

# ET10KX

**INSTALLATION & OWNER'S MANUAL** 

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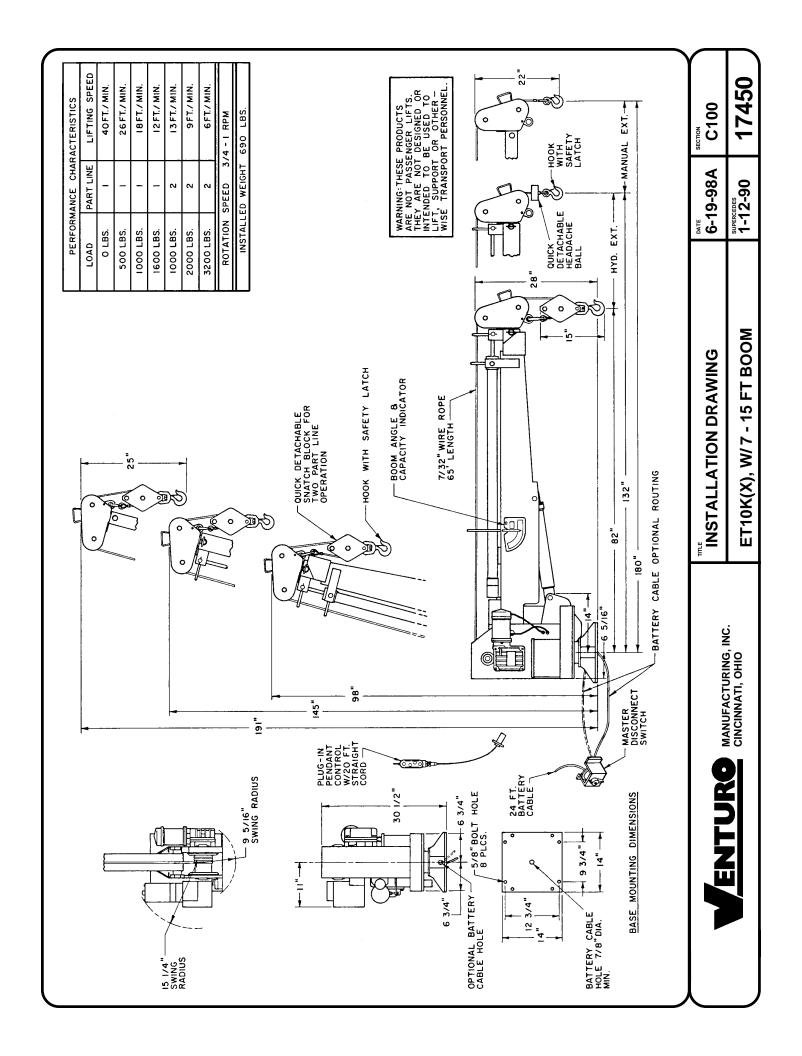
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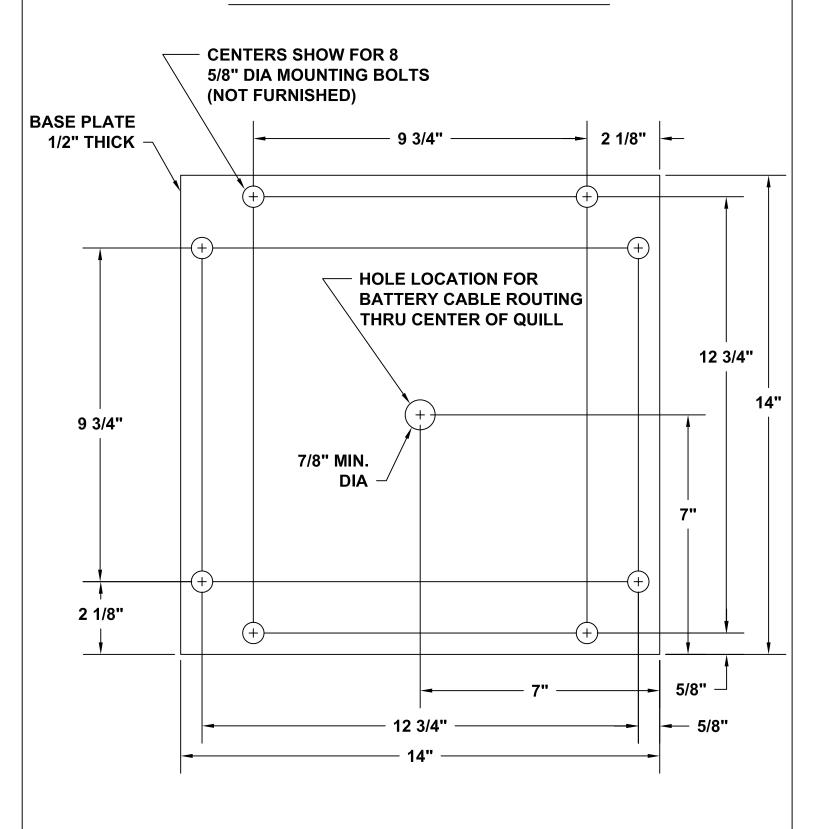
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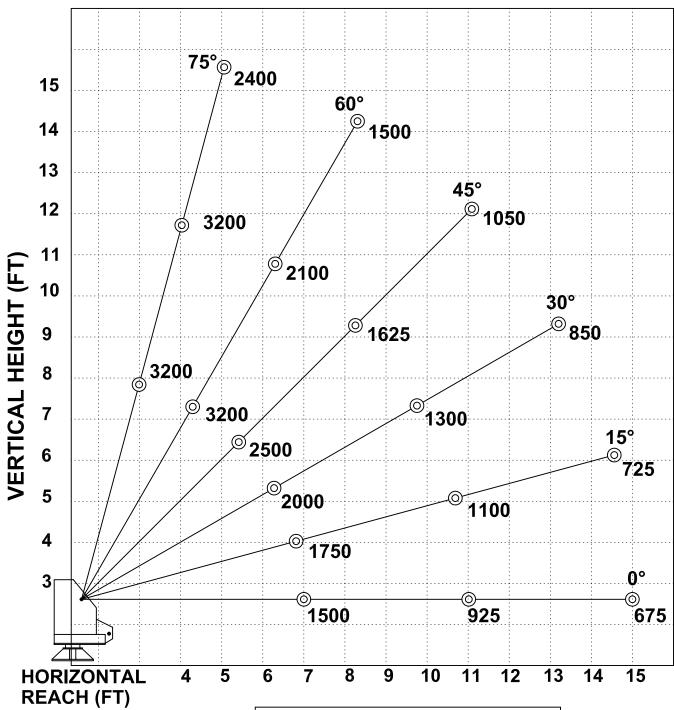
### **MOUNTING HOLE TEMPLATE**





17299 BASE MTG DIM	1-12-05C	C100
ET6KR, ET10K(X)	supersedes 7-22-99B	<b>I17390</b>

# ET10K(X) MAXIMUM CAPACITY CHART

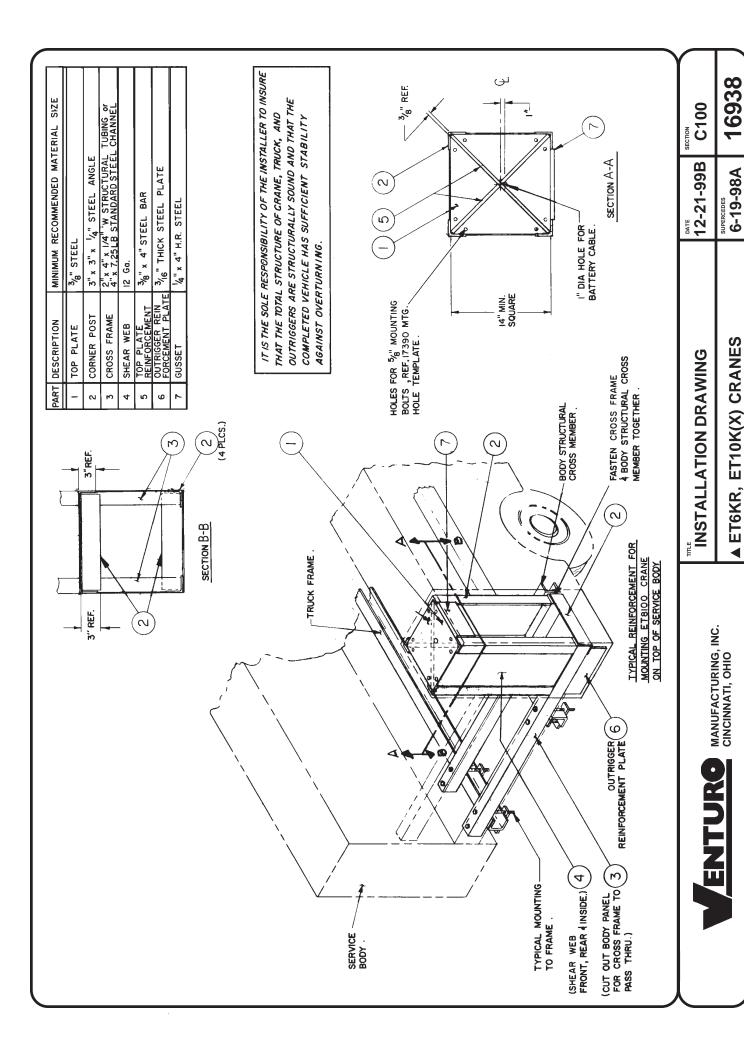


MUST USE SNATCH BLOCK FOR LOADS OF 1600 LBS. AND GREATER

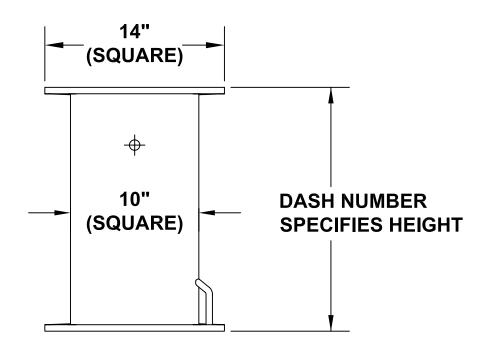


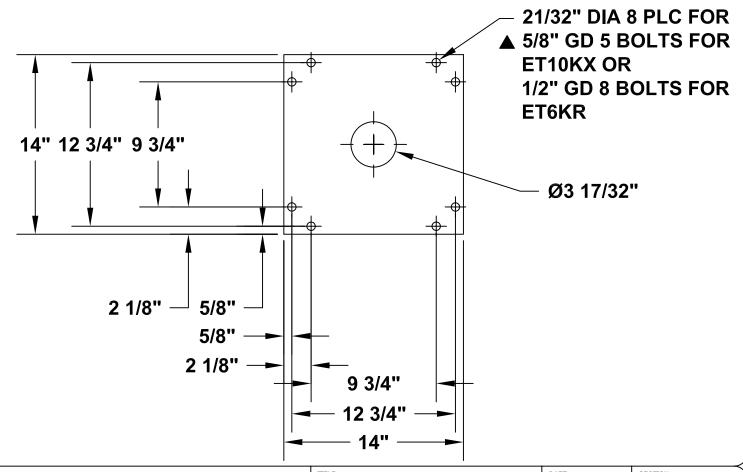
CAPACITY CHART	1
FT10K(X)	:

3-22-05A	C100
SUPERSEDES 7-1-98	19529



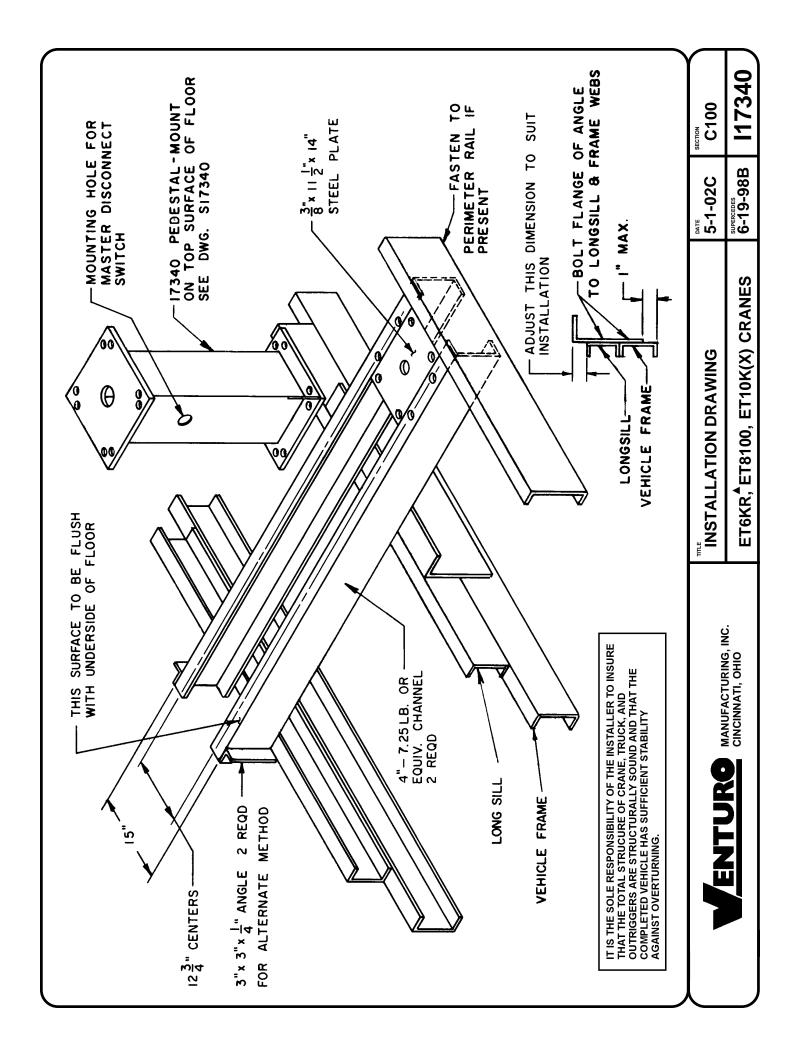
# 17340-XX PEDESTAL

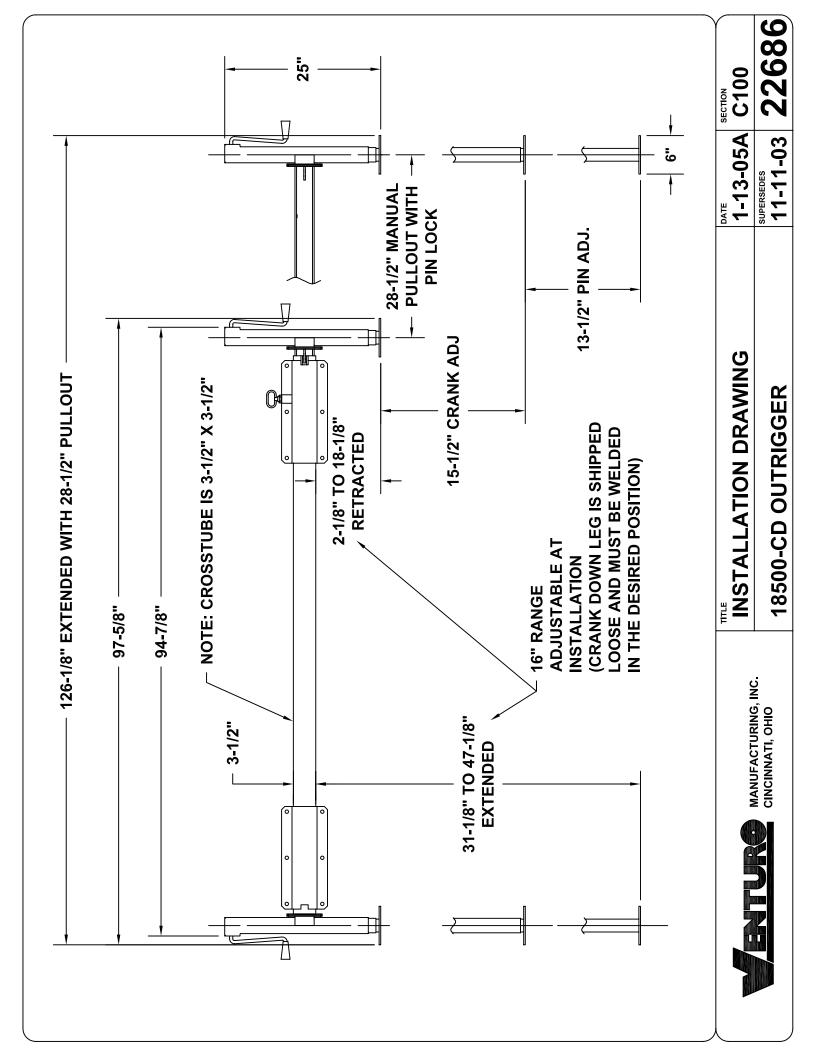


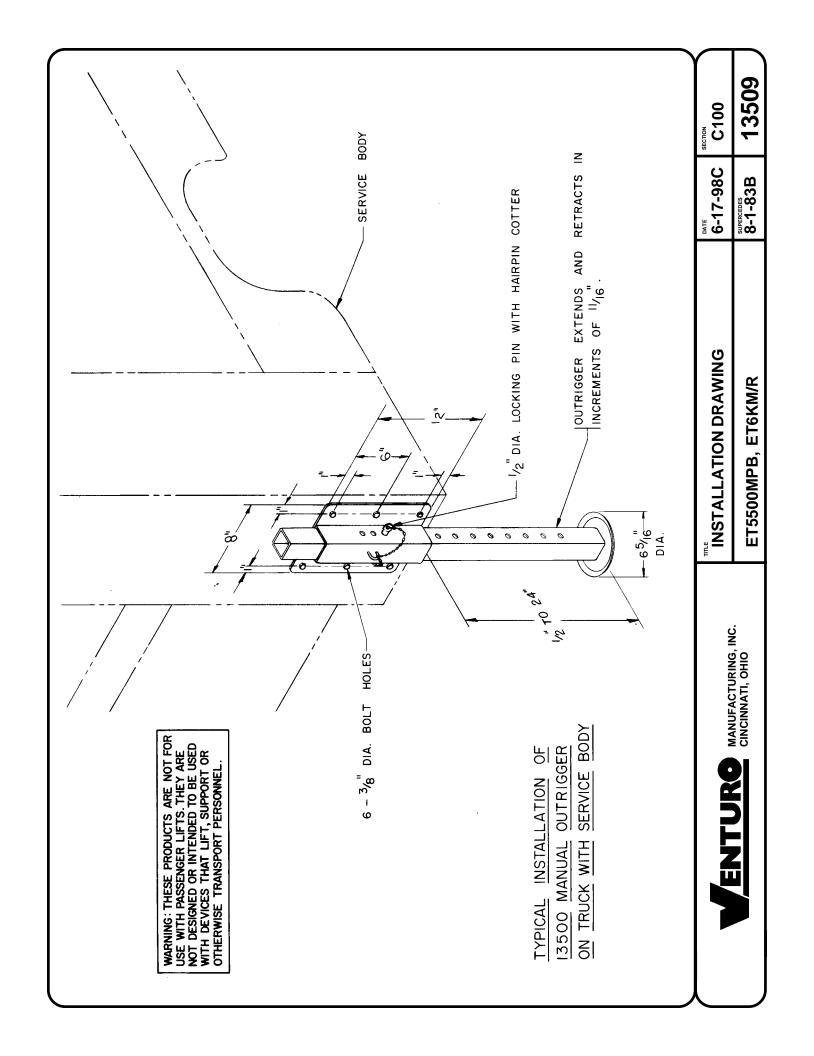


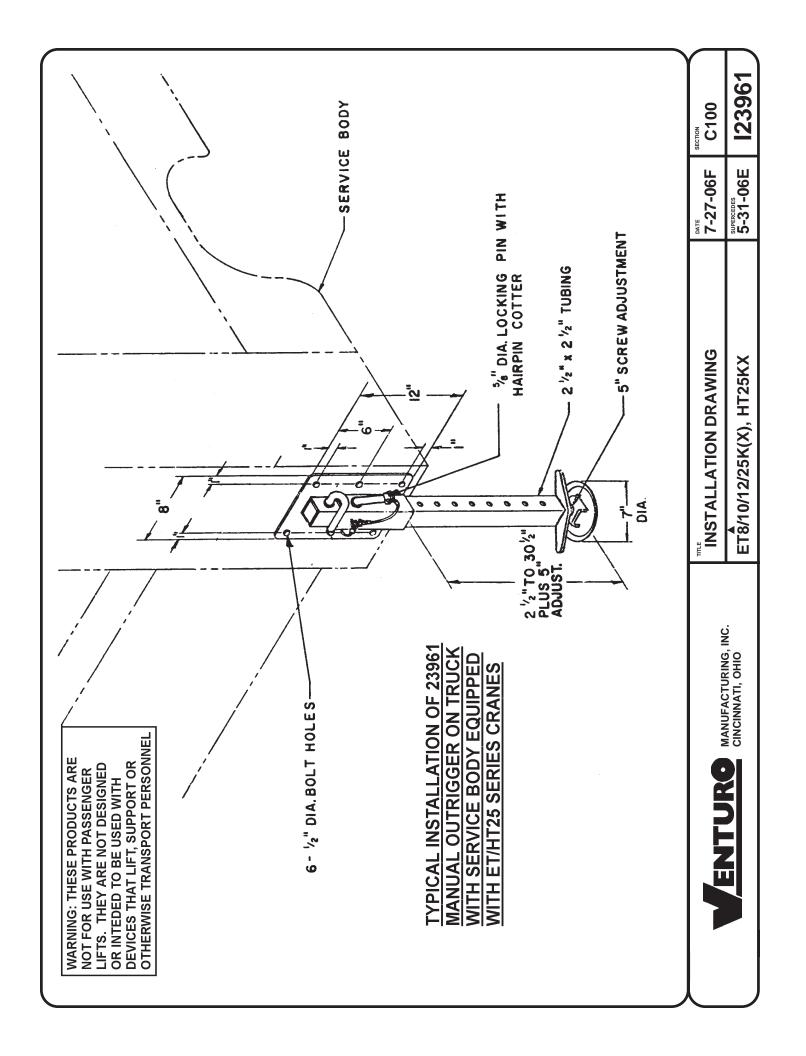


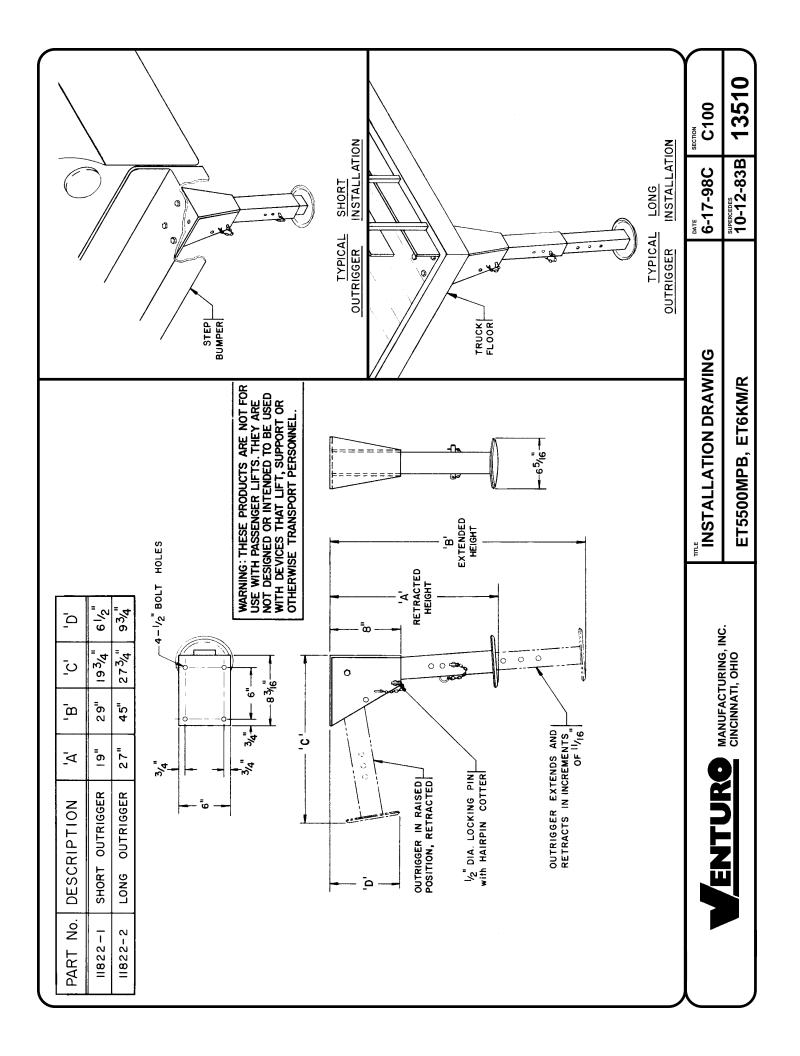
ET6KR, ET10K(X) CRANES	1-2-03C	S17340
<b>17340 MOUNTING PEDESTAL</b>	11-1-04D	C100
TITLE	DATE	SECTION



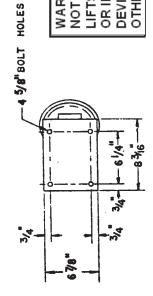








PART NO.	PART NO. DESCRIPTION	,A,	'B'	,D,	,Q,	
23960-1	SHORT	20-1/2"	28-1/2"	11.	7-1//"	
20002	OUTRIGGER	2/1-02	7/1-07	17	† <u></u>	
23060-2	DNOT	10/1-80	"C/1-NN	"00	10-1/2"	
7,00657	OUTRIGGER	2/1-02	7/1_++	67	2/1-01	

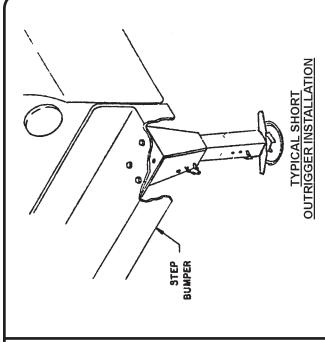


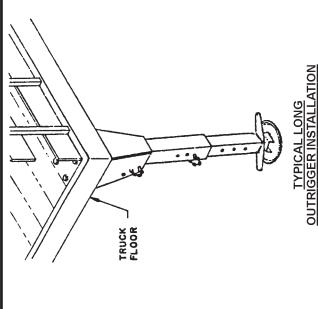
WARNING: THESE PRODUCTS ARE NOT FOR USE WITH PASSENGER LIFTS. THEY ARE NOT DESIGNED OR INTENDED TO BE USED WITH DEVICES THAT LIFT, SUPPORT OR OTHERWISE TRANSPORT PERSONNEL.

13/6]

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EXTENDED HEIGHT-PLUS 5" ADJUSTMENT

0 0

21/2"x21/2"TUBING

3"X 3"TUBING -

5/8"DIA. LOCKING PIN with HAIRPIN COTTER

ā

RETRACTED HEIGHT

OUTRIGGER IN RAISED POSITION, RETRACTED

MENTURO

Ž		L
	INC.	
	MANUFACTURING, INC.	CINCINNATI, OHIO
4		\

23960 OUTRIGGER SERIES ET/HT25 SERIES CRANES

5" SCREW ——ADJUSTMENT

INSTALLATION DRAWING	<sub>вате</sub> 8-2-06F	sестом <b>С100</b>
ET8/10/12/25K(X), HT25KX	3 P-27-06E	123960

### CRANE SAFETY AND HAZARDS

ET5500MPB/R, ET6KMPB/R, ET8100R, ET10K(X), ET18K(X), ET25K(X)

### **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.
- ATTACH PENDANT CORD SUPPORT SNAP TO ATTACHMENT POINT BEFORE PLUGGING IN PENDANT.
- 6. UNPLUG PENDANT AND SHUT OFF MASTER DISCONNECT SWITCH 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.

<b>ENTURO</b> MFG., INC.	INSTALLATION DWG	7-29-03G	C150
CINCINNATI, OHIO	ET5500MPB-ET25KX	10-14-97F	850711

# 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

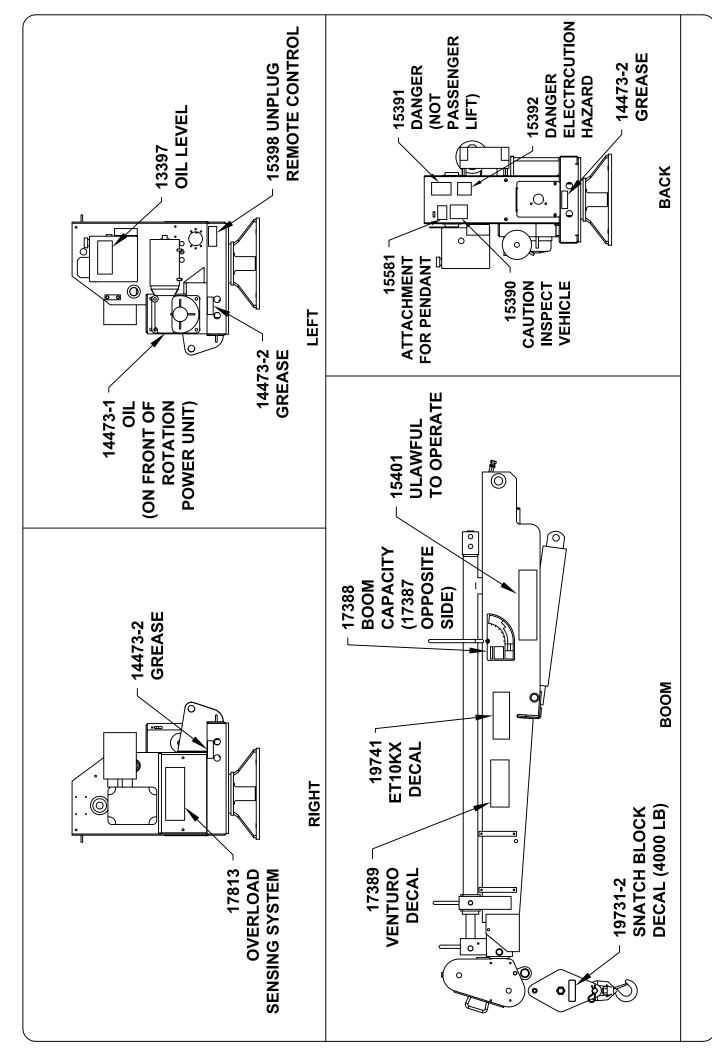
	AL VOLTAGE (kV) ETO PHASE)	MINIMUM REQUIRED CLEARANCE (FEET) *
over over over over over	0 - 50 50 - 200 200 - 350 350 - 500 500 - 750 750 - 1000	10 15 20 25 35 45

## 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

<sup>\*</sup> NOTE: ENVIRONMENTAL CONDITIONS SUCH AS FOG, SMOKE, OR PRECIPITATION MAY REQUIRE INCREASED CLEARANCES





17539

5-16-90

SUPERSEDES

C150

8-19-05A

DECAL PLACEMENT

ET10KX

MANUFACTURING, INC. CINCINNATI, OHIO

SECTION

PART NO.: 15390

DFCAL: CAUTION - INSPECT VEHICLE & CRANE

FUNCTION: To inform the operator of key

operating requirements.

QUANTITY: 1

PLACEMENT: Rear cover.

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. UNPLUG PENDANT AND SHUT OFF MASTER DISCONNECT SWITCH WHEN CRANE NOT IN USE.

6. FOR TRAVEL, BOOM MUST BE IN STOWED

PART NO.: 15391

DANGER - NOT PASSENGER LIFT DECAL:

FUNCTION: To inform the operator not to lift,

> support or transport personnel, and to ensure that crane operator is

adequately trained.

QUANTITY: 1

PLACEMENT: Rear cover.

**A DANGER** THIS CRANE IS NOT A PASSENGER I 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 OF THIS CRANE; AND LOT OF THIS CRANE; AND TH

PART NO.: 15392

DECAL: DANGER - ELECTROCUTION HAZARD

FUNCTION: To inform the operator that the

> machine (crane) represents an electrocution hazard should it come

close to or in contact with electrical voltage source.

QUANTITY: 1

PLACEMENT: Rear cover.

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.





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 OF



MFG., INC. CINCINNATI, OHIO **SAFETY DECALS** 

DATE 9-6-05

SECTION C150

**CRANES** 

SUPERSEDES

PART ND.: 15393A

DECAL: DANGER - ELECTROCUTION HAZARD

FUNCTION: Warns of danger from electrically

charged vehicle, crane or lead.

QUANTITY: 4

PLACEMENT: One on each side and each end of

vehicle.

PART ND.: 15513

DECAL: MASTER DISCONNECT SWITCH

FUNCTION: To inform the operator of location

and operation of master disconnect

switch.

QUANTITY: 1

PLACEMENT: On master disconnect switch bracket.









MFG., INC. CINCINNATI, OHIO SAFETY DECALS

4-26-06

section C150

CRANES

SUPERSEDES

21384

PART NO.: 14473-2

DECAL: GREASE

FUNCTION: To show the operator where to

apply grease.

QUANTITY: Varies

PLACEMENT: Near grease fittings.



PART NO.: 13397

DECAL: DIL LEVEL

FUNCTION: To inform the operator of proper oil

level to maintain.

QUANTITY: 1

PLACEMENT: Side of hydraulic power unit.

OIL LEVEL

USE AUTOMATIC TRANSMISSION FLUID

ATF - DEXRON

#13397

PART N□.: 15398

DECAL: UNPLUG REMOTE CONTROL

FUNCTION: To inform the operator to unplug

remote control when not in use.

QUANTITY: 1

PLACEMENT: Near pendant socket.





TITLE	DATE
ET DECALS	9-6-05
	SUPERSEDES

ET CRANES - 21354

section C150

PART NO.: 17813

DECAL: OVERLOAD SENSING SYSTEM

FUNCTION: To advise the operator of the

operation of the overload system.

QUANTITY: 1

PLACEMENT: Right side of housing.

PART NO.: 15581

DECAL: ATTACHMENT

FUNCTION: To show the attachement point for

pendant support cord.

QUANTITY: 1

PLACEMENT: Rear of housing.

PART NO.: 19731-2

DECAL: SNATCH BLOCK CAPACITY DECAL

To show the capacity of snatch block. FUNCTION:

QUANTITY: 2

PLACEMENT: Each side of snatch block.

CRANE IS EQUIPPED WITH AN OVERLOAD SENSING SYSTEM

OADED, THE WINCH UP, BOOM DOWN AND (OPTIONAL) BOOM OUT NS WILL AUTOMATICALLY SHUT OFF TO PREVENT INCREASED

OVERLOAD.

ON CRANES EQUIPPED WITH AN OPTIONAL OVERLOAD ALARM IT WILL ALSO SOUND.

SOUND.

3. IF AN OVERLOAD OCCURS, USE THE WINCH DOWN, BOOM UP OR BOOM IN FUNCTIONS TO RELIEVE THE OVERLOAD.

4. THE OVERLOAD SENSING 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.

5. SEE MANUAL FOR TESTING OVERLOAD SYSTEM.

NOTICE - WARRANTY VOID IF DISCONNECTED

DO NOT DISCONNECT THIS SYSTEM

**ATTACHMENT** FOR PENDANT CORD SUPPORT STRAP

> **SNATCHBLOCK** CAP. 4000 LBS.

NOTE: ACTUAL CRANE CAP MAY BE LOWER



**MISC. DECALS** 

7-27-06A

SECTION C150

SUPERSEDES

**ET6KR - ET8K(X) - ET10K(X)** 9-7-05

PART NO.: 17387 & 17388 (OPPOSITE)

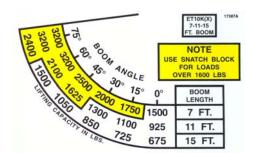
DECAL: CRANE CAPACITY

FUNCTION: To show the operator the operating

capacities of crane.

QUANTITY: 1 each

PLACEMENT: One on each side of boom.



PART NO.: 19740

DECAL: MODEL NUMBER (ET10K)

FUNCTION: To show the model of the crane.

QUANTITY: 2

PLACEMENT: One on each side of boom.



PART NO.: 19741

DECAL: MODEL NUMBER (ET10KX)

FUNCTION: To show the model of the crane.

QUANTITY: 2

PLACEMENT: One on each side of boom.





MFG., INC. CINCINNATI, OHIO MODEL & CAPACITY DECALS

9-10-05

C150

SECTION

ET10K(X)

SUPERSEDES

21363

### **IMPORTANT**

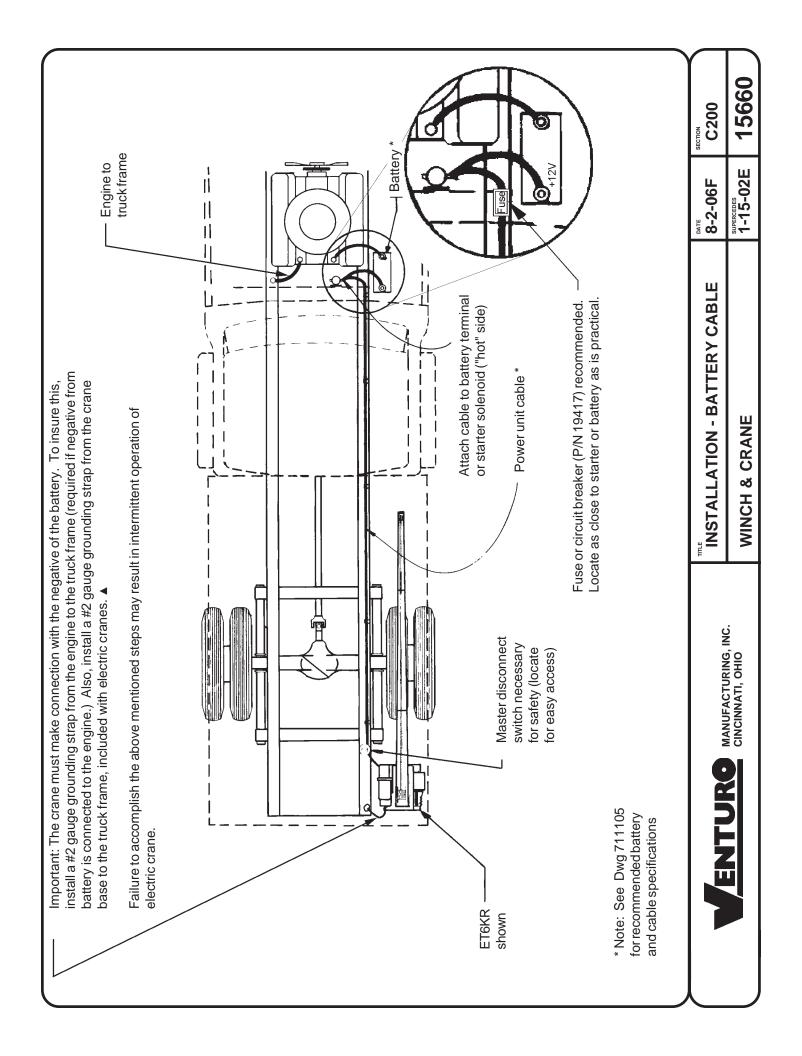
### ADEQUATE WIRING IMPERATIVE FOR PROPER OPERATION

- 1. PROPER GROUND PATH SEE DWG 15660
- 2. CURRENT DRAW IS SEVERAL HUNDRED AMPERES ADEQUATE WIRE SIZE AND BATTERY CAPACITY IS ABSOLUTELY ESSENTIAL (SEE CHART BELOW.)

MINIMUM WIRE GAUGE AND BATTERY SIZE										
MODEL	TOTAL LENGTH OF CABLE (FT)*						12 VOLT BATTERY REQUIREMENTS			
	0-20	21-25	26-30	31-40	41-50	51-60	61-70	71-80	CCA (A)**	RC (MIN)***
CE6K CT2000 CT2003/4/5 DT7K	#4	#4	#2	#2	#1	#0	#0 #0 #00  NOTRECOMMENDED  NOTRECOMMENDED		350	100
ET5500MPB ET5500R ET6KMPB ET6KR ET8K ▲ ET10K ET12K ▲	#2	#2	#1	#0	#00	NOTRE			450	100
ET8KX ▲ ET10KX ET12KX ▲	#2	#2	#1	#0	#00	NOTRE			550	150
ET25K ET25KX	SEEDF	RAWING 12	4600 FOR	CABLE AN	IDBATTER	YREQUIREMENTS				

- \* INCLUDES GROUND CABLE
- \*\* CCA=COLD CRANKING AMPS AT 0' F.
  THE CCA RATING IS A MEASURE OF THE ABILITY OF THE BATTERY TO DELIVER A <u>HIGH CURRENT</u> FOR A SHORT PERIOD OF TIME.
- \*\*\* RC=RESERVE CAPACITY IN MINUTES AT 25 AMPS AND 80' F.
  THE RC RATING IS A MEASURE OF THE <u>PERIOD OF TIME</u> THE BATTERY CAN SUPPLY A GIVEN CURRENT WITHOUT RECHARGING.

ENTURO MFG., INC.	MFG., INC.	CABLE & BATTERY	8-2-06S	C200	1
ENTOR	CINCINNATI, OHIO	CE, CT, DT, & ET	8-10-00R	711105	



### CRANE OPERATION AND MAINTENANCE INSTRUCTIONS

▲ ET8K(X), ET10KX, ET12K(X)

### SAFETY

Before operating this crane, read and understand these instructions, the 850711 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 diagrams on the 891014 Capacity Information Sheet as well as 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 1600 lbs. for the ET8K(X) and ET10K(X) or 1750 lbs. for the ET12K(X) 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. Refer to drawing 21701, 17450 or 21575 for this.

### **CONTROLS**

This crane is operated by a remote control pendant. The pendant should be unplugged and stored in a compartment or the cab 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.

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

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

Check all control functions to see that they are working correctly.



INSTALLATION DWG	8-2-06E	C200
ET8/10/12K(X)	7-27-06D	900530a

### CONTROL FUNCTIONS

<u>WINCH "UP" and "DOWN"</u> - Raises and lowers the load with the wire rope.

<u>POWER ELEVATION</u> - "Up" raises the boom elevation by operating the valves and the electric hydraulic power unit. "Down" operates a solenoid release valve mounted on the cylinder to lower the load and/or boom by gravity at a controlled rate. A check valve on the cylinder prevents the boom from coming down if a hose breaks. A flow control valve controls lowering rate.

<u>POWER EXTENSION</u> - "Out" and "In" extend and retract boom 4 ft. under power. A pilot operated check valve on the boom prevents the boom retracting without hydraulic power or if a hose should break. A flow control valve controls retract rate under load.

<u>POWER ROTATION</u> - "L" & "R" control direction of rotation. The ET8KX, ET10KX or ET12KX can be rotated continuously thru 360 degrees or more. There are no internal restrictions on the number of rotations in any direction.

<u>CONTROL PRIORITY SYSTEM</u> - As a built in safety feature, the operator can perform only one major and one minor function at any one time. Major functions are rotation, winching up of a load, and elevating, extending and retracting the boom. Minor functions are winching down, and lowering the boom.

- a. "Winch Up" has priority over "Boom Up", "Boom Out & In", and "Rotation"
- b. "Boom Up" has priority over "Boom Out & In", and "Rotation".
- c. "Boom Out & In" have priority over "Rotation".
- d. "Boom Down" and "Winch Down" can be operated with any function.

### CRANE OPERATION

Avoid rapid reversal of the Winch and Rotation Control Switches. The high inrush current to the motors during reversal can reduce the life of the contactors and the motor brushes and commutators.

When operating "Winch Up", "Boom Down" or "Boom Out" always maintain clearance between the boom head and the snatch block or hook.

Do not lift or drag a load sideways using any of the crane functions. The boom has much lower bending strength sideways than in the vertical direction.



SUPERCEDES	
INSTALLATION DWG 5-27-06D	C200

### OVERLOAD ALARM SYSTEMS (OPTIONAL)

This crane may be equipped with an optional overload alarm system.

- 1. Overload alarm horn sounds if rated load is exceeded at any reach.
- 2. If alarm sounds, RAISE Boom or LOWER Winch to remove overload.
- 3. Always RAISE Boom slightly before lifting load Warning system INOPERATIVE when cylinder is completely bottomed.
- 4. Alarm can be tested by raising Boom against UP limit stop.

### MANUAL TELESCOPIC BOOM

The 6' to 14' and the 7' to 15' boom have a 4' manual telescoping section in addition to the 4' power extension. A toggle pin locks the boom into either the extended or retracted position.

### TRUCK SETUP & OUTRIGGERS

- 1. The truck should be parked on ground that is as level and as firm as possible when using the crane.
- 2. The center of the crane should be positioned close enough to the job so that it can be operated at a reach that puts the load within the rated capacity of the crane.
- 3. Set the vehicle parking brake and put the vehicle transmission in "park" or a low gear unless the engine is to be left running.
- 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. TURN OFF THE MASTER DISCONNECT SWITCH.
- 5. Unplug the control pendant and store in a body compartment or the cab.

# **MARNING**

• The pendant (or receiver) plug must be unplugged from the crane socket and the Master Disconnect (power) switch must be turned "off" when the crane is not in use! Leaving the pendant (or receiver) connected and the power on when not in use may result in dangerous, unintentional activation of the crane functions."



ET8/10/12K(X)	5-26-06C	900530c
	5-27-06D	
TITLE	DATE	SECTION

### **MAINTENANCE**

Crane requires only periodic lubrication. As a standard procedure this can be done at the time the vehicle is serviced. Rotation bearings are self - lubricating. Fill Winch & Rotation Gear Boxes to level of the side plug with S.A.E. 85W/140 Hypoid Lubricant.

Chains should be oiled lightly (<u>DO NOT GREASE</u>). Excess oil or grease will collect road grit and cause excessive chain wear. Moly filled chassis grease should be applied by pressure grease gun to fittings on each end of rotation worm shaft and on rotation gear teeth thru port at rear of crane.

Fill electric hydraulic boom elevation, power unit reservoir to oil level line with boom down. Use Automatic Transmission Fluid Type "A" or Type "B" (Dexron). Below 20 degrees F. add 3/4 pt. Kerosene. Drain and refill with Dexron ATF when weather warms up. Check periodically or when boom action slows down.

<b>ENTURO</b>	MFG., INC. CINCINNATI, OHIO
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ET10KX	5-30-90	900530d
INSTALLATION DWG	10-23-97A	C200
TITLE	DATE	SECTION

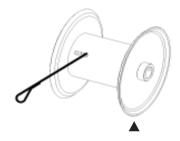
### **SELECTION**

The chart below shows the maximum working load and breaking strength of 7 X 19 Galvanized AIRCRAFT Grade Wire Rope in various diameters. The breaking strength is 3-1/2 times the maximum working load. Do not use wire rope with a Maximum Working Load rating less than the single line capacity of the crane. Use of wire rope diameter larger than the size furnished with the crane will reduce the fatigue life of the wire rope.

WIRE ROPE DIAMETER	MAXIMUM WORKING LOAD	BREAKING STRENGTH
1/8"	570 lbs	2000 lbs
5/32"	800 lbs	2800 lbs
3/16"	1200 lbs	4200 lbs
7/32"	1600 lbs	5600 lbs
1/4"	2000 lbs	7000 lbs
5/16"	2800 lbs	9800 lbs
3/8"	4114 lbs	14400 lbs

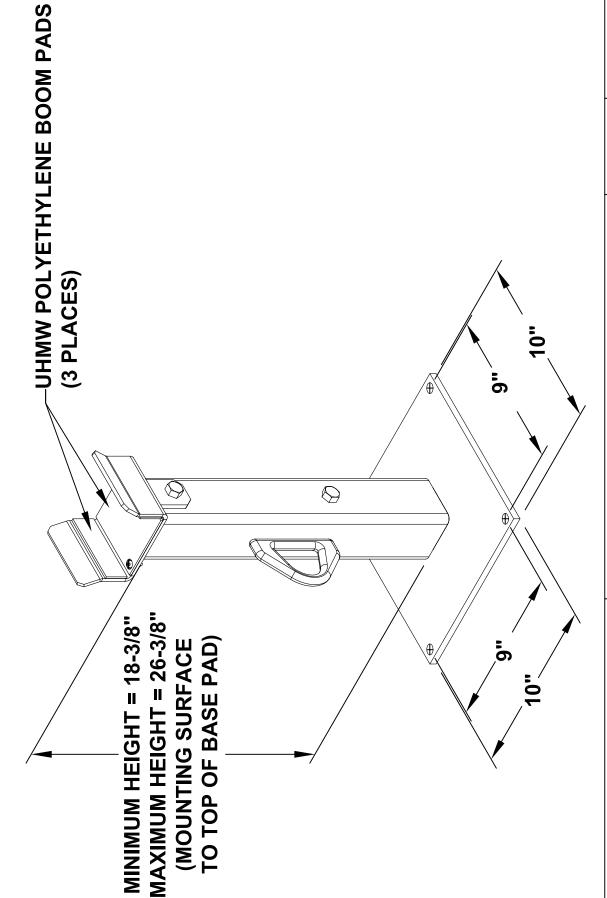
### **INSTALLATION**

- 1. Unwind coil of rope by rolling it along floor. This will prevent kinking.
- 2. Most VENTURO Cranes are provided with a slot in the winch drum side plate for attaching the end of the wire rope with a stop collar. A hole in the housing allows access for the end of the wire rope when inserted thru the slot.
  - The ET20K(X) & ET25K(X) Cranes have a clamp built into the winch drum and do not use a stop collar.
- 3. THERE MUST ALWAYS BE AT LEAST (3) TURNS OF WIRE ROPE ON THE DRUM WHEN UNDER LOAD.





# **20075 ADJUSTABLE BOOM REST**





INSTALLATION DRAWING	6-12-06B
•	SUPERSEDES
ET6KR, ET8K(X), ET10K(X), ET12K(X)	1-13-05A

20076

### TROUBLESHOOTING GUIDE ET10KX



FOR FURTHER ASSISTANCE CALL 800-226-2238 AND ASK FOR TECHNICAL SUPPORT.

### INITIAL TROUBLESHOOTING STEPS (ANY INOPERATIVE FUNCTION)

IF YOU ARE EXPERIENCING AN ELECTRICAL PROBLEM (OR ARE UNSURE WHAT THE PROBLEM IS) CHECK THE FOLLOWING BEFORE PROCEEDING:

CHECK THE MAIN POWER SUPPLY - MAKE SURE THAT THE MASTER DISCONNECT SWITCH IS ON.

CHECK THE PENDANT CORD PLUG - MAKE SURE IT IS SECURELY PLUGGED IN.

THE MOST COMMON ELECTRICAL PROBLEM IS INSUFFICIENT VOLTAGE. YOU CAN VERIFY SUFFICIENT SOURCE VOLTAGE BY REFERRING TO SERVICE BULLETIN 800306 "MINIMUM VOLTAGE TEST" IN THIS INSTALLATION MANUAL. IF YOU ARE UNABLE TO PERFORM THIS TEST (i.e. THE POWER UNIT WILL NOT FUNCTION) SKIP TO THE NEXT STEP.

CHECKING FOR SUFFICIENT CONTROL VOLTAGE AT THE PENDANT SOCKET:

REMOVE THE PENDANT CONTROL FROM THE CRANE AND PROP OPEN THE PENDANT SOCKET LID.

TURN **ON** THE MASTER DISCONNECT SWITCH.

LOCATE THE POWER SUPPLY PIN ("HOT PIN") FOR THE SOCKET - SEE FIGURE 1 BELOW.

WITH A MULTIMETER/VOLTMETER MEASURE THE VOLTAGE AT THE "HOT PIN". THIS SHOULD BE SOURCE VOLTAGE MEASURING 12 VOLTS DC.

### PENDANT CONTROL BYPASS PROCEDURE

IF THE PENDANT CORD IS SUSPECT, YOU CAN JUMPER THE "HOT PIN" TO ANY OF THE FUNCTION PINS (i.e. WU = WINCH UP, BD = BOOM DOWN, ETC.) TO VERIFY WHETHER THE PROBLEM IS IN THE PENDANT CONTROL OR THE CRANE WIRING.

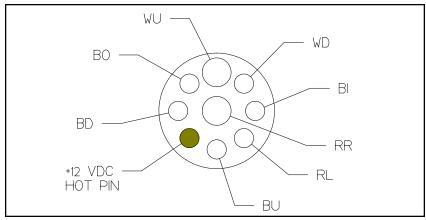


FIGURE 1 - PENDANT SOCKET "HOT PIN"



# LOSS OF SPECIFIC FUNCTIONS - THE FOLLOWING PROVIDES TROUBLESHOOTING STEPS FOR THE MOST COMMONLY ENCOUNTERED PROBLEMS.

LOSS OF ALL THREE OF THE FOLLOWING FUNCTIONS <u>SIMULTANEOUSLY</u> - WINCH UP (WU), BOOM DOWN (BD), AND BOOM OUT (BO)

VERIFY THAT THE CRANE IS NOT OVERLOADED (CHECK CAPACITY DECAL ON BOOM).

IF CRANE IS OVERLOADED - UNLOAD CRANE COMPLETELY BY WINCHING DOWN.

IF FULL FUNCTION IS RESTORED, REDUCE LOAD AND RESUME OPERATION.

IF NOT, REMOVE THE SIDE ELECTRICAL BOX COVER. LOCATE THE 22739 [OVERLOAD SHUTOFF] RELAY-REFER TO 20591 ELECTRICAL SCHEMATIC IN THIS INSTALLATION MANUAL.

▲ 17799 RESISTOR ASSY, IS ATTACHED TO THE OVERLOAD SHUTOFF RELAY-CAREFULLY DETERMINE IF RESISTOR IS HOT/WARM.

IF SO, REMOVE THE BLACK WIRE FROM TERMINAL #5 ON THE OVERLOAD SHUTOFF RELAY.

IF THIS RESTORES FUNCTIONS, IT INDICATES THAT THE OVERLOAD SHUTOFF PRESSURE SWITCH (LOCATED ON THE ELEVATION CYLINDER) HAS MALFUNCTIONED.

IF THIS DOES NOT RESTORE FUNCTIONS, IT MAY INDICATE THAT THE OVERLOAD SHUTOFF RELAY IS DEFECTIVE.

RECONNECT THE BLACK WIRE TO THE OVERLOAD RELAY - DO NOT CONTINUE TO OPERATE THE CRANE WITH THIS WIRE DETACHED.

WARNING: THE FOLLOWING PROCEDURE IS INTENDED FOR <u>UNLOADED</u> CRANE STOWAGE ONLY. <u>A LOADED CRANE SHOULD NEVER BE OPERATED IN THIS MANNER</u>. TO STOW AN UNLOADED CRANE WHICH HAS LOST WU, BD AND BO PERFORM THE FOLLOWING:

LOCATE 22739 [OVERLOAD SHUTOFF] RELAY. RELOCATE THE 14" PURPLE WIRE FROM TERMINAL #2 TO TERMINAL #1 **NEXT** TO THE 3" BLACK WIRE IN THE CENTER OF THE RELAY.

THIS ACTION PROVIDES A SURE GROUND FOR THE 14" PURPLE WIRE AND SHOULD RESTORE THE THREE FUNCTIONS (WINCH UP, BOOM DOWN, AND BOOM OUT).

NOTE: DO NOT CONTINUE TO OPERATE THE CRANE IN THIS CONFIGURATION. EXPEDITE PERMANENT REPAIRS BY VISITING AN AUTHORIZED DEALER OR CALLING OUR TECHNICAL SUPPORT LINE @ 1-800-226-2238 X 124.



ET10KX	4-24-00A	19477b
INSTALLATION DWG	9-16-05B	C300
TITLE	DATE	SECTION

### OPERATING A LOADED CRANE USING THIS PROCEDURE WILL VOID THE WARRANTY.

LOSS OF BOOM DOWN (BD) ONLY:

CHECK FOR WINCH UP AND BOOM OUT. IF THESE TWO FUNCTIONS ARE WORKING PROCEED TO NEXT STEP. IF THESE TWO FUNCTIONS ARE ALSO INOPERATIVE SEE THE PREVIOUS SECTION ("LOSS OF WINCH UP, BOOM DOWN, AND BOOM OUT").

WARNING: THE FOLLOWING PROCEDURE IS INTENDED FOR <u>UNLOADED</u> CRANE STOWAGE ONLY - <u>A LOADED CRANE SHOULD NEVER BE OPERATED IN THIS MANNER</u>. TO STOW AN UNLOADED CRANE WHICH HAS LOST THE BOOM DOWN FUNCTION PERFORM THE FOLLOWING:

CAUTION: KEEP HANDS AWAY FROM ALL PINCH POINTS BY APPROACHING THE "BOOM TOP POSITION SWITCH" FROM THE TOP OF THE MECHANISM - IN FRONT OF THE WINCH AND JUST BEHIND THE BOOM. LOCATE THE BOOM TOP POSITION SWITCH (SILVER BUTTON) AND DEPRESS USING A LONG SCREWDRIVER. AT THE SAME TIME, ACTIVATE THE BOOM DOWN SWITCH ON THE PENDANT CONTROL.

IF BOOM DOWN IS NOW FUNCTIONAL THIS WOULD INDICATE THAT THE OVERLOAD PRESSURE SWITCH IS NOT PROPERLY GROUNDED OR IS ITSELF MALFUNCTIONING (NOT PROVIDING THE PRIMARY GROUND TO THE BOOM DOWN RELEASE COIL).

### LOSS OF HYDRAULIC FUNCTIONS

IF (ANY ONE OF THESE THREE FUNCTIONS) BOOM UP, BOOM OUT, OR BOOM IN IS FUNCTIONING PROPERLY, THE HYDRAULIC POWER UNIT AND ITS ASSOCIATED CONTACTOR ARE WORKING PROPERLY AND THIS SECTION DOES NOT APPLY.

IF THE HYDRAULIC POWER UNIT DOES NOT WORK LISTEN FOR THE CLICK OF THE HYDRAULIC POWER UNIT CONTACTOR (LOCATED IN THE SIDE ELECTRICAL BOX).

IF NO CLICK (OF THE CONTACTOR) IS HEARD WHEN ACTUATING ANY ONE OF THE THREE FUNCTIONS THE PROBLEM IS ELECTRICAL, NOT HYDRAULIC, AND THE "INITIAL TROUBLESHOOTING" SECTION SHOULD BE CONSULTED.

IF THE HYDRAULIC POWER UNIT OPERATES (YOU CAN HEAR THE MOTOR RUNNING), BUT THE HYDRAULIC FUNCTION(S) (BOOM UP, BOOM OUT, BOOM IN) DO NOT, PERFORM THE FOLLOWING STEPS:

ACTUATE A HYDRAULIC FUNCTION WHILE TESTING THE MAGNETIC FIELD OF THE "SURGE BYPASS" COIL (REFER TO THE WIRING DIAGRAM) WITH A SMALL SCREW DRIVER - THE COIL SHOULD MAGNETICALLY ATTRACT THE SCREW DRIVER BLADE WHEN ANY OF THE HYDRAULIC FUNCTIONS ARE OPERATED.

IF NO MAGNETIC ATTRACTION IS EVIDENT, THE COIL IS NOT RECEIVING POWER, NOT RECEIVING A GROUND, OR THE COIL ITSELF HAS FAILED.

IF THE COIL IS PRODUCING A MAGNETIC FIELD REMOVE THE COIL AND BACK OFF THE VALVE STEM FROM THE VALVE BLOCK - IT IS NOT NECESSARY TO COMPLETELY REMOVE THIS VALVE. CAREFULLY TURN THE VALVE "IN" UNTIL IT IS SEATED - NO TORQUE IS REQUIRED ("FINGER-TIGHT" IS SUFFICIENT). OVER-TORQUING THE VALVE MAY RESULT IN DAMAGE OR MALFUNCTION.

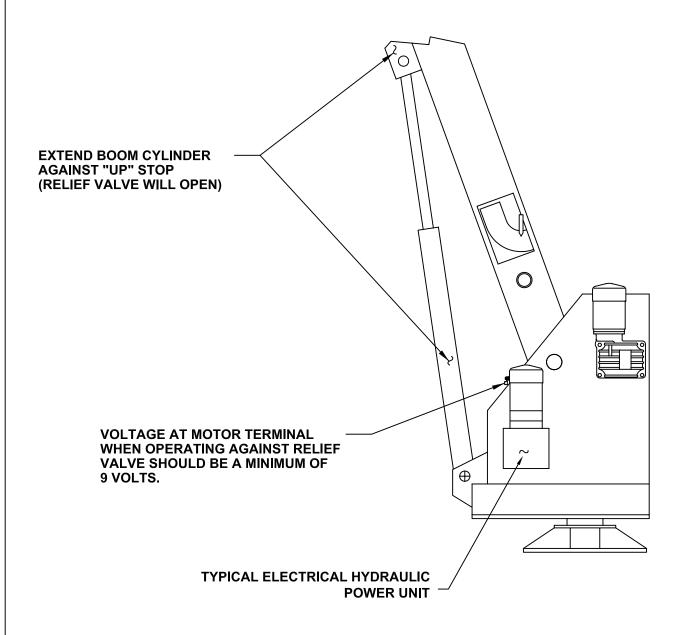


## MINIMUM VOLTAGE TEST

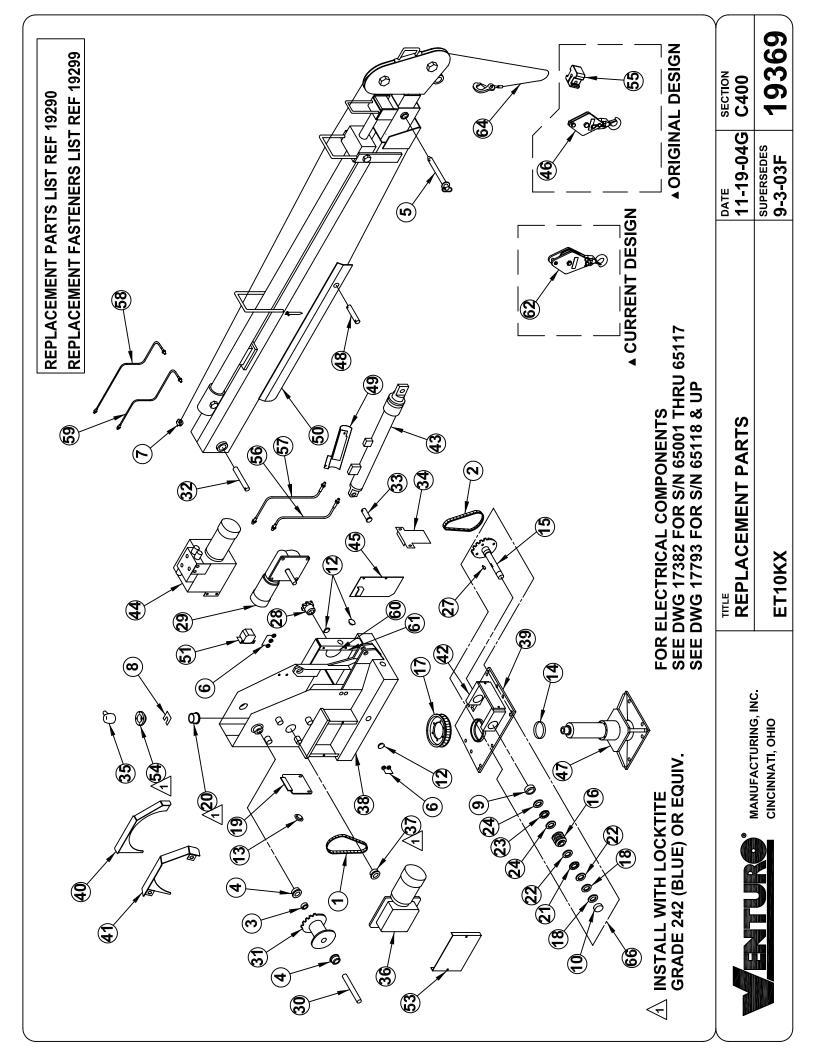
ET5500, ET6K(M/R), ET8100, ET10K(X)

ONE OF THE MOST COMMON ELECTRICAL PROBLEMS ENCOUNTERED ON ELECTRICAL CRANES IS INSUFFICIENT VOLTAGE AT THE MOTOR WHEN DRAWING THE LARGE CURRENT THAT EXISTS AT FULL LOAD

TO ISOLATE THIS PROBLEM PERFORM THE MINIMUM VOLTAGE TEST BELOW:



TITLE MINIMUM VOLTAGE TEST	1-13-05E	SECTION C355
ET5500, ET6K(M/R), ET8100, ET10K(X)	SUPERSEDES 10-16-97D	800306



- 0	I PART #	DESCRIPTION	# HEM	PART #	DESCRIPTION	
- 0	+					
	00867-4	DRIVE CHAIN - WINCH (#40 × 50 LINKS)	- 4	20953 18846	WINCH DROMGOARD - REWORMHOLISING	
۷ ر	00007-4	DNIVE CIMIN - ROLATION (#40 x 02 LINKS)	4 4 7 C	10040		
ე -	01.130	OTATI COLLAR - I	5 - <u>-</u>	17254	ELEVATION OT LINDER (ONLT)	L
ֆ ւ	01233	BALL BEARING - Z OD X I ID	4 ,	1,7201	RADEAUCIC FOWER UNIT & CONTROL VALVE	- VALVE
ဂ ံ	19256-3		Ç ,	17200	ROLATION CHAIN COVER	
1 Q	14883	GROWINEI - 3/8" ID 5/8" OD VV/ 3/16" GROOVE	9 t	17290	SWIVEL SNATCH BLOCK ASSEMBLY (ORIGINAL DESIGN)	ORIGINAL DESIGN)
, *	13463-1	01471 COLLAR - 1/4	/ 4 /	17240	QUILL ASSEMBLY	
έο (	14159	SHIM - 1 1/2" SQ × .015", .042", .105" I HK	84 9	1/318	PIVOI PIN, CYLROD	
o +	14341-3	BUSHING - 13/4" OD x 1 1/2" ID x 1" LONG   BISHING - 13/4" OD x 1 1/4" ID x 1" LONG	49	19164	COVER - ELEVATION CYLINDER BOOM ASSEMBLY/COMPLETE ASSEM	
2 5	14341-3	DUSTING - 1 3/4 OD X 1 1/4 ID X 1 LOING	2 20	17350	DOUM ASSEMBLY (COMPLETE ASST)	
- 4			57	17356	OVERLOAD ALAKIM (OPITIONAL)	0 H
7 5	RL-644	TOTH PLOG - 1"	27	17360-20	PENDANI ASSEMBLY -4 SWITCH XZU FOOT CORD	FOOT CORD
5.	KL-644	HOLE PLUG - 1"	53	1/36/	SIDECOVER	
4	20189	LOWER BEARING - 5" OD x 1" LONG	54	17372	UPPERBEARINGHOUSING	
15	18860	SPROCKET & SHAFT ASSY	55	16735	HEADACHE BALL ASSY (INCLUDES HARDWARE)	ARDWARE)
16	15650	WORM	26	19693	HOSE, ELEVATION CYL RETURN - 36" LONG	LONG
17	15651	WORMGEAR	22	17395	HOSE, ELEVATION CYL PRESSURE - 34" LONG	4" LONG
<u>*</u>	15675	SHIM - 1 1/4" ID x .015", .031" THK	28	17397	HOSE, EXTENSION CYL-30" LONG	
19	15676	REARCOVER   LIDDED READING	20	17397	HOSE, EXTENSION CYL-30" LONG	ď
27	15696	NEEDI ETHRI IST BEARING	8 6	15664	NI IT BAB - BOTATION D II	
22	15697	THRUST RACE	5 6	20670 A	SWIVELSNATCH BLOCK ASSEMBLY (CLIRRENT DESIGN)	(NESSIGN)
23	15698	NEEDLETHRUST BEARING	63	1		
24	15699	THRUSTRACE	64	15810-7/32-65	WIRE ROPE ASSY - 7/32" x 65 FT	
25			65			
26			99	18845-FULLASSY	WORMHOUSING ASSY (ALL ITEMS PRE-ASSEMBLED)	E-ASSEMBLED)
27*	15929	WOODRUFF KEY - 1/4" x 1 1/4"	29			
28	15999	SPROCKET - #40 x 10 TOOTH	89			
29	16107	ROTATION POWER UNIT	69		1	
30	16614	WINCHDRUMSHAFT	0/			
31	16822	WINCHDRUM	71	17442	FIELD SERVICE LABEL KIT - ET10KX W/ 7 - 15 FT BOOM	W/7 - 15 FT BOOM
32	16825	PIVOT PIN, BOOM	72			
3.5 5.5	16828	PIVOL PIN, CYL IAIL - 1" DIA X 2 3/4" LONG   FPONTON/FP	7.3	•	1	
۵ ۲ ۲ ۳	17011	ROOT SWIVE TERMINAL	7.5			
98	17211		2/			
37	17218	SPROCKET - #40 x 12 TOOTH	27			
38	18870	WELDED HOUSING ASSY THESE PARTS ARE MATCHED SET AND				
39	18856	LOWER BEARING PLATE TYPICALLY NOT AVAILABLE AS PARTS.	79			
40	20957	WINCHDRUMGUARD-LH	80	-		
		REPLACEMENT PARTS DWG REF 19369	*	15828	SMALL PARTS KIT (INCLUDES * ITEMS)	
		Ē	REPLACEMENT	ENT PARTS	11-19-04L	SECTION C400
	7	MANUFACTURING, INC.				
		CINCINNATI, OHIO	ET10KX-7/15	נט	SUPERCEDES 9-3-03K	19290

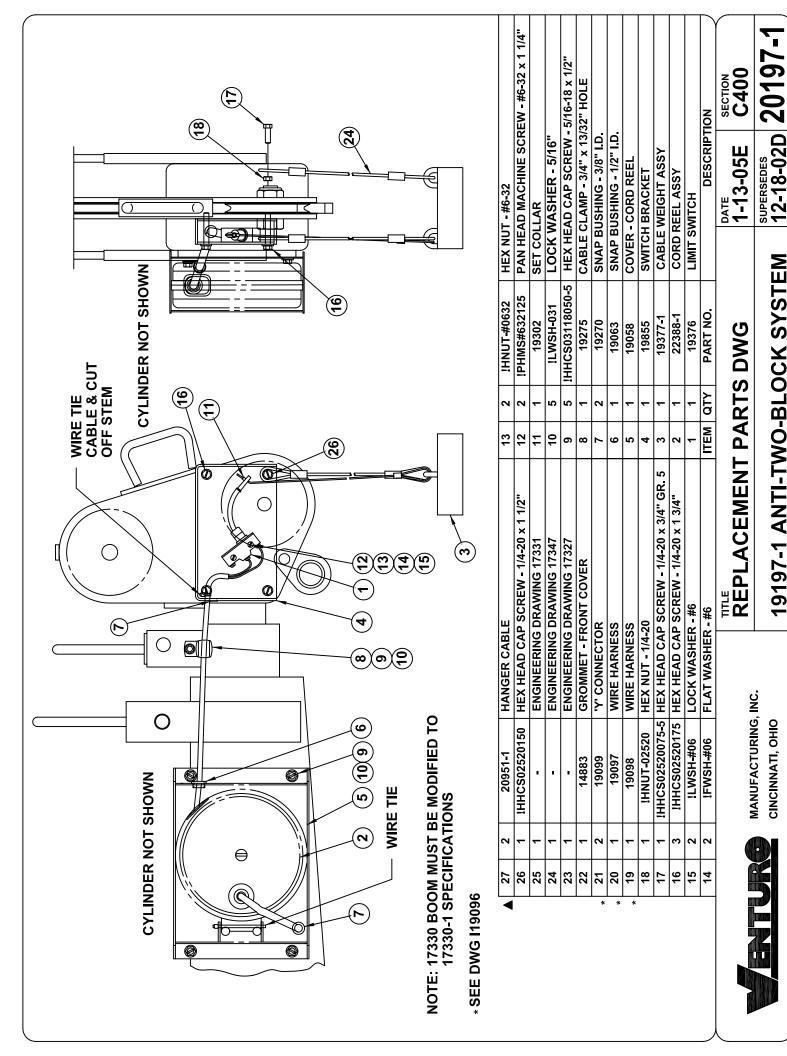
## FASTENER LIST FOR INSTALLATION DRAWING ET10KX-7/15

PART NUMBER	DESCRIPTION	QTY	LOCATION/FUNCTION
!HHCS05013150	HEX HEAD CAP SCREW - 1/2"-13 x 1-1/2"	10	BASEPLATE
!LWSH-050	LOCK WASHER - 1/2"	10	BASEPLATE
18873	CAPSCREW-MODIFIED	6	WORMGEAR/QUILL HUB
!LWSH-038-HC	LOCK WASHER - 3/8" HI COLLAR	6	BULL GEAR 15651
!HHCS03816200TB	HEX HEAD CAP SCREW - 3/8"-16 x 2" TB	l ĭ	ADJFORROTATIONMOTOR
!HNUT-03816	HEX NUT - 3/8"-16, PLATED	1	ADJFORROTATIONMOTOR
	· · · · · · · · · · · · · · · · · · ·	1	
!HHCS03118250 -	HEX HEAD CAP SCREW - 5/16"-18 x 2-1/2"	1 -	BOOMPIN -
!LNUT-03118	LOCKNUT - 5/16"-18	1	BOOMPIN
!HHCS03816150	HEX HEAD CAP SCREW - 3/8"-16 x 1-1/2"	3	WINCHDRUMMOTOR
!HHCS03816300	HEX HEAD CAP SCREW - 3/8"-16 x 3"	1	WINCHDRUMMOTOR
▲ !LWSH-038-STAR	LOCK WASHER - 3/8" - STAR	4	WINCHDRUMMOTOR
!HHCS03816125	HEX HEAD CAP SCREW - 3/8"-16 x 1-1/4"	1	ROTATIONMOTOR
!HHCS03816150	HEX HEAD CAP SCREW - 3/8"-16 x 1-1/2"	2	ROTATIONMOTOR
!HHCS03816300	HEX HEAD CAP SCREW - 3/8"-16 x 3"	1	ROTATIONMOTOR
		_	
▲ !LWSH-038-STAR	LOCK WASHER - 3/8" - STAR	4	ROTATIONMOTOR
!LWSH-031	LOCK WASHER - 5/16"	2	HYDRAULICMOTOR
!HHCS03816225-5	HEX HEAD CAP SCREW - 3/8"-16 x 2-1/4"	2	HYDRAULICMOTOR
!HHCS03118075	HEX HEAD CAP SCREW - 5/16"-18 x 3/4"	2	HYDRAULICMOTOR
!LWSH-038	LOCK WASHER - 3/8"	2	HYDRAULICMOTOR
!HHCS03118063	HEX HEAD CAP SCREW - 5/16"-18 x 5/8"	2	VALVE BLOCK
!LWSH-031	LOCK WASHER - 5/16"	2	VALVE BLOCK
!HHCS03816125	HEX HEAD CAP SCREW - 3/8"-16 x 1-1/4"	4	UPPERBEARINGHOUSING
!LWSH-038	LOCK WASHER - 3/8"	4	UPPERBEARINGHOUSING
!HHCS02520063-5	HEX HEAD CAP SCREW - 1/4"-20 x 5/8"	8	CHAIN GUARD-WINCH DRUM
!LWSH-025	LOCK WASHER - 1/4"	8	CHAIN GUARD-WINCH DRUM
!HNUT-02520			CHAINGUARD
	HEX NUT - 1/4"-20	6	
!HWHS02520063-F	HEX WASHER HEAD - 1/4"-20 x 5/8"	18	COVERS & WIRING
!PHCS02520075	PAN HEAD CAP SCREW - 1/4"-20 x 3/4"	8	WIRING-CONTACTORS
!LWSH-025	LOCK WASHER - 1/4"	8	WIRING-CONTACTORS
!HNUT-02520	HEX NUT - 1/4"-20	8	WIRING-CONTACTORS
!PHCS-#1024050	PAN HEAD CAP SCREW - 10-24 x 1/2"	2	CIRCUITBREAKER
!UNUT15195-1420	U-NUT - 1/4"-20	2	VOLTAGE STABILIZER
!UNUT-#1024	U-NUT - #10-24 x 3/8"	2	CIRCUITBREAKER
!CHCS3118400	CARRIAGE BOLT - 5/16"-18 x 4"	4	CRATING
!FWSH-038	FLAT WASHER - 3/8"	4	CRATING
!HNUT-03118	HEX NUT - 5/16"-18	4	CRATING
!LWSH-#10	LOCK WASHER - #10	2	CIRCUITBREAKER
!HNUT-#1032	HEX NUT - #10-32	2	CIRCUITBREAKER
!RPIN-025100	ROLL PIN - 1/4" x 1"	1	CYLINDERPIN
!RPIN-025175	ROLL PIN - 1/4" x 1-3/4"	1	CYLINDER PIN
!RPIN-038100	ROLL PIN - 3/8" x 1"	4	BASE PLATE
!SHCS05013125	SCKT HD CAP SCREW - 1/2"-13 x 1-1/4"	4	WORMBLOCKBOLTS
!LWSH-050	LOCK WASHER - 1/2"	4	WORMBLOCKBOLTS
!SHCS03824150	SCKT HD CAP SCREW - 3/8"-24UNF x 1-1/2"	2	FORE/AFT WORM BLOCK ADJ
!SHCS03824100KC	SET SCREW - 3/8"-24 x 1"	2	FORE/AFT WORM BLOCK ADJ
25593	SET SCREW - FLAT FACE - 1/2"-20 x 1"	<del>-</del>	WORMBLOCKLEFT/RIGHT SECURE
!SHCS03816050KC	SET SCREW - 7/21 FACE - 1/2 - 20 X 1	2	WORM-ROTATION
		1	VVOINIVI-INDIATION
!HWHS02520038-F	HEX WASHER HEAD - 1/4"-20 x 3/8"	4	-
!ZERK02528	ZERKLUBE FITTING - 1/4"-28	2	<del>-</del>
-			
-	]	1	<u> </u>
-	-	1 -	-
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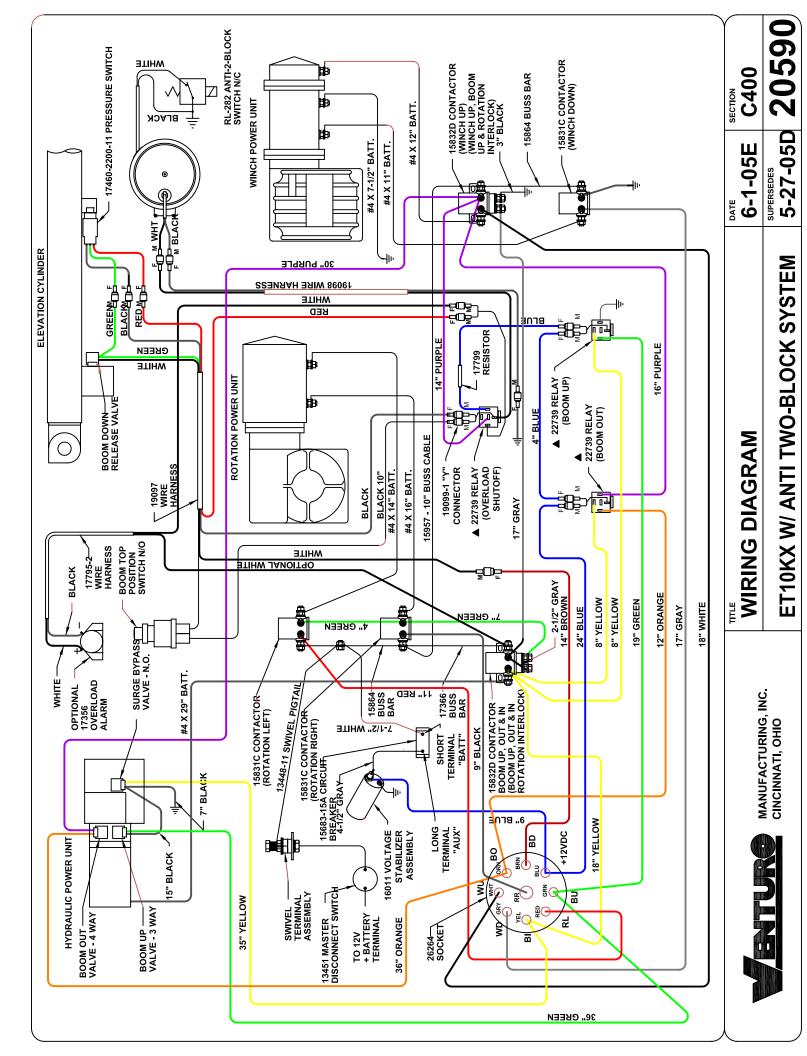
REPLACEMENT PARTS DWG REF 19369

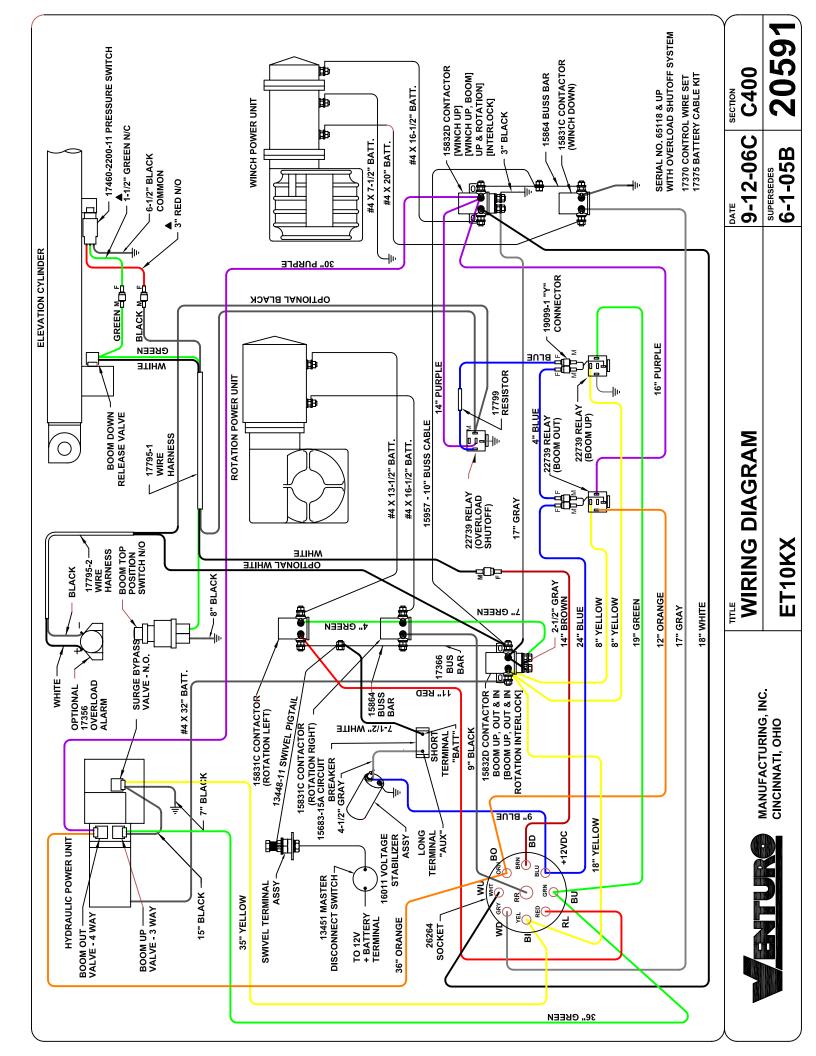


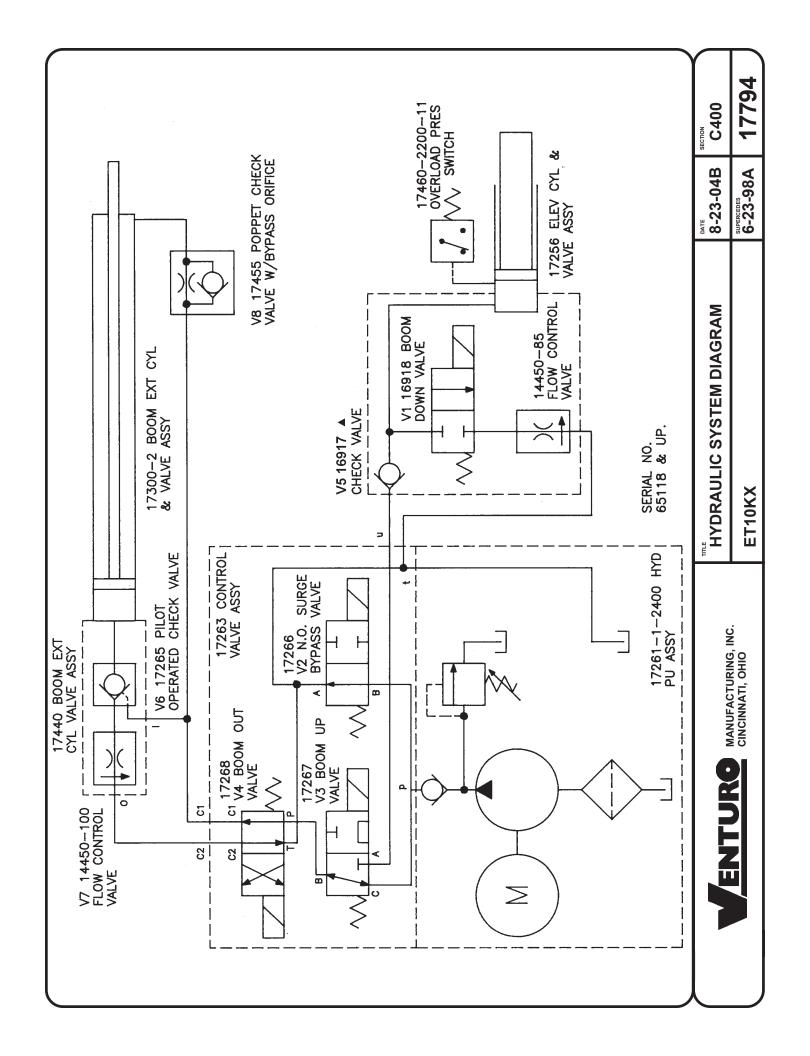
REPL. FASTENERS LIST	10-11-04D	C400
ET10KX-7/15	5-1-01C	19299

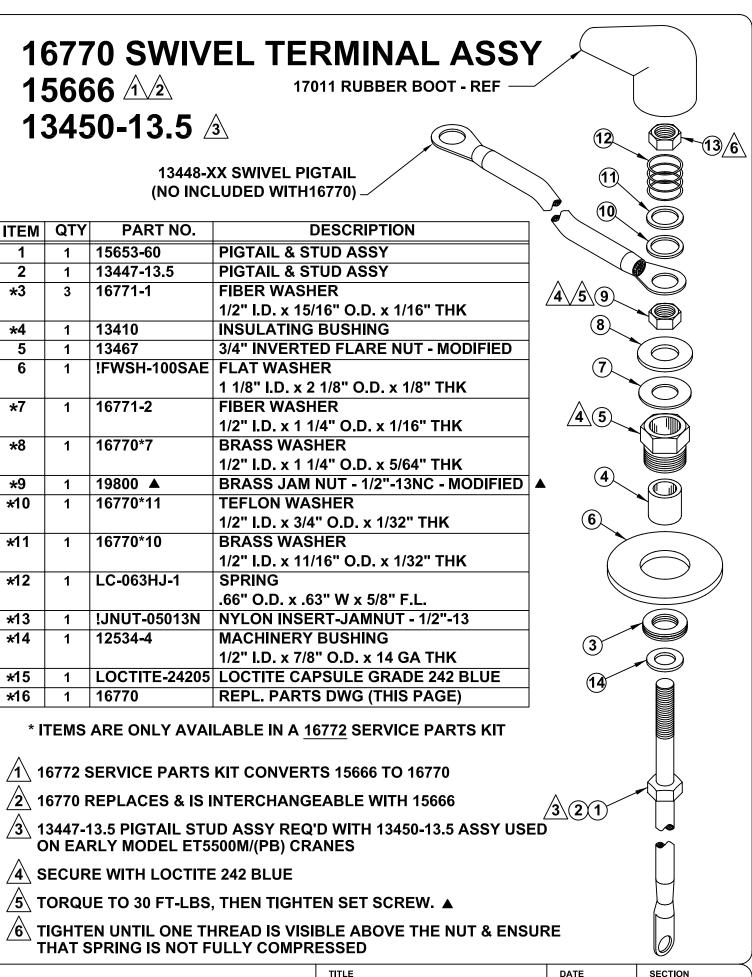


19197-1 ANTI-TWO-BLOCK SYSTEM











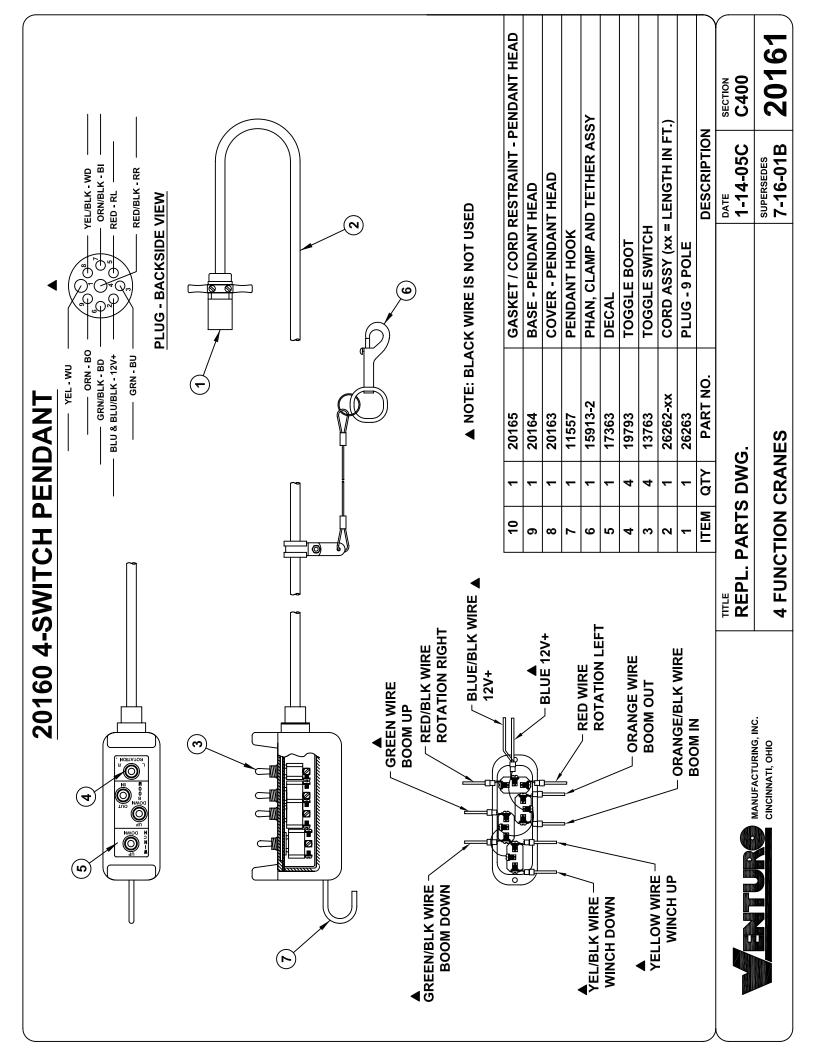
MFG., INC. CINCINNATI, OHIO REPLACEMENT PARTS
ET5500. ET6KM/R.

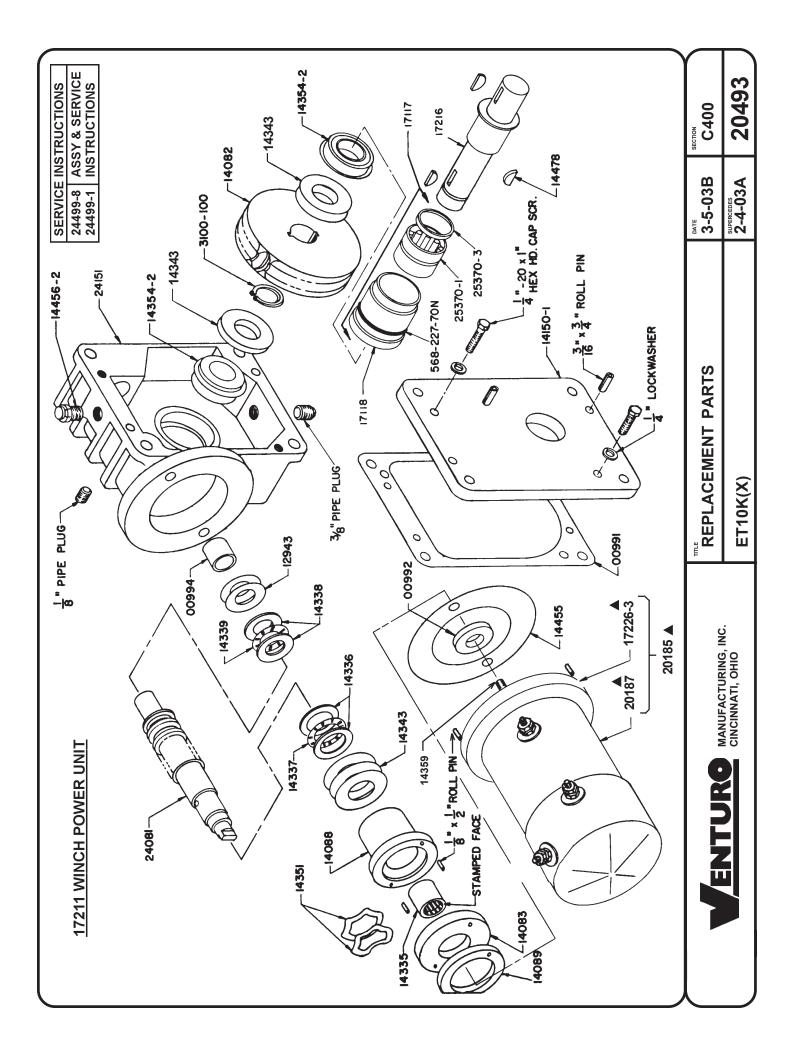
ET8100, ET10K(X)

DATE SECTION C455
SUPERSEDES A GETTION C455

2-21-02F

16770





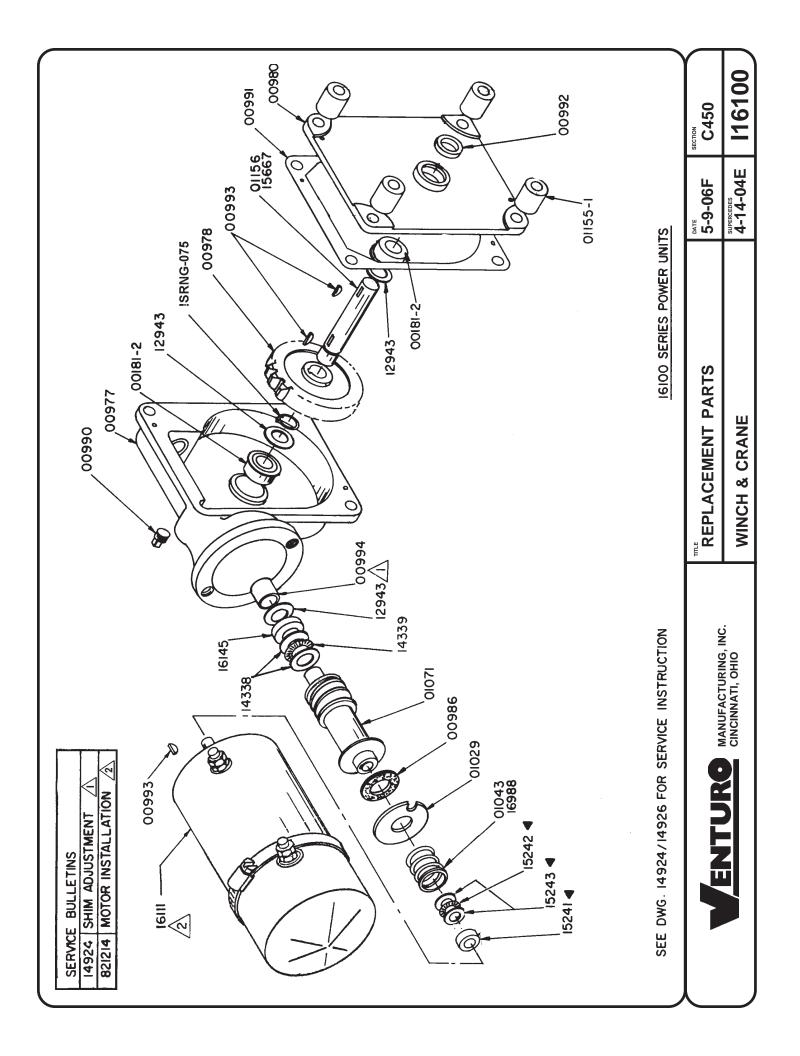
## **REPLACEMENT PARTS LIST - 17211 WINCH POWER UNIT**

MODEL: ET10K(X)

PARTNO.	DESCRIPTION
* 00991 * 00992 00994 * 12943-1 * 12943-2	GASKET SEAL WORMSHAFTBUSHING SHIM WASHER - 3/4" x 1 1/2" x .005" (AS REQUIRED) SHIM WASHER - 3/4" x 1 1/2" x .015" (AS REQUIRED)
* 12943-3 14082 14083 14088 14089	SHIM WASHER - 3/4" x 1 1/2" x .030" (AS REQUIRED) WORM GEAR BRAKE MOTOR CLUTCH HOUSING (INCLUDES 1/8" x 1/2" ROLL PIN) BRAKE DISC
14150-1 14335 14336 14337 14338	COVER ROLLERCLUTCH THRUST RACE - 1" NEEDLE THRUST BEARING - 1" I.D. THRUST RACE - 3/4"
14339 * 14343-1 * 14343-2 * 14343-4 * 14345-1	NEEDLE THRUST BEARING - 3/4" I.D. SHIM WASHER - 1" x 1 1/2" x .005" (AS REQUIRED) SHIM WASHER - 1" x 1 1/2" x .015" (AS REQUIRED) SHIM WASHER - 1" x 1 1/2" x .031" (AS REQUIRED) SHIM WASHER - 1" x 2" x .005" (AS REQUIRED)
* 14345-2 * 14351 14354-2 * 14455 14456-2 * 14478	SHIM WASHER - 1" x 2" x .015" (AS REQUIRED) WAVE WASHER BALL BEARING GASKET - MOTOR BREATHER CAP ASSEMBLY #91 WOODRUFF KEY - 1/4" x 3/4"
24081 24151 20185 ▲ 25370-1 * 25370-3 17117	WORM & SHAFT GEAR CASE MOTOR (INCLUDES 00992 SEAL) ROLLER BEARING (INCLUDES 25370-3 SEAL) SEAL BEARING & HOUSING ASSEMBLY (INCLUDES 25370-1, 25370-3, 17118 & 568-277-70N)
17216 17218 * 3100-100 * OR-227-7 * !RPIN-013050 * !RPIN-019075	SHAFT & RACE ASSEMBLY BEARING HOUSING RETAINING RING O-RING - 2 1/8" x 2 3/8" x 1/8" ROLL PIN - 1/8" x 1/2" ROLL PIN - 3/16" x 3/4"
16485 17468-1 17468-2 17468-3	SHIM, KEY, PIN & SEAL KIT (INCLUDES ITEMS MARKED*) MOTOR REPAIR KIT (INCLUDES 00992 SEAL & 14455 GASKET) FOR 17221-1 MOTOR MOTOR REPAIR KIT (INCLUDES 00992 SEAL & 14455 GASKET) FOR 17221-2 MOTOR MOTOR REPAIR KIT (INCLUDES 00992 SEAK & 14455 GASKET) FOR 16115 MOTOR



ENTURO MFG., INC. CINCINNATI, OHIO	REPL. PARTS LIST	6-20-03A	C400	
	17211 WINCH PU	1-8-02	20494	$\int$



## **REPLACEMENT PARTS LIST - 16100 ELECTRIC POWER UNIT**

MODEL(S): ET5500MPB, ET6KM, ET6KR

PART NO.	DESCRIPTION
16101 16102 16105 16105-1 16106 16107	POWER UNIT - LONG SHAFT - ET5500R WINCH POWER UNIT - SHORT SHAFT - ET5500R ROTATION  POWER UNIT - LONG SHAFT - CA 2000, CT 2003, WA/SL 3000 (WITH SPACERS)  POWER UNIT - LONG SHAFT - CA 2000, CT 2003/4/5(FB), WA/SL 3000 (WITHOUT SPACERS)  POWER UNIT - LONG SHAFT A  POWER UNIT - SHORT SHAFT - ET5500R ROTATION
00181-2 00977 00978 00980 * 00986	FLANGE BEARING - 3/4" BORE x 1 3/4" O.D. GEAR CASE (INCLUDES 00994 BUSHING) WORM GEAR BASE PLATE (00980-1) & INSERT (00980-2) ASSEMBLY BRAKE DISC
* !SRNG-075 00990 * 00991 * 00992	RETAINING RING - 3/4" OIL PLUG - 1/4" PIPE GASKET OIL SEAL KEY - #9 WOODRUFF
00994 01029 01043	BUSHING BRAKE PLATE BRAKE SPRING (16102 & 16107 ROTATION POWER UNIT ONLY) WORM SHAFT SPACER (16105 ONLY)
01156 * 12943-1 △ * 12943-2 △ * 12943-3 △ 14338	WORM GEAR SHAFT - 3/4" x 5 3/16" LONG (16105 & 16106 ONLY) SHIM WASHER005" THICK (AS REQUIRED) SHIM WASHER015" THICK (AS REQUIRED) SHIM WASHER030" THICK (AS REQUIRED) NEEDLE THRUST RACE 3/4" I.D.
14339 15241 15242 15243 15667	NEEDLE THRUST BEARING 3/4" I.D.  SPACER (INSTALL NEXT TO MOTOR) ▲  NEEDLE THRUST BEARING 5/8" I.D.  NEEDLE THRUST RACE .092" x 5/8" I.D.  WORM GEAR SHAFT - 3/4" x 4 3/16" LONG (16102 & 16107 ONLY)
16111 <u>↑</u> 16145 16988 <b>↑</b>	MOTOR - 12 VOLT 4 1/2" DIAMETER SPACER BRAKE SPRING (16101, 16105 & 16106 WINCH POWER UNITS ONLY)
14889 15290	MOTOR REPAIR KIT SMALL PARTS KIT (INCLUDES ITEMS MARKED *)



AVAILABLE ONLY AS PART OF 15290 SMALL PARTS KIT



16101 POWER UNIT REPLACED BY 16106 POWER UNIT 16102 POWER UNIT REPLACED BY 16107 POWER UNIT



🖄 REPLACE 30E & 16100 POWER UNITS AS FOLLOWS:

16105 REPLACES 11497

16106 REPLACES 11497NS & 16101

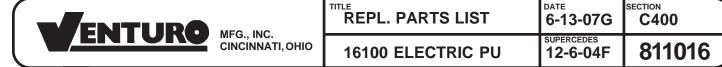
16107 REPLACES 16102



4 16111 MOTOR REPLACES 01024 E & F & 16112 MOTORS ON ALL 30E & 16100 SERIES POWER UNITS

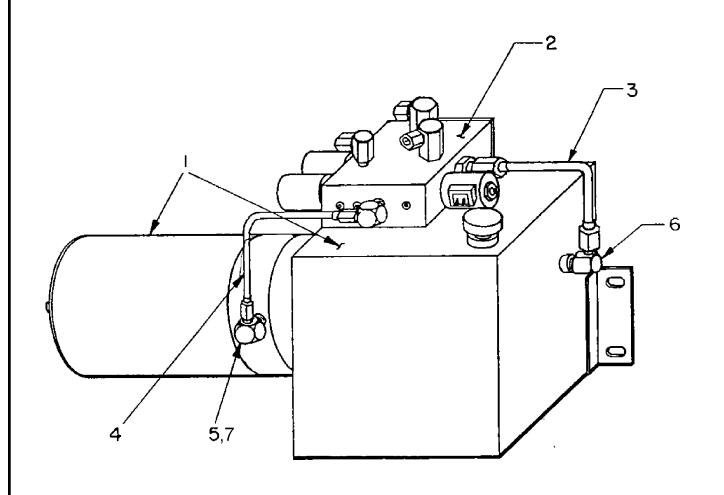


16988 BRAKE SPRING REPLACES 01043 BRAKE SPRING ON 16101, 16105 & 16106 WINCH POWER UNITS ONLY



# 17261 HYDRAULIC POWER UNIT WITH CONTROL VALVE ASSY - ET10KX REPLACEMENT PARTS LIST

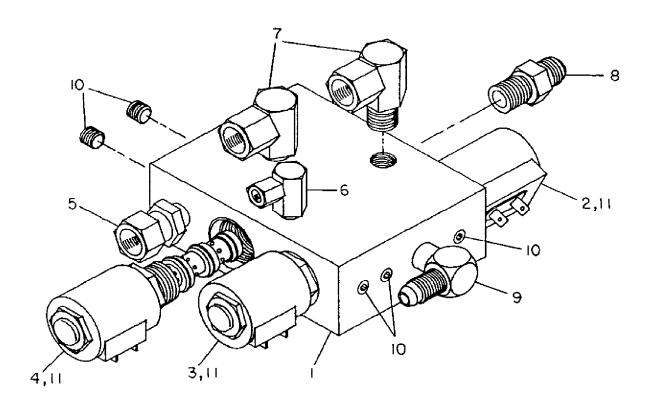
ITEM	PARTNO.	DESCRIPTION
	17261	HYDRAULIC POWER UNIT WITH CONTROL VALVE ASSEMBLY
1 2 3	17260-1▲ 17263 17293	HYDRAULIC POWER UNIT WITH VALVE BRACKET CONTROL VALVE ASSEMBLY (INCLUDES HYDRAULIC FITTINGS)▲ RETURN TUBE ASSEMBLY
4 5 6 7	17294 HTEL4MJ-4MP-90 HTEL6MJ-4MP-90 HRDB6MP-4FP	PRESSURE TUBE ASSSEMBLY ELBOW TUBE ADAPTER ELBOW TUBE ADAPTER HYDRAULIC BUSHING
-	16940	ELECTRIC MOTOR (ONLY)



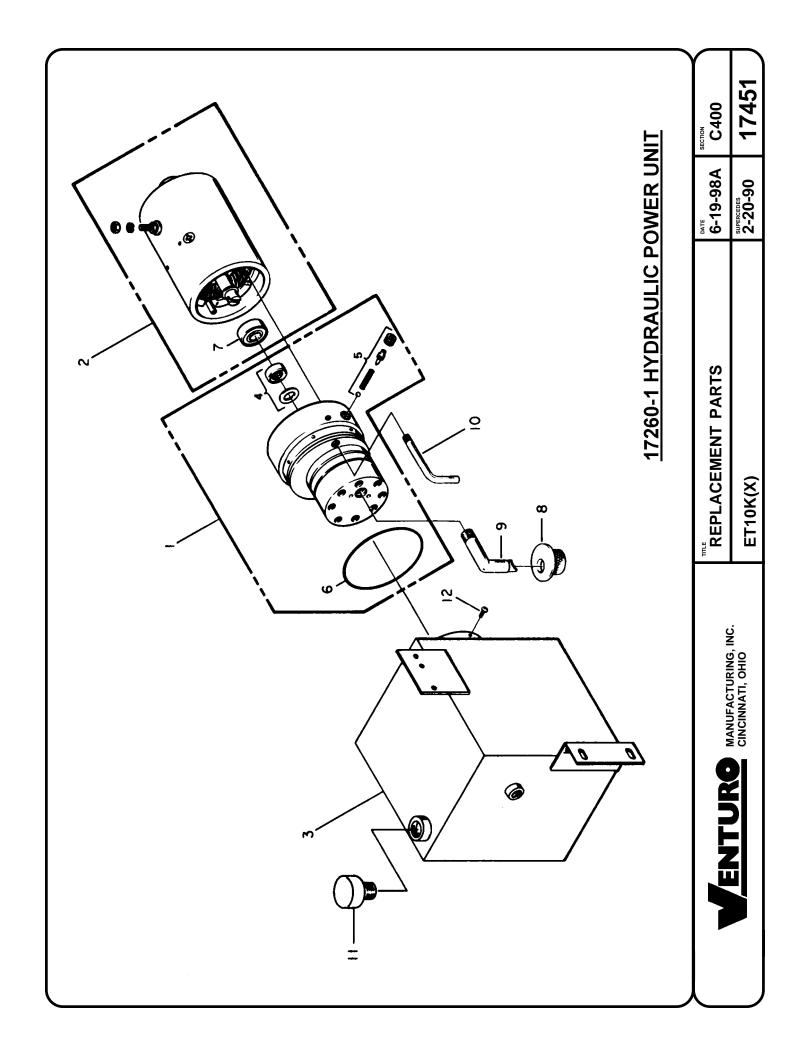
<b>VENTURO</b> MFG., INC.	REPLACEMENT PAR	7-14-00B	C400
CINCINNA		1-20-98A	17261

# 17263 CONTROL VALVE ASSEMBLY - ET10KX REPLACEMENT PARTS LIST

ITEM	PARTNO.	DESCRIPTION
	17263	CONTROL VALVE ASSEMBLY
1	17264	VALVE BODY
2	17266	SOLENOID VALVE 2-WAY N.O. WITH 16919 COIL
3	17267	SOLENOID VALVE 3-WAY WITH 16919 COIL
4	17268	SOLENOID VALVE 4-WAY WITH 16919 COIL
5	HSWL4MP-4FX	SWIVEL ADAPTER - STRAIGHT
6	HELB2MP-2FX-90	SWIVEL ADAPTER - ELBOW
7	HELB4MP-4FX-90	SWIVEL ADAPTER - ELBOW
8	HTAD6MJ-4MP	STRAIGHT TUBE ADAPTER
9	HTEL4MJ-4MP-90	ELBOW TUBE ADAPTER
10 11 -	HPLG1MP 16919 17349	SOCKET HEAD PIPE PLUG - 1/16" NPT. SOLENOID COIL - 12 VOLT D.C. (-1 HYDRAFORCE - 1 1/4" LONG, -2 DELTA POWER - 1 9/16" LONG) ▲ PACKING KIT



<b>VENTURO</b> MFG., INC.	REPLACEMENT PARTS	10-26-99B	C400		
	INNATI, OHIO	ET10KX	1-20-98A	l17263	J



## **REPLACEMENT PARTS LIST - 17260-1 HYDRAULIC POWER UNIT**

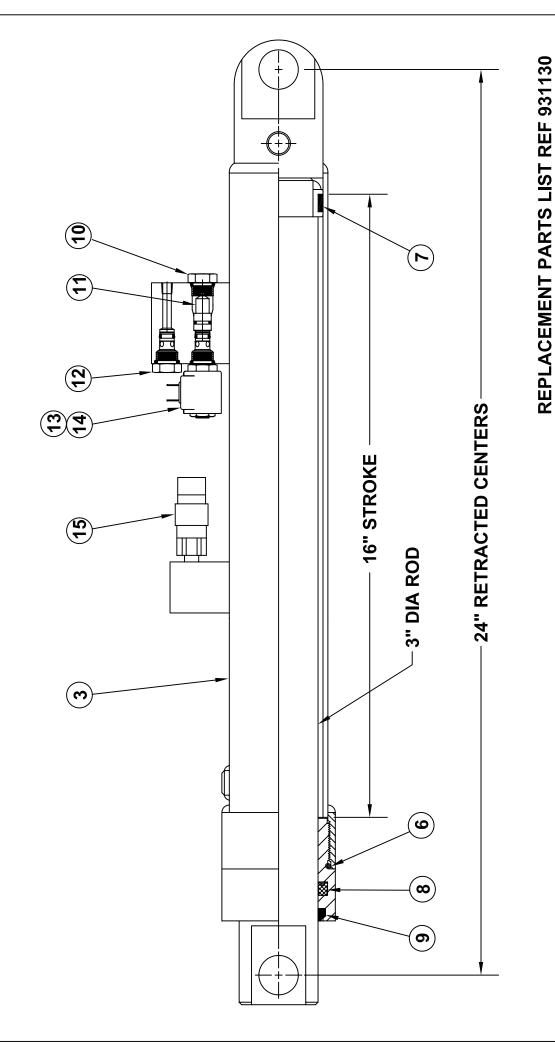
MODEL: ET10K(X)

ITEM	PARTNO.	DESCRIPTION
	17260-1-2400*	HYDRAULIC POWER UNIT
1	16943	PUMP ASSEMBLY
2	16940	MOTOR - 12V DC
3	17283	RESERVOIR ASSEMBLY
4	02330	SEAL & GASKET KIT
5	02220	RELIEF VALVE KIT
6	OR-239-7	O-RING (3 5/8" x 3 7/8" x 1/8")
7	02318	BALL BEARING
8	01134	SUCTION FILTER SCREEN
9	-	SUCTION TUBE
10	-	RETURNTUBE
11	19276	VENT PLUG (3/8" NPT)
12	07703	SCREW (10-24NC x 3/8")
-	17282	PACKINGKIT

<sup>\*</sup>STANDARD RELIEF VALVE SETTING - P.S.I.

WENTURO MFG., INC.	REPLACEMENT PARTS	6-22-98A	C400
CINCINNATI, OHIO	ET10K(X)	2-20-90	900220

# **17256-3 ELEVATION CYLINDER**





MANUFACTURING, INC.
CINCINNATI, OHIO

ELEVATING CYL & VALVE ASSY PARTS ET10K(X)

1-17-05E C400 SUPERSEDES 7-7-99D 17257-3

## REPLACEMENT PARTS LIST 17256-3 ELEVATION CYLINDER & VALVE ASSEMBLY

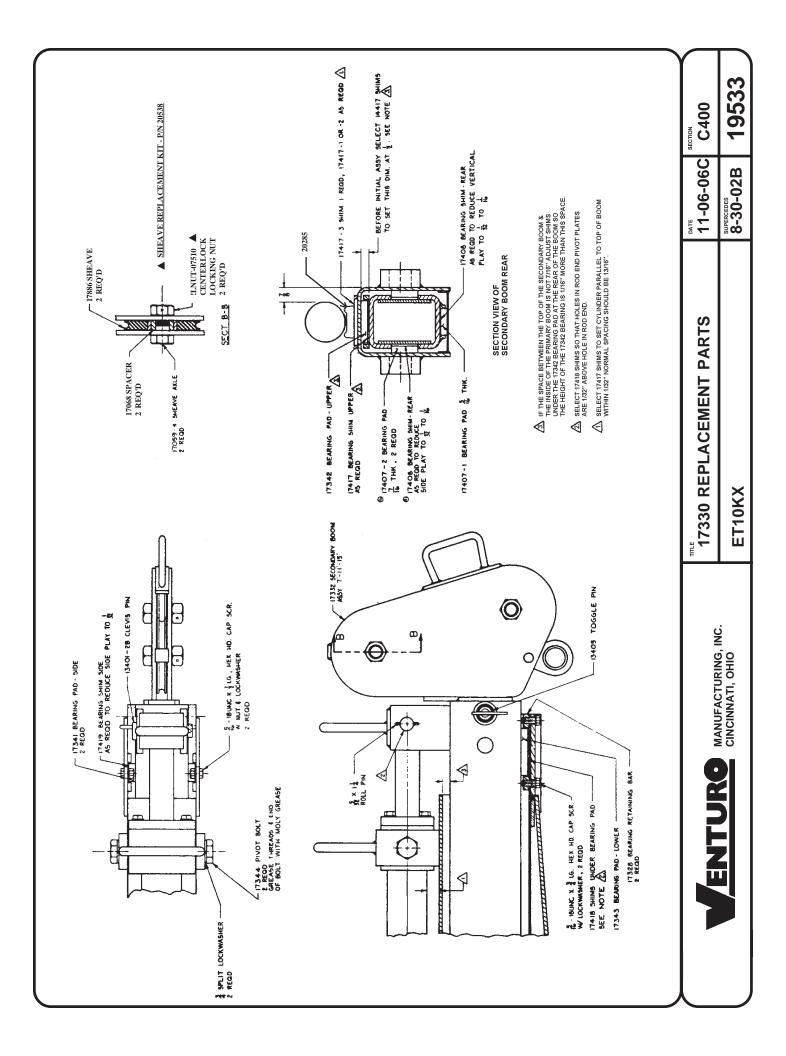
MODEL: ET10K(X)

ITEM	PARTNUMBER	DESCRIPTION
1 2 3 4 5	17255-3 17256-3 - -	ELEVATING CYLINDER ASSEMBLY W/OUT VALVES & PRESSURE SWITCH ELEVATING CYLINDER ASSEMBLY WITH VALVES & PRESSURE SWITCH
6 7 8 9 10	* * * 14416 <u>1</u>	O-RING WEAR RING POLYURETHANE PACKING (POLYPAK TYPE "B") ROD WIPER CAP
11 12 13 14 15	14450M-085 16917 16918 16919 17460-2200-11	FLOW CONTROL VALVE CHECK VALVE SOLENOID VALVE (INCLUDES COIL) SOLENOID COIL ONLY PRESSURE SWITCH
16 17 18 19 20	- - -	- - - -
21 22 23 24 25	17376-3 - - - -	PACKING KIT (INCLUDES ITEMS MARKED*)
26 27 28 29 30	- - - -	- - - - - -
31 32 33 34 35	- - - -	- - - - -

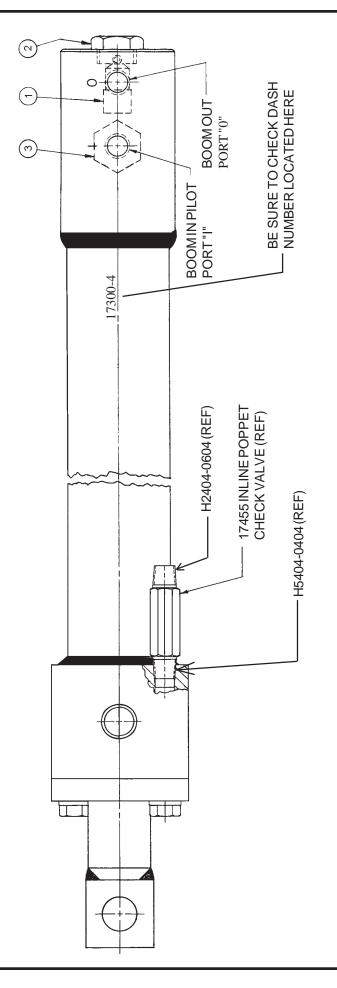
 $\Lambda$ 

ON CURRENT PRODUCTION CRANES, CAP HAS BEEN INCORPORATATED INTO RETURN HOSE

ENTURO MFG., INC.	REPL. PARTS LIST	10-5-99D	C400
CINCINNATI, OHIO	ET10K(X)	5-3-99C	931130



# 17300-4 EXTENSION CYLINDER

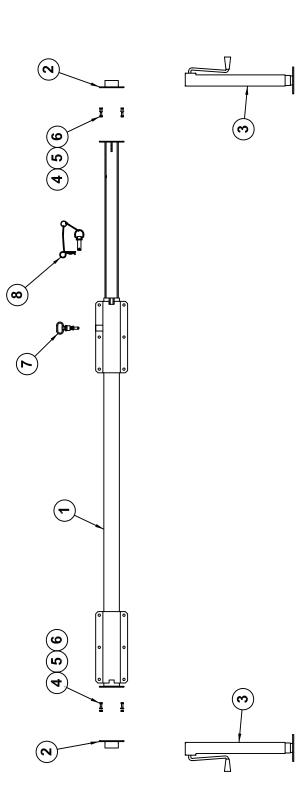


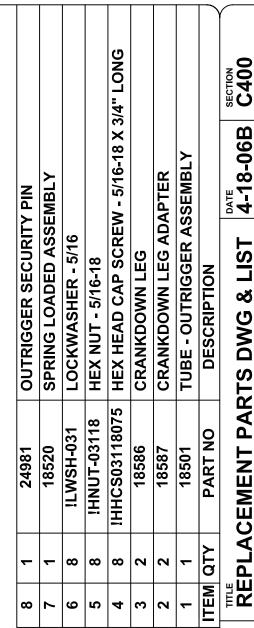
ITEM	QTY	ITEM QTY PART NO.	DESCRIPTION
_	1	14450M-100	14450M-100 FLOW CONTROL VALVE
2	1	26279	VALVE RETAINING PLUG
3	1	17265	PILOT OPERATED CHECK VALVE
REF		19001	HYDRAULIC TUBE - APPROX.48" LONG
REF		17357-4	PACKING KIT



MANUFACTURING, INC. CINCINNATI, OHIO

C400	19719
7-27-06C C400	5-31-06B   19719
17300-4 REPLACEMENT PARTS	<b>▲</b> ET8KX - ET10KX - ET12KX







**18500-CD MANUAL OUTRIGGERS** 

SECTION C400 SUPERSEDES <sub>рате</sub> 4-18-06В

22689

## 17442 FIELD SERVICE LABEL KIT (ET10KX)

17	1	15397	KIT; ACCIDENT PREVENTION SIGNS
16	1	17539	DWG; DECAL APPLICATIONS, ET10KX
15	2	19741	DECAL; MODEL, ET10KX
14	1	20174	DECAL; GROUNDING CABLE
13	2	27007-04a	DECAL; LOAD BLOCK CAPACITY
12	1	17813	DECAL; OVERLOAD SENSING SYSTEM
11	1	17388	DECAL; BOOM CAPACITY, LEFT
10	1	17387	DECAL; BOOM CAPACITY, RIGHT
9	1	17363	DECAL; 4-SWITCH PENDANT
8	1	16789	DECAL; WARNING - CHEMICAL SIGN
7	1	25581	DECAL; PENDANT CORD ATTACHMENT
6	2	17389	DECAL; VENTURO LOGO, MEDIUM
5	3	14473-2	DECAL; GREASE
4	1	14473-1	DECAL; OIL
3	1	13397	DECAL; OIL LEVEL
2	2	16973	DECAL; ROTATION ARROW
1	1	11917-1	DECAL; VOLTAGE IDENTIFICATION
ITEM	QTY	PART NO.	DESCRIPTION



TITLE	DATE	SECTION
FIELD SRVCE LABEL KIT	12-13-13A	-
	SUPERSEDES	00045
ET10KX; 7/15	06-22-06	20845



## 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**

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