

EJBAAC-*0*0

Pages 1-60

PARTS & INSTALLATION MANUAL ET18KXX(P)-20'

Included in this manual:

ET18KXX-20'

- 4,500 lbs Electric Telescopic Service Crane
- 10 16 20 ft Powered, Dual-Stage, Boom Extension

ET18KXXP-20'

- 4,500 lbs Electric Telescopic Service Crane
- 10 16 20 ft Powered, Dual-Stage, Boom Extension
- Proportional Controls

VENCO VENTURO INDUSTRIES LLC 12110 BEST PLACE | CINCINNATI, OHIO 45241

VENCO VENTURO INDUSTRIES LLE D

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850711 850712

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20156

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12-00073 VNT1 **WARRANTY PAGE**

SECTION 100

DESCRIPTION & SPECIFICATIONS



SPECIFICATIONS & OPERATING FEATURES ET18KXX-20' (EJBAAC-*0)

SPECIFICATIONS

12 VOLT BATTERY OPERATED
18,000 FT-LBS OVERTURNING MOMENT (or as limited by truck stability)
MOMENT OVERLOAD SYSTEM

TELESCOPIC BOOM	10/16/20
TELESCOPIC BOOM	10/10/20
BOOM HYD ELEVATION	-8° TO 75°
BOOM HYD EXTENSION	10 - 16 - 20 FT
BOOM MANUAL EXT	-
CAPACITY	850 LBS @ 20 FT REACH
CAPACITY	4500 LBS @ 2 - 3 FT REACH
WIRE ROPE	5⁄16" DIA X 80 FT
PENDANT CORD LENGTH	25 FT

WINCH -- 2250 LBS SINGLE LINE CAPACITY WITH AUTOMATIC LOAD BRAKE

ELECTRIC HYDRAULIC BOOM ELEVATION

ELECTRIC HYDRAULIC BOOM EXTENSION & RETRACTION -- 10 FT. STROKE

CONTINUOUS POWER ROTATION

REMOTE CONTROL PENDANT

25 FT straight cord with four [4] environmentally-sealed toggle switches protected by a guard

MASTER DISCONNECT SWITCH

OUTRIGGERS AVAILABLE

Side bracket type outriggers

Fold-away type outriggers

Pullout type outriggers

VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO	ET18KXX-20' (EJBAAC-*0)	SUPERSEDES	24050
®	SPECS & OP. FEATURES	03-02-20	section C100

SPECIFICATIONS & OPERATING FEATURES ET16/18KX

OVERLOAD SENSING SYSTEM

This crane is equipped with an overload sensing system. If the capacity of the crane is exceeded, the "Winch Up", Boom Out", and "Boom Out" functions will 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.

CONTROL PRIORITY SYSTEM

The design intent of the electrical and hydraulic systems are such that some functions can be operated simultaneously, while others are meant to be operated individually. To summarize the control system, see the explanations below:

- Winch Up takes priority over all functions
- Winch Down can be operated with any other single function
- Hydraulic functions (Rotate Right, Rotate Left, Boom Up, Boom Down, Boom Out, and Boom In) are designed to function one at a time

CABLE DRUM AND SHEAVE DIAMETERS

The drums on the ET16/18KX cranes are 5 1/4" in diameter, which is 18 times the 5/16" wire rope diameter as required by ANSI B30.15 Hydraulic Crane standards. The cable sheaves are either 16 or 18 times the cable diameter, which likewise conforms.

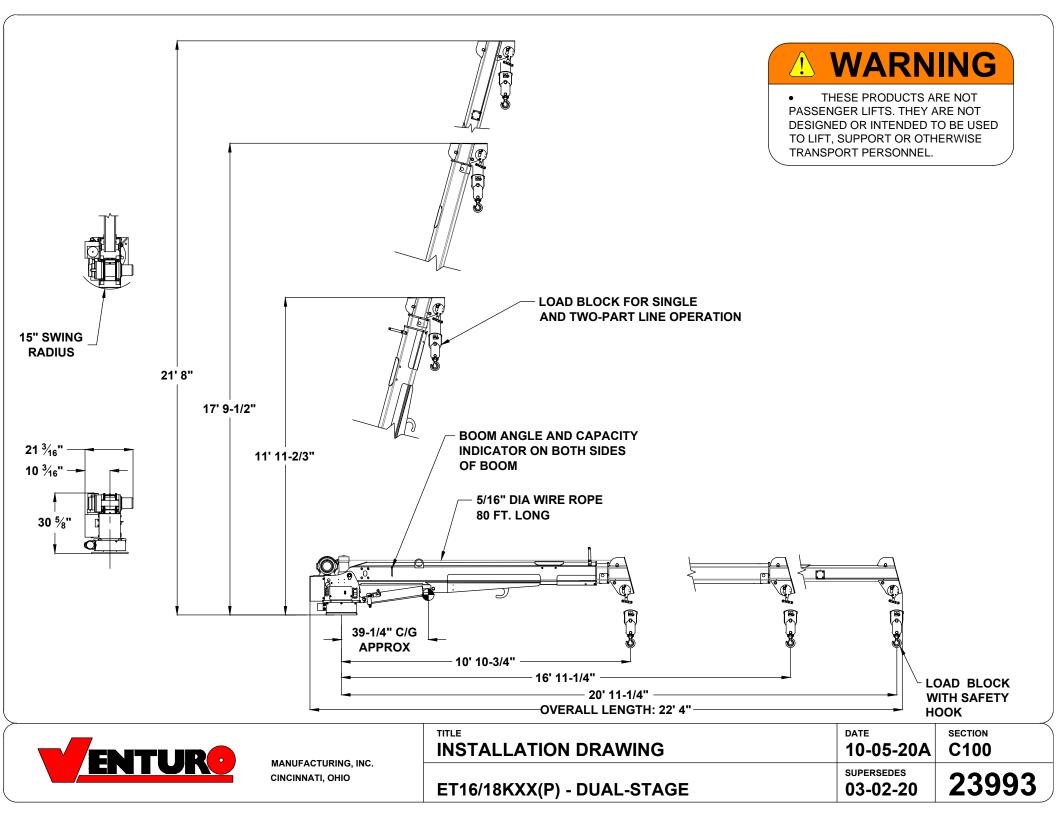
MISCELLANEOUS

CAPACITY INDICATOR

Select boom reach and angle allowable for load by using capacity indicator arrow and chart on either side of boom.

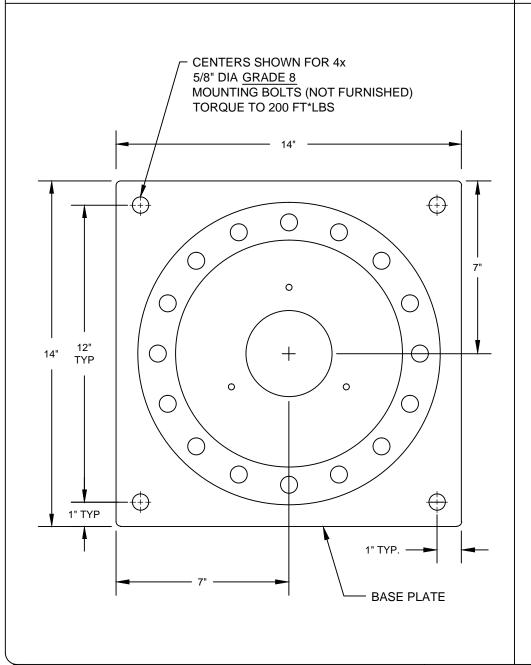
BATTERY HOOKUP

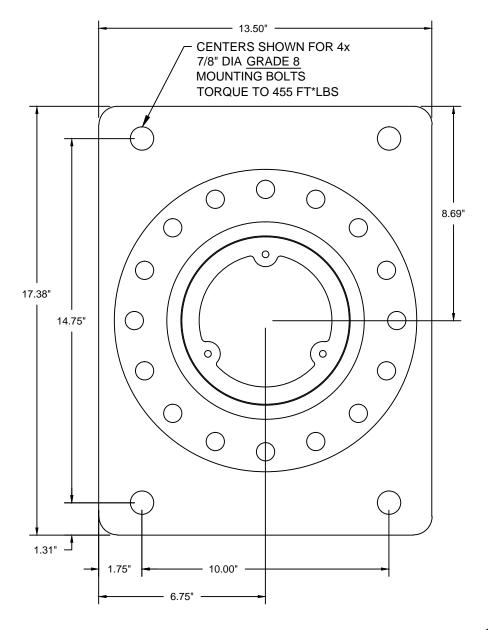
A parallel auxiliary battery should be installed near the crane as shown on DWG 19947 under "RECOMMENDED INSTALLATION." The parallel auxiliary battery minimum rating should be 450 Cold Cranking Amps (at 0° F) and 100 reserve capacity, or 78 plates and 70 amp hours.



21735 - SQUARE

21735-WRB/CRB - RECTANGULAR







VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO

21735 BASE MOUNTING DIMENSIONS

SECTION 03-06-23G C100 SUPERSEDES

ET8/12/16/18 CRANES

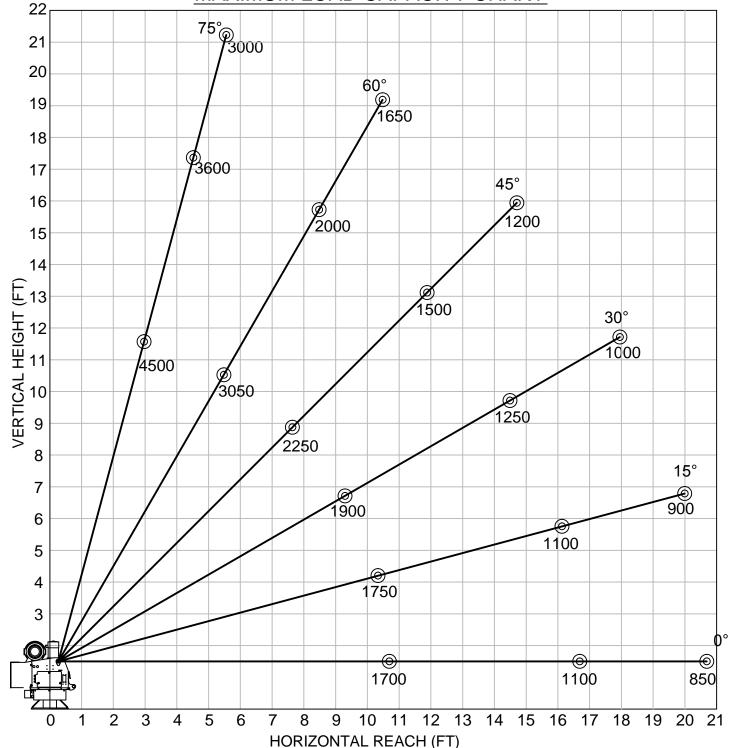
10-22-14F

21592

ET18KXX(P), 10'-16'-20' BOOM

CRANE SERIAL NUMBER:





WEIGHT OF LOAD HANDLING DEVICES ARE PART OF THE LOAD AND MUST BE DEDUCTED FROM THE GROSS CAPACITY.

LOAD BLOCK USAGE

1 PART LINE FOR LOADS LESS THAN 2250 LBS 2 PART LINE FOR LOADS OF 2250 LBS AND GREATER

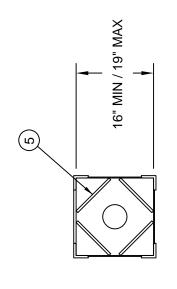
WEIGHT OF LOAD BLOCK = 34 LBS

CINCINNATI, OHIO



ET18KXX(P), 10'-16'-20' BOOM	SUPERSEDES	24050
MAXIMUM LOAD CAPACITY	03-12-20A	C100

TYPICAL SERVICE BODY REINFORCEMENT

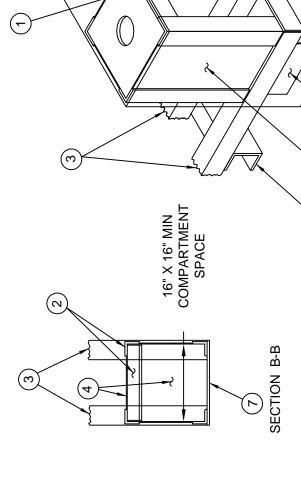


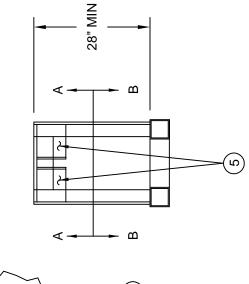
SECTION A-A

NOTE		
IT IS THE SOLE RE	ESPONSIBILITY 0	IT IS THE SOLE RESPONSIBILITY OF THE INSTALLER TO ENSURE THAT THE TOTAL
STRUCTURE OF C	RANE, TRUCK, A	STRUCTURE OF CRANE, TRUCK, AND STABILIZERS ARE STRUCTURALLY SOUND AND
THAT THE COMPL	ETED VEHICLE P	THAT THE COMPLETED VEHICLE HAS SUFFICIENT STABILITY AGAINST OVERTURNING.
ITEM NESC	DESCRIPTION	MINIMIM RECOMMENDED MATERIAL SIZE

			-
EM.	DESCRIPTION	MINIMUM RECOMMENDED MATERIAL SIZE	
	TOP PLATE	1/2" STEEL	
	CORNER POST	3" X 3" X 1/2" STEEL ANGLE	
	CROSS FRAME	4" X 4" X 5/16" SQUARE TUBING, SPAN FULL WIDTH	
	SHEAR WEB	3/16" STEEL PLATE	
	TOP PLT REINFORCEMENT	TOP PLT REINFORCEMENT 1/2" X 6" OR 3/4" X 5" STEEL BAR	
	OUTRIGGER RNFRCMNT PLT 1/4" THICK STEEL PLATE	1/4" THICK STEEL PLATE	
	GUSSET	1/2" X 4" H.R. STEEL	
	BODY TOP BEINEOBCEMENT	10 GA SMOOTH OR DIAMOND PLATE W/ 1" LIP OVER	
		SIDE OF BODY	

(8)







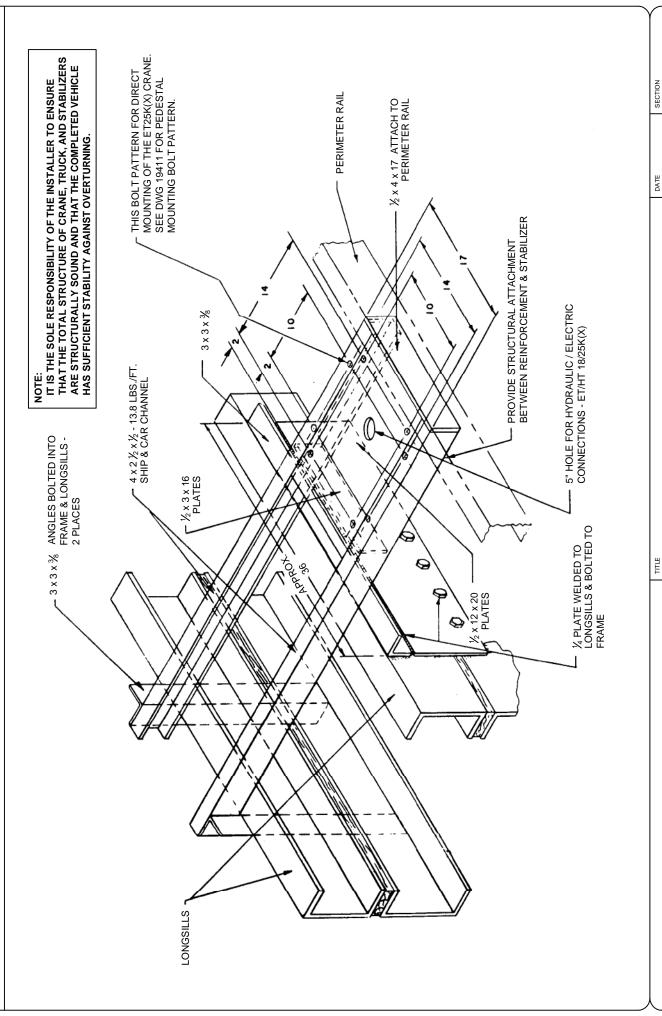
TRUCK FRAME

тпе	DATE	
TYPICAL SERVICE BODY REINFORCEMENT	10-22-14H	
	SUPERSEDES	
ET16/18KX	12-20-10G	

19288

C100

TYPICAL FLATBED MOUNTING REINFORCEMENT





VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO

10-22-14N TYPICAL FLATBED MNTNG REINFORECMENT

ET16/18KX

07-29-03M

C100

14510

SECTION 150

SAFETY



CRANE SAFETY AND HAZARDS

CAUTIONS

- 1. INSPECT VEHICLE AND CRANE, INCLUDING OPERATION, PRIOR TO USE DAILY.
- DO NOT USE THIS EQUIPMENT EXCEPT ON FIRM LEVEL GROUND 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, IF SO EQUIPPED.
- 6. UNPLUG PENDANT AND SHUT OFF MASTER DISCONNECT SWITCH WHEN CRANE IS NOT IN USE.
- 7. FOR TRAVEL, BOOM MUST BE IN STOWED POSITION.

DANGER

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

YOU MUST NOT OPERATE THIS CRANE, UNLESS:

- 1. YOU HAVE BEEN TRAINED IN THE SAFE OPERATION OF THIS CRANE, AND
- 2. YOU KNOW AND FOLLOW THE SAFETY AND OPERATING RECOMMENDATIONSCONTAINED 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 APPARATUSES.
- YOU MUST ALLOW FOR BOOM SWAY, ROCK, OR SAG, AND ELECTRICAL LINE AND LOAD-LINE 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, LOAD-LINE, OR LOAD, AND ANY ELECTRICAL LINE OR APPARATUS CARRYING UP TO 50,000 VOLTS. REFER TO DRAWING 15394 FOR ADDITIONAL INFORMATION.
- DEATH OR SERIOUS INJURY WILL RESULT FROM CONTACT OR INADEQUATE CLEARANCES.

OVERLOAD SENSING SYSTEM - STANDARD ON ALL CRANES

- 1. IF OVERLOADED, THE WINCH UP, BOOM DOWN, AND (OPTIONAL) BOOM OUT FUNCTIONS WILL AUTOMATICALLY, SHUT OFF TO PREVENT INCREASED OVERLOAD.
- 2. ON CRANES EQUIPPED WITH AN OPTIONAL OVERLOAD ALARM, IT WILL ALSO 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 THE OVERLOAD SYSTEM.

NOTICE - WARRANTY VOID IF DISCONNECTED

THE OVERLOAD SENSING SYSTEM HAS BEEN INSTALLED AS A SAFETY FEATURE TO PROTECT THE EQUIPMENT AND THE OPERATOR.

DO NOT DISCONNECT THIS SYSTEM

R VENCO VENTURO INDUSTRIES LLC	SAFETY & HAZARDS	01-29-15K	C150
CINCINNATI, OHIO	ELECTRIC CRANES	supersedes 12-20-13J	850711

CRANE SAFETY AND HAZARDS - CONT'D

OVERLOAD ALARM SYSTEM - OPTIONAL

- 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 COMPLETED BOTTOMED.
- 4. ALARM CAN BE TESTED BY TYING DOWN BOOM WITH WINCH CABLE AND OPERATING BOOM UP OR BY RAISING BOOM AGAINST UP LIMIT STOP.

NOTICE - WARRANTY VOID IF DISCONNECTED

THIS ALARM SYSTEM HAS BEEN INSTALLED AS A SAFETY FEATURE TO PROTECT BOTH THE EQUIPMENT AND THE OPERATOR.

DO NOT DISCONNECT THIS SYSTEM

INTENTIONALLY LEFT BLANK



SLLC	S

TITLE

VEHICLE & CRANE MOUNTED ELECTRICAL HAZARD SIGN APPLICATION & INFORMATION





SIGN NO. 15393 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.

UNLAWFUL TO OPERATE THIS EQUIPMENT

WITHIN 20 FEET OF HIGH-VOLTAGE LINES OF 350,000 VOLTS OR LESS.

FOR MINIMUM CLEARANCES OF HIGH-VOLTAGE LINES IN EXCESS OF 350,000 VOLTS, REFERENCE OSHA 1926.1408. CRANE'S SAFETY MANUAL, AND CAL-OSHA ARTICLE 37, TITLE 8, HIGH-VOLTAGE ELECTRICAL SAFETY ORDERS.

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.

Table A - Minimum Clearance Distances

Voltage (nominal, kV, alternating current)	Minimum clearance distance (feet) *
Up to 50	10 15 20 25 35 45 (as established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution).

Voltage (nominal, kV, alternating current)	While traveling - minimum clearance distance (feet) *				
0 - 0.75	4				
over 0.75 - 50	6				
over 50 - 345	10				
over 345 - 750	16				
over 750 - 1000	20				
Over 1000	(as established by the utility owner/operator or registered				
	professional engineer who is a qualified person with respect to				
	electrical power transmission and distribution).				

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



HAZARD APPS & INFO ET/HT CRANES

C150 02-21-14M SUPERSEDES 15394 12-20-13L

SECTION

DECAL #: 15390

CAUTION, INSPECT VEHICLE & CRANE... DESCRIPTION:

PURPOSE: TO INFORM THE OPERATOR OF KEY OPERATING REQUIREMENTS.

QUANTITY:

REAR COVER OR SIDE OF CRANE PLACEMENT:

CAUTION MOUNTED ON FACTORY-RECOMMENDED TRUCK. FOR OPERATING (LOAD) LIMITATION DO NOT OPERATE, WALK, OR STAND BENEATH BOOM OR A SUSPENDED LOAD. OR TRAVEL, BOOM MUST BE IN STOWED

DECAL #: 15391

DESCRIPTION: DANGER, NOT A PASSENGER LIFT

PURPOSE: TO INFORM OPERATOR NOT TO LIFT, SUPPORT, OR TRANSPORT

PERSONNEL, AND TO ENSURE OPERATOR IS ADEQUATELY TRAINED.

QUANTITY:

PLACEMENT: REAR COVER OR SIDE OF CRANE



YOU MUST NOT **OPERATE THIS CRANE UNLESS:**

OPERATE THIS CRANE UNLESS:
YOU HAVE BEEN TRAINED IN THE SAFE
OPERATION OF THIS CRANE; AND
YOU KNOW AND FOLLOW THE SAFETY AND
OPERATING RECOMMENDATIONS CONTAINED I
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.

15392 DECAL #:

DESCRIPTION: DANGER, ELECTROCUTION HAZARD, MACHINE (CRANE)

PURPOSE: TO INFORM OPERATOR THAT MACHINE (CRANE) REPRESENTS AN

ELECTROCUTION HAZARD SHOULD IT COME CLOSE TO OR IN CONTACT

WITH AN ELECTRICAL VOLTAGE SOURCE.

QUANTITY: 1

PLACEMENT: REAR COVER OR SIDE OF CRANE



THIS MACHINE IS NOT INSULATED **ELECTROCUTION HAZARD**

THIS LIFTING DEVICE DOES NOT PROVIDE PRO-TECTION FROM CONTACT WITH OR PROXIMITY TO AN ELECTRICALLY CHARGED CONDUCTOR.

TO AN ELECTRICALLY CHARGED CONDUCTOR. YOU MUST MAINTAIN A CLEARANCE OR AT LEAST 10 FEET BETWEEN ANY PART OF THE CRANE, LOAD LINE OR LOAD, AND ANY ELECTRICAL LINE OR APPARATUS CARRYING UP TO 50,000 VOLTS. ON EFOOT ADDITIONAL CLEARANCE IS REQUIRED FOR EVERY ADDITIONAL 30,000 VOLTS OR LESS.

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

DECAL #: 15401

DESCRIPTION: DANGER, UNLAWFUL TO OPERATE

PURPOSE: TO INFORM OPERATOR OF PROPER OPERATION

IN VICINITY OF ELECTRICAL LINES.

QUANTITY:

PLACEMENT: RING COVER OR SIDE OF CRANE

UNLAWFUL TO OPERATE THIS EQUIPMENT WITHIN 20 FEET OF HIGH-VOLTAGE LINES OF 350,000 VOLTS OR LESS.

FOR MINIMUM CLEARANCES OF HIGH-VOLTAGE LINES IN EXCESS OF 350,000 VOLTS, REFERENCE OSHA 1926.140 CRANE'S SAFETY MANUAL, AND CAL-OSHA ARTICLE 37, TITLE 8, HIGH-VOLTAGE ELECTRICAL SAFETY ORDERS

DECAL #: 15393

DESCRIPTION: DANGER, ELECTROCUTION HAZARD, VEHICLE (TRUCK)

WARNS OF DANGER FROM ELECTRICALLY CHARGED PURPOSE:

VEHICLE, CRANE, OR LOAD.

QUANTITY:

PLACEMENT: EACH SIDE & EACH END OF VEHICLE





SECTION



TITLE

SAFETY DECALS

DATE

C150 04-29-16E

SUPERSEDES 10-24-13D

VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO

VENTURO CRANES

PART NO.: 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.

PART NO.: 20927

DECAL: **CRANE STABILITY**

FUNCTION: To inform the operator of the crane's lifting capacity throughout the entire rotation.

QUANTITY: 1

PLACEMENT: In prominent location, so it is easily seen and readily identifiable.







TITLE	DATE	SECTION
SAFETY DECALS	06-06-14C	C150
	SUPERSEDES	04004
CRANES	04-02-13B	21384

PART NO.: 14473-2

DECAL: CONDUCTIVE GREASE

FUNCTION: To show the operator where to apply grease.

QUANTITY: Varies

PLACEMENT: Near grease fittings.



PART NO.: 13397

DECAL: OIL LEVEL

FUNCTION: To inform the operator of proper oil level to

maintain.

QUANTITY: 1

PLACEMENT: Side of hydraulic power unit.

OIL LEVEL

AW46 or DEXRON III ATF

Retract All Cylinders
Prior to Servicing

3397-E

PART NO.: 15398

DECAL: UNPLUG REMOTE CONTROL

FUNCTION: To inform the operator to unplug remote

control when not in use.

QUANTITY: 1

PLACEMENT: Near pendant socket.

UNPLUG
REMOTE CONTROL
PENDANT WHEN
NOT IN USE

DATE

11-12-19E

12-23-13D

SUPERSEDES



MANUFACTURING, INC.

CINCINNATI, OHIO

DECALS
ET CRANES

SECTION

PART NO.: 24029-1 & 24029-2

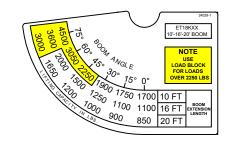
DECAL: CRANE CAPACITY

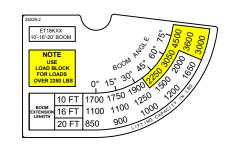
FUNCTION: To show the operator the operating

capacities of crane.

QUANTITY: 1 each

PLACEMENT: One on each side of boom.





PART NO.: 28571

DECAL: MODEL NUMBER (ET18KX)

FUNCTION: To show the model of the crane.

QUANTITY: 2

PLACEMENT: One on each side of boom.

PART NO.: 27007-05a

DECAL: LOAD BLOCK CAPACITY

FUNCTION: To show the capacity of the load block.

QUANTITY: 2

PLACEMENT: One on each side of load block.

LOAD BLOCK SPECIFICATIONS RATED CAPACITY: WEIGHT: 4.500 lbs 28 lbs WARNING: PART LINE FOR LOADS LESS THAN 2250 LBS. PART LINE FOR LOADS 2250 LBS. & GREATER

PART NO.: 19788-1

DECAL: PROPORTIONAL Decal (ET16/18KXXP)

FUNCTION: To show the crane has proportional feature.

QUANTITY:

PLACEMENT: One on each side of boom.

PROPORTIONAL CONTROL

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VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO

MODEL/CAPCTY DECALS

11-28-23

SECTION C150

SUPERSEDES

ET18KX(P)-20'

PART NO.: 17813

DECAL: OVERLOAD SENSING SYSTEM DECAL

FUNCTION: To advise operator of overload sensing system.

QUANTITY: 1

PLACEMENT: Location may vary.

CRANE IS EQUIPPED WITH AN OVERLOAD SENSING SYSTEM

- ON CRAINES EQUIPPED WITH AN OPTIONAL OVERLOAD ALARM, IT WILL ALSO SOUN IF AN OVERLOAD OCCURS, USE THE WINCH DOWN, BOOM UP OR BOOM IN FUNCTIONS TO RELIEVE THE OVERLOAD.

 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 LITTING THE LOAD.

 SEE MANUAL FOR TESTING OVERLOAD SYSTEM.

NOTICE - WARRANTY VOID IF DISCONNECTED

THE OVERLOAD SENSING SYSTEM HAS BEEN INSTALLED AS A SAFETY FEATURE PROTECT THE EQUIPMENT AND THE OPERATOR.

DO NOT DISCONNECT THIS SYSTEM

PART NO.: 14459 (WITH OPTIONAL ALARM)

DECAL: OVERLOAD ALARM SYSTEM DECAL

FUNCTION: To advise operator of overload alarm system.

QUANTITY: 1

PLACEMENT: Location may vary.

THIS CRANE IS EQUIPPED WITH AN OVERLOAD ALARM SYSTEM OVERLOAD ALARM HORN SOUNDS IF RATED LOAD IS EXCEEDED AT ANY REACH.

IF ALARM SOUNDS, RAISE BOOM OR LOWER WINCH TO REMOVE OVERLOAD.

ALWAYS RAISE BOOM SLIGHTLY BEFORE LIFTING LOAD. WARNING SYSTEM INOPERATIVE WHEN CYLINDER IS COMPLETELY BOTTOMED.

ALARM CAN BE TESTED BY TYING DOWN BOOM WITH WINCH CABLE AND OPERATING

NOTICE - WARRANTY VOID IF DISCONNECTED

THIS ALARM SYSTEM HAS BEEN INSTALLED AS A SAFETY FEATURE TO PROTECT BOTH THE EQUIPMENT AND THE OPERATOR.

DO NOT DISCONNECT THIS SYSTEM

PART NO.: 23188 (RIGHT) & 23191 (LEFT)

23191 DECAL: MANUAL OVERRIDE DECAL (ET16/18KX)

FUNCTION: To show the manual override ports.

QUANTITY: 1

PLACEMENT: Right & Left side of housing.

MANUAL OVERRIDE BD

MANUAL OVERRIDE

BD

23188

ADDITIONAL DECALS	11-12-19	SECTIO C1
FT16KX(P)	SUPERSEDES	

50

SECTION 200

INSTALLATION



!! 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 AUXILIARY BATTERY SIZE										
MODEL			TOTAL	LENGT	H OF C	ABLE (I	FT) *		▲ 12 VOLT AUXILIARY BATTERY REQUIREMENTS	
	0-20	21-25	26-30	31-40	41-50	51-60	61-70	71-80	CCA (A) **	RC (MIN) ***
▲ CE1500 CE6K CT2000 CT2003/4/5 DT7K	#4	#4	#2	#2	#1	#0	#0	#00	350	100
ET5500MPB ET5500R ET6KMPB ET6KR ET6K ET8K ET10K ET12K	#2	#2	#1	#0	#00	NOT R	ECOMN	//ENDED	450	100
ET8KX ET10KX ET12KX T12KX	#2	#2	#1	#0	#00	NOT R	ECOMN	MENDED	550	150
ET18K(X) ET25K(X) ET30KX ET36KX	SEE DRAWING 15660 FOR CABLE AND BATTERY REQUIREMENTS									

- * INCLUDES GROUND CABLE
- ** CCA = COLD CRANKING AMPS AT 0° (F).
- *** RC = RESERVE CAPACITY IN MINUTES AT 25 AMPS AND 80° (F).

 THE RC RATING IS A MEASURE OF THE PERIOD OF TIME THE BATTERY CAN SUPPLY A GIVEN CURRENT WITHOUT RECHARGING.

_		TITLE	DATE	SECTION	١
VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO	CABLE & BATTERY	07-30-18X	C200		
	CINCINNATI, OHIO		SUPERSEDES	744405	1
		ELECTRIC CRANES	09-27-17W	<i>1</i> 11105 <i> </i>	

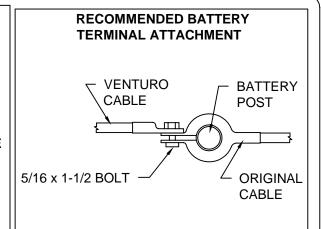
	RECOMMENDED CIRCUIT BREAKER TABLE								
	CRANE	DESCRIPTION	PART NO.						
	CT310KX	250 AMP, MAN RESET	22946-250						
	DT7	250 AMP, MAN RESET	22946-250						
	CE-1500-FB	150 AMP, MAN RESET	22946-150						
	CE6K	150 AMP, MAN RESET	22946-150						
	CT200X	250 AMP, MAN RESET	22946-250						
	ET6K	250 AMP, MAN RESET	22946-250						
	ET8/12K(X)	250 AMP, MAN RESET	22946-250						
•	ET12KXP	300 AMP, MAN RESET	22946-300						
	ET16/18KX-16'	250 AMP, MAN RESET	22946-250						
_	ET16/18KX-20'	300 AMP, MAN RESET	22946-300						
	ET25/30KX	300 AMP, AUTO RESET	22946-300						
	ET36KX	300 AMP, AUTO RESET	22946-300						
	·	·							

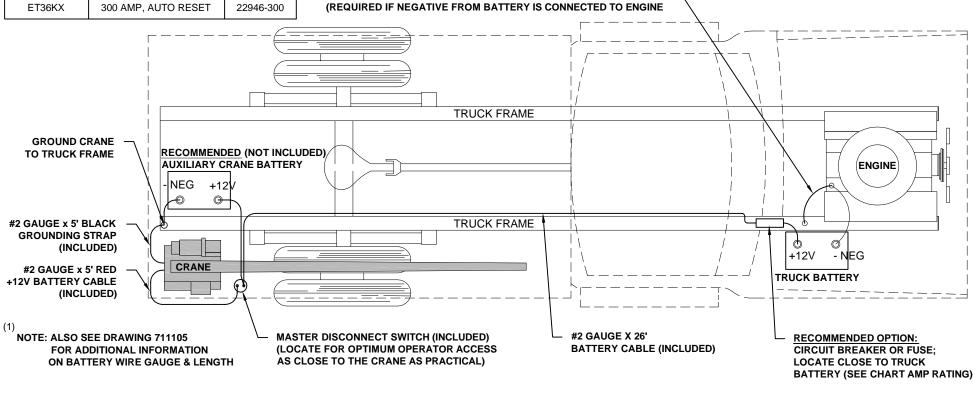
BATTERY REQUIREMENTS

- 12 VOLT *VEHICLE* BATTERY REQUIREMENTS
- •• 625 COLD CRANKING AMPS (AT 0° F)
- •• 160 MINUTES RESERVE CAPACITY
- •• 102 PLATES, 105 AMP-HR
- 12 VOLT *AUXILIARY* BATTERY REQUIREMENTS
- •• SEE MINIMUM WIRE GAUGE AND BATTERY SIZE

NOTE: OPERATING WITH THE VEHICLE BATTERY 'ONLY' IS PERMISSIBLE, BUT *NOT* RECOMMENDED.

INSTALL #2 GAUGE GROUND STRAP FROM ENGINE TO TRUCK FRAME







VENCO VENTURO INDUSTRIES LLC
CINCINNATI, OHIO

III LE	DATE	SECTION
BATTERY CABLE & COMPONENT INSTALL	09-03-20M	C200
	SUPERSEDES	45000
ET CRANES	07-30-18L	15660

STABILITY TEST - ET18-20' SERIES

Overview

Venturo follows the guidelines of ANSI B30.5 in defining stability. Generally speaking, a truck is considered stable as long as it is not on the verge of tipping - i.e. with the truck level, at least one tire on each corner of the truck must remain in contact with the ground.

It is important to note that nearly every installation is unique and will, therefore, typically require stability testing.

The procedure outlined below follows ANSI's (B30.5 - 5-1.1.1) specified "maximum load rating" of 85% of truck stability.

Testing Procedure

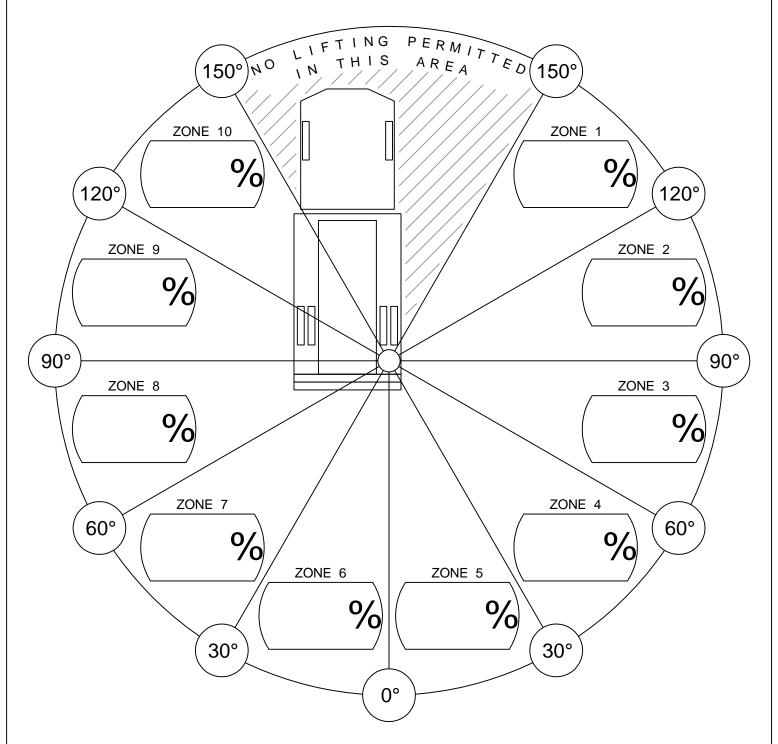
- 1. Locate the truck on firm, level ground and set parking brake.
- 2. Fully deploy stabilizers, making sure they are firmly in contact with supportive ground; use stabilizer pads as required. The tires of the truck should remain in full contact with the ground.
- 3. Inspect wire rope and other key components of crane (consult owners manual for more information).
- 4. Conduct an operational check of all crane functions.
- 5. Locate the Overload Pressure Switch at the base of the elevation cylinder
- 5.1. Disconnect the black & white wires from the housing and then connect the black & white wires together to by-pass the Overload Pressure Switch for the stability test. Note: The black & white wires MUST be reconnected to the Overload Pressure Switch after the stability test has be completed.
- 6. Use a *Test Weight* weighing a *minimum* of <u>1000 lbs</u>, (includes load block weight of <u>34</u> lbs.) to a *maximum of* 1050 lbs.
- 7. Position the boom level and fully retracted.
- 8. Referring to the Stability Chart (drawing 20907) rotate the crane to a position between 1 and 2 o'clock (truck cab is facing 12 o'clock) to begin testing.
- 9. Use the winch to lift the Test Weight; DO NOT allow the weight to be more than 6" off the ground at any time during testing (for safety).
- 10. Using the test weight, extend the boom slowly, until one of two conditions occur:
- 10.1. Full extension is reached Mark the ZONE in guestion 100%
- 10.2. The truck becomes unstable i.e. a tire lifts off the ground
- 10.2.1. Retract the boom until at least one tire on each corner of the truck is making contract with the gound
- 10.2.2. Use the formula below to determine the allowable % of Rated Capacity for the ZONE in question:
- 11. Note: The "<u>Max Stable Reach in inches"</u> is measured from the **center of rotation** of the crane housing to the **lifting load hook.**

	"Max Stable Reach" in inches"	
% Rated Capacity =		X 100
	251	

- 12. Record the <u>% of Rated Capacity</u> in the appropriate blank (region) on the Crane Stability page (ref. 20907) and decal.
- 13. Repeat Steps 7 through 12 for each ZONE on the stability page.

ENTURO® VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO	VENCO VENTURO INDUSTRIES LLC	STABILITY TEST	03-17-23D	C200	
	ET18-20' SERIES	SUPERSEDES 11-23-21C	20906-18B		

CRANE STABILITY



% of Rated Capacity for each of the 10 regions are provided above.

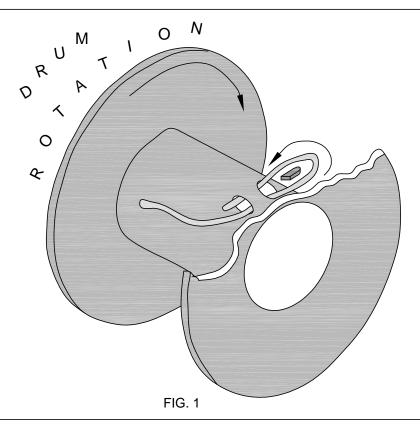
CONDITIONS:

 STABILIZERS FULLY EXTENDED & DOWN, ON FIRM LEVEL GROUND.



TITLE	DATE	SECTION
STABILITY CHART	05-11-17F	C200
	SUPERSEDES	00007
VENTURO CRANES	02-21-14E	20907

WIRE ROPE INSTALLATION



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

STEP 2: INSERT WIRE ROPE END UP THROUGH ANTI-2-BLOCK (A2B) CAGE ASSEMBLY, BETWEEN CHEEK PLATES, OVER THE TOP SHEAVE, AND THROUGH WIRE ROPE GUIDE.

STEP 3: INSERT WIRE ROPE END INTO POCKET OPENING ON WINCH, WRAP AROUND WEDGE, AND BACK THROUGH POCKET OPENING AS SHOWN IN FIGURE 1.

CAUTION

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

CAUTION

 THERE MUST ALWAYS BE AT LEAST [5] DEAD WRAPS OF WIRE ROPE ON THE WINCH DRUM WHILE UNDER LOAD.

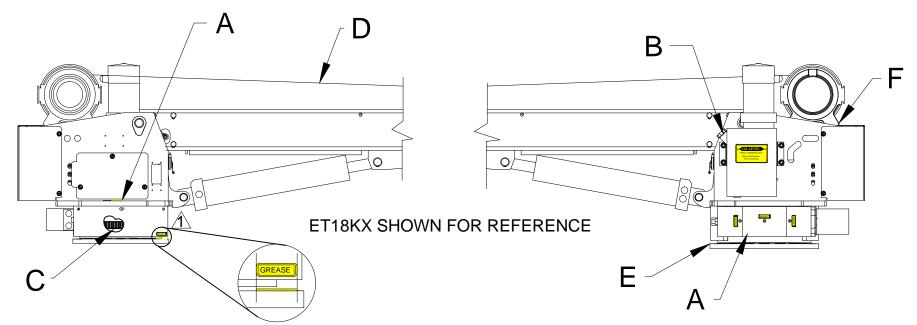
NOTE: SOME WINCHES MAY BE SUPPLIED WITH A HEX NUT IN LIEU OF A WEDGE FOR INSTALLING THE WIRE ROPE.

1			TITLE	DATE	SECTION	١
	ENTURO® VENCO	VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO	WIRE ROPE INSTALLTN	02-21-14K	C200	
				SUPERSEDES	00045	ĺ
			ET6K & LARGER CRANES	12-26-13J	22245	

SECTION 300

MAINTENANCE & SERVICE





ATTENTION:

NEVER WASH THIS CRANE WITH CHEMICAL PRODUCTS OR HIGH PRESSURE WATER JETS, AS THEY CAN CAUSE DETACHMENT OF DECALS OR ENTRANCE OF WATER INTO ELECTRICAL OR SLEWING RING COMPONENTS

Location	Service Required	No	Note	
Α	Grease fitting With Pressure Grease Gun	Use FUCHS Renolit Aluminum Complex Grease, or equivalent		Time of Truck Service
		ALIGNMENT: To align hole w/ fitting, line up grease decals on lower cover and base gusset.		
В	Fill Oil Reservoir to Oil Level with Boom Down and Boom In.	Use Dextron ATF for Ambient Temperatures Between -22° F and 30° F	Use ISO Viscosity Grade 68 or Equivalent for Ambient Temperatures Between 10°F and 125°F	Time of Truck Service and as required by changes in the ambient temperature range
С	Lubricate Gear Teeth	Remove Cover & Use Chassis Grease		Time of Truck Service
D	Check Wire Rope and Hook	Rope should be free of kinks and fraying		Time of Truck Service
Е	Check Torque of Base Mounting Bolts	Square Base: Torqued to 200 ft-lbs		Time of Truck Service
-	Check Torque of Base Mounting Bolts	Rectangular Base: Torqued to 455 ft-lbs Bolts should be torqued to 35 ft-lbs*		Time of Truck Service
F	Check Torque of Winch Mounting Bolts			Time of Truck Service

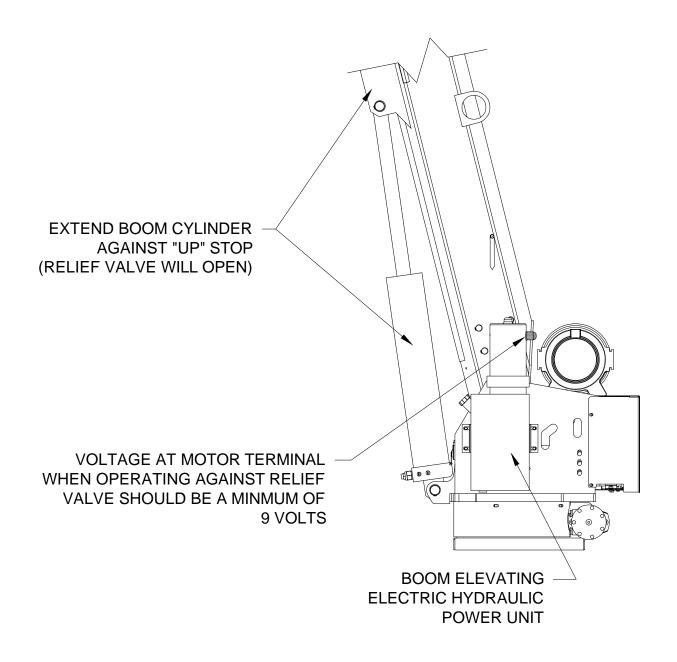
^{* 32} FT-LBS. FOR ET8/12 WITH GTD-2200 COMEUP WINCH. SEE PAGE 21741 FOR WINCH IDENTIFICATION.



ET8/12/16/18 SERIES CRANES	SUPERSEDES 01-30-23K	21306
LUBRICATION & MAINTENACE CHART	03-06-23L	C300

MINIMUM VOLTAGE TEST

ONE OF THE MOST COMMON ELECTRICAL PROBLEMS ENCOUNTERED ON 12 VOLT ELECTRICAL CRANES IS INSUFFICIENT VOLTAGE AT THE MOTOR WHEN DRAWING THE LARGE CURRENT THAT EXISTS AT FULL LOAD





TITLE	DATE	SECTION
MINIMUM VOLTAGE TEST	12-26-13G	C300
ET SERIES CRANES	supersedes 10-05-09F	19963

6.50" Ω 8.25" C RATING: 3 TONNE (6615 LBS) 2.00" AA LOAD BLOCK ASSEMBLY LOAD BLOCK HOOK: COLOR BRAND GOLD CROSBY DIMENSIONS: ▲ GAC 7X19 XIP-RHRL-IWRC, SB 9800 LBS WIRE ROPE ASSEMBLY **TERMINATES IN THIMBLE** 5/16" DIA, 80' LONG WIRE ROPE: NO HOOK

WIRE ROPE & HOOK SPECIFIC

ΑĄ

® VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO

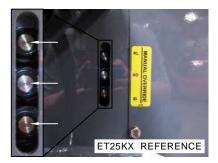
ET/HT25/30KX

NK SPECIFICATIONS	в в в в в в в в в в в в в в в в в в в	C300
	SUPERSEDES	
	03-13-12A	73778

READ ALL INSTRUCTIONS BEFORE PERFORMING MANUAL OVERRIDE PROCEDURES !!







Each valve station incorporates [2] hydraulic ports and [2] coils. Manual override shafts are located in the center of the coils (see figure 1). Manual override decals are placed on each crane near the valve assembly. These decals provide a visual aid that helps the operator determine the function designations (Reference figure 2).

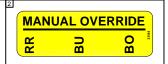


Rot. Right RL Rot. Left RR Boom Up BU BD Boom Down

3-STATION FUNCTIONS include previous functions, plus:

Boom In ВО **Boom Out**

ALWAYS BE SURE TO CHECK HYDRAULIC OIL LEVEL BEFORE PROCEEDING. IT IS RECOMMENDED TO REMOVE ANY ITEM(S) THAT MAY INTERFERE WITH OPERATING THE CRANE MANUALLY. IF POSSIBLE, STRAPS AND/OR HARNESSES SHOULD BE REMOVED BEFORE OPERATING A CRANE IN MANUAL OVERRIDE!!



End Plate

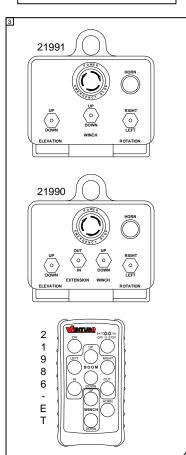
PORT

COIL

SHAFT

Procedure:

- Turn Master disconnect switch to "ON"
- Power up the pendant / radio
- 2.1. PENDANT - twist EMERGENCY STOP button clockwise
- 2.2. RADIO - Press green ON button
- 3. On the crane, reference the function you wish to perform using the manual override decal
- Using a tool with a diameter of 1/8" or smaller, press the shaft inward and hold 4.
- 5. Reference the functions listed on your pendant or radio (see figure 3)
- Press the switch or button for the same function
- 7. If you need to change function,
 - Release switch or button 7.1.
 - Remove tool from shaft 7.2.
 - 7.3. Go to step 3



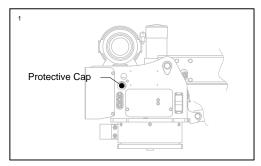
For assistance, please feel free to contact Technical Support at 800-226-2238.

CINCINNATI, OHIO



DATE SECTION C200 MAN. OVERRIDE INSTR. 03-08-19A SUPERSEDES 23084 ET NON-PROP CRANES 02-09-17

READ ALL INSTRUCTIONS BEFORE PERFORMING MANUAL OVERRIDE PROCEDURES !! !!

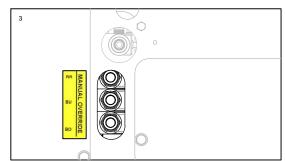


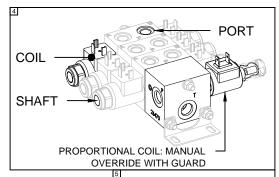


Each valve station incorporates [2] hydraulic ports and [2] coils. Manual override shafts are located in the center of the coils (see figure 4). Manual override decals are placed on each crane near the valve assembly. These decals provide a visual aid that helps the operator determine the function designations (Reference figure 3 & 5).

3-STATION FUNCTIONS:

Rot. Right Rot. Left RR RL Boom Up Boom Down BU BD Boom In Boom Out



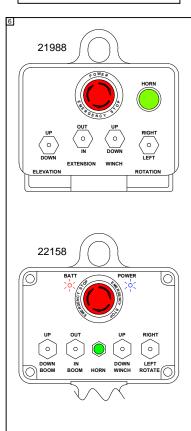


MANUAL OVERRIDE BD m

ALWAYS BE SURE TO CHECK HYDRAULIC OIL LEVEL BEFORE PROCEEDING. IT IS RECOMMENDED TO REMOVE ANY ITEM(S) THAT MAY INTERFERE WITH OPERATING THE CRANE MANUALLY. IF POSSIBLE, STRAPS AND/OR HARNESSES SHOULD BE REMOVED BEFORE OPERATING A CRANE IN MANUAL OVERRIDE!!

Procedure:

- Turn Master disconnect switch to "ON"
- 2. Remove Protective cap (see figure 1)
- Rotate Valve Stem Clockwise to close (see figure 2)
- Power up the pendant / radio
- Twist EMERGENCY STOP button clockwise 4.1.
- On the crane, reference the function you wish to perform using the manual override decal (see figure 3)
- Using a tool with a diameter of 1/8" or smaller, press the shaft inward and hold
- 7. Reference the functions listed on your pendant or radio (see figure 6)
- Press the switch or button for the same function
- If you need to change function,
- 9.1. Release switch or button
- 9.2. Remove tool from shaft
- 9.3. Go to step 5



For assistance, please feel free to contact Technical Support at 800-226-2238.



MAN. OVERRIDE INSTR.

DATE 11-12-19

SUPERSEDES

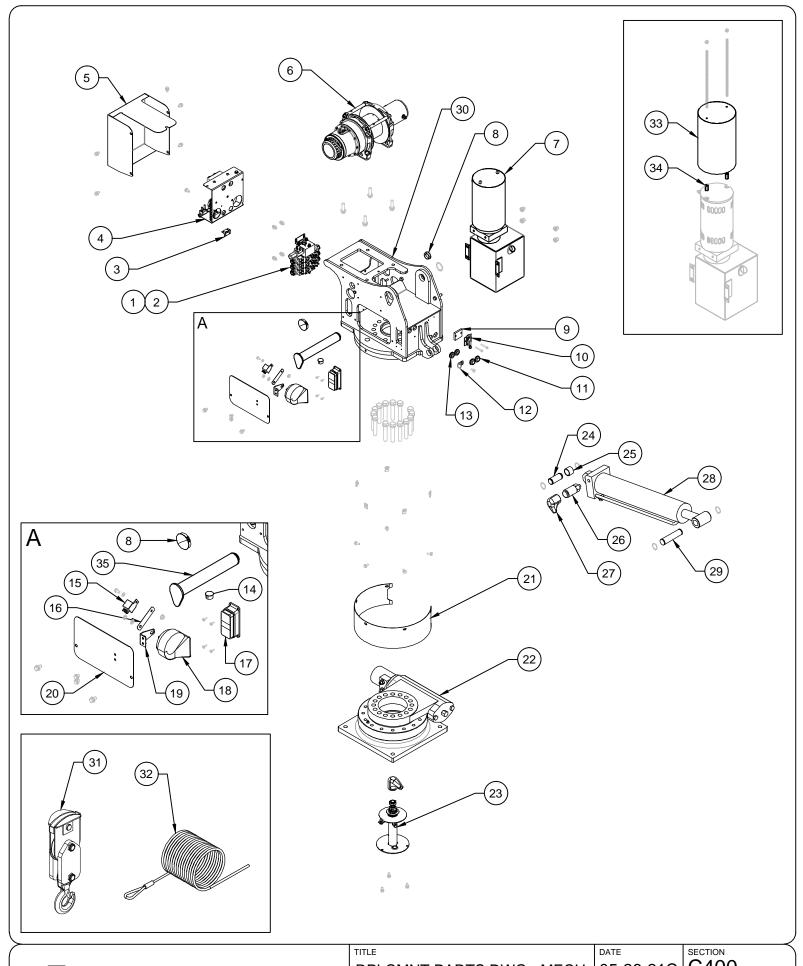
SECTION C200

ET16/18KX PROPORTIONAL

SECTION 400

REPLACEMENT PARTS





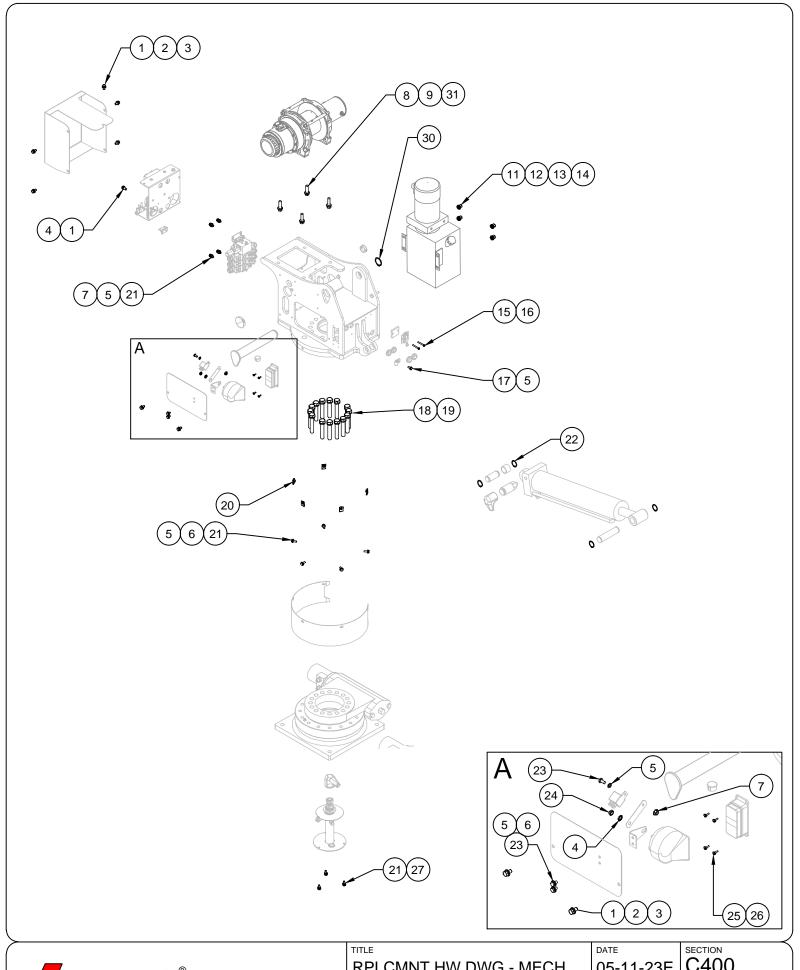
ENTURO®	CINCINNATI, OHIO	RPLCMNT PARTS DWG - MECH	05-26-21C	C400
		ET16/18KXX(P)-20'	SUPERSEDES 05-18-21B	25210

ET18KXX(P)-20' - REPLACEMENT PARTS LIST- MECH

ITEM NO.	KX	KXP	PART NO.	DESCRIPTION
1	1	-	21614	VALVE BLOCK; 3-SPOOL
2	-	1	26479	VALVE BLOCK; 3-SPOOL PROP VALVE
3	1	1	1586A22	HINGE
4	1	1	23154	ELECTRICAL PANEL
5	1	1	23173	REAR COVER, MECHANISM
6	1	1	21215	WINCH, PERMANENT MOTOR
7	1	1	26489	HYDRAULIC POWER UNIT
8	2	1	26492	PLUG; Ø2", LOCKING
9	1	1	20896	UHMW SPACER - TOP POSITION SWITCH
10	1	1	19904	BOOM SHUT OFF SWITCH ASSEMBLY
11	2	2	20889	GROMMET 5/8" ID
12	1	1	19269	CLAMP,CABLE - 1/4 IN.
13	2	2	14775	GROMMET 1/2" ID
14	1	1	25019	PLUG; HOLE, 7/8", PLASTIC
15	1	1	22739	RELAY. 12VDC
16	1	1	-	RELAY BRACKET (INCLUDED WITH 21948)
17	1	1	22480	SOCKET ASSY-16+1 POLE
18	1	1	21948	HORN, OPERATOR CONTROLLED 12V
19	1	1	22000	BRACKET; HORN
20	1	1	23155	PLATE; COVER, RIGHT SIDE
21	1	1	21185	ROTATION GEAR GUARD
22*	1	1	21735	SLEW DRIVE; SQUARE BASE
22	1	1	21735-1	SLEW DRIVE; RECTANGULAR BASE
23	1	1	16780-2P8	ASSY; SWIVEL TERMINAL, 2-POLE
24	1	1	21172	PIN; ELEV CYLINDER BASE
25	3	3	21124	MRP COMPOSITE BEARING
26	1	1	17460-2900-21	OVERLOAD PRESSURE SWITCH
27	2	2	17012	BOOT COVER
28	1	1	21743	ELEVATION CYLINDER
29	1	1	21127	PIN; ELEV CYLINDER ROD
30	1	1	23149	HOUSING; WELDED ASSEMBLY
31	1	1	27667	LOAD BLOCK ASSEMBLY
32	1	1	27668-5/16-80	WIRE ROPE, 5/16" x 80'
33	1	1	27604	WELDED ASS'Y, MOTOR COVER
34	2	2	28380	SPACER; STAND-OFF, 1/4-20 X 1", 1/2"
35	1	1	21160	PIN; BOOM, MAIN PIVOT

▲ * EITHER 21735 OR 21735-1 DEPENDING ON CONFIGURATION



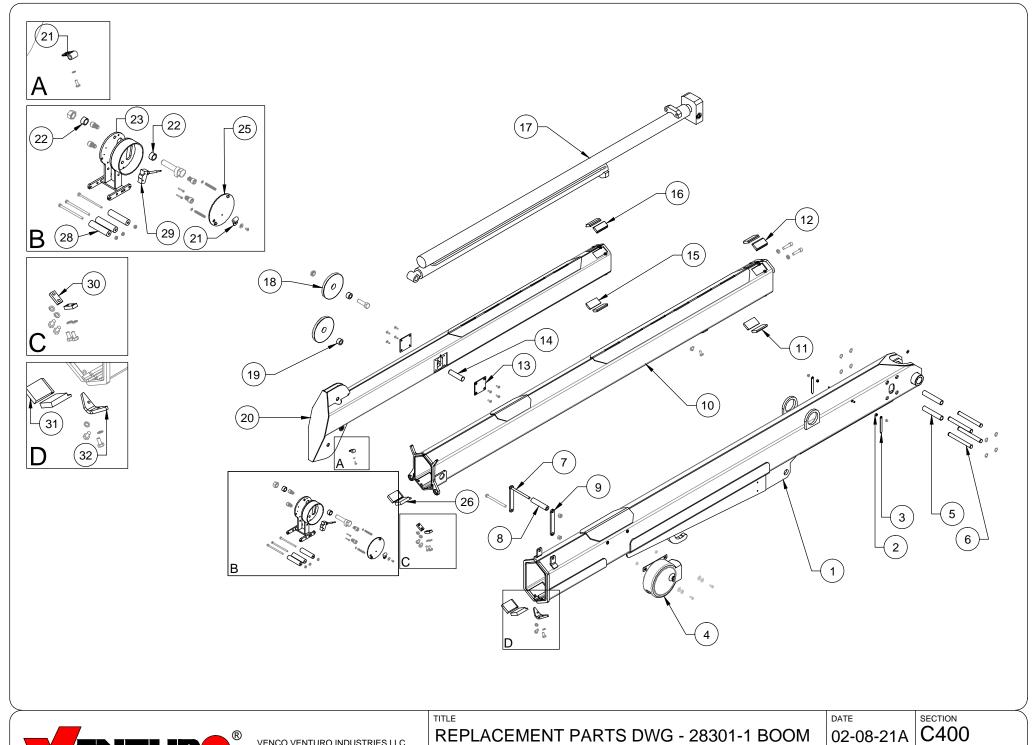


ENTURO EN VENCO VENTURO CINCINN	VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO	RPLCMNT HW DWG - MECH	05-11-23E	C400
CINCINN		ET16/18KX(P), GEN. B	SUPERSEDES 09-28-22D	23991

REPLACEMENT H/W LIST - ET16/18KX(P) MECH

ITEM NO.	QTY	PART NO.	DESCRIPTION
1	8	!HHCS03118063S	HEX HEAD CAP SCREW, 5/16-18 X 5/8 LG, STAINLESS
2	7	!LWSH-031S	LOCK WASHER 5/16 S/S
3	7	!FWSH-031S	FLAT WASHER 5/16 S/S
4	2	!LWSH-031-STAR-SS	LOCK WSHR, 5/16 EXT STAR, STAINLESS STEEL
5	12	!LWSH-025S	LOCK WASHER 1/4 S/S
6	7	!FWSH-025	FLAT WASHER 1/4 S/S
7	5	!FNUT-02520-SS	FLANGE NUT; 1/4-20, STAINLESS STEEL
8	4	25921	SHCS; M12-175x50mm Gr. 12.9
9	4	!FWSH-M12	FLAT WASHER; M12
10	4	!LWSH-050	LOCK WSHR; 1/2, GR. 5, ZINC
11	4	!LNUT-03816	LOCK NUT; 3/8-16, GR. 5, ZINC, NYL-NSRT
12	4	!LWSH-038	LOCK WSHR; 3/8, GR. 5, ZINC
13	4	!FWSH-038	FLAT WSHR; 3/8, GR. 5, ZINC
14	5	!LWSH-038-STAR	LOCK WSHR; 3/8, GR. 5, ZINC, X-TOOTH
15	2	!PHPMS#1024150S	PHILLIPS HEAD PAN, MACH SCREW, # 10-24 X 1-1/2LG, S/S
16	2	!LWSH-#10	LOCK WSHR; #10, GR. 5, ZINC
17	1	!HHCS02520063S	HEX HEAD CAP SCREW, 1/4-20 X 5/8LG, STAINLESS
18	14	!HHCS06311350	HHCS 5/8-11 X 3-1/2 GR.2
19	14	!LWSH-063	LOCK WSHR; 5/8, GR. 5, ZINC
20	5	!UNUT-02520-LKG	U-NUT; 1/4-20, LOCKING TYPE
21	12	!HHCS02520075S	HEX HEAD CAP SCREW, 1/4-20 X .75 LG, STAINLESS
22	4	!SRNG-113	EXT. RET. RING, 1-1/8 ZINC PLATED
23	3	!HHCS02520050	HHCS; 1/4-20 X 1/2, GR. 5, ZINC
24	1	!HNUT-03124	HEX NUT; 5/16-24, GR. 5, ZINC
25	4	!SHPMS#0832050S	SLOT HEAD, PAN, MACH SCREW #8-32 X 1/2 LG STAINLESS
26	4	!LWSH-#08	LOCK WSHR; #08, GR. 5, ZINC
27	6	!LWSH-025-STAR	LOCK WSHR; 1/4, GR. 5, ZINC, X-TOOTH
28	-	-	-
29	_	-	-
30	1	!SRNG-138	SNAP RING 1-3/8 IN - PLATED
31	4	!LWSH-M12-8.8	LOCK WASHER; M12, GRADE 8.8

	VENCO VENTURO INDUSTRIES LLC	RPLCMNT HW LIST- MECH	05-11-23E	C400	
ENTUR	CINCINNATI, OHIO	ET16/18KX(P) SERIES	SUPERSEDES 10-17-22D	23992	





VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO

REPLACEMENT PARTS DWG - 28301-1 BOOM

02-08-21A SUPERSEDES

ET16/18KXX-20'

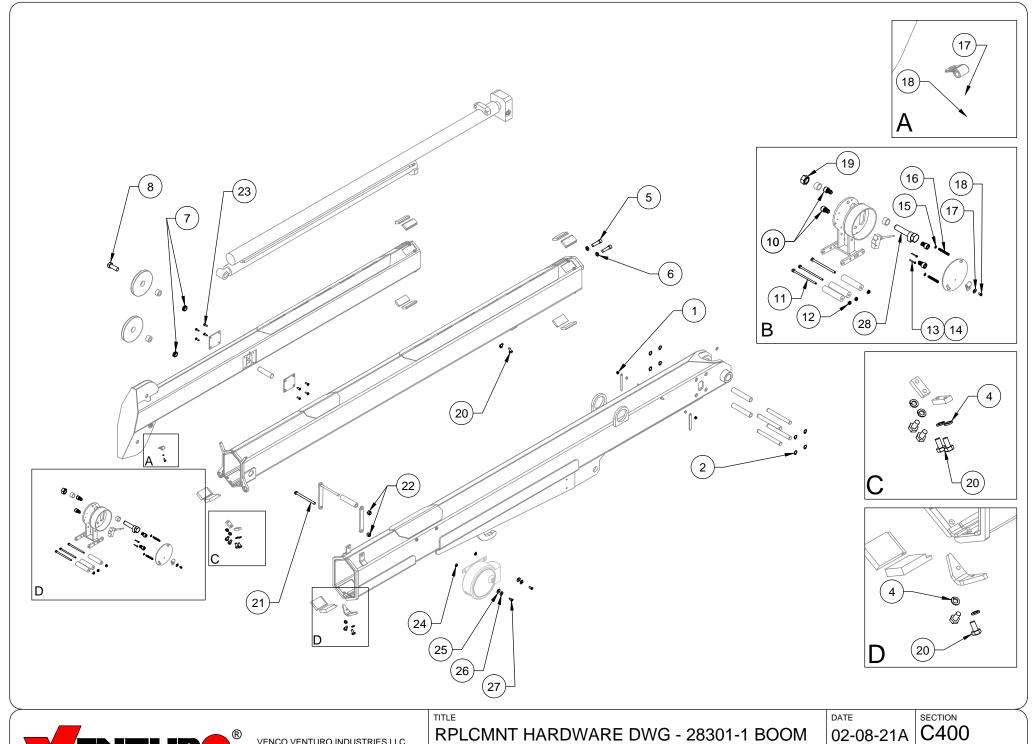
03-02-20

REPLACEMENT PARTS LIST - 28301-1 BOOM

ITEM NO.	QTY.	PART NO.	DESCRIPTION	
1	1	23795	PRIMARY BOOM WELDED ASSEMBLY	
2	2	22490	SPACER-BOOM ARROW	
3	2	13459	ARROW - 3 INCH	
4	1	28190-2	COMPLETE CORD REEL; REELCRAFT	
5	2	21498	ROLLER - EXT CYLINDER	
6	4	21497	THRUST PIN - EXTENSION CYLINDER	
7	1	21935	WIRE ROPE GUIDE - WELDED	
8	1	21560	ROLLER, UHMW GUIDE	
9	1	21936	FLAT, MOUNT; WIRE ROPE GUIDE	
10	1	27165	SECONDARY BOOM WELDED ASSEMBLY	
11	2	23217-9	UHMW, A,3.19,1.75,0.44	
12	2	23217-8	UHMW, A,3.19,1.75,0.50	
13	2	23116	PIN BLOCK REINFORCING	
14	1	21941	PIN; EXTENSION CYLINDER	
15	2	23217-7	7 UHMW, A,3.19,1.50,0.44	
16	2	23217-6	UHMW, A,3.19,1.50,0.50	
17	1	21753	EXTENSION CYLINDER - DUAL	
18	2	27001	POLY CABLE SHEAVE	
19	2	23924	SPACER, SHEAVE	
20	1	27167	TERTIARY BOOM ASSEMBLY	
21	2	19269	CLAMP,CABLE - 1/4 IN.	
22	2	27476	SPACER/PIVOT, COMPACT A2B	
23	2	27468	WLDMNT - COMPACT A2B FRAME	
24	-	-	-	
25	2	27473	COVER PLATE; COMPACT A2B	
26	2	23217-10	UHMW, B,3.19,1.75,063	
27	-	-	-	
28	3	27475	WIRE ROPE GUIDE ROLLER Ø7/8 BLK DELRIN, COMPACT A2B	
29	1	19376	ANTI TWO BLOCK SWITCH	
30	2	23119	BEARING RETAINING BLOCK	
31	2	23217-3	UHMW, B,3.19,2.13,0.63	
32	1	23183	V-BLOCK SLIDER	



LC	RPLCMT PART LIST - 28301-1	03-26-24B SUPERSEDES	
	ET16/18KXX-20'	02-08-21A	24061





VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO

RPLCMNT HARDWARE DWG - 28301-1 BOOM

ET16/18KXX-20'

02-08-21A

SUPERSEDES

03-02-20

REPLACEMENT HARDWARE LIST - 28301-1 BOOM

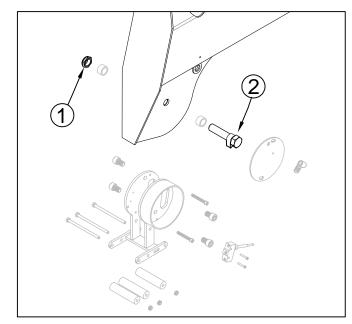
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	2	!ANUT-02520S	ACORN NUT; 1/4-20, SS
2	8	!SRNG-075	SNAP RING; PLATED 3/4
3	-	-	-
4	6	!LWSH-038	LOCK WSHR; 3/8, GR. 5, ZINC
5	2	!SHCS05013200	SHCS; 1/2-13 X 2
6	2	!LWSH-050-HC	WASHER, LOCK; 1/2, GR. 5, ZINC, HI-CLLR
7	2	!LNUT-07510	NYLOC LOCK NUT, FULL: 3/4-10, GR5, ZINC PLATED
8	1	17059-6	SHEAVE AXLE; SS, HHCS 07510200, 1"
9	1	-	-
10	4	27467	SHCS; NYLON, BLACK, 1/2-13 X 3/4 LONG
11	3	!HHCS02520450	HHCS; 1/4-20 X 4-1/2 LG
12	3	!JNUT-02520N	JAM NUT; 1/4-20 W/ NYLON INSERT
13	2	!PHCS#0632100	PHCS; 6-32 X 1
14	2	!LWSH-#06	LOCK WSHR; #06, GR. 5, ZINC
15	2	23379	WASHER; NYLON, BLACK
16	2	!SHCS02520200SS	SHCS; 1/4-20 X 2.00" LG, STAINLESS STEEL
17	2	!FWSH-025	WASHER, FLAT; 1/4 USS, ZNC PLTD
18	2	!PHCS#1032038	PHCS; 10-32 X 3/8, GR. 5, ZINC, SLOT
19	-	!LNUT-07510	NYLOC LOCK NUT, FULL, 3/4-10, GR. 5, ZINC
20	8	!HHCS03816075	HHCS; 3/8-16 X 3/4 GR.5
21	1	!HHCS04414550	HHCS; 7/16-14 X 5-1/2 GR5
22	2	!LNUT-04414	LOCK NUT; 7/16-14, GR. 5 ZINC, NYL-NSRT
23	8	!CACS02520063-N	CNTRSNK ALLN HED CAP SCREW; 1/4-20 X 5/8
24	2	28198	INSULATING SLEEVE WASHER; 5/16"
25	2	01016	FIBER WASHER
26	2	!FWSH-031	WASHER, FLAT; 5/16" SAE
27	2	!SHCS03118063S	SHCS; 5/16-18 X 5/8" LG, S/S
28	1	28362	ASSY, WELDED, CAM & HHCS CA2B CUT-OUT

® VENCO	VENTURO INDUSTRIES LLC	RPLCMNT HW LIST - 28301-1	02-08-21A	C400	
ENTUR	CINCINNATI, OHIO	ET16/18KXX-20'	SUPERSEDES 03-02-20	24063	

Compact A2B with Stowage Cut-out, Install/Adjustment Instructions (Kit: 28375)

The purpose of the Stowage Cut-out system is to prevent a situation whereby the wire rope is over-tensioned when the load block / wire rope is attached to the stowage hook on the bottom of the primary boom assembly. However, the OPERATOR is ultimately responsible for ensuring that the wire rope is not over-tensioned when stowing the wire rope and boom assembly into the boom rest.

- Initially, apply a light torque to the nyloc full nut Item #1 (P/N !LNUT-07510), such that the axle bolt & cam welded assembly can be rotated / adjusted in the steps below.
- 2. Position the cam *lobe* Item #2 (P/N 28362) so that it is pointing towards the housing / mechanism
- 3. Hang the load block on the open stowage hook under the primary boom.
- 4. Thread the wire rope through the load block in a two-line configuration; the wire rope end / eyelet is pinned in the standard position on the tertiary boom tip
- 5. Actuate the Winch Up function until the load block and wire rope are *taut* enough to prevent the load block from bouncing during transit, *but do not tighten excessively so as to prevent damage to the wire rope.*
- 6. Rotate the axle bolt & cam welded assembly towards the housing (clockwise in standard configuration) until the cam lobe makes contact with and trips the wobble micro switch and actuates the A2B function.
- 7. Once adjusted, torque the nyloc full nut (Item #1) to 100 ft*lbs to prevent further rotational movement of the axle bolt & cam welded assembly.
- 8. Test the A2B trip-point by slackening and tightening the wire rope / load block assembly by actuating Winch Up/Down. NOTE: The point at which the A2B trips WILL vary to some degree, depending upon the winch up speed. It is recommended to actuate the winch up function slowly, which will yield a consistent and repeatable result, in terms of wire rope tension when stowed.



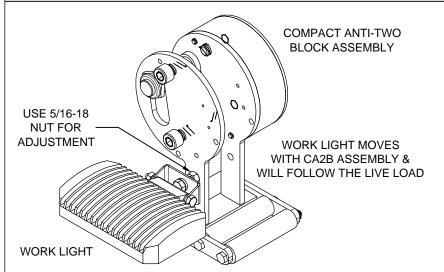


Contact Venturo Tech Support for assistance. 1-800-226-2238 ext. 124

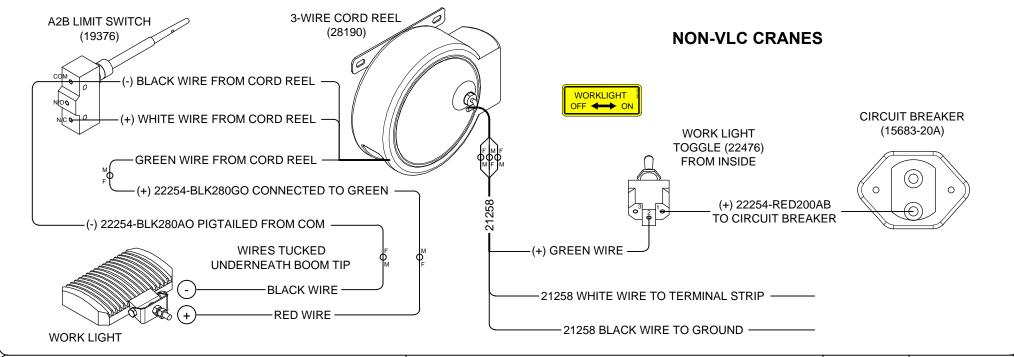


A2B Stowage Cut-out	10-04-21B	C400
ET/HT Cranes w/ Comp. A2B	SUPERSEDES 08-03-21A	28239

WORK LIGHT INSTALLATION: 28240-1 (3-WIRE CORD REEL ON NON-VLC CRANES)



	BILL OF MATERIALS	-1	28240
#	DESCRIPTION		PART NUMBER
1	IDWG; WORK LIGHT INSTALLATION, NON-VLC CRANES	1	28199
2	LED WORK LIGHT	1	27483
3	TERMINAL; 16G, FEMALE, QUICK-CONNECT	3	ITERM16G250QCFI
4	TERMINAL; 16G, MALE, QUICK-CONNECT	4	ITERM16G250QCM
5	WIRE ASS'Y; 16G, BLACK, 28", #6 RING - STRIPPED END	1	22254-BLK280AO
6	WIRE ASS'Y; 16G, BLACK, 28", QCF - STRIPPED END	1	22254-BLK280GO
7	TOGGLE SWITCH; ON / OFF, IP-RATED	1	22476
8	HALF-BOOT, FOR IP-RATED TOGGLE SWITCH	1	19793
9	DECAL; ON/OFF, OPTIONAL WORK LIGHT W/ TOGGLE	1	28307
10	WIRE ASS'Y; 16G, RED, 20", #6 RING - #10 RING	1	22254-RED200AB
11	TERMINAL; 16G, #6 RING, CLOSED-END	1	!TERM16G#6RG

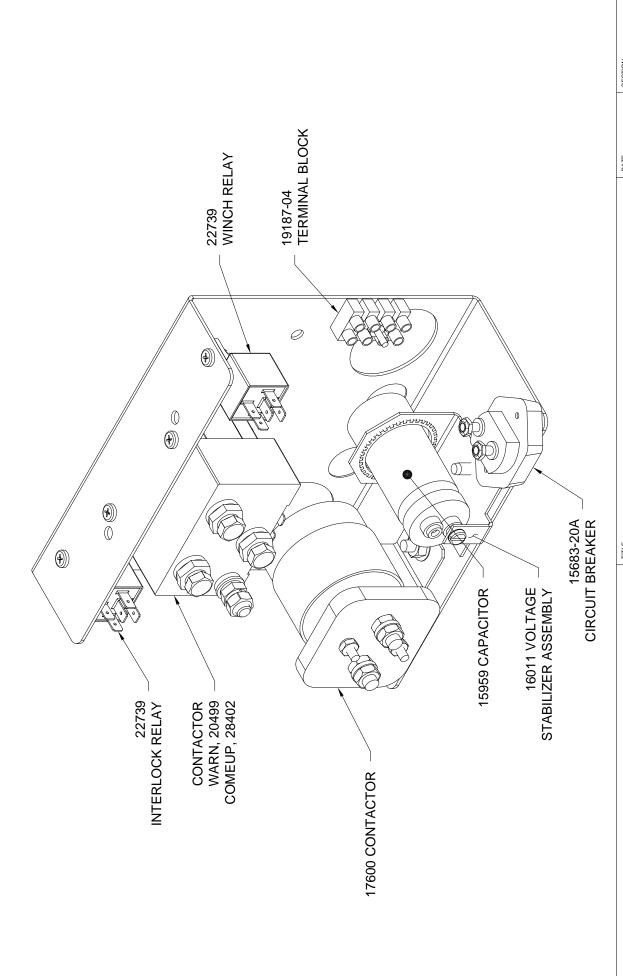




VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO

WORK LIGHT INSTALLATION, 3-WIRE CORD REEL	02-10-21	C400
NON-VLC CRANES	SUPERSEDES -	28199

23154-3 ELECTRICAL COMPONENT ASSEMBLY



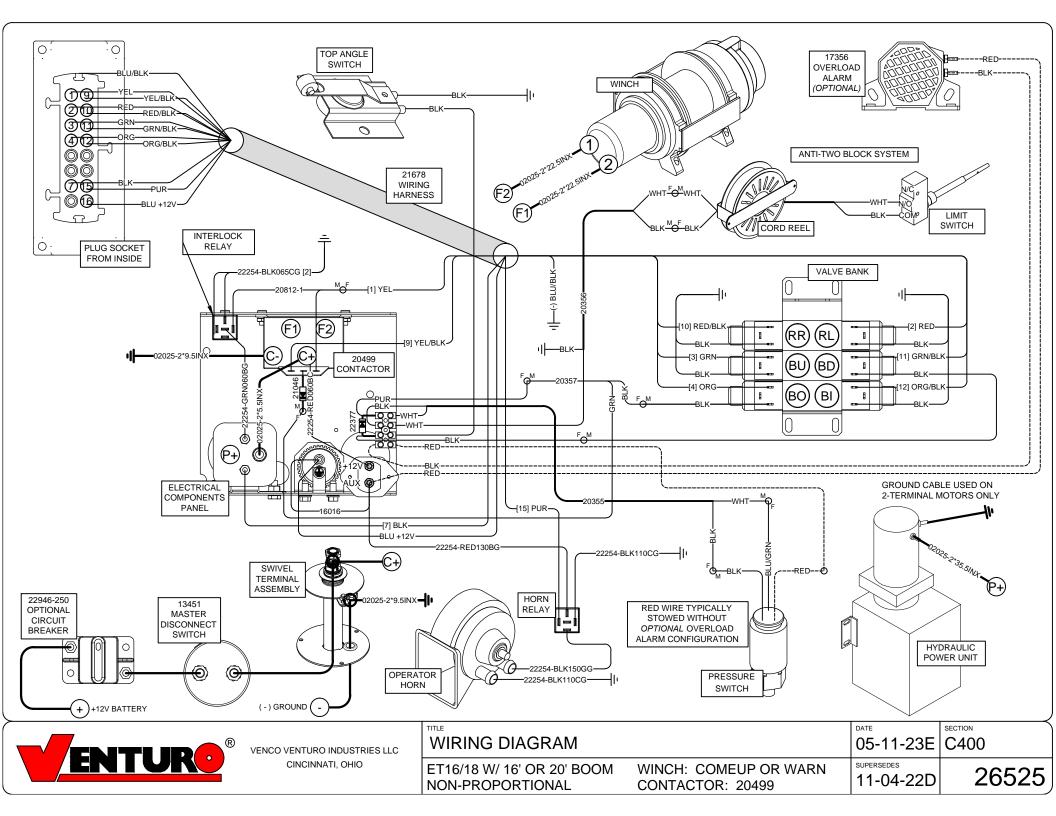


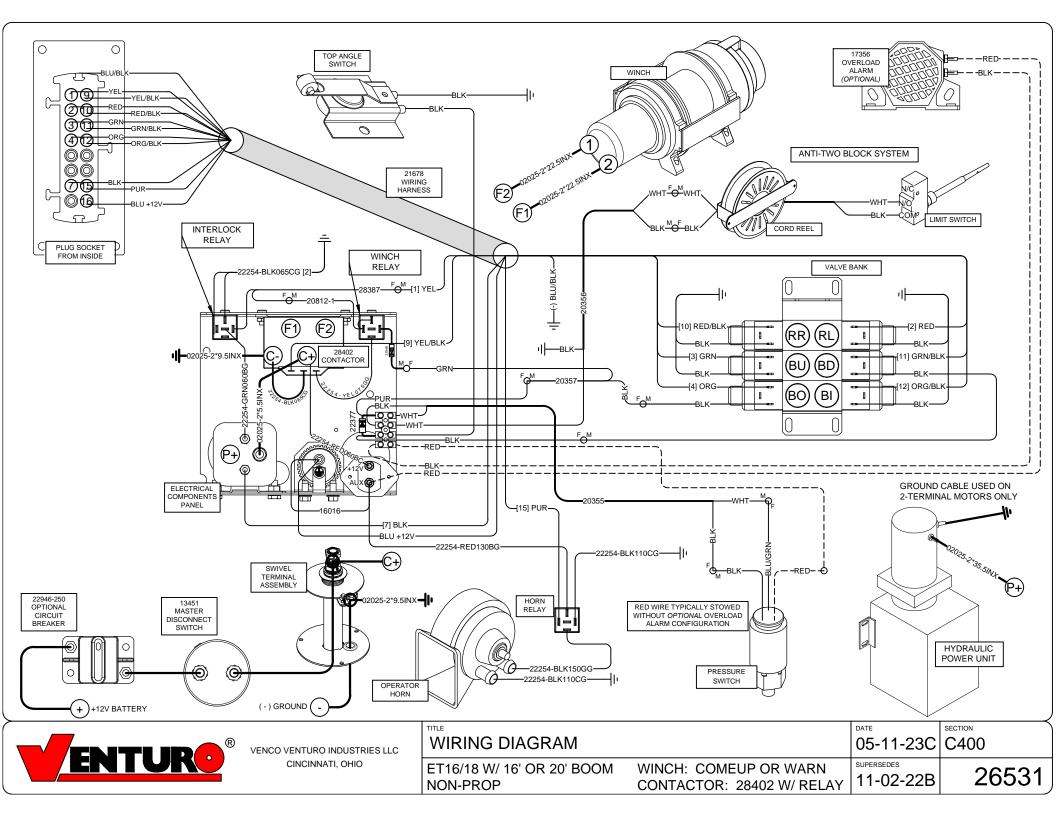
VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO

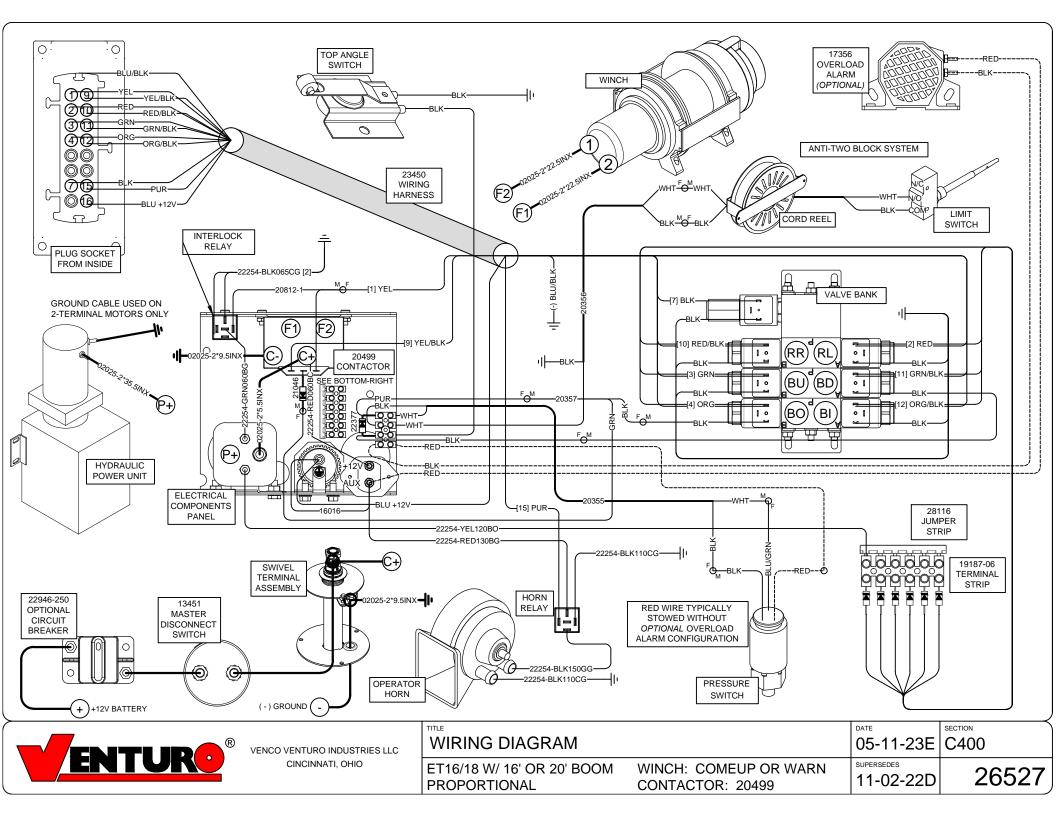
ET16/18KX

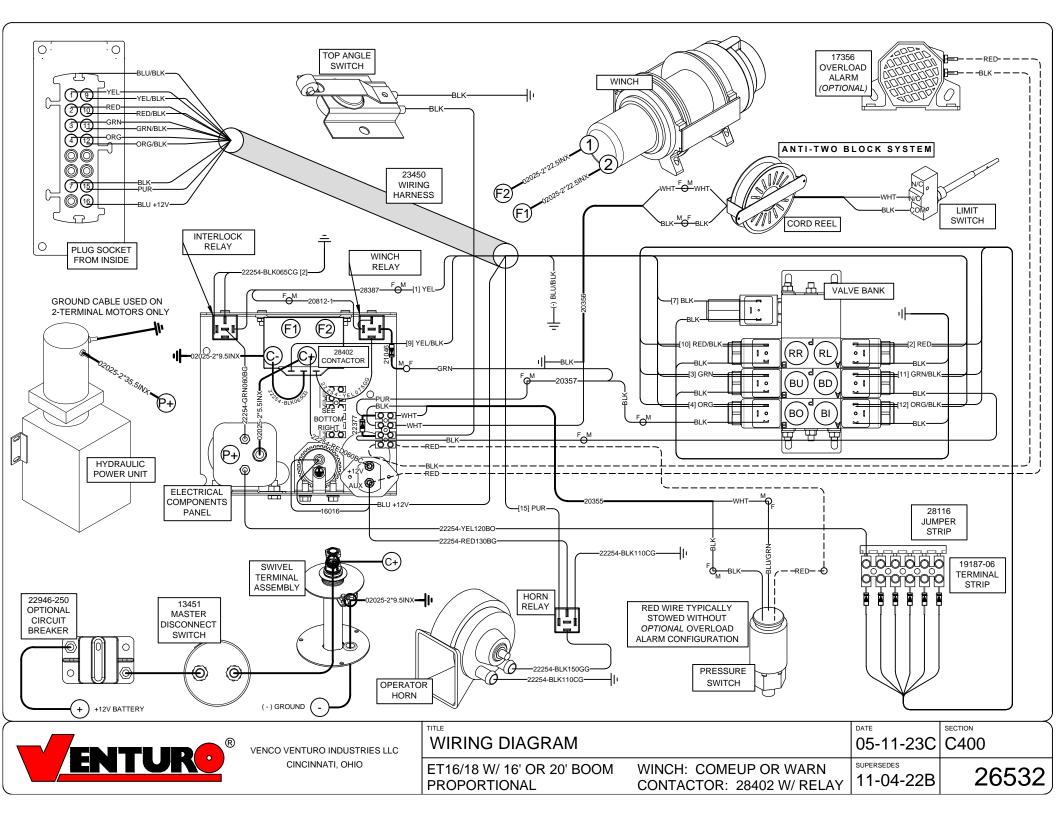
ELECTRICAL COMPONENT ASSEMBLY

10-21-21 C40









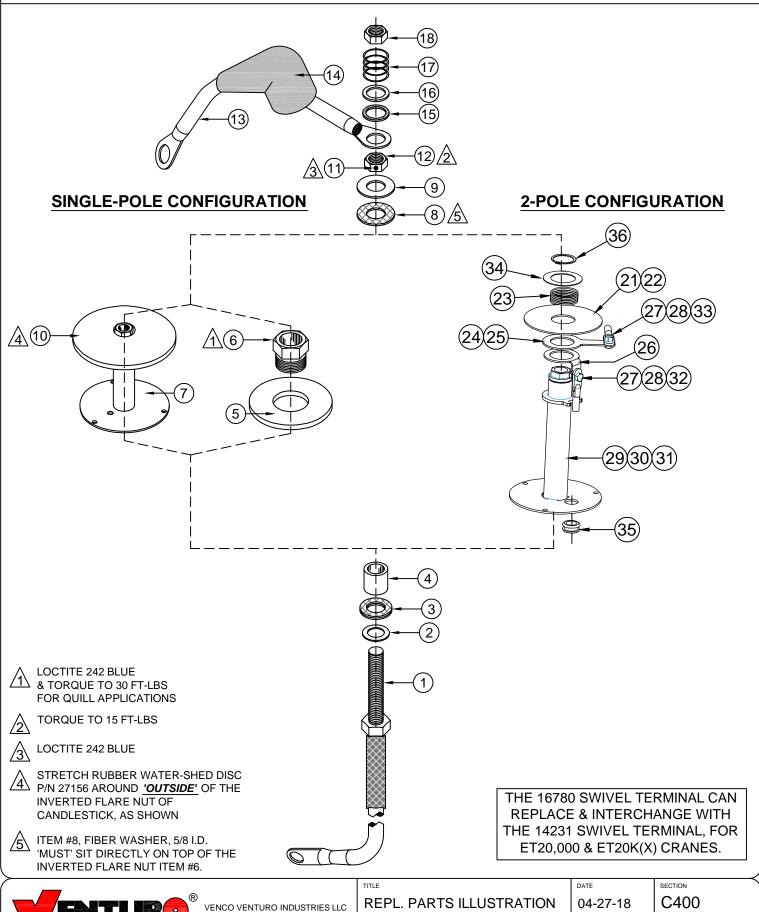
Single & 2-Pole Slip-ring Replacement Parts (1 of 2)

Quill Rotation	Slew Rotation Single Pole Slip-Ring	Slew Rotation 2-Pole Slip- Ring (ET6K ONLY)	Slew Rotation 2-Pole Slip- Ring (ET8-18KX)	Slew Rotation 2-Pole Slip- Fing (ET25-36KX)	F ALL CRANES	16780 BILLS OF MATERIALS			
16780	16780 - 1	16780 - 2P6	16780 - 2P8	16780 - 2P25	16780 - KIT				
		Q	TY			#	PART	DESCRIPTION	
1	1	1	1	1	-	1	16783	PIGTAIL AND STUD ASSEMBLY	
1	1	1	1	1	1	2	12534-5	ZINC BUSHING; 5/8" I.D. X 1" O.D. X 14 GAUGE	
2	2	2	2	2	2	3	14357-1	FIBER WASHER; 5/8" I.D. X 1 1/16" O.D. X 1/16"	
1	1	1	1	1	1	4	14233	INSULATING BUSHING; 5/8" I.D. X 7/8" O.D. X 7/8"	
1	2	-	-	12	2	5	14318	FLAT WASHER; 1 3/16" I.D. X 2 3/4" O.D. X 3/16"	
1	=	-	-	(=)		6	14232	INVERTED FLARE NUT; 1 3/16"-16	
-	-	-	-	-	-	7	27568	WELDED ASSY. CANDLESTICK	
1	1	1	1	1	1	8	14357-2	FIBER WASHER; 5/8" I.D. X 1 1/4" O.D. X 1/16"	
1	1	1	1	1	1	9	!FWSH-063SAE	FLAT WASHER; 5/8" SAE	
_	1	-	-			10	27156	RUBBER WATER SHIELD; 1/8" THICK	
1	1	1	1	1	1	11	!SHCS02528025KC	SET SCREW W/ KNURLED CUP; 1/4"-28 X 1/4"	
1	1	1	1	1	1	12	21273	BRASS JAM NUT; 5/8"-11	
- "	-	-	-	-	-	13	26035-2	PIGTAIL; SWIVEL TERMINAL	
	_	-		152		14	17012	RUBBER BOOT; SWIVEL TERMINAL	
1	1	1	1	1	1	15	5612-162-62	TEFLON WASHER	
1	1	1	1	1	1	16	5714-113-62	a a page a management and appropriate and appr	
					-			BRASS WASHER	
1	1	1	1	1	1	17	LC-098K-00	SPRING; 0.845" O.D. X 0.098" WIRE X 1.00 F.L.	
1	1	1	1	1	1	18	!JNUT-06311N	JAM NUT; 5/8"-11, NYLON NUT	
1	1	1	1	1	1	19	LOCTITE-24205	REMOVABLE THREAD LOCKER; 0.5ML	
1	1	1	1	1	1	20	19368	IDWG; 16780 SWIVEL TERMINAL	
-	-	1 -	1	1	-	21	27456 27456-1	UHMW WATER SHIELD, (ET6K ONLY) UHMW WATER SHIELD, (ET8 - ET36)	
-	-	1	1	1		23	27461	SPRING, (-) SLIP-RING ASSY.	
-	-		1	1	-	24	27441-1	COPPER SLIP-RING, (ET8 - ET36)	
-	ij	1	=	-	-	25	27441	COPPER SLIP-RING, (ET6K ONLY)	
-	-	1	1	1	-	26	27449-1	BRASS SLIP-RING (ET6 - ET36)	
-	-	1	1	1	-	27 28	!HHCS03118075-B !HNUT-03118-B	BRASS HHCS BRASS NYLOC NUT	
=	-	1	-	-		29	23255	SLIP-RING, WELDED ASSY, ET6K	
-		•	1	(I II)		30	23255-1	SLIP-RING, WELDED ASSY, ET8 - 18K(X)	
=	H	=	=	1	T	31	23255-2	SLIP-RING, WELDED ASSY, ET25 - 36K(X)	
	-	1	1	1		32	02025-2*96.5INX	(-) WELDING CABLE ASSY, BRASS SLIP-RING	
-	-	1	1	1	÷	34	02025-2*22.5INX 27463	(-) WELDING CABLE ASSY, COPPER SLIP-RING SHIM, WIDE RIM, 18GA, 2-1/4 O.D. X 1-1/2 I.D.	
-	-	1	1	1	Ė	35	20889	RUBBER GROMMET	
-	-	1	1	1	=	36	!SRNG-150	SNAP-RING, EXTERNAL, 1-1/2"	



TITLE	DATE	SECTION
16780 REPLACEMENT PARTS	03-29-19A	C400
	SUPERSEDES	21202
ET6/8/12/16/18/25/30/36K(X)	04-27-18	Z1Z9Z

Single & 2-Pole Slip-ring Replacement Parts (2 of 2)

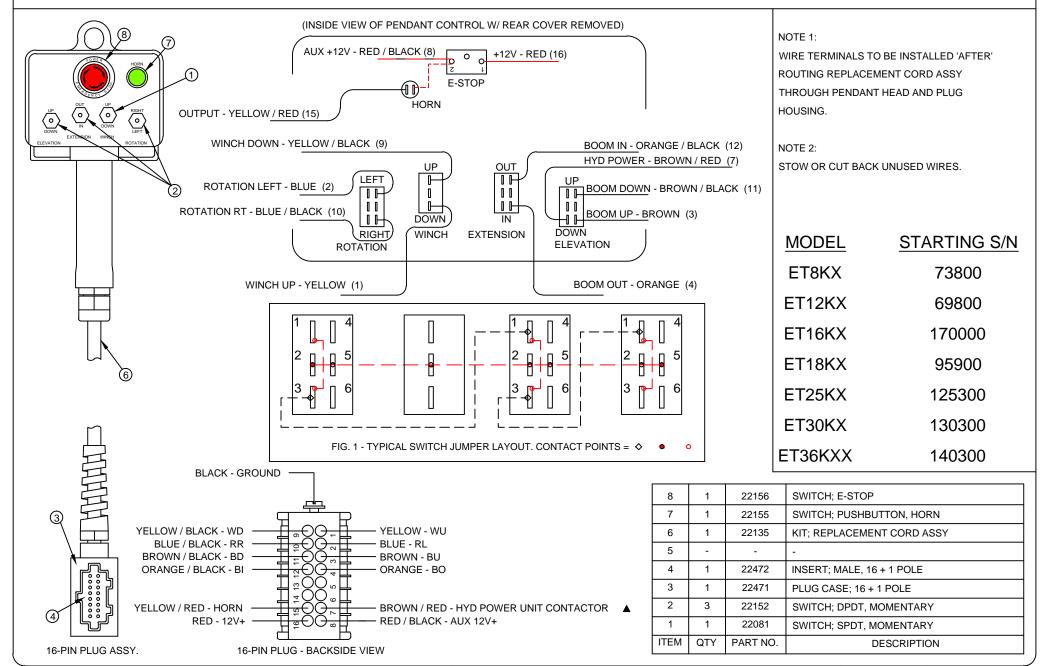


	ENTURO	9 ,
A		

/ENCO VENTURO INDUSTRIES LI CINCINNATI, OHIO

ET6/8/12/16/18/25/30/36K(X)	SUPERSEDES	21293
REPL. PARTS ILLUSTRATION	04-27-18	C400
TITLE	DATE	SECTION

21990 PENDANT; 4 FUNCTION ET CRANES, E-STOP / HORN





VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO REPLACEMENT PARTS DWG & LIST

01-12-17B

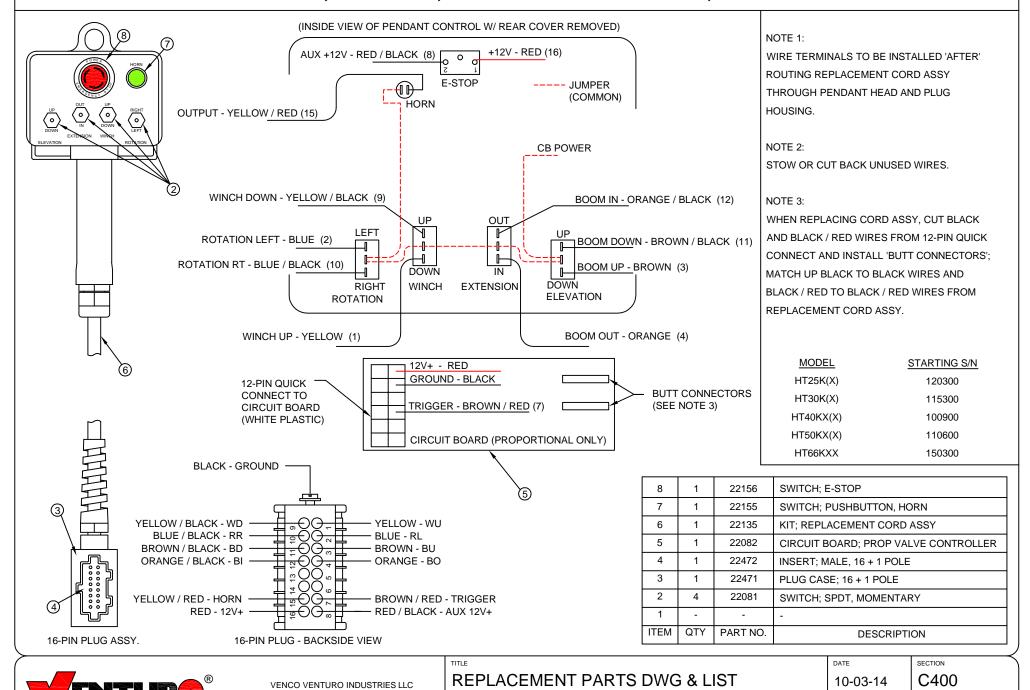
C400

21990 PNDNT; 4 FNCTN ET CRNS, ESTP/HRN

10-20-14A

23075

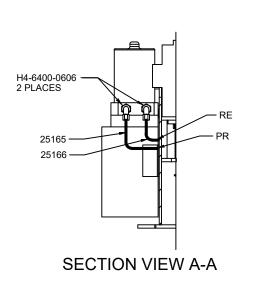
21988 PENDANT; PROP, NO ENG CNTRL, E-STOP / HORN

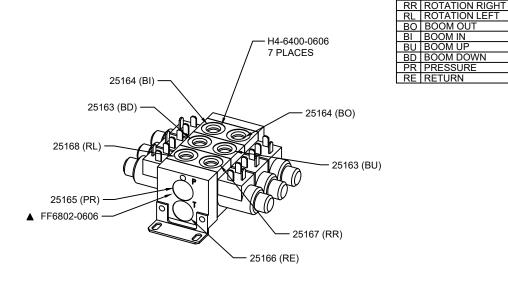


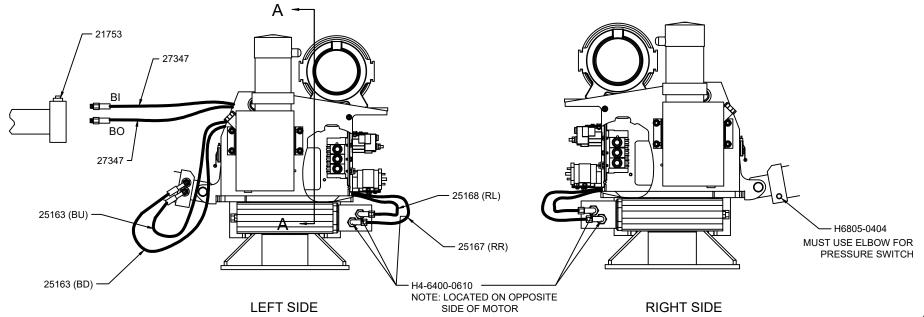
21988 PNDNT; PROP, NO ENG CNT, ESTP/HRN

CINCINNATI, OHIO

ET16/18KXX-20' HYDRAULIC COMPONENTS DRAWING





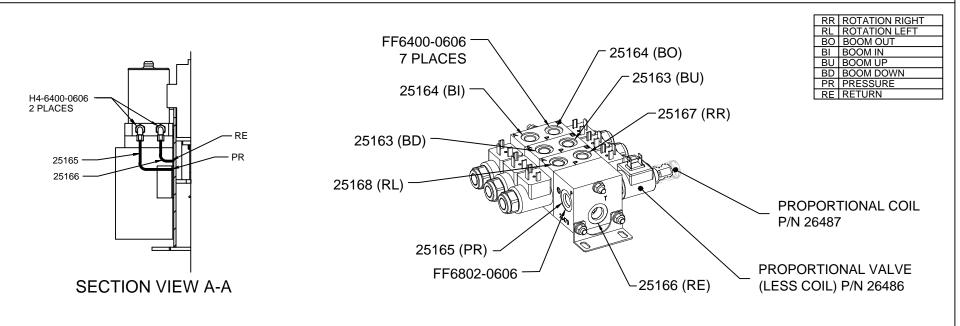


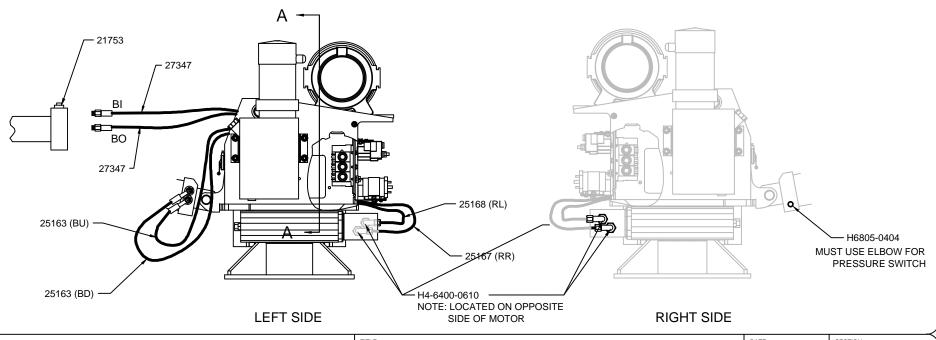


VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO

TITLE	DATE	SECTION
HYDRAULIC COMPONENTS DRAWING	03-05-24B	C400
	SUPERSEDES	04074
ET16/18KXX-20', NON-PROPORTIONAL	12-22-22A	24071

ET16/18KXXP-20' HYDRAULIC COMPONENTS DRAWING



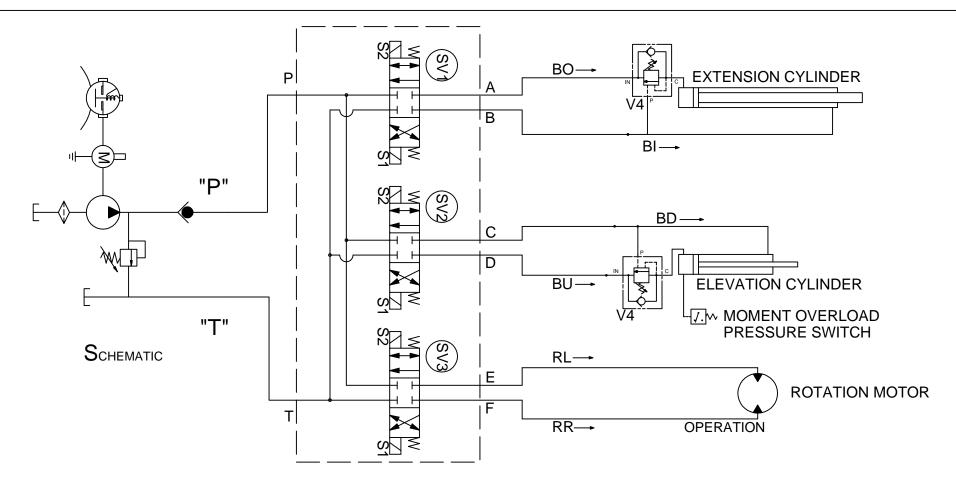




VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO

TITLE	DATE	SECTION
HYDRAULIC COMPONENTS DRAWING	12-22-22A	C400
	SUPERSEDES	0.4070
ET16/18KXXP-20', PROPORTIONAL	11-19-19	24070

ET16/18/25/30/36KX HYDRAULIC COMPONENT DIAGRAM



ERNERGIZE "S2"
OPEN FLOW
'P' TO 'A'
'B' TO 'T'
ENERGIZE "S1"

'B' TO 'T'
ENERGIZE "S1"
OPEN FLOW
'P' TO 'B'
'A' TO 'T'

(SV2)

ENERGIZE "S2"
OPEN FLOW
'P' TO 'C'
'D' TO 'T'
ENERGIZE "S1"
OPEN FLOW
'P' TO 'D'
'C' TO 'T'

(sva)

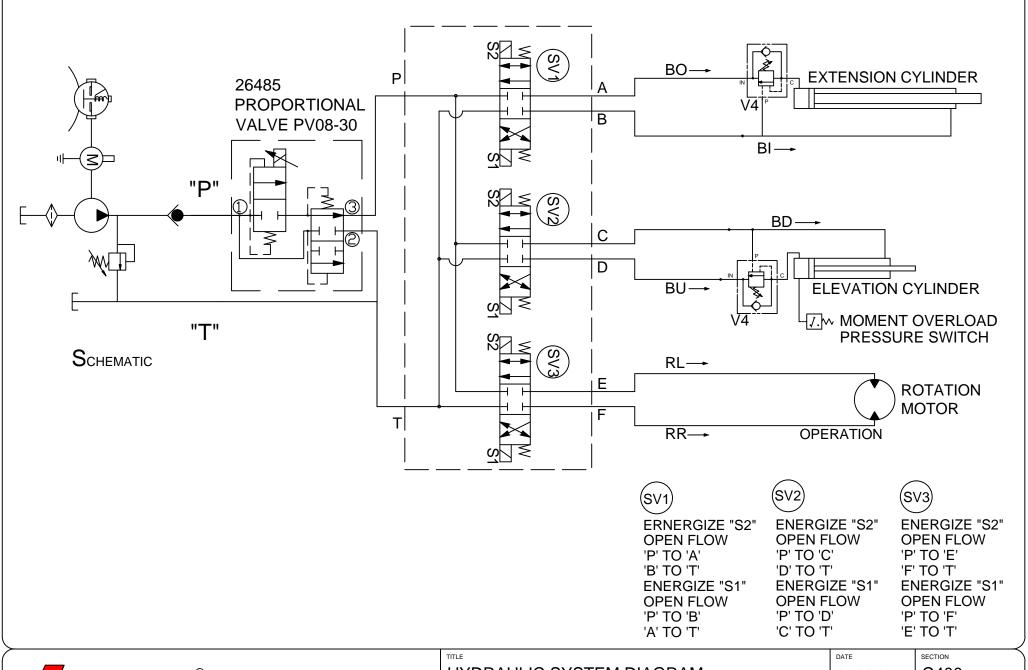
ENERGIZE "S2"
OPEN FLOW
'P' TO 'E'
'F' TO 'T'
ENERGIZE "S1"
OPEN FLOW
'P' TO 'F'
'E' TO 'T'

SECTION C400



TITLE	DATE
HYDRAULIC SYSTEM DIAGRAM	10-23-14D
	SUPERSEDES
ET16/18/25/30/36KX A	01-31-05C

ET16/18/25/30/36KXP HYDRAULIC COMPONENT DIAGRAM





VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO

HYDRAULIC SYSTEM DIAGRAM

10-14-19

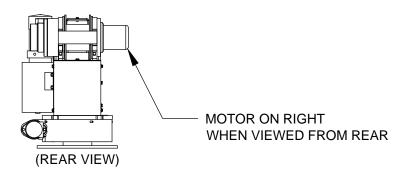
C400

ET16/18/25/30/36KXP

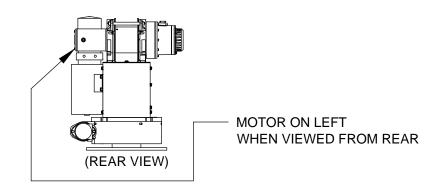
- 24434

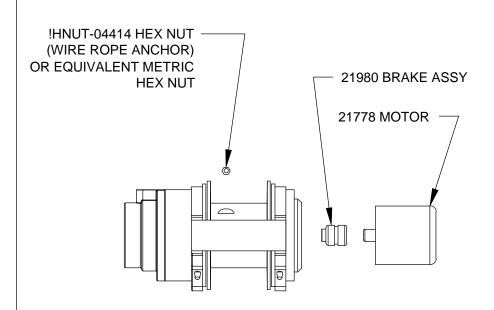
21215 WINCH REPLACEMENT PARTS

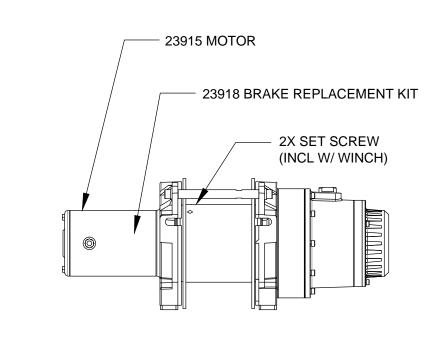
WARN DC2500



COMEUP GTD-2800





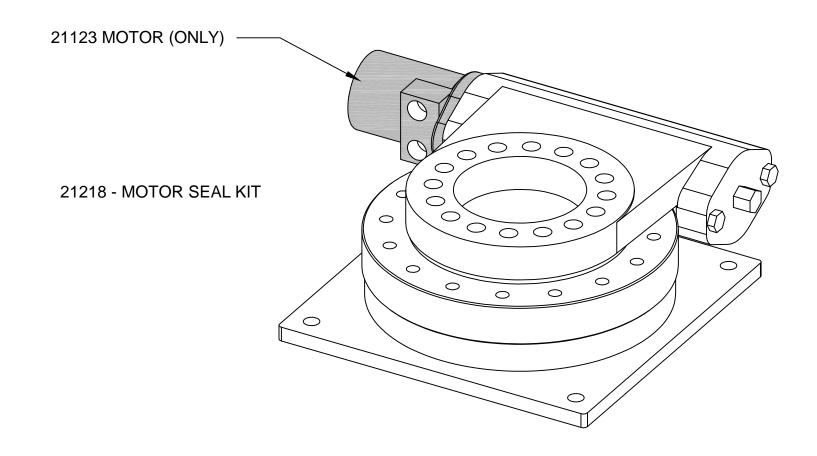




VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO

TITLE	DATE	SECTION
WINCH REPLACEMENT PARTS	03-19-21G	C400
	SUPERSEDES	04054
ET16/18KX	10-23-14F	21054

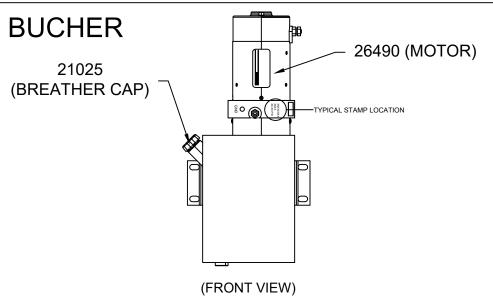
21735 SLEWING SYSTEM REPLACEMENT PARTS

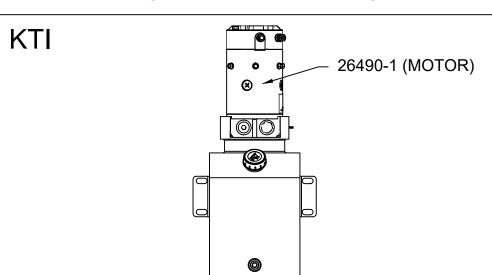




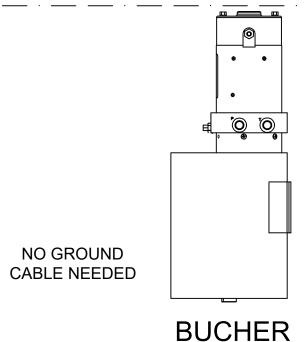
TITLE	DATE	SECTION
SLEWING SYSTEM REPLACEMENT PARTS	10-23-14B	C400
ET8/12K & ET8/12/16/18KX	SUPERSEDES 12-27-13A	21973

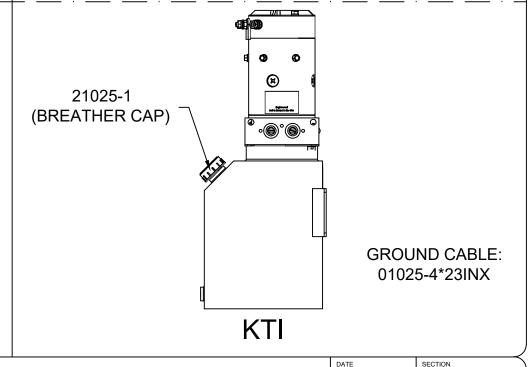
26489 HYD. POWER UNIT REPLACEMENT PARTS





(FRONT VIEW)







VENCO VENTURO INDUSTRIES LLC

CINCINNATI, OHIO

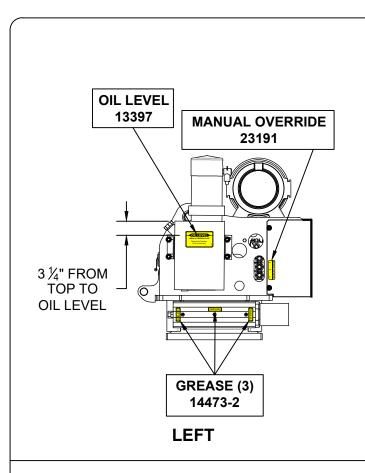
HYDRAULIC POWER UNIT REPLACEMENT PARTS

03-06-23 A

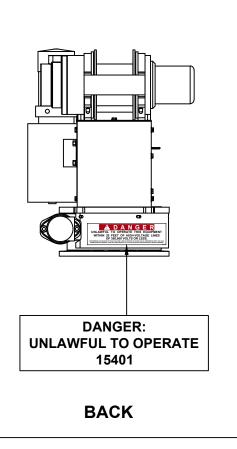
C400

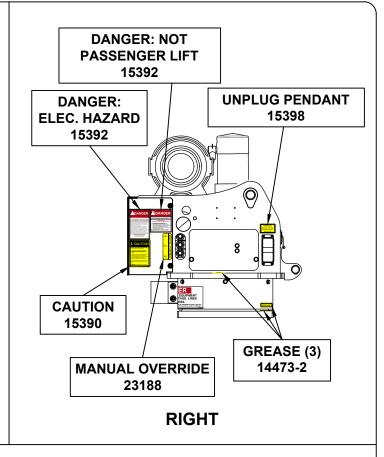
ET12KX-16' PROP, ET16/18/25/30/36

23787 07-31-18



ENTURO®





DATE

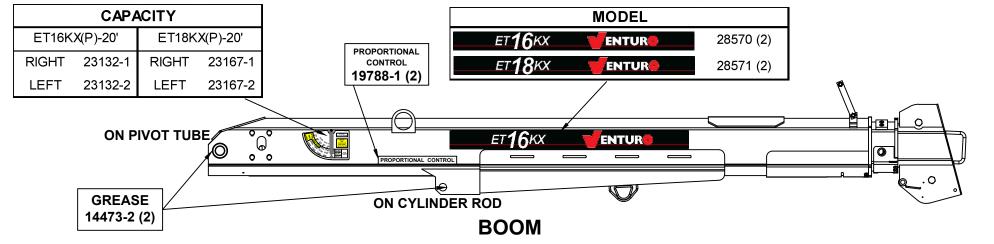
11-28-23

SUPERSEDES

SECTION

C400

28574



DECAL PLACEMENT

ET16/18KX(P)-20'

VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO

ET18KXX(P) FIELD SERVICE LABEL KITS

24028; FSLK ET18KXX-20'

PART NO.	QTY	DESCRIPTION
14473-2	6	DECAL; GREASE
28571	2	DECAL; MODEL ET18KX-20'
24029-1	1	DECAL; BOOM CAPACITY, RIGHT, ET18KXX(P) 20' BOOM
24029-2	1	DECAL; BOOM CAPACITY, LEFT, ET18KXX(P) 20' BOOM
13397	1	DECAL; OIL LEVEL
23188	1	DECAL; DIRECTIONAL VALVE, MANUAL OVERRIDE, RIGHT
23191	1	DECAL; DIRECTIONAL VALVE, MANUAL OVERRIDE, LEFT
16184-1	1	DECAL; HORN RELAY
28576	1	IDWG; FIELD SERVICE LABEL KIT (ET16/18KXX(P) - 20' BOOM)
28574	1	IDWG; DECAL PLACEMENT (ET16/18KXX(P) - 20' BOOM)
INST-23233	1	SAFETY MANUAL; VENTURO CRANES
15397	1	KIT; ACCIDENT PREVENTION SIGNS
17813	1	DECAL; OVERLOAD SENSING SYSTEM

24039; FSLK ET18KXXP-20'

PART NO.	QTY	DESCRIPTION
14473-2	6	DECAL; GREASE
28571	2	DECAL; MODEL ET18KX-20'
24029-1	1	DECAL; BOOM CAPACITY, RIGHT, ET18KXX(P) 20' BOOM
24029-2	1	DECAL; BOOM CAPACITY, LEFT, ET18KXX(P) 20' BOOM
19788-1	2	DECAL; 'PROPORTIONAL' (INSTALL UNDER MODEL DECAL)
13397	1	DECAL; OIL LEVEL
23188	1	DECAL; DIRECTIONAL VALVE, MANUAL OVERRIDE, RIGHT
23191	1	DECAL; DIRECTIONAL VALVE, MANUAL OVERRIDE, LEFT
19315-2	1	DECAL; PROPORTIONAL VALVE MANUAL OVERRIDE
16184-1	1	DECAL; HORN RELAY
28576	1	IDWG; FIELD SERVICE LABEL KIT (ET16/18KXXP - 20')
28574	1	IDWG; DECAL PLACEMENT (ET16/18KXXP - 20')
INST-23233	1	SAFETY MANUAL; VENTURO CRANES
15397	1	KIT; ACCIDENT PREVENTION SIGNS
17813	1	DECAL; OVERLOAD SENSING SYSTEM



TITLE	DATE	SECTION
FIELD SERVICE LABEL KITS	11-28-23	C400
ET40KVV/D) 00LDOOM	SUPERSEDES	28576
ET18KXX(P) - 20' BOOM	-	20010

VENTURO CRANES LIMITED WARRANTY POLICY



Venturo products are built to last...we guarantee them.

As a purchaser of any new Venturo product covered by warranty, you will receive 1 year of the most complete coverage available...and, at no added cost to you.

1-Year Limited Warranty Policy

This limited policy warrants new products of Venturo to be free from defects in material and workmanship for a period of one (1) year from date of original installation. OEM products or accessories purchased by Venturo as part of or offered with our product will carry the OEM manufacturer's respective warranty. Our 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. There is no warranty of merchantability, fitness for a particular purpose, warranty arising from course of dealing or usage of trade, or any other implied or expressed warranty, except as made specifically herein. This warranty supersedes all previous warranties, written or implied.

Warranty Claims

Venco Venturo Industries LLC 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 ensure the installation is completed according to the manufacturer's recommendations, ensure 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 product without the expressed written consent of Venco Venturo Industries LLC. Installation 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 be instructed as to the safe operation at time of delivery. Maintenance, service, operation and safety warning decals are available on request from Venco Venturo Industries LLC.

VENCO VENTURO INDUSTRIES LLC

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