

Figure 1: Single Line Diagram of the Emergency Heater Supply Pump Control System

The diagram illustrates the electrical control system for the Emergency Heater Supply Pump. It shows the power supply from the MCC-B7001 (600VAC BUS) through a 150A 40AT 3P breaker (BP37.01) to three lines (L1, L2, L3). These lines pass through fuses (FU1A, FU1B) and a transformer (H1, H2) to a control panel (TB01). The control panel includes a 1A fuse (FU2), an overload relay (OVERLOAD), and a reset button (O/L RESET). The motor (M) is connected to the control panel through a 150VA transformer (H1, H2). The control panel also includes a 24VDC supply from CP-B8001, a 24VDC fuse (FU2), and a 24VDC terminal block (TB02). The motor is connected to the control panel through a 150VA transformer (H1, H2). The diagram includes various components like switches, relays, and status indicators, along with notes and legends.

Legend:

- BP37 EMERGENCY HEATER SUPPLY PUMP 15HP 17FLA 600V
- BP37-LOS
- BP37
- XX 1
- XX 2
- (NOTE 1)
- TB01 2
- TB01 3
- BFDP-1
- XX 1
- CR1
- C
- O
- H
- HAND
- CONTROL
- CR1
- XX 4
- XX 5
- XX 6
- CP-B8001
- XX 1
- MOTOR RUN CMD
- XX 2
- OUTPUT
- MOTOR STOP CMD
- XX 3
- OUTPUT
- (NOTE 2)
- XX 7
- XX 8
- RUN STATUS
- (NOTE 3)
- XX 4
- TB02 200
- TB02 201
- XX 5
- RUN STATUS
- INPUT
- NOTE 4 (TYP.)

The diagram illustrates the electrical connections between the BP37 starter compartment and the control room. A central vertical busbar is connected to various components on both sides.

BP37 STARTER COMPARTMENT (Left Side):

- BP37 POWER CONNECTION:** A terminal block with three terminals: T1 (RD), T2 (BK), and T3 (BL).
- BP37 LOCK OUT SWITCH:** A terminal block labeled TB01 with six terminals: 1 (BP37-1), 2 (BP37-2), 3 (BP37-1), 4 (BP37-2), 5 (BP37-3), and 6 (BP37-4). A terminal X2 is also shown.
- RUN STATUS:** A terminal block labeled TB02 with two terminals: 200 (BP37-200) and 201 (BP37-201).

CONTROL ROOM (Right Side):

- 1x3C 12AWG TECK90 1kV C-BP37-1:** A cable connection from the busbar to the starter compartment.
- EXISTING -** Labels for existing equipment connections.
- BP37-LOS (NOTE 6 TYP.):** A terminal block labeled XX with two terminals: 1 (BP37-1) and 2 (BP37-2). This is connected to the BP37 LOCK-OUT SWITCH.
- B FDP-1:** A terminal block labeled XX with eight terminals: 1 (BP37-1), 2 (BP37-2), 3 (XX-1), 4 (XX-2), 5 (XX-3), 6 (BP37-3), 7 (BP37-4), and 8 (RED RUN LIGHT). This is connected to the HS-BP37-01 CONTROL CIRCUIT.
- CP-B8001:** A terminal block labeled XX with five terminals: 1 (XX-1), 2 (XX-2), 3 (XX-3), 4 (BP37-200), and 5 (BP37-201). This is connected to the RUN STATUS.

Other Components:

- JB:** A junction box connected to the busbar and the starter compartment.
- BP37 EMERGENCY HEATER SUPPLY PUMP (M):** A motor connected to the busbar and the starter compartment.
- 1 (REF. 2) (NOTE 8):** A label for a specific connection point.

1. LOCK-OUT SWITCH LOCATED AT MOTOR.
2. EXISTING HAND AND CONTROL CONTACTS AT LOCAL CONTROL PANEL.
3. CITY OF WINNIPEG COLOUR CONVENTION REQUIRES GREEN RUN INDICATOR. EXISTING LIGHT PREDATES THE CURRENT CONVENTION.
4. TO PLC DISCRETE INPUT. TERMINAL BLOCK NUMBERS TO COORDINATE WITH DCS MIGRATION PROJECT.
5. PRIOR TO DEMOLITION FIELD CABLE TAGS TO BE VERIFIED BY CONTRACTOR DURING INSTALLATION.
6. PRIOR TO DEMOLITION LOCAL CONTROL PANEL TERMINALS TO BE VERIFIED BY CONTRACTOR DURING INSTALLATION.
7. GREY LINETYPE DENOTES EXISTING. ENGINEER'S SEAL APPLIES TO NEW WORKS ONLY.
8. WHERE FIELD CONDITIONS NECESSITATE AN EXTENSION TO EXISTING CABLES IN ORDER TO REACH NEW MCC, SEE REFERENCE DRAWING 2.

10	—	—
9	—	—
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3	—	—
2	1-0101-EMCL-B034-001	ELECTRICAL – SCHEMATIC WIRING DIAGRAM DETAILS – TYPICAL EXISTING WIRING
1	1-0101-ESLD-B001-001	ELECTRICAL – MCC-B7001 SINGLE LINE DIAGRAM
NO.	DRAWING NUMBER	REFERENCE DRAWING TITLE
REFERENCE DRAWINGS		

**ES ENGINEERS
GEOSCIENTISTS
MANITOBA**

Certificate of Authorization

KGS Group

No. 245


B.M.					
ELEV.					
CONSTRUCTION COMPLETION DATE: YYYY MM DD					
1	RE-ISSUED FOR CONSTRUCTION		2025	04	30
0	ISSUED FOR CONSTRUCTION		2025	03	25 CLR
NO.	REVISIONS		DATE		BY

<div>KGS GROUP</div>			
DESIGNED BY	AMS	CHECKED BY	CLR
DRAWN BY	FA	APPROVED BY	CLR
SCALE:	N.T.S.	RELEASED FOR CONSTRUCTION	
DATE:	2025 03 26	DATE:	

ENGINEER'S SEAL

CONSULTANT DRAWING NUMBER

23-0107-010_PB_E2-17

	<h1 style="text-align: center;">THE CITY OF WINNIPEG</h1> <h2 style="text-align: center;">WATER AND WASTE DEPARTMENT</h2> <h3 style="text-align: center;">ENGINEERING DIVISION</h3>		
	<p style="text-align: center;">NORTH END SEWAGE TREATMENT PLANT (NEWPCC) BACKUP BOILER SYSTEM AREA B – BOILER ROOM ELECTRICAL SCHEMATIC WIRING DIAGRAM – BP37 EMERGENCY HEATER SUPPLY PUMP</p>		
CITY DRAWING NUMBER	1-0101-EMCL-B017-001		SHEET 1 OF 1

PLOT DATE: 2025 04 30

BID OPPORTUNITY: 277-2025
CONTRACT NUMBER:

FILE PATH: R:\Projects\2023\23-0107-010\Dwg\Elec\2_PermBoiler\
FILE NAME: 1-0101-EMCL-B017-001.DWG