XMOR
HIGH PRODUCTIVITY EQUIPMENT

XMOR 21.5 m³ MINING TIPPER

TIPPER BODY MADE IN HARDOX® WEAR PLATE

SERVICE AND MAINTENANCE

Table of Contents

1. GENERAL DESCRIPTION

1.1. Scope

This document describes the service and maintenance procedure of the XMOR 21.5 m³ Mining Tipper.

This document does not describe how to repair the tipper body.

1.2. Service and Maintenance Interval

The tipper body must undergo maintenance once per week.

A full service and maintenance procedure is recommended in case of sudden damage to the tipper body.

1.3. Preparations

The following preparations are required before the start of the service and maintenance procedure:

- Clean the tipper body thoroughly with a high pressure washer.
- Print the XMOR 21.5 m³ Mining Tipper Service and Maintenance Checklist and use it to track and report progress during the service and maintenance procedure.

1.4. In Case of Damage to the Tipper Body

All tipper body damage must be reported to the supplier of the product.

2. Safety Information Definitions

Safety awareness reduces risk of injury and damage to personnel, equipment and parts.

This document uses the following definitions for safety information:

 **DANGER**	• **A danger statement indicates a hazardous situation that, if not avoided, will result in death or serious injury.**
 **WARNING**	• **A warning statement indicates a hazardous situation that, if not avoided, could result in death or serious injury.**
 **CAUTION**	• **A caution statement indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.**
 **NOTICE**	• **A notice indicates information considered important but not hazard related.**

3. Service intervals

The intervals of service is important to follow. Failure to do so leads to safety risks and shorter life time of the product and invalid warranty. Below is the maintenance and service intervals described in two tables. One for daily and weekly maintenance activities and one for the activities with a longer interval. The long intervals based activities is preferably conducted at the same time as the weekly maintenance for that particular week.

Shorter Service Intervals – XMOR Mining Tipper			
Item	**Description**	**Daily inspection**	**Weekly inspection**
1	Plate damage inspection		x
2	Visual weld inspection		x
3	Lamp inspection	x	
4	Electrical wiring inspection		x
5	Bolt inspection		x
6	Lubrication	x	

Longer Service Intervals - XMOR Mining Tipper – Assuming 6000 hours per year																										
Item	**Description**	**Conditions based replacement only**	**Months**	**2**	**4**	**6**	**8**	**10**	**12**	**14**	**16**	**18**	**20**	**22**	**24**	**26**	**28**	**30**	**32**	**34**	**36**	**38**	**40**	**42**	**44**	**46**	**48**
			Engine hours (thousands):	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
1	Air Breather Filter			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
2	Oil Return Filter			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
3	Hydraulic oil								x						x						x						x
4	Subframe Wood / Rubber Ass.					x			x			x			x			x			x			x			x
5	Subframe Fasteners set	x										x									x						
6	Hyfix Lock Ass.	x							x						x						x						x
7	Rear Hinge Pivot Bracket	x													x												x
8	Diesel tank Guard Ass.	x				x			x			x			x			x			x			x			x
9	AD blue tank Guard Ass.	x				x			x			x			x			x			x			x			x
10	Attachment plates	x							x						x						x						x
11	Wear Liners - Rear Kit (Standard)*	x										x									x						
12	Wear Liners - Full Kit (Heavy Duty)*	x													x												x
13	Stabilizor Ass.	x																									x
14	Hydraulic components**	x																									

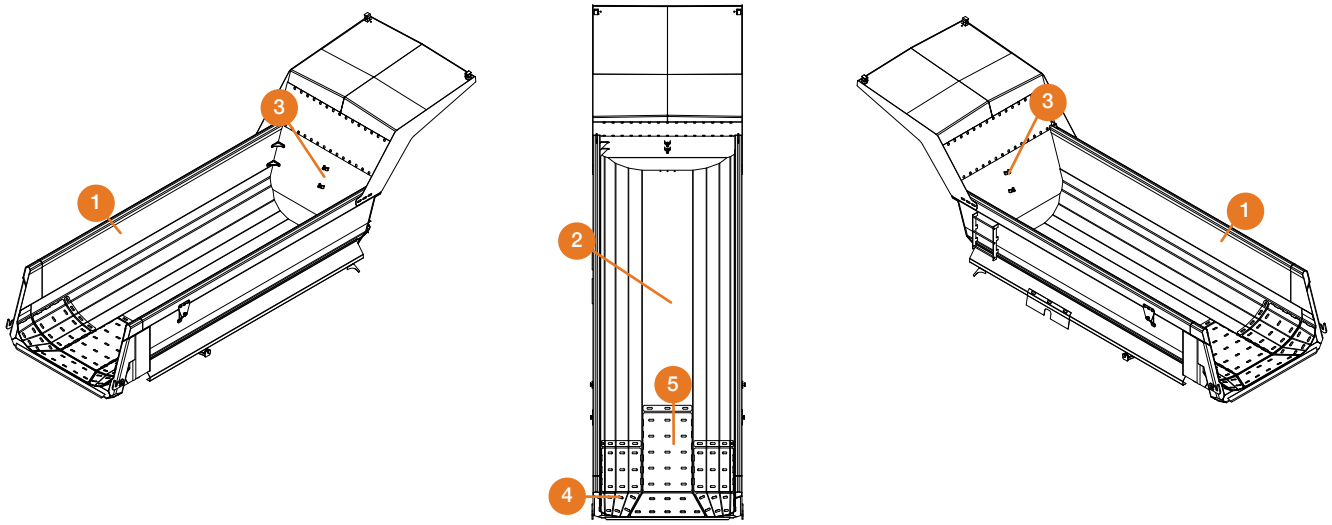
* Assuming normal wear and operating conditions. Should cycles and/or material transported be more abrasive service times may change.
**Please refer Hyva recommendations for replacements of Cylinders, Oil pumps etcetera.

4. Warranty disclaimer

- Full warranty 12 months from the date of operation or 6000 hours of operation whichever is earlier, however the warranty is only valid for normal use and if maintenance intervals and procedures is followed.
- The warranty will not be applicable for the following:
  - The warranty does not cover any defects caused by overload or improper usage of the tipper.
  - The warranty does not cover defects caused by normal wear and tear or if the product has been exposed to a traffic accident or other accident.
  - Unauthorized modification of the body or sub frame.
  - Damages as a result of service not carried out in accordance with supplier operating & maintenance instructions.
  - Failures resulting from intentional actions or acted on purpose – in bad faith.
- The warranty will not cover:
  - Consumables like hydraulic oil, return line filter and breather element.
  - Wear of parts under normal operating condition like wood, seal kits, bushings and parts made of rubber having limited life span.
  - Hardware Items like mounting bolts, nuts, rubber pads, washers, pivot springs, mud flaps etc.
  - Relining of body caused by normal wear and tear.

5. Plate Damage Inspection

This chapter describes the inspection of the plates that are exposed to impact wear when loading as well as sliding wear when unloading.



a) Inspect the Side plates on the tipper body for dents, cracks and holes (Pos 1.).

b) Inspect the Bottom plate on the tipper body for dents, cracks and holes (Pos 2.).

c) Inspect the Front plate on the tipper body for dents, cracks and holes (Pos 3.).

d) Inspect the Chute plate on the tipper body for dents, cracks and holes (Pos 4.).

e) Inspect the Liner plates on the tipper body for dents, cracks and holes (Pos 5.).

Recurring relining is required to maintain the quality and lifespan of a tipper body in operation.

In case any of the Liner plates is severely damaged or has fallen off it shall be replaced in order to maintain the quality and lifespan of the tipper body in operation

Ensure that the Bottom and Chute plate has not been worn down below half the original thickness before relining.

In case of damage (excluding normal wear and tear) to the tipper body plates or need for relining, contact the supplier of the product.

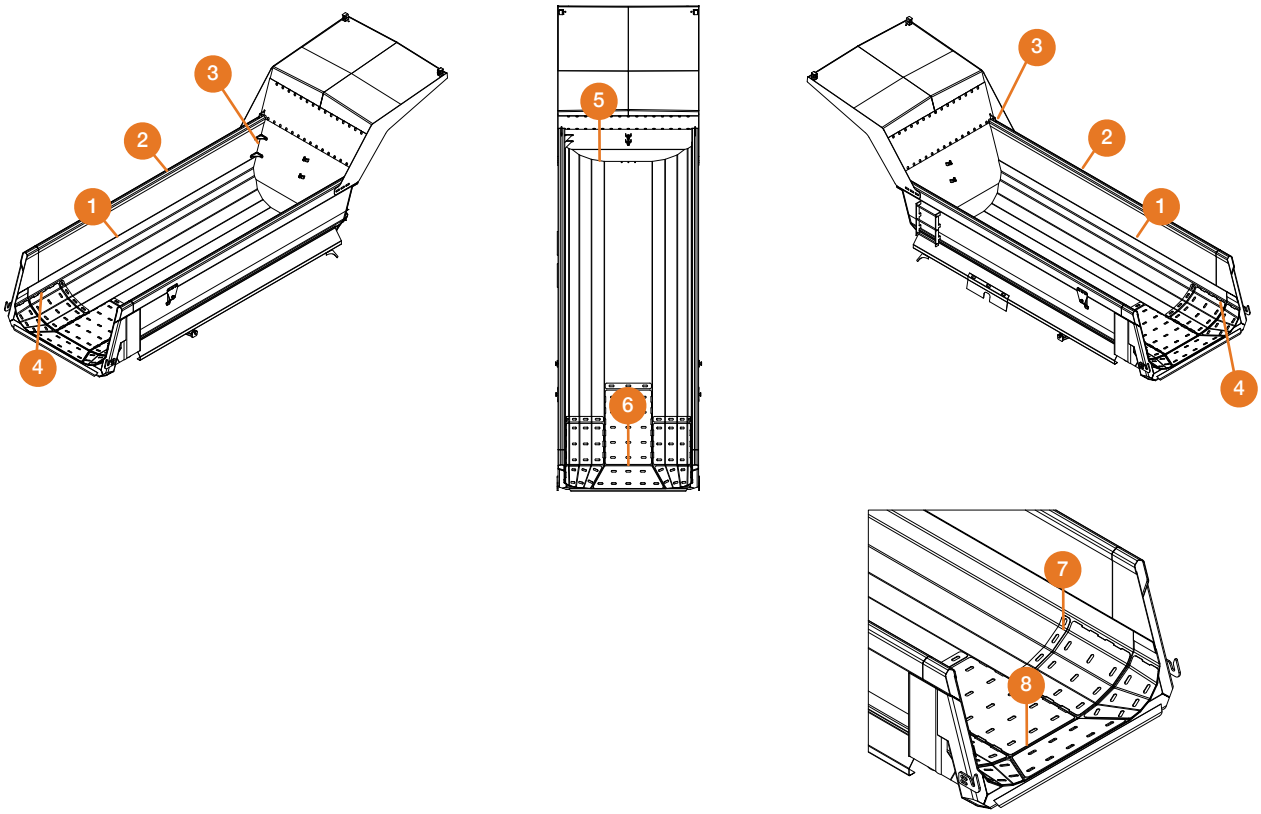
NOTICE	• **Dents can cause an increased wear rate and shorten the lifespan of the tipper body** • **Wear rate is dependent on number of unloads and abrasiveness of handled material** • **Use the tipper body according to the operating instructions**

6. Visual Weld Inspection

This chapter describes the location of the welds on the tipper body and subframe that must be visually inspected.

Cracks or other problems related to the welds must be noted in the XMOR 21.5 m³ Mining Tipper Service and Maintenance Checklist and reported.

6.1. Inside Welds



a) Inspect the weld between the Side Plate and the Bottom Plate on both sides of the tipper body (Pos. 1).

b) Inspect the weld between the Side Plate and the Top Line on both sides of the tipper body (Pos. 2).

c) Inspect the weld between the Side Plate and the Front Plate on both sides of the tipper body (Pos. 3).

d) Inspect the welds around the Bottom Cover Plate on both sides of the tipper body (Pos. 4).

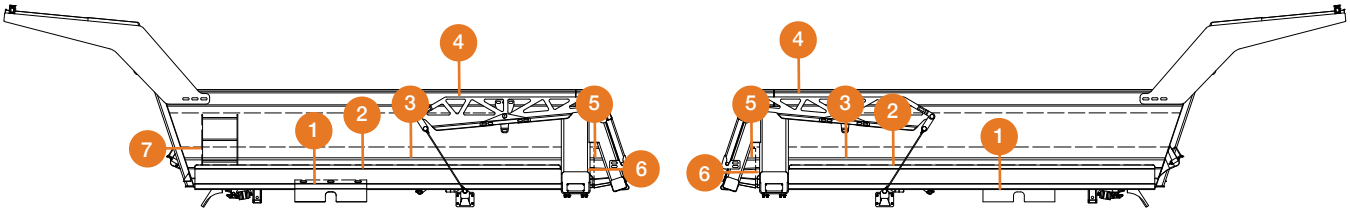
e) Inspect the weld between the Bottom Plate and the Front Plate (Pos. 5).

f) Inspect the weld between the Bottom Plate and the Chute Plate (Pos. 6).

g) Inspect the welds between Lining plate and Bottom plate (pos 7).

h) Inspect the welds between Lining plate and Chute plate (pos 8).

6.2. Side Welds



a) Inspect the weld between the Air Tank Guard and the Side Skirt on both sides of the tipper body (Pos. 1).

b) Inspect the weld between the Side Skirt and the Bottom Plate on both sides of the tipper body (Pos. 2).

c) Inspect the weld between the Bottom Plate and the Side Plate on both sides of the tipper body (Pos. 3).

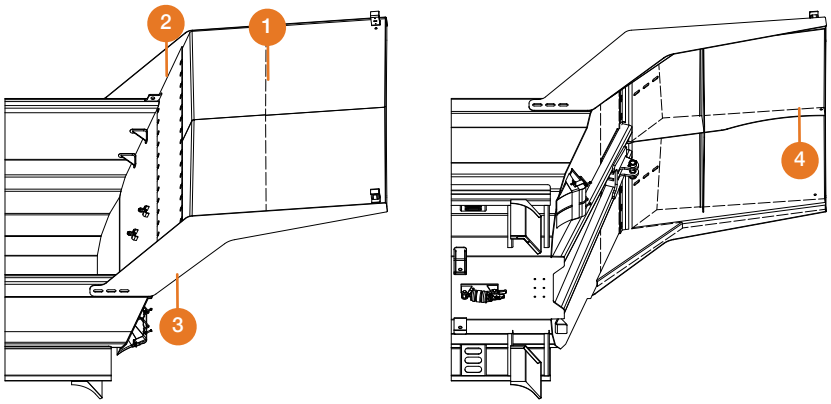
d) Inspect the weld between the Side Plate and the Top Line on both sides of the tipper body (Pos. 4).

e) Inspect the weld between the Chute Plate and the Side Plate on both sides of the tipper body (Pos. 5)

f) Inspect the weld between the Bottom Plate and the Chute Plate on both sides of the tipper body (Pos. 6).

g) Inspect the welds between the Ladder and the tipper body (Pos. 7).

6.3. Canopy Welds



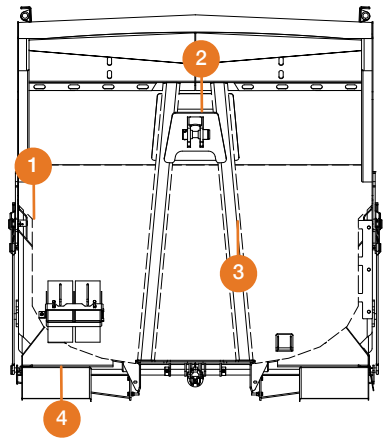
a) Inspect the weld between the Canopy and the Front Plate (Pos. 1).

b) Inspect the weld on the top of the Canopy (Pos. 2).

c) Inspect the welds between the Canopy, the Front Wall and the Top Lines (Pos. 3).

d) Inspect the welds on the bottom of the Canopy (Pos. 4).

6.4. Front Welds



a) Inspect the welds around the Front Wall (Pos. 1).

b) Inspect the welds on the Tipping Cylinder Attachment (Pos. 2).

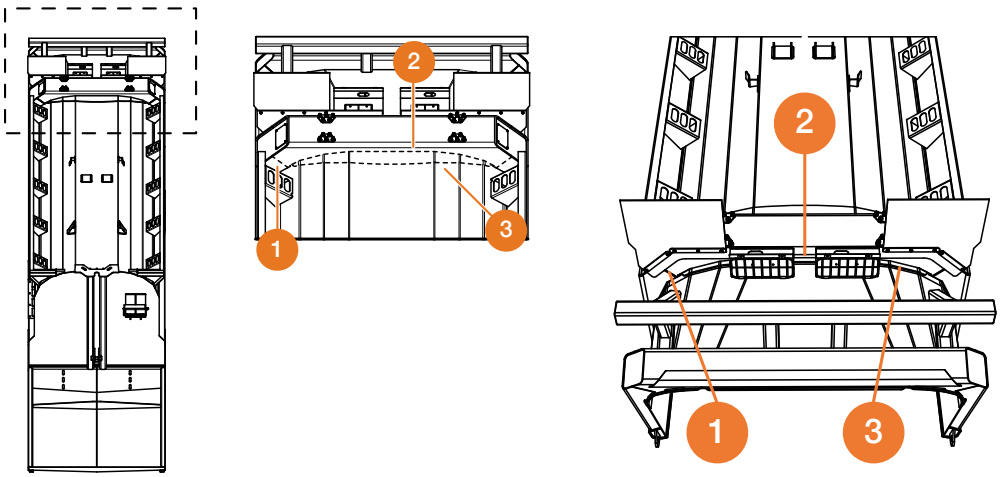
c) Inspect the welds on the Reinforcement Beams (Pos. 3).

d) Inspect the welds on the Mudguard on both sides of the tipper body (Pos. 4).

6.5. Pivot Beam Welds

WARNING

- **Do not work under an unstable tipper body.**
- **Risk of crush injuries.**
- **Use the tilt support if the tipper body is tilted.**

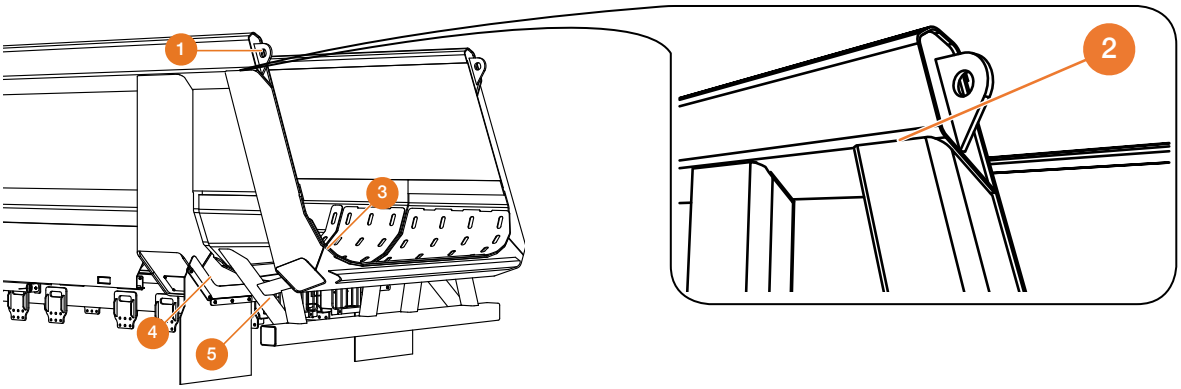


a) Inspect the welds on the Pivot Beam (Pos. 1).

b) Inspect the welds between the Pivot Beam and the Tipper Body (Pos. 2).

c) Inspect the welds on the Saddle Plate (Pos. 3).

6.6. Rear Welds



a) Inspect the weld between the Lifting Ear and the Top Line on both sides of the Canopy if applicable (Pos. 1).

b) Inspect the weld between the Rear Beam and the Top Line (Pos. 2).

c) Inspect the welds on the Rear Beam (Pos. 3).

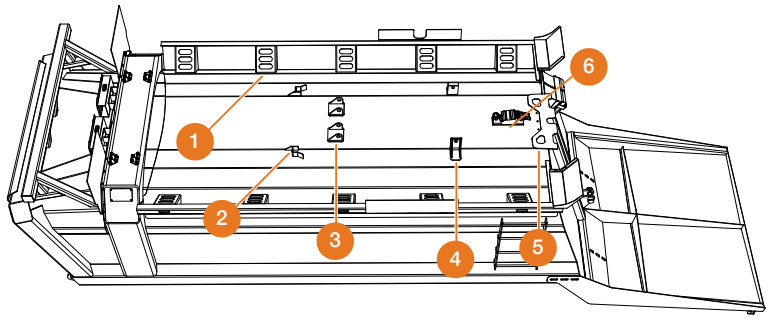
d) Inspect the weld between the Fastening Plate Mudflaps and Pivot Beam on both sides of the tipper body (Pos. 4).

e) Inspect the welds on the Underrun Protection (Pos. 5).

6.7. Bottom Welds

WARNING

- **Do not work under an unstable tipper body.**
- **Risk of crush injuries.**
- **Use the tilt support if the tipper body is tilted.**



a) Inspect the weld between the Side Skirt Assembly and the Bottom Plate on both sides of the tipper body (Pos. 1).

b) Inspect the welds on the two Supporting Rod Brackets (Pos. 2).

c) Inspect the welds on the two Stabilizer Brackets (Pos. 3).

d) Inspect the welds on the two Guiding Bracket Assemblies (Pos. 4).

e) Inspect the welds between the Reinforcement Plate and the Bottom Plate (Pos. 5).

f) Inspect the welds between the Mechanical body clamp and the Bottom Plate (Pos. 6).

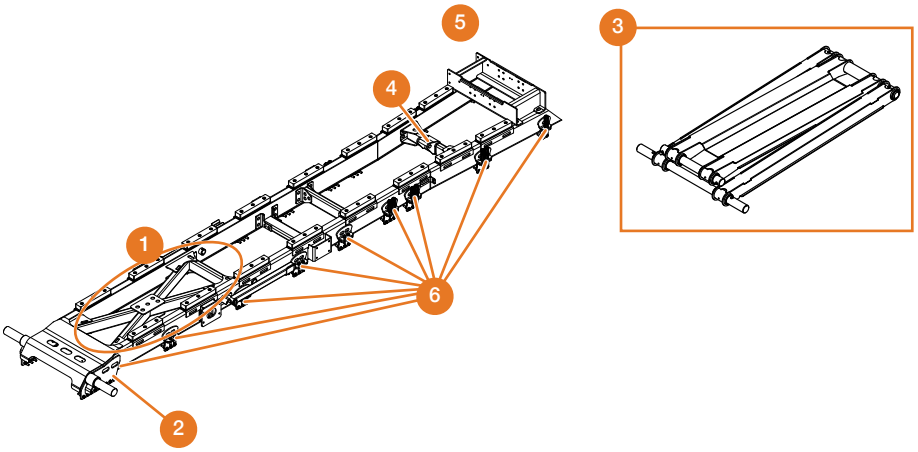
6.8. Subframe Welds

WARNING

- **Do not work under an unstable tipper body.**
- **Risk of crush injuries.**
- **Use the tilt support if the tipper body is tilted.**

The Chassis frame, Subframe and reinforcements work together to withstand the loads that may occur during operation.

Inspect the welds in each area below. Also check for possible misalignment. There should not be any cracks in the plates or the welds. If any deviations such as cracks or similar note down in what area t hey are observed, record the quantity and the length and take a picture of the crack itself and also the surrounding area of the structure.



a) Inspect the weld of the Rear Cross Member (Pos. 1).

b) Inspect the weld of the Rear Hinge Area as well as the Pivot Brackets (Pos. 2).

c) Inspect the welds of the Stabilizer assembly (Pos. 3).

d) Inspect the welds of the Hyfix Cross member and 2nd Cross member (Pos. 4).

e) Inspect the welds of the Cradle bracket (Pos. 5).

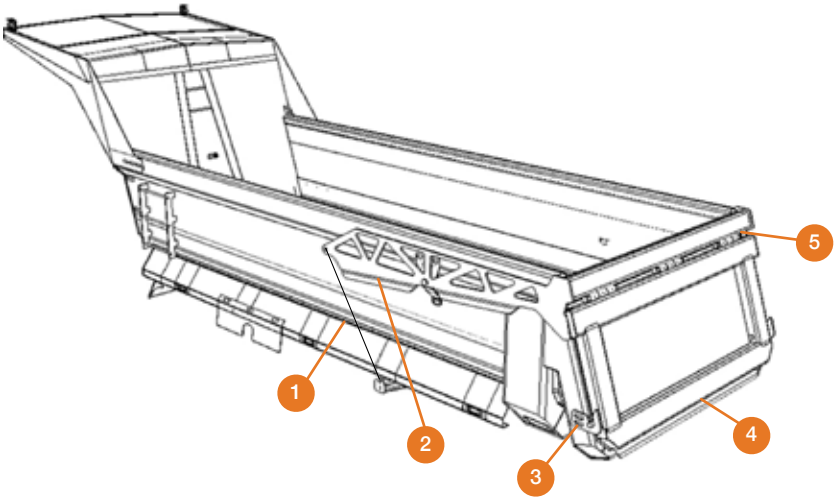
f) Inspect the welds of the attachment plates and attachment brackets (Pos. 6).

6.9. Tailgate and cable

WARNING	• **Do not work under an unstable tipper body.** • **Risk of crush injuries.** • **Use the tilt support if the tipper body is tilted.**

The Chassis frame, Subframe and reinforcements work together to withstand the loads that may occur during operation.

Inspect the welds in each area below. Also check for possible misalignment. There should not be any cracks in the plates or the welds. If any deviations such as cracks or similar note down in what area they are observed, record the quantity and the length and take a picture of the crack itself and also the surrounding area of the structure.



a) Inspect the cable length and attachments (Pos. 1).

b) Inspect the lifting arm. Straightness and damages (Pos. 2).

c) Inspect the locking hooks and pin (Pos. 3).

d) Inspect the welds of the tailgate. No gaps between tailgate and body (Pos. 4).

e) Inspect the welds of the attachment plates and attachment brackets (Pos. 5).

7. Hydraulic kit inspection with, service and maintenance checklist

Inspection of Hydraulic kit and related components should always be carried out according to supplier service and maintenance manuals. The below is an overview only of what needs to be done for most Hydraulic systems.

Keep all elements of the Hydraulic system clean and eliminate all leaks immediately. Do not clean the hydraulic system using steam, high pressure water or caustic chemicals. Do not make any modifications to the Hydraulic system. For hydraulic oil recommendations refer to document OIL-0011. If the document isn't available, please contact your nearest Hyva service partner or visit our website (www.hyva.com). Equivalent oils from other suppliers can be used.

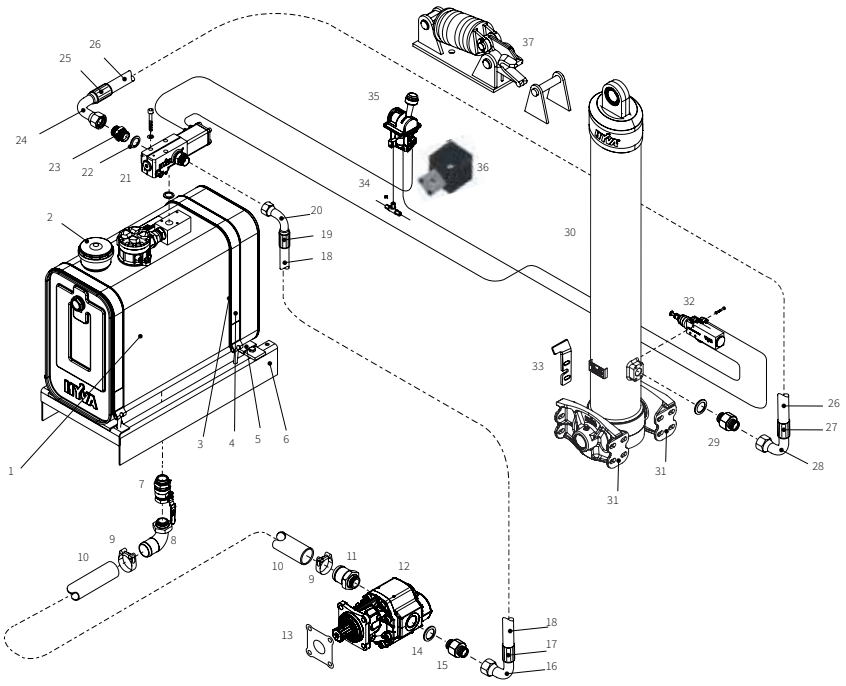
Keep all elements of the Pneumatic system clean and eliminate all leaks immediately. Do not clean the hydraulic system using steam, high pressure water or caustic chemicals. Do not make any modifications to the pneumatic system.

Maintenance Intervals	Ref.	Service Task	Status
Daily	6.1	Check air hoses: damages & leaks	
	6.2	Check knock-off: operation, damages & leaks	
	6.3	Check air control: operation, damages & leaks	
	6.4	Check cylinder (1): operation, damages & leaks	
	6.5	Check hydraulic hoses (2A, B, C): damages & leaks	
	6.6	Check Hydraulic valve (3): damages & leaks	
	6.7	Check Tank (4): damages & leaks	
	6.8	Check oil level in the oil tank. Oil level has to be in the middle of the spy eye or level indicator, while body is resting on the sub frame.	
	6.9	Grease chassis brackets (8) of cylinder	
	6.10	Grease piston eye on tipper body	
	6.11	Grease rear hinges of body (the right amount of grease has been added when the newly applied grease can be visually seen between the sleeves. Visually inspect to ensure the above).	
	6.12	Grease tail door mechanism and and hinges	
	6.13	Grease Hyfix body clamp	
	6.14	Grease Stabilizer pivot points	
Weekly	6.15	Clean outside of cylinder (1)	
	6.16	Check “leak indicator” hole of pump (5)	
	6.17	Check oil return filter (6)	
	6.18	Check air breather filter (7)	
	6.19	Check nut and bolt (torques)	
Every 2 months	6.20	If the hydraulic oil is dirty or contaminated, drain and clean the oil tank (and the hoses) and fill with new oil.	
	6.21	Change oil return filter	
	6.22	Change air breather filter	
	6.23	Change oil and make sure tank is clean	
Annually	6.21	Change oil return filter	
	6.22	Change air breather filter	

(1) DO NOT use a steam cleaner when cleaning hydraulics .When using pressurized cleaner, temperature should be below 40°C.

(2) Greasing for lubrication is only required regularly in greased bearings. Hyva maintenance free bearings require grease for easy installation and not for lubrication. Suitable types of grease are: Hyva packset grease, Molykote G-4500, Dinitrol Paste and Shell Ensys.

Please find below, detailed BOM list and Drawing of Hydraulic parts.

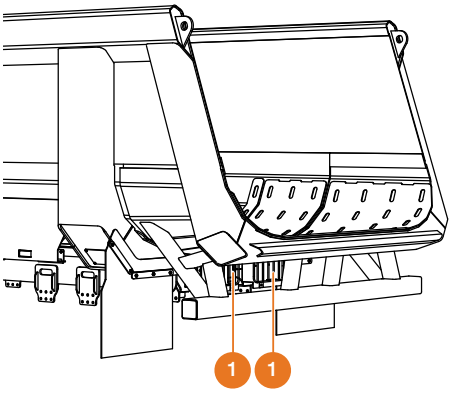


Pos.	Part no.	Description	Qty.
Oil tank parts consisting of:			
1	14016300	Oil tank cm-100 l/079 l-mp-rf	1
2	08102116	Filler/breather assembly complete	1
3	14020040	Rubber 1 175 x 40 mm	2
4	14020030	Strap 1 200 x 40 mm	2
5	14020070	Rubber cm tank support 141/162	2
6	14020090	Tank support 149 (286) strap mounted tank	1
7	14780981	Ball valve 1 ½" bspot+nut - 1 ½" bsp	1
8	14799050A	Hose pillar 90 1½" - lp28 + nut alu	1
Suction hose parts consist of:			
9	14796600	Hose clip for lp28 reinforced	2
10	14795120	Hose 1 3/4"-lp-28-02000	1
Pump parts consisting of:			
11	14799005A	Hose pillar 00 1¼" - lp28 alu	1
12	14562036	Gear pump 113l-bi-4h5-4p-20bsp20-250	1
13	14624850	Gasket for iso 4-h pump	1
14	01206874	Bonded seal 1¼"	1
15	01317959	Adaptor hp 00 1 1/4"bspotc x 3/4"bspotc	1
Hose parts - pump to valve			
16	14787850	Coupling hose 90-sw-hose 3/4"-3/4" bspit	1
17	14787800	Ferrule hose 3/4" hp hyva standard (2 sh)	1
18	14790001	Hose 3/4"-hp-12 roll of 31m 280 bar	2 m
19	14787800	Ferrule hose 3/4" hp hyva standard (2 sh)	1
20	14787860	Coupling hose 90-sw-hose 3/4"-1"bspit	1

Pos.	Part no.	Description	Qty.
Valve parts consisting of:			
21	14767125	Tip valve ht-tnk-1220-250-p1"	1
22	01313848	Bonded seal 1"	1
23	01222661	Adaptor hp - 3/4'' ''bspotc 3/4''	1
Hose parts - valve to cylinder:			
24	14787850	Coupling hose 90-sw-hose 3/4"-3/4" bspit	1
25	14787800	Ferrule hose 3/4" hp hyva standard (2 sh)	1
26	14790001	Hose 3/4"-hp-12 roll of 31m 280 bar	3.1 m
27	14787800	Ferrule hose 3/4" hp hyva standard (2sh)	1
28	14787850	Coupling hose 90-sw-hose 3/4"-3/4" bspit	1
Cylinder parts consisting of:			
29	14799080	Adaptor hp 00 1"bspotc x 3/4"bspotc	1
30	70136390	Fe a157-4-05105-011-k1599-hd	1
31	01506136	Chassis bracket 368-d60 hd-gr-t45 mach.	2
32	14700575	Knock-off valve pneumatic hd incl. Mk	1
33	75375015	Stop plate knock off mk2	1
Tip control parts consisitng of:			
34	14750119k	Air tube kit pto/valve ctrl - 6 mm/25 m	2
35	14750667h	Tip control-air-ts/lf	1
36	02119105	Support bracket tip control 25 mm handle	1
Body components parts consisitng of:			
37	08102855	Hyfix-set steel including bracket	1

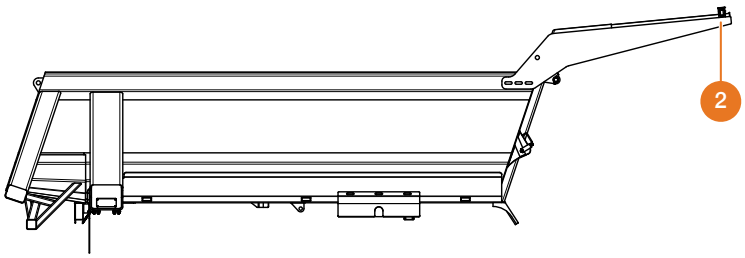
8. Lamp Inspection

8.1. Rear Lamps



a) Inspect the Rear Lamps for damage and verify that they are functioning (Pos. 1).

8.2. Side Marker Lamp



a) Inspect the Canopy Marker Lamps on both sides of the tipper body for damage and verify that they are functioning (Pos. 2).

9. Electrical Wiring Inspection

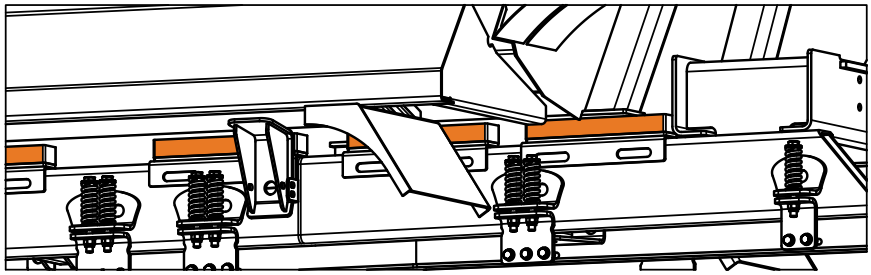
WARNING	• **Do not work under an unstable tipper body.** • **Risk of crush injuries.** • **Use the tilt support if the tipper body is tilted.**

a) Inspect the wiring to the Rear Lamps, Side Marker Lamps and Canopy Lamps for damage and verify that they are in position.

10. Protection Rubber pads

WARNING	• **Do not work under an unstable tipper body.** • **Risk of crush injuries.** • **Use the tilt support if the tipper body is tilted.**

Inspect the protective rubber pads between the sub frame and the tipper body on a weekly basis. If the rubber is compressed, deformed, cracked or otherwise damaged, the rubber pads needs to be replaced. Also if the rubber is damaged so that it looses its ability to absorb compression and regain its original shape the rubber needs to be replaced. All bolts needs to be in place to hold the wood firmly in place.



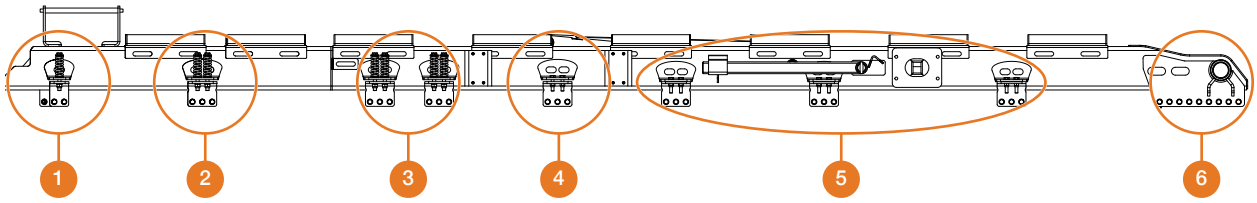
11. Bolt Inspection

11.1. Subframe attachment bolts

The attachment between the Subframe and the Chassis frame is designed to allow certain movement. The size of the movement depends on driving conditions, operating behavior as well as torsional rigidity of the subframe and the body. It is critical that the attachment bolts and springs are maintained on a weekly basis. This section describes the procedure to make sure that all bolts have required torque.

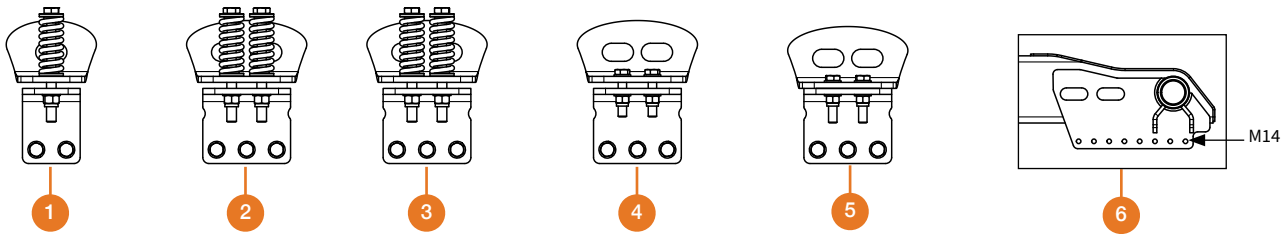
WARNING

- **Do not work under an unstable tipper body.**
- **Risk of crush injuries.**
- **Use the tilt support if the tipper body is tilted.**



a) This section describes to make sure that there are no bolts are missing or loose and bolts are having required torque or not.

b) Inspect the bolted joints between the subframe and chassis and make sure that no bolts are missing/ loose/ damaged and all the bolts are tightened as mentioned torque as per below images.



1) First Attachment bracket

Check the M14 bolt Torque and Spring Flexibility.

- Apply the Tourque for M14 bolt 135 Nm
- Tighten M16 Bolt and press the spring Fully together and loosen 15 mm. (Weekly basis)

2) Second Attachment bracket (Check the M14 bolt Torque and Spring Flexibility.

- Apply the Tourque for M14 bolt 135 Nm
- Tighten M16 Bolt and press the spring Fully together and loosen 10 mm. (Weekly basis)

3) Third Attachment bracket

Check the M14 bolt Torque and Spring Flexibility.

- Apply the Tourque for M14 bolt 135 Nm
- Tighten M16 Bolt and press the spring Fully together and loosen 5 mm. (Weekly basis)

4) Fourth Attachment bracket

Check the M14 bolt Torque and Spring Flexibility.

- Apply the Tourque for M14 bolt 135 Nm
- Tighten M16 Bolt and press the spring Fully together and loosen 5 mm. (Weekly basis)

5) Fifth Attachment bracket

Check the M14 bolt Torque and Spring Flexibility.

- Apply the Tourque for M14 bolt 135 Nm
- Tighten M16 Bolt and press the spring Fully together and loosen 5 mm. (Weekly basis)

6) Attachment plates

Check the M14 bolt Torque.

- Apply the Tourque for M16 bolt 270 Nm (Weekly basis)

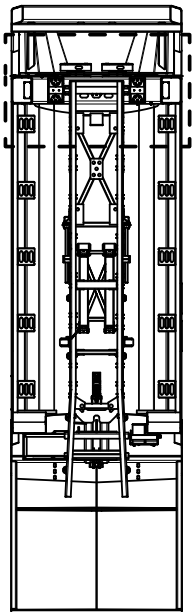
11.2. Pivot bracket bolts

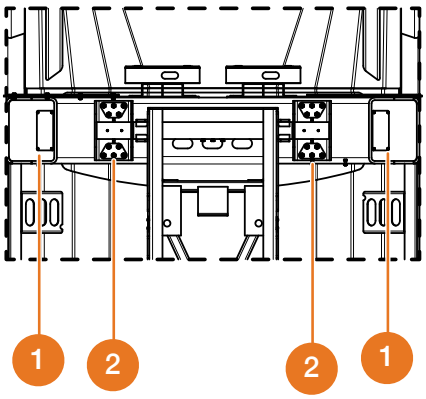
WARNING

- **Do not work under an unstable tipper body.**
- **Risk of crush injuries.**
- **Use the tilt support if the tipper body is tilted.**

NOTICE

- **Do not tighten the bolts between the Pivot Axle Hinge and Pivot Beam if they are tight.**
- **Risk of damage to bolt threads.**
- **Use hand to feel if the bolts are tight.**





a) Inspect the bolts on the Pivot Beam Lids on both sides of the tipper body for damage. Verify that no bolts are missing (Pos 1).

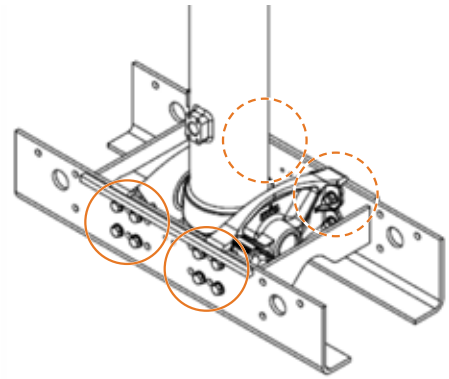
b) Inspect the bolts between the Pivot Beam and the Pivot Axle Hinge for damage (Pos. 2). Verify that no bolts are missing.

c) Use a hand to feel if the bolts between the Pivot Beam and Pivot Axle need to be tightened. If a bolt needs to be tightened, use a torque wrench to apply a force of 330 Nm to the bolt f rom the outside of the Pivot Beam and use a wrench on the inside of the Pivot Beam to hold the bolt back.

11.3. Cylinder Cradle Mounting Brackets Bolts

WARNING

- **Do not work under an unstable tipper body.**
- **Risk of crush injuries.**
- **Use the tilt support if the tipper body is tilted.**



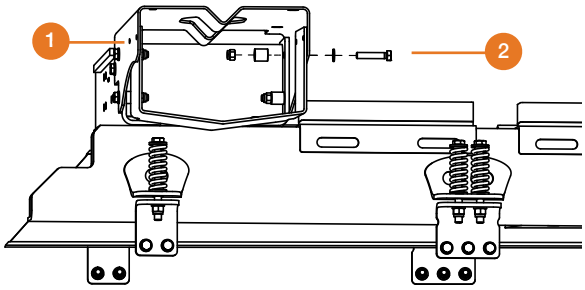
a) Inspect the bolts (16 units) on the Cylinder Cradle Mounting Bracket for damage. Verify that no bolts are missing.

b) If a bolt needs to be tightened, use a torque wrench to apply a force of 225 Nm to the bolt from the outside of the Cradle bracket and use a wrench on the inside to hold the bolt back.

11.4. Hydraulic Tank craddle bolts

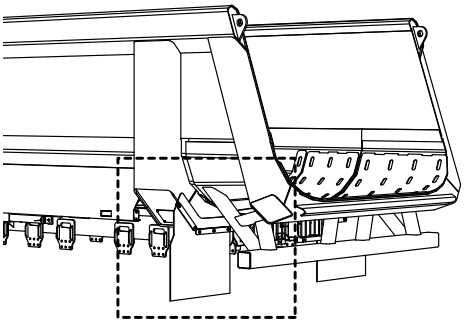
WARNING

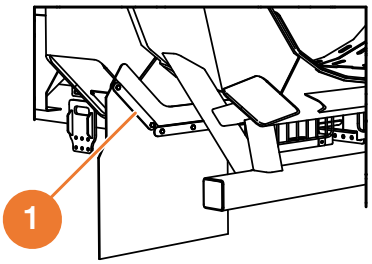
- **Do not work under an unstable tipper body.**
- **Risk of crush injuries.**
- **Use the tilt support if the tipper body is tilted.**



Inspect the bolts (Pos 1, 2) (3+3 nuts and bolts) on the Cradle bracket. If a bolt needs to be tightened, use a torque wrench to apply a torque to 192 ± 5 Nm on the M14 (10.9) bolt from the outside of the Cradle bracket and use a wrench on the inside to hold the bolt back. (weekly basis)

11.5. Mudflap Plate Bolts





a) Inspect the Mudflap Plate bolts for damage (Pos. 1). Verify that no bolts are missing and that they are tightened.

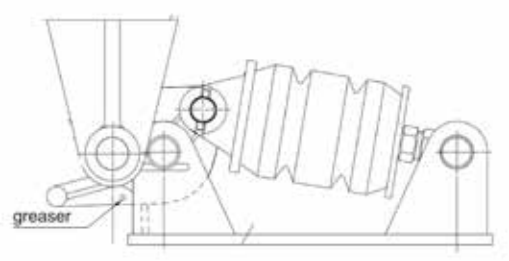
12. Lubrication

This chapter describes where the tipper body and subframe requires lubrication.

Place the nozzle of the grease gun at the grease nipple. Apply the specified grease or similar.
The needed amount of grease depends on the interval since the last lubrication.
Use Shell Gadus S3 V1000A or similar as lubrication.

12.1. Mechanical Body clamp lubrication

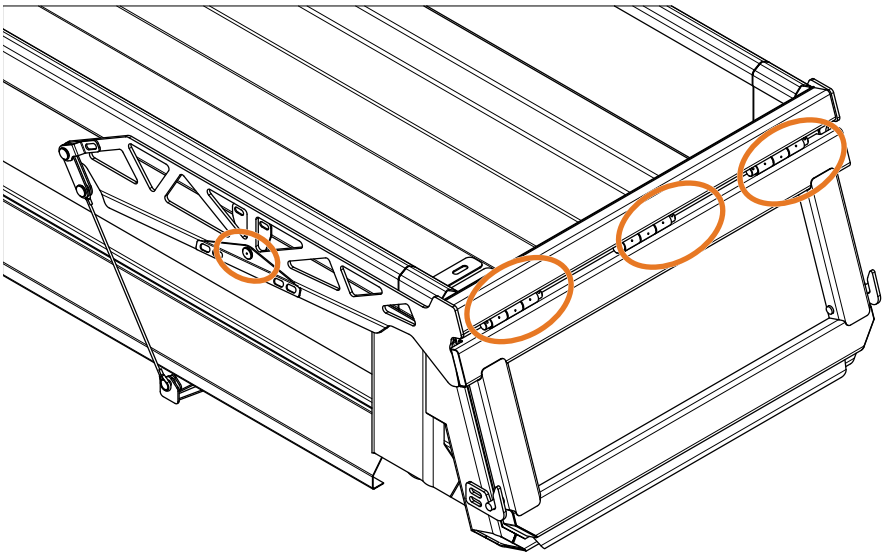
WARNING	• **Do not work under an unstable tipper body.** • **Risk of crush injuries.** • **Use the tilt support if the tipper body is tilted.**



a) Grease Hyfix body clamp as mentioned in the below image with circle.

b) Check condition of power block and compression rod.

12.2. Tail gate arm lubrication and hinge shaft



a) Grease Tail gate hinge mechanism on nine positions, in the image marked with circles.

b) Grease the tailgate arm hinge on both right and left hand side of the body, marked with circles in the image

13. Liner plates

Inspect the liner plates on a weekly basis for damage and excessive wear. The liners is placed in the areas of the tipper with the highest wear rate. If the plates is starting to peal off or detaching from the welds then order new plates and plan for a scheduled relining maintenance. If the plates is worn down, missing or partly worn away then replace the liners as soon as possible. The parts can be ordered thru either SSAB HPE Team or xmor.co.za according to the part numbers specified in the figures below.

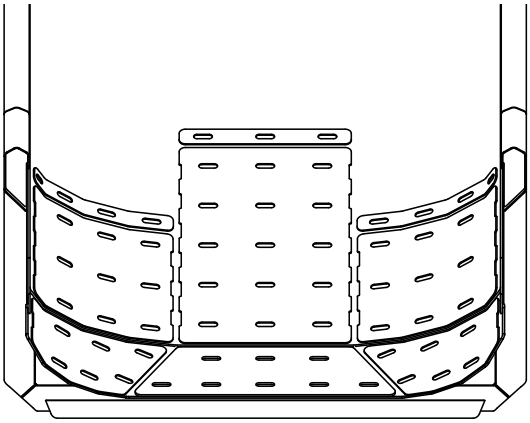
13.1. Types of liner package

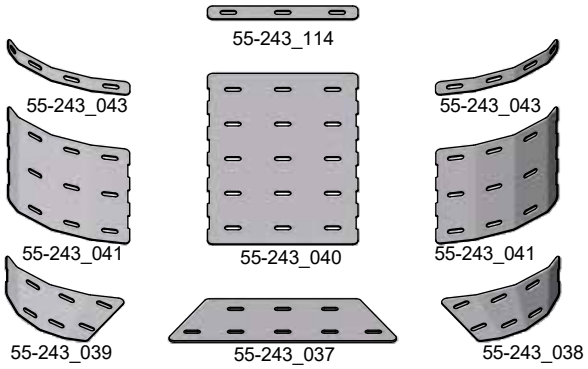
There is three types of liner package for the XMOR tipper body.

1. Rear liner package (Standard)
   This is the standard package delivered on the body. The reason for this package is to prevent the excessive wear that is normal in the rear end due to sliding material before and over the scow.

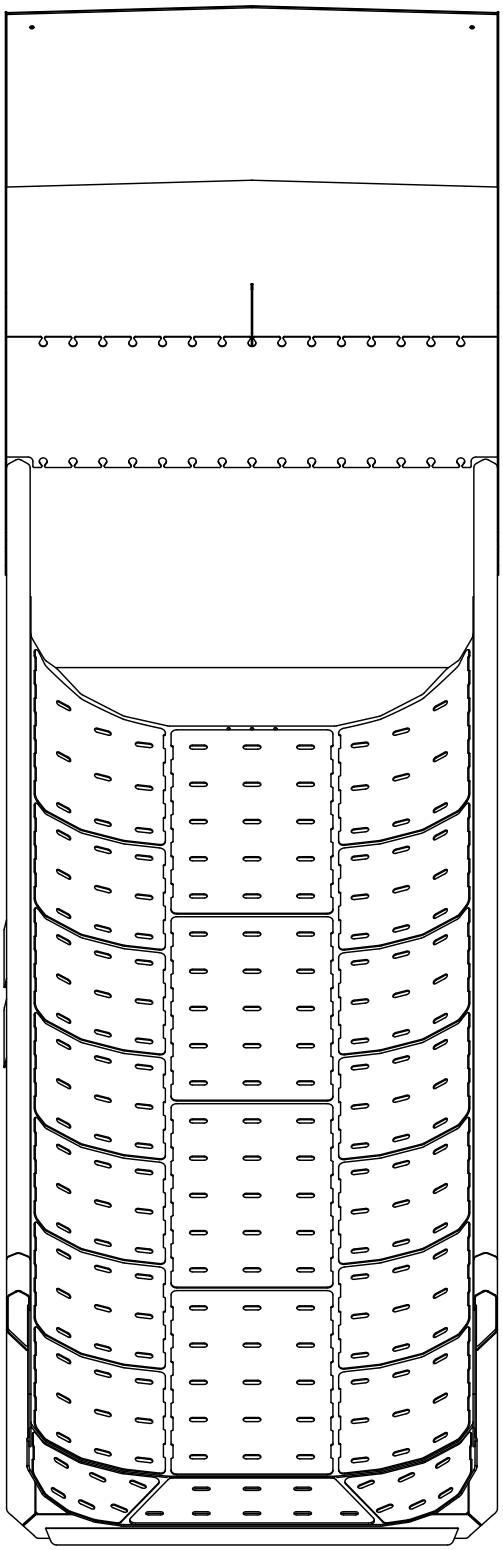
2. Heavy duty full liner package (Full kit)
   The full liner package is used when very abrasive material and larger fraction size is handled.

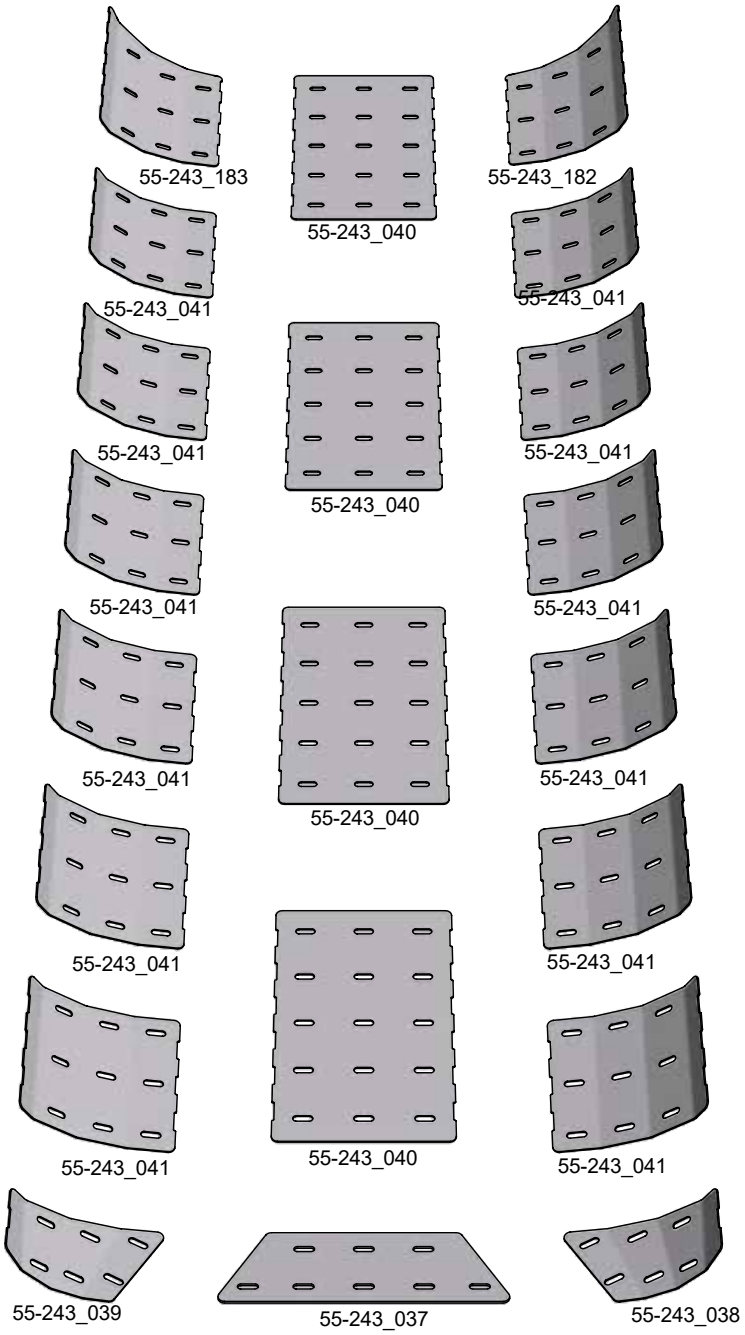
13.1.1 Standard liner package





13.1.2 Heavy duty liner package





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HIGH PRODUCTIVITY EQUIPMENT

With the objective to change the mind-set of the earth-moving industry, XMOR™ provide premium products with unique and innovative designs to revolutionize excavation, loading and hauling. XMOR™ delivers the most productive products in the mining and earth moving industry that take full advantage of the latest Hardox materials. The combination of using the world's best steels, with optimized design and the highest quality production processes, makes it possible to reduce weight and offer larger products with higher payloads than their counterparts; increasing the productivity of your assets and reducing your cost per ton. In short, with XMOR you can expect more in less time.

XMOR™ buckets and bodies can be fitted to virtually any OEM equipment, which means you can swap out existing buckets and bodies and start saving immediately. Or if buying new equipment you can in many cases go down one machine size and still produce as much as earlier. XMOR™ products are made available globally by carefully selected and highly qualified licensed partners with extensive experience.

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