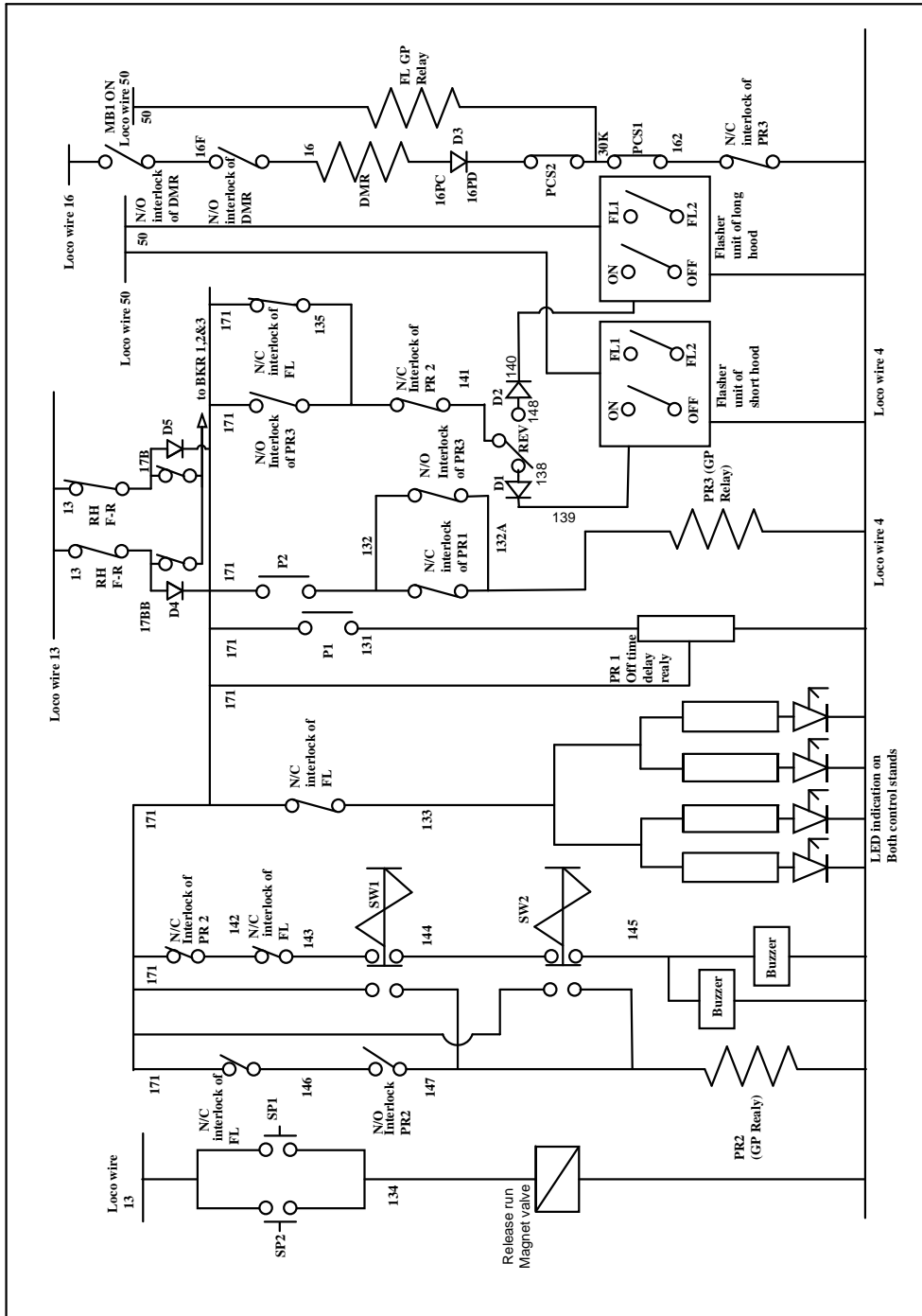


AUTO FLASHER LIGHT CIRCUIT



DEVICES IN AUTO FLASHER LIGHT SYSTEM

SWITCHES :

- (a) P1
- (b) P2
- (c) PCS 1
- (d) PCS2
- (e) SW1 & SW2
- (f) SP1 & SP2

RELAYS:-

- a. FL Relay
- b. PR₃ Relay
- c. PR₂ Relay
- d. PR₁ Relay

ROTEX VALVE: CHOKE:- 5.5mm
QUICK CHARGE of BP (Magnet valve $\frac{3}{4}$ " pipe)

Switches position: -

P1 closes below 4.5 kg/cm² BP
P1 opens above 4.8 kg/cm² BP
P2 closes below 4.4 kg/cm² BP
P2 opens above 4.7 kg/cm² BP
PCS1 closes below 6.5 kg/cm² MR from HB5 valve
PCS1 opens above 7.5 kg/cm² MR from HB5 valve
PCS2 closes above 4 kg/cm² BP
PCS2 opens below 2.8 kg/cm² BP

RELAYS POSITION: -

FL, PR₂ & PR₃ General Purpose Relays
PR₁ Time Delay Relay (Off Time Delay for 60 sec after disconnecting the supply)

I. In Pure Air Brake Formation, if BP dropping other than A9 operation like Accident, Derailment, Parting, BP pipe cut, brake van (guard) emergency brake application, chain pulling and fireman emergency application, Auto Flasher System Starts Working.

1. Whenever BP pipe pressure drops below 4.4 kg/cm², P2 switch will close (171-132)
2. Through N/C interlock of PR1 relay (132-132A), PR3 Relay will pick up (132A, 4).
3. N/O interlock of PR3 relay will close (132-132A). Now PR3 relay will get supply from its self interlock (Even though PR1 relay interlock opens PR3 relay will not drop)
4. Auto flasher light glowing through
 - a. N/O interlock of PR3 relay will close (171-135)
 - b. N/C interlock PR2 relay (135-141).
 - c. REV forward closed interlock(141-138).
 - d. D1 Diode (138-139) front flasher light will glow. 139- 4
 - e. REV in reverse closed interlock (141-148).
 - f. D2 diode (148-140) rear flasher light will glow 140, 4.
5. N/C Interlock of PR3 relay will open and makes DMR and FL Relay to drop. Engine comes to idle.(162-4)
6. Through N/C interlock of FL Relay (171-133), in both control stands LED Indication will come.
7. Buzzer working through
 - a. N/C interlock of PR2 relay (171-142).
 - b. N/C interlock of FL Relay (142-143)
 - c. N/C switch of SW1 (143-144).
 - d. N/C switch of SW2 (144-145), buzzer will operate.

II. In vacuum brake formation auto flasher light starts working due to vacuum train pipe vacuum drops below 38cms other than A9 operation like accident, derailment, parting, vacuum pipe open, brake van (guard) emergency brake application, chain pulling and fireman emergency application.

1. Whenever train pipe vacuum drops below 38cms other than A9 operation HB5 valve will operate.
2. Whenever HB5 valve operates it allows MR air to go to PCS1 and makes to knock out (switch to open) (30k,162). This makes DMR and FL relay to drop and engine comes to idle.
3. Auto flasher light will glow Through
 - a. N/C interlock of FL relay (171-135).
 - b. N/C interlock PR2 relay (135-141).
 - c. REV forward closed interlock(141-138)
 - d. D1 Diode (138-139) front flasher light will glow (139,4).
 - e. REV in reverse closed interlock (141-148).
 - f. D2 diode (148-140) rear flasher light will glow (140,4).
4. Through N/C interlock of FL Relay (171-133), in both control stands LED Indication will come.
5. Buzzer working through
 - a. N/C interlock of PR2 relay (171-142).
 - b. N/C interlock of FL Relay (142-143)
 - c. N/C switch of SW1 (143-144).
 - d. N/C switch of SW2 (144-145), buzzer will operate.

III RESETTING PROCEDURE OF AUTO FLASHER LIGHT

1. Switch on normal flasher light from FL units (**if Flasher light is required**)
2. Press either SW1 switch, in short hood control stand (143-144) or SW2 switch, in Long hood control stand (144-145) will open and makes buzzer to stop.
3. Through SW1 or SW2 closed switch (171-147), PR2 relay will pick up (147,4).
4. Through N/C interlock of FL relay (171-146)
 - a. N/O interlock of PR2 relay will close (146-147) and PR2 relay will energize from its self interlock also. (When SW1 or SW2 opens due to button in released condition, PR2 relay will be in permanent energized condition.)

5. N/C interlock of PR2 relay (171-142) will open and buzzer will not operate (even though SW1 or SW2 switch closes due to button in released condition).
6. N/C interlock of PR2 relay (135-141) will open and Automatic flasher light will not work (normal flasher light is in working).

LED INDICATION ON BOTH CONTROL STAND WILL GLOW BECAUSE FL RELAY IN DROPPED CONDITION.

IV. Whenever A9 is operated action taking place in Auto flasher light system

1. With A9 operation whenever BP drops below 4.5 kg/cm^2 , P1 switch will close (171-131).
2. PR1 time delay relay will pick up (131,4)
3. N/C interlock of PR1 relay, will open (132-132A) and will not allow PR3 relay to pick up even though P2 switch is closed.

NOW, BRAKES WILL APPLY, AUTO FLASHER LIGHT, INDICATION, BUZZER WILL NOT WORK AND ALSO ENGINE WILL NOT COME TO IDLE.

V. Whenever A9 is operated to Emergency position action taking place in Auto flasher light system.

1. With A9 Emergency application BP pressure drops below 2.8 kg/cm^2 PCS2 switch will open (16PD-30K).
2. Only DMR will de energize and engine comes to idle. Emergency brakes will apply. Auto flasher light, indication and buzzer will not operate.

VI. Whenever required fast charging of BP.

1. Either SP1 or SP2 button to be pressed (13-134) from any control stand.
2. Magnet valve will energize (134,4) and makes BP charging with $\frac{3}{4}$ " pipe including 5.5mm choke.

TROUBLE SHOOTING IN AUTO FLASHER LIGHT SYSTEM.

1. In auto flasher light system P1 and P2 switches are going to operate number of times during train working (WHEN EVER A9 is operated for train brake automatically B.P is going reduce from 5 kg/cm² to 4.4 kg/cm², if A9 is kept in released position for train working BP is going to increase from 4.4 kg/cm² to 5 kg/cm² because of the above operations P1 & P2 Switches will operate number of times and more over difference in operation is only 0.1 kg/cm²). Because of above reason at any time either P1 or P2 may go for mal-functioning. If it goes for mal-function engine will come to idle and loco may get failed. To avoid failure isolate AFL through isolation switch (if available) or disconnect 171(which is available in AFL unit). Work with normal flasher light to reach destination. (Home shed).