSEMBLY

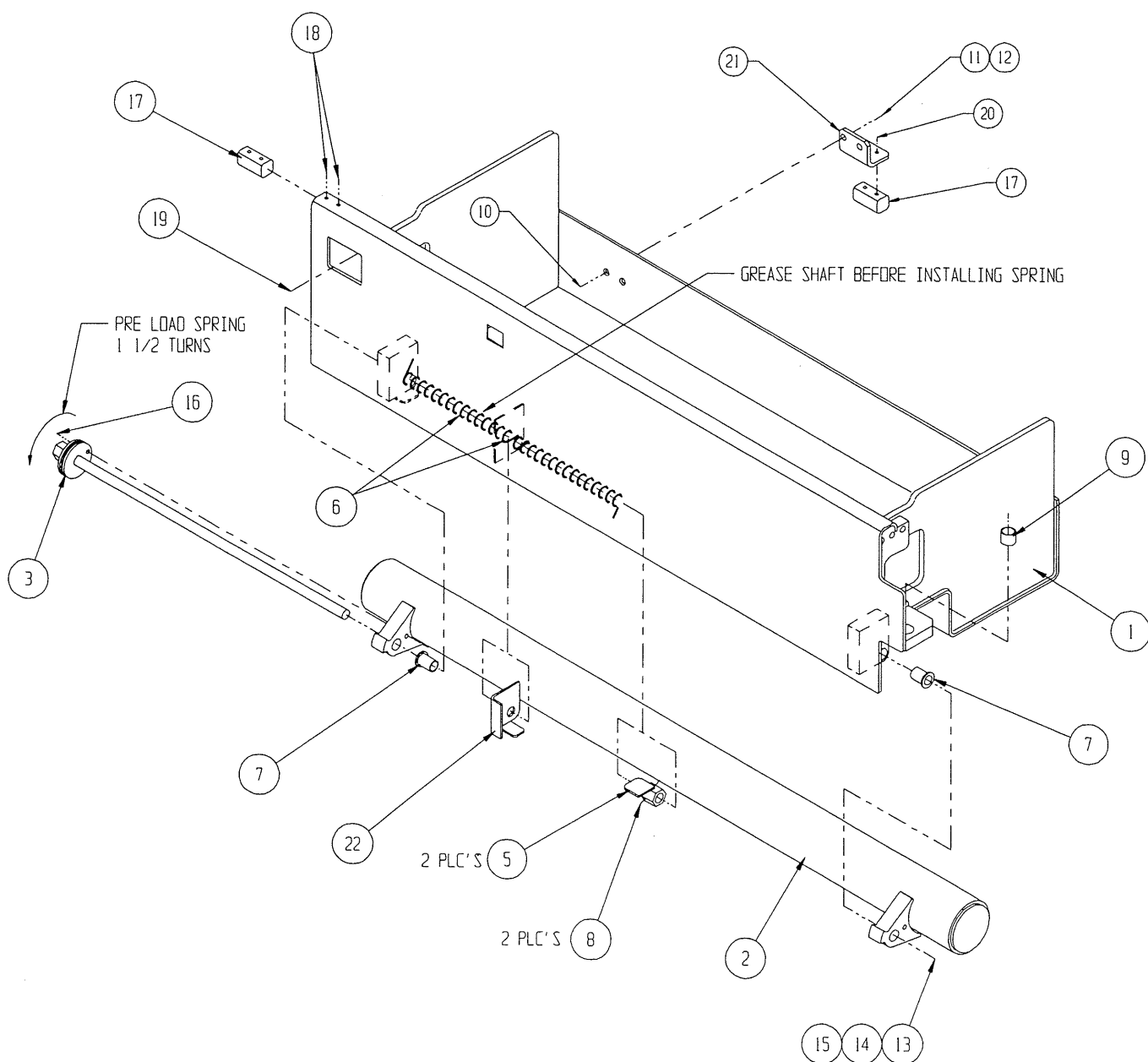
X20W/X26N

66059-000

ITEM	PART	DESCRIPTION	QTY.
1	66310-000	POWER MODULE WELDMENT	1
2	66314-000	WELDMENT, TUBE	1
3	66316-000	WELDMENT, SPRING SHAFT	1
5	66318-000	WELDMENT, BAR	2
6	66172-000	SPRING, TORSION R.H.	2
7	11781-011	BUSHING, FLANGE	2
8	11753-010	COTTER PIN, 1/8 X 1 1/4	2
9	27931-058	BUSHING, OILITE	1
10	11741-010	SCREW, 3/8-16 X 1 1/4 FLAT HD SOC	2
11	11240-006	WASHER, 3/8 STD FLAT	2
12	11248-006	NUT, 3/8-16UNC HEX	2
13	63559-003	SHOULDER BOLT, 5/8 DIA X 2 1/4	1
14	11240-008	WASHER, 1/2 FLAT	1
15	11246-008	NUT, 1/2-13 HEX THIN	1
16	11737-008	ROLL PIN, 1/4 DIA X 1 LG	1
17	66192-000	BLOCK, COVER	2
18	11828-008	SCREW, 1/4-20 X 1 FLAT HD SOC	2
19	62791-002	LATCH, COVER	1
20	14066-008	SCREW, 1/4-20 X 3/4 HEX HD	2
21	66342-000	ANGLE	1
22	66156-000	WELDMENT, SPRING PLATE	1

Illustrated Parts Breakdown

Section
7.2



**POWER MODULE ASSEMBLY
X20W/X26N**

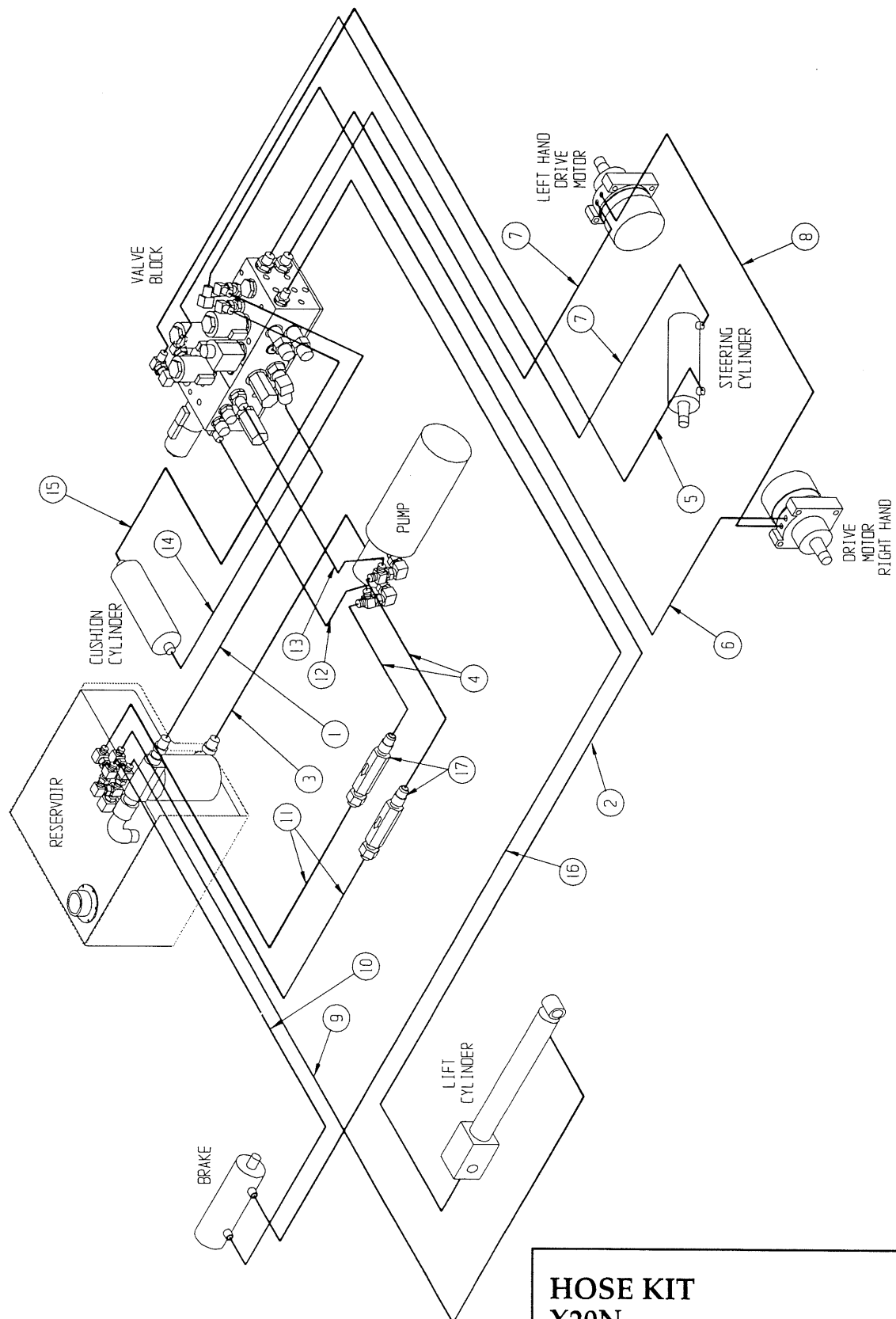
Illustrated Parts Breakdown

HOSE KIT X20N 66011-001

ITEM	PART	DESCRIPTION	QTY.
1	60861-022	HOSE ASSEMBLY X 14	1
2	60861-053	HOSE ASSEMBLY X 144	1
3	61789-012	HOSE ASSEMBLY X 13	1
4	60861-074	HOSE ASSEMBLY X 58-1/2	1
5	60861-002	HOSE ASSEMBLY X 42-1/2	1
6	60861-082	HOSE ASSEMBLY X 56	1
7	60861-047	HOSE ASSEMBLY X 54 1/2	1
8	60861-005	HOSE ASSEMBLY X 45	1
9	60861-012	HOSE ASSEMBLY X 191	1
10	60861-046	HOSE ASSEMBLY X 114	1
12	60861-039	HOSE ASSEMBLY X 15	1
13	60861-042	HOSE ASSEMBLY X 13 1/2	1
14	65234-022	HOSE ASSEMBLY X 40 1/2	1
15	65234-026	HOSE ASSEMBLY X 29	1
16	60861-069	HOSE ASSEMBLY X 87	1
17	66696-001	RELIEF VALVE ASSY., PUMP	REF.

Illustrated Parts Breakdown

Section
7.2



**HOSE KIT
X20N**

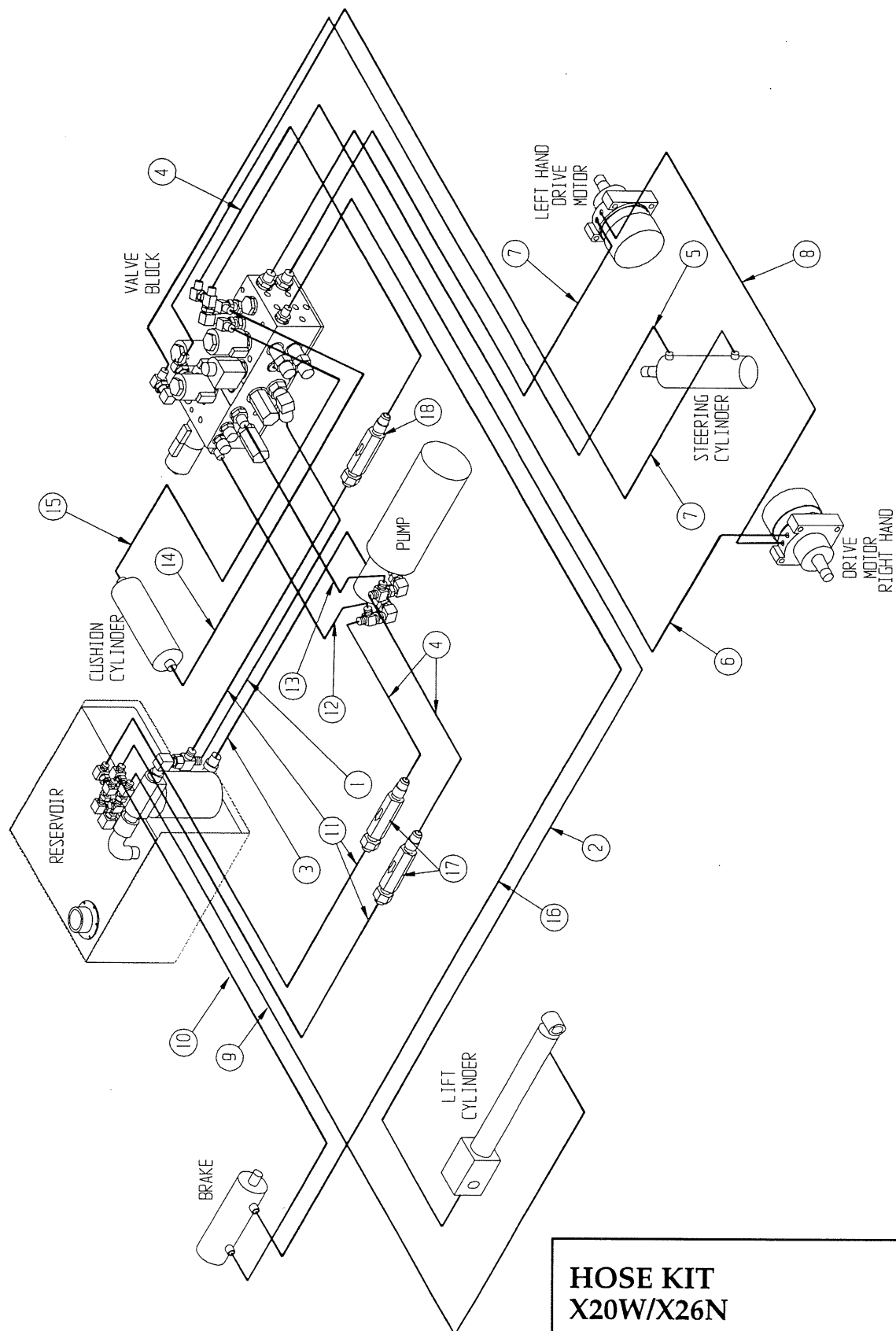
Illustrated Parts Breakdown

HOSE KIT X20W/X26N 66061-001

ITEM	PART	DESCRIPTION	QTY.
1	60861-022	HOSE ASSEMBLY X 14	1
2	60861-095	HOSE ASSEMBLY X 164	1
3	61789-012	HOSE ASSEMBLY X 13	1
4	60861-018	HOSE ASSEMBLY X 18	3
5	60861-055	HOSE ASSEMBLY X 60-1/2	1
6	60861-089	HOSE ASSEMBLY X 70	1
7	60861-090	HOSE ASSEMBLY X 72	2
8	60861-074	HOSE ASSEMBLY X 58 1/2	1
9	60861-092	HOSE ASSEMBLY X 201	1
10	60861-091	HOSE ASSEMBLY X 124	1
11	60861-045	HOSE ASSEMBLY X 8	3
12	60861-039	HOSE ASSEMBLY X 15	1
13	60861-042	HOSE ASSEMBLY X 13 1/2	1
14	65234-022	HOSE ASSEMBLY X 40 1/2	1
15	65234-026	HOSE ASSEMBLY X 29	1
16	60861-023	HOSE ASSEMBLY X 97 1/2	1
17	66696-001	RELIEF VALVE ASSY., PUMP	REF.
18	66696-000	RELIEF VALVE ASSY., LIFT	REF.

Illustrated Parts Breakdown

Section
7.2



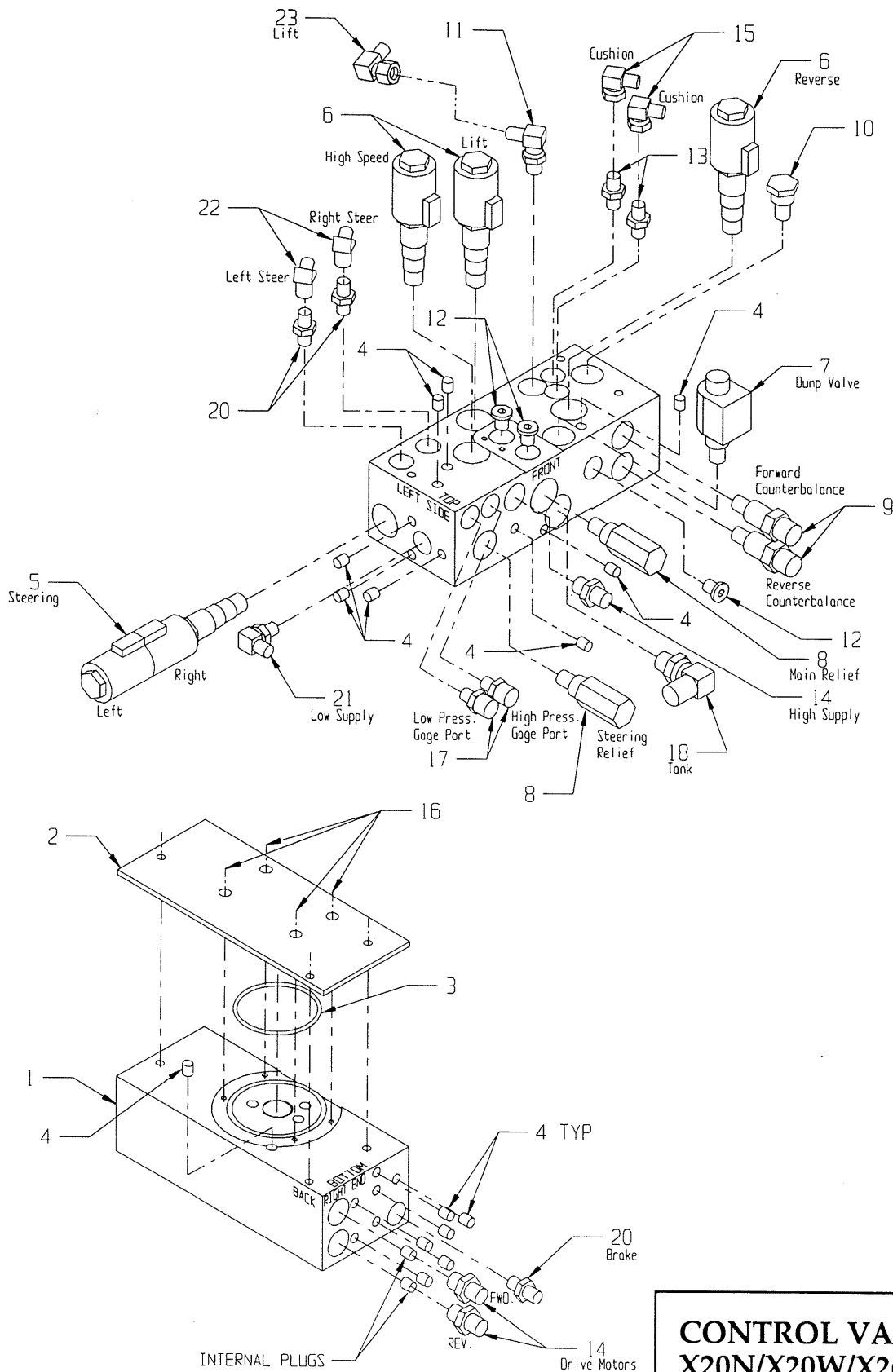
Illustrated Parts Breakdown

CONTROL VALVE ASSEMBLY X20N/X20W/X26N 66017-000

ITEM	PART	DESCRIPTION	QTY.
1	66099-000	VALVE BLOCK	1
-	30576-009	VALVE BLOCK, SERVICE	1
2	66098-000	BLANK PLATE, BOTTOM	1
3	13888-047	O-RING, -231, 70 DURO	1
4	63977-001	9MM EXPANDER PLUG	17
5	63923-007	CARTRIDGE VALVE, 4 WAY 3 POS TANDEM	1
6	63923-006	CARTRIDGE VALVE, 4 WAY 2 POS REV.	3
7	63923-005	CARTRIDGE VALVE, 2 WAY	1
8	12877-007	RELIEF VALVE, DIRECT ACTING ADJSTBL.	2
9	15900-000	COUNTERBALANCE VALVE	2
10	63955-008	CAVITY PLUG, 8 X 2 WAY	1
11	11934-004	ADAPTER 90 SAE 6-6	1
12	12004-004	PLUG, SAE-4	3
13	11941-001	ADAPTER, STR. SAE 4-4	2
14	11941-005	ADAPTER, STR. SAE 6-6	3
15	11937-001	SWIVEL, 90 DEG -4	2
16	66097-005	FLAT HD SOC BOLT, 10-24 X 5/8 LG	4
17	63965-001	FITTING, GUAGE PORT	2
18	11934-007	ADAPTER, 90 DEG SAE 8-6	1
20	11941-002	ADAPTER, STR. SAE 4-6S	3
21	11934-026	ADAPTER, 90 SAE 4-6S	1
22	11932-003	ADAPTER, 45 SWIVEL -6	2
23	11937-003	ADAPTER, 90 DEG SWIVEL -6	1

Illustrated Parts Breakdown

Section
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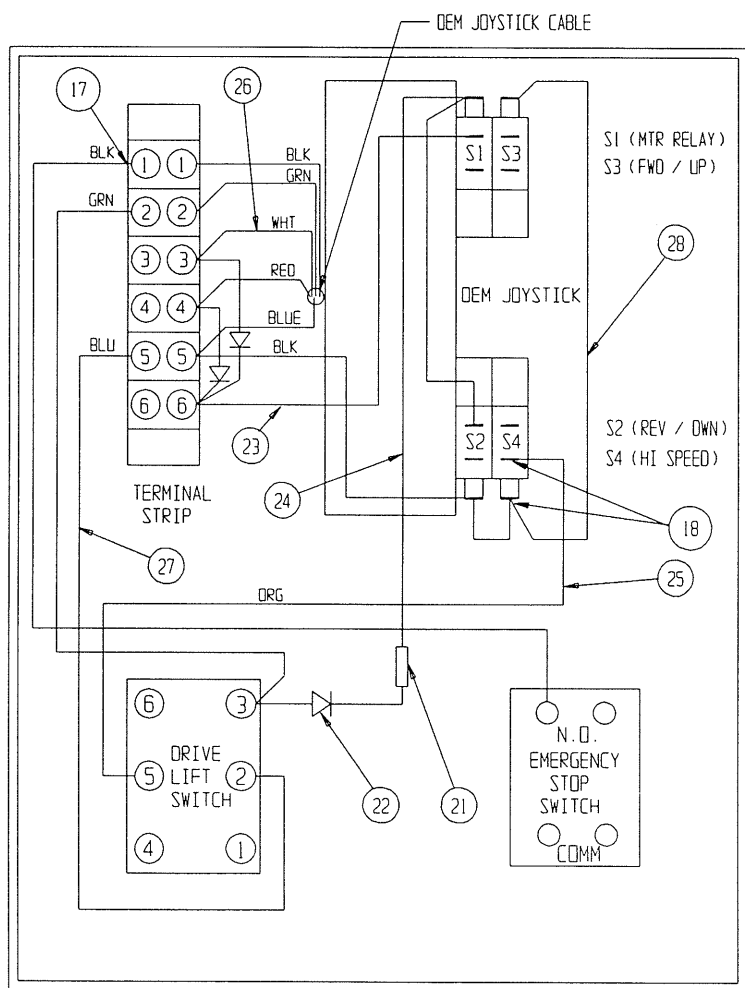
Illustrated Parts Breakdown

CONTROLLER ASSEMBLY
X20N/X20W/X26N
66013-000

ITEM	PART	DESCRIPTION	QTY.
1	11715-006	SCREW, 6-32 UNC MACH RD HD X 3/4	2
2	11248-047	HEX NUT, 6-32 UNC	2
3	11252-004	SCREW, 1/4-20 UNC HHC X 1/2	4
4	11238-004	WASHER, 1/4 LOCK	4
5	26551-007	RIVET, 1/8 DIA X 1/4-5/16 GRIP	6
6	15941-001	SWITCH	1
7	29872-000	BOOT	1
8	29925-000	CONN., CABLE	1
9	66175-001	BOX ENCLOSURE BASE	1
11	66092-000	PANEL, CONTROLLER	1
12	66181-000	CONTROLLER, JOYSTICK	1
*	15772-001	SWITCH	4
*	63913-002	SWITCH, STEERING	2
-	63913-003	BOOT, STEERING SWITCH	1
*	63913-004	ROCKER ASSEMBLY	1
-	66544-010	HANDLE, 2 PIECE	1
*	66544-011	LEVER, INTERLOCK	1
*	66544-012	SWITCH, INTERLOCK	1
-	66544-013	BOOT, JOYSTICK SHAFT	1

ITEM	PART	DESCRIPTION	QTY.
13	63667-001	PUSH BUTTON	1
14	66094-000	PANEL, CONTROLLER L.H.	1
15	66095-000	PANEL, CONTROLLER R.H.	1
16	29928-003	TERMINAL BLOCK (6 CONTACTS)	1
17	29610-002	CONN., FORK, 14-16 GA. #8	19
18	29615-002	CONN., PUSH, 14-16 GA. #8	7
20	63667-003	CONTACT BLOCK	1
21	29620-002	BUTT. CONN., 14-16 GA.	1
22	29825-002	DIODE	3
23	29454-099	WIRE, 16 GA., THHN COP RED	FT 2.5
24	29457-099	WIRE, 16 GA., THHN COP GREEN	FT 3.5
25	29453-099	WIRE, 16 GA., THHN COP ORANGE	FT 1
26	29451-099	WIRE, 16 GA., THHN COP WHITE	FT 1
27	29450-099	WIRE, 16 GA., THHN COP BLUE	FT 2
28	29452-099	WIRE, 16 GA., THHN COP BLACK	FT 5

***Not Shown**

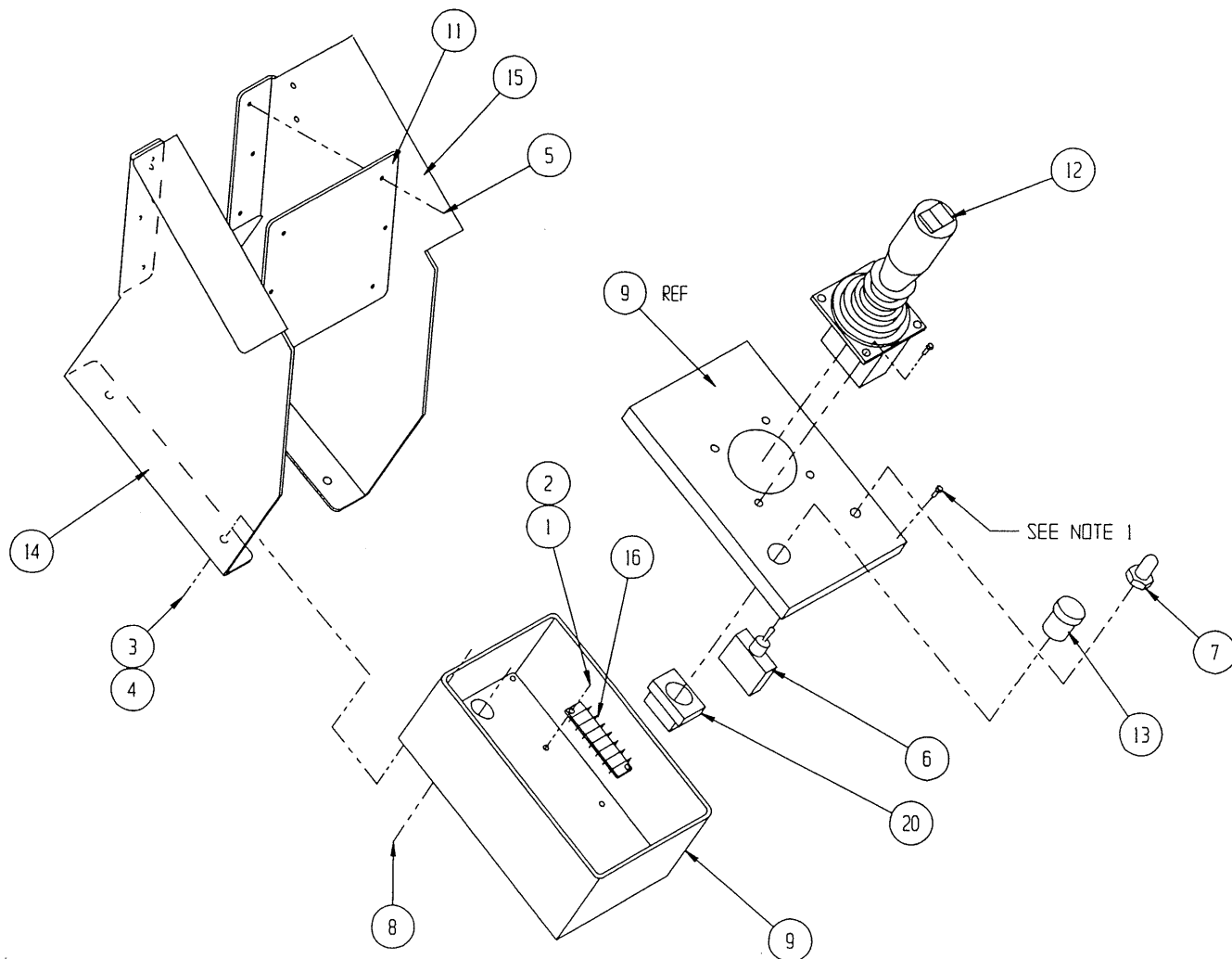


CONTROLLER ASSEMBLY
X20N/X20W/X26N
DRAWING 1 OF 2

Illustrated Parts Breakdown

Section
7.2

1. SUPPLIED WITH BOX.



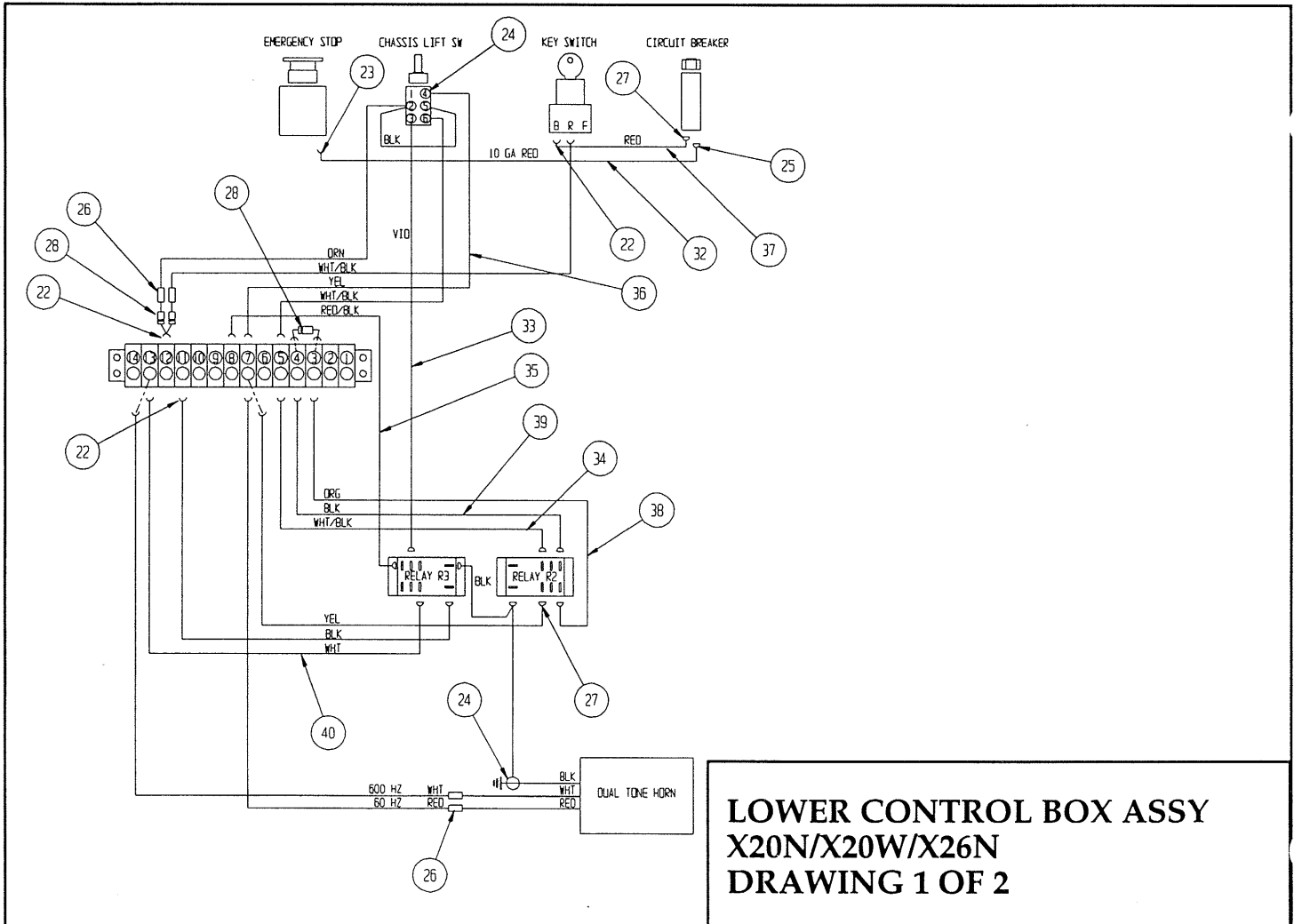
CONTROLLER ASSEMBLY
X20N/X20W/X26N
DRAWING 2 OF 2

Illustrated Parts Breakdown

LOWER CONTROL BOX ASSEMBLY X20N/X20W/X26N 66014-000

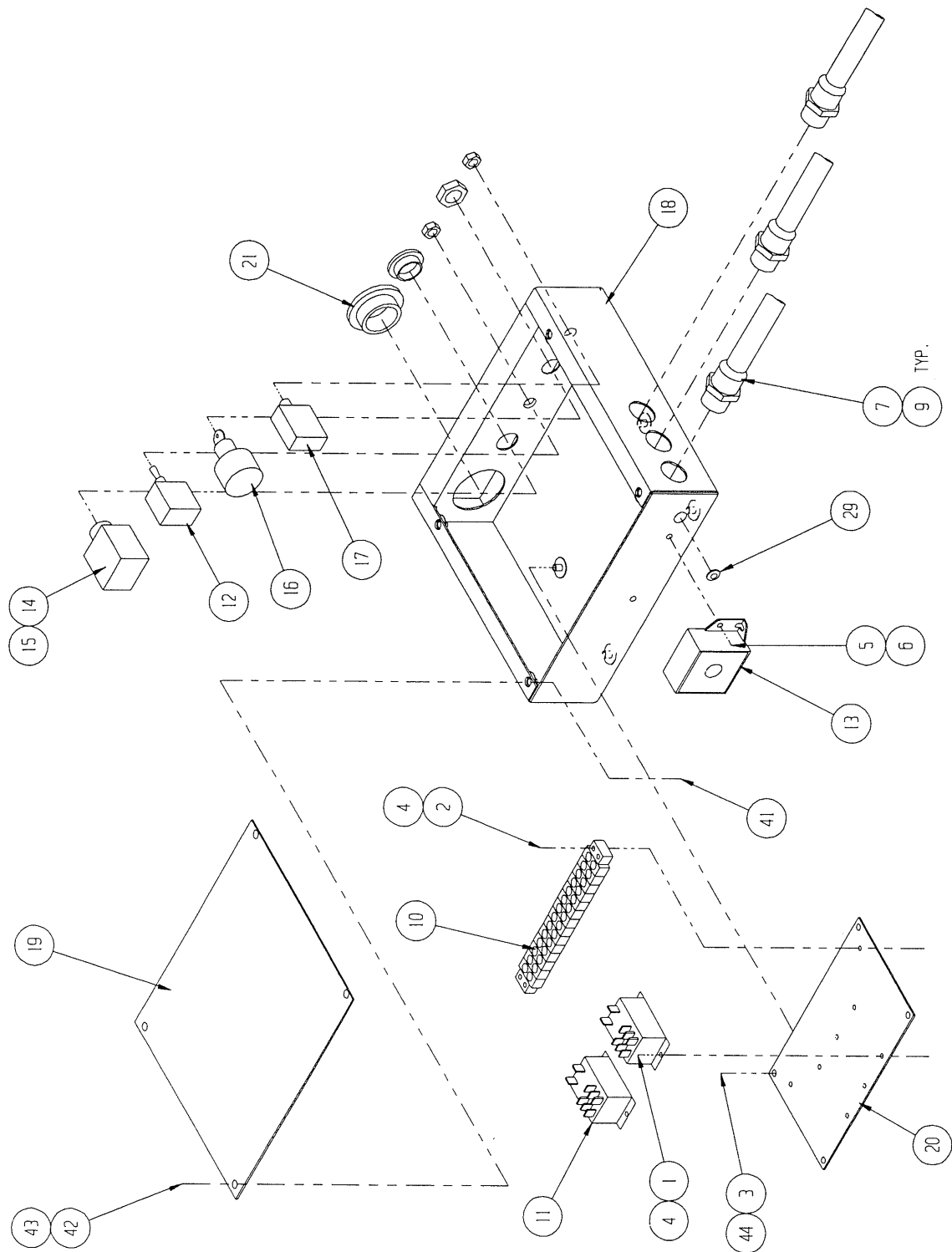
ITEM	PART	DESCRIPTION	QTY.
1	11715-004	SCREW, 6-32 UNC MACH RD HD X 1/2	4
2	11715-006	SCREW, 6-32 UNC MACH RD HD X 3/4	2
3	11826-004	SCREW, 10-32 UNC MACH RD HD X 1/2	4
4	11250-001	HEXNUT, 6-32 UNC	6
5	11252-006	CAP SCREW, 1/4-20 X 3/4 LG	2
6	11248-004	HEXNUT, 1/4-20 UNC	2
7	29939-003	LOCKNUT	3
9	29925-010	CONN., CABLE	3
10	29928-004	TERMINAL BLOCK	1
11	29863-009	RELAY, 24 VDC	2
12	12798-001	TOGGLE SWITCH	1
13	63778-000	ALARM	1
14	63667-001	SWITCH	1
15	63667-002	CONTACT BLOCK	1
16	10155-000	KEY SWITCH	1
-	10155-001	KEY	1
17	29868-007	CIRCUIT BREAKER	1
18	66315-000	WELDMENT, LOWER CONTROL BOX	1
19	66416-000	PANEL, COVER	1
20	66419-000	PANEL, MOUNTING	1
21	66516-000	PLUG CAP	1

ITEM	PART	DESCRIPTION	QTY.
22	29610-002	CONN., FORK, 14-16 GA. #8	17
23	29610-018	CONN., FORK, 10-12 GA. #8	1
24	29601-013	CONN., RING, 14-16 GA. #10	6
25	29931-005	CONN., FEM. PUSH, 12-10 .25	1
26	29620-002	CONN., BUTT., 16-14	4
27	29931-003	CONN., PUSH, 14-16 GA. .25	11
28	29825-002	DIODE	3
29	12956-006	GROMMET, 7/16 ID	1
32	29480-099	WIRE, 10 AWG RED	FT 1
33	05487-099	WIRE, 16 AWG VIO	FT 1
34	29479-099	WIRE, 16 AWG WHT/BLK	FT 1
35	29478-099	WIRE, 16 AWG RED/BLK	FT .5
36	29456-099	WIRE, 16 AWG YEL	FT 1
37	29454-099	WIRE, 16 AWG RED	FT 1
38	29453-099	WIRE, 16 AWG ORG	FT 1
39	29452-099	WIRE, 16 AWG BLK	FT 1.5
40	29451-099	WIRE, 16 AWG WHT	FT .5
41	14252-004	NUTSERT, 1/4-20	4
42	11252-004	SCREW, HHC 1/4-20 X 1/2 LG	4
43	11240-004	WASHER, 1/4 FLAT	4
44	11240-003	WASHER, #10 FLAT	4



Illustrated Parts Breakdown

Section
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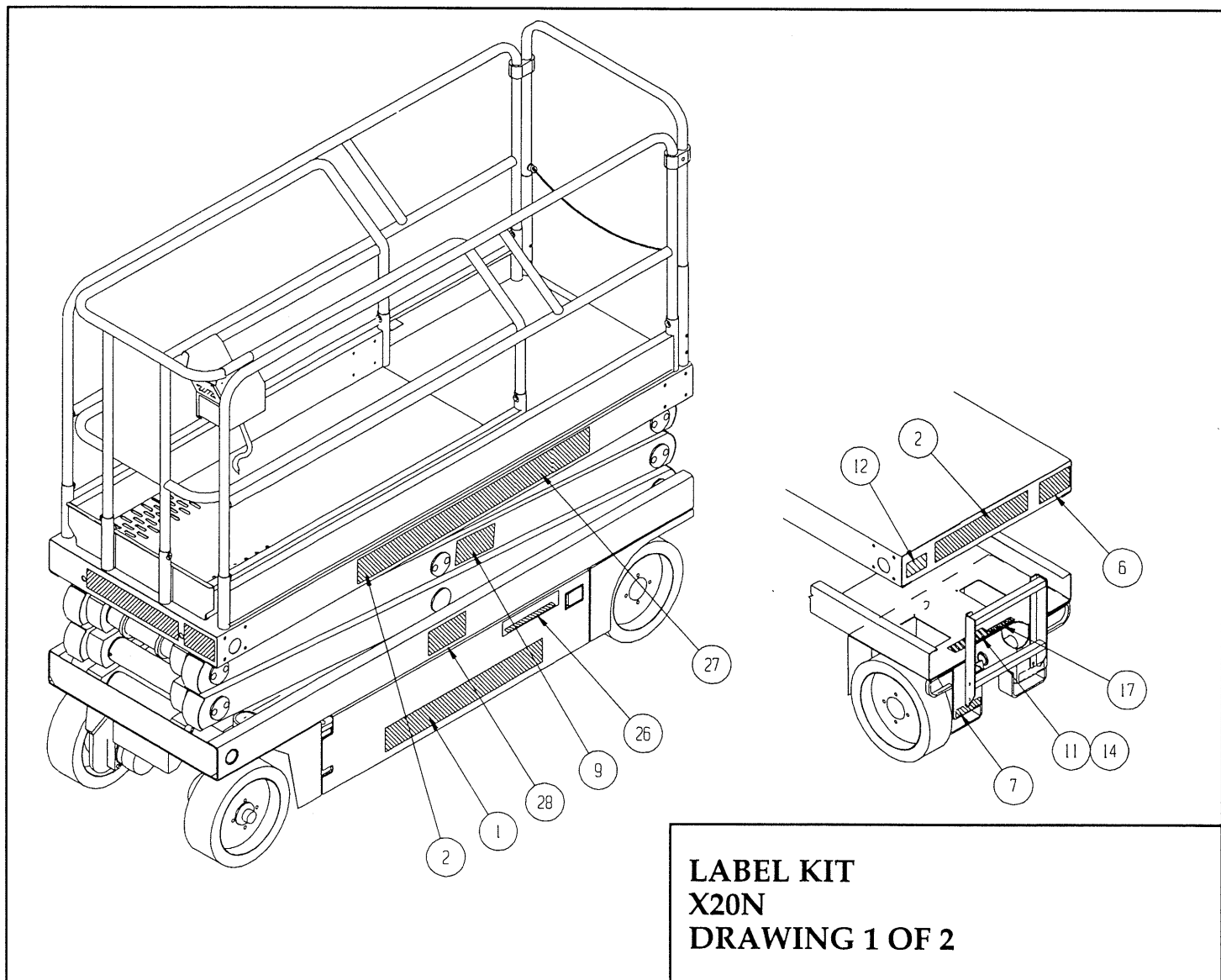
LOWER CONTROL BOX ASSY
X20N/X20W/X26N
DRAWING 2 OF 2

Illustrated Parts Breakdown

LABEL KIT X20N 66010-000

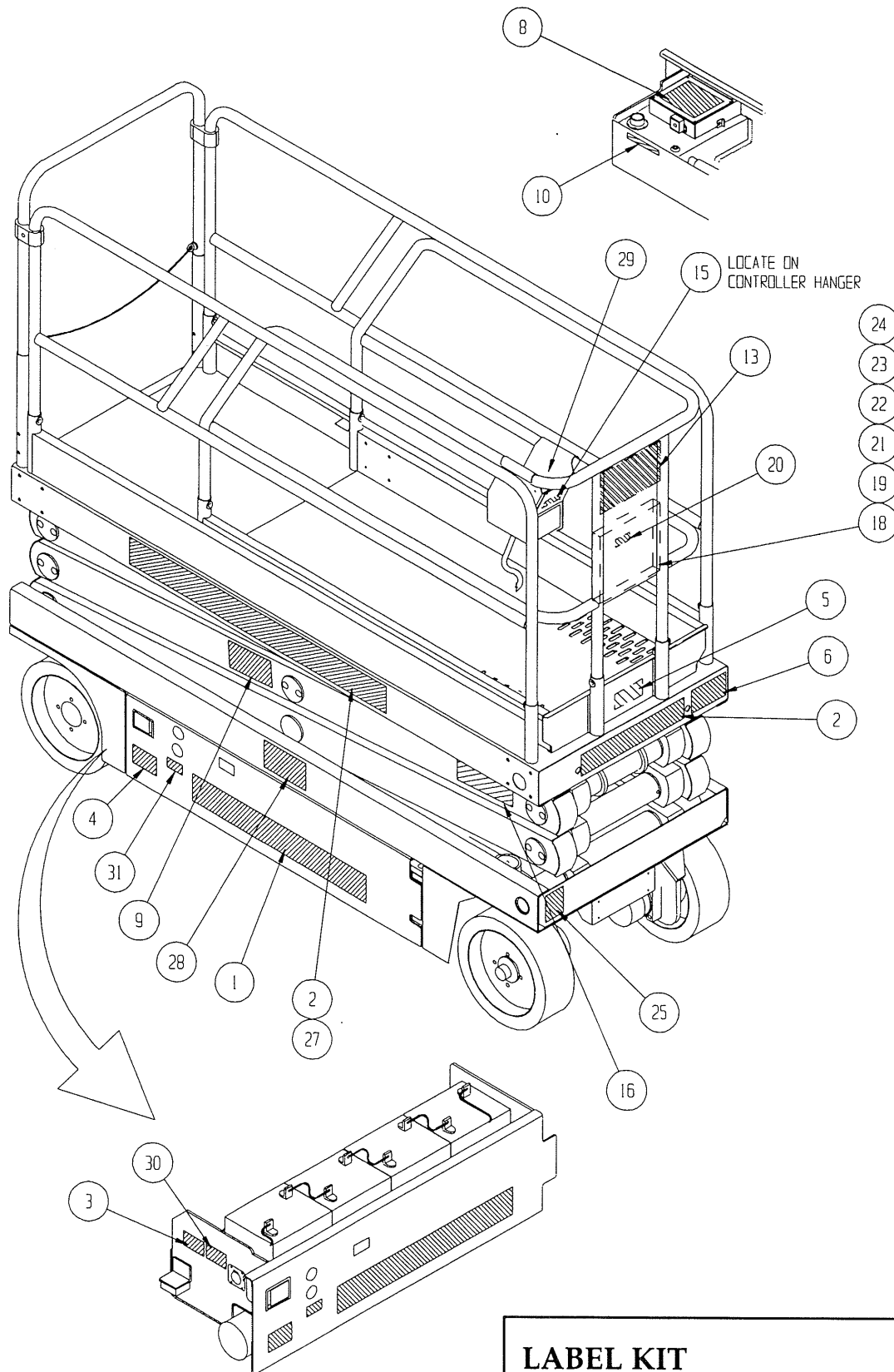
ITEM	PART	DESCRIPTION	QTY.
1	61683-006	LABEL, UPRIGHT	2
2	61683-004	LABEL, UPRIGHT	4
3	05221-000	LABEL, MANTAIN BATTERY	1
4	66552-000	LABEL, HYDROGEN GAS	1
5	66551-000	LABEL, MAX LOAD 250 LBS	1
6	66557-000	LABEL, MAX LOAD 750 LBS	2
7	14222-003-99	LABEL, FORK LIFT HERE	2
8	66555-000	LABEL, LIMIT SWITCHES	1
9	66553-000	LABEL, WARNING	2
10	60197-000	LABEL, HYDRAULIC FLUID	1
11	61205-000	LABEL, NAME PLATE	1
12	61220-001	LABEL, ANSI	1
13	66550-000	LABEL, DANGER	1
14	65368-000	TACK	4
15	66554-000	LABEL, READ INSTRUCTIONS	1
16	66561-000	LABEL, SAFETY STAND	1

ITEM	PART	DESCRIPTION	QTY.
17	66558-000	LABEL, EMERGENCY LOWERING PULL HANDLE	1
18	60572-000	USER MANUAL	1
19	60577-000	ANSI MANUAL	1
20	10076-001	LABEL, INSTRUCTIONS	1
21	10076-000	MANUAL CASE	1
22	11252-006	SCREW, HHC 1/4-20 X 3/4 LG	2
23	11248-004	NUT, 1/4-20 HEX	2
24	11240-004	WASHER, 1/4 FLAT	2
25	66556-000	LABEL, WARNING (COLLISION)	1
26	66559-000	LABEL, LOWER CONTROLS	1
27	61684-018	LABEL, X 20 N	2
28	61684-016	LABEL, X	2
29	66560-000	LABEL, CONTROLLER	1
30	62562-001	LABEL, BATTERIES	1
31	66522-000	LABEL, BATTERY CHARGER	1



Illustrated Parts Breakdown

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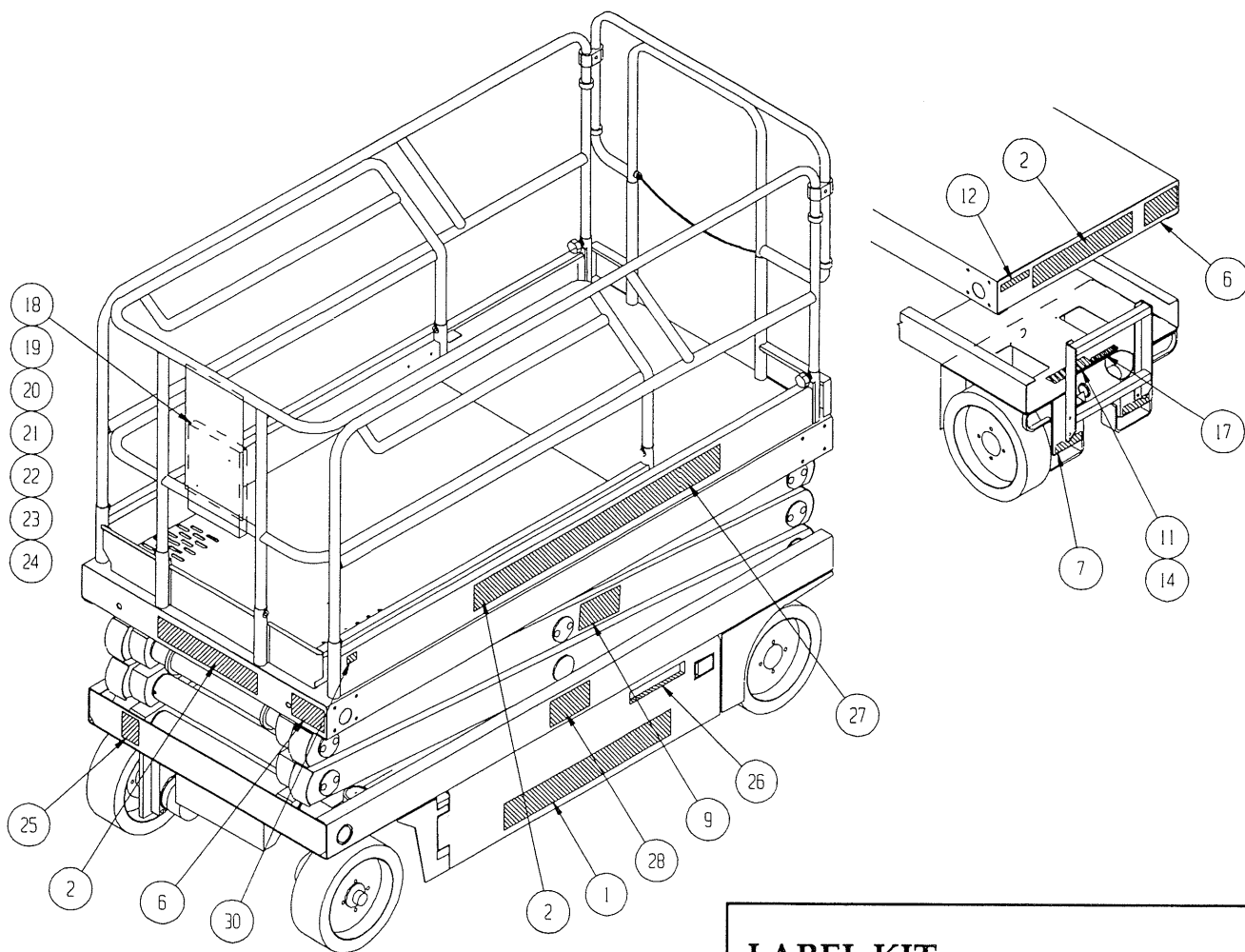
LABEL KIT
X20N
DRAWING 2 OF 2

Illustrated Parts Breakdown

LABEL KIT X20W 66060-000

ITEM	PART	DESCRIPTION	QTY.
1	61683-006	LABEL, UPRIGHT	2
2	61683-004	LABEL, UPRIGHT	4
3	05221-000	LABEL, MANTAIN BATTERY	1
4	66552-000	LABEL, HYDROGEN GAS	1
5	66551-000	LABEL, MAX LOAD 250 LBS	1
6	66566-000	LABEL, MAX LOAD 1000 LBS	2
7	14222-003-99	LABEL, FORK LIFT HERE	2
8	66555-000	LABEL, LIMIT SWITCHES	1
9	66553-000	LABEL, WARNING	2
10	60197-000	LABEL, HYDRAULIC FLUID	1
11	61205-000	LABEL, NAME PLATE	1
12	61220-001	LABEL, ANSI	1
13	66550-000	LABEL, DANGER	1
14	65368-000	TACK	4
15	66554-000	LABEL, READ INSTRUCTIONS	1
16	66561-000	LABEL, SAFETY STAND	1

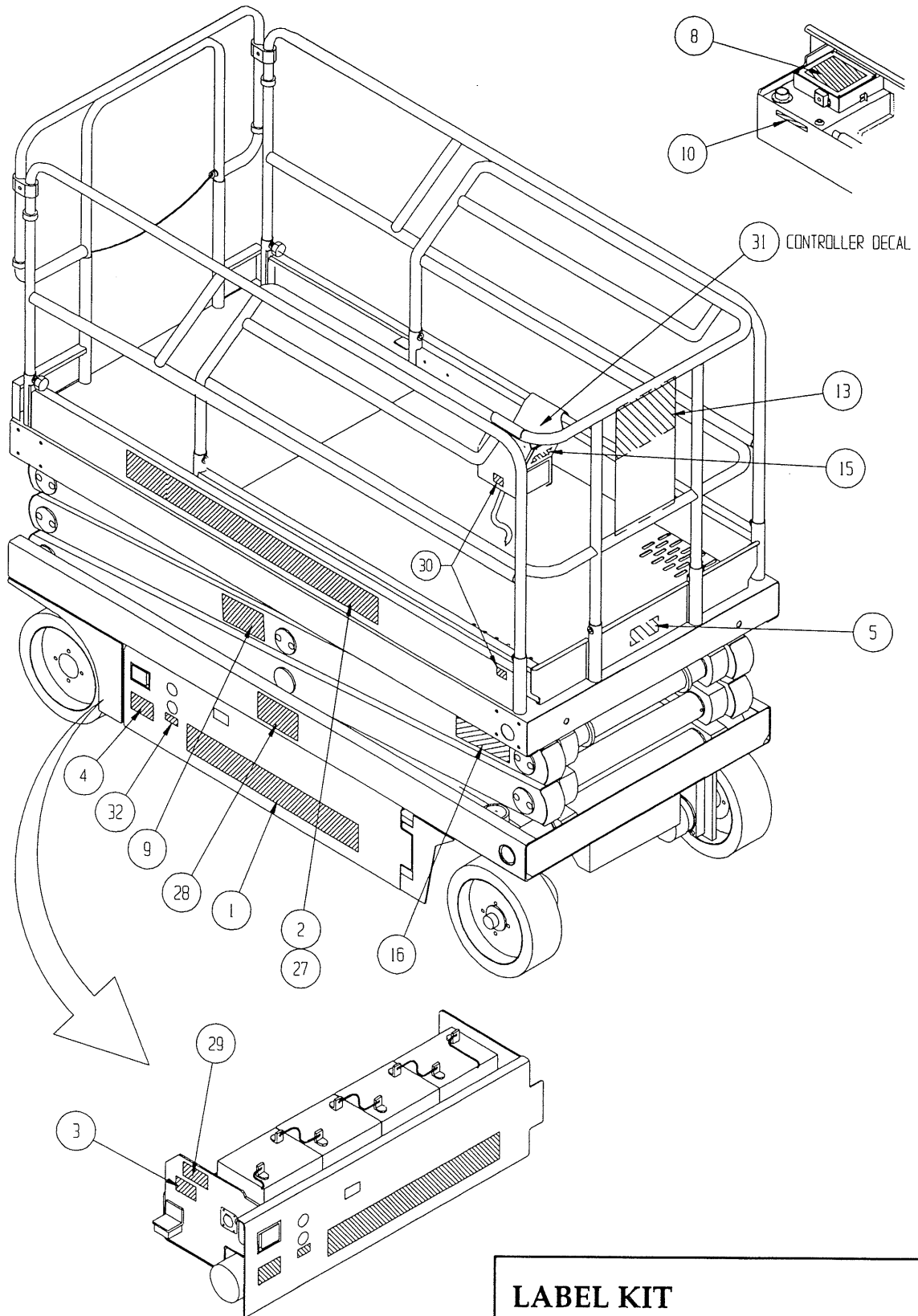
ITEM	PART	DESCRIPTION	QTY.
17	66558-000	LABEL, EMERGENCY LOWERING PULL HANDLE	1
18	60572-000	USER MANUAL	1
19	60577-000	ANSI MANUAL	1
20	10076-001	LABEL, INSTRUCTIONS	1
21	10076-000	MANUAL CASE	1
22	11252-006	SCREW, HHC 1/4-20 X 3/4 LG	2
23	11248-004	NUT, 1/4-20 HEX	2
24	11240-004	WASHER, 1/4 FLAT	2
25	66556-000	LABEL, WARNING (COLLISION)	1
26	66559-000	LABEL, LOWER CONTROLS	1
27	61684-019	LABEL, X 20 W	2
28	61684-016	LABEL, X	2
29	62562-001	LABEL, DANGER	1
30	64444-000	LABEL, USA	4
31	66560-000	LABEL, CONTROLLER	1
32	66522-000	LABEL, BATTERY CHARGER	1



**LABEL KIT
X20W
DRAWING 1 OF 2**

Illustrated Parts Breakdown

Section
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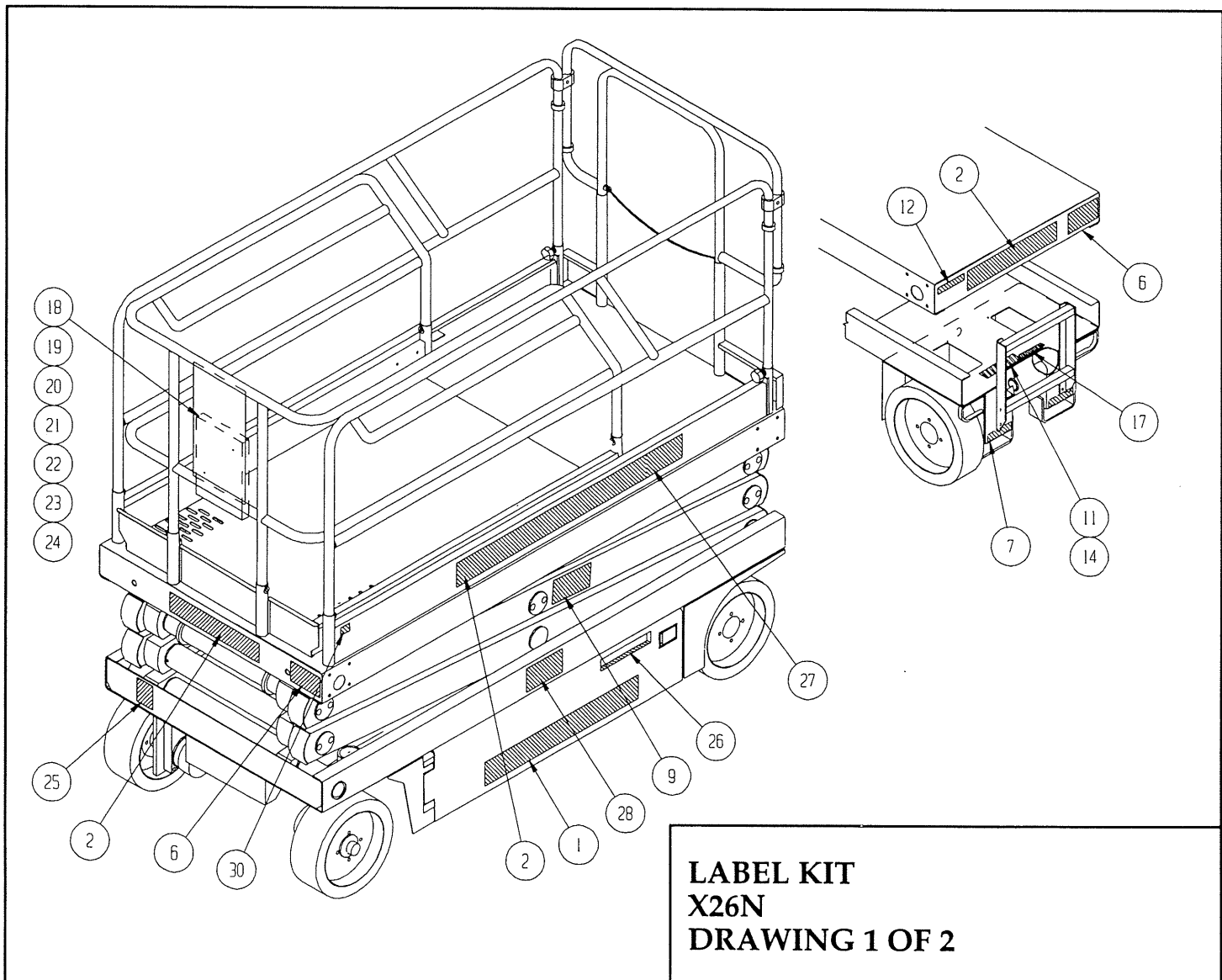
LABEL KIT
X20W
DRAWING 2 OF 2

Illustrated Parts Breakdown

LABEL KIT X26N 66110-000

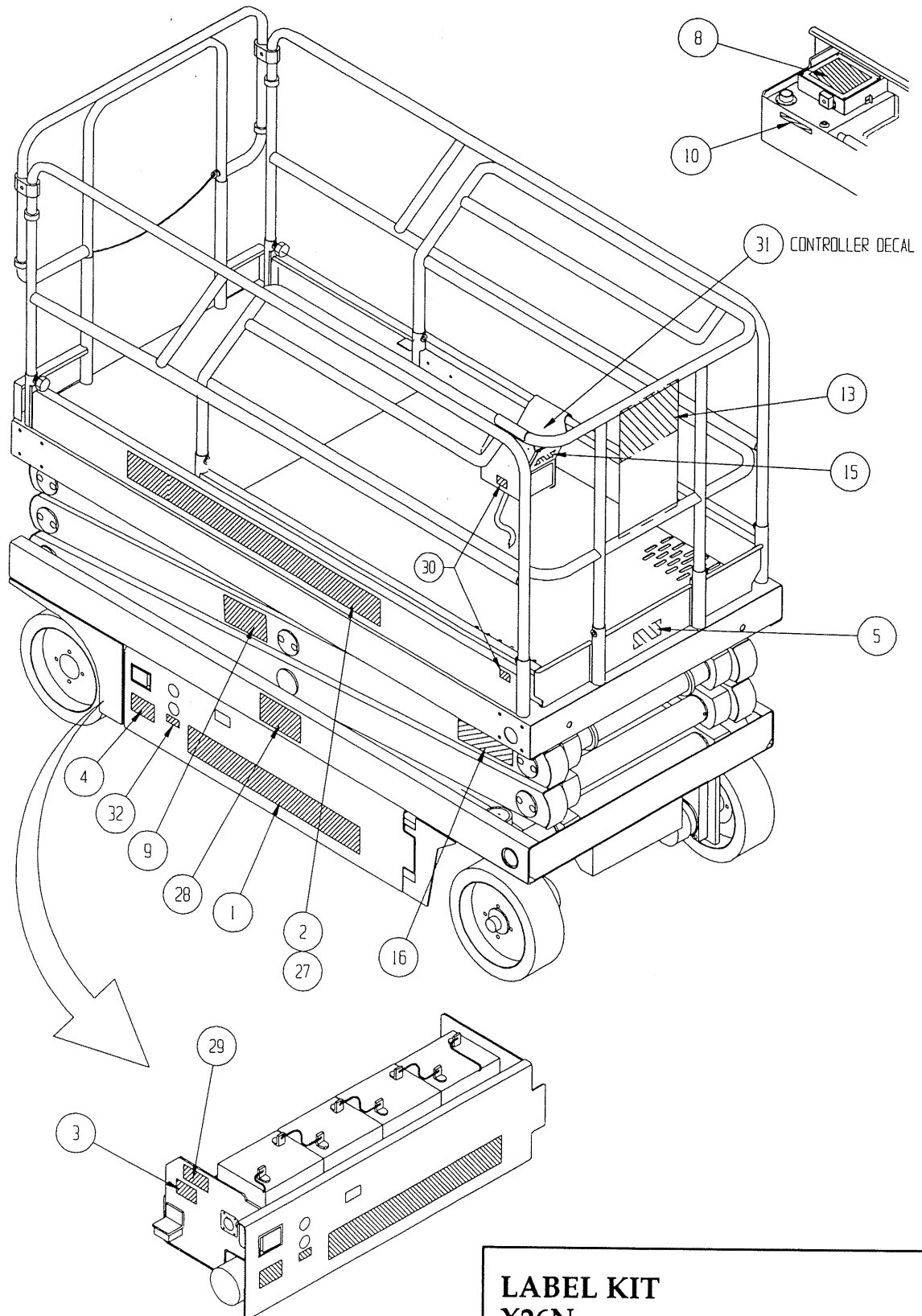
ITEM	PART	DESCRIPTION	QTY.
1	61683-006	LABEL, UPRIGHT	2
2	61683-004	LABEL, UPRIGHT	4
3	05221-000	LABEL, MANTAIN BATTERY	1
4	66552-000	LABEL, HYDROGEN GAS	1
5	66551-000	LABEL, MAX LOAD 250 LBS	1
6	66566-000	LABEL, MAX LOAD 1000 LBS	2
7	14222-003-99	LABEL, FORK LIFT HERE	2
8	66555-000	LABEL, LIMIT SWITCHES	1
9	66553-000	LABEL, WARNING	2
10	60197-000	LABEL, HYDRAULIC FLUID	1
11	61205-000	LABEL, NAME PLATE	1
12	61220-001	LABEL, ANSI	1
13	66550-000	LABEL, DANGER	1
14	65368-000	TACK	4
15	66554-000	LABEL, READ INSTRUCTIONS	1
16	66561-000	LABEL, SAFETY STAND	1

ITEM	PART	DESCRIPTION	QTY.
17	66558-000	LABEL, EMERGENCY LOWERING PULL HANDLE	1
18	60572-000	USER MANUAL	1
19	60577-000	ANSI MANUAL	1
20	10076-001	LABEL, INSTRUCTIONS	1
21	10076-000	MANUAL CASE	1
22	11252-006	SCREW, HHC 1/4-20 X 3/4 LG	2
23	11248-004	NUT, 1/4-20 HEX	2
24	11240-004	WASHER, 1/4 FLAT	2
25	66556-000	LABEL, WARNING (COLLISION)	1
26	66559-000	LABEL, LOWER CONTROLS	1
27	61684-020	LABEL, X 26 N	2
28	61684-016	LABEL, X	2
29	62562-001	LABEL, DANGER	1
30	64444-000	LABEL, USA	4
31	66560-000	LABEL, CONTROLLER	1
32	66522-000	LABEL, BATTERY CHARGER	1



Illustrated Parts Breakdown

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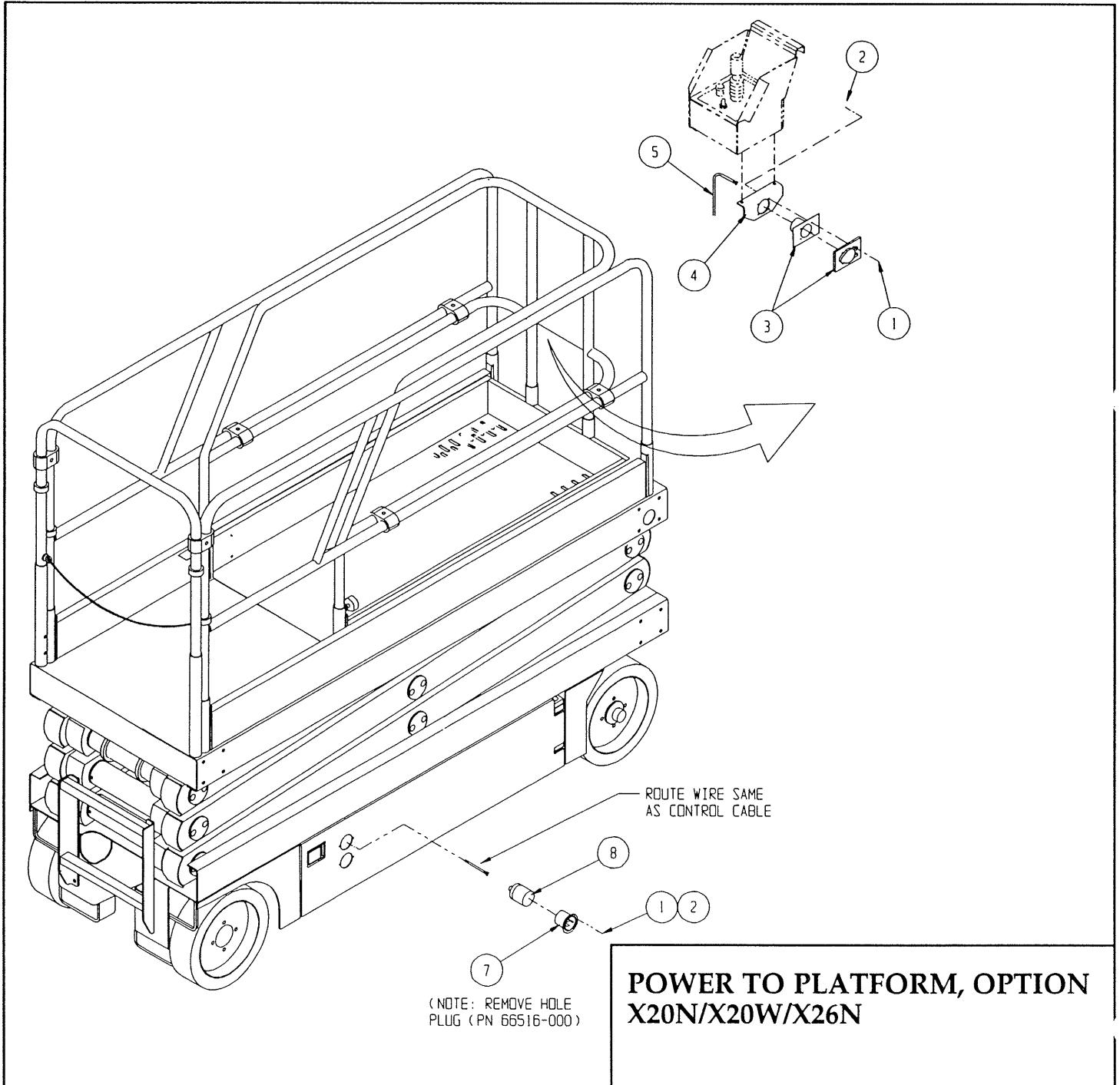


LABEL KIT
X26N
DRAWING 2 OF 2

Illustrated Parts Breakdown

POWER TO PLATFORM, OPTION X20N/X20W/X26N 66610-000

ITEM	PART	DESCRIPTION	QTY.
1	06464-004	SCREW, RD. HD 6-32 X 1/2	6
2	11248-047	NUT, ESNA #6-32	6
3	08942-001	OUTLET, AC	1
4	66505-000	BRACKET	1
5	29495-099	WIRE, 14GA. 3 COND.	50 FT
7	29961-000	INLET PLUG, AC	1
8	29961-001	SEAL, INLET PLUG	1

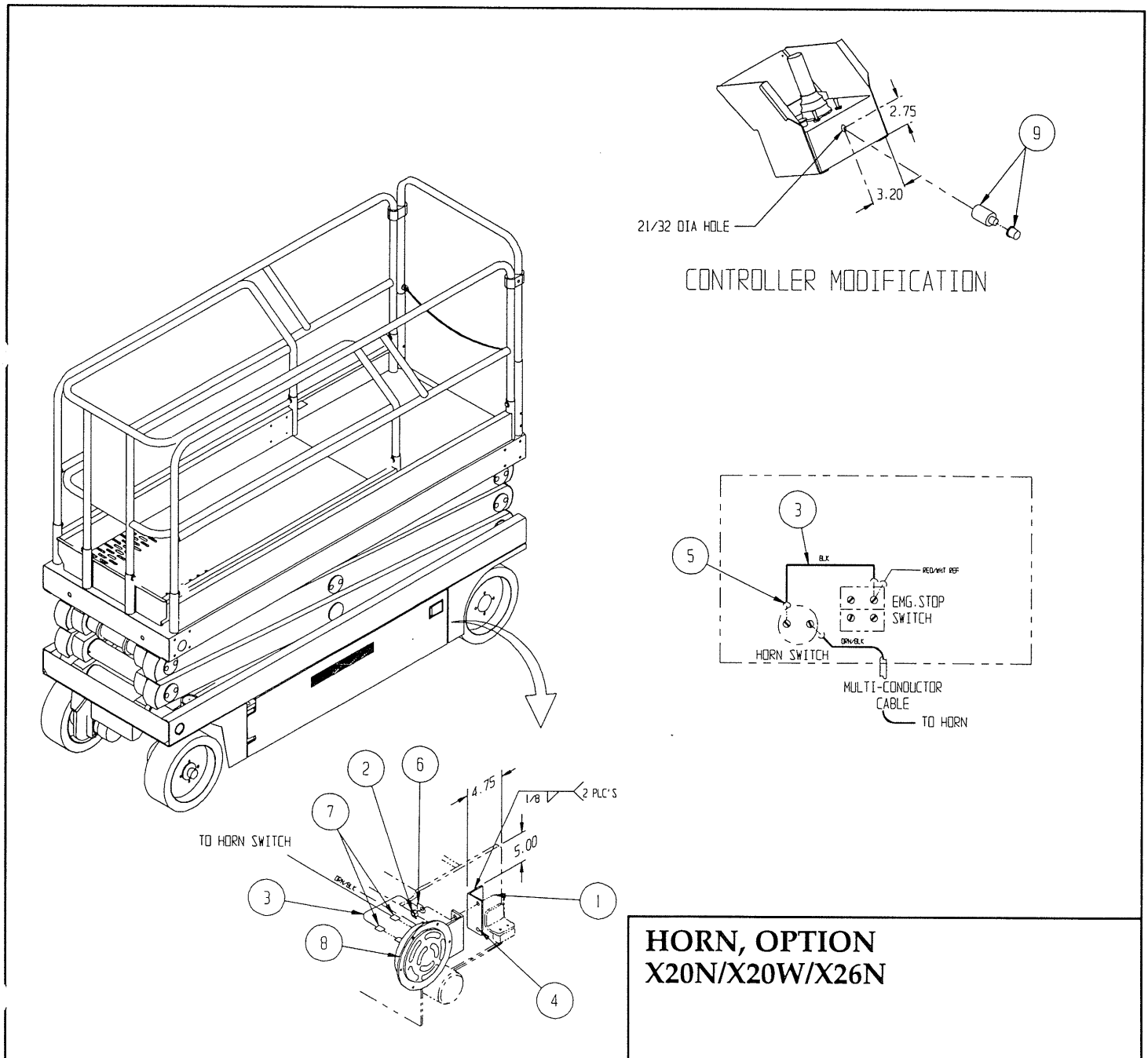


Illustrated Parts Breakdown

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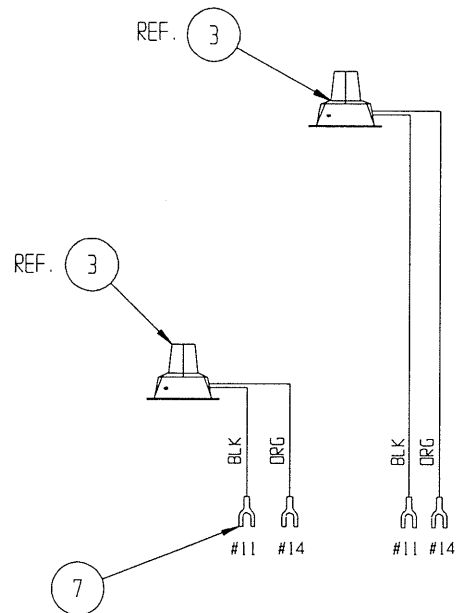
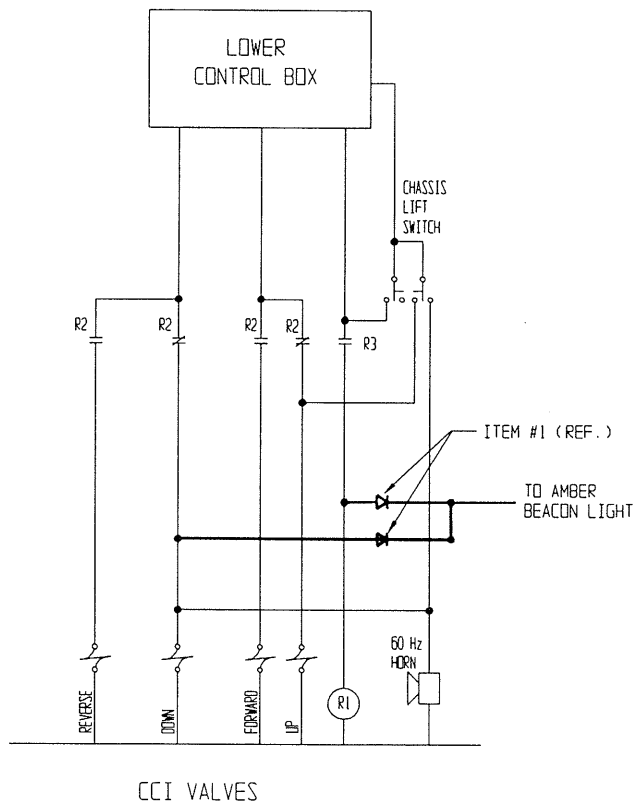
HORN, OPTION X20N/X20W/X26N 66614-000

ITEM	PART	DESCRIPTION	QTY.
1	11252-008-00	SCREW, HHC 1/4-20 X 1	2
2	11248-004-00	NUT, HEX 1/4-20	2
3	29452-099-00	WIRE, 16 GA. BLACK	1 FT
4	66507-000-00	BRACKET, HORN	1
5	29610-002-00	CONNECTOR, FORK	3
6	29601-014-00	CONNECTOR, RING	1
7	29615-002-00	CONNECTOR, PUSH	2
8	29958-000-00	HORN, 24V	1
9	63917-000-00	SWITCH, PUSHBUTTON	1



FLASHING AMBER LIGHT, OPTION X20N/X20W/X26N 66611-000

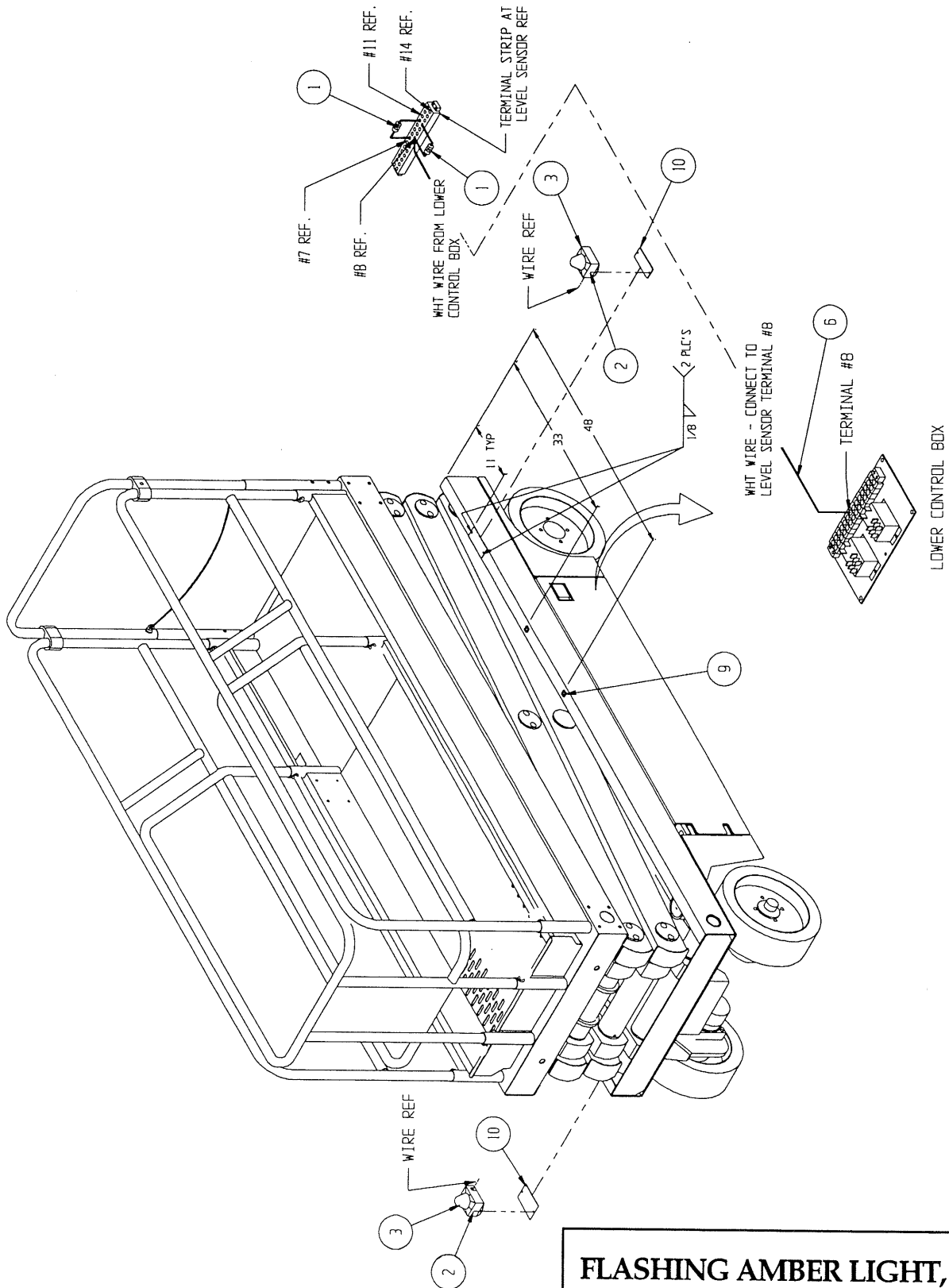
ITEM	PART	DESCRIPTION	QTY.
1	29825-002-00	DIODE	2
2	11826-004-00	SCREW, MACH RD HD 10-32 UNF X 1/2	4
3	12848-004-00	LIGHT, FLASHING	2
5	29453-099-00	WIRE, 16 GA. ORN	9 FT
6	29451-099-00	WIRE, 16 GA. WHT	9 FT
7	29610-001-00	CONNECTOR, FORK	4
9	13283-002-00	CABLE TIE	2
10	66505-000-00	BRACKET, LIGHT MOUNT	2
11	29452-099-00	WIRE, 16 GA. BLK	9 FT



**FLASHING AMBER LIGHT, OPTION
X20N/X20W/X26N
DRAWING 1 OF 2**

Illustrated Parts Breakdown

Section
7.2

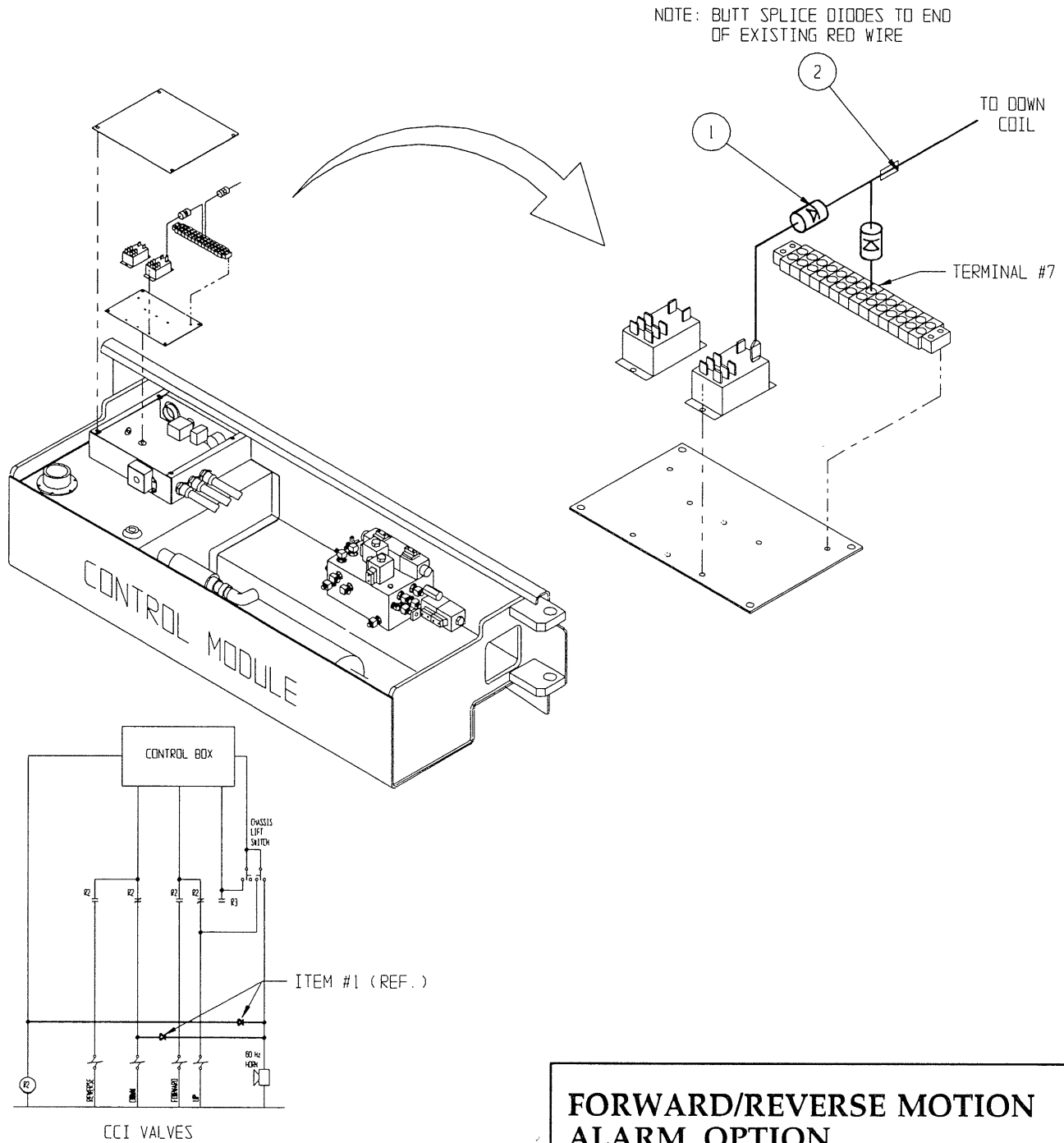


**FLASHING AMBER LIGHT, OPTION
X20N/X20W/X26N
DRAWING 2 OF 2**

Illustrated Parts Breakdown

FWD/REV MOTION ALARM, OPTION
X20N/X20W/X26N
66612-000

ITEM	PART	DESCRIPTION	QTY.
1	29825-002	DIODE	2
2	29620-003	CONN., BUTT 12-10	1



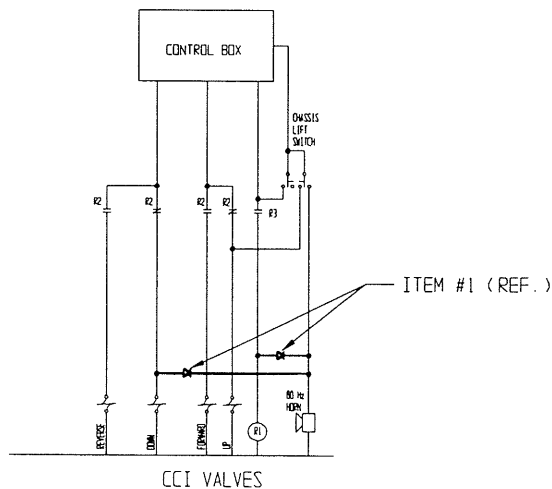
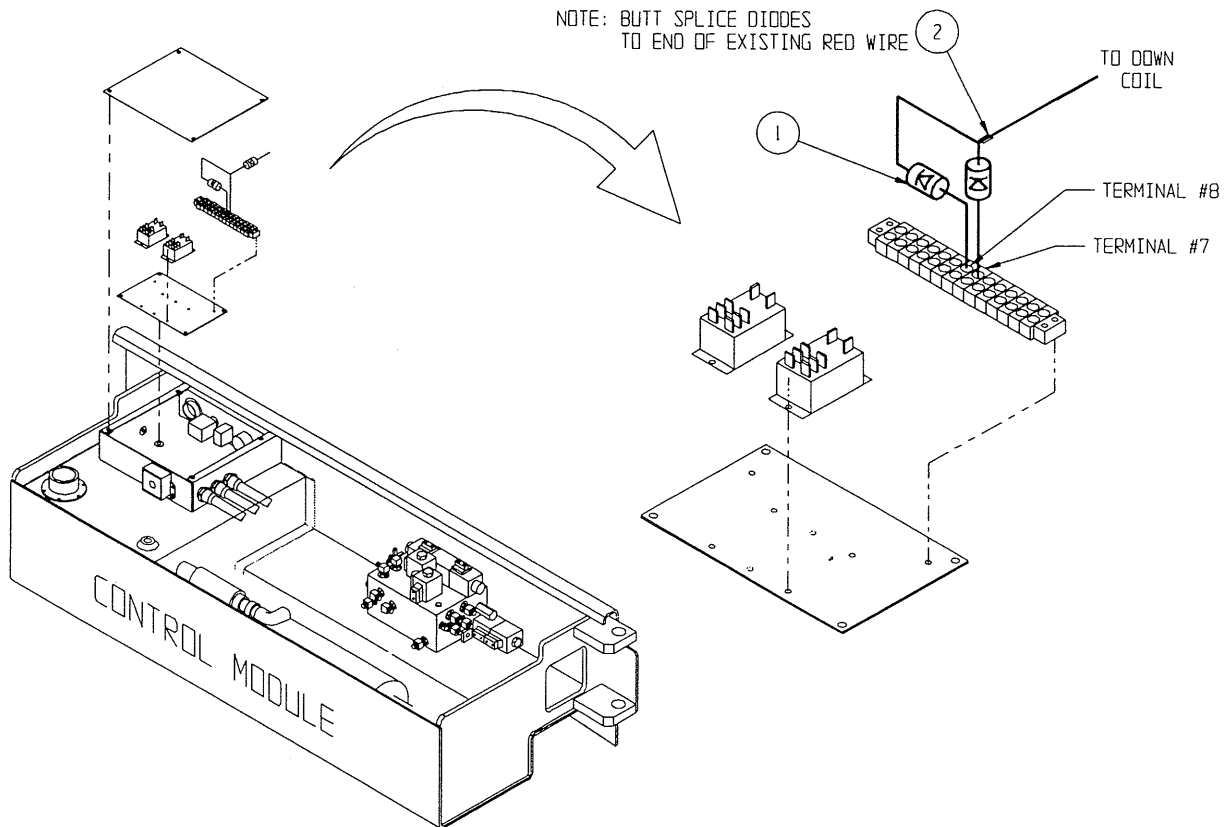
**FORWARD/REVERSE MOTION
ALARM, OPTION**

Illustrated Parts Breakdown

Section
7.2

FWD/REV/UP MOTION ALARM, OPTION X20N/X20W/X26N 66616-000

ITEM	PART	DESCRIPTION	QTY.
1	29825-002	DIODE	2
2	29620-003	CONN., BUTT 12-10	1



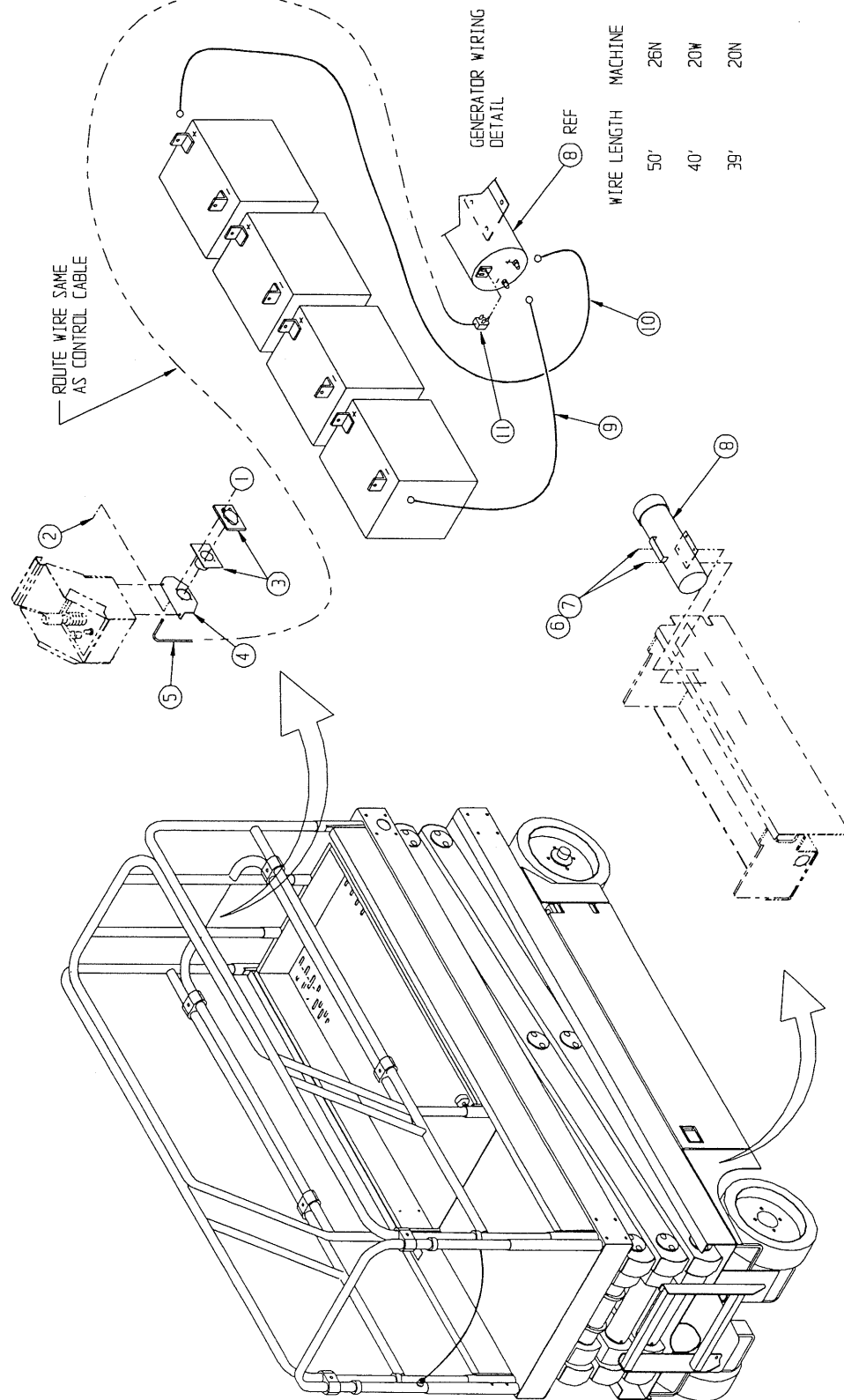
**FORWARD/REVERSE/UP MOTION
ALARM, OPTION**

**GENERATOR, OPTION
X20N/X20W/X26N
66615-000**

ITEM	PART	DESCRIPTION	QTY.
1	11715-004	SCREW, RD. HD. #6-32 X 1/2 LG.	4
2	11248-047	NUT, ESNA #6-32	4
3	08942-001	OUTLET, HUBBELL #61CM65	1
4	66505-000	BRACKET	1
5	29495-099	WIRE, 14GA 3 COND.	50'
6	11248-004	NUT 1/4-20 UNC	2
7	11252-008	SCREW HHC 1/4-20 X 1	2
8	26461-000	GENERATOR HONEYWELL #DA24A 24V	1
9	64195-044	CABLE ASSY (NEG) 44"	1
10	64195-024	CABLE ASSY (POS) 24"	1
11	29938-000	THREE PRONG PLUG - 90°	1

Illustrated Parts Breakdown

Section
7.2



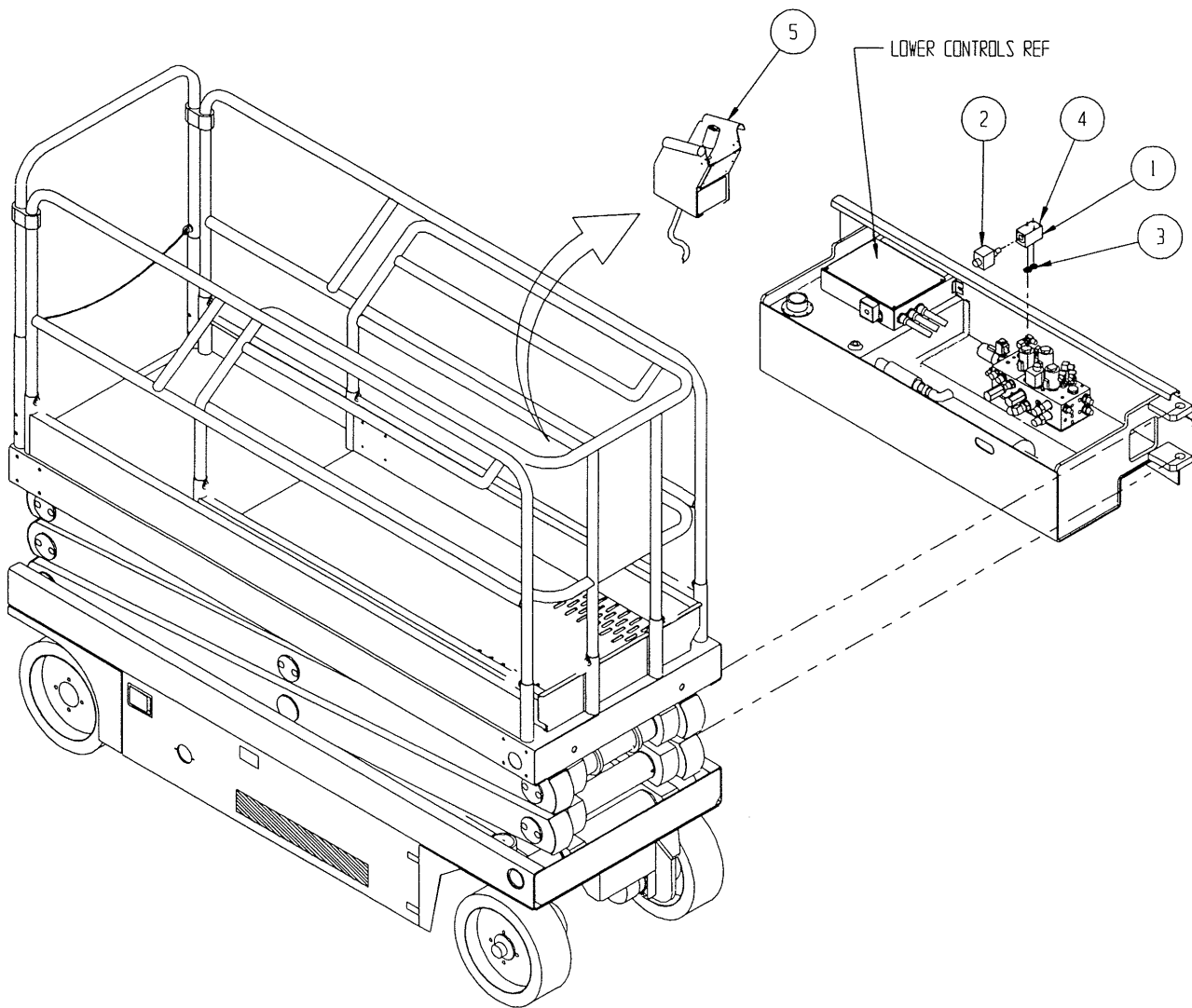
**GENERATOR, OPTION
X20N/X20W/X26N**

Illustrated Parts Breakdown

PROPORTIONAL CONTROL, OPTION X20N,X20W,X26N 66628-000

ITEM	PART	DESCRIPTION	QTY.
1	65374-000	PROPORTIONAL VALVE BLOCK	1
2	63986-002	PROPORTIONAL VALVE	1
3	11979-008	O-RING	2
4	14412-016	SCREW, #10-24 X 2 SOC HD	4
5	66020-000	PROPORTIONAL CONTROLLER	1
6	29825-002	DIODE	2
7	29620-002	CONN., BUTT. 16-14 GA	3

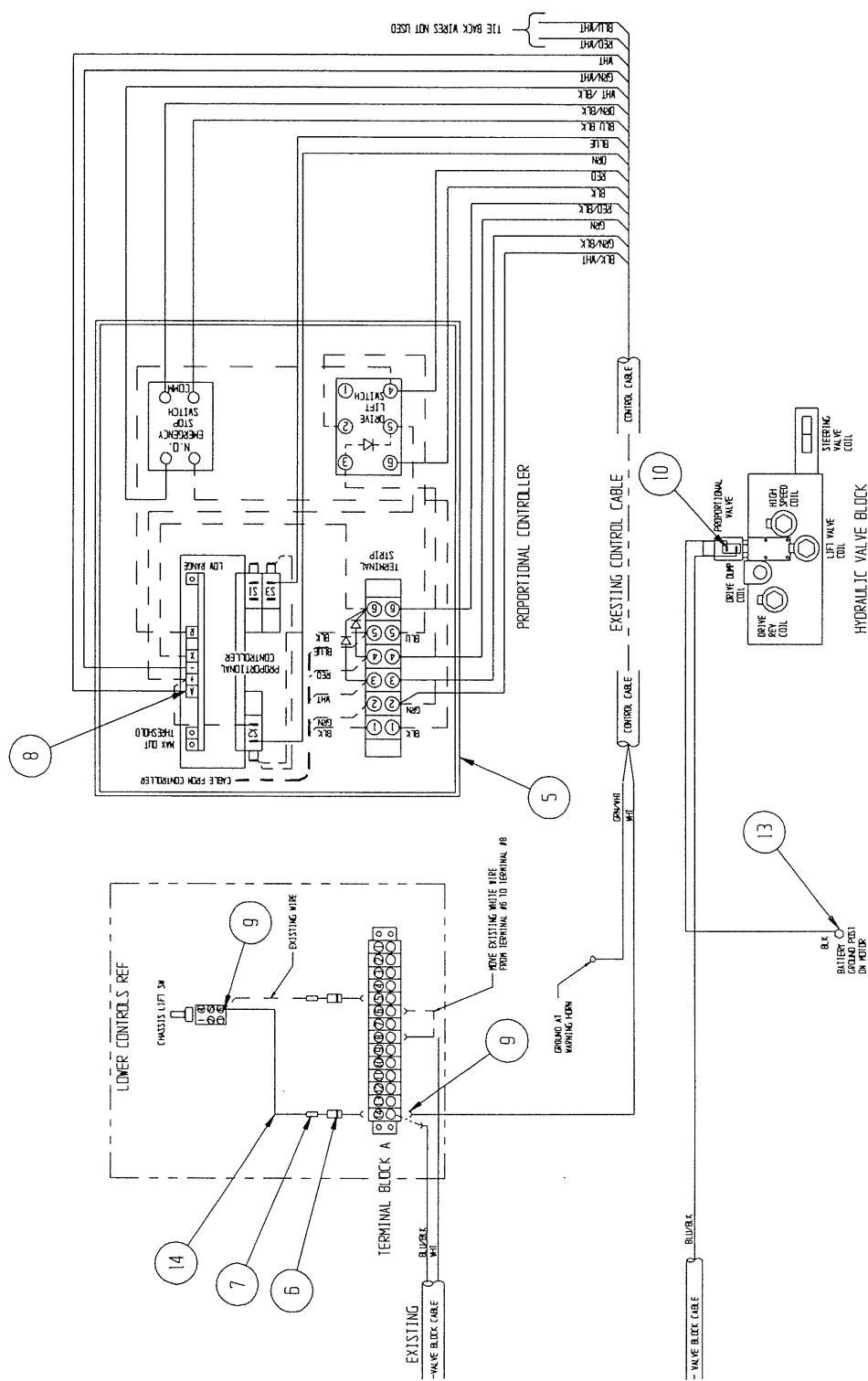
ITEM	PART	DESCRIPTION	QTY.
8	29620-002	CONN., #6 RING, 16-14 GA	2
9	29610-001	CONN., FORK, 16-14 GA	5
10	29615-002	CONN., PUSH, ON	2
13	29601-015	CONN., RING, 16-14 GA	1
14	29452-099	WIRE, 16 GA. BLK	3 FT



PROPORTIONAL CONTROL, OPTION
X20N,X20W,X26N
DRAWING 1 OF 2

Illustrated Parts Breakdown

Section
7.2



PROPORTIONAL CONTROL, OPTION
X20N, X20W, X26N
DRAWING 2 OF 2

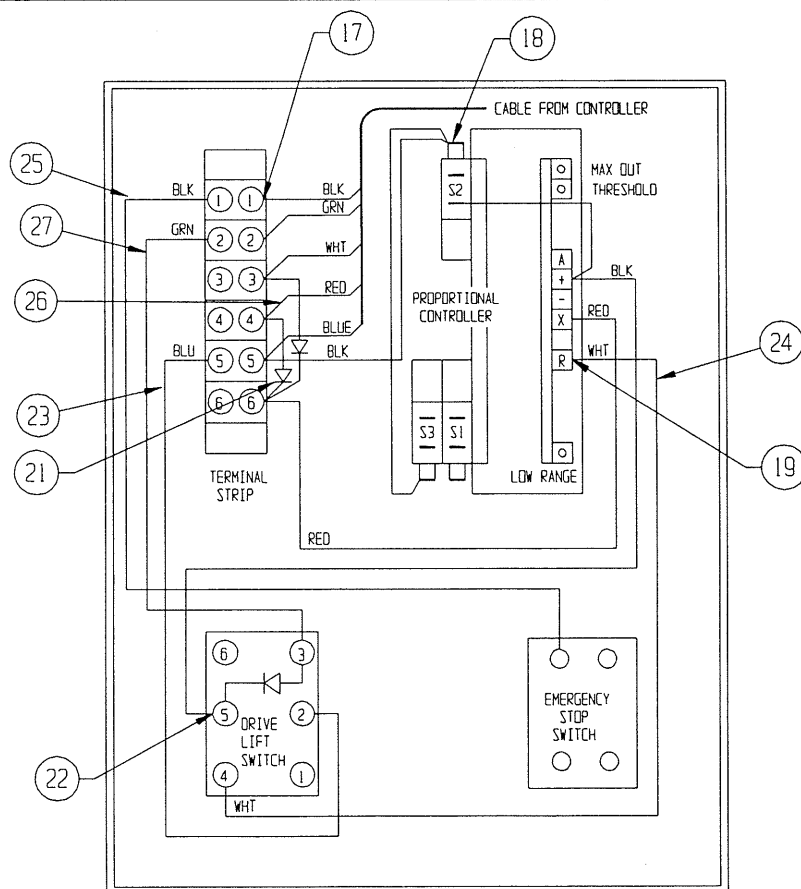
Illustrated Parts Breakdown

PROPORTIONAL CONTROLLER, OPTION X20N,X20W,X26N 66020-000

ITEM	PART	DESCRIPTION	QTY.
1	11715-006	SCREW, 6-32 UNC MACH RD HD X 3/4	2
2	11248-047	HEX NUT, 6-32 UNC	2
3	11252-004	SCREW, 1/4-20 UNC HHC X 1/2	4
4	11238-004	WASHER, 1/4 LOCK	4
5	26551-007	RIVET, 1/8 DIA X 1/4-5/16 GRIP	6
6	15941-001	SWITCH	1
7	29872-000	BOOT	1
8	29925-000	CONN., CABLE	1
9	66175-001	BOX ENCLOSURE	1
11	66092-000	PANEL, CONTROLLER	1
12	66544-000	CONTROLLER, JOYSTICK	1
*	15772-001	SWITCH	4
*	63913-002	SWITCH, STEERING	2
-	63913-003	BOOT, STEERING SWITCH	1
*	63913-004	ROCKER ASSEMBLY	1
-	66544-010	HANDLE, 2 PIECE	1
*	66544-011	LEVER, INTERLOCK	1
*	66544-012	SWITCH, INTERLOCK	1
-	66544-013	BOOT, JOYSTICK SHAFT	1

ITEM	PART	DESCRIPTION	QTY.
13	63667-001	PUSH BUTTON	1
14	66094-000	PANEL, CONTROLLER L.H.	1
15	66095-000	PANEL, CONTROLLER R.H.	1
16	29928-003	TERMINAL BLOCK (6 CONTACTS)	1
17	29610-002	CONN., FORK 14-16 GA #8	17
18	29615-002	CONN., PUSH 14-16 GA #8	3
19	29601-011	CONN., #6 RING 16-14 GA	4
20	63667-003	CONTACT BLOCK	1
21	29825-002	DIODE	3
22	29601-013	CONN., #10 RING 16-14 GA	4
23	29450-099	WIRE, 16 GA BLU	1 FT
24	29451-099	WIRE, 16 GA WHT	1 FT
25	29452-099	WIRE, 16 GA BLK	2 FT
26	29454-099	WIRE, 16 GA RED	1 FT
27	29457-099	WIRE, 16 GA GRN	1 FT

*Not Shown

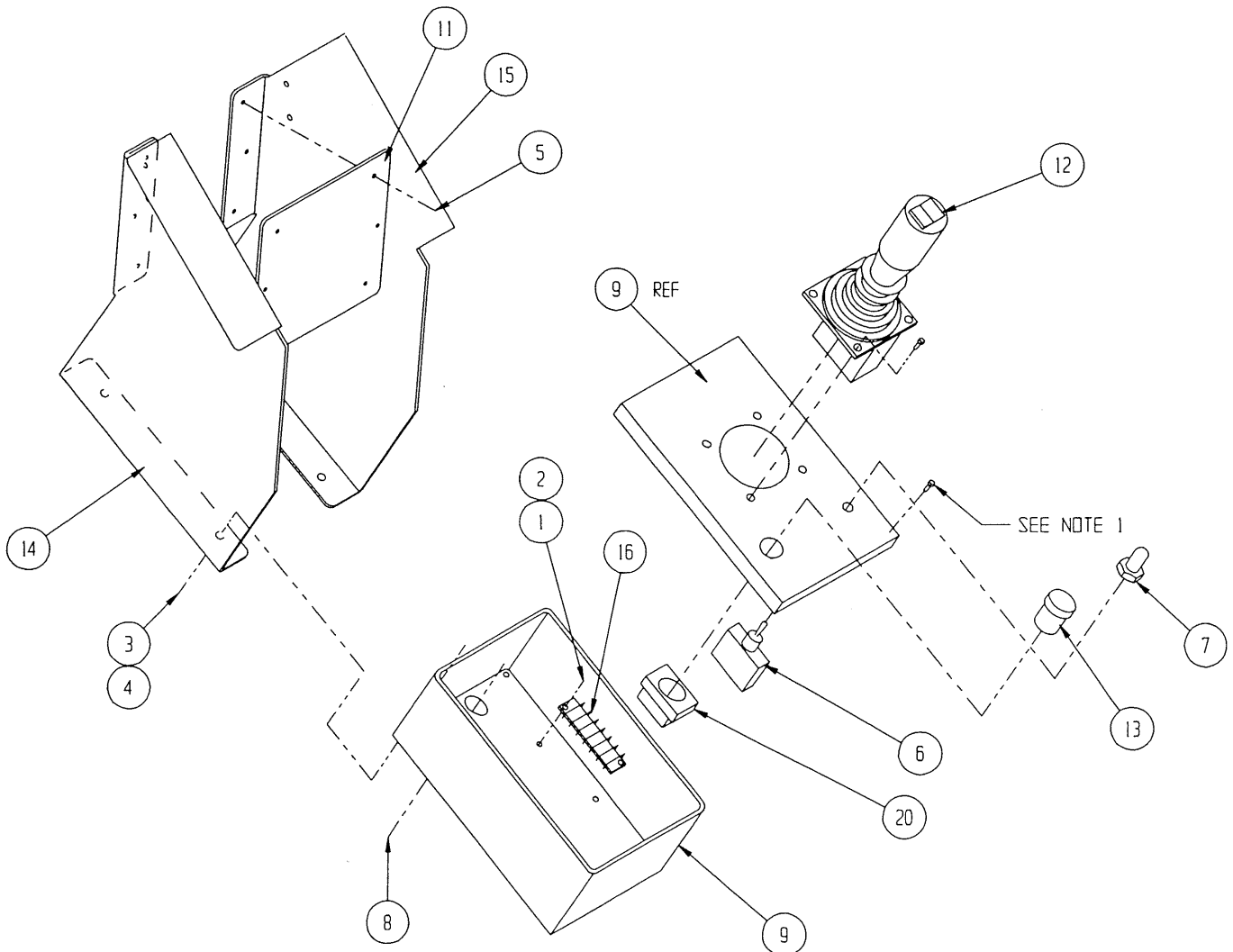


PROPORTIONAL CONTROLLER, OPTION
X20N,X20W,X26N
DRAWING 1 OF 2

Illustrated Parts Breakdown

Section
7.2

1. SUPPLIED WITH BOX.

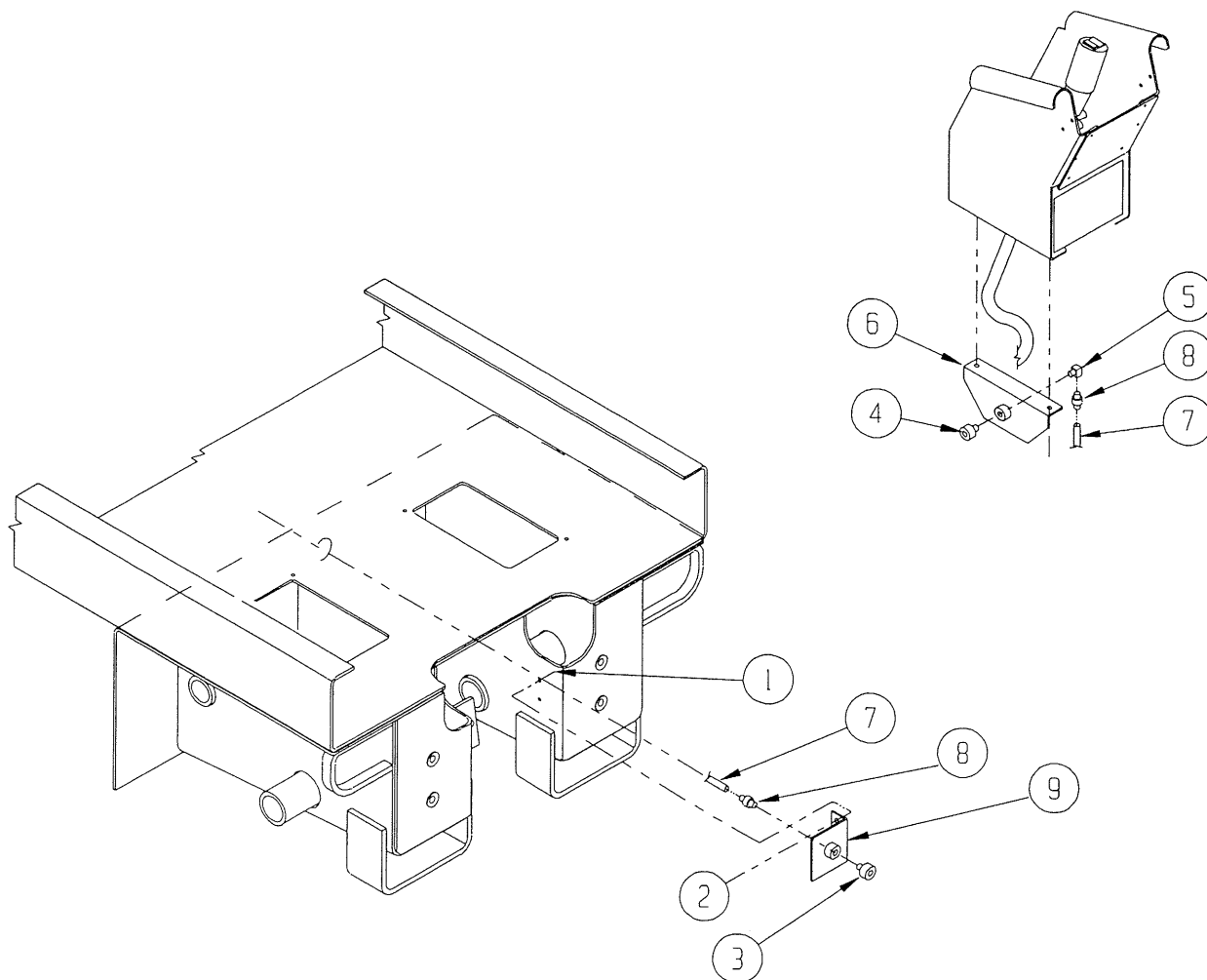


PROPORTIONAL CONTROLLER, OPTION
X20N, X20W, X26N
DRAWING 2 OF 2

Illustrated Parts Breakdown

AIR TO PLATFORM, OPTION X20N/X20W/X26N 66629-000

ITEM	PART	DESCRIPTION	QTY.
1	11249-003	LOCK NUT, ESNA HEX #10-32	2
2	11826-008	SCREW, RD.HD. MACH #10-32	2
3	12728-000	COUPLING, MALE AIR	1
4	12729-003	COUPLING, MALE AIR	1
5	11917-007	FITTING, 90°	1
6	63594-001	BRACKET WELDMENT	1
7	15770-099	HOSE, 3/8 SYNFLX 3600-06	36 FT
8	64274-002	FITTING, HOSE	2
9	63191-000	BRACKET	1



**AIR TO PLATFORM, OPTION
X20N/X20W/X26N**

NOTES

NOTES

UpRight

Call Toll Free in U.S.A.

1-800-926-LIFT

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Fresno, California 93725

TEL: 559-443-6601

FAX: 559-268-1756

PARTS: 1-866-843-3381

UpRight

Call Toll Free in U.S.A.

P/N 060571-001
06-02

UpRight

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