

## SECTION VI

### TROUBLE SHOOTING

TROUBLE	PROBABLE CAUSE	POSSIBLE REMEDY
Bottom block doesn't raise or lower.	No power.	Check switches, breakers, fuses, and power line connections for open circuit, grounded or faulty connections.
	Contactor not operating.	Check connections in control circuit. Check contactor coils and push button control cable for open or short circuit. Reset overload relay if used.
	Limit switch open circuit.	Check limit switch contacts.
	Magnetic brake not releasing.	Check adjustment. Check for loose connections. Check auxiliary contacts, rectifier, brake circuit transformer, and brake coil.
	Excessive load.	Check weight of load and rated capacity.
Bottom block moves in wrong direction.	Three phase power supply has phase reversal.	Interchange any two of the three power lead connections either at the reversing contactor, motor or at the power source.
	Hoist cable wound on wrong side of drum.	Rewind and check hoist cable for damage. Check operation of lower limit switch.
Bottom block doesn't stop at extremes of travel.	Limit switch(es) are not opening circuit.	Check operation and setting of limit switch(es).

TROUBLE	PROBABLE CAUSE	POSSIBLE REMEDY
Bottom block fails to stop quickly.	Magnetic brake slips.	Disc type brake linings excessively worn or dirty. Check condition of surface on each side. Clean or replace as necessary. Check brake adjustment.
Magnetic brake does not release.	Solenoid coil is open or shorted. Open brake circuit. Defective rectifier or transformer.	Check connections. Check solenoid coil for open or short circuit. Check rectifier and transformer.
Motor overheats.	Excessive load.	Check weight of load. Do not exceed hoist capacity.
	Incorrect voltage or frequency.	Check data stamped on nameplate for correct power supply. Voltage should be within $\pm 10\%$ of nameplate rating.
	Three phase power supply phase failure or unbalanced current.	Check motor windings for open or short circuits. Check supply lines for balanced voltages.
	Brake does not release completely.	Check brake adjustment. Check brake control circuit and brake coil.
Load brake inoperative.	Load brake slipping due to excessively worn or dirty friction disc assembly.	Clean or replace friction disc assembly.
	Load brake is not engaging due to worn or damaged ratchet parts.	Replace worn or damaged ratchet assembly, pawl, pawl spring cap assembly or pawl pin.
Load lowers when hoist not being operated.	Both the magnetic brake and the load brake are inoperative.	Refer to magnetic brake and load brake troubles.
Load accelerates during lowering.	Load brake slipping.	Replace worn lining.
	Load brake not engaging.	Check installation of ratchet for proper direction for engagement with pawl. Check for damaged pawl or spring cap assembly. Replace bushing in ratchet if worn.
Hoist operates intermittently.	Collectors make poor contact.	Check collectors for free movement of spring loaded arm, weak spring, connections, and free movement of shoe or roller.
	Normally closed contacts of upper limit switch are arcing.	Replace normally closed contacts.
Excessive hoist cable wear.	Lack of lubrication.	Lubricate cable.
	Hoist is being used for side pulling.	Hoist cable should be vertical before starting lift so that cable wraps smoothly on drum.
Oil leaks.	Gasket leakage between gear case and cover.	Tighten any loose bolts. Replace gasket if necessary.
	Oil seals worn or damaged.	Replace oil seals.

## **SECTION VII**

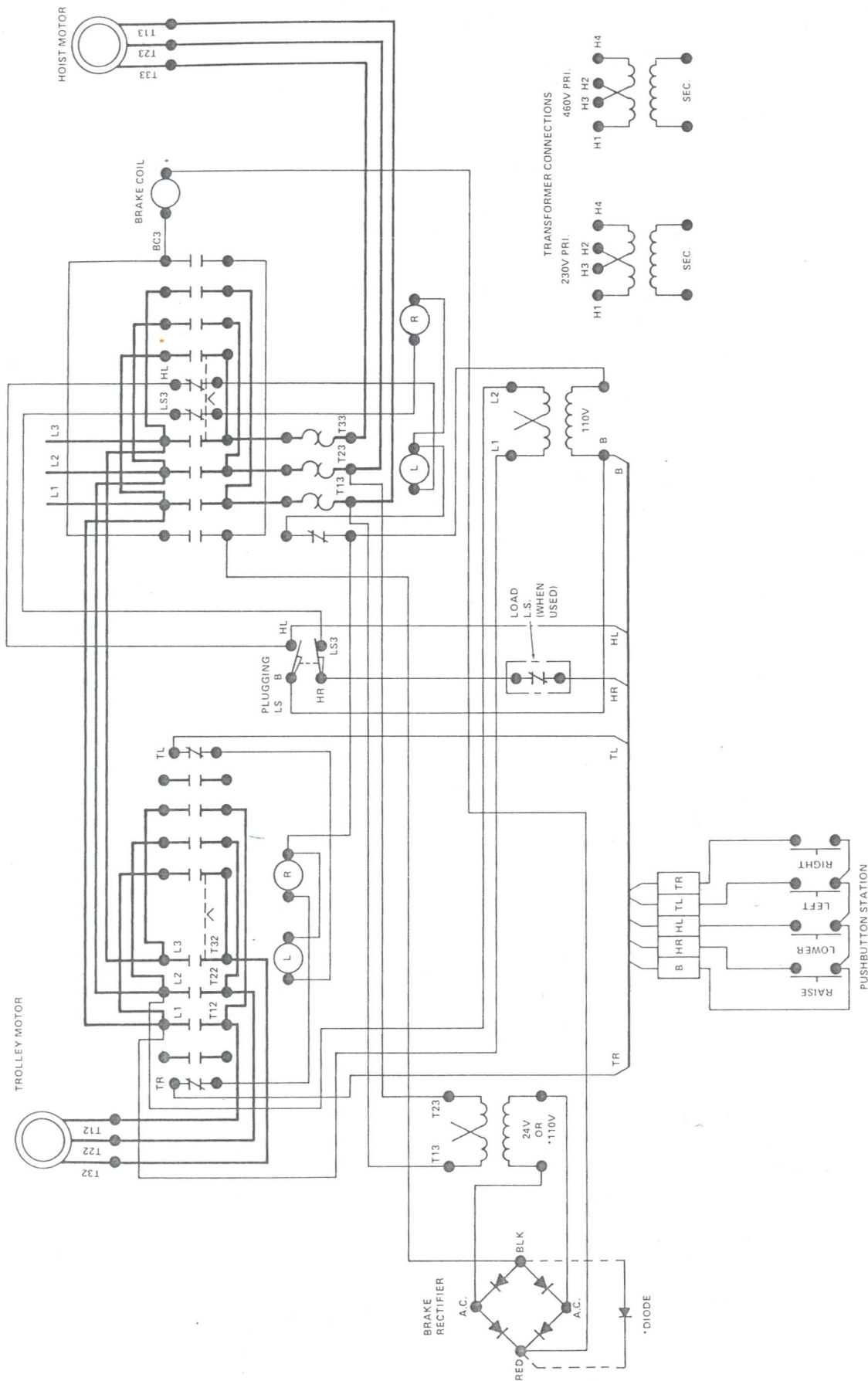
# **WIRING DIAGRAMS**

Figures 7-1 through 7-5 are typical basic wiring diagrams for Balanced Design Hevi-Lift hoists. These wiring diagrams are included for the convenience for the users of this manual.

These are many variations of these diagrams as well as completely special applications which cannot all be covered in

this manual. For these special applications, separate wiring diagrams are furnished with the hoist.

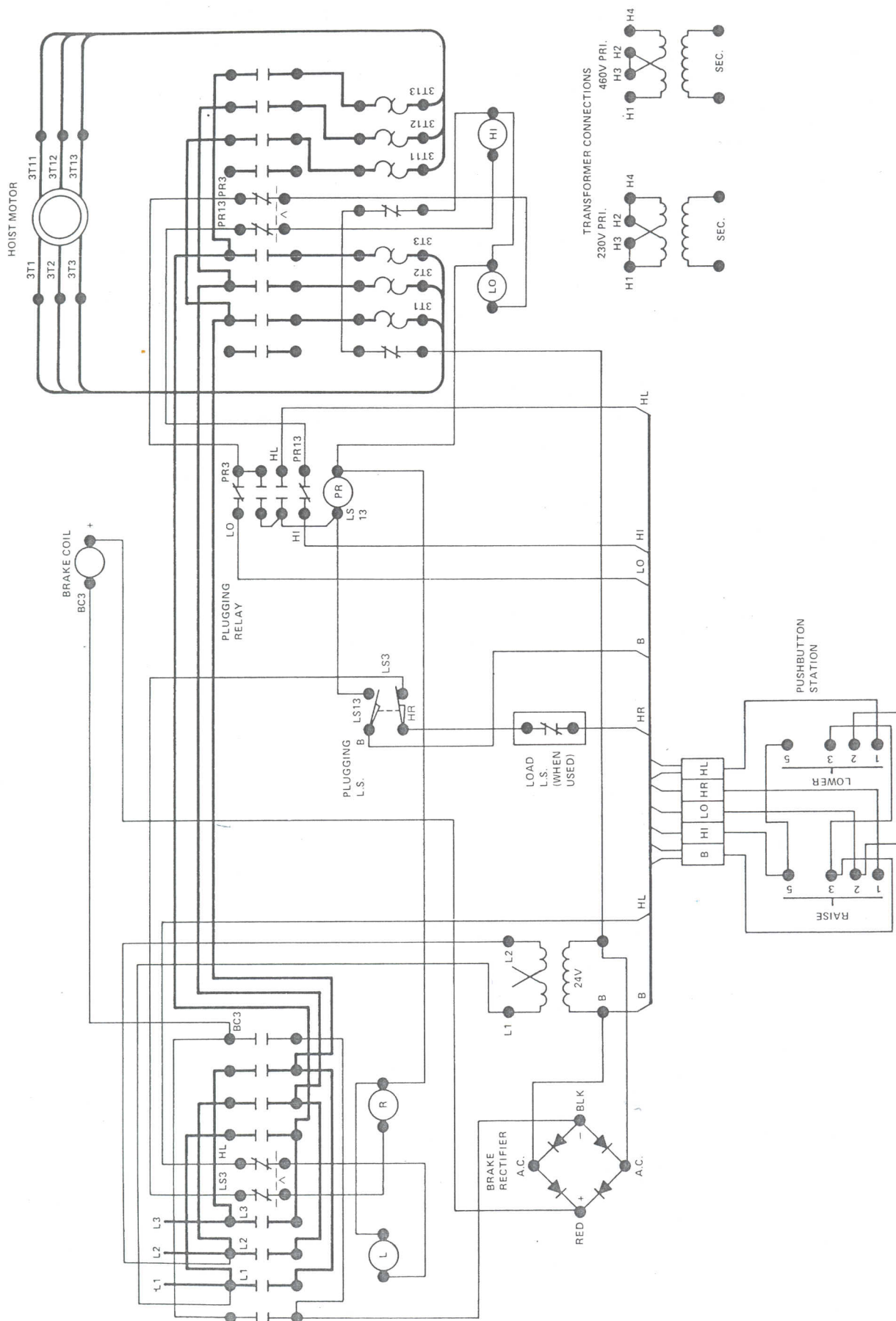
In all cases, the proper wiring diagram for the hoist is secured to the inside of the control cabinet cover, except when the control is not furnished by Harnischfeger Corporation.



\* Required only for 100 volt brake coils.

1425

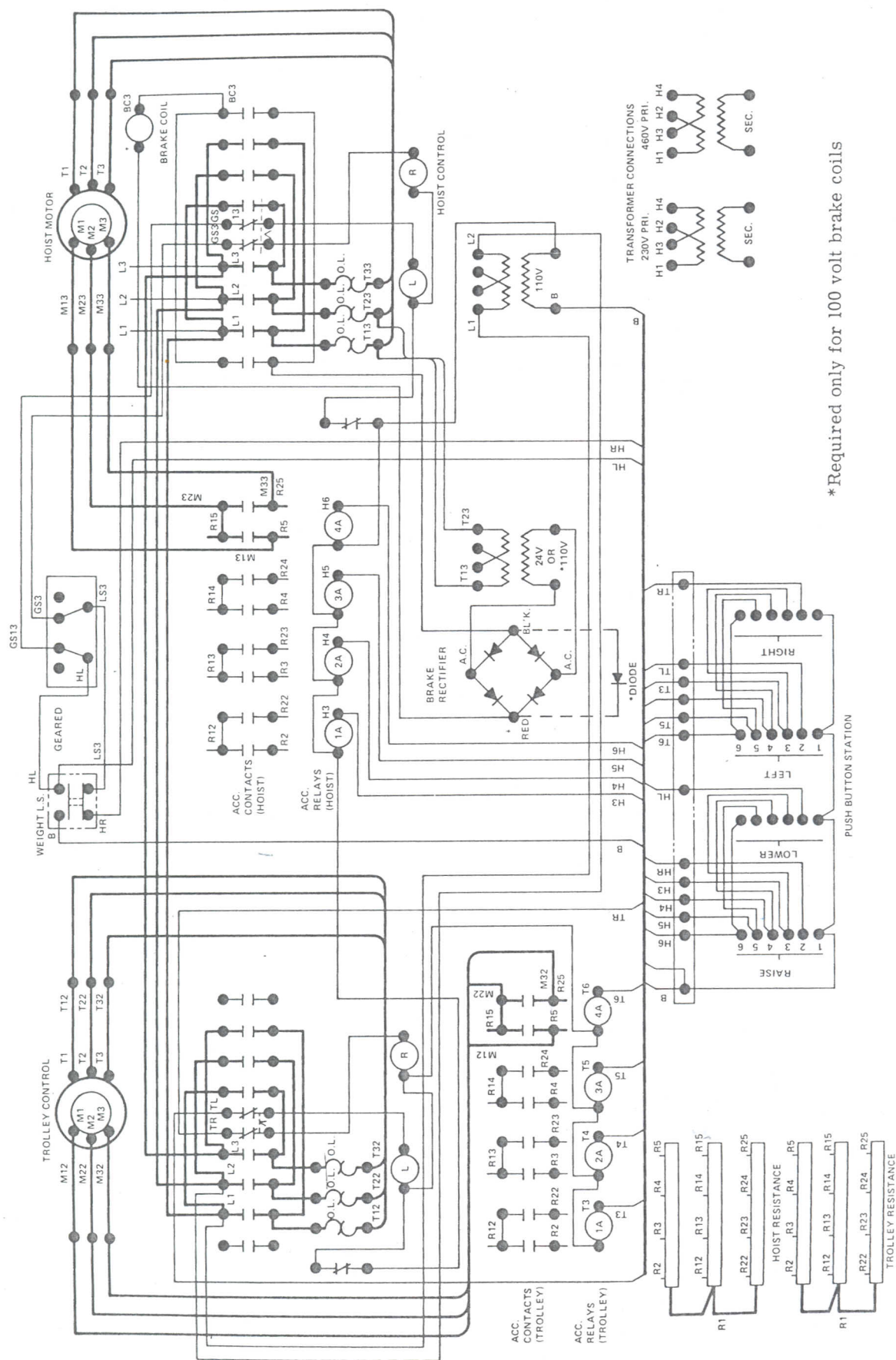
Figure 7-1. A.C. Wiring Diagram, Three Phase 230/460 Volts, 110 Volt Controls, Single Speed Hoist and Trolley Motors, 18 Volt or 100 Volt Brake Coil



1426

Figure 7-2. A.C. Wiring Diagram, Three Phase 230/460 Volts, 24 Volt Controls, Two Speed Hoist Motor, 18 Volt Brake Coil





1427

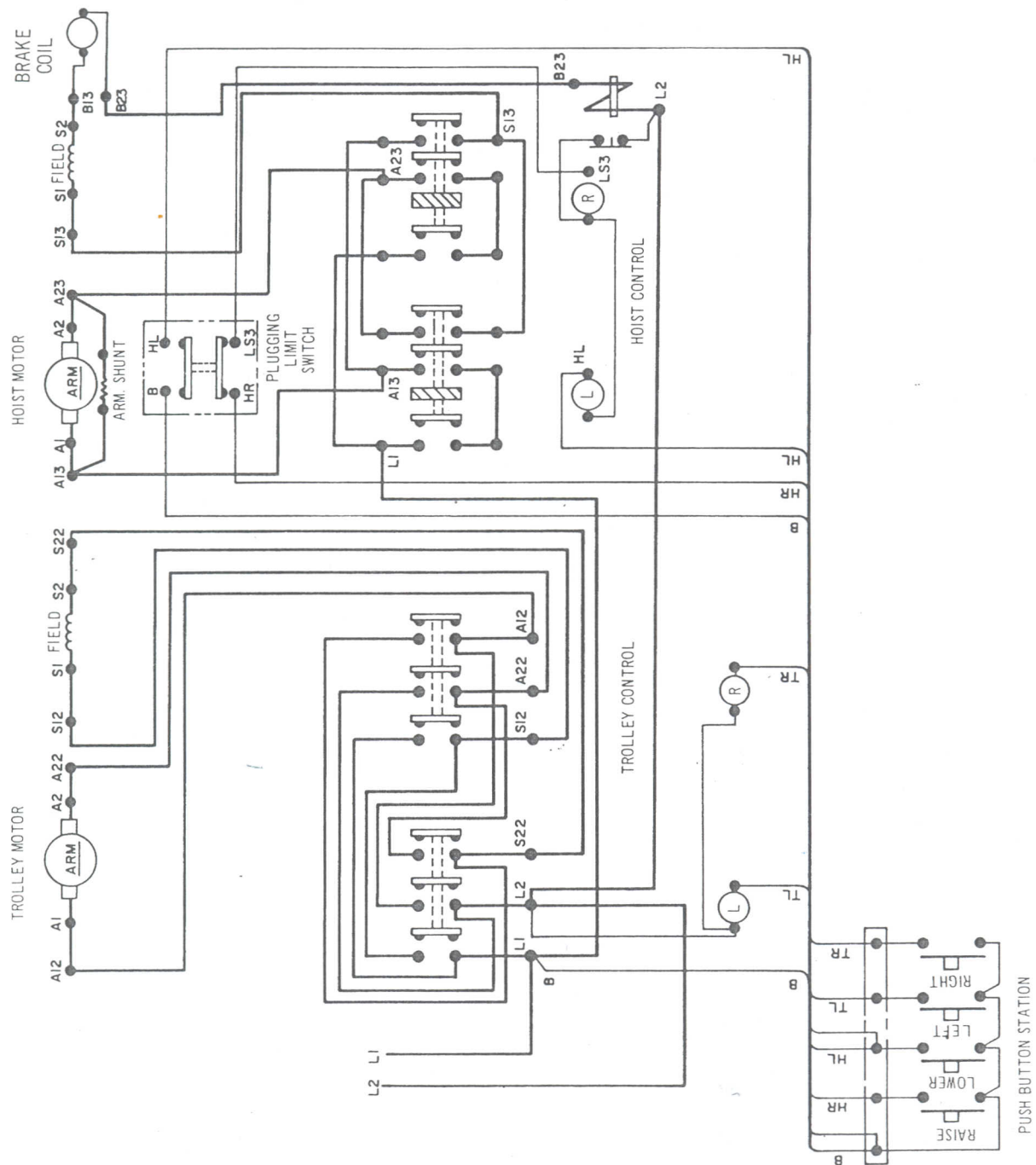


Figure 7-4. D.C. Wiring Diagram, Single Speed Hoist and Trolley Motors

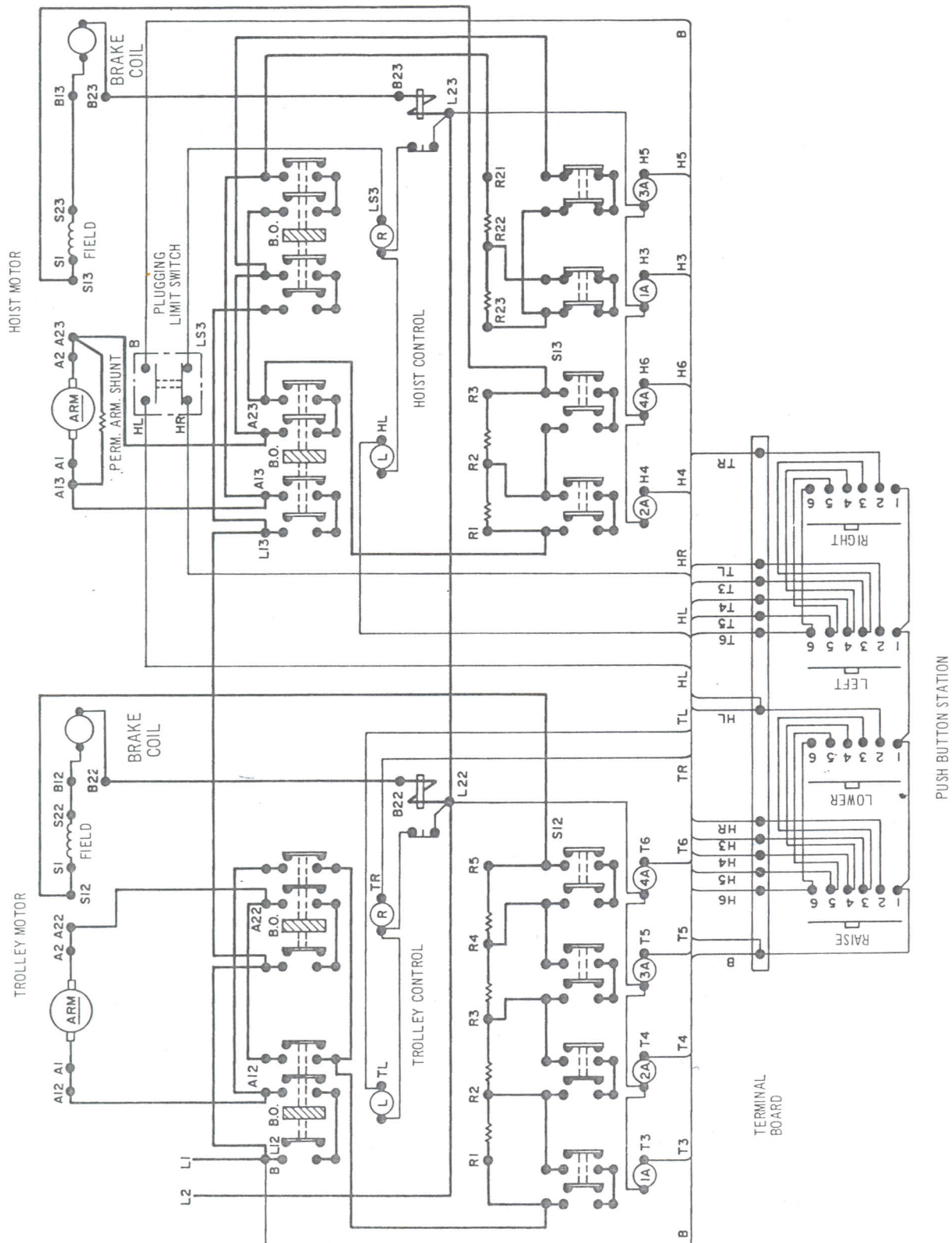


Figure 7-5. D.C. Wiring Diagram, Variable Speed Hoist and Trolley Motors