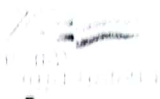




एकनाथ मोहकर आई.आर.एस.एस.ई.
प्रधान मुख्य सिगनल एवं दूरसंचार इंजीनियर
Eknath Mohker IRSSE
Principal Chief Signal & Telecom Engineer



पूर्व मध्य रेल
हाजीपुर - 844101
East Central Railway
Hajipur - 844101

No.ECR/S&T-HQ/DRG/POLICY/

Date : 01/11/2023

DG(S&T)
RDSO, Manak Nagar,
Lucknow.

(Kind Atten. of Shri Amit Mishra, ED/Sig-I/RDSO)

Sub : Hazard of point position not corresponding to the detection received in interlocking.

Ref : RDSO letter No. RDSO-SIG0EI(CKT)/1/2020, Dt. 19-7-2023.

<><><><>

In connection with the subject matter, though very late, however, view of ECR on point Interface & logic Circuits are as under :

ECR is of the view that interfacing should be simple interfacing without any manipulation(external relay contacts) i.e. all gears' driving controls should come from EI, resulting all basic feedbacks without any other proving should be given back to EI and final decision about proving back contact of converse, front contacts for correspondence and other safety check should be done by EI(Main interlocking) in Logic. Existing interface circuit of point detection inputs NDKR/RDKR have other contacts which does not detect permanent supply available at CT rack on both NDKR & RDKR as the NWZR & RWZR contacts are fooling EI by giving required detection feed only to EI despite having both the feeds available. This is due to some interlocking is done by interface circuits which EI does not know. Hence it is proposed to have simple interfacing and following basic additions/modifications :

- 1) Final command should come from EI for picking up WCRZ1 & NWCZR/RWCZR, which should be utilised without any other relay contacts for point operation, their readback should be given back to EI for checking correspondence.
- 2) Though, the utility of latch relay is very limited in synchronising position of points at site and in EI after start-up. Status of points changed during the shut down period of EI using crank handling for train operation, will require one operation from VDU for synchronisation. On the other hand, if latch relays are not used and on power ON all NWRs are set(picked up) in EI, points at site in reverse position will have to be operated from VDU once for synchronisation. So the efforts required to normalise VDU indications are almost similar. By avoiding latch relays, several problems of latch relays not latching/de-latching, high contact resistance, etc. being encountered in the field, will get eliminated. So more thinking on its continuation is required.

Even if latch relays are retained, it is proposed that there should not be any contacts in NWZR/RWZR circuits except their own front/back contacts for de-latching & latching. NWZR & RWZR read-back should be given to EI and whatever proving is required, it should be done in EI logic.

- 3) No NWZR/RWZR front contacts and back contacts of RDKR/NDKR should be proved in NDKR/RDKR interface circuits(the readback of these relays should be proved in EI logic), not even cross-protection across coil by RWZR/NWZR. Inputs to EI essentially need to be without any manipulation.

Contd..2/-



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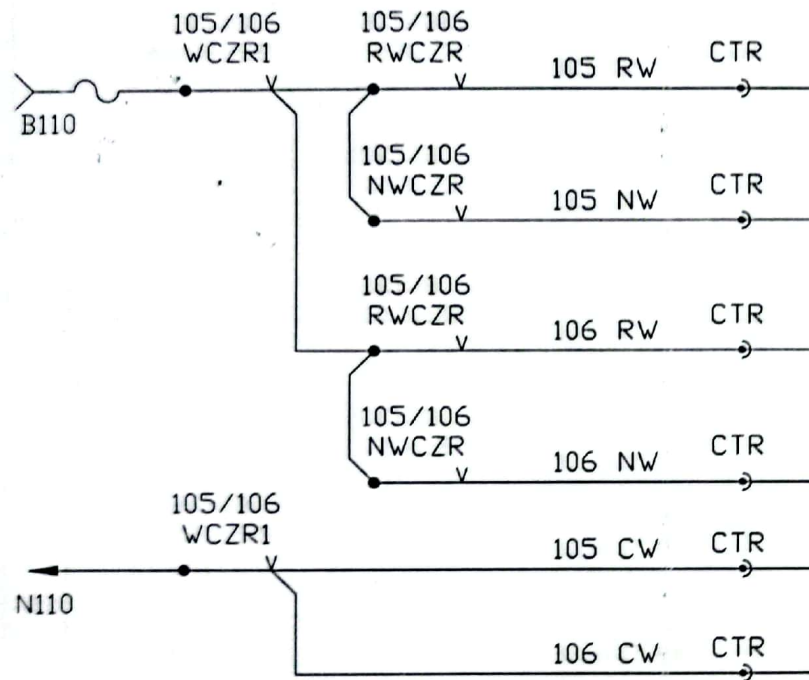
In this way interface circuits will be simpler and transparent with EI which will allow us, with greater accuracy, analysis of any incidence.

Even if above suggestions of ECR are not accepted, with reference to the point logic/Interface circuits issued by RDSO, ECR's suggestions/comments are as under :

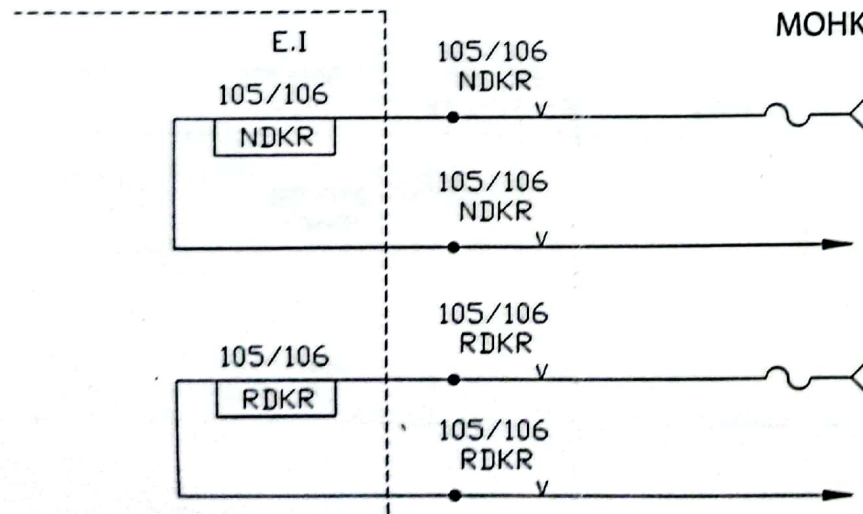
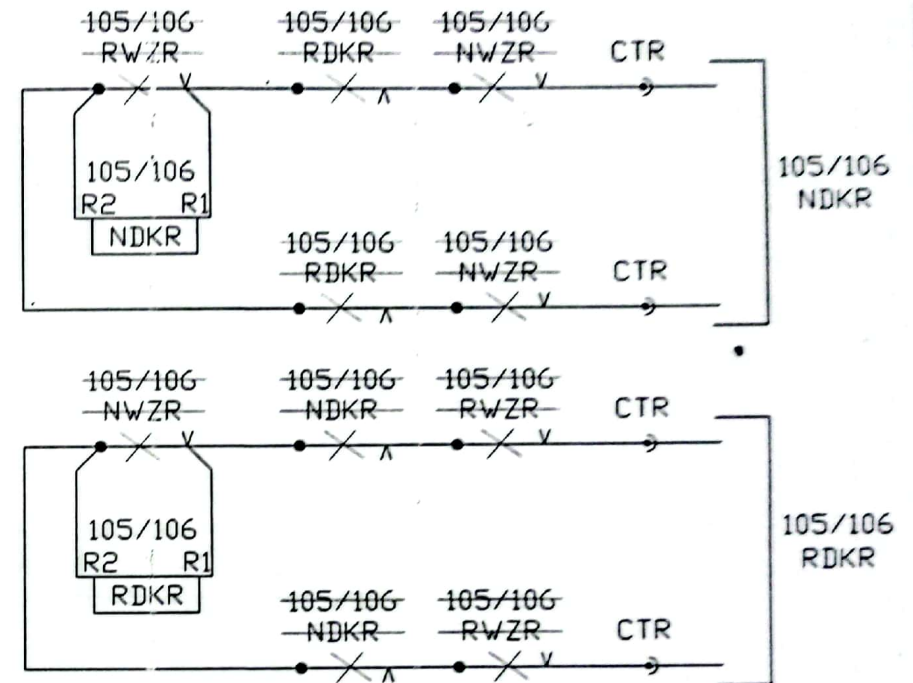
- a) Please refer enclosed SHT-1, It is proposed to remove all the contacts in NDKR & RDKR circuits including across the coils. NWZR(front) & RWZR(front) readback should be wired as input to EI to prove correspondence and converse back in concerned NWKR/RWKR logic. Converse back contacts of NDKR/RDKR should be proved in EI logic which will disable NWKR/RWKR in case any false feed picking up converse RDKR/NDKR(SHT-3). NDKR/RDKR coil shorting contacts of NWZR/RWZR also should be removed to get checked availability of any false feed on converse detection circuit. Due to these changes converse back contacts of RDKR/NDKR will have to be removed from NWCZR/RWCZR circuits(SHT-4).
- b) WCZR1(back) readback should be wired as input to EI, which should be proved in WJR.J pick up circuit to prove that WCZR1 picked up during earlier operation has gone down(SHT-2 & 3). This is very essential because if this relay remains permanently pick due to any reason(contact welding, false wiring, etc.), it will not get detected as NWCZR/RWCZR will operate points as per requirement. This situation is similar to existing NDKR/RDKR circuit which does not detect availability of permanent feed simultaneously at the CT Rack terminals of both NDKR/RDKR. WCZR1 remaining permanently pick will make N110(CW) permanently available at point motor(SHT-1) and two adverse earth faults will operate the motor bypassing entire interlocking. Point circuit needs to be made flawless.
- c) Whenever any staff start managing point detection during any failure or in other circumstances, after operation of points from VDU, they will generally ensure that both ends of the crossover are set to the required position and then they may give false detection supply. In order to detect this, it is proposed to create one relay in EI logic(WXCR, SHT-2) which will check that required detection is received within WJR timing, which is proposed to be reduced to 10sec instead of existing 12sec. SHT-2. WXCR relay will pick up only if corresponding detection is received within 10sec and sticks up and pick up is proved in both NWKR/RWKR. If corresponding detection is not received within WJR timing, WXCR will not pick up for that particular operation. Thus any false feed given after 10sec of start of point operation will be ignored by the EI by not allowing final NWKR/RWKR to pick up(SHT-3). This relay drops at the start of next operation and dropping is proved before start of next point operation. The WJR timing of 10sec can be reduced to 8sec to make it further tough.
- d) Separate detection of both ends of crossovers is preferred arrangement as it avoids looping in location box for making the detection in series and related mistakes during cable failures.

DA + Drawing(4 Pages)

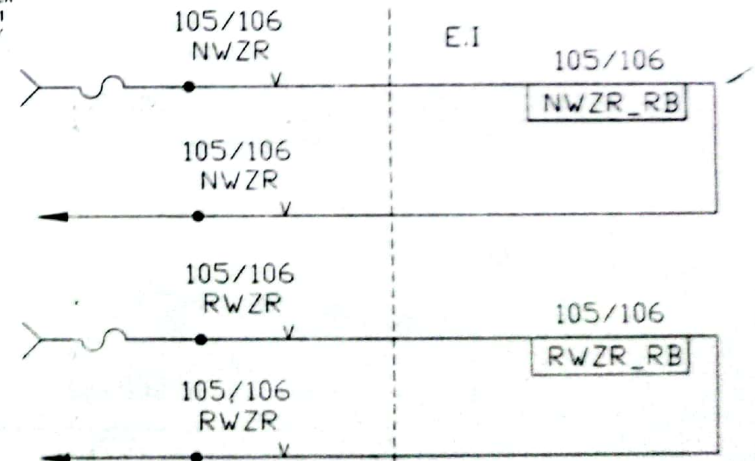

(Eknath Mohker)
PCSTE



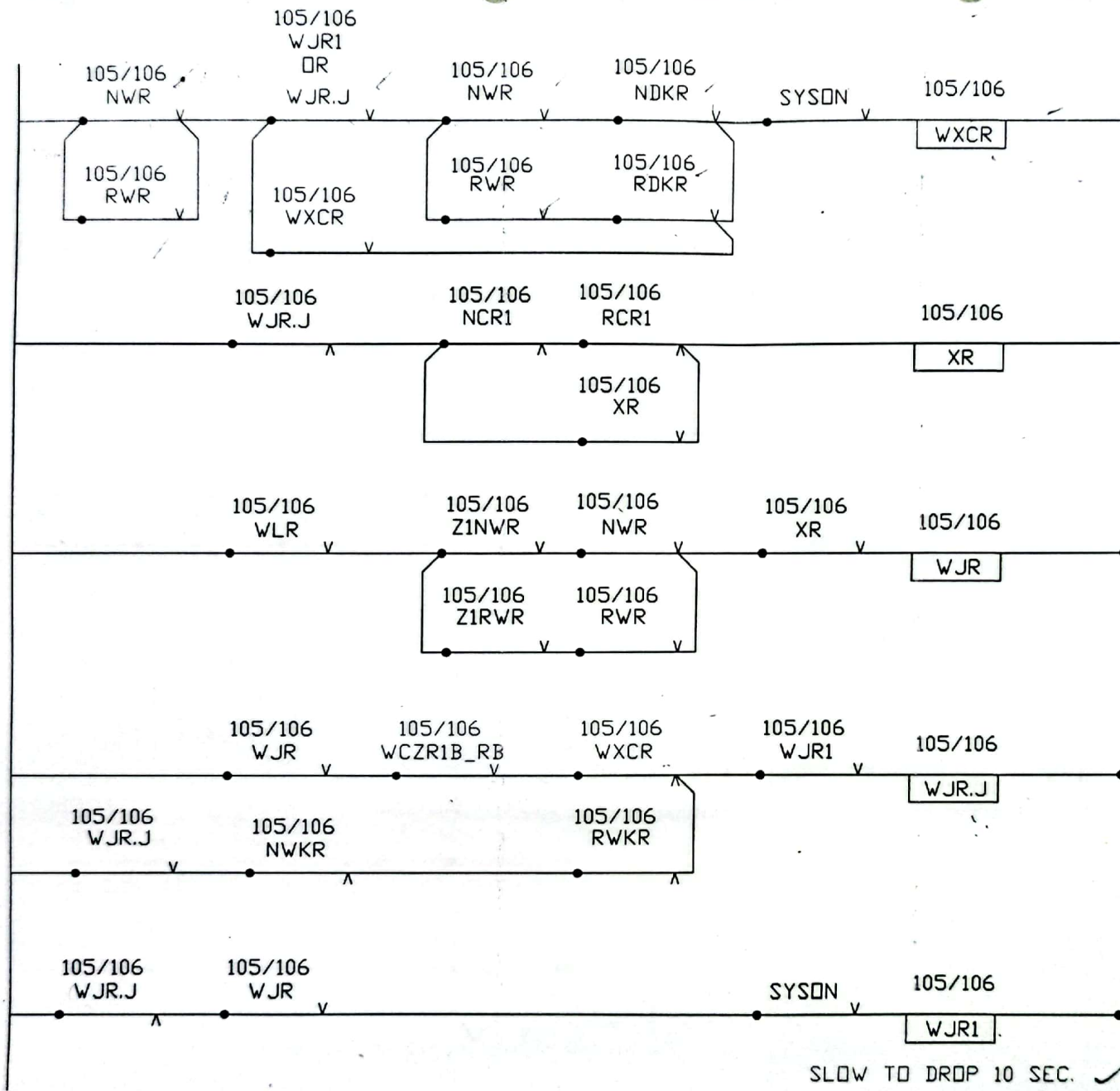
RELAY ROOM



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SHT-1

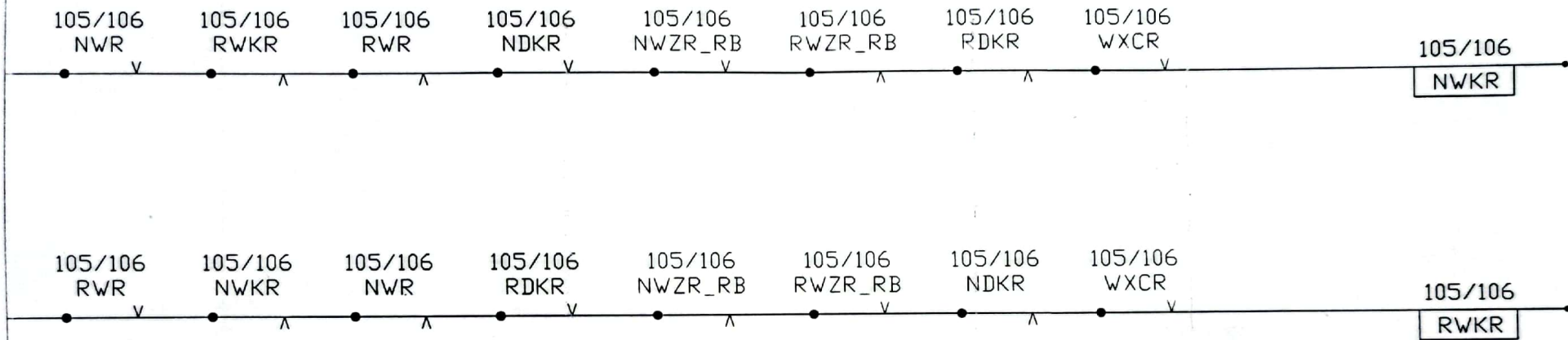


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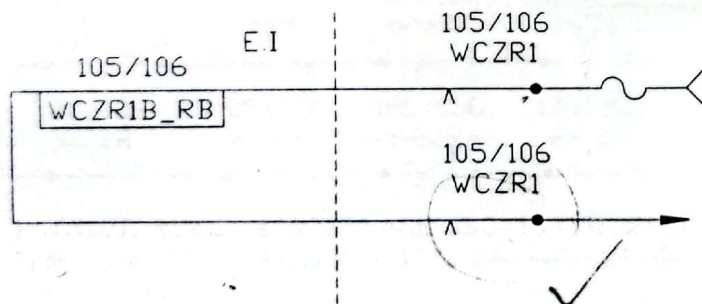
SLOW TO DROP 10 SEC.

SHT-2



NWZR_RB :-READ BACK CONTACT OF NWZR.
 RWZR_RB :-READ BACK CONTACT OF RWZR.
 WCZR1_RB :-READ BACK CONTACT OF WCZR1.

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SHT-3

