SPN-141-94

RDSO/SPN/141

SPECIFICATION
FOR
TROLLEY SUPPRESSION EQUIPMENT./HFTC

1.0 SCOPE

This specification lays down the general, functic and technical requirements of trolley suppression equipr to be used in conjunction with axle counter to detect presence of a vehicle on the Railway tract.

2.0 GENERAL REQUIREMENTS

2.1 The equipment shall work satisfactorily upto tra speed of 200 KMPH.

2.2 The equipment shall be suitable for non-electrified, electrified AC electrified and thyristor/chopper operating areas.

2.3 The equipment shall work satisfactorily with ... of Rail gauges on Indian Railways.

2.4 It shall be possible to use the equipment with counter system.

2.5 It shall be possible to use the equipment as ... tract circuit.

2.6 The equipment shall be suitable for working ... point and crossings.

2.7 There shall be no dead zone (i.e.non-detec... presence of a vehicle) between two adjacent Track circui

2.8 The equipment shall be jointless type. How... shall be possible to use it adjacent to conventional Tr Circuit with Rail insulation Joints.

2.9 The equipment shall neither affect functioning of ot signalling equipments installed adjacent or alongwith nor get affected in its operation by presence of ot equipment.

2.10 It shall comply with all existing Rail bond practices on AC and DC electrified Areas.

2.11 The overall dimensions of the equipment shall not more than 220x180x350mm.

3.0 FUNCTIONAL REQUIREMENTS

3.1 The constituents of trolley suppression equipment sl conform to drawing no.RDSO/S-50900.

3.2 The equipment shall consist of two independent ca namely Transmitter and Receiver cards housed in a box to installed in track side location box.

3.3 The Tx signal shall be in the form of combination two different frequencies.

3.4 The distance between transmitter and recei connections to the track (X) shall be such so as to g maximum effective track circuit length of 50m.(Y+Y)

3.5 The Medium for transmission of signal shall be Rails

3.6 The equipment shall not require insulated Rail Joi but only a short connection of both rails at both end. mark its boundaries.

The receiver shall have fail safe logic to c correct receipt of the track signal before energising output relay.

3.8 The transmitter output and frequency shall not increa significantly due to variation in power supply

3.9 .Any variation in TX/RX frequency shall result de-energisation of output relay.

3.10 On occupation of monitored track by a vehicle. equipt associated output relay of the equipment shall de-energis

3.11 Any break in the connection of the equipment. shall result in de-energisation of output relay.

3.12 Under any fault condition, the receiver output sh reduce sufficiently to de-energise the associated out relay positively.

3.13 The equipment shall not get over-energised duc ballast resistance variation/ power supply variation.

3.14 All the components used shall conform to appro specifications for a reliable and failure free perfor

3.15 Only HIREL components shall be used in construction of the equipment.

3.16 Any component failure of the equipment shall resu de-energising of output relay.

3.17 The equipment shall have means for adjusting track circuit length.

3.18 The equipment shall be suitably protected th shielding or grounding arrangements against external interference.

3.19 The equipments shall give audio/visual indications its state of health condition.

4.0 TECHNICAL REQUIREMENTS.

4.1 The equipment shall work satisfactorily over a Le of 50 m..

4.2 The equipment shall work on 24V DC +/- 10%.

4.3 The power consumption of the equipment shall not e 100 mw.

4.4 The equipment shall work on frequency range betweer KHz to 100 KHz+/- 1%.

4.5.The output relay shall de-energise with a minimum shunt resistance of 0.5 ohm.

4.6 The equipment shall work satisfactorily upto min.ballast resistance of 2 ohm/Km.

4.7 The final output of receiver shall able to drive DC plug-in type relay to BR 930 specification.

4.8 The equipment shall have in built delay feature obviate the need of slow to release relay.

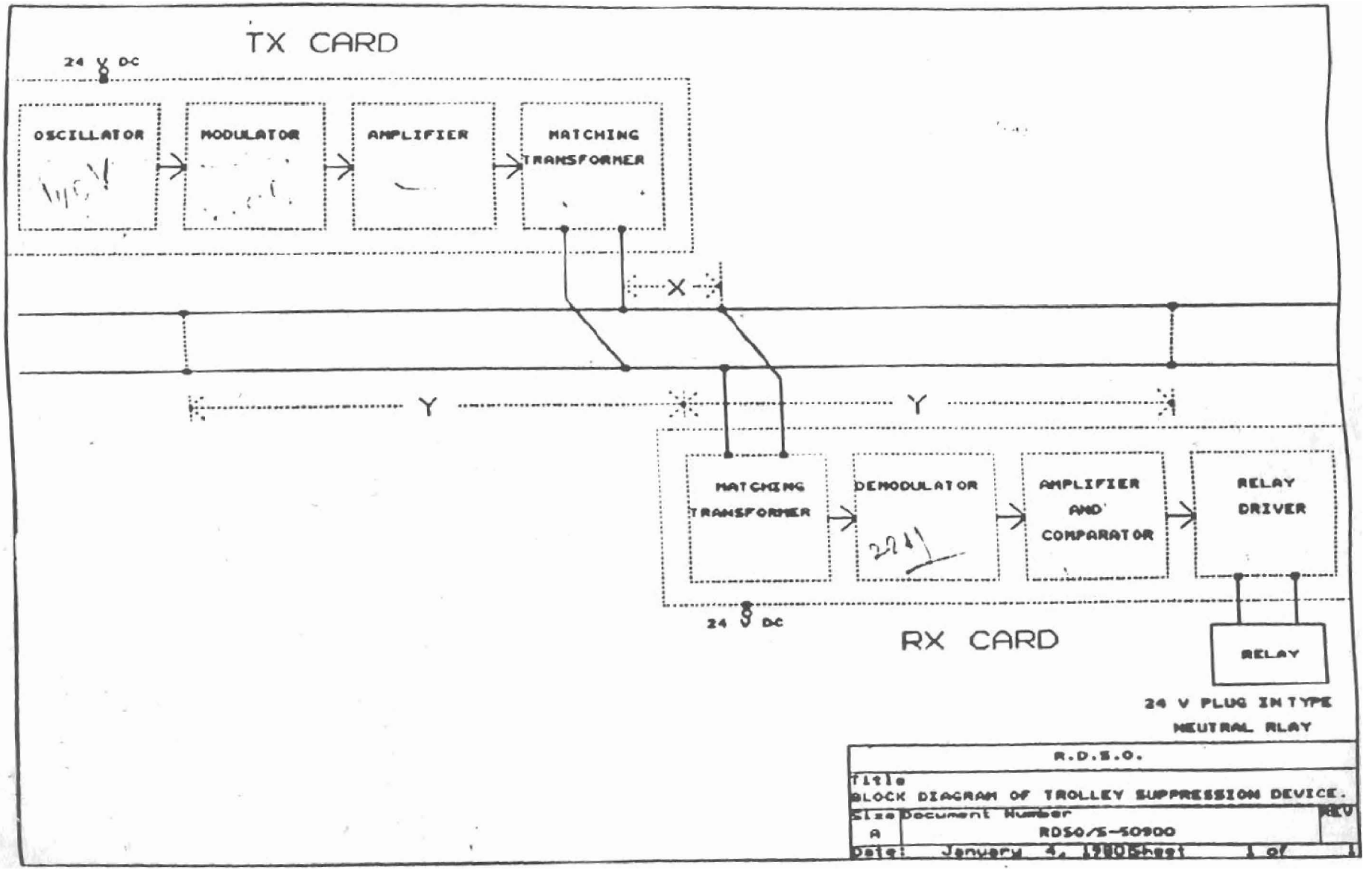
4.9 The lead length of the equipment shall be more t 5.0m

4.10 It shall be possible to detect "Broken Rail" by energisation of Track Relay.

4.11 Means shall be provided to monitor output of transmitter/receiver without causing any disturbance t equipment functioning.

4.12 The receiver shall cause the relay to de-energis power supply interruption takes place.

4.13 The equipment shall work satisfactorily against fundamental current of 50 Hz and its harmonics cause thyristor/chopper locomotives.


TX CARD
24 V DC
OSCILLATOR
MODULATOR
AMPLIFIER
MATCHING TRANSFORMER
X
Y
Y
MATCHING TRANSFORMER
DEMODULATOR
AMPLIFIER AND COMPARATOR
RELAY DRIVER
24 V DC
RX CARD
RELAY
24 V PLUG IN TYPE NEUTRAL RLAY
R.D.S.O.
Title
BLOCK DIAGRAM OF TROLLEY SUPPRESSION DEVICE.
Size
A
Document Number
RDSO/S-50900
REV
Date: January 4, 1980 Sheet 1 of 1