नाम
Name : _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

अनुक्रमांक
Roll No : _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

प्राप्तांक
Marks Awarded :

पाठ्यक्रम
Course : _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

दिनांक
Date : _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

अनुदेशक के आद्यक्षर
Instructor Initial :

WIRING PRACTICE ON ELECTRIC POINT DETECTOR

Provision of Electric detection on mechanically operated points is a common practice and used to pick up point indication relay NWKR / RWKR using 12V or 24V DC power supply Normal detection/ reverse detection contacts and normal/reverse shunt contacts of EPD is used in wiring.'

There are two type of wiring practice for indication relay

- Using detection and shunt contacts
- Using only detection contacts
- EPD on both end of crossover point can be wired in series or both end EPD wired seperetly.

These contacts shall make only when point is correctly set and locked in required position. This is achieved by proper adjustment of EPD slides during Obstruction test. Position of contacts is as follows

Sr NO	POSITION OF POINT	ND	RD	NORMAL SHUNT	REVERSE SHUNT
1.	POINT NOT SET &/OR NOT LOCKED	OPEN	OPEN	MAKE	MAKE
2.	POINT SET & LOCKED IN NORMAL	MAKE	OPEN	MAKE	OPEN
3.	POINT SET &/ LOCKED IN REVERSE	OPEN	MAKE	OPEN	MAKE

EPDs provided on both end of a crossover can be wired in series or each end of crossover can be wired independently. It was practice to wire EPD in series fig 1.1, 1.1a & fig 1.1b with cross protection and using shunt contacts of EPD. When point is set & lock in normal position then normal detection (ND) and normal shunt contact will make and when point is set & locked in reverse position then reverse detection (RD) and reverse shunt contact will make. In series type of wiring, the supply must go through cross protection loop (between reverse detection terminal number1 &8) and shunt contacts. In series wiring fuse used to blow up due non-sequential making and opening of shunt contacts during point operation, hence this type of wiring is avoided. Further in series wiring failure of one end of cross over Or failure in one end of EPD use to cause failure of both end indication relay (NWKR/RWKR) hence signal on both side of crossover use to fail.

As per RE practice shunt contacts are not used in the wiring of EPD and EPD for each end of crossover is wired independently fig 1.2, 1.2a & fig 1.2b.

Exercise:-1 wired the EPD with series wiring and cross protection
Equipment needed:

(1) One EPD with
(2) D.C Neutral line relays – 2 Nos.
(3) 12V/24V DC power supply with 2A fuse & link
(4) 12x1.5mm2 copper conductor cable of required length
(5) Loose insulated wires – as required

Tools required for the experiment.

(1) Cutting pliers 8" – 1No
(2) Nose pliers 6" _ 1NO
(3) Wire cutter 6" _ 1 No

Procedure :

(1) Cut the loose wires to size as required. Strip the cable and make identification marks at the end of each conductor. Make eye loop as their ends and connect them accordingly to the wiring diagram given below.

Note (1) where correspondence of operating lever is to be proved in point detection, lever circuit controller contacts are included in the circuit (2) Numbers inside circles show reverse contact terminals

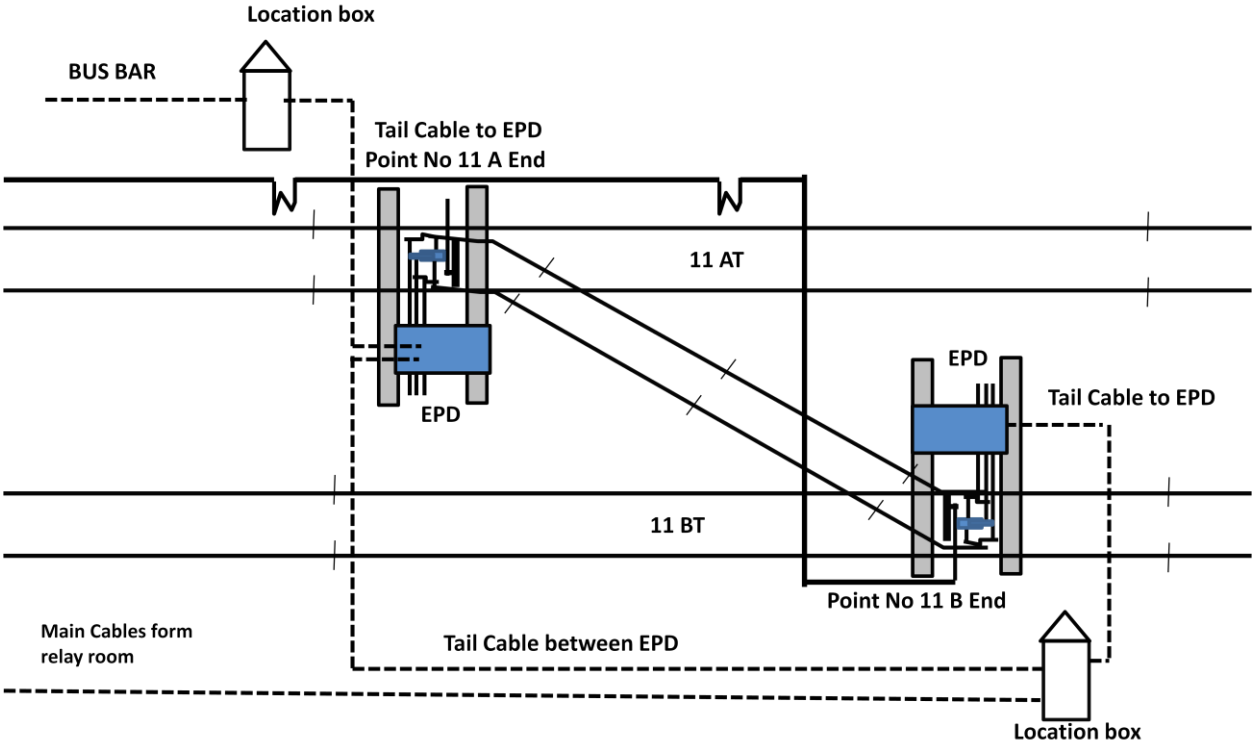

Fig: 1.1 EPD LAYOUT WITH BOTH END EPD WIRED IN SERIES

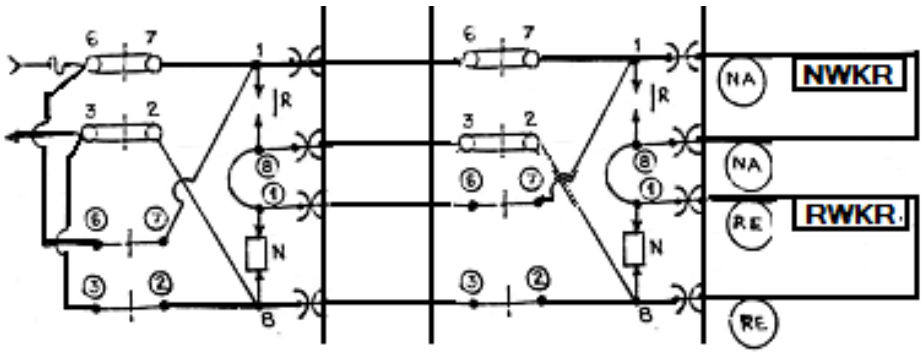

Fig: 1.1 a EPD WITH BOTH END EPD WIRED IN SERIES

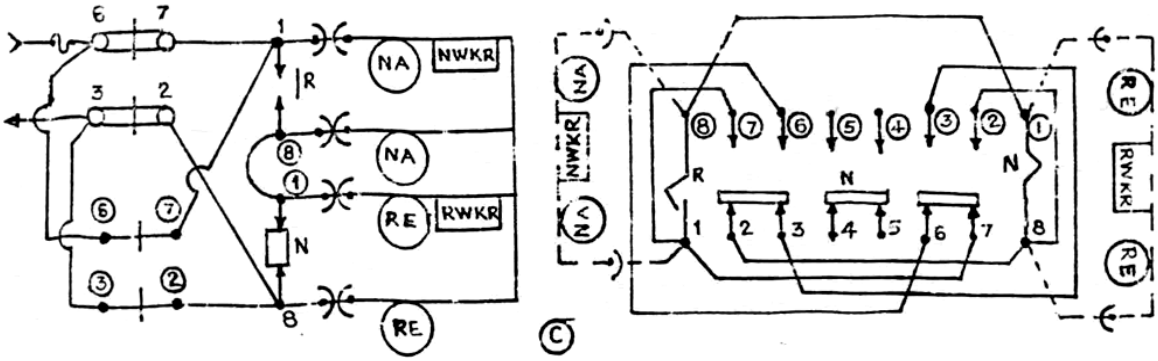

Fig: 1.1 b EPD WITH WIRING FOR EACH END OF CROSSOVER WITH CROSS PROTECTION

Exercise:-2 Wired the EPD without cross protection and shunt contacts.

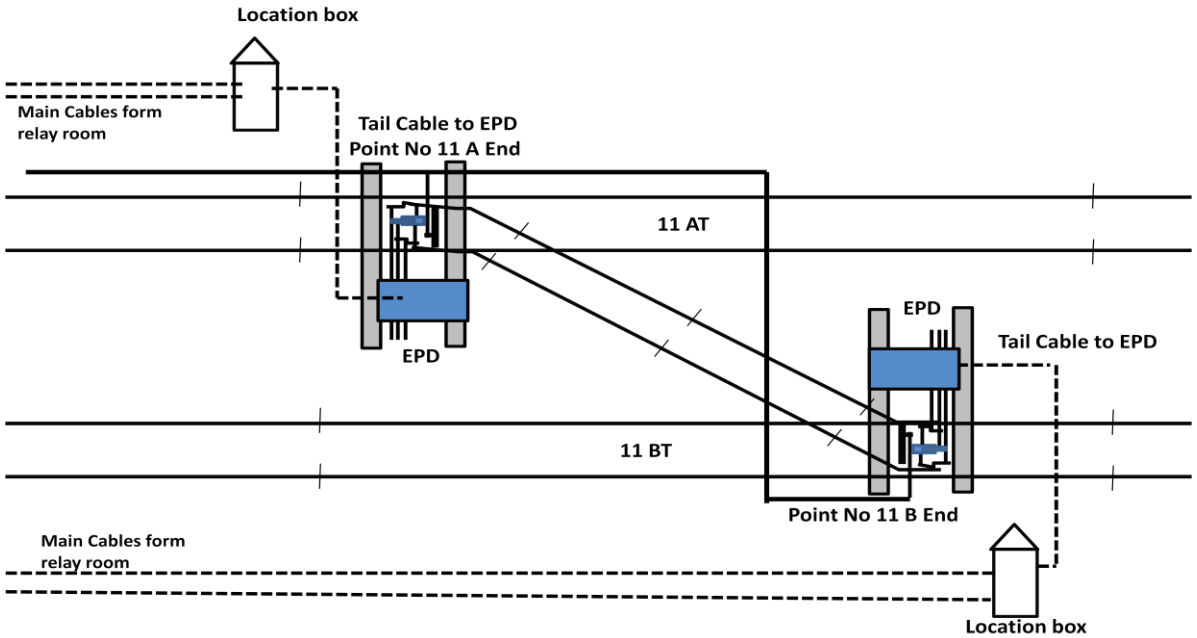

Fig: 1.2 EPD LAYOUT WITH EACH END EPD WIRED INDEPENDENTLY

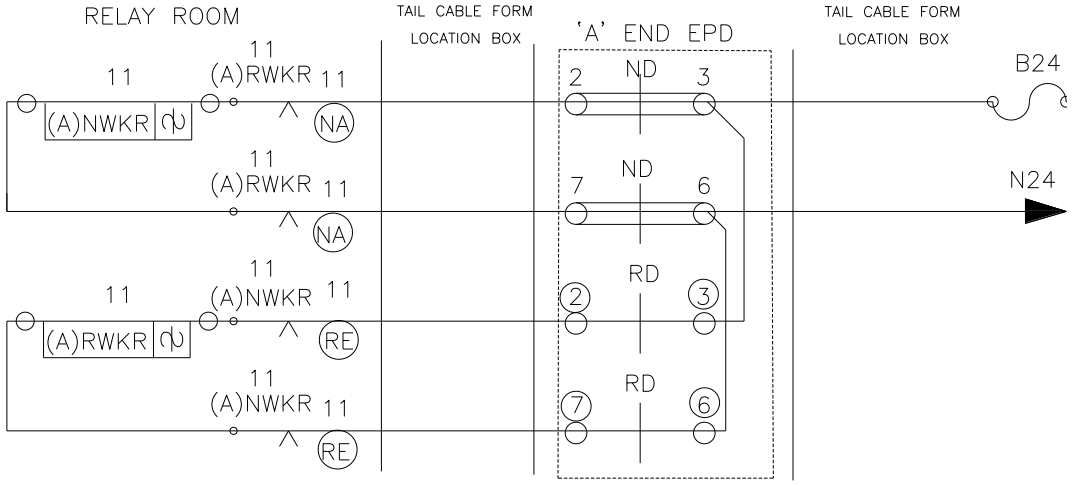

Fig: 1.2 a WIRING OF EPD OF 'A' END OF POINT 11 IN RE AREA (WITHOUT CROSS PROTECTION)

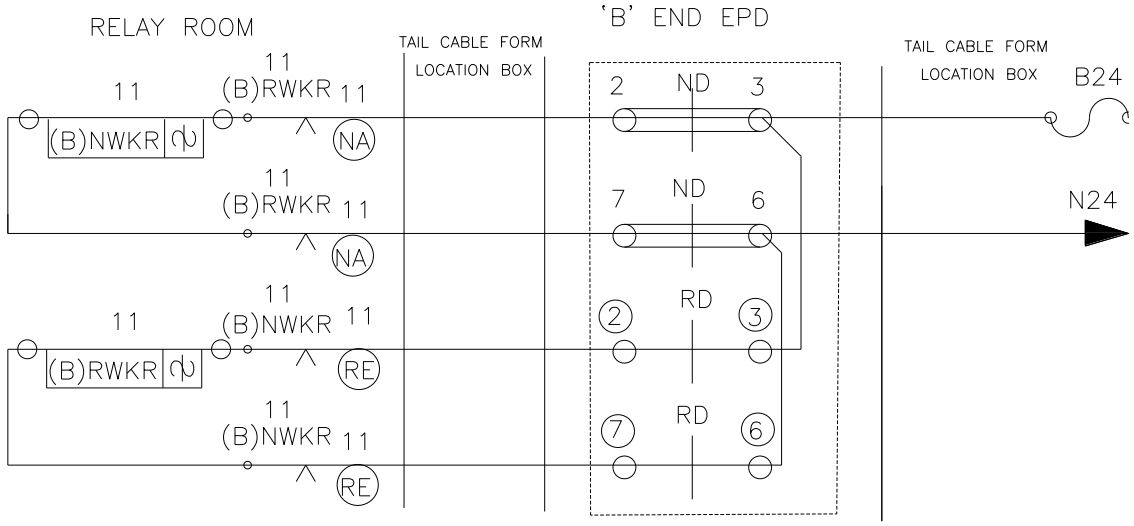

Fig: 1.2 b WIRING OF EPD OF 'B' END OF POINT 11 IN RE AREA (WITHOUT CROSS PROTECTION)

Exercise:-3 After making connections check the wiring as per diagram and Insert the fuse. Move the slides to close normal contacts and see that NWKR picks up.

Exercise:-4 Refer figure No 1.1, 1.1a and 1.1 b and fill in the blanks of the following

1. Feed is connected between terminals No. _____& _____
2. Feeding loops are between terminals No _____ & _____
3. Cross protection loop is between terminals No _____ & _____
4. Other loops are between:_____ _____ _____ _____ _____ _____ ___
5. Remove each loop one by one and record your observation below:
   NWKR drops when loop Nos _____ are removed.

6. Move the detector slides to close reverse contacts and see that RWKR picks up.

Date: **Signature of the Trainee**