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HT40KX, HT50KX INSTRUCTION MANUAL

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SERIAL NO. 84000 - 84029
SERIAL NO. 85000 - 85029



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2-24-98C

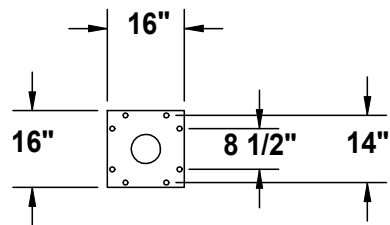
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HT40KX, HT50KX

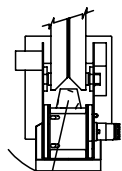
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22358

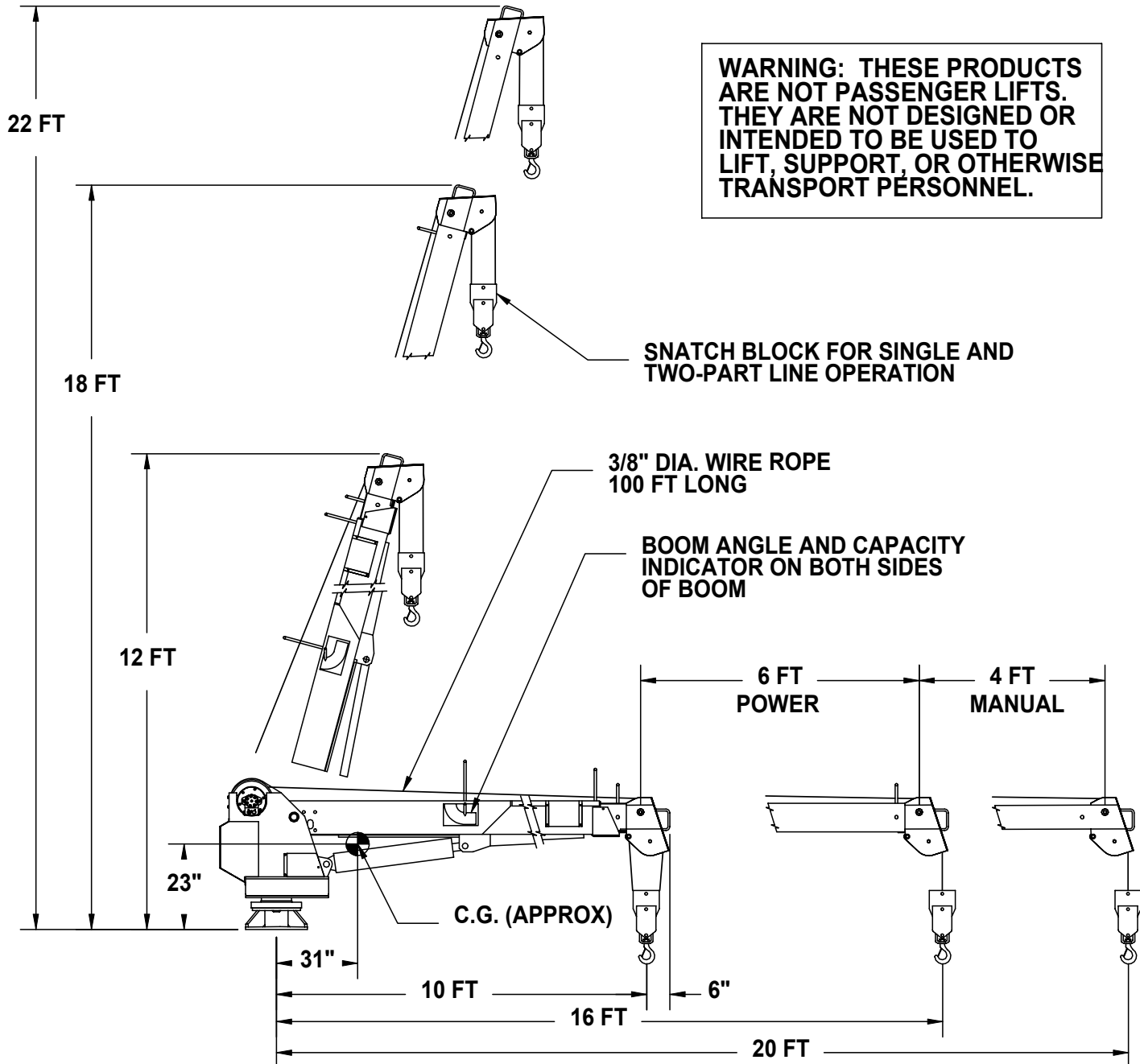
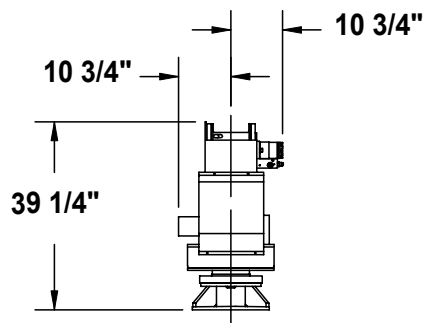
WARNING: THESE PRODUCTS ARE NOT PASSENGER LIFTS. THEY ARE NOT DESIGNED OR INTENDED TO BE USED TO LIFT, SUPPORT, OR OTHERWISE TRANSPORT PERSONNEL.



BASE MOUNTING DIMENSIONS



16" SWING RADIUS



SNATCH BLOCK FOR SINGLE AND TWO-PART LINE OPERATION

**3/8" DIA. WIRE ROPE
100 FT LONG**

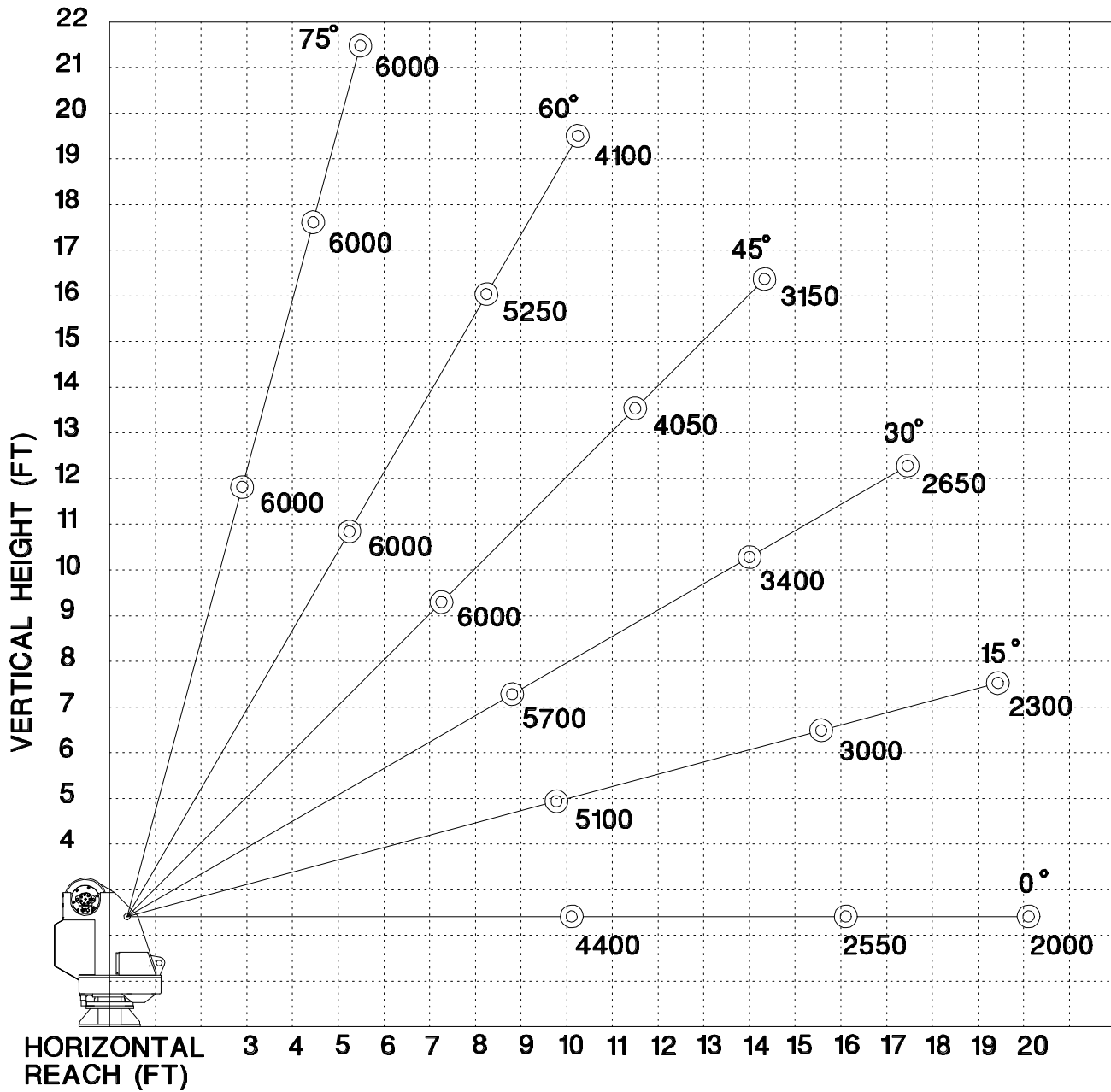
BOOM ANGLE AND CAPACITY INDICATOR ON BOTH SIDES OF BOOM

**6 FT
POWER**

**4 FT
MANUAL**

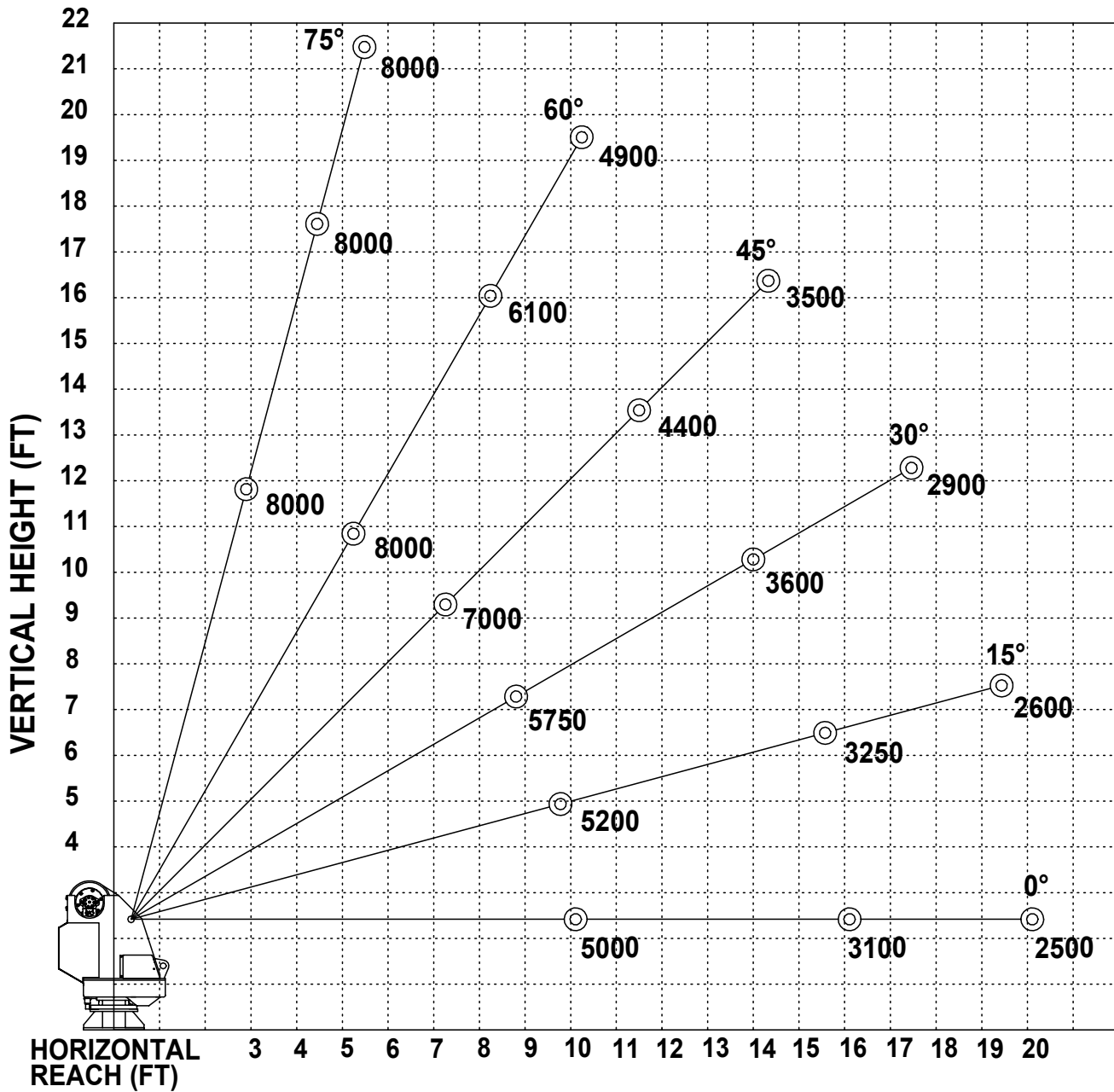
C.G. (APPROX)

HT40KX - 10-16-20 BOOM MAXIMUM CAPACITY CHART

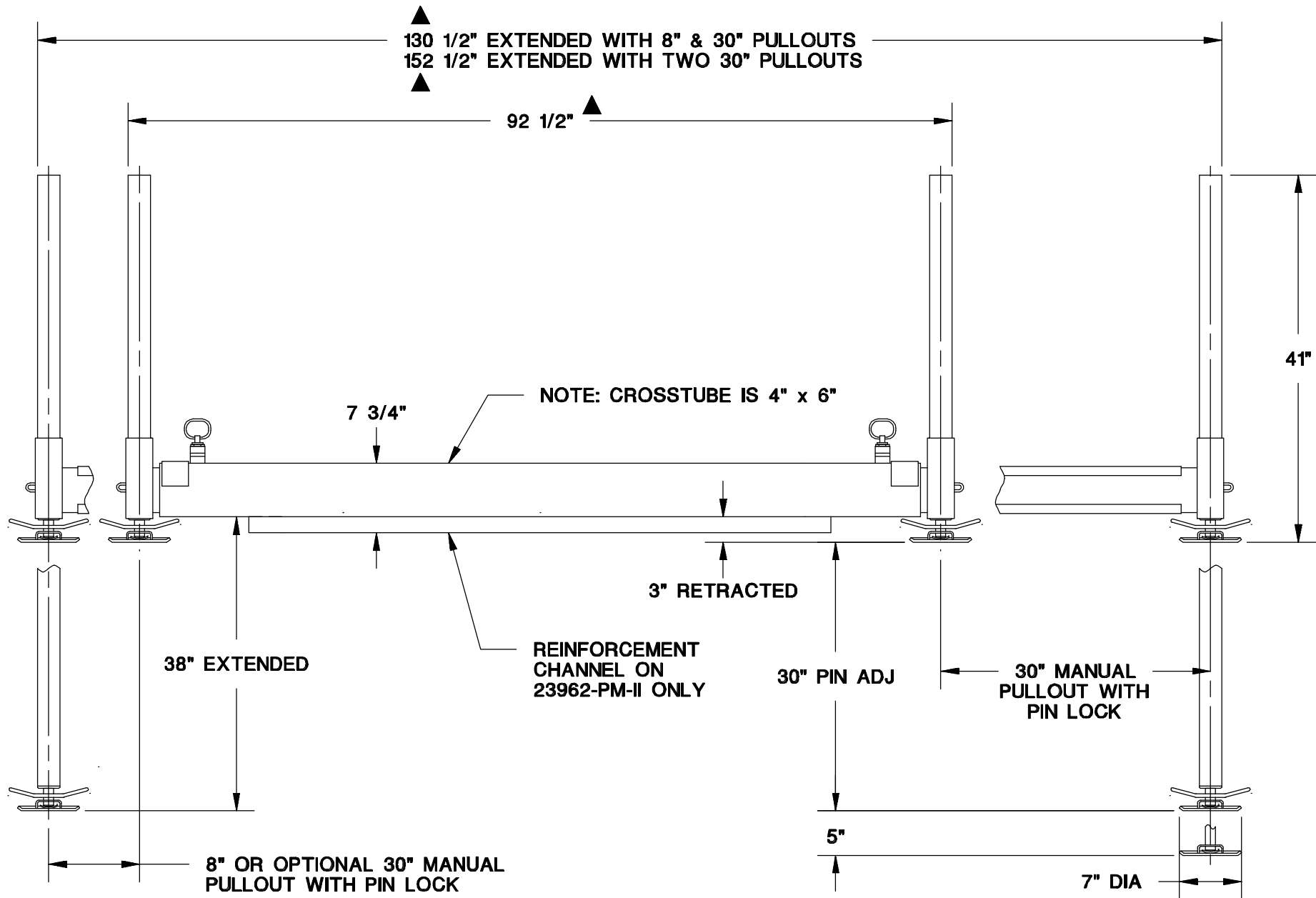


MUST USE SNATCH BLOCK
FOR LOADS OF 3000 LBS.
AND GREATER

HT50KX - 10-16-20 BOOM MAXIMUM CAPACITY CHART



**MUST USE SNATCH BLOCK
FOR LOADS OF 4000 LBS.
AND GREATER**



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 CINCINNATI, OHIO

TITLE
 INSTALLATION DWG

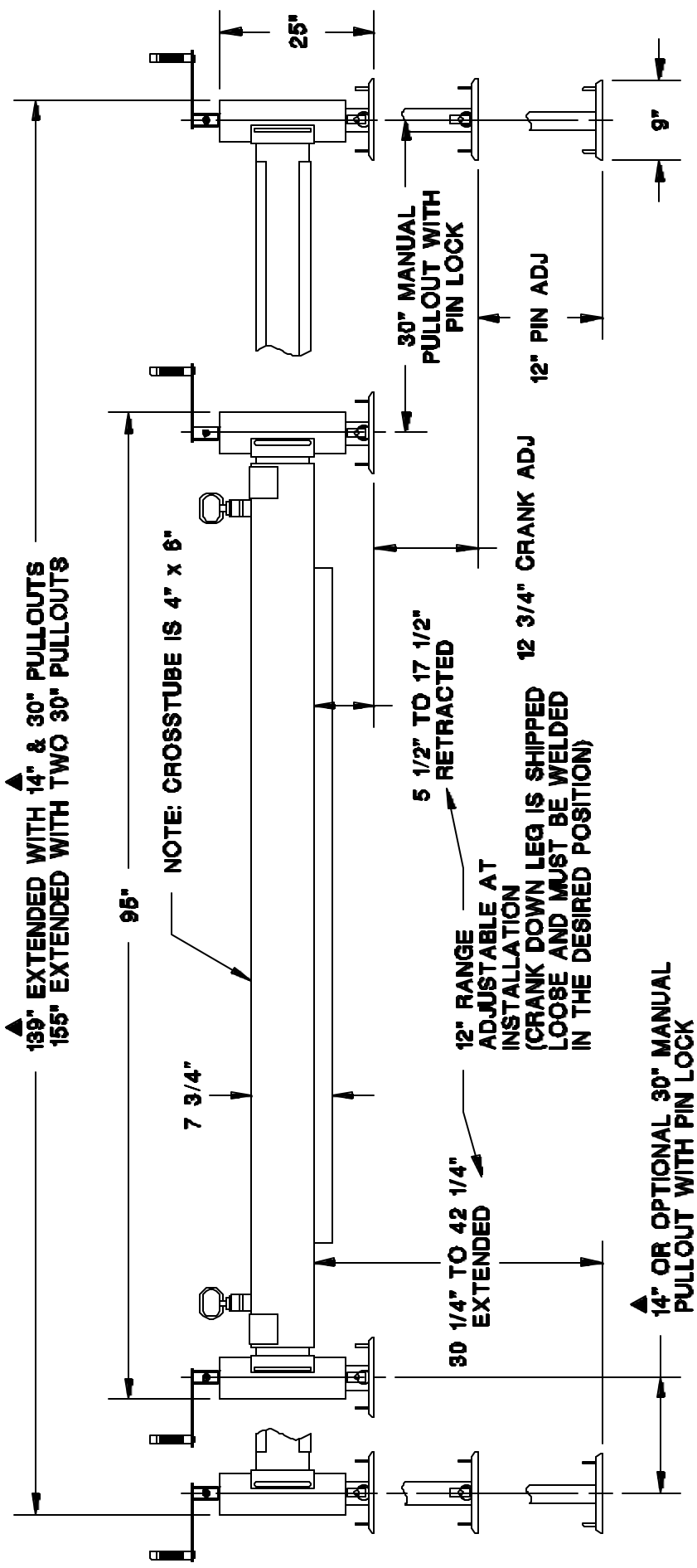
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 1-20-99B

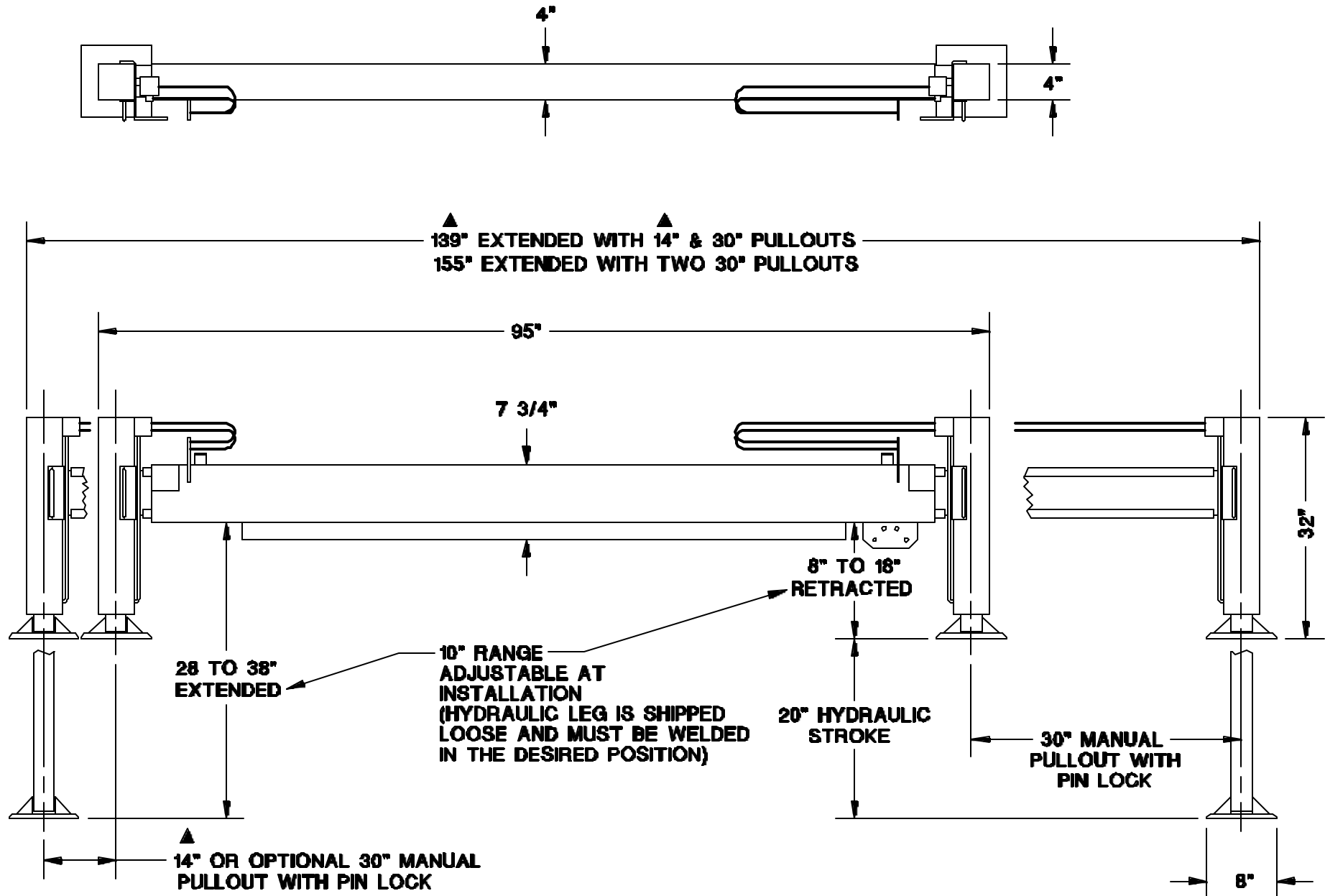
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 C100

22458



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| VENTURO MANUFACTURING, INC. CINCINNATI, OHIO | TITLE INSTALLATION DWG | | DATE 7-30-99D | SECTION C100 |
| | 23962-CD-II CRANKDOWN OUTRIGGERS | | SUPERSEDES 1-19-99C | 22459 |



VENTURO MANUFACTURING, INC.
 CINCINNATI, OHIO

TITLE
 INSTALLATION DWG

23962-PH-II (22403)

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 7-30-99C

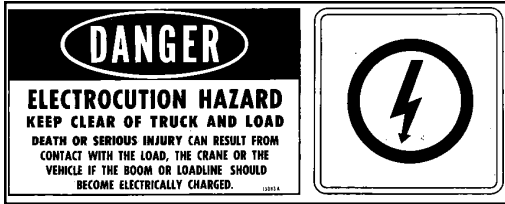
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SECTION
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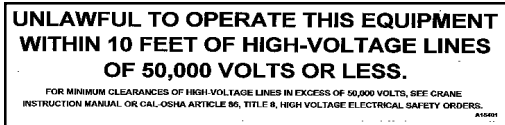
22429

VEHICLE & CRANE MOUNTED ELECTRICAL HAZARD SIGN APPLICATION & INFORMATION

ET & HT CRANE SERIES



SIGN NO. 15393A DISPLAYS THE INTERNATIONAL SYMBOL FOR ELECTRICITY AND WARNS OF DANGER FROM AN ELECTRICALLY CHARGED VEHICLE, CRANE, OR LOAD. FOUR ARE RECOMMENDED (ONE FOR EACH SIDE AND ONE FOR EACH END OF VEHICLE) TO BE APPLIED IN LOCATIONS WHICH ARE READILY VISIBLE TO GROUND PERSONNEL.



SIGN NO. 15401 PROVIDES ADDITIONAL WARNING OF LEGAL REQUIREMENTS WHEN OPERATING NEAR HIGH VOLTAGE LINES. THIS SIGN IS PLACED ON THE CONTROL PENDANT SIDE OF BOOM.

REQUIRED MINIMUM CLEARANCES REFERRED TO ON SIGN NO. 15401

REQUIRED CLEARANCES FROM OVERHEAD HIGH-VOLTAGE LINES

| NOMINAL VOLTAGE (kV) (PHASE TO PHASE) | MINIMUM REQUIRED CLEARANCE (FEET) * |
|--|--|
| 0 - 50 | 10 |
| over 50 - 200 | 15 |
| over 200 - 350 | 20 |
| over 350 - 500 | 25 |
| over 500 - 750 | 35 |
| over 750 - 1000 | 45 |

REQUIRED CLEARANCES FROM ENERGIZED HIGH-VOLTAGE CONDUCTORS (WHILE IN TRANSIT)

| NOMINAL VOLTAGE (kV) (PHASE TO PHASE) | MINIMUM REQUIRED CLEARANCE (FEET) * |
|--|--|
| 0 - 0.75 | 4 |
| over 0.75 - 50 | 6 |
| over 50 - 345 | 10 |
| over 345 - 750 | 16 |
| over 750 - 1000 | 20 |

* NOTE: ENVIRONMENTAL CONDITIONS SUCH AS FOG, SMOKE, OR PRECIPITATION MAY REQUIRE INCREASED CLEARANCES



| | | |
|----------------------------------|-------------------------------|------------------------|
| TITLE INSTALLATION DWG | DATE 5-13-97G | SECTION C150 |
| ET & HT CRANE SERIES | SUPERCEDES 7-15-96F | 15394 |

CRANE SAFETY AND HAZARDS

HT25KX, HT40KX, HT50KX

CAUTIONS

1. INSPECT VEHICLE AND CRANE, INCLUDING OPERATION, PRIOR TO USE DAILY.
2. DO NOT USE THIS EQUIPMENT EXCEPT ON SOLID, LEVEL SURFACE WITH CRANE MOUNTED ON FACTORY-RECOMMENDED TRUCK.
3. BEFORE OPERATING THE CRANE, REFER TO MAXIMUM LOAD (CAPACITY) CHART ON CRANE FOR OPERATING (LOAD) LIMITATIONS.
4. DO NOT OPERATE, WALK, OR STAND BENEATH BOOM OR A SUSPENDED LOAD.
5. ATTACH PENDANT CORD SUPPORT SNAP TO ATTACHMENT POINT BEFORE PLUGGING IN PENDANT.
6. UNPLUG PENDANT AND DISENGAGE PTO SYSTEM WHEN CRANE NOT IN USE.
7. FOR TRAVEL, BOOM MUST BE IN STOWED POSITION.

DANGER

- THIS CRANE IS NOT A PASSENGER LIFT
- IT IS NOT DESIGNED OR INTENDED TO BE USED TO LIFT, SUPPORT, OR OTHERWISE TRANSPORT PERSONNEL.

YOU MUST NOT OPERATE THIS CRANE UNLESS

1. YOU HAVE BEEN TRAINED IN THE SAFE OPERATION OF THIS CRANE
AND
2. YOU KNOW AND FOLLOW THE SAFETY AND OPERATING RECOMMENDATIONS CONTAINED IN THE MANUFACTURER'S MANUALS, YOUR EMPLOYER'S WORK RULES, AND APPLICABLE GOVERNMENT REGULATIONS. AN UNTRAINED OPERATOR SUBJECTS HIMSELF AND OTHERS TO DEATH OR SERIOUS INJURY.

ELECTROCUTION HAZARD

- THIS MACHINE IS NOT INSULATED.
- MAINTAIN SAFE CLEARANCES FROM ELECTRICAL LINES AND APPARATUS.
- YOU MUST ALLOW FOR BOOM SWAY, ROCK OR SAG, AND ELECTRICAL LINE AND LOADLINE SWAYING.
- THIS LIFTING DEVICE DOES NOT PROVIDE PROTECTION FROM CONTACT WITH OR PROXIMITY TO AN ELECTRICALLY CHARGED CONDUCTOR.
- YOU MUST MAINTAIN A CLEARANCE OF AT LEAST 10 FEET BETWEEN ANY PART OF THE CRANE, LOADLINE, OR LOAD, AND ANY ELECTRICAL LINE OR APPARATUS CARRYING UP TO 50,000 VOLTS. ADDITIONAL CLEARANCE IS REQUIRED FOR VOLTAGES IN EXCESS OF 50,000 VOLTS. REFER TO DRAWING 15394 FOR ADDITIONAL INFORMATION.
- **DEATH OR SERIOUS INJURY** WILL RESULT FROM CONTACT OR INADEQUATE CLEARANCE.



MFG., INC.
CINCINNATI, OHIO

TITLE
INSTALLATION DWG

DATE
5-13-97A

SECTION
C150

HYDRAULIC CRANES

SUPERCEDES
6-12-92

920612

WINCH SAFETY WARNINGS

| | |
|---|--|
|  | <p>⚠ DANGER</p> <p>DO NOT DISENGAGE WINCH UNDER LOAD</p> |
|  | <p>⚠ DANGER</p> <p>THE LAST FIVE WRAPS OF WIRE ROPE MUST BE LEFT ON THE DRUM TO ASSIST THE WIRE ROPE CLAMP IN HOLDING THE LOAD</p> |
|  | <p>⚠ WARNING</p> <p>WINCHES ARE NOT TO BE USED FOR THE LIFTING OR MOVING OF PERSONS</p> |

CRANE INSTALLATION

HT40KX, HT50KX

BODY REINFORCEMENT

The truck body must be reinforced and outriggers provided to withstand the combined loads resulting from lifting and the weight of the crane and boom.

The maximum combined overturning moment for the HT40KX is 45,000 ft. lbs. and for the HT50KX is 55,000 ft. lbs.

The maximum vertical load for the HT40KX is 7900 lbs. and for the HT50KX is 9900 lbs.

CRANE MOUNTING

The crane base plate or mounting pedestal must be bolted to the body reinforcing plate with eight (8) grade five (5) bolts of 1" dia. with either coarse or fine threads. A 7" dia. hose clearance hole must be cut in this plate to allow the hoses to swing and coil freely.

ROTATION POSITIONING

The HT cranes are shipped with the boom rotated to the middle of the 400 degree rotation travel limit. The location of this middle position relative to the center line of the truck must be decided prior to mounting. It can be in any position that pleases the user since the boom can always reach the storage and travel position by rotating one way or the other.

HYDRAULIC CONNECTIONS

The crane is furnished with a pressure and a return hose that come down through the center of the quill. These hoses are to be arranged in the compartment or pedestal below the crane as shown on drawing 22247.

These hoses are to be connected in a relaxed position as shown on 22247, while the crane is at the midpoint of the 400 degree rotation range as received -- regardless of the final position of the boom during storage/travel.

The bulkhead fittings may be located on any side of the compartment relative to the middle of rotation position.

The crane pressure and return hoses have different sizes of SAE 37 degree flare swivel fittings. The smaller swivel is on the pressure hose which has a 3/8 flare (#6 JIC). The larger swivel is on the return hose which has a 1/2 flare (#8 JIC).



TITLE
INSTALLATION DWG

DATE
7-17-97

SECTION
C200

HT40KX, HT50KX

SUPERCEDES
-

22344a

ELECTRICAL CONNECTIONS

A 25 ft. electrical power lead - intended for 12V DC only - also comes down through the center of the quill with the hoses. This lead should be looped in the compartment so that it remains relaxed throughout the 400 degree rotation of the crane.

A 15amp circuit breaker is mounted on the crane and protects the crane's internal wiring and solenoid coils. The 15amp circuit breaker does not protect the 25 foot electrical power lead. For added protection, the 25 ft. lead can be connected to a 15-20 amp protected circuit that, if possible, is powered only when the vehicle engine is running

HYDRAULIC FLUID

| <u>Average Climate</u> | <u>Type of Oil</u> |
|------------------------|--------------------|
| Cold to Moderate | ISO Grade AW 46 |
| Warm to Hot | ISO Grade AW 68 |

The fluid should have the highest anti-wear characteristics and treated to inhibit rust and oxidation.

HYDRAULIC HOSES & LINES

The minimum sizes for lines and hoses are as follows:

| | |
|----------|------|
| PRESSURE | 3/8" |
| RETURN | 1/2" |
| SUCTION | 3/4" |

RESERVOIR

The PTO reservoir should have a capacity of 10 gallons fitted with 100 mesh suction screen, 10 micron return line filter, and filler/breather cap.

PTO PUMP

The PTO pump should be sized to allow an engine idle speed range that will deliver approximately 2.5 GPM for the HT40KX standard, 3.0 GPM for the HT50KX standard, or 5.0 GPM for the HT40/50KX proportional. The crane's relief pressure is set at 3000 psi.

PTO START-UP

Before connecting the PTO system to the crane pressure and return hoses, connect the PTO pressure and return lines together at the bulkhead. Operate the PTO system for about two (2) minutes per gallon of reservoir capacity (in this case 20 minutes) to flush out the lines and filter all the fluid several times.



MFG., INC.
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INSTALLATION DWG

DATE
7-17-97

SECTION
C200

HT40KX, HT50KX

SUPERCEDES
-

22344b

CRANE OPERATION AND MAINTENANCE INSTRUCTIONS

HT40KX, HT50KX

SAFETY

Before operating this crane, read and understand these instructions, the 920612 Crane Safety and Hazards Information Sheet, and review all safety & instruction labels on the crane.

CRANE INSPECTION

Before operating this crane, inspect for wear, damage, or oil leakage. After the wire rope has been run out, check for wear, kinks, and broken strands. Check the hook and safety latch for damage. Correct any problems before using the crane.

CAPACITY

Before operating this crane, review the capacity charts on the sides of the boom to relate the load to be lifted to the boom length and angle. The boom angle is shown by a gravity arrow.

SNATCH BLOCK

If the load exceeds 3000 lbs.-HT40KX or 4000 lbs.-HT50KX or if reduced winching speed for better control of smaller loads is required, use the snatch block to rig the crane for two part line operation.

CONTROLS

This crane is operated by a remote control pendant. The pendant should be unplugged and stored in a compartment when the crane is not in use.

Before plugging the pendant in, inspect the plug, socket, cord, pendant head, and switches for damage. Actuate all four switches both ways to verify that they all have the same feel and sound and that they return to the center position.

Plug the pendant into the socket on the right side of the crane and snap the strain relief tether to the crane housing.

PTO SYSTEM

Check the hydraulic fluid level in the PTO system reservoir. Engage PTO and set the engine idle speed to provide the desired hydraulic flow rate per the PTO system instructions. A lower idle setting may be used for more delicate spotting of loads if required.

CRANE OPERATION

Use "Winch Down" to release tension on the wire rope to unhook it from the storage tie down position.

Use "Boom Up" to elevate the boom from the boom rest position.

Avoid repeated rapid reversals of the control switches. This can cause the load to swing.

Check all control functions to see that they are working as described in the following section.



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INSTALLATION DWG

DATE
7-17-97

SECTION
C200

HT40KX, HT50KX

SUPERCEDES
-

22345a

CONTROL FUNCTIONS

WINCH "UP" and "DOWN" - Raises and lowers the load with the winch.

BOOM "UP" and "DOWN" - Raises and lowers the boom elevation angle. The boom elevates from 8 degrees below horizontal to 75 degrees above horizontal.

BOOM "OUT" and "IN" - Extends and retracts the boom. The boom hydraulic extension stroke is 6 ft.

ROTATION "L" and "R" - Controls the left and right direction of the crane rotation. The crane rotation is limited to 400 degrees.

POWER - (Non Proportional Systems) Energizes safety shutoff valve. See page 22328 for detailed operations instructions and warnings.

TRIGGER (Proportional Systems Only) - Varies the flow rate delivered to the crane valve. The farther the trigger is pulled, the faster the selected crane function operates.

OVERLOAD SENSING SYSTEM

This crane is equipped with an Overload Sensing System. If the capacity of the crane is exceeded, the "Winch Up", "Boom Down", and "Boom Out" functions will be shut down. The "Winch Down", "Boom Up", and "Boom In" functions will continue to operate and can be used to relieve the overload condition. The "Rotation" function also will continue to operate.

- ▲ For crane models HT25 serial numbers 80157, HT40 serial numbers 84092 and HT50 serial numbers 85086 and below, the Overload system is inoperative if the boom elevation is at the bottom or top limit of travel. To relieve this condition, raise or lower the boom slightly before lifting the load. Cranes with serial numbers above the aforementioned have been modified to allow the Overload system to remain active at the top of boom travel.

TWO-BLOCK SENSING SYSTEM

This crane is equipped with an anti two-block device that is mounted at the tip of the boom. If the snatch block/overhaul weight contacts the device the "Winch Up", "Boom Down", and "Boom Out" functions are disabled. The "Winch Down", "Boom Up", and "Boom In" functions will continue to operate and can be used to relieve the two-block condition. Refer to Drawing 22449 for replacement parts and configuration information.

MANUAL TELESCOPIC BOOM

The 10 to 20 ft. boom has a 4 ft. manual telescoping section in addition to the 6 ft. power extension. A pin locks the manual extension into either the extended or retracted position.

TRUCK SETUP & OUTRIGGERS

1. The truck should be parked on ground that is as level and as firm as possible when using the crane.
2. The center of the crane should be positioned close enough to the job so that it can be operated at a reach that puts the load within the rated capacity of the crane.
3. Set the vehicle parking brake and put the vehicle transmission in "park" if it is an automatic.
4. Deploy the outriggers to help stabilize the vehicle against rocking or overturning when lifting with the crane.



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TITLE
INSTALLATION DWG

HT40KX, HT50KX

DATE
11-3-00D

SUPERCEDES
10-26-00C

SECTION
C200

22345b

PREPARATION FOR TRAVEL

1. Return the outriggers to the stowed position. Install and secure all pins.
2. Stow the crane boom in the boom support.
3. Hook the winch line to a tie down point on the body or pedestal and apply tension.
4. Disengage the PTO pump and idle speed control.
5. Unplug the control pendant and store in a body compartment or the cab.

MAINTENANCE

The crane requires only periodic lubrication. As a standard procedure, this can be done at the time the vehicle is serviced.

The winch planetary gearbox lube should be maintained at the level plug.

To ensure optimal winch performance, the following lube schedule and lube specifications should be followed:

Initial Change - after 6 weeks or 10 hours of operation.

Periodic Change - on an annual basis or every 50 hours of operation.

| <u>Temp Range (°F)</u> | <u>Winch Hydraulic Oil</u> |
|------------------------|----------------------------|
| 120 to 10 | SAE 50 |
| 40 to -25 | 75W90 |
| 30 to -50 | Conoco DN600 or equivalent |

Service grease fittings and rotation gear with molybdenum-disulfide graphite-filled lithium-based extreme pressure grease.

Grease fitting locations:

Boom pivot at rear of boom (two grease fittings)

Upper quill bearing

Elevation cylinder tail clevis

Rotation worm shaft - each side of lower part of crane housing

Rotation shaft bearing - near elevation cylinder lower pivot

The rotation drive chain should be oiled lightly (DO NOT GREASE).

The lower quill bearing is self lubricating.

Remove rear cover and check all hydraulic tube and hose fittings for tightness.

Check electrical connections for looseness and corrosion.



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TITLE
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HT40KX, HT50KX

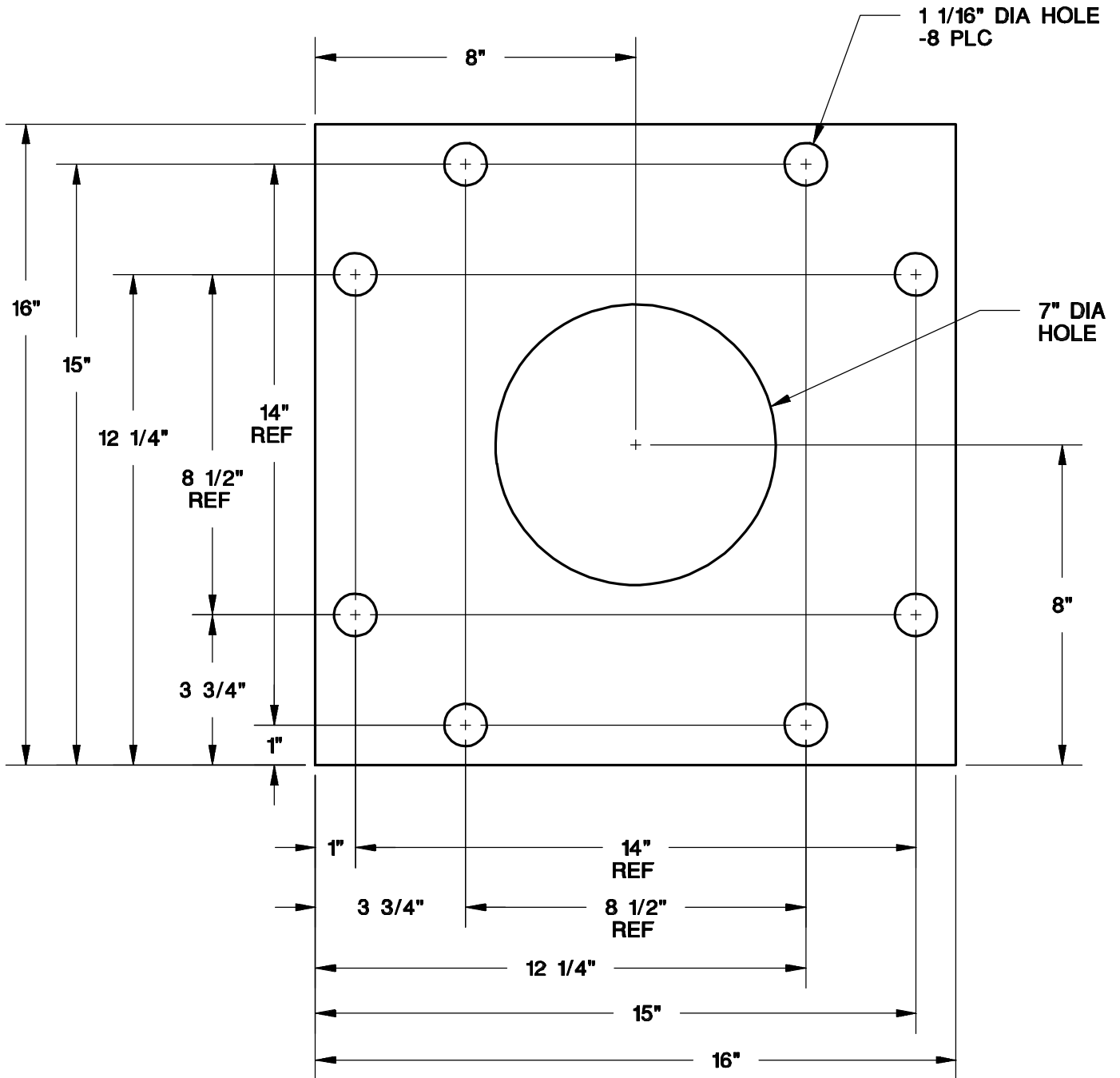
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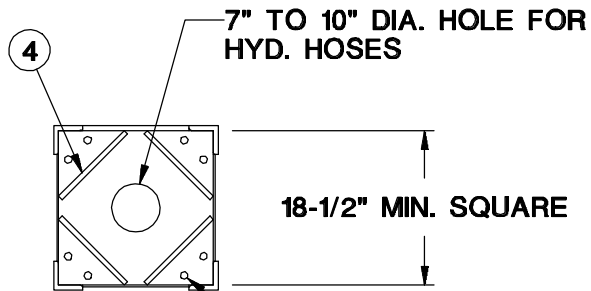
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SECTION
C200

22345c

22040 CRANE (QUILL) BASE PLATE



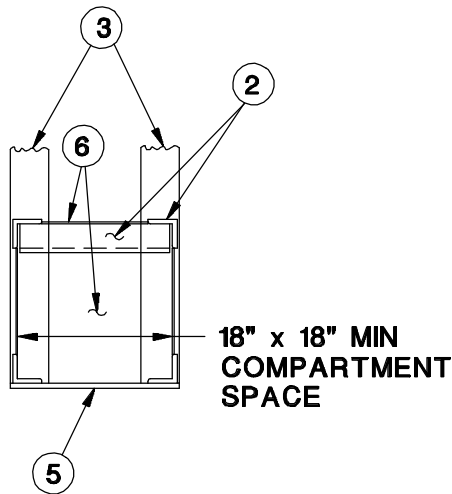


HOLES FOR 1" MOUNTING BOLTS, REF. 17902 MTG. HOLE TEMPLATE

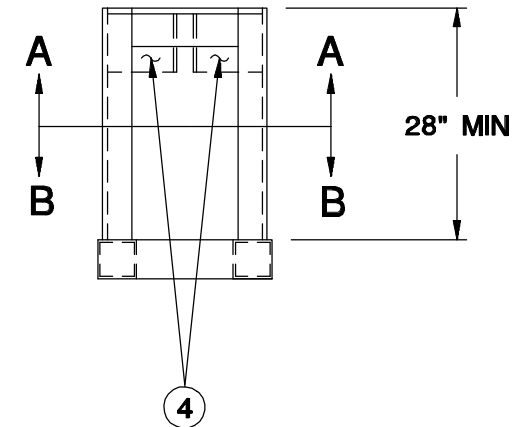
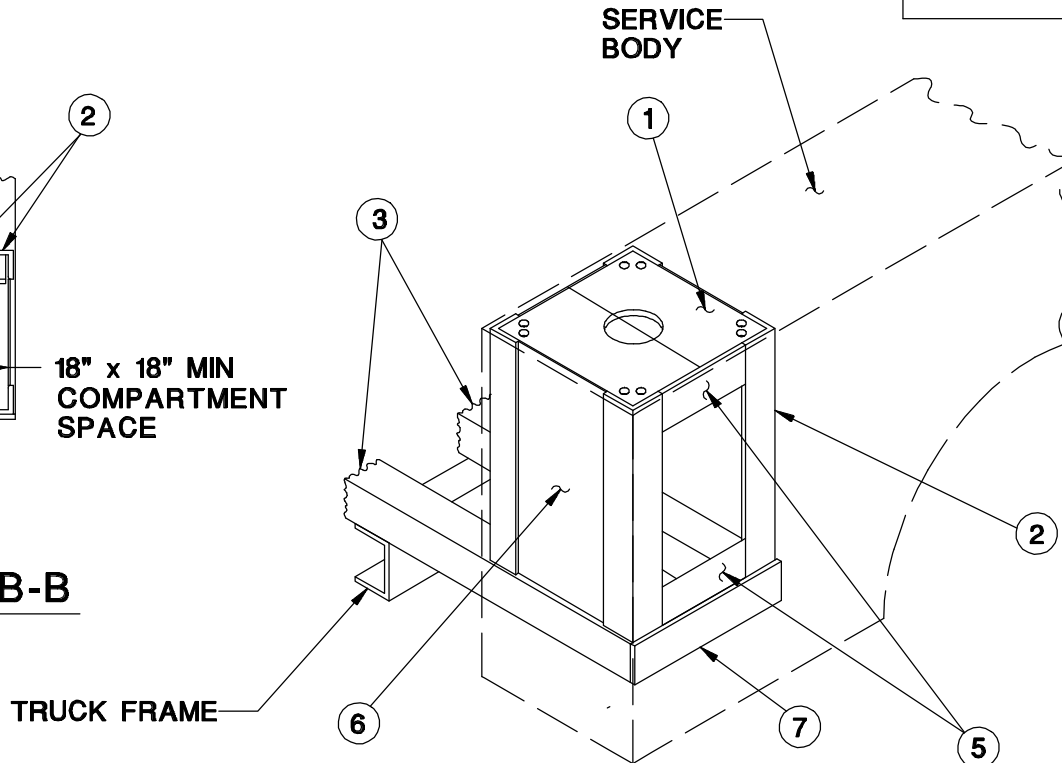
SECTION A-A

| ITEM | DESCRIPTION | MINIMUM RECOMMENDED MATERIAL SIZE |
|------|-------------------|---|
| 1 | TOP PLATE | 5/8" STEEL |
| 2 | CORNER POST | 4" x 4" x 1/2" STEEL ANGLE |
| 3 | CROSS FRAME | 3" x 5" x 3/8"W OR 4" x 6" x 1/4"W TUBING |
| 4 | TOP PLATE REINF. | 1/2" x 3-1/2" STEEL BAR |
| 5 | GUSSET | 1/2" x 6" STEEL BAR |
| 6 | SHEAR WEB | 1/4" THICK STEEL PLATE |
| 7 | O.R. REINF. PLATE | 3/8" x 5" OR 6" STEEL BAR |

IT IS THE SOLE RESPONSIBILITY OF THE INSTALLER TO INSURE THAT THE TOTAL STRUCTURE OF CRANE, TRUCK, AND OUTRIGGERS ARE STRUCTURALLY SOUND AND THAT THE COMPLETED VEHICLE HAS SUFFICIENT STABILITY AGAINST OVERTURNING.



SECTION B-B



TYPICAL SERVICE BODY REINFORCEMENT



TITLE
INSTALLATION DWG

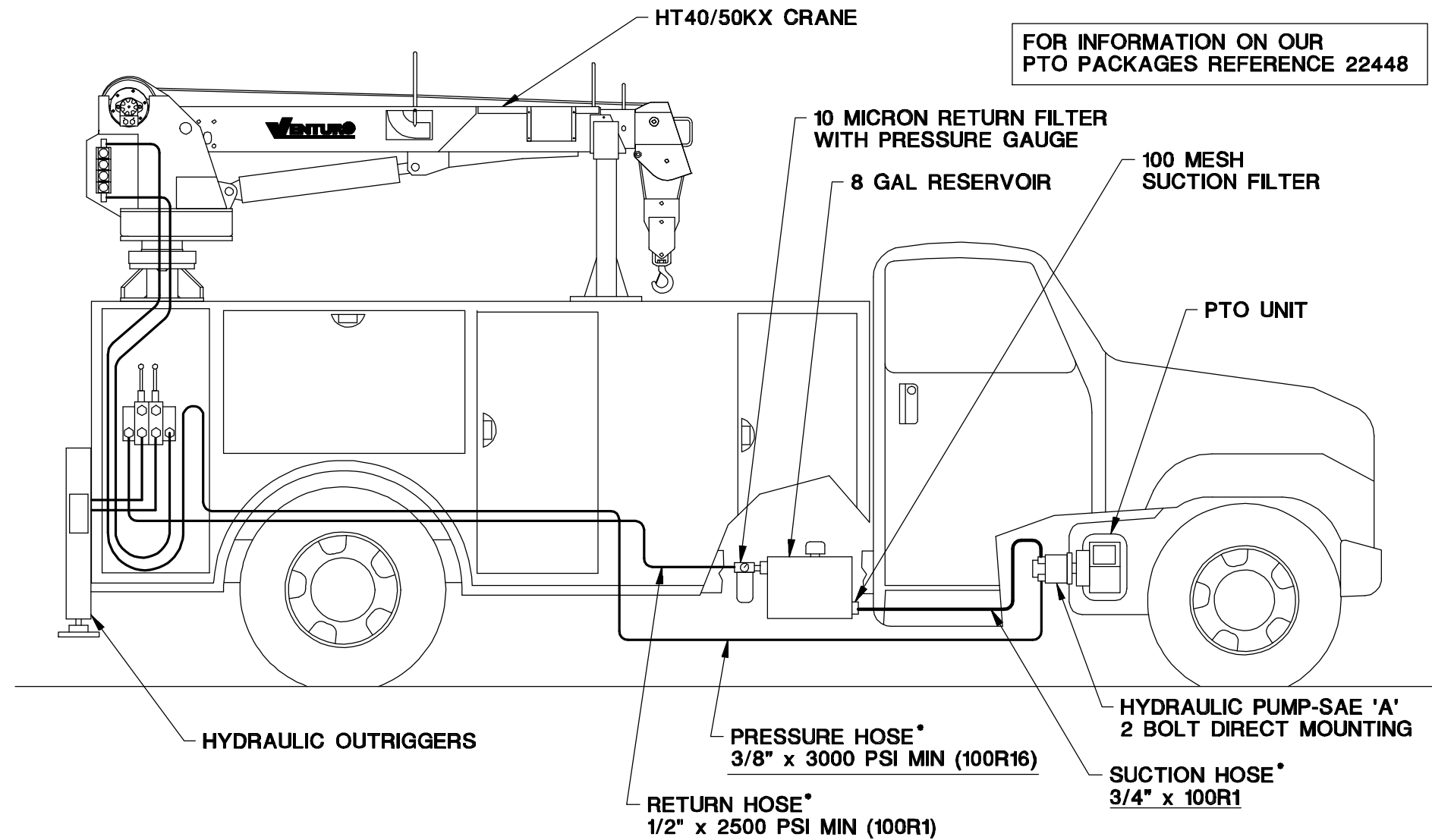
HT40KX, HT50KX

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5-14-97A

SUPERSEDES
12-5-91

SECTION
C200

17945



FOR INFORMATION ON OUR
PTO PACKAGES REFERENCE 22448

HYDRAULIC REQUIREMENTS :

HT40KX STANDARD - 2.5 GPM @ 3000 PSI (19294-2.64 PTO PACKAGE)

HT50KX STANDARD - 3.0 GPM @ 3000 PSI (19294-2.64 PTO PACKAGE)

HT40/50KX PROPORTIONAL - 5.0 GPM @ 3000 PSI (19294-5.00 PTO PACKAGE)

SEE INSTALLATION INSTRUCTIONS 22344 (2 PAGES).

*HOSES OR FITTINGS BETWEEN PUMP, RESERVOIR, AND CRANE NOT INCLUDED.



TITLE
INSTALLATION DWG

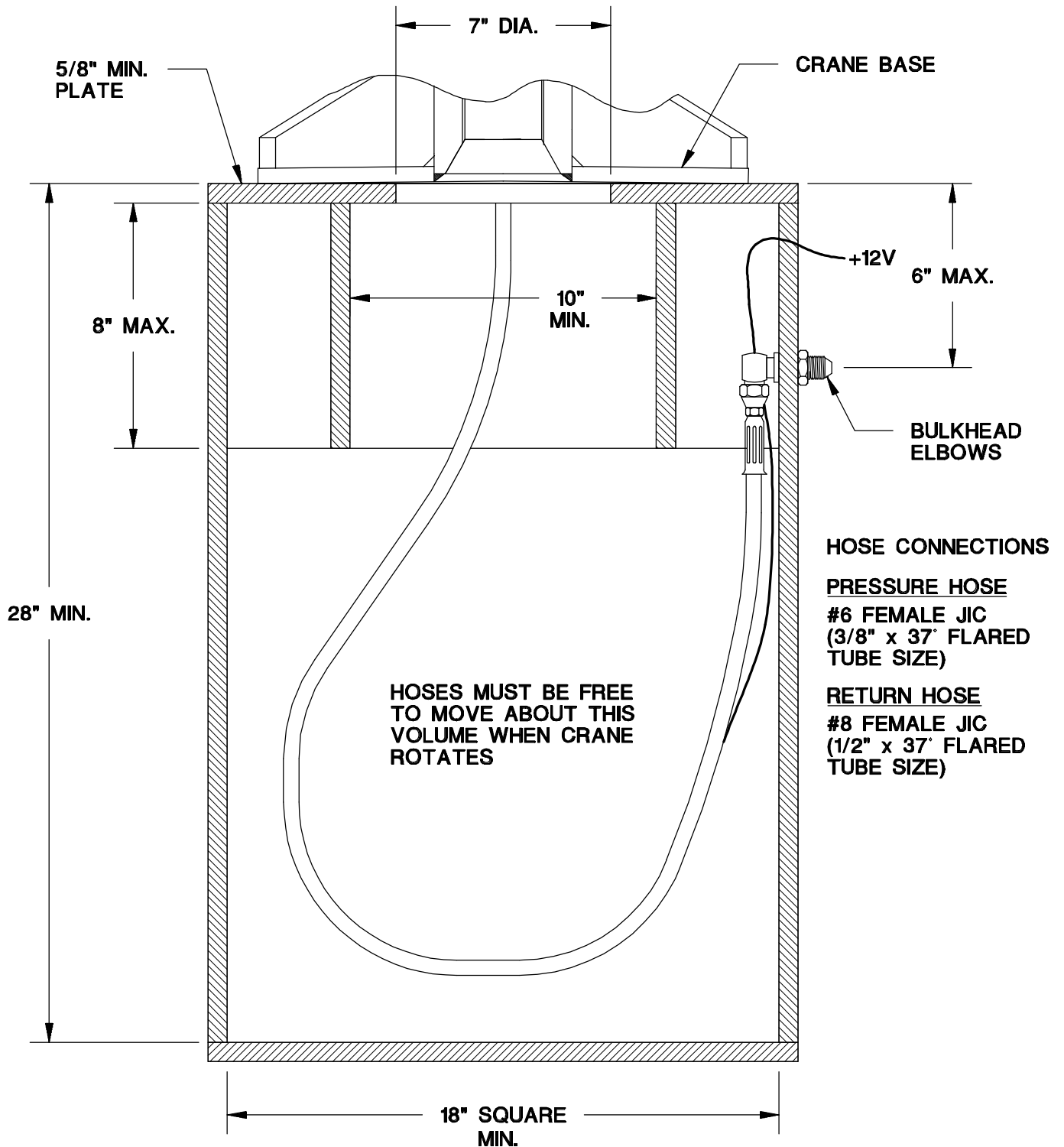
PTO INST - HT40/50

DATE
6-25-97

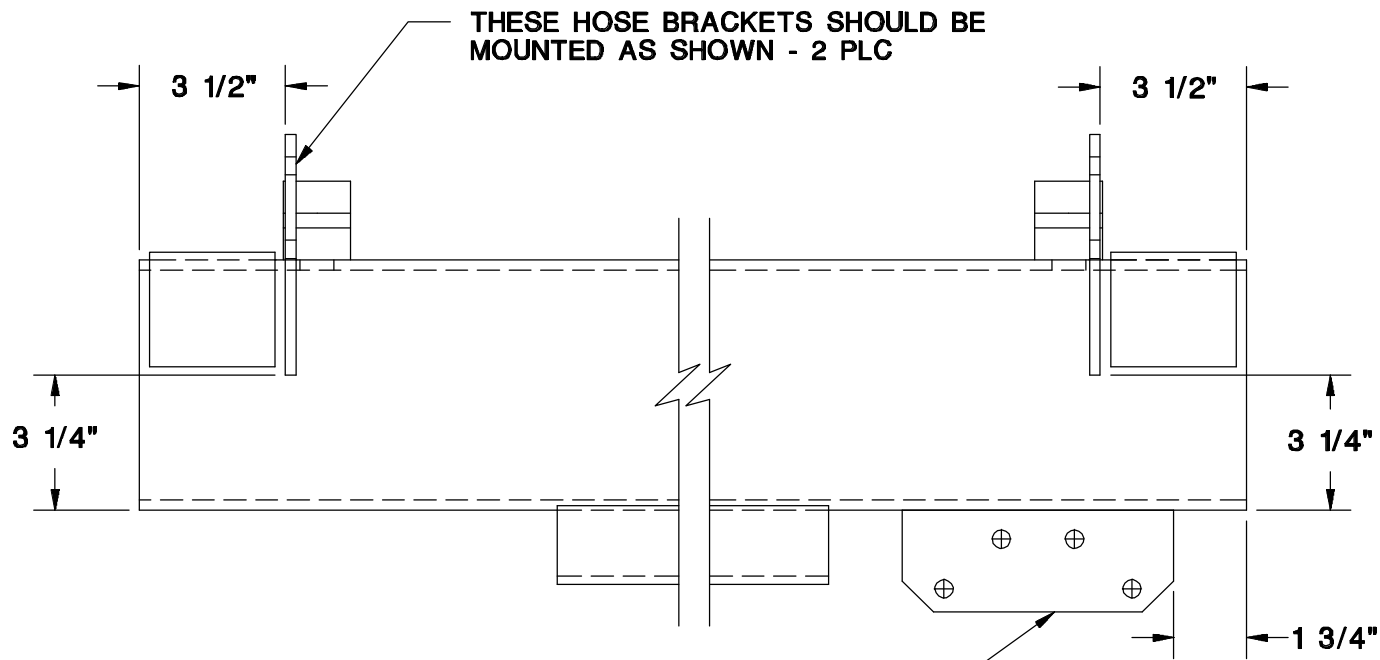
SUPERSEDES
-

SECTION
C200

22335



HOSE BRACKET LOCATIONS - 23962-PH-II



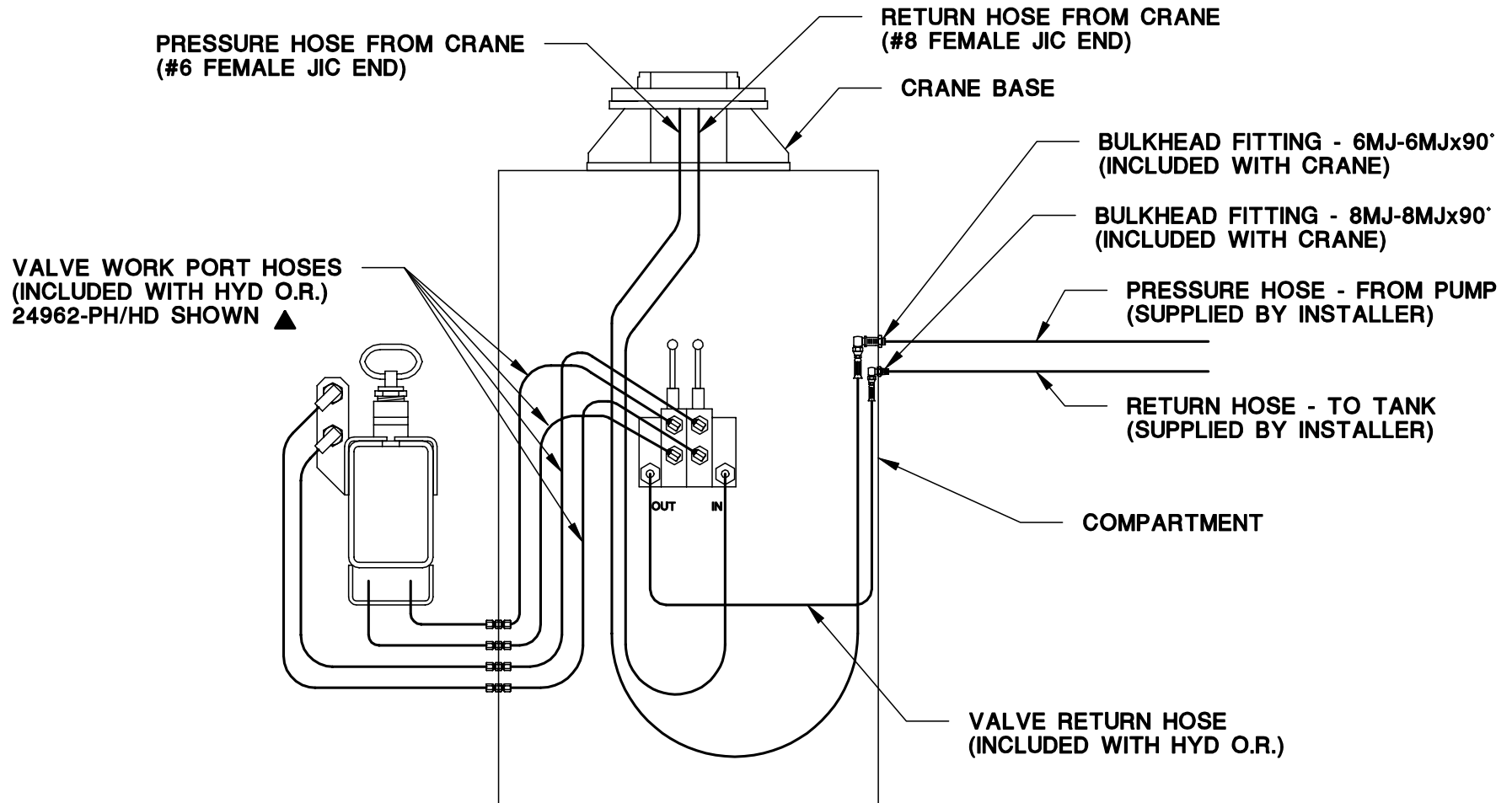
THIS BRACKET CAN BE USED AS A DRILLING TEMPLATE AND THEN REMOVED -OR- THE BRACKET CAN BE LEFT IN PLACE



| | | |
|----------------------------|------------|---------|
| TITLE | DATE | SECTION |
| INSTALLATION DRAWING | 7-5-97 | C200 |
| 23962-PH-II HYD. OUTRIGGER | SUPERSEDES | 22447 |
| | - | |

TYPICAL HYDRAULIC OUTRIGGER INSTALLATION

SEE REPLACEMENT PARTS DRAWING FOR ADDITIONAL INFORMATION ▲

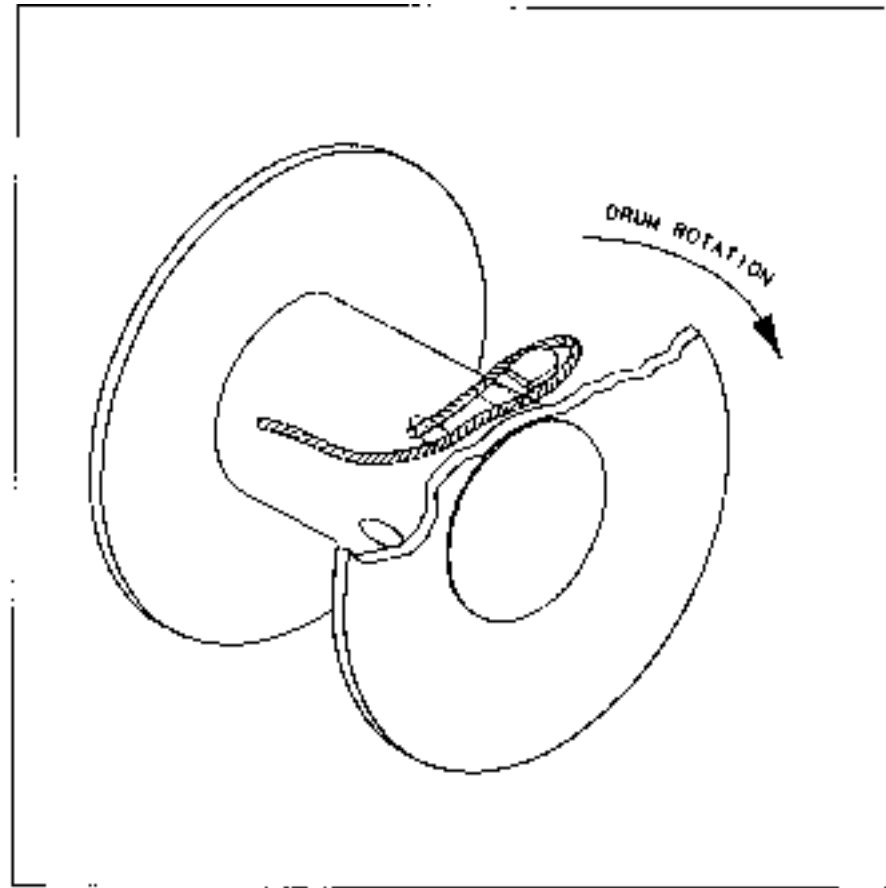


WIRE ROPE INSTALLATION

STEP 1: INSERT WIRE ROPE END THROUGH ANTI-TWO-BLOCKWEIGHT.

STEP 2: INSERT WIRE ROPE END INTO POCKET OPENING AND THROUGH WEDGE POCKET.

CAUTION: IF THE WIRE ROPE IS NOT INSTALLED FOR THE CORRECT DRUM ROTATION, THE WINCH BRAKE VALVE WILL NOT HOLD THE LOAD.



MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE

WIRE ROPE INSTALLATION DRAWING

DATE

5-26-98A

SECTION

C400

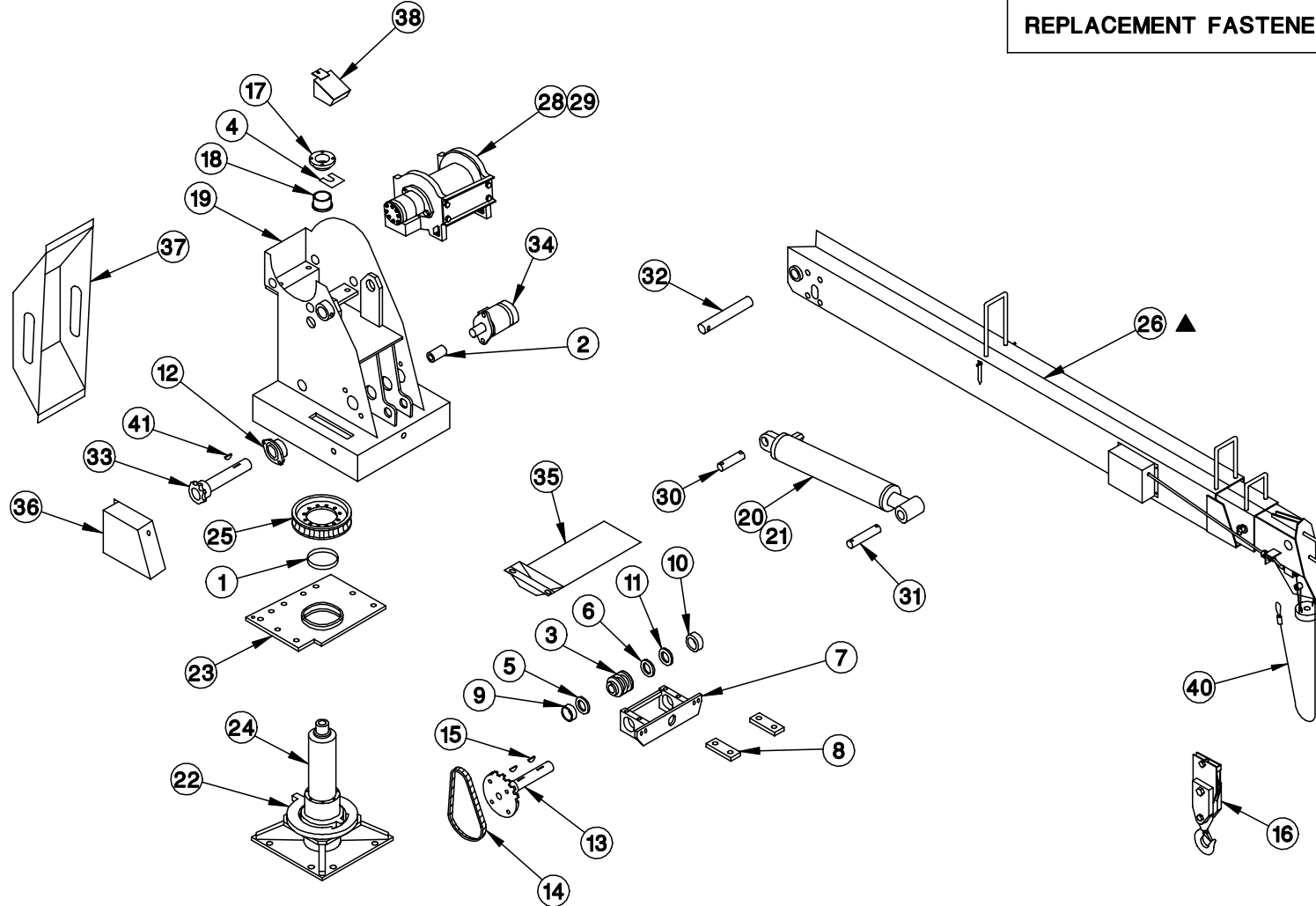
HT40KX, HT50KX

SUPERCEDES

7-22-97

22245

REPLACEMENT PARTS LIST REF 22517 ▲
 REPLACEMENT FASTENERS LIST REF 22338



| | | |
|----------------------------|-------------------------|-----------------|
| TITLE REPLACEMENT PARTS | DATE 10-29-01B | SECTION C400 |
| HT40KX, HT50KX | SUPERSEDES 11-20-97A | 22346 |

| ITEM # | PART # | DESCRIPTION | ITEM # | PART # | DESCRIPTION |
|--------|---------------|---|--------|--------|--|
| 1 | 22017 | LOWER BEARING - 8" OD x 1.5" LONG | 41 | 26404 | WOODRUFF KEY - 1/4" x 1" (MODIFIED) |
| 2 | 14084 | COUPLING | 42 | - | - |
| 3 | 14142-4 | WORM - SINGLE THREAD RH | 43 | - | - |
| 4 | 14159 | SHIM - 1-1/2" SQ x .015", .042", .105" | 44 | - | - |
| 5 | 14191-1 | BALL THRUST BEARING - 2" ID x 3-11/32" OD | 45 | - | - |
| 6 | 14191-2 | BALL THRUST BEARING - 1-1/2" ID x 2-19/32" OD | 46 | - | - |
| 7 | 14242 | HOUSING, WORM GEAR | 47 | - | - |
| 8 | 14245 | WASHER PLATE | 48 | - | - |
| 9 | 14341-1 | BUSHING - 2.003" ID x 2.252" OD x 15/16" LONG | 49 | - | - |
| 10 | 14341-2 | BUSHING - 1.503" ID x 1.752" OD x 1" LONG | 50 | - | - |
| 11 | 14344 | SHIM WASHER - 1-1/2" ID x 2-1/8" OD x .005", .015", .031" THK | 51 | - | - |
| 12 | 22468 | HD STEEL FLANGE MOUNTED BALL BEARING - 1" BORE | 52 | - | - |
| 13 | 14384 | SPROCKET AND SHAFT ASSEMBLY (40T SPROCKET) | 53 | - | - |
| 14 | 14481 | ROTATION DRIVE CHAIN | 54 | - | - |
| 15 | 15245 | WOODRUFF KEY - 5/16" x 1-1/8" (MODIFIED) | 55 | - | - |
| 16 | 17770 | HEADACHE BALL ASSEMBLY | 56 | - | - |
| 17 | 18068 | BEARING HOUSING - 1-1/8" LONG | 57 | - | - |
| 18 | 18069 | FLANGED BEARING - 2" BORE x 3" OD FLANGE | 58 | - | - |
| 19 | 22006 | WELDED HOUSING ASSEMBLY | 59 | - | - |
| 20 | 22021-1 | ELEV. CYL. 4.5" BORE x 2" ROD x 19.63" STROKE | 60 | - | - |
| 21 | 22022-1 | ELEV. CYL. 5" BORE x 2" ROD x 19.63" STROKE | 61 | - | - |
| 22 | 22024 | STOPRING - ROTATION | 62 | - | - |
| 23 | 22026 | LOWER BEARING PLATE ASSEMBLY | 63 | - | - |
| 24 | 22030 | QUILL ASSEMBLY | 64 | - | - |
| 25 | 22041 | WORM GEAR - ROTATION | 65 | - | - |
| 26 | 22199 | BOOM ASSEMBLY - HT40KX | 66 | - | - |
| 27 | 22200 | BOOM ASSEMBLY - HT50KX | 67 | - | - |
| 28 | 22266 | WINCH - 3000 LB (SINGLE LINE) - HT40KX | 68 | - | - |
| 29 | 22268 | WINCH - 4000 LB (SINGLE LINE) - HT50KX | 69 | - | - |
| 30 | 22274 | PIVOT PIN, CYL TAIL - 1-1/2" OD x 2-13/16" LONG | 70 | - | - |
| 31 | 22275 | PIVOT PIN, CYL ROD - 1-1/2" OD x 6-7/8" LONG | 71 | - | - |
| 32 | 22290 | PIVOT PIN, BOOM - 1-3/4" OD x 12-1/2" LONG | 72 | - | - |
| 33 | 22291 | SPROCKET AND SHAFT ASSEMBLY (10T SPROCKET) | 73 | - | - |
| 34 | 22294 | HYDRAULIC MOTOR - ROTATION | 74 | - | - |
| 35 | 22298 | LOWER COVER | 75 | - | - |
| 36 | 22303 | CHAIN COVER | 76 | - | - |
| 37 | 22304 | VALVE COVER ASSEMBLY | 77 | - | - |
| 38 | 22387 | RAIN COVER - QUILL | 78 | - | - |
| 39 | - | - | 79 | - | - |
| 40 | 17094-3/8-100 | WIRE ROPE ASSEMBLY - 3/8" x 100 FT | 80 | - | - |
| | | REPLACEMENT PARTS DWG REF 22346 | | | ▲HT40KX SERIAL No. 84010 - 84029 ▲HT50KX SERIAL No. 85010 - 85029 |



MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE
REPLACEMENT PARTS

DATE
4-15-98C

SECTION
C400

HT40KX, HT50KX

SUPERCEDES
11-20-97B

22339

FASTENER LIST FOR HT40/50KX

| PART NUMBER | DESCRIPTION | QTY | LOCATION/FUNCTION |
|-------------------|------------------------------------|-----|--------------------------------|
| 14353 | GROOVED PIN - 1/2" x 1-1/2" | 10 | BASE PLATE |
| !HHCS05013150 | HHCS - 1/2"-13 x 1-1/2" | 10 | BASE PLATE |
| !LWSH-050 | LOCK WASHER - 1/2" | 10 | BASE PLATE |
| 18927 | CAPSCREW - MODIFIED | 12 | BULL GEAR |
| !LWSH-050-HC | LOCK WASHER - 1/2" HI COLLAR | 12 | BULL GEAR |
| !HHCS06311175 | HHCS - 5/8"-11 x 1-3/4" | 4 | WORMHOUSING |
| !LWSH-063 | LOCK WASHER - 5/8" | 4 | WORMHOUSING |
| !SHCS05020125 | SHCS - 1/2"-20 x 1-1/4" | 2 | WORMHOUSING |
| 25593 | SET SCREW - FLAT FACE 1/2"-20 x 1" | 5 | WORMHOUSING |
| !HHCS02520063-5 | HHCS 1/4"-20 x 5/8" | 7 | LOWERCHAIN COVER |
| !LWSH-025 | LOCK WASHER - 1/4" | 7 | LOWERCHAIN COVER |
| !UNUT15195-1420 | FASTENER, U-NUT, 1/4"-20 | 7 | LOWERCHAIN COVER |
| !HHCS02520063-5 | HHCS 1/4"-20 x 5/8" | 2 | SIDE CHAIN COVER |
| !HHCS02520375 | HHCS - 1/4"-20 x 3-3/4" | 1 | SIDE CHAIN COVER |
| !HNUT-02520 | HEX NUT - 1/4"-20 | 1 | SIDE CHAIN COVER |
| !LWSH-025 | LOCK WASHER - 1/4" | 3 | SIDE CHAIN COVER |
| !HHCS02520063-5 | HHCS - 1/4"-20 x 5/8" | 4 | VALVE BACK COVER |
| !LWSH-025 | LOCK WASHER - 1/4" | 4 | VALVE BACK COVER |
| !HHCS#0832050 | HHCS - #8-32 x 1/2" | 3 | VALVE BACK COVER |
| !LWSH-#08 | LOCK WASHER - #8 | 3 | VALVE BACK COVER |
| !HHCS03816125 | HHCS - 3/8"-16 x 1-1/4" | 1 | VALVE BANK |
| !HNUT-03816 | HEX NUT - 3/8"-16 | 2 | VALVE BANK |
| !LWSH-038-HC | LOCK WASHER - 3/8" HI COLLAR | 2 | VALVE BANK |
| !RPIN-025200 | ROLL PIN - 1/4" DIA x 2" LONG | 4 | ELEVATION CYLINDER PINS |
| !HHCS03816125 | HHCS - 3/8"-16 x 1-1/4" | 2 | ROTATION SHAFT BEARING |
| - | - | - | - |
| !LWSH-038 | LOCK WASHER - 3/8" | 2 | ROTATION SHAFT BEARING |
| !HNUT-03816 | HEX NUT - 3/8"-16 | 2 | ROTATION SHAFT BEARING |
| !HHCS05013175 | HHCS - 1/2"-13 x 1-3/4" | 2 | ROTATION MOTOR |
| !LWSH-050-STAR | LOCK WASHER - 1/2" STAR | 2 | ROTATION MOTOR |
| !LWSH-050 | LOCK WASHER - 1/2" | 2 | ROTATION MOTOR |
| !HNUT-05013 | HEX NUT - 1/2"-13 | 2 | ROTATION MOTOR |
| !HHCS05013225 | HHCS - 1/2"-13 x 2-1/4" | 4 | WINCH |
| !LWSH-050 | LOCK WASHER - 1/2" | 4 | WINCH |
| !FWSH-050 | FLAT WASHER - 1/2" | 4 | WINCH |
| !HNUT-05013 | HEX NUT - 1/2"-13 | 4 | WINCH |
| 19269 | CLAMP, CABLE - 1/4" | 1 | PRESSURE SWITCH HARNESS |
| !HHCS02520063-5 | HHCS - 1/4"-20 x 5/8" | 1 | PRESSURE SWITCH HARNESS |
| !LWSH-025 | LOCK WASHER - 1/4" | 1 | PRESSURE SWITCH HARNESS |
| !HHCS05013125-5 | HHCS - 1/2"-13 x 1-1/4" | 4 | UPPER BEARING |
| !LWSH-050 | LOCK WASHER - 1/2" | 4 | UPPER BEARING |
| !HHCS03816100 | HHCS - 3/8"-16 x 1" | 4 | WINCH (BACK SIDE) |
| !FWSH-038 | FLAT WASHER - 3/8" | 4 | WINCH (BACK SIDE) |
| !LWSH-038 | LOCK WASHER - 3/8" | 4 | WINCH (BACK SIDE) |
| 19271-2 | PLASTIC PLUG - 2-1/8" DIA | 2 | WINCH ACCESS HOLES |
| !HHCS05013300 | HHCS - 1/2"-13 x 3" | 1 | BOOM PIVOT PIN |
| RL-644 | INSULATING PLUG - 1" | 4 | LOWER HOUSING |
| !LNUT-05013 | LOCK NUT - 1/2"-13 NYLON INSERT | 1 | BOOM PIVOT PIN |
| ▲ !HHCS03118100-5 | HHCS - 5/16"-18 X 1" GR.5 | 1 | ROTATION SHAFT BEARING SUPPORT |
| ▲ !JNUT-03118 | JAM NUT - 5/16"-18 | 1 | ROTATION SHAFT BEARING SUPPORT |
| - | - | - | - |
| - | - | - | - |
| - | - | - | - |
| - | - | - | - |

REPLACEMENT PARTS DWG REF 22346



MFG., INC.
CINCINNATI, OHIO

TITLE
REPL. FASTENERS LIST

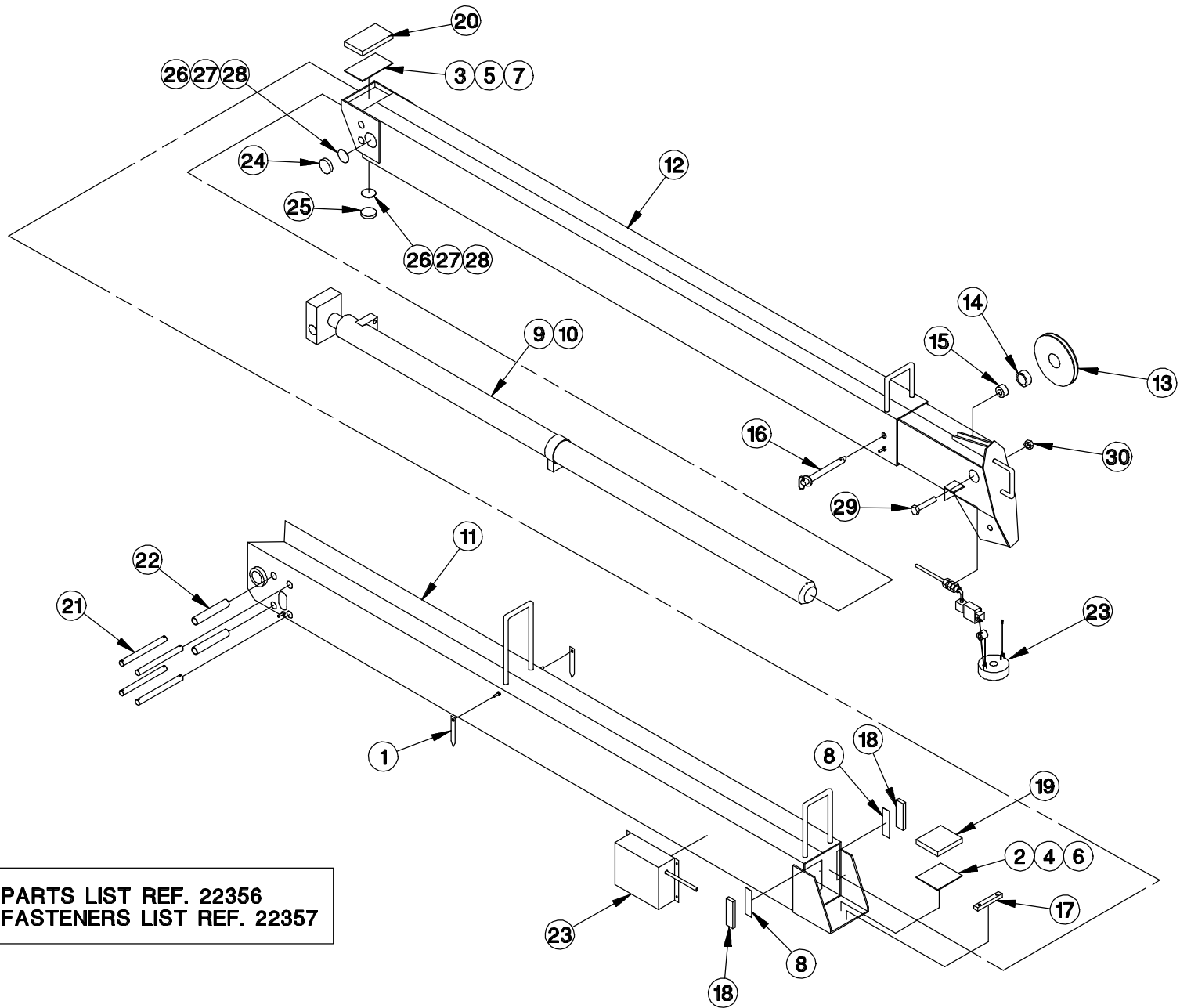
DATE
12-9-98C

SECTION
C400

HT40KX, HT50KX

SUPPERCEDES
4-17-98B

22338



REPLACEMENT PARTS LIST REF. 22356
 REPLACEMENT FASTENERS LIST REF. 22357

22199, 22200 BOOM ASSEMBLY REPLACEMENT PARTS LIST

| ITEM | PART NUMBER | DESCRIPTION |
|------|--------------|---|
| 1 | 13459-2 | ARROW-ET20000 |
| 2 | R18287-6 | SHIM - 4" x 4-1/2" x 14 GA |
| 3 | R18287-7 | SHIM - 3-1/4" x 5-5/8" x 14 GA |
| 4 | R18288-15 | SHIM - 4" x 4-1/2" x 12 GA |
| 5 | R18288-16 | SHIM - 3-1/4" x 5-5/8" x 12 GA |
| 6 | R18400-1 | SHIM - 4" x 4-1/2" x 18 GA |
| 7 | R18400-2 | SHIM - 3-1/4" x 5-5/8" x 18 GA |
| 8 | R18401-1 | SHIM - 1-1/4" x 4-1/4" x 24 GA |
| 9 | 22031-1 | EXTENSION CYL - 2.25" BORE x 1.5" ROD x 72" STROKE (22199 ONLY) |
| 10 | 22032-1 | EXTENSION CYL - 2.5" BORE x 1.75" ROD x 72" STROKE (22200 ONLY) |
| 11 | 22201 | WELDED PRIMARY BOOM ASSEMBLY |
| 12 | 22202 | WELDED SECONDARY BOOM ASSEMBLY |
| 13 | 22231 | CABLE SHEAVE - 7-1/2" OD |
| 14 | 22232 | OILITE BEARING - 2" OD x 1-1/2" ID x 13/16" LONG |
| 15 | 22233 | BEARING SPACER |
| 16 | 22234 | TOGGLE PIN ASSEMBLY |
| 17 | 22235 | NUTBAR - BEARING RETAINER |
| 18 | 22236 | BEARING - 1-1/4" x 4-1/4" x 1/2" |
| 19 | 22237 | BEARING - 4" x 4-1/2" x 3/4" |
| 20 | 22238 | BEARING - 3-1/4" x 5-5/8" x 3/4" |
| 21 | 22239 | THRUST PIN - 3/4" OD x 8" LONG |
| 22 | 22240 | THRUST ROLLER - 1" OD x 5-7/8" LONG |
| 23 | 22450 | ANTI-TWO-BLOCK SYSTEM |
| 24 | 26216-1 | BEARING - 2" DIA x 7/16" THK |
| 25 | 26216-3 | BEARING - 2" DIA x 3/8" THK |
| 26 | 26429-20 | SHIM - 1-7/8" DIA x 24 GA |
| 27 | 26429-21 | SHIM - 1-7/8" DIA x 18 GA |
| 28 | 26429-22 | SHIM - 1-7/8" DIA x 14 GA |
| 29 | 17059-1 | SHEAVE AXLE - 3/4"-10 x 3" |
| 30 | IJNUT-07510N | JAM LOCK NUT - 3/4"-10 NYLON |
| 31 | - | - |
| 32 | - | - |
| 33 | - | - |
| 34 | - | - |
| 35 | - | - |

REPLACEMENT PARTS DWG REF 22355



MFG., INC.
CINCINNATI, OHIO

TITLE
REPL. PARTS LIST

22199, 22200

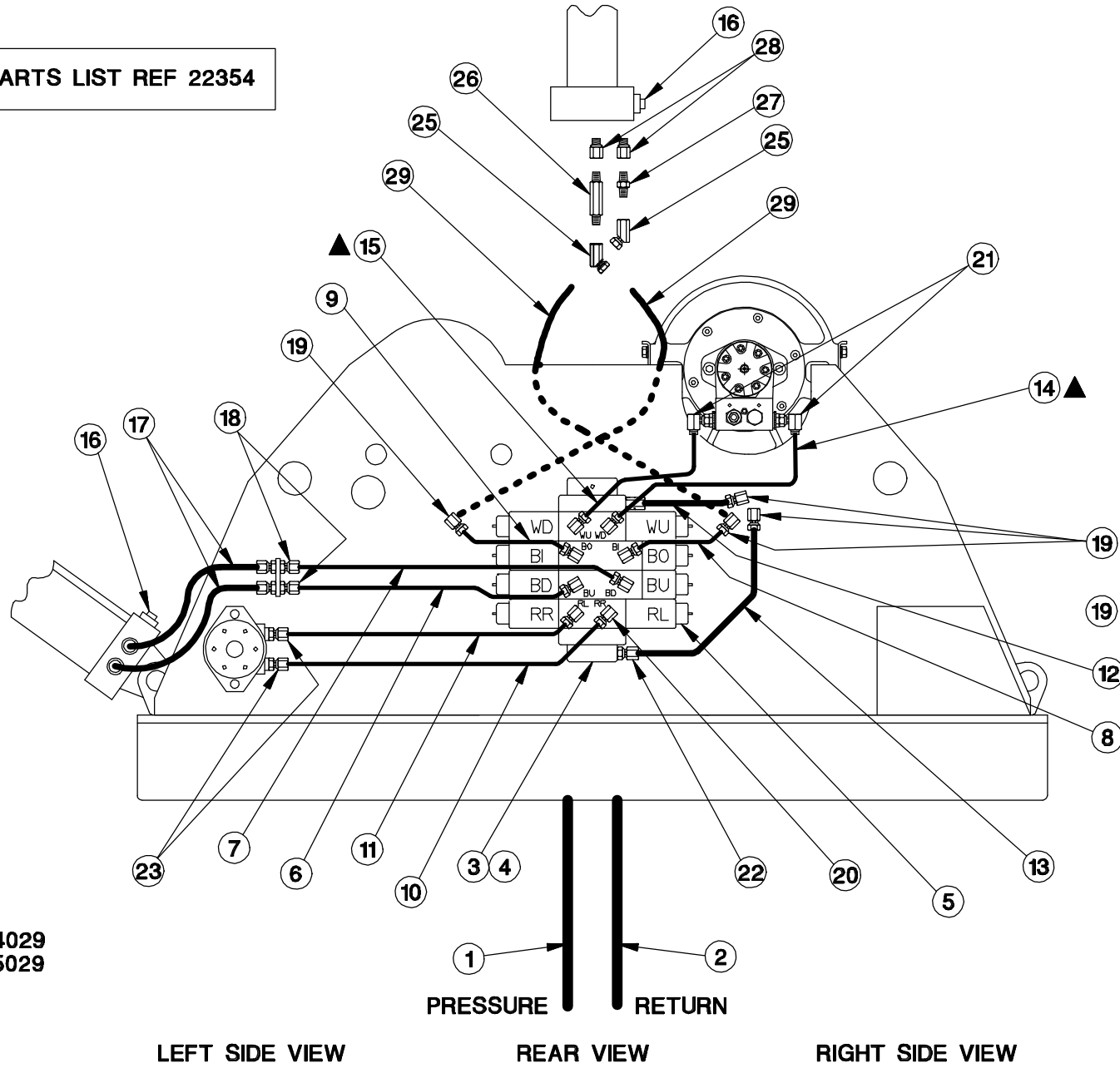
DATE
6-19-97

SUPERCEDES
-

SECTION
C400

22356

REPLACEMENT PARTS LIST REF 22354



SERIAL NO. 84000 - 84029
 SERIAL NO. 85000 - 85029

LEFT SIDE VIEW

REAR VIEW

RIGHT SIDE VIEW



TITLE
 REPLACEMENT PARTS DRAWING

DATE
 2-23-98D

SECTION
 C400

HT40/50KX HYDRAULIC COMPONENTS

SUPERSEDES
 2-4-98C

22353

HYDRAULIC SYSTEM COMPONENTS - HT40/50KX CRANES REPLACEMENT PARTS LIST

| ITEM | PARTNUMBER | DESCRIPTION |
|------|----------------|--|
| 1 | 19214 | PRESSURE HOSE |
| 2 | 19215 | RETURN HOSE |
| 3 | 22265 | VALVE BANK - HT40KX |
| 4 | 22267 | VALVE BANK - HT50KX |
| 5 | 22334 | VALVE COIL |
| 6 | 22366 | HYD TUBING - BOOM UP |
| 7 | 22367 | HYD TUBING - BOOM DOWN |
| 8 | 22368 | HYD TUBING - BOOM IN |
| 9 | 22369 | HYD TUBING - BOOM OUT |
| 10 | 22370 | HYD TUBING - ROTATION RIGHT |
| 11 | 22371 | HYD TUBING - ROTATION LEFT |
| 12 | 22372 | HYD TUBING - PRESSURE |
| 13 | 22373 | HYD TUBING - RETURN |
| 14 | 22374 | HYD TUBING - WINCH DOWN |
| 15 | 22375 | HYD TUBING - WINCH UP |
| 16 | 19247 | COUNTERBALANCE VALVE (ELEVATION & EXTENSION CYLINDERS) |
| 17 | 22382 | ELEV CYLINDER HOSE 22" x 6MBX x 6FJX |
| 18 | HBLK6MJ-6MJ | HYD BULKHEAD |
| 19 | HBLK6MJ-6MJ-90 | HYD 6MJx90° BULKHEAD UNION ELBOW WITH LOCK NUT |
| 20 | HELB6MO-6MJ-90 | HYD ELBOW |
| 21 | HELB8MO-6MJ-90 | HYD ELBOW |
| 22 | HNPL6MJ-6MO | HYD NIPPLE |
| 23 | HNPL10MO-6MJ | HYD NIPPLE |
| 24 | - | - |
| 25 | HELB4FP-4FX-45 | HYD ELBOW - 45° |
| 26 | HNPL4MP-4MP-3 | HYD NIPPLE - 3" LONG |
| 27 | HNPL4MP-4MP | HYD NIPPLE |
| 28 | HRDB6MO-4FP | HYD BUSHING |
| 29 | 22380-21.5 | EXTENSION CYLINDER HOSE - 21-1/2" |
| 30 | - | - |
| 31 | ▲ 22312-X.XX* | ▲ PRIORITY FLOW CARTRIDGE (X.XX = GPM & IS STAMPED ON END) |
| 32 | ▲ 22603 | ▲ ALUM. MAINFOLD BLOCK FOR PRIORITY FLOW CARTRIDGE |
| 33 | ▲ 22601 | ▲ VALVE SECTION W/ COILS |
| 34 | ▲ 22602 | ▲ COIL ONLY |
| 35 | ▲ 22604 | ▲ RELIEF VALVE - 3000 PSI |

REPLACEMENT PARTS DWG REF 22353

SERIAL NO. 84000 - 84029
SERIAL NO. 85000 - 85029

▲ * REFER TO HYDRAULIC SCHEMATICS
TO DETERMINE SPECIFIED GPM FOR
FOR GIVEN CRANE



| | | |
|----------------------------------|-------------------------------|------------------------|
| TITLE REPL. PARTS LIST | DATE 8-8-00E | SECTION C400 |
| HT40/50KX | SUPERCEDES 2-23-98D | 22354 |

01025-14*25FT
FROM BATTERY
+12VDC

SHORT
TERMINAL

CIRCUIT BREAKER

17356
OPTIONAL
OVERLOAD
ALARM

WHT

BLK

PUR

BLK

WHT

WHT

WHT

WHT

RED

BLK

BLK

WHT

BLK

22453
ANTI
TWO-
BLOCK
SWITCH
(N/C)

19428
10+1
SOCKET
(FEMALE)

BLU +12VDC (#10)

RED-RL (#2)

GRN-BU (#3)

ORN-BO (#4)

WHT-WU (#1)

BLK-RR (#7)

YEL-BI (#9)

GRY-WD (#6)

BRN-BD (#8)

17915 TERMINAL
BLOCK

BLK

WHT

BLK

WHT

BLK

WHT

22388
BOOM
CORD
REEL

WHT

BLK

WHT

BLK

22390

22376

19216
BOOM
TOP ANGLE
SWITCH (N/O)

GRY

WINCH
DOWN

WINCH
UP

WHT

PUR

YEL

BOOM
IN

BOOM
OUT

ORN

PUR

BOOM
DOWN

BOOM
UP

GRN

BRN

ROT.
RIGHT

ROT.
LEFT

PUR

BLK

ROT.
RIGHT

ROT.
LEFT

RED

BRN/WHT

22377

22379

WHT

WHT

BLK

WHT

WHT

WHT

WHT

WHT

WHT

WHT

WHT

WHT

WHT

WHT

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WHT

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WHT

WHT

WHT

SERIAL NO. 84000 - 84029
SERIAL NO. 85000 - 85029

▲ 17460-
2900-21
OVERLOAD
PRESSURE
SWITCH (N/C)
ELEV
CYL
PRES



MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE
WIRING DIAGRAM

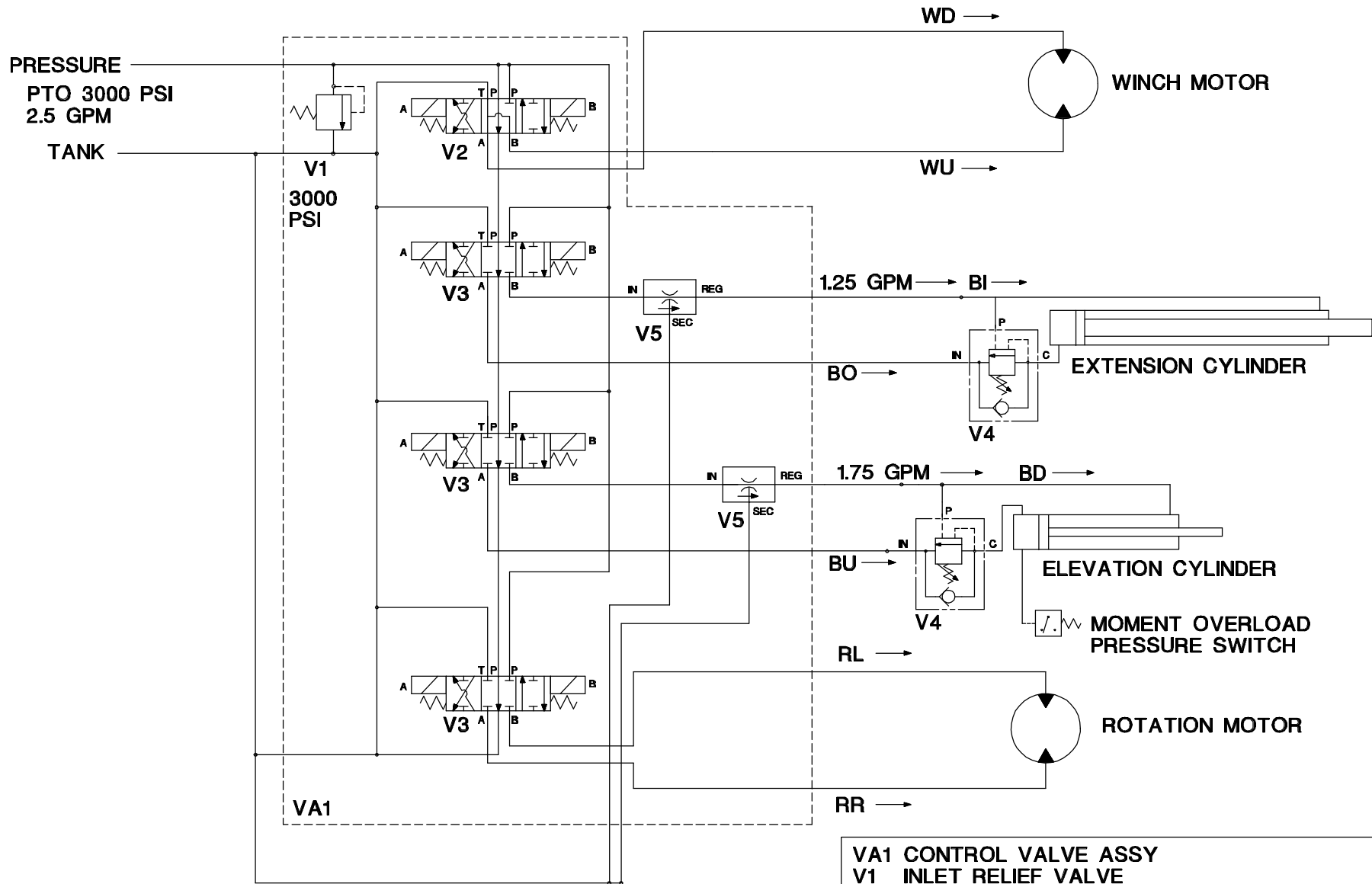
DATE
2-23-98B

SECTION
C400

HT40KX, HT50KX - 4 FUNCTION STD

SUPERSEDES
1-29-98A

19430



- VA1 CONTROL VALVE ASSY
- V1 INLET RELIEF VALVE
- V2 3 POSITION-4 WAY VALVE, AB OPEN TO TANK
- V3 3 POSITION-4 WAY VALVE ALL PORTS BLOCKED
- V4 COUNTERBALANCE CARTRIDGE VALVE
- V5 PRIORITY FLOW REGULATOR VALVE

SERIAL NO. 84000 - 84029
 SERIAL NO. 85000 - 85029



TITLE
 HYDRAULIC SYSTEM DIAGRAM

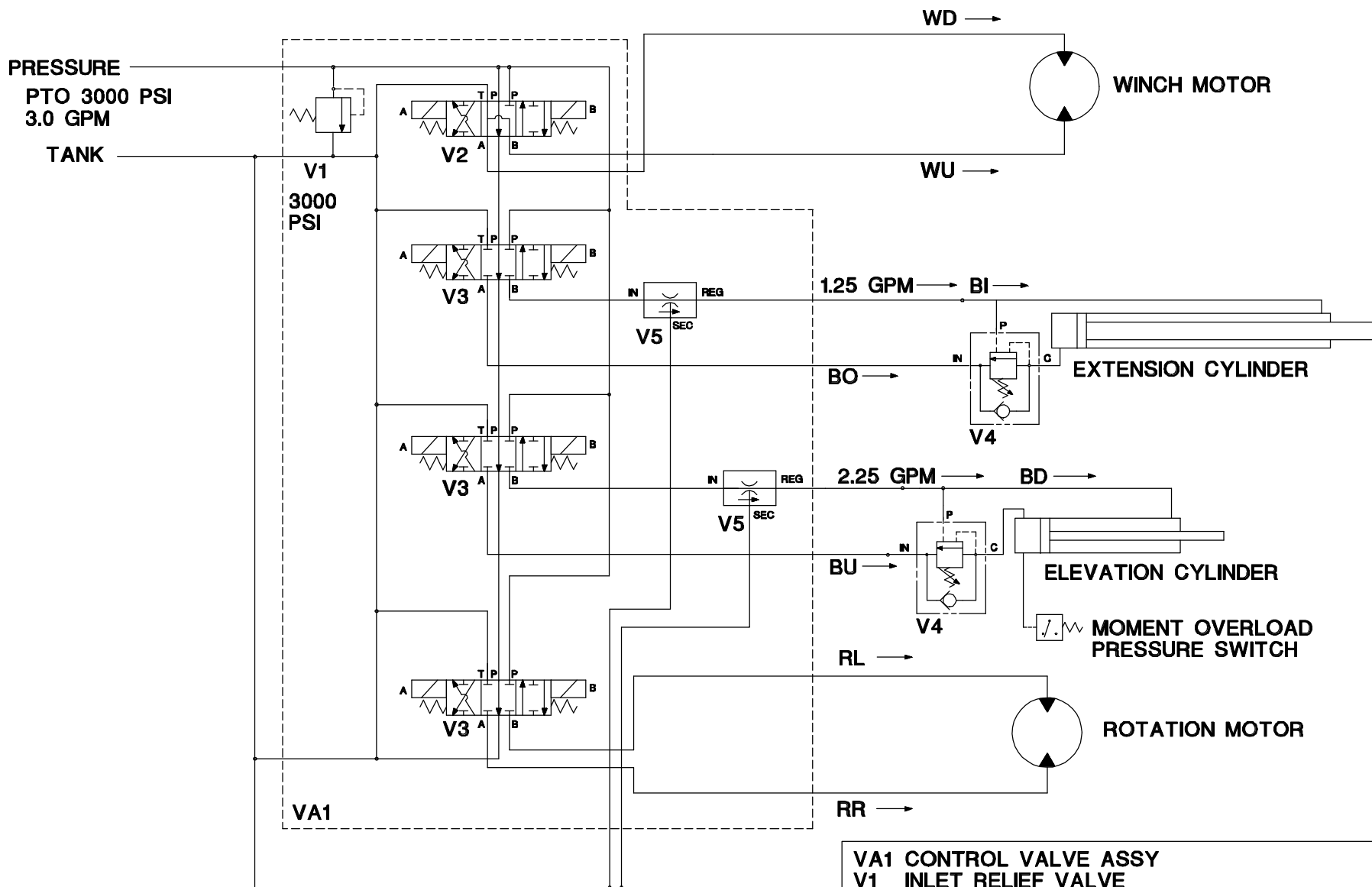
DATE
 2-23-98B

SECTION
 C400

HT40KX - STANDARD

SUPERSEDES
 11-24-97A

22347



- VA1 CONTROL VALVE ASSY**
V1 INLET RELIEF VALVE
V2 3 POSITION-4 WAY VALVE, AB OPEN TO TANK
V3 3 POSITION-4 WAY VALVE ALL PORTS BLOCKED
V4 COUNTERBALANCE CARTRIDGE VALVE
V5 PRIORITY FLOW REGULATOR VALVE

SERIAL NO. 84000 - 84029
 SERIAL NO. 85000 - 85029



TITLE
HYDRAULIC SYSTEM DIAGRAM

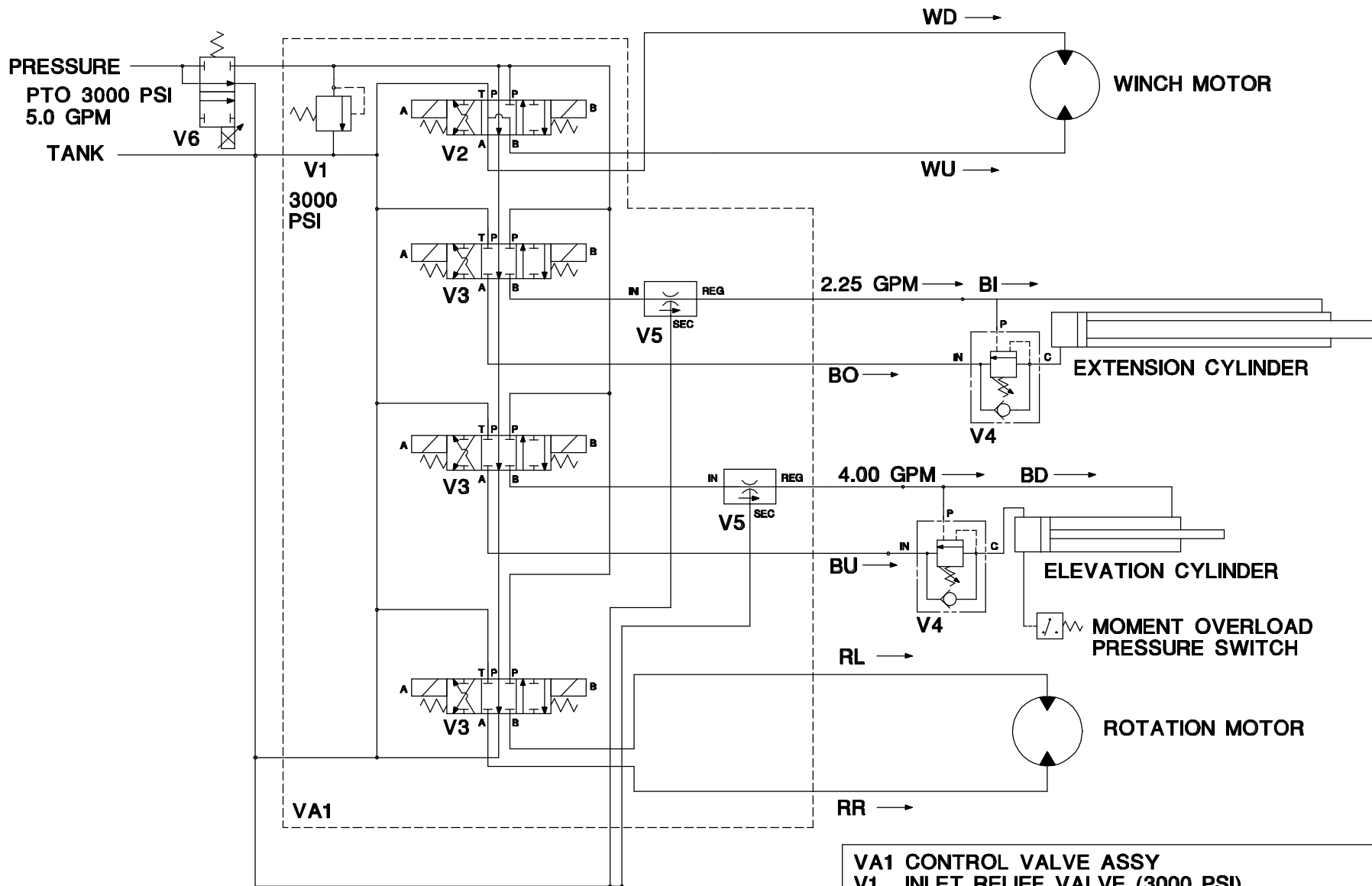
DATE
2-23-98B

SECTION
C400

HT50KX - STANDARD

SUPERSEDES
11-24-97A

22348

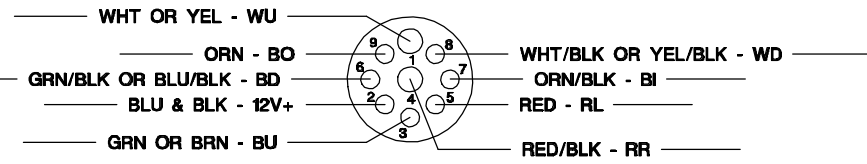
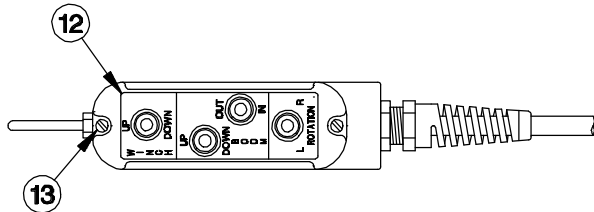


- VA1 CONTROL VALVE ASSY
- V1 INLET RELIEF VALVE (3000 PSI)
- V2 3 POSITION-4 WAY VALVE, AB OPEN TO TANK
- V3 3 POSITION-4 WAY VALVE ALL PORTS BLOCKED
- V4 COUNTERBALANCE CARTRIDGE VALVE
- V5 PRIORITY FLOW REGULATOR VALVE
- V6 PROPORTIONAL CONTROL VALVE (SIMPLIFIED REP)

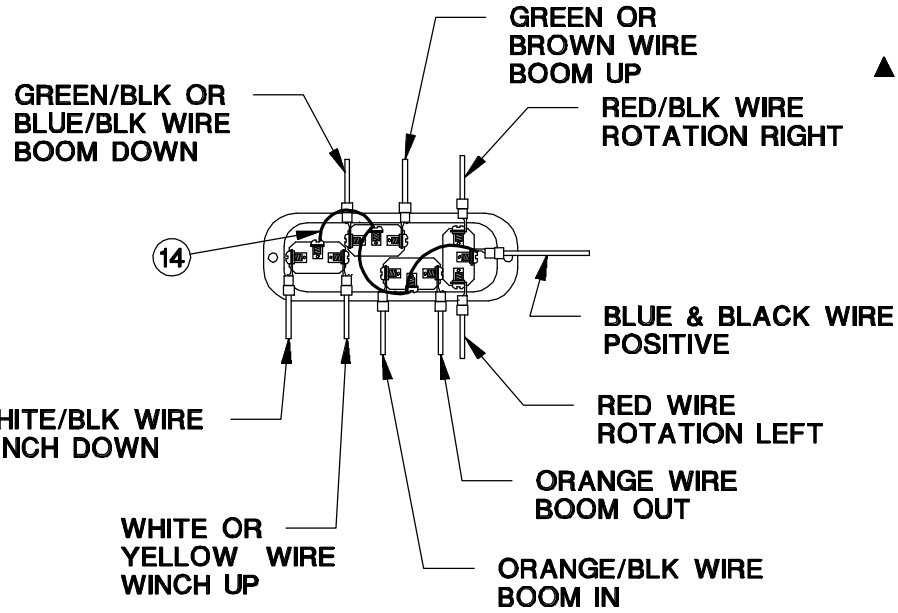
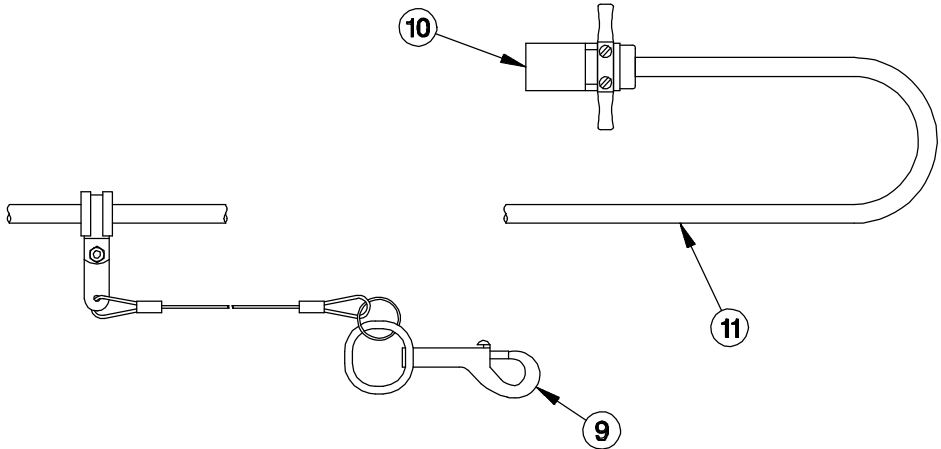
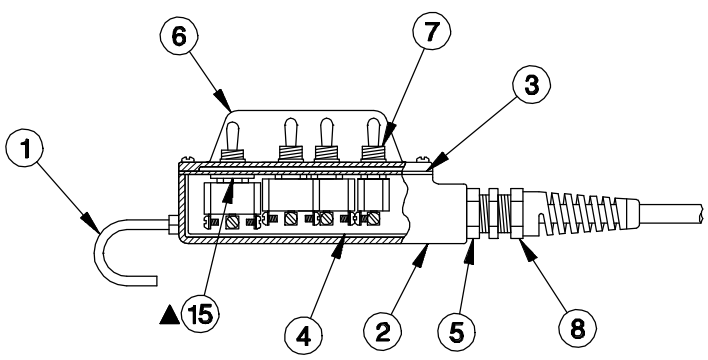
SERIAL NO. 84000 - 84029
 SERIAL NO. 85000 - 85029



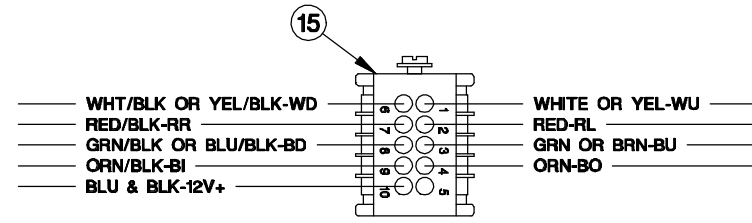
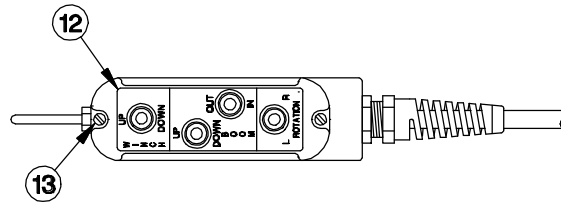
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|---|--------------------------------|------------------------|
| TITLE HYDRAULIC SYSTEM DIAGRAM | DATE 2-23-98B | SECTION C400 |
| HT40KX & HT50KX - PROPORTIONAL | SUPERSEDES 11-24-97A | 22349 |



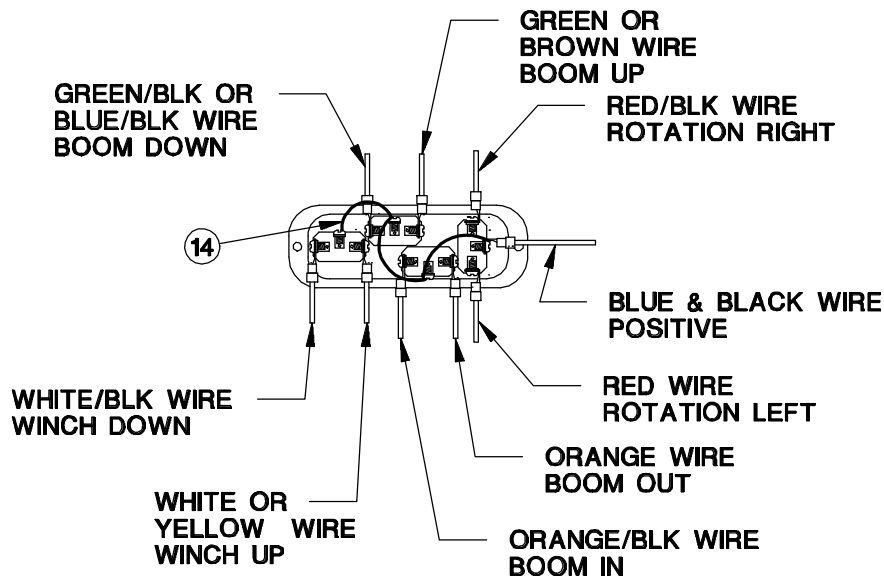
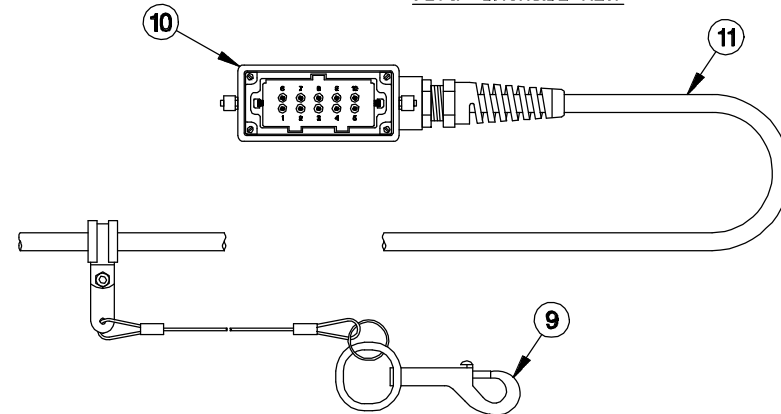
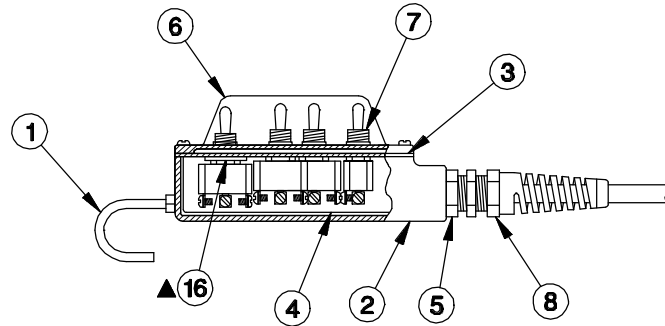
PLUG - BACKSIDE VIEW



| | | | |
|------|-----|---------------|--|
| ▲ 15 | 1 | 12534-4 | MACHINERY BUSHING - 1/2" I.D. x 7/8" O.D. x 14 GA. |
| 14 | 1 | 19307 | 4SW PENDANT CORD JUMPER |
| 13 | 2 | IPHCS#0832050 | PHCS 8-32 x 1/2 |
| 12 | 1 | 17363 | DECAL, CRANE CONTROL |
| 11 | 1 | 26262-xx | CORD ASSY (xx = LENGTH IN FT.) |
| 10 | 1 | 26263 | PLUG - 9 POLE |
| 9 | 1 | 15913-2 | PHAN, CLAMP AND TETHER ASSY |
| 8 | 1 | 25534 | PLASTIC 3/4" STRAIN RELIEF |
| 7 | 4 | 13763 | TOGGLE SWITCH |
| 6 | 1 | 17361 | PENDANT COVER |
| 5 | 1 | HRDB16MP-12FP | HYD BUSHING |
| 4 | 1 | 15629 | INSULATOR FOR CONDULET |
| 3 | 1 | 25625 | GASKET 1" |
| 2 | 1 | 25624 | ENCLOSURE 1" |
| 1 | 1 | 11557 | PENDANT HOOK |
| ITEM | QTY | PART NO. | DESCRIPTION |



PLUG - BACKSIDE VIEW



| | | | | |
|---|------|-----|---------------|---|
| ▲ | 16 | 1 | 12534-4 | MACHINERY BUSHING - 1/2" LD. x 7/8" O.D. x 14 GA. |
| | 15 | 1 | 19427 | INSERT - MALE 10 PIN |
| | 14 | 1 | 19307 | 4SW PENDANT CORD JUMPER |
| | 13 | 2 | IPHCS#0832050 | PHCS 8-32 x 1/2 |
| | 12 | 1 | 17363 | DECAL, CRANE CONTROL |
| | 11 | 1 | 26262-xx | CORD ASSY (xx = LENGTH IN FT.) |
| | 10 | 1 | 19426 | PLUG CASE - 10 POLE |
| | 9 | 1 | 15913-2 | PHAN, CLAMP AND TETHER ASSY |
| | 8 | 1 | 25534 | PLASTIC 3/4" STRAIN RELIEF |
| | 7 | 4 | 13763 | TOGGLE SWITCH |
| | 6 | 1 | 17361 | PENDANT COVER |
| | 5 | 1 | HRDB16MP-12FP | HYD BUSHING |
| | 4 | 1 | 15629 | INSULATOR FOR CONDULET |
| | 3 | 1 | 25625 | GASKET 1" |
| | 2 | 1 | 25624 | ENCLOSURE 1" |
| | 1 | 1 | 11557 | PENDANT HOOK |
| | ITEM | QTY | PART NO. | DESCRIPTION |

VENTURO MANUFACTURING, INC.
 CINCINNATI, OHIO

TITLE
 REPL. PARTS DWG.

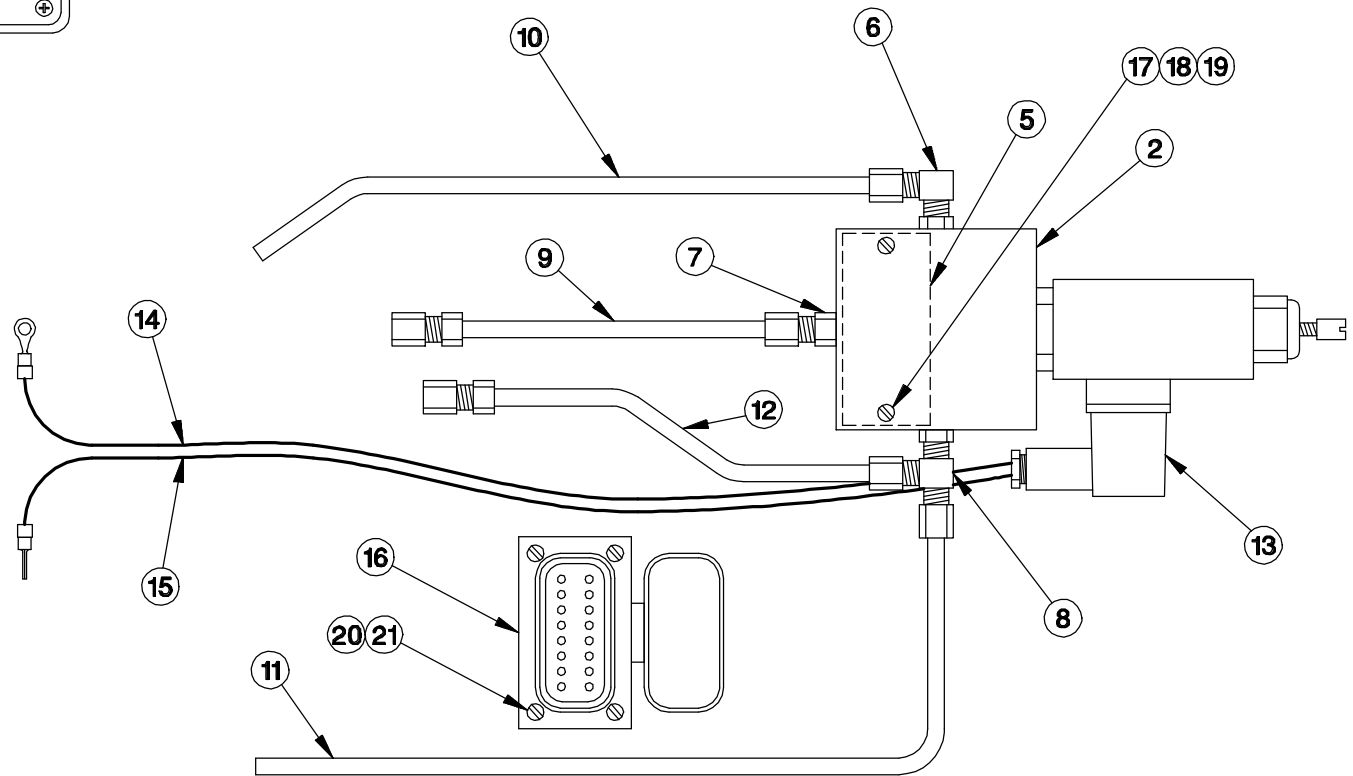
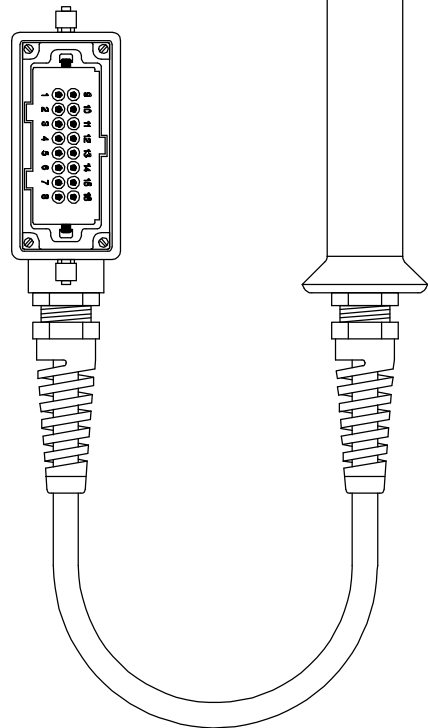
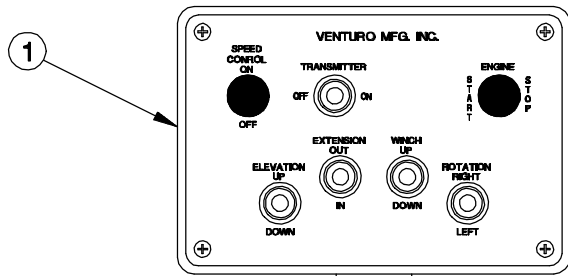
DATE
 2-5-98A

SECTION
 C400

4 FUNCTION CRANES

SUPERSEDES
 12-10-97

19431



REPLACEMENT PARTS LIST REF 22337

SERIAL NO. 84000 - 84029
 SERIAL NO. 85000 - 85029



TITLE
 REPLACEMENT PARTS DRAWING

DATE
 2-23-98A

SECTION
 C400

22310 PROPORTIONAL CONTROL SYS.

SUPERSEDES
 7-17-97

22309

22310 PROPORTIONAL CONTROL SYSTEM REPLACEMENT PARTS LIST

| ITEM | PART NUMBER | DESCRIPTION |
|------|-----------------|--|
| 1 | 22460 | PENDANT CONTROL ASSEMBLY |
| 2 | 22331 | PROPORTIONAL CONTROL VALVE/BLOCK |
| 3 | * 22312-4.00 | PRIORITY FLOW CARTRIDGE - 4.00 GPM (ELEVATION) |
| 4 | * 22312-2.25 | PRIORITY FLOW CARTRIDGE - 2.25 GPM (EXTENSION) |
| 5 | 22392 | SPACER - PROPORTIONAL VALVE |
| 6 | HELB6MO-6MJ-90 | HYDRAULIC ELBOW - 6MJ-6MO-90° |
| 7 | HNPL6MJ-6MO | HYDRAULIC NIPPLE - 6MJ-6MO |
| 8 | HTEE6MJ-6MJ-6MO | HYDRAULIC TEE - 6MO (RUN)-6MJ-6MJ TEE |
| 9 | 22393 | TUBE - MASTER SUPPLY TO PROP-VALVE |
| 10 | 22394 | TUBE - PROP-VALVE TO CRANE VALVE 'IN' |
| 11 | 22395 | TUBE - PROP-VALVE TO CRANE VALVE 'OUT' |
| 12 | 22396 | TUBE - PROP-VALVE TO MASTER RETURN |
| 13 | 19323 | DIN CONNECTOR |
| 14 | 22397 | RED WIRE - 36" TWIST/DIP & #10 RING |
| 15 | 22398 | GREEN WIRE - 36" TWIST/DIP & PINTERM |
| 16 | 22480 | SOCKET ASSEMBLY |
| 17 | IHHCS02520200 | HHCS - 1/4"-20 x 2" |
| 18 | ILWSH-025 | LOCK WASHER - 1/4" |
| 19 | IHNUT-02520 | HEX NUT - 1/4"-20 |
| 20 | IPHCS#0832050 | PHCS - 8-32 x 1/2" |
| 21 | ILWSH-#08 | LOCK WASHER - #8 |
| 22 | - | - |
| 23 | - | - |
| 24 | - | - |
| 25 | - | - |
| 26 | - | - |
| 27 | - | - |
| 28 | - | - |
| 29 | - | - |
| 30 | - | - |
| 31 | - | - |
| 32 | - | - |
| 33 | - | - |
| 34 | - | - |
| 35 | - | - |

*NOT SHOWN ON 22309 PARTS DRAWING

SERIAL NO. 84000 - 84029
SERIAL NO. 85000 - 85029

REPLACEMENT PARTS DRAWING REF 22309



MFG., INC.
CINCINNATI, OHIO

TITLE
REPL. PARTS LIST

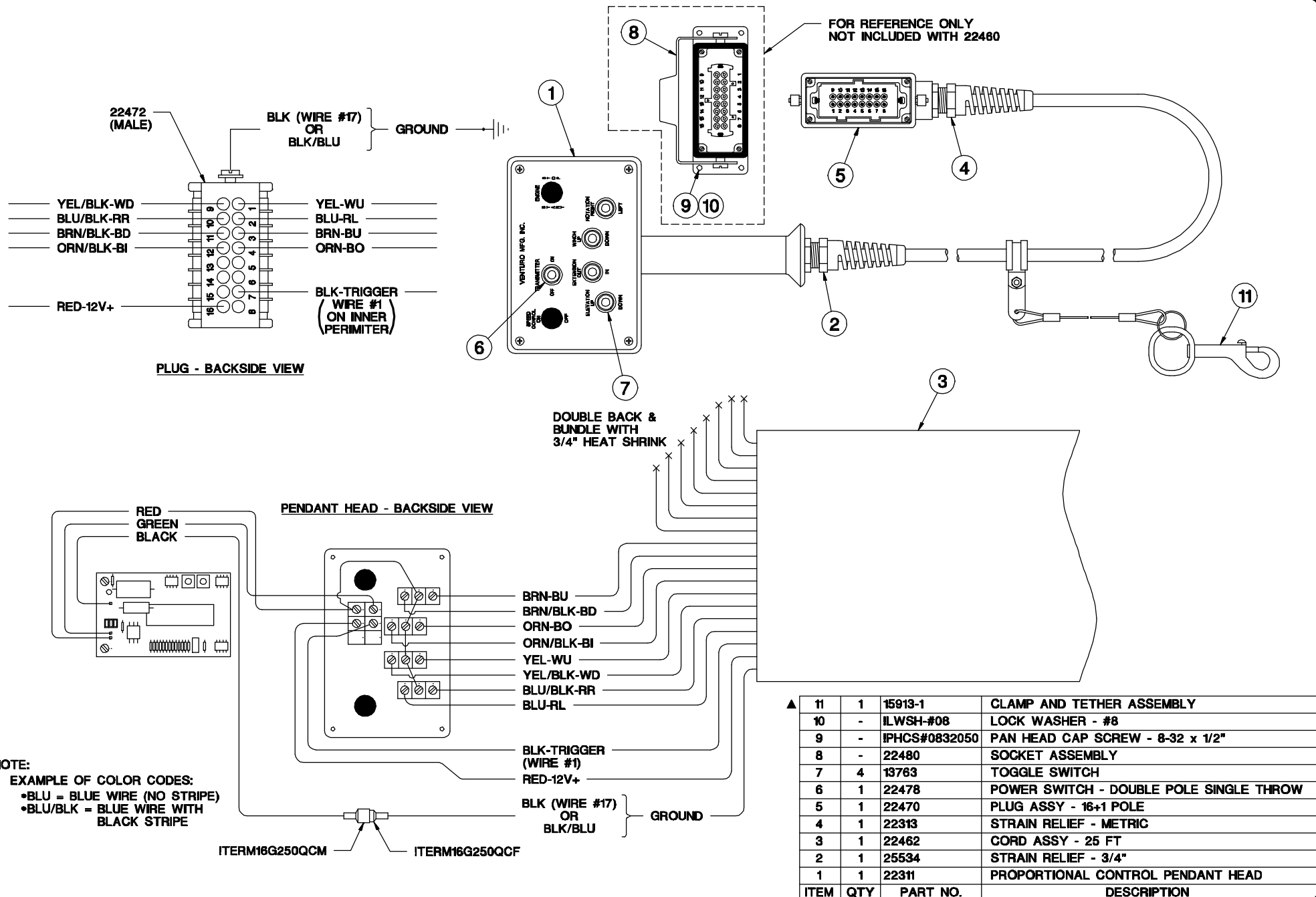
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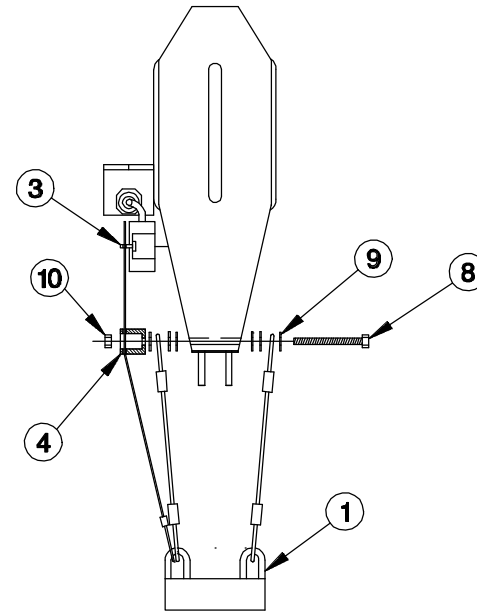
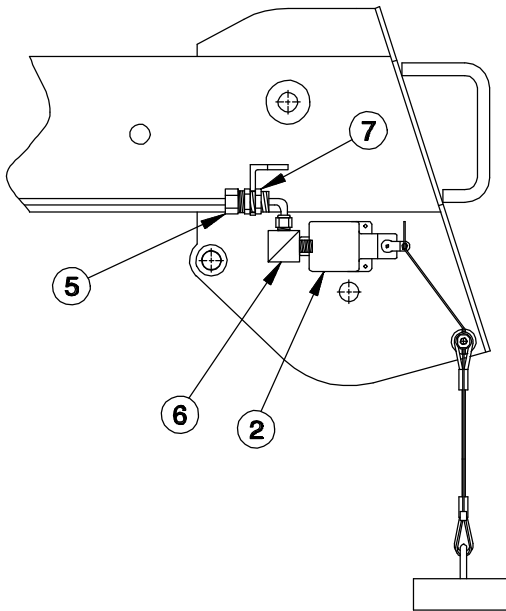
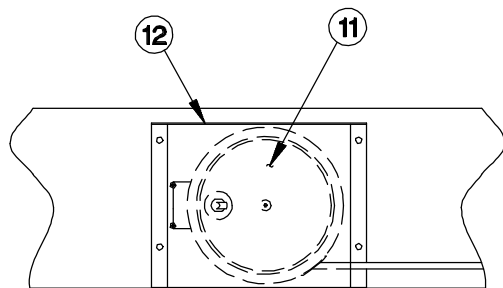
DATE
2-23-98A

SUPERCEDES
7-17-97

SECTION
C400

22337





| 12 | 1 | 19058 | COVER - CORD REEL |
|------|-----|-----------------|--------------------------------------|
| 11 | 1 | 22388 | CORD REEL ASSEMBLY |
| 10 | 1 | !LNUT-02520 | LOCK NUT, NYLON 1/4-20 |
| 9 | 6 | !FWSH-025 | FLAT WASHER 1/4 |
| 8 | 1 | IHHCS02520275-5 | HHCS 1/4-20 x 2-3/4" GR. 5 |
| 7 | 1 | PL-20-469 | LOCKNUT (1/2" PIPE) |
| 6 | 1 | 19060 | STRAIN RELIEF - 90DEG |
| 5 | 1 | 22455 | STRAIN RELIEF - STRAIGHT (1/2" PIPE) |
| 4 | 1 | 22454 | CABLE GUIDE - BLACK DELRIN |
| 3 | 1 | 22456 | CONNECTOR / SET-COLLAR ASSEMBLY |
| 2 | 1 | 22453 | MICROSWITCH |
| 1 | 1 | 22452 | WEIGHT ASSY. |
| ITEM | QTY | PART NO. | DESCRIPTION |

VENTURO MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE
REPLACEMENT PARTS DWG

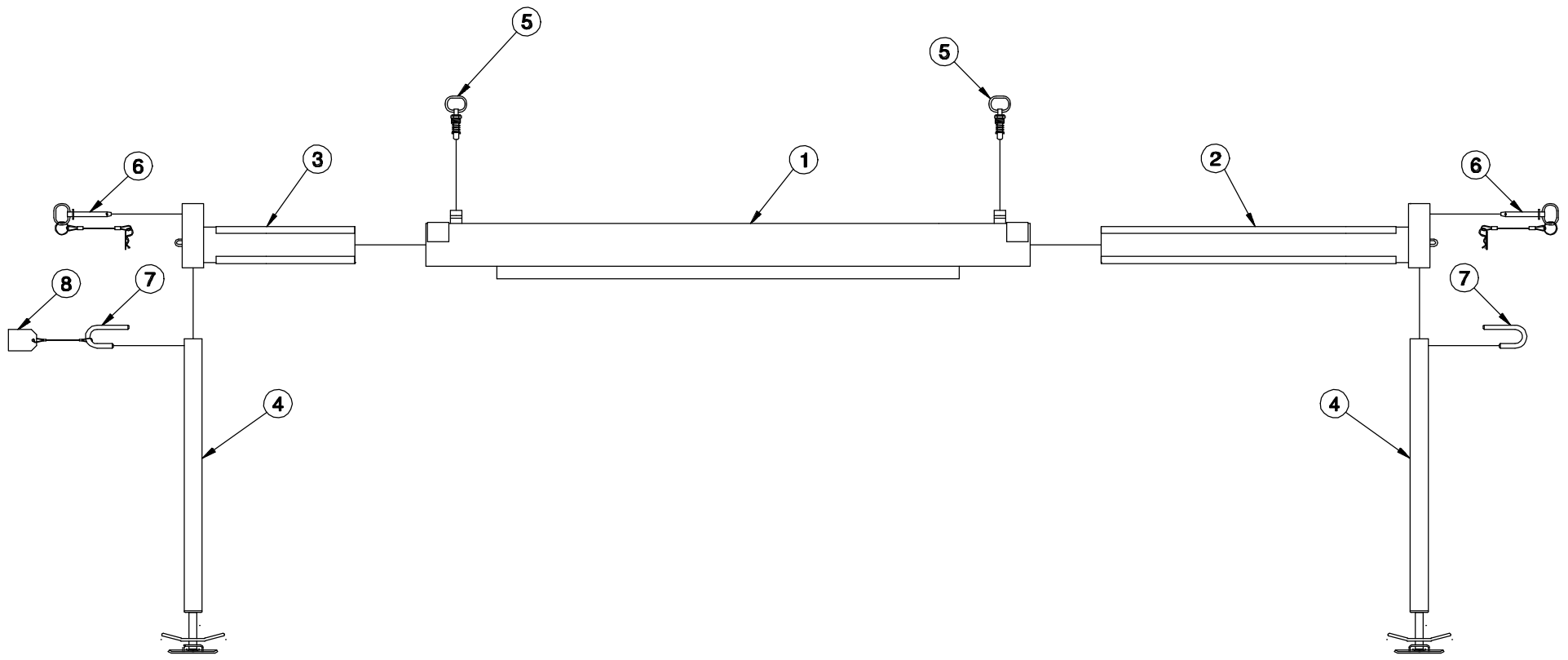
DATE
6-24-97

SECTION
C400

HT40KX, HT50KX

SUPERSEDES
-

22449



| 8 | 1 | 14517 | TAG - HANDLE INSTALLATION |
|------|-----|---------|---------------------------|
| 7 | 2 | 23980 | OUTRIGGER LEG HANDLE |
| 6 | 2 | 23976 | HITCH PIN WITH LANYARD |
| 5 | 2 | 22433 | SPRING LOADED PIN ASSY |
| 4 | 2 | 24073-4 | MANUAL DROP LEG |
| 3 | 1 | 22420-1 | PULLOUT - SHORT |
| 2 | 1 | 22421 | PULLOUT - LONG |
| 1 | 1 | 22426 | CROSS TUBE WELDED ASSY |
| ITEM | QTY | PART NO | DESCRIPTION |

VENTURO MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE
REPLACEMENT PARTS DWG & LIST

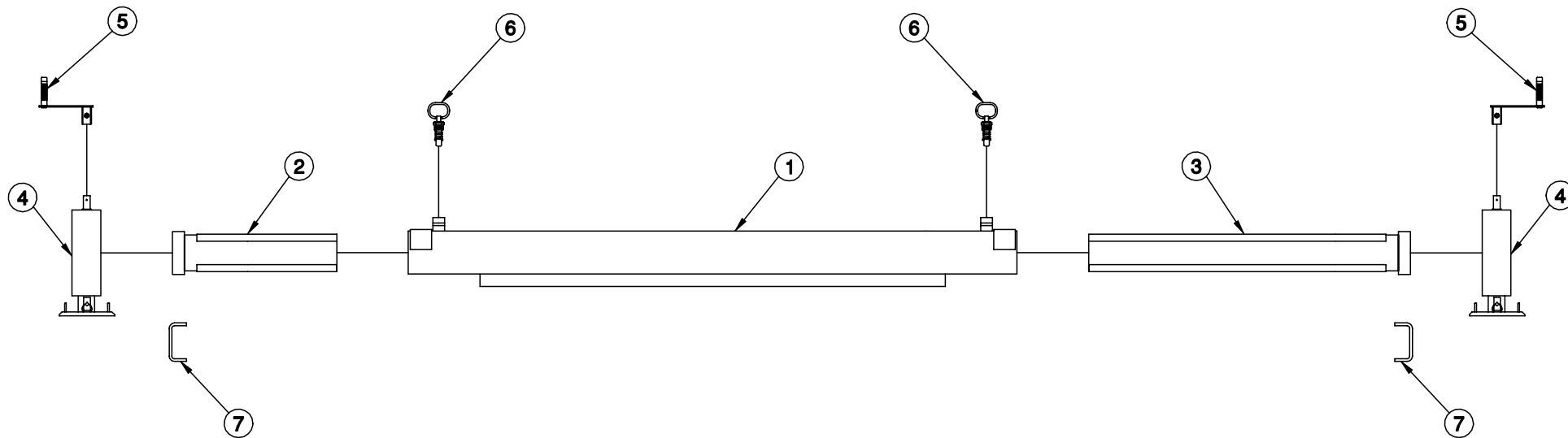
DATE
7-8-97

SECTION
C400

23962-PM-II HD MANUAL OUTRIGGERS

SUPERSEDES
-

22439



NOTE: CUSTOMER TO WELD (3/16" BEAD) ITEM 4
 (CRANK DOWN LEG) IN PLACE AFTER ADJUSTING
 FOR PROPER GROUND CLEARANCE AND TRAVEL
 CUSTOMER TO WELD (3/16" BEAD) ITEM 7
 (HANDLE) IN PLACE IN A SUITABLE LOCATION

▲ IF USING CRANKDOWN OUTRIGGER LEGS
 (ITEM 4) WITH 4" X 4" TUBING YOU WILL
 NEED TO SPECIFY 22422 FOR ITEM 2
 AND 22423 FOR ITEM 3.

| 7 | 2 | 19344 | HANDLE |
|------|-----|---------|------------------------|
| 6 | 2 | 22433 | SPRING LOADED PIN ASSY |
| 5 | 2 | 19008 | CRANK ASSY - OUTRIGGER |
| 4 | 2 | 22440 | CRANK DOWN LEG |
| 3 | 1 | ▲ 22569 | PULLOUT - LONG |
| 2 | 1 | ▲ 22568 | PULLOUT - SHORT |
| 1 | 1 | 22426 | CROSS TUBE WELDED ASSY |
| ITEM | QTY | PART NO | DESCRIPTION |

VENTURO MANUFACTURING, INC.
 CINCINNATI, OHIO

TITLE
 REPLACEMENT PARTS DWG & LIST

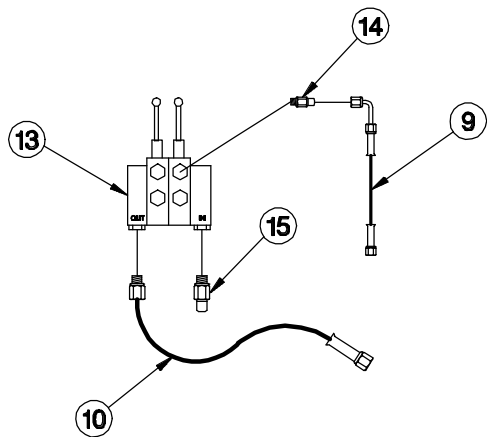
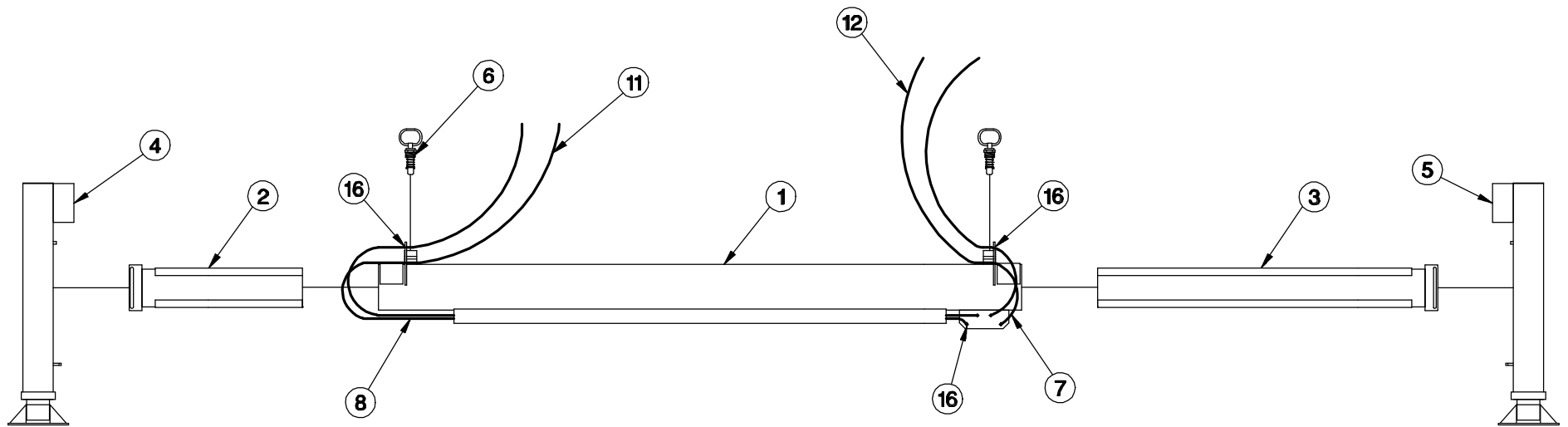
DATE
 11-7-01B

SECTION
 C400

23962-CD-II HD CRANKDOWN O.R.

SUPERSEDES
 7-30-99A

22441



| 16 | 8 | HBLK4MJ-4MJ-90 | HYD BULKHEAD ELBOW - 4MJ-4MJ x 90° |
|------|-----|----------------|--------------------------------------|
| 15 | 1 | HTAD8MJ-8MO | HYD TUBE ADAPTER - 8MJ-8MO |
| 14 | 4 | HTAD4MJ-6MO | HYD TUBE ADAPTER - 4MJ-6MO |
| 13 | 1 | 22444 | TWO FUNCTION VALVE - 2000 PSI RELIEF |
| 12 | 2 | 22443 | HOSE - 1/4" x 46" x 4FJ-4FJ |
| 11 | 2 | 22442 | HOSE - 1/4" x 24" x 4FJ-4FJ |
| 10 | 1 | 22438 | HOSE - 3/8" x 60" x 8MO-8FJ |
| 9 | 4 | 22437 | HOSE - 1/4" x 48" x 4FJ-4FJx90° |
| 8 | 2 | 22436 | HOSE - 1/4" x 84" x 4FJ-4FJx90° |
| 7 | 2 | 22435 | HOSE - 1/4" x 13 1/4" x 4FJ-4FJ |
| 6 | 2 | 22433 | SPRING LOADED PIN ASSY |
| 5 | 1 | 22445-2 | HYD LEG ASSY - RIGHT |
| 4 | 1 | 22445-1 | HYD LEG ASSY - LEFT |
| 3 | 1 | 22423 | PULLOUT - LONG |
| 2 | 1 | 22422 | PULLOUT - SHORT |
| 1 | 1 | 22427 | CROSS TUBE WELDED ASSY |
| ITEM | QTY | PART NUMBER | DESCRIPTION |

VENTURO MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE
REPLACEMENT PARTS DWG & LIST

DATE
7-5-97

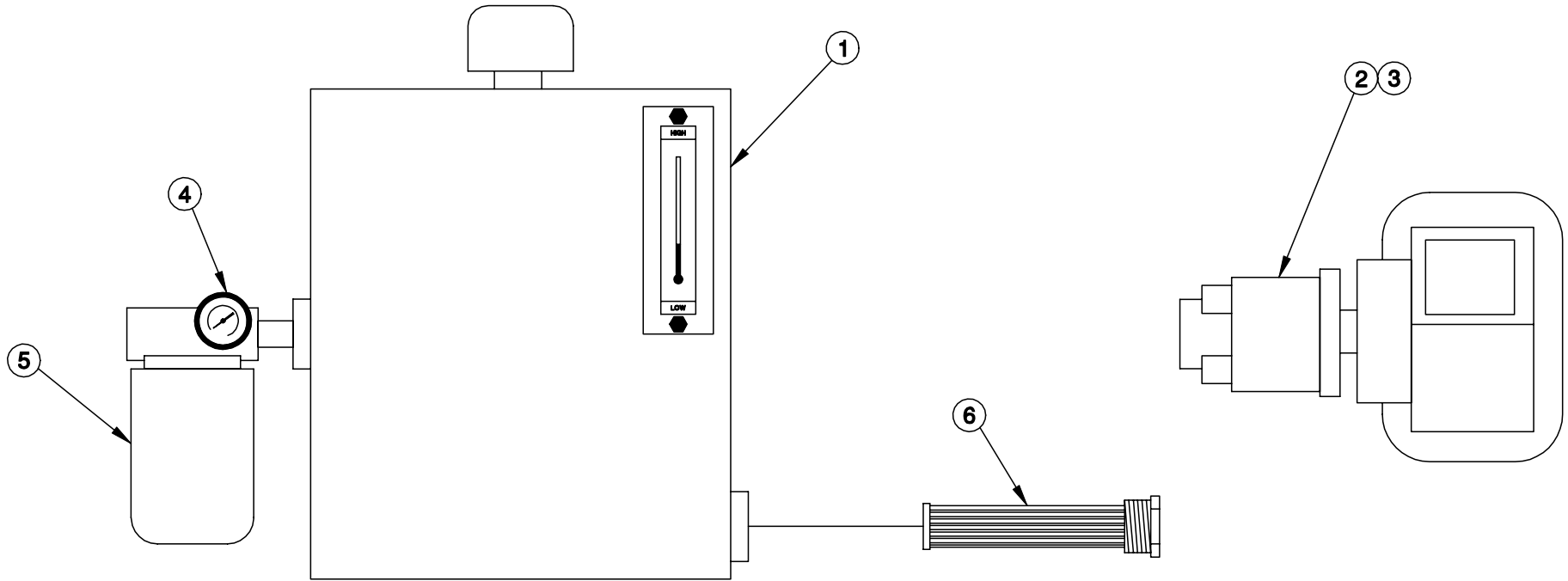
SECTION
C400

23962-PH-II HYD. OUTRIGGERS (22403)

SUPERSEDES
-

22428

19294 PTO PACKAGES



| PUMP | MOUNTING | RECOMMENDED GPM (RPM) |
|------------|-------------------------------------|---------------------------|
| 19296-2.64 | SAE "A" 9 TOOTH SPLINED SHAFT | STANDARD (NON-PROP) ▲ |
| | | HT25 - 2.0 GPM (800 RPM) |
| | | HT40 - 2.6 GPM (1000 RPM) |
| 19296-5.00 | SAE "A" 9 TOOTH SPLINED SHAFT | PROPORTIONAL ▲ |
| | | HT25 - 4.0 GPM (800 RPM) |
| | | HT40 - 5.0 GPM (1000 RPM) |
| | | HT50 - 6.0 GPM (1200 RPM) |

| ITEM | QTY | PART NO. | DESCRIPTION |
|------|-----|------------|--------------------------------------|
| 6 | 1 | 19300 | SUCTION SCREEN - 100 MESH |
| 5 | 1 | 19298 | FILTER ASSY, RETURN - 10 MICRON |
| 4 | 1 | 19297 | PRESSURE GAUGE - RETURN |
| 3 | 1 | 19296-5.00 | PTO PUMP - HT25/40/50KX PROPORTIONAL |
| 2 | 1 | 19296-2.64 | PTO PUMP - HT25/40/50KX NON-PROP |
| 1 | 1 | 19295 | RESERVOIR TANK - 10 GALLON |

VENTURO MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE
REPLACEMENT PARTS DWG

DATE
7-2-01C

SECTION
C400

PTO KIT - HT25/40/50KX

SUPERSEDES
7-21-00B

22448