



HIRSCHMANN

LENGTH-ANGLE-RADIUS-LOAD INDICATING SYSTEM

Mentor EI 65



INSTALLATION MANUAL

P/N 190233, Rev. A, 12/22/09

NOTICE

The information in this document is subject to change without notice.

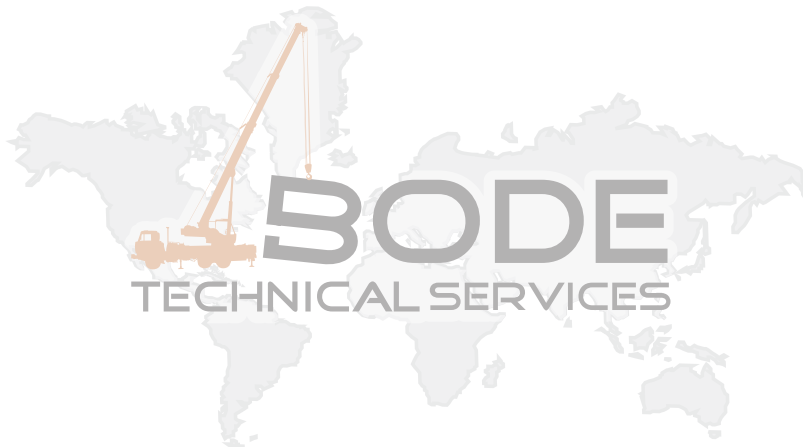
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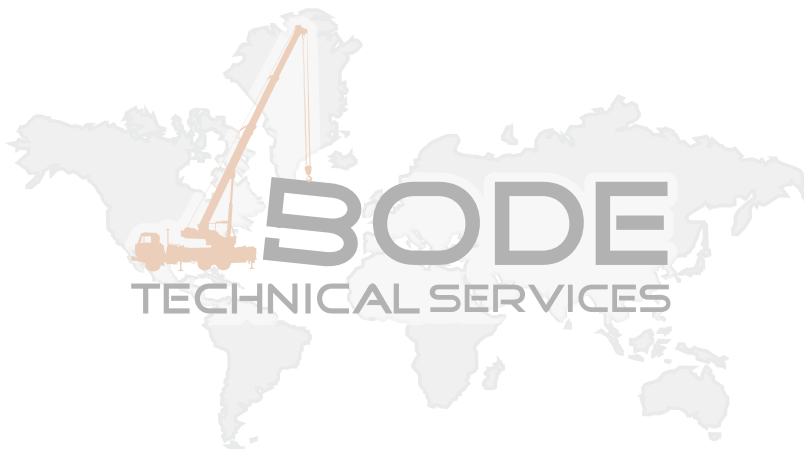
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1. GENERAL INFORMATION

This Installation Handbook will show the approximate location of components and wiring diagrams required for system operation. This handbook shows different wiring diagrams; therefore, use the drawings that match your system.

Prior to starting the installation, it is advised to review the drawings and define the component locations on the crane. The Length-Angle-Radius-Load Indicating System EI 65 must be calibrated after completing installation.

Reference Information to Hirschmann Length-Angle-Radius-Load Indicator System:

Mentor EI 65 Operator's Manual: 190231.

Mentor EI 65 Calibration Manual: 190232.

2. WARNINGS

- Always refer to operational instructions and load charts provided by the crane manufacturer for specific crane operation and load limits.
- The Length-Angle-Radius-Load Indicating System Mentor EI 65 is not and shall not be a substitute for good operator judgment, experience, or use of acceptable safe operating procedures.
- The operator is responsible for operating the crane within the manufacturer's specified parameters.
- The crane operator shall ensure that all warnings and instructions provided by the manufacturer are fully understood, observed, and remain with the crane.
- Prior to operating the crane, the operator must carefully read and understand the information in the Operator's Handbook so that he knows the operation and limitations of the Length-Angle-Radius-Load Indicating System Mentor EI 65.

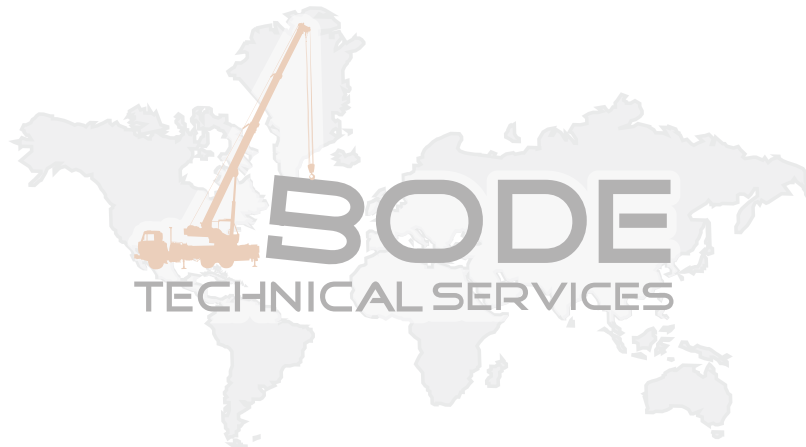
3. INSTALLATION



WARNING

CONTACT CRANE MANUFACTURER FOR WELDING INSTRUCTION PRIOR TO WELDING ON BOOM.

Use the drawings in Appendix A to install your system. The next sections give instructions for linerider, length and angle sensors.



4. LINERIDER INSTALLATION

The line tensiometer (linerider) installation will depend on the type of boom. Follow the applicable instructions for a hydraulic (A) or lattice (B) boom.

LINERIDER GENERAL INFORMATION

The linerider is attached to the swing arm mounting bracket as shown in Figure 1. The swing arm assembly has four joints:

1. Vertical movement at the attachment point to the linerider.
2. Horizontal movement of the swing arm.
3. Vertical movement of the swing arm.
4. Swivels horizontally around the mounting bolt.

The mounting bolt secures the swing arm to the machine.

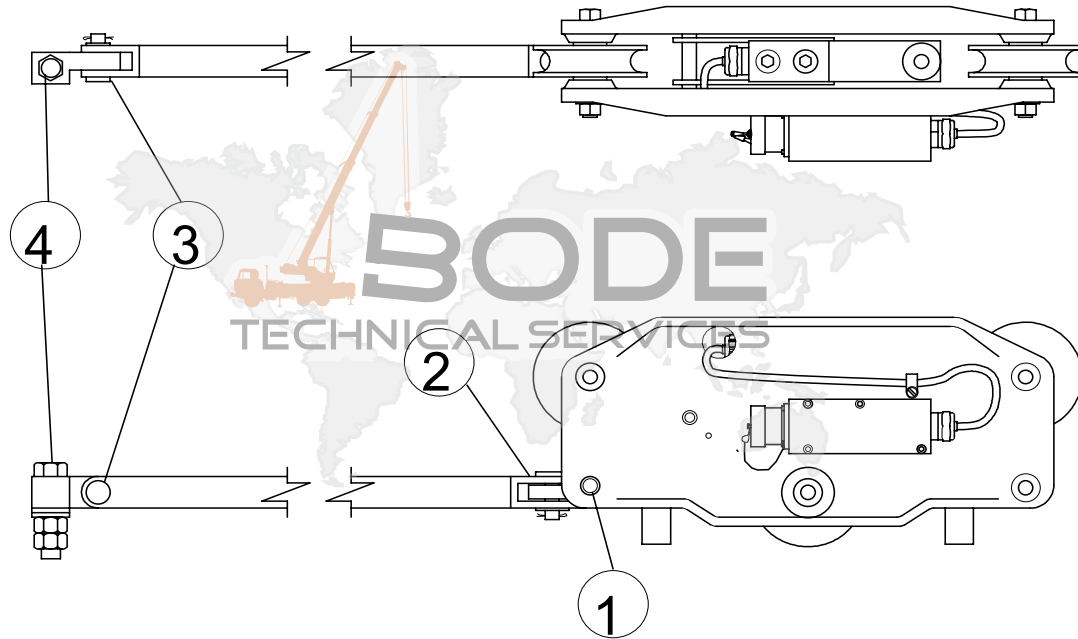


Figure 1. Linerider and Swing Arm.

A. HYDRAULIC BOOM MACHINES

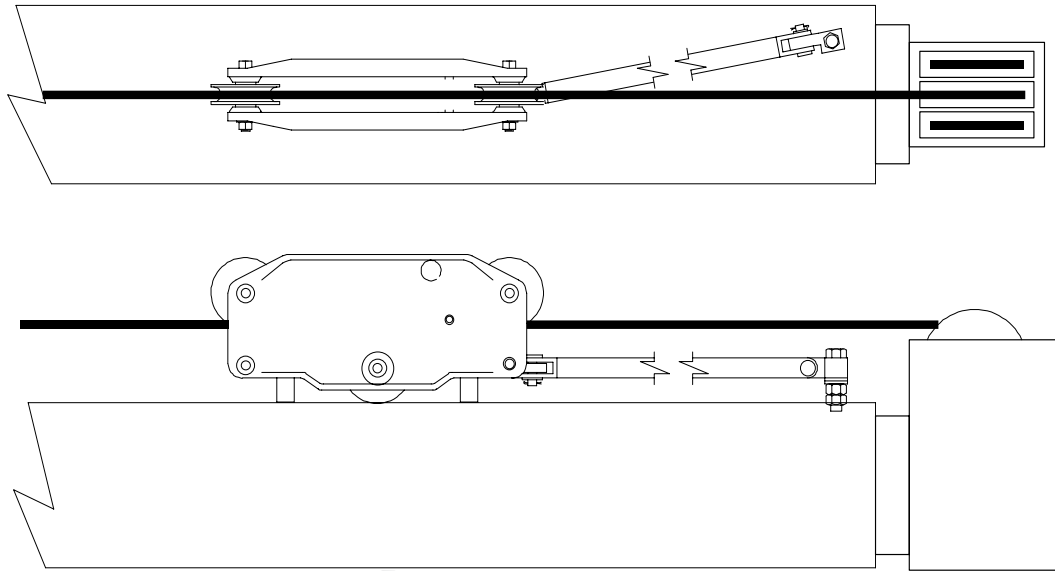


Figure 2. Hydraulic Boom Linerider Installation.

WARNING
CONTACT CRANE MANUFACTURER FOR WELDING INSTRUCTION PRIOR TO WELDING ON BOOM.

- A.1. Affix the bolt at the tip of the base section on the main boom similar to Figure 2. Select a location that the swing arm angle with respect to the boom will not exceed 30°(see Figure 3). The linerider should be located as close to the boom tip as possible.
- A.2 Attach the swing arm to the bolt.
- A.3. Run the hoist line through the linerider.
- A.4. Attach the swing arm to the linerider.
- A.5. Ensure freedom of movement side to side
- A.6. Connect linerider electrically with cable provided.
- A.7. Connect the linerider extension to the console cable at boom base.

B. LATTICE BOOM MACHINES

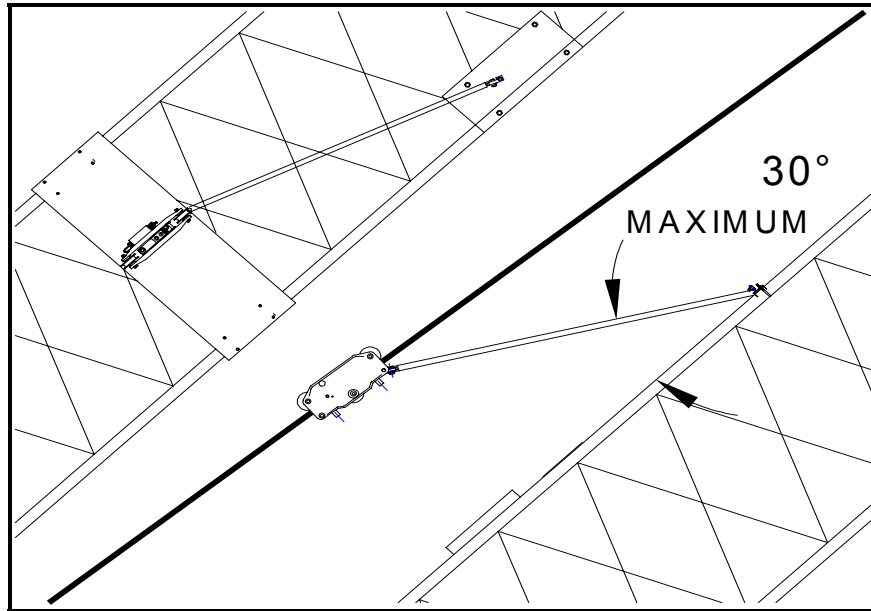


Figure 3. Lattice Boom Linerider Installation.



WARNING

CONTACT CRANE MANUFACTURER FOR WELDING INSTRUCTION PRIOR TO WELDING ON BOOM.

- B.1. Select a location that the swing arm angle with respect to the boom will not exceed 30°(see Figure 3). The linerider should be located as close to the boom tip as possible.
- B.2. Construct two base plates. Size of base plates will be specific to the lattice structure and your selected location.
 1. The first base plate will be attached to the boom with the swing arm bolt affixed to the center of the base plate.
 2. The second base plate will be attached to the boom so that it supports the linerider when not in use.
- B.3. Affix the swing arm bolt to the center of the first base plate.
- B.4. Affix the first base plate to the selected location on the lattice boom.
- B.5. Attach the swing arm to the bolt.
- B.6. Run the hoist line through the linerider.
- B.7. Attach the swing arm to the linerider.
- B.8. Ensure freedom of movement side to side
- B.9. Attach the second base plate to the boom so the linerider rubber supports will touch the plate when there is no load.
- B.10. Connect linerider electrically with cable provided.

5. MECHANICAL ADJUSTMENT OF CABLE REEL SENSORS

HYDRAULIC CRANE

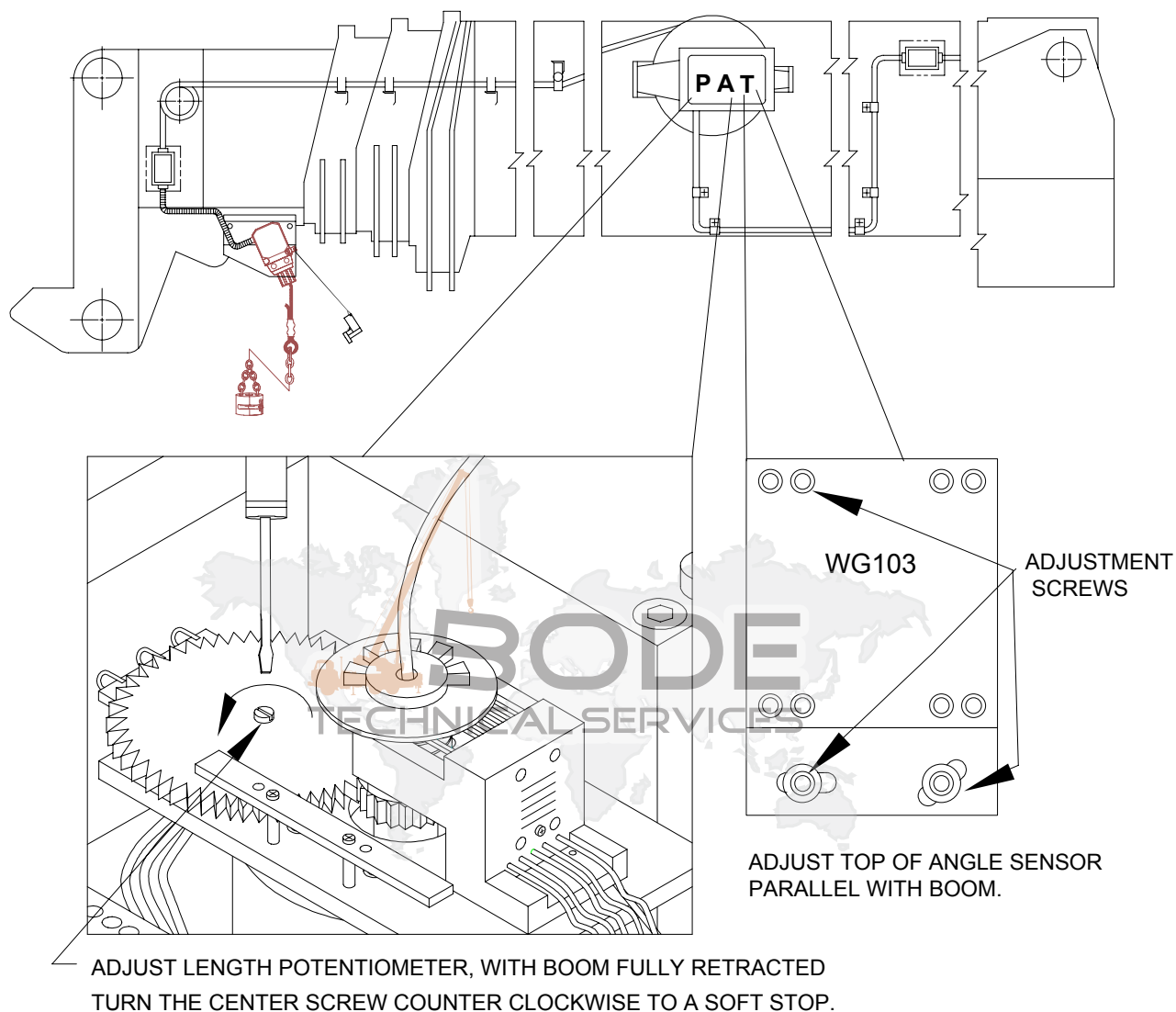


Figure 4. Hydraulic Boom Length and Angle Adjustments.

6. LATTICE CRANE ANGLE SENSOR ADJUSTMENT

The angle ϕ shown in Figure 1 needs to be within $+0$, -0.4 of the actual angle of the boom. Check boom angle at base/heel section only. After adjustment, compare the actual boom angle with the displayed angle at about 0° , 30° and 60° . To comply with the SAE J375 standards the displayed angle must be $+0.0^\circ$ to -2.0° of the actual angle.

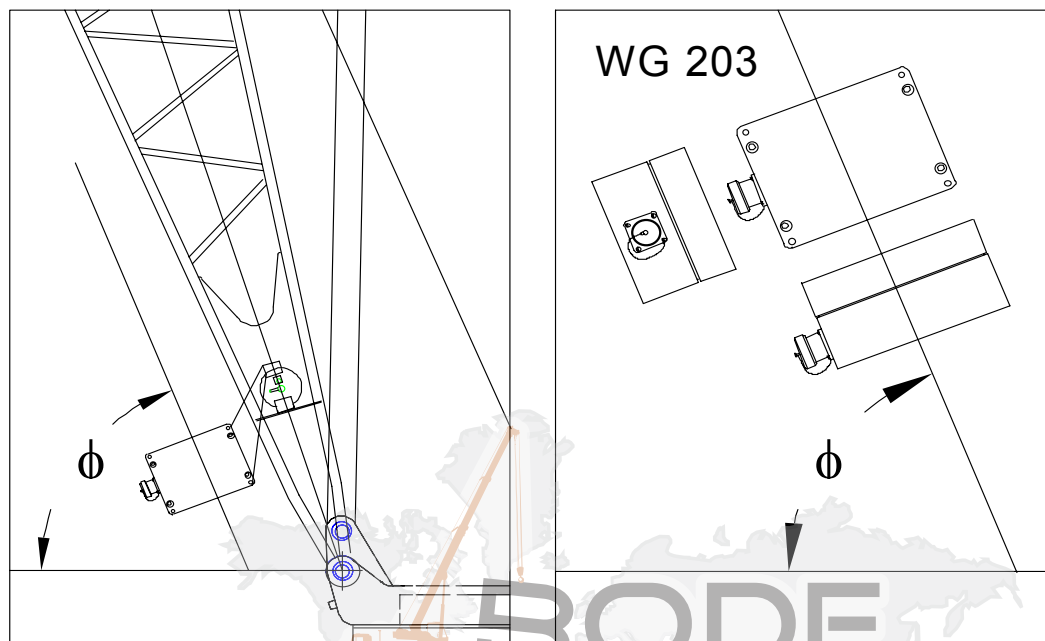
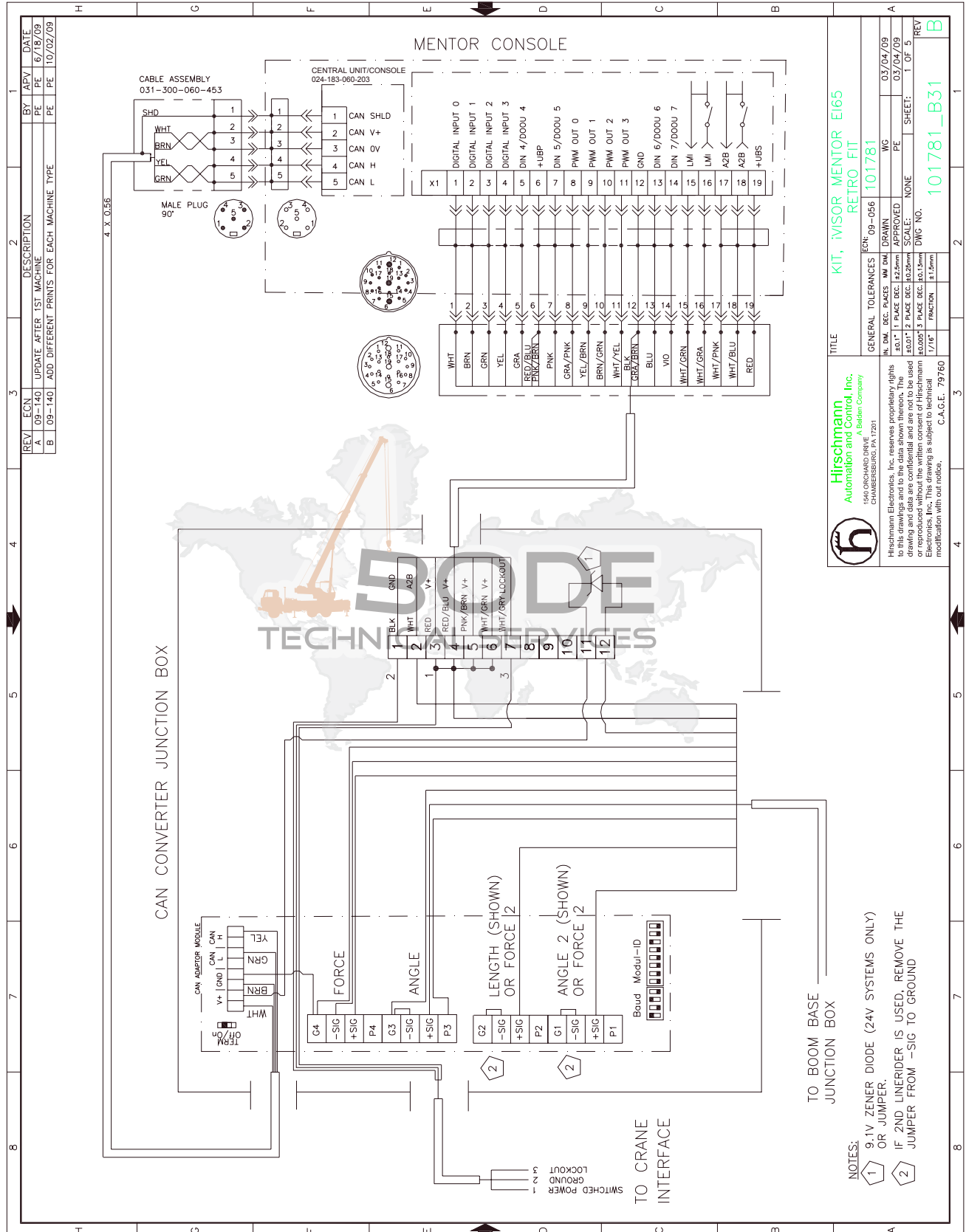
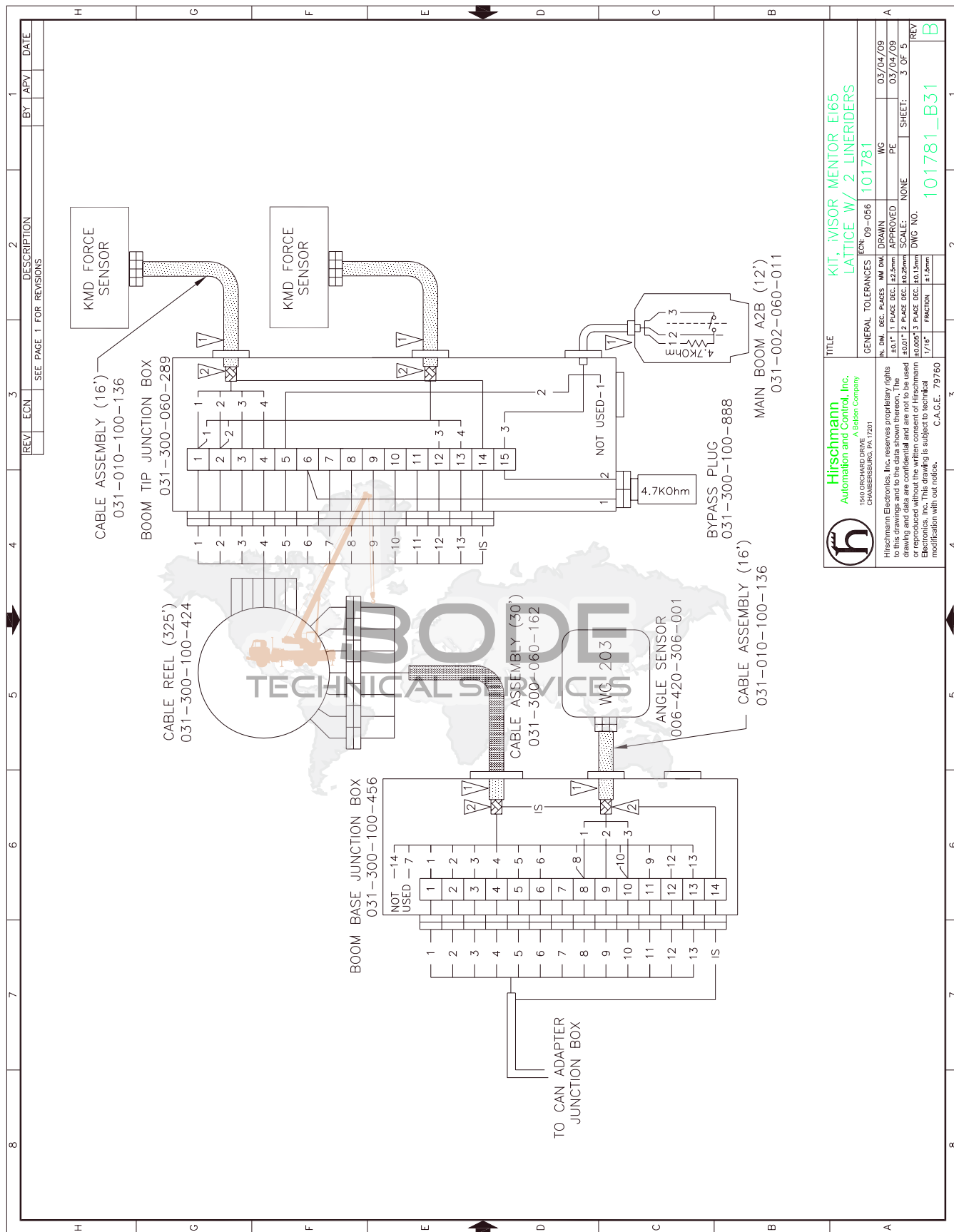


Figure. 4. Lattice Boom Angle Sensor Adjustment

A. WIRING DIAGRAM



Wiring Diagram



REV	CON	DESCRIPTION	BY	APP	DATE
		SEE PAGE 1 FOR REVISIONS			

NEW INSTALLATIONS -OR- RETROFIT LATTICE W/ 2 LINERIDERS

BOOM CABLE	JUNCTION BOX	USAGE
1	11 (12V) OR 12 (24V)	LINERIDER 1 + SUPPLY
2	G4	LINERIDER 1 - SUPPLY
3	+SIG4	LINERIDER 1 + SIGNAL
4	-SIG4	LINERIDER 1 - SIGNAL
5	4	A2B SUPPLY
6	2	A2B SIGNAL
7		NOT USED
8	-SIG3	ANGLE - SUPPLY
9	+SIG3	ANGLE 1 SIGNAL
10	P3	ANGLE + SUPPLY
11	+SIG1	ANGLE 2 SIGNAL
12	+SIG2	LINERIDER 2 + SIGNAL
13	-SIG2	LINERIDER 2 - SIGNAL

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HYDRAULIC CRANE BOOM CABLE WIRING

BOOM CABLE	JUNCTION BOX	USAGE
1	G3	LENGTH / ANGLE - SUPPLY
2	+SIG2	LENGTH SIGNAL
3	P3	LENGTH / ANGLE + SUPPLY
4	+SIG3	ANGLE 1 SIGNAL
5	4	A2B SUPPLY
6	2	A2B SIGNAL
7	-SIG4	LINERIDER 1 - SIGNAL
8	+SIG4	LINERIDER 1 + SIGNAL
9	G4	LINERIDER 1 - SUPPLY
10	11 (12V) OR 12 (24V)	LINERIDER 1 + SUPPLY
11	11 (12V) OR 12 (24V)	LINERIDER 2 + SUPPLY
12	G1	LINERIDER 2 - SUPPLY
13	+SIG1	LINERIDER 2 + SIGNAL
14	-SIG1	LINERIDER 2 - SIGNAL

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RETROFIT LATTICE W/ 1 LINERIDER

BOOM CABLE	JUNCTION BOX	USAGE
1	11 (12V) OR 12 (24V)	LINERIDER 1 + SUPPLY
2	G4	LINERIDER 1 - SUPPLY
3	+SIG4	LINERIDER 1 + SIGNAL
4	-SIG4	LINERIDER 1 - SIGNAL
5	4	A2B SUPPLY
6	2	A2B SIGNAL
7		NOT USED
8	-SIG3	ANGLE 1 - SUPPLY
9	+SIG3	ANGLE 1 SIGNAL
10	P3	ANGLE 1 + SUPPLY
11	11 (12V) OR 12 (24V)	LINERIDER 2 + SUPPLY
12	G2	LINERIDER 2 - SUPPLY
13	+SIG2	LINERIDER 2 + SIGNAL
14	-SIG2	LINERIDER 2 - SIGNAL

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CRANE INTERFACE WIRING

BOOM CABLE	JUNCTION BOX	USAGE
1	G3	SWITCHED FUSED POWER
2	+SIG2	GROUND
3	P3	LOCKOUT

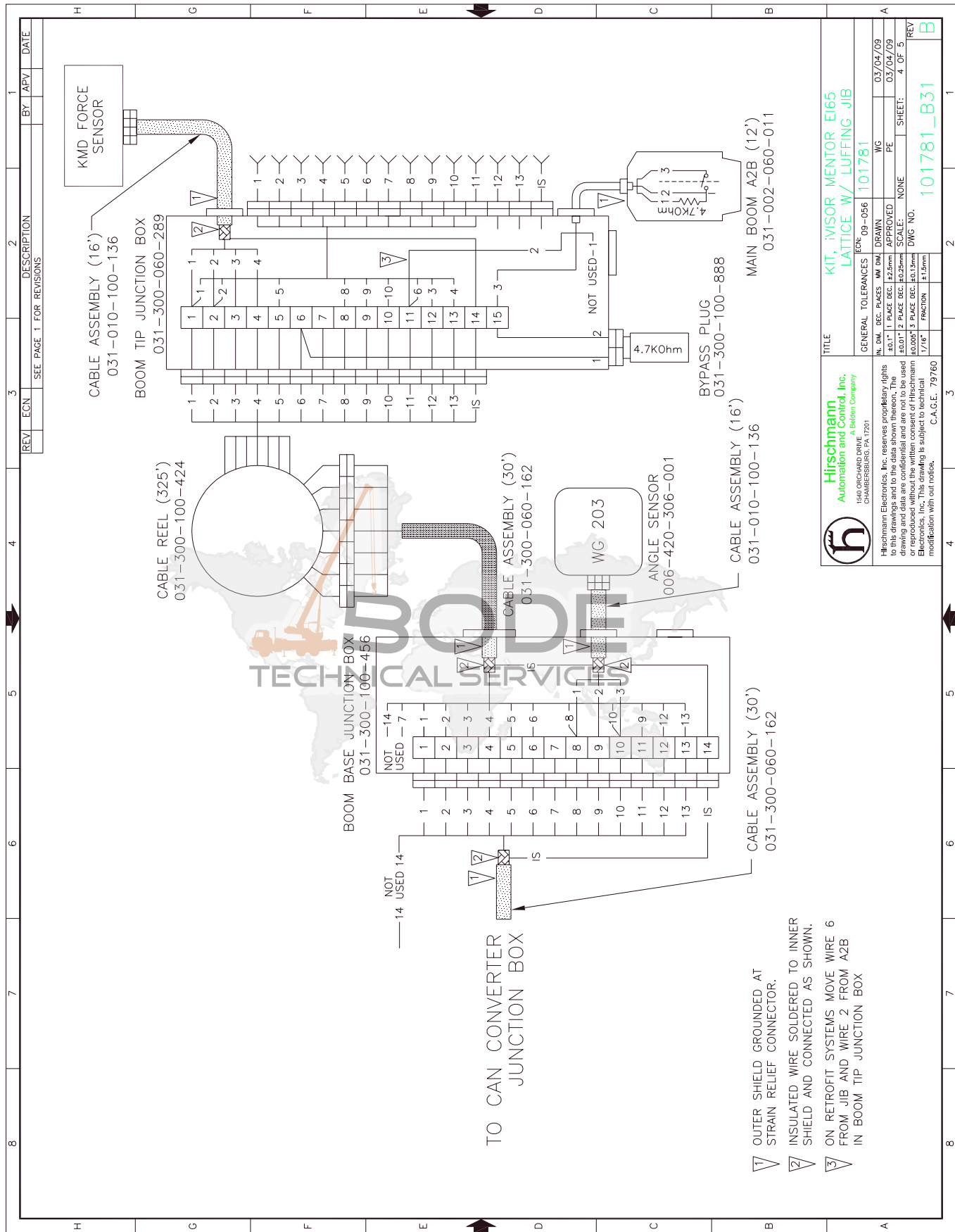
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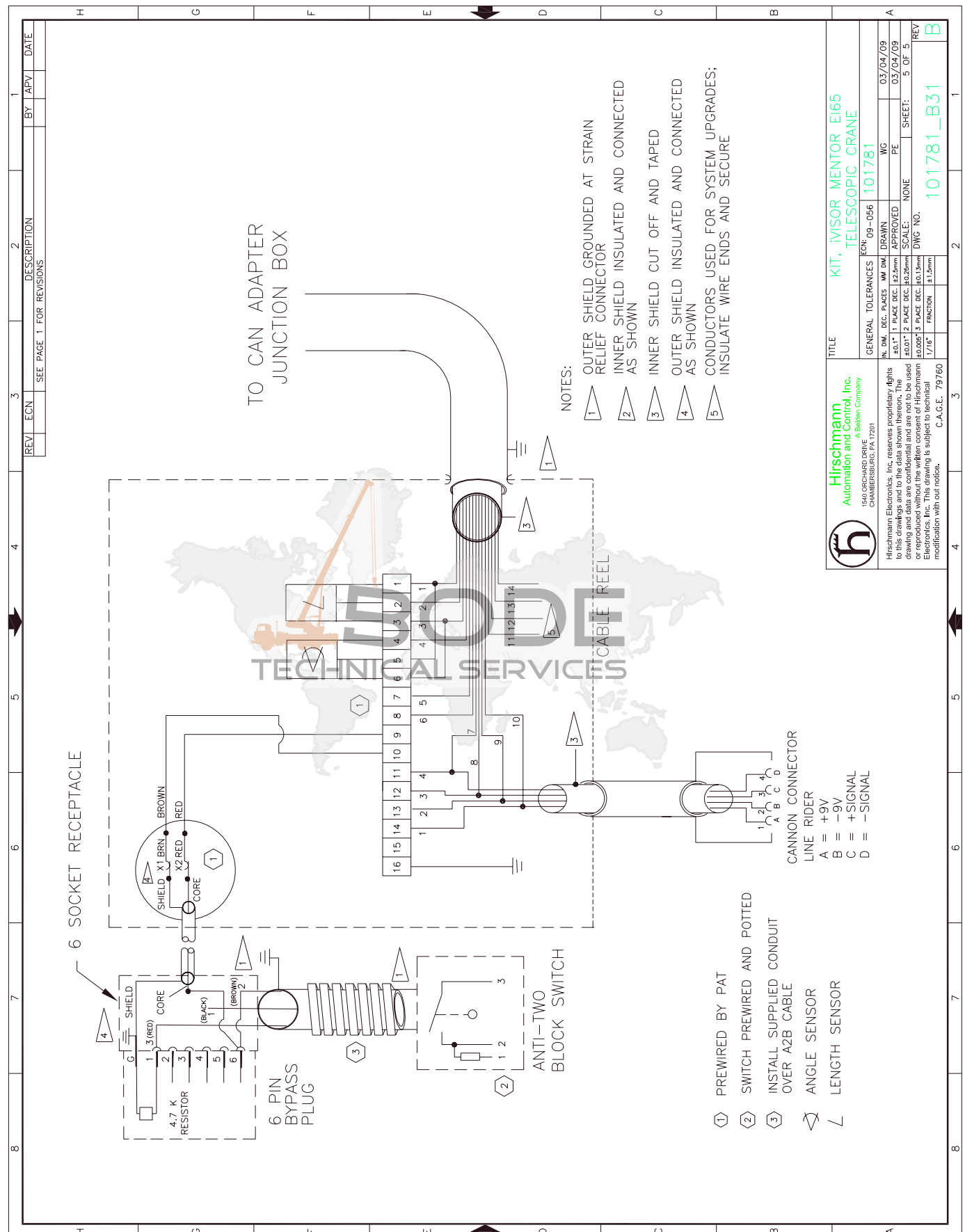
NOTES:

1 FOR 2ND LINERIDER ON LATTICE CRANES,
REMOVE JUMPER FROM -SIG2 TO G2

4 ON 24V CRANES WIRE LINERIDER +SUPPLY
TO 12. ON 12V CRANES WIRE LINERIDER
+SUPPLY TO 11.

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MANUAL REVISIONS

REV	DATE	NAME	DESCRIPTION
-	01/06/09	PE	Initial release based on previous EI65 installation manual
A	12/22/09	PE	Update wiring diagrams, remove kit BOM numbers

