

TABLE OF CONTENTS

USERS MANUAL P/N 22117

L-21HW

5 & 7 FT. BOOMS

SECTION I

GENERAL OPERATION, INSPECTION, AND MAINTENANCE

CRANE SAFETY RULES	F1122-B	1-1
INTRODUCTION	F1111-D	1-3
OPERATING RESTRICTIONS	F1449-0	1-4
OPERATING PRACTICES	F1449-0	1-4
INSPECTION AND MAINTENANCE	F1113-D	1-7
MONTHLY INSPECTION REPORT	F1484-0	1-8

SECTION II

CRANE SYSTEMS AND TROUBLESHOOTING

CRANE OPERATION	F1399-A	2-1
HYDRAULIC SYSTEM	F1400-B	2-2
MANUAL FUNCTIONS	F1401-A	2-3
TROUBLESHOOTING HYDRAULIC CRANES	F1402-0	2-5

SECTION III

CRANE SPECIFICATIONS

LIFTING CAPACITIES	F1403-C	3-1
HOIST SPECIFICATIONS	F1403-C	3-1
BOLT SPECIFICATIONS	F1403-C	3-1

SECTION IV

PARTS

BOX PARTS LIST	F1489-A	4-1
CRANE ASSEMBLY	DWG.58245-A	4-2
PENDANT CONTROL	DWG.30122-C	4-3
TRAVEL BLOCK ASSEMBLY	DWG.32661-D	4-4
BASE-HOUSING ASSEMBLY	DWG.50722-A	4-5
FLANGE FRAME ASSEMBLY	DWG.31722-B	4-6
BOOM ASSEMBLY – 5 FT	DWG.22114-0	4-7
BOOM ASSEMBLY – 7 FT	DWG.22228-0	4-8
BOOM PRE-ASSEMBLY – 5 FT	DWG.22113-C	4-9
BOOM PRE-ASSEMBLY – 7 FT	DWG.22155-B	4-10
WINCH 2000	DWG.50658-0	4-11
ELECTRICAL SCHEMATIC	DWG.50659-0	4-12
DECAL DIAGRAM SHORTY	DWG.58311-0	4-13
DECAL DIAGRAM TALL	DWG.58310-0	4-14

WARRANTY	F1442-A
----------------	---------



F1398-E
10/2/14

HOUSTON, TEXAS
FAX: (800) 824-5559 (USA & Canada)
FAX: (713) 688-6324
PHONE: (713) 688-5533
www.liftmoore.com

THIS PAGE INTENTIONALLY LEFT BLANK



HOUSTON, TEXAS
FAX: (800) 824-5559 (USA & Canada)
FAX: (713) 688-6324
PHONE: (713) 688-5533
www.liftmoore.com

CRANE SAFETY RULES

CAUTION!

1. READ AND UNDERSTAND OPERATOR'S MANUAL.
2. INSPECT VEHICLE AND CRANE, INCLUDING ITS OPERATION, BEFORE DAILY USE.
3. USE THIS EQUIPMENT ONLY ON SOLID LEVEL GROUND WITH OUTRIGGERS OR JACKSTANDS PROPERLY SET.
4. BEFORE OPERATING THE CRANE REFER TO MAXIMUM LOAD CHART ON CRANE FOR OPERATING LOAD LIMITS.
5. BE SURE LOAD BEING LIFTED IS WITHIN SAFE WINCH CAPACITY AS WELL AS SAFE CRANE CAPACITY. MULTI-PART LINE OPERATION IS REQUIRED WHEN SINGLE LINE LOAD CAPACITY OF WINCH IS EXCEEDED.
6. DO NOT OPERATE, WALK, OR STAND UNDER THE BOOM OR ANY SUSPENDED LOAD.
7. ALWAYS PAY OUT LOAD LINE BEFORE EXTENDING BOOM. WIRE ROPE DAMAGE AND / OR BREAKAGE MAY OCCUR.
8. BOOM MUST BE IN ITS REST BEFORE MOVING VEHICLE.
9. BOOM TIP MUST BE DIRECTLY OVER THE LOAD BEFORE ANY LIFTING IS STARTED. DO NOT DRAG LOADS WITH THIS CRANE.
10. MAINTAIN THIS CRANE AS REQUIRED IN THE OWNER'S MANUAL.
11. DO NOT ALLOW PERSONNEL TO RIDE ON THE LOAD LINE, LOAD, OR BOOM OF THIS CRANE.
12. IT IS UNLAWFUL TO OPERATE THIS EQUIPMENT WITHIN TEN FEET OF HIGH VOLTAGE LINE



THIS PAGE INTENTIONALLY LEFT BLANK



F1122-B
5/12/08

HOUSTON, TEXAS
FAX: (800) 824-5559 (USA & Canada)
FAX: (713) 688-6324
PHONE: (713) 688-5533
www.liftmoore.com

INTRODUCTION

This crane is a powerful machine designed to lift and move heavy loads. There are many hazards associated with these operations. Liftmoore has designed this crane to be as safe as possible but -

IT IS THE OPERATOR'S RESPONSIBILITY TO PREVENT ACCIDENTS!

This takes pre-planning, attention, and knowledge of basic principles and rules. Even if you have used similar cranes, reading this manual in its entirety will help prevent damage, injury, or even loss of life; benefits well worth the short amount of time it takes to read these pages.

REGULATORY AUTHORITY

Use of this crane is governed by OSHA 29 CFR 1910.180 and may be governed by other federal, state, or local regulations.

IT IS THE OPERATOR'S RESPONSIBILITY TO UNDERSTAND AND COMPLY WITH ALL APPLICABLE REGULATIONS GOVERNING THE OPERATION, INSPECTION, AND MAINTENANCE OF THIS CRANE.

Personnel should be trained, tested, and certified, as recommended by OSHA and ANSI standards, before operating this crane.

USING THIS MANUAL

This manual assumes that the crane is mounted on a typical service body type or similar truck, which is powered by the vehicle electrical or hydraulic system, and is controlled by either the standard pendant control or FM radio control sold by Liftmoore, Inc.

This manual is supplied to provide basic guidelines for the safe use, routine maintenance, and general inspections of this crane.

This manual is supplied to provide basic guidelines for the safe use, routine maintenance, and general inspections of this crane.

Laws, regulations, standards, or policies may be more restrictive than this manual. If a conflict exists for any limit or condition, the safest or most prohibitive shall be used. Under no circumstances shall the load, moment, or stability ratings be exceeded.

Pay particular attention to the following:

WARNING! – Draws attention to hazards, conditions, or procedures that if not observed could result in injury or death.

CAUTION! – Draws attention to hazards, conditions, or procedures that if not observed could result in damage to the crane, load, or other equipment. Equipment failure could in turn lead to injury or death.

NOTE! – Draws attention to conditions or procedures that are essential to emphasize.

For questions, interpretations, or to report errors, please contact Liftmoore, Inc, Engineering Dept.



OPERATING RESTRICTIONS

DUTY CYCLE

For Electric Cranes the duty cycle time should be limited to 10%. This is limited by heat buildup in the motors and declining charge in the batteries. (Installing extra batteries near the crane helps keep the voltage at maximum.)

PERSONNEL

LIFTING OR MOVING OF PERSONNEL IS STRICTLY PROHIBITED! This crane was neither designed nor intended to lift personnel. Under no circumstances should anyone be allowed to ride on the crane, line, or load. All non-essential personnel must be kept away when using the crane. The load must never be moved over people, nor must anyone be allowed to pass or stand under a suspended load.

ELECTRICAL LINES

Consult ANSI B30.5 for operating procedures, minimum safe distances, and prohibited zones when working around electrical lines or poles.

When operating near electrical power lines, the crane must be positioned so that the distance from the crane to the lines or poles is equal to or greater than the length of the fully extended boom plus the minimum safe distance required.

All parts of the crane, line, and load must be kept a minimum safe distance from electrical power lines and poles. This distance is 10 feet for electrical lines carrying 50kV or less.

UNDER NO CIRCUMSTANCES SHOULD A CRANE BE OPERATED UNDER ELECTRICAL POWER LINES.

OPERATING PRACTICES

SETUP

POSITION The vehicle must be positioned so that the load is kept as close to the crane base as possible to reduce the moment on the crane. Consideration must be given to starting and ending position as well as firmness and slope of the ground and any obstructions.

OUTRIGGERS The outriggers or jackstands must be firmly set and the vehicle as level as possible. This will reduce the stresses on the rotation drive and keep the load off the vehicle's suspension. Keep in mind that the weight on the vehicle will shift as the crane and load are rotated.

LOAD LIMIT The operator must understand the crane load chart. The operator must ensure that the load is within the load limits over the entire range which it will be moved. Be sure to include the weight of any lifting devices including the travel block.

The load limit chart is attached to the side of the crane to aid the operator.

The boom angle indicator and chart aids the operator in determining the load capacity at various boom angles and extensions. It also gives the load limit at that configuration.

STABILITY The operator is responsible to verify that the truck is stable at any area where the Crane is rotated.

TRAVEL BLOCK The operator must determine if the load is within the single line compatibility of the winch or if a multi-part line configuration is needed.



REEVING Ensure the proper routing of the rope through the sheaves and travel block. The rope must lie in the sheave groove and must not rub against any metal objects.

Ensure the rope is correctly wound on the winch drum. The crane assembly drawing will indicate if the rope must be wound over the top or bottom of the drum. The rope must never contact any part of the winch mounting.

WARNING!

If the winch winding direction is reversed the brake will not work and the load will fall.

ATTACHING THE LOAD

POSITION The boom tip must be moved over the load before lifting so that it will be lifted straight up.

CAUTION!

Never drag a load with the crane. Dragging a load puts very high stresses on the crane for which it was not designed.

ROPE Check the rope condition to ensure it is not frayed or damaged. Ensure that the rope is not kinked and that it does not contact any sharp edges or make any sharp bends.

If using double line configuration, ensure that the lines are not twisted.

CAUTION!

Never wrap the hoist rope around the load! Serious damage to the rope WILL occur.

HOOK Always make sure the load is applied to the throat of the hook. Never use a bent hook.

CAUTION!

Always lift with the throat of the hook. Never lift with the load applied to the tip of the hook. Doing so will bend the hook.

SLINGS If the load does not have a lifting eye, use a nylon, chain, or other type of sling designed for lifting and rated for loads greater than that being lifted.

BALANCE Ensure the load will be secure and balanced when lifted. Ensure that the load cannot shift in the sling and that the sling cannot slide across the hook should the load become unbalanced.

LIFTING THE LOAD

Before lifting, ensure that the load is free from all mountings and is no way attached or stuck to anything.

Ensure that at least five full wraps remain on the winch drum at all times.

Test the winch brake by lifting the load a few inches and ensuring that it does not slip.



HOLDING THE LOAD

The operator must keep the load in sight at all times once it is lifted.

The operator must never leave the controls once the load is lifted.

The operator must ensure that no one is allowed to pass or stand under a suspended load.

CAUTION!

Never move the vehicle with a suspended load. Doing so will put dynamic loads on the crane for which it was not designed.

MOVING THE LOAD

Before moving the load, make sure the path is free of any obstructions or people.

Avoid sudden accelerations or stops. Speeds must be kept to a minimum, especially rotation, to keep the load from swinging.

Avoid sudden reversing of direction. Do not reverse direction while the load is still moving.

Make sure that no part of the crane, boom, or load makes contact with any obstruction or comes within a minimum of ten feet from any electrical line.

TRANSIT

While in transit, the crane must be stowed, preferably in a boom rest. The crane must be prevented from rotating and the hook prevented from swinging.



INSPECTION AND MAINTENANCE

OSHA and ANSI require frequent and periodic inspections. Records of these inspections must be kept readily available. Liftmoore requires periodic maintenance to ensure proper operation and prolonged life of the crane.

INSPECTION

DAILY INSPECTION

OSHA 29CFR 1910.180 (d)(2)(i) requires the following be checked daily prior to use:

- All control mechanisms for maladjustment interfering with proper operation as well as for excessive wear of components and contamination by lubricants or other foreign matter.
- All safety devices for malfunction. This should include the anti-two block and pressure switch.
- Deterioration or leakage in air or hydraulic systems.
- Crane hooks with deformations or cracks. For hooks with cracks or having more than 15 percent in excess of normal throat opening or more than 10 deg. twist from the plane of the unbent hook.
- Electrical apparatus for malfunctioning, signs of excessive deterioration, dirt, and moisture accumulation. This should include the battery terminals, master disconnect switch, electrical swivel
- The wire rope shall be replaced if any of the following conditions are noted:
 - Kinking, crushing, bird-caging, or other damage
 - Reductions from nominal diameter of more than one-sixty-fourth inch for diameters up to and including five-sixteenths inch, one-thirty-second inch for diameters three-eighths inch to and including one-half inch.
 - Thimble is not in place or is damaged
 - Any evidence of heat damage
 - Six or more randomly distributed broken wires in 1 lay
 - Three or more broken wires in 1 strand in 1 lay

MONTHLY INSPECTION

A thorough inspection of all ropes in use shall be made at least once a month and a certification record which includes the date of inspection, the signature of the person who performed the inspection and an identifier for the ropes shall be prepared and kept on file where readily available. All inspections shall be performed by an appointed or authorized person. Any deterioration, resulting in appreciable loss of original strength shall be carefully observed and determination made as to whether further use of the rope would constitute a safety hazard. Some of the conditions that could result in an appreciable loss of strength are the following:

- Reduction of rope diameter below nominal diameter due to loss of core support, internal or external corrosion, or wear of outside wires.
- A number of broken outside wires and the degree of distribution of concentration of such broken wires.
- Worn outside wires.



- Corroded or broken wires at end connections.
- Corroded, cracked, bent, worn, or improperly applied end connections.
- Severe kinking, crushing, cutting, or unstranding.

PERIODIC INSPECTION

An Annual Inspection Form is included in this manual. OSHA 29CFR 1910.180 (d)(2)ii) requires periodic inspections of this crane. Liftmoore recommends an annual inspection using the included form.

MAINTENANCE PRECAUTIONS

The crane should be maintained monthly for safety reasons and to reduce stress on the crane.

WARNING!

Never perform any maintenance while the crane has any type of load on it. Use the manual operation procedure to lower the load if necessary.

WARNING!

Hydraulic cylinders may have high pressure stored in them even after hydraulic power is removed.

The counterbalance and pilot operated check valve in the cylinder will always hold some pressure in the cylinder. Slightly extending the cylinder then retracting a small amount will relieve most of the pressure in the cylinder. **DO NOT DEADHEAD THE CYLINDER!** This will store the maximum amount of pressure in the cylinder. Care should be taken when either valve is removed from the cylinder as some pressure will still remain.

After any maintenance has been performed the crane shall not be operated until all guards have been reinstalled, all safety devices reactivated, and maintenance equipment removed.

LUBRICATION Refer to the crane specification section for the periodic maintenance schedule and type of lubrication required.

BOLTS Bolts may loosen over time due to vibration; therefore they should be checked periodically. If bolts need to be replaced, make sure they are replaced with bolts of equal or greater strength. Check the periodic maintenance schedule (Crane Specification Section) for bolt specification and torque.

NOTE!

Sheave and boom and cylinder pivot bolts are not standard bolts. The shank and thread length of these bolts have been modified so that they do not pivot on the threads. Consult the parts section of this manual for part numbers of these bolts.

OTHER MAINTENANCE

Refer to parts drawings for any specific maintenance or adjustment procedures such as hydraulic winch brake, rotation drive gear set adjustment, Ect.



MONTHLY INSPECTION REPORT
Manual Boom Extension L-21

Crane Model No. _____ **Serial Number** _____

- Are Boom Hitch Pins and Keepers in place? Yes _____ No _____
- Wire Line Hook with Safety Latch Working? Yes _____ No _____
- Is Hook OK, (Not bent)? Yes _____ No _____
- Is Thimble on Wire Rope OK? Yes _____ No _____
- Does Traveling Block function correctly? Yes _____ No _____
- Is Wire Rope OK, not kinked or frayed? Yes _____ No _____
- Are all Boom Sections straight? Yes _____ No _____
- Are Sheave Bolts in place and tight? Yes _____ No _____
- Do all Sheaves rotate easily? Yes _____ No _____
- Are Mounting Bolts torqued correctly? Yes _____ No _____
- Are Boom Support Mounting Bolts secure? Yes _____ No _____
- Are Winch Mounting Bolts tight? Yes _____ No _____
- When stopped, does winch down drift less than 1.0 Inches? Yes _____ No _____
- Is Load Chart / Serial Plate in place and easily read? Yes _____ No _____
- Are functions on Pendant operating correctly? Yes _____ No _____
- Is Outrigger or jackstand straight and functioning? Yes _____ No _____

Any items checked 'No' must be repaired before using this crane.



CRANE OPERATION

1 or 2 Powered Functions

PENDANT CONTROL

All user inputs are facilitated by the remote pendant control. The pendant control plug mates with the crane control socket and controls the hoist and other functions.

OPERATION

Raise the cover on the crane control socket and plug in the pendant. Ensure all pins are straight and free of dirt, moisture, and corrosion.

NOTE!

The control socket cover locks the plug in the socket and must be lifted to unplug the pendant.

CARE AND MAINTENANCE

The pendant control is designed to be as rugged and maintenance free as possible; however, care should be used in handling and storage as it is expensive to replace.

Follow these simple practices:

- Keep the pendant out of the weather
- When not in use, store the pendant inside the vehicle
- Do not wrap the wire too tightly as internal damage to the wires may result
- Do not place sharp or heavy objects on the cord

NOTE!

The pendant is designed to be weatherproof not waterproof. It may be used in inclement weather, but if left outside or where water can puddle, water can seep inside.

Maintenance should be limited to routine inspection of the plug, wire, and fasteners.

SAFETY SYSTEM

This crane does not have a load limiting or ATB safety system.

It is the operator's responsibility to understand and strictly adhere to the load limits of the crane. The operator must also know the weight of any objects to be lifted.

The operator must always be aware of the hook and travel block position and ensure that the crane is never two-blocked (allowing the travel block or hook to contact the crown plate.)

ELECTRICAL SYSTEM

This crane is controlled electrically. Electrical power is connected at the crane by a yellow male terminal.

A blade type fuse is supplied and installed at the battery.



HYDRAULIC SYSTEM

The hydraulic system consists of a winch, a manifold with solenoid valves, and tubing and hoses. Hydraulic power is received from an external hydraulic source, typically a PTO driven pump attached to the vehicle transmission.

MANIFOLD

The hydraulic manifold consists of a system relief valve and a solenoid valve.

The system relief valve prevents damage that would be caused by over pressurizing the system.

Each hydraulically operated function is controlled by a 4 way, 3 position open center solenoid valve. It is electrically operated and spring biased to center. A manual operation button is incorporated in the coil-retaining nut.

MOTORS

The hydraulic motors used by the rotation drive and hydraulic winch are high-torque, low-speed, constant displacement motors.

MANUAL OPERATION

If electrical problems occur the solenoid valves may be operated manually by depressing the manual operation button incorporated in the coil-retaining nut. Using a blunt object such as a bolt or screwdriver handle may be required to assist operation if high pressures are needed.



MANUAL FUNCTIONS

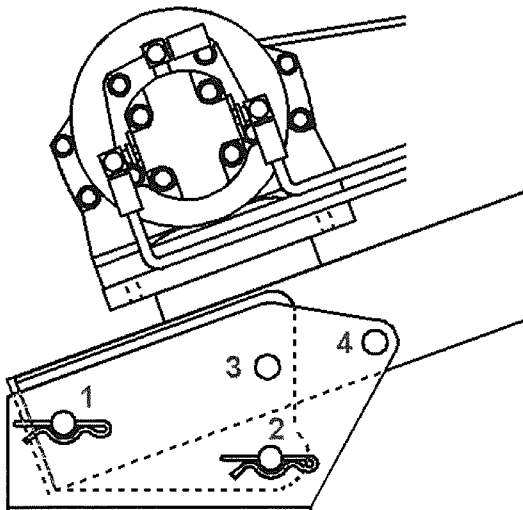
ELEVATION

The L-21 crane has three positions for the boom (Refer to Figure 1). With pins in holes 2 & 4 the boom is folded for travel only. Do not use the winch with the boom in this position. To raise the boom, operate the winch to slacken the line and then remove the block hook from the loop on the pedestal. Pull the pin from position 4 and raise the boom and insert the pin in position 1. The boom can now be telescoped out as needed.

To use the 45-degree position, remove the pin from hole 2, raise the boom and insert this pin in hole 3. The boom should be extended as needed before raising it to the 45-degree position.

To store the boom it must pivot on hole 2. Pin at position 4 to hold the boom in the vertical position. Place the hook in the pedestal loop and wind cable on winch to a light tension only. Remove the pendant and store it in the cab or a body compartment.

Figure 1. Boom Pin Locations



Care should be used when maneuvering loads into and out of the vehicle. Do not raise loads higher than is needed to get the load into or out of the vehicle.

EXTENSION

The boom may be manually extended as needed. The boom must be set to the desired length before lifting the load. A boom stop is provided to prevent the inner boom from being inadvertently removed from the outer boom.

CAUTION!

All boom pins must be in place before lifting the load. The boom stop will not support a load. If proper boom pins are not installed the boom may collapse under load causing serious damage and possible injury or death.

ROTATION

The crane must be rotated manually. Tapered roller bearings are utilized to reduce the force required.

CAUTION!

The force required to rotate the crane will increase dramatically if the truck is not level or if the load causes the truck to lean. Outriggers or jackstands **MUST** be used.

CAUTION!

Extreme caution must be used when rotating heavy loads. Even with the use of outriggers or jackstands the truck may tilt as the crane is rotated. Even a small lean may cause the load to become uncontrollable.

BRAKE

The crane is equipped with a hand tightened band brake to help control the load when rotating.

CAUTION!

Even with the brake tightened the load may become uncontrollable if the vehicle becomes unlevel.

CAUTION!

The brake is not designed nor intended to hold the crane during transit. The crane must be held by a boom rest and/or teathered to the truck when not in use.



TROUBLESHOOTING HYDRAULIC CRANES

GENERAL

If a problem exists, always start with the basics and work towards the more complicated.

First ensure that the crane is receiving full voltage and the pump is generating full flow and pressure. Typical requirements are 12VDC, 5.5GPM and MAX 2000PSI. Refer to the crane specification sheet for specifics.

Next determine if the problem is electrical or hydraulic. In general, if the crane can be operated manually, then the problem is electrical. If manual operation does not work then the problem is hydraulic.

If no function is working the problem may be loss of electrical or hydraulic power. Make sure that the crane is getting power. Also make sure that the system is getting power.

Check the input voltage to the plug (the pin the fuse holder is connected to). If there is no voltage there, then no component will get power. Check the fuse in the crane and any other fuse or circuit breaker that may be installed. Start at the battery and trace the wiring back to the crane checking for power at each component until the problem is found.

SOLENOID VALVES

If one function does not work, try to operate it manually. If it does not work either the solenoid or the applicable actuator is malfunctioning. Contact Liftmoore for more information.

If it works manually, then the problem is electrical. Disconnect the electrical

connector going to the applicable solenoid valve.

Check the voltage between the applicable direction pin on the plug (harness side) and

ground. When the switch is activated, the voltage should be 12V (battery voltage).

If no voltage is received, check the continuity between the pin and the applicable pin on the crane control socket. If there is no continuity, then a wire must be broken. If the wiring is good, then the problem is with the control pendant.

If the voltage checks good, check the resistance on the coil. Connect an ohmmeter to the applicable pin on the receptacle and ground. The resistance should be between 5 and 6 ohm. If the resistance is near zero then the coil is shorted and needs to be replaced.

If the circuit is open then check where the coil is grounded on the valve. Also check for continuity between the manifold and the crane. If there is no continuity, remove one of the manifold mounting bolts and clean under the head and reinstall.

PENDANT

If no functions work, check that black wire on the crane control socket has power.

If a function is not working, check continuity between that function and the hot wire (white wire) on the pendant control plug. There should be continuity once the switch is activated in selected direction. The continuity should break when the switch is released. If not, the pendant needs to be repaired



THIS PAGE INTENTIONALLY LEFT BLANK



HOUSTON, TEXAS
FAX: (800) 824-5559 (USA & Canada)
FAX: (713) 688-6324
PHONE: (713) 688-5533
www.liftmoore.com

SECTION 3 CRANE SPECIFICATIONS

MODEL L-21HW CRANES

MOMENT RATING 6 000 FT-LBS

MAX SINGLE LINE LOAD 1 000 LBS

MAX DOUBLE LINE LOAD 2 000 LBS

LIFTING CAPACITIES AT VARIOUS LOAD RADII:

LOAD RADIUS (FT.)	CAPACITY (LBS)
3	2,000
4	1,500
5	1,200
6	1,000
7	857

HOIST

No Load Line Speed at 6 GPM is 33 FPM.

The winch is factory lubricated and should not require further lubrication in its lifetime. The winch brake cannot be adjusted. If brake drift is more than 1 inch under full load then it must be replaced.

ELECTRICAL

VOLTAGE 12 VDC NOMINAL

HYDRAULIC 6.0 GPM @ 2000PSI

LUBRICATION

Travel block sheave should be lubricated every 8 hours of operation, bi-weekly, or as needed.

MOUNTING BOLTS

½-13 GRADE 8 TORQUE 110 FT-LBS DRY
CHECK TORQUE EVERY 4 MONTHS



F1403-C
02/17/09

HOUSTON, TEXAS
FAX: (800) 824-5559 (USA & Canada)
FAX: (713) 688-6324
PHONE: (713) 688-5533
www.liftmoore.com

THIS PAGE INTENTIONALLY LEFT BLANK



F1403-C
02/17/09

HOUSTON, TEXAS
FAX: (800) 824-5559 (USA & Canada)
FAX: (713) 688-6324
PHONE: (713) 688-5533
www.liftmoore.com

LIST FOR BOX, CRANE PARTS L-21HW 5ft & 7ft

Items with * have detailed DWG's.

P/N 22116 - BOX, CRANE PARTS L-21HW-5

1)	P/N 22117 - MANUAL, CRANE L-21HW	1pc
2)	P/N 15776 - WIRE, ELECTRIC 10GA BLK	300"
3)	P/N 30728 - WIRE, GROUND #4 X 3' LONG.....	1pc
4)	P/N 30760 - PIN, HITCH 0.75 X 4.50 W/H-PIN.....	1pc
5)	P/N 30815 - SCREW, HHC 0.50-13 X 2.50 GR8.....	4pcs
6)	P/N 30474 - WASHER, LOCK 0.50 GR5 PLATED.....	4pcs
7)	P/N 31957 - NUT, HEX 0.50-13 GR8 PLATED.....	4pcs
8)	*P/N 32661 - BLOCK, TRAV ASSY 2.0K lbs/4.0D....	1pc
9)	P/N 18457 - FUSE HOLDER, ATO 12GA SEALED	1pc
10)	P/N 21154 - FUSE, 30 AMP BLADE	1pc
11)	P/N 32613 - ADAPTER, 8MJ-10MJ	1pc
12)	P/N 17012 - SWITCH, TOGGLE SPST MAINT. /S	1pc
13)	P/N 17011 - BRACKET, SWITCH MNT. HYD. CRN.	1pc
14)	P/N 16781 - TERMINAL, RING 10-12 GA #8	2pcs
15)	P/N 17013 - PLATE, ON-OFF FOR TOGGLE SWCH.....	1pc
16)	*P/N 30122 - CONTROL, PENDANT 206M/2000 4P.....	1pc
17)	P/N 22805 - INSTALLATION INTS. L-21HW.....	1pc

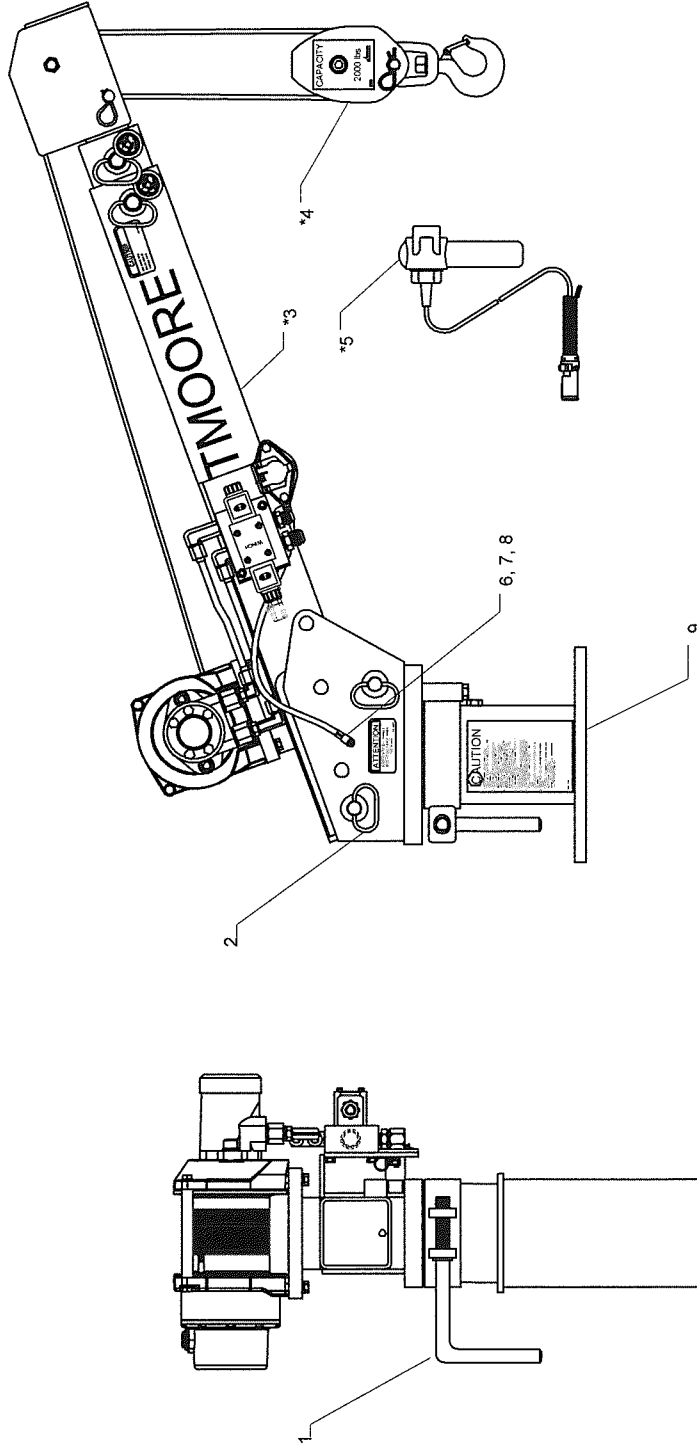
P/N 22230 - BOX, CRANE PARTS L-21HW-7

1)	P/N 22117 - MANUAL, CRANE L-21HW	1pc
2)	P/N 15776 - WIRE, ELECTRIC 10GA BLK	300"
3)	P/N 30728 - WIRE, GROUND #4 X 3' LONG.....	1pc
4)	P/N 30760 - PIN, HITCH 0.75 X 4.50 W/H-PIN.....	2pcs
5)	P/N 30815 - SCREW, HHC 0.50-13 X 2.50 GR8.....	4pcs
6)	P/N 30474 - WASHER, LOCK 0.50 GR5 PLATED.....	4pcs
7)	P/N 31957 - NUT, HEX 0.50-13 GR8 PLATED.....	4pcs
8)	*P/N 32661 - BLOCK, TRAV ASSY 2.0K lbs/4.0D....	1pc
9)	P/N 18457 - FUSE HOLDER, ATO 12GA SEALED	1pc
10)	P/N 21154 - FUSE, 30 AMP BLADE	1pc
11)	P/N 32613 - ADAPTER, 8MJ-10MJ	1pc
12)	P/N 17012 - SWITCH, TOGGLE SPST MAINT. /S	1pc
13)	P/N 17011 - BRACKET, SWITCH MNT. HYD. CRN.	1pc
14)	P/N 16781 - TERMINAL, RING 10-12 GA #8	2pcs
15)	P/N 17013 - PLATE, ON-OFF FOR TOGGLE SWCH.....	1pc
16)	*P/N 30122 - CONTROL, PENDANT 206M/2000 4P.....	1pc
17)	P/N 22805 - INSTALLATION INTS. L-21HW.....	1pc



F1489-A
02/17/09

HOUSTON, TEXAS
FAX: (800) 824-5559 (USA & Canada)
FAX: (713) 688-6324
PHONE: (713) 688-5533
www.liftmoore.com

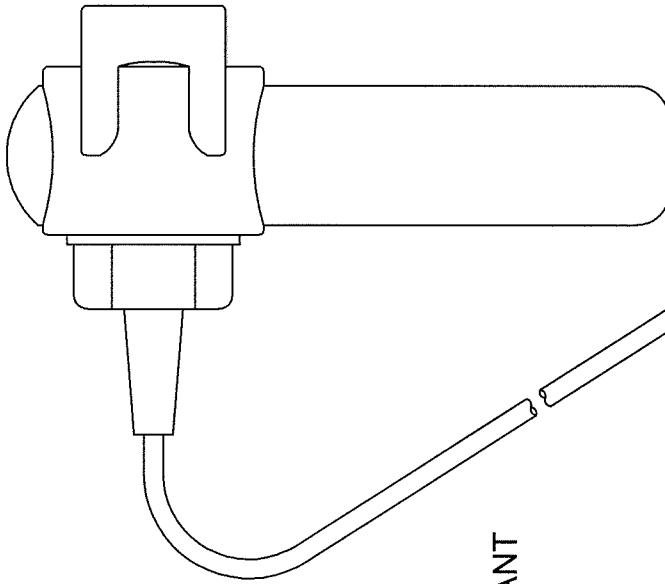
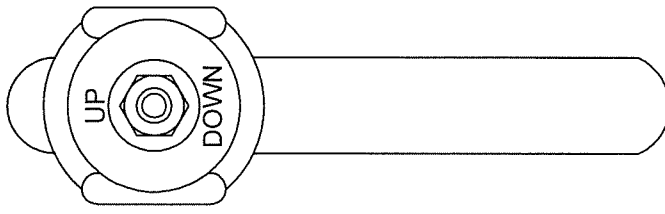


ITEM	FOR " 5 FT " CRANES	FOR " 7 FT " CRANES
3	P/N 22114 - BOOM ASSY L-21HW	P/N 22228 - BOOM ASSY L-21HW-7

ITEMS WITH * HAVE DETAIL DRAWINGS

#	PN	DESCRIPTION	QTY	#	PN	DESCRIPTION	QTY
1	30961	HANDLE, BRAKE L-21 & L-21-7	1	6	33363	WIRE, WINCH L-22, 2700	1
2	33203	PIN, HITCH 0.75 X 6.00 W/H-PIN	2	7	30809	SCREW, HHC 0.25-20 X 0.50 GR5	1
3		SEE CHART FOR BOOM ASSY DWG		8	30889	WASHER, LOCK 0.25 GR5 PLATED	1
4	32661	BLOCK, TRAV ASSY 2.0K lbs/4.0D	1	9		SEE DWG 50722 FOR BASE-HOUSING	
5	30122	CONTROL, PENDANT 206M/2000 4P	1				
						NOT SHOWN :	
					15851	PLATE, SERIAL L-21 & L-21-7	1
					31146	DECAL KIT L-21	1

	Houston TX (713)-688-5533 www.liftmoore.com	DRWN BY: JC DATE: 5/20/08	CRANE ASSY L-21HW-5 WARN HYD 2000 (P/N 22108)	DRAWING NO. 58245-A
--	---	------------------------------	--	-------------------------------

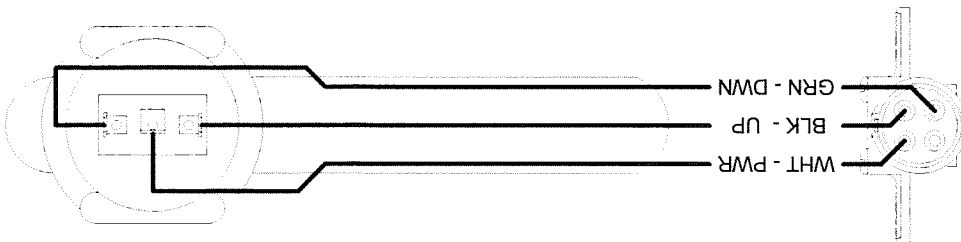
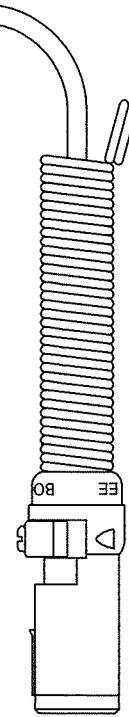


COMPLETE PENDANT

P/N 30122 CONTROL, PENDANT
206M/2000 4P

PENDANT, LESS PLUG
P/N 15129 CONTROL, PENDANT BLANK 12.5LG

REPLACEMENT PLUG
P/N 30099 PLUG, CONTROL 4-PIN



FRONT VIEW



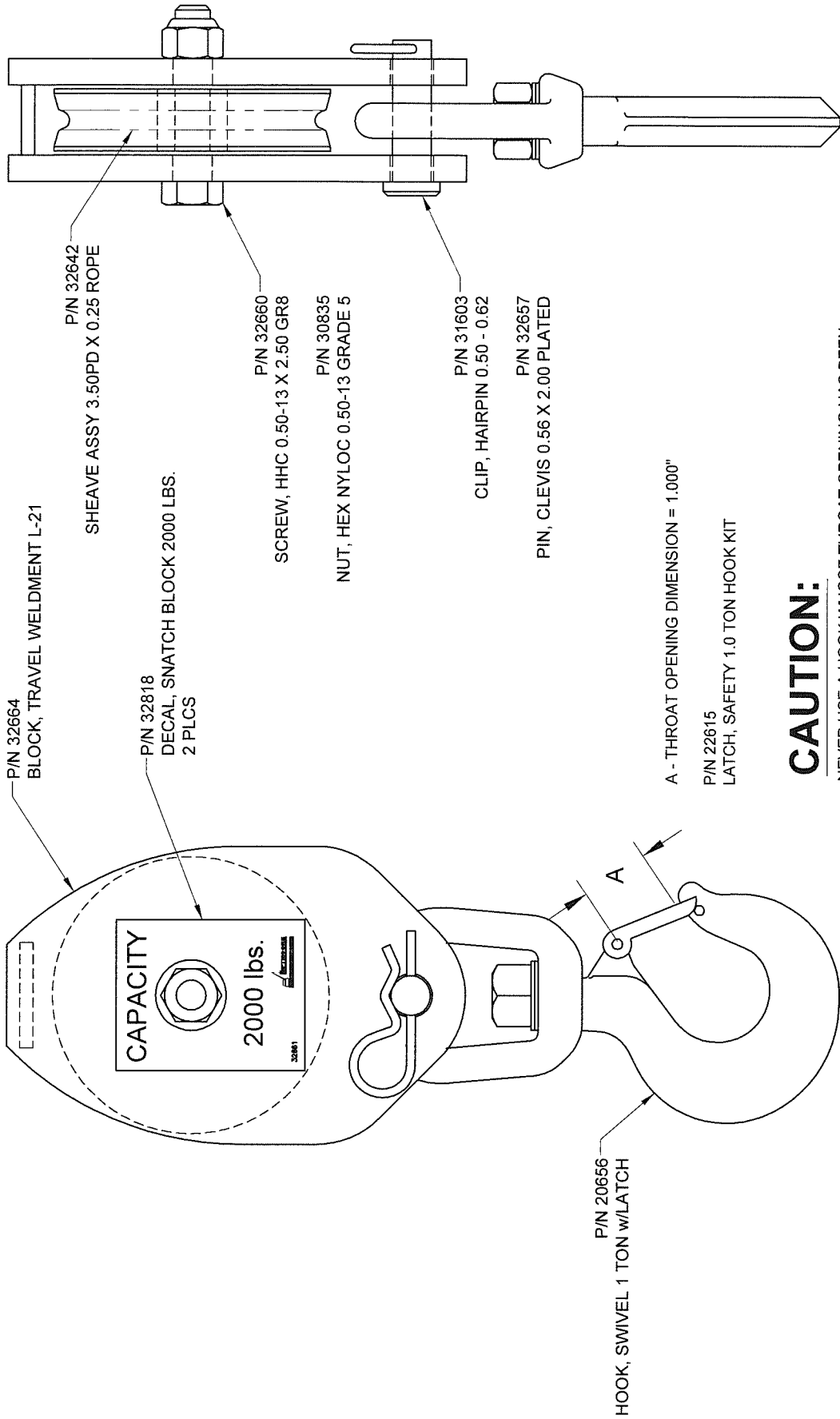
Houston TX
(713)-688-5533
www.iftmoore.com

DRWN BY: PDS
DATE: 4/03/07

CONTROL, PENDANT 206M/2000 4P
ALSO 2MC, 2000A, 2700AW/WP

DRAWING NO.

30122-C



CAUTION:

NEVER USE A HOOK WHOSE THROAT OPENING HAS BEEN INCREASED, OR WHOSE TIP HAS BEEN BENT MORE THAN 10 DEGREES OUT OF PLANE FROM THE HOOK BODY, OR IS IN ANY WAY DISTORTED OR BENT.

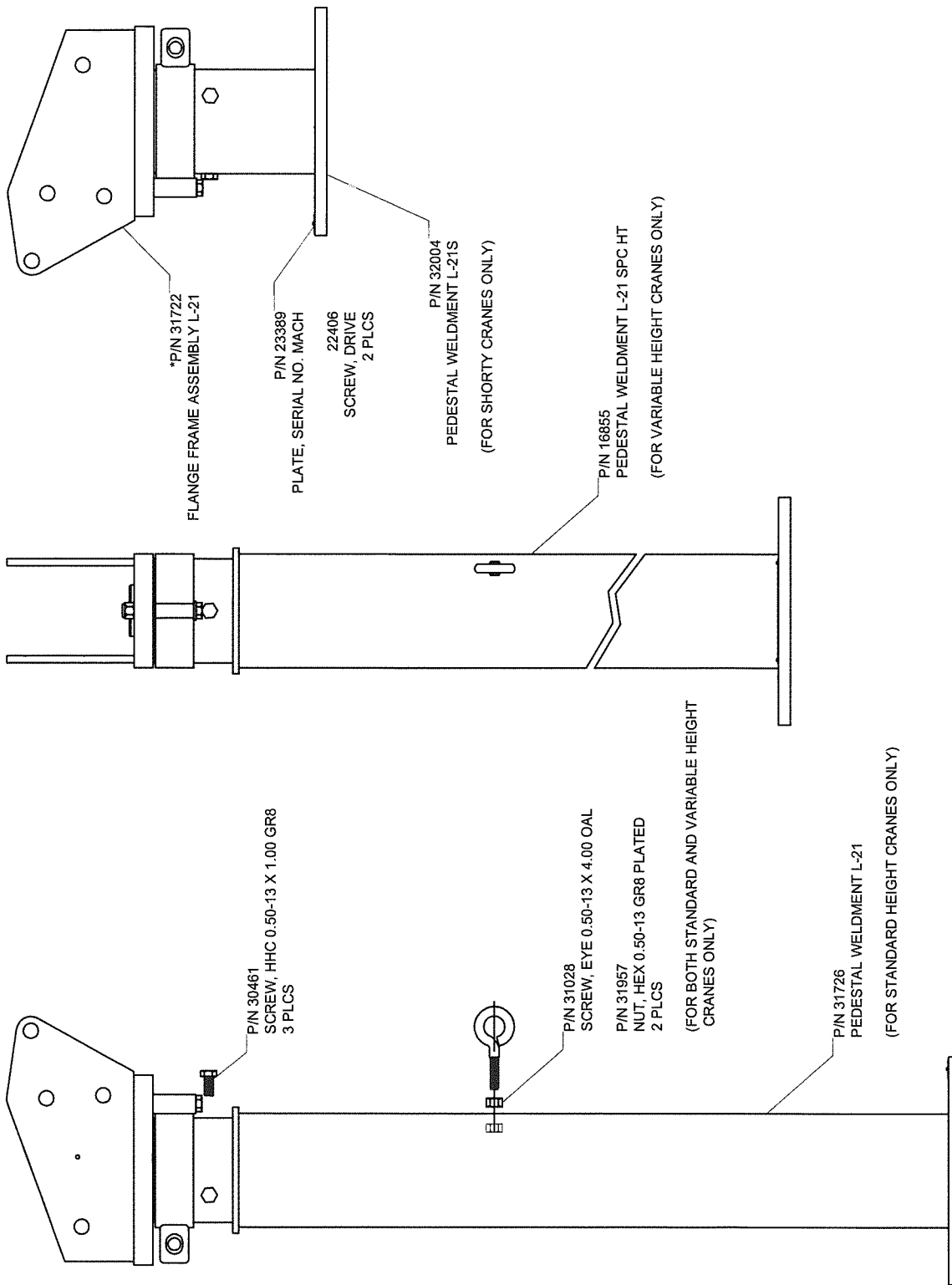
DRAWING NO.
32661-D

BLOCK, TRAV ASSY 2.0K lbs/4.0D
WITH NO BECKETT

DRWN BY: JC
DATE: 4/17/08

Houston TX
(713)-688-5533
www.liftmoore.com





ITEMS WITH * HAVE DETAIL DRAWINGS

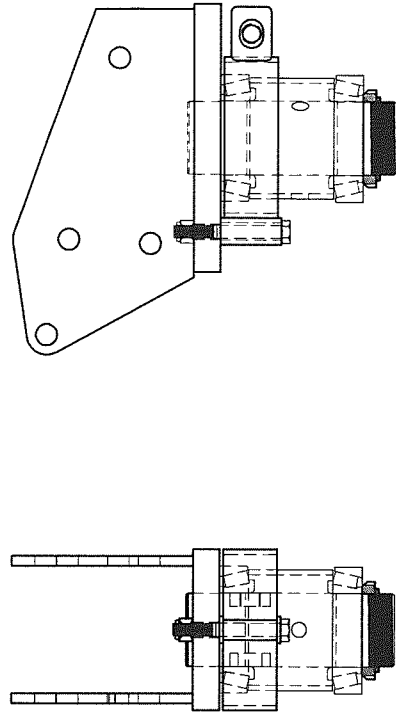
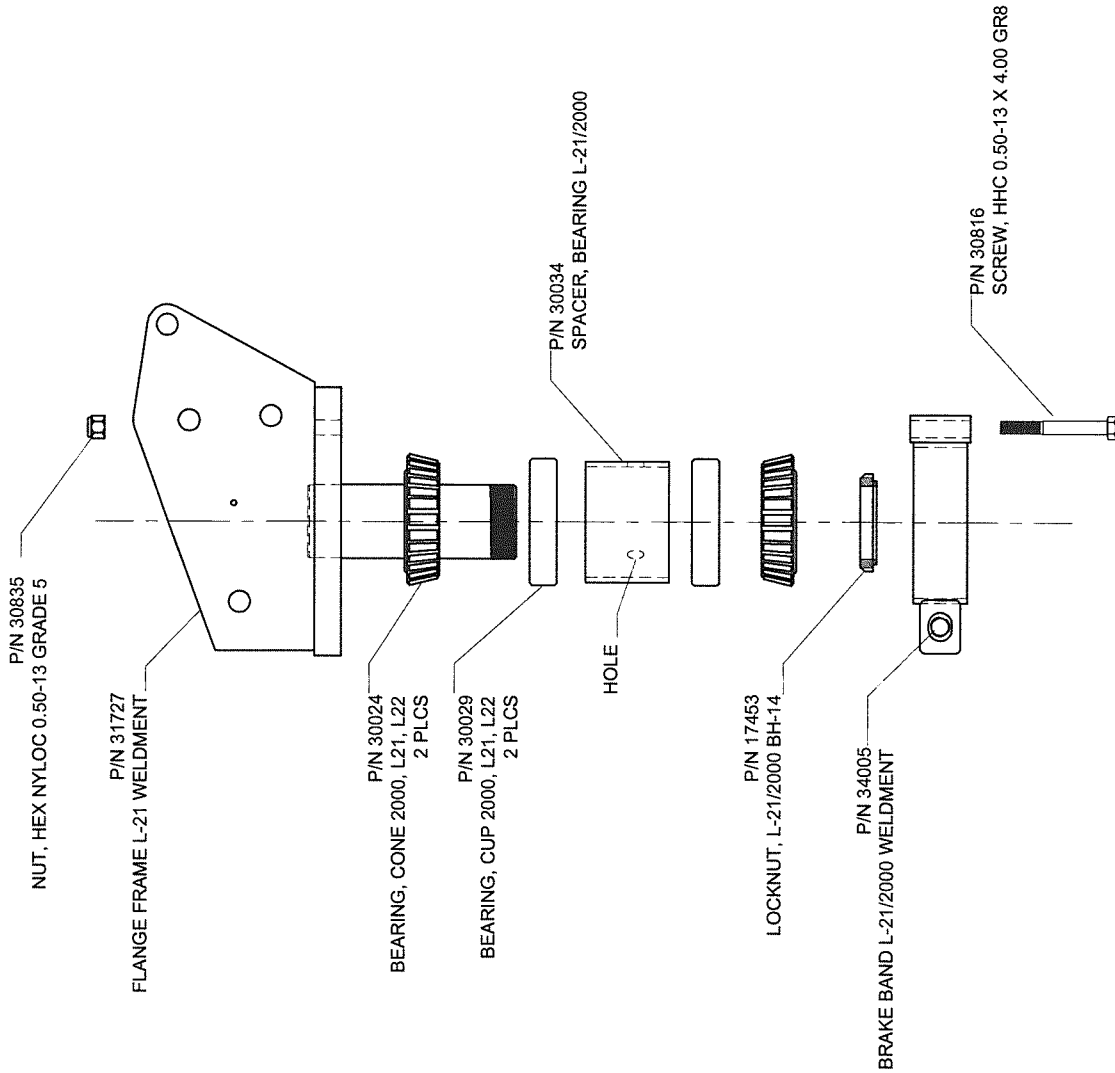
Houston TX
(713)-688-5533
www.liftmoore.com



DRWN BY: JC
DATE: 12/11/09

BASE-HOUSING ASSY L-21
FOR STANDARD/H/SHORTY

DRAWING NO.
50722-A



Houston TX
 (713)-688-5533
 www.liftmoore.com

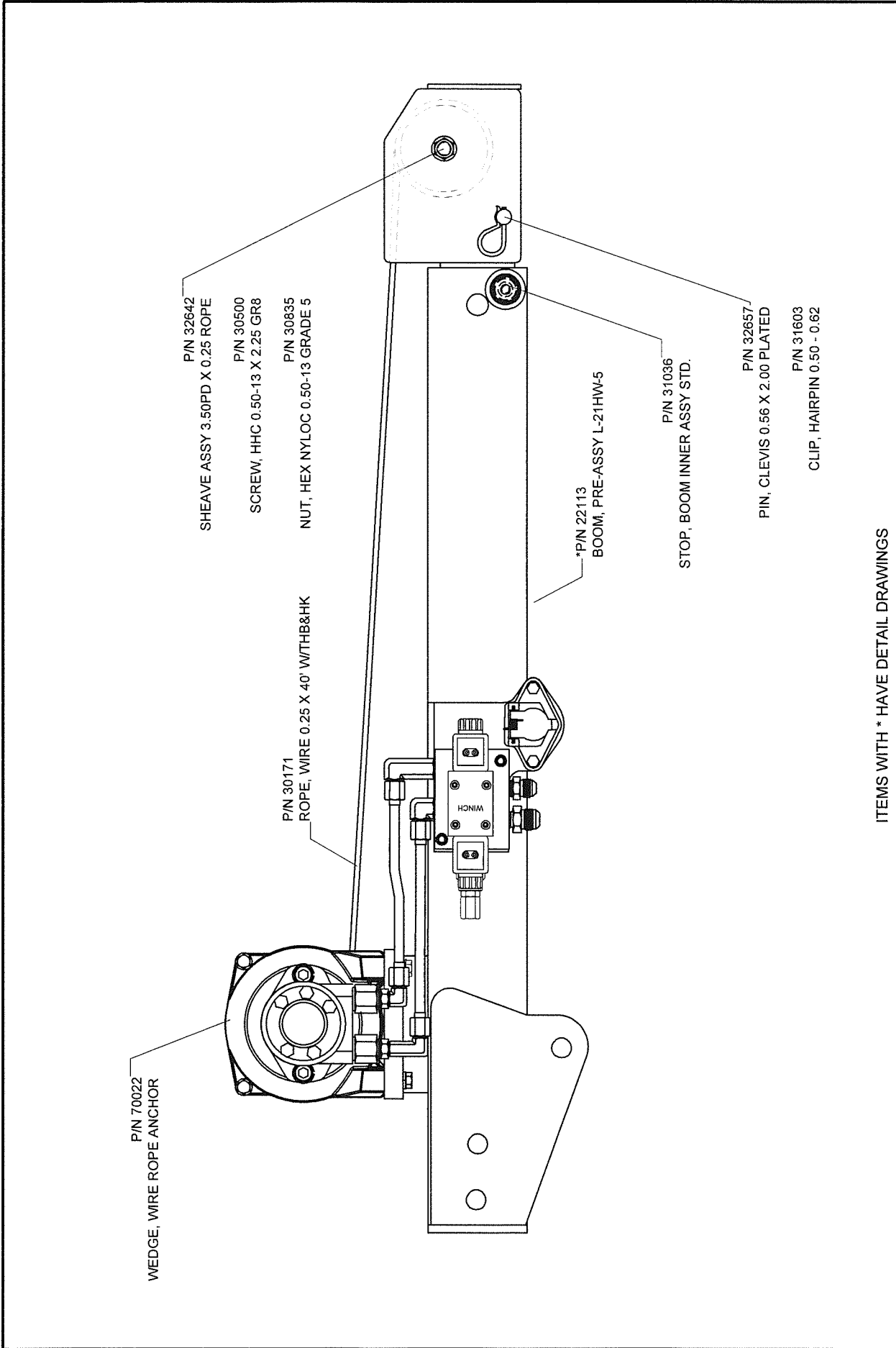
DRWN BY: KSP
 DATE: 9/8/10

FLANGE FRAME ASSEMBLY L-21

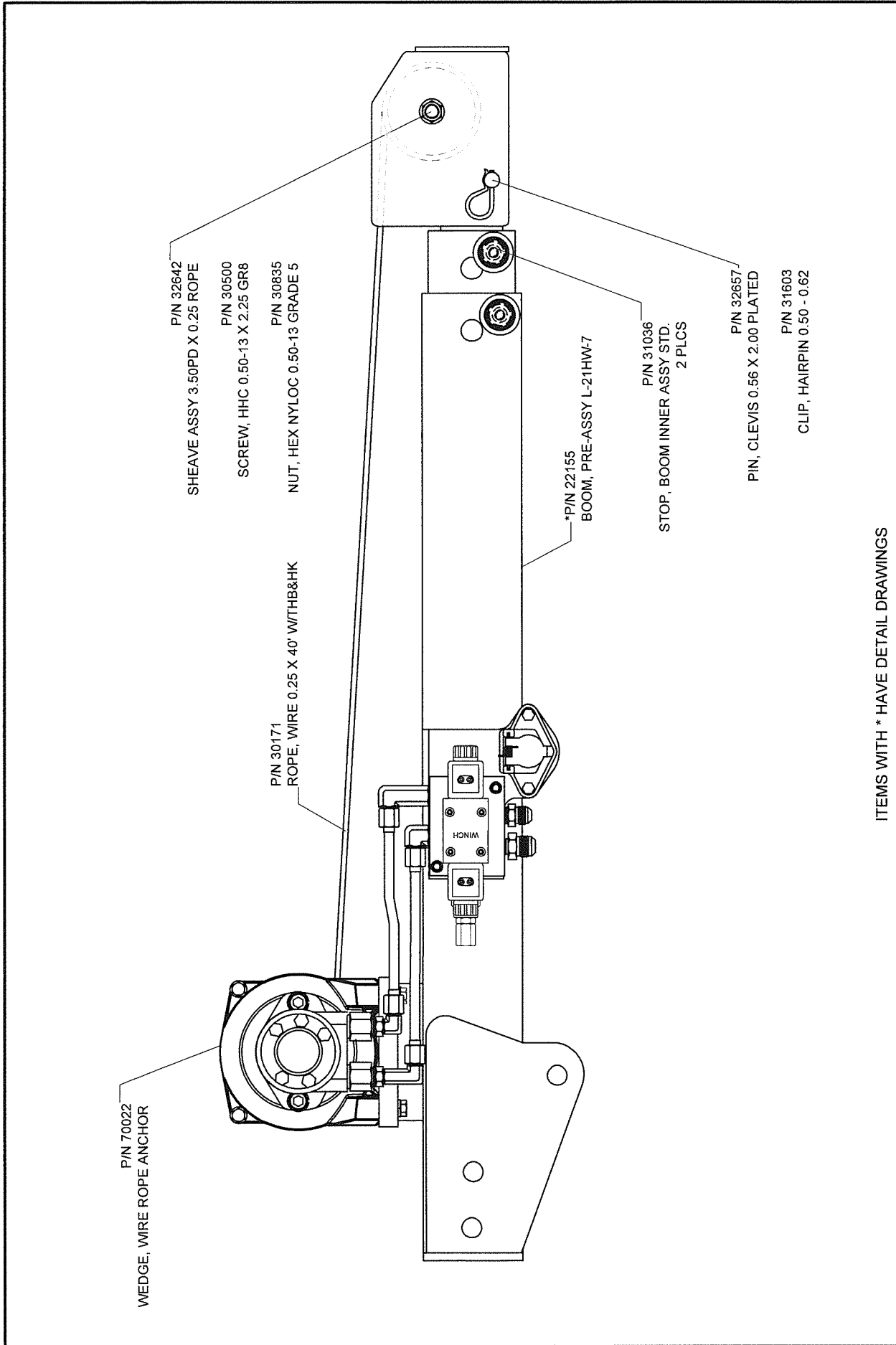
DRAWING NO.

31722-B





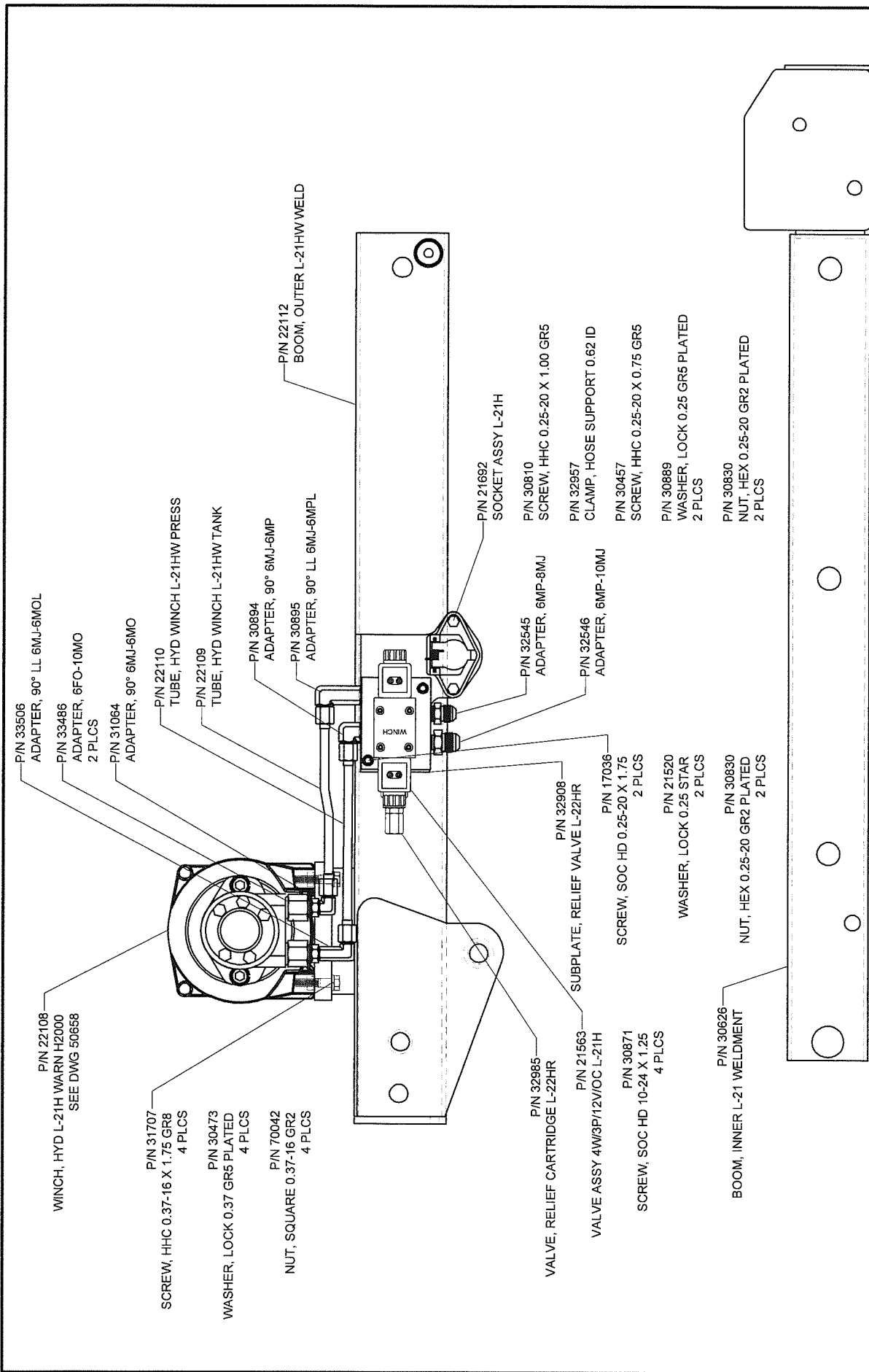
	Houston TX (713)-688-5533 www.liftmoore.com	DRWN BY: JC DATE: 5/19/08	DRAWING NO. 22114-0
	BOOM ASSY L-21HW-5		



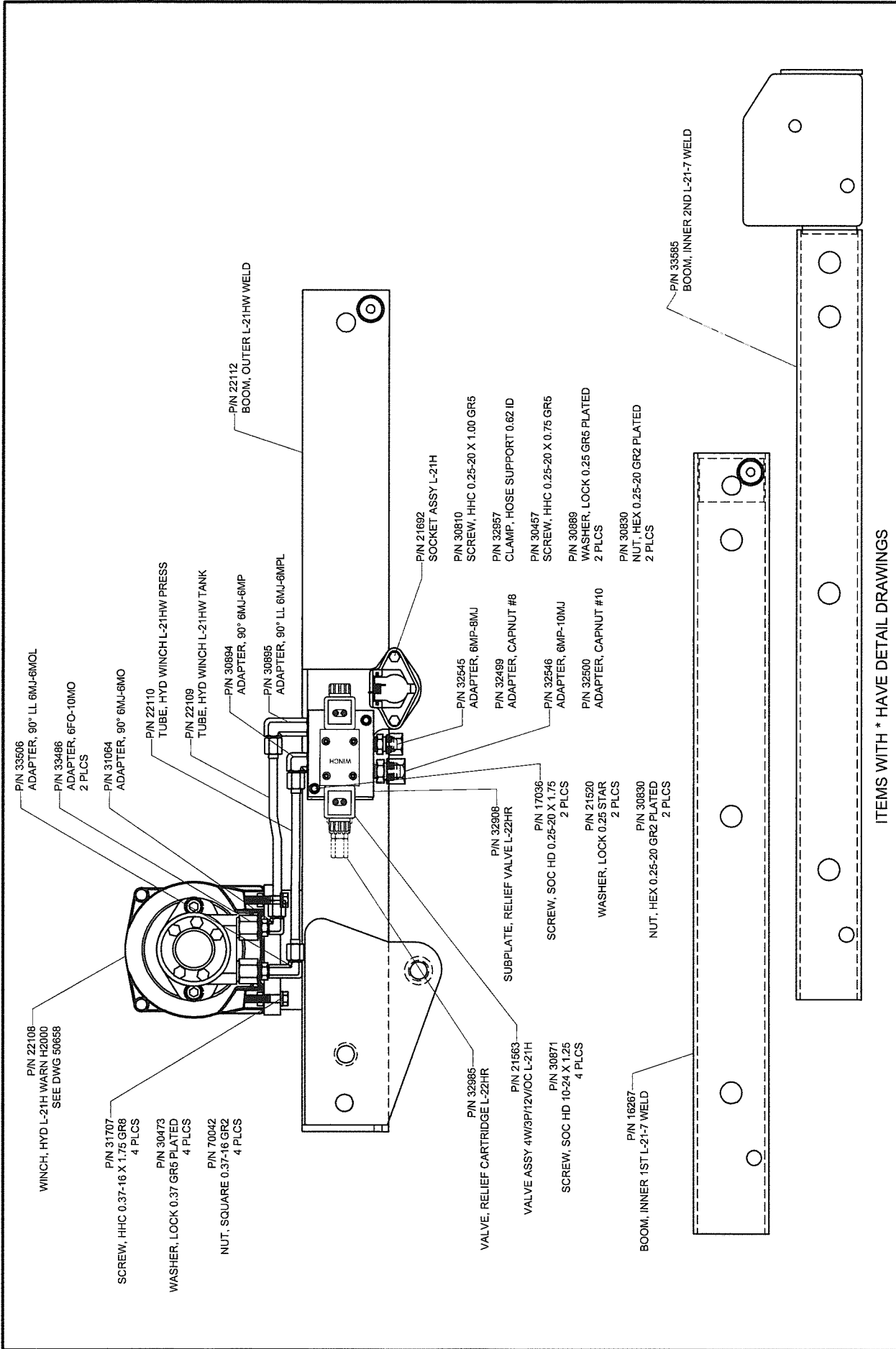
ITEMS WITH * HAVE DETAIL DRAWINGS

 <p>Houston TX (713)-688-5533 www.iftmoore.com</p>	DRWN BY: JC DATE: 5/19/08	DRAWING NO. 22228-0
---	------------------------------	-------------------------------


BOOM ASSY L-21HW-7

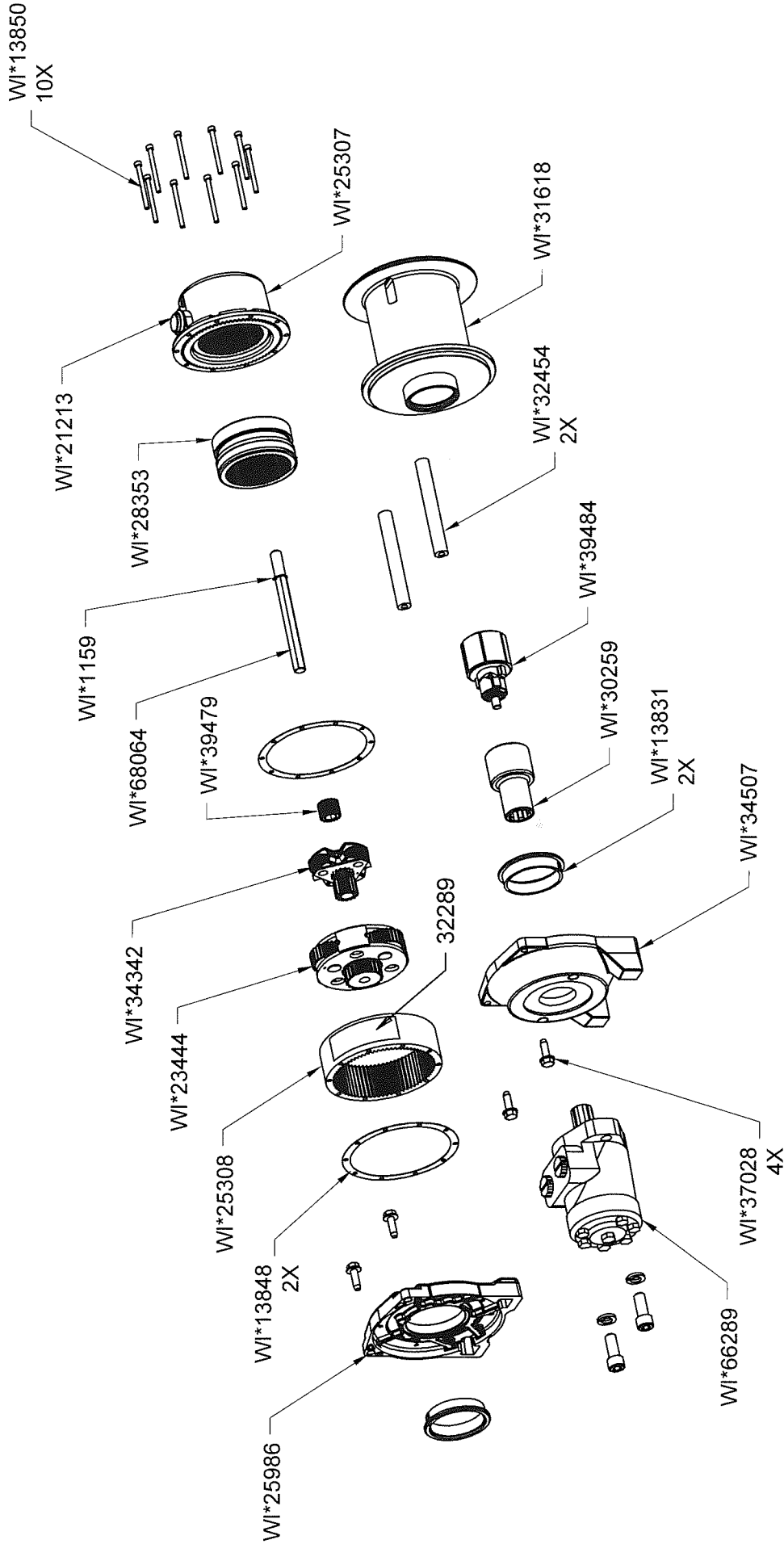


	Houston TX (713)-688-5533 www.iftmoore.com	DRAWN BY: JC DATE: 02/17/09	DRAWING NO. 22113-C
	BOOM, PRE-ASSY L-21HW-5 WARN HYD 2000 WINCH P/N 22108		



ITEMS WITH * HAVE DETAIL DRAWINGS

	Houston TX (713)-688-5533 www.liftmoore.com	DRAWN BY: JC DATE: 5/19/08	DRAWING NO. 22155-B
	BOOM, PRE-ASSY L-21HW-7 WARN HYD 2000 WINCH PIN 22108		



WINCH ASSY HYD 2000
 WARN; P/N 22108; L-21H

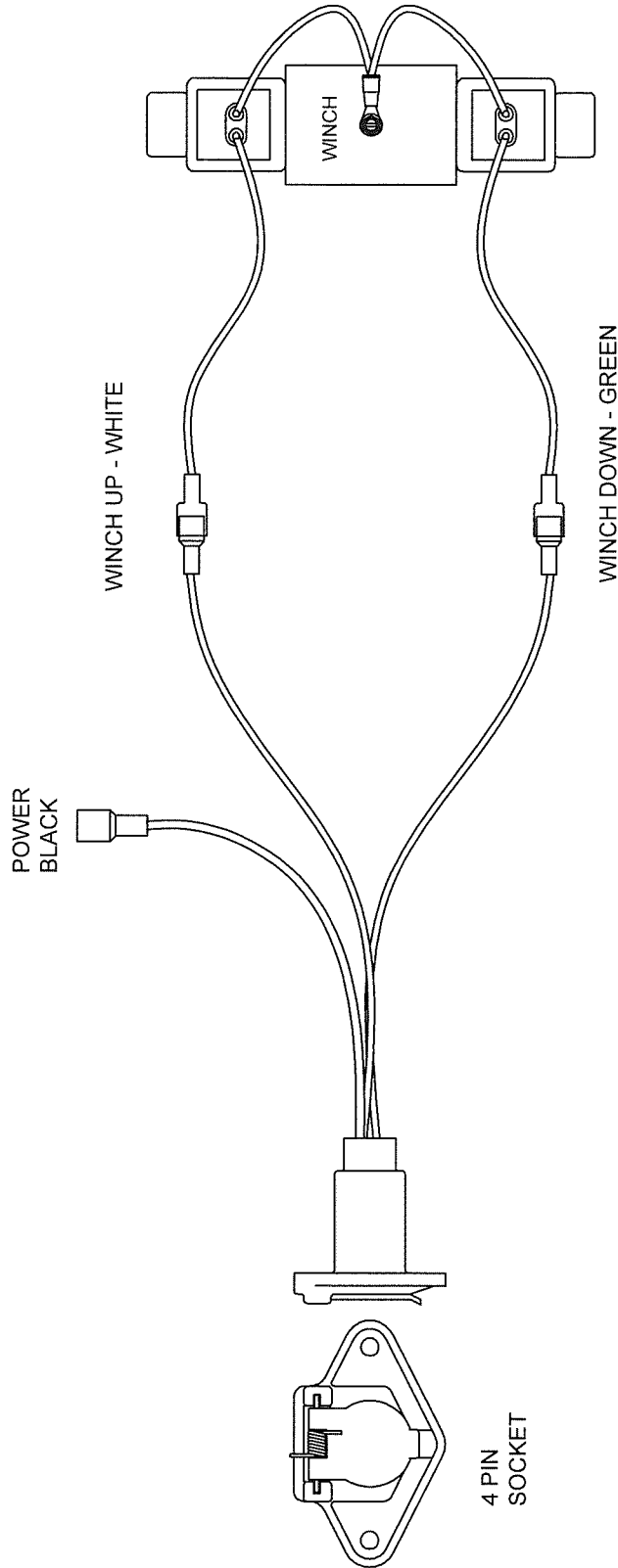
DRWN BY: TV
 DATE: 04/06/06

Houston TX
 (713)-688-5533
 www.liftmoore.com



DRAWING NO.

50658-0

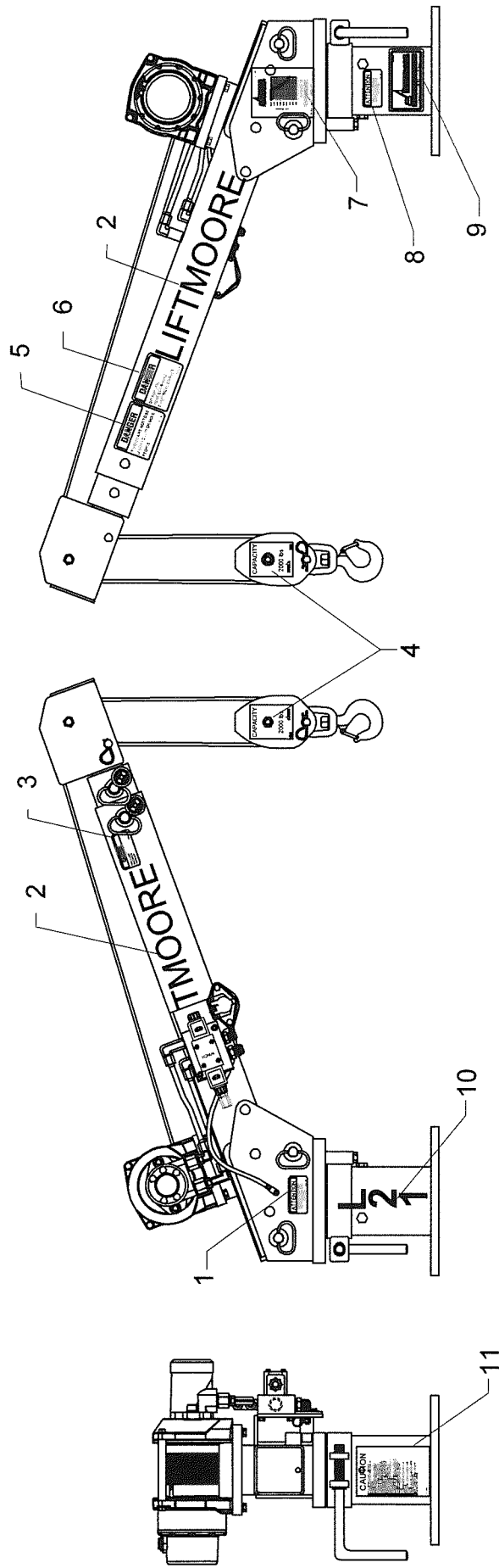


Houston TX
(713)-688-5533
www.iftmoore.com

DRWN BY: TV
DATE: 04/07/06

SCHEM, ELEC WIRING HYD L-21
HYDRAULIC CRANE

DRAWING NO.
50659-0



#	PN	DESCRIPTION	QTY	#	PN	DESCRIPTION	QTY	#	PN	DESCRIPTION	QTY
1	15577	DECAL, ATTENTION BATTERY	1	5	32085	DECAL, LIFTING PERSONNEL	1	9	15582	DECAL, LOGO SMALL	1
2	34041	DECAL, LIFTMOORE - 2.00"	2	6	15579	DECAL, DANGER CABLES	1	10	15572	DECAL, L-21	1
3	15612	DECAL, CAUTION PIN MUST BE IN	1	7	15851	PLATE, SERIAL L-21 & L-21-7	1	11	16102	DECAL, CAUTION READ MANUAL	1
4	32818	DECAL, TRAVEL BLOCK 2000 LBS.	2	8	15618	DECAL, DANGER ELECTRIC INJURY	1				

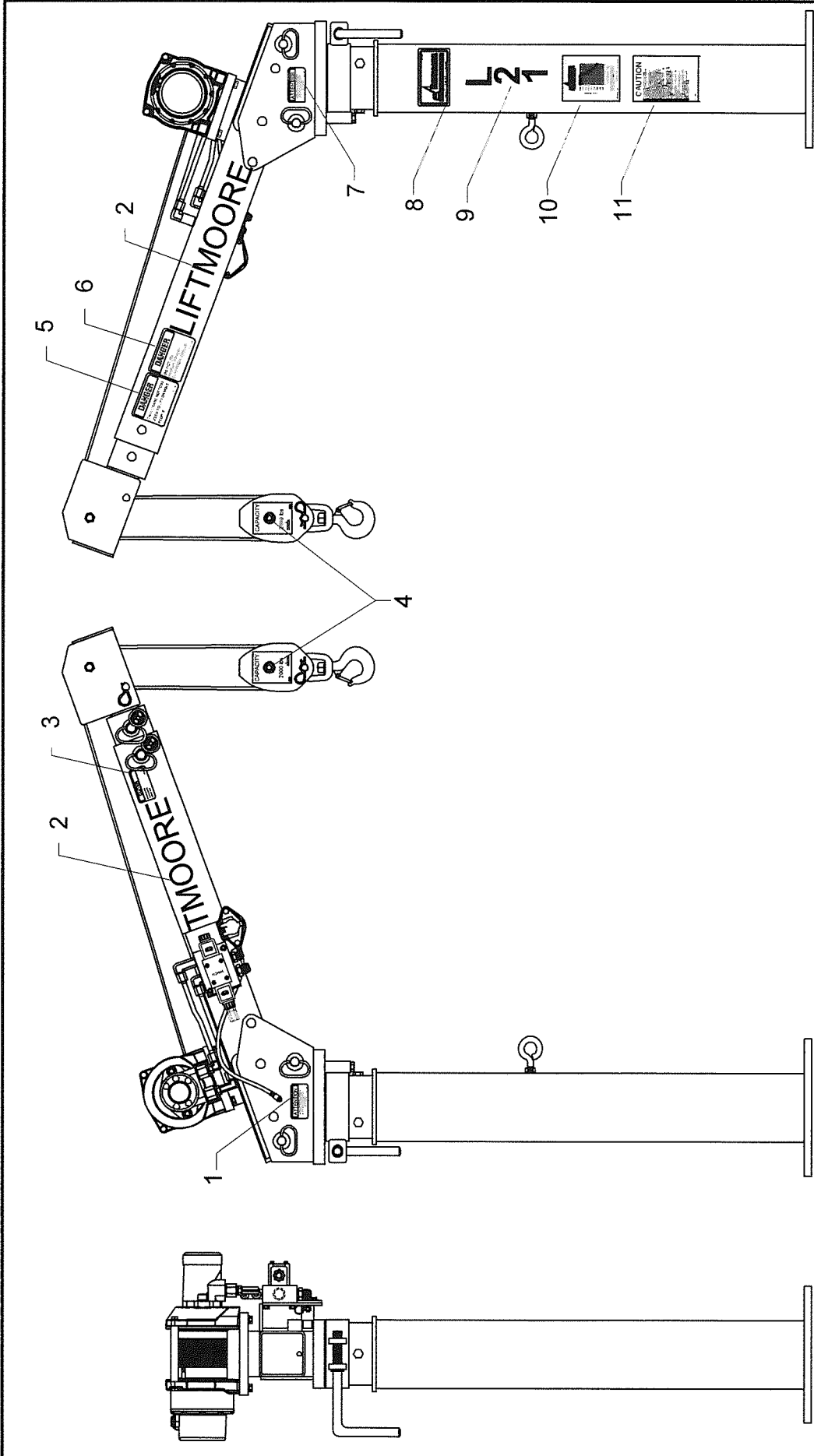


Houston TX
(713)-688-5533
www.liftmoore.com

DECAL DIAGRAM FOR THE
L-21HW SHORTY

DRAWING NO.
58311-0

DRWN BY: JC
DATE: 5/21/08



#	PN	DESCRIPTION	QTY	#	PN	DESCRIPTION	QTY	#	PN	DESCRIPTION	QTY
1	15577	DECAL, ATTENTION BATTERY	1	5	32085	DECAL, LIFTING PERSONNEL	1	9	15572	DECAL, L-21	1
2	34041	DECAL, LIFTMOORE - 2.00"	2	6	15579	DECAL, DANGER CABLES	1	10	15851	PLATE, SERIAL L-21 & L-21-7	1
3	15612	DECAL, CAUTION PIN MUST BE IN	1	7	15618	DECAL, DANGER ELECTRIC INJURY	1	11	16102	DECAL, CAUTION READ MANUAL	1
4	32818	DECAL, TRAVEL BLOCK 2000 LBS.	2	8	15582	DECAL, LOGO SMALL	1				



Houston TX
(713)-688-5533
www.liftmoore.com

DECAL DIAGRAM FOR THE
L-21HW TALL

DRAWING NO.
58310-0

LIFTMOORE LIMITED WARRANTY

Parts and Structural

Liftmoore, Inc. warrants each LIFTMOORE crane to be free from defects in materials and workmanship for twelve (12) months from the date of delivery to the original customer. Under the terms of this warranty the crane structural components manufactured by LIFTMOORE, Inc. are warranted for thirty-six (36) months from the date of delivery to the original customer. LIFTMOORE, Inc. will repair or replace, as its sole discretion, any equipment or part that is returned f.o.b. to LIFTMOORE, Inc.'s plant at 7810 Pinemont Drive, Houston, Texas 77040, or to one of its authorized dealers, and is found by LIFTMOORE, Inc. or its authorized dealer to have been defective at the time of original delivery.

The foregoing warranty is the exclusive warranty made by LIFTMOORE, Inc. with respect to its cranes and is in lieu of all other warranties. ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS OF ANY CRANE FOR A PARTICULAR PURPOSE OR OPERATION, ARE HERBY EXPRESSLY DISCLAIMED.

The foregoing warranty applies only to LIFTMOORE cranes under normal use and service and does not apply in the event of damage caused by repair or alteration or damage during shipment, accident, negligence, overloading, or misuse, including operator's failure to follow any of the instructions issued with the crane.

This warranty is limited to the original purchaser and is not assignable. In order to submit a claim, the original purchaser must provide a copy of the original invoice for the crane in question within twelve (12) months following the delivery date and within 30 days from the date of repair.

The warranty applies only when the LIFTMOORE crane is used for commercial purposes and does not cover any purchase for use for personal, family or household purposes.

LIMITATION OF LIABILITY: LIFTMOORE, Inc.'s liability for any losses or damages resulting from any cause whatsoever, including LIFTMOORE, Inc.'s NEGLIGENCE or from a defective crane irrespective of whether such defects are discoverable or latent, shall in no event exceed the purchase price of the crane to which losses or damages are claimed, or at the election of LIFTMOORE, Inc., the repair or replacement of the defective crane.

In no event shall LIFTMOORE, Inc. be liable for any special, incidental, or consequential damages, including commercial losses or costs of any kind sustained by purchaser or any other person or for any damages for which purchaser may be liable to other persons by reason of any defect in any LIFTMOORE crane or any part thereof.

LIFTMOORE, Inc. reserves the right to make changes in design or construction of its cranes at any time without obligating itself to make such changes on cranes previously manufactured.

No agent, employee, or representative of LIFTMOORE, Inc. has authority to amend or modify the foregoing warranty or to bind LIFTMOORE, Inc. by any other warranty, guaranty, or assumption of liability.

In the event any provision of this warranty is for any reason held ineffective, the remaining provisions shall remain in full force and effect.

Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other legal rights that vary from state to state.

