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

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

प्राप्तांक
Marks Awarded :

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

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

अनुदेशक के आद्यक्षर
Instructor Initial :

Wiring practice of IRS point machine

In British interlocking operation of point is of two types, series operation (successive operation where near end of crossover operates after completion of operation of far end and vice versa) and parallel operation (where both end of the crossover operates simultaneously).

In panel interlocking/RRI there are three possible modes of point operations .

1. Individual point operation,
2. Automatic Point operation under route setting
3. Emergency point operation.

In all above methods finally point controlling relay NWR/RWR picks up which control 110V DC feed to the motor. After point controlling relay picks up, three circuits are required to control motor operation and detection of point, they are

1. Point control circuit (point contractor unit circuit)
2. Point operation circuit
3. Detection circuit

Point control circuit (point contractor unit circuit)

This circuit controls feed to the motor in normal course of operation as well as in case of obstruction. During normal course of operation when point sets and lock in required position then feed to motor is cut of inside the machine itself as control contact opens and then feed is cut off at circuit level. In case of obstruction the motor get feed up to 10seconds and then feed is cut off at circuit level. This circuit also handles the switching current through heavy duty point contractor relay.

Relays used in this unit and their functions

The relay NWR and RWR are point controlling relays which picks up after all interlocking requirements are full filled.NWR controls reverse to normal operation and RWR controls normal to reverse operation of point.

WJR and XR are Point Time control Relay and special relay respectively and useful in controlling feed to motor for a fixed time if point do not set in required position. WCR relay has heavy duty contact relay provided to handle the switching current at initial stage of point operation.WJR relay is provided to cut off the supply to the motor after laps of 10 seconds., in case point is faces obstruction.

Supply to point machine is controlled through WCR and NWR/RWR. If the point set and locked in required position then the control contact NC/RC open and feed to point machine is cut off at machine level1. As soon as point set in required position the concerned point indication relay WNKR/WRKR picks up to drop the WJR relay and ultimately WCR relay to cut the power supply to the point machine at circuit level. Finally point indication relay NWKR/RWKR relay picks up in the relay room proving dropping of WCR and WJR.

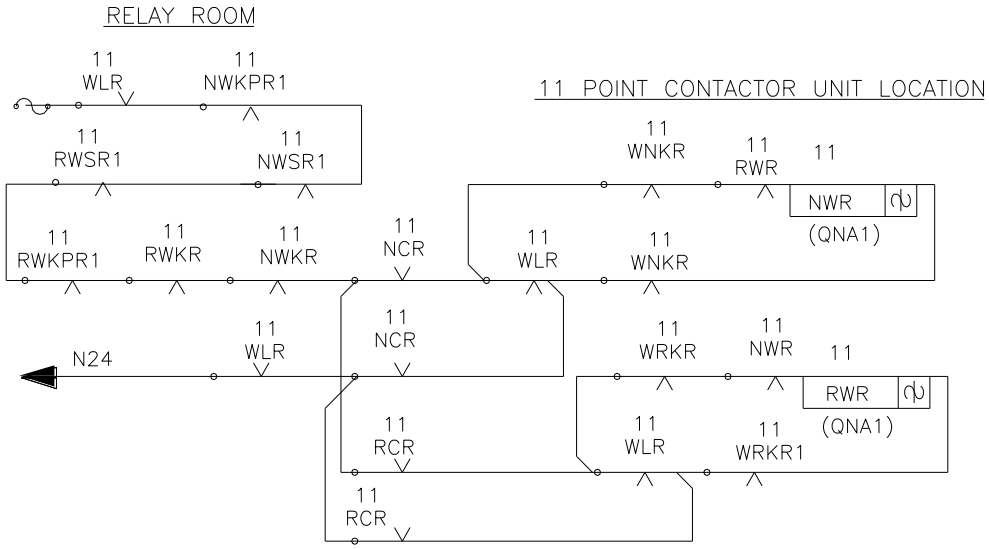

Fig. 1 Normal and reverse pint controlling circuit

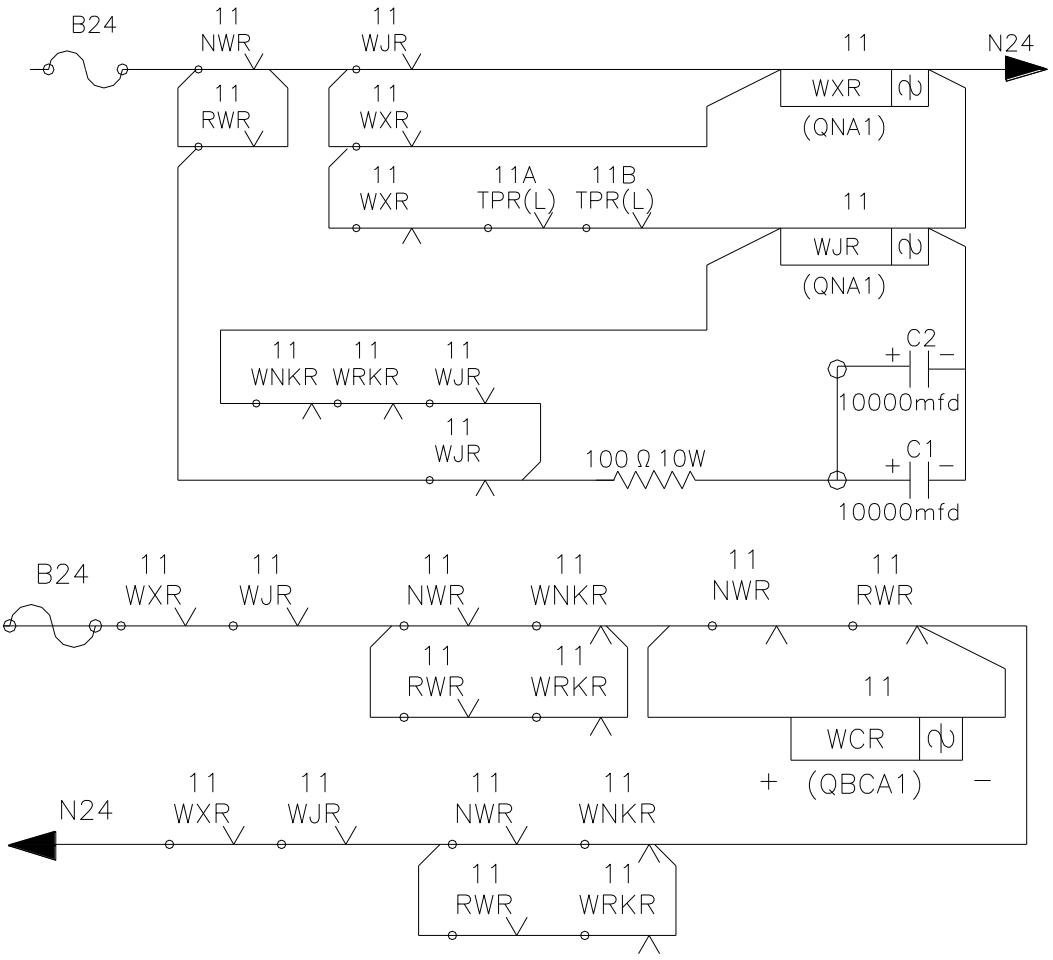

Fig2. :- point contractor unit and point time control relay circuit

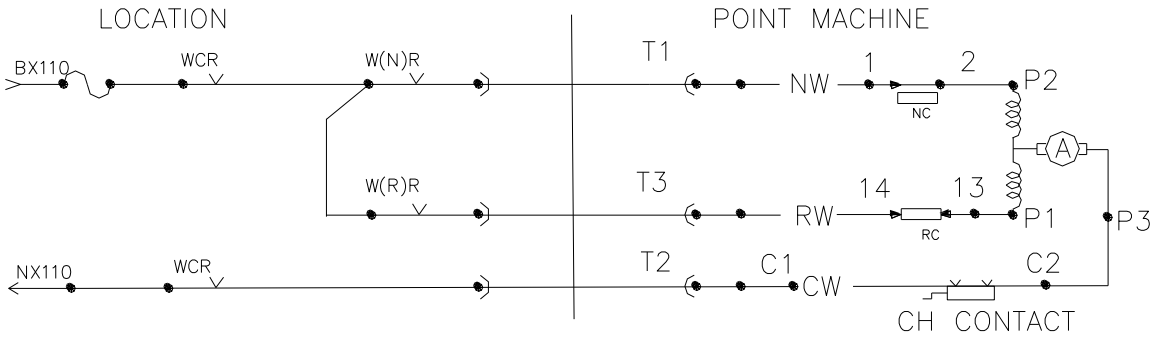

Fig-3 Point operation circuit

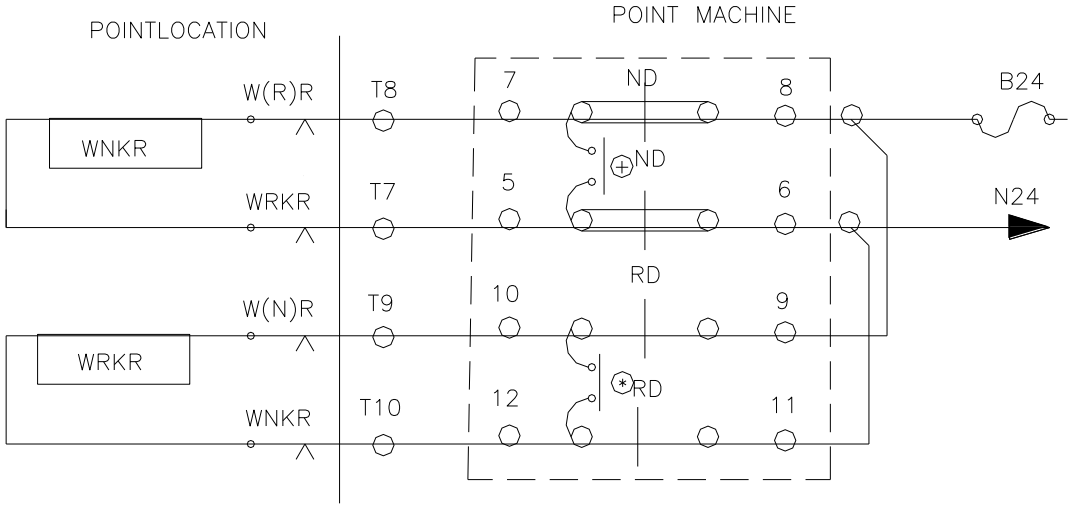

Fig-4 Point detection circuit

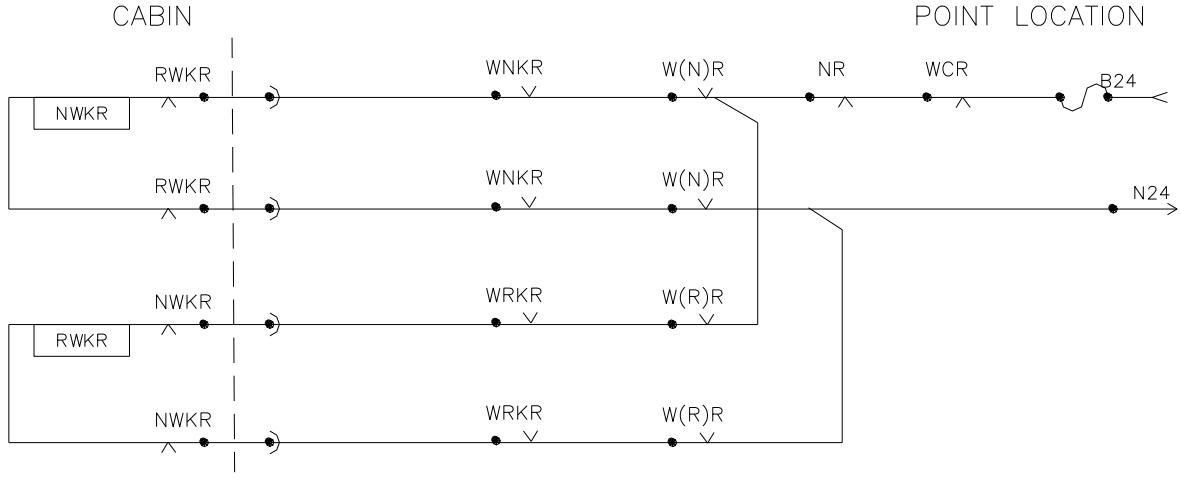

Fig-5 Point detection circuit

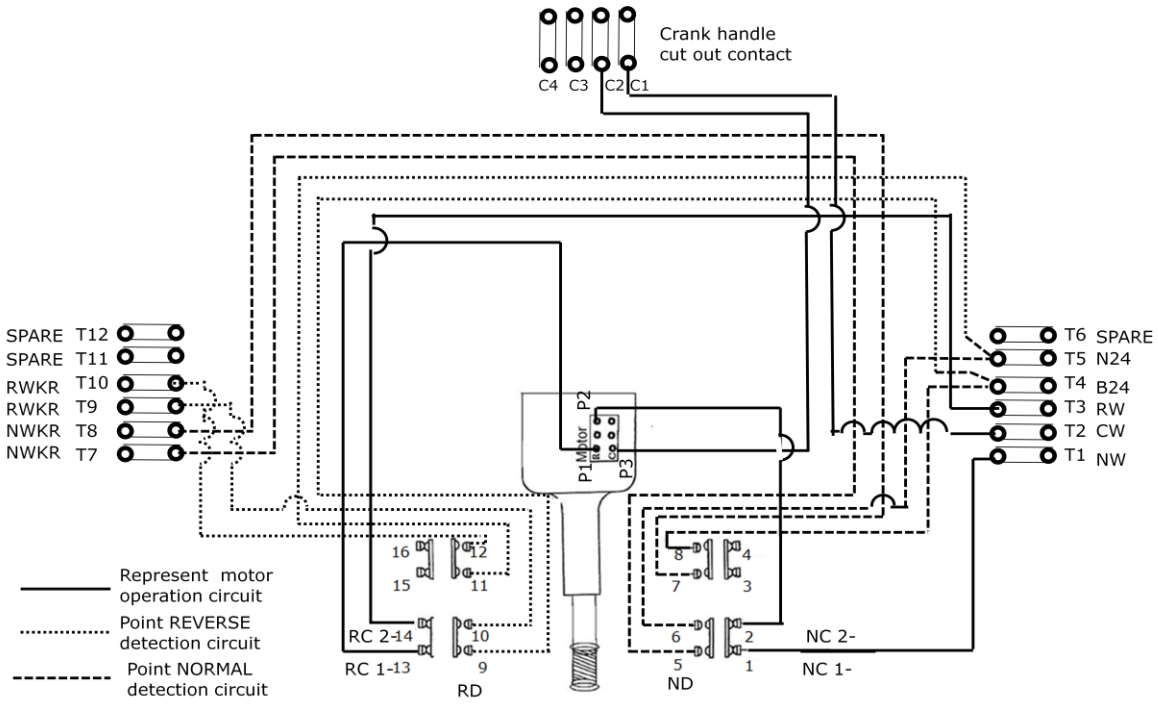

Fig. 6 Wiring of IRS right hand mounted point machine

Note - for left hand mounted point machine RW & NW wire position will interchange

In British interlocking separate Q series relays are used instead of siemen's point contractor relay though function and purpose of these relay remains same..

Exercise:1

Trace & indicate the point contractor unit, point operation and detection circuits for normal to reverse operation, with the help arrow or different colour in fig1, fig2 , fig3 , fig4 and fig5

Exercise: 2

Trace & indicate the point operation and detection circuits with the help arrow or different colour and connect cable terminals in the machine with terminals of motor, detection / control contacts and CH cut off contacts as per the fig 6 and do wiring in point machine

Equipment required:

1. IRS electric point machine 1No
2. 12 core cable of required of length
3. 24VDC Point contactor unit 1No
4. Loose wires as required

Tools Required

1. Cutting pliers 8" 1No
2. Nose pliers 6" 1No
3. Wire stripper 1No
4. Pen knife 1No
5. Screw driver 8" 1No
6. Multi-meter 1No

Date: **Signature of the Trainee**