

VENTURO
TRUCK MOUNTED CRANES

ET18KX

*EJAAAB-***

INSTALLATION & OWNER'S MANUAL

Sold and Serviced by:

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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°
BOOM HYD EXT	8 - 12 FT OR 12 - 16 FT
BOOM MANUAL EXT	4 FT
CAPACITY	1125 LBS @ 16 FT REACH
	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



TITLE
INSTALLATION DWG

DATE
7-29-03

SECTION
C120

ET18KX-8/16

SUPERCEDES
-

21301

OVERLOAD SENSING SYSTEM

This crane is equipped with an Overload Sensing System. If the capacity of the crane is exceeded, the "Winch Up", "Boom Down", and "Boom Out" functions will be shut down. The "Winch Down", "Boom Up", and "Boom In" functions will continue to operate and can be used to relieve the overload condition. The "Rotation" function also will continue to operate.

CONTROL PRIORITY SYSTEM

The design intent of the electrical and hydraulic system is 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 (Rotation Right, Rotation Left, Boom Up, Boom Down, Boom Out and Boom In) are designed to function one at a time.

CABLE DRUM AND SHEAVE DIAMETERS

The drum on the ET18KX is 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

- A. CAPACITY INDICATOR
Select boom reach and angle allowable for load by using capacity indicator arrow and chart on either side of boom.
- B. BATTERY HOOKUP
A parallel auxiliary battery should be installed near the crane as shown on Dwg. I24600 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.



MFG., INC.
CINCINNATI, OHIO

TITLE
INSTALLATION DWG

DATE
7-29-03

SECTION
C120

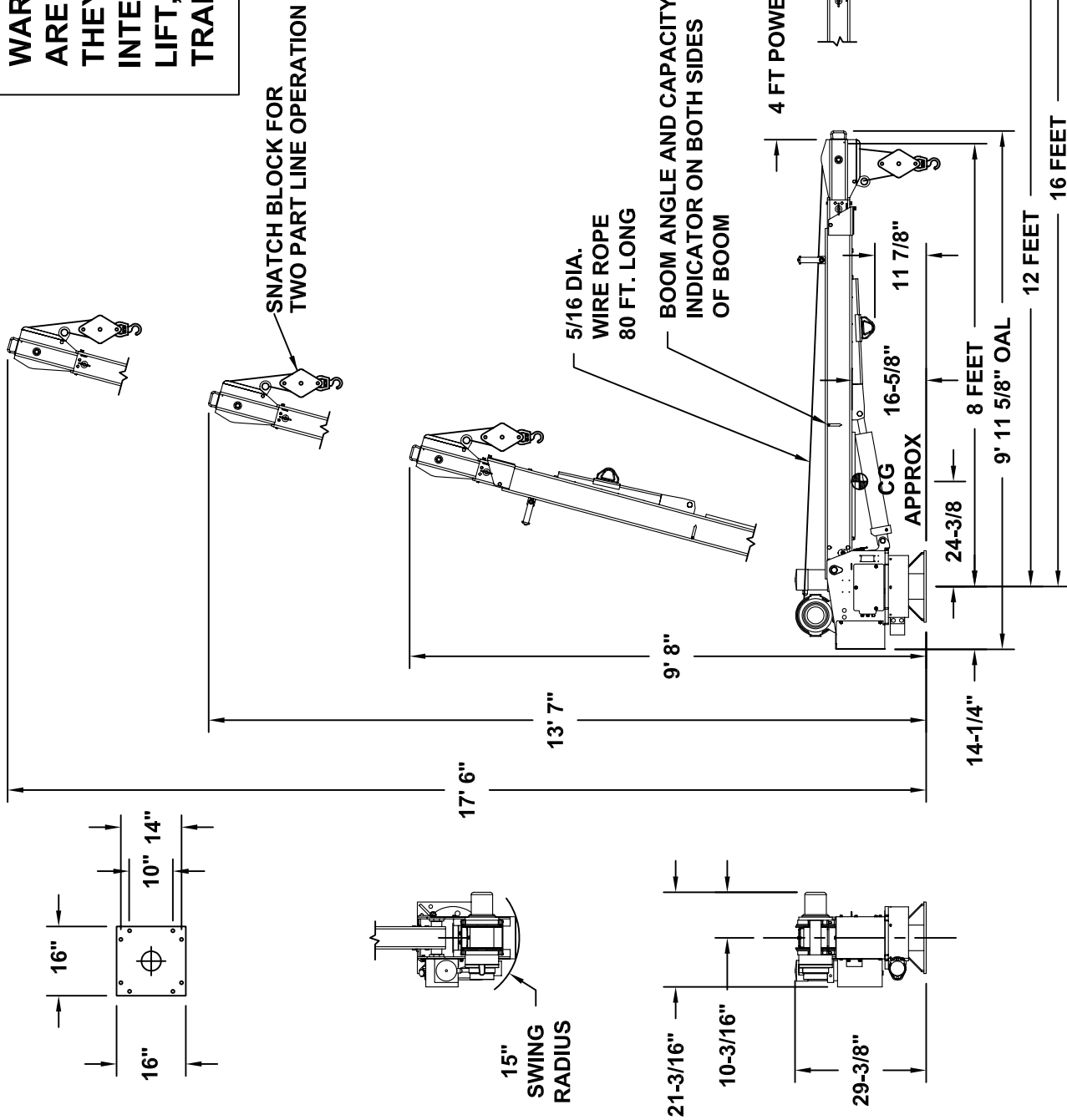
ET18KX-8/16

SUPERCEDES
-

21302

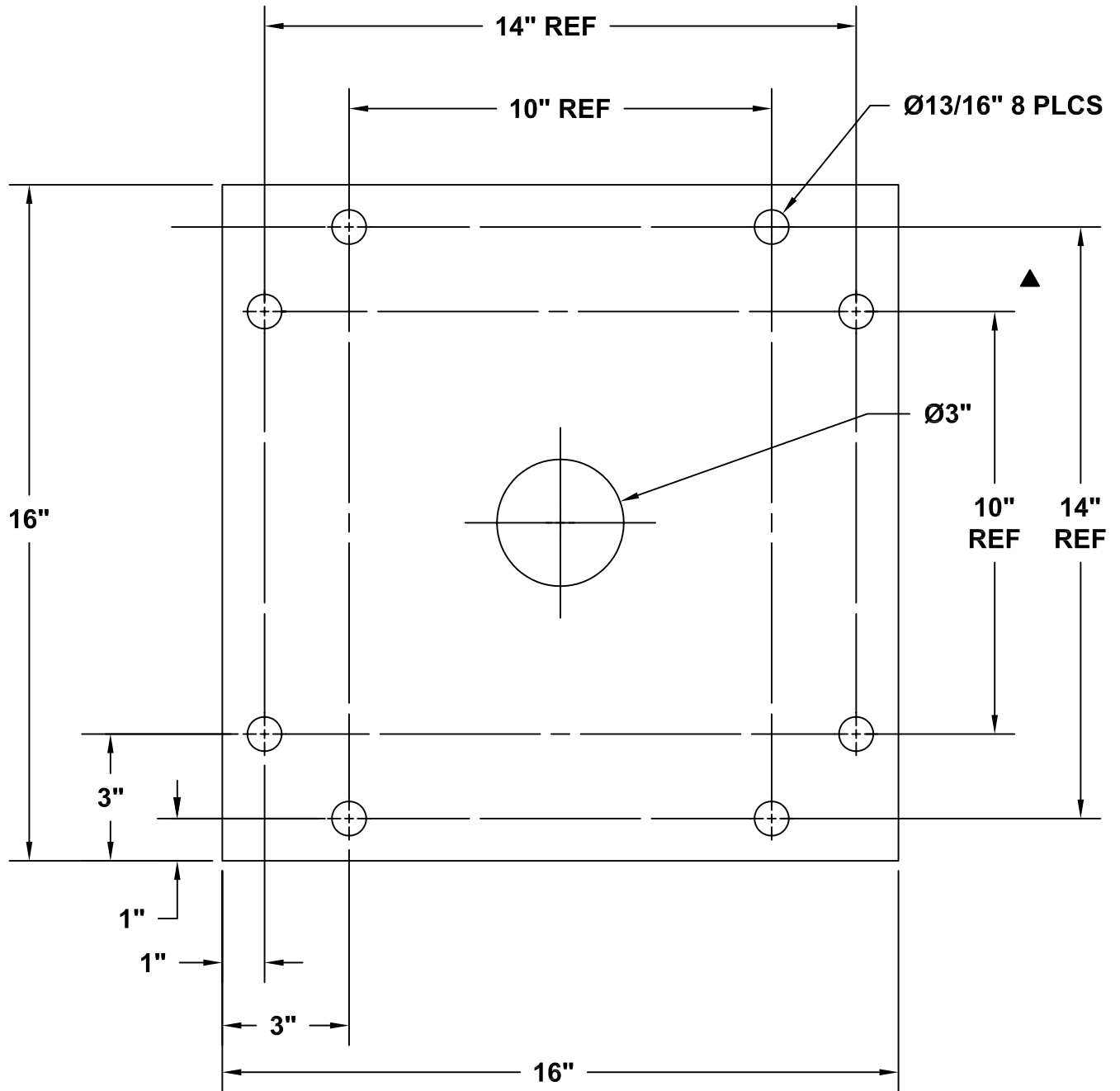
WARNING: THESE PRODUCTS ARE NOT PASSENGER LIFTS. THEY ARE NOT DESIGNED OR INTENDED TO BE USED TO LIFT, SUPPORT, OR OTHERWISE TRANSPORT PERSONNEL.

TOTAL INSTALLED WEIGHT 1150 LBS.

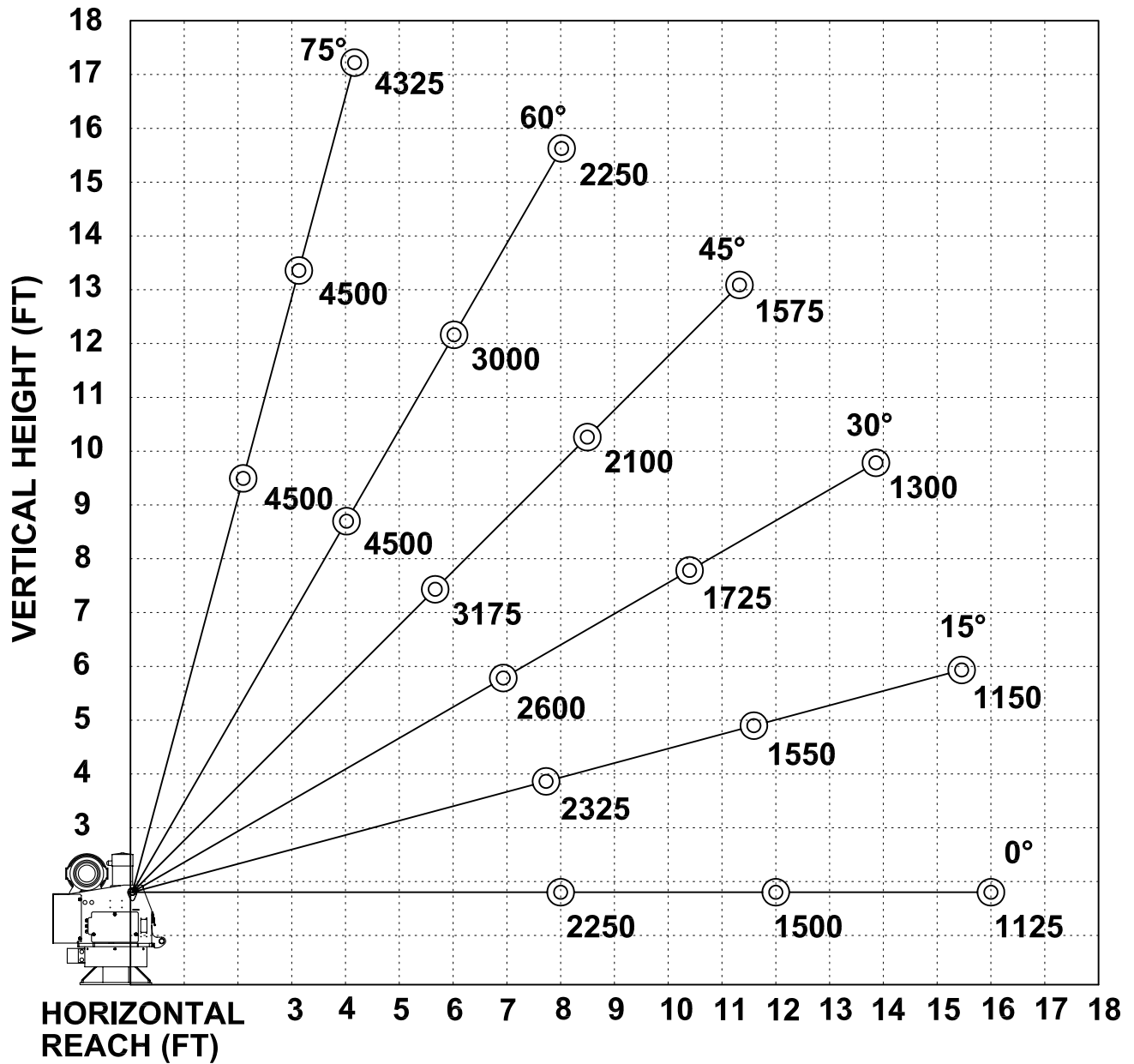


<p>MANUFACTURING, INC. CINCINNATI, OHIO</p>	TITLE	INSTALLATION DRAWING	
		ET18K(X) - 8/12/16 BOOM	
	DATE	2-20-07	SECTION
	SUPERSEDES	-	21390

▲ ET/HT18K(X) & ET/HT25K(X) BASE MOUNTING DIMENSION



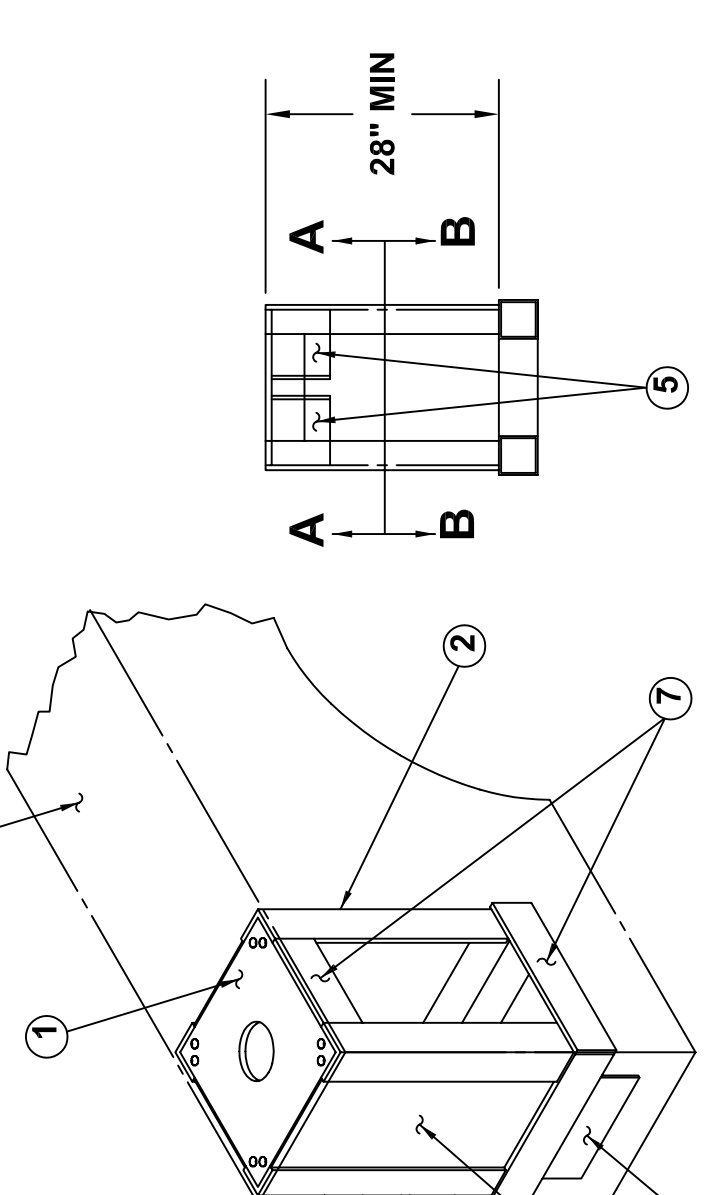
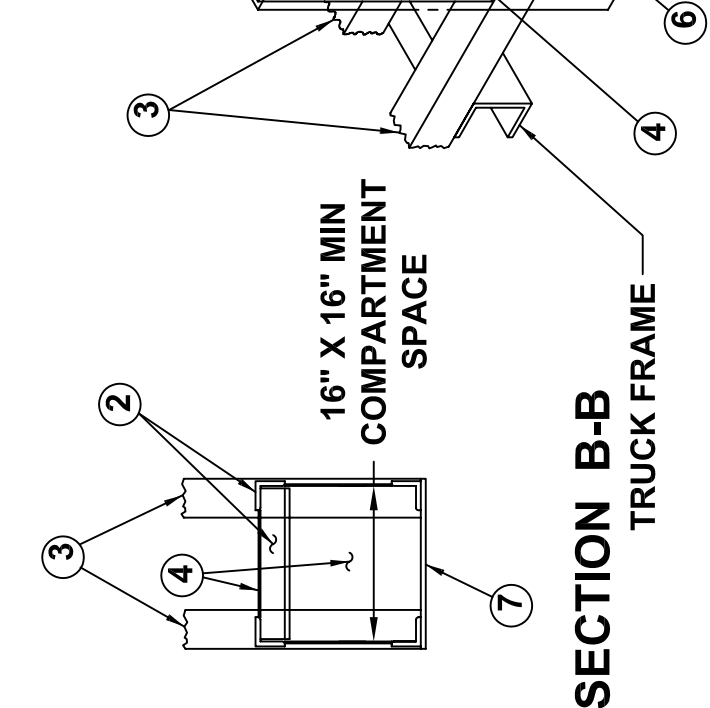
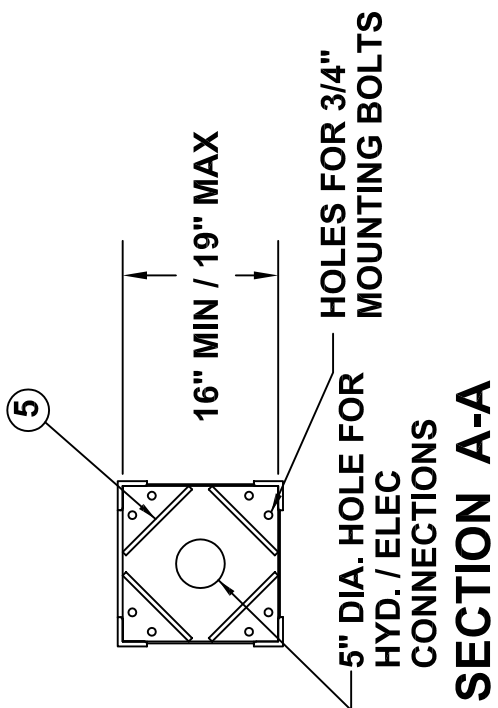
ET18K(X) - 8-12-16 BOOM MAXIMUM CAPACITY CHART




**MUST USE SNATCH BLOCK
FOR LOADS OF 2250 LBS.
AND GREATER**

PART	DESCRIPTION	MINIMUM RECOMMENDED MATERIAL SIZE
1	TOP PLATE	1/2" STEEL
2	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
5	TOP PLATE REINFORCEMENT	1/2" x 6" OR 3/4" x 5" STEEL BAR
6	OUTRIGGER REINFORCEMENT PLATE	1/4" THICK STEEL PLATE
7	GUSSET	1/2" x 4" H.R. STEEL
8	BODY TOP REINFORCEMENT	10 GA SMOOTH OR DIAMOND PLATE WITH 1" LIP OVER SIDE OF BODY

IT IS THE SOLE RESPONSIBILITY OF THE INSTALLER TO INSURE THAT THE TOTAL STRUCTURE OF CRANE, TRUCK, AND OUTRIGGERS ARE STRUCTURALLY SOUND AND THAT THE COMPLETED VEHICLE HAS SUFFICIENT STABILITY AGAINST OVERTURNING.



TYPICAL SERVICE BODY REINFORCEMENT

 MANUFACTURING, INC. CINCINNATI, OHIO	TITLE	INSTALLATION DWG	DATE	4-25-08F	SECTION	C100
	ET/HT25K(X) & ET/HT18K(X)		SUPERSEDES	1-18-05E	19288	

SECTION 150

SAFETY

VEHICLE & CRANE MOUNTED ELECTRICAL HAZARD SIGN APPLICATION & INFORMATION

ET & HT CRANE SERIES



▲ SIGN NO. 15393A DISPLAYS THE INTERNATIONAL SYMBOL FOR ELECTRICITY AND WARNS OF DANGER FROM AN ELECTRICALLY CHARGED VEHICLE, CRANE, OR LOAD. FOUR ARE RECOMMENDED (ONE FOR EACH SIDE AND ONE FOR EACH END OF VEHICLE) TO BE APPLIED IN LOCATIONS WHICH ARE READILY VISIBLE TO GROUND PERSONNEL.



▲ SIGN NO. 15401 PROVIDES ADDITIONAL WARNING OF LEGAL REQUIREMENTS WHEN OPERATING NEAR HIGH VOLTAGE LINES. THIS SIGN IS PLACED ON THE CONTROL PENDANT SIDE OF BOOM.

REQUIRED MINIMUM CLEARANCES REFERRED TO ON SIGN NO. 15401

REQUIRED CLEARANCES FROM OVERHEAD HIGH-VOLTAGE LINES

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

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

NOMINAL VOLTAGE (kV) (PHASE TO PHASE)	MINIMUM REQUIRED CLEARANCE (FEET) *
0 - 0.75	4
over 0.75 - 50	6
over 50 - 345	10
over 345 - 750	16
over 750 - 1000	20

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



TITLE
INSTALLATION DWG

DATE
5-15-02H

SECTION
C150

ET & HT CRANE SERIES

SUPERCEDES
5-13-97G

15394

CRANE SAFETY AND HAZARDS

ET CRANES ▲

CAUTIONS

1. INSPECT VEHICLE AND CRANE, INCLUDING OPERATION, PRIOR TO USE DAILY.
2. DO NOT USE THIS EQUIPMENT EXCEPT ON SOLID, LEVEL SURFACE WITH CRANE MOUNTED ON FACTORY-RECOMMENDED TRUCK.
3. BEFORE OPERATING THE CRANE, REFER TO MAXIMUM LOAD (CAPACITY) CHART ON CRANE FOR OPERATING (LOAD) LIMITATIONS.
4. DO NOT OPERATE, WALK, OR STAND BENEATH BOOM OR A SUSPENDED LOAD.
5. ATTACH PENDANT CORD SUPPORT SNAP TO ATTACHMENT POINT BEFORE PLUGGING IN PENDANT, IF SO EQUIPPED. ▲
6. UNPLUG PENDANT AND SHUT OFF MASTER DISCONNECT SWITCH WHEN CRANE NOT IN USE.
7. FOR TRAVEL, BOOM MUST BE IN STOWED POSITION.

DANGER

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

YOU MUST NOT OPERATE THIS CRANE UNLESS

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

ELECTROCUTION HAZARD

- THIS MACHINE IS NOT INSULATED.
- MAINTAIN SAFE CLEARANCES FROM ELECTRICAL LINES AND APPARATUS.
- YOU MUST ALLOW FOR BOOM SWAY, ROCK OR SAG, AND ELECTRICAL LINE AND LOADLINE SWAYING.
- THIS LIFTING DEVICE DOES NOT PROVIDE PROTECTION FROM CONTACT WITH OR PROXIMITY TO AN ELECTRICALLY CHARGED CONDUCTOR.
- YOU MUST MAINTAIN A CLEARANCE OF AT LEAST 10 FEET BETWEEN ANY PART OF THE CRANE, LOADLINE, OR LOAD, AND ANY ELECTRICAL LINE OR APPARATUS CARRYING UP TO 50,000 VOLTS. ADDITIONAL CLEARANCE IS REQUIRED FOR VOLTAGES IN EXCESS OF 50,000 VOLTS. REFER TO DRAWING 15394 FOR ADDITIONAL INFORMATION.
- **DEATH OR SERIOUS INJURY** WILL RESULT FROM CONTACT OR INADEQUATE CLEARANCE.



MFG., INC.
CINCINNATI, OHIO

TITLE
INSTALLATION DWG

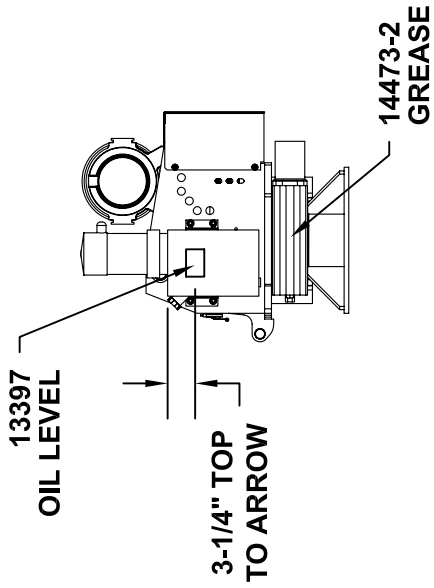
DATE
4-18-08H

SECTION
C150

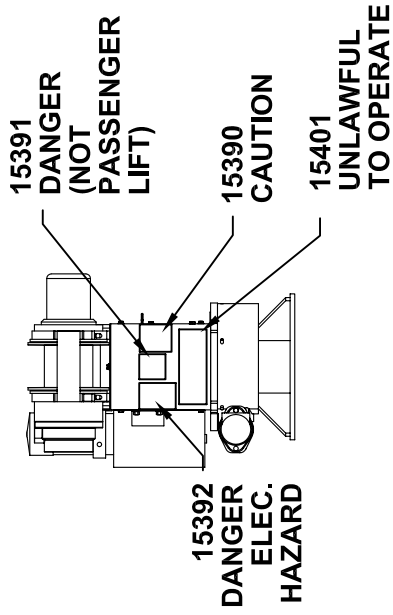
▲ **ELECTRIC CRANES**

SUPERCEDES
7-29-03G

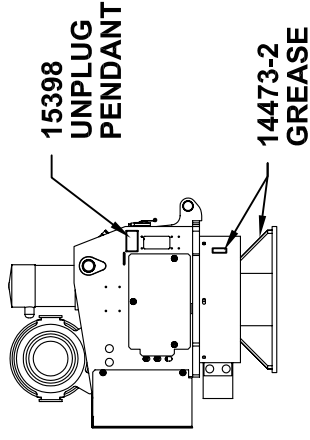
850711



LEFT



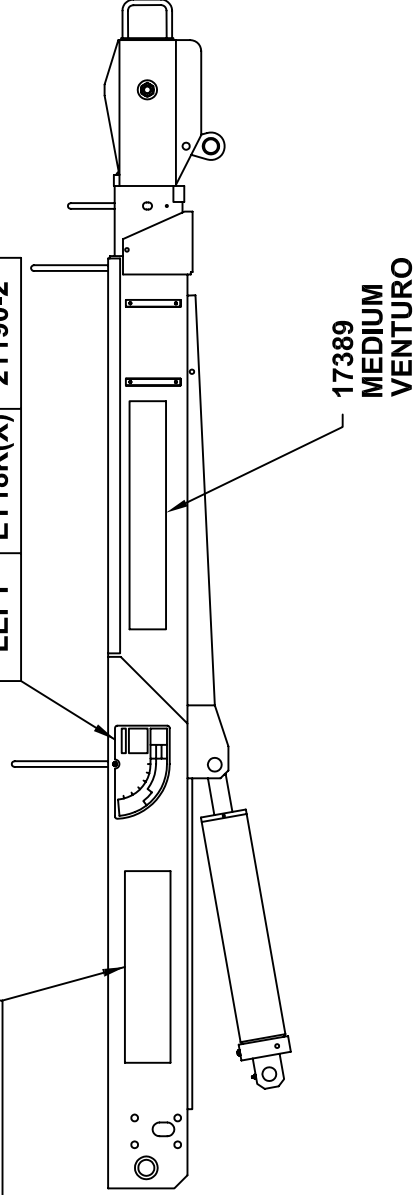
BACK



RIGHT

CAPACITY		DECAL	MODEL	PART NO.
	RIGHT	ET18K(X)	21190-1	
	LEFT	ET18K(X)	21190-2	

MODEL NO.
21191 - ET18K
21192 - ET18KX



BOOM



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CINCINNATI, OHIO

TITLE
DECAL PLACEMENT

ET18K(X)

DATE
3-15-07

SUPERSEDES
-

SECTION
C150

21393

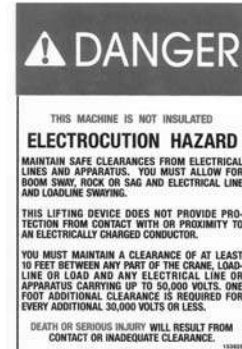
PART NO.: 15390
DECAL: CAUTION - INSPECT VEHICLE & CRANE
FUNCTION: To inform the operator of key operating requirements.
QUANTITY: 1
PLACEMENT: Rear cover.



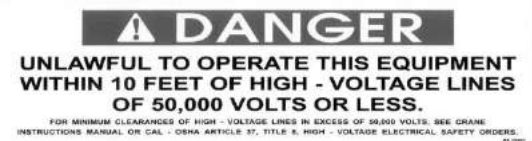
PART NO.: 15391
DECAL: DANGER - NOT PASSENGER LIFT
FUNCTION: To inform the operator not to lift, support or transport personnel, and to ensure that crane operator is adequately trained.
QUANTITY: 1
PLACEMENT: Rear cover.



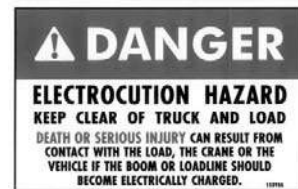
PART NO.: 15392
DECAL: DANGER - ELECTROCUTION HAZARD
FUNCTION: To inform the operator that the machine (crane) represents an electrocution hazard should it come close to or in contact with electrical voltage source.
QUANTITY: 1
PLACEMENT: Rear cover.



PART NO.: 15401
DECAL: UNLAWFUL TO OPERATE
FUNCTION: To inform the operator of proper operation in vicinity of power lines.
QUANTITY: 1
PLACEMENT: Right side of housing.



PART NO.: 15393A
DECAL: DANGER - ELECTROCUTION HAZARD
FUNCTION: Warns of danger from electrically charged vehicle, crane or lead.
QUANTITY: 4
PLACEMENT: One on each side and each end of vehicle.



MFG., INC.
 CINCINNATI, OHIO

TITLE
SAFETY DECALS

CRANES

DATE
8-10-09B

SUPERSEDES
5-6-08A

SECTION
C150

21353

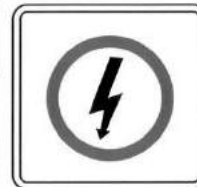
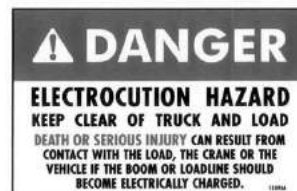
PART NO.: 15393A

DECAL: DANGER - ELECTROCUTION HAZARD

FUNCTION: Warns of danger from electrically charged vehicle, crane or lead.

QUANTITY: 4

PLACEMENT: One on each side and each end of vehicle.



PART 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.



MFG., INC.
CINCINNATI, OHIO

TITLE
SAFETY DECALS

CRANES

DATE
8-10-09A

SUPERSEDES
4-26-06

SECTION
C150

21384

PART NO.: 14473-2

DECAL: GREASE

FUNCTION: To show the operator where to apply grease.

QUANTITY: Varies

PLACEMENT: Near grease fittings.



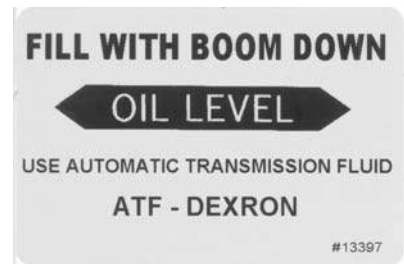
PART NO.: 13397

DECAL: OIL LEVEL

FUNCTION: To inform the operator of proper oil level to maintain.

QUANTITY: 1

PLACEMENT: Side of hydraulic power unit.



PART NO.: 15398

DECAL: UNPLUG REMOTE CONTROL

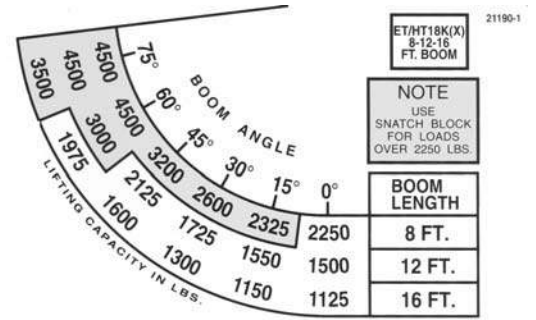
FUNCTION: To inform the operator to unplug remote control when not in use.

QUANTITY: 1

PLACEMENT: Near pendant socket.



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.



PART NO.: 21191
 DECAL: MODEL NUMBER (ET18K)
 FUNCTION: To show the model of the crane.
 QUANTITY: 2
 PLACEMENT: One on each side of boom.

ET18K

PART NO.: 21192
 DECAL: MODEL NUMBER (ET18KX)
 FUNCTION: To show the model of the crane.
 QUANTITY: 2
 PLACEMENT: One on each side of boom.

ET18KX



MFG., INC.
CINCINNATI, OHIO

TITLE
MODEL & CAPACITY DECALS

DATE
9-6-05

SECTION
C150

ET18K(X)

SUPERSEDES
-

21356

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 BATTERY SIZE

MODEL	TOTAL LENGTH OF CABLE (FT)*								12 VOLT BATTERY REQUIREMENTS	
	0-20	21-25	26-30	31-40	41-50	51-60	61-70	71-80	CCA (A)**	RC (MIN)***
CE6K CT2000 CT2003/4/5 DT7K	#4	#4	#2	#2	#1	#0	#0	#00	350	100
ET8K ET8KX ET12K ET12KX	#2	#2	#1	#0	#00	NOTRECOMMENDED			450	100
ET18K ET18KX ET25K ET25KX ET30KX ET36KX ▲	SEE DRAWING 19947 FOR CABLE AND BATTERY REQUIREMENTS									

* INCLUDES GROUND CABLE

** CCA=COLD CRANKING AMPS AT 0' F.
THE CCA RATING IS A MEASURE OF THE ABILITY OF THE BATTERY TO DELIVER A HIGH CURRENT FOR A SHORT PERIOD OF TIME.

*** RC=RESERVE CAPACITY IN MINUTES AT 25 AMPS AND 80' F.
THE RC RATING IS A MEASURE OF THE PERIOD OF TIME THE BATTERY CAN SUPPLY A GIVEN CURRENT WITHOUT RECHARGING.



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TITLE
CABLE & BATTERY

ELECTRIC CRANES

DATE
2-9-09D

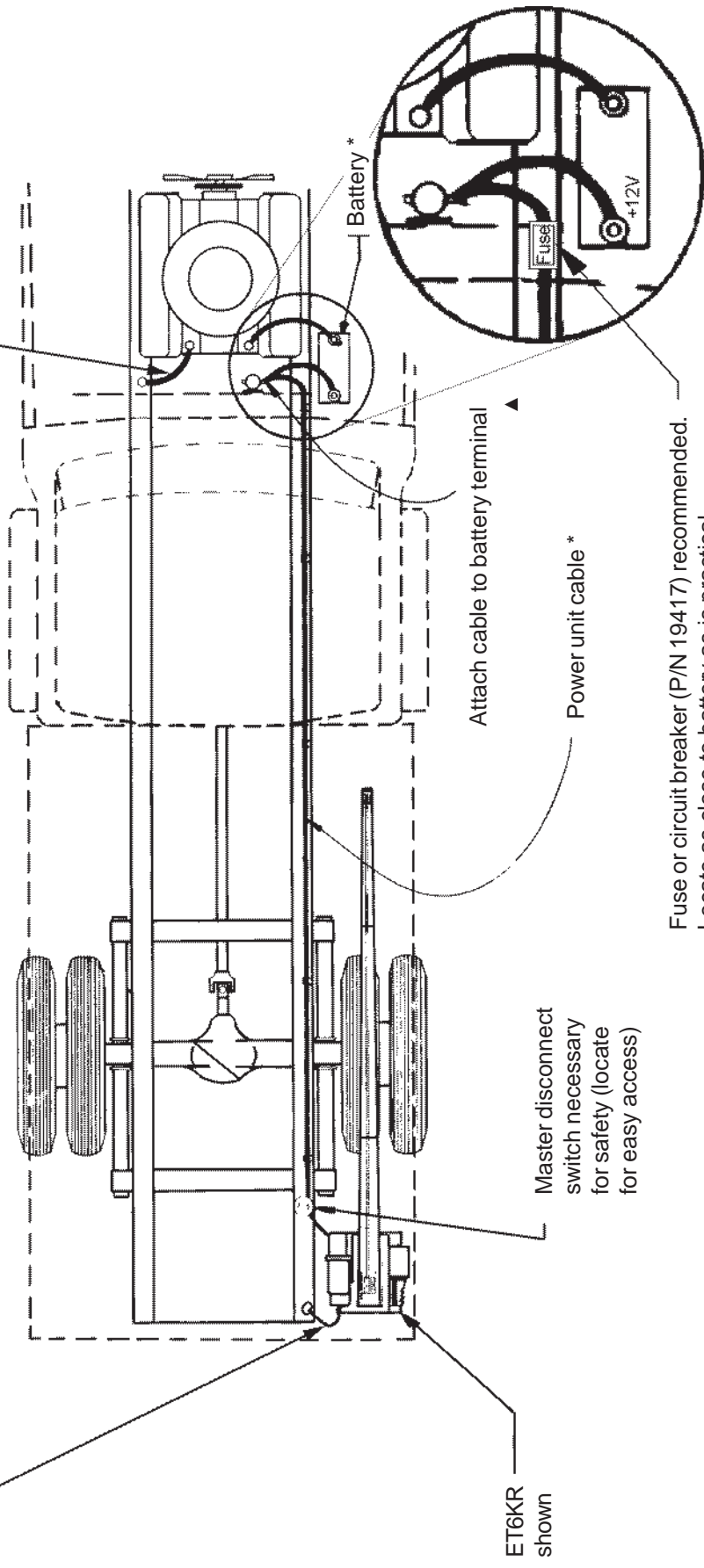
SUPERCEDES
11-24-08C

SECTION
C200

19959

Important: The crane must make connection with the negative of the battery. To insure this, install a #2 gauge grounding strap from the engine to the truck frame (required if negative from battery is connected to the engine.) Also, install a #2 gauge grounding strap from the crane base to the truck frame, included with electric cranes.

Failure to accomplish the above mentioned steps may result in intermittent operation of electric crane.



Fuse or circuit breaker (P/N 19417) recommended. Locate as close to battery as is practical.

* Note: See Dwg 19959 for recommended battery and cable specifications

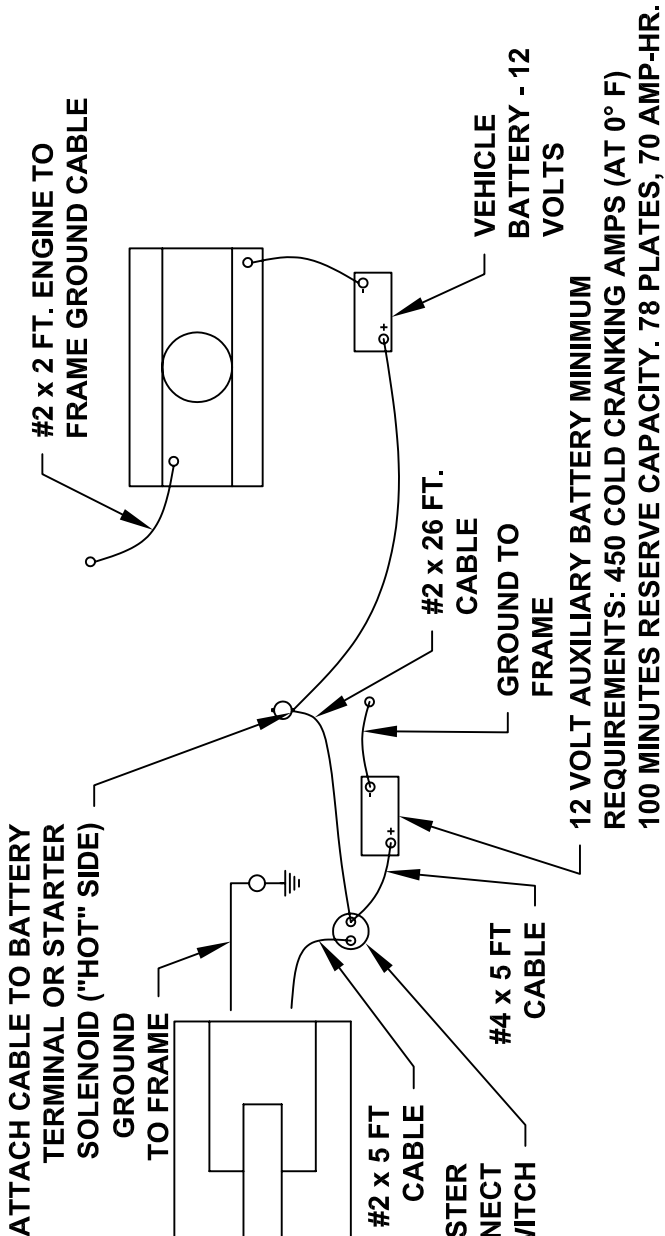
ET6KR shown

Master disconnect switch necessary for safety (locate for easy access)

VENTURO MANUFACTURING, INC. CINCINNATI, OHIO	TITLE INSTALLATION - BATTERY CABLE		DATE 4-18-08G	SECTION C200
	WINCH & CRANE		SUPERCEDES 8-2-06F	15660

RECOMMENDED INSTALLATION

W/ AUXILIARY BATTERY IN PARALLEL WITH VEHICLE BATTERY.

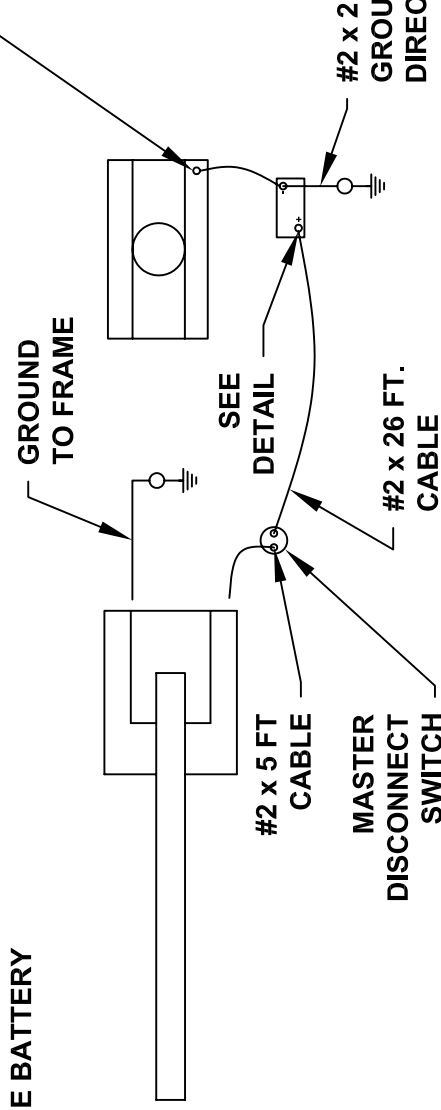
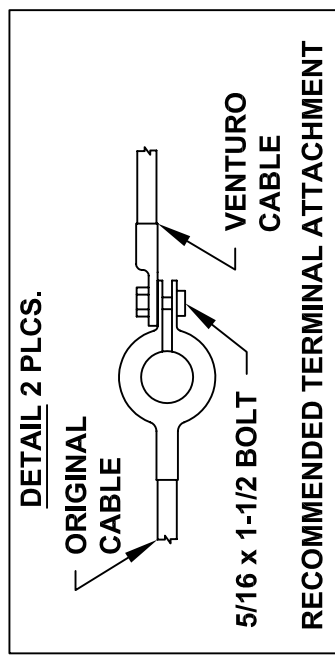


IF LONGER CABLE NECESSARY, CONSULT VENTURO ENGINEERING DEPT.

LIMITED DUTY ALTERNATE INSTALLATION (NOT RECOMMENDED)

NOTE: ALTERNATE INSTALLATION MAY BE USED ONLY IF VEHICLE BATTERY MEETS MINIMUM REQUIREMENTS AND A #2 x 26 FT CABLE WILL REACH FROM THE MASTER DISCONNECT SWITCH DIRECTLY TO THE BATTERY (NOT THE SOLENOID).

12 VOLT VEHICLE BATTERY MINIMUM REQUIREMENTS 625 COLD CRANKING AMPS (AT 0° F), 160 MINUTES RESERVE CAPACITY, 102 PLATES, 105 AMP-HR.



TITLE	DATE	SECTION
ELECTRICAL INSTALLATION	11-25-08B	-
ET CRANES	SUPSEDES	19947
	7-29-03A	

WIRE ROPE INSTALLATION

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

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

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

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

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

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

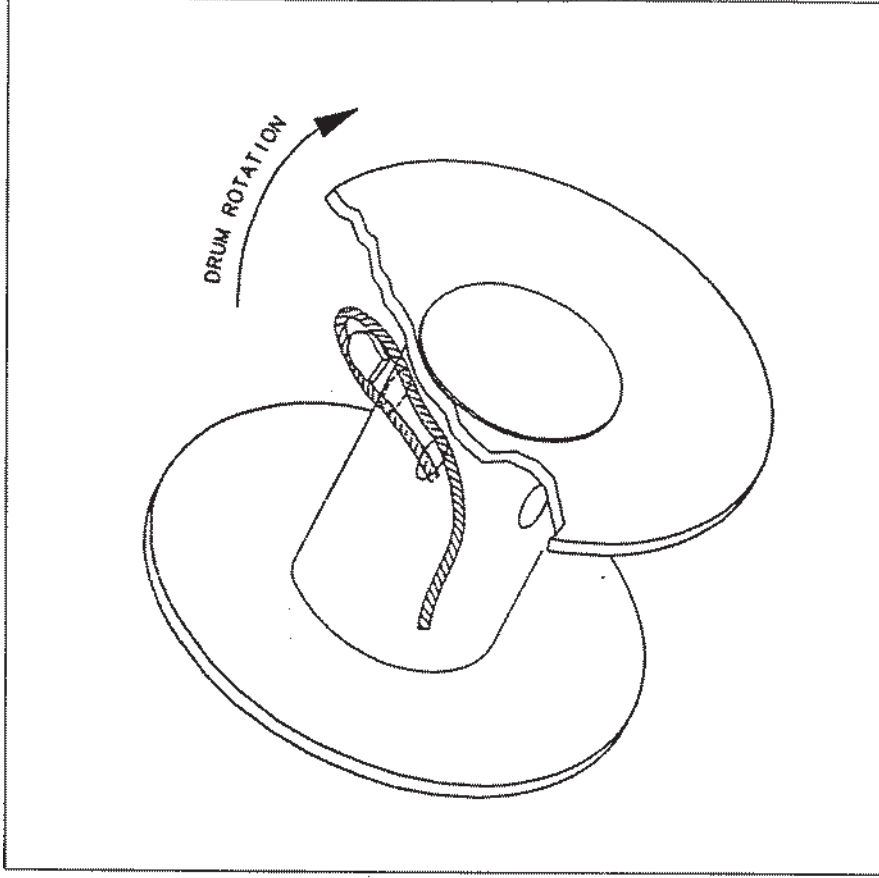


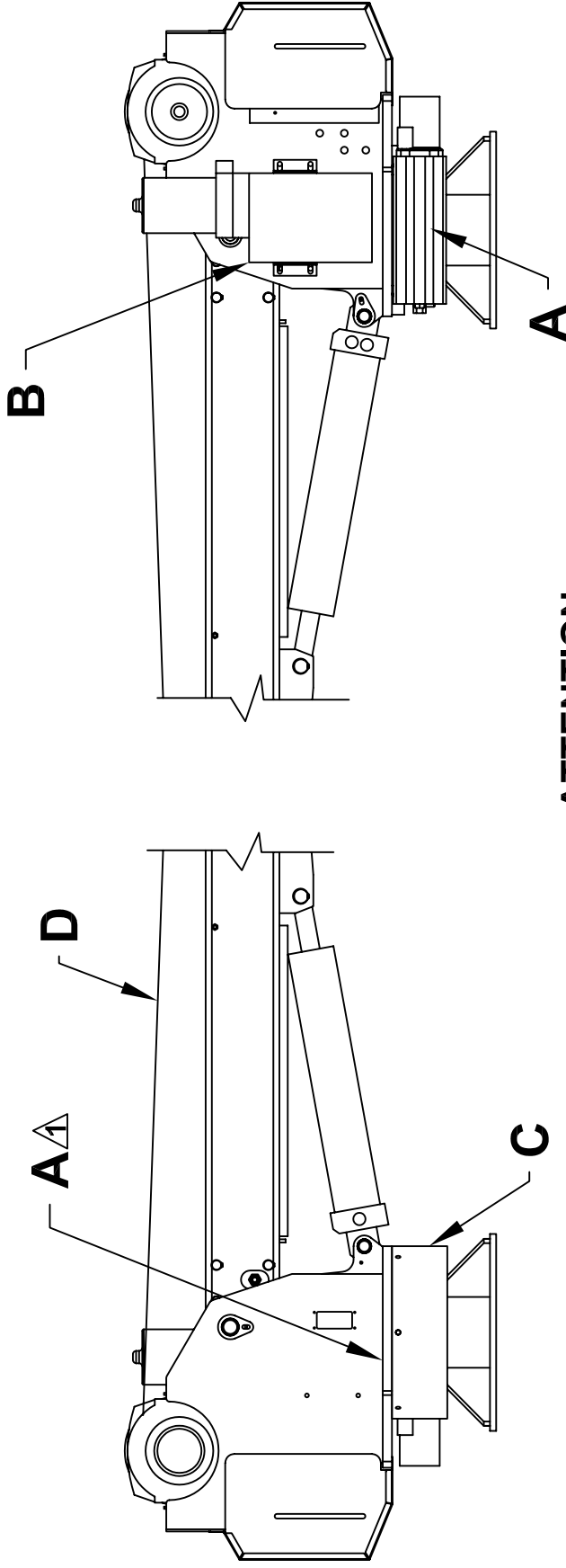
FIG 1

SECTION 300

MAINTENANCE

&

SERVICE



ATTENTION

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

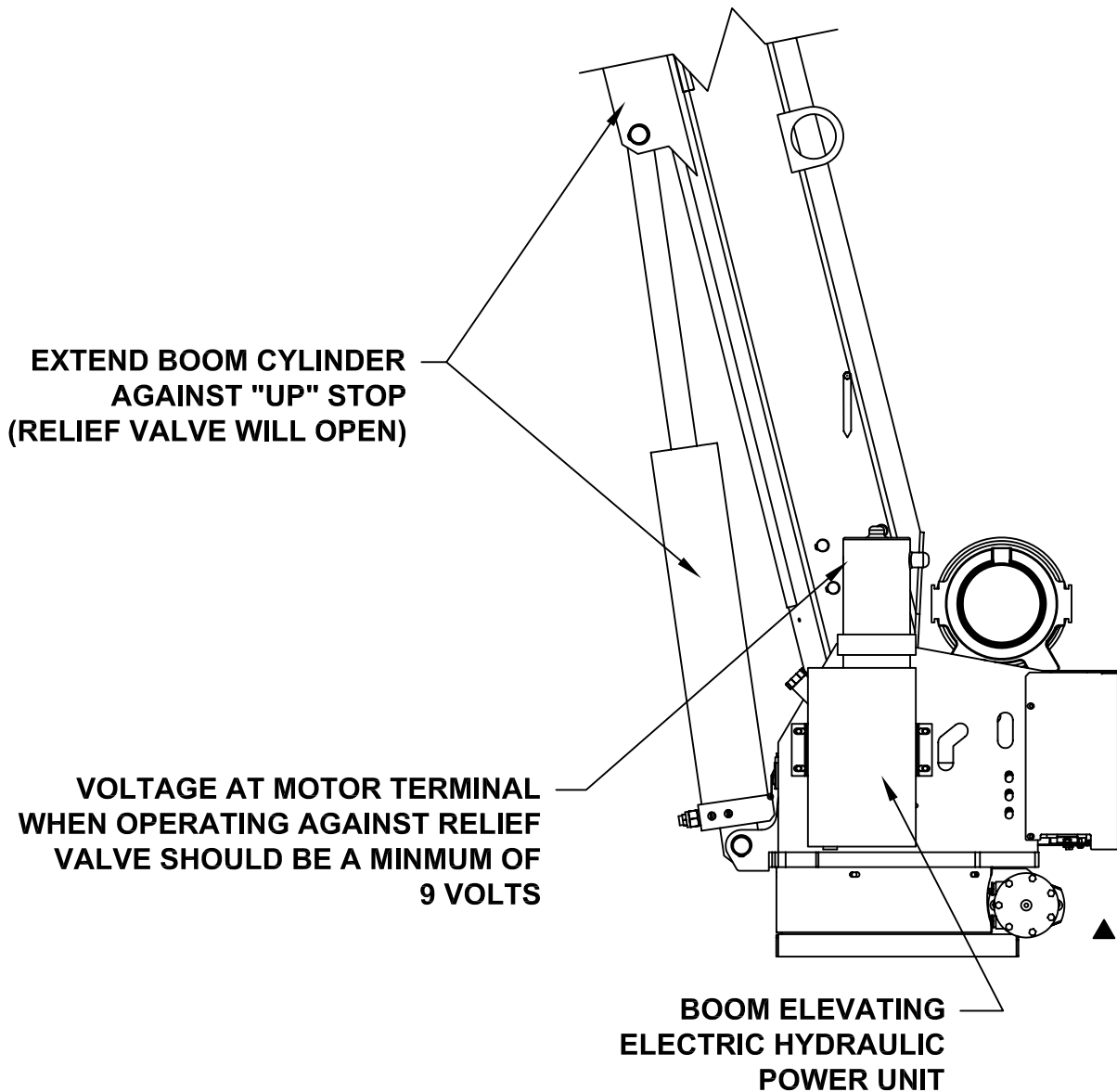
Location	Service Required	Note	Service Interval
A	Grease fitting With Pressure Grease Gun	Use Lithium Based Grease ▲ To align hole w/ fitting, line up grease decals on lower cover and base gusset.	Time of Truck Service
B	Fill Oil Reservoir to Oil Level with Boom Down and Boom In. ▲	Use Dextron ATF for 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
C	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

 MANUFACTURING, INC. CINCINNATI, OHIO	TITLE LUBRICATION & MAINTENANCE CHART	DATE 5-7-08D	SECTION -
	ET8K(X) - ET12K(X) - ET18K(X)		SUPERSEDES 7-27-06C
21306			

MINIMUM VOLTAGE TEST

ET SERIES CRANES

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

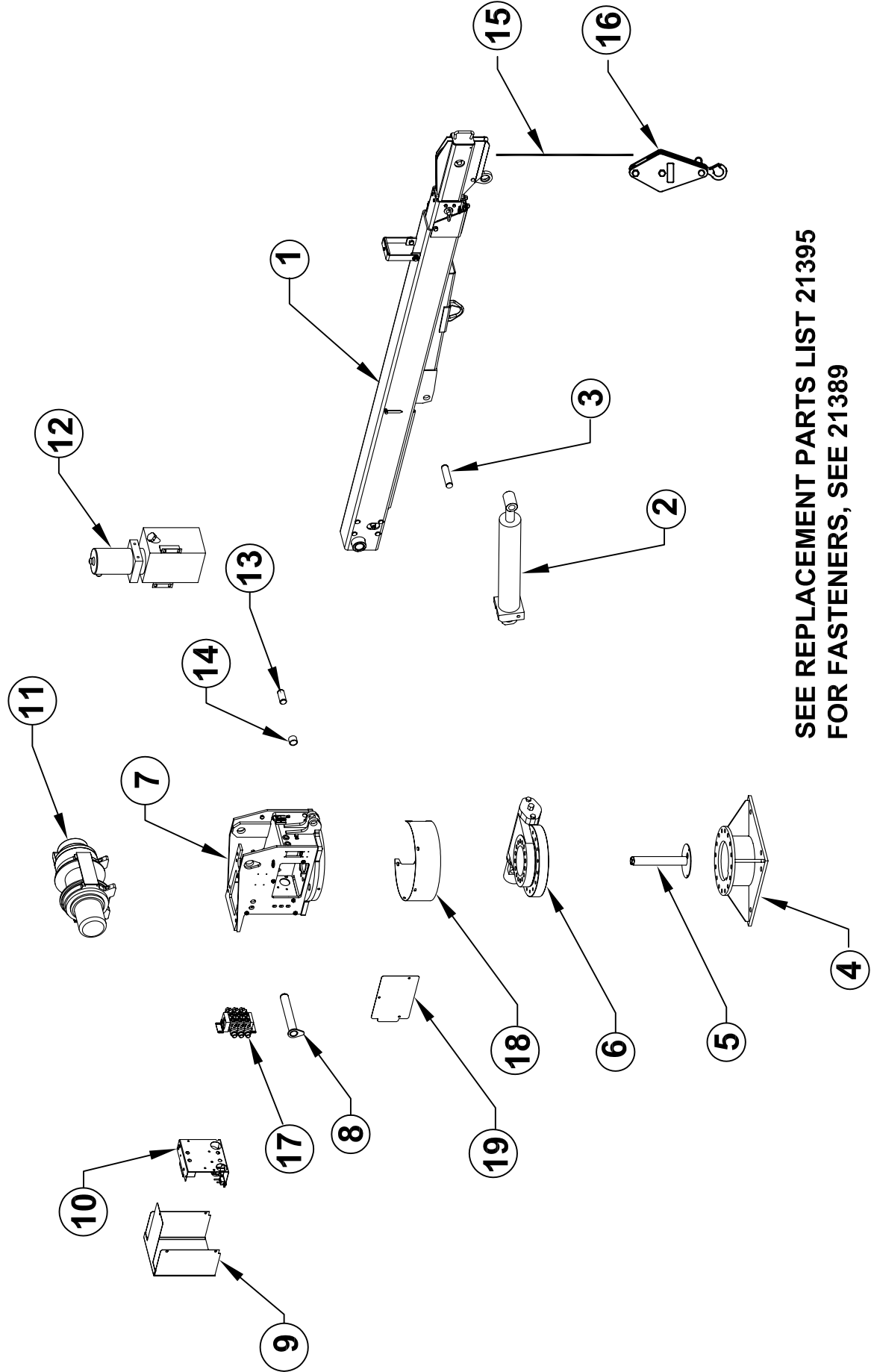


TITLE	DATE	SECTION
MINIMUM VOLTAGE TEST	10-5-09F	-
ET SERIES CRANES	SUPERSEDES 2-9-09E	19963

SECTION 400

PARTS





SEE REPLACEMENT PARTS LIST 21395
FOR FASTENERS, SEE 21389

VENTURO [®] MANUFACTURING, INC. CINCINNATI, OHIO	TITLE	REPLACEMENT PARTS DRAWING	
	ET18KX	DATE	3-16-07
	SUPERSEDES	-	-
	SECTION	-	21394

ITEM #	PART #	DESCRIPTION	ITEM #	PART #	DESCRIPTION
1	21200	FINAL BOOM ASSEMBLY - ET18KX			
2	21743 ▲	ELEVATION CYLINDER			
3	21127	BOOM PIVOT PIN			
4	21115	BASE WELDED ASSEMBLY			
5	21129	SWIVEL PIGTAIL CANDLESTICK ASSEMBLY			
6	21117	ROTATION DRIVE SYSTEM			
7	23149	HOUSING WELDED ASSEMBLY			
8	21160	PIVOT PIN - MAIN BOOM PIVOT			
9	23173	REAR COVER ASSEMBLY			
10	23154	ELECTRICAL COMPONENT ASSEMBLY			
11	21215	ELECTRIC WINCH			
12	19820	HYDRAULIC POWER UNIT ASSEMBLY			
13	21172	PIVOT PIN - ELEVATION CYLINDER BASE			
14	21124	POLY BEARING - ELEVATION CYLINDER BASE			
15	25810-5/16-80	WIRE ROPE ASSEMBLY - 5/16" X 80 FT (8/16 FT BOOM)			
16	23169	SWIVEL SNATCH BLOCK ASSEMBLY			
17	21614	VALVE BLOCK			
18	21185	LOWER COVER			
19	23155	HOUSING SIDE COVER			
		REPLACEMENT PARTS DWG REF 21394			

TITLE REPLACEMENT PARTS LIST		DATE 3-20-09A	SECTION -
		SUPPERCEDES 3-16-07	21395
ET18KX		REPLACEMENT PARTS LIST	
VENTURO MANUFACTURING, INC. CINCINNATI, OHIO		REPLACEMENT PARTS DWG REF 21394	

FASTENER LIST FOR ET18KX

PART NUMBER	DESCRIPTION	QTY	LOCATION/FUNCTION
!HHCS03118063	HEX HEAD CAP SCREW 5/16-18 X 5/8" LG	1	GROUND STRAPON CANDLESTICK
!LWSH-031-STAR	EXT STAR LOCK WASHER - 5/16"	1	GROUND STRAPON CANDLESTICK
!HHCS02520063	HEX HEAD CAP SCREW 1/4-20 X 5/8"	3	CANDLESTICK TO BASE
!LWSH-025-STAR	EXT STAR LOCK WASHER - 1/4"	3	CANDLESTICK TO BASE
!HHCS06311200	HEX HEAD CAP SCREW 5/8-11 X 2"	16	LOWER BASE TORING
!LWSH-063-STAR	EXT STAR LOCK WASHER - 5/8"	16	LOWER BASE TORING
!HHCS06311300	HEX HEAD CAP SCREW 5/8-11 X 3"	14	UPPER HOUSING TORING
!LWSH-063-STAR	EXT STAR LOCK WASHER - 5/8"	14	UPPER HOUSING TORING
!LWSH-038	LOCK WASHER - 3/8"	4	HYDRAULIC POWER UNIT
!HNUT-03816	HEX NUT - 3/8-16	4	HYDRAULIC POWER UNIT
!HHCS02520075	HEX HEAD CAP SCREW 1/4-20 X 3/4"	4	VALVE BLOCK
!FNUT02520	FLANGE NUT - 1/4-20	4	VALVE BLOCK
!HHCS03118075-F	HEX HEAD CAP SCREW - 5/16-18 X 3/4 ST	1	GROUND ON HOUSING
!HHCS02520075-F	HEX HEAD CAP SCREW - 1/4-20 X 3/4" ST	2	GROUND ON HOUSING
!HHCS02520050-F	HEX HEAD CAP SCREW - 1/4-20 X 1/2" ST	1	GROUND ON HOUSING
!PHMS#0832063	PHILLIPS HEAD MACH SCREW - #8-32 X 5/8"	1	PENDANT PLUG
!LWSH-#08	LOCK WASHER - #8	1	PENDANT PLUG
!PHMS#1024125	PHILLIPS HEAD CAP SCREW - 10-24 X 1-1/4"	2	TOP POSITION SWITCH
!LWSH-#10	LOCK WASHER - #10	2	TOP POSITION SWITCH
!HNUT-#1024	HEX NUT - #10-24	1	TOP POSITION SWITCH
!HHCS-02520063-F	HEX HEAD CAP SCREW - 1/4-20 X 5/8 ST	1	CABLE CLAMP (PRESSURE SWITCH)
!SRNG-100	SNAP RING - 1"	2	ELEVATION CYLINDER ROD PIN
!UNUT-02520	U-NUT - 1/4-20	5	LOWER COVER
!HHCS02520075	HEX HEAD CAP SCREW - 1/4-20 X 3/4"	5	LOWER COVER
!LWSH-025	LOCK WASHER - 1/4"	5	LOWER COVER
!FWSH-025	FLAT WASHER - 1/4"	5	LOWER COVER
!HHCS02520075-F	HEX HEAD CAP SCREW - 1/4-20 X 3/4" ST	5	REAR COVER
!HHCS02520050-F	HEX HEAD CAP SCREW - 1/4-20 X 1/2" ST	1	CORD REEL CABLE CLAMP
!HHCS03118075-F	HEX HEAD CAP SCREW - 5/16-18 X 3/4" ST	3	SIDE COVER
!SRNG-138	1-3/8" SNAP RING	1	BOOM PIN (MAIN)



MFG., INC.
CINCINNATI, OHIO

TITLE
REPL. FASTENERS LIST

DATE
2-15-07

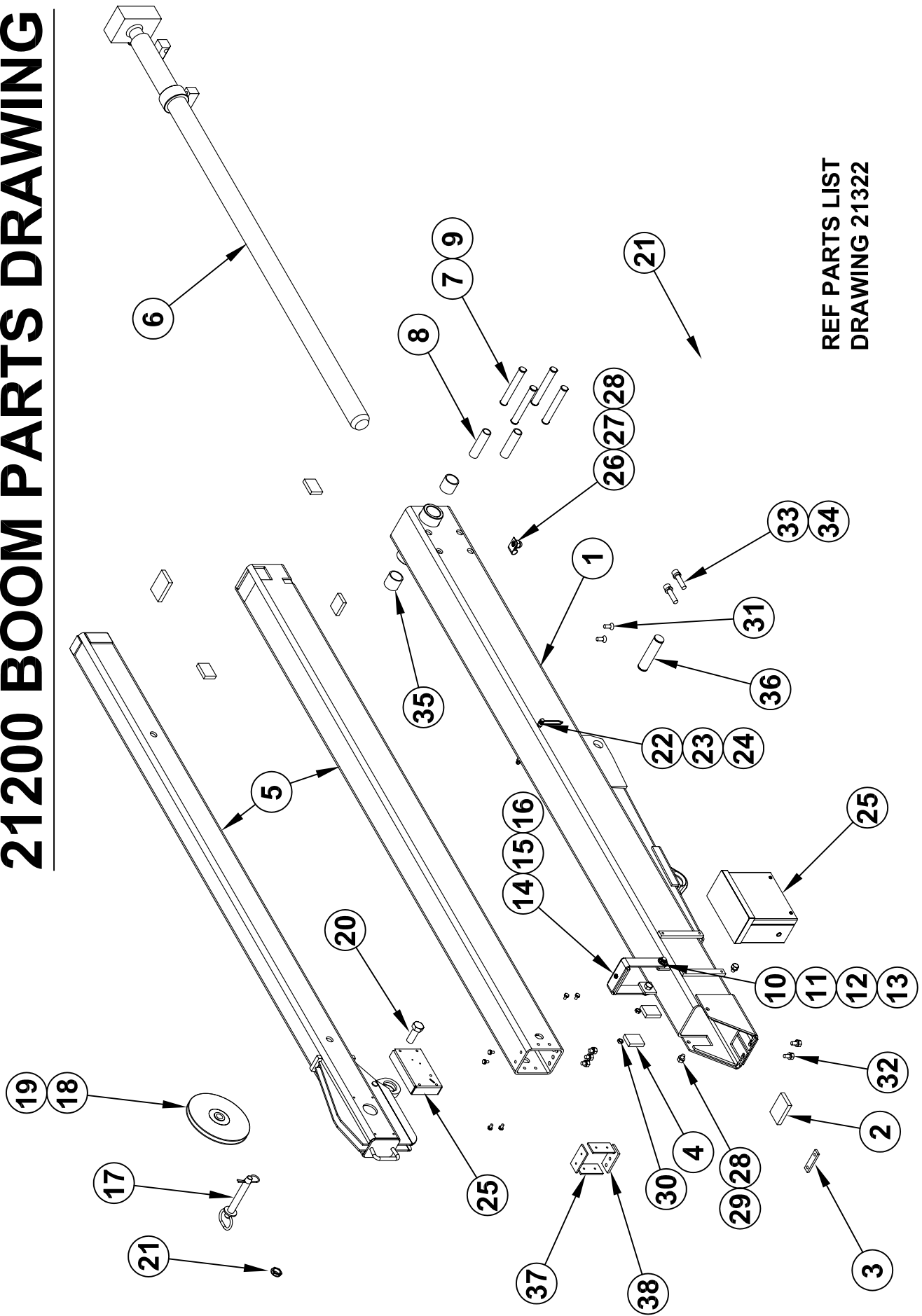
SECTION
C400

ET18K(X)

SUPERCEDES
-

21389

21200 BOOM PARTS DRAWING



REF PARTS LIST
DRAWING 21322

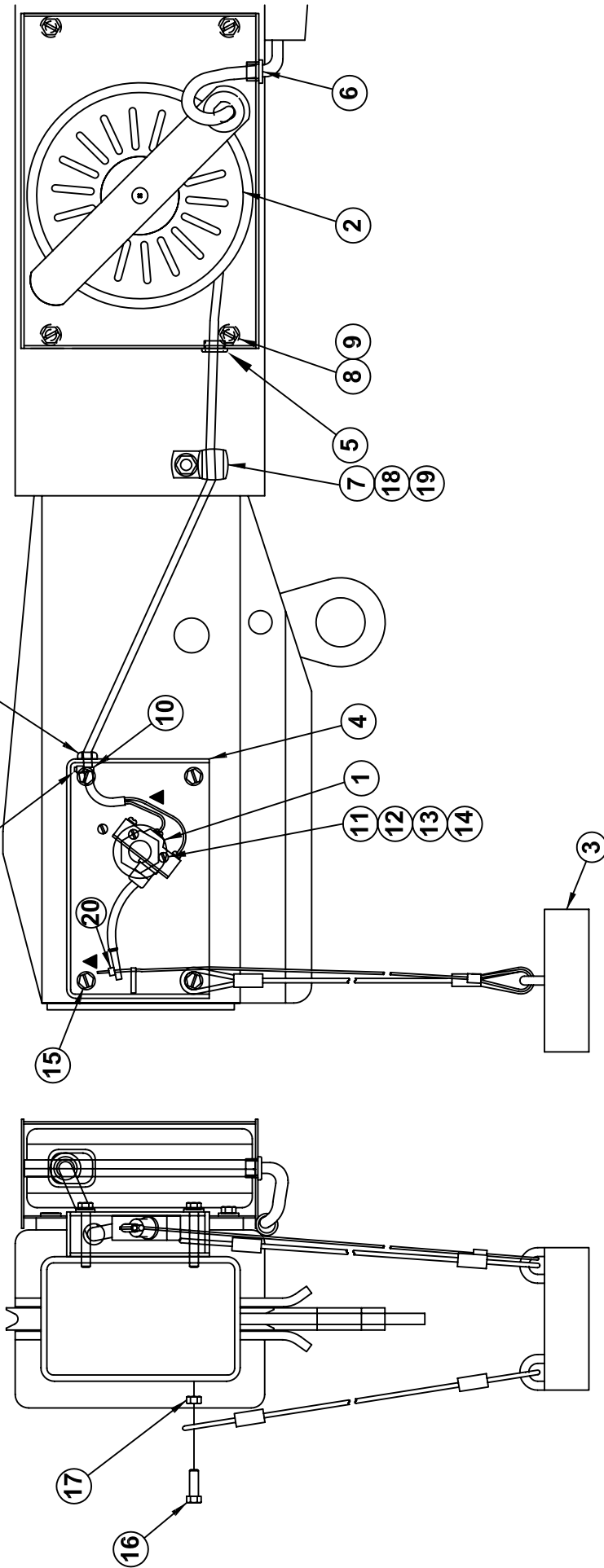
VENTURO MANUFACTURING, INC. CINCINNATI, OHIO	TITLE	21200 BOOM PARTS DRAWING	DATE	4-21-08B	SECTION	-
		ET/HT18KX	SUPERSEDES	1-19-05A		21310

21200 BOOM PARTS LIST

38	1	22145	LOWER STOP BLOCK
37	3	22146	TOP SHIM
36	1	21127	BOOM PIVOT PIN
35	2	21206	POLY BEARING - PRIMARY BOOM PIVOT
34	2	!LWSH-050-HC	LOCK WASHER 1/2" HI COLLAR
33	2	!SHCS05013200	SOCKET HEAD CAP SCREW 1/2-13 X 2" LONG
32	2	!HHC03816075	HEX HEAD CAP SCREW - 3/8-16 X 3/4 LONG
31	2	!CAC03816100	CNTRSNK ALLEN HEAD CAP SCREW 3/8-16 X 1" LG
30	2	!JNUT-03816	JAM NUT - 3/8-16 GRADE 5
29	4	!LWSH-038	LOCK WASHER 3/8"
28	2	!HHC03816050	HEX HEAD CAP SCREW 3/8-16 X 1/2" LG - GR 5
27	1	!LWSH-025	LOCK WASHER - 1/4"
26	1	19269	CABLE CLAMP - 1/4"
25	1	21276	ANTI-TWO BLOCK ASSEMBLY - L.H.
24	3	!ANUT-02520S	ACORN NUT 1/4-20 STAINLESS
23	2	22490	SPACER, BOOM ARROW 1/2" O.D.
22	2	13459-1	BOOM ARROW 3-3/16 LONG
21	1	!LNUT-07510	LOCKNUT 3/4-10
20	1	17059-6	SHEAVE AXLE 3/4 X 2 W/ 1" SHANK
19	1	23924	SPACER - 23925 SHEAVE
18	1	23925	BOOM SHEAVE WITH BUSHING
17	1	19258-1	BOOM PIN
16	1	!JNUT-02520N	NYLON INSERT JAM NUT - 1/4-20
15	1	!PHCS02520063	PAN HEAD CAP SCREW - 1/4-20 X 5/8 LONG
14	1	19881	CABLE GUIDE WEAR STRIP
13	2	!JNUT-05013N	1/2-13 NYLON INSERT JAM NUT
12	2	!FWSH-050	FLAT WASHER 1/2"
11	2	!HHC05013100	HEX HEAD CAP SCREW 1/2-13NC X 1 LG
10	1	19880	CABLE GUIDE STRUCTURE
9	8	!SRNG-075	RETAINING RING - 3/4" SHAFT DIA.
8	2	19885	EXTENSION CYLINDER ROLLER
7	4	21211	THRUST PIN - EXTENSION CYLINDER
6	1	21201	EXTENSION CYLINDER
5	1	21203	SECONDARY / TERTIARY WELDED ASSEMBLY
4	5	21209	BOOM BEARING - 1-1/2 X 2 X 7/16
3	1	21207	PRIMARY BEARING RETAINING BAR
2	2	21208	BOOM BEARING - 2 X 3 X 1/2
1	1	21202	PRIMARY BOOM WELDED ASSEMBLY
ITEM NO.	EXPLODED/QTY.	PART NUMBER	DESCRIPTION

**REF PARTS
DRAWING 21310**

WIRE TIE
CABLE & CUT
OFF STEM



ITEM	QTY	PART NO.	DESCRIPTION
20	1	19302	SET COLLAR - 3/32"
19	1	!LWSH-025	LOCK WASHER - 1/4"
18	1	!ANUT-02520	ACORN NUT - 1/4-20
17	1	!HNUT-02520	HEX NUT - 1/4-20
16	1	!HHCS02520075-5	HEX HEAD CAP SCREW - 1/4-20 x 3/4" GR. 5
15	4	!HHCS02520175	HEX HEAD CAP SCREW - 1/4-20 x 1 3/4"
14	2	!LWSH-#06	LOCK WASHER - #6
13	2	!FWSH-#06	FLAT WASHER - #6
12	2	!HNUT-#0632	HEX NUT - #6-32
11	2	!PHMS#632125	PAN HEAD MACHINE SCREW - #6-32 x 1 1/4"
10	1	TIE-WRAP	9" TIE-WRAP
9	4	!LWSH-031	LOCK WASHER - 5/16"
8	4	!SHCS03118050-5	SOCKET HEAD CAP SCREW - 5/16-18 x 1 1/2"
7	1	19275	CABLE CLAMP - 3/4" x 13/32" HOLE
6	2	19270	SNAP BUSHING - 3/8" I.D.
5	1	19063	SNAP BUSHING - 1/2" I.D.
4	1	21291	ANTI TWO-BLOCK HOUSING ASSEMBLY
3	1	19377-2	CABLE WEIGHT ASSY
2	1	22683	CORD REEL ASSY
1	1	19376	LIMIT SWITCH

VENTURO MANUFACTURING, INC.
CINCINNATI, OHIO

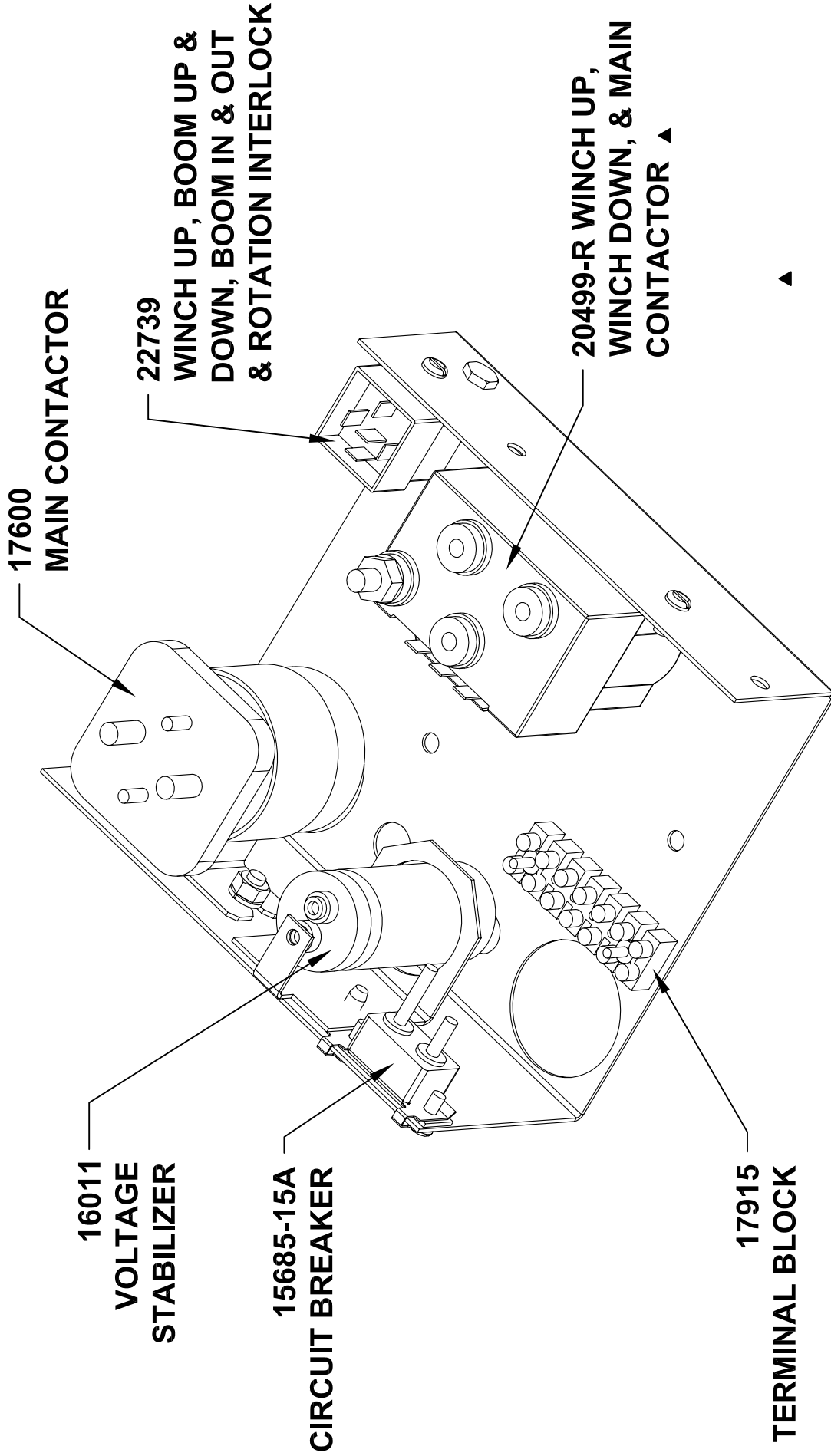
TITLE: **REPLACEMENT PARTS DWG**

DATE: **10-7-09D** SECTION: **C400**

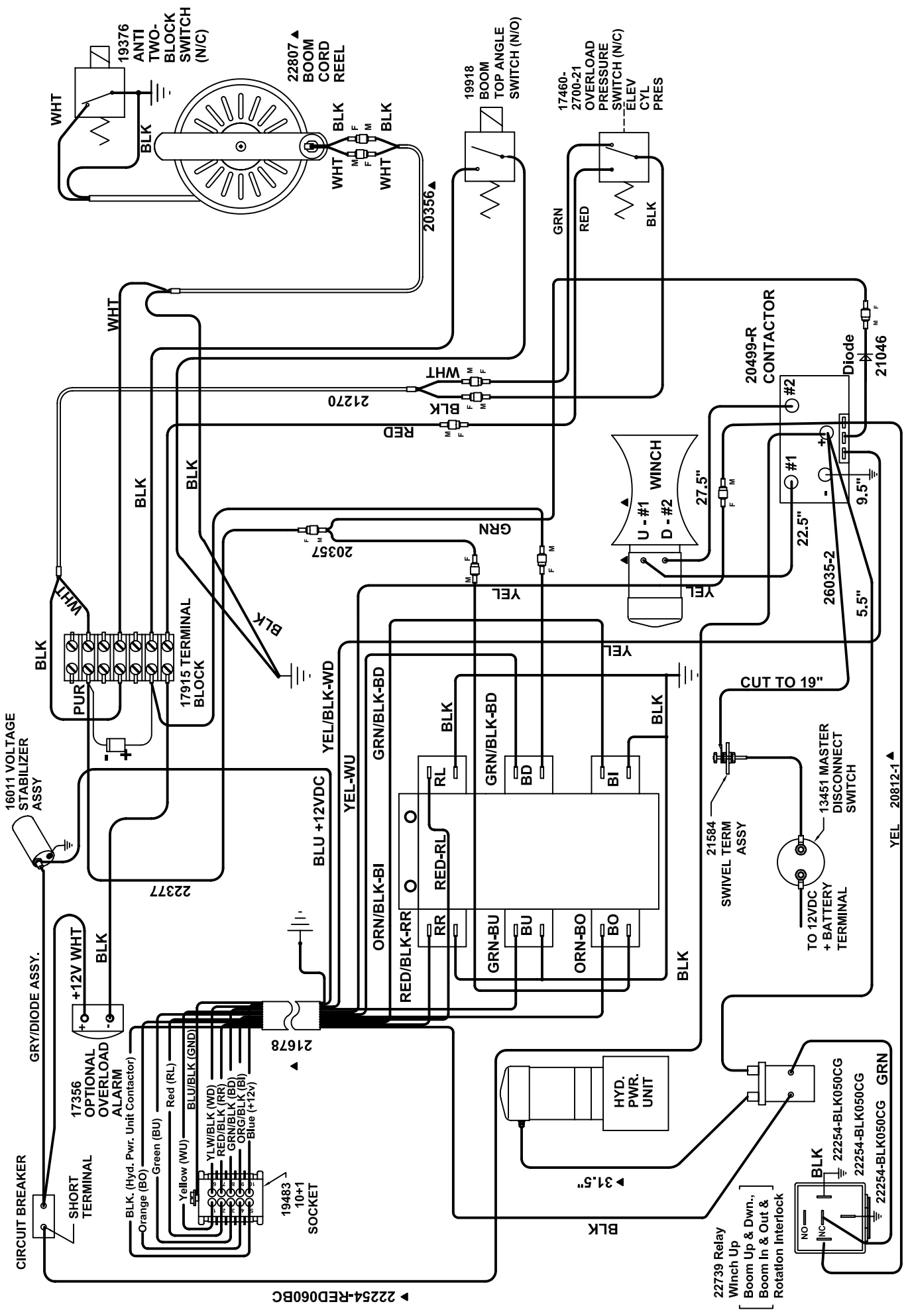
SUPERSEDES: **4-23-08C** **21275**

21276 ANTI-TWO-BLOCK SYSTEM

23154-1 ELECTRICAL COMPONENT ASSEMBLY

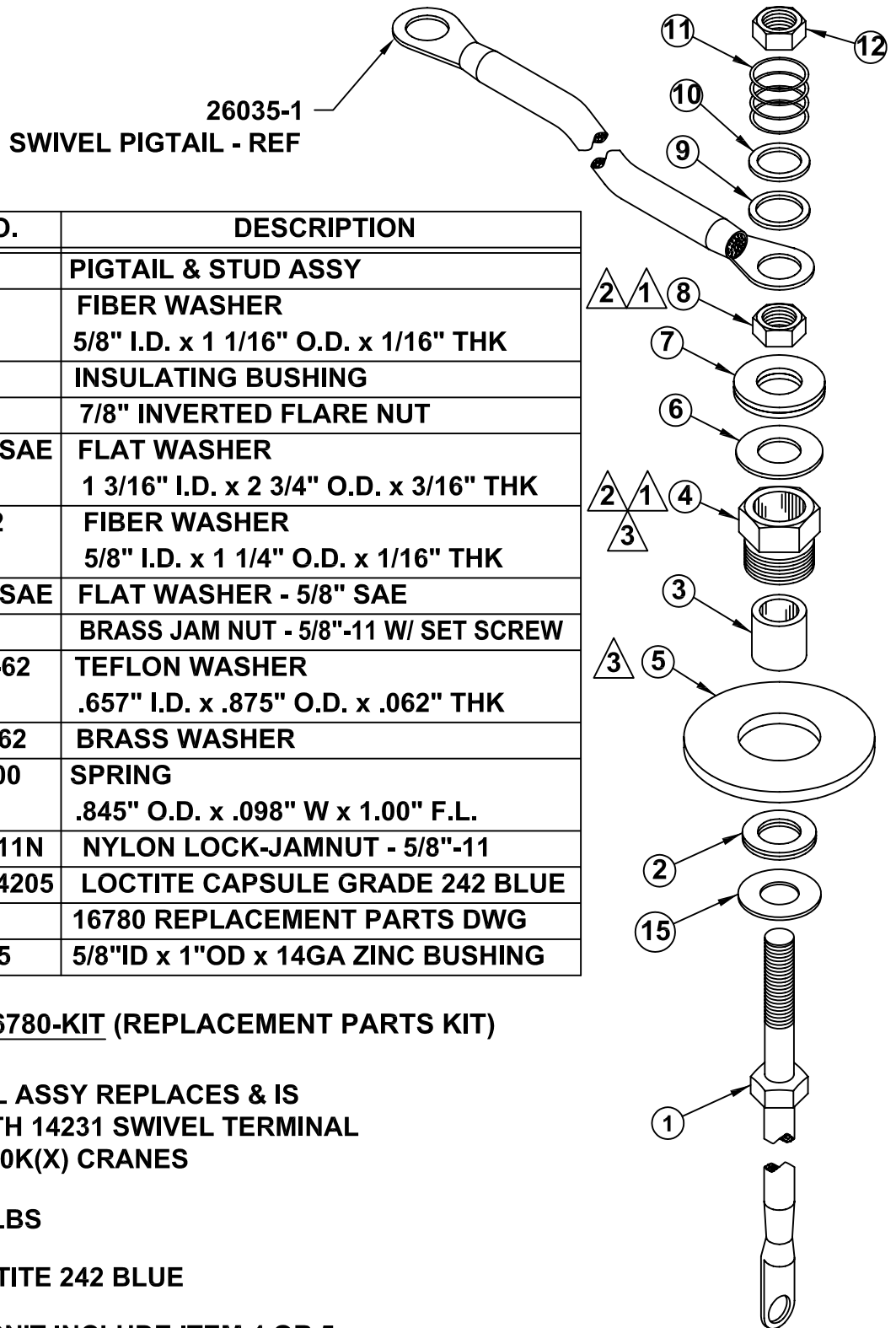


VENTURO MANUFACTURING, INC. CINCINNATI, OHIO	ELECTRICAL COMPONENT ASSEMBLY		DATE 10-9-09B	SECTION -
	ET18KX - S/N 95203-UP ▲		SUPERSEDES 8-5-09A	21397



VENTURO MANUFACTURING, INC. CINCINNATI, OHIO		TITLE WIRING DIAGRAM	DATE 3-18-10B	SECTION -
		ET18KX	SUPERSEDES 6-12-08A	21388

16780 AND 16780-1 SWIVEL TERMINAL ASSY.



ITEM	QTY	PART NO.	DESCRIPTION
1	1	16783	PIGTAIL & STUD ASSY
* 2	2	14357-1	FIBER WASHER 5/8" I.D. x 1 1/16" O.D. x 1/16" THK
* 3	1	14233	INSULATING BUSHING
4	1	14232	7/8" INVERTED FLARE NUT
5	1	!FWSH-113SAE	FLAT WASHER 1 3/16" I.D. x 2 3/4" O.D. x 3/16" THK
* 6	1	14357-2	FIBER WASHER 5/8" I.D. x 1 1/4" O.D. x 1/16" THK
* 7	2	!FWSH-063SAE	FLAT WASHER - 5/8" SAE
* 8	1	21273	BRASS JAM NUT - 5/8"-11 W/ SET SCREW
* 9	1	5612-162-62	TEFLON WASHER .657" I.D. x .875" O.D. x .062" THK
* 10	1	5714-113-62	BRASS WASHER
* 11	1	LC-098K-00	SPRING .845" O.D. x .098" W x 1.00" F.L.
* 12	1	!JNUT-06311N	NYLON LOCK-JAMNUT - 5/8"-11
* 13	1	LOCTITE-24205	LOCTITE CAPSULE GRADE 242 BLUE
* 14	1	19368	16780 REPLACEMENT PARTS DWG
* 15	1	12534-5	5/8"ID x 1"OD x 14GA ZINC BUSHING

* ITEMS INCLUDED IN 16780-KIT (REPLACEMENT PARTS KIT)

16780 SWIVEL TERMINAL ASSY REPLACES & IS
INTERCHANGEABLE WITH 14231 SWIVEL TERMINAL
ASSY ON ET20000 & ET20K(X) CRANES

- 1 TORQUE TO 30 FT-LBS
- 2 SECURE WITH LOCTITE 242 BLUE
- 3 16780-1 ASSY DOESN'T INCLUDE ITEM 4 OR 5



MFG., INC.
CINCINNATI, OHIO

TITLE
REPLACEMENT PARTS

DATE
8-12-09F

SECTION
C400

ET18/25/30/36K(X)▲

SUPERSEDES
4-28-08E

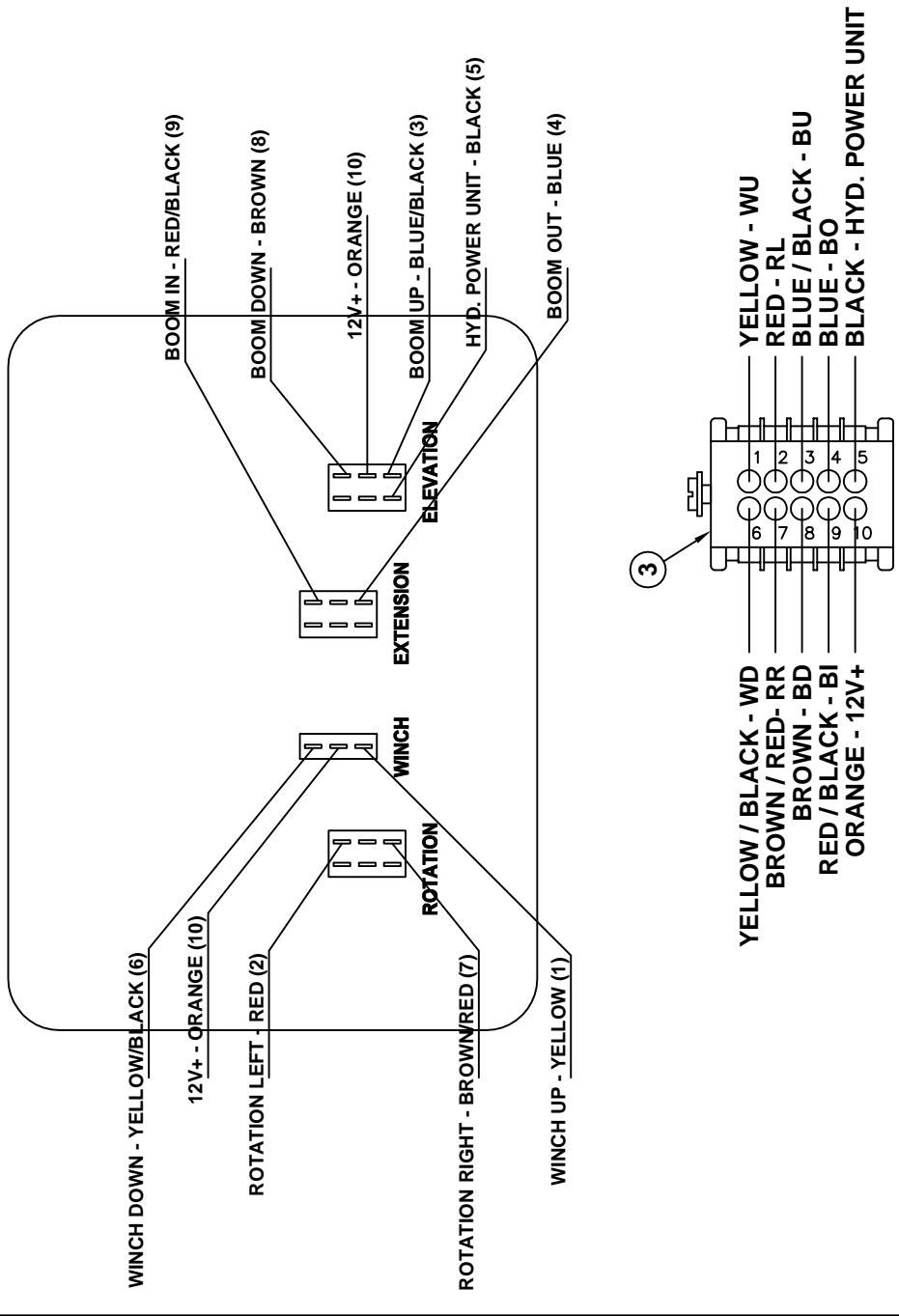
19368

22060 PENDANT (4 - SWITCH)

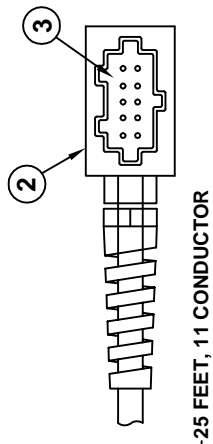
CORD REPLACEMENT INSTRUCTIONS

(INSIDE VIEW OF PENDANT CONTROL W/ REAR COVER REMOVED)

- NOTE 1)
WIRE TERMINALS TO BE
INSTALLED 'AFTER' ROUTING
REPLACEMENT CORD ASSY
THROUGH PENDANT HEAD
AND PLUG HOUSING.
- NOTE 2)
TOGGLE SWITCH JUMPER
WIRES NOT SHOWN FOR
CLARITY.
- NOTE 3)
STOW OR CUT-BACK
UNUSED WIRES.



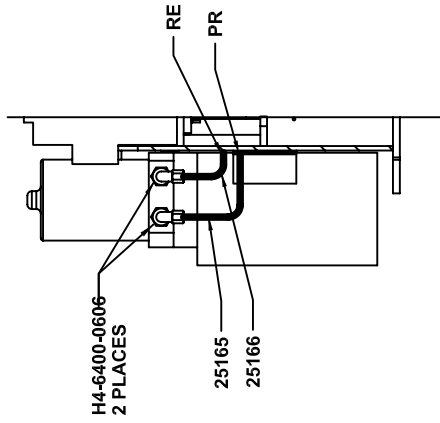
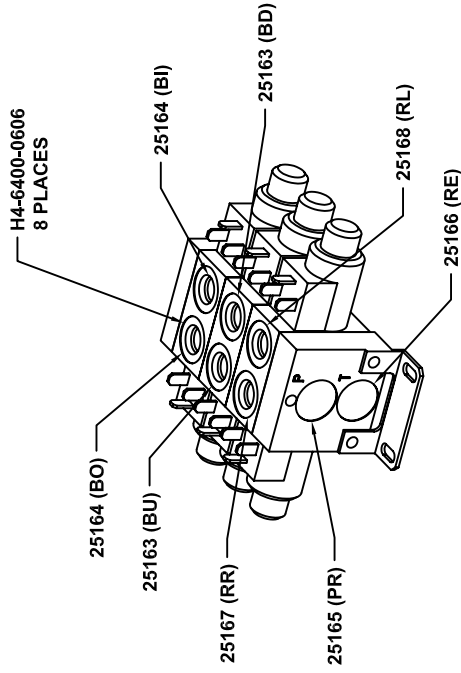
PLUG - BACKSIDE VIEW



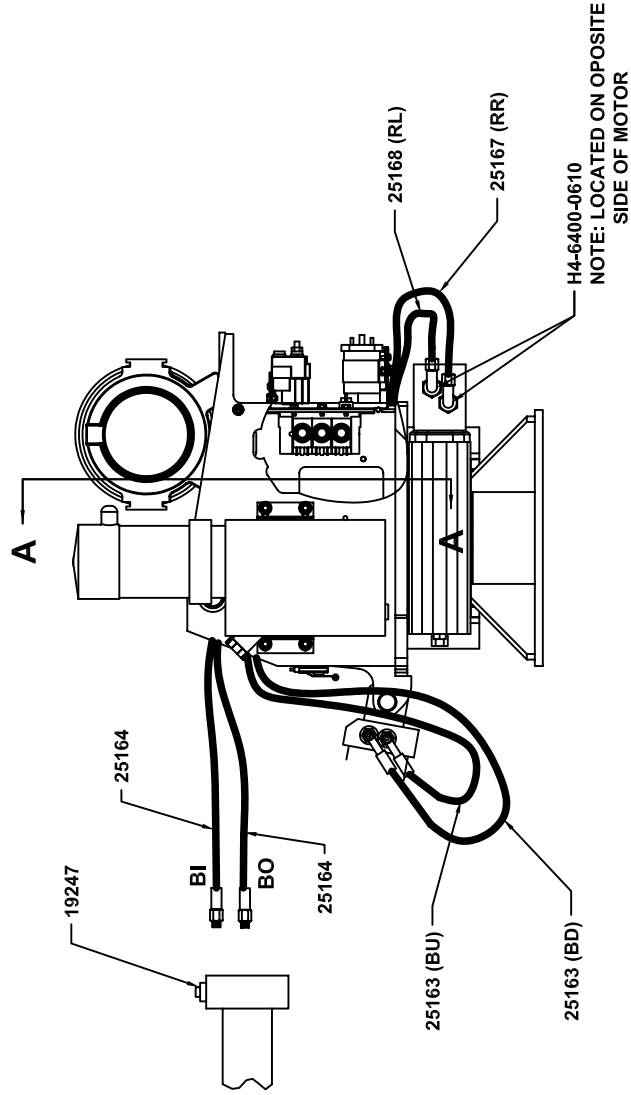
ITEM	QTY	PART NO.	DESCRIPTION
4	3	22152	DPDT MOMENTARY TOGGLE SWITCH
3	1	19427	MALE INSERT - 10 + 1 POLE
2	1	19426	PLUG CASE - 10 + 1 POLE
1	4	22081	SPDT MOMENTARY TOGGLE SWITCH

TITLE	REPLACEMENT PARTS DRAWING	SECTION	C400
DATE	9-28-12B	SUPERSEDES	9-6-11A
22060 PENDANT (STANDARD CTRL)		22076	

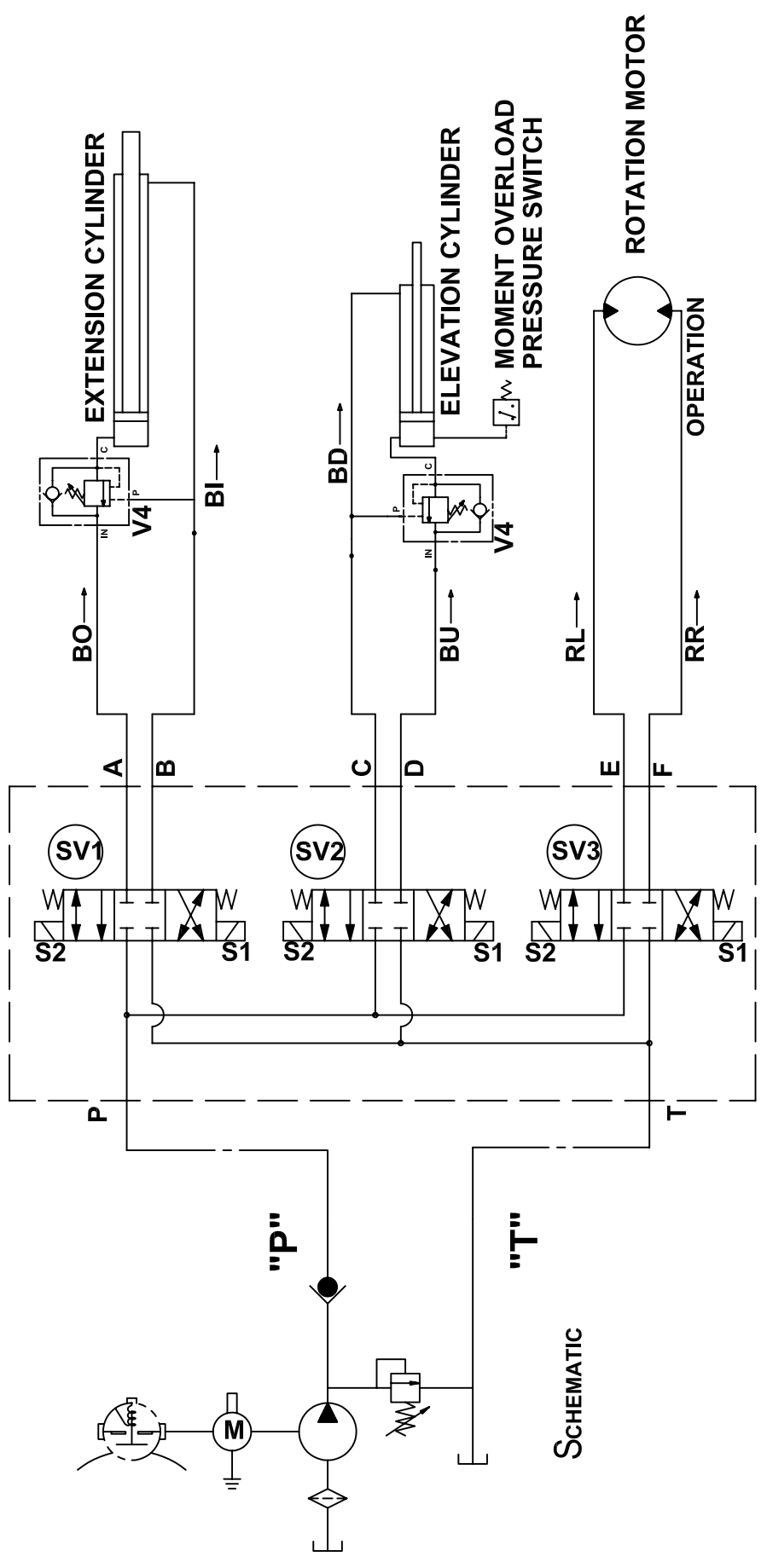
RR	ROTATION RIGHT
RL	ROTATION LEFT
BO	BOOM OUT
BI	BOOM IN
BU	BOOM UP
BD	BOOM DOWN
PR	PRESSURE
RE	RETURN



SECTION VIEW A-A



TITLE	REPLACEMENT PARTS DRAWING	DATE	8-27-08	SECTION	C400
	ET18KX HYDRAULIC COMPONENTS	SUPPERSEDES	-		21407



SV1

ENERGIZE "S2"
OPEN FLOW
'P' TO 'A'
'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'

SV3

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

TITLE

HYDRAULIC SYSTEM DIAGRAM

DATE

1-31-05C

SECTION

C400



VENTURO MANUFACTURING, INC.
CINCINNATI, OHIO

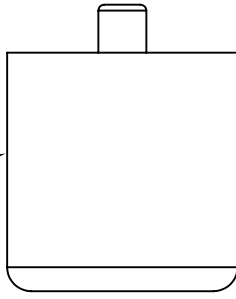
ET18KX, ET25KX, ET30KX

SUPERSEDES
7-31-03B

20156

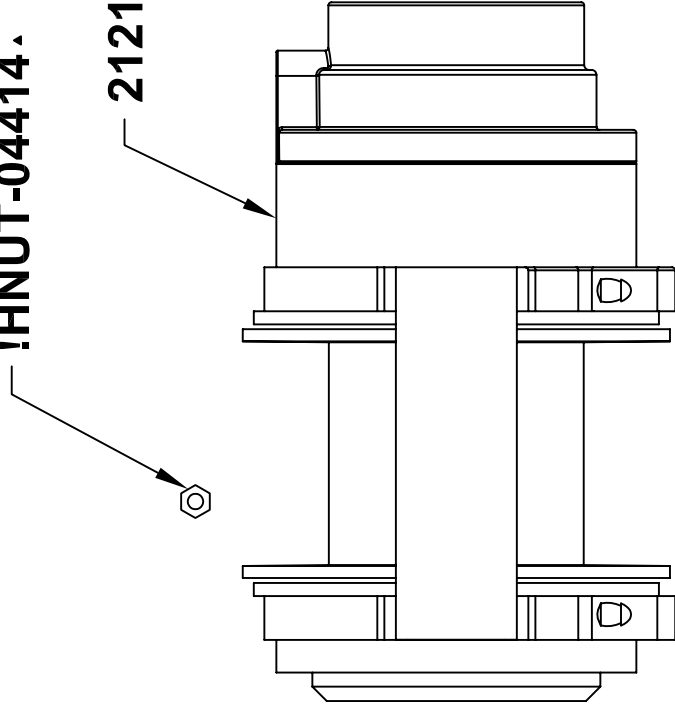
21215 WINCH REPLACEMENT PARTS

21740 MOTOR



!HNUT-04414

21215 WINCH



21108 DECAL KIT

PART NO.	QTY.	DESCRIPTION
14473-2	3	DECAL, GREASE
17389	2	DECAL, VENTURO - MEDIUM
15401	1	DECAL, UNLAWFUL TO OPERATE
21190-1	1	DECAL, BOOM CAPACITY ET/HT18K(X) RIGHT
21190-2	1	DECAL, BOOM CAPACITY ET/HT18K(X) LEFT
21192	2	DECAL, MODEL NAME DECAL
15392	1	DECAL, DANGER ELECTROCUTION HAZARD
15391	1	DECAL, CRANE NOT PASSENGER LIFT
15390	1	DECAL, CAUTION, INSTRUCTIONS
13397	1	DECAL, OIL LEVEL
15398	1	DECAL, UNPLUG PENDANT
21305	1	INST. DWG DECAL PLACEMENT
20174	1	DECAL, GROUND CABLE ATTACH TO TRUCK FRAME

VENTURO
 MANUFACTURING, INC.
 CINCINNATI, OHIO

TITLE
FIELD SERVICE LABEL KIT
ET18KX

DATE
10-11-05
 SUPERSEDES
 -

SECTION
C400
20818



LIMITED WARRANTY POLICY

This limited policy warrants new products of Venturo be free from defects in material and workmanship for a period of one (1) year from date of original installation. This warranty covers:

- ◆ ***Repair or replacement of product***
- ◆ ***Labor to repair or replace product***
- ◆ ***Freight to return and/or replace product***

We shall not be liable for any contingent liabilities arising out of the improper function of any products. Warranty shall become void if the product is improperly installed, modified, damaged, abused or used for application other than intended use.

WARRANTY CLAIMS

Venturo Manufacturing, Inc. will make a good faith effort for prompt correction or other adjustment with respect to any product, which proves to be defective after our inspection and within the warranty period. Before any repairs are attempted or before returning any product, your Venturo Distributor is required to obtain a warranty claim number. This number is necessary for any claim to be considered. To obtain a warranty claim number, Venturo requires the model and serial number. Only authorized Venturo Distributors can perform warranty. For the name and address of your local Venturo Distributor call the **Warranty Claim Department – 513-772-8448**.

WARNING – It is the responsibility of the installer to insure the installation is completed according to the manufacturer's recommendations, insure the ultimate user understands how to operate product in a safe manner and understands the need for regular service and maintenance by an authorized Venturo Distributor. No modifications or alterations may be made to any Venturo products without the expressed written consent of the manufacturer. Reinstallation of any Venturo product must be done by an authorized Venturo Distributor, to the standards of the industry including maintenance, service and affixing of all instruction, safety and warning decals. Users should again be instructed as to the safe operation at time of delivery. Maintenance, service, operation and safety warning decals are available on request from Venturo Manufacturing, Inc.

VENTURO MANUFACTURING, INC

DIVISION OF COLLINS ASSOCIATES, INC
12110 BEST PLACE • CINCINNATI, OHIO 45241
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