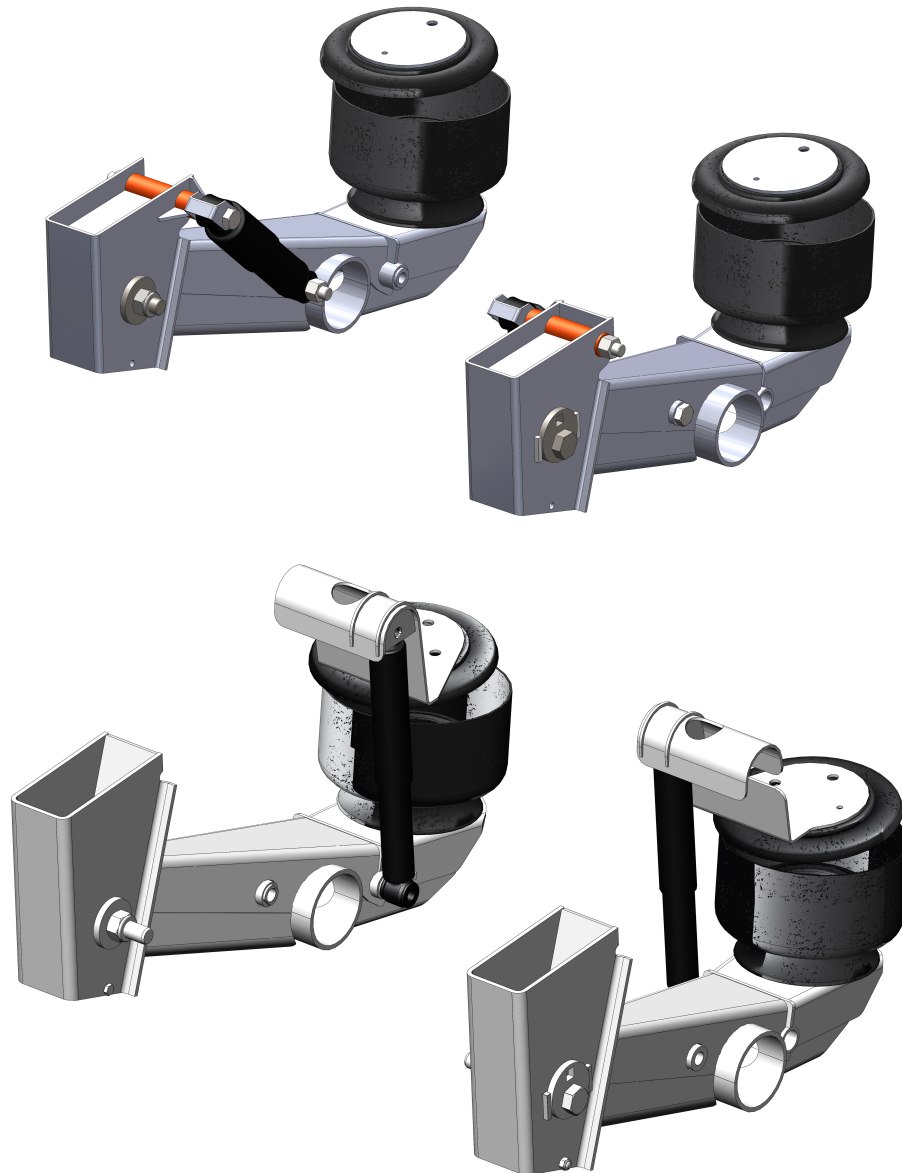




TMC Australia Pty Ltd

TMC LMV & LM Xp series Air Suspension Service Manual

TMC LMV & LMXp series AIR SUSPENSION SERVICE MANUAL



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TMC Australia's policy is one of continuous development, we therefore reserve the right to change or modify the specifications without notification.

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TMC LMV series AIR SUSPENSION SERVICE INSTRUCTIONS.**Recommended Service Schedule.****On Delivery or at 500 km.**

Check all torque settings of all fasteners.

Every 25,000km or Quarterly.

Check all torque settings of all fasteners and inspect for visual damage and wear.

Repair and replace parts as necessary.

Every 100,000 km or Annually.

Check all torque settings of all fasteners and inspect for visual damage and wear.

Check all suspension bushings for wear and deterioration, replace or repair as necessary.

Check all suspension hangers and trailing arms for wear and deterioration, replace or repair as necessary.

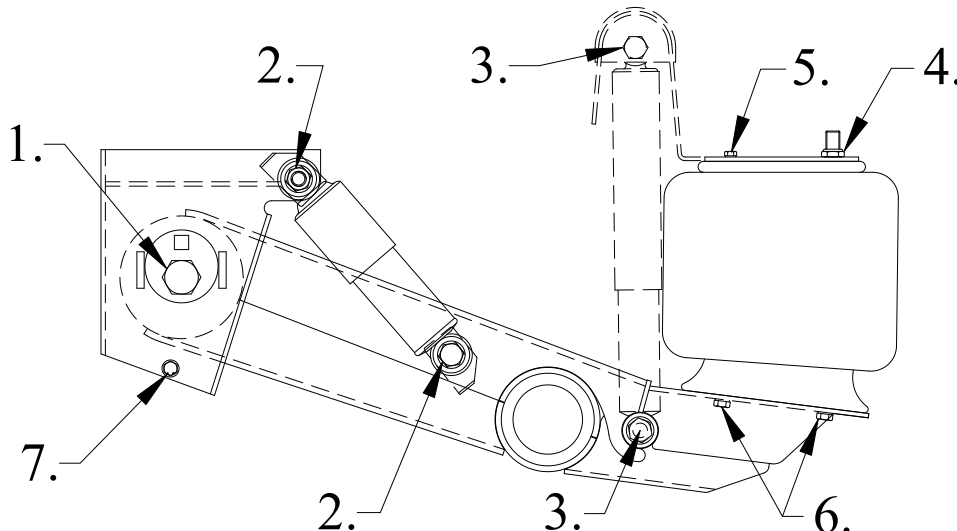
Carry out a visual inspection of the suspension for wear and damage, repair or replace any worn or damaged parts as necessary.

Check the axle alignment and readjust as necessary. Axle alignment must be checked whenever severe kerb contact, or accidental damage occurs or the pivot bushes are replaced.

Note: TMC's range of "LMV" and "LMVS suspensions" and TN trailer axle combinations are generally designed for operating on clean paved roads. Although occasional use on graded or gravel roads is acceptable, for equipment that is regularly used "off-road" or "off-highway" TMC recommends that service intervals should be halved. In extremely severe operating conditions, weekly and in certain cases even daily inspections of the equipment may be required to ensure safe and correct operation of the suspension and axle combination.

Recommended Torque Settings.

- | | |
|--------------------------------|---------------------|
| 1. Pivot bolt: | - 1100 Nm. (M30) |
| 2. Shock Absorber bolt M24: | - 400 Nm. (M24) |
| Shock Absorber bolt M20: | - 300 Nm. (M20) |
| 3. Shock Absorber bolt M20: | - 300 Nm. (M20) |
| 4. Top Airbag mount nyloc nut: | - 70 Nm. (3/4" UNF) |
| 5. Top airbag mount bolt: | - 35 Nm. (3/8" UNC) |
| 6. Bottom airbag mount bolts: | - 35 Nm. (1/2" UNC) |
| 7. Front hanger spacer bolts: | - 70 Nm. (M12) |



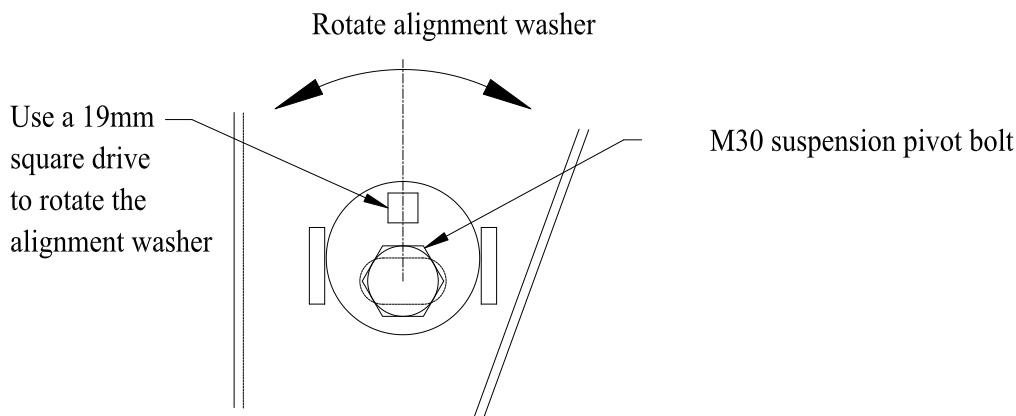
Axle Alignment and Adjustment Procedure.

Measure from the centre of the kingpin to a centre point on each end of the front trailer axle. Adjust the alignment as needed by rotating the collars on the front hanger on the air suspension's front pivot bolt to achieve the correct alignment. The front pivot bolts must be loosened off so that the front pivot bolts can move backwards or forwards in the front suspension hangers when the alignment collars are rotated. It is recommended that the alignment collars are rotated equally on each side of the suspension forwards or backwards to achieve the correct axle alignment.

Then align the remaining axles off the front trailer axle by rotating the alignment collars as described above on each axle until the axle centres on both sides of the trailer are equal.

It is also possible to do the axle alignment using a laser or optical aligning device designed for axle alignment if available.

Important: After the axle alignment is completed, tighten the front pivot bolt (M30) according to the torque settings chart.



Important: Loosen the M30 suspension pivot bolt before attempting to align the suspension. Retighten all bolts after alignment is completed.

Replacement of Suspension Airbags.

The trailer can be driven at reduced speeds (maximum of 40kph) with no air in the airbags. Blocking off of the air supply to a damaged / punctured airbag is possible so that the remaining airbags can be used normally (either by crimping the supply air line or blocking off the air port to the airbag) to travel to a service area where the airbag replacement can be effected.

Note this is a temporary measure only and airbag replacement must be effected as soon as practicable.

■ To replace an airbag the trailer should be parked preferably on a level hard surface with the brakes applied. The trailer must be set at the correct ride height. Suspension airbags cannot be replaced with the air suspension deflated and sitting on its bump stops.

■ With the trailer at or near its correct ride height, place either jacks or stands under the trailer's frame to support it. Either block off the air supply to the airbag to be replaced or deflate the whole air suspension. Remove the air supply line to the airbag, then the airbag can be unbolted from its position in the trailer's air suspension.

■ Replacement airbags as approved by the manufacturer must only be used. Bolt the replacement airbag back into its correct position in the trailer, and reconnect the air supply line to the airbag. Torque all the mounting bolts to the correct values as shown on the torque settings chart. Ensure when fitting the airbag that the rubber bellows are not twisted, the top airbag plate and airbag base can be rotated if alignment is not correct.

■ Reconnect the air supply to the air suspension and remove the jacks / stands from under the trailer frame, check the air suspension for air leaks and correct as necessary. Recheck the air suspension's ride height and reset as necessary.

Shock absorber replacement.

The suspension's shock absorbers only need replacement when they become ineffective or leak oil.

The shock absorbers can be replaced by removing both the top and bottom mounting bolts and removing the shock absorber from the air suspension. When replacing the shock absorber ensure that the catch strap and bottom catch strap clip are replaced in their correct positions. Torque the top and bottom shock absorber mounting bolts to the correct values as per the torque settings chart.

Levelling Valve Adjustment.

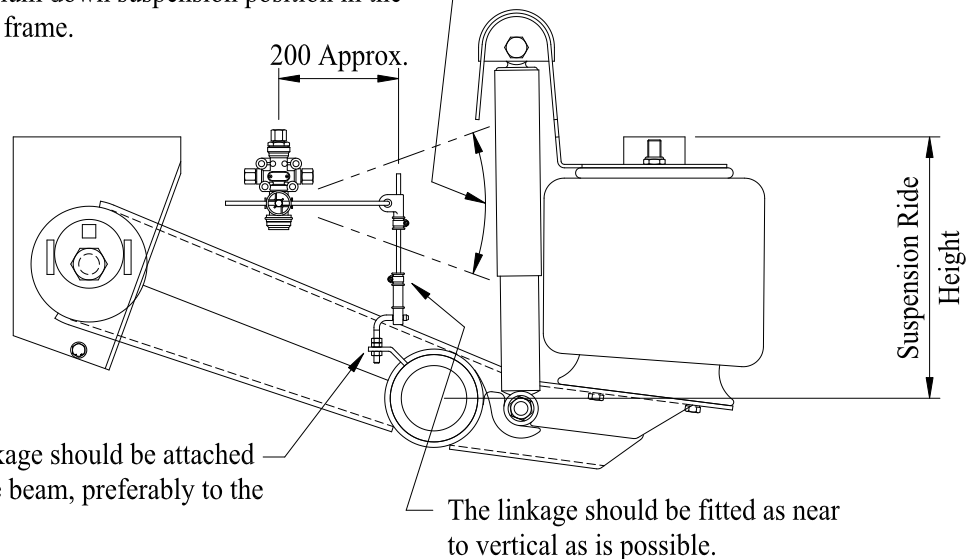
The air suspension's levelling valve should be installed in the trailer frame in a protected position. Care must be taken to ensure that the levelling valve's linkage can move from the air suspension's maximum up position to the air suspension's maximum down position without any interference from any frame parts, any suspension parts or any brake components.

The levelling valve linkage must be adjusted to keep the air suspension at its correct ride height.

Once the correct ride height for the air suspension is determined, this height will be known from the air suspension's model number or as marked on the air suspension's nameplate, the ride height can be set. The ride height is the dimension as shown on the diagram below.

- The trailer should be parked on level ground preferably with the trailer loaded or at least partly loaded and with the trailer brakes released.
- All air reservoirs should be fully charged before any suspension adjustments are performed. After final adjustments have been made, recheck all suspension ride heights with the air reservoirs all fully charged.
- To adjust the air suspension ride height loosen the clamps on the vertical linkage rod and slide the rod through the clamp to achieve the correct suspension ride height. Retighten the clamps.

Clearance must be provided for the levelling valve linkage to move from maximum up to maximum down suspension position in the trailer frame.



The levelling valve linkage should be attached to the centre of the axle beam, preferably to the front of the axle tube.

The linkage should be fitted as near to vertical as is possible.

Replacement LM & LMxP Air Suspension Pivot Bushes.

The following repair instructions are a recommended procedure for the removal and installation of the air suspension's trailing arm main pivot bushes. The replacement of pivot bushes is more efficiently carried out using the set of TMC tools, developed specifically for this purpose. However, replacement can also be carried out without these tools using normal workshop equipment.

Removal of Suspension Arm Pivot Bushes.**Recommended tools required.**

Air Impact wrench, ¾" drive.

Torque wrench – 1100Nm capacity.

Sockets and spanners to suit M12 and M30 bolts.

Tools: TLM001, TLM002, TLM003, TLM004,

TLM005 & TLM006 (LMV), TLM007 & TLM008 (LMXp) . (See Fig 1)

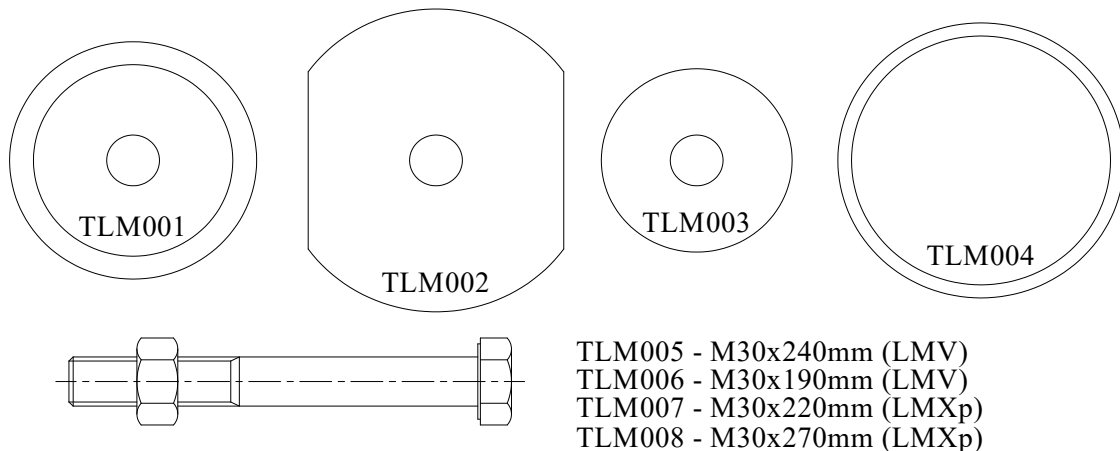


Fig. 1.

TMC recommends that when replacing the pivot bushes in the suspension's trailing arms that the bushes in both arms of each axle are all replaced at the same time.

Procedure;

- The vehicle/trailer must be parked and supported in a safe position so that when the suspension parts are being removed the vehicle/trailer cannot fall or collapse.
- Remove the M12 bolts and spacers from the bottom of both the front hangers.
- Remove the M30 pivot bolts and all washers from both the front hangers.
- The trailing arms should now be moved down out of and clear of the front hangers so that the rubber pivot bushes are fully exposed and clear of all the suspension parts.
- Using the TMC LM tools as shown in Fig 2 you can begin to remove the two pivot bushes from the eye of the suspension trailing arm.

- Using an air impact gun draw the washer (TLM003) through the eye of the trailing arm so pulling the inner bush out of one side of the eye into the centre of tool TLM004.

It is important that the steel centres of the two bushes are pulled through and out of the two bushes at this time. If the nut runs out of thread whilst pulling the washer TLM003 through the bushes, back off the M30 nut, add more washers between it and the washer TLM003 and repeat the procedure to pull the washer through the rubber bushes.

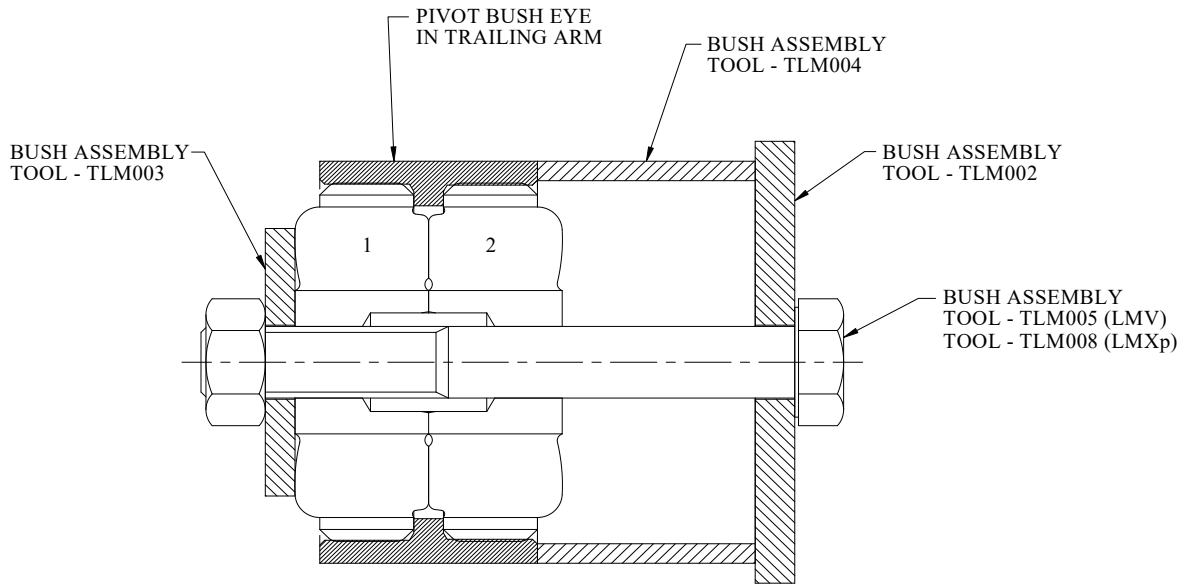


Fig 2.

- Then re assemble the tools into the eye as shown in Fig 3 and once again using the air impact gun draw the remaining bush out of the other side of the trailing arm eye. When removing the bushes sometimes it may be necessary to stop when drawing the washer (TLM003) through the eye with the impact gun and add more washers under the M30 nut to enable the washer to pull the washer further through the eye to remove the rubber pivot bushes fully.
- Repeat the above procedures to remove the rubber pivot bushes from the other trailing arm eye bush on the other side of the suspension module.

- Clean all small pieces of the rubber bushings, rust or any other debris from the eye internal surfaces, do not use grinding discs or other tools that may mark the surfaces badly when cleaning this area.

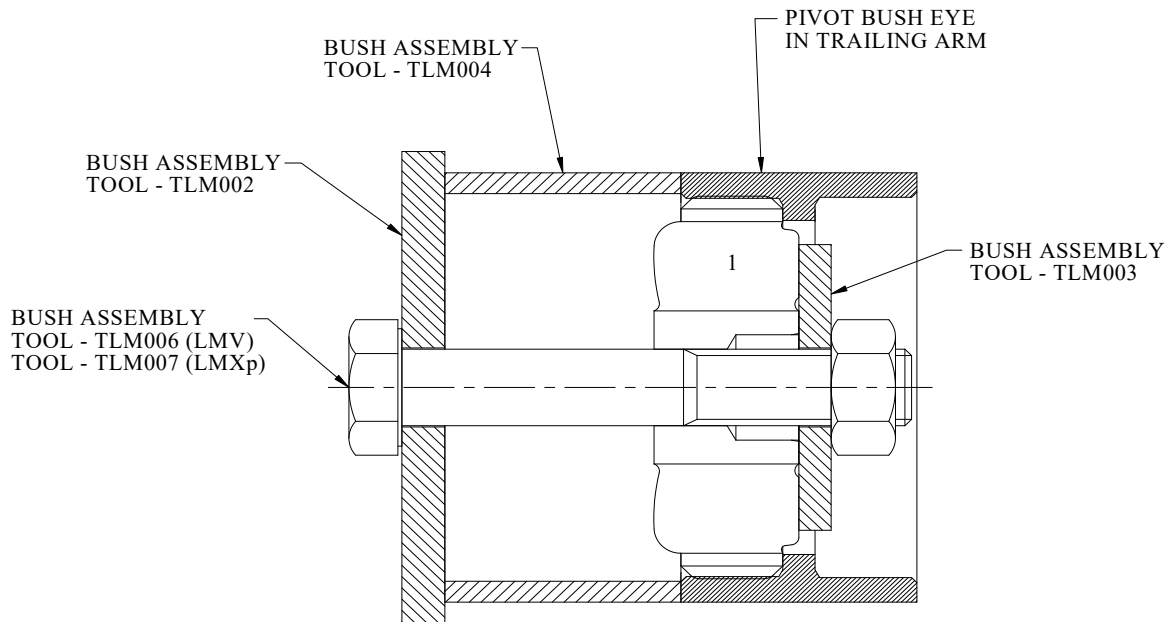


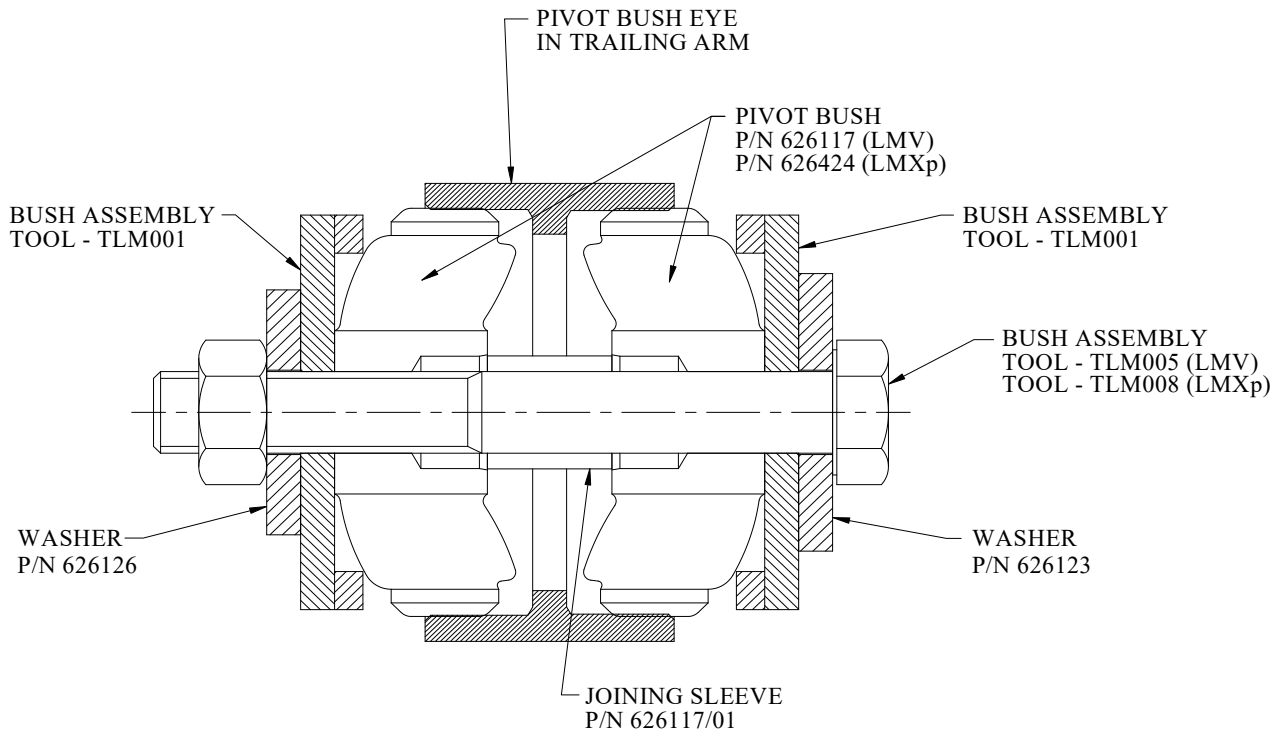
Fig 3.

Installation of New Pivot Bushes in the Trailing Arm Eye.

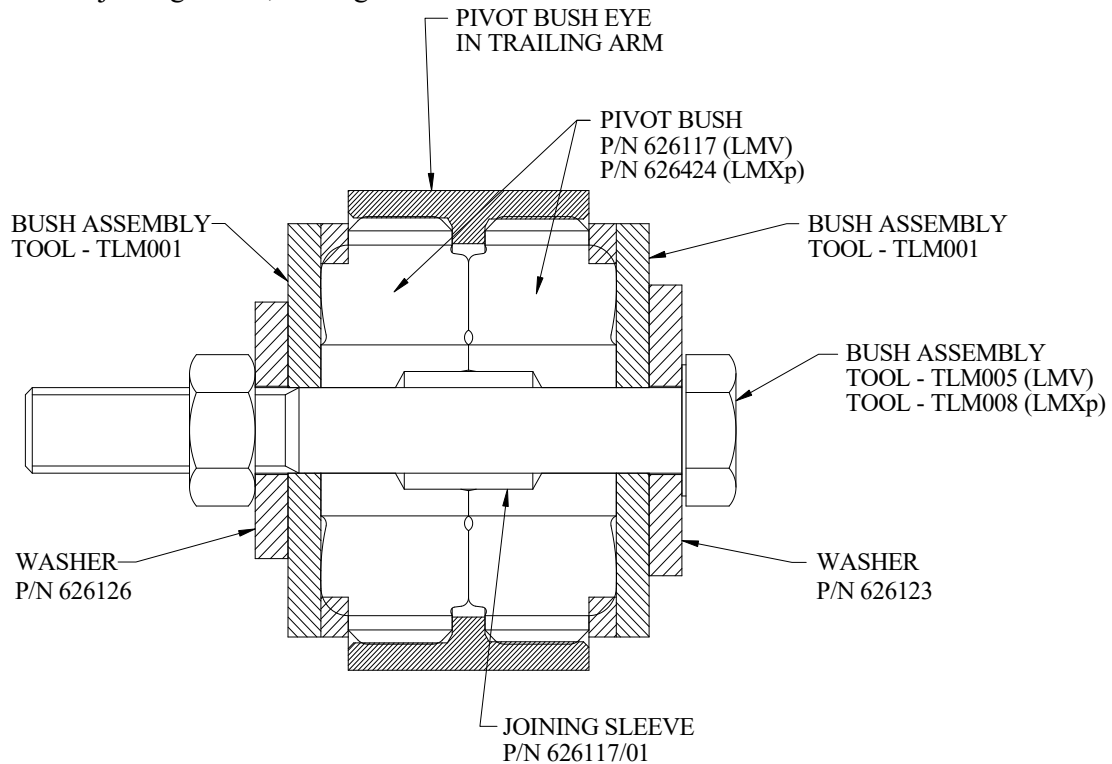
Inspect and ensure that the internal surfaces of the trailing arm eye bush area are clean and free from any oil, lubricants or contaminants.

It is recommended that the inner faces of the trailing arm eye bush have a light smear of non-petroleum based rubber grease applied to them.

- Then assemble the two pivot bushes and the joining sleeve into the trailing arm eye bush as shown in Fig 4.
- It is recommended that the joining sleeve be only slightly pressed into one of the pivot bushes before assembling all of the parts into the eye bush.

**Fig 4.**

Once all the parts are assembled as per Fig 4 carefully tighten the M30 bolt using the air impact gun until the two bushes are fully drawn into the trailing arm eye and the pivot bushes steel centres are fully pressed onto the joining sleeve, see Fig 5.

**Fig 5.**

Repeat the above steps and fit the new pivot bushes into the other trailing arm eye of the suspension module.

- When installing the pivot bushes sometimes it may be necessary to stop when tightening the M30 bolt through the eye with the impact gun and add more washers under the M30 nut to enable the washer to pull the two plates (TLM001) fully home and press the two rubber bushes steel centre bosses onto the joining sleeve.

Re Assembly of the Trailing Arms into the Front Suspension Hangers

Carefully raise the front ends of the two trailing arms up into the bottom of the two front hangers of the air suspension, check that the bushes are fully installed into the trailing arm eye bushes and push the assembly up into the front hangers. Align the centre hole of the bushes with the centre of the slotted hole in the front hanger, re fit the alignment washers and M30 pivot bolts through the hangers and bushes, fit the heavy washers and M30 nyloc nuts to the other ends of the M30 pivot bolts. When assembling the pivot bolts and washers through the suspension hangers ensure the alignment washer is installed onto the correct side of each front suspension hanger, see Fig 6

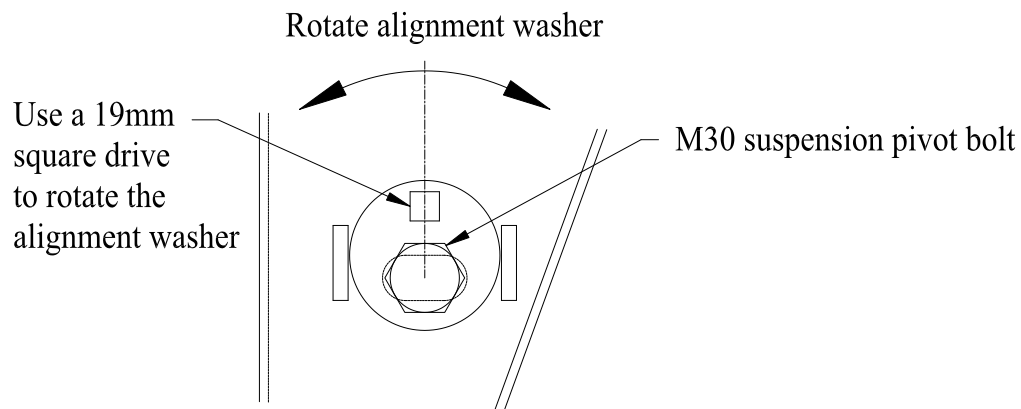
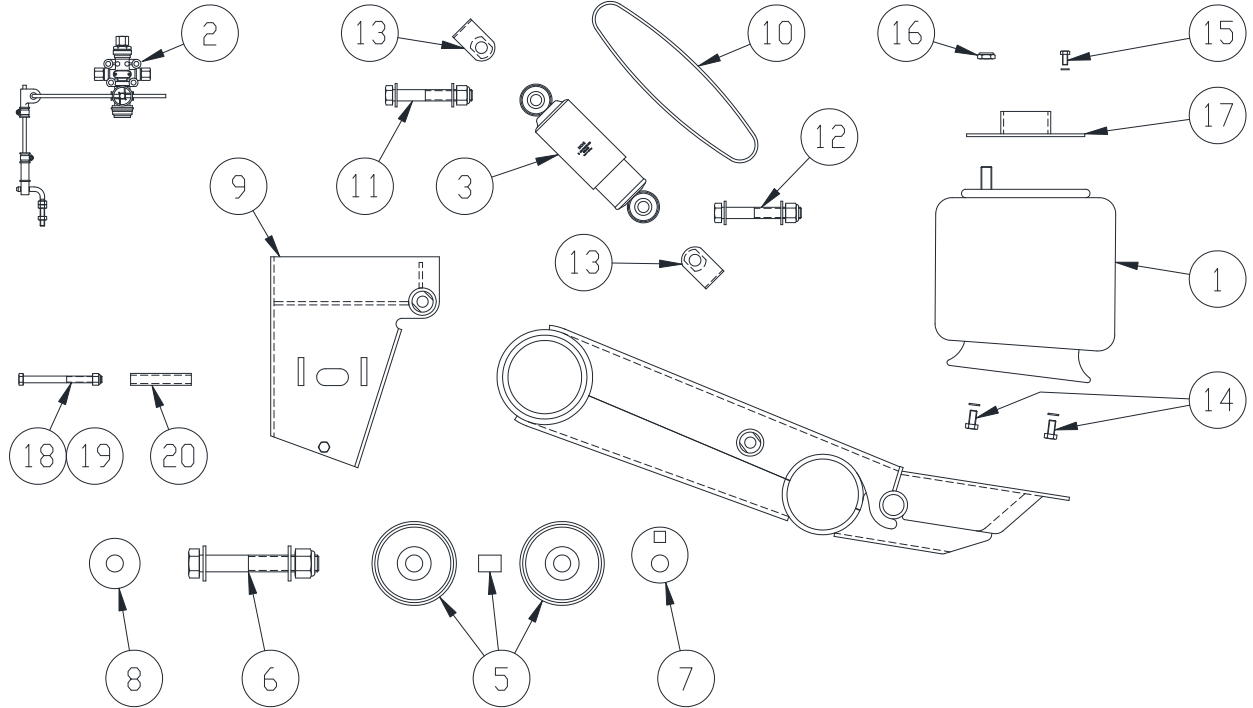
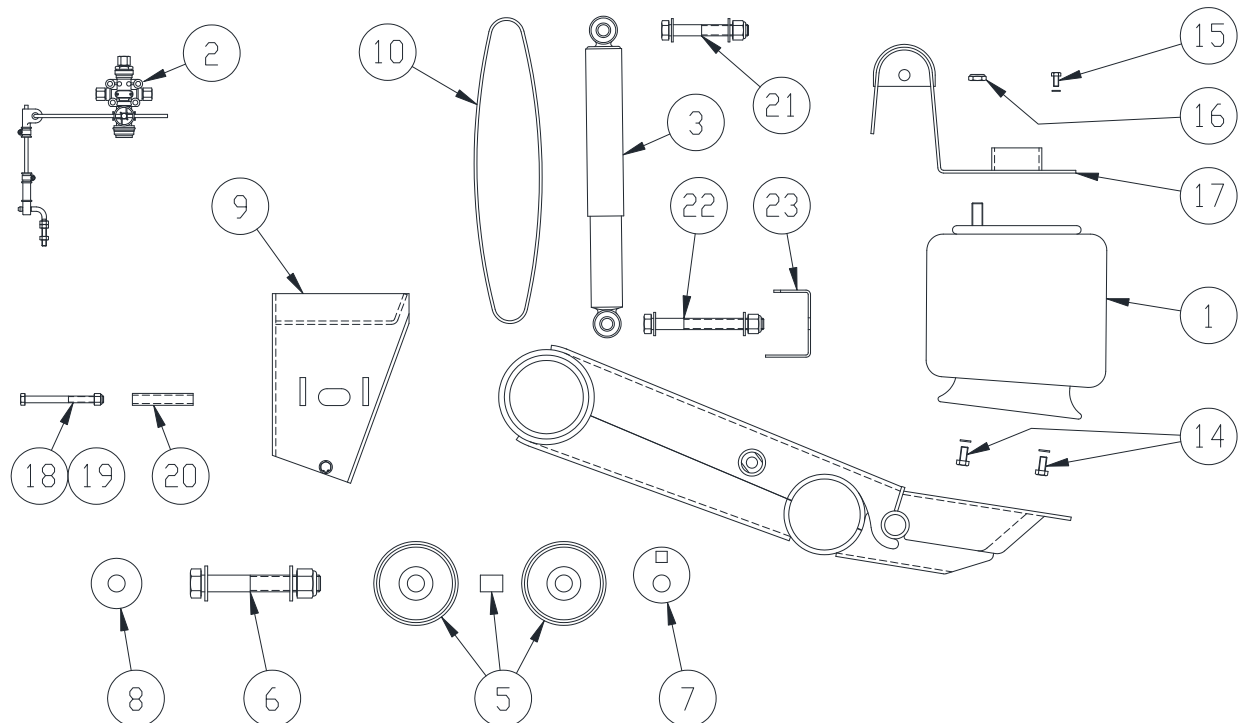


Fig 6.

After the installation of both the pivot bolt assemblies and the suspension alignment has been completed, refit the M12 bolts and spacers into the bottom of the front hangers.

- It is important that the M30 pivot bolts and the M12 bolts are correctly tensioned as per the torque settings chart.

TMC LMV series Air Suspension Spare Parts Listing.**LMV air suspension with laid forward shock absorbers****LMV (VS) air suspension with vertical shock absorbers**

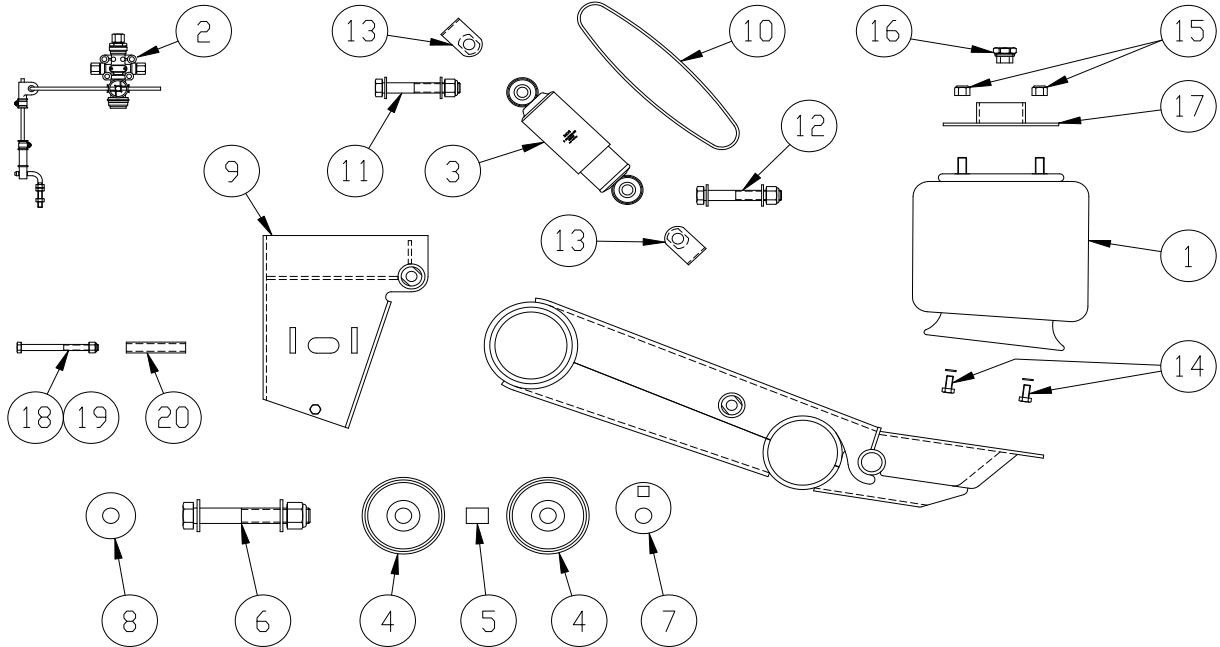
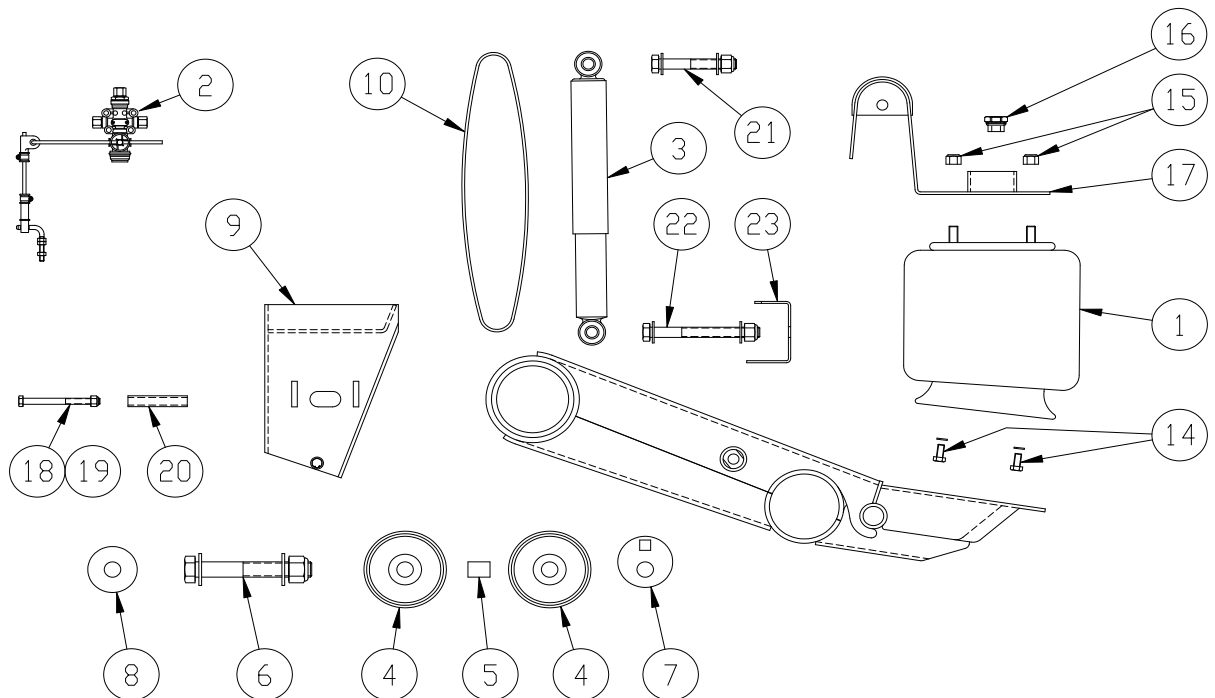


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TMC LM Air Suspension Spare Parts Listing.

<u>Item</u>	<u>Part Number</u>	<u>Description</u>
1	626104	Air spring 1R12-642
	626499	Air spring 1R12-664 (330 ride height only)
2	625226	Levelling valve assembly
3	626500	Shock absorber M24 (laid forward shock absorber)
	626412	Shock absorber M20 (laid forward shock absorber)
	626110	Shock absorber M20 (vertical shock absorber)
5	626117SB	Pivot bushes c/w joining sleeves – one axle
6	626122SB	Pivot bolt c/w nut and washer
7	626123	Hanger alignment washer
8	626126	Hanger pivot washer
9	Refer TMC	Front hanger assembly
10	626134-345-3	Catch strap (orange 3 ply) (laid forward shock absorber)
	626134-615	Catch strap (blue 2 ply) (vertical shock absorber)
11	626527SB	Shocker bolt assembly top M24 x 270 long
12	626528SB	Shocker bolt assembly bottom M24 x 250 long
	626162SB	Shocker bolt assembly M20 top & bottom
13	626501/01 & /02	Catch strap clip M24 (one pc. 01 & 02 per shock)
	626417	Catch strap clip M20 (two pcs. per shock)
14	9HB1/2UNC1.25	Airbag bolt bottom 1/2"UNC x 1.25" long
15	9HB3/8UNC1.00	Airbag top bolt 3/8" UNC x 1" long
16	9LNT3/4UNF	Airbag top mounting nut 3/4" UNF nyloc
17	Refer TMC	Airbag top mounting bracket
18	9HBM12175140	Hex bolt M12 x 140
19	9LNM12	Nyloc nut M12
20	626159	Spacer tube
21	626161SB	Top shocker bolt assy M20 x 100 (vertical shock)
22	626162SB	Lower shocker bolt assy M20 x 150 (vertical shock)
23	626135	Catch strap bottom keeper (vertical shock)

TMC LM Xp series Air Suspension Spare Parts Listing.**LMXp air suspension with laid forward shock absorbers****LMXp (VS) air suspension with vertical shock absorbers**



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TMC LMV & LM Xp series Air Suspension Service Manual

TMC LM Xp series Air Suspension Spare Parts Listing.

<u>Item</u>	<u>Part Number</u>	<u>Description</u>
1	626908	Air spring
2	625226	Levelling valve assembly
3	626500	Shock absorber M24 (laid forward shock absorber)
	626412	Shock absorber M20 (laid forward shock absorber)
	626110	Shock absorber M20 (vertical shock absorber)
4	626424	Pivot bush LM Xp
5	626117/01	Joining sleeve
6	626422SB	Pivot bolt c/w nut and washer – M30 x 220 long
7	626123	Hanger alignment washer
8	626126	Hanger pivot washer
9	Refer TMC	Front hanger assembly
10	626134-345-3	Catch strap (Orange 3 ply) (laid forward shock absorber)
	626134-615	Catch strap (blue 2 ply) (vertical shock absorber)
11	626529SB	Shocker bolt assembly top M24 x 290 long
12	626528SB	Shocker bolt assembly bottom M24 x 250 long
	626162SB	Shocker bolt assembly M20 top & bottom
13	626501/01 & /02	Catch strap clip M24 - (1 pc 01 & 02 per shock)
	626417	Catch strap clip M20 (2 pcs. per shock)
14	9HBM12175040	Airbag bolt bottom – M12 x 40 long
15	9LNM12	Airbag top mounting nut – M12 nyloc
16	625235	M22 adapter & o-ring
17	Refer TMC	Airbag top mounting bracket
18	9HBM12175140	Hex bolt M12 x 140
19	9LNM12	Nyloc nut M12
20	626159	Spacer tube
21	626161SB	Top shocker bolt assy M20 x 100 (vertical shock)
22	626162SB	Lower shocker bolt assy M20 x 150 (vertical shock)
23	626135	Catch strap bottom keeper (vertical shock)