



**VENCO®**

**HOISTS**

***HT40KX***

***HR-AAB-P0***

***INSTALLATION & OWNER'S MANUAL***

**Sold and Serviced by:**



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HT40KX / Prop Ctrl / No Eng Ctrls (HR\*AAB-P0\*\*)

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CINCINNATI, OHIO

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**HT40KX (HR\*AAB-P0\*\*)**

DATE  
**12-20-06J**

SUPERCEDES  
**6-21-06H**

SECTION

**22190**



**SECTION 100**

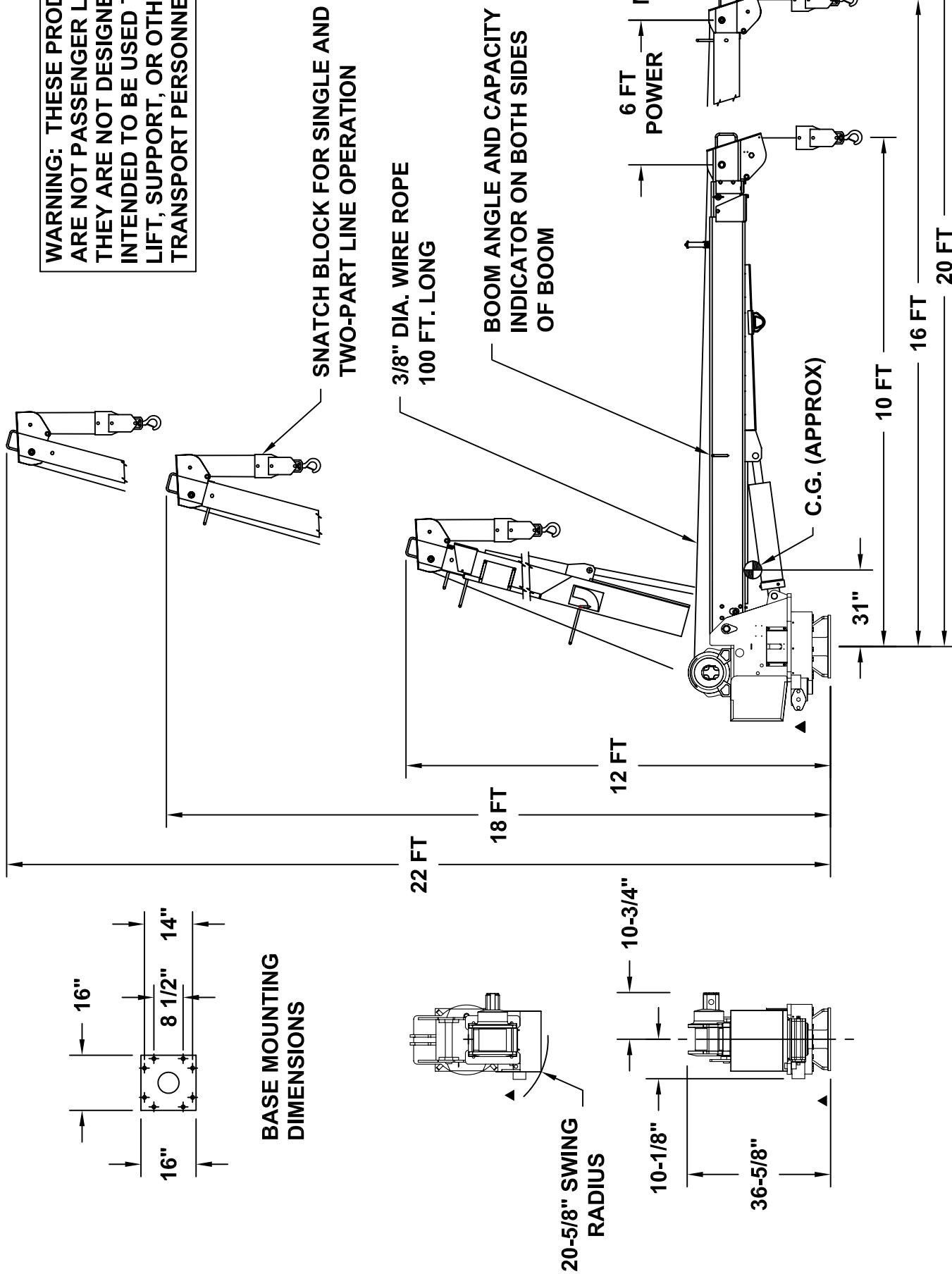
**DESCRIPTION**

**&**

**SPECIFICATIONS**

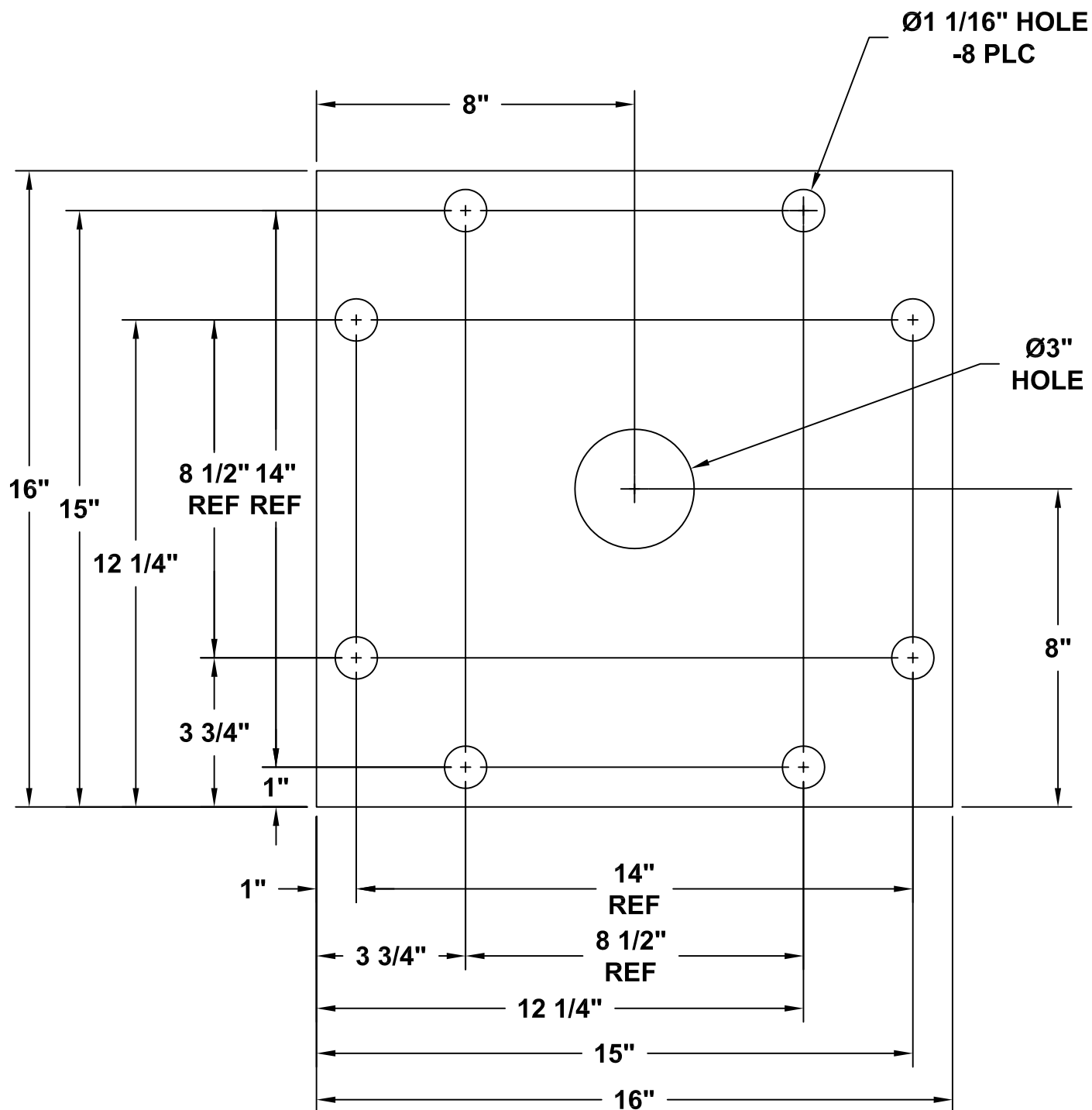


**WARNING: THESE PRODUCTS ARE NOT PASSENGER LIFTS. THEY ARE NOT DESIGNED OR INTENDED TO BE USED TO LIFT, SUPPORT, OR OTHERWISE TRANSPORT PERSONNEL.**



|                                                                       |                                                       |
|-----------------------------------------------------------------------|-------------------------------------------------------|
| <b>TITLE</b><br><b>INSTALLATION DWG</b>                               | <b>MANUFACTURING, INC.</b><br><b>CINCINNATI, OHIO</b> |
| <b>DATE</b><br><b>10-2-06A</b><br><b>SUPERSEDES</b><br><b>3-30-05</b> | <b>SECTION</b><br><b>C100</b>                         |
| <b>HT40KX, HT50KX</b>                                                 | <b>22737</b>                                          |

# ▲ HT40/50KX BASE MOUNTING DIMENSIONS



MFG., INC.  
CINCINNATI, OHIO

TITLE  
▲ BASE MOUNTING DIM

HT40/50KX

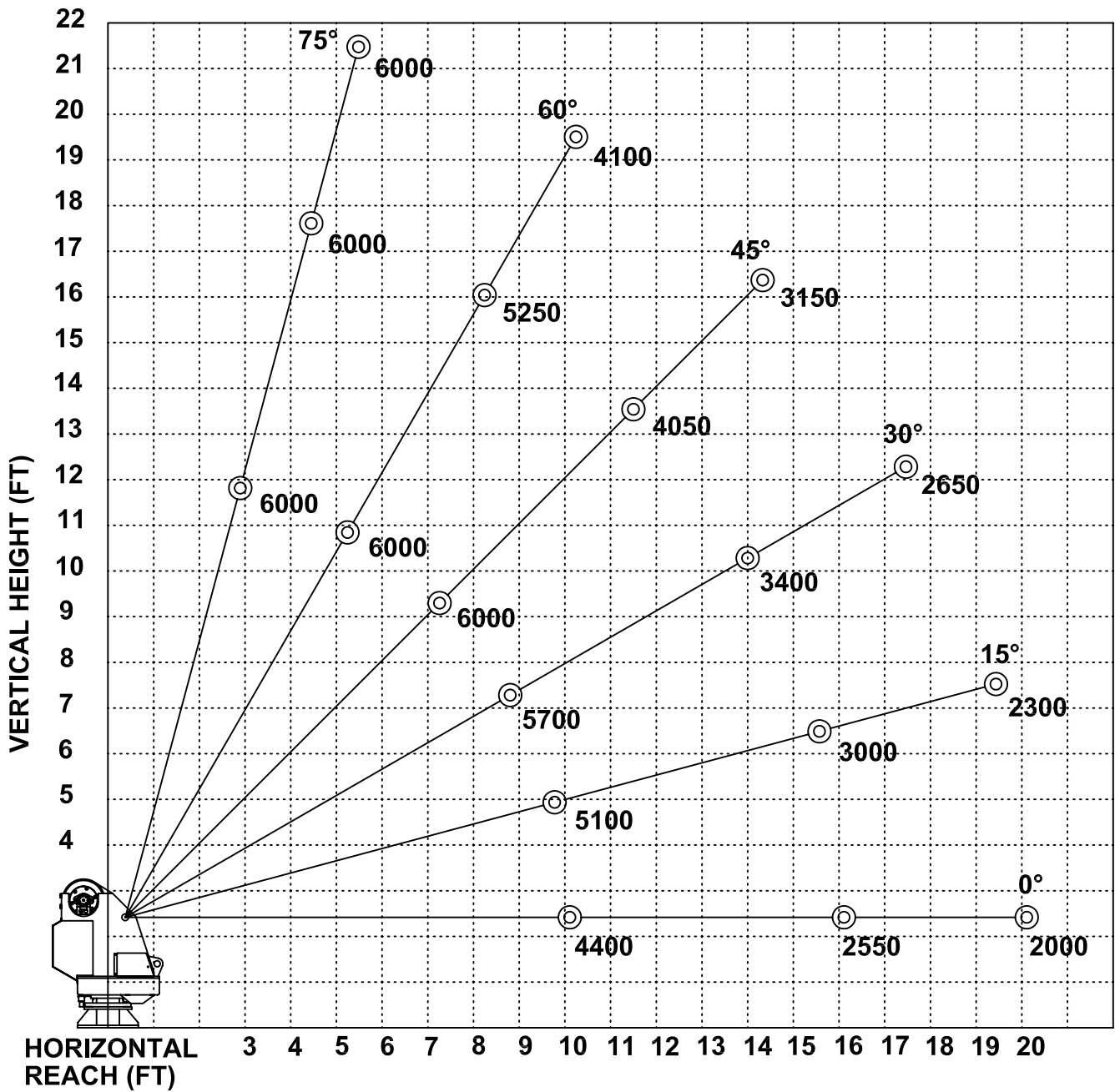
DATE  
3-3-05F

SUPERSEDES  
5-20-03E

SECTION  
C100

**18353**

# HT40KX - 10-16-20 BOOM MAXIMUM CAPACITY CHART



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



MFG., INC.  
CINCINNATI, OHIO

TITLE  
**CAPACITY CHART**

**HT40KX - 10-16-20**

DATE  
**3-3-05C**

SUPERSEDES  
**1-29-98B**

SECTION  
**C100**

**22341**

# **SECTION 150**

## **SAFETY**

# 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)<br>(PHASE TO PHASE) | MINIMUM REQUIRED<br>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)<br>(PHASE TO PHASE) | MINIMUM REQUIRED<br>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



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TITLE  
INSTALLATION DWG

ET & HT CRANE SERIES

DATE  
5-15-02H

SUPERCEDES  
5-13-97G

SECTION  
C150

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.



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TITLE  
**INSTALLATION DWG**

**HYDRAULIC CRANES**

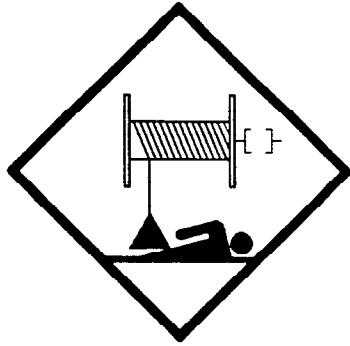
DATE  
**5-13-97A**

SUPERCEDES  
**6-12-92**

SECTION  
**C150**

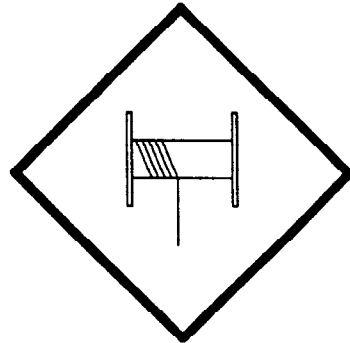
**920612**

# WINCH SAFETY WARNINGS



**DANGER**

**DO NOT DISENGAGE  
WINCH UNDER LOAD**



**DANGER**

**THE LAST FIVE  
WRAPS OF WIRE ROPE  
MUST BE LEFT ON  
THE DRUM TO ASSIST  
THE WIRE ROPE CLAMP IN  
HOLDING THE LOAD**



**WARNING**

**WINCHES ARE NOT  
TO BE USED FOR  
THE LIFTING OR  
MOVING OF  
PERSONS**



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TITLE  
**INSTALLATION DWG**

**HT CRANES**

DATE  
**5-26-98B**

SUPERCEDES  
**10-17-97A**

SECTION  
**C150**

**I19217**

15581  
ATTACHMENT

15398  
UNPLUG  
REMOTE

15401  
UNLAWFUL  
TO OPERATE

22499  
KNOW  
YOUR  
SIGNALS

RIGHT

14473-1  
OIL

15391  
DANGER  
(NOT  
PASSENGER  
LIFT)

15392  
DANGER  
ELEC.  
HAZARD

14473-2  
GREASE  
2 PLACES

20834  
OVERRIDE  
INST  
INSIDE

15390  
CAUTION

LEFT

MANUAL OVERRIDE  
19314-2 NON-PROP  
22768-2 PROP

MANUAL OVERRIDE  
19314-1 NON-PROP  
22768-1 PROP

SHUT OFF DECAL  
19315-1 MANUAL  
19315-2 PROPORTIONAL

INSIDE OF REAR COVER

MODEL NO.  
19746 - HT40  
19747 - HT50

19788  
PROPORTIONAL CONTROL  
\* PROPORTIONAL ONLY

BOOM

CAPACITY

| DECAL | MODEL | PART NO. |
|-------|-------|----------|
| RIGHT | HT40  | 22342-1  |
| LEFT  | HT40  | 22342-2  |
| RIGHT | HT50  | 22352-1  |
| LEFT  | HT50  | 22352-2  |

22496  
LARGE  
VENTURO

BACK

17389-4  
SMALL  
VENTURO

14473-2  
GREASE



MANUFACTURING, INC.  
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TITLE  
DECAL PLACEMENT

HT40/50KX

DATE  
10-3-06C

SECTION  
C150

SUPERSEDES  
9-11-06B

22171

PART NO.: 15398

DECAL: UNPLUG REMOTE CONTROL

FUNCTION: To inform the operator to unplug remote control when not being used.

QUANTITY: 1

PLACEMENT: Right side of housing.



PART NO.: 15401

DECAL: UNLAWFUL TO OPERATE

FUNCTION: To inform the operator of proper operation in vicinity of power lines.

QUANTITY: 1

PLACEMENT: Right side of housing.



PART NO.: 19314-1

DECAL: MANUAL OVERRIDE (NON-PROP)

FUNCTION: To inform the operator of manual override locations.

QUANTITY: 1

PLACEMENT: Inside of rear cover.



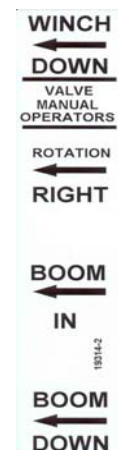
PART NO.: 19314-2

DECAL: MANUAL OVERRIDE (NON-PROP)

FUNCTION: To inform the operator of manual override locations.

QUANTITY: 1

PLACEMENT: Inside of rear cover.



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TITLE

DECAL DRAWING & LIST

DATE

12-14-05A

SECTION

C150

HT40/50KX

SUPERSEDES

5-11-05

22181A

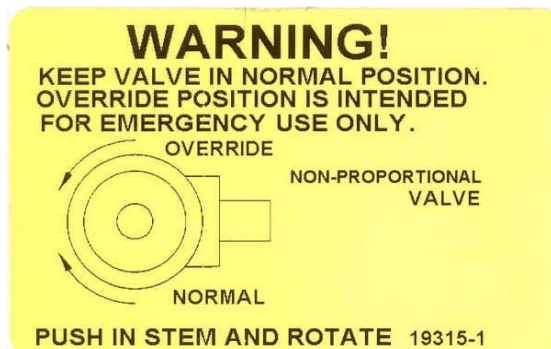
PART NO.: 19315-1

DECAL: SHUT OFF (NON-PROPORTIONAL)

FUNCTION: To show the operator how to override master shut off valve.

QUANTITY: 1

PLACEMENT: Inside rear cover.



PART NO.: 19315-2

DECAL: MANUAL OVERRIDE (PROPORTIONAL)

FUNCTION: To show the operator how to override proportional valve.

QUANTITY: 1

PLACEMENT: Inside rear cover.



PART NO.: 22768-1

DECAL: MANUAL OVERRIDE

FUNCTION: To inform the operator of manual override locations.

QUANTITY: 1

PLACEMENT: Inside rear cover.



PART NO.: 22768-2

DECAL: MANUAL OVERRIDE

FUNCTION: To inform the operator of manual override locations.

QUANTITY: 1

PLACEMENT: Inside rear cover.



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TITLE  
DECAL DRAWING & LIST

HT40/50KX

DATE  
12-14-05B

SUPERSEDES  
9-9-05A

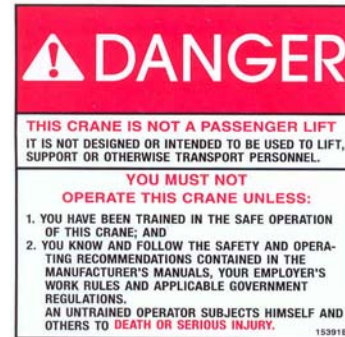
SECTION  
C150

22181B

PART NO.: 15390  
DECAL: CAUTION - INSPECT VEHICLE & CRANE  
FUNCTION: To inform the operator of key operating requirements.  
QUANTITY: 1  
PLACEMENT: Left side of rear cover.



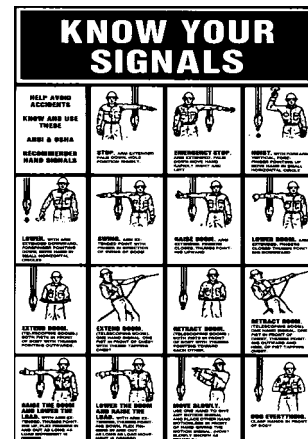
PART NO.: 15391  
DECAL: DANGER - NOT PASSENGER LIFT  
FUNCTION: To inform the operator not to lift, support or transport personnel, and to ensure that crane operator is adequately trained.  
QUANTITY: 1  
PLACEMENT: Left side of rear cover.



PART NO.: 15392  
DECAL: DANGER - ELECTROCUTION HAZARD  
FUNCTION: To inform the operator that the machine (crane) represents an electrocution hazard should it come too near or in contact with electrical voltage source.  
QUANTITY: 1  
PLACEMENT: Left side of rear cover.



PART NO.: 22499  
DECAL: KNOW YOUR SIGNALS  
FUNCTION: To inform the operator of proper signals.  
QUANTITY: 1  
PLACEMENT: Right side of rear cover.



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TITLE  
DECAL DRAWING & LIST

HT40/50KX

DATE  
9-11-06B

SUPERSEDES  
9-9-05A

SECTION  
C150

22181C

PART NO.: 20834  
DECAL: FOR MANUAL OVERRIDE  
FUNCTION: To inform the operator of locations  
of manual override instructions.  
QUANTITY: 1  
PLACEMENT: Left side of rear cover.



▲  
PART NO.: 17389-4  
DECAL: SMALL VENTURO  
FUNCTION: To show manufacturer of crane.  
QUANTITY: 1  
PLACEMENT: Rear cover.



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| TITLE                | DATE                   | SECTION |
|----------------------|------------------------|---------|
| DECAL DRAWING & LIST | 9-11-06A               | C150    |
| HT40/50KX            | SUPERSEDES<br>12-15-05 | 22181D  |

# **SECTION 200**

## **INSTALLATION**

## 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 as shown on drawing 20051. 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 housing. Included in the installation kit are two hydraulic swivels and two more hoses.

These hoses and swivels are to be arranged in the compartment or pedestal below the crane as shown on drawing 20698 (non-proportional), or 22182 (proportional) using the angle bulkhead fittings also furnished in the installation kit.

These hoses are to be connected in a relaxed position while the crane is at the midpoint of the 400 degree rotation range -- 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.

NOTE: If you purchased one of Venturo's hydraulic packages (P/N 19294-X.XXX), you will have received our pressure gauge kit. This kit includes a gauge, hose and bulkhead "T" fitting and should be installed on the pressure hose.



MFG., INC.  
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TITLE  
**INSTALLATION DWG**

**HT40KX, HT50KX**

DATE  
**5-13-05**

SUPERCEDES  
**-**

SECTION  
**C200**

**22172**

## 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:

|          | NON-PROP | PROP   |
|----------|----------|--------|
| PRESSURE | 3/8"     | 1/2"   |
| RETURN   | 1/2"     | 5/8"   |
| SUCTION  | 3/4"     | 1-1/4" |

 ▲

## RESERVOIR

The PTO reservoir should have a capacity of 25 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 (non-proportional), 12.0 GPM for the HT40KX proportional, 3.0 GPM for the HT50KX standard or 12.0 GPM for the HT50KX 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.

## ENGINE START/STOP & THROTTLE CONTROL

If your crane was purchased with optional engine start/stop and throttle control, refer to drawing 22615 in the replacement parts section for further information.



MFG., INC.  
CINCINNATI, OHIO

TITLE  
**INSTALLATION DWG**

**HT40KX, HT50KX**

DATE  
**2-20-06A**

SUPERCEDES  
**5-13-05**

SECTION  
**C200**

**22173**

# 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.



MFG., INC.  
CINCINNATI, OHIO

TITLE

INSTALLATION DWG

DATE

8-12-99B

SECTION

C200

HT40KX, HT50KX

SUPERCEDES

7-17-97

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.

## ▲ POWER TELESCOPIC BOOM

The 10 to 20 ft. boom has a 4 ft. power telescoping section in addition to the 6 ft. power extension.

## 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.



MFG., INC.  
CINCINNATI, OHIO

TITLE  
**INSTALLATION DWG**

**HT40KX, HT50KX**

DATE  
**3-4-03E**

SUPERCEDES  
**11-3-00D**

SECTION  
**C200**

**22345b**

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.

## 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
- Speed reducer (2 fittings)
- Elevation cylinder tail clevis
- Bottom of Swing Bearing (2 fittings)

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

Check electrical connections for looseness and corrosion.



MFG., INC.  
CINCINNATI, OHIO

TITLE  
**INSTALLATION DWG**

**HT40KX, HT50KX**

DATE  
**5-13-05**

SUPERCEDES  
**-**

SECTION  
**C200**

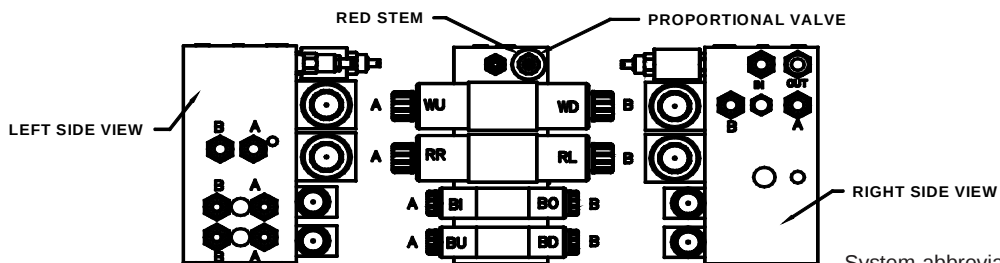
**22174**

## EXPLANATION OF HYDRAULIC VALVE SYSTEM

### OVERVIEW

This proportional crane utilizes a proportional valve, which controls the rate at which the hydraulic fluid flows through the valve bank. When the proportional valve is fully closed, hydraulic fluid bypasses the valve bank and returns directly to the tank. When the proportional valve is fully open, hydraulic fluid cycles through the valve bank and allows the crane to function at full speed. When the proportional valve is at any setting between, a portion of the fluid is allowed through the valve bank, with the remainder returning directly to the tank.

The four crane functions (winch, rotation, boom elevation, and boom extension) are controlled by four separate valve sections. Each valve section has two solenoid coils (and two manual overrides) which control the direction that the function operates (e.g. winch up vs. winch down). For a given crane function and direction (e.g. winch up) the solenoid coil and the associated manual override lie on the same side of the valve bank (both “push”).



System abbreviations are as follows:

|                        |                      |
|------------------------|----------------------|
| WD – Winch Down        | WU – Winch Up        |
| RR – Rotation Right    | RL – Rotation Left   |
| BI – Boom In (Ext.)    | BO – Boom Out (Ext.) |
| BD – Boom Down (Elev.) | BU – Boom Up (Elev.) |

### MANUAL OVERRIDE SYSTEM

Should an electrical failure occur, your Venturo crane can be operated manually. **The manual overrides are intended for emergency use only and should not be used for normal operation.**

#### To operate in manual override mode:

- Override the proportional valve by turning the red stem on the valve as stated below.
  - For override operation, rotate stem clockwise (the farther the stem is turned the faster the crane will operate).
  - To return to normal operation, rotate the stem counterclockwise until it stops.
- Determine the coil/override associated with the function you wish to operate, then insert a small diameter object (an allen wrench works well) into the detent on the end of the valve stem and press firmly inward. For example, pushing the stem labeled A on the first bank (refer to the illustration) will actuate winch up.

**Warning!** For normal crane operation, the proportional valve must be in the “normal” position (as described above). To verify “normal” operation, you may set the pendant (or radio) control aside and actuate a single crane function by pushing “in” on any of the manual override pins, located at the ends of each function control valve. If that function operates, the proportional valve is still in manual override. Check the position of the proportional valve “red thumb screw” to insure that it is fully counterclockwise.

### EMERGENCY STOP

In the unlikely event that a function of the crane does not stop once the function’s toggle switch is released, the Proportional crane can be stopped by releasing the trigger.



MFG., INC.  
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TITLE  
**HYDRAULIC SYSTEM**

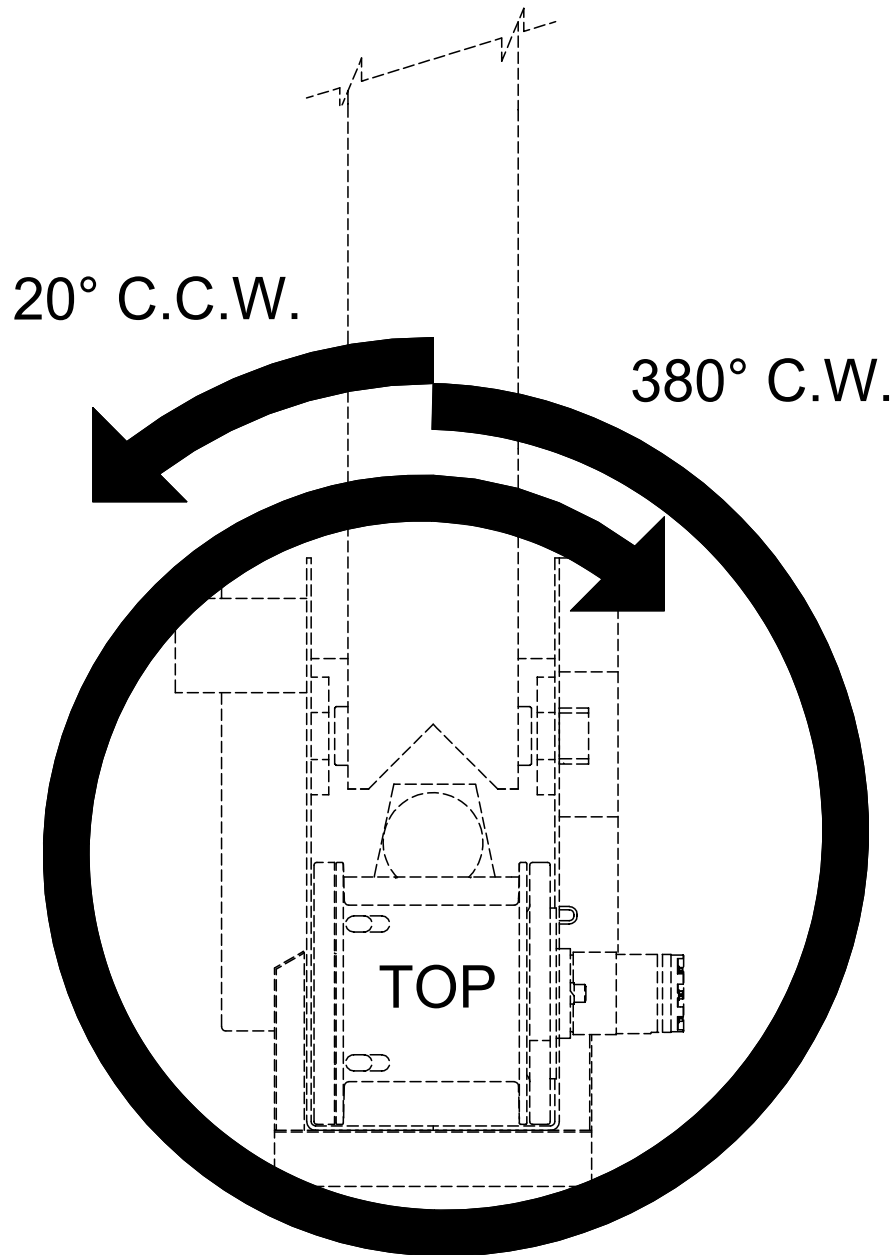
**HT40/50 - PROP**

DATE  
**5-26-05**

SUPERCEDES  
-

SECTION  
**C200**

**22168**



This Venturo crane is shipped with the rotation orientation as shown above. To change the orientation rotate crane base prior to mounting to suit your application.



MFG., INC.  
CINCINNATI, OHIO

TITLE  
ROTATION STOP LOCATION

ET/HT25, HT40/50

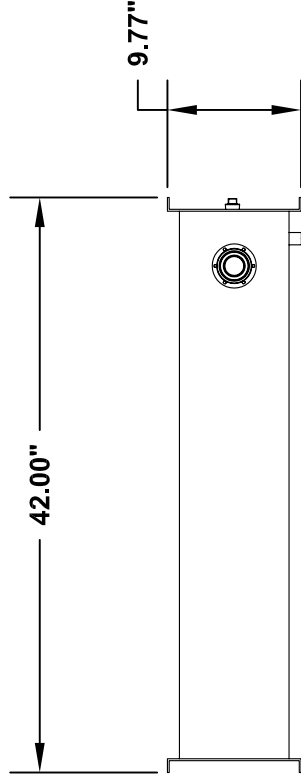
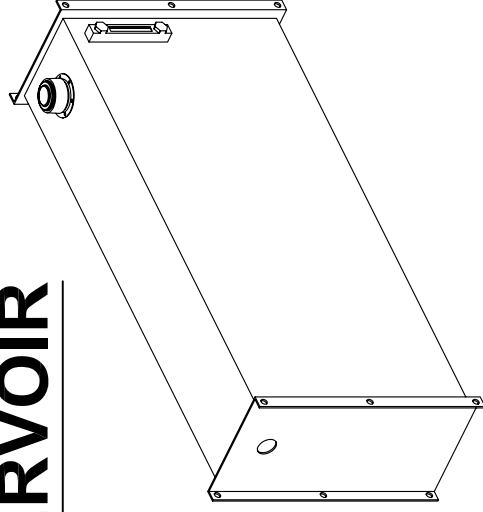
DATE  
7-31-02A

SUPERSEDES  
10-26-99

SECTION  
-

20051

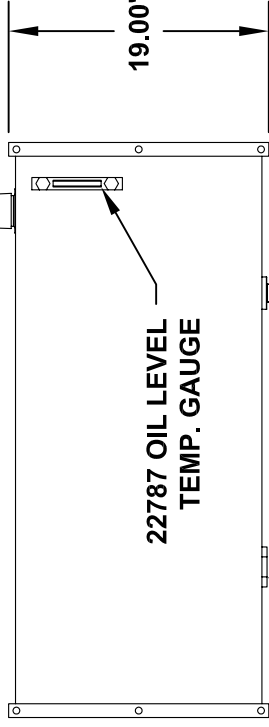
# 22785 BULKHEAD MOUNT OIL RESERVOIR



22789 TANK FILLER  
BREATHER ASSEMBLY

Ø1.50"

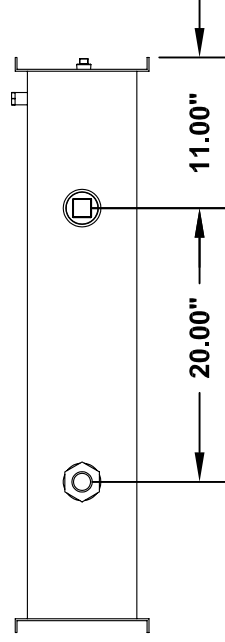
H5406-12  
3/4" NPT PIPE PLUG



22787 OIL LEVEL  
TEMP. GAUGE

22788 IN TANK  
SUCTION STRAINER

H5406-32  
2" NPT PIPE PLUG

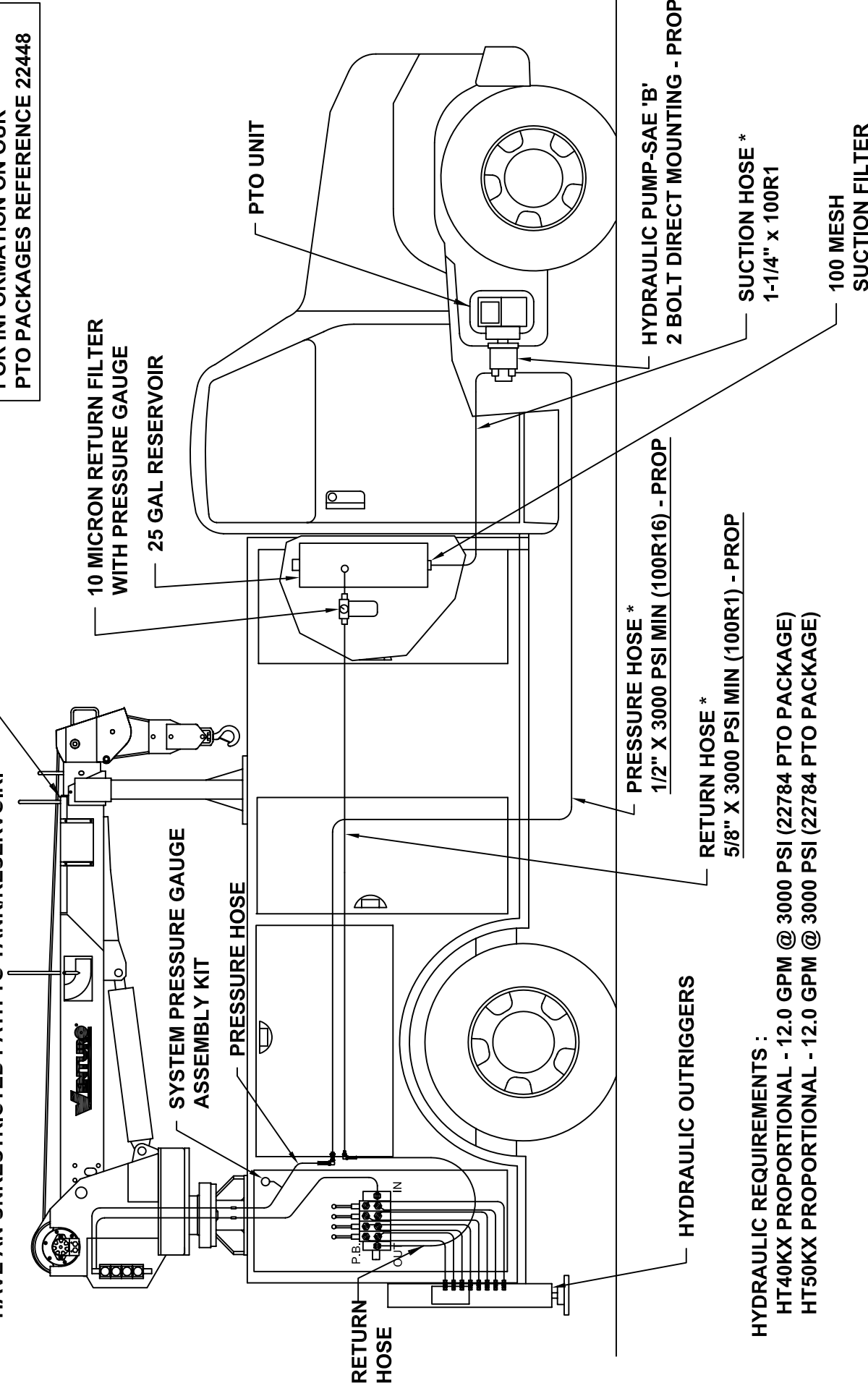




CAUTION: THE RETURN LINE FROM THE CRANE MUST HAVE AN UNRESTRICTED PATH TO TANK/RESERVOIR.

HT40/50KX PROPORTIONAL CRANE

FOR INFORMATION ON OUR  
PTO PACKAGES REFERENCE 22448



**HYDRAULIC REQUIREMENTS :**

HT40KX PROPORTIONAL - 12.0 GPM @ 3000 PSI (22784 PTO PACKAGE)

HT50KX PROPORTIONAL - 12.0 GPM @ 3000 PSI (22784 PTO PACKAGE)

SEE INSTALLATION INSTRUCTIONS 22344 (2 PAGES).

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



MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE

**INSTALLATION DWG**

DATE

**2-20-06**

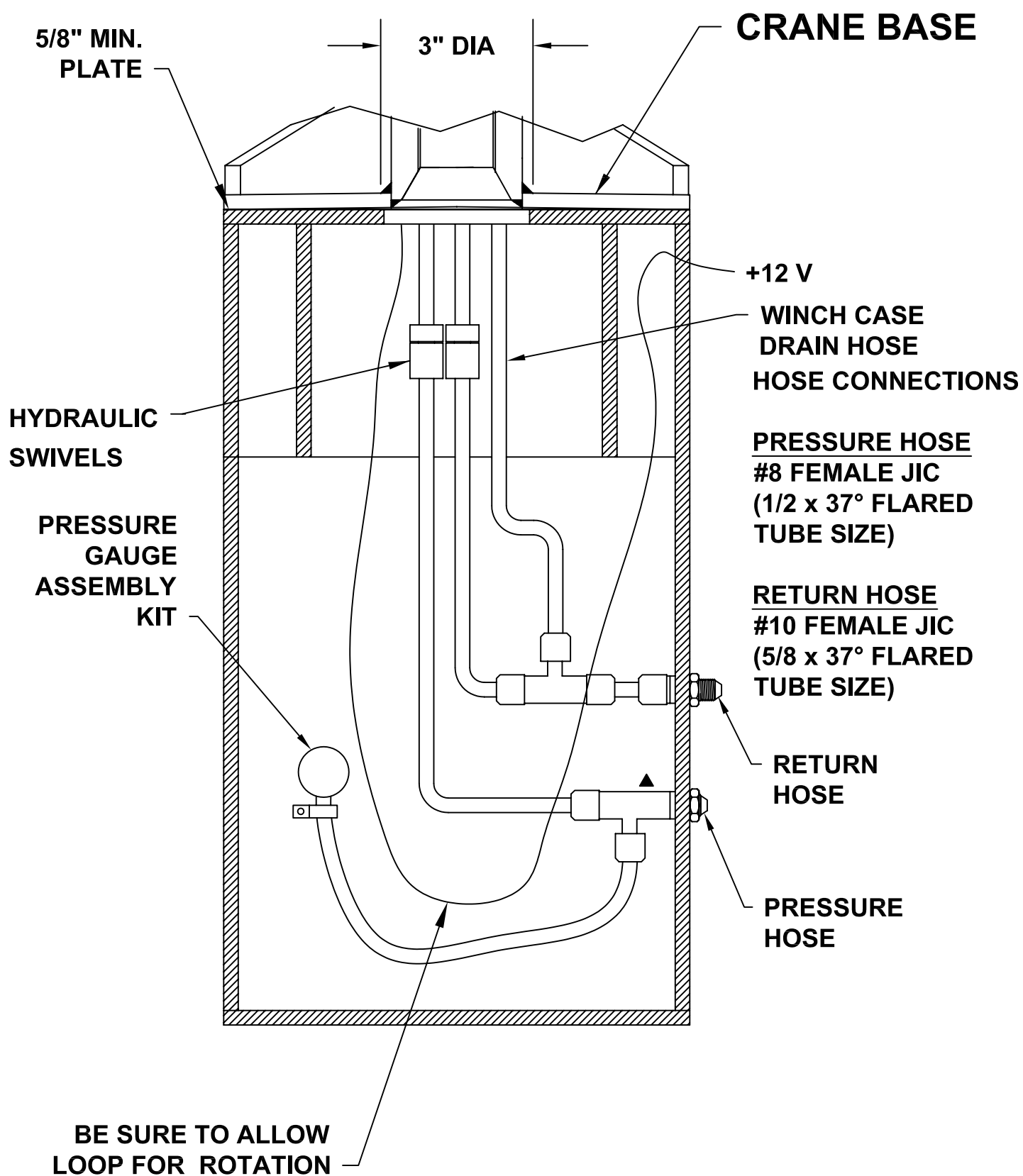
SECTION

**C200**

SUPERSEDES

**PTO INST - HT40/50 (PROPORTIONAL)**

**22809**



MFG., INC.  
CINCINNATI, OHIO

TITLE  
**CRANE & HOSE INST.**

**HT40/50KX - PROP**

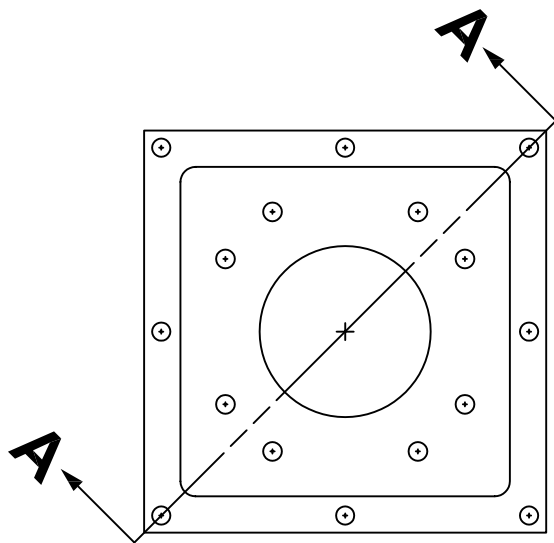
DATE  
**10-5-06A**

SUPERSEDES  
**5-26-05**

SECTION  
**C200**

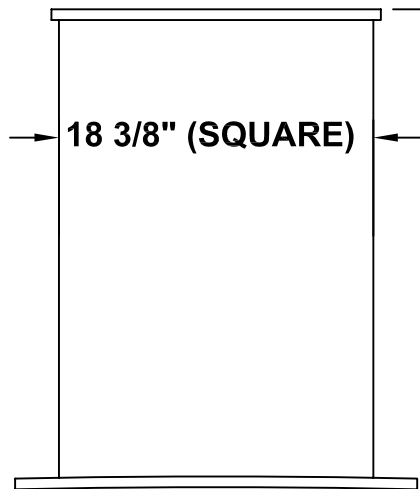
**22189**

# 17830-XX PEDESTAL

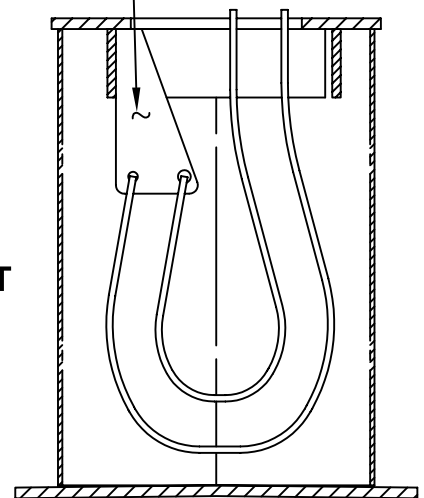


INSERT BULKHEAD  
FITTINGS (FURNISHED  
WITH HT40/50 CRANE)  
INTO THIS BRACKET  
AND ATTACH HOSES

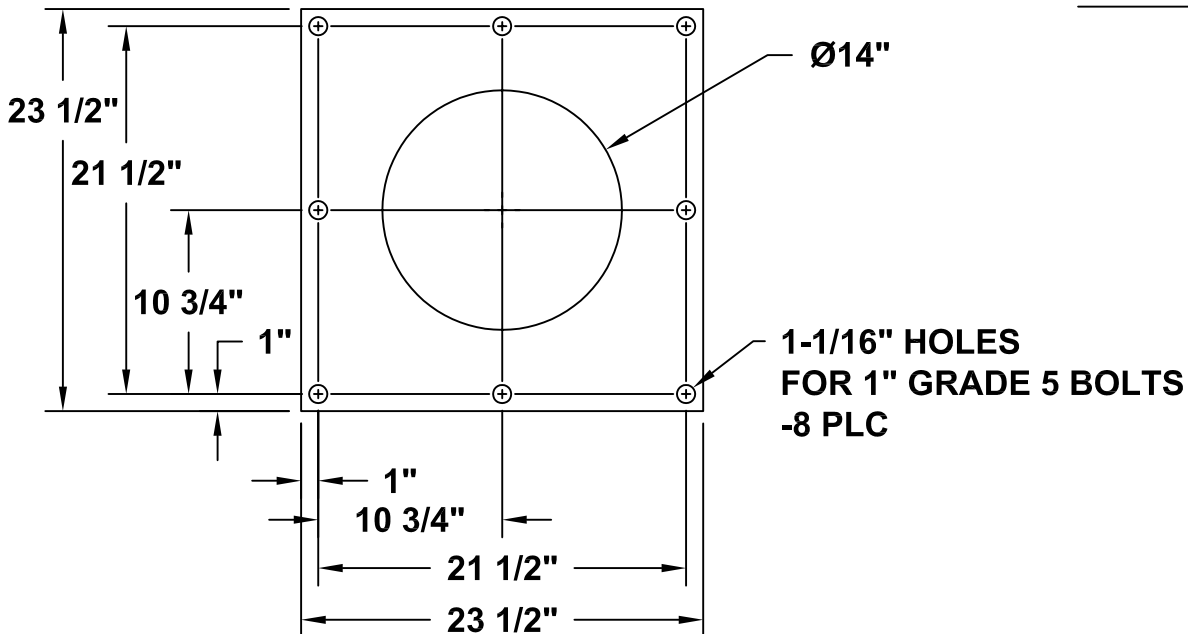
19 1/4" (SQUARE)



DASH NUMBER  
SPECIFIES HEIGHT



## SECTION A-A



MFG., INC.  
CINCINNATI, OHIO

TITLE  
**MOUNTING DIMENSIONS**

**HT40/50KX CRANES**

DATE  
**3-3-05C**

SUPERSEDES  
**1-30-98B**

SECTION  
**C200**

**17831**

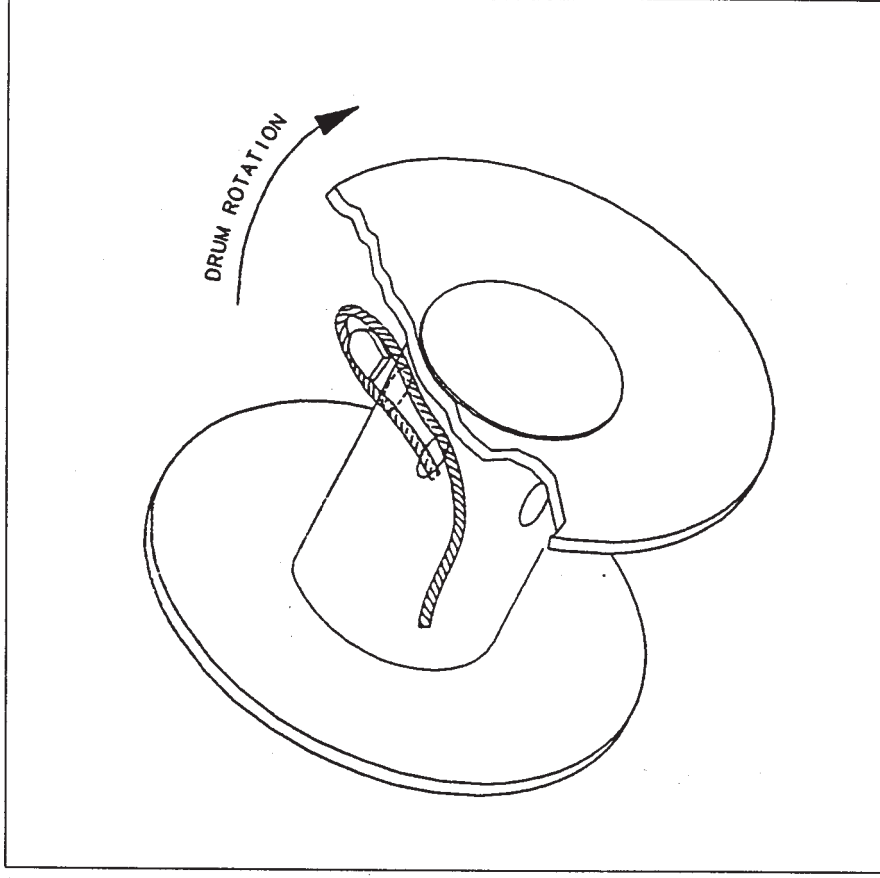
# WIRE ROPE INSTALLATION

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

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.

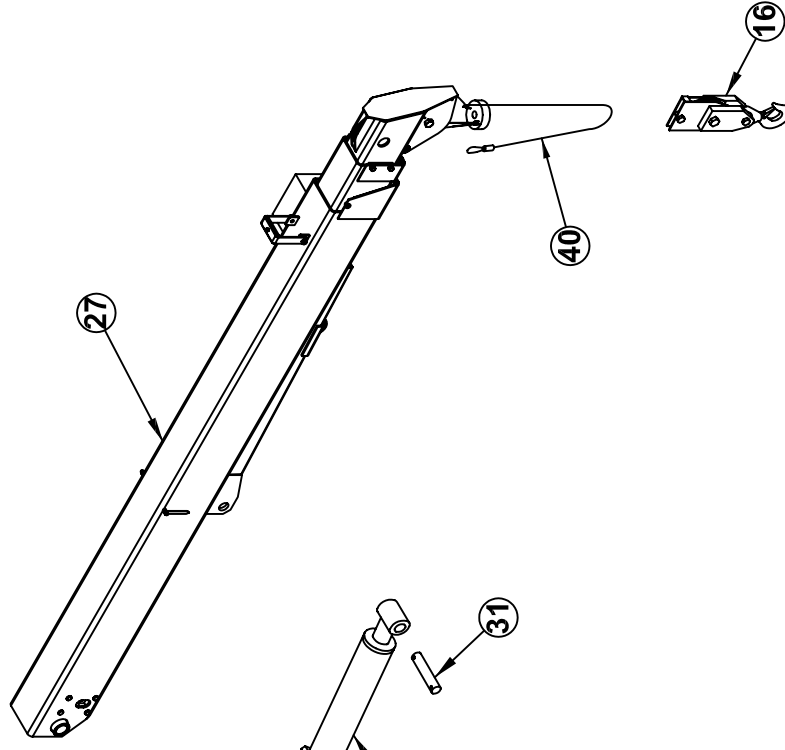
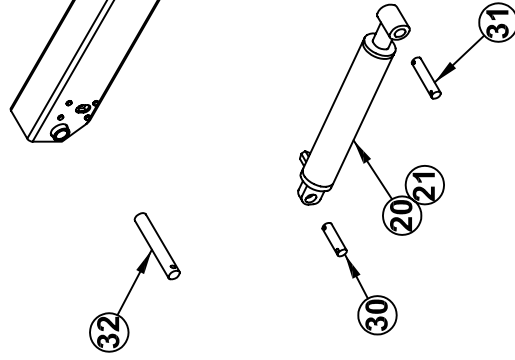
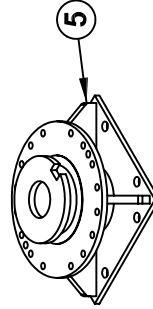
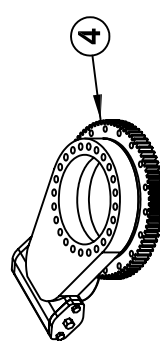
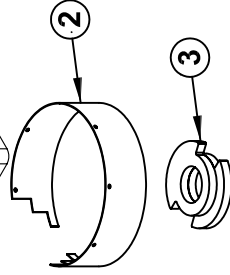
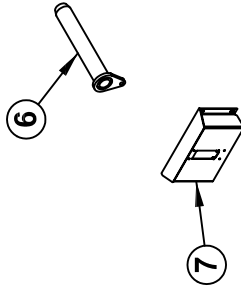
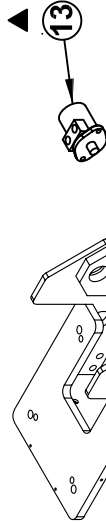
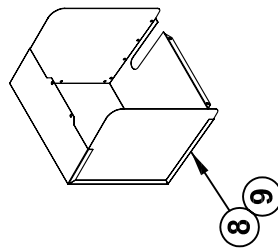
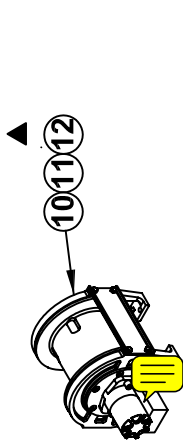
▲ NOTE: ON THE ET25K(X) A 7/16" HEX NUT WILL BE USED IN LIEU OF A WEDGE.



# SECTION 400

## PARTS





REPLACEMENT PARTS LIST - REF 22176

REPLACEMENT PARTS LIST - FULL POWER BOOM 24572

REPLACEMENT FASTENERS LIST - REF 22177



MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
**REPLACEMENT PARTS**

**HT40KX, HT50KX**

DATE  
**10-02-06A**

SUPERSEDES  
**5-13-05**

SECTION  
**C400**

**22175**

| ITEM # | PART #        | DESCRIPTION                                             | ITEM # | PART #  | DESCRIPTION                                   |
|--------|---------------|---------------------------------------------------------|--------|---------|-----------------------------------------------|
| 1      | 22840         | HOUSING WELDED ASSEMBLY                                 | 41     | -       | -                                             |
| 2      | 22726         | OUTERRING                                               | 42     | -       | -                                             |
| 3      | 22702         | ROTATION STOPPING WELDED ASSEMBLY                       | 43     | -       | -                                             |
| 4      | 22704         | SLEWING RING                                            | 44     | -       | -                                             |
| 5      | 22710         | PEDESTAL WELDED ASSEMBLY                                | 45     | -       | -                                             |
| 6      | 22721         | PIVOT PIN MAIN BOOM PIVOT                               | 46     | -       | -                                             |
| 7      | 22715         | SIDE COVER                                              | 47     | -       | -                                             |
| 8      | 22841         | REAR HYD. VALVE COVER - STD.                            | 48     | -       | -                                             |
| 9      | 22842         | REAR HYD. VALVE COVER - PROP.                           | 49     | -       | -                                             |
| 10     | 22828         | 1 1/2" INCH - 3000 LB (SINGLE LINE) - HT40KX - NON-PROP | 50     | -       | -                                             |
| 11     | 22829         | 1 1/2" INCH - 3000 LB (SINGLE LINE) - HT40KX - PROP     | 51     | 22766   | FIELD SERVICE LABEL KIT - HT40KX NON-PROP.    |
| 12     | 22830         | WINCH - 4000 LB (SINGLE LINE) - HT50KX                  | 52     | 22766-1 | FIELD SERVICE LABEL KIT - HT40KX PROPORTIONAL |
| 13     | 19177         | HYDRAULIC ROTATION MOTOR                                | 53     | 22767   | FIELD SERVICE LABEL KIT - HT50KX NON-PROP.    |
| 14     | -             | -                                                       | 54     | 22767-1 | FIELD SERVICE LABEL KIT - HT50KX PROPORTIONAL |
| 15     | -             | -                                                       | 55     | -       | -                                             |
| 16     | 17770         | HEADACHE BALL ASSEMBLY                                  | 56     | -       | -                                             |
| 17     | -             | -                                                       | 57     | -       | -                                             |
| 18     | -             | -                                                       | 58     | -       | -                                             |
| 19     | -             | -                                                       | 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     | -             | -                                                       | 62     | -       | -                                             |
| 23     | -             | -                                                       | 63     | -       | -                                             |
| 24     | -             | -                                                       | 64     | -       | -                                             |
| 25     | -             | -                                                       | 65     | -       | -                                             |
| 26     | -             | -                                                       | 66     | -       | -                                             |
| 27     | 24550         | BOOM ASSEMBLY - HT40/50KXX                              | 67     | -       | -                                             |
| 28     | -             | -                                                       | 68     | -       | -                                             |
| 29     | -             | -                                                       | 69     | -       | -                                             |
| 30     | 22256         | ELEVATION CYLINDER PIN - INBOARD                        | 70     | -       | -                                             |
| 31     | 22257         | ELEVATION CYLINDER PIN - OUTBOARD                       | 71     | -       | -                                             |
| 32     | 22290         | PIVOT PIN, BOOM - 1-3/4" OD x 12-1/2" LONG              | 72     | -       | -                                             |
| 33     | -             | -                                                       | 73     | -       | -                                             |
| 34     | -             | -                                                       | 74     | -       | -                                             |
| 35     | -             | -                                                       | 75     | -       | -                                             |
| 36     | -             | -                                                       | 76     | -       | -                                             |
| 37     | -             | -                                                       | 77     | -       | -                                             |
| 38     | -             | -                                                       | 78     | -       | -                                             |
| 39     | -             | -                                                       | 79     | -       | -                                             |
| 40     | 17094-3/8-100 | WIRE ROPE ASSEMBLY - 3/8" x 100 FT                      | 80     | -       | -                                             |
|        |               | ITEM NOT SHOWN ON REPLACEMENT PARTS DRAWING             |        |         |                                               |
|        |               | REPLACEMENT PARTS DWG REF 22175                         |        |         |                                               |

|                                                                                                                                                 |       |                   |            |          |         |       |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------|------------|----------|---------|-------|
|  <b>VENTURO</b><br>MANUFACTURING, INC.<br>CINCINNATI, OHIO | TITLE | REPLACEMENT PARTS | DATE       | 12-4-06B | SECTION | C400  |
|                                                                                                                                                 |       | HT40KX, HT50KX    | SUPERCEDES | 10-2-06A |         | 22176 |

## FASTENER LIST FOR HT40/50KX

| Part Number     | Description                            | Qty | Location/Function                           |
|-----------------|----------------------------------------|-----|---------------------------------------------|
| !HHCS06311200   | HEX HEAD CAP SCREW - 5/8-11 X 2        | 16  | LOWER BASE TO SLEWING RING                  |
| !HHCS06311450   | HEX HEAD CAP SCREW - 5/8-11 X 4-1/2    | 24  | SLEWING RING TO UPPER HOUSING               |
| !LWSH-063       | LOCK WASHER - 5/8                      | 40  | LOWER BASE / UPPER HOUSING TO SLEWING RING  |
| !SHCS05013200   | SOCKET HEAD CAP SCREW - 1/2-13 X 2     | 2   | ROTATION MOTOR                              |
| !LWSH-050-HC    | LOCK WASHER - 1/2 HI COLLAR            | 2   | ROTATION MOTOR                              |
| !SHCS03816350   | SOCKET HEAD CAP SCREW - 3/8-16 X 3-1/2 | 2   | VALVE BLOCK (NON-PROPORTIONAL ONLY)         |
| !FWSH-038       | FLAT WASHER - 3/8                      | 2   | VALVE BLOCK (NON-PROPORTIONAL ONLY)         |
| !LWSH-038-HC    | LOCK WASHER - 3/8 HI COLLAR            | 2   | VALVE BLOCK (NON-PROPORTIONAL ONLY)         |
| !HNUT-03816     | HEX NUT - 3/8-16                       | 2   | VALVE BLOCK (NON-PROPORTIONAL ONLY)         |
| !HHCS03816100   | HEX HEAD CAP SCREW - 3/8-16 X 1        | 2   | VALVE BLOCK (PROPORTIONAL ONLY)             |
| !FWSH-038       | FLAT WASHER - 3/8                      | 2   | VALVE BLOCK (PROPORTIONAL ONLY)             |
| !LWSH-038       | LOCK WASHER - 3/8                      | 2   | VALVE BLOCK (PROPORTIONAL ONLY)             |
| !HHCS05013225   | HEX HEAD CAP SCREW - 1/2-13 X 2-1/4    | 4   | WINCH - HT40KX                              |
| !FWSH-050       | FLAT WASHER - 1/2                      | 4   | WINCH - HT40KX                              |
| !LWSH-050       | LOCK WASHER - 1/2                      | 4   | WINCH - HT40KX                              |
| !HNUT-05013     | HEX NUT - 1/2-13                       | 4   | WINCH - HT40KX                              |
| !HHCS06311225 ▲ | HEX HEAD CAP SCREW - 5/8-11 X 2-1/4    | 4   | WINCH - HT50KX                              |
| !FWSH-063 ▲     | FLAT WASHER - 5/8                      | 4   | WINCH - HT50KX                              |
| !LWSH-063 ▲     | LOCK WASHER - 5/8                      | 4   | WINCH - HT50KX                              |
| !HNUT-06311 ▲   | HEX NUT - 5/8-11                       | 4   | WINCH - HT50KX                              |
| !HHCS03816100   | HEX HEAD CAP SCREW - 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)                           |
| !HHCS03816100   | HEX HEAD CAP SCREW - 3/8-16 X 1        | 1   | BOOM PIVOT PIN                              |
| !FWSH-038       | FLAT WASHER - 3/8                      | 1   | BOOM PIVOT PIN                              |
| !LWSH-038       | LOCK WASHER - 3/8                      | 1   | BOOM PIVOT PIN                              |
| !PHCS#0632100   | PAN HEAD CAP SCREW #6-32 X 1           | 2   | TERMINAL BLOCK                              |
| !PHCS#1024050   | PAN HEAD CAP SCREW #10-24 X 1/2        | 2   | CIRCUIT BREAKER                             |
| !LWSH-#10       | LOCK WASHER - #10                      | 2   | CIRCUIT BREAKER                             |
| !HHCS02520050   | HEX HEAD CAP SCREW - 1/4-20 X 1/2      | 1   | TOP POSITION SWITCH                         |
| !FWSH-025       | FLAT WASHER - 1/4                      | 1   | TOP POSITION SWITCH                         |
| !LWSH-025       | LOCK WASHER - 1/4                      | 1   | TOP POSITION SWITCH                         |
| 19269           | CABLE CLAMP - 1/4                      | 1   | PRESSURE SWITCH HARNESS                     |
| !HHCS02520063-5 | HEX HEAD CAP SCREW - 1/4-20 X 5/8      | 1   | PRESSURE SWITCH HARNESS                     |
| !LWSH-025       | LOCK WASHER - 1/4                      | 1   | PRESSURE SWITCH HARNESS                     |
| !HHCS03118125   | HEX HEAD CAP SCREW - 5/16-18 X 1-1/4   | 1   | GROUND SCREW                                |
| !FWSH-031       | FLAT WASHER - 5/16                     | 1   | GROUND SCREW                                |
| !LWSH-031-STAR  | STAR LOCK WASHER - 5/16 - EXTERNAL     | 2   | GROUND SCREW                                |
| !HHCS02520063-5 | HEX HEAD CAP SCREW - 1/4-20 X 5/8      | 4   | REAR COVER                                  |
| !LWSH-025       | LOCK WASHER - 1/4                      | 4   | REAR COVER                                  |
| !UNUT-02520-LKG | U-NUT - 1/4-20 - LOCKING TYPE          | 7   | LOWER COVER                                 |
| !HHCS02520063-5 | HEX HEAD CAP SCREW - 1/4-20 X 5/8      | 7   | LOWER COVER                                 |
| !FWSH-025       | FLAT WASHER - 1/4                      | 7   | LOWER COVER                                 |
| !SRNG-150       | SNAP RING - 1-1/2 SHAFT DIAMETER       | 4   | ELEVATION CYLINDER PINS - ROD AND BASE ENDS |
| !PHMS03816050   | PAN HEAD MACHINE SCREW - 3/8-16 X 1/2  | 1   | COUPLING FOR MASTER BYPASS VALVE            |
| 19122           | HOLE PLUG                              | 5   | WINCH ACCESS HOLES                          |
| 19271-1         | 2-1/8 DIAMETER HOLE PLUG               | 2   | WINCH ACCESS HOLES                          |

REPLACEMENT PARTS DWG REF 22175



MFG., INC.  
CINCINNATI, OHIO

TITLE  
**REPL. FASTENERS LIST**

**HT40KX, HT50KX**

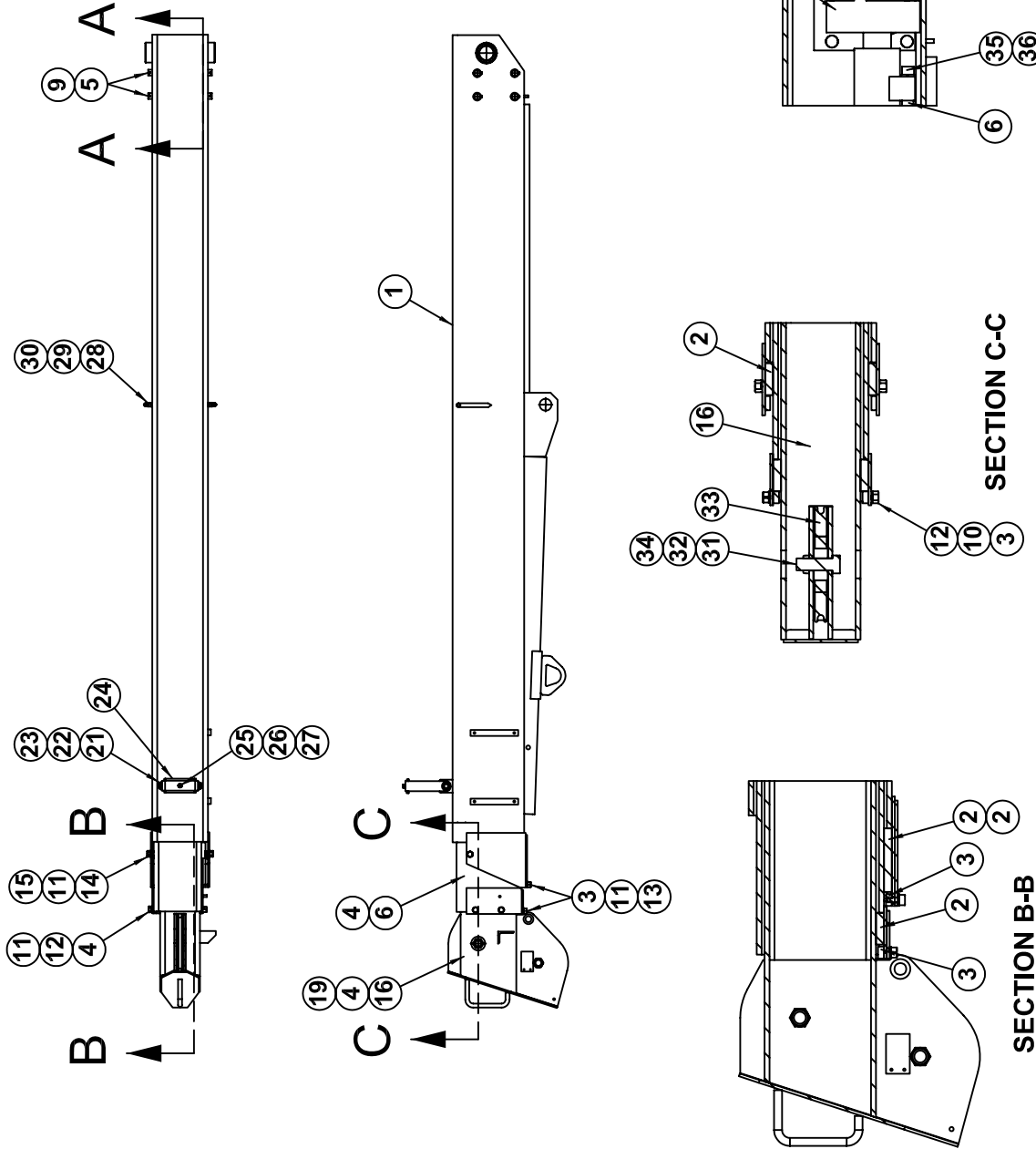
DATE  
**10-2-06A**

SUPERCEDES  
**5-16-05**

SECTION  
**C400**

**22177**

# 24550 BOOM PARTS DRAWING



REF. REPLACEMENT PARTS LIST 24572 SECTION A-A

|                                                                                                                                          |                          |  |                      |         |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--|----------------------|---------|
|  VENTURO<br>MANUFACTURING, INC.<br>CINCINNATI, OHIO | TITLE                    |  | DATE                 | SECTION |
|                                                                                                                                          | 24550 BOOM PARTS DRAWING |  | 8-5-05A              | C400    |
|                                                                                                                                          | HT40/50KXX               |  | SUPERSEDES<br>3-4-03 | 24571   |

MANUAL EXTENSION (-1)  
FULL POWER EXTENSION (-2)

MANUAL EXTENSION (-1)  
FULL POWER EXTENSION (-2)

|          |    |   |               |                                         |          |   |   |               |  |  |                                                            |  |
|----------|----|---|---------------|-----------------------------------------|----------|---|---|---------------|--|--|------------------------------------------------------------|--|
| 19       | 2  | + | 18957         | BEARING PAD - SIDE FRONT                | -        | - | + |               |  |  |                                                            |  |
| 18       | 1  | + | 24568         | PIN - CYLINDER                          | 38       | 1 | + | 24566         |  |  | * EXTENSION CYLINDER - TWO STAGE ▲                         |  |
| 17       | 2  | + | 24558         | PIN BLOCK                               | 38       | 1 | + | 22032-2       |  |  | * EXTENSION CYLINDER - SINGLE STAGE ▲                      |  |
| 16       | 1  | + | 24556-2       | TERTIARY BOOM TUBE ASSEMBLY             | 37       | 8 | + | 24569         |  |  | COUNTERSUNK ALLEN HEAD CAP SCREW MODIFIED 5/8-18 X 1" LONG |  |
| 16       | 1  | + | 24556-1       | TERTIARY BOOM TUBE ASSEMBLY             | 36       | 2 | + | ILWSH-050     |  |  | LOCK WASHER - 1/2                                          |  |
| 15       | 2  | + | !HNUT-03816   | HEX NUT - 3/8-16                        | 35       | 2 | + | !SHCS05013250 |  |  | SOCKET HEAD CAP SCREW - 1/2-13 X 2-1/2" LONG               |  |
| 14       | 2  | + | !HHCS03816038 | NEX HEAD CAP SCREW - 3/8-16 X 3/8" LONG | 34       | 2 | + | !JNUT-07510N  |  |  | NYLON LOCK - JAMNUT - 3/4-10                               |  |
| 13       | 4  | + | !HHCS03816075 | HEX HEAD CAP SCREW - 3/8-16 X 3/4" LONG | 33       | 2 | + | 23928         |  |  | BOOM SHEAVE WITH BUSHING                                   |  |
| 12       | 4  | + | !HHCS03816063 | HEX HEAD CAP SCREW - 3/8-16 X 5/8" LONG | 32       | 2 | + | 17059-1       |  |  | SHEAVE AXLE                                                |  |
| 11       | 10 | + | !LWSH-038     | LOCK WASHER - 3/8"                      | 31       | 1 | + | 23929         |  |  | SPACER - 23927 & 23928 POLY SHEAVES                        |  |
| 10       | -  | - | -             | -                                       | 30       | 2 | + | !ANUT-02520S  |  |  | ACORN NUT - 1/4-20 STAINLESS                               |  |
| 9        | 8  | + | !SRNG-75 ▲    | SNAP RING - 3/4" - PLATED               | 29       | 2 | + | 13459-2       |  |  | BOOM ARROW 4-7/16" LONG                                    |  |
| 8        | 4  | + | 24519         | SIDE, REAR BEARING                      | 28       | 2 | + | 22490         |  |  | SPACER, BOOM ARROW 1/2" O.D.                               |  |
| 7        | 1  | + | 24559         | NUT BAR                                 | 27       | 1 | + | !HNUT-02520   |  |  | HEX NUT 1/4-20                                             |  |
| 6        | 1  | + | 24554-2       | SECONDARY BOOM TUBE ASSEMBLY            | 26       | 1 | + | !LWSH-025     |  |  | LOCK WASHER - 1/4"                                         |  |
| 6        | 1  | + | 24554-1       | SECONDARY BOOM TUBE ASSEMBLY            | 25       | 1 | + | !HHCS02520075 |  |  | HEX HEAD CAP SCREW - 1/4-20 X 3/4" LONG                    |  |
| 5        | 4  | + | 22255 ▲       | THRUST PIN - EXTENSION CYLINDER         | 24       | 1 | + | 19881         |  |  | CABLE GUIDE WEAR STRIP                                     |  |
| 4        | -  | - | -             | -                                       | 23       | 2 | + | !JNUT-05013N  |  |  | 1/2-13 NYLON INSERT JAM NUT                                |  |
| 3        | 4  | + | 24522         | LOWER FRONT NUTBAR                      | 22       | 1 | + | !FWSH-050     |  |  | FLAT WASHER - 1/2"                                         |  |
| 2        | 9  | + | 24562         | BEARING                                 | 21       | 2 | + | !HHCS05013100 |  |  | HEX HEAD CAP SCREW - 1/2-13NC X 1" LONG                    |  |
| 1        | 1  | + | 24552         | PRIMARY BOOM FINAL ASSEMBLY             | 20       | 1 | + | 19880         |  |  | CABLE GUIDE STRUCTURE                                      |  |
| ITEM QTY |    |   | PART NO.      | DESCRIPTION                             | ITEM QTY |   |   | PART NO.      |  |  | DESCRIPTION                                                |  |

\* ITEMS NOT SHOWN ON DWG. 24571  
REF. REPLACEMENT DRAWING NO. 24571



MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
24550 BOOM REPLACEMENT PARTS LIST

DATE  
8-5-05D

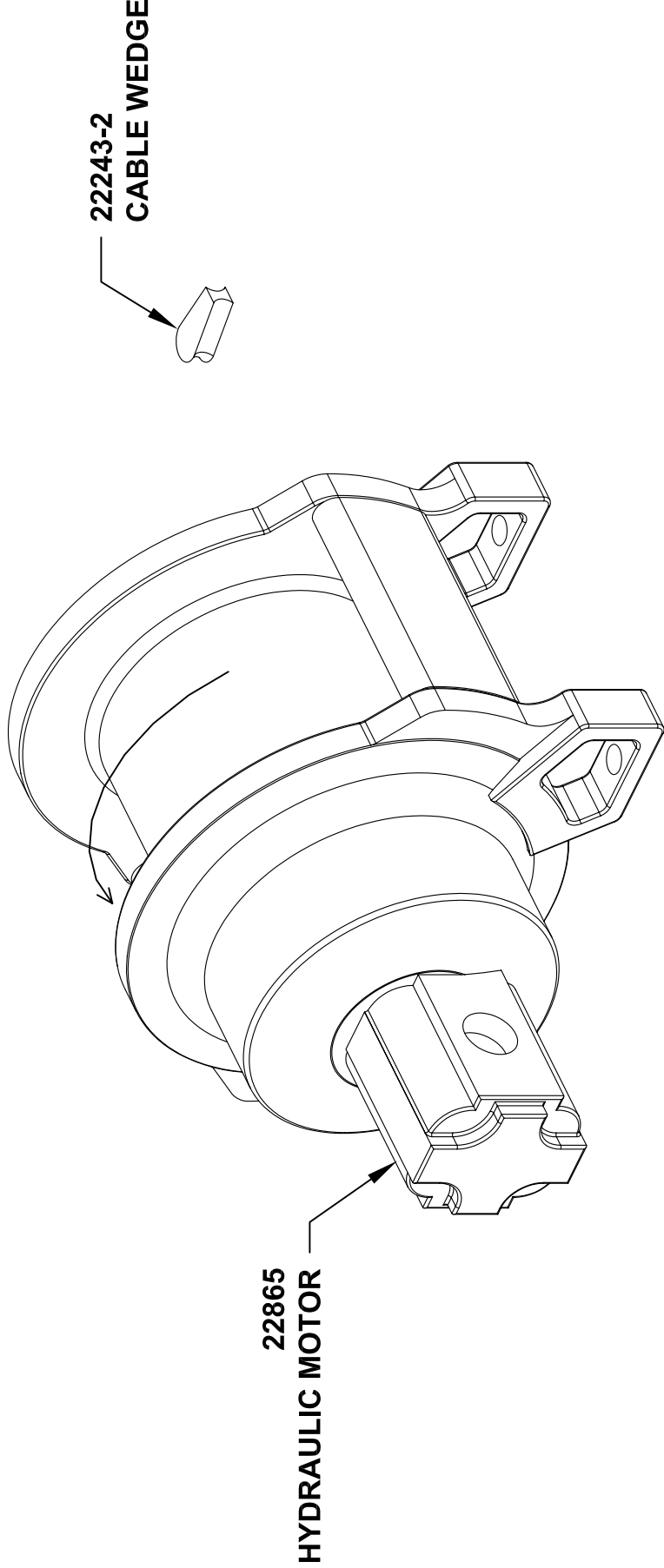
SECTION  
C400

HT40/50KXX

SUPERSEDES  
12-7-04C

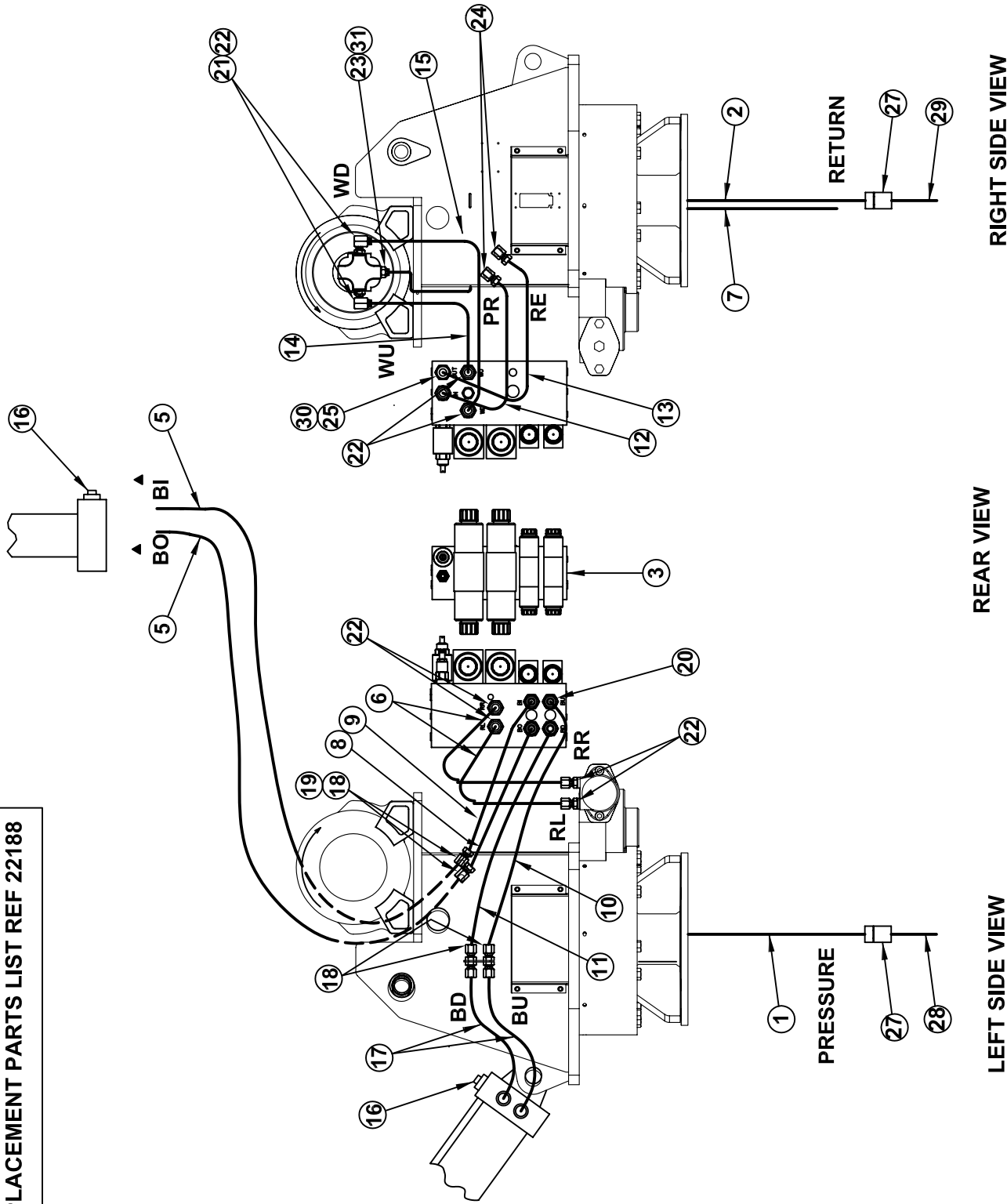
24572

# REPLACEMENT PARTS 22829 & 22830 WINCH



WINCH SEAL KIT P/N: 22866

MOTOR SEAL KIT P/N 22861



|    |                |
|----|----------------|
| RR | ROTATION RIGHT |
| RL | ROTATION LEFT  |
| BO | BOOM OUT       |
| BI | BOOM IN        |
| BU | BOOM UP        |
| BD | BOOM DOWN      |
| PR | PRESSURE       |
| RE | RETURN         |
| WU | WINCH UP       |
| WD | WINCH DOWN     |



MANUFACTURING, INC.  
CINCINNATI, OHIO

|                                |                           |            |          |         |      |
|--------------------------------|---------------------------|------------|----------|---------|------|
| TITLE                          | REPLACEMENT PARTS DRAWING | DATE       | 10-5-06C | SECTION | C400 |
| HT40/50KX PROP HYD. COMPONENTS |                           | SUPERSEDES | 4-12-06B | 22183   |      |

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

| ITEM | PART NUMBER  | DESCRIPTION                                            |
|------|--------------|--------------------------------------------------------|
| 1    | 22760        | PRESSURE HOSE                                          |
| 2    | 22761        | RETURN HOSE                                            |
| 3    | 22736        | VALVE BANK - HT40KX, HT50KX                            |
| 4    | -            | -                                                      |
| 5    | 22363        | EXTENSION CYLINDER HOSE                                |
| 6    | 22751        | HYD TUBING - ROTATION                                  |
| 7    | ▲ 20981      | ▲ HOSE - CASE DRAIN                                    |
| 8    | 22757        | HYD TUBING - BOOM OUT                                  |
| 9    | 22756        | HYD TUBING - BOOM IN                                   |
| 10   | 22755        | HYD TUBING - BOOM UP                                   |
| 11   | 22754        | HYD TUBING - BOOM DOWN                                 |
| 12   | 22758        | HOUSING PRESSURE HOSE                                  |
| 13   | 22759        | HOUSING RETURN HOSE                                    |
| 14   | ▲ 22831      | ▲ HOSE - WINCH UP                                      |
| 15   | ▲ 22832      | ▲ HOSE - WINCH DOWN                                    |
| 16   | 19247        | COUNTERBALANCE VALVE (ELEVATION & EXTENSION CYLINDERS) |
| 17   | 22382        | ELEV CYLINDER HOSE - 22" x 6MBX x 6FJX                 |
| 18   | H2700-0606   | HYD BULKHEAD                                           |
| 19   | H6502-0606   | HYD ELBOW FITTING - 6MJ-6FJX - 90°                     |
| 20   | H6400-0606   | HYD NIPPLE                                             |
| 21   | H6801-0808   | HYD ELBOW                                              |
| 22   | ▲ H6410-1608 | ▲ REDUCER - EXPANDER - 16MO-8FO                        |
| 23   | ▲ H6805-0402 | ▲ HYD ELBOW - 4MO-2FP - 90° ▲                          |
| 24   | H2701LN-0808 | HYD BULKHEAD UNION ELBOW W/ LOCK NUT 8MJ - 90°         |
| 25   | H6801-1212   | HYD ELBOW FITTING 12MO - 12MJ - 90° - EXTRA LONG DROP  |
| 26   | 22312-X.XX   | PRIORITY FLOW CART (X.XX REFER TO CHART BELOW)         |
| 27   | 22764        | LIVE CONTINUOUS HYDRAULIC SWIVEL                       |
| 28   | 22762        | PRESSURE HOSE - COMPARTMENT SIDE                       |
| 29   | 22763        | RETURN HOSE - COMPARTMENT SIDE                         |
| 30   | H2406-1210   | HYD TUBE ADAPTER 12FJ - 10MJ                           |
| 31   | ▲ 20983      | ▲ AIR FITTING                                          |

REPLACEMENT PARTS DWG REF 22183

|      |           |      |
|------|-----------|------|
| HT40 | EXTENSION | 2.25 |
|      | ELEVATION | 4.00 |
| HT50 | EXTENSION | 2.25 |
|      | ELEVATION | 4.00 |



MFG., INC.  
CINCINNATI, OHIO

TITLE  
**REPL. PARTS LIST**

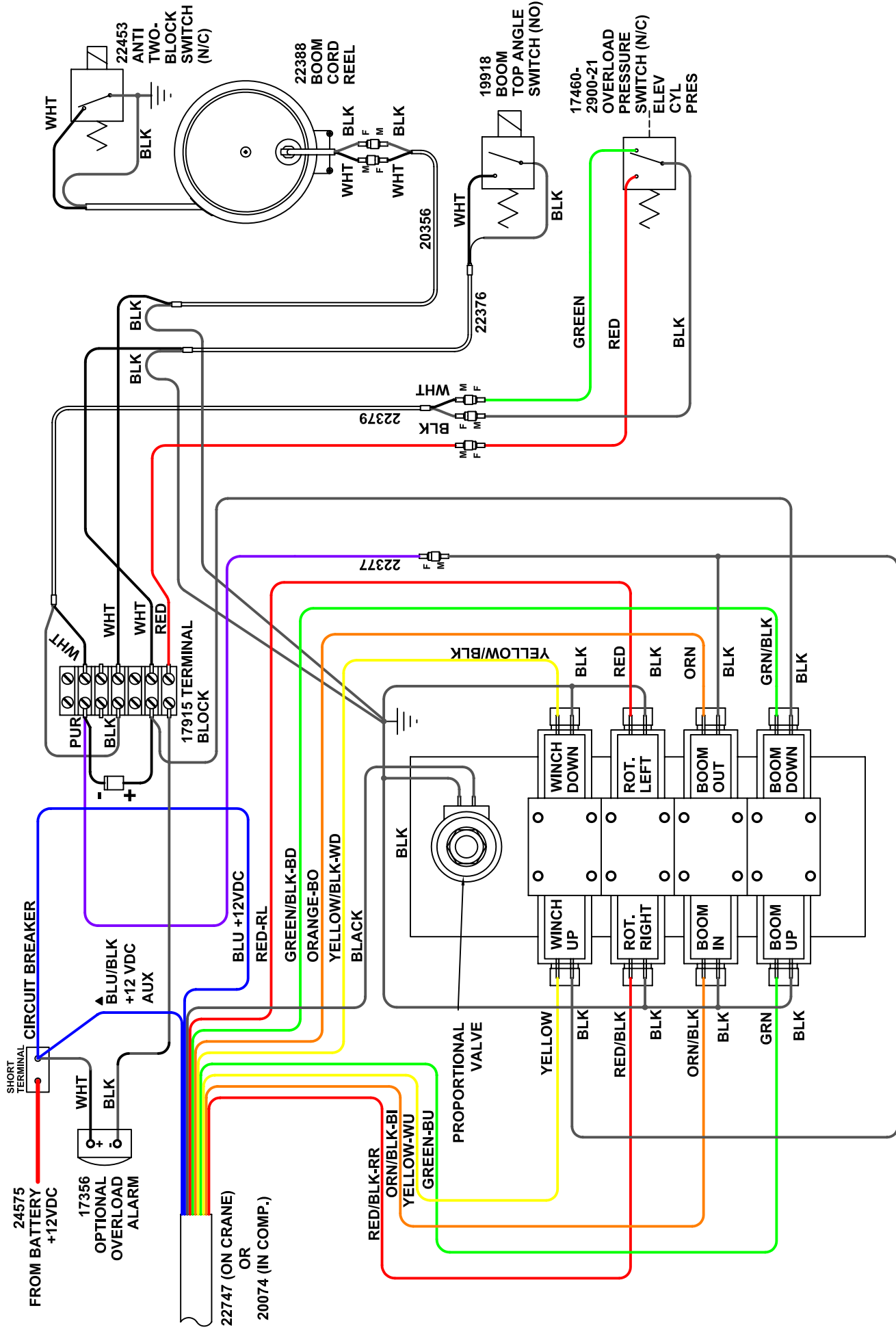
**HT40/50KX - PROP**

DATE  
**10-5-06B**

SUPERCEDES  
**4-12-06A**

SECTION  
**C400**

**22188**



|                                                                                                                                                 |                                |  |                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--|----------------------------------------------|
| <br><b>VENTURO</b> MANUFACTURING, INC.<br>CINCINNATI, OHIO | <b>TITLE</b><br>WIRING DIAGRAM |  | <b>SECTION</b><br>C400                       |
|                                                                                                                                                 | <b>DATE</b><br>5-11-06A        |  | <b>22185</b><br><b>SUPERSEDES</b><br>5-24-05 |

HT40/50KX - PROPORTIONAL

# PROPORTIONAL CONTROL SOCKET WIRING (NO ENG CONTROLS)

FROM "IN COMPARTMENT"  
SOCKET

THESE WIRES CONNECTED  
TO VALVE BANK

20074 (IN-COMP)  
OR  
22747 (ON CRANE)

YELLOW (WU)

RED (RL)

GREEN (BU)

ORANGE (BO)

YELLOW/BLK (WD)

RED/BLK (RR)

GRN/BLK (BD)

ORANGE/BLK (BI)

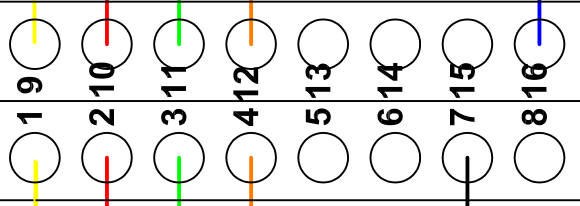
BLACK (TRIGGER)

BLUE (+12V)

20354 (GROUND WIRE)



IN-COMPARTMENT  
GROUND BOLT



22480  
16+1 SOCKET  
(FEMALE)

22254-BLK150CG

22502  
PROPORTIONAL  
VALVE

#14 GAGE RED 12V SOURCE/BATTERY 24575

INSTALL TWO #10 RING TERMS

CUT RED WIRE AND  
INSTALL MASTER  
TOGGLE SWITCH AT  
SWITCH BRACKET

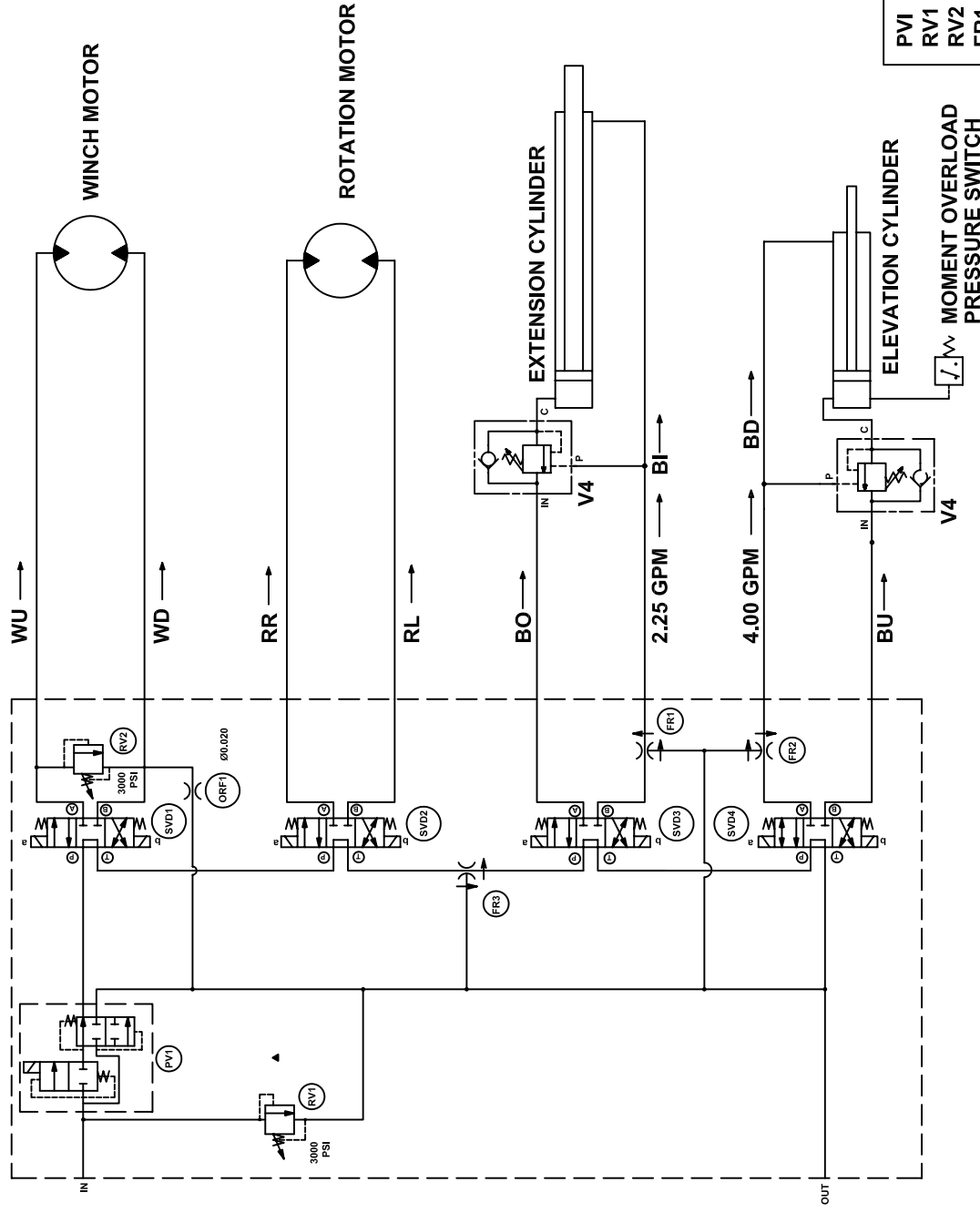
19464 SPST SWITCH

#14 GAGE RED 12V SOURCE/BATTERY 24575

TO BATTERY

NOTE: BLUE/BLK WIRE OF  
20074 HARNESS NOT USED

|                                         |                                     |       |          |         |
|-----------------------------------------|-------------------------------------|-------|----------|---------|
|                                         | TITLE                               |       | DATE     | SECTION |
|                                         | PROP W/ IN-COMP CTRLS (NO ENG CTRL) |       | 5-26-05  | -       |
|                                         | HT40/50 CRANES                      |       | SUPSEDES | -       |
| MANUFACTURING, INC.<br>CINCINNATI, OHIO |                                     | 22167 |          |         |



- PVI PROPORTIONAL CONTROL VALVE (SIMPLIFIED REP)  
RV1 INLET RELIEF VALVE (3000 PSI)  
RV2 WINCH RELIEF VALVE  
FR1 PRIORITY FLOW REGULATOR - 2.25 GPM  
FR2 PRIORITY FLOW REGULATOR - 4.00 GPM  
FR3 PRIORITY FLOW REGULATOR - 6.00 GPM  
SVD1 3 POSITION - 4 WAY VALVE  
SVD2 3 POSITION - 4 WAY VALVE  
SVD3 3 POSITION - 4 WAY VALVE  
SVD4 3 POSITION - 4 WAY VALVE



MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
**HYDRAULIC SYSTEM DIAGRAM**

**HT40/50KX W/ PROP CONTROL**

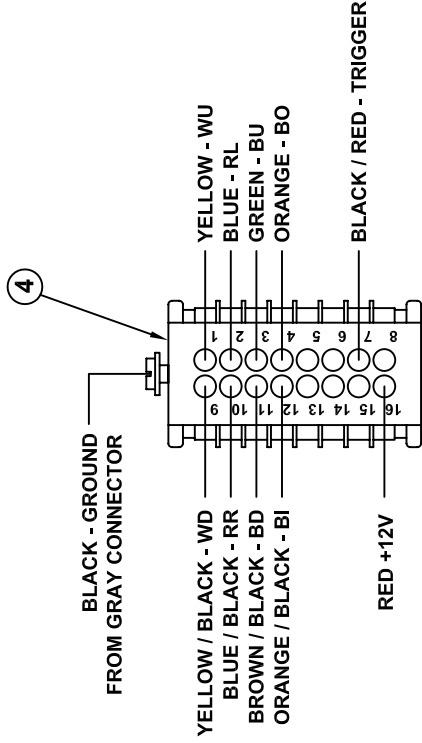
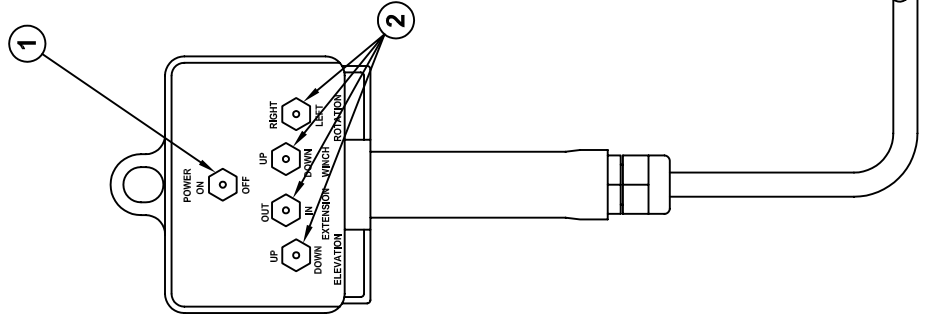
DATE  
**7-5-06A**

SUPERSEDES  
**5-24-04**

SECTION  
**C400**

**22187**

# 22118 PENDANT (PROPORTIONAL CTRL)

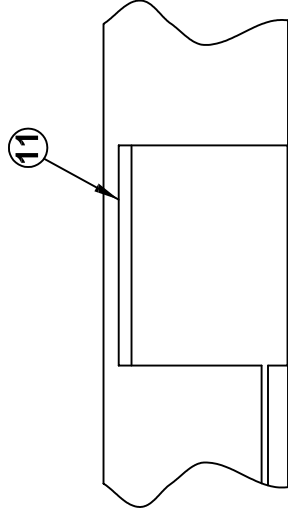


PLUG - BACKSIDE VIEW

⊗ NOT SHOWN ON PRINT

|      |     |          |                                |
|------|-----|----------|--------------------------------|
| 5    | 1   | 22082    | PROP. VALVE DRIVER CONT. BOARD |
| 4    | 1   | 22472    | MALE INSERT - 16 + 1 POLE      |
| 3    | 1   | 22471    | PLUG CASE - 16 + 1 POLE        |
| 2    | 4   | 22081    | SPDT MOMENTARY SWITCH          |
| 1    | 1   | 22080    | SPST SWITCH                    |
| ITEM | QTY | PART NO. | DESCRIPTION                    |

|                                                                                       |                                         |  |                           |            |         |         |       |
|---------------------------------------------------------------------------------------|-----------------------------------------|--|---------------------------|------------|---------|---------|-------|
|  | TITLE                                   |  | REPLACEMENT PARTS DRAWING | DATE       | 5-26-05 | SECTION | C400  |
|                                                                                       | 22118 PENDANT (PROPORTIONAL CTRL)       |  |                           | SUPERSEDES | -       |         | 22166 |
|                                                                                       | MANUFACTURING, INC.<br>CINCINNATI, OHIO |  |                           |            |         |         |       |



SWITCH ARM

SWITCH ARM HUB

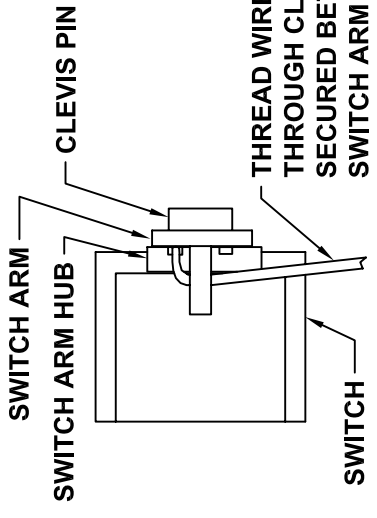
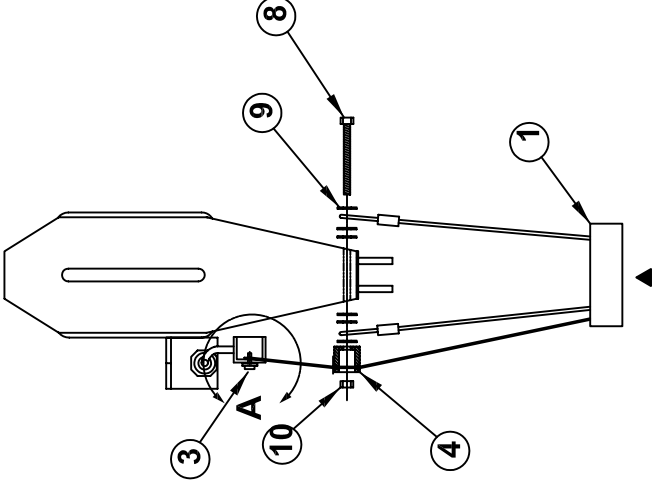
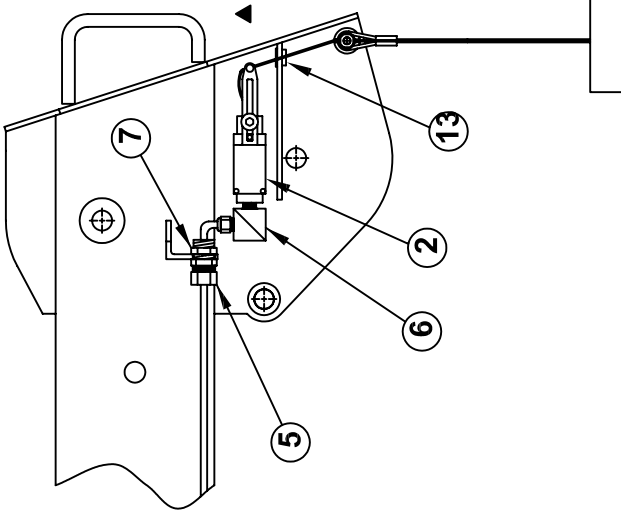
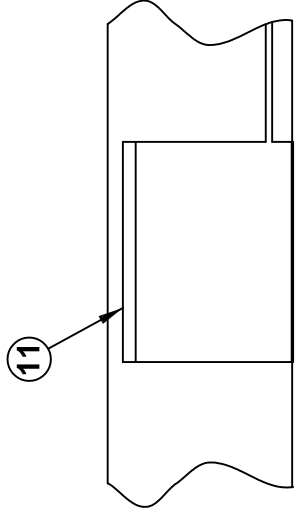
CLEVIS PIN

THREAD WIRE ROPE & THROUGH CLEVIS PIN & SECURED BETWEEN SWITCH ARM AND HUB

SWITCH

DETAIL VIEW - A

|                                      |                        |         |
|--------------------------------------|------------------------|---------|
| TITLE                                | DATE                   | SECTION |
| REPLACEMENT PARTS DWG - LH CORD REEL | 6-19-06D               | C400    |
| 22685 ANTI-TWO BLOCK SYSTEM          | SUPERSEDES<br>5-21-04C | 22684   |



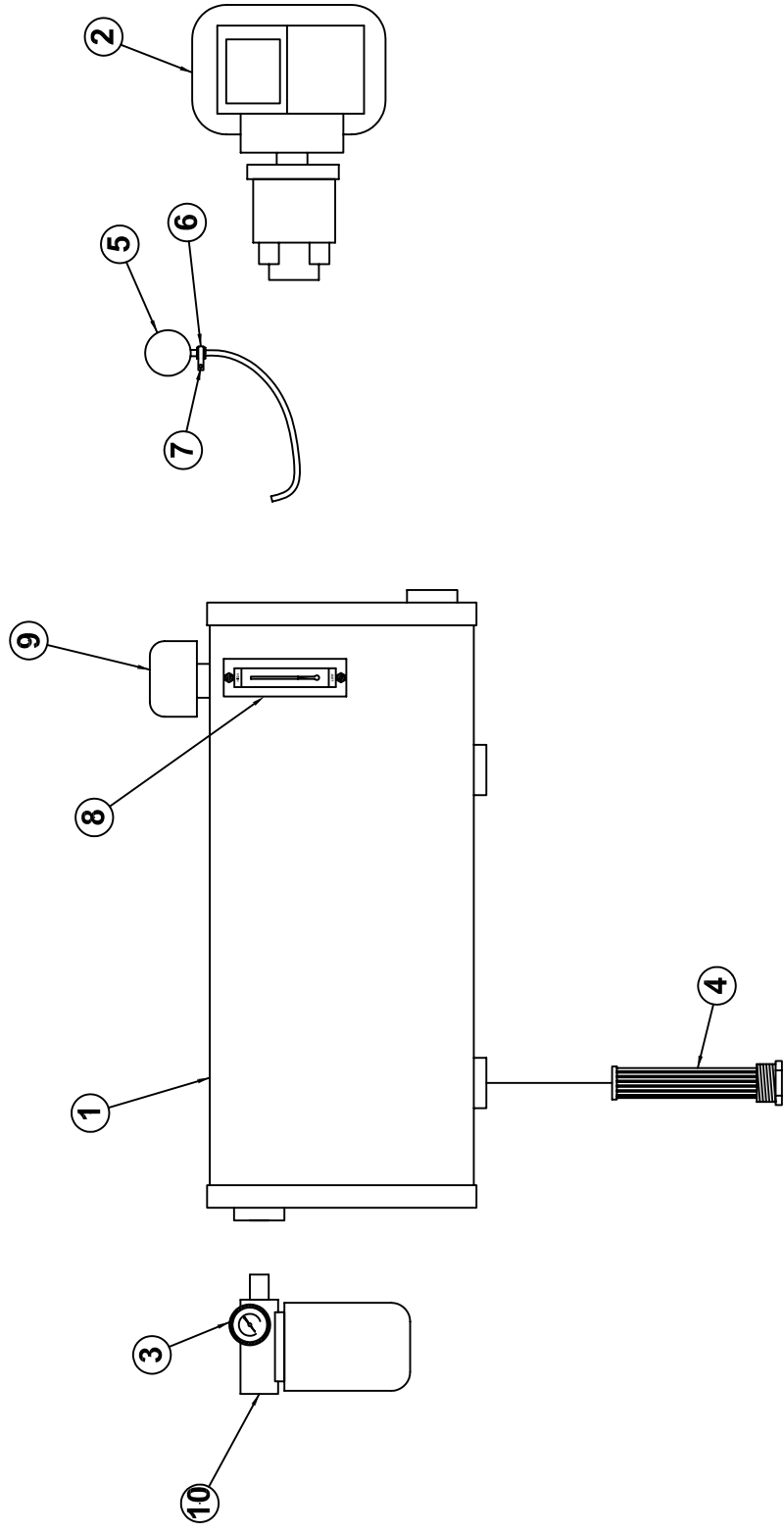
▲ DETAIL VIEW - A

NOTE: FOR OPTIONAL RIGHT HAND CORD REEL.

|    |   |               |                                      |
|----|---|---------------|--------------------------------------|
| 13 | 2 | 19063         | SNAP BUSHING 1/2 I.D.                |
| 12 | 1 | 20951-3       | HANGER CABLE                         |
| 11 | 1 | 22388         | CORD REEL ASSEMBLY - RH              |
| 10 | 1 | !LNUT-02520   | LOCK NUT, NYLON 1/4-20               |
| 9  | 6 | !FWSH-025     | FLAT WASHER 1/4                      |
| 8  | 1 | !HHCS02520275 | 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 | 21269         | CLEVIS PIN - 3/16 X 1/2              |
| 2  | 1 | 22453         | MICROSWITCH                          |
| 1  | 1 | 19377-3       | WEIGHT ASSY.                         |

| ITEM | QTY | PART NO. | DESCRIPTION |
|------|-----|----------|-------------|
|------|-----|----------|-------------|

|                                                                                                                                                    |       |  |                                        |            |              |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-------|--|----------------------------------------|------------|--------------|
| <br><b>VENTURO</b><br>MANUFACTURING, INC.<br>CINCINNATI, OHIO | TITLE |  | REPLACEMENT PARTS DWG - RH CORD REEL ▲ | DATE       | SECTION      |
|                                                                                                                                                    |       |  | HT40KX, HT50KX                         | 6-19-06E   | C400         |
|                                                                                                                                                    |       |  |                                        | SUPERSEDES |              |
|                                                                                                                                                    |       |  |                                        | 5-21-04D   | <b>22449</b> |



|    |   |                |                                           |
|----|---|----------------|-------------------------------------------|
| 10 | 1 | 19298          | FILTER ASSY, RETURN – 100 MESH            |
| 9  | 1 | 22789          | FILLER / BREATHER CAP ASSEMBLY            |
| 8  | 1 | 22787          | SIGHT GLASS                               |
| 7  | 1 | !HWH02520075-F | HEX WASHER HEAD 1/4-20 X 3/4 SELF TAPPING |
| 6  | 1 | 19275          | CLAMP                                     |
| 5  | 1 | 22730          | PRESSURE GAUGE ASSEMBLY                   |
| 4  | 1 | 22788          | SUCTION SCREEN – 100 MESH                 |
| 3  | 1 | 19297          | PRESSURE GAUGE – RETURN                   |
| 2  | 1 | 19296-10.0     | PTO PUMP                                  |
| 1  | 1 | 22786          | 25 GAL. HYDRAULIC TANK                    |



MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE

PTO REPLACEMENT PARTS DRAWING

DATE

6-29-05

SECTION

-

SUPERSEDES

-

22783

## HT40KX - PROPORTIONAL 22766-1 FIELD SERVICE LABEL KIT

| ITEM | PART NUMBER | QTY | DESCRIPTION                                |
|------|-------------|-----|--------------------------------------------|
| 1    | 15581       | 1   | ATTACHMENT DECAL                           |
| 2    | 15398       | 1   | UNPLUG PENDANT DECAL                       |
| 3    | 22768-1     | 1   | VALVE BANK DECAL - LEFT                    |
| 4    | 22768-2     | 1   | VALVE BANK DECAL - RIGHT                   |
| 5    | 14473-1     | 1   | OIL DECAL                                  |
| 6    | 14473-2     | 4   | GREASE DECAL                               |
| 7    | 22496       | 2   | VENTURO DECAL (LARGE)                      |
| 8    | 15401       | 1   | UNLAWFUL TO OPERATE DECAL                  |
| 9    | 22342-1     | 1   | HT40KX BOOM CAPACITY DECAL (RIGHT)         |
| 10   | 22342-2     | 1   | HT40KX BOOM CAPACITY DECAL (LEFT)          |
| 11   | 19746       | 2   | HT40KX DECAL                               |
| 12   | 15392       | 1   | DANGER ELECTROCUTION HAZZARD DECAL         |
| 13   | 15391       | 1   | CRANE NOT PASSENGER LIFT DECAL             |
| 14   | 19315-2     | 1   | PROPORTIONAL OVERRIDE HYDRAULIC BANK DECAL |
| 15   | 15390       | 1   | CAUTION, INSTRUCTIONS DECAL                |
| 16   | 22499       | 1   | KNOW YOUR SIGNALS DECAL                    |
| 17   | 22489       | 1   | DECAL PLACEMENT DRAWING                    |
| 18   | 19788       | 2   | PROPORTIONAL CONTROL DECAL                 |
| 19   | 20834       | 1   | MANUAL OVERRIDE INSTRUCTION LOCATION DECAL |
| 20   | ▲ 17389-4   | 1   | SMALL VENTURO                              |
| 21   | -           | -   | -                                          |
| 22   | -           | -   | -                                          |
| 23   | -           | -   | -                                          |
| 24   | -           | -   | -                                          |
| 25   | -           | -   | -                                          |
| 26   | -           | -   | -                                          |
| 27   | -           | -   | -                                          |
| 28   | -           | -   | -                                          |
| 29   | -           | -   | -                                          |
| 30   | -           | -   | -                                          |
| 31   | -           | -   | -                                          |
| 32   | -           | -   | -                                          |
| 33   | -           | -   | -                                          |
| 34   | -           | -   | -                                          |
| 35   | -           | -   | -                                          |



MFG., INC.  
CINCINNATI, OHIO

| TITLE                 | DATE                  | SECTION |
|-----------------------|-----------------------|---------|
| FIELD SERV. LABEL KIT | 9-12-06A              | -       |
| HT40KX - PROP.        | SUPERCEDES<br>6-21-06 | 20844   |









## **LIMITED WARRANTY POLICY**

This limited policy warrants new products of Venturo be free from defects in material and workmanship for a period of one (1) year from date of original installation. This warranty covers:

- ◆ ***Repair or replacement of product***
- ◆ ***Labor to repair or replace product***
- ◆ ***Freight to return and/or replace product***

We shall not be liable for any contingent liabilities arising out of the improper function of any products. Warranty shall become void if the product is improperly installed, modified, damaged, abused or used for application other than intended use.

## **WARRANTY CLAIMS**

Venturo Manufacturing, Inc. will make a good faith effort for prompt correction or other adjustment with respect to any product, which proves to be defective after our inspection and within the warranty period. Before any repairs are attempted or before returning any product, your Venturo Distributor is required to obtain a warranty claim number. This number is necessary for any claim to be considered. To obtain a warranty claim number, Venturo requires the model and serial number. Only authorized Venturo Distributors can perform warranty. For the name and address of your local Venturo Distributor call the **Warranty Claim Department – 513-772-8448**.

**WARNING** – It is the responsibility of the installer to insure the installation is completed according to the manufacturer's recommendations, insure the ultimate user understands how to operate product in a safe manner and understands the need for regular service and maintenance by an authorized Venturo Distributor. No modifications or alterations may be made to any Venturo products without the expressed written consent of the manufacturer. Reinstallation of any Venturo product must be done by an authorized Venturo Distributor, to the standards of the industry including maintenance, service and affixing of all instruction, safety and warning decals. Users should again be instructed as to the safe operation at time of delivery. Maintenance, service, operation and safety warning decals are available on request from Venturo Manufacturing, Inc.

### **VENTURO MANUFACTURING, INC**

*DIVISION OF COLLINS ASSOCIATES, INC*  
12110 BEST PLACE • CINCINNATI, OHIO 45241  
513.772.8448  
[www.venturo.com](http://www.venturo.com)