GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

Dated: 14/9/12

No.2012/M(N)/951/35

The Chief Mech. Engineers
All Zonal Railways(open line)

Sub: Report on Train Partings in SER

A report on train partings in SER is enclosed. Board(MM) desires that the suggestions made by the CME/SER in this report should be implemented on all zonal railways, in order to bring down the incidences of train parting.

A report on action taken to bring down train partings in your railway may kindly be sent by 31/10/12 for the kind information of Board(MM).

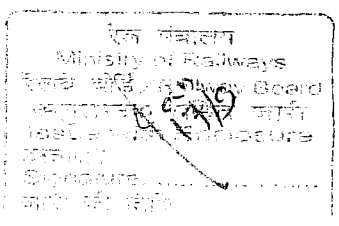
Encl: as above

Ashesh Agrawal
(Ashesh Agrawal)
Executive Director Mech. Engg.(Fr.)
Railway Board

Copy (along with enclosures) to:

EDS(W)/RDSO - RDSO should prepare a Must Change list of items during POH & ROH to bring down incidences of equipment failures like hot axles and train partings.

ED/QA, RDSO - Railways have been highlighting problems in getting timely supply of vital CBC items like coupler body, yokes, knuckles, CP top/bottom etc. A meeting may kindly be held by RDSO with all railways reporting this problem and RDSO approved suppliers so that supplies of these items are improved.



South Eastern Railway

Office of the
Chief Mech. Engineer
Garden Reach, Kolkata-43

No. M2/WS/271/210 **Date: 7th Sept. 2012**

The E.D.M.E./Fr,
Railway Board,
NEW DELHI

Sub: Analysis of train parting in S E Railway

High incidences of train parting in S E Railway is a major area of concern. Analysis has been conducted and a report is prepared that include maintenance related actions taken by S E Railway and its impact. The report is enclosed herewith.

As per the report there is reduction in train parting over the years. The improvement being quite significant with respect to breakage of CBC components whereas more action need to be taken (mostly by the other Rlys.) for reducing train parting due to uncoupling.

There is also need for strict checking of vital CBC components and its renewal.

Railway Board is requested to advise other Rlys. on strict checking of vital CBC components and its renewal at POH shops, sick lines and during yard examination as per the conclusion of the report.

Encl: As above in 10 pages.

(O. P. Chaube)
Chief Mech. Engineer

REPORT ON TRAIN PARTING IN SER

I. Train parting is an area of high concern in SER. Analysis (Annexure: Table 1 to Table 7) of all incidences involving train parting in SER shows the following:

(i) In SER incidences involving train parting have reduced over the years (2004-05: 208, 2011-12: 92) (Table 1).

(ii) Number of train parting incidences due to breakage of CBC components have shown significant reduction (2004-05: 154, 2006-07: 169, 2011-12: 38). Proportion also reduced (2004-05: 70%, 2012-13: 38%) (Table 1).

(iii) There is no significant reduction in train parting incidences due to uncoupling. Proportion of uncoupling has increased. (2004-05: 30%, 2012-13: 62%) (Table 1)

(iv) Stock wise BOXN wagons contribute to maximum incidences of train parting (Table 2)

(v) Knuckle is the major component that is breaking (60-70%). This is followed by CBC body/shank (15-23%), yoke and head stock (Table 3).

(vi) The major cause for uncoupling is defect in the CBC lock followed by defects in operating handles (Table 4).

(vii) For breakage cases with bad maintenance in SER are quite less. The major contributory factor is defects in material. There is markable reduction on the wagons POHed at SER (KGPW) (Table 5).

(viii) Proportion of uncoupling for which other railway maintenance is responsible is quite high. Out of 39 uncoupling incidences in 2012-13 (upto Aug) 5 cases (13%) are attributed to bad maintenance in SER were as 22 cases (56%) are to other railways and in balance cases no maintenance cause could be detected (Table 6)

(ix) Uncoupling cases due to bad maintenance at other Railways has shown increase in 2012-13 compared to 2011-12 (Table 6).

(x) Lock defect/broken and defect in operating handle/bearing bracket are the major reasons for uncoupling cases due to bad maintenance of other Railways (Table 7).

(xi) There is a need to tighten maintenance of CBC and its components at global level in IR to contain the incidences of train parting due to uncoupling as well as breakage of CBC components.

II. MAINTENANCE RELATED ACTIONS TAKEN IN SER THAT HAS REDUCED TRAIN PARTING ATTRIBUTED TO FAILURE OF SER MAINTENANCE:

1. SPECIAL EFFORT TO CHECK, IDENTIFY and CHANGE DEFECTIVE CBC COMPONENTS DURING POH, ROH, SICKLINES & YARDs

a) FOLLOWING INSPECTION PRACTICES ON CBC COMPONENTS WERE INTRODUCED IN OPEN LINE

(i) 100% DPT of Knuckles during ROH
(ii) Checking of CBC components using gauges at Sick lines & ROH depots. Composite gauge developed and in use by depots.
(iii) Large scale replacement of knuckle, lock, operating handle, bearing piece,lock lifter and knuckle pin.
(iv) Fixture developed and in use for checking of CBC optg. handle

b) NTXR was requested to treat defects in following items as rejectable items

(i) Knuckle
(ii) Lock assembly
(iii) Operating handle
(iv) Bearing piece

NTXRs in SER were asked to give checking status report on above items.

c) WORKSHOP PRACTICES ON CBC

(i) Draft gear with CBC body is 100% dropped during 2nd POH onwards.
(ii) Average 84% draft gears are dropped. Only RF-361 draft gears coming for 1st POH are checked in situ.
(iii) Average 94% knuckles are replaced with new ones during POH. This will become 100% shortly. Old good knuckles are used in NPOH wagons or sent to divisions for use. System of depositing old serviceable knuckles to stores for issue to divisions has also been implemented.
(iv) CBC locks are renewed 100% during POH

d) Consumption Pattern of vital CBC Components (based on store issue figures) in last few years

Sl. No.	Item	PL No	2008-09	2009-10	2010-11	2011-12	2012-13 (upto Aug)	Current EAC
(i)	Knuckle	38134305	7589	**10538**	**15337**	**12184**	4498	20520
(ii)	Knuckle pivot pin	38137203	19802	**35974**	**25670**	**47173**	13291	52020
(iii)	Lock	38981415	2713	3023	**11734**	**19265**	6461	23976
(iv)	Lock lifter with toggle	38981452	4009	**7323**	**12413**	**6125**	3290	12008
(v)	Knuckle thrower	38137562	NA	3969	3240	562	280	2076
(vi)	Coupler body	38981439	NA	4565	3080	3754	1149	4612
(vii)	Draft gear	38981166	NA	1391	1716	1318	593	2408
(viii)	Yoke	38981427	NA	1428	1642	1045	694	3187
(ix)	Yoke pin	38137604	NA	461	701	**1594**	274	2149
(x)	Operating handle	38980289	5514	5310	**11100**	**10636**	1822	14300
(xi)	Bearing Piece	38133040	1266	400	287	**3275**	1260	5959

Note

(i) The figures show that consumption of Knuckle, Knuckle pivot pin, Lock, Lock lifter with toggle, Yoke Pin, Operating handle and Bearing Piece has been increased significantly in last few years with the objective of improving reliability of these components

(ii) Consumption of items (i), (iii), (x) and (xi) at C&W depot level is monitored on daily basis in HQ by HOD & CME.

2. IDENTIFFY FIRM WHOSE LINE FAILURE IS QUITE HIGH AND ADVISE RDSO TO TAKE ACTION

Knuckles of make M/s RIL (Raneka Industries Ltd.) and OSIL (Orient Steel Industries Ltd.) were found to be failing proportionately much higher vis a vis their population (2-4 % and 11-13 % respectively as per sampling census in 2010). The matter was reported to RDSO in 2010 and RDSO has downgraded their approval

from Part I to Part II in 2010. Failures of knuckles supplied by M/s RIL is still high due to material defect (6 instances in 2012-13 upto Aug.).

3. CHECKING STAMPING DETAILS ON CBC COMPONENTS

a) As per drawings and specifications following important CBC components should have stamping details such as Manufacture's name, Month/Yr of Mfg.
   (i) Knuckle
   (ii) Lock
   (iii)Coupler Body
   (iv)Lock lifter
   (v) Yoke
   (vi)Yoke pin
   (vii) Knuckle thrower
   (viii) Knuckle Pivot pin
   (ix)Toggle

b) Joint check with stores was conducted during Feb'2012 at store depots on all available stock the above items, to identify and reject components not having marking details. Rejection were done on the following components due to non availability of marking details:

Sl. No.	Item	PL No	Checked	Rejected due to no marking	Manufacturers whose markings were missing
(i)	Knuckle	38134305	1505	112	Siena
(ii)	Lock	38981415	10717	943	(a) Frontier Alloy Steel – 913 Nos. (b) Rausheena – 30 Nos.
(iii)	Knuckle Thrower	38137562	3208	3208	(a) Lalbaba - 430 Nos (b) Krishna Engg – 2778 Nos

c) Repeat exercise for check of manufactures' initials was conducted at stores and shop floor on 28.08.2012 on knuckle, lock, draft gear, yoke, coupler body and lock lifter when all these components are found having manufactures' initials & other details.

d) Stores, Workshops and C&W depots advised to be more vigilant in future and reject CBC components not having marking details.

III. ASSISTANCE NEEDED

Problem is sometimes faced in getting timely supply of following vital CBC items from manufacturers.

- Coupler Body
- Yoke
- Knuckle

The RDSO approved suppliers need to be advised to ensure quick and timely supply.

IV. CONCLUSION

Railway Board is requested to advise all zonal Railways to

(i) Strict checking and enhance replacement of Knuckle, Knuckle pivot pin, Lock, Lock lifter with toggle, Yoke Pin, Operating handle and Bearing Piece during POH, ROH, sick attention and yard examination.

(ii) DPT test of knuckles during ROH.

(iii) Improve maintenance standard of CBC and draft gear components.

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ANNEXURE

TRAIN PARTING CASES FROM 2004-5 to 2012-13 (APR-AUG)

Table 1 : INCEDANCE OF TRAIN PARTING

year	Breakage		Uncoupling		Grand Total	Average/ Month
	No of cases	%	No of cases	%		
2004-05	146	70.19%	62	29.81%	208	17.33
2005-06	123	62.44%	74	37.56%	197	16.42
2006-07	169	60.79%	109	39.21%	278	23.17
2007-08	154	70.64%	64	29.36%	218	18.17
2008-09	113	54.59%	94	45.41%	207	17.25
2009-10	104	49.06%	108	50.94%	212	17.67
2010-11	78	47.56%	86	52.44%	164	13.67
2011-12	38	41.30%	54	58.70%	92	7.67
2011-12 (Apr-Aug)	15	40.54%	22	59.46%	37	7.40
2012-13 (Apr-Aug)	26	38.24%	42	61.76%	68	13.60

Table 2 : TRAIN PARTING – STOCKWISE

Year	Type of stock								
	BOXN/ BOXNEL	BCN	BOBRN	BOBSN	BOY/ BOYEL	BTPN	BVZC/ BVZI	OTHERS	Total
2004-05	166	5	3	12	0	2	2	18	208
2005-06	167	8	1	6	2	0	1	12	197
2006-07	246	4	1	13	3	2	1	8	278
2007-08	182	7	3	8	3	1	1	13	218
2008-09	179	8	3	7	1	2	1	6	207
2009-10	177	18	3	4	2	0	2	6	212
2010-11	125	21	5	4	2	2		5	164
2011-12	77	10	1	2	0	0	1	1	92
2011-12 (Apr-Aug)	32	5	0	0	0	0	0	0	37
2012-13 (Apr-Aug)	51	8	0	2	0	2	3	2	68

Table 3 : BREAKAGE - COMPONENTWISE

Year	Components						
	Knuckle	CBC body/ Shank	Yoke	CBC worked out	Head stock breakage	Coupling/ draw bar	**Total**
2009-10	73	16	7	5		3	104
2010-11	55	15	3	4		1	78
2011-12	23	9	4	2			38
2011-12 (Apr-Aug)	9	4	2				15
2012-13 (Apr-Aug)	14	6	2	3	1		26

Table 4 : UNCOUPLING - CAUSEWISE

Year	Cause of uncoupling								
	Lock defect/ broken	Lock lifting arrangement defect	Knuckle worn out/ defect	Operating handle/ bearing bracket defect	CBC height/ CBC defect	Improper locking	Miscreant activity	Cause not established	Total
2009-10	12	5	11	12	0	3	5	60	108
2010-11	16	7	3	17	0	1	4	38	86
2011-12	12	0	4	14	2	0	0	22	54
2011-12 (Apr-Aug)	3		3	6	1			9	22
2012-13 (Apr-Aug)	20	4	1	2	1	0	1	13	42

Table 5 : BREAKAGE (Cause and responsibility analysis)

9

Cause	Responsible	Year				
		2009-10	2010-11	2011-12	2011-12 (Apr-Aug)	2012-13 (Apr-Aug)
Bad maintenance	***SE***	***3***	***3***	***1***		***2***
	EC	1		1		
	ER		1			
	NC	2				
	NCR					1
	NF					1
	NR		1			
	SEC			1		1
	Total	**6**	**5**	**3**	**0**	**5**
Crew	***SE***	***26***	***28***	***3***		***5***
	SEC	2	1			
	Total	**28**	**29**	**3**	**0**	**5**
Fatigue	OSIL	1	2			
	Praga	1				
	RIL	2		1		1
	SN			1		1
	TEXMACO	2				
	TITA		1			
	TSL	1				
	Maker not available	6		1		1
	Total	**13**	**3**	**3**	**0**	**3**
Material	BS		1	1		
	CLW	1				
	FAS		3	1		
	HEI		1			
	OSIL	3	2	2	2	1
	RIL	11	4	3	2	6
	RN	1				1
	SLN		1			
	SN	1				
	TEXMACO					1
	TITA					1
	Maker not available	10	3			
	Total	**27**	**10**	**8**	**4**	**1**
Material+Crew	BESCO & SE	1	**25**	**15**	**8**	**11**
	FAS & SE			1		
	HDC & SE		1			
	HEI & SE		1			
	OSIL & SE	3	2			
	RIL & SE	7	4	5	3	
	RN & SEC			1		
	SN & SE	1		3	2	1
	TITA & SE			2	1	
	TSL & SE	2				
	Maker not available	6	5	1	1	
	Total	**20**	**13**	**13**	**7**	**1**
Miscreant	Miscreant activity	10	3	1		1
	Total	**10**	**3**	**1**	**0**	**1**
Grand Total		104	78	38	15	26
Wagon POH at KGPW		15	12	5	1	1

Table 6 : UNCOUPLING (Cause and responsibility analysis)

Cause	Responsible	Year				
		2009-10	2010-11	2011-12	2011-12 (Apr-Aug)	2012-13 (Apr-Aug)
Bad maintenance	**SE**	**9**	**10**	**7**	**4**	**5**
	BESCO			1		
	CR	1				
	EC	4	7	4	1	5
	ECO		2	5	2	2
	ER	10	6	3	3	3
	NC	2	1			2
	NF			1	1	
	NR	1	1			
	NW					1
	SC	1	2	1		1
	SEC	1	6	4	2	2
	SR					1
	SW	1	1			1
	TEXMACO	1				
	TWL	1				
	WC	6	3	3		1
	WCR					1
	WR			1		2
	Total	**38**	**39**	**30**	**13**	**27**
Cause not established	No cause	60	38	22	9	13
	Total	**60**	**38**	**22**	**9**	**13**
crew	SE	2	2			
	Total	**2**	**2**	**0**	**0**	**0**
Fatigue	Maker not available					1
	Total	**0**	**0**	**0**	**0**	**1**
Material	Maker not available	1	1	2		
	TEXMACO		1			
	TWL	1				
	Total	**2**	**2**	**2**	**0**	**0**
Miscreant	Miscreant activity	5	4			1
	Total	**5**	**4**	**0**	**0**	**1**
No body responsible	No body responsible	1	1			
	Total	**1**	**1**	**0**	**0**	**0**
Grand Total		108	86	54	22	42
POH at KGPW		13	7	6	2	3

Table 7 : BAD MAINTENANCE OF UNCOUPLING CASES

S.E. Rly

	Pl No	Descrip	As On 31/03/10 EAC	31/03/11 EAC	31/03/12 EAC	Aug-12 EAC
1.	38133040	FAB WITH BUSH BEARING PIECE CB	1020	1560	4128	5959
2.	38134305	KNUCKLE E S C C	15756	34572	35619	36711
3.	38137203	KNUCKLE PIVOT PIN	60372	60972	41362	52806
4.	38137562	KNUCKLE THROWER TR & NTR	9816	9816	2028	2076
5.	38137604	YOKE PIN	744	2028	2084	2149
6.	38980289	COUPLER ROD	10104	14808	14064	14300
7.	38981166	DRAFT GEAR ASSEMBLY	1668	2448	2904	2408
8.	38981415	LOCK	15888	25728	21860	23984
9.	38981427	YOKE	2460	2820	3340	3191
10.	38981439	COUPLER BODY FOR BOXN & BOY	4380	4848	4888	4612
11.	38981452	LOCK LIFT ASSEMBLY	15864	17808	12030	12018

Planned increase in EAC of coupler items in SER to reduce Train Parting & Uncoupling cases.

XXL

FAX:

EDME(Fr) Rly Bd

(Sh. Ashesh Agarwal)

CME
SER
11/9/12

SEP-11-2012 01:26PM From: 91 33 24393407 ID: Page:001 R=96%

Cause		Year				
		2009-10	2010-11	2011-12	2011-12 (Apr-Aug)	2012-13 (Apr-Aug)
Lock defect/ broken	SER	1		2	1	2
	F.Rly	10	14	8	2	17
	Total	11	14	10	3	19
Lock lifting arrangement defect	SER	1	3	0		2
	F.Rly	3	2	0		2
	Total	4	5	0		4
Knuckle worn out/ defect	SER	1		1	1	
	F.Rly	10	3	3	2	1
	Total	11	3	4	3	1
Operating handle/ bearing bracket defect	SER	6	7	3	2	1
	F.Rly	6	10	11	4	1
	Total	12	17	14	6	2
CBC height/CBC defect	SER			1		
	F.Rly			1	1	1
	Total	0	0	2	1	1
Grand Total	SER	**9**	**10**	**7**	**4**	**5**
	F.Rly	**29**	**29**	**23**	**9**	**22**
	Total	**38**	**39**	**30**	**13**	**27**

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