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भारत सरकार – GOVERNMENT OF INDIA
रेल मंत्रालय – MINISTRY OF RAILWAYS

रेल पथ निरीक्षण औज़ार एवं संरक्षा उपकरण

TRACK INSPECTION TOOLS AND SAFETY EQUIPMENTS

कैमटेक/2014/सि/टी आई टी एस ई/1.0

CAMTECH/2014/C/TITSE/1.0

सितम्बर- 2014/ **September – 2014**

अआमा सं RDS रेल अग्रदूत Transforming Railways

An ISO 9001:2000 Certified Organization
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प्राक्कथन

भारी भार, लम्बी दूरी एवं त्वरित ट्रेनों (गाड़ियों) के लिये भारतीय रेल, रेलपथ संरचना में सुधार के लिये लगातार प्रयास कर रहा है। रेलपथ को सुरक्षित व ठीक हालत में रखने के लिये रेलपथ स्टाफ द्वारा दैनिक मरम्मत और निर्माण कार्यों के लिये विभिन्न प्रकार के रेलपथ मापन के औज़ारों व सुरक्षा उपकरणों का उपयोग किया जाता है।

केमटेक द्वारा तैयार पुस्तिका में निरीक्षण के दौरान उपयोगी विभिन्न प्रकार के आवश्यक औज़ारों, ट्रैफिक की सुरक्षा हेतु उपकरणों को शामिल किया गया है तथा उनके महत्व को संक्षिप्त में, इस पुस्तक में वर्णित किया गया है।

यह उम्मीद की जाती है कि यह पुस्तिका इन गतिविधियों में लगे भारतीय रेल के सिविल इंजीनियरिंग कर्मियों के लिए निश्चित रुप से उपयोगी सिद्ध होगी।

दिनांक 26, सितम्बर 2014

(ए. आर. तुपे)
कार्यकारी निदेशक
केमटेक, ग्वालियर

FOREWORD

Indian Railways have been striving continuously to improve track structure for heavier loads, longer and speedier trains. To keep the track in safe and fit condition, the various kinds of tools for measurement of track parameters and safety equipments are used for ensuring the safety of traffic and staff itself by P. Way staff in day to day maintenance and construction works.

The handbook prepared by CAMTECH incorporates various kinds of tools essential during inspection of track, equipments for safety of traffic and their importance is briefly described in the book.

It is expected that the handbook will be quite helpful to civil engineering personnel of Indian Railways engaged in these activities.

Date: 26, September 2014

(A.R. Tupe)
Executive Director
CAMTECH/Gwalior

भूमिका

रेल्वे के सफल परिचालन में एक आवश्यक अवयव है रेलपथ प्रणाली का ठीक से रखरखाव करना। एक बड़ा रेल तंत्र होने के नाते भारतीय रेल के पास लगभग 63465 किलोमीटर का रेलपथ है जिसके रखरखाव की वर्ष भर आवश्यकता होती है। रेलपथ अवयवों जैसे कि स्लीपर्स, बंधनों एवं लम्बी झालित रेलों के सतत् विकास के कारण पिछले 30 सालों के दौरान रेलपथ रखरखाव में एक बड़ा बदलाव आया है। विभिन्न प्रकार के रेलपथ मापन के औज़ारों व सुरक्षा उपकरणों का उपयोग रेलपथ को सुरक्षित व ठीक हालत में रखने के लिये किया जाता है।

कार्यानुभव, आरडीएसओ के विनिर्देशों तथा निर्माताओं के अनुदेशों के आधार पर इस पुस्तिका को तैयार किया गया है। यह पुस्तिका वैधानिक नहीं है तथा इसमें दी गई जानकारी का उद्देश्य मात्र मार्गदर्शन है।

इस पुस्तिका के सुधार हेतु पाठकों के किसी भी सुझाव का स्वागत करते हैं।

दिनांक 24, सितम्बर 2014

(एस. के. सक्सेना)
उप निदेशक
केमटेक, ग्वालियर

PREFACE

An essential ingredient in the successful running of a railway is a well maintained track system. Indian railway has a large rail network covering approximately a track length of 63465 kms, which require maintenance throughout the year. Track maintenance has undergone a change during the past 30 years due to continuous development in track components viz. sleepers, fastenings and long welded rails. Various kinds of tools for measurement of track parameters and safety equipments are used to keep the track in safe and fit condition.

This booklet is prepared on the basis of work experience, RDSO's specifications and manufacturers' instructions. This booklet is not statutory and contents are only for the purpose of guidance.

We welcome any suggestions from readers for further improvement.

Date: 24, September 2014

(S.K. Saxena)
Dy. Director
CAMTECH/Gwalior

संशोधन पर्चियों का प्रकाशन

इस लघु पुस्तिका के लिये भविष्य में प्रकाशित होने वाली संशोधन पर्चियों को निम्नानुसार संख्यांकित किया जायेगा।

केमटेक/सि/2014/टी आई टी एस ई/1.0 सीएस # XX दिनांक----------

जहॉ "XX" सम्बन्धित संशोधन पर्ची की क्रम संख्या है (01 से प्रारम्भ होकर आगे की ओर)

प्रकाशित संशोधन पर्चियॉ

क्र.सं.	प्रकाशन की तारीख	संशोधित पृष्ठ संख्या तथा मद संख्या	टिप्पणी

ISSUE OF CORRECTION SLIPS

The correction slips to be issued in future for this handbook will be numbered as follows:

CAMTECH/C/2014/TITSE /1.0/CS. # XX date .....

Where "XX" is the serial number of the concerned correction slip (starting from 01 onwards).

CORRECTION SLIPS ISSUED

Sr. No. of C.Slip	Date of issue	Page no. and Item No. modified	Remarks

विषय-सूची/CONTENTS

स.क्र. S.No.	विवरण/Description	पेज स. Page No.
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1.0 परिचय/Introduction

Indian railway has a large rail network covering entire length and breadth of country. The maintenance of track, which consists of rails, rail fastenings and fittings, is essential to keep the track safe and fit for heavy traffic. The staffs responsible for track maintenance require various kinds of tools for measurement of track parameters and for ensuring the safety of traffic and staff itself.

This booklet is prepared on the basis of field experience, RDSO's specifications and manufacturers' instructions. In subsequent sections, the each kind of tool is described in brief for guidance of the P. Way staff.

2.0 रेल पथ मापन औज़ार/P. Way Measuring Tools

Different tools are needed to record physical value of track parameters or measurement of particular track component. Here some measurement tools are being discussed:

2.1 स्टील के पैमाने/Steel Scale

Stainless steel scales meant for measuring linear metre are available in size of 10cm, 15cm and 30cm. They are used to measure versines, gaps in SEJ, etc.



2.2 नापने का फीता/Measuring Tape



It is a common measuring tool. A measuring tape is a flexible form of ruler. It is used for measuring the dimensions in all engineering works. It is available in different sizes i.e. 2, 3, 5, 15, and 30 meter. It consists of a fiber glass, linen and metal strip with linear measurement markings. It is graduated at every millimeter. Its flexibility allows for a measure of great length to be easily carried in pocket or toolkit and permits one to measure around curves or corners.

2.3 रेल तापमापी/Rail Thermometers

Rail thermometer used to measure the temperature of the rail at site. The following are the types of approved thermometers for measuring rail temperature:-

A) चुंबकीय आधार प्रकार रेल तापमापी/Magnetic Base Type Rail Thermometer

(RDSO specification No. TM-67 dt. 28 .01 .2002 rev. 01 of 2010)



The thermometer is designed to firmly stick to the rail top by magnetic action of the base of the thermometer when placed on the top of rail head and stand in vertical position. It is be capable to measure the rail temperature correctly to the specified accuracy and tolerance

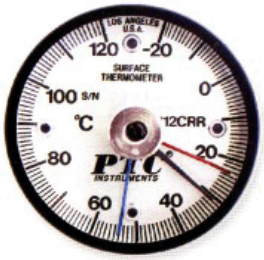
within six minutes. Red, Yellow & Green colour code for easy understanding for P. Way staff.

Technical Features:

- Overall length : 200 $\pm$ 5 mm (including casing)
- Overall length of capillary tube: 186 $\pm$ 2 mm
- Least Count : 1.0^0C
- Accuracy : $\pm 1.0^0$C
- Temperature Range : - 5^0 C to + 85^0C.
- Weight : Within 120 gms.
- Temperature Recording Time : Within six minutes.

B) डायल प्रकार तापमापी/Dial Type Thermometer

This is a bi-metallic type thermometer, which is provided with magnet for attaching it to the rail. The thermometer is attached on the shady side of the web of the rail. A steady recording of the rail temperature is reached within 8 minutes.



- Measuring Range : -30^0C to 70^0C
- Least Count : 1^0C
- Magnet Base : For Best Holding To Rail.
- Weighs : less than 60 gm.
- Diameter : 50 mm

- Thermometers have three hands to give instantaneous, maximum and minimum temperatures.

C) सतत रेल तापमापी/Continuous Rail Thermometer

RDSO (No.TM/TL/119) rev. 13.09.2012



This device is used for continuously displaying rail temperature, storing the data at pre-set interval and transferring this data to PC through USB port of PC.

This unit can be placed at nearby cabin to continuously monitor and store the rail temperature. The Device shall be capable of continuous operation during the varying atmospheric and climatic conditions as follows:

- Ambient temperature : 0 to 55^0C
- Altitude : Sea level to 700 m
- Maximum rail temperature : 85^0 C

Technical Features'

- Alphanumeric LCD display size :
  (minimum 97 mm X 22 mm) of two line with 16 characters each.
- Resolution : 0.1^0 C
- Accuracy : $\pm 1^0$ C
- Measurement Range : -05 to 85^0 C
- Memory : Non-volatile- up to 18 months on hourly basis.

- LCD Display pattern :
  18/09/14 11:30 18.2^0 C
  (Date) (Time) (Temp.)

2.4 टो भार मापन यंत्र/Toe load measuring device: The toe load measuring device consists of a pre-calibrated helical spring having a steel pointer attached to a lever arrangement through a link hanger for gripping elastic rail clip. When the spring is compressed by turning a rotating handle at the top of the device, the toe of the clip gets pulled up and compression of the spring causes a pointer to indicate displacement on a graduated scale.



The Toe load (in Kg) exerted by the spring on the toe of the clip is measured by multiplying the displacement of the pointer and the spring constant. The device is supported on three legs, two resting on the sleeper and one on the rail head.

Use: Toe load measuring device is used to determine the toe load of elastic rail clips during service in the field.

Salient features:

- Weight (max.) : 12 Kg
- Capacity of the spring to measure toe load : 1400 Kg
- Material of the main spring : Silico-manganese spring steel conforming to Grade 55 of IS: 3195 – 1992.

2.5 इलेक्ट्रॉनिक टो भार मापन यंत्र/Electronic toe load measuring device:



Electronic toe load measuring device has a load cell of 2000 kg capacity and an LCD panel integrated with suitable electronic circuitry. This device has got a lever arrangement attached to it in order to grip the toe of a elastic rail clip. When the load cell is compressed by turning a rotating handle, the elastic rail clip gets pulled up. The force applied on load cell is converted into load (in kg.) and displayed directly on LCD.

Use: It is used to measure the toe load of elastic rail clips in service.

Salient Features:

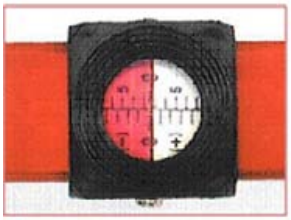
- Load cell capacity : 2000 Kg.
- Operating temperature : -5 to $+70^0$ C
- Measurement accuracy : $\pm$ 0.5% of rated capacity
- Display : 8 or 16 character alphanumeric display
- Sensitivity : Fast return to zero
- Operating Source : Rechargeable battery Pack.

2.6 ट्रैक गेज /Track Gauges

These are used for measuring track gauge of running rail, cross level, super elevation and flange way clearances.

1) विद्युत - रोधित ट्रैक गेज सह समतल/Insulated track gauge cum level: Model STD-1

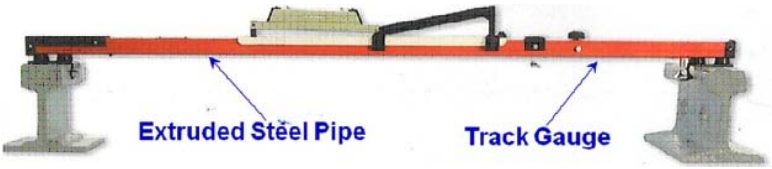




Gauge Reading Window

- High precision gauge cum level with easy to read dial type cant device and built in spirit level. Accurate to 1 mm.
- Made of extruded steel tubing.
- Used for inspection and maintenance of Track.

2) विद्युत-रोधित ट्रैक गेज सह समतल/Insulated track gauge cum level: Model ST-2



- A versatile and accurate tool for track maintenance.
- Made of robust extruded steel tubing.

- Has a built in sensitive spirit level.
- Determines gauge variation, cant and cross level.

3) विद्युत-रोधित ट्रैक गेज सह समतल/Insulated track gauge cum level: Model ST-3



A rugged tool for track maintenance & laying of track.

- Made of robust extruded steel tubing.
- Requires optional spirit level
- Determines gauge variation, cant and cross level.

4) MODEL LG-2(I)



- Made of high tensile aluminium extrusion.
- Determines track gauge variation, cant and cross level.
- Requires optional spirit level.

(I) **स्प्रिट लैवल/Spirit level:** This is used to measure horizontal difference in rails to check cross level in plane track and cant in curve track. It is having a glass capsule with liquid (usually alcohol) and an air bubble inserted in it. This capsule in mounted on a metallic rectangular block. When placed on a surface if the bubble stay in a centre between two marking the surface is horizontal.



- Made of high tensile alloy Aluminium tubing.
- Has double housing to withstand falls.
- Provided with arrangement for subsequent adjustment.
- Accurate to 0.70 mm / meter.

5) कस्टम निर्मित ट्रैक गेज सह समतल/Custom Built Track Gauge cum Levels



FOLDING TYPE TRACK GAUGE

Custom Built Gauges:

- Gauges used in track laying to maintain center line of curved track as per the designed alignment.
- Gauges with modified rail seating for use with raised check rails and conductor rails.
- Gauges with simultaneous measurement of check rail gauge and flange way clearances along with the usual running gauge and cant measurements.
- Digital track gauges.

2.7 रेल वियर गेज/Rail Wear Gauge (model rwg-1):



It used to measures head wear and side wear (gauge face wear).

Feature:

- Spring loaded for faster and accurate readings.
- Gives direct readings, no calculations required.
- Available for UIC 60Kg / 52kg & 90R sections.
- Measuring range of 0-19 mm.

2.8 रेलपथ मापन किट/Permanent Way Measuring Kits

The SSE/P.Way Tool Kit helps the SSE/P.Way for conducting measurements of different parameters of track structure in routine or otherwise. The Kit is available in two models TK-1 and TK-2 contains the quality made, precise measuring tools / instruments as follows:



SSE/P. Way Inspection Kit

PIE Brand SSE/P.Way Tool Kit Model TK-1, consisting of following items.

1. Clearance Gauge BG
2. Shim Feeler Gauge
3. Stepped Feeler Gauge
4. Tapered Gauge
5. Gap Gauge
6. Rail thermometer
7. Pair of versine holder
8. Versine scale
9. Nylon cord
10. Magnifying Glass 3"
11. Adjustable Mirror for checking cracks
12. Vertical Wear Measuring Gauge Model -VWG 1
13. Steel scale 12"/300 mm
14. Outside caliper 150 mm
15. Inside caliper 150 mm

16. Spirit Level
17. White clad pocket steel tape 3 m long
18. White clad pocket Steel tape 20 meters.
19. Straight edge 10 cm.
20. Pocket torch.
21. Cant Board
22. Data book with pen
23. Calculator (Mathematical)
24. Flexible Curve-for Rail Profiles.
25. Track Square

Model TK-2 along with one no. Folding Track Gauge (Model STF-1) in separate box. The gauge has inbuilt Spirit Level.



Folding Track Gauge, Model STF-1

2.9 वरसाइन मापन किट/Versine Measuring Kits:

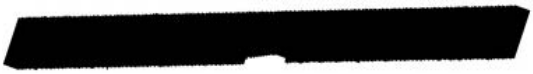
It is used for measurement of horizontal alignment and laying curves. Consists of two holders, nylon cord and a scale for measuring versine.



2.10 रेल वेल्डिंग सीधे किनारों/Rail Welding Straight Edges

It is one meter long straight edge, provided with notch in the center, made from wear resistant alloy steel. It is used in welding process

for rail ends alignment and after welding to check straightness of welded rail joint.



2.11 पुश ट्रॉली/Push Trolley



The trolley, which consists of wheel, trolley frame, axle and detachable seating arrangement, shall be light in weight so that four persons can easily lift the trolley and make it off the track on the face of an approaching train. The trolley shall have an arrangement to fix pushing handles on both side (rear and front) and detachable stone guard arrangement.

Use: The Push trolley is used by Railway officials for track inspection. It is sturdy and robust in design, light weight and easily dismantle-able to load on brake-van/SLR for shifting from one station to other. It is run by pushing the same from back side with the help of two detachable handles.

Technical Features:

- Nominal Gauge : 1676 mm
- Wheel Dia. (at tread) : 400 mm
- Wheel Base : 900-1000 mm (approx)
- Wheel thickness (average) at tread : 6 mm
- Flange Thickness(average) : 9 mm
- Pay load capacity : 0.7 ton (min.)
- No. of spokes : 4

- Seating capacity : 3 persons at front
- Trolley Frame Dimension : 1450 mm X 1550 mm (approx.)
- Umbrella/Hood type :Light weight, Collapsible /detachable
- Overall weight : up to 125 Kg.

2.12 स्व चलनेवाला हल्के वजन ट्रॉली /Self propelled Light Weight Trolley

The trolley comprises of a light metallic tubular frame with two sets of axles powered by an I.C. engine mounted on the frame. The trolley has seating arrangement in front and rear.



Use: The self propelled light weight trolley is used by Railway officials for track inspection and to reach accident/work site quickly.

Salient features:

- Track gauge(nominal) : 1676 mm (BG) / 1000 mm (MG)
- Pay load capacity : 400 Kg (minimum)
- Seating capacity : 2 in front and 2 at the rear.
- Self weight : 90-95 Kg
- Speed : Maximum 20 Km/h
- Gear system : 2 speed gear box or hand operated clutch device to increase/ decrease the speed.

`

- Engine : Petrol / diesel / kerosene driven engine of min. 2 HP rated capacity.
- Fuel tank capacity : Adequate for a run of 60 km
- Wheels : Cold pressed steel, drop forged steel, cast steel or light alloy wheels with self adjusting ball bearings.
- Insulation : Wheels / trolley is insulated so that it does not activate switches & signals while moving in track circuited areas.
- Brakes : Foot pedal operated brakes or mechanical hand brake. The trolley has also mechanical parking brakes.
- Head lights and horn : Head lights, tail lights and an electric horn to be provided.

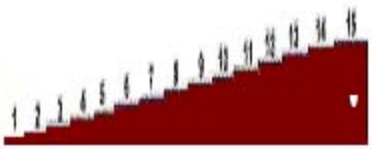
The trolley has:

i) Provision for showing a red flag by day and a red light by night.
ii) Suitable detachable guards to remove stone ballast from rail top.
iii) A light weight detachable hood.
iv) A moulded plastic/G.I. sheet made tool kit of adequate size to keep detonators, search light, diary, stationery, P. Way inspection kits etc.

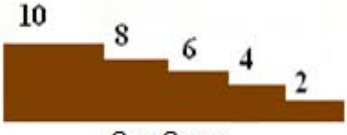
2.13 अन्य गेज और उपकरण/Other Gauges and Tools: These are some gauges to measure different parameters on track.



Tapered Gauge



Stepped Filler Gauge



Gap Gauge



Straight Edge



Shim Feeler Gauge



Magnifying Glass



Clearance Gauge



Points & Xing Wear Measuring Gauge





CALIPER



T-SQUARE





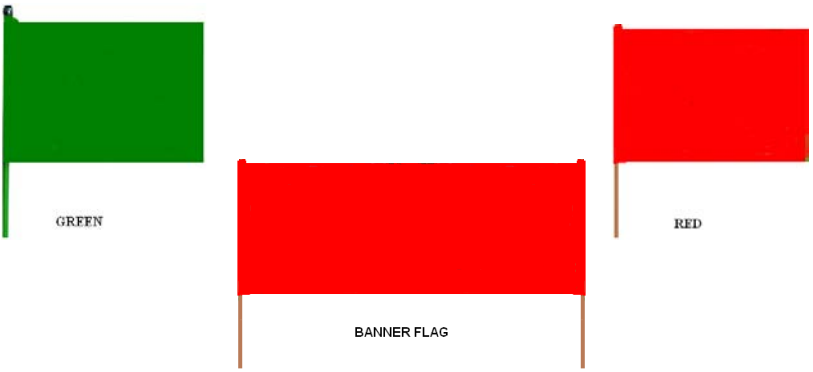
RAIL WEAR MEASURING DEVICE

3.0 संरक्षा उपकरण/Safety Equipments

These are tools/equipments used for safety of track and as well as working personals.

3.1 हाथ संकेतक झण्डा/Hand Signal Flag

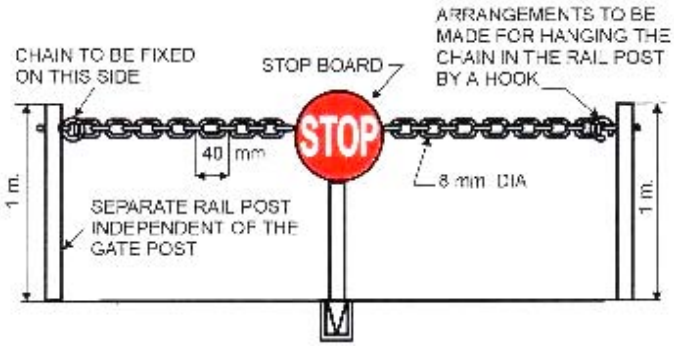
During day a flag or flags are normally be used as hand signals. Green flag is used as proceed hand signal. Red flag is a stop hand signal. A banner flag is a temporary fixed danger signal, consisting of a red cloth supported at each end on a post and stretched across the track at a distance of 600 metres on Broad gauge and 400 metres on M.G. and N.G.



3.2 डंडा/Staff suitable for exhibition of red lamp or red flag



3.3 लंबी अतिरिक्त चैन/Long spare chains with loops at both ends, with stop marked disc attachment at the center to cover the full width of the gate, for use in case the gates/barriers are damaged.



3.4 छोटी चैन/Small chains on Level crossing, When the locking arrangement is of the hasp and staple type with padlocks, two spare chains with loops at both ends should be provided for locking the gates when the locking arrangement goes out of order.



3.5 पटाखे/Detonators or fog signals are appliances which are fixed on the rails, and when an Engine (or vehicle) passes over them, they explode with a loud sound so as to attract the attention of the Driver.





3.6 सीटी इंद्र/Whistle thunderer:



Lookout staff blows the whistle to attract the attention of staff busy in working and also blow by Patrolmen, when the engine and the brake-van of the train pass him.

3.7 बैटरी संचालित एलईडी आधारित मशाल लाइट व हाथ सिग्नल लैंप /Battery operated LED based Torch Light-cum Hand-Signal Lamp (as per specification no. RDSO/SPN/195/2008 Revision 2.0)



This is LED based torch light cum flashing hand signal lamp. This is used for the purpose of signal exchange in Indian Railways. Light from the lamp in colour aspects is visible and discernable from a distance of 1.0 Km, along the longitudinal axis and from 100 meters distance at six degrees angular displacement from longitudinal axis. The light beams are highly narrow and bright to provide powerful signal information signal from long distance in extreme conditions.

It is powered by four commercially available dry cell batteries type LR-20 HP-2 size D (Duracell or equivalent) and have adequate life in terms of burning hours so as to provide for at least 3 months interval between battery changes under normal working conditions on the Indian Railways. The hand signal lamp is compatible to work with R-20 type dry cell batteries also.

Features: This is a lightweight, rugged, maintainable and user-friendly Battery operated LED Based Torch Light-cum-Hand Signal Lamp. The flashing hand signal lamp unit has the highest reliability under severe environmental conditions of operation i.e dust, humidity, high ambient temperature, shocks and vibrations.

3.8 भोंपू/Hooter



It is a device used to produce loud sound, especially used as a signal to warn working staff at site of work to alert them about train movement.

3.9 सुरक्षा हेलमेट/Safety Helmet



A hard hat is predominantly used in workplace environments to protect the head from injury by falling objects, impact with other objects, debris, bad weather and electric shock. Inside the helmet is a suspension that spreads the helmet's weight over the top of the head. It also provides a space of approximately 30 mm (1.2 inch) between the helmet's shell and the

wearer's head so that if an object strikes the shell, the impact is less likely to be transmitted directly to the skull.

3.10 सुरक्षा जैकेट/Safety Jacket



High-visibility (HV) clothing, a type of personal protective equipment (PPE), is any clothing worn that has highly reflective properties or a colour that is easily discernible from any background. Yellow waistcoats worn by emergency services are a common example.

3.11 सुरक्षा दस्ताने/Safety Gloves



A glove is a garment covering the whole hand. Gloves have separate sheaths or openings for each finger and the thumb. Gloves protect and comfort hands against cold or heat, damage by friction, abrasion or chemicals, or in turn to provide a guard for what a bare hand should not touch.



3.12 जूते/Shoes play a major role in safeguarding the health of the workers. Its features such as shock-absorbing tunnel system, anti-slip soles, linings, and integrated toe caps provide the protection to feet.

3.13 प्राथमिक चिकित्सा बॉक्स/First aid box



A first aid box is a collection of supplies and equipment for use in giving first aid. It is recommended that all kits are in a clean, waterproof container to keep the contents safe and aseptic. Kits should also be checked regularly and restocked if any items are deficient, damaged or are expired out of date.

3.14 सुरक्षा चश्मा/Safety goggle



Employee should use appropriate eye protection when exposed to eye hazards from molten metal, liquid chemicals, acids or caustic liquids. Its glass should have safety features that make it less likely to break, or less likely to pose a threat when broken.

4.0 विविध औज़ार/Miscllenеous Tools

4.1 ताला लगा बोल्ट/Locking Bolt



The Switch Point Lock is attached to a normally closed switch point to hold it in its normal position at all times, thus preventing possible accidents to trains passing over or through the switch layout due to

engine or car wheels splitting the switch. Facing point train operations are safeguarded. Switch points are locked in place against accidental movement.

4.2 फिशप्लेट की क्लैंप/Clamps of Fishplates

Fast Tightening of Fishplates or joggle fish plate on Track on Work-Sites enables quick and temporary repair allowing continued movements through the section at reduced train speed.



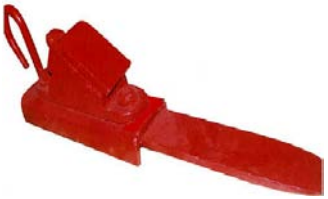
4.3 कांटा पेंच क्लैंप/Point Screw Clamp

It is a switch-point locking device, used to secure switches temporarily on points track designated for maintenance or non-use. To provide protection against accidental switch opening or defective throw rods. Accommodate a standard padlock.



4.4 रेल स्किड/Rail Skid

One of the most common tools used to prevent stopped trains from breaking loose and to keep away rail vehicles in plane or slope lands from abrupt release.



5.0 सूचक/Indicators

Where indicators are provided under special instructions to furnish information to Drivers, these should be in black letters or figures on yellow back ground.

5.1 ठहराव सूचक/Stop Indicator



It is a rectangular board with red and white bands. It is mounted on a post with alternating red and white bands. This is used for temporary or permanent engineering restrictions which call for trains to come to a dead stop before proceeding.

5.2 सीटी सूचक/Whistle Indicators



It is a square yellow board painted 'W', or 'W/L' in black colour. The 'W' is a general whistle indicator while the 'W/L' stands for Whistle for Level Crossing. The latter is also seen in Hindi with the characters 'see/pha' == 'seetee bajao - phatak').

5.3 सतर्कता सूचक/Caution Indicator

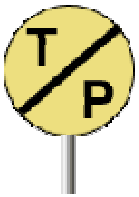


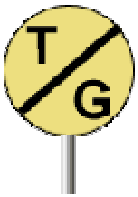
Arrow-shaped boards pointing to the left or right. These indicate special restrictions on the track (temporary or permanent engineering restrictions) and caution orders

in effect; the direction of the arrow indicates which track the restriction applies to. These boards are usually reflective yellow with black markings.

5.4 समाप्ति सूचक/Termination Indicator

These are round yellow boards painted 'T/P', 'T/G' in black colour. They indicate termination of speed zone for, respectively, passenger trains, goods trains.



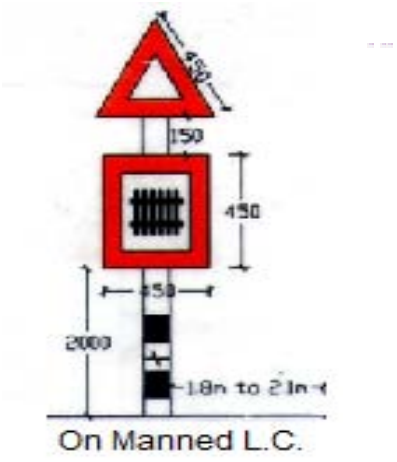


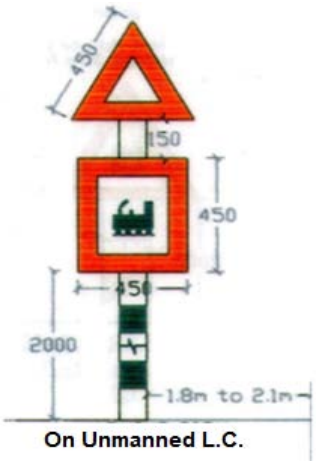
5.5 गति सीमा/Speed Limit

It is a triangular yellow board painted numbers in black colour.

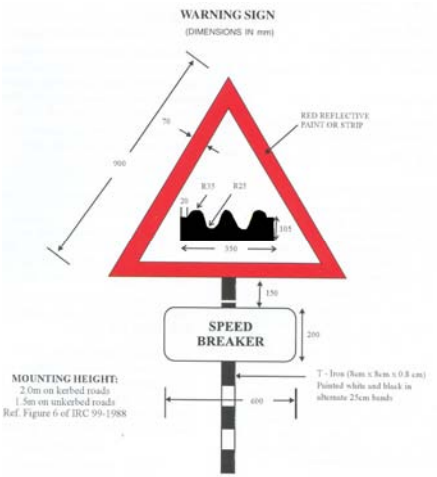


5.6 समपार सूचक/Level Crossing indicators

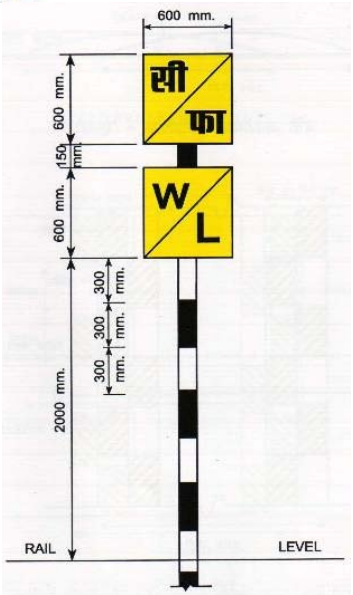








On Unmanned L.C.



DETAILS OF WHISTLE BOARD ON THE APPROACH OF A LEVEL CROSSING

सन्दर्भ
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कमांक **Sr. No.**	विवरण /**Description**
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2.	RDSO's Specification no. 1. RDSO/SPN/195/2008 Revision 2.0 2. TM-67 dt. 28 .01 .2002 rev. 01 of 2010 3. TM/TL/119 rev. 13.09.2012
3.	M/s PIE India
4.	Indian Railways Small rack Machine Manual

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टिप्पणी / NOTES

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गुणवत्ता नीति

रेलों में यात्री और माल यातायात की बढती माँग को पूरा करने के लिए गुणवत्ता प्रबंध प्रणली में अनुसंधान, डिजाइनों और मानकों में उत्कृष्टता तथा सत्त सुधारों के माध्यम से सांविधिक और नियामक अपेक्षाओं को पूरा करते हुए सुरक्षित, आधुनिक और किफायती रेल प्रौद्योगिकी का विकास करना।

QUALITY POLICY

To develop safe, modern and cost effective Railway technology complying with Statutory and Regulatory requirements, through excellence in Research, Designs & Standards and Continual improvements in Quality Management System to cater to growing demand of passenger and freight traffic on the Railways.

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हमारा उद्देश्य

अनुरक्षण प्रौद्यौगिकी और कार्यप्रणाली को उन्नयन करना तथा उत्पादकता और रेल्वे की परिसम्पत्ति एवं जनशक्ति के निष्पादन में सुधार करना जिससे अन्तर्विषयों में विश्वसनीयता, उपयोगिता और दक्षता प्राप्त की जा सके।

यदि आप इस सन्दर्भ में कोई विचार और सुझाव देना चाहते हों तो कृपया हमें इस पते पर लिखें।

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OUR OBJECTIVE

To upgrade Maintenance Technologies and Methodologies and achieve improvement in Productivity and Performance of all Railway assets and manpower which inter-alia would cover Reliability, Availability and Utilisation.

If you have any suggestion & any specific comments, please write to us:

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