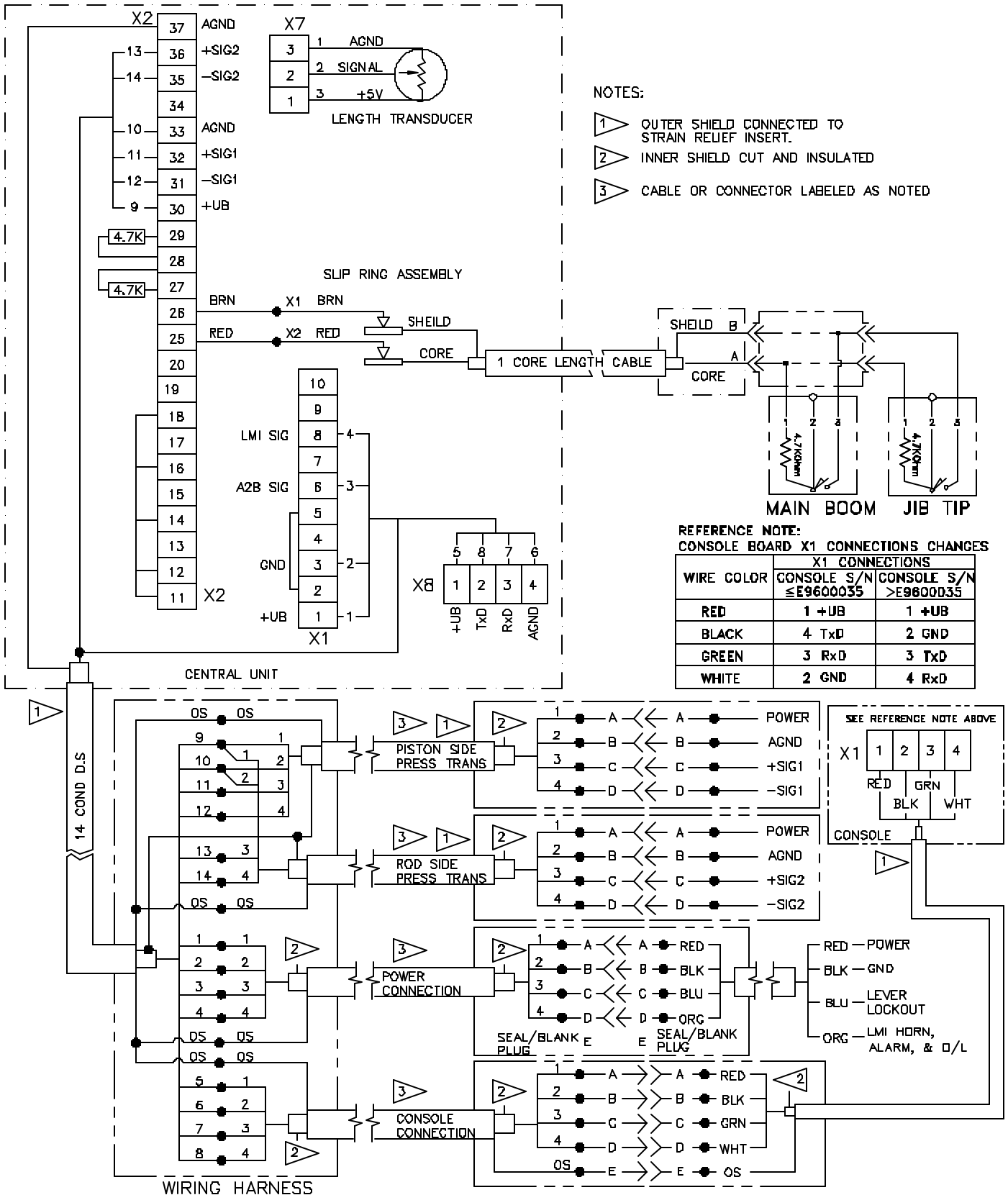## 2. DRAWING 1, SYSTEM ELECTRICAL DIAGRAM
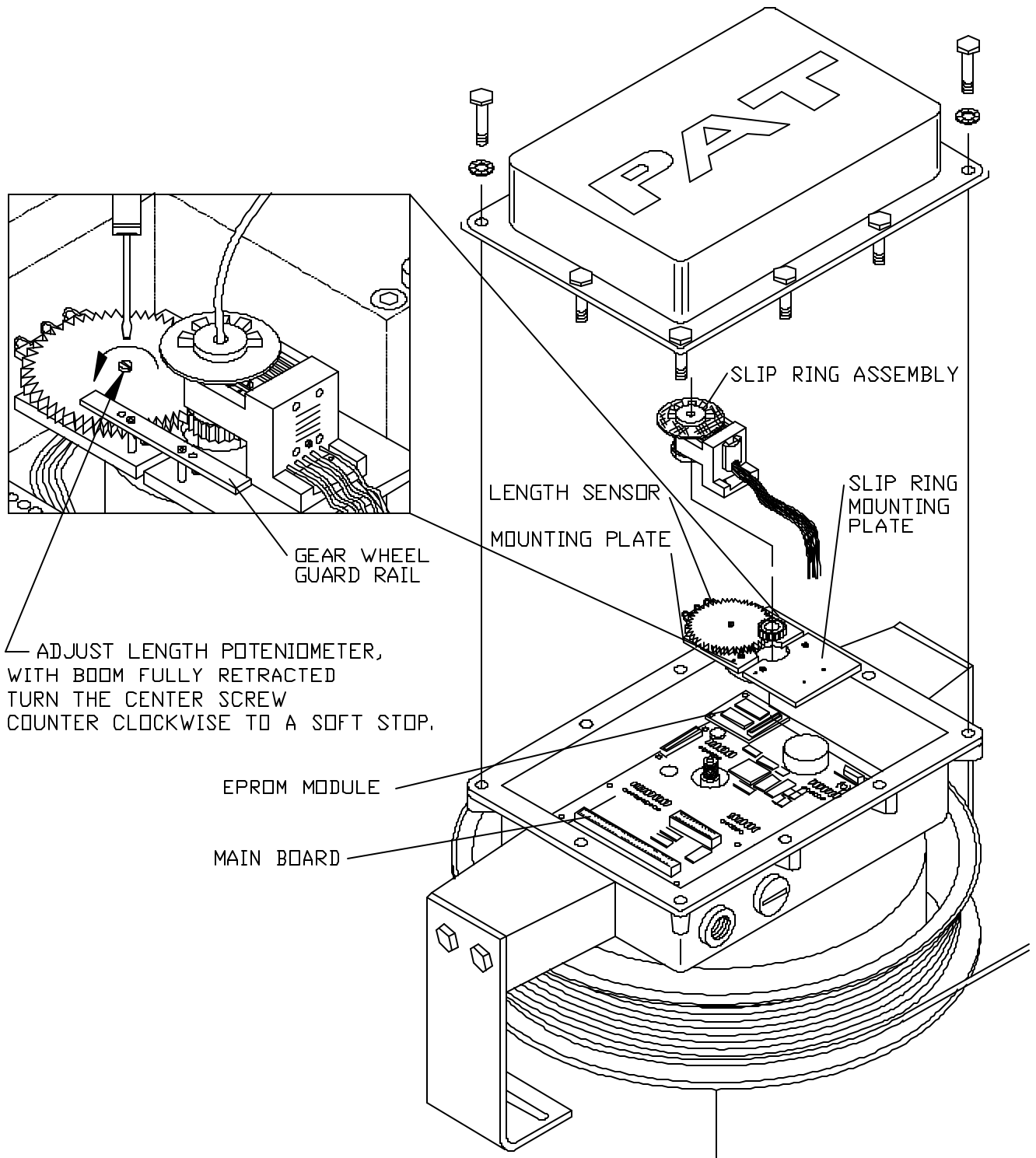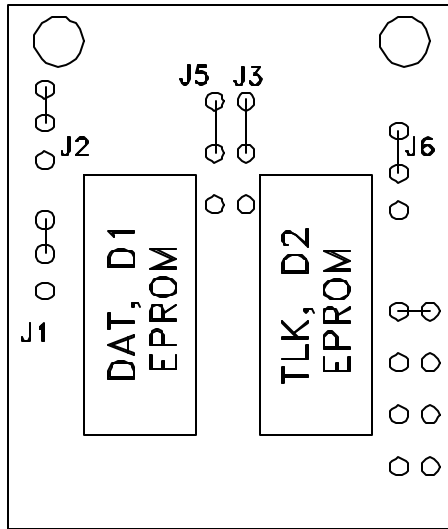
2. DRAWING 2, EXPLODED VIEW OF CABLE REEL AND MECHANICAL ADJUSTMENT OF LENGTH SENSOR

GEAR WHEEL
GUARD RAIL

ADJUST LENGTH POTENIOMETER,
WITH BOOM FULLY RETRACTED
TURN THE CENTER SCREW
COUNTER CLOCKWISE TO A SOFT STOP.

LENGTH SENSOR
MOUNTING PLATE

SLIP RING ASSEMBLY
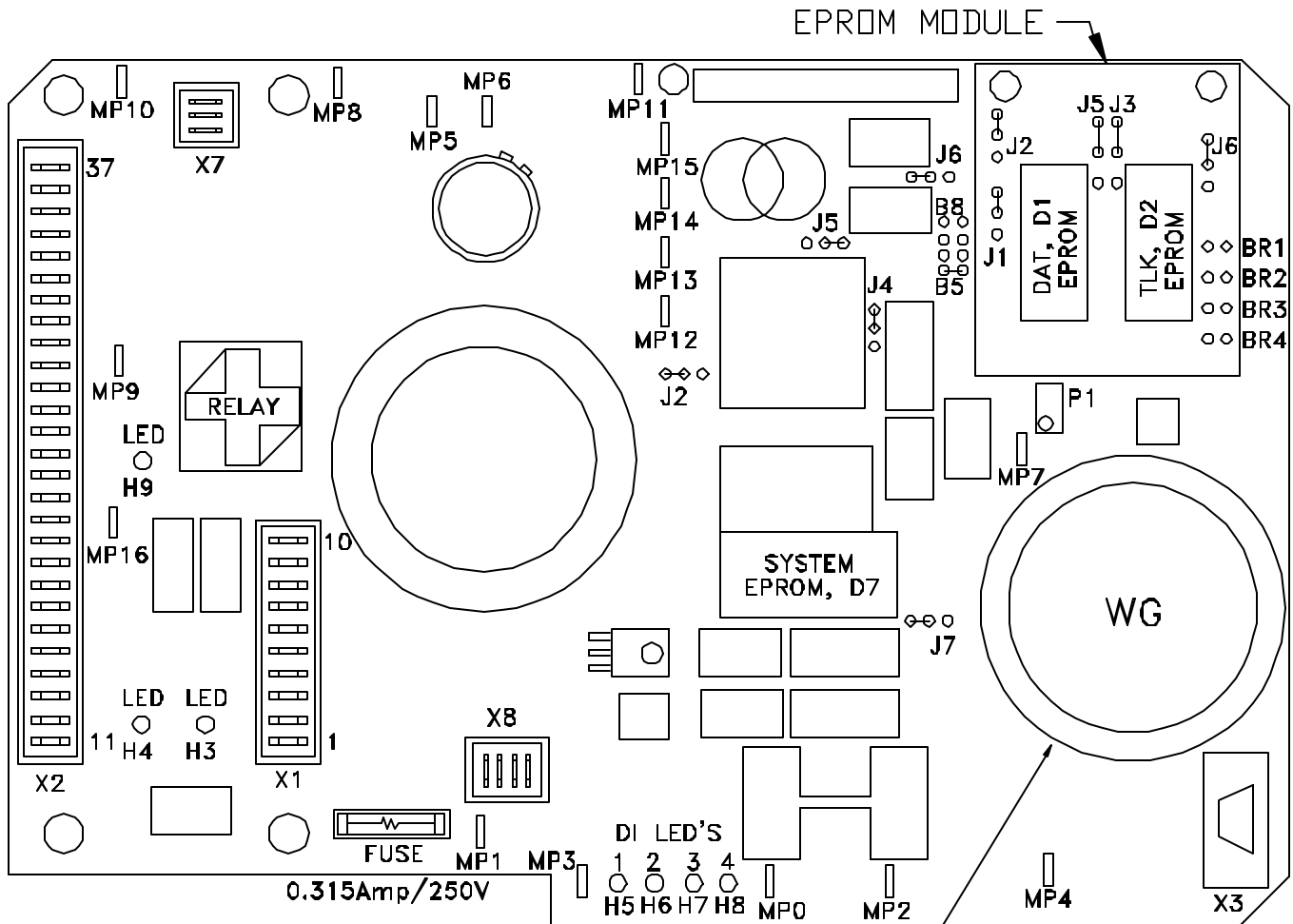
SLIP RING
MOUNTING
PLATE

EPROM MODULE

MAIN BOARD

2. DRAWING 3, MAIN BOARD DS50

INSERT BRIDGE IN APPROPRIATE POSITION

BR1 — NORMAL LMI OPERATION

BR2 — BUZZER SOUNDS AT PREWARNING

BR3 — ZERO PRESSURE TRANSDUCER

BR4 — ADDITIONAL DISPLAYS FOR TROUBLESHOOTING

EPROM MODULE

WG

SYSTEM EPROM, D7

RELAY

DI LED'S
1 2 3 4
H5 H6 H7 H8

FUSE
0.315Amp/250V

WHITE MOUNTING BRACKET FOR ANGLE SENSOR

Note: Bridge 5 on the main board must be installed if the white mounting bracket is installed between main board and angle sensor.

DS 50 MAIN BOARD CONNECTION AND TERMINAL DEFINITIONS

<u>X1/X2 (fast-on plug)</u>

   1   System supply (10 - 28V)
   2   System supply (10 - 28V)
   3   System ground
   4   System ground
   5   Relay middle contact
   6   Relay work contact
   7   Relay off position contact
   8   Jumper UEL / HES
   9   Jumper over load relay
  10   Jumper hoist limit switch relay
  11   Periphery supply (10 - 28V)
  12   Digital input_1
  13   Digital input_1
  14   Digital input_2
  15   Digital input_2
  16   Digital input_3
  17   Digital input_3
  18   Digital input_4
  19   Digital input_4
  20   Periphery ground
  21   Lamp driver_1
  22   Lamp driver_1
  23   Lamp driver_2
  24   Lamp driver_2
  25   Hoist limit switch signal
  26   Hoist limit switch ground
  27   Supply voltage potentiometric sensor
  28   2ND angle sensor signal channel (analog reeving switch w/ MANITOWOC BOOM TRUCKS, INC. consoles)
  29   Analog ground
  30   Supply voltage passive DMS (9±0.45 VDC)
  31   - return signal DMS
  32   + return signal DMS
  33   Analog ground
  34   Supply voltage passive DMS (9±0.45 VDC)
  35   - return signal DMS
  36   + return signal DMS
  37   analog ground

X3 (DBM 9pin) RS232 interface for (hand-) terminal

<u>X4 digital angle sensor</u>

<u>X7 (screw snap-on terminal) length sensor</u>
    1   supply voltage potentiometric sensor
    2   length sensor signal
    3   analog ground

<u>X8 (screw snap-on terminal) DS50 console interface</u>
    1   periphery supply (10 - 28V)
    2   transmit data
    3   receive data
    4   periphery ground

<u>Main Board Measuring Points</u>

Point	Value	Description
MPO	0V	module ground
MP1	+10 ... 28V	module supply
MP2	+9V ±0.45V	sensor supply
MP3	+5V ±0.25V	sensor supply
MP4	U_{TTL}	supply for hand terminal
MP5	$U_{GEB}/2$	AN3 / angle sensor
MP6	$U_{GEB}/2$	AN2 / length sensor
MP7	$0 ... U_{TTL}$	voltage controlled current output (U_{TIL}=1mA)
MP8	$U_{TTL}/2$	AN11
MP9	U_{TTL}	sensor supply
MP10	$U_{DMS}/2$	symmetric voltage for de-coupling
MP11	U_{ANAL}	DMS – supply voltage
MP12	0V...5V	AN0
MP13	0V...5V	AN1
MP14	$U_{DMS}/3$	AN9
MP15	$2.74V+U_D$	AN8 / temperature voltage
MP16		A2B signal