



VENTURO
TRUCK MOUNTED CRANES

HT50KX

HSAAD-PB & HSBAAD-PB
INSTALLATION & OWNER'S MANUAL

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HT50KX / Prop Ctrl / W/ Eng Ctrls (HS* AAD-PB**)

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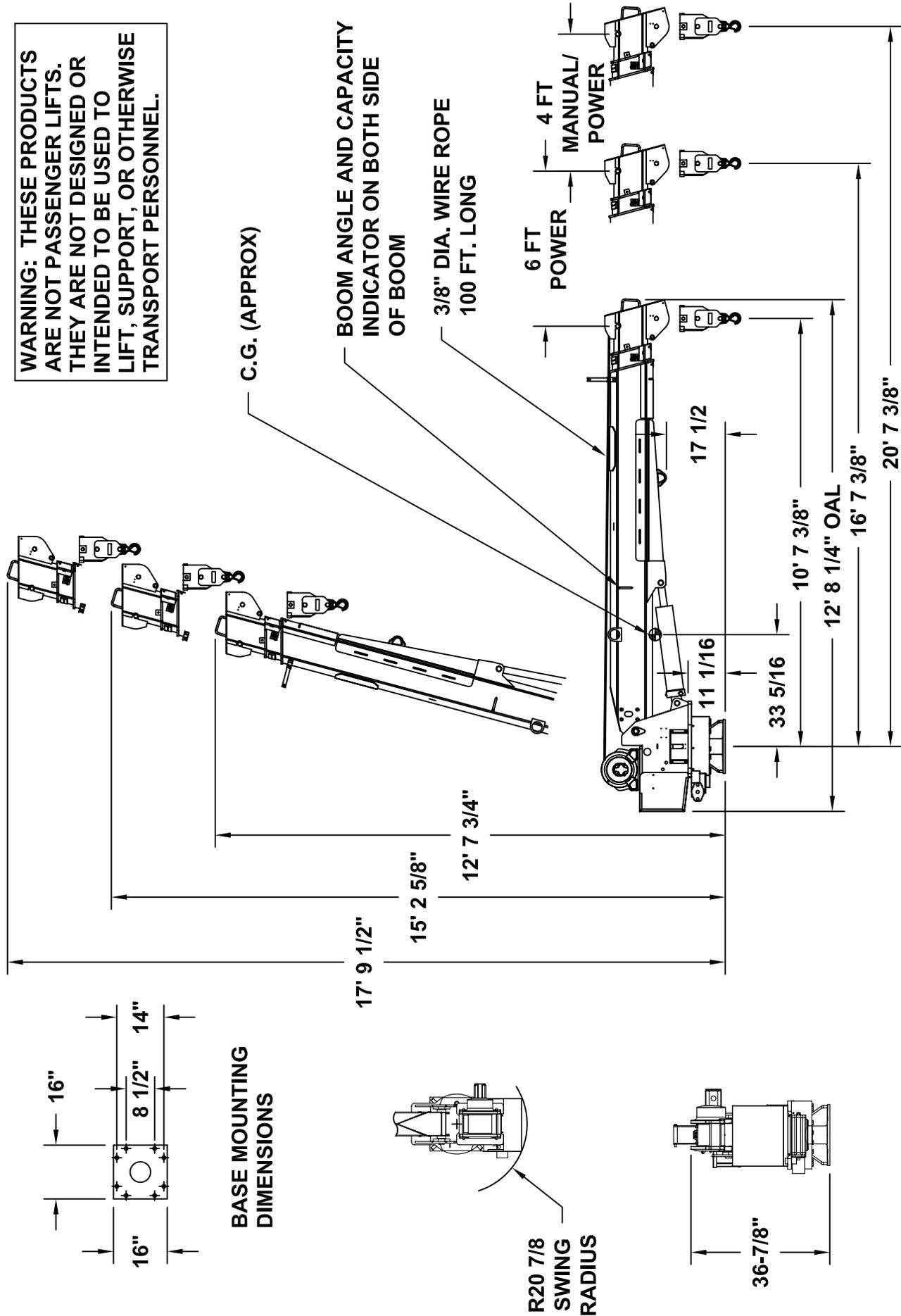
SECTION 100

DESCRIPTION

&

SPECIFICATIONS

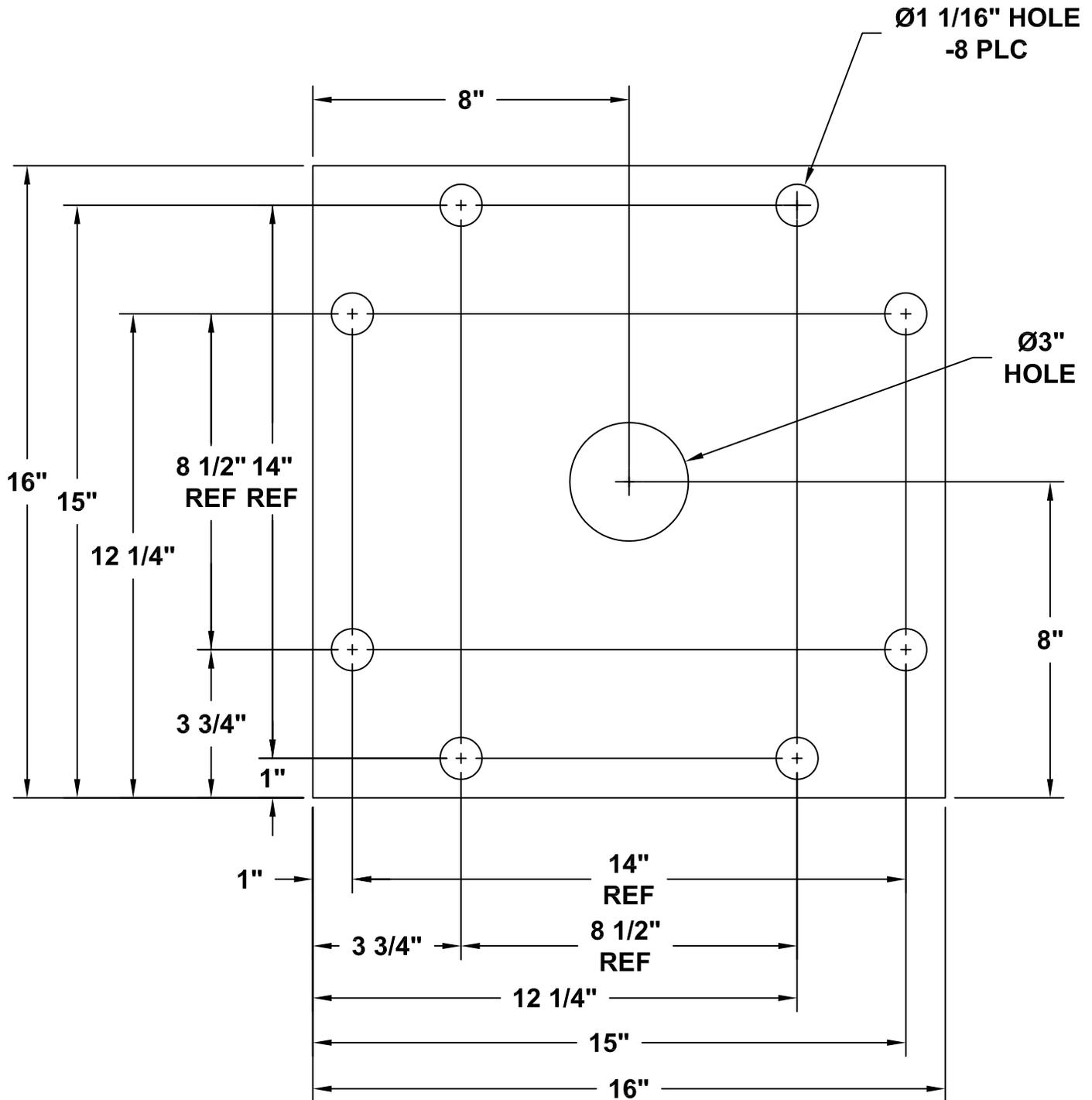
WARNING: THESE PRODUCTS ARE NOT PASSENGER LIFTS. THEY ARE NOT DESIGNED OR INTENDED TO BE USED TO LIFT, SUPPORT, OR OTHERWISE TRANSPORT PERSONNEL.



TITLE INSTALLATION DWG		DATE 7-9-08A	SECTION C100
HT40KX, HT50KX - 10-16-20		SUPERSEDES 9-4-07	22912



▲ HT40/50KX BASE MOUNTING DIMENSIONS



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TITLE
▲ BASE MOUNTING DIM

HT40/50KX

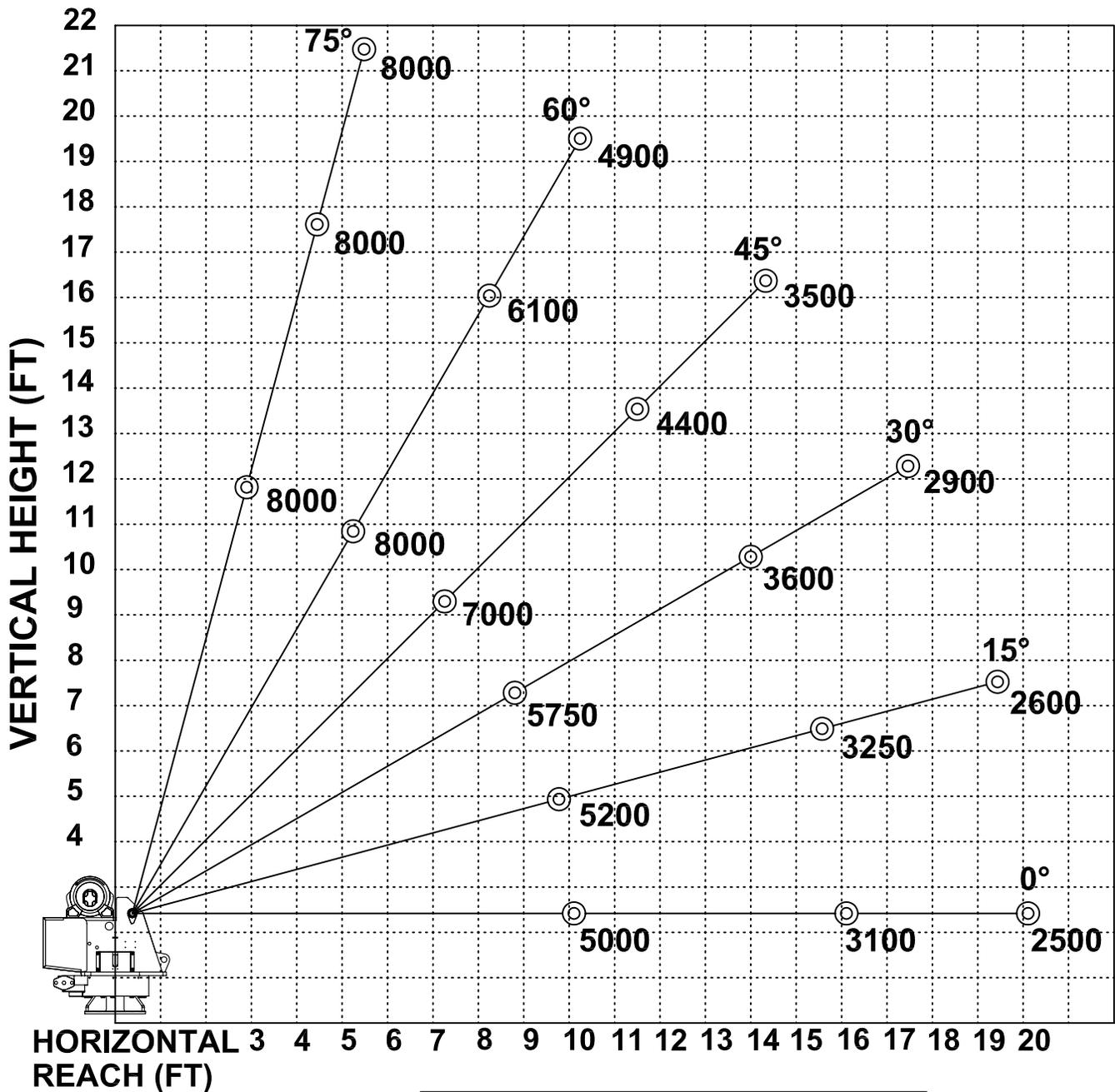
DATE
3-3-05F

SUPERSEDES
5-20-03E

SECTION
C100

18353

HT50KX - 10-16-20 BOOM MAXIMUM CAPACITY CHART



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

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) (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
5-15-02H

SECTION
C150

ET & HT CRANE SERIES

SUPPERCEDES
5-13-97G

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

DATE
5-13-97A

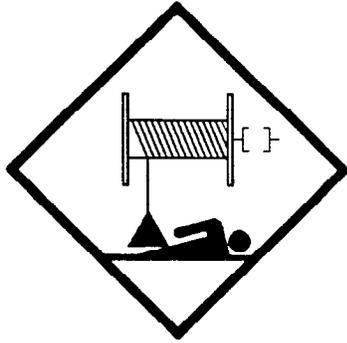
SECTION
C150

HYDRAULIC CRANES

SUPERCEDES
6-12-92

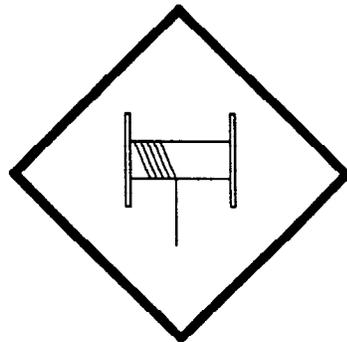
920612

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**

VENTURO

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TITLE
INSTALLATION DWG

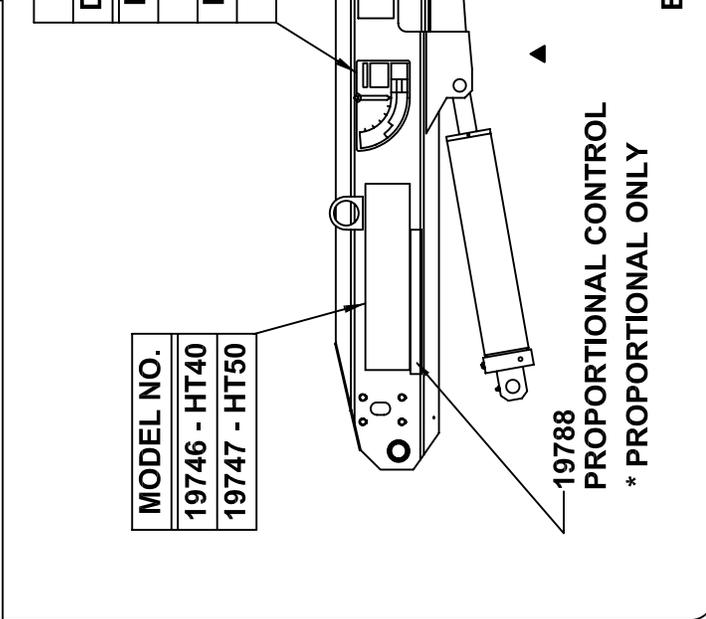
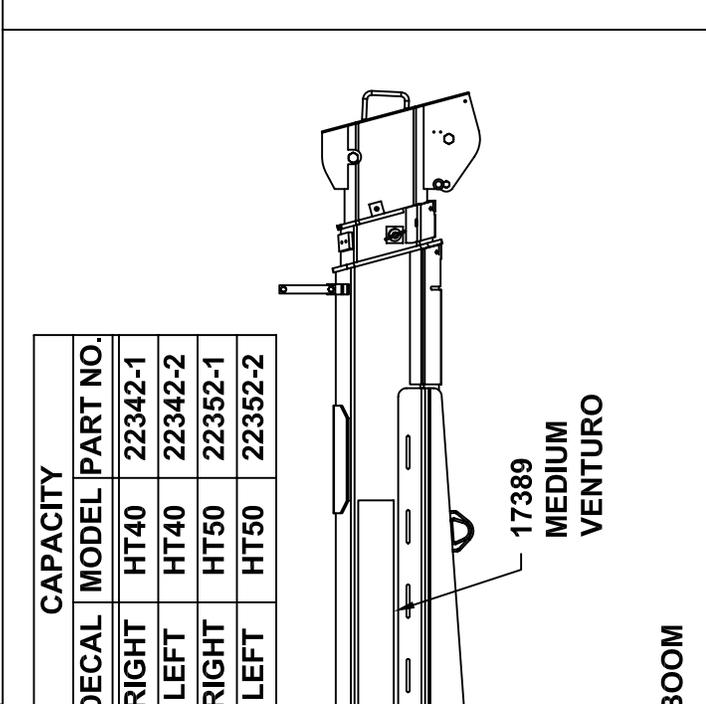
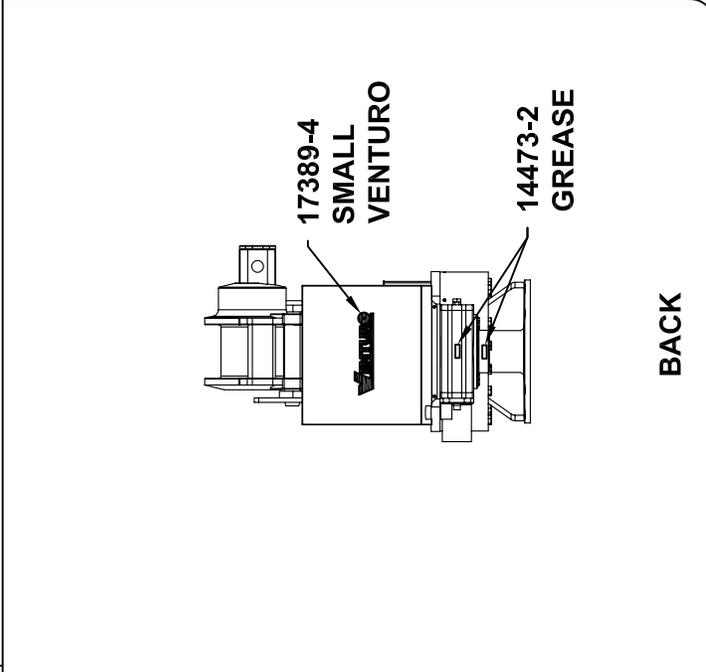
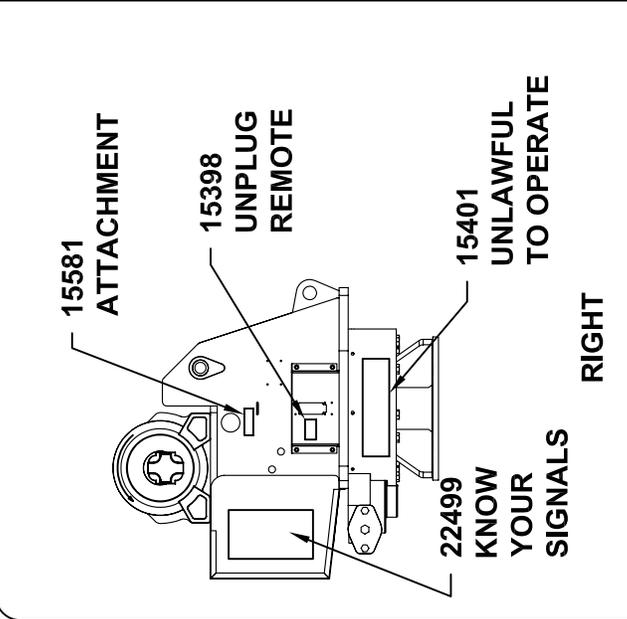
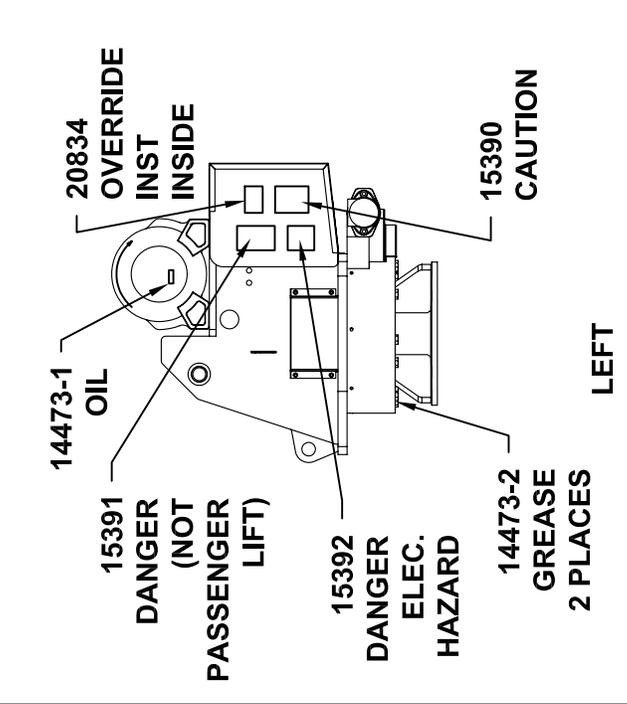
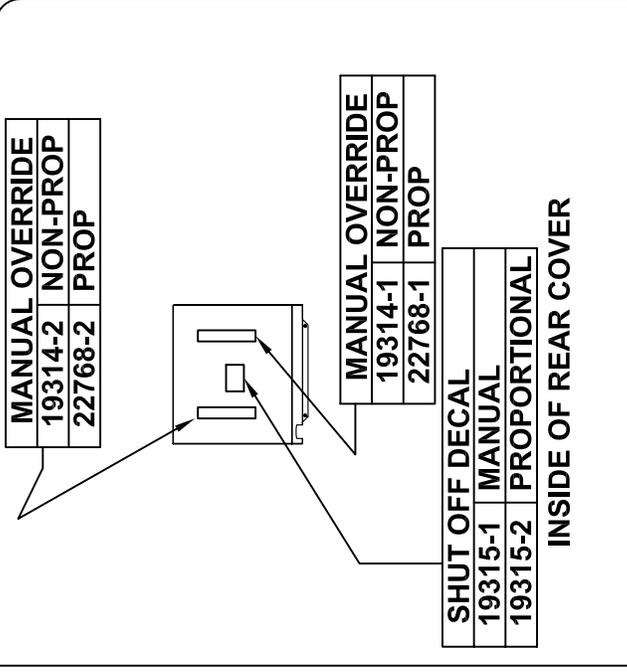
HT CRANES

DATE
5-26-98B

SUPERCEDES
10-17-97A

SECTION
C150

119217



TITLE	DECAL PLACEMENT
HT40/50KX	

DATE	10-23-08E
SECTION	C150
SUPERSEDES	9-5-07D
	22171

VENTURO MANUFACTURING, INC.
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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.



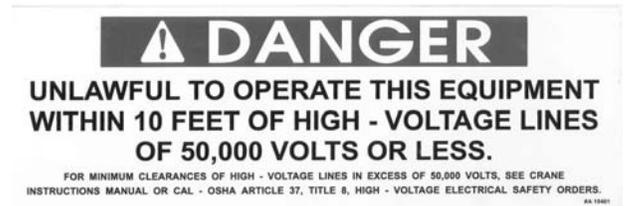
PART NO.: 15401

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

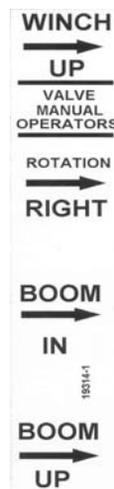
PART NO.: 19315-1
 DECAL: SHUT OFF (NON-PROPORTIONAL)
 FUNCTION: To show the operator how to override master shut off valve.
 QUANTITY: 1
 PLACEMENT: Inside rear cover.
 ▲



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

DATE
12-14-05B

SECTION
C150

HT40/50KX

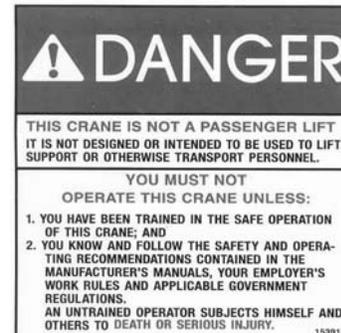
SUPERSEDES
9-9-05A

22181B

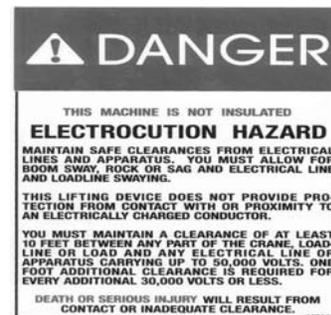
PART NO.: 15390
 DECAL: CAUTION - INSPECT VEHICLE & CRANE
 FUNCTION: To inform the operator of key operating requirements.
 QUANTITY: 1
 PLACEMENT: Left side of rear cover.



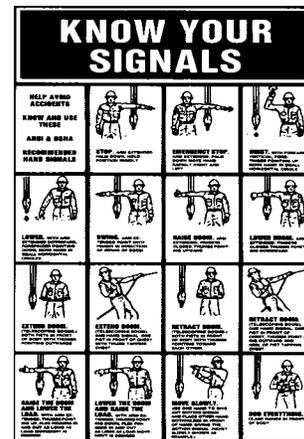
PART NO.: 15391
 DECAL: DANGER - NOT PASSENGER LIFT
 FUNCTION: To inform the operator not to lift, support or transport personnel, and to ensure that crane operator is adequately trained.
 QUANTITY: 1
 PLACEMENT: Left side of rear cover.



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

DATE
9-11-06B

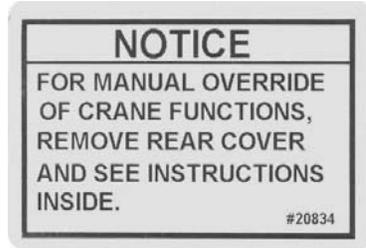
SECTION
C150

HT40/50KX

SUPERSEDES
9-9-05A

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.



TITLE	DATE	SECTION
DECAL DRAWING & LIST	9-11-06A	C150
HT40/50KX	SUPERSEDES 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 7100 lbs. and for the HT50KX is 9300 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 6" 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, return and a case drain 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 22913 (proportional) using the angle bulkhead fittings also furnished in the installation kit. The case drain hose must return to the tank unrestricted.

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.



TITLE	DATE	SECTION
INSTALLATION DWG	11-4-08A	C200
HT40KX, HT50KX	SUPERCEDES 5-13-05	22172

ELECTRICAL CONNECTIONS

A 25 ft. electrical power lead - intended for 12V DC only - also comes down through the center of the crane base plate 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 10 gallons (non-proportional) or 25 gallons (proportional) 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 (10 gallon reservoir 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.



TITLE
INSTALLATION DWG

DATE
11-4-08B

SECTION
C200

HT40KX, HT50KX

SUPERCEDES
2-20-06A

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.



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TITLE
INSTALLATION DWG

HT40KX, HT50KX

DATE
8-12-99B

SUPERCEDES
7-17-97

SECTION
C200

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. or 10 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.

TELESCOPIC HEXAGONAL BOOM

The hexagonal shaped boom shall telescope to provide a horizontal reach range of 10 ft. to 20 ft. using a hydraulic power extension cylinder with a 10 ft. stroke. See page 22930. A 6 ft. hydraulic ▲ power extension and a 4 ft. manual extension section is also available. See page 22917.

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.



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TITLE	DATE	SECTION
INSTALLATION DWG	11-4-08F	C200
HT40KX, HT50KX	SUPERCEDES 3-4-03E	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.

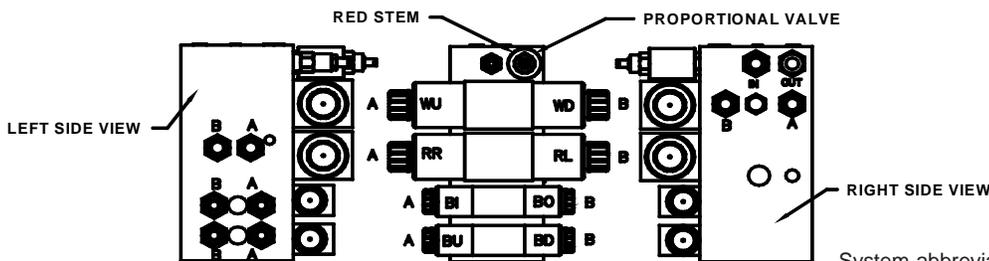
Check electrical connections for looseness and corrosion.

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:

- (1) 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.
- (2) 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.
CINCINNATI, OHIO

TITLE
HYDRAULIC SYSTEM

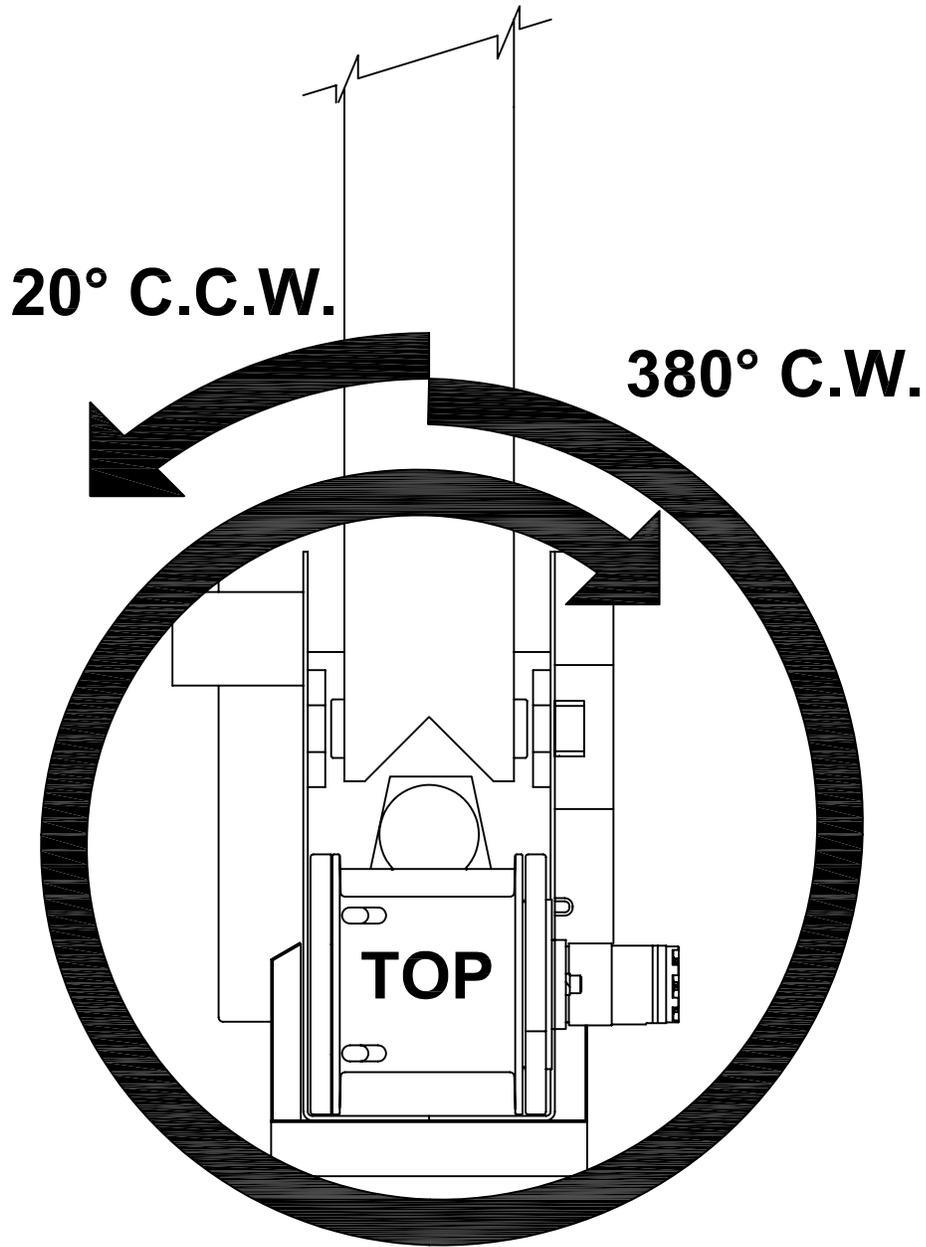
HT40/50 - PROP

DATE
5-26-05

SUPERCEDES
-

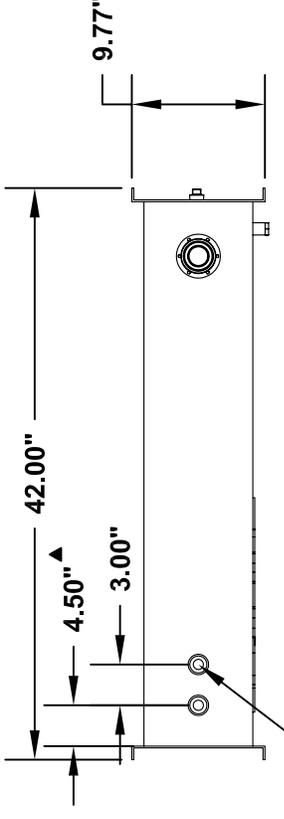
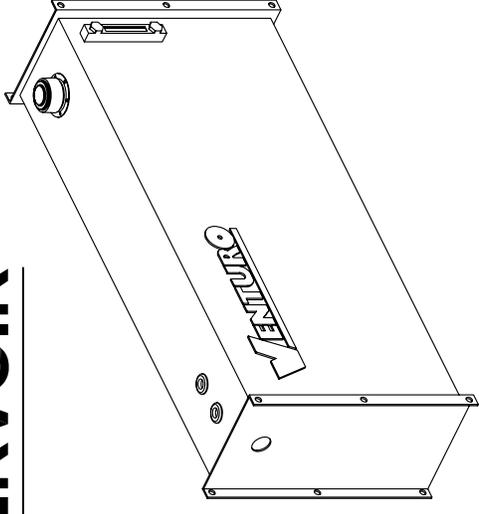
SECTION
C200

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.

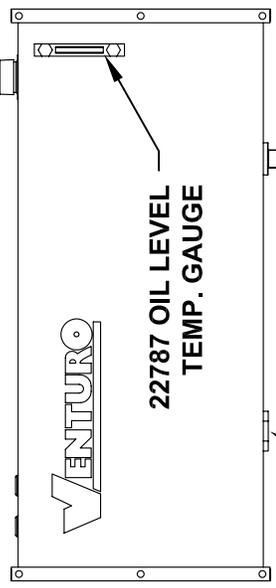
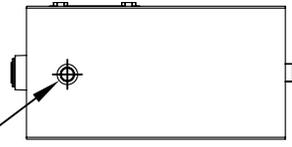
22785 BULKHEAD MOUNT OIL RESERVOIR



1/4" NPT FEMALE
WELDABLE TANK FITTING
CASE DRAIN PORTS - 2 PLACES ▲

22789 TANK FILLER
BREATHER ASSEMBLY

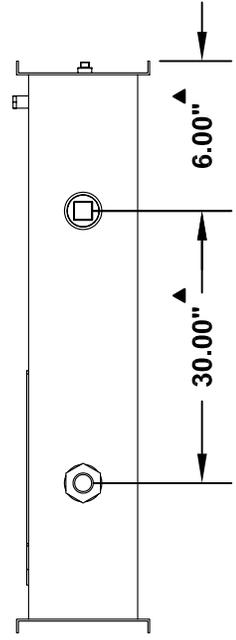
H5406-12
3/4" NPT PIPE PLUG



22787 OIL LEVEL
TEMP. GAUGE

22788 IN TANK
SUCTION STRAINER

H5406-32
2" NPT PIPE PLUG



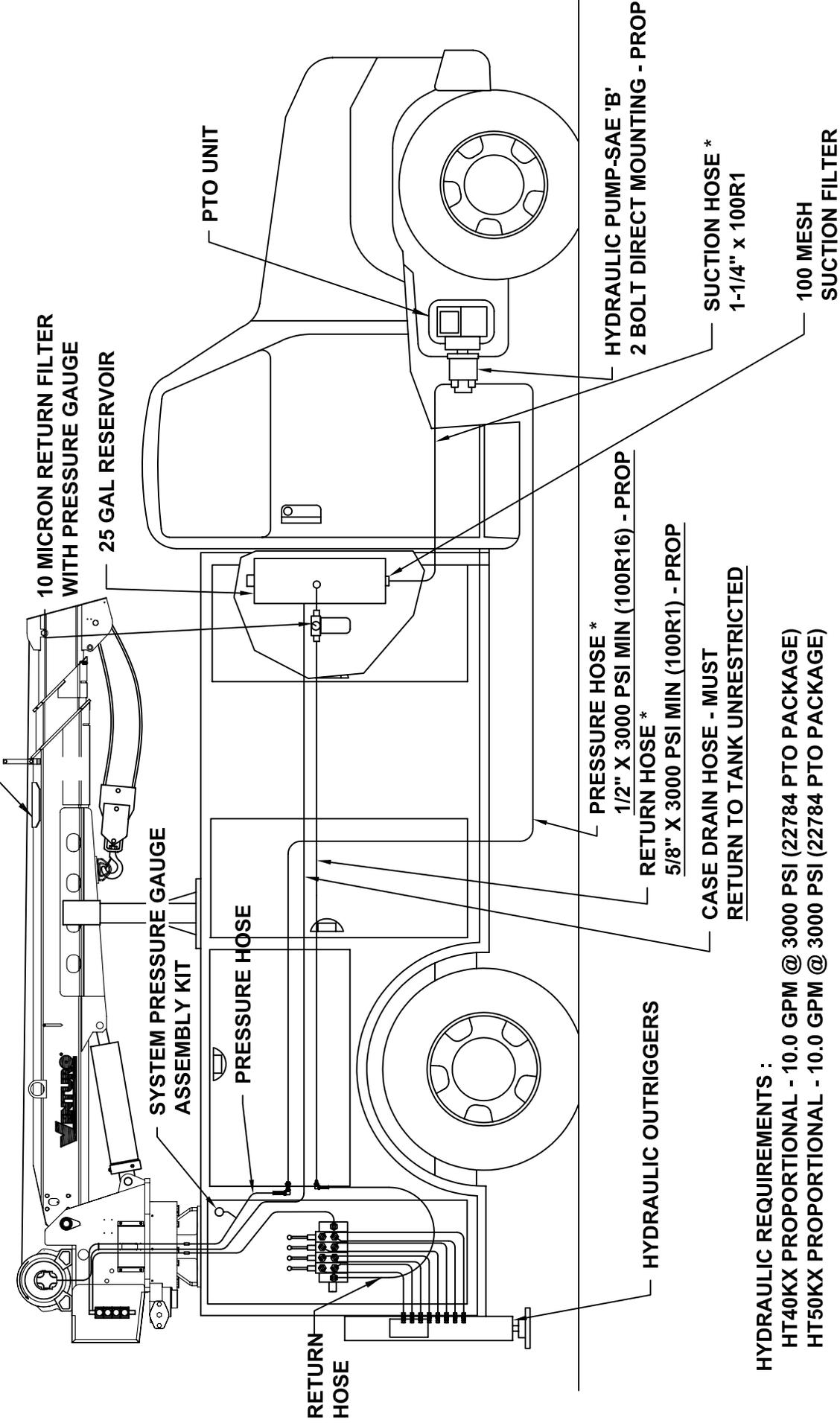
MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE	25 GALLON HYDRAULIC TANK	DATE	8-26-09C	SECTION	-
		SUPERSEDES	11-5-08B		22825

HT40/50KX PROPORTIONAL CRANE

FOR INFORMATION ON OUR
PTO PACKAGES REFERENCE 22448

CAUTION: THE CASE DRAIN LINE FROM THE WINCH MUST
HAVE AN UNRESTRICTED PATH TO TANK/RESERVOIR.



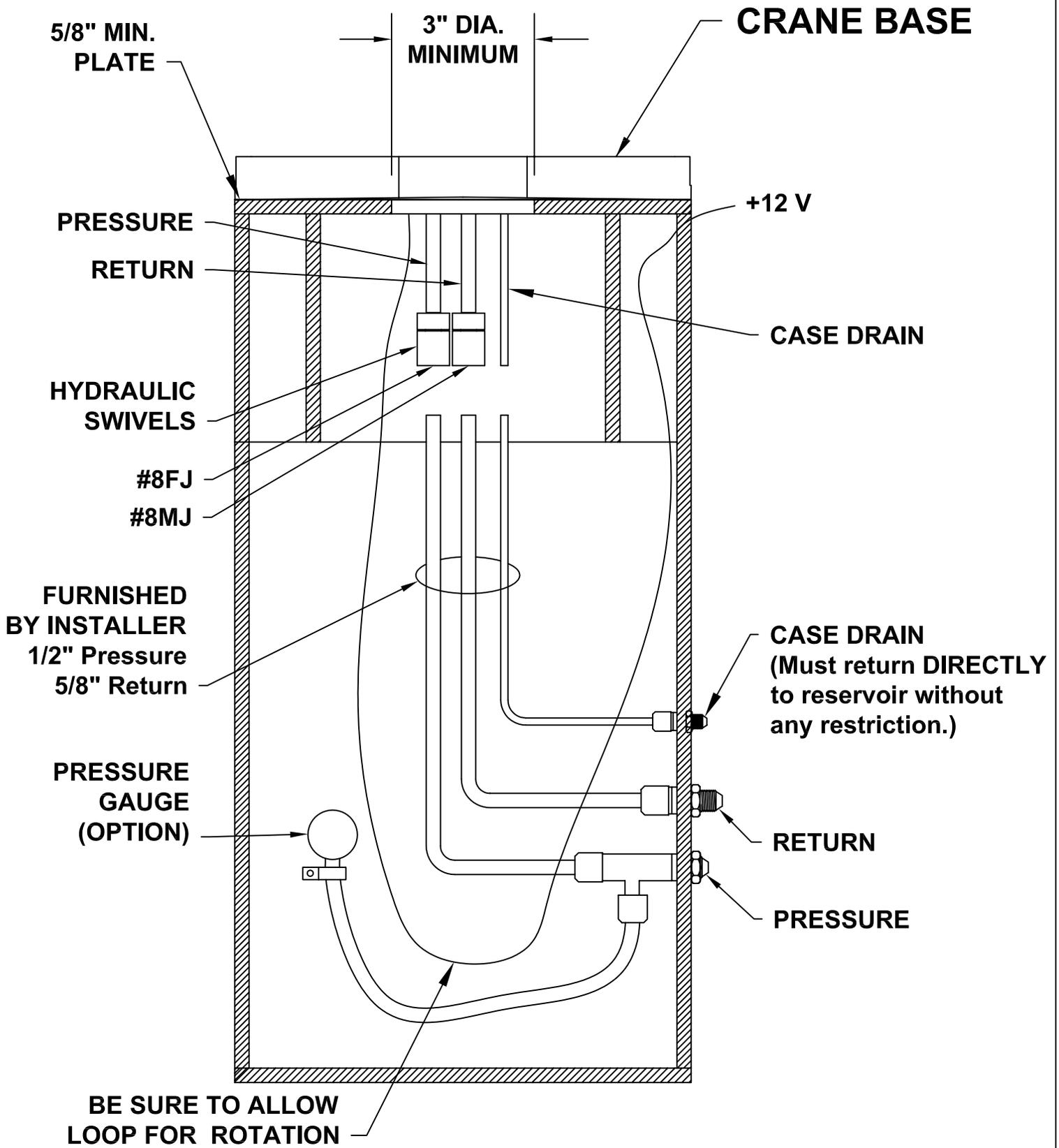
HYDRAULIC REQUIREMENTS :

- HT40KX PROPORTIONAL - 10.0 GPM @ 3000 PSI (22784 PTO PACKAGE)
- HT50KX PROPORTIONAL - 10.0 GPM @ 3000 PSI (22784 PTO PACKAGE)

SEE INSTALLATION INSTRUCTIONS 22344 (2 PAGES).

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

 <p>MANUFACTURING, INC. CINCINNATI, OHIO</p>	TITLE	<p>INSTALLATION DWG</p>	
	PTO INST - HT40/50 (PROPORTIONAL)	DATE	<p>7-21-08A</p>
	SUPERSEDES	<p>1-4-07</p>	
	SECTION	<p>C200</p>	
		<p>22883</p>	



MFG., INC.
CINCINNATI, OHIO

TITLE
CRANE & HOSE INST.

HT40/50/66 - PROP

DATE
9-10-09B

SUPERSEDES
2-3-09A

SECTION
C200

22913

WIRE ROPE INSTALLATION

STEP 1: UNWIND COIL OF WIRE ROPE BY 'ROLLING' ALONG THE FLOOR. THIS WILL PREVENT 'KINKING'.

STEP 2: INSERT WIRE ROPE END THROUGH ANTI-TWO-BLOCK WEIGHT.

STEP 3: INSERT WIRE ROPE END INTO POCKET OPENING ON WINCH AND THROUGH WEDGE POCKET AS SHOWN IN (FIG 1).

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

CAUTION: THERE MUST ALWAYS BE AT LEAST (3) TURNS OF WIRE ROPE ON THE WINCH DRUM WHILE UNDER LOAD.

NOTE: SOME WINCHES WILL BE SUPPLIED WITH A HEX NUT IN LIEU OF A WEDGE FOR INSTALLING THE WIRE ROPE.

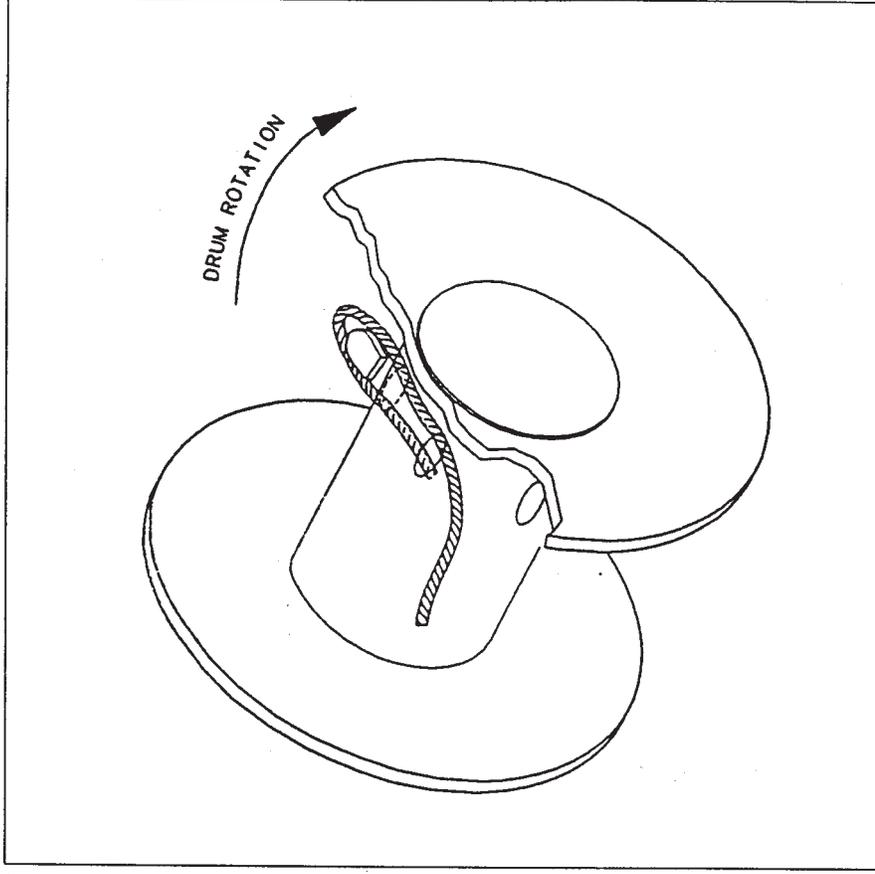
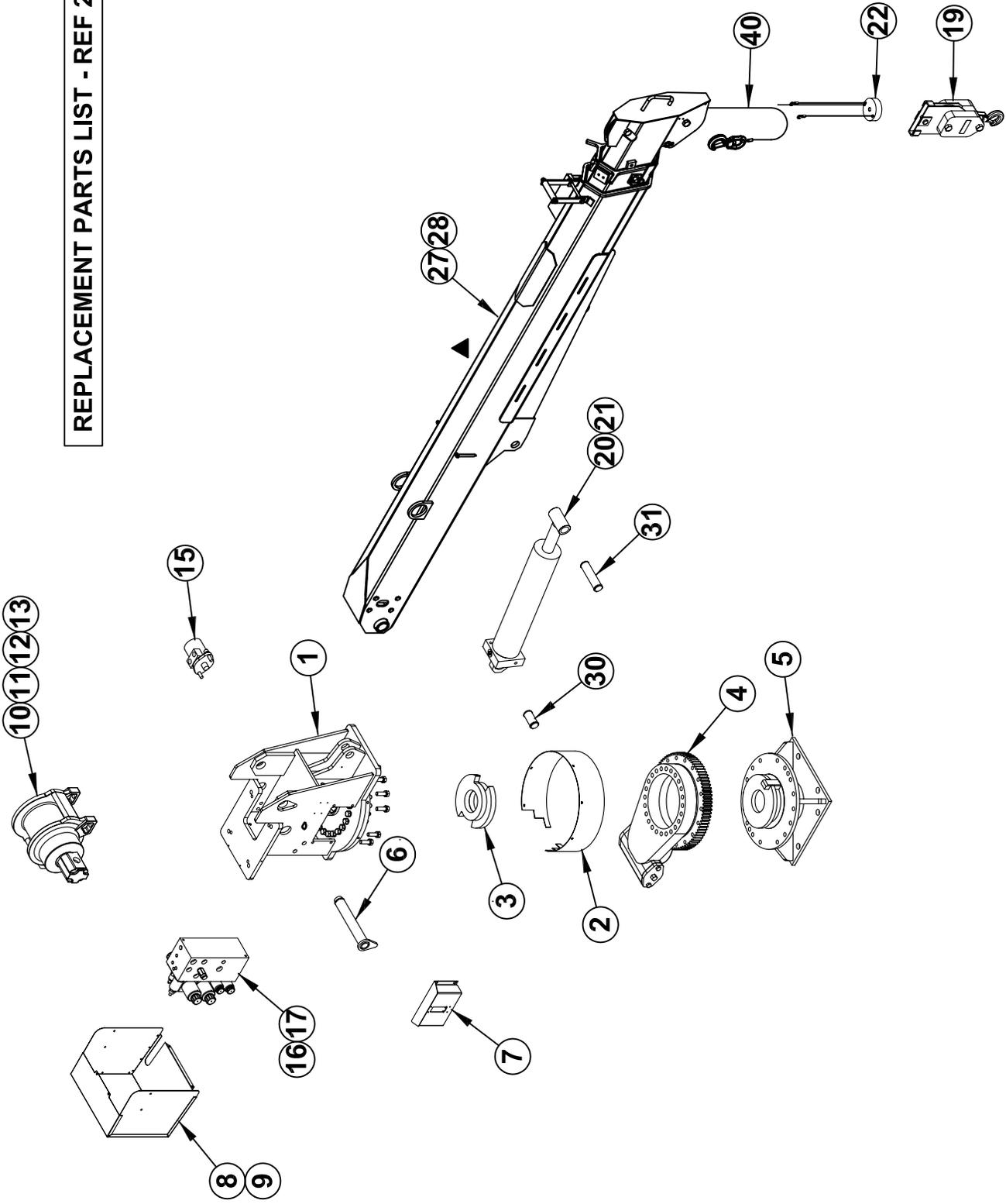


FIG 1

SECTION 400

PARTS

REPLACEMENT PARTS LIST - REF 22988

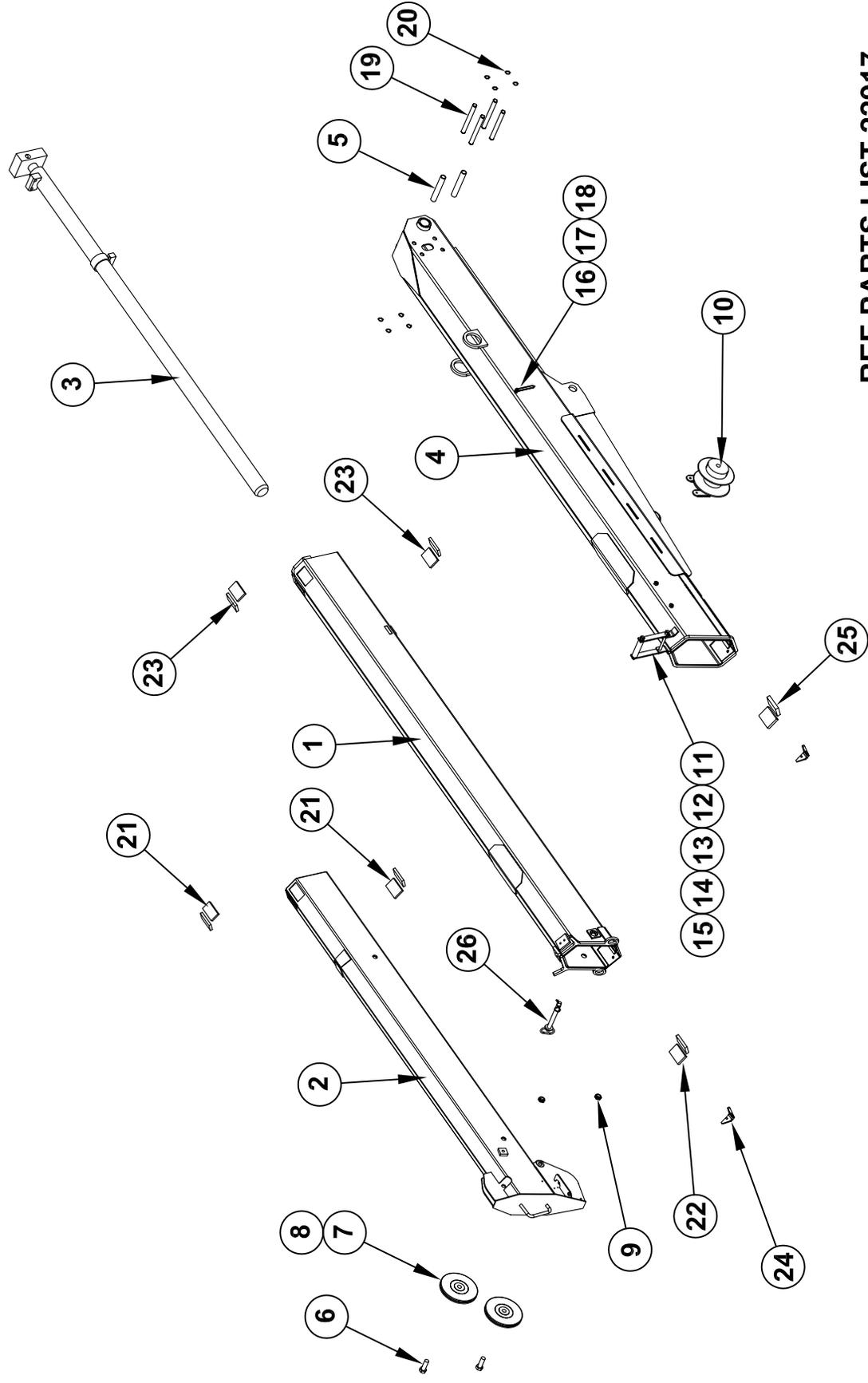


TITLE
REPLACEMENT PARTS
 HT40/50KX

DATE
11-17-09
 SUPERSEDES
 -

SECTION
C400
22987

21420 BOOM PARTS DRAWING (POWER / MANUAL)



REF PARTS LIST 22917

 VENTURO MANUFACTURING, INC. CINCINNATI, OHIO	TITLE	21420 BOOM PARTS DRAWING	DATE	7-14-10B	SECTION	C400
		HT40/50KX - HEX BOOM	SUPERSEDES	3-19-08A		22916

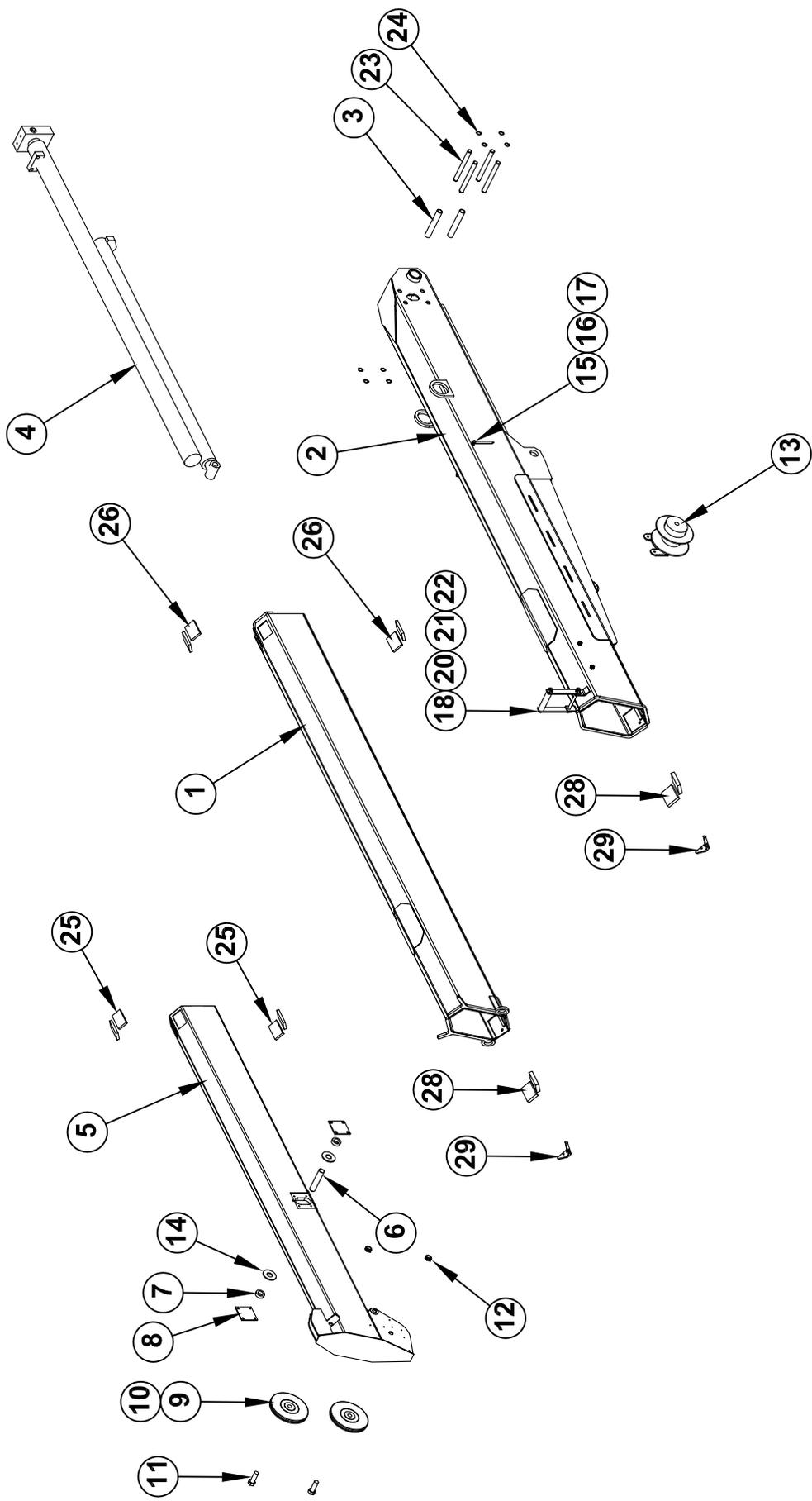
21420 BOOM PARTS LIST

26	1	14600	HITCH PIN ASSEMBLY
25	2	23217-4	UHMW GUIDE PAD
24	2	23183	V-BLOCK SLIDER
23	4	23217-2	UHMW GUIDE PAD
22	2	23217-5	UHMW GUIDE PAD
21	4	23217-1	UHMW GUIDE PAD
20	8	ISRNG-075	RETAINING RING - 3/4" SHAFT DIA.
19	4	22255	EXTENSION CYLINDER THRUST PIN
18	2	IANUT-02520S	ACORN NUT 1/4-20 STAINLESS
17	2	13459-2	BOOM ARROW 4-7/16 LONG
16	2	22490	SPACER, BOOM ARROW 1/2" O.D.
15	2	ILNUT-04414	NYLON INSERT LOCK NUT - 7/16-14
14	1	IHHCS04414550	HEX HEAD CAP SCREW - 7/16-14 X 5-1/2 LG
13	1	21560	ROLLER,UHMW GUIDE
12	1	21936	FLAT,MOUNT;WIRE ROPE GUIDE
11	1	21935	WIRE-ROPE GUIDE WELDED
10	1	27034	ANTI 2 BLOCK CORD REEL ASSEMBLY
9	2	ILNUT-07510	LOCKNUT 3/4-10
8	2	23929	SPACER - 23927 & 23928 POLY SHEAVES
7	2	23928	BOOM SHEAVE WITH BUSHING
6	2	17059-1	SHEAVE AXLE
5	2	24535	THRUST ROLLER
4	1	27207	PRIMARY BOOM WELDED ASSEMBLY
3	1	22032-H	EXTENSION CYLINDER
2	1	27214	TERTIARY BOOM ASSEMBLY
1	1	27212	SECONDARY BOOM TUBE WELDED ASSEMBLY
ITEM NO. QTY. PART NUMBER			DESCRIPTION

REF PARTS DRAWING 22916

TITLE		REPLACEMENT PARTS LIST
DATE	7-14-10C	SECTION
SUPERSEDES	10-27-09B	C400
HT40/50KX		22917

21410 BOOM PARTS DRAWING (FULL POWER)



REF. PARTS LIST 22931

 VENTURO MANUFACTURING, INC. CINCINNATI, OHIO	TITLE	21410 BOOM PARTS DRAWING	DATE	7-14-10B	SECTION	C400
		HT40/50KXX BOOM	SUPERSEDES	6-3-08A		22930

21410 BOOM PARTS LIST

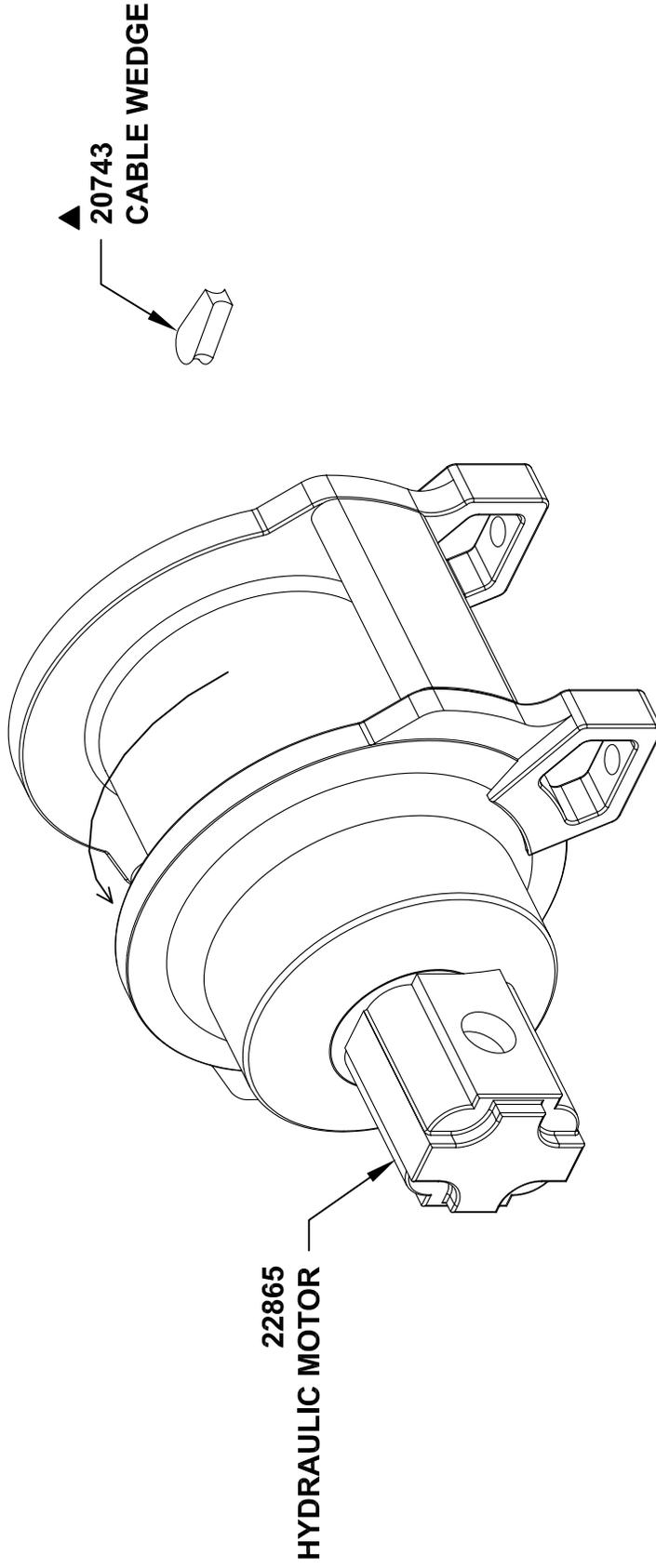
28	2	23183	V-BLOCK SLIDER
27	4	23217-4	UHMW GUIDE PAD
26	4	23217-2	UHMW GUIDE PAD
25	4	23217-1	UHMW GUIDE PAD
24	8	ISRNG-075	RETAINING RING - 3/4" SHAFT DIA.
23	4	22255	EXTENSION CYLINDER THRUST PIN
22	2	!LNUT-04414	NYLON INSERT LOCK NUT - 7/16-14
21	1	21560	ROLLER,UHMW GUIDE
20	1	!HHCS04414550	HHCS - 7/16-14 X 5-1/2 LG
19	1	21936	FLAT,MOUNT;WIRE ROPE GUIDE
18	1	21935	WIRE-ROPE GUIDE WELDED
17	2	!ANUT-02520S	ACORN NUT 1/4-20 STAINLESS
16	2	13459-2	BOOM ARROW 4-7/16 LONG
15	2	22490	SPACER, BOOM ARROW 1/2" O.D.
14	2	!FWSH-100	FLAT WASHER - 1"
13	1	27034	A2B CORD REEL
12	2	!JNUT-07510N	NYLON LOCK-JAMNUT 3/4-10
11	2	17059-1	SHEAVE AXLE
10	2	23929	SPACER - 23927 & 23928 POLY SHEAVES
9	2	23928	BOOM SHEAVE WITH BUSHING
8	2	23116	PIN BLOCK REINFORCING
7	2	21428	BUSHING
6	1	21405	PIN - CYLINDER
5	1	21416	TERTIARY BOOM ASSEMBLY
4	1	21744	EXTENSION CYLINDER
3	2	24535	THRUST ROLLER
2	1	27207	PRIMARY BOOM WELDED ASSEMBLY
1	1	27209	SECONDARY BOOM WELDED ASSEMBLY
ITEM NO.	EXPLODED/QTY.	PART NUMBER	DESCRIPTION

REF PARTS DRAWING 22930

DATE	SECTION
3-23-11D	C400
SUPERSEDES	
7-14-10C	22931

TITLE
REPLACEMENT PARTS LIST
HT40/50KXX

REPLACEMENT PARTS 22830 WINCH



▲ WINCH SERVICE KIT P/N: 21133
▲ MOTOR SERVICE KIT P/N 22902 (511 MOTOR)

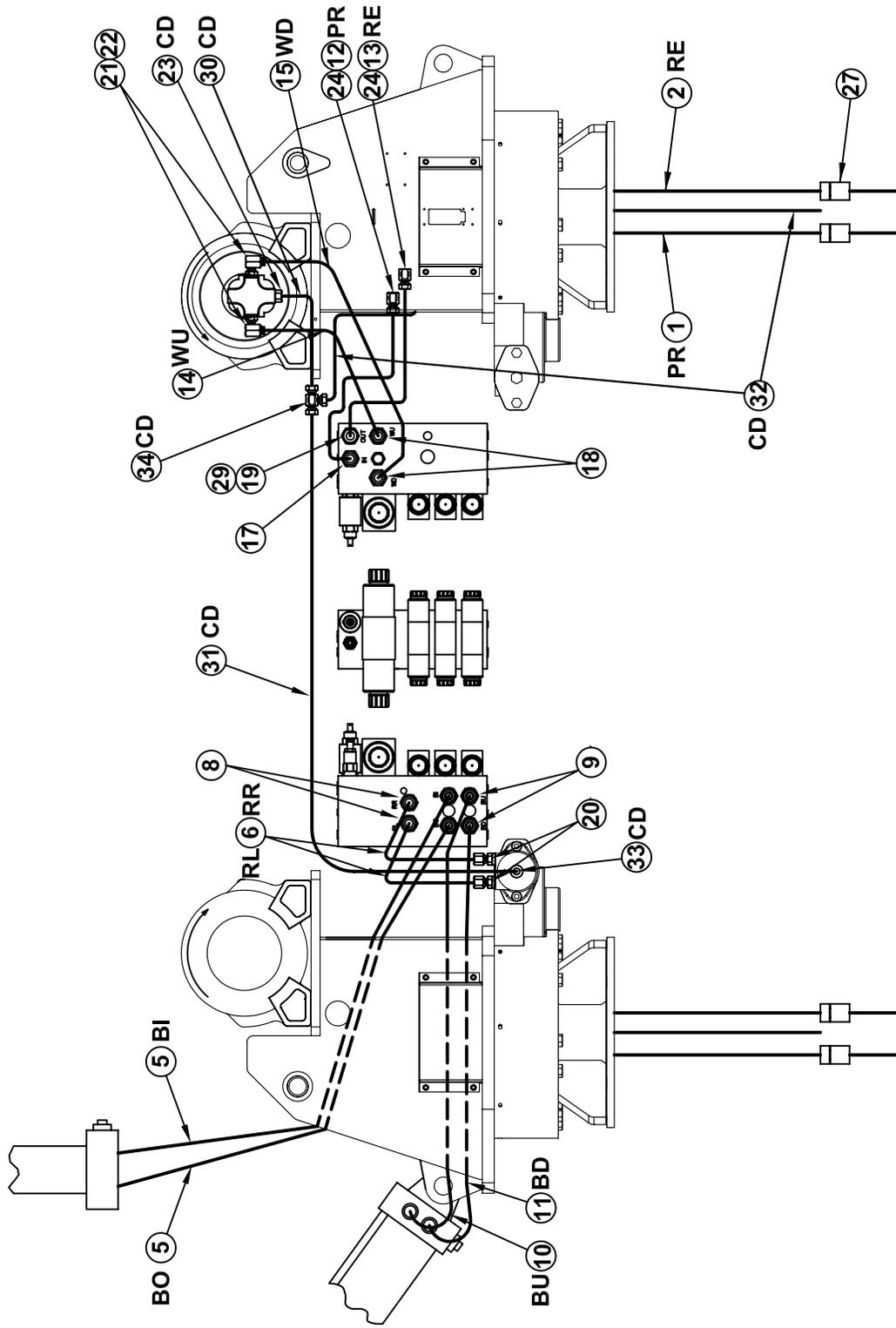


TITLE
REPLACEMENT PARTS DRAWING
▲ **22830 ROTZLER WINCH - HT50KX PROP**

DATE
7-21-08A
SUPERSEDES
12-18-06

SECTION
-
22876

REPLACEMENT PARTS LIST REF 22979



RIGHT SIDE VIEW

LEFT SIDE VIEW

CD	CASE DRAIN
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

DATE	11-12-09	SECTION	C400
TITLE	REPLACEMENT PARTS DRAWING		
SUPERSEDES	-	22978	

HT40/50KX PROP. HYD. COMPONENTS



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

ITEM	PART NUMBER	DESCRIPTION
1	22760	HOSE ASSY. - PRESSURE (SOURCE TO BULKHEAD)
2	22761	HOSE ASSY. - RETURN (BULKHEAD TO RESERVOIR)
3	-	-
4	-	-
5	27592	HOSE ASSY. BOOM IN / OUT
6	27598	HOSE ASSY. - ROTATION
7	-	-
8	FF6400-0606	ADAPTER - 6OFS - 6MO (VALVE BLOCK: ROTATION LT / RT)
9	FF6801-0606	ELBOW - 6OFS - 6MO (BOOM UP / DOWN)
10	27026	HOSE ASSY - BOOM UP
11	27027	HOSE ASSY - BOOM DOWN
12	22758	HOSE ASSY - PRESSURE (BULKHEAD TO VALVE)
13	22759	HOSE ASSY - RETURN (BULKHEAD TO VALVE)
14	27024	HOSE ASSY - WINCH UP
15	27025	HOSE ASSY - WINCH DOWN
16	-	-
17	H6400-0810	ADAPTER - 8MJ - 10MO (VALVE BLOCK, PRESSURE / IN PORT)
18	FF6400-0810	ADAPTER - 8OFS - 10MO (VALVE BLOCK, WU/WD)
19	H6801-1212	HYD ELBOW FITTING 12MO - 12MJ - 90 - EXTRA LONG DROP (VALVE, RETURN/OUT)
20	FF6400-0610	REDUCER/EXPANDER - 6OFS - 10MO (ROTATION MOTOR)
21	FF6801-0808	ELBOW - 8OFS - 8MO (WINCH MOTOR)
22	H6410-1608	REDUCER - EXPANDER - 16MO-8FO (WINCH MOTOR)
23	H6801-0404	HYD ELBOW - 4MJ-4MO - 90° (WINCH MOTOR CASE DRAIN)
24	H2701LN-0808	HYD BULKHEAD UNION ELBOW W/ LOCK NUT 8MJ - 90° (MECHANISM, RT SIDE)
25	-	-
26	-	-
27	22764	LIVE CONTINUOUS HYDRAULIC SWIVEL
28	-	-
29	H2406-1210	HYD TUBE ADAPTER 12FJ - 10MJ (INSTALLS ON ITEM 19)
30	22952	CASE DRAIN HOSE 13" LONG
31	22953	CASE DRAIN HOSE 30" LONG
32	22903	CASE DRAIN HOSE 96" LONG
33	H6801-0404	ELBOW 4MJ-MO (ROTATION MOTOR)
34	H2603-040404	HYD. TEE - 4MJ-4MJ-4MJ (JOINS ROTATION & WINCH CASE DRAINS)
35	-	-

REPLACEMENT PARTS DWG REF 22978



MFG., INC.
CINCINNATI, OHIO

TITLE
REPL. PARTS LIST

DATE
11-17-09

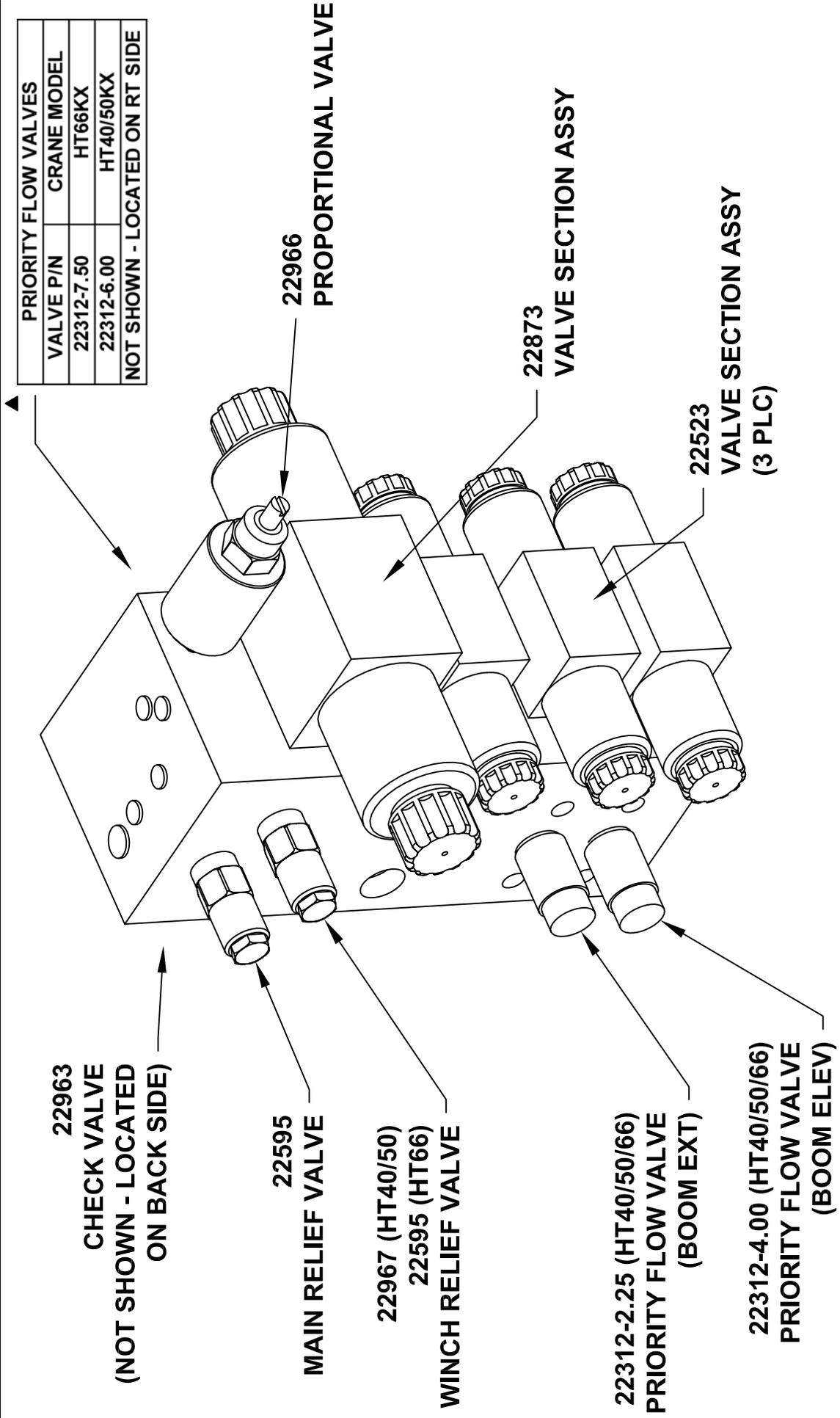
SECTION
C400

HT40/50KX - PROP

SUPERCEDES
-

22979

22736L HYDRAULIC VALVE MANIFOLD REPLACEMENT PARTS

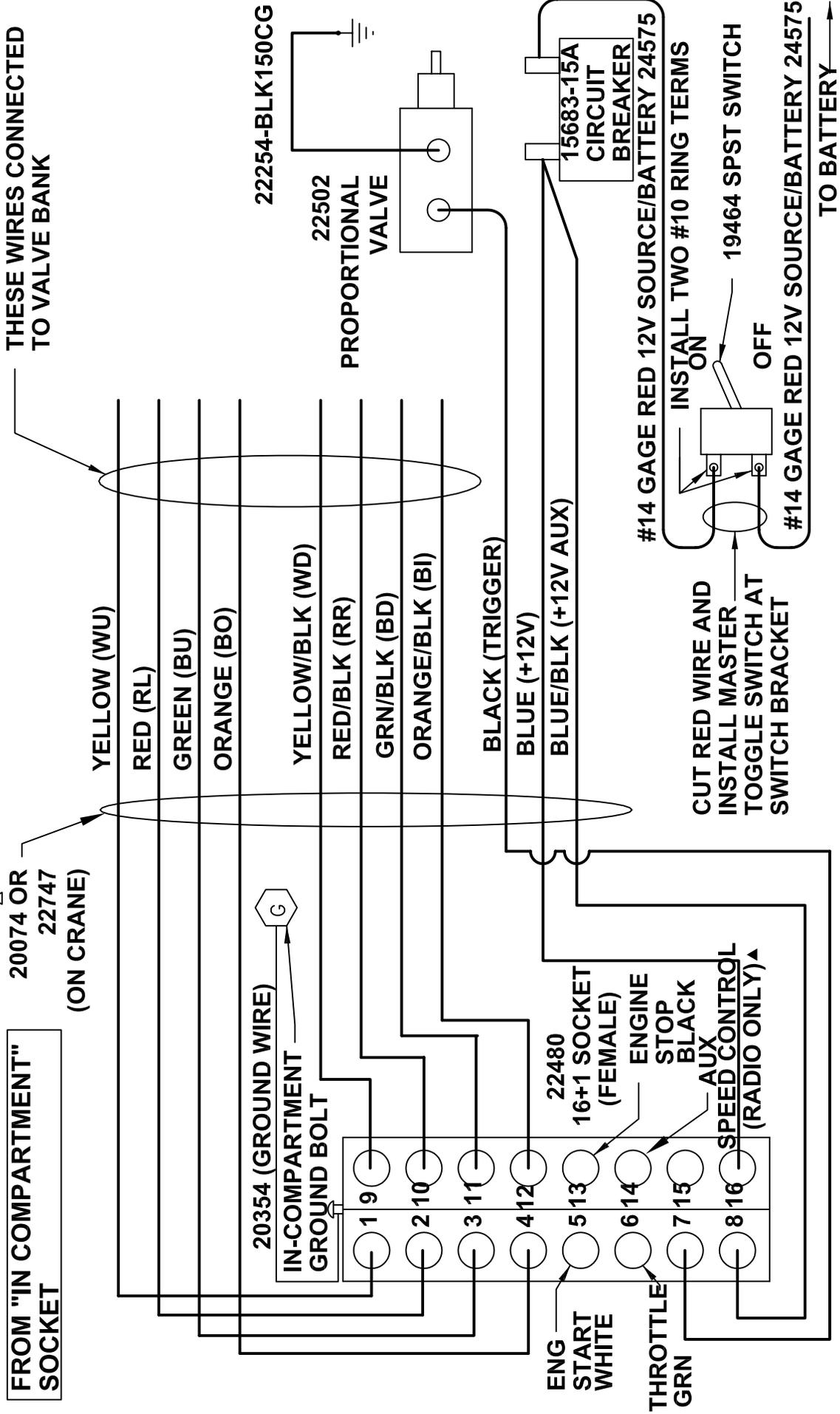


TITLE
22736L REPLACEMENT PARTS
HT40/50/66 PROPORTIONAL

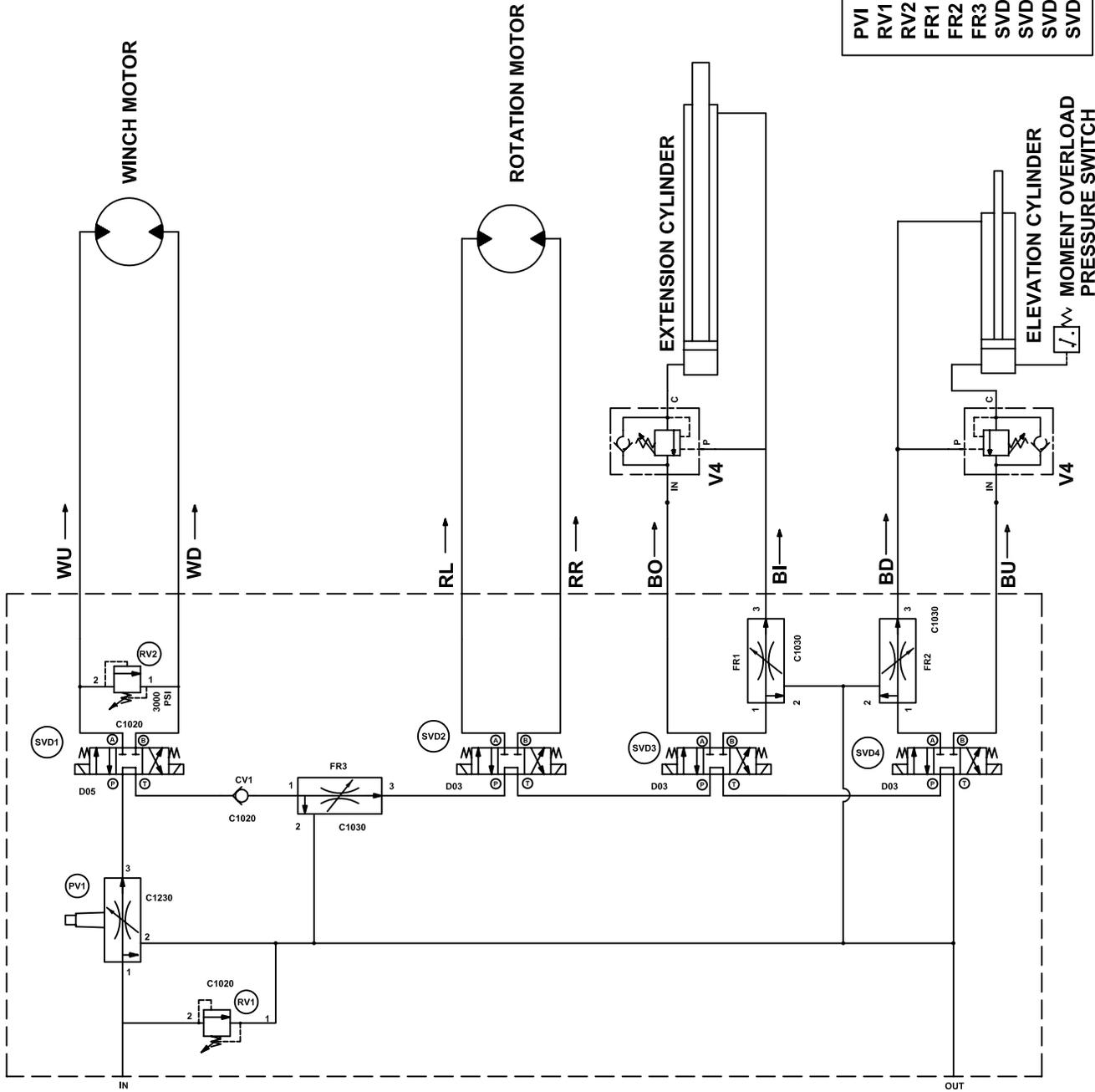
DATE
6-21-11B
SUPERSEDES
03-24-11A

SECTION
-
22940

PROPORTIONAL IN-COMPARTMENT CONTROLS W/ ENG START/STOP AND/OR THROTTLE CONTROL



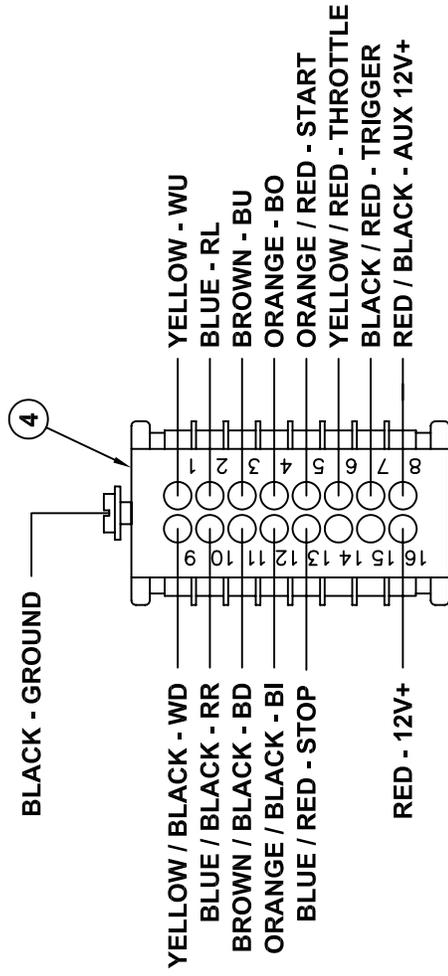
VENTURO MANUFACTURING, INC. CINCINNATI, OHIO		TITLE	PROP W/ IN-COMP CTRLS & ENG CTRL	
		DATE	7-20-09C	SECTION
		SUPERSEDES	5-11-06B	22125
HT18/25/30/40/50 CRANES				



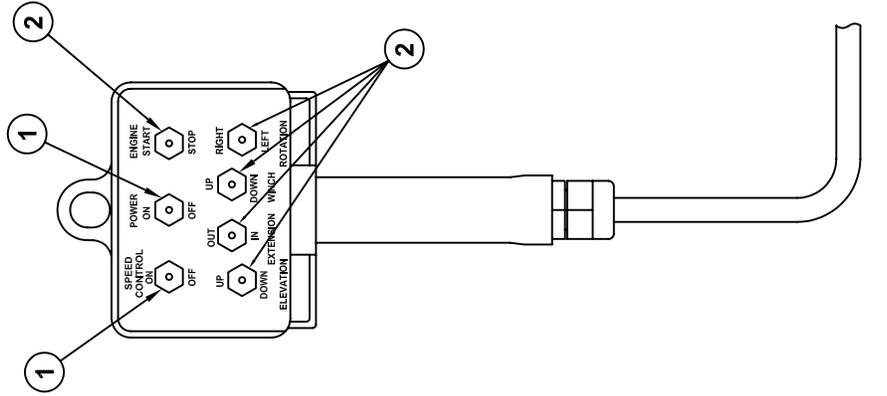
- PV1 PROPORTIONAL CONTROL VALVE (SIMPLIFIED REP)
- RV1 INLET RELIEF VALVE (3000 PSI)
- RV2 WINCH RELIEF VALVE
- FR1 PRIORITY FLOW REGULATOR - 2.25 GPM
- FR2 PRIORITY FLOW REGULATOR - 4.00 GPM
- FR3 PRIORITY FLOW REGULATOR - 6.00 GPM
- SVD1 3 POSITION - 4 WAY VALVE
- SVD2 3 POSITION - 4 WAY VALVE
- SVD3 3 POSITION - 4 WAY VALVE
- SVD4 3 POSITION - 4 WAY VALVE

TITLE HYDRAULIC SYSTEM DIAGRAM HT40/50/66KX W/ PROP CONTROL	DATE 11-17-09A	SECTION C400
	SUPERSEDES 4-14-09	27352

22065 PENDANT (PROP W/ ENG CTRLS)



PLUG - BACKSIDE VIEW



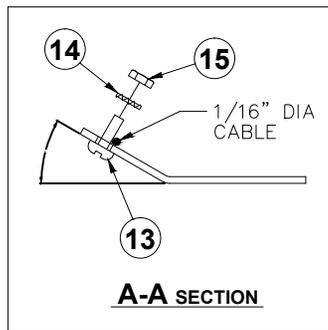
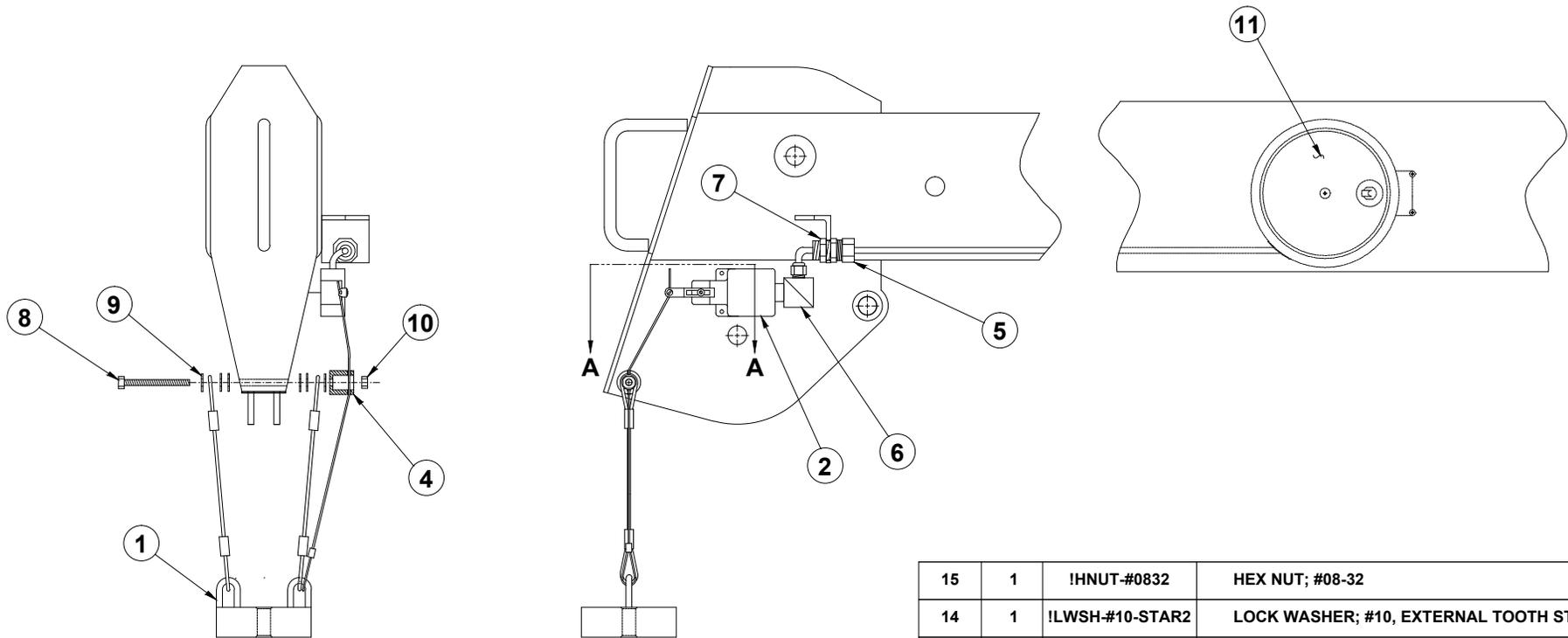
⊗ ITEM NOT SHOWN ON PRINT

ITEM	QTY	PART NO.	DESCRIPTION
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

TITLE	DATE	SECTION
REPLACEMENT PARTS DRAWING	7-30-04A	C400
22065 PENDANT (PROP W/ ENG CTRLS)	SUPERSEDES 7-1-04	22073



MANUFACTURING, INC.
CINCINNATI, OHIO



NOTE: PARTS SEE 22450 (NO DASH) KIT

15	1	!HNUT-#0832	HEX NUT; #08-32
14	1	!LWSH-#10-STAR2	LOCK WASHER; #10, EXTERNAL TOOTH STAR
13	1	!PHCS#0832038	PAN HEAD CAP SCREW; #08-32 x 3/8"
12	-	-	-
11	1	26577-1-20	CORD REEL ASSY - LEFT HAND (STANDARD)
10	1	!LNUT-02520	LOCK NUT; 1/4-20, NYLON INSERT
9	6	!FWSH-025	FLAT WASHER; 1/4"
8	1	!HHCS02520275-5	HEX HEAD CAP SCREW; 1/4-20 x 2 3/4", GR. 5
7	1	PL-20-469	LOCKNUT; 1/2" - CONDUIT
6	1	19060	STRAIN RELIEF 90°
5	1	22455	STRAIGHT STRAIN RELIEF (1/2" PIPE)
4	1	22454	DELTRIN BLACK CABLE GUIDE - A2B
3	-	-	-
2	1	22453	MICROSWITCH
1	1	19377-3	WEIGHT ASSY
ITEM	QTY	PART NO.	DESCRIPTION



VENCO VENTURO INDUSTRIES LLC
CINCINNATI, OHIO

TITLE
REPL PARTS DWG - LH CORD REEL

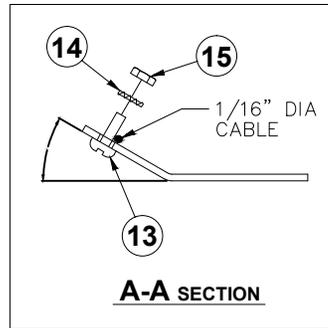
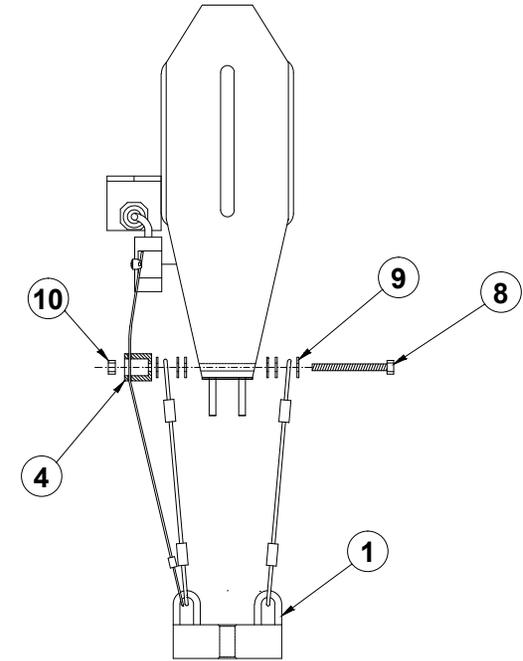
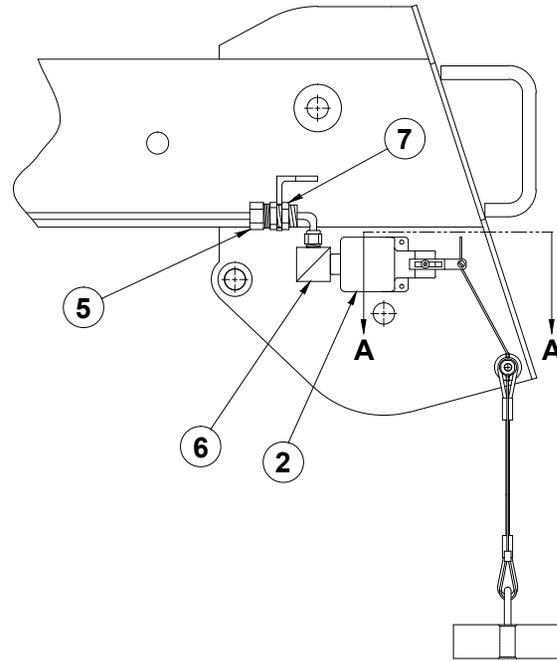
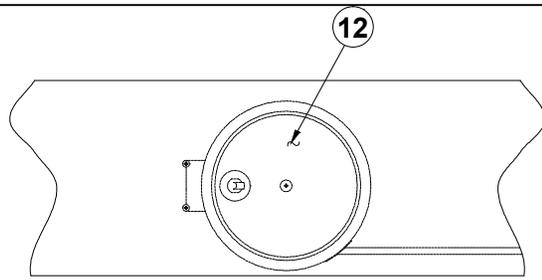
HT40/50 GEN C & PRIOR

DATE
03-26-25A

SUPERSEDES
09-11-07

SECTION
C400

22918



NOTE: PARTS SEE 22450-RH KIT

15	1	!HNUT-#0832	HEX NUT; #08-32
14	1	!LWSH-#10-STAR2	LOCK WASHER; #10, EXTERNAL TOOTH STAR
13	1	!PHCS#0832038	PAN HEAD CAP SCREW; #08-32 x 3/8"
12	1	26577-2-20	CORD REEL & BRACKET ASSY - RIGHT HAND
11	-	-	-
10	1	!LNUT-02520	LOCK NUT; 1/4-20, NYLON INSERT
9	6	!FWSH-025	FLAT WASHER; 1/4"
8	1	!HHCS02520275-5	HEX HEAD CAP SCREW; 1/4-20 x 2 3/4", GR. 5
7	1	PL-20-469	LOCKNUT; 1/2" - CONDUIT
6	1	19060	STRAIN RELIEF 90°
5	1	22455	STRAIGHT STRAIN RELIEF (1/2" PIPE)
4	1	22454	DELTRIN BLACK CABLE GUIDE - A2B
3	-	-	-
2	1	22453	MICROSWITCH
1	1	19377-3	WEIGHT ASSY
ITEM	QTY	PART NO.	DESCRIPTION



VENCO VENTURO INDUSTRIES LLC
CINCINNATI, OHIO

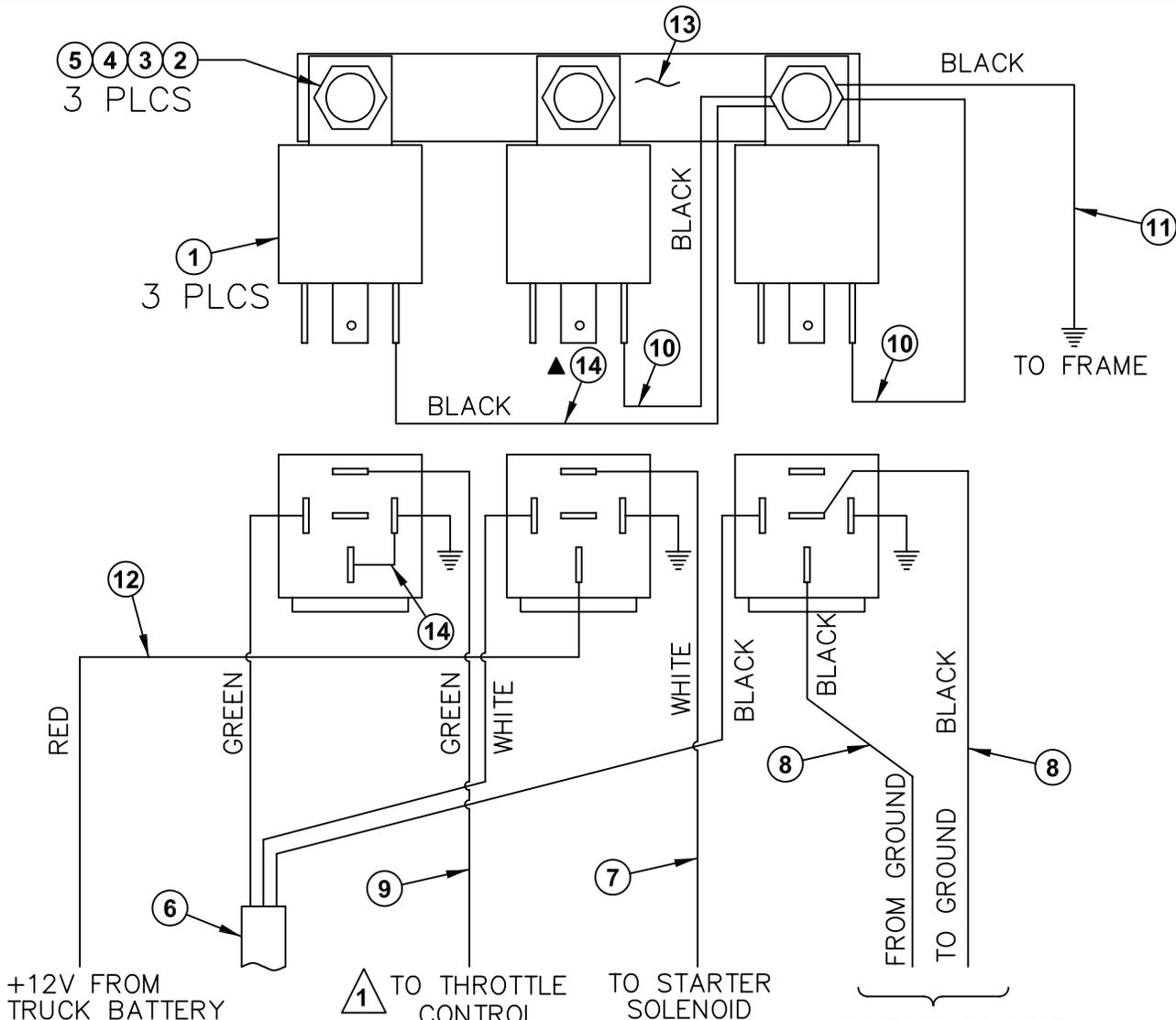
TITLE
REPL PARTS DWG - RH CORD REEL

DATE
03-26-25A SECTION
C400

HT40/50 GEN C & PRIOR

SUPERSEDES
09-11-07

22919



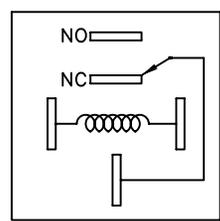
+12V FROM TRUCK BATTERY

TO THROTTLE CONTROL

TO STARTER SOLENOID

INSTALL IN-LINE WITH IGNITION COIL (GAS) OR FUEL SOLENOID (DIESEL).

1
NOTE:
THROTTLE CONTROL IS DESIGNED TO PROVIDE A GROUND SIGNAL WHEN SWITCH IS ACTIVATED



RELAY SCHEMATIC

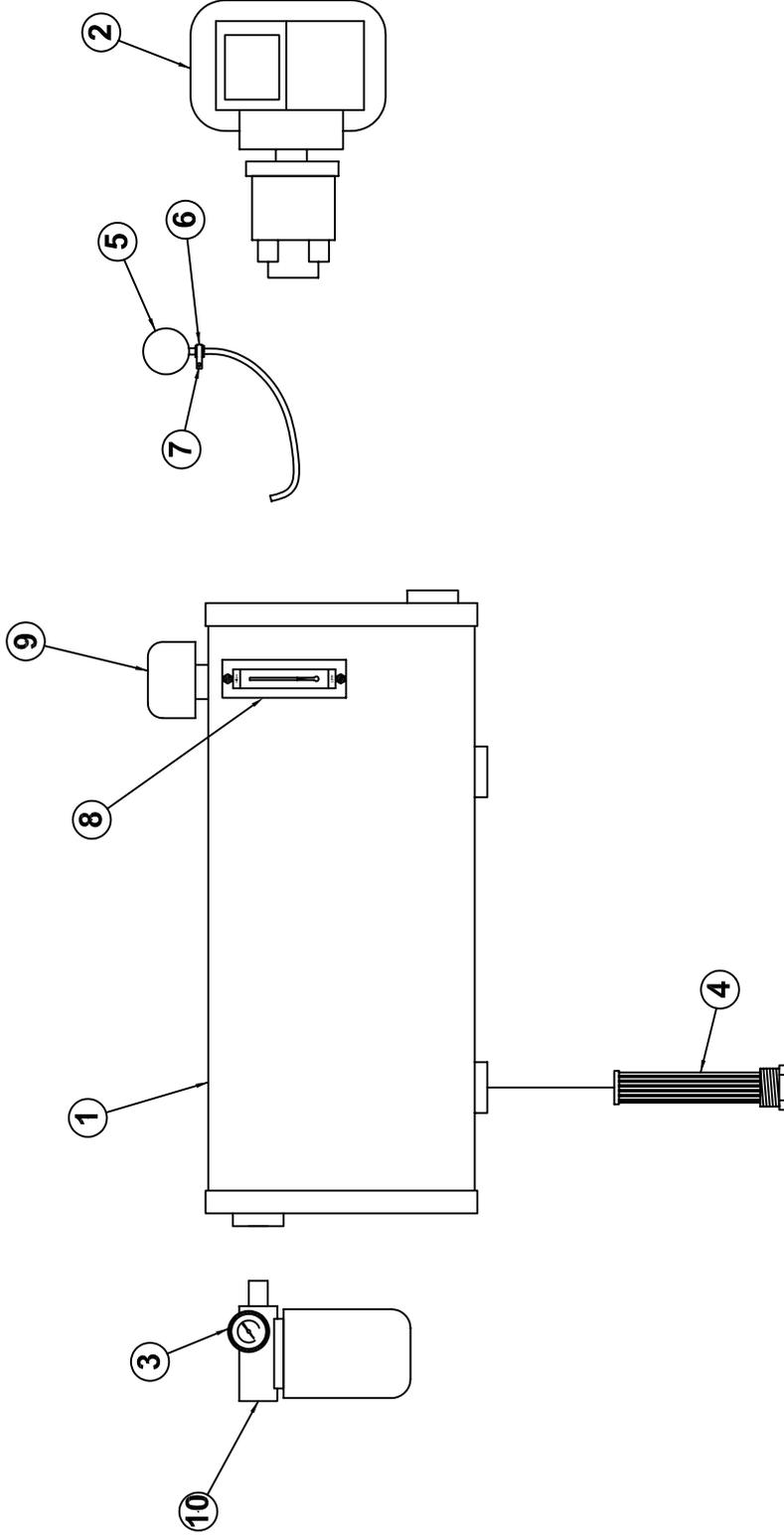
ITEM	QTY	PART#	DESCRIPTION
1	3	22739 ▲	RELAY
2	3	!PHCS#1024075	#10-24 X 3/4 PHIL PAN HD BOLT
3	3	!LWSH-#10	#10 LOCKWASHER
4	3	!FWSH-025	#10 WASHER
5	3	!HNUT-#1024	#10 NUT
6	1	22607	WIRE HARNESS - 12/3 SJO
7	1	22609	WHITE - 16 GAGE ELECTRICAL WIRE - 15 FEET LONG
8	2	22610	BLACK - 16 GAGE ELECTRICAL WIRE - 15 FEET LONG
9	1	22611	GREEN - 16 GAGE ELECTRICAL WIRE - 15 FEET LONG
10	2	22612	BLACK - 16 GAGE ELECTRICAL WIRE - 6 INCHES LONG
11	1	22613	BLACK - 16 GAGE ELECTRICAL WIRE - 8 FEET LONG
12	1	22614	RED - 14 GAGE ELECTRICAL WIRE - 15 FEET LONG
13	1	01181	BUSS BAR
14	1	22619	BLACK - 16GA WIRE ASSY - 6" LONG W/ 3 INCH PIGTAIL



TITLE **ENGINE START/STOP THROTTLE CONTROL**
▲ HT18/25/40/50

DATE **5-26-05D**
SUPERSEDES **2-2-05C**

SECTION **C400**
22615



10	1	19298	FILTER ASSY, RETURN - 100 MESH
9	1	22789	FILLER / BREATHER CAP ASSEMBLY
8	1	22787	SIGHT GLASS
7	1	!HMHS02520075-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

 VENTURO MANUFACTURING, INC. CINCINNATI, OHIO	TITLE PTO REPLACEMENT PARTS DRAWING HT40/50KX - PROPORTIONAL	DATE 6-29-05	SECTION -
	SUPERSEDES -	22783	

**HT50KX - PROPORTIONAL
22767-1 FIELD SERVICE LABEL KIT**

ITEM	PARTNUMBER	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	22352-1	1	HT50KX BOOM CAPACITY DECAL (RIGHT)
10	22352-2	1	HT50KX BOOM CAPACITY DECAL (LEFT)
11	19747	2	HT50KX 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	-
HT50KX - PROP.	SUPERCEDES 6-21-06	20842



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