TECHNICAL PROCEDURE

For

Servicing of Lift Axle Suspension System For Rigid Truck LPT 3118 & LPT 3718 Pusher / Prima 3123.T & Prima 3723.T

Information provided in this bulletin Is accurate as on the date of publishing .Changes would have been made in the product after the date of this publication. Please get in touch with us for any updates

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TATA HENDRICKSON

Technical Procedure
Subject : Service Instructions
LIT No. : Pusher Axle Suspension
Release : 2016 | Revision : 0

CONTENT

A. Introduction

This publication is to acquaint and assist maintenance personnel in preventive maintenance and rebuild of the PARALIFT suspension system.

THSL reserves the right to make changes and improvements to its products and manuals at any time. Contact THSL Tech Services at +91 2135 670 670 or service@tacohendrickson.com for information on the latest version of this manual.

NOTE — Use only genuine THSL parts for servicing this suspension system. Most THSL parts can be identified by the Hendrickson trademark.

IMPORTANT SAFETY NOTICE

Proper maintenance, service and repair is important to the reliable operation of the suspension. The procedures recommended by THSL and described in this technical publication are methods of performing such maintenance, service and repair.

The warnings and cautions should be read carefully to help prevent personal injury and to assure that proper methods are used. Improper servicing may damage the vehicle, cause personal injury, render it unsafe in operation, or void manufacturer's warranty.

Failure to follow the safety precautions in this manual can result in personal injury and/or property damage. Carefully read, understand and follow all safety related information within this publication and on all decals.

EXPLANATION OF SIGNAL WORDS

Hazard "Signal Words" (Danger-Warning-Caution) appear in various locations throughout this publication. Information accented by one of these signal words must be observed to help minimize the risk of personal injury to service personnel, or possibility of improper service methods which may damage the vehicle or render it unsafe. Additional Notes or Service Hints are utilized to emphasize areas of procedural importance and provide suggestions for ease of repair. The following definitions indicate the use of these signal words as they appear throughout the publication.

DANGER — INDICATES IMMEDIATE HAZARDS WHICH WILL RESULT IN SEVERE PERSONAL INJURY OR DEATH.

WARNING — INDICATES HAZARDS OR UNSAFE PRACTICES WHICH COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH.

CAUTION — INDICATES HAZARDS OR UNSAFE PRACTICES WHICH COULD RESULT IN DAMAGE TO MACHINE OR MINOR PERSONAL INJURY.

NOTE — An operating procedure, practice condition, etc. which is essential to emphasize.

SERVICE HINT — A helpful suggestion which will make the servicing being performed a little easier and/or faster.

WARNINGS AND CAUTIONS

There are various warnings and cautions that should be read carefully to minimize the risk of personal injury and to assure that proper methods are used. Improper servicing may damage the vehicle or render it unsafe in operation.

WARNING

LOAD CAPACITY

THSL REMINDS USERS TO ADHERE TO THE PUBLISHED CAPACITY RATINGS FOR THE SUSPENSIONS. ADD-ON AXLE ATTACHMENTS AND OTHER LOAD TRANSFERRING DEVICES CAN INCREASE THE SUSPENSION LOAD ABOVE THE RATED AND APPROVED CAPACITIES WHICH COULD RESULT IN FAILURE AND LOSS OF VEHICLE CONTROL, POSSIBLY CAUSING PERSONAL INJURY OR PROPERTY DAMAGE.

WARNING

MODIFYING COMPONENTS

DO NOT MODIFY OR REWORK PARTS. DO NOT USE SUBSTITUTE PARTS OF THE SUSPENSION. USE OF A MODIFIED OR REPLACEMENT PARTS NOT AUTHORIZED BY THSL MAY NOT MEET THSL SPECIFICATIONS, AND CAN RESULT IN FAILURE OF THE PART, LOSS OF VEHICLE CONTROL, AND POSSIBLE PERSONAL INJURY OR PROPERTY DAMAGE. USE ONLY THSL AUTHORIZED REPLACEMENT PARTS DO NOT MODIFY PARTS WITHOUT AUTHORIZATION FROM THSL.

WARNING

TORCH / WELDING

DO NOT USE A CUTTING TORCH TO REMOVE ANY ATTACHING FASTENERS. THE USE OF HEAT ON SUSPENSION COMPONENTS WILL ADVERSELY AFFECT THE STRENGTH OF THESE PARTS. A COMPONENT DAMAGED IN THIS MANNER CAN RESULT IN THE LOSS OF VEHICLE CONTROL AND POSSIBLE PERSONAL INJURY OR PROPERTY DAMAGE.

CAUTION

PROCEDURES AND TOOLS

A MECHANIC USING A SERVICE PROCEDURE OR TOOL WHICH HAS NOT BEEN RECOMMENDED BY THSL MUST FIRST SATISFY HIMSELF THAT NEITHER HIS SAFETY NOR THE VEHICLE'S SAFETY WILL BE JEOPARDIZED BY THE METHOD OR TOOL SELECTED. INDIVIDUALS DEVIATING IN ANY MANNER FROM THE INSTRUCTIONS PROVIDED ASSUME ALL RISKS OF CONSEQUENTIAL PERSONAL INJURY OR DAMAGE TO EQUIPMENT INVOLVED.

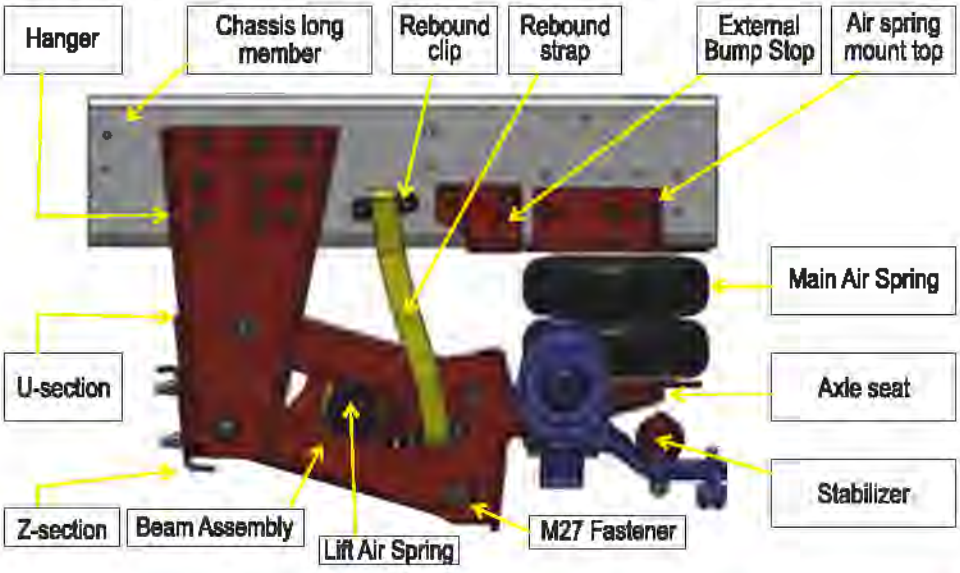
WARNING

PERSONNEL PROTECTIVE EQUIPMENT

ALWAYS WEAR PROPER EYE PROTECTION AND OTHER REQUIRED PERSONAL PROTECTIVE EQUIPMENT TO HELP PREVENT PERSONAL INJURY WHEN YOU PERFORM VEHICLE MAINTENANCE, REPAIR OR SERVICE.

Know the system Para lift Suspension -

Fig 1.1: Paralift Suspension System PH-3 Suitable for LPT 3118 & LPT 3718 Pusher / Prima 3123.T & Prime 3723.T



B - Recommended Maintenance Schedule

Table 2.1

Sl	Component	Parameter to be checked	Interval	Activity
1	Main Air Spring	Main Air Spring Height T250 ± 25mm (in Lift Axle Deployed condition)	During regular service interval	Refer TML Operator Service Book for more details
		Leakage	Regularly	Check for air leakage
2	Lift Air Spring	Leakage	Regularly	Check for leakage
3	Steering Stabilizer	Leakage	Regularly	• Check for leakage / structural damage • Check wheel cut angles and position of wheel cut stopper as mentioned in TML Vehicle Manual
4	Rebound strap	Broken	Regularly	Replace it if found cut or damaged
5	Wear Pad	Damage / wear	As required	• Replace it, if found damaged / worn out. • Replace whenever adjacent parts like bush being replaced.
6	Beam Bushes	Damage / wear	Check whenever Beams are disassembled for repair or service.	Replace if found damaged or worn out
7	M27 Fastener	Torque Value	First service at 40000 km and the next every service interval of Truck	Verify torque and if necessary Re-torque by applying specified torque. *Refer Section N for Torque values
8	Pneumatic System	Functioning	During regular service interval	a. In Fully Laden condition (at specified GVW) lift axle should be lowered b. Lift axle should be lifted automatically when the reverse gear is engaged c. Lift Axle should be lowered automatically when the ignition is switched off
9	External Bump Stop	Gap measurement	During regular service interval	*Refer Section - M for details

Note:

1. Stop & turn off the vehicle before servicing lift axle
2. Do avail the services of workshop authorized by OEM for servicing pneumatic circuits. Component damage, loss of vehicle control might occur if there is any incorrect correction or alteration.
3. Use only TATA / THSL Genuine parts for lift axle components/parts/sub-assemblies/Fastener

C - DOs and DON'Ts for driver / operator with lift axle fitted vehicle.

Do's and Don't's

Table 3.1

Sr. No.	Do's and Dont's	Photo
1	Ensure air supply to air spring is disconnected while working on air spring or related components. ***Sudden release of high pressure air can lead to body injuries.***	
2	While working on structural components involving high torques, ensure that all personnel are at safe distance and torque wrench grip is firm. ***Torque wrench slippage could cause fatal injury.***	
3	Allow sufficient clearance around the air spring else, air spring would weaken if metal parts continuously rub with it. ***Weak air spring would fail soon.***	
4	Use only THSL or TML supplied components/parts/ subassemblies/ fasteners for replacements. Substandard fasteners cannot retain torque for long and work loose. ***Loose bolts make holes oblong and lead to consequential damages***	
5	Use only THSL or TML supplied components / parts ***Spurious parts may fail instantly during installation and lead to consequential damages***	
6	Suspension should be greased regularly as per the recommended maintenance schedule. ***Stub axle cannot move freely around king pin due to less or no grease and thus stabilizer can fail prematurely.***	
7	Air springs and bushes should be protected from exposure to chemicals. They should be covered properly while other works are in progress ***Such exposure would reduce life of air spring and bushes***	 

WARNING

WARNING

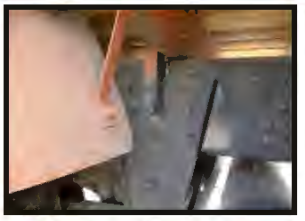
CAUTION

CAUTION

CAUTION

CAUTION

Do's and Don't's

Sr. No.	Do's and Dont's	Photo
8	Do not use damaged or deflated tyre on the axle. ***It leads to premature failure of main air spring due to over extension***	
9	Don't alter vehicle height by adding extra leaves/removing leaves from suspension or by any other means. ***It leads to early failure of main air spring due to over extension.***	
10	Don't tamper structural components by drilling holes or any structural alteration. ***Alteration would weaken the structural parts and can lead to premature failure***	
11	Do not add spacer below axle seat. ***Spacer addition would damage Stabilizer and leads to premature failure***	 
12	Don't alter the pneumatic circuit or valves provided by OEM. ***Such changes leads to malfunctioning of lifting system and would damage the components.***	
13	Don't alter the Electrical circuit of solenoid valve provided by OEM. Do not shift the solenoid valve into the driver's cabin for deploying the system when needed. ***Lowering the axle while vehicle is in motion would damage the components and can be dangerous at times.***	 
14	Axle should be lifted as soon as reverse gear is engaged. Vehicle should be driven in reverse direction only after the axle is lifted completely. ***Else stabilizer would fail prematurely.***	

CAUTION

CAUTION

CAUTION

CAUTION

CAUTION

CAUTION

D - General & Special Tools required

General Tools :-

Table 4.1

S. No	Fastener size	Spanner & Socket Size	Torque Values
1	M10	No. 17	20Nm
2	M12	No. 19	40Nm
3	M16	No. 24	250Nm
4	M18	No. 27	280Nm
5	M20X1.5	No. 30	60Nm
6	M20X2.5	No. 30	370Nm
7	M27	No. 41	1200Nm

Table 4.2

Sl	Tools Type	Size / No.
1	Open spanner size	17, 19, 20, 22, 24, 27, 30, 32, 34, 37, 41
2	Ring spanner size	17, 19, 20, 22, 24, 27, 30, 32, 34, 37, 41
3	Socket size	17, 19, 20, 22, 24, 27, 30, 32, 34, 37, 41 (1" sqdr socket)
4	Deep socket size	17, 19, 20, 22, 24, 27, 30, 32, 34, 37, 41 (1" sqdr socket)
5	Extension for socket	5" long and 10" long
6	Connector	1" (F) x 1" (M) connector
7	Plier	Combination plier
8	Hammer	Ball pin hammer
9	Mallet	Standard mallet
10	Jack	Hydraulic Jack of capacity up to 20T
11	Air pipe hose	Air Pipe hose suitable for pneumatic nut runner
12	Pneumatic runner	Pneumatic Nut runner
13	Torque wrench	50Nm, 275Nm, 370Nm, 550Nm, 940Nm, 1200Nm

Special Tools :

Table 4.3

Sl	Description	Remarks
1	Stabilizer Compress Fixture	Stabilizer assembly on axle - Refer Below
2	Loctite 270	Liquid Loctite for Re tightening of M27 Pivot bolts
3	Pressure Gauge with Connector	Main Air spring Pressure Measurement

Details of Special Tools

1. Stabillzer compressor fixture -

Install stabilizer inside the special tool, this helps to fit the stabilizer in a safer way.

Fig. 4.1: Stabilizer compressor fixture

Fig. 4.2: Stabilizer fitted into the fixture

2. Pressure Gauge with Connector -

Main Air Spring Pressure measurement

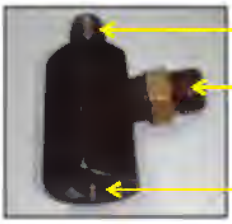


Fig. 4.3:
Adopter Female Size - 14 mm
Adopter Male size - 14 mm

Fig. 4.4: Air Pressure Gauge

STEP 1

Remove air Connection of Main Air Spring & Insert Adapter in its place

Fig. 4.5

Fig. 4.6

STEP 2

Fit the main air spring original male connector inside adapter

Fig. 4.7

Fig. 4.8

STEP 3

Connect the pressure gauge

Fig. 4.9

STEP 4

The pressure in main air spring must be 5.6 ± 0.2 bar

Fig. 4.10

E - Main Air Spring Assembly Procedure

Preparation :-

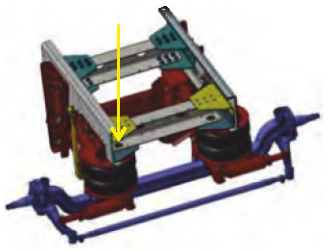
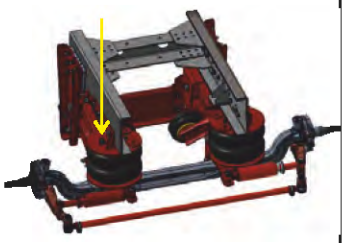
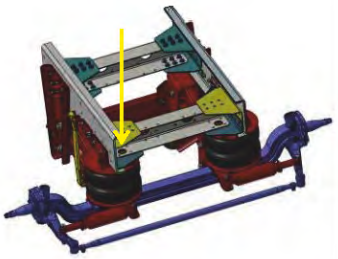
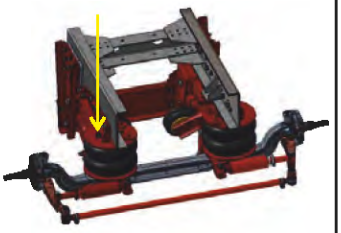
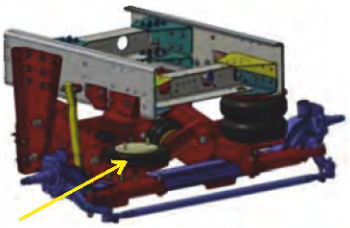
- Park the vehicle on pit/ ramp/ Plain Surface.
- Apply parking brakes.
- Remove air completely from the air tank & air springs.
- Ensure Genuine Fasteners are not used more than 3 times otherwise replace fasteners with new Genuine Fasteners.
- Ensure lift axle should be in deployed position

General Instruction :-

- Ensure that chamfered side of washer is towards Nut (or bolt) and flat side rests on the component face.
- Ensure that flat side of Nut rests on washer.
- Ensure specific instructions to be followed for truck and prima segment as below

Table 5.1

E. Removal of Main Air Spring

Sl	Activity	LPT 3118 (Ph-3) & 3718 Pusher	Prima 3123.T & 3723.T
E1	Removal of Main Spring Air connection		
E2a	Remove mounting Flange Hex Head Nuts on Main air spring		
E2b	Remove HD M10 bolts at the axle seat		

Removal of Main Air Spring

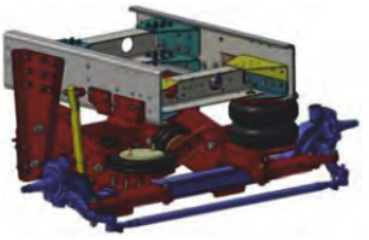
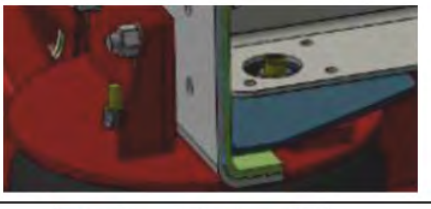
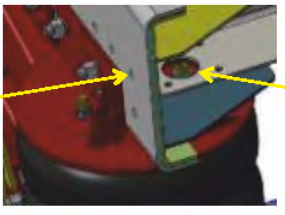
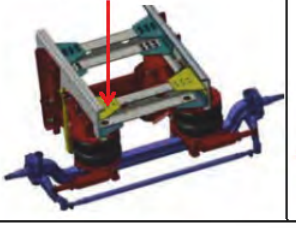
Sl	Activity	LPT 3118 (Ph-3) & 3718 Pusher	Prima 3123.T & 3723.T
E2c	Press the Main air Spring by hand to remove stud from Upper Air spring mounting plate and remove it.		

Table 5.2

E3. Assemble New Main Air Spring			
E3a	Press the air spring, fit between air spring mounting and axle seat top plate.		
E3b	Insert Air spring studs in upper air spring mounting plate holes		
E3c	Insert M20 and M12 nut and torque it		
E3d	Align Holes of Main Air Spring with axle seat, to insert M10 flange head bolt		
E3e	Tighten the M10 flange head bolt	Please avoid using pneumatic nut runner while tightening the air spring M10 flange bolts as it will lead to over tightening of the bolts.	
E4	Pneumatic Connection to Main Air Spring	LPT 3118 (Ph-3) & 3718 Pusher 	Prima 3123.T & 3723.T 

Note:
1) Follow similar Procedure for the Main air spring on the other side.
2) Please use preset torque wrenches for tightening.
3) For Fastener Torque values refer Section - N.

F - Lift Air Spring Assembly Procedure

Main Instruction:-

- Park the vehicle on pit/ramp/Plain Surface.
- Apply parking brakes.
- Remove air completely from the air tank & air springs.
- Ensure Genuine Fasteners are not used more than 3 times otherwise replace fasteners with new Genuine Fasteners.

General Instruction:-

- Ensure that chamfered side of washer is towards Nut (or bolt) and flat side rests on the component face.
- Ensure that flat side of Nut rests on washer.

STEP - F1. Remove Air Connection from Lift Air Spring

Fig. 6.1

STEP - F2. Remove mounting nuts on Lift Air Spring

Fig. 6.2

STEP - F3. Remove old lift air spring

- Press the lift air spring to remove stud from beam assembly and remove it.

Fig. 6.3

STEP - F4. Assemble New Lift air spring

- Press the new air spring & insert between beam arms

Fig. 6.4

STEP - F5. Tight mounting & air connection Nuts

- Insert M10 flange Bolt sand M20 Flange Hex nut.
- For Fastener Torque values refer Section - N.

Fig. 6.5

Fig. 6.6

STEP - F6. Air Connection to Lift Air Spring

Fig. 6.7

Note:

- Similar Procedure to be followed for the Lift air spring on the other side.
- For Fastener Torque values refer Section - N.

G - Rebound Strap Service Procedure

Main Instruction:-

- Park the vehicle on pit / ramp / Plain surface.
- Apply parking brakes.
- Remove air completely from the air tank & air springs.
- Ensure genuine fasteners are not used more than 3 times otherwise replace fasteners with new genuine fasteners
- Place jack under the Beam axle, to the side where the replacement of rebound strap to be carried out.

General Instruction:-

- Ensure that chamfered side of washer is towards Nut (or bolt) and flat side rests on the component face.
- Ensure that flat side of Nut rests on washer.

STEP - G1. Remove Rebound Clip on Axle Seat and Chassis

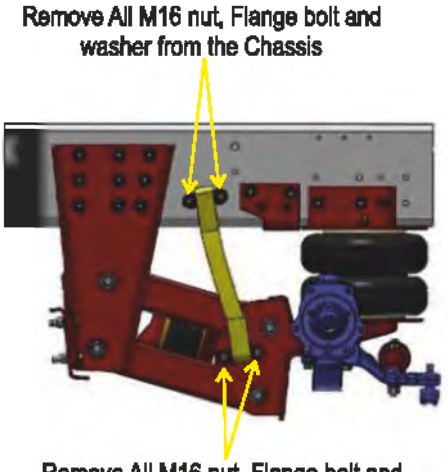


Fig. 7.1

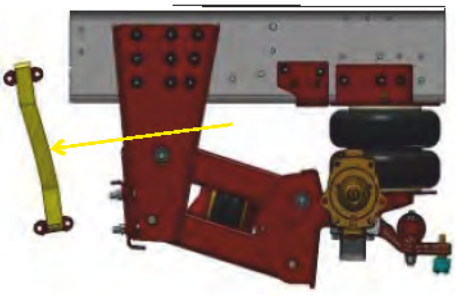


Fig. 7.2

STEP - G2. Remove Rebound Clip from Rebound Strap

Remove both Rebound Clips from Rebound Strap and Replace the Rebound Strap with Genuine Rebound strap.

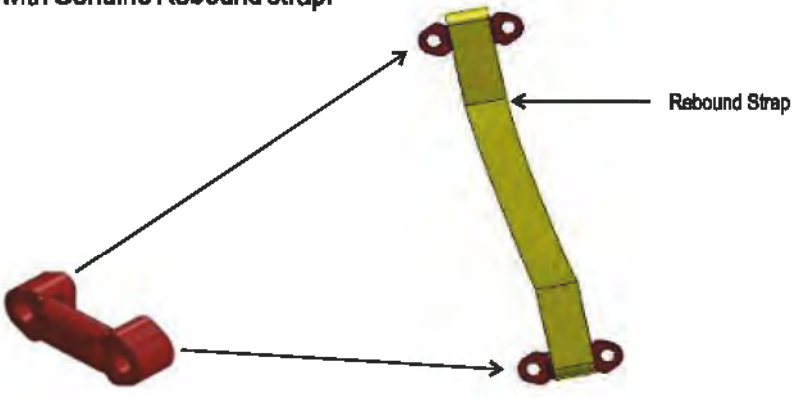


Fig. 7.4

Fig. 7.3

STEP - G3 Fit Rebound Clips on Chassis and Axle Seat

Visually match all Rebound Clip holes with frame holes and Axle Seat holes.

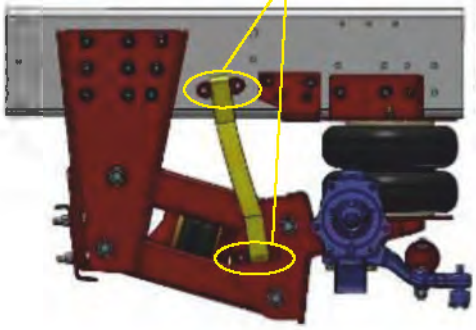


Fig. 7.5

Tighten M16 nuts

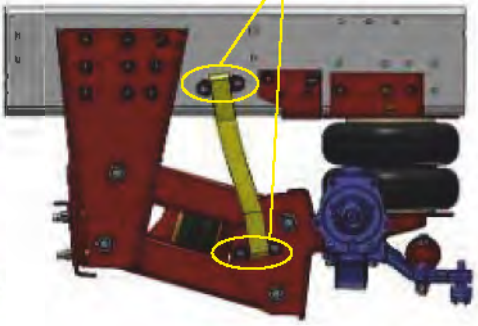


Fig. 7.6

Note :

- Similar Procedure for other side Rebound Straps
- For Fastener Torque values refer Section - N.

H - Wear Pad Service Procedure

Images of Wear Pad Wear / Missing in field

Fig. 8.1 - Correct (Wear Pad Visible)

Fig. 8.2 - Incorrect (Wear Pad Missing)

Main Instruction:-

- Park the vehicle on pit/ramp/Plain Surface.
- Apply parking brakes.
- Remove air completely from the air tank & air springs.
- Ensure Genuine Fasteners are not used more than 3 times otherwise replace fasteners with new Genuine Fasters.

General Instruction:-

- Ensure that chamfered side of washer is towards Nut (or bolt) and flat side rests on the component face.
- Ensure that flat side of Nut rests on washer.

STEP - H1a. Remove air connection from Lift Air Spring

Fig. 8.3

STEP - H1b. Remove air connection from Main Air Spring

LPT 3118 & 3718 Pusher

Fig. 8.4

Remove air connection

Prima 3123.T & 3723.T

Fig. 8.5

STEP - H1c. Remove mounting nut and bolts on Lift Air Spring

Remove mounting nut and bolts on lift air spring

Fig. 8.6

STEP - H2. Loosen Z section from Hanger

Ensure applying of rigid stand beneath axle such that the axle load will be taken by the stands

Loosen All M16 flange Head Bolt, nut

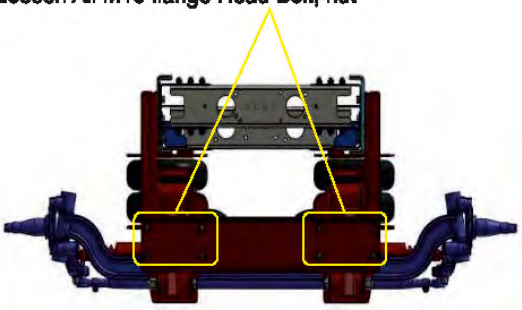


Fig. 8.7

STEP - H3. Remove Bottom Beam Assembly and Wear Pad

- Remove both side M27 Hex Head Bolt, Nut and washer
- Remove bottom beam assembly with old wear pads.

Remove both side M27 Hex Head Bolt, Nut and washer

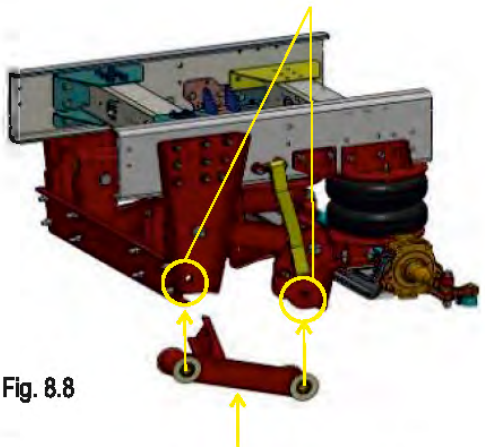


Fig. 8.8

Remove bottom beam assembly and old wear pad

STEP - H4. Remove Top Beam Assembly and Wear Pad

- Remove both side M27 Hex Head Bolt, Nut and washer
- Remove M16 Hex Head Bolt, Nut and washer and dis assemble the Rebound clip
- Remove old top Beam assembly with old wear pads

1) Remove both side M27 Hex Head Bolt, Nut and washer

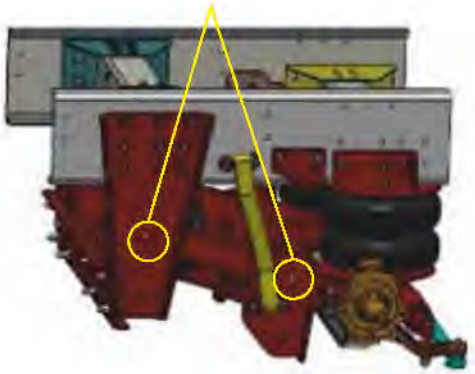
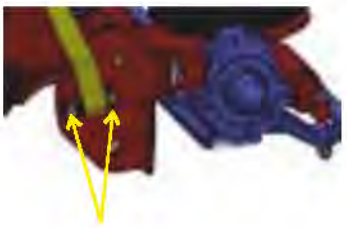


Fig. 8.9



2) Remove M16 Bolt, Nut and washer and dis assemble the Rebound clip

Fig. 8.10

3) Remove top Beam assembly and old wear pad

Fig. 8.11

STEP - H5a. Fit Top Beam Assembly with New Wear Pad

First Assemble Top Beam assembly then Bottom beam assembly

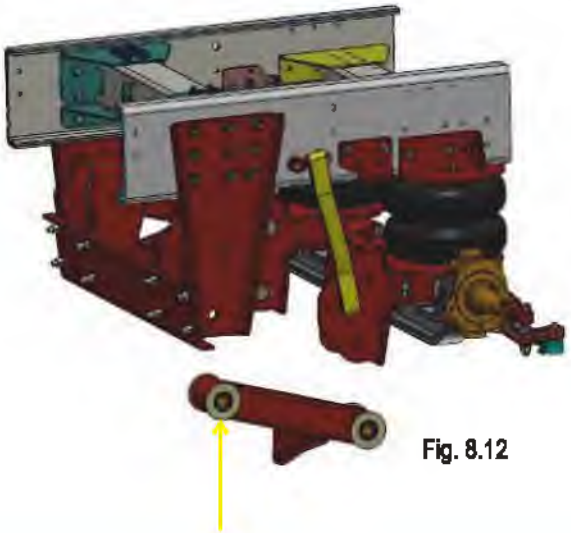


Fig. 8.12

Put Top Beam Assembly with new wear pad

STEP - H5b. Tight Nuts, Bolt and Washer

- Apply Loctite 270 (i.e. liquid Loctite 2-3 drops) to the threads of M27 bolts before tightening.
- Assemble the Rebound clip and tighten the M16 bolts, nuts and Washer.
- For Fastener Torque values refer Section - N.

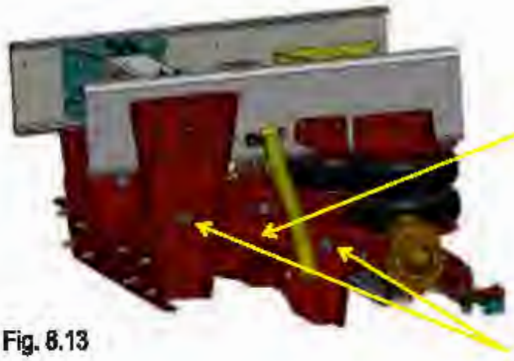


Fig. 8.13

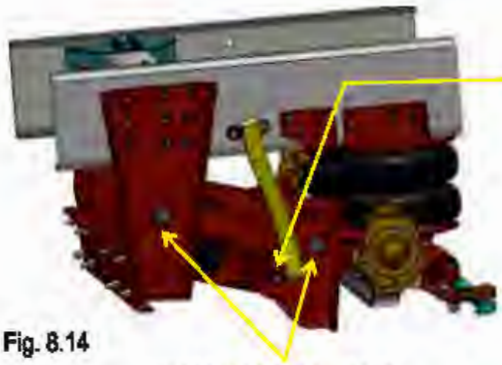


Fig. 8.14

STEP - H6a. Fit Bottom Beam Assembly with New Wear Pad

Fig. 8.15

STEP - H6b. Tighten M27 Nuts, Bolt and Washer

- Apply Loctite 270 (i.e. liquid Loctite 2 to 3drops) to the threads of M27 bolts before tightening.
- For Fastener Torque values refer Section - N. (For latest updates, refer latest released service circular)

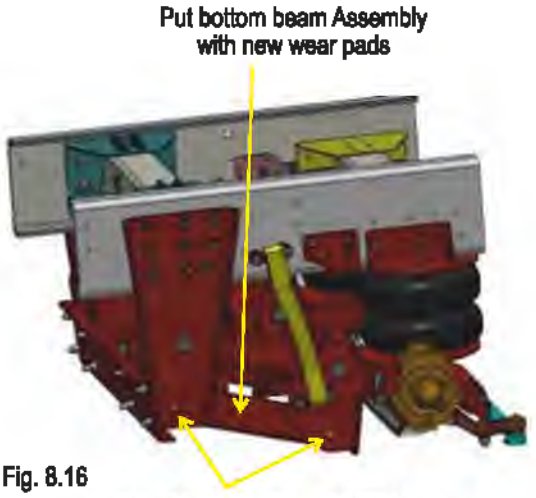


Fig. 8.16

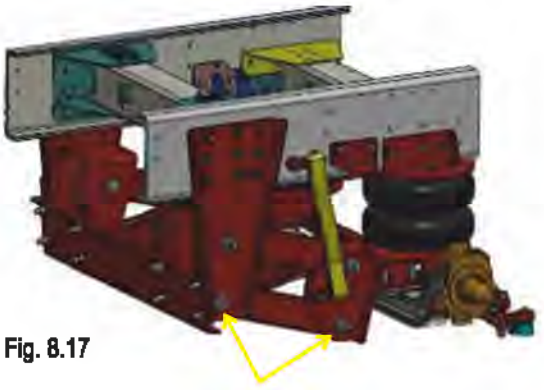


Fig. 8.17

STEP H7. Ensure the Placement of Wear Pad

Fig. 8.18

Fig. 8.19

STEP H8. Assemble Lift Air Spring

- Tighten M10 Flange HD bolts and M20 Flange
- For Fastener Torque values refer Section - N.
  (For latest updates, refer latest released service circular)

Press the lift air spring & insert Between beam arms

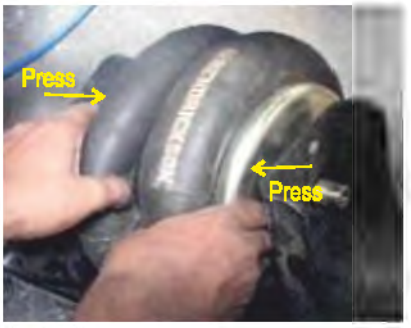


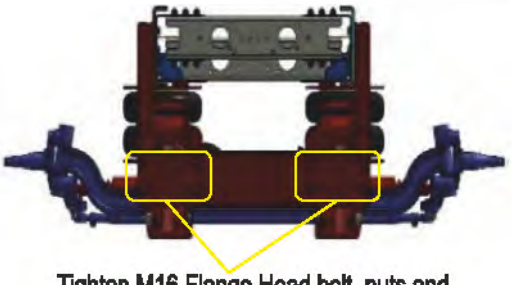
Fig. 8.20

Tighten M10 Flange HD bolts and M20 Flange Hex Head Nut and Connect with air hose

Fig. 8.21

STEP - H9. Tighten Z Section Bolts

- Tighten M16 Flange Head bolt, nuts and washer as per specified torque
- For Fastener Torque values refer Section - N.
  (For latest updates, refer latest released service circular)



Tighten M16 Flange Head bolt, nuts and washer as per specified torque

Fig. 8.22

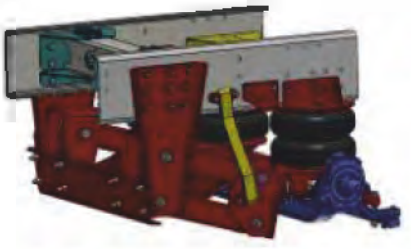


Fig. 8.23

Note :

- Similar Procedure for other side Wear Pad.
- For Fastener Torque values refer Section - N. (For latest updates, refer THSL drawing 01AX081Z00/01AX041Z00 with latest issue level)

I - Bushing outer Rubber Service Procedure

Main Instruction:-

- Park the vehicle on pit/ramp/Plain Surface.
- Apply parking brakes.
- Remove air completely from the air tank & air springs.
- Ensure Genuine Fasteners are not used more than 3 times otherwise replace fasteners with new Genuine Fasters.

General Instruction:-

- Ensure that chamfered side of washer is towards Nut (or bolt) and flat side rests on the component face.
- Ensure that flat side of Nut rests on washer.

STEP - I1a. Remove air connection from Lift Air Spring

Remove air connection from Lift air spring

Fig. 9.1

STEP - I1b. Remove air connection from Main Air Spring

LPT 3118 & 3718 Pusher

Fig. 9.2

Remove air connection

Prima 3123.T & 3723.T

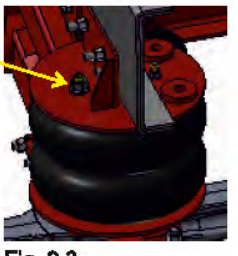
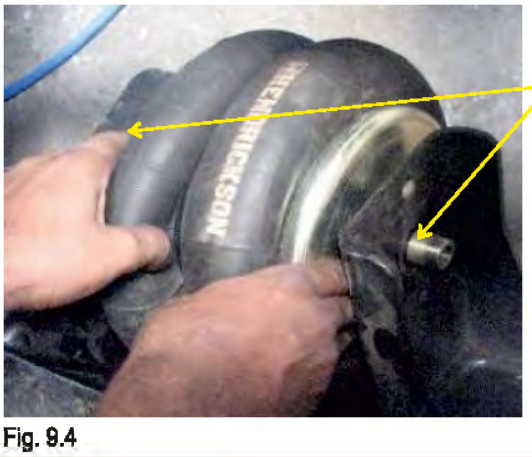


Fig. 9.3

STEP - I1.c. Remove mounting nut and bolts on Lift Air Spring



Remove mounting nut and bolts on lift air spring

Fig. 9.4

STEP - I2c Loosen Z section from Hanger

Ensure applying of rigid stand beneath axle such that the axle load will be taken by the stands

Loosen All M16 flange Head Bolt, nut

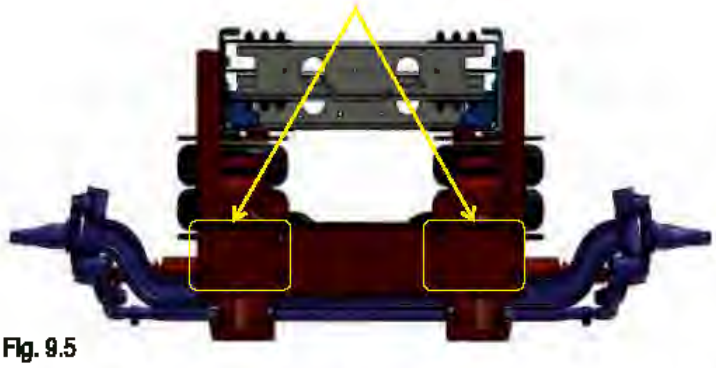


Fig. 9.5

STEP - I3. Remove Bottom Beam Assembly and Wear Pad

- Remove both side M27 Hex Head Bolt, Nut and washer
- Remove bottom beam assembly with old wear pads.

Remove both side M27 Hex Head Bolt, Nut and washer

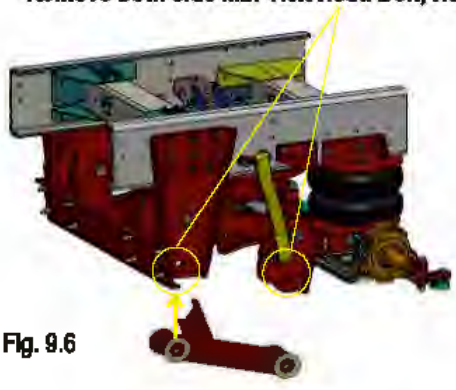


Fig. 9.6

STEP - I4. Remove Top Beam Assembly and Wear Pad

- Remove both side M27 Hex Head Bolt, Nut and washer
- Remove M16 Hex Head Bolt, Nut and washer and dis assemble the Rebound clip
- Remove old top Beam assembly with old wear pads

1. Remove both side M27 Hex Head Bolt, Nut and washer Remove bottom beam assembly and old wear pad

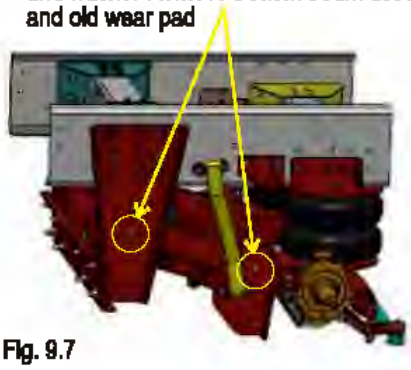


Fig. 9.7

2. Remove M16 Bolt, Nut and washer and dis assemble the Rebound clip

Fig. 9.8

Fig. 9.9

Step I5. Remove Inner metal sleeves from beam assembly

Fig. 9.10

Remove the Inner metal sleeve from beam assembly

Step I6. Remove rubber bushes from beam assembly

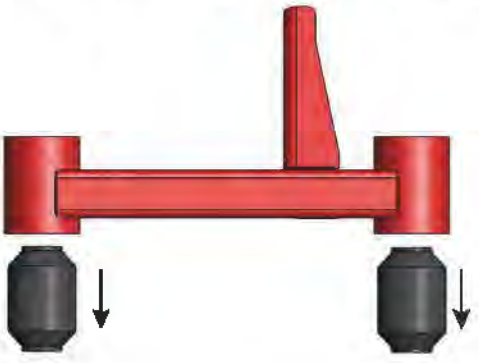


Fig. 9.11 Remove the rubber bushes from beam assembly

Step I7. Insert new rubber bushes into the tube of beam assembly

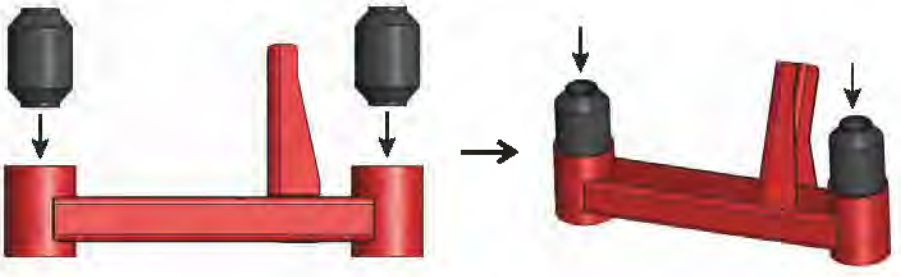


Fig. 9.12

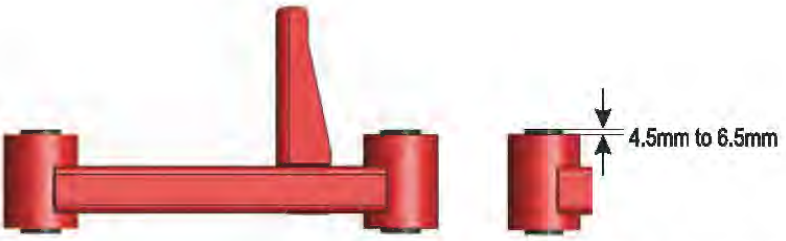


Fig. 9.13 Check the height of rubber bush face to beam tube face within 4.5 to 6.5 mm

Step I8. Insert Inner metal sleeve into rubber bushes

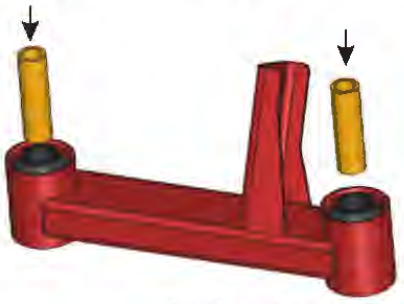


Fig. 9.14 Insert Inner metal sleeve into rubber bushes

STEP - I9.a. Fit Top Beam Assembly with New Wear Pad

First Assemble Top Beam assembly then Bottom beam assembly

Fig. 9.15

STEP - I9.b. Tight Nuts, Bolt and Washer

- Apply Loctite 270 (i.e. liquid Loctite2-3 drops) to the threads of M27 bolts before tightening.
- Assemble the Rebound clip and tighten the M16 bolts, nuts and Washer.
- For Fastener Torque values refer Section - N

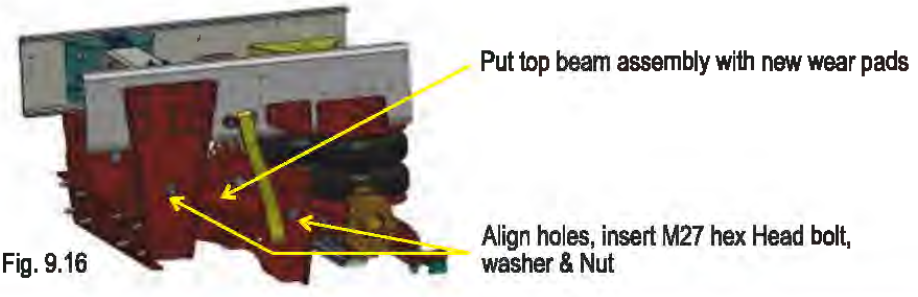


Fig. 9.16

Assemble the Rebound clip and tighten the M16 bolts, nuts and washers

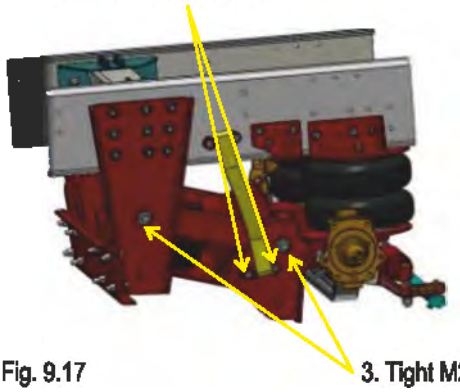


Fig. 9.17

3. Tight M27 Hex Head bolts, nuts and washer

STEP - I10.a. Fit Bottom Beam Assembly with New Wear Pad

Fig. 9.18

Put Bottom Beam Assembly with new wear pad

STEP - I10.b. Tighten M27 Nuts, Bolt and Washer

- Apply Loctite 270(i.e. liquid Loctite 2 to 3drops) to the threads of M27 bolts before tightening.
- For Fastener Torque values refer Section - N.

Put bottom beam Assembly with new wear pads

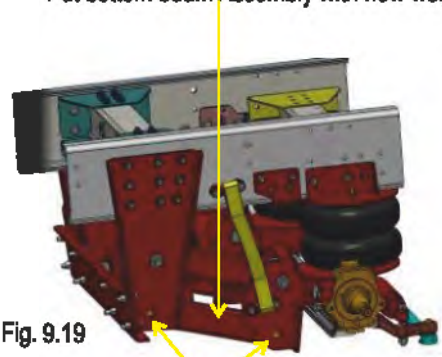


Fig. 9.19

Aligned holes and insert M27 Hex Head Bolts, nuts and washer

Fig. 9.21

Tight M27 Hex Head bolts, nuts and washer

STEP - I11. Ensure the Placement of Wear Pad

Fig. 9.22

New wear pad at hanger side

Fig. 9.23

New wear pad at Axle Seat side

STEP - I12. Assemble Lift Air Spring

- For Fastener Torque values refer Section - N. (For latest updates, refer THSL drawing no.01AX081Z00/01AX041Z00 with latest issue level)

Press the lift air spring & insert M20 Flange Between beam arms

Fig. 9.24

Tighten M10 Flange HD bolts and Hex Head Nut and Connect with air hose

Fig. 9.25

STEP - I13. Tighten Z Section Bolts

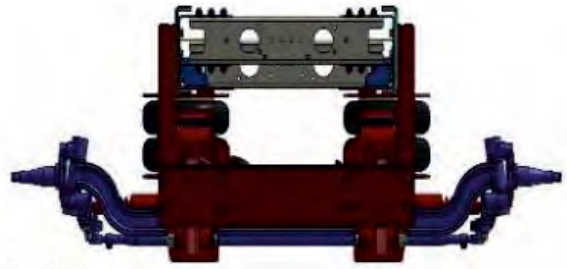


Fig. 9.26

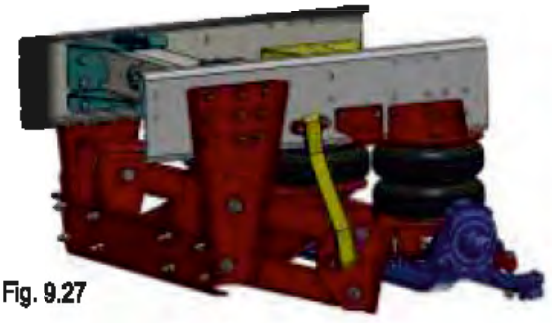


Fig. 9.27

Tighten M16 Flange Head bolt, nuts and washer as per specified torque

Note:

- Similar Procedure for other side to replace Beam bushes
- For Fastener Torque values refer Section - N

J - Steering Stabilizer Service Procedure

Main Instruction:-

- Park the vahicle on pit / ramp / Plain Surface.
- Apply parking brakes.
- Remove air completely from the air tank & air springs.
- Ensure Genuine Fasteners are not used more than 3 times otherwise replace fasteners with new Genuine Fasteners.
- Ensure applying of rigid stend beneath axle such that the axle load will be taken by the stands.

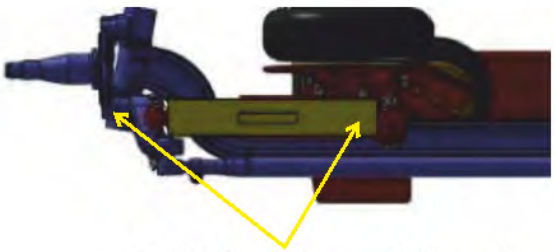
General Instruction:-

- Ensure that chamfered side of washer is towards Nut (or bolt) and flat side rests on the component face.
- Ensure that flat side of Nut rests on washer.

General Instruction:-

- Ensure that chamfered side of washer is towards Nut (or bolt) and flat side rests on the component face.
- Ensure that flat side of Nut rests on washer.

STEP - J1. Place the fixture on to the stabilizer neck

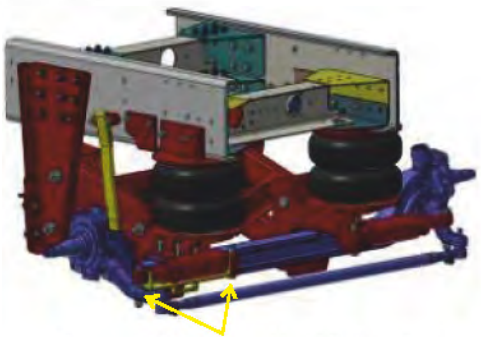


Put Stabilizer Fixture on stabilizer neck

Fig. 10.1

STEP - J2. Remove old Stabilizer

Put Stabilizer Fixture on stabilizer necks on both side then Loose M18 Nuts and Remove Stabilizer



Remove M18 Flange Head Bolt and nut

Remove Old Stabilizer

Fig. 10.2

STEP - J3a. Fit New Stabilizer

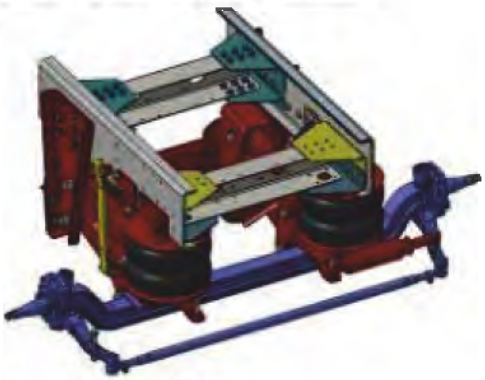


Fig. 10.3

New Stabilizer press in stabilizer fixture

STEP - J3b. Align Holes & Insert M18 Flange bolts

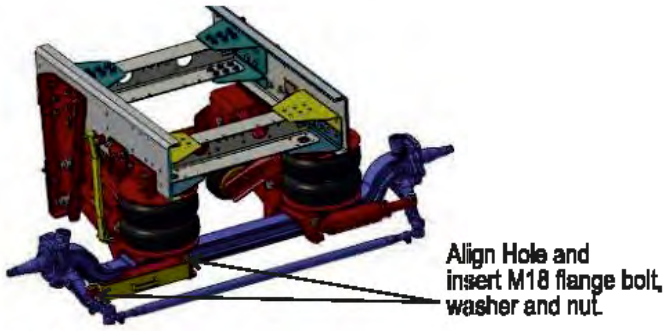


Fig. 10.4

STEP - J3c. Tighten M18 Nuts as per Specified Torque

- Tighten M18 Flange bolt and nut/washer then remove stabilizer fixture.
- For Fastener Torque values refer Section - N

Fig. 10.5

Tight M18 Flange bolt and nut

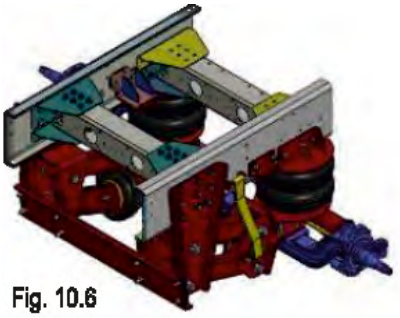


Fig. 10.6

Note :

- Please ensure that M18 bolt length should be 100mm at axle
- Similar Procedure for other side Stabilizer.
- For Fastener Torque values refer Section - N

K - Troubleshooting Guide

Trouble shooting of Lift axle related issues

Table 11.1

SL. No	Problem	Possible cause	Possible solution
1	Lift axle not in contact with the ground even in laden condition	Insufficient air pressure to Main air spring	Inspect the pneumatic circuit
2	Insufficient air pressure to the system	Defect in air compressor	Inspect the pneumatic circuit
		Valve leakage/damage	Replace / repair valve
		Damaged hose	Replace hose
3	Lift Axle not lifted to the standard position - For laden - 125mm - For unladen - 150mm From the ground till bottom of the tire	Insufficient air pressure to Lift air spring	1. Check system pressure. 2. Inspect air circuit 3. Check pneumatic pressure at lift air spring
		Interference with Chassis, drive line or other components	Inspect for interference and rectify
		Unit not installed properly	Check installation with factory installation drawing
4	Lift axle jump (Vertically)	Insufficient air pressure to Main air spring	Inspect the pneumatic circuit
		Unbalanced Wheel	Balance Wheel
5	Axle doesn't track forward	Hanger bracket mounted incorrectly on chassis frame	Remount correctly
6	Stabilizer bent or broken	Wheel cut stopper bend/ broken/worn out	Replace it
		Axle extension portion worn out	Repair or replace
7	Lift axle Wheel wobbling	• Less pressure in main air spring i.e., below 5.6 bar • Bolt Loosening • Hole oblong • Wear out of beam bushes • Improper Wheel alignment & wheel balancing.	• Check pneumatic pressure at main air spring and adjust it • Check all fasteners especially M16 Flange bolts of Z section & M27 Pivot Bolts for bolt loosening, if found loose tighten • Check for M27 Bolt Hole Oblong. • Check for Wear out of beam bushes, Replace if found damaged or worn out • Check for proper Wheel alignment & wheel balancing.

L - List of serviceable child parts

Table 12.1

SL. No.	List of serviceable parts	THSL Part Nos.	TML Part Nos.
1	Bush outer rubber	86CX037C01	2846 3390 34 09
2	Bushing Inner steel	86CX038C01	2846 3390 34 11
3	Wear pad	95CX217C01	2846 3390 99 31
4	Lift Air springs	41CX008C01	2846 3390 99 34 or 2846 3390 99 56 or 2846 3390 99 73
5	Main Air Springs	41CX014C01	2846 3390 99 72 or 2846 3390 99 73
6	Stabilizers	44AX007C01	2846 3390 99 37 or 2846 3390 99 53
7	Rebound Strap	86CX049C01	5043 3390 33 07
For Part Nos. related to fasteners please refer Section - N			

M - GAP Measurement between Axle Seat & External Bump stop

Axle Seat Top plate to External Bump Stop Gap in Lift Condition.
Normal Operating Range 5mm to 10mm

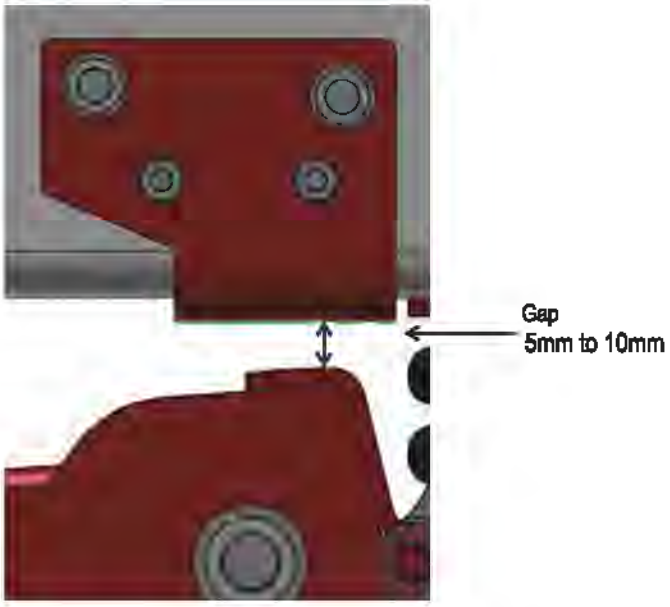


Fig. 13.1

N. Part No. Cross reference & Torque Values

i) Torque Values 3118 / 3718 Pusher

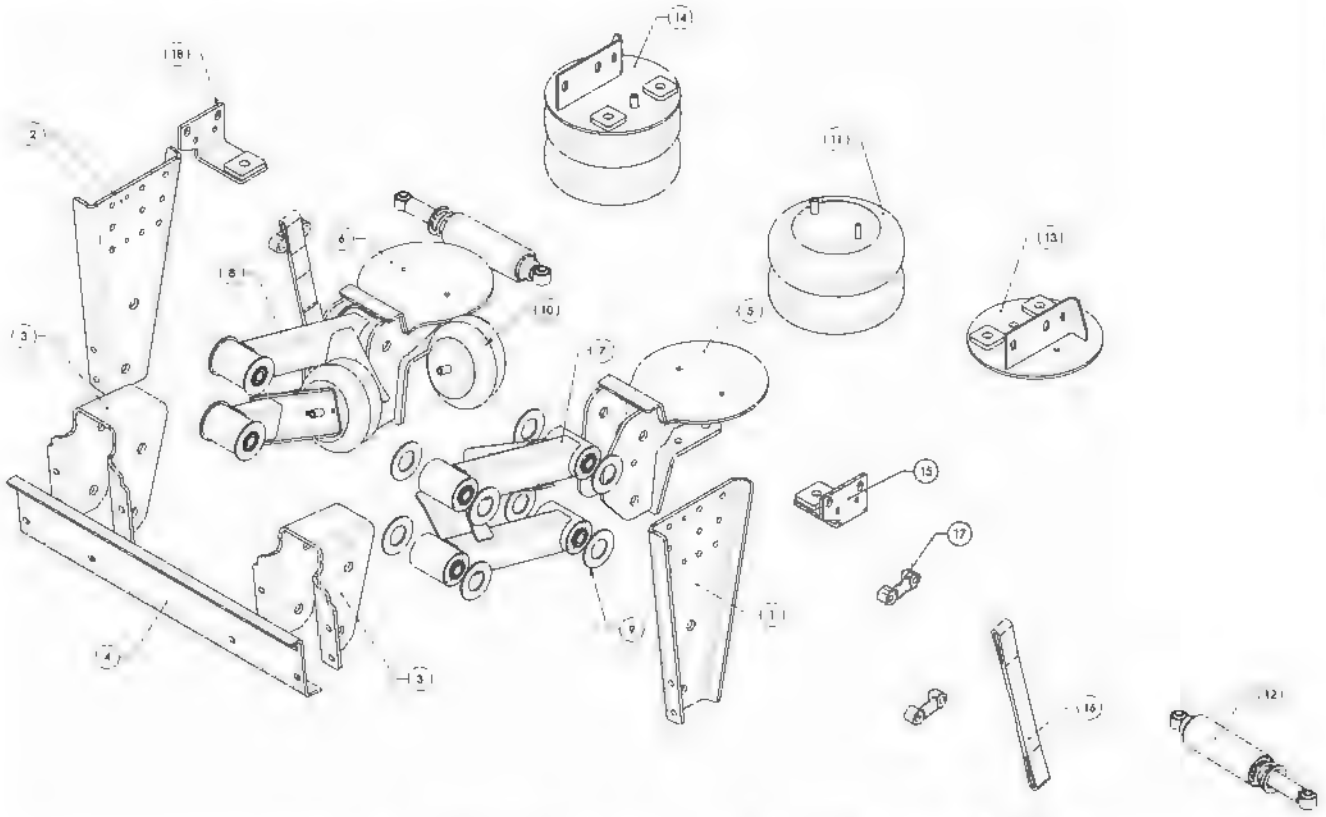
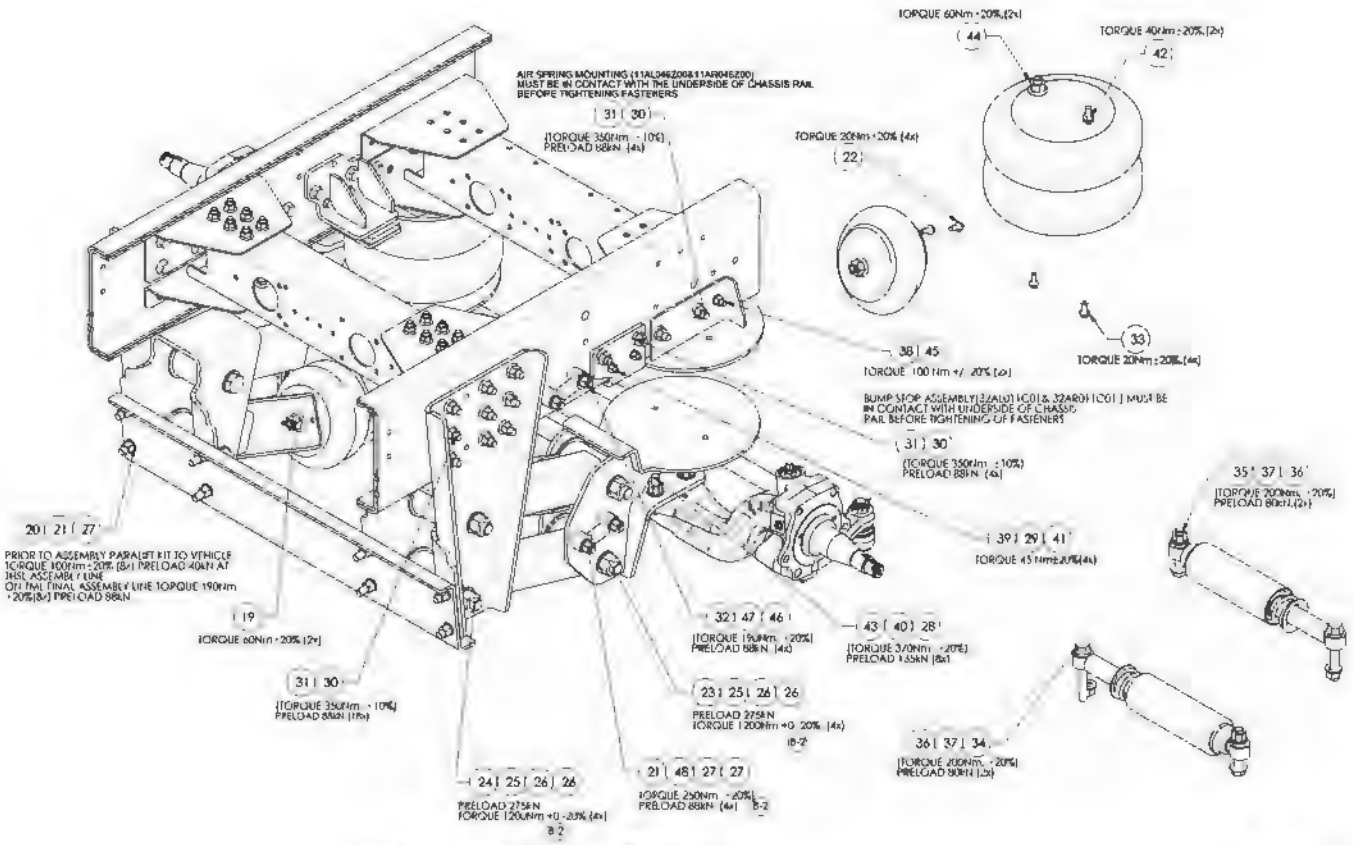


Table 14.1

ITEM NO.	THSL PART NUMBER	TML PART NUMBER	DESCRIPTION	QTY.
1	10CL031C01	5043 3390 33 08N	HANGER LH	1
2	10CR031C01	5043 3390 33 09N	HANGER RH	1
3	95CX246C01	5043 3390 33 06N	U SECTION	2
4	51CX021C01	2846 3390 02 25	Z SECTION	1
5	31AL136C01	2846 3390 03 39N	AXLE SEAT LH	1
6	31AR136C01	2846 3390 02 92N	AXLE SEAT RH	1
7	24AL028C01	2846 3390 02 93N	BEAM ASSEMBLY LH	2
8	24AR028C01	2846 3390 02 94N	BEAM ASSEMBLY RH	2
9	95CX217C01	2846 3390 99 31	WEAR PAD	16
10	41CX008C01	2846 3390 99 34 OR 2846 3390 99 56 OR 2846 3390 99 58	LIFT AIRSPRING	2
11	41CX014Z00	2846 3390 99 72N OR 2846 3390 99 73N	MAIN AIR SPRING	2
12	44AX007Z00	2846 3390 99 37 OR 2846 3390 99 53	STABILIZER (STEERING DAMPER)	2
13	11AL046Z00	2846 3390 02 95	AIR SPRING MTG LH	1
14	11AR046Z00	2846 3390 02 91N	AIR SPRING MTG RH	1
15	32AL011Z00	2846 3390 02 97N	EXTERNAL BUMP STOP ASSEMBLY LH	1
16	86CX049Z00	5043 3390 77 01	REBOUND STRAP	2
17	32CX031Z00	5043 3390 33 07	REBOUND CLIP FINISHED	4
18	32AR011Z00	2846 3390 02 98N	EXTERNAL BUMP STOP ASSEMBLY RH	1



Scope of Supply - THSL

Table 14.2

ITEM NO.	THSL PART NUMBER	TML PART NUMBER	DESCRIPTION	QTY.
19	93CX007C01	2846 3390 3359N	M20 x 1.5 (CLASS 10.FLANGE HEX HEAD NUT)	2
20	90CX010C01	2846 3390 3363N	M16 x 2 x 60LG GRD. 10.9 FLANGE HD. BOLT	8
21	92CX102C01	2846 3390 3357N	M16 x 2 (GRD 10.0 ALL METAL PREVAILING TORQUE NUT)	12
22	90CX034C01	2846 3390 3362N	M10 x 1.5 x 25 LG (GRD. 8.8 FLANGE HD. BOLT) OR M10 x 1.5 x 25 LG (GRD. 10.9 FLANGE HD. BOLT)	4
23	91CX129C01	5039 3390 3367N	M27x3x200LG GRD 10.9 HEX HD BOLT	4
24	91CX130C01	5039 3390 3368N	M27x3x210LG GRD 10.9 HEX HD BOLT	4
25	92CX113C01	5038 3390 3361N	M27 x 3 (GRD 10.0 HEX NUT)	8
26	94CX101C01	5039 3390 3315N	M27 HARDENED WASHER	16
27	94CX104C01	2846 3390 3312N	M16 HARDENED WASHER	16
48	91CX126C01	11064016820N	M16X2.0X70Lg GRD 10.9 HEX HD BOLT	4

Scope of Supply - TML

Table 14.3

ITEM NO.	TML PART NUMBER	DESCRIPTION	QTY.
28	2846 3390 3318N	M20 HARDENED PLAIN WASHER	8
29	12460501057N	BRIGHT WASHER 10.5 IS2016 ST SS8451-8C	4
30	2846 3390 3363N	M16X2.0X60 LG.-FLANGE BOLT -10.9	26
31	5011 3240 65 03N	HEX FLANGE NUT (SELF LOCKING) M16X2 10.9	28
32	5006 3240 3213N	HEX FL BOLT M16X2X70	4
33	2846 3390 3362N	M10X1.5X25 LG.-FLANGE BOLT -10.9	4
34	2846 3390 3364N	M16X2.5X130 LG.-FLANGE BOLT -10.9	2
35	5009 3240 32 05N	HEX FL BOLT M16X2.5X100	2
36	2846 3390 3358N	M18X2.5 - AMPT NUT-10	4
37	2846 3390 3335N	M18-HARDENED PLAIN WASHER	4
38	1107 1712 551N	HEX FL BOLT M12X55TS17130 10.9SS8451-8CH	2
39	11071510559N	HEX FL BOLT M10X55 TS17130-8.8-SS8451S2-Y	4
40	2846 3390 3360N	M20X2.5-AMPT NUT-10	8
41	12051998073N	HEX NUT M10 IS1364P3-8-SS8451-8C	4
42	2846 3390 3356N	M12X1.75 - FLANGE HEX NUT-10	2
43	2846 3390 3365	M20X2.5X75 LG.-FLANGE BOLT -10.9	8
44	2846 3390 3359N	M20X1.5-FLANGE HEX NUT-10	2
45	1214 340 1209N	HEX FL NUT M12X1.5 ISO 12126 10 SS8451-8CH	2
46	2846 3390 3312N	M16 HARDENED PLAIN WASHER	4
47	2846 3390 3357N	M16X2-AMPT NUT-10	4

N. Part No. Cross reference & Torque Values
ii) Torque Values 3123.T/3723.T Prima

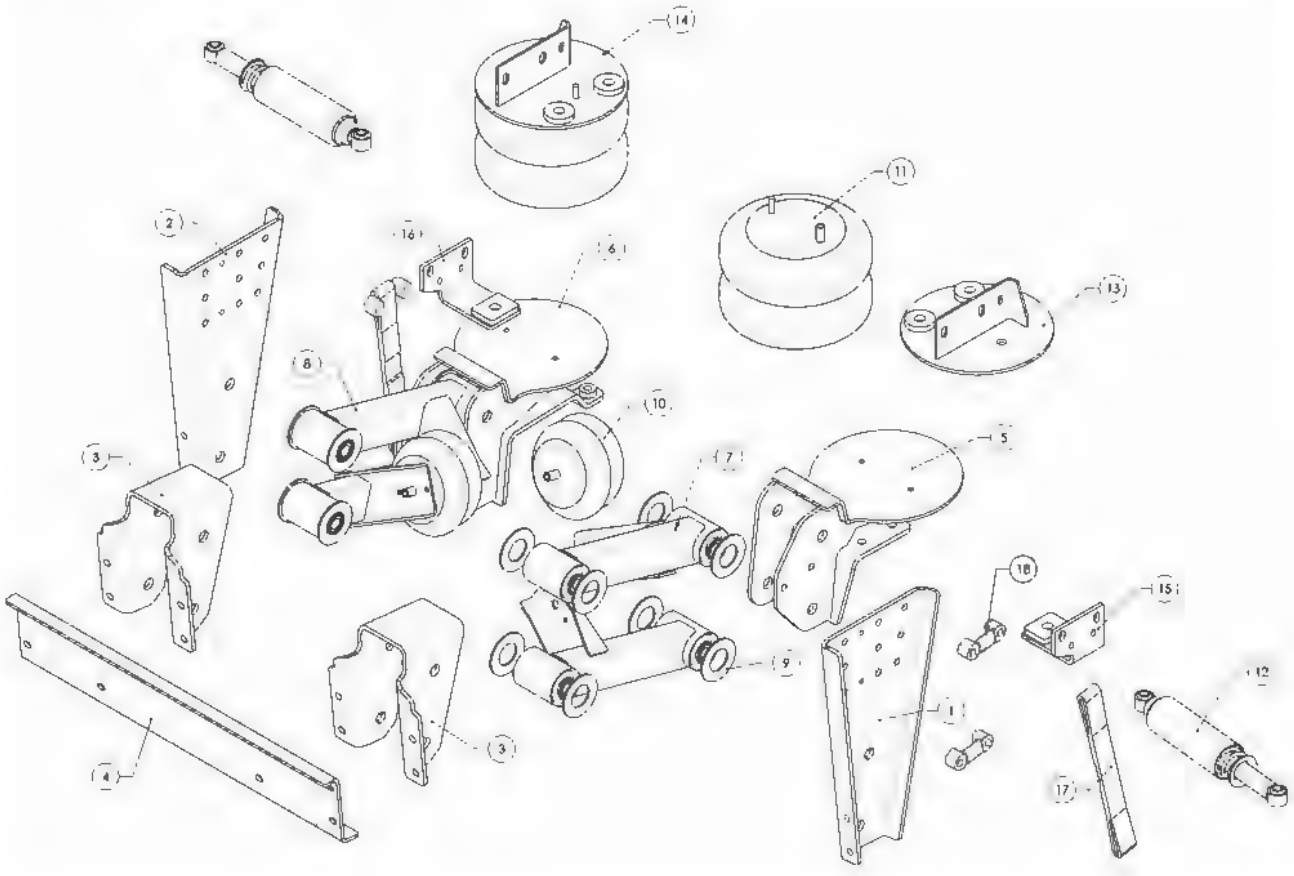


Table 14.4

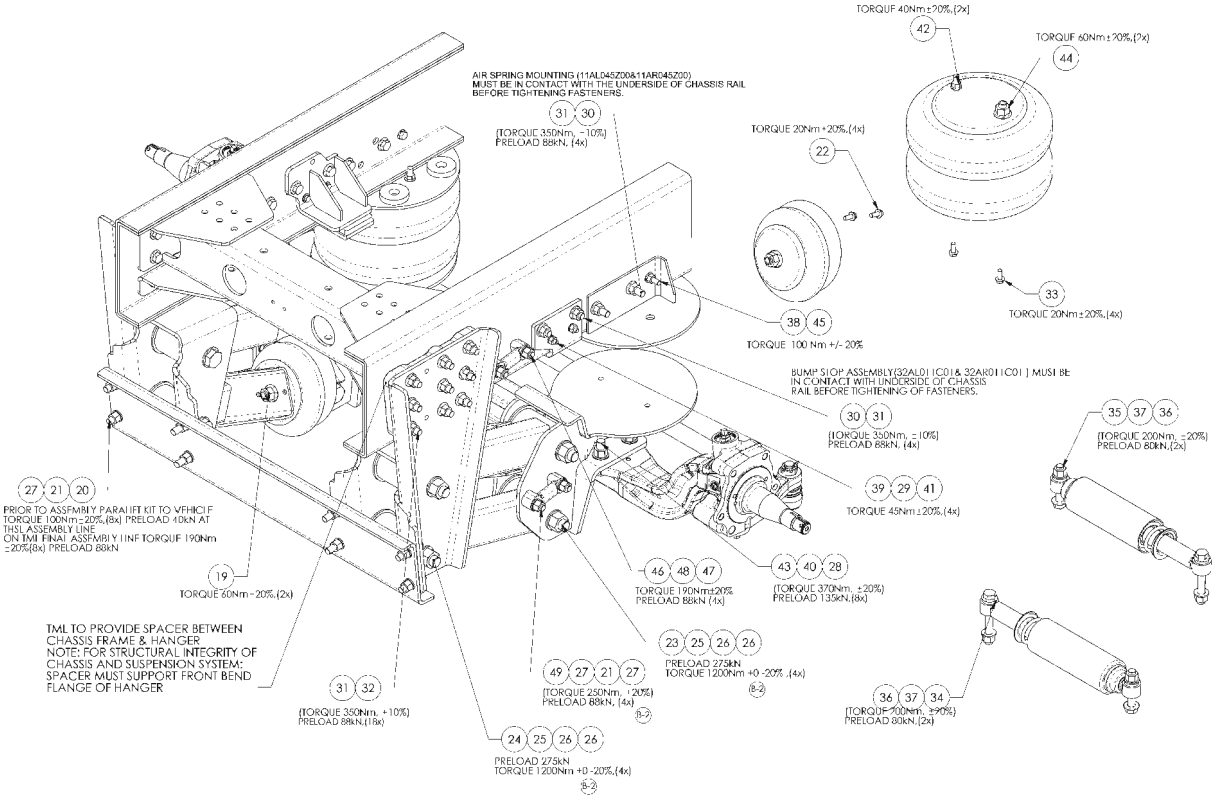
ITEM NO.	PART NUMBER	TML Part Number	DESCRIPTION	QTY.
1	10CL031C01	5043 3390 33 08N	HANGER LH	1
2	10CR031C01	5043 3390 33 09N	HANGER RH	1
3	95CX246C01	5043 3390 33 06N	U SECTION	2
4	51CX021C01	2846 3390 02 25	Z SECTION	1
5	31AL136C01	2846 3390 03 39N	AXLE SEAT LH	1
6	31AR136C01	2846 3390 02 92N	AXLE SEAT RH	1
7	24AL028C01	2846 3390 02 93N	BEAM ASSEMBLY LH	2
8	24AR028C01	2846 3390 02 94N	BEAM ASSEMBLY RH	2
9	95CX217C01	2846 3390 99 31	WEAR PAD	16
10	41CX008C01	2846 3390 9934 OR 2846 3390 99 56 OR 2846 3390 99 58	LIFT AIR SPRING	2
11	41CX014Z00	2846 3390 99 72N OR 2846 3390 99 73N	MAIN AIR SPRING	2
12	44AX007Z00	2846 3390 99 37 OR 2846 3390 99 53	STABILIZER (STEERING DAMPER)	2
13	11AL045Z00	5043 3390 01 23	AIR SPRING MTG LH	1
14	11AR045Z00	5043 3390 01 22N	AIR SPRING MTG RH	1
15	32AL011Z00	2846 3390 02 97N	EXTERNAL BUMP STOP ASSEMBLY LH	1
16	32AR011Z00	2846 3390 02 98N	EXTERNAL BUMP STOP ASSEMBLY RH	1
17	86CX049Z00	5043 3390 77 01	REBOUND STRAP	2
18	32CX031Z00	5043 3390 33 07	REBOUND CLIP FINISHED	4

* BOM FOR BEAM ASSEMBLY LH (24AL028C01) Table 14.4a

24AL028C01			
PART NUMBER	TML PART NUMBER	DESCRIPTION	QTY
24AL025C01	2846 3390 03 47N	BEAM ASSEMBLY WELDMENT LH	1
86CX037C01	2846 3390 34 09	BUSH OUTER RUBBER	2
86CX038C01	2846 3390 34 11N	BUSHING INNER STEEL	2

* BOM FOR BEAM ASSEMBLY RH (24AR028C01) Table 14.4b

24AR028C01			
PART NUMBER	TML PART NUMBER	DESCRIPTION	QTY
24AR025C01	2846 3390 03 48N	BEAM ASSEMBLY WELDMENT RH	1
86CX037C01	2846 3390 34 09	BUSH OUTER RUBBER	2
86CX038C01	2846 3390 34 11N	BUSHING INNER STEEL	2



Scope of Supply - THSL

Table 14.5

ITEM NO.	PART NUMBER	TML PART NUMBER	DESCRIPTION	QTY.
19	93CX007C01	2846 3390 3359N	M20 x 1.5 (CLASS 10.FLANGE HEX HEAD NUT)	2
20	90CX010C01	2846 3390 3363N	M16 x 2 x 60LG GRD. 10.9 FLANGE HD. BOLT	8
21	92CX102C01	2846 3390 3357N	M16 x 2 (GRD 10.0 ALL METAL PREVAILING TORQUE NUT)	12
22	90CX034C01	2846 3390 3362N	M10 x 1.5 x 25 LG (GRD. 8.8 FLANGE HD. BOLT) OR M10 x 1.5 x 25 LG (GRD. 10.9 FLANGE HD. BOLT)	4
23	91CX129C01	5039 3390 3367N	M27x3x200LG GRD 10.9 HEX HD BOLT	4
24	91CX130C01	5039 3390 3368N	M27x3x210LG GRD 10.9 HEX HD BOLT	4
25	92CX113C01	5039 3390 3361N	M27 x 3 (GRD 10.0 HEX NUT)	8
26	94CX101C01	5039 3390 3315N	M27 HARDENED WASHER	16
27	94CX104C01	2846 3390 3312N	M16 HARDENED WASHER	16
49	91CX126C01	11064016620N	M16X2.0X70Lg GRD 10.9 HEX HD BOLT	4

Scope of Supply - TML

Table 14.6

ITEM NO.	TML PART NUMBER	DESCRIPTION	QTY.
28	2846 3390 3318N	M20 HARDENED PLAIN WASHER	8
29	12460501057N	BRIGHT WASHER 10.5 IS2016 ST SS8451-8C	4
30	2846 3390 3363N	M16X2.0X60 LG.-FLANGE BOLT -10.9	8
31	5011 3240 65 03N	HEX FLANGE NUT (SELF LOCKING) M16X2 10.9 2	6
32	5011 3240 32 17	M16 x 2 x 90LG GRD. 10.9 FLANGE HD. BOLT	18
33	2846 3390 3362N	M10X1.5X25 LG.-FLANGE BOLT -10.9	4
34	2846 3390 3364N	M18X2.5X130 LG.-FLANGE BOLT -10.9	2
35	5009 3240 32 05N	HEX FL BOLT M18X2.5X100	2
36	2846 3390 3358	M18X2.5-AMPT NUT-10	4
37	2846 3390 3335N	M18-HARDENED PLAIN WASHER	4
38	1107 1712 551N	HEX FL BOLT M12X55TS17130 10.9SS8451-8CH	2
39	11071510559N	HEX FL BOLT M10X55 TS17130-8.8-SS8451S2-Y	4
40	2846 3390 3360N	M20X2.5-AMPT NUT-10	8
41	12051598073N	HEX NUT M10 IS1364P3-8-SS8451-8C	4
42	2846 3390 3356N	M12X1.75 - FLANGE HEX NUT-10	2
43	2846 3390 3365	M20X2.5X75 LG.-FLANGE BOLT -10.9	8
44	2846 3390 3359N	M20X1.5-FLANGE HEX NUT-10	2
45	1214 340 1209N	HEX FL NUT M12X1.5 ISO 12126 10 SS8451-8CH	2
46	5006 3240 3213N	HEX FL BOLT M16X2X70	4
47	2846 3390 3312N	M16 HARDENED PLAIN WASHER	4
48	2846 3390 3357N	M16X2-AMPT NUT-10	4

TP LIT No.: Pusher Axle Suspension

TATA AUTOCOMP HENDRICKSON SUSPENSIONS PVT LTD

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