दक्षिणमध्यरेल्वे
SOUTH CENTRAL RAILWAY

प्रधान कार्यालय/Headquarters Office,
परिवाहन शाखा/Transportation Branch
सिकिंद्राबाद/Secunderabad.

संख्य./No. टी.T. 157/AM/AS/06

दिनांक/Date: 31.08.2020.

DRMs/SC, BZA, GTL, HYB, GNT & NED

विषय/Sub: Amendment Slip no.06 to Accident Manual – 2012 of SCR

* * *

Following amendments to Accident Manual – 2012 of SCR that have been issued for implementation in SCR.

Item no. 1 of AS No. 06 dated 31.08.2020	Rule no. 501.2 in Chapter V (in page no. 45) is amended as follows: **501.2 Action by Safety Team/Accident In-charge**. On arrival at site, the safety team will take charge of the locations where evidence and clues are available. The safety team will thoroughly examine the site and come to some tentative conclusion about the probable cause of the accident. **Careful observation of clues and a comprehensive record thereof is vital for accident enquiry. In addition, a comprehensive record of track and rolling stock parameters and operating features is required for investigation of derailments.**The statements to be recorded and joint measurements to be taken. The following steps also to be taken.
Item no. 2 of AS No. 06 dated 31.08.2020	Add the following as point iii) to Rule 501.2 in Chapter V in page 45 and renumber the existing point nos. iii) – xii) as iv) – xiii): **iii) Speed recorders and event recorders in the locomotives shall be freezed immediately post the accident.**
Item no. 3 of AS No. 06 dated 31.08.2020	Main para of Rule no. 501.2 (v) (vi after amendment vide item no. 2) of Chapter V in page no. 45 is amended as following: vi) In case the accident takes place within station section, **observations of SM's Panel need to be recorded. SM's control panel shall be freezed till the time position of the knobs, switches, points & crossings etc. are jointly recorded. It is the responsibility of the concerned Controlling Officer/Safety Officials to ensure freezing of the above.**The team will note down the following:

के शिव प्रसाद

(प्रमुख मुख्य परिचालन प्रबन्धक/Principal Chief Operations Manager)

Contd...2.

Item no. 4 of AS No. 06 dated 31.08.2020	Insert the following as sub-rules from xiv) to xxii) under rule 501.2 in Chapter V in page no, 47 duly renumbering existing sub-rules from xiii) to xvii) as xxiii) to xxvii): **xiv) The joint measurement to be submitted by senior supervisors shall not be complete till all the measurement of rolling stock and track as per proforma have been recorded. Only completed joint measurement with reference to rolling stock and track shall become a document to be relied upon by the enquiry committee for drawing conclusion regarding cause of accident.** **xv) The photographs of the concerned sections of track and part of rolling stocks shall be taken in detail to show all the details the accident and annexed in the enquiry report. ART personnel should be trained for identifying such relevant part of track and rolling stocks involve in the accident.** **xvi) In case of derailment of passenger trains causing injury to passengers, video recording of the concerned part of track and rolling stock shall be carried out by nominated ART personnel, trained for the purpose.** **xvii) Photography & Videography of accident site shall be with great care & precision, similar to a crime scene photography/videography. ART personnel nominated for this shall be suitably trained for the purpose. The photographs, videos should be self-explanatory such that relevant conclusion can be drawn.** **xviii) Site sketch of the derailment/accident location shall be prepared giving due care that all the relevant items are included along with the dimensions. A sample sketch is attached for the guidance.** **xix) Preservation of relevant clues, documents & photographs/videography of the accident scene shall be done under supervision of Safety Officials of the Division.** **xx) M&C report from RDSO must also be part of accident enquiry report in case accident is attributed to breakage of any component of track or rolling stock.** **xxi) If rail/weld failure is suspected to be cause of derailment, assessment of impact loading to which the rail/weld was subjected to prior to its failure becomes important. In such cases, WILD data for few preceding trains shall be analysed for critical alarms and any critical alarm shall be brought out and deliberated by enquiry committee.** **xxii) Safety official shall take into custody of all the relevant documents, broken parts etc.**
Item no. 5 of AS No. 06 dated 31.08.2020	Add the following as note under rule no. 503 in Chapter V in page 49: **Note: Typical sketch of the Accident site is given at 508.**

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(प्रमुख मुख्य परिचालन प्रबन्धक/Principal Chief Operations Manager)

Contd...3.

Item no.6 of AS No. 06 dated 31.08.2020	Add the following as sub-rules numbering i) to iv) under rule no. 9.02.3 in Chapter IX in page 100, duly renumbering the existing sub-rules i) to vii) as v) to xi): **i. There are two broad categories of derailment.** **a) Sudden derailment is caused by wheel set jumping of the rails. Such a derailment indicates that the derailing forces were high enough to suddenly force the wheel off the rail. These are typically caused by failure of vehicle/track components, obstruction on track, entanglement of hanging parts of rolling stock etc. These derailments are characterized by a short mark on rail table between Point of Mount and Point of Drop. In some cases the Point of Mount may even be absent.** **b) Derailment by flange climbing is caused by wheel mounting the rail in a relatively gradual manner. It indicates that the derailing forces were powerful enough to overcome the normal stabilizing forces, yet not sufficient to cause a sudden derailment. Such derailments are characterized by a longer mark on the rail table between Point of Mount and Point of Drop. Track and rolling stock parameters and operating features influence the rail-wheel interaction forces and hence, their complete record and a comprehensive analysis is required to arrive at the mechanism of derailment. Cause and consequence of derailment are required to be differentiated through this comprehensive analysis.** **ii. Derailment proneness increases with increased Lateral wheel force, reduced Vertical wheel load (Offloading) and increased Positive Angularity of wheel. Derailment proneness becomes substantially higher in case of axle moving with a persistently positive angularity. Track and rolling stock parameters and operating features should be critically analysed for their contribution towards these causes. In case of derailments in curve, proper functioning of Bogie rotation system to ensure undue angularity needs close examination. Contribution of track twist and spring defects and twist in bogie frame/vehicle under frame to derailments caused by wheel Offloading needs to be analysed. In case of derailments at high speed, parameters affecting vehicle oscillation and damping thereof needs a close analysis.** **iii. While analysing the mechanism of derailment, relative contribution of track and rolling stock parameters to the rail-wheel interaction forces needs a comprehensive analysis. Reference should be made to the safety limits/ Maintenance limits specified in IRPWM/IRCA/Maintenance Manuals.** **iv. Locating and examining the wheel mounting mark(s) at the initial point of derailment is very important for identifying the category of derailment. Precise measurements and critical and detailed examination of the wheel mounting marks should be made e.g. their length, strong or faint, broken or continuous, single or multiple, etc. Photographs should be taken of such marks, not only on the rail, but also on the fastenings, sleepers and ballast.**
Item no. 7 of AS No. 06dated 31.08.2020	Add the following as note - 2 under rule no. 902.5 in Chapter IX in page no. 101. **(2) No enquiry shall be completed before the complete measurement of rolling stock and track is available and made part of the enquiry report. Enquiry Committee may get additional measurements done as per requirement of the derailment case.**

केवीएस प्रसाद

(प्रमुख मुख्य परिचालन प्रबन्धक/Principal Chief Operations Manager)

Contd...4.

Item no. 8 of AS No. 06 dated 31.08.2020	**Pro-forma for measurements of Track vide 504.1 and 5.4.2; Locomotive (Diesel & Electric) vide 505 & 505.1; Coach involved in Accident vide 506 and Wagon involved in accident vide 506.1 are amended as given in the Annexure-I.**
Item no. 9 of AS No. 06dated 31.08.2020	**Add the Drawing at Annexure-II as 508.**

Please note and notify to all concerned.

Necessary printed page replacements to the relevant pages will be issued in due course.

Encl: 1. Annexure-I to AS-6 for revised pro-forma for measurement of Track, Locomotive, Carriage and Wagons:
2. Annexure – II: Typical sketch of Accident site and
3. Annexure – III showing existing and amended rules for item nos. 1-7 for pasting along with revised pro-forma and typical sketch given vide Annexure – I and II in the Assurance Register by Station Superintendent for information to all the staff under him.

के. शिव प्रसाद

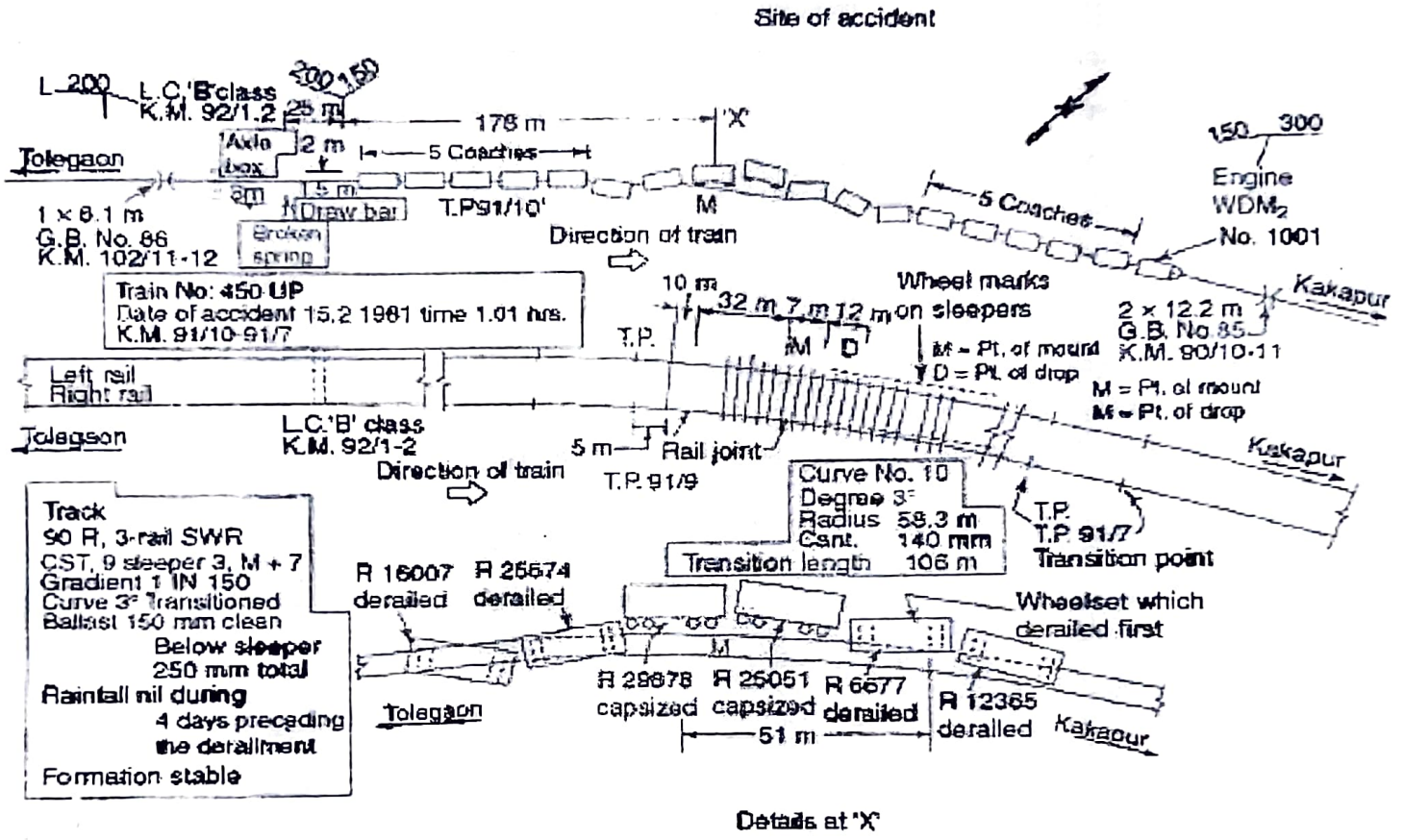
(के. शिव प्रसाद/K. Siva Prasad)

(प्रमुख मुख्य परिचालन प्रबन्धक/

Principal Chief Operations Manager)

Copy to: General Managers, PCOMs &PCSOs/CR, ECR, ECoR, ER, NCR, NER, NWR, NFR, NR, SECR, SER, SWR, SR, WCR, WR, SCoR& Metro Rly/Kolkatta;
Secretary to GM for kind information to GM;
AGM, SDGM, DGM/G, CPRO;
PED/Safety (A&R);CRS/SCC/SC;
PCCM, CCO, CCM/PS, CCM/FM, CFTM, CPTM, CTPM, PCSC
PCE, CTE, CTE/TP, CBE, CGE,
CAO/C, CE/C-I, CE/C-II, CE/C-III, CE/C-IV & CE/C/V,
PCME, CWE, CMPE/Dsl, CRSE, CWM/WS,
PCEE, CEDE, CPM/RE, CEGE, CELE, CESE, CEE/RS, 0
PCSTE, CSE, CCE, CSTE/P, CSTE/C, Director, IRISET/LGD;
PCSO; CEE/Operations and Planning;
PCPO, PFA, Principal Director/Audit;
Sr.DOM/DOMs/ SC, BZA, GTL, GNT, HYB & NED;
Sr.DSO/DSOs/ SC, BZA, GTL, GNT, HYB & NED;
Sr.DEN (Co-ord)s/Sr.DENs/DENs/SC, BZA, GTL, GNT, HYB & NED;
Sr.DME/DMEs/DMEs (P)/ SC, BZA, GTL, GNT, HYB & NED;
Sr. DSTE/DSTEs/ SC, BZA, GTL, GNT, HYB & NED;
Sr.DEE/Tr.D/ SC, BZA, GTL & GNT;
Sr.DEE/TRSO/ SC, BZA, GTL & GNT;
Principals/ZRTI/MLY, STTC/MLY, ETTC/BZA, STC/LGD&ZCETC/KCG &
MRA & Dy. MRA for translation into Hindi.

* * *



TYPICAL SKETCH OF ACCIDENT SITE

TO BE JOINTLY SIGNED BY		
SUPERVISOR (C&W)	SUPERVISOR (TRAFFIC)	SUPERVISOR (P.WAY)

के शिव प्रसाद
(प्रमुख मुख्य परिचालन प्रबन्धक/
Principal Chief Operations Manager)

The following table showing existing and amended rules of Amendment Slip no. 06 of SCR's Accident Manual-2012 shall be pasted by Station Superintendents in the Assurance Registers for obtaining acknowledgements of all Operating staff under his/her control.

Item No./ Rule No.	Existing Rule	Rule after Amendment
1/ 501.2 Main para	**Action by Safety Team/Accident In-charge**. On arrival at site, the safety team will take charge of the locations where evidence and clues are available. The safety team will thoroughly examine the site and come to some tentative conclusion about the probable cause of the accident. The statements to be recorded and joint measurements to be taken. The following steps also to be taken.	**Action by Safety Team/Accident In-charge**. On arrival at site, the safety team will take charge of the locations where evidence and clues are available. The safety team will thoroughly examine the site and come to some tentative conclusion about the probable cause of the accident. **Careful observation of clues and a comprehensive record thereof is vital for accident enquiry. In addition, a comprehensive record of track and rolling stock parameters and operating features is required for investigation of derailments.** The statements to be recorded and joint measurements to be taken. The following steps also to be taken.
2/ Point iii)/ 502	NIL:	**iii) Speed recorders and event recorders in the locomotives shall be freezed immediately post the accident.**
3/ 501.2 (vi)	In case the accident takes place with in station section, the team will note down the following:	In case the accident takes place within station section, **observations of SM's Panel need to be recorded. SM's control panel shall be freezed till the time position of the knobs, switches, points & crossings etc. are jointly recorded. It is the responsibility of the concerned Controlling Officer / Safety Officials to ensure freezing of the above.** The team will note down the following:
4/ 501. xiii-xxi	NIL	**xiv) The joint measurement to be submitted by senior supervisors shall not be complete till all the measurement of rolling stock and track as per proforma have been recorded. Only completed joint measurement with reference to rolling stock and track shall become a document to be relied upon by the enquiry committee for drawing conclusion regarding cause of accident.** **xv) The photographs of the concerned sections of track and part of rolling stocks shall be taken in detail to show all the details the accident and annexed in the enquiry report. ART personnel should be trained for identifying such relevant part of track and rolling stocks involve in the accident.**

के विनि प्रसाद

(प्रमुखमुख्यपरिचालनप्रबन्धक/Principal Chief Operations Manager)

Item No./ Rule No.	Existing Rule	Rule after Amendment
4/ 501. xiii-xxi (Contd.)	NIL	**xvi) In case of derailment of passenger trains causing injury to passengers, video recording of the concerned part of track and rolling stock shall be carried out by nominated ART personnel, trained for the purpose.** **xvii) Photography & Videography of accident site shall be with great care & precision, similar to a crime scene photography/videography. ART personnel nominated for this shall be suitably trained for the purpose. The photographs, videos should be self-explanatory such that relevant conclusion can be drawn.** **xviii) Site sketch of the derailment/accident location shall be prepared giving due care that all the relevant items are included along with the dimensions. A sample sketch is attached for the guidance.** **xix) Preservation of relevant clues, documents & photographs/videography of the accident scene shall be done under supervision of Safety Officials of the Division.** **xx) M&C report from RDSO must also be part of accident enquiry report in case accident is attributed to breakage of any component of track or rolling stock.** **xxi) If rail/weld failure is suspected to be cause of derailment, assessment of impact loading to which the rail/weld was subjected to prior to its failure becomes important. In such cases, WILD data for few preceding trains shall be analysed for critical alarms and any critical alarm shall be brought out and deliberated by enquiry committee.** **xxii) Safety official shall take into custody of all the relevant documents, broken parts etc.**
5/ Note to 503	NIL	**Note: Typical sketch of the Accident site is given at 508.**
6/ i –iv of 9.02.3	NIL (Added duly renumbering the existing sub-rules i) to vii) as v) to xi))	**i. There are two broad categories of derailment.** **a. Sudden derailment is caused by wheel set jumping of the rails. Such a derailment indicates that the derailing forces were high enough to suddenly force the wheel off the rail. These are typically caused by failure of vehicle/track components, obstruction on track, entanglement of hanging parts of rolling stock etc. These derailments are characterized by a short mark on rail table between Point of Mount and Point of Drop. In some cases the Point of Mount may even be absent.**

केवल प्रसाद

(प्रमुखमुख्यपरिचालनप्रबन्धक/Principal Chief Operations Manager)

Item No./ Rule No.	Existing Rule	Rule after Amendment
6/ i –iv of 9.02.3 (Contd.)	NIL	**b. Derailment by flange climbing is caused by wheel mounting the rail in a relatively gradual manner. It indicates that the derailing forces were powerful enough to overcome the normal stabilizing forces, yet not sufficient to cause a sudden derailment. Such derailments are characterized by a longer mark on the rail table between Point of Mount and Point of Drop. Track and rolling stock parameters and operating features influence the rail-wheel interaction forces and hence, their complete record and a comprehensive analysis is required to arrive at the mechanism of derailment. Cause and consequence of derailment are required to be differentiated through this comprehensive analysis.** **ii. Derailment proneness increases with increased Lateral wheel force, reduced Vertical wheel load (Offloading) and increased Positive Angularity of wheel. Derailment proneness becomes substantially higher in case of axle moving with a persistently positive angularity. Track and rolling stock parameters and operating features should be critically analysed for their contribution towards these causes. In case of derailments in curve, proper functioning of Bogie rotation system to ensure undue angularity needs close examination. Contribution of track twist and spring defects and twist in bogie frame/vehicle under frame to derailments caused by wheel Offloading needs to be analysed. In case of derailments at high speed, parameters affecting vehicle oscillation and damping thereof needs a close analysis.** **iii. While analysing the mechanism of derailment, relative contribution of track and rolling stock parameters to the rail-wheel interaction forces needs a comprehensive analysis. Reference should be made to the safety limits/ Maintenance limits specified in IRPWM/IRCA/ Maintenance Manuals.** **iv. Locating and examining the wheel mounting mark(s) at the initial point of derailment is very important for identifying the category of derailment. Precise measurements and critical and detailed examination of the wheel mounting marks should be made e.g. their length, strong or faint, broken or continuous, single or multiple, etc. Photographs should be taken of such marks, not only on the rail, but also on the fastenings, sleepers and ballast.**
7/ Note-2 under 902.5	NIL	**No enquiry shall be completed before the complete measurement of rolling stock and track is available and made part of the enquiry report. Enquiry Committee may get additional measurements done as per requirement of the derailment case.**

(के. शिवप्रसाद/K. Siva Prasad)
(प्रमुखमुख्यपरिचालनप्रबन्धक/
Principal Chief Operations Manager)

504.1 Pro-forma for Track Measurement (PART-A)

Soil			Type of formation	Rain fall	Ballast		
S. No	Type (Sandy/ Loamy/ clay, Moorum Black Cotton etc.)	Condition (firm/, wet, slushy etc.)			Type (Stone, Moorum Sand, Ash etc.)	Depth below sleeper bottom in centimetres, stating whether clean or caked.	Drainage
1	2	3	4	5	6	7	8

Ballast (contd.)				Sleepers				
Width of shoulders in cms. from outside of..				Type (wooden CST-9, steel trough, **PSC** etc.)	Condition (New, Second hand, damaged, unserviceable etc)	Density	Square or not	Packing (Loose or sound)
Rails		Sleeper end						
Left	Right	Left	Right					
9	10	11	12	13	14	15	16	17

Rails			Rail fastenings	
			Dog/Screw spikes, keys, tie bars cotters, loose jaws etc.	
Weight (**60 Kg**/ 52kg/90R/75Ret c) **(Year of Manufacturing)**	Condition of wear (attach rail profile if wear heavy)	**GMT Carried**	Number per sleeper seat	Condition: (Tight or loose or missing in each sleeper)
18	19	20	21	22

Rail Joints				
Condition: (Hogged, battered, low etc.)	Staggered or square	Creep - direction and extent of creep, type of creep anchors used with numbers per rail in the affected section)	General remarks about cracks or fracture of flash-plates, fish bolts and other components	Description of anti-sabotage measures like reverse jaws, welded rails etc.
23	24	25	26	27

To be jointly signed by		
SSE/SE (C&W)	TI/SS (Traffic)	SSE/SE (P. Way)

केशिम प्रसाद

(प्रमुख मुख्य परिचालन प्रबन्धक/
Principal Chief Operations Manager)

Location of point of mount		Location of point of Derailment	
whether on straight, curve or transition	whether on a falling grade, level, or rising grade and/or on sag	whether on straight, curve or transition	whether on a falling grade, level or rising grade and /or on sag
28	29	30	31

Note: (1) Left and right are with respect to direction of thetrain movement;

(2) The data in Col.2 to 26 need not be collected when the defect is obviously and indisputably on account of sabotage and/or obstruction on track;

(3) Only broken track material which is not indisputably to be broken after the accident should be included in Col.26 and should be preserved;

(4) Col.27 needs to be filled in only when there is a suspicion about sabotage being the cause of derailment and

(5) Sag extends 90 metres on either side of theoretical junction of the grade lines columns 29 and 31.

To be jointly signed by		
Supervisor (P.Way)	Supervisor (Traffic)	Supervisor (C&W)

केशिव प्रसाद

(प्रमुख मुख्य परिचालन प्रबन्धक/
Principal Chief Operations Manager)

504.2 Pro-forma for Track Measurement (PART-B)

Station No.	Distance apart (metres)	Gauge slack or tight from the exact**in loaded** condition	Cross level (mm) Under **Loaded**conditi on	Marks on sleeper or rail top	Grinding or rubbing marks on rails	Examination of alignment for perceptible kinds of tack distortion in the vicinity of the point of mount and drop
1	2	3	4	5	6	7

Subsidence of track	Versine in mm **in loaded** condition		Remarks regarding length of transition, degree of curve and specified super elevation general alignment etc.	Longitudinal level to be recorded in the case of MG and NG and in case of sags or curves
	On 20M. or10M. chord depending on the practice prevalent on the Railway for flat curves more than 600 M. radius.	On 10M. or such shorter Chords as considered necessary for sharp curves (less than 600 M. radius on B.G. and M.G.		
8	9	10	11	12

Note: (1) The point of mount should be marked with station number '0' and the stations shall be numbered serially as (+) for measurements ahead of site of derailment and (-) for measurements in rear.
In case of sudden derailment point of drop will be considered as '0' station. In case of gradual derailment point of mount will be treated as '0' station.

(2) The cross level will be measured on the left rail only as determined from the direction of movement.

(3) Normally measurement will be taken at stations three meters apart for a distance of 45 metres on either side of '0' station if the cause of derailment is indisputably known, otherwise they will be taken for a distance of **100** metres in rear and 45 meters ahead of zero station.

(4) Where necessary, measurement for columns 3, 4 and 5 may be taken additionally at individual sleepers up to 9mts in rear of point of derailment.

(5) This Pro-forma need not be filled when the cause of derailment is obviously established as due to sabotage, obstruction on track, broken axle, and/or spring having fallen off prior to point of derailment, etc.

(6) Longitudinal levels should be recorded for 300 metres in rear and 100 metres in front, in case of straights at the middle of each rail and at versine recording points on curves at @ 20/10 metres intervals.

(7) *If the locomotive has also derailed, then one supervisor from loco branch will also sign the measurement pro-forma/sheet.

(8) Site sketch of the derailment/accident location shall be prepared giving due care that all the relevant items are included along with the dimensions. A sample sketch is given in the following page for the guidance.

To be jointly signed by			
Supervisor (P.Way)	Supervisor (Traffic)	Supervisor (C&W)	***Loco Inspector (when loco derails)**

(प्रमुख मुख्य परिचालन प्रबन्धक/Principal Chief Operations Manager)

505 Proforma for measurement of Locomotive (Diesel & Electric):

Proforma to be filled in case of accident/derailment when loco is involved in accident.

(Information to be furnished by the Mechanical / Electric department):

505.1. Basic information:

(a) Date of accident :
(b) Train number :
(c) Loco Class :
(d) Loco Number :
(e) Locomotive manufacturing year and place :
(f) Base shed of Loco :
(g) Date &Place of last POH :
(h) Kilometres earned after last POH :
(i) Date &Place of last major inspection :
(j) Date &Place of last schedule inspection :
(k) Whether any schedules are overdue? :

505.2. Give brief particulars of the safety items not provided or provided but missing/not working:

Whether locomotive is provided with:

Safety fittings	Provided/ working	Provided/ Not working	Not provided
Head light			
Speedometer			
Speed recorder			
Flasher light			
Horn			
Brake system			
VCD			

To be jointly signed by		
Supervisor (C&W/Loco)	Supervisor (Traffic)	Supervisor (P.Way)

505.3. Check and record the observations as follows:

(a) Position of control handles, cut-out cocks etc. after the accident.
(b) Functioning of brake synchronizing valve - whether working or not.
(c) Position of brake blocks after the accident - whether applied or not.
(d) Condition of cattle guard.

(प्रमुख मुख्य परिचालन प्रबन्धक/
Principal Chief Operations Manager)

(e) Any sign of seizure of roller bearing in axle box including condition of its components.

(f) Condition of Pivot and Side Bearer arrangement of bogie including obstruction to Bogie rotation.

(g) Condition of Fiction Damper components/Hydraulic Dampers.

(h) Condition of Traction Rod/Guide Rod including its connection.

(i) Condition of Traction Link including its connection.

(j) Condition of Lateral Stop components between Bogie and Loco body under frame.

(k) Any other observation in respect to mechanical defect of the Locomotive, which might have any bearing on safe running of Loco.

Note: 1. Defective or broken material should be sent to CMT for testing, if necessary.
2. Measurements of items e-j shall be done as per site condition.

To be jointly signed by		
Supervisor (C&W/Loco)	Supervisor (Traffic)	Supervisor (P.Way)

505.4. Proforma for measurement of wheels for all classes of locomotives with wheel gauge (04 locations applicable for Bo-Bo Locos)

S.No.	Description	Observed value (in mm)			Remarks
1.	Particulars of axle (ID No.)	1.			
		2.			
		3.			
		4.			
		5.			
		6.			
2.	Diameter of wheel at tread		LH	RH	
		1.			
		2.			
		3.			
		4.			
		5.			
		6.			
3.	Wheel flange thickness		LH	RH	
		1			
		2			
		3			
		4			
		5			
		6			
4.	Wheel Root wear		LH	RH	
		1			
		2			
		3			
		4			
		5			
		6			

के. दि. प्रसाद

(प्रमुख मुख्य परिचालन प्रबन्धक/
Principal Chief Operations Manager)

505.4. Proforma formeasurement for wheels for all classes of locomotives with wheel gauge (04 locations applicable for Bo-Bo Locos) (Continued)

S. No.	Description	Observed value (in mm)			Remarks
5.	Tread wear		LH	RH	Tread wear should be measured from tread at 63.5 mm from wheel gauge face (from the back face of flange) in BG and 57 mm from wheel gauge face (from the back face of flange) in MG.
		1			
		2			
		3			
		4			
		5			
		6			
6.	UST of axle: Give the date of last UST test done		LH	RH	Information is relevant in case of axle breakage.
		1			
		2			
		3			
		4			
		5			
		6			
7.	Wheel gauge For checking wheel gauge, three measurements at equal spacing on the inner periphery of the two wheels on the same axle is to be recorded. Check for bent axle if any.	1			All measurements shall be taken on a level tangent un-canted track. Information is relevant in case of wheel disc shifting /bent axle only. For safety, similar limits as applicable for track gauge are relevant for wheel gauge also.
		2			
		3			
		4			
		5			
		6			

Note: 1. Wheel number one is the outer end axle of truck under the short hood and wheel count increases towards the Long hood on diesel loco, where as for Electric loco, wheel number one is the outer end axle under cab – 1 (cab – 1 is that side of the loco which has the compressors and cab – 2 is that side of the loco which has the ARNO converter) and wheel count increases towards the cab –2

2. The measurements of wheels are to be done using wheel gauges to RDSO drawing No. SKDL-3592 for all BG locomotives except WAP5 Locos. For WAP5 locos RDSO's drawing No. SKDL 4446 and SKDL 4447 may be followed.

3. All measurements are to be taken on a level, uncanted track at the nearest yard.

4. Service limits given in the Maintenance Manual are for good maintenance practice and these are not safety limits. However, the measured values shall be compared with the service limits and degradation in values shall be discussed while finalising the findings.

To be jointly signed by		
Supervisor (C&W/Loco)	Supervisor (Traffic)	Supervisor (P.Way)

(प्रमुख मुख्य परिचालन प्रबन्धक/
Principal Chief Operations Manager)

505.5 Pro-forma for measurement of Electric and Diesel Locomotives after Accident (Locomotives, which are not mentioned in this Pro forma, may be measured in similar manner)

S. No.	Description		Observed value (in mm)	Remarks
1	Buffer/coupler height Measurement of parameters such as buffer length etc may also be done to check possibility of buffer entanglement.			1 All measurements shall be taken on a level tangent un-canted track. 2 This measurements is required to be taken only in case of trailing stock is with buffers.
2	Lateral clearances	End Axles (1,3,4&6)		
		Middle Axle (2&5)		
3	Lateral clearances	End Axles (1,2,3&4)		Applicable for Bo-Bo locomotives only.
4	Longitudinal clearances between axle box and bogie pedestal liner – (for all axles)			Except WDP3A, WDG4, WDP4, WDP4B, WAP5, WAP7, WAG9 locomotives.
5	Longitudinal clearances between axle box and bogie pedestal liner – (for middle axles)			Applicable forWDP3A Locomotives only.
6	Height of Rail Guard from rail level.			
7	Condition of suspension Spring i.e., normal or broken afreshor old fracture or deformities occurred after derailment due to sudden impact.			
8	Deflected height of coil spring after re-railing on level, uncanted track.			
9	Condition of Rubber/ Elastomeric Spring Assembly at the Secondary stage.			

Note: Measurement of items 8&9 on will be done as per site condition.

To be jointly signed by		
Supervisor (C&W/Loco)	Supervisor (Traffic)	Supervisor (P.Way)

केशिन प्रसाद

(प्रमुख मुख्य परिचालन प्रबन्धक/
Principal Chief Operations Manager)

506 Proforma for measurement of Coach Involved in Accident:

Note: Details regarding all derailed vehicles should be given except:–

1. (i) Where vehicles have derailed due to locomotive derailment.
   (ii) When the obvious or indisputable cause is sabotage or an obstruction on the track or broken axle or wheel.
2. Particulars for each derailed vehicle should be given in one sheet. Information against columns Nos.(5), (6), (7), (14), (50) and (51) should invariably be given for adjacent coaches on the same sheet.
3. Front and Rear, left (L) and Right (R) are with respect to direction of movement.
4. For an obvious case of derailment such as a broken axle, spring dropping off on run, and/or some part of under gear hanging loose and causing obstruction, only relevant particulars need to be filled.
5. Relevant details of adjacent vehicles should also be given if cause of derailment is not apparent.

S.No.	Date of incident & Time	Train No.	Details of BPC along with the name of station where issued and Engineer (C &W) who issued it.	Vehicle No.	Type	Tare in tones	carrying capacity in tones
1	2	3	4	5	6	7	8

Built date	Return date	POH details	Station		Position from engine	Wheel gauge in mm (to be measure at three locations) measured in empty condition at the horizontal plane passing through the centre of the axle.
			From	To		
9	10	11	12	13	14	15

To be jointly signed by		
SSE/SE (C&W)	Supervisor (Traffic)	SSE/SE (P.Way)

के. प्रसाद

(प्रमुख मुख्य परिचालन प्रबन्धक/
Principal Chief Operations Manager)

506 Proforma for measurement of Coach Involved in Accident (continued):

Wheel diameter		Any indication of bent axle or wheel having shifted on axle	Wheel and axle face particulars (in case of breakage of any wheel/axle)		Stamping particulars on wheel disc regarding manufacturer/ RA/RD (in case of breakage of any wheel/axle)		Observations after measuring the profile with wheel defect gauge (Good/Rejectable)	
Measurement.	whether below condemning size(Yes/No)		Axle face particulars	Ultrasonic particulars of the hub of the disc			L	R
16 (i)	16 (ii)	17	18	19	20		21	22
			1L	1L	1L			
			1R	1R	1R			
			2L	2L	2L			
			2R	2R	2R			
			3L	3L	3L			
			3R	3R	3R			
			4L	4L	4L			
			4R	4R	4R			

Roller bearing (To be recorded in case of any abnormalities observed in Roller bearing/Axle Box)			
Condition of axle box, rear and front covers/end cap (FIAT)	Condition of face cover plate	Condition of bearing seal & studs/locking plate and bolts (FIAT)	Condition of Roller Bearing and its components
23	24	25	26

Spring and Spring Gear						
Condition of Coil suspension spring i.e. Normal/ Fractured (old/fresh)	Condition of Rubber spring i.e. Normal/ Cracked including length of crack (for LHB only)	Condition of Air Spring including leakage in piping	Deflected height of Coil spring after re-railing on a level uncanted track	Vertical clearance (for ICF)		
				Crown clearance	Bogie frame – Bolster clearance	Body – Bogies frame clearance
27	28	29	30	31	32	33

To be jointly signed by		
SSE/SE (C&W)	Supervisor (Traffic)	SSE/SE (P.Way)

के प्रसाद

(प्रमुख मुख्य परिचालन प्रबन्धक/
Principal Chief Operations Manager)

506 Proforma for measurement of Coach Involved in Accident (continued):

Condition of Rubber Disc and Bump Stop of Primary Suspension (for LHB)	Height of Bogie Bolster base plate from rail level (for LHB)
34	35

Condition of Bogie Components			
Condition of Hanger (for ICF)	Condition of Equalizing Stay (for ICF)	Condition of Anchor Link (for ICF)	Condition of Control Arm, Rubber element and Bore (for LHB)
36	37	38	39

Damping System		
Condition of Axle Guide Cum Dash Pot including Oil level (for ICF)	Condition of Hydraulic Dampers	Condition of Anti Roll Bar (for LHB)
40	41	42

System of Bogie Rotation and Clearances					Condition of Grounding cables, Wheel Slip Protection (WSP), and Speed sensor (for LHB)	Condition of Brake Gear Assembly
Condition of Centre Pivot including verticality of Pivot Pin (for ICF)	Condition of Side Bearer including Oil level and Wear (for ICF)	Condition of Longitudinal/ Lateral flexibility of Secondary Spring (for LHB)	Clearance between Traction Centre and Longitudinal/ Lateral Bump Stop (for LHB)	Remarks regarding free movement of bolster and pivot and their condition		
43	44	45	46	47	48	49

Buffer/Coupler height (to be taken on a level uncanted track after uncoupling and re-railing) (in mm)		Condition of Side Buffers Working, dead, drooping, entanglement	Details of broken parts giving location w.r.t. point of mount and derailment and whether breakage considered due to accident.	Any other defect in the vehicles which may have contribute to or caused the derailment such as condition of coupler, draft gear pocket, shearing plates etc.	List of Damages to the Coach due to accident	Other Observations considered relevant to derailment
Front	Rear					
50	51	52	53	54	55	56

To be jointly signed by		
SSE/SE (C&W)	Supervisor (Traffic)	SSE/SE (P.Way)

के विनोद प्रसाद

(प्रमुख मुख्य परिचालन प्रबन्धक/Principal Chief Operations Manager)

506 Proforma for measurement of Coach Involved in Accident (continued):

Note: 1. The wheel gauge is to be measured at the horizontal plane passing through the centre of Axle.
2. The wheel profile is to be checked with tyre defect gauge only (Ref:- IRC A PT. IV Rule no. 2.95, 3.2.2 and 54.22.1, Plate No. 45 to 53).
3. Measurement of item no. 5 of opening note, item no. 24, item nos. 28-49, item no. 54 and item no. 56 shall be done as per site condition.

506.1 Measurement Table for Wagon Involved in Accident:

Note: Details regarding all derailed vehicles should be given except:-
1. (i) Where vehicles have derailed due to locomotive derailment.
   (ii) When the obvious and indisputable cause is sabotage or an obstruction on track.
2. Front and rear and left (L) and right (R) are with respect to direction of movement.
3. For an obvious cause of derailment such as broken axle, spring dropping off the run, and/or some part of under gear hanging loose and causing obstruction, only relevant particulars need be filled.
4. Particulars for each derailed vehicle should be given in one sheet. Information against columns (5), (6), (8), (16), (17), (21), (22) should invariably be given for adjacent wagons on the same sheet.
5. Relevant details of adjacent vehicles should also be given if cause of derailment is not apparent.

S. No.	Date of Incident & Time	Train No.	Details of BPC along with the name of station from where it is issued and of engineer (C&W) who issued	Wagon No.	Type	Mech. Code	Tare in Tonnes	Carrying capacity and axle load	Built Date
1	2	3	4	5	6	7	8	9	10

Return Date	POH Particulars		ROH Particulars		Payload in Tonnes		Commodity loaded and remarks regarding uneven loading (give sketch for details of uneven loading)
	Date	Shop	Date	Depot	From Labels	From Actual Weighment	
11	12	13	14	15	16	17	18

To be jointly signed by		
SSE/SE (C&W)	Supervisor (Traffic)	SSE/SE (P.Way)

के. शिरे प्रसाद

(प्रमुख मुख्य परिचालन प्रबन्धक/
Principal Chief Operations Manager)

506.1 Measurement Table for Wagon Involved in Accident (contd):

Station		Position from Engine	Buffer/ Coupler height
From	To		(i) Measure Buffer/Coupler height after uncoupling and re-railing on uncanted level track, (ii) Record whether there is buffer entanglement (Yes/No)
19	20	21	22
			End 1L
			End 1R
			End 2L
			End 2R

Wheel and Axle face Particulars(In case of breakage of wheel/axle)			
Axle face particulars	Ultrasonic particulars on the hub of the disc	Stamping particulars on wheel disc regarding Manufacturer/RA/RD	Wheel diameter (i) Measurement (ii) Record whether below condemning size (Yes/No)
23	24	25	26

Wheel gauge in mm *(taken at three places)	Observation after measuring the profile with tyre defect gauge (Good/Rejectable)**						
27	28						
1		Thin flange	Sharp flange	Worn out root	Deep flange	Hollow tyre	Flat tyre
	1L						
2	1R						
	2L						
3	2R						
	3L						
4	3R						
	4L						
	4R						

Note: 1. The wheel gauge is to be measured at the horizontal plane passing through the centre of the axle.
2. The wheel profile is to be checked with tyre defect gauge only (Ref:- IRCA Pt. III Rule no. 3.2.2(d) and 4.18.1, Plate No. 57 to 66)

To be jointly signed by		
SSE/SE (C&W)	Supervisor (Traffic)	SSE/SE (P.Way)

(प्रमुख मुख्य परिचालन प्रबन्धक/
Principal Chief Operations Manager)

506.1 Measurement Table for Wagon Involved in Accident (contd):

Roller bearing (To be recorded in case of any abnormalities observed in roller bearing/Axle Box)		
Condition of face cover plate	Condition of locking plates & studs	Condition of roller bearing and its components
29	30	31

Axle box (for IRS stock/UIC) (To be recorded only when failure of plain bearing is involved as a cause)				
Brass thicknessmm.	Condition of box and brass	Condition of sole plates	Condition of journals	Clearance between brass and collar of journal in (mm)
32	33	34	35	36

Axle guard (for IRS/UIC stock) (Contd.)			
Lateral clearance between axle box and axle guard in (mm)	Whether axle guard can work clear of axle box	Are the axle guards bent or otherwise damaged to prevent free movement of axle box	Remark regarding bridle bar
37	38	39	40

Clearances for Casnub Bogie (Corresponding measurements to be taken for IRS/UIC Bogie)			
Type of Bogie	Lateral clearance between side frame &bolster in mm	Lateral clearance between side frame & axle box adopter in mm	Longitudinal clearance between side frame & axle box adopter in mm
41	42	43	44

Spring and Spring Gear						
Any Broken/cracked/ missing/clearance of shackle and shackle pin and general condition (for UIC/IRS)	Thickness of packing plate under spring seat in mm	Remarks whether any spring eye touches sole bar(for laminated spring only)	Condition of suspension springs i.e. normal, broken afresh and old fractured or deformities occurred after derailment due to sudden impact	Camber of spring in mm after re-railing on a level uncanted track (for laminated spring only)	Deflected height of coil spring after re-railing on level, uncanted track (for Casnub)	Condition of elastomeric pad above adaptor (for Casnub)
45	46	47	48	49	50	51

To be jointly signed by		
SSE/SE (C&W)	Supervisor (Traffic)	SSE/SE (P.Way)

के दीन प्रसाद

(प्रमुख मुख्य परिचालन प्रबन्धक/Principal Chief Operations Manager)

506.1 Measurement Table for Wagon Involved in Accident (contd):

Bogie		
Condition of Centre Pivot including lubrication and wear (for Casnub)	Condition of Side Bearer including Vertical clearance at side bearers (for stock having clearance type side bearers only)	Condition of Friction Snubber Wedge Assembly (for Casnub)
52	53	54

Whether a load is placed on more than one wagon	Any other defect in vehicle which may have contributed to or caused the derailment	Details of broken parts giving location w.r.t. point of mount and drop	List of damages to the wagon due to accident	Other observations*
55	56	57	58	59

Note: Measurement of Items 3, 4 & 5 of opening note, items 42, 43, 44, 46, 47, 49, 50, 56 & 59 shall be done as per site conditions.

To be jointly signed by		
SSE/SE (C&W)	Supervisor (Traffic)	SSE/SE (P.Way)

के क्रि त ,प्रबंधु

(प्रमुख मुख्य परिचालन प्रबन्धक/
Principal Chief Operations Manager)