DRIVE STARTUP MANUAL

Magnetek HPV900-S2 Drive

Induction Motor Installation

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Magnetek HPV900S2 Drive

EQUIPMENT/SETTINGS VERIFICATION

Verify that the Job Specification parameter table on the drawings "Sheet 1: Getting Started" matches the actual equipment.

Below is a sample table showing the important values that will affect operation.

Sample: Sheet 1: - Getting Started

Job Specifications:

Car	Group #	Group Car ID	Contract Speed	Floors	Capacity	Main Line Voltage	Motor Volts	Motor HP	Motor FLA	Motor Poles	Motor RPM	Motor Freq	Drive AWG	Motor AWG	Disc. Size	Drive
1	1	1	300	17	2500	208	208	25	67	6	1164	60	2	2	110	HPV900-2075-2E1-01

Car	Doors	DR Voltage	Brake Pick	Brake Hold	Brake Ohm	Brake Amp	M. Cont. P/N	B.1 Cont. P/N	Encoder PPR	EBrake	DBR Ohm	DBR Watts
1	1	240	230	180	190	1.2	CA7-97	CA7-12	1024	HW GRIPPER	5	4000

Motor Volts
Motor Amps
Motor RPM
Main Line Volts
Motor HP
Motor Poles
Motor Frequency
Brake Volts Pick/Hold
Encoder PPR

MAGNETEK PARAMETER LOCATION REFERENCE

ADJUST A0

DRIVE A1

Encoder Pulses (Encoder PPR – 1024/2048)

POWER CONVERT – A4

Input L-L Volts

MOTOR – A5

Rated Mtr Power (Kw)

Rated Mtr Volts (VAC)

Rated Exit Freq (60Hz)

Rated Motor Curr (FLA – Amps)

Motor Poles

Rated Mtr Speed (RPM)

CONFIGURE **C0**

USER SWITCHES – C1

Motor Rotation

Forward/Reverse

Encoder Connect

Forward/Reverse

CONTROLLER GROUNDING REQUIREMENTS

NOTE – For the controller to function properly it is very important to provide proper building ground connections to the controller.

- Examples of a proper building-to-controller ground connection is to attach the ground cable to:
  - The street side of the incoming water main.
  - To a grounding rod that has been driven into the pit flooring.
- The controller has a common ground bus terminal connection.

- All grounds need to land at this common point including building, motor, transformer, and filter grounds. This prevents ground loops, and will limit the impedance between the grounds and noise will be channeled back to building ground.

Providing a proper ground is mandatory and will improve the performance of the controller.

WIRING – (Check off box when complete)

** Refer to the Appendix for the following connections **

Power – (Sheet 3: Machine Room connections)

- ☐ Connect main line power to terminal block L1/L2/L3.
- ☐ Connect the ground wire to the yellow/green terminal block next to L1-L3.

Brake – (Sheet 5: Brakes)

- ☐ Connect the main brake wiring to terminals K1 / K2 located on the terminal block next to the M contactor.
- ☐ Jump EB to the terminal listed in the Construction box located on "Sheet 01 – Getting Started" and connect either the rope gripper or shieve brake to EBR (if installed).

Motor / Encoder – (Sheet 4: Drive and Motor)

- ☐ Connect motor leads to the M contactor at T1/T2/T3.
- ☐ Connect the encoder cable to the drive terminal block TB1 (Refer to Appendix 1 for encoder wiring samples and Appendix 2 for wire terminal location). Use the following

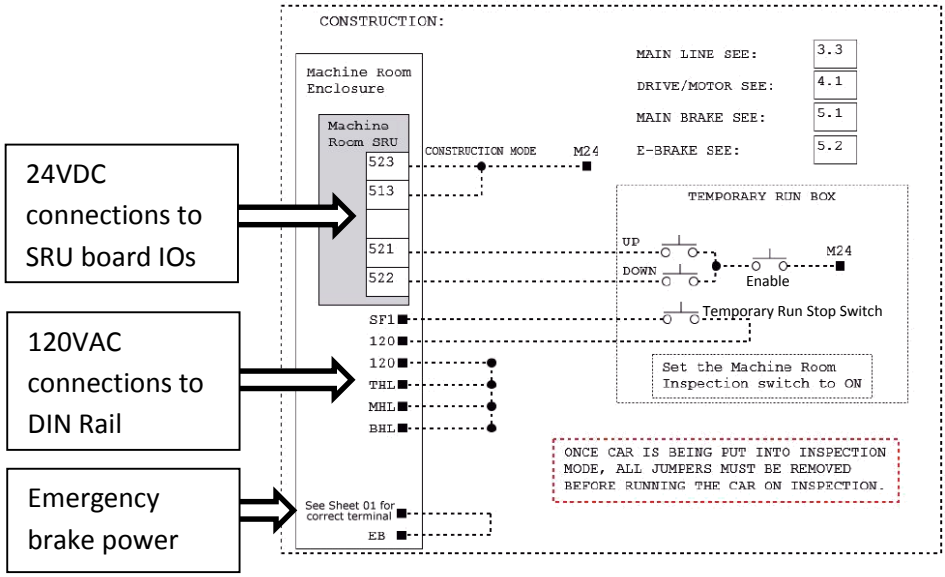
TB1	Drawing (Sheet 4)	Description	On Site Colors
17	V+ (PWR)	+5v Power	
18	V- (COM or GND)	Common or Ground	
1	A+ (A)		
2	A- (A/)		
3	B+ (B)		
4	B- (B/)		
5	Shield	Shield Ground	

Terminal Description Table for correct terminals. Record the encoder wiring color code for future reference.

CONSTRUCTION – (Sheet 1: Construction)

The following instructions are from the job drawings: “Sheet 1 – Construction”. Refer to the job’s specific drawings for connections.

Construction Box (Sample)



24v DC connections

- ☐ Install jumpers between M24 and the IOs listed on “Sheet 1: Getting Started – Construction”.
- ☐ Install jumpers between M24 any additional IO’s (if required):
  - * Pre-Transfer
  - * Emergency Power
  - * Governor
- ☐ IMPORTANT! REMOVE FACTORY WIRES ON INPUTS 521/522
  - ○ Install the Run Bug Up/Down Switch to IO’s 521/522
- ☐ Install the Run Bug Up/Down Enable switch to M24

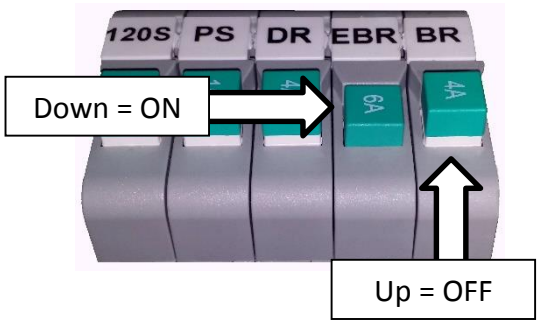
120v AC connections

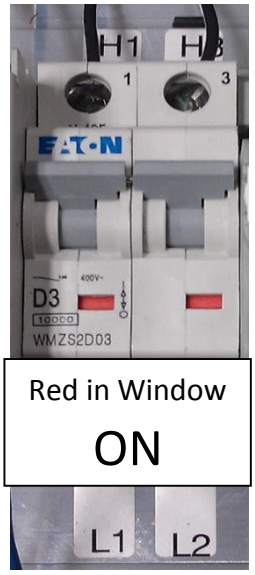
- ☐ Install the temporary run switch between 120 and terminal SF1 and 120 to THL/MHL/BHL terminals on the DIN rail.
- ☐ Install a jumper between EB and the terminal listed on the drawings on “Sheet 1: Getting Started – Construction”.

POWERING UP

(Check off box when complete)

- ☐ Apply external power by closing the main disconnect.
- ☐ Close the L1/L2 breaker, the M24, PS, BR and EBR breakers.
- ☐ Verify that the LCD on the Smartrise board and the Magnetek Drive come on.

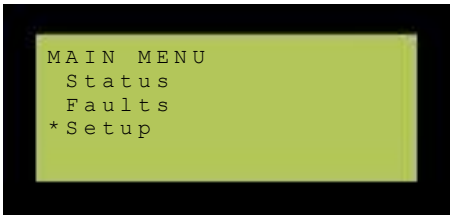




FINAL SETUP

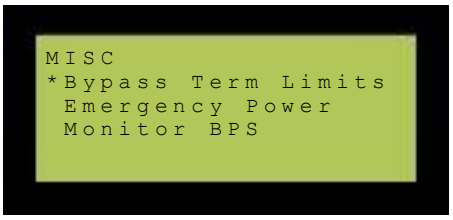
(Check off box when complete)

- ☐ Toggle the Inspection/Normal switch to the "INSP" position.
- ☐ Set **BYPASS TERM LIMITS** to **YES**:
  - On the Smartrise Machine Room controller board, press the Left Arrow (ESC) button several times to get to the **MAIN SCREEN**.
  - Press the Right Arrow to go to **MAIN MENU.** Use the Up / Down Arrow keys and move the asterix to **SETUP** and press the enter key.

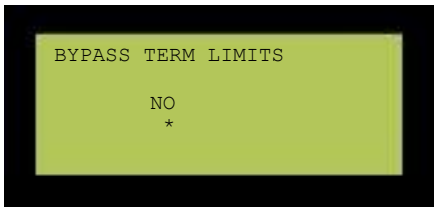


- Use the Up / Down Arrow keys and move the asterix to **MISC** and press the enter key.

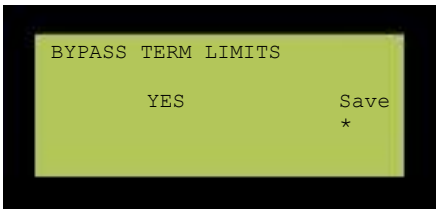
- **BYPASS TERM LIMITS** should be the first item listed. If it's not there use the Up / Down Arrow keys and move the asterix to **BYPASS TERM LIMITS** and press the enter key.



- Use the Up / Down Arrow keys to change the word **"NO"** to "**YES**".



- Use the RIGHT Arrow key and move the asterix under the word "SAVE" and press enter.



- Hit the LEFT Arrow (ESC) button several times to get to the **MAIN SCREEN**.

☐ Verify the LCD displays "Construction" Mode on the **MAIN SCREEN**.

☐ Verify that the Magnetek drive is not showing a "Setup Fault One" on the display.

- Go to "**Troubleshooting – Setup Fault One**" for corrective actions.

OPERATION

(Check off box when complete)

Run the car and verify the following:

No Faults

- ☐ Make sure the car is moving without triggering a fault either on the Smartrise SRU or the drive. If the SRU board displays a "Drive Fault" on the SRU, look at the drive to see what the fault is. The most common fault is "Encoder Flt".
  - Go to "***Troubleshooting – Drive Fault / Encoder Flt***" for corrective actions.

Proper Direction

- ☐ Make sure the car is moving in the same direction as the control switch on the Run Bug.
  - Go to "***Troubleshooting – Wrong Direction***" for corrective actions.

At Speed

- ☐ Make sure that the car is moving at the proper inspection speed (approx. 50 FPM).
  - Go to "***Troubleshooting – Car Moving Too Slow or Rough***" for corrective actions.

Under Control

- ☐ Make sure that the car is moving under full control. The car should stop when commanded from the Run Bug. Verify that the car runs with no faults for 10 seconds or more.
  - Go to "***Troubleshooting – Brake Not Lifting***" for corrective actions.

TROUBLESHOOTING

DRIVE FAULT / ENCODER FLT

1. The most common fault at startup with a Magnetek drive is the Encoder fault. Perform the following checks to correct this fault:
    a. Check for a solid *shield-to-ground* connection at the motor and drive.
    b. Check for correct colored encoder wires to the terminals.
    c. Swap A+ / A- on terminal TB1 – #1 (A+) and #2 (A-).
        i. After swapping the A signal wires it may be necessary to change the direction of the "C1 – Encoder Connect".

BRAKE NOT LIFTING

1. If the brake is not picking make sure that it is wired according to "Sheet 5 – Brake & Hydro Options" and verify that the EB terminal is jumped to the terminal listed on "Sheet 01 – Getting Started". If it has the proper voltage check the following:
    a. During a run command, check for DC voltage between points K1 and K2. Verify this voltage is also at the Brake Coil when commanded to pick.
    b. Verify the actual brake voltage matches the Brake Coil voltage setting shown on "Sheet 1: Getting Started" table.

WRONG DIRECTION

1. If the car is moving in the wrong direction:
    a. On the Smartrise controller board make sure that IO 521 comes on when commanding the **UP** direction and IO 522 comes on when commanding the **DOWN** direction.
    b. Swap two of the motor leads (T1 with T2).

CAR MOVING TOO SLOW OR ROUGH

1. Swap A+ / A- on terminal TB1 – #1 (A+) and #2 (A-).
    a. After swapping the A signal wires it may be necessary to change the direction of the "C1 – Encoder Connect".
2. Verify the brakes are lifting fully.

SETUP FAULT ONE

This is caused when the HPV900 is programmed with motor data (A5) that conflicts with the drive software.

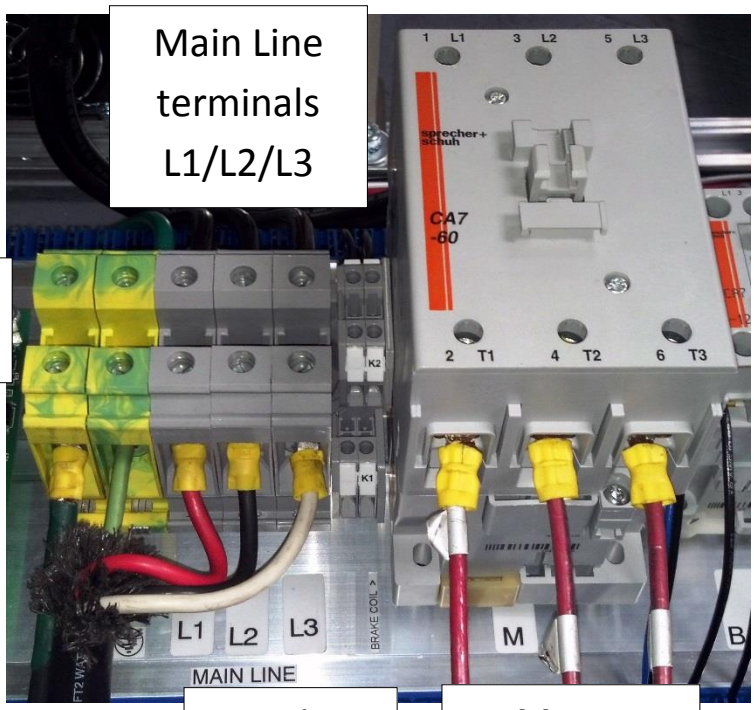
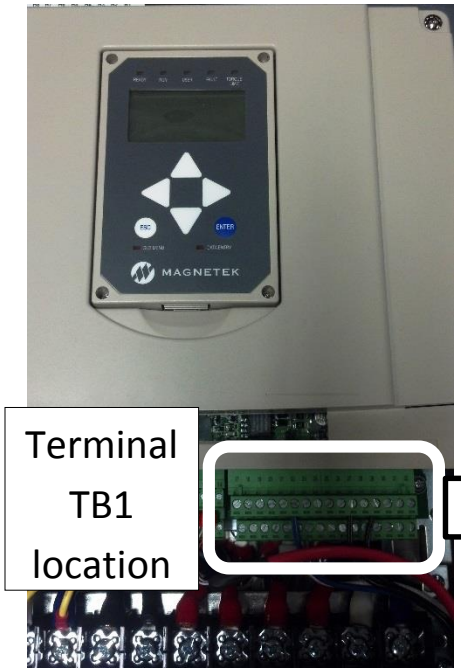
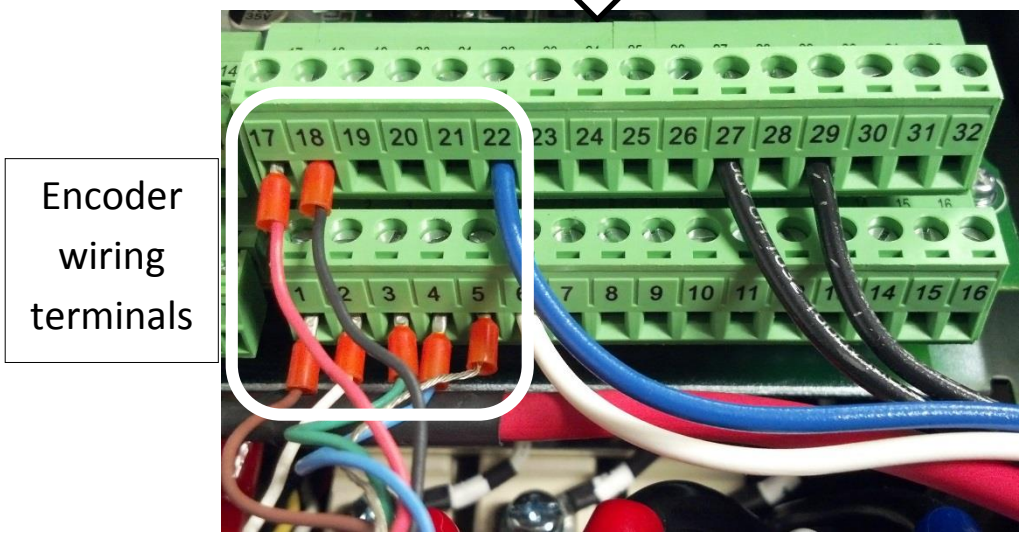
1. Unplug the CAT5 cable from the DRIVE port on the machine room SRU board. This will restore access to the HPV LCD screen.
2. Go to A5 – Motor Parameters – Motor Poles and verify that you have the correct number of poles listed.
3. Next, go to A5 – Motor Parameters – Rated Motor Speed and lower the RPM 15-20 rpms and save.
4. Plug the CAT5 cable back into the DRIVE port on the machine room SRU.

APPENDIX 1

Encoder Wiring Tables

This is just a partial list of common encoder cable codes for reference only. This may not represent the actual cable you have received with your encoder. Please follow the actual pin-out instructions that came with your existing encoder.

ENCODER	IMPERIAL / PG-X3	MAGIL	IH740 / IH950	ACCU-ENCODER	WACHENDORFF	INDUSTRIAL ENCODER (CANADA)
PWR	RED (2)	RED (2)	BROWN (2)	BROWN	BROWN	BROWN
COM	BLACK (1)	BLACK (1)	WHITE (1)	WHITE	WHITE (SHIELD)	WHITE
A	WHITE (3)	WHITE (3)	GREEN (3)	GREEN	GREEN	GREEN
/A	BLACK/WHITE (6)	BROWN (6)	PINK (6)	YELLOW	RED	PINK
B	BLUE (4)	GREEN (4)	YELLOW (4)	GRAY	YELLOW	YELLOW
/B	RED/BLACK (7)	BLUE (7)	BLUE (7)	PINK	BLACK	BLUE
Z	ORANGE (5)	YELLOW (5)	GRAY (5)	BLUE	GRAY	GRAY
/Z	GREEN (8)	ORANGE (8)	RED (8)	RED	VIOLET	RED
DATA	-	-	-	-	-	-
/DATA	-	-	-	-	-	-
CLOCK	-	-	-	-	-	-
/CLOCK	-	-	-	-	-	-
SHIELD	SHIELD	SHIELD	SHIELD	SHIELD	SHIELD	SHIELD

APPENDIX 2

Terminal Locations