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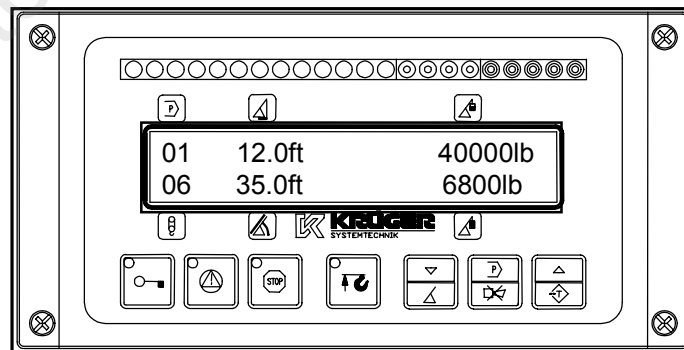
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PAT America, Inc.

LOAD MOMENT INDICATOR SYSTEM

MARK 4E/2



SERVICE MANUAL

P/N 031-300-190-075 REV – 05/18/2001

1 MECHANICAL DESCRIPTION OF THE COMPONENTS

Pressure Transducer:

The pressure transducer transforms hydraulic pressure into an electric analogue voltage signal. Two pressure transducers are connected, one to the rod side and one to the piston side of the lift cylinder. The pressure transducer is connected to the central unit with a four conductor, double shielded cable.

The power supply voltage is +12V.

The output signal is 2.500V at 0 pressure to 2.500V at maximum pressure (250bar).

Cable Reel:

The cable reel houses the length-angle transducer, slip ring disc and slip ring pick up (to feed and return A-2-B signal). The PE cable goes through the drum and out to the tip where it is wired to the Anti-Two-Block switch. The reel is driven by a tensioned spring and should be handled with caution.

The Length-Angle Transducer:

The length-angle sensor (LWG) is a combination of two transducers in cable reel, fitted at the base section of the boom. It measures the length and the angle of the boom. A reeling drum drives a potentiometer, which is the length transducer. Part of the length transducer is the length cable on the drum, which is a two-conductor cable (shield and core). It is connected to the anti-two-block switch at the boom head and to a slip ring body in the LWG. The angle transducer is fitted in the cable reel. A pendulum drives the axle of the angle potentiometer.

The power supply voltage for both is +5.00V

The output signal for the length transducer is: +1.000V up to +4.500V

The output signal for the angle transducer is: +1.000V up to +4.500V

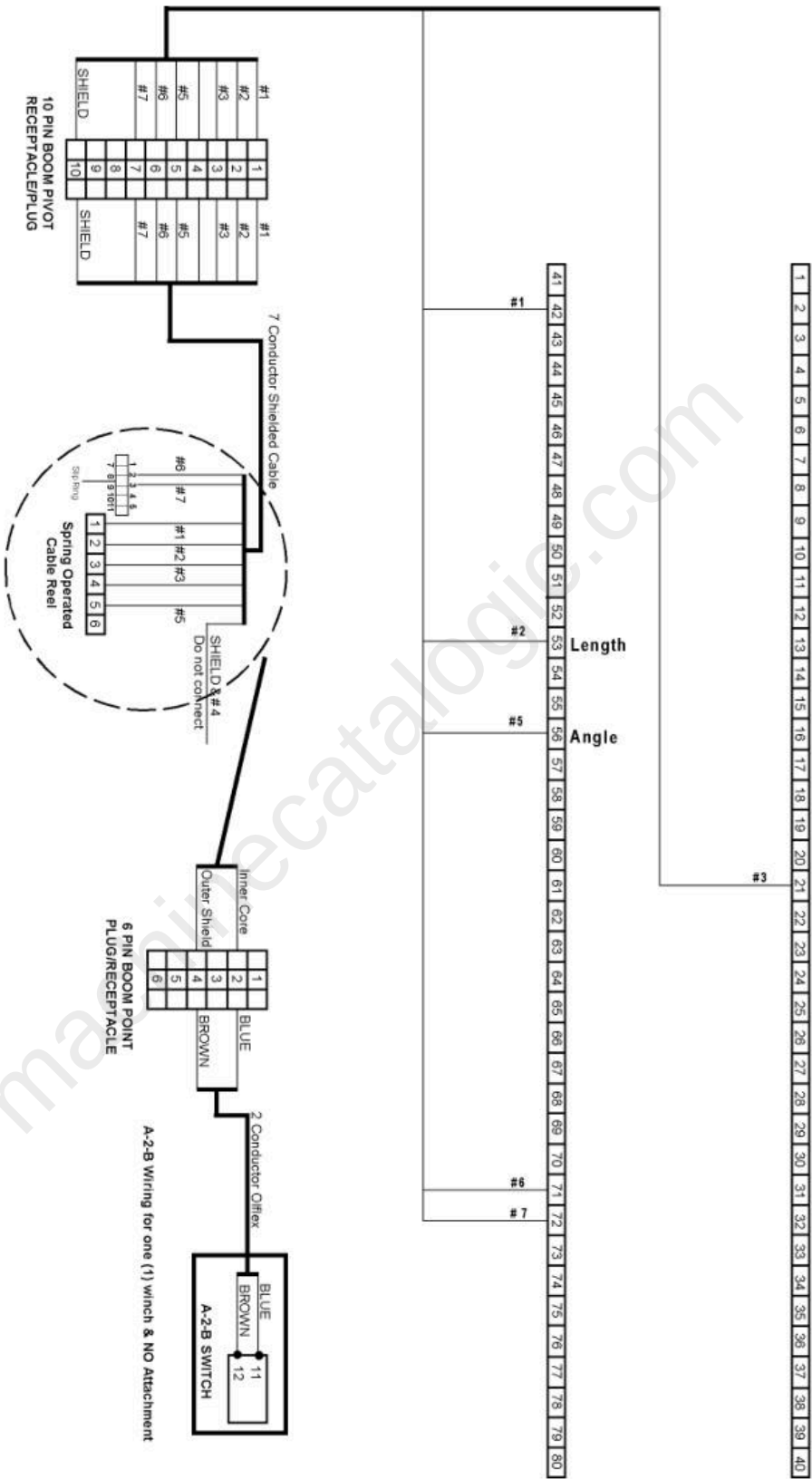
Anti-Two-Block Switch:

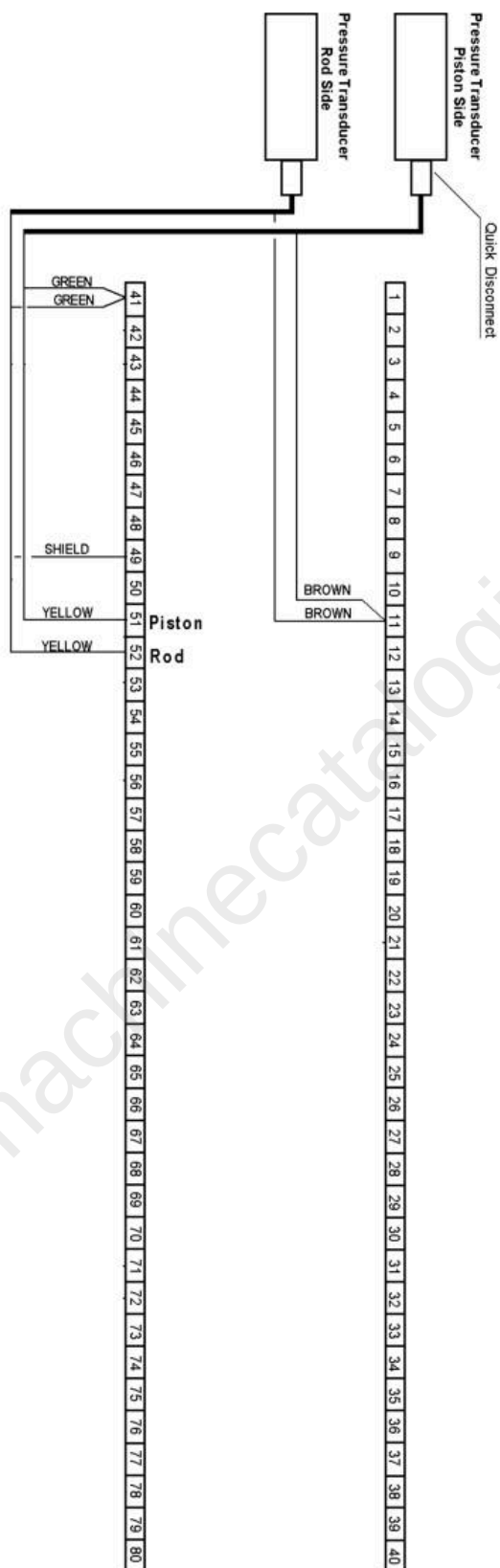
The anti-two-block switch monitors the load block and its relationship with the head of the boom. In working condition, the switch is closed. When the hook block strikes the weight the circuit opens, disengaging a relay output to the lock out solenoid valves, where applicable. The weight at the anti-two-block switch keeps the switch closed until the hook block strikes it.

Console:

The console displays all geometrical information such as length and angle of main boom and working radius. It also displays the actual load and the maximum load permitted by load chart. Furthermore, it has an alarm horn and a warning light for overload, and a pre-warning light. The LED's instrument shows a percentage of the total permissible moment. The console has pushbuttons to switch the operating modes (for selection of crane configurations and reeving of the block). It also has a warning light for overload, anti-two-block conditions and an override push-button for anti-two-block condition.

5.5 ELECTRICAL DIAGRAM - CABLE REEL TO CENTRAL UNIT



5.11 ELECTRICAL DIAGRAM – PRESSURE TRANSDUCER TO CENTRAL UNIT

6.3 PISTON & ROD PRESSURE CHANNEL ADJUSTMENT

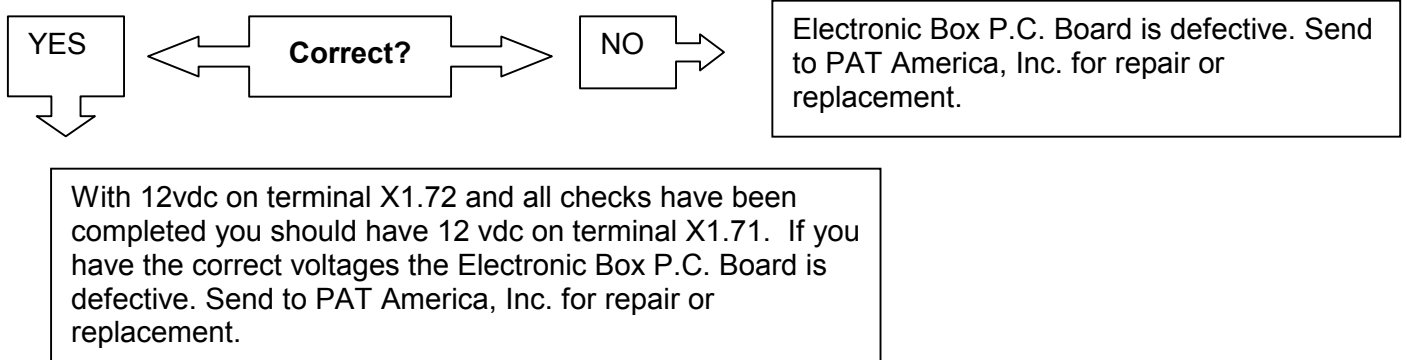
6.3.1 Adjust pressure piston:

1. Turn power off to the system and wire simulator to the piston pressure channel (blue to term. # 12, brown to term. #45, green/yellow to term. # 51). Put voltmeter ground on term. # 45 and positive to term. # 51.
2. Go to the Calibration menu by pushing the up then P button while in the Program menu screen.
3. Push up or down button until NORM menu title is blinking, then push P button.
4. Push up or down button until PRESSURE-PIS menu title is blinking, then push P button.
5. Adjust simulator to 2.500 vdc.
6. Push up or down button until MINIMUM menu title is blinking, then push P button.
7. Push P button until all digits have been verified with the proper value, which will be 000.00 bar.
8. Adjust simulator to 7.500 vdc. Push up or down button until MAXIMUM menu title is blinking, then push P button.
9. Push P button until all digits have been verified with the proper value, which will be 250.00 bar.
10. Push up or down button until ADJUST menu title is blinking then push P button.
11. Push down button until EXIT menu title is blinking then push P button.

6.3.2 Adjust pressure Rod:

12. Move positive lead of voltmeter to term. # 52.
13. Push up or down button until PRESSURE-ROD menu title is blinking then push P button.
14. Adjust simulator to 2.500 vdc.
15. Push up or down button until MINIMUM menu title is blinking then push P button.
16. Push P button until all digits have been verified with the proper value, which will be 000.00 bar.
17. Adjust simulator to 7.500 vdc
18. Push up or down button until MAXIMUM menu title is blinking then push P button.
19. Push P button until all digits have been verified with the proper value, which will be 250.00 bar.
20. Push up or down button until ADJUST menu title is blinking then push P button.
21. Push down button until EXIT menu title is blinking then push P button.
22. Push down button to EXIT then P button until you get to the Program menu and enter the working display.

PREVIOUS PAGE



Full Version Available

PAT Mark 4E/2 Load Moment Indicator Service Manual

PAT Mark 4E/2 load moment indicator service manual with procedures, adjustments, error codes and troubleshooting flow charts. Instant PDF download.

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