

Government of India
Ministry of Railways
(Railway Board)

RBE No.191/2009

No.E(MPP)2009/3/36

New Delhi, dated 26.10.2009

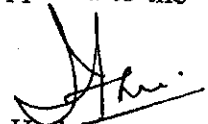
The General Manager,
All Indian Railways

Sub:- Revised Training Module for Loco Pilots (Goods)

A copy of the revised Training module approved by Board for training of Loco Pilots(Goods) is attached herewith for implementation. Board desired that the revised training programme may please be implemented with immediate effect so that ALPs who are under going training for Loco RNG-2 and Loco RNG-4 get the benefit of the increased duration of practical training.

Please advice the action taken in this regard so that the same may be apprised to the Board.

DA : As above


(K. Harkrishnan)
Director(T &MPP)
Railway Board.

No.E(MRP)2009/3/36

New Delhi, dated 26.10.2009

Copy to:-

1. The General Secretary, NFIR, 3 Chelmsford Road, New Delhi for information with 35 spares.
2. The General Secretary, AIRF, 4 State Entry Road, New Delhi for information with 35 spares.
3. The Secretary General, FROA, R.No.256-A, Rail Bhawan, New Delhi for information with 5 spares.
4. The Secretary General, IRPOF, R.No.268, Rail Bhawan, New Delhi for information with 5 spares.

....2/-

5. The Secretary, RBSS Group 'A' Officers Association, Room No.462, Rail Bhawan.
6. All Members, Departmental Council and National Council and Secretary Staff Side National Council, 13-C, Ferozeshah Road, New Delhi(90 spares)
7. The General Secretary, All Indian RPF Association, Room No.256, Rail Bhawan, New Delhi-110 001 for information with 5 spares.



For Secretary/Railway Board.

Copy to:-

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ED(Plg.), ED(Accts.), ED Fin.(BC), EDCE(B&S), EDCE(G), EDCE(Plg.), ED(Coaching), ED(CC), ED(C&IS), ED(E&R), EDEE(Dev.), EDEE(G), EDE, ED(RRB), EDE(N), EDE(Res.), EDF, EDF(E), EDF(S), EDF(B), EDF(RM), EDF(X)I, EDF(X)II, ED(H), EDLM, ED(MIS), EDE(GC), ED(Trg.&MPP), EDME(Chg), EDME(Fr.), EDME(Tr.), EDME(TOT), EDME(Dev.), EDME(W), ED(PC)I, ED(PC)II, ED(PP), ED(Projects), ED(Projects)/DMRC, EDRE, ED(Safety), JS, JS(C), JS(E), JS(G), JS(P), IG/RPF(Hqs), IG/RS, ED(Sig), ED(Stat&Eco), EDRS(C), EDRS(G), EDRS(P), EDRS(S), EDRS(W), ED(TD), EDT(M), EDT(MC), EDT(P), ED(T&C), EDCE(P), ED(PM), ED(PG), EDTC(R), EDTC(FM), EDTT(F), EDTT(FM)EDTT(M), EDTT(S), EDV(A), EDV(E), EDV(T), ED(W) .

E(Trg.), E(NG)I, E(NG)II, E(G) Branches of Railway Board.

Chief Commissioner of Railway Safety, Lucknow

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots

LOCO-RNG-2

Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)
Duration : 78 Working Days (13 Weeks)

Module no.	Description	Duration (Days)
RNG-21	Introduction - Different types of electric locos in service	1/2
RNG-22	Locations and brief role of electrical power, auxiliary, control and cab equipment on conventional locos	2
RNG-23	Description of various electrical circuits of conventional locos	3 1/2
RNG-24	Locations of pneumatic valves & equipment on conventional locos	1
RNG-25	Description & testing of IRVAB-2 pneumatic circuit on conventional locos	1
RNG-26	Locations and checking of under frame / body equipment on conventional locos	1
RNG-27	Locations and brief role of electrical power, auxiliary, control / electronics circuit and cab equipment on three phase locos	3
RNG-28	Description & trouble shooting on various electrical circuits on three phase locos	2
RNG-29	Locations of pneumatic valves & equipment on three phase locos and their functioning, isolation etc.	1
RNG-30	Description & testing of E-70 / CCB pneumatic circuit on three phase locos	2
RNG-31	Locations and checking of under frame / body equipment on three phase locos	1
RNG-32	New generation equipment	2
RNG-33	Various safety items on different class of locos, their checking along with Loco preparation for service and trouble shooting	4
RNG-34	Fire prevention, warning and fighting measures on electric locos	1
RNG-35	Traction Distribution	1
RNG-117	Carriage & Wagon - Brake system and trouble shooting	1
RNG-36	GR & SR	1
RNG-37	Stations	2
RNG-38	System of Working	2
RNG-39	Signals	3
RNG-40	Defective signals	2
RNG-41	OPT forms	1
RNG-42	Whistle Codes	1
RNG-43	Working of trains	1
RNG-44	Engineering Signals	2
RNG-45	Abnormal Working	1
RNG-46	Shunting	3
RNG-47	Accident Prevention, Disaster Management	2
RNG-118E	Good driving techniques	3
	Simulator Training	3
	Loco / Train handling on line	6
	Feedback & discussion	18
		1
		78 Days



Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description**Duration**Introduction to electric locos

1/2 day

Salient features like power, starting tractive effort, weight, max. speed, axle load etc of the following class of electric locos in service

- (i) WAM 4
- (ii) WAP 1
- (iii) WAP 4
- (iv) WAP 5
- (v) WAP 7
- (vi) WAG 5A
- (vii) WAG 5H
- (viii) WAG 6(A,B,C)
- (ix) WAG7
- (x) WAG9
- (xi) WAG9H

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description**Duration**Locations and brief role of electrical equipment on conventional locos

2 days

Location and role of the power circuit equipment including Pantograph, Roof bars, Surge arrestors, VCB / ACB, Cable head termination, Transformer, Tap changer, CGR, Rectifier, Smoothing reactor, reverser, Line contractor, Traction motor etc.

Location and role of auxiliary circuit equipment including ARNO / SIV, EM contactors, MVRH, MVMTs, MVSLs, MVSI, MPH, rotary switches, air flow relays etc

Location and role of control circuit equipment like protective relays, sequential relays, contactors, switches CTs etc.

Location and role of cab equipment like ESMON, Pilot lamps, switches, BL box, instruments, Head light, Flasher light, marker light, ACP device, VCD etc

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

<u>Description</u>	<u>Duration</u>
<u>Description of various electrical circuits of conventional locos</u>	3½ days
Explanation of Traction power and feeding circuit on conventional electric locos	
Explanation of auxiliary power circuit on conventional electric locos	
Explanation of auxiliary control circuit on conventional electric locos	
Explanation of DJ closing circuit on conventional electric locos	
Explanation of GR / reversor control circuit	
Explanation of Pilot lamp circuit	

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

<u>Description</u>	<u>Duration</u>
<u>Locations of pneumatic valves & equipment on conventional locos</u>	1 day
Location of various pneumatic valves & equipment of IRVAB2 / IRAB system including pressure switches , Air dryers , compressors , exhausters , baby compressor, Air flow indicator etc.	

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description**Duration**

Description & testing of IRVAB-2 pneumatic circuit on conventional locos 1 day

Air Brake System - Working Principle, initial creation, application, re-creation & Manual release.

Distribution Valve, function of D.V. Over charging (how it occurs).

Difference between single & Twin Pipe System

Discussion on causes of MR / RS / CR pressure not maintaining & their remedial action.

Precautions while working the Train with CPA.

General precaution before starting Mid Section and just before reaching station.

Discussion on operational failure

ACP Application & Rectification

Practical demonstration.

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description**Duration**

Locations and checking of under frame / body equipment on conventional locos 1 day

Locations and checking of under frame / body equipments including centre pivot, side bearers, CBC / TC, buffers, Cattle guard, Rail guard etc. and bogie components including suspension springs, dampers, axle box, equalizing beams, safety slings, wheel, axle and brake rigging and hand brake equipment etc.

Checking of oil points – Gear case, centre pivot, side bearer, suspension bearing etc.

Power transmission from traction motor to wheel.

Transfer of tractive effort from wheel to load.

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description**Duration**

Locations and brief role of electrical power, auxiliary, control / electronics circuit and cab equipment on three phase locos

3 days

Location and role of the power circuit equipment including Pantograph, Roof bars, Surge arrestors, VCB, Cable head termination, Transformer, Traction converter, traction motors etc.

Location and role of auxiliary power circuit equipment including Oil cooling blower, Traction motor blower, Transformer oil pump, Traction converter oil pumps, Main compressors, Scavenging blower, Battery charger, Auxiliary compressor etc.

Location and role of control circuit equipment like Circuit breaker, relays, MCBs, contactors, rotating switches etc.

Location of cab equipments including MEMOTEL, display message screen, VCD, paddle/push button switches etc with their operation.

Abbreviations of equipments.

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description**Duration**

Description & trouble shooting on various electrical circuits on three phase locos

2 days

Explanation and trouble shooting of Traction power circuit of three phase loco.

Explanation and trouble shooting of Auxiliary power circuit of three phase loco.

Operational failures and trouble shooting including reading of DDS, sub-system numbers, fault number & fault messages and their interpretation.

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description**Duration**

Locations of pneumatic valves & equipment on three phase locos and their functioning, isolation etc.

1 day

Locations of pneumatic valves, pressure switches, cocks on E-70 panel and body / under frame, reservoirs, Tread Brake Unit / Parking Brake Unit, Air dryer etc and their functioning, isolation etc.

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description**Duration**

Description & testing of E-70 / CCB pneumatic circuit on three phase locos

2 day

Explanation of E-70 / CCB pneumatic circuit on three phase loco along with Working Principle, initial creation, application, re-creation etc.

Methods of releasing of Parking brake.

Operational failures and their remedial action.

RNG 31

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description **Duration**

Locations and checking of under frame / body equipment on three phase locos 1 day

Locations of bogie equipment, traction bar, gear case, Hurth coupling, suspension arrangement, shock observer / dampers, brake pull rod, brake hanger, brake adjusting equipments, reservoirs, Parking brake unit / Tread brake unit, etc and their functioning, isolation etc. Brake disc on WAP-5, brake pads, calipers etc.

Location and checking of oiling points.

RNG 32

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description **Duration**

New generation equipment on conventional locos 2 days

Working of various makes of Static inverter along with their fault indication and trouble shooting.

Working of Micro processor based control and fault diagnostic system along with trouble shooting.

Working of Vigilance control device along with action to be taken after penalty brake application.

Operational failures with trouble shooting.

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description**Duration**

Various safety items on different class of locos, their checking along with Loco preparation for service and trouble shooting

4 days

Location and checking of various safety items on different class of locomotives, their trouble shooting.

Procedure for preparation of all type of electric locos for service.

Precautions to be taken while taking over charge of locomotive on line, turning out from Shed / out pit, stabled loco etc.

Trouble shooting of all type of electric locos on line.

Formation of Multi units (MUs) and operation along with its trouble shooting.

Precaution to be taken during movement of dead locos.

Operational failures and their remedial actions.

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description**Duration**

Fire prevention, warning and fighting measures on electric locos

1 day

Discussion of fire prone equipment / areas on electric locos.

Various type of fires and fire extinguishers.

Location of fire prevention equipments provided on different type of locos.

Action to be taken by crew in case of fire.

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description**Duration****Traction Distribution**

1 day

Introduction to TrD.

Brief of Power Supply arrangement.

Cantilever – Its parts

Use of ATD in OHE

Neutral Section.

Caution Boards

Panto Entanglement – it's causes

Instruction of Loco Pilots to in case of tripping of OHE

Duties of Loco Pilot during OHE unusual and Break Down

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description**Duration**

Carriage & Wagon – Brake system and trouble shooting

1 day

- Brief introduction of air brake system on Coaching (including BMBC) & Freight stock
- Parts of air brake system and their working
- Position of different handles
- Examination of under Gear:
Visual examination that there are no loose fittings in the under gear including brake blocks, safety rackets, track area pins, brake gear pins, wheel which may endanger the safe running of the train.
- To isolate the brakes of single trolley and both trolleys
- To detach a wagon/coach at roadside station
- To attend a load or wagon enroute for any trouble e.g. brake binding etc.
- Brake continuity test
- To examine a load (air brake & vacuum brake) at non C&W point
- Necessity of By-pass system, how to By-pass a coach? After effects of By-pass system.
- Working of alarm signal device and method to re-set it.
- Calculation of brake power by counting operative and on-operative pistons before starting.
- Validity of Brake Power Certificate (MV-5); Standing Instruction in case of invalid BPC/MV-5
- Train parting. To clear the block section
- Leakage check in train
- Knowledge about Twin/single pipe brake system
- Practical training on model by creating problems & to rectify them.

RNG 36

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description

Duration

GR & SR

2 days

Brief description of GR & SR pertaining to LOCO PILOTS. Correction slips.

Important definitions such as Ad. Distance, Block Section, Isolation, Faulting mark, Running Line, Axle counter, Station section. Authority to proceed and Station working rules

Light engine, Relief Engine, Banking Engine, Train Engine, Shunting Engine, etc.

Personal equipment of LOCO PILOTS

RNG 37

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description

Duration

Stations

2 days

Kinds and classification of stations minimum essential signals etc. for each station.

Block and non-Block stations. Block overlap.

Yard layouts

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

<u>Description</u>	<u>Duration</u>
<u>System of working</u>	3 days

Details of Absolute Block System.

Automatic Block System and Train following System.

Train operation in fog

Working in siding

Departure from non-signalled line

Protection Rules

Exchange of Signal & its significance

Isolation

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

<u>Description</u>	<u>Duration</u>
<u>Signals</u>	2 days

Necessity and Evaluation of signals classification and kinds of signals. Approach and

Departure signals permissive signals, subsidiary signals, etc.

RNG 40

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description

Duration

Defective signals

1 day

Defective signal, Automatic signals, Semi-automatic and Gate signals, manual signals. Action and rules for passing defective signals of different types.

Practical tour for sight in Yard.

RNG 41

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description

Duration

OPT forms

1 day

Different OPT Forms. Precautions to be observed while accepting these forms.

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description

Duration

Whistle codes

1 day

What is a Whistle and Bell Code? When and how is to be used?

Precautions before starting a Train from a station (originating) or Yard right signals.

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description

Duration

Working of trains

2 days

- When Headlight is failed. When Flasher Light Failed.
- When a train is received on Blocked line or to be started from a Non-Signal/Non running line without brake van or without guard.
- When train has a hot axle.
- Having ODC
- Train formed from a non-TXR point, etc.
- Energy conservation.
- Checking at starting points.
- Caution order
- Authorized persons in Cab
- Stopping on gradient
- When speedometer not working
- Causes and prevention of Load stalling

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description**Duration****Engineering signals**

1 day

Engineering Signals. Their placement.

Permanent and Temporary Engineering Cautions.

Brief of Ghat Section.

Speeds.

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description**Duration****Abnormal working**

3 days

Rules for working of trains – single line working on Double line in absolute and automatic Block Sections.

Total failure Communication.

Rules for sending relief engine from right line and wrong line.

Precautions to be observed during abnormal working in different cases.

Working of trains when flood in track

Working of trains in heavy rain and thunder

Duties of driver when severe jerk is felt in block section

Duties of driver one detonator is exploded in the block section

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description**Duration****Shunting**

2 days

Kinds of shunting.

Precautions for safe and smooth shunting.

Rules for shunting in Yard, coaching Yard and "B" class stations.

Model Room training.

Covering /Marshalling of trains.

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description**Duration****Accident prevention, Disaster management**

3 days

Type of accident, causes of accident, role of LP in accident prevention.

Duties of Loco Pilot in case of accident.

Prevention of rolling back of trains and pinning down.

Mid Section derailments. Engine failures, train dividing and train parting etc.

Over shooting

Protection in block section in case of accidents.

Duties of LP in case of fire on train

Use of fuses, etc.

Discussion and queries on safety and accidents.

Accident free service award.

Department : ELECTRICAL
Activity Centre : Electric Training Centre / Loco / Train
Trade : Electric Loco Pilots
Stage : Promotional Course from Asst. Loco Pilot (Electric) / ET to Loco Pilot (Goods)

Description**Duration**

Good driving techniques and behaviour skills

3 days

1. Introduction
2. Level Terrain
 - General
 - Starting a Train
 - Accelerating a Train
 - Negotiating
 - Slowing down
 - Stopping
 - Slack Bunch Braking Method
 - √ Dynamic Brake Alone
 - √ Dynamic Brake and Automatic Brake
3. Light Ascending Terrain
 - General
 - Starting a train
 - Accelerating a train
 - Negotiating
 - Slowing down
 - Stopping
4. Light Descending Grade
 - General
 - Starting a train
 - Accelerating
 - Negotiating
 - Slowing down
 - Stopping
5. Heavy Ascending Grade
 - General
 - Starting a train
 - Accelerating
 - Negotiating
 - Slowing down
 - Stopping
6. Heavy Descending Grade
 - General
 - Starting a train
 - Accelerating
 - Negotiating
 - Slowing down

- Stopping
 - Cyclic braking
7. Cresting Grade
 - General
 - Starting a train
 - Accelerating
 - Negotiating
 - Slowing down
 - Stopping
 8. Hump Territory
 - General
 - Starting a train
 - Accelerating
 - Negotiating
 - Slowing down
 - Stopping
 9. SOG(OR) Dip Territory
 - General
 - Starting a train
 - Accelerating
 - Negotiating
 - Slowing down
 - Stopping
 10. Undulating Grade
 - General
 - Starting a train
 - Accelerating
 - Negotiating
 - Slowing down
 - Stopping
 11. Curvature
 - General
 - Starting in curve
 - Running over curvature
 - Stopping on a curve
 12. Ghat Section
 - General
 - Starting
 - √ Ascending
 - √ Descending
 - Negotiating
 - √ Ascending
 - √ Descending
 - Stopping
 - √ Ascending
 - √ Descending
 13. Banker Operation

- General
- Starting a train
- Accelerating
- Negotiating
- Slowing down
- Stopping

14. Energy conservation techniques

15. Train Parting due to improper Train handling

- General
- Starting
- Accelerating
- Negotiating
- Slowing down
- Stopping

16. Alcoholism and its effect

- Physical
- Social

17. Precautions while working Passenger train

- Starting train without jerk
- Stopping train at proper point
- Concept of loco make up time and punctuality
- Knowledge of working time table
- Passenger safety

18. Public dealing and interface

- Appearance
- Attitude/behaviour
- Communication skills

DEPARTMENT: MECHANICAL
ACTIVITY CENTRE: STATION/TRAIN
TRADE: DIESEL LOCO PILOTS

STAGE: Promotional Course from Asst. Loco Pilot(Diesel)/Loco Pilot(Shunter) to Loco Pilot(Goods)

DURATION: 78 WORKING DAYS (13 Weeks)

MOD. NO	DESCRIPTION	DURATION (DAYS)
RNG-101	Types of Freight locos, its functioning	1
RNG-102	Functioning of Compressors/r, Governors and Charge air system, etc	1
RNG-103	Fuel System	1
RNG-104	Water Cooling System	1
RNG-105	Lube Oil System	1
RNG-106	Gauges, OST, ECC, FTTM, Blower etc.	1
RNG-107	Braking systems and new technologies	3
RNG-108	Fundamentals of Generators, Motors and Alternators	1
RNG-109	Loco Electrical Systems and Auxiliary Control	2
RNG-110	Relays, Contactors, Switches and Circuit Breakers	1
RNG-114	Safety items of loco and safety equipment	3½
RNG-115	Trouble Shooting of Mech. & Elect components	4
RNG-116	Train Dynamics issues	5
RNG-117	Carriage & Wagon Working	2
RNG-118	Good Loco Driving Techniques	2½
RNG-36	GR & SR	2
RNG-37	Stations	2
RNG-38	System of Working	2
RNG-39	Signals	2
RNG-40	Defective signals	2
RNG-41	OPT forms	1
RNG-42	Whistle Codes	1
RNG-43	Working of trains	2
RNG-44	Engineering Signals	1
RNG-45	Abnormal Working	3
RNG-46	Shunting	2
RNG-47	Accident and Disaster management	3
	Simulator Training	6
	Loco Handling with LI	18
	Feedback and Discussion	1
TOTAL		78

RNG.-36

PROMOTIONAL COURSE
ELECTRIC ASST. LOCO PILOT TO ELECTRIC GOODS LOCO PILOT
&
DIESEL ASST. LOCO PILOT TO DIESEL GOODS LOCO PILOT

DESCRIPTION

DURATION

GR & SR

2 DAYS

1. Brief description of GR & SR pertaining to LOCO PILOTS. Correction slips.
2. Important definitions such as Ad. Distance, Block Section, Isolation, Faulting mark, Running Line, Axle counter, Station section. Authority to proceed and Station working rules
3. Light engine, Relief Engine, Banking Engine, Train Engine, Shunting Engine, etc.
4. Personal equipment of LOCO PILOTS

RNG.-37

PROMOTIONAL COURSE
ELECTRIC ASST. LOCO PILOT TO ELECTRIC GOODS LOCO PILOT
&
DIESEL ASST. LOCO PILOT TO DIESEL GOODS LOCO PILOT

DESCRIPTION

DURATION

STATIONS

2 DAYS

1. Kinds and classification of stations minimum essential signals etc. for each station.
2. Block and non-Block stations. Block overlap.
3. Yard layouts

RNG.-38

PROMOTIONAL COURSE
ELECTRIC ASST. LOCO PILOT TO ELECTRIC GOODS LOCO PILOT
&
DIESEL ASST. LOCO PILOT TO DIESEL GOODS LOCO PILOT

DESCRIPTION

DURATION

SYSTEMS OF WORKING

2 DAYS

1. Details of Absolute Block System.
2. Automatic Block System and Train following System.
3. Train operation in fog
4. Working in siding
5. Departure from non-signalled line
6. Protection Rules
7. Exchange of Signal & its significance
8. Isolation

RNG.-39

PROMOTIONAL COURSE
ELECTRIC ASST. LOCO PILOT TO ELECTRIC GOODS LOCO PILOT
&
DIESEL ASST. LOCO PILOT TO DIESEL GOODS LOCO PILOT

DESCRIPTION

DURATION

SIGNALS

2 DAYS

Necessity and Evaluation of signals classification and kinds of signals. Approach and Departure signals permissive signals, subsidiary signals, etc.

RNG.-40

PROMOTIONAL COURSE
ELECTRIC ASST. LOCO PILOT TO ELECTRIC GOODS LOCO PILOT
&
DIESEL ASST. LOCO PILOT TO DIESEL GOODS LOCO PILOT

DESCRIPTION

DURATION

DEFECTIVE SIGNALS

2 DAYS

1. Defective signal, Automatic signals, Semi-automatic and Gate signals, manual signals. Action and rules for passing defective signals of different types.
2. Practical tour for sight in Yard.

RNG.-41

PROMOTIONAL COURSE
ELECTRIC ASST. LOCO PILOT TO ELECTRIC GOODS LOCO PILOT
&
DIESEL ASST. LOCO PILOT TO DIESEL GOODS LOCO PILOT

DESCRIPTION

DURATION

OPT FORMS

1 DAY

Different OPT Forms. Precautions to be observed while accepting these forms.

RNG.-42

PROMOTIONAL COURSE
ELECTRIC ASST. LOCO PILOT TO ELECTRIC GOODS LOCO PILOT
&
DIESEL ASST. LOCO PILOT TO DIESEL GOODS LOCO PILOT

DESCRIPTION

DURATION

WHISTLE CODES

1 DAY

1. What is a Whistle and Bell Code? When and how is to be used?
2. Precautions before starting a Train from a station (originating) or Yard right signals.

RNG.-43

PROMOTIONAL COURSE
ELECTRIC ASST. LOCO PILOT TO ELECTRIC GOODS LOCO PILOT
&
DIESEL ASST. LOCO PILOT TO DIESEL GOODS LOCO PILOT

DESCRIPTION

DURATION

WORKING OF TRAINS

2 DAYS

1. When Headlight is failed. When Flasher Light Failed.
2. When a train is received on Blocked line or to be started from a Non-Signal/Non running line without brake van or without guard.
3. When train has a hot axle.
4. Having ODC
5. Train formed from a non-TXR point, etc.
6. Energy conservation.
7. Checking at starting points.
8. Caution order
9. Authorized persons in Cab
10. Stopping on gradient
11. When speedometer not working
12. causes and prevention of Load stalling

RNG.-44

PROMOTIONAL COURSE
ELECTRIC ASST. LOCO PILOT TO ELECTRIC GOODS LOCO PILOT
&
DIESEL ASST. LOCO PILOT TO DIESEL GOODS LOCO PILOT

DESCRIPTION

DURATION

ENGINEERING SIGNALS

1 DAY

1. Engineering Signals. Their placement.
2. Permanent and Temporary Engineering Cautions.
3. Brief of Chat Section.
4. Speeds.

RNG.-45

PROMOTIONAL COURSE
ELECTRIC ASST. LOCO PILOT TO ELECTRIC GOODS LOCO PILOT
&
DIESEL ASST. LOCO PILOT TO DIESEL GOODS LOCO PILOT

DESCRIPTION

DURATION

ABNORMAL WORKING

3 DAYS

1. Rules for working of trains – single line working on Double line in absolute and automatic Block Sections.
2. Total failure Communication.
3. Rules for sending relief engine from right line and wrong line.
4. Precautions to be observed during abnormal working in different cases.
5. Working of trains when flood in track
6. Working of trains in heavy rain and thunder
7. Duties of driver when severe jerk is felt in block section
8. duties of driver one one detonator is exploded in the block section

RNG.-46

PROMOTIONAL COURSE
ELECTRIC ASST. LOCO PILOT TO ELECTRIC GOODS LOCO PILOT
&
DIESEL ASST. LOCO PILOT TO DIESEL GOODS LOCO PILOT

DESCRIPTION

DURATION

SHUNTING

2 DAYS

1. Kinds of shunting.
2. Precautions for safe and smooth shunting.
3. Rules for shunting in Yard, coaching Yard and "B" class stations.
4. Model Room training.
5. Covering /Marshalling of trains

RNG.-47

PROMOTIONAL COURSE
ELECTRIC ASST. LOCO PILOT TO ELECTRIC GOODS LOCO PILOT
&
DIESEL ASST. LOCO PILOT TO DIESEL GOODS LOCO PILOT

DESCRIPTION

DURATION

ACCIDENT AND DISASTER MANAGEMENT

3 DAYS

1. Type of accident, causes of accident, role of LP in accident prevention.
2. Duties of LOCO PILOT in case of accident.
3. Mid Section derailments. Engine failures, train dividing and train parting etc.
4. Over shooting
5. Protection in block section in case of accidents.
6. Duties of LP in case of fire on train
7. Use of fuses, etc.
8. Discussion and queries on safety and accidents.
9. Accident free service award.

RNG-101

PROMOTIONAL COURSE
ASST. LOCO PILOT (DIESEL)/SHUNTER TO LOCO PILOT(GOODS)

DESCRIPTION

DURATION

TYPES OF FREIGHT LOCOS, ITS FUNCTIONING

1 DAY

Introduction to different types of Freight and mixed service diesel locos --
Major sub-assemblies
General Principles of functioning

RNG-102

PROMOTIONAL COURSE
ASST. LOCO PILOT (DIESEL)/SHUNTER TO LOCO PILOT(GOODS)

DESCRIPTION

DURATION

FUNCTIONING OF COMPRESSORS,, GOVERNORS,
and CHARGE AIR SYSTEM

1 DAY

General description and functioning of Compressors/Expressors, Governors, super
chargers, Air Maze, Cyclonic Filter. Checking of efficiency of compressor

RNG-103

PROMOTIONAL COURSE
ASST. LOCO PILOT (DIESEL)/SHUNTER TO LOCO PILOT(GOODS)

DESCRIPTION

DURATION

FUEL SYSTEM

1 DAY

Understanding of fuel system and trouble shooting on fuel system.

RNG-104

PROMOTIONAL COURSE
ASST. LOCO PILOT (DIESEL)/SHUNTER TO LOCO PILOT(GOODS)

DESCRIPTION

DURATION

WATER COOLING SYSTEM

1 DAY

Explanation of water cooling system and trouble shooting of water cooling system
Working of radiator

RNG-105

PROMOTIONAL COURSE
ASST. LOCO PILOT (DIESEL)/SHUNTER TO LOCO PILOT(GOODS)

DESCRIPTION

DURATION

LUBE OIL SYSTEM

1 DAY

Understanding of the Lube Oil System & its trouble shooting.

RNG-106

PROMOTIONAL COURSE
ASST. LOCO PILOT (DIESEL)/SHUNTER TO LOCO PILOT(GOODS)

DESCRIPTION

DURATION

GAUGES, VALVES, OST, ECC, FTTM, BLOWER ETC.

1 DAY

Explanation of miscellaneous items on loco like gauges, valves, OST, ECC, FTTM and blower etc.

RNG-107

PROMOTIONAL COURSE
ASST. LOCO PILOT (DIESEL)/SHUNTER TO LOCO PILOT(GOODS)

DESCRIPTION

DURATION

BRAKING SYSTEMS

3 DAYS

1. Discussion of Vacuum Brake System
2. Common defects & remedial action.
3. Discussion of Air/Dual Brake System of various diesel Locos, Common defects & remedial action.
4. Automatic and independent brakes
5. Brief discussion of various tests conducted on Loco.
6. Discussion on Operational failure.
7. Difference between Vacuum & Air Brake system
8. Advantages of Air Brake System over Vacuum
9. Air Brake System – Working Principle, initial creation, Application, re-creation & Manual release
10. Distributor Valve, function of D.V. Over charging (how it occurs)
11. Difference between single & Twin Pipe System
12. Brake Binding in some coach/wagon (Reason & its rectification)
13. CCB,, AEB, Blended Brakes, EP Brakes and EP assisted braked
14. Tests on train

RNG-108

PROMOTIONAL COURSE
ASST. LOCO PILOT (DIESEL)/SHUNTER TO LOCO PILOT(GOODS)

DESCRIPTION

DURATION

FUNDAMENTALS OF GENERATORS, MOTORS AND ALTERNATORS 1 DAY

1. Fundamentals of electricity including understanding of Generators, Motors and Alternators
2. General description and functions of Auxiliary Generator, Exciter Generator, FP Motor, crank exhaustor motor, Booster pump, etc..

PROMOTIONAL COURSE
ASST. LOCO PILOT (DIESEL)/SHUNTER TO LOCO PILOT(GOODS)

DESCRIPTION**DURATION**

LOCO ELECTRICAL SYSTEMS AND AUXILIARY CONTROL

2 DAY

1. Starting circuit
2. Battery charging circuit
3. Transition
4. Excitation system
5. Power ground
6. Brief Discussion of Auxiliary Control Circuit of various diesel Locos.
7. Basics of Microprocessor control system

PROMOTIONAL COURSE
ASST. LOCO PILOT (DIESEL)/SHUNTER TO LOCO PILOT(GOODS)

DESCRIPTION**DURATION**

RELAYS. CONTACTORS, SWITCHES, CIRCUIT BREAKERS

1 DAY

1. Various application of relay i.e. safety, control auxiliary, time delay etc.
2. Circuit arrangement for using the relays
3. Wedging of Relays
4. Precaution while handling/Wedging relays on line
5. Discussion of latest operational failures
6. Wheel slip
7. Various types of Circuit Breakers, Switches and Contactors

RNG-114

PROMOTIONAL COURSE
ASST. LOCO PILOT (DIESEL)/SHUNTER TO LOCO PILOT(GOODS)

DESCRIPTION

DURATION

SAFETY ITEMS AND EQUIPMENTS OF LOCO

3½ DAYS

1. Understanding of working of Fire extinguisher and demonstration of fire fighting
2. Inspections of Engines, Precautions, & Engine starting
3. Emergency switches on various locos and their functions.
4. Safety items of Engine
5. Safety Devices for the Locomotives

RNG-115

PROMOTIONAL COURSE
ASST. LOCO PILOT (DIESEL)/SHUNTER TO LOCO PILOT(GOODS)

DESCRIPTION

DURATION

TROUBLE SHOOTING OF MECH. & ELECT. COMPONENTS

4 DAYS

1. Model Room demonstration of various aspects of mechanical & electrical systems including trouble shooting.
2. Tell tale signs.
3. Fault finding and trouble shooting of important mechanical and electrical components.

PROMOTIONAL COURSE
ASST. LOCO PILOT (DIESEL)/SHUNTER TO LOCO PILOT(GOODS)
LOCO PILOT(GOODS) TO LOCO PILOT(PASSENGER)

DESCRIPTION**TRAIN DYNAMICS****DURATION****5 DAYS**

1. Introduction
2. Level Terrain
 - General
 - Starting a Train
 - Accelerating a Train
 - Negotiating
 - Slowing down
 - Stopping
 - Slack Bunch Braking Method
 - Dynamic Brake Alone
 - Dynamic Brake and Automatic Brake
3. Light Ascending Terrain
 - General
 - Starting a train
 - Accelerating a train
 - Negotiating
 - Slowing down
 - Stopping
4. Light Descending Grade
 - General
 - Starting a train
 - Accelerating
 - Negotiating
 - Slowing down
 - Stopping
5. Heavy Ascending Grade
 - General
 - Starting a train
 - Accelerating
 - Negotiating
 - Slowing down
 - Stopping
6. Heavy Descending Grade
 - General
 - Starting a train
 - Accelerating

- Negotiating
- Slowing down
- Stopping
- Cyclic braking

7. Cresting Grade

- General
- Starting a train
- Accelerating
- Negotiating
- Slowing down
- Stopping

8. Hump Territory

- General
- Starting a train
- Accelerating
- Negotiating
- Slowing down
- Stopping

9. SOG(OR) Dip Territory

- General
- Starting a train
- Accelerating
- Negotiating
- Slowing down
- Stopping

10. Undulating Grade

- General
- Starting a train
- Accelerating
- Negotiating
- Slowing down
- Stopping

11. Curvature

- General
- Starting in curve
- Running over curvature
- Stopping on a curve

12. Ghat Section

- General
- Starting
 - Ascending
 - Descending
- Negotiating

- Ascending
- Descending
- Stopping
 - Ascending
 - Descending

13. Banker Operation

- General
- Starting a train
- Accelerating
- Negotiating
- Slowing down
- Stopping

14. MU Operation

- Preparation
- Working

15. Train Parting due to improper Train handling

- General
- Starting
- Accelerating
- Negotiating
- Slowing down
- Stopping

16. Alcoholism and its effect

- Physical
- Social

17. Precautions while working Passenger train

- Starting train without jerk
- Stopping train at proper point
- Concept of loco make up time and punctuality
- Knowledge of working time table
- Passenger safety

18. Public dealing and interface

- Appearance
- Attitude/behaviour

19. Importance of Yoga and "ISOMETRIC EXERCISES".

20. Importance of taking proper rest

PROMOTIONAL COURSE
ASST. LOCO PILOT (DIESEL)/SHUNTER TO LOCO PILOT(GOODS)
LOCO PILOT(GOODS) TO LOCO PILOT(PASSENGER)

<u>DESCRIPTION</u>	<u>DURATION</u>
CARRIAGE & WAGON WORKING	2 DAYS
<ol style="list-style-type: none"> 1 Brief introduction of air brake system on Coaching (including BMBC and LHB)) & Freight stock including BLCA 2 Parts of air brake system and their working 3 Position of different handles 4 Examination of under Gear: 5 Visual examination that there are no loose fittings in the under gear including brake blocks, safety rackets, track area pins, brake gear pins, wheel which may endanger the safe running of the train. 6 To isolate the brakes of single trolley and both trolleys 7 To detach a wagon/coach at roadside station 8 To attend a load or wagon enroute for any trouble e.g. brake binding etc. 9 Brake continuity test 10 To examine a load (air brake & vacuum brake) at non C&W point 11 Necessity of By-pass system, how to By-pass a coach? After effects of By-pass system. 12 Working of alarm signal device and method to re-set it. 13 Calculation of brake power by counting operative and on-operative pistons before starting. 14 Validity of Brake Power Certificate (MV-5); Standing Instruction in case of invalid BPC/MV-5 15 Train parting. To clear the block section 16 Leakage check in train 17 Knowledge about Twin/single pipe brake system 18 Brief introduction of C&W examination pattern for freight and coaching stock including Premium rake exam and RPC-IV etc. 19 Practical training on model by creating problems & to rectify them. 	

PROMOTIONAL COURSE
ASST. LOCO PILOT (DIESEL)/SHUNTER TO LOCO PILOT(GOODS)

<u>DESCRIPTION</u>	<u>DURATION</u>
<u>GOOD LOCO DRIVING TECHNIQUES</u>	<u>2½ DAY</u>
<ol style="list-style-type: none"> 1. Implication of speed on safety aspect of the train, 2. Proper procedures to be followed after starting from a halt or after observing speed restriction, 3. Brake feel test, 4. Precautions to be observed for avoiding train partings, 5. Correct procedure for notching up, 6. Importance of using dynamic brakes, 7. Air flow indicator, 8. Shutting down of loco during long halts or while stabled, 9. Understanding of filling up of various forms including ME -175, Fuel & TRIP card, Joint Guard-LOCO PILOT report 10. Trip Ration, 11. Fuel Economy etc. 	

