
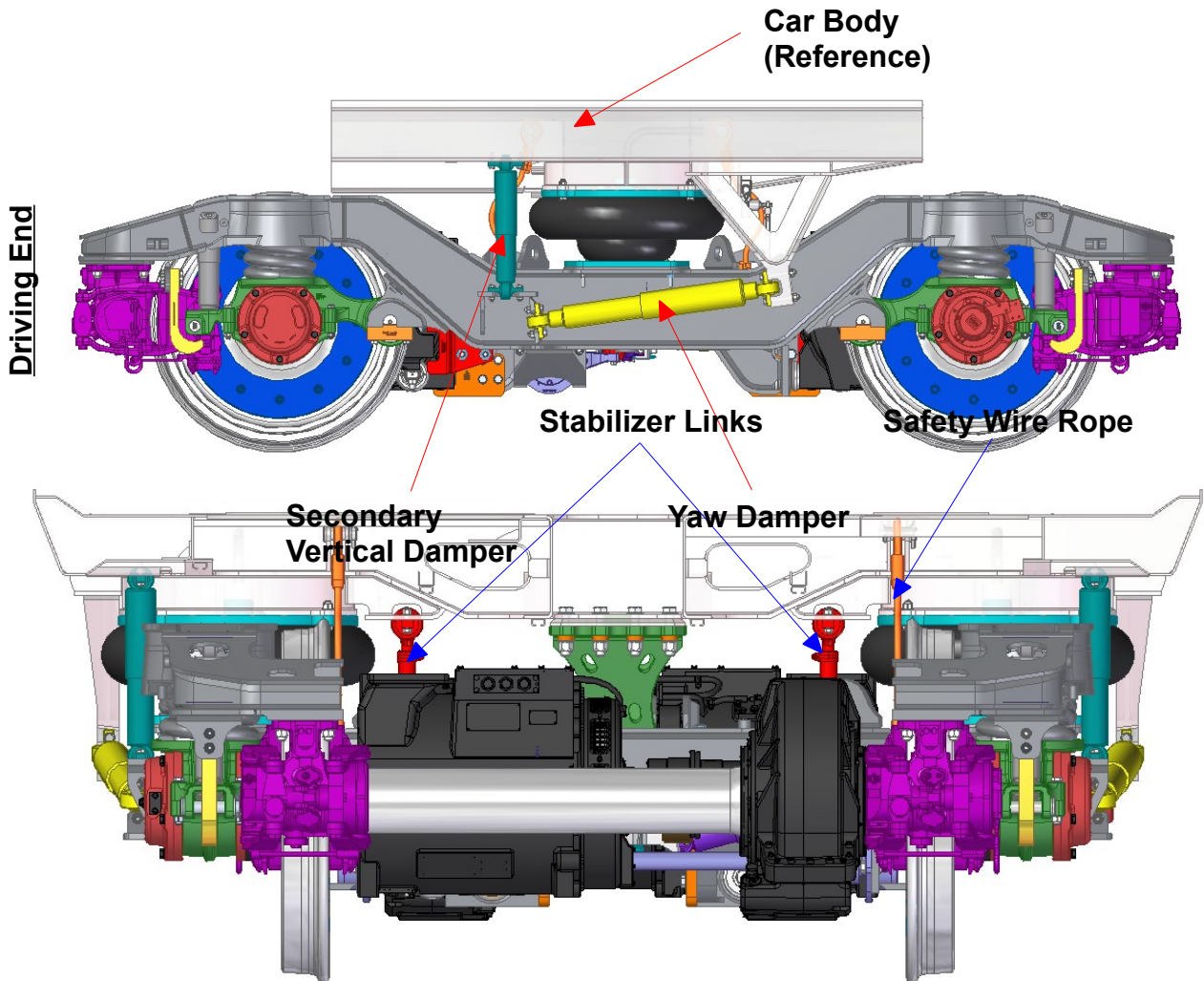


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Title: Procedure for Assembly of Bogie (all types) to Car body_Nord Lock				
Prepared by	Checked by	Approved by	Initiated date	
Sai Madhu.M	Srikanth.P	BOC Reddy	17.10.2022	

1) Introduction : This document explains the procedure for assembly of bogie to car body with secondary air springs, Secondary vertical damper, Yaw damper, Stabilizer link and Safety wire rope.




2) List of Materials / Units :


2.1) List of Components required :

Note: BLUE coloured Items are in ICF scope

List of Components			
Sl.No.	Description	Drawing / Code	Quantity
1)	MC S5 - AIR SPRING FIXING ARRGT_NL or	C-A675UV2- 159405	01
	TC S3 - AIR SPRING FIXING ARRGT_NL or	C-A675UV2- 159465	

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	NDTC S3 - AIR SPRING FIXING ARRGT_NL or	C-A675UV2- 159456	
	DTC FRONT S4 - AIR SPRING FIXING ARRG_T_NL or	C-A675UV2- 159444	
	DTC REAR S4 - AIR SPRING FIXING ARRG_T_NL	C-A675UV2- 159452	
2)	CENTER PIVOT MACHINED		01
3)	WASHER ISO 7089-24-300 HV,GEO SILVER	61012001384	16
4)	BOLT M24,HEX HD120,HTS F/T ZINCFLAKE10.9	66244120120	08
5)	BUSH FOR CP MOUNTING- MAE675UV2	B-A675UV2- 142840	08
6)	NUT_FS-M24-10, GEO SILVER	61012001344	08
7)	CP BOTTOM CLOSING PLATE		01
8)	NORDLOCK_NL16,GEO SILVER	61012001346	02
9)	ISO 4017-M16x80-10.9,GEO SILVER	61012001359	02
10)	STABILIZER LINK FOR BOGIE	61010000018	02
11)	NORDLOCK_NL14,GEO SILVER	61012001912	16
12)	HEXA HD SCREW ISO 4017- M14x60-10.9,GEO SILVER	61012001366	04
13)	NUT ISO 4032_M14-10,GEO SILVER	61012001923	08
14)	SECONDARY VERTICAL DAMPER FOR BOGIE	61010000006	02
15)	NORDLOCK_NL12,GEO SILVER	61012001913	16
16)	HEXA HD SCREW ISO 4017- M12x55-8.8,GEO SILVER	61012001353	08
17)	NUT ISO 4032_M12-8,GEO SILVER	61012001921	08
18)	HEXA HD SCREW ISO 4017-	61012001367	04

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	M14x80-10.9,GEO SILVER		
19)	NORDLOCK_NL16,GEO SILVER	61012001346	24
20)	NORDLOCK_NL16sp,GEO SILVER	61012001914	08
21)	HEXA HD SCREW ISO 4017-M16x70-8.8,GEO SILVER	61012001358	08
22)	NUT ISO 4032_M16-8,GEO SILVER	61012001920	16
23)	SAFETY WIRE ROPE FOR BODY-BOGIE _ A675UV2	B-A675UV2-138988	04
24)	ISO 2341-B-36x85-C45+QT_BOGIE LIFTING_PIN	B-A675UV2-139463	08
25)	WASHER EN 28738-36-200HV,GEO SILVER	61012001378	08
26)	SPLIT PIN ISO 1234-8x63-St-GALVANIZED	61012001375	08
27)	YAW DAMPER FOR BOGIE	61010000008	02
28)	HEXA HD SCREW ISO 4017-M16x60-8.8,GEO SILVER	61012001357	04
29)	HEXA HD SCREW ISO4017-M16x130-8.8-A2A,GEO SILVER	61012001370	04

2.2) Machinery and Tools Required :


SI.No.	Description	Quantity	Purpose
1)	Torque Wrench	01	Ranging from 30Nm to 900 Nm
2)	4-point lifting apparatus for complete vehicle (50t)	01	For coach lifting
3)	Lifting apparatus for bogie (5t)	01	For traction center lifting for locating center pivot during assembly

2.3) Consumables required :

- P-80 Thix Oil
- Molykote 1000

2.4) Reference Drawings :

SI.No.	Description	Drawing / Document No.
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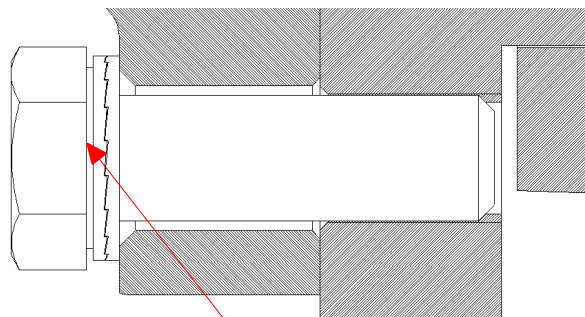
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1)	MC BOGIE FINAL _ BOGIE-CARBODY CONNECTION_NL	D-A675UV2-159406
2)	TC BOGIE FINAL- _BOGIE -CARBODY-CONNECTION_NL	D-A675UV2-159466
3)	NDTC BOGIE FINAL _BOGIE-CARBODY-CONNECTION_NL	D-A675UV2-159457
4)	DTC FRONT BOGIE FINAL _ BOGIE-CARBODY CONNECTION_NL	D-A675UV2-159445
5)	DTC REAR BOGIE FINAL _ BOGIE-CARBODY CONNECTION_NL	D-A675UV2-159453
6)	BUSH FOR CP MOUNTING-MAE675UV2	B-A675UV2-142840
7)	STABILIZER LINK FOR BOGIE	GMT No. 65087601 - 01
8)	SECONDARY VERTICAL DAMPER FOR BOGIE	KONI : OFF 16730
9)	SAFETY WIRE ROPE FOR BODY-BOGIE _ A675UV2	B-A675UV2-138988
10)	ISO 2341-B-36x85-C45+QT _BOGIE LIFTING_PIN	B-A675UV2-139463
11)	YAW DAMPER FOR BOGIE	KONI : OFF 16809

3) Pre Assembly Instructions :

- Use only one make dampers for all bogies in complete rake formation.
- Use only one make stabilizer links for all bogies in complete rake formation.
- Ensure all tapped holes should be free from burrs, dirt, oil, grease etc.
- Lubricate the threaded portion all hardware with Molykote – 1000 Anti seize paste.

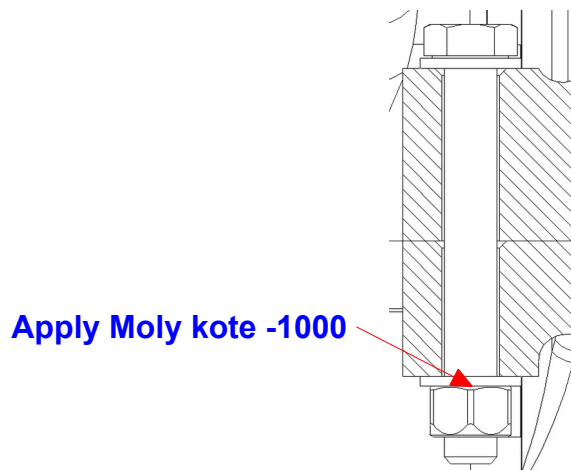
Lubricate the head portion of bolt (mating face with washer) while applying tightening torque on bolt.



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Apply Moly kote -1000

Lubricate the nut face (mating face with washer) while applying tightening torque on nut.



- Always wear hand gloves while handling Molykote products.
- **P80-Thix oil applying procedure :**

Handheld Sprayers: Fill the reservoir with oil and spray it on the part to be assembled.

Rubber and Cotton Gloves: Wear cotton gloves over rubber gloves. Dip fingers into P-80 and assemble the part. The rubber gloves prevent the P-80 from saturating the skin.

Minimum Drying Time : 2 Hours

Always wash with plenty of soap and water after applying oil.


- Mark with torque seal on hardware after applying mentioned tightening torque.

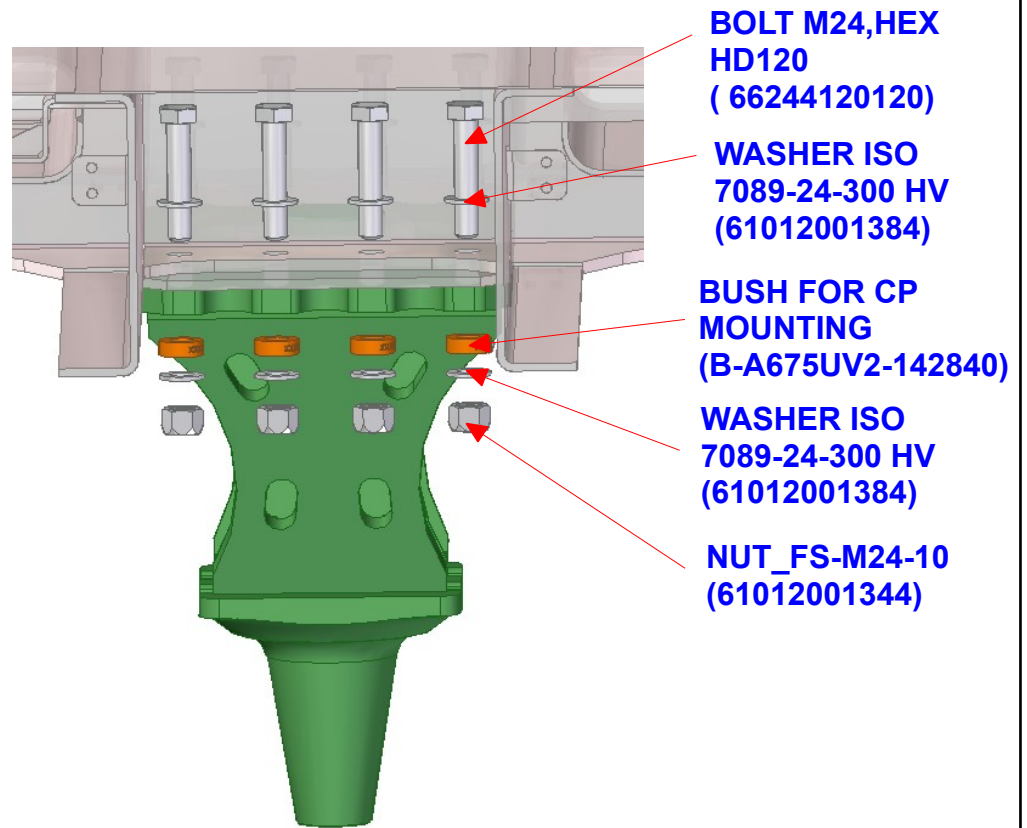
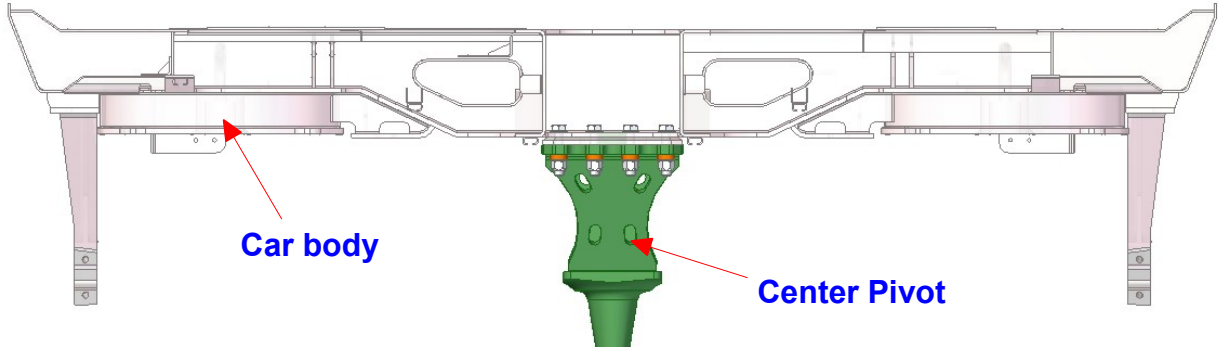
4) Assembly procedure :

4.1) Before Lowering the car body :

Step 1- Center Pivot Fixing (Customer Scope) -

- Before assembling the center pivot to car body, clean the pivot and it should be free from rust, oil or any other substances.
- Fix the pivot to the car body with below mentioned hardware,


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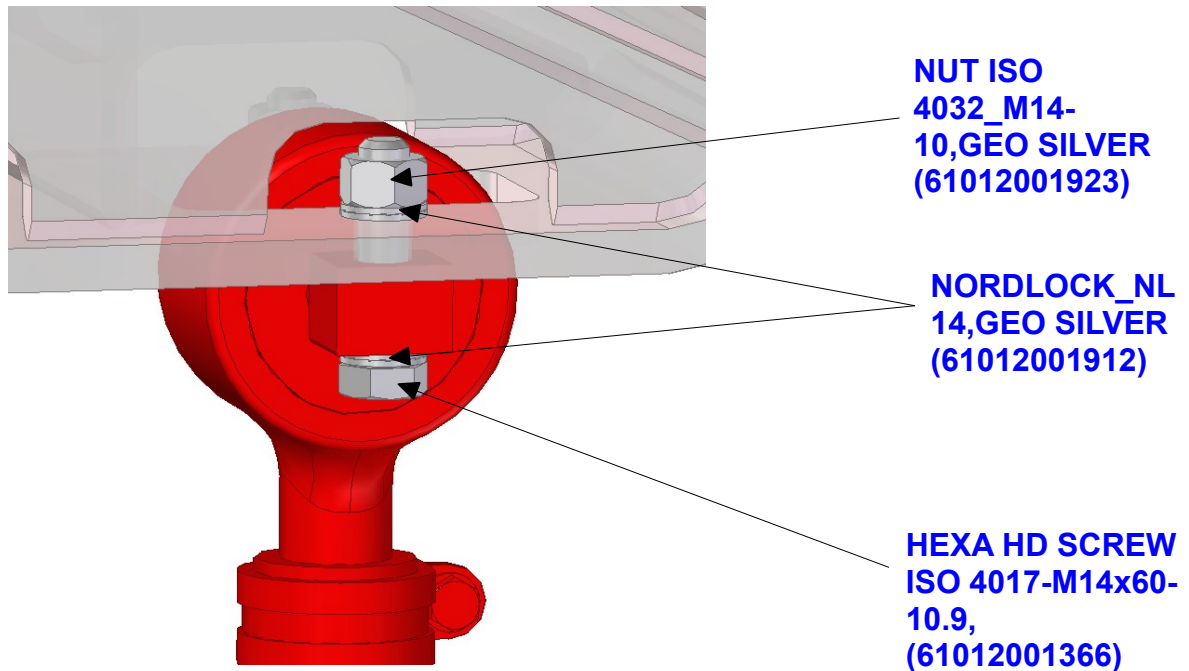
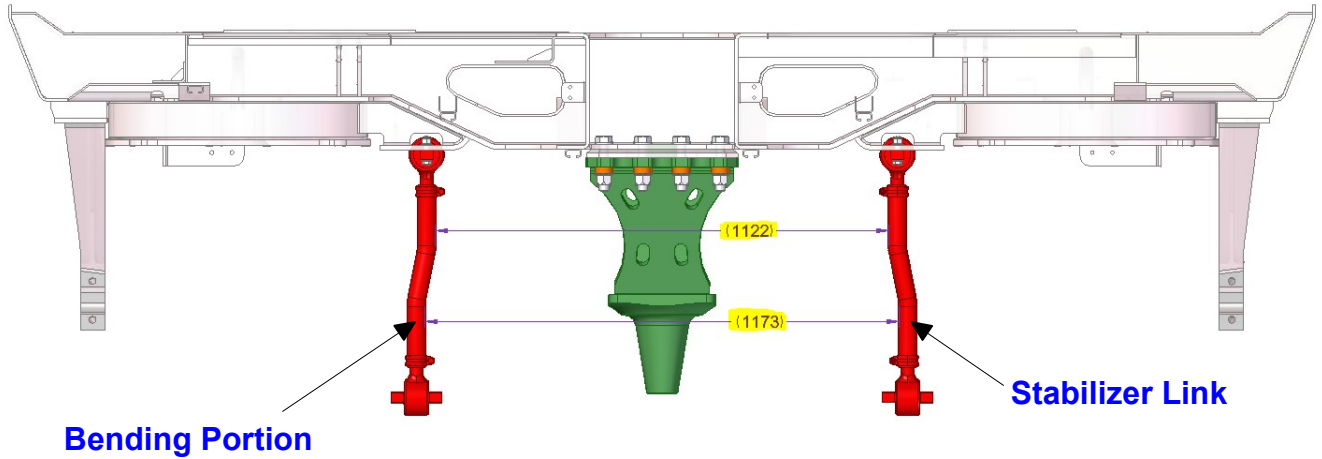


→ Apply tightening torque of **900 Nm**.

Step 2- Assembly of stabilizer link (Car body side) :

- Fix the Stabilizer Link (61010000018) to the car body with below mentioned hardware,
- After fixing, Ensure that taper portion of stabilizer link is directed towards outside the coach.


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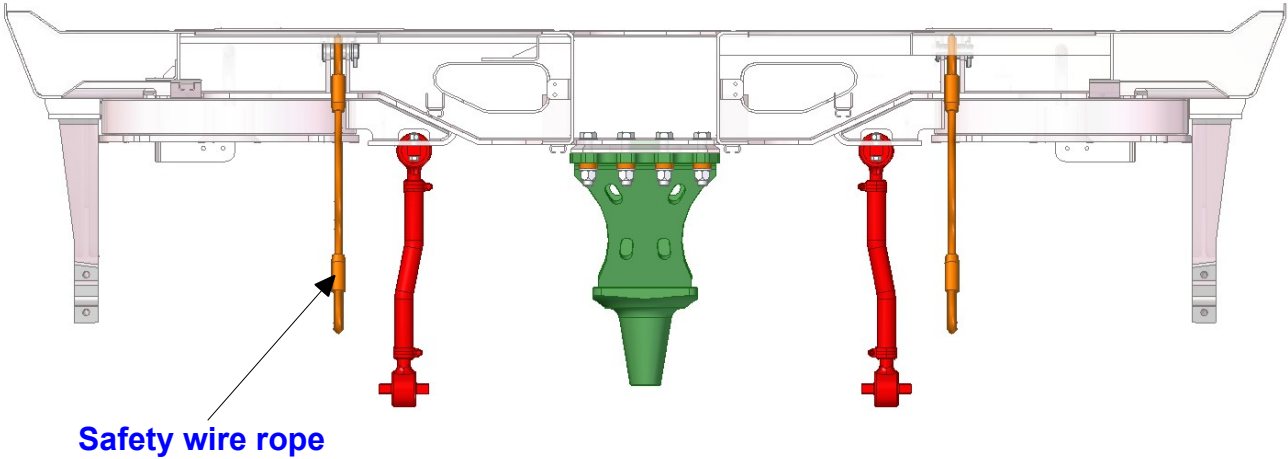


→ Apply tightening torque of **180 Nm**.

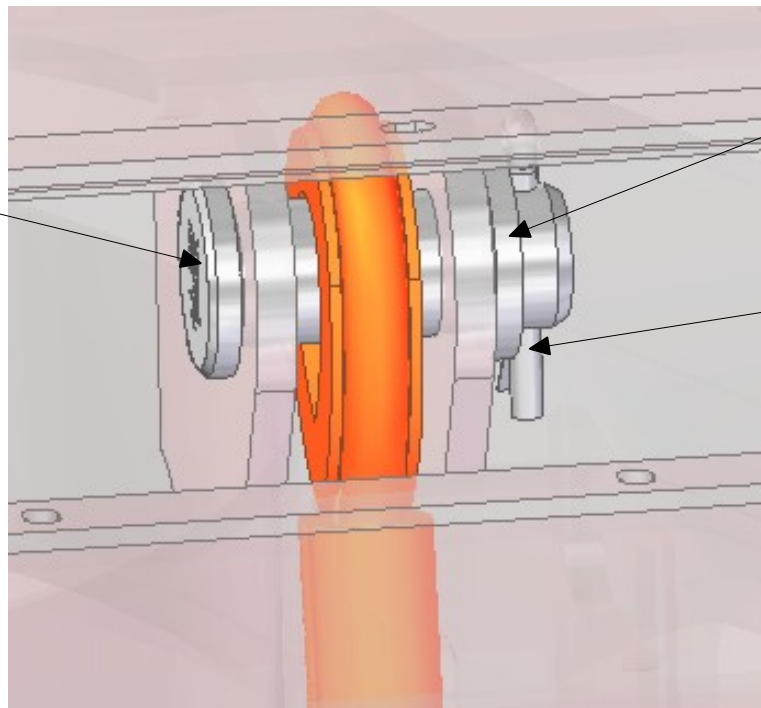
Step 3- Assembly of Safety wire rope (Car body side) :

→ Fix the Secondary safety wire rope (513898820001) to the car body with below mentioned hardware,

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ISO 2341-B-
36x85-C45+QT
(B-A675UV2-
139463)




WASHER EN
28738-36-
200HV
61012001378

SPLIT PIN ISO
1234-8x63-St
61012001375

4.2) Lowering the car body :

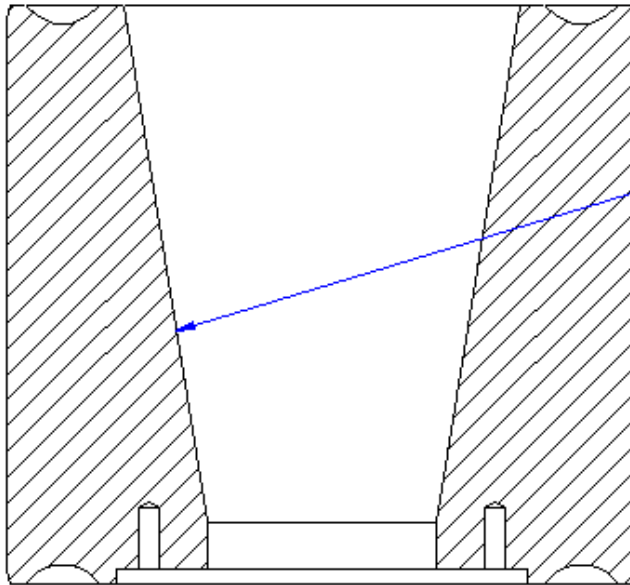
Step 1- Clean the bore of center pivot bearing and ensure that no dust particles, corrosion on the bore surface.

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Apply thin layer of P-80 Thix inside the bore of center pivot bearing as per below,

Step 2-
Coach
Lowering

→
When
coach is
lowered
on bogie,
it can be
noticed
that, CP
pin and
traction



Apply thin layer of
P-80 Thix inside the bore face

centre will not match as due to self weight traction centre will move downward.

Step 3- With suitable jacks, push traction centre upwards for proper engagement with CP pin. Check and ensure dimension $15 \pm 1\text{mm}$ as per below,

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Checked by

Approved by

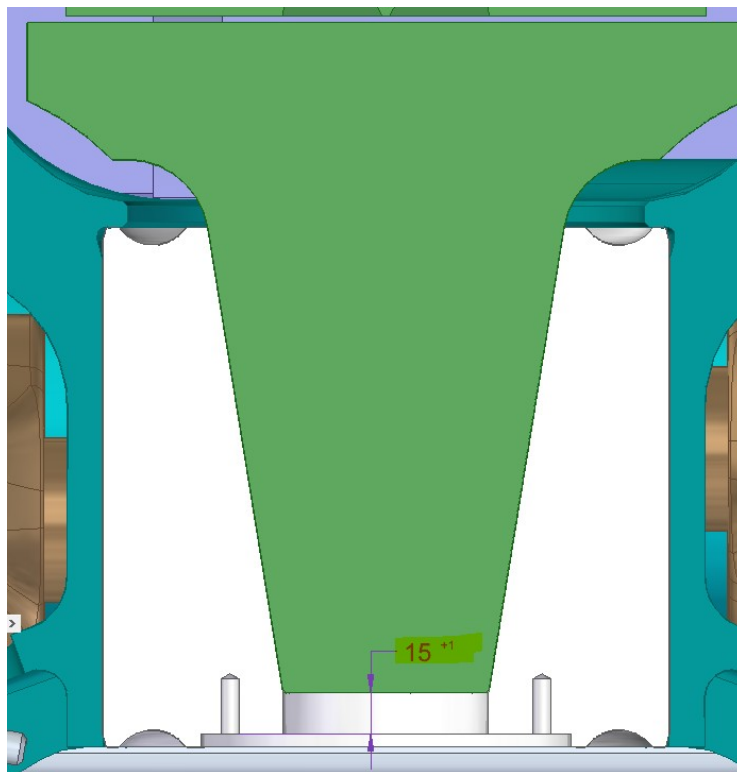
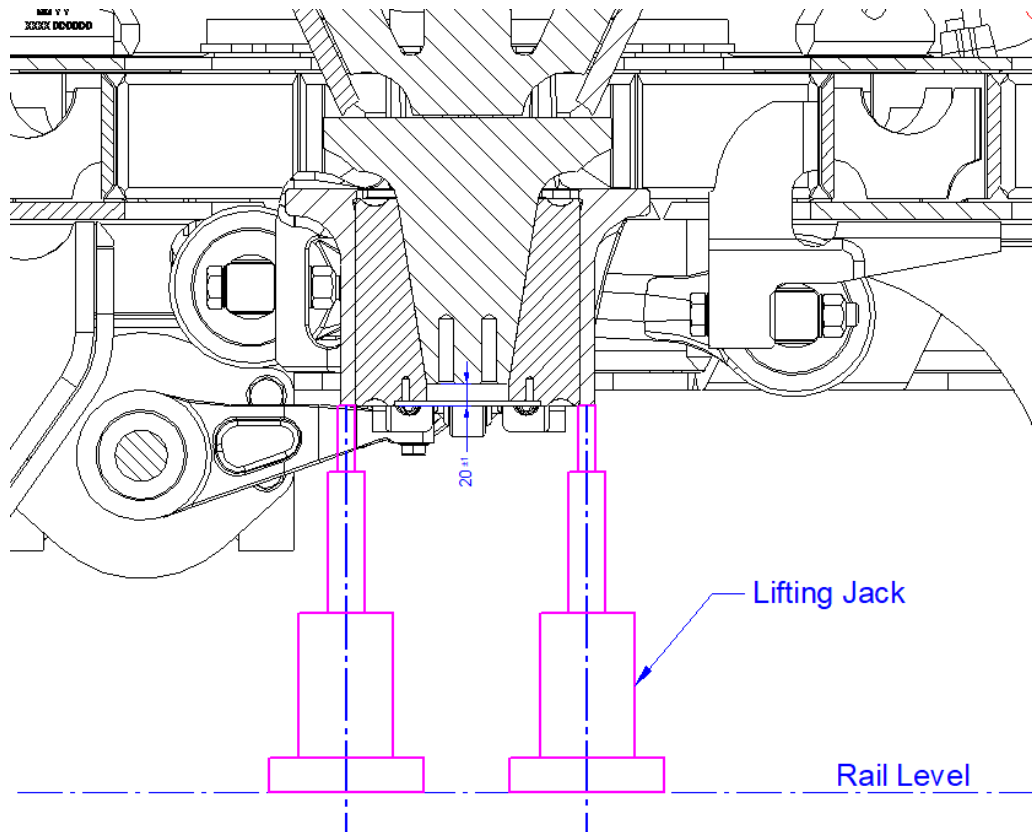
Initiated date

Sai Madhu.M


Srikanth.P

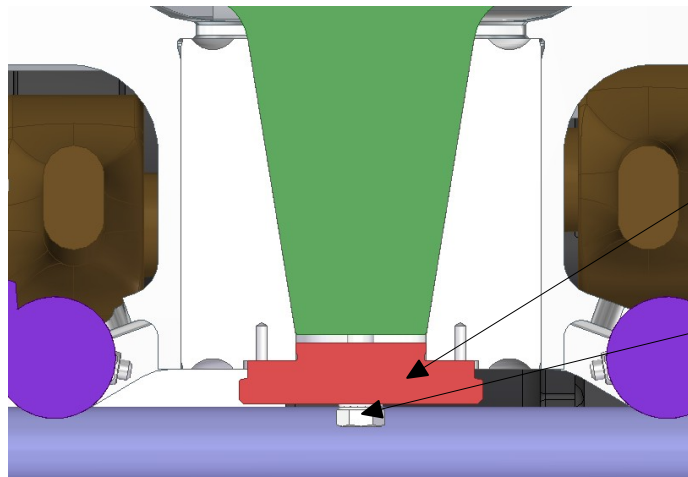
BOC Reddy

17.10.2022



Step 4- After ensuring 15 ± 1 mm dimension as above, with jacks in position, fix the CP Bottom closing plate with Nord Lock washer NL16 (61012001346) and Hexa head screw ISO 4017-M16x80-10.9 (61012001359).

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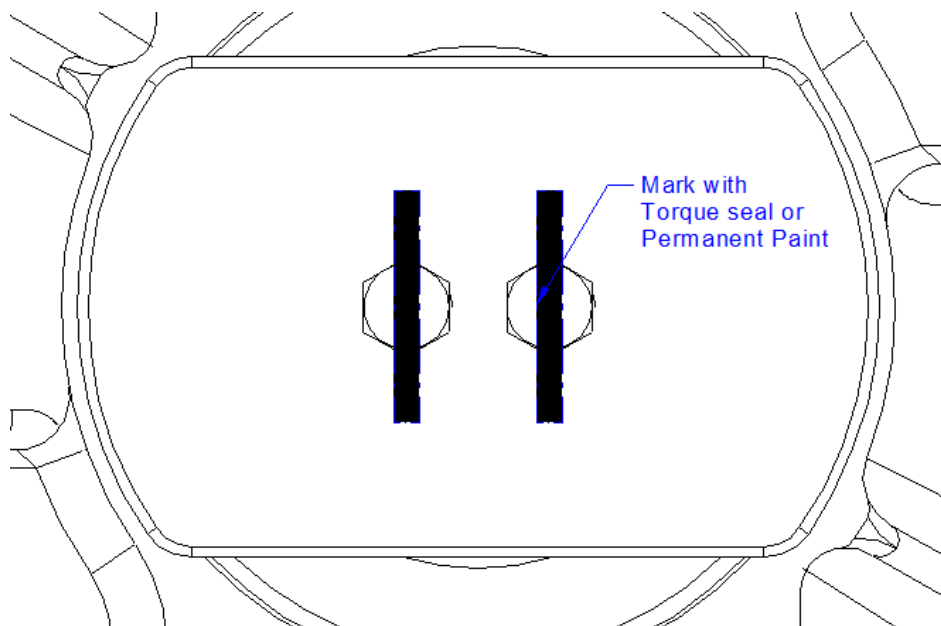



CP Bottom closing plate

Hexa head screw
ISO 4017-M16x80-
10.9 (61012001359)
With NordLock
washer NL16

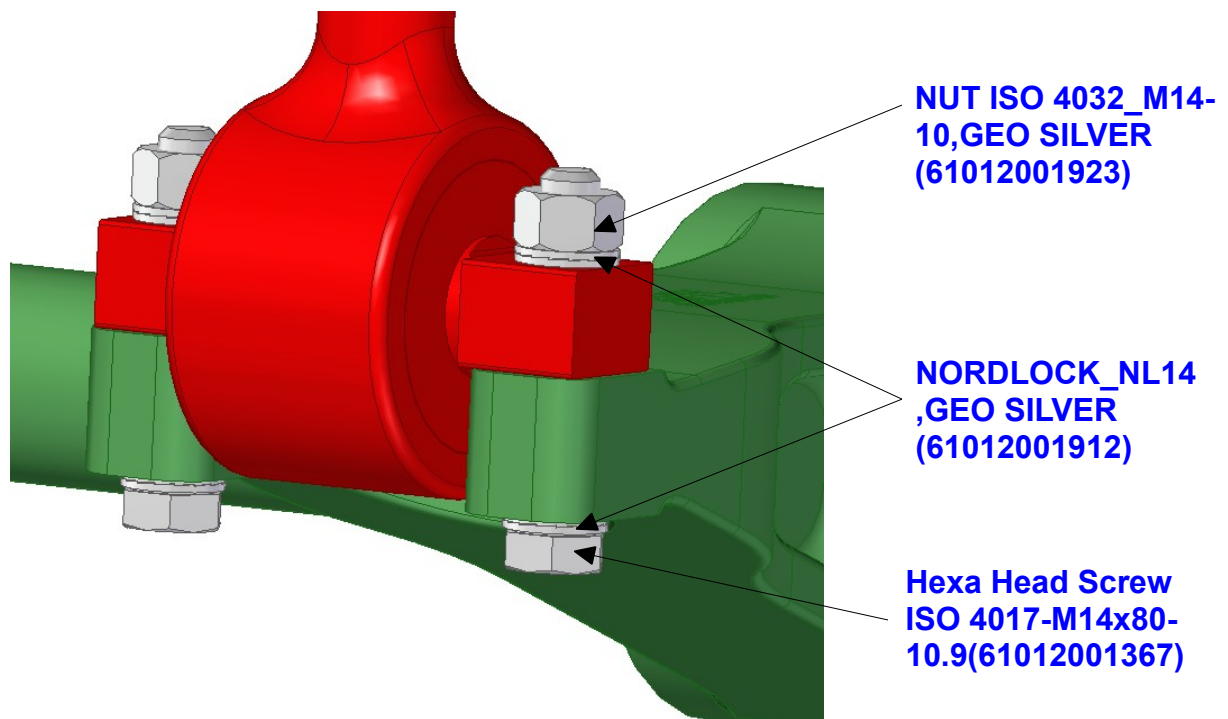
Apply tightening torque of **232 Nm**.
Recommended even and sequential tightening torque steps as per below,
1st Step - 116 Nm
2nd Step - 174 Nm
3rd Step - 232 Nm

→ Suitably mark with permanent marker or paint a strip on bolt faces, inter lock washer and bottom cover. This is necessary for inspection / verification / checking in service.



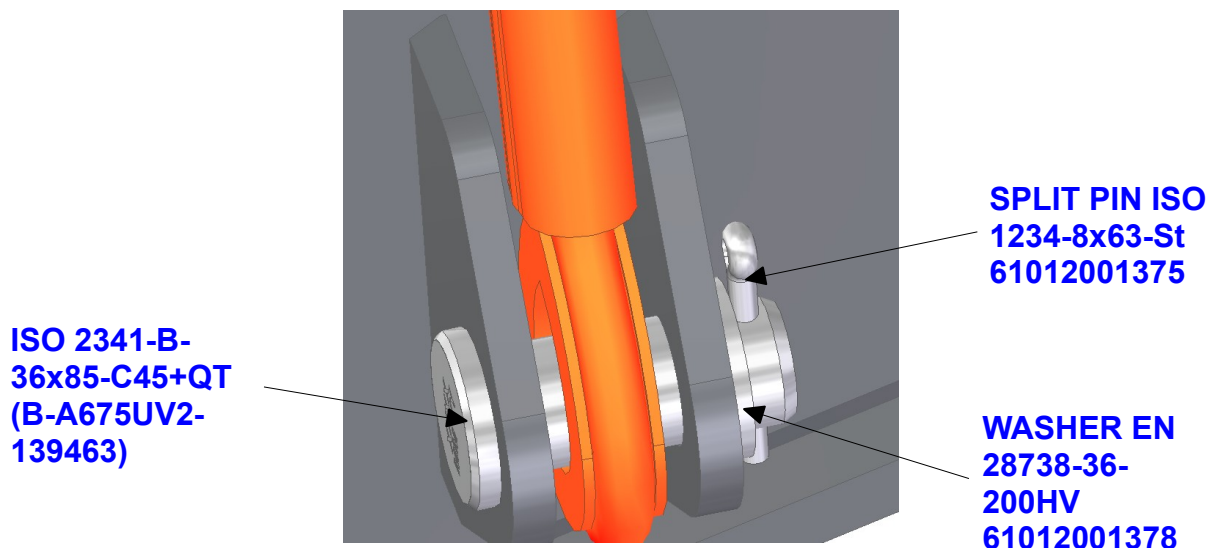
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Step 5- Fix the Stabilizer link to the Fork with Hexa Head Screw ISO 4017-M14x80-10.9(61012001367), NORDLOCK_NL14,GEO SILVER (61012001912) and NUT ISO 4032_M14-10,GEO SILVER (61012001923).



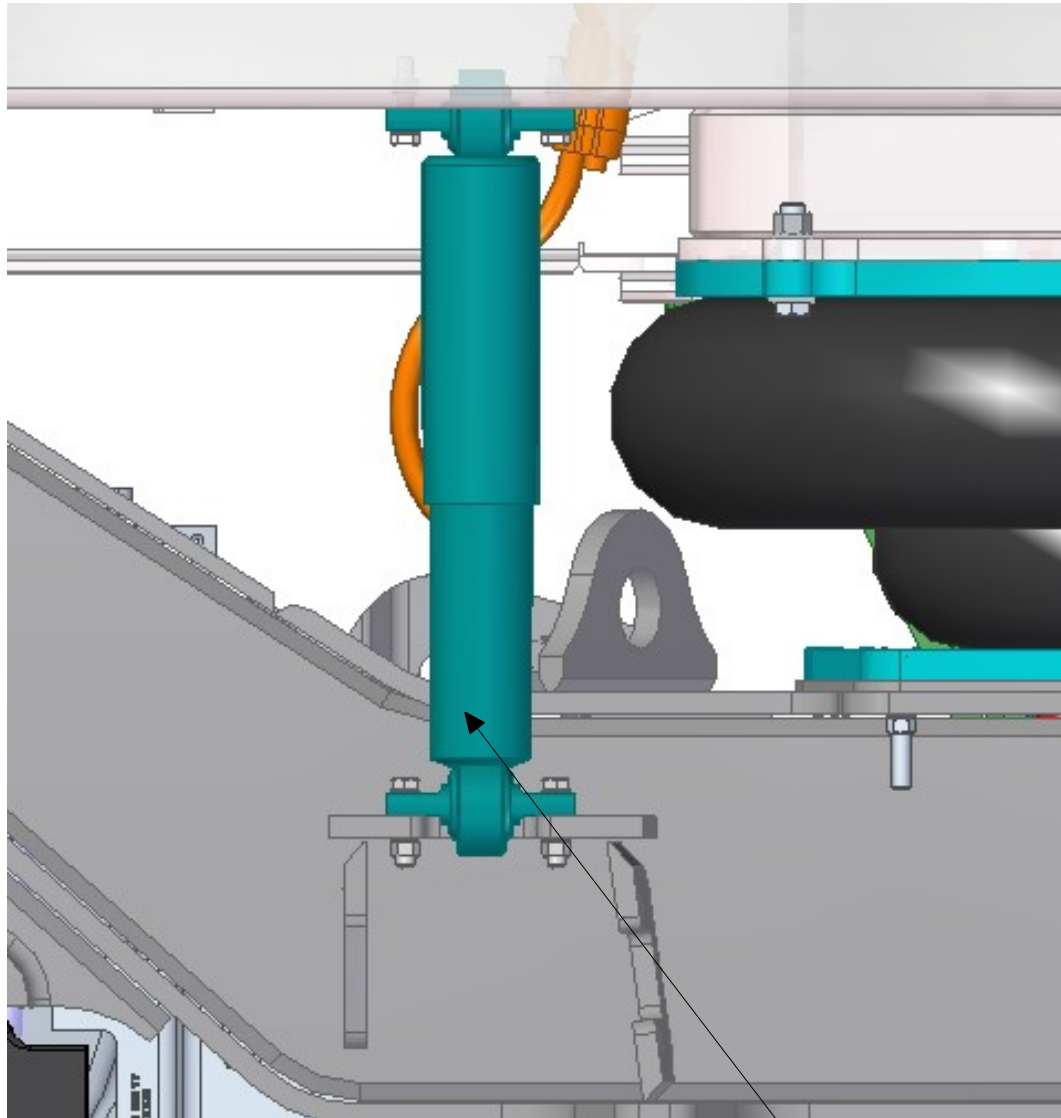
→ Apply tightening torque of **180 Nm**.

Step 6 - Fix the Secondary safety wire rope (513898820001) to the bogie frame with below mentioned hardware,.




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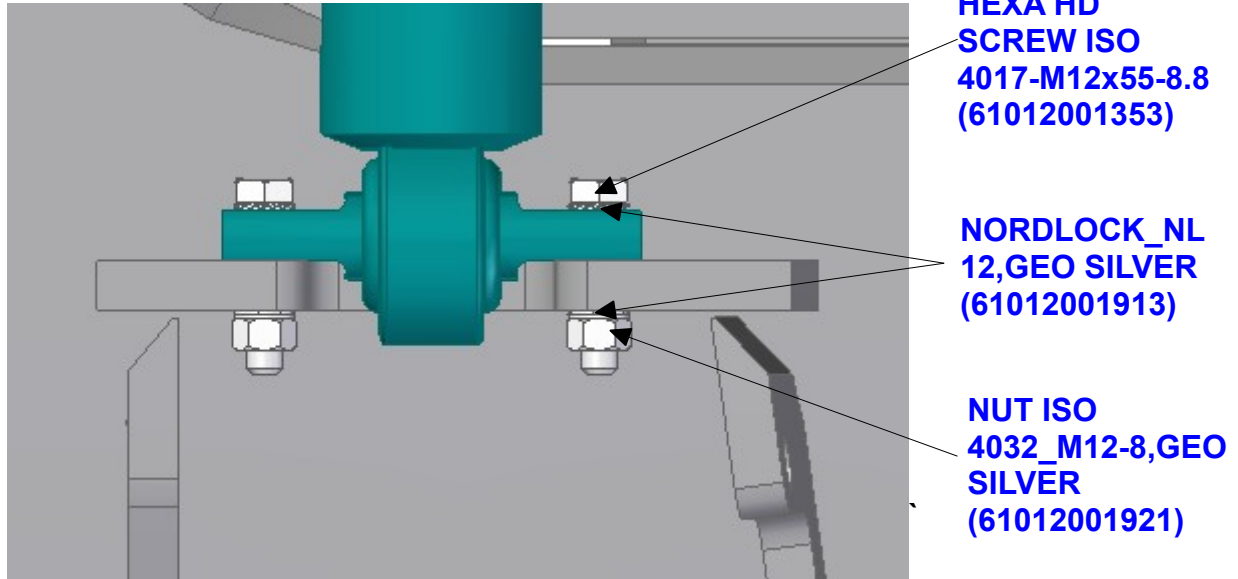
Step 7 - Assembly of Secondary vertical damper :



**Secondary
Vertical damper**

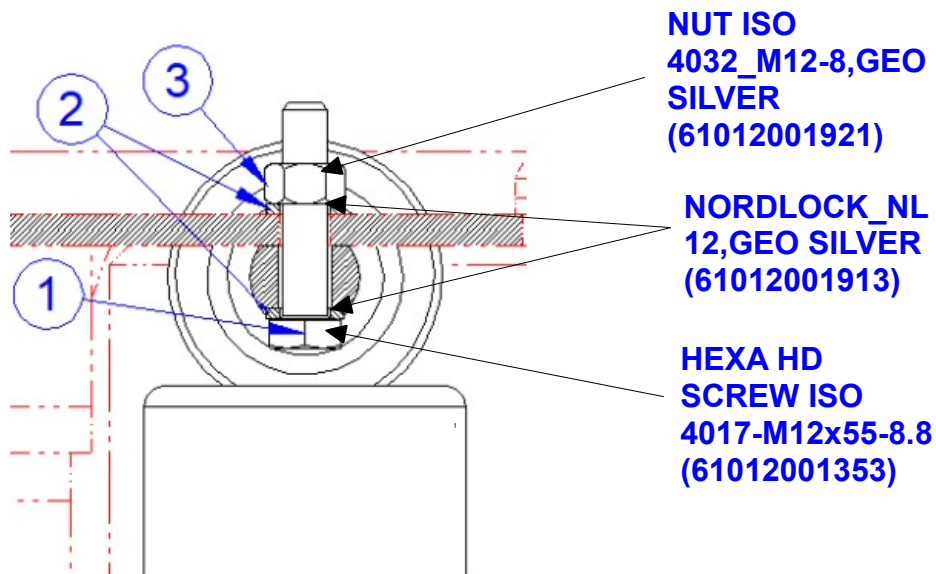
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→ Fix the Secondary vertical damper (6101000006) to the bogie frame with below mentioned hardware,




→ Apply tightening torque of 77 Nm.

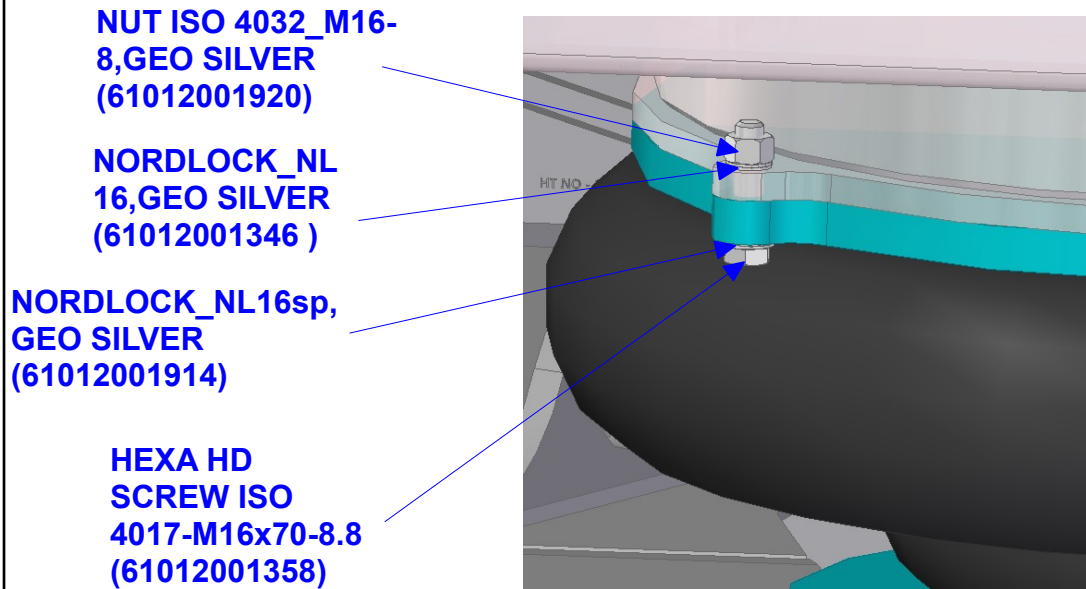
→ Fix the Secondary vertical damper (6101000006) to the car body with below mentioned hardware,



→ Apply tightening torque of 77 Nm.

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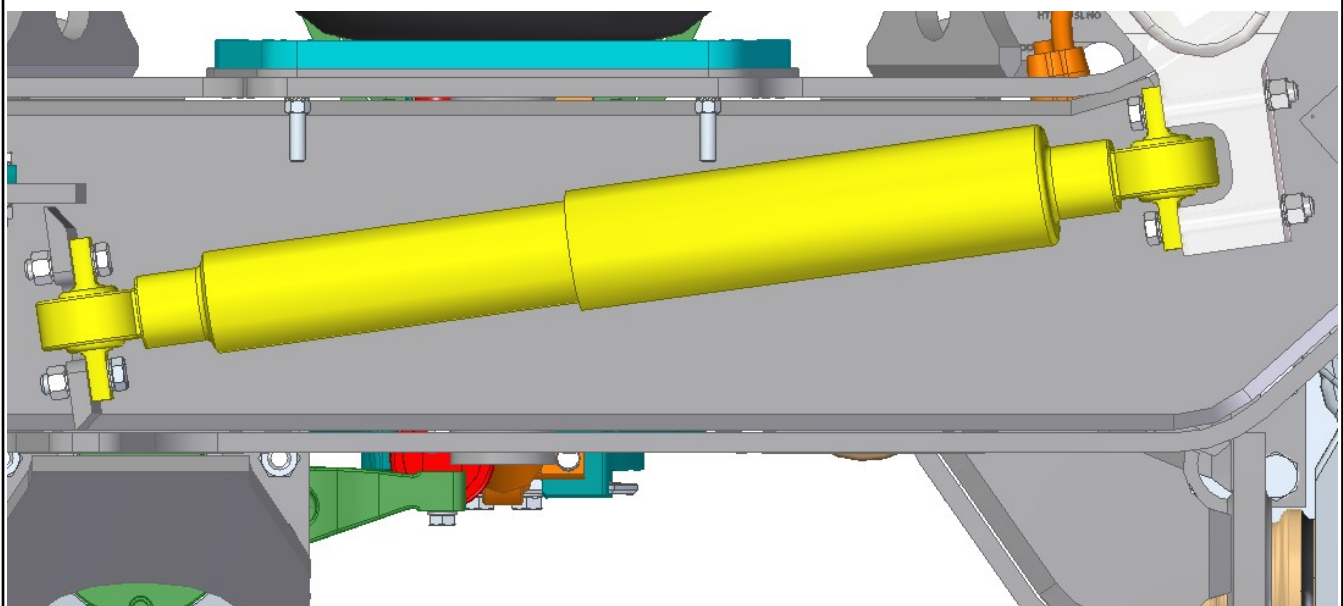
Step 8 – Fix the Secondary air spring to the car body with below mentioned hardware,



→ Apply tightening torque of **168 Nm**.

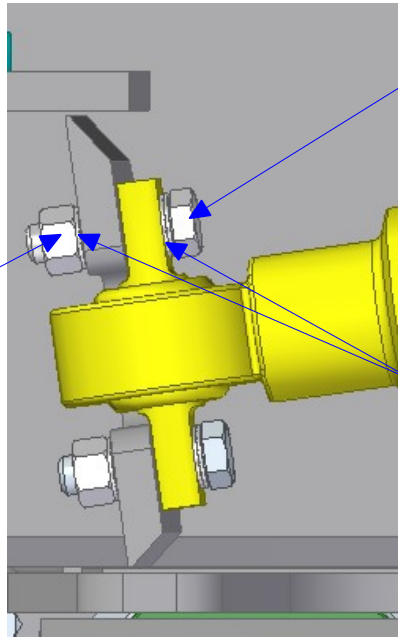
Step 9 – Assembly of Yaw damper :

→ Fix the Yaw Damper to the Bogie side and car body side with below mentioned hardware,



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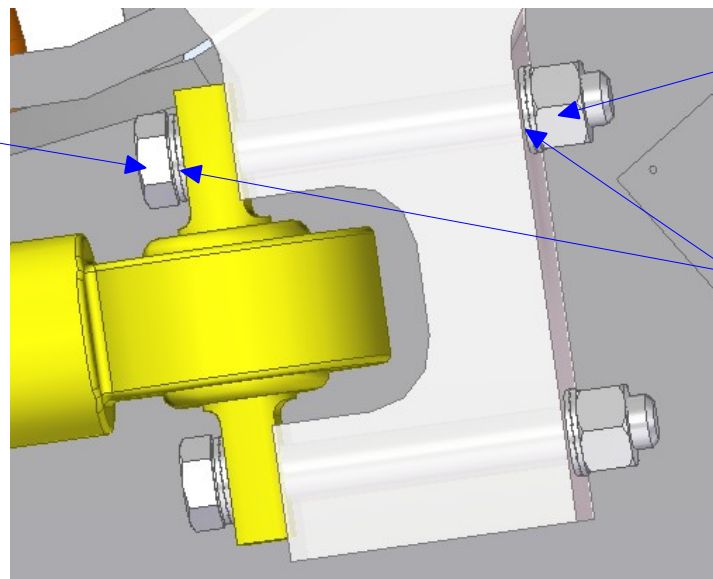
HEXA HD SCREW
ISO 4017-M16x60-8.8,
(61012001357)

NUT ISO 4032_M16-
8,GEO SILVER,
(61012001920)

NORDLOCK_NL16,GEO
SILVER
(61012001346)

Bogie Side

→ Apply tightening torque of **190 Nm**.




HEXA HD SCREW
ISO4017-
M16x130-8.8,
(61012001370)

NUT ISO
4032_M16-8,GEO
SILVER
(61012001920)

NORDLOCK_NL16,
GEO SILVER
(61012001346)

Car Body Side

→ Apply tightening torque of **190 Nm**.

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5) Check List :

Check the all measurements and fill the values in the following format No. SF-10359

REV. NO.	DATE	ECR NO.	DESCRIPTION OF REVISION