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# SPECIFICATIONS AND OPERATING FEATURES

ET25KX-10/20

## SPECIFICATIONS

12 VOLT BATTERY OPERATED

20,000 / 25,000 FT-LBS OVERTURNING MOMENT (Or as limited by truck stability)

MOMENT OVERLOAD ALARM SYSTEM

TELESCOPIC BOOM	10 / 20
BOOM HYD ELEVATION	-8° TO 75°
BOOM HYD EXT	10 - 16 FT OR 14 - 20 FT
BOOM MANUAL EXT	4 FT
CAPACITY	1050 LBS @ 20 FT REACH
	5000 LBS @ 3 TO 5 FT REACH
WIRE ROPE	5/16" DIA x 80 FT
PENDANT CORD LENGTH	25 FT

WINCH - 2500 LBS SINGLE LINE CAPACITY  
With Automatic Load Brake

ELECTRIC HYDRAULIC BOOM ELEVATION

ELECTRIC HYDRAULIC BOOM EXTENSION & RETRACTION - 6 FT STROKE

CONTINUOUS POWER ROTATION - With Coast Limiting Brake

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**

ET25KX-10/20

DATE  
**10-13-99A**

SUPERCEDES  
**10-28-97**

SECTION  
**C120**

**19399a**

## **OVERLOAD ALARM SYSTEM**

THIS CRANE IS EQUIPPED WITH AN OVERLOAD ALARM SYSTEM.

- A. Overload alarm horn sounds if rated load is exceeded at any reach.
- B. If alarm sounds, RAISE Boom or LOWER Winch to remove overload.
- C. Always RAISE Boom slightly before lifting load - Warning system INOPERATIVE when cylinder is completely bottomed.
- D. Alarm can be tested by tying down Boom with winch cable and operating Boom UP or by raising Boom against UP limit stop.

**NOTICE:** ANSI Standards provide that rated load at any reach must not exceed 85% of the load that will overturn vehicle and must not exceed the load governed by structural and hydraulic competence. This alarm system has been installed as a safety feature to protect both the equipment and the operator.

**WARRANTY VOID IF ALARM IS DISCONNECTED, READJUSTED, OR TAMPERED WITH.**

## **CONTROL PRIORITY SYSTEM**

As a built in safety feature the operator can perform only one major and one minor function at any one time. Major functions are rotation, winching up of a load, and elevating the boom. Minor functions are winching down, and lowering boom.

### A. ORDER OF PRIORITIES

WINCH UP - First priority

BOOM IN AND OUT - Second priority

BOOM UP - Third priority

ROTATION LEFT AND RIGHT - Fourth priority

- B. BOOM DOWN and WINCH DOWN can be operated with any other function.

## **CABLE DRUM AND SHEAVE DIAMETERS**

The drum on the ET20KX/25KX 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. WINCH BRAKE

Exclusive with the VENTURO Winch is the automatic thrust brake which adjusts to the load when lowering ("winch down") and offers no resistance when raising ("winch up").

### B. ROTATION BRAKE

Rotation Motor brake limits Rotation coast after switch is turned off.

### C. CAPACITY INDICATOR

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

### D. 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.



VENTURO  
MFG., INC.  
CINCINNATI, OHIO

TITLE  
**INSTALLATION DWG**

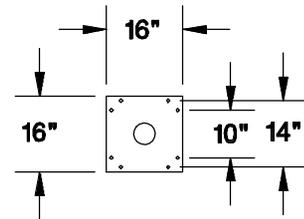
ET25KX-10/20

DATE  
**11-24-97A**

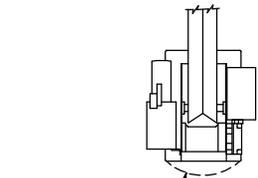
SUPERCEDES  
**10-28-97**

SECTION  
**C120**

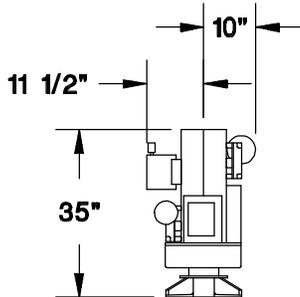
**19399b**



**BASE MOUNTING DIMENSIONS**

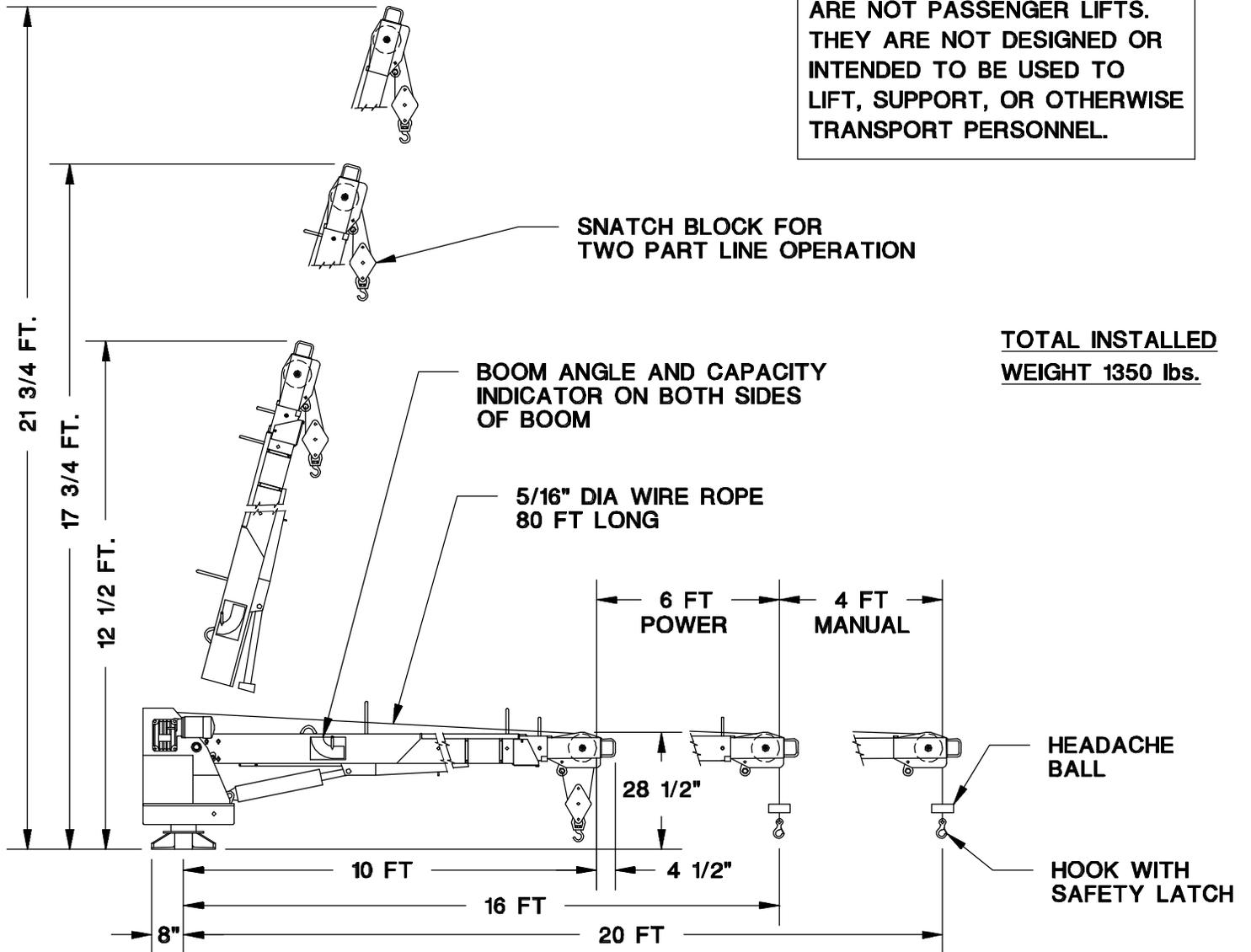


**11 1/2" SWING RADIUS**



**11 1/2"**

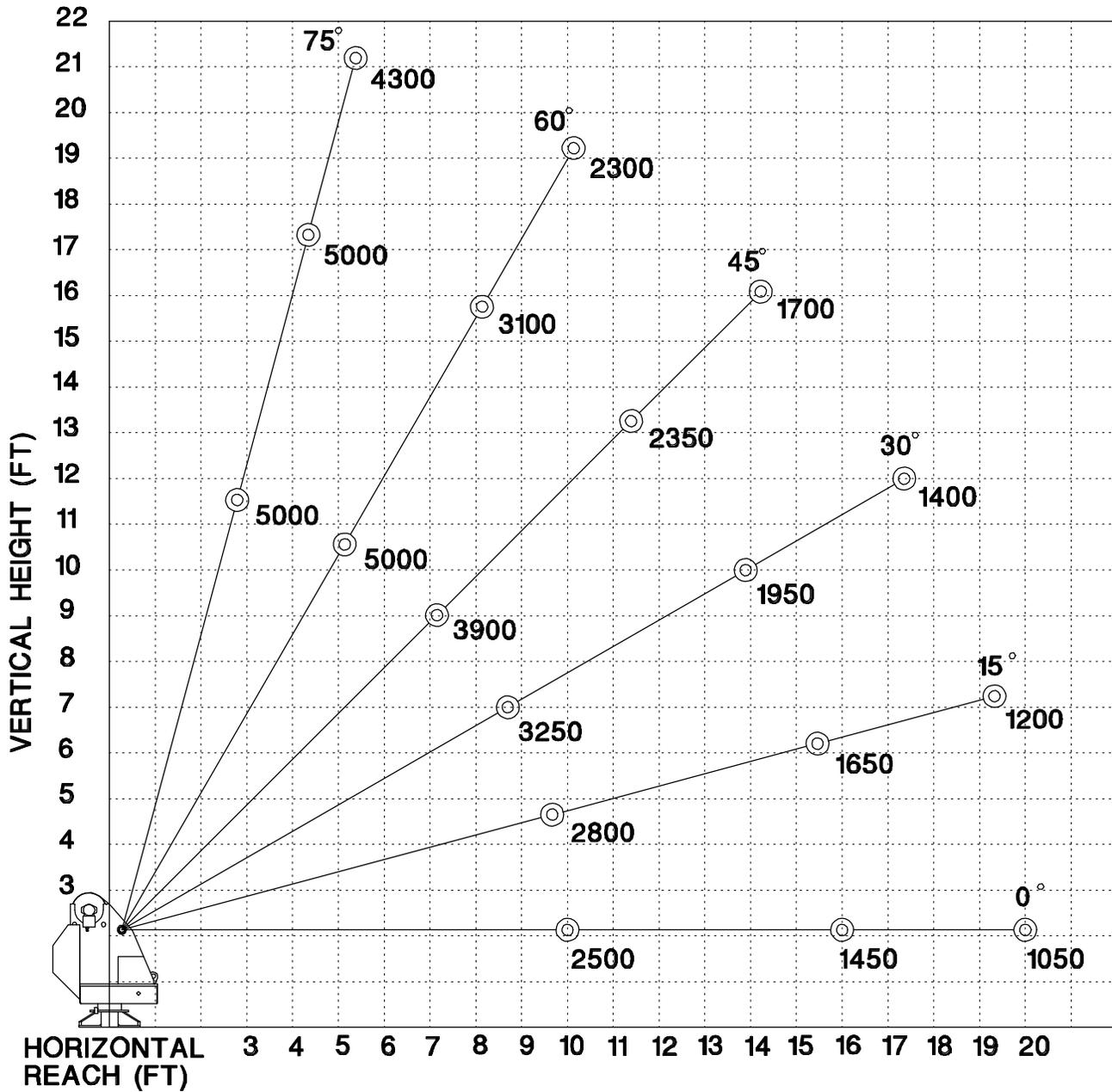
**35"**



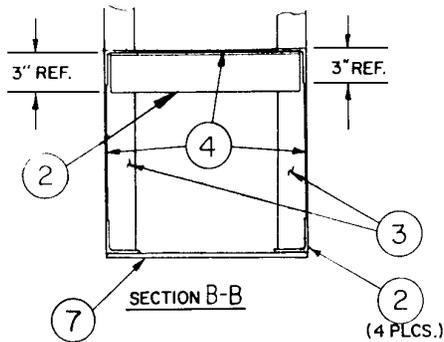
**WARNING: THESE PRODUCTS ARE NOT PASSENGER LIFTS. THEY ARE NOT DESIGNED OR INTENDED TO BE USED TO LIFT, SUPPORT, OR OTHERWISE TRANSPORT PERSONNEL.**

**TOTAL INSTALLED WEIGHT 1350 lbs.**

## ET/HT25K(X) - 10-16-20 BOOM MAXIMUM CAPACITY CHART

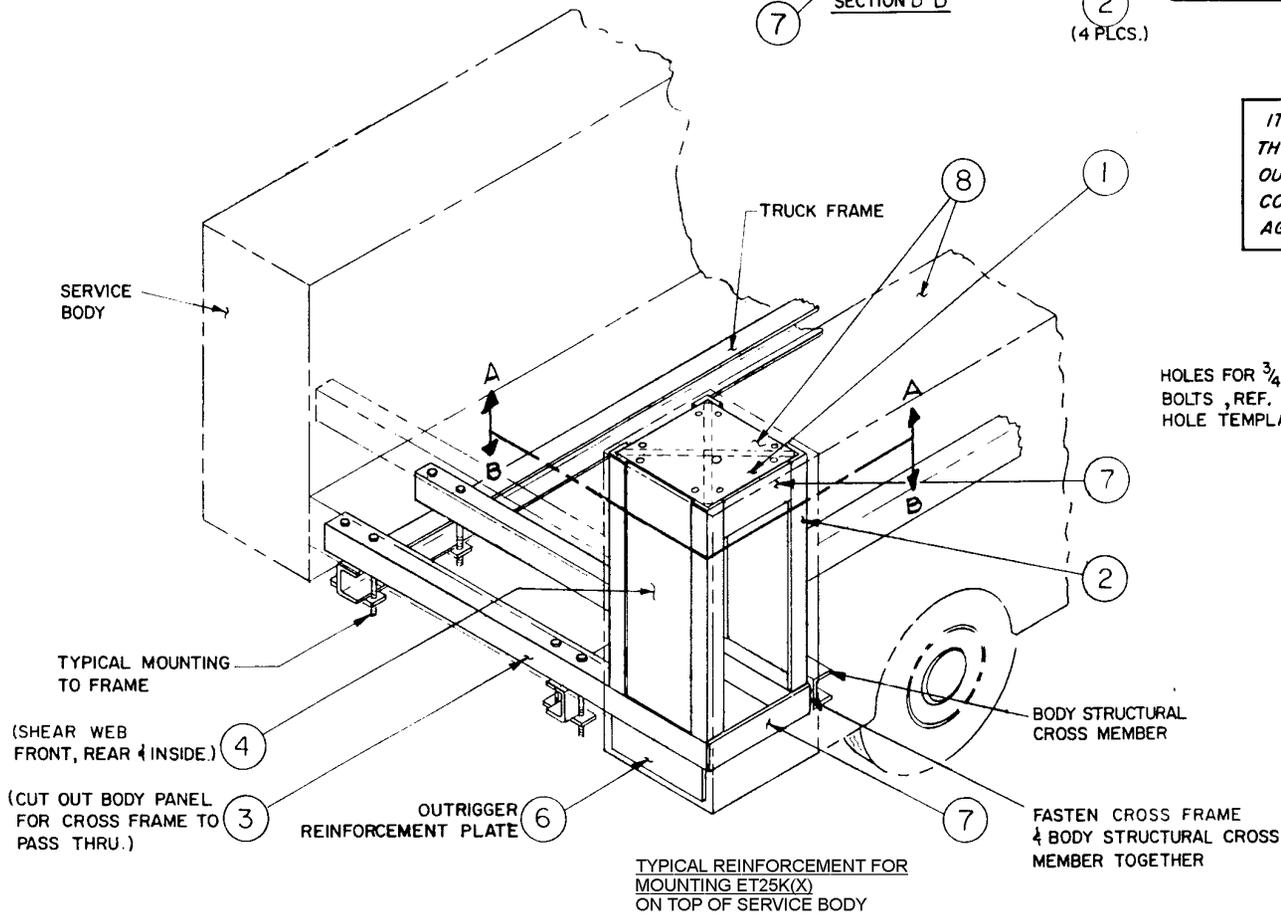


**MUST USE SNATCH BLOCK  
FOR LOADS OF 2500 LBS.  
AND GREATER**

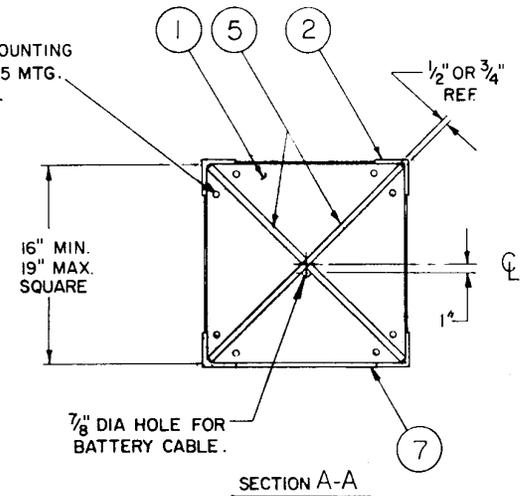


PART	DESCRIPTION	MINIMUM RECOMMENDED MATERIAL SIZE
1	TOP PLATE	1/2" STEEL
2	CORNER POST	3" x 3" x 1/2" STEEL ANGLE
3	CROSS FRAME	4" x 4" x 5/16" SQUARE TUBING
4	SHEAR WEB	3/16" STEEL PLATE
5	TOP PLATE REINFORCEMENT	1/2" x 6" or 3/4" x 5" STEEL BAR
6	OUTRIGGER REINFORCEMENT PLATE	1/4" THICK STEEL PLATE
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.*



HOLES FOR 3/4" MOUNTING BOLTS, REF. 13935 MTG. HOLE TEMPLATE.



MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
**INSTALLATION DRAWING**

**ET25K(X)**

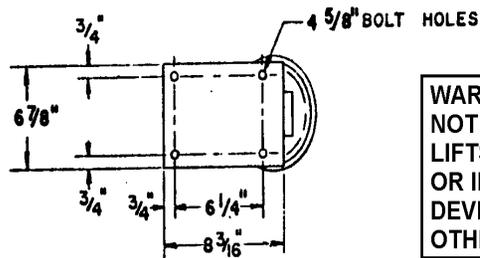
DATE  
**11-2-98B**

SUPERCEDES  
**6-24-98A**

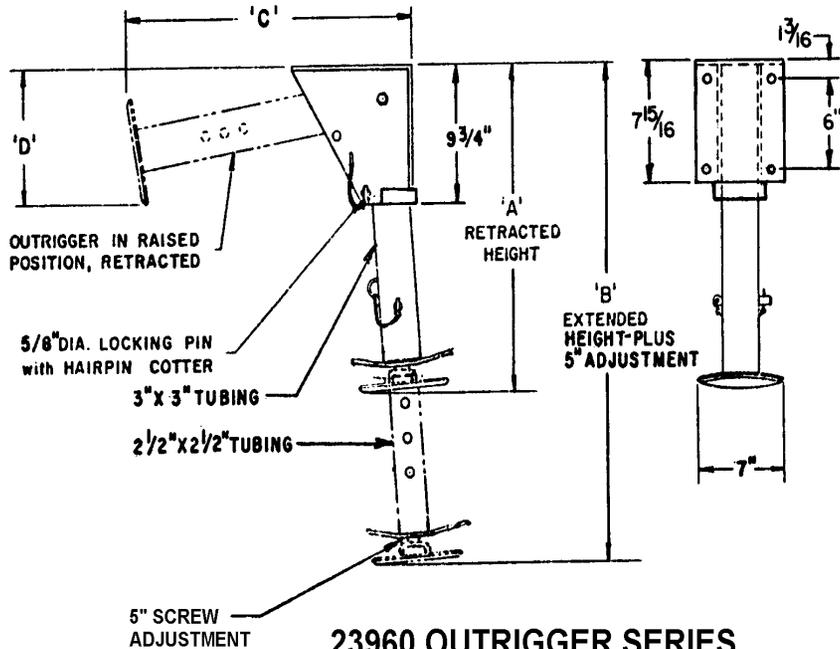
SECTION  
**C100**

**17089**

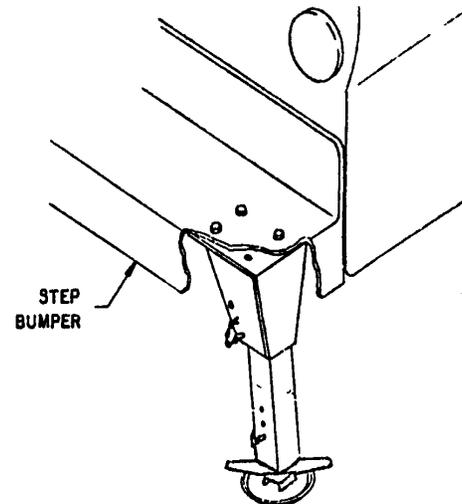
PART NO.	DESCRIPTION	'A'	'B'	'C'	'D'
23960-1	SHORT OUTRIGGER	20 1/2"	28 1/2"	21"	7 1/4"
23960-2	LONG OUTRIGGER	28 1/2"	44 1/2"	29"	10 1/2"



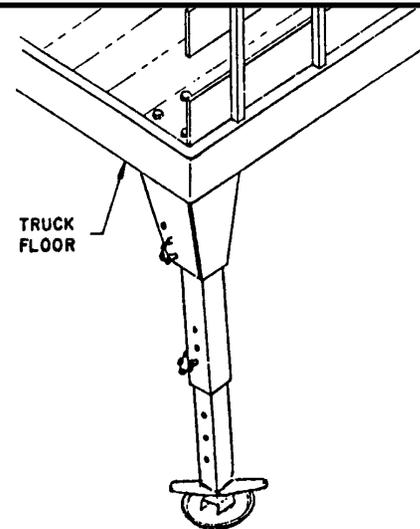
**WARNING: THESE PRODUCTS ARE NOT FOR USE WITH PASSENGER LIFTS. THEY ARE NOT DESIGNED OR INTENDED TO BE USED WITH DEVICES THAT LIFT, SUPPORT OR OTHERWISE TRANSPORT PERSONNEL.**



**23960 OUTRIGGER SERIES  
ET/HT25 SERIES CRANES**



TYPICAL SHORT  
OUTRIGGER INSTALLATION



TYPICAL LONG  
OUTRIGGER INSTALLATION



MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
INSTALLATION DRAWING

ET10K(X), ET25K(X), HT25KX

DATE  
4-29-98C

SUPERCEDES  
7-27-83B

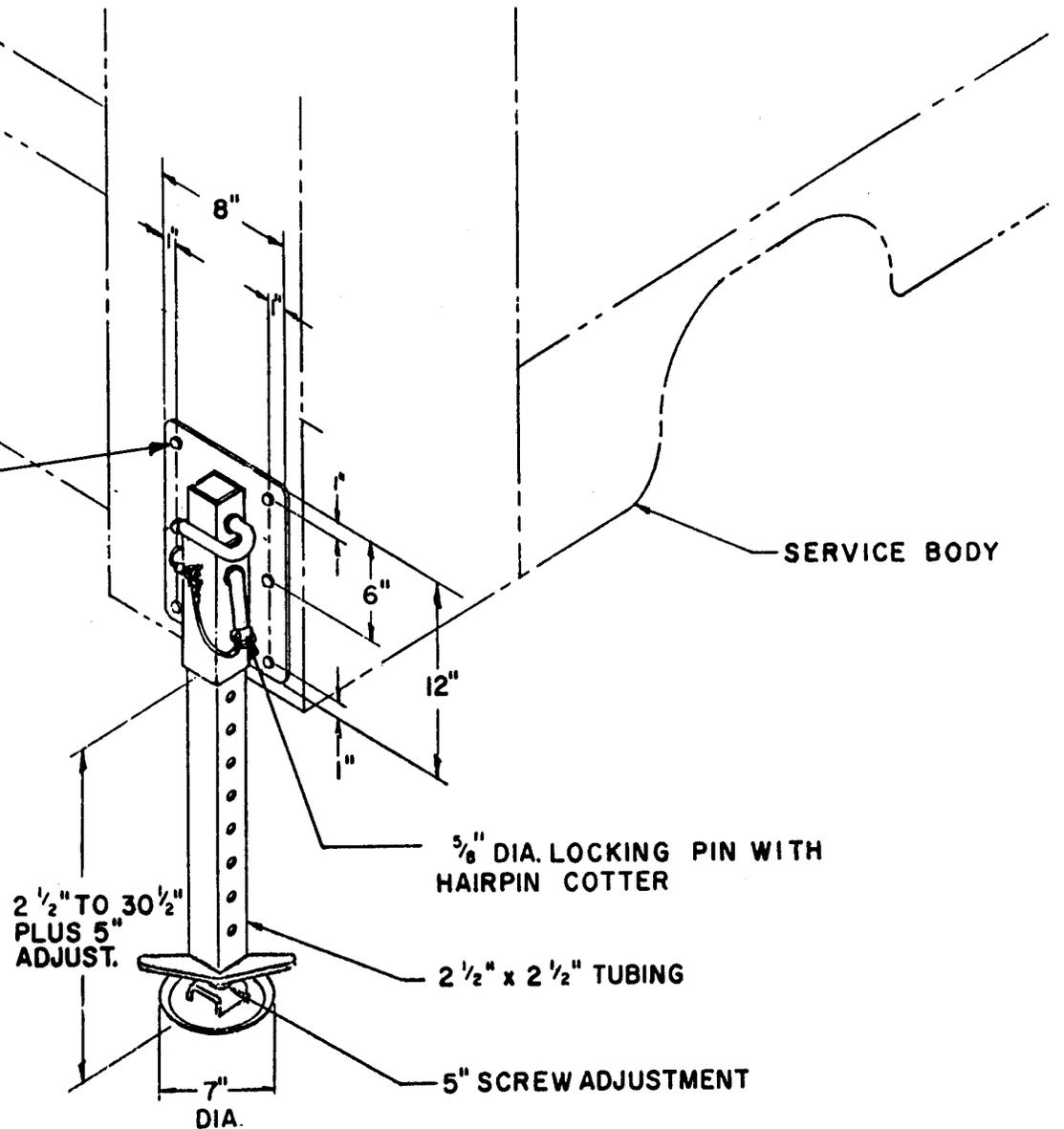
SECTION  
C100

123960

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

TYPICAL INSTALLATION OF 23961  
MANUAL OUTRIGGER ON TRUCK  
WITH SERVICE BODY EQUIPPED  
WITH ET/HT25 SERIES CRANES

6 - 1/2" DIA. BOLT HOLES



SERVICE BODY

2 1/2" TO 30 1/2"  
PLUS 5"  
ADJUST.

5/8" DIA. LOCKING PIN WITH  
HAIRPIN COTTER

2 1/2" x 2 1/2" TUBING

5" SCREW ADJUSTMENT

7"  
DIA.



MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
INSTALLATION DRAWING

DATE  
4-29-98D

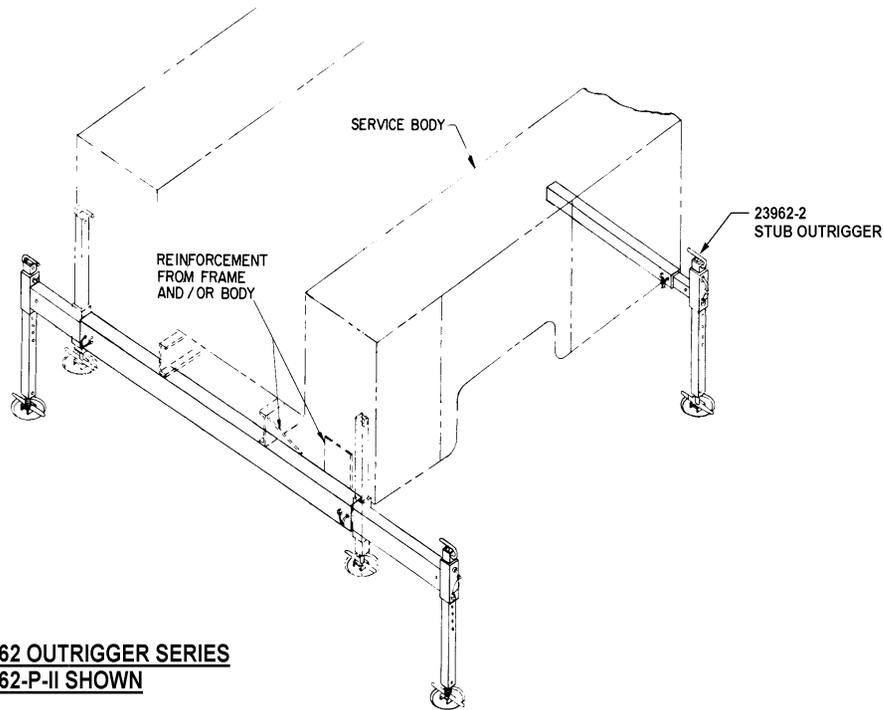
SECTION  
C100

ET10K(X), ET25K(X), HT25KX

SUPERCEDES  
7-27-83C

I23961

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



**23962 OUTRIGGER SERIES**  
**23962-P-II SHOWN**

OUTRIGGER	IN/OUT	UP/DOWN	DUTY	USED ON
23962-P	MANUAL	MANUAL	STANDARD	ET/HT25K(X)
23962-PM	MANUAL	MANUAL	HEAVY	HT40/50KX
23962-CD	MANUAL	CRANK-DOWN	HEAVY	ET/HT25K(X), HT40/50KX
23962-PH	MANUAL	HYDRAULIC	HEAVY	HT25K(X), HT40/50KX
23962-PHX	HYDRAULIC	HYDRAULIC	HEAVY	HT25K(X), HT40/50KX
23962-PHE	MANUAL	ELECTRIC/HYDRAULIC	HEAVY	ET25K(X)
23962-PHXE	ELECTRIC/HYDRAULIC	ELECTRIC/HYDRAULIC	HEAVY	ET25K(X)



MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
**INSTALLATION DRAWING**

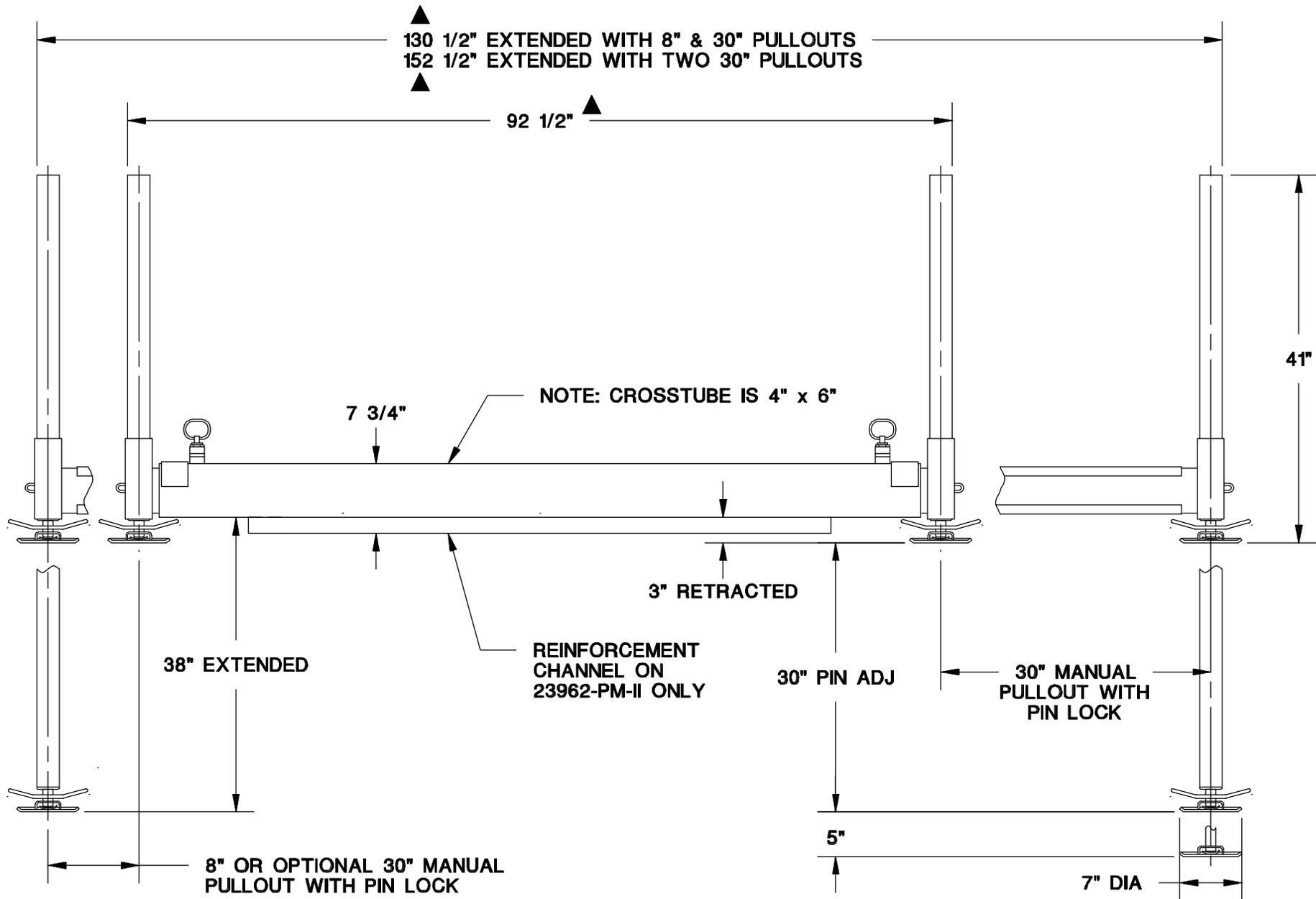
**ET25K(X), HT25K(X), HT40/50KX**

DATE  
**4-12-99E**

SUPPERCEDES  
**4-27-92D**

SECTION  
**C120**

**I23962**



**VENTURO** MANUFACTURING, INC.  
 CINCINNATI, OHIO

TITLE  
 INSTALLATION DWG

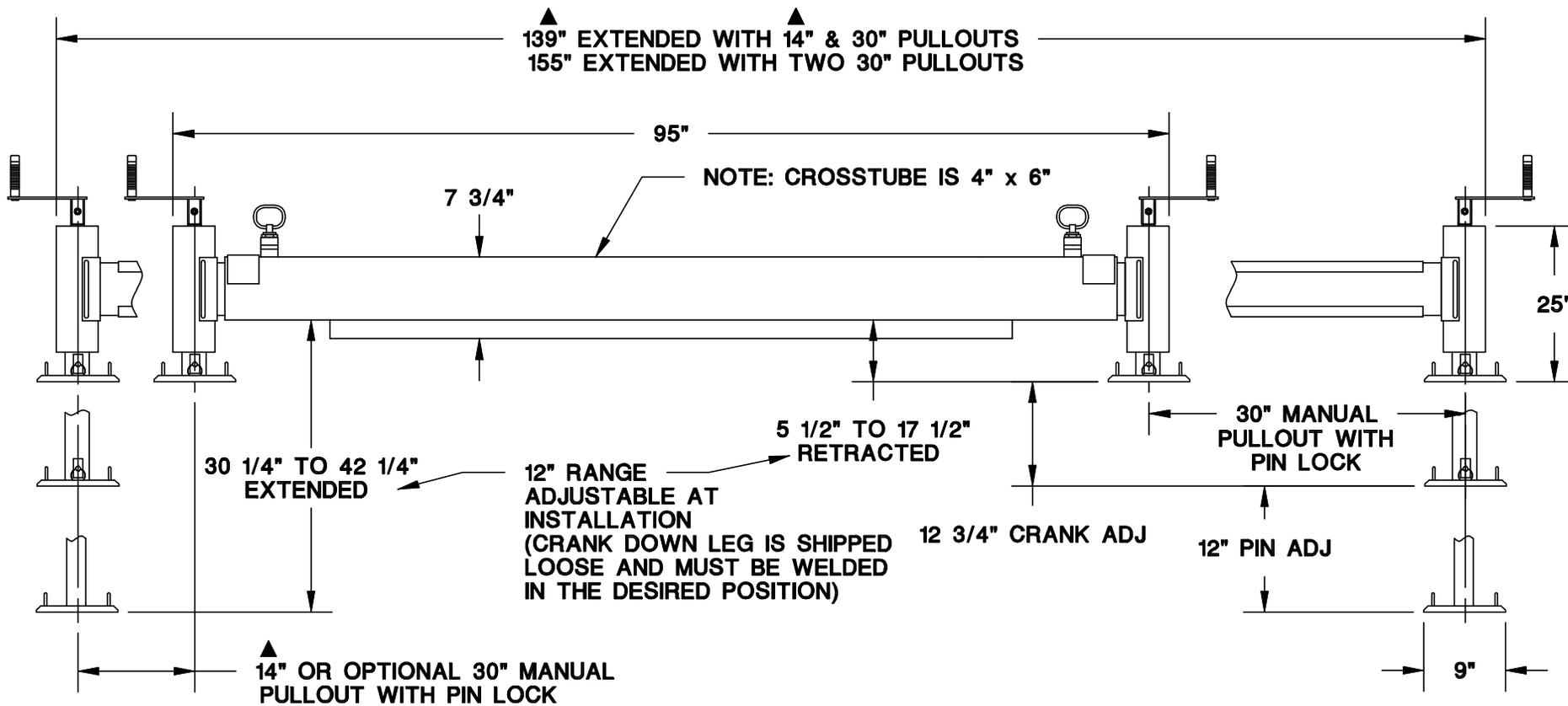
23962-P-II & 23962-PM-II MANUAL O.R.

DATE  
 1-20-99B

SUPERSEDES  
 10-16-97A

SECTION  
 C100

**22458**



**VENTURO** MANUFACTURING, INC.  
 CINCINNATI, OHIO

TITLE  
 INSTALLATION DWG

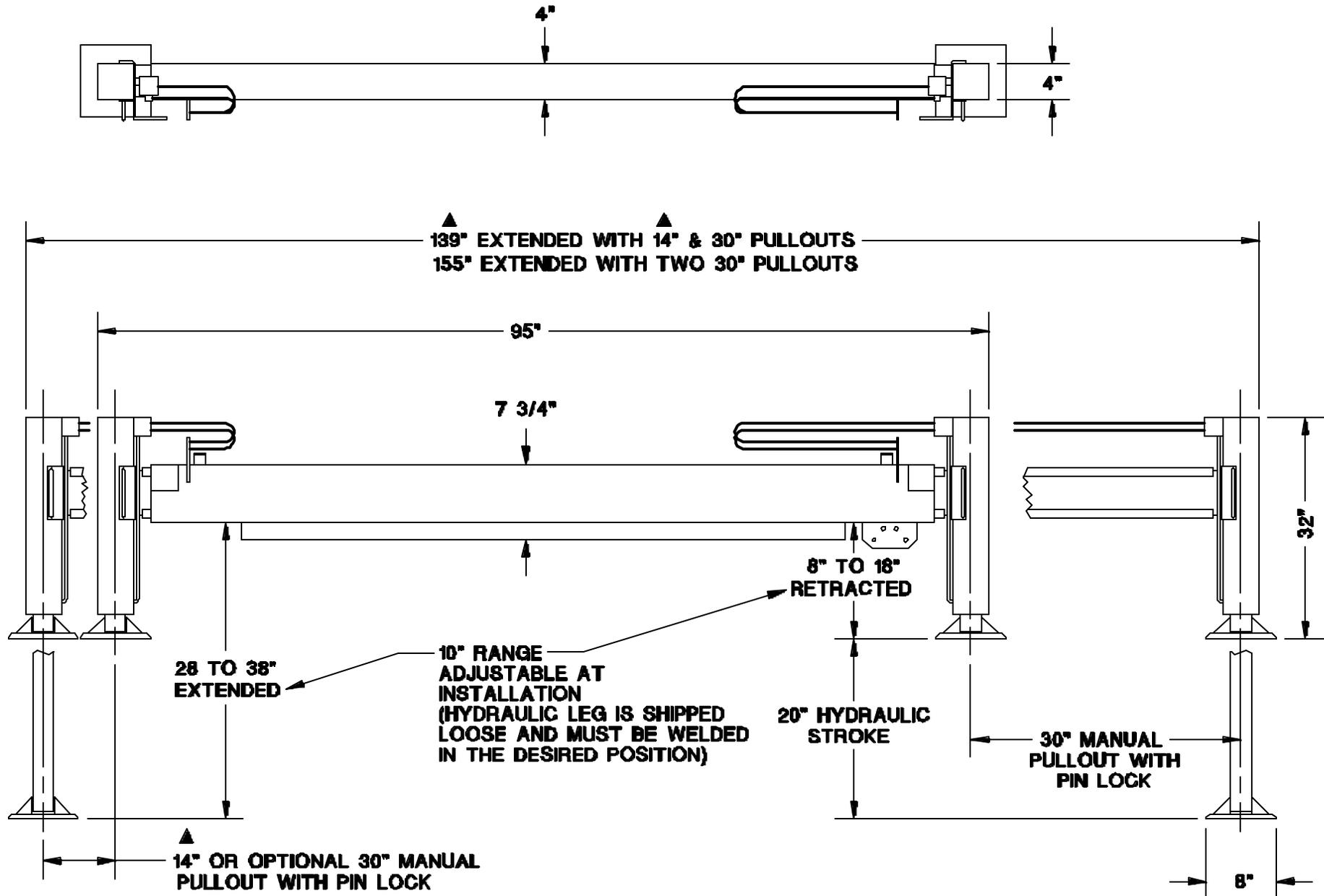
23962-CD-II CRANKDOWN OUTRIGGERS

DATE  
 7-30-99D

SUPERSEDES  
 1-19-99C

SECTION  
 C100

**22459**



**VENTURO** MANUFACTURING, INC.  
 CINCINNATI, OHIO

TITLE  
**INSTALLATION DWG**

**23962-PH-II (22403)**

DATE  
**7-30-99C**

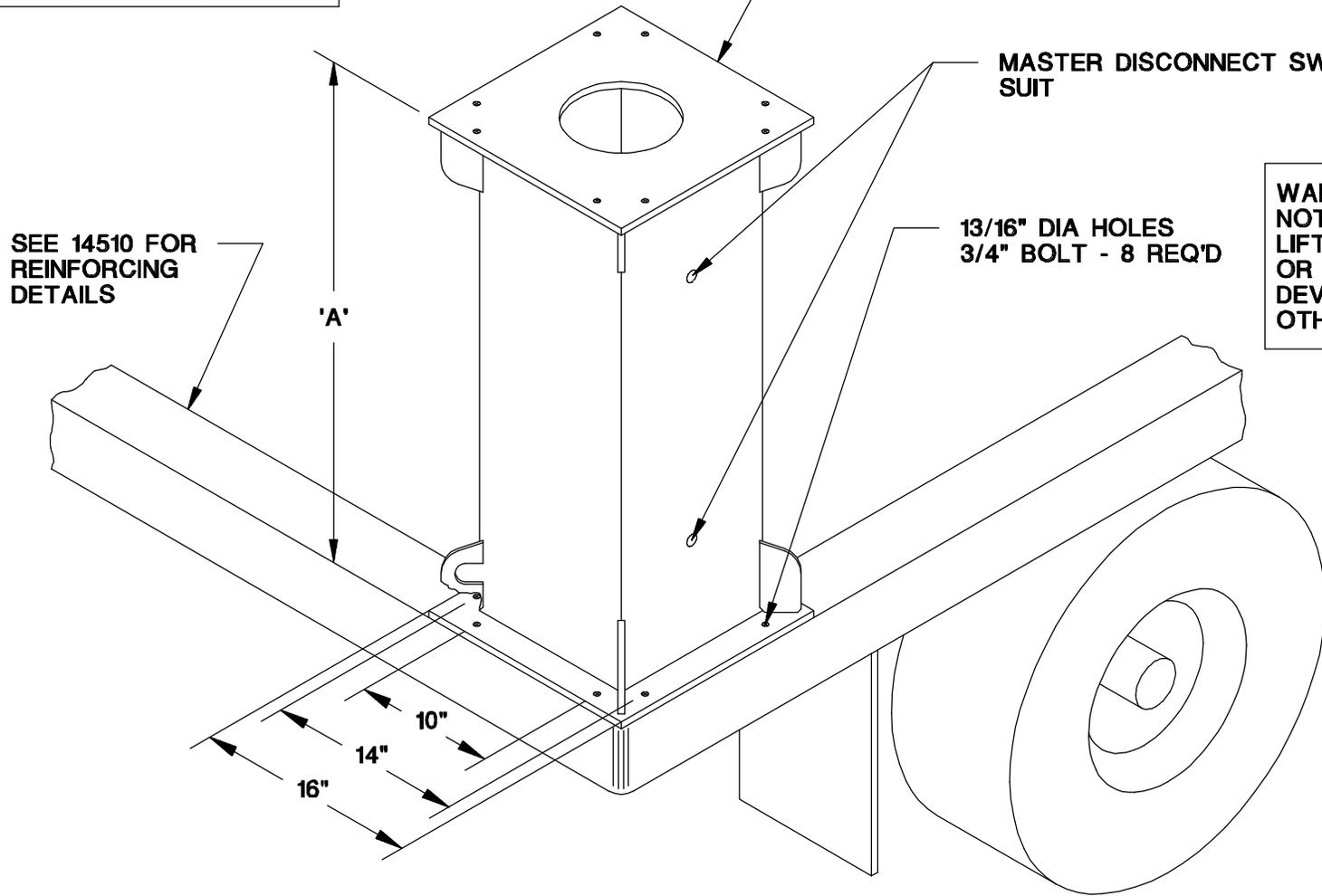
SUPERSEDES  
**1-19-99B**

SECTION  
**C100**

**22429**

'A' DIM	17350 DASH NO.
36"	-36
CONSULT VENTURO FOR OTHER (OPTIONAL) HEIGHTS	

17350 PEDESTAL SHOWN MOUNTED ON RIGHT REAR  
CORNER OF FLAT BED AS TYPICAL OF POSSIBLE  
MOUNTING POSITIONS; MAY ALSO BE MOUNTED  
BEHIND CAB.



MASTER DISCONNECT SWITCH - LOCATION TO  
SUIT

13/16" DIA HOLES  
3/4" BOLT - 8 REQ'D

SEE 14510 FOR  
REINFORCING  
DETAILS

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

**17350  
MOUNTING PEDESTAL**



TITLE  
**INSTALLATION DRAWING**

DATE  
**11-5-97**

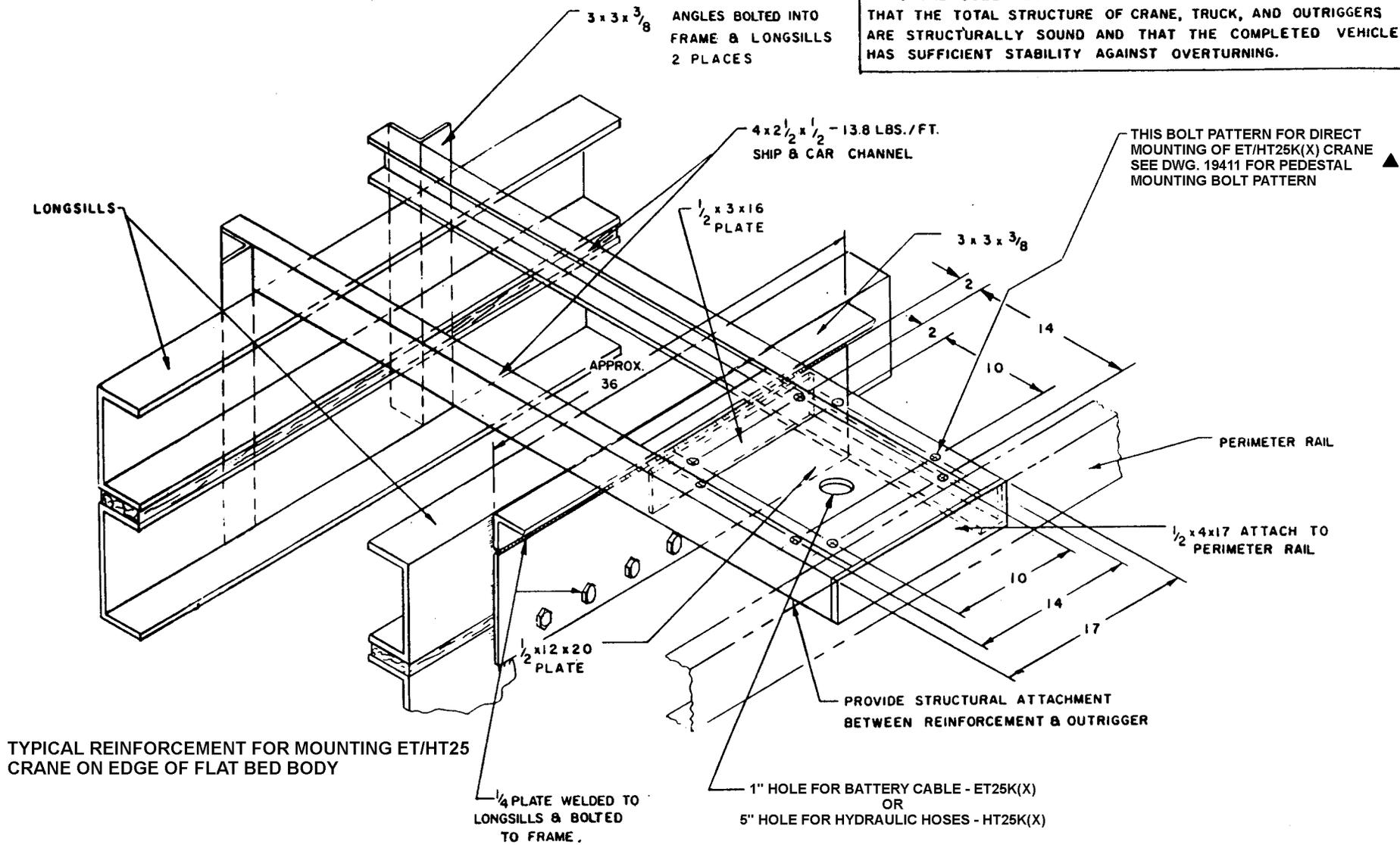
SECTION  
**C100**

**ET/HT25K(X)**

SUPERSEDES  
-

**19411**

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 REINFORCEMENT FOR MOUNTING ET/HT25 CRANE ON EDGE OF FLAT BED BODY



MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
INSTALLATION DRAWING

DATE  
4-8-99K

SECTION  
C100

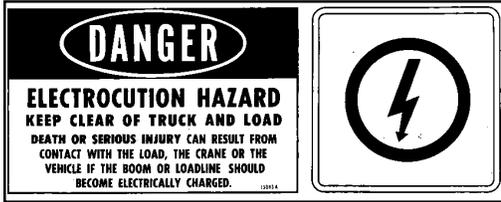
ET25K(X), HT25K(X)

SUPERCEDES  
11-2-98J

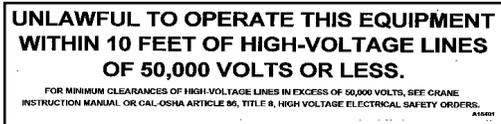
14510

# 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 <b>INSTALLATION DWG</b>	DATE <b>5-13-97G</b>	SECTION <b>C150</b>
<b>ET &amp; HT CRANE SERIES</b>	SUPERCEDES <b>7-15-96F</b>	<b>15394</b>

## CRANE SAFETY AND HAZARDS

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

### CAUTIONS

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

### DANGER

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

### YOU MUST NOT OPERATE THIS CRANE UNLESS

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**

**ET5500MPB-ET25KX**

DATE  
**10-14-97F**

SUPERCEDES  
**5-13-97E**

SECTION  
**C150**

**850711**

# 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
ET25K ET25KX	SEE DRAWING I24600 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.



MFG., INC.  
CINCINNATI, OHIO

TITLE  
**CABLE & BATTERY**

**CE, CT, DT, & ET**

DATE  
**8-10-00R**

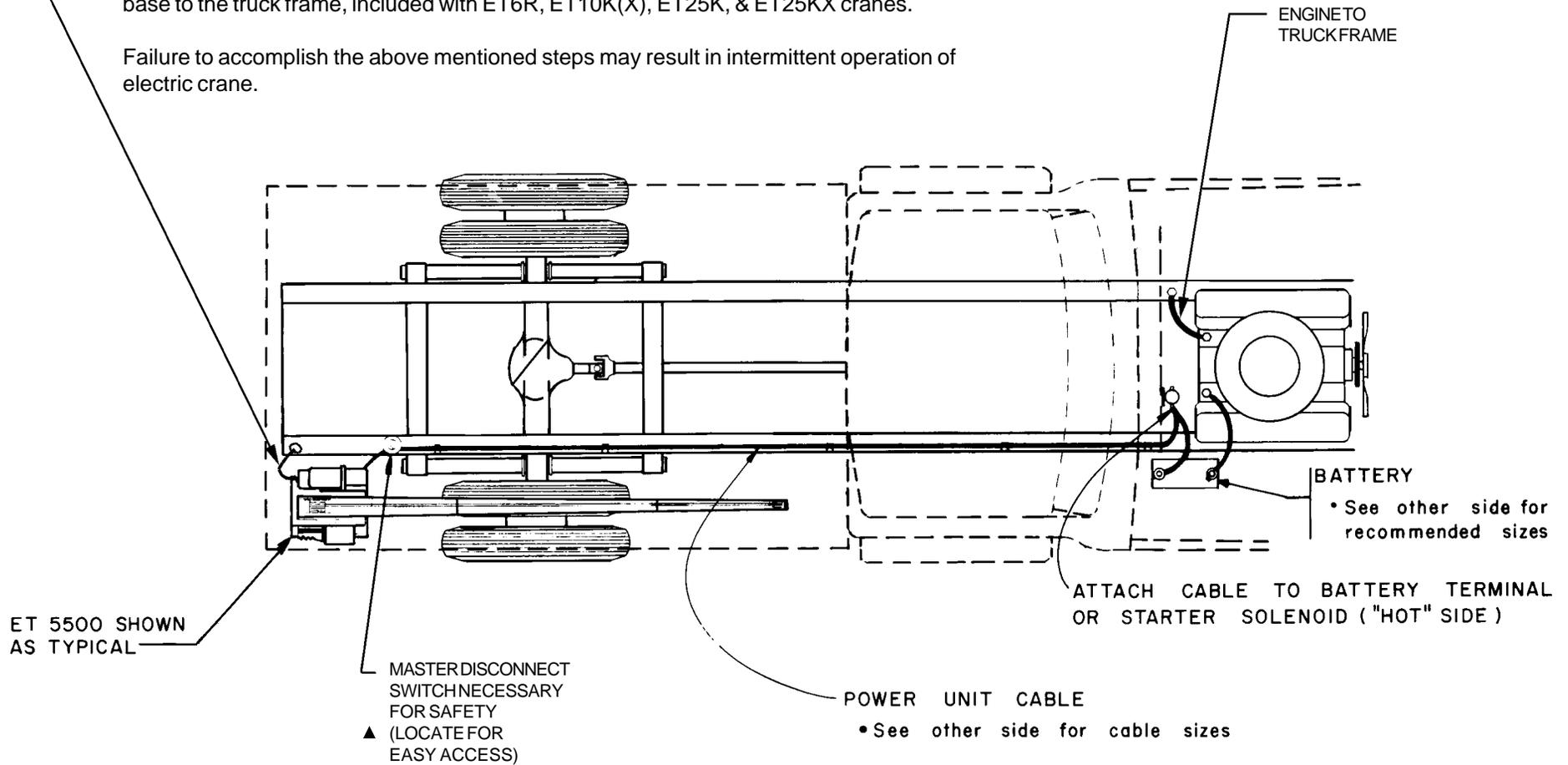
SUPERCEDES  
**3-3-99Q**

SECTION  
**C200**

**711105**

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 ET6R, ET10K(X), ET25K, & ET25KX cranes.

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



MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
**INSTALLATION - BATTERY CABLE**

DATE  
**11-7-01D**

SECTION  
**C200**

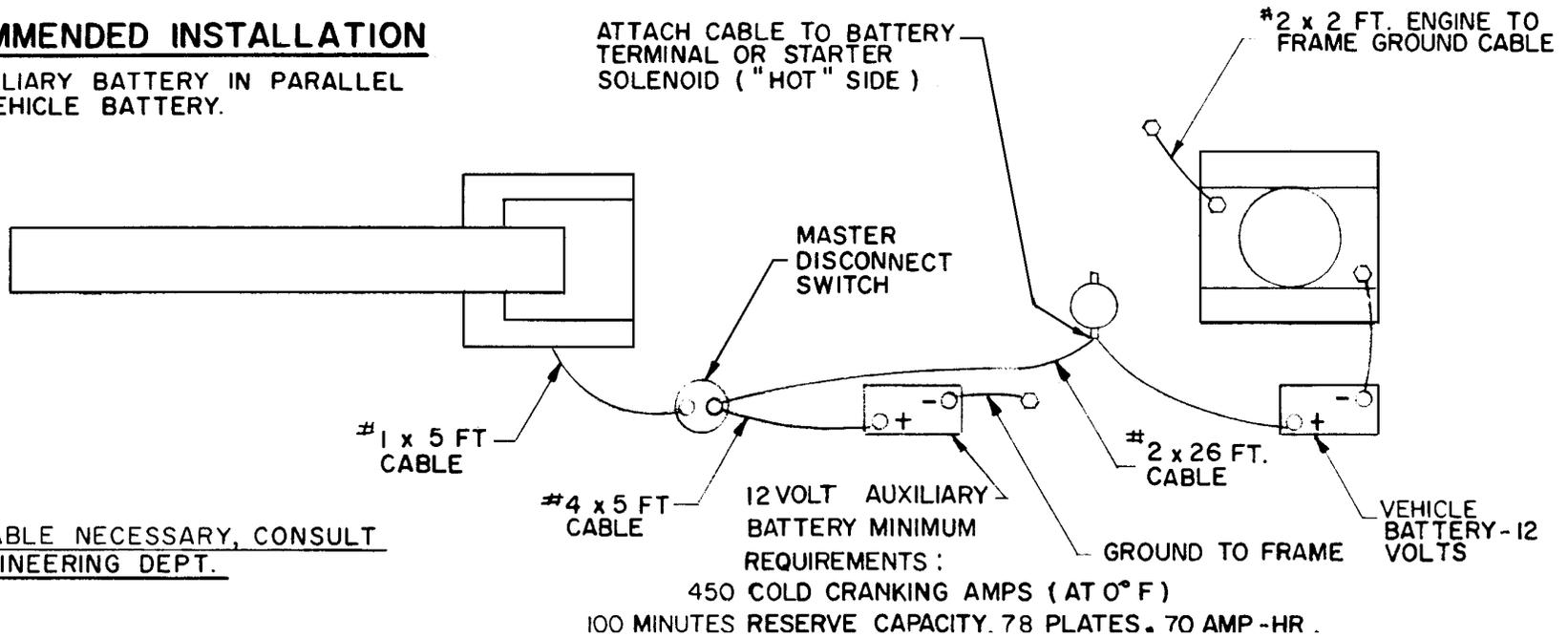
**WINCH & CRANE**

SUPERCEDES  
**10-10-01C**

**15660**

## RECOMMENDED INSTALLATION

W/ AUXILIARY BATTERY IN PARALLEL WITH VEHICLE BATTERY.



IF LONGER CABLE NECESSARY, CONSULT VENTURO ENGINEERING DEPT.

## LIMITED DUTY ALTERNATE INSTALLATION

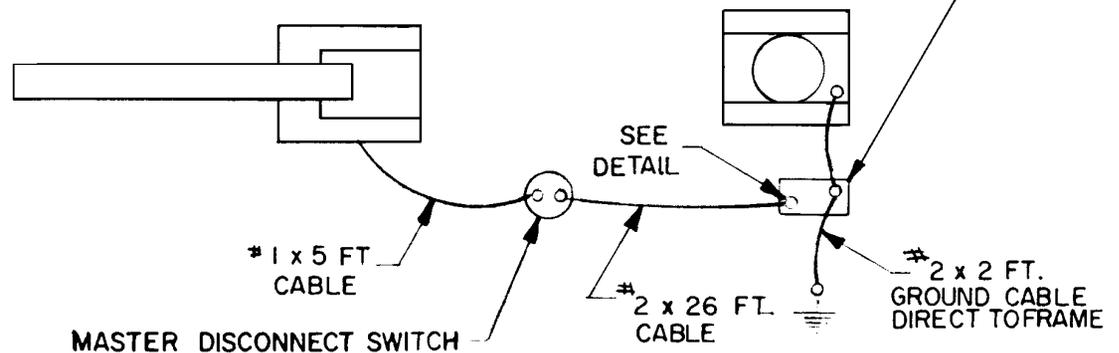
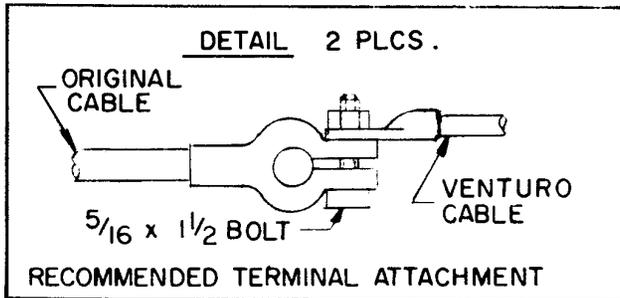
NOTE: ALTERNATE INSTALLATION MAY BE USED ONLY IF VEHICLE BATTERY MEETS MINIMUM REQUIREMENTS AND A #2 X 26 FT CABLE WILL REACH FROM THE MASTER DISCONNECT SWITCH DIRECTLY TO THE BATTERY (NOT THE SOLENOID).

12 VOLT VEHICLE BATTERY MINIMUM REQUIREMENTS

625 COLD CRANKING AMPS ( AT 0° F ),

160 MINUTES RESERVE CAPACITY,

102 PLATES, 105 AMP-HR. .



**VENTURO**

MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
**ELECTRICAL INSTALLATION**

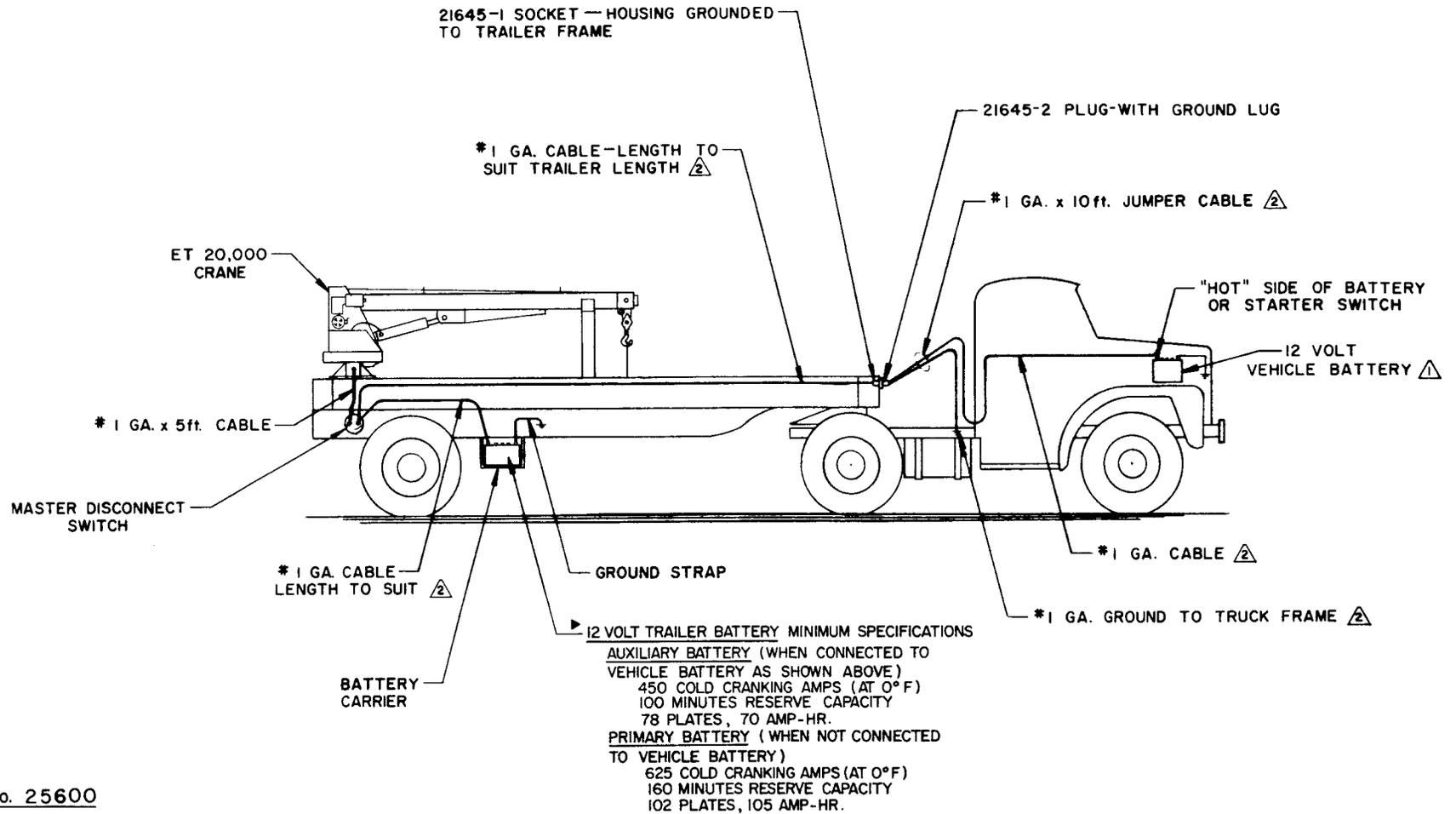
ET20K, ET25K(X)

DATE  
**6-24-98E**

SUPERCEDES  
**6-10-83D**

SECTION  
**C200**

**124600**



KIT No. 25600

⚠ KIT INCLUDES ALL ELECTRICAL COMPONENTS SHOWN EXCEPT BATTERIES.

⚠ KIT INCLUDES A TOTAL OF 75ft. OF #1 GA. CABLE FOR TRACTOR AND TRAILER.

RECOMMENDED TRAILER INSTALLATION  
 WITH AUXILIARY 12 VOLT BATTERY IN  
 TRAILER IN PARALLEL WITH TRACTOR BATTERY



MANUFACTURING, INC.  
 CINCINNATI, OHIO

TITLE  
 INSTALLATION DRAWING

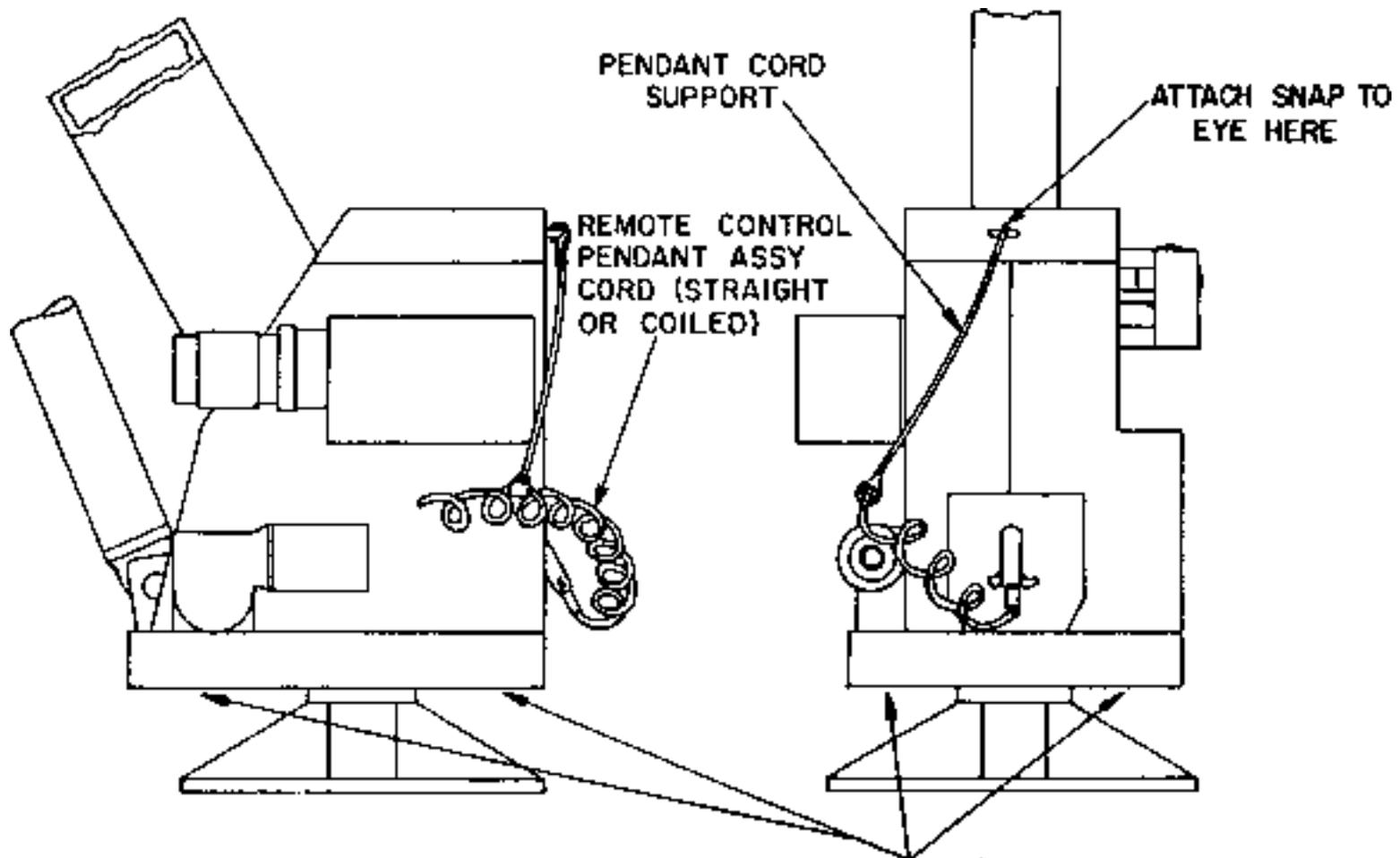
ET20K, ET25K(X)

DATE  
 6-24-98D

SUPERCEDES  
 8-30-82C

SECTION  
 C200

125600



**CAUTION: KEEP PENDANT CORD AWAY FROM THIS AREA**

**PENDANT CORD SUPPORT REDUCES STRAIN ON PLUG & HELPS KEEP THE CORD AWAY FROM THE AREA BETWEEN CRANE LOWER HOUSING & BASE**



MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
PENDANT CORD SUPPORT

DATE  
5-26-98C

SECTION  
C200

ET & HT CRANE SERIES

SUPERCEDES  
7-13-92B

**125618**

## SELECTION

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

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

## INSTALLATION

1. Unwind coil of rope by rolling it along floor. This will prevent kinking.
2. Most VENTURO Cranes are provided with a slot in the winch drum side plate for attaching the end of the wire rope with a stop collar. A hole in the housing allows access for the end of the wire rope when inserted thru the slot.

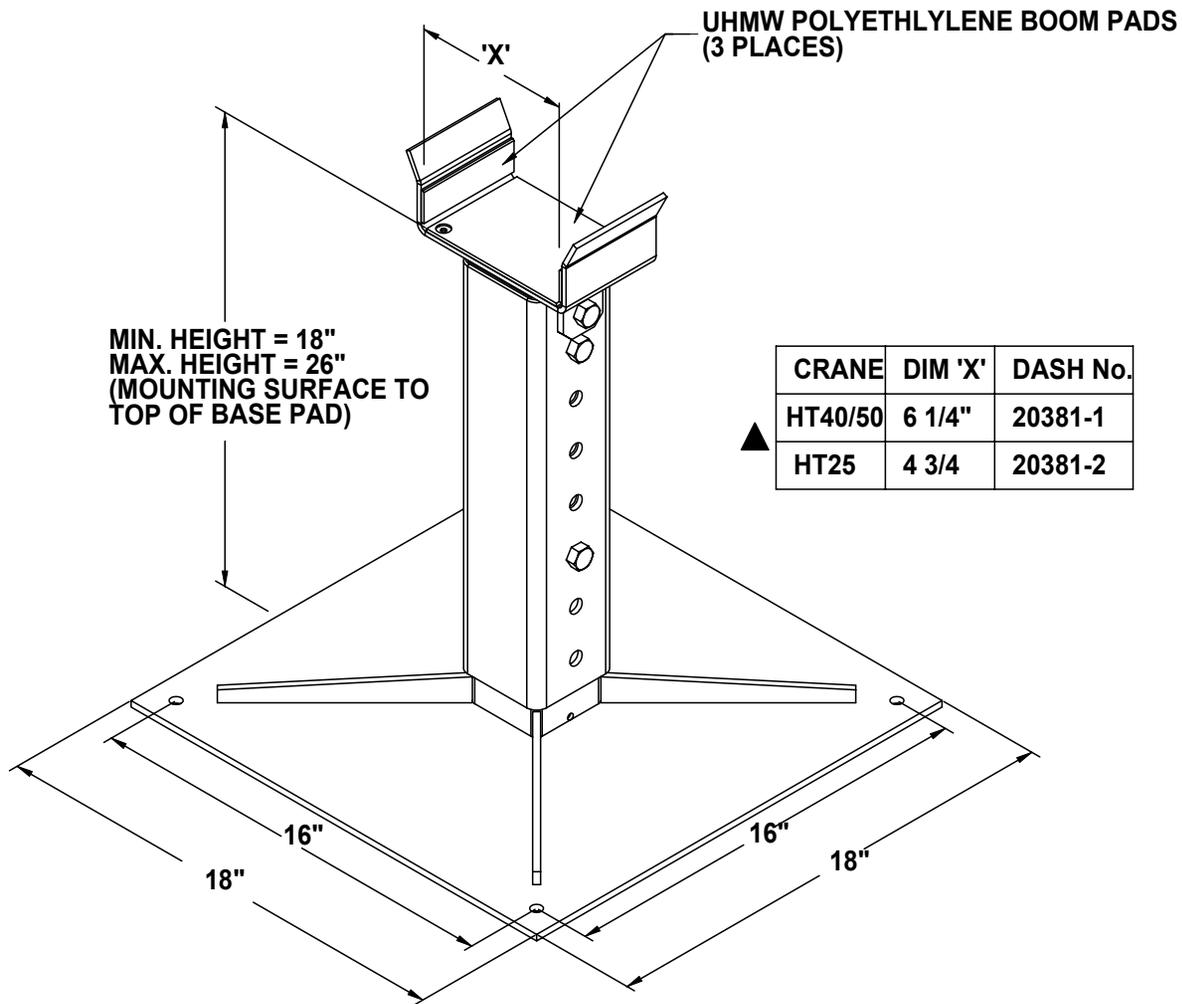
The ET20K(X) & ET25K(X) Cranes have a clamp built into the winch drum and do not use a stop collar.

3. THERE MUST ALWAYS BE AT LEAST (3) TURNS OF WIRE ROPE ON THE DRUM WHEN UNDER LOAD.



MFG., INC.  
CINCINNATI, OHIO

TITLE	DATE	SECTION
WIRE ROPE SPECS	10-23-97G	WC 200
VENTURO WINCH & CRANE	SUPERCEDES 4-27-92F	711006



WITH SINGLE ACTING  
ELEVATION CYLINDER  
MECHANICAL DEVICE IS  
NEEDED TO SECURE  
BOOM

**VENTURO** MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
**INSTALLATION DRAWING**

20381 ADJ. BOOM REST - ET/HT25, HT40/50

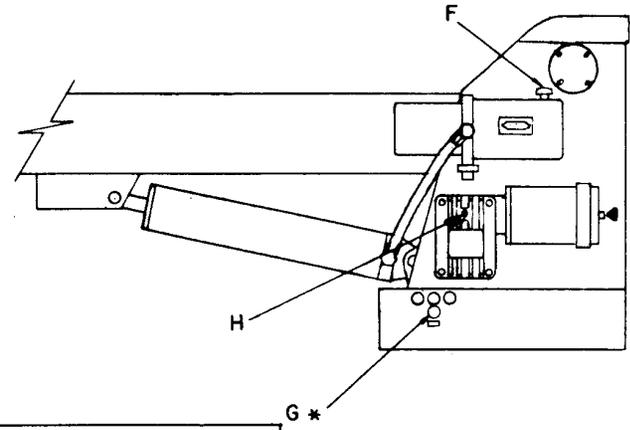
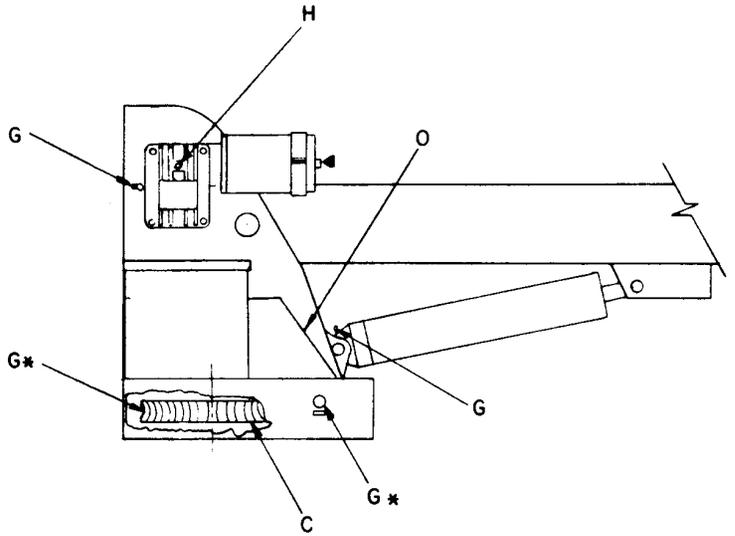
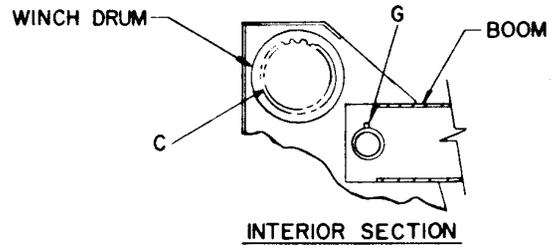
DATE  
**11-2-01B**

SUPERSEDES  
**5-7-01A**

SECTION

-

**20420**



		AMBIENT TEMPERATURE RANGE		
		-22°F TO 30°F	10°F TO 125°F	
F	FILL OIL RESERVOIR TO OIL LEVEL WITH BOOM DOWN	DEXRON ATF	10W-40 MOTOR OIL	TIME OF TRUCK SERVICE AND AS REQUIRED BY CHANGES IN THE AMBIENT TEMPERATURE RANGE.
H	FILL GEAR CASE TO BOTTOM EDGE OF HOLE	75W-90 ARTIC	85W-140	
		EP OR HYPOID GEAR OIL		
O	OIL CHAIN	LIGHT OIL		TIME OF TRUCK SERVICE
G*	APPLY EXCESSIVE GREASE TO REPLENISH PACKED GREASE (C)	CHASSIS GREASE		TIME OF TRUCK SERVICE
G	GREASE FITTING WITH PRESSURE GREASE GUN	CHASSIS GREASE		TIME OF TRUCK SERVICE
C	FILL GEAR TEETH	CHASSIS GREASE		TIME OF MAJOR TEAR DOWN
LOCATION	LUBRICATION REQUIRED	LUBRICANT USED		SERVICE

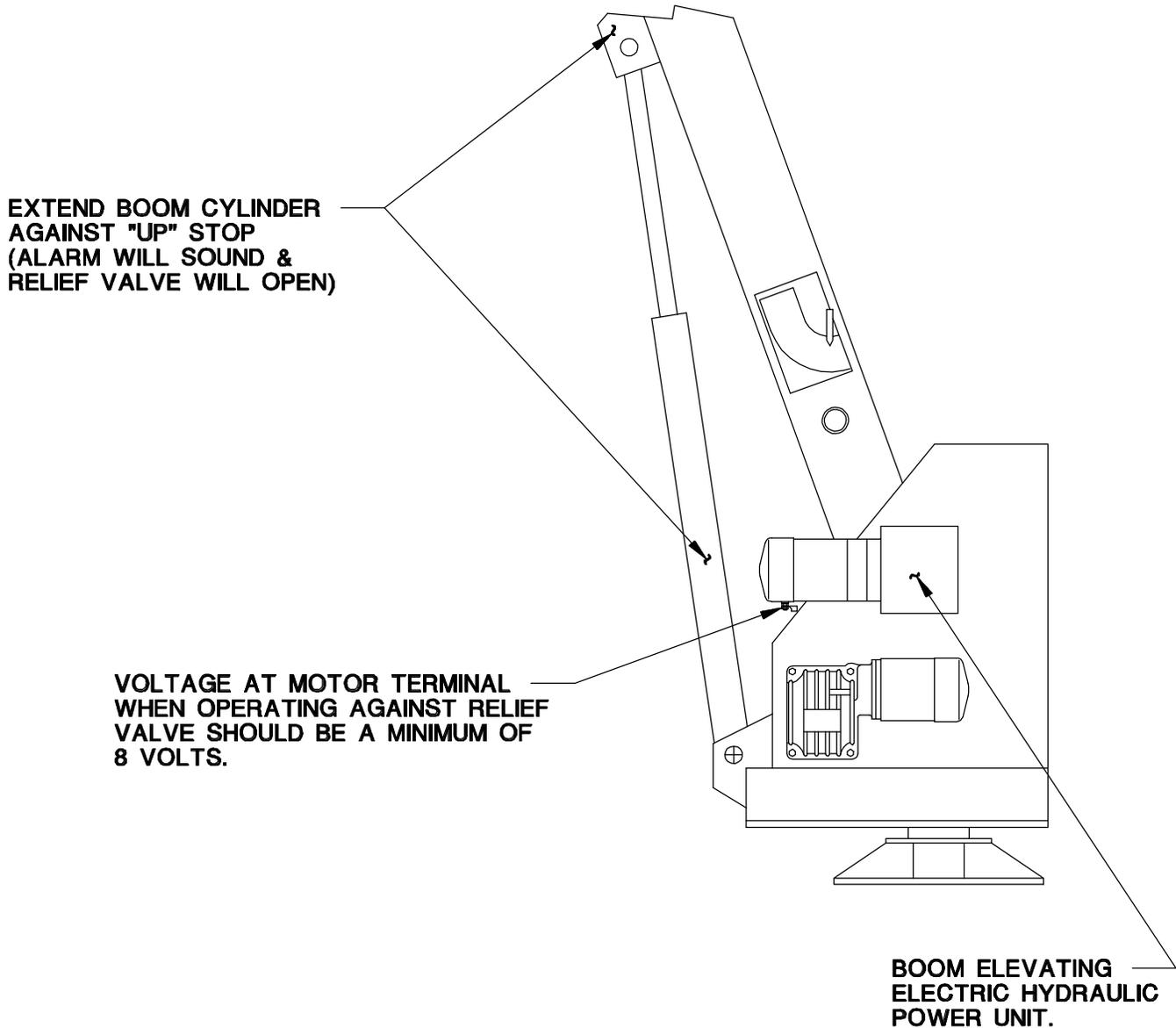
**VENTURO** MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE	DATE	SECTION
LUBRICATION CHART	6-24-98D	C300
ET20K(X), ET25K(X), ET30K, ET36KX	SUPERCEDES 6-1-92C	16510

**MINIMUM VOTAGE TEST**  
**ET20K, ET25K, ET25KX, ET30K, ET36KX**

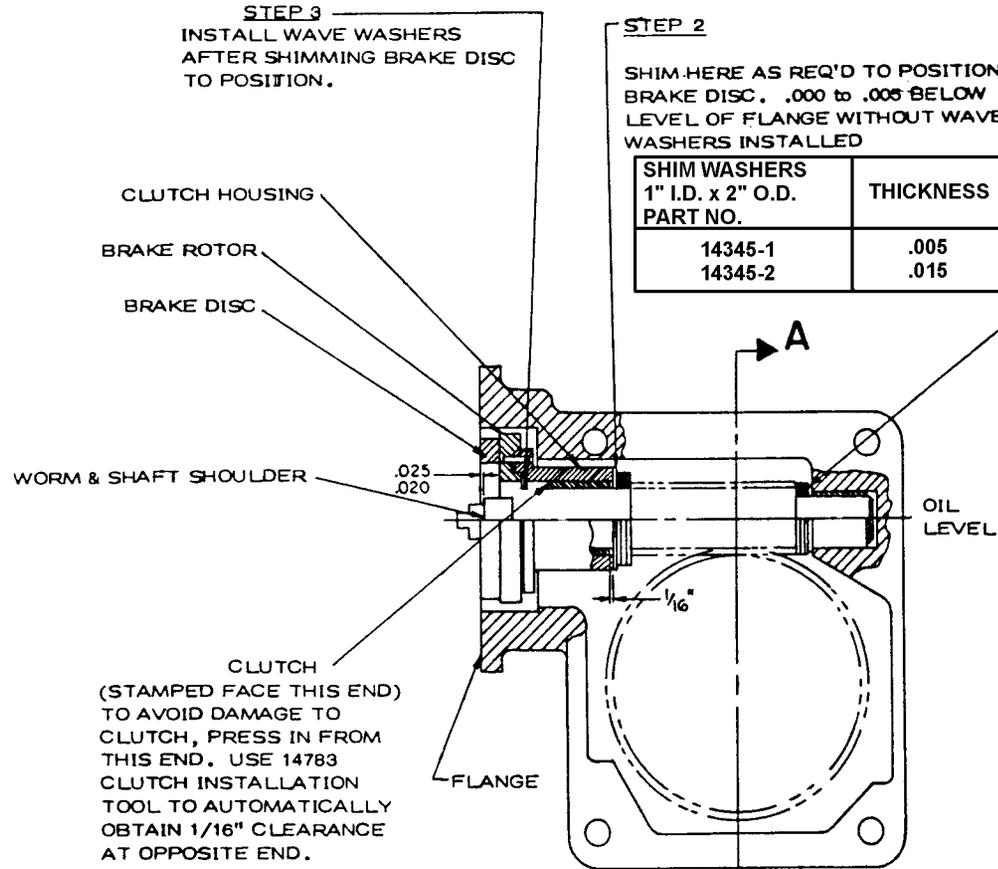
ONE OF THE MOST COMMON ELECTRICAL PROBLEMS ENCOUNTERED ON 12 VOLT ELECTRICAL CRANES IS INSUFFICIENT VOLTAGE AT THE MOTOR WHEN DRAWING THE LARGE CURENT THAT EXISTS AT FULL LOAD.

TO ISOLATE THIS PROBLEM PERFORM THE MINIMUM VOLTAGE TEST BELOW:



# WINCH POWER UNIT 24408, 17111 & 17112

(SEE 24499-1 FOR SECTION A-A ON BACK OF PAGE)



**STEP 3**  
INSTALL WAVE WASHERS  
AFTER SHIMMING BRAKE DISC  
TO POSITION.

**STEP 2**  
SHIM HERE AS REQ'D TO POSITION  
BRAKE DISC. .000 to .005 BELOW  
LEVEL OF FLANGE WITHOUT WAVE  
WASHERS INSTALLED

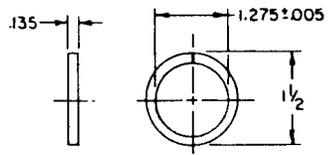
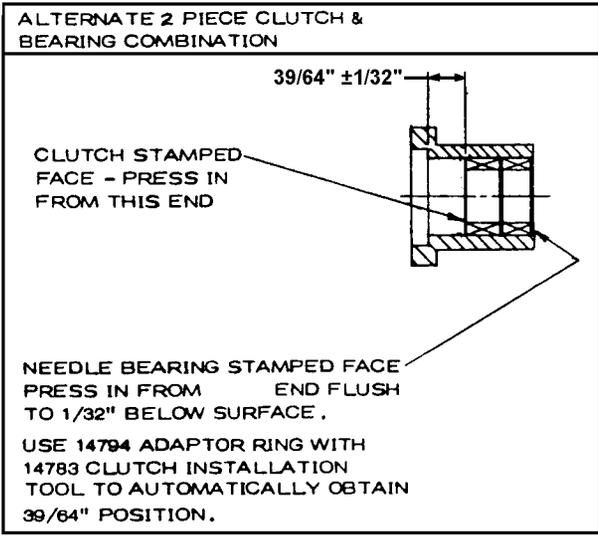
SHIM WASHERS 1" I.D. x 2" O.D. PART NO.	THICKNESS
14345-1	.005
14345-2	.015

**STEP 1**  
SHIM HERE AS REQ'D TO POSITION WORM &  
SHAFT SHOULDER .020 TO .025 BELOW  
LEVEL OF FLANGE.

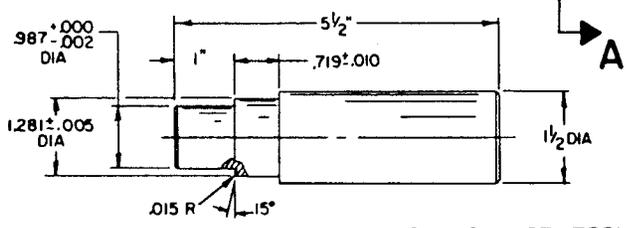
SHIM WASHERS 3/4" I.D. x 1 1/2" O.D. PART NO.	THICKNESS
12943-1	.005
12943-2	.015

**STEP 4**  
FILL GEAR CASE W/22 OZ.  
OF 85W - 140 E.O. OR  
HYPOID GEAR OIL BEFORE  
ATTACHING MOTOR

CLUTCH  
(STAMPED FACE THIS END)  
TO AVOID DAMAGE TO  
CLUTCH, PRESS IN FROM  
THIS END. USE 14783  
CLUTCH INSTALLATION  
TOOL TO AUTOMATICALLY  
OBTAIN 1/16" CLEARANCE  
AT OPPOSITE END.



**#14794 ADAPTER RING**  
STEEL RING, 1 1/2" O.D. X.  
1.275" I.D. X .135" THK.  
WITH 1/32" - 3/32" SPLIT



**#14783 CLUTCH INST. TOOL**

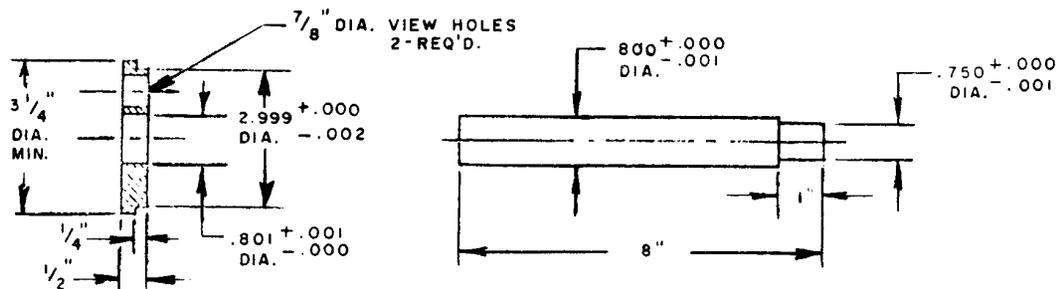


MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE <b>ASSEMBLY &amp; SERVICE INSTRUCTIONS</b>	DATE <b>6-24-98B</b>	SECTION <b>C300</b>
<b>ET20K(X), ET25K(X), ET30K, ET36KX</b>	SUPPERCEDES <b>6-15-92A</b>	<b>24499-8</b>

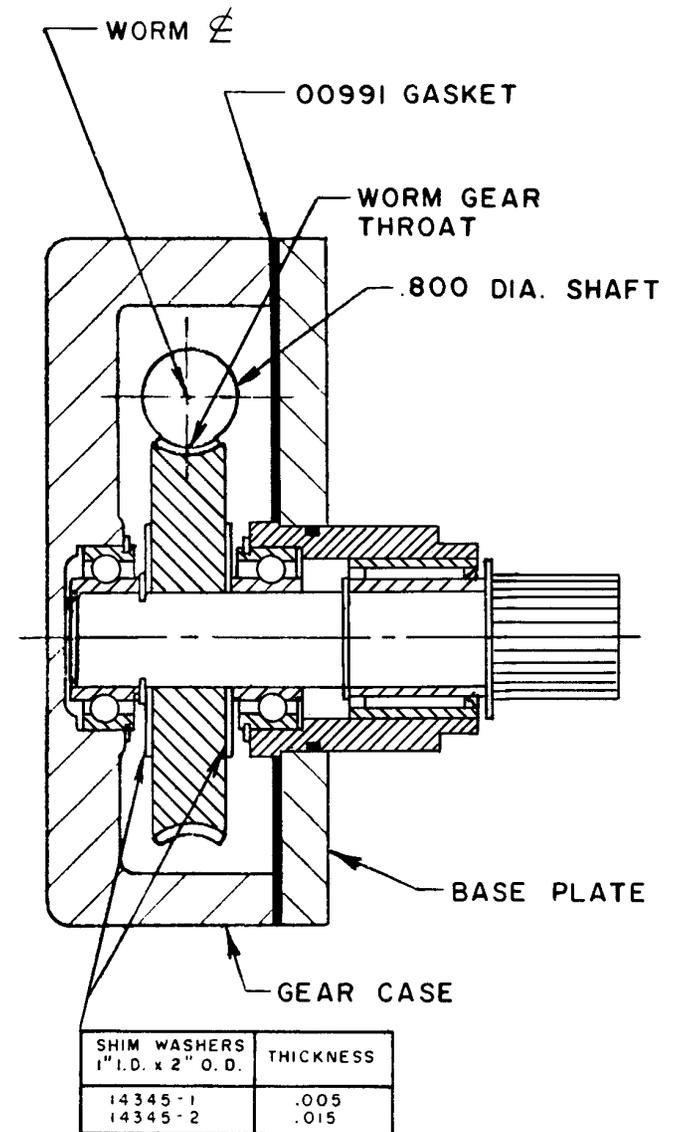
## CENTERING WORM GEAR WITH WORM $\mathcal{E}$

- STEP 1** Assemble worm gear into gear case & base plate with .015 shim on each side of worm gear.
- STEP 2** Check for excessive tightness or looseness of output shaft in bearings. Shaft should spin free but not have noticeable play. Add or remove shims equally from both sides as required.
- STEP 3** Check centering of worm gear throat on worm  $\mathcal{E}$  with 14781 inspection shaft & 14782 inspection flange. Worm gear should spin free with shaft & flange in place. If worm gear does not spin free, determine which way it must be shifted by viewing contact between shaft & worm throat thru view hole in flange. Remove shims from one side & add same amount to other side to center worm gear.



14782 INSPECTION FLANGE

14781 INSPECTION SHAFT



SECTION A-A



MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
ASSEMBLY & SERVICE INSTRUCTIONS

DATE  
6-24-98B

SECTION  
C300

ET20K(X), ET25K(X), ET30K

SUPERCEDES  
6-16-92A

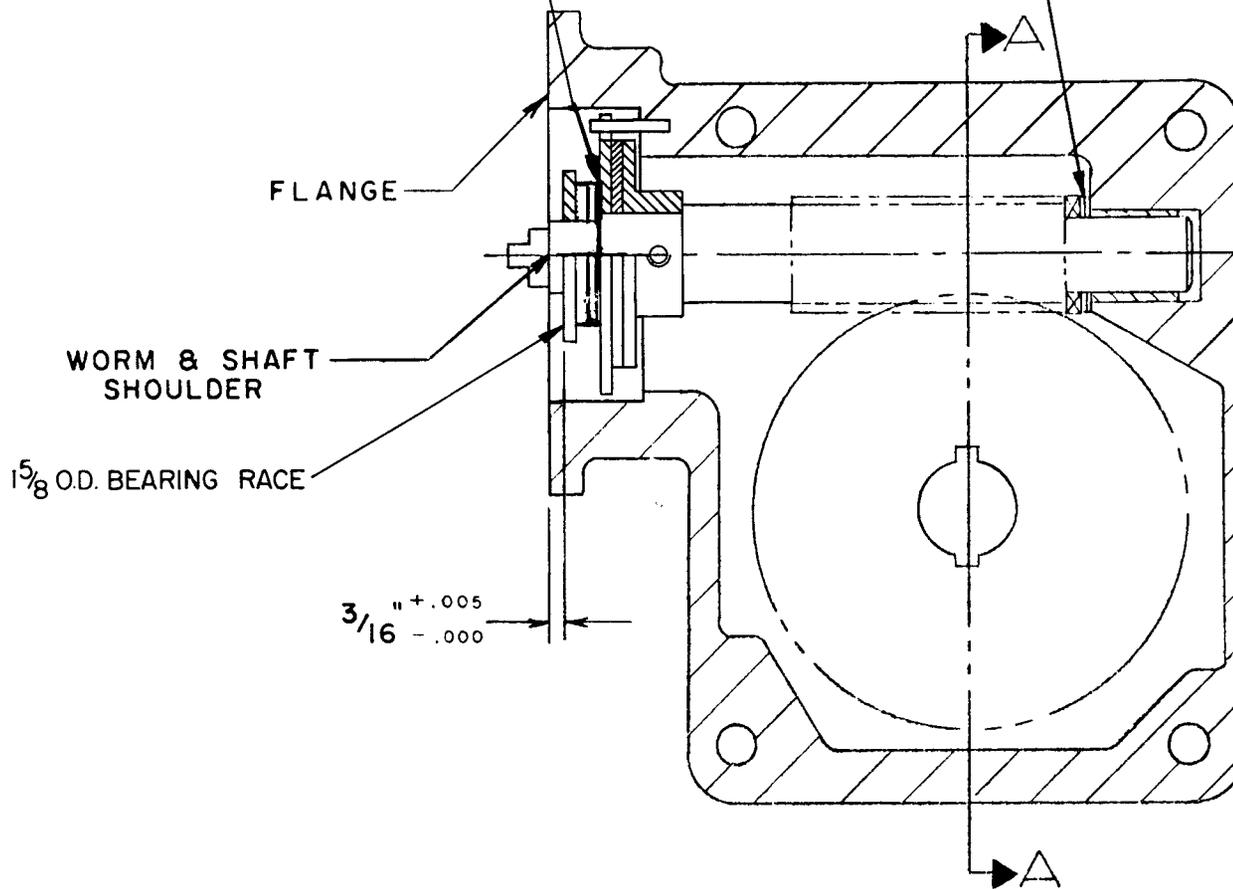
24499-1

**STEP 2**

SHIM HERE TO  $3/16$ "  $+ .005$   
DIMENSION.  $- .000$

**STEP 1**

SHIM HERE AS REQ'D. TO POSITION  
WORM & SHAFT SHOULDER  $.005$  TO  
 $.010$  BELOW LEVEL OF FLANGE.



SHIM WASHERS		THICKNESS
$3/4$ " I. D. x $1/2$ " O. D.	PART NO.	
	12943-1	.005
	12943-2	.015

OIL LEVEL

**STEP 3**

FILL GEAR CASE WITH **22 OZ.**  
OF 85W-140 E. P. OR HYPOID  
GEAR OIL BEFORE ATTACHING  
MOTOR.

**ROTATION POWER UNIT WITH HIGH OIL LEVEL**  
**26439, 24409, 14407, 14409 & 17471**

(SEE 24499-2 FOR SECTION A-A ON BACK OF PAGE)



MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
**ASSEMBLY & SERVICE INSTRUCTIONS**

DATE  
**6-24-98B**

SECTION  
**C300**

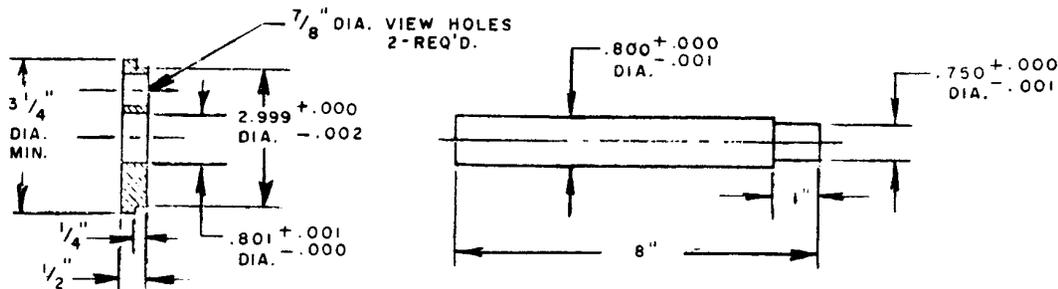
**ET20K(X), ET25K(X), ET30K**

SUPERCEDES  
**6-16-92A**

**24499-9**

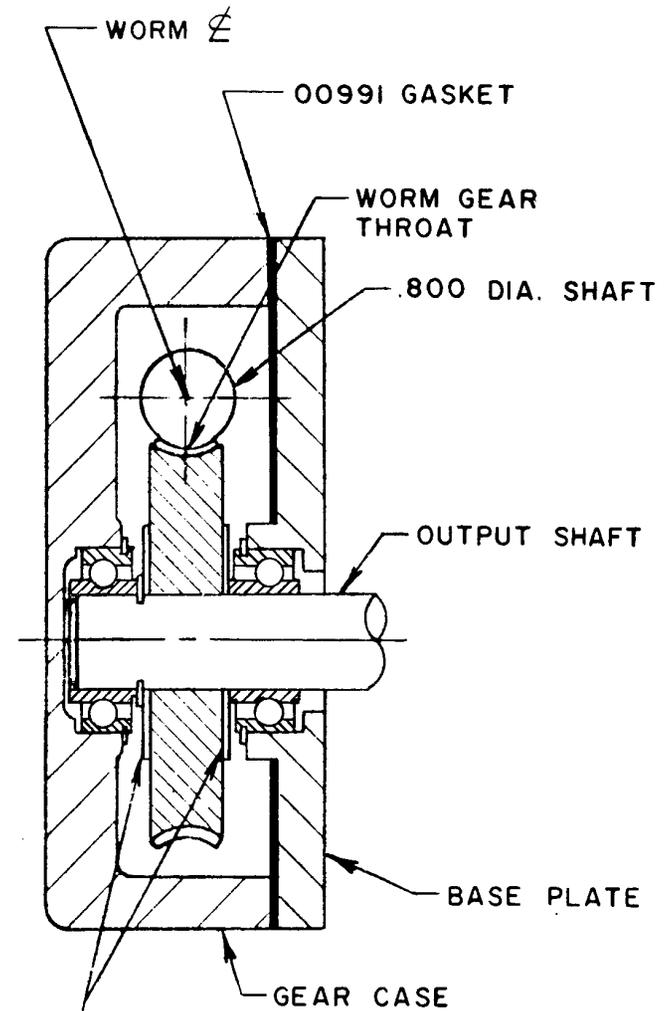
## CENTERING WORM GEAR WITH WORM $\cancel{E}$

- STEP 1** Assemble worm gear into gear case & base plate with .015 shim on each side of worm gear.
- STEP 2** Check for excessive tightness or looseness of output shaft in bearings. Shaft should spin free but not have noticeable play. Add or remove shims equally from both sides as required.
- STEP 3** Check centering of worm gear throat on worm  $\cancel{E}$  with 14781 inspection shaft & 14782 inspection flange. Worm gear should spin free with shaft & flange in place. If worm gear does not spin free, determine which way it must be shifted by viewing contact between shaft & worm throat thru view hole in flange. Remove shims from one side & add same amount to other side to center worm gear.



14782 INSPECTION FLANGE

14781 INSPECTION SHAFT



SHIM WASHERS 1" I.D. x 2" O.D.	THICKNESS
14345-1	.005
14345-2	.015

SECTION A-A



MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
ASSEMBLY & SERVICE INSTRUCTIONS

DATE  
6-24-98B

SECTION  
C300

ET20K(X), ET25K(X), ET30K

SUPERCEDES  
6-16-92A

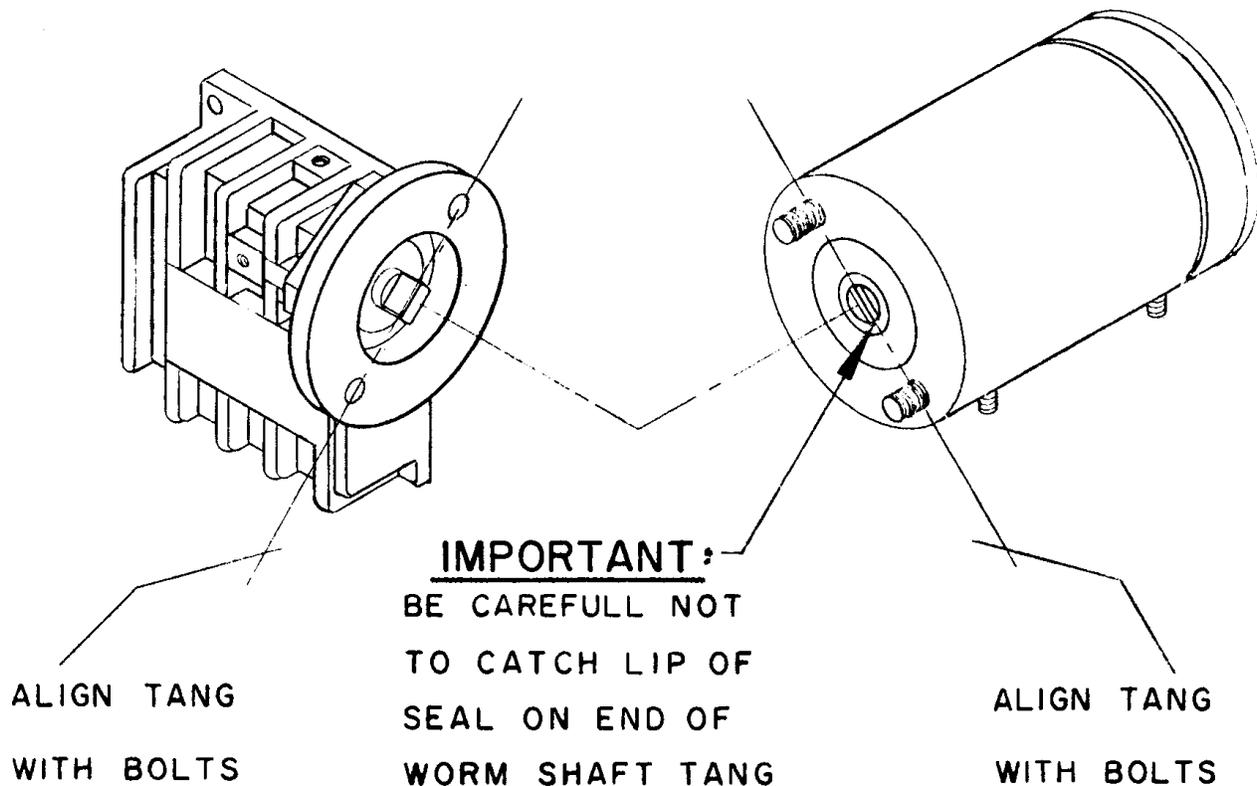
24499-2

## FIELD SERVICE BULLETIN

### INSTALLATION OF 16115 & 17532 MOTORS ON ROTATION & WINCH POWER UNITS

#### PROCEDURE:

1. REFER TO DRAWING 760302/14501 FOR REPLACEMENT PARTS
2. CHECK WORM & SHAFT SHOULDER POSITION PER DRAWING 14499-6 & READJUST SHIMS AS REQUIRED. THIS IS MANDATORY IF GEAR HEAD COMPONENT PARTS HAVE BEEN REPLACED.
3. CAREFULLY ALIGN TANG ON GEAR HEAD INPUT SHAFT WITH HOLES IN FLANGE & TANG SLOT IN MOTOR WITH MOTOR MOUNTING STUDS.
4. PRESTRETCH LIP OF 00992 MOTOR SHAFT SEAL OPEN WITH FINGER TIPS AND LUBRICATE SEAL LIP WITH GEAR OIL.
5. WHEN INSTALLING MOTOR, BE CAREFUL NOT TO CATCH LIP OF SEAL ON END OF SHAFT TANG OR SHOULDER AS SEALING LIP MAY BE DAMAGED OR THE SPRING KNOCKED OUT OF THE SEAL.



MFG., INC.  
CINCINNATI, OHIO

TITLE  
INSTALLATION DRAWING

ET25K(X)

DATE  
6-24-98C

SUPERCEDES  
10-2-80B

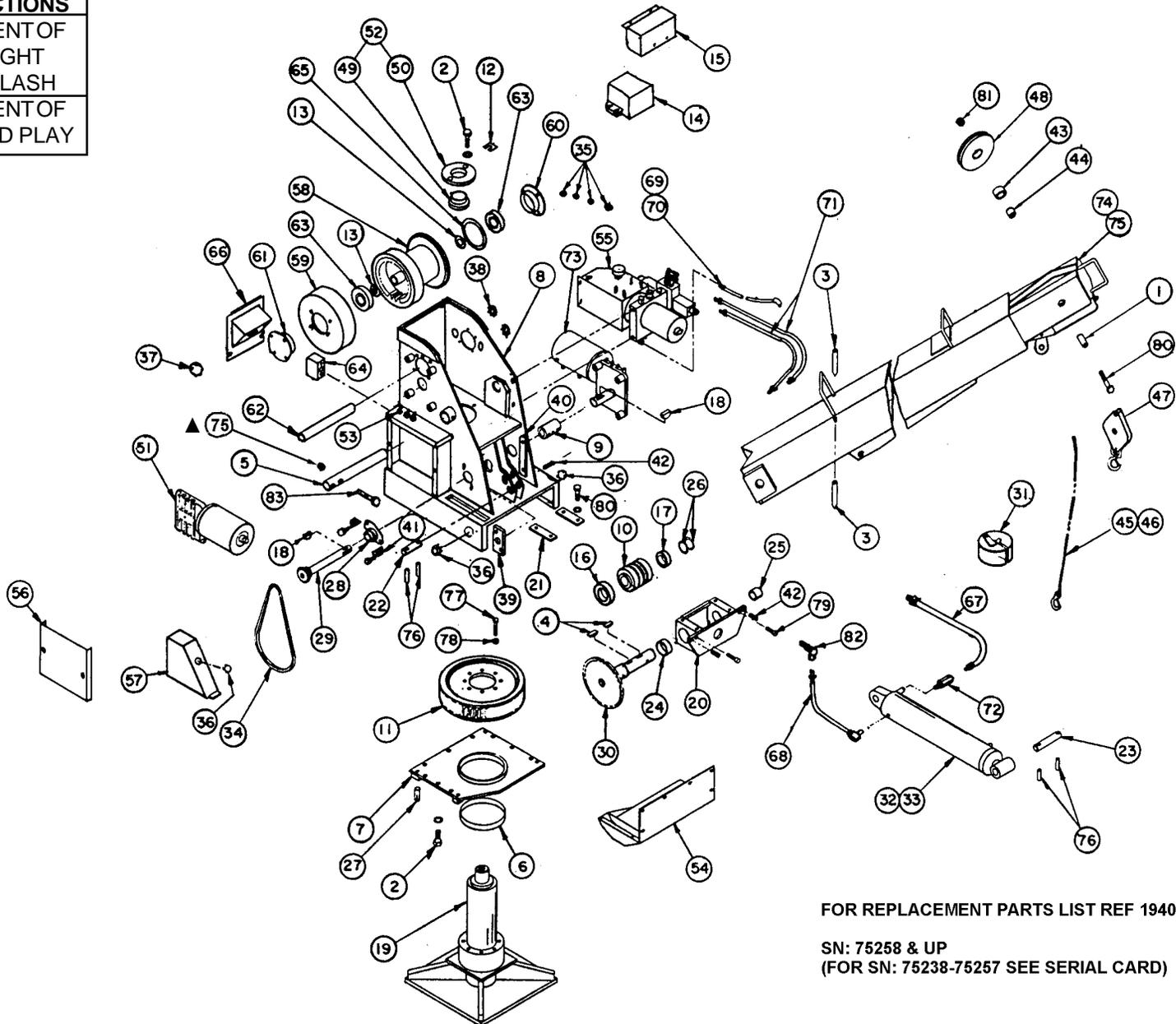
SECTION  
C300

780607

**SERVICE INSTRUCTIONS**

14544 ADJUSTMENT OF  
WORM HEIGHT  
AND BACKLASH

14553 ADJUSTMENT OF  
WORM END PLAY



FOR REPLACEMENT PARTS LIST REF 19404

SN: 75258 & UP  
(FOR SN: 75238-75257 SEE SERIAL CARD)



MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
**REPLACEMENT PARTS**

DATE  
**5-1-01B**

SECTION  
**C420**

**ET25KX**

SUPERCEDES  
**10-17-97A**

**119260**

ITEM #	PART #	DESCRIPTION	ITEM #	PART #	DESCRIPTION
1	13168-2	SLEEVE - 3/4" OD x 5/8" ID x 1 1/16" LONG	40	15252	NUT BAR
2	IHHCS05013125-5	HEX HEAD CAP SCREW - 1/2"-13 x 1 1/4" GRADE 5	41	-	OBSOLETE
3	13459-2	ARROW	42	25593	SET SCREW - 1/2"-20 x 1"
4*	15245	WOODRUFF KEY - 5/16" x 1 1/8" (MODIFIED)	43	15808	BEARING - 1 1/4" ID x 1 5/8" OD x 11/16" LONG
5	13918	PIVOT PIN, BOOM - 1 1/2" OD x 11 3/4"	44	15809	SPACER - 3/4" ID x 1 1/4" OD x 21/32" LONG
6	13978	LOWER BEARING	45	25810-5/16-80	WIRE ROPE ASSY - 5/16" x 80 FT (10/20 FT BOOM)
7	26361-2	BEARING PLATE	46	-	-
8	18713	WELDED HOUSING ASSY	47	23169	SWIVEL SNATCH BLOCK ASSEMBLY
9	14084	COUPLING	48	23911	SHEAVE (INCLUDES ITEMS 1, 43, 44, 80, & 81)
10	14142-4	WORM - SINGLE THREAD RH	49	24342	FLANGED BEARING - 2" BORE x 3" OD FLANGE
11	14143-4	WORM GEAR - 48T, 4 PITCH	50	24383	BEARING HOUSING - 1 1/8" LONG
12*	14159	SHIM - 1 1/2" SQ x .015", .042", .105"	51	17530	WINCH POWER UNIT
13*	15675	SHIM - 1 1/4" ID x .015", .031"	52	25570	BEARING AND HOUSING ASSY (ITEMS 49, 50)
14	17356	OVERLOAD ALARM	53	-	OBSOLETE
15	-	OBSOLETE	54	26272-2/-3	FRONT COVER (-2) AND LOWER COVER (-3)
16	14191-1	BALL THRUST BEARING - 2" ID x 3 11/32" OD	55	18440	ELECTRIC HYDRAULIC POWER UNIT
17	14191-2	BALL THRUST BEARING - 1 1/2" ID x 2 19/32" OD	56	26362	SIDE COVER
18*	26404	WOODRUFF KEY - 1/4" x 1" (MODIFIED)	57	26363	CHAIN COVER
19	14237	QUILL ASSEMBLY	58	26365	CABLE DRUM
20	14242	HOUSING, WORM GEAR	59	26370	WINCH DRUM COVER
21	14245	WASHER PLATE	60	26372-1	BEARING CUP - LH
22	18727	PIVOT PIN, CYL TAIL - 1 1/4" OD x 3 3/16" LONG	61	26372-2	BEARING CUP - RH
23	18728	PIVOT PIN, CYL ROD - 1 1/4" OD x 5 3/16" LONG	62	26373	DRUM SHAFT
24	14341-1	BUSHING - 2" ID x 2 1/4" OD x 1" LONG	63	26374	BALL BEARING - 1 1/4" BORE x 2 9/16" OD
25	14341-2	BUSHING - 1 1/2" ID x 1 3/4" OD x 1" LONG	64	-	OBSOLETE
26*	14344	SHIM WASHER - 1 1/2" ID x 2 1/8" OD x .005", .015", .031" THK	65	26379	NUTRING
27*	14353	COIL PIN - 1/2" OD x 1 1/2" LONG	66	26390	REAR COVER
28	14356	FLANGE MOUNTED BALL BEARING - 1" BORE	67	-	OBSOLETE
29	14377	SPROCKET AND SHAFT ASSEMBLY (10T SPROCKET)	68	26396	CYLINDER HOSE, PRESSURE SWITCH - 3/16" X 13"
30	14384	SPROCKET AND SHAFT ASSEMBLY (40T SPROCKET)	69	26397-33.5	CYL RETURN HOSE - 3/8" x 33.5"
31	14426	HEADACHE BALL ASSEMBLY - 9 LBS, NOT REQ. WITH 29 LBS SNATCH BLOCK	70	-	-
32	18700-2	ELEVATION CYLINDER	71	19329/19330	BOOM EXTENSION HOSES
33	-	-	72	26415	SWIVEL JOINT
34	14481	ROTATION DRIVE CHAIN	73	17471	ROTATION POWER UNIT
35	14776	GROMMET - 5/8" ID x 7/8" OD x 3/16" GROOVE	74	18971	BOOM ASSY - 10/20 FT (COMPLETE ASSY)
36	14858-1	SNAP IN PLUG - 7/8"	75	!LNUT-03816 ▲	LOCKNUT - 3/8"-16 ▲
37	RL-644	SNAP IN PLUG - 1" (SAME AS ITEM 38)	76	IRPIN-025175	ROLL PIN - 1/4" DIA x 1 3/4"
38	RL-644	SNAP IN PLUG - 1" (SAME AS ITEM 37)	77	18927	SOCKET HEAD CAP SCREW - 1/2"-13 x 3" LONG
39	15251	NUT BAR	78	!HWSH-050-LOCK	HI-COLLAR LOCK WASHER - 1/2"
			79	!SHCS05020125	SOCKET HEAD CAP SCREW - 1/2"-20 x 1 1/4" LONG
		FOR REPLACEMENT PARTS DWG REF I19260	80	!HHCS06311175	HEX HEAD CAP SCREW - 5/8"-11 x 1 3/4"
			81	!JNUT-06311N	SELF LOCKING JAM NUT - 5/8"-11
			82	HELB4MP-4FX-90	SWIVEL ADAPTER - 90 DEG ELBOW - 1/4 NPT
			83	!HHCS03816275 ▲	HEX HEAD CAP SCREW - 3/8"-16 x 2 3/4" ▲
			*	16476	SHIM, PIN, & KEY KIT (INCLUDES * ITEMS)
				22600-1 ▲	FIELD SERVICE LABEL KIT - ET25KX
		▲ ITEM NOT SHOWN ON REPLACEMENT PARTS DRAWING			<b>SN: 75305 &amp; UP</b>



MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
**REPLACEMENT PARTS**

DATE  
**5-1-01D**

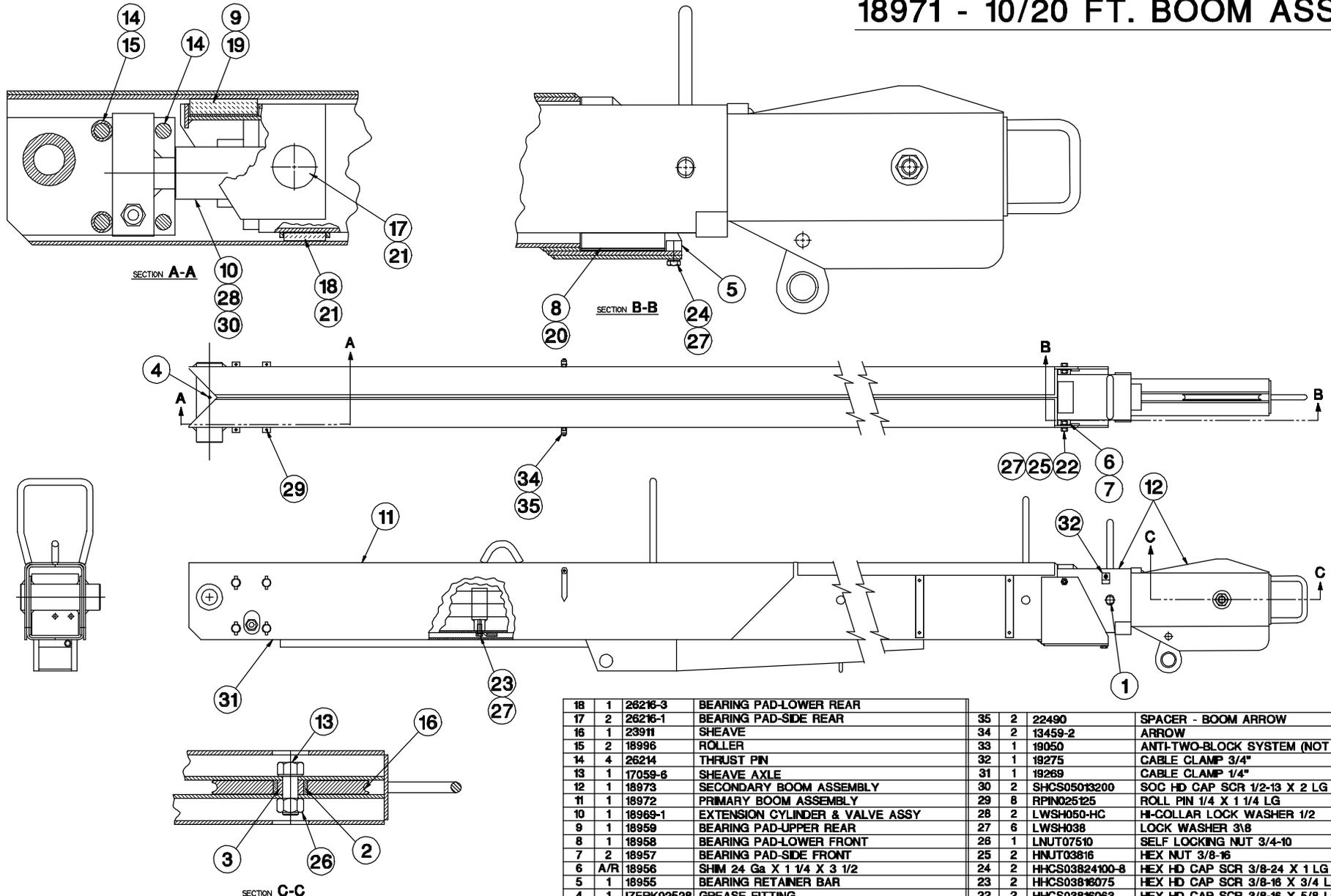
SECTION  
**C420**

**ET25KX - 10/20**

SUPERCEDES  
**3-21-01C**

**19404**

# 18971 - 10/20 FT. BOOM ASSY



18	1	26216-3	BEARING PAD-LOWER REAR	35	2	22490	SPACER - BOOM ARROW
17	2	26216-1	BEARING PAD-SIDE REAR	34	2	13459-2	ARROW
16	1	23911	SHEAVE	33	1	19050	ANTI-TWO-BLOCK SYSTEM (NOT SHOWN)
15	2	18996	ROLLER	32	1	18275	CABLE CLAMP 3/4"
14	4	26214	THRUST PIN	31	1	18269	CABLE CLAMP 1/4"
13	1	17059-6	SHEAVE AXLE	30	2	SHCS05013200	SOC HD CAP SCR 1/2-13 X 2 LG
12	1	18973	SECONDARY BOOM ASSEMBLY	29	8	RPIN025125	ROLL PIN 1/4 X 1 1/4 LG
11	1	18972	PRIMARY BOOM ASSEMBLY	28	2	LWSH050-HC	HI-COLLAR LOCK WASHER 1/2
10	1	18969-1	EXTENSION CYLINDER & VALVE ASSY	27	6	LWSH038	LOCK WASHER 3/8
9	1	18959	BEARING PAD-UPPER REAR	26	1	LNUT07510	SELF LOCKING NUT 3/4-10
8	1	18958	BEARING PAD-LOWER FRONT	25	2	HNUT03816	HEX NUT 3/8-16
7	2	18957	BEARING PAD-SIDE FRONT	24	2	HHCS03824100-8	HEX HD CAP SCR 3/8-24 X 1 LG GR8
6	A/R	18956	SHIM 24 Ga X 1 1/4 X 3 1/2	23	2	HHCS03816075	HEX HD CAP SCR 3/8-16 X 3/4 LG GR2
5	1	18955	BEARING RETAINER BAR	22	2	HHCS03816063	HEX HD CAP SCR 3/8-16 X 5/8 LG GR2
4	1	1ZERK02528	GREASE FITTING	21	A/R	26429-	SHIM -20=24 Ga, -21=18 Ga, -22=14 Ga
3	1	15809	SHEAVE SPACER	20	A/R	26429-	SHIM -11=18 Ga, -12=14 Ga, -13=12 Ga
2	1	15808	SHEAVE BEARING	19	A/R	26429-	SHIM -1=18 Ga, -2=14 Ga, -3=12 Ga
1	1	14183-2	LOCK PIN				
ITEM QTY PART NO.		DESCRIPTION		ITEM QTY PART NO.		DESCRIPTION	

**VENTURO** MANUFACTURING, INC.  
CINCINNATI, OHIO

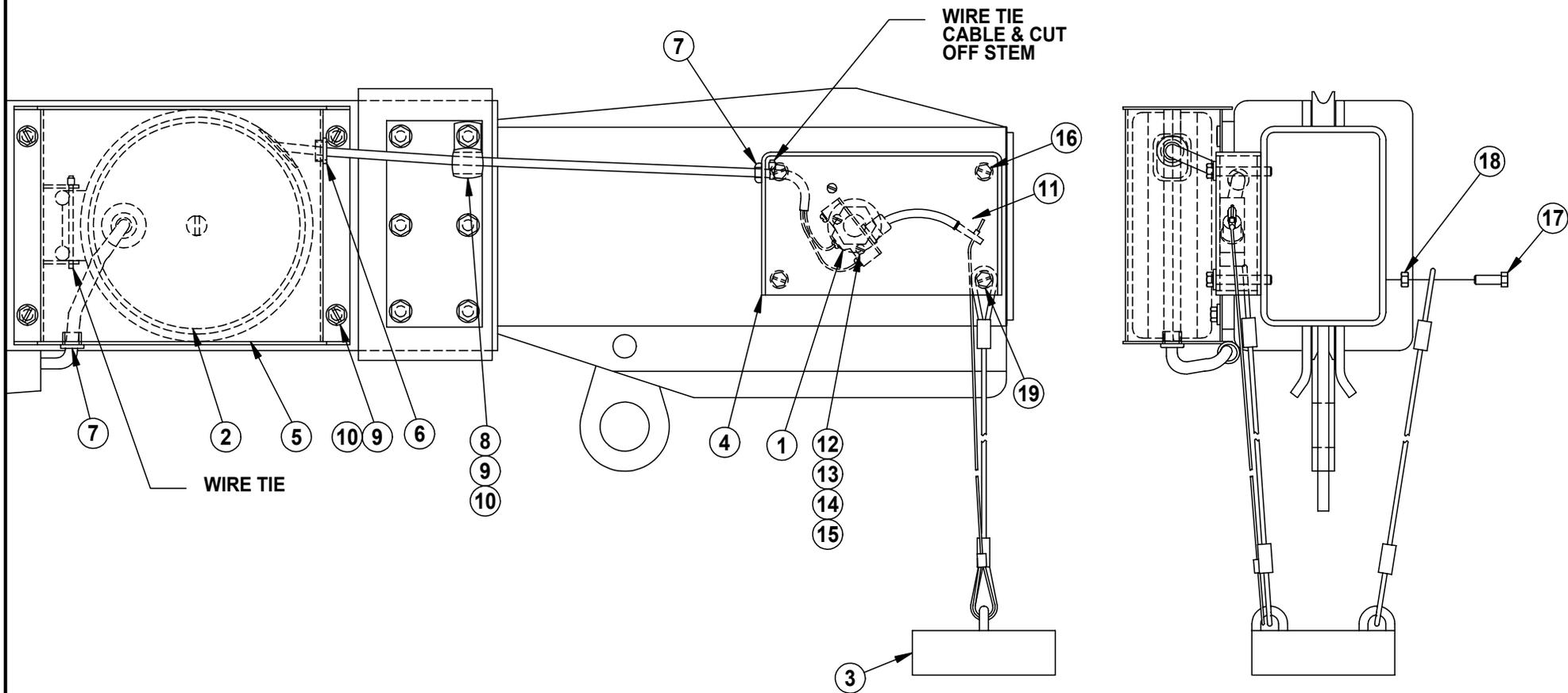
TITLE  
18971 - 10/20 FT. BOOM ASSY

DATE  
10-15-97A SECTION  
C400

ET/HT25KX

SUPSEDES  
9-30-96

**119256**



▲	19	1	!HHCS02520150	HEX HEAD CAP SCREW - 1/4-20 x 1 1/2"	11	1	19302	SET COLLAR
	18	1	!HNUT-02520	HEX NUT - 1/4-20	10	5	!LWSH-031	LOCK WASHER - 5/16"
	17	1	!HHCS02520075-5	HEX HEAD CAP SCREW - 1/4-20 x 3/4" GR. 5	9	5	!HHCS03118050-5	HEX HEAD CAP SCREW - 5/16-18 x 1/2"
	16	3	▲!HHCS02520175	HEX HEAD CAP SCREW - 1/4-20 x 1 3/4"	8	1	19275	CABLE CLAMP - 3/4" x 13/32" HOLE
	15	2	!LWSH-#06	LOCK WASHER - #6	7	2	19270	SNAP BUSHING - 3/8" I.D.
	14	2	!FWSH-#06	FLAT WASHER - #6	6	1	19063	SNAP BUSHING - 1/2" I.D.
	13	2	!HNUT-#0632	HEX NUT - #6-32	5	1	19058	COVER - CORD REEL
	12	2	!PHMS#632125	PAN HEAD MACHINE SCREW - #6-32 x 1 1/4"	4	1	19855	SWITCH BRACKET
					3	1	19377-2	CABLE WEIGHT ASSY
					2	1	22388-1	CORD REEL ASSY
					1	1	19376	LIMIT SWITCH
					ITEM	QTY	PART NO.	DESCRIPTION

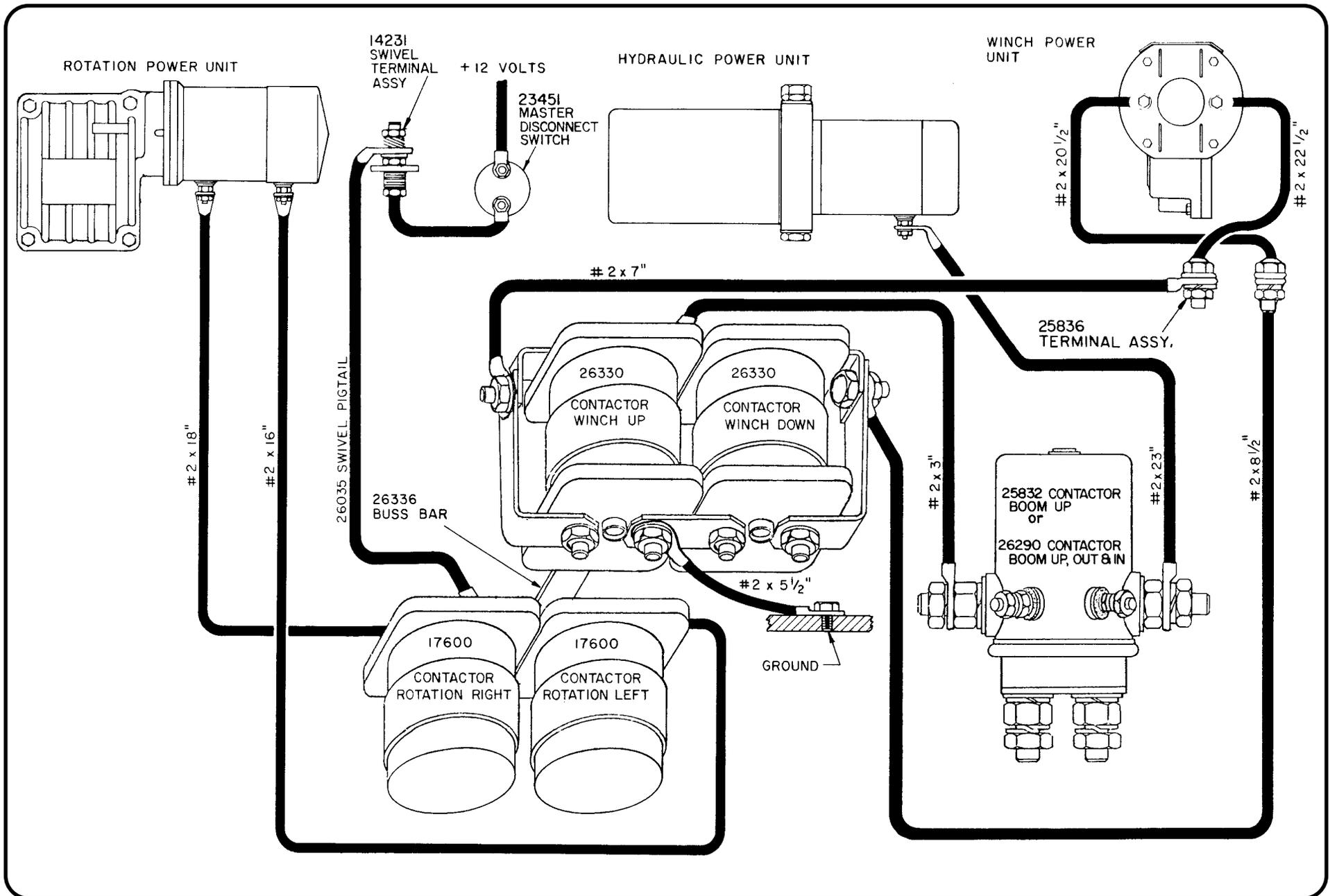
**VENTURO** MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
**REPLACEMENT PARTS DWG**  
19197-2 ANTI-TWO-BLOCK SYSTEM

DATE  
**8-26-02C**  
SUPERSEDES  
**11-30-01B**

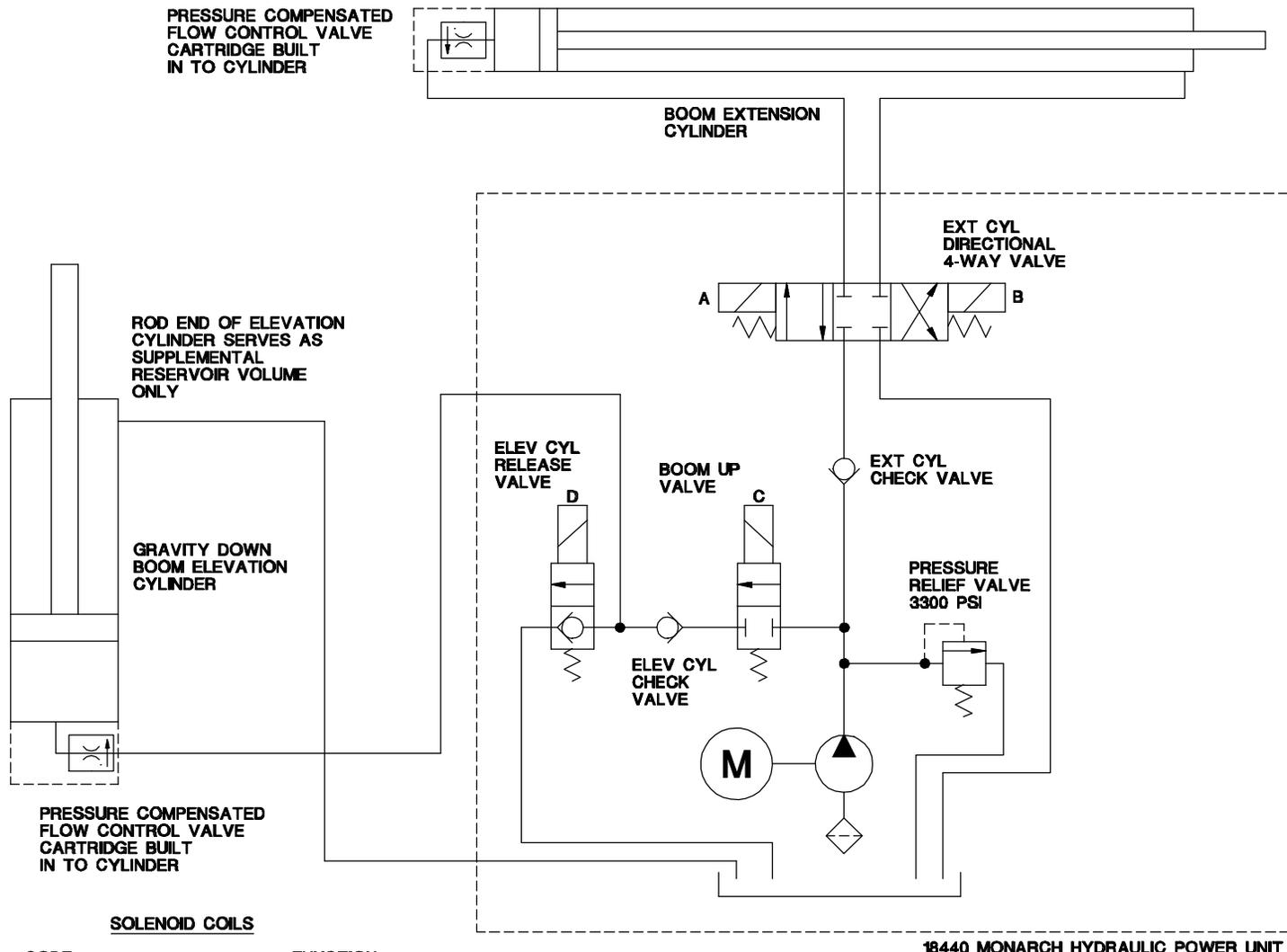
SECTION  
**C400**  
**20197-2**





MANUFACTURING, INC.  
 CINCINNATI, OHIO

TITLE	DATE	SECTION
BATTERY & MOTOR CABLE DIAGRAM	6-24-98B	C400
ET20K(X), ET25K(X), ET30K, ET36KX	SUPERCEDES 5-20-92A	17533



PRESSURE COMPENSATED  
FLOW CONTROL VALVE  
CARTRIDGE BUILT  
IN TO CYLINDER

BOOM EXTENSION  
CYLINDER

EXT CYL  
DIRECTIONAL  
4-WAY VALVE

ROD END OF ELEVATION  
CYLINDER SERVES AS  
SUPPLEMENTAL  
RESERVOIR VOLUME  
ONLY

GRAVITY DOWN  
BOOM ELEVATION  
CYLINDER

ELEV CYL  
RELEASE  
VALVE  
D

BOOM UP  
VALVE  
C

EXT CYL  
CHECK VALVE

PRESSURE  
RELIEF VALVE  
3300 PSI

ELEV CYL  
CHECK VALVE

PRESSURE COMPENSATED  
FLOW CONTROL VALVE  
CARTRIDGE BUILT  
IN TO CYLINDER

**SOLENOID COILS**

CODE	FUNCTION
A	BOOM OUT 6 VDC
B	BOOM IN 6 VDC
C	BOOM UP 6 VDC
D	BOOM DOWN 12 VDC

**HYDRAULIC POWER UNIT SPECIFICATIONS**

MOTOR: 12 VOLT DC WITH 3/16" DRAIN HOLE  
HEAVY DUTY INTERMITTENT DUTY  
PUMP: 1.2 CC/REV  
RELIEF: ADJUSTABLE TO 3300 PSI  
TANK: 250 CU-IN MINIMUM USEABLE VOLUME  
PERFORMANCE: 1.1 GPM @ 2700 PSI @ 11.7 VOLTS &  
205 AMPS PUMPING SAE #20 OIL @ 100°F



MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
**HYDRAULIC CIRCUIT DIAGRAM**

ET25KX

DATE  
10-17-97

SUPERSEDES  
-

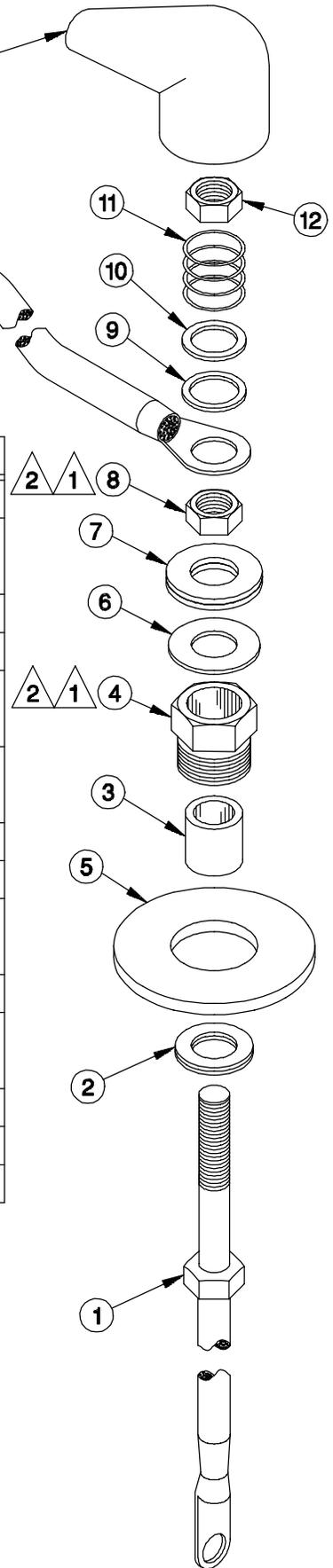
SECTION  
C300

19392

# 16780 SWIVEL TERMINAL ASSY.

17012 RUBBER BOOT - REF

26035 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-R	7/8" INVERTED FLARE NUT
5	1	IFWSH-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	IFWSH-063SAE	FLAT WASHER - 5/8" SAE
*8	1	IJNUT-06311B	BRASS JAM NUT - 5/8"-11
*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	IJNUT-06311N	NYLON LOCK-JAMNUT - 5/8"-11
*13	1	LOCTITE-24205	LOCTITE CAPSULE GRADE 242 BLUE
*14	1	19368	16780 REPLACEMENT PARTS DWG

\*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

**VENTURO** MFG., INC.  
CINCINNATI, OHIO

TITLE  
REPLACEMENT PARTS

DATE  
10-14-97A

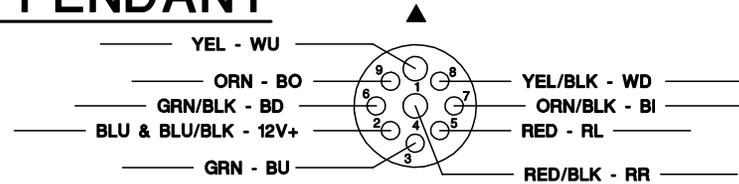
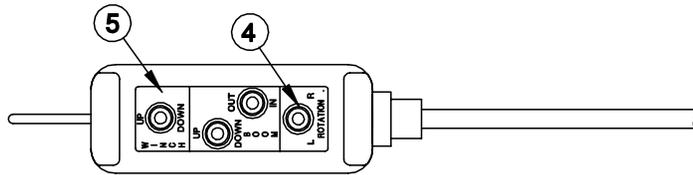
SECTION  
C400

ET25K(X)

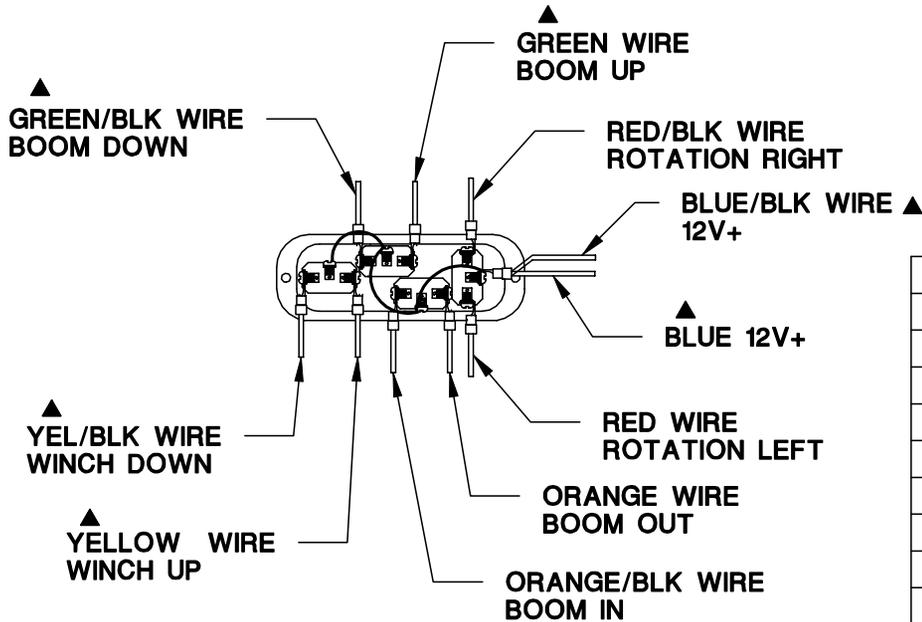
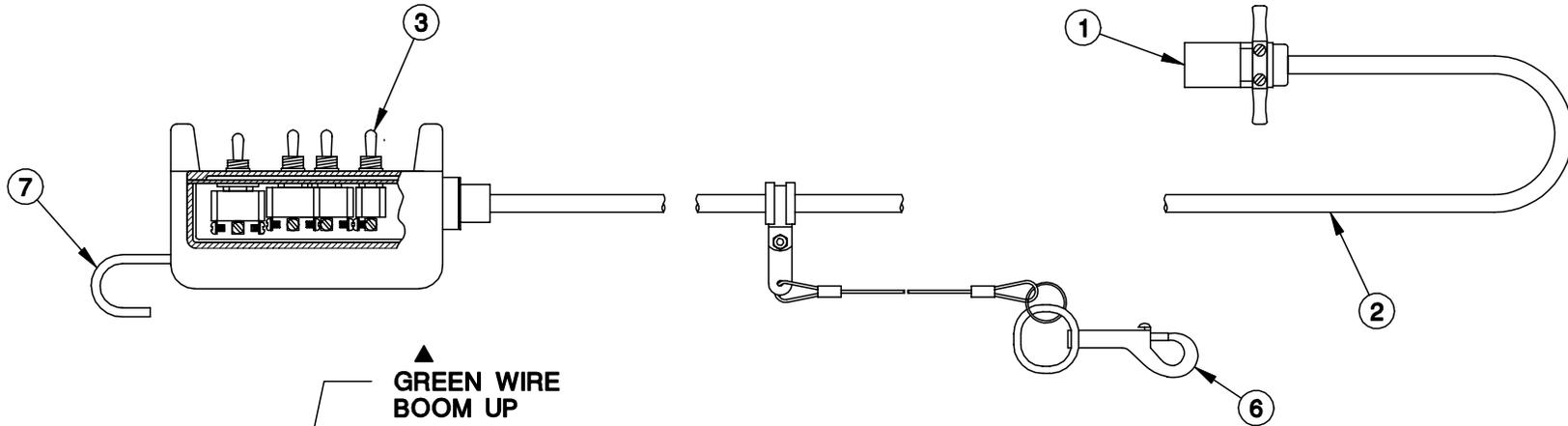
SUPERSEDES  
8-19-97

19368

# 20160 4-SWITCH PENDANT



PLUG - BACKSIDE VIEW



▲ NOTE: BLACK WIRE IS NOT USED

ITEM	QTY	PART NO.	DESCRIPTION
10	1	20165	GASKET / CORD RESTRAINT - PENDANT HEAD
9	1	20164	BASE - PENDANT HEAD
8	1	20163	COVER - PENDANT HEAD
7	1	11557	PENDANT HOOK
6	1	15913-2	PHAN, CLAMP AND TETHER ASSY
5	1	17363	DECAL
4	4	19793	TOGGLE BOOT
3	4	13763	TOGGLE SWITCH
2	1	26262-xx	CORD ASSY (xx = LENGTH IN FT.)
1	1	26263	PLUG - 9 POLE



TITLE  
REPL. PARTS DWG.

4 FUNCTION CRANES

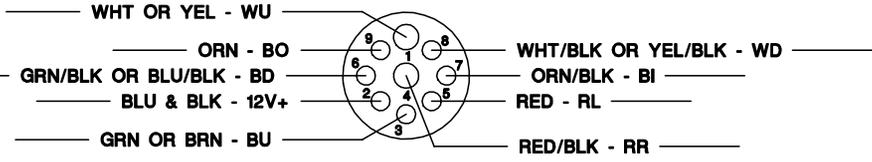
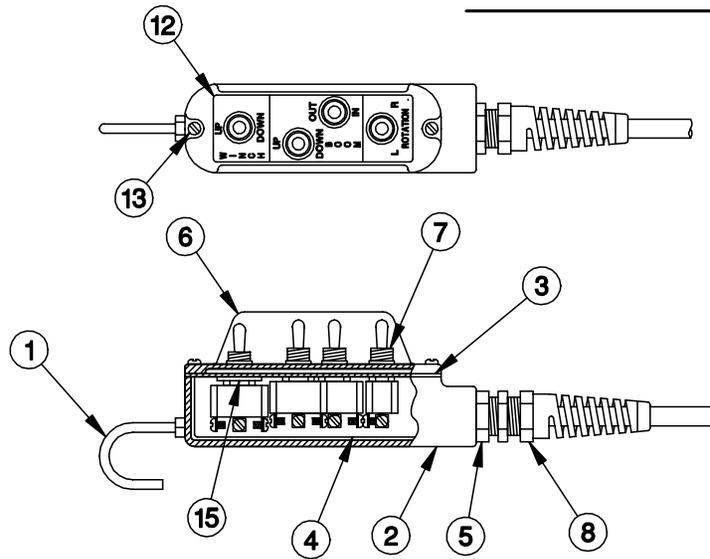
DATE  
7-16-01B

SUPERSEDES  
4-10-00A

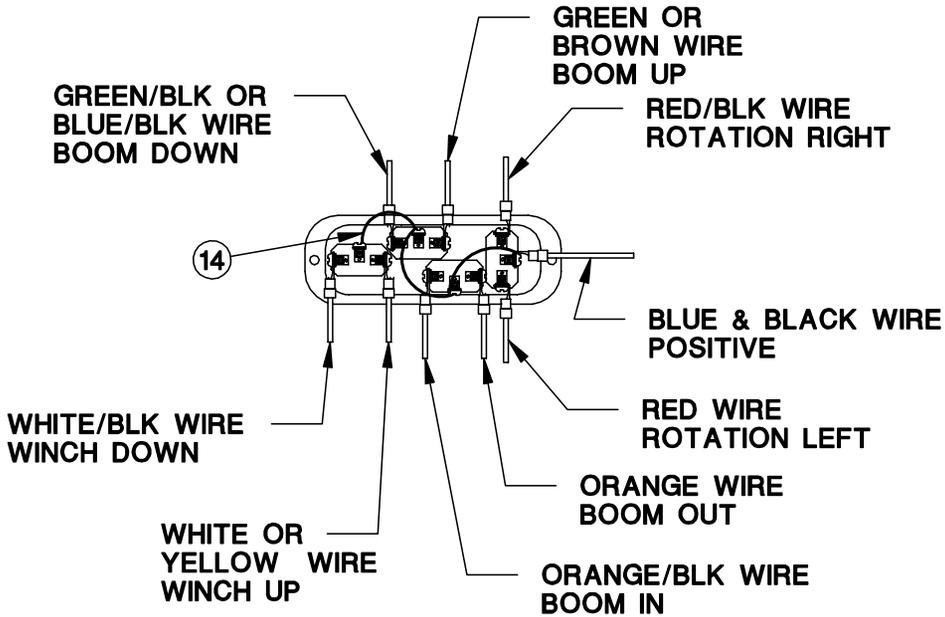
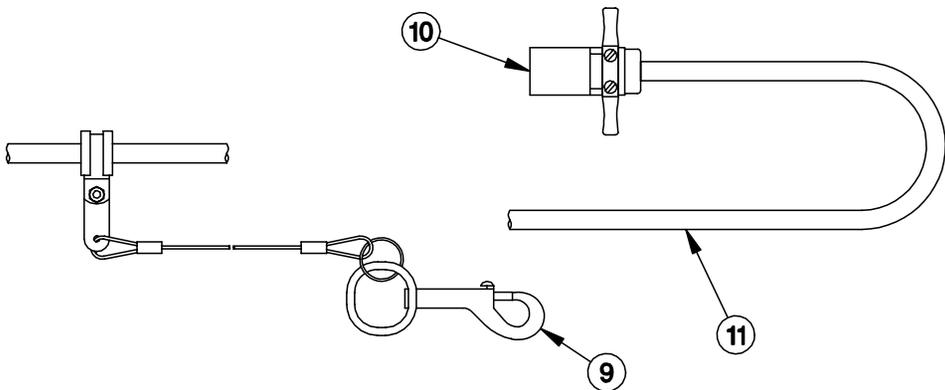
SECTION  
C400

20161

# ▲ 17360 SERIES PENDANT CORD



PLUG - BACKSIDE VIEW



15	1	12534-4	MACHINERY BUSHING - 1/2" I.D. x 7/8" O.D. x 14 GA.
14	1	19307	4SW PENDANT CORD JUMPER
13	2	IPHCS#0832050	PHCS 8-32 x 1/2
12	1	17363	DECAL, CRANE CONTROL
11	1	26262-xx	CORD ASSY (xx = LENGTH IN FT.)
10	1	26263	PLUG - 9 POLE
9	1	15913-2	PHAN, CLAMP AND TETHER ASSY
8	1	25534	PLASTIC 3/4" STRAIN RELIEF
7	4	13763	TOGGLE SWITCH
6	1	17361	PENDANT COVER
5	1	HRDB16MP-12FP	HYD BUSHING
4	1	15629	INSULATOR FOR CONDULET
3	1	25625	GASKET 1"
2	1	25624	ENCLOSURE 1"
1	1	11557	PENDANT HOOK
ITEM	QTY	PART NO.	DESCRIPTION



TITLE	DATE	SECTION
REPL. PARTS DWG.	4-10-00A	C400
4 FUNCTION CRANES	SUPERSEDES	17383
	1-21-00	



# REPLACEMENT PARTS LIST - 17530 WINCH POWER UNIT

MODEL: ET20K(X), ET25K(X)

PARTNO.	DESCRIPTION
* 00991 * 00992 00994 * 12943-1 * 12943-2	GASKET SEAL WORM SHAFT BUSHING SHIM WASHER - 3/4" x 1 1/2" x .005" (AS REQUIRED) SHIM WASHER - 3/4" x 1 1/2" x .015" (AS REQUIRED)
* 12943-3 14082 14083 14088 14089	SHIM WASHER - 3/4" x 1 1/2" x .030" (AS REQUIRED) WORM GEAR BRAKE MOTOR CLUTCH HOUSING (INCLUDES 1/8" x 1/2" ROLL PIN) BRAKE DISC
14150-1 14335 14336 14337 14338	COVER ROLLER CLUTCH THRUST RACE - 1" NEEDLE THRUST BEARING - 1" I.D. THRUST RACE - 3/4"
14339 * 14343-1 * 14343-2 * 14343-4 * 14345-1	NEEDLE THRUST BEARING - 3/4" I.D. SHIM WASHER - 1" x 1 1/2" x .005" (AS REQUIRED) SHIM WASHER - 1" x 1 1/2" x .015" (AS REQUIRED) SHIM WASHER - 1" x 1 1/2" x .031" (AS REQUIRED) SHIM WASHER - 1" x 2" x .005" (AS REQUIRED)
* 14345-2 * 14351 14354-2 * 14455 14456-2 * 14478	SHIM WASHER - 1" x 2" x .015" (AS REQUIRED) WAVE WASHER BALL BEARING GASKET - MOTOR BREATHER CAP ASSEMBLY #91 WOODRUFF KEY - 1/4" x 3/4"
14487 16485 17531 24081 24151	MOTOR REPAIR KIT (INCLUDES 00992 SEAL & 14455 GASKET) SHIM, KEY, PIN & SEAL KIT (INCLUDES ITEMS MARKED *) MOTOR (INCLUDES 00992 SEAL) WORM & SHAFT GEAR CASE
25370-1 * 25370-3 25409 25410 25411	ROLLER BEARING (INCLUDES 25370-3 SEAL) SEAL BEARING & HOUSING ASSEMBLY (INCLUDES 25370-1, 25370-3, 25411 & 568-277-70N) PINION SHAFT & RACE ASSEMBLY BEARING HOUSING
* 3100-100 * 568-227-70N * - * -	RETAINING RING O-RING - 2 1/8" x 2 3/8" x 1/2" ROLL PIN - 1/8" x 1/2" ROLL PIN - 3/16" x 3/4"



17530 POWER UNIT INTERCHANGEABLE WITH & REPLACES 24408 ON ET20K(X) CRANE

SPECIFY POWER UNIT NUMBER & CRANE SERIAL NUMBER WHEN ORDERING REPLACEMENT PARTS.

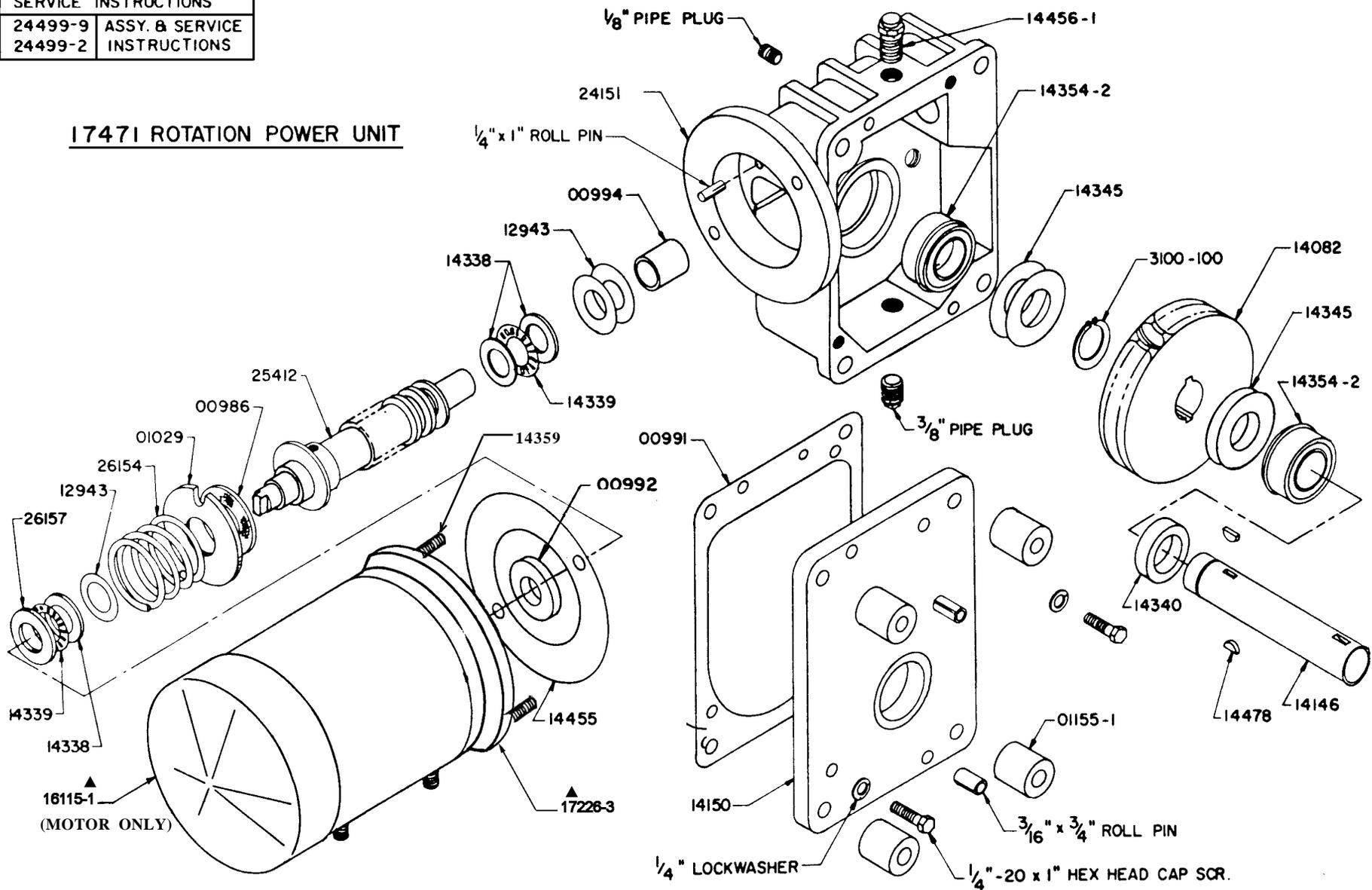


MFG., INC.  
CINCINNATI, OHIO

TITLE	DATE	SECTION
REPL. PARTS LIST	6-25-98A	C400
17530 WINCH PU	SUPERCEDES 9-20-90	900617

SERVICE INSTRUCTIONS	
24499-9	ASSY. & SERVICE
24499-2	INSTRUCTIONS

**17471 ROTATION POWER UNIT**



MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE	DATE	SECTION
REPLACEMENT PARTS	1-4-01D	C400
ET20K(X), ET25K(X), ET30K	SUPERCEDES 6-25-98C	17472

# REPLACEMENT PARTS LIST - 17471 ROTATION POWER UNIT

MODEL: ET20K(X), ET25K(X), ET30K, ET36KX 

PARTNO.	DESCRIPTION
17471	ROTATION POWER UNIT
* 00986 * 00991 00994 01029 01155-1	BRAKE DISK GASKET WORM SHAFT BUSHING BRAKE PLATE SPACER
* 12943-1 * 12943-2 * 12943-3 14082 14146	SHIM WASHER - 3/4" x 1 1/2" x .005" (AS ERQUIRED) SHIM WASHER - 3/4" x 1 1/2" x .015" (AS ERQUIRED) SHIM WASHER - 3/4" x 1 1/2" x .030" (AS ERQUIRED) WORM GEAR OUTPUT SHAFT
14150 14338 14339 * 14340 * 14345-1	COVER THRUST RACE - 3/4" NEEDLE THRUST BEARING - 3/4" SHAFT SEAL - 1" SHIM WASHER - 1" x 2" x .005" (AS REQUIRED)
* 14345-2 14354-2 * 14455 19276 * 14478 24151	SHIM WASHER - 1" x 2" x .015" (AS ERQUIRED) BALL BEARING GASKET - MOTOR BREATHER CAP ASSEMBLY #91 WOODRUFF KEY - 1/4" x 3/4" GEAR CASE (INCLUDES 1/4" x 1" ROLL PIN)
16115  25412 26154 26157 * 3100-100 * IRPIN-025100 IRPIN-019075	MOTOR - 12 VOLT, 2 TERMINAL WORM SHAFT & ROTOR ASSEMBLY BRAKE SPRING THRUST WASHER RETAINING RING ROLL PIN - 1/4" x 1" (BRAKE PLATE) ROLL PIN - 3/16" x 3/4" (BASE PLATE)
16485 17467	SHIM, KEY, PIN & SEAL KIT (INCLUDES ITEMS MARKED *) MOTOR REPAIR KIT (INCLUDES 14455 GASKET)

 17471 POWER UNIT INTERCHANGEABLE AS A COMPLETE UNIT WITH & REPLACES 14407, 14409, 24409 & 26439

SPECIFY POWER UNIT NUMBER & CRANE SERIAL NUMBER WHEN ORDERING REPLACEMENT PARTS.

 16115 MOTOR REPLACES 24364 MOTOR ON 24409 POWER UNITS.  
16115 MOTOR REPLACES 14362 MOTOR ON 14407 & 14409 POWER UNITS.  
16115 MOTOR REPLACES 24362 MOTOR ON 26439 POWER UNITS.



MFG., INC.  
CINCINNATI, OHIO

TITLE  
**REPL. PARTS LIST**

**17471 WINCH PU**

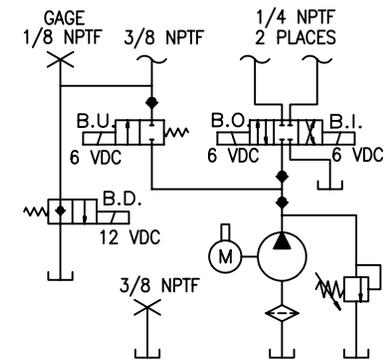
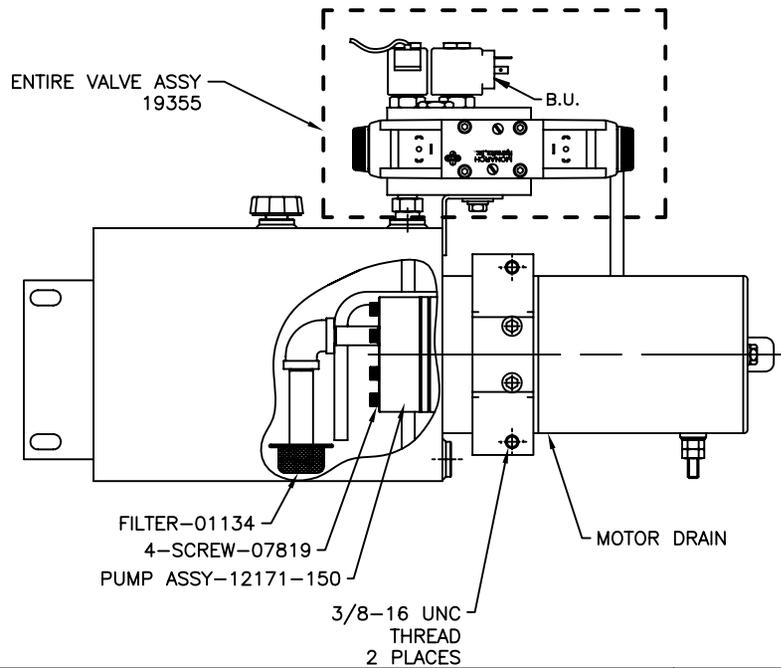
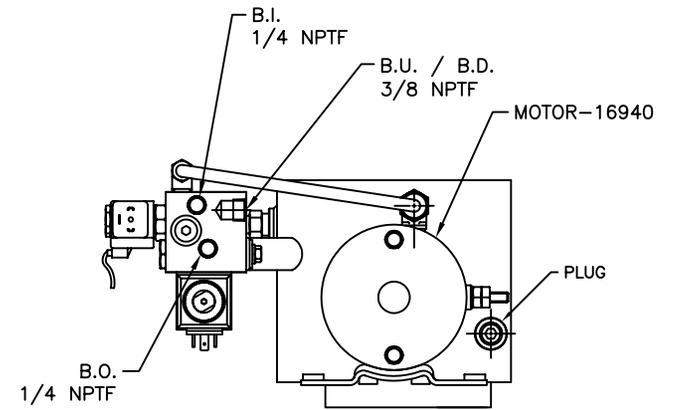
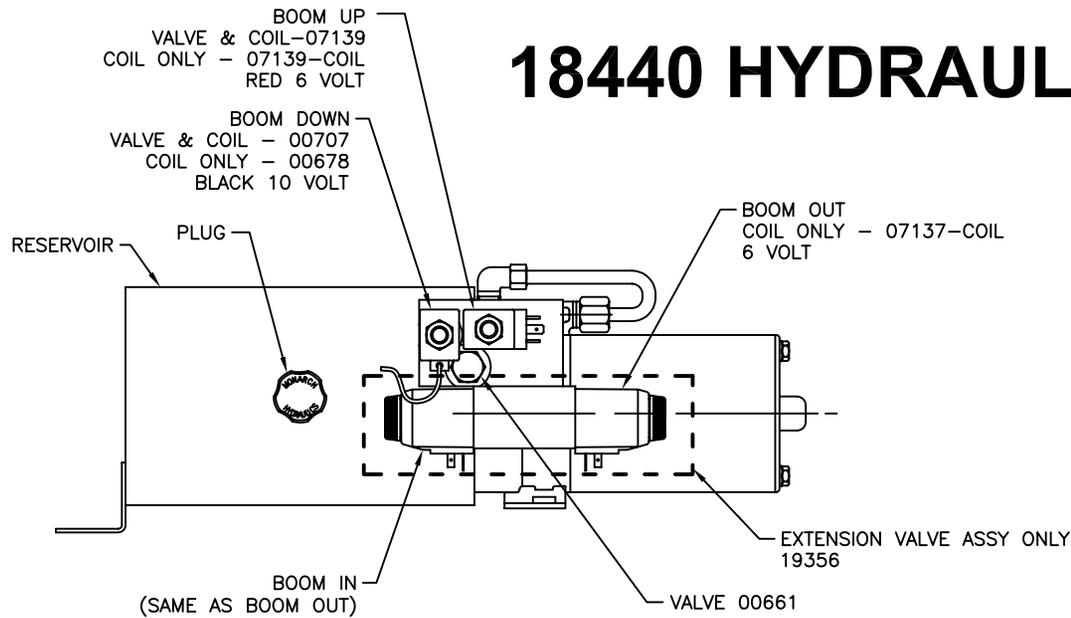
DATE  
**12-18-00D**

SUPERCEDES  
**6-25-98C**

SECTION  
**C400**

**900319**

# 18440 HYDRAULIC POWER UNIT

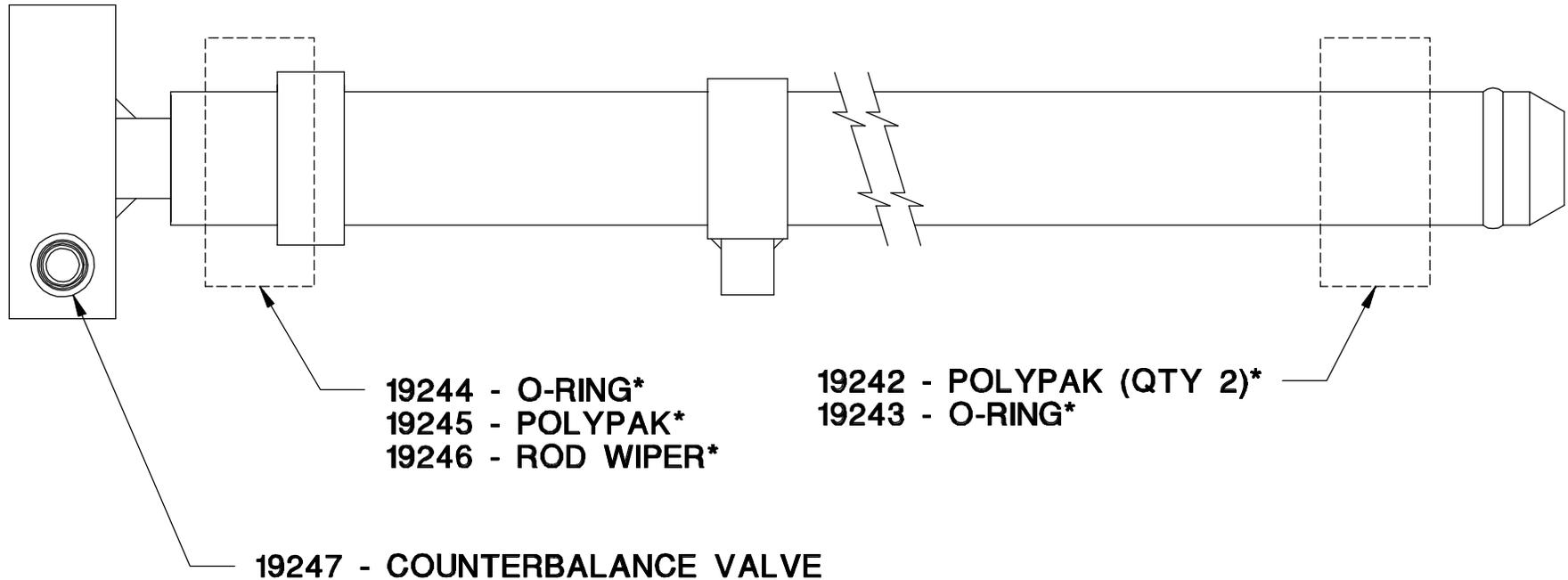


SCHMATIC



TITLE	DATE	SECTION
<b>REPLACEMENT PARTS DRAWING</b>	<b>7-29-05C</b>	<b>C400</b>
<b>18440 POWER UNIT - ET25KX</b>	SUPERSEDES <b>11-22-99B</b>	<b>19362</b>

# 18969-1 EXTENSION CYLINDER



\* ITEMS INCLUDED IN 18969-1-SK SEAL KIT

**VENTURO** MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
EXTENSION CYLINDER

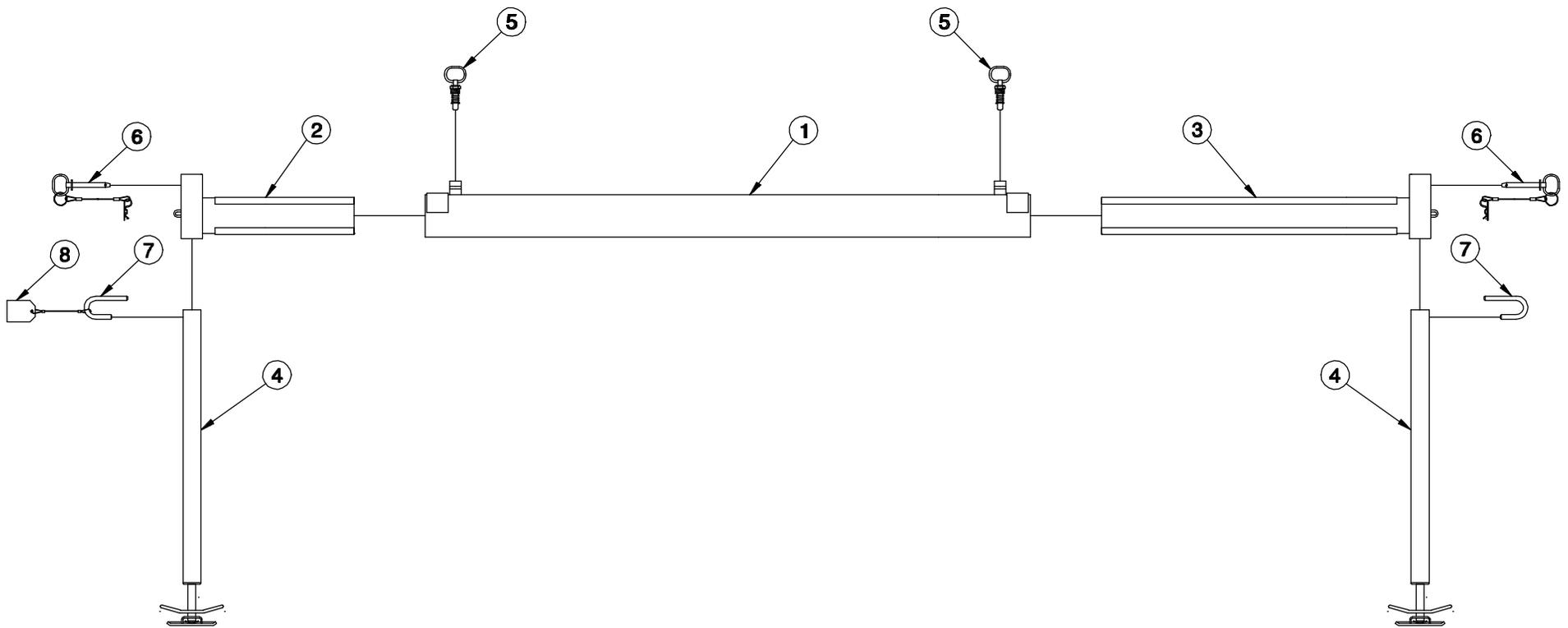
ET/HT25KX

DATE  
10-15-97A

SUPERSEDES  
9-11-96

SECTION  
C400

**119248**



8	1	14517	TAG - HANDLE INSTALLATION
7	2	23980	OUTRIGER LEG HANDLE
6	2	23976	HITCH PIN WITH LANYARD
5	2	22433	SPRING LOADED PIN ASSY
4	2	24073-4	MANUAL DROP LEG
3	1	22420-2	PULLOUT - LONG
2	1	22420-1	PULLOUT - SHORT
1	1	22425	CROSS TUBE WELDED ASSY
ITEM	QTY	PART NO	DESCRIPTION

**VENTURO** MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
REPLACEMENT PARTS DWG & LIST

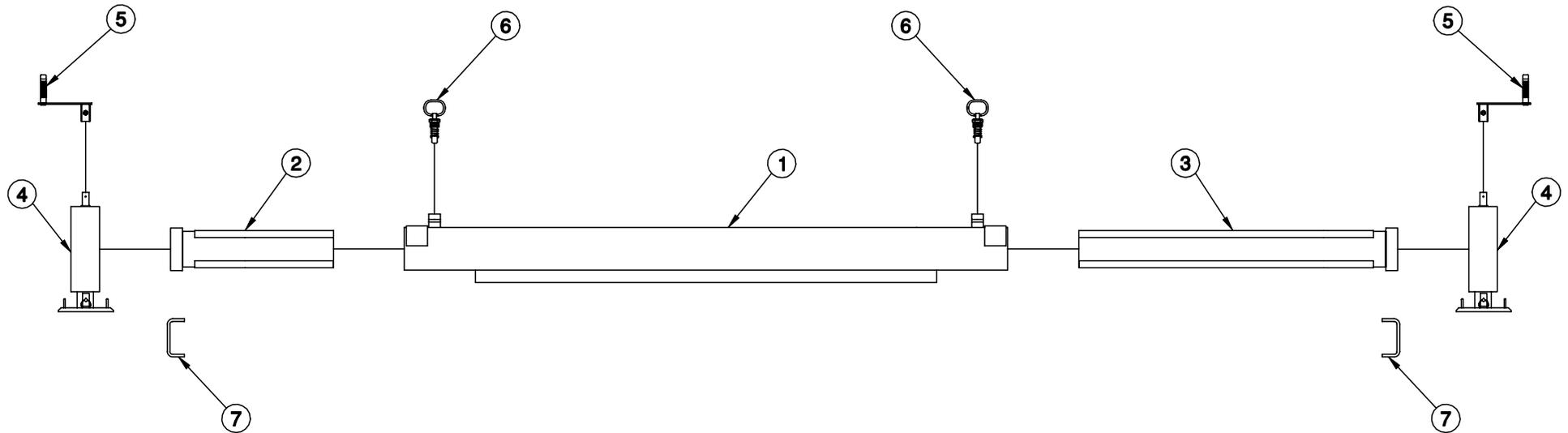
DATE  
10-14-97A

SECTION  
C400

23962-P-II MANUAL OUTRIGGERS

SUPERSEDES  
7-8-97

**22434**



NOTE: CUSTOMER TO WELD (3/16" BEAD) ITEM 4  
(CRANK DOWN LEG) IN PLACE AFTER ADJUSTING  
FOR PROPER GROUND CLEARANCE AND TRAVEL  
CUSTOMER TO WELD (3/16" BEAD) ITEM 7  
(HANDLE) IN PLACE IN A SUITABLE LOCATION

▲ IF USING CRANKDOWN OUTRIGGER LEGS  
(ITEM 4) WITH 4" X 4" TUBING YOU WILL  
NEED TO SPECIFY 22422 FOR ITEM 2  
AND 22423 FOR ITEM 3.

7	2	19344	HANDLE
6	2	22433	SPRING LOADED PIN ASSY
5	2	19008	CRANK ASSY - OUTRIGGER
4	2	22440	CRANK DOWN LEG
3	1	▲ 22569	PULLOUT - LONG
2	1	▲ 22568	PULLOUT - SHORT
1	1	22426	CROSS TUBE WELDED ASSY
ITEM	QTY	PART NO	DESCRIPTION

**VENTURO** MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
REPLACEMENT PARTS DWG & LIST

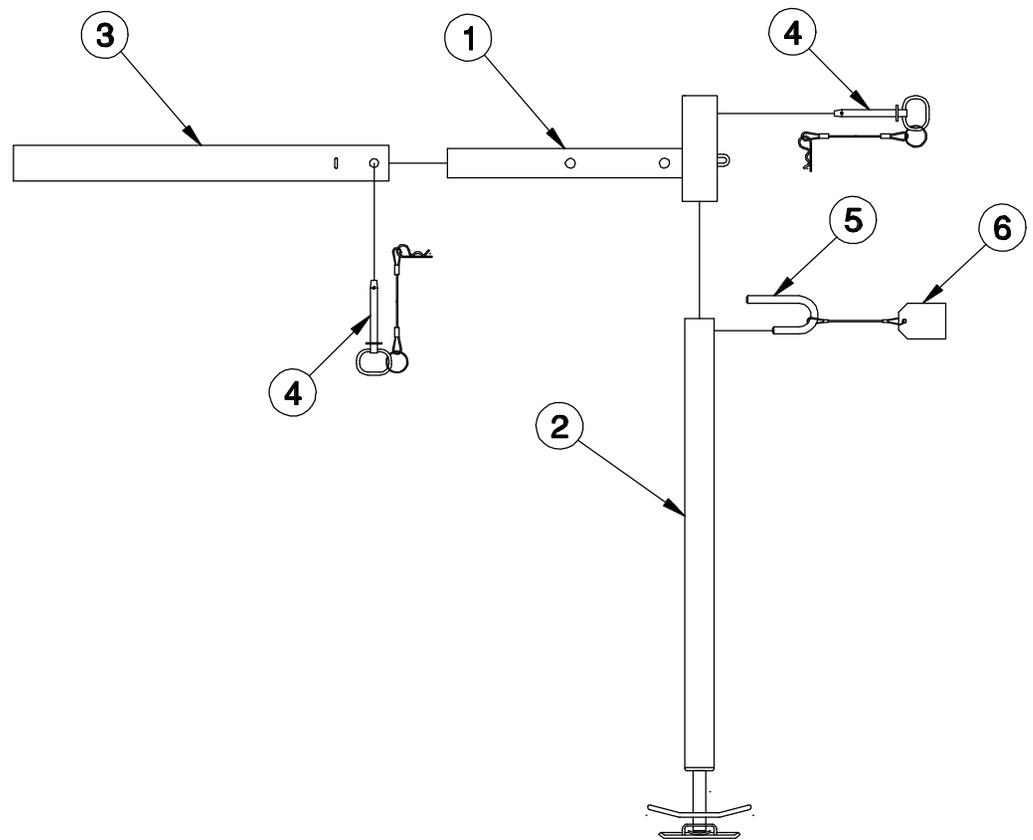
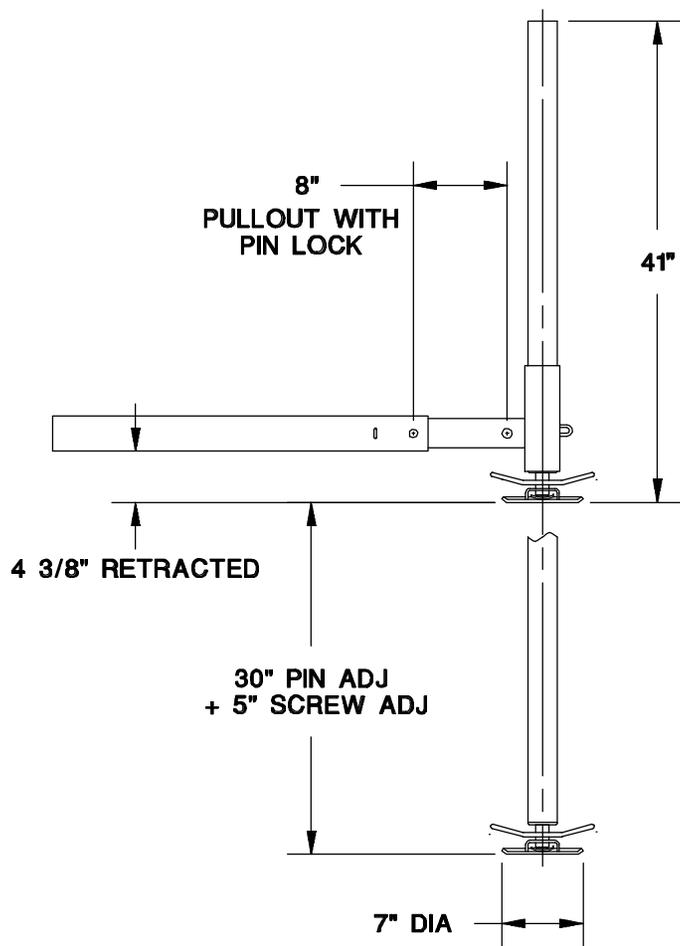
DATE  
11-7-01B

SECTION  
C400

23962-CD-II HD CRANKDOWN O.R.

SUPERSEDES  
7-30-99A

**22441**



6	1	14517	TAG - HANDLE INSTALLATION
5	1	23980	OUTRIGGER LEG HANDLE
4	2	23976	HITCH PIN WITH LANYARDS
3	1	23962-4	STUB MOUNTING TUBE
2	1	24073-4	SECONDARY LEG ASSEMBLY
1	1	23979	STUB OUTRIGGER
ITEM	QTY	PART NO.	DESCRIPTION

**VENTURO** MANUFACTURING, INC.  
CINCINNATI, OHIO

TITLE  
INSTALLATION DRAWING

DATE  
4-14-98D

SECTION  
C100

STUB OUTRIGGER

SUPERSEDES  
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