



VENTURO
TRUCK MOUNTED CRANES

CT310KX

MEAAAB-**
INSTALLATION & OWNER'S MANUAL

TABLE OF CONTENTS

VENTURO CT310KX OWNER'S MANUAL

SECTION 100

20553	INTRODUCTION & LIMITS OF USE
23054	LOAD CAPACITY CHART
20568	CONTROL PENDANT & OVERLOAD SENSING SYSTEM
20569	TRUCK SET-UP, SWIVEL LOAD BLOCK USE, & PREPARATION FOR TRAVEL
20729	TWO PART LINE CONFIGURATION

SECTION 150

SAFETY - GENERAL

20556	CRANE SAFETY
20557	ELECTROCUTION HAZARD, CRANE SAFETY NEAR POWER LINES, & MINIMUM CLEARANCE
20558	SAFETY WARNINGS - AN EXPLANATION
20559	ELECTROCUTION HAZARD DECALS
20560	SAFETY SIGNS & DECALS
21353	SAFETY DECALS (PAGE 1 OF 2)
21384	SAFETY DECALS (PAGE 2 OF 2)
21377	DECAL DRAWINGS & LIST (PAGE 1 OF 2)
21378	DECAL DRAWINGS & LIST (PAGE 2 OF 2)

SECTION 200

INSTALLATION INSTRUCTIONS

20563	INSTALLATION PROCEDURE
20564	INSTALLATION DIMENSIONS DRAWING
20714	BASE MOUNTING DIMENSIONS
20565	BATTERY CABLE INSTALLATION DRAWING
20566	FINAL PREPARATION PRIOR TO USE

SECTION 300

MAINTENANCE AND SERVICE

20571	PREVENTATIVE MAINTENANCE OVERVIEW & PERIODIC INSPECTION SCHEDULE
21982	LUBRICATION SCHEDULE
20573	MINIMUM VOLTAGE TEST
20574	WIRE ROPE INSTALLATION & REPLACEMENT
20575	HYDRAULIC SYSTEM SCHEMATIC

SECTION 400

REPLACEMENT PARTS

20851	REPLACEMENT PARTS ILLUSTRATION
20852	REPLACEMENT PARTS LIST
20924	HYDRAULIC SYSTEM PARTS DRAWING
20925	HYDRAULIC SYSTEM PARTS LIST
21027	ELECTRICAL SYSTEM PARTS DRAWING
21584i	SWIVEL TERMINAL ASSY. REPL. PARTS ILLUSTRATION
20837	WINCH REPLACEMENT PARTS LIST
27041	SLEW DRIVE REPLACEMENT PARTS
20582	PENDANT (4 SWITCH) PARTS DRAWING
20583	PENDANT (4 SWITCH) PARTS LIST
▲ 20561	DECAL PLACEMENT
20585	FIELD SERVICE LABEL KIT LIST



VENCO VENTURO INDUSTRIES LLC
CINCINNATI, OHIO

TITLE	TABLE OF CONTENTS
	CT310KX

DATE	04-16-14A
SUPERSEDES	01-21-14

SECTION	-
	20923

SECTION 100

DESCRIPTION

&

SPECIFICATIONS

CT310KX DESCRIPTION & SPECIFICATIONS

INTRODUCTION

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

The CT310KX crane is an electric / hydraulic powered, continuous rotation unit manufactured by Venco Venturo Industries LLC 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. 23054). ▲

- Lifting of personnel is **NEVER** permitted. ▲
- Lifting loads exceeding the capacity chart (DWG. 23054) voids the warranty agreement.

NOTES



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TITLE

INTRODUCTION & LIMITS

CT310KX

DATE

10-24-13B

SUPERSEDES

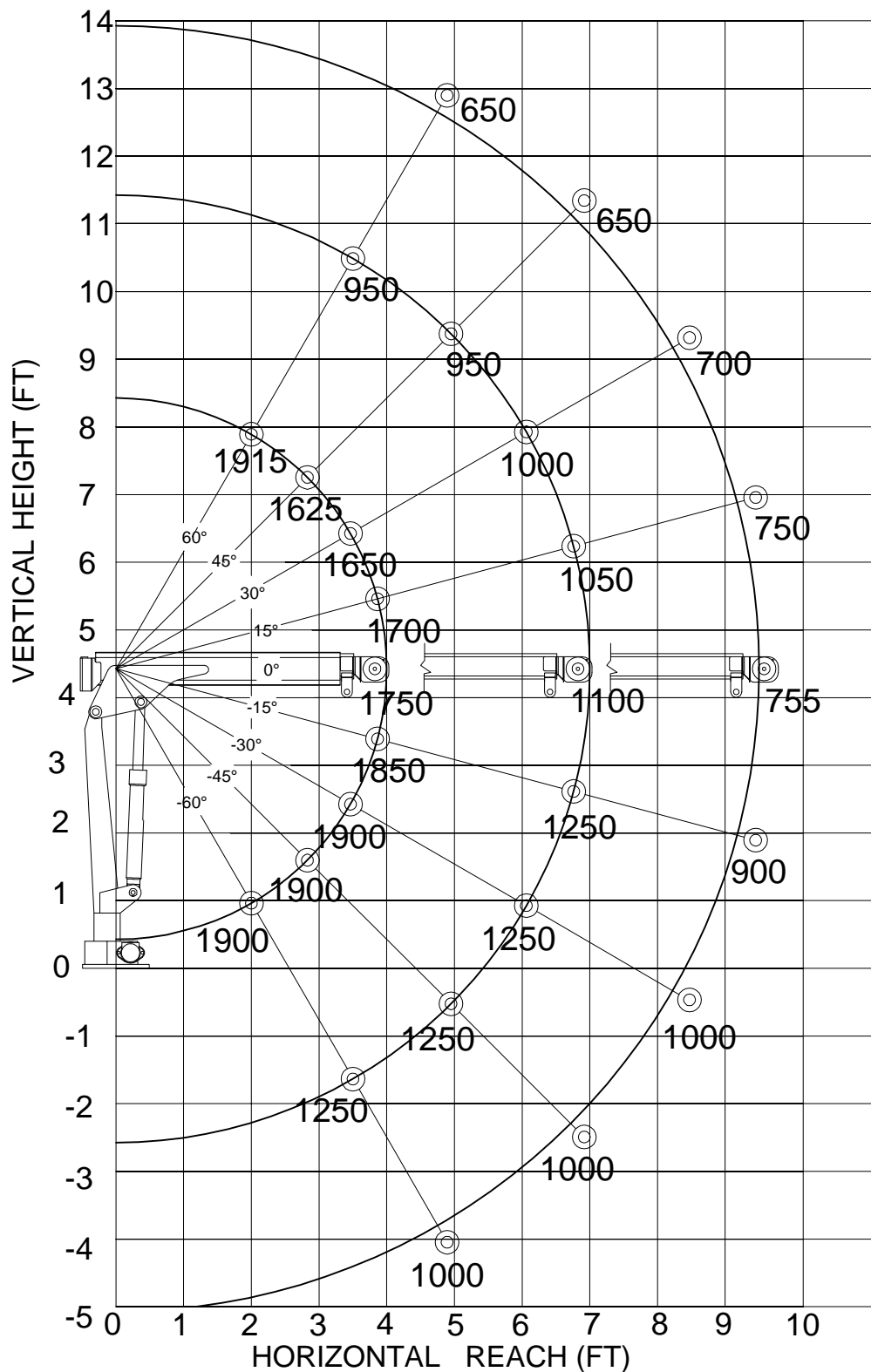
08-12-13A

SECTION

C100

20553

CT310KX MAXIMUM 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 = 5.2 lbs.



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TITLE
LOAD CAPACITY CHART
VENTURO CT310KX

DATE
10-29-13
SUPERSEDES
-

SECTION
C100
23054

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.

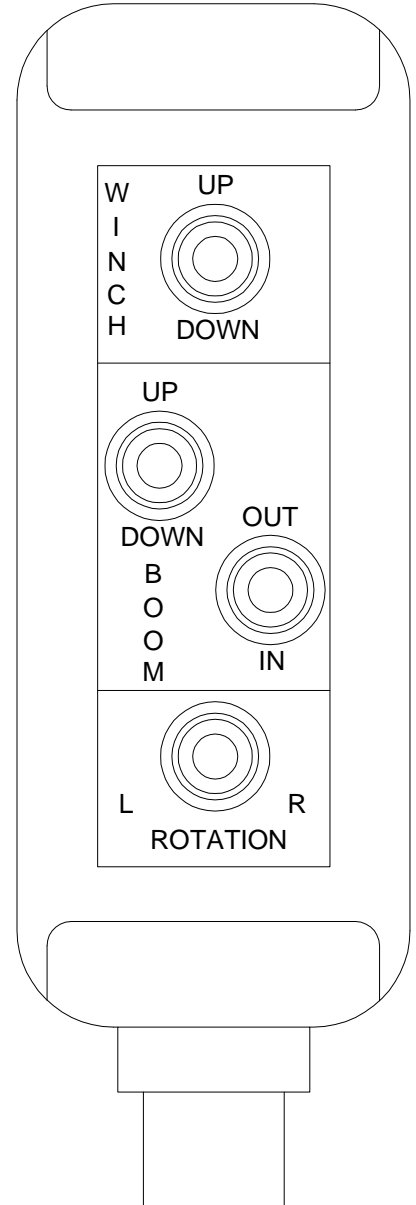
BOOM (Out / In)

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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TITLE
PNDNT & OVRLD SNSNG
CT310KX

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

SECTION
C100
20568

CT310KX DESCRIPTION & 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 and greater. 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.
5.  Unplug the pendant control cord and stow in a body compartment or the truck cab.
6. Turn off the master disconnect switch.

NOTES



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TITLE

SETUP & TRAVEL PREP

CT310KX

DATE

3-4-14C

SUPERSEDES

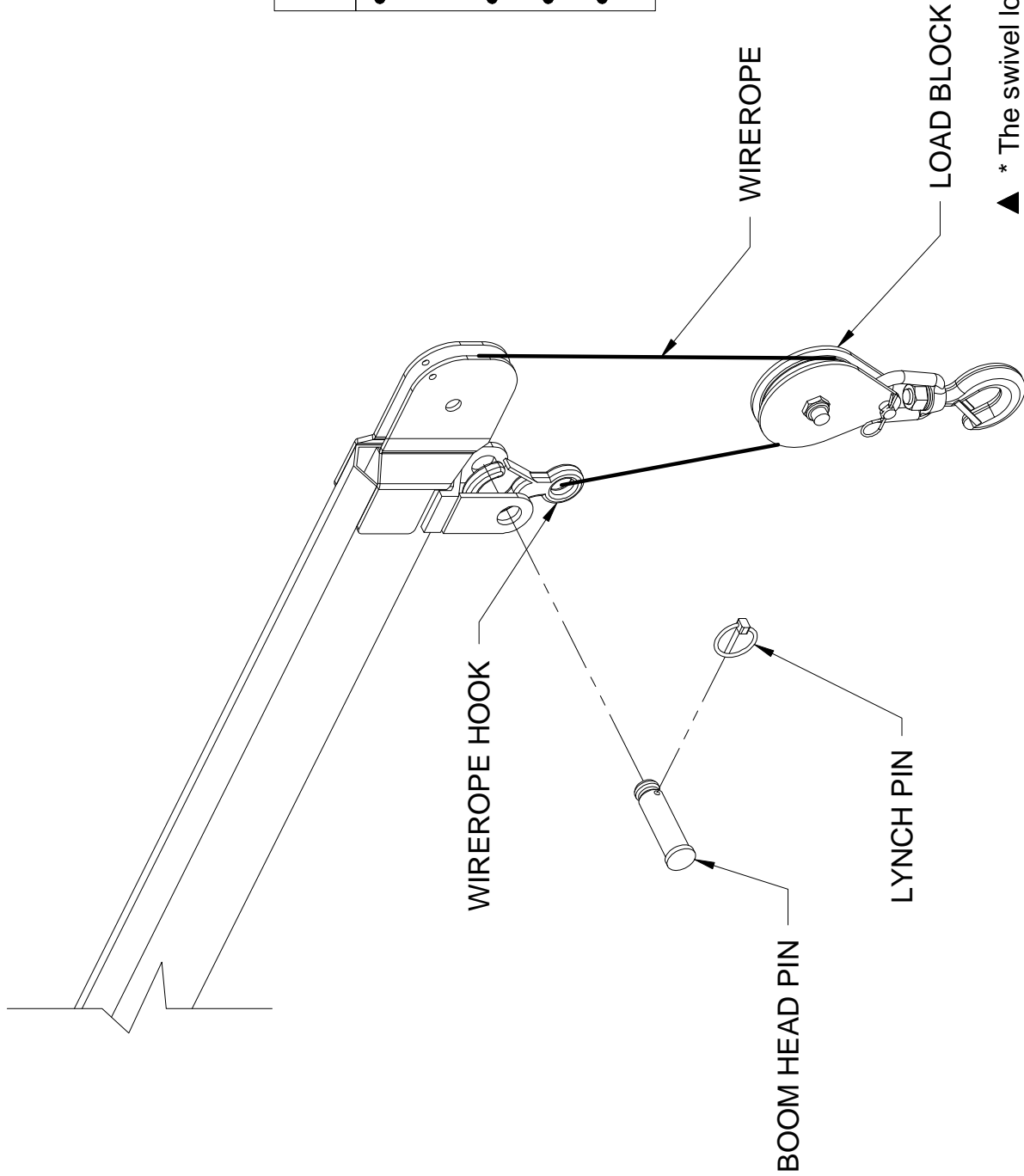
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SECTION

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

▲ * The swivel load block must be used for loads 1000 pounds and greater.



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TITLE

TWO-PART LINE CONFIGURATION

DATE

10-24-13B

SECTION

C100

CT310KX

SUPERSEDES

08-12-13A

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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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



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TITLE

WARNING EXPLANATION

CT310KX

DATE

08-12-13A

SUPERSEDES

11-04-02

SECTION

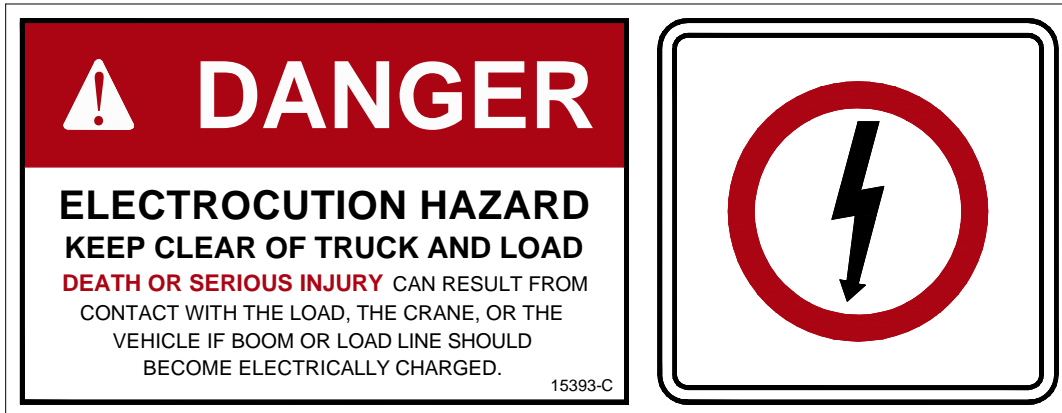
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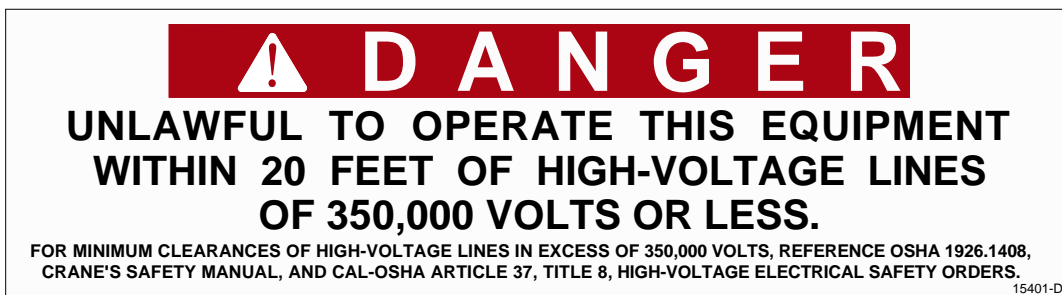
CT310KX SAFETY - GENERAL

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 Venco Venturo Industries LLC. 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 Venco Venturo Industries LLC. 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 (Reference DWG 20571). Any unreadable or missing decal or sign must ▲ be replaced. See Illustrated Parts List for ordering information.

NOTES



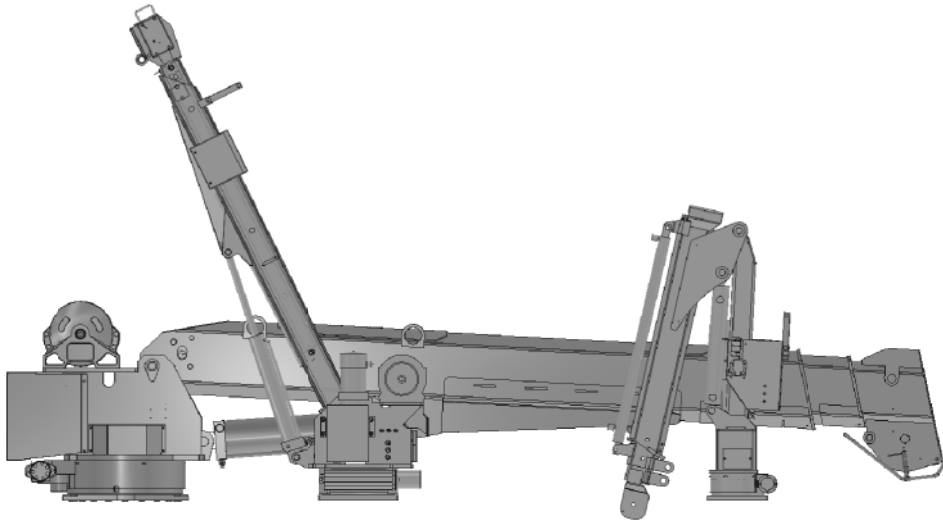
MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE
ELECT. HAZARD SIGNS
CT310KX

DATE
10-24-13B
SUPERSEDES
08-12-13A

SECTION
C150
20559

CT310KX SAFETY - GENERAL



SEE THE NEXT
PAGE FOR
ADDITIONAL
INFORMATION!

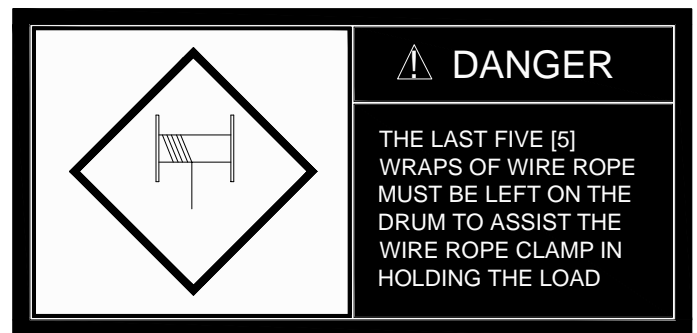
SAFETY SIGNS & DECALS

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.



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TITLE
SAFETY SIGNS & DECALS
CT310KX

DATE
10-24-13B
SUPERSEDES
08-12-13A

SECTION
C150
20560

PART NO.: 15390

DECAL: CAUTION - INSPECT VEHICLE & CRANE

▲ FUNCTION: To inform the operator of key operating requirements.

QUANTITY: 1

PLACEMENT: Rear cover.



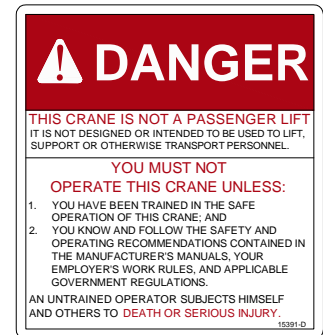
PART NO.: 15391

DECAL: DANGER - NOT PASSENGER LIFT

FUNCTION: To inform the operator not to lift, support or transport personnel, and to ensure that crane operator is adequately trained.

QUANTITY: 1

PLACEMENT: Rear cover.



PART NO.: 15392

DECAL: DANGER - ELECTROCUTION HAZARD

▲ FUNCTION: To inform the operator that the machine (crane) represents an electrocution hazard should it come close to or in contact with electrical voltage source.

QUANTITY: 1

PLACEMENT: Rear cover.



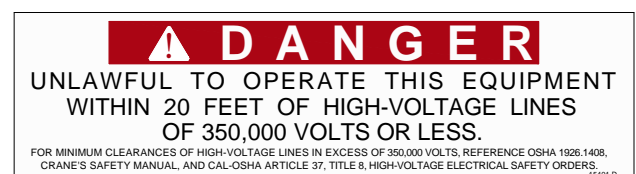
PART NO.: 15401

DECAL: UNLAWFUL TO OPERATE

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

QUANTITY: 1

PLACEMENT: Right side of housing.



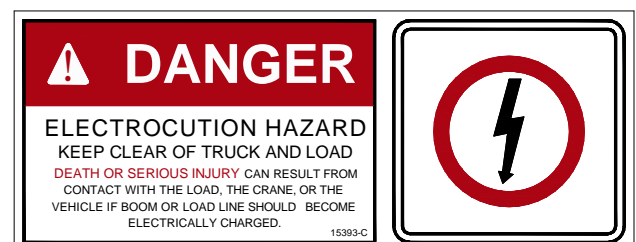
PART NO.: 15393A

DECAL: DANGER - ELECTROCUTION HAZARD

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

QUANTITY: 4

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



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TITLE
SAFETY DECALS
CRANES

DATE
10-24-13D
SUPERSEDES
04-02-13C

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.



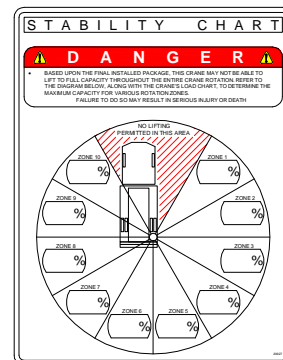
PART NO.: 20927

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.



▲



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CINCINNATI, OHIO

TITLE
SAFETY DECALS

CRANES

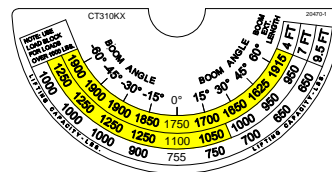
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SUPERSEDES
04-02-13B

SECTION
C150

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



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TITLE
 DECAL DRAWING & LIST
 VENTURO CT310KX

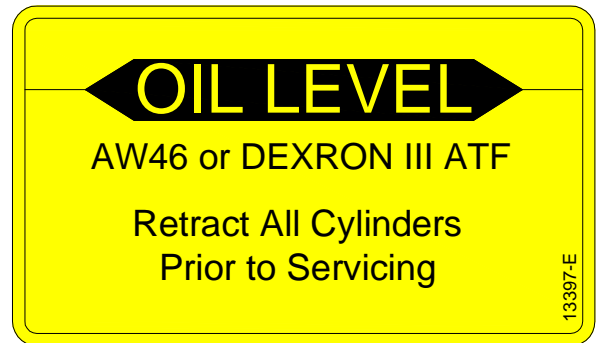
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 SUPERSEDES
 08-12-13A

SECTION
 C150
 21377

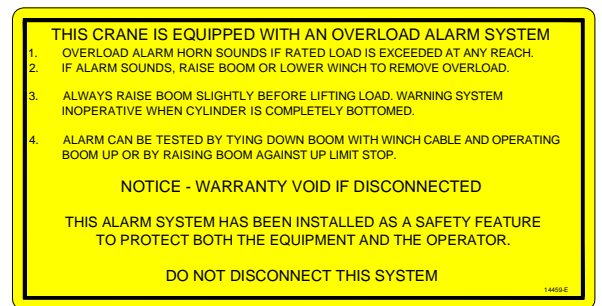
PART NO.: 20504
DECAL: MODEL NUMBER
FUNCTION: To show the model of the crane.
QUANTITY: 1
PLACEMENT: Left side of boom..



PART NO.: 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.



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TITLE
DECAL DRAWING & LIST
CT310KX

DATE
10-24-13D
SUPERSEDES
08-12-13C

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 upon 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 drawing 20564 if your crane has 'Continuous Rotation' or 27410 if your crane has 'Adjustable Limited Rotation' (340°).

Recommended Mounting Hardware:

The crane base is mounted using four [4] 3/4-10 x 2 3/4" (bolt length will vary per mounting application), zinc - plated (GR.5 or greater) hex head cap screw bolts, [8] flat washers, and [4] nylon - insert hex 'Full' lock nuts.

Note: This hardware is NOT supplied due to the varying bolt length requirements per application.

Torque hex nuts to standard torque value of 230 ft.-lbs.

INSTALL BATTERY CABLES

Refer to drawing 20565

1. Install #2 gauge wiring
 - 1.1. Be sure to install a circuit breaker into the wiring from the battery (P/N 22946 recommended).
2. Install grounding straps
 - 2.1. Install #2 gauge grounding strap from crane base to truck frame.
 - 2.2. 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 drawing 20574 (MAINTENANCE SECTION) for information on wire rope installation / replacement.

NOTES



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CINCINNATI, OHIO

TITLE

INSTALL INSTRUCTIONS

CT310KX

DATE

3-4-14H

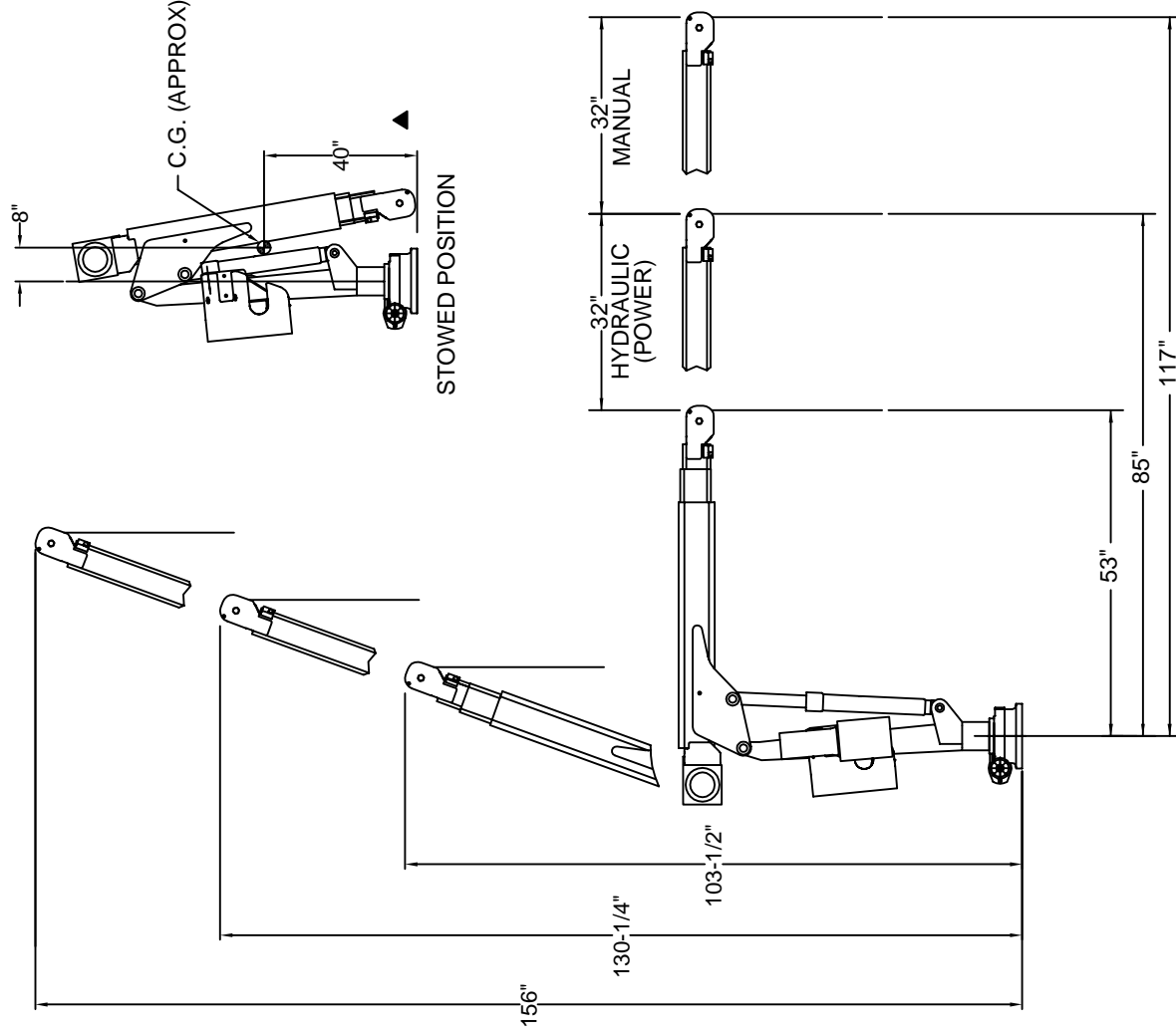
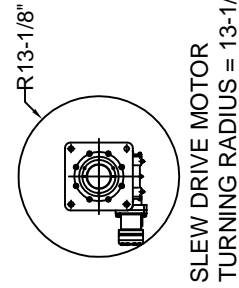
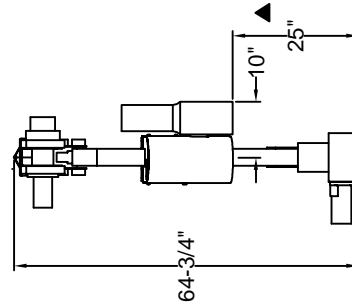
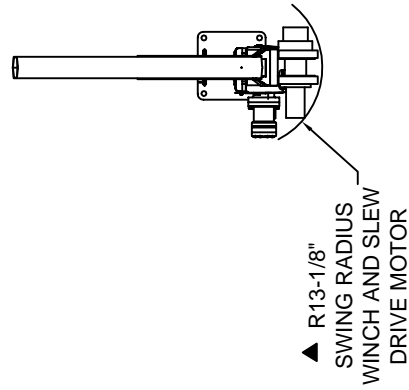
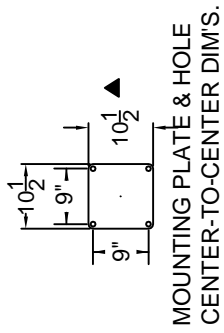
SUPERSEDES

2-18-14G

SECTION

C200

20563



MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE DIMENSION DRAWING

CT310KX W/ CONTINUOUS ROTATION

DATE

12-4-14F

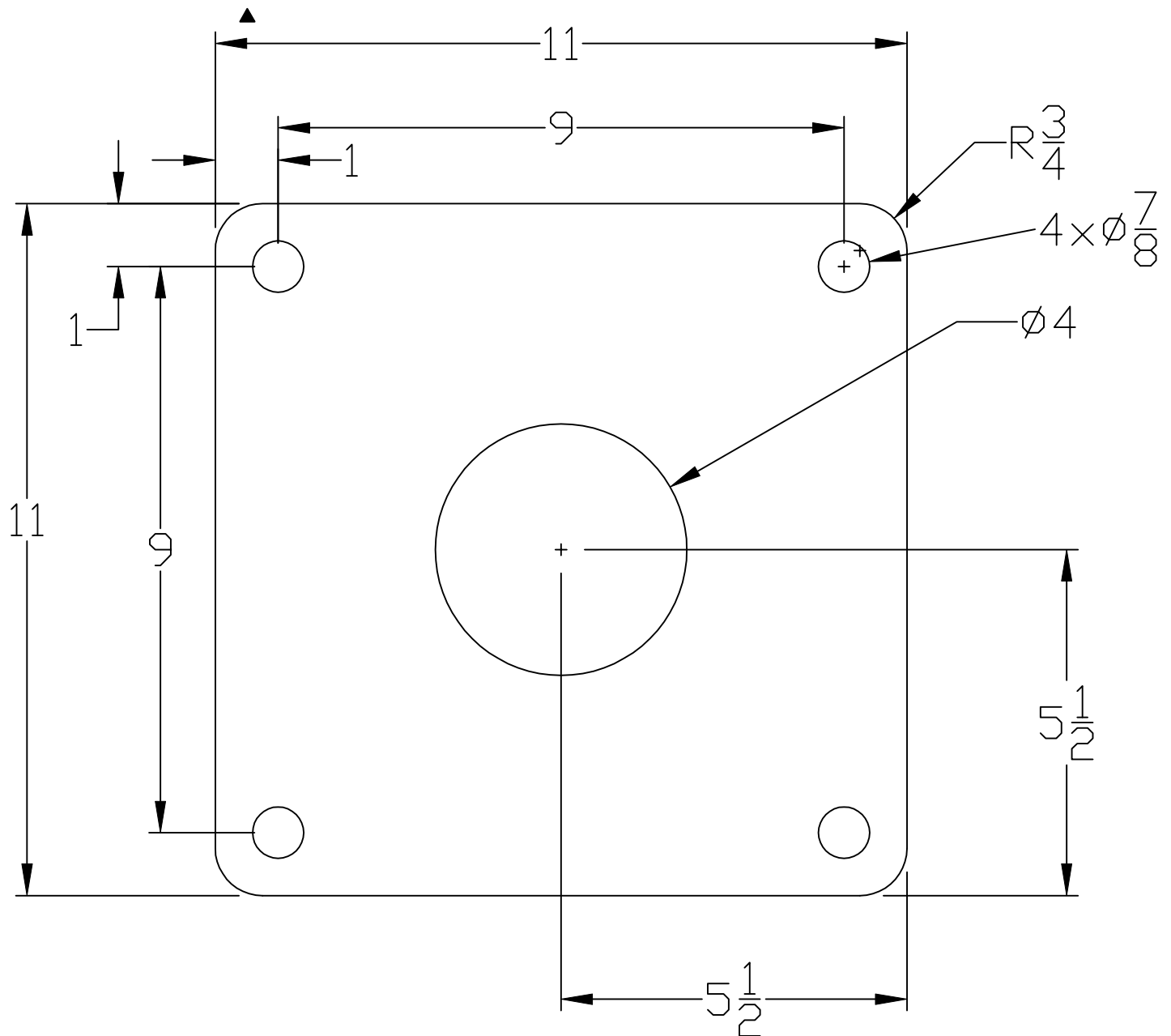
SUPERSEDES
3-4-14E

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

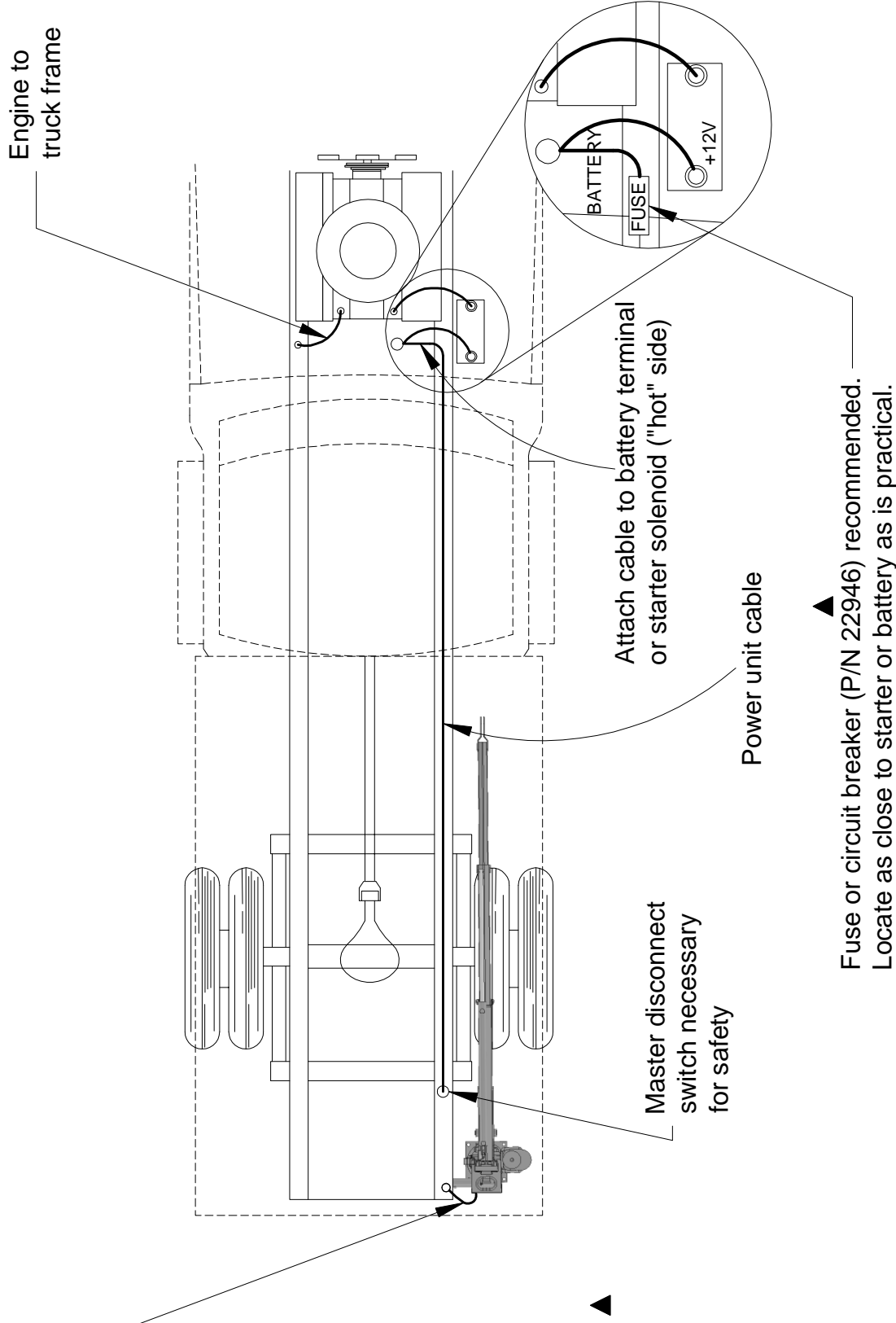
DATE
1-15-14C
SUPERSEDES
03-12-13B

SECTION
C200
20714

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 22946) recommended.
Locate as close to starter or battery as is practical.

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

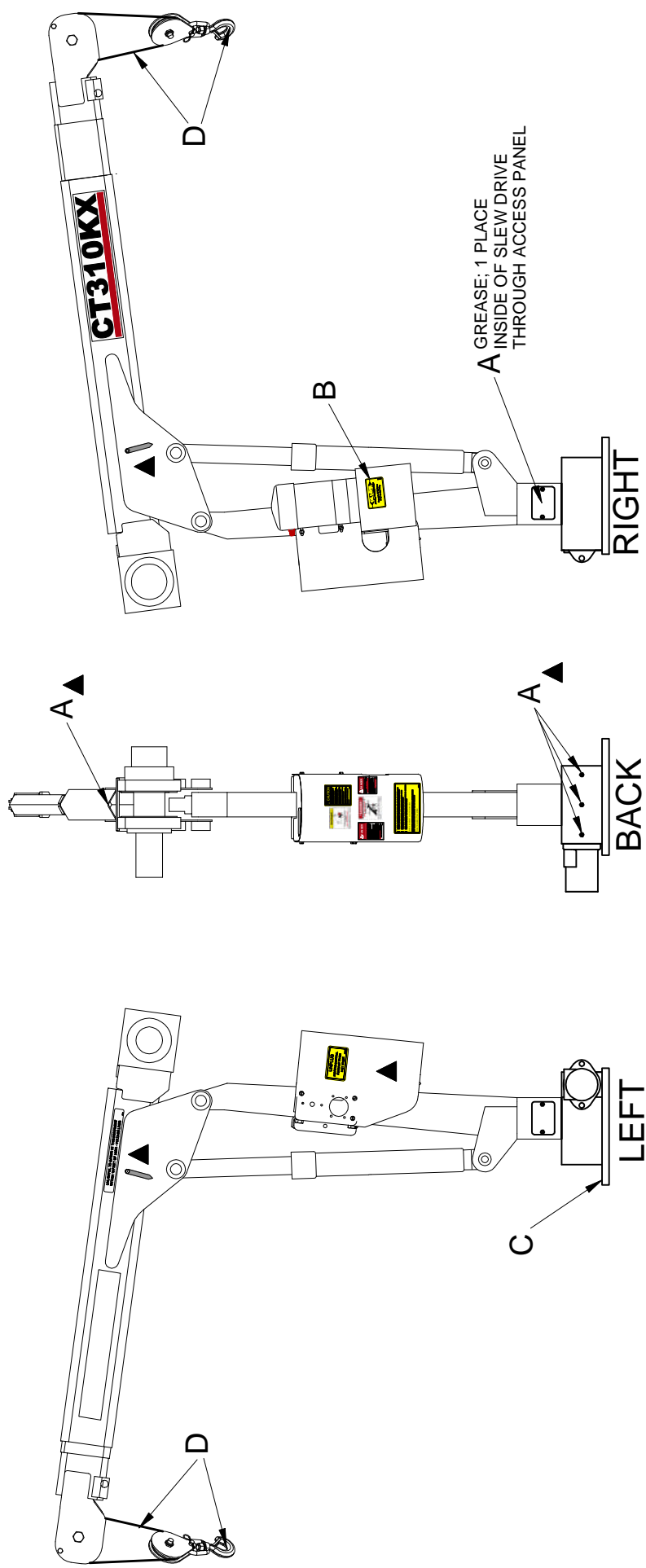


MANUFACTURING, INC.
CINCINNATI, OHIO

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	<div> <div>Use Dextron III ATF or ISO Grade AW 46 for Ambient Temperatures Between -22° F and 30° F</div> <div>Use ISO Grade 68 or Equivalent for Ambient Temperatures Between 10° F and 125° F</div> </div>	Time of Truck Service and as required by changes in the ambient temperature range
C	Check Torque of bolts	Bolts should be torqued to 230 ft-lbs ▲	Time of Truck Service
D	Check Wire Rope and Hook	Rope should be free of kinks and fraying	Time of Truck Service

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.

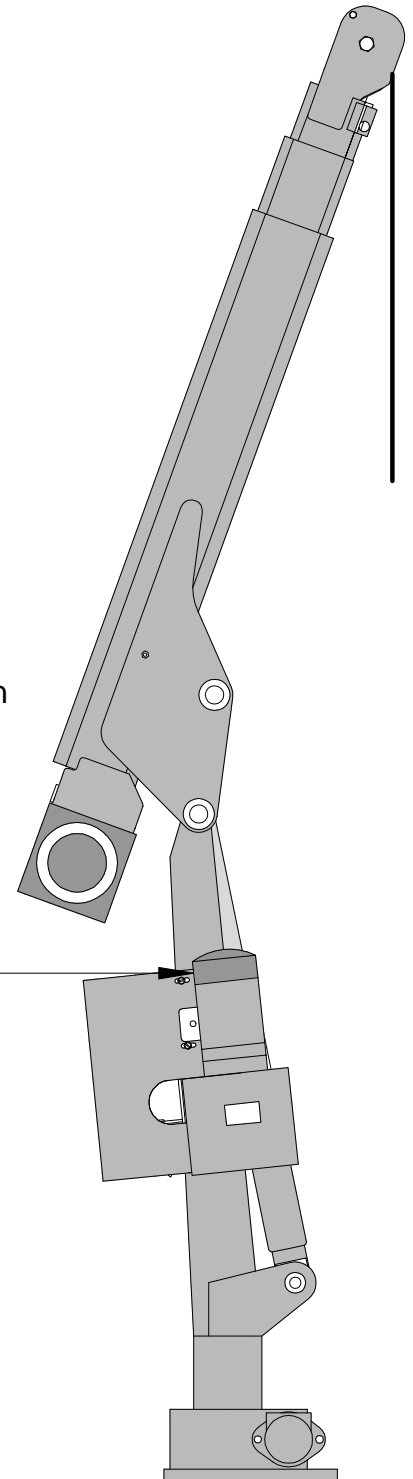


DANGER

- 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

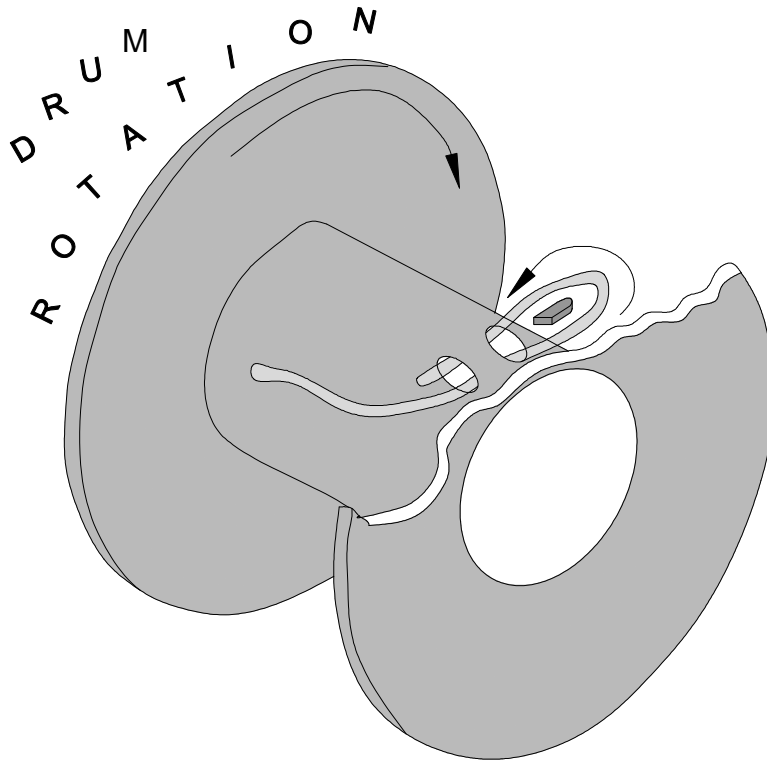
DATE
10-24-13B

SUPERSEDES
08-12-13A

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.



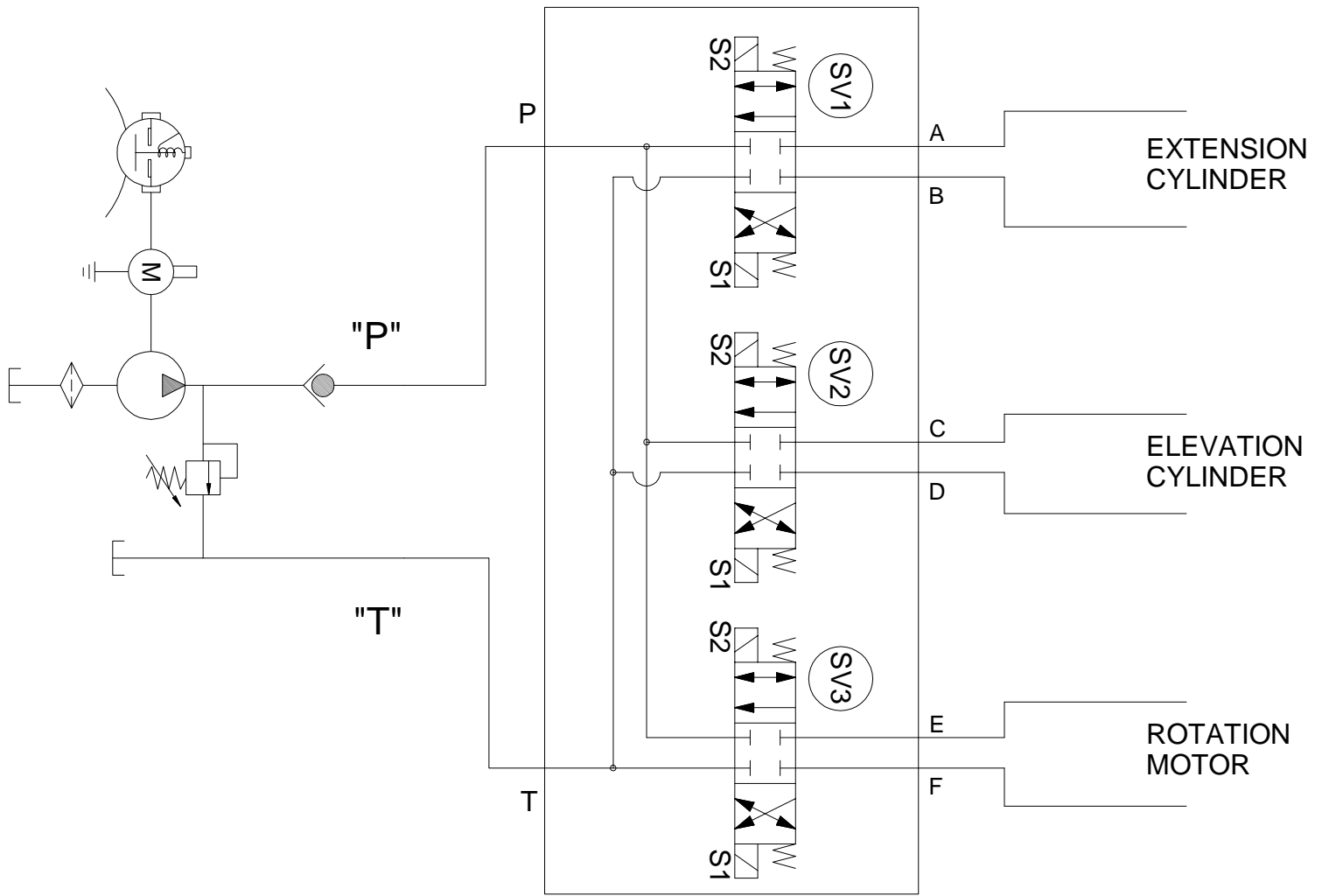
MANUFACTURING, INC.
CINCINNATI, OHIO

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'

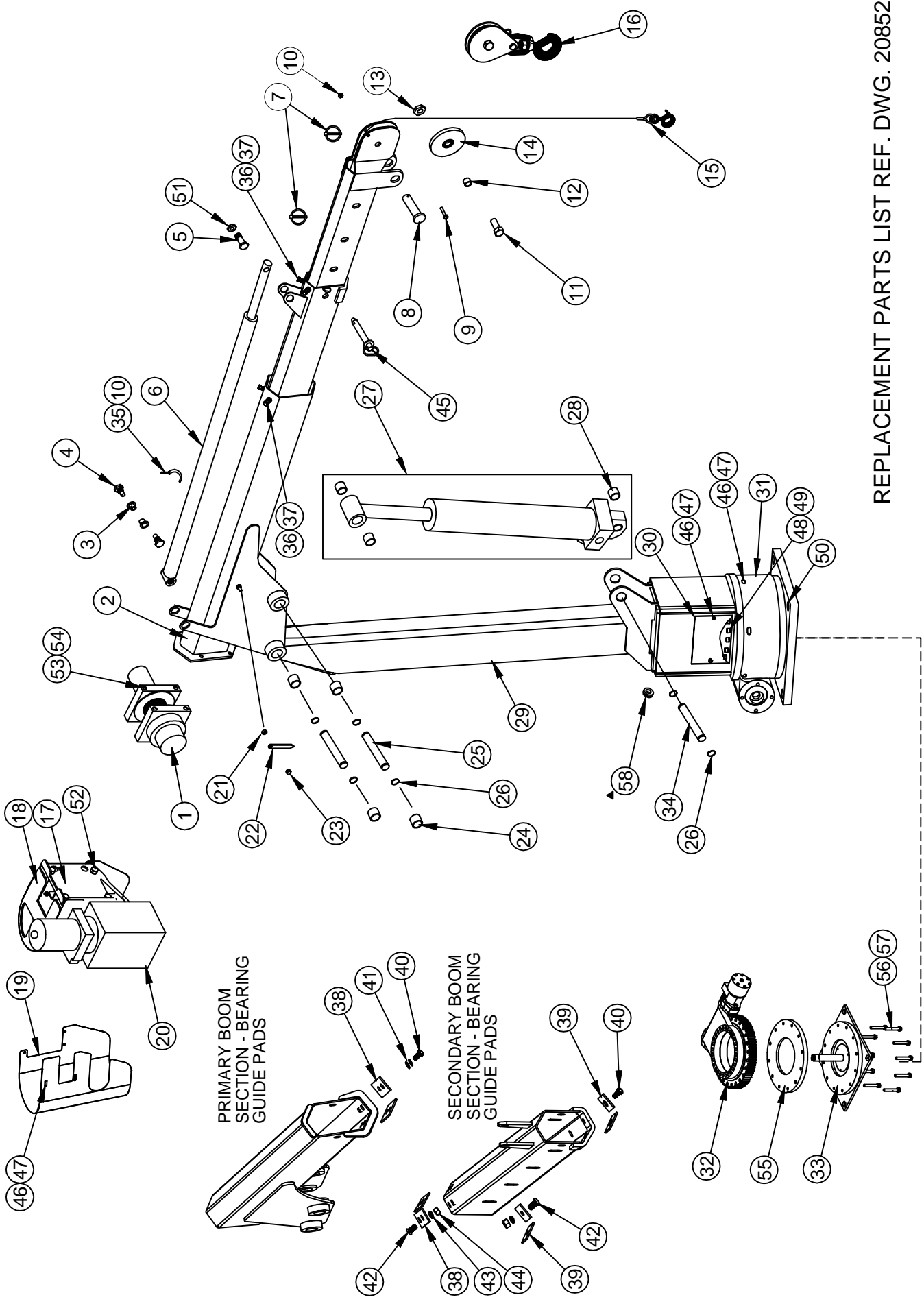
SV3

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

SECTION 400

PARTS





PRIMARY BOOM
SECTION - BEARING
GUIDE PADS

SECONDARY BOOM
SECTION - BEARING
GUIDE PADS

REPLACEMENT PARTS LIST REF. DWG. 20852

 VENTURO® MANUFACTURING, INC. CINCINNATI, OHIO	TITLE REPLACEMENT PARTS ILLUSTRATION	DATE 2-11-14A	SECTION C400
	VENTURO CT310KX	SUPERSEDES 11-20-13	20851

REPLACEMENT PARTS LIST CT310

ITEM NO	QTY	PART NO	DESCRIPTION	WHERE USED
1	1	20586	WINCH, DC, HEAVY DUTY	
2	1	27221	BOOM, FINAL ASSY.	
3	2	27370	BUSHING W/ FLANGE, NYLON	EXT CYL BASE END PIVOT
4	2	17487	ECCENTRIC BOLTS,	EXT CYL BASE END PIVOT
5	1	17059-2	PIVOT, HHCS 3/4-10, MODIFIED	EXT CYL ROD END
6	1	27238	EXTENSION CYLINDER	
7	2	27365	LINCH PIN	TWO-LINE CLEVIS PIN & BOOM EXT PIN
8	1	27364	CLEVIS PIN	TWO-LINE CONFIG.
9	1	IHHCS025020125	HEX HEAD CAP SCREW 1/4-20 x 1.25 LG	SHEAVE CABLE GUIDE
10	2	IJNUT-02520N	JAM NUT, W/ NYLON INSERT 1/4-20 PLATED	SHEAVE CABLE GUIDE & CRESCENT CLAMP
11	1	IHHCS06311150	HEX HEAD CAP SCREW 5/8-11 X 1-1/2 GR 5	SHEAVE AXLE
12	1	13168-7	SPACER, PLATED	SHEAVE
13	1	IJNUT-06311N	NUT, JAM NUT W/ NYLON INSERT 5/8-11 PLATED	AXLE, SHEAVE
14	1	19646	SHEAVE	
15	1	15810-3/16-50	WIRE ROPE ASSY, 1/4 GALV. ACFT	
16	1	19678	LOAD BLOCK ASSY.	
17	1	20463	BACK PLATE, MECHANISM	POWER PACK ASSY.
18	1	20487	MAIN FRAME, MECHANISM	POWER PACK ASSY.
19	1	20465	REAR COVER	POWER PACK ASSY.
20	1	20456	HYD PWR UNIT ASSY.	
21	2	22490	SPACER, BLACK PLASTIC	BOOM ARROW
22	2	13459-1	BOOM ARROW, BLACK PLASTIC	
23	2	IANUT-02520S	ACRON NUT, 1/4-20, STAINLESS STEEL	BOOM ARROW
24	4	21789	COMPOSITE BEARING	PRIMARY BOOM
25	2	27515	PIVOT PIN	PRIMARY BOOM & ELEVATION CYL ROD
26	6	ISRNG-125	SNAP-RING, RETAINER	PRIMARY BOOM & ELEVATION CYL ROD
27	1	21788	ELEVATION CYLINDER, W/ COMPOSITE BEARINGS	
28	3	21789	COMPOSITE BEARINGS	ELEVATION CYLINDER
29	1	27244	MAST, WELDED ASSY	
30	2	27517	COVER PLATE	MAST WELDED ASSY
31	1	27519	LOWER COVER	SLEW DRIVE GEAR
32	1	27243	SLEW DRIVE ASSY (7")	
33	1	27369	MOUNTING PLATE, WELDED ASSY	
34	1	21547	PIVOT PIN, ELEVATION CYL BASE END	ELEVATION CYLINDER BASE PIVOT
35	1	27362	CRESCENT CLAMP, WELDED ASSY.	EXT CYL, PO CHECK VALVE
36	4	27368	SOCKET HEAD CAP SCREW, BLACK NYLON	PRIMARY & SECONDARY BOOM TUBES
37	4	IJNUT-05013	JAM NUT 1/2-13 PLATED	PRIMARY & SECONDARY BOOM TUBES
38	4	23217-15	UHMW BEARING GUIDE PAD - CONFIG 'C'	PRIMARY & SECONDARY BOOM TUBES
39	4	23217-16	UHMW BEARING GUIDE PAD - CONFIG 'D'	PRIMARY & SECONDARY BOOM TUBES
40	6	IHHCS05013050	HEX HEAD CAP SCREW 1/2-13 X 1/2 LONG, PLATED, GR5	PRIMARY & SECONDARY BOOM TUBES
41	8	12534-5	MACHINERY BUSHING 5/8 ID, 1 OD, 14GA, PLATED	PRIMARY & SECONDARY BOOM TUBES
42	6	IFHCS03816100	FLAT HEAD CAP SCREW 3/8-16 X 1.00 LONG, PLATED	PRIMARY & SECONDARY BOOM TUBES
43	6	ILWSH-038	LOCK WASHER 3/8 PLATED	PRIMARY & SECONDARY BOOM TUBES
44	6	IHNUT-03816	HEX NUT 3/8-16 PLATED	PRIMARY & SECONDARY BOOM TUBES
45	1	23042-F-09-09	HITCH PIN ASSY, 9" LANYARDS	SECONDARY & TERTIARY BOOMS
46	9	IHHCS02520063	HEX HEAD CAP SCREW, 1/4-20 X 5/8 LG GR5	SLEW GEAR COVER & SIDE PANELS
47	9	ILWSH-025	LOCK WASHER 1/4 PLATED	SLEW GEAR COVER & SIDE PANELS
48	10	ISHCS05013250	SOCKET HEAD CAP SCREW, 1/2-13 X 2-1/2 LG, GR5 PLATED	WELDED MAST TO SLEW DRIVE
49	10	ILWSH-050-HC	LOCK WASHER, HI COLLAR, PLATED	WELDED MAST TO SLEW DRIVE
50	4	IHHCS07510300	HEX HEAD CAP SCREW, 3/4-10 X 3.00 LG, ZINC PLATED	RECOMMENDED MOUNTING FASTENERS; NOT PROVIDED
51	1	IJNUT-07510N	JAM NUT 3/4-10 W/ NYLON INSERT	EXT CYL ROD END PIVOT
52	4	IHHCS03816475	HEX HEAD CAP SCREW 3/8-16 X 4-3/4 LG, GR5, PLATED	FRAME, COMPONENT, PWR UNIT
53	4	IHHCS03816125	HEX HEAD CAP SCREW 3/8-16 X 1-1/4 LG, GR5, PLATED	WINCH
54	4	IHNUT-03816	HEX NUT 3/8-16 PLATED	WINCH
55	1	27217	SPACER PLATE, MOUNTING BASE ASSY.	
56	10	ISHCS05013300	SOCKET HEAD CAP SCREW, 1/2-13 X 3.00 LG, GR8	MOUNTING BASE TO SLEW DRIVE, BOTTOM
57	10	12534-4	MACHINERY BUSHING 1/2 ID, 7/8 OD, 14GA, PLATED	MOUNTING BASE TO SLEW DRIVE, BOTTOM
58	1	20889	GROMMET	MAST WELDED ASSY, SWIVEL PIGTAIL

REPLACEMENT PARTS ILLUSTRATION - 20851



MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE
REPL PARTS LIST

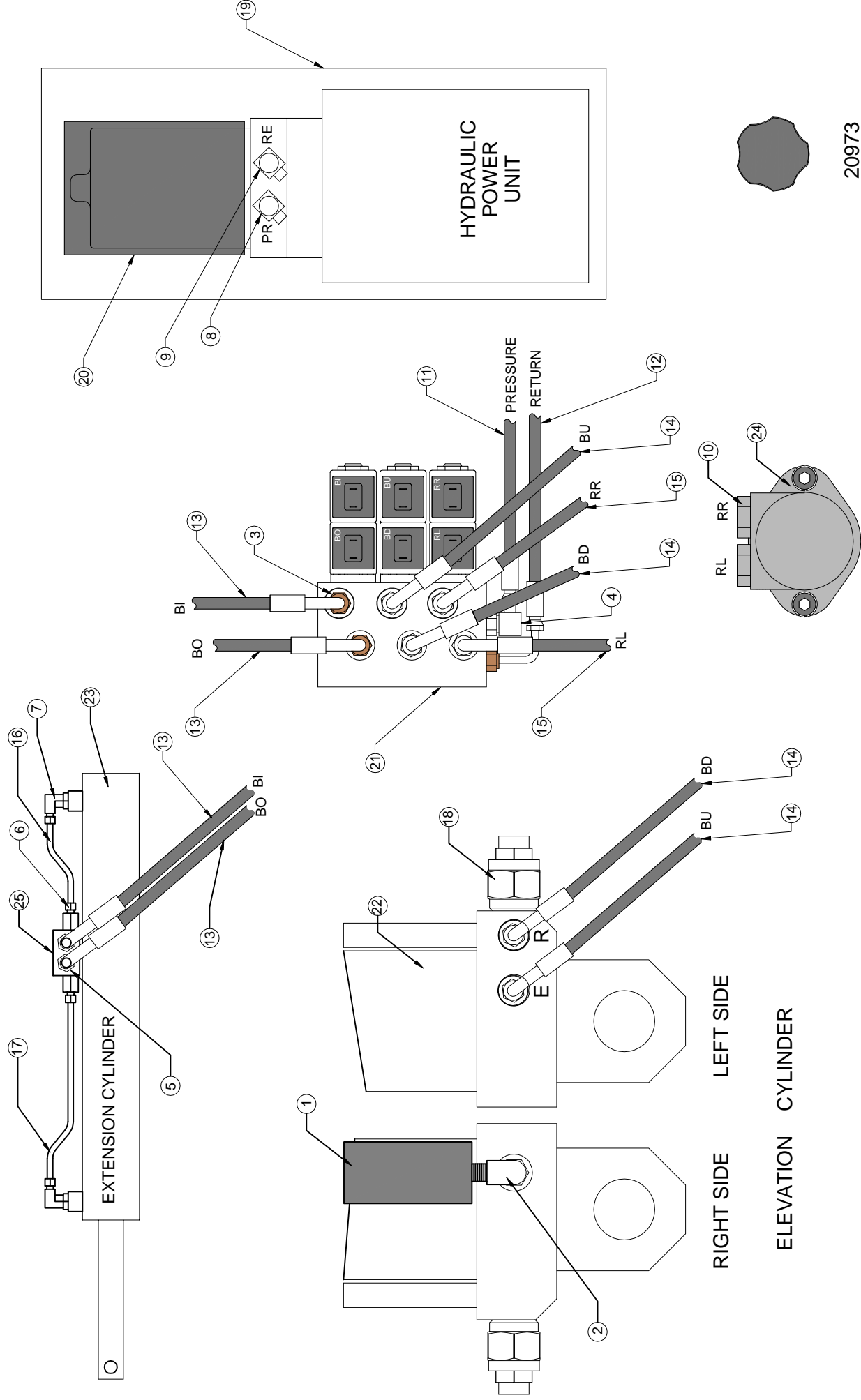
VENTURO CT310KX

DATE
2-11-14A

SUPERSEDES
11-20-13

SECTION
C400

20852



REF. HYDRAULIC ILLUSTRATED PARTS LIST DRAWING 20925

 VENTURO [®] MANUFACTURING, INC. CINCINNATI, OHIO	TITLE		HYDRAULIC SYSTEM PARTS DRAWING	
	DATE	3-13-14C	SECTION	C400
	SUPERSEDES	2-21-14B		20924

HYDRAULIC SYSTEM PARTS LIST

ITEM NO	QTY	PART NO	DESCRIPTION	WHERE USED
1	1	17460-2200-02	OVERLOAD PRESSURE SWITCH	ELEVATION CYLINDER
2	1	H6901-0404	FITTING 4MO-4FPX 90°	ELEVATION CYLINDER
3	7	H6400-0604	FITTING 6MJ-4MO	VALVE MANIFOLD
4	1	H6801-0604	FITTING 6MJ-4MO 90°	VALVE MANIFOLD
5	2	H6801-L-0606	FITTING 6MJ-6MO LONG 90°	P.O. CHECK VALVE, EXT CYL.
6	2	H6400-0606	FITTING 6MJ-6MO	P.O. CHECK VALVE, EXT CYL.
7	2	H6801-0608	FITTING 6MJ-8MO 90°	EXT CYL PORTS, ROD & BASE END
8	1	H2501-0606	FITTING 6MJ-6MP 90°	HYD PWR UNIT, PRESSURE HOSE
9	1	H2501-0604	FITTING 6MJ-4MP 90°	HYD PWR UNIT, RETURN HOSE
10	2	H6801-0610	FITTING 6MO-10MO 90°	ROTATION MOTOR
11	1	20913	HOSE ASSY.	PRESSURE, VALVE TO PUMP
12	1	20912	HOSE ASSY.	RETURN, VALVE TO PUMP
13	2	27097	HOSE ASSY.	EXT CYLINDER, IN / OUT
14	2	27096	HOSE ASSY.	ELEVATION CYL., UP / DOWN
15	2	27095	HOSE ASSY.	ROTATION MOTOR, LEFT / RIGHT
16	1	27099	TUBE ASSY.	EXT CYL BASE TO PO CHECK VALVE
17	1	27100	TUBE ASSY.	EXT CYL ROD TO PO CHECK VALVE
18	1	20893	COUNTER BALANCE VALVE	ELEVATION CYLINDER
19	1	20456	HYDRAULIC PWR UNIT	-
20	1	16940	MOTOR, HYD PWR UNIT	MOTOR ONLY, HYD PWR UNIT
21	1	19815-2	VALVE BLOCK ASSY.	-
22	1	21788	ELEVATION CYLINDER	-
23	1	27238	EXTENSION CYLINDER	-
24	1	20926	ROTATION MOTOR, HYD	-
25	1	27363	P.O. CHECK VALVE	-

NOTE: ITEMS 2 THROUGH 17 ARE INCLUDED IN THE HOSE & FITTING KIT P/N 27098.

REF. HYDRAULIC ILLUSTRATED PARTS BREAKDOWN DRAWING 20924

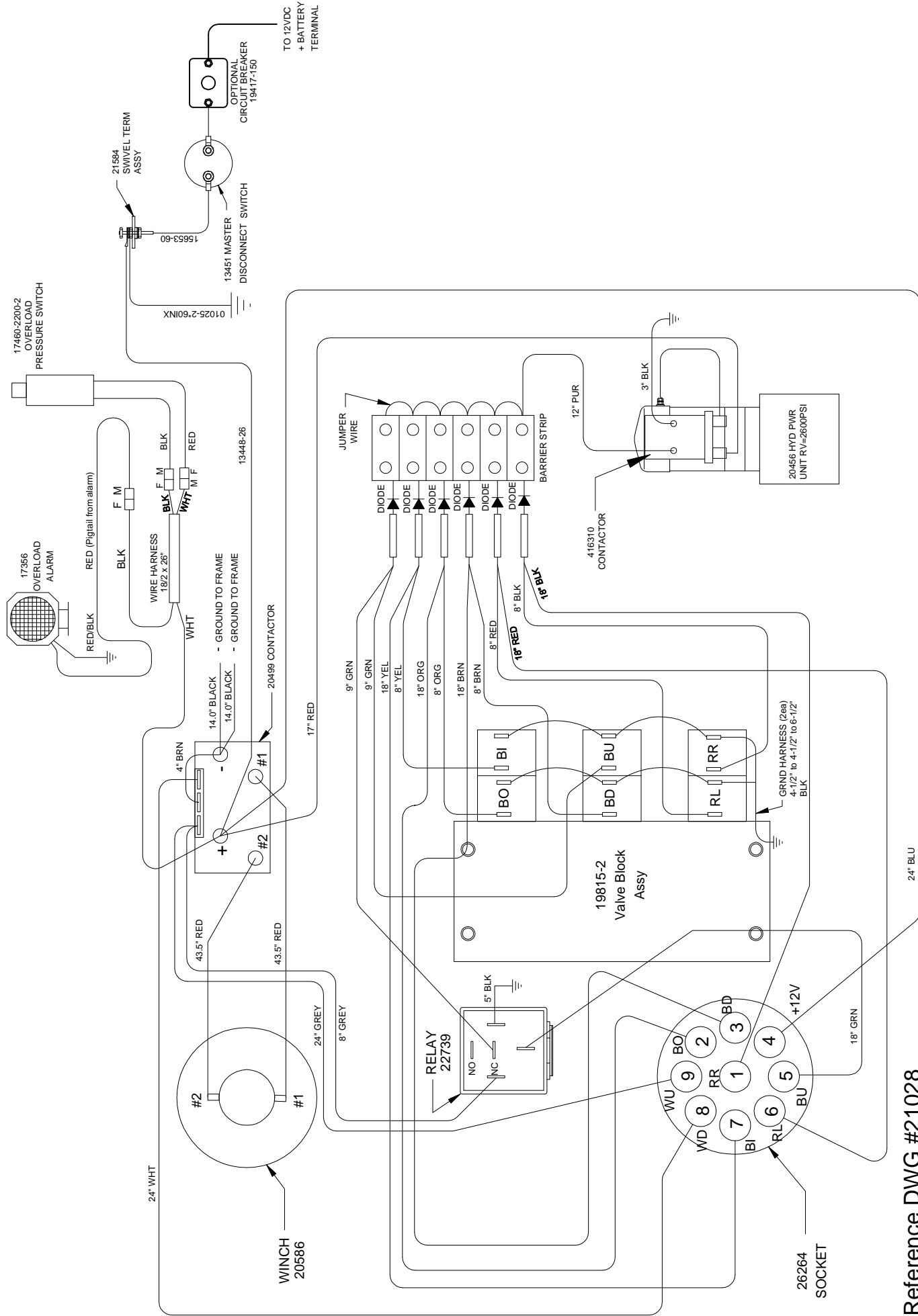


MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE
HYD SYS PARTS LIST
CT310KX, CONT. ROT.

DATE
3-13-14D
SUPERSEDES
2-21-14C

SECTION
C400
20925

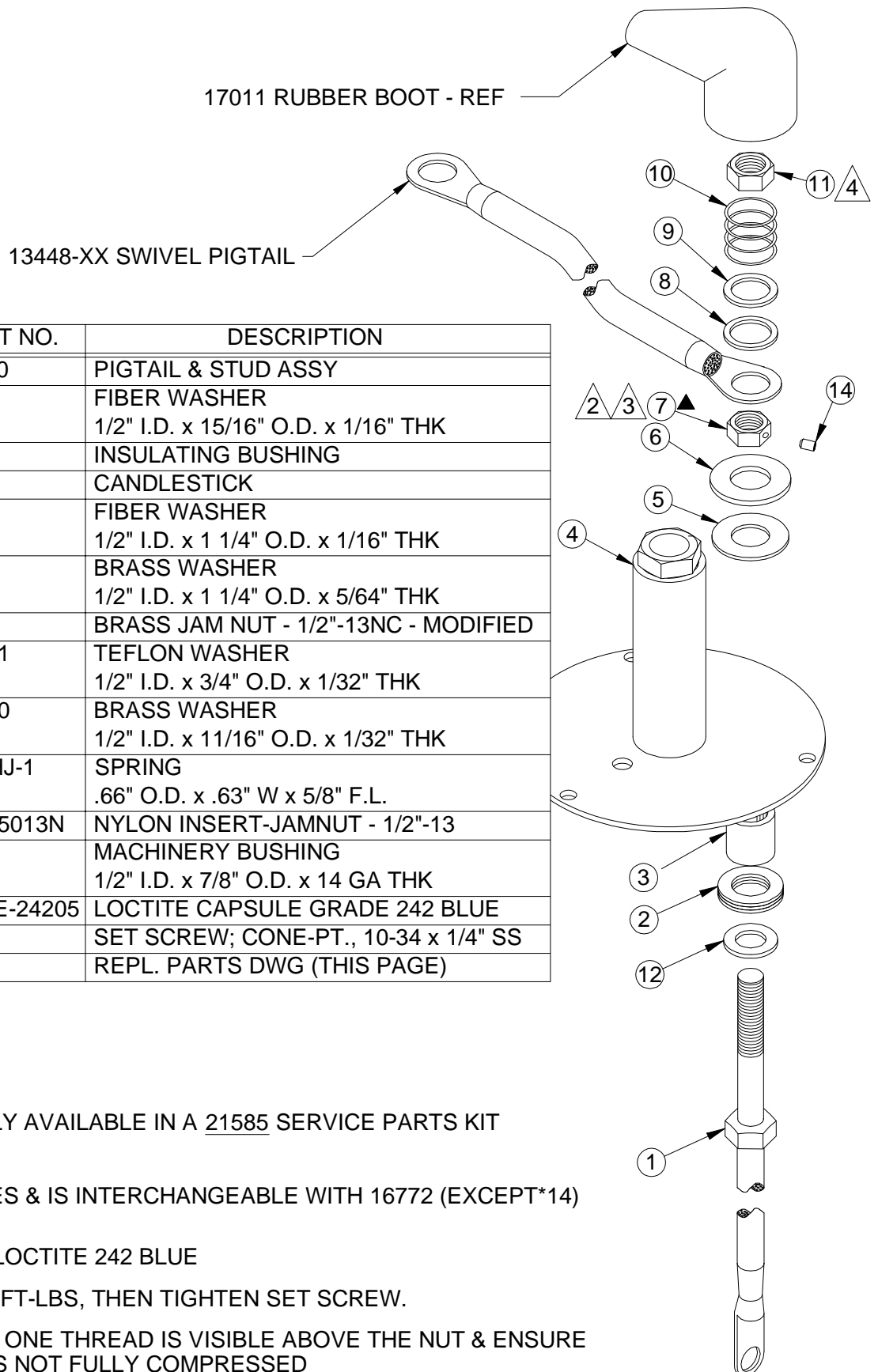


* Reference DWG #21028

<p>TITLE</p> <p>ELECTRICAL SYSTEM DRAWING</p>	<p>MANUFACTURING, INC.</p> <p>CINCINNATI, OHIO</p>
<p>DATE</p> <p>1-20-14</p> <p>SUPERSEDES</p> <p>-</p>	<p>SECTION</p> <p>C400</p>
<p>21027</p>	



21584 SWIVEL TERMINAL ASSY



ITEM	QTY	PART NO.	DESCRIPTION
1	1	15653-60	PIGTAIL & STUD ASSY
* 2	3	16771-1	FIBER WASHER 1/2" I.D. x 15/16" O.D. x 1/16" THK
* 3	1	13410	INSULATING BUSHING
4	1	21506	CANDLESTICK
* 5	1	16771-2	FIBER WASHER 1/2" I.D. x 1 1/4" O.D. x 1/16" THK
* 6	1	16770*7	BRASS WASHER 1/2" I.D. x 1 1/4" O.D. x 5/64" THK
* 7	1	19800	BRASS JAM NUT - 1/2"-13NC - MODIFIED
* 8	1	16770*11	TEFLON WASHER 1/2" I.D. x 3/4" O.D. x 1/32" THK
* 9	1	16770*10	BRASS WASHER 1/2" I.D. x 11/16" O.D. x 1/32" THK
* 10	1	LC-063HJ-1	SPRING .66" O.D. x .63" W x 5/8" F.L.
* 11	1	!JNUT-05013N	NYLON INSERT-JAMNUT - 1/2"-13
* 12	1	12534-4	MACHINERY BUSHING 1/2" I.D. x 7/8" O.D. x 14 GA THK
* 13	1	LOCTITE-24205	LOCTITE CAPSULE GRADE 242 BLUE
* 14	1	21029	SET SCREW; CONE-PT., 10-34 x 1/4" SS
* 15	1	21584i	REPL. PARTS DWG (THIS PAGE)

* ITEMS ARE ONLY AVAILABLE IN A 21585 SERVICE PARTS KIT

- 1 21585 REPLACES & IS INTERCHANGEABLE WITH 16772 (EXCEPT*14)
- 2 SECURE WITH LOCTITE 242 BLUE
- 3 TORQUE TO 30 FT-LBS, THEN TIGHTEN SET SCREW.
- 4 TIGHTEN UNTIL ONE THREAD IS VISIBLE ABOVE THE NUT & ENSURE THAT SPRING IS NOT FULLY COMPRESSED



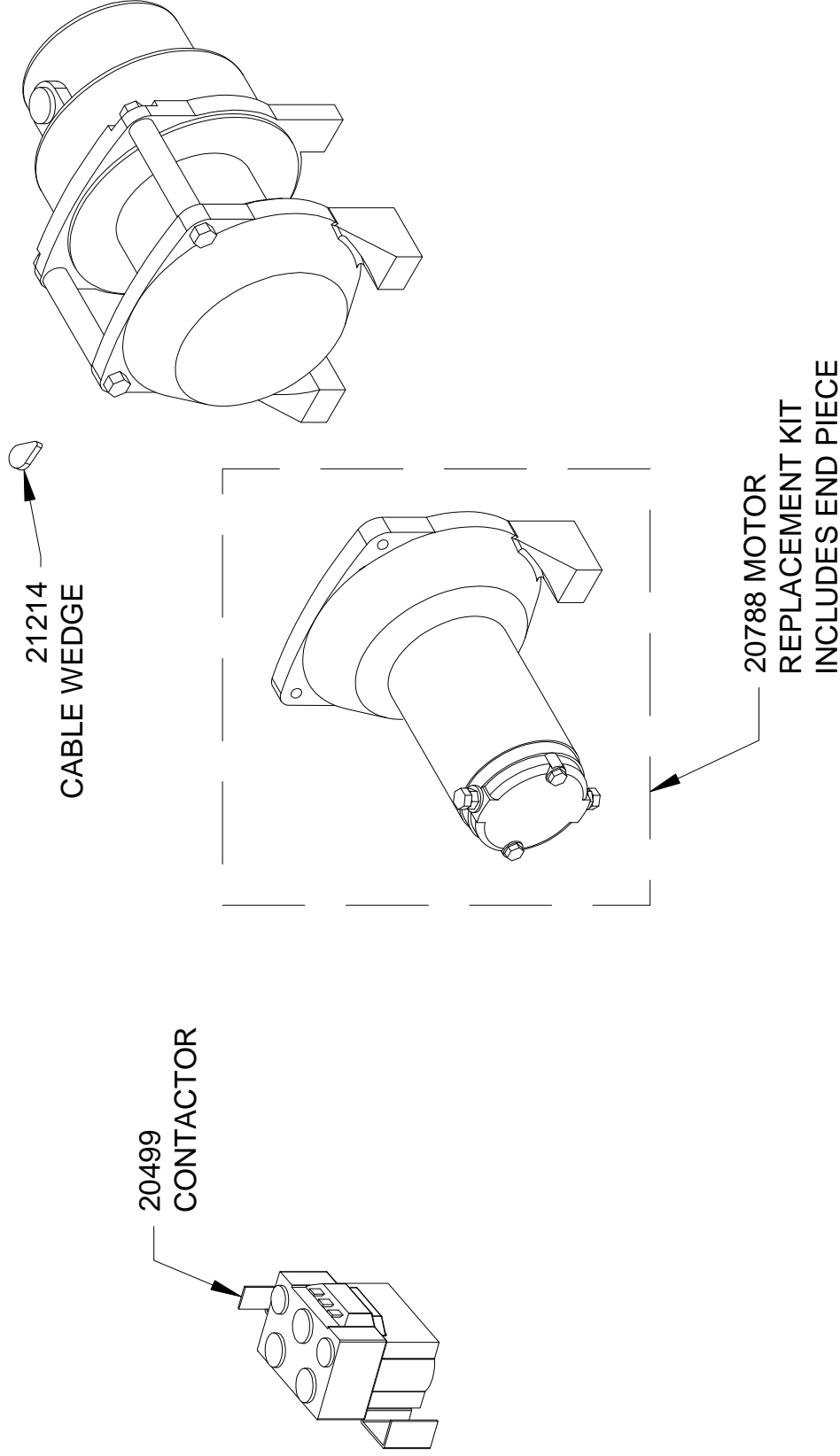
MANUFACTURING, INC.
CINCINNATI, OHIO


TITLE
REPLACEMENT PARTS
ET6/8/12K(X)

DATE
12-26-13D
SUPERSEDES
08-23-12C

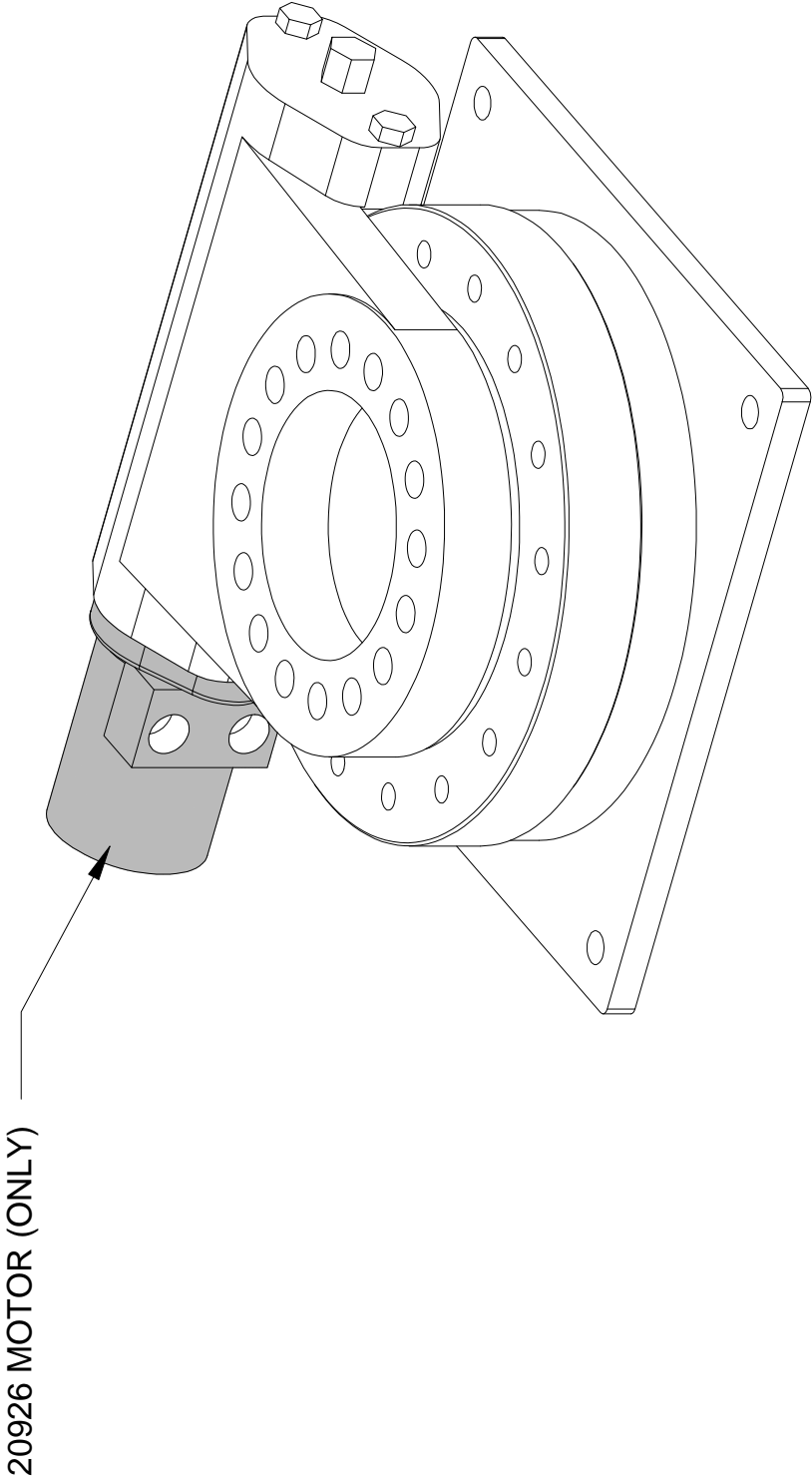
SECTION
C400
21584i

20586 WINCH REPLACEMENT PARTS



 MANUFACTURING, INC. CINCINNATI, OHIO	TITLE REPLACEMENT PARTS DRAWING CT310KX & ET6K(X)	DATE 12-27-13C	SECTION -
		SUPERSEDES 09-17-07B	20837

27243 SLEWING SYSTEM REPLACEMENT PARTS



MANUFACTURING, INC.
CINCINNATI, OHIO

TITLE

SLEWING SYSTEM REPLACEMENT PARTS

CT310KX

DATE

01-22-14

SUPERSEDES

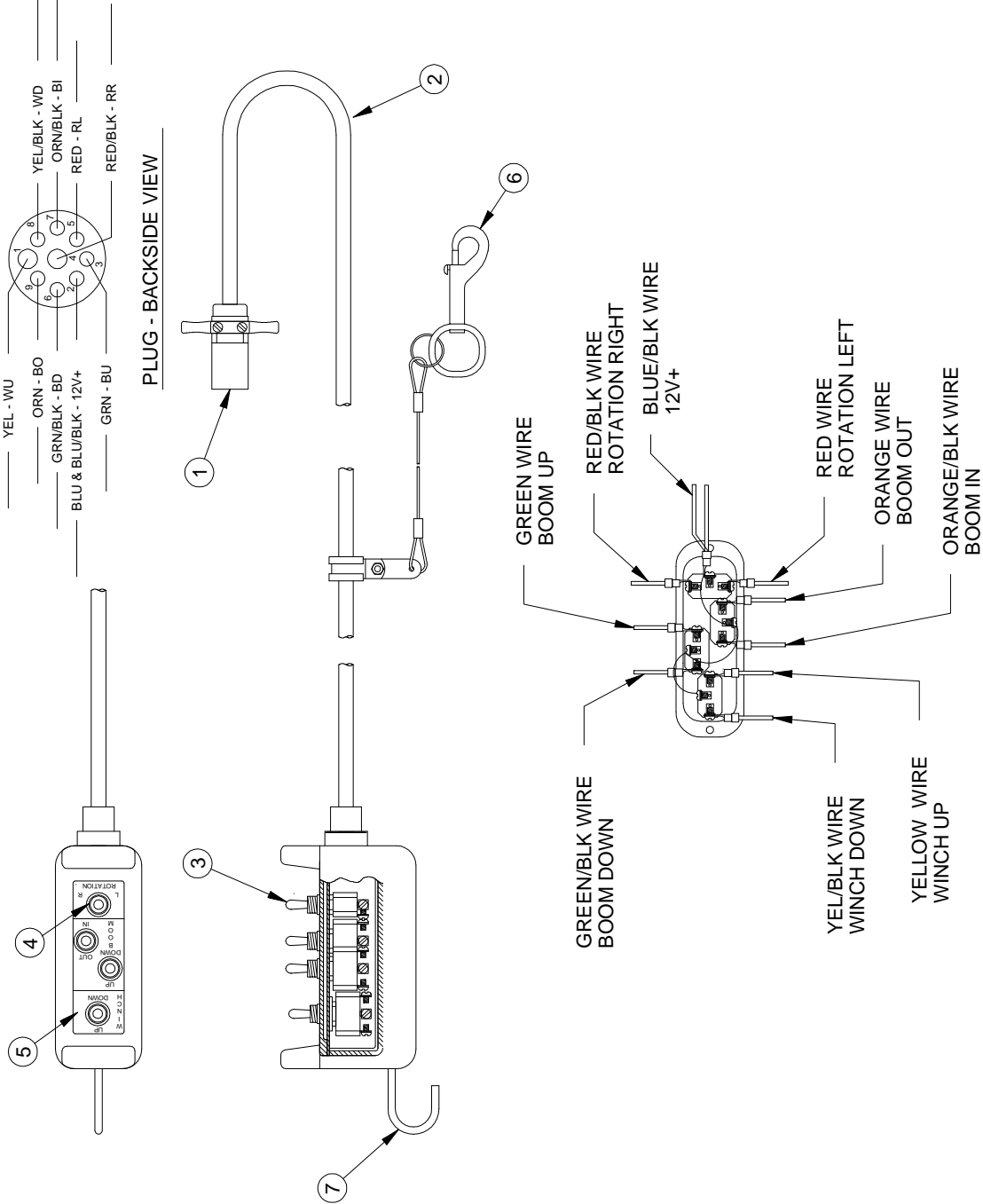
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SECTION

C400

27041

20160 4-SWITCH PENDANT



* Reference DWG #20583

	MANUFACTURING, INC. CINCINNATI, OHIO		
	TITLE		
	CONTROL PENDANT PARTS DRAWING		
	CT310KX		
DATE		SECTION	
08-12-13A		C400	
SUPERSEDES		20582	
11-04-02			

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



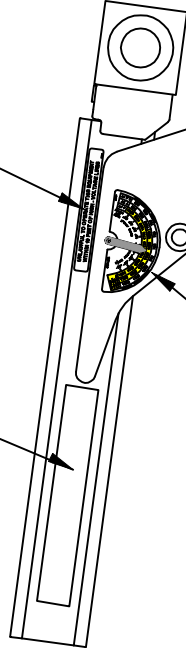
- 17389-4
VENTURO LOGO (11 INCH)

CT310KX

- 20504
CT310KX MODEL

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

- 16719
UNLAWFUL TO OPERATE



- 20470-1
BOOM ANGLE



- 15398
UNPLUG



- 573403
WARNING STOWING



- 15392
DANGER
ELECTROCUTION
HAZARD



- 15390
CAUTION
INSTRUCTIONS



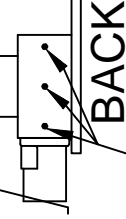
- 15391
CRANE NOT A
PASSENGER LIFT



- 14459
OVERLOAD
ALARM

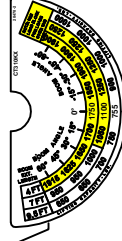
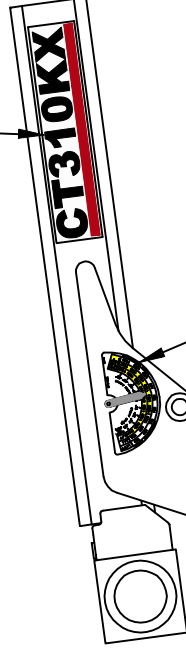


- 573402
DANGER
TWO-BLOCKING



BACK

- 14473-2
GREASE 3 PLACES



- 20470-2
BOOM ANGLE



- 13397
OIL LEVEL
(FRONT)



- 14473-2
GREASE; 1 PLACE
INSIDE OF SLEW DRIVE
THROUGH ACCESS PANEL

TITLE

DECAL LOCATIONS

VENTURO MANUFACTURING, INC.
CINCINNATI, OHIO

DATE

01-14-14C

SECTION

150

CT310KX

SUPERSEDES

07-30-12B

20561

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	-	-	-
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

CT310KX

DATE

01-21-14C

SUPERSEDES

04-17-13B

SECTION

-

20585



VENTURO CRANES LIMITED WARRANTY POLICY

Venturo products are built to last...we guarantee them.

As a purchaser of any new Venturo product covered by warranty, you will receive 1 year of the most complete coverage available...and, at no added cost to you.

1-Year Limited Warranty Policy

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

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

WARNING - It is the responsibility of the installer to ensure the installation is completed according to the manufacturer's recommendations, ensure the ultimate user understands how to operate product in a safe manner, and understands the need for regular service and maintenance by an authorized Venturo Distributor. No modifications or alterations may be made to any Venturo product 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 Venco Venturo Industries LLC.

VENCO VENTURO INDUSTRIES LLC
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