



**South Central Railway**

**ZONAL RAILWAY TRAINING INSTITUTE  
MOULA – ALI**



**OPERATING STUDY MATERIAL**

**PRO. LOCO PILOT, ASST. LOCO PILOT  
AND GUARD**

## **DISCLAIMER**

This Study material is compiled by the Faculty of ZRTI/MLY for guidance and easy understanding. It is to be read in conjunction with G&SR, Block Working Manuals, Accident Manual, correction slips, JPO's, Working Time-Table and Safety related Circulars issued from time to time. Though the sufficient care and precaution has been taken while preparing this material, wherever any conflicting opinion occurs, presentation in the rule books prevails over this material.

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### INDEX

<b>.No</b>	<b>RULE No.</b>	<b>TOPIC</b>	<b>P. No</b>
1.	1.02	DEFINITIONS	5
2.	G.R.1.02(2), G.R. 8.01, 3.40	ADEQUATE DISTANCE	8
3.	G.R.1.02(32), S.R.3.50	ISOLATION	8
4.	G.R.1.02(54	STATION SECTION	9
5.		DIFFERENCES(G.R & S.R, BLOCK& NON BLOCK STNS	10
6.	1.03	CLASSIFICATIONS OF STATIONS	12
7.	G.R.3.02	TYPES OF SIGNALS	13
8.	G.R.3.06	WARNER SIGNAL	14
9.	G.R/S.R. 3.07	DISTANT SIGNAL	14
10.	G.R.3.09	OUTER, HOME & ROUTING SIGNAL	15
11.	G.R.3.10	DESPATCH SIGNALS	16
12.	G.R.3.15	CO-ACTING SIGNAL	17
13.	G.R.3.16	REPEATING SIGNAL	17
14.	G.R.3.13	CALLING ON SIGNAL	18
15.	G.R.3.14	SHUNT SIGNAL	18
16.		DIFFERENCES	19
17.	G.R/S.R 3.59 to 3.64	FOG SIGNAL	20
18.	G.R.3.65/66/67	SIGNALS TO WARN INCOMING TRAIN OF DANGER AHEAD	21
19.	G.R./S.R.3.75,S.R.14.13,14.14	IB SIGNAL	21
20.	Appendix XII –I	INTERLOCKING	22
21.		SHUNTING PERMITTED INDICATOR	24
22.	G.R/S.R.3.34,3.73	GATE SIGNAL	24
23.		PASSING GATE SIGNAL AT ON	25
24.	SEM Part I	ROUTE INDICATORS	25
25.	App XI -6,G.R/S,R 3.68,3.69 and 3.70	DEFECTIVE SIGNALS	26

26.	S.R.3.69	RECEPTION SIGNAL DEFECTIVE	27
27.	S.R.3.70	DESPATCH SIGNAL DEFECTIVE	28
28.	S.R.3.75	IB SIGNAL DEFECTIVE	28
29.		APPROACH SIGNAL DEFECTIVE	29
30.		TRAIN BURSTS A DETONATOR	29
31.	G.R.4.09, & Appendix-I	CAUTION ORDER	31
32.	G.R.4.12	ENGINE PUSHING	32
33.	G.R/S.R. 4.14	HEADLIGHT, MARKER LIGHTS AND SPEEDOMETER	33
34.	G.R/S.R. 4.15	SIDE LIGHTS	34
35.	G.R/S.R.14.16	TAIL BOARD /TAIL LAMP	34
36.	G.R/ S.R. .4.19	LOCO PILOT EQUIPMENT	35
37.	G.R/ S.R. .4.19	GUARDS EQUIPMENT	35
38.	G.R/ S.R. .4.19	ALP'S EQUIPMENT	36
39.	G.R.4.19.6	BRAKE VAN EQUIPMENT	37
40.	S.R.4.25.2	COMBINED TRAIN REPORT (CTR)	38
41.	S.R.4.25.3	VEHICLE GUIDANCE (VG)	38
42.	WTT	WORKING TIME TABLE	39
43.	S.R.4.23	RUNNING OF GOODS TRAIN WITHOUT BRAKEVAN	40
44.	S.R.4.25.4	RUNNING OF GOODS TRAIN WITHOUT GUARD	41
45.	G.R. 4.29	HOT AXLE/HOT BOX.	42
46.	S.R.4.24.4	ATTACHING OF DAMAGED VEHICLE/ ENGINE	43
47.		DUTIES OF LP FROM SIGN 'ON ' TO SIGN 'OFF'	43
48.		DUTIES OF GUARD FROM SIGN 'ON ' TO SIGN 'OFF'	45
49.	G.R.4.42	EXCHANGING OF ALL RIGHTS SIGNALS	48
50.	G.R. 4.44	TRAIN HELD UP AT HOME /FSS SIGNAL	50
51.	S.R.4.62	WORKING OF MATERIAL TRAIN	51
52.	S.R.4.65	TRACK TAMPING MACHINE (TTM)	52
53.	C&W JPO NO. 5/2008	BRAKE POWER CERTIFICATE	53
54.	C&W JPO NO. 5/2008	GLP CHECK	55

55.	S.R.5.23	SECURING AND STABLING OF VECHICLES	58
56.	S.R.4.18	ALARM CHAIN PULLING	60
57.	G.R.5.09	RECEPTION OF A TRAIN ON AN OBSTRUCTED LINE	61
58.	G.R.5.10	RECEPTION OF A TRAIN ON A NON-SIGNALLED LINE	61
59.	G.R.5.11/12	DEPARTURE OF A TRAIN FROM NON-SIGNALLED LINE	62
60.	G.R/S.R 5.13/5.14	SHUNTING	62
61.	G.R/S.R.5.20	SHUNTING ON STEEP GRADIENT	64
62.	Appendix XII	SHUNTING AUTHORITIES	64
63.	S.R.5.06	OPERATING FORMS	65
64.	S.R.6.07	LURCH	70
65.	S.R.6.01	RAIL FRACTURE	71
66.	S.R. 6.05	TRAIN ENGINE DISABLED IN THE BLOCK SECTION	71
67.	S.R.6.02.5	BLOCK TICKET	72
68.	G.R.6.04	TRAINS UNUSUALLY DELAYED	73
69.	SR 6.02.6	DESPATCH OF RELIEF ENGINE	73
70.	S.R.6.02.4	TIC SINGLE LINE	74
71.	S.R.6.02.3	TIC DOUBLE LINE	76
72.	S.R.6.02.1	TSL WORKING	77
73.	G.R/S.R.6.06	LP ENTERED BLOCK SECTION WITHOUT ATP.	78
74.	G.R./S.R.6.08	TRAIN PARTED IN BLOCK - SECTION	79
75.	G.R/S.R.6.09	DIVIDED TRAIN WORKING	80
76.	G.R/S.R.6.10	FIRE ON PASSENGER COACH IN MID-SECTION	80
77.	GR 6.03	PROTECTION	81
78.	S.R.6.03	DUTIES ON NOTICING FLASHER LIGHT	83
79.	G.R.8.01	ESSENTIALS OF THE ABSOLUTE BLOCK SYSTEM	84
80.	G.R./S.R.3.12,9.15	KINDS OF FIXED SIGNALS IN AUTOMATIC BLOCK TERRITORY	85
81.	S.R.9.12.1	PROLONG FAILURE OF SIGNALS & COMMUNICATION AVAILABLE	87
82.	S.R.9.06	LSS DEFECTIVE ON SINGLE LINE/DOUBLE LINE	87

83.		DIFFERENCES BETWEEN AUTOMATIC AND ABSOLUTE BLOCK SYSTEMS	88
84.		ENGINEERING INDICATORS	90
85.	SR 15.06	BLOCK	92
86.	CHAPTER - XVII	ELECTRIFIED SECTION	94
87.	Appendix VIII	MARSHALLING	96
88.	ACCIDENT MANNUAL	ACCIDENT	99
89.	ACCIDENT MANNUAL	DUTIES OF LP/GUARD IN CASE SERIOUS ACCIDENT	102
90.		DUTIES OF LP IN CASE OF DEAD BODY ON TRACK	103
91.	APPENDIX XVII	WORKING OF SIDINGS	106
92.		SUGGESTIONS TO IMPROVE PUNCTUALITY	107
93.		REASONS FOR LP PASSING SIGNAL AT DANGER	108
94.		ODC WORKING	110
95.		FIRST AID NOTES	113
96.		OBJECTIVE QUESTIONS	127
97.		VARIOUS SPEED RESTRICTIONS	164
98.		VARIOUS AUTHORITIES	168

## **DEFINITIONS**

### **1) Write short notes on the following**

- a. Authorised officer      b. Authority to proceed      c. Block section**

#### **a. Authorised Officer (G.R.1.02 (5))**

**Authorised officer means the person who is duly empowered by general or special order of the Railway Administration, either by name or by virtue of his office, to issue instructions or to do any other thing.**

1. Authorised Officer is a person empowered by Railway Administration by General or Special order.
2. Railway administration has given power either to a particular person or particular Post.
3. At present COM (chief operations manager) is the authorised officer of South Central Railway.
4. He is authorized to issue subsidiary rules and special instructions depending on the situation and necessity

#### **b. Authority to Proceed (G.R.1.02 (6))**

**Authority to proceed means the authority given to the Loco Pilot of a train, under the system of working, to enter the block section with his train**

1. It is the authority given to the Loco Pilot of a train, under the system of working, to enter the block section with his train.
2. It is an important document for loco pilot. He should not start his train without possessing ATP.
3. It may be taking off last stop signal (single line token less and double line sections) or token (single line token sections) or a written document.
4. Loco pilot must ensure that correct authority to proceed is issued to him.

#### **c. Block section (G.R.1.02 (5))**

**"block section" means that portion of the running line between two block stations on to which no running train may enter until Line Clear has been received from the block station at the other end of the block section.**

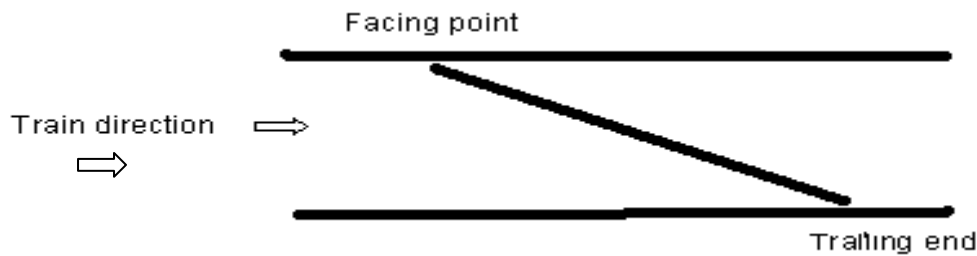
1. Block section is a portion of the running line between two block stations
2. No running train may be permitted until line clear is obtained..
3. Block section lies between two block stations.
4. Normally only one train is permitted in block section.
5. Block section shall not be obstructed for shunting or any other purpose without consent of other end station master.
6. Limits of block section between every two stations shall be marked separately in SWR.

## 2) Write short notes on the following

- a. facing and trailing points      b. fixed signal      c. fouling mark

### a. Facing and trailing points ((G.R.1.02 (20))

a. facing and trailing Points: points are facing or trailing in accordance with the direction a train or vehicle moves over them Points are said to be facing points when by their operation a train approaching them can be directly diverted from the line upon which it is running.



1. Points are connections between lines. They are used to divert the train from one line to other with either mechanical or electrical operation. Generally points have two ends
2. Points are said to be facing which when operated, can divert the movement of train from one line to other.
3. Points are said to be trailing which when operated do guide the movement of train that were diverted by facing points.
4. So points become facing or trailing depending on the direction of train over which they pass

### b. Fixed signal (G.R.1.02 (21))

**Fixed signal means a signal of fixed location indicating a condition affecting the movement of a train and includes a semaphore arm or disc or fixed light for use by day and fixed light for use by night.**

1. It indicates the condition in different positions for controlling the movement of trains
2. There are many types of fixed signals like Permissive signals, stop signals, subsidiary signals and duplicate signals. Their place is fixed.
3. They are designed to use during both day and night.
4. Fixed signals when fixed must be visible to loco pilots.
5. They are fixed on left side of track generally.



### **c. Fouling mark (G.R.1.02 (22))**

**Fouling mark: means the mark at which the infringement of fixed standard dimensions occurs, where two lines cross or join one another**

1. Fouling mark is distinctly visible and difficult to remove.
2. This is fixed at the point at which the spacing between the tracks, begin to reduce to less than the minimum standard dimensions.
3. It is a white painted concrete/stone with flat top placed at ballast level. Starter signals also may be used as fouling mark.
4. Number of vehicles that can be accommodated on the line will be painted on this board.
5. Whenever train stops on a line guard and loco pilot shall ensure that train stands within this mark.

### **3) Write short notes on the following**

**a. Multiple aspect signalling      b. Obstruction**

**a. multiple aspect signalling**

**Multiple-aspect signalling means a Signalling arrangement in which signals display at any one time any one of the three or more aspects and in which the aspect of every signal is pre-warned by the aspect of the previous signal or signals.**

1. It is a Signalling arrangement.
2. There shall be more than two aspects
3. Signal will be able to show any one condition.
4. If signals that control the movement of trains give more information, it would be easier for loco pilot to regulate speed.
5. In this type of signaling, signals display not only aspects like stop, caution proceed etc, but also give warning about the condition of the signals ahead.
6. Hence loco pilot can control speed more efficiently.

**b. obstruction**

**Obstruction and its cognate expressions includes a train, vehicle or obstacle on or fouling a line, or any condition which is dangerous to trains**

1. While dispatching/receiving a train into/from block section, it is must to ensure that line is free from any condition that is unsafe to train.
2. A section of track already occupied with a train, big stones on track, rail breakage, floods, trees fallen on track, level crossing gates in open condition etc., are some of the examples of obstructions
3. In such occasions, generally trains shall not be dispatched without extra precautions.

#### 4) Write short note on the following

- a. Adequate Distance      b. Isolation.      c. Station Section

##### a. Adequate Distance (G.R.1.02 (2), G.R. 8.01, 3.40)

Adequate distance means the distance sufficient to ensure safety. It is of two types.

##### 1. Block over lap 2.Signal over lap.

1. **Block over lap:** It is an adequate distance that has to be kept clear beyond FSS before granting line clear [TAS - NLT 400 Mtrs and MAS: NLT180 mtrs].

a. **In MAS Double line Block over lap is from Home signal to BSLB/Outer most facing point**

b. **In MAS on single line block over lap is between Home signal and Opposite Advanced starter/SLB or outer most facing points.**

2. **Signal over lap:** It is an adequate distance that has to be kept clear before taking off Home signal. It is reckoned from trailing points on S/L and from Starter on D/L. (TAS- NLT180 Mts. MAS- NLT120 Mts.)

i. **In MAS double line between Starter and Advanced starter and**

ii. **On single line MAS between trailing point and Advanced starter or SLB**

Sand hump, dead end/buffer stop are used as a substitute for signal over lap.

Adequate distance to take off Automatic signal beyond next stop signal is 120 metres on double line.

##### b. Isolation (G.R.1.02(32), S.R.3.50)

**Isolation** ;means an arrangement secured by the setting of points or other approved means to protect line so isolated from the danger of obstruction from other connected line or lines.

By providing isolation chances of side collision can be averted.

Isolation is not required when the speed of run through trains doesn't exceed 50 kmph.

The following are the effective means of Isolation.

**Derailing switch:** When it is open any vehicle passing over it derails without fouling the other lines.

**Scotch block:** It is metal or wooden piece placed on a rail ahead of points and locked to prevent movement of any vehicle.

**Haye's Derail:** When it is on a rail any vehicle passing over it derails

**Dead end/Buffer stop:** It is an extended siding into a dead end/buffer stop .It traps escaped vehicles.

**Sand hump:** It is a short siding of an approved design ending in a sanded hump on a sharp rising gradient. It traps the escaped vehicles.

**c. 'Station Section' (G.R.1.02 (54))** means section of station limits-

(1) Class 'B' station in TAS

- Double Line --            between Home signal and LSS of station in either direction or
- Single line –            i)        between SLBs or Advanced starters (if any), or
- ii)        between Home signals if there are no SLBs or Advanced starters, or
- iii)       between O/M facing points if there are no Home signals or SLBs or Advanced starters

Class B station in MAS

1) On a double line –

- (i) between O/M facing points and LSS of the station in either direction, (or)
- (ii) between BSLB, where provided, and LSS of station in either direction, or

2) On a single line –

- (i) between SLB or advanced starters (if any), or
- (ii) between O/M facing points if there are no SLBs or advanced starters.

3) Station section is available in 'B' class station only.

### **Some other definitions**

**"Running Line"** means the line governed by one or more signals and includes connections, if any, used by a train when entering or leaving a station or when passing through a station or between stations.(G.R.102 (47))

**"Running Train"** means a train which has started under an authority to proceed and has not completed its journey. (G.R.102 (48))

### **Engine**

- Light engine is an engine running by itself

### **Train Engine**

- Train Engine is an engine which works a train ordinary or special over some section of Railway

### **Shunting Engine**

- Shunting Engine is an engine which is employed in shunting and marshalling trains and vehicles in station yards. This engine must not be called a pilot engine. If a shunting engine is taken away to run a train, it then becomes a train engine.

### **Assisting Engine**

- Assisting Engine is an engine which because of a train being too heavy to be hauled by one engine is used to assist the train engine either pulling in front or pushing behind. When an assisting engine pushes a train from the rear, up a heavy grade it is termed as a banking engine.

### **Relief Engine**

- Relief engine is an engine sent to relieve another engine which has broken down.

### **Pilot Engine**

- Pilot Engine is an engine which runs by itself in advance of and to pilot a special or ordinary train.

### **5) Differentiate the following**

- General and subsidiary rule**
- facing point and trailing point**
- Block station and non-block station**

#### **Differences between General and subsidiary rule (Preface of G&SR)**

<b>S.No</b>	<b>General rule</b>	<b>Subsidiary rules</b>
1	These rules are framed by Railway Board	These rules are issued by the Authorised Officer (COM in SCR)
2.	These are framed under section 198 of the Indian Railway Act 1989 and have received the sanction of the Govt. of India	These rules are issued on the authority of G.R. 1.02(5) by the GM under the provisions of General Rules
3.	These are applicable to all Zonal Railways	These are applicable to particular Zonal railway only
4.	GRs can be revised or amended by the Railway Board	SRs can be amended by Authorised officer
5.	GRs are printed in bold letters	SRs are printed in small letters
6.	They are numbered in such a way that the first digit indicates number of chapter and other digits indicate number of rule	These are given under GR with same number prefixed by SR

#### **Differences between facing point and trailing point(G.R.1.02(20),App XI 1.3)**

<b>S.No.</b>	<b>Facing point</b>	<b>Trailing point</b>
1	Points are said to be facing when by their operation a train approaching them can be directly diverted from the line upon which it is running	Trailing point cannot divert the trains direction
2.	Facilitates diverging movements	Facilitates converging movements
3.	Locking is essential before permitting a movement over them	Locking is not essential (except motor operated points)
4.	Speed over the M/L facing point depends on the type of interlocking	Speed over the M/L trailing points is not prescribed
5.	Trains pass from toe end	Trains pass from heel end

**Differences between block stations and non-block stations.(G.R.1.02(52),1.03 (2),(3), S.R.4.35(4,5))**

<b>S.No.</b>	<b>Block station</b>	<b>Non block station</b>
1	Here Authority to proceed is given to LPs	Here Authority to Proceed is not given
2.	Signals are provided	Signals are not provided
3.	SM shall manage the station	CC/Contractor can manage the station
4.	SM/ASM shall work round the clock.	CC/ contractor may work for round the clock or specified periods only.
5.	Station staff shall exchange all right signals	Exchange of all right signals is not required
6.	Station limits are between two outer most signals	Station limits are between platform ends
7.	All trains shall stop at station when signal is at 'ON' or as per WTT.	Trains shall stop and start according to Working Time Table
8.	As per Absolute Block System these are classified as 'A' 'B' 'C' and Special class stations	These stations are also known as 'D' class station.
9	Permission to start by SM for passenger trains is required.	Permission to start by SM is. not required.

**6) Classify the Block stations as per Absolute block system**

### **Classification of stations (G.R/S.R.1.03)**

1. Stations are broadly classified into Block Stations and Non-Block stations.
2. Block stations are those at which the Loco Pilot must obtain an authority to proceed under the system of working to enter the block section with his train.
3. Under the Absolute Block System consist of four classes of Block Stations.

**Class 'A' stations:** - where Line Clear may not be given for a train unless the line on which it is intended to receive the train is clear for at least 400 meters beyond the Home signal, or up to the starter.

**Class 'B' stations:** - where Line Clear may be given for a train before the line has been cleared for the reception of the train within the station section.

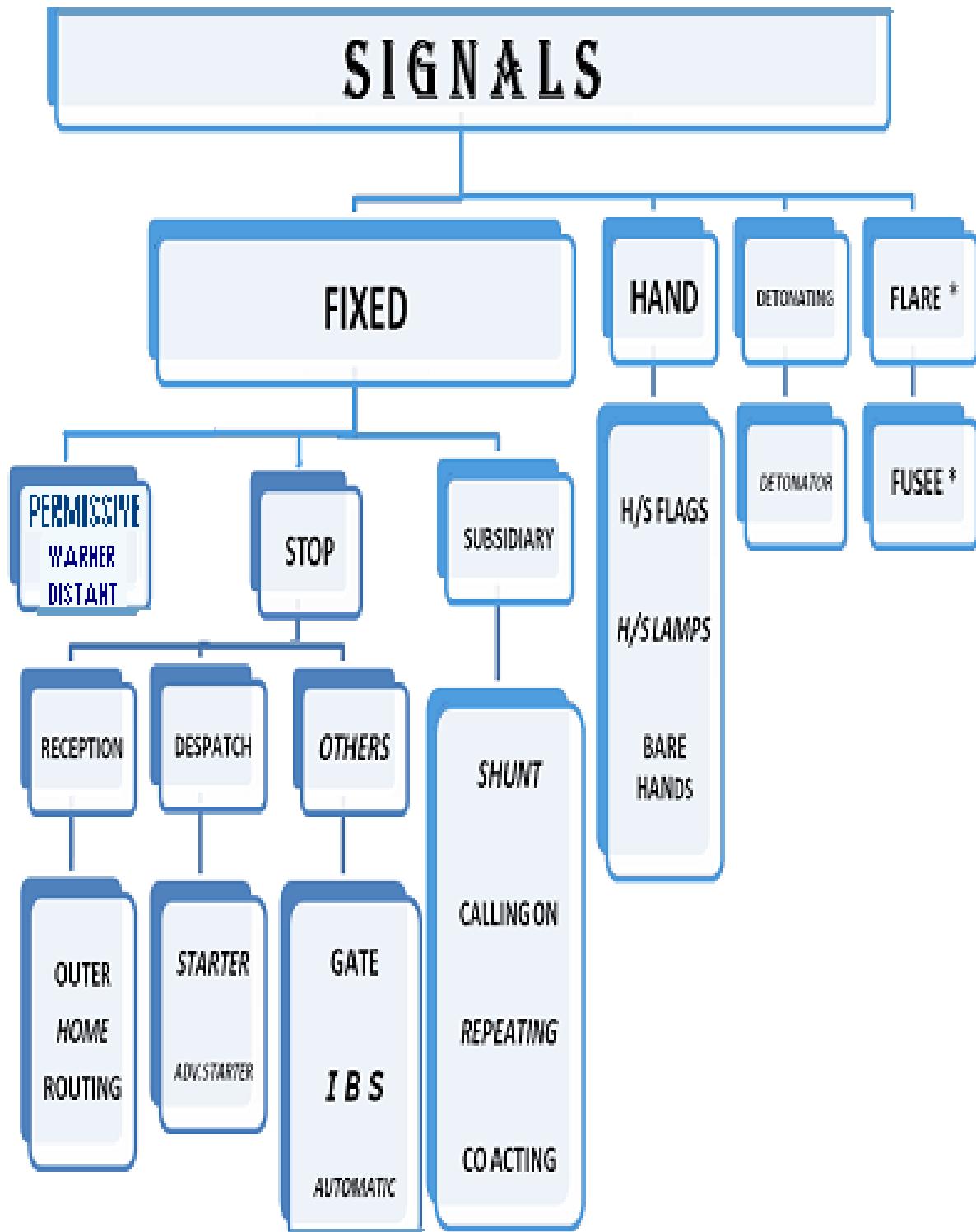
**Class 'C' stations:** - Block huts; where line clear may not be given for a train unless the whole of the last preceding train has passed complete at least 400 meters beyond the Home signal, and is continuing its journey. This will also include an Intermediate Block Post.

[Any block station which can not be worked as class 'A' or; 'B' or 'C' is classified as **"Special class"**]

4. Non Block stations or Class 'D' stations are stopping places which are situated between two consecutive block stations, and do not forms the boundary of any block section

S.R. 1.03 Classification of a station shall be mentioned in the SWR of that station and also in the Working Time Table (WTT)

CHAPTER - III



\* Fusee was dispensed with. In the place of fusee, a red flashing hand signal lamp at night or a red flag during day shall be exhibited to warn the incoming train of an obstruction

**FIXED SIGNALS**  
**PERMISSIVE SIGNALS**

**WARNER SIGNAL (G.R.3.06)**

1. It shall be provided below the FSS or LSS or on a post by it self 1.5m to 2m below fixed green light.
2. Semaphore Warner has a fish tailed arm and painted red with white bar.
3. Provision of Warner is compulsory at class 'A' and class "C" in TAS.
4. At class 'B' station it is provided when the speed of the run through trains exceeds 50kmph.
5. In color light area 'P' marker will be provided if it is independently placed on a post by it self.
6. In 'ON' position, the aspect is 'Proceed with Caution' and indicates 'proceed and be prepared to stop at next stop signal'. In 'OFF' position the aspect is 'Proceed' and indicates 'Proceed'

**DISTANT SIGNAL (G.R/S.R. 3.07)**

1. It shall be located at an adequate distance (1000m) in rear of the stop signal it pre-warns.
2. In semaphore territory, it has a fish tailed end and painted yellow with a black bar.
3. In color light signaling, it is equipped with a 'P' marker.
4. Under approved special instructions a color light Distant signal may be combined with LSS of the station in rear or Gate signal ['P' marker is dispensed with and normal aspect is stop and shows red light in 'ON']
5. Where necessary two Distant signals may be provided in the same direction where the sectional speed is more than 110 kmph. In this case Distant is capable of showing Attention and Proceed aspects only.
6. Distant in double distant area is placed at 2000M from FSS identified by 'P' mark board
7. Whenever Double Distant signal is provided Signal Warning Board is dispensed.
8. Distant/ Double Distant can show following aspects and indications i.e.

<b>POSITION</b>	<b>COLOUR</b>	<b>ASPECT</b>	<b>INDICATION</b>
ON	YELLOW	CAUTION	<b>PROCEED AND BE PREPARED TO STOP AT NEXT STOP SIGNAL</b>
OFF	DOUBLE YELLOW	ATTENTION	<b>BE PREPARED TO PASS NEXT SIGNAL AT SUCH RESTRICTED SPEED AS MAY BE PRESCRIBED BY SPECIAL PROCEED AND INSTRUCTIONS</b>
OFF	GREEN	PROCEED	<b>PROCEED</b>



s.no	DISTANT	INNER DISTANT	HOME	MAIN LINE STR	LOOP LINE STR	ADV. STR	INDICATION TO LOCO PILOT
1	DOUBLE YELLOW	YELLOW	RED	-----	-----	-----	STOP DEAD AT HOME
2	DOUBLE YELLOW	DOUBLE YELLOW	YELLOW WITH ROUTE	_____	RED	_____	STOP DEAD AT LOOP LINE STARTER
3	DOUBLE YELLOW	DOUBLE YELLOW	YELLOW WITH ROUTE	_____	YELLOW	GREEN	RUN THROUGH VIA LOOP LINE STARTER
4	GREEN	DOUBLE YELLOW	YELLOW	RED	_____	_____	STOP DEAD AT MAIN LINE STARTER
5	GREEN	GREEN	GREEN	GREEN	_____	GREEN	TO RUN THROUGH

**STOP SIGNALS**  
**RECEPTION SIGNALS**

**OUTER SIGNAL (G.R.3.09)**

1. This is provided only at class B station in two aspect signaling.
2. It shall be the First Stop Signal [FSS] of the station where provided.
3. On double line it shall be provided at a distance of not less than 400 meters from Home signal
4. On single line it shall be located at a distance of NLT 400 m from Advance starter or Shunting limit board or 580m from outer most facing point when Advance starter or SLB is not provided.
5. Where Home signal is provided, Outer signal cannot be taken off unless Home is taken off.
6. When Home signal becomes defective, Outer is treated as defective and dealt accordingly.
7. Outer shall not be taken off for shunting purposes.

### **HOME SIGNAL (G.R.3.09)**

1. Home signal is normally provided at all block stations.
2. At class 'A' station and class 'B' station in MAS, Home signal is the first stop signal.
3. At class 'C' station it is the FSS and LSS.
4. At class 'B' station in TAS the Home signal is located close to the points.
5. In MAS at class 'B' station the Home signal is located at a distance of NLT180M from station section(Outer most facing point/BSLB) on double line and 180m from advanced starter or shunting limit board on single line or 300 m from outer most facing points where Advanced starter or SLB is not provided.
6. Home signal shall not be taken off for shunting purposes.

### **ROUTING SIGNAL (G.R.3.09)**

Routing signal is provided to indicate to the Loco Pilot which of the two or more routes is set in his favour when the Home signal, due to its position, is inconvenient for this purpose..

### **DEPARTURE SIGNALS (G.R.3.10)**

#### **STARTER SIGNAL**

1. When a train leaving a station is guided by only one Starting signal, it becomes the LSS of the station and called the starter.
2. Where Starters are provided for individual lines, they shall be fixed so as to protect the first facing point or the fouling mark.
3. Provision of starter is compulsory at class 'B' station on Double line and at a class 'A' station.
4. At a station if a single starter is provided for a group of two or more lines, it is called Common Starter.
5. If a starter is provided between first starter and adv starter at a converging junction protecting the points it is called as intermediate starter
6. If a bracketed or a single arm with a route indicator is provided at diverging it is called as routing starter
7. When advanced starter is provided, Starters (free) can be taken off for shunting purpose.

#### **ADVANCE STARTER**

1. When a train leaving a station is guided by more than one Starter signal, the outer most signal is the LSS of the station and is called the Advanced Starter.
2. It shall be fixed at the limit beyond which no train may pass, unless Loco Pilot is given the ATP.

3. Normally it shall be placed outside all connections.
4. At class 'B' station it demarcates the station section and the Block section.
5. On single line token less sections and on double line, taking off Advanced Starter is normal ATP.
6. While taking off departure signals, the Advanced Starter shall be taken off first and then the starter /starters
7. On a double line section it shall be placed at a distance of 180m from Starter in TAS and 120m in MAS.
8. On a single line section, it shall be placed from the trailing points at a distance of 180 m on TAS and 120m on MAS.
9. It shall not be taken off for shunting purposes.

### **SUBSIDIARY SIGNALS**

#### **CO-ACTING SIGNAL (G.R.3.15)**

1. It is provided where, signal is not visible whole the time that the LP is approaching it due to height of the signal or over bridge or other obstacle
2. It is a duplicating signal provided below main signal.
3. Either main or co-acting signal is always visible to loco pilot

#### **REPEATING SIGNAL (G.R.3.16)**

1. When a stop signal located in two aspect signaling area cannot be seen from a proper distance due to curvature of the track a repeating signal shall be provided at an adequate distance in rear of it.
2. It shall not be treated as a stop signal. It can be passed at the 'ON' position with caution.
3. 'ON' position indicates the signal which repeats is at 'ON'.
4. 'OFF' position indicates the signal which it repeats is at 'OFF'.
5. These are of three types
  - a. Banner type repeating signal    b. semaphore repeating signal    c. colour light repeating signal
- a. Banner type repeating signal
  1. This is a white disc with a yellow band between two black borders enclosed in a box.
  2. It is provided with 'R' marker.
  3. It does not show any light in any aspect at any time.
  4. Horizontal position of the band is 'ON' .Rotated to 45 degrees in clock wise direction is 'OFF'.
- b. Semaphore repeating signal

1. It is painted yellow with black bar square end
  2. It is equipped with 'R' marker.
- c. Colour light repeating signal
1. This has provision for yellow/green light indicates on and off aspects.
  2. It is equipped with illuminated 'R' marker on a black back ground.

### **CALLING ON SIGNAL (G.R.3.13)**

1. It is a subsidiary signal always provided below reception stop signal.
2. Under approved special instructions it can be provided below any stop signal except LSS.
3. Calling- on signal may be taken off whenever the stop signal placed above becomes defective or whenever train is to be received on obstructed line
4. It shall be a short square ended semaphore arm painted white colour with red bar or in colour light signalling territory identified by a 'C' marker.
5. It has no independent aspect in ON position.
6. A calling on signal shall show no light in the 'ON' position.
7. In 'off' position it will show a miniature yellow light.
8. 'OFF' position aspect is 'Proceed Slow' and indicates the Loco Pilot to 'stop and then draw ahead with caution and be prepared to stop short of any obstruction'.
9. It shall not be taken off until the train has been brought to a stop at the signal.
10. Once operated, it comes to 'off' after 120 seconds. LP shall observe maximum speed of 30 kmph after passing at off.

### **SHUNT SIGNAL (G.R.3.14)**

1. A shunt signal is a subsidiary signal provided to control shunting movements.
2. A shunt signal may be placed on a post by itself or below a stop signal except FSS.
3. When shunt signal placed below a stop signal, it shall show no light in 'ON' position.
4. In case the shunt signal becomes defective, the authority to pass defective shunt signal is T/ 369 (3b) and proceed hand signals. [Setting and locking of points in the shunting route shall be ensured].
5. 'ON' Position the Aspect is STOP and indicates stop dead, 'OFF' position the aspect is proceed slow and indicates proceed with caution for shunting.

These are of three types:

**a. Disc type shunt signal:**

**b. Position light type shunt signal:**

1. It is provided in colour light signaling territory.

2. It shall not show any light in 'ON' position when it is provided below a stop signal.
3. It is a box like arrangement with a provision for three miniature white lights.
4. When two lights are burning horizontally it is 'ON' position(provided independently)
5. If two lights are burning oblique/diagonal it is 'OFF' position (provided independently or below a stop signal).
6. The arrow mark is on the top of the box indicates the line to which it refers.

**c. Miniature semaphore arm type shunt signal.**

**1) Write short note on following signals**

- a) Distant signal    b) Calling on signal    c) Shunt signal**  
**Refer notes.**

**2) Differentiate the following**

- a) Point indicator and trap indicator    b) Slip siding and catch siding**  
**c) SLB and BSLB**

**a. Differences between Point indicator and Trap indicator (S.R.3.50.2, 3.51.3.1)**

S.No.	Point Indicator	Trap indicator
1.	It indicates the position in which the points are set	It indicates the position of derailing switch
2.	It is provided where there are no departure signals or where single arm Home is provided on MAS	It is provided at derailing switch where there is no signal protection
3.	Point Indicator shall show a white target by day or a white light by night in both directions when points are set for the straight line	Trap indicator shall show red target by day and red light by night in both directions when the derailing switch is open.
4.	Point indicator shall show no target by day or a green light by night in both directions when points are set for the turnout	Trap indicator shall show a knife edge of the disc by day and green light by night in both directions when the derailing switch is closed

**b. Differences between Slip siding and Catch siding (G.R./S.R 3.50)**

<b>S.No.</b>	<b>Slip Siding</b>	<b>Catch Siding</b>
1	Protects the block section	It protects station section/station
2.	It is provided where falling gradient towards block section is steeper than 1 in 100	It is provided where falling gradient towards station (section) is steeper than 1 in 80
3.	It prevents vehicles at station escaping on to the main line	It catches vehicles from adjacent station or block section
4.	It is a short siding	It is a lengthy siding
5.	Outermost point of the station will be a trailing point if provided	Outermost point of the station will be a facing point if provided.

**Common Points for both**

1. Normal setting points is for Slip/Catch siding.
2. Both siding shall not be used for shunting or stabling purpose
3. Interlocking with block instrument is compulsory.

**3) Write a short note on the following**

- a. Fog signal (Detonator)    b. signal to warn incoming train danger ahead**

**a. Fog signal :( G.R/S.R 3.59 to 3.64)**

- 1) It is an audible signal used to attract the attention of Loco Pilot.
- 2) The detonator consists of a metal disc charged with explosive and capable of being fixed on the rail head by means of metal clasps.
- 3) For use, a detonator shall be placed on the center of the head of the rail with the label upwards and shall be securely fastened to the rail by bending the clasps.
- 4) When an engine or vehicle passes over it, it explodes with loud sound so as to attract the attention of Loco Pilot.
- 5) A case containing ten detonators shall be supplied to Loco Pilot, Guard, Gang mate, Gatemen, patrol men, Trolley/lorry, TT machine operator, Loco Pilot of Tower car. 20 detonators to fog signalmen and 8 for key man.
- 6) The life of detonator is 7 years but can be extended by one year each time after testing to a maximum of 3 extensions.
- 7) Detonator shall be tested under an empty wagon moving at 8 to 11 Km/h.

- 8) In thick and foggy weather, to indicate the Loco Pilot about the location of signals two detonators shall be placed at a distance of 270 m. from first stop signal 10 meters apart.
- 9) In case of obstruction one detonator shall be placed at a distance of 400/600(MG/BG), and 3 detonators at 800/1200, 10 m apart from obstruction.
- 10) A safety radius of 45 metres should be maintained during explosion.
- 11) Detonators shall be carefully handled and they shall be stored in dry place.
- 12) Such staff that is expected to use detonators should be tested once in three months.

**b. Signals to warn incoming train of danger ahead (G.R.3.65/66/67)**

- i. A red flashing hand signal lamp at night or a red flag during day shall be exhibited to warn the incoming train of an obstruction
- ii. When necessary to protect an obstruction in a block section before the railway servant proceeds to place detonators, shall place a red flashing hand signal lamp at night or a red flag during day
- iii. All concerned railway servants shall keep a stock of red flashing Hand Signal lamp and red flag.
- iv. The railway administration shall be responsible for the supply, renewal and safe custody of such signals and also ensure that the staff properly understands the procedure for using the same.
- v. Every railway servant concerned with the use of signals shall have a correct knowledge of their use and keep them ready for immediate use
- vi. All supervisors shall ensure that concerned staff working under them has correct knowledge for the working.
- vii. When LP notices a signal warning of an obstruction, he shall stop his train immediately and act on the advice of the person exhibiting or on basis of obstruction noticed.
- viii. In case no further details, stop one/two minutes day/night to ascertain the location/cause of warning proceed cautiously up to next block station keeping sharp look out.

**4) Write short note on the following**

**a) IB signal   b) Interlocking**

**a) IB signal(G.R./S.R.3.75, S.R.14.13,14.14)**

1. Intermediate block signalling means an arrangement of signals on double line in which a long block section is split into two portions each is constituting a separate block section by providing intermediate block post.
2. The Intermediate block post is 'C' class station on double line remotely controlled from the block station in rear.

3. It is provided to increase section capacity, to reduce the detentions, to reduce the staff, to secure economy and efficiency in the operation.
4. By providing IB post; lengthy block section is divided into A/C section and IB section.
5. Axle counters section controlled by Axle counters. One set of A/C provided in advance of LSS and other set provided 400m in advance of IB Home signal.
6. LSS is interlocked with Axle counter and IB signal is interlocked with block instrument.

#### **Normal working**

- i. Obtain line clear from advance station [two PNs, (one for LC & one for consent)].
- ii. Ensure Axle counter section is free and take off LSS and IB signal.
- iii. When train passes LSS, A/C indication shows occupied and K2 indication appears with buzzer and will be stopped when LSS knob or lever is normalised.
- iv. When train passes IB signal (OFF) K3 indication appears with buzzer and it will be stopped when IB signal knob or lever is normalized and advance SM turns the handle of block instrument to TOL position.
- v. When train completely passes second axle counter [at 400m from IB] section becomes free.
- vi. Then obtain consent (1 private number) for second train and take off LSS.
- vii. By the time second train reaches IB signal, first train may clear into advance station and SM will get Line clear (1 private number) to enter IB section.
- viii. Rear SM can take off IB signal.

#### **b) Interlocking (Appendix XII –I)**

Interlocking means an arrangement between points, signals and other appliances operated by panel or lever frame either electrically or mechanically or both so that their operation must take place in proper sequence to ensure safety.

#### **Objectives:**

1. It shall not be possible to take 'OFF' signals for a route unless all the points are correctly set and the facing points are locked for that route.
2. Once the signals are cleared it shall not be possible to alter the points on the route unless the signals are put back to 'ON'.
3. Even though the signals are put back to 'ON', it shall not be possible to alter the points unless the intended movement over such points is completed.
4. It shall not be possible to operate signals leading to conflicting movements.
5. The points and signals can be operated only in a sequence to ensure safety.
6. Where signals are connected to any device the signal shall not obey until the conditions for working such devices are fulfilled.



### Standards of interlocking:

There are three old standards of interlocking viz., Standard I, II, III

There are four revised Standards of interlocking viz., Std –IR, IIR, IIIR and IVR

The equipment of signals mode of locking and operation of points, signals etc. vary in these different standard and they are:-

### STANDARDS OF INTERLOCKING AND THEIR FEATURES

Std	Max Speed On Main Line	Minimum equipment of signals at class B stations		Mode of locking	Type	Isolation
		TAS	MAS			
I	50	Outer, bracketed home	Distant Home	Key	In direct Direct	Not Necessary
II	75	Warner, Outer, bracketed home	Distant Home, starter	Plunger	Indirect Direct	Necessary
III	MPS	Warner, Outer, bracketed home, starter	Distant Home, starter	Plunger	Direct	Necessary

### REVISED STANDARDS OF INTERLOCKING AND THEIR FEATURES

Sl. No	Item	Std I (R)	Std II (R)	Std III (R)	Std IV (R)
	Allowable speed (KMPH)	Up to 50	Up to 110	Up to 140	Up to 160
1	Isolation	Not compulsory	Compulsory	Compulsory	compulsory
2	TAS/MAS	TAS/MAS	TAS/MAS	MAS	MAS
3	Double Distant	Not compulsory	Desirable	Compulsory	compulsory
4	Point operation	Mechanical	Mechanical/ electrical	Mechanical/electrical	Electrical

5	Point locking	Key/Facing point/ Hand plunger	Facing point locking with point machine	Facing point locking with point machine	Clamp type Direct desirable
6	Interlocking	Key/mechanical	Mechanical/ electrical/ electronic	Mechanical/ electrical/ electronic	electrical/ electronic

**5) Write a short notes on**

**a) shunting permitted indicator      b) Gate signal      c) Route indication**

**a) Shunting permitted indicator(S.R.3.14.3)**

1. It is an appliance work in conjunction with the stop signal and provided for controlling shunting movements.
2. It shall be placed by a post by it self only.
3. It can permit the shunt movements in both directions.
4. It is provided in the non interlocked area of the yard where interlocked area is isolated.
5. It shall not show any light when shunting is not permitted.
6. It has two types a] semaphore type      b] colour light type
  - a) Semaphore type:- It has a black disc with yellow cross in ;both directions, when shunting is permitted during day time and yellow cross light during night time.
  - b) Colour light type:- When shunting is permitted it shows yellow cross light in both direction during day and night.
7. When shunting permitted indicator become defective, authority to pass defective indicator is T.369 (3b) + proceed hand signals [PHS].
8. Detailed instructions regarding the working of SPI are available in SWR.

**b) Gate signal. (G.R/S.R.3.34, 3.73)**

1. Every Interlocked manned level crossing gate which is normally kept open for road traffic is provided with a signal [Gate}
2. This signal shall show stop aspect in both up and down directions when the gate is open for the passage of traffic.
3. When LC Gate is interlocked with station signals, there is no need to provide separate Gate signal.

4. 'G' marker shall be provided on LC Gate signal except those controlling the entry into rail-cum road bridge or where there is bridge between gate signal and the gate
5. In MAS in rear of Gate signal a Distant signal shall be provided.
6. When a level crossing is located between the Home signal and the Distant signal on MAS, the Gate cum Distant signal shall be located at a distance of NLT 180m in rear of Gate. This signal shall be provided with a 'G' marker and normal Aspect is Stop. A Gate distant shall also be provided
7. Gate signal in Automatic signalling territory: Automatic signals interlocked with level crossing gates are distinguished by the provision of 'G' marker. When the gate is in open condition, the gate signal exhibits danger aspect with extinguished 'A' marker. When the gate is in closed condition, it works as automatic stop signal with illuminated 'A' marker

### **Passing Gate signal is at 'ON'**

1. Loco Pilot shall give continuous whistle and stop the train at signal at ON.
2. If the gate signal is provided with 'G' marker.
  - a) Wait **1 minute by day and 2 minute by night**, if still signal is at ON, he may draw ahead cautiously upto the gate.
  - b) He can pass the gate on hand signals of gateman.
  - c) If the gateman is available and not showing proceed hand signal, LP shall wait until hand signaled by the gateman
  - d) If gateman is not available, Loco Pilot can pass the gate on hand signals of crew of the train, who will do so after ensuring the gate is closed and locked.
  - e) After passing the gate cautiously stop and after re opening the gate by crew start the train
  - f) If gatemen is not found stop the train out of course at next station and report the matter to SM.

### **c) Route (indication) indicators (SEM Part I)**

- ❖ These are provided to give information regarding which of the two or more lines is set for Loco Pilots.
- ❖ Route indicators are treated as stop signals
- ❖ If the route indicator in the reception signal is not in working order, the relevant stop signal shall be treated as defective.
- ❖ If the LP finds, the route indicator on starter signal displaying incorrect route, he shall treat the starter signal at ON

#### **Methods of route indication**

1. Bracketed signal
2. Placing of more than one signal on the same post.

3. Single arm signal or colour light signal with route indicators

Route indicators generally used are of three types

**[a] Stencil type [b] Multi lamp type [c] Junction type**

**a. Stencil type route indicators:**

This indicating apparatus is placed on the same post below the stop signal.

When the signal is take OFF the number of description of the line for which signal is cleared will appear on the indicator in the form of an illuminated number of alphabet.

**b. Multi-lamp Type route indicator:**

Here a number of electrical bulbs are arranged on a panel kept on the signal post.

When the signal is cleared, the line number appears on the panel by selective light up of the electric bulbs in the required pattern.

**c. Junction type route indicator:**

It is also known as position type route indicator. It is provided with five miniature white lights. Six indicators can be fixed on a signal post. When signal is taken off for main line and at ON there is no route indication. When signal is off [yellow MAS/green/TAS] with route indicator indicates signal is cleared for turnout.

**6) What are the occasions a signal may be treated as defective?**

**Defective signals (G.R 3.68 and G.R 3.74)**

1. Blank signal under complete power 'off' treated as defective.
2. In case of reception semaphore signal when there is no light in signal, the LP to stop at the signal and proceed according to its day aspect
3. In case of dispatch semaphore signal when there is no light in signal, the LP to treat the signal as defective.
4. In colour light area with no lights in the Distant signal, stop at the signal, proceed further only when there is 'P' marker board is available, treating the most restrictive aspect of it.
5. LP finds a signal flickering/bobbing, consider most restrictive aspect and stop the train and if assumes a steady aspect for 60 secs proceed further according to aspect.
6. If it does not assume steady aspect for 60 secs, treat the signal as defective.
7. When more than one aspect is displayed at a time treat it as defective.
8. When more than one aspect is displayed at a time in case of automatic signals treat and work as most restrictive aspect and proceed accordingly.
9. When red roundel glass is missing, broken or cracked the signal is treated as defective

10. Treat and work the train considering the most restrictive aspect in the following cases

- i. Fixed signal is missing from its place without caution order
- ii. Light of the signal not burning
- iii. White light shown in place of colour light
- iv. Aspect misleading or imperfectly shown
- v. When more than one aspect is displayed at a time.

## **7) How the trains are dealt when**

### **a) Home signal become defective**

### **b) Departure signals defective**

### **c) IB signal defective**

## **Defective Signals (G.R/S,R 3.68,3.69 and 3.70)**

- SM shall arrange to place the Signal at on.
- If Signal detects any points, such points shall be treated as non-interlocked.
- SM shall personally ensure correct setting, clamping and padlocking of points, unless the train is dealt on calling- on Signal.

### **a) Reception Signal (home) defective(G.R. &S.R.3.69)**

#### **When LP has been advised (pre warned)**

- The SM shall advise the SMs of rear/notice station to issue written authority [advance authority T.369 (1)] to the loco pilots. (except at station where calling on/signal post telephone is provided)
- In the advance authority LP is authorized to pass the defective signal duly observing the PHS at the foot of the signal at a restrictive speed of not more than 15KMPH.
- Depute competent railway servant to exhibit PHS
- LC shall not be given unless conditions for taking off of the Signal is fulfilled

#### **When LP has not been advised (not pre warned)**

- The train shall be brought to a stand at the foot of the Signal.
- By taking off calling on Signal where provided or
- By authorising LP over Signal post telephone where provided or,
- T/369(3b) should be delivered to LP to pass defective Signal with speed not more than 15 kmph + PHS at the foot of the Signal

### **Signal got struck up in off position**

- Light of the Signal shall be extinguished.
- Paste paper on the glass or put a cross.
- Stop hand Signal shall be shown at the foot of the Signal.
- The SM of rear station shall issue PLCT and T.369 (1).
- Departure Signal – PLCT or T/369 (3b).

#### **a) Departure Signal defective(G.R. &S.R.3.70)**

##### **Starter defective**

- Train shall be brought to a stand.
- By taking off calling on Signal or
- Authorise the LP by T/369(3b) + PHS at the foot of the Signal.

##### **Advanced starter**

- Authorise the LP by PLCT.
- PHS not required except where it detects points.

#### **b) IB signal is defective(S.R.3.75)**

1. When SM is aware when the IB stop signal is defective or A/C failed or LSS failed or IB Distant failed or Block Instrument failed before dispatching a train,
  - a. Treat two sections i.e. axle counter section and IB section as one block section and suspend the IB working.
  - b. If IB signal is interlocked with the Gate, it shall be treated as non interlocked and before obtaining line clear, SM shall exchange PN with the gateman.
  - c. He shall stop the trains at station and obtain line clear.
  - d. Issue paper line clear ticket +T.369.[3b] to pass IB stop signal at 'ON'.
  - e. LP can proceed with normal speed.
2. When Loco Pilot finds an IB signal is at 'ON' [defective]
  - a. He shall stop the train and contact immediately SM of rear station on telephone.
  - b. If block section is free and line clear is obtained, SM shall authorize the Loco Pilot to pass IB signal at 'ON' by Giving PN which was obtained from advance SM.
  - c. LP shall record this PN in the LP's memo book.
  - d. Pass the IB signal at ON with normal speed.
3. If the telephone is out of order.
  - a. Wait for 5 minutes, still signal is at ON, give one long whistle and exchange signals with Guard.

- b. Proceed with a restricted speed of 15 kmph when view is clear and 8 kmph when view is not clear up to the FSS of next station even if that signals and intervening signals if any display off aspect.
- c. LP shall continue to look for any obstruction short of the FSS.
- d. The Loco Pilot must report the failure to the SM of the next block station.

**8) What are the duties of Loco Pilot when an approach/departure stop signal is at ON?**

**3.80. Duties of Loco Pilot when an approach Stop signal is 'on' or defective.—**

- 1. The Loco Pilot shall not pass an Outer, a Home or a Routing signal at 'on' or defective, unless-
- 2. He has received T/369(1) at rear/notice station and PHS at the foot of the signal or
- 3. After coming to a stand, he is either given a T/369 3(b) +PHS at the foot of the signal or
- 4. Authorised by a Calling-on signal in the 'off' position or
- 5. Authorised by the Station Master over the signal post telephone.
- 6. The Loco Pilot while passing shall ensure that the speed of his train does not exceed 15 kmph.

**3.81 Duties of Loco Pilot when a departure Stop signal is 'on' or defective.—**

- 1. The Loco Pilot shall not pass a departure Stop signal at 'on' or defective, unless his train has been brought to a stop and he is authorised to do so —
- 2. By a written permission(T/369 3(b)+PHS at the foot of the signal in the case of a Starter or Advanced Starter protecting points, or
- 3. By taking 'off' the Calling-on signal, if provided
- 4. In the case of a last Stop signal, he shall not pass such signal, unless he receives proper ATP.

**9) What action will Loco Pilot take when Train bursts a detonator?**

**a) Train burst a detonator**

- 1. LP shall whistle intermittently and take every possible caution including reduction of speed as necessary, so as to have the train well under his control and be able to stop short of any obstruction on the line.
- 2. In thick and foggy weather, his engine explodes two detonators within a distance of 10 meters; LP will control the train and follow the aspect of the stop signal ahead within 270 meters.
- 3. When LP explodes three detonators within a distance of 40 meters, he should control his train and move cautiously to stop short of any obstruction and be guided by the signal that he may receive

4. If no hand signals are visible, LP shall proceed up to 1.5 km from the place where his engine explodes, if he does not explode any more detonators, he may then resume normal speed.
5. Report at next station.



## CHAPTER IV

### CAUTION ORDER (4.09 and Appendix I )

1. Restriction as a temporary measure to be observed in and between stations informed to the LP/Guard/ALP by the SM through Caution Order.
2. Engineering/Signal/OHE/Mechanical/Security officials whenever require to impose any restrictions in section, inform SM in writing through Caution Order message.
3. SM will repeat to other end SM, SCOR, Notice stations.
4. SM shall ensure all trains entering section is informed of the restrictions.
5. It is prepared in four foils- Guard, LP, ALP and record.
6. There are Three types of CO
  - i. T.409 - Division/section CO
  - ii. T/A.409 - 'NIL' CO
  - iii. T/B.409 - Remainder CO (not in use in SCR)
7. Division CO will be issued at the Notice station
8. Sectional CO issued by the SMs of stations between the Notice stations.
9. Names of the Notice stations mentioned in the WTT
10. LP/Guard Not to start from a Notice station without a copy of the CO
11. It is a printed or written advice with blue/black font.
12. It contains
  - i. S.No.
  - ii. From and TO stations
  - iii. From and TO KM
  - iv. Speed/restrictions to be observed
  - v. Reasons
13. It is Prepared in geographical order
14. No station codes are to be used
15. No overwriting shall be done.
16. Total number of CO to be observed is mentioned in words and figure.
17. Addition/Deletion to the printed CO will be mentioned
18. Caution Orders in bold letters is mentioned on top
19. No CO should be written on the back side and it should be page numbered whenever more than one page is available.
20. Signed by SM and stamped.
21. Change of crew enroute, CO should be taken from incoming crew with the other papers.
22. T/A.409 given when there is no CO available between two notice stations.
23. The concerned officials who imposed the CO will cancel after work is completed and give the cancellation message to the SM.
24. SM will repeat the message to all concerned.

**1) What are the circumstances engine pushing may be permitted outside station limits? What is the procedure to push back the train?**

**G.R.& S.R. 4.12 Engine pushing**

1. Engine pushing outside station limits may be permitted in the following circumstances.
  - i. **Passenger trains**
    - a When a train meets with accident or in emergency, Working of relief/ transshipping trains
    - b Not able to proceed further due to floods, breaches, landslides, etc.
    - c To pickup an injured passenger.
  - ii **Goods trains**
    - a In connection with working of material trains.
      - a. Engine unable to haul the load
      - b. Trains are required to work to the point of obstruction.
      - c. Working of relief/ transshipping trains during accidents.
      - d. Not able to proceed further due to floods, breaches, landslides, etc..
2. The Guard/Loco Pilot shall contact SMs/SCOR/TPC telephonically and obtain permission to push back.
3. Such permission will be given by rear Station Master after ensuring that LC gates are closed supported by PN.
4. If Guard/Loco Pilot cannot contact SMs/SCOR/TPC, the Guard/Assistant Loco Pilot shall walk to the nearest station. SM of the station shall issue caution order permitting pushing back after obtaining permission from Station Master in rear supported by PN
5. The Guard shall travel in the leading vehicle if it is fitted with brake valve or hand brake, if not travel in the nearest vehicle fitted with brake valve.
6. The speed of the Train is restricted 25 kmph when guard is traveling in the leading vehicle and 8 kmph when guard is not traveling in the leading vehicle.
7. The Guard of the pushing train shall keep a good lookout and continuously exhibit PHS.
8. In the absence of PHS, LP to stop train at once and ascertain the cause.
9. Guard also shall ascertain LC gates closure & is responsible to warn passengers.
10. Guard continuously whistle, keep sharp lookout and be prepared to stop train short of any obstruction.
11. When goods train worked without Guard, such duties of Guard shall devolve on ALP..

12. For Goods train without BV, Guard to walk by side of track in rear of LV, exhibiting PHS continuously, LP proceed with walking speed.
13. Reception on Single Line shall be made on Signal aspects.
14. On Double Line after ensuring the train has come to a stop at the same line LSS or Opposite Line FSS whichever Signal comes across first, train may be received on Pilot In Memo after correct setting, clamping and padlocking of the points.
15. This rule shall not apply to a train the leading vehicle of which is equipped with driving apparatus [push - pull train]
16. This rule shall not apply to an engine, assisting in rear of train (without being attached).
17. Patrol or search light special with one or more vehicles in front of the engine may be permitted to run at a maximum speed of 40 kmph.

**2) Write a short note on a. Head light, marker lights and speedometer**

**b. side lights**

**c. tail board/tail lamp**

**G.R/S.R. 4.14 HEADLIGHT, MARKER LIGHTS AND SPEEDOMETER**

1. All trains work during night or in thick foggy or tempestuous weather with an electric headlight of approved design and two electrical white marker lights..
2. Engine working purely for shunting purpose during night exhibit two red marker lights in front and rear
3. Before leaving loco shed, LP shall ensure that head light effective.
4. Fitter on duty responsible for certifying in register that electric head light is in working order provided with 250 watts bulb.
5. LP shall test and satisfy that the illumination is visible at a distance of 250 meters or more.
6. In case of defective Head light the LP shall run with a maximum speed of 40 Kmph or severest speed restriction imposed in the section whichever is less with two marker lights are burning.
7. LP shall also inform SM of the next block station.
8. Coaching locos not turned out from shed with speedometer in defective condition.
9. If engine passes without headlight, marker lights the SM shall stop at next station and ascertain the cause.
10. Electric head light shall be dimmed when the
  - i. When the train remains stationary at station
  - ii. When the train approaching another train on Double line or Multiple lines
  - iii. To avoid running into dazzled cattle.
  - iv. To pick up light indication of signals.

10. In case both the speedometers of Diesel Loco or one speedometer of Electrical Loco are found defective,
  - (i) At crew changing points the train should not be worked till the speedometers are attended to or Loco to be changed
  - (ii) As soon as the defective speedometers are noticed, during run, message should be given by the LP to the nearest power controller for arranging attention or change of Loco at the next crew changing point or earlier, as the case may be and train should be run with 10% reduction in MPS of the train.

#### **G.R/S.R. 4.15 Side lights**

1. Every train except EMU and goods train shall have two side lights
2. Side lights shall show red towards rear and white towards engine.
3. At night when train is waiting at station to give precedence to another train in same direction, guard shall change side lights adjacent to the line on which train admitted to show white towards rear and red towards engine. After the train goes to be turned to normal position.
4. When any vehicle is attached in rear of BV, side lights shall be lighted if provided on last vehicle or nearest vehicle and extinguish the side lights of BV. If no vehicle is provided with side lights use side lights of BV.

#### **G.R/S.R.4.16 Tail board /Tail Lamp**

1. To indicate to the staff the complete arrival of train, the last vehicle must be fitted
  - i. By day a tail board painted red with white letters LV
  - ii. By night as well as in thick foggy weather a red tail lamp displaying flashing red light to indicate LV
  - iii. Only in case of emergency under special instructions red flag may be used in place of tail board or an unlit tail lamp
2. When Assisting engine attached in rear, Tail board / Tail lamp removed from LV and fixed behind Assisting Engine
3. Built in red light of SLR/Inspection carriage switched off when another vehicle attached in rear.
4. Light engine or couple L/Engine moving in block section shall have red marker lights in rear during day and night.
5. In case of EMU/MEMU/MMTS/DHMU/DMU
  - i. A red 'X' mark on white background on metal flap is provided to indicate LV during day
  - ii. During night Guard shall switch 'ON' the flashing red light of built in tail lamp..

### **3) Give an account of Loco Pilots/Guards equipment**

#### **Loco Pilots equipment (G.R/S.R.4.19)**

Each Loco Pilot shall have with him while on duty with his train the following equipment.

- 1) Hand signal lamp - to exchange all right signals, to show shunting signals and to show danger hand signals whenever required during night.
- 2) Hand signal flags
  - a) Green 1 - to exchange all right signals, to show shunting signals during day
  - b) Red- 2- to show danger hand signals whenever required during day.
- 3) Detonators -10- protect the train when train stopped in the section due to accident or other reason and cannot proceed further.
- 4) Washers -5 (IR/MU) - to replace washers when there is a leakage at hose pipe connection
- 5) Rough journal book Reference books and stationary
  - a. Working time table - In this book particulars of section timings, booked speed, MPS, system of working, gradients, girder bridges, notice stations, LC gates, automatic danger level indicator, marshalling available -It is an important book during trains working.
  - b. Hand book for guards and Loco Pilots - In this book portion of general and subsidiary and other rules are available. Loco Pilot can refer this book whenever required.
  - c. Rough journal book – to note the schedule and actual timings with reasons.
- 6) One electric head light bulb - to replace head light bulb when it is fused.
- 7) One cab light bulb - to replace cab light bulb when it is failed.
- 8) Spectacles if required. Loco Pilot shall have with his while on duty with his train two pairs of spectacles. Second pair can be used when first pair glasses damaged or lost.
- 9) A watch - to note the timings.
- 10) CBC operating handle Key

#### **Guards Equipment (G.R/S.R.4.19)**

- 1) Hand signal lamp - to exchange all right signals and to show danger hand signals whenever required during night.
- 2) Hand signal flags
  - a) Green 1 - to exchange all right signals during day
  - b) Red- 2- to show danger hand signals whenever required during night.
- 3) Detonators -10- protect the train as per G.R.6.03 when train stopped in the section due to accident or other reason and cannot proceed further.

- 4) Washers -3 (IR/MU) - to replace washers when there is a leakage at hose pipe connection
- 5) Reference books and stationary
  - a. Working time table - In this book particulars of section timings, booked speed, MPS, system of working, gradients, girder bridges, notice stations, LC gates, automatic danger level indicator, marshalling available -It is an important book during trains working.
  - b. Hand book for guards and Loco Pilots - In this book portion of general and subsidiary and other rules are available. Guard can refer this book whenever required.
  - c. Guard certificate Book- to be issued to the passenger who could not purchase tickets across the counter.
  - d. Rough Journal Book- noting the timing of the train, a copy of CTR, load, engine, BV stores, loading and unloading particulars.
- 6) Padlocks (50mm-2 and 35 mm – 2)
- 7) Chain for securing the box – since sometimes the Guard has to leave the BV for checking the train.
- 8) Whistle- to sound indicating to the passengers that the train is ready to leave
- 9) Spectacles if required. Guard shall have with his while on duty with his train two pairs of spectacles. Second pair can be used when first pair glasses damaged or lost.
- 10) CBC operating handle Key.
- 11) Tail Board – it shall be fixed in the rear vehicle. It is a last vehicle indicator during day time.
- 12) Flashing tail lamp- it shall be fixed in the rear vehicle. It is a last vehicle indicator during night time.
- 13) First Aid Box- to render first aid to the passengers/staff in case they are injured.
- 14) PN sheet – to exchange with station master that the train is arrived within the fouling mark.
- 15) Universal key for opening and closing guards compartment of SLR
  - Guards working freight trains need not possess First Aid Box and Guards Certificate Book but must possess T.609 forms and Vacuum gauge and detachable pressure gauge with adapter.

#### **ASSISTANT LOCO PILOTS EQUIPMENT (G.R/S.R.4.19)**

ALP shall be in possession of the following personal equipment, while working a train:-

- |  |                        |
|--|------------------------|
| (1) Tri-colour Hand Signal Lamp – 1 No.          | (3) Working Time Table |
| (2) Hand Signal Flags--Green-1 No.; Red - 2 Nos. |                        |

#### **4) Write a detail note on Brake van Equipment**

##### **G.R.4.19.6 Brake Van Equipment**

1. Every coaching train is provided with BV equipment
2. Loaded at Platform of Primary maintenance in both SLR (or more) inside cupboard locked with one time lock (OTL) and sealed jointly by SE/JE C&W and Dy SS
3. EMU/MEMU loaded in low tension compartments in motor coach. DMU/DHMU space available in driving trailer cab.
4. All SLR jointly checked in return direction at the Primary maintenance station.
5. Provision/Responsibility /maintenance/due dates for replacement/testing
  - i. Portable Control Telephone – 1 set – SE/JE (TELE)-once in 6 months.
  - ii. Portable train lighting equipment – 1 set – SE/JE (TL)-once in 6 months.
  - iii. Fire Extinguisher - 2 No. – JE/SE C&W-once in a year.
  - iv. Wooden wedges - 2 No. – SE/JE C&W
  - v. Stretcher in good condition - 1 No. - DYSS

The due dates of the equipment will be mentioned on the sticker pasted.

6. After loading the staff provide OTL, cover with Rexene pouch, tie and seal
7. SE/JE (C&W) keep spare OTL in cabinet
8. Every trip monitored on PF on arrival
9. A sticker pasted in the SLR with S.NO. of equipment and instructions for the guard
10. Dy SS/TNC to obtain acknowledgement of Guard in the register & VG at originating station
11. I/C and O/G Guard make entries in VG and rough journal about intactness of OTL.
12. In case missing OTL or broken, Guard to give message to SM of the station, copy to SM of originating station indicating train number, SLR NO. Missing BV equipment with S.No. along with date, location etc.
13. SM of originating station advice concerned and recoup on arrival of train.
14. Duties of Guard
  - i. Before departure from originating station, check the intactness of OTL, pouch and seal
  - ii. Cabinet seal broken in case of emergency/accident
  - iii. After usage Guard to give message to SE/JE (C&W) and DY SS of originating station for recoupment
  - iv. Check the intactness reroute
  - v. Whenever opened pass remark in VG and Rough Journal book and lock with spare OTL
  - vi. Take acknowledgement of Dy SS at destination station.

**5) Write a short note on a) CTR      b) VG      c) working time table**

**a) Combined Train Report (CTR)(S.R.4.25.2)**

1. It is also called Guard's Journal ( Form No T/720 )
2. It is to be prepared by Guard of all trains except Suburban and Material trains.
3. Separate forms are used for Suburban and Material trains.
4. On top of the journal the name of the LP, ALP, type & number of the train engine, load of the train in terms of Vehicle/Wagons and gross tonnage are to be recorded.
5. Remarks under the following heads must be passed at the foot of the journal.
  - a) Time checked with SCOR,
  - b) Vacuum/Air pressure in B/V,
  - c) Weather condition,
  - d) Condition of rolling stock,
  - e) Condition of lighting (Tail Lamp/Side Lamp)Painted number of First Aid Box,
  - f) Brake van equipment.
6. The scheduled and actual timings at each station shall be recorded with reasons for deviation if any.
7. The time lost or gained shall be shown under various departmental heads viz, Engg, Loco, S&T, Optg, Commercial.
8. Any irregularities in regard to working of trains such as, absence of signals, laxity on the part of staff, complaints made by the LP orb public, accidents and unusual occurrences, cautious driving adhered to or not by the LP shall be reported in CTR.
9. At the end of each trip the Guard shall hand over the copy of the journal to the SM with caution orders, line clear tickets etc. The SM must maintain a separate register where in the particulars of the Guard journal shall be entered by carbon process.
10. One copy will be retained by the SM and the others will be sent to the DRM office with CTR's daily.
11. In the case of passenger and mixed trains a copy of the CTR should also be forwarded to the COM.

**b) Vehicle Guidance (VG)(S.R.4.25.3)**

1. It is prepared by station staff or TNCs where available.
2. The TNC should note down the particulars of vehicles in the hand book from the wagons/vehicles.
3. This shall be prepared in ink carefully and legibly.
4. VGs shall be prepared direct from the TNCs hand book.



5. The entries should not be copied from one VG to another VG.
6. The VG is prepared in a format suitable for computer transaction.
7. The entries are made in the relevant columns and in serial order as per formation either from train engine or brake van.
8. VGs of through goods trains shall be made in duplicate, one copy shall be handed over to the SM of the first terminal station of the Division for submission to the DRM and the original must go to the destination station by way of transfer from Guard to Guard.
9. The particulars to be entered in VG are as follows,
  - a) Owing Rly b) Painted No c) Wagon code d) Empty or loaded e) From and To station f) Tare weight g) Gross weight h) Remarks if any.
10. When ever vehicles are attached the entries shall be made by the station staff and when vehicles are detached, the Guard should obtain the signature of station staff on the VG
11. Before starting the train, the Guard is responsible for checking the load with the entries in the VG.
12. On completion of journey the VG must be handed over to the SM.
13. VGs of Mail/Express, Passenger, Troop trains and special trains to be sent to COM and Mixed and Goods trains to DRM along with a summary sheet every day.
14. For calculation purpose a bogie coaching stock when attached to goods train shall be reckoned as 2 ½ units.

### **c) Working Time Table (WTT)**

Large amount of information is required to be conveyed to the staff connected with running of trains and maintenance of Infrastructure on the Railways. They must not only know the timings of the trains, but also a lot of information about what maintenance/attention like fuelling, watering, engine changing or any other service to be provided.

In addition, the train crew needs lot of information about Track, Signals and other facilities and such information is conveyed to the staff through the Working Time Tables. These Time Tables are printed Division wise on the orders of COM every year in the month of July along with Public Time Table.

Important items included in these Time Tables:

1. Detailed timings of trains at each station namely arrival, departure, skip timings (advertised timings) on Section, even for stations where do not stop.
2. Maximum permissible speed for various trains on each section.
3. Type of locomotive permitted to run on each section.
4. Normal running time for goods, passenger, express and superfast trains.
5. Particulars of Engg allowance/Traffic allowance provided on each Section.
6. System of working of trains on each section.

7. Details of System of Signalling available, Type of Interlocking provided and No. of Running lines at each station with line capacity.
8. Ruling gradients, section capacity, critical block section and precautions required to be taken for running of Trains across Section.
9. Details of LC gates their numbers, KM, Stations between, type (manned or unmanned) and TVUs.
10. Axle load restrictions, maximum loads permitted by the train and the locos.
11. Details of Permanent Speed restrictions on each Section.
12. Details about stations Where Medical Equipment/vans and Accident relief Trains are based.
13. Details of Emergency Sockets location and Kilometreage Important Rules about safety of Train operations including the JPO's and other bulletins.
14. Telephone Nos of Stations, List of all Revenue officials along with phone No's and Jurisdiction of Various Inspectors of each dept.,
15. These copies are supplied to all stations, Loco Sheds/Crew Lobbies, and individual copies for Loco pilots, Asst. Loco pilots, Guards, Inspector of Track, Station Masters and other necessary staff.
  - GLP must possess a copy of WTT while on duty.
  - One copy of WTT of each division shall be sent to CRS for information.

## **6) What are the precautions to be taken to work the train?**

### **a) Running of goods train without brake-van**

### **b) Running of goods train without Guard**

#### **a) Running of Goods train without Brake-van (S.R.4.23)**

- During emergencies to run a train without a brake-van the following precautions should be observed.
- Specific orders of Sr. DOM/DOM are required.
- Strictly prohibited during total interruption of communication
- Separate Registers to be maintained in the control office.
- It shall be ensured that the train is provided with continuous and effective vacuum/compressed air from engine to rear most vehicle.
- In Automatic Block system no train must be allowed to follow until the preceding train without brake-van has arrived complete at the next reporting station in advance.
- Guard of the train shall travel in the engine.
- Tail board/tail lamp/ must be fixed on last vehicle.
- Station Master shall ensure that the train is complete by tail lamp/tail board.

- The station as well as the cabin staff should be particularly alert, when there is a doubt at the train is not complete and should draw the attention of GDR by showing 'train parting' signal.

.When encounters trouble en route

- a. Guard and Asst. Loco Pilot should check and attend the trouble
- b. Within station limits the help of C&W staff or points man should be taken
- c. The Loco Pilot should regulate the speed depending on the 'Feel test' conducted by him.

**b) Running of Goods train without Guard (S.R.4.25.4)**

1. In exceptional circumstances, only goods trains may be run without Guard with the specific orders of Sr. DOM.
2. Some of the duties of Guard shall devolve on the Loco Pilot and Assistant Loco Pilot.
3. It should be ensured that the train is provided with continuous vacuum/air pressure from the engine to the rearmost vehicle.
4. Loco Pilot shall ensure that the rear-most four pistons are in proper working order if no Guard is provided at an intermediate station or at crew changing station.
5. Loco Pilot shall ensure that the required amount of vacuum/air pressure is provided in the brake-van before singing BPC.
6. Vacuum/air pressure gauge shall be provided to Loco Pilot.
7. Tail board/Tail lamp must be fixed to the last vehicle.
8. SM shall issue caution order with an endorsement 'train is to run without Guard'.
9. SM shall advise to SCOR under exchange of PNs who will inform the Station Masters en route. The SM will inform cabins and gates under exchange of PNs
10. Where IB signal is provided, the SM shall not dispatch a train in rear of this train up to IBS unless the train w/o Guard reaches the station ahead.
11. In Automatic block system, no train shall be allowed to follow the goods train without Guard until it reaches to next reporting station.
12. The SM/SWM/cabin man shall ensure that the train has arrived complete and is standing clear of the fouling mark if such a train stops at a station..
13. During tempestuous weather, total interruption of communication and TSL working, running of trains without Guard is strictly prohibited.
14. Extra detonators should be carried by the Loco Pilot.
15. While going for protection, care shall be taken that Loco is not deserted if it is on rails.
16. When encounters trouble en route
  - a. Assistant Loco Pilot should check and attend the trouble
  - b. Within station limits the help of C&W staff or points man should be taken

- c. The Assistant should ensure the continuity.
- d. The Loco Pilot should regulate the speed depending on the 'feel test' conducted by him.

**Note:** a. running of passenger carrying train without guard should not be permitted

b Two empty coaches or saloons may be permitted to run between HYB—SC—KCG and BZA— GNT. without Guard

c. Running of goods train without guard should not be permitted if last vehicle is not b/van

**7) Write short notes on a. Hot axle/Hot Box    b. working of damaged vehicle/engine**

**a) G.R. 4.29 Hot axle/Hot Box.**

Symptoms of Hot axle bearing]

- a] Smell
- b] Smoke
- c] Whistling sound
- d] Flame

Symptoms of Hot Box [Seizure of Roller

- a] Splashing of oil
- b] Smell of burnt grease
- c] Discolourisation of paint on hot box plate
- d] Red glow during night
- e] Metallic sound
- f] Skidding of wheels
- g] Tilting of springs

1. If hot axle box is found at a station, where the C&W staff is not provided, the vehicle shall be detached from the train.
2. If hot axle is found between stations, train shall be brought to a stand immediately. Examine the axle box and attend it.
3. In case of hot axle, Loco Pilot shall exercise his discretion with regard to the restricted speed at which it is safe.
4. The SM receiving advice of Hot axle, receive the train on Main line. Loco Pilot can enter station.
5. If it is not possible to receive the train on main line, train shall be brought to a stop at FSS and receive on any line. When signals are taken off for loop line, LP shall stop the train at FSS and enter station.
6. On arrival at station hot axle wagon shall be examined by C&W Staff or it has to be detached.
7. It will be attached only after attended by TXR staff and given 'Fit to run' certificate.
8. Wagons involved in accident, should be moved only with the permission of DRM & 'Fit to run" certificate given by TXR.

**b) Attaching of Damaged Vehicle/ Engine(S.R.4.24.4)**

1. It shall be attached in rear of the B/Van of Goods/ Mixed train during day light hours and clear weather only.
2. It shall be attached on receipt of written advise in duplicate from TXR/SSE(loco)
3. Only one such vehicle/engine is permitted.
4. Speed shall be maintained as specified in the 'Fit to Run Certificate'.
5. At Sun set or when view is not clear it shall be detached at the first station and the Certificate shall be handed over to the SM on duty.
6. It shall be escorted by the staff of Mechanical department.
7. Copy of the certificate should be submitted along with CTR.

**8) What are the duties of Loco Pilot/Guard from sign On to Sign off?**

**Duties of Engine crew from sign ON to sign OFF (G.R/S.R 4.30 to 4.61)**

**Sign on duty**

1. Read all the safety and technical circulars duly understanding the content and acknowledge.
2. Read the caution orders prevailing on the day for your train.
3. Undergo breathalyzer test.
4. Ensure all personal equipment available in your line box.
5. Check walkie-talkie, PT Phone for proper working.
6. Ensure spare spectacle is available.
7. Ensure latest correction slips are available in G&SR.
8. Sign ON at stipulated time and ensure all the columns are properly filled.

**On taking charge of the Loco**

1. Check the log book for any previous remarks.
2. Check the working of Flasher light, head light, marker lights, horns and wipers.
3. Ensure fire extinguisher and wooden wedges are available.
4. Check for any abnormality in under gear.
5. Check availability of dry sand & working of sanders.
6. Check validity of BPC.
7. BPC is invalid or at loading/unloading point or clearing stabled load, GLP check shall be conducted.

8. Check caution order is pertaining to the section duly signed by SM of the station.
9. Ensure his engine is in proper working order.
10. Ensure the proper locking of CBC and availability of safety pin.
11. In case of coupling of CBC coaches, ensure the CBC are coupled properly and requisite number of shims are provided.
12. Ensure that the hose pipes are connected properly between the engine and first vehicle.
13. Ensure prescribed level of vacuum/airpressure in the loco.
14. In case engine/Vehicle attached/detached at the station, brake continuity test will be conducted.

### **Starting a train from station**

1. A Loco Pilot shall not start his train from a station without the authority to proceed.
2. Before starting the train Loco Pilot shall satisfy himself that all correct fixed signals where required starting permit or PHS are given.
3. Loco Pilot shall satisfy himself that the line before him is clear of visible obstruction
4. Loco Pilot shall satisfy himself that Guard has given the signal to start.
5. After getting starting signal from Guard, Loco Pilot shall give one long and one short whistle.
6. After starting Guard shall exchange all right signals with Loco Pilot. Loco Pilot shall acknowledge it by giving a long whistle in addition to exchange of all right signals..

### **On the run in the block section**

1. Loco Pilot and assistant Loco Pilot shall keep good look out while the train is in motion.
2. They shall identify each signal and call out the aspects of the signal to each other.
3. They shall also call out similarly when the train approaches the engineering indicators and display boards in the electrified section.
4. They shall look back frequently during the journey to see whether the train is following in a safe and proper manner, during night verify that the side lights are burning.
5. Loco Pilot shall give a intermittent long whistle when he sees whistle boards till he passes LC gates etc,
6. Exchange all right signals with the Guard and Loco Pilot of the trains proceeding on adjacent line. Loco Pilot should exhibit danger hand signals, if they noticed any danger on that train.

7. Exchange all right signals with Guard when the train has passed over the summit of a Ghat.
8. When in doubt regarding any danger to the safe running of trains, the Loco Pilot shall stop short of the danger and proceed only after satisfying himself that it is safe for him to proceed.
9. The Loco Pilots/Assistant Loco Pilots have to pay special attention after passing permanent way gangs on line or a manned level crossing gate to see whether any danger signal is being exhibited by them, warning the Loco Pilot /Assistant Loco Pilot of a danger of an accident
10. While passing through the station, in addition to exchange of all right signals, LP shall give a continuous whistle.
11. When train has stopped at FSS without a apparent cause, LP shall sound continuous whistle and after five minutes send ALP to the station/ cabin to warn the SM.
12. Whenever a train is stopped on a gradient for any reason like accident loco failures apply A9 and SA9.
13. Loco Pilot shall sound the prescribed whistle wherever required.
14. In case of EMU/DMU use bell signals for communication with guard.

### **On Arrival**

1. LP shall avoid overshooting of stop boards or nominated place or starters.
2. He shall ensure passenger carriages do not overshoot the platform.
3. LP shall bring his engine to a stop as close as possible to the starter/fouling mark/stop board to ensure clearing of fouling mark.
4. When a train carrying passengers has been brought to a stop at a station, whether alongside, beyond or short of platform the LP shall not move it, except under orders of guard or to avert an accident.
5. LP shall not leave engine when on Duty or properly handed over.

### **Sign off**

1. Sign off duty in the concerned registers.
2. Under go breathalyzer test.
3. Record the observations in the signal/track/other failure registers.

### **Duties of Guard from sign ON to sign OFF (G.R/S.R 4.30 to 4.61)**

#### **Sign on duty**

- a. Read all the safety circulars duly understanding the content and acknowledge.
- b. Read the caution orders prevailing on the day for your train.
- c. Undergo breathalyzer test.
- d. Ensure all personal equipment available in your line box.

- e. Check walkie-talkie, PT Phone for proper working.
- f. Ensure that spare spectacle is available.
- g. Ensure latest correction slips are available in G&SR.
- h. Sign ON at stipulated time and ensure all the columns are properly filled.

### **On taking over charge**

1. Guard shall satisfy himself
  - i. That the train is properly coupled.
  - ii. That the train is provided with the prescribed brake power.
  - iii. That the train carries tail board or tail lamp and side lamps and burning brightly.
  - iv. communication between the Guard and the Loco Pilot, is in proper working order,
  - v. As far as he can ascertain, the train is in a state of efficiency for travelling.
2. Guard shall ensure that the marshalling on trains is as per rules.
3. Guard shall ensure that the side and end doors are properly closed and locked.
4. Before signing the BPC, the Guard shall ensure that the TXR has signed in the BPC that:
  - The doors of all carriages and wagons are in proper working order and can be closed and fastened.
  - Vestibule connections are properly secured and the doors, when necessary, are locked and bolted.
5. Check validity of BPC.
6. BPC is invalid or at loading/unloading point or clearing stabled load GLP check shall be conducted.
7. Check caution order is pertaining to the section duly signed by SM of the station.
8. Ensure prescribed level of vacuum/airpressure in the brake van.
9. In case engine/Vehicle attached/detached at the station, brake continuity test will be conducted.
10. The Guard of the passenger carrying train shall ensure before departure of the train that the BV Equipment is correctly available, OTL is in locked condition and the seal is put on.

### **Starting a train from station**

1. Loco Pilot shall satisfy him self that Guard has given the signal to start.
2. Guard shall not give starting signal unless he gets permission of Station Master by announcement through PA system or station bell.
3. Guard shall not give starting signal unless he satisfies that no person is travelling in any vehicle not intended for the use of passengers.



4. After getting starting signal from Guard, Loco Pilot shall give one long and one short whistle.
5. After starting Guard shall exchange all right signals with Loco Pilot. Loco Pilot shall acknowledge it by giving a long whistle in addition to exchange of all right signals.

#### **On the run in the block section**

1. During the journey including halts at stations, every Guard shall keep a good look-out
2. Guard satisfy himself from time to time that the tail board and tail lamps are in position that the train is complete in every respect
3. Guard shall satisfy that train is proceeding in a safe and proper manner.
4. Guards have to verify application of brakes by observing the drop in BP pressure gauge provided in SLR/BV.
5. To assist the Loco Pilot for application of train brakes, when requested by LP, Guard has to apply emergency brake valve.
6. When train stopped at FSS, Guard shall check up that tail board/tail lamp exhibited properly and shall maintain vigilant attitude towards rear.
7. When train stopped at FSS for more than 15 minutes, Guard shall protect the train in rear as per Rule 6.03
8. If Guard notices any dangerous condition in the train, he shall try to attract the attention of the LP. If he fails to attract the attention of the LP, Guard may in case of emergency apply the automatic brake to stop the train.
9. Exchange all right signals with the Loco Pilot and Guard of the trains proceeding on adjacent line. Guard should exhibit danger hand signals, if he noticed any danger on that train.
10. Exchange all right signals with the LP, while passing through the station, when the train has passed over the summit of a Ghat and before entering into girder bridges.
11. When passing a manned level crossing, the Guard shall look back to see if any signal is given by the Gateman to indicate that anything is wrong with the train.
12. In case of EMU/DMU use bell signals for communication with LP.
13. When LP asks assistance by three short whistles, Guard shall immediately apply the hand brake.

#### **On Arrival**

1. Guard to see that the train is stopped clear of fouling mark. Exchange PN with station wherever required. If fouling mark is not cleared he shall inform station Master and exhibit stop hand signals to prevent any movement over fouled line.
2. On arrival when it is possible to observe the signals, Guard shall see that signals are put back to ON. If not inform SM.
3. Guard shall ensure that before detaching engine from the formation, hand brake of brake van and hand brakes of wagons and other precautions are taken.

4. When a train carrying passengers has been brought to a stop at a station, whether alongside, beyond or short of platform the LP shall not move it except under orders of guard or to avert an accident.
5. Guard shall not leave the brake van till properly handed over.
6. Hand over the brake van equipment, train papers, luggage and parcels.

### **Sign off**

1. Sign off duty in the concerned registers.
2. Under go breathalyzer test.

## **9) Write in detail about the 'Exchange of All Right signals'**

### **G.R.4.42 Exchanging of all rights signals**

- 1) All right signals are exchanged between Loco Pilot and Guard to ensure that the Guard is in his brake-van and that the train can proceed.
- 2) All right signals are exchanged between Guard, Loco Pilot and Station Staff to ensure that the train is running in a safe and proper manner.
- 3) The All right signal is given by holding out the green flag horizontally by day and by waving the green light horizontally by night.
- 4) This signal shall normally be exchanged on the platform /station buildings side (station limits) or left side (out side station limits) unless the track is on curve, in which case signals be exchanged from the other side.
- 5) All right signal shall be exchanged as detailed below.
  - i. When train starts after stopping at station.
  - ii. When train starts after stopping between stations
  - iii. When train running through a station.
  - iv. While passing through ghat sections.
  - v. While approaching important girder bridges
  - vi. When any train passing on the adjacent line / s.
  - vii. When last vehicle has cleared the speed restriction zone
  - viii. After clearance of the loop line cross over points, when train passes through loop lines at a station.

#### **I. When train starts after stopping at station.**

- When train starts, the Guard shall look back and satisfy him self that no stop hand signals is given by station staff, he shall then exchange the "All Right "signal with the Loco Pilot.

- All right signal shall be exchanged until the engine has passed the advanced starter / LSS except where the Guard hand signal cannot be seen for any reason, the Loco Pilot guided by the signals exhibited by Station Master and cabin staff.
- If the Loco Pilot does not get the signal from the Guard or the SM and the cabin staff, he shall stop the train and ascertain the cause.

## **II. when a train starts after stopping between stations:**

- After the train has started the Guard and the Loco Pilot shall exchange the all right signals.
- If the Loco Pilot does not get the signal from the Guard, he shall give two short vigils.
- If there is no response, Loco Pilot shall stop the train to ascertain the cause.

## **III. When train runs through a station:**

- When train runs through a station, SM shall exhibit all right signals to the train him self standing on the plat form side. Similarly Loco Pilot and Guard shall be on the look out for SM / C.ASM / SWM / C.MANs all right signals. A competent railway servant shall be sent to off side to exchange all right signals.
- Any thing unusual is noticed during passage of the train, the SM shall show stop hand signals to stop the train. If it is not possible to stop the train advise the LP through Gateman or IB telephone or TPC and inform SM of advance station to stop the train and examine. Trains on adjacent line may be permitted after issuing caution order.
- In case they do not receive signal from Station Master they shall exercise extra caution to ensure that all is right for the train to run through. Guard shall report the matter in CTR.
- All right signal shall be exchanged till engine has passed advanced starter /LSS
- If the Loco Pilot and the Guard of the train cannot see each others all right signals for any reason they shall observe the signals exhibited by the SM and the station staff and ensure that the train is proceeding in a safe manner.
- If the Loco Pilot of trains fails to exchange the all right signals or /and fails give a continuous whistle, the SM shall advice the station in advance to stop the train and ascertain the reason.

## **iv) While passing through the Ghat section:**

After the train has passed over the summit of ghat, the Guard and the Loco Pilot shall exchange all right signals.

- V. While approaching important girder bridges** the Guard and the Loco Pilot shall exchange 'ALL RIGHT signals. If the Loco Pilot is not getting the Guard's signal even after giving two short whistles he should not take the train on to the bridge.
- VI. Loco Pilots and Guards** of trains will be responsible towards any train passing on the **adjacent line/s** and exchange 'All Right' signal with the Guard and Loco Pilot of such trains.
- VII.** The Guard shall exhibit the all right signal to the Loco Pilot after the last vehicle has **cleared the speed restriction zone**. The Loco Pilot can resume normal speed.
- VIII. After passing loop line cross over points.**
  - 1. Guards to exchange all right signals after whole of the train passes the loop line cross over points.
  - 2. A board with words "loop line cross-over points cleared" is to be provided at stations at a distance of 720 meters after the loop line cross over point.
- Guards of trains provided with "Air conditioned" SLR/LR should show the "all right signal" to station staff by switching on the flickering tail light and to the Loco Pilot by speaking on telephone.

**10) What are the duties of LP and Guard when train held up at FSS?**

**G.R. 4.44 Train held up at home /FSS signal**

- 1) When train held up at home /FSS for 5 minutes or more without any apparent cause, the Loco Pilot shall sound continuous whistle to warn guard.
- 2) Brakes man or Asst. Loco Pilot shall proceed to the cabin or station to warn the station master.
- 3) Brakes men or Asst. Loco Pilot proceeding to the station shall show stop hand signals towards the station.
- 4) After 15 minutes guard irrespective of cause shall protect the train in rear as per GR 6.03.
- 5) If in the mean time the signal is taken off or authority received by Loco Pilot he shall sound continuous whistle to recall guard.
- 6) Exchange hand signal with guard before starting the train.
- 7) In the case of a train not accompanied by a guard, these duties shall devolve on the Loco Pilot

**11) Describe the procedure for working of Material train and stabling of it.**

### **Working of Material train (S.R.4.62)**

1. When material train is required to run for engineering purposes, the DRM shall make arrangements in good time advising the particulars of the work to all concerned.
2. In case of emergency arising for breaches floods, SM or other senior official can order material train on the application of the engineering branch. The running and stabling of material train shall be arranged by SCOR.
3. A material train shall work only between sunrise and sun set.
4. During emergency a material train shall work between sunset to sunrise after getting permission from DRM.
5. DRM shall give permission subject to following conditions
  - a. Work spot shall be lighted.
  - b. second class accommodation to labour
  - c. Guard shall ensure no labour traveling on MT.
6. At least one brake van shall be attached in rear of the train
7. The authority to proceed for the material train during the line block is
  - i. When the train is coming back to the same station where it has started is – T.462 and
  - ii. When the train is proceeding to the next station after completion of work – T/A.462
8. The speed of the material trains shall not exceed the speed laid down for goods trains on section.
9. The Guard, the Loco Pilot of the materials trains shall protect the trains as per GR 6.03 when working between stations.
10. A material train shall not be divided except in emergency.
11. In such cases only on the authority and personal supervision of PWI who shall responsible to take precautions before dividing.
12. Guard shall secure the formation before dividing.
13. Dividing of the material train is not permitted on a gradient of 1 in 100 or steeper.
14. No material which has been unloaded shall be left above rail level infringing the standard dimensions.
15. When the engine is pushing when guard is traveling in leading vehicle (B/VAN) the speed shall not exceed 25kmph on straight line and 8kmph on turnout and when Guard is not traveling in the leading vehicle the speed shall not exceed 8 kmph.
16. A material train enters or works in the loco yard with the permission of the LF.
17. Intensively checked BPC is valid for 30 days subject to examination of TXR once in a week.

**12) Describe the procedure for working of Track Tamping Machine (TTM) and stabling of it.**

**Track Tamping Machine (TTM)(S.R.4.65)** is a self propelled vehicle fitted with head light and two parking lights and is having 2 parts, viz. the engine and the tamping-cum-leveling units.

- The machine can run both by day and night.
- TTM will work under the direct supervision of an official not less than PWI, who is responsible for taking Traffic Block.
- No person shall be permitted to drive a TTM unless he is in possession of a competency certificate issued by DRM.

**Working**

1. The TTM shall be treated and signaled as a train.
2. The sanction of CRS shall be available for working a TTM on the relevant section.
3. The TTM shall not be permitted to work during Total Interruption of Communication.
4. The TTM shall be allowed to work during Traffic block period only.
5. The person in charge shall inform the SM in writing where he intends to stop in the mid section, whether he will proceed to next station or return to the starting station.
6. The SM shall issue authorities as follows:
  - Work & return = T / 465
  - Work & clear next block station = T / A 465 –

When more than one machine is permitted

- T / 465(1<sup>st</sup> TTM) and CO s (for following units) -(return to same station) or
  - COs for preceding and T / A 465 (last unit) (proceeding to next block station)
  - the person in-charge shall personally supervise the movement by travelling in the rear most machine.
7. The maximum speed of the TTM shall not exceed 40 KMPH, in block section and 10 KMPH over points and crossings.
  8. If it is required to push back the following precautions shall be observed ,
    - a) The official in-charge shall travel in the leading machine exhibiting hand signals to the following machine,
    - b) The speed while pushing back shall not exceed 25 KMPH,
    - c) The official in-charge of leading machine shall be responsible to ensure the all L/C gates are closed against road Tfc before passing,
    - d) On Double line the In-charge shall stop the machine at LSS of the line or opposite to FSS of the adjacent line. Machines may be received on pilot in

memo after ensuring that all points are correctly set and facing points are locked. On single line stop at FSS and machines may be received by taking off signals.

- e) On arrival at the station the In-charge shall sign in the TSR in token of complete arrival of the unit/ Units,
- f) Only after this the SM shall clear the Block Section.

### **Stabling**

- The SM shall arrange stabling of TTM in consultation with SCOR,
- It shall normally be stabled on a non running line,
- When a TTM is stabled on running line, the mechanical hand brakes shall be applied, chained to the rails, lever collars/ slide pins shall be used, no shunting shall be permitted on to that line,
- A TTM shall not be moved inside the Traffic yard without the permission of SM and into the LOCO yard without the permission of CCC.

### **13) Write in detail about the Freight Train Examination (BPC) and GLP check Brake power certificate (freight trains) (C&W JPO NO. 5/2008)**

- It is a certificate to be prepared in duplicate by TXR after examining the formation
- It will be signed by TXR, guard and loco pilot for goods train.
- It should be possessed by the LP till the train completes its journey
- There are only 3 types of examinations in SCR
  - CC rake examination
  - Premium end to end examination
  - End to end examination

#### **CC rake examination (Periodical Monitoring Examination)**

- Formed from air brake stock only.
- 100% brake power during PME.
- Validity – 7500 kms or 35 days whichever is earlier
- Black Rocket, Red Star, Green Arrow, Red arrow, Blue Flame, Galaxy etc. are some examples of CC rakes,
- The rake will move over any station to any station in the zones mentioned on BPC
- LP must record the km run and sign with name, base and date, other wise BPC valid for 20 days only

- The integrity of rakes to be maintained and any changes to be done only during PME at base depot only
- BPC colour shall be yellow

#### **Premium end to end examination**

- Formed from air brake open and covered stock only
- Examination points – BPA, RDM, GY, nominated lines of BZA, COA, SNF
- BPC is valid for 12 days
- Brake power – 95%
- Colour of the BPC - green
- To avoid examination in loaded condition 3 days grace period is permitted.
- After a lapse of 15 days even a loaded premium rake shall be offered for examination at the first TXR point in the direction of movement
- Loading after 12<sup>th</sup> day should not be permitted.

#### **End to end examination**

- This is for all stocks
- Validity – up to loading point & further up to unloading point.
- At loading point, the operating/commercial staff shall ensure that the destination is mentioned on BPC
- LP shall not move the loaded rake from the loading point unless the destination is clearly mentioned on BPC
- Green colour BPC – air brake
- Brake power –90 % - air brake
- Pink colour BPC – vacuum brake
- Rake power –85 % - vacuum brake
- Empty (vacuum) rake must reach the loading point within 4 days including the day of issue.

#### **Intensive examination for material train**

- Must have a nominated base depot
- Trains must touch the base depot at least once in a month
- Brake power – 90%
- BPC valid for 30 days subjected to the TXR staff endorsement once in a week



## **BPC become invalid**

### **cc rakes**

- Rake integrity disturbed by more than 4 VUS
- Stabled for more than 24 hrs at any station except loading/un loading point. Moved to any zone not mentioned in BPC
- Over due rakes is not moved in the direction of PME depot
- Running more than 35 days/7500km

### **Premium rakes**

- Rake integrity disturbed by more than 4 VUS
- Stabled for more than 24 hrs at any station except loading/un loading point.
- Moves for loading after 12 days
- Empty rake running after the 12<sup>th</sup> day.

### **End to end rakes**

- Rake integrity disturbed by more than 4 VUS/ 10 FWU
- Stabled for more than 24 hrs at any station except loading/un loading point.
- Destination station not mentioned
- Un signed corrections of destination name
- Empty (vacuum) rake must reach the loading point within 4 days including the day of issue.

## **GLP CHECK**

### **GLP check - circumstances**

- At the station after loading/un-loading or tipping (where there is no TXR) or while clearing stabled stock from a station, or in case of in valid BPC, the GLP check shall be conducted.
- At every loading point BPC revalidation should be done by GLP check for all type stock except steel consignment (TXR examination)
- Un loading point(post tipping examination) GLP check have to be done at ICL/KMH, L&T/JUR, YA & RTPP/MOO
- For end to end rakes, if the unloading point is not a TXR point.
- When the due cc rake is detected in loaded condition it shall be subjected to GLP check and pushed to destination. From there it shall be offered for examination
- Detected in empty condition it shall be pushed to nearest TXR point

- After examination it is permitted up to base depot only.(endorsement)
- Where back loading is done at a non TXR station.

Running of trains on GLP check will be permitted only up to first train examination point in the direction of movement. The distance does not exceed 400km

### **GLP check list**

- 1) Rake integrity is not disturbed by 4VUs or more than 4 VUs. Only intensively examined wagons given fitness by TXR may be attached.
- 2) All CBCs and Air hoses are properly coupled and locked
- 3) All the cut off angle cocks are in open condition
- 4) The last cut off angle cock in closed condition.
- 5) Empty/load device handle is in proper position.
- 6) There are no loose fittings/hanging parts like push rod, pull rods, break beam, safety brackets, brake blocks and CBC operating handle etc. which may endanger safe running of the train.
- 7) There are no broken or displaced springs.
- 8) There are no displaced Elastomeric pads.
- 9) Hand brakes are released
- 10) Doors of wagons are closed and locked/secured
- 11) Ensure visually that there is no excessive body bulging, which is dangerous.
- 12) Any symptoms of Hot axle like de- colourisation of bearing, heavy grease oozing, breakage of axle box cover plate, end plate etc.
- 13) Any other abnormality noticed which may endanger the safety and action taken.
- 14) Continuity of the brake pipe pressure is confirmed through VHF/Whistle code before starting the train.
- 15) Efficiency of brake power
- 16) Percentage of brake power
 
$$\frac{\text{Total No. of Cylinders} - \text{Number of in operative cylinders}}{\text{Total No. of Cylinders}} \times 100$$
- 17) Guard and Loco pilot shall prepare a memo jointly on a plain sheet in triplicate indicating the brake power and deficiency, if any, and shall append their signatures and both of them shall retain a copy of the same. Guard should obtain SM/YM's endorsement on two copies of joint memo and hand over the third for SM/YM's record. SM/YM will inform the section controller and obtain clearance for the train to move.

### PROFORMA FOR GLP CHECK

1	Date	:			
2	Train & Loco No.	:			
3	From.....	To			
4	BPC No. ,Date & Station of issue	:			
5	Loaded at .....	or	Tipped at ....		
6	Time of locomotive attached	:			
7	Total Load	:			
8	Air/Vacuum levels	TE.....	BV.....		
9	Brake power percentage.....	No. of cyl...	No. of IOP's ....		
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; text-align: center;"> <p>.....</p> <p>(Signature of LP)</p> <p>Name.....</p> </td> <td style="width: 50%; text-align: center;"> <p>.....</p> <p>(Signature of Guard)</p> <p>Name .....</p> </td> </tr> </table>				<p>.....</p> <p>(Signature of LP)</p> <p>Name.....</p>	<p>.....</p> <p>(Signature of Guard)</p> <p>Name .....</p>
<p>.....</p> <p>(Signature of LP)</p> <p>Name.....</p>	<p>.....</p> <p>(Signature of Guard)</p> <p>Name .....</p>				

#### Brake continuity test

- 1) This test is done to check the continuity of the brake pipe through out the trains.
- 2) When required
  - a) Attaching engine to the front of the trains (fresh/additional)
  - b) Attaching engine to the rear of the trains (fresh/additional)
  - c) Attaching vehicle to the train
  - d) Detaching vehicles to the train other than extreme rear end
  - e) After any brakes defect of irregularity which has affected the continuity of the brake system has been rectified.
- 3) Who shall carry out-Loco Pilot and Guard together
- 4) **Test procedure**
  - Step 1. 1) Keep automatic brake valve to running position.
    - 2) Create 5.0 Kg/cm<sup>2</sup> BP in loco
  - Step 2. 1) Keep automatic brake valve to off/Neutral Position
    - 2) Retain 4.0 Kg/cm<sup>2</sup> BP in loco.
  - Step 3. 1) Open the valve or cock of exhaust in brake the full air of BP pressure reduced to zero.

- 2) The valve/cock must then be closed in brake van.
- Step 4. 1) Observe the BP pressure in loco dropped to zero and does not rise again
- 2) If not dropped to zero check the position of automatic brake valve position in another control stand and c2 relay valve.
- Step 5. 1) If a correction is carried out in step 4 go back to step 3. Other wise go to step 6.
- Step 6. 1) Move the automatic brake valve to running position in loco 2) Check that 5.0 kg/cm<sup>2</sup> in brake pipe in registered in the loco and 4.8 / 4.7 kg/cm<sup>2</sup> in the last vehicle

**14) What are the rules for securing and stabling of the vehicles within station section and outside station limits?**

G.R.4.48, G.R.4.49, G.R.4.57& G.R.5.23

**G.R.4.48 Permission of Guard to detach engine from train outside station limits  
Detaching engine of Passenger train**

1. Only in case of emergency
2. Hand Brakes of all SLRs available shall be securely applied
3. Sprags/wedges securely jammed under farthest wheels of the rake in the direction of falling gradient.
4. Vacuum/ Air pressure created and try to push or pull the rake and then drop the vacuum/air pressure.
5. The interval from the time engine is detached to the time it is again attached shall not exceed 45 minutes

**Detaching engine of goods train**

1. It shall be secured as per the gradient available in the section.
2. Gradient not steeper than 1 in 600 Guard shall apply Hand brake of BV and Hand Brake of 18 vehicles
3. If the Gradient is steeper than 1 in 600 than Guard shall apply Hand Brakes of BV and Hand Brakes of all the vehicles
4. LP shall also apply the Train Brake (A9) and ensure brakes are holding affectively on wheels before detaching.

**G.R. 4.49.** Whenever trains stopped on a gradient for any reason like accident, loco failure OHE supply failures, etc. it is essential to apply A9 and Loco Brakes (SA9)

#### **G.R.4.57 Detaching engine within station limits**

1. The train shall be secured as per the gradient in the station limits.
2. If the Gradient is not steeper than 1 in 600 than Hand brakes of BV or 6 vehicles shall be applied by the Guard
3. If the Gradient is steeper than 1 in 600 and not steeper than 1 in 260 than Hand Brakes of BV and 6 Vehicles or 12 Vehicles shall be applied by the Guard.
4. If the Gradient is steeper than 1 in 260 than Hand brakes of BV and 12 Vehicles or 18 vehicles shall be applied Guard.
5. SM is also responsible to ensure hand brakes of vehicles are applied before engine or BV is detached from the train.

#### **G.R.5.23 securing of vehicles at station**

1. SM shall see vehicles standing at station are properly secured so that they do not foul any running line.
2. Vehicles Brakes shall be applied if provided
3. Be inside fouling marks and facing points locked that it cannot escape.
4. Be inside locked scotch block or derauling switches.
5. Be spragged or chained and padlocked.
6. Be coupled with other vehicle which is secured
7. All cross over giving access to running lines kept clear of vehicles
8. The padlock keys of scotch block, derails, safety chains etc. shall be in the personal custody of the SM on duty.
9. For Roller bearing wagon the following precaution shall be taken in addition
  - i. Hand brakes shall be fully tightened.
  - ii. Wooden wedges to be used,
  - iii. Wherever possible, stabled on isolated lines,
  - iv. The points shall be set against the line and points clamped and padlocked and keys kept in personal custody of SM,
  - v. At least two safety chains shall be used and locked,
  - vi. When stabled at least six wagons hand brakes from each end shall be applied tightly in addition to the hand brakes of the BV. If hand brakes of any of the first six wagons cannot be applied, hand brakes of subsequent wagons should be applied till six wagons in total are achieved.
  - vii. Brakes shall be operated by station staff under the supervision of SM/Guard of the train
  - viii. Whenever shunting to be performed the
    - Maximum impact speed for one vehicle is 5 kmph and

- Maximum impact speed for group of 5 wagons, coupled together with transition couplers shall not exceed 2 to 3 kmph.

**15) What are the duties of Loco Pilot in case of Alarm chain is pulling**

- The Loco Pilot shall bring the train to stand (Apply A9) clear of tunnels, bridges and other unsuitable place.
- Give 0 0 \_\_ whistle code frequently.
- After the train come to stop send the assistant Loco Pilot to give assistance to guard.
- Identify the coach by body side indication lamp and air leakage sound.
- The guard shall question the occupants of the carriage and try to find out the name, address of the person who used it.
- Guard shall reset the disc incase of air brake stock use the key supplied/fixed for setting. Wait for 1 ½ minute to release the brakes.
- Report the matter at the next important station where the train is booked to stop.
- The guard shall record the fact on CTR and send detail report to DRM.

## CHAPTER V

### 1) Write down the procedure of

- a) Reception of a train on an obstructed line
- b) Reception of a train on a non-signalled line.
- c) Departure of a train from non-signalled line.

#### a) Reception of a train on an obstructed line(G.R.5.09)

In case of reception of a train on an obstructed line, the SM shall

1. The essential, wherever possible intimate the Loco Pilot through the rear SM about the reception on an obstructed line.
2. Keep the reception at 'ON' ensure that the signal/s are not taken 'OFF'
3. Ensure that all points leading to said line are correctly set and facing points locked.
4. After stopping the train at the relevant stop signal, it may be received by authorizing the Loco Pilot to pass the stop signal at 'ON'.
  - a. By taking off the calling-on signal, if provided or
  - b. Through signal post telephone if provided or
  - c. By delivering a written authority (T/509) and piloting it.
5. Stop the train at facing point leading to the obstructed line until hand signalled forward by a competent railway servant.
6. Stop hand signal shall be shown at a distance of 45 m. from the obstruction.
7. The Loco Pilot shall keep his train well under control and be prepared to stop short of an obstruction. (not exceeding 15Kmph).

#### b) Reception of a train on a non-signalled line(G.R.5.10)

**SM** shall ensure that

- a) The train is brought to a stand at FSS.
- b) The line is clear up to the trailing points or up to the place at which the train is required to come to a stand.
- c) All the points are correctly set and facing points locked

Loco Pilot is authorised to pass signal at 'ON' through T/509 and pilot the train by competent railway servant

The Loco Pilot shall proceed cautiously and be prepared to stop short of any obstruction. (not exceeding 15Kmph).

c) **Departure of a train from non-signalled line.** (G.R.5.11/12)

All the points have been set and lock the facing points.

SM shall obtain Line Clear.

Issue authority to proceed to the LP (if ATP is not tangible T.511 also shall be given).

If a line is provided, with common departure signal in addition to ATP, a written permission for start (T.512) shall be given and common departure signal shall also be taken 'OFF'.

## **SHUNTING**

Shunting means the movement of a vehicle or vehicles with or without an engine or of an engine or any other self-propelled vehicle for the purpose of attaching, detaching or transfer or for any other purpose. The following are the kinds of shunting:

**Flat Shunting:** When vehicles are shunted by continuous forward and backward movements the locomotive remaining attached to the vehicles, it is known as flat shunting.

**Loose shunting:** means pushing of vehicles by an engine and allowing them to run forward with the engine un-attached.

Loose shunting of or against empty or loaded oil tank wagons, trucks loaded with heavy machinery/rails/timber, cranes, loaded explosive vans, livestock wagons, wagons labelled 'not to be loose shunted' coaching vehicles etc., is prohibited.

**Fly shunting:** It is a shunt movement in which two or more vehicles are given a push by an engine and or separated the points by the smart reversal of points within the vehicles in order to send them on to different lines. Fly shunting is allowed only in hump yards.

**Hump shunting:** It is a kind of fly shunting in large yards where the shunting neck has camel hump to create an artificial gravity when wagons are pushed to its apex by the shunting engine and then detached; they roll down to specific classification lines by the force of gravity because of the steeply falling gradient towards the classification lines.

**Hand shunting:** Movement of vehicles from one place to another by employing manual labour is called hand shunting

## **2. What is shunting and describe in detail about control and responsibility of shunting (shunting precautions)**

### **Control and responsibility for shunting (G.R/S.R 5.13/5.14)**

1. Shunting operations should be controlled by fixed signals or hand signals or by verbal instructions.
2. The Loco Pilot shall, before moving on the stop signal taken off for him, observe the hand signals of the railway servant conducts shunting. The shunting staff



need not accompany during shunt movements of light engine(s) on to a free line governed by fixed signals

3. At the stations where separate shunting staffs are employed, they shall attend to all shunting operations and at all other stations shunting operations shall be supervised by Guard.
4. In the case shunting of trains from one line to another across main line or wagons containing explosives the shunting operations shall be carried out under personal supervision of SM.
5. Loose shunting of or against empty or loaded oil tank wagons, trucks loaded with heavy machinery/ rails/timber, cranes, loaded explosive vans, livestock wagons, wagons labelled 'not to be loose shunted' coaching vehicles etc., is prohibited.
6. Carriages occupied by passenger shall not be moved for shunting purposes without the orders of the SM and also the Guard of the train who will jointly responsible to warn and prevent accident to the passengers in the carriage or those who entrain or detrain thinking that the train is leaving.
7. In the case the shunt movements are governed by shunt signals or starter signal, which detect the facing points, the shunt signal or starter shall be taken off and in all other cases the facing points shall be clamped/cotter bolted and pad locked.
8. Outer, Home and LSS shall not be taken off for shunting purpose.
9. The speed during shunting operations shall not exceed 15kmph. In case of vehicles contains inflammable liquids, explosives. Coaching vehicles speed is restricted to 8kmph.
10. Slip coaches shall not kept on blocked line in the rear of passenger carrying trains.
11. No engine should be allowed on any running line at a station occupied by a train carrying passengers, except train engine or banking engine or shunting engine.
  - i) If it is unavoidable to allow the engine(s) in rear of a passenger carrying train, such engine(s), shall be accompanied and hand signalled by shunting staff and stopped in rear of passenger carrying train at a safe distance.
  - ii) The Shunter/Loco Pilot of light engine(s) shall be informed
  - iii) All such light engine(s) should not be left unmanned.
12. When shunting is carried out for attaching/detaching the coaches/slip coaches/saloons/dead engines on passenger carrying trains, shunting engine with or without coaches shall first come to a halt 20mts away from the train and there after perform shunting carefully.
13. When vehicles moved by an engine for attaching to passenger train, the vacuum brake shall be connected up so that adequate brake power shall be available.
14. In case of shunting on goods trains at intermediate station the vacuum brake shall, as far as possible, be connected with engine.

### **Shunting on steep gradient: (G.R/S.R.5.20)**

1. Gradients of 1 in 400 or steeper and 1 in 260 or steeper are considered as steep gradients in respect of roller bearing stock and other than roller bearing stock respectively.
2. At a station yard where the outer most points are on a steep gradient, shunting shall be done only with the engine attached towards the falling side of the gradient.
3. Hand shunting of the roller bearing stock is prohibited at a yard where the outer most point are on or with in 100mts of a steep gradient.

### **3. What are the different authorities to be given for shunting on class 'B' station?**

#### **Single line (Appendix XII)**

**1. Within Station Section :** T/806\*

#### **2. Beyond Station Section up to Opposite FSS**

In Token Section - T/806

In Token Less Section - T/806\* + SHK or T/806 + P.No.

#### **3. Shunting beyond opposite FSS:**

- a. Treated as Train movement
- b. Loco Pilot shall be given
  - i. ATP
  - ii. Manuscript memo to push back +T/806\*
  - iii. All Signals shall be taken OFF

**Shunting in the face of an approaching train:** Generally not permitted. Where permitted the following conditions shall be fulfilled.

- Permission is indicated in SWR,
- SLB/Advanced Starter is provided,
- Shunting warning board is provided in rear of FSS.

#### **Double line**

**Shunting within station section:** T/806\*

#### **Shunting beyond LSS (When block section ahead is free of train)**

##### **SM shall block forward and issue**

T/806\* + LSS Lever Key if any or

T/806\* + Taking OFF Shunt Signal below LSS if any Or

T/806 + P.No.

#### **Shunting beyond LSS (Following a train):**

It should be permitted by SWR

Same as above without a P.No. in T/806.

As soon as the preceding train clears the section, the line should be blocked forward, if the shunting is not completed.

**Shunting into block section in rear:**

The line should be blocked back

T/806 + P.No.

\* Where shunting operations are supervised by Guard/Assistant Station Master, Loco Pilot shall be given Form No.T/806 (Shunting Instructions Form) duly filled in.

\*\*At major stations where separate staff viz., out door Station Master/Yard ASM/AYM/ Shunting Jamedar/Shunting Master are provided for supervising the shunting, Form No. T/806 need not be given. Such stations shall be notified by the respective Sr.DOMs.

**4. Write about 12 operating forms and their significance?**

**1. T.369 (3b) AUTHORITY TO PASS STOP SIGNAL AT 'ON'**

- Authority to pass defective Outer/Home/Routing Home /Starter/Intermediate Starter/Advanced starter/IBS/Shunt Signal at 'ON'
- Printed on white paper, blue font
- Prepared in two foils LP/Record
- Speed restricted to 15 KMPH
- Signal Description and Number, line of admission mentioned
- Station name, date SM signature with stamp available.

**2. T.369 (1)(ADVANCE AUTHORITY BY REAR/NOTICE STATION**

- Advance authority to pass defective signals at next station
- Issued by SM of rear station
- White paper blue font
- Two foils- record/LP
- SR-15 kmph after passing the defective signal
- LP to pass defective reception signal at 'on' observing PHS at foot of signal
- Station name, date, SM signature and stamp available

**3. T.409 (DIVISIONAL/SECTIONAL CAUTION ORDER)**

- It is Divisional/Sectional Caution Order
- White paper blue or black font

- Prepared in four foils- record/LP/ALP/guard
- Station name, date, SM signature with stamp available.
- Stations between, km, speed to be observed and reasons mentioned in geographical order given.

#### **4. T/A 409('NIL' CAUTION ORDER)**

- ✚ It is 'NIL' caution order
- ✚ White paper , blue or black font
- ✚ Issued four foils LP/ALP/GD/record
- ✚ Issued at notice station
- ✚ Station name, date, SM signature and stamp available.
- ✚ Issued when no caution order between two notice stations

#### **5. T/462(AUTHORITY FOR MATERIAL RETURN TO SAME STATION)**

- ❖ Authority to proceed for material train
- ❖ White paper blue font
- ❖ Prepared in triplicate, record/LP/Guard
- ❖ Authority to go upto km, stop, work and return to the originating station.
- ❖ It has line clear ticket, authority to pass LSS at 'on' and CO
- ❖ Station name, date, SM signature and stamp available

#### **6. T/A.462 (AUTHORITY FOR MATERIAL TRAIN WHEN GOING TO NEXT STATION)**

- Authority to proceed for the material train.
- White paper, blue font
- Issued in three foils record/LP/GD
- Authority to go up to km, stop, work and proceed to next station.
- It contains line clear ticket, authority to pass LSS at 'ON' and CO
- Station name, date, SM signature and stamp available

#### **7. T/A.602 (AUTHORITY FOR LP TO ENTER OBSTRUCTED BLOCK SECTION)**

- ✓ Authority to proceed for relief engine/train into obstructed block section
- ✓ White paper with red font
- ✓ Direction Up/Dn written

- ✓ Prepared triplicate LP/GD/Record
- ✓ It contains
- ✓ Block ticket to proceed W/O L/C
- ✓ Authority to pass LSS at 'ON'
- ✓ CO 15 KMPH when view is clear and 10 kmph when view is not clear and go up to point of obstruction.
- ✓ LP, guard to acknowledge.
- ✓ Station name, date, SM signature with stamp available.

#### **8. T/B.602 (AUTHORITY FOR LIGHT ENGINE TO OPEN COMMUNICATIONS)**

- Authority for opening of communications during TIC on S/L
- White paper red font
- Prepared in two foils record/LP
- LP, GD to acknowledge in columns.
- Contains ATP W/O L/C, authority to pass LSS at 'ON' CO-15/10 KMPH Day/Night, Line Clear Enquiry Message and Conditional Line Clear message(with PN)
- Station name, date SM signature and stamp available.

#### **9. T/C602 (AUTHORITY FOR TRAIN ON DOUBLE LINE DURING TIC)**

- Authority for working of trains during TIC on D/L
- White paper red font
- Two foils- LP/Record
- Contains ATP W/O L/C, authority to pass LSS at 'ON', CO- 25/10 KMPH
- Acknowledgement of LP and GD taken
- Station name, date, SM signature with stamp given

#### **10. T/D.602 (AUTHORITY FOR TRAIN DURING TSL WORKING)**

- ✚ Authority for temporary single line working on D/L
- ✚ White paper red font
- ✚ Triplicate LP/GD/Record
- ✚ Contains L/C Ticket, Authority to pass LSS at 'ON', CO -25 KMPH(1ST TRAIN),line of TSL and place of obstruction & assurance that trap points are clamped and pad locked
- ✚ Station name, date, SM signature with stamp available.

### **11. T/609(AUTHORITY FOR TAKING PORTION OF TRAIN IN DIVEDED TRAIN WORKING)**

- ❖ Written permission given by guard to LP when engine or portion of train allowed to proceed to next station from mid section
- ❖ White paper blue font
- ❖ Two foils LP/Record
- ❖ No. Of vehicles and painted no. Of LV mentioned
- ❖ It is authority for L/E to return back ( with the signature of SM) to clear the 2nd portion from block section

### **12. T/806(SHUNTING ORDER)**

- Shunting order
- White paper blue font
- Triplicate LP/GD/Record
- STN name date/time, SM signature with stamp given
- Instructions column available
- Authority to pass Signal at ON available.
- Acknowledge of LP and GD taken

### **13. T/C.1425 (UP PLCT)**

- Paper Line Clear Ticket(UP)
- White paper blue font
- Two foils Record/LP
- ATP to go to next STN with PN mentioned
- Contains authority to pass LSS at 'ON'
- Station name, date, time, SM signature with stamp available
- Arrow mark upward on background

### **14. T/D 1425(DN PLCT)**

- ✓ Paper Line Clear Ticket(DN)
- ✓ White paper blue font
- ✓ Two foils Record/LP
- ✓ ATP to go to next STN with PN mentioned
- ✓ Contains authority to pass LSS at 'ON'
- ✓ Station name, date, time, SM signature with stamp available.
- ✓ Arrow mark downward on background

### **15. T/A 912(AUTHORITY FOR PASSING INTERVENING AUTOMATIC SIGNALS)**

- Authority to pass Automatic/Semi Automatic/Manually Operated/Gate Stop Signals at 'ON'
- White paper blue font
- Two foils, LP/Record
- STN name, date /time, SM signature with stamp given
- Description of signal with No.s mentioned
- Acknowledgement from Guard and LP taken

**Note:** Before accepting any authority the LP, ALP & Guard shall ensure that

- a. All the relevant columns in the authorities are filled correctly, legibly and complete.
- b. Station names to be written in full and no codes used
- c. PN, Last Train particulars, Description and Number of signals written clearly wherever required,
- d. While receiving PLCT ensure T/A.1425 'A' column is filled and sign in the relevant column and take a copy of PLCT(i.e.T/C.1425 or T/D.1425)
- e. Ensure the authorities received during the running of the train are kept and submitted along with the CTR or handed over to the SM wherever required.

## CHAPTER VI

### 1) What are the duties of Loco Pilot when

- a) Lurch/ condition likely to affect running of trains is reported
- b) Rail fracture is reported
- c) Train engine disabled in the block section

#### a) LURCH/Conditions likely to affect running of Trains (S.R.6.07)

If a Loco Pilot experience any Conditions likely to affect running of Trains unsafe condition of track including lurch, and he considers the portion of the track is unsafe for running of subsequent trains, he shall,

- Note the KM,
- In case of IBS and Automatic block territories, he must inform the SM and LPs of trains already left station in rear through available means of common, to stop movement of trains,
- Stop his train at the next block station without clearing the block section and inform the SM through available means of communication,
- The LP shall stop his train at the station and deliver a written memo to the SM,
- Proceed further only after ensuring that SM understood the situation.
- SM must issue message to SM in rear, JE/SE (P-way), AEN, DEN, DOM and SCOR.
- The SM shall then dispatch Rail Maintenance Machine/Tower wagon/Light Engine or in their absence a train accompanied by an Engg Official,
- The LP shall be given a caution order to stop short of the effected KM.
- The Engg official will inspect the track and shall allow the train to pass only after satisfying that the track is safe for the passage of train,
- Advise the condition of the track and speed restrictions if any to the SM,
- In the absence of Engg official the train may be sent in to the section with a caution order to the LP to stop dead before the affected KM and to pass at 10 KMPH only after satisfying himself that it safe for him to pass,
- If he finds the line unsafe to pass, return to the station in rear,
- If the LP is not able to detect anything doubtful, subsequent trains shall be dispatched with a speed restriction of 10 Kmph till the track is certified to be safe by Engg officials,
- If the LP reports same unsafe condition no train movement shall be allowed till certified to be safe by the Engg officials.
- If guard experiences any of the unsafe conditions, he shall inform LP and same procedure shall be followed.



- If the LP/Guard experience any obstruction or any other unsafe condition on or near the track adjacent to the line over which his train has passed , and if in his opinion it is unsafe for train running, will take the following action,
- Immediately switch on the flasher light of his Loco,
- Inform the SM/Control through available means of communications,
- Stop his train and proceed with danger hand signals to protect the line,
- The LP will continue his journey to the next station cautiously keeping flasher light ON and
- Be prepared to stop any incoming train by communicating on available means of communications and exhibiting stop hand signal.
- As soon as information of Sabotage or likely sabotage, Bomb blast, Explosion etc, received, the SM shall stop movement of trains in the affected block section as well as adjacent lines on Double/Multiple lines sections.
- The SM to consult SCOR May despatch only Rail Maintenance Machine/Tower Wagon/Light Engine accompanied by Engg official.

**b) Rail fracture (S.R.6.01)**

1. If a Loco Pilot realizes, while on run that there is rail fracture, he shall
  - a) Stop the train and protect the train.
  - b) Examine the track
  - c) If considers safe, proceed. Otherwise certification from the engineering official is required.
2. If a gang mate / key man /patrolman detects rail fracture of less than 30 mm gap he shall show stop hand signals and inform Loco Pilot of first train to pass the fracture spot at 10 Kmph and subsequent trains at 15 Kmph.
3. Loco Pilot of the first train shall stop his train at the next block station and give memo about the rail fracture.
4. SM, who received report from Loco Pilot about the rail fracture, shall inform the SM of the station at other end of the block section.
5. Both the SMs shall arrange issue of caution order to trains to observe an SR of 15 Kmph and also advise all concerned.
6. If the gap is more than 30 mm or multiple fractures, only a PWM/PWI can pass the trains after attending the rail fracture.

**c) Train engine disabled in the block section (S.R. 6.05)**

- When an engine is disabled, the Guard shall ascertain from the Loco Pilot whether the relief engine is required or not. If the Loco Pilot expects that putting the engine in working order will take more than 5 minutes, he will request the Guard to arrange for a relief engine.
- The Guard advises the Station Master.

- The Guard / Loco Pilot shall contact Station Masters/SCOR/TPC telephonically, advise the location (Kilometreage) of engine and brake-van and ask for relief engine.
- If Guard / Loco Pilot cannot contact Station Masters/SCOR/TPC telephonically, the Assistant Guard/Assistant Loco Pilot/Guard shall walk to the nearest station or send the message through the Loco Pilot of a train proceeding on an adjacent line and ask for relief engine
- Once relief has been asked for, the Loco Pilot of the disabled train, even if the engine on the train is fit to move subsequently, should not move unless he intimates the same and obtains an assurance from the Station Master to the effect that no relief engine or train has moved into the obstructed block section.
- If loco of passenger carrying train fails in the section, train shall not be divided

**2) Write a short note on the following**

**a) Block Ticket**

**b) Trains unusually delayed**

**c) Despatch of Relief engine/train into occupied/obstructed block section**

**a) Block Ticket (S.R.6.02.5)**

1. To Despatch a train on wrong line on double line [other than TSL working], the SM shall issue a block ticket.
2. The line shall be blocked back.
3. A caution order also be issued indicating the following
  - a. Speed - 15 kmph when view is clear and 8 kmph when view is not clear.
  - b. Ascertain the condition of the train over the adjacent line.
  - c. To look out possible obstruction and take action accordingly.
  - d. Report at next station.
4. The SM of the other station shall not permit any obstruction out side the outer most points.
5. The Loco Pilot shall also certify whether the line is clear for introduction of TSL working Or not. Then SM can introduce the TSL working.
6. Only one train will be permitted.
7. Passenger carrying train is not allowed on Block Ticket.
8. It is prepared in form no. T/J 602.

**b) Trains unusually delayed (G.R.6.04)**

1. Trains are said to be unusually delayed when passenger carrying train does not arrive within 10 minutes and goods trains within 20 minutes after normal running time.
2. Guard and LP of train shall give information to nearest SM/TPC/SCOR with available means.
3. SM shall advise SM in rear and SCOR.
4. SM shall stop trains from either end and on adjacent lines.
5. Warn LP's and Guards proceeding on adjacent line issuing with suitable caution orders.
6. SCOR shall immediately alert stations where ART & MRT are located to be in readiness.
7. If for any reason train stopped more than 15 minutes in the block section A9 and SA9 to be applied.
8. If the gradient 1 in 150 for roller bearing and 1 in 100 for non roller bearing the following precaution to be taken
  - a. In case of Passenger train, Guard to apply hand brakes of BV and sprags or wedges to be kept to the wheels of two vehicles nearer to falling gradient.
  - b. In case of goods train hand brakes of 1/3 rd of wagons or 10 wagons from engine by the LP or ALP and 5 wagons inside BV by the Guard, whichever is more must be applied in addition to the BV.

**c) Dispatch of relief engine/Relief train into an Occupied/obstructed block section in Absolute Block System and Automatic Block System (SR 6.02.6)**

Despatch of relief engine/Relief train into an occupied/obstructed block section to assist the crippled or disabled engine/train

1. The authority in Absolute Block System is T/A.602 &
2. The authority in Automatic Block System is T/C.912
3. The authority contains
  - i. Authority to proceed without Line Clear to proceed up to the Point of obstruction and return back or go to the next station.
  - ii. Authority to pass signals at 'ON'
  - iii. Caution Order to observe 15 Kmph when view ahead is clear during day and 10Kmph during night and view ahead is not clear and Walking Speed preceded by one/two men on Double/Single line carrying Stop Hand signal and Detonators for ready use.
4. In Automatic Block System it must be ensured the line is free from the Block Station to the point of obstruction.
5. LP advised of the obstructions, place of BV and Engine and station to which it has to clear.

6. LP to keep sharp lookout, whistle frequently and be prepared to stop short of any obstruction.
7. LP to bring stop short of obstruction and obey hand signals at the site.
8. While returning LP to act according to the aspect of signal on single line.
9. While clearing the station on double line the LP to act as per the aspect of the signal on right line or stop the train at LSS of the same line or FSS of the other line whichever comes first and after points are set correctly piloted in on 'Pilot in memo'.
10. On arrival at the station the authority to be handed over the SM who shall keep with the station records.
11. Whenever engine is pushing Rules for pushing back as per G.R. 4.12 to be observed.

### **3) What is the procedure for working of trains during total interruption of communication on single line? (S.R.6.02.4)**

In the event of total interruption of communication i.e. when line clear cannot be obtained by any one of the following means.

- i. Block instrument, Track circuits or Axle counters
- ii. Telephone attached to the Block instrument
- iii. Station to Station Fixed Telephone.
- iv. Fixed Telephone such as Railway Auto Phone or BSNL phone
- v. Control Telephone
- vi. VHF Set.

The following procedure shall be adopted for the working of trains.

1. Train shall be brought to a stop at station.
2. The SM who has trains to dispatch shall open communication with the SM of Block station other end by sending any one of the following vehicles in the order of preference.
  - a) Light engine
  - b) Train engine, after it is detached from the train
  - c) Motor trolley/Tower car - accompanied by a guard or by off duty ASM
  - d) Trolley/cycle trolley accompanied by a guard or by off duty ASM
  - e) Diesel car/EMU/DMU after detraining the passengers.
3. Loco Pilot/Guard/ASM shall be advised of the circumstances and obtain acknowledgement from the LP/Guard/ASM
4. Loco Pilot/Guard/ASM shall be given T/B 602 (authority to open communication during TIC on single line) - to be prepared in duplicate.

This authority contains

- a. authority to enter into Block section

- b. authority to pass departure signals at 'ON'
  - c. caution order (15/10)
  - d. line clear enquiry message – asking line clear for waiting trains
  - e. conditional line clear message – line clear for light engine/vehicle with or without train to come back
- If line clear is required for more than one train LP shall be given T/B 602 and T/E 602(line clear enquiry message)
  - If light engine or light engine with brake van is to be dispatched LP shall be given T/B 602 and items line clear enquiry message, condition line clear message shall be struck out.
5. Except LSS all signals can be taken off.
  6. Loco Pilot shall be vigilant and proceed with 15 Kmph during day when view is clear and 10 Kmph during night.
  7. If view is obstructed train shall be piloted by two persons on foot with danger hand signals and fog signals.
  8. Tunnel shall be entered only after ascertaining that it is clear, use headlight, lights of the engine shall be switched on.
  9. If two engines/vehicles meet in the section, the in charges decide the station to which they shall proceed, considering the importance of trains, distance of station, gradients, catch sidings etc.
  10. Engine/vehicles may either be coupled or may be loaded or may be followed.
  11. Loco Pilot shall stop at FSS. The engine or vehicle may be admitted either on signals or piloting.
  12. On arrival at station handover T/B 602 to SM.
  13. The SM of other station shall give following documents to light engines with or without train.
    - a. Conditional line clear ticket T/G. 602(Up) or T/H. 602(Dn).-ATP for light engine with or without train.
    - b. Conditional line clear reply message T/F. 602- granting line clear for trains at other station.
  14. The engine/vehicle on return shall stop at the FSS and there by it may be admitted on signals or piloting.
  15. CLC reply shall be handed over to SM.
  16. SM shall prepare conditional line clear ticket for waiting train.
  17. If line clear obtained for more than one train, second and subsequent train may be despatched after an interval of 30 minutes
    - First train may proceed with normal speed.
    - Each train shall be given CLCT.
    - For II nd and subsequent trains Caution Order shall be given to observe 25/10 kmph.

- An endorsement to be made on CLCT with particulars of the preceding and following trains.
  - No backing is permitted. If unavoidable the train may be backed after protecting by placing one detonator at 250m and two at 500m, 10m apart beyond the point up to which it is to be backed.
  - In case of accident, failure etc.,. Protection shall be done by placing one detonator at a distance of 250 m and two detonators at a distance of 500m 10m apart.
18. Trains must continue to work in this system till any one of the means of communication is restored by competent authority.

**4. What is the procedure for working of trains during total interruption of communication on double line? (S.R.6.02.3)**

- In the event of total interruption of communication i.e. when line clear cannot be obtained by any one of the following means
  - Block instrument, Track circuits or Axle counters
  - Telephone attached to the Block instrument
  - Station to Station Fixed Telephone.
  - Fixed Telephone such as Railway Auto Phone or BSNL phone
  - Control Telephone
  - VHF Set.
- The following procedure shall be adopted for working of trains
  1. Trains shall be brought to a stop at station.
  2. Guard and Loco Pilot shall be advised of the circumstances.
  3. The SM shall issue T/C. 602 to the Loco Pilot.
  4. This authority (T/C. 602) contains
    - Authority to enter block section without LC
    - authority to pass departure signal at ON
    - caution order - to observe SR of 25 Kmph when view is clear, 10 Kmph when view is not clear
  5. Except LSS all signals can be taken off.
  6. When view is not clear trains shall be piloted by Assistant Loco Pilot.
  7. Tunnel shall be entered only after ascertaining that it is clear, switching on head light, marker lights.
  8. If train stops in the section and cannot proceed further, it shall be protected by placing one detonator at 250 mts and two detonators at 500 and 510 mts.
  9. During this period pushing back is not allowed. If unavoidable the train may be pushed back only after protecting [as mentioned above] beyond the point up to which backing is required.

10. The Loco Pilot shall stop at FSS (even off) and give a long whistle continuously.
11. If within 10 mts signals are not taken off or no one turns up, Assistant Loco Pilot to be sent to station and Guard has to protect in rear.
12. On arrival into the station ahead T/C. 602 shall be handed over to SM.
13. There should be clear interval of 30 minutes between the train that has preceded the one which has to follow.
14. Trains must continue to work on this system, till any one of the means of communications is restored by competent authority.

**5. What is the procedure for working of trains when one line is obstructed on double section? (S.R.6.02.1)**

1. Whenever any line is obstructed on double line due to accident or any other reason, the traffic may temporarily be worked over single line
2. The SM must have reliable information in writing that one line is clear for introducing TSL working and also consult SCOR and other end SM
3. If there is a doubt the clearances of the track ask PWI to certify the track. If there is no reliable information in writing, goods train or light engine can be despatched on block ticket with a restricted speed of 15/8 kmph to get information.
4. TSL working shall be introduced between nearest stations provided with cross over between up and down lines on either side.
5. Close the intermediate block huts if any, signal shall be kept in ON position.
6. SM proposing TSL working shall issue a message containing following information under exchange of PNs to the SM of other end.
7. LC will be obtained on alternative means of communication
8. Trains run on T/D 602(authority for temporary single line working on double line section)
9. This authority contains authority to enter into block section, authority to pass LSS or any other signal at ON and caution order.
10. The maximum speed of first train over TSL working is restricted to 25 Kmph. The second and subsequent trains can proceed with normal speed. An endorsement shall be made in the T/D 602 issued to Loco Pilot of I train to inform all gang men gateman, patrolman, OHE and Telecom staff about the introduction of TSL working.
11. In the T/D 602 Loco Pilot shall be informed about the line, Kilometreage of obstruction and any speed restriction, if any, and assurance about the setting of trap points.
12. When a train is stopped on account of accident or engine failure or any other cause protection shall be done as per Rule 6.03
13. When train is starting from wrong line train shall be piloted out on 'Pilot out Memo' after ensuring that all points are correctly set and facing points are locked.

14. LP to switch on flasher light and dim the head light of train engine while running on wrong line.
15. On right line reception signal can be taken off.
16. On wrong line stop the train at LSS (wrong line) or opposite to FSS (right line) which ever comes first. A competent railway servant shall stop the train at the signal and pilot it by on a pilot in memo after ensuring all the points are correctly set and locked.
17. If the train is not admitted within 5 minutes, GDR to follow G.R. 4.44
18. Normal working shall be introduced only after obtaining written certificate from PWI and issuing message to other SMs under the exchange of PNs.
19. When double line working is introduced all Block instruments, IB signal and fixed signals shall be brought into use.

**6. What are the duties of Loco Pilot in the following cases?**

- a) **Loco Pilot entered block section without ATP.**
- b) **Train parted in block section**
- c) **Engine unable to haul the load**
- d) **d) fire on a passenger coach in mid-section.**

**a) Loco Pilot entered block section without ATP. (G.R/S.R.6.06)**

1. When a Loco Pilot enters the block section with out an authority to proceed or improper authority to proceed he becomes aware he shall immediately stop the train.
2. The train shall be treated as an obstruction in the block section protect as such in accordance with Rule. 6.03.
3. The Guard shall send the report of occurrence explain the circumstance to nearest station through brakes man/Assistant. Loco Pilot.
4. When the report is sent to station in rear, the station master will issue PLCT to proceed to the next station.
- 5., In case the report is sent to the station ahead, the SM shall immediately inform the control, and SM of other end of the block section, and send Caution Order as Authority for the train to proceed to the station.
6. Before starting forward with the correct authority to proceed, the Loco Pilot should collect the detonators placed in front, which was placed for protection.

**b) Train parted in block - section (G.R./S.R.6.08)**



1. The Loco Pilot shall keep first portion on run if possible until the rear portion come to a stand.
2. Loco Pilot shall sound — o — o whistle to inform Guard.
3. If it is necessary to proceed act as per the aspects of the gate/station signals
4. The Guard shall apply the hand brake.
5. Loco Pilot of banking engine if available shall stop rear portion and give—o—o.
6. The Guard shall indicate the parting by waving in repeated motions a green flag by day or a white light by night up and down vertically as high and as low as possible.
7. If the both portion have brought to a stand, the guard shall protect the rear portion on both sides as per the rules and take necessary precautions to secure the vehicles.
8. If it is possible and safe to couple the portions, the train shall be coupled with due caution otherwise it shall be worked in two portions.
9. Loco Pilot shall give —o—o whistle repeatedly while approaching station ahead.
10. SM shall admit the train on a vacant line, place 3 detonators to attract the attention of Guard and try to stop second portion by applying brakes/by heaping up earth or divert it to a vacant loop or siding line.
11. If SM notices train parting he shall wave a green flag or a white light by night up and down vertically as high as and as low as possible.
12. Tonnage shall be jointly checked by the guard and Loco Pilot and also by SM.

**C. Engine unable to haul the load.**

1. Loco Pilot shall bring the train to a stop on a level gradient and give 0000 whistle.
  2. Train shall be protected as per G.R. 6.03.
  3. Clear the block section by one of the three alternatives
    - a) ask for relief engine      b) Push back      c) divided train working
- a) Ask for relief/assisting engine.(S.R.6.05.4)**
- i) When the engine is disabled ask for relief engine telephonically.
  - ii) Once relief engine is asked, if the engine is rectified subsequently he should not move unless he get permission from SM.
- b) Push back** the train shall be pushed back after obtaining permission from SM in rear with 25/8 Kmph. Guard shall show continuously PHS. (S.R.4.12)

**c) Divided train working (G.R/S.R.6.09)**

1. Secure the rear formation by applying hand brakes as per the gradient.
2. Guard shall prepare T/609, clearly mentioning the number of vehicles and LV No.
3. Guard shall handover T/609 to Loco Pilot after collecting tangible authority if any and shall not keep tail board / Tail lamp on LV of first portion.
4. During night time Asst. Loco Pilot shall protect the train in rear and guard in front.
5. Loco Pilot shall stop train at home signal (even in off) and whistle —0—0 repeatedly.
6. Then the SM and LP shall contact each other on VHF set then the SM will not clear block section and advice rear SM and train can be received on hand signals.
7. The SM and Loco Pilot shall verify the intact on arrival of first portion with the help of T/609.
8. Then the SM shall sign in 2nd part of T/609. On T/609 light engine sent into block section to bring 2nd portion, the Loco Pilot shall not exceed speed of 25 Kmph.
9. During day time stop the engine on seeing stop hand signal of Guard. Attach the engine, release the brakes, and start the train.
10. During night time stop the engine on seeing the stop hand signal of Guard, Guard shall pick up the 3 detonators, pilot the engine by riding on engine leaving intermediate detonator (600M) and LP shall stop the train when second portion is sighted. Guard will get down, pilot and couple the engine cautiously.
11. After engine being attached, release the hand brakes, call the ALP and start the train
12. On arrival at the station, Guard and SM shall check the tonnage of the train.
13. If the engine of passenger train is unable to haul the load it will not be divided, ask for assisting/relief engine
14. In case train without Guard,
  - i. The rear portion shall be secured.
  - ii. LP shall prepare a written memo stating the no of vehicles in the first portion and last vehicle number of first portion.
  - iii. ALP stay back to protect the train.
  - iv. On arrival at the station, SM shall issue authority T/A 602 to the LP of Light engine with a restricted speed of 15/10 kmph.

**d) Fire on passenger coach in mid-section. (G.R/S.R.6.10)**

1. The train shall be stopped at once.
2. Detach the front portion of the vehicle behind the one on fire and move the front portion to a safe distance.
3. Detach then the vehicle on fire and move the front portion again to a safe distance.
4. If the train with vestibuled stock, before isolating vestibule connections shall be disconnected.
5. The safety of the passengers shall first be attended the guard shall switch off electric connections.

6. Every effort shall be made to extinguish the fire by using fire extinguishers, water and soil/sand.
7. In electrified section water should not be used and special type (DCP) of the extinguishers shall be used.
8. Fire is not extinguished ask for fire brigade through SM/SCOR.

**7. How would you protect your train in mid-section in absolute block territory**  
**a) Double line b) Single line c) Twin single line and in Automatic block territory**

**GR 6.03 Protection**

- 1) When a train is stopped between stations on account of accident failure or other cause and it can not proceed further; Loco Pilot shall switch on flasher light,
- 2) Apprise the guard of the fact by sounding the four short whistles repeatedly or through Walkie talkie and exchange of danger signal with him.
- 3) The Guard shall immediately exhibit danger signal towards rear and check up that tail board or tail lamp is correctly exhibited.
- 4) Then the guard shall fix red flag or reverse the side lights to show red towards the engine
- 5) The Guard and the Loco Pilot shall take the following action

**On single line**

- a) The Guard either him self or competent person go back to protect the train.
- b) The person going back to protect the train shall, continuously. Show danger signal and place one detonator at 400/600 M and 3 detonators 10 M apart 800/1200 M on MG/BG from the train.
- c) After protecting guard or competent person continue to show danger hand signal until he is re-called.
- d) The Loco Pilot or Asst. Loco Pilot shall show danger signal to the front and protect the train in front in manner prescribed in 2b.
  - Above procedure (d) may followed during TSL working on double line or when relief engine has been asked on double line

**ON D/L section:**

- a) The Loco Pilot or. Asst.Loco Pilot proceed to protect the adjacent line in front
- b) Loco Pilot or Asst. Loco Pilot shall place one detonator at 400/600 M. and 3 detonators NLT 800/1200 M 10M apart on MG/BG from train.

- c) Guard shall send a competent person if available to protect the train in rear and shall himself proceed ahead to assist and ensure protection of adjacent line in front.
- d) Guard shall after ensuring go back to protect the train in the rear in the manner prescribed in 'b' if he has not already sent competent person.
- e) In case it is not known whether the adjacent line is obstructed or not the LP shall protect adjacent line and Guard shall proceed to engine to check whether adjacent line is fouling or not. If adjacent line is obstructing, the Guard shall assist and ensure adjacent line protection. If not obstructing, the Guard shall after consultation with LP go back to protect the train in rear.

#### **Twin Single Line:-**

- 1) The Loco Pilot shall protect the adjacent line in front guard shall protect the adjacent line in rear.
- 2) Only after protecting in the rear guard shall proceed ahead to assist and ensure to protect the line in front.
- 3) Protect the same line in rear.

#### **Common Points.**

- 1) When guard / the person gone for protection, called back he shall leave 3 detonators and pick up intermediate detonator.
- 2) If the train is approaching, place the detonators as far away from the train as possible.
- 3) If there is a banking engine, banking engine Loco Pilot shall arrange protection in rear.
- 4) When the train is ready to proceed, Loco Pilot shall recall railway servant protecting the train by sounding continuous whistle.
- 5) When the train goes forward, Loco Pilot shall stop short of and pick up 3 detonators placed in front.
- 6) In the case of without guard, the duties of guard shall devolve on Loco Pilot.
- 7) In the event of disability of the Loco Pilot, the duties of Loco Pilot shall devolve on guard.

#### **Protection in Automatic block territory**

When a train is stopped in an Automatic block signalling section, the Guard shall immediately exhibit a Stop hand signal towards the rear and check up that the tail board or tail light is correctly exhibited.

#### **Single line and during TSL working on Double line.**

LP shall protect the train in front as per G.R/S.R. 6.03 and Guard shall protect in rear by placing one detonator at 90m and two detonators at 180m, 10m apart.

#### **Double line**

The Guard shall first ensure the protection of adjacent line in front by the LP and protect same line in rear by placing one detonator at 90m and 10m apart two detonators at 180m.

### **Protection when relief engine is sought**

Relief engine is expected from advance station, during day time protection is not required but during night time protection shall be done as per G.R/S.R. 6.03

### **8. Write about flasher light and what action will Loco Pilot take when Flasher light is observed?**

1. Flasher light units have been provided on Diesel/Electric locomotives.
2. The unit, when switched on, flashes amber coloured light.
3. At the same time the headlight, if on, is automatically switched off or switched off by the Loco Pilot.
4. When taking over charge of the electric/diesel locomotive from the shed/yard, the Loco Pilot shall test the working of the unit and make an entry in the loco log book.
5. When a train comes to a stop between stations or at a station, on account of any accident or any cause and the Loco Pilot finds that his train cannot proceed, flasher light automatically switched on or he shall immediately switch on the flasher light to attract the attention of the Loco Pilot

The Loco Pilot of the train on seeing flasher light on a line.

- i. Shall immediately acknowledge by switching on and off the flasher light 3 times.
- ii. shall immediately take action to stop his train short of the obstruction.
- iii. should reduce the speed of his train to 20 Kmph during day and visibility is clear and 10 Kmph when visibility is not clear and during night and be prepared to stop short of any obstruction.
- iv. Should then bring his train to a stop near to the engine.
- v. Shall find out the reason and render all possible assistance.
- vi. Will continue his journey at normal speed, only after ascertaining that ahead line is clear.
- vii. Stop at next station and report the occurrence.

## CHAPTER VII & VIII

### 1. What is system of working how many systems are there in Indian railway and SC Railway? Write the essentials of the absolute block system

System of working means system adopted for the time being for the working for trains on any portion of railway.(G.R/S.R.7.01)

On Indian railway all trains working between stations shall be worked on the one of the following systems namely

- a. The absolute block system
- b. The Automatic Block System
- c. The Following Trains System
- d. The Pilot Guard System
- e. The Train-Staff And Ticket System,
- f. The One Train Only System

The systems used on the south central railway are

1. The automatic block system used on the this Railway are, LPI - SC - MLY, HSJ – HYB(SC Division), SC – KCG –FM, SC –BMO(HYB division), BZA –KCC(BZA division)n double line and on BZA-KCC(BZA division) on single line.
2. The absolute block system on all other sections of SC Rly.

### Essentials of the Absolute Block System (G.R.8.01)

1. Where trains are worked on the absolute block system:
  - a. No train shall be allowed to leave a block station unless line clear has been received from the block station in advance, and
  - b. On double lines such line clear shall not be given unless the line is clear, not only up to the first stop signal at the block station at which such Line Clear is given but also for an adequate distance beyond it;
  - c. On single lines such Line Clear shall not be given unless the line is clear of trains running in the same direction ,not only up to the first stop signal at the block station at which such Line Clear is given, but also for an adequate distance beyond it, and is clear of trains running in the direction towards the block section to which such line clear is given,
2. Unless otherwise directed by approved special instructions, the adequate distance referred to in clauses (b)and (c) of sub-rule (1) shall not be less than
  - a. 400mts in case of TALQ signalling or TACLS, and
  - b. 180mts in case of MAS or Modified Lower Quadrant Signalling.

## CHAPTER IX

### **Kinds of fixed signals in Automatic Block territory (G.R./S.R.3.12, 9.15)**

Stop signals in automatic block territory shall be colour light signals and may of the following kinds

#### **Automatic Stop signal:**

1. It is distinguished by 'A' marker plate.
2. It is not depend upon manual operation.
3. Signals are operated automatically by the passage of the train.
4. It can be passed at 'ON' without any authority after waiting one/two minutes during day/night with a restricted speed of 10 kmph.
5. Normal aspect of the Automatic signal is proceed.

#### **Semi automatic Stop signal:**

1. A fixed signal which can be operated either as an Automatic Stop signal or a Manual Stop signal, as required, is called Semi-Automatic Stop signal.
2. A king knob is provided to make Semi-Automatic Stop signal to work either as an Automatic Stop signal (king knob Reversal) or as a Manual Stop signal (the king knob normal)
3. When a Semi-Automatic Stop signal works as an Automatic Stop Signal, illuminated 'A' marker is available.
4. When 'A' marker is extinguished, the signal works as a Manual Stop signal.

**Manual stop signal:** these signals are operated manually and it cannot work as Automatic or semi automatic signal

#### **Gate Stop signal:**

1. Automatic signals interlocked with level crossing gates are distinguished by the provision of 'G' marker i.e., letter 'G' in black on yellow circular disc and white illuminated letter 'A' against black back ground.
2. When the gate is in open condition, the gate signal exhibits stop aspect with extinguished 'A' marker.
3. When the gate is in closed condition, it works as Automatic Stop signal with illuminated 'A' marker.
4. If the gate signal is at 'on' and the 'A' marker is extinguished, the Loco Pilot has to follow the gate rules [Rule 9.15(b)].
5. If the 'A' marker is illuminated and the signal is at 'on', the Loco Pilot shall follow the rules for the automatic signal at ON. (Rule 9.02 and 9.07 and SRs there under)

## 1. What is the procedure to be followed to pass?

a) Automatic Stop signal at 'ON' territory at 'ON'

b) Gate signal in automatic

### Passing an automatic Stop signal at 'ON' (G.R. /S.R 9.02 & 9.07)

- LP shall give one long whistle
- Stop the train at the foot of the signal.
- Guard to exhibit stop hand signal in rear and ensure that the tail lamp/tail board is available
- Wait **one minute by day two minutes by night**
- LP has to give one long whistle and exchange all right signal with Guard.
- Start the train cautiously with a speed not exceeding **10 kmph** until he passes next automatic stop signal even if that signals is taken off.
- If LP exceeds the prescribed speed, the Guard shall try to attract the attention of the LP or stop the train in case of emergency.
- LP shall maintain a distance of 150M or two OHE masts between his train and preceding train and that distance can be reduced to 75M or one OHE mast in case of short trains.

### b) Passing gate signal at 'on' in Automatic signalling territory (G.R. /S.R 9.15)

- ▶ Gate signal in Automatic signalling territory is identified 'G' marker. When the gate is in open condition, the gate signal exhibits stop aspect with extinguished 'A' marker. When the gate is in closed condition, it works as automatic stop signal with illuminated 'A' marker
- ▶ If the 'A' marker is illuminated, LP shall follow the rules of passing Automatic signal at 'ON' (10 kmph up to next automatic stop signal.)
- ▶ If the 'A' marker light is extinguished, LP shall give one long whistle to warn the gateman and stop the train in rear of a signal.
- If after waiting for one minute by day and two minutes by night, the signal is not taken 'off', he shall draw his train ahead cautiously up to the level crossing and
- if the gateman is available and exhibiting hand signals, proceed and pass the level crossing gate cautiously or
- If the gateman is not available or is available but not exhibiting hand signals, stop in rear of the level crossing and after ascertaining that the gates are closed against road traffic and on getting hand signals from the gateman/assistant loco pilot, the loco pilot shall give one long whistle and cautiously proceed up to the next stop signal following passing Automatic signal at on rules. (10 kmph up to next automatic stop signal.)



## **2) What is the procedure for working of trains?**

- a. During prolonged failure of signals and communications are available in automatic block system.**
- b. LSS/Advanced starter becomes defective on single line/double line in automatic block system**

### **a. working of trains during prolonged failure of signals and communications are available in automatic block system(S.R.9.12.1)**

1. Ensure no train in block section under exchange of PN.
2. SM to inform SCOR.
3. Train stopped at station, LP & Guard advised of circumstances.
4. SM in rear obtains line clear by any one means of communication in order of priority.
5. SM in advance grants L/C after satisfying conditions, adequate distance being 120m beyond starter.
6. All points set correctly & locked.
7. SM after obtaining line clear shall give "authority to Proceed on automatic block system during prolong failure of signal"- T/D.912 indicating the signal No. to pass them.
8. Before giving authority ensure points correctly set & locked, L/C gates informed under exchange of PN.
9. LP of 1<sup>st</sup> train with T/D.912 proceed at 25 Kmph and lookout for obstruction. Second and subsequent trains can proceed with normal speed.
10. LP to act at the station ahead as per the aspect of the signals.
11. Entries of the train made in red ink in TSR.
12. Clearance of section intimated under exchange of PN.
13. As soon signals are put to work both SM exchange messages under exchange of PN.
14. All records checked by TI and submit report to Sr.DOM/DOM within 7 days

### **b) LSS defective on Single line.(S.R.9.06)**

1. In case of LSS defective on single line or the direction of traffic cannot be established, the Automatic block working shall be suspended.
2. SM shall ensure all the trains arrived completely and treat the entire block section as one section.
3. SM shall obtain line clear by any one of the alternative means of communication.
4. Issue PLCT + T/A 912 to the LP.
5. The speed of the first train shall be restricted to 25 kmph.

6. Automatic block working may be restored after the LSS or direction of traffic is rectified

**LSS defective on Double line: (S.R.3.12)**

LP shall be given T/369 3(b) + Caution order of 10 kmph upto the next Automatic stop signal.

**3) Differentiate Absolute and Automatic block systems (Chapter VII & IX)**

<b>Sl.No.</b>	<b>Absolute block system</b>	<b>Automatic Block system</b>
<b>1</b>	Block stations are classified as A, B, C and Special class stations	Stations are not classified
<b>2</b>	Signals may be semaphore or colour light	Signals are colour light only.
<b>3</b>	Only manual signals are provided.	Signals may be automatic, semiautomatic and manual.
<b>4</b>	Provision of continuous track circuiting or Axle counters on line is/are not required except IBS	Line shall be provided with continuous track circuit or axle counter
<b>5</b>	Normal aspect of stop signal is 'STOP'	Normal aspect of stop signal is 'PROCEED'.
<b>6</b>	No stop signal can be passed at 'ON' unless LP receives a written authority or PN (except IB, Gate)	No authority is required to pass Automatic signal at 'ON'
<b>7</b>	To start a train line clear shall be obtained.	Line clear not required to start a train (but on single line, line clear shall be obtained to establish direction of traffic.
<b>8</b>	Signals may be two aspects or multiple aspects. Permissive signals may be provided.	Signals shall be multiple aspects only. Permissive signals are not provided.
<b>9</b>	'G' marker shall be provided on gate stop signal	Besides 'G' marker an illuminated 'A' marker is available when gate is closed.
<b>10</b>	Time interval between two trains during TIC on double line is 30 minutes.	Time interval between trains during TIC on double Line is 15 minutes.
<b>11</b>	Protection shall be arranged as per 6.03 on same line and adjacent line.	Protection shall be arranged on same line in rear as per the 9.10 and other lines as per 6.03.

<b>12</b>	Normally block section between two stations will not be divided.	Block section between two stations are divided into number of automatic block signalling sections.
<b>13</b>	During TIC on single line authority is T/B.602.	During TIC on single line authority is T/B 602 +T/A.912.
<b>14</b>	During TIC on double line authority is T/C 6.02	During TIC on double line authority is T/B 912.
<b>15</b>	During TSL working authority for all trains is T/D 602	During TSL working authority for 1 <sup>st</sup> train on right line and all trains on wrong line is T/D 602 + T/A 912. 2 <sup>nd</sup> and subsequent trains on right line proceed on signal aspects.
<b>16</b>	During TSL working the speed of the first train is restricted to 25 Kmph	During TSL working the speed of the first train on wrong line is restricted to 25 Kmph.
<b>17</b>	During TSL working the speed of the 2 <sup>nd</sup> and subsequent trains is normal speed	During TSL working the speed of the 2 <sup>nd</sup> and subsequent trains on wrong line and all trains on right line is normal speed.
<b>18</b>	Authority to dispatch relief engine/train is T/A 602	Authority to dispatch relief engine/train is T/C 912
<b>19</b>	On single line when LSS become defective authority is PLCT.	On single line when LSS become defective authority is PLCT +T/A 912.
<b>20</b>	On double line when LSS become defective authority is PLCT.	On double line when LSS become defective authority is T.369 (3b)+CO of 10 kmph up to next automatic signal.

## CHAPTER - XV

### **1) Explain the various types of Engineering Indicators with diagrams**

#### **Engineering Indicators**

The Engineering indicators shall be provided both by day and night, to indicate the place where a stop or a reduction of speed is required (when restriction is for more than a day).

There are four types of engineering indicators Viz. caution, speed, stop and Termination

#### **a) Cautions indicators**

1. It is a rectangular board painted yellow colour having a conic shape at one end and fish tailed at the other end.
2. It indicates the Loco Pilot that he is approaching speed restrictions/stop spot
3. It is provided not less than 1200 mts in BG and 800 in MG from the spot.
4. It shall be provided for both permanent and temporary speed restrictions
5. In case of temporary SR it shows two yellow lights horizontally towards approaching train\*.

#### **b) Speed indicator**

- 1) This shall consist of yellow equilateral triangular board painted yellow and black figures giving the speed.
- 2) It is provided both permanent and temporary speed restrictions.
- 3) It is illuminated by night by fixing light in front of it incase of temporary SR\*.
- 4) It is provided at a distance of 30 mts from work spot.

#### **c) Stop indicator**

- 1) It is a rectangular board coloured red with white vertical bars.
- 2) It displays two horizontal red lights by night\*.
- 3) It is placed at 30 m from the actual danger spot.
- 4) \* Reflective type of indicators need not be lit during night time.

#### **d) Termination indicators**

- 1) These shall indicate the point from which the normal speed may be resumed
- 2) These are of two namely a) Termination indicator for passenger trains T/P b) Terminations indicator for goods trains T/G
- 3) These shall consist of yellow disc with black T/P, T/G letters.
- 4) T/P, T/G boards shall be located at a distance equal to the length of the longest passenger trains/goods trains operating on the section.

### **Showing of signals at work spot**

- a) **When the trains is required to stop and the restrictions is likely to last only for a day or less**
  - 1) A banner flag at 400/600 (MG/BG),
  - 2) 3 detonators 10 mts apart at on 800/1200/ MG/BG) from obstruction.
  - 3) Stop hand signal at 30 mts, at Banner flag, at a distance of 45 mts from last detonator.
- b) **When the train is required to stop and the restriction is likely to last for more than a day.**
  - 1) A stop indicator at 30 mts,
  - 2) caution indicator at 800/1200 MG/BG from obstruction shall be provided.
  - 3) T/P. T/G boards also shall be provided.
- c) **When the train is not required to stop and the restriction is likely to last only for a day or less.**
  - 1) Proceed with caution hand signal shall show at a distance of 30 mts and 800 mts from obstructions.
- d) **When the trains is not required to stop and the restriction is likely to last for more than day**
  - 1) A speed indicator shall be provided at a distance of 30 mts and caution indicator at 800/1200 Mg (BG) from obstruction.
  - 2) Termination boards shall also to be provided.

### **Responsibility of Loco Pilot & Guard**

1. Loco Pilot and assistant Loco Pilot shall identify and call out names of engineering indicator boards when the train approaches them to each other.
2. On approaching the caution indicator the Loco Pilot shall reduce speed as necessary.
3. Take care to see that his train is under control, that the speed restrictions are strictly observed.
4. In case train is required to stop dead.
  - a) The Loco Pilot shall bring his train to a dead stop at stop indicator
  - b) The watchman posted at handover his book form ER 7 to the Loco Pilot.
  - c) The Loco Pilot shall fill in the date, train no time and return it after signing.
  - d) Watchman shall show proceed with caution hand signal, Loco Pilot can pass spot with 8 kmph.
5. In the case of goods trains, the Loco Pilot shall resume normal speed only after his engine passed T/G board, or after getting hand signal by Eng. staff.

6. In the case of passenger trains, the Loco Pilot shall resume normal speed only after ' his engine passed T/P board or after getting hand signals by Eng. staff.
7. The Guard shall exhibit the 'all-right' signal to the Loco Pilot after the last vehicle has cleared the speed restricted zone.
8. Short passenger trains resume normal speed only after getting all right signals from guard.

**6) What are the various types of blocks? How to dispatch and receive the material train/TTM/ Tower car during the block period?**

**SR 15,06 Blocks**

Block means It is an arrangement of blocking of track against movement of traffic over a particular section, allowing only material train/ TTM/tower wagon for maintenance.

There are four types of Blocks and they are:

1. Line block = blocking for engineering purposes. No traffic except material train and TTM
2. Power block: blocking against electric traffic. Diesel may be allowed exclusively for OHE maintenance
3. Integrated block = block for maintenance work for more than one department (TRD, Engg and S&T) simultaneously.
4. Shadow block – means a block, which may be or may not be integrated, availed from either end of the block section between two block stations simultaneously. Eg- Changing of bridge girders, replacement of turnouts

**Despatch of material train into block section**

- Work & return -T / 462
- Work & clear next block station-T/ A 462 - only one material train is permitted

**Despatch of track tamping machine**

- Work & return = T / 465
  - Work & clear next block station = T / A 465
- more than one machine is permitted**
- T / 465(first unit) + CO s for following units(return to same station) or
  - COs for preceding + (last unit) T / A 465( proceeding to next block station)

**Despatch of tower wagon**

- Work & return = T / 1708 and
- work & clear to next block station = T / A 1708

**More than one tower. wagon is permitted**

- T / 1708(first unit) + CO s for following units(return to same station)or
- COs for preceding + (last unit) T/A 1708 (proceeding to next block station)

## **Speeds**

- first TTM /T.wagon = normal speed and following = 25 / 10 kmph ( Day /Night )
- SM receiving T / 462, T / 465, T / 1708 shall advice other SM under exchange of PN about block section clearance.

## **Integrated block**

- Relevant authorities to be issued to different units
- CO mentioning preceding / following units & to maintain a gap of 150 mts. Each unit shall run with restrictive speed of 15 / 8 kmph (Day /Night). However only one unit is allowed along with TTM & T.wgn.

## **Shadow block**

- Relevant authorities issued by respective SMs. CO indicating the preceding / following units from both ends. Each shall maintain a gap of 150 mts & a good look out for obstruction from opposite side & speed 15 / 8kmph (Day /Night). Each unit shall return to the same side they started. No unit shall overlap the work spot. SMs shall collect back the authorities issued.

## **Reception**

- First unit on reception signal & following on calling-on or T 509, separately for each unit onto same line.
- Wrong line – stop at opposite LSS & pilot-in memo separately for each unit onto same line
- on clearance , official in-charge shall give "safety certificate" in writing mentioning speed restriction if any

SM shall advice SCOR & SM on other end about cancellation of line block, exchange messages with PNs, remove caps & resume normal working

## **Electrified Section Chapter XVII**

### **Neutral section**

1. Neutral section is short section of insulated and dead OHE
2. Neutral section provided between two consecutive substations
3. Negotiate for every 40 to 60 km
4. Three types: Section Insulator type, Conventional type, & Poly Tetra Fluro Ethylene
5. Neutral section location given in WTT.
6. Warning board at 500m and 250 m from it
7. Similarly the location at which the power has to be switched off and on shall be indicated by boards.
8. No Loco Pilot shall pass the neutral section between the warning boards.
9. Speed shall not be less than 30 kmph while passing the section

### **Precautions to be observed in the electrified section [OHE area]**

1. Engine crew of all trains shall be vigilant & keep a sharp look out while the train is in motion and working the OHE and report any defect noticed to the TPC/SCOR.
2. When a defect, which is likely to interfere with the smooth movement of the pantograph, the Loco Pilot shall trip the circuit breaker and lower the pantograph.
3. When the power is failed and restored, contact TPC and follow the instructions of TPC. If Loco Pilot not able contact TPC proceed with a restricted speed of 60/30 Kmph [day/night] up to next station.
4. When a train comes to a stop in the section and cause is not known, protect the train as per G.R. 6.03
5. In the event of fire on an electric engine, the Loco Pilot shall immediately switch off circuit breaker and lower the pantograph. Stop the train and try to extinguish the fire.
6. Loco Pilot and assistant Loco Pilot shall call out each other, all permanent and temporary display boards in the section.
7. In order to negotiate the neutral section without stalling, the Loco Pilot shall approach it at a speed not less than 30 kmph.
8. No Loco Pilot shall pass the neutral section between warning boards [neutral section] with power ON.
9. When tower wagon is attached to a train, Loco Pilot shall not exceed the speed stenciled on tower car.
10. No person shall climb on top of the engine or on the roof of carriages or wagons.
11. In case of emergency the assistant Loco Pilot is authorised to drive the train at a restricted speed not exceeding 40 kmph.



12. If the driving apparatus in the leading cab become defective Assistant Loco Pilot can work the train from trailing cab with a restricted speed of 40 kmph. [ Loco Pilot in the leading cab ]
13. Loco Pilot can work the train from trailing cab with a restricted speed of 15 kmph.
14. In case of single or multiple unit train stopped between stations and detention exceeds 10 minutes, the train shall be protected as per Rule 6.03.

## **APPENDIX VIII MARSHALLING**

### **1) How to marshal the following vehicles:**

- a. Wagons containing explosives.**
- b. Wagons containing petroleum and other inflammable liquids.**
- c. Dead engines.**
- d. Second class luggage brake van (SLR).**
- e. Four wheelers.**
- f. Officers saloon**

Marshalling means the systematic arrangement of vehicles on a train to meet specific transportation needs such as safety, operational efficiency, elimination of delay, optimum utilization of transport capacity etc.,

#### **a. Wagons containing explosives**

1. Maximum number of such wagons allowed by goods trains are ten, by mixed trains or parcel trains are three.
2. They shall be separated by dummy wagons as follows: Not less than three dummy wagons from, brake van, passenger coaches, wagons containing dangerous goods or inflammable articles and one from electric or diesel loco.
3. They shall be coupled close by each other as well as to other wagons.

#### **b. Wagons containing petroleum and other inflammable liquids**

1. No limit as regards to the number of such wagons.
2. Must be coupled closely.
3. Guard wagons:

##### **Class A** (flash point below 23°C)

From passenger coaches or brake van and other wagons containing explosives, dangerous goods and inflammable articles- not less than three

When Electric or diesel locomotive is used - only one wagon should be used from locomotive, passenger carriage and brake van.

How ever no need to attach such wagon between 8 wheeler tank wagons and 8 wheeler brake van.

##### **Class B** (flash point above 23° C but below 65° C)

1. This wagon should be separated from Electric / Diesel Loco, B/Van, Pass Coach by one dummy wagon.
2. Compressed and liquefied gases by two wagons.
3. Explosives by three wagons.

How ever no need to attach such wagon between 8 wheeler tank wagons and 8 wheeler brake van.

**Class C** (flash point at 65° C and above)

**c. Dead engines**

1. Only one dead engine is permitted both on passengers and goods train.
2. It shall be attached next to train engine only
3. Dead engine shall be manned by a competent railway servant not below the assistant Loco Pilot.
4. Dead engine is permitted in the section where double heading / triple heading is permitted.
5. In case of passenger carrying train dead engines shall not be taken into account for the purpose of calculating brake power.
6. Shall not be attached by any superfast, Rajdhani/Shatabdi trains.

**d. Marshalling of SLRs**

1. In case of Mail/Express trains, anti-telescopic or steel bodies SLRs must be marshalled as the last coach at both ends of the formations. In the absence of front SLR the coach next to train engine be kept empty and locked.
2. In case of old design SLR (one side passenger portions other side design portion) it should be marshalled in such a way that the luggage portions I trailing outer most or next to engine.
3. In case of M/E trains two anti-telescopic or steel bodied coaches should be marshalled inside SLR at both ends. (Passenger trains - one coach).
4. If wooden bodies SLR's to be used on ME trains it should be marshalled inside of two (incase of passenger one) anti-telescopic coaches.
5. If sufficient number of anti-telescopic SLRs are not available anti-telescopic/steel bodies SLR's to be provided in this order M/E trains, Main line passenger, Branch line passenger short trains.
6. In case of short trains, SLR whether anti-telescopic steel bodies or not should be marshalled in middle. Outer most vehicle shall be 1(1<sup>st</sup> phase) or 2 (2<sup>nd</sup> phase) anti-telescopic/steel bodies coaches.

**e. Marshalling of four wheelers**

1. Single four wheelers must not be marshalled between two bogies, but a single four wheeler may be attached between the engine and a bogie vehicle to avoid delays in shunting en route.

Note: This rule is not applicable when ever banking engine/assisting not required engine is attached in rear of rear brake van.

2. A four wheeler coaching vehicle or goods wagon can be attached to a passenger train either in front i.e. next to engine or in the rear of the train.

3. When four wheeler is attached to the passenger train the maximum speed of the train should not exceed 75 Kmph on BG and 50 Kmph on MG.

**f. Railway Officers saloons –**

1. Shall not be attached to race specials, postal express trains and military specials.
2. Saloons of GM, HODs and CRS may be attached to any train except mentioned above.
3. Not more than one saloon will be attached to a mail train.
4. The saloons of Heads of Departments and Divisional Railway Managers shall ordinarily be attached to Passenger, parcel and Goods trains.
5. COM's permission must be obtained for attaching their saloons to Mail or Express trains.
6. The saloons of Divisional and other Officers may be attached to Passenger, Parcel and Goods trains only.
7. Officers saloons may be attached to a light engine provided the saloon is fitted with vacuum/air brake and a tail lamp or a tail board is fixed.
8. A saloon can be attached to a train if the prescribed load permits it.
9. One saloon may be attached to a train in excess of the prescribed load but the actual tonnage must be shown in VG.
10. Saloons while being attached care must be taken to see the detention is minimum and attached operationally convenient.
11. Officers shall not take or send their saloons outside their jurisdiction without the prior consent of their Heads of Department and the COM.

**Accidents:** For the purpose of railway working, accident is an occurrence in the course of working of railway which does or may affect the safety of the railway, its engine, rolling stock, permanent way and works, passengers or servant or which affect the safety of others or which does or may cause delay to train or loss to the railway. For statistical purposes accident has been classified in categories from 'A' to 'R' excluding 'I' and 'O'.

**Classification of accident:** Accident is classified under the following heads:

1. Train accidents
2. Yard accidents
3. Indicative accidents
4. Equipment failure
5. Unusual incidents

**A) Train accidents:**

Train accident is an accident that involves a train. Train accidents further divided as

- a. Consequential train accidents and
  - b. Other train accidents
- a. Consequential train accidents: Having serious repercussions in term of loss of human life, injury, loss to railway property or interruption to rail traffic.
- Collision - A-1 to A-4, Fire - B-1 to B-4, Level crossing - C-1 to C-4  
Derailments - D-1 to D-4, Miscellaneous - E-1
- b. Other train accidents: Not covered under consequential train accidents.  
B-5, B-6, C-5 to C-8, D-5 and E-2.

**II. Yard accidents:** Take place in yard and does not involve train- A-5, B-7, C-9 and D-6.

**III. Indicative accidents:** They are serious potential hazards.

Averted collision – F

Breach of block rules – G

- Train entering block section without any authority or with improper authority
- Train received on blocked line not constituting an averted collision.
- Train received on/or entering wrong line at a station or catch siding or slip siding or sand hump etc.,

Train passing signal at danger – H

**IV. Equipment failure:** Failure of loco, rolling stock(J), permanent way(K), OHE(L), S&T equipment.(M)

**V. Unusual incidents:** Related to law and order but not resulted into the train accidents –

Train wrecking/sabotage (N), Casualties (P), other incidents (Q) & Misc-cattle run over(R).

### **Engine Failure and Time Failure:**

- (a) An engine is considered to have failed when it is unable to work its booked train from start to destination. Reduction of the load for a part of the journey would constitute an engine failure, provided this is due to a mechanical defect on the engine or mismanagement on the part of the engine crew.
- (b) When an engine causes a net delay of one hour or more throughout the entire run owing to some mechanical defect or mismanagement on the part of the engine crew, it would constitute a time failure. Trains stalling due to engine trouble or mismanagement by the engine crew necessitating working or the train in two portions would constitute a time failure provided the net loss of time on the entire journey exceeds an hour.

### **Accident Sirens**

- 1) 2 long - Accident takes place in the loco shed in traffic yard adjoining loco shed.
- 2) 3 long - Accident takes place at out station but main line is clear
- 3) 3 long one short - Accident takes place at out station but main line is clear and the relief train is to be turned out with medical van.
- 4) 4 long - Accident takes place at out station and main line is blocked and the relief train is to be turned out without medical van.
- 5) 4 long one short - Accident takes place at out stations the main line is blocked and the relief train to be turned out with medical van.

The duration of long given shall be 1/2 minute and 5 seconds for short with 1/2 minute interval between two successive calls.

### **MRT and ART**

- MRT Stands for medical Relief train
- MRT Comprises of c) Medical van b) Auxiliary Van
- ART Stands for Accident relief Train
- ART Comprises of

- i) Crane
- ii) Hydraulic rerailling equipment (MFD or LUAS)
- iii) Power and tool van
- iv) engineering equipment van
- v) Mechanical equipment van
- vi) electrical equipment van
- vii) Staff kitchen car and brake van

MFD stands for-Maschiven Fabrick Deutshland

- Mock drills shall be conducted once in 3 months
- ART shall be turned out within 30 minutes during day and within 45 minutes during night.
- MRT shall be turned out within 15 mts with a direct despatch facility and within 20mts without direct despatch facility.

**1) Write short notes on a) serious accident    b) averted collision:**

**a) Serious accidents:**

Accidents to a train carrying passengers which is attended with loss of life or with grievous hurt to a passenger or passengers in the train, or with serious damages to railway property of the value exceeding Rs 2 crores. Any other accident which in the opinion of the Chief Commissioner of Railway Safety or Commissioner of Railway Safety requires the holding of a inquiry by the commissioner of Railway Safety shall also be deemed to be a serious accident. However the following shall be excluded.

- a. Cases of trespassers/passengers run over or /and injured or killed through their own carelessness.
- b. Cases of railway servant or other persons holding pass/tickets are killed or grievously injured which travelling outside rolling stock but excluding vestibule or run over at LC or elsewhere on track by a passenger train.
- c. No railway servant/passenger killed at LC gate accident unless CRS is of the opinion to hold an inquiry by CRS.

**b) Averted collision:**

1. It is a circumstance under which, but the vigilance shown by any person or persons, a collision would have occurred.
2. Collision was averted due to the vigilance shown by any person or persons.
3. Averted collision may be in the block section or with in the station limits between the trains or between a train and an obstruction.
4. If, outside the station limits, the distance between the two trains or the train and obstruction is 400 mts or more- it may not be treated as an averted collision.
5. If, within the station limits there is intervening stop signal at danger governing the moving train and that moving train averted the collision by obeying the stop aspect - may not be treated as an averted collision
6. Averted collisions come under indicative accidents.
7. Inside station limits the SM shall immediately reckon the distance between the two trains or between train and obstruction in the presence of Loco Pilot and Guard and enter it in the station Diary. In case of outside station limits the Guard of train shall reckon the distance between two trains or train and obstruction in the presence of Loco Pilot and enter in the CTR.

**2) What are the Duties of Loco Pilot/Guard in Case of Serious accident to passenger carrying Train in Mid-Section?**

1. Switch on the flasher light, give frequent short whistles.
2. The Loco Pilot should note down the time and Kilometer.

**Securing**

3. Take such technical precautions as may be necessary to render the LOCO/ Train safe (Apply A9 and SA9).
4. Hand Brake of the locomotive shall be applied.
5. Hand Brakes of all SLR's to be applied.
6. Sprags/Wedges or chains to be used.

**For Goods Trains:**

- a. Pin down hand brakes of Brake Van + 18 Vehicles up to the gradient 1/600.
- b. Pin down hand Brakes of Brake Van + All Vehicles when the gradient is steeper than 1/600.

**Arrange to protect the Line As:-**

1. In case of Absolute block system place 1 detonator at a distance of 400/600 mtrs. (MG/BG), 3 detonators at a distance of 800/1200mtrs (MG/ BG), 10 Mts. apart.
2. On single line Loco Pilot shall protect in front and guard in rear.
3. On double line, Loco Pilot shall protect adjacent line first, after ensuring, Guard shall protect obstructed line in rear.
4. In automatic system, place one detonator at 90 Mtrs, two detonator at 180 Mtrs, 10Mts apart on same line and adjacent line shall be protected as per G.R. 6.03.
5. During total interruption of communication protection shall be done by placing 1 detonator at a distance of 250 Mts. two detonator at a distance of 500 Mts. 10 Mts. apart.

**Information**

Arrange to advise control /S.M about the accident by any one of the following means.

- a. Contact /TPC through portable field telephone or CUG phone
- b. Contact SM through 1.B. or gate telephone or CUG phone.
- c. Report can be sent through brake man/Asst. Loco Pilot/Gang man or any other Railway servant.
- d. Send Light engine (if Engine and crew not required at spot)

Accident Report shall be sent in the prescribed form. ACC-3.

In the information following details to be given:-

- |         |  |
|---------|--|
| A. Time | B. Kilometer, between stations and Section |
| C. Line | D. Train involved and its particulars      |



- E. Nature of Accident
- F. Permanent way condition
- G. Condition of adjacent line
- H. Particulars of Rolling stock
- I. No. of persons injured or Killed
- J. Assistance required.
- K. Particulars of LP, ALP and Guard

Post a Railway employee to man the telephone to ensure regular flow of information to control.

### **Assistance**

1. Render all possible assistance to the guard as follows:-

(If Guard is not available Loco Pilot him self has to do)

- a. Take action to save lives and render first aid.
- b. Call for doctors, Railway servants and volunteers in the train and seek their assistance.
- c. Arrange to send injured person to nearest hospitals
- d. Assistance to passengers like Drinking water, Tea, Snacks, Protection of their luggage, Valuables and information about alternative arrangements with the help of villagers, Railway employees, volunteers and RPF/GRP.

2. Protect the mails if required.

### **Suspected sabotage**

1. Action in case of suspected sabotage:-

- a. Loco Pilot and Guard Carefully examine the track with responsible passenger and record the result of examination.
- b. Preserve all clues and arrange to protect the area till the civil and police officials arrived.

2. Loco Pilot should not leave the spot till he is permitted to do so by competent authority.

### **3) What are the duties of train crew in case of injured person/ dead body found on or near the track**

Action to be taken by the railway staff in case of

#### **A) Injured person when life is not extinct**

- 1. Render first aid and or arrange for medical help.
- 2. Inform the police through SM of the nearest station or any other person.
- 3. When run over and knocked down, if found by any train crew, render first aid by guard or qualified doctor by the train and take the injured to the nearest railway station in the direction of train journey where medical aid is available.
- 4. LP and Guard should record the statement, particulars of the person. Particulars includes name, father name, caste, address, cause for the wounds.

5. The statement should be prepared in duplicate and signed by the GLP and responsible witness.
6. One copy should be given to SM of the nearest station where the person is handed over with a memo showing date, time and place where the person found and action taken.

**B) When the body life is extinct**

1. If dead body found on or near the track, record all evidence available. Dead body should not be removed until arrival of police.
2. However to clear the line for movement of subsequent trains, dead body may be moved to the minimum required. Handling by many people should be avoided.
3. The body may be left in charge of village choukidar or lineman or gang man or gate man.
4. If none available it shall be moved to nearest gate lodge/station in the direction of the train journey and hand over to the gateman/SM.
5. Written memo to be given by guard/LP, or person who observes to the SM. Copy of memo should be handed over to the person under whose charge body is kept for on ward submission to police officials.
6. Memo contains
  - i) time and place
  - ii) position of body
  - iii) Blood stains on ballast or engines, extent of injuries whether by train or otherwise.
  - iv) Approximate age, sex and particulars if available.
  - v) Position of clothing
  - vi) Name and address of the informant.

**C) Passenger run over**

- i) A statement of the person if alive should be recorded in the present of GRP of a train or two passengers with address.
- ii) If carriage windows or doors involve, Guard shall examine with TXR staff if available or carriage should be examined at next TXR point.
- iii) The following information shall be given in the ACC 3.
- iv) Kilometerage and place at which the person fell down and the train stopped.
- v) Noticed by Whom.
- vi) Train backed or not
- vii) Person seated or standing before the incident as seen by fellow passengers.
- viii) Carriage particulars.

- ix)** How it happened, first rendered or not.
- x)** Remarks as to whether the occurrence is accidental or carelessness or any other cause

## APPENDIX XVII WORKING OF SIDING

### 1) Write in detail about the working of trains between serving station to siding

Siding are classified into following categories

1. **Public siding** – owned and operated by railways
  2. **Assisted siding** – owners of the siding use it and construction cost jointly by railways and siding owners
  3. **Private siding** – for use of owners of siding entire cost of construction borne by siding owners
  4. **Departmental siding** – sidings used by different department of railways
  5. **Military siding** – owned and entirely used by military authorities.
- These sidings are served through block stations which are called serving stations
- According train from and to siding run under

#### I ONE PILOT SYSTEM

#### II MULTIPLE PILOT SYSTEM

### COMMON FEATURES OF THE SYSTEM

1. The system to be adopted is decided by Sr. DOM, will be incorporated in SWR.
2. SM maintains “**Pilot movement register**” for recording the details of movements of trains to and from the siding.
4. Guard or in his absence operating staff deputed by SM will be the in charge of the Pilot.
5. Person in charge of pilot responsible for safe working, correct setting and securing of all points concerned using cotter & bolt/clamp and padlock while entering/leaving siding and during shunting operations.

### I ONE PILOT SYSTEM

1. SM to ensure clearance before despatch of the pilot by seeing pilot movement register.
2. SM advice in charge of Pilot and LP about work to be done in siding through written memo. Handover the load slip, LV No. & Caution Order to observe both ways on the siding line.
3. SM there after set the route for dispatch, clear shunt signal and hand over written authority to LP in the prescribed format and take acknowledgment.
4. SM in a position to admit shall set the route and receive into station by taking ‘off’ shunt signals or pilot in on memo.

## **II MULTIPLE PILOT SYSTEM.**

1. SM advises Pilot in charge & LP about working to be done through written memo.
2. Handover the load slip of wagon particulars and LV No. CO to be observed both ways on siding line.
3. SM set the route for dispatch, handover written authority to LP in format and obtain acknowledgement.
4. LP proceed to siding duly observing prescribed SR if any.
5. Pilot stop start of top points/stop board/ earmarked place at the siding yard.
  - i. On arrival inside the siding , Pilot in charge assure the SM duly supported by PN that pilot arrived complete into the siding and line between stations and siding is clear
8. On completion of work in siding yard, Pilot in charge advises SM the load particulars and LV No. of Pilot to return to station and seek his permission to start.
9. SM shall give permission supported by PN only after ensuring line between siding & stations is free through Pilot movement register.
10. On receiving SM's permission Pilot in charge ensure correct setting and locking of points for dispatch from siding and handover written authority to LP in format.
11. SM in a position to admit set the route & receives the Pilot into station yard by taking 'off' shunt signal or by Pilot in memo.

### **4) What are your suggestions for improving punctuality on Railways?**

- 1) The passenger terminal must have adequate berthing, shunting and stabling facilities.
- 2) Passenger time tabling should be realistic
- 3) Recovery times and engineering allowances should be provided with great care and analysis.
- 4) Station Master shall grant line clear promptly, close the block section promptly.
- 5) Timely close of L.C gates, timely setting of points and taking off signals.
- 6) Timely display of all right signals by guard
- 7) Arranging crossing precedence judicially with minimum detention trains by controller.

- 8) Reservation charts and slips should be prepared and pasted at appropriate places in time with due care.
- 9) Timely service of meals.
- 10) Proper planning and coordination in regard to loading and unloading.
- 11) Proper maintenance of locomotives to avoid engine failure or time failure.
- 12) The loco motive nominated to work a train must reach the station well in time.
- 13) Efficiency of Loco Pilot's plays very vital role in the punctuality Loco Pilots shall always run with MPS.
- 14) Loco Pilot does not take extra time on loco account at fuelling points.
- 15) Proper maintenance of coaches
- 16) Proper maintenance of brake system
- 17) Proper maintenance of over head equipments
- 18) Proper maintenance of points, signal block Instruments to avoid failures.
- 19) Proper maintenance of track
- 20) Total time loss due to cautions does drive not exceed engineering allowance.
- 21) Punctuality awards to staff
- 22) Foot plate inspection and drives to be conducted.

**Reason for Loco Pilot passing stop signal at danger.**

1. Not taking proper rest before coming for duties
2. over hour's on duty.
3. Not having proper knowledge of rules.
4. Taking alcoholic drink, sedative, Narcotic, stimulant drug.
5. While on duty or 8 hour's before the commencement of his duty.
6. Im-proper GDR check (continuity test air brake)
7. Sleeping 'ON' duty.
8. Giddiness due to sickness.
9. Poor brake power

10. Poor Visibility of colour light signal during day time.
11. Poor Visibility of semaphore signals during night time.
12. Not checking brake power at the first opportunity.
13. Signal put back to ON while approaching.
14. Un authorised persons are travelling in the locomotive.
15. Glazing of vision due to sun rays falling on the eyes directly.
16. Poor visibility of signals due to thick and foggy weather. LP not followed precautions during thick and foggy weather.
17. Late application of the brakes
18. Excess speed.
19. Falling gradient continuously.
20. Poor judgment of braking distance.
21. Argument and discussion by the Loco Pilot and Assistant
22. Asst & Loco Pilot not locating the signal in time.
23. Not calling out the aspect of the signal each other.
24. Lack of co-ordination between leading and trailing (banking) engine.
25. Caution order is not given when signal is shifted.
26. Not undergone periodical medical examination.

### **Preventive measures**

1. Taking proper rest before coming for duty.
2. Relief shall be arranged in time.
3. Loco Pilot shall be conversant with the rules.
4. Loco Pilot shall not take any alcoholic drink, sedative while on duty and 8 hours before commencement of duty.
5. Conduct continuity test incase of air brake stock, where ever required.
6. Loco Pilot shall be alert on duty.
7. TXR shall arrange adequate brake power for the trains.
8. Whenever become sick ask for relief.
9. Ensure correct aspect of signals during poor visibility.
10. Check the brake power at the first opportunity.
11. Station masters shall not put back the signals except to avoid accidents.
12. Do not allow un authorised persons in the loco.
13. Apply the brakes in time. 14. Do not permit excess load.
15. Easing the steep gradients.
16. Loco Pilot shall judge the braking distance correctly

17. Do not exceed prescribed speed.
18. Avoid arguments and discussions while on loco
19. Locate the signals in time.
20. When locate the signals, call out the aspect of the signals by Loco Pilot and Asst.
21. Whenever signals shifted or newly erected co shall be given.
22. Attend PME regularly.
23. Give medals / cash awards/merit certificates to the staff to encourage safety habits.
24. If the signal aspect is not clear or conflicting treat the signal is at ON.
25. Follow the aspect of signals.
26. From the signal warning board, if signal is not visible, treat the signal is at ON.

**Write short notes on Over Dimensional Consignment [ODC](IR Operating Manual/WTT)**

1. A consignment the dimensions of which exceeds the standard moving ones is called an over dimensional consignment [ODC] or Infringed Standard Moving Dimensions [ISMD].
2. An over dimensional consignment is one which, when loaded upon a truck with lashing and packing, infringes the standard moving dimension at any point on the entire route from the booking station to the destination.
3. ODCs are classified in different categories according to the extent to which the clearance in respect to length, width and height of any consignment
4. The clearance referred to above is of two types - gross clearance and net clearance.
5. Gross clearance means the extent of clearance when the consignment is stationary and the net clearance means the extent of clearance as after allowing for horizontal lurching and vertical bouncing.
6. Classification of ODC:



Gross clearance:

Class 'A' - With gross clearance of 22.8cm (9inches) and above

Class 'B' - With gross clearance of 15.24 cm (6inches) and above but less than 22.86 cm (9 inches)

Class 'C'- With gross clearance of less than 15.24 cm (6 inches) but not less than 10.16 cm (4 inches)

Class	Clearance	Sanction Authority	Time of Movement	Speed [Kmph] BG/ MG	Escort
A	Net clearance of 150mm (6") and above	COM	Day/Night	75 / 25	Not Necessary
B	Net clearance of NLT 75mm (3") & NMT 150mm (6")	COM/CE	Day/Night	40/ 25	PWI, TXR, TI/Spl.Gd, OHE official in OHE area
C	Net clearance of less Than 75 mm (3")	COM,CE CRS	Day only	25/15	SSEs(PWAY, C&W, S&T, OHE) TI

7. Whenever ODC consignment is offered for booking, SM shall verify the consignment.
8. Apply to Sr.DOM who shall obtain sanction from competent authority.
9. Application must show length width, height & weight of load accompanied by sketch.
10. While comminuting sanction for movement, route through which it has to be moved mentioned.
11. Restrictions according to class of ODC must be strictly observed.
12. It should be loaded carefully and avoid change of shifting enrout.
13. While examination by SE(C&W) he must see load is well secured, within CC of wagon, axle load restriction & under gear of wagon.
14. After loading Sr.SE(C&W) advise SM of various dimensions & issue 'fit to run' certificate for movement.
15. SS/SM inform Sr.DOM and office of COM
16. Operating Branch arrange to advise COM of other railways.
17. SS/SM shall furnish full particulars of wagon to control office.
18. CO given to Guard & LP to observe any other speed restriction and precaution to be observed.

19. Movement:-

- i. Will be moved only after getting approval from competent authority.(COM)
  - ii. The Number of wagon entered in Red ink in VG and handover to guard.
  - iii. SS/SM advice SCOR, the train No.
  - iv. Dy Chief Controller informs adjacent control office and sees it is moved only through authorized route.
  - v. The load must be evenly placed when more than one wagon used.
20. For the movement of ODC a minimum clearance of 390 mm has been laid down in case of 25 KV AC traction. If the clearance is less than 390 mm up to 340 mm, speed shall not exceed 15 Kmph and OHE staff escort is required. If it is less than 340 mm ODC has to be moved with power of at a speed of 15 Kmph.
21. A circular shall be issued to all stations on the route to reach them sufficiently in advance. ODC shall be normally cleared by through goods trains.
22. 'C' class ODC shall proceed with a restricted speed of 5 Kmph while passing through a station, yards, curves, gradients and turnouts.
23. The Guard shall not allow the train to enter into electrified section (clearance is less than 340 mm) until permit to work is received by him. SM at starting point shall advise the Loco Pilot in writing to follow the instructions of authorised person (who will give permit to work) to stop the train as and when required.
24. The LP and the Guard shall follow all the restrictions as per the letter/caution order given to them.

## FIRST AID

The immediate treatment given to the victim of an accident or sudden illness before the arrival of the doctor is called first aid.

### ***Aim / Objectives:***

- Save the life.
- Promote the recovery.
- Prevent the worsening of the condition.
- Arrange transport to shift him to hospital

### ***Contents of the First Aid box:***

1. Set of splints	:	1	
2. Roller Bandage	:	10	
3. Triangular bandages	:	4	
4. Tourniquet/Rubber bandages	:	2	
5. Cotton Wool	:	4	
6. Safety Pins	:	10	
7. Adhesive Dressing	:	20	
8. Paracetamol Tab	:	20	
9. Diazepam Tab	:	10	
10. Antiseptic Cream	:	1	
11. Injury Card	:	1	

### ***Types of accident relief medical equipment:***

With a view to provide prompt medical aid, the following types of accident relief medical equipments are provided in our railways.

1. Scale one medical equipments (MRV) are available at nominated stations mentioned in working time table.
2. POMKA (Portable Medical Kit for Accidents) available in all health units, poly clinics, sub-divisional, divisional and zonal hospitals.
3. Scale two medical equipments (ARME) are available at specified stations in boxes mentioned in working time table.
4. First Aid boxes are provided with station masters, passenger carrying train guards, workshops, marshalling yards, loco sheds and C&W depots.
5. Special First Aid boxes are provided in all long distance super fast, shatabdi, rajdhani expresses, Dy.SS (Commercial), AC coaches of some of the nominated trains.
6. First Aid boxes for gang men.
  - First aid boxes available with station masters and guards of passenger trains are to be inspected by ADMO once in a month.
  - The augmented first aid box is available with train superintendent, AC coach attendant, Dy. SS (Comma).
- This box contains around 49 items and this is to be utilized for giving medical aid to the passengers by a doctor only.

- Keys of the first aid boxes for locations such as stations, marshalling yards, workshops, loco sheds, carriage and wagon depots etc, which will be kept with the supervisors on duty.
- The first aid boxes with guards of train carrying passengers will have no keys.

**Utilization of first aid box:**

**Splints:**

These are used to immobilize and support the fractured limbs.

**Roller Bandages:**

**It is used to retain dressings and splints in position**

**Triangular Bandage:**

- To retain dressings and splints in position and to immobilize the fractures.
- To support an injured part or in the form of slings.
- To control bleeding.
- To reduce or prevent swelling.
- To assist in the lifting and carrying of casualties. Mainly used as bandages like head bandage, chest bandage, shoulder bandage, elbow bandage, hand bandage, hip bandage, foot bandage etc. It is also used as slings like arm sling, triangular sling and cuff and collar sling.

**Tourniquet / Rubber Bandage:**

It is used to stop bleeding and to stop spreading of poison when snake bites. It is used only for hands and legs. It is to be released at regular interval.

**Cotton wool:**

It is used to clean/pad the wounds. It is also to be utilized to absorb discharges when there is a wound.

**Safety Pins:**

It is used when Triangular bandage used for victim.

**Adhesive Dressings:**

It is used for minor & superficial wounds only.

**Paracetamol Tab:**

These are used to relieve minor pains.

**Diazepam Tab:**

It is a sleeping pill to be used in case of severe pains such as fractures etc.

**Antiseptic Cream:**

It is used to minimize or prevent infection to wounds.

**Injury Card:** It is for maintaining the account of the first aid box items.

Rules of First Aid:

The best advice to the First Aider is Make Haste slowly.

- a) Reach the accident spot quickly.
- b) Be calm, methodical and quick.
- c) Look for breathing, bleeding and shock.
  
- d) Start artificial breathing if casualty not breathing stop bleeding and then treat the shock .Avoid handling of the casualty unnecessarily.
- e) Reassure the casualty.
- f) Arrange for despatch to the Doctor or to the Hospital.
- g) Do not attempt too much. Give minimum assistance so that the condition does not become worse and life can be saved.

The three emergency situations where a casualty is especially at risk because of interference with vital needs are:

- a) Lack of breathing and / or heart beat.
- b) Severe bleeding
- c) A state shock.

**Steps to be followed while rendering effective help to a person  
who met with an accident.**

- **D-Danger**
- **R-Response**
- **A-Airway**
- **B-Breathing**
- **C-Circulation of Blood.**

1. Remove the casualty from the danger; shift him / her to a safe place.
2. Find out whether the casualty responding or not. If responds he / she is conscious otherwise unconscious.
3. If unconscious check ABC if any failure restore artificially immediately.

- AIRWAY- Airway may get blocked due to
- Tongue falling back
- Foreign body in the airway

**To check airway**

- Lay the casualty on his back
- Open the mouth and see in side
- If tongue fallen back tilt the head slightly back. to bring the tongue to its normal position and open the mouth.
- If any foreign body visible in side the mouth it is to be removed by inserting two fingers in to the mouth carefully.
- After clearing the airway the casualty to be put in recovery position.

- Once air way clear breathing starts automatically.

### **Breathing**

- Look for the person's chest to rise and fall.
- Listen for the sounds of inhaled or exhaled air.
- Feel for exhaled air by putting your finger near the casualty's nose
- If no breathing give **two inflations of artificial respiration.**

### **Circulation**

- Feel for a pulse, by gently pressing two fingers (do not use the thumb) on the person's neck between the Adam's apple, or voice box, and the muscle on the side of the neck.
- If you are not feeling the pulse it indicates that heart not functioning
- Restore the heart through cardiac massage

## **ASPHYXIA (SUFFOCATION)**

### ***Definition:***

**When lungs are not getting sufficient fresh air, important organs of body mainly brain deprive of oxygen, it is a dangerous condition called asphyxia.**

### ***Causes:***

- Drowning
- Breathing polluted air
- Pressing of wind pipe (Hanging, Throttling and Strangulation)
- Choking
- Pressure/weight on chest.
- Electric shock
- Some poisons.

### ***Signs and Symptoms of Asphyxia/Suffocation:***

- Low / No Breathing
- Blue colour of cheeks and lips with congestion of face.
- Swelling of veins at neck.
- Unconsciousness.

### ***General Treatment for Asphyxia:***

- Remove cause from casualty or casualty from cause.
- Ensure more fresh air (By opening doors and windows and removing the people surrounded); loosen the tight clothing at chest and neck regions.
- Start artificial Respiration without wasting even few seconds.
- Arrange medical aid.

**Note:-** (1). Normal Breathing (Respiration) Rate 15 – 18 times per minute.  
(2) Normal Heart Beat/pulse rate 72 times per minute.

***Methods of Artificial Respiration:***

- **Mouth to Mouth Method of artificial respiration**
- **Mouth to Nose Method of artificial respiration**

***Mouth to Mouth Method of Artificial Respirations:***

- Place the casualty on his back on a plain and hard surface.
- Sit by the side of the face and place the hand by the side of chin and tilt the head slightly back so that clear ventilation at throat.
- Cover the casualty's mouth with clean cloth and pinch the nostrils.
- Open your mouth and take fresh air and cover the lips of casualty with your lips and blow the air into the mouth of casualty @ 10-12 times per minute.
- While blowing ensure that nostrils are pinched and chest is rising. If chest is not raising it indicates some obstruction in air passage clear the air passage and restart mouth to mouth artificial respiration. This process to be continued till the normal breathing resumed or Doctor arrives which ever is earlier.

***Mouth to Nose method of artificial Respiration:***

This method will be adopted only when mouth can not be opened due to injury inside the mouth or jaw fracture or the person suffering with fits convulsions .In this method blow the air into the nose of the victim by closing the mouth of the victim with fingers.

**WHEN HEART STOPS FUNCTIONING**

***If the Heart is not working you will notice the following:***

- The face is blue or pale.
- Heart beat and pulse at the root of Neck (carotid pulse) are not felt.

**Note:-** (1). Even if the casualty is breathing but the breathing is not normal, it is wise to start artificial respiration.  
(2). Do not begin heart compression until you are sure that the heart has stopped beating.

***External heart compression or External cardiac massage:***

1. Place the casualty flat on his back on the ground and remove the cloths over the chest.
2. Sit on the right side of the casualty on your knees
3. Feel and mark the lower part of the sternum.

4. Place the heel of your left hand on the marked point make sure that the palm and fingers are not in contact with chest.
5. Place the heel of the right hand over the left hand.
6. Push the sternum towards the spine. It can be pressed upto 1 to 1.5 inches.
7. Adults should be given about 100 compressions per minute. For children from 2 to 10 years compressions with one hand heel will be enough, but compressions should be @ 100 times per minute. For infants below 2 years compressions with two fingers is good enough and applied at a rate of 100 times per minute.
8. Press firmly but carefully, carelessness may cause injury to ribs.

If the treatment is effective

- colour will become normal.
- Pupil will contract.
- Carotid pulse begins.

### **CPR (Cardio Pulmonary Resuscitation)**

If heart and breathing both are failed give CPR - Cardio Pulmonary Resuscitation  
Give 30 heart compressions of cardiac massage than two inflations of artificial respirations and repeat the process.

### **SHOCK**

#### ***Definition:***

**Shock is severe depression to vital functions of organs like brain, heart, lungs etc. due to less blood supply to the brain.**

#### ***Causes:***

- **Wounds**
- **Fractures**
- **Burns & Scalds**
- **Snake bite**
- **Sunstroke**
- **Heart attack**
- **Dog bite**
- **Electrical shock etc.**

#### ***Sign and symptoms of Shock:***

1. Giddiness (symptom)
2. Pale colour of face (Sign)
3. Coldness (symptom)



4. Cold clammy skin (skin touch to cold with seating) (sign)
5. Rapid and weak pulse (sign)
6. Nausea (vomiting sensation) (symptom)
7. Vomiting (sign)
8. Unconsciousness (stupor/coma) (sign)

**General Treatment for Shock:**

1. Reassure (Encourage) the casualty if he is conscious.
2. Keep the casualty in supine position (Face upward) and head lower than body by raising the foot side of cot and head must turn to one side. Head lower to supply more blood to brain and turn one side to avoid tongue fall back and block wind pipe.
3. Cover with blanket to warm. Do not use hot water bottles, do not massage and do not give alcoholic drinks.
4. If he is conscious give sips of water, tea / coffee on request but do not give if suspects any operation.
5. Give pain relievers and arrest bleeding if necessary.
6. Arrange medical aid.

**WOUNDS AND HEMORRHAGES (BLEEDINGS)**

**Definition:**

**Wound is caused due to breakage of skin / tissue.**

**Types of Wounds:**

- **Contused Wounds**
- **Lacerated Wounds**
- **Punctured Wounds**
- **Incised Wounds.**

1. **Contused wounds** are caused by blunt instruments where there is no opening. Treatment put an ice piece over the wound.
2. **Lacerated wounds** are caused by irregular edges of instruments like glass pieces metal pieces, machine injuries, animal bites and occurrences where the edges of wound is irregular. Clean the wound with water and pick any floating foreign body. Cover the wound with a clean cloth or apply antiseptic cream.
3. **Incised wounds** are caused by sharp edged instruments like razor / knife where the edge of wound is in straight line. Loss of blood is more hence arrest the bleeding immediately.
4. **Punctured wounds** are caused by sharp edged instruments like needles, nails and most of gun-shot wounds where less opening and more deep. If any wound on the chest to be covered and packed with a pad and ensure proper blood supply to brain.

- The circulatory system consists – Heart, arteries, veins and capillaries.
- Heart beat rate 72 times per minute average.
- Pulse rate also 72 times per minute average.
- While noticing the pulse we have to observe rate, rhythm and strength .

***Types of Bleedings (Hemorrhages):***

- Artery Bleeding – Bright red in colour and flow in jets.
- Vein Bleedings – Dark red in colour and flow continuously.
- Capillary Bleedings – Red in colour and oozing from all parts of wound.

**According to the place of wound bleeding are two types:**

- External bleeding
- Internal bleeding

***Danger of wounds:***

- It allows precious blood to escape from body.
- It permits harmful bacteria/virus or other injurious agents to enter into body.

***Methods to arrest Bleeding:***

- Direct Pressure Method- Whenever a person suffering with external bleeding and wound is free from any foreign body direct pressure method to be used for arresting the bleeding. Clean the surroundings of the wound. Put a dressing/pad and press the wound. Bleeding gets stopped

**Indirect Pressure Method-**

It is applied by two ways

- By using Tourniquet bandage
- By pressing Pressure Points

For the amputated limbs, when a foreign body in the wound which can not be removed, very big wound and direct pressure method fails. Tourniquet bandage is used to stop bleeding for hands and legs only. For other parts pressure points to be pressed. Tourniquet bandage to be tied above the wound towards the heart side at single bone area. It is to be relaxed once in 15 minutes.

***Important Pressure Points:***

1. Carotid pressure point on the neck either side of voice box.
2. Sub-clavian pressure point on the inner end of collar bone.
3. Bronchial pressure point. on the inner side of upper arm.
4. Femoral pressure point on the thigh bone.

### **General Treatment (First Aid) to Wounds:**

1. Place the victim in sitting/lying position and elevate the injured part if possible.
2. Expose the wound and clean the wound and surrounding area but do not disturb blood clot if already there.
3. Remove any foreign bodies which are floating.
4. Arrest bleeding by applying pressure directly on the wound by putting a pad.
5. If bleeding could not be controlled by direct pressure method or if you find any foreign body inside the wound or wound is too big apply indirect pressure method.
6. Apply antiseptic cream, dressing and bandage.
7. Immobilize the part where it is possible.
8. Give pain relievers and treat for shock.
9. Arrange medical Aid.

### **Nose bleeding Treatment (Hemorrhage):**

1. Advise the victim to take breath through mouth.
2. Place the victim near a window or against current of air in sitting position with the head slightly bent forward.
3. Pinch the junction of the nose just below the hard part.
4. If available put ice piece over the nose or a wet cloth.
5. Warn him not to blow the nose.
6. Do not block the nostrils.
7. Arrange medical aid.

### **Ear bleeding Treatment:**

1. Place the victim on his back.
2. Do not block the ear passages
3. If one ear bleeding turn the head to the same side from which blood is coming out. and see that the affected ear is down.
4. If both ears bleeding keep face upward and head little bit low for free drainage of blood and raise the legs.
5. Do not block the ear.
6. Arrange medical aid.

### **Internal Bleeding:**

#### **Symptoms of internal bleeding**

- Giddiness.
- Skin becomes pale, cold and clammy.
- Pulse gets rapid but very weak.
- Sweating, Thirsty, feels vomiting sensation.
- Become unconscious.

### ***Treatment for internal bleeding:***

1. If the person is unconscious, check air-way, breathing and circulation of blood. If any failure is noticed, restore them.
2. Lay him on his back and raise the legs by using pillow to enable the blood supply to the brain.
3. If he is conscious lay him on his back and raise the legs by using pillow to enable the blood supply to the brain.
4. Shift him to hospital as early as possible.

### ***Head injury:***

As a result of head injury, blood and brain fluid may flow out of the nose, ear or mouth.

### ***Symptoms:***

- Giddiness.
- Skin becomes pale, cold and clammy.
- Pulse gets rapid but very weak.
- Sweating, Thirsty, feels vomiting sensation.
- Become unconscious.

### ***Treatment:***

- Ask the person not to blow his nose.
- Do not pack ear or nose.
- Lay the person on the affected side.
- Ensure tongue should not fall back.
- If any ear bleeding noticed, do not block the ear passage.

## **BURNS AND SCALDS**

### ***Definition:***

Burn is an injury caused by

- Dry heat – such as fire / flame
- Friction – touching speedy moving objects
- Corrosive (burning nature) chemicals like acids / alkalis
- Touching an object which was charged with high tension electric current.

Scald is an injury caused by moist heat such as hot water, milk, oil, tar, steam etc.

### ***Degrees of burns:***

- |            |   |                                    |
|------------|---|------------------------------------|
| 1st degree | - | Redness of skin, blister formation |
| 2nd degree | - | Internal tissue damage             |
| 3rd degree | - | Complete charring of part.         |

### ***General treatment for burns and scalds:***

- If a person's cloth catches fire do not allow him to run. Pour plenty of water or gently place him on ground and roll him slowly to put off flames.
- Cool and clean the affected area with wet cloth / cotton or flood with water or dip the effected area into water if it is possible.
- Remove any constraint articles like bangles, rings, watches immediately. Otherwise they can not be removed later.
- Remove the burnt cloths by cutting which is not stick to the skin.
- Cover the area preferably with clean cloth but do not disturb blisters.
- Do not apply antiseptic cream for major burns
- If he is conscious give water with pinch of salt to make good of lost salt and water, weak tea with more sugar also may be given if he is not diabetic patient.
- For major burns do not apply antiseptic cream.

**"If you dont like something, change it. If you can't change it, change your attitude. Don't complain"**

## **FRACTURE, DISLOCATION, SPRAIN AND CRAMP**

### ***Definitions:***

- Fracture is breakage, crack / bend of a bone.
- Dislocation is displacement of one or more bones from joint.
- Sprain is wrenching tearing of cartilage near a movable joint.
- Strain is over lapping of muscles at a particular place.
- Cramp is sudden painful involuntary contraction of voluntary muscles.

**Causes of Fractures: Direct force, indirect force and muscular contraction.**

### ***Signs and symptoms for Identification of fracture:***

- Pain
- Swelling
- Loss of power
- Deformity (change in shape or size).
- Tenderness (Sever pain by gentle touch)

### **Types of Fractures:**

- Simple Fracture means the broken ends of the bone do not come out by opening the skin and thus remain inside only.
- Compound Fracture means the broken ends of the bone comes out by opening the skin and the fractured bone is in contact with outside air as a result of an injury.

- Complicated Fracture means the fractured bone damages an important internal organ like the brain, a major blood vessel, the spinal cord, lungs, liver, spleen etc.

#### **General Treatment for Fractures:**

- Immobilise and support the affected part/limb by means of splints, Bandages/Slings etc.
- It is important to immobilize the area both above and below the injured bone.
- Give pain relievers and treat for shock if necessary.
- Ice packs can be applied to reduce pain and swelling (Not to be placed directly over the wound).
- Arrange medical aid as early as possible.

#### **Sprain and Strain Treatment:**

- Place in suitable position and put firm bandage and in case of strain wet it with water frequently.
- Arrange medical aid.

## **POISONS**

#### **Definition:**

Any substance (liquid, solid or gas) when enter into body in sufficient quantity which is harmful to the body and has power to injure health or destroy life is called poison.

#### **Gaseous poisons:**

These are entered in to the body through breathing.

#### **Treatment:**

Take the person to safe place and start artificial respiration if necessary. Before entering into room, make proper ventilation and first aider has to cover his face with wet cloth. Take long breath and hold it. Shift the victim to the hospital as early as possible.

#### **Swallowed Poisons:**

These are entered in to the body through mouth.

#### **Treatment:**

**Act quickly and collect poison or container and send messenger for doctor. Before doctor arrives,**

- Check whether he is conscious or not. If unconscious, check air way, breathing and circulation. If there is no breathing, start artificial respiration and if there is no pulse start CPR.
- If conscious, dilute the poison by making him to drink more water, milk, tender coconut, white portion of the raw egg.
- If the poison is corrosive in nature, do not induce vomit.
- Neutralize the poison by giving antidotes. For acids – chalk powder mixed in water and for alkalis – lemon juice.
- If the poison is non corrosive such as pesticides, excess dose of sleeping pills, mosquito killers, rat killers etc. induce the person to vomit by tickling or by giving large quantity of concentrated salt water.

### **SNAKE / DOG / SCORPION BITE TREATMENT**

#### **Snake bite:**

- Tie rubber (Constriction) bandage (if the bite took place on legs / hands) above the wound towards the heart side. This must be released at regular intervals.
- Wash the area immediately with flow of water.
- Reassure the victim because most of the persons are dying due to fear.
- Don't allow him to run or walk.
- Treat the wound.
- Treat for shock.
- Give artificial respiration if there are any signs of failure of breathing.
- Arrange medical aid or carry the person to the doctor.

#### **Dog bite:**

- Wash the bitten area with soap water and with antiseptic solution.
- Encourage bleeding and do not cover the wound.
- Collect information about dog and dog bite such as it is pet / stray dog and whether it is a provoking / non provoking bite.
- Arrange medical aid.

#### **Scorpion bite:**

- Wash the bitten area.
- Apply sodium bi-carbonate or potassium permanganate and sodium bi-carbonate mixture on the bitten area.
- Arrange medical aid.

#### **Drowning:**

- Remove the person from the water.
- Lay him on the ground on his stomach and turn the head to one side.
- Apply pressure on the back (waist portion) or raise the belly so that the water gone into lungs should come out.
- ***Once lungs got vacated, breathing will start. If it has not started, give artificial respiration to restart the breathing.***

- **Arrange medical aid.**

### **UNCONSCIOUSNESS (INSENSIBILITY)**

When sensory organs are not in working condition except in sleep, the condition is called unconsciousness. Unconsciousness is due to interruption of the brain action through some interference with the functions of the nervous system.

***It is of two types.(1) Stupor (partial) 2) Coma (complete)***

#### **Causes:**

- Ensure abundant supply of fresh air.
- If breathing stops or appears to be failing, start artificial respiration.
- If breathing is not noisy, keep face upward and head and shoulders to be raised slightly.
- If breathing is noisy keep in recovery position.
- Undo all tight clothing, especially around neck and chest.
- Apply the specific treatment for the cause.
- Wrap the victim in a blanket.
- Do not leave the casualty alone.
- Do not attempt to give food / fluids while in unconscious through mouth.
- Shift him to hospital.

### **EPILEPSY (FITS)**

#### **Signs and Symptoms:**

1. Suddenly loses consciousness.
2. Sometimes remain rigid with flush face.
3. Convulsions start with froth at mouth.
4. Pulse will be in bouncing condition.
5. Body becomes stiff.

#### **Treatment:**

- Do not stop convulsions by force.
- Try to remove hard articles away from the victim.
- Wipe away the froth from his mouth.
- Keep careful watch for a possible failure of breathing and heart.
- Wait till he comes to the normal condition.
- Protect the tongue by placing soft material between the teeth.
- Once he becomes normal, advice the casualty to see the doctor.
- Do not keep any metal in to the hands and do not pour water

**“If money is your hope for independence you will never have it.  
The only real security that a man will have in this world is a  
reserve of knowledge, experience and ability”**



**ZONAL RAILWAY TRAINING INSTITUTE  
MOULA ALI**

**OBJECTIVE QUESTIONS OF  
G&SR, ACCIDENT MANUAL,  
BLOCK WORKING MANUAL**

## CHAPTER NO – I & II

1. The General Rules for Open Lines of the Railways 1976 have been framed under Section \_\_\_\_\_ of the Railways Act 1989 by the Government of India.(Preface of G&SR)
2. General Rules can be amended by \_\_\_\_\_.(Preface of G&SR)
3. Approved special instructions are issued or approved by \_\_\_\_\_.  
(G.R.1.02(4))
4. \_\_\_\_\_ is the authorized officer of South Central railway.  
(S.R.1.02(5))
5. Subsidiary rules are framed by \_\_\_\_\_.(S.R.1.02(5))
6. Who is the Commissioner of Railway Safety for South Central Circle  
\_\_\_\_\_.(CRS office/SC)
7. Present Chief Operations Manager of SCR \_\_\_\_\_.(COM's office)
8. A fixed stop signal of a station controlling the entry of trains into next block section is called \_\_\_\_\_.(G.R.1.02(33))
9. \_\_\_\_\_ means the Loco Pilot or any other competent railway servant for the time being in charge of driving a train. (G.R.1.02(37))
10. \_\_\_\_\_ and its cognate expressions include a train, vehicle or obstacle on or fouling a line, or any condition which is dangerous to trains.  
(G.R.1.02(43))
11. A train, which has started under an A T P and has not completed its journey, is called \_\_\_\_\_.(G.R.1.02(48))
12. Special instructions are issued by \_\_\_\_\_.(G.R.1.02(50))
13. Station Limits are available between \_\_\_\_\_ signals at a Block Station. (G.R.1.02(52))
14. At Class 'D' station, station limits are available between \_\_\_\_\_.  
(S.R.1.02.52)
15. On Double line class 'B' station Multiple Aspect Signalling, station section lies between \_\_\_\_\_ and \_\_\_\_\_.  
(G.R.1.02(54))
16. On single line 'B' class MAS station, Station section lies between \_\_\_\_\_ or \_\_\_\_\_ or \_\_\_\_\_.(G.R.1.02(54))
17. \_\_\_\_\_ means the system adopted for the time being for the working of trains on any portion of a railway. (G.R.1.02(56))
18. Block stations are sub-classified as \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ & \_\_\_\_\_. (G.R/S.R.1.03(2))
19. The classification of a station shall be mentioned in the \_\_\_\_\_. (S.R.1.03(1))

20. Any Block Station which cannot be worked under Class 'A' Class 'B' or Class 'C' conditions is termed as \_\_\_\_\_. (S.R.1.03(2))
21. Whenever L Ps / AL Ps / SMs / Guards / Switchmen join this Zonal Railway, on transfer, they shall attend \_\_\_\_\_ before taking independent charge. (S.R.2.03.2)
22. No Railway Servant directly connected with the working of trains shall take or use any alcoholic drink, sedative, narcotic or stimulant drug or preparation within \_\_\_\_\_ hours before the commencement of his duty or take or use any such drink, drug or preparation when on duty. (G.R.2.09(2))
23. If train parting is observed by any Railway Servant, \_\_\_\_\_ signal should not be exhibited.(G.R.2.11.2(d))
24. If any railway servant notices that a train has parted, he shall try to attract the attention of the LP and Guard by \_\_\_\_\_ and put both his hands together above his head and separate them smartly. (S.R.2.11.1)
25. When train caught in cyclone, storm or strong wind, after stopping the train, the Guard and the Loco Pilot of the train in co-operation with the Railway staff shall try to see that doors and windows of the coaches are kept \_\_\_\_\_ by the passengers to allow free passage of the wind.(S.R.2.11.2.3)
26. Wind velocity can be measured by \_\_\_\_\_.(S.R.2.11.3)

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### CHAPTER NO. III

1. Signals used for controlling movement of trains as per G & SR are \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_. (G.R.3.02)
2. In colour light area Distant signal is identified by \_\_\_\_\_. (G.R.3.07(4))
3. The normal aspect of Distant signal is \_\_\_\_\_.(G.R.3.07(4))
4. Whenever two yellow lights are exhibited in Distant signal the Aspect is \_\_\_\_\_.(G.R.3.07(4))
5. Whenever one yellow light is exhibited in Distant signal the Aspect is \_\_\_\_\_.(G.R.3.07(4))
6. The indication of the Distant signal in Caution Aspect is \_\_\_\_\_.(G.R.3.07(4))
7. The indication of the Distant signal in Attention Aspect is \_\_\_\_\_.(G.R.3.07(4))
8. Distant signal tells about the aspect of \_\_\_\_\_ signal ahead. (G.R.3.07(5))
9. Whenever Inner Distant is provided, Distant Signal is capable of displaying \_\_\_\_\_ & \_\_\_\_\_ aspects only. (G.R.3.07(6))
10. The normal aspect of Distant signal on double distant signal area is \_\_\_\_\_. (G.R.3.07(6))
11. When colour light Distant signal is combined with Gate/LSS, the normal aspect of that signal is \_\_\_\_\_.(G.R.3.07(7))
12. Distant signal is provided at a distance of \_\_\_\_\_ meters in rear of the stop signal.(SEM 7.30.4)
13. Wherever double distant is provided, distant signal location is \_\_\_\_\_ meters from the stop signal. (S.R.3.07.2)
14. \_\_\_\_\_ is eliminated wherever two Distant signals are provided. (S.R.3.07.2)
15. At stations provided with Advanced starter and starter, the \_\_\_\_\_ shall be taken off first and then the \_\_\_\_\_.(S.R.3.10.1)
16. \_\_\_\_\_ are provided at certain cabins which when reversed, lock the levers of all running Semi-Automatic signals and enable the signals to function as Automatic signals. (S.R.3.12.2)
17. When a colour light Distant is combined with LSS/Gate signal, \_\_\_\_\_ marker shall be dispensed with on the signal post. (G.R.3.17 note)
18. Colour light calling ON signal is identified by \_\_\_\_\_. (G.R.3.13(1)b)
19. Calling On signal may be provided below any stop signal except \_\_\_\_\_.(G.R.3.13(2))
20. Calling ON signal will show \_\_\_\_\_ light in "ON" position. (G.R.3.13(4))

21. Calling On signal shows \_\_\_\_\_ colour light in 'OFF' position.  
(G.R.3.13(6))
22. The Aspect of the Calling On signal when taken 'OFF' is \_\_\_\_\_.  
(G.R.3.13(6))
23. Calling ON signal cannot be taken "OFF" during \_\_\_\_\_  
(end) point failure. (SEM 7.19.5(c))
24. Calling ON signal is to be used only on two occasions, they are \_\_\_\_\_,  
\_\_\_\_\_.  
(G.R.3.69 3(c), G.R.5.09 2(a))
25. Condition for taking off calling on signal is that the train has been brought to a  
\_\_\_\_\_ at the stop signal. (G.R.3.45)
26. To take "OFF" calling ON signal, the train must be in the \_\_\_\_\_ Zone  
and if calling ON is taken "OFF". it will take \_\_\_\_\_ time. (SEM 7.19.5(c))
27. Shunt signals are of \_\_\_\_\_ types, and they are \_\_\_\_\_.  
\_\_\_\_\_ and \_\_\_\_\_. (G.R.3.14(1))
28. Shunt signal may be provided below any stop signal except \_\_\_\_\_.  
(G.R.3.14(3))
29. Shunt signal below stop signal will show \_\_\_\_\_ light in "ON"  
position. (G.R.3.14(6))
30. Position light shunt signal shows \_\_\_\_\_ colour lights in 'OFF' position.  
(G.R.3.14(9))
31. The Aspect of the shunt signal when taken 'OFF' is \_\_\_\_\_.  
(G.R.3.14(9))
32. The Aspect of the shunt signal at 'ON' is \_\_\_\_\_. (G.R.3.14(9))
33. Shunt signal detects \_\_\_\_\_. (S.R.5.14.5)
34. \_\_\_\_\_ type of shunt signals shall be provided in colour  
light area. (SEM 7.42.2)
35. \_\_\_\_\_ is the authority to pass defective Independent shunt signal or  
shunt signal below stop signal at "ON". (S.R.3.14.1)
36. When Shunting Permitted Indicator is defective, \_\_\_\_\_ is the authority for  
the LP. (S.R.3.14.3.3)
37. Detailed working instructions about Shunting Permitted Indicator are available in  
\_\_\_\_\_. (S.R.3.14.3.4)
38. I. B signal is identified by \_\_\_\_\_ (G.R.3.17.1)
39. Gate signal in Automatic section is identified by \_\_\_\_\_. (G.R.3.17.1)
40. When a fixed signal is not in use, it shall be distinguished by \_\_\_\_\_.  
(G.R.3.18.1)
41. Route indicators are treated as \_\_\_\_\_. (S.R.3.19.1)
42. Route indicators are of \_\_\_\_\_ types and they are (a) \_\_\_\_\_,  
(b) \_\_\_\_\_ (c) \_\_\_\_\_. (SEM Part - I 7.4)

43. When a signal is newly erected or shifted, it shall be jointly inspected by \_\_\_\_\_, \_\_\_\_\_ & \_\_\_\_\_.(signal sighting committee) (S.R.3.26.1)
44. When a signal is newly erected or shifted, caution order shall be given for a period of \_\_\_\_\_ days and notified in \_\_\_\_\_ of lobbies. (S.R.3.26.1)
45. Signal sighting committee will go on footplate inspection once in \_\_\_\_\_. (S.R.3.26.2)
46. Shunting limit board/Advanced starter is provided at a single line station where shunting(obstruction) is permitted out side the outermost facing points in the direction of \_\_\_\_\_.(G.R.3.32(1))
47. Block Section Limit Board is provided at \_\_\_\_\_ station with \_\_\_\_\_ signals where the first point is a trailing point or where there are \_\_\_\_\_.(G.R.3.32(2))
48. Gate signal is identified by \_\_\_\_\_.(G.R.3.34.2)
49. Detailed working instructions about outlying siding are incorporated in \_\_\_\_\_.(S.R.3.35.1)
50. Outlying siding points are indicated by \_\_\_\_\_ mark board.(S.R.3.35.2)
51. The speed of a goods train while entering goods terminal yard is restricted to \_\_\_\_\_ kmph. (S.R.3.36.4)
52. A signal which is taken "OFF" for a train will be put to "ON" position only in emergency to \_\_\_\_\_. (S.R.3.36.5.1)
53. To put back starter/advanced starter for departing train LP of the train should be advised by a \_\_\_\_\_ and obtain acknowledgement. (S.R.3.36.5.3.1)
54. Fixed signals except Automatic Signals shall always show their most \_\_\_\_\_ aspect in the normal position. (G.R.3.37)
55. Even though departure signals are taken off, LP shall stop at stations where stoppages are scheduled in the \_\_\_\_\_.(S.R.3.37.1)
56. Signal over lap in M A S shall not be less than \_\_\_\_\_ metres, which shall be reckoned from \_\_\_\_\_ on single line (G.R. 3.40.(1)(b),(3)(b))
57. Signal over lap in M A S shall not be less than \_\_\_\_\_ metres, which shall be reckoned from \_\_\_\_\_ on Double line. (G.R. 3.40.(1)(a),(3)(b))
58. \_\_\_\_\_ signals are prohibited to be used for shunting purposes.(G.R.3.46)
59. Slip siding is intended to protect \_\_\_\_\_.(S.R.3.50.3.1)
60. Catch siding is intended to protect \_\_\_\_\_.(S.R.3.50.3.2)

61. When there is a falling gradient of \_\_\_\_\_ towards station the provision of catch siding is compulsory. (The Railways opening for public carriage of Passenger Rules 2000, Form XV, SI no.46)
62. When there is a falling gradient of \_\_\_\_\_ towards block section the provision of slip siding is compulsory. (The Railways opening for public carriage of Passenger Rules 2000, Form XV, SI no.46)
63. Catch and slip sidings shall not be used for \_\_\_\_\_ and \_\_\_\_\_ purposes. (S.R.3.50.3.1, 3.2)
64. Normal setting of points wherever catch/slip sidings are provided is for \_\_\_\_\_. (S.R.3.50.3.3)
65. When Trap indicator is provided, it shall show \_\_\_\_\_ during day and \_\_\_\_\_ light during night when it is in open position. (S.R.3.50.2)
66. All points shall normally be set for the \_\_\_\_\_ line. (G.R.3.51(1))
67. Point indicator wherever available shall show \_\_\_\_\_ during day and \_\_\_\_\_ light during night when point is set for straight (Main) Line. (S.R.3.51.3.1)
68. Point Indicator, where ever available shall show \_\_\_\_\_ during day and \_\_\_\_\_ light during night when point is set for turn out (loop line). (S.R.3.51.3.1)
69. From the time of disconnection to reconnection, the trains shall be admitted by \_\_\_\_\_ method. (S.R.3.51.7.1)
70. By waving green flag by day and a white light by night up and down vertically as high and as low as possible indicate \_\_\_\_\_. (G.R.6.08(3))
71. Violently waving a white light horizontally across the body of a person indicates \_\_\_\_\_. (G.R.3.53)
72. A green flag/green light moved slowly up and down indicates \_\_\_\_\_. (G.R.3.56)
73. Detonators are also known as \_\_\_\_\_. (G.R.3.59)
74. FSP is painted \_\_\_\_\_ & \_\_\_\_\_ alternatively. (S.R.3.61.5)
75. \_\_\_\_\_ number of detonators are given to each fog signalman. (S.R.3.61.6.2)
76. FSP is located at \_\_\_\_\_ meters from \_\_\_\_\_ signal. (S.R.3.61.5)
77. When Loco Pilot judges that visibility is impaired due to thick, foggy or tempestuous weather he shall \_\_\_\_\_ the train so as to be prepared to \_\_\_\_\_. [3.61.9(a)]
78. Maximum speed of a train shall be restricted to \_\_\_\_\_ kmph on Absolute block system. (S.R.3.61.9)

79. Maximum speed of trains during dense fog in automatic block system is \_\_\_\_\_ when aspect of signal ahead is proceed (S.R.3.61.9)
80. Maximum speed of trains during dense fog in automatic block system is \_\_\_\_\_ when aspect of signal ahead is attention (S.R.3.61.9)
81. Maximum speed of trains during dense fog in automatic block system is \_\_\_\_\_ when aspect of signal ahead is caution (S.R.3.61.9)
82. During foggy weather a red tail lamp of approved design displaying a \_\_\_\_\_ during day or night, should be provided on the last vehicle.[SR 3.61.10]
83. The knowledge of the staff that is required to use detonators shall be tested by the testing officials once in \_\_\_\_\_.(S.R.3.64.4.2)
84. Normal life of a detonator is \_\_\_\_\_.(S.R.3.64.5.3)
85. After testing the detonator, the life can be extended by maximum of \_\_\_\_\_ extensions. (S.R.3.64.5.3)
86. Testing of detonator shall be done by moving an empty wagon hauled by a locomotive at a speed of \_\_\_\_\_ kmph. (S.R.3.64.5.6)
87. The signals to be used to warn the incoming train of an obstruction shall be a \_\_\_\_\_ at night or a red flag during day.(G.R.3.65)
88. Whenever a signal which is detecting a point becomes defective, these points are treated as \_\_\_\_\_.(S.R.3.68.5)
89. A blank signal under complete power off situation is to be treated as \_\_\_\_\_ signal. (S.R.3.68.6)
90. Pre-warning about defective reception signal is not required when there is \_\_\_\_\_ signal provision or when \_\_\_\_\_ is provided.(G.R.3.69(1))
91. When home is defective and pre warning is given, the LP may pass such signal on receipt of \_\_\_\_\_ at the foot of the signal.(G.R.3.69(1))
92. When Loco Pilot is pre warned about the defective signal, Station Master shall ensure that the conditions for \_\_\_\_\_ that signal have been fulfilled. (G.R.3.69(3))
93. Pre-warning when given it will be given in the form No. \_\_\_\_\_ . (S.R.3.69.2.1)
94. When train is received on Calling ON, in Podanur Panel, Calling "ON" cancellation takes \_\_\_\_\_ seconds.(App. XI-5(v))
95. Authority to pass defective starter signal (if it is not LSS) is \_\_\_\_\_.(G.R.3.70(1))
96. When I B distant fails in "OFF" position \_\_\_\_\_ is the authority for trains before despatching. (G.R.3.71(2)/G.R.3.75)
97. On Double line when LSS is defective \_\_\_\_\_ is the authority to start a train. (G.R.3.70(2))



98. On Single line token less section when LSS is defective \_\_\_\_\_ authority shall be given to LP. (G.R.3.70(2))
99. When Loco Pilot passes starter at "ON" partly and stopped before Advanced Starter, subsequently line clear is taken, \_\_\_\_\_ will be given. (S.R.3.70.2)
100. When Gate signal is at ON, the LP shall wait \_\_\_\_\_ by day/night and gateman not available, LP may pass the gate on the hand signals of \_\_\_\_\_ after ensuring that gate is closed..(G.R.3.73(2))
101. When Gate signal is at ON, the LP shall wait \_\_\_\_\_ by day/night and gateman exhibiting hand signals. LP may \_\_\_\_\_..(G.R.3.73(2)(b))
102. When LP passed the Gate signal at ON and gateman is not available, the LP of the first train shall \_\_\_\_\_..(S.R.3.73.2)
103. Gate-cum-distant signal will be located at a distance of \_\_\_\_\_ meters in rear of the gate. (S.R.3.73.3)
104. If a signal is showing white light in place of a colour light, it is treated as signal is showing\_\_\_\_\_.(G.R.3.74(1)(C))
105. When Loco Pilot finds a reception stop signal in semaphore area in OFF condition without light, he shall observe \_\_\_\_\_.(G.R.3.74(1)(e))
106. Whenever colour light signal is flickering / bobbing and does not pick up a steady aspect at least for \_\_\_\_\_ time, the signal shall be treated as defective.(S.R.3.74)
107. When I B S is defective \_\_\_\_\_ is the authority to be given to Loco Pilot . (S.R.3.75.2)
108. I. B signal will have \_\_\_\_\_ facility. (S.R.3.75.4)
109. When I B S is at "ON" the Loco Pilot shall stop and contact \_\_\_\_\_ immediately.(S.R.3.75.4)
110. When IBS is at "ON" and the telephone is out of order, Loco Pilot after waiting for \_\_\_\_\_ minutes shall proceed at a speed of \_\_\_\_\_ kmph when view is clear/not clear upto next stop signal. (S.R.3.75.4)
111. Whenever Loco Pilot passes IBS at On after waiting for 5 minutes and SM unable to be contacted shall proceed with 15 kmph view ahead is clear 8 kmph view ahead is not clear upto the FSS of the next station even if the \_\_\_\_\_ signals is showing proceed aspect. [SR3.75.4]
112. Wherever I B S is provided, LSS is interlocked with \_\_\_\_\_ and I B S is interlocked with \_\_\_\_\_.(Appendix B of SWRs where IBS is provided)
113. When Loco Pilot pass I B S at "ON" \_\_\_\_\_ indication will appear to SM in rear.(S.R.14.14.1.1.1)
114. Under no circumstances should a train be \_\_\_\_\_ over the trailed through points.. (S.R.3.77.2)

115. The Loco Pilot shall whistle intermittently when his engine explodes detonator and take every possible caution including \_\_\_\_\_ as necessary.(G.R.3.78.(2)(a))
116. After exploding the detonator, the Loco Pilot shall proceed cautiously upto a distance of \_\_\_\_\_ and can pick-up normal speed if there is no obstruction beyond that distance. (G.R.3.78(2)(vi))
117. When the Loco Pilot notices a signal warning of an obstruction, except detonator, he shall \_\_\_\_\_ immediately. (G.R.3.78.(4))
118. When the Loco Pilot notices a signal warning of an obstruction and no further details are noticed, after stopping \_\_\_\_\_ by day/night, he shall proceed \_\_\_\_\_ up to the next block station. (G.R.3.78.(5))
119. Signal warning board is located at a distance of \_\_\_\_\_ meters in rear of a stop signal. (S.R.3.78.1)
120. The LP shall clearly understand that if no signal indication is available from the Warning board he should control the speed as if the stop signal ahead is at \_\_\_\_\_.(S.R.3.78.1)
121. The Loco Pilot and guard will be given \_\_\_\_\_ no. of L R trips before they are booked for regular working including one trip between \_\_\_\_\_ & \_\_\_\_\_ hours. (S.R.3.78.2.1)
122. If Loco Pilot has not operated on a section for 3 to 6 months, he should be given \_\_\_\_\_ road learning trips. (S.R.3.78.2.2)
123. A \_\_\_\_\_ to record observations of Loco Pilot during his run must be maintained in all lobbies.(S.R.3.85)

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## CHAPTER – IV

1. Guard shall set his watch by the station clock or the clock at the authorized place of reporting for duty and communicate the time to the LP and make entry in the \_\_\_\_\_.(S.R.4.03)
2. ODC shall be allowed to be attached by a train for transport only with the prior sanction of \_\_\_\_\_.(App.VIII 9.2)
3. All Passenger carrying trains should run at \_\_\_\_\_ even under normal circumstances subject to observance of permanent / temporary speed restrictions in force. (S.R.4.08.1.1)
4. Loco Pilot shall not make up between any two stations more time than is allowed in \_\_\_\_\_.(G.R.4.08(2))
5. In case of speedometers of loco is defective at crew changing points, the train should not be \_\_\_\_\_ till attended or loco changed.( SR 4.08.2.1)
6. In case of speedometers/recorder of loco is defective during run, train should run with \_\_\_\_\_ % reduction in MPS upto the crew changing point.( SR 4.08.2.1, SR4.14.5)
7. Unless permitted under approved special instructions the maximum speed permitted on loop line is \_\_\_\_\_ kmph. (G.R.4.10(1))
8. The speed of trains over Non-Interlocked points, turnouts and crossover shall not exceed \_\_\_\_\_ KMPH normally(G.R.4.10(1))
9. The speed of a passenger/goods train on 1 in 8 ½ turnout (straight switch) is restricted to \_\_\_\_\_/\_\_\_\_\_ kmph. (S.R.4.10)
10. The speed of a passenger/goods train on 1 in 8 ½ turnout (curved switch of 52/60 km rails) on PSC sleepers is restricted to \_\_\_\_\_ kmph. (S.R.4.10)
11. Isolation is necessary where the trains are permitted to run through a station at a speed exceeding \_\_\_\_\_ kmph. (G.R.4.11(1))
12. Engine pushing is not permitted with out the prior permission of \_\_\_\_\_.(S.R.4.12.2.1)
13. When engine is pushing a train and Guard is travelling in brake van, which is leading, the speed shall not exceed \_\_\_\_\_ kmph, and Guard is not travelling in leading vehicle, the speed shall not exceed \_\_\_\_\_ kmph. (S.R.4.12.2.3)
14. During engine pushing, in the absence of PHS of Guard, LP shall \_\_\_\_\_.(S.R. 4.12.2.4)
15. When engine is pushing a train without guard the duties of guard is devolved on \_\_\_\_\_.(S.R.4.12.3)
16. When the train is working without BV, while pushing back the LP has to observe the \_\_\_\_\_ signals of guard and proceed with \_\_\_\_\_ speed. (S.R.4.12.4)
17. An engine exclusively deployed for shunting purpose shall put on \_\_\_\_\_ colour marker lights on both sides. (G.R.4.14(2))
18. When head light is defective after putting marker lights 'on' the train can go with a restricted speed of \_\_\_\_\_ kmph(G.R.4.14(5))

19. In normal position side lights shall show \_\_\_\_\_ towards rear and \_\_\_\_\_ towards engine. (S.R.4.15.1)
20. At night, when passenger carrying train waiting at a station for precedence, Guard shall change the side light adjacent to the line on which the following train is to be admitted, to show \_\_\_\_\_ light towards rear \_\_\_\_\_ light towards engine. (S.R.4.15.1)
21. Side lights may be dispensed with for \_\_\_\_\_ and \_\_\_\_\_ trains. (S.R.4.15.4)
22. Last vehicle indicator during night shall be \_\_\_\_\_ red light. (G.R.4.16.1.(b))
23. When an assisting engine is attached in rear of a train, \_\_\_\_\_ shall be fixed behind the assisting engine. (S.R.4.16.2)
24. It will be the duty of the Guard to ensure that \_\_\_\_\_ is affixed only in the rear of the last vehicle. (S.R.4.16.3)
25. Light engines or coupled engines shall have \_\_\_\_\_ in rear. (S.R.4.16.4)
26. In case of obstruction on track, Guard must exhibit the \_\_\_\_\_ hand signal lamp at night or \_\_\_\_\_ during day. (G.R.3.65)
27. Whenever alarm chain is pulled the Guard shall record the fact in the \_\_\_\_\_ and submit a special report to \_\_\_\_\_. (S.R.4.18.2)
28. Guard shall report to the Station Master of the next important station, any stoppage or other irregularities in train working record the details in \_\_\_\_\_ and send a special report to the \_\_\_\_\_. (S.R.4.18.2)
29. \_\_\_\_\_ is provided in the personnel equipments of the Guard for opening/closing of the Guard's compartment of SLR. (SR 4.19.1.1)
30. The full form of OTL of BV equipment is \_\_\_\_\_. (S.R.4.19.4.1.1)
31. Dy.SS/TNC of the originating station shall record the intactness and availability of the BV equipment in the register and obtain acknowledgement of the \_\_\_\_\_ in the register apart from VG, (S.R.4.19.4.4.1)
32. Fire-Extinguishers: Replacement shall be done once in \_\_\_\_\_. (S.R.4.19.4.6.1)
33. The 2/4 wire telephone will be tested once in \_\_\_\_\_ by SE/JE-Tele. (S.R.4.19.4.6.2)
34. Contents of the EL Box shall be tested once in \_\_\_\_\_ by the SE / JE-TL. (S.R.4.19.4.6.3)
35. Guard shall obtain acknowledgement of Dy.SS or SE / JE-C&W in the \_\_\_\_\_ at destination station about the intactness of OTL and seal. (S.R.4.19.4.8.7)
36. For opening/closing Guards compartments of SLR \_\_\_\_\_ is provided as personal equipment to Guard. (SR4.19.1.1)

37. In case of emergency the Assistant Loco Pilot can be authorized to drive the train at a restricted speed not exceeding \_\_\_\_\_ up to the nearest point where he can be relieved. (S.R.17.09.5.7)
38. When leading compartment of an electric engine is defective and the train is driven from trailing compartment by Assistant LP, the speed shall not exceed \_\_\_\_\_ kmph. (S.R.17.09.12.2)
39. When leading compartment of an electric loco is defective and the train is driven from trailing compartment by loco pilot the speed shall not exceed \_\_\_\_\_ kmph. (S.R.17.09.12.3)
40. In any case, there shall not be more than \_\_\_\_\_ officials/staff including engine crew at any time on the engine except in emergencies. (S.R.4.22)
41. The number of persons permitted to travel in the brake-van of goods trains, in addition to the Guard, should not exceed \_\_\_\_\_. (S.R.4.23.1)
42. In emergency a goods train with out brake van is ordered by \_\_\_\_\_ / \_\_\_\_\_. (S.R.4.23.2.1)
43. Maximum number of coaches in addition to the officer's inspection coach attached in rear of SLR of Passenger or Mail & Express trains is \_\_\_\_\_. (S.R.4.24.1)
44. Maximum number of bogies or its equivalent attached by a goods train is \_\_\_\_\_ bogies. (S.R.4.24.2)
45. Only \_\_\_\_\_ damaged vehicle or damaged engine shall be attached behind the rear brake van of goods/mixed train. (S.R.4.24.4)
46. Attaching of damaged vehicle/engine may be done during \_\_\_\_\_ and in clear weather. (S.R.4.24.4)
47. Damaged vehicle/engine when attached to a goods train shall be accompanied by \_\_\_\_\_. (S.R.4.24.4)
48. All irregularities in connection with the working of trains or accidents must be reported in the \_\_\_\_\_ by Guard. (S.R.4.25.2.1)
49. Entries of vehicles attached to a train at intermediate stations must be made by the \_\_\_\_\_ at those stations. (S.R.4.25.3.1)
50. Before starting, the guard will be responsible for checking the load on the train with the entries on the \_\_\_\_\_ of wagon numbers, booking and destination stations, type of wagons etc., (S.R.4.25.3.5)
51. In an emergency, a goods train without Guard can be ordered by \_\_\_\_\_. (S.R.4.25.4)
52. \_\_\_\_\_ shall be issued to the Loco Pilot by Station Master with necessary endorsement stating that the train is to run without Guard. (S.R.4.25.4.3)
53. Where IBS is provided, the SM shall not dispatch a train in rear of the train running without Guard reaches the \_\_\_\_\_. (S.R.4.25.4.4)
54. In Automatic block territory, no train shall be allowed to follow a train without brake van/guard until it arrives complete at the next \_\_\_\_\_. (S.R.4.25.4.9)

55. Running of goods train without \_\_\_\_\_ is strictly prohibited during tempestuous weather, total interruption of communications and during temporary single line working. (S.R.4.25.4.6)
56. Running of goods train without Guard should not be permitted if the last vehicle is not \_\_\_\_\_. (S.R.4.25.4.10.4 note 2)
57. Trucks loaded with girders, machinery, long timber etc. shall be inspected by Guard at stopping stations and if the fastenings have \_\_\_\_\_ or the loads \_\_\_\_\_ they shall be re-secured before the train is allowed to proceed or else the trucks detached. (S.R.4.28)
58. In case a hot axle box found running between stations, the train shall be brought to a \_\_\_\_\_ immediately and after attending LP should exercise his discretion with regard to the \_\_\_\_\_. (S.R.4.29.2)
59. When SM receives advice of Hot axle, that train shall preferably be admitted on \_\_\_\_\_ line. (S.R.4.29.3)
60. The Fit to proceed (Brake power certificate form No. \_\_\_\_\_ must be possessed by the Loco Pilot of the train till the train completes its \_\_\_\_\_. (S.R.4.31.4)
61. At the station after loading/un loading; or tipping; or while clearing stabled stock from a station; or in case of invalid BPC, the \_\_\_\_\_ check shall be conducted. (S.R.4.31.5)
62. Whenever train engine is changed, \_\_\_\_\_ test should be conducted and same shall be recorded by the LP and Guard in their \_\_\_\_\_. (S.R.4.31.5)
63. Time permitted for GLP check of a train consisting of 60 units (four wheeler) is \_\_\_\_\_ minutes. (S.R.4.31.5(note))
64. Guard and Loco Pilot shall prepare a GLP check memo jointly on a plain sheet in \_\_\_\_\_. (S.R.4.31.5B)
65. At the originating station for coaching trains, the TXR staff shall \_\_\_\_\_ of Guard's compartment (if it is not leased) and luggage portions (if it is not leased or not loaded with parcels) of front / middle SLR and lock with Universal lock. (SR 4.34.5)
66. At stations, where PA system is not provided, SM gives permission to Guard to stat the train by ringing \_\_\_\_\_ bear for Down train, \_\_\_\_\_ beats for Up trains and 4 beats for branch line. (S.R.4.35.2.1.2)
67. Guard shall report to Station Master of the next station, any stoppage or other irregularities in train working, record the details in the \_\_\_\_\_. (S.R.4.36)
68. While at a station, the Loco Pilot is to obey \_\_\_\_\_ orders. (GR.4.39(b))
69. The Loco Pilot and Assistant Loco Pilot shall \_\_\_\_\_ each signal; call out the \_\_\_\_\_ of the signal to each other. (S.R.4.40.1)
70. The validity of CC rake BPC is \_\_\_\_\_ days or \_\_\_\_\_ km which ever is earlier. (C&W JPO 5/2008-3.3)
71. The validity of Premium rake BPC is \_\_\_\_\_. (C&W JPO 5/2008-4.7)

72. The grace period given for Premium end to end BPC is \_\_\_\_\_.(C&W JPO 5/2008-4.7)
73. The validity of End to end BPC is \_\_\_\_\_.(C&W JPO 5/2008-5.1.II)
74. LP and ALP shall look back frequently during journey to see whether the train is following in a \_\_\_\_\_ manner.(G.R.4.41)
75. The Loco pilot /ALP and Guards must look back at the Gang Staff and Level Crossing Gates to see whether any \_\_\_\_\_ signal is exhibited by them.(S.R.4.41.2)
76. S M shall arrange points man to show all right signals for a run through train from \_\_\_\_\_ side. (S.R.4.42.5.1)
77. Loco Pilots/Motormen of DEMUs, DHMUs, EMUs and MEMUs are \_\_\_\_\_ from exchanging 'All right' signals. (S.R.4.42.7.4)
78. Cut off angle cock must be in \_\_\_\_\_ position except front side of loco and rear side of L V to ensure brake continuity. (App.VI-2.1)
79. A goods train having 56 wagons, the B P pressure in engine shall be \_\_\_\_\_ and in BV shall be \_\_\_\_\_.(App. VI - 2.2)
80. A goods train having 58 wagons, the B P pressure in loco shall be \_\_\_\_\_ and in B V \_\_\_\_\_.(App. VI -2.2)
81. Normally \_\_\_\_\_ minutes allowed to goods trains to start after engines have been attached. However, in case of formations tested by Vacuum Exhausters/Air-Compressors, the time taken for starting the train, after engine is attached, shall not exceed \_\_\_\_\_ minutes. (App. VI -3.4)
82. Empty / Load handle shall be kept in load position when the gross load is above \_\_\_\_\_ Tones. (App.VI-5.5)
83. "At the first opportunity, after starting, destroy a part of vacuum/air pressure in order to get an idea of the \_\_\_\_\_ of your train. (App. VI -6.1)
84. When train is stabled for more than \_\_\_\_\_ hours at station other than loading and unloading station, fresh B P C is required.( C&W JPO 5/2008)
85. Fresh B P C is required whenever more than \_\_\_\_\_ eight-wheeler vehicles are attached or detached, to/from a train. (App.VI – 6.4)
86. All passenger carrying trains of all description shall have \_\_\_\_\_ operative vacuum cylinders with effective brake power at the starting station. (App. VI - 13.1.1)
87. F P pressure in loco shall be \_\_\_\_\_ and in BV \_\_\_\_\_.(App. VI -14.2)
88. D V isolating handle in vertical position indicates DV is in \_\_\_\_\_ position. (Maintenance manual for wagons -802)
89. D V isolating handle in horizontal position indicates D V is in \_\_\_\_\_ position. (Maintenance manual for wagons -802)

- 90.Reduction in B P pressure causes \_\_\_\_\_  
(Maintenance manual for wagons -802)
- 91.Creation of B P pressure causes \_\_\_\_\_  
(Maintenance manual for wagons -802)
- 92.All \_\_\_\_\_ trains shall have Twin Pipe working. (App. VI -14.2)
- 93.The effective brake power in case of Mail/Express at the originating station should be \_\_\_\_\_% and enroute can be not less than \_\_\_\_\_%(App. VI -16.2)
- 94.The effective brake power in case of passenger and CC rakes at the originating station should not be less than \_\_\_\_\_% and enroute shall be \_\_\_\_\_(App. VI -16.2)
- 95.When a train is held up at F S S for more than \_\_\_\_\_ minutes, the Loco Pilot shall depute Assistant Loco Pilot to go to Station. (G.R.4.44.(1))
- 96.When a train is held up at F S S for more than \_\_\_\_\_ minutes, the Guard shall \_\_\_\_\_ in rear. (G.R.4.44.(1))
- 97.If Guard notices any danger condition in the train, he shall try to attract the \_\_\_\_\_. If he failed to attract the attention, the Guard may apply \_\_\_\_\_gradually to stop the train. (G.R.4.45.(1to 4))
- 98.Whenever the engine is to be detached out side station limits when the gradient is not steeper than 1 in 600 hand brakes of \_\_\_\_\_ vehicles must be applied. (S.R.4.48.2)
- 99.Whenever the engine is to be detached out side station limits when the gradient is steeper than 1 in 600 hand brakes of \_\_\_\_\_ vehicles must be applied. (S.R.4.48.2)
100. Guards have to verify \_\_\_\_\_ by observing the drop in BP pressure gauge provided in SLR/BV. (SR4.49.2.2)
101. To assist the Loco Pilot for application of train brakes, when requested by LP, Guard has to apply \_\_\_\_\_ (SR4.49.2.2)
102. With in station limits where gradient is 1 in 400, to detach the loco of goods train, BV and \_\_\_\_\_ number of wagons' hand brakes are to be put ON.(S.R.4.57.1)
103. When working a passenger train the Loco Pilot shall ensure that the passenger bogies do not over shoot the \_\_\_\_\_.(S.R.4.49.1)
104. Whenever a train is stopped on a gradient for any reason like accident, loco failure, OHE supply failures etc., it is essential and important to apply the \_\_\_\_\_ and \_\_\_\_\_ so as to hold the train safely on the gradient. (S.R.4.49.2)
105. The Guard of the train has to verify application of train brakes by observing the \_\_\_\_\_ in BP pressure guage in SLR/BV.(SR 4.49.2.2)
106. When SM / Station Staff does not exchange ' all-right' signals, the Loco Pilot shall give \_\_\_\_\_ engine whistle code.(S.R.4.50.2)
107. The Whistle Board in case of approach to un manned level crossing gates is at a distance of \_\_\_\_\_ meters. On single line it should be reduced to \_\_\_\_\_meters when view is clear. (S.R.4.50.3)



108. When engine whistle fails on run, after clearing block section, the loco shall be attended or it shall be \_\_\_\_\_.(S.R.4.50.4)
109. Engine Whistle code for Guard to Protect in rear is \_\_\_\_\_(S.R.4.50.5)
110. Engine Whistle for Guard to come to Engine is \_\_\_\_\_.(S.R.4.50.6)
111. Passing Signal at 'ON' with proper Authority, the LP shall sound \_\_\_\_\_Whistle (S.R.4.50.7)
112. Engine whistle code 0 0 - indicates \_\_\_\_\_.(S.R.4.50.11)
113. The Bell Code used in EMU/DMU trains for Automatic Signal or IBS passing in 'ON' when telephone is defective is \_\_\_\_\_.(S.R.4.51.3)
114. The Bell Code used in EMU/DMU for Zone of Speed restriction is over and to resume normal speed is \_\_\_\_\_.(S.R.4.51.6)
115. Whenever train stopped without clearing fouling mark, Guard shall inform the SM at once and \_\_\_\_\_to prevent any movement on the fouled line.(G.R.4.56)
116. If Guard for any reason has to leave SLR/BV, he should \_\_\_\_\_ of SLR/BV before leaving.( SR 4.57.3)
117. Before giving signal for the train to start, the Guard shall ensure the hand brakes are \_\_\_\_\_. (SR 4.57.3)
118. At Stations, the LP of the train shall bring his engine to a stop as close as possible to the \_\_\_\_\_to ensure clearing of the fouling mark. (S.R.4.58.2)
119. Material train shall be ordered to work with the permission of \_\_\_\_\_(S.R.4.62.1.1)
120. To despatch a material train for working in the block section and return back to the same station, \_\_\_\_\_authority is given to the LP.(S.R.15.06.4)
121. To despatch a material train for working in the block section and proceed to the next station, \_\_\_\_\_authority is given to the LP.(S.R.15.06.4)
122. Dividing of material train in the block section where the gradient is steeper than \_\_\_\_\_ is prohibited. (S.R.4.62.6.1)
123. The B P C of a material train is valid for \_\_\_\_\_ subject to examination of the train by T X R once in \_\_\_\_\_ days.(S.R.4.62.11.3)
124. The required brake power of material train shall be \_\_\_\_\_. (S.R.4.62.11.2)
125. While stabling a material train at a station, the responsibility to secure it lies with the \_\_\_\_\_. (S.R.4.64.1.1)
126. The maximum speed of T T M is \_\_\_\_\_ kmph and over points and crossing is \_\_\_\_\_kmph.(S.R.4.65.1.1)
127. T T M is permitted to work in the block section only during \_\_\_\_\_.(S.R.4.65.6.3.1)

128. When TTM's are following each other the distance to be kept between each is \_\_\_\_\_mts. (S.R.4.65.7)
129. When TTM's are following each other the speed of the second TTM is restricted to \_\_\_\_\_KMPH. (S.R.15.06.4.3)

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#### CHAPTER – V

1. In case of T/A to T/H 602, T/J 602, T/609, \_\_\_\_\_to \_\_\_\_\_, T/A to T/D 912, T/A 1525 and T/1525, the prescribed printed forms shall only be used. (S.R.5.07)
2. To receive a train on to an obstructed line, the Loco Pilot shall be given \_\_\_\_\_ authority where there is no calling ON signal and signal post telephone. (S.R.5.09)
3. While receiving a train on obstructed line, SM shall arrange to post one competent Railway servant to show \_\_\_\_\_ hand signal from \_\_\_\_\_ meters before the obstruction. (G.R.5.09(4))
4. To receive a train on to non signalled line, the Loco Pilot shall be given \_\_\_\_\_(Note below G.R.5.10)
5. To start a train from a station having common starter, the Loco Pilot shall be given \_\_\_\_\_ + \_\_\_\_\_ + \_\_\_\_\_.(G.R.5.11(1))
6. To despatch a train from non-signaled line, where tangible authority is not given as ATP, \_\_\_\_\_ authority should be given in addition to ATP.(S.R.5.12)
7. As per G & S R Shunting operations shall be controlled by \_\_\_\_\_ or \_\_\_\_\_ or \_\_\_\_\_(5.13(1))
8. The speed during shunting operations shall not exceed \_\_\_\_\_.(G.R.5.13(3))
9. The shunting staff need not accompany during shunt movement of light engine/s on to a \_\_\_\_\_,except in case of doubt. (S.R.5.13.1)

10. Slip coaches shall not be kept on blocked line in the rear of a \_\_\_\_\_.(S.R.5.13.2)
11. While performing shunting on passenger carrying trains, the shunting engine or train engine with or without sectional coaches, before coming on to the formation should be stopped \_\_\_\_\_ metres before the formation.(S.R.5.13.3)
12. At station where separate shunting staff are not employed, shunting operations shall be personally supervised by \_\_\_\_\_.(S.R.5.14.1)
13. While backing a full train from one line to another via main line the shunting supervision is done by \_\_\_\_\_.(S.R.5.14.2)
14. Carriages containing passengers shall not be moved for shunting without the personal order of the \_\_\_\_\_ and \_\_\_\_\_.(S.R.5.14.4)
15. While performing shunting, the points which are not protected by signals must be locked by \_\_\_\_\_ or by \_\_\_\_\_ method. (S.R.5.14.5)
16. While shunting wagons containing explosives, the supervision shall be done by \_\_\_\_\_.(S.R.5.14.6)
17. The maximum speed while shunting of wagons containing explosives and P O L products shall be \_\_\_\_\_ kmph. (S.R.5.14.6(b))
18. Where shunting operations are supervised by Guard/SM, Loco Pilot shall be given Form No. \_\_\_\_\_(shunting instruction form) (S.R.5.14.9)
19. Shunting of roller bearing vehicle on a steep gradient shall be done only with locomotive attached towards the \_\_\_\_\_.(G.R.5.20(b))
20. For shunting purpose \_\_\_\_\_ gradient is considered as steep gradient for roller bearing wagons and \_\_\_\_\_ gradient for non roller bearing wagons. (G.R.5.20(b)Note)
21. Maximum Hand shunting speed is \_\_\_\_\_ kmph. (S.R.5.20.5.6)
22. To detach loco of a goods train having BOX 'N' / BCN / BRH, etc., minimum \_\_\_\_\_ no. of vehicles hand brake are to be applied from each end in addition to the hand brakes of B V.(S.R.5.23.4.6)

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## CHAPTER – VI

1. When Loco Pilot of the train experienced any abnormal condition in the track, stop his train at next block station without clearing \_\_\_\_\_ and inform Station Master.(SR 6.07.1(a))
2. When Loco Pilot of the train experienced any abnormal condition in the track, in case of IBS and Automatic block territories, he must inform \_\_\_\_\_ and \_\_\_\_\_ to stop the movement of trains..(SR 6.07.1(a))
3. When 'lurch' is reported and subsequently a train is sent with engineering official, caution order is given to the LP to \_\_\_\_\_ short of the expected portion of the track .(SR 6.07.1(d))
4. When 'lurch' is reported and subsequently a train is sent in the absence of engineering official, caution order is given to the LP to stop dead and proceed at \_\_\_\_\_ kmph if considered safe otherwise \_\_\_\_\_ to station. SR 6.07 (e).
5. Rail fracture of less than 30mm, the speed of first train shall be \_\_\_\_\_ kmph, the speed of second and subsequent trains shall be \_\_\_\_\_ kmph. (SR 6.01.3.1).
6. The Station Master who received the message about the rail fracture through LP, he shall arrange to issue caution order of \_\_\_\_\_ kmph over the fractured rail.(SR 6.01.3.3)
7. Rail fracture of more than 30 mm or multiple fractures, certification by \_\_\_\_\_ is required to pass trains. (SR 6.01.3.4)
8. When a train is dispatched on T/J602(shall not be passenger carrying train), the speed shall not exceed \_\_\_\_\_ kmph. ( T/J 602 (SR 6.02.5)
9. During Temporary Single Line working, Loco Pilot and Guard shall be given authority\_\_\_\_\_.(SR 6.02.1.8)
10. During T S L working, the speed of first train shall be \_\_\_\_\_ kmph.(SR 6.02.1.11)
11. During T S L working the speed of second and subsequent trains shall \_\_\_\_\_ ( SR 6.02.1.11).
12. During TSL working when the train is proceeding on wrong line, the train shall be piloted out on a \_\_\_\_\_. ( SR 6.02.1.14.1)
13. During T I C on double line \_\_\_\_\_ is the A T P authorizing the Loco Pilot to proceed with a restricted speed of \_\_\_\_\_ kmph.( SR 6.02.3.3)
14. When trains are dealt on T/C 602, the time interval between two trains shall be \_\_\_\_\_ minutes.( SR 6.02.3.5)
15. During T I C on Single Line /Double line and T S L working, except \_\_\_\_\_ signal, all other signals can be taken OFF ( SR 6.02.3.6).
16. During TIC on double line, when a train is stopped in the block section on account of accident, Guard shall protect the train by placing one detonator at \_\_\_\_\_ meters and two detonators 10 meters apart at \_\_\_\_\_ meters from the train.( SR 6.02.3.9)

17. During TIC on Double line, if no one from the station turns up within \_\_\_\_\_ minutes, Guard shall protect the train in rear and ALP may be sent to station. (SR 6.02.3.12)
18. Light engine/vehicle which is going to open communication shall proceed on \_\_\_\_\_ authority. (SR 6.02.4.3)
19. When enquiry is made for more than one train during TIC on S/L, \_\_\_\_\_ forms are given to the light engine/vehicle which is going to open communication. (SR 6.02.4.4.2)
20. Light engine/vehicle, which is going for opening of communication, shall proceed with a restricted speed of \_\_\_\_\_ kmph. (SR 6.02.4.6.1)
21. After opening communication \_\_\_\_\_ is A T P for the light engine/vehicle to come back. (SR 6.02.4.9)
22. UP / DN CLCT is prepared in Form No. \_\_\_\_\_ / \_\_\_\_\_ (SR 6.02.4.15)
23. When there is even flow of trains, enquiry and reply messages are sent through \_\_\_\_\_. (SR 6.02.4.16)
24. After opening the communication, the speed of first train waiting shall be \_\_\_\_\_. (SR 6.02.4.18)
25. If enquiry is made for more than one train and reply is also received, the second train can be allowed to go with a restricted speed of \_\_\_\_\_ kmph, after a clear interval of 30 minutes. (SR 6.02.4.18)
26. If it is required to dispatch a relief engine or relief train into obstructed block section, it can be dispatched by issuing \_\_\_\_\_. (SR 6.02.6.1)
27. On Double line, protection in \_\_\_\_\_ is required (in addition to adjacent line and in rear) during TSL working or when assistance has been asked. (G.R 6.03.1(g))
28. If a passenger train/goods train does not turn up even after normal running time and \_\_\_\_\_ / \_\_\_\_\_ minutes, S M shall arrange to send competent railway servant. (BWM Part I 5.5.a(ii))
29. If for any reason, a train is brought to a stand for more than \_\_\_\_\_ minutes, the hand brakes of Locomotive and formation brakes shall be applied. (SR 6.04.2.1)
30. If that stoppage happened (more than 15 minutes) on a grade steeper than 1 in 150 for roller bearing stock, the hand brakes of 1/3 wagons of the train or next to engine hand brakes of \_\_\_\_\_ wagons and next to brake van hand brakes of \_\_\_\_\_ wagons whichever is more shall be applied in addition to the application of brake van hand brake. (SR 6.04.2.1)
31. When engine disabled, if the LP expects that putting the engine in working order will take more than \_\_\_\_\_ minutes, he will request the Guard to arrange for a relief engine. (SR 6.05.4)
32. If Loco Pilot enters block section with out authority and subsequently sends his Assistant Loco Pilot with a memo to SM in rear, that S M shall give \_\_\_\_\_ (SR 6.06.2)

33. If Loco Pilot enters block section with out authority and subsequently sends his Assistant Loco Pilot with a memo to SM in advance, that S M shall give \_\_\_\_\_.( SR 6.06.2)
34. When a train parts, If the Loco Pilot finds it necessary to proceed to the station ahead, he shall, on approaching the station give \_\_\_\_\_whistle and act as per aspects of signals of station/gate.(SR 6.08.1.1).
35. When a train parts on its journey, the tonnage of the train shall be jointly checked by the \_\_\_\_\_ and the \_\_\_\_\_ and also by the \_\_\_\_\_(SR 6.08.1.3).
36. When train stopped due to inability of the engine to haul the load and If it is not possible to get the relief engine or push back the train, the crew can decide to \_\_\_\_\_ the train.( SR 6.09.1)
37. During divided train working, the Guard will prepare a written permission in the form \_\_\_\_\_and give to Loco Pilot to proceed to the next station.( SR 6.09.3.2)
38. During \_\_\_\_\_, the second portion of the train left in section shall be protected in the front by Guard.(SR 6.09.4)
39. During divided train working, on approaching the station, the LP shall stop at home signal eventhough it is off and give \_\_ 0 \_\_ 0 whistles. The SM and LP shall contact each other on \_\_\_\_\_/\_\_\_\_\_.and SM may then exhibit \_\_\_\_\_ hand signals to LP to enter into station. (SR 6.09.5)
40. The light engine which is coming on T/609 to pick up the second portion shall come with a restricted speed of \_\_\_\_\_ kmph.(SR 6.09.7)
41. When a goods Train runs without Guard has to be divided, the Loco Pilot shall bring first portion by preparing a \_\_\_\_\_.( SR 6.09.9.1)
42. When a train without guard is divided in the section, after dropping the first portion, light engine returning to pickup second portion shall proceed on \_\_\_\_\_authority. ( SR 6.09.9.4)
43. In case of fire accident in a passenger carrying train, the first objective to be achieved is to \_\_\_\_\_( GR 6.10.1)
44. If a fire is noticed in a running train, the LP shall at once stop the train. The vehicles behind the one on fire shall be \_\_\_\_\_and the front portion of the train then moved forward to prevent the catching of fire.(S.R.6.10.1.1)
45. In the event of a fire on any part of the electrical equipment, the affected part is first to be completely \_\_\_\_\_from the Distribution System. (S.R.6.10.11)
46. \_\_\_\_\_shall not be used for extinguishing fires on electrical equipment. (S.R.6.10.11)

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## CHAPTER – VII, VIII & IX

1. The System of working used between Lingampally – Secunderabad Junction – Moula-ali of SC division is \_\_\_\_\_.( SR 7.01.1)
2. On SCR single line, Automatic Block System is used between \_\_\_\_\_and \_\_\_\_\_.(SR 7.01.II)
3. On Absolute Block System, no train shall be allowed to leave a block station unless \_\_\_\_\_has been received from advance Block station.(GR 8.01(1) (a))
4. The automatic signal shall not assume OFF position unless the line is clear not only upto the next Automatic signal but also for an adequate distance of not less than \_\_\_\_\_metres on D/L ( GR 9.01.(1) (c)(i))
5. Automatic stop signal is identified by \_\_\_\_\_board GR 3.17(1)
6. Semi automatic stop signal is identified by \_\_\_\_\_light when working as automatic signal. GR 3.17(1)
7. Normal aspect of Automatic signal is \_\_\_\_\_ (GR .3 37(2))
8. All Guards, Loco Pilots, Assistant Loco Pilots, Motor men who are required to work in automatic block system shall undergo one day intensive training and a certificate shall be renewed once in \_\_\_\_\_months. (SR 9.01 4)
9. SMR/SS/TI shall renew the competency certificates (Automatic section) for the \_\_\_\_\_and LI for \_\_\_\_\_. (SR 9.01.5)
10. When Loco Pilot passes an automatic signal at ON, he shall observe an SR of \_\_\_\_\_.( S.R 9.02.3)
11. The Guard shall show a \_\_\_\_\_hand signals towards the rear when the train has been stopped at an Automatic stop signal. (GR 9.02(2))
12. After passing an automatic signal at ON, the Loco Pilot of the following train hauled by any locomotive shall ensure that a minimum distance of \_\_\_\_\_metres is maintained between his train and preceding train. The distance may be reduced to \_\_\_\_\_in case of EMU train.( SR 9.02.7.1)
13. When LSS fails on single line automatic block system, \_\_\_\_\_shall be given to Loco Pilot and the first train shall go with a restricted speed of \_\_\_\_\_kmph (SR 9.06.4 and 5)
14. When LSS fails on double line automatic block system, \_\_\_\_\_shall be given to LP of the train to go with a restricted speed of \_\_\_\_\_kmph (SR 3.12.3).
15. When a train is stopped in an automatic block signaling section on single line and train cannot proceed further, the Guard shall protect in rear duly placing one detonator at \_\_\_\_\_ meters and 2 detonators 10 meters apart at \_\_\_\_\_ (SR 9.10.3).
16. When a train is stopped in an automatic block signaling section on double line and train cannot proceed further, the LP/ALP shall protect adjacent line in front duly placing \_\_\_\_\_and \_\_\_\_\_shall ensure it.(SR 9.10.4)

17. During prolonged failure of signals but communications are available on DL Automatic Block System, the authority given to Loco Pilot \_\_\_\_\_. The Loco Pilot of first train shall go with a restricted speed of \_\_\_\_\_ kmph. (SR 9.12.1 5.1)
18. When signals and communication fail on DL Automatic Block System, the authority given to the Loco Pilot is \_\_\_\_\_ which authorizes the LP to go with a restricted speed of \_\_\_\_\_ kmph. (SR 9.12 2.2.4)
19. The time interval between two trains during signal and communication failure on DL Automatic Block System shall be \_\_\_\_\_ minutes. (SR 9.12.2.2.5)
20. During TSL working Automatic Block System, the first train proceeding on right line when signal and communications are working shall proceed on \_\_\_\_\_ authorities (SR 9.12.3.14.1.1)
21. During TSL working Automatic Block System when signals and communications are working, the second and subsequent trains proceeding on right line shall proceed on \_\_\_\_\_. (SR 9.12.3.14.1.2)
22. The first train running in the wrong direction during TSL working on Automatic block system shall proceed with a restricted speed of \_\_\_\_\_ kmph. (SR 9.12.3.10)
23. The second and subsequent trains running in the wrong direction during TSL working on Automatic block system shall proceed with a speed of \_\_\_\_\_. (SR 9.12.3.10)
24. Authority to dispatch a light engine on single line Automatic Block system during prolonged failure of all signals when no communications are available is \_\_\_\_\_ (SR 9.12.5).
25. To dispatch a relief loco/train into the occupied block section \_\_\_\_\_ is given as the ATP for the relief loco/train in the automatic block system. (SR 9.12.6)
26. Relief loco/train shall proceed with a restricted speed of \_\_\_\_\_ kmph (SR 9.12.6.1.3)
27. On Automatic Block System when the train is unable to proceed further, obtain permission only from \_\_\_\_\_ to push back. Such permission can be given only provided that \_\_\_\_\_. (SR 9.13.2)
28. A fixed signal which can be operated either as an Automatic stop signal or a manual stop signal, as required, is called \_\_\_\_\_. (GR 3.12(1) (b))
29. Gate stop signal in Automatic signaling territory is distinguished by the provision of \_\_\_\_\_ and illuminated A marker when gate is closed condition. (SR 9.15.1)
30. When Gate signal in Automatic signaling territory is at 'ON' and 'A' marker is illuminated, LP shall follow the rules of passing \_\_\_\_\_ signal at 'ON'. (SR 9.15.3)



31. When Gate signal in Automatic signaling territory is at 'ON' and 'A' marker is not illuminated, LP shall follow the rules of passing \_\_\_\_\_ signal at 'ON' till he passes the gate and further follow the rules of passing \_\_\_\_\_ signal at 'ON'. (SR 9.15.3)
32. LP shall pass a Semi Automatic signal with extinguished 'A' marker at 'ON' on receipt of written authority \_\_\_\_\_+PHS. (SR 9.14.6)

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### CHAPTER NO. XIV, XV, XVI, XVII

1. \_\_\_\_\_ is the normal authority to proceed on Single Line token less sections/Double line sections. (G.R.14.08)
2. At stations where cabin is not provided, the Guard of the train, after verifying the last vehicle is standing clear of the fouling mark, shall give an all right signal to Station Master by \_\_\_\_\_ by day/night.(SR 14.10.3.1)
3. Where IB signal is provided, when reset is initiated, digital axle counter enters into preparatory reset mode. The first train shall be dealt on \_\_\_\_\_.(SR 14.13.2.3 (a))
4. When a train passes IBS at 'on' and k1 indication appears and IB section is occupied by a train, SM shall advise \_\_\_\_\_ to stop the train. (SR 14.14.1.1.2.1)
5. On Double line or on Single Line when block instrument is defective \_\_\_\_\_ is given as A T P for the Loco Pilot.(SR 14.25)
6. \_\_\_\_\_ block means blocking of a portion of line for maintenance work by more than one department. ( SR 15.06.1.3)
7. \_\_\_\_\_ block means a block, availed from either end of the block section between two block stations simultaneously. ( SR 15.06.1.4)
8. When more than one TTM/Tower Car are programmed to go in the same block section and return to the same station the authority for the first TTM/Tower car is \_\_\_\_\_/\_\_\_\_\_ and authority for the subsequent TTM/Tower car is \_\_\_\_\_ (SR 15.06.4.!(c)).
9. When more than one TTM/Tower Car are programmed to go in the same block section and proceed to the next station the authority for the first TTM/Tower car is \_\_\_\_\_ and authority for the subsequent TTM/Tower car is \_\_\_\_\_/\_\_\_\_\_ (SR 15.06.4.1(d)).
10. \_\_\_\_\_ authority is given to the Tower Wagon to go into the section work and return to the same station during power block. ( SR 15.06.4.2(a))
11. \_\_\_\_\_ authority is given to the Tower Wagon to go into the section work and proceed to the next station during power block. (SR 15.06.4.2(b))

12. The Speed of the Tower Wagon when following each other is restricted to \_\_\_\_\_kmph during day/night and the distance to be kept is \_\_\_\_\_meters.( SR 15.06.4. 3)
13. When material train, TTM and Tower wagon are permitted in the same block section to work the distance to be kept between them is \_\_\_\_\_meters and the speed I for the following is restricted to \_\_\_\_\_kmph during day/night ( SR 15.06.4.4.1)
14. During integrated block/shadow block, if it is necessary to dispatch material train and TTM and tower wagon into the block section, they shall maintain the speed of \_\_\_\_\_kmph when view is clear and during day time and \_\_\_\_\_kmph when view is not clear and during night time.( SR 15.06.4.4.1/2).
15. Number of material trains permitted during the line block or integrated block or shadow block is\_\_\_\_\_. (SR 15.06.4.4.2)
16. During line/integrated/shadow block, if the units are allowed on to the wrong line, units shall be piloted out on \_\_\_\_\_after ensuring correct setting, clamping and padlocking of the points. ( SR 15.06.7)
17. During line block, to receive the units coming on right line, the first unit can be received on \_\_\_\_\_and the following units will be admitted on \_\_\_\_\_or written authority T/509.( SR 15.06.10.1)
18. During line/integrated/shadow block, if the units are coming on wrong line, units shall be received on \_\_\_\_\_after ensuring correct setting , clamping and padlocking of the points. ( SR 15.06.10.2)
19. On completion of work and after ensuring that the block section is free, the respective official in charges of various units will hand over to the SM a \_\_\_\_\_.( SR 15.06.11.1)
20. When the train is required to stop and the restriction is likely to last only for a day or less, a Banner flag shall be exhibited at a distance of \_\_\_\_\_on BG. In addition, stop hand signal shall be shown at a distance of \_\_\_\_\_m from the place of obstruction, at the Banner flag and at a distance of 45 m from the three detonators.( GR 15.09.1(a))
21. Stop indicator is located at\_\_\_\_\_metres from the obstruction (work spot) (G.R 15.09.1 (b))
22. Speed indicator is located at \_\_\_\_\_from the obstruction (work spot). (G.R 15.09.1. (d))
23. Engineering indicators are (a).\_\_\_\_\_ b)\_\_\_\_\_ (c)\_\_\_\_\_ (d) \_\_\_\_\_ (e) \_\_\_\_\_(SR 15.09.1.1.2)
24. Caution indicator is located at \_\_\_\_\_ metres before the spot on BG and \_\_\_\_\_metres on MG. (SR 15.09.1.2.1)
25. After stopping at the stop indicator, Loco Pilot shall sign in the \_\_\_\_\_ book and proceed with \_\_\_\_\_ kmph.( SR 15.09.3)
26. When major work such as relaying and re girdering is in progress a speed restriction of \_\_\_\_\_ kmph shall be observed on the adjoining line of DL/MULTIPLE/ line section.( SR 15.09.6)

27. When water over tops the ballast level but is below rail level, the track should be walked over by \_\_\_\_\_ one at either end of the sleepers. (SR 15.17.3.1)
28. When water over tops the rail \_\_\_\_\_ shall certify by walking over and probing that the track is safe and allow the train to go at a speed not exceeding \_\_\_\_\_ kmph.(SR 15.17.3.2)
29. When Station Masters of both ends received Trolley/Lorry Notice, they shall stop all the trains entering into the section and issue \_\_\_\_\_. (SR 15.27.2.1)
30. Neutral section lies between two consecutive \_\_\_\_\_ (SR 17.02(3)).
31. "Danger Zone" means the zone lying within \_\_\_\_\_ metres radius around any live equipment. (SR 17.02.7.3, 19)
32. Engine crew of all trains shall report any defect/irregularity noticed in the OHE to \_\_\_\_\_ in electrified section. (SR 17.03.4.3.1)
33. When a train comes to a stop in an electrified section and the cause of stoppage is not immediately obvious, the LP and Guard shall immediately take action to \_\_\_\_\_. (SR 17.03.4.9.1)
34. Warning boards shall be fixed on the OHE masts in rear of neutral sections at a distance of \_\_\_\_\_ and \_\_\_\_\_ metres respectively. (SR 17.07.1)
35. The speed of the train while passing through Neutral section shall not be less than \_\_\_\_\_ kmph.(SR 17.07.1)
36. When the tower wagon is moved, attached to a train, it should be inside the \_\_\_\_\_ and the speed of the train should be restricted to the speed of the \_\_\_\_\_.(SR 17.08.8.3.4)
37. When healthy section is temporarily isolated and re-energised, if no train entered faulty section, Station Master to issue caution order to the LP of the first train on healthy section to \_\_\_\_\_.(SR 17.09.16(b))
38. When healthy section is temporarily isolated and re-energised, if train entered faulty section, the speed of the first train shall be \_\_\_\_\_ kmph by day / night. (SR 17.09.16(c))
39. During power block \_\_\_\_\_ trains are only permitted to run.(SR 15.06.1.2)
40. The Guard shall not allow the train with the ODC to enter the section (electrified) until the \_\_\_\_\_ is received from the authorized person. (S.R.17.08.1.5.10.2)

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## APPENDIX I & II

1. The notice stations, where divisional caution order shall be issued are specified in the \_\_\_\_\_.( Appx I ( 2.3(i) )
2. In the Caution order, the names of the stations concerned should be written in full \_\_\_\_\_should not be used.( Appx I ( 5.2).
3. The caution order should have all the speed restrictions in force in \_\_\_\_\_order.( Appx I ( 5.3)
4. The LP shall not start the train/the Guard shall not give signal to start from a notice station until they have received \_\_\_\_\_.(Appx I ( 6.3)
5. In case of change of train crew en route, the Loco Pilot/Guard taking over charge must take over all Caution Orders from the \_\_\_\_\_ who is being relieved. (Appx I ( 8)
6. In case a train is worked with an assisting engine / banking engine, the LP and ALP of such engines shall also be issued with the \_\_\_\_\_.(Appx I ( 9.1)
7. Level crossing gates situated within outermost stop signals of a station are under the control of \_\_\_\_\_.(PWay Manual 909(1))
8. Level crossing gates situated out side the outermost stop signals of a station are under control of \_\_\_\_\_.(PWay Manual 909(2))
9. At non interlocked gates, the gateman, before opening the gate for road traffic shall fix a banner flag by day and red light by night at a location \_\_\_\_\_distance from the gate.(Appx II-IV-1.4.2 ))
10. During passage of trains, Gateman during day time will stand and hold \_\_\_\_\_in a furled condition and during night time, he shall hold \_\_\_\_\_light facing the track. (App II-IV- 1.5(2) ))
11. If a Gateman observes a train running in two or more portions, he will draw the attention of the Loco Pilot and Guard By \_\_\_\_\_and also shall show parting hand signal. (App II-IV-1.5 (4) (iv))
12. The interlocked level crossing gate should be treated as \_\_\_\_\_when the signal protecting the LC gate becomes defective. (Appx II Annex I ( 3 ))
13. If the communication with L C Gate fails, SM shall stop all trains and issue \_\_\_\_\_ (Appx II. Annex III 3 (1))

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### APPENDIX III, IV, V, VI VII and VIII

1. During non interlocking working, the \_\_\_\_\_ line should not be used for reception of trains coming from opposite direction. ( Appx III 2.4)
2. A common NI home signal without route indicator should be provided with \_\_\_\_\_ aspect for any indirect reception of trains. (Appx III 4.4)
3. \_\_\_\_\_ signal shall not be disconnected throughout the NI working except at the fag end.( Appx III 4.6)
4. All trains must be brought to a \_\_\_\_\_ the FSS and then allowed to enter (taking off signals) cautiously at speed not exceeding \_\_\_\_\_ kmph.(App III 5.2)
5. During non interlocking working, speed of the trains on main line shall not exceed \_\_\_\_\_ kmph. (Appx III 5.2).
6. During NI working, the LP shall not pass the outermost facing points even though signals are taken off unless he also receives \_\_\_\_\_ at points. ( Appx III 5.3)
7. Patrolling \_\_\_\_\_ of \_\_\_\_\_ line \_\_\_\_\_ means \_\_\_\_\_ of the line in addition to the daily inspection carried out by key man of the gang.(Appx IV )
8. Patrolling of railway line is done on four occasions. They are
9. (a) \_\_\_\_\_ (b) \_\_\_\_\_  
(c) \_\_\_\_\_ (d) \_\_\_\_\_(Appx IV 2)
10. Patrolman, when there is no danger, stand on the right hand side of the train, whistle and exhibit \_\_\_\_\_ showing the light on it. (Appx IV 7.4)
11. If the night patrolman does not turn up even after \_\_\_\_\_ minutes beyond the schedule arrival time, SM shall stop all the trains and issue caution order restricting the speed to \_\_\_\_\_ kmph.(Appx IV 10.4).
12. As and when there is change of traction and reversal of engine \_\_\_\_\_ test must be conducted. (Appx VI 15)
13. Fog signal men shall not show any hand signals to the LP of \_\_\_\_\_ train, but on single line sections, for a train \_\_\_\_\_ fog signal men shall show proceed hand signals. ( Appx VII 6 (ii) )
14. Maximum number of wagons containing explosives permitted by goods trains is \_\_\_\_\_ and \_\_\_\_\_ by mixed train.(Appx VIII 1.1)
15. Minimum \_\_\_\_\_ number of wagons is to be given as support wagons from Loco when wagons containing explosives are attached by Goods Train.(Appx VIII 1.3.1)
16. Minimum \_\_\_\_\_ number of wagons is required to be given as support wagons from B V / Passenger coach / other inflammables when explosives are carried by a train.(Appx VIII 1.3.2.)
17. The liquids, the vapours of which have flash point below 23 C classified under \_\_\_\_\_ Class. ( Appx VIII 2)

18. Class 'A' POL product when carried, minimum number of \_\_\_\_\_ wagons are given as support wagon from loco and \_\_\_\_\_ from brake van or passenger carriage. ( Appx VIII 2.3)
19. When a \_\_\_\_\_ Brake Van is provided, no dummy wagons are required from loco and other vehicles. (Annexure-VIII paras, SRs 2.3.3)
20. Class 'B' POL product when carried, minimum number of \_\_\_\_\_ wagons is given as support wagon from loco and BV. ( Appx VIII 2.4)
21. For the purpose of marshalling, the empty oil tanks also shall be treated \_\_\_\_\_ tank wagons. ( Appx VIII 2.6)
22. Tank wagons containing petroleum and other inflammable liquids and \_\_\_\_\_ oxygen/air not to be carried together. ( Appx VIII 2.10)
23. A single four wheeler must not be marshaled between two \_\_\_\_\_ Appx VIII 8.5.1)
24. To attach a dead engine to a train, a certificate 'fit to run' issued by Section Engineer/ \_\_\_\_\_ /Power controller is required. ( Appx VIII 9.5.1 (i) )
25. Dead engine shall be escorted by competent railway servant not lower than \_\_\_\_\_ ( Appx VIII 9.5.1 (i) ).
26. \_\_\_\_\_ number of dead engines is/are permitted to attach to passenger carrying train. (Appx VIII 9.5.2 (I) )
27. No dead engine should be attached to any \_\_\_\_\_ train under any circumstances. (Appx VIII 9.5.2(v) )
28. Officers inspection carriages are not to be permitted by (a) \_\_\_\_\_ (b) \_\_\_\_\_ (c) \_\_\_\_\_ (d) \_\_\_\_\_ trains. ( Appx VIII 10.1 and rake link)
29. More than one Inspection Carriage is not permitted by \_\_\_\_\_ trains. (Appx VIII 10.2 )
30. \_\_\_\_\_ can be attached in excess of the permitted load. ( Appx VIII 10.6)
31. A mail/express train shall have at least one \_\_\_\_\_ after loco and as rearmost vehicle. ( Appx VIII 11.1.1)
32. In rear of rear S L R \_\_\_\_\_ coaches can be attached excluding one Inspection carriage for express trains. (SR. 4.24.1)
33. In case of short trains running with single SLR, the SLR, should be marshaled in the \_\_\_\_\_ of the formation. (Appx-VIII 11.2)
34. When center S L R is provided in short trains, a maximum of \_\_\_\_\_ coaches are permitted on either side of S L R. (SR. 4.24.1)

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## APPENDIX X and XI

1. Caution board before automatic danger level indicator shall be provided at \_\_\_\_\_ (Appx X 3).
2. When automatic danger level indicator is flashing red light the Loco Pilot shall stop the train \_\_\_\_\_metres before the indicator.( Appx X 6)
3. When Loco Pilot stopped the train before flashing red light of Automatic Danger Level Indicator, train shall be piloted by \_\_\_\_\_ (Appx X 6).
4. At standard – I R interlocked station the maximum speed permitted for the train over main line points is \_\_\_\_\_ kmph.( Appx XI 1.3 )
5. At standard – II R interlocked station the maximum speed permitted for the train over main line points is \_\_\_\_\_ kmph. Appx XI 1.3 )
6. At standard – III R interlocked station the maximum speed permitted for the train over M L points is \_\_\_\_\_ kmph.( Appx XI 1.3 )
7. At standard – IV R interlocked station the maximum speed permitted for the train over main line points is \_\_\_\_\_ kmph.( Appx XI 1.3 )
8. At standard – III interlocked station the maximum speed permitted for the train over M L points is \_\_\_\_\_ kmph.( Appx XI 1.3 )
9. Double Distant signal is compulsory in the Standard \_\_\_\_\_and \_\_\_\_\_interlocking. ( Appx XI 1.3 )
10. Double distant is required on sections where goods trains have a braking distance of more than \_\_\_\_\_ KM.(Appx XI 1.4.2)

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## APPENDIX XII, XIII, XIV and XV

1. In case of train shunting, written instructions will be given in form No. \_\_\_\_\_ (Appx XII ).
2. On double line section, shunting within the station section can be \_\_\_\_\_ when line clear is granted for a train. (App XII 7.1)
3. On Double line, to perform shunting beyond LSS, SM shall do \_\_\_\_\_ and give \_\_\_\_\_ written authority. (Appx XII 8)
4. On double line, when shunting is permitted beyond LSS in SWR in rear of a travelling away train, the authority is \_\_\_\_\_. (Appx XII 8)
5. On single line tokenless sections, to perform shunting beyond LSS and up to FSS, the authority is \_\_\_\_\_. (Appx XII 9.2)
6. On double line, to perform shunting beyond Outer most facing points/BSLB, the authority is \_\_\_\_\_. (Appx XII 10)
7. To shunt beyond the FSS on single line sections, the movement should be treated like a \_\_\_\_\_ movement and LP shall be given \_\_\_\_\_ + a memo to push back. (Appx XII 11).

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## APPENDIX XVI and XVII

1. In the EMU/MEMU Bell code 000 pause 000 indicates \_\_\_\_\_.(Appx XVI 1.1)
2. Only \_\_\_\_\_persons other than the Loco Pilot/Motorman or Guard are authorized to travel in the Cab of EMU/MEMU with special permits.(Appx XVI 2)
3. \_\_\_\_\_test should be conducted before taking out MEMU/EMU on the 1st daily service run from MEMU/EMU shed, stabling siding and platform line. (Appx XVI 5)
4. When the power go off the line, while the EMU/MEMU is standing on a grade, the Loco Pilot/Motorman must immediately apply the \_\_\_\_\_ in both cabs to the full extent and apply the wedges towards the \_\_\_\_\_.(Appx XVI 7)
5. If the detention exceeds or it is likely to exceed \_\_\_\_\_ minutes, the EMU/MEMU shall be protected as per Rule 6.03/9.10 (Appx XVI 8)
6. In the event of fire on any part of the electrical equipment, the affected part is first to be completely \_\_\_\_\_ from the distribution system.(Appx XVI 9.1)
7. In the event of fire on EMU/MEMU, the Loco Pilot/Motorman shall immediately \_\_\_\_\_ and lowers the pantograph.(Appx XVI 9.2)
8. In cases where the leading cab of an EMU/MEMU has become defective, the maximum speed shall be \_\_\_\_\_ Kmph.(Appx XVI 10)
9. In cases where the leading cab of an EMU/MEMU has become defective, brake equipment in the leading cab is inoperative; the maximum speed shall be \_\_\_\_\_ Kmph.(Appx XVI 10)
10. According to the density of traffic to the sidings, the rakes will be moved as per (A) One Pilot Only System or (B) \_\_\_\_\_ System.(Appx XVII )
11. \_\_\_\_\_is authorized to prescribe either one pilot only system or multiple pilot system of working on the basis of traffic to be dealt.(Appx XVII)
12. At serving station where sidings are take off, the Station master must maintain \_\_\_\_\_ register to record the detail of all pilot movements.(Appx XVII )
13. \_\_\_\_\_of the train or in his absence any \_\_\_\_\_ staff deputed by Station Master is in charge of the Pilot.(Appx XVII )
14. \_\_\_\_\_of the Pilot is responsible for the safe working of the Pilot and for the correct setting and securing of points.(Appx XVII )
15. In the \_\_\_\_\_system, before leaving station, LP will be given authority to proceed to the siding and return to the station.(Appx XVII )
16. On complete arrival of the Pilot train inside the fouling mark, the \_\_\_\_\_shall make an endorsement in the Pilot Movement Register. (Appx XVII )
17. In the \_\_\_\_\_system, LP will be given separate authorities from station to siding and siding to station.(Appx XVII )

18. Reception of pilot train into station can be done by taking off \_\_\_\_\_ or \_\_\_\_\_.(Appx XVII)
19. In the Multiple Pilot system, in the event of failure of means of communication with siding, SM has to adopt \_\_\_\_\_system till restoration of any one of the communication.(Appx XVII ).

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## **BLOCK WORKING MANUAL**

1. In push button token less block instrument when shunt key cannot be extracted for shunting purposes, the SM shall advise the SM at the other end to extract shunt key and keep it in his personal custody and LP shall be given \_\_\_\_\_ for performing shunting.(BWM-B-3.7.7)
2. For all Goods trains at originating station “is line clear” should be asked\_\_\_\_\_.(BWM-A-3.10,C-3.5(c))
3. At train starting station ‘is line clear’ shall be asked \_\_\_\_\_minutes before the booked departure of the passenger carrying trains. (BWM-A-3.10,C-3.5(c))
4. At intermediate stations, for all stopping trains with a halt of less than five minutes ‘is line clear’ shall be asked when \_\_\_\_\_.(BWM –A-3.10,C-3.5(c))
5. in the case of train is booked to run through a station, is line clear shall be asked \_\_\_\_\_minutes before the train is due to pass. (BWM-A-3.10, C-3.5(c))
6. For run through trains whose running time is less than seven minutes, Line clear is to be obtained immediately after the \_\_\_\_\_signal is received.(BWM-A-3.10, C-3.5(c))
7. The Guards/Loco Pilots of all trains who are provided with VHF sets and Portable Field telephone, when delayed in the block section for over \_\_\_\_\_for passenger carrying/goods trains shall inform the Station Master/controller. (BWM-A-5.5 (b), B.5.6 (b),C-5.7(e))
8. A relief engine should be sent, if the engine or vehicles running away have not arrived even after a lapse of \_\_\_\_\_minutes more than the running time of the slowest speed goods train. (BWM-A-5.9 (a), B.5.10 (a),C-5.11(b),5.12(b))
9. While issuing PLCT, loco pilot’s signature is to be obtained in \_\_\_\_\_.(BWM-Annex-1.5(a))

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## ACCIDENT MANUAL

1. Accidents are classified as  
a) \_\_\_\_\_ b) \_\_\_\_\_ c) \_\_\_\_\_  
d) \_\_\_\_\_ e) \_\_\_\_\_.
2. An example of consequential accident is \_\_\_\_\_.
3. An example of indicative accident is \_\_\_\_\_.
4. Passing stop signal at Danger is \_\_\_\_\_ type of accident.
5. In an accident if the damage to Railway property exceeds Rs2crores, such accident shall be treated as \_\_\_\_\_ accident.
6. On trunk routes when traffic is disrupted for \_\_\_\_\_ hours or more, it is treated as serious dislocation of traffic.
7. If, outside station limits, the distance between two trains is \_\_\_\_\_ or more, such occurrence may not be treated as averted collision.
8. When SM receives message about unsafe condition of tanks, rivers and bunds, he shall stop the train and issue caution order to observe \_\_\_\_\_.
9. When persons are knocked down or run over and dead, no responsible person is available, body shall be handed over to nearest \_\_\_\_\_ or \_\_\_\_\_ in the direction of movement..
10. When murder is reported in second class compartment, carriage will be detached at the station where the \_\_\_\_\_.
11. As per classifications, Collisions come under \_\_\_\_\_ category.
12. As per classifications, Fire accidents come under \_\_\_\_\_ category.
13. An example of breach of block rules is \_\_\_\_\_.
14. Whenever accident takes place, blood samples are to be collected from \_\_\_\_\_ in addition to GLP of the ill fated train.
15. Accident siren three long indicates \_\_\_\_\_.
16. Accident siren when accident takes place at out station, main line obstructed and MRT required is \_\_\_\_\_.
17. The target time for turning out ART is \_\_\_\_\_ by day and \_\_\_\_\_ by night.
18. ARME scale –I comprises of \_\_\_\_\_ and \_\_\_\_\_.
19. The target time for turning out MRT is \_\_\_\_\_ for direct/indirect dispatch.
20. Mock drills for ART shall be conducted once in \_\_\_\_\_.
21. Rainfall above \_\_\_\_\_ cm in 24 hours is considered as dangerous for running trains.
22. Heavy wind above \_\_\_\_\_ kmph is considered dangerous for running trains.

23. South Central Railway is divided into \_\_\_\_\_ zones for the purpose of Weather Warning.
24. In case of death in Train accident/manned LC gate accident Rs \_\_\_\_\_ / \_\_\_\_\_ is paid as ex-gratia.
25. In case of serious injury in a train accident Rs. \_\_\_\_\_ is paid as ex-gratia
26. Whenever accident takes place, SM and GLP has to prepare report in forms No. \_\_\_\_\_ and \_\_\_\_\_ respectively.
27. The amount of compensation to be paid in case of death in railway accident is Rs \_\_\_\_\_.
28. The claim for compensation shall be made within \_\_\_\_\_ from the date of accident through \_\_\_\_\_

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### VARIOUS SPEED RESTRICTIONS

S.No	DESCRIPTION [AT STATION]	SPEED[kmph]	RULE REF.
1.	Failure of LSS in Automatic block – D/L	10 up to next signal	SR.3.12.3
2.	<b>Goods trains</b> –entering terminal yards	15	SR.3.36.4
3.	While testing detonators	8--11	SR 3.64.5.6
4.	Maximum speed on calling on 'off'	30	SR 3.79
5.	On non-interlocked points	15	GR. 4.10
6.	<b>1 in 8½ turnout</b> —a]goods b] Passenger carrying trains c] with curved switches, PSC sleepers and 52/60 kg rails---- both passenger and goods d) symmetrical split with curved switch 52/60kg rails including Thick Web Switch on PSC sleepers - both passenger and goods	15 10 15 30	SR.4.10
7.	TTM speed over points and crossings	10	SR 4.65.1.1
8.	Trolley over points and crossings	15	SR.15.25.10.2
9.	STD.I (R) Interlocked M/L facing points	Up to 50	Appendix XI 1.3
10.	STD.II (R) Interlocked M/L facing points	Up to 110	Appendix XI 1.3
11.	STD.III (R) Interlocked M/L facing points	Up to 140	Appendix XI 1.3
12.	STD.IV (R) Interlocked M/L facing points	Up to 160	Appendix XI 1.3
13.	STD III interlocked M/L facing points	MPS	SEM Part I
	<b>[ IN BLOCK SECTION]</b>		
14.	<b>IBS</b> at ' ON'-----phone defective	15/8	SR.3.75.4
15.	During dense fog in section	<b>Absolute-60 Automatic -</b>	SR.3.61.9

		Green- 60 Double yellow -30 SingleYellow- restricted speed	
16.	<b>While pushing the train—</b> a) Guard in the leading vehicle b)Guard is not in the leading vehicle c) without brake van	25 8 Walking speed	SR.4.12.2.3
17.	Patrol or Search light special with one or more vehicles in front	40	GR 4.12.1
18.	Failure of Headlight	40 or severest SR whichever is less	SR.4.14
19.	<b>Shunting</b> Generally Explosives Non-roller bearing—Hand shunting	15 08 05	SR 5.13 SR 5.20.5.3
20.	Rail breakage---up to 30mm I train II and subsequent trains	10 15	SR.6.01.2.3.3
21.	When train/engine is sent into occupied block section on T/A602	15/10	SR 6.02.6.1
22.	Light engine proceeding on T/B602 to open communication	15/10	SR 6.02.4.6.1
23.	During TIC on D/L Train proceeding on T/C602	25/10	SR 6.02.3.3.2
24.	When Block Tkt [T/J 602] is issued	15/8	T/J 602
25.	First train during TSL. working	25	SR 6.02.1.11
26.	During TIC on S/L When line clear is obtained for more than one train---- speed of second and subsequent trains	25/10	SR.6.02.4.18
27.	On seeing flasher light	20/10	SR 6.03.7
28.	When 'lurch' is reported and subsequently a train is sent with engineering official, caution order	Stop dead short of expected portion of the track.	SR.6.07.1(d)

29.	When 'lurch' is reported and subsequently a train is sent without engineering official, caution order	Stop dead before the affected KM and proceed with 10km after satisfying condition of the track	SR.6.07.1(e)
30.	Light engine returning on T/609 to clear left over portion	25	SR 6.09.7
31.	When LOCO PILOT passes Automatic signal at ON	10	SR.9.02.3
32.	Failure of LSS in Automatic block S/L-I Train	25	SR.9.06.5
33.	First train is proceeding on T/D912	25	SR.9.12.1.6.2
34.	When train is proceeding on T/B912	25/10	SR.9.12.2.4.3
35.	During TSL Working in automatic block First train on wrong line	25	SR.9.12.3.10
36.	Speed of the relief engine on T/C 912	15/10	SR 9.12.6.1.3
37.	Speed of the following tower wagon/TTM (day/night)	25/10	SR 15.06.4.3
38.	Speed of the Material train/tower wagon/TTM during integrated/shadow block (day/night)	15/8	SR 15.06.4.4.1
39.	After stopping at Stop Indicator	8	SR15.09.3
40.	When major work is in progress— speed of trains on adjacent line	50	SR 15.09.6
41.	When water rises over ballast level but below rail level	Stop and proceed 8 ( 2 gang men should walk abreast on sleepers)	SR.15.17.3
42.	When water overtops the rail	Stop and proceed 8 after certification by PWI	SR.15.17.3
43.	Motor trolley during night	30	SR.15.25.10
44.	Passing neutral section —minimum	30	SR.17.07.1



45.	In cases of emergency Asst.Loco Pilot drives the train up to next point where he can be relieved	40	SR.17.09.5.7
46.	<b>Electric loco leading driving compartment is defective---</b> a)Loco Pilot remains in leading driving comp. Train is driven by Asst.Loco Pilot from rear driving compartment  B) Loco Pilot drives from rear driving compartment. Asst. remains in the leading compartment	40  15	SR.17.09.12.2  SR.17.09.12.3
47.	First train to enter healthy section which is temporarily isolated and re-energized	60/30	SR.17.09.16
48.	When patrolman has not turned up after 15 mts beyond schedule arrival	40	App.IV (10).4.3
49.	When a four wheeler vehicle is attached to passenger carrying train.	BG—75 MG—50	App.VIII..8.5.3
50.	Unsafe condition of bunds of Tanks or Rivers	Special caution	Accident Manual 401
51.	<b>When ODC is by train</b>  Class A Class B Class C	BG    MG 75    25 40    25 25    15	WTT

## AUTHORITIES

1. Normal authority to proceed on Single Line token section is \_\_\_\_\_ **TOKEN**
2. Normal authority to proceed on Single Line token less section and on Double line section is \_\_\_\_\_ **OFF POSITION OF L.S.S.**
3. When a Loco Pilot has been advised of a defective reception stop signal of a station in advance through the S.M. of station in rear, the authority to pass such signal is \_\_\_\_\_ **T/369(1) +PHS AT THE FOOT OF THE SIGNAL**
4. Authority to pass defective OUTER/HOME/STARTER signal is \_\_\_ **T/369(3b)+PHS**
5. Authority to pass defective Shunt signal / Shunting permitted indicator is \_\_\_ **T/369(3b)+PHS**
6. When train passed starter signal partly when signal is at ON and stops, it shall be re started on\_ **T/369(3b)+MEMO(COUNTER SIGNED BY GUARD)+PHS+ ATP**
7. When LSS becomes defective on Double Line in Automatic block system \_\_\_\_\_ **(T.369(3b)+CO (10 kmph up to next signal.)**
8. Caution order ( Divisional/Sectional) \_\_\_\_\_ **T/409**
9. Caution order (Nil) \_\_\_\_\_ **T/A 409**
10. Authority for the material, after completion of work coming back to the same station **-T.462**
11. Authority for the material after completion of work going to the next station ---- **T/A.462**
12. Authority for the TTM, after completion of work coming back to the same station – **T.465**
13. Authority for the TTM, after completion of work going to the next station **T/A.465**
14. Authority when more than one TTM is permitted in the same section and returning back to the same station for the First TTM is—T.465 and subsequent TTM's-----**CO**
15. Authority when more than one TTM is permitted in the same section and going to the station in advance first and subsequent TTM is given---CO and last TTM is given---**T.A 465**
16. Written Authority to receive a train on to an obstructed line/ non-signaled line \_\_\_\_\_ **T/509**
17. To start a train from a line not provided with Starter Signal and ATP is not tangible\_\_ **ATP+T/511**
18. To start a train from a line provided with a common starting signal for a group of lines \_\_\_\_\_ **ATP+T/512 +common starter taken 'off'**
19. To send a relief engine/train or train into occupied block section \_\_\_\_\_ **T/A.602**
20. Engine going for opening up communication during total interruption of communication on Single Line \_\_\_\_\_ **T/B602**
21. To dispatch a train during total interruption of communication on Double Line sections \_\_\_\_\_ **T/C602**

22. For working trains during T S L working on double line \_\_\_\_\_ **T/D602**
23. For engine going for opening up communication during total interruption of communication on Single Line when Line Clear is required for more than one train \_\_\_\_\_ **T/B602+T/E602**
24. In case of even flow of traffic during TIC on S/L, after opening up of communication, Line clear enquiry can be made for subsequent trains through \_\_\_\_\_ **T/E602**
25. Conditional line clear reply message \_\_\_\_\_ **T/F602**
26. Conditional Line Clear Ticket for UP/DOWN trains \_\_\_\_\_ **UP-T/G602. DOWN-T/H602**
27. Form that has to be used for exchanging messages after any one of the means of communication is restored \_\_\_\_\_ **T/I602**
28. Block Ticket is prepared in Form No. \_\_\_\_\_ **T/J602**
29. Written permission given by Guard to Loco Pilot during divided train working \_\_\_\_\_ **T/609**
30. Authority for Light Engine to return to pick up the 2<sup>nd</sup> portion left in the block section ----- **T.609(endorsed by the SM)**
31. When a train without guard is divided in the section, after dropping the first portion, authority for light engine returning to pickup second portion \_\_\_\_\_ **T/A 602**
32. Shunting order (Shunting instruction form) \_\_\_\_\_ **T/806**
33. Authority to go up to opposite FSS for shunting purpose in Token area \_\_\_\_\_ **T/806**
34. Authority to go up to opposite FSS for shunting purpose in Token less area \_\_\_\_\_ **T/806+SHUNT KEY OR T/806+PN**
35. Authority to go beyond opposite FSS for shunting purpose on Single line \_\_\_\_\_ **ATP+WRITTEN MEMO TO PUSH BACK+TAKING OFF SIGNALS**
36. Authority to enter block section in rear on Double line section for shunting purpose \_\_\_\_\_ **T/806(WITH PN)**
37. Authority to enter block section in advance on Double line section for shunting purpose \_\_\_\_\_ **TAKING OFF SHUNT SIGNAL BELOW LSS/LSS LEVER KEY/T-806(WITH PN)**
38. Authority to enter block section in advance on Double Line section for shunting purpose behind the travelling away train \_\_\_\_\_ **taking off shunt signal below LSS or T/806 without PN**
39. When LSS becomes defective on Single line Automatic block system \_\_\_\_\_ **(T/A912+PLCT)**
40. During prolonged failure of all signals and communication on Double Line Automatic block system \_\_\_\_\_ **T/B912**
41. For relief engine/train to enter occupied block section in Automatic block system \_\_\_\_\_ **T/C912**
42. During prolonged failure of all signals and communication is available on Double Line Automatic block system \_\_\_\_\_ **T/D912**

43. Authority to despatch the trains during temporary single line working on Automatic block system (first train on right line and all trains on wrong line) – **T/D 602 + T/A 912**
44. Authority to open communication on single line automatic block system is – **T/B 602 + T/A 912**
45. Before issuing PLCT –Line Clear Enquiry (despatching end)\_\_\_\_\_ **T/A1425**
46. Before issuing PLCT –Line Clear Reply(receiving end)\_\_\_\_\_ **T/B1425**
47. PLCT-UP \_\_\_\_ **T/C1425**
48. PLCT-DOWN\_\_ **T/D1425**
49. To pass defective Home Signal of class C station on Double line section \_\_\_\_\_ **PLCT**
50. In IBS area, before a train leaves the station if it is known that the IBS/LSS/AXLE COUNTER/TRACK CIRCUIT is failed\_\_\_\_\_ **PLCT+T/369(3B)**
51. When Loco Pilot enters block section without an ATP and report is sent to station in rear, the SM gives \_\_\_\_\_ **PLCT**
52. Trolley/Lorry/Ladder Trolley Notice\_\_\_\_\_ **T/1518**
53. Motor trolley permit in token less single line and double line sections on Absolute Block system\_\_ **T/A1525**
54. Motor trolley permit in single line and double line sections on Automatic Block system\_\_ **T/A1525**
55. Motor trolley permit to follow a train/engine/another motor trolley\_\_\_\_\_ **T/1525**
56. Authority for Tower Wagon, after completion of work coming back to the same station- **T.1708**
57. Authority for Tower Wagon, after completion of work going to the station in advance – **T/A.1708**
58. Authority when more than one Tower wagon is permitted in the same section and returning back to the same station for the **First Tower car is—T.1708** and **subsequent Tower cars-----CO**
59. Authority when more than one Tower wagon is permitted in the same section and going to the station in advance **first and sub sequent Tower wagon---CO** and **last tower wagon---T/A 1708**
60. S&T Disconnection and Reconnection Notice \_\_\_\_\_ **S&T(T/351)**
61. Train Examination Advise \_\_\_\_\_ **T/431**
62. Combined Train Report \_\_\_\_\_ **T/720.**
63. Train Intact Register \_\_\_\_\_ **T.1410**

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**UPDATED UPTO AMENDMENT SLIP NO. 8**

## **AMENDMENTS**









