



VENTURO
TRUCK MOUNTED CRANES

CT310KX

INSTALLATION & OWNER'S MANUAL

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MANUFACTURING, INC.
CINCINNATI, OHIO

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08-22-13M
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08-19-13L

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-
20550

SECTION 100

DESCRIPTION

&

SPECIFICATIONS

CT310KX DESCRIPTION & SPECIFICATIONS



MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE
STOWED POSITION
CT310KX

DATE
08-12-13A
SUPERSEDES
11-04-02

SECTION
C100
20552

CT310KX DESCRIPTION & SPECIFICATIONS

INTRODUCTION

This manual is prepared for the truck mounted crane Model CT310KX.

The CT310KX crane is an electric / hydraulic powered, pedestal-mounted unit manufactured by Venturo Manufacturing, Inc. of Cincinnati, Ohio.

The boom on this crane extends 32 inches hydraulically with an additional 32 inch manual extension. In the retracted position, the boom is 4 ½ feet long. When fully extended, the boom is 9 ½ feet long.

ABOUT THIS MANUAL

The sections included in this manual are:

Descriptions & Specifications

The introduction section provides an overview of the use of the crane.

Safety

Safe operating and maintenance procedures are introduced in this section. Also included is an explanation of the safety warnings and signs used on the crane.

Installation Instructions

The installation section provides instructions for installing the crane on your truck.

Maintenance & Service

Preventive maintenance inspections and crane lubrication schedules are listed in this section. Replacement and adjustment procedures are provided.

Replacement Parts

Replacement part numbers and ordering procedures are provided in this section.

LIMITS OF USE

The CT310KX crane is designed to lift loads up to the limits as shown on the capacity chart (DWG. 20554).

- Lifting of personnel is **NEVER** permitted.
- Lifting loads exceeding the capacity chart (DWG. 20554) voids the warranty agreement.

NOTES



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TITLE
INTRO & LIMITS
CT310KX

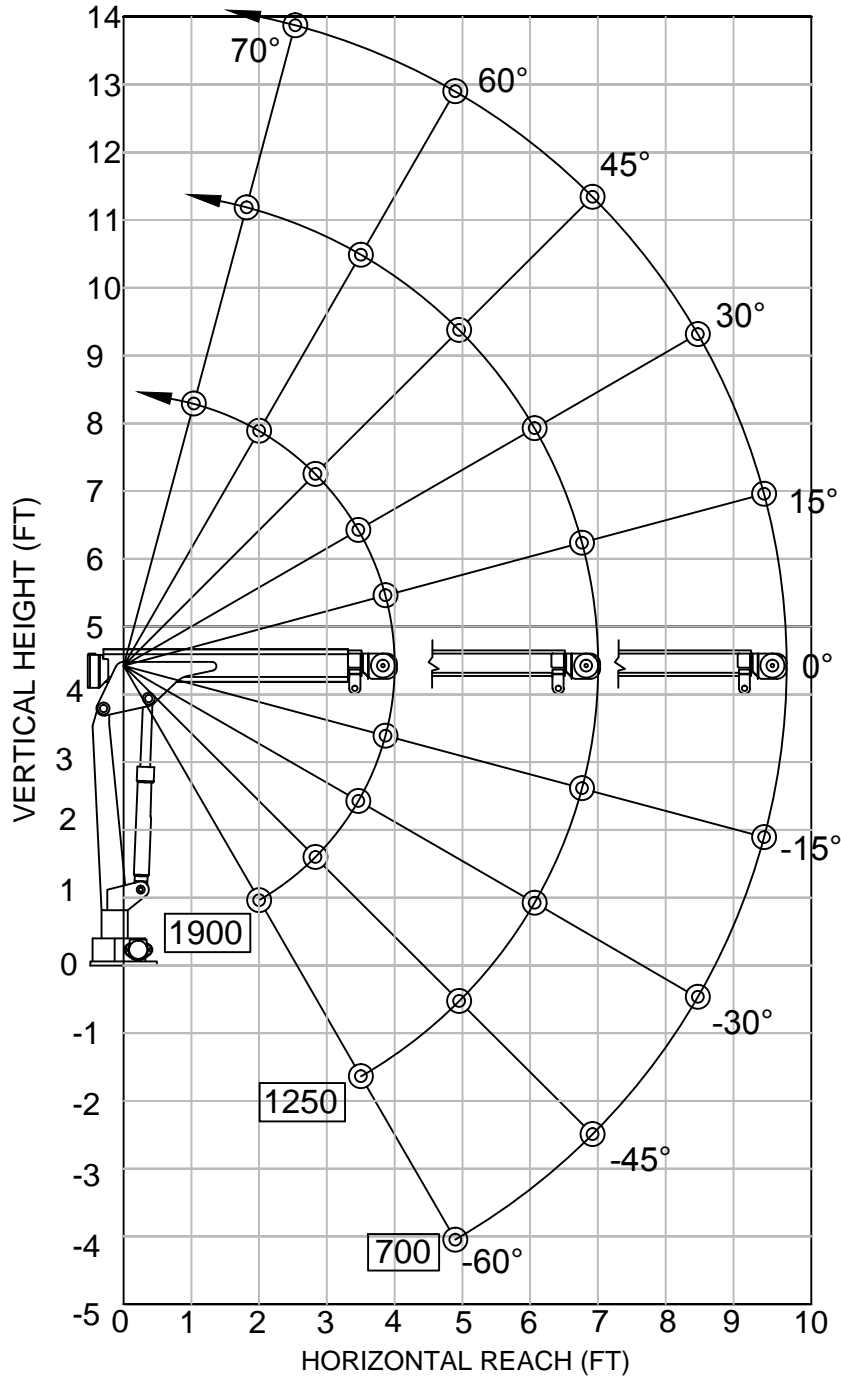
DATE
08-12-13A
SUPERSEDES
11-04-02

SECTION
C100
20553

CT310KX

▲ CRANE SERIAL NUMBER: _____

MAXIMUM LOAD CAPACITY CHART



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

LOAD BLOCK USAGE

1 PART LINE FOR LOADS LESS THAN 1000 LBS

2 PART LINE FOR LOADS OF 1000 LBS AND GREATER

WEIGHT OF LOAD BLOCK = 5 LBS



VENCO VENTURO INDUSTRIES LLC
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TITLE
MAXIMUM LOAD CAPACITY

CT310KX

DATE
05-03-16E

SUPERSEDES
08-12-13C

SECTION
C100

20554

CT310KX DESCRIPTIONS & SPECIFICATIONS

CONTROL PENDANT

The control pendant is attached to the crane assembly with a 20 foot cord assembly. This plug-in cord allows for operation in all points of the crane's reach. The cord is to be removed and stored when the crane is not in use.

Cane Operation Controls - Toggle Switches

These switches are spring loaded to the center position (or the OFF position). By pressing the switch to the desired direction, the operation will be activated. When the switch is released, it will return to the center (OFF) position and the operation will stop.

WINCH (Up / Down)

This switch controls the up and down movement of the winch.

BOOM (Up / Down)

This switch controls the up and down position of the boom.

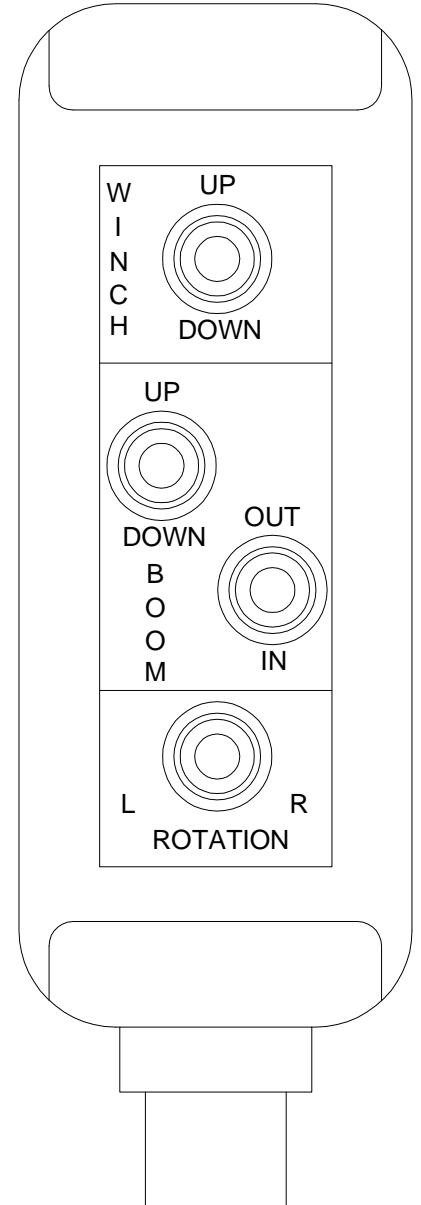
BOOM (Out / In)

This switch controls the extension (length) of the boom.

The manual extension allows the boom to extend to its full length. To use, pull the pin from the boom, extend pull the manual extension out to its intermediate or full length. Then insert pin through the hole in the boom.

ROTATION (Left / Right)

This switch controls the left and right rotation of the crane.



AUTOMATIC CONTROL SYSTEMS

Overload Sensing System

If the capacity of the crane is exceeded, the overload system will sound an alarm. Do not exceed the load capacity. When alarm is activated, reduce the load before continuing.



WARNING

- Always follow the load chart when lifting heavy loads
- Failure to follow the load chart could result in death or serious injury.



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CINCINNATI, OHIO

TITLE
PNDNT & OVRLD SNSNG
CT310KX

DATE
08-12-13A
SUPERSEDES
11-04-02

SECTION
C100
20568

CT310KX DESCRIPTIONS & SPECIFICATIONS

TRUCK SETUP FOR OPERATION

1. The truck should be parked on **firm, level ground** when using the crane.
2. The crane should be positioned close to the job so that it can operate within its capacity limits.
3. Set the truck parking brake.
4. Put the truck's transmission in Neutral (Park if it has an automatic transmission).
5. Remove the pendant from its stowed location and plug it into its socket.
6. Turn on the master disconnect switch.
7. Set the stabilizers (when provided) to help stabilize the truck to prevent rocking or overturning of the truck when using the crane.

USING THE SWIVEL LOAD BLOCK

The swivel load block must be used for loads 1000 pounds. It may be used for all loads to prevent twisting and turning of the load.

PREPARATION FOR TRAVEL

1. Return the stabilizers (if used) to the stowed position. Install and secure all pins.
2. Run the BOOM IN to fully retract the boom.
3. Manually retract the boom's manual extension (if used).
 - 3.1. Pull the pin from the boom and push the extension into the fully retracted position.
 - 3.2. Insert the pin in the hole in the boom.
4. Run the BOOM DOWN to lower the boom to the stowed position. See DWG #20552.
5. Unplug the pendant control cord and stow in a body compartment or the truck cab.
6. Turn off the master disconnect switch.

NOTES



MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE

SETUP & TRAVEL PREP

CT310KX

DATE

08-12-13A

SUPERSEDES

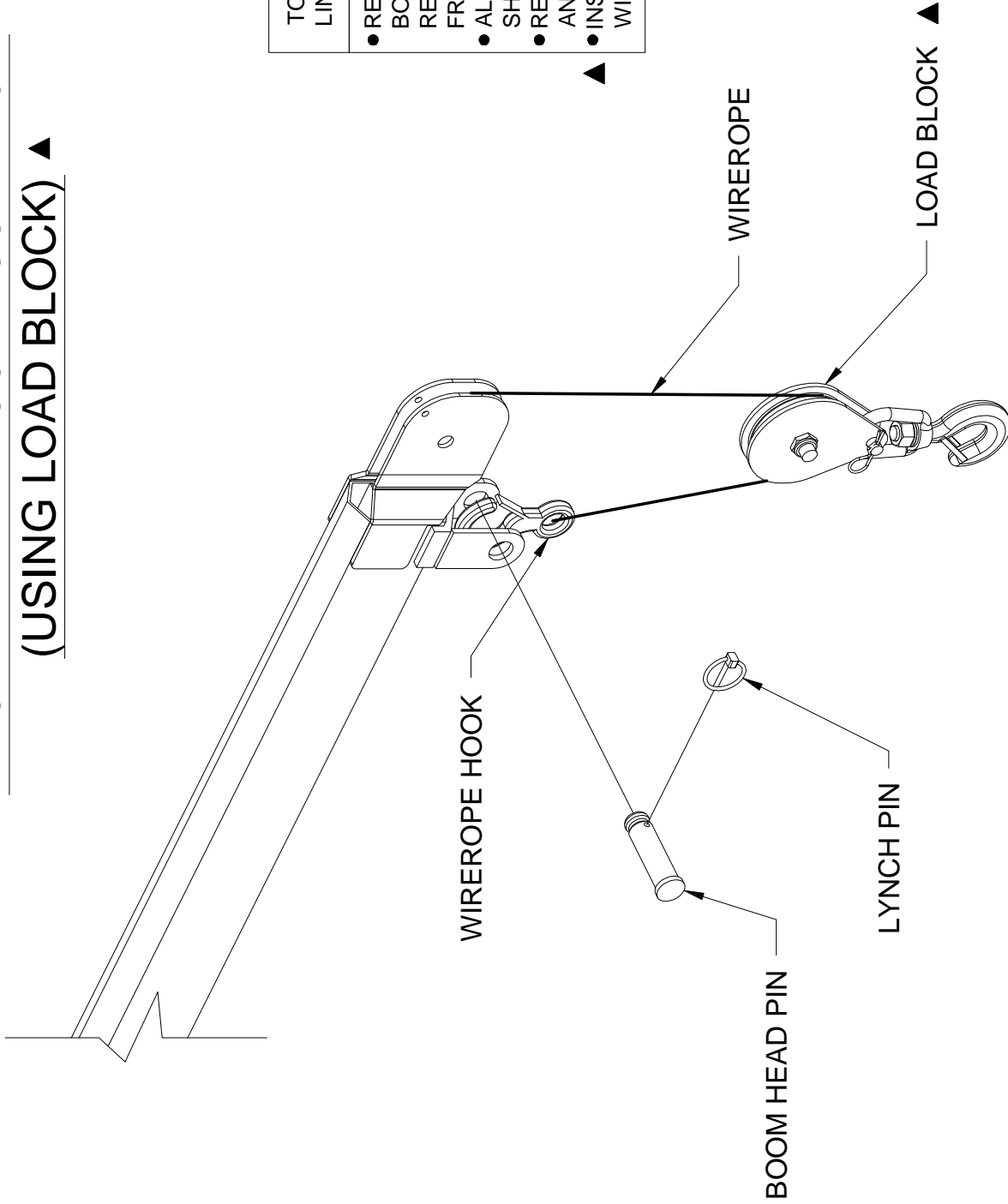
11-04-02

SECTION


C100

20569

TWO-PART LINE CONFIGURATION (USING LOAD BLOCK) ▲



- TO ENABLE TWO-PART LINE CONFIGURATION
- REMOVE LYNCH PIN FROM BOOM HEAD PIN AND REMOVE BOOM HEAD PIN FROM BOOM
 - ALIGN WIRE ROPE HOOK AS SHOWN
 - REINSERT BOOM HEAD PIN AND LYNCH PIN
 - INSTALL LOAD BLOCK ON WIRE ROPE

 MANUFACTURING, INC. CINCINNATI, OHIO	TITLE TWO-PART LINE CONFIGURATION		DATE 08-12-13A	SECTION C100
	CT310KX		SUPERSEDES 06-10-05	20729

SECTION 150

SAFETY

CT310KX SAFETY - GENERAL

SAFETY - GENERAL

With the proper installation, cranes can be operated and maintained safely. By using common safety practices along with an awareness of potential hazards, the job can be done safely.

Each time a crane is used, there may be a new and different environment. Each time, there is a need to look at these situations for potential hazards. Where you park your truck is important for the work to be done, and done safely. Asking others to stop or move their activity away from your truck may be best. And, of course, there is the need to look for overhead power lines and other obstacles to avoid during the operation of the crane. Sometimes, the load itself can present a hazard; for example, loads may be damaged or broken, the load may contain hazardous material, or the load may come close to exceeding the maximum capacity of the crane.

Safety awareness is a continuing job. Below is a list of general points for safe crane operation. Read these points and add your own points. There may be unique safety needs for the use of your crane and the product or service you provide.

CRANE SAFETY

- Always turn off the truck ignition and master disconnect switch before performing any maintenance or repairs to the crane equipment.
- Never walk or stand under the boom or a suspended load.
- Never operate the crane with a frayed cable (wire rope).
- Never allow the crane to be used to lift, support, or otherwise transport personnel.
- Training by a knowledgeable crane operator is required before operating the crane.
- Read and understand this manual before operating the crane.
- Always warn others to stand clear of your operating area.
- Always inspect the crane each day before use for safe operating condition.
- Always refer to the load capacity chart before using crane.
- Always attach pendant cord support snap to the attachment point before plugging in the pendant.
- Always unplug the pendant when the crane is not in use.
- Always turn off the master disconnect switch when the crane is not in use.
- Always place the crane in the stowed position before traveling.

NOTES



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CINCINNATI, OHIO

TITLE
GENERAL SAFETY
CT310KX

DATE
08-12-13A
SUPERSEDES
11-04-02

SECTION
C150
20556

CT310KX SAFETY - GENERAL

ELECTROCUTION HAZARD

Cranes are capable of contacting overhead obstructions. Power lines create a special hazard. In addition to direct contact, just getting close to these lines is a hazard. The higher the voltage carried by those lines, the higher the danger. This hazard has its own set of special safety rules.

CRANE SAFETY NEAR POWER LINES

- Always remember, the truck and crane **are not** insulated!
- Always maintain a safe distance from power lines. Crane must remain at least 20' away from power lines at full extension including load and load line. Increased distance may be required due to boom deflection or windy conditions.
 - If you encroach closer than 20', voltage must be known; then follow the tables below.
 - **NEVER** make a lift under any power line.
- Failure to follow these rules can result in death or serious injury!

NOTES

TABLE A - MINIMUM CLEARANCE DISTANCES

Voltage (Nominal,kV, alternating current)	Minimum Clearance Distance (Feet)*
0 - 50	10
Over 50 - 200	15
Over 200 - 350	20
Over 350 - 500	25
Over 500 - 750	35
Over 750 - 1000	40
Over 1000	†

* Environmental conditions such as fog, smoke, or precipitation may require increased clearances.

† As established by the utility owner / operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution.

TABLE T - MINIMUM CLEARANCE DISTANCES IN TRANSIT

Voltage (Nominal,kV, alternating current)	While Traveling - Minimum Clearance Distance (Feet)*
0 - 0.75	4
Over 0.75 - 50	6
Over 50 - 345	10
Over 345 - 750	16
Over 750 - 1000	20
Over 1000	†



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TITLE
HZRDS & CLEARANCES
CT310KX


DATE
08-12-13A
SUPERSEDES
11-04-02

SECTION
C150
20557

CT310KX SAFETY - GENERAL

SAFETY WARNINGS


Safety warnings have been included in this manual to alert you to the need for care in specific procedures. These warnings include the use of three [3] terms; DANGER, WARNING, and CAUTION. Their uses are defined as follows:



DANGER

- Always used to warn of hazards that could result in death or serious injury.


Any DANGER indicates that failure to follow this safe practice could result in death or serious injury.



WARNING

- Always used to warn of hazards that could result in injury.

Any WARNING indicates that failure to follow this safe practice could result in injury.



CAUTION

- Always used to warn of hazards that could result in equipment damage or serious injury.

Any CAUTION indicates that failure to follow this instruction could result in minor injury or damage to the equipment.

NOTES



MANUFACTURING, INC.
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TITLE
WARNING EXPLANATION
CT310KX

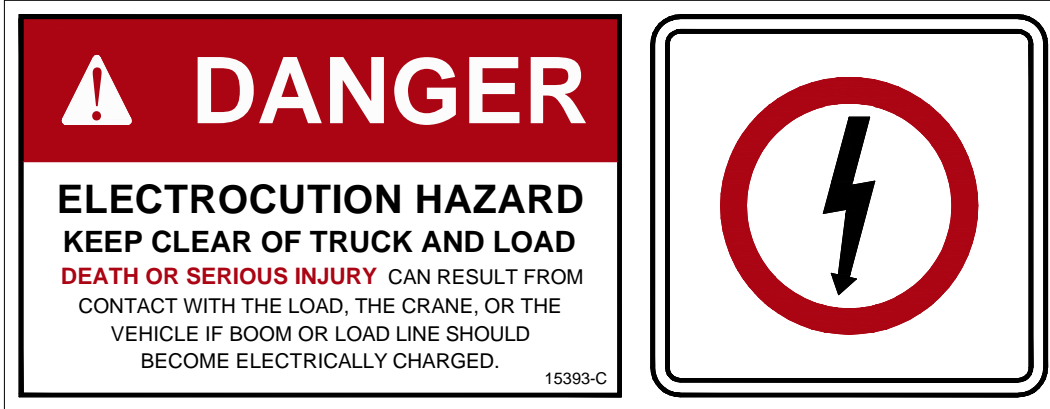
DATE
08-12-13A
SUPERSEDES
11-04-02

SECTION
C150
20558

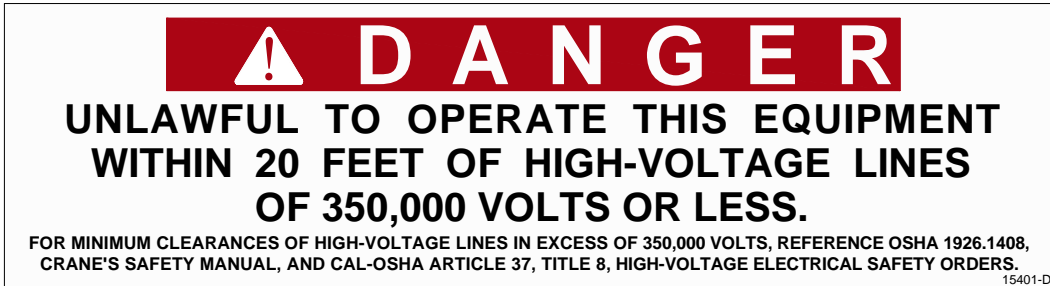
CT310KX SAFETY - GENERAL

ELECTROCUTION HAZARD SIGNS

Two [2] decals are provided with the crane:



This sign is to be placed on all four (4) sides of the truck. Each is to be placed in a readily visible location for all to see. This sign is provided with the crane. Additional signs are available from Venturo Manufacturing, Inc. The sign part number is 15393.



This sign is a reminder of the legal responsibility of any person operating the crane near high voltage lines. The sign is placed on the control pendant side of the crane. This sign is provided with the crane. Additional signs are available from Venturo Manufacturing, Inc. The sign part number is 15401.

Decals and signs have been placed on the crane as reminders of the care and precautions needed for safety. These items are to be inspected periodically for readability and need for replacement. The preventive maintenance information includes an inspection of these decals and signs. Any unreadable or missing decal or sign must be replaced. See Illustrated Parts List for ordering information.

NOTES



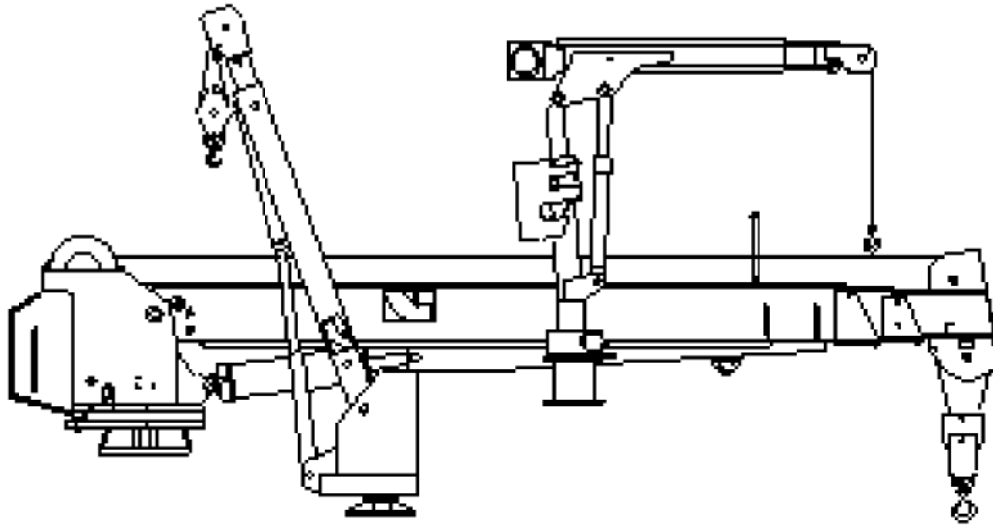
MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE
ELECT. HAZARD SIGNS
CT310KX

DATE
08-12-13A
SUPERSEDES
11-04-02

SECTION
C150
20559

CT310KX SAFETY - GENERAL



SEE THE NEXT
PAGE FOR
ADDITIONAL
INFORMATION!

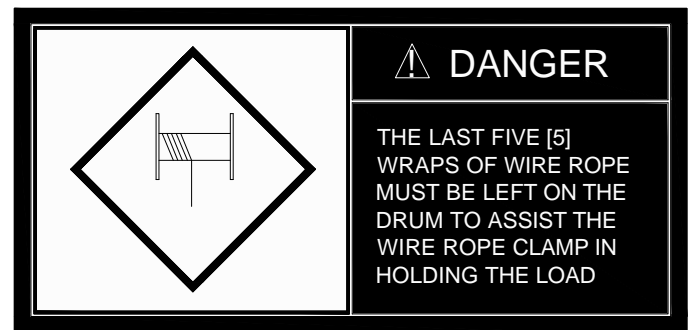
SAFETY SIGNS & DECALS

All cranes are equipped with warning and informational signs and decals. Each sign and decal is positioned to provide reminders for safe efficient operating and maintenance procedures for the crane. Below is a description of the winch safety warnings.

Unreadable or missing signs and decals must be replaced. The next page describes the location and part number for each. Refer to the Illustrated Parts Catalog section for parts ordering information.

WINCH SAFETY

The use of the crane involves careful use of its winch. Below are three [3] danger reminders of very important rules.



MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE
SAFETY SIGNS & DECALS
CT310KX

DATE
08-12-13A
SUPERSEDES
11-04-02

SECTION
C150
20560



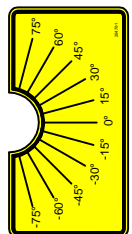
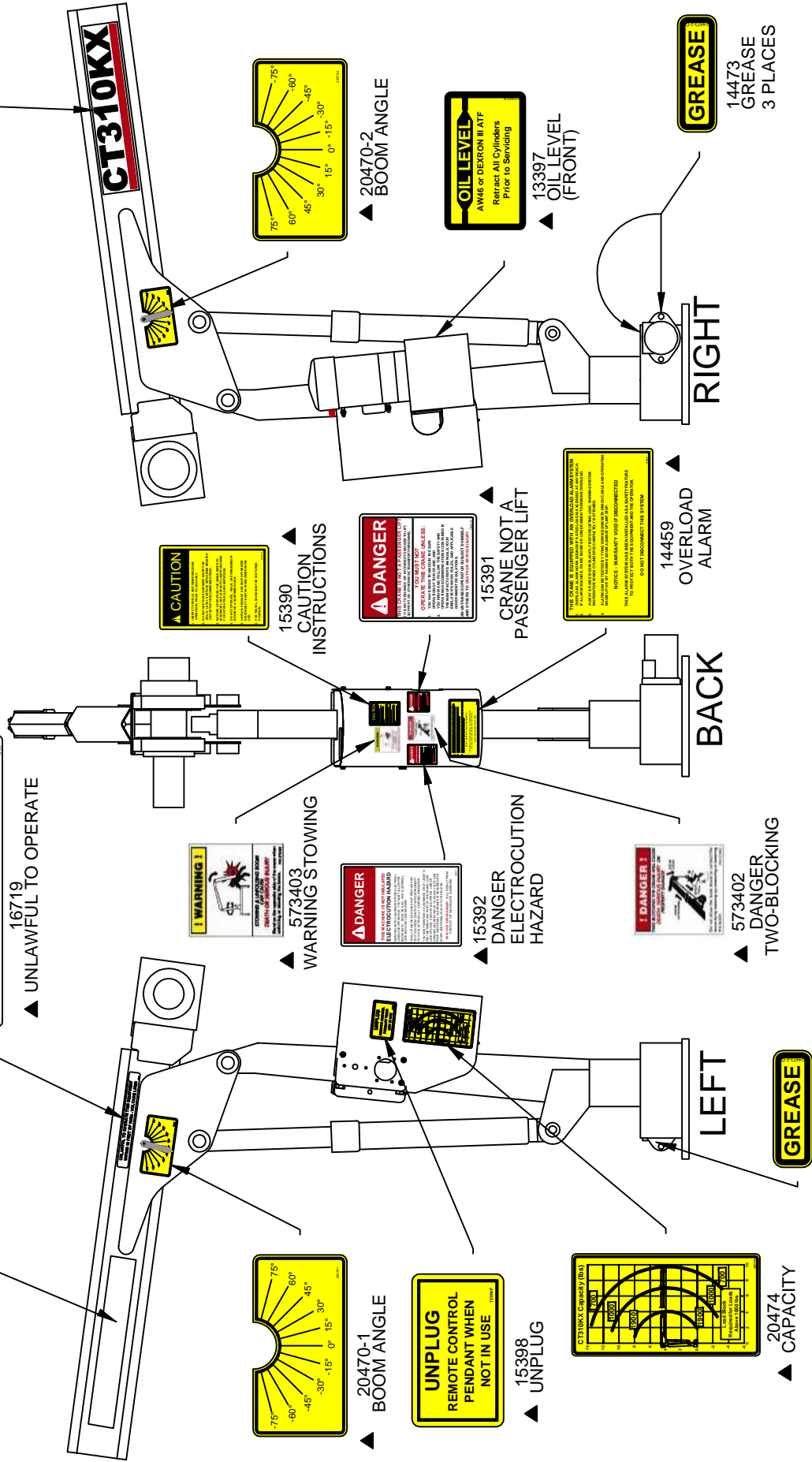
17389-4
▲ VENTURO LOGO (11 INCH)



20504
▲ CT310KX MODEL

16719
▲ UNLAWFUL TO OPERATE THIS EQUIPMENT WITHIN 10 FEET OF HIGH-VOLTAGE LINES

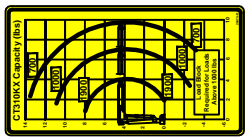
▲ UNLAWFUL TO OPERATE



20470-1
▲ BOOM ANGLE



15398
▲ UNPLUG



20474
▲ CAPACITY



15390
▲ CAUTION INSTRUCTIONS



15391
▲ CRANE NOT A PASSENGER LIFT



14459
▲ OVERLOAD ALARM



573402
▲ DANGER TWO-BLOCKING



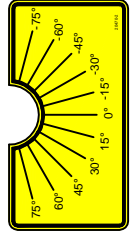
15392
▲ DANGER ELECTROCUTION HAZARD



573403
▲ WARNING STOWING



13397
▲ OIL LEVEL (FRONT)



20470-2
▲ BOOM ANGLE



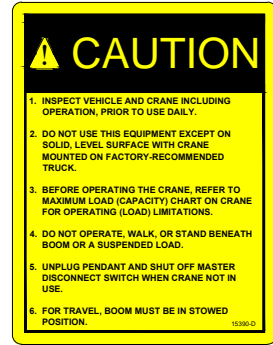
14473
▲ GREASE 3 PLACES



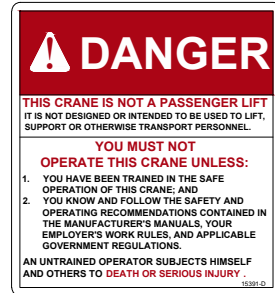
14473
▲ GREASE 3 PLACES

TITLE DECAL LOCATIONS CT310KX	DATE 07-30-12B	SECTION -
	SUPERSEDES 11-05-02A	20561

DECAL #: 15390
 DESCRIPTION: CAUTION, INSPECT VEHICLE & CRANE...
 PURPOSE: TO INFORM THE OPERATOR OF KEY OPERATING REQUIREMENTS.
 QUANTITY: 1
 PLACEMENT: REAR COVER OR SIDE OF CRANE



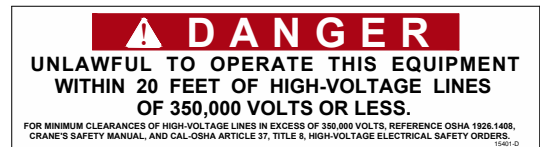
DECAL #: 15391
 DESCRIPTION: DANGER, NOT A PASSENGER LIFT
 PURPOSE: TO INFORM OPERATOR NOT TO LIFT, SUPPORT, OR TRANSPORT PERSONNEL, AND TO ENSURE OPERATOR IS ADEQUATELY TRAINED.
 QUANTITY: 1
 PLACEMENT: REAR COVER OR SIDE OF CRANE



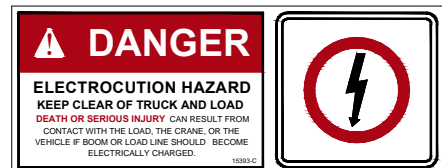
DECAL #: 15392
 DESCRIPTION: DANGER, ELECTROCUTION HAZARD, MACHINE (CRANE)
 PURPOSE: TO INFORM OPERATOR THAT MACHINE (CRANE) REPRESENTS AN ELECTROCUTION HAZARD SHOULD IT COME CLOSE TO OR IN CONTACT WITH AN ELECTRICAL VOLTAGE SOURCE.
 QUANTITY: 1
 PLACEMENT: REAR COVER OR SIDE OF CRANE



DECAL #: 15401
 DESCRIPTION: DANGER, UNLAWFUL TO OPERATE
 PURPOSE: TO INFORM OPERATOR OF PROPER OPERATION IN VICINITY OF ELECTRICAL LINES.
 QUANTITY: 1
 PLACEMENT: RING COVER OR SIDE OF CRANE



DECAL #: 15393
 DESCRIPTION: DANGER, ELECTROCUTION HAZARD, VEHICLE (TRUCK)
 PURPOSE: WARNS OF DANGER FROM ELECTRICALLY CHARGED VEHICLE, CRANE, OR LOAD.
 QUANTITY: 4
 PLACEMENT: EACH SIDE & EACH END OF VEHICLE



VENCO VENTURO INDUSTRIES LLC
 CINCINNATI, OHIO

TITLE
 SAFETY DECALS

VENTURO CRANES

DATE
 04-29-16E

SUPERSEDES
 10-24-13D

SECTION
 C150

21353

PART NO.: 15513

DECAL: MASTER DISCONNECT SWITCH

FUNCTION: To inform the operator of location and operation of master disconnect switch.

QUANTITY: 1

PLACEMENT: On master disconnect switch bracket.



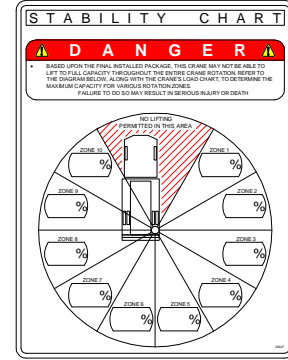
PART NO.: 20927

DECAL: CRANE STABILITY

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

QUANTITY: 1

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



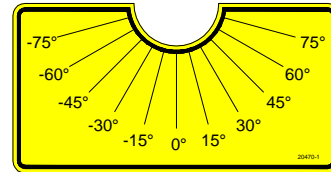
▲



VENCO VENTURO INDUSTRIES LLC
CINCINNATI, OHIO

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

PART NO.: 20470-1 & 20470-2 (OPPOSITE)
 DECAL: BOOM ANGLE
 FUNCTION: To inform of the boom angle.
 QUANTITY: 1 Each.
 PLACEMENT: One on each side of boom..



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.: 573403
 DECAL: WARNING - STOWING
 FUNCTION: To inform the operator stay away from the boom when stowing.
 QUANTITY: 1
 PLACEMENT: Rear cover.



PART NO.: 573402
 DECAL: DANGER - TWO BLOCKING HAZARD
 FUNCTION: To inform the operator to avoid two-blocking.
 QUANTITY: 1
 PLACEMENT: Rear cover.



PART NO.: 16719
 DECAL: UNLAWFUL TO OPERATE
 FUNCTION: To inform the operator of proper operation in vicinity of power lines.
 QUANTITY: 1
 PLACEMENT: Left side of boom.

UNLAWFUL TO OPERATE THIS EQUIPMENT
 WITHIN 10 FEET OF HIGH - VOLTAGE LINES



MANUFACTURING, INC.
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TITLE
 DECAL DRAWING & LIST
 CT310KX

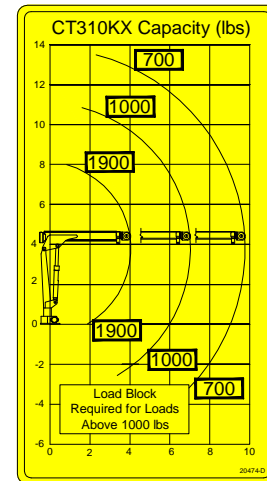
DATE
 08-12-13A
 SUPERSEDES
 10-04-05

SECTION
 C150
 21377

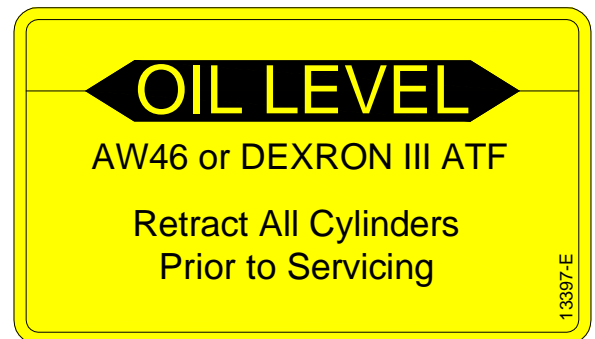
PART NO.: 20504
 DECAL: MODEL NUMBER
 FUNCTION: To show the model of the crane.
 QUANTITY: 1
 PLACEMENT: Left side of boom..



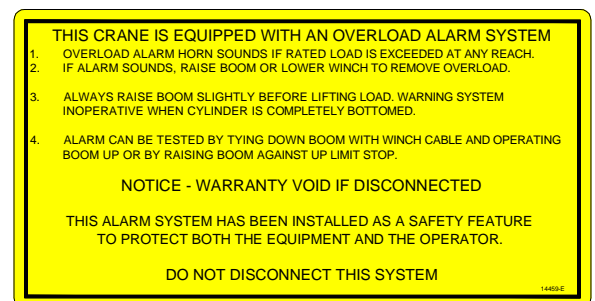
PART NO.: 20474
 DECAL: CRANE CAPACITY
 FUNCTION: To show the operator the operating capacities of crane.
 QUANTITY: 1
 PLACEMENT: Left side of housing.



PART NO.: 13397
 DECAL: OIL LEVEL
 FUNCTION: To inform the operator of proper oil level to maintain.
 QUANTITY: 1
 PLACEMENT: Right side of power unit.



PART NO.: 14459
 DECAL: OVERLOAD ALARM SYSTEM
 FUNCTION: To inform the operator of the overlaod conditions & remedies.
 QUANTITY: 1
 PLACEMENT: Rear cover.



MANUFACTURING, INC.
 CINCINNATI, OHIO

TITLE
DECAL DRAWING & LIST
 CT310KX

DATE
 08-12-13C
 SUPERSEDES
 04-06-07B

SECTION
 C150
21378

SECTION 200

INSTALLATION



CT310KX INSTALLATION INSTRUCTIONS

INSTALLATION PROCEDURE

Your new crane is shipped in a ready-to-install condition. Follow the instructions in this section to properly install the crane onto your truck.

INSPECT FOR SHIPPING DAMAGE

Inspect the crane immediately after receipt, even if installation will not occur immediately.

- Remove packaging materials as needed
- Inspect for crushed, bent, or otherwise damaged conditions.
- Report any damage found to the carrier.

CRANE MOUNTING

Refer to drawings 20577 & 20564

The crane base is connected to the mounting pedestal using four [4] M20-1.5MM X 70MM, Class 10.9 Hex Head Cap Screw Bolts, [8] Flat Washers, and [4] Nylon-insert Hex Lock Nuts (supplied).

Torque Hex Nuts to standard torque value of 401 ft*lbs.

The mounting pedestal is connected to the truck frame using equivalent hardware (not supplied).

For installations less mounting pedestal, use the provided metric mounting hardware (as referenced above) to secure the crane base directly to the truck frame.

NOTE: The mounting pedestal provides the necessary mast height to 'fully' lower the boom to minimize storage area required.

INSTALL BATTERY CABLES

1. Refer to for battery cable installation.
2. Install #2 gauge wiring.
 - 2.a. Be sure to install a circuit breaker into the wiring from the battery (VENTURO P/N 19417-150 recommended).
3. Install grounding strap(s).
 - 3.a. Install #2 gauge grounding strap from crane base to truck frame.
 - 3.b. If truck battery negative terminal is connected to engine, install a #2 gauge grounding strap from the engine to truck frame.

WIRE ROPE INSTALLATION ▲

Refer to DWG #20574 (Maintenance Section) for information on wire rope installation / replacement.

NOTES



TITLE
INST INSTRUCTIONS

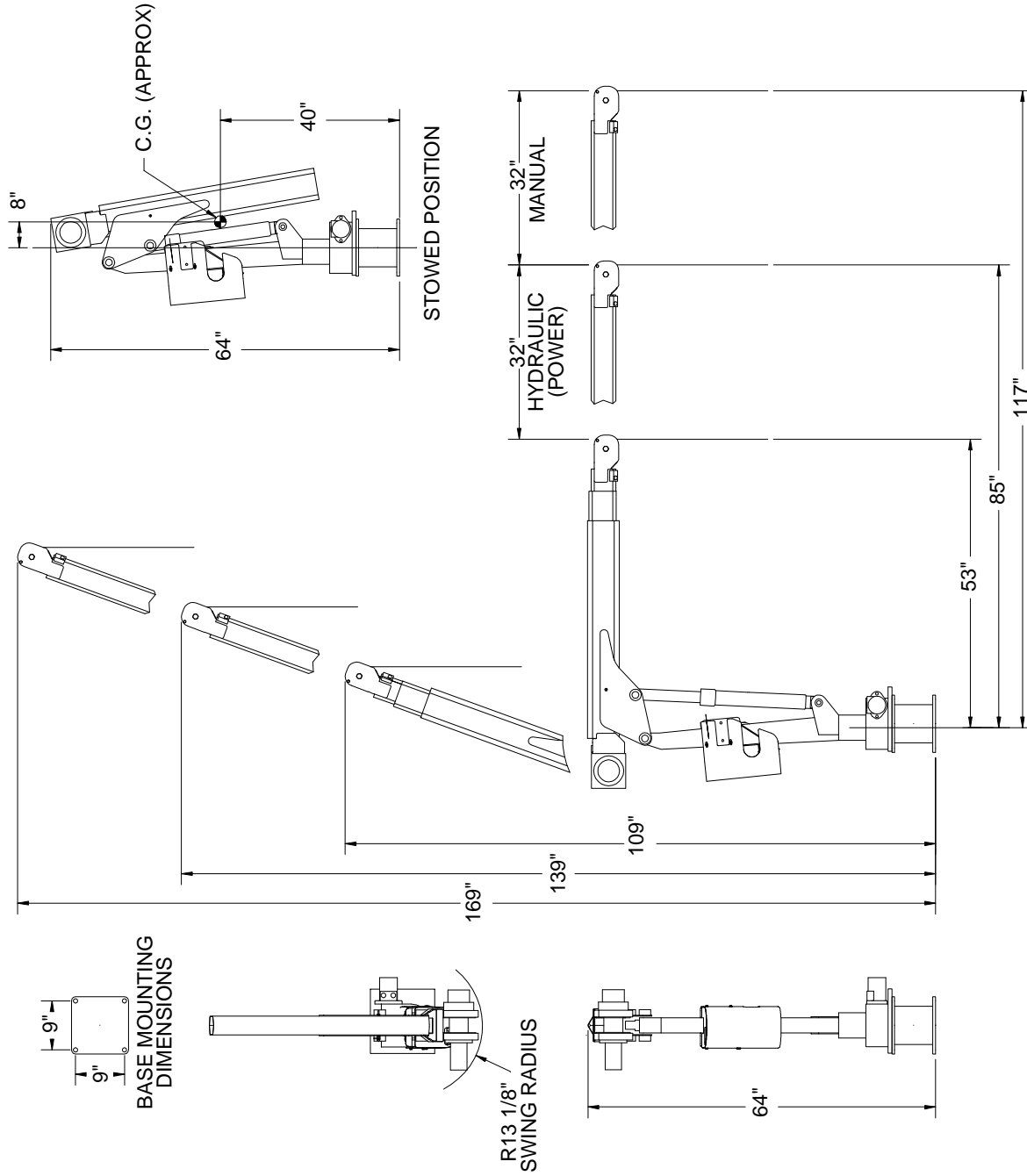
DATE
08-15-13D

SECTION
C200

CT310KX

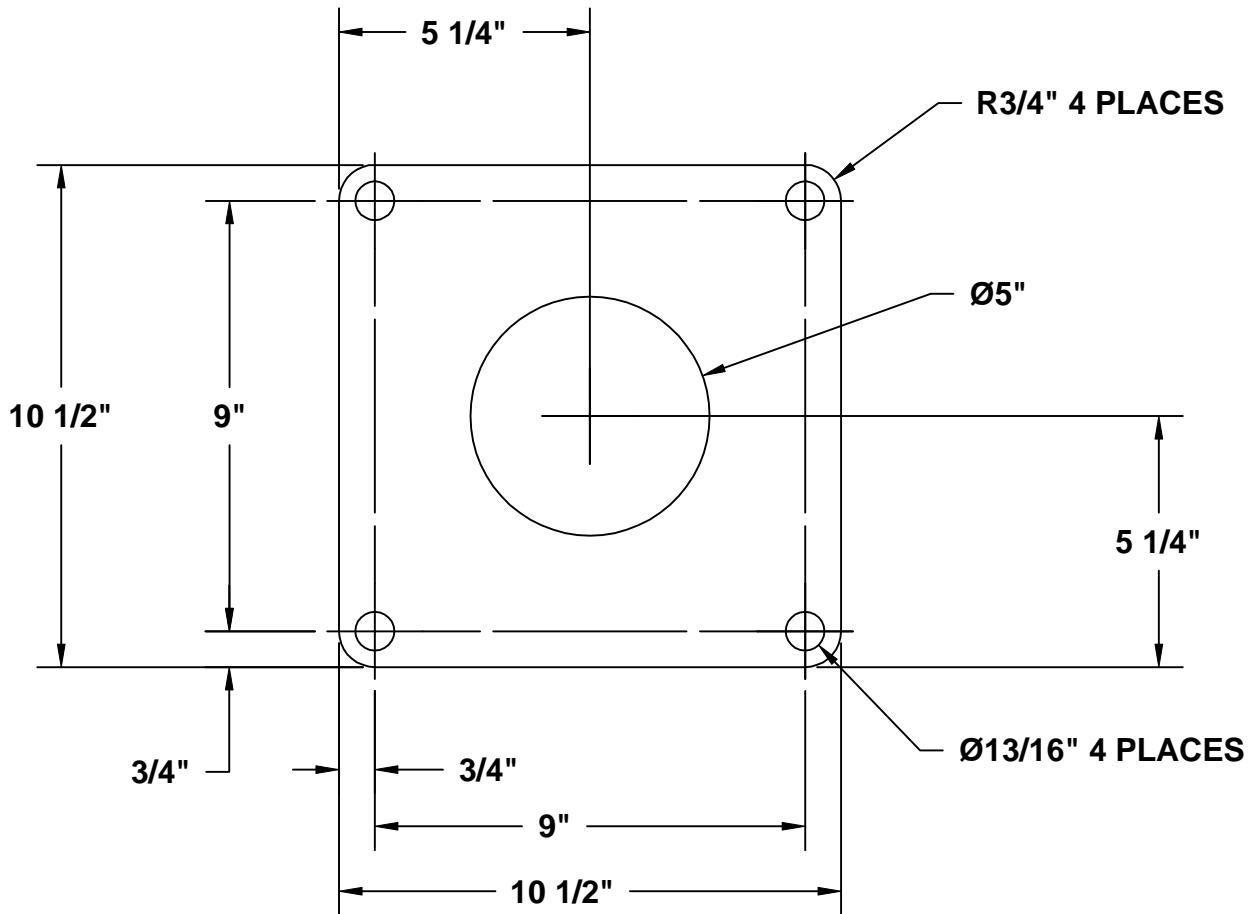
SUPERSEDES
03-04-13C

20563



 VENTURO [®] MANUFACTURING, INC. CINCINNATI, OHIO	TITLE	DIMENSION DRAWING	
	CT310KX	DATE	08-12-13B
	SUPERSEDES	03-31-04A	SECTION
			C200
			20564

CT310KX MOUNTING DIMENSION



▲ REFERENCE INSTALLATION DWG 20563 FOR MOUNTING BOLT SIZE AND TORQUE SPECIFICATIONS.



MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE

BASE MOUNTING DIM

CT310KX

DATE

03-12-13B

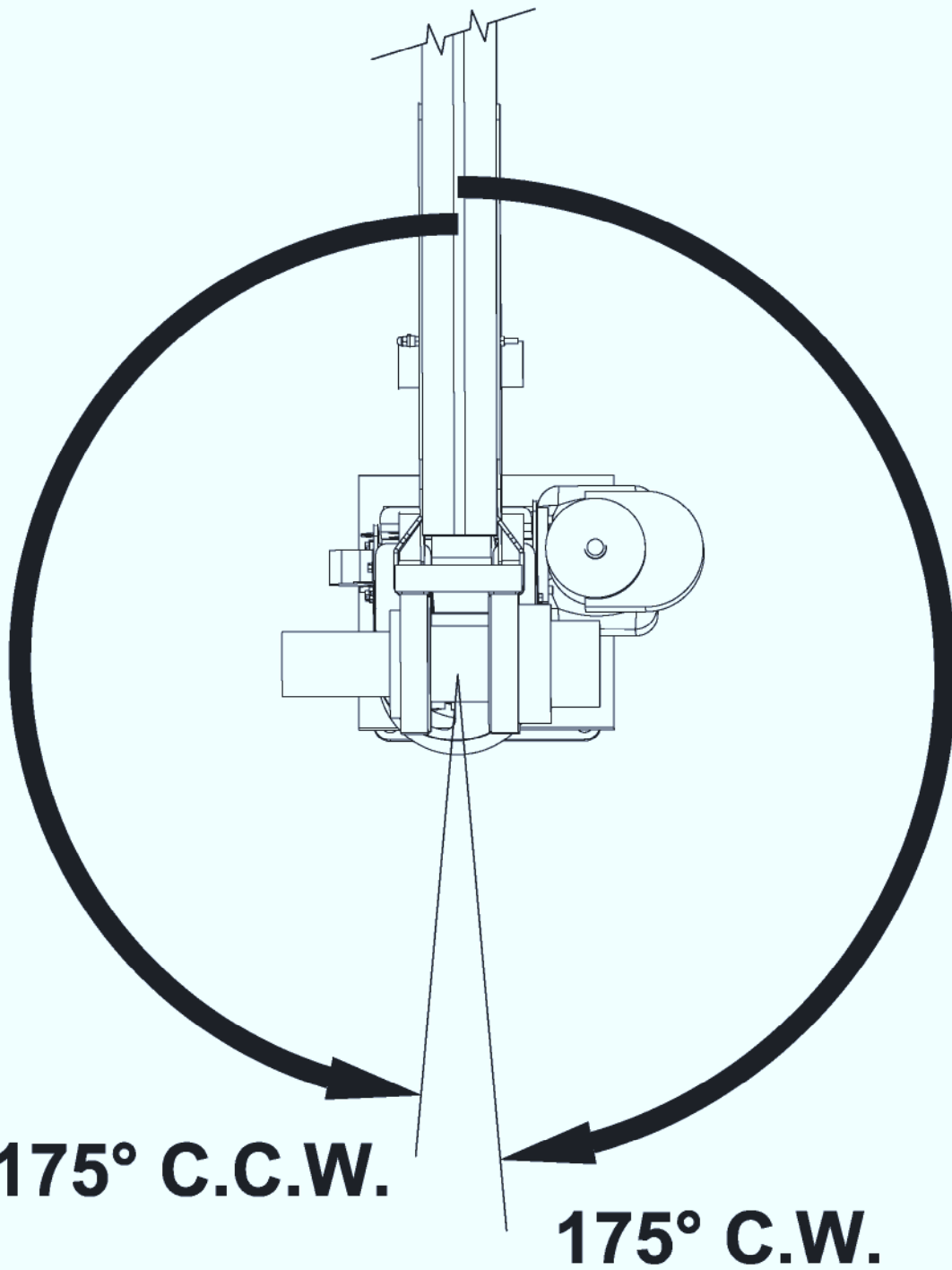
SUPERSEDES

03-08-05

SECTION

C200

20714



This Venturo crane is shipped with the rotation orientation as shown above. To change the orientation rotate crane base prior to mounting to suit your application.



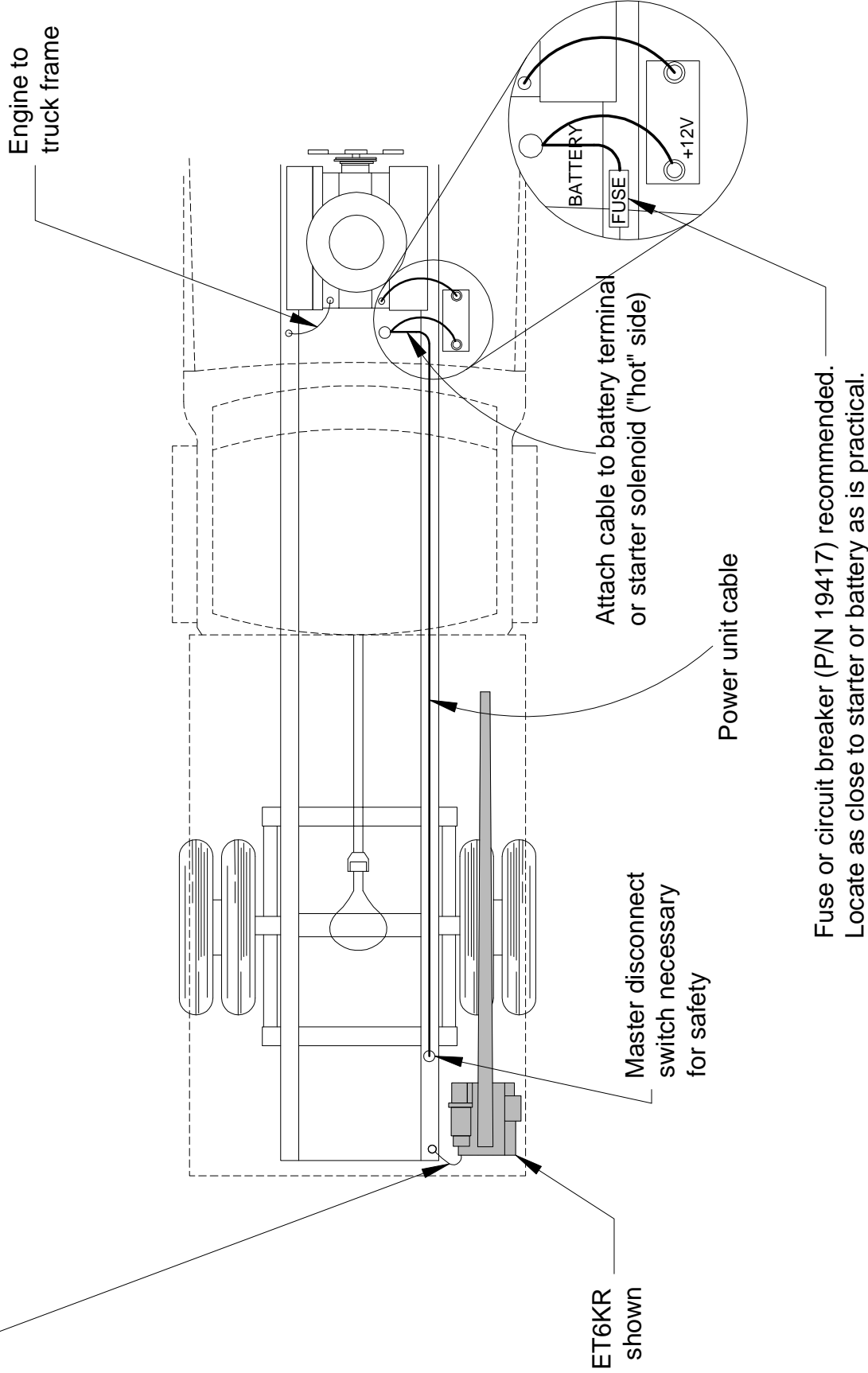
**MFG., INC.
CINCINNATI, OHIO**

TITLE	DATE	SECTION
ROTATION STOP LOCATION	12-20-05	-
CT310KX	SUPERSEDES	21066
	-	

Important: The crane must make connection with the negative of battery. To ensure this:

1. Install a #2 gauge grounding strap from the engine to the truck frame (required if negative from battery is connected to the engine).
2. Install a #2 gauge grounding strap from the crane base to the truck frame (included).

NOTE: Failure to perform these steps may result in intermittent operation of electric crane.



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



MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE
BATTERY CABLE INSTALLATION

CT310KX

DATE
08-12-13A

SUPERSEDES
11-04-02

SECTION
C200

205665

CT310KX INSTALLATION INSTRUCTIONS

FINAL PREPARATION FOR USE

1. Check all bolts and nuts for tightness.
2. Check all electrical connections for tightness.
3. Inspect the entire crane to be sure that it is ready for use.
4. Verify that the hydraulic reservoir is filled with hydraulic fluid (with both cylinders fully retracted).
5. Check the crane operation.
 - 5.1. Put the truck's transmission in Neutral (Park if it has an automatic transmission).
 - 5.2. Remove the pendant from its stowed location and plug it into its socket.
 - 5.3. Check each of the four operations by operating each switch in both directions:
 - 5.3.1. WINCH down / up
 - 5.3.2. BOOM up / down
 - 5.3.3. BOOM out / in
 - 5.3.4. ROTATION left / right
- NOTE: The crane is now ready for operation.
6. After 10 hours of operation, repeat steps 1 through 4.

NOTES



MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE
FINAL PREP FOR USE
CT310KX

DATE
08-12-13A
SUPERSEDES
11-04-02

SECTION
C200
20566

SECTION 300

MAINTENANCE

&

SERVICE

CT310KX MAINTENANCE & SERVICE

PREVENTIVE MAINTENANCE

Overview

Your preventive maintenance program should include all of the following inspections and lubricant applications. Additional items can be added to meet your special needs. New cranes should be fully inspected and have the hydraulic fluid replaced after the first 10 hours of operation.

Periodic Inspection

Having scheduled inspections helps ensure your crane will stay in a ready to use condition. As parts become worn, replacement parts can be ordered in advance to allow timely repair. Downtime for the crane can be limited.

Table 4-1 suggests a monthly and annual inspection, but a general inspection should be performed daily and each time the crane is used.

- Are there obvious wear or damage problems?
- Does the crane sound normal? Are there changes in the sounds of the winch motor or hydraulic pump and motor?
- Is the crane operating smoothly?

Table 4-1 Periodic Inspection Schedule

PERIODIC INSPECTION SCHEDULE		
Inspection Frequency	Inspection	Action
Monthly	Inspect all moving parts for wear or damage.	Repair or replace as needed.
	Check hydraulic hoses and fittings for leaks.	Repair or replace as needed.
	Check hydraulic cylinders for leaks.	Repair or replace as needed.
	Check all nuts and bolts for tightness.	Tighten as needed.
Annually	Check all decals and signs for readability.	Clean, repair, or replace as needed. (Refer to the decal drawing in the safety or parts section(s)).

NOTES

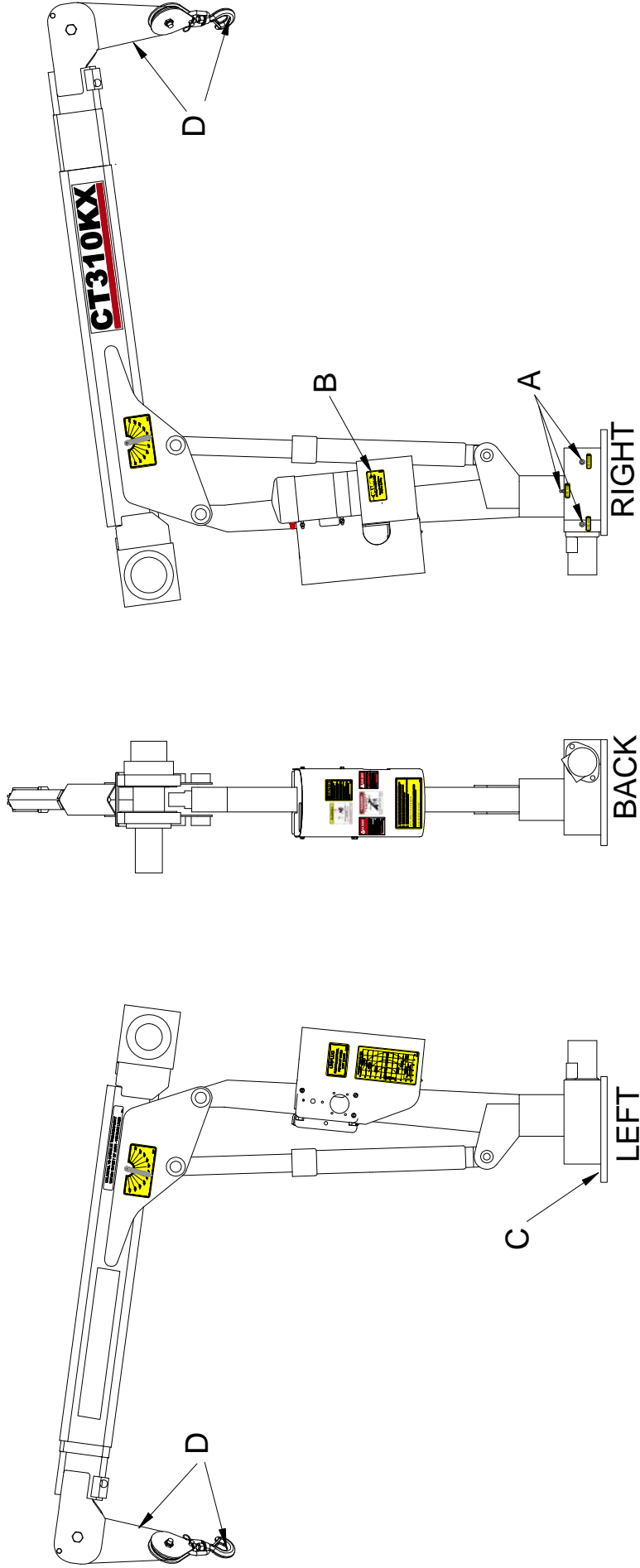


MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE
PRVNTV MAINTENANCE
CT310KX

DATE
08-12-13A
SUPERSEDES
11-04-02

SECTION
C300
20571



Location	Service Required	Note	Service Interval
A	Grease fitting With Pressure Grease Gun	Use Lithium Based Grease	Time of Truck Service or Every 6 months
B	Fill Oil Reservoir to Oil Level with Boom Down	Use Dextron III ATF or ISO Grade AW 46 for Ambient Temperatures Between -22° F and 30° F Use ISO 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	Check Torque of bolts	Bolts should be torqued to 60 ft-lbs	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

CT310KX

DATE
-

SUPERSEDES
08-21-13

SECTION
C300

21982


CT310KX MAINTENANCE & SERVICE

MINIMUM VOLTAGE TEST

This test checks the system voltage when under a full load condition. If a minimum of nine [9] volts is not read, the battery must be changed.

To check:

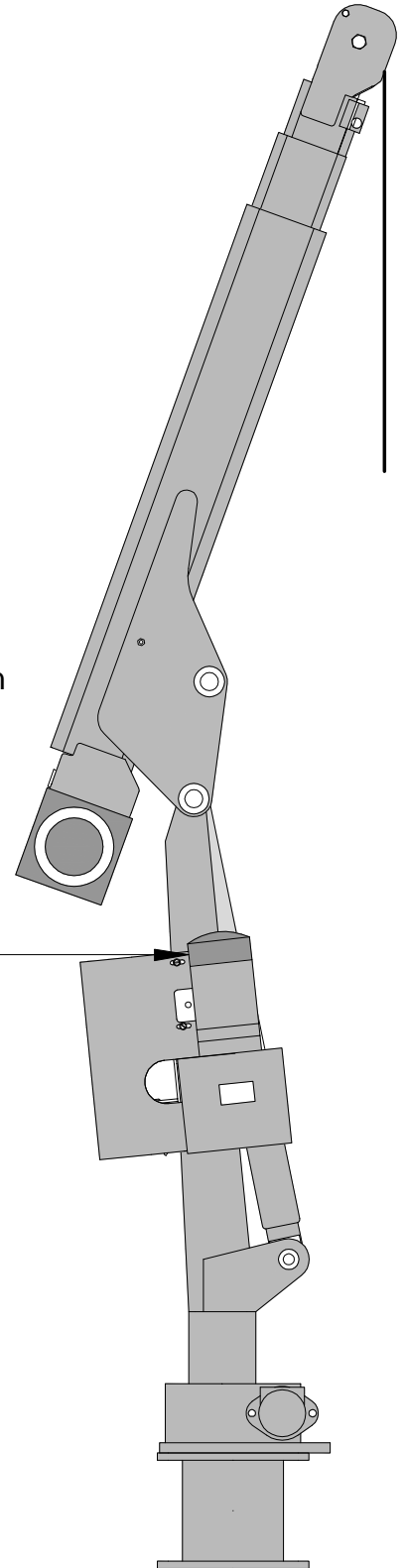
1. Start the truck engine.

DANGER

- Never touch moving parts
- Allow only trained personnel to perform this test.
- Failure to follow this could result in death or serious injury.

2. Operate the Boom Up switch until the boom is at full UP position.
3. Pull back the rubber boot which covers the motor terminal.
4. While holding the Boom Up switch on, measure the voltage at the HOT connection (at the hydraulic pump motor) across to ground (on the crane housing).
5. Operate the Boom Down switch to lower the boom.
6. Replace the battery if the reading is less than nine [9] volts.

Pull back rubber boot and put positive lead of multi-meter (voltmeter) here.



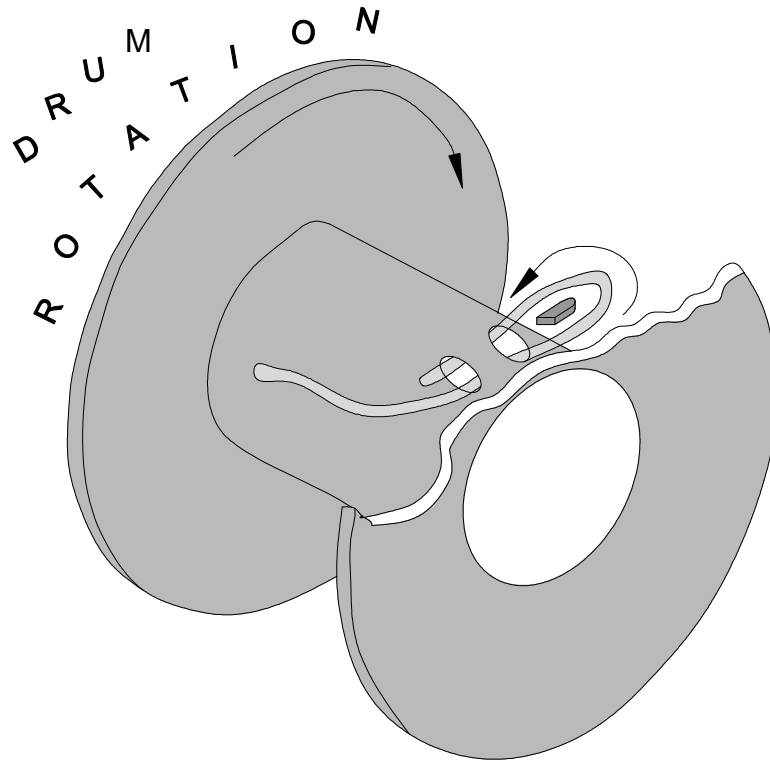
MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE
VOLTAGE TEST
CT310KX

DATE
08-12-13A
SUPERSEDES
11-04-02

SECTION
C300
20573

CT310KX MAINTENANCE & SERVICE



WINCH LINE (WIRE ROPE) REPLACEMENT

1. Remove the wedge from the old winch line for use with the new line.
2. Remove the old winch line and clean the winch if needed.
3. Unroll the new winch line to prevent kinking.
4. Thread the new winch line through the slot in the drum.
5. Insert the new line through the slot in the drum.
6. Form a loop and insert the end of the line into the slot.
 - 6.1. Be sure the "live", or load carrying, end of the line is against the drum flange.
 - 6.2. Be sure the end of the rope extends out of the slot.
7. Insert the wedge into the loop.
 - 7.1. Seat the wedge into the slot.
8. Turn the truck engine ON.
9. Wind the line onto the drum by pressing the Winch Up switch.
 - 9.1. Maintain tension on the line at all times.
 - 9.2. Wind the line evenly onto the drum.



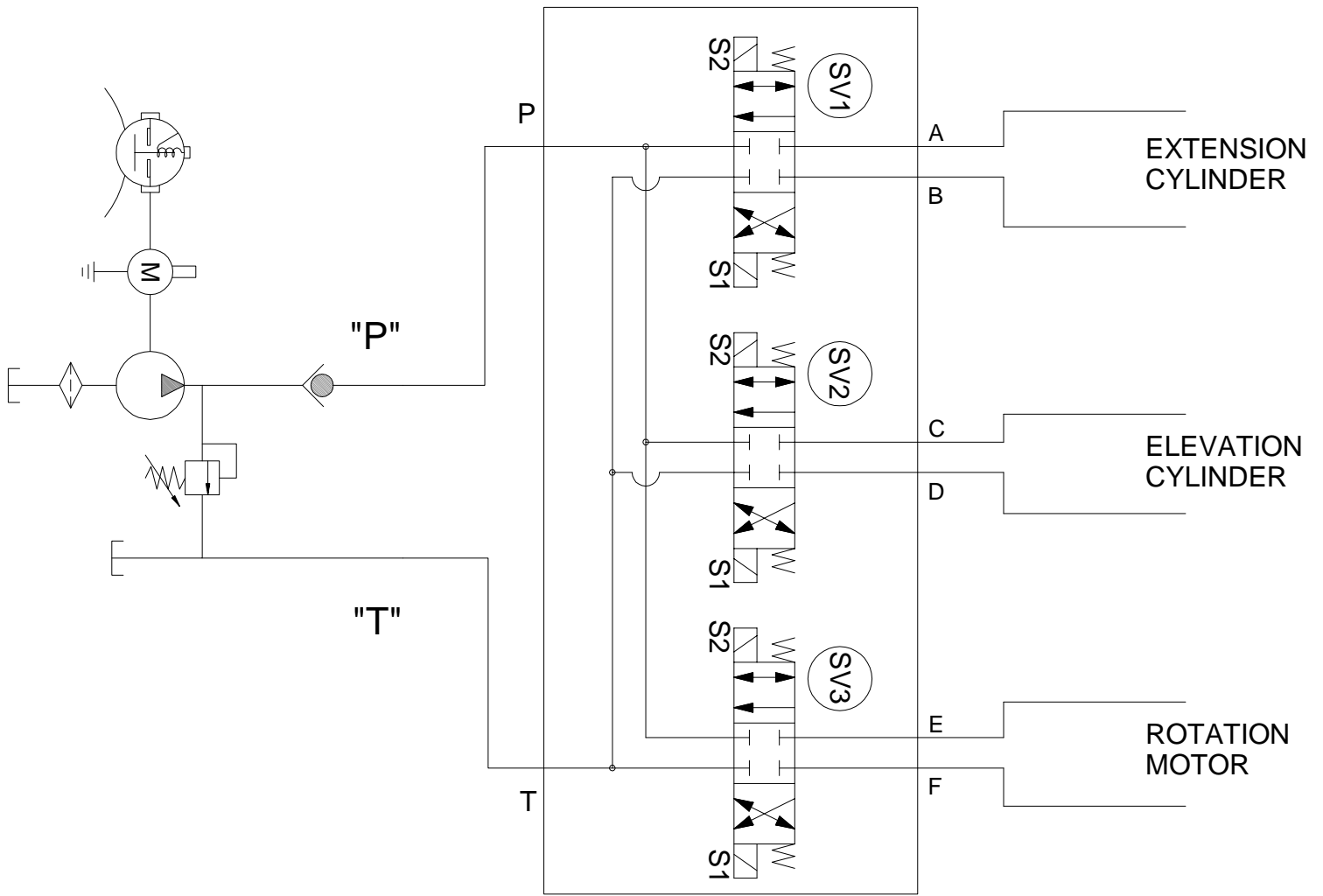
MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE
WIRE ROPE REPLCMNT
CT310KX

DATE
08-12-13A
SUPERSEDES
11-04-02

SECTION
C300
20574

CT310KX MAINTENANCE & SERVICE



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'

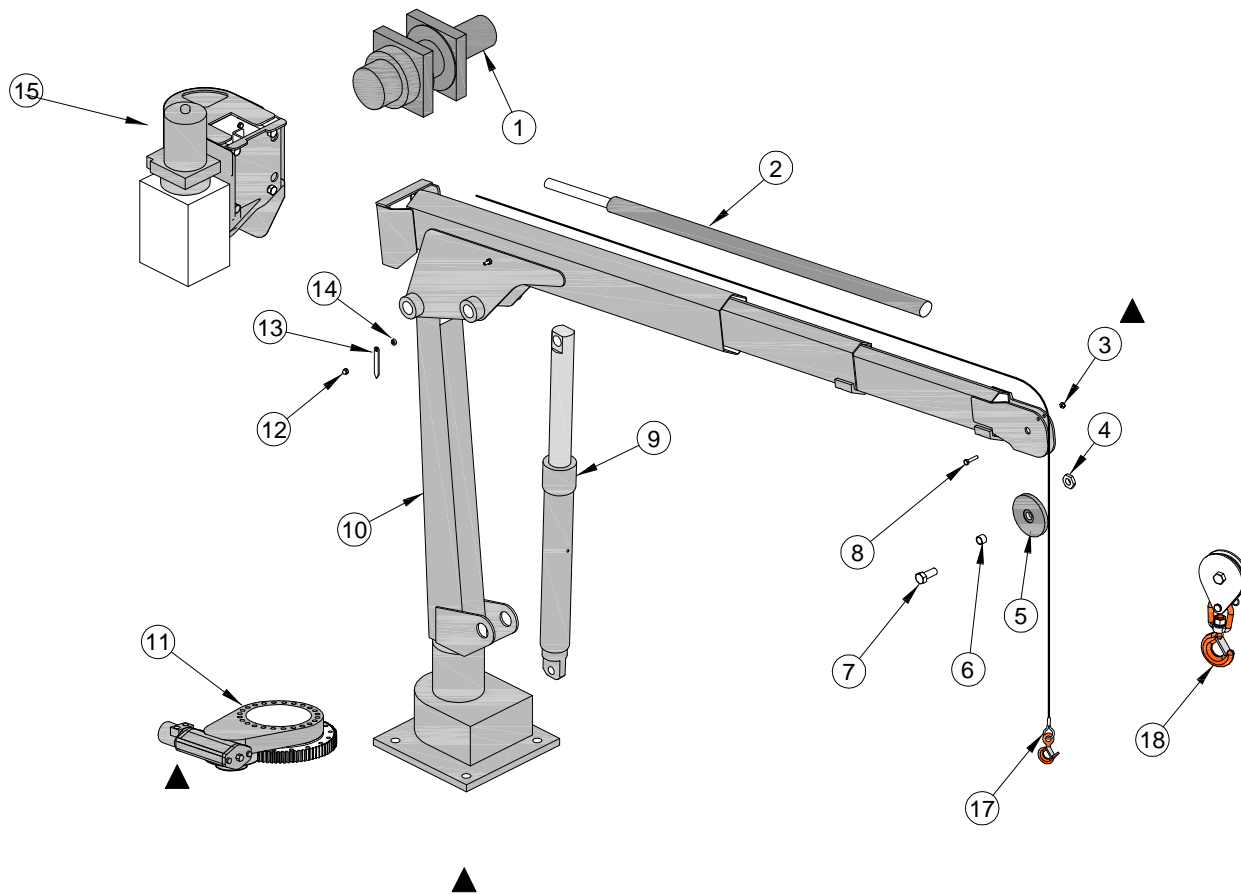
SV3

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

SECTION 400

PARTS





ITEM NO.	QTY.	PART NO.	PART DESCRIPTION
▲ 1	1	20586	WINCH, DC, HEAVY DUTY
▲ 2	1	20545	CYLINDER, EXTENSION ASSEMBLY
3	1	!JNUT-02520N	NUT, JAM, LOCKING, W/ NYLON INSERT, 1/4-20
4	1	!JNUT-06311N	NUT, JAM, LOCKING, W/ NYLON INSERT, 5/8-11
5	1	19646	SHEAVE, W/ BRONZE BUSHING
6	1	13168-7	SLEEVE 9/16"
7	1	!HHCS06311150	SCREW, HEX HD CAP, 5/8-11 X 1-1/2"
8	1	!HHCS02520125	SCREW, HEX HD CAP, 1/4-20 X 1-1/4"
▲ 9	1	20544	CYLINDER, ELEVATION ASSEMBLY
▲ 10	1	20484	MAST AND BOOM ASSEMBLY
▲ 11	1	20543	MOTOR, HYDRAULIC ROTATION
12	2	!ANUT-02520S	NUT, ACORN, SS, 1/4-20
13	2	13459-1	ARROW, BOOM ANGLE
14	2	22490	SPACER
15	1	20466	MECHANISM ASSEMBLY
▲ 16	1	20480	MOUNTING PEDESTAL - 8" HEIGHT
17	1	15810-3/16-50'	WIRE ROPE ASSEMBLY
18	1	19678	SWIVEL LOAD BLOCK

NOTE: SEE HYDRAULIC AND ELECTRIC DRAWING FOR ADDITIONAL PARTS



MANUFACTURING, INC.
CINCINNATI, OHIO

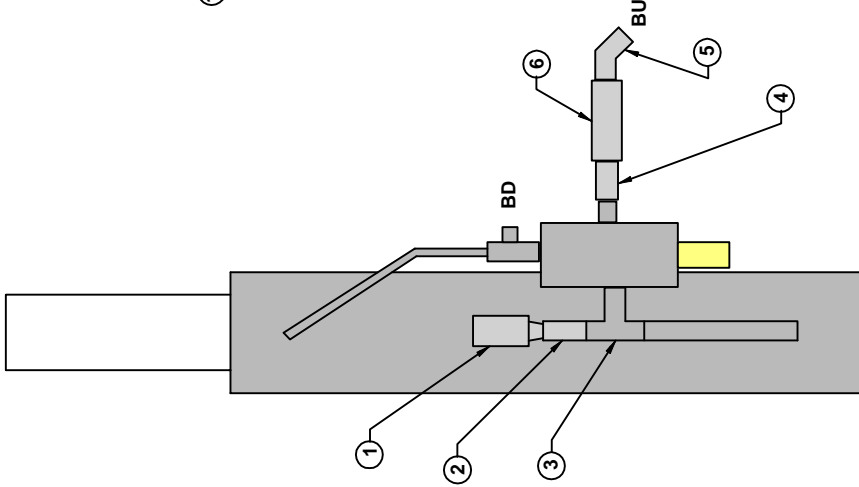
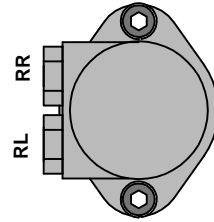
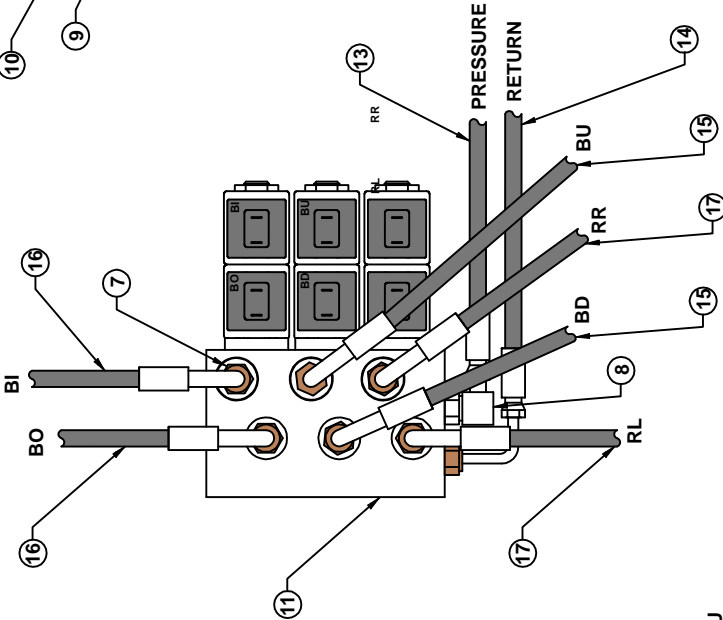
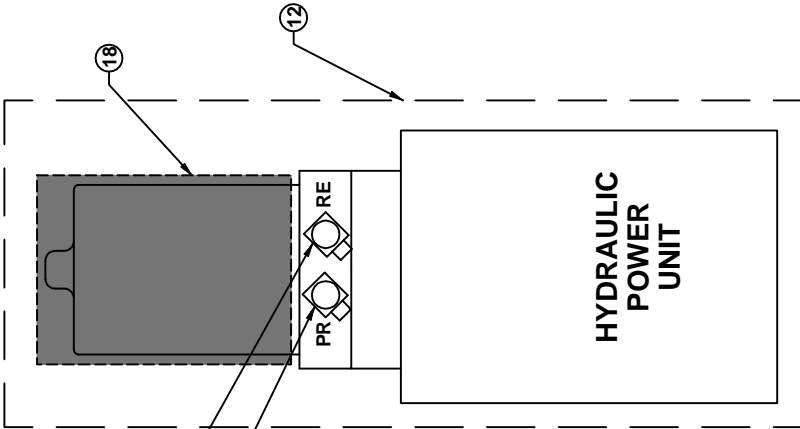
TITLE
REPLACEMENT PARTS
CT310KX

DATE
08-11-14H
SUPERSEDES
03-04-13F

SECTION
-
20577

BO BI

EXTENSION CYLINDER



 <p>MANUFACTURING, INC. CINCINNATI, OHIO</p>	TITLE	HYDRAULIC SYSTEM PARTS DWG	DATE	03-15-13D	SECTION	-
	CT310KX		SUPPERSEDES	06-17-11C		20578

HYDRAULIC SYSTEM PARTS LIST

ITEM #	QTY.	PART #	DESCRIPTION
1	1	17460-2200-02	SWITCH; OVERLOAD PRESSURE
* 2	1	H6506-0406	FITTING; 4FP-6FJX
3	1	H9159-060606	FITTING; METRIC TEE
* 4	1	H6505-0406	FITTING; 4MP-6FJX
* 5	1	H2503-0604	FITTING; 6MJ-4MP x 45°
6	1	17455-1	VALVE; INLINE POPPET CHECK / FLOW
* 7	7	H6400-0604	FITTING; 6MJ-4MP
* 8	1	H6801-0604	FITTING; 6MJ-4MO x 90°
* 9	1	H2501-0606	FITTING; 6MJ-6MP x 90°
* 10	1	H2501-0604	FITTING; 6MJ-4MP x 90°
11	1	19815-2	ASSY; VALVE BLOCK
▲ 12	1	20456	ASSY; P.U. (PUMP, TANK, MOTOR)
* 13	1	20913	HOSE; PRESSURE
* 14	1	20912	HOSE; RETURN
* 15	2	20914	HOSE; ELEVATION (UP / DOWN)
* 16	2	20915	HOSE; EXTENSION (IN / OUT)
* 17	2	20911	HOSE; ROTATION (LEFT / RIGHT)
18	1	16940	MOTOR; ELECTRIC (ONLY)

* DENOTES ITEMS IN P/N 20457: KIT; HOSES AND FITTINGS

REFERENCE DRAWING 20578



MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE
HYD SYS PARTS LIST
CT310KX

DATE
07-08-19E
SUPERSEDES
03-15-13C

SECTION
-
20579

CT310KX REPLACEMENT PARTS

ITEM NUMBER	PART NUMBER	QTY	PART DESCRIPTION
1	19608	1	RELAY
2	26264	1	SOCKET
3	-	1	VALVE BLOCK (See DWG #20578)
4	-	2	HARNESS, GROUND
5	-	-	-
6	20499	1	CONTACTOR
7	17356	1	ALARM, OVERLOAD
8	17460-2200	1	SWITCH, OVERLOAD PRESSURE
9	-	1	HARNESS
10	19417-150	1	Optional Equipment CIRCUIT BREAKER (Not Shown)

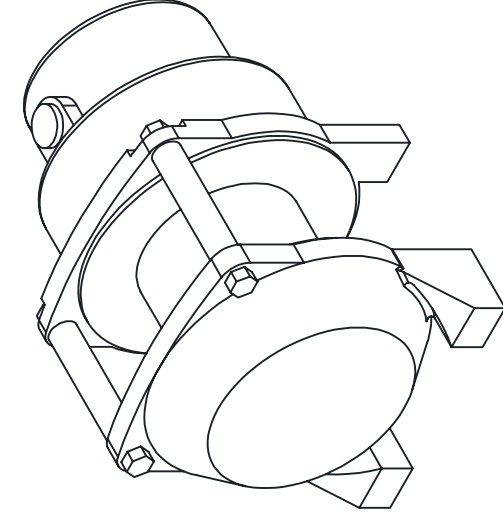
* Reference DWG #20580



MANUFACTURING, INC.
CINCINNATI, OHIO

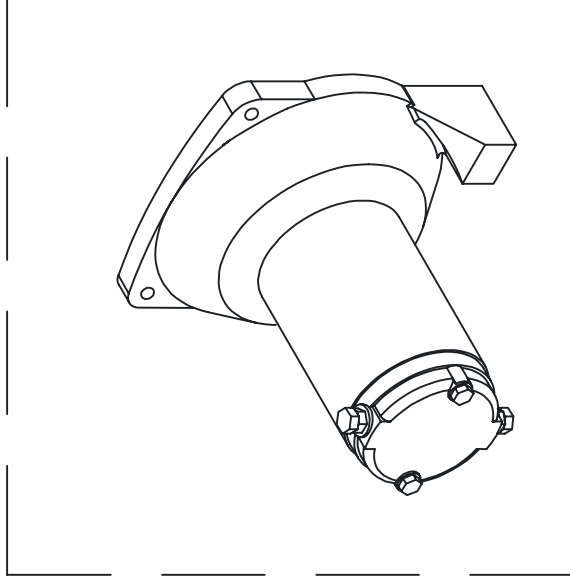
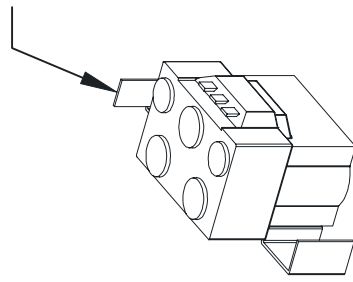
TITLE	DATE	SECTION
ELECT. SYS. PARTS LIST	08-12-13A	C400
CT310KX	SUPERSEDES 11-04-02	20581

20586 WINCH REPLACEMENT PARTS



21214
CABLE WEDGE

20499
CONTACTOR



20788 MOTOR
REPLACEMENT KIT
INCLUDES END PIECE ▲

TITLE

REPLACEMENT PARTS DRAWING

CT310KX

DATE

11-9-06A

SUPERSEDES

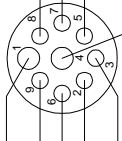
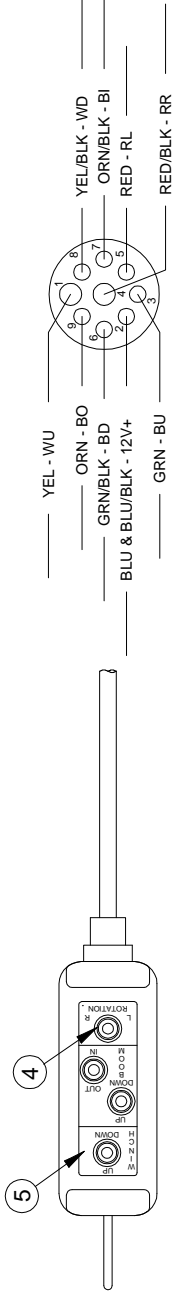
4-25-06

SECTION

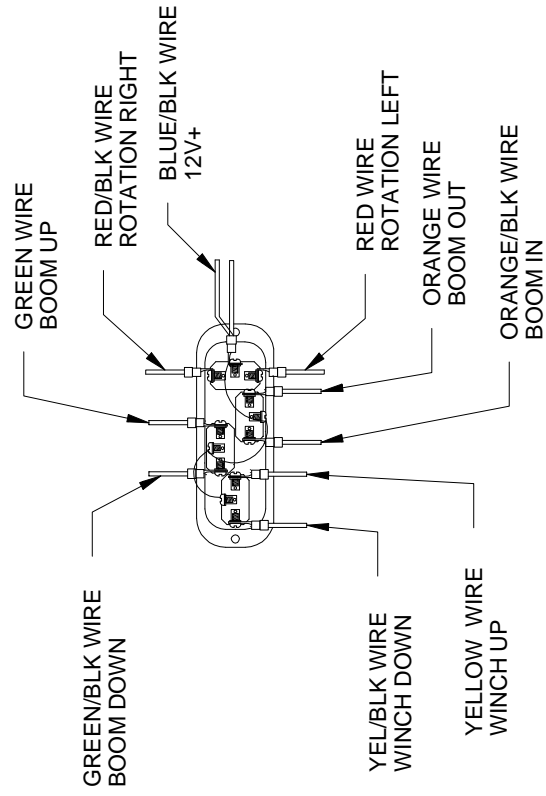
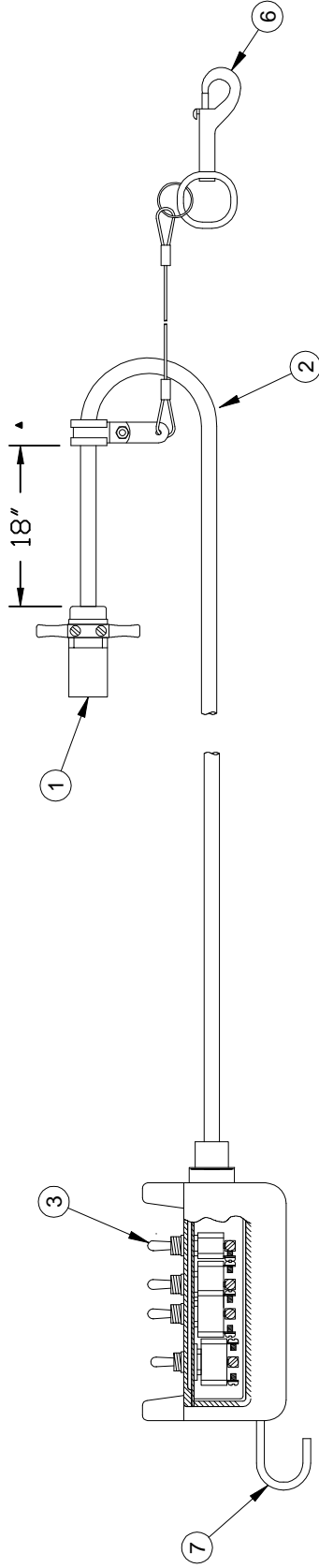
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20837

20160 4-SWITCH PENDANT



PLUG - BACKSIDE VIEW



NOTE: BLACK WIRE IS NOT USED

* Reference DWG #20583

TITLE CONTROL PENDANT PARTS DRAWING CT310KX	DATE 10-4-13B	SECTION C400
	SUPERSEDES 8-12-13A	20582

MANUFACTURING, INC.
 CINCINNATI, OHIO



CT310KX REPLACEMENT PARTS

ITEM NUMBER	PART NUMBER	QTY	PART DESCRIPTION
1	26263	1	PLUG, 9-HOLE
2	26262-20	1	CORD ASSEMBLY (20 FT. LONG)
3	13763	4	SWITCH, TOGGLE
4	19793	4	BOOT, TOGGLE
5	17363	1	DECAL
6	15913-2	1	ASSEMBLY, CLAMP & TETHER
7	11557	1	HOOK, PENDANT
8	20163	1	COVER, PENDANT HEAD
9	20164	1	BASE, PENDANT HEAD
10	20165	1	GASKET/CORD RESTRAINT, PENDANT HEAD

* Reference DWG #20582



MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE	DATE	SECTION
CNTRL PNDNT PRTS LIST	08-12-13A	C400
CT310KX	SUPERSEDES 11-04-02	20583

CT310KX**20503 FIELD SERVICE LABEL KIT**

ITEM	PART NUMBER	QTY	DESCRIPTION
1	20504	1	DECAL; VOLTAGE IDENTIFICATION
2	20470		DECAL; BOOM ANGLE
	-1	1	LEFT SIDE
	-2	1	RIGHT SIDE
3	20474	1	DECAL; BOOM CAPACITY
4	17389-4	1	DECAL; VENTURO LOGO, SMALL
5	16719	1	DECAL; UNLAWFUL TO OPERATE SIGN
6	14459	1	DECAL; ALARM - OVERLOAD SENSING
7	573402	1	DECAL; DANGER - 2 BLOCKING
8	573403	1	DECAL; DANGER - STOWING
9	13397	1	DECAL; OIL LEVEL
10	14473	3	DECAL; GREASE
11	15397	1	KIT; ACCIDENT PREVENTION SIGNS
12	20561	1	IDWG; DECAL APPLICATIONS
▲ 13	17813	1	DECAL; OVERLOAD SENSING SYSTEM
14	-	-	-
15	-	-	-
16	-	-	-
17	-	-	-
18	-	-	-
19	-	-	-
20	-	-	-
21	-	-	-
22	-	-	-
23	-	-	-
24	-	-	-
25	-	-	-
26	-	-	-
27	-	-	-
28	-	-	-



MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE

FIELD SRVC LABEL KIT

DATE

04-17-13B

SECTION

-

CT310KX

SUPERSEDES

04-01-13A

20585



LIMITED WARRANTY POLICY

This limited policy warrants new products of Venturo to be free from defects in material and workmanship for a period of one (1) year from date of original installation. 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 ensure the installation is completed according to the manufacturer's recommendations, ensure the ultimate user understands how to operate product in a safe manner, and understands the need for regular service and maintenance by an authorized Venturo Distributor. No modifications or alterations may be made to any Venturo 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
513-772-8448
www.venturo.com

12-00073A