I/3109221/2024

भारत सरकार GOVERNMENT OF INDIA
रेल मंत्रालय MINISTRY OF RAILWAYS
रेलवे बोर्ड RAILWAY BOARD

No. 2005/M(N)/204/3 (E-3346728) Dated: 8.11.2024

Principal Chief Mechanical Engineers
All Zonal Railways

Sub: Technical guidelines for maintenance of door operating mechanism in BOBYN wagon.
Ref: RDSO letter no. MW/BOBYN dated 09.09.2024. (Copy Enclosed).

Railway Board had advised RDSO to study problems being faced in maintaining door operating mechanism of BOBYN wagons and to issue technical guidelines for maintenance of door operating mechanism of BOBYN wagons and to also suggest design improvements.

Accordingly, RDSO has compiled maintenance level inputs for proper functioning of door operating mechanism of BOBYN wagons, These compiled instructions in form of "Technical guideline for maintenance of door operating mechanism in BOBYN wagon" are enclosed.

It is requested that Zonal Railways may ensure implementation of these instructions with immediate effect.

DA: As above.

Signed by
Happy Walia
Date: 08-11-2024 14:05:29

(Happy Walia)
EDME(Freight)
Railway Board
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I/3109221/2024

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No.MW/BOBYN Dated: As Signed

EDME (Freight)

Railway Board

New Delhi - 110001

Sub: Technical guideline for maintenance of door operating mechanism in BOBYN wagon

Railway Board has advised RDSO to study problems being faced in maintaining door operating mechanism of BOBYN wagons and to issue technical guideline for maintenance of door operating mechanism of BOBYN wagons and to also suggest design improvements.

Accordingly field visits, review of existing maintenance instructions & drawings etc. have been undertaken for BOBYN wagons. While design review for improvement in door operating arrangement of BOBYN wagons is underway, maintenance level inputs for proper functioning of door operating mechanism of BOBYN wagons have been compiled.

These compiled instructions in form of “Technical guideline for maintenance of door operating mechanism in BOBYN wagon” are enclosed as **Annexure-I**.

It is requested that Zonal Railways may be advised for implementation of these instructions with immediate effect.

DA: **Annexure-I**.

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Digitally Signed by Apurva
Date: 09-09-2024 19:12:51
Reason: Approved

(Apurva)
Jt. Director Wagon/RDSO
For Director General Wagon/RDSO

Annexure I

MAINTENANCE INSTRUCTIONS FOR DOOR OPERATING SYSTEM OF BOBYN WAGON

1. User department should be ensured that all the doors of BOBYN wagons are opening and closing properly before each loading of ballast. Record on the same shall be maintained in the following format.

Name of ballast depot	Date of checking	Whether Central doors permanently blocked (Yes/No)	Proper Working of side discharge doors (Yes/No)	Door operating mechanism properly greased (Yes/No)	Any other defect noticed in door operating mechanism	Name, designation and sign of checking official

2. BOBYN wagons are equipped with 08 discharge doors i.e 04 central and 04 side doors. It has been observed that in most of the departmental BOBYN wagons, central discharge doors are welded with floor plate, as shown in **yellow colour (Fig 1)**, hence making central doors inoperative. Therefore, opening and closing of central discharge door should be checked carefully before loading of the wagon.

3. Functioning of doors shall also be checked during yard maintenance of BOBYN wagons/rakes. In case central doors are welded, wagon shall be stencilled with **"CENTRAL DOORS NOT WORKING - DO NOT OPERATE"** near the operating handles (02 nos.) for central doors by C&W. Stencilling shall be in 45 mm height in WHITE colour on top of end plate near central discharge door operating handles.

4. Damage to the Partition wall **shown in red colour (Fig 1)** should be avoided during loading. Wagons with damaged partition wall should be booked to sick line for requisite repairs.



Fig 1- Photograph showing centre door welded (Yellow colour) & damaged partition wall (Red Colour)

5. Any damaged or missing key should be attended before loading of the wagon.
6. It should be ensured during yard examination that rectangular taper keys connecting bevel gear with door operating spindle and spur gears with door connecting shaft & door operating shaft should be in position and should not be missing. Keys should be welded(tag) properly as per drawing W/DW-197(**Fig 2**).

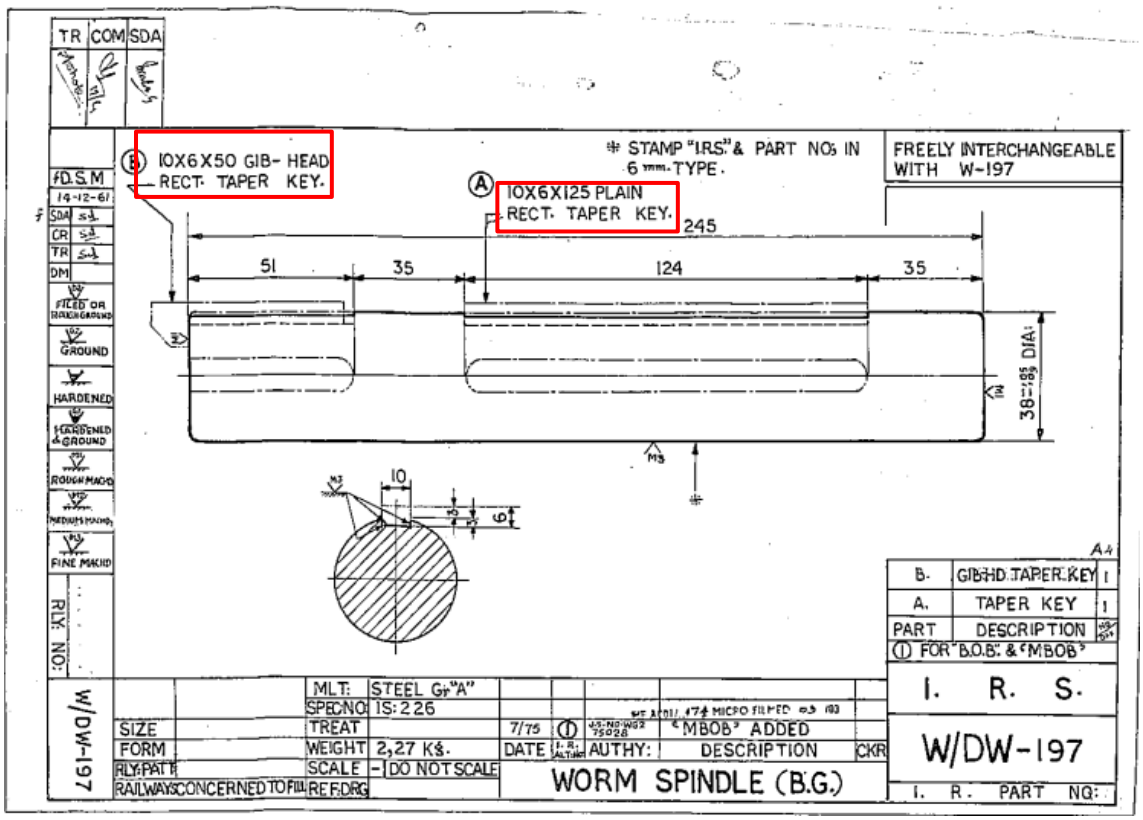


Fig.2 Drawing W/DW-197 showing Gib-Head Rect. Taper Key & Plain Rect. Taper Key

7. It should be ensured during yard examination that required gap between door operating spindle and end stanchion is maintained, the brackets for outer and inner spindle should be in proper position for maintaining required gap as per drawing **(Fig 4)**. If brackets found damaged, then should be replaced, as shown in drawing SK: 77536 **(Fig 3(b))**

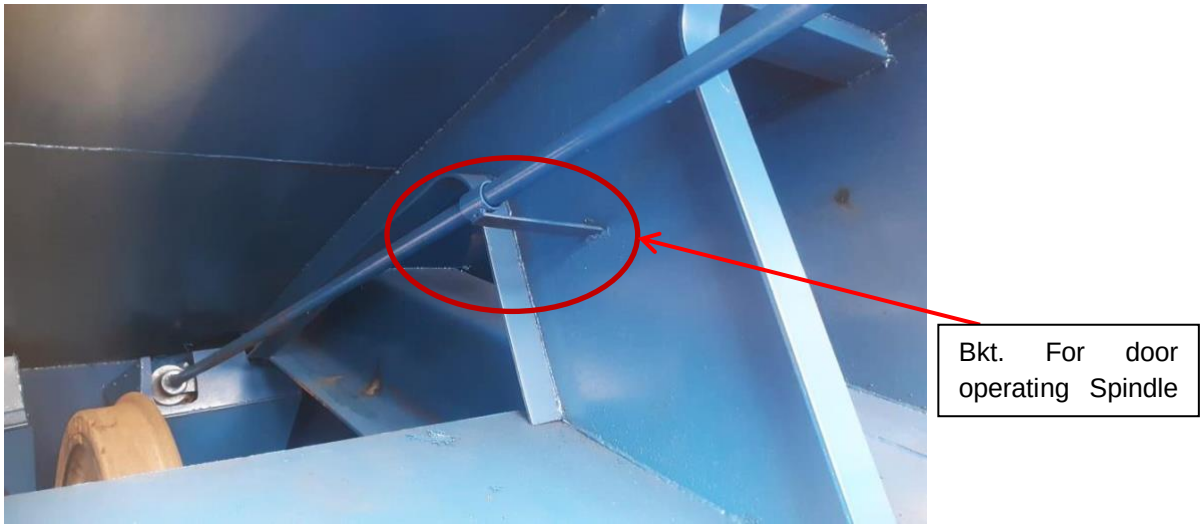


Fig 3(a) Photograph showing Bracket for door operating spindle

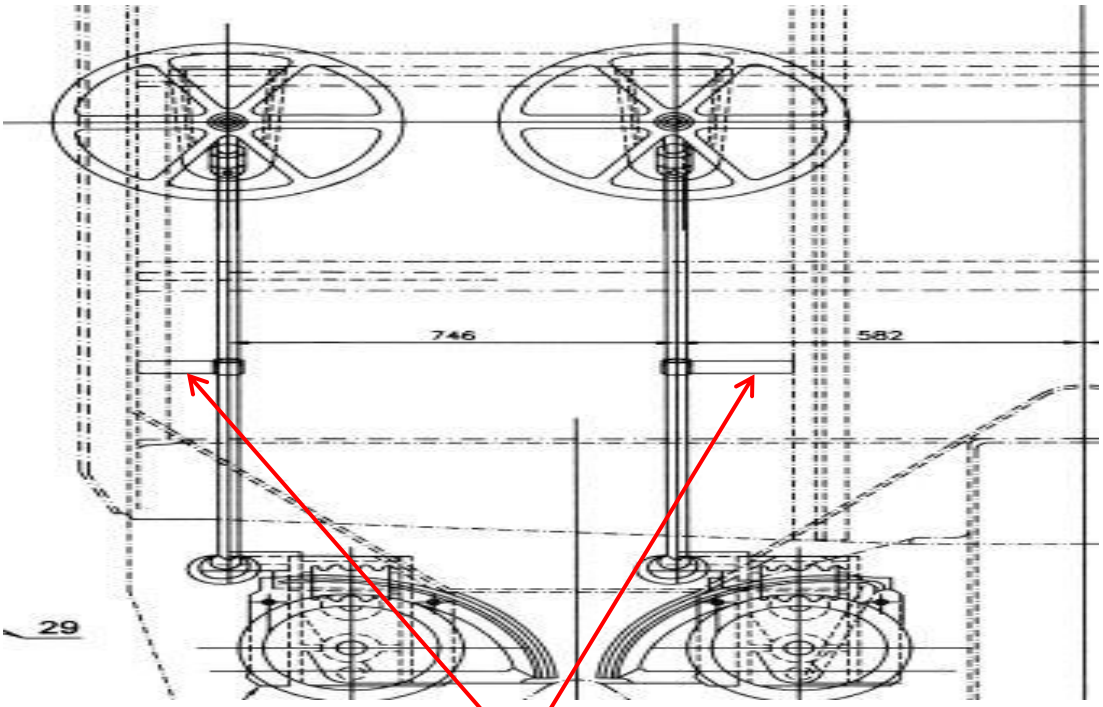


Fig 3(b) Diagrams showing Bracket for door operating spindle

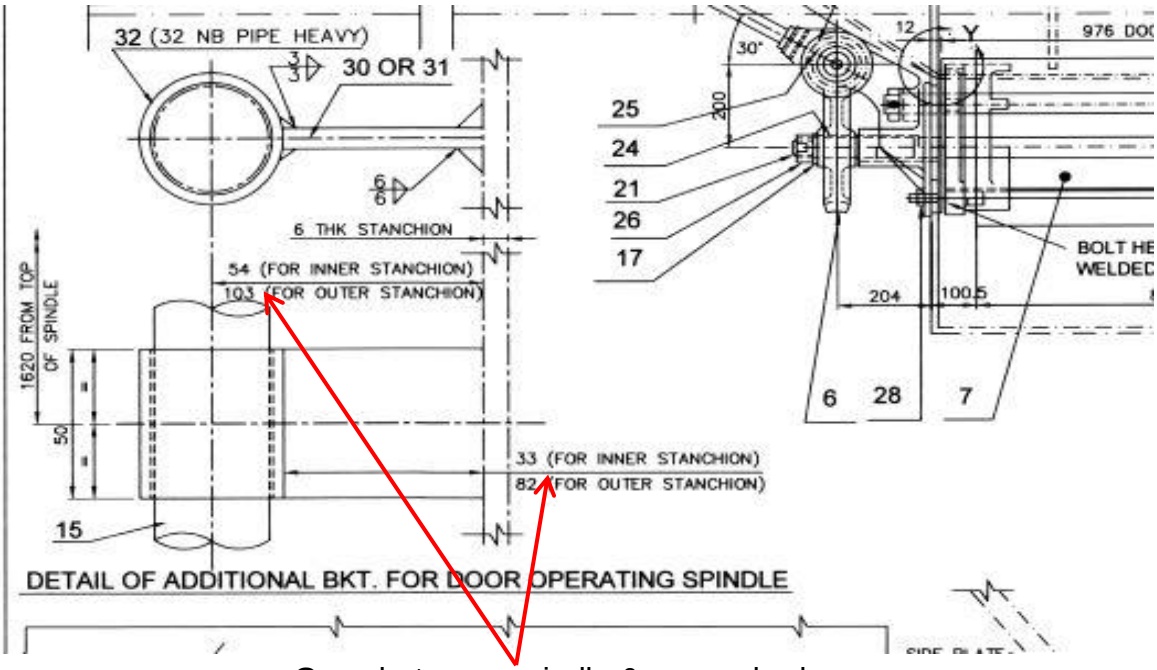


Fig 4 Diagram showing gap between door operating spindle and end stanchion

8. Proper lubrications of all gears (Bevel, spur, worm & worm wheel and rack & pinion) in gear train should be done during every yard examination. Gear teeth should be fully cleaned and properly greased. A record on the same shall be maintained by respective examination yard. Date of examination and greasing and due date shall also be stencilled (of 45 mm size) on side plate towards door operating end.

9. Grease used shall be as per specification No. WD-24-MISC-2003 (latest Rev). Grease like Servo grease REP-1 can be used for lubrication.

10. Make sure that the lubricants used are clean and do not contain any contaminant like dust, water, foreign objects etc.

11. It should be ensured that spindle and bevel gear do not infringe with any part of the wagon body. Cutting of bevel gear cover for maintaining gap **(Fig 5**) should not be required and wagons having such defects shall be attended in sick line. Gaps between the spindle and wagon body should be maintained as per drawing SK:77536(Enclosed).

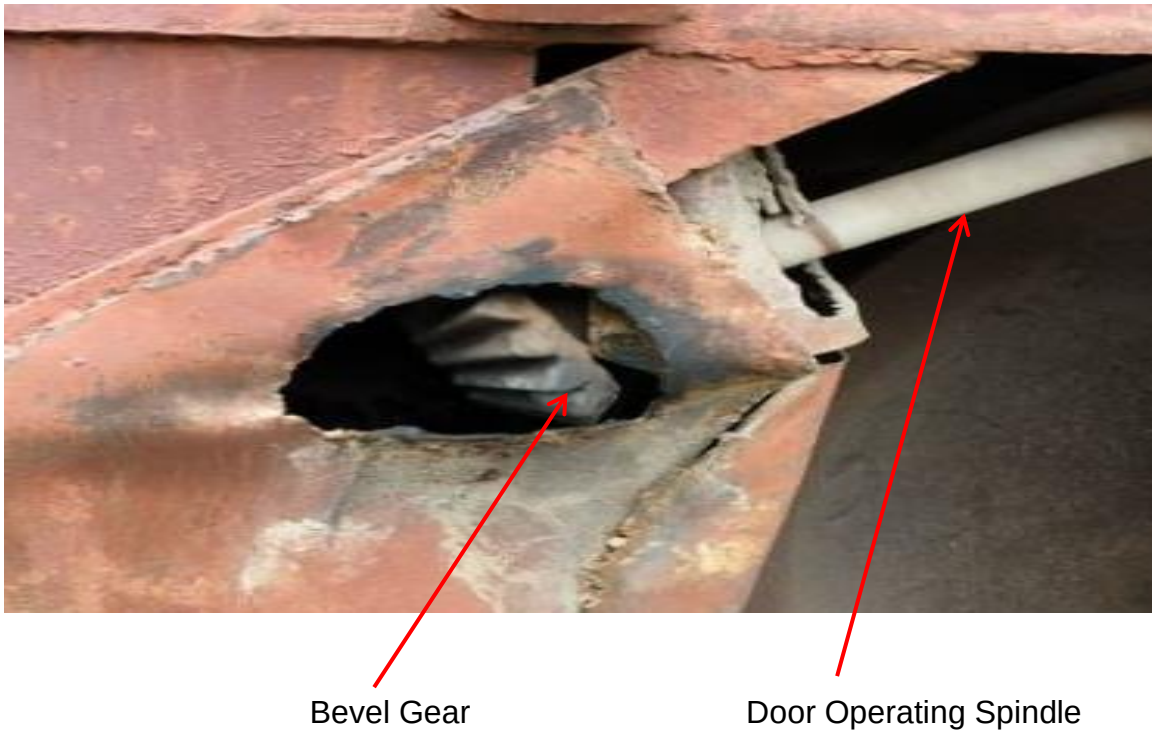


Fig 5: Photograph showing bevel gear & door operating spindle of BOBYN wagon

12. Hammering at gear box protection cover and doors should be avoided.

13. Play/Wear on gear teeth shall also be monitored during the greasing cycle i.e during every yard examination. Wagons with excess play/ wear in gears shall be marked to sick line for attention.

14. Dust cover for hopper door spur gear should be at proper position as per drawing WD-03008-S-01 (Fig 6 & 7). It shall be checked during every yard examination and wagons having defective arrangement shall be attended in sick line.

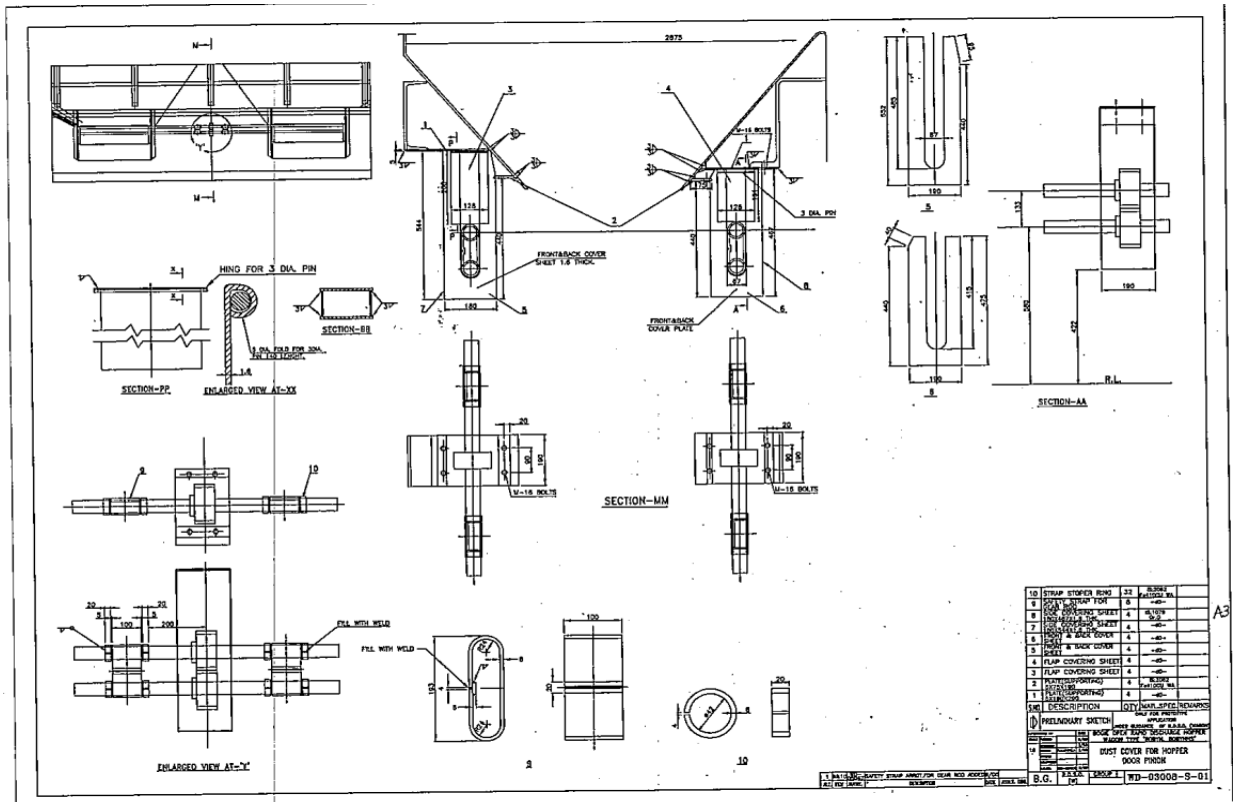


Fig 6 : Drg No. WD-03008-S-01(Dust Cover for Hopper Door Pinion

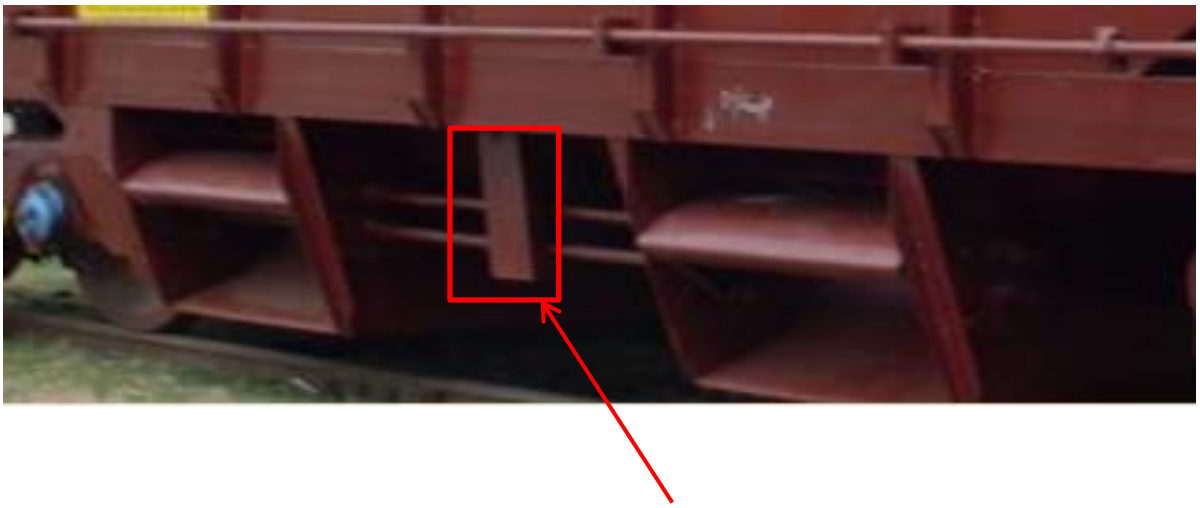


Fig 7: Spur gear cover

15. Shaft of spur gear should be straight and proper engagement of spur gears should be ensured during every yard examination.

16. All components of door operating mechanism should be free from rust, if found rusted, repair/ replace during ROH/POH.

17. All keys, split pins and washers mentioned under Drg. No. SK-77536 (along with ref. drg. mentioned in SK-77536) shall be visually checked for wear and tear during scheduled greasing under point 8.

18. During yard examination it shall be ensured that gap between wagon body side sheet and door plate is sufficient to rotate the door plate and it should not infringe with one another. (Drg. SK-77536, Enlarged Detail at -`Y').

19. During yard examination, proper gap between diaphragm plate and door plate shall be checked and ensured, for proper opening and closing of doors.

20. All relevant drawings mentioned in this document are enclosed herewith. For any clarification/further guideline SSE/Wagon/Hopper Sh D R Rizvi can be approached at 9794863726 .

21. Record of checking, maintenance and greasing in yard examination shall be maintained as per Annexure-A.

Annexure A

Checksheet for checking, maintenance and greasing of gear of BOBYN door operating mechanism

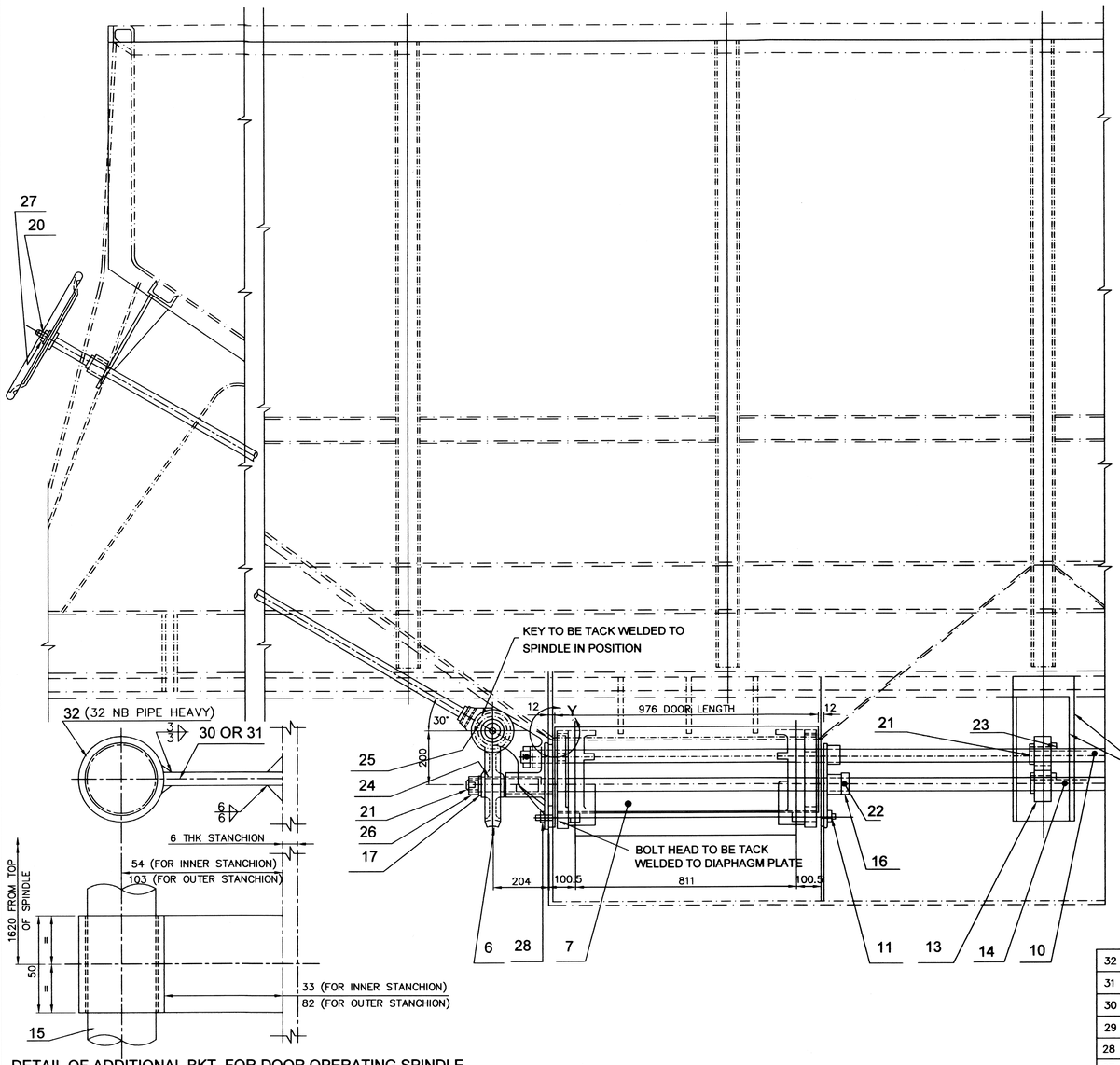
Freight Examination Yard ……

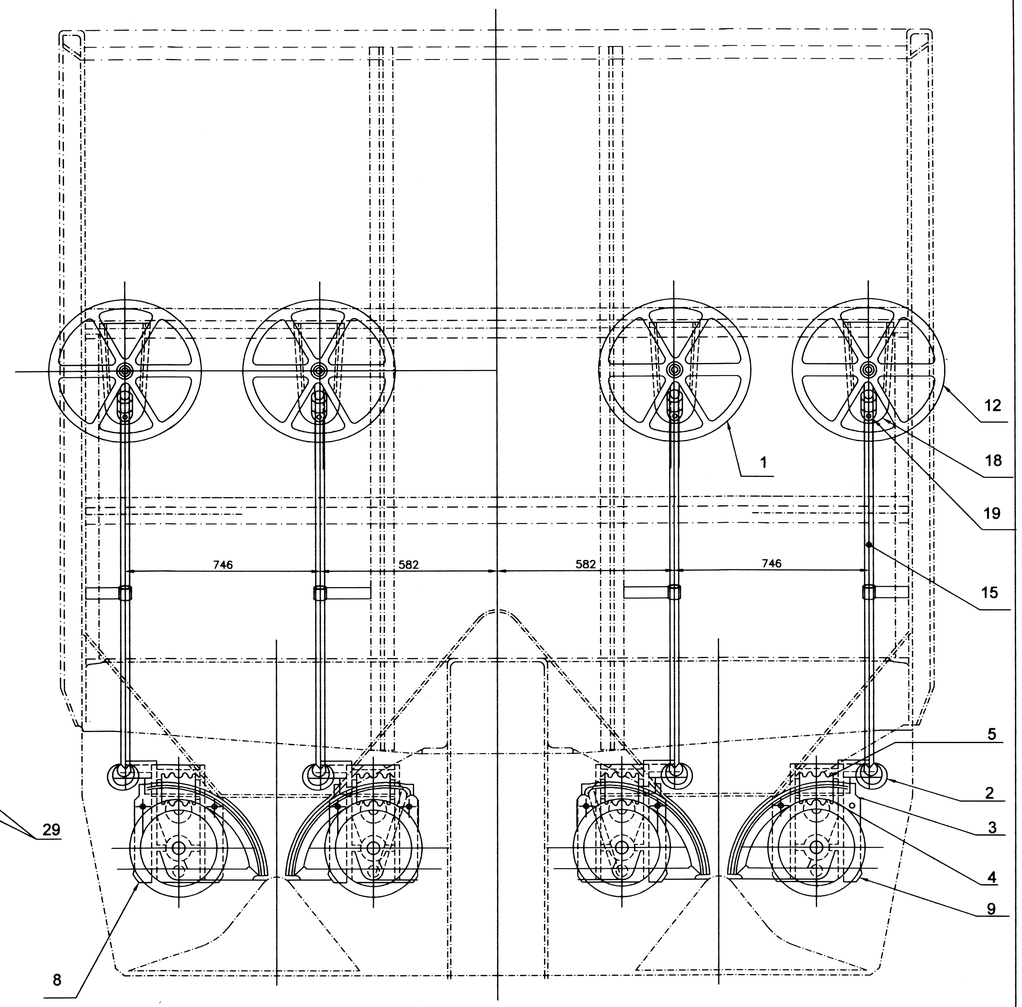
Date of examination…….

Type of Examination (CC/Premium/End to End)…….

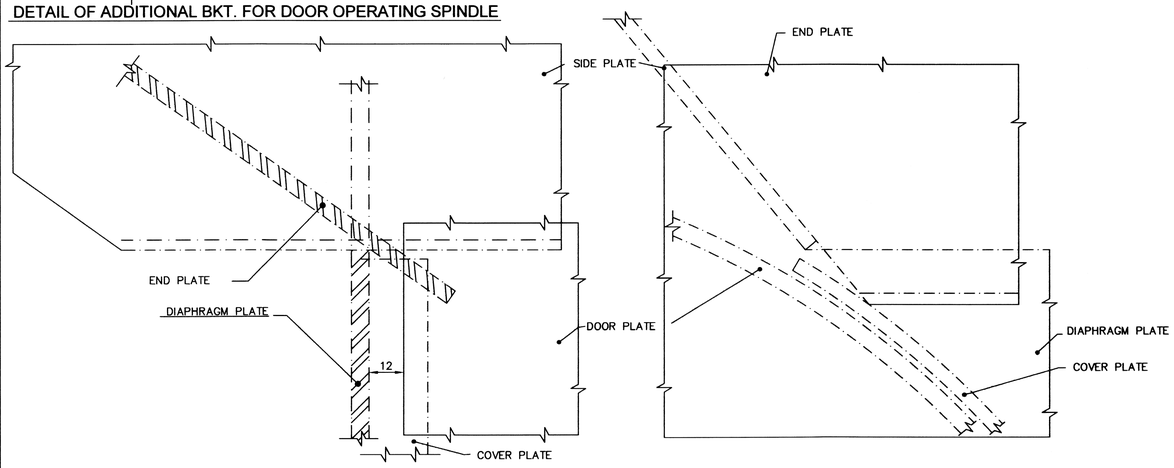
Outgoing BPC No.……

SN	Wagon No.	Condition of Gears								Availability of all keys for locking of gears on spindles	Greasing Done (Yes/No)	Whether Central doors permanently blocked(Yes/No)	Overall working condition of door mechanism (Satisfactory/ Un-satisfactory)	Remarks
		Bevel		Worm & Worm Wheel		Spur		Rack & Pinion						
		Condition (Ok/Worn out/ Broken etc.)	Working	Condition (Ok/Worn out/ Broken etc.)	Working	Condition (Ok/Worn out/ Broken etc.)	Working	Condition (Ok/Worn out/ Broken etc.)	Working					
1.														
2.														
3.														
4.														
5.														
6.														
7.														
8.														
9.														
10.														





DETAIL OF ADDITIONAL BKT. FOR DOOR OPERATING SPINDLE



ENLARGED DETAIL AT-'Y'

CDA	
COM	
TR.	

32	BUSH FOR DOOR OPERATING SPINDLE	4			IS: 1239 (HEAVY)	
31	BKT. PLATE FOR BUSH ON OUTER SPINDLE	2			IS: 2062 Fe 410 Cu-WA	
30	BKT. PLATE FOR BUSH ON INNER SPINDLE	2			IS: 2062 Fe 410 Cu-WA	
29	DUST COVER FOR HOPPER DOOR PINION.	4	WD-03008 S-01			
28	M-20 HEX. HEAD BOLT	64				
27	M-24SLOTED NUT	4				
26	M-33 SLOTED NUT	4				
25	10x6x50 GIB HEAD RECT. TAPER KEY	4				
24	12x10x85 PLAIN RECT. TAPER KEY.	4				
23	12x10x100 GIB HEAD RECT.TAPER KEY	24				
22	10 mm. TAPER PIN	12				
21	6 mm. SPLIT PIN	28				
20	5mm. SPLIT PIN	4				
19	SPINDLE GUIDE	4	SK.77550-3			
18	SPINDLE BRACKET	4	SK-77550-4			
17	WASHER (B.G.)	4	W/DW-203			
16	COLLAR (B.G.)	12	W/DW-202			

NOTE:-

③ 1. REFER DRG.WD-96021-S-1 FOR 'BOBYN' INDEX.

ALT.	ITEM	AUTHY	DESCRIPTION	DATE	ASSEMBLY DRAWINGS.
⑥	30,31 &32	WD-12017	ITEM 30 TO 32 ADDED	4/12	
⑤		WD-03025	DRG. REVISED	05/03	
④	–	WD-02020	REFERENCE FOR 'BOBYN' BOBYNHS' ADDED.	4/02	
③	–	WD 97012	'BOBYN' INDEX NO. INDICATED	4/97	
		RF-A007/018	MICRO FILMED	7/84	
②		WD-80005	HANDLE REMOVED	8/80	
①		167-7728	ELEVATION CORRECTED	11/77	

ITEM	DESCRIPTION	NO.OFF	REF. DRG.	WT. OF ONE(Kg)	MATL.&SPEC.	REMARKS.
15	DOOR OPERATING SPINDLE	4	SK.77550-7			
14	DOOR OPERATING SHAFT	4	SK.77550-5			
13	HOPPER DOOR PINION (B.G.)	24	W/DW-201			
12	DOOR OPERATING HAND WHEEL (B.G.)	2	SK.77550-9			
11	HOPPER DOOR TRUNNION AND OPERATING SHAFT BEARING	12	SK.77550-8			
10	DOOR CONNECTING SHAFT	4	SK.77550-6			
9	GEAR BOX (L.H.)	2	SK.77550-2			
8	GEAR BOX (R.H.)	2	SK.77550-1			
7	HOPPER DOOR	8	SK.77549.			
6	WORM WHEEL (B.G.)	4	W/DW-199			
5	WORM	4	W/DW-198			
4	WORM SPINDLE (B.G.)	4	W/DW-197			
3	BEVEL WHEEL (B.G.)	4	W/DW-196			
2	BEVEL WHEEL (B.G.)	4	W/DW-195			
1	DOOR OPERATING HAND WHEEL (B.G.)	2	WA/DW-192			WITHOUT HANDEL

PRELIMINARY SKETCH

ONLY FOR PROTOTYPE
APPLICATION
UNDER GUIDANCE OF R.D.S.O. (WAGON)

SUPERSEDED BY

SUPERSEDES

BOGIE HOPPER WAGON TYPE'BODY 'BOBY'④ BOBYN BOBYNHS'

SCALE 1:10			DATE
	PASSED	-sd-	9/77
	CHECKED	-sd-	7/77
	DRAWN	-sd-	12/76
	TRACED	RKhusla	23/87
	J.SHEET		

DOOR OPERATING ARRANGEMENT

B.G. | R.D.S.O. [W] | GROUP

SK: 77536