

HT40KX

HRAAAC-PB & HRBAAC-PB
INSTALLATION & OWNER'S MANUAL

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HT40KX / Prop Ctrl / W/ Eng Ctrls (HR*AAC-P***)

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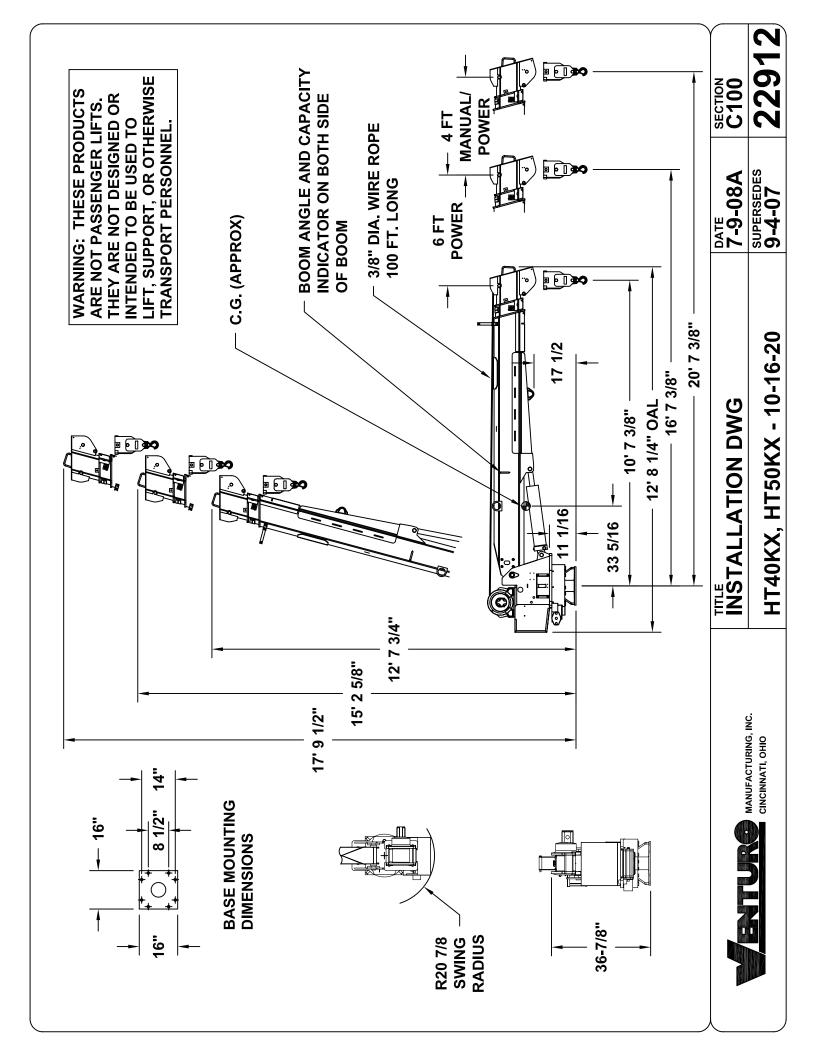
SECTION 100

DESCRIPTION

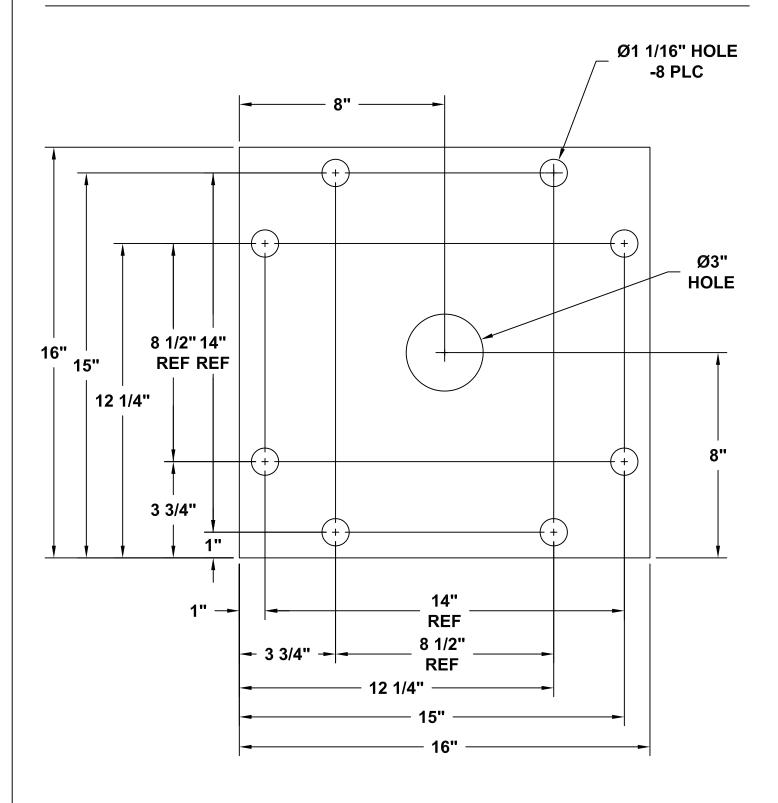
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SPECIFICATIONS





- HT40/50KX BASE MOUNTING DIMENSIONS



VENTURO

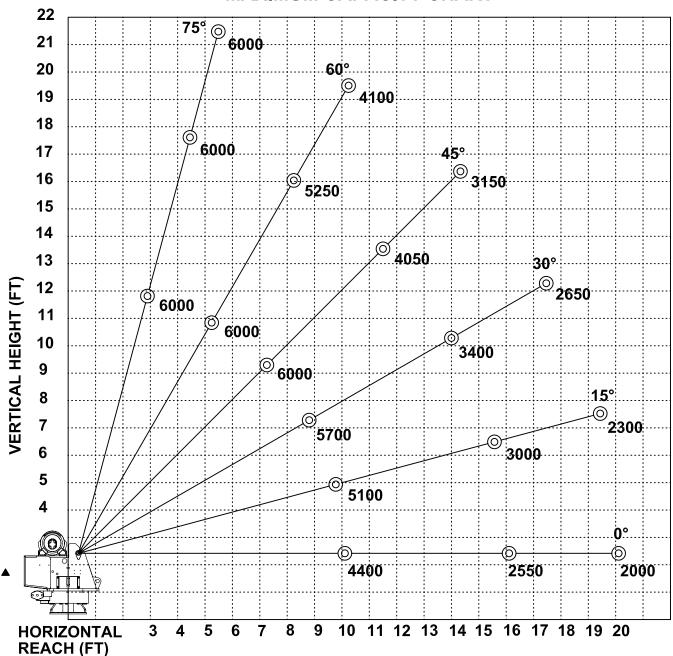
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3-3-05F SUPERSEDES SECTION C100

HT40/50KX 5-20-03E

HT40KX - 10-16-20 BOOM MAXIMUM CAPACITY CHART



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



HT40KX - 10-16-20	SUPERSEDES 3-3-05C	22341
TITLE CAPACITY CHART	DATE 9-5-07D	SECTION C100

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

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

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

NOMINAL VOLTAGE (kV)	MINIMUM REQUIRED
(PHASE TO PHASE)	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

VENTURO MFG., INC.	INSTALLATION DWG	5-15-02H	C150
ERIURO MFG., INC. CINCINNATI, OHIO	ET & HT CRANE SERIES	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

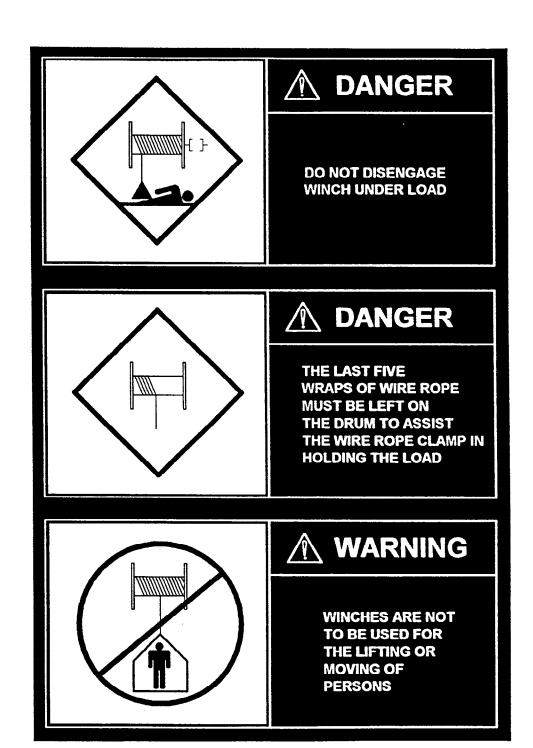
- YOU HAVE BEEN TRAINED IN THE SAFE OPERATION OF THIS CRANE AND
- 2. YOU KNOW AND FOLLOW THE SAFETY AND OPERATING RECOMMENDATIONS CONTAINED IN THE MANUFACTURER'S MANUALS, YOUR EMPLOYER'S WORK RULES, AND APPLICABLE GOVERNMENT REGULATIONS. AN UNTRAINED OPERATOR SUBJECTS HIMSELF AND OTHERS TO DEATH OR SERIOUS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

ELECTROCUTION HAZARD

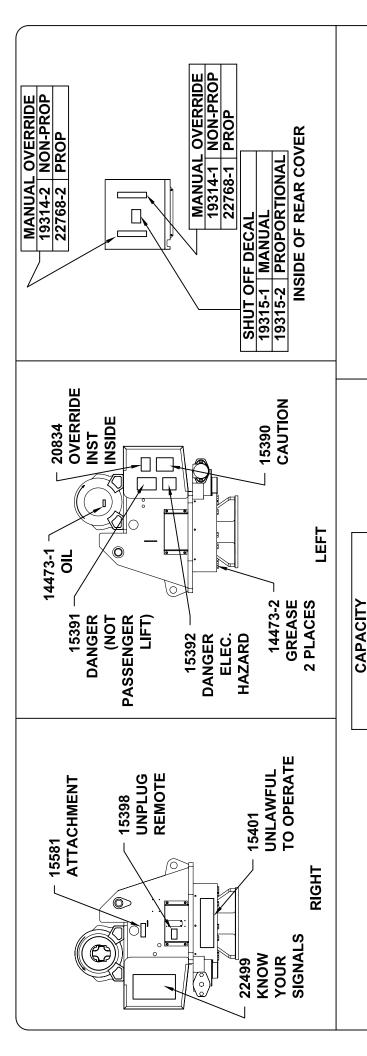
- THIS MACHINE IS NOT INSULATED.
- MAINTAIN SAFE CLEARANCES FROM ELECTRICAL LINES AND APPARATUS.
- YOU MUST ALLOW FOR BOOM SWAY, ROCK OR SAG, AND ELECTRICAL LINE AND LOADLINE SWAYING.
- THIS LIFTING DEVICE DOES NOT PROVIDE PROTECTION FROM CONTACT WITH OR PROXIMITY TO AN ELECTRICALLY CHARGED CONDUCTOR.
- 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.

ENTURO MFG., INC.	INSTALLATION DWG	5-13-97A	C150	
	CINCINNATI, OHIO	HYDRAULIC CRANES	6-12-92	920612

WINCH SAFETY WARNINGS







DECAL | MODEL PART NO

22342-2

HT40

LEFT

22352-1

HT50 HT50

RIGHT

19746 - HT40 19747 - HT50

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MODEL NO.

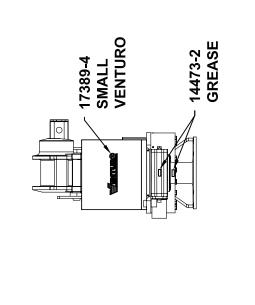
LEFT

22342-1

HT40

RIGHT

22352-2



BACK

SECTION 10-23-08E DATE

DECAL PLACEMENT

VENTURO MEDIUM 17389

PROPORTIONAL CONTROL

19788

* PROPORTIONAL ONLY

BOOM

HT40/50KX

MANUFACTURING, INC. CINCINNATI, OHIO

SUPERSEDES 9-5-07D

C150

22171

PART NO.: 15398

DFCAL: UNPLUG REMOTE CONTROL

FUNCTION: To inform the operator to

unplug remote control when

not being used.

QUANTITY: 1

PLACEMENT: Right side of housing.

UNPLUG REMOTE CONTROL PENDANT WHEN **NOT IN USE**

PART NO.: 15401

UNLAWFUL TO OPERATE DECAL:

FUNCTION: To inform the operator of proper

operation in vicinity of power lines.

QUANTITY: 1

PLACEMENT: Right side of housing.

UNLAWFUL TO OPERATE THIS EQUIPMENT WITHIN 10 FEET OF HIGH - VOLTAGE LINES OF 50,000 VOLTS OR LESS.

FOR MINIMUM CLEARANCES OF HIGH - VOLTAGE LINES IN EXCESS OF 50,000 VOLTS, SEE CRANE INSTRUCTIONS MANUAL OR CAL - OSHA ARTICLE 37, TITLE 8, HIGH - VOLTAGE ELECTRICAL SAFETY ORDERS.

PART NO.: 19314-1

DECAL: MANUAL OVERRIDE (NON-PROP)

FUNCTION: To inform the operator of

manual overide locations.

QUANTITY: 1

PLACEMENT: Inside of rear cover.

PART NO.: 19314-2

DECAL: MANUAL OVERRIDE (NON-PROP)

FUNCTION: To inform the operator of

manual overide locations.

QUANTITY: 1

PLACEMENT: Inside of rear cover.











MANUAL OPERATORS

ROTATION RIGHT







MFG., INC.



12-14-05A

SECTION C150

HT40/50KX

SUPERSEDES 5-11-05 22181A

CINCINNATI, OHIO

PART ND.: 19315-1

DECAL: SHUT OFF (NON-PROPORTIONAL)

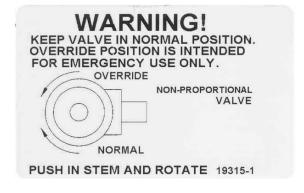
FUNCTION: To show the operator how to

override master shut off valve.

QUANTITY: 1

PLACEMENT: Inside rear cover.

lack



PART NO.: 19315-2

DECAL: MANUAL OVERRIDE (PROPORTIONAL)

FUNCTION: To show the operator how to

override proportional valve.

QUANTITY: 1

PLACEMENT: Inside rear cover.

Δ

PART NO.: 22768-1

DECAL: MANUAL OVERRIDE

FUNCTION: To inform the operator of

manual overide locations.

QUANTITY: 1

PLACEMENT: Inside rear cover.

PART NO.: 22768-2

DECAL: MANUAL OVERRIDE

FUNCTION: To inform the operator of

manual overide locations.

QUANTITY: 1

PLACEMENT: Inside rear cover.









MFG., INC. CINCINNATI, OHIO DECAL DRAWING & LIST

12-14-05B

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.



- 4. DO NOT OPERATE, WALK OR STAND BENEATH BOOM OR A SUSPENDED LOAD. 5. UNPLUG PENDANT AND SHUT OFF MASTER DISCONNECT SWITCH WHEN CRANE NOT IN USE.
- FOR TRAVEL, BOOM MUST BE IN STOWED POSITION.



THIS CRANE IS NOT A PASSENGER LIF 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.

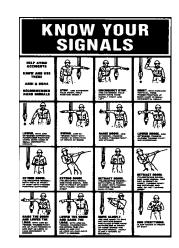


ELECTROCUTION HAZARD

MAINTAIN SAFE CLEARANCES FROM ELECTRICAI INES AND APPARATUS. YOU MUST ALLOW FOR BOOM SWAY, ROCK OR SAG AND ELECTRICAL LINI IND LOADLINE SWAYING.

OU MUST MAINTAIN A CLEARANCE OF AT LEAST O FEET BETWEEN ANY PART OF THE GRANE LOAD PPARATUS CARRYING UP TO 50,000 VOLTS. ON OOT ADDITIONAL CLEARANCE IS REQUIRED FOR VERY ADDITIONAL 30,000 VOLTS OR LESS.

DEATH OR SERIOUS INJURY WILL RESULT FR CONTACT OR INADEQUATE CLEARANCE.





MFG., INC. **CINCINNATI, OHIO**

DECAL DRAWING & LIST

9-11-06B

SECTION C150

9-9-05A

SUPERSEDES

22181C

HT40/50KX

PART ND.: 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

SMALL VENTURO DECAL:

FUNCTION: To show manufacturer of crane.

QUANTITY: 1

PLACEMENT: Rear cover.

NOTICE

FOR MANUAL OVERRIDE OF CRANE FUNCTIONS, REMOVE REAR COVER AND SEE INSTRUCTIONS INSIDE.





MFG., INC. CINCÍNNATI, OHIO **DECAL DRAWING & LIST**

9-11-06A

SUPERSEDES

SECTION C150

HT40/50KX

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.



	11-4-08A	C200
HT40KX, HT50KX	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 $1\overline{0}$ 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.



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.



INSTALLATION DWG	8-12-99B	C200
HT40KX, HT50KX	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. 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.



- 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.

Temp Range (°F) Winch Hydraulic Oil

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.



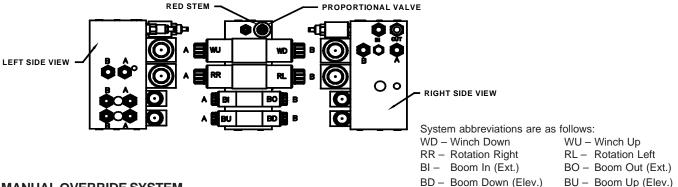
HT40KX, HT50KX, HT66KX	5-13-05	22174
INSTALLATION DWG	2-3-09A	C200
TITLE	DATE	SECTION

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").



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:

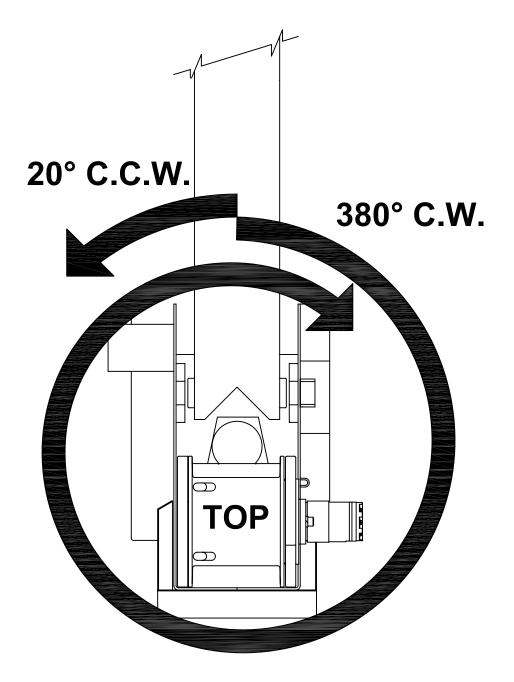
- (1) Override the proportional valve by turning the red stem on the valve as stated below.
 - For override operation, rotate stem clockwise (the farther the stem is turned the faster the crane will operate).
 - To return to normal operation, rotate the stem counterclockwise until it stops.
- (2) Determine 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.

WENTURO MFG., INC.	HYDRAULIC SYSTEM	5-26-05	C200	
CINCINNATI, OHIO	HT40/50 - PROP	SUPERCEDES	22168	

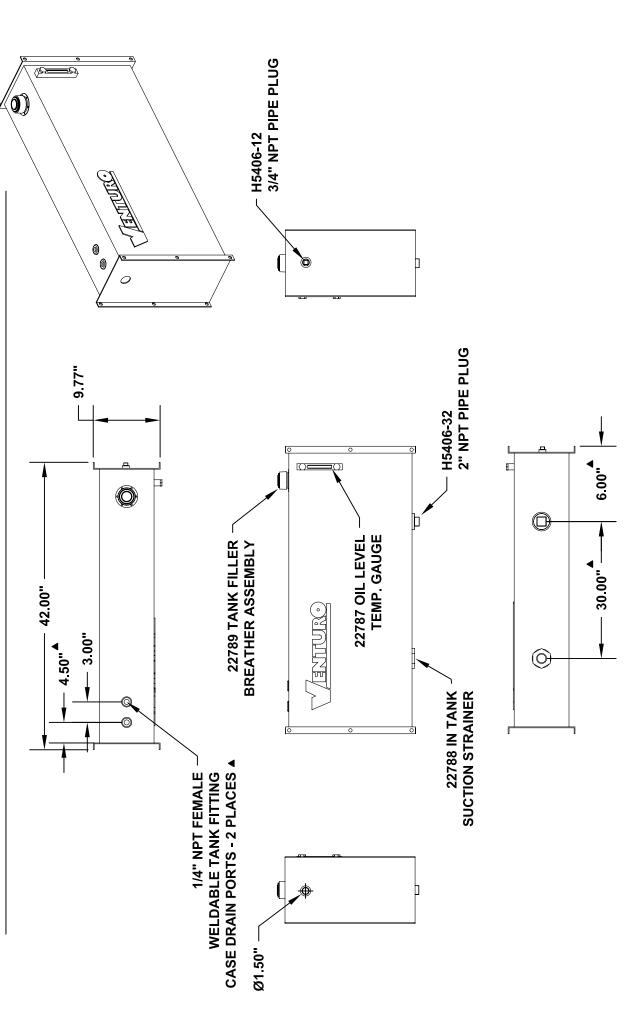


This Venturo crane is shipped with the rotation orientation as shown above. To change the orientation rotate crane base prior to mounting to suit your application.



ET25KX, HT CRANES	supersedes 7-31-02A	20051
ROTATION STOP LOCATION	1-30-09B	-
TITLE	DATE	SECTION

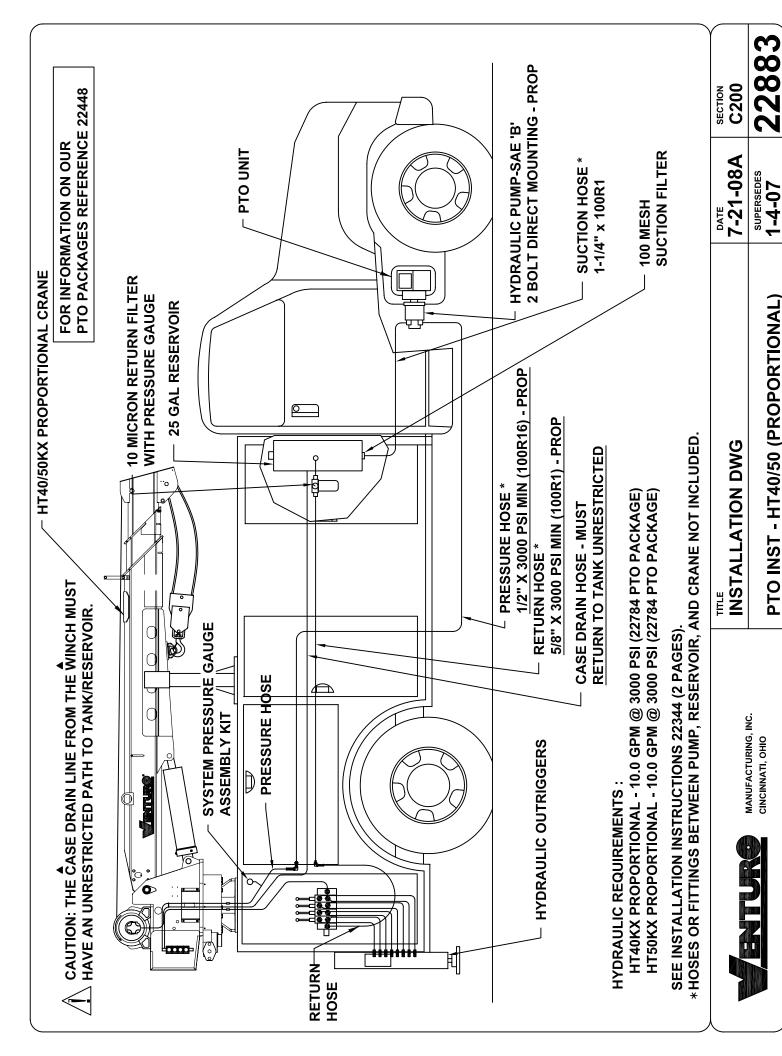
22785 BULKHEAD MOUNT OIL RESERVOIR

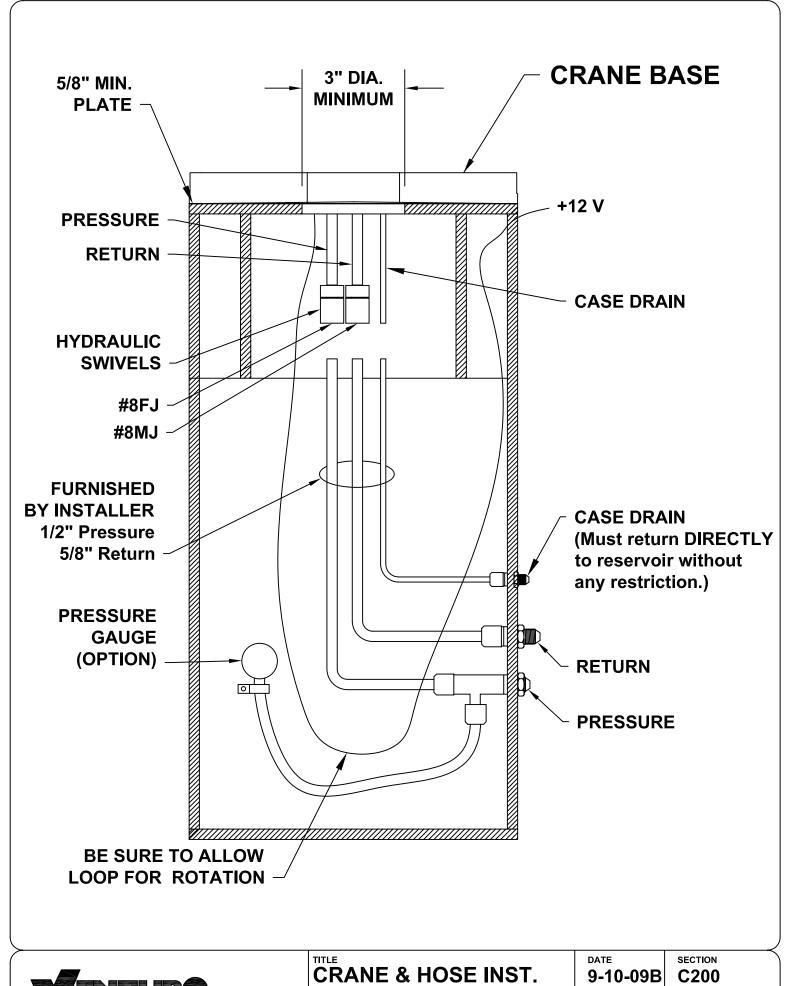




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SECTION	358
8-26-09C	311-5-08B
AULIC TANK	







MFG., INC. CINCINNATI, OHIO

HT40/50/66 - PROP

SUPERSEDES 2-3-09A

22913

WIRE ROPE INSTALLATION

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

<u>STEP 2</u>: INSERTWIRE 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 DRUMROTATION, THE WINCH BRAKE VALVE WILL NOT HOLD THE LOAD.

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

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

NOTE:

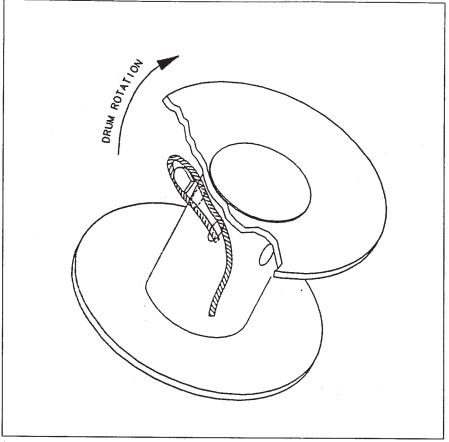


FIG 1

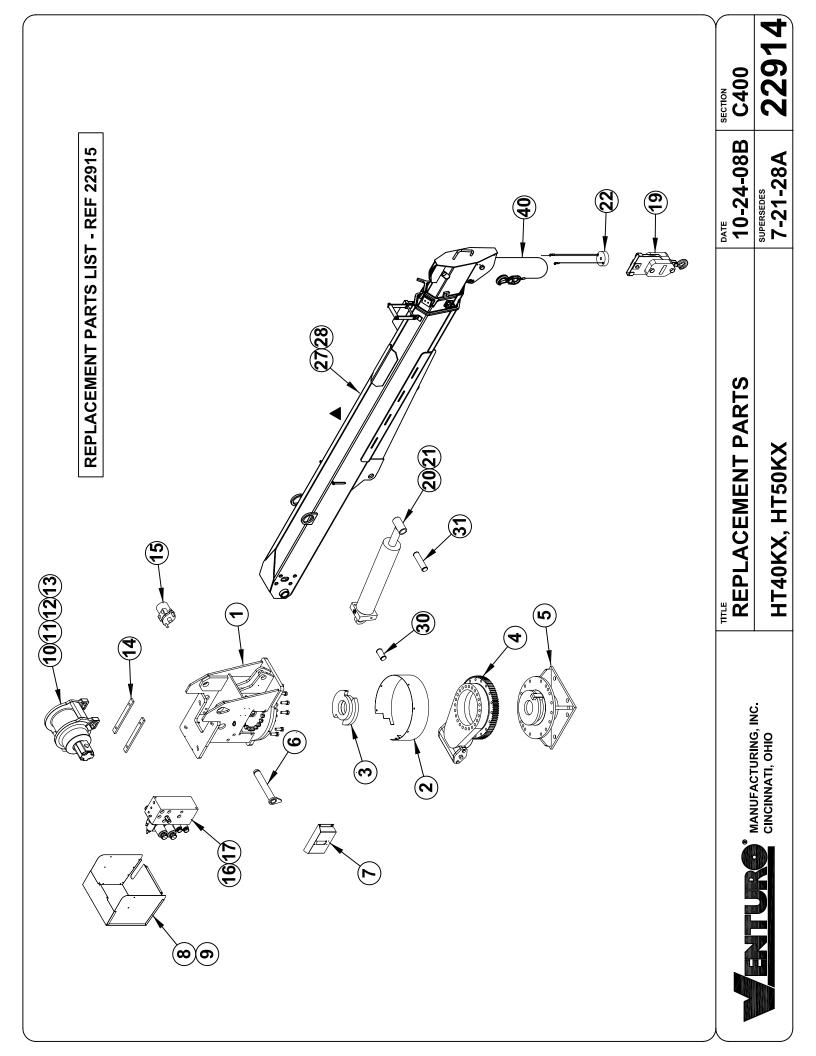


G C200	F 22245
8-18-09G	2-26-08F
WIRE ROPE INSTALLATION DRAWING	ET8K AND LARGER CRANES

SECTION 400

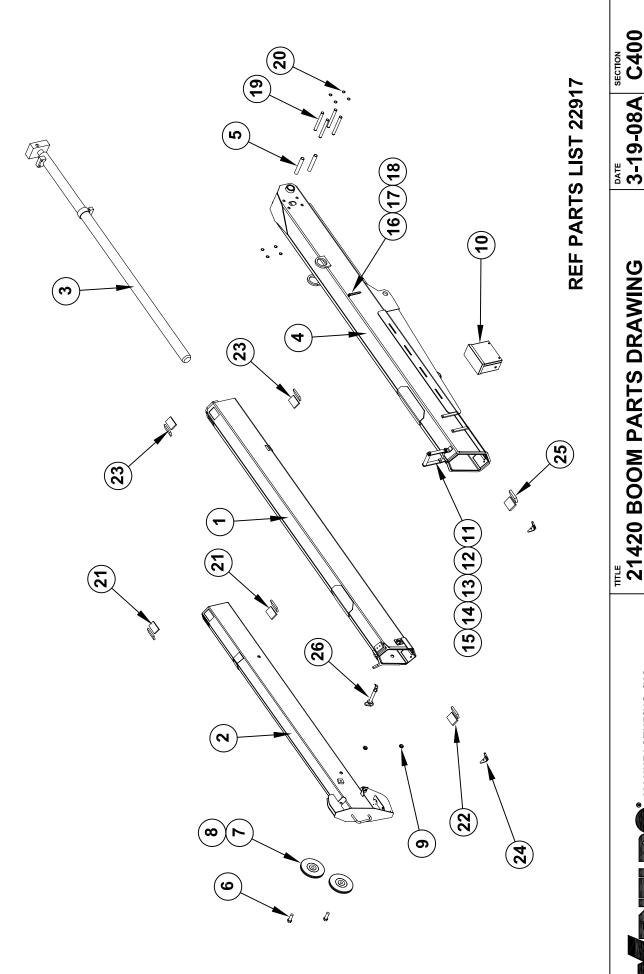
PARTS





ITEM #	PART #	DESCRIPTION	ITEM	PART #	DESCRIPTION		\bigcap
			7.7				
- 0	22840 22726	HOUSING WELDED ASSEMBLY OTHER PING	- 4 - C				
1 (r	22720	COLEMNIA COLEMNIA	43				
> <	227.02		? =				
+ ע	227.04	CEEVILLO CEEVILLO	- Y				
യ	227.10	ECCOLOR WELCELON COCKING DIVOT DIVOTI DIVOTI DIVOTI DIVOTI DIVOTI DIVOT DIVOTI DIVOT	£ 4				
^	22715	SIDECOVER	47				
- α	22841	REARHYD VALVE COVER - NON-PROP	48				
ത	22841	REAR HYD VALVE COVER - PROP	49				
10	22828	WINCH-3000 LB (SINGLE LINE) - HT40KX - NON-PROP	20				
11	22829	WINCH - 3000 LB (SINGLE LINE) - HT40KX - PROP	51		FIELD SERVICE LABEL KIT - HT40KX NON-PROP	T40KX NON-PROP.	
12	22909	WINCH-4000 LB (SINGLE LINE) - HT50KX-NON-PROP	52	22921	FIELD SERVICE LABEL KIT - HT40KX PROPORTIONAL	T40KX PROPORTIONAL	
13	22830	WINCH-4000LB (SINGLE LINE) - HT50KX-PROP	53	22924	FIELD SERVICE LABEL KIT - HT50KX NON-PROP.	T50KX NON-PROP.	
4 '	21940	WINCHSPACER (HT40KXONLY)	54	22925	FIELD SERVICE LABEL KIT - H	150KX PROPORTIONAL	
ეე ე	1917/	HYDRAULICROLATIONMOTOR	55 E				
17	22301	HYDRALII ICVALVE ASSEMBELI - NON-FINOR-	22.00				
- 6	25,30		22				
9: 1	17770	HEADACHE BALL ASSEMBLY	29				
20	21747 ▲	ELEV. CYL. 4.5" BORE x 2" ROD x 19.63" STROKE	09				
21	22022-1	ELEV. C YL. 5" BORE x 2" ROD x 19.63" STROKE	61		1		
22	19377-3	19377-1 ANTI-2-BLOCK WEIGHT ASSEMBLY	62		1		
23			63		1		
42 6			4 1	•			
72	•		င္ပ				
270	21120	- BOOM ASSEMBLY HT40/60KY	99		1 1		
78	21420	BOOM ASSEMBLT - HT40/30KX	/0				
500	2		69		1		
30	22256	ELEVATION CYLINDER PIN-INBOARD	70		1		
31	22257	ELEVATIONCYLINDER PIN-OUTBOARD	7.1				
32		1	72		1		
33		•	73		1		
34			75	•			
98 38			67				
37			27		1		
38	,		78		ı		
39			62		1		
40	17094-3/8-100	WIRE ROPE ASSEMBLY - 3/8" x 100 FT	80		-		
		A ITEMNOTSHOWNONREPLACEMENTPARTSDRAWING	MING				
		REPLACEMENT PARTS DWG REF 22914					
							Y
			REPLACEN	REPLACEMENT PARTS	3-24	3-24-09B C400	
				201014	SUPERCED	SUPERCEDES	<u>,</u>
			HT40KX, HT50KX	T50KX	7-21	CL677 V80-	ر ر

21420 BOOM PARTS DRAWING (POWER / MANUAL)





21420 BOOM PARTS DRAWING	MOOB AEL ANG/071
2142	NTH.

22916

9-10-07

21420 BOOM PARTS LIST

	_	14600	HITCH PIN ASSEMBLY
	7	U 063X2.50	UHM W 063X2.50
	2	23183	V-BLOCK SLIDER
	4	U044X2.13	UHM W 044X2.13
	7	U 050X2.13	UHM W 050X2.13
	4	U 044X1.88	UHM W 044X1.88
	∞	ISRN G-075	RETAINING RING - 3/4" SHAFT DIA.
	4	22255	EXTENSION CYLINDER THRUST PIN
	2	IANUT-02520S	ACORN NUT 1/4-20 STAINLESS
	7	13459-2	BOOM ARROW 4-7/16 LONG
	7	22490	SPACER, BOOM ARROW 1/2" O.D.
	7	ILNUT-04414	NYLON INSERT LOCK NUT - 7/16-14
	-	IHHCS04414550	HEX HEAD CAP SCREW - 7/16-14 X 5-1/2 LG
13	-	21560	ROLLER, UHM W GUIDE
	_	21936	FLAT, M O U N T; W I R E R O P E G U I D E
	_	21935	WIRE-ROPE GUIDE WELDED
	_	22685	ANTI 2 BLOCK CORD REEL ASSEMBLY
	7	ILN UT-07510	LOCKNUT 3/4-10
	2	23929	SPACER - 23927 & 23928 POLY SHEAVES
	7	23928	BOOM SHEAVE WITH BUSHING
	7	17059-1	SHEAVE AXLE
5	7	24535	THRUST ROLLER
	-	27207	PRIM ARY BOOM WELDED ASSEMBLY
	_	22032-H	EXTENSION CYLINDER
	_	27214	TERTIARY BOOM ASSEMBLY
	-	27212	SECONDARY BOOM TUBE WELDED ASSEMBLY
C	> I	PAPT NIM REP	

REF PARTS DRAWING 22916

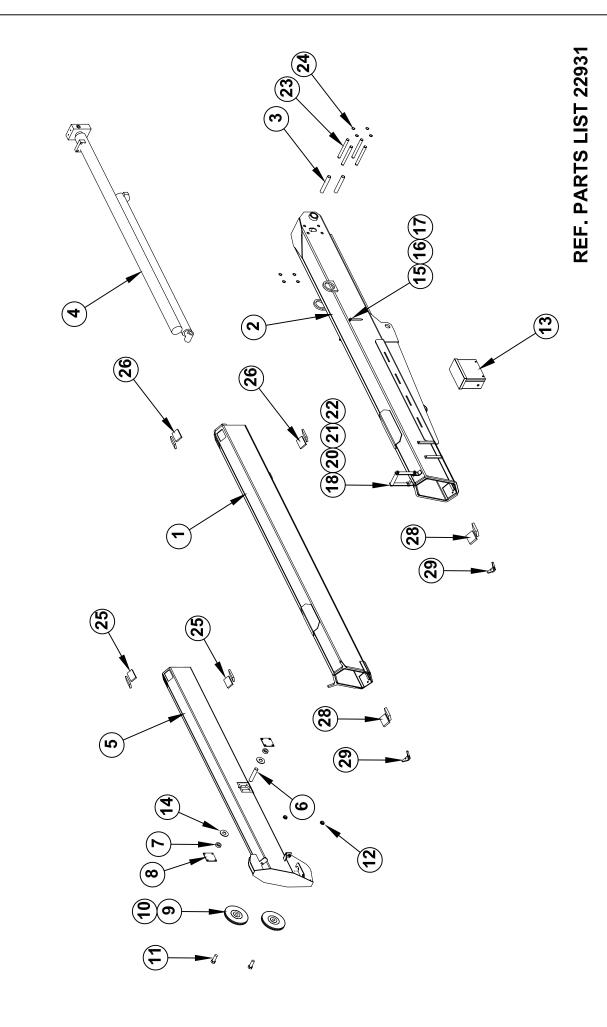


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HT40/50KX

sестои C40	22
10-27-09B	3-19-08A

21410 BOOM PARTS DRAWING (FULL POWER)



21410 BOOM PARTS



21410 BOOM PARIS DRAWING HT40/50KXX BOOM
--

22930

SUPERSEDES 9-25-07

SECTION C400

_{рате} 6-3-08**A**

21410 BOOM PARTS LIST

7 0	23183	V-BLOCK SLIDER
2	U063X2.50	UHMW 063X2.50
2	U063X2.13	UHMW 063X2.13
4	U044X2.13	UHMW 044X2.13
4	U044X1.88	UHMW 044X1.88
8	ISRNG-075	RETAINING RING - 3/4" SHAFT DIA.
4	22255	EXTENSION CYLINDER THRUST PIN
2	!LNUT-04414	NYLON INSERT LOCK NUT - 7/16-14
1	21560	ROLLER, UHMW GUIDE
_	IHHCS04414550	HHCS - 7/16-14 X 5-1/2 LG
1	21936	FLAT, MOUNT; WIRE ROPE GUIDE
l	21935	WIRE-ROPE GUIDE WELDED
2	!ANUT-02520S	ACORN NUT 1/4-20 STAINLESS
2	13459-2	BOOM ARROW 4-7/16 LONG
2	22490	SPACER, BOOM ARROW 1/2" O.D.
2	IFWSH-100	FLAT WASHER - 1"
1	22685	ANTI 2 BLOCK CORD REEL ASSEMBLY
2	IJNUT-07510N	NYLON LOCK-JAMNUT 3/4-10
2	17059-1	SHEAVE AXLE
2	23929	SPACER - 23927 & 23928 POLY SHEAVES
2	23928	BOOM SHEAVE WITH BUSHING
2	23116	PIN BLOCK REINFORCING
2	21428	BUSHING
l	21405	PIN - CYLINDER
l	21416	TERTIARY BOOM ASSEMBLY
1	21744	EXTENSION CYLINDER
2	24535	THRUST ROLLER
l	27207	PRIMARY BOOM WELDED ASSEMBLY
1	27209	SECONDARY BOOM WELDED ASSEMBLY
710,010	INCITATION OF A PART IN TAKE VICE AND INVESTIGATION OF A PART IN THE PART IN T	100000000000000000000000000000000000000

REF PARTS DRAWING 22930

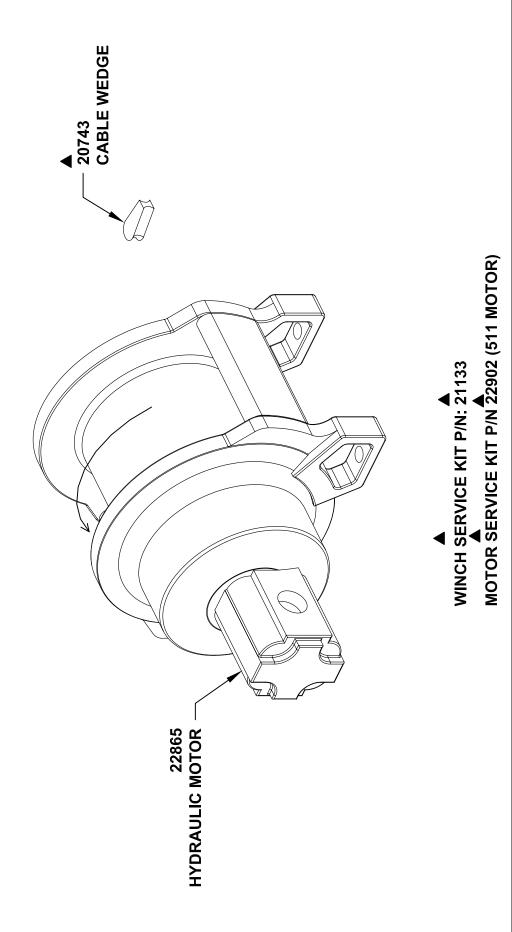
22931

10-1-09B C400 supersedes 6-3-08A **229**

MANUFACTURING, INC. CINCINNATI, OHIO

MENT PARTS LIST	X
_	HT40/50KXX

REPLACEMENT PARTS 22830 WINCH

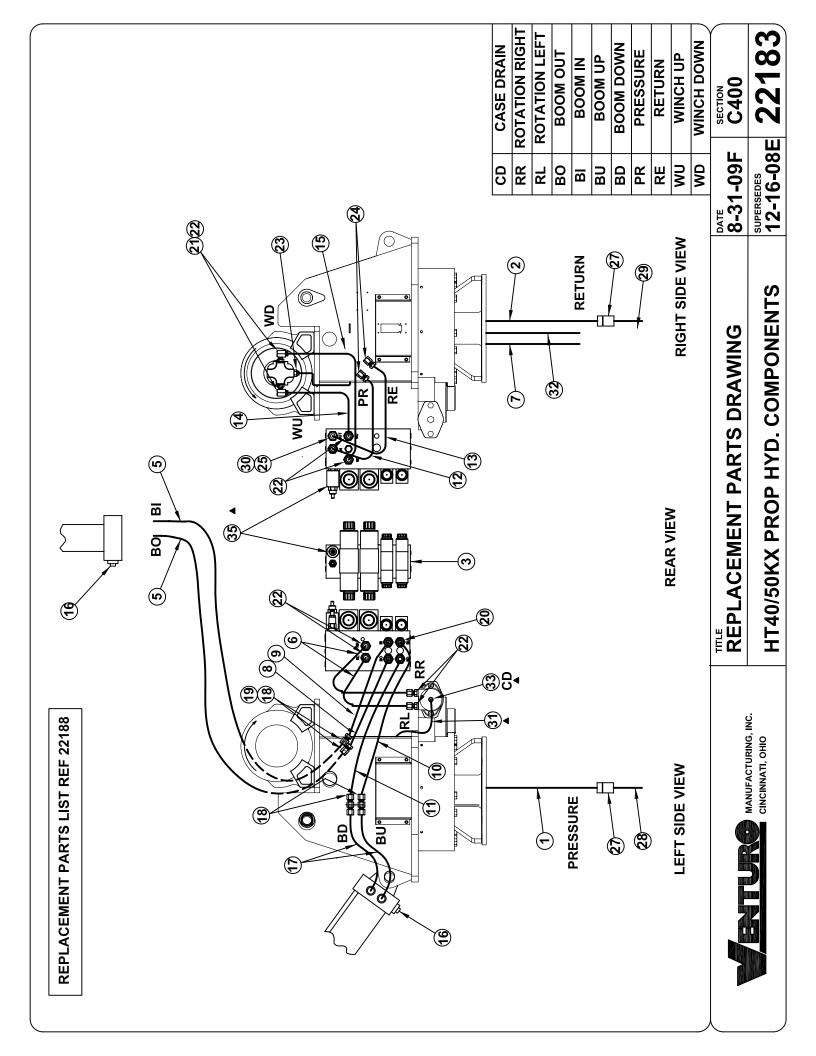




DRAWING	
PARTS	
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EMENT PARTS DRAWING	7-21-08A	SECTION
OTZLER WINCH - HT50KX PROP	12-18-06	22876



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

ПЕМ	PARTNUMBER	DESCRIPTION
1 2 3 4 5	22760 22761 22736 - 22363	PRESSURE HOSE RETURNHOSE VALVE BANK - HT40KX, HT50KX - EXTENSION CYLINDER HOSE
6 7 8 9 10	22751 22903 22757 22756 22755	HYD TUBING - ROTATION HOSE - CASE DRAIN HYD TUBING - BOOM OUT HYD TUBING - BOOM IN HYD TUBING - BOOM UP
11 12 13 14 15	22754 22758 22759 22831 22832	HYD TUBING - BOOM DOWN HOUSING PRESSURE HOSE HOUSING RETURNHOSE HOSE - WINCH UP HOSE - WINCH DOWN
16 17 18 19 20	20893 22382 H2700-0606 H6502-0606 H6400-0606	COMMAND AND CONTROL VALVE (ELEVATION & EXTENSION CYLINDERS) ELEV CYLINDER HOSE - 22" x 6MBX x 6FJX HYD BULKHEAD HYD ELBOW FITTING - 6MJ-6FJX - 90° HYDNIPPLE
21 22 23 24 25	H6801-0808 H6410-1608 H6801-0404 H2701LN-0808 H6801-1212	HYD ELBOW REDUCER - EXPANDER - 16MO-8FO HYD ELBOW - 4MJ-4MO - 90° HYD BULKHEAD UNION ELBOW W/LOCK NUT 8MJ - 90° HYD ELBOW FITTING 12MO - 12MJ - 90° - EXTRA LONG DROP
26 27 28 29 30	22312-X.XX 22764 22762 22763 H2406-1210	PRIORITY FLOW CART (X.XX REFER TO CHART BELOW) LIVE CONTINUOUS HYDRAULIC SWIVEL PRESSURE HOSE - COMPARTMENT SIDE RETURNHOSE - COMPARTMENT SIDE HYD TUBE ADAPTER 12FJ - 10MJ
31 32 33 34 35	22952 22953 H6801-0404 H2603-040404 ▲ 22502	CASE DRAIN HOSE 13" LONG CASE DRAIN HOSE 30" LONG ELBOW 4MJ-MO HYD. TEE - 4MJ-4MJ PROPORTIONAL VALVE

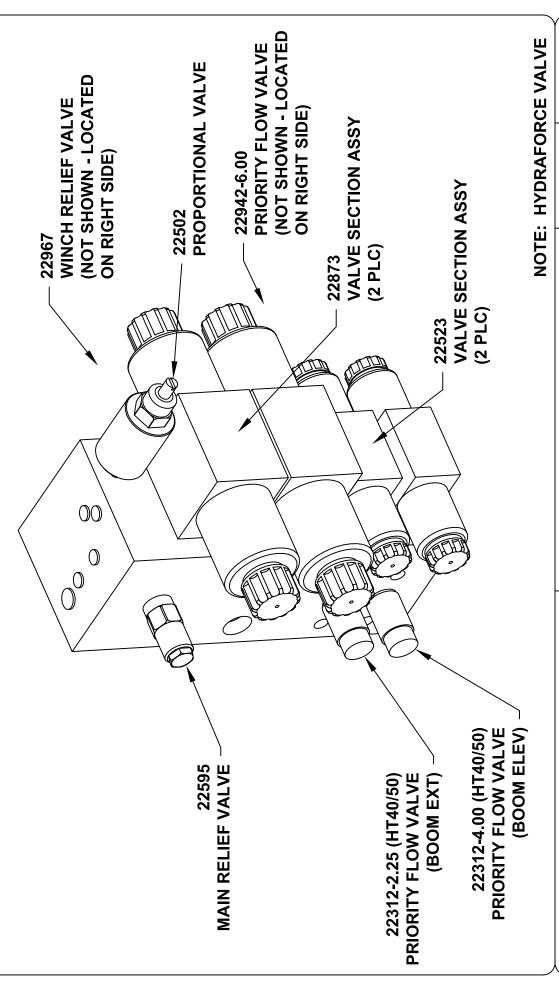
REPLACEMENT PARTS DWG REF 22183

LIT 40	EXTENSION	2.25
HT40	ELEVATION	4.00
HT50	EXTENSION	2.25
11130	ELEVATION	4.00



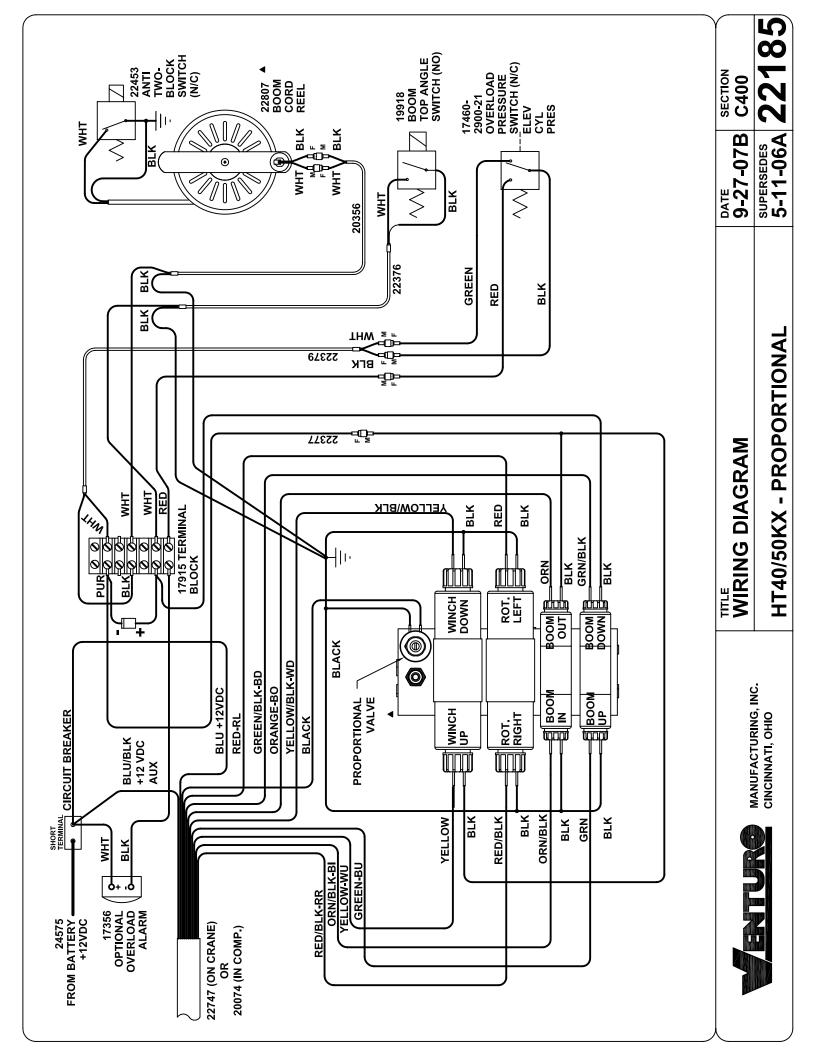
REPL. PARTS LIST	9-19-09F	C400
HT40/50KX - PROP	8-31-09E	22188

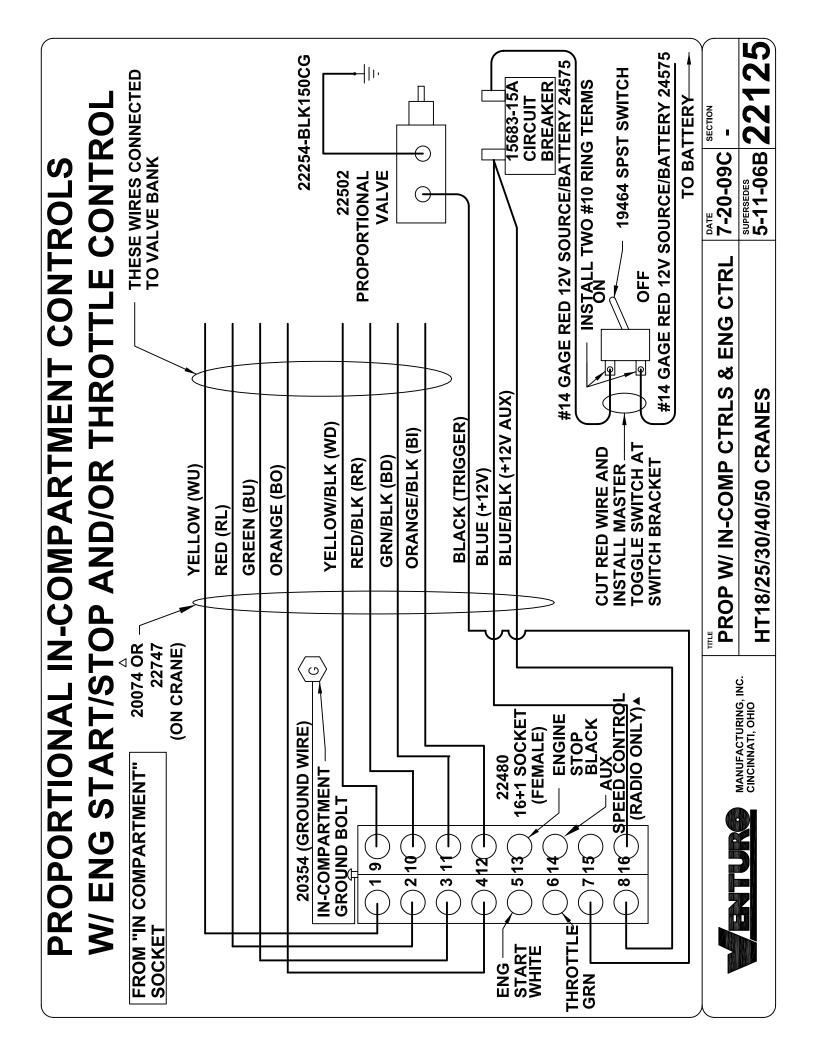
22736 HYDRAULIC VALVE MANIFOLD REPLACEMENT PARTS

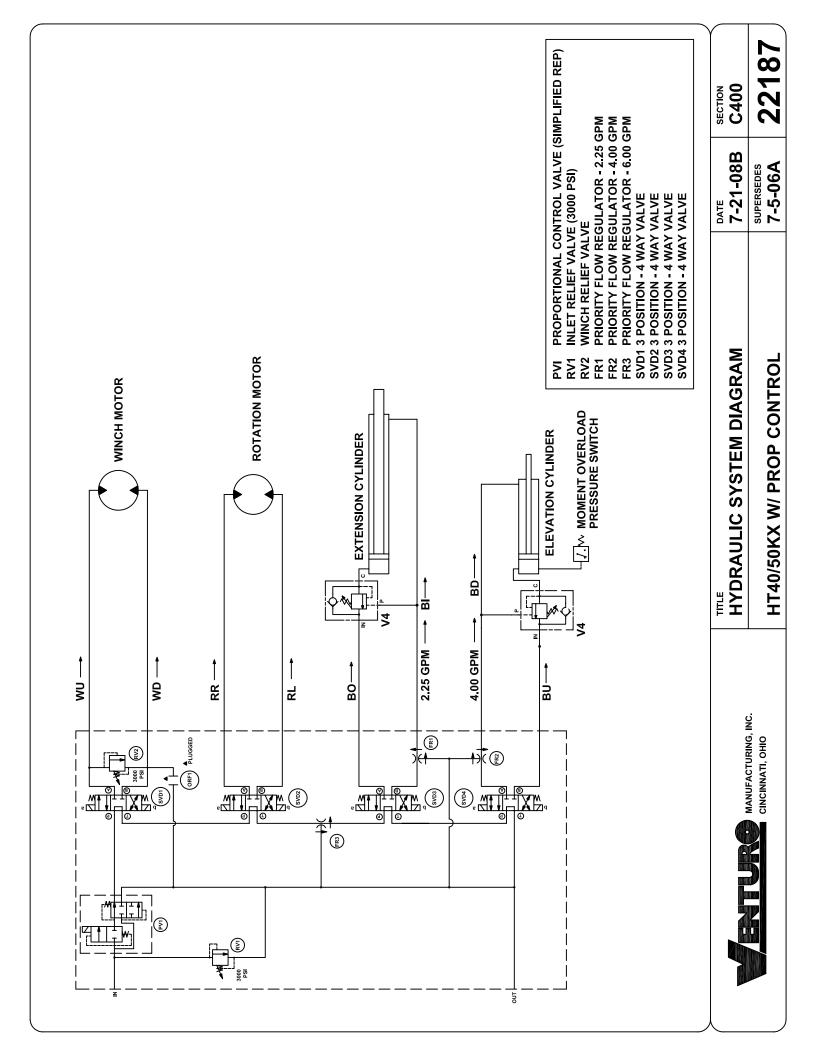




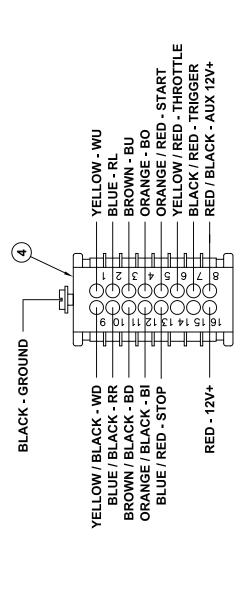
22736 REPLACEMENT PARTS	9-12-09	
HT40/50 PROPORTIONAL	SUPERSEDES ■	2297



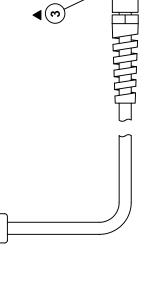




22065 PENDANT (PROP W/ ENG CTRLS)



PLUG - BACKSIDE VIEW



4

PROP. VALVE DRIVER CONT. BOARD	MALE INSERT - 16 + 1 POLE	PLUG CASE - 16 + 1 POLE	SPDT MOMENTARY SWITCH	SPST SWITCH	DESCRIPTION
22082	22472	22471	22081	22080	PART NO.
-	1	-	4	-	QTY
2	7	ဗ	2	1	ITEM QTY
\otimes)		•		



(ITEM NOT SHOWN ON PRINT

MANUFACTURING, INC.

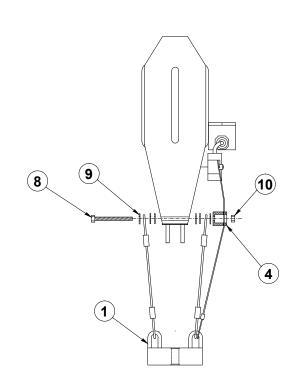
CINCINNATI, OHIO

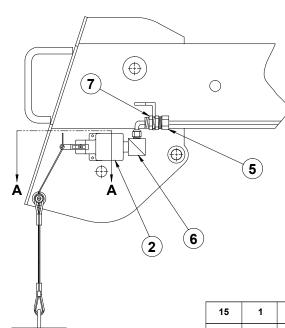
REPLACEMENT PARTS DRAWING 22065 PENDANT (PROP W/ ENG CTRLS)

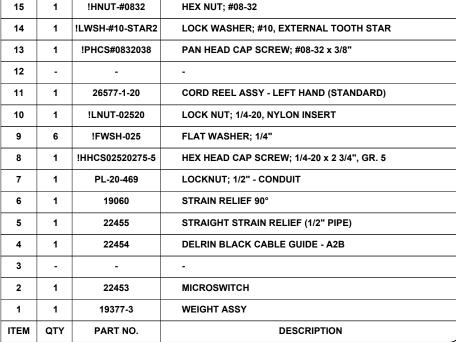
22073

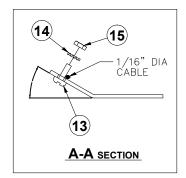
7-1-04

7-30-04A C400







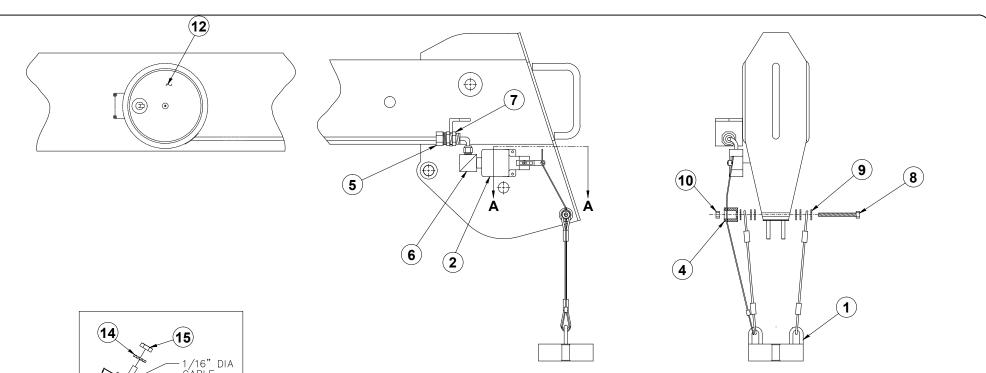


NOTE: PARTS SEE 22450 (NO DASH) KIT

VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO

ENTUR

REPL PARTS DWG - LH CORD REEL	03-26-25A	C400
HT40/50 GEN C & PRIOR	SUPERSEDES 09-11-07	22918



14 15	
1/16" DIA CABLE	
13)	
A-A SECTION	

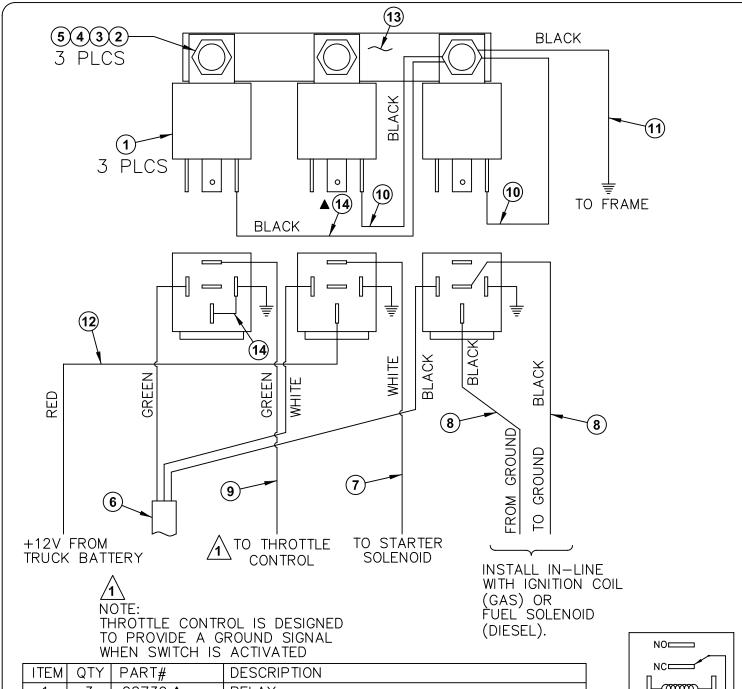
NOTE: PARTS SEE 22450-RH KIT

CINCINNATI, OHIO

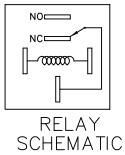
_				
	15	1	!HNUT-#0832	HEX NUT; #08-32
	14	1	!LWSH-#10-STAR2	LOCK WASHER; #10, EXTERNAL TOOTH STAR
•	13	1	!PHCS#0832038	PAN HEAD CAP SCREW; #08-32 x 3/8"
•	12	1	26577-2-20	CORD REEL & BRACKET ASSY - RIGHT HAND
•	11	-	-	-
	10	1	!LNUT-02520	LOCK NUT; 1/4-20, NYLON INSERT
	9	6	!FWSH-025	FLAT WASHER; 1/4"
	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	DELRIN BLACK CABLE GUIDE - A2B
	3	-	-	-
	2	1	22453	MICROSWITCH
	1	1	19377-3	WEIGHT ASSY
IT	ЕМ	QTY	PART NO.	DESCRIPTION
				DATE SECTION



	SECTION
	C400
Ī	22242
	22919



WHEN SWITCH IS ACTIVATED			
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

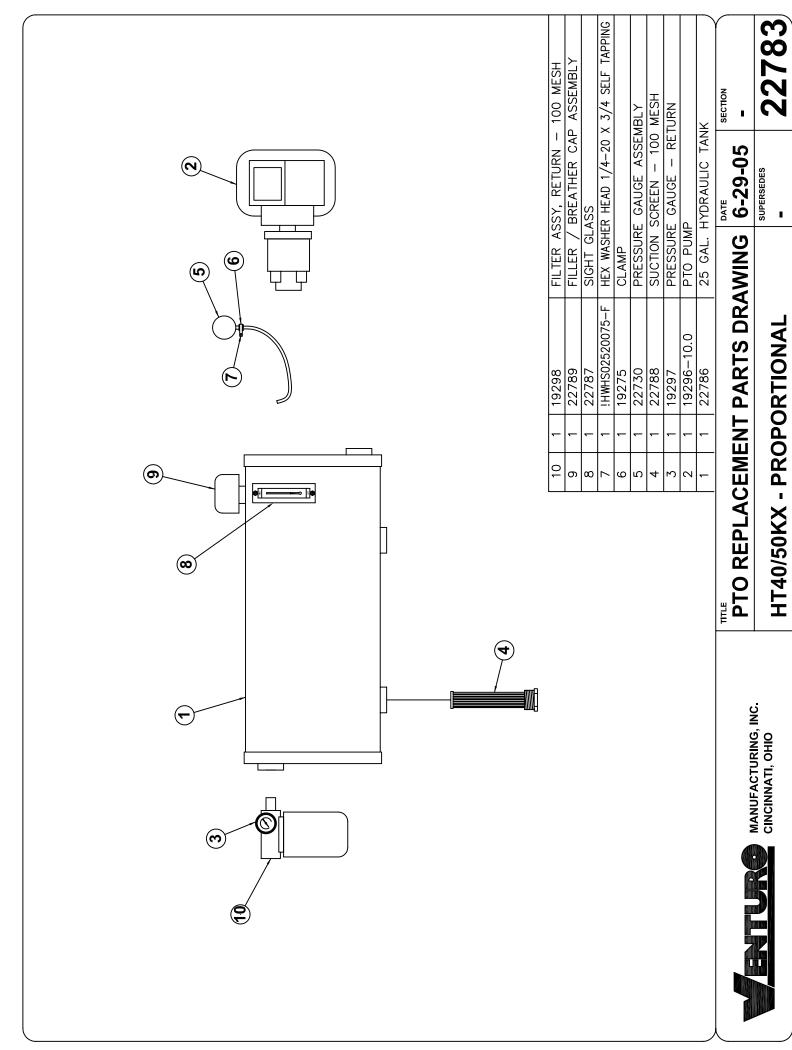




THROTTLE CONTROL
▲ HT18/25/40/50

5-26-05D	C400
SUPERSEDES	00045
2-2-05C	22615

SECTION



HT40KX - PROPORTIONAL 22921 FIELD SERVICE LABEL KIT

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

ENTURO	MFG., INC.	FIELD SERV. LABEL KIT	9-13-07	SECTION	
	CINCINNATI, OHIO	HT40KX - PROP.	SUPERCEDES =	22923	



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