



इरिसेट

IRISET

ब्लॉक सिगनलिंग प्रयोगशाला

BLOCK SIGNALLING LABORATORY

प्रयोग सं. बी एस एल - 10

EXPERIMENT NO.: BSL - 10

नाम

Name : _____

अनुक्रमांक

Roll No : _____

पाठ्यक्रम

Course : _____

दिनांक

Date : _____

प्राप्तांक

Marks Awarded : _____

अनुदेशक के आद्यक्षर

Instructor's Initial : _____

Study of FM Block instrument for sequential relay actuation during operation

I. Observe the Galvo deflections and note the following:

Polarity on Line – 1	Transmitting Instrument	Receiving Instrument
a) –ve on L1 (press PB1)		
a) +ve on L1 (PB1 & PB2)		

II. Study the conditions obtained during various stages of operation of the instrument and tabulate the results as follows:

Instruments at Stn.A & B are in Line Closed and 1R & ITPR are in energized condition.

Sending a train from Stn. A to Stn.B

Indicate the status of the relays given in the table by arrow marks for pick up and drop:

Sl.No.	Operation	Code sent		Relays Energised & De- energised		Handle can be Turned to R/L/N	
		From A	From B	At A	At B	At A	At B
1	A Presses PB1	- ve			BLR		
2	B Presses PB1		- ve	BLR			

Sl.No.	Operation	Code sent		Relays Energised & De- energised		Handle can be Turned to R/L/N	
		From A	From B	At A	At B	At A	At B
3	A Presses PB1 & PB2	+ ve CF: 85Hz		PBPR	NR CR1		TCF
4	B Presses PB1 & PB2		+ ve CF:65 Hz	NR, CR2, TRSR.	PBPR	TGT	
5	A Sends train by taking 'OFF' LSS	CF :65 Hz		1R, ASR, FVTPR, TOLR, TRSR.	CR2, TOLR.		
6	'B' Acknowledges TOL code		+ ve	NR, TOLR.	PBPR, CR2, TOLR.		
7	'A' Presses PB1 & PB2 before the train arrival						
8	'B' Presses PB1 & PB2 before the train arrival						
9	'B' Receives Train on proper reception signals				1R, HSR, HSR, 2R, 1R.		

Sl.No.	Operation	Code sent		Relays Energised & De- energised		Handle can be Turned to R/L/N	
		From A	From B	At A	At B	At A	At B
10	B Presses PB1 & PB2		+ ve CF:85 Hz	NR, CR1.	PBPR.	Line closed	
11	'A' Presses PB1 & PB2	+ve CF: 85 Hz		PBPR.	NR, CR1, 2R.		Line closed

III. Normal Cancellation (1 – 4 of normal operation are similar)

Sl.No.	Operation	Code sent		Relays Energised & De- energised		Handle can be Turned to R/L/N	
		From 'A'	From 'B'	At 'A'	At 'B'	At 'A'	At 'B'
5	'A' takes 'OFF' LSS but do not dispatch the Train			1R, ASR.			
6	'A' Turns switch S1 to (R)			ASR.			
7	'A' put back LSS to (N) after 120 sec, 'FREE' indication appears.			1R, TER, TEPR, TER, 3R, TRSR.			
8	'A' Presses	+ ve					

Sl.No.	Operation	Code sent		Relays Energised & De- energised		Handle can be Turned to R/L/N	
		From 'A'	From 'B'	At 'A'	At 'B'	At 'A'	At 'B'
	PB1 & PB2	CF: 85Hz		PBPR.	NR, CR1.		Line closed
9	'A' Normalizes S1 switch						
10	'B' Presses PB1& PB2		+ve CF:85Hz	NR, CR1, 3R, TEPR.			

IV. Push Back Cancellation: (1-6 of normal operation are similar)

Sl.No.	Operation	Code sent		Relays Energized & De-energized		Block Handle can be Turned to R/L/N	
		From 'A'	From 'B'	At 'A'	At 'B'	At 'A'	At B
7	'A' Turns switch S2 to 'R' and operates Home signal to 'OFF'			1R, HSR.			
8	Train arrives at A and home signal lever is put back to Normal			2R, HSR, 1R,			
9	A Presses PB1	+ve CF:85 Hz		PBPR	NR, CR1.		Line

Sl.No.	Operation	Code sent		Relays Energized & De-energized		Block Handle can be Turned to R/L/N	
		From 'A'	From 'B'	At 'A'	At 'B'	At 'A'	At B
	& PB2						closed
10	B Presses PB1 & PB2		+ ve CF: 85 Hz	NR, CR1.	PBPR.		
11	'A' Normalizes S2 switch						
12	B Presses PB1 & PB2		+ ve	NR, CR1, 2R.	PBPR	Line closed	

Inference:

- 1) Relay _____ (BLR/NR) responds to –ve when received on L1.
- 2) Relay _____ (BLR/NR) responds to +ve when received on L1.
- 3) Relay _____ (CR1/CR2) energized at other end, when 85 Hz is transmitted.
- 4) Relay _____ (PBPR/NR) when energized connects +ve on L1.
- 5) Relay _____ (CR1/CR2) energized at other end, when 65 Hz is transmitted.

Inference:

- 1) Automatic TOL code is transmitted from sending station when relay _____ is energized. With handle in _____ position and relay TRSR in _____ condition.
- 2) For acknowledgement of TOL, when PB1 alone is pressed the relay _____ is energized at the receiving end to connect +ve on L1 in order to pickup NR at the Sending end.
- 3) After acknowledgement of TOL buzzer, if PB1 & PB2 are Pressed, the outgoing code at A is _____ and at B is _____, hence handle at either station cannot be turned.

Inference:

- 1) On arrival of train at B, when PB1 & PB2 are pressed the outgoing code changes from _____ to _____, because the energization of relay _____ at Stn.B
- 2) To permit operation of Block handle from 'N to R' the code is _____ & + ve
- 3) To permit operation of Block handle from 'R to N' the code is _____ & + ve
- 4) To permit operation of Block handle from 'N to L' the code is _____ & + ve
- 5) To permit operation of Block handle from 'L to N' the code is _____ & + ve
- 6) For setting the instruments to 'TOL' at the train receiving Station the code is _____ without positive.

Inference:

- 1) After getting FREE indication, if PB1 & PB2 are pressed, the outgoing code at Dispatch Station is carrier modulated by _____ since the _____ relay is energized. (2R/3R, 65/85Hz).
- 2) On arrival of train, when PB1 & PB2 are pressed, the outgoing code is Carrier modulated by _____ since the _____ relay is energised. (2R/3R, 65/85Hz)

Signature of Trainee