

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

No. 2023/CE-II/Safety/Instruction

New Delhi, dated 19.12.2024

**Principal Chief Engineer,
All Zonal Railways.**

Sub: Important Aspects regarding Ballast DMT Unloading.

The Joint Procedure Order (JPO) regarding ballast unloading by DMT issued by different Zonal Railways have been examined and all the important aspects regarding safe working of ballast DMT have been compiled and the same is enclosed as Annexure-A.

Railways are requested to examine their existing JPOs and ensure that at least, aspects covered in Annexure-A are covered in their JPOs. In case, any aspect is missing, the JPOs may be revised accordingly.

The JPOs must be jointly signed at HQ by SAG level, Traffic Officer dealing with traffic blocks, Mechanical Officer dealing with maintenance of BOBYN hoppers, Electrical Officer dealing with Traction and Chief Track Engineer, for its effective implementation in the field.

It should further be ensured that a copy of updated JPO is available with the supervisors handling ballast DMT in the field and Engg. Control in the Division. The Divisional Engg. Control should also be in touch with supervisor handling ballast DMT reminding him time to time about the various provisions of JPO to inculcate habit of safe working while handling ballast DMT. Any discrepancy noticed by Engg. Control should be brought to the notice of concerned branch officer positively.

Further, "Technical Guidelines for maintenance of door opening mechanism in BOBYN wagon" issued by Mech. Dte. of Railway Board vide L.No. 2005/M(N)/204/3 (E-3346728) dated 08.11.2024 (copy enclosed) may also be brought to the notice of Mechanical staff dealing with BOBYN wagons.


(Saurabh Jain)
19.12.24
Director Civil Engg. (Plg)
Railway Board

Annexure 'A'

IMPORTANT ASPECTS REGARDING LOADING, TRANSPORTATION AND UNLOADING OF BALLAST DMT

1. Examination of rake before sending to depot for loading

- i. The SSE/C&W shall properly maintain unloading gears of hoppers to ensure smooth & quick unloading of wagons during traffic block. All the unloading gears should be lubricated before issuing BPC so as to ensure smooth opening and closing of doors of hopper wagons at the time of unloading. Minimum 85% brake power should be ensured while issuing BPC for 30 days. SSE/C&W will give following certificate on BPC itself:

"All unloading gears of hoppers have been lubricated, checked and found in working condition."

- ii. The SSE/JE (P.Way) shall take over the rake at TXR depot and examine that all unloading gears are in working order to avoid any problem at loading point. A joint note will be prepared by both SSEs.
- iii. The SSE/C&W will keep stock of necessary fittings for maintaining rakes. The SSE/JE/P.Way will then be responsible for fittings available in the rake till the rake is in his charge. When the rake is sent for TXR examination after expiry of BPC, the list of missing fittings will be prepared w.r.t. previous joint note drawn between SSE/C&W and SSE/JE (P.Way) at the time of taking over.

2. At the stage of pre-loading of ballast at Depot

- i. The SSE/P.Way in-charge of Ballast Depot shall check all doors opening assembly of BOBYN rake at Ballast Depot after every trip before loading ballast and shall keep a proper record in the form of a log book. The sectional ADEN and Sr.DEN during their inspection at Ballast Depot should see the log book and ensure that the same is properly maintained.
- ii. The wagons with defective doors should not be permitted for ballast loading and such wagons should be prominently marked as "Not to be loaded". These wagons should be attended during next TXR examination.

- iii. The SSE/P.Way in-charge of Ballast Depot will maintain a log book as under in which deficiencies observed during checking of rake shall be entered.

Date of Checking	Deficiencies observed			BOBYN Nos in which Oiling and Greasing done and doors handles have free movement	Any other remark of the inspecting officials	Signature of the Inspecting officials
	BOBYN Nos in which doors are badly jammed and could not be opened	BOBYN Nos in which gap observed even in closed position of doors	BOBYN Nos in which door opening assembly is very tight and is not working smoothly and doors opened with a lot of extra effort			
1	2	3	4	5	6	7

- iv. In case, any partially unloaded wagon is noticed after placement of empty rake for loading of ballast, the wagon(s) should be examined for defective doors.
- v. If the left over ballast is due to defective doors, the quantity should be measured and record kept separately for adjustment/accounting of ballast at a future date by SSE/P.Way in-charge of Ballast Depot. The wagons with defective doors will not be loaded further.

If the wagon is not having defective door, the left over quantity should be measured and accounted for before further loading by SSE/P.Way in-charge of Ballast Depot. Simultaneously, intimation will also be

given to previous consignee by SSE/P.Way in-charge of Ballast Depot regarding the same.

3. While loading the ballast, it must be ensured that there is no uneven loading in any hopper.

4. Action to be taken prior to unloading of Ballast DMT

- i. When the rake arrives, it shall be checked by the concerned SSE/JE (P.Way) for jammed doors/ defective door opening mechanism. If after making all efforts to open the door fails, all such wagons with defective/ jammed doors shall be reported to C&W control through ASM/Control message.
- ii. If the wagon cannot be attended at site, the wagon should be marked as "NOT FIT FOR UNLOADING". Such wagons should then accordingly be planned to be detached and sent to C&W depot by ASM concerned for necessary attention.
- iii. Engineering Supervisor responsible for unloading of ballast must ensure that there is even loading in each hopper before taking the DMT in the block section.
- iv. The ballast train should be accompanied by a qualified engineering official-in-charge not below the rank of JE/P.Way. He should be well conversant with the rules & regulations pertaining to the working of ballast DMT. The official-in-charge should have the details of exact location at which the ballast has to be unloaded, duly approved by SSE/P.Way (In-charge). Proper planning for unloading of ballast hoppers TP-wise should be done by SSE/JE/P.Way in advance and clear signal should be shown to LP/ALP to stop at the exact locations.
- v. SSE/JE (P.Way) shall ensure that the safety equipments in good working order and First Aid Box is available.
- vi. Manpower requirement:
 - a. 02 SSE/JE (P.Way) should always be available during unloading of Ballast DMT. One SSE/JE (P.Way) should remain at site after completion of ballast unloading for ensuring clearance of track and S&T gears from unloaded ballast.
 - b. Sufficient (minimum 12-15) labours should be available.
 - c. A blacksmith for handling jammed gears of door flaps, if any, shall also accompany the ballast DMT.

- vii. Brake van shall always be attached with the Ballast DMT and Guard shall remain in brake van while material/ Ballast Train is working.

5. General Duties of Guard and Loco Pilot while handling Ballast DMT

- i. The Guard & Loco Pilot shall observe the instructions contained in G&SR para No. 15.09 for working of ballast DMT.
- ii. The Loco Pilot of ballast train shall be vigilant and follow the instructions of P.Way Engineer present in loco driving cab, who shall be on constant look out for signals from SSE/JE (P.Way)/ Guard while unloading of ballast.
- iii. A continuous proceed hand signal shall be shown by the Guard throughout the movement of the train during unloading.

6. Action to be taken during and after unloading of Ballast DMT by SSE/JE (P.Way)

- i. Unloading should be done during daylight hours from sunrise to sunset.
- ii. DMT should not be moved at higher than 10 kmph speed while unloading ballast.
- iii. While unloading the ballast, DMT shall move only in one direction.
- iv. Protection of the ballast train as per GR 15.09 and IRPWM Para 806 must be ensured.
- v. While ballast train is working, it should be ensured that all the doors are opened slowly to avoid sudden discharge of ballast and it is spread uniformly. On curves, inner side door should be adjusted so that the required quantity of unloading is ensured on both the sides of track. If for any reason one side chute (door) is not opened, opposite chute should also be closed so that uneven unloading is avoided.
- vi. Direct unloading of ballast on platform loop lines is not to be resorted to. Ballast may be unloaded on the adjoining non-platform loop line or main line in phases and then taken to platform loop line.
- vii. After unloading the ballast it must be physically ensured by SSE/JE (P.Way) at site that no uneven unloading exists in the hoppers. In case of uneven unloading and if the same cannot be attend in the block, the DMT must be taken to nearest station with speed restriction as considered necessary ensuring that speed is not more than 10 kmph while negotiating curves and turnouts.
- viii. The SSE/JE (P.Way) shall ensure that unloaded ballast does not infringe the Schedule of Dimensions (SOD) & shall further ensure

- that all Engg. and S&T gears/installations are free from any obstructions which may have been caused due to unloading of ballast.
- ix. The SSE/JE (P.Way) will ensure before leaving the site that no stone is left inadvertently between the stock rail and tongue rail, check rail & nose of crossings; SEJs are clear from stone ballast.
 - x. Ballast which has fallen between the running rail and check rail on curves or LCs should also be invariably cleared before cancellation of traffic block.
 - xi. SSE/JE (P.Way) who is returning back along with the Ballast DMT after unloading the ballast, must invariably talk to the SSE/JE (P.Way) available at site and clear traffic block only after ensuring that there is no infringement to SOD and all SEJs, check rails at curves/ level crossings, signaling gears, point & crossings etc. are clear of the ballast.
 - xii. Despite all precautions it is likely that some ballast may hit the foot board of the next train resulting in rising of dust etc. It is therefore necessary that a speed restriction of 45 kmph be imposed for the first train, which passes over the location where the ballast has been unloaded. Caution order shall indicate the location where the ballast has been unloaded and also that the temporary engineering indicator board are not displayed at sites.
7. The SSE/JE (P.Way) supervising unloading the ballast must also invariably certify the unloading details in the following tabular form in a register:

Nos. of hoppers			
Received empty	Partly unloaded	Fully unloaded	Total

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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)
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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.

Digitally Signed by Apurva

Date: 09-09-2024 19:12:51

Reason: Approved (Apurva)

Jt. Director Wagon/RDSO

For Director General Wagon/RDSO

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**).

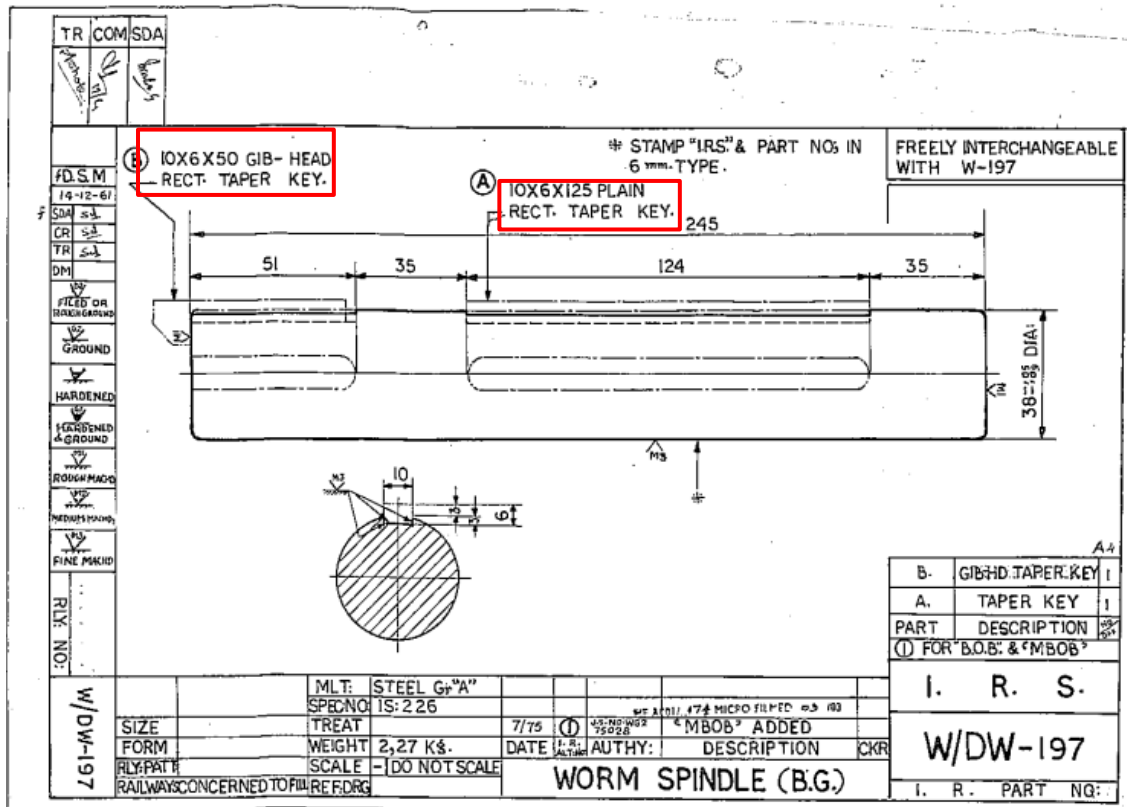


Fig.2 Drawing W/DW-197 showing Gib-Head Rect. Taper Key & Plain Rect. Taper Key

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

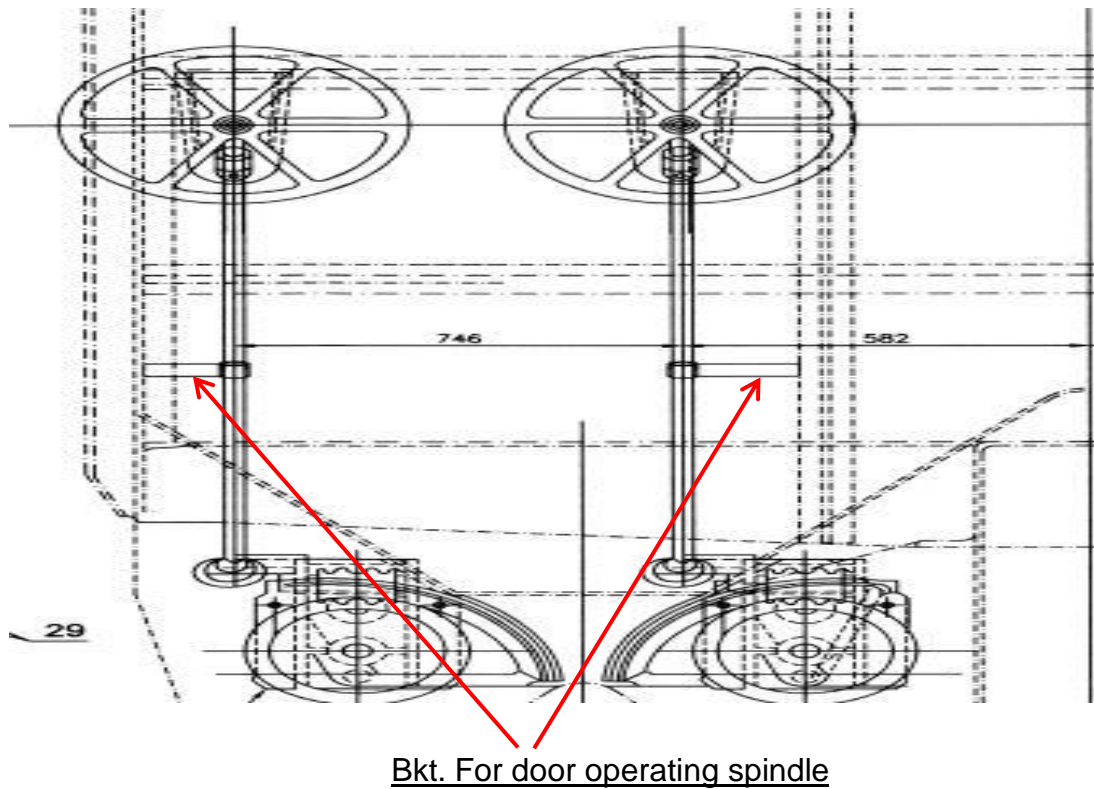


Fig 3(b) Diagrams showing Bracket for door operating spindle

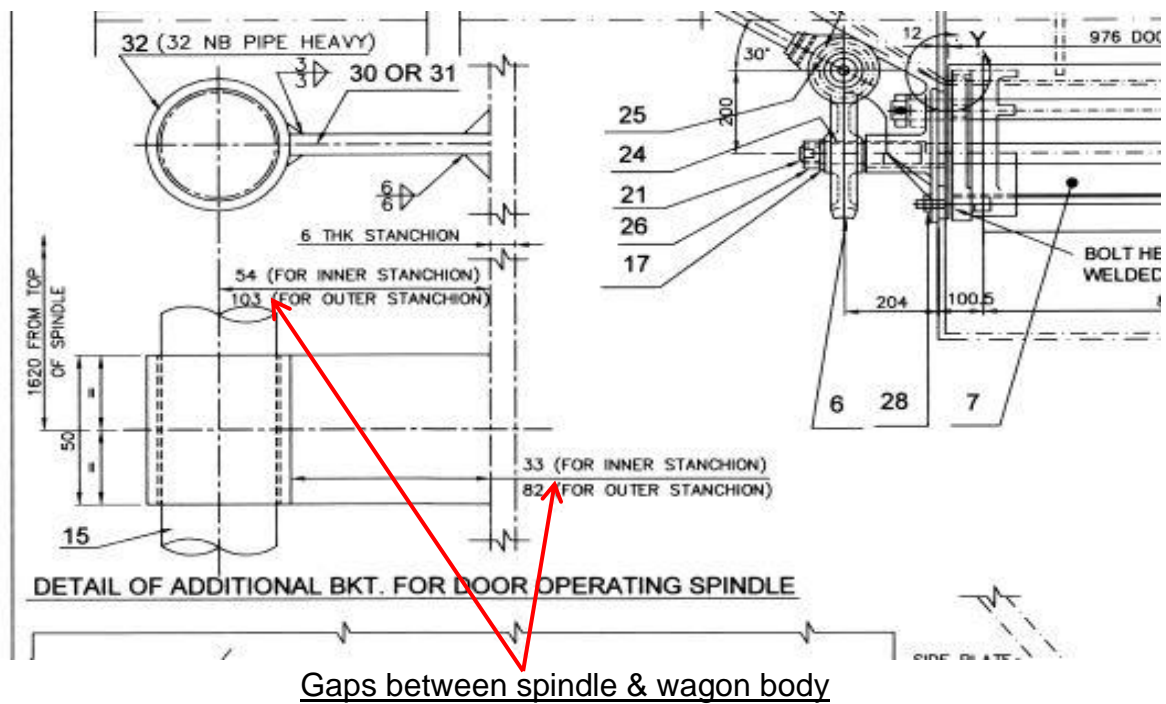


Fig 4 Diagram showing gap between door operating spindle and end stanchion

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).



Bevel Gear

Door Operating Spindle

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.

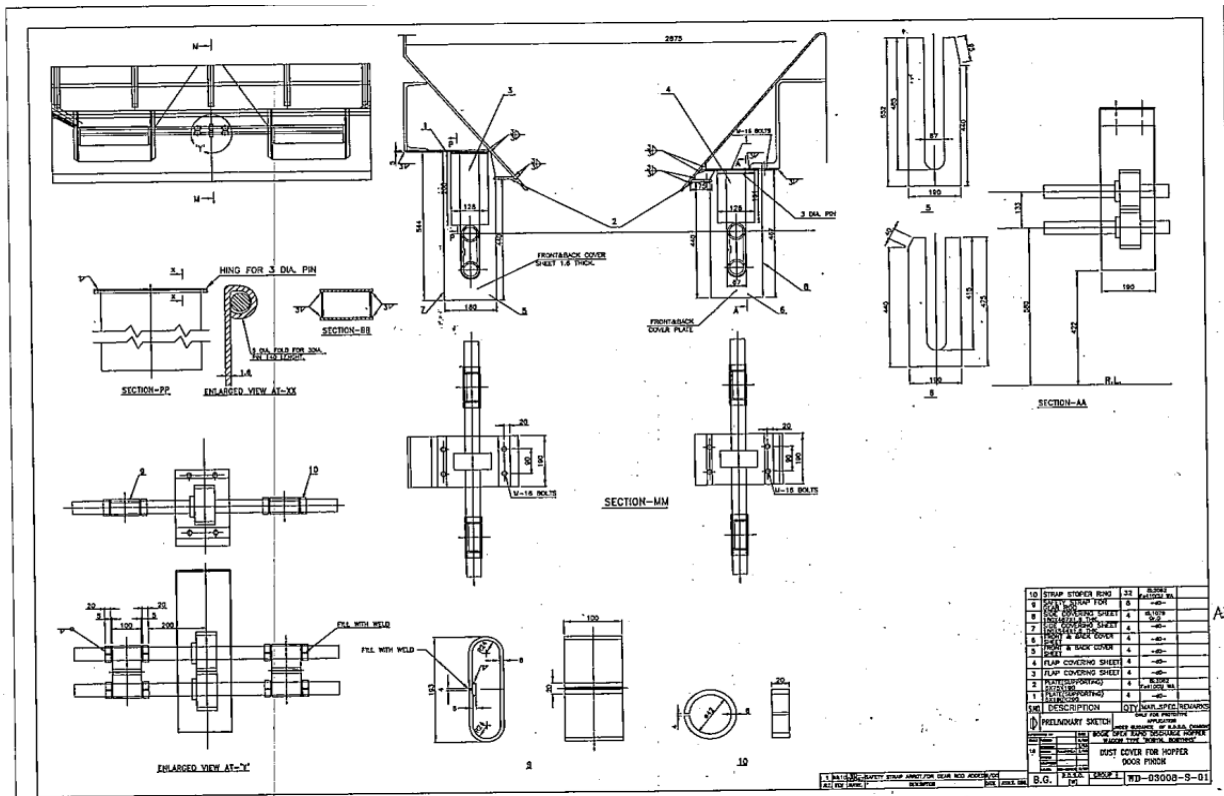


Fig 6 : Drg No. WD-03008-S-01(Dust Cover for Hopper Door Pinion)

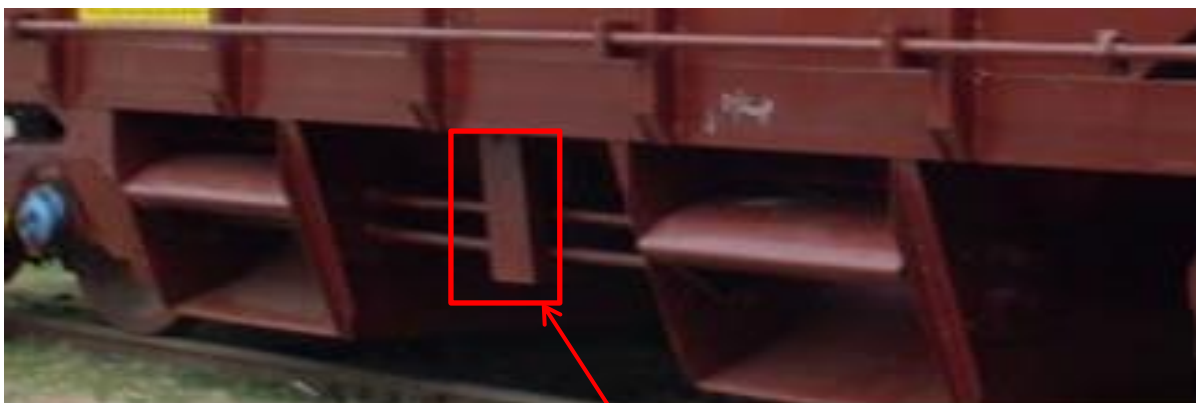


Fig 7: Spur gear cover

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.

Freight Examination Yard

Date of examination.....

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

Outgoing BPC No.....

[illegible]

