

EJAAAB-*0*0

Pages 1 - 60

PARTS & INSTALLATION MANUAL ET18KX(P)-16'

Included in this manual:

ET18KX-16'

- 4,500 lbs Electric Telescopic Service Crane
- 8 12 ft Powered, Single-Stage, Boom Extension
- 12 16 ft Manual, Pullout, Boom Extension

ET18KXP-16'

- 4,500 lbs Electric Telescopic Service Crane
- 8 12 ft Powered, Single-Stage, Boom Extension
- 12 16 ft Manual, Pullout, Boom Extension
- Proportional Controls

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



TABLE OF CONTENTS ET18KX(P)-16' (EJAAAC-*0*0) OWNER'S MANUAL

SECTION 100	DESCRIPTION & SPECIFICATIONS

21301 SPECIFICATIONS & OPERATING FEATURES 21302 SPECIFICATIONS & OPERATING FEATURES

23989 INSTALLATION DIMENSIONS 21592 BASE MOUNTING DIMENSIONS

21392 CAPACITY CHART

19288 TYPICAL REINFORCEMENT FOR MOUNTING CRANE ON TOP OF SERVICE BODY

14510 TYPICAL REINFORCEMENT FOR MOUNTING CRANE ON FLAT BED

SECTION 150 SAFETY

850711 SAFETY & HAZARDS - GENERAL 850712 SAFETY & HAZARDS - GENERAL, CONT

15394 VEHICLE & CRANE ELECTRIC HAZARD INFORMATION

21353 SAFETY DECALS 21384 SAFETY DECALS

21354 DECALS FOR ET CRANES 21356 MODEL & CAPACITY DECALS 23986 ADDITIONAL DECALS

SECTION 200 INSTALLATION

711105 CABLE & BATTERY REQUIREMENTS - ET & HT CRANES

15660 BATTERY & CABLE INSTALLATION DRAWING

20906-18 STABILITY TESTING 20907 STABILITY CHART

22245 WIRE ROPE INSTALLATION

SECTION 300 MAINTENANCE & SERVICE

21306 LUBRICATION & MAINTENANCE CHART

19963 MINIMUM VOLTAGE TEST

23227 WIRE ROPE & HOOK SPECIFICATIONS

23084 MANUAL OVERRIDE INSTRUCTIONS, NON-PROPORTIONAL 23987 MANUAL OVERRIDE INSTRUCTIONS, PROPORTIONAL

SECTION 400 REPLACEMENT PARTS

23990 REPLACEMENT PARTS DRAWING, MECH 24056 REPLACEMENT PARTS LIST, MECH

23991 REPLACEMENT HARDWARE DRAWING, MECH 23992 REPLACEMENT HARDWARE LIST, MECH

21310 REPLACEMENT PARTS DRAWING, 21200 BOOM ASSY, ET18KX 21322 REPLACEMENT PARTS LIST, 21200 BOOM ASSY, ET18KX 21275 21276 ANTI-2-BLOCK REPLACEMENT PARTS DRAWING & LIST

▲ 26533 23154-3 ELECTRICAL COMPONENT ASSY

26525 WIRING DIAGRAM, ET16/18KX-16' SERIES CRANES

▲ 26531 WIRING DIAGRAM; NON-PROPORTIONAL, ET16/18 SERIES WITH COMEUP CONTACTOR #28402

26527 WIRING DIAGRAM, ET16/18KXP-16' SERIES CRANES

▲ 26532 WIRING DIAGRAM; PROPORTIONAL, ET16/18 SERIES WITH COMEUP CONTACTOR #28402

21292 REPLACEMENT PARTS LIST, 16780, 2-POLE SLIP-RING 21293 REPLACEMENT PARTS DRAWING, 16780, 2-POLE SLIP-RING

23075 21990 PENDANT; REPLACEMENT PARTS DRAWING / LIST (4 FUNCTION)

23073 21988 PENDANT; REPLACEMENT PARTS DRAWING & LIST

21407 HYDRAULIC SYSTEM COMPONENTS REPLACEMENT PARTS DRAWING

23988 HYDRAULIC SYSTEM COMPONENTS REPLACEMENT PARTS DRAWING (PROPORTIONAL)

20156 HYDRAULIC SYSTEM SCHEMATIC

24434 HYDRAULIC SYSTEM SCHEMATIC (PROPORTIONAL) 21054 21215 WINCH REPLACEMENT PARTS DRAWING & LIST

FIELD SERVICE LABEL KIT

21973 21735 SLEWING REPLACEMENT PARTS 21393 DECAL PLACEMENT, ET18KX-16'

20818

_		TITLE	DATE	SECTION	1
ENTIRE 6) VENCO VENTURO INDUSTRIES LLC	TABLE OF CONTENTS	11-09-21B	-	
	CINCINNATI, OHIO		SUPERSEDES	24069	
		ET18KX(P)-16' (EJAAAC-*0*0)	12-08-20A	24068	

SECTION 100

DESCRIPTION & SPECIFICATIONS



SPECIFICATIONS AND OPERATING FEATURES

ET18KX-8/16

SPECIFICATIONS

12 VOLT BATTERY OPERATED

18,000 FT-LBS OVERTURNING MOMENT (Or as limited by truck stability)

MOMENT OVERLOAD SYSTEM

TELESCOPIC BOOM	8 / 16
BOOM HYD ELEVATION	-8° TO 75°
BOOMHYDEXT	8 - 12 FT OR 12 - 16 FT
BOOMMANUALEXT	4 FT
CAPACITY	1125 LBS @ 16 FT REACH
CAPACIT	4500 LBS @ 3 TO 4 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 - 4 FT STROKE

CONTINUOUS POWER ROTATION

REMOTE CONTROL PENDANT

25 ft Straight Cord with Four Environmentally Sealed Toggle Switches Protected by a Guard

MASTER DISCONNECT SWITCH

OUTRIGGERS AVAILABLE

Side Bracket Type Outriggers

Fold Away Type Outriggers

Pullout Type Outrigger System

VENTURO	MFG., INC. CINCINNATI, OHIO
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INSTALLATION DWG	7-29-03	C120
ET18KX-8/16	SUPERCEDES =	21301

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

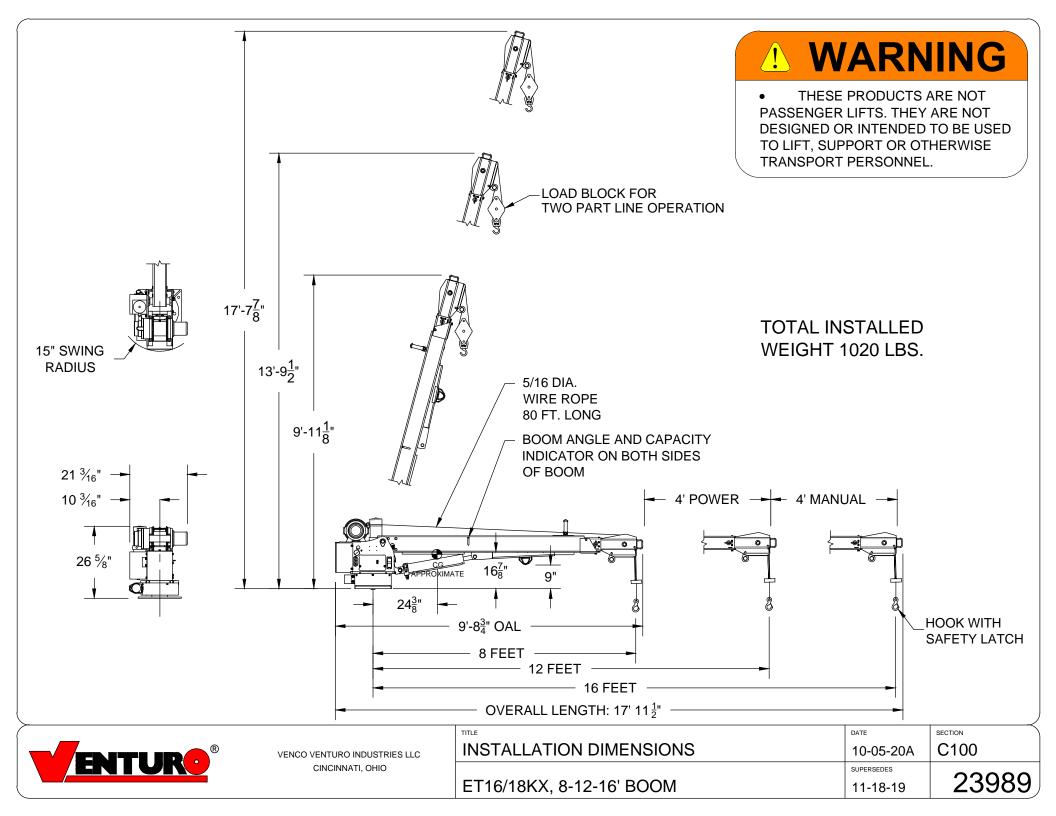
Select boom reach and angle allowable for load by using capacity indicator arrow and chart on either side of boom.

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.

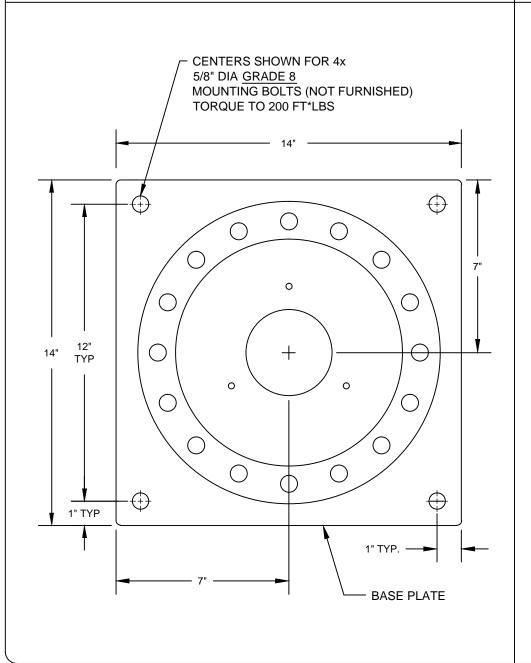
TITLE	DATE	SECTION
SPECS & OP. FEATURES	10-22-14A	C10
	SUPERSEDES	_
ET16/18KX	07-29-03	2

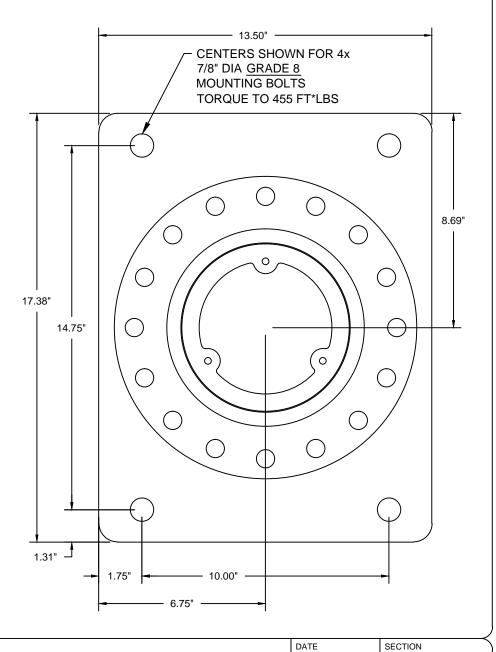
C100



21735 - SQUARE

21735-WRB/CRB - RECTANGULAR







VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO

21735 BASE MOUNTING DIMENSIONS

03-06-23G C100 SUPERSEDES

ET8/12/16/18 CRANES

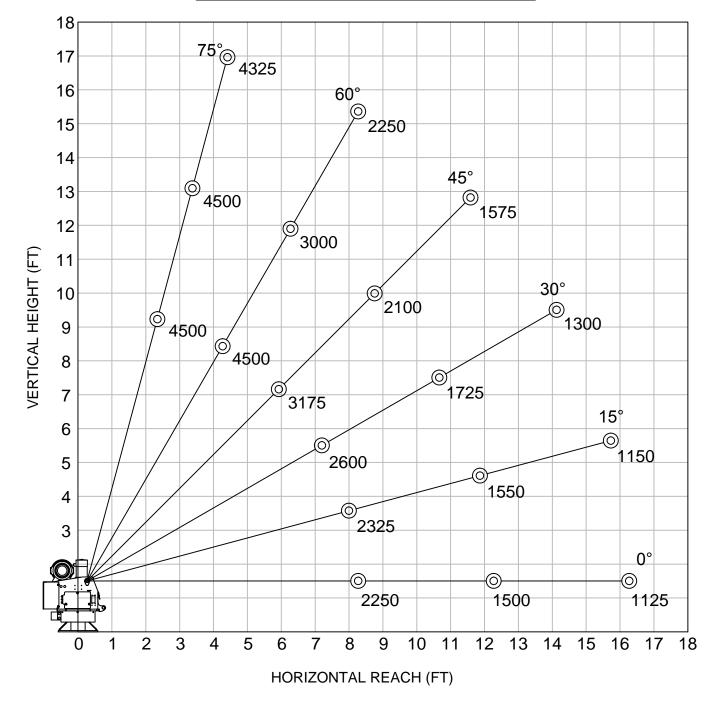
10-22-14F

21592

ET18KX, 8'-12'-16' BOOM

▲ CRANE SERIAL NUMBER: _____

MAXIMUM LOAD CAPACITY CHART



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

LOAD BLOCK USAGE

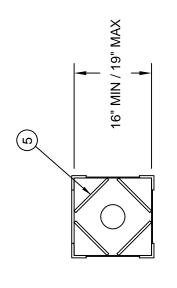
1 PART LINE FOR LOADS LESS THAN 2250 LBS 2 PART LINE FOR LOADS OF 2250 LBS AND GREATER

WEIGHT OF LOAD BLOCK = 28 LBS



MAXIMUM LOAD CAPACITY	05-03-16B	
ET18KX, 8'-12'-16' BOOM	04-30-13A	21392

TYPICAL SERVICE BODY REINFORCEMENT

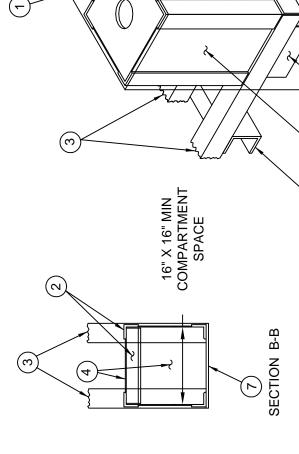


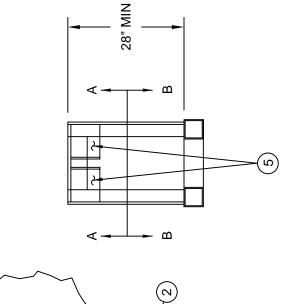
SECTION A-A

NOTE:		
ST	SUCTURE OF CRANE, TRUCK, A	II IS THE SOLE RESPONSIBILITY OF THE INSTALLER TO ENSURE THAT THE TOTAL STRUCTURE OF CRANE, TRUCK, AND STABILIZERS ARE STRUCTURALLY SOUND AND
Ĥ	AT THE COMPLETED VEHICLE	THAT THE COMPLETED VEHICLE HAS SUFFICIENT STABILITY AGAINST OVERTURNING.
ITEM	DESCRIPTION	MINIMUM RECOMMENDED MATERIAL SIZE
_	1 TOP PLATE	1/2" STEEL

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

(8)







TRUCK FRAME

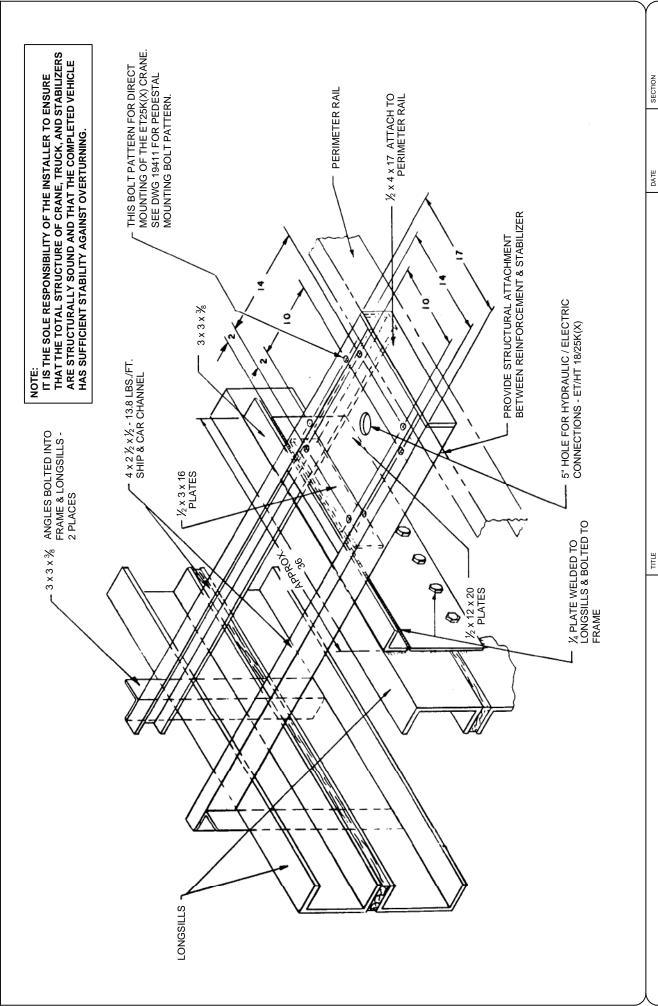
VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO
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тит	DATE
TYPICAL SERVICE BODY REINFORCEMENT	10-22-14H
	SUPERSEDES
ET16/18KX	12-20-10G

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



VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO

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.
- BEFORE OPERATING THE CRANE, REFER TO MAXIMUM LOAD (CAPACITY) CHART ON CRANE FOR OPERATING (LOAD) LIMITATIONS.
- 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

® VENCO VENTURO INDUSTRIES LLC	SAFETY & HAZARDS	01-29-15K	C150
CINCINNATI, OHIO	ELECTRIC CRANES	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



S LLC	SA

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

CINCINNATI, OHIO



SECTION HAZARD APPS & INFO C150 02-21-14M SUPERSEDES 15394 ET/HT CRANES 12-20-13L

DECAL #: 15390

CAUTION, INSPECT VEHICLE & CRANE... DESCRIPTION:

PURPOSE: TO INFORM THE OPERATOR OF KEY OPERATING REQUIREMENTS.

QUANTITY:

REAR COVER OR SIDE OF CRANE PLACEMENT:



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



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







SAFETY DECALS

DATE

04-29-16E

SECTION C150

SUPERSEDES 10-24-13D

VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO

VENTURO CRANES

TITLE

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.







CINCINNATI, OHIO

SAFETY DECALS	06-06-14C	C150
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



MANUFACTURING, INC.	
CINCINNATI, OHIO	

TITLE	DATE	SECTION
DECALS	11-12-19E	C150
	SUPERSEDES	21251
ET CRANES	12-23-13D	Z1354

PART NO.: 21190-1 & 21190-2 (OPPOSITE)

DECAL: CRANE CAPACITY

FUNCTION: To show the operator the operating

capacities of crane.

QUANTITY: 1 each

PLACEMENT: One on each side of boom.

| State | Stat

PART NO.: 21192

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.

PART NO.: 19788-1

DECAL: PROPORTIONAL Decal (ET16/18KXP)

FUNCTION: To show the crane has proportional feature.

QUANTITY: 2

PLACEMENT: One on each side of boom.

ET18KX



PROPORTIONAL CONTROL



MODEL/CAPCTY DECALS

DATE
02-04-20C
SUPERSEDES

C150

21356

ET18KX(P) 10-20-14B

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 SUPERSEDES	C150
ET16KX(P)	SUPERSEDES	23986

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 LENGTH OF CABLE (FT) * A 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 • ET12KXP	#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.

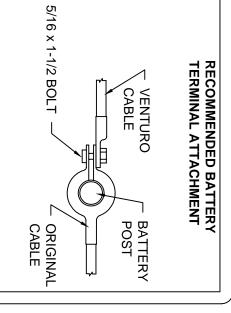
	TITLE	DATE	SECTION
VENCO VENTURO INDUSTRIES LLC	CABLE & BATTERY	07-30-18X	C200
CINCINNATI, OHIO		SUPERSEDES	744405
	ELECTRIC CRANES	09-27-17W	711105

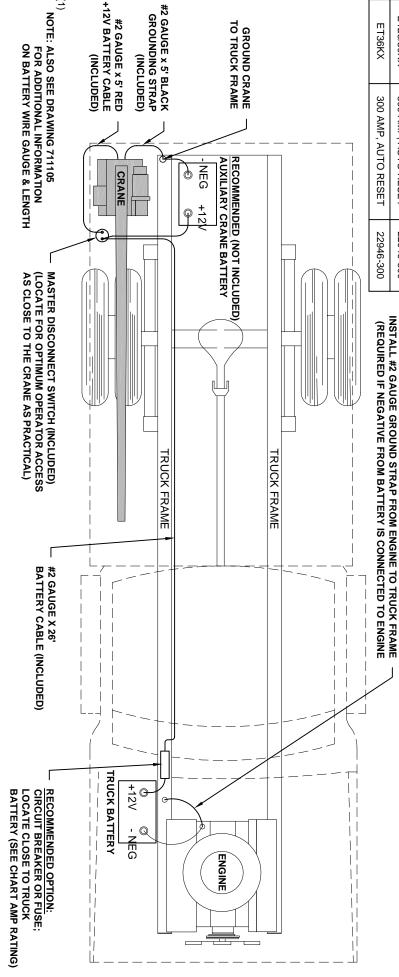
ET16/18KX-20' ET16/18KX-16' ET25/30KX ET8/12K(X) CE-1500-FB ET12KXP RECOMMENDED CIRCUIT BREAKER TABLE ET36KX CT310KX CT200X CRANE ET6K DT7 300 AMP, AUTO RESET 300 AMP, MAN RESET 250 AMP, MAN RESET 300 AMP, MAN RESET 250 AMP, MAN RESET 150 AMP, MAN RESET 150 AMP, MAN RESET DESCRIPTION PART NO. 22946-300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

BATTERY REQUIREMENTS

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

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







3

VENCO VENTURO INDUSTRIES LLC

BATTERY CABLE & COMPONENT INSTALL ET CRANES

07-30-18L 09-03-20M C200 SECTION

STABILITY TEST - ET18-16' 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

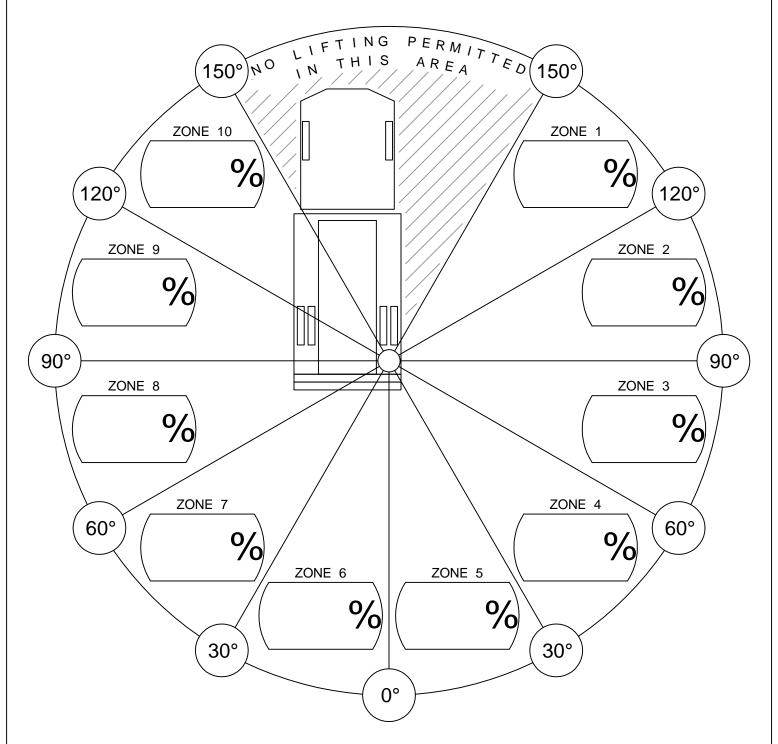
- Locate the truck on firm, level ground and set parking brake.
- 2. Fully deploy stabilizers, making sure they are firmly in contact with supportive ground; use stabilizer pads as required. The tires of the truck should remain in full contact with the ground.
- 3. Inspect wire rope and other key components 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>1324 lbs</u>, (includes load block weight of <u>28</u> lbs.) to a *maximum of* 1400 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 the two conditions occur:
 - 10.1. Full extension is reached Mark the ZONE in question 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 contact with the ground
 - 10.2.2. Use the formula below to determine the allowable % of Rated Capacity for the ZONE in question
- 11. Note: The "Max Stable Reach in inches" 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
	192	

- 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.

® VENCO VENTURO INDUSTRIES LLC	STABILITY TEST	03-16-23E	SECTION C200
ENTURO CINCINNATI, OHIO	ET18-16' SERIES	SUPERSEDES 11-23-21D	20906-18

CRANE STABILITY



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

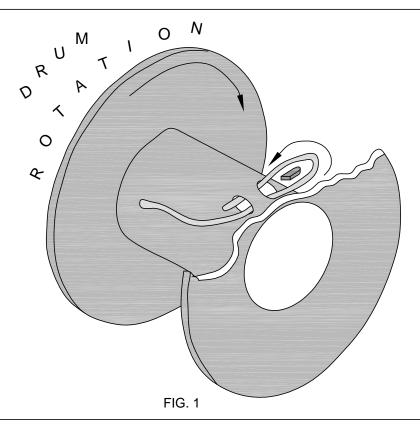
CONDITIONS:

 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.

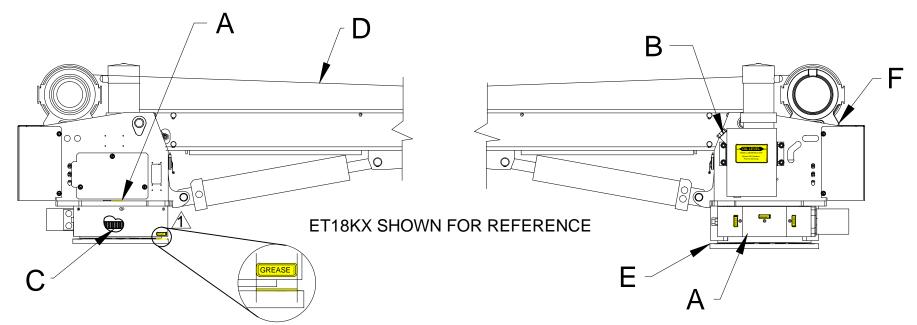
NOTE: SOME WINCHES MAY BE SUPPLIED WITH A HEX NUT IN LIEU OF A WEDGE FOR INSTALLING THE WIRE ROPE.

1		TITLE	DATE	SECTION	١
	VENCO VENTURO INDUSTRIES LLC	WIRE ROPE INSTALLTN	02-21-14K	C200	
	CINCINNATI, OHIO		SUPERSEDES	00045	1
		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	Note		Service Interval
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		Time of Truck Service
F	Check Torque of Winch Mounting Bolts	Bolts should be to	orqued to 35 ft-lbs*	Time of Truck Service

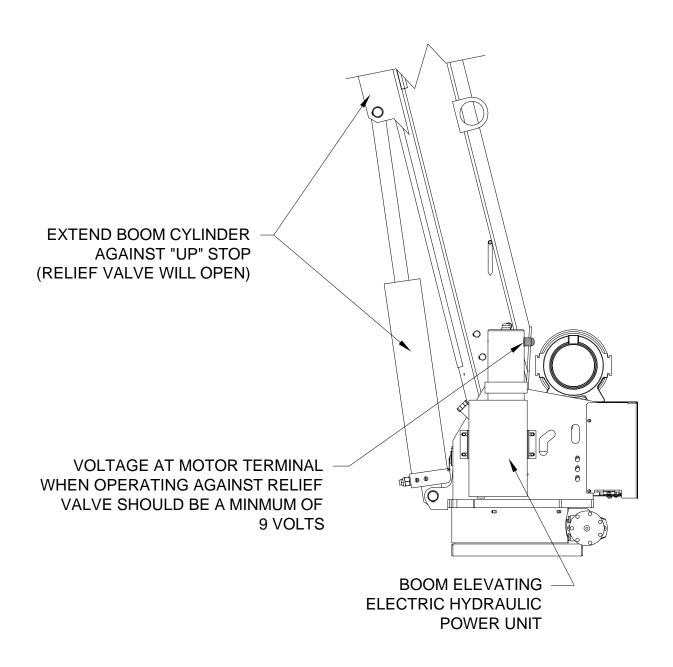
^{* 32} FT-LBS. FOR ET8/12 WITH GTD-2200 COMEUP WINCH. SEE PAGE 21741 FOR WINCH IDENTIFICATION.



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

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
	SUPERSEDES	40000
ET SERIES CRANES	10-05-09F	19963

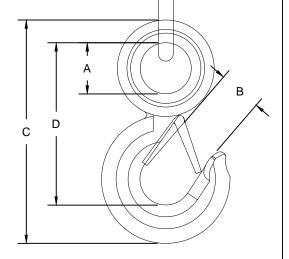
WIRE ROPE ASSEMBLY

LOAD BLOCK ASSEMBLY

WIRE ROPE:

5/16" DIA, 80' LONG

▲ GAC 7X19 XIP-RHRL-IWRC, SB 9800 LBS

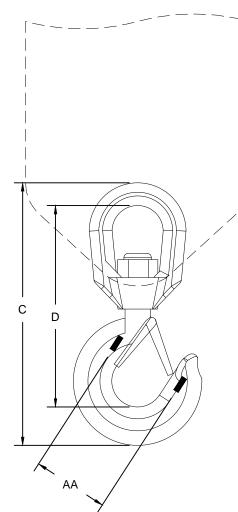


WIRE ROPE HOOK:

RATING: 1.5 TONNE (3310 LBS)

DIMENSIONS:

Α	В	С	D
1.13"	1.06"	5.50"	4.13"



LOAD BLOCK HOOK:

RATING: 3 TONNE (6615 LBS)

DIMENSIONS:

COLOR	BRAND	AA	С	D
GOLD	CROSBY	2.00"	8.25"	6.50"



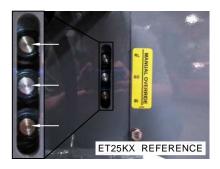
VENCO VENTURO INDUSTRIES LL CINCINNATI, OHIO

WIRE ROPE & HOOKS SPECIFICATIONS	05-09-16B	C300
ET16/18KX	SUPERSEDES 10-22-14A	23227

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).

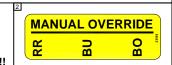
2-STATION FUNCTIONS:

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

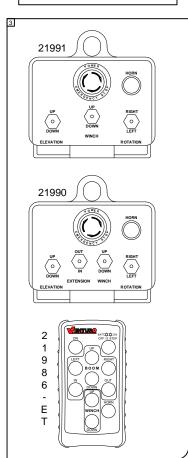
PORT

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



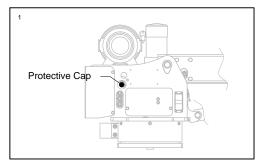
For assistance, please feel free to contact Technical Support at 800-226-2238.

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 !!

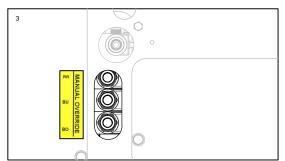


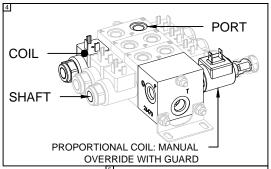


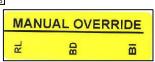
Each valve station incorporates [2] hydraulic ports and [2] coils. Manual override shafts are located in the center of the coils (see figure 4). Manual override decals are placed on each crane near the valve assembly. These decals provide a visual aid that helps the operator determine the function designations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

3-STATION FUNCTIONS:

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



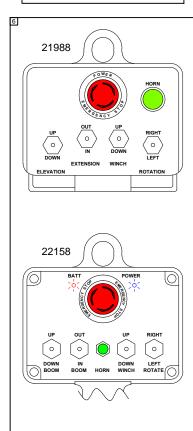




ALWAYS BE SURE TO CHECK HYDRAULIC OIL LEVEL BEFORE PROCEEDING. IT IS RECOMMENDED TO REMOVE ANY ITEM(S) THAT MAY INTERFERE WITH OPERATING THE CRANE MANUALLY. IF POSSIBLE, STRAPS AND/OR HARNESSES SHOULD BE REMOVED BEFORE OPERATING A CRANE IN MANUAL OVERRIDE!!

Procedure:

- Turn Master disconnect switch to "ON"
- 2. Remove Protective cap (see figure 1)
- 3. Rotate Valve Stem Clockwise to close (see figure 2)
- 4. Power up the pendant / radio
- 4.1. Twist EMERGENCY STOP button clockwise
- 5. On the crane, reference the function you wish to perform using the manual override decal (see figure 3)
- 6. 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)
- 8. Press the switch or button for the same function
- 9. 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.

11-12-19

DATE

C200

ET16/18KX PROPORTIONAL

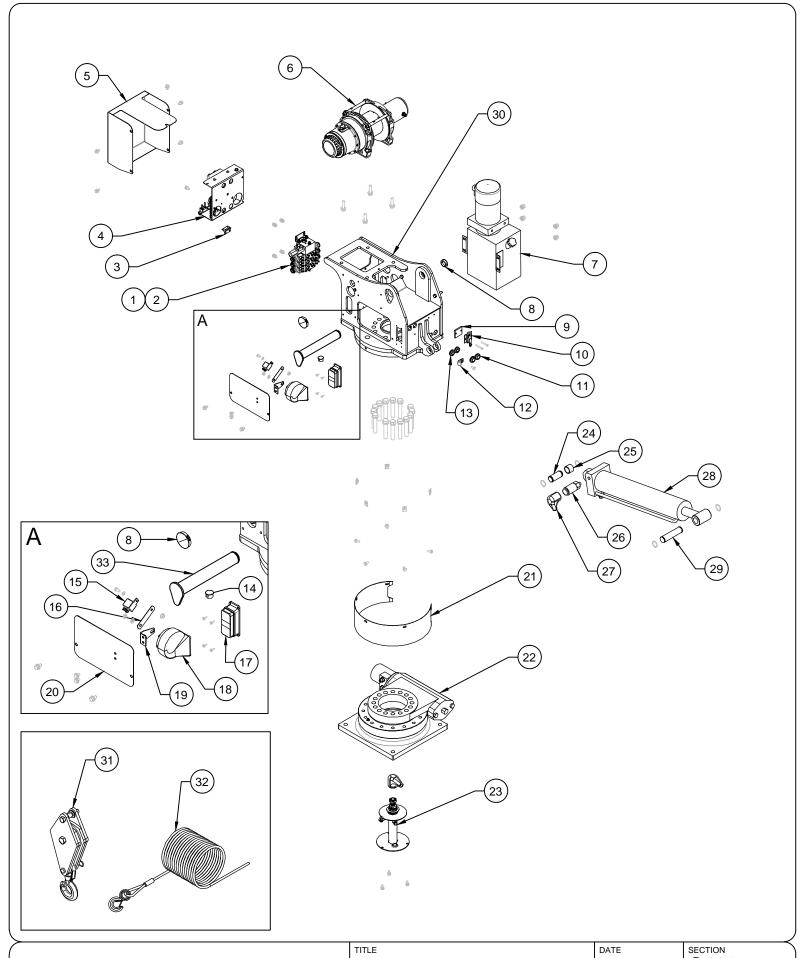
SUPERSEDES

23987

SECTION 400

REPLACEMENT PARTS





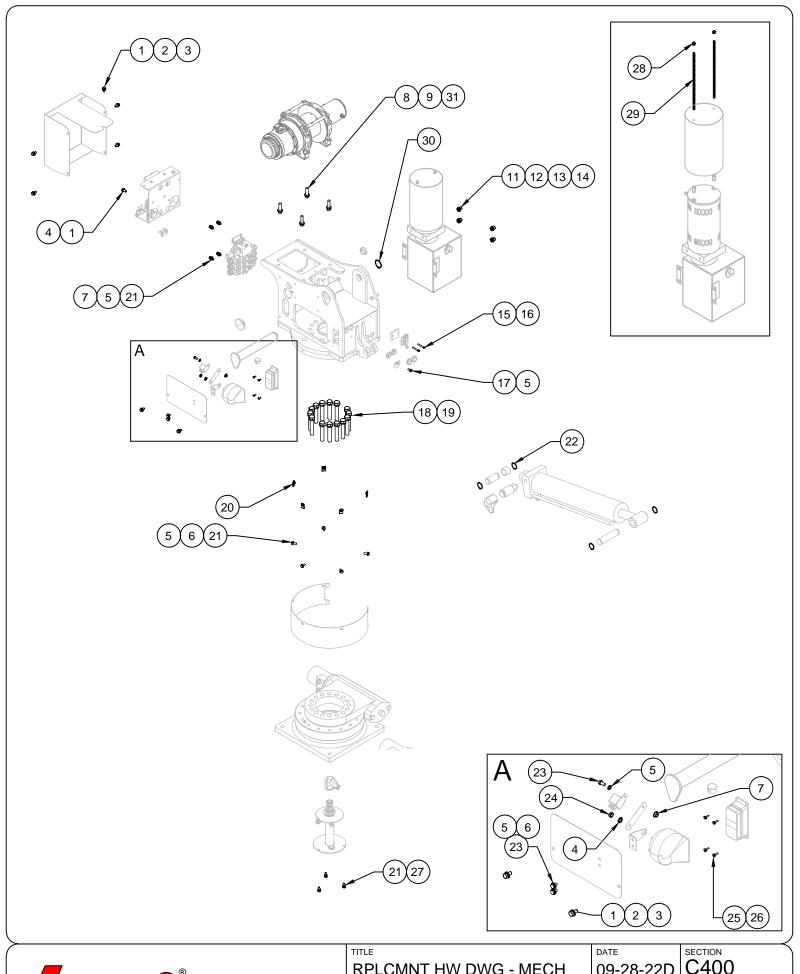
	VENCO VENTURO INDUSTRIES LLC	RPLCMNT PARTS DWG - MECH	05-27-21C	C400
ENTUR	CINCINNATI, OHIO	ET16/18KX(P)	SUPERSEDES 03-12-21B	23990

ET18KX(P) - 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 PI	ROP VALVE
3 1 1 1586A22 HINGE	
4 1 1 23154 ELECTRICAL PANEL	
5 1 1 23173 REAR COVER, MECHANISM	Л
6 1 1 21215 WINCH, PERMANENT MO	TOR
7 1 1 26489 HYDRAULIC POWER UNIT	
8 2 1 26492 PLUG; Ø2", LOCKING	
9 1 1 20896 UHMW SPACER - TOP POS	ITION 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	C
15 1 1 22739 RELAY. 12VDC	
16 1 1 - RELAY BRACKET (INCLUDE	D WITH 21948)
17 1 1 22480 SOCKET ASSY-16+1 POLE	
18 1 1 21948 HORN, OPERATOR CONTR	OLLED 12V
19 1 1 22000 BRACKET; HORN	
20 1 1 23155 PLATE; COVER, RIGHT SIDE	
21 1 1 21185 ROTATION GEAR GUARD	
21735 SLEW DRIVE; SQUARE BAS	Ε
22* 1 1 21735 SLEW DRIVE; RECTANGULA	AR BASE
23 1 1 16780-2P8 ASSY; SWIVEL TERMINAL,	2-POLE
24 1 1 21172 PIN; ELEV CYLINDER BASE	
25 1 1 21124 MRP COMPOSITE BEARING	G
26 1 1 17460-2700-21 OVERLOAD PRESSURE SW	ITCH
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 ASSEN	ИВLY
31 1 1 23169 LOAD BLOCK ASSEMBLY	
32 1 1 25810-5/16-80 WIRE ROPE, 5/16" x 80'	
33 1 1 21160 PIN; BOOM PIVOT, MAIN	

^{*} EITHER 21735 OR 21735-1 DEPENDING ON CONFIGURATION





ENTURO [®]	VENCO VENTURO INDUSTRIES LLC	RPLCMNT HW DWG - MECH	09-28-22D	C400
ENTUR	CINCINNATI, OHIO		SUPERSEDES	00004
		ET16/18KX(P), GEN. B	05-26-21C	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	2	!ANUT-02520S	ACORN NUT; 1/4-20, SS
29	2	27607	THREADED ROD,10.75" LONG
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 CINCINNATI, OHIO	RPLCMNT HW LIST- MECH	10-17-22D	C400	
ENTURO		ET16/18KX(P) SERIES	SUPERSEDES 09-28-22C	23992	

C400 10-23-14C 04-21-08B 9 21200 BOOM PARTS DRAWING 21200 BOOM PARTS DRAWING 34 33 31 ET16/18KX (35)22 (14)(15)(16) VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO (20)13 REF PARTS LIST DRAWING 21322 (25)37 (38)

21200 BOOM PARTS LIST

,	07700	
e -	22146	TOP SHIM
-	21127	BOOM PIVOT PIN
2	21206	POLY BEARING - PRIMARY BOOM PIVOT
2	ILWSH-050-HC	LOCK WASHER 1/2" HI COLLAR
2	ISHCS05013200	SOCKET HEAD CAP SCREW 1/2-13 X 2" LONG
2	!HHCS03816075	HEXHEAD CAP SCREW - 3/8-16 X 3/4 LONG
2	ICACS03816100	CNTRSNK ALLEN HEAD CAP SCREW 3/8-16 X 1" LG
2	JNUT-03816	JAM NUT - 3/8-16 GRADE 5
4	iLWSH-038	LOCK WASHER 3/8"
2	!HHCS03816050	HEXHEAD CAP SCREW 3/8-16 X 1/2" LG - GR 5
-	iLWSH-025	LOCK WASHER - 1/4"
_	19269	CABLE CLAMP - 1/4"
_	21276	ANTI-TWO BLOCK ASSEMBLY - L.H.
ဗ	JANUT-02520S	ACORN NUT 1/4-20 STAINLESS
2	22490	SPACER, BOOM ARROW 1/2" O.D.
2	13459-1	BOOM ARROW 3-3/16 LONG
_	ILNUT-07510	LOCKNUT 3/4-10
_	17059-6	SHEAVE AXLE 3/4 X 2 W/ 1" SHANK
_	23924	SPACER - 23925 SHEAVE
-	23925	BOOM SHEAVE WITH BUSHING
_	19258-1	BOOM PIN
1	JNUT-02520N	NYLON INSERT JAM NUT - 1/4-20
1	iPHCS02520063	PAN HEAD CAP SCREW - 1/4-20 X 5/8 LONG
-	19881	CABLE GUIDE WEAR STRIP
2	JNUT-05013N	1/2-13 NYLON INSERT JAM NUT
2	IFWSH-050	FLAT WASHER 1/2"
2	!HHCS05013100	HEX HEAD CAP SCREW 1/2-13NC X 1 LG
-	19880	CABLE GUIDE STRUCTURE
8	ISRNG-075	RETAINING RING - 3/4" SHAFT DIA.
2	19885	EXTENSION CYLINDER ROLLER
4	21211	THRUST PIN - EXTENSION CYLINDER
-	21217-1	EXTENSION CYLINDER
_	21203	SECONDARY / TERTIARY WELDED ASSEMBLY
2	21209	BOOM BEARING - 1-1/2 X 2 X 7/16
_	21207	PRIMARY BEARING RETAINING BAR
2	21208	BOOM BEARING - 2 X 3 X 1/2
1	27791	PRIMARY BOOM WELDED ASSEMBLY
ידיייייייייייייייייייייייייייייייייייי	OADT NI MEED	- CFG:GCCLG

REF PARTS DRAWING 21310



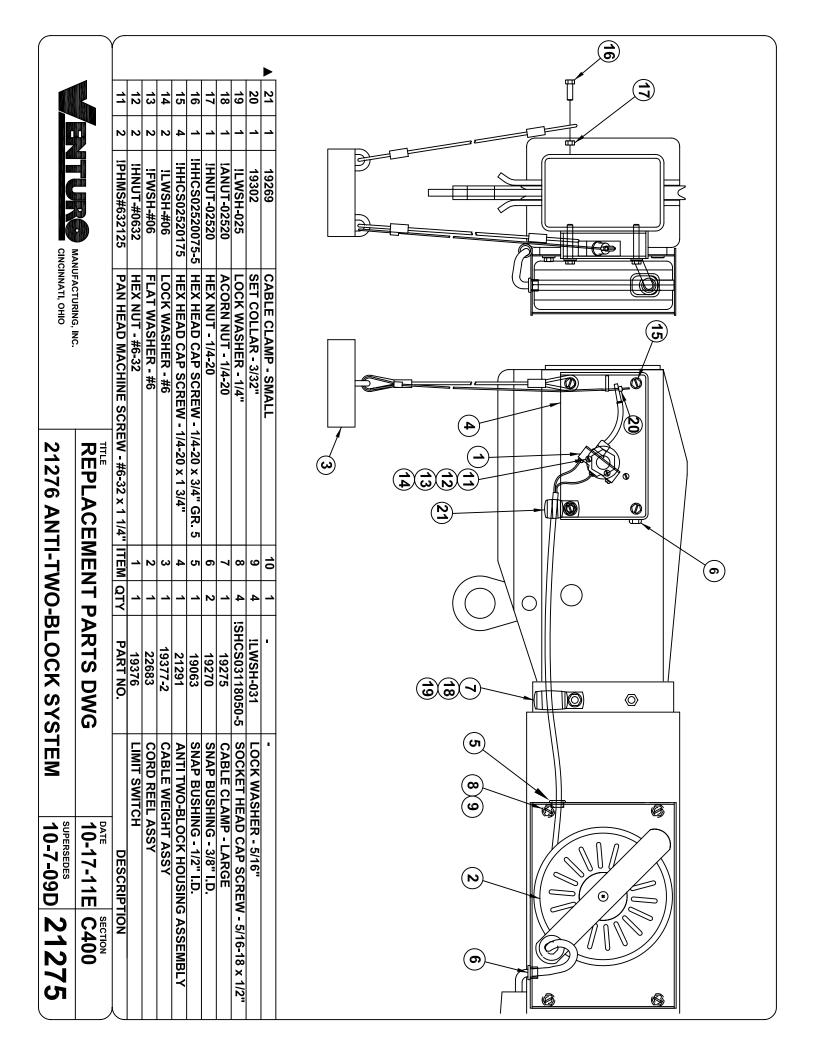
VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO

TILE 21200 BOOM PARTS LIST
ET16/18KX

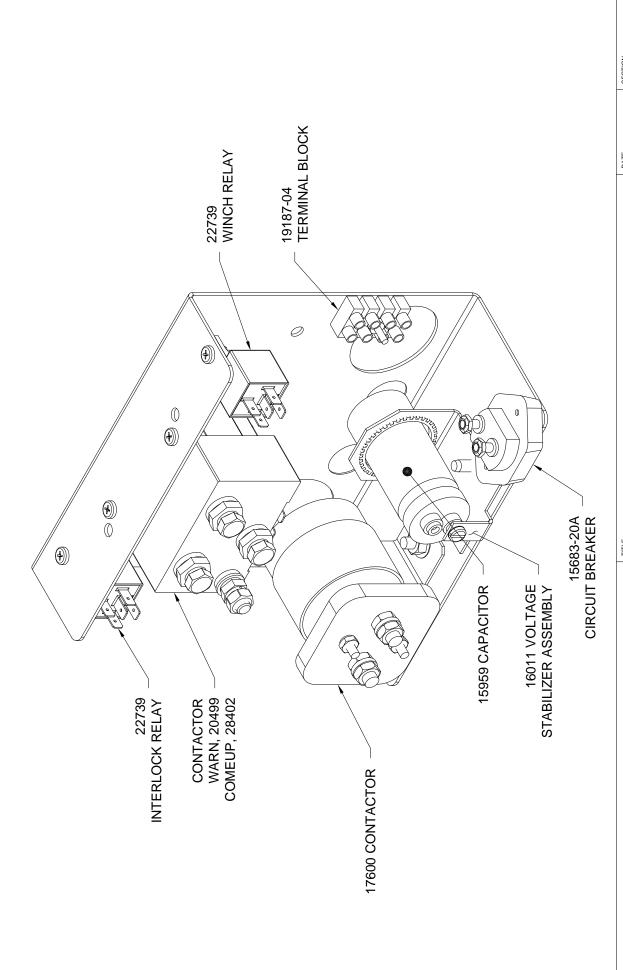
SECTION C400

03-11-20C

10-23-14B



23154-3 ELECTRICAL COMPONENT ASSEMBLY





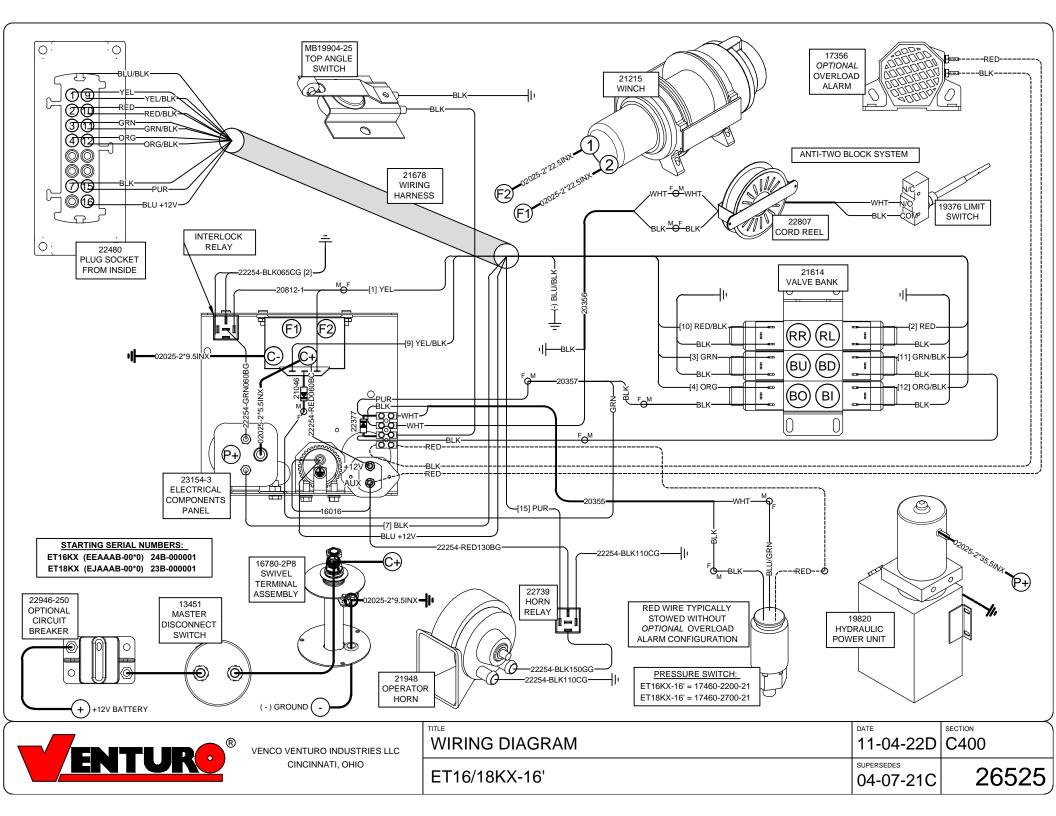
VENCO VENTURO INDUSTRIES LLC CINCINNATI, OHIO

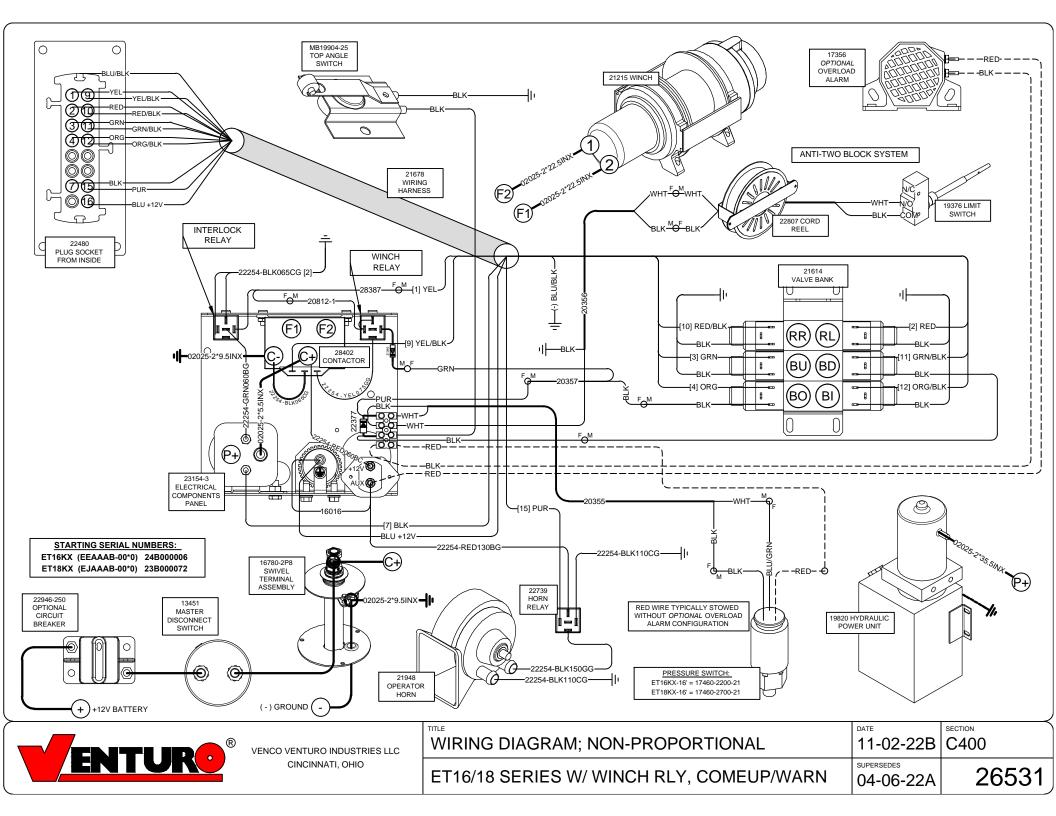
ET16/18KX

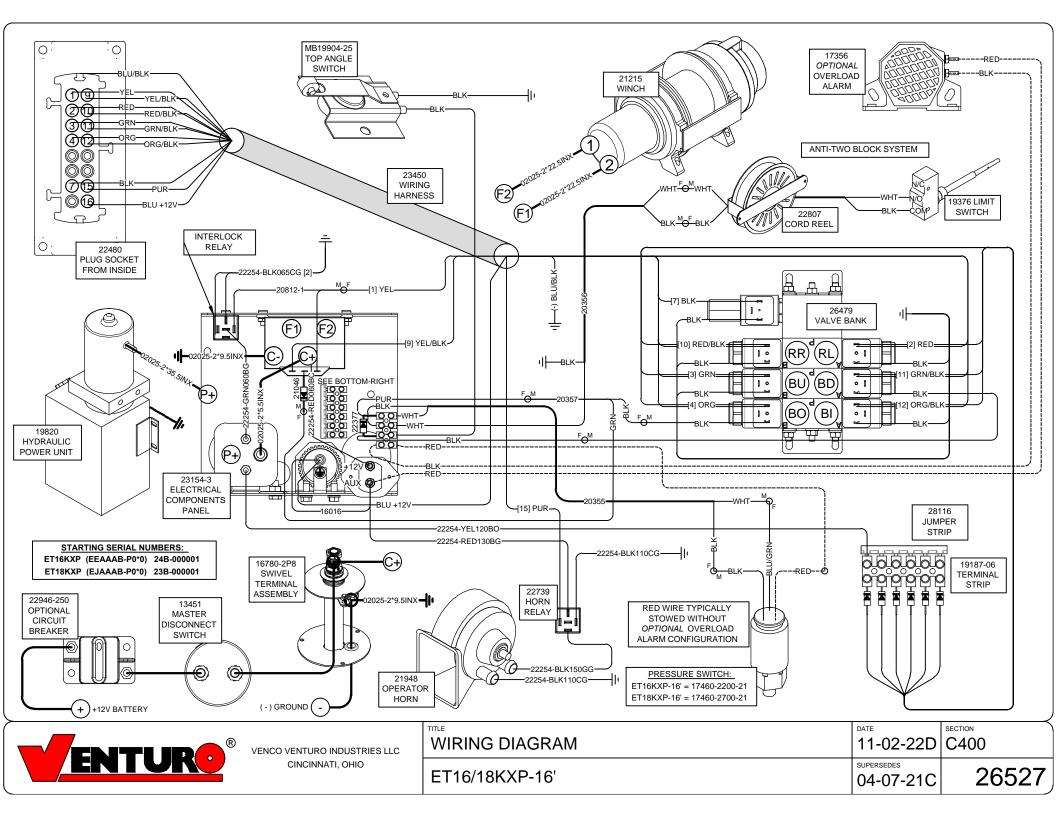
ELECTRICAL COMPONENT ASSEMBLY

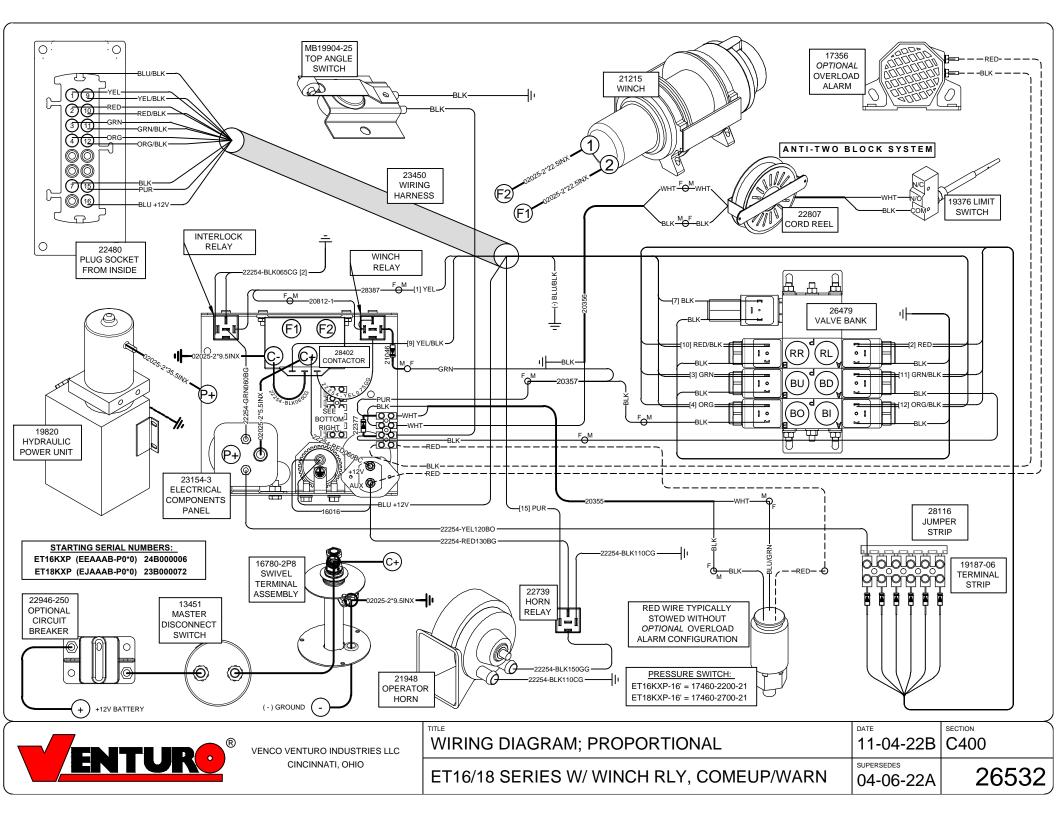
10-21-21 C400 supersedes 26

26533









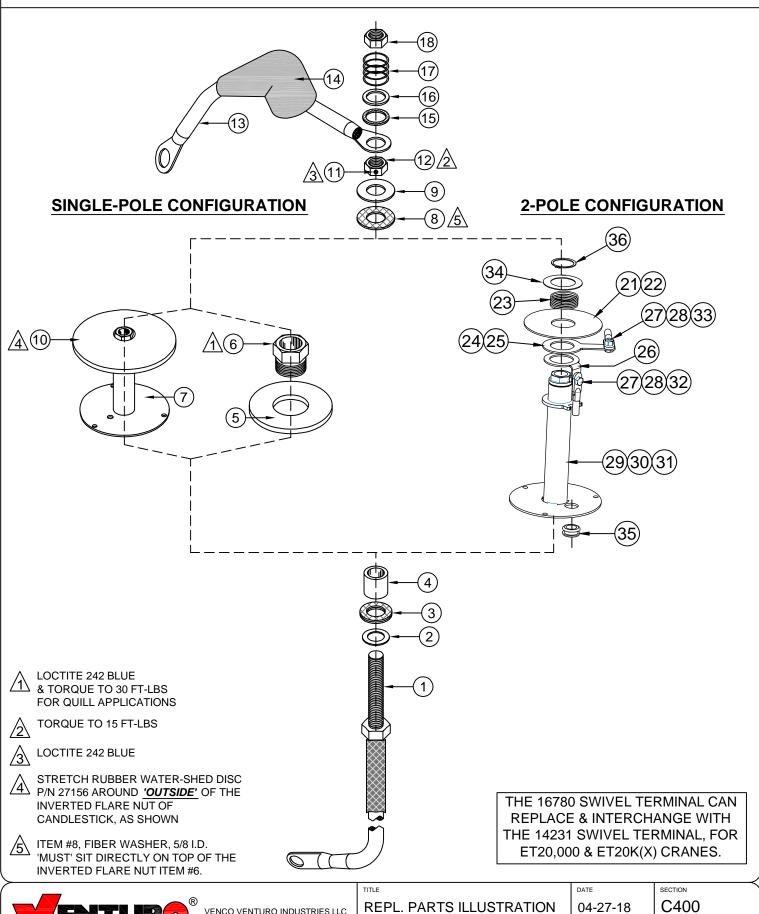
Single & 2-Pole Slip-ring Replacement Parts (1 of 2)

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- Ring (ET25-36KX)	ALL CRANES		16780 BILLS OF MATERIALS		
16780	16780 - 1	16780 - 2P6	16780 - 2P8	16780 - 2P25	16780 - KIT				
o		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			
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	-	-	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	
_	-		-	-	-			PIGTAIL; SWIVEL TERMINAL	
	_	_	-	Fi_i	-	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	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	20	19368	IDWG: 16780 SWIVEL TERMINAL	
1	-	1	-	1		21	27456	UHMW WATER SHIELD, (ET6K ONLY)	
-	-	-	1	1		22	27456-1	UHMW WATER SHIELD, (ET8 - ET36)	
-	-	1	1	1	•	23	27461	SPRING, (-) SLIP-RING ASSY.	
-	-,	-	1	1	•	24	27441-1	COPPER SLIP-RING, (ET8 - ET36)	
-	-	1	1	1	-	25 26	27441 27449-1	COPPER SLIP-RING, (ET6K ONLY) BRASS SLIP-RING (ET6 - ET36)	
-	-	1	1	1		27	!HHCS03118075-B	BRASS SLIP-RING (E 16 - E 136) BRASS HHCS	
-	_	1	1	1	-	28	!HNUT-03118-B	BRASS NYLOC NUT	
-	Ē	1	-	:=	-	29	23255	SLIP-RING, WELDED ASSY, ET6K	
-		•	1	-	-	30	23255-1	SLIP-RING, WELDED ASSY, ET8 - 18K(X)	
-	-	1	1	1	-	31	23255-2 02025-2*96.5INX	SLIP-RING, WELDED ASSY, ET25 - 36K(X) (-) WELDING CABLE ASSY, BRASS SLIP-RING	
-	-	1	1	1	-	33	02025-2*22.5INX	(-) WELDING CABLE ASSY, COPPER SLIP-RING	
-		1	1	1	•	34	27463	SHIM, WIDE RIM, 18GA, 2-1/4 O.D. X 1-1/2 I.D.	
j .	=	1	1	1	-	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	04000
ET6/8/12/16/18/25/30/36K(X)	04-27-18	21292

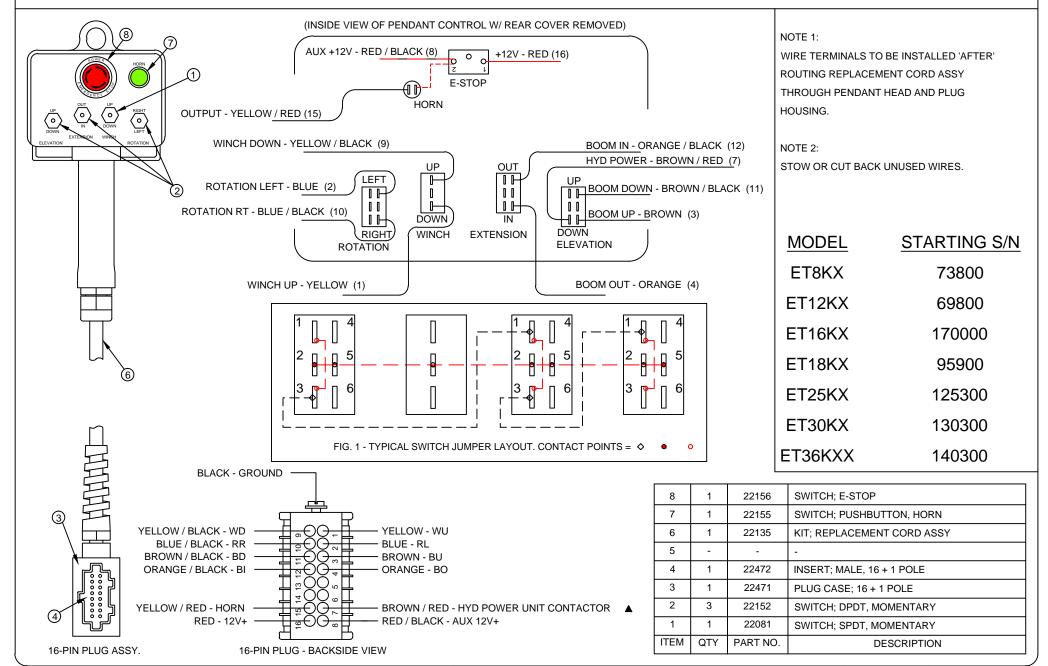
Single & 2-Pole Slip-ring Replacement Parts (2 of 2)



ENTURO®	١
A	

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

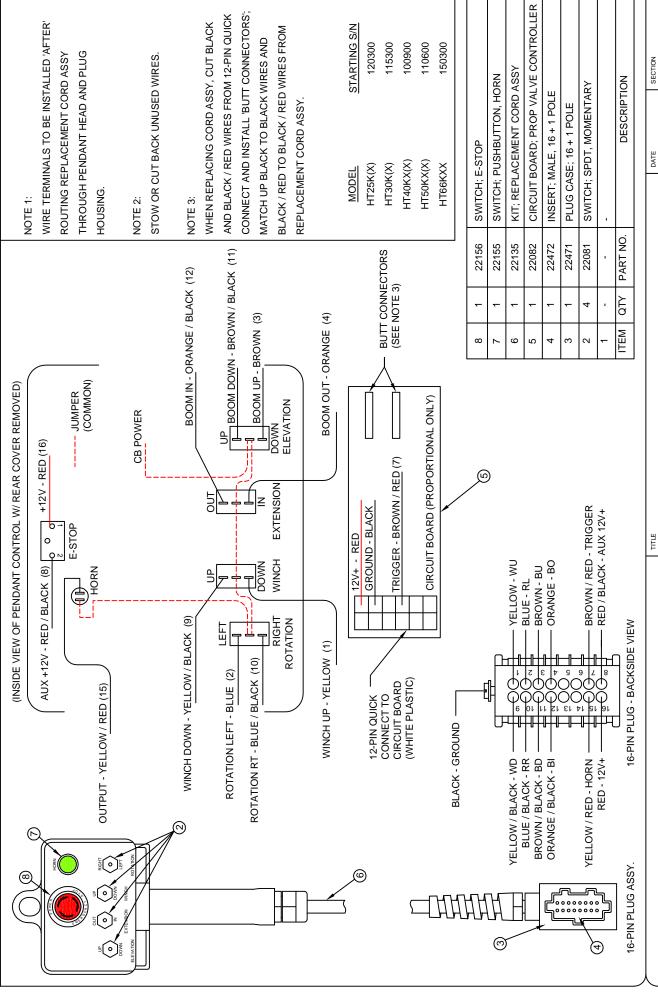
21990 PENDANT; 4 FUNCTION ET CRANES, E-STOP / HORN





REPLACEMENT PARTS DWG & LIST	01-12-17B	C400
	SUPERSEDES	22075
21990 PNDNT; 4 FNCTN ET CRNS, ESTP/HRN	10-20-14A	23075

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

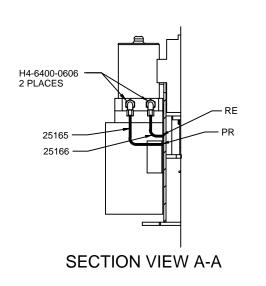


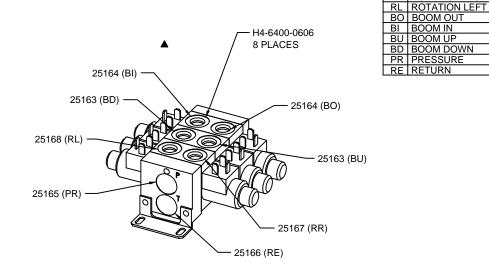
VENCO VENTURO INDUSTRIES LLC

RE 218

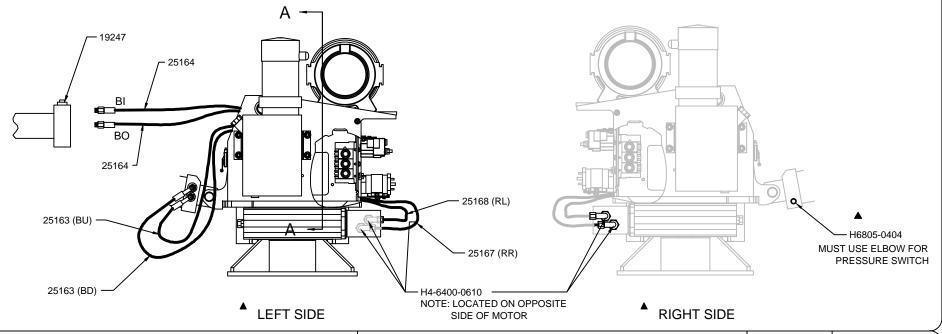
		SUPERSEDES	THE CONTRACT OF THE CONTRACT O
10-03-14	C40	10-03-14	EPLACEMENT PARTS DWG & LIST

ET16/18KX HYDRAULIC COMPONENTS DRAWING





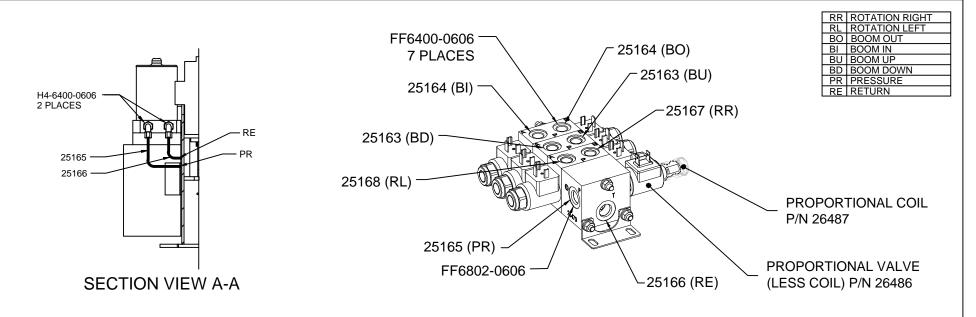
RR ROTATION RIGHT

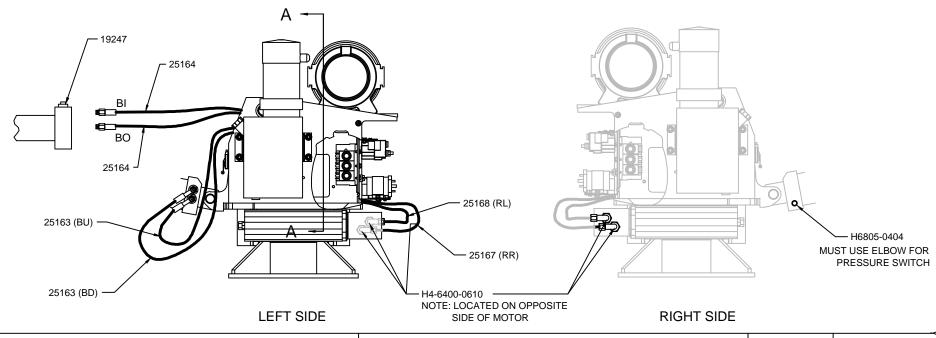




TITLE	DATE	SECTION
HYDRAULIC COMPONENTS DRAWING	12-22-22C	C400
	SUPERSEDES	04407
ET16/18KX	12-16-16B	2140 <i>1</i>

ET16/18KXP HYDRAULIC COMPONENTS DRAWING

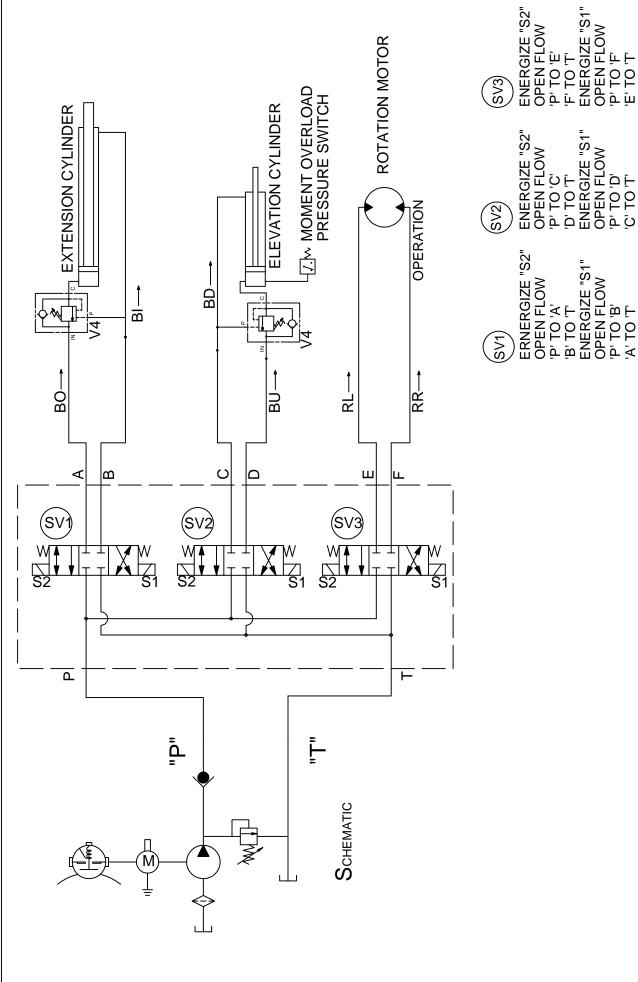






TITLE	DATE	SECTION
HYDRAULIC COMPONENTS DRAWING	12-22-22A	C400
	SUPERSEDES	22000
ET16/18KXP	11-19-19	23988

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

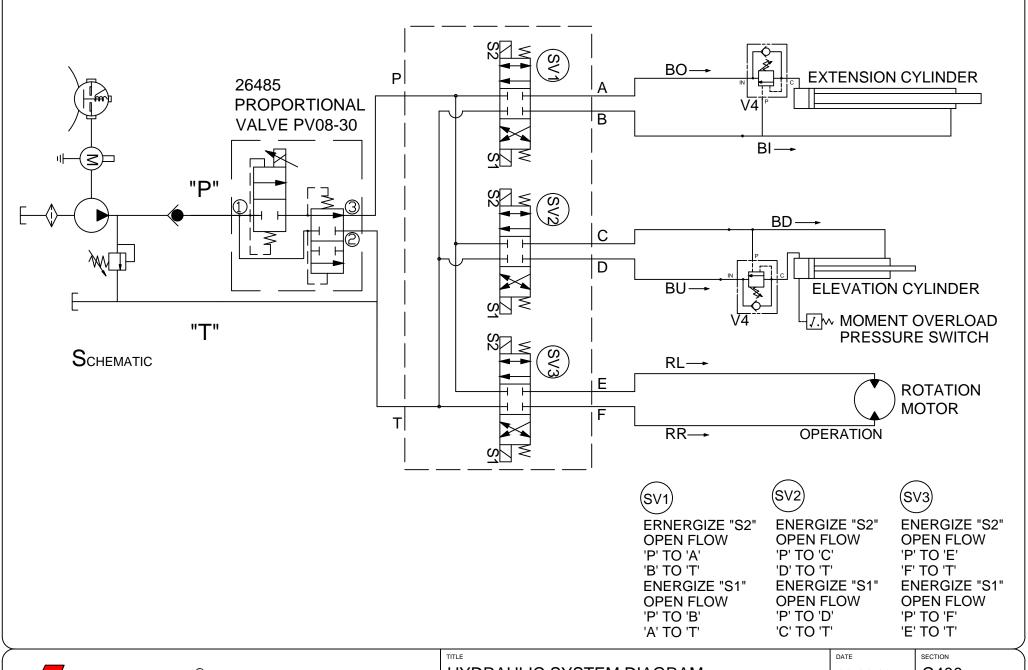


(<u>-</u>	(\$V2)	(SV3)
NERGIZE "S2" PEN FLOW	ENERGIZE "S2" OPEN FLOW	ENERGIZE "S2 OPEN FLOW
TO 'A'	'P' TO 'C'	'P' TO 'E'
TO T	'D' TO 'T	'F' TO 'T'
JERGIZE "S1"	ENERGIZE "S1"	ENERGIZE "S1
PEN FLOW	OPEN FLOW	OPEN FLOW
TO 'B'	'P' TO 'D'	'P' TO 'F
TO T	'C' TO 'T'	Ē' TO 'Ţ

<u> </u>	DAIE	SECTION
HYDRAULIC SYSTEM DIAGRAM	10-23-14D C400	C400
	SUPERSEDES	01700
ET16/18/25/30/36KX ▲	01-31-05C	20156



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



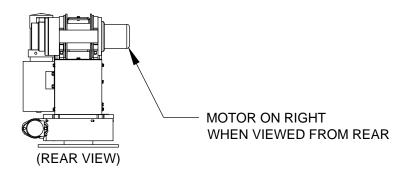


 HYDRAULIC SYSTEM DIAGRAM
 10-14-19
 C400

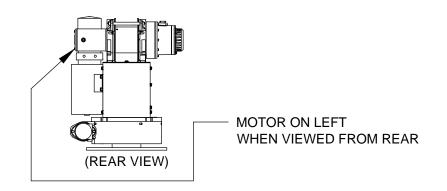
 ET16/18/25/30/36KXP
 24434

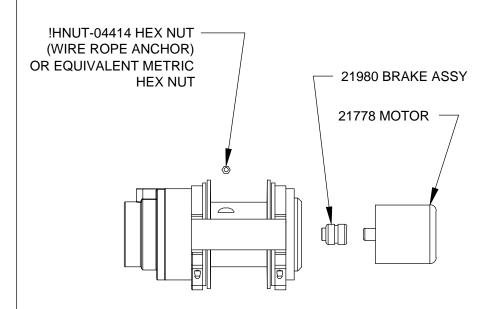
21215 WINCH REPLACEMENT PARTS

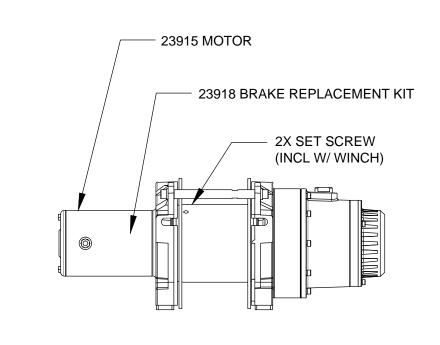
WARN DC2500



COMEUP GTD-2800



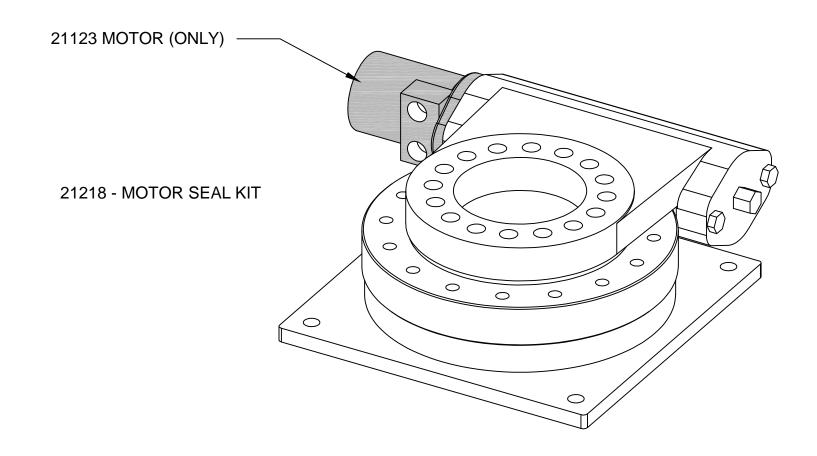






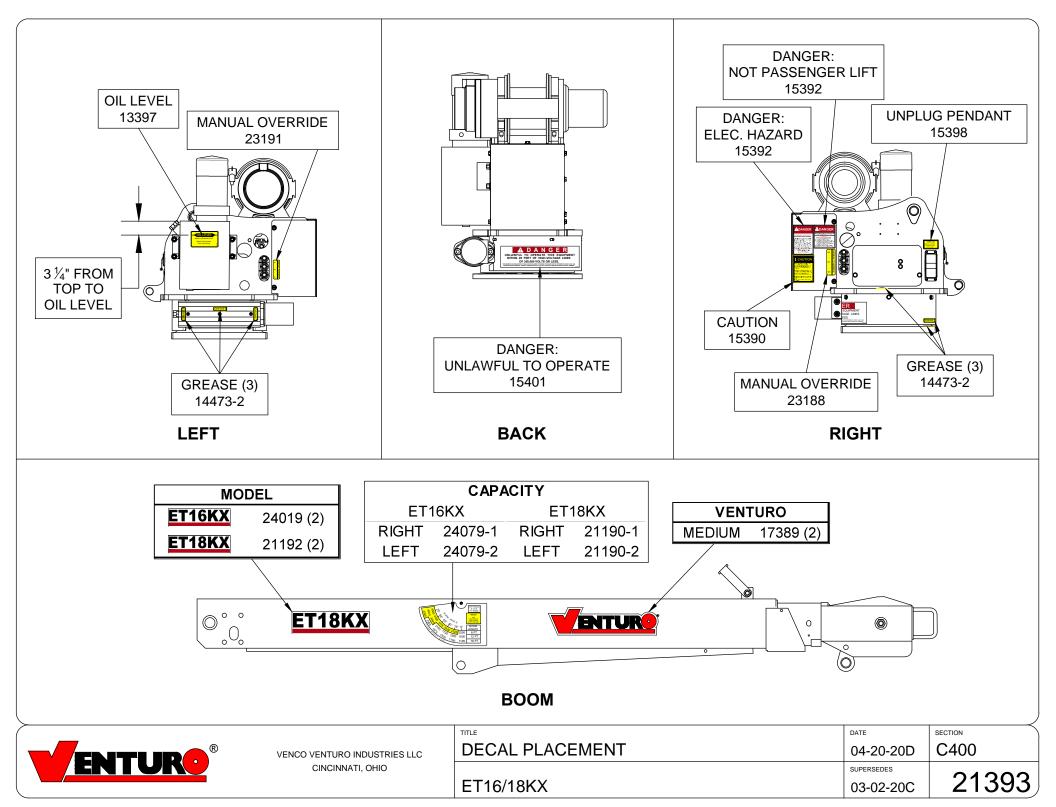
_	I I	•	$\overline{}$
	TITLE	DATE	SECTION
	WINCH REPLACEMENT PARTS	03-19-21G	C400
		SUPERSEDES	04054
	ET16/18KX	10-23-14F	21054

21735 SLEWING SYSTEM REPLACEMENT PARTS





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



ET16/18KX(P) FIELD SERVICE LABEL KITS

PART NO.	QTY.	DESCRIPTION
14473-2	6	DECAL; GREASE
17389	2	DECAL; VENTURO LOGO, MEDIUM
24079-1	1	DECAL; BOOM CAPACITY, RIGHT, ET16KX
24079-2	1	DECAL; BOOM CAPACITY, LEFT, ET16KX
24019	2	DECAL; MODEL NAME, ET16KX
13397	1	DECAL; OIL LEVEL
23188	1	DECAL; MANUAL OVERRIDE, RIGHT
23191	1	DECAL; MANUAL OVERRIDE, LEFT
17813	1	DECAL; OVERLOAD SENSING SYSTEM
16184-1	1	DECAL; HORN RELAY
20818	1	IDWG; FIELD SERVICE LABEL KIT
21393	1	IDWG; DECAL PLACEMENT
INST-23233	1	SAFETY MANUAL, VENTURO CRANES
15397	1	KIT; ACCIDENT PREVENTION SIGNS

24082; FIELD SERVICE LABEL KIT, ET16KX 21108; FIELD SERVICE LABEL KIT, ET18KX

PART NO.	QTY.	DESCRIPTION
14473-2	6	DECAL; GREASE
17389	2	DECAL; VENTURO LOGO, MEDIUM
21190-1	1	DECAL; BOOM CAPACITY, RIGHT, ET18KX
21190-2	1	DECAL; BOOM CAPACITY, LEFT, ET18KX
21192	2	DECAL; MODEL NAME
13397	1	DECAL; OIL LEVEL
23188	1	DECAL; MANUAL OVERRIDE, RIGHT
23191	1	DECAL; MANUAL OVERRIDE, LEFT
17813	1	DECAL; OVERLOAD SENSING SYSTEM
16184-1	1	DECAL; HORN RELAY
20818	1	IDWG; FIELD SERVICE LABEL KIT
21393	1	IDWG; DECAL PLACEMENT
INST-23233	1	SAFETY MANUAL, VENTURO CRANES
15397	1	KIT; ACCIDENT PREVENTION SIGNS

24083; FIELD SERVICE LABEL KIT, ET16KXP

PART NO.	QTY.	DESCRIPTION
14473-2	6	DECAL; GREASE
17389	2	DECAL; VENTURO LOGO, MEDIUM
24079-1	1	DECAL; BOOM CAPACITY, RIGHT, ET16KX
24079-2	1	DECAL; BOOM CAPACITY, LEFT, ET16KX
24019	2	DECAL; MODEL NAME, ET16KX
13397	1	DECAL; OIL LEVEL
19788-1	2	DECAL; 'PROPORTIONAL'
23188	1	DECAL; MANUAL OVERRIDE, RIGHT
23191	1	DECAL; MANUAL OVERRIDE, LEFT
19315-2	1	DECAL; MAN. OVERRIDE, PROP. VALVE
17813	1	DECAL; OVERLOAD SENSING SYSTEM
16184-1	1	DECAL: HORN RELAY
20818	1	IDWG; FIELD SERVICE LABEL KIT
21393	1	IDWG; DECAL PLACEMENT
INST-23233	1	SAFETY MANUAL, VENTURO CRANES
15397	1	KIT; ACCIDENT PREVENTION SIGNS

24076; FIELD SERVICE LABEL KIT, ET18KXP

PART NO.	QTY.	DESCRIPTION	
14473-2	6	DECAL; GREASE	
17389	2	DECAL; VENTURO LOGO, MEDIUM	
21190-1	1	DECAL; BOOM CAPACITY, RIGHT, ET18KX	
21190-2	1	DECAL; BOOM CAPACITY, LEFT, ET18KX	
21192	2	DECAL; MODEL NAME	
19788-1	2	DECAL; 'PROPORTIONAL'	
13397	1	DECAL; OIL LEVEL	
23188	1	DECAL; MANUAL OVERRIDE, RIGHT	
23191	1	DECAL; MANUAL OVERRIDE, LEFT	
19315-2	1	DECAL; MAN. OVERRIDE, PROP. VALVE	
17813	1	DECAL; OVERLOAD SENSING SYSTEM	
16184-1	1	DECAL; HORN RELAY	
20818	1	IDWG; FIELD SERVICE LABEL KIT	
21393	1	IDWG; DECAL PLACEMENT	
INST-23233	1	SAFETY MANUAL, VENTURO CRANES	
15397	1	KIT; ACCIDENT PREVENTION SIGNS	

TITLE	DATE	SECTION
FIELD SERVICE LABEL KIT	03-13-23H	C400
	SUPERSEDES	00040
ET16/18KX(P)	08-04-20G	20818

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

12110 BEST PLACE | CINCINNATI, OHIO 45241 P: 800-226-2238 | F: 513-326-5427 www.venturo.com

Revised: January 2015 12-00073_VNT1-D