



No. EL/3.1.35/2 Electrical  
 Chief Electrical Engineers,

Dated 12.01.2011

- Northern Railway, Baroda House, New Delhi-110 001
- East Central Railway, Hazipur - 844 101 (Bihar)
- Central Railway, 2<sup>nd</sup> floor, Parcel Office Bldg., Mumbai CST-400 001
- South Central Railway, Rail Nilyam, Secunderabad - 500 071.
- West Central Railway, Jabalpur-482001
- South East Central Railway, Bilaspur-495004
- South Eastern Railway, Garden Reach, Kolkata-700 043
- Chittaranjan Locomotive Works, Chittaranjan-713 331 (WB)

**MODIFICATION SHEET NO. RDSO/2010/EL/MS/ 0390 Rev.'0' Dated 31.12.10.**

**1.0 Title:**

Paralleling of interlocks of EP contactors and relays of three phase locomotives to improve reliability.

**2.0 Object:**

Loco no. 30252 failed on line on 27.10.10, while hauling train no. 2301 due to harmonic filter isolation. During investigation, it was observed that normally closed (NC) auxiliary interlock of discharging resistance contactor of harmonic filter (8.41) was not passing supply thereby preventing the harmonic filter contactor ON/OFF (8.1) to close, which resulted into harmonic filter isolation and loco speed was not increasing more than 40 km/h. In order to avoid such type of failures online series and paralleling of frequently operated interlocks (interlock operates, every time throttle comes to zero position) and moderately operated (interlocks operate, every time VCB operates) with spare interlocks available in the locomotive have been recommended.

**3.0 Existing Arrangement with cross-references of respective design document:**

The circuit of following contactor/relays/VCB have been revised.

- i) Contactor for discharge resistor: Sch. Pos. 8.41: ABB document no.3EHP281164.
- ii) Auxiliary contactor VCB: Sch. Pos: 136.4: ABB document no.3EHP281165.
- iii) Time relay MR Blower: Sch. Pos: 54.2/1&2. ABB document no.3EHP281165.
- iv) Contactor ON/OFF: Sch. Pos. 8.1: ABB document no.3EHP281164.

The existing control circuit of the above is enclosed as Annexure-1.

**4.0 Modified Arrangement to replace existing arrangement as given above in 3.0:**

Sl. No.	Cont./ Relay No.	Description	Nos. of NC Interlocks.		Nos. of NO Interlocks.		Location	Remarks
			Used	Spare	Used	Spare		
1	8.41	Contactor	01	01	02	01	FB Cubicle.	The spare NC interlock 7&8 is to

		Discharging resistor						be paralleled to used NC interlock 5&6.
2	136.4	Auxiliary Contactor VCB	00	00	01	03	SB1 Cubicle	The spare NO interlock 3&4 is to be paralleled to used NO interlock 1&2
3	54.2/1	Time relay for MRB1	01	01	01	01	HB1 Cubicle	The spare NC R3,R4 interlock is to be connected in parallel to used NC interlock R1,R2.
4	54.2/2	Time relay for MRB2	01	01	01	01	HB2 Cubicle	The spare NC R3,R4 interlock is to be connected in parallel to used NC interlock R1,R2.
5	8.1	Contactor Filter ON/OFF.	01	00	02	0	FB Cubicle.	As there is no spare NC interlock hence auxiliary cam switch complete (part no. A5514 normally closed) of SMGR is required to be put in the contactor and to be made parallel with used NC 2A&2B interlock.

The modified circuit is attached as Annexure-2.

**5.0 Application to class of locomotives:**

WAG9, WAP5, WAP7, WAG9H.

**6.0 Material Required Per Loco:**

- Auxiliary cam switch complete part no. A5514: One no.
- 0.5 mm<sup>2</sup> cable as per CLW spec. no. CLW/ES/3/0458 : 01 M.

**7.0 Material Rendered Surplus:**

- NIL

**8.0 Reference:**

CELE/NR's letter no. 230-Elect/TRS/19 dated 24.11.10 .

**9.0 Modification Drawing:**

Attached.

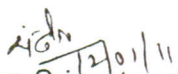
**10.0 Agency of Implementation:**

CLW in the new locos and Loco Sheds holding 3-phase locomotives.

**11.0** The manufacturer of EP contactor M/s. Secheron Ltd. (M/s.PPS International/Noida) have been advised to provide one NC interlock as spare in harmonic filter contactor ON/OFF (8.1) vide this office letter of even no. dated 11.01.11.

Encl: As above

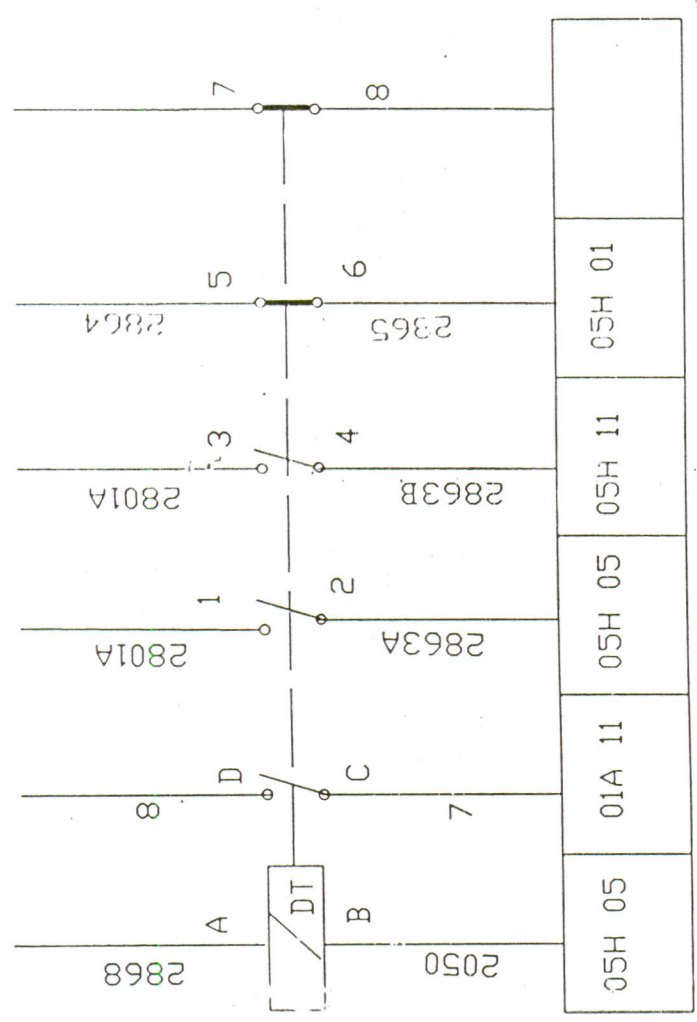
Copy to:-

  
 (Sandeep Srivastava)  
 for Director General/Elect.

1. **Secretary (Electric Traction)**, Railway Board, Rail Bhavan, New Delhi-110 001
2. **Chief Electrical Loco Engineers**,
  - Central Railway, 2<sup>nd</sup> floor, Parcel Office Bldg., Mumbai CST-400 001
  - East Central Railway, Hazipur – 844 101 (Bihar)
  - Northern Railway, Baroda House, New Delhi-110 001
  - South Central Railway, Rail Nilyam, Secunderabad – 500 071.
  - West Central Railway, Jabalpur-482001
  - South East Central Railway, Bilaspur-495004
  - South Eastern Railway, Garden Reach, Kolkata-700 043
3. **Sr. DEE (TRS), Electric Loco Sheds**,
  - Central Railway, Ajni (Nagpur)-440008
  - East Central Railway, Gomoh-828 401
  - Northern Railway, Ghaziabad (UP)- 201001
  - South Central Railway, Lalaguda, Secunderabad – 500 017.
  - West Central Railway, Tughlakabad, New Delh i- 110 044.
  - South East Central Railway, BMY Complex, Bhilai, Durg-490 025.
  - South Eastern Railway, Tatanagar-831 002.

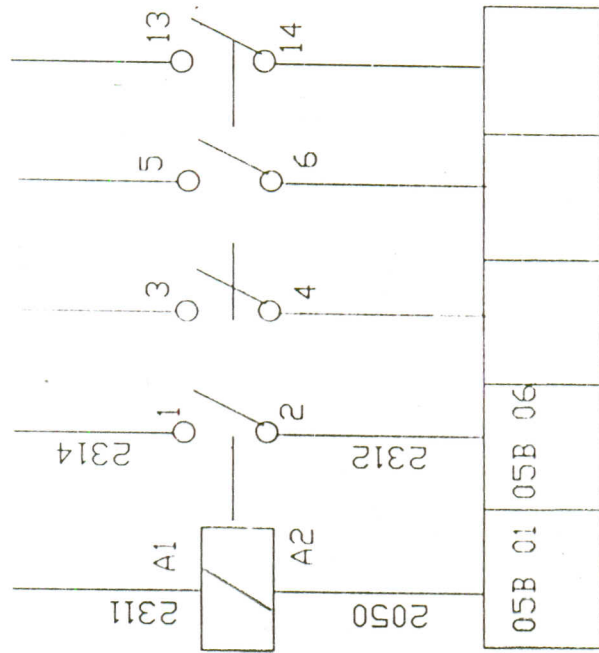
Encl: As above

18/11/11  
(Sandeep Srivastava)  
for Director General/Elect.

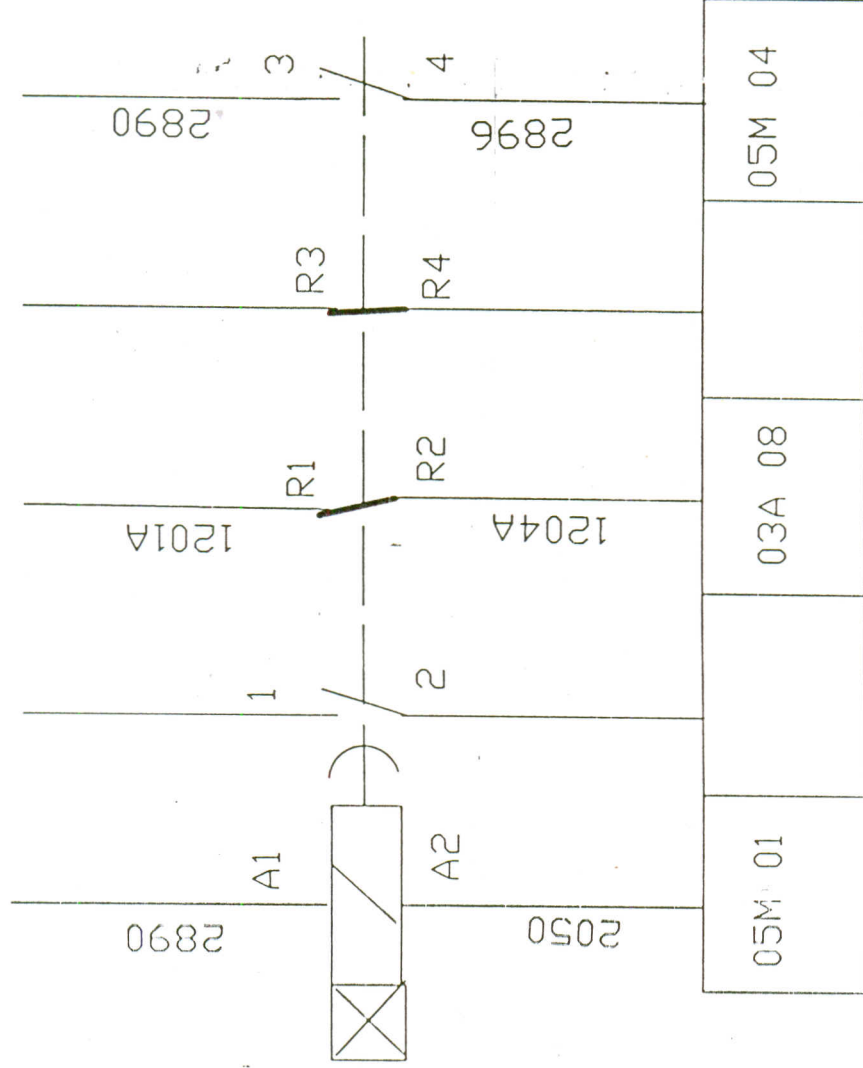


Schematic Pos. 8.41  
Contactor for discharge resistor



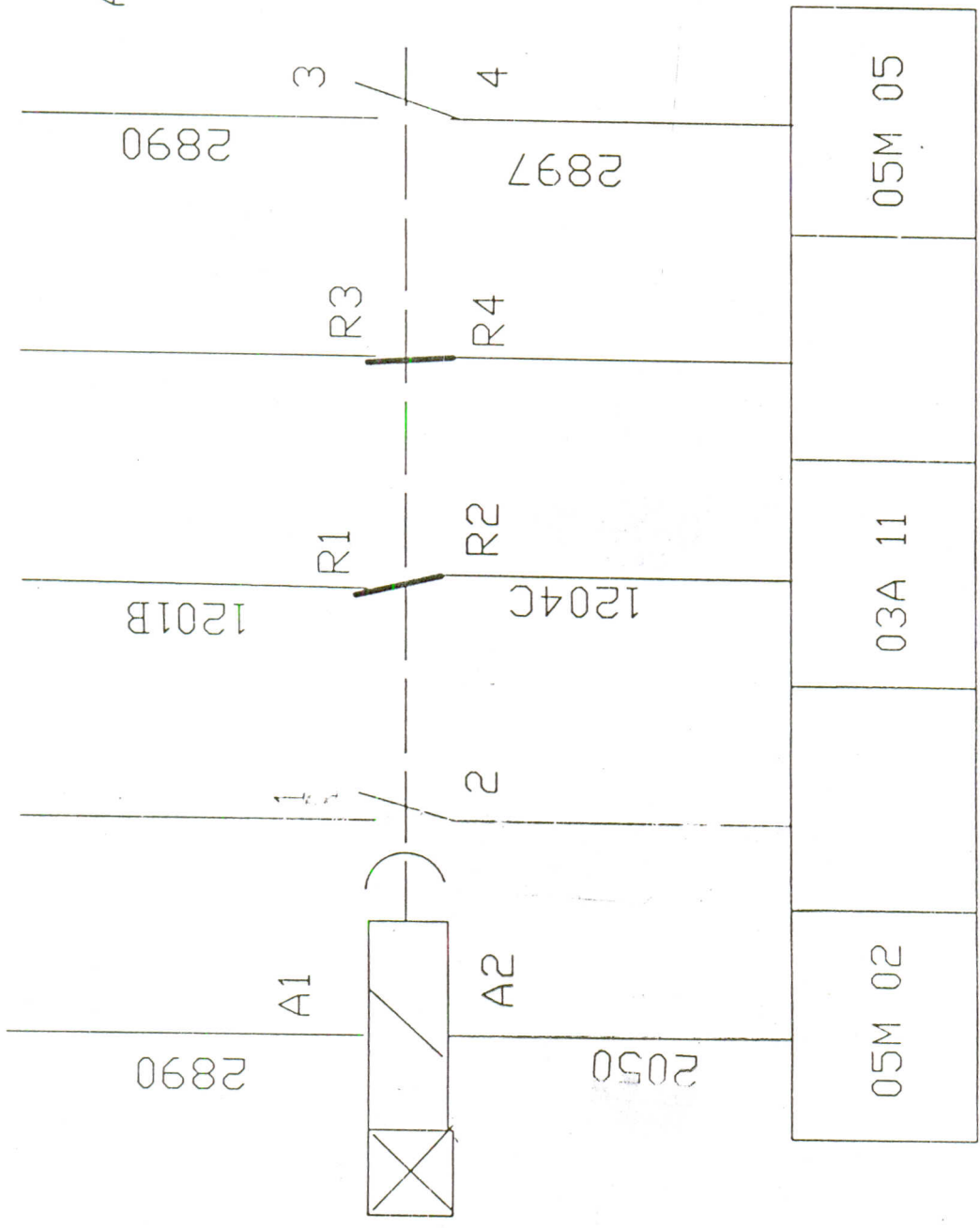


Schematic Pos. 136.4  
Auxiliary Contact VCB



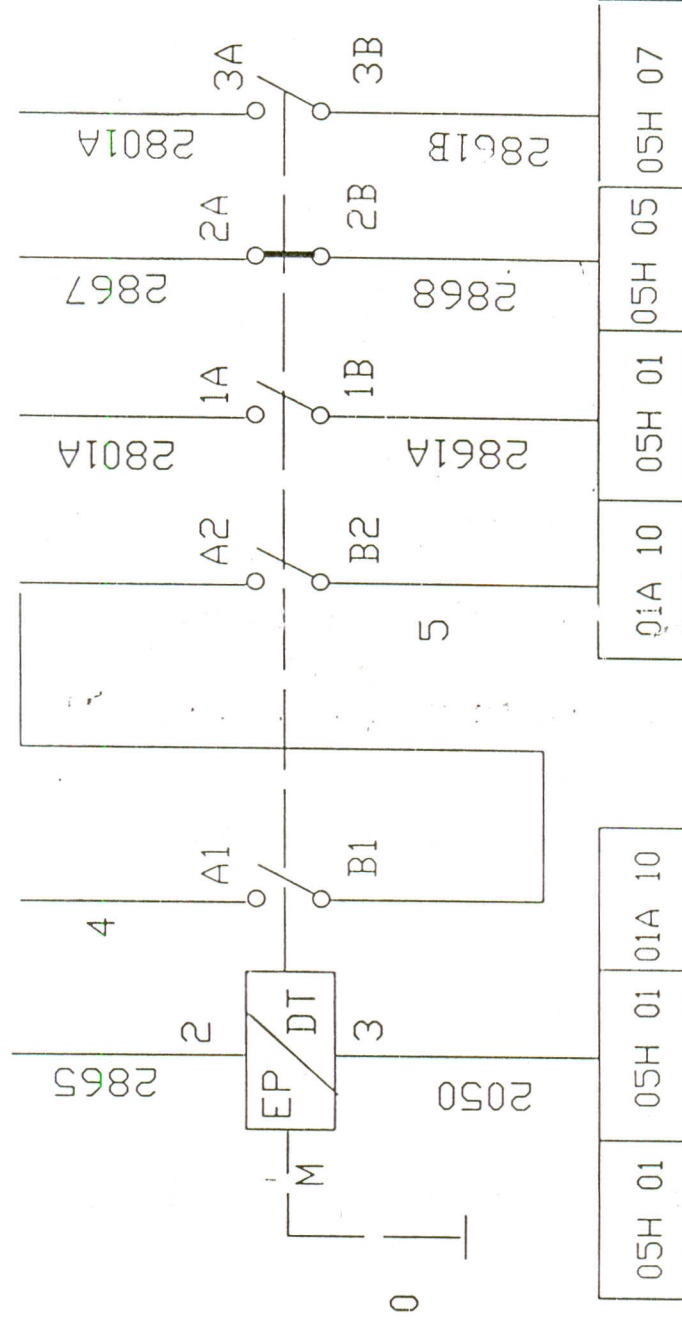
Schematic Pos. 54.2/1

Time Relay MR Blower



Schematic Pos. 54.2/2

Time Relay MR Blower



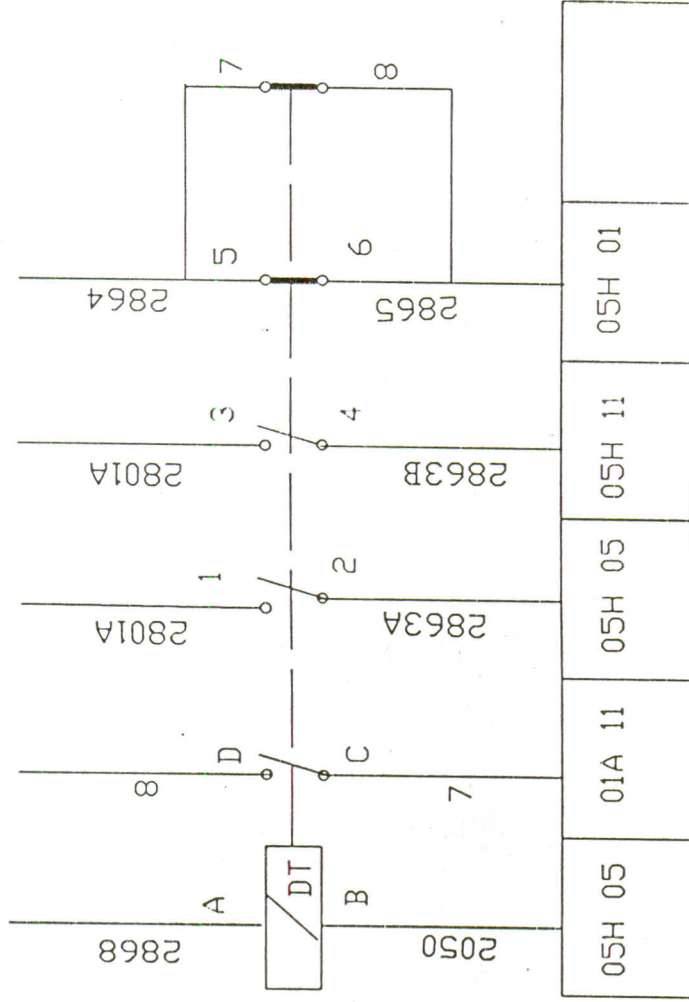
Sch. Pos. 8.1

Contactor Filter ON/OFF



# Modified Circuit

Annexure-2/1

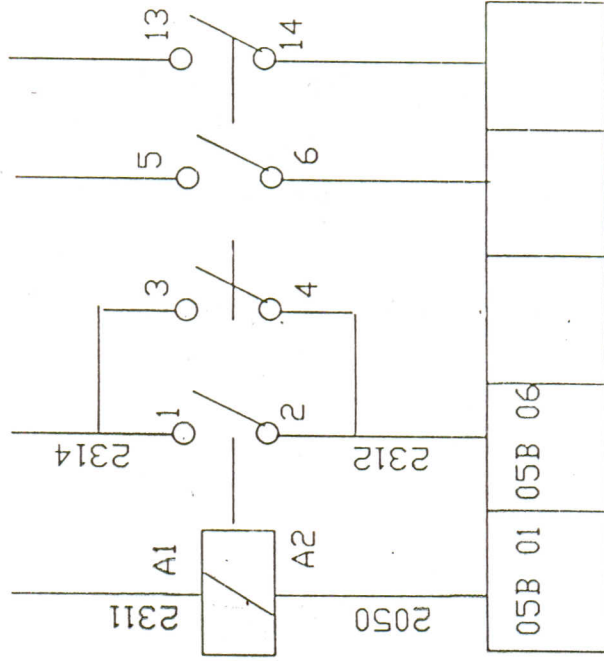


Schematic Pos. 8.41

Contactors for discharge resistor

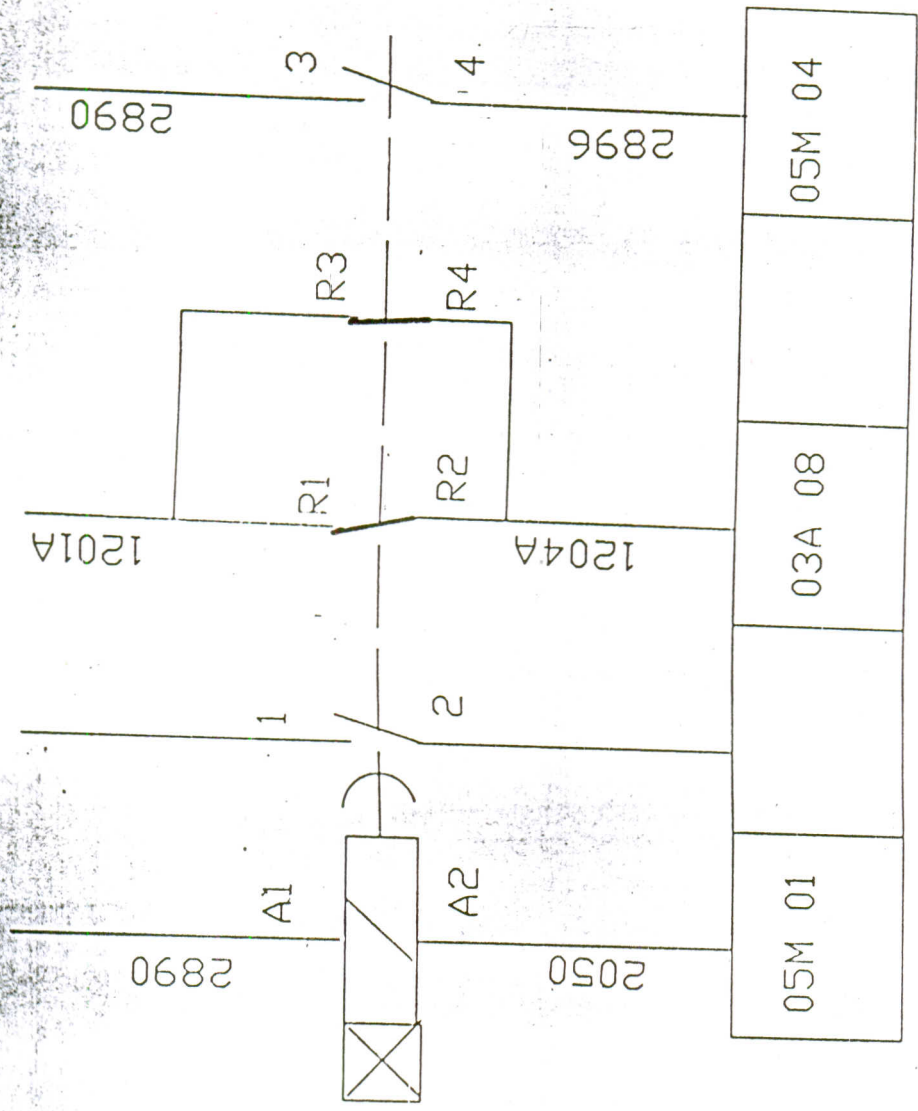
# Modified Circuit

Annexure-2/2



Schematic Pos. 136.4

Auxiliary Contact VCB



Schamatic Pos. 54.2/1

Time Relay MR Blower



## Annexure-2/5



X = Auxiliary Cam  
Switch Complete, Part  
No. A5514 of SMGR.