



TRUCK MOUNTED CRANES

ET18KX

INSTALLATION & OWNER'S MANUAL

Sold and Serviced by:

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MFG., INC.
CINCINNATI, OHIO

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8-26-08E
SUPERCEDES
4-25-08D

SECTION
-
21352

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



MFG., INC.
CINCINNATI, OHIO

TITLE
INSTALLATION DWG

ET18KX-8/16

DATE
7-29-03

SUPERCEDES
-

SECTION
C120

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.



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TITLE
INSTALLATION DWG

ET18KX-8/16

DATE
7-29-03

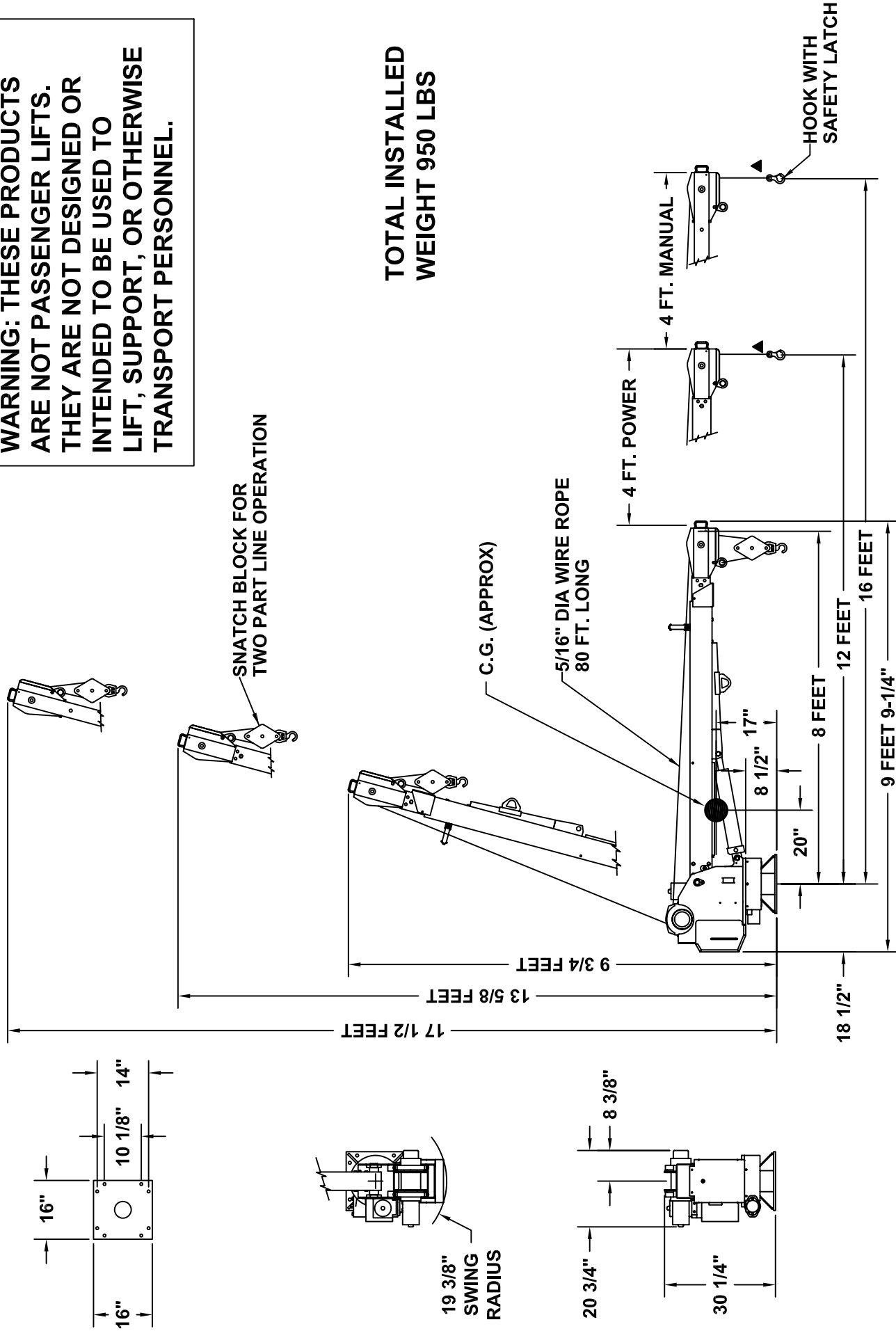
SUPERCEDES
-

SECTION
C120

21302

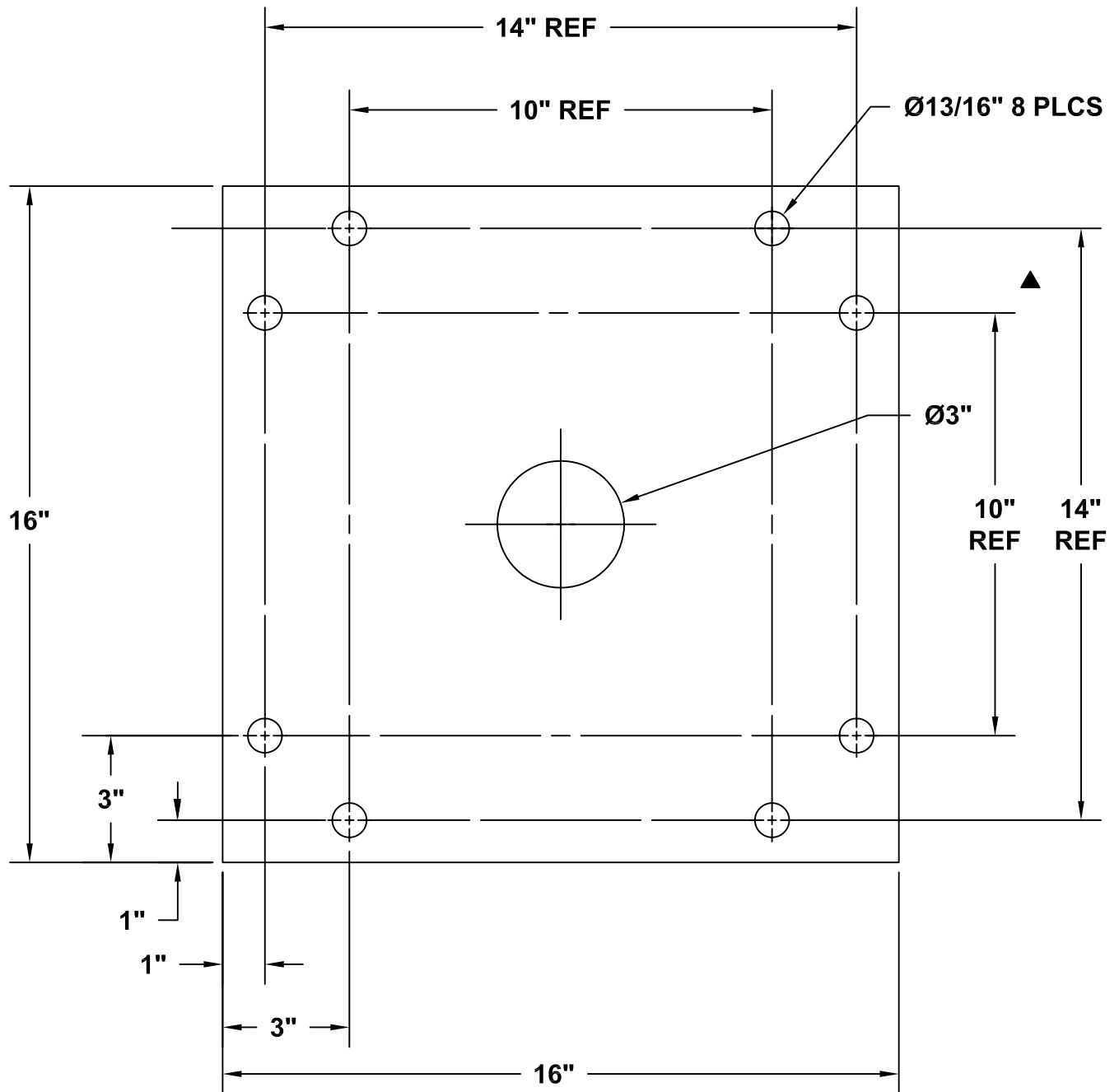
WARNING: THESE PRODUCTS ARE NOT PASSENGER LIFTS. THEY ARE NOT DESIGNED OR INTENDED TO BE USED TO LIFT, SUPPORT, OR OTHERWISE TRANSPORT PERSONNEL.

TOTAL INSTALLED WEIGHT 950 LBS

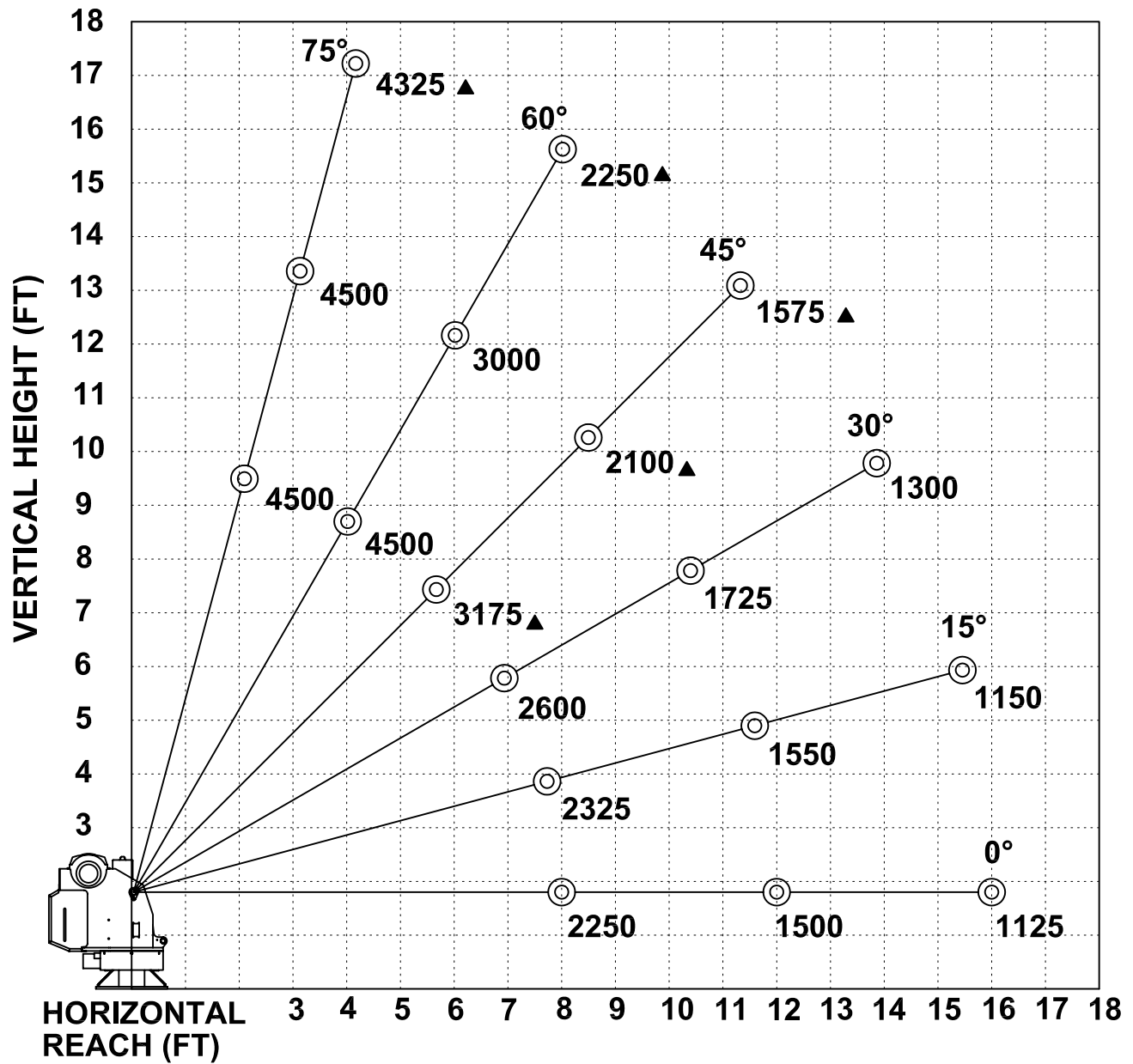


VENTURO MANUFACTURING, INC. CINCINNATI, OHIO	TITLE INSTALLATION DRAWING		DATE 4-25-08C	SECTION -
	ET/HT18K(X) - 8/12/16 BOOM		SUPERSEDES 3-30-05B	21304

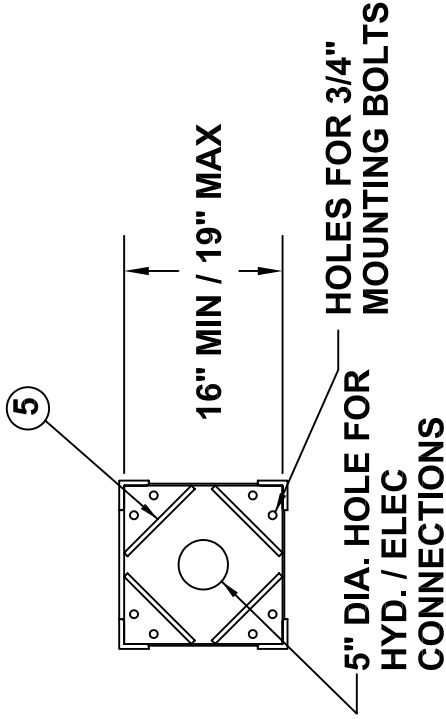
▲ ET/HT18K(X) & ET/HT25K(X) BASE MOUNTING DIMENSION



ET/HT18K(X) - 8-12-16 BOOM MAXIMUM CAPACITY CHART



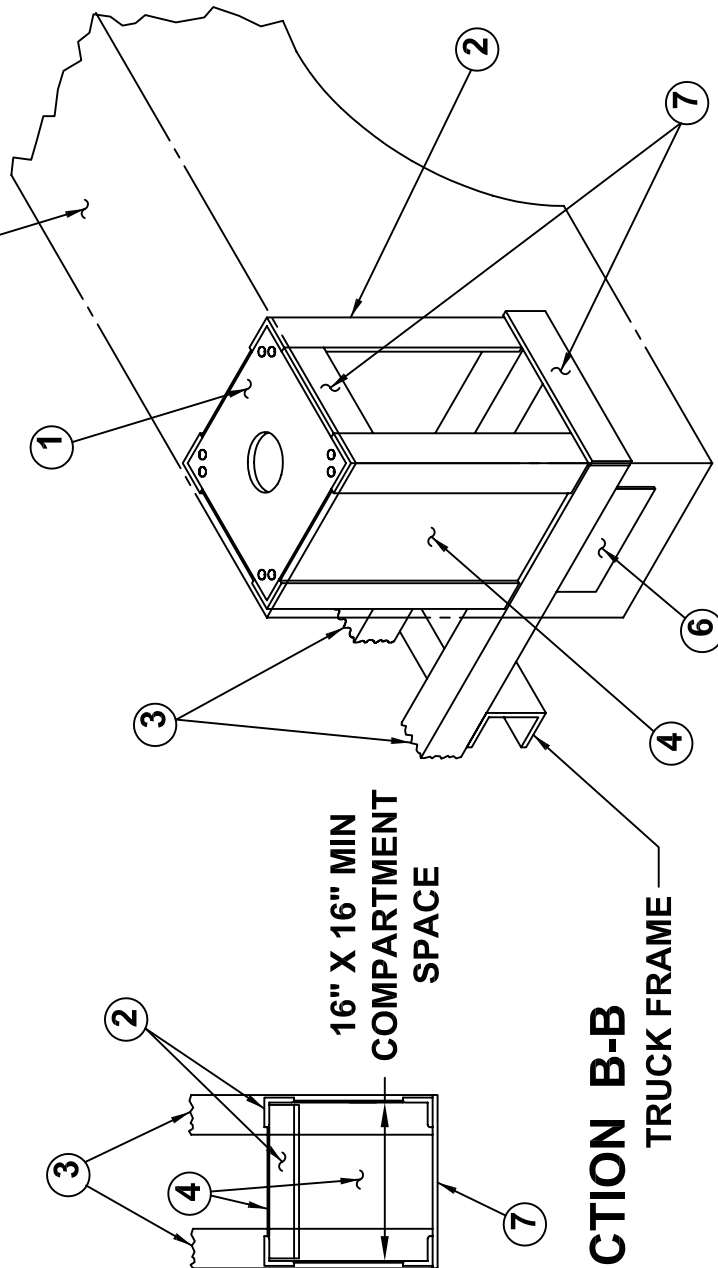
**MUST USE SNATCH BLOCK
FOR LOADS OF 2250 LBS.
AND GREATER**



SECTION A-A

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
4	SHEAR WEB	3/16" STEEL PLATE
5	TOP PLATE REINFORCEMENT OUTRIGGER REIN-	1/2" x 6" OR 3/4" x 5" STEEL BAR
6	FORCEMENT 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.



SECTION B-B

TYPICAL SERVICE BODY REINFORCEMENT



MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE	INSTALLATION DWG	DATE	1-18-05E	SECTION	C100
ET/HT25K(X) & ET/HT18K(X) ▲		SUPERSEDES	7-29-03D	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



MFG., INC.
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TITLE
INSTALLATION DWG

ET & HT CRANE SERIES

DATE
5-15-02H

SUPERCEDES
5-13-97G

SECTION
C150

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.



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TITLE
INSTALLATION DWG

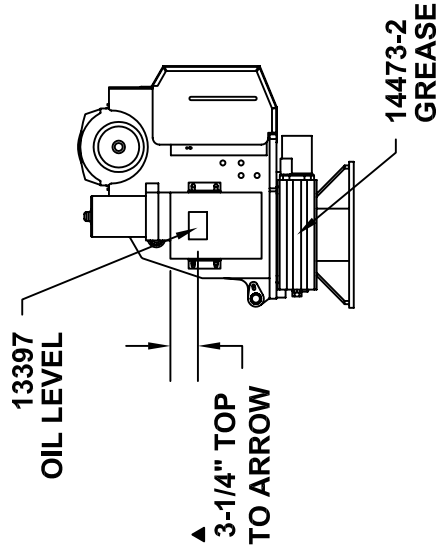
▲ **ELECTRIC CRANES**

DATE
4-18-08H

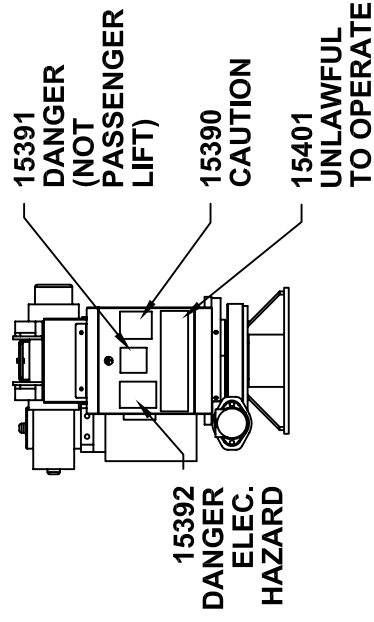
SUPERCEDES
7-29-03G

SECTION
C150

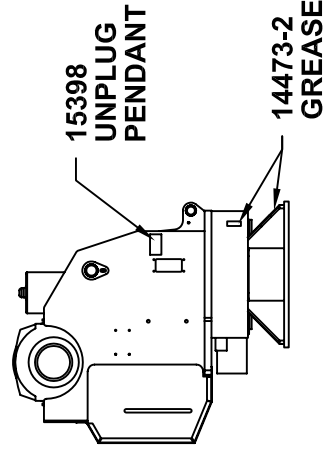
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LEFT



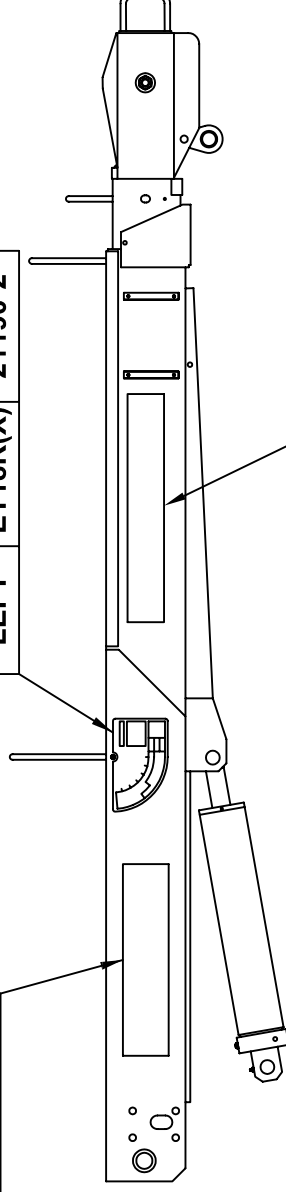
BACK



RIGHT

MODEL NO.
21191 - ET18K
21192 - ET18KX

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



BOOM



MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE
DECAL PLACEMENT

ET18K(X)

DATE
5-8-06B

SUPERSEDES
1-18-05A

SECTION
C150

21305

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.



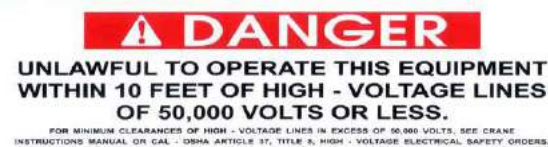
PART NO.: 15401

DECAL: UNLAWFUL TO OPERATE

FUNCTION: To inform the operator of proper operation in vicinity of power lines.

QUANTITY: 1

PLACEMENT: Right side of housing.



MFG., INC.
CINCINNATI, OHIO

TITLE
SAFETY DECALS

CRANES

DATE
9-6-05

SUPERSEDES
-

SECTION
C150

21353

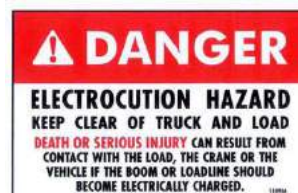
PART NO.: 15393A

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.
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TITLE

SAFETY DECALS

DATE

4-26-06

SECTION

C150

CRANES

SUPERSEDES

-

21384

PART NO.: 14473-2

DECAL: GREASE

FUNCTION: To show the operator where to apply grease.

QUANTITY: Varies

PLACEMENT: Near grease fittings.



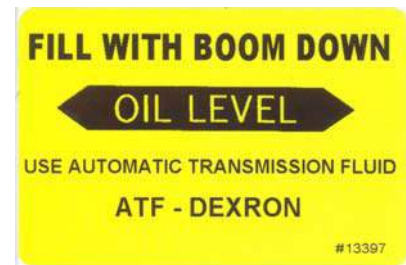
PART NO.: 13397

DECAL: 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.



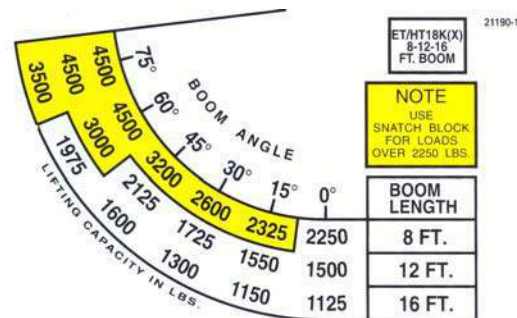
PART NO.: 21190-1 & 21190-2 (OPPOSITE)

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.
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TITLE
MODEL & CAPACITY DECALS
ET18K(X)

DATE
9-6-05
SUPERSEDES
-

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C150
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
ET5500MPB ET5500R ET6KMPB ET6KR ET10K	#2	#2	#1	#0	#00	NOTRECOMMENDED			450	100
ET10KX	#2	#2	#1	#0	#00	NOTRECOMMENDED			550	150
ET18K ET18KX ET25K ET25KX	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

DATE

7-29-03A

SECTION

C200

ET18KX / ET25KX

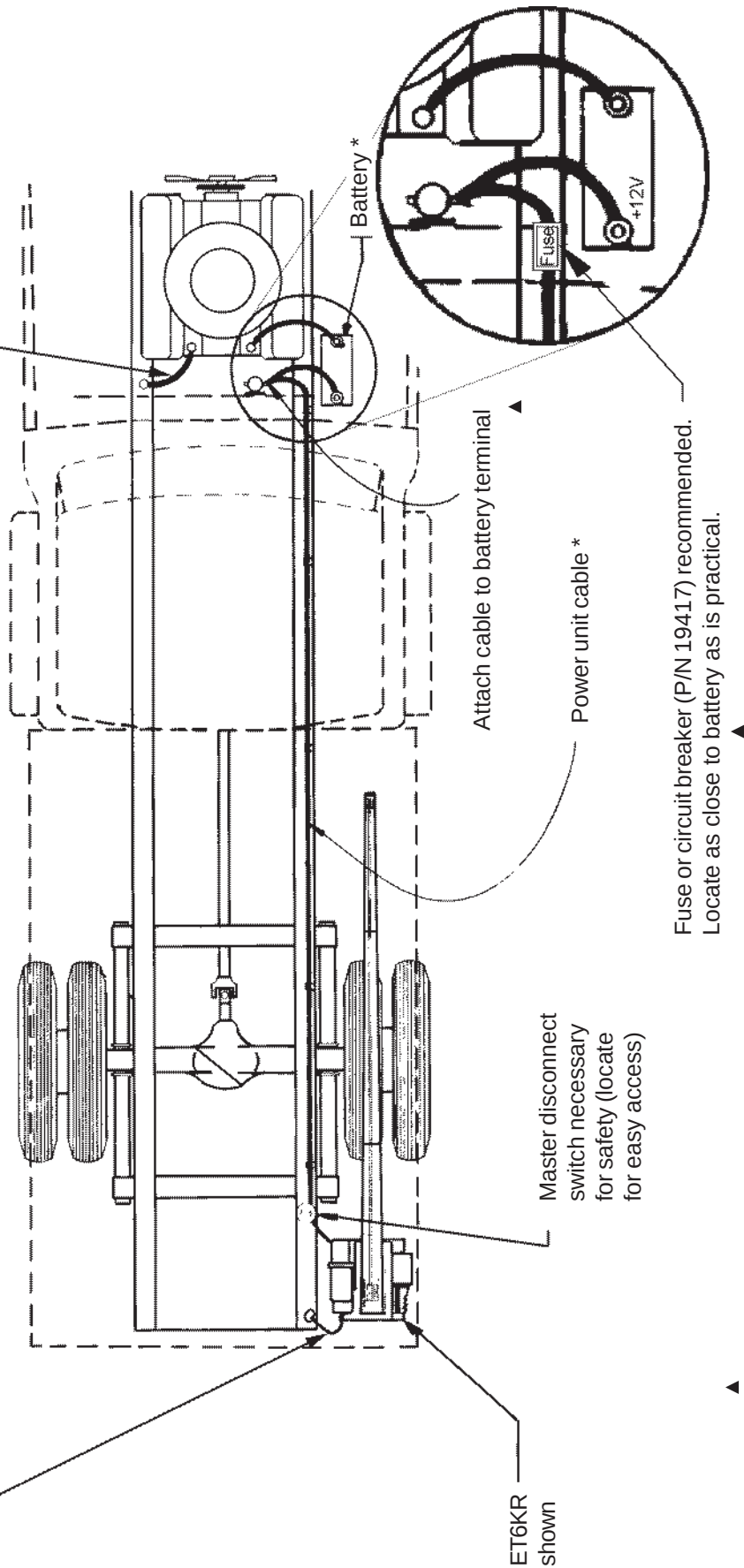
SUPERCEDES

9-4-01

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.

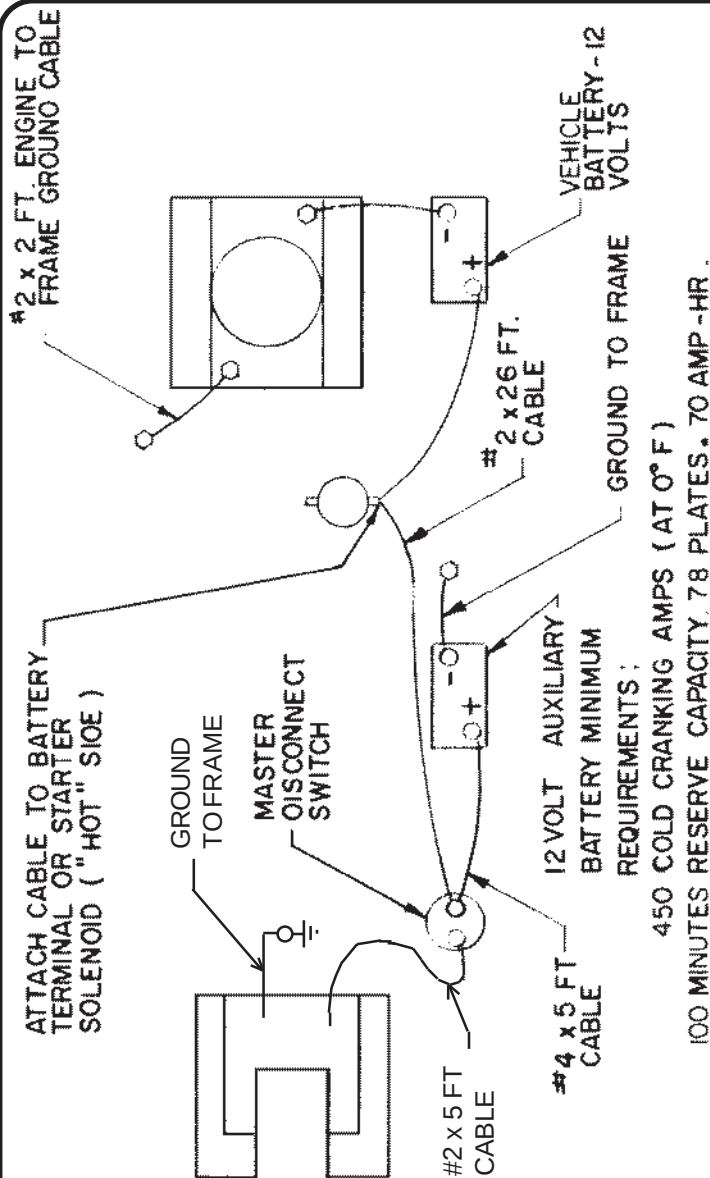


* Note: See Dwg 19959 for recommended battery and cable specifications

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

RECOMMENDED INSTALLATION

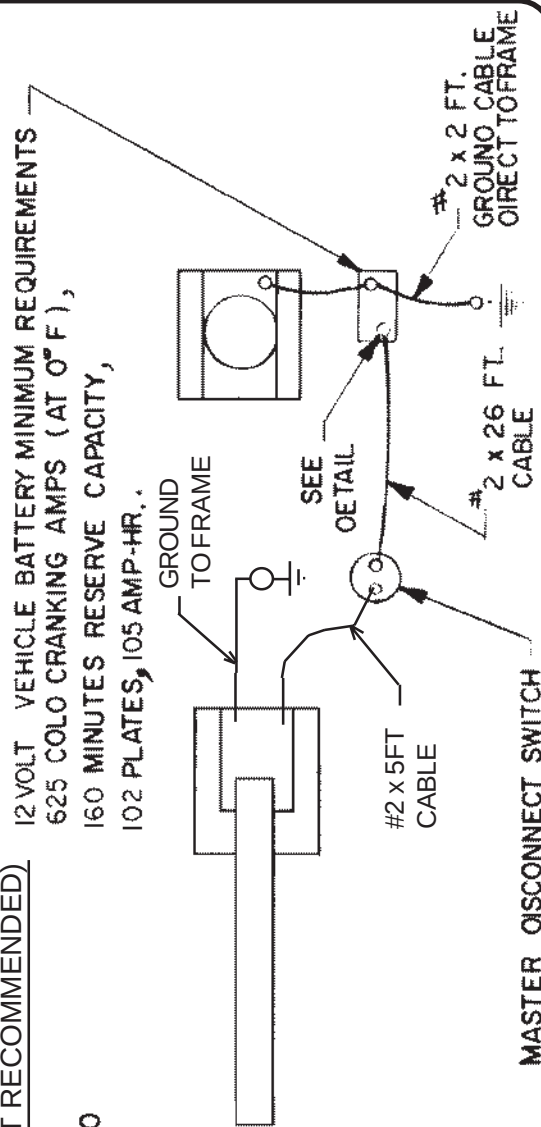
W/ AUXILIARY BATTERY IN PARALLEL WITH VEHICLE BATTERY.



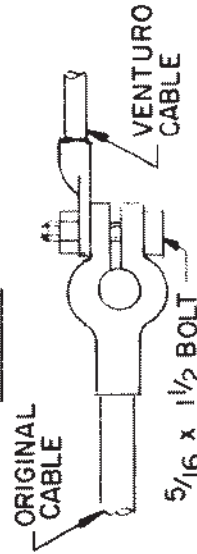
IF LONGER CABLE NECESSARY, CONSULT VENTURO ENGINEERING DEPT.

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).



DETAIL 2 PLCS.



RECOMMENDED TERMINAL ATTACHMENT

TITLE	ELECTRICAL INSTALLATION		DATE	7-29-03A	SECTION	-
	ET18KX & ET25KX		SUPERCEDES	9-26-01		19947

VENTURO

MANUFACTURING, INC.
CINCINNATI, OHIO

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: ON THE ET18K(X) AND ET25K(X) A 7/16" HEX NUT WILL BE USED IN LIEU OF A WEDGE.

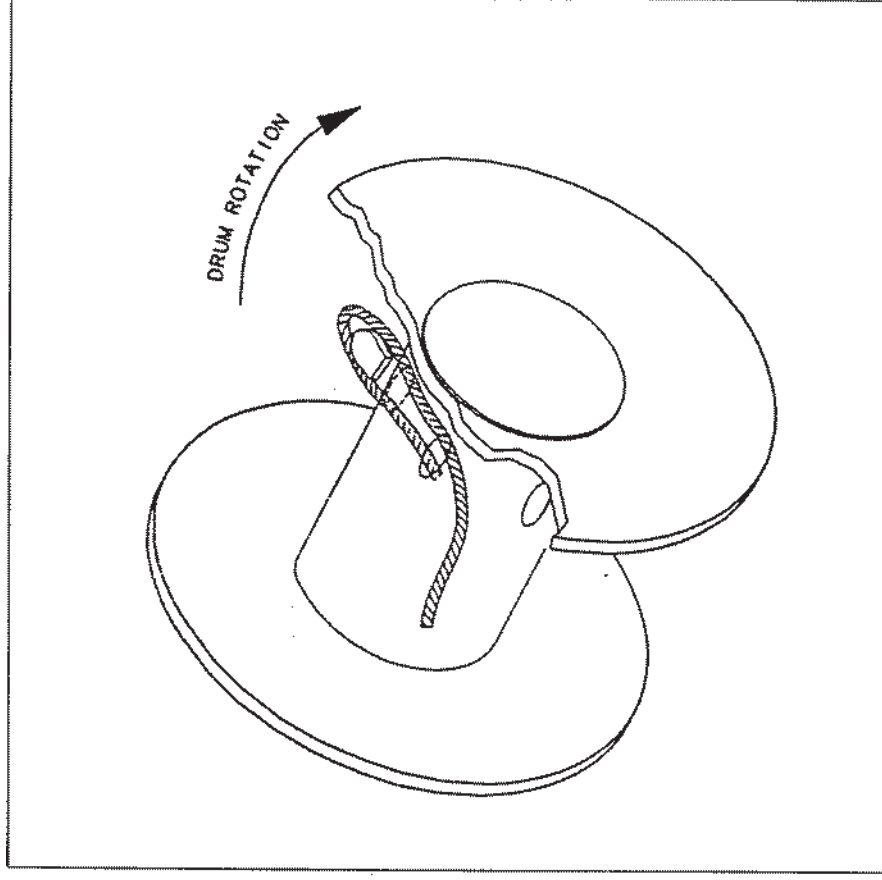


FIG 1

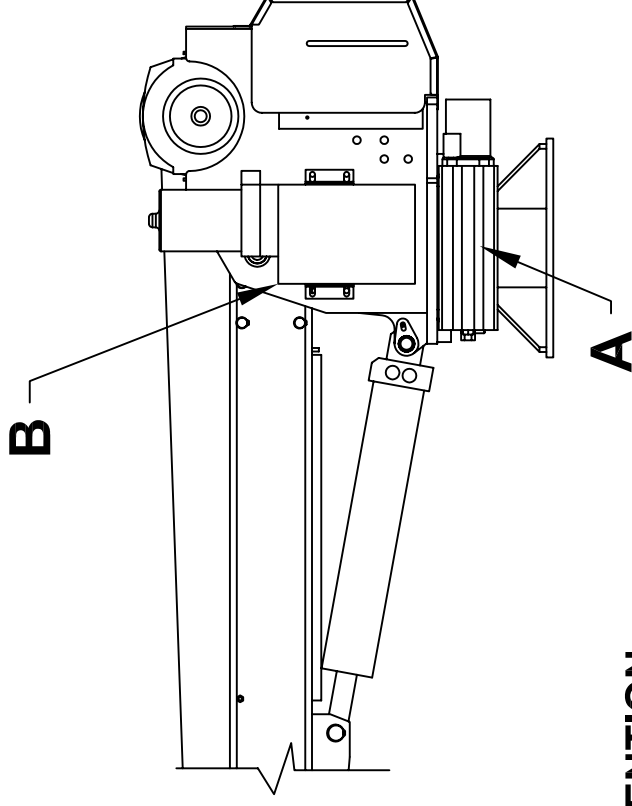
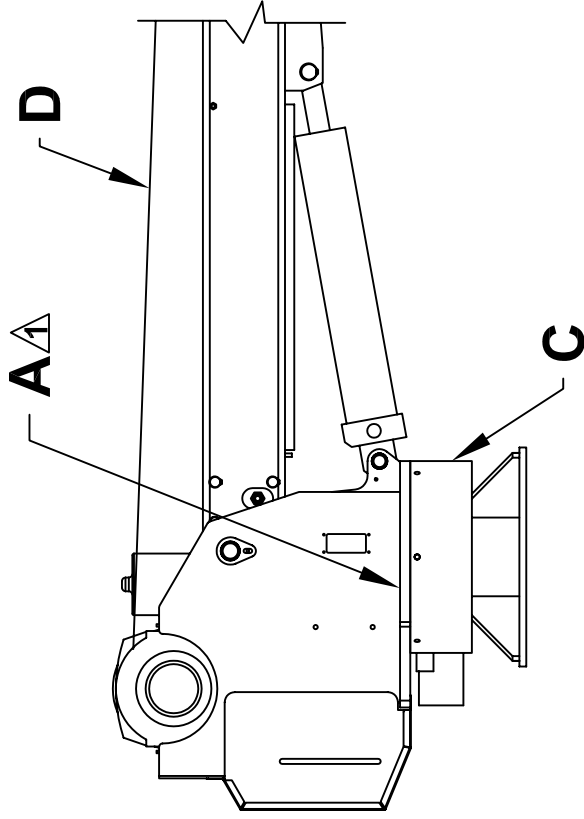
SECTION 300

MAINTENANCE

&

SERVICE





ATTENTION

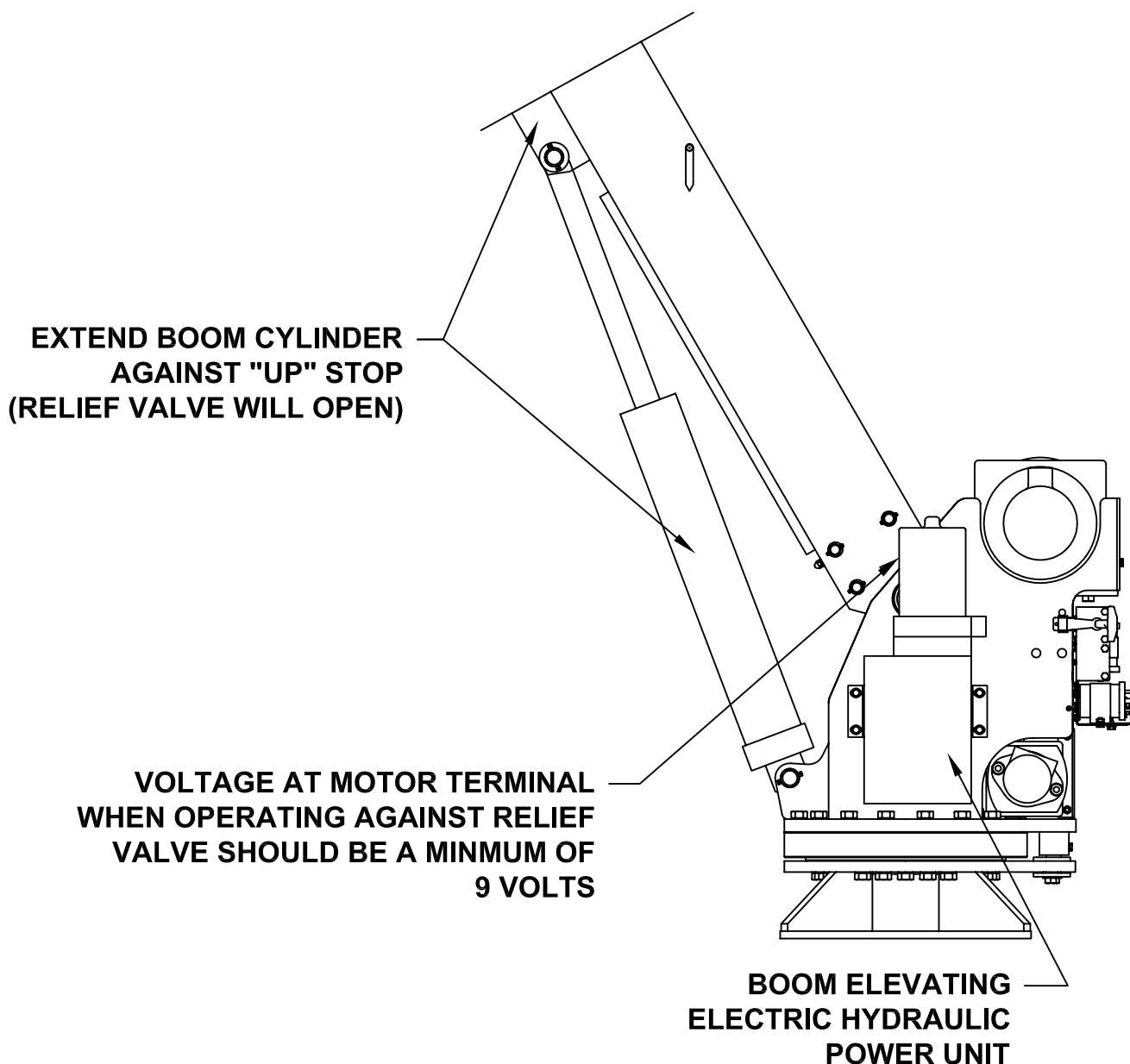
NEVER WASH THIS CRANE WITH CHEMICAL PRODUCTS OR HIGH PRESSURE WATER JETS, AS THEY CAN CAUSE DETACHMENT OF STICKERS OR ENTRANCE OF WATER INTO ELECTRICAL OR SLEWING RING COMPONENTS

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	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

MINIMUM VOLTAGE TEST

▲ ET8K(X) / ET12K(X) / ET18K(X) / ET25K(X)

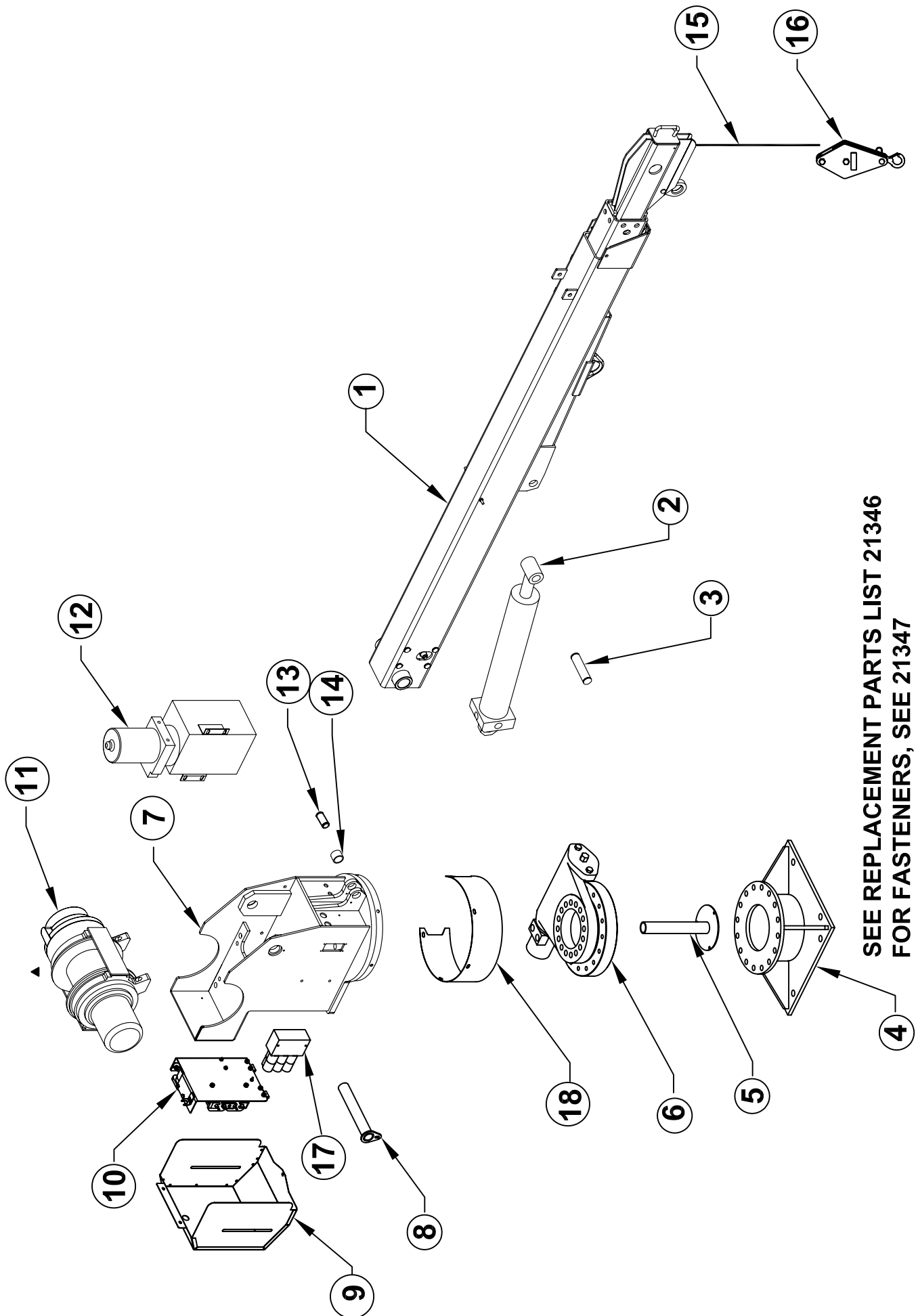
ONE OF THE MOST COMMON ELECTRICAL PROBLEMS ENCOUNTERED ON 12 VOLT ELECTRICAL CRANES IS INSUFFICIENT VOLTAGE AT THE MOTOR WHEN DRAWING THE LARGE CURRENT THAT EXISTS AT FULL LOAD



SECTION 400

PARTS





SEE REPLACEMENT PARTS LIST 21346
FOR FASTENERS, SEE 21347

 VENTURO MANUFACTURING, INC. CINCINNATI, OHIO	TITLE REPLACEMENT PARTS DRAWING	DATE 4-23-08A	SECTION -
	ET18KX	SUPERSEDES 3-28-05	21345

ITEM #	PART #	DESCRIPTION	ITEM #	PART #	DESCRIPTION
1	21200	FINAL BOOM ASSEMBLY - ET18KX			
2	21120	ELEVATION CYLINDER			
3	21127	BOOM PIVOT PIN			
4	21115	BASE WELDED ASSEMBLY			
5	21129	SWIVEL PIGTAIL CANDLESTICK ASSEMBLY			
6	21117	ROTATION DRIVE SYSTEM			
7	21109	HOUSING WELDED ASSEMBLY			
8	21160	PIVOT PIN - MAIN BOOM PIVOT			
9	21128	REAR COVER ASSEMBLY			
10	19897	ELECTRICAL COMPONENT ASSEMBLY			
11	21121	ELECTRIC WINCH			
11	21215 ▲	ELECTRIC WINCH SERIAL #95203 & HIGHER			
12	19820-2800	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	19815-2	VALVE BLOCK			
18	21185	LOWER COVER			
		REPLACEMENT PARTS DWG REF 21345			
		REPLACEMENT PARTS LIST			
		ET18KX		DATE	SECTION
				3-09-07B	-
				SUPERCEDES	
				3-23-06A	21346



MANUFACTURING, INC.
CINCINNATI, OHIO

FASTENER LIST FOR ET18KX

PART NUMBER	DESCRIPTION	QTY	LOCATION/FUNCTION
!HHCS03118063	HEX HEAD CAP SCREW 5/16-18 X 5/8" LG	1	GROUND STRAP ON CANDLESTICK
!LWSH-031	LOCK WASHER - 5/16	1	GROUND STRAP ON CANDLESTICK
!HNUT-03118	HEX NUT - 5/16-18	1	GROUND STRAP ON CANDLESTICK
!HHCS02520063	HEX HEAD CAP SCREW 1/4-20 X 5/8"	3	CANDLESTICK TO BASE
!LWSH-025	LOCK WASHER - 1/4"	3	CANDLESTICK TO BASE
!HHCS06311200	HEX HEAD CAP SCREW 5/8-11 X 2"	16	LOWER BASE TO RING
!LWSH-063	LOCK WASHER - 5/8"	16	LOWER BASE TO RING
▲ -	-	-	-
!HHCS06311300	HEX HEAD CAP SCREW 5/8-11 X 3"	14	UPPER HOUSING TO RING
!LWSH-063	LOCK WASHER - 5/8"	14	UPPER HOUSING TO RING
!HHCS03816100	HEX HEAD CAP SCREW - 3/8-16 X 1"	4	HYDRAULIC POWER UNIT
!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"	2	VALVE BLOCK
!HNUT-02520	HEX NUT - 1/4-20	2	VALVE BLOCK
!LWSH-025	LOCK WASHER - 1/4"	2	VALVE BLOCK
!HHCS02520075	HEX HEAD CAP SCREW 1/4-20 X 3/4"	4	BASE HINGES
!LWSH-025	LOCK WASHER - 1/4"	4	BASE HINGES
!HHCS#1024100	HEX HEAD CAP SCREW - #10-24 X 1"	2	LATCH
!LWSH-#10	LOCK WASHER - #10	2	LATCH
!HNUT-#1024	HEX NUT - #10-24	2	LATCH
!HHCS03118100	HEX HEAD CAP SCREW 5/16-18 X 1"	1	GROUND (WINCH)/TETHER
!LWSH-031	LOCK WASHER - 5/16	1	GROUND (WINCH)/TETHER
!HNUT-03118	HEX NUT - 5/16-18	1	GROUND (WINCH)/TETHER
!FWSH-031	FLAT WASHER - 5/16"	2	GROUND (WINCH)/TETHER
!HHCS#0832075	HEX HEAD CAP SCREW #8-32 X 3/4"	1	TETHER ON PANEL
!LWSH-#08	LOCK WASHER - #8	1	TETHER ON PANEL
!HNUT-#0832	HEX NUT - #8-32	1	TETHER ON PANEL
!HHCS03816100	HEX HEAD CAP SCREW - 3/8-16 X 1"	1	GROUND (IN HOUSING)
!FWSH-038	FLAT WASHER - 3/8"	1	GROUND (IN HOUSING)
!LWSH-038	LOCK WASHER - 3/8"	1	GROUND (IN HOUSING)
!HNUT#0832063	HEX HEAD CAP SCREW - #8-32 X 5/8"	1	PENDANT PLUG
!LWSH-#08	LOCK WASHER - #8	1	PENDANT PLUG
!HHCS02520050	HEX HEAD CAP SCREW - 1/4-20 X 1/2"	1	BOOM PINS
!LWSH-025	LOCK WASHER - 1/4	1	BOOM PINS
!HHCS#1024125	HEX HEAD CAP SCREW - #10-24 X 1-1/4"	2	TOP POSITION SWITCH
!LWSH-#10	LOCK WASHER - #10	2	TOP POSITION SWITCH
!HHCS-02520063	HEX HEAD CAP SCREW - 1/4-20 X 5/8"	1	CABLE CLAMP (PRESSURE SWITCH)
!LWSH-025	LOCK WASHER - 1/4	1	CABLE CLAMP (PRESSURE SWITCH)
!SRNG-100	SNAP RING - 1"	4	ELEVATION CYLINDER PINS
!UNUT-02520	U NUT - 1/4-20	5	LOWER COVER
!HHCS-02520063	HEX HEAD CAP SCREW - 1/4-20 X 5/8"	5	LOWER COVER
!FWSH-025	FLAT WASHER - 1/4"	5	LOWER COVER
!HHCS02520063	HEX HEAD CAP SCREW - 1/4-20 X 5/8"	3	REAR COVER
!FWSH-025	FLAT WASHER - 1/4"	3	REAR COVER



MFG., INC.
CINCINNATI, OHIO

TITLE
REPL. FASTENERS LIST

ET18KX

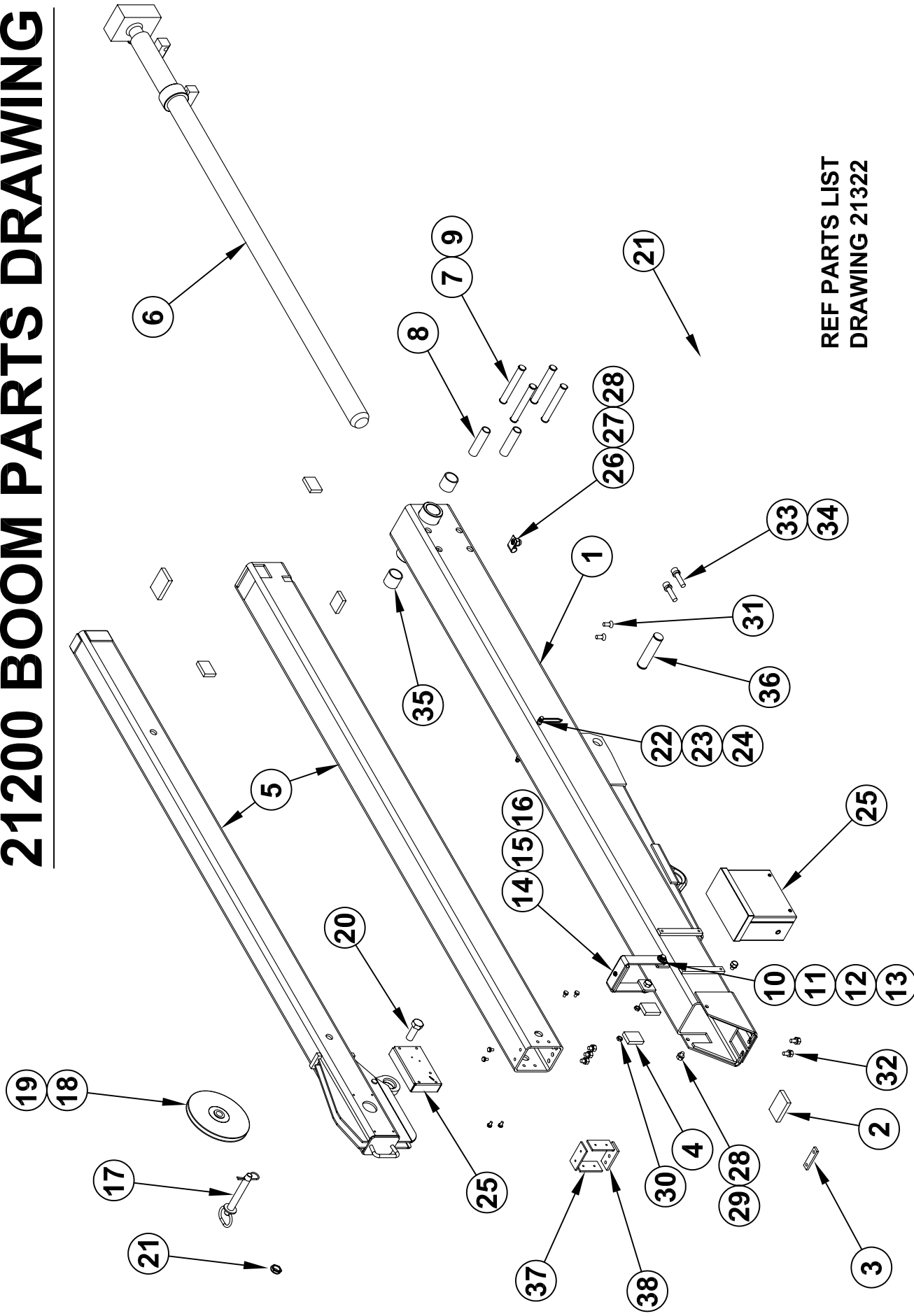
DATE
3-8-06A

SUPERCEDES
3-28-05

SECTION
C400

21347

21200 BOOM PARTS DRAWING



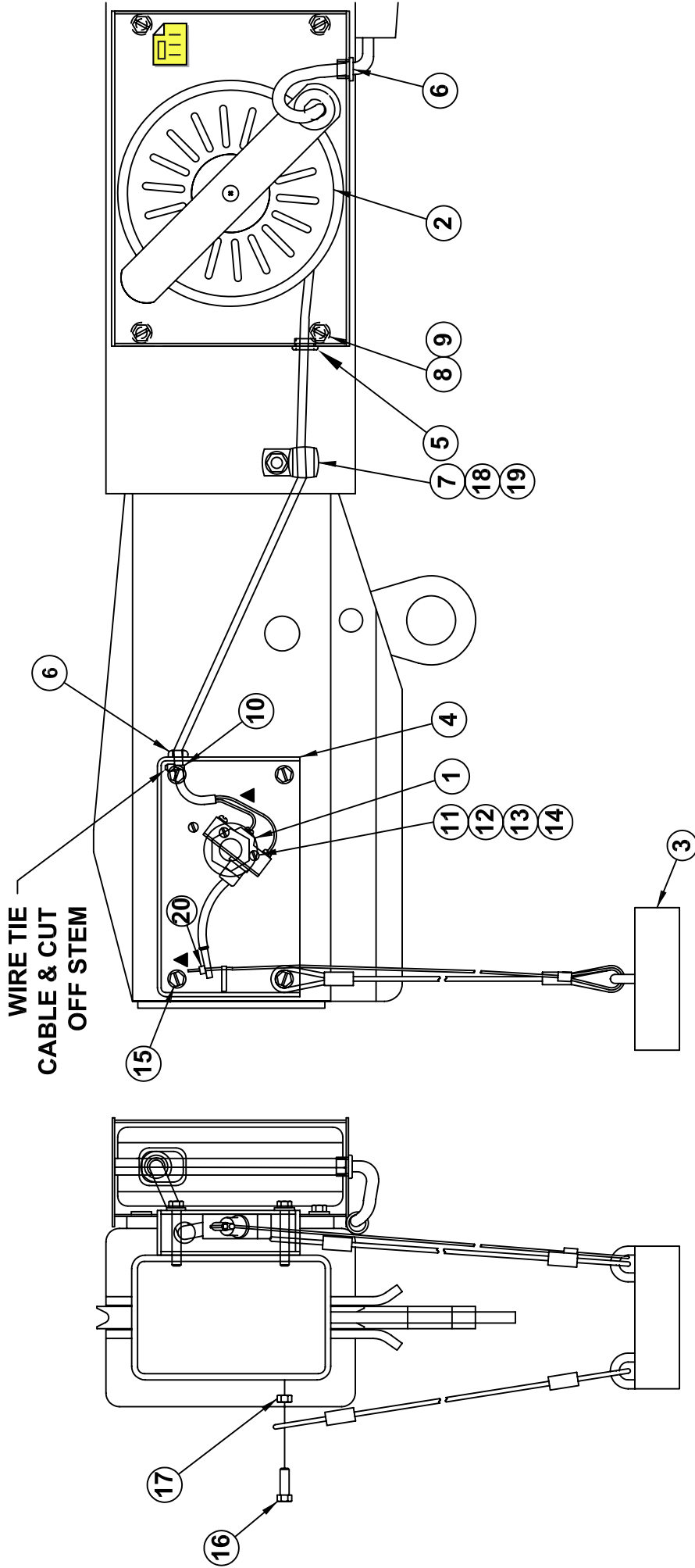
REF PARTS LIST
DRAWING 21322

TITLE 21200 BOOM PARTS DRAWING ET/HT18KX	DATE 4-21-08B SUPERSEDES 1-19-05A	SECTION - 21310
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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

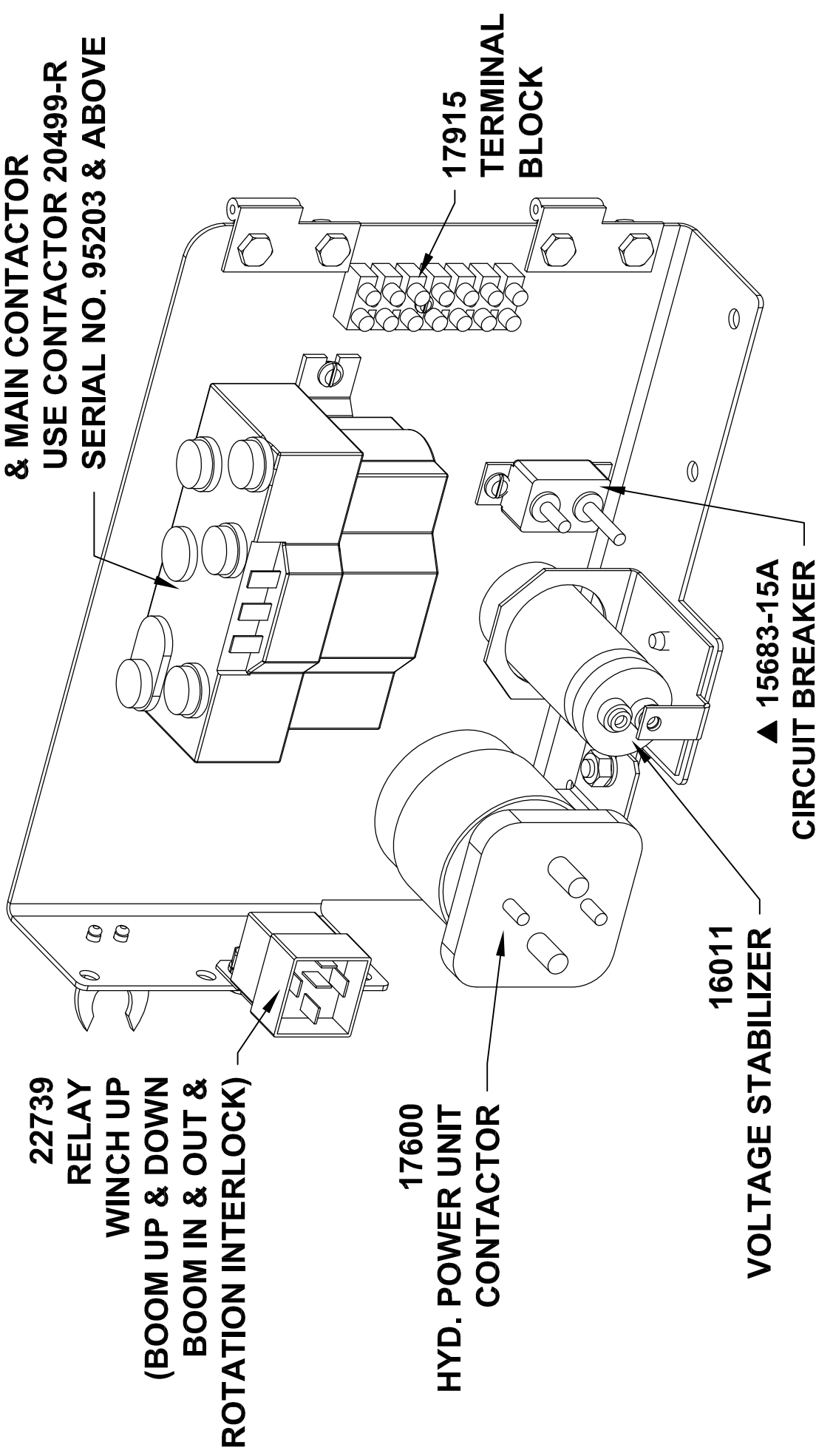


ITEM	QTY	PART NO.	DESCRIPTION
10	1	▲	9" TIE-WRAP
9	4	!LWSH-031	LOCK WASHER - 5/16"
8	4	!SHCS03118050-5	SOCKET HEAD CAP SCREW - 5/16-18 x 1/2"
7	1	19275	CABLE CLAMP - 3/4" x 13/32" HOLE
6	2	19270	SNAP BUSHING - 3/8" I.D.
5	1	19063	SNAP BUSHING - 1/2" I.D.
4	1	21291	ANTI TWO-BLOCK HOUSING ASSEMBLY
3	1	19377-2	CABLE WEIGHT ASSY
2	1	22683	CORD REEL ASSY
1	1	19376	LIMIT SWITCH

 MANUFACTURING, INC. CINCINNATI, OHIO	TITLE REPLACEMENT PARTS DWG		DATE 4-23-08C	SECTION C400
	21276 ANTI-TWO-BLOCK SYSTEM		SUPERSEDES 6-16-06B	21275

19897 ELECTRICAL COMPONENT ASSEMBLY

21157 WINCH UP, WINCH DOWN,
& MAIN CONTACTOR
USE CONTACTOR 20499-R
SERIAL NO. 95203 & ABOVE



MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE

ELECTRICAL COMPONENT ASSEMBLY

DATE

09-06-12G

SECTION

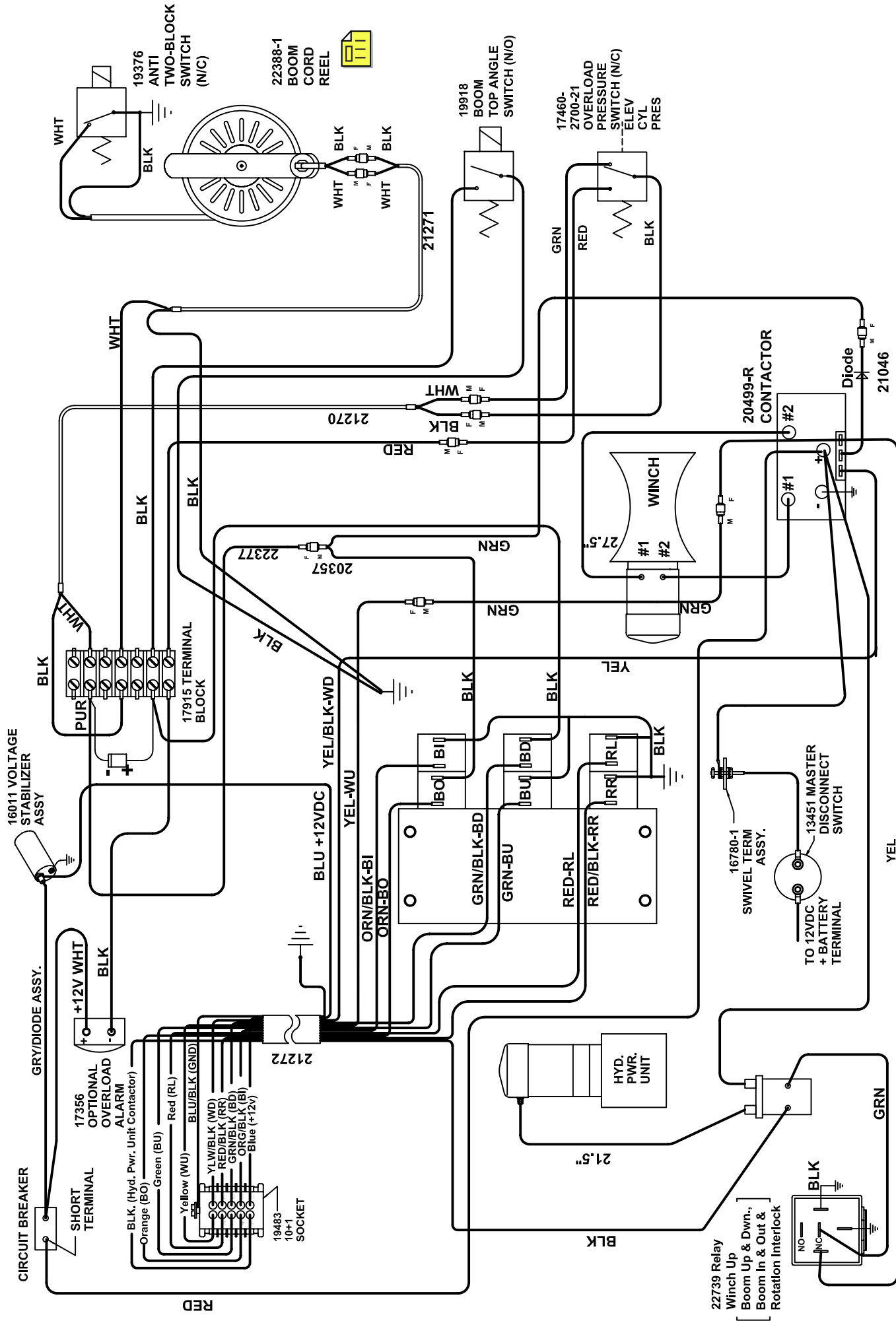
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SUPERSEDES

04-24-08F

ET18K(X), ET25K(X)

19919



VENTURO MANUFACTURING, INC. CINCINNATI, OHIO	TITLE WIRING DIAGRAM		DATE 8-1-07A SUPERSEDES 7-8-05	SECTION -
	ET18KX		21311C	

16780 AND 16780-1 SWIVEL TERMINAL ASSY.

17012 RUBBER BOOT - REF

26035 OR 26035-1
SWIVEL PIGTAIL - REF

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

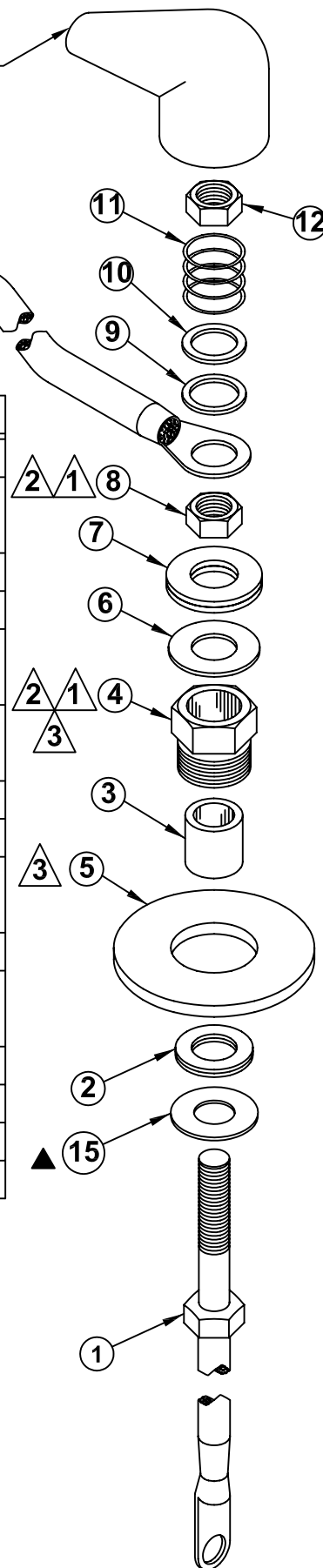
* ITEMS INCLUDED IN 16780-KIT (REPLACEMENT PARTS KIT)

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

ET18K(X), ET25K(X)

DATE
11-17-05D

SUPERSEDES
1-28-05C

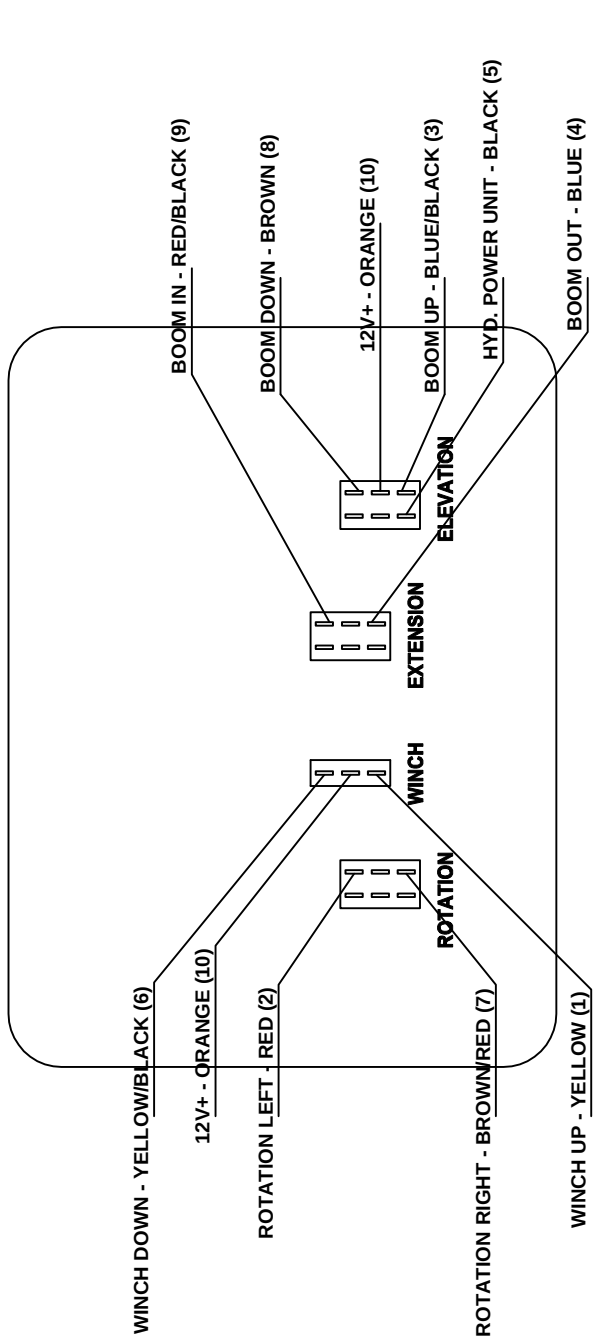
SECTION
C400

19368

22060 PENDANT (4 - SWITCH)

CORD REPLACEMENT INSTRUCTIONS

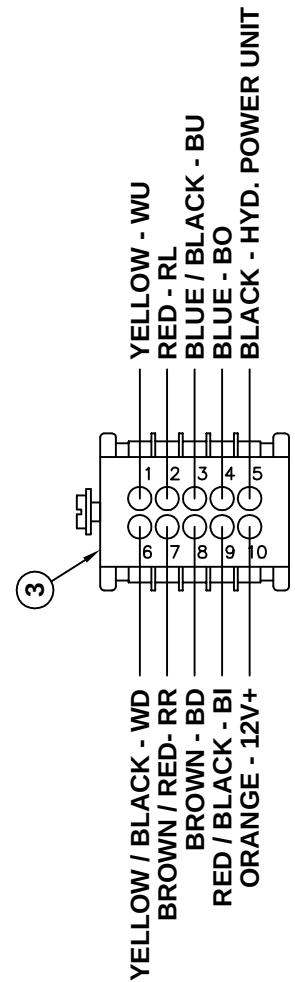
(INSIDE VIEW OF PENDANT CONTROL W/ REAR COVER REMOVED)



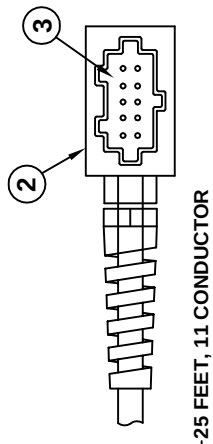
NOTE 1)
WIRE TERMINALS TO BE
INSTALLED 'AFTER' ROUTING
REPLACEMENT CORD ASSY
THROUGH PENDANT HEAD
AND PLUG HOUSING.

NOTE 2)
TOGGLE SWITCH JUMPER
WIRES NOT SHOWN FOR
CLARITY.

NOTE 3)
STOW OR CUT-BACK
UNUSED WIRES.



PLUG - BACKSIDE VIEW



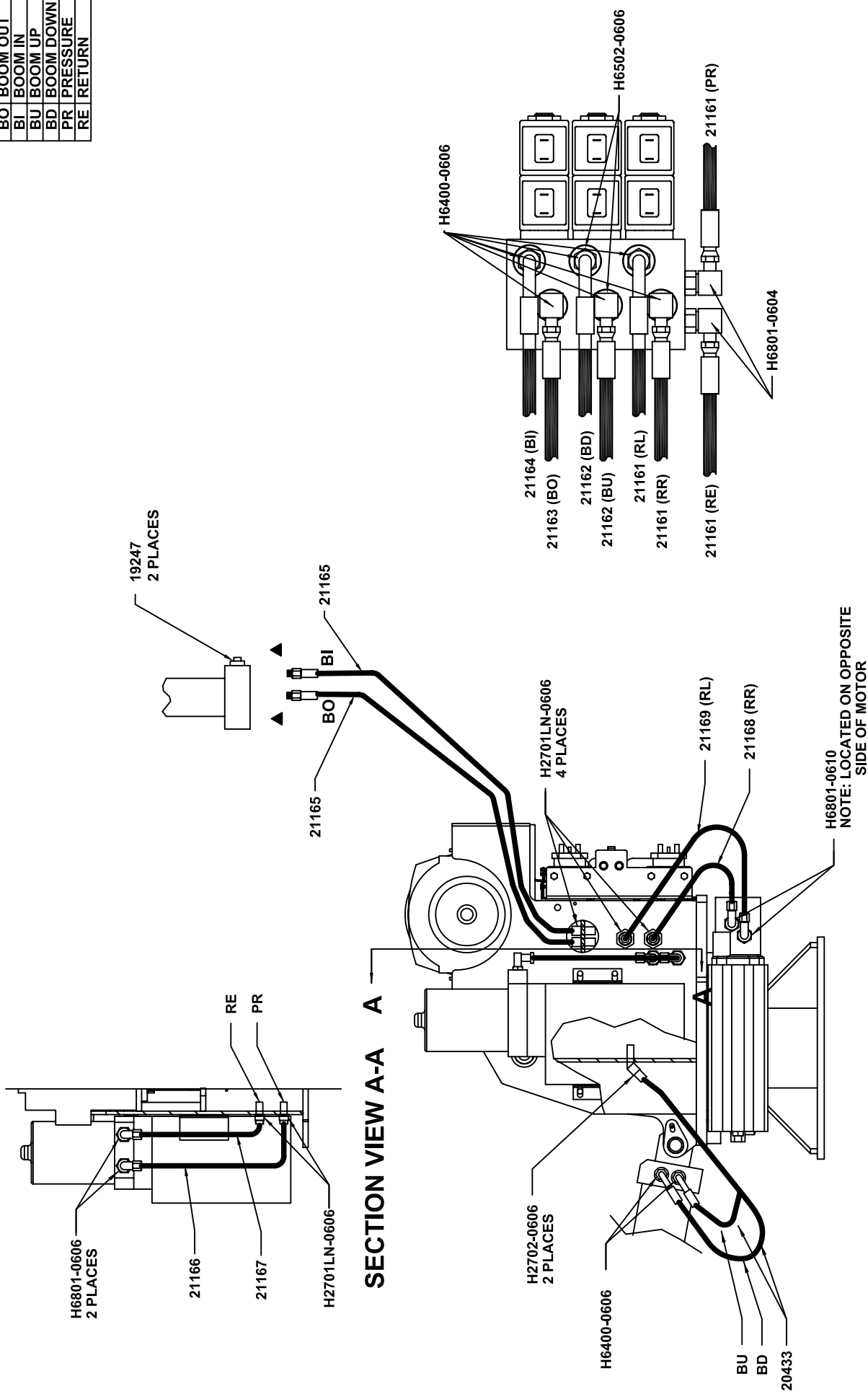
ITEM	QTY	PART NO.	DESCRIPTION
4	3	22152	DPDT MOMENTARY TOGGLE SWITCH
3	1	19427	MALE INSERT - 10 + 1 POLE
2	1	19426	PLUG CASE - 10 + 1 POLE
1	4	22081	SPDT MOMENTARY TOGGLE SWITCH



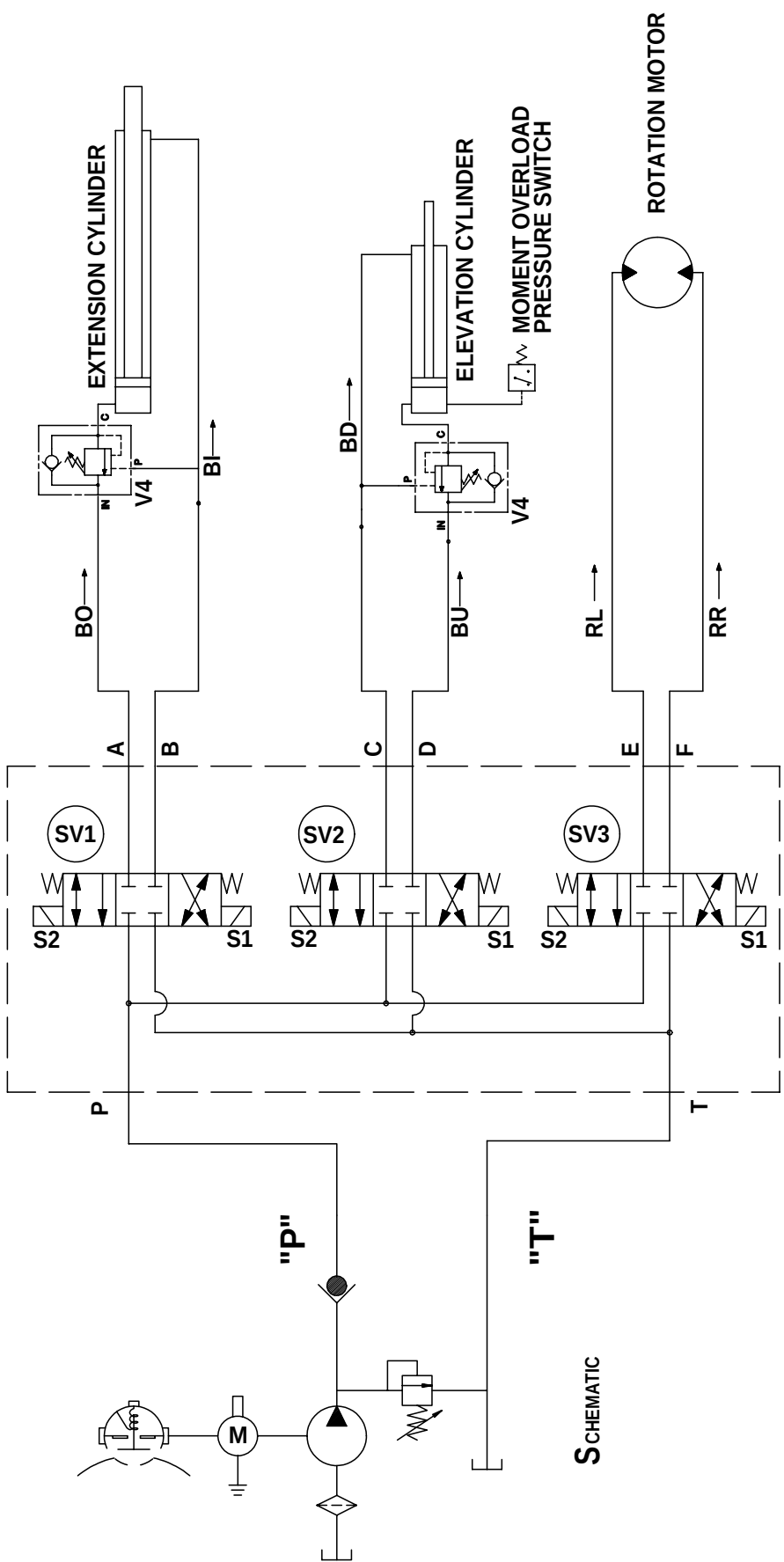
MANUFACTURING, INC.
CINCINNATI, OHIO

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

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



VENTURO MANUFACTURING, INC. CINCINNATI, OHIO	TITLE	REPLACEMENT PARTS DRAWING	DATE	4-13-06B	SECTION	C400
		ET18KX HYDRAULIC COMPONENTS	SUPERSEDES	11-19-03A		21312

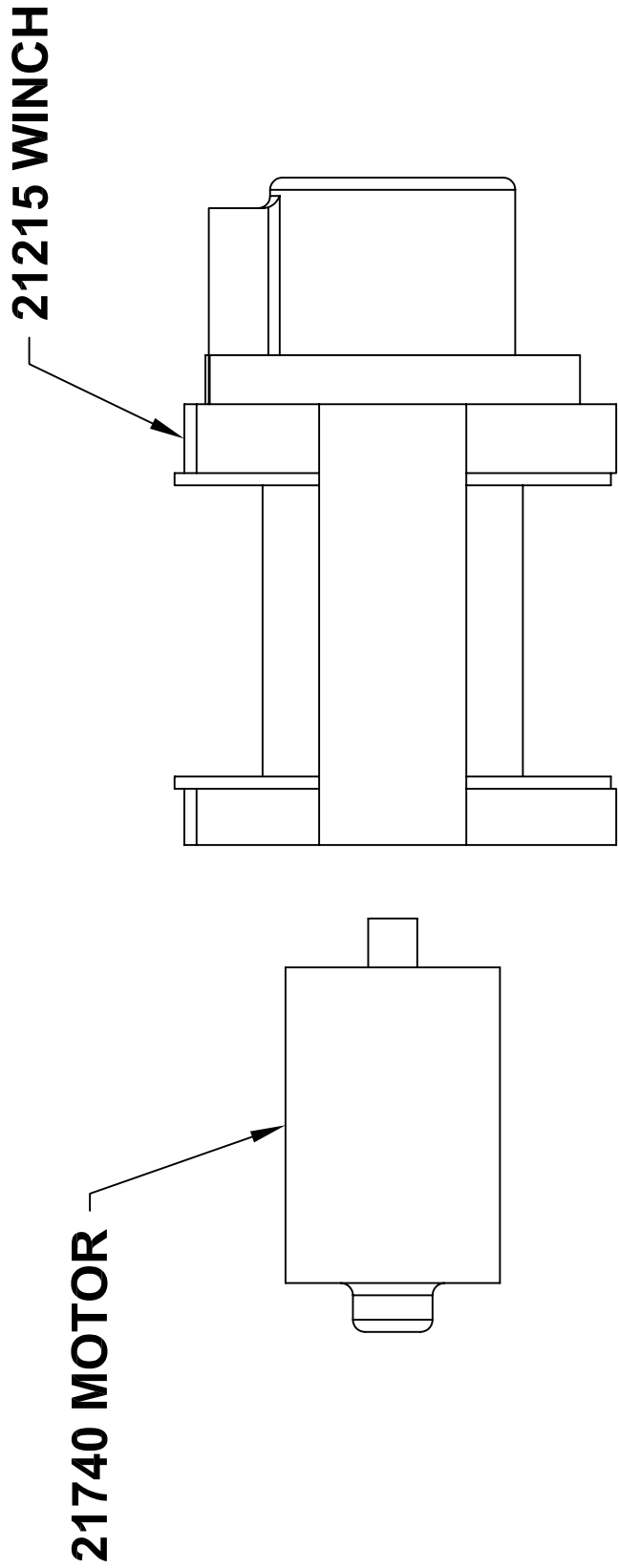


OPERATION

- 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'

VENTURO MANUFACTURING, INC. CINCINNATI, OHIO	TITLE HYDRAULIC SYSTEM DIAGRAM		DATE 7-31-03B	SECTION C400
	ET18KX, ET25KX		SUPERSEDES 4-5-02A	20156

21215 WINCH REPLACEMENT PARTS



VENTURO MANUFACTURING, INC. CINCINNATI, OHIO	TITLE WINCH REPLACEMENT PARTS		DATE 8-26-08B	SECTION -
	ET18K(X)		SUPERSEDES 4-24-08A	21054

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



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
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