

3KW TQG DC & AC Electrical System

Terminal Learning Objective

ACTION: Perform Diagnostic Procedures on the Electrical Control System of a Generator Set

CONDITONS: In a contemporary operational environment, given a 3 KW TQG Generator Set, general mechanic's tool kit, multimeter, schematic and wiring diagram, color/grease pencils, and TM 9-6115-639-13.

STANDARD: Determine the cause of the generator engine electrical circuitry malfunction IAW applicable references, correctly and safely complete the practical exercise and score a 70 percent or better on the End of Module Test

Safety Requirements:

Safety considerations required for this lesson are the removal of all jewelry and ID tags. Mechanical moving parts are hazards, electrical components, hot exhaust components, eye and hearing protection.

Risk Assessment Level:

Low

Environmental Considerations:

It is the responsibility of all soldiers to protect the environment from damage. Generators have fuel, oil and anti-freeze hazards.

Evaluation:

This lesson will be evaluated by an end of Module Job Knowledge Test and a Job Performance Test.

Characteristics

- Two Models: 60Hz (MEP 831A) and 400Hz (MEP 832A)
- Skid mounted with forklift provisions
- Six lifting handles, four tie-down rings
- Hinged enclosure allows quick access for preventive and scheduled maintenance
- Thermostatically controlled, two fan enclosure cooling system
- 24VDC cranking system
- Single cylinder, air cooled, direct injection, four-stroke cycle diesel engine
- Permanent magnet AC generator with power inverter / converter

Characteristics

- Four-gallon fuel tank (allowing 8 hours of continuous operation at full load)
- 3000 to 3450 RPM operating speed
- 3.0 kilowatt, 1 phase, 2 wire, 120VAC or 1 phase, 3 wire, 120/240VAC
- Rated engine horsepower of 6.7 HP at 3600 RPM
- Equipped with a 24VDC NATO slave receptacle
- Equipped with a two-plug 120VAC convenience receptacle with Ground Fault Circuit Interrupter (GFCI) for the 120VAC convenience receptacle (MEP 831A, 60 Hz only)

DC Electrical System

- Crank
- Fuel Transfer
- Electronic Governor
- Battery Charging
- AC Circuit Interrupter
- Safety

Crank Circuit

- Batteries
- S1
- CB1
- L4
- B1
- K2
- CR1

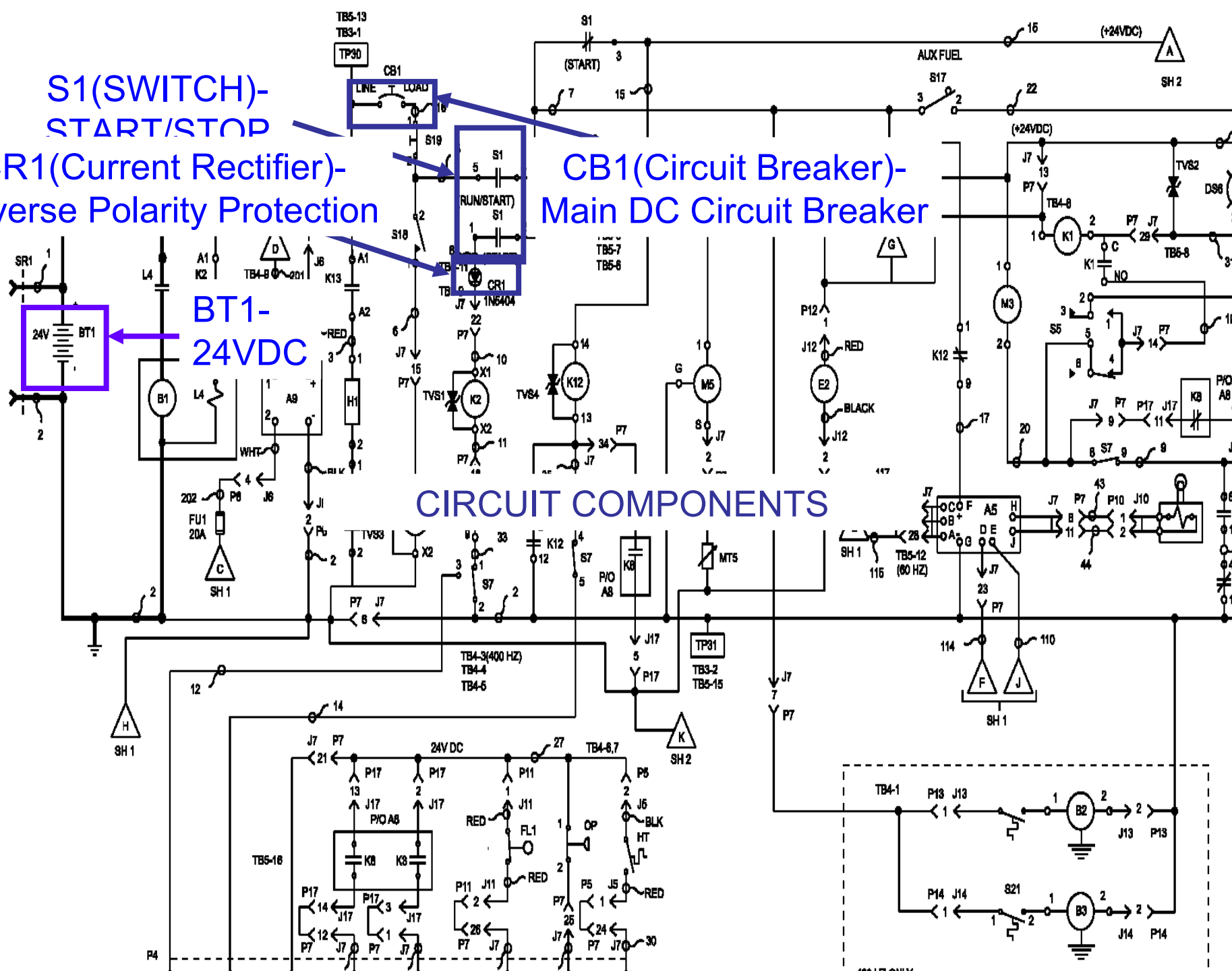
S1(SWITCH)-
START/STOP

CR1(Current Rectifier)-
Reverse Polarity Protection

CB1(Circuit Breaker)-
Main DC Circuit Breaker

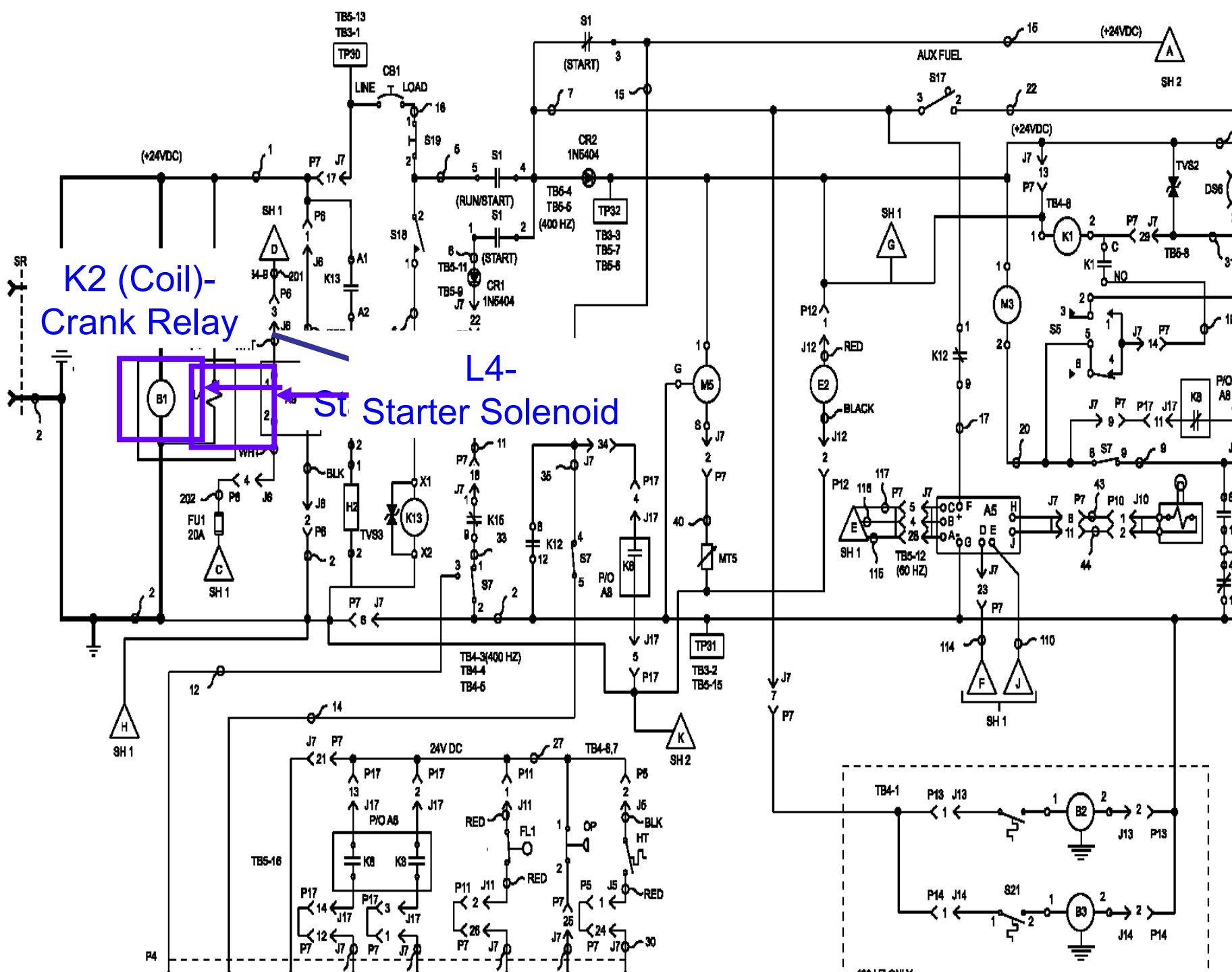
BT1-
24VDC

CIRCUIT COMPONENTS

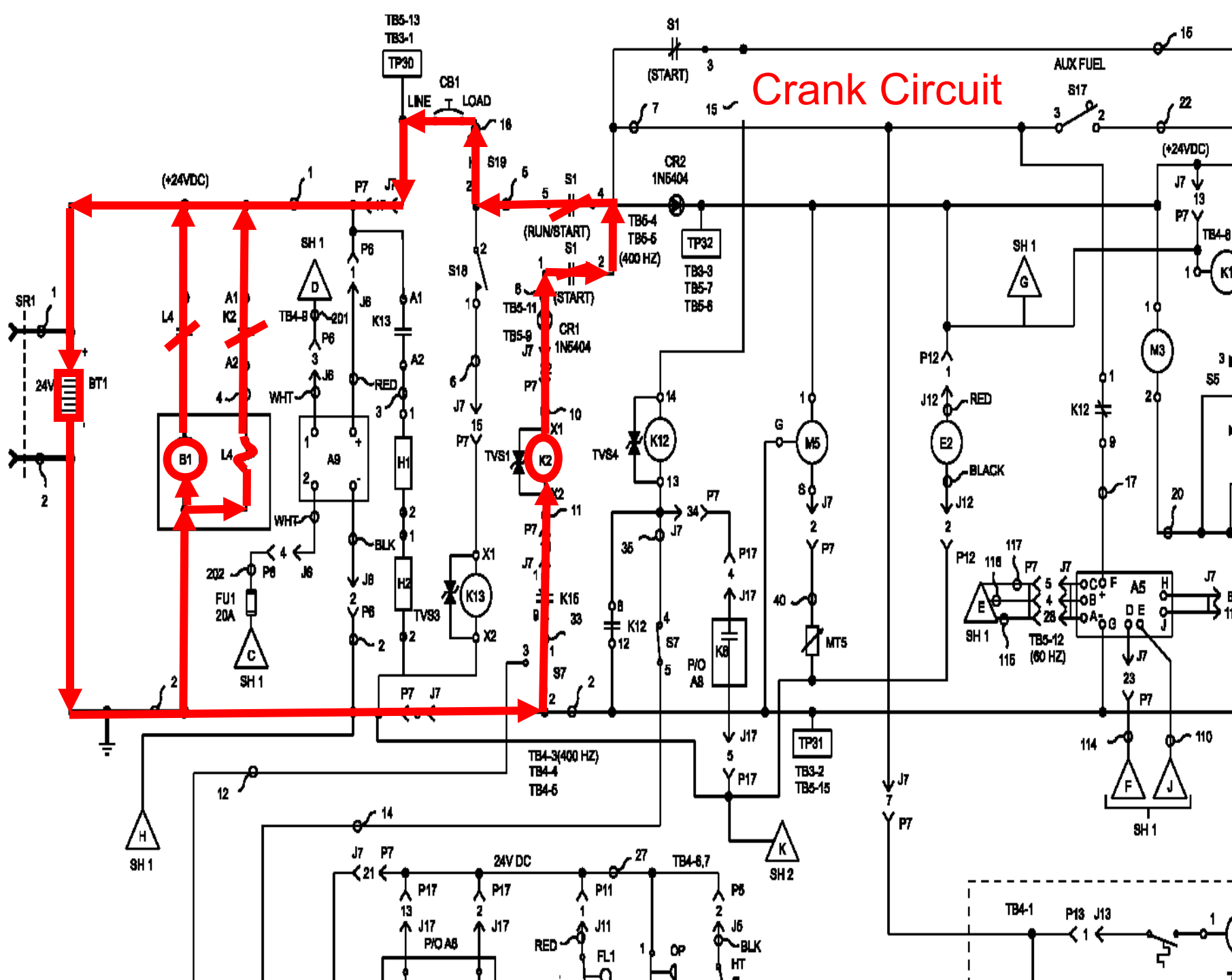


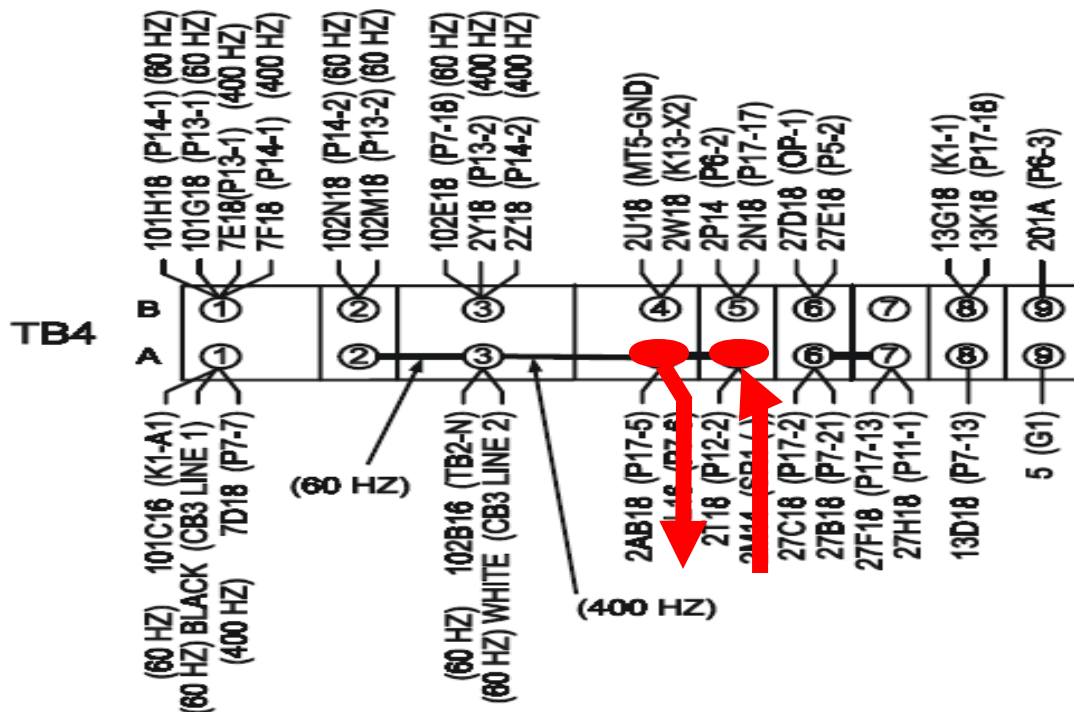
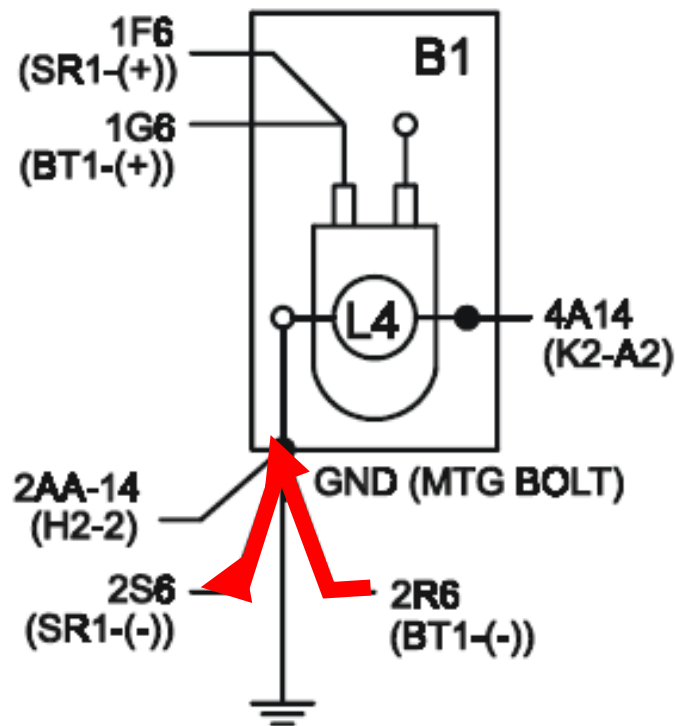
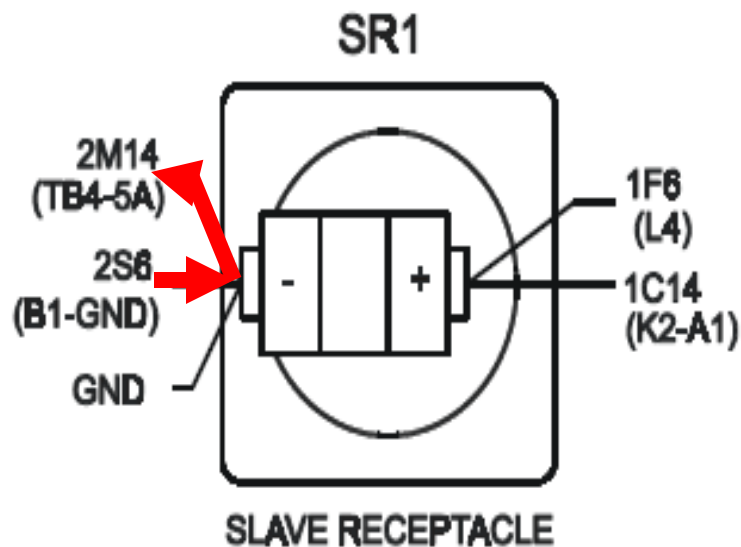
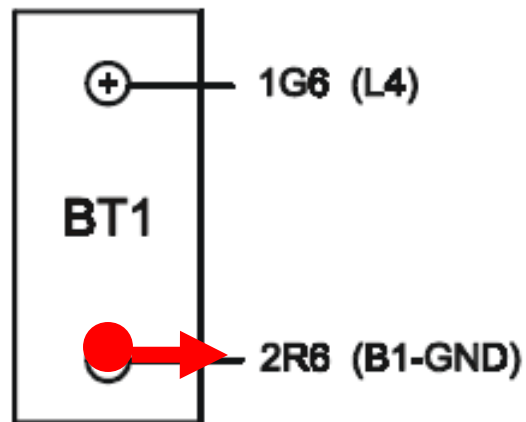
K2 (Coil)-
Crank Relay

L4-
St Starter Solenoid



Crank Circuit





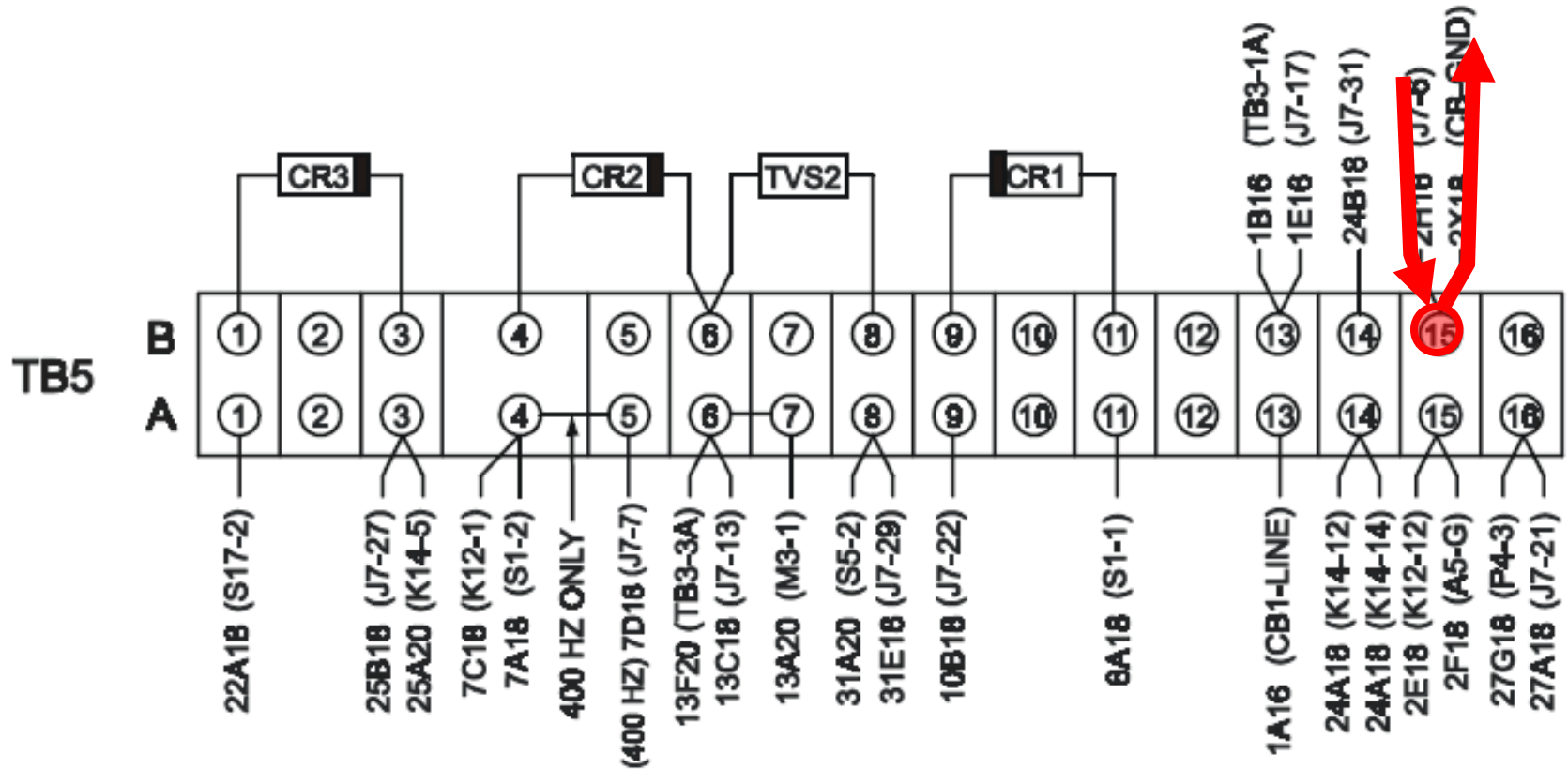
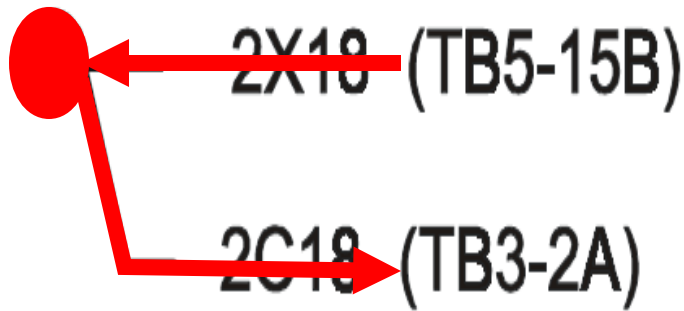
J7

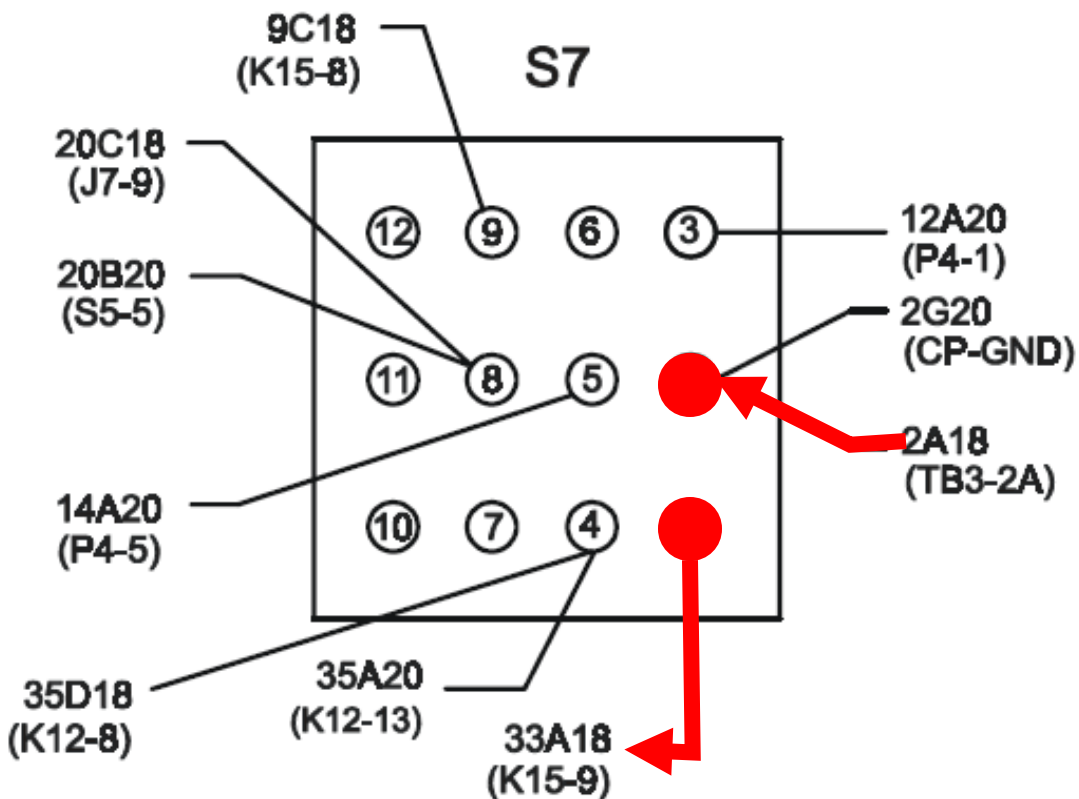
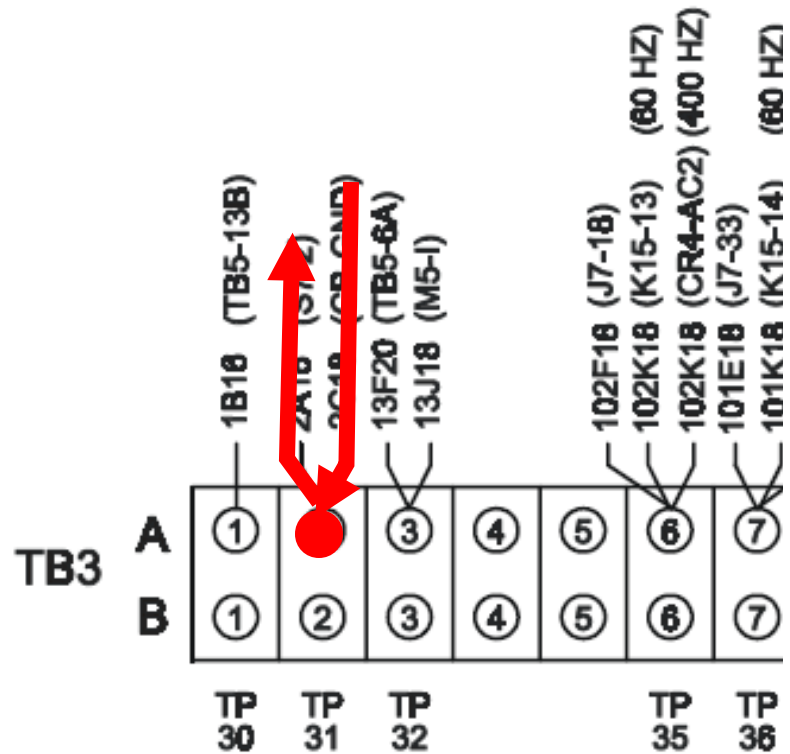
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40B18 (M5-S)	→	(J7-2)
120A18 (M1-2)	→	(J7-3)
116A18 (A5-B)	→	(J7-4)
117A18 (A5-C)	→	(J7-5)
2H18 (TB5-15B)	←	(J7-8)
(60 HZ) SPARE	→	(J7-7)
(400 HZ) 7D18 (TB5-5A)	→	(J7-7)
43A18 (A5-H)	→	(J7-8)
20C18 (S7-8)	→	(J7-9)
9B18 (K15-8)	→	(J7-10)
44A18 (A5-J)	→	(J7-11)
34B18 (P4-2)	→	(J7-12)
13C18 (TB5-8A)	→	(J7-13)
19B18 (S5-4)	→	(J7-14)
6A18 (S18-1)	→	(J7-15)
11A18 (K15-1)	→	(J7-16)
1E18 (TB5-13B)	→	(J7-17)
102F18 (TB3-8A)	→	(J7-18)
109A18 (R1-3)	→	(J7-19)
110A18 (A5-E)	→	(J7-20)
27A18 (TB5-16A)	→	(J7-21)
10B18 (TB5-9A)	→	(J7-22)
114A18 (A5-D)	→	(J7-23)
30A18 (P4-8)	→	(J7-24)
29A18 (P4-8)	→	(J7-25)
28A18 (P4-10)	→	(J7-26)
25B18 (TB5-3A)	→	(J7-27)
115A18 (A5-A)	→	(J7-28)
31E18 (TB5-8A)	→	(J7-29)
23A18 (K14-8)	→	(J7-30)
24B18 (TB5-14B)	→	(J7-31)
26A18 (K14-8)	→	(J7-32)
101E18 (TB3-7A)	→	(J7-33)
35B18 (K12-8)	→	(J7-34)
SPARE	→	(J7-35)
122B18 (M2-(+))	→	(J7-36)
121B18 (M2-(-))	→	(J7-37)

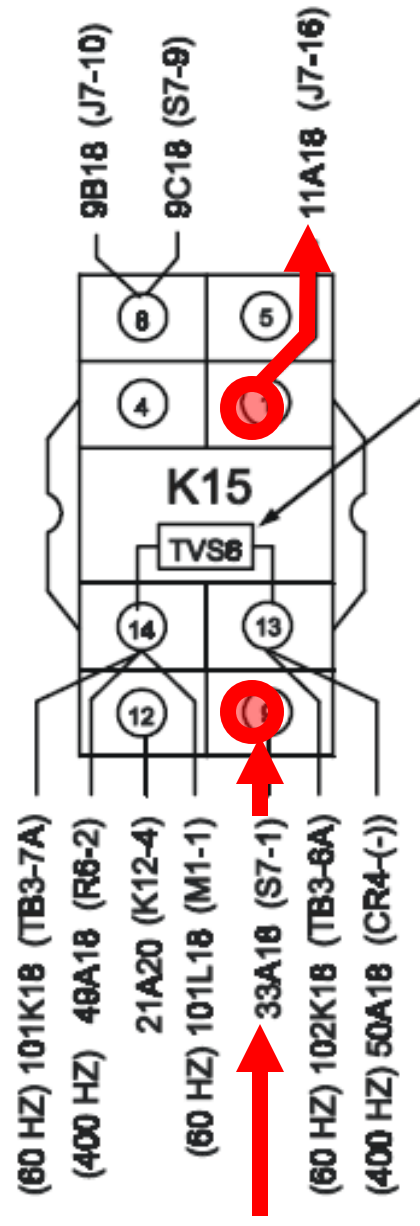
P7

32B18 (P17-3)	→	(P7-1)
40A18 (MT5-S)	→	(P7-2)
120B18 (P17-20)	→	(P7-3)
116B18 (TB6-2A)	→	(P7-4)
117B18 (TB6-3A)	→	(P7-5)
2L18 (TB4-4A)	→	(P7-8)
(60 HZ) SPARE	→	(P7-7)
(400 HZ) 7D18 (TB4-1A)	→	(P7-7)
43B18 (P10-1)	→	(P7-8)
20D18 (P17-11)	→	(P7-9)
9A18 (P17-12)	→	(P7-10)
44B18 (P10-2)	→	(P7-11)
34A18 (P17-14)	→	(P7-12)
13D18 (TB4-8A)	→	(P7-13)
19A18 (K1-NO 4)	→	(P7-14)
6B18 (K13-X1)	→	(P7-15)
11B18 (K2-X2)	→	(P7-16)
1D18 (K13-A1)	→	(P7-17)
(60 HZ) 102E18 (TB4-3B)	→	(P7-18)
(400 HZ) 102B18 (TB2-N)	→	(P7-18)
109B18 (P17-19)	→	(P7-19)
110B18 (P17-8)	→	(P7-20)
27B18 (TB4-6A)	→	(P7-21)
10A18 (K2-X1)	→	(P7-22)
114B18 (P17-1)	→	(P7-23)
30B18 (P5-1)	→	(P7-24)
29B18 (OP-2)	→	(P7-25)
28B18 (P11-2)	→	(P7-26)
25C18 (P8-2)	→	(P7-27)
115B18 (TB6-1A)	→	(P7-28)
31B18 (K1-2)	→	(P7-29)
23B18 (P8-1)	→	(P7-30)
24C18 (P8-3)	→	(P7-31)
26B18 (P9-1)	→	(P7-32)
101D18 (K1-A1)	→	(P7-33)
35C18 (P17-4)	→	(P7-34)
SPARE	→	(P7-35)
122A18 (P17-16)	→	(P7-36)
121A18 (P17-15)	→	(P7-37)

CB-GND







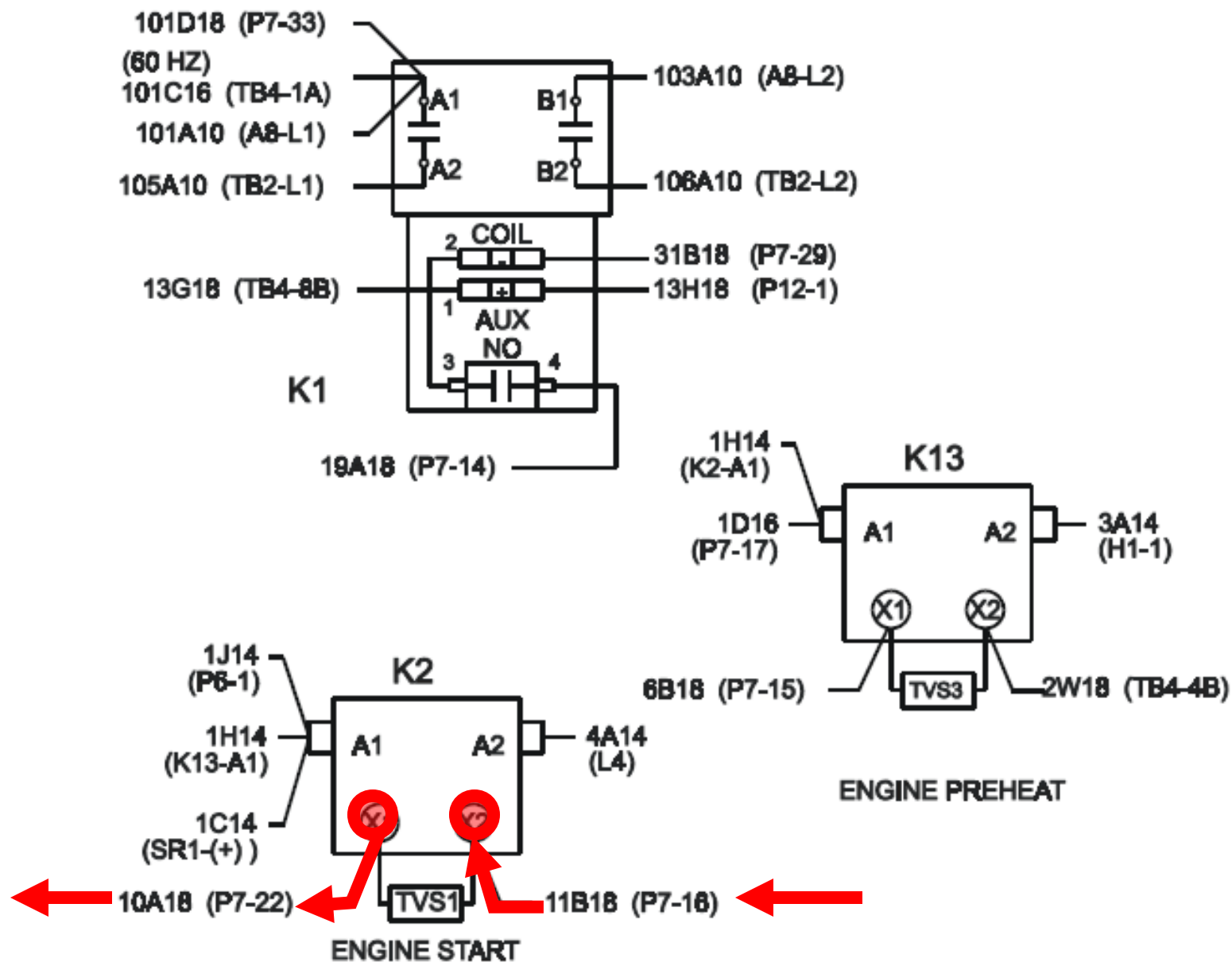
J7

32A18 (P4-4)	→	(J7-1)
40B18 (M5-S)	→	(J7-2)
120A18 (M1-2)	→	(J7-3)
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11A18 (K15-1)	→	(J7-16)
1E18 (TB5-13B)	→	(J7-17)
102F18 (TB3-6A)	→	(J7-18)
109A18 (R1-3)	→	(J7-19)
110A18 (A5-E)	→	(J7-20)
27A18 (TB5-16A)	→	(J7-21)
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114A18 (A5-D)	→	(J7-23)
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29A18 (P4-9)	→	(J7-25)
28A18 (P4-10)	→	(J7-26)
25B18 (TB5-3A)	→	(J7-27)
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31E18 (TB5-8A)	→	(J7-29)
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24B18 (TB5-14B)	→	(J7-31)
26A18 (K14-9)	→	(J7-32)
101E18 (TB3-7A)	→	(J7-33)
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SPARE	→	(J7-35)
122B18 (M2-(+))	→	(J7-36)
121B18 (M2-(-))	→	(J7-37)

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116B18 (TB6-2A)	→	(P7-4)
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2L18 (TB4-4A)	→	(P7-6)
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1D18 (K13-A1)	→	(P7-17)
(60 HZ) 102E18 (TB4-3B)	→	(P7-18)
(400 HZ) 102B18 (TB2-N)	→	(P7-18)
109B18 (P17-19)	→	(P7-19)
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115B18 (TB6-1A)	→	(P7-28)
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23B18 (P8-1)	→	(P7-30)
24C18 (P8-3)	→	(P7-31)
26B18 (P9-1)	→	(P7-32)
101D18 (K1-A1)	→	(P7-33)
35C18 (P17-4)	→	(P7-34)
SPARE	→	(P7-35)
122A18 (P17-16)	→	(P7-36)
121A18 (P17-15)	→	(P7-37)

AC CIRCUIT INTERRUPTER



J7

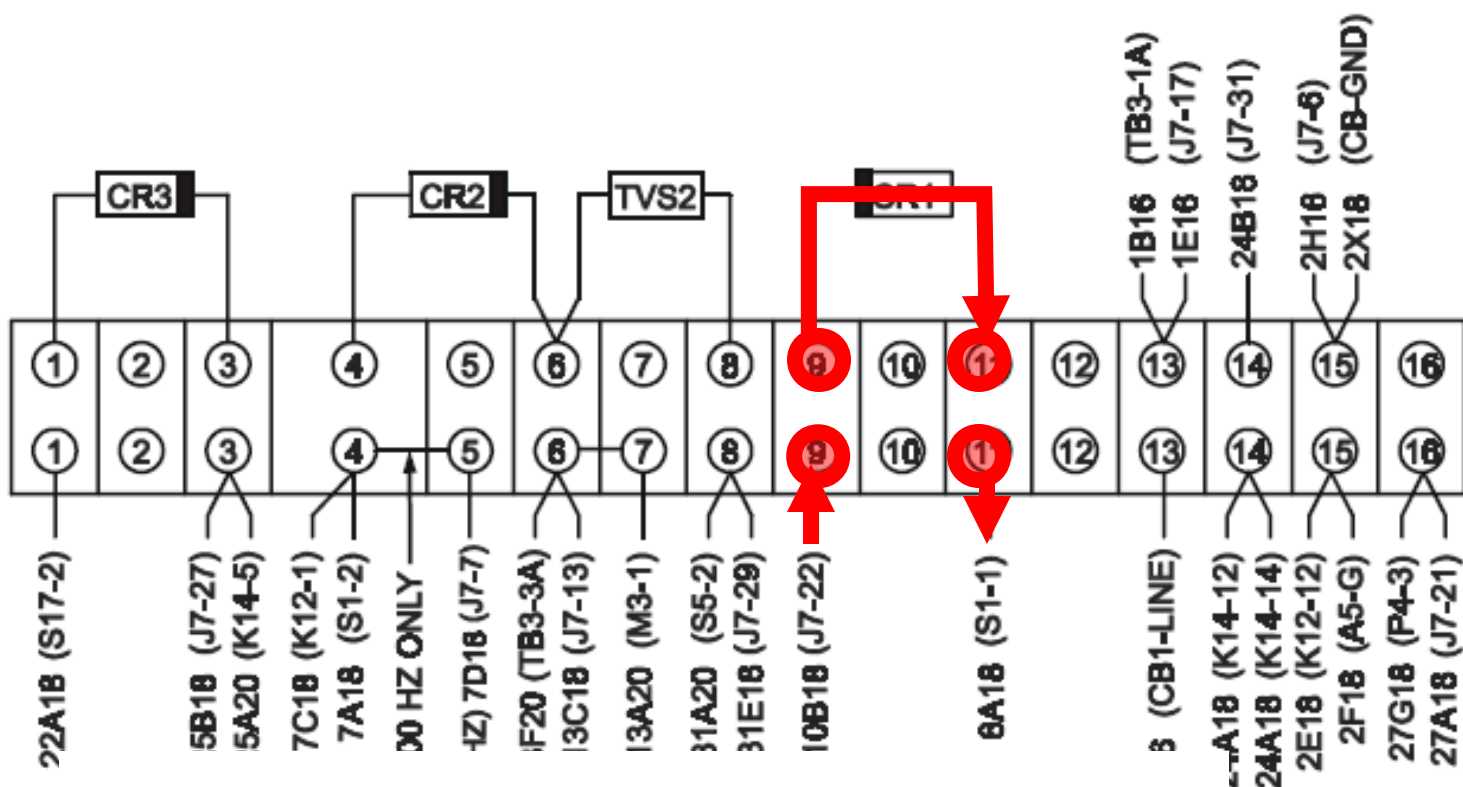
32A18 (P4-4)	→	(J7-1)
40B18 (M5-S)	→	(J7-2)
120A18 (M1-2)	→	(J7-3)
116A18 (A5-B)	→	(J7-4)
117A18 (A5-C)	→	(J7-5)
2H18 (TB5-15B)	→	(J7-6)
(60 HZ) SPARE	→	(J7-7)
(400 HZ) 7D18 (TB5-5A)	→	(J7-7)
43A18 (A5-H)	→	(J7-8)
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44A18 (A5-J)	→	(J7-11)
34B18 (P4-2)	→	(J7-12)
13C18 (TB5-6A)	→	(J7-13)
19B18 (S5-4)	→	(J7-14)
6A18 (S18-1)	→	(J7-15)
11A18 (K15-1)	→	(J7-16)
1E18 (TB5-13B)	→	(J7-17)
102F18 (TB3-6A)	→	(J7-18)
109A18 (R1-3)	→	(J7-19)
110A18 (A5-E)	→	(J7-20)
27A18 (TB5-16A)	→	(J7-21)
10B18 (TB5-9A)	→	(J7-22)
114A18 (A5-D)	→	(J7-23)
30A18 (P4-8)	→	(J7-24)
29A18 (P4-9)	→	(J7-25)
28A18 (P4-10)	→	(J7-26)
25B18 (TB5-3A)	→	(J7-27)
115A18 (A5-A)	→	(J7-28)
31E18 (TB5-8A)	→	(J7-29)
23A18 (K14-8)	→	(J7-30)
24B18 (TB5-14B)	→	(J7-31)
26A18 (K14-9)	→	(J7-32)
101E18 (TB3-7A)	→	(J7-33)
35B18 (K12-8)	→	(J7-34)
SPARE	→	(J7-35)
122B18 (M2-(+))	→	(J7-36)
121B18 (M2-(-))	→	(J7-37)

P7

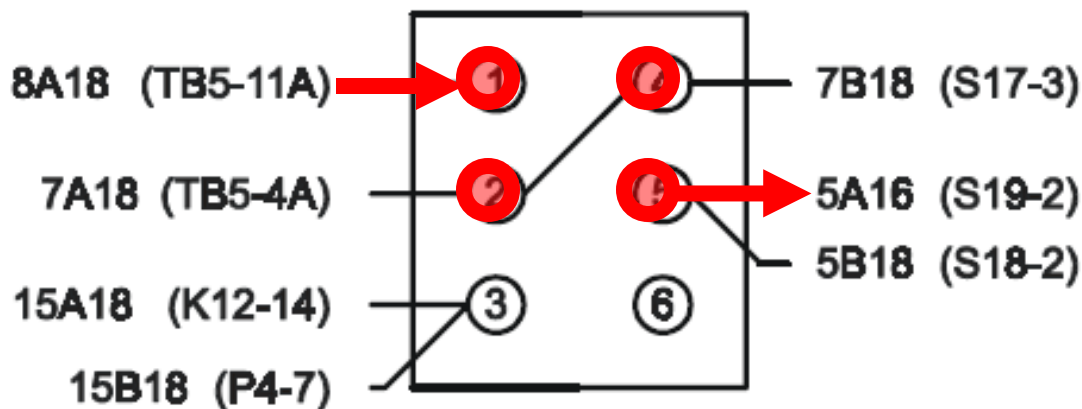
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40A18 (MT5-S)	→	(P7-2)
120B18 (P17-20)	→	(P7-3)
116B18 (TB6-2A)	→	(P7-4)
117B18 (TB6-3A)	→	(P7-5)
2L18 (TB4-4A)	→	(P7-6)
(60 HZ) SPARE	→	(P7-7)
(400 HZ) 7D18 (TB4-1A)	→	(P7-7)
43B18 (P10-1)	→	(P7-8)
20D18 (P17-11)	→	(P7-9)
9A18 (P17-12)	→	(P7-10)
44B18 (P10-2)	→	(P7-11)
34A18 (P17-14)	→	(P7-12)
13D18 (TB4-8A)	→	(P7-13)
19A18 (K1-NO 4)	→	(P7-14)
6B18 (K13-X1)	→	(P7-15)
11B18 (K2-X2)	→	(P7-16)
1D18 (K13-A1)	→	(P7-17)
(60 HZ) 102E18 (TB4-3B)	→	(P7-18)
(400 HZ) 102B18 (TB2-N)	→	(P7-18)
109B18 (P17-19)	→	(P7-19)
110B18 (P17-8)	→	(P7-20)
27B18 (TB4-6A)	→	(P7-21)
10A18 (K2-X1)	→	(P7-22)
114B18 (P17-1)	→	(P7-23)
30B18 (P5-1)	→	(P7-24)
29B18 (OP-2)	→	(P7-25)
28B18 (P11-2)	→	(P7-26)
25C18 (P8-2)	→	(P7-27)
115B18 (TB6-1A)	→	(P7-28)
31B18 (K1-2)	→	(P7-29)
23B18 (P8-1)	→	(P7-30)
24C18 (P8-3)	→	(P7-31)
26B18 (P9-1)	→	(P7-32)
101D18 (K1-A1)	→	(P7-33)
35C18 (P17-4)	→	(P7-34)
SPARE	→	(P7-35)
122A18 (P17-16)	→	(P7-36)
121A18 (P17-15)	→	(P7-37)

TB5

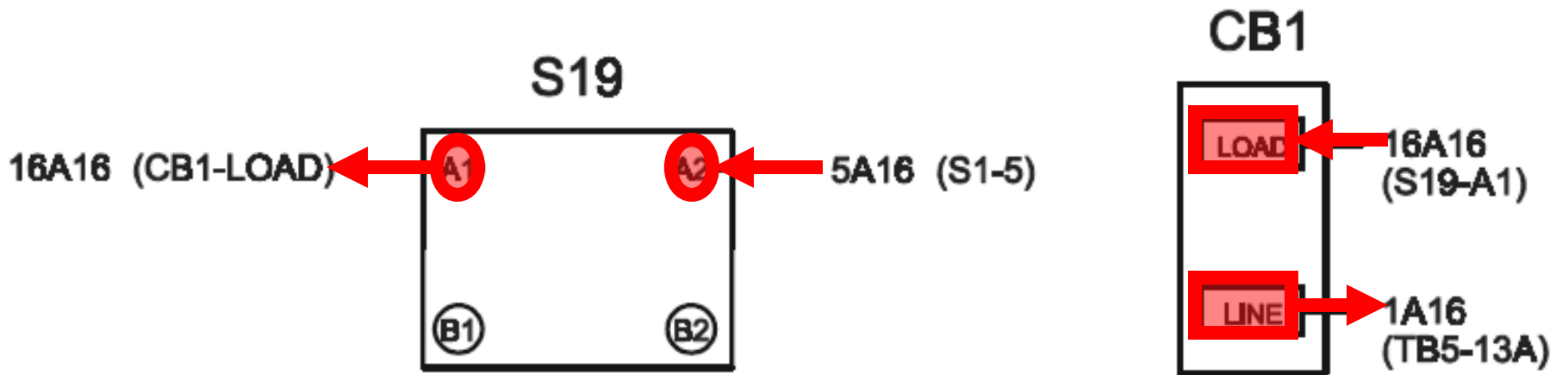
B
A



S1

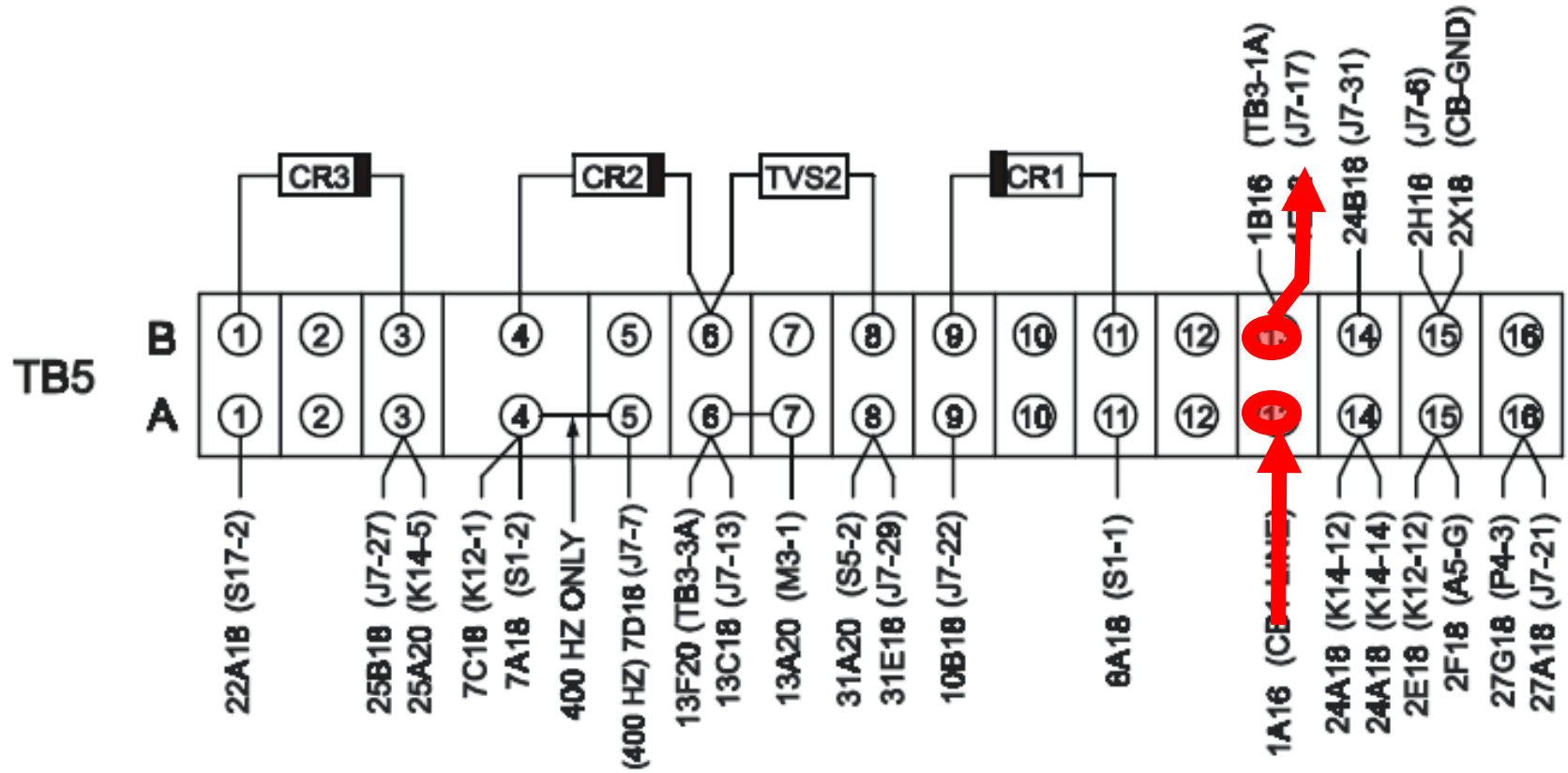


START STOP



EMERGENCY STOP

DC CONTROL



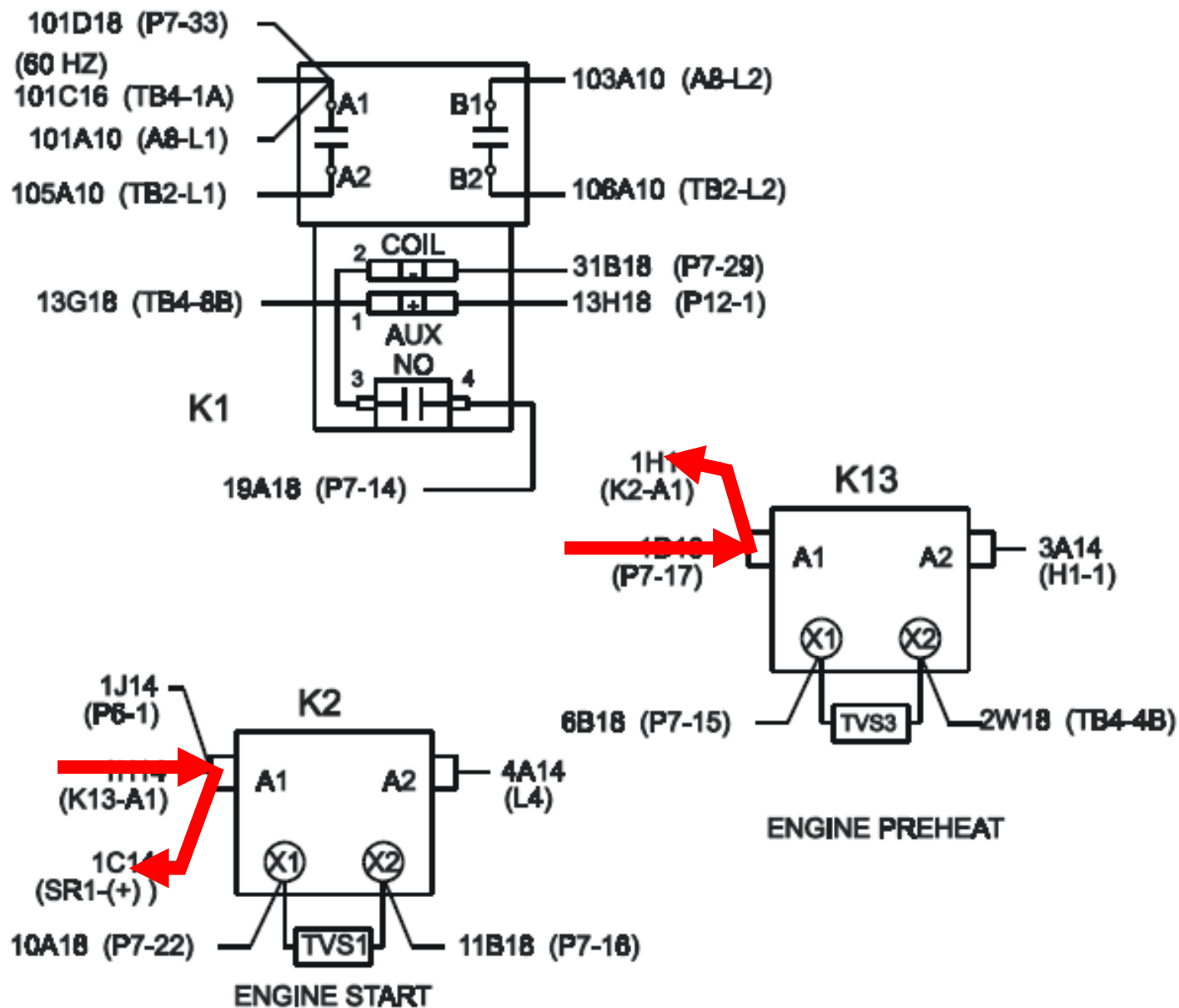
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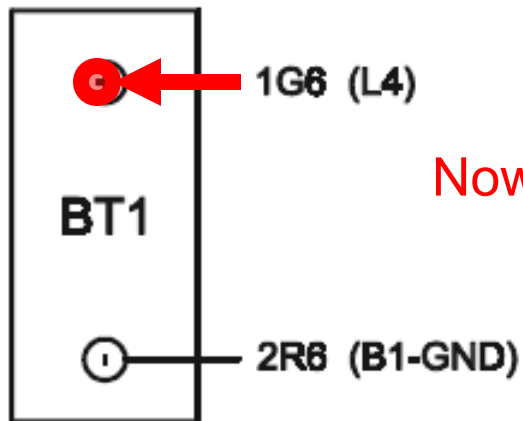
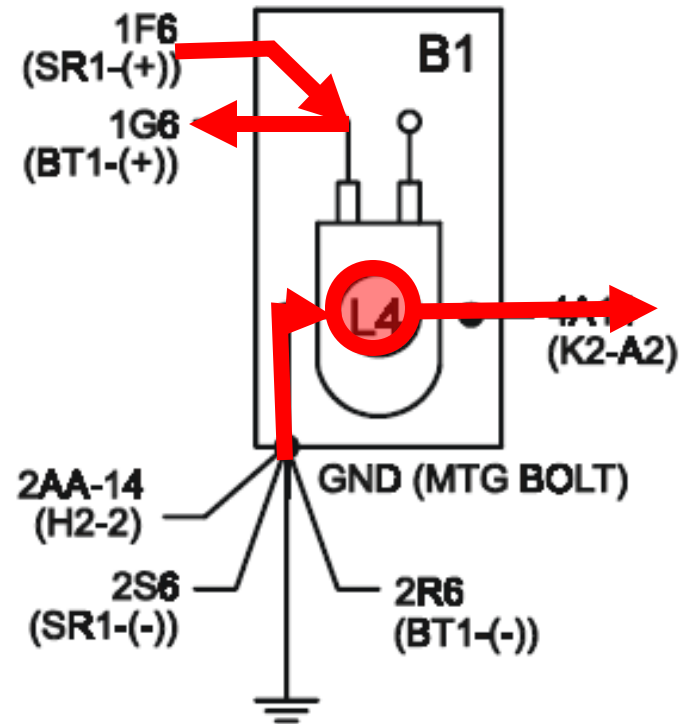
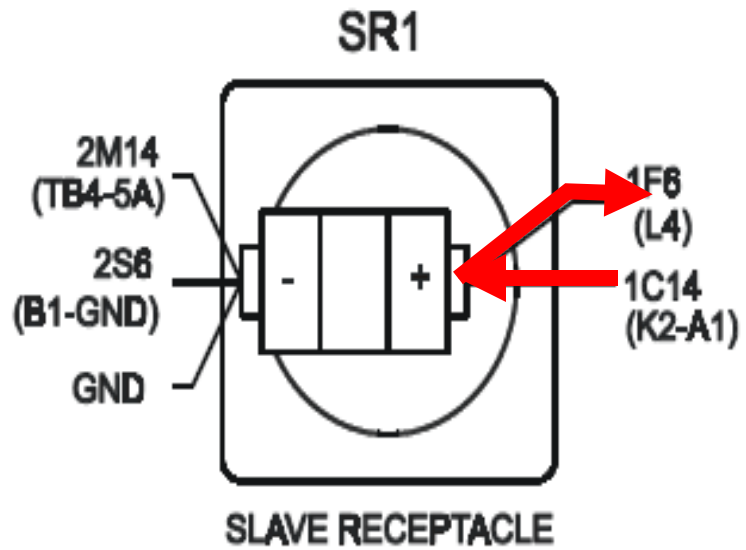
32A18 (P4-4)	→	(J7-1)
40B18 (M5-S)	→	(J7-2)
120A18 (M1-2)	→	(J7-3)
116A18 (A5-B)	→	(J7-4)
117A18 (A5-C)	→	(J7-5)
2H18 (TB5-15B)	→	(J7-6)
(60 HZ) SPARE	→	(J7-7)
(400 HZ) 7D18 (TB5-5A)	→	(J7-7)
43A18 (A5-H)	→	(J7-8)
20C18 (S7-8)	→	(J7-9)
9B18 (K15-8)	→	(J7-10)
44A18 (A5-J)	→	(J7-11)
34B18 (P4-2)	→	(J7-12)
13C18 (TB5-6A)	→	(J7-13)
19B18 (S5-4)	→	(J7-14)
6A18 (S18-1)	→	(J7-15)
11A18 (K15-1)	→	(J7-16)
1E18 (TB5-13B)	→	(J7-17)
102F18 (TB3-6A)	→	(J7-18)
109A18 (R1-3)	→	(J7-19)
110A18 (A5-E)	→	(J7-20)
27A18 (TB5-16A)	→	(J7-21)
10B18 (TB5-9A)	→	(J7-22)
114A18 (A5-D)	→	(J7-23)
30A18 (P4-8)	→	(J7-24)
29A18 (P4-9)	→	(J7-25)
28A18 (P4-10)	→	(J7-26)
25B18 (TB5-3A)	→	(J7-27)
115A18 (A5-A)	→	(J7-28)
31E18 (TB5-8A)	→	(J7-29)
23A18 (K14-8)	→	(J7-30)
24B18 (TB5-14B)	→	(J7-31)
26A18 (K14-9)	→	(J7-32)
101E18 (TB3-7A)	→	(J7-33)
35B18 (K12-8)	→	(J7-34)
SPARE	→	(J7-35)
122B18 (M2-(+))	→	(J7-36)
121B18 (M2-(-))	→	(J7-37)

P7

32B18 (P17-3)	→	(P7-1)
40A18 (MT5-S)	→	(P7-2)
120B18 (P17-20)	→	(P7-3)
116B18 (TB6-2A)	→	(P7-4)
117B18 (TB6-3A)	→	(P7-5)
2L18 (TB4-4A)	→	(P7-6)
(60 HZ) SPARE	→	(P7-7)
(400 HZ) 7D18 (TB4-1A)	→	(P7-7)
43B18 (P10-1)	→	(P7-8)
20D18 (P17-11)	→	(P7-9)
9A18 (P17-12)	→	(P7-10)
44B18 (P10-2)	→	(P7-11)
34A18 (P17-14)	→	(P7-12)
13D18 (TB4-8A)	→	(P7-13)
19A18 (K1-NO 4)	→	(P7-14)
6B18 (K13-X1)	→	(P7-15)
11B18 (K2-X2)	→	(P7-16)
1D18 (K13-A1)	→	(P7-17)
(60 HZ) 102E18 (TB4-3B)	→	(P7-18)
(400 HZ) 102B18 (TB2-N)	→	(P7-18)
109B18 (P17-19)	→	(P7-19)
110B18 (P17-8)	→	(P7-20)
27B18 (TB4-6A)	→	(P7-21)
10A18 (K2-X1)	→	(P7-22)
114B18 (P17-1)	→	(P7-23)
30B18 (P5-1)	→	(P7-24)
29B18 (OP-2)	→	(P7-25)
28B18 (P11-2)	→	(P7-26)
25C18 (P8-2)	→	(P7-27)
115B18 (TB6-1A)	→	(P7-28)
31B18 (K1-2)	→	(P7-29)
23B18 (P8-1)	→	(P7-30)
24C18 (P8-3)	→	(P7-31)
26B18 (P9-1)	→	(P7-32)
101D18 (K1-A1)	→	(P7-33)
35C18 (P17-4)	→	(P7-34)
SPARE	→	(P7-35)
122A18 (P17-16)	→	(P7-36)
121A18 (P17-15)	→	(P7-37)

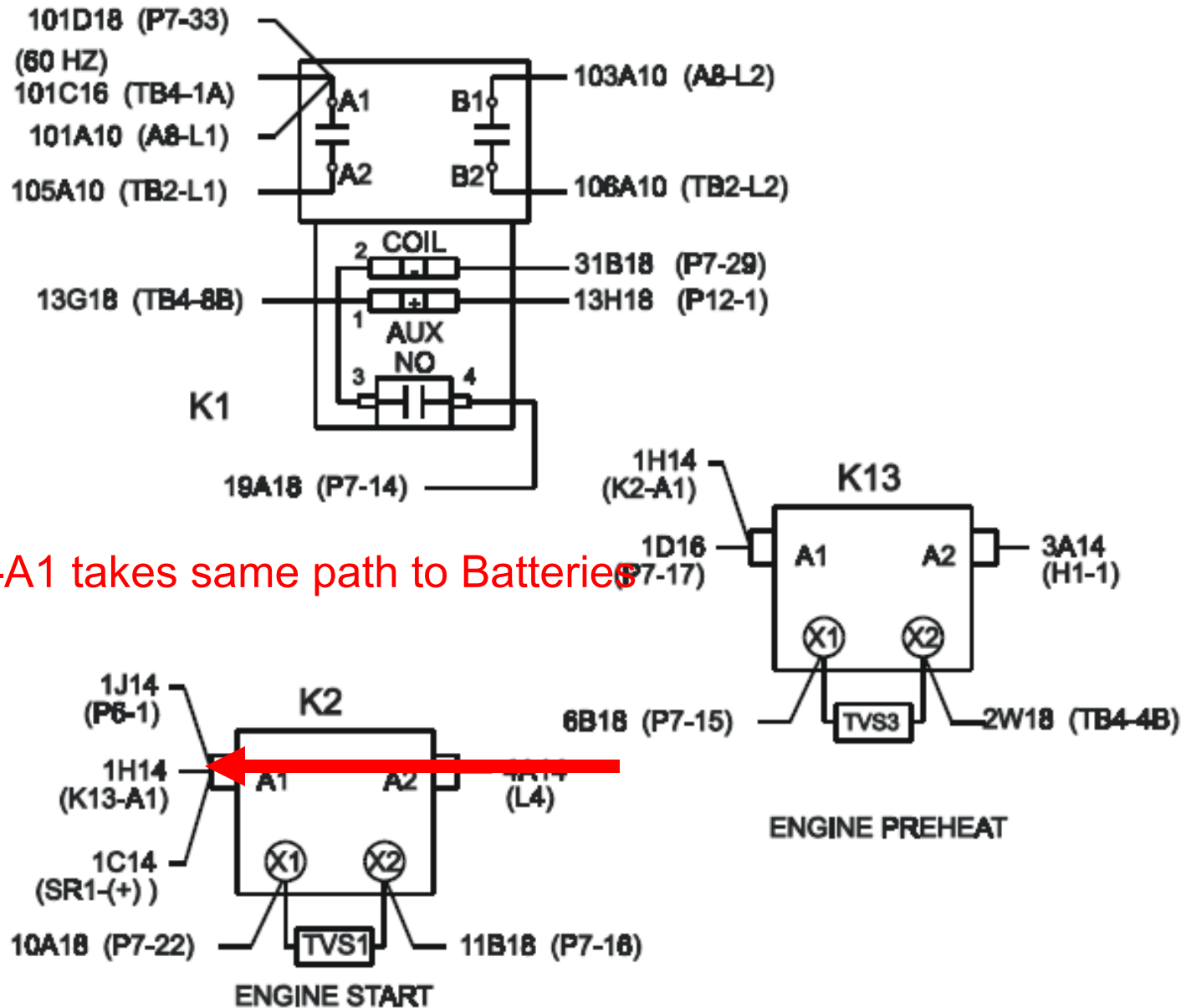
AC CIRCUIT INTERRUPTER





Now energize L4 solenoid

AC CIRCUIT INTERRUPTER

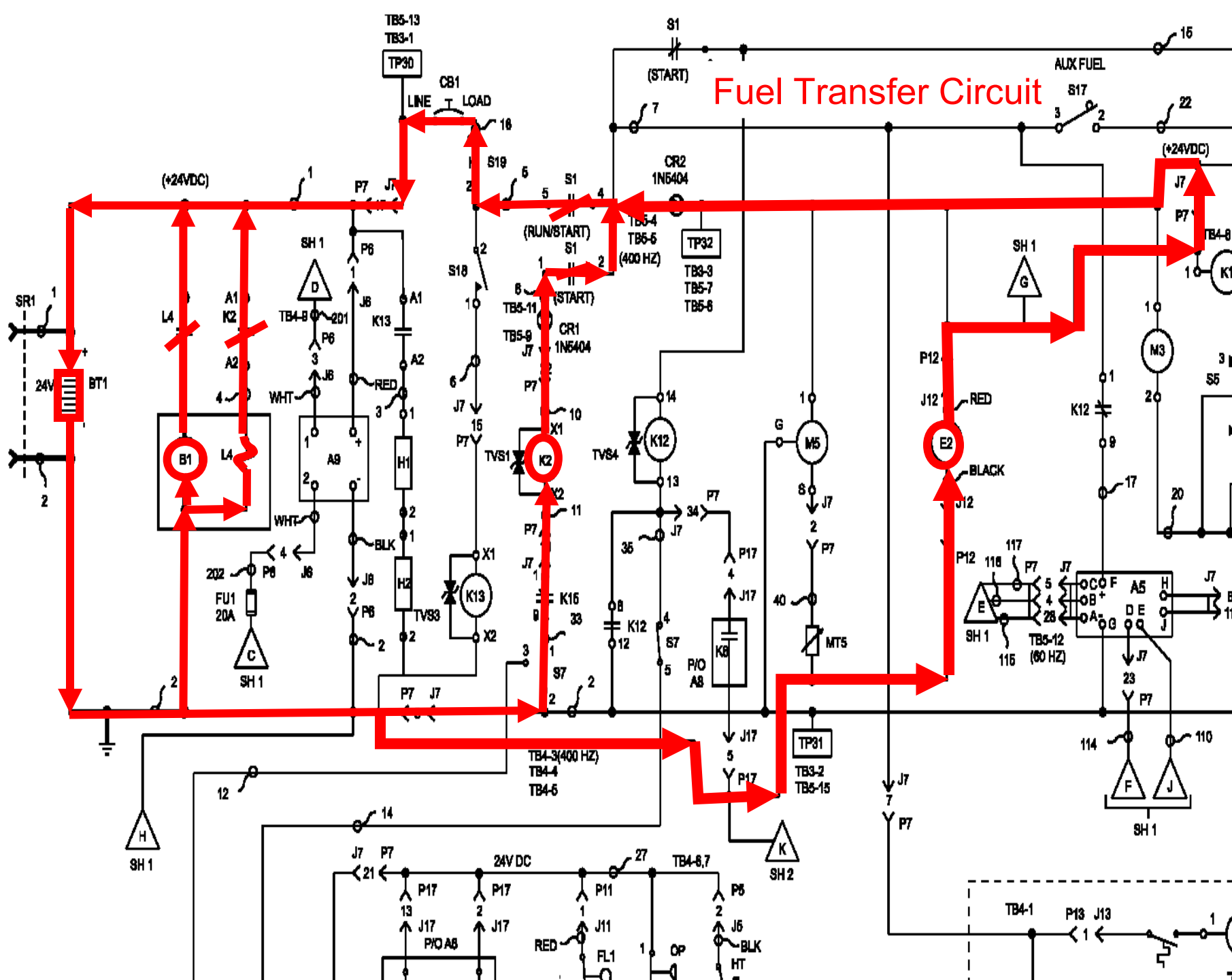


Fuel Transfer Circuit

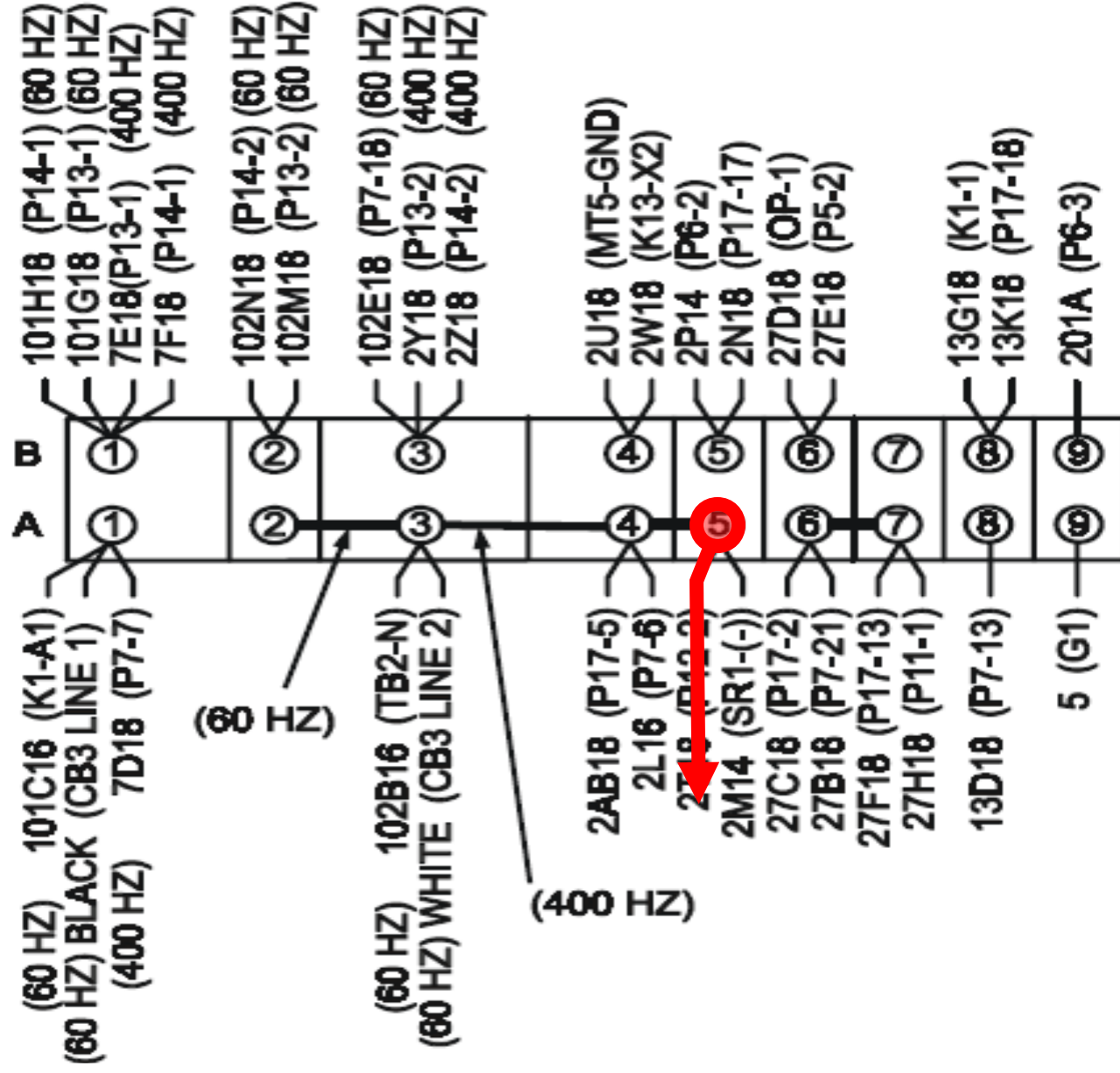
Circuit Components

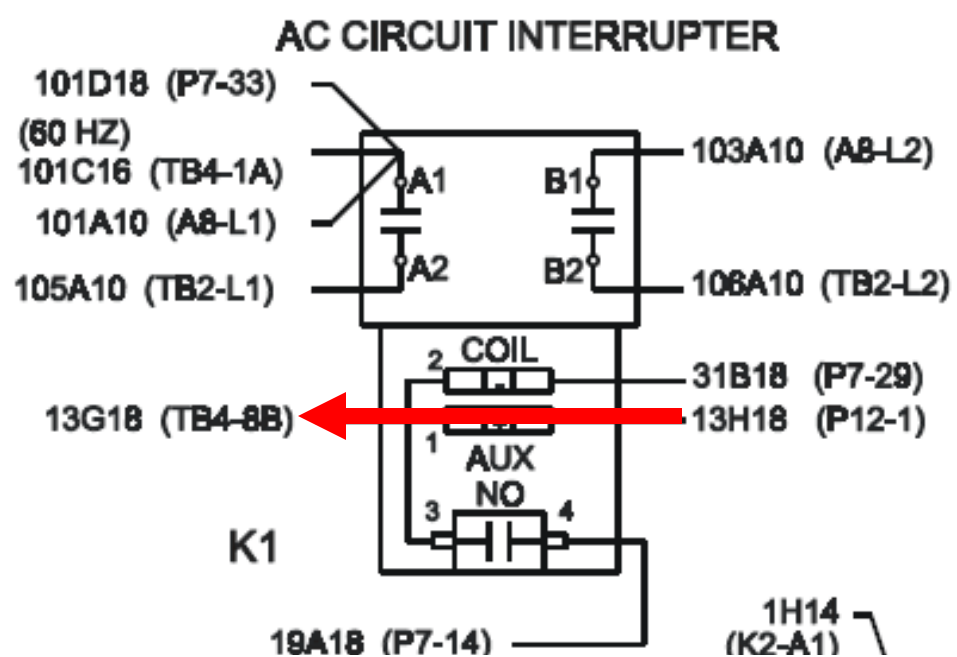
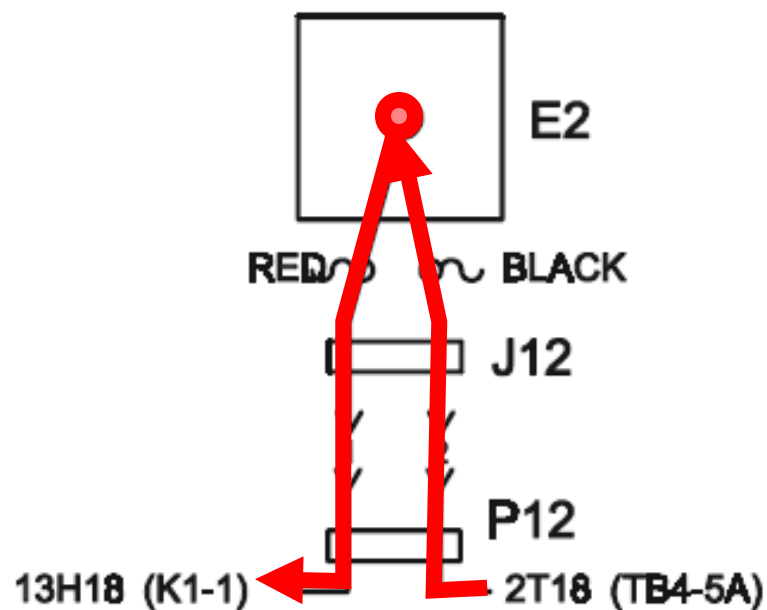
- E2 Fuel Pump
- CR2 Diode

Fuel Transfer Circuit

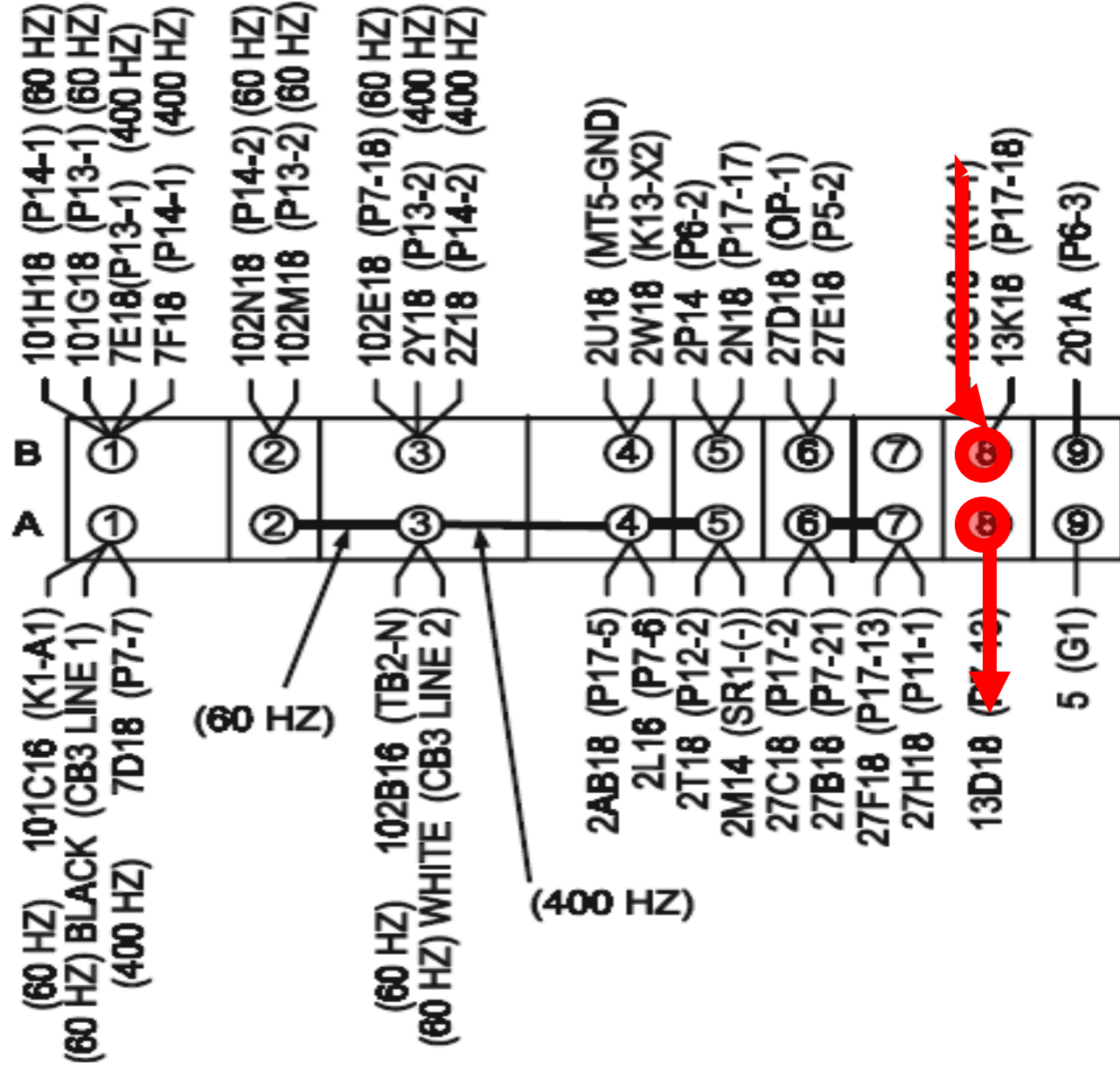


TB4





TB4



J7

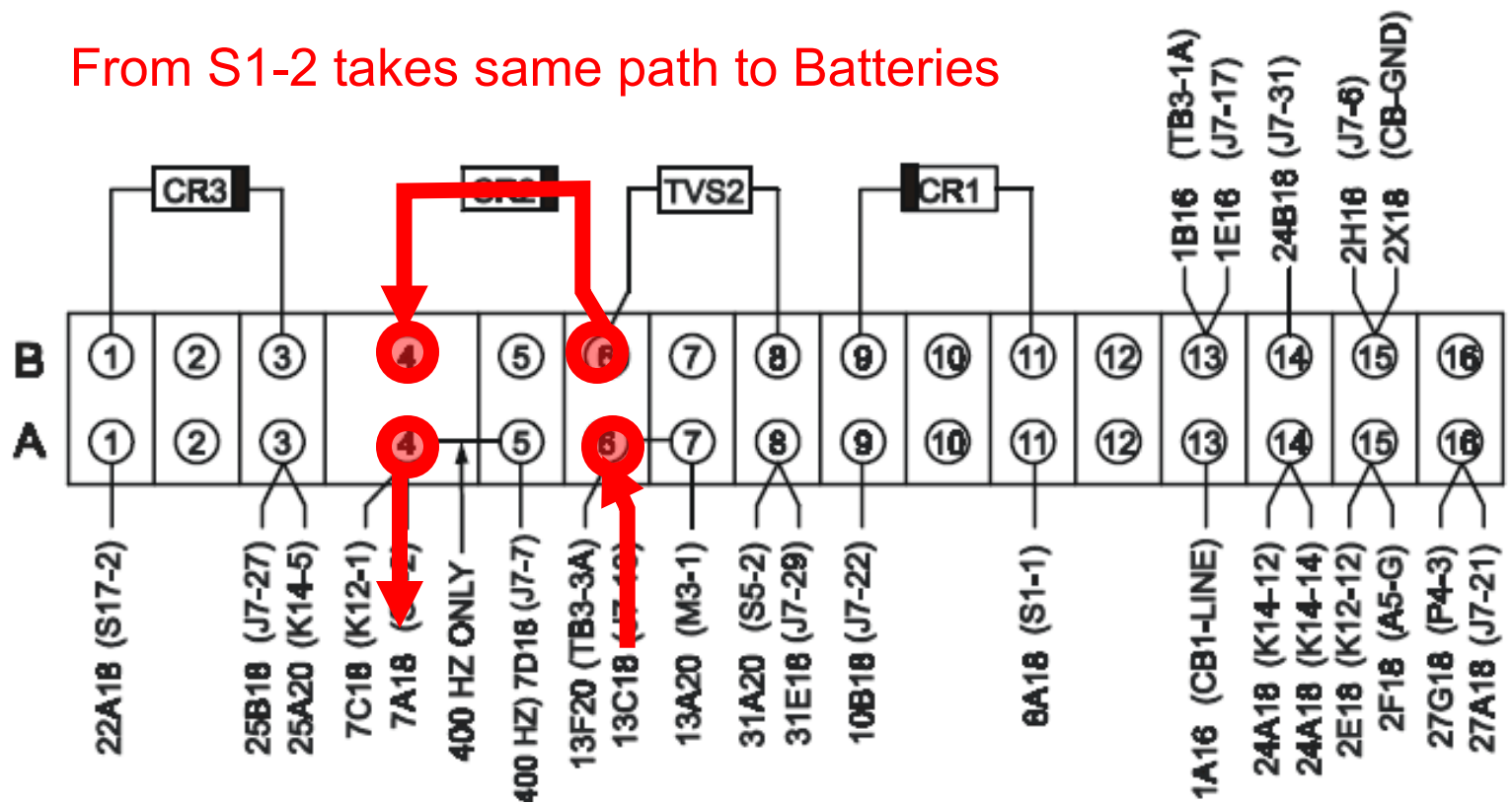
32A18 (P4-4)	→	(J7-1)
40B18 (M5-S)	→	(J7-2)
120A18 (M1-2)	→	(J7-3)
116A18 (A5-B)	→	(J7-4)
117A18 (A5-C)	→	(J7-5)
2H18 (TB5-15B)	→	(J7-6)
(60 HZ) SPARE	→	(J7-7)
(400 HZ) 7D18 (TB5-5A)	→	(J7-7)
43A18 (A5-H)	→	(J7-8)
20C18 (S7-8)	→	(J7-9)
9B18 (K15-8)	→	(J7-10)
44A18 (A5-J)	→	(J7-11)
34B18 (P4-2)	→	(J7-12)
13C18 (TB5-6A)	←	(J7-13)
19B18 (S5-4)	→	(J7-14)
6A18 (S18-1)	→	(J7-15)
11A18 (K15-1)	→	(J7-16)
1E18 (TB5-13B)	→	(J7-17)
102F18 (TB3-6A)	→	(J7-18)
109A18 (R1-3)	→	(J7-19)
110A18 (A5-E)	→	(J7-20)
27A18 (TB5-16A)	→	(J7-21)
10B18 (TB5-9A)	→	(J7-22)
114A18 (A5-D)	→	(J7-23)
30A18 (P4-8)	→	(J7-24)
29A18 (P4-9)	→	(J7-25)
28A18 (P4-10)	→	(J7-26)
25B18 (TB5-3A)	→	(J7-27)
115A18 (A5-A)	→	(J7-28)
31E18 (TB5-8A)	→	(J7-29)
23A18 (K14-8)	→	(J7-30)
24B18 (TB5-14B)	→	(J7-31)
26A18 (K14-9)	→	(J7-32)
101E18 (TB3-7A)	→	(J7-33)
35B18 (K12-8)	→	(J7-34)
SPARE	→	(J7-35)
122B18 (M2-(+))	→	(J7-36)
121B18 (M2-(-))	→	(J7-37)

P7

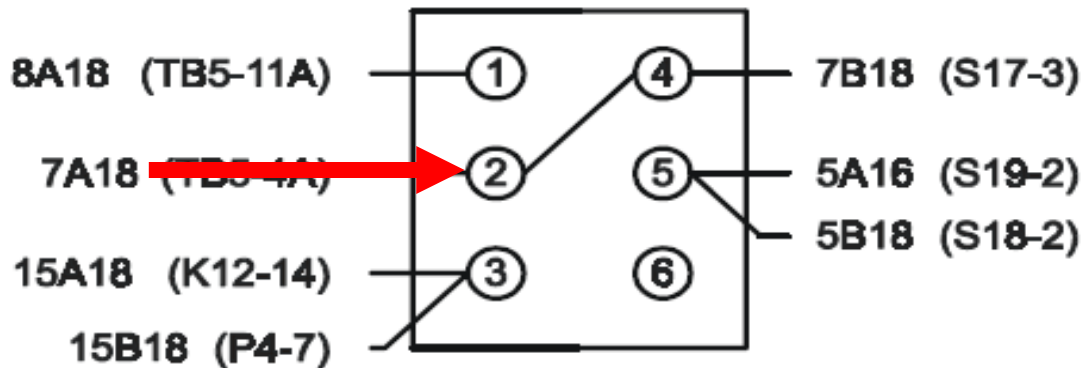
32B18 (P17-3)	→	(P7-1)
40A18 (MT5-S)	→	(P7-2)
120B18 (P17-20)	→	(P7-3)
116B18 (TB6-2A)	→	(P7-4)
117B18 (TB6-3A)	→	(P7-5)
2L18 (TB4-4A)	→	(P7-6)
(60 HZ) SPARE	→	(P7-7)
(400 HZ) 7D18 (TB4-1A)	→	(P7-7)
43B18 (P10-1)	→	(P7-8)
20D18 (P17-11)	→	(P7-9)
9A18 (P17-12)	→	(P7-10)
44B18 (P10-2)	→	(P7-11)
34A18 (P17-14)	→	(P7-12)
13D18 (TB4-8A)	→	(P7-13)
19A18 (K1-NO 4)	→	(P7-14)
6B18 (K13-X1)	→	(P7-15)
11B18 (K2-X2)	→	(P7-16)
1D18 (K13-A1)	→	(P7-17)
(60 HZ) 102E18 (TB4-3B)	→	(P7-18)
(400 HZ) 102B18 (TB2-N)	→	(P7-18)
109B18 (P17-19)	→	(P7-19)
110B18 (P17-8)	→	(P7-20)
27B18 (TB4-6A)	→	(P7-21)
10A18 (K2-X1)	→	(P7-22)
114B18 (P17-1)	→	(P7-23)
30B18 (P5-1)	→	(P7-24)
29B18 (OP-2)	→	(P7-25)
28B18 (P11-2)	→	(P7-26)
25C18 (P8-2)	→	(P7-27)
115B18 (TB6-1A)	→	(P7-28)
31B18 (K1-2)	→	(P7-29)
23B18 (P8-1)	→	(P7-30)
24C18 (P8-3)	→	(P7-31)
26B18 (P9-1)	→	(P7-32)
101D18 (K1-A1)	→	(P7-33)
35C18 (P17-4)	→	(P7-34)
SPARE	→	(P7-35)
122A18 (P17-16)	→	(P7-36)
121A18 (P17-15)	→	(P7-37)

From S1-2 takes same path to Batteries

TB5



S1



START STOP

Electronic Governor Circuits

Function:

Controls engine's mechanical governor to adjust engine speed.

- 24 VDC: Battery Input
- 175 VAC: Input from main generator
- Load Input: From the A8
- 20-32 VDC: Output to A6

Electronic Governor Circuits

Circuit Components

- A5 Speed Control Unit
- A6 Actuator
- K12 contacts
- G1 Main Generator
- A8 Power Converter

J H G F E D C B A
ACTUATOR 24V DC LOAD INPUT AC VOLTAGE

OVERNORS
A
MERICA
CORP.
MADE IN AGAWAM, MA USA

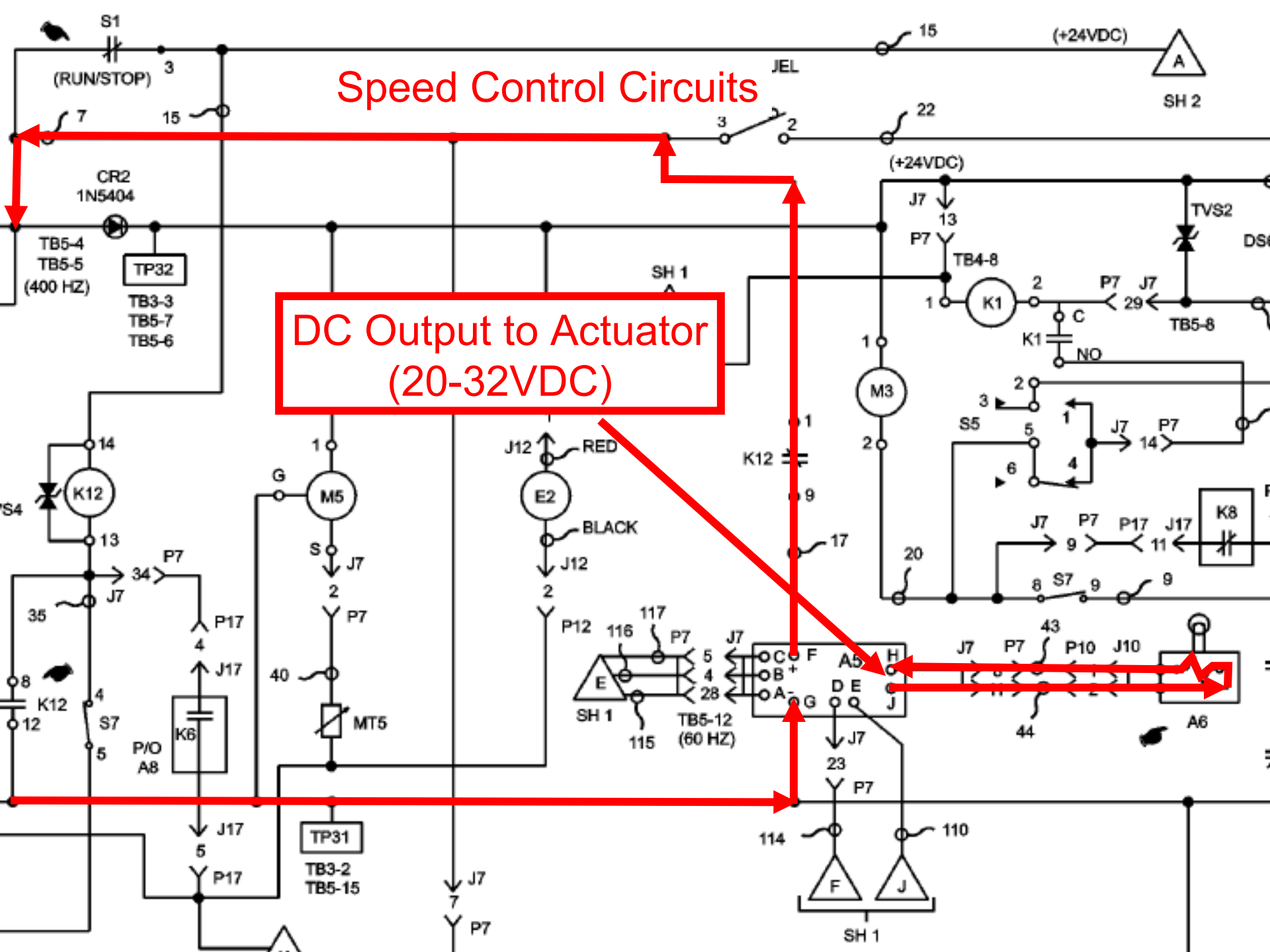
SPEED LOAD CONTROL
SLC100 S/N: M10863

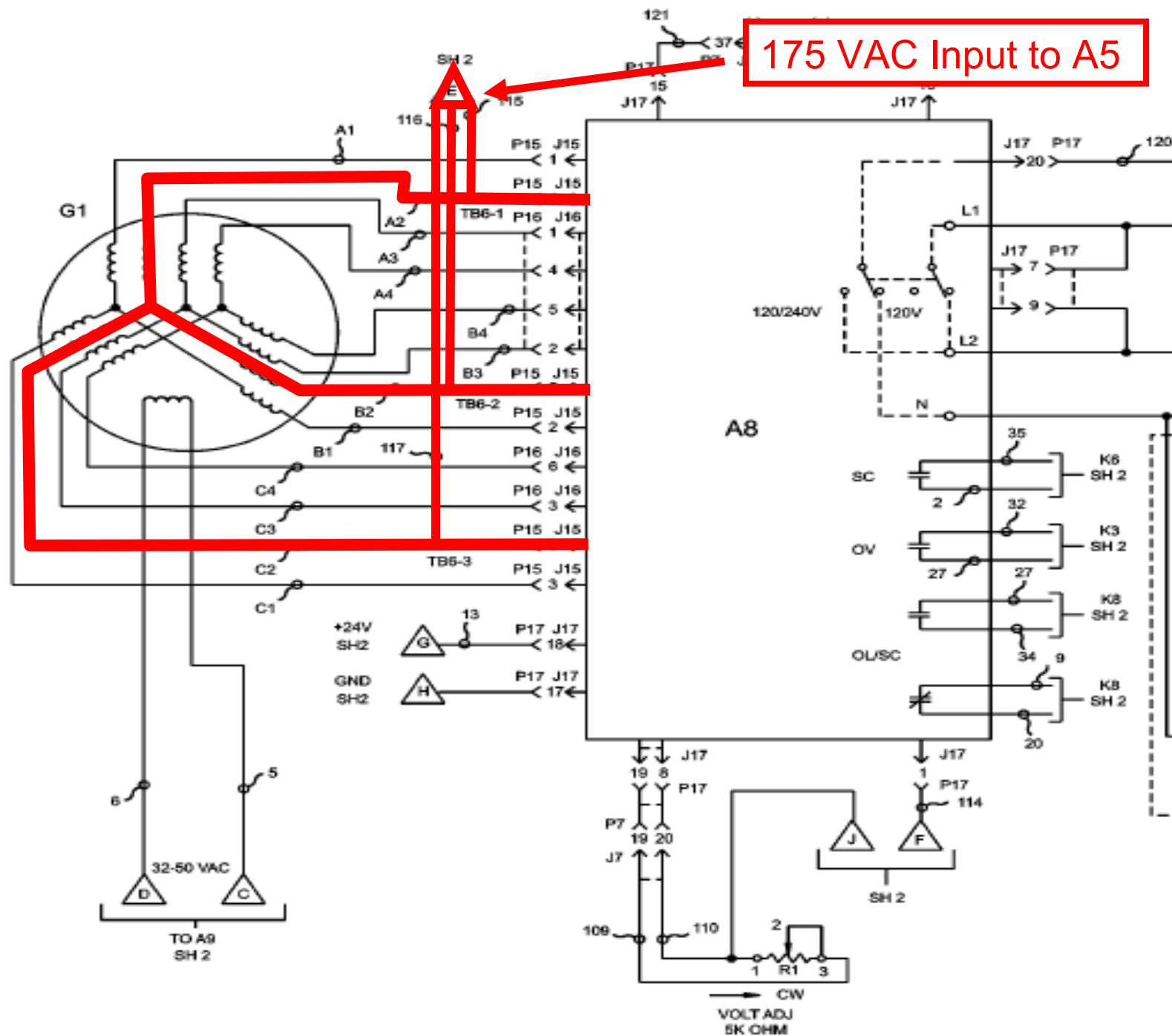
STAB GAIN BOOST SPEED

047J400H

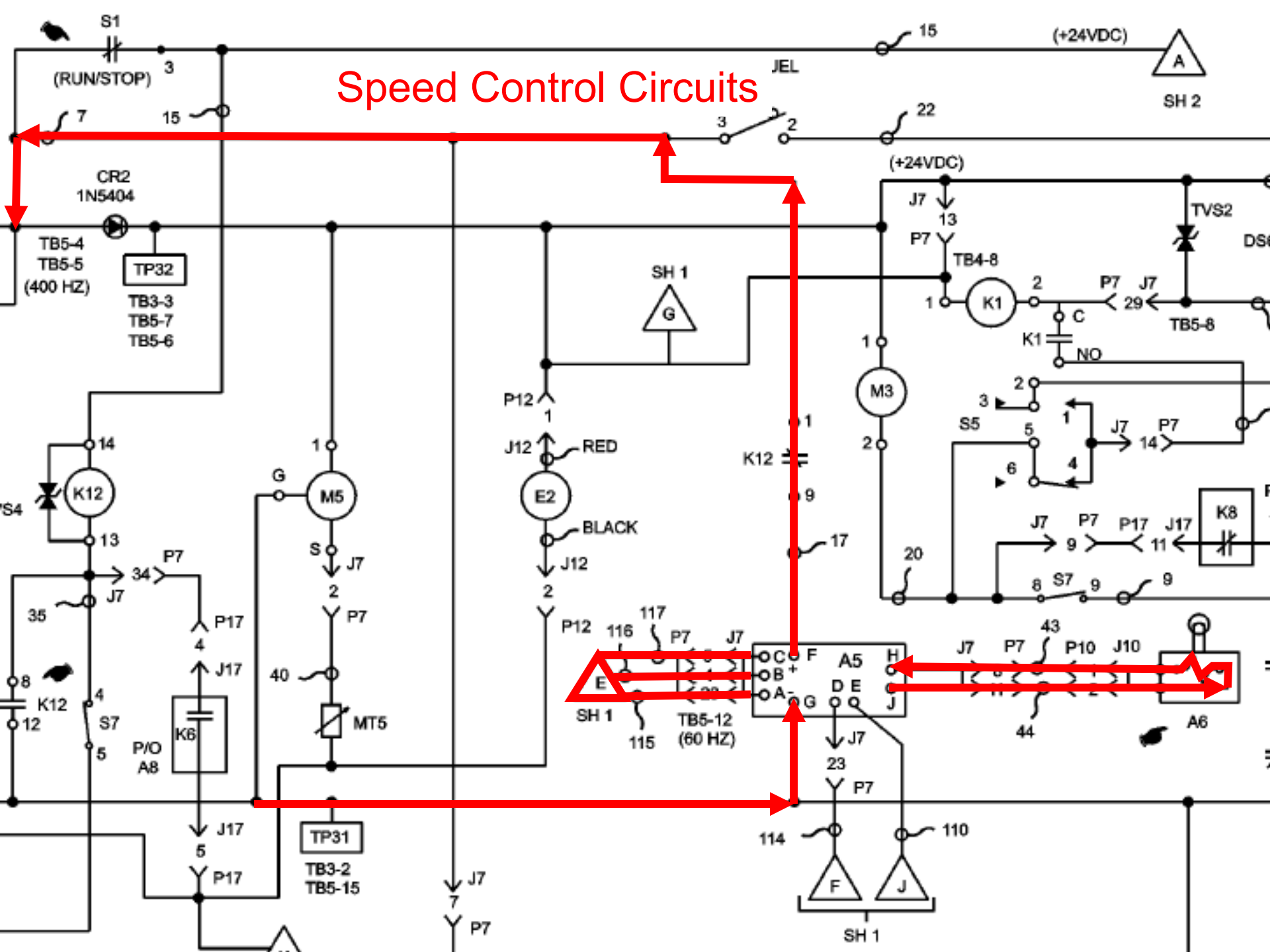
Speed Control Circuits

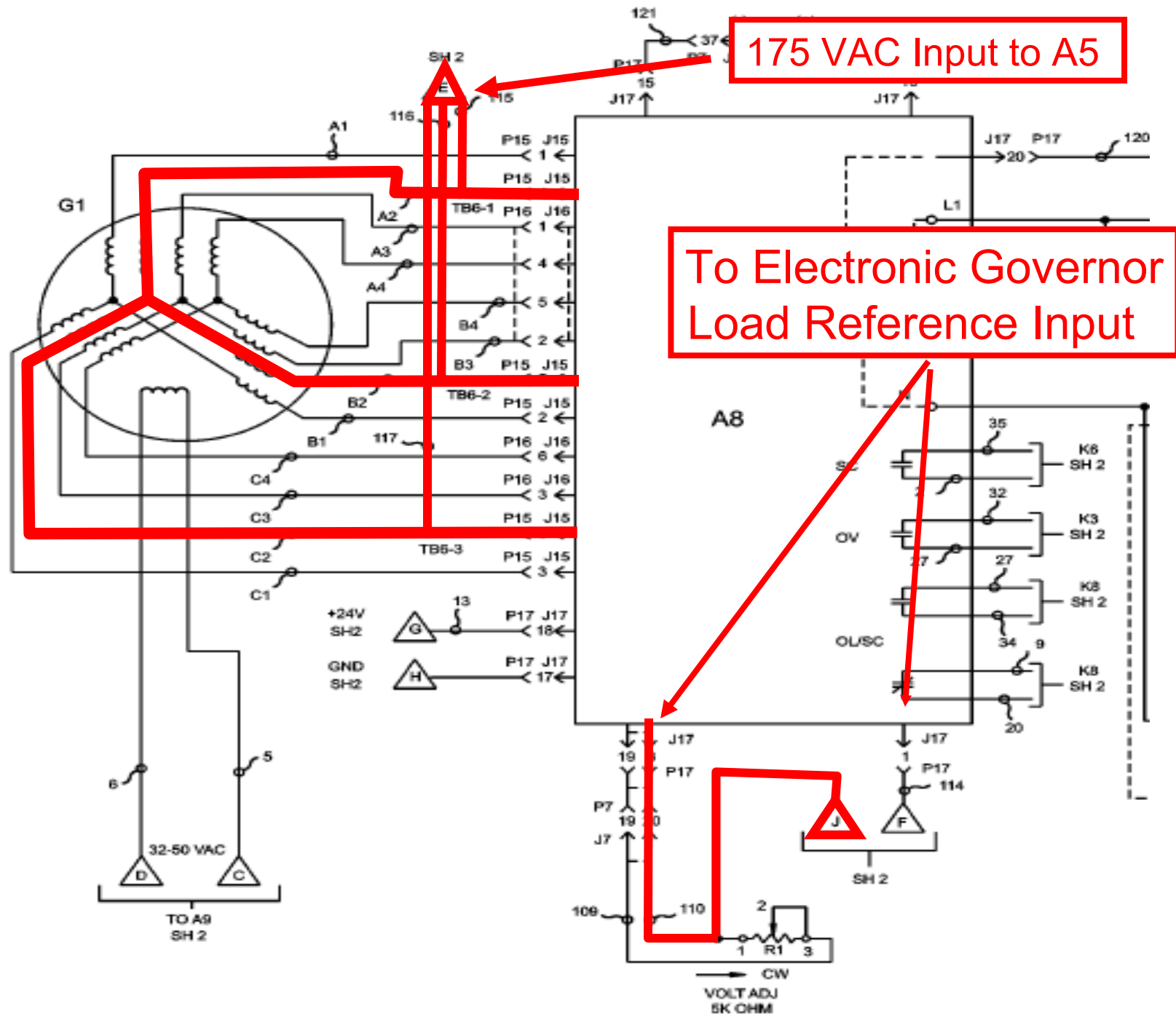
DC Output to Actuator
(20-32VDC)



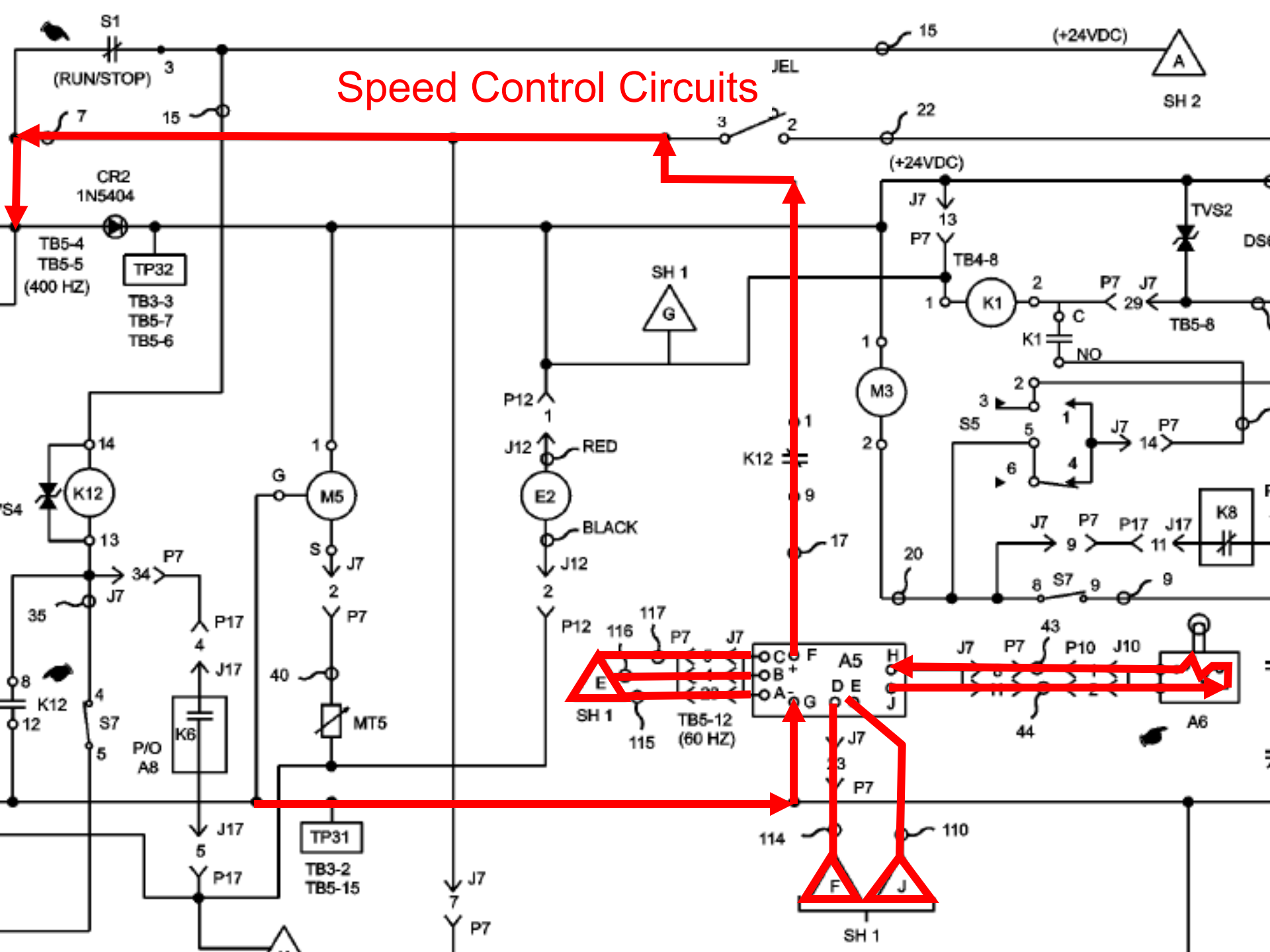


Speed Control Circuits

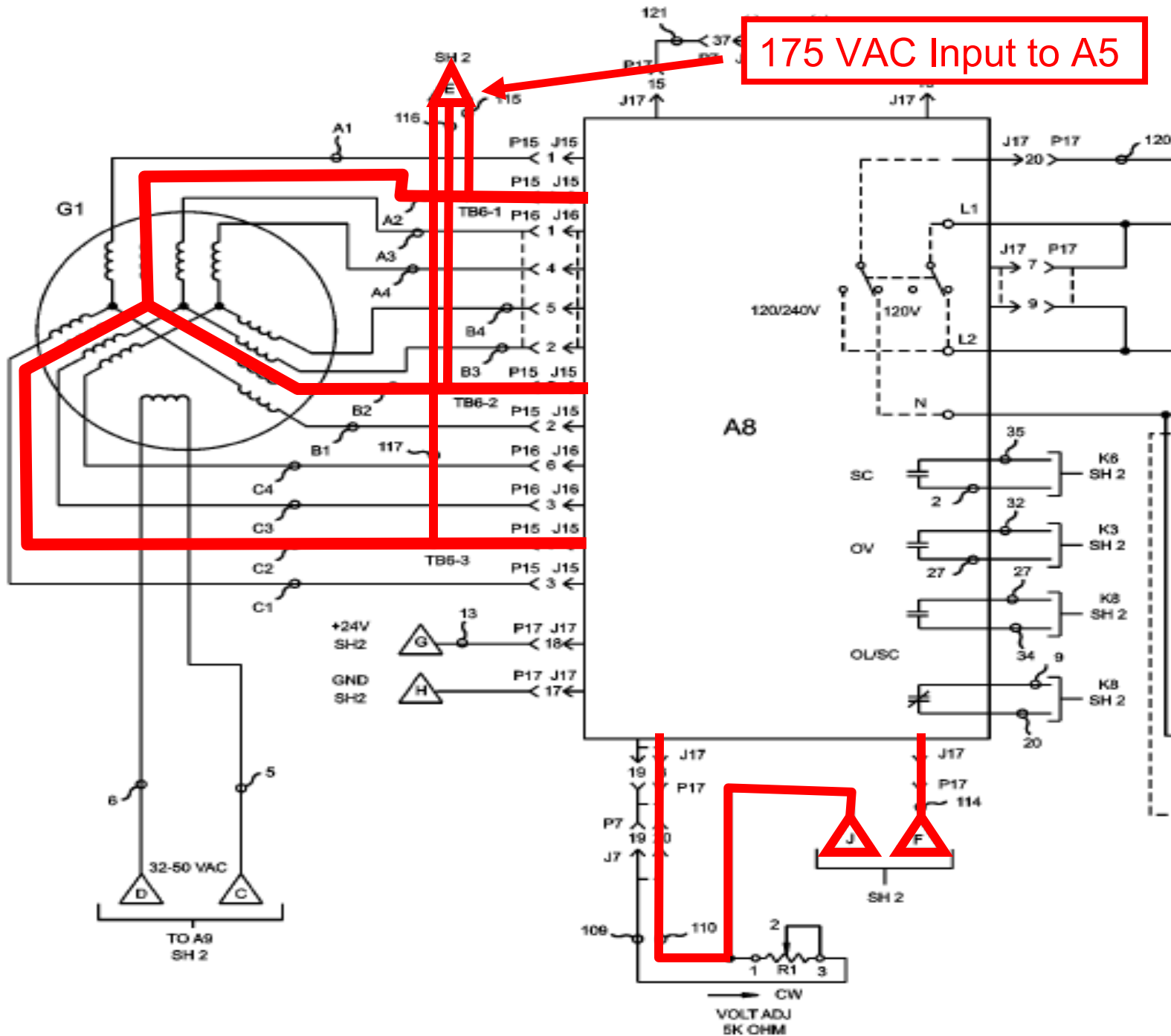


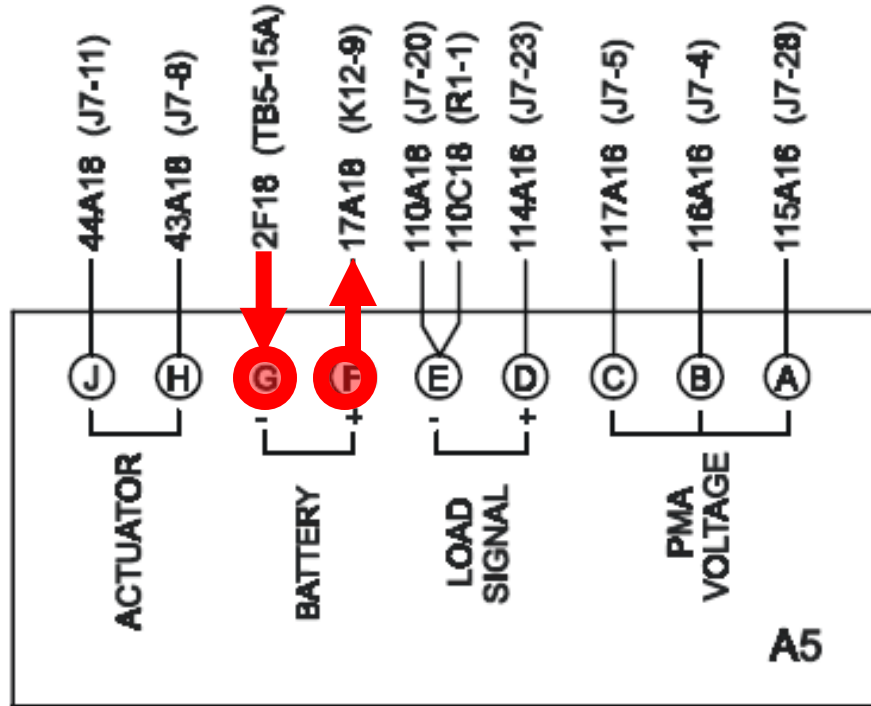


Speed Control Circuits

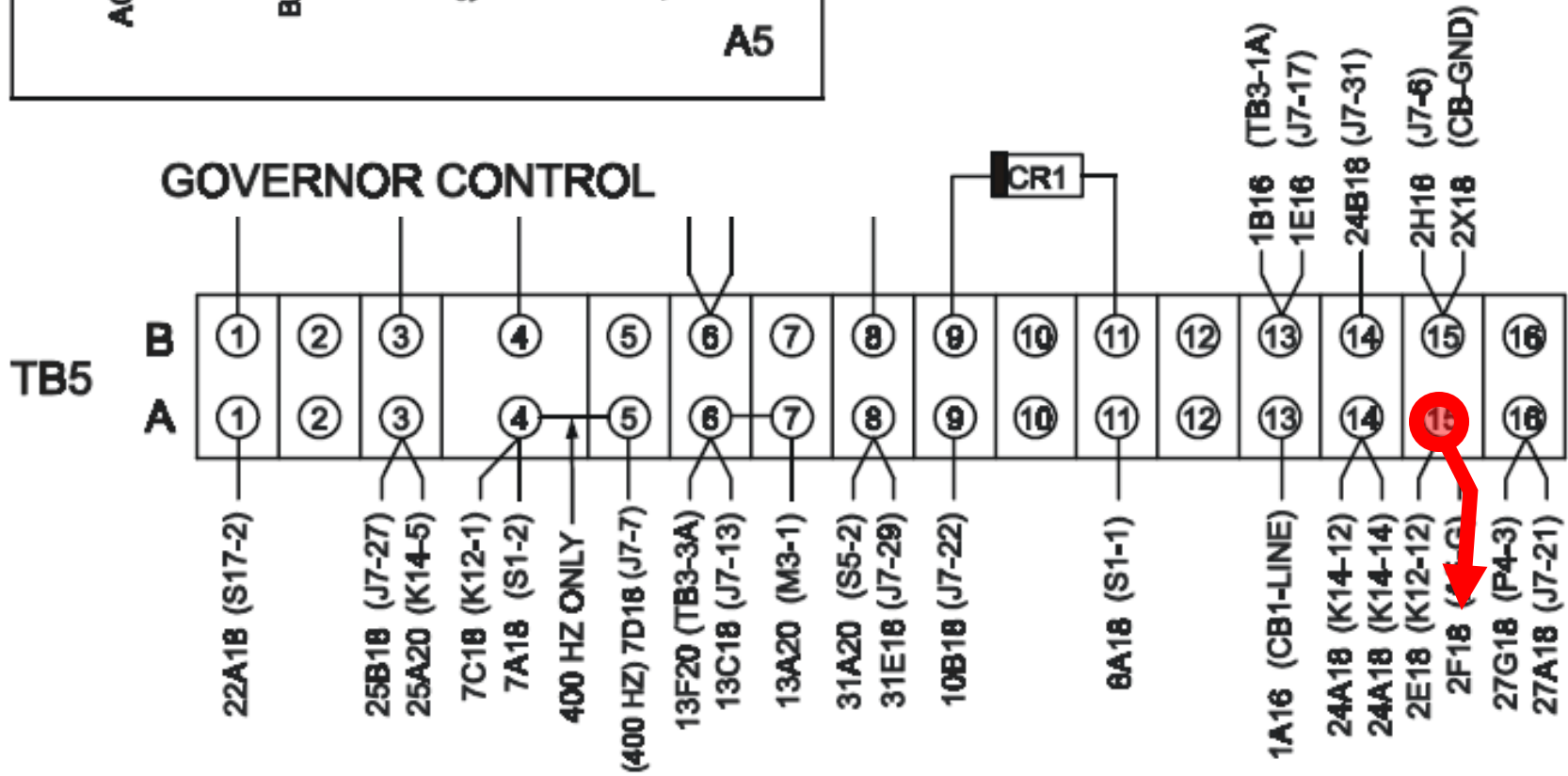


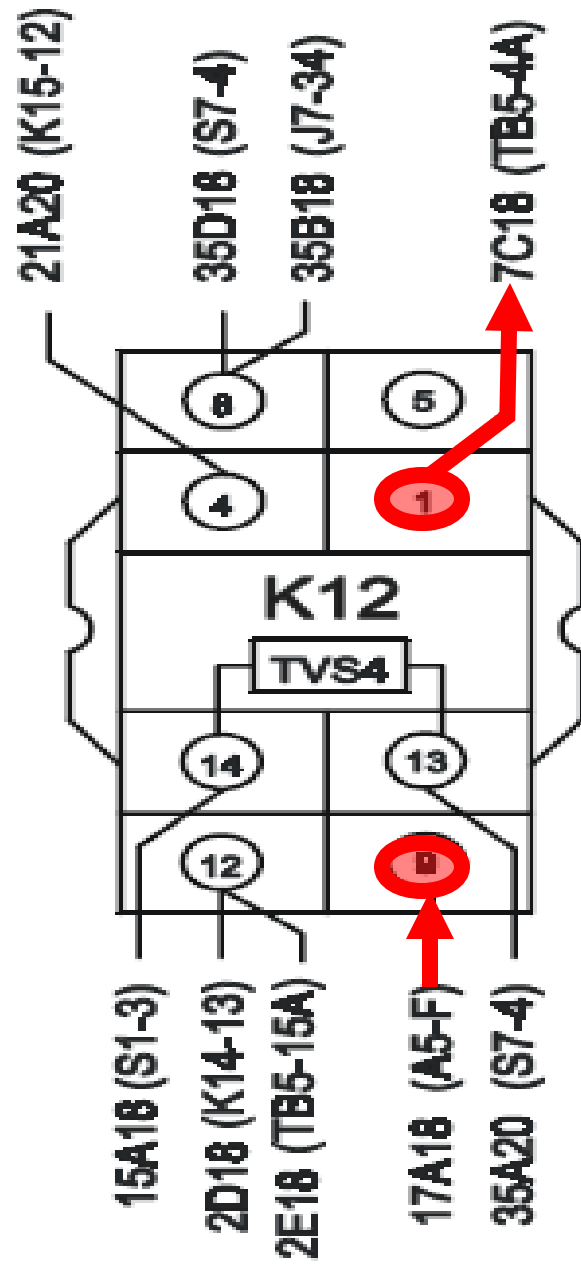
175 VAC Input to A5



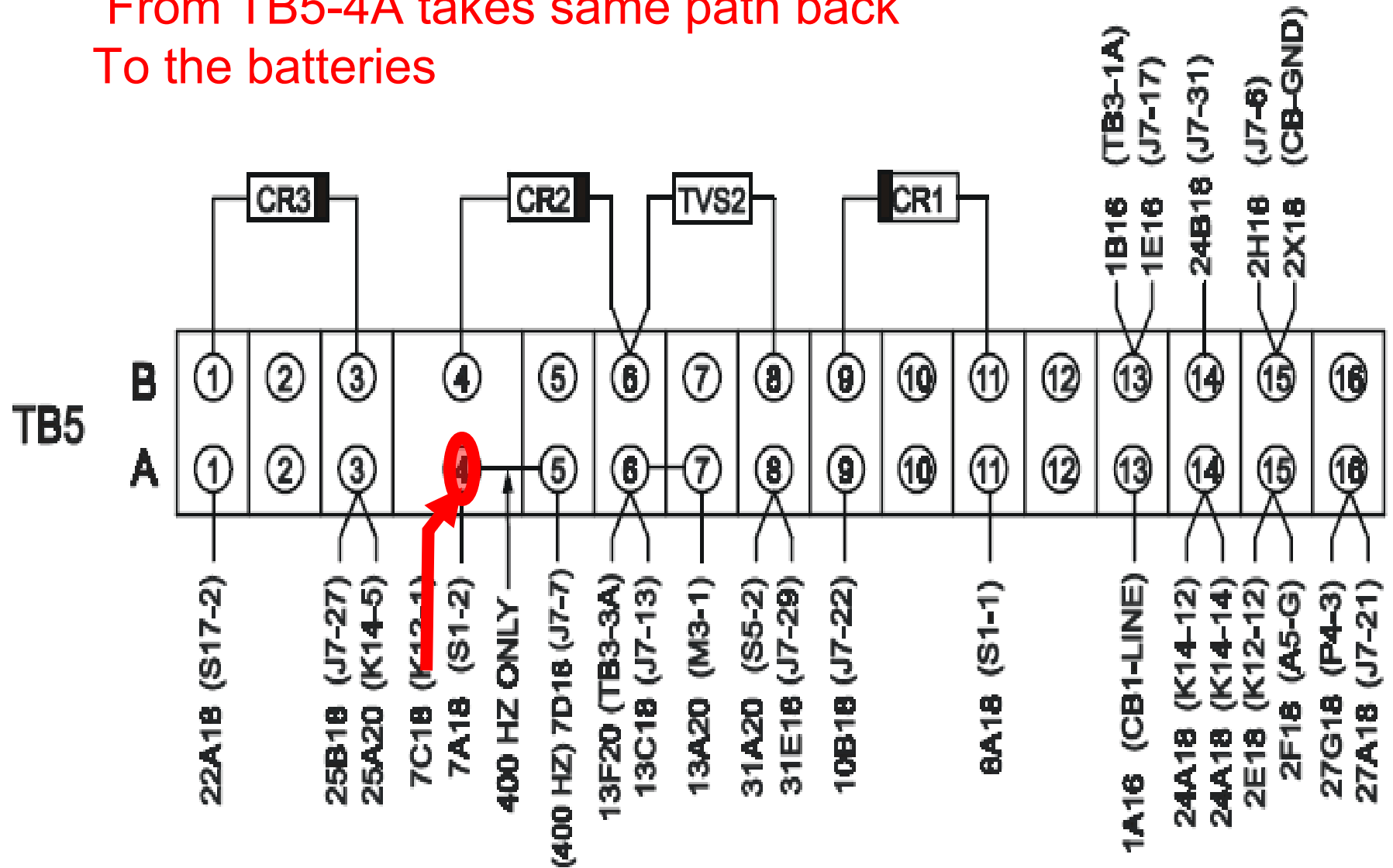


Pick up potential at TB5-15B

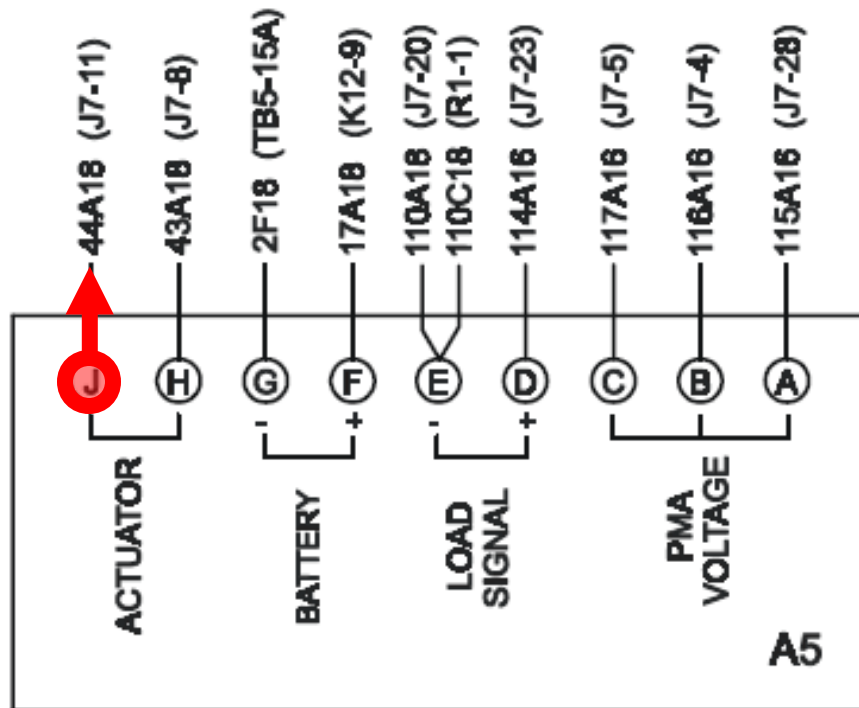




From TB5-4A takes same path back
To the batteries



Pick up potential at A5-J



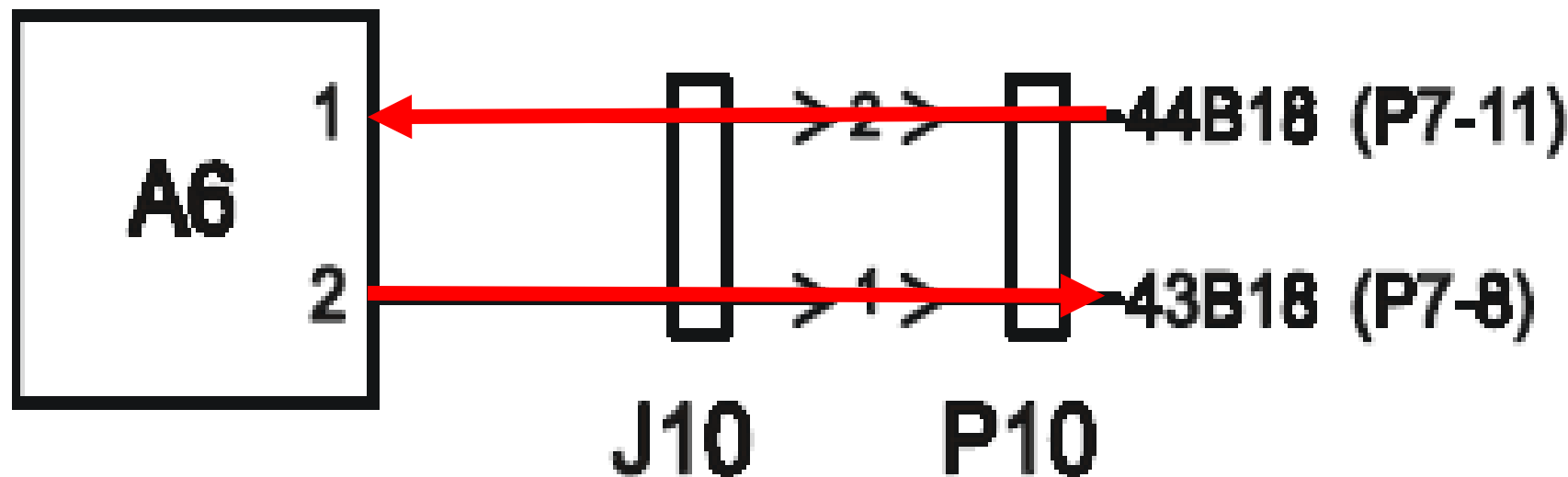
GOVERNOR CONTROL

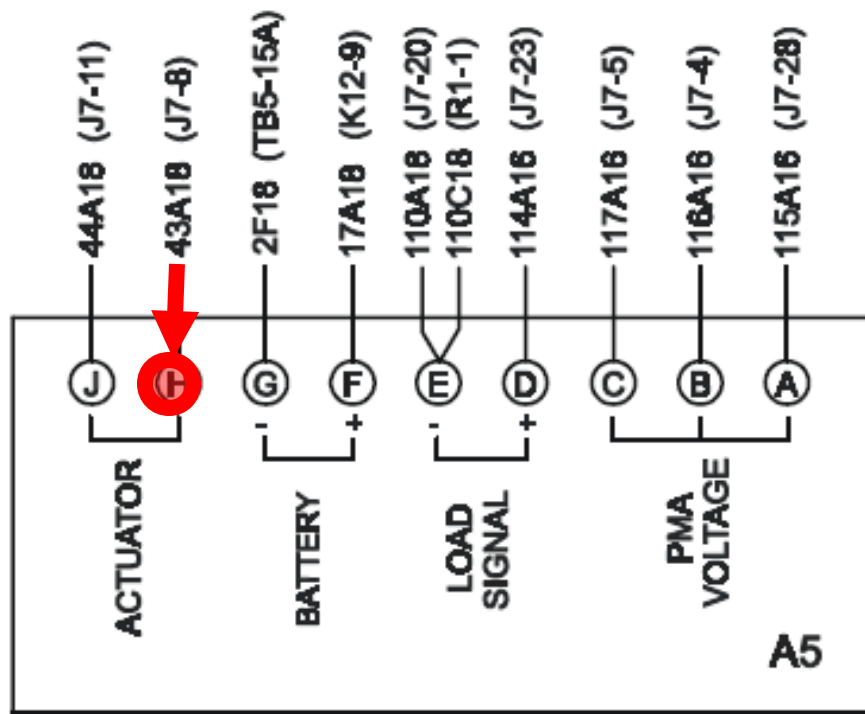
J7

32A18 (P4-4)	→	(J7-1)
40B18 (M5-S)	→	(J7-2)
120A18 (M1-2)	→	(J7-3)
116A18 (A5-B)	→	(J7-4)
117A18 (A5-C)	→	(J7-5)
2H18 (TB5-15B)	→	(J7-8)
(60 HZ) SPARE	→	(J7-7)
(400 HZ) 7D18 (TB5-5A)	→	(J7-7)
43A18 (A5-H)	←	(J7-8)
20C18 (S7-8)	→	(J7-9)
9B18 (K15-8)	→	(J7-10)
44A18 (A5-J)	→	(J7-11)
34B18 (P4-2)	→	(J7-12)
13C18 (TB5-8A)	→	(J7-13)
19B18 (S5-4)	→	(J7-14)
6A18 (S18-1)	→	(J7-15)
11A18 (K15-1)	→	(J7-16)
1E18 (TB5-13B)	→	(J7-17)
102F18 (TB3-8A)	→	(J7-18)
109A18 (R1-3)	→	(J7-19)
110A18 (A5-F)	→	(J7-20)

P7

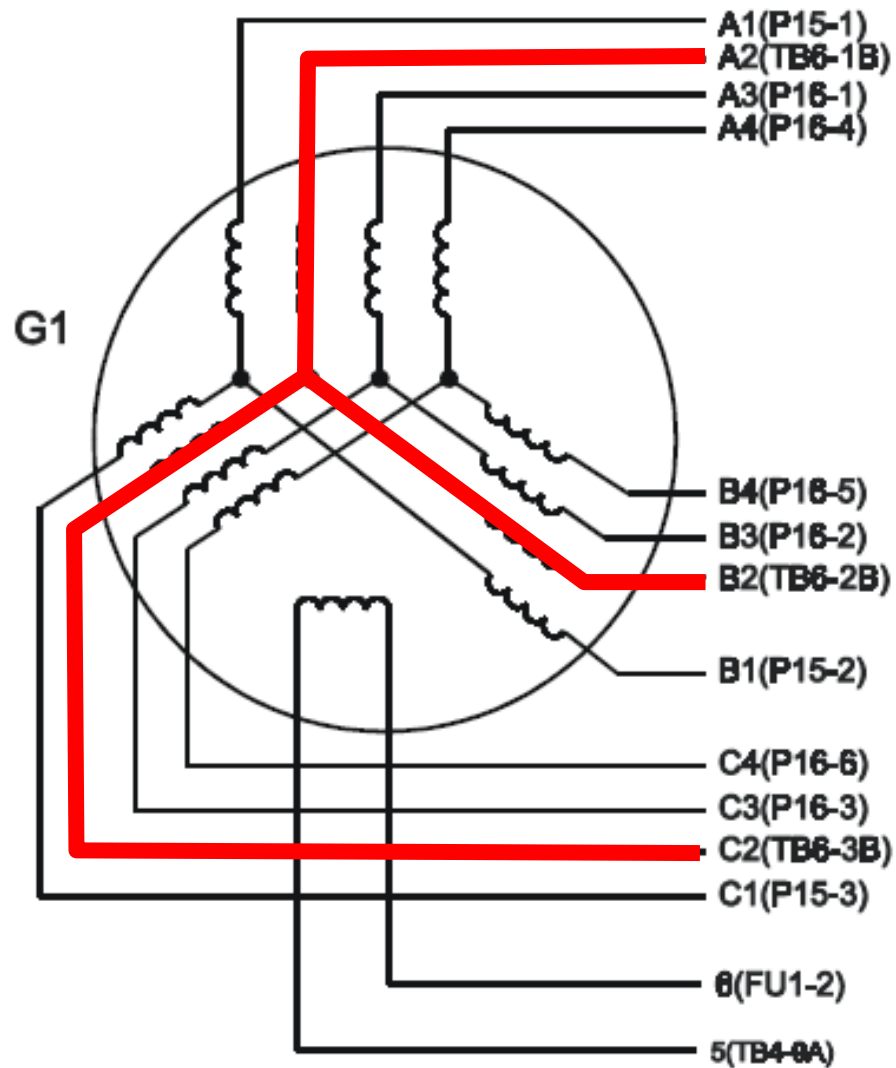
32B18 (P17-3)	→	(P7-1)
40A18 (MT5-S)	→	(P7-2)
120B18 (P17-20)	→	(P7-3)
116B18 (TB6-2A)	→	(P7-4)
117B18 (TB6-3A)	→	(P7-5)
2L18 (TB4-4A)	→	(P7-8)
(60 HZ) SPARE	→	(P7-7)
(400 HZ) 7D18 (TB4-1A)	→	(P7-7)
43B18 (P10-1)	→	(P7-8)
20D18 (P17-11)	→	(P7-9)
9A18 (P17-12)	→	(P7-10)
44B18 (P10-2)	←	(P7-11)
34A18 (P17-14)	→	(P7-12)
13D18 (TB4-8A)	→	(P7-13)
19A18 (K1-NO 4)	→	(P7-14)
6B18 (K13-X1)	→	(P7-15)
11B18 (K2-X2)	→	(P7-16)
1D18 (K13-A1)	→	(P7-17)
(60 HZ) 102E18 (TB4-3B)	→	(P7-18)
(400 HZ) 102B18 (TB2-N)	→	(P7-18)
109B18 (P17-19)	→	(P7-19)



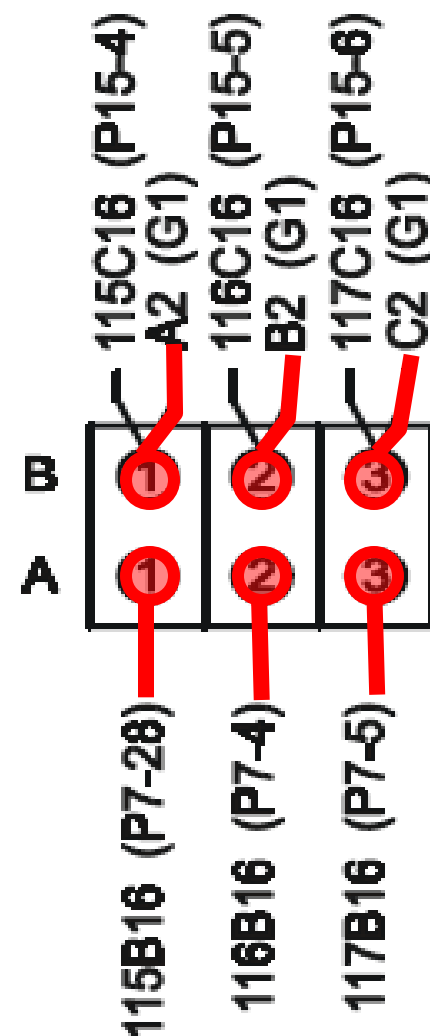


GOVERNOR CONTROL

175 VAC input to A5



TB6



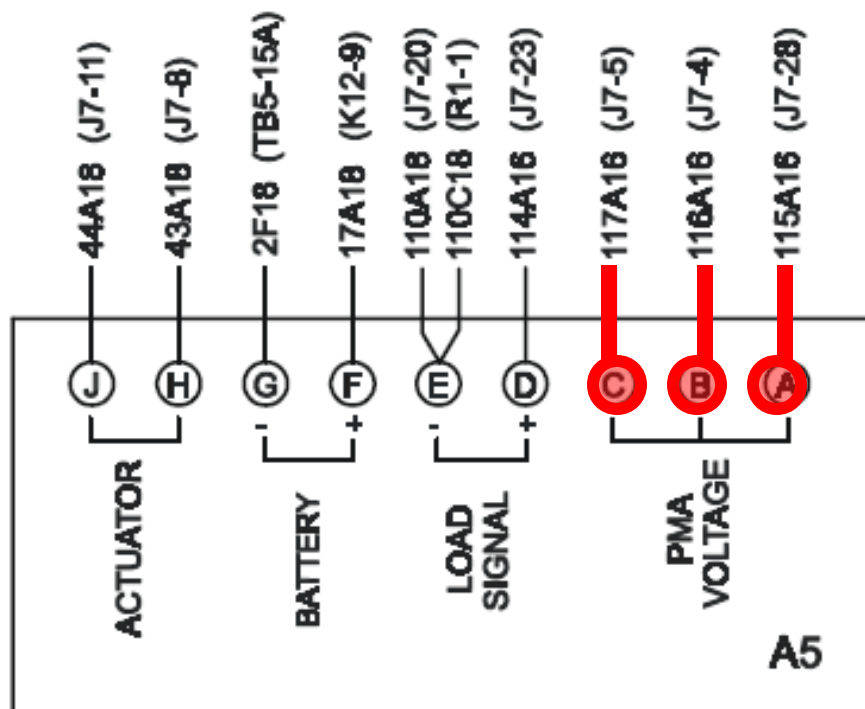
J7

32A18 (P4-4)	→	(J7-1)
40B18 (M5-S)	→	(J7-2)
120A18 (M1-2)	→	(J7-3)
116A18 (A5-B)	→	(J7-4)
117A18 (A5-C)	→	(J7-5)
2H18 (TB5-15B)	→	(J7-8)
(60 HZ) SPARE	→	(J7-7)
(400 HZ) 7D18 (TB5-5A)	→	(J7-7)
43A18 (A5-H)	→	(J7-8)
20C18 (S7-8)	→	(J7-9)
9B18 (K15-8)	→	(J7-10)
44A18 (A5-J)	→	(J7-11)
34B18 (P4-2)	→	(J7-12)
13C18 (TB5-8A)	→	(J7-13)
19B18 (S5-4)	→	(J7-14)
6A18 (S18-1)	→	(J7-15)
11A18 (K15-1)	→	(J7-16)
1E18 (TB5-13B)	→	(J7-17)
102F18 (TB3-8A)	→	(J7-18)
109A18 (R1-3)	→	(J7-19)
110A18 (A5-E)	→	(J7-20)
27A18 (TB5-16A)	→	(J7-21)
10B18 (TB5-9A)	→	(J7-22)
114A18 (A5-D)	→	(J7-23)
30A18 (P4-8)	→	(J7-24)
29A18 (P4-8)	→	(J7-25)
28A18 (P4-10)	→	(J7-26)
25B18 (TB5-3A)	→	(J7-27)
115A18 (A5-A)	→	(J7-28)
31E18 (TB5-8A)	→	(J7-29)
23A18 (K14-8)	→	(J7-30)
24B18 (TB5-14B)	→	(J7-31)
26A18 (K14-8)	→	(J7-32)
101E18 (TB3-7A)	→	(J7-33)
35B18 (K12-8)	→	(J7-34)
SPARE	→	(J7-35)
122B18 (M2-(+))	→	(J7-36)
121B18 (M2-(-))	→	(J7-37)

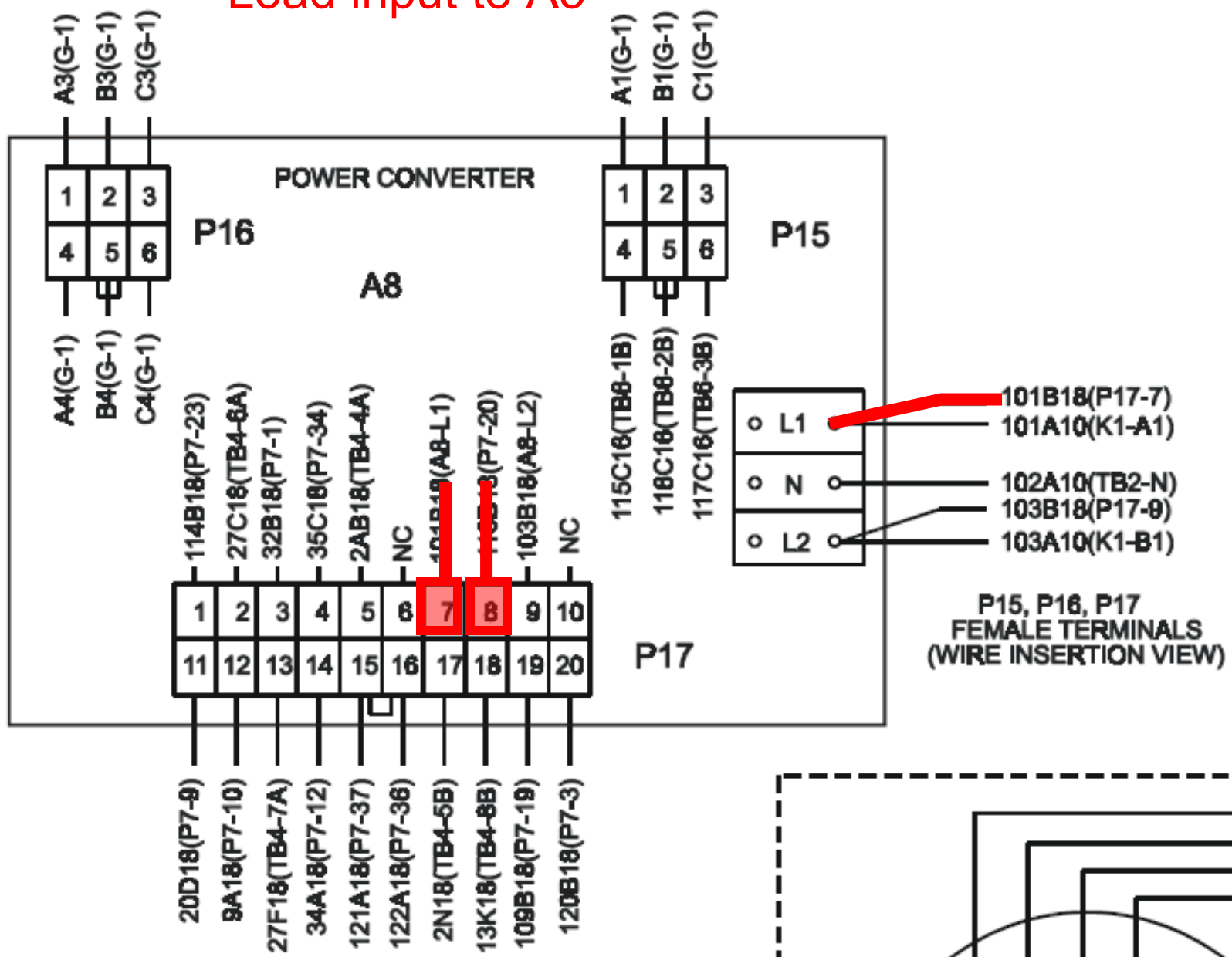
P7

32B18 (P17-3)	→	(P7-1)
40A18 (MT5-S)	→	(P7-2)
120B18 (P17-20)	→	(P7-3)
116B18 (TB6-2A)	→	(P7-4)
117B18 (TB6-3A)	→	(P7-5)
2L18 (TB4-4A)	→	(P7-8)
(60 HZ) SPARE	→	(P7-7)
(400 HZ) 7D18 (TB4-1A)	→	(P7-7)
43B18 (P10-1)	→	(P7-8)
20D18 (P17-11)	→	(P7-9)
9A18 (P17-12)	→	(P7-10)
44B18 (P10-2)	→	(P7-11)
34A18 (P17-14)	→	(P7-12)
13D18 (TB4-8A)	→	(P7-13)
19A18 (K1-NO 4)	→	(P7-14)
6B18 (K13-X1)	→	(P7-15)
11B18 (K2-X2)	→	(P7-16)
1D18 (K13-A1)	→	(P7-17)
(60 HZ) 102E18 (TB4-3B)	→	(P7-18)
(400 HZ) 102B18 (TB2-N)	→	(P7-18)
109B18 (P17-19)	→	(P7-19)
110B18 (P17-8)	→	(P7-20)
27B18 (TB4-6A)	→	(P7-21)
10A18 (K2-X1)	→	(P7-22)
114B18 (P17-1)	→	(P7-23)
30B18 (P5-1)	→	(P7-24)
29B18 (OP-2)	→	(P7-25)
28B18 (P11-2)	→	(P7-26)
25C18 (P8-2)	→	(P7-27)
115B18 (TB6-1A)	→	(P7-28)
31B18 (K1-2)	→	(P7-29)
23B18 (P8-1)	→	(P7-30)
24C18 (P8-3)	→	(P7-31)
26B18 (P9-1)	→	(P7-32)
101D18 (K1-A1)	→	(P7-33)
35C18 (P17-4)	→	(P7-34)
SPARE	→	(P7-35)
122A18 (P17-16)	→	(P7-36)
121A18 (P17-15)	→	(P7-37)

GOVERNOR CONTROL



Load input to A5



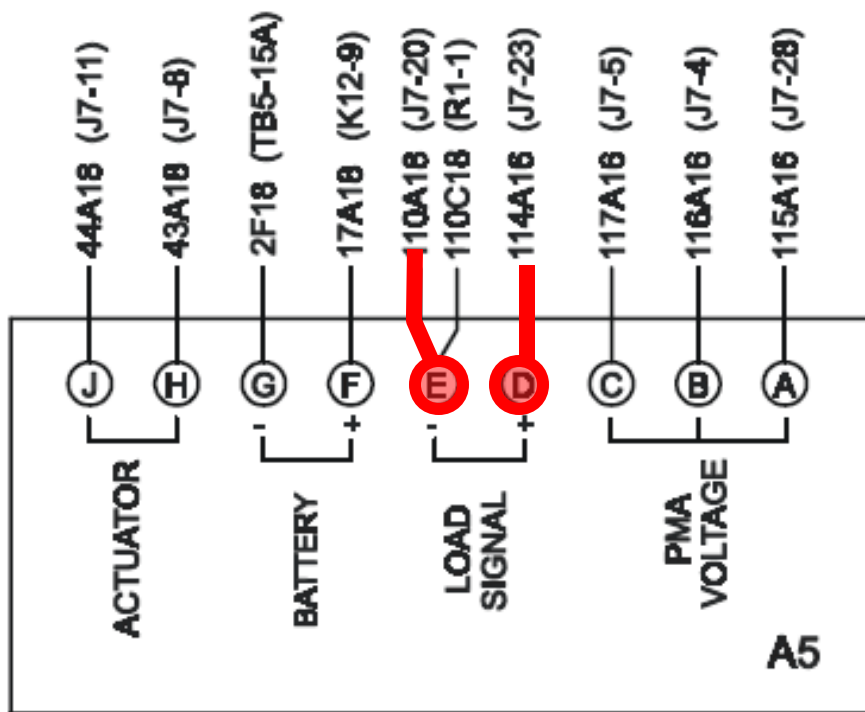
J7

32A18 (P4-4)	→	(J7-1)
40B18 (M5-S)	→	(J7-2)
120A18 (M1-2)	→	(J7-3)
116A18 (A5-B)	→	(J7-4)
117A18 (A5-C)	→	(J7-5)
2H18 (TB5-15B)	→	(J7-6)
(60 HZ) SPARE	→	(J7-7)
(400 HZ) 7D18 (TB5-5A)	→	(J7-7)
43A18 (A5-H)	→	(J7-8)
20C18 (S7-8)	→	(J7-9)
9B18 (K15-8)	→	(J7-10)
44A18 (A5-J)	→	(J7-11)
34B18 (P4-2)	→	(J7-12)
13C18 (TB5-6A)	→	(J7-13)
19B18 (S5-4)	→	(J7-14)
6A18 (S18-1)	→	(J7-15)
11A18 (K15-1)	→	(J7-16)
1E18 (TB5-13B)	→	(J7-17)
102F18 (TB3-6A)	→	(J7-18)
109A18 (R1-3)	→	(J7-19)
110A18 (A5-E)	→	(J7-20)
27A18 (TB5-16A)	→	(J7-21)
10B18 (TB5-9A)	→	(J7-22)
114A18 (A5-D)	→	(J7-23)
30A18 (P4-8)	→	(J7-24)
29A18 (P4-9)	→	(J7-25)
28A18 (P4-10)	→	(J7-26)
25B18 (TB5-3A)	→	(J7-27)
115A18 (A5-A)	→	(J7-28)
31E18 (TB5-8A)	→	(J7-29)
23A18 (K14-8)	→	(J7-30)
24B18 (TB5-14B)	→	(J7-31)
26A18 (K14-9)	→	(J7-32)
101E18 (TB3-7A)	→	(J7-33)
35B18 (K12-8)	→	(J7-34)
SPARE	→	(J7-35)
122B18 (M2-(+))	→	(J7-36)
121B18 (M2-(-))	→	(J7-37)

P7

32B18 (P17-3)	→	(P7-1)
40A18 (MT5-S)	→	(P7-2)
120B18 (P17-20)	→	(P7-3)
116B18 (TB6-2A)	→	(P7-4)
117B18 (TB6-3A)	→	(P7-5)
2L18 (TB4-4A)	→	(P7-6)
(60 HZ) SPARE	→	(P7-7)
(400 HZ) 7D18 (TB4-1A)	→	(P7-7)
43B18 (P10-1)	→	(P7-8)
20D18 (P17-11)	→	(P7-9)
9A18 (P17-12)	→	(P7-10)
44B18 (P10-2)	→	(P7-11)
34A18 (P17-14)	→	(P7-12)
13D18 (TB4-8A)	→	(P7-13)
19A18 (K1-NO 4)	→	(P7-14)
6B18 (K13-X1)	→	(P7-15)
11B18 (K2-X2)	→	(P7-16)
1D18 (K13-A1)	→	(P7-17)
(60 HZ) 102E18 (TB4-3B)	→	(P7-18)
(400 HZ) 102B18 (TB2-N)	→	(P7-18)
109B18 (P17-19)	→	(P7-19)
110B18 (P17-8)	→	(P7-20)
27B18 (TB4-6A)	→	(P7-21)
10A18 (K2-X1)	→	(P7-22)
114B18 (P17-1)	→	(P7-23)
30B18 (P5-1)	→	(P7-24)
29B18 (OP-2)	→	(P7-25)
28B18 (P11-2)	→	(P7-26)
25C18 (P8-2)	→	(P7-27)
115B18 (TB6-1A)	→	(P7-28)
31B18 (K1-2)	→	(P7-29)
23B18 (P8-1)	→	(P7-30)
24C18 (P8-3)	→	(P7-31)
26B18 (P9-1)	→	(P7-32)
101D18 (K1-A1)	→	(P7-33)
35C18 (P17-4)	→	(P7-34)
SPARE	→	(P7-35)
122A18 (P17-16)	→	(P7-36)
121A18 (P17-15)	→	(P7-37)

GOVERNOR CONTROL

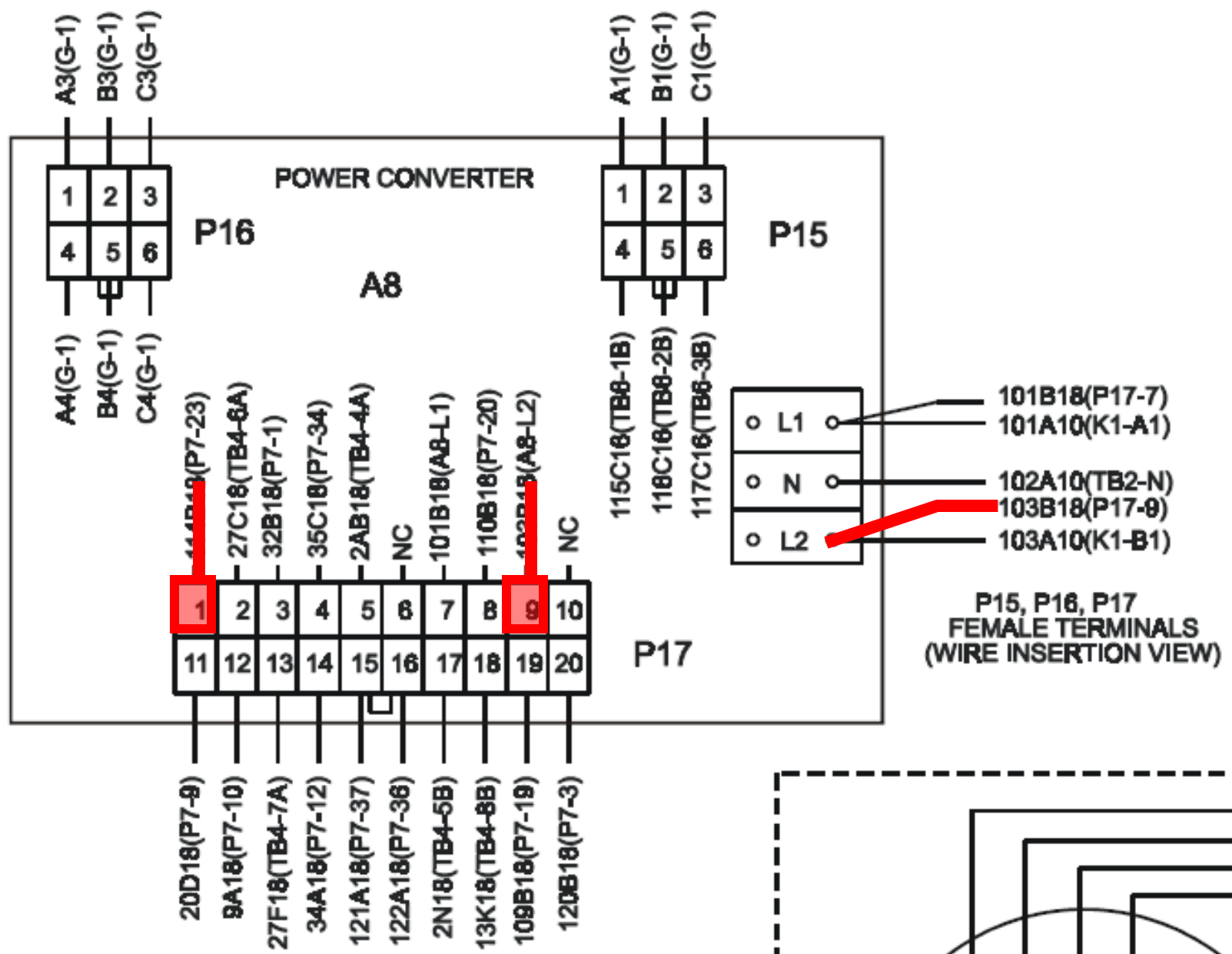


J7

32A18 (P4-4)	→	(J7-1)
40B18 (M5-S)	→	(J7-2)
120A18 (M1-2)	→	(J7-3)
116A18 (A5-B)	→	(J7-4)
117A18 (A5-C)	→	(J7-5)
2H18 (TB5-15B)	→	(J7-6)
(60 HZ) SPARE	→	(J7-7)
(400 HZ) 7D18 (TB5-5A)	→	(J7-7)
43A18 (A5-H)	→	(J7-8)
20C18 (S7-8)	→	(J7-9)
9B18 (K15-8)	→	(J7-10)
44A18 (A5-J)	→	(J7-11)
34B18 (P4-2)	→	(J7-12)
13C18 (TB5-6A)	→	(J7-13)
19B18 (S5-4)	→	(J7-14)
6A18 (S18-1)	→	(J7-15)
11A18 (K15-1)	→	(J7-16)
1E18 (TB5-13B)	→	(J7-17)
102F18 (TB3-6A)	→	(J7-18)
109A18 (R1-3)	→	(J7-19)
110A18 (A5-E)	→	(J7-20)
27A18 (TB5-16A)	→	(J7-21)
10B18 (TB5-9A)	→	(J7-22)
114A18 (A5-D)	→	(J7-23)
30A18 (P4-8)	→	(J7-24)
29A18 (P4-9)	→	(J7-25)
28A18 (P4-10)	→	(J7-26)
25B18 (TB5-3A)	→	(J7-27)
115A18 (A5-A)	→	(J7-28)
31E18 (TB5-8A)	→	(J7-29)
23A18 (K14-8)	→	(J7-30)
24B18 (TB5-14B)	→	(J7-31)
26A18 (K14-9)	→	(J7-32)
101E18 (TB3-7A)	→	(J7-33)
35B18 (K12-8)	→	(J7-34)
SPARE	→	(J7-35)
122B18 (M2-(+))	→	(J7-36)
121B18 (M2-(-))	→	(J7-37)

P7

32B18 (P17-3)	→	(P7-1)
40A18 (MT5-S)	→	(P7-2)
120B18 (P17-20)	→	(P7-3)
116B18 (TB6-2A)	→	(P7-4)
117B18 (TB6-3A)	→	(P7-5)
2L18 (TB4-4A)	→	(P7-6)
(60 HZ) SPARE	→	(P7-7)
(400 HZ) 7D18 (TB4-1A)	→	(P7-7)
43B18 (P10-1)	→	(P7-8)
20D18 (P17-11)	→	(P7-9)
9A18 (P17-12)	→	(P7-10)
44B18 (P10-2)	→	(P7-11)
34A18 (P17-14)	→	(P7-12)
13D18 (TB4-8A)	→	(P7-13)
19A18 (K1-NO 4)	→	(P7-14)
6B18 (K13-X1)	→	(P7-15)
11B18 (K2-X2)	→	(P7-16)
1D18 (K13-A1)	→	(P7-17)
(60 HZ) 102E18 (TB4-3B)	→	(P7-18)
(400 HZ) 102B18 (TB2-N)	→	(P7-18)
109B18 (P17-19)	→	(P7-19)
110B18 (P17-8)	→	(P7-20)
27B18 (TB4-6A)	→	(P7-21)
10A18 (K2-X1)	→	(P7-22)
114B18 (P17-1)	→	(P7-23)
30B18 (P5-1)	→	(P7-24)
29B18 (OP-2)	→	(P7-25)
28B18 (P11-2)	→	(P7-26)
25C18 (P8-2)	→	(P7-27)
115B18 (TB6-1A)	→	(P7-28)
31B18 (K1-2)	→	(P7-29)
23B18 (P8-1)	→	(P7-30)
24C18 (P8-3)	→	(P7-31)
26B18 (P9-1)	→	(P7-32)
101D18 (K1-A1)	→	(P7-33)
35C18 (P17-4)	→	(P7-34)
SPARE	→	(P7-35)
122A18 (P17-16)	→	(P7-36)
121A18 (P17-15)	→	(P7-37)



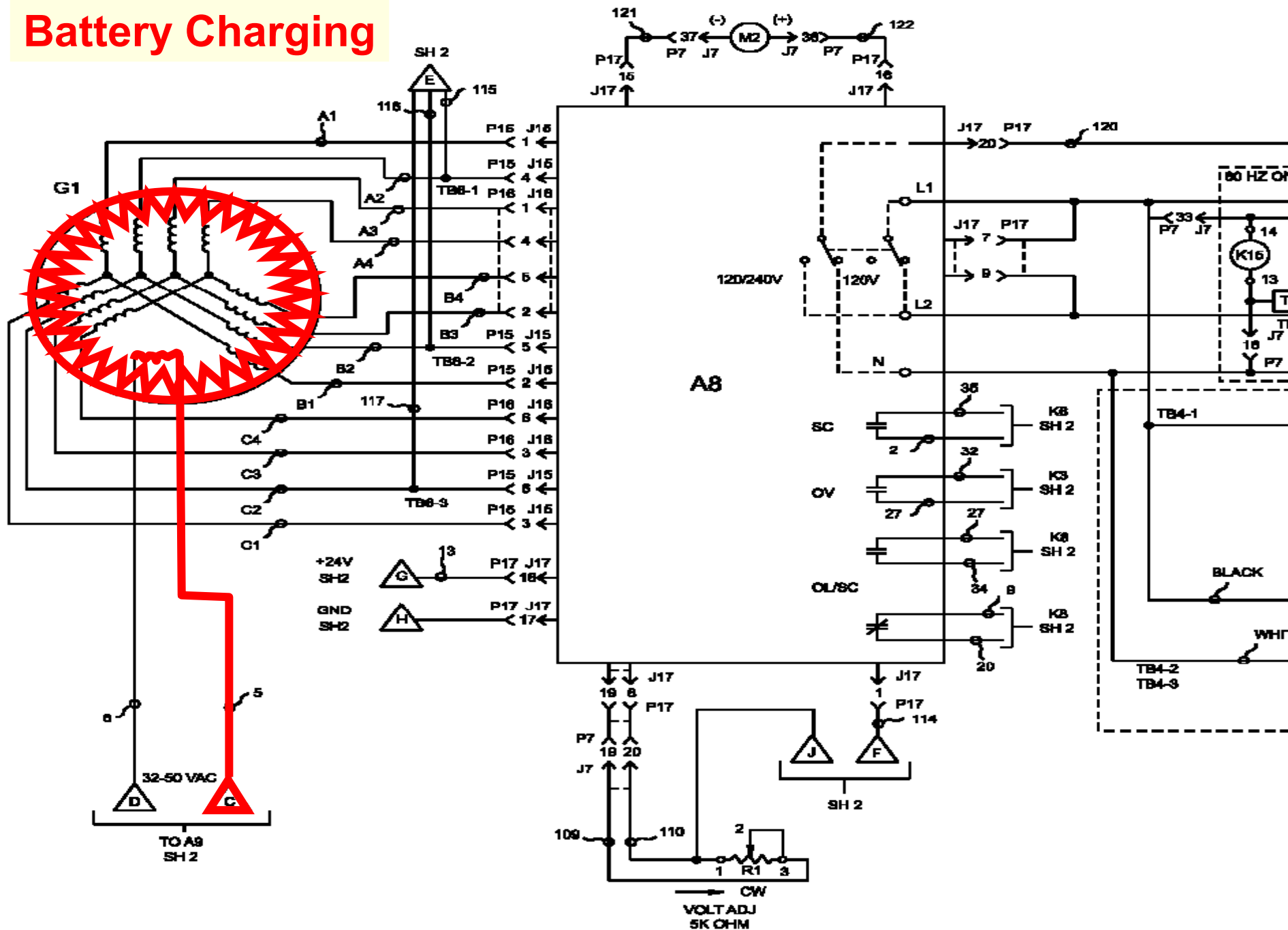
Battery Charging System

Components

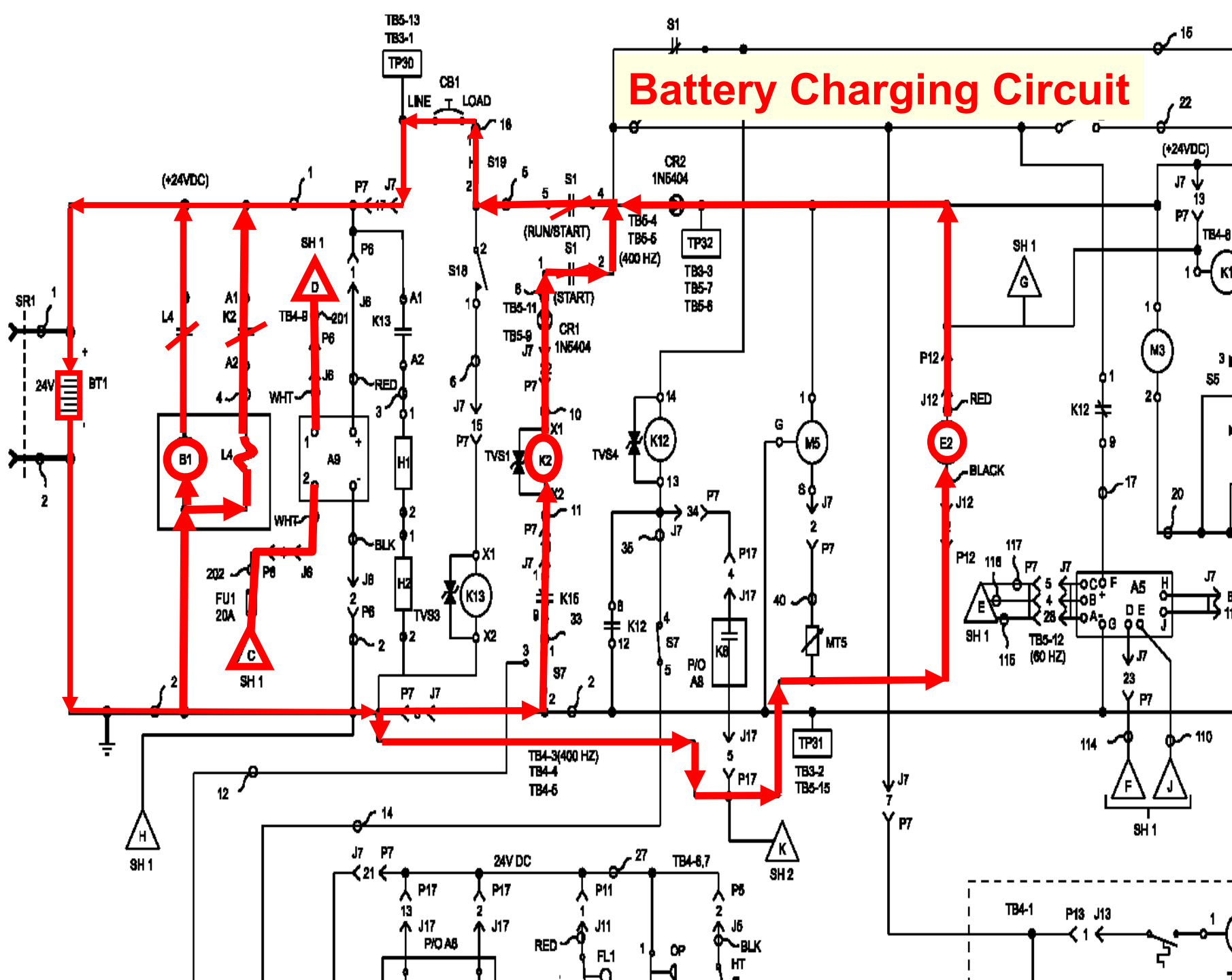
G1 Main Gen

A9 Regulator

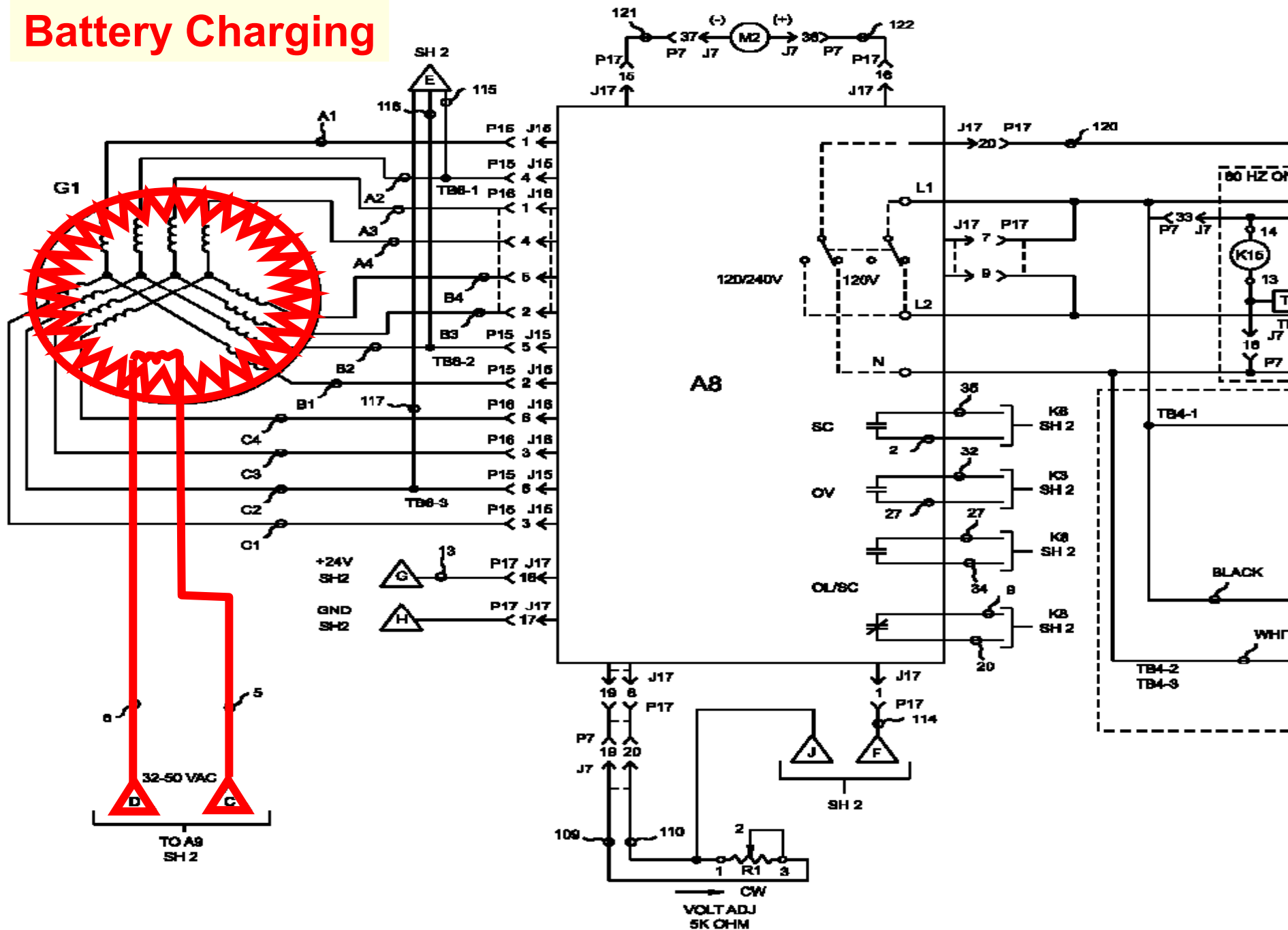
Battery Charging

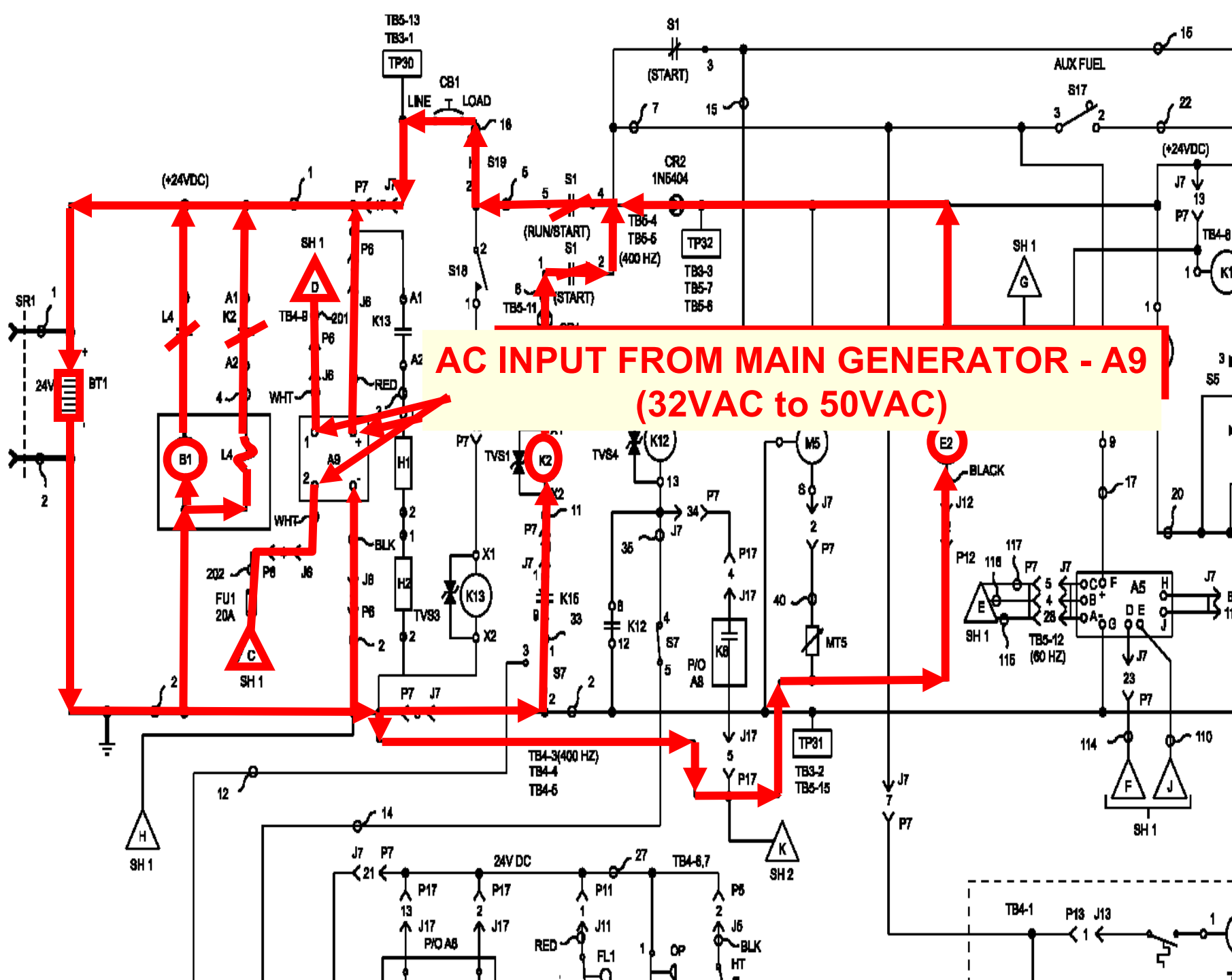


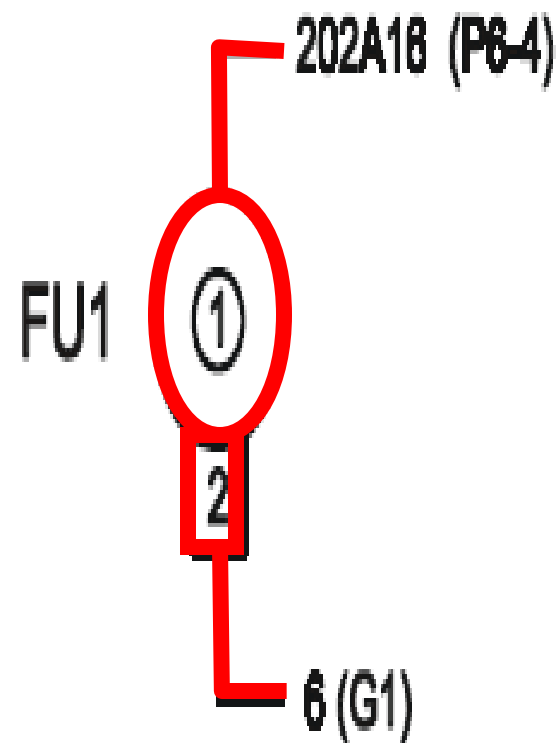
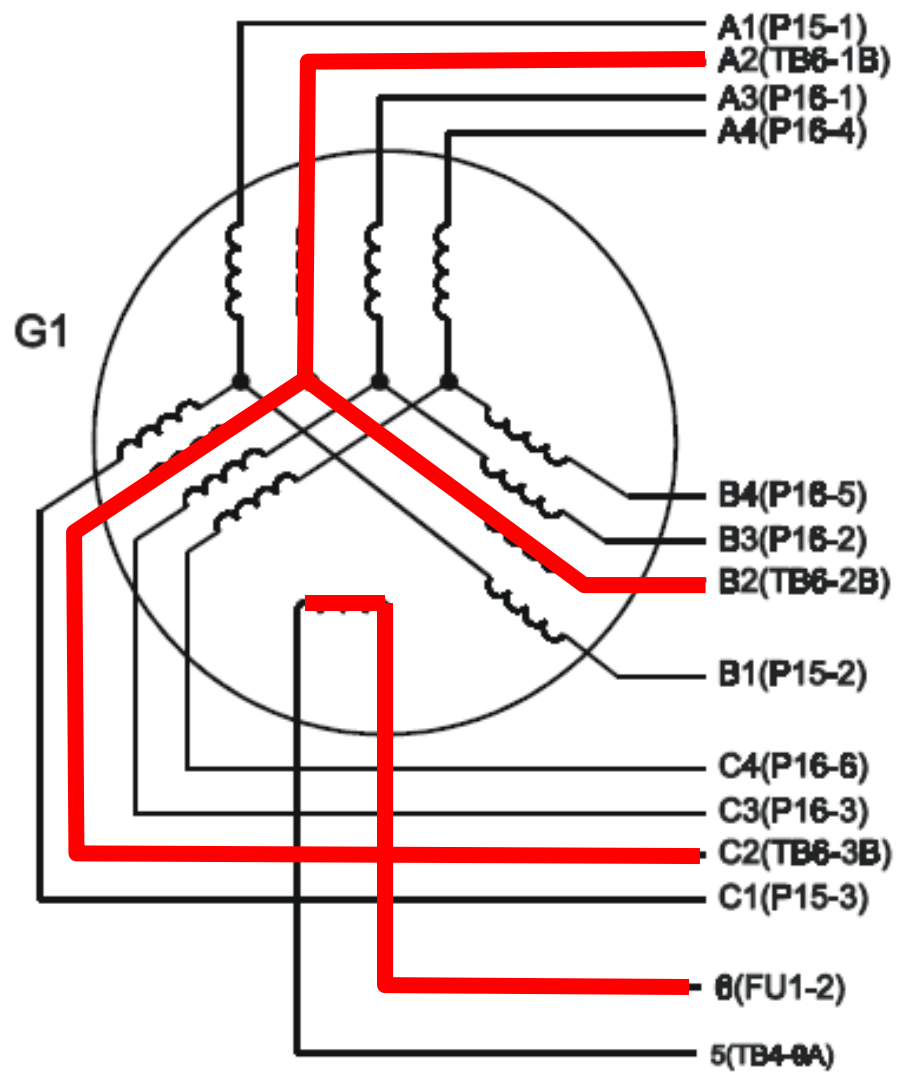
Battery Charging Circuit



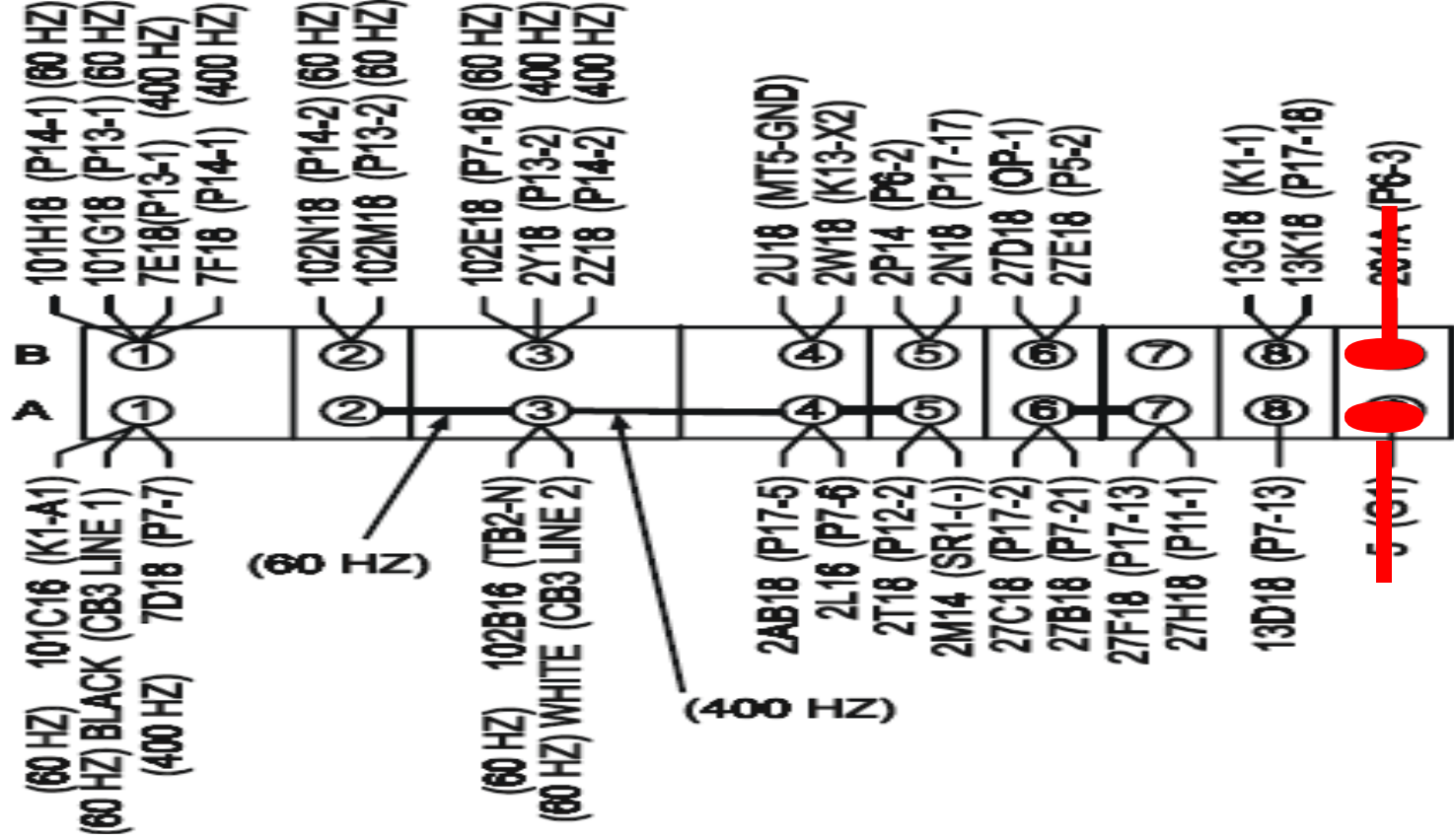
Battery Charging



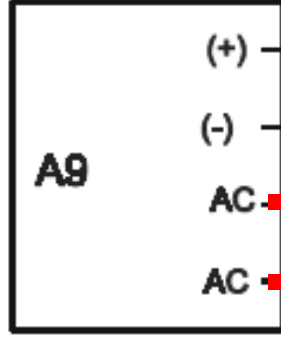




TB4

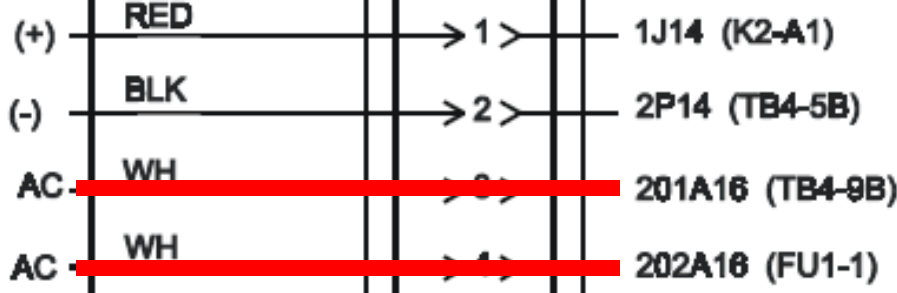


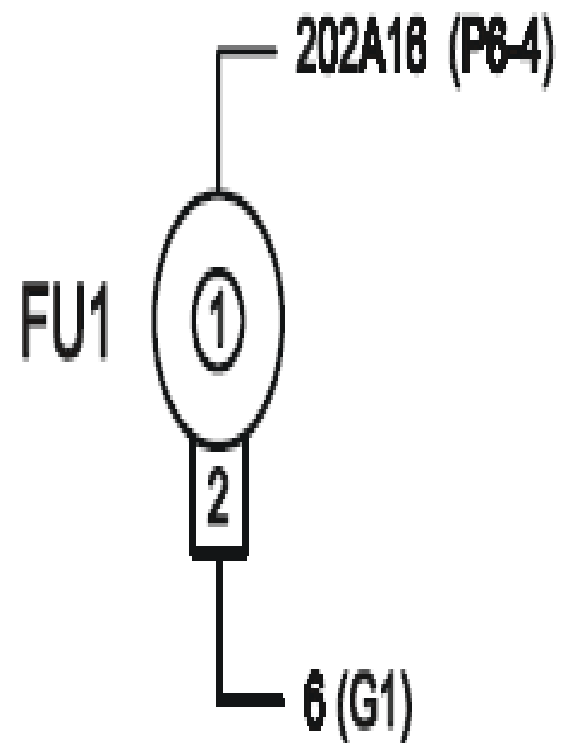
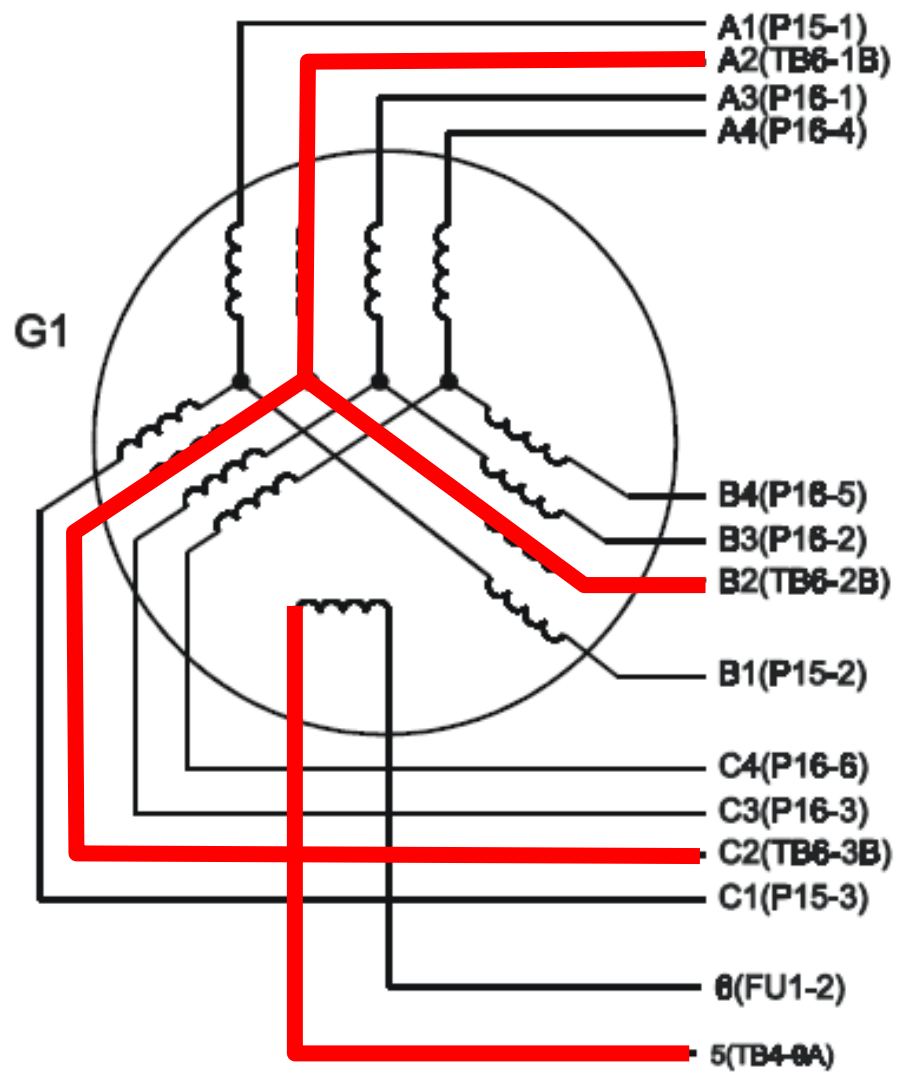
BATTERY CHARGER



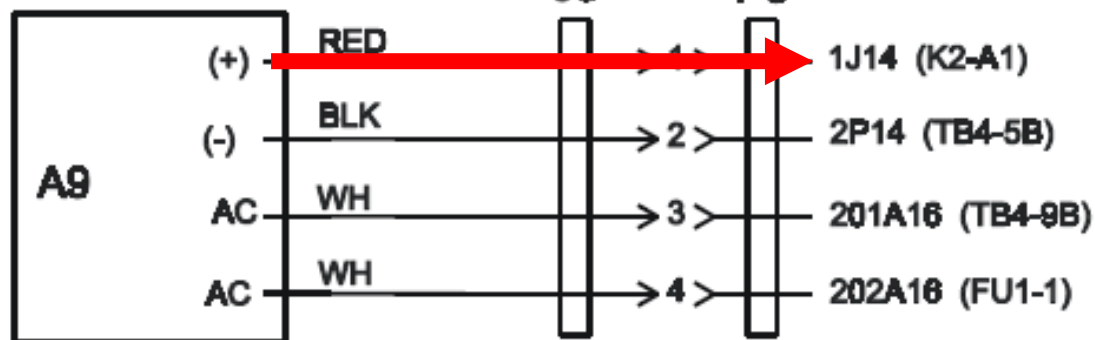
J6

P6

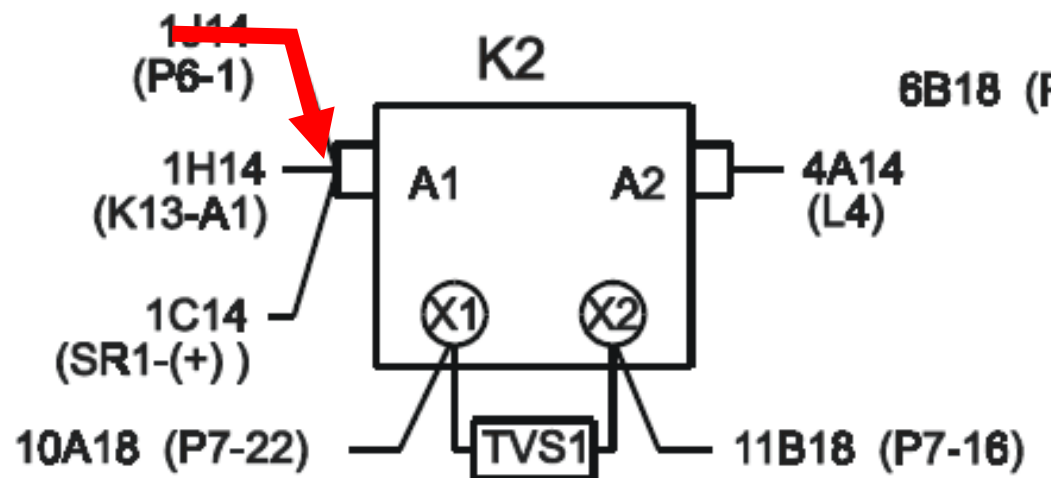




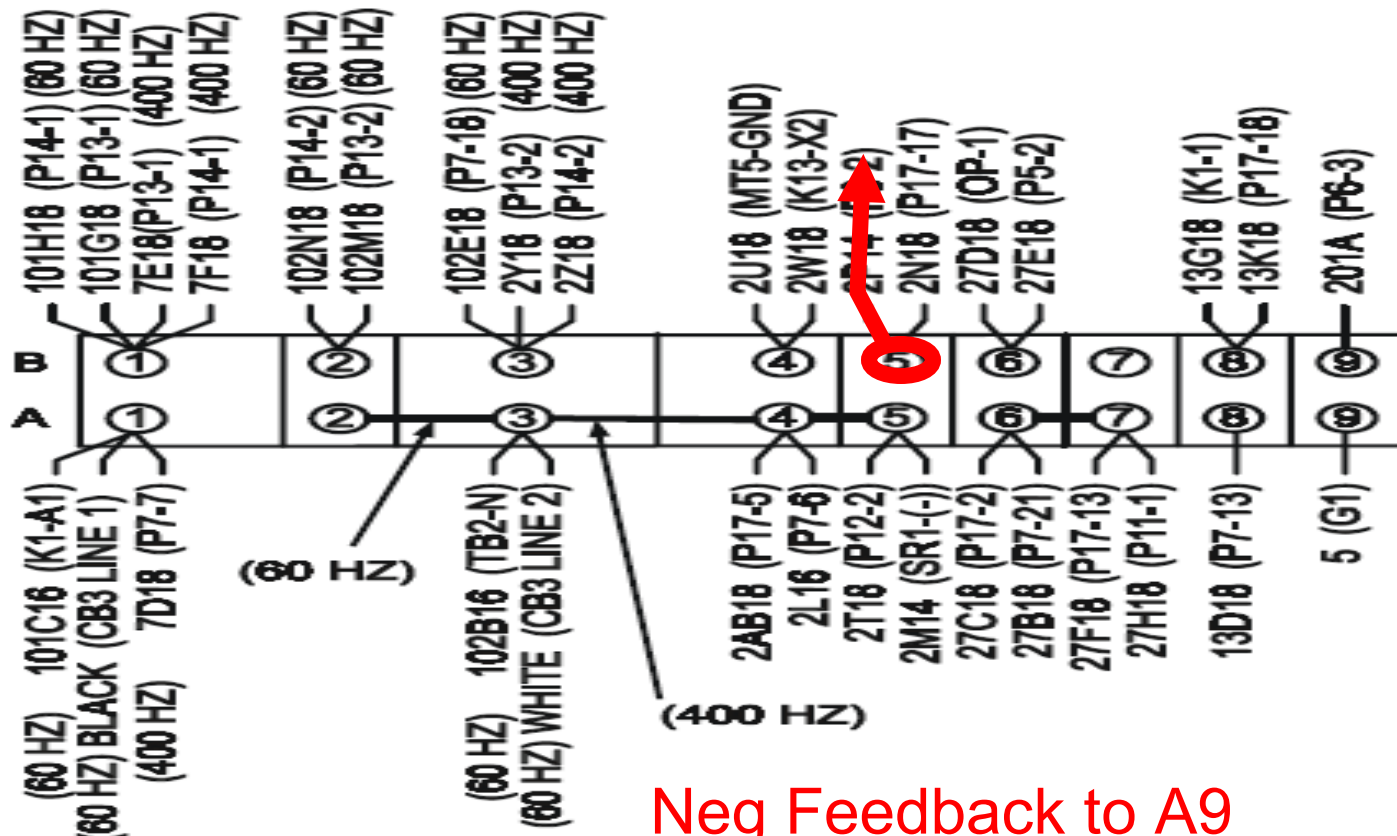
BATTERY CHARGER



A9 Output to Batteries



TB4



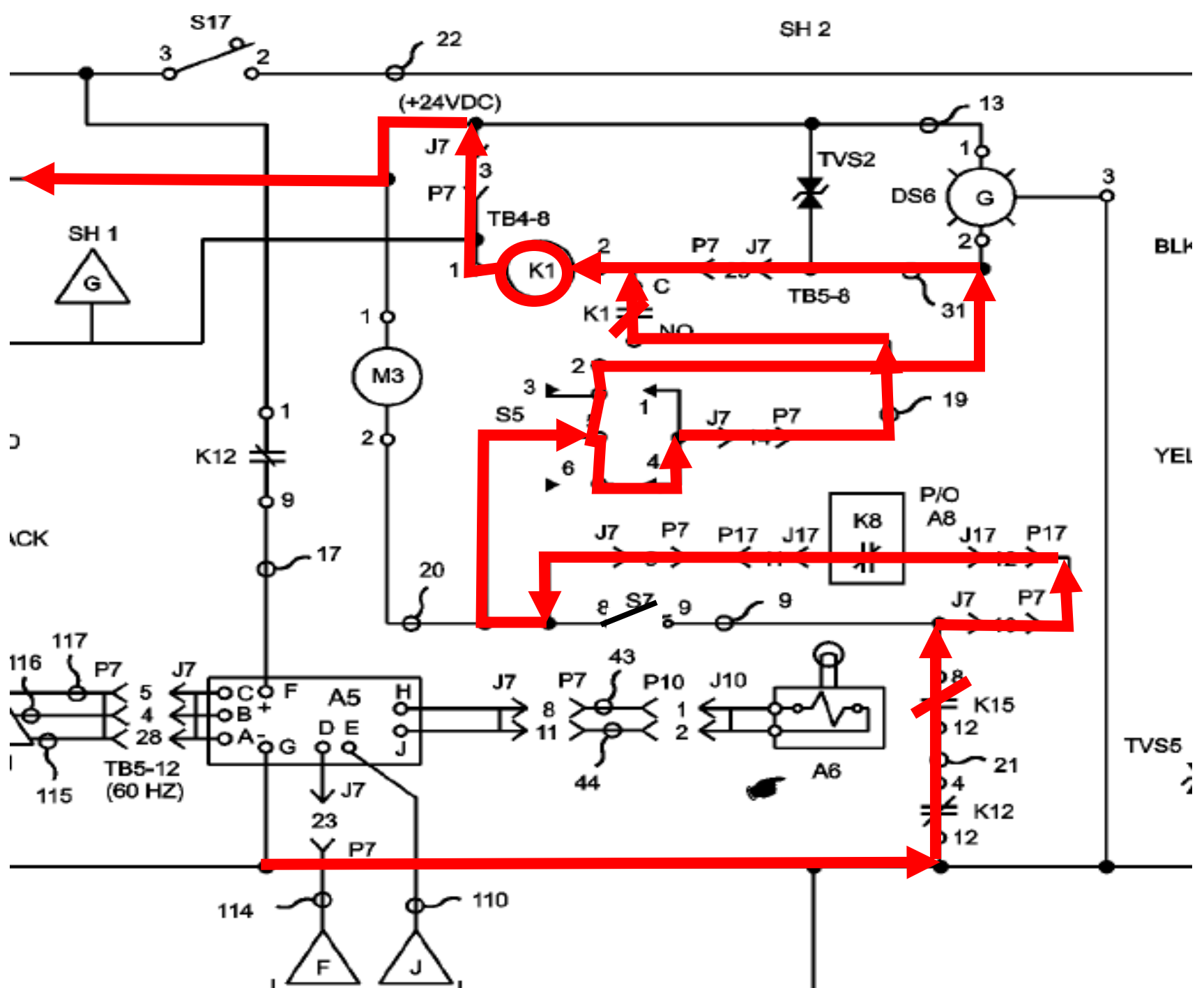
BATTERY CHARGER



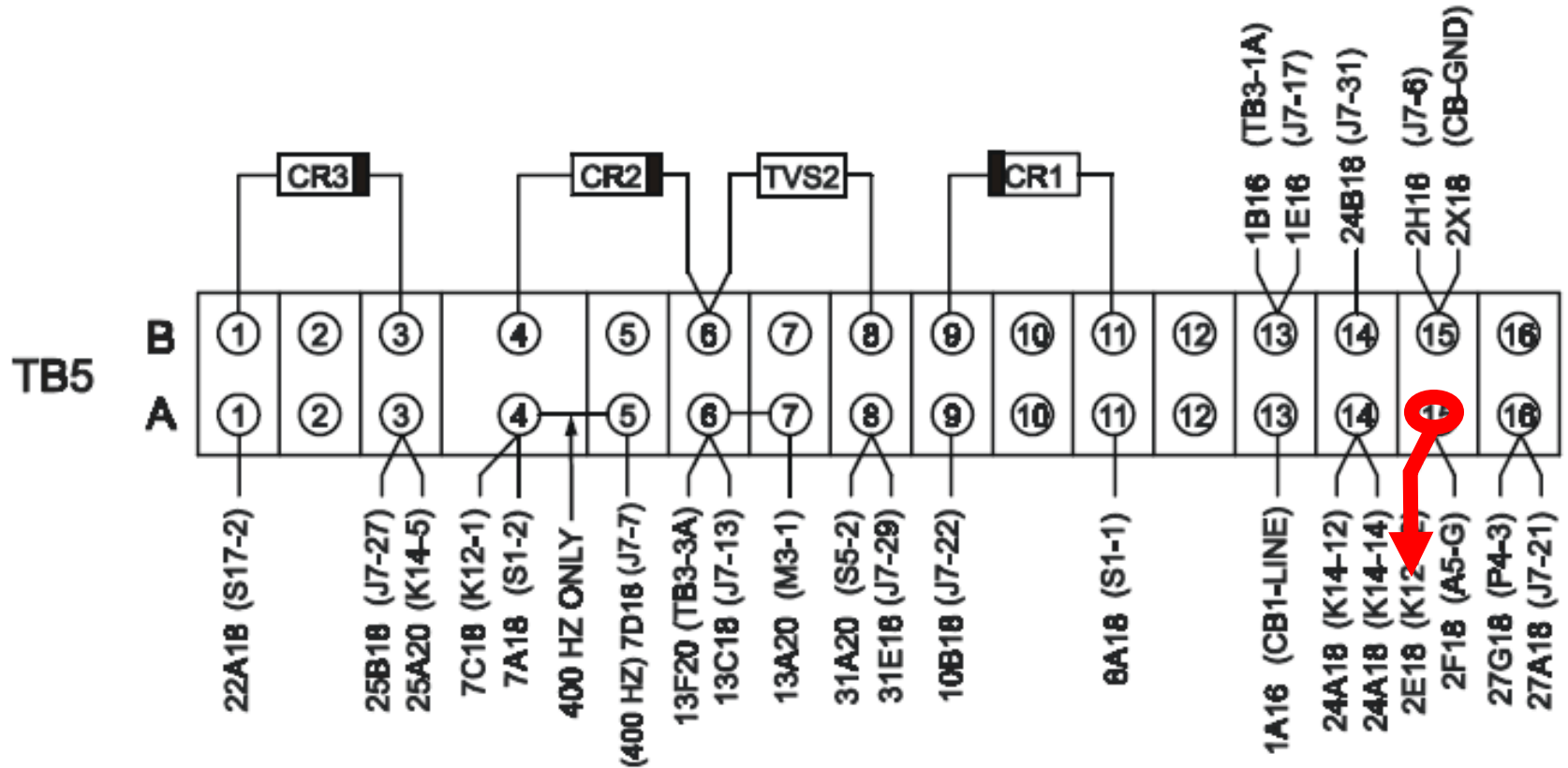
AC Circuit Interrupter

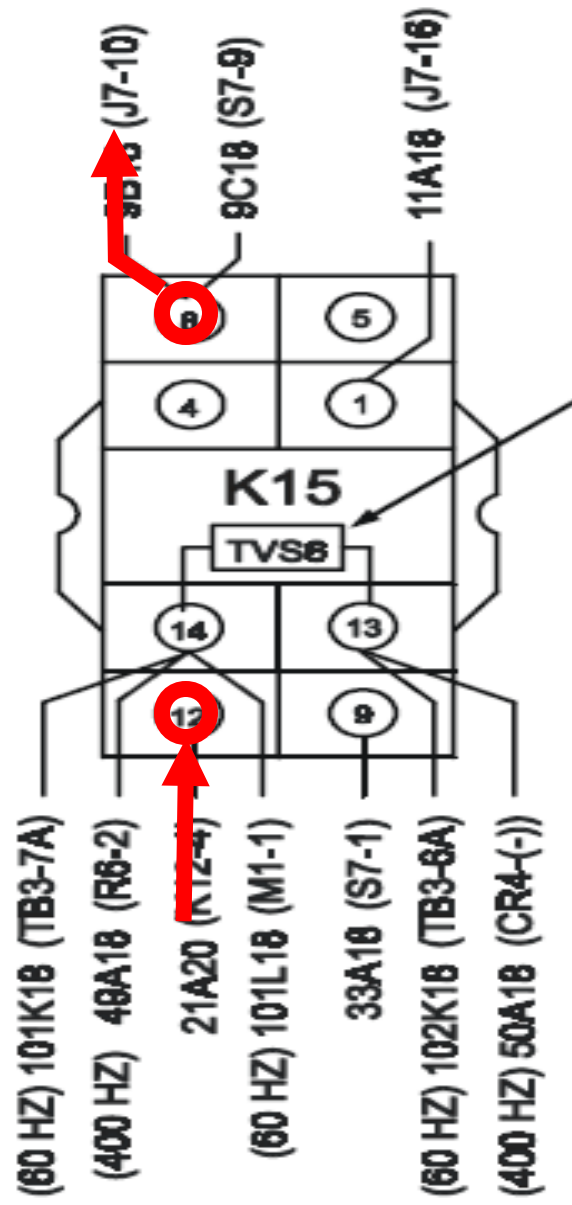
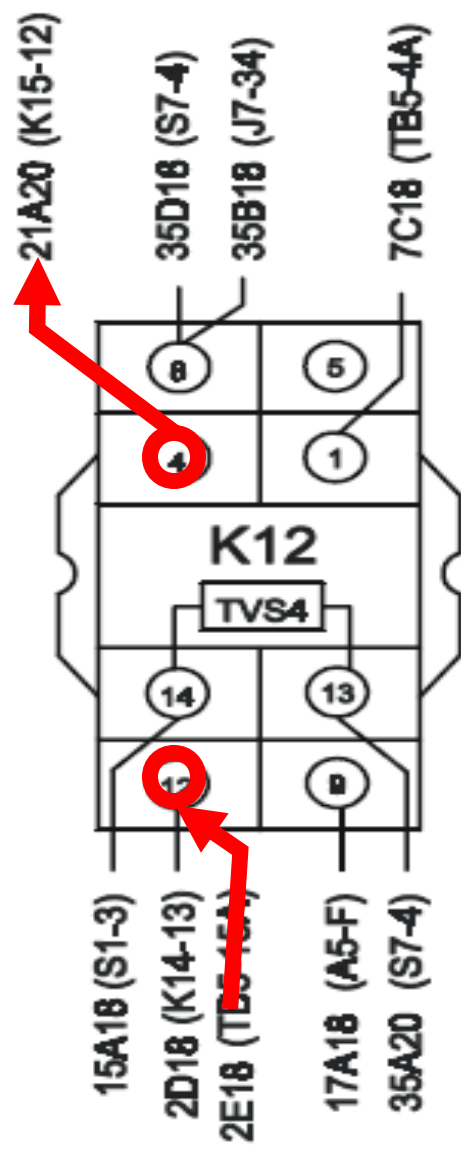
Components

- K1 AC Circuit Interrupter
- S5 Switch AC Interrupter
- K8 Contacts
- K12 Contacts
- K15 Contacts



Pick up Potential At TB5-15A



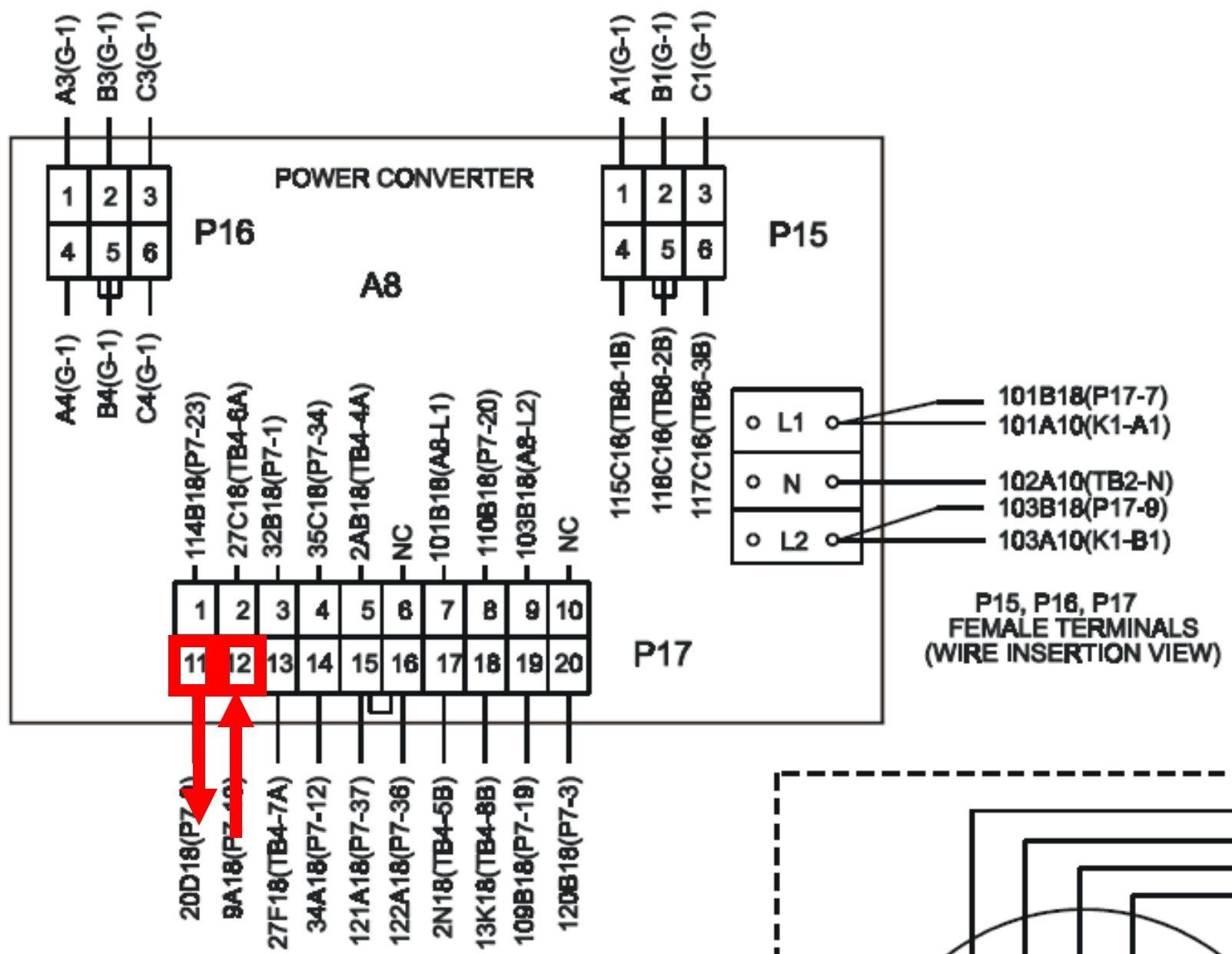


J7

32A18 (P4-4)	→	(J7-1)
40B18 (M5-S)	→	(J7-2)
120A18 (M1-2)	→	(J7-3)
116A18 (A5-B)	→	(J7-4)
117A18 (A5-C)	→	(J7-5)
2H18 (TB5-15B)	→	(J7-6)
(60 HZ) SPARE	→	(J7-7)
(400 HZ) 7D18 (TB5-5A)	→	(J7-7)
43A18 (A5-H)	→	(J7-8)
20C18 (S7-8)	→	(J7-9)
9B18 (K15-8)	→	(J7-10)
44A18 (A5-J)	→	(J7-11)
34B18 (P4-2)	→	(J7-12)
13C18 (TB5-6A)	→	(J7-13)
19B18 (S5-4)	→	(J7-14)
6A18 (S18-1)	→	(J7-15)
11A18 (K15-1)	→	(J7-16)
1E18 (TB5-13B)	→	(J7-17)
102F18 (TB3-6A)	→	(J7-18)
109A18 (R1-3)	→	(J7-19)
110A18 (A5-E)	→	(J7-20)
27A18 (TB5-16A)	→	(J7-21)
10B18 (TB5-9A)	→	(J7-22)
114A18 (A5-D)	→	(J7-23)
30A18 (P4-8)	→	(J7-24)
29A18 (P4-9)	→	(J7-25)
28A18 (P4-10)	→	(J7-26)
25B18 (TB5-3A)	→	(J7-27)
115A18 (A5-A)	→	(J7-28)
31E18 (TB5-8A)	→	(J7-29)
23A18 (K14-8)	→	(J7-30)
24B18 (TB5-14B)	→	(J7-31)
26A18 (K14-9)	→	(J7-32)
101E18 (TB3-7A)	→	(J7-33)
35B18 (K12-8)	→	(J7-34)
SPARE	→	(J7-35)
122B18 (M2-(+))	→	(J7-36)
121B18 (M2-(-))	→	(J7-37)

P7

32B18 (P17-3)	→	(P7-1)
40A18 (MT5-S)	→	(P7-2)
120B18 (P17-20)	→	(P7-3)
116B18 (TB6-2A)	→	(P7-4)
117B18 (TB6-3A)	→	(P7-5)
2L18 (TB4-4A)	→	(P7-6)
(60 HZ) SPARE	→	(P7-7)
(400 HZ) 7D18 (TB4-1A)	→	(P7-7)
43B18 (P10-1)	→	(P7-8)
20D18 (P17-11)	→	(P7-9)
9A18 (P17-12)	→	(P7-10)
44B18 (P10-2)	→	(P7-11)
34A18 (P17-14)	→	(P7-12)
13D18 (TB4-8A)	→	(P7-13)
19A18 (K1-NO 4)	→	(P7-14)
6B18 (K13-X1)	→	(P7-15)
11B18 (K2-X2)	→	(P7-16)
1D18 (K13-A1)	→	(P7-17)
(60 HZ) 102E18 (TB4-3B)	→	(P7-18)
(400 HZ) 102B18 (TB2-N)	→	(P7-18)
109B18 (P17-19)	→	(P7-19)
110B18 (P17-8)	→	(P7-20)
27B18 (TB4-6A)	→	(P7-21)
10A18 (K2-X1)	→	(P7-22)
114B18 (P17-1)	→	(P7-23)
30B18 (P5-1)	→	(P7-24)
29B18 (OP-2)	→	(P7-25)
28B18 (P11-2)	→	(P7-26)
25C18 (P8-2)	→	(P7-27)
115B18 (TB6-1A)	→	(P7-28)
31B18 (K1-2)	→	(P7-29)
23B18 (P8-1)	→	(P7-30)
24C18 (P8-3)	→	(P7-31)
26B18 (P9-1)	→	(P7-32)
101D18 (K1-A1)	→	(P7-33)
35C18 (P17-4)	→	(P7-34)
SPARE	→	(P7-35)
122A18 (P17-16)	→	(P7-36)
121A18 (P17-15)	→	(P7-37)

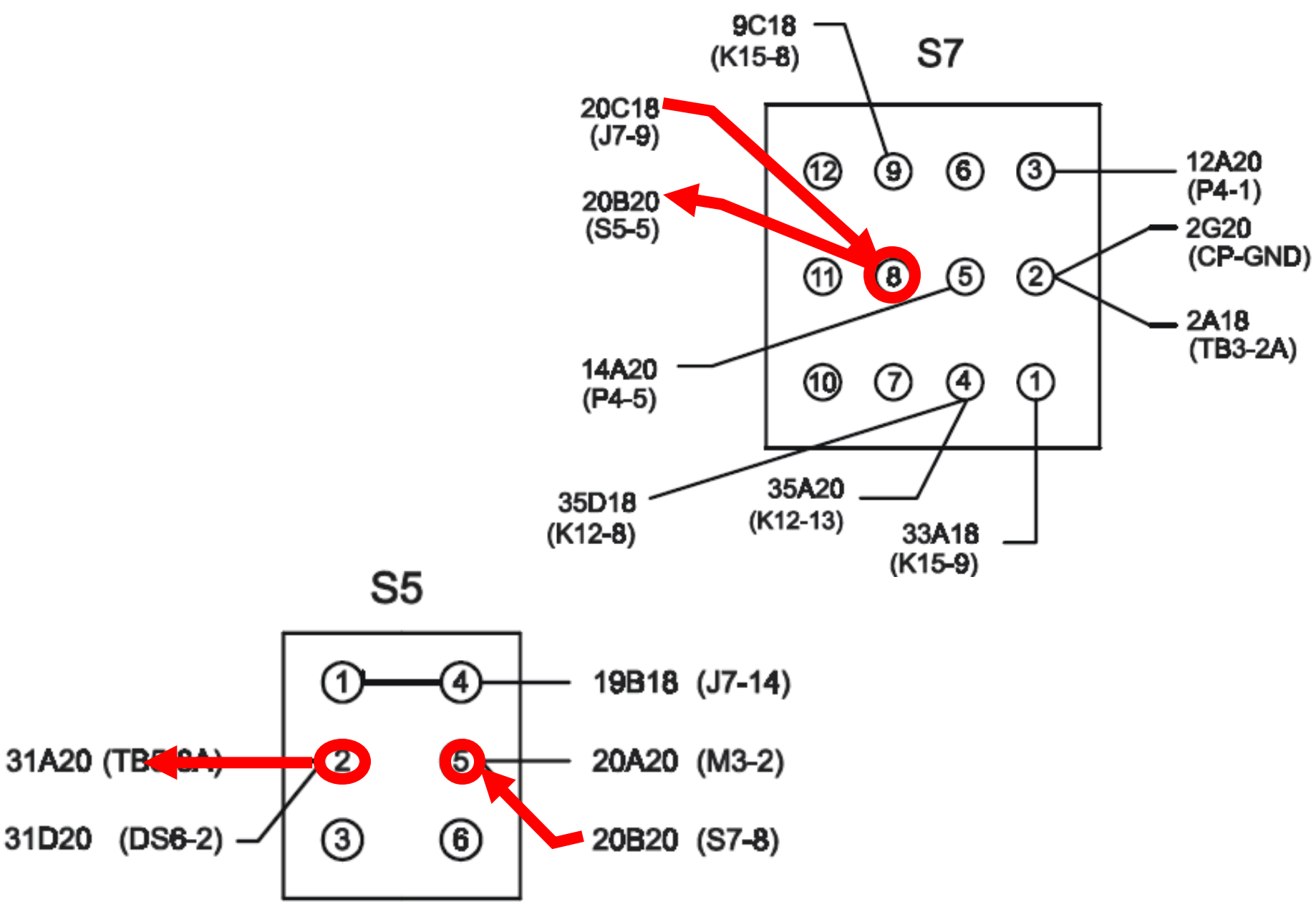


J7

32A18 (P4-4)	→	(J7-1)
40B18 (M5-S)	→	(J7-2)
120A18 (M1-2)	→	(J7-3)
116A18 (A5-B)	→	(J7-4)
117A18 (A5-C)	→	(J7-5)
2H18 (TB5-15B)	→	(J7-6)
(60 HZ) SPARE	→	(J7-7)
(400 HZ) 7D18 (TB5-5A)	→	(J7-7)
43A18 (A5-H)	→	(J7-8)
20C18 (S7-8)	←	(J7-9)
9B18 (K15-8)	→	(J7-10)
44A18 (A5-J)	→	(J7-11)
34B18 (P4-2)	→	(J7-12)
13C18 (TB5-6A)	→	(J7-13)
19B18 (S5-4)	→	(J7-14)
6A18 (S18-1)	→	(J7-15)
11A18 (K15-1)	→	(J7-16)
1E18 (TB5-13B)	→	(J7-17)
102F18 (TB3-6A)	→	(J7-18)
109A18 (R1-3)	→	(J7-19)
110A18 (A5-E)	→	(J7-20)
27A18 (TB5-16A)	→	(J7-21)
10B18 (TB5-9A)	→	(J7-22)
114A18 (A5-D)	→	(J7-23)
30A18 (P4-8)	→	(J7-24)
29A18 (P4-9)	→	(J7-25)
28A18 (P4-10)	→	(J7-26)
25B18 (TB5-3A)	→	(J7-27)
115A18 (A5-A)	→	(J7-28)
31E18 (TB5-8A)	→	(J7-29)
23A18 (K14-8)	→	(J7-30)
24B18 (TB5-14B)	→	(J7-31)
26A18 (K14-9)	→	(J7-32)
101E18 (TB3-7A)	→	(J7-33)
35B18 (K12-8)	→	(J7-34)
SPARE	→	(J7-35)
122B18 (M2-(+))	→	(J7-36)
121B18 (M2-(-))	→	(J7-37)

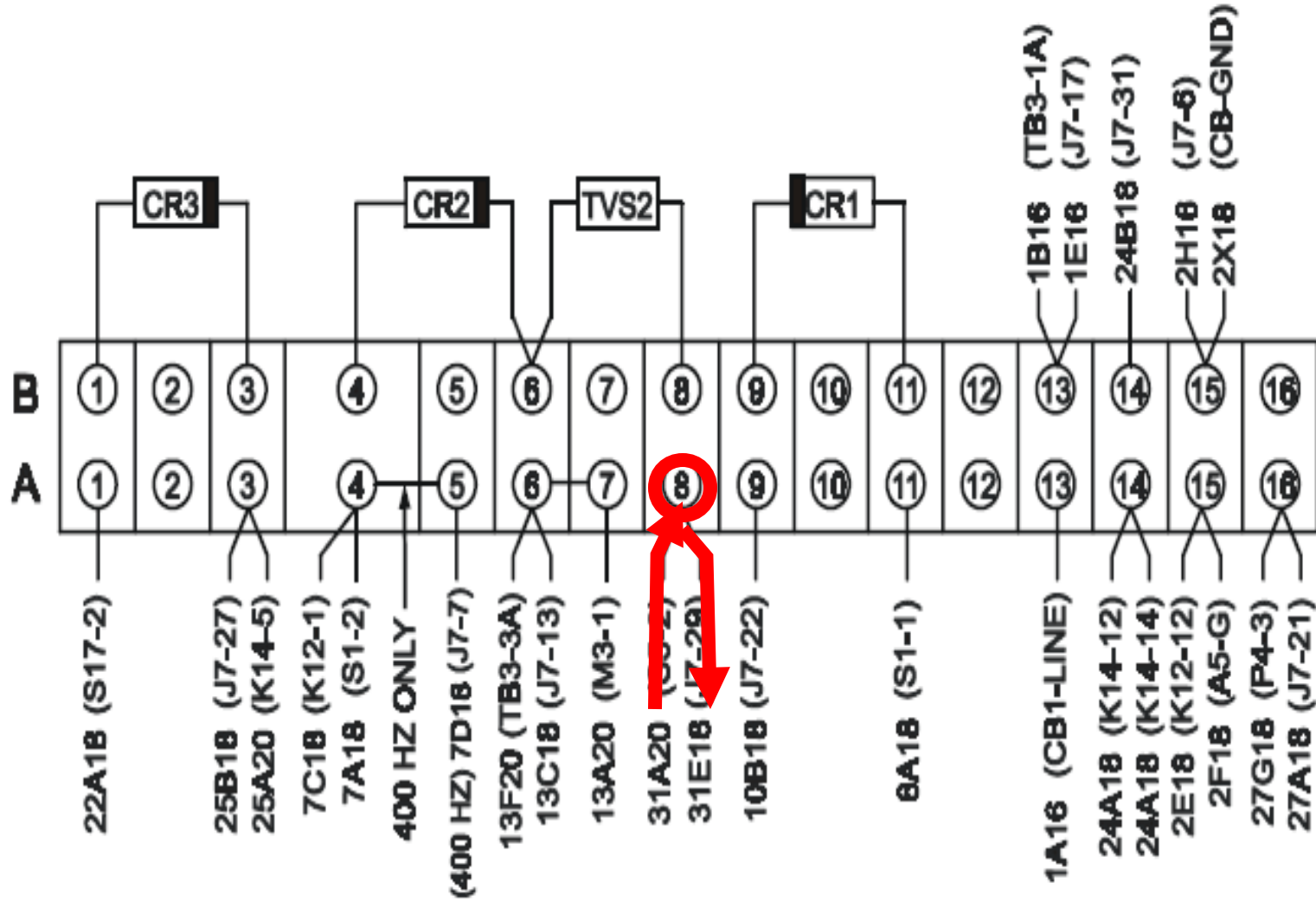
P7

32B18 (P17-3)	→	(P7-1)
40A18 (MT5-S)	→	(P7-2)
120B18 (P17-20)	→	(P7-3)
116B18 (TB6-2A)	→	(P7-4)
117B18 (TB6-3A)	→	(P7-5)
2L18 (TB4-4A)	→	(P7-6)
(60 HZ) SPARE	→	(P7-7)
(400 HZ) 7D18 (TB4-1A)	→	(P7-7)
43B18 (P10-1)	→	(P7-8)
20D18 (P17-11)	→	(P7-9)
9A18 (P17-12)	→	(P7-10)
44B18 (P10-2)	→	(P7-11)
34A18 (P17-14)	→	(P7-12)
13D18 (TB4-8A)	→	(P7-13)
19A18 (K1-NO 4)	→	(P7-14)
6B18 (K13-X1)	→	(P7-15)
11B18 (K2-X2)	→	(P7-16)
1D18 (K13-A1)	→	(P7-17)
(60 HZ) 102E18 (TB4-3B)	→	(P7-18)
(400 HZ) 102B18 (TB2-N)	→	(P7-18)
109B18 (P17-19)	→	(P7-19)
110B18 (P17-8)	→	(P7-20)
27B18 (TB4-6A)	→	(P7-21)
10A18 (K2-X1)	→	(P7-22)
114B18 (P17-1)	→	(P7-23)
30B18 (P5-1)	→	(P7-24)
29B18 (OP-2)	→	(P7-25)
28B18 (P11-2)	→	(P7-26)
25C18 (P8-2)	→	(P7-27)
115B18 (TB6-1A)	→	(P7-28)
31B18 (K1-2)	→	(P7-29)
23B18 (P8-1)	→	(P7-30)
24C18 (P8-3)	→	(P7-31)
26B18 (P9-1)	→	(P7-32)
101D18 (K1-A1)	→	(P7-33)
35C18 (P17-4)	→	(P7-34)
SPARE	→	(P7-35)
122A18 (P17-16)	→	(P7-36)
121A18 (P17-15)	→	(P7-37)



AC CIRCUIT INTERRUPTER

TB5



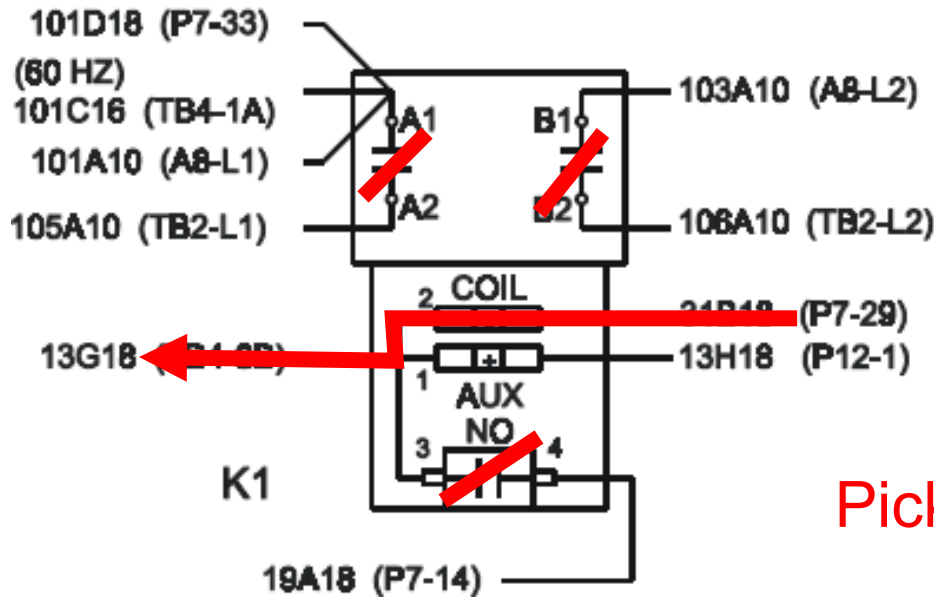
J7

32A18 (P4-4)	→	(J7-1)
40B18 (M5-S)	→	(J7-2)
120A18 (M1-2)	→	(J7-3)
116A18 (A5-B)	→	(J7-4)
117A18 (A5-C)	→	(J7-5)
2H18 (TB5-15B)	→	(J7-6)
(60 HZ) SPARE	→	(J7-7)
(400 HZ) 7D18 (TB5-5A)	→	(J7-7)
43A18 (A5-H)	→	(J7-8)
20C18 (S7-8)	→	(J7-9)
9B18 (K15-8)	→	(J7-10)
44A18 (A5-J)	→	(J7-11)
34B18 (P4-2)	→	(J7-12)
13C18 (TB5-6A)	→	(J7-13)
19B18 (S5-4)	→	(J7-14)
6A18 (S18-1)	→	(J7-15)
11A18 (K15-1)	→	(J7-16)
1E18 (TB5-13B)	→	(J7-17)
102F18 (TB3-6A)	→	(J7-18)
109A18 (R1-3)	→	(J7-19)
110A18 (A5-E)	→	(J7-20)
27A18 (TB5-16A)	→	(J7-21)
10B18 (TB5-9A)	→	(J7-22)
114A18 (A5-D)	→	(J7-23)
30A18 (P4-8)	→	(J7-24)
29A18 (P4-9)	→	(J7-25)
28A18 (P4-10)	→	(J7-26)
25B18 (TB5-3A)	→	(J7-27)
115A18 (A5-A)	→	(J7-28)
31E18 (TB5-8A)	→	(J7-29)
23A18 (K14-8)	→	(J7-30)
24B18 (TB5-14B)	→	(J7-31)
26A18 (K14-9)	→	(J7-32)
101E18 (TB3-7A)	→	(J7-33)
35B18 (K12-8)	→	(J7-34)
SPARE	→	(J7-35)
122B18 (M2-(+))	→	(J7-36)
121B18 (M2-(-))	→	(J7-37)

P7

32B18 (P17-3)	→	(P7-1)
40A18 (MT5-S)	→	(P7-2)
120B18 (P17-20)	→	(P7-3)
116B18 (TB6-2A)	→	(P7-4)
117B18 (TB6-3A)	→	(P7-5)
2L18 (TB4-4A)	→	(P7-6)
(60 HZ) SPARE	→	(P7-7)
(400 HZ) 7D18 (TB4-1A)	→	(P7-7)
43B18 (P10-1)	→	(P7-8)
20D18 (P17-11)	→	(P7-9)
9A18 (P17-12)	→	(P7-10)
44B18 (P10-2)	→	(P7-11)
34A18 (P17-14)	→	(P7-12)
13D18 (TB4-8A)	→	(P7-13)
19A18 (K1-NO 4)	→	(P7-14)
6B18 (K13-X1)	→	(P7-15)
11B18 (K2-X2)	→	(P7-16)
1D18 (K13-A1)	→	(P7-17)
(60 HZ) 102E18 (TB4-3B)	→	(P7-18)
(400 HZ) 102B18 (TB2-N)	→	(P7-18)
109B18 (P17-19)	→	(P7-19)
110B18 (P17-8)	→	(P7-20)
27B18 (TB4-6A)	→	(P7-21)
10A18 (K2-X1)	→	(P7-22)
114B18 (P17-1)	→	(P7-23)
30B18 (P5-1)	→	(P7-24)
29B18 (OP-2)	→	(P7-25)
28B18 (P11-2)	→	(P7-26)
25C18 (P8-2)	→	(P7-27)
115B18 (TB6-1A)	→	(P7-28)
31B18 (K1-2)	→	(P7-29)
23B18 (P8-1)	→	(P7-30)
24C18 (P8-3)	→	(P7-31)
26B18 (P9-1)	→	(P7-32)
101D18 (K1-A1)	→	(P7-33)
35C18 (P17-4)	→	(P7-34)
SPARE	→	(P7-35)
122A18 (P17-16)	→	(P7-36)
121A18 (P17-15)	→	(P7-37)

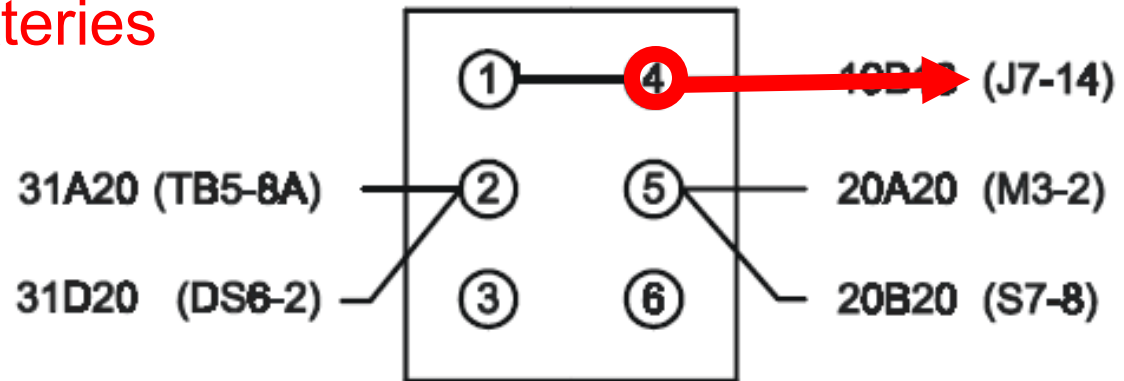
AC CIRCUIT INTERRUPTER



Pick up Potential S5-4 for Holding contacts

From K1 take same path back
To the batteries

S5



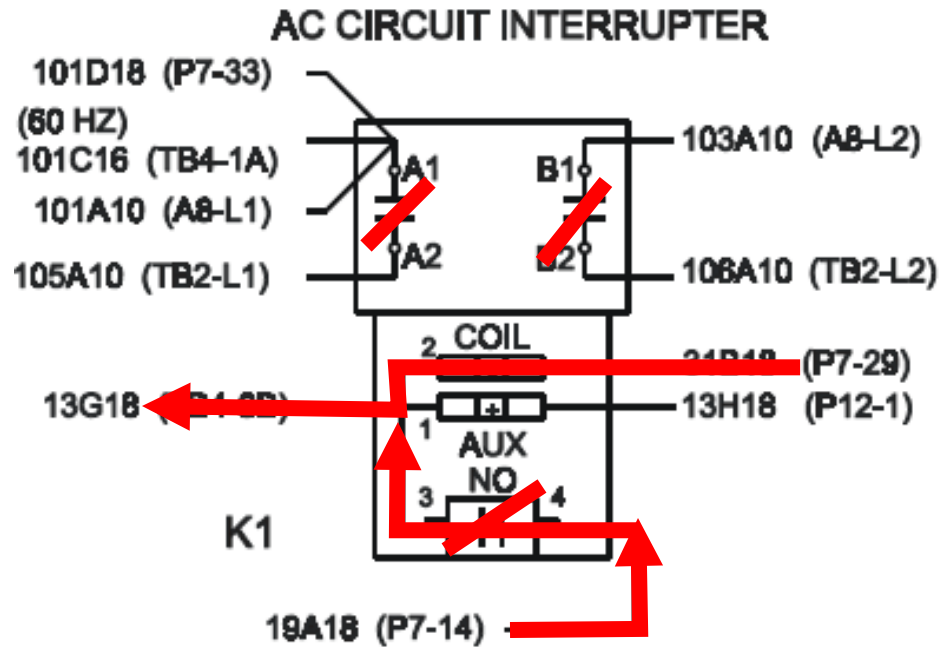
AC CIRCUIT INTERRUPTER

J7

32A18 (P4-4)	→	(J7-1)
40B18 (M5-S)	→	(J7-2)
120A18 (M1-2)	→	(J7-3)
116A18 (A5-B)	→	(J7-4)
117A18 (A5-C)	→	(J7-5)
2H18 (TB5-15B)	→	(J7-6)
(60 HZ) SPARE	→	(J7-7)
(400 HZ) 7D18 (TB5-5A)	→	(J7-7)
43A18 (A5-H)	→	(J7-8)
20C18 (S7-8)	→	(J7-9)
9B18 (K15-8)	→	(J7-10)
44A18 (A5-J)	→	(J7-11)
34B18 (P4-2)	→	(J7-12)
13C18 (TB5-6A)	→	(J7-13)
19B18 (S5-4)	→	(J7-14)
6A18 (S18-1)	→	(J7-15)
11A18 (K15-1)	→	(J7-16)
1E18 (TB5-13B)	→	(J7-17)
102F18 (TB3-6A)	→	(J7-18)
109A18 (R1-3)	→	(J7-19)
110A18 (A5-E)	→	(J7-20)
27A18 (TB5-16A)	→	(J7-21)
10B18 (TB5-9A)	→	(J7-22)
114A18 (A5-D)	→	(J7-23)
30A18 (P4-8)	→	(J7-24)
29A18 (P4-9)	→	(J7-25)
28A18 (P4-10)	→	(J7-26)
25B18 (TB5-3A)	→	(J7-27)
115A18 (A5-A)	→	(J7-28)
31E18 (TB5-8A)	→	(J7-29)
23A18 (K14-8)	→	(J7-30)
24B18 (TB5-14B)	→	(J7-31)
26A18 (K14-9)	→	(J7-32)
101E18 (TB3-7A)	→	(J7-33)
35B18 (K12-8)	→	(J7-34)
SPARE	→	(J7-35)
122B18 (M2-(+))	→	(J7-36)
121B18 (M2-(-))	→	(J7-37)

P7

32B18 (P17-3)	→	(P7-1)
40A18 (MT5-S)	→	(P7-2)
120B18 (P17-20)	→	(P7-3)
116B18 (TB6-2A)	→	(P7-4)
117B18 (TB6-3A)	→	(P7-5)
2L18 (TB4-4A)	→	(P7-6)
(60 HZ) SPARE	→	(P7-7)
(400 HZ) 7D18 (TB4-1A)	→	(P7-7)
43B18 (P10-1)	→	(P7-8)
20D18 (P17-11)	→	(P7-9)
9A18 (P17-12)	→	(P7-10)
44B18 (P10-2)	→	(P7-11)
34A18 (P17-14)	→	(P7-12)
13D18 (TB4-8A)	→	(P7-13)
19A18 (K1-NO 4)	→	(P7-14)
6B18 (K13-X1)	→	(P7-15)
11B18 (K2-X2)	→	(P7-16)
1D18 (K13-A1)	→	(P7-17)
(60 HZ) 102E18 (TB4-3B)	→	(P7-18)
(400 HZ) 102B18 (TB2-N)	→	(P7-18)
109B18 (P17-19)	→	(P7-19)
110B18 (P17-8)	→	(P7-20)
27B18 (TB4-6A)	→	(P7-21)
10A18 (K2-X1)	→	(P7-22)
114B18 (P17-1)	→	(P7-23)
30B18 (P5-1)	→	(P7-24)
29B18 (OP-2)	→	(P7-25)
28B18 (P11-2)	→	(P7-26)
25C18 (P8-2)	→	(P7-27)
115B18 (TB6-1A)	→	(P7-28)
31B18 (K1-2)	→	(P7-29)
23B18 (P8-1)	→	(P7-30)
24C18 (P8-3)	→	(P7-31)
26B18 (P9-1)	→	(P7-32)
101D18 (K1-A1)	→	(P7-33)
35C18 (P17-4)	→	(P7-34)
SPARE	→	(P7-35)
122A18 (P17-16)	→	(P7-36)
121A18 (P17-15)	→	(P7-37)

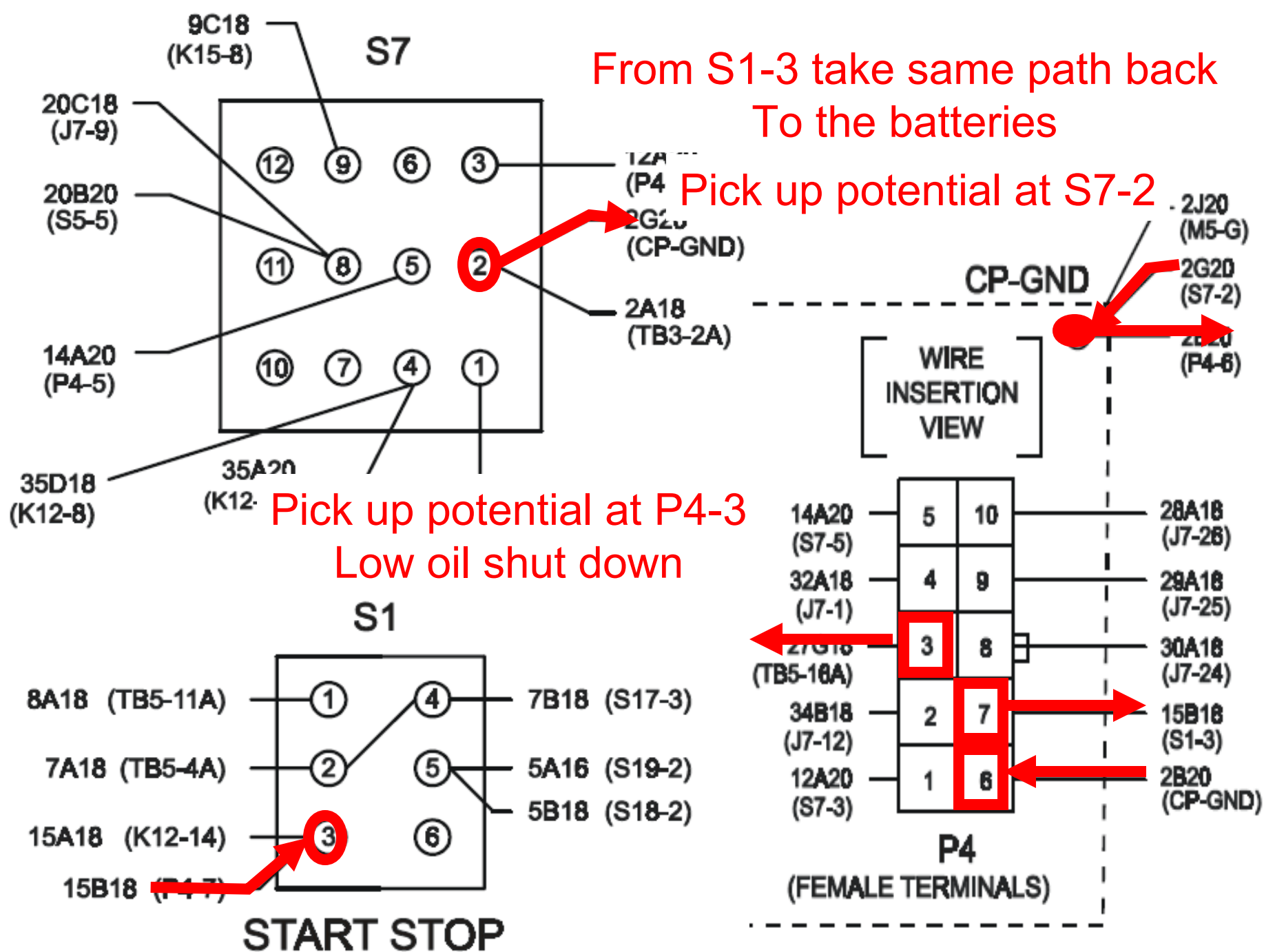


From K1 take same path back
To the batteries

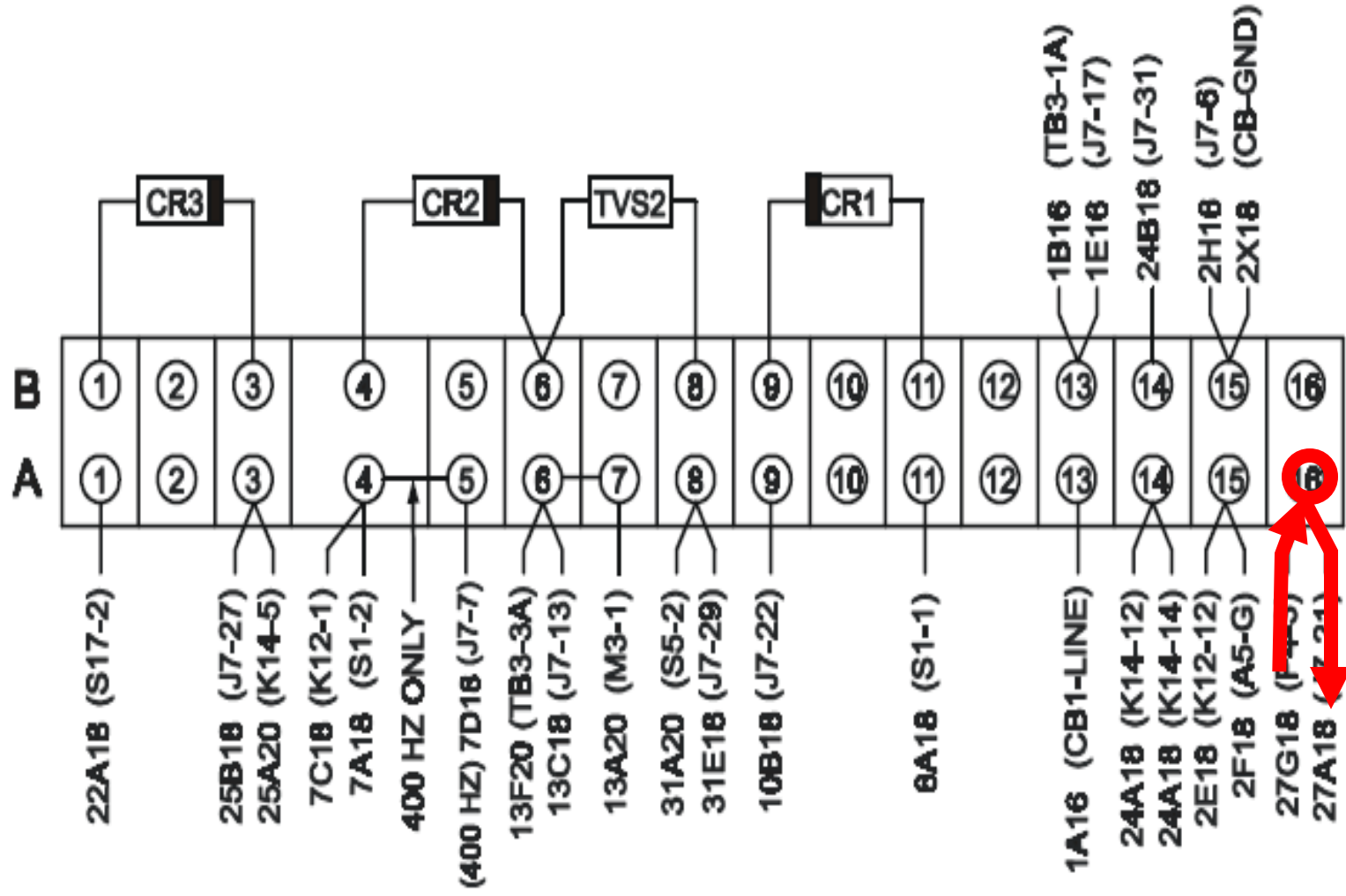
Safety Circuit

Components

- A2 Malfunction Group
- K12 Fault Relay



TB5



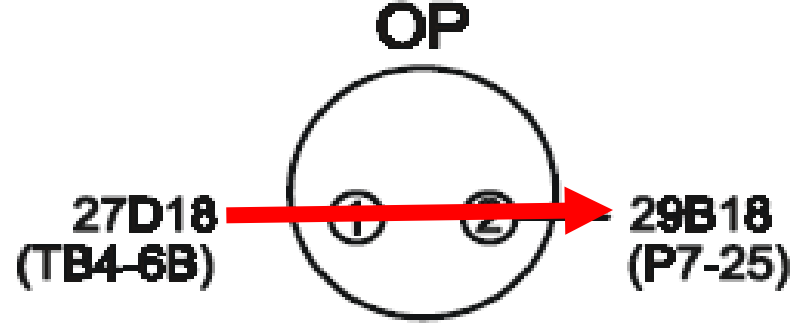
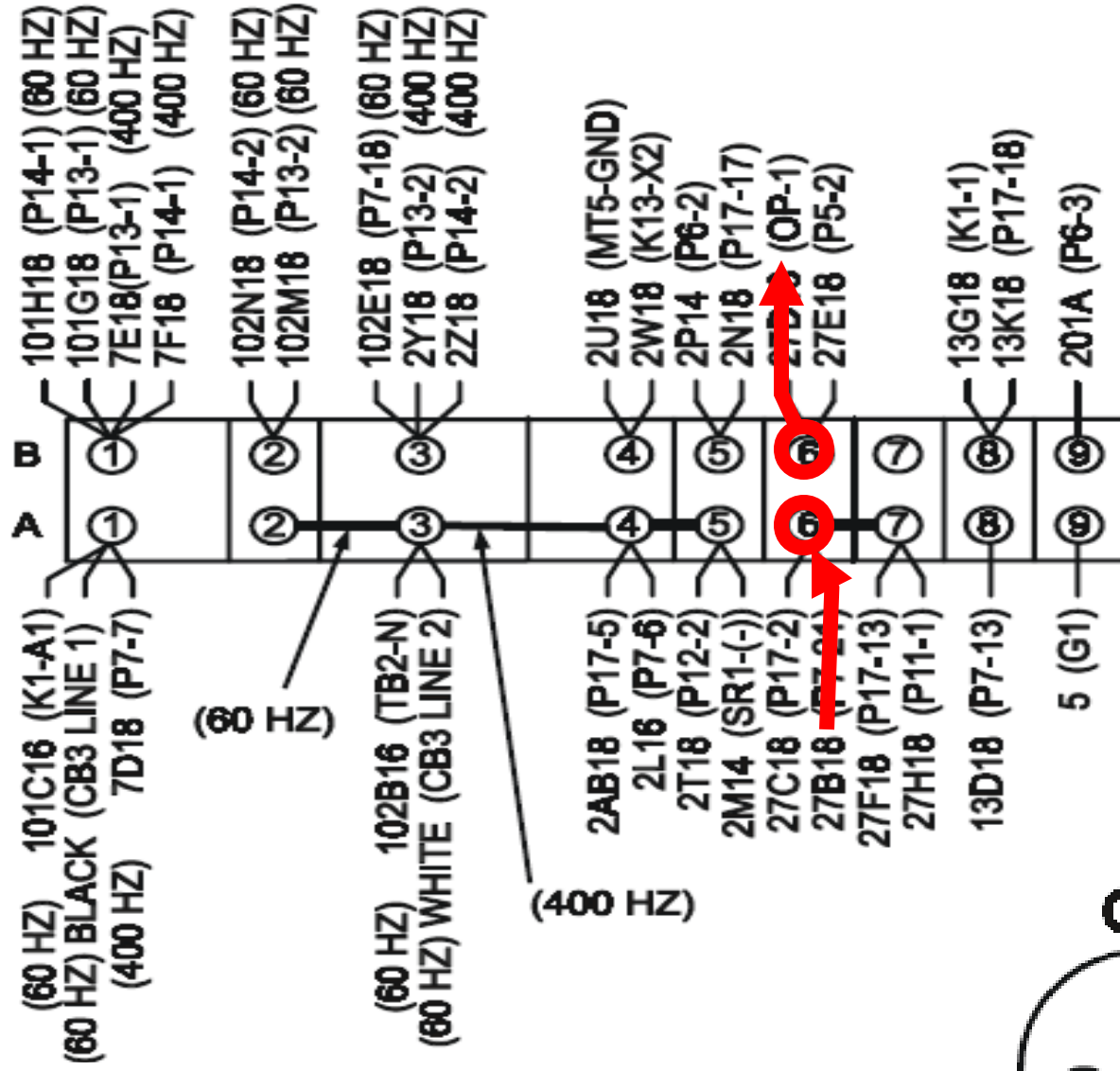
J7

32A18 (P4-4)	→	(J7-1)
40B18 (M5-S)	→	(J7-2)
120A18 (M1-2)	→	(J7-3)
116A18 (A5-B)	→	(J7-4)
117A18 (A5-C)	→	(J7-5)
2H18 (TB5-15B)	→	(J7-6)
(60 HZ) SPARE	→	(J7-7)
(400 HZ) 7D18 (TB5-5A)	→	(J7-7)
43A18 (A5-H)	→	(J7-8)
20C18 (S7-8)	→	(J7-9)
9B18 (K15-8)	→	(J7-10)
44A18 (A5-J)	→	(J7-11)
34B18 (P4-2)	→	(J7-12)
13C18 (TB5-6A)	→	(J7-13)
19B18 (S5-4)	→	(J7-14)
6A18 (S18-1)	→	(J7-15)
11A18 (K15-1)	→	(J7-16)
1E18 (TB5-13B)	→	(J7-17)
102F18 (TB3-6A)	→	(J7-18)
109A18 (R1-3)	→	(J7-19)
110A18 (A5-E)	→	(J7-20)
27A18 (TB5-16A)	→	(J7-21)
10B18 (TB5-9A)	→	(J7-22)
114A18 (A5-D)	→	(J7-23)
30A18 (P4-8)	→	(J7-24)
29A18 (P4-9)	→	(J7-25)
28A18 (P4-10)	→	(J7-26)
25B18 (TB5-3A)	→	(J7-27)
115A18 (A5-A)	→	(J7-28)
31E18 (TB5-8A)	→	(J7-29)
23A18 (K14-8)	→	(J7-30)
24B18 (TB5-14B)	→	(J7-31)
26A18 (K14-9)	→	(J7-32)
101E18 (TB3-7A)	→	(J7-33)
35B18 (K12-8)	→	(J7-34)
SPARE	→	(J7-35)
122B18 (M2-(+))	→	(J7-36)
121B18 (M2-(-))	→	(J7-37)

P7

32B18 (P17-3)	→	(P7-1)
40A18 (MT5-S)	→	(P7-2)
120B18 (P17-20)	→	(P7-3)
116B18 (TB6-2A)	→	(P7-4)
117B18 (TB6-3A)	→	(P7-5)
2L18 (TB4-4A)	→	(P7-6)
(60 HZ) SPARE	→	(P7-7)
(400 HZ) 7D18 (TB4-1A)	→	(P7-7)
43B18 (P10-1)	→	(P7-8)
20D18 (P17-11)	→	(P7-9)
9A18 (P17-12)	→	(P7-10)
44B18 (P10-2)	→	(P7-11)
34A18 (P17-14)	→	(P7-12)
13D18 (TB4-8A)	→	(P7-13)
19A18 (K1-NO 4)	→	(P7-14)
6B18 (K13-X1)	→	(P7-15)
11B18 (K2-X2)	→	(P7-16)
1D18 (K13-A1)	→	(P7-17)
(60 HZ) 102E18 (TB4-3B)	→	(P7-18)
(400 HZ) 102B18 (TB2-N)	→	(P7-18)
109B18 (P17-19)	→	(P7-19)
110B18 (P17-8)	→	(P7-20)
27B18 (TB4-6A)	→	(P7-21)
10A18 (K2-X1)	→	(P7-22)
114B18 (P17-1)	→	(P7-23)
30B18 (P5-1)	→	(P7-24)
29B18 (OP-2)	→	(P7-25)
28B18 (P11-2)	→	(P7-26)
25C18 (P8-2)	→	(P7-27)
115B18 (TB6-1A)	→	(P7-28)
31B18 (K1-2)	→	(P7-29)
23B18 (P8-1)	→	(P7-30)
24C18 (P8-3)	→	(P7-31)
26B18 (P9-1)	→	(P7-32)
101D18 (K1-A1)	→	(P7-33)
35C18 (P17-4)	→	(P7-34)
SPARE	→	(P7-35)
122A18 (P17-16)	→	(P7-36)
121A18 (P17-15)	→	(P7-37)

TB4

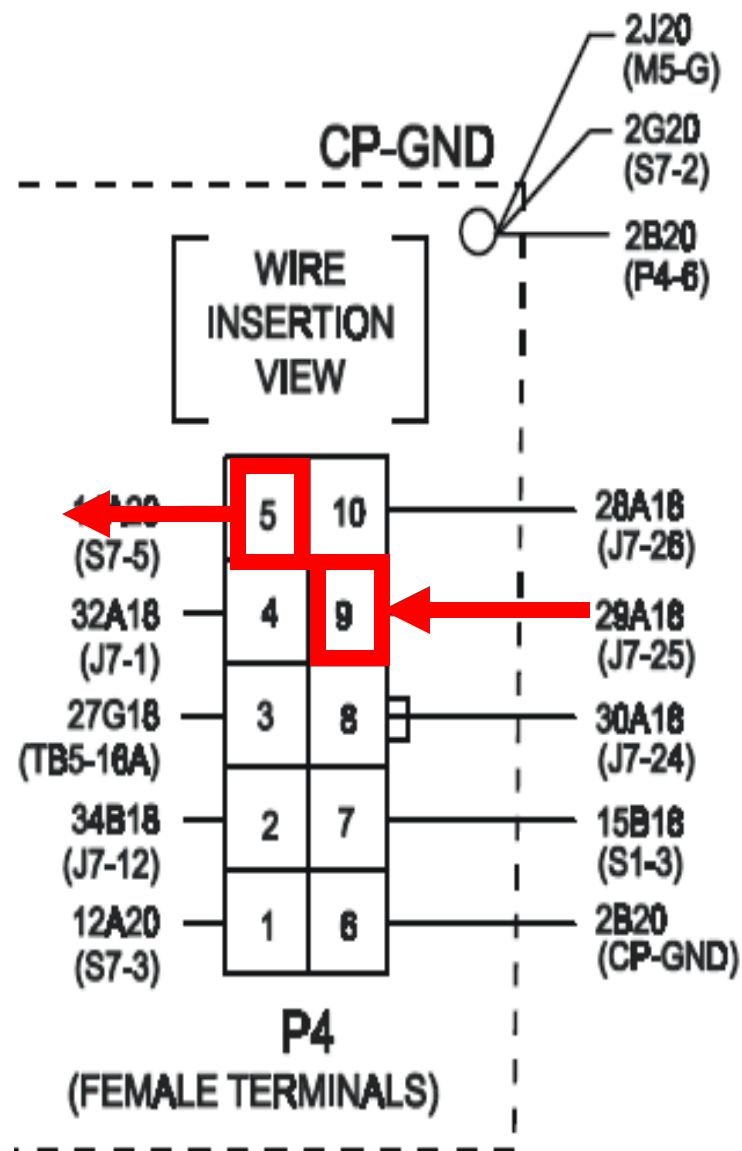
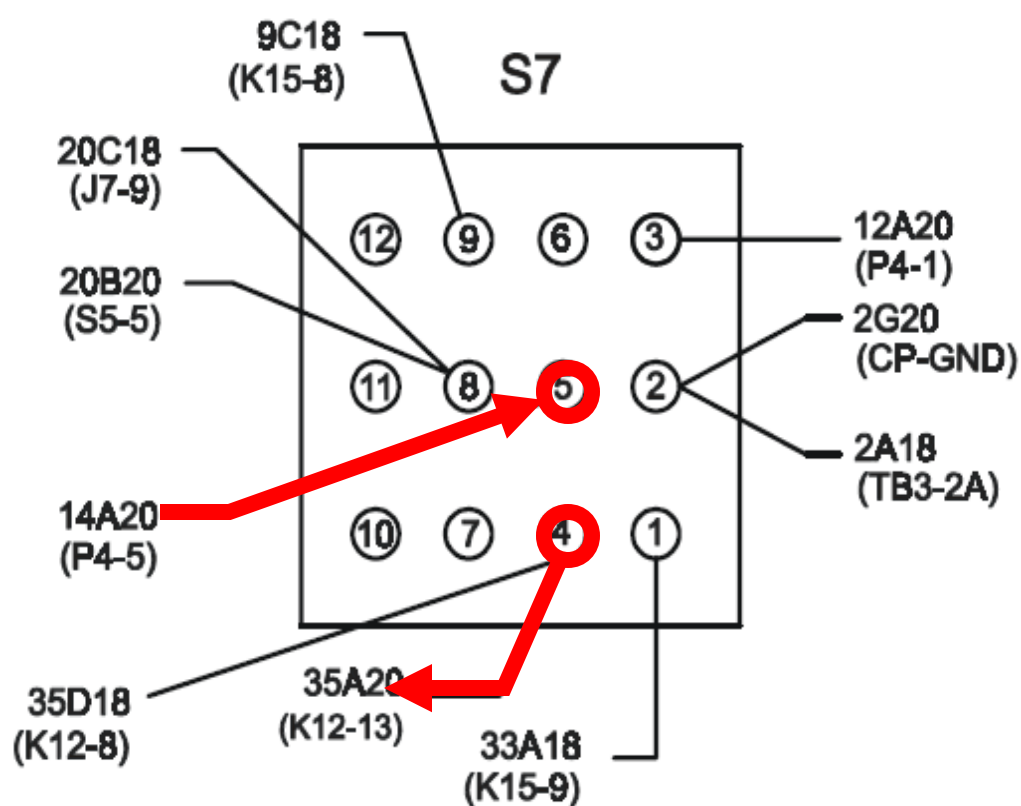


J7

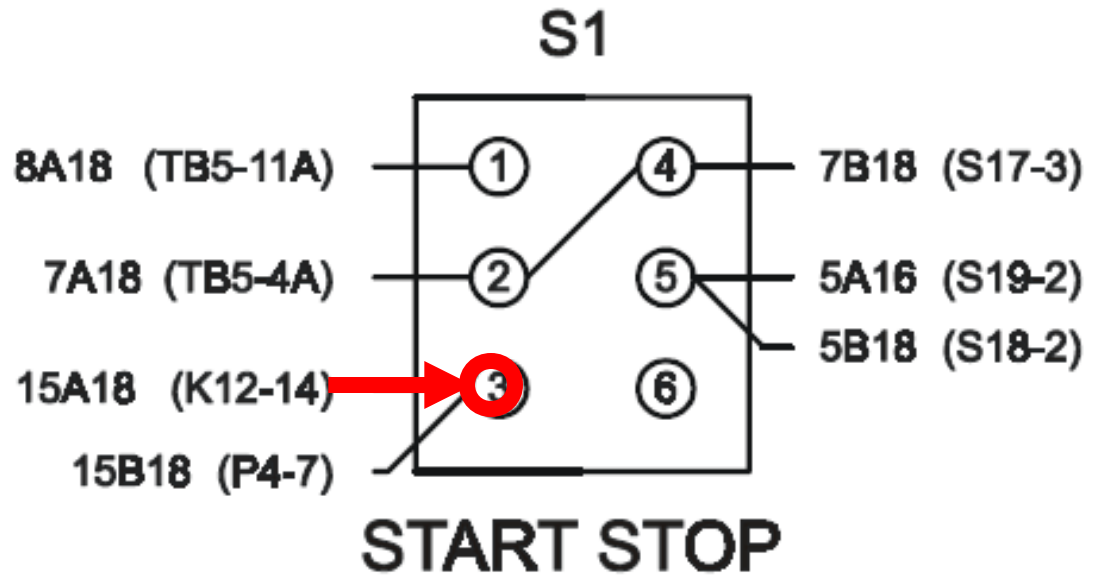
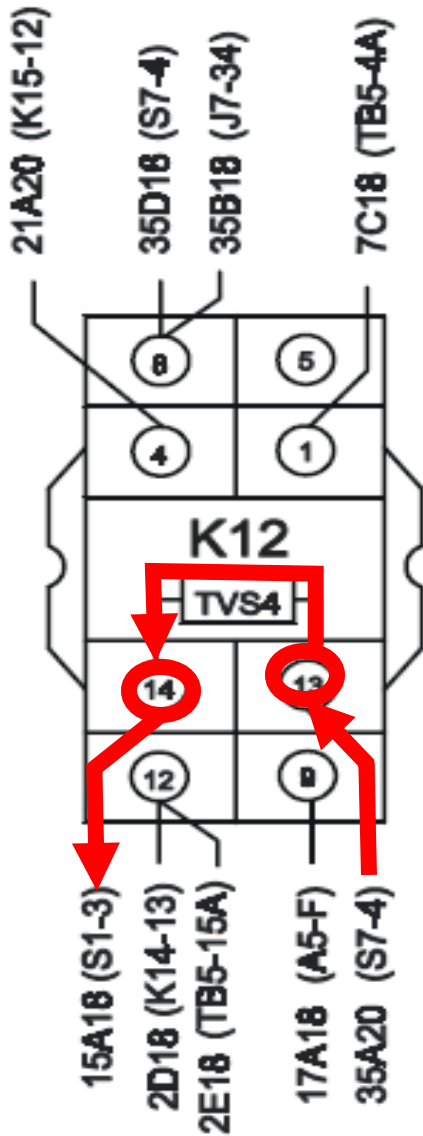
32A18 (P4-4)	→	(J7-1)
40B18 (M5-S)	→	(J7-2)
120A18 (M1-2)	→	(J7-3)
116A18 (A5-B)	→	(J7-4)
117A18 (A5-C)	→	(J7-5)
2H18 (TB5-15B)	→	(J7-6)
(60 HZ) SPARE	→	(J7-7)
(400 HZ) 7D18 (TB5-5A)	→	(J7-7)
43A18 (A5-H)	→	(J7-8)
20C18 (S7-8)	→	(J7-9)
9B18 (K15-8)	→	(J7-10)
44A18 (A5-J)	→	(J7-11)
34B18 (P4-2)	→	(J7-12)
13C18 (TB5-6A)	→	(J7-13)
19B18 (S5-4)	→	(J7-14)
6A18 (S18-1)	→	(J7-15)
11A18 (K15-1)	→	(J7-16)
1E18 (TB5-13B)	→	(J7-17)
102F18 (TB3-6A)	→	(J7-18)
109A18 (R1-3)	→	(J7-19)
110A18 (A5-E)	→	(J7-20)
27A18 (TB5-16A)	→	(J7-21)
10B18 (TB5-9A)	→	(J7-22)
114A18 (A5-D)	→	(J7-23)
30A18 (P4-8)	→	(J7-24)
29A18 (P4-8)	←	(J7-25)
28A18 (P4-10)	→	(J7-26)
25B18 (TB5-3A)	→	(J7-27)
115A18 (A5-A)	→	(J7-28)
31E18 (TB5-8A)	→	(J7-29)
23A18 (K14-8)	→	(J7-30)
24B18 (TB5-14B)	→	(J7-31)
26A18 (K14-9)	→	(J7-32)
101E18 (TB3-7A)	→	(J7-33)
35B18 (K12-8)	→	(J7-34)
SPARE	→	(J7-35)
122B18 (M2-(+))	→	(J7-36)
121B18 (M2-(-))	→	(J7-37)

P7

32B18 (P17-3)	→	(P7-1)
40A18 (MT5-S)	→	(P7-2)
120B18 (P17-20)	→	(P7-3)
116B18 (TB6-2A)	→	(P7-4)
117B18 (TB6-3A)	→	(P7-5)
2L18 (TB4-4A)	→	(P7-6)
(60 HZ) SPARE	→	(P7-7)
(400 HZ) 7D18 (TB4-1A)	→	(P7-7)
43B18 (P10-1)	→	(P7-8)
20D18 (P17-11)	→	(P7-9)
9A18 (P17-12)	→	(P7-10)
44B18 (P10-2)	→	(P7-11)
34A18 (P17-14)	→	(P7-12)
13D18 (TB4-8A)	→	(P7-13)
19A18 (K1-NO 4)	→	(P7-14)
6B18 (K13-X1)	→	(P7-15)
11B18 (K2-X2)	→	(P7-16)
1D18 (K13-A1)	→	(P7-17)
(60 HZ) 102E18 (TB4-3B)	→	(P7-18)
(400 HZ) 102B18 (TB2-N)	→	(P7-18)
109B18 (P17-19)	→	(P7-19)
110B18 (P17-8)	→	(P7-20)
27B18 (TB4-6A)	→	(P7-21)
10A18 (K2-X1)	→	(P7-22)
114B18 (P17-1)	→	(P7-23)
30B18 (P5-1)	→	(P7-24)
29B18 (OP-2)	→	(P7-25)
28B18 (P11-2)	→	(P7-26)
25C18 (P8-2)	→	(P7-27)
115B18 (TB6-1A)	→	(P7-28)
31B18 (K1-2)	→	(P7-29)
23B18 (P8-1)	→	(P7-30)
24C18 (P8-3)	→	(P7-31)
26B18 (P9-1)	→	(P7-32)
101D18 (K1-A1)	→	(P7-33)
35C18 (P17-4)	→	(P7-34)
SPARE	→	(P7-35)
122A18 (P17-16)	→	(P7-36)
121A18 (P17-15)	→	(P7-37)



From S1-3 take same path back
To the batteries

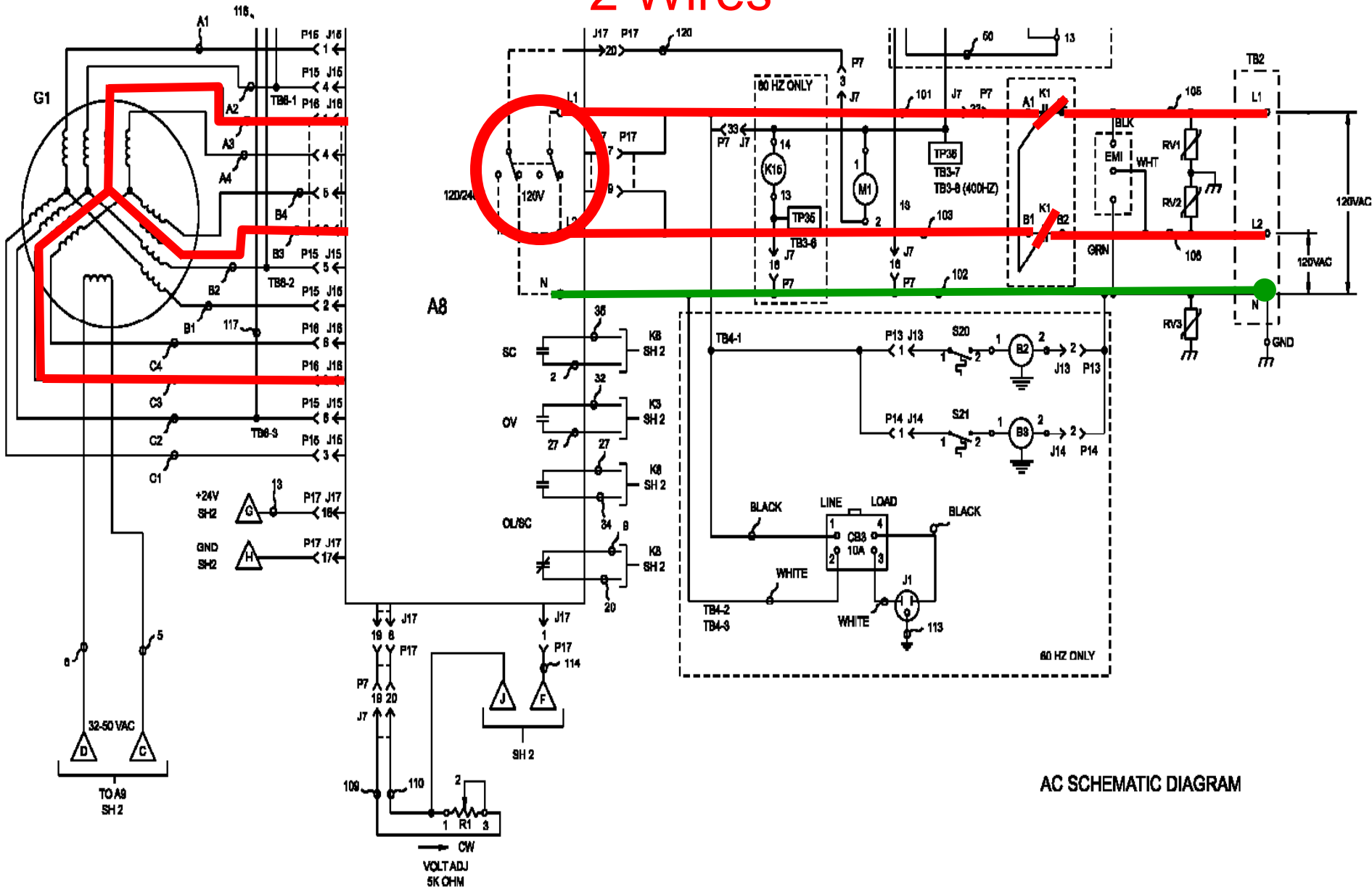


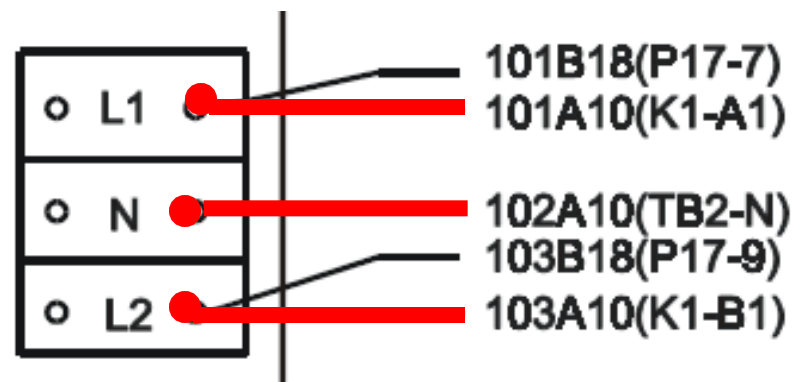
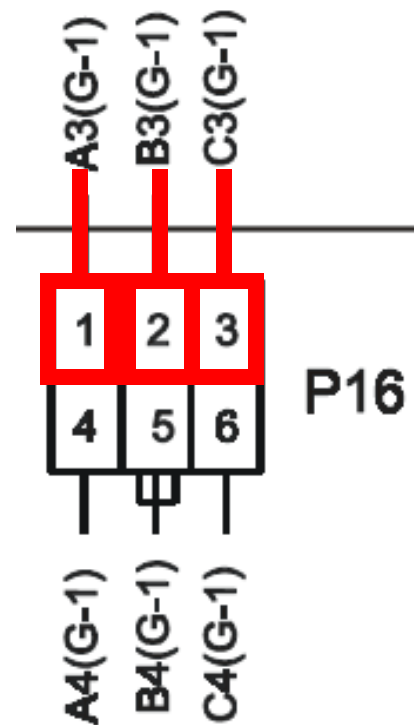
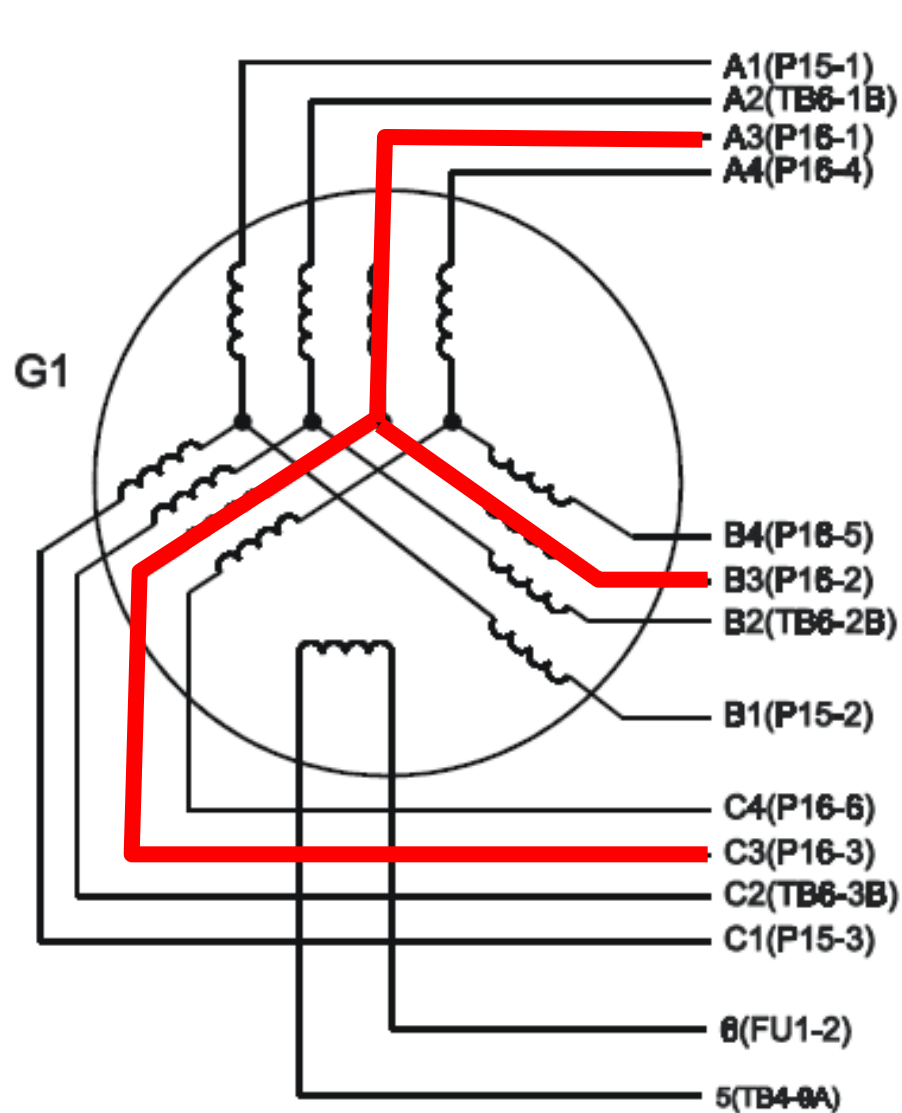
AC Circuits

- Generator Output – 120VAC
- Generator Output – 240VAC
- Venting Fan

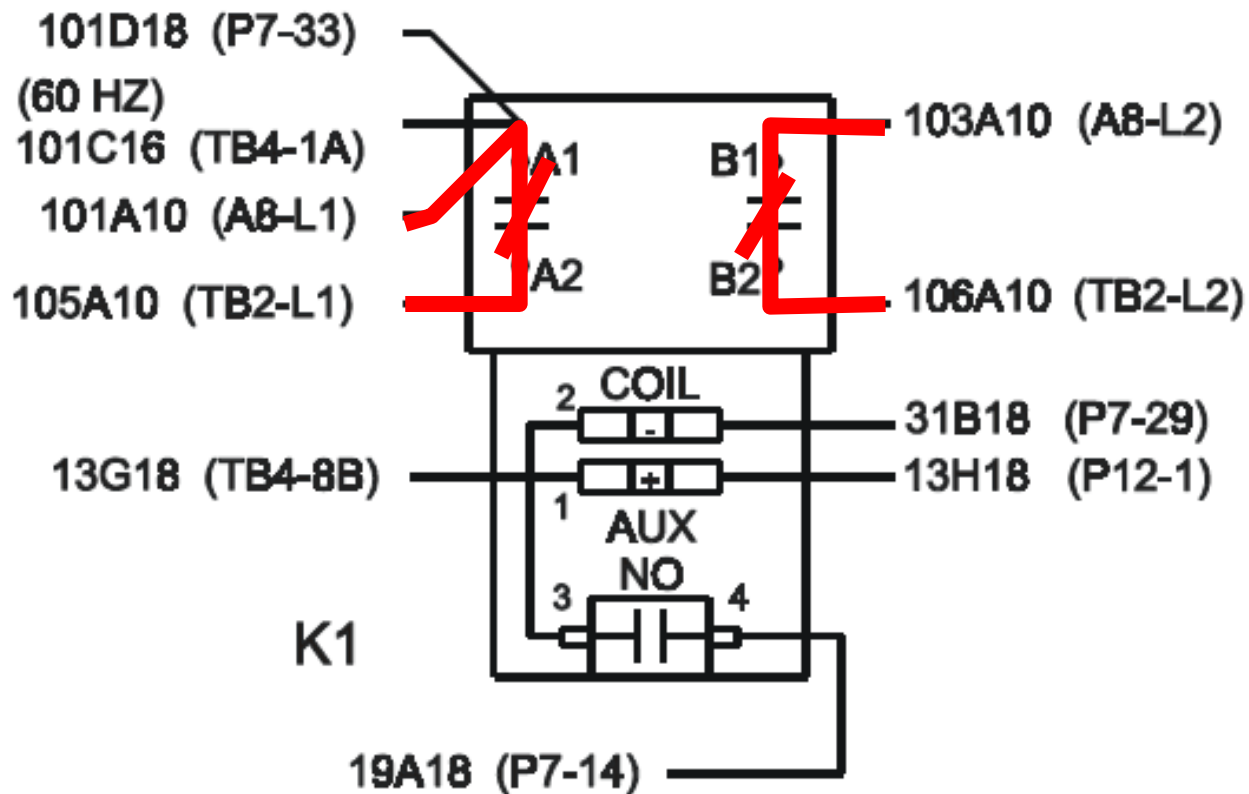
GENERATOR OUTPUT – 120VAC

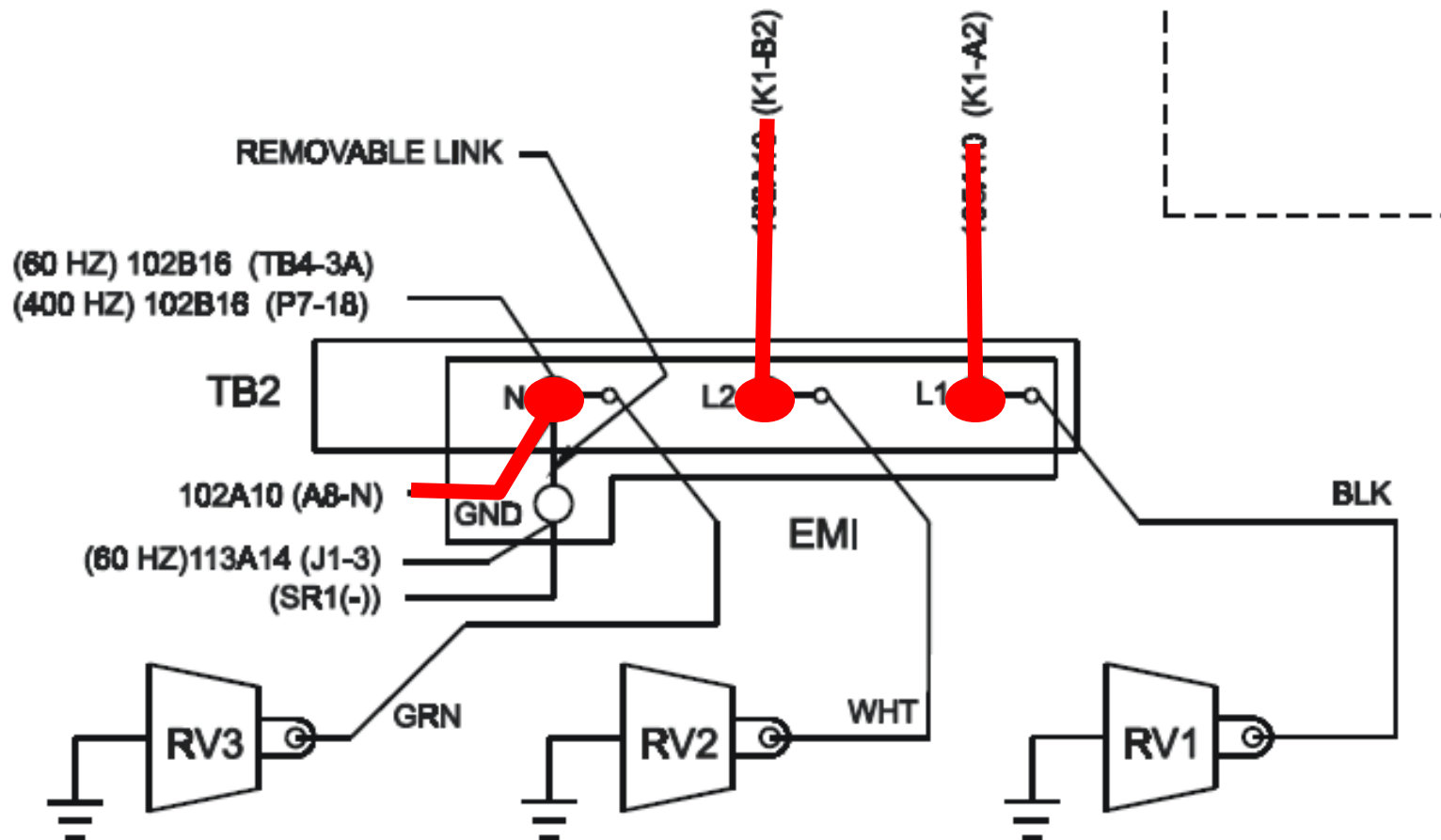
2 Wires





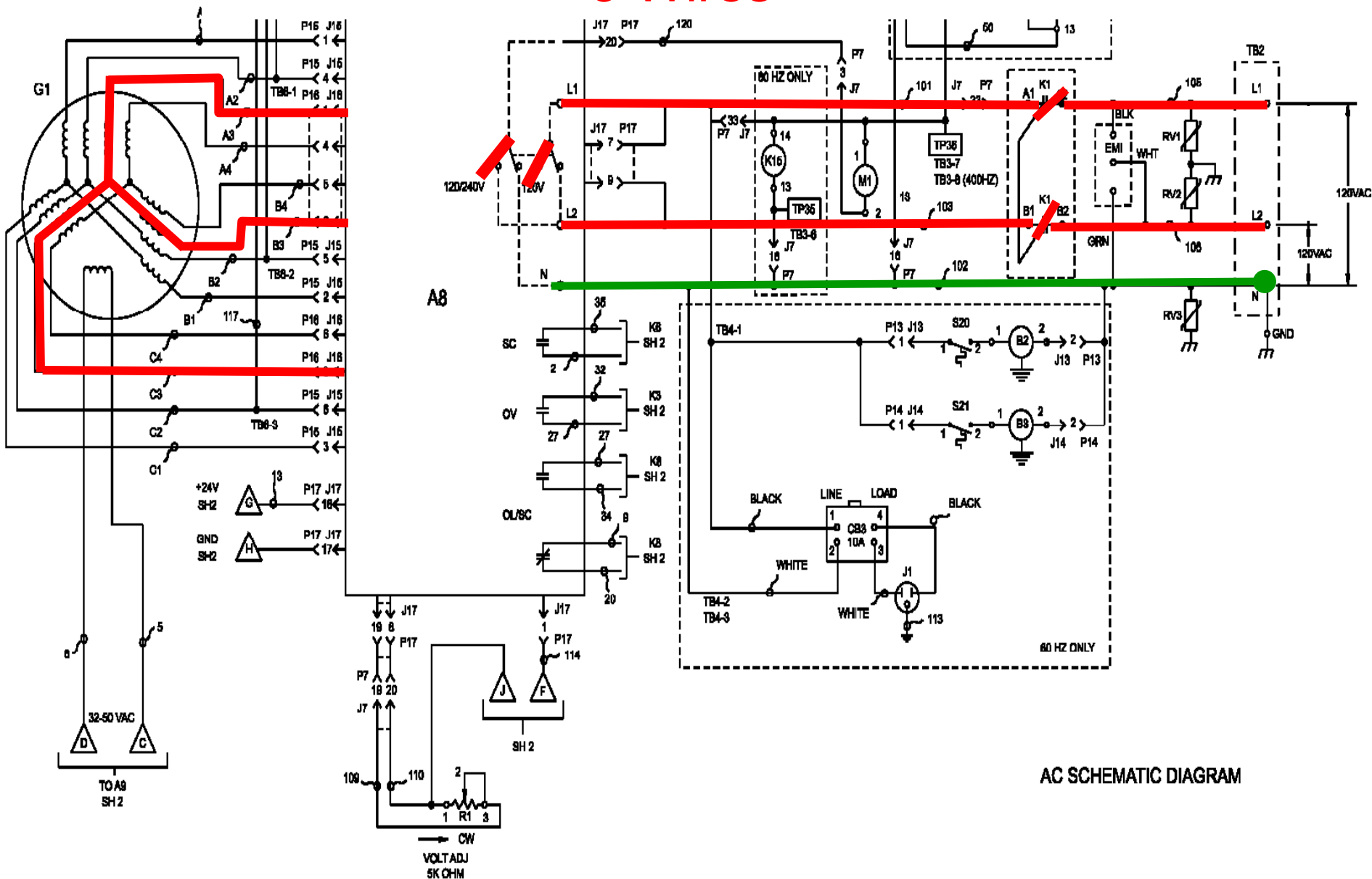
AC CIRCUIT INTERRUPTER



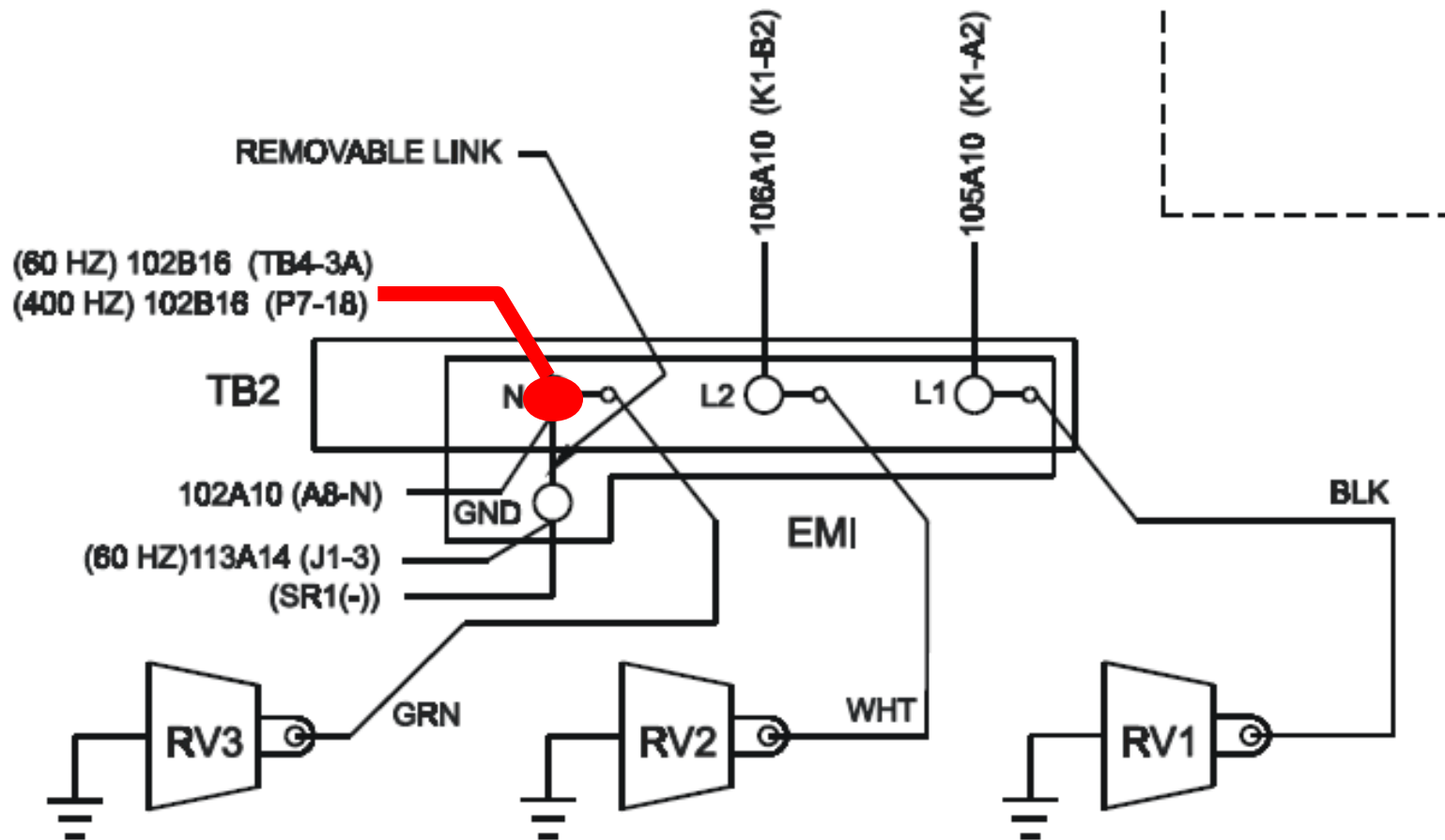


GENERATOR OUTPUT – 120/240VAC

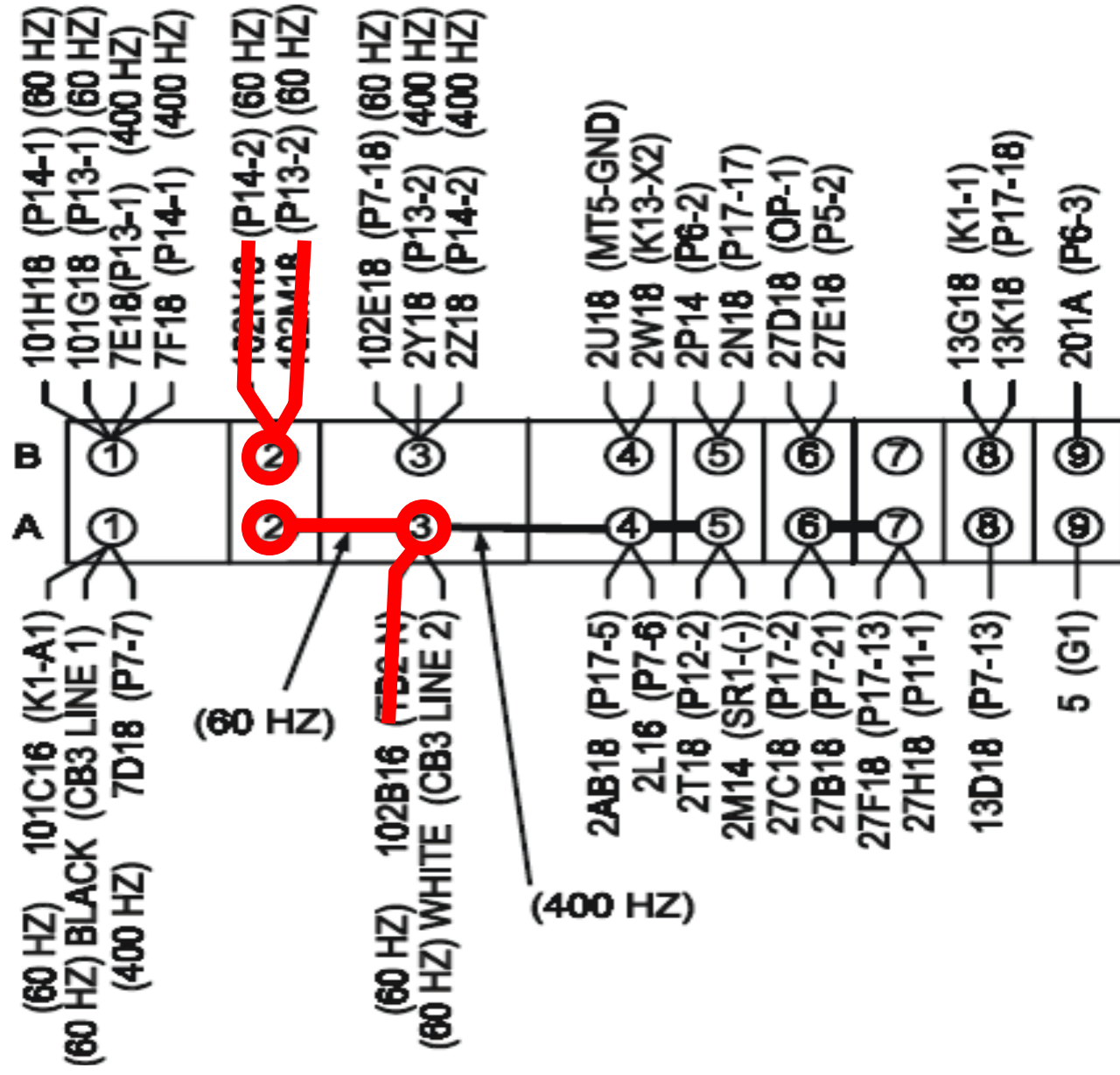
3 Wires

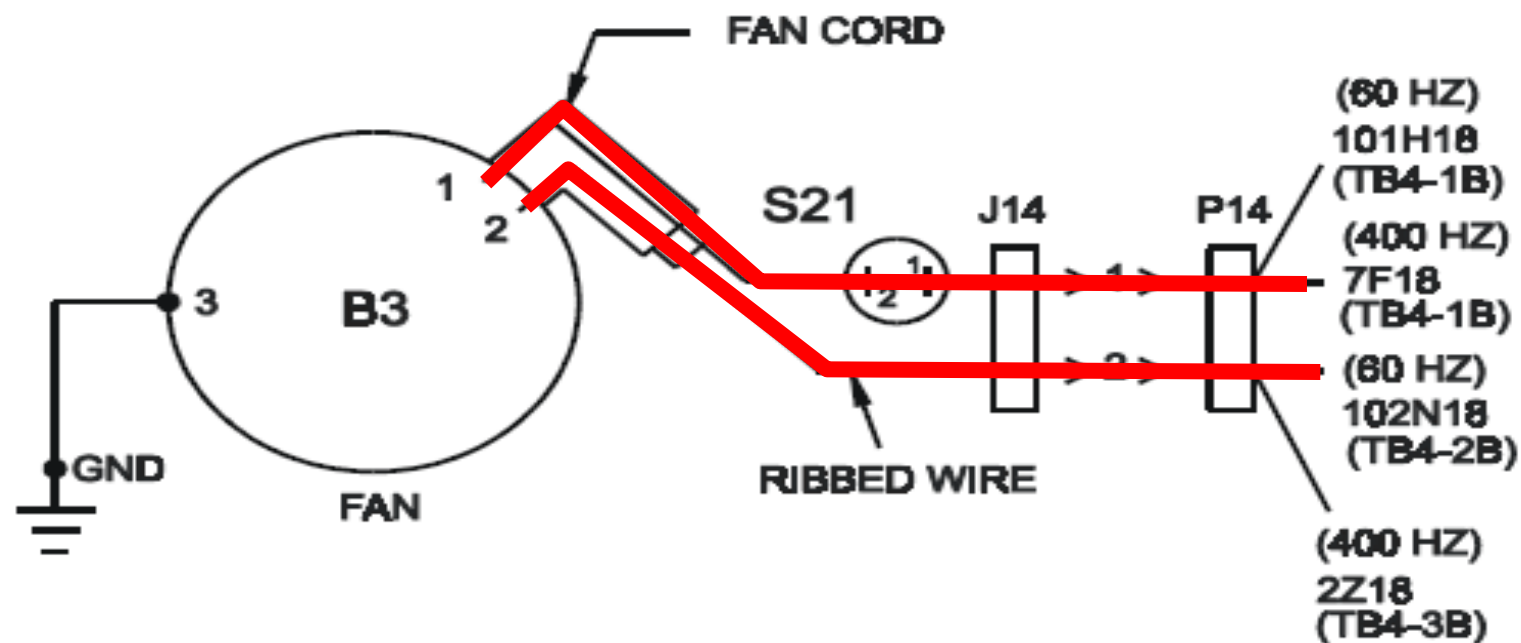
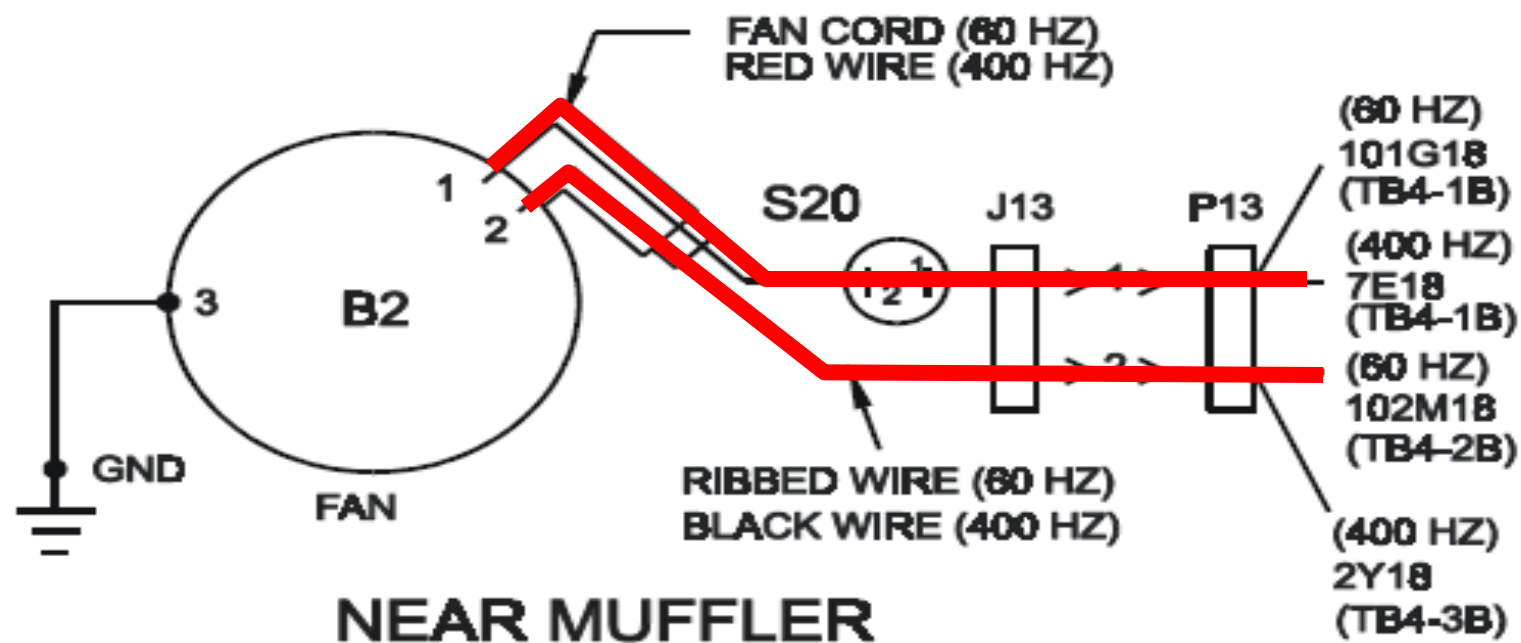




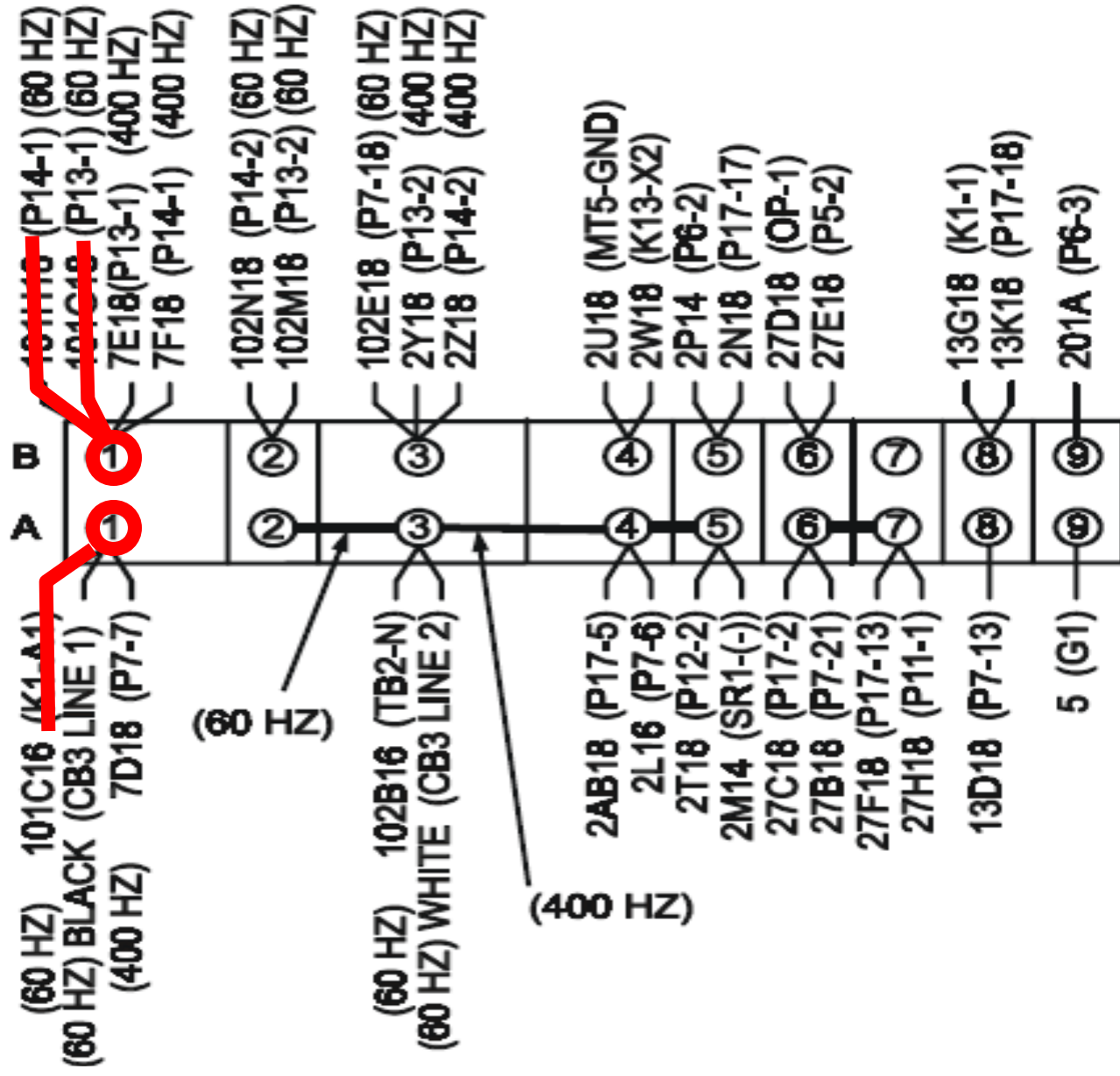


TB4





TB4



AC CIRCUIT INTERRUPTER

