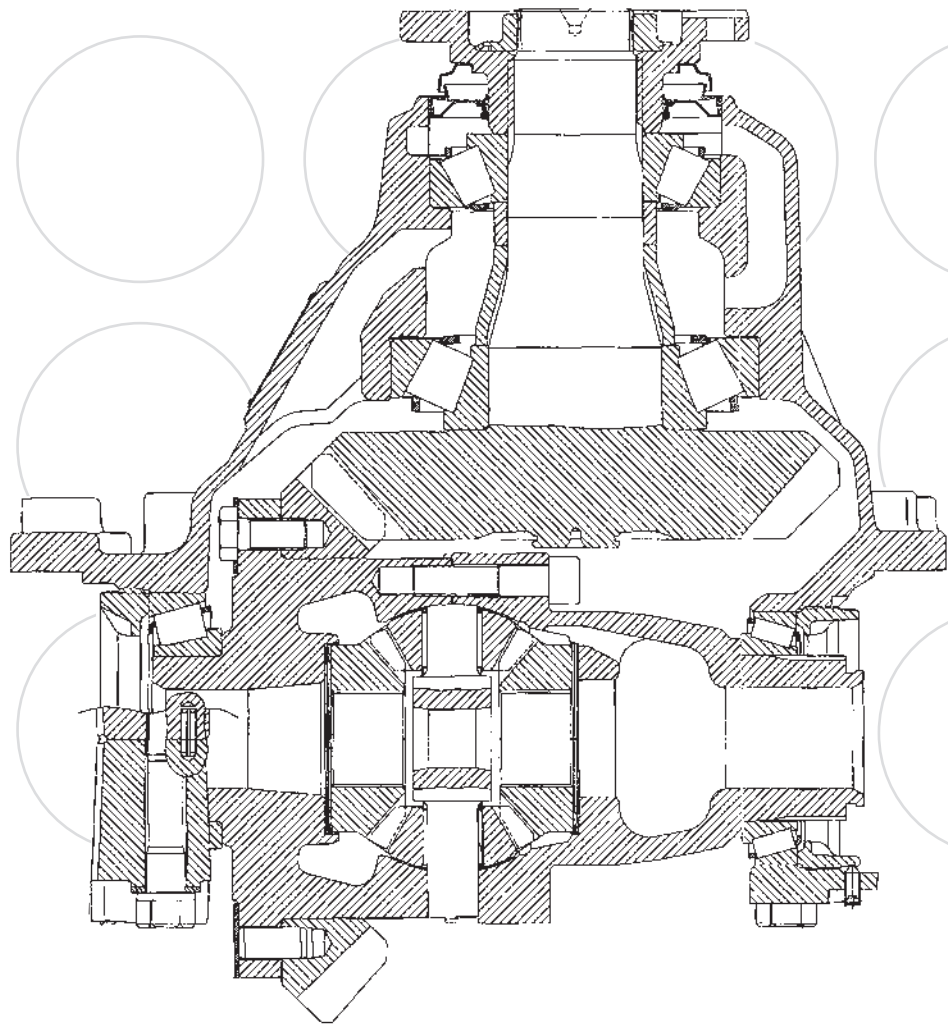


Maintenance manual no. MM-01105

Single Reduction Differential Carrier MS-MR61 (DS70H)

Issue: November 2015



Service Notes

Before You Begin

This publication provides installation and maintenance procedures for the MERITOR Single Reduction Differential Carrier MS-MR61

The information contained in this publication was current at the time of printing and is subject to revision without notice or liability.

You must understand all procedures and instructions before you begin maintenance and service procedures.

You must follow your company's maintenance and service guidelines.

You must use special tools, when required, to avoid serious personal injury and damage to components.

MERITOR uses the following notations to alert the user of possible safety issues and to provide information that will help to prevent damage to equipment and components.


WARNING

A WARNING indicates a procedure that you must follow exactly to avoid serious personal injury.

CAUTION

A CAUTION indicates a procedure that you must follow exactly to avoid damaging equipment or components. Serious personal injury can also occur.

NOTE: A note indicates an operational, procedure or instruction that is important for proper service. A NOTE can also supply information that will help to make service quicker and easier.

 This symbol indicates that you must tighten fasteners to a specific torque.

Access Information on Meritor's Web Site

Additional maintenance and service information for Meritor's commercial vehicle systems component lineup is also available at www.meritor.com

To access information, click on Products, Publications. The screen will display an index of publications by type.

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Document No. MM-01105

Revision, November 2015

Information contained in this publication was in effect at the time the publication was approved for printing and is subject to change without notice or liability. Meritor Commercial Vehicle Systems reserves the right to revise the information presented to discontinue the production of parts described at any time.

Service Notes

Terms used in this manual

Manufacturer:

MERITOR

Manual:

Maintenance manual no. MM-01105

Device:

Single reduction differential carrier MR61 and MS61

Technician:

Qualified personnel working on the single reduction differential carrier maintenance and servicing.

Maintenance and servicing:

Maintenance and servicing refer to periodical checks and/or replacement of the single reduction differential carrier parts or components.

It also refers to the determining of the cause of a malfunction in order to restore the initial operating conditions.

Operator:

Any person who will use the single reduction differential carrier as part of a more complex device.

Warranty

Warranty applies to the single reduction differential carrier installed on vehicles for which it was designed. Warranty is void in the following cases:

- Improper use of the vehicle on which the single reduction differential carrier is installed (usage conditions, overloading etc.)
- Tampering with vehicle components that may affect the single reduction differential carrier performance.
- Use of non-original spare parts.
- Improper installation, adjustment, repair or modification.
- Poor or improper maintenance (including consumables other than those specified).

Further information on warranty conditions may be obtained directly from the manufacturer or by referring to the Meritor web site www.meritor.com

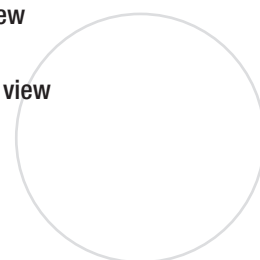
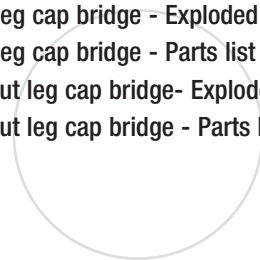
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Introduction

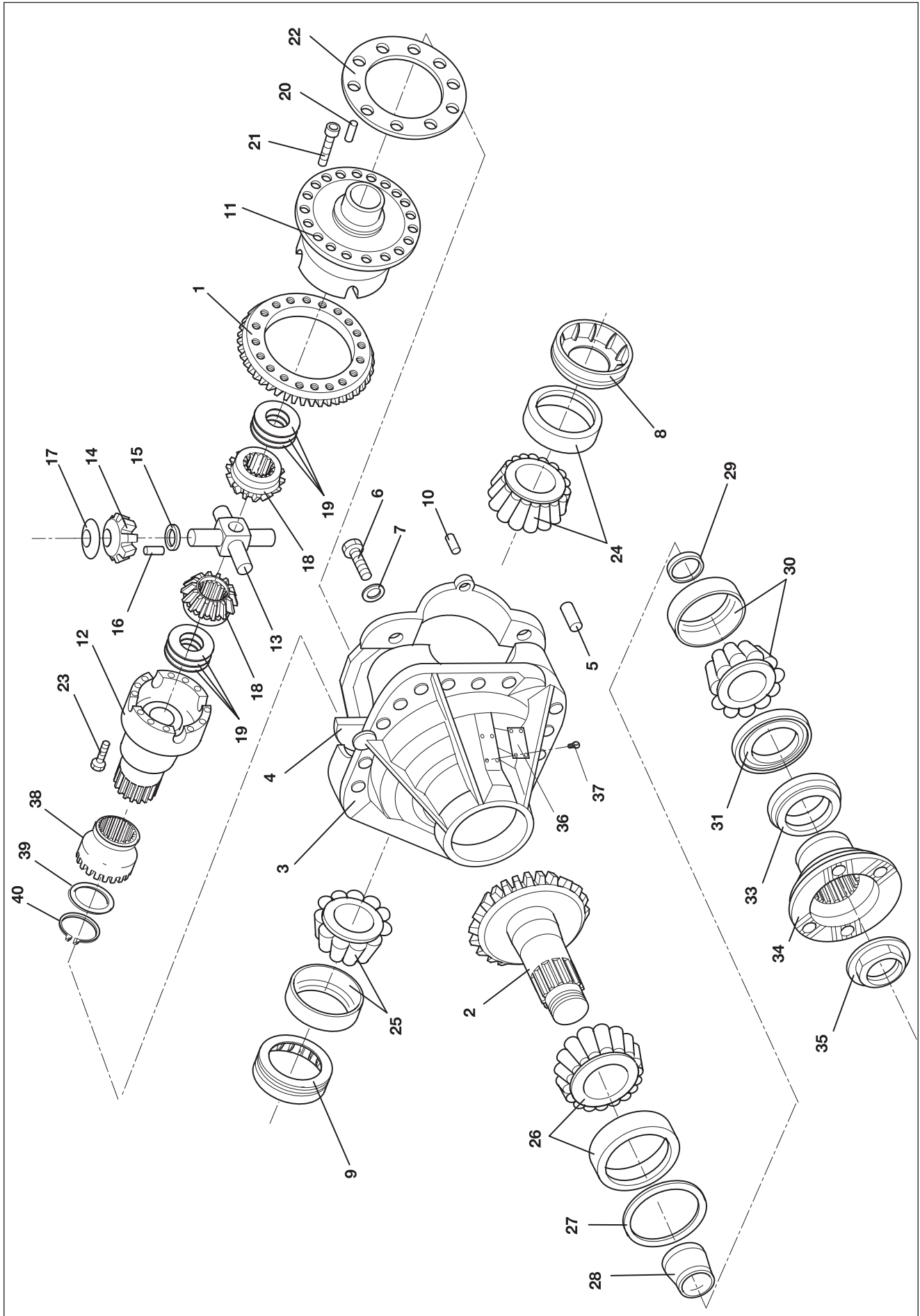


pg. 6	MR61 with leg cap bridge - Exploded view
7	MR61 with leg cap bridge - Parts list
8	MR61 without leg cap bridge- Exploded view
9	MR61 without leg cap bridge - Parts list



Exploded view

Single Reduction Differential Carrier MR61 with leg cap bridge



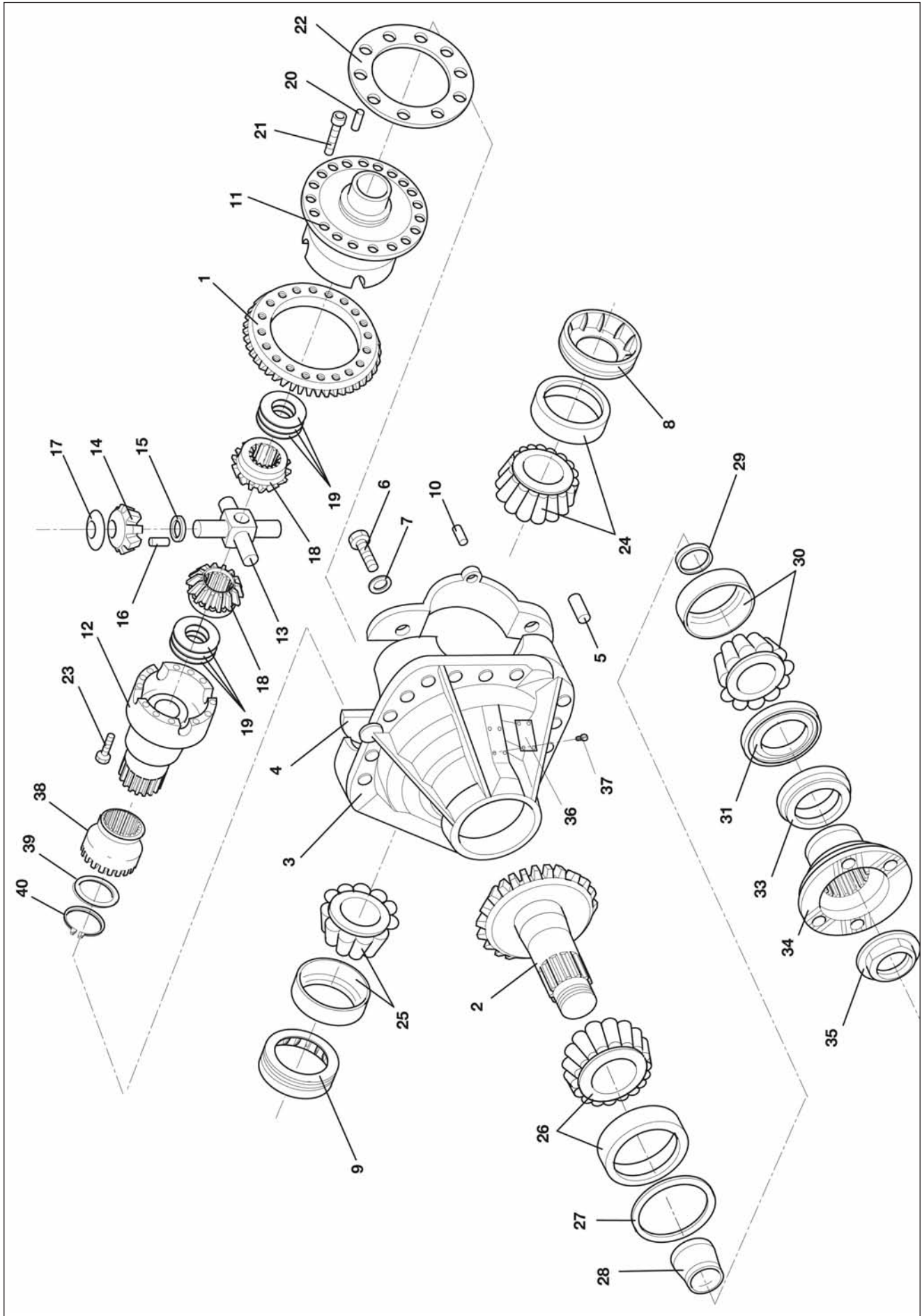
Parts list

Single Reduction Differential Carrier MR61 with leg cap bridge

Ref	Description	Q.ty
1	Crown Wheel	1
2	Pinion	1
3	Diff. carrier	1
4	Diff. carrier cap	1
5	Locating pin	1
6	Cap screw	1
7	Washer cap screw	1
8	Adjusting Ring	1
9	Adjusting Ring	1
10	Set Screw	2
11	Diff. housing left	1
12	Diff. housing right	1
13	Spider	1
14	Diff. pinion	4
15	Spacer plate	4
16	Needle	35 x 4
17	Thrust washer	4
18	Diff. side gear	2
19	Thrust washer	6
20	Pin	10
21	Screw	10
22	Lock plate	1
23	Hex socket screw	12
24	Roller bearing	1
25	Roller bearing	1
26	Pinion bearing	1
27	Shim	-
28	Spacer sleeve	1
29	Spacer sleeve	1
30	Pinion bearing	1
31	Seal	1
33	Dirt shield	1
34	Companion flange	1
35	Locknut	1
36	Identification plate	1
37	Drive screw	4
38	Fixed collar	1
39	Spacer ring	1
40	Circlip	1

Exploded view

Single Reduction Differential Carrier MR61 without leg cap bridge



Parts list

Single Reduction Differential Carrier MR61 without leg cap bridge

Ref	Description	Q.ty
1	Crown Wheel	1
2	Pinion	1
3	Diff. carrier	1
4	Diff. carrier cap	1
5	Locating pin	1
6	Cap screw	1
7	Washer cap screw	1
8	Adjusting Ring	1
9	Adjusting Ring	1
10	Set Screw	2
11	Diff. housing left	1
12	Diff. housing right	1
13	Spider	1
14	Diff. pinion	4
15	Spacer plate	4
16	Needle	35 x 4
17	Thrust washer	4
18	Diff. side gear	2
19	Thrust washer	6
20	Pin	10
21	Screw	10
22	Lock plate	1
23	Hex socket screw	12
24	Roller bearing	1
25	Roller bearing	1
26	Pinion bearing	1
27	Shim	-
28	Spacer sleeve	1
29	Spacer sleeve	1
30	Pinion bearing	1
31	Seal	1
33	Dirt shield	1
34	Companion flange	1
35	Locknut	1
36	Identification plate	1
37	Drive screw	4
38	Fixed collar	1
39	Spacer ring	1
40	Circlip	1

Introduction

Single Reduction Differential Carrier MR61

In order to ensure reliable and efficient operation, maintenance intervals, use of lubricants and correct procedures specified by the manufacturer should be strictly observed.

For further information contact the manufacturer's engineering department.

WARNING

Only original Meritor spare parts should be used.

CAUTION

Use of non-recommended lubricants will adversely affect performance and service life.

Use of non-original parts could seriously affect the single reduction differential carrier assembly performance.

Maintenance

2

pg. 12	Removing the Differential Carrier From the Axle Housing
13	Carrier Stripdown Procedure
20	Crown wheel assembly – stripdown procedure
23	Pinion assembly rebuilding
28	Pinion Bearing preload calculation
29	Pinion axial clearance value
30	Set-up crown wheel and pinion clearance
33	Rebuild of the crown wheel assembly
35	Rebuild of the crown wheel assembly back into the carrier
37	Preload instruction with leg cap bridge
39	Preload instruction without leg cap bridge
41	Removal & replacement of cross axle diff. lock unit
44	Installing & adjusting the differential lock sensor switch
45	Refitting the carrier to axle housing

2 Maintenance

WARNING

To prevent serious eye injury, always wear safe eye protection when you perform vehicle maintenance or service.

Removing the Differential Carrier from the Axle Housing

Raising the Vehicle

1. Make sure the vehicle is on a level surface.

WARNING

Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving. Support the vehicle with safety stands. Do not work under a vehicle supported only by jacks. Jacks can slip and fall over. Serious personal injury and damage to components can result.

2. Raise the vehicle so that the wheels are off the ground. Support the vehicle with safety stands.
3. Remove the oil drain plug from bottom of the axle housing and drain the axle lubricant from the housing assembly.
4. Disconnect the driveline from the input yoke.
5. Disconnect the vehicle air line from the inter-axle differential and main differential lock actuator assemblies.
6. Disconnect the driveline universal joint from the pinion input yoke or flange on the carrier. For driveline and U-joint disassembly and service, refer to the manufacturer's instructions.
7. Remove the capscrews* and washers or stud nuts and washers from the flanges of both axle shafts.
8. Loosen the tapered dowels* in the axle flanges of both axle shafts using one of the following methods.

NOTE:

* Some Meritor carriers do not have these described parts.

9. Remove the axle shafts per the vehicle manufacturer recommended procedures.

Carrier Removal

1. Place a hydraulic roller jack under the differential carrier to support the assembly.
2. Remove all but the top two carrier-to-housing capscrews or stud nuts and washers.
3. Loosen, but do not remove, the top two carrier-to-housing fasteners. The fasteners will hold the carrier in the housing.
4. Loosen the differential carrier in the axle housing. Use a plastic mallet to hit the mounting flange of carrier at several points.
5. After the carrier is loosened, remove the top two stud nuts and washers that hold the assembly in the axle housing.

CAUTION

When using a pry bar, be careful not to damage the carrier or housing flange. Damage to these surfaces will cause oil leaks.

6. Carefully remove the carrier from the axle housing using the hydraulic roller jack. Use a pry bar that has a round end to help remove the carrier from the housing.
7. On axles with a driver controlled main differential lock, if air pressure is used to shift the differential to the locked (engaged) position, release the air pressure. Disconnect the air hose from the shift unit.
8. Lift the differential carrier by the input yoke or flange and place the assembly in a repair stand. Use a lifting tool for this procedure. Do not lift by hand. For carrier repair stand specifications, refer to Section 8.

2 Maintenance

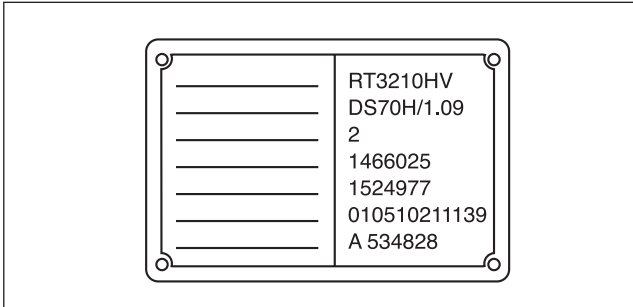


Fig. 2.1

Carrier Stripdown Procedure

1. Carrier identification tag. (Fig.2.1)

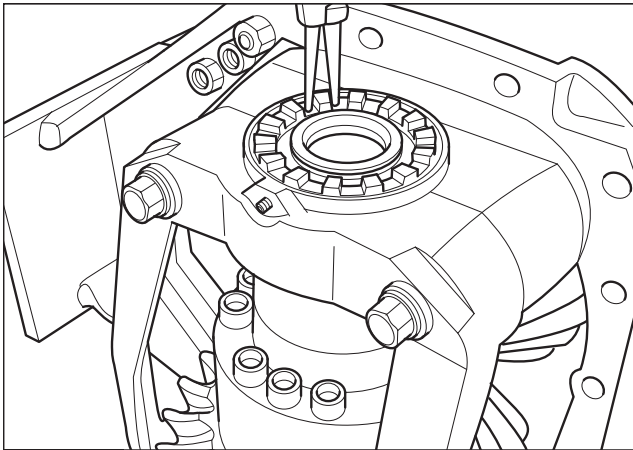


Fig. 2.2

2. Release differential lock snap ring. (Fig.2.2)

3. Remove snap ring, spacer, and fixed collar. (Fig.2.3)

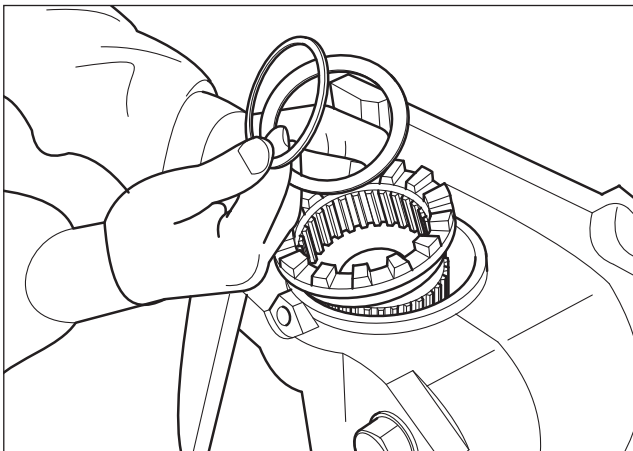


Fig. 2.3

4. Remove two set screws, discard screws and replace with new for rebuild. (Fig. 2.4)

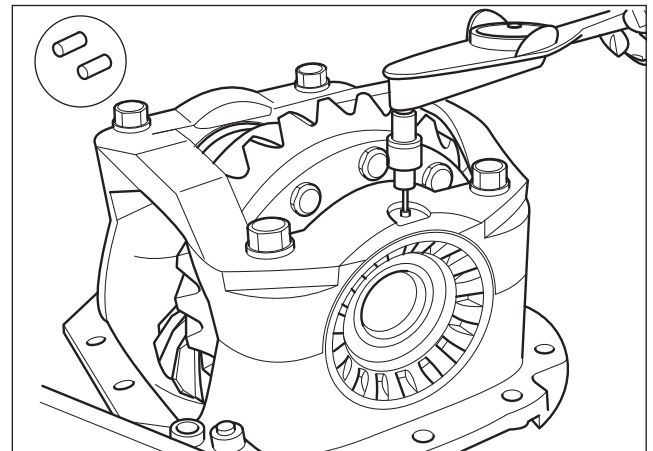


Fig. 2.4

2 Maintenance

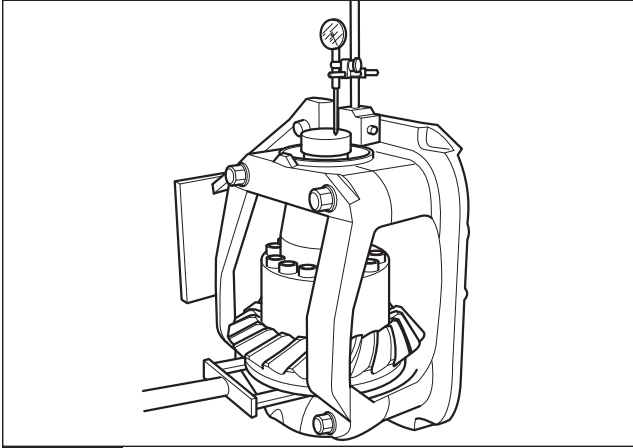


Fig. 2.5

5. Check end float of differential housing assembly. (Fig. 2.5)

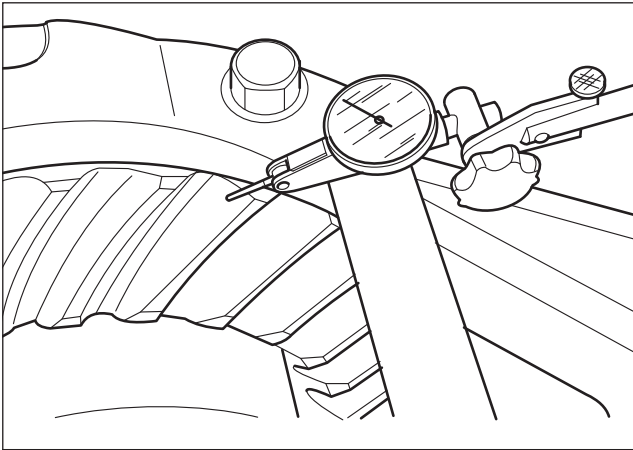


Fig. 2.6

6. Inspect back lash between crown wheel and pinion gear.
The backlash should be between 0.30 and 0.40mm.
This should be checked in 3 places equally spaced around the crown wheel. (Fig. 2.6)

7. Check run out on the rear of the crown wheel.
The maximum tolerance for run out is 0.15 mm. (Fig. 2.7)

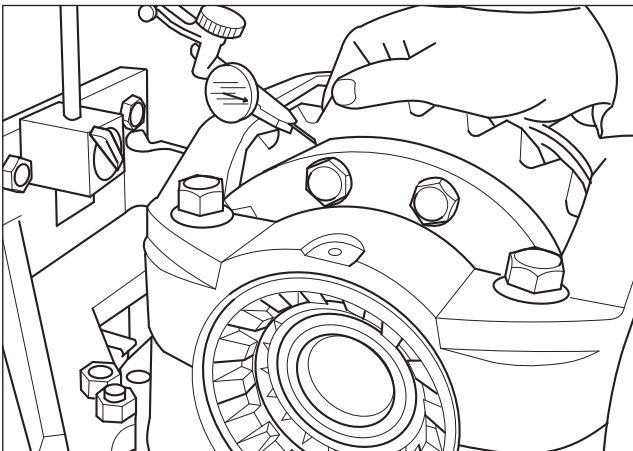


Fig. 2.7

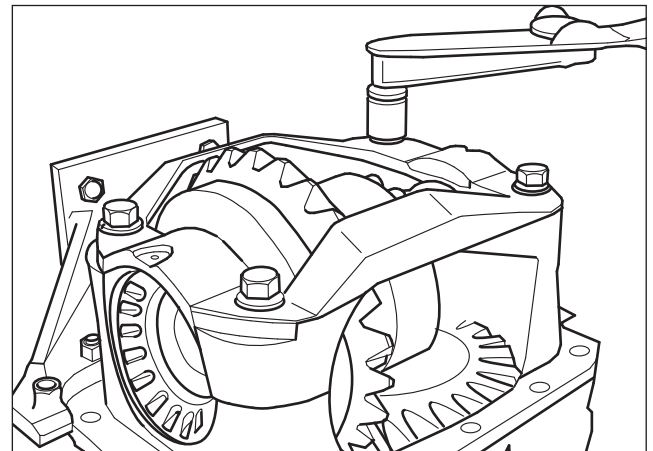


Fig. 2.8

8. Release the four bearing cap screws, discard screws and replace with new for rebuild. (Fig.2.8)

2 Maintenance

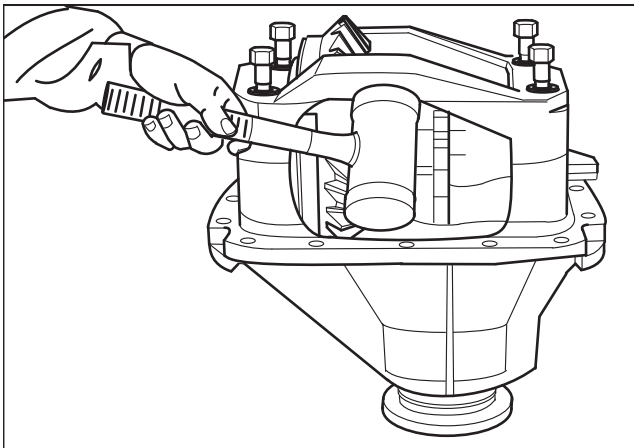


Fig. 2.9

9. With a soft headed mallet, carefully knock the bearing cap off the carrier so that it is dislodged off roll pin. (Fig.2.9)

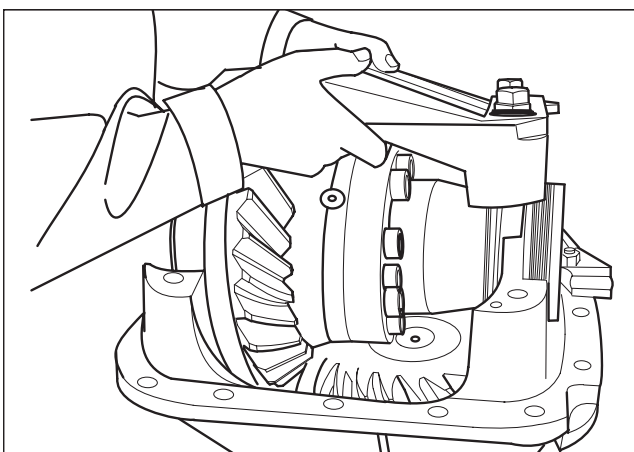


Fig. 2.10

10. Lift bearing cap off differential housing assembly. (Fig.2.10)

11. Remove the right and left bearing adjusting rings from the carrier. (Fig.2.11)

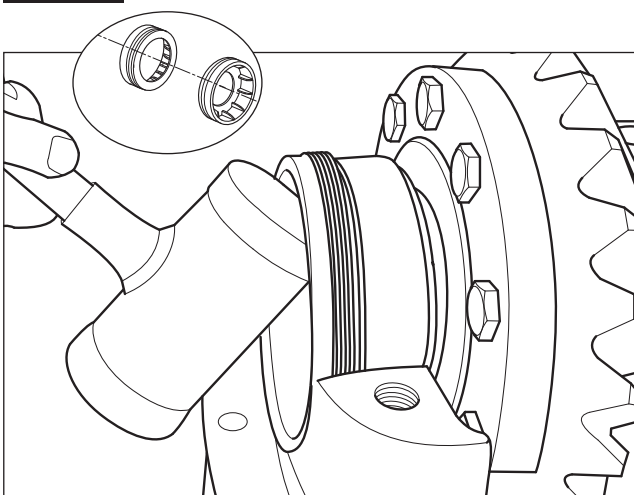


Fig. 2.11

12. Using suitable straps, hooks or cables, hook up the crown wheel assembly out of the carrier. (Fig. 2.12)

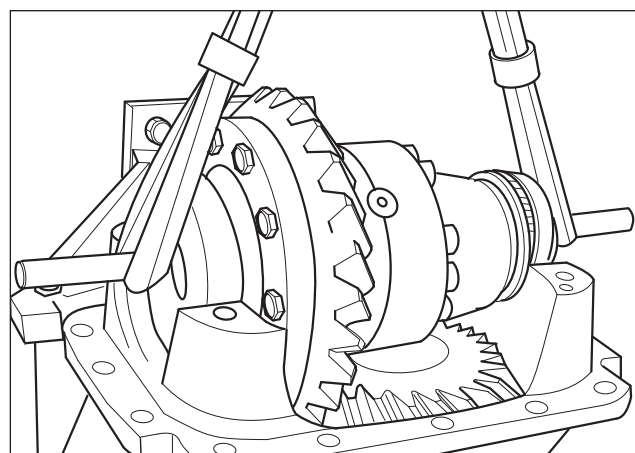


Fig. 2.12

⚠ WARNING

The use of the hoist must be done by experienced trained staff as an incorrect manoeuvre or faulty connection could cause a serious accident.

2 Maintenance

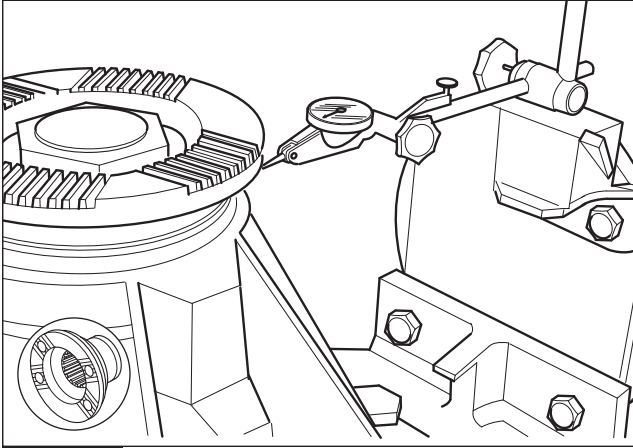


Fig. 2.13

13. Turn carrier over and check companion flange run out and indirect seal check. Tolerance for run out is 0 to 0.15 mm (Fig. 2.13)

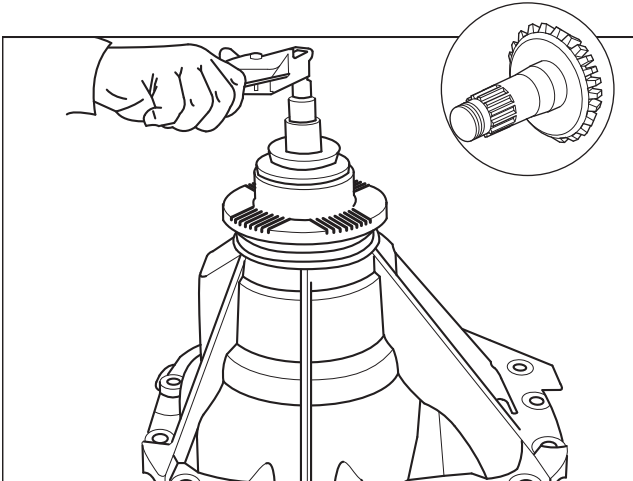


Fig. 2.14

14. Check pinion pre-load, 6 to 10 Nm tolerance. (Fig.2.14)

15. Lock flange with service tool CT13. (Fig.2.15)

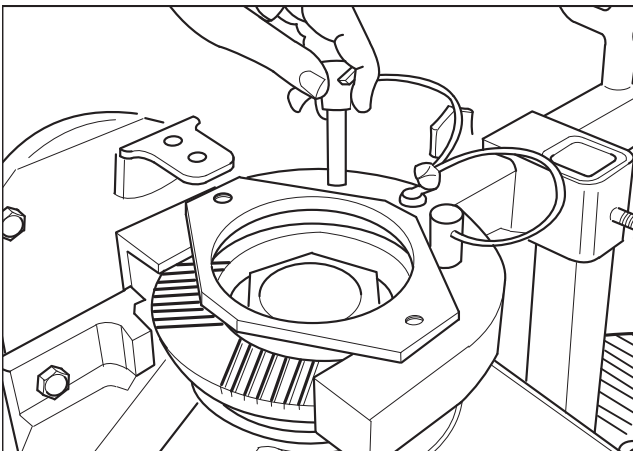


Fig. 2.15

16. Remove pinion lock nut with use of a torque multiplying tool, discard nut and replace with new for rebuild. (Fig. 2.16)

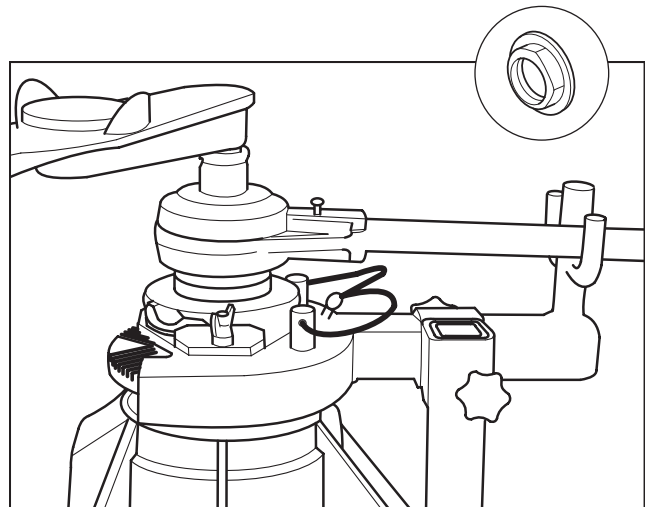


Fig. 2.16

2 Maintenance

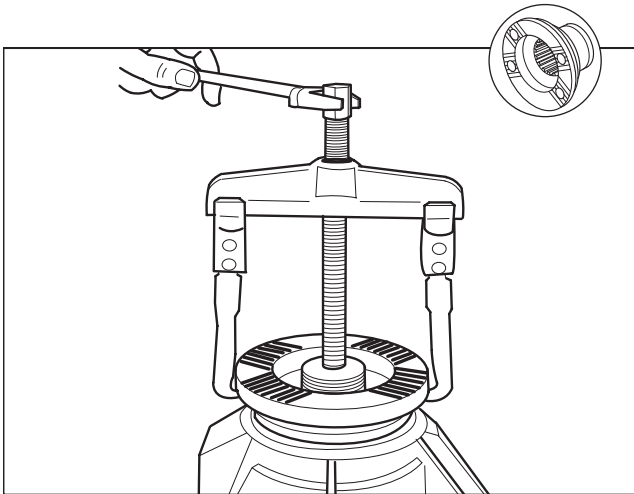


Fig. 2.17

17. Remove flange. This may require the use of a standard bearing puller tool. (Fig. 2.17)

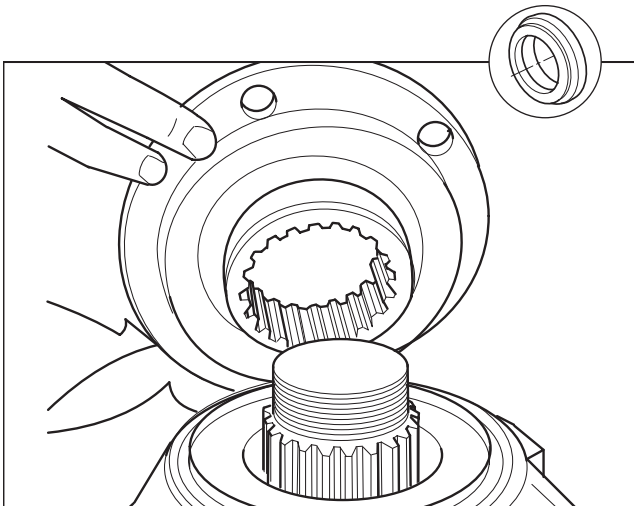


Fig. 2.18

18. Inspect dirt shield for damage. (Fig. 2.18)

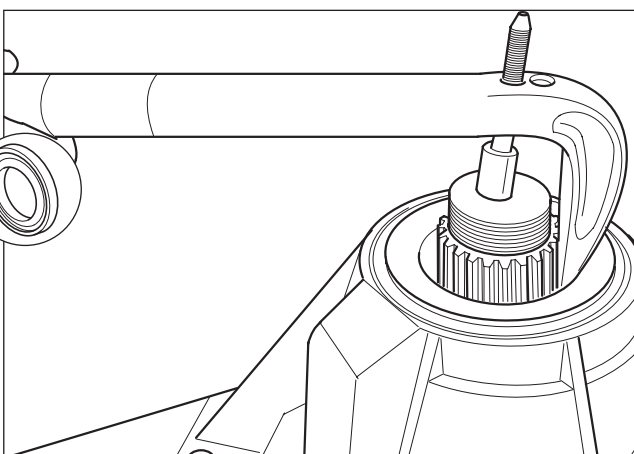
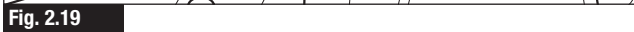


Fig. 2.19

19. Remove seal with use of service tool CT14.
Discard seal and replace with new for rebuild. (Fig. 2.19)



20. Attach service tool CT15 to prevent pinion from being damaged when pressed out.
(Fig. 2.20)

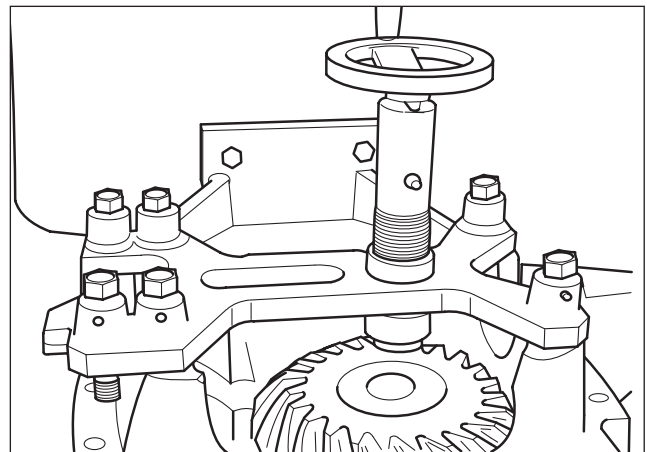


Fig. 2.20

2 Maintenance

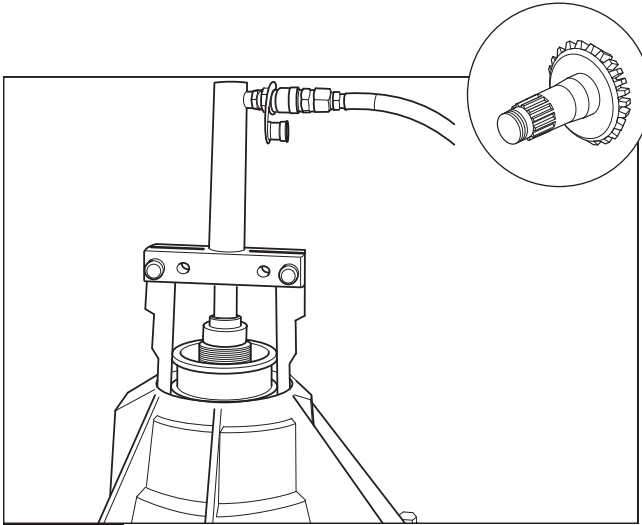


Fig. 2.21

21. Press pinion out of carrier with use of service tool CT16. (Fig. 2.21)

22. Lift out bearing. (Fig. 2.22)

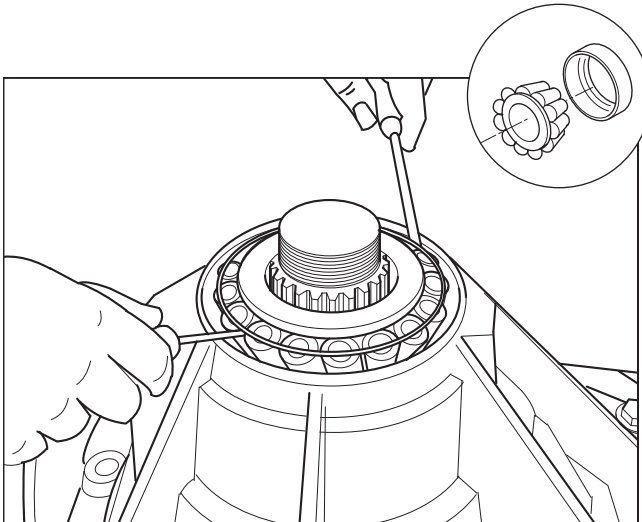


Fig. 2.22

23. Once bearing is removed, lift out spacers. (Fig. 2.23)

24. Turn carrier over and lift out pinion with use of service tool CT17. (Fig. 2.24)

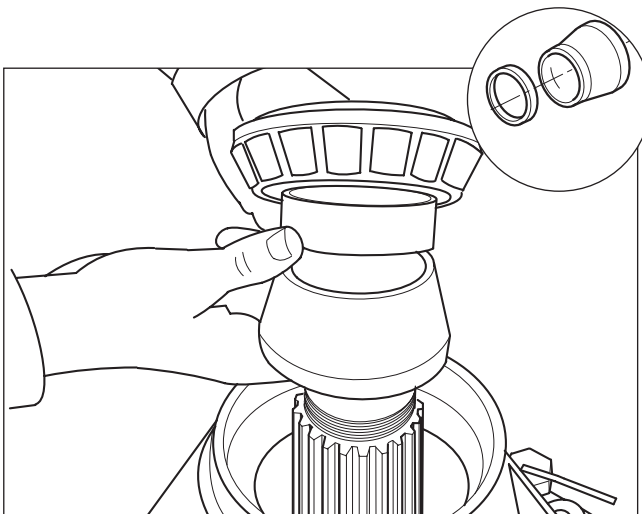


Fig. 2.23

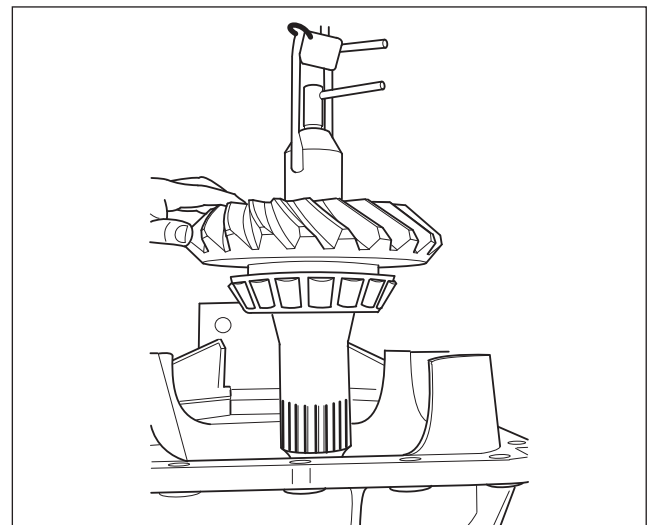


Fig. 2.24

2 Maintenance

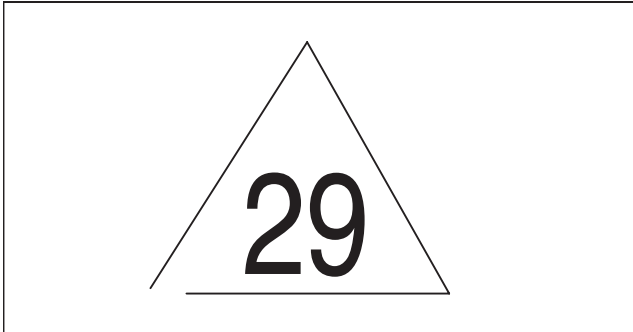


Fig. 2.25

25. Note to look on the machined flange of the carrier for a stamping indicating the divergence from zero setting for this carrier. (Fig. 2.25)

26. Place service tool CT18 into carrier to remove outer bearing cup. (Fig. 2.26)

27. Turn carrier over and using service tool CT19 remove inner bearing cup. (Fig. 2.27)

28. Turn carrier over and remove shims with bearing cup. (Fig. 2.28)

29. Remove bearing cone from pinion using a standard bearing puller. (Fig.2.29)

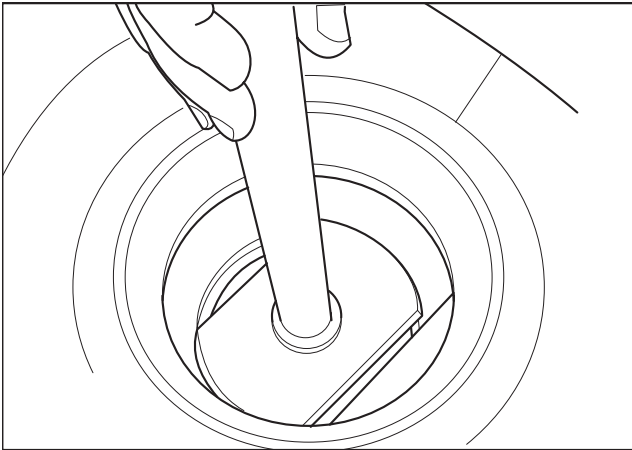


Fig. 2.26

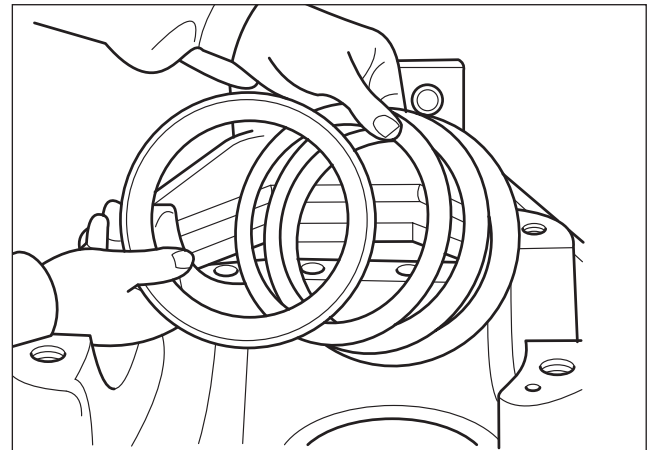


Fig. 2.28

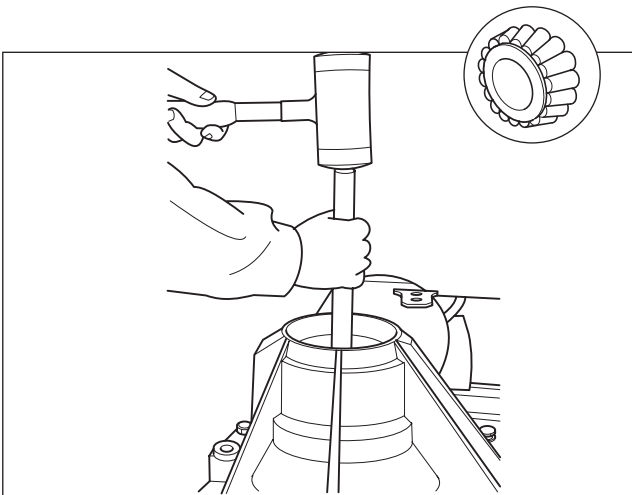


Fig. 2.27

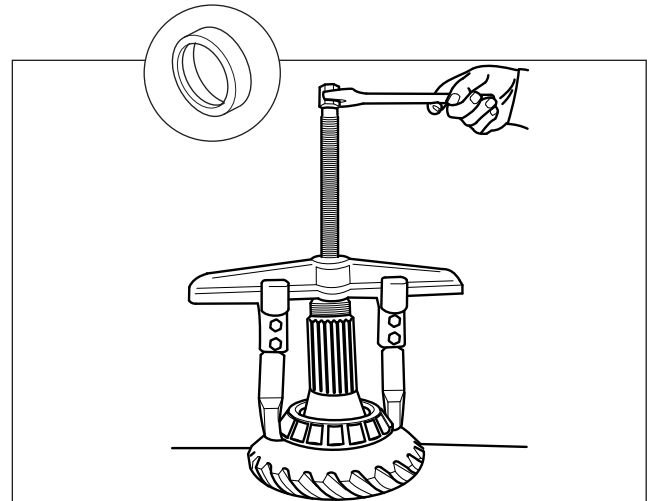


Fig. 2.29

2 Maintenance

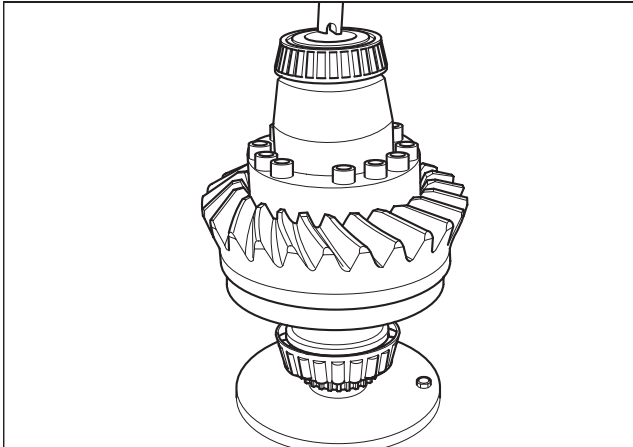


Fig. 2.30

Crown Wheel Assembly

Stripdown Procedure

1. Transfer the ring gear/differential case assembly to bench fixture.
(service tool CT20) (Fig.2.30)

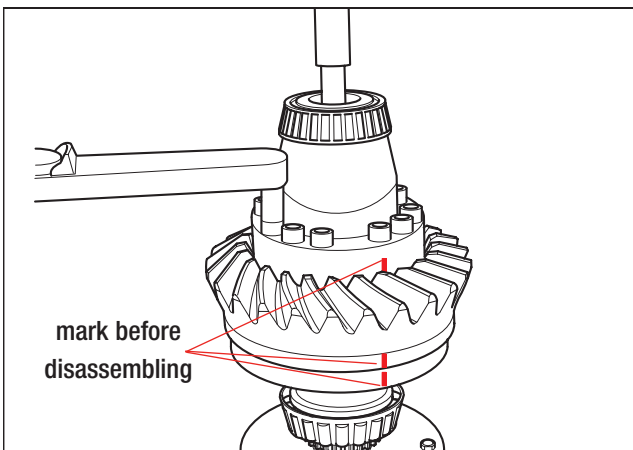


Fig. 2.31

2. Unscrew the twelve hexagon socket headed screws on the differential case. (Fig.2.31)

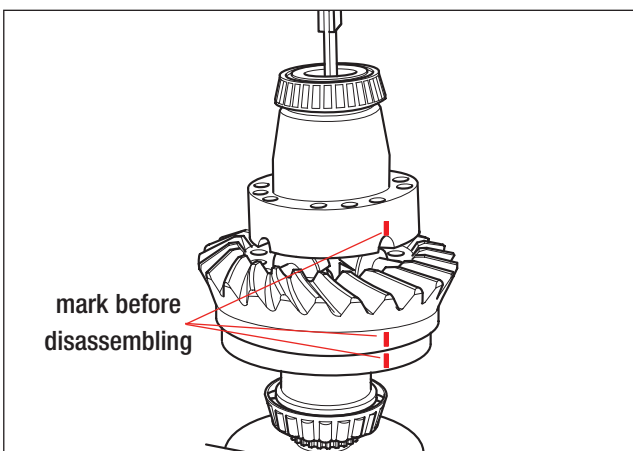


Fig. 2.32

NOTE: Mark plain and flanged differential case halves and the end of the spider for re-assembly purposes.

3. Lift off the differential case half using service tool CT21. (tool no. 9934244) (Fig.2.32)

2 Maintenance

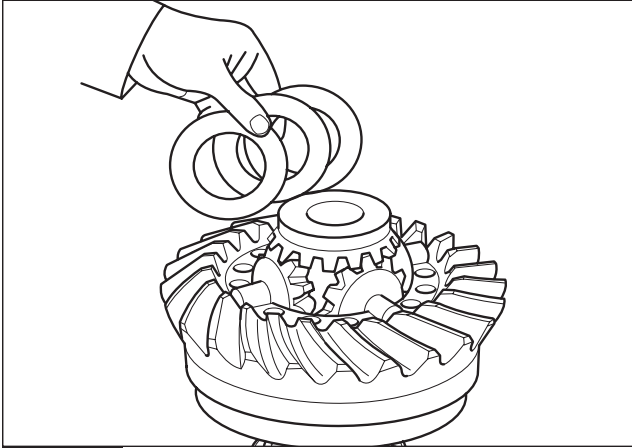


Fig. 2.33

4. Remove and retain the three thrust washers on the side gear. (Fig.2.33)

5. Lift off the cross-axle differential nest (spider and pinion assembly). (Fig.2.34)

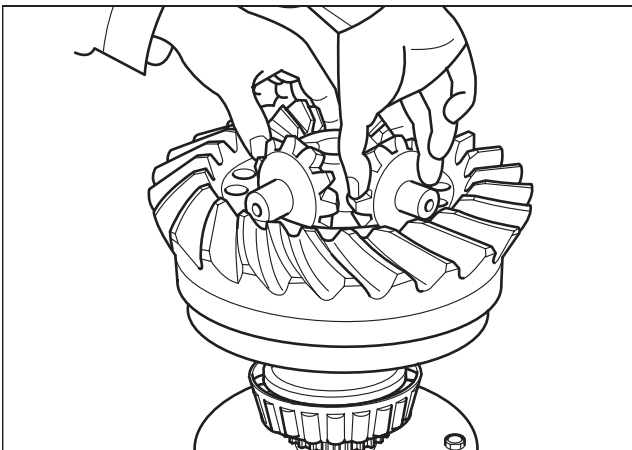


Fig. 2.34

6. Remove the opposite differential side gear and three thrust washers. (Fig.2.35)

7. Invert the ring gear and prise off the metal locking plate around the ring gear screws. (Fig.2.36)

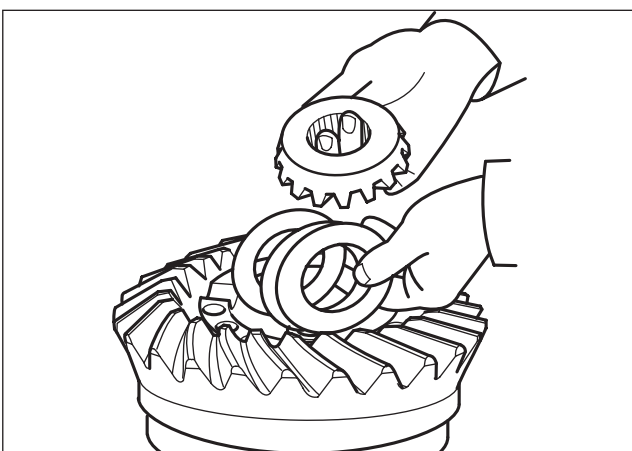


Fig. 2.35

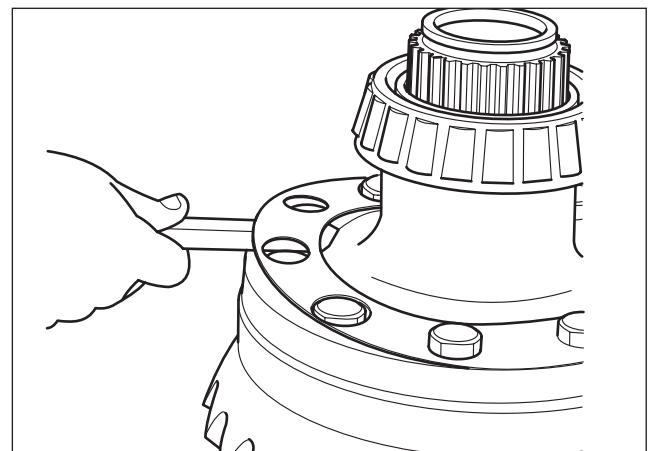


Fig. 2.36

2 Maintenance

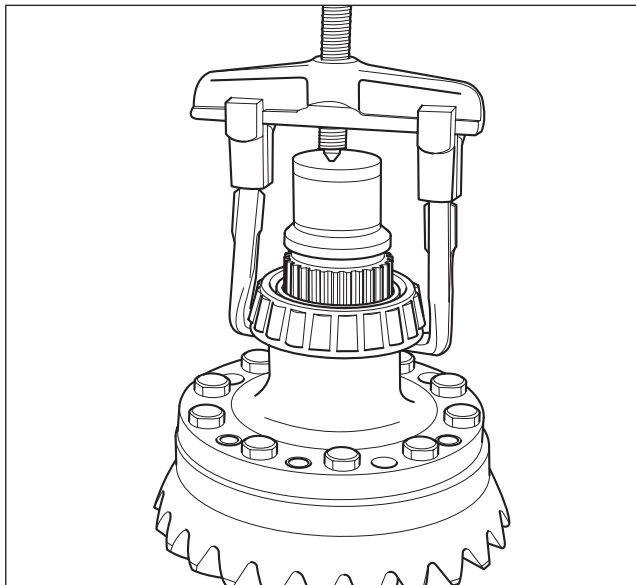


Fig. 2.37

8. Remove the differential casing side bearings using a standard bearing puller. (Fig. 2.37)

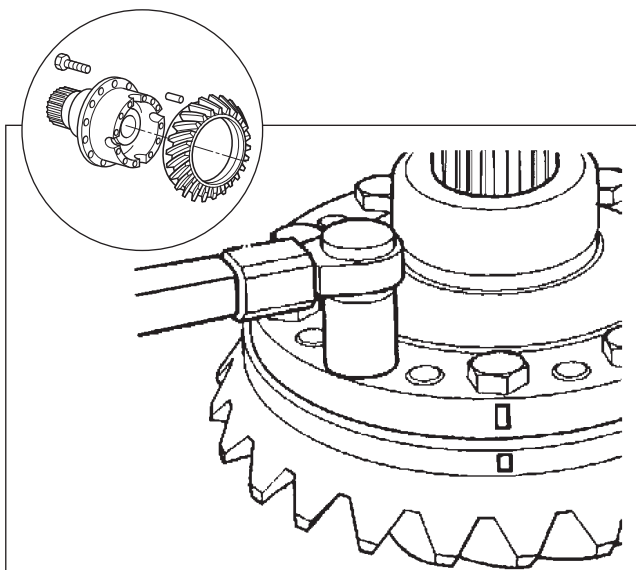


Fig. 2.38

9. Unscrew the ring gear screws to allow replacement of the ring gear. (Fig. 2.38)

2 Maintenance



Fig. 2.39

Rebuild of the pinion assembly

1. Press pinion bearing cone onto pinion shaft using service tool CT22. (Figs. 2.39 and 2.40)

NOTE: Assemble inner bearing cup into carrier, this will require the use of a 5 tonne press.

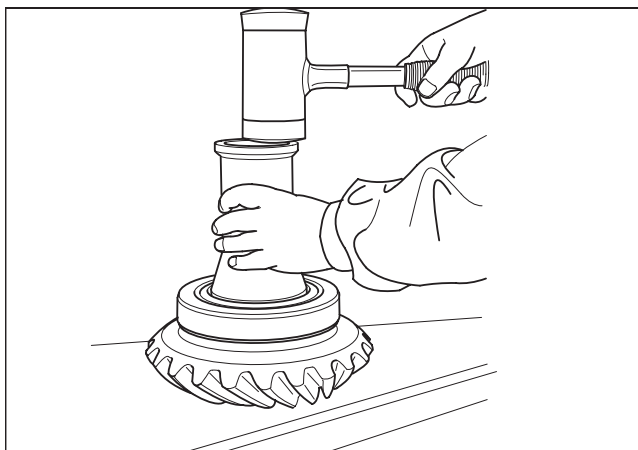


Fig. 2.40

2. Lubricate counterbore in carrier. (Fig.2.41)

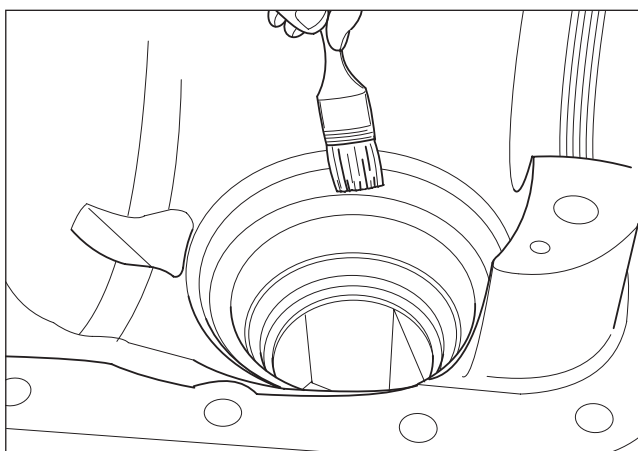


Fig. 2.41

2 Maintenance

NOTE: The following procedure must be carried out to determine the correct size shim to be used (Fig.2.42).

3. Measure the forward pinion bearing width (**E**) (cup and cone) and record the measurement.

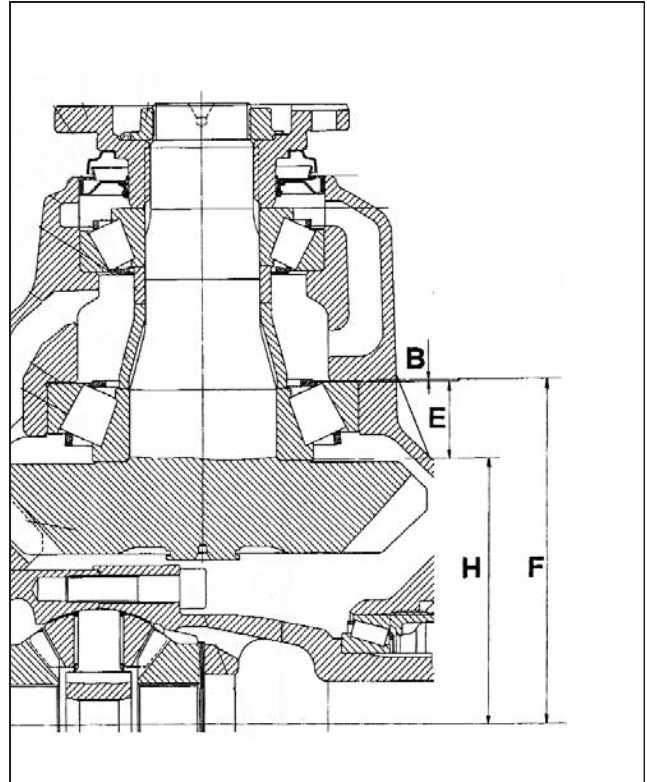


Fig. 2.42

4. Note the value of the final drive housing (**F**)
This value is stamped in a triangle on the final drive housing flange (Fig. 2.43).

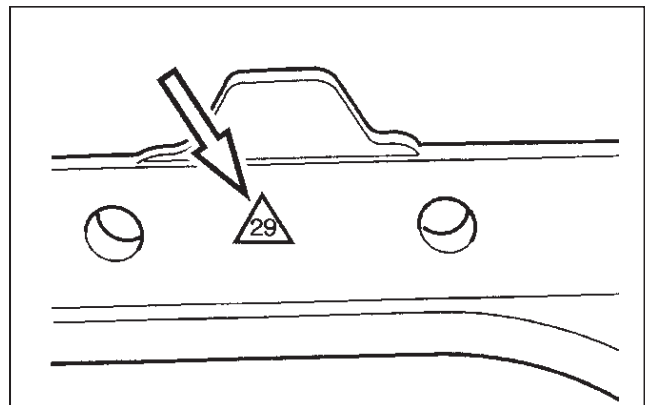


Fig. 2.43

5. Note the value of the drive pinion assembly (**H**).
This value is marked on the end of the pinion - thread side (Fig. 2.44).

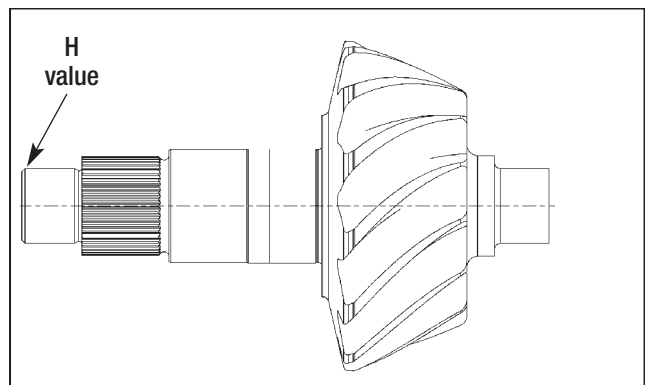


Fig. 2.44

2 Maintenance

- Using the values recorded calculate the thickness of the shim (**B**) required. The method of calculation is;

$$B = 47.4 - E + F - H \quad (\text{mm})$$

Choose the combination of shims required closest, above or below, the calculated value.

NOTE: Always check the measurement of the shims selected

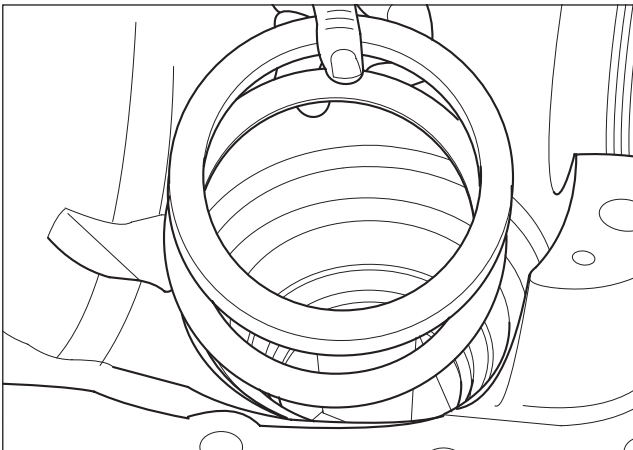


Fig. 2.45

- Insert shims and place into the bottom of the counterbore. (Fig.2.45)

- Mount bearing cup onto service tool CT23. (Fig.2.46)

- Press bearing cup into carrier until fully seated in position. (Fig.2.47)

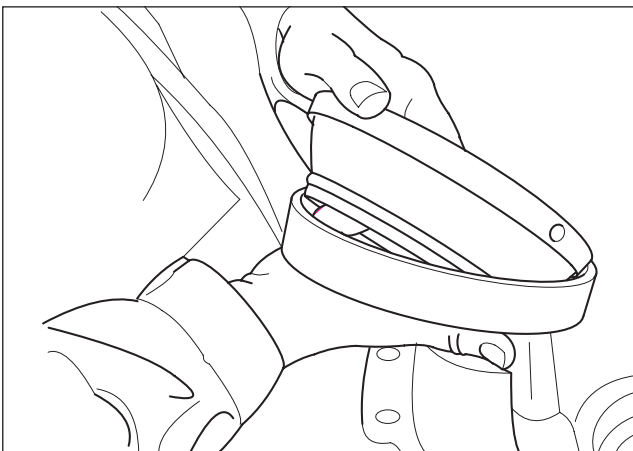


Fig. 2.46

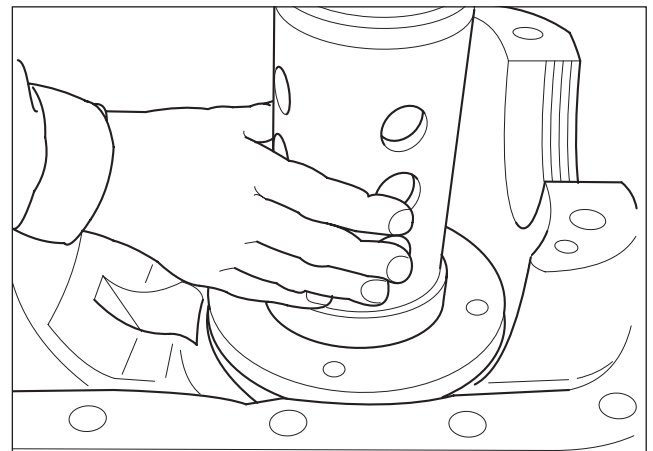


Fig. 2.47

2 Maintenance

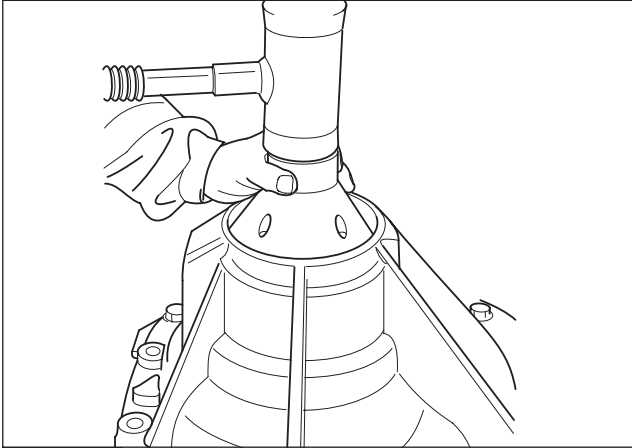


Fig. 2.48

6. Turn carrier over and repeat procedure to fit new bearing cup, lubricate counterbore in carrier, mount bearing cup onto service tool CT24, and drive bearing cup into carrier until fully seated in position.
(Figs. 2.48 and 2.49)

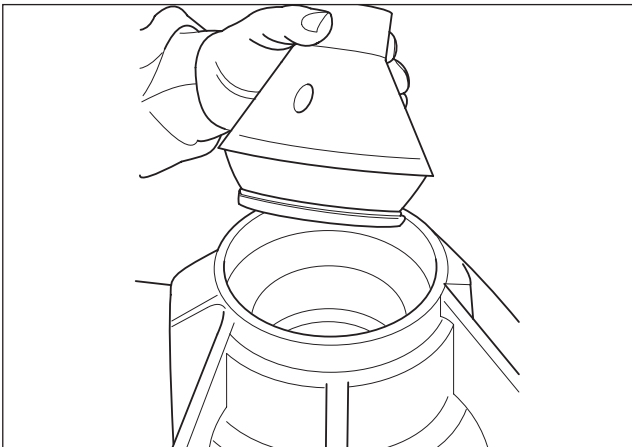


Fig. 2.49

7. Turn carrier over and lubricate bearing cup. (Fig. 2.50)

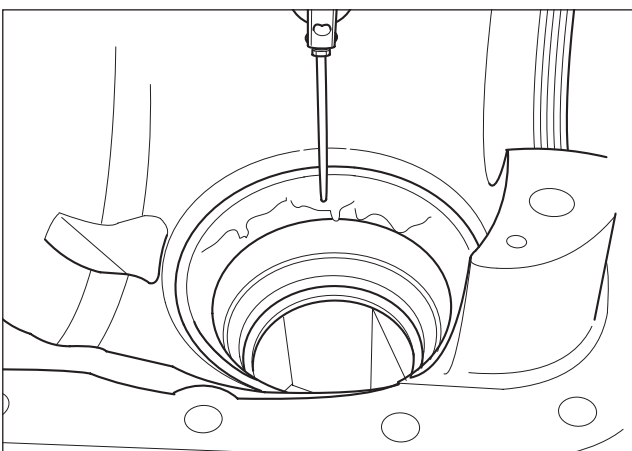


Fig. 2.50

8. Insert pinion into carrier using service tool CT17. (Fig. 2.51)

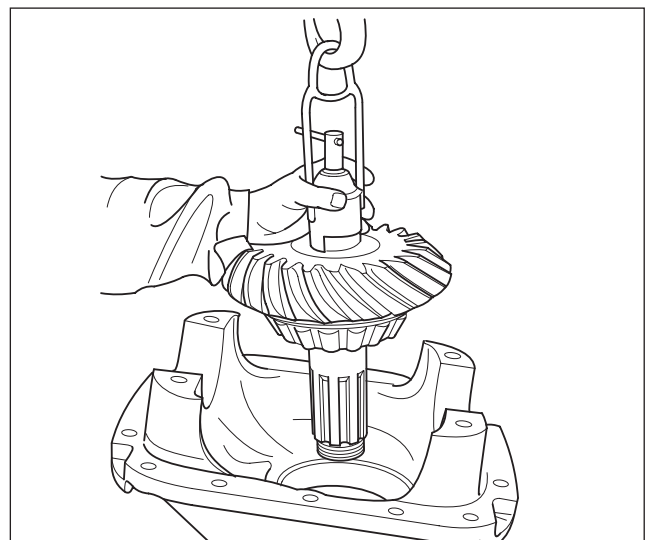


Fig. 2.51

2 Maintenance

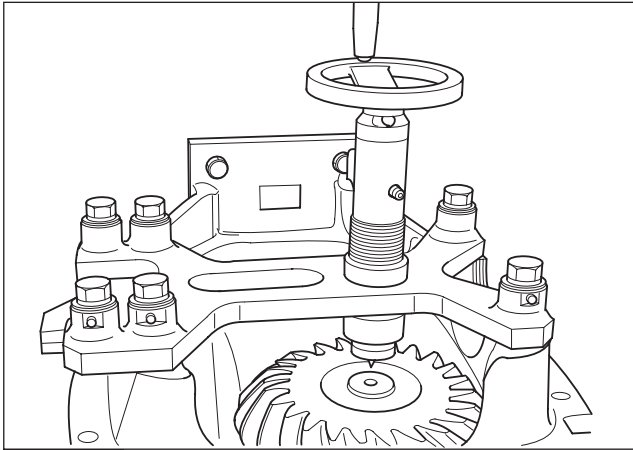


Fig. 2.52

9. Fit pinion setting tool CT15 onto carrier to hold pinion in place whilst carrier is turned over. (Fig. 2.52)

10. Reinstall spacers and bearing cone. (Fig. 2.53)

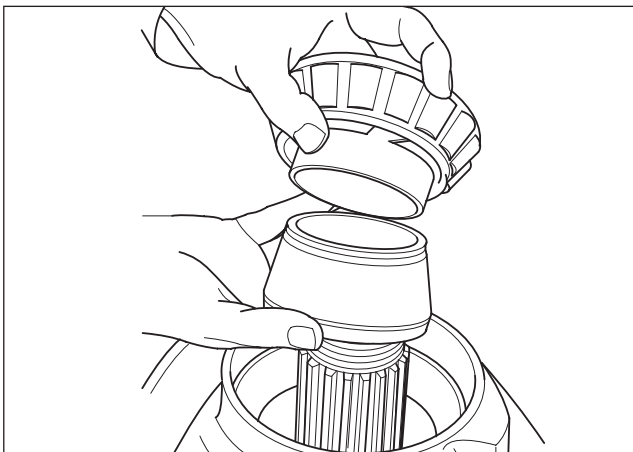


Fig. 2.53

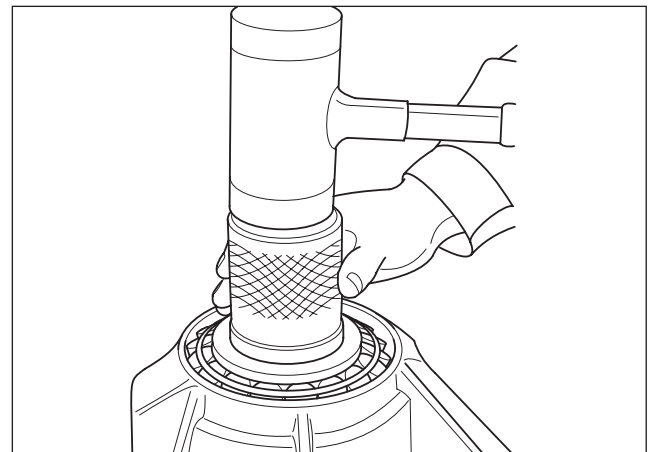


Fig. 2.55

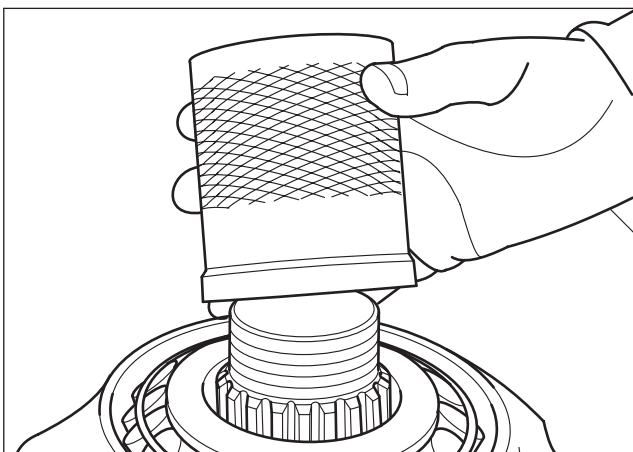


Fig. 2.54

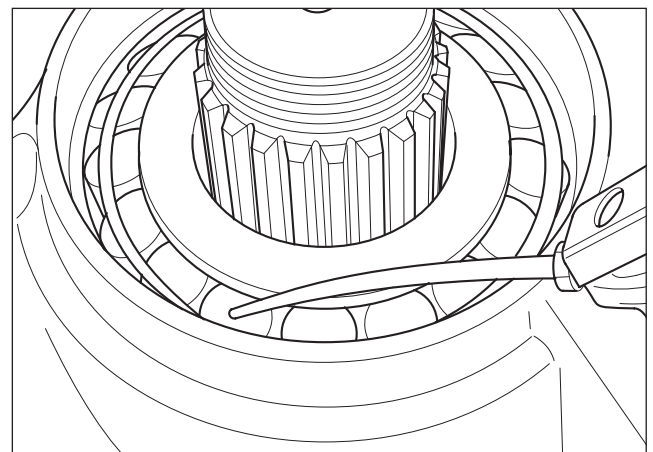


Fig. 2.56

12. Lubricate bearing (Fig. 2.56)

2 Maintenance

Pinion Bearing preload calculation

The method to obtain the correct pinion preload is

“Master – spacer dimension”.

To obtain the proper pinion bearing preload we have to use a Maximum Spacer Height (master – spacer dimension) combination conic spacer plus cylinder spacer (see Fig. 2.57)

The max spacer will be with 3 cylinder space dimension 7.68 and a conical spacer dimension 52.3.

Max Spacer Calculated:

$$MS = (7.68 \times 3) + 52.3 = 75.34\text{mm}$$

The formula for the required new spacer thickness is:

$$NS = MS - (AC + k)$$

NS = New spacer thickness

MS = Master Spacer Calculated = 75.34mm

AC = Axial Clearance Value

K = Constant value = 0.4mm

NOTE: All dimensions are in mm.

Lubricate the surface of the flange nut, the companion flange and the threads.

Fit the master spacer as calculated (MS) = 75.34mm

Assembly as the pinion with the external bearing the flange and pinion nut.

Close the pinion nut (see Fig. 2.8 - Ref. 35) at the torque of 2000 ÷ 2200 Nm.

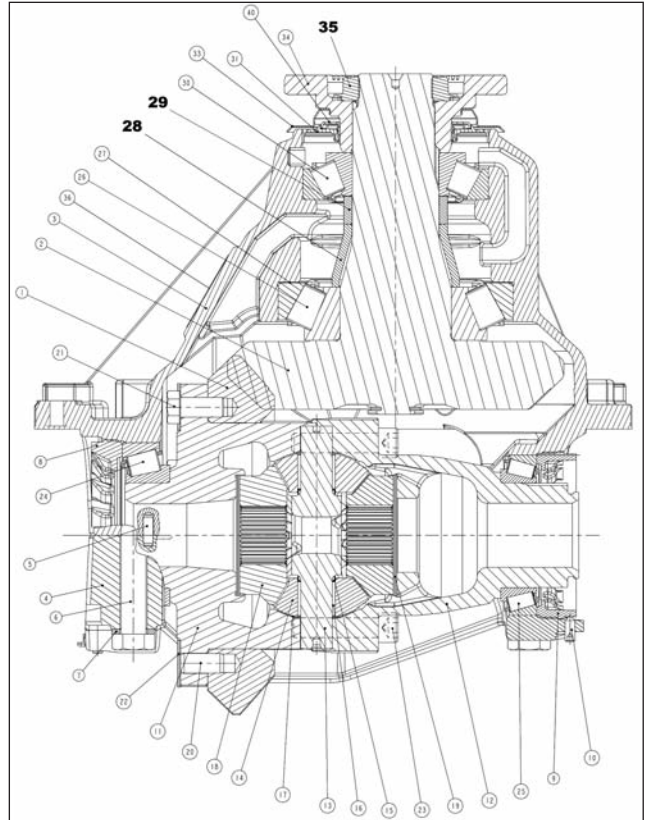


Fig. 2.57

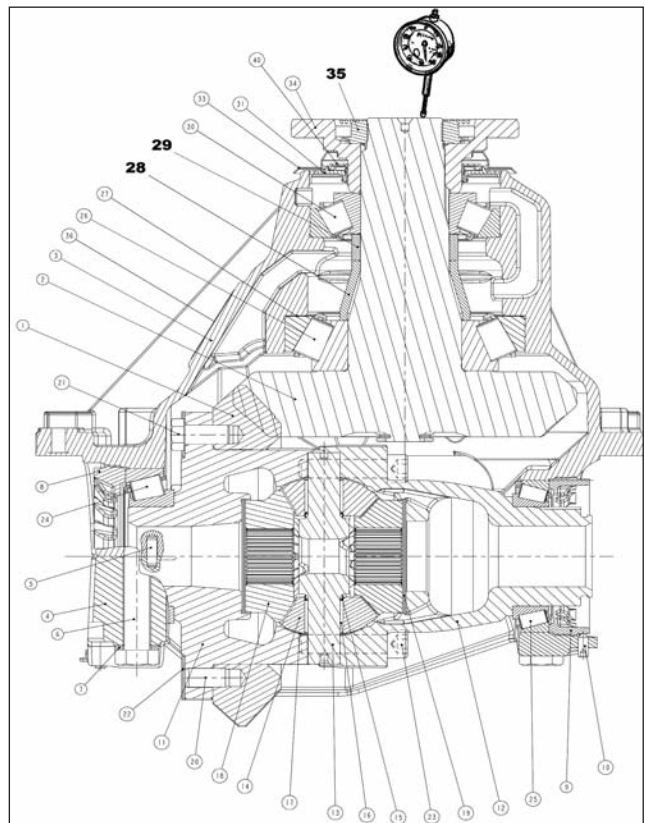


Fig. 2.58

2 Maintenance

Pinion axial clearance value

Fit the dial indication on the magnetic support. Measure the axial clearance value (AC) pulling the pinion through the flange.

NOTE: Record the Clearance value (e.g.: AC = 0.06mm)

This value has to be used in new spacer thickness formula to obtain the proper pinion bearing preload.

New Spacer Thickness Required

The formula (see before) is:

$$NS = MS - (AC + k)$$

Where the value recorded or measured are:

NS = New spacer thickness

MS = Master Spacer Calculated = 75.34mm

AC = Axial Clearance Value = 0.06mm

K = Constant value = 0.4mm

The formula becomes:

$$NS = 75.34 - (0.06 + 0.04) = 75.24\text{mm}$$

The spacer required is 75.24mm.

To obtain the correct spacer combination we could use the combination shown here below:

Spacer type	Quantity	P/N	High
Conical	1	1524931	52.3mm
Cylinder	1	1523235	7.60mm
Cylinder	1	1523236	7.66mm
Cylinder	1	1523237	7.68mm
TOTAL	4		75.24mm

NOTE: For additional details about available spacers see section Appendix 9

Preload is checked with dedicated tool turning the pinion through the pinion nut (see fig.2.59).

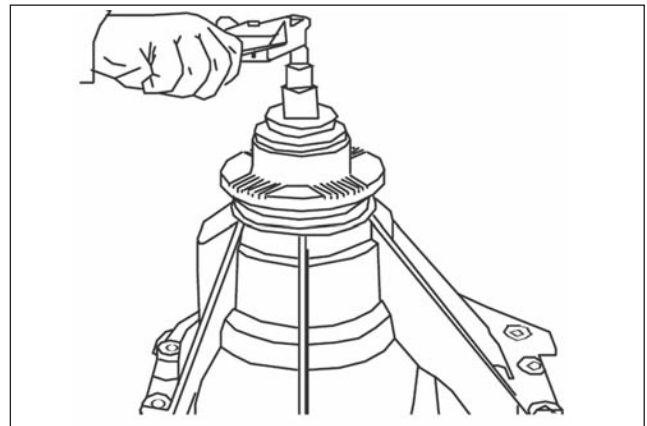


Fig. 2.59

The requested value is: 6Nm \pm 3Nm

NOTE: This value is without companion flange seal. The seal contribute about 2Nm)

If the torques is out the present limit review the selected spacer according to:

- Increase the spacer thickness – Lowes the pinion bearing preload
- Decrease the spacer thickness – Raises the pinion bearing preload

NOTE: For additional information about the reassembly process see the Rebuilt Section.

2 Maintenance

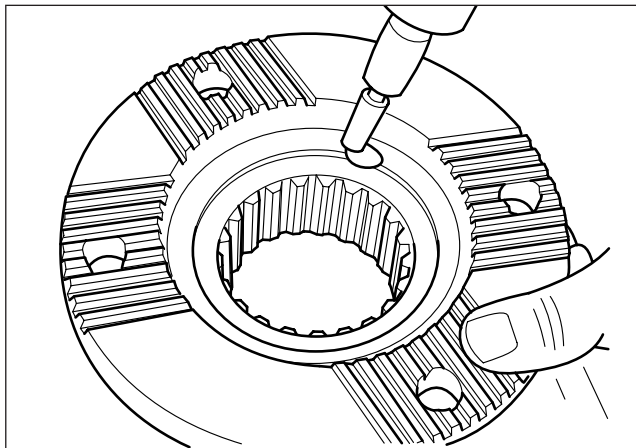


Fig. 2.60

Set-up crown wheel and pinion clearance.

At this stage do not fit seal.

1. Remove any burrs found on flange with the aid of a small ball nosed grinding wheel. (Fig. 2.60)

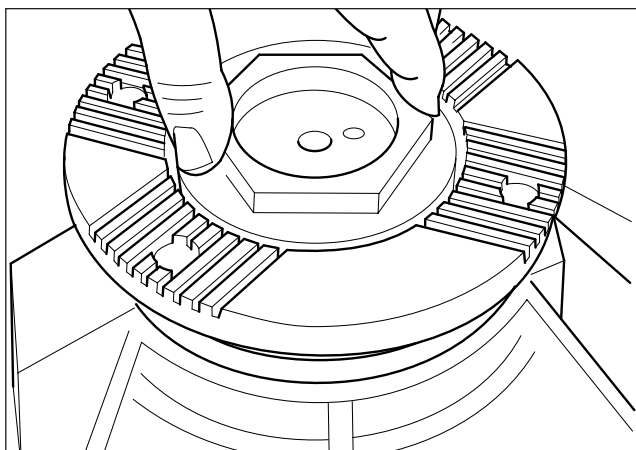


Fig. 2.61

2. Refit flange and pinion lock nut only to set pre-load on bearings. (Fig. 2.61)

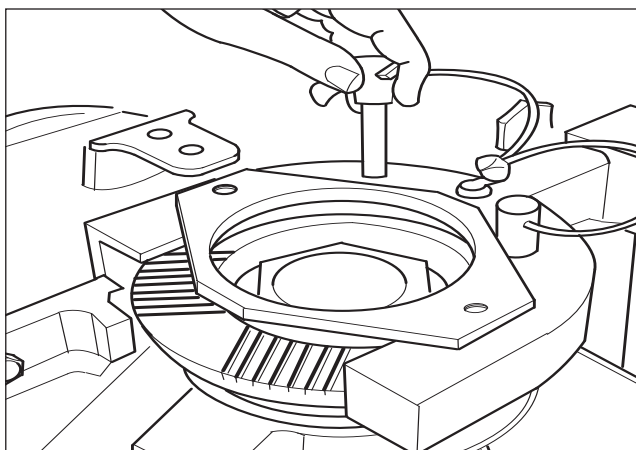


Fig. 2.62

3. Lock flange with service tool CT13. (Fig. 2.62)

2 Maintenance

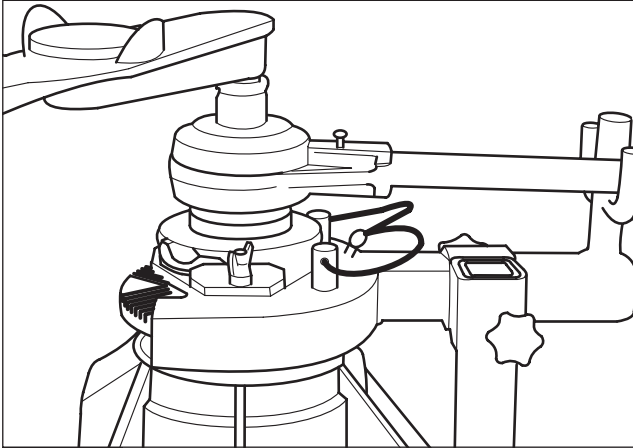


Fig. 2.63

NOTE: Lubricate the surface of the Flange Nut and Companion Flange.

Oil the threads.

4. Tighten flange lock nut to a torque of 2000 ± 2200 Nm. (Fig. 2.63)

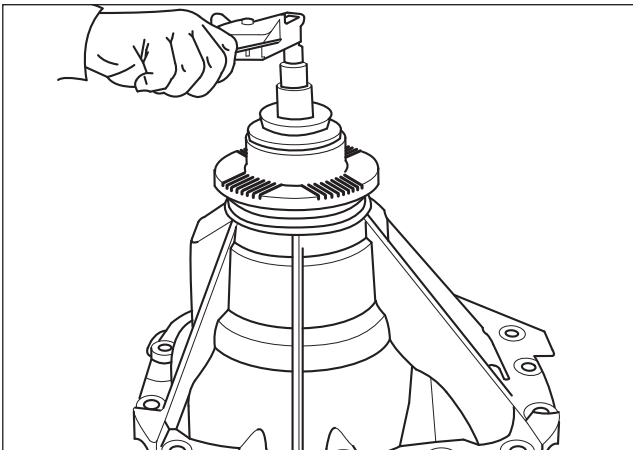


Fig. 2.64

5. Check pre-load by measuring the torque by turning flange lock nut. $6\text{Nm} \pm 2\text{Nm}$. (Fig. 2.64)
If pre-load on bearings is incorrect, replace spacer and re-check pre-load.
Once the correct pre-load is attained, remove nut and flange to fit seal.

6. Insert seal into service tool CT26. (Fig. 2.65)

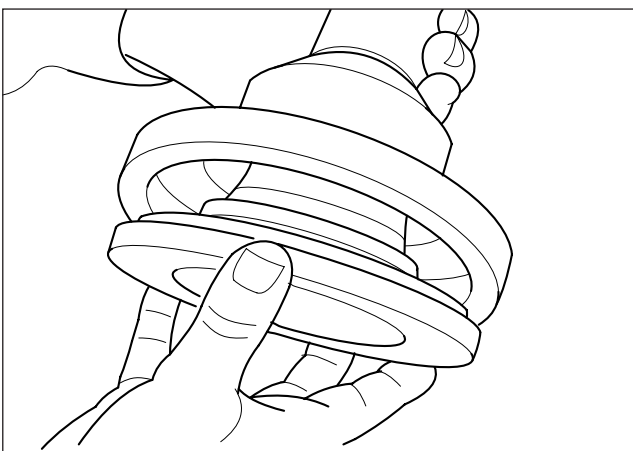


Fig. 2.65

7. Press seal into bore in carrier, when service tool contacts carrier the seal will be correctly positioned in the bore. (Fig. 2.66)

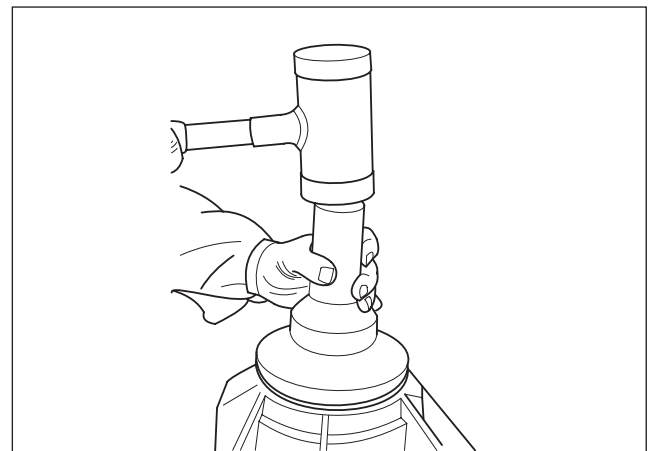


Fig. 2.66

2 Maintenance

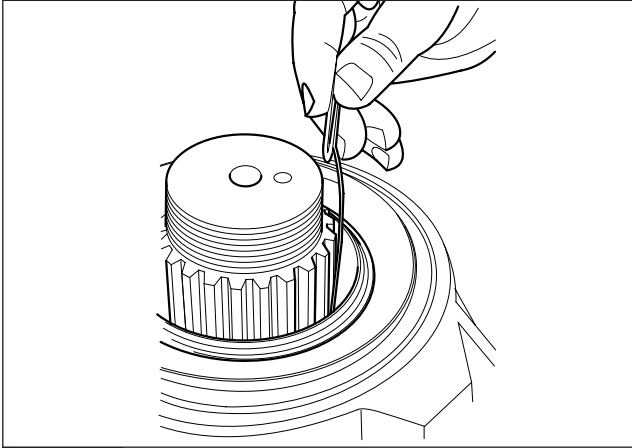


Fig. 2.67

8. Check seal spring has remained in position. (Fig. 2.67)

9. Lubricate seal journal of flange. (Fig. 2.68)

NOTE: Lubricate the surface of the Flange Nut and Companion Flange.
Oil the threads.

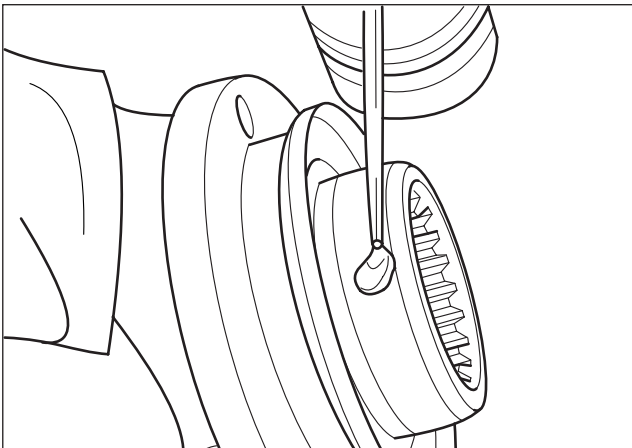


Fig. 2.68

10. Refit flange and lock nut. Re-tighten lock nut to specified torque 2000/2200 Nm and re-measure the pre-load of the bearing to ensure it has not increased by more than 1Nm.

With a suitable ball nosed punch, indent lock nut in 2 places directly above the slots in the flange. (Figs.2.69 and 2.70)

Turn carrier over and remove service tool.

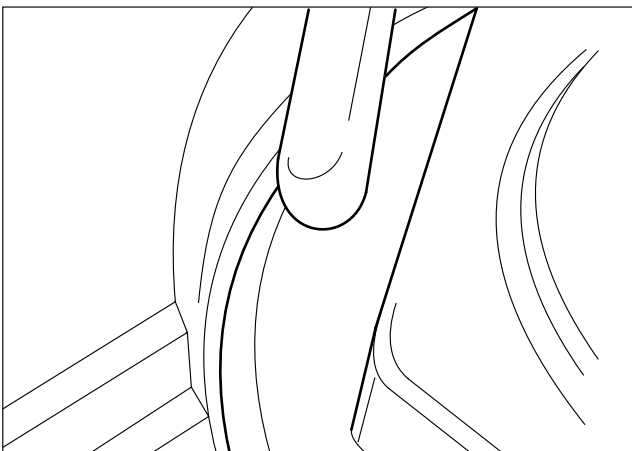


Fig. 2.69

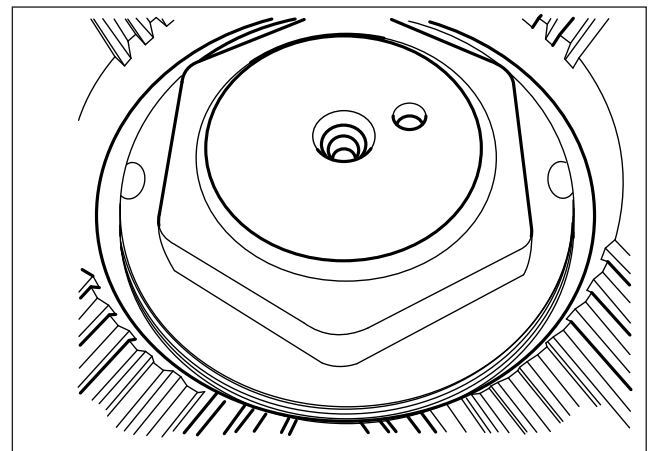


Fig. 2.70

2 Maintenance

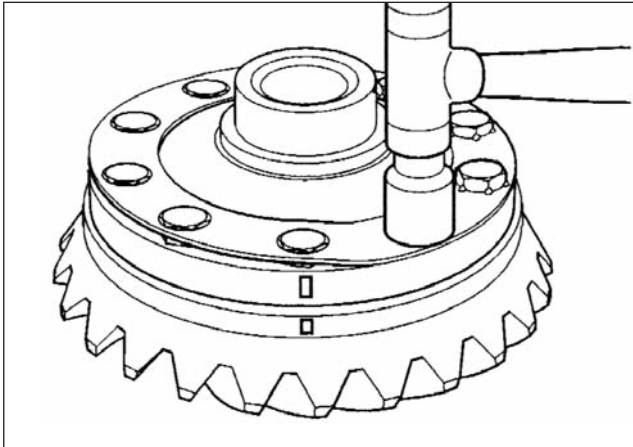


Fig. 2.71

Rebuild of the Crown Wheel Assembly

1. Place a new locking plate on the ring gear carrier and set in position flat against the differential half casing by using a cylindrical drift to hammer down around the ring gear fixing bolts. (Fig. 2.71) (Tool no. 48180910)
2. Turn the gear over, place the ring gear and differential case in a holding fixture, and assemble three thrust washers and side gear and the differential nest in position, oiling the parts. (Fig. 2.72)

Inspect the spider journals and fit new needle bearings in the differential pinions. Lubricate thoroughly

NOTE: Check the number of needles is 35 x 4, 140 in total.

3. Place differential spider and pinion assembly in position, oiling the parts. (Fig. 2.73)

⚠ WARNING

Remember to align markings that were made when di-sassembling the crown wheel assembly.

4. Assemble opposite side gear and three thrust washers in position, oiling the parts. (Fig. 2.74)



Fig. 2.72



Fig. 2.73



Fig. 2.74

2 Maintenance

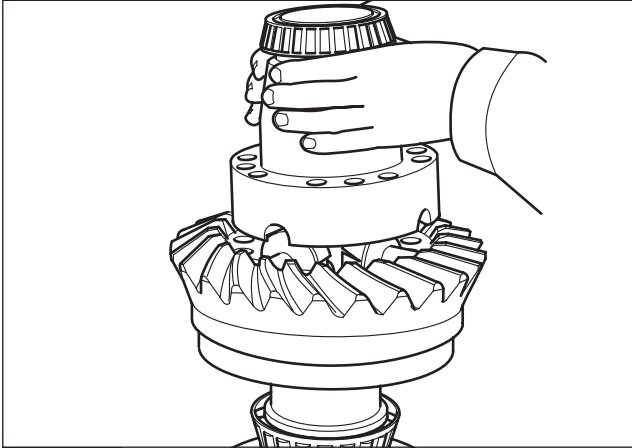


Fig. 2.75

5. Place second half of the differential case in position. (Fig. 2.75)

⚠ WARNING

Remember to align markings made when disassembling the crown wheel assembly.

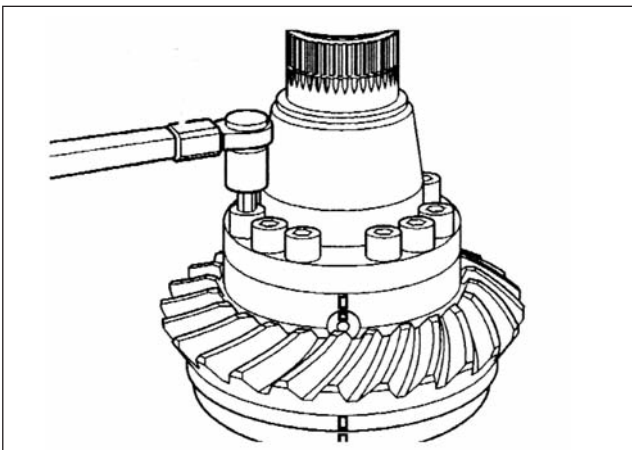


Fig. 2.76

6. Fasten the two differential housing halves together using 12 socket head screws.
Lubricate the threads prior to assembly.
Tighten in cross diameter sequence to a torque of $200 \pm 20\text{Nm}$ (Fig. 2.76)

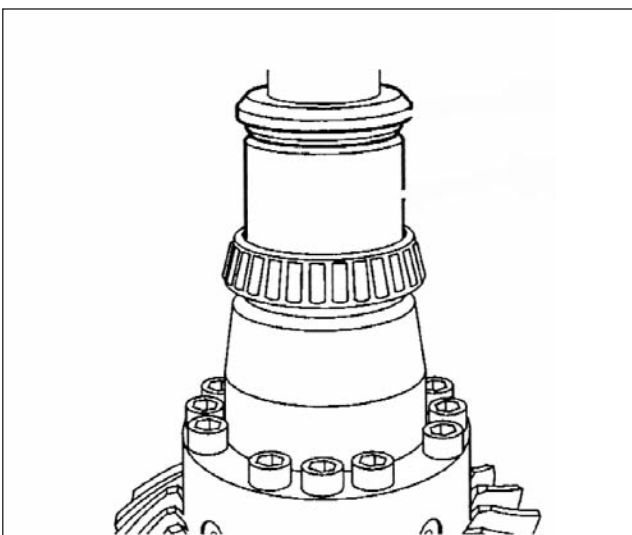


Fig. 2.77

7. Push on the inner ring of the differential bearing (Fig. 2.77)

2 Maintenance

Rebuild of the Crown Wheel assembly back into the carrier

1. Lubricate the bearing seats with oil. (Fig. 2.78)

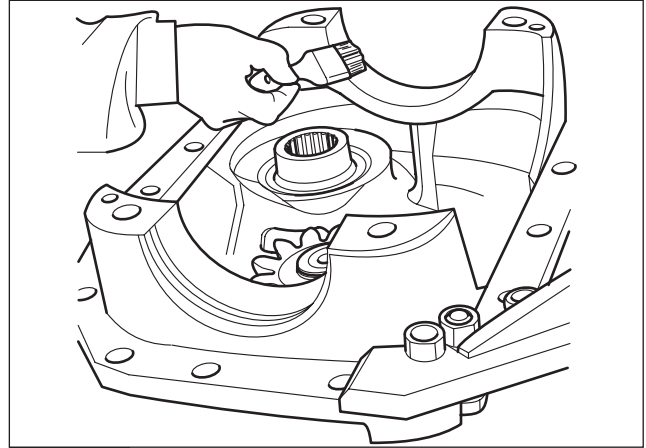


Fig. 2.78

2. Locate ring gear and differential assembly in position in the carrier. (Fig. 2.79)

⚠ WARNING

The use of the hoist must be done by experienced trained staff as an incorrect manoeuvre or faulty connection could cause a serious accident.

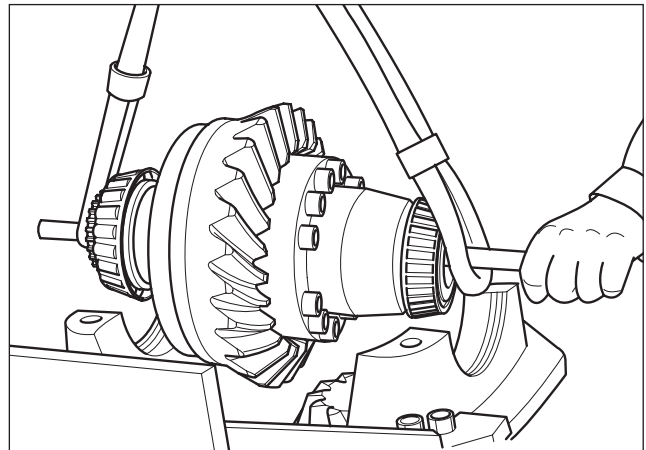


Fig. 2.79

3. Locate new bearing cups on each side. (Fig. 2.80)

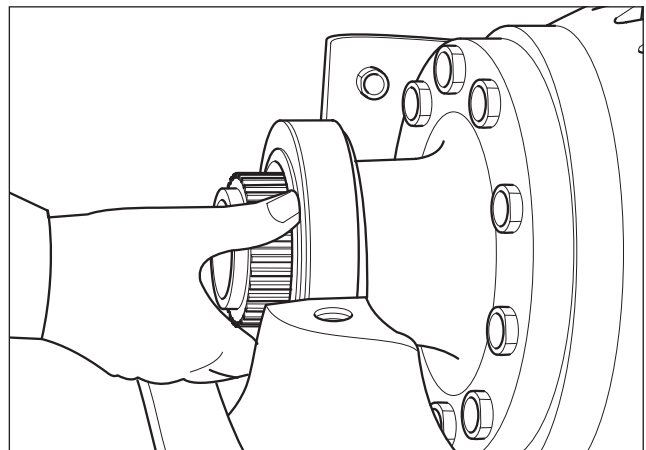


Fig. 2.80

2 Maintenance

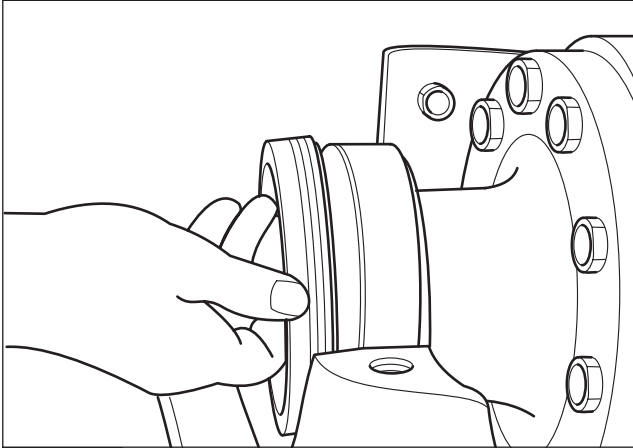


Fig. 2.81

4. Locate the bearing adjusting rings in their respective threads. (Fig. 2.81)

Lubricate the outer surfaces of the bearing cups and adjusters with oil.

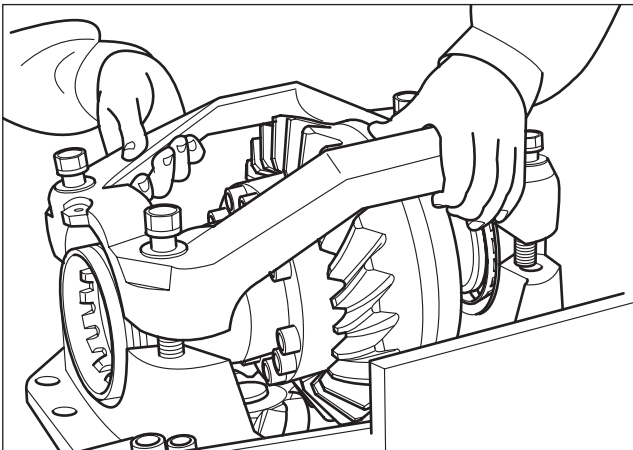


Fig. 2.82

5. Locate the bearing cap casting in position - ensuring that the adjuster threads in each adjuster are engaged correctly. (Fig. 2.82)

Fasten the carrier cap casting in place using four bolts cross torqued to 200 ± 20 Nm.

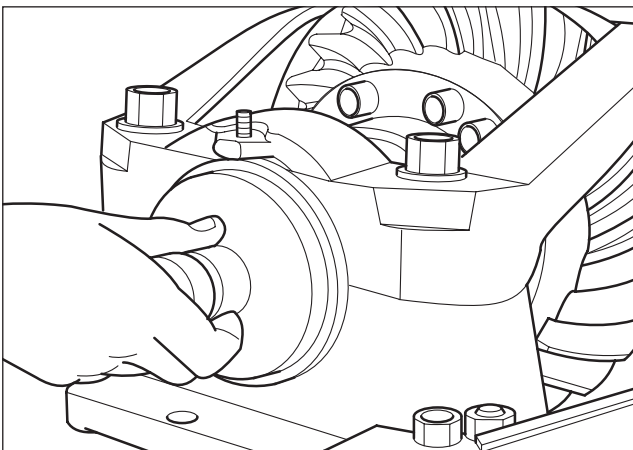


Fig. 2.83

6. Using service tool CT 27 Screw up the differential bearing adjusters to preload the bearings prior to measuring gear backlash. (Fig. 2.83)

2 Maintenance

Preload instruction with leg cap bridge

Details of preload instructions

- set gear with 0 backlash;
- set the 2 adjusting rings against the BRGS and mark the position;
- turn back and on the two adjusting rings of the same amount and beat with hammer the caps to set the bearing cups. Set a DTI on the carrier casing and locate the sensor on the face of a tooth on the ring gear.

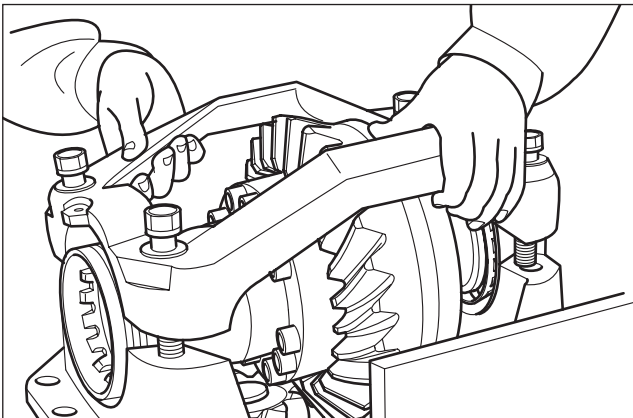


Fig. 2.84

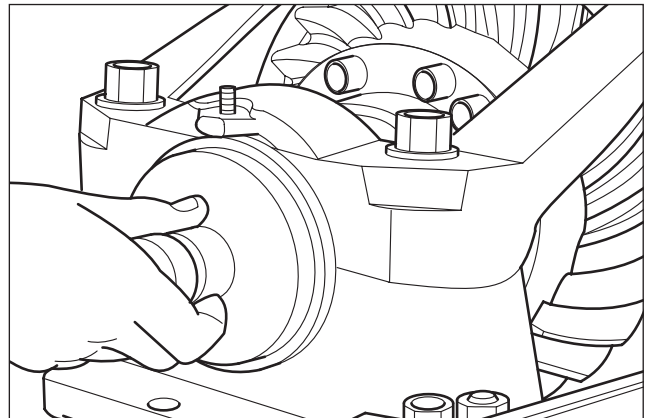


Fig. 2.85

Rock the ring gear back and forth without disturbing the position of the drive pinion in order to measure gear backlash or free movement.

This should be between 0.3 and 0.4 mm

Set a DTI on the carrier casing with the indicator probe in contact with the end of the pinion stem.

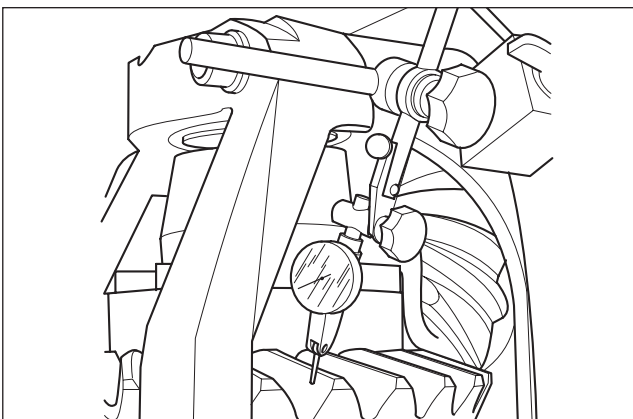


Fig. 2.86

Lever up the crown wheel - and measure the axial movement on the DTI - this should be 0.02 - 0.1mm

No bearing preload is allowed.

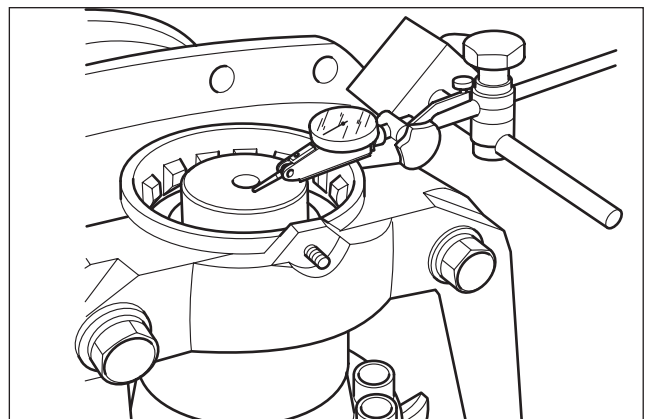


Fig. 2.87

2 Maintenance

Retighten the carrier cap bolts by turning clockwise a further 90 deg \pm 5 deg. (i.e. a total of 200 Nm plus 90 deg)

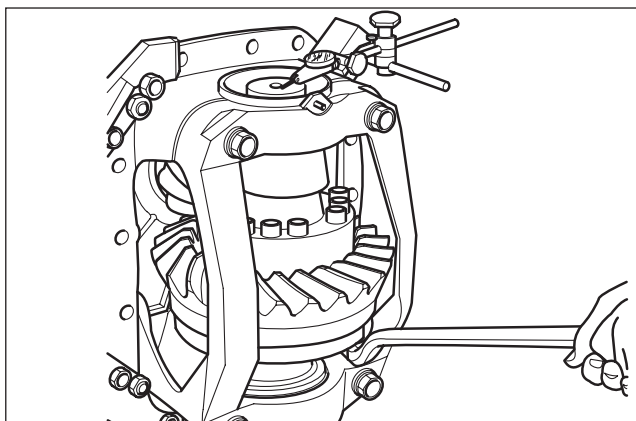


Fig. 2.88

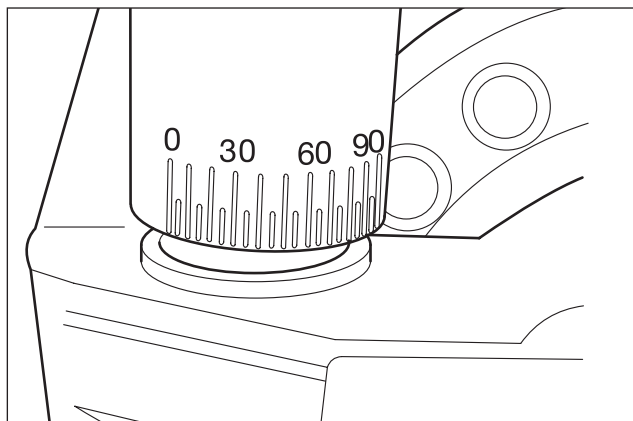


Fig. 2.89

Apply thread locking compound to the bearing adjuster set screws, and tighten to a torque of 20 \pm 5 Nm

Fit differential lock dog clutch spacer and retain with circlip.

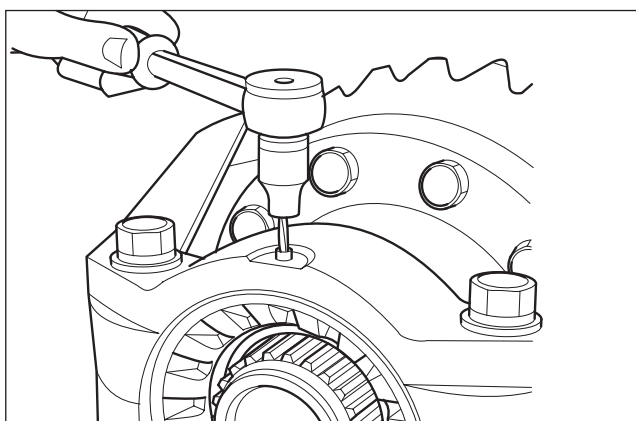


Fig. 2.90

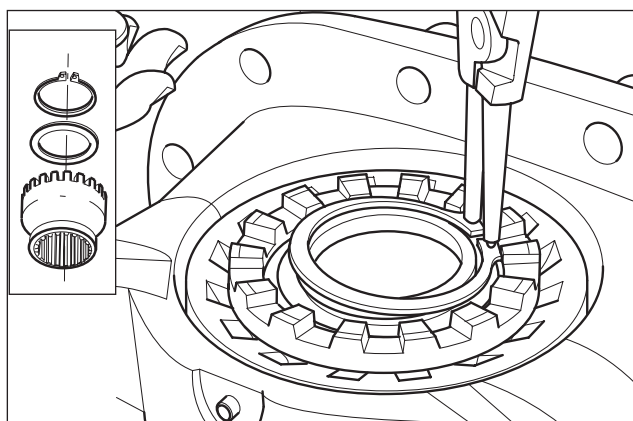


Fig. 2.91

2 Maintenance

Preload instruction without leg cap bridge

Details of preload instructions

Method one

1. Place two dial indicators in central and crossways positions onto the outer machined faces of the caps. Fig. 2.92
2. Use a wrench to tighten bearing adjusting rings until pinion-to-drive gear end play and backlash readings are **zero**. Check that the drive gear is not tight against the pinion.
3. When backlash and end play are **zero**, continue tightening both adjusting rings until the cap expansion reading is between 0.05-0.20 mm (0.002-0.008-inch). This measurement is the sum of readings on both dial gauges.

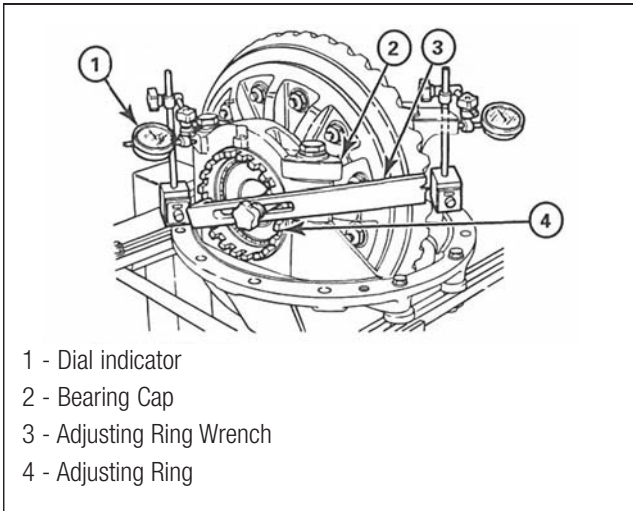


Fig. 2.92

- 1 - Dial indicator
- 2 - Bearing Cap
- 3 - Adjusting Ring Wrench
- 4 - Adjusting Ring

Adjust Differential Bearings Preload

Method two

Fit two dial indicators according to the above scheme on "X" or "Y" axis against the wing's caps. Fig. 2.93

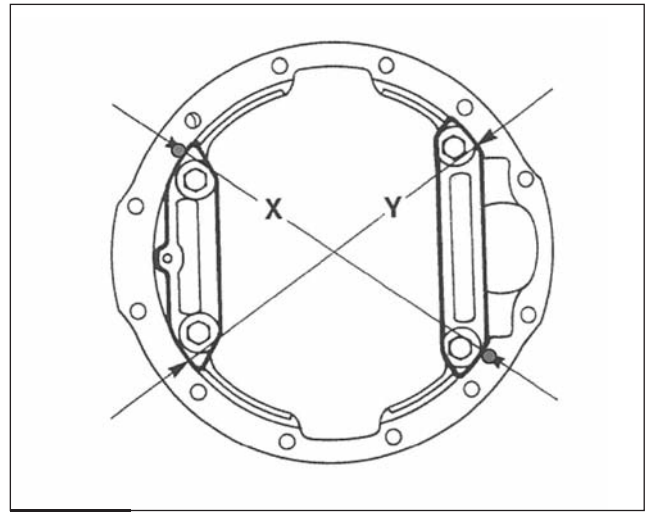


Fig. 2.93

Set the indicators in the zero position. Fig. 2.94

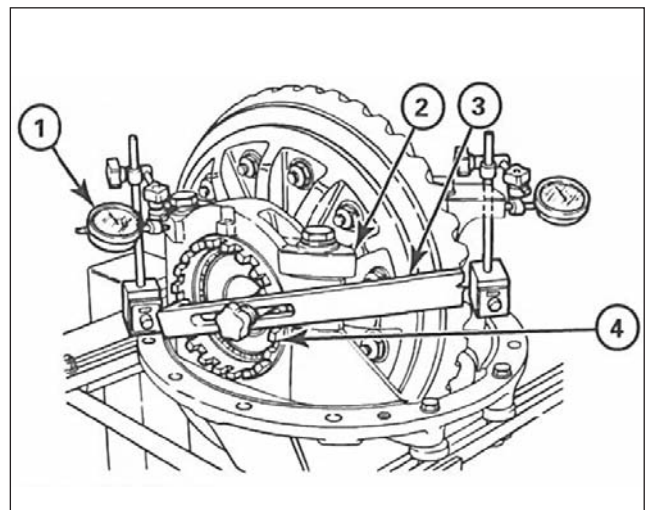


Fig. 2.94

2 Maintenance

1. Use the wrench to tighten the adjusting ring bearing opposite of crown side. When one of the DTI moves from **zero** position, stop the adjusting ring rotation. Mark one of the adjusting ring top notches position as "0".

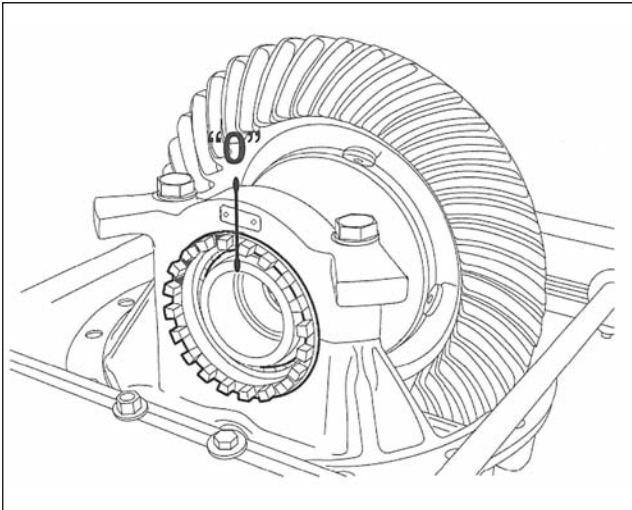


Fig. 2.95

NOTE: while rotating the adjusting ring, thump with a plastic or rubber mallet to set properly the diff bearings.

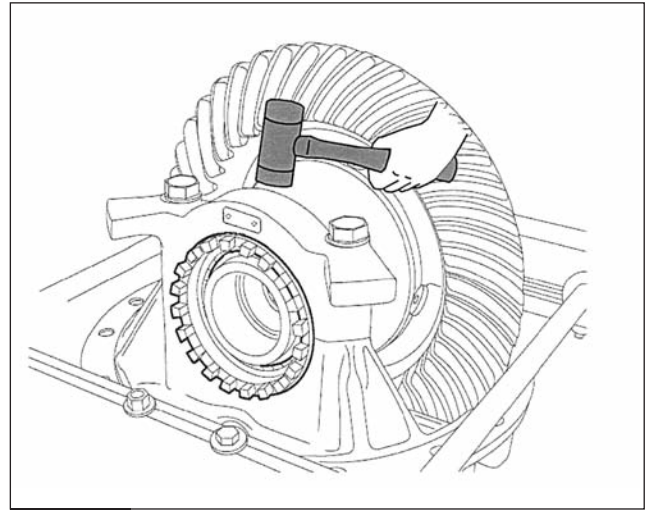


Fig. 2.97

2. From previous "0" marked position, rotate the adjusting ring among 2 or 3 notches aligning the notches to the lock plate tooth.

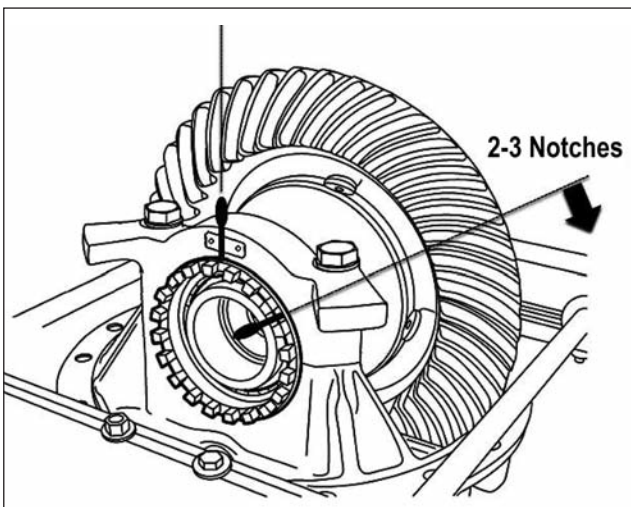


Fig. 2.96

2 Maintenance

Removal and replacement of cross axle Differential Lock unit

Adjustment of differential lock

The differential lock mechanism is designed as a preset assembly and adjustment is not possible – if problems occur a new differential lock mechanism should be fitted.

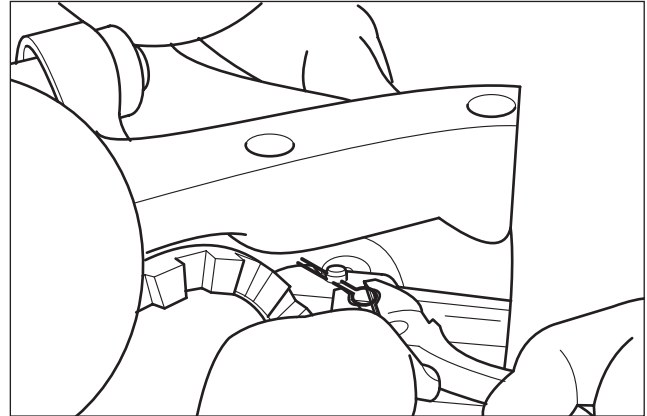


Fig. 2.98

Remove the split pin in the clevis pin joining the differential lock piston to the differential lock lever.

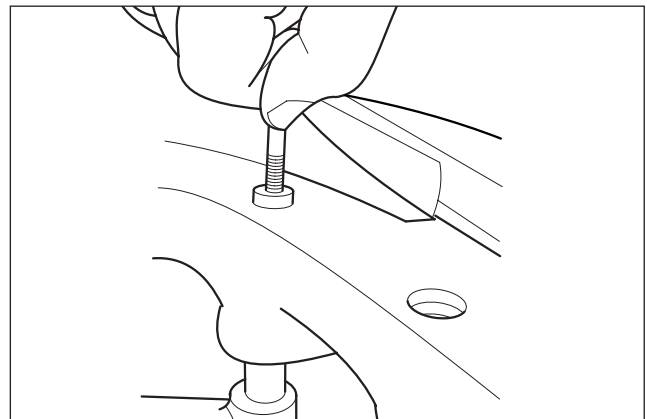


Fig. 2.99

Using an extractor bolt threaded into the pivot pin - withdraw the lever pivot pin to allow removal of the differential lock fork and collar.

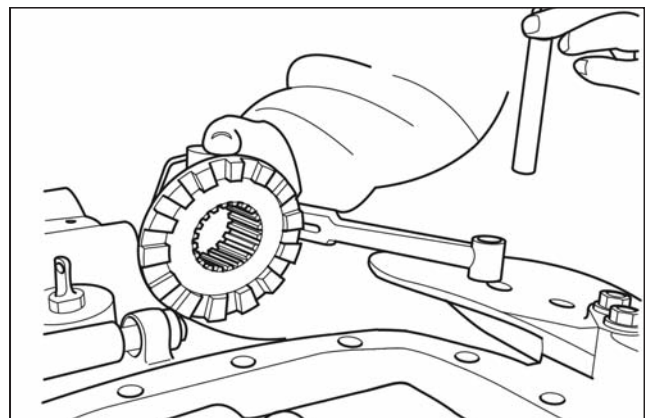


Fig. 2.100

2 Maintenance

Split the differential lock actuator.

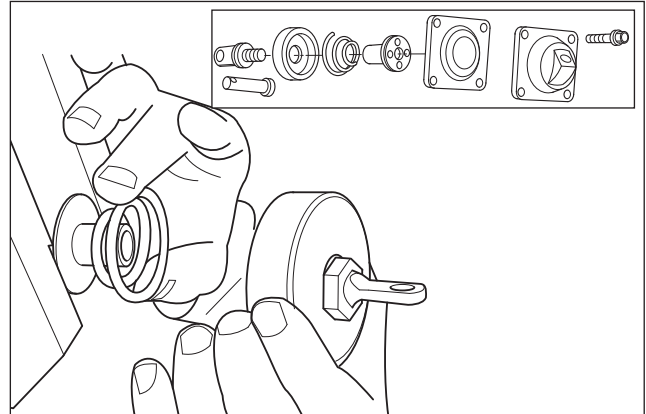


Fig. 2.101

Replace parts if necessary and reassembly.

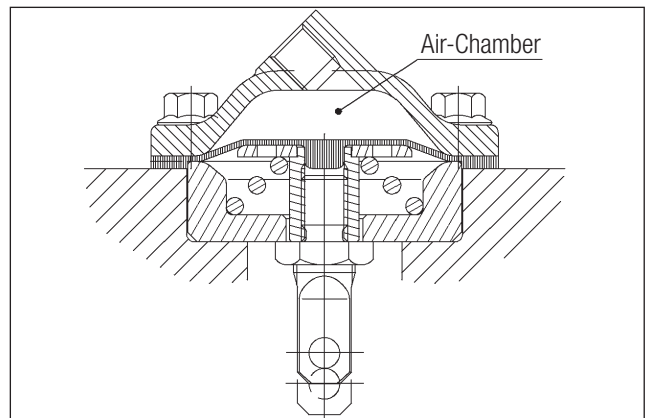


Fig. 2.102

Apply thread locking compound (Loctite 243) to the screw - and tighten to a torque of 30 ± 5 Nm. Fit the differential lock diaphragm and cover ensuring firstly that the piston is free and can be depressed slightly by hand,

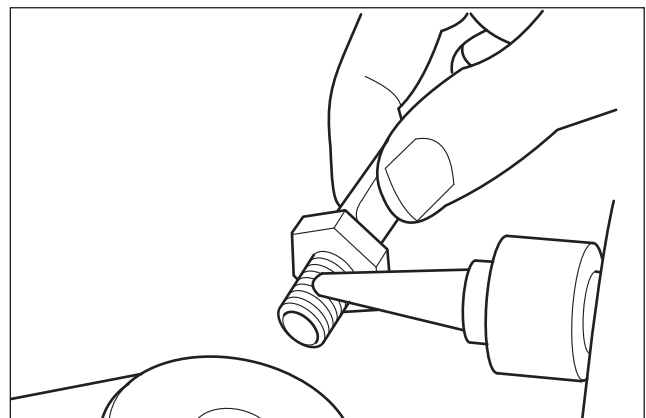


Fig. 2.103

2 Maintenance

and cross tighten the cover plate fasteners to a torque of 20 ± 5 Nm.

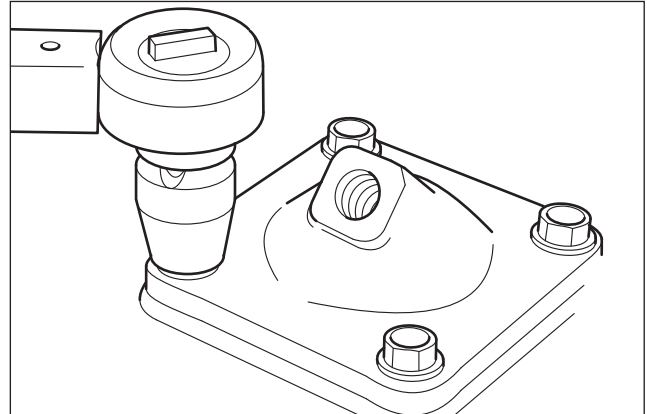


Fig. 2.104

Assemble the differential lock mechanism back into the housing

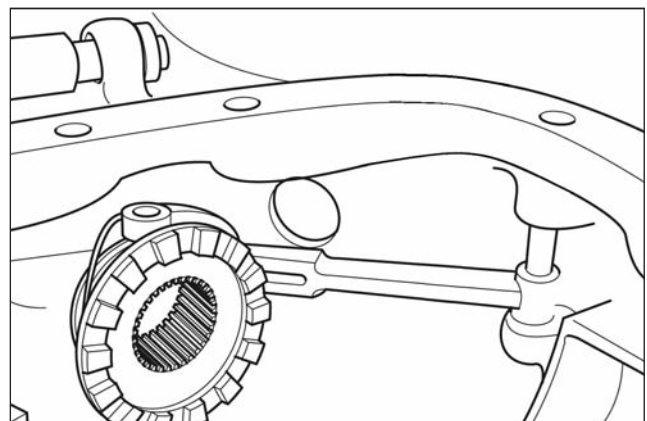


Fig. 2.105

Fit the pivot pin in position.

Connect the differential lock lever to the differential lock actuating piston with a clevis pin and split pin.

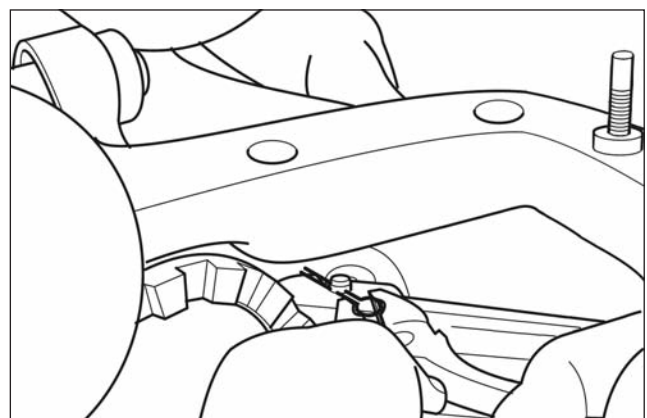


Fig. 2.106

2 Maintenance

Instructions to install and adjust Differential Lock Sensor Switch

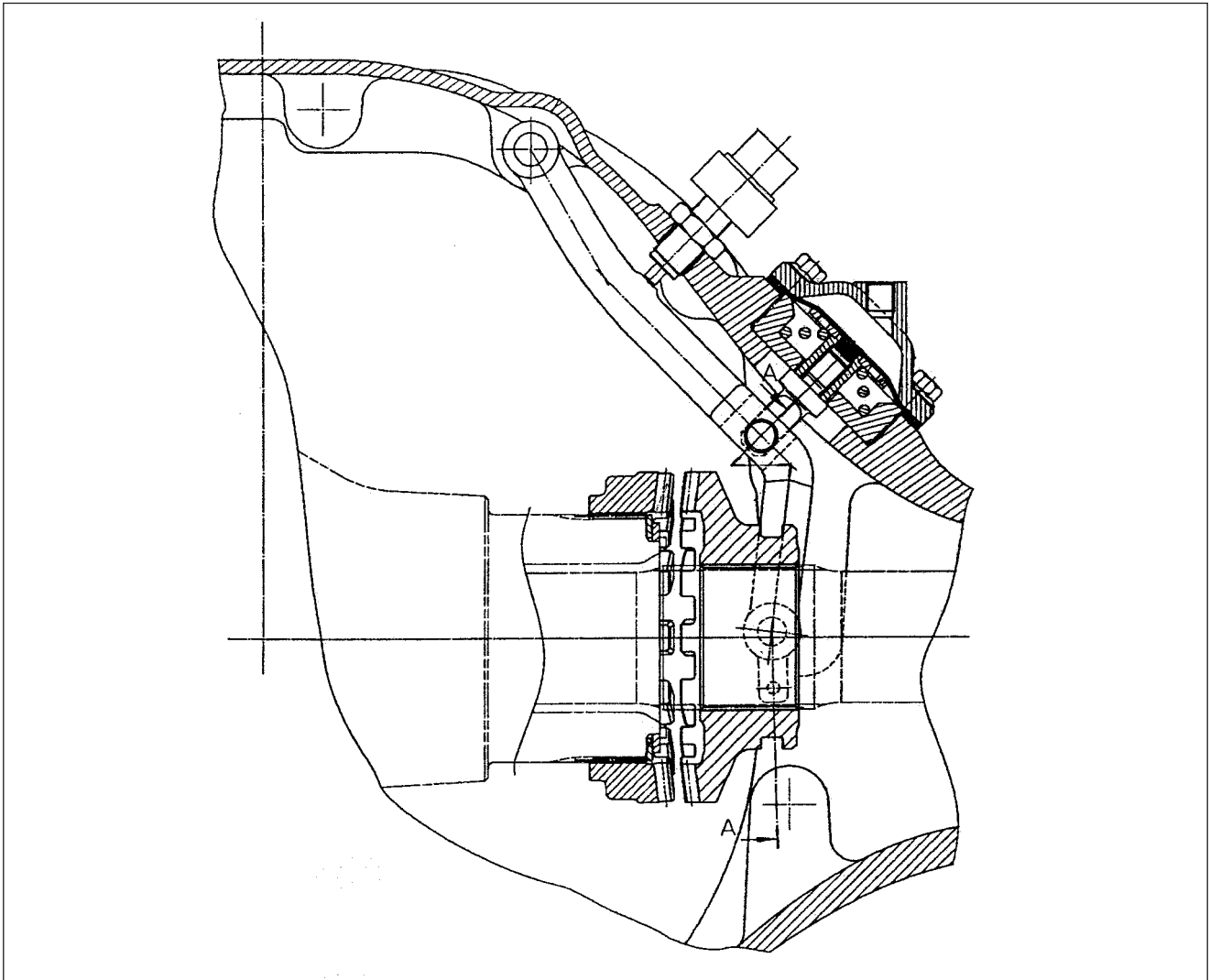


Fig. 2.107

Adjustment of the differential warning light switch.

Check and adjustment of differential sensor switch is carried out with rear axle installed on vehicle.

- 1) Check differential lock engagement by blowing in air (6 kg/cm²/6 bar approximately)
- 2) Engage differential lock and tighten sensor switch until the switch point touches the shift fork lever slightly; check that the contact is the one required from the vehicle manufacturer.
- 3) Starting from the contact, turn the switch of 270°
- 4) Tighten the lock nut to 40 ± 5 Nm
- 5) Check differential lock engagement several times before running the vehicle on the road.

2 Maintenance

Refitting the Carrier to the Axle Housing

Clean the axle housing to carrier mounting face by scraping clear of debris - old sealing compound, etc.

Apply a continuous bead of sealing compound (Loctite 5101) to the mounting face.

Fit carrier to housing - rotating the drive flange if necessary to engage to output shaft.

Take care that the differential lock mechanism is not fouled and remains free to operate when the carrier is fitted.

Fasten the carrier to the axle housing with 16 screws tightened in a progressive cross pattern to a torque of 250 ÷ 330 Nm.

Fit axle shafts in position and sun gears on the ends of the axle shaft splines.

Fit end caps on the hubs (see procedure to set the dowel height correctly which governs the half shaft free axial movement or float).

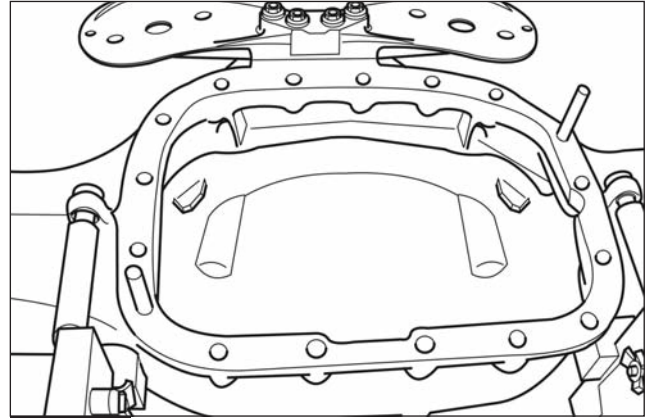


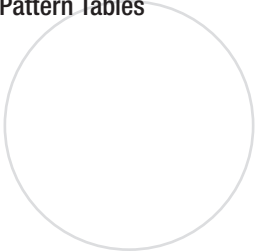
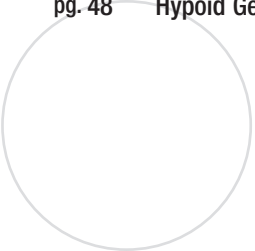
Fig. 2.108

Hypoid Gear Contact Patterns

3



pg. 48 Hypoid Gear Pattern Tables



3 Hypoid Gear Contact Patterns

Tooth contact pattern of the gear set

1. Coast (concave side)
2. Toe
3. Drive (convex side)
4. Heel

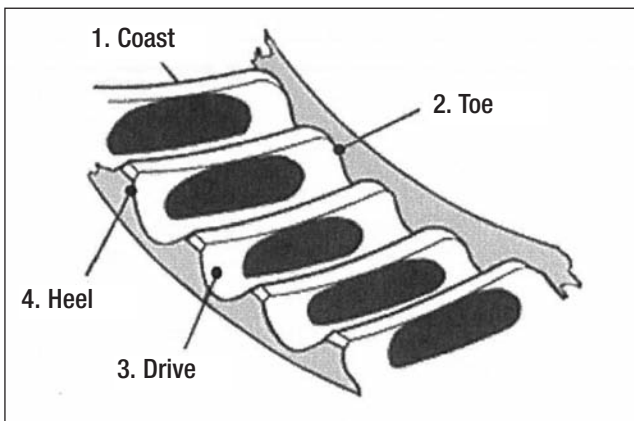


Fig. 3.1

Coast side

Central toward the heel over the face of the gear tooth and in the centre along the tooth profile.

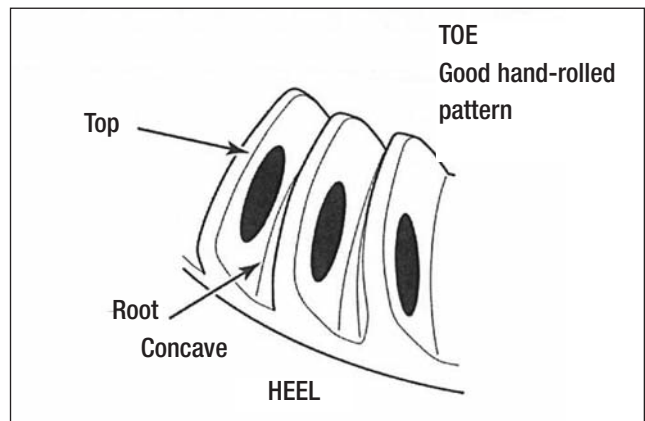


Fig. 3.3

Ideal gear contact pattern

Drive side

Central toward the toe over the face of the gear tooth and in the centre on the tooth profile.

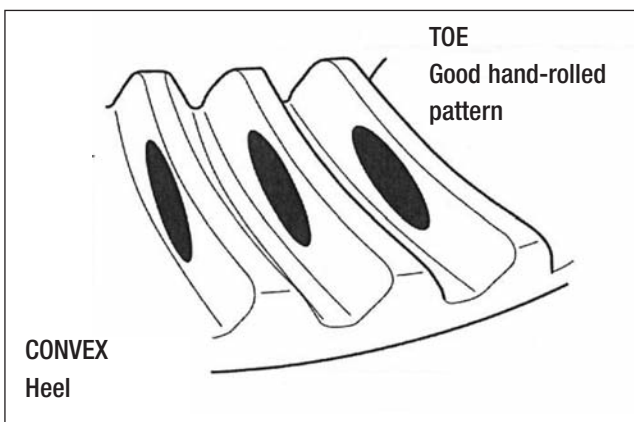


Fig. 3.2

Verification of the gear contact pattern is to be conducted with acceptance criteria as follows:

Accepted gear contact pattern at Drive side

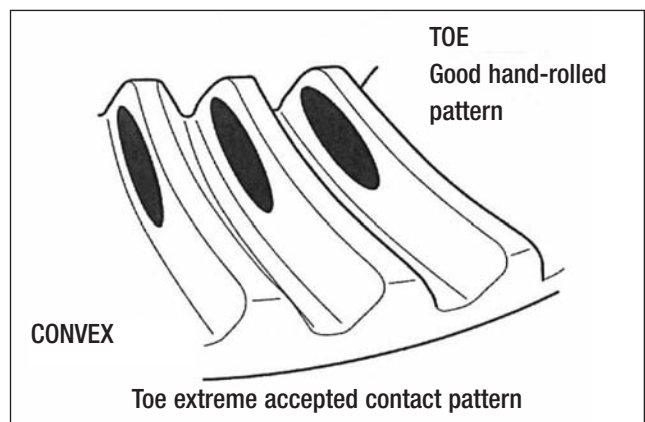


Fig. 3.4

3 Hypoid Gear Contact Patterns

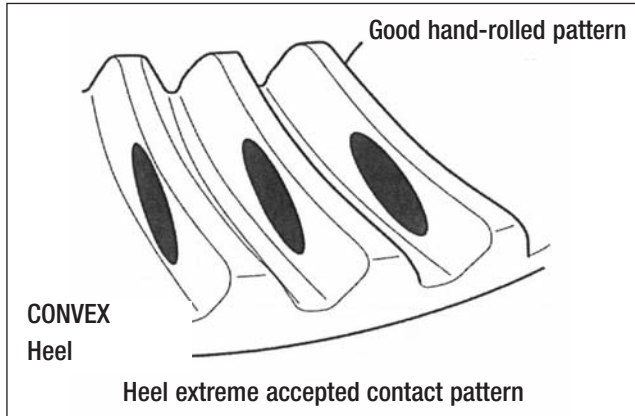


Fig. 3.5

Accepted gear contact pattern at Coast side

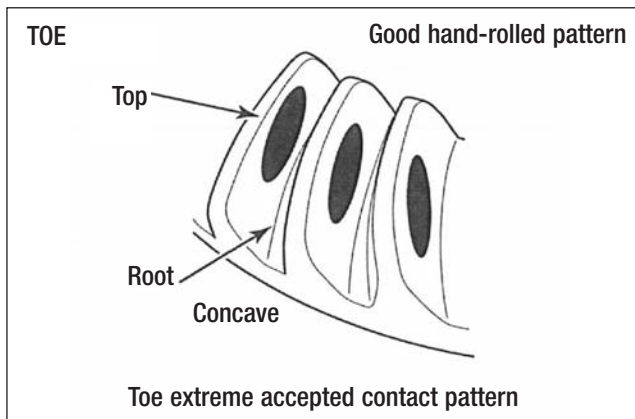


Fig. 3.6

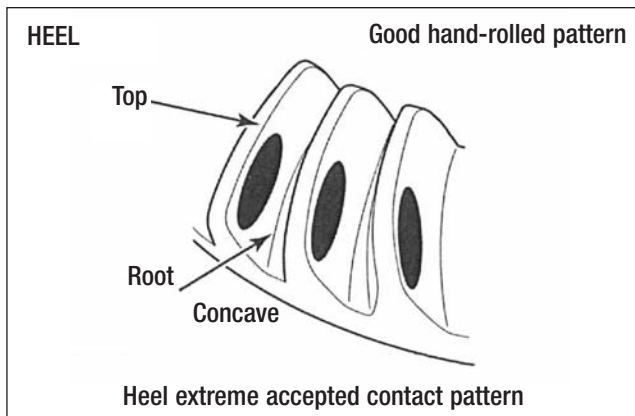
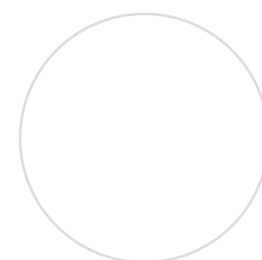
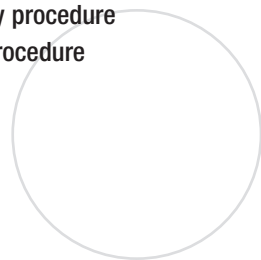
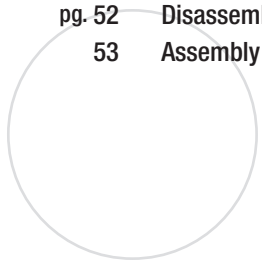


Fig. 3.7

Pinion Seal

4



pg. 52 Disassembly procedure
53 Assembly procedure

4 Pinion Seal

The pinion seal replacement detailed below may be carried out with the differential unit installed on the vehicle.

Disassembly

1. Unscrew the nuts (1) securing the propeller shaft to the differential companion flange.
2. Disconnect the propeller shaft (2) and secure it to the chassis. (Fig. 4.1)
3. With a drilling tool, remove the staking on the pinion lock nut. (fig. 4.2)
4. Block the rotation of the flange (1) using a suitable tool (2).
5. Using a suitable wrench (3), torque multiplier (4) and a suitable service tool slacken the pinion nut.

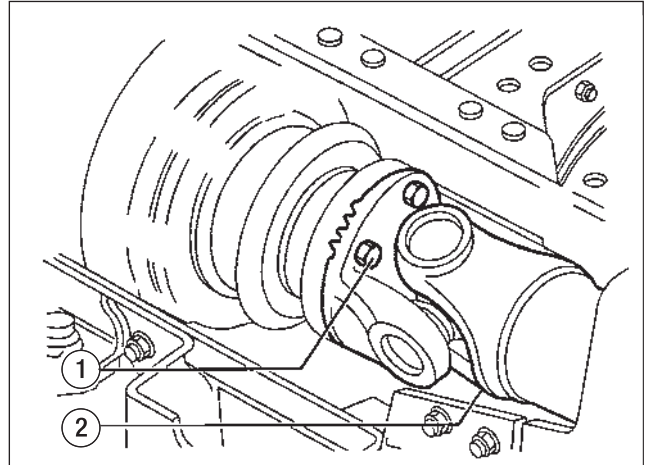


Fig. 4.1

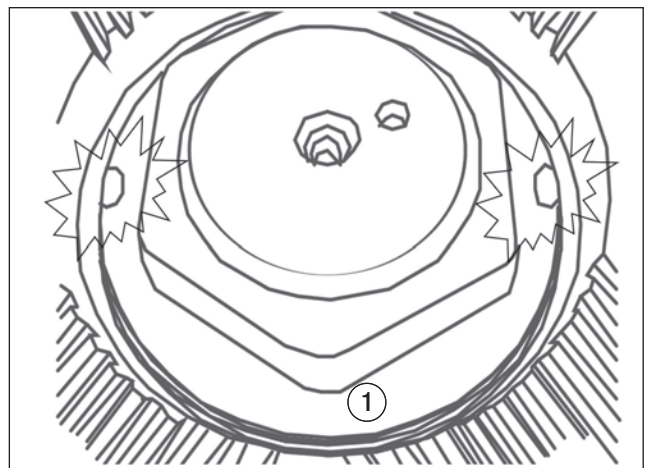


Fig. 4.2

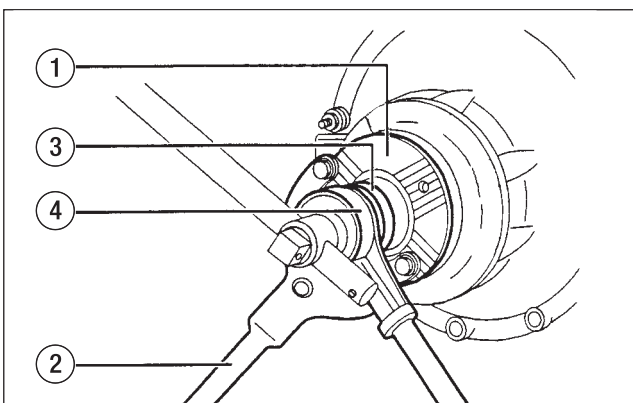


Fig. 4.3

6. If you do not discard the pinion nut and flange, mark the flange position on the pinion and remove it. This may require the use of a standard bearing puller tool. (Fig. 4.4)

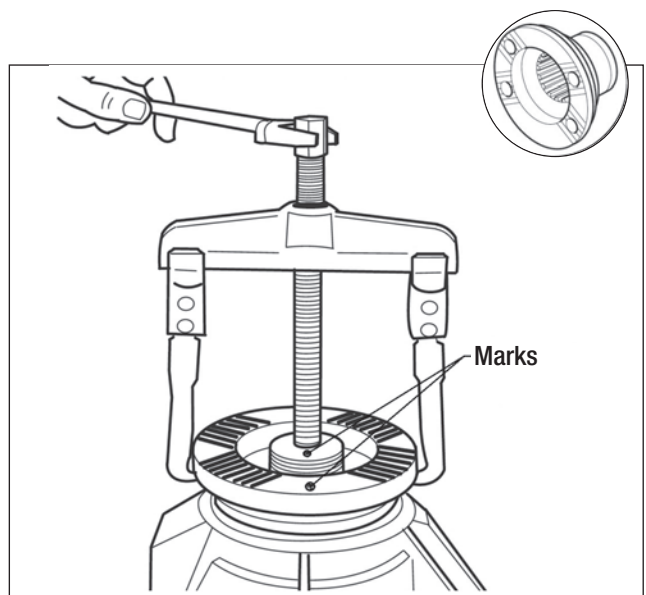


Fig. 4.4

4 Pinion Seal

7. Inspect the deflector for damage. If necessary replace the part. (Fig. 4.5)
8. Remove the rotary seal sleeve from the flange. (Fig. 4.5)

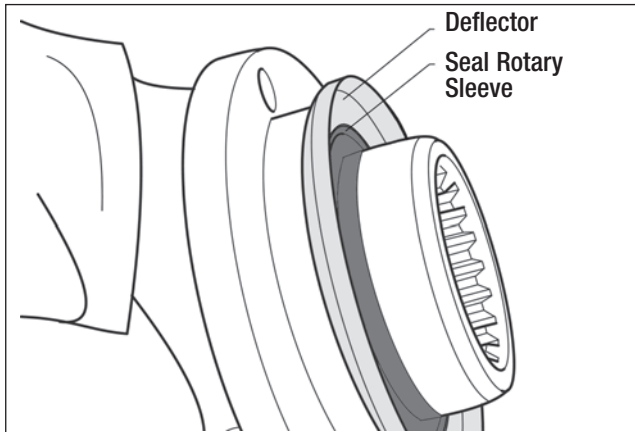


Fig. 4.5

9. Remove seal outer case with use of service tool MST4401 - CT14. Discard seal and replace with new for rebuild (Fig. 4.6)

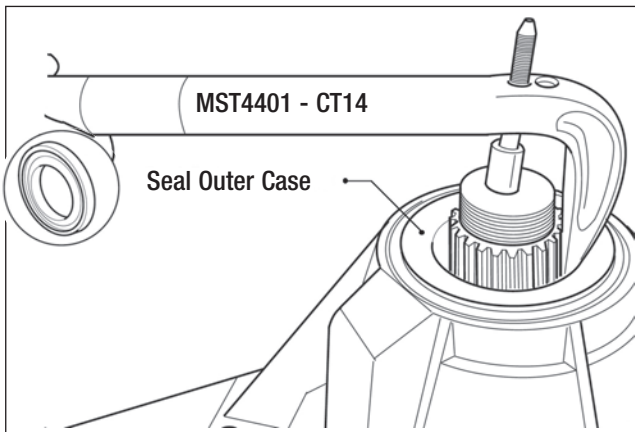


Fig. 4.6

Assembly

1. If the deflector needs to be replaced, lubricate the flange and use the suitable tool MST4807 for assembly.

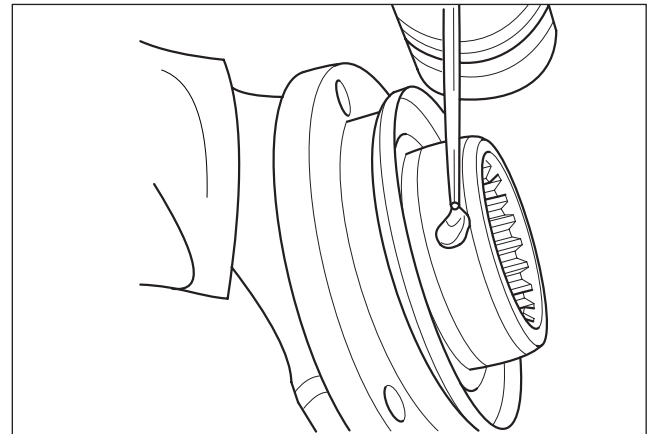


Fig. 4.7

2. If the deflector does **not** need to be replaced, lubricate the seal rotary sleeve journal of the flange (Fig. 4.7)
3. Fit the seal rotary sleeve on the flange using the suitable tool MST4808.

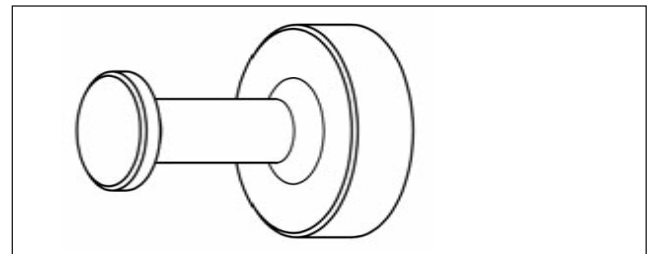


Fig. 4.8

4. Insert seal outer case into service tool MST4410 - CT26 (Fig.4.9)

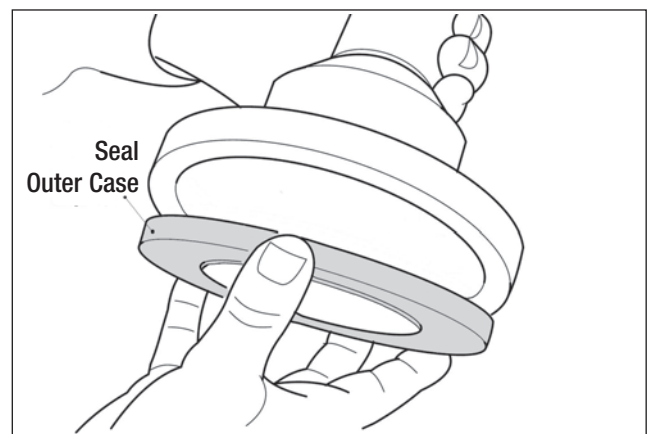


Fig. 4.9

4 Pinion Seal & Output Shaft Replacement

5. Press seal into the bore in carrier. When service tool contacts the carrier the seal will be correctly positioned into the bore. (Fig. 4.10)

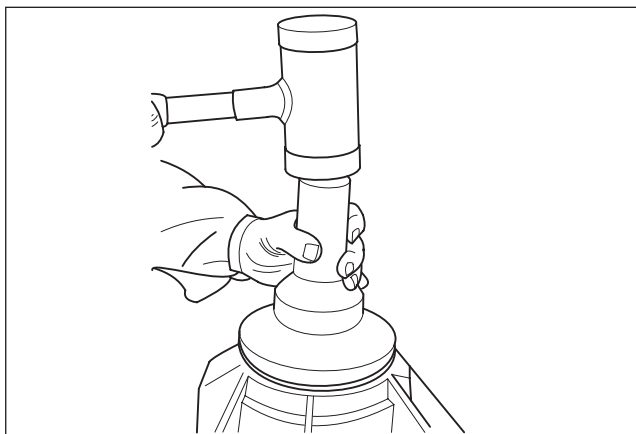


Fig. 4.10

6. Check seal spring has remained in position. (Fig. 4.11)

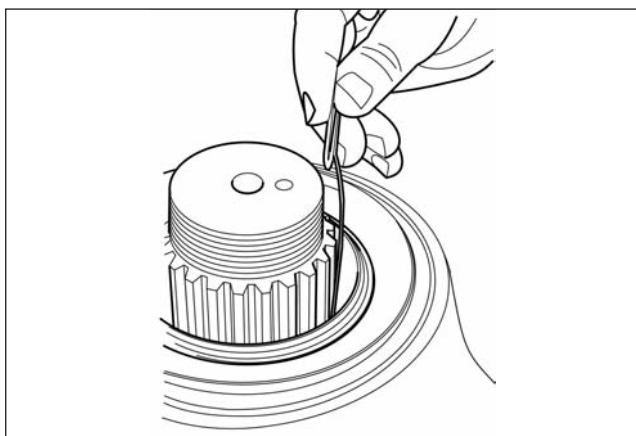


Fig. 4.11

7. If reused, remove any burrs found on the flange with the aid of a small ball nosed grinding wheel. (Fig. 4.12)

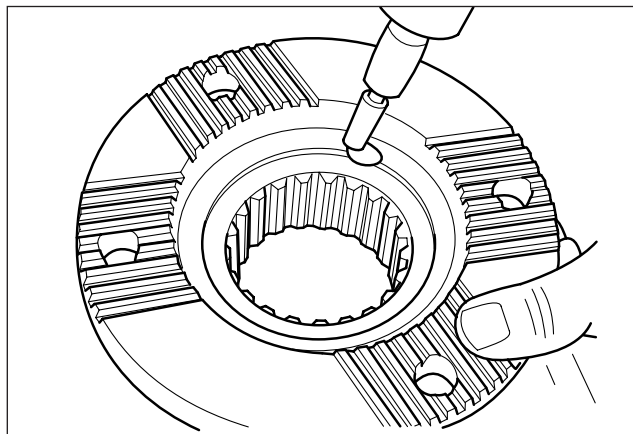


Fig. 4.12

NOTE: Lubricate the surface of the flange nut and companion flange.

Oil the threads.

8. Refit flange and pinion nut. (Fig. 4.13)

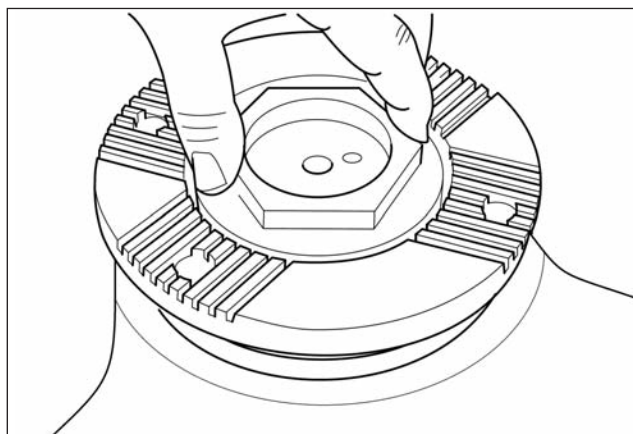


Fig. 4.13

NOTE: The marks on Pinion and reused flange must now be rotated at 90° avoiding same staking location on nut.

Skip note if you use new flange seal nut.

4 Pinion Seal & Output Shaft Replacement

9. Lock flange with service tool MST4400 - CT13 (Fig.4.14)

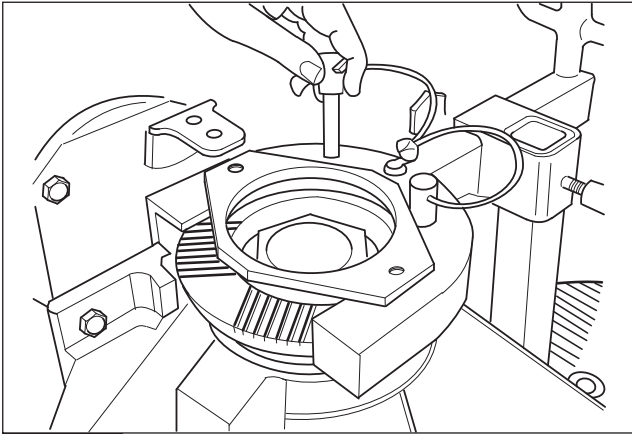


Fig. 4.14

10. Tighten flange lock nut to a torque of 2000 ± 2200 Nm (Fig. 4.15)

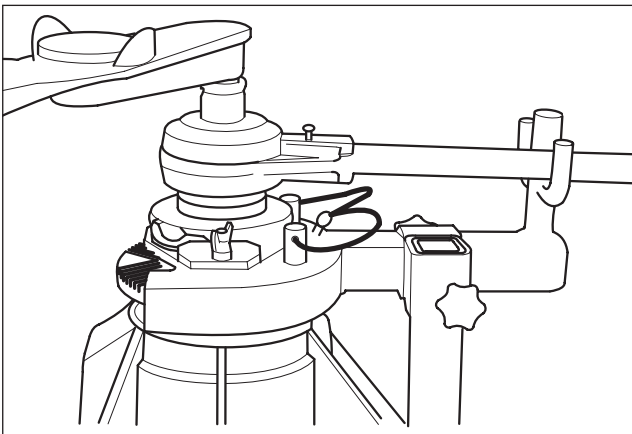


Fig. 4.15

11. With a suitable ball nosed punch, indent lock nut in two places directly above the slots in the flange. (Figs. 4.16 and 4.17)

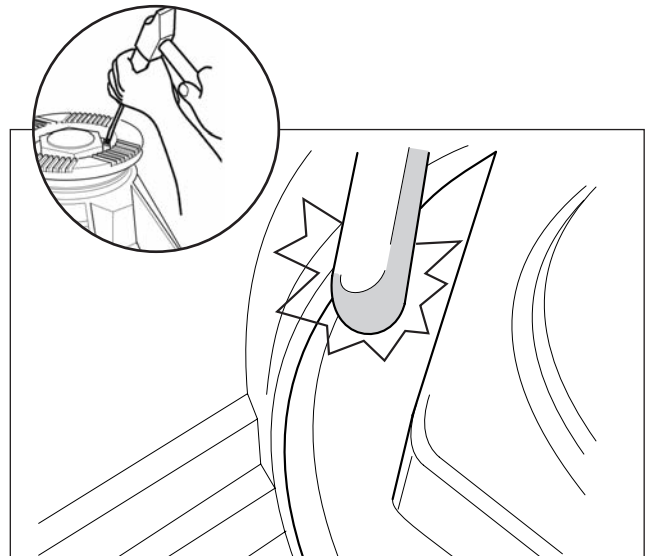


Fig. 4.16

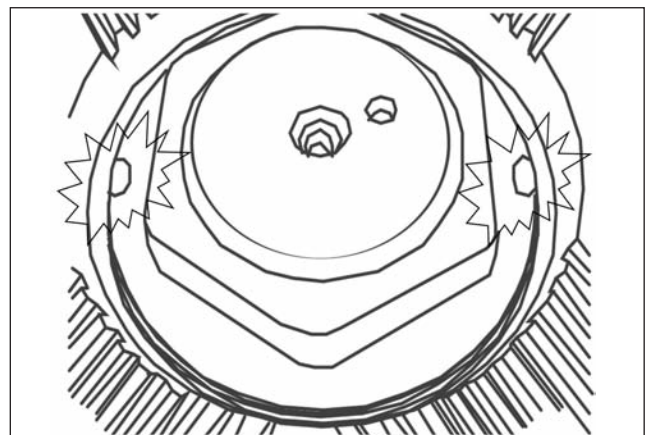


Fig. 4.17

Tightening Torque Values

5

pg. 58	Carrier section & Tightening Torque Table
59	Carrier & Housing assy & Tightening Torque Table
60	Lubrication

5 Tightening Torque Values

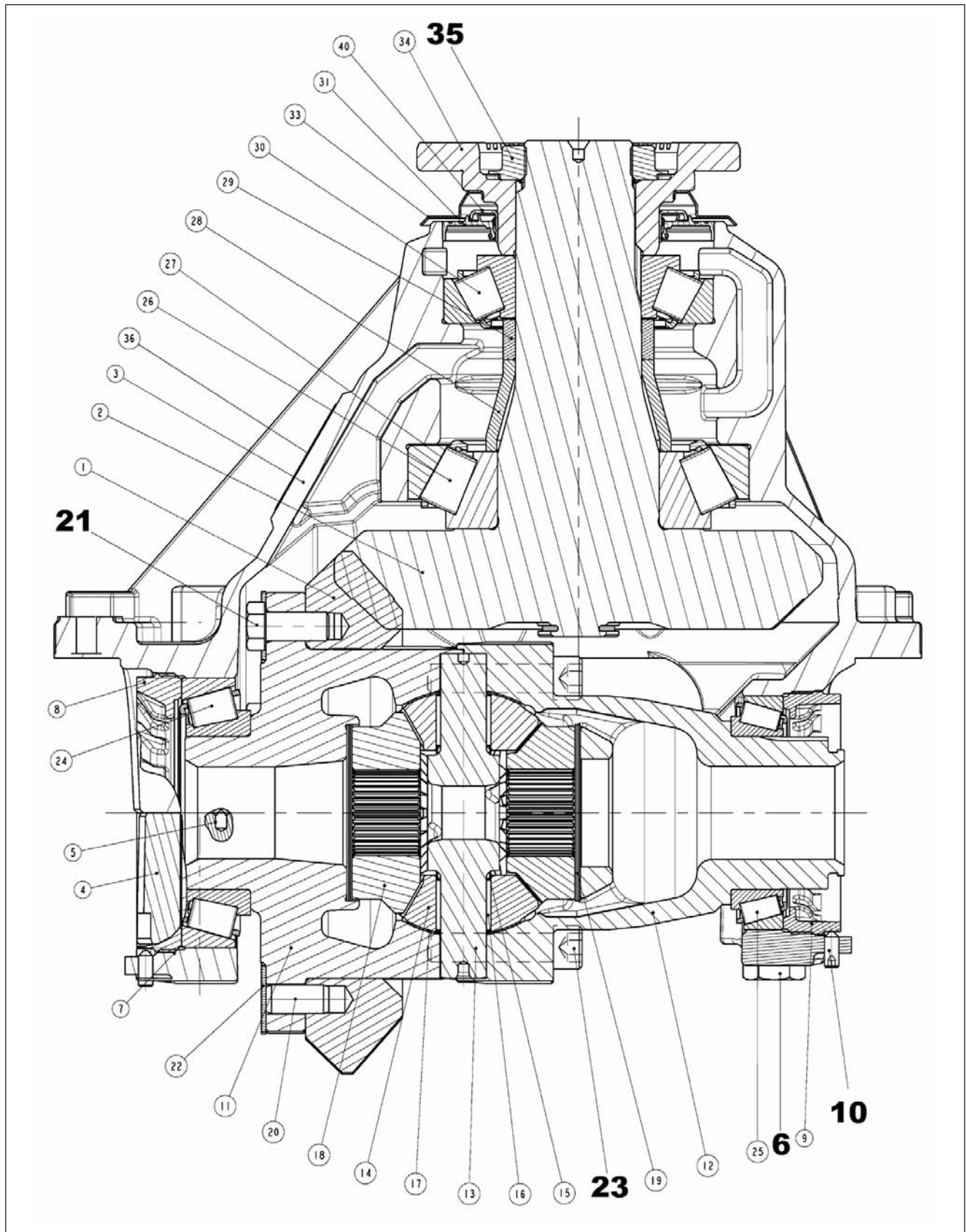


Fig. 5.1

5 Tightening Torque Values

Tightening torque :

PN	Description	Torque (Nm)	Degrees	Demands
21	Screw - Crown Wheel – M16X2	180 ÷ 220		1), 2)
23	Screw - Differential Housing – M16X2	180 ÷ 220		1), 2)
6	Screw - Differential Bearing Cap – M22X2 [torque + angle procedure] [torque only]	180 ÷ 220	90 ÷ 105	4)
		650 ÷ 810		4)
10	Locking Screw – Adjusting screw M8X1.25	15 ÷ 25		5)
35	Nut - Piston - M60x2	2000 ÷ 2200		1), 3), 6)

NOTE:

1. Threads to be oiled before assembling.
2. Cross-wise tightening = Tightening the fasteners in pairs opposite each other.
3. The axial contact-surface is to be oiled before assembling the nut, PN 33 and 61.
4. Change with a new nut after 3 reassemblies.
5. For reassembly; use new screws or apply locking fluid.
6. Nut to be upset in groove.

5 Tightening Torque Values

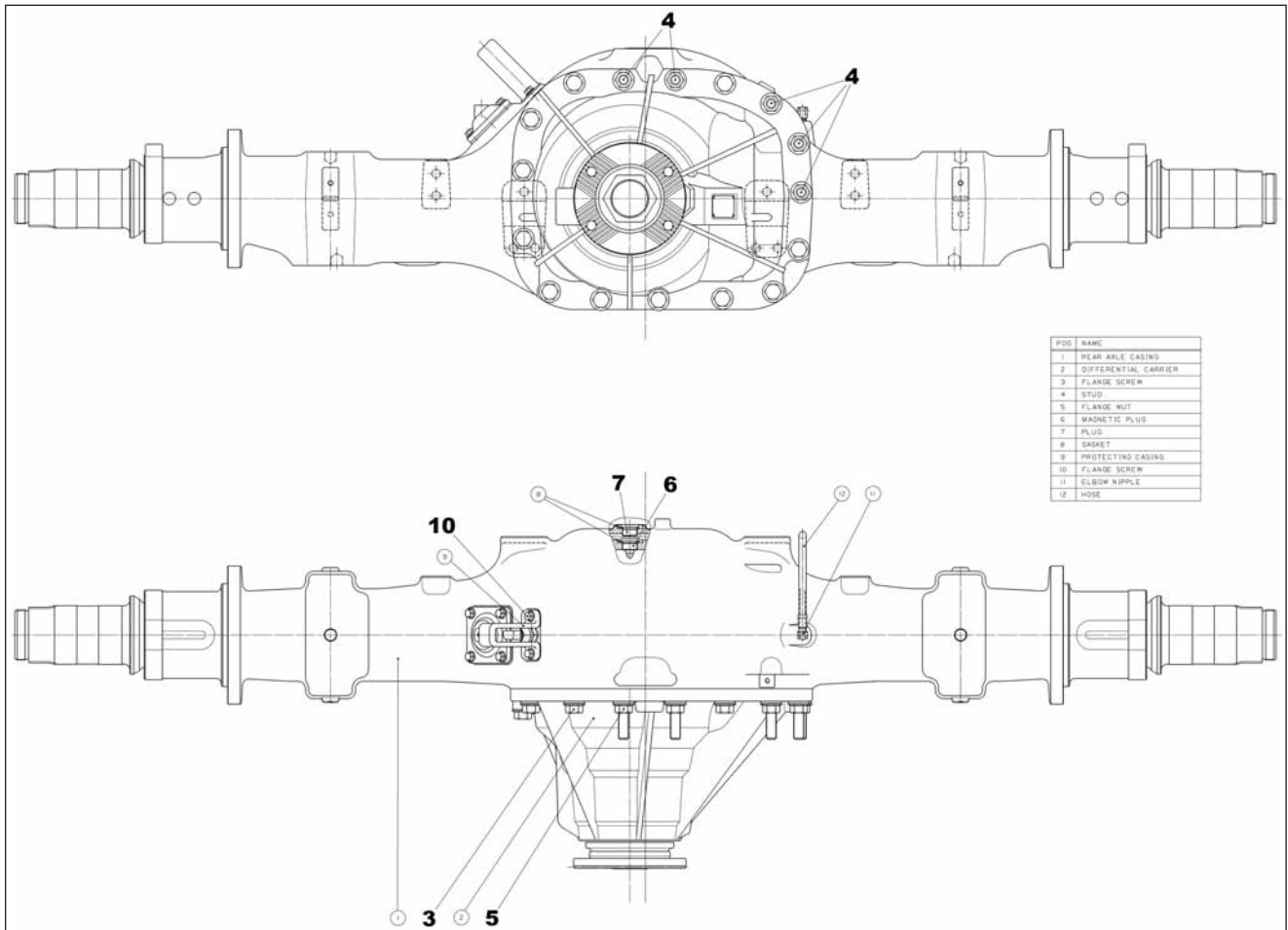


Fig. 5.2

Tightening torque :

PN	Description	Torque (Nm)	Demands
3	Flange Screw – M16X2	250 ÷ 310	1), 2)
4	Stud – Differential Carrier – M16X2	63 ÷ 77	1), 2)
5	Flange Nut – M16X2	250 ÷ 310	1), 2)
6	Magnetic Plug – M	60 ÷ 100	1), 2)
7	Plug	60 ÷ 100	2)
10	Flange Screw protecting casting	20 ÷ 30	2)

NOTE:

1. Cross-wise tightening = Tightening the fasteners in pairs opposite each other.
2. For reassembly; use new screws or apply locking fluid.

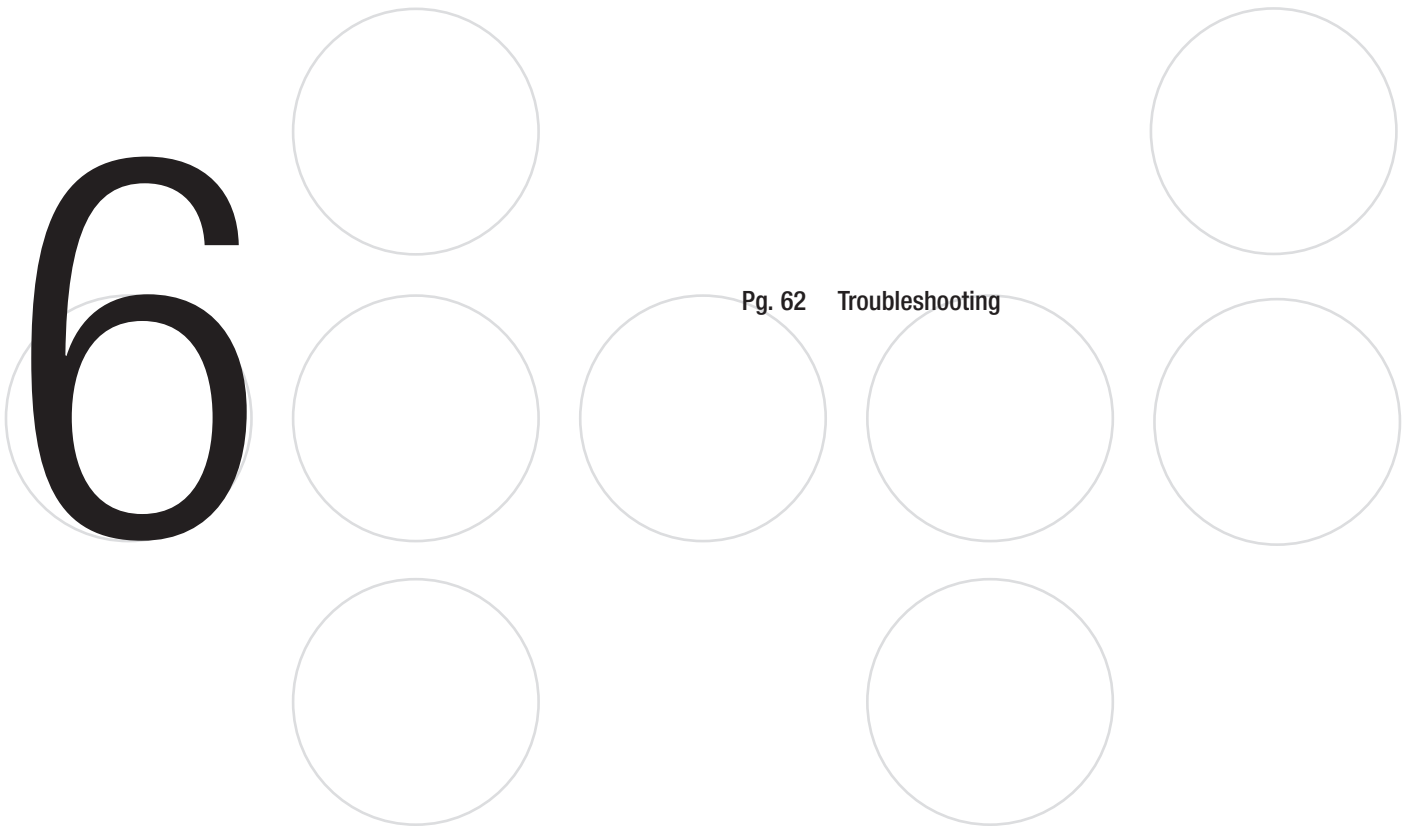
Lubrication

Oil Specification:
Hypoid Gear Oil - S.A.E. J2360 - GL5 - tested and approved.

Oil Capacity:
MR61 = 16 Litres

NOTE: For additional information about lubricant please refer to TP0838 and TP0445.

Troubleshooting



Pg. 62 Troubleshooting

6 Troubleshooting

Shown below is a chart of the most common faults occurring to differential carrier.

CONDITION	POSSIBLE CAUSES	REMEDIES
Noise, possibly followed by high temperature.	Incorrect oil	Drain oil and fill up with new in accordance with "Specifications"
	Oil level too low	Check oil level
	Incorrect backlash	Adjust
	Incorrect tooth contact	Adjust
	Damaged gears	Remove the final drive. Examine gear wheels for damage. Replace damaged parts. Adjust according to instructions.
Thump in leading axle carrier when operating accelerator pedal.	Worn or incorrectly adjusted roller bearings	Check and adjust bearings. Replace worn or damaged bearings.
	Thrust washers for differential gears worn	Replace all thrust washers.
First check that the noise is not due to worn universal joints	Differential gears or spider worn	Replace worn parts.
	Driving wheel loose on hub.	Tighten up wheel nuts.
	Worn splines on drive shafts or final drive	Replace worn parts.
Oil leakage	Oil level too high.	Check oil level.
	Breather valve clogged.	Check breather valve.
	Sealing rings damaged.	Replace sealing rings.
	Incorrectly adjusted or damaged wheel bearings.	Adjust or replace bearings.
	Damaged sealing ring and/or damaged flange.	Replace damaged parts.
	Incorrectly adjusted or damaged pinion bearings.	Adjust or replace bearings.
	Diff. lock diaphragm cracked so that compressed air gets into final drive when diff. lock is engaged.	Replace diaphragm.
Diff. lock does not engage	Leaking air lines.	Check air lines and unions.
	Leaking control cylinder.	1. Tighten the screws for the upper part of the control cylinder and check for leakage using soapy water. 2. Replace diaphragm.
	Diaphragm cracked.	Replace diaphragm
	Deformed diff. lock control.	Replace diff. lock control.
	Shift fork guide pin holes staved.	Replace guide pins.
	Electrical fault, switch - solenoid valve.	1. Check for cable and connection failure. 2. Check solenoid valve. 3. Check switch.
	Push rod nut incorrectly adjusted.	Adjust according to instructions.

6 Troubleshooting

CONDITION	POSSIBLE CAUSES	REMEDIES
Diff. lock does not disengage	Faulty solenoid valve.	Replace solenoid valve.
	Broken return spring.	Replace spring.
	Shift fork guide pin holes staved.	Replace guide pins.
Diff. lock indicator lamp does not light	Diff. lock does not engage or engages only partly.	See under "Diff. lock does not engage".
	Electrical fault in lines or connections.	Check lines and connections.
	Bulb blown.	Replace bulb.
	Incorrectly adjusted indication contact.	Replace according to instructions.
Diff. lock indicator lamp lights continuously	Diff. lock does not disengage or disengages only partly.	See under "Diff. lock does not disengage"
	Electric cable between indicator lamp and control cylinder has contact with chassis.	Insulate or replace cable.
	Indicator incorrectly adjusted.	Adjust indicator

Service Tools

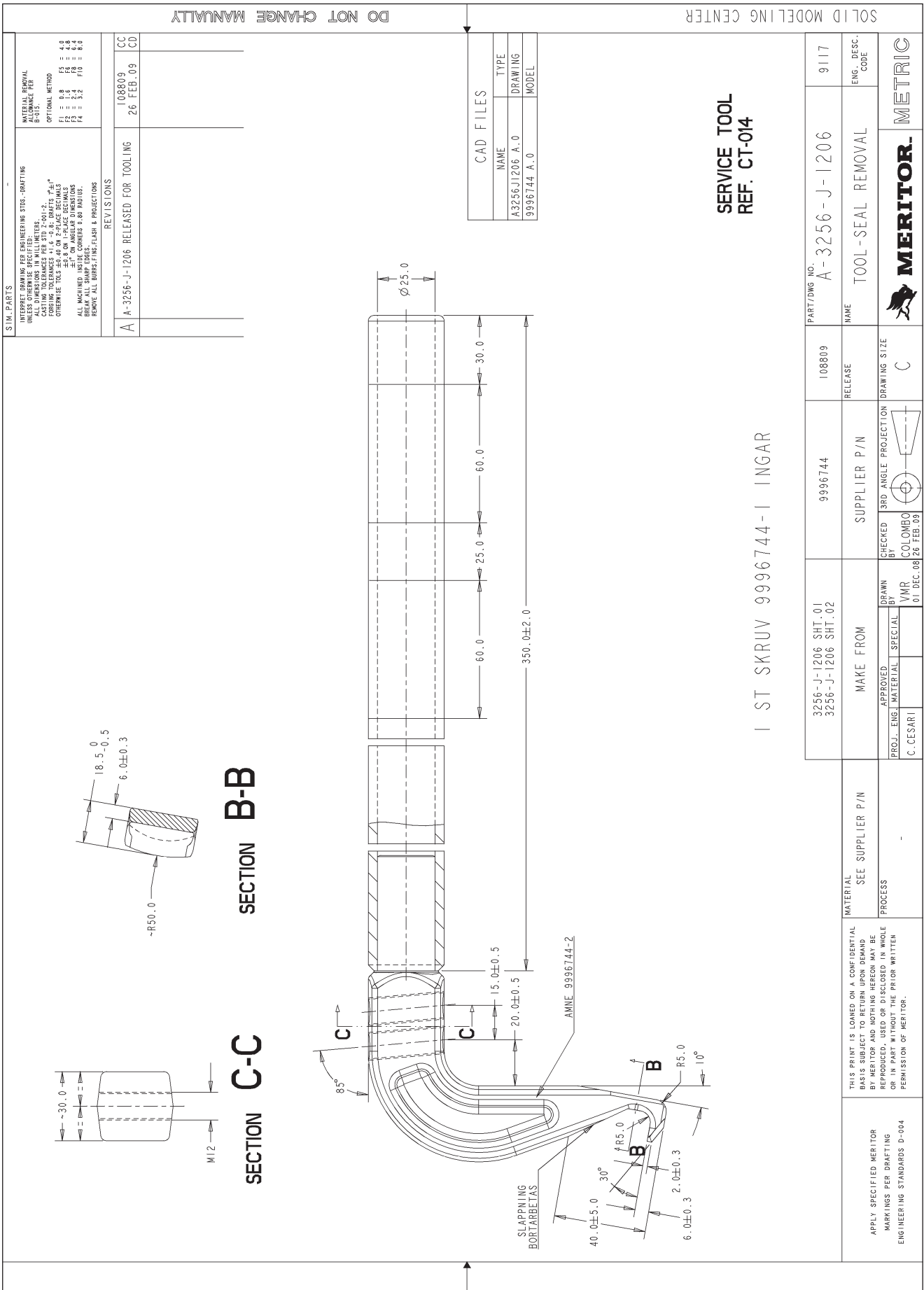
7

- pg. 66 MST4400 CT13 Tool - Flange Lock
- 67 MST4401 CT14 Tool - Seal removal
- 68 MST4402 CT15 Setting Tool - Pinion
- 69 MST4403 CT17 Lifting Tool - Pinion
- 70 MST4404 CT18 Removal Tool - Bearing Cup
- 71 MST4405 CT19 Removal Tool - Bearing Cup
- 72 MST4406 CT21 Lifting Tool - Diff. Case
- 73 MST4407 CT23 Fitting Tool - Bearing Cup
- 74 MST4408 CT24 Fitting Tool - Bearing Cup
- 75 MST4409 CT25 Fitting Tool - Bearing Cone
- 76 MST4410 CT26 Fitting Tool - Pinion Shaft Seal
- 77 MST4411 CT27 Adjusting Tool - Differential Bearing Adjusters
- 78 MST4412 Output seal tool
- 79 MST4807 Inner deflector
- 80 MST4808 Inner ring

7 Service Tools

MST4401 CT14

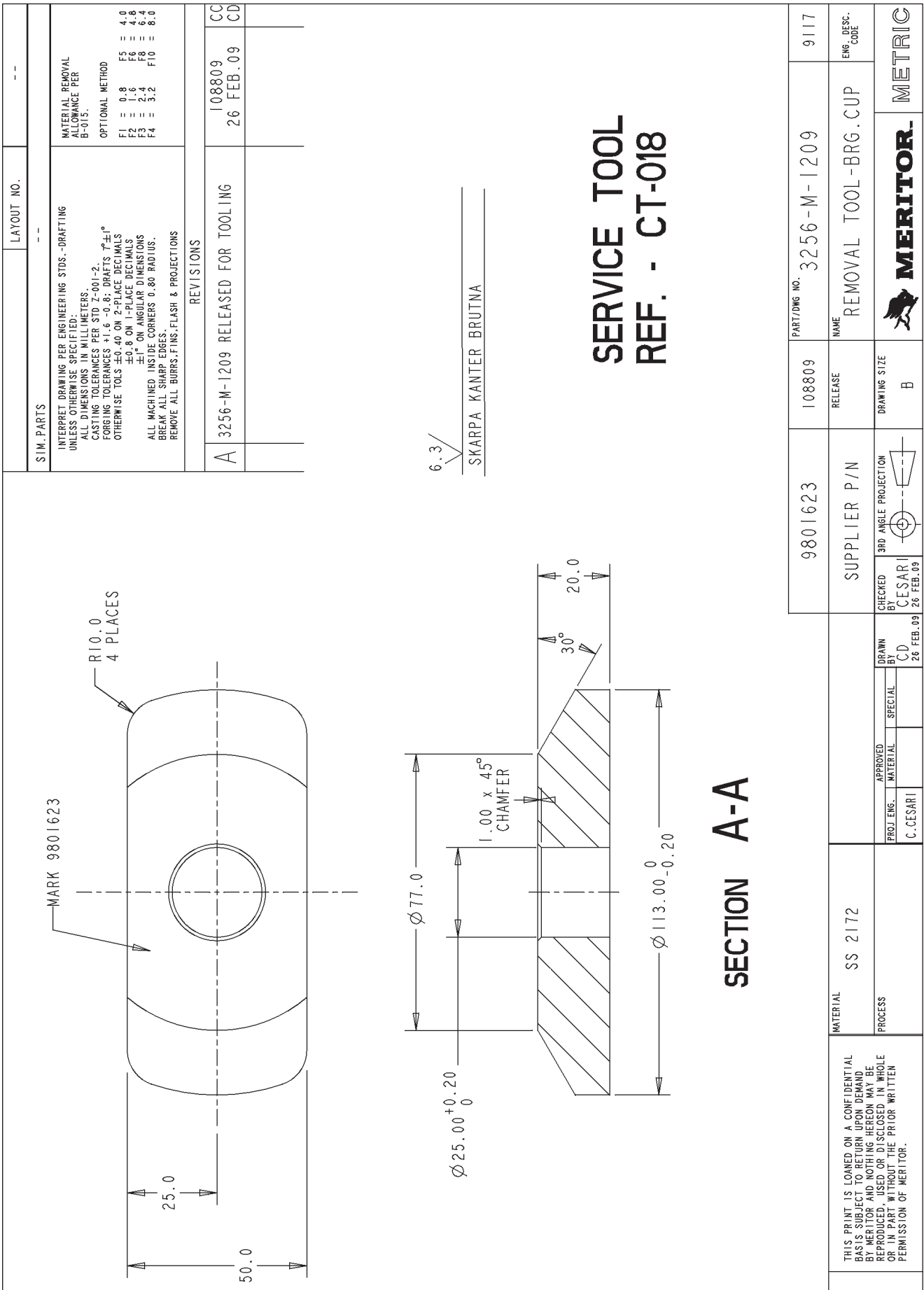
Tool - Seal removal



7 Service Tools

MST4404 CT18

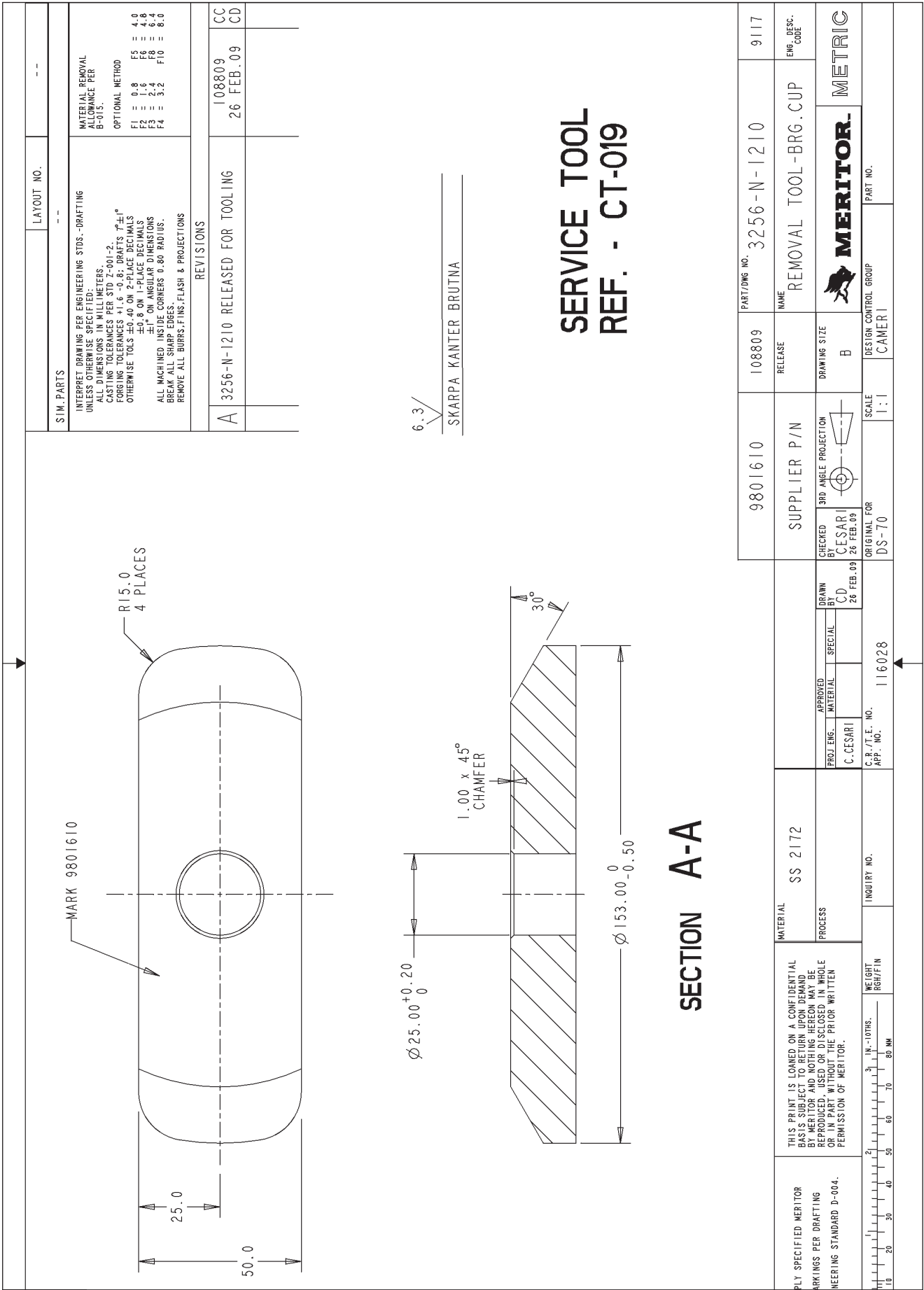
Removal Tool - Bearing Cup



7 Service Tools

MST4405 CT19

Removal Tool - Bearing Cup



SIM. PARTS		LAYOUT NO. --	
INTERPRET DRAWING PER ENGINEERING STDS. - DRAFTING UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS. CASTING TOLERANCES PER STD Z-001-2. FORGING TOLERANCES +1.6 -0.8; DRAFTS ±.1° OTHERWISE TOLS ±0.4 ON 1 PLACE DECIMALS ±.1° ON ANGULAR DIMENSIONS ALL MACHINED INSIDE CORNERS 0.80 RAD US. BREAK ALL SHARP EDGES. REMOVE ALL BURRS, FINS, FLASH & PROJECTIONS		MATERIAL REMOVAL ALLOWANCE PER B-Q15. OPTIONAL METHOD F1 = 0.8 F5 = 4.0 F2 = 1.6 F6 = 4.8 F3 = 3.2 F7 = 8.0	
REVISIONS			
A	3256-N-1210 RELEASED FOR TOOLING	108809	CC
		26 FEB.09	CD

6.3
 SKARPA KANTER BRUTNA

**SERVICE TOOL
 REF. - CT-019**

SECTION A-A

9801610	108809	3256-N-1210	9117
SUPPLIER P/N		RELEASE	ENG. DESC. CODE
CHECKED BY: C. CESARI DATE: 26 FEB. 09 ORIGINAL FOR: DS-70		DRAWING SIZE: B	METRIC
3RD ANGLE PROJECTION 		DESIGN CONTROL GROUP: CAMERI	PART NO.
APPROVED MATERIAL: SS 2172 SPECIAL:		SCALE: 1:1	
PROJ. ENG.: C. CESARI APP. NO.: 116028			
C.R./T.E. NO.: 116028 INQUIRY NO.:			
THIS PRINT IS LOANED ON A CONFIDENTIAL BASIS SUBJECT TO RETURN UPON DEMAND BY MERITOR AND NOTHING HEREON MAY BE REPRODUCED, USED OR DISCLOSED IN WHOLE OR IN PART WITHOUT THE PRIOR WRITTEN PERMISSION OF MERITOR.		WEIGHT: _____	
MARKINGS PER DRAFTING: NEERING STANDARD D-004.		RIGHT: _____	

7 Service Tools

MST4407 CT23

Fitting Tool - Bearing Cup

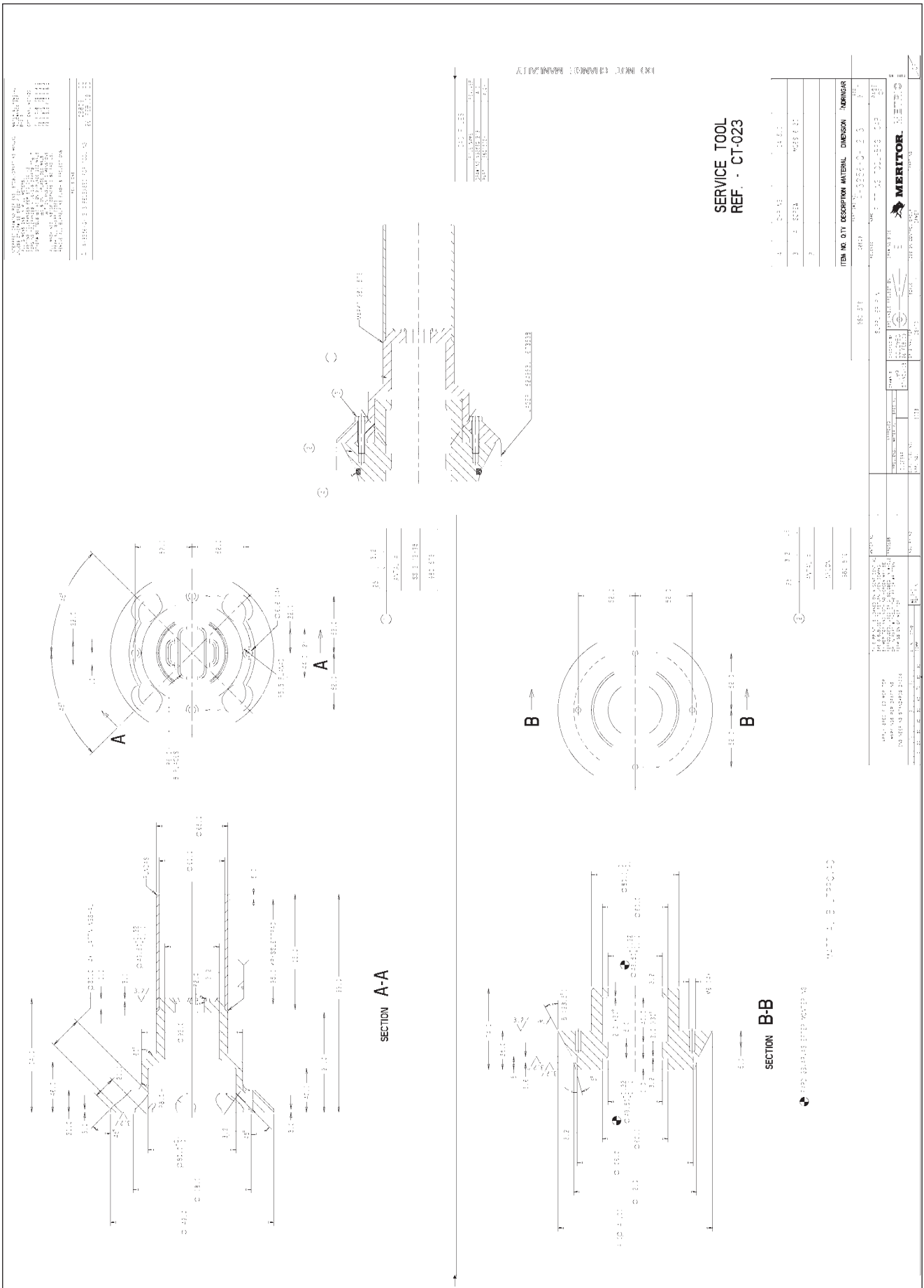
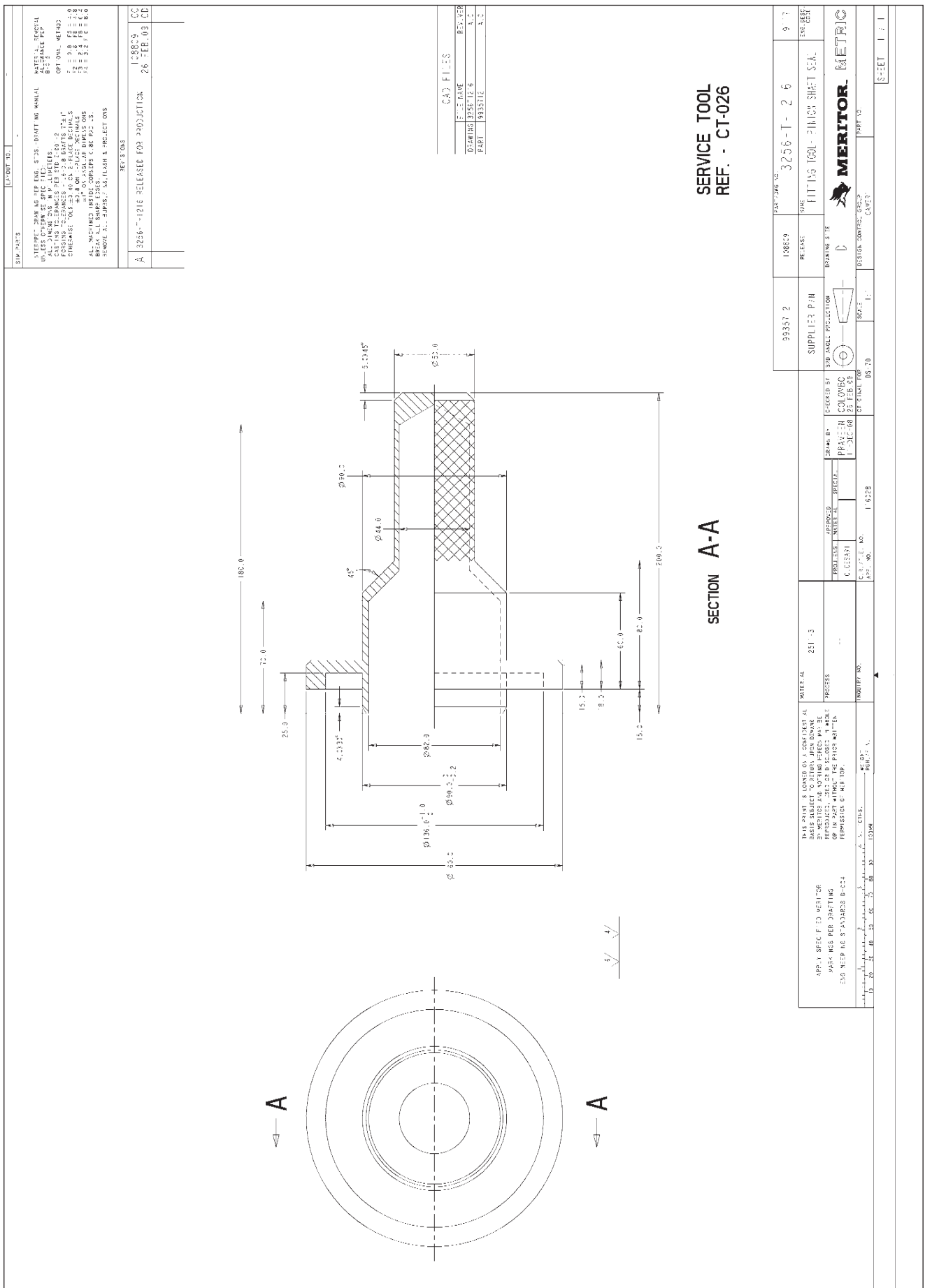


Fig. 7.8

7 Service Tools

MST4410 CT26

Fitting Tool - Pinion Shaft Seal



316 PARTS

STEEL DRAWING REF. ENG. 5-25-DRAFTING MANUAL
 ALL DIMENSIONS ARE IN MILLIMETERS
 ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED
 CASTING DIMENSIONS PER STD. 200-2
 CHAMFER: 45° UNLESS OTHERWISE SPECIFIED
 ALL MACHINED INTERFACES ARE TO BE MACHINED
 REMOVE ALL BURRS AND FLASH FROM PROJECTIONS

REV. 09
 1386-9
 26-EE-03

FILE NAME	REV. NO.
DRAWING 3256-T-2	A-1
PART 99357-2	A-2

DATE	BY	REV.
1988-09	1588-9	9-1

99357-2

3256-T-2-6

FITTING TOOL - PINION SHAFT SEAL

DRIVING SIDE

RELEASE

SUPPLIER P/N

3RD ANGLE PROJECTION

APPROVED

DESIGNED BY: COLONEL

DRAWN BY: COLONEL

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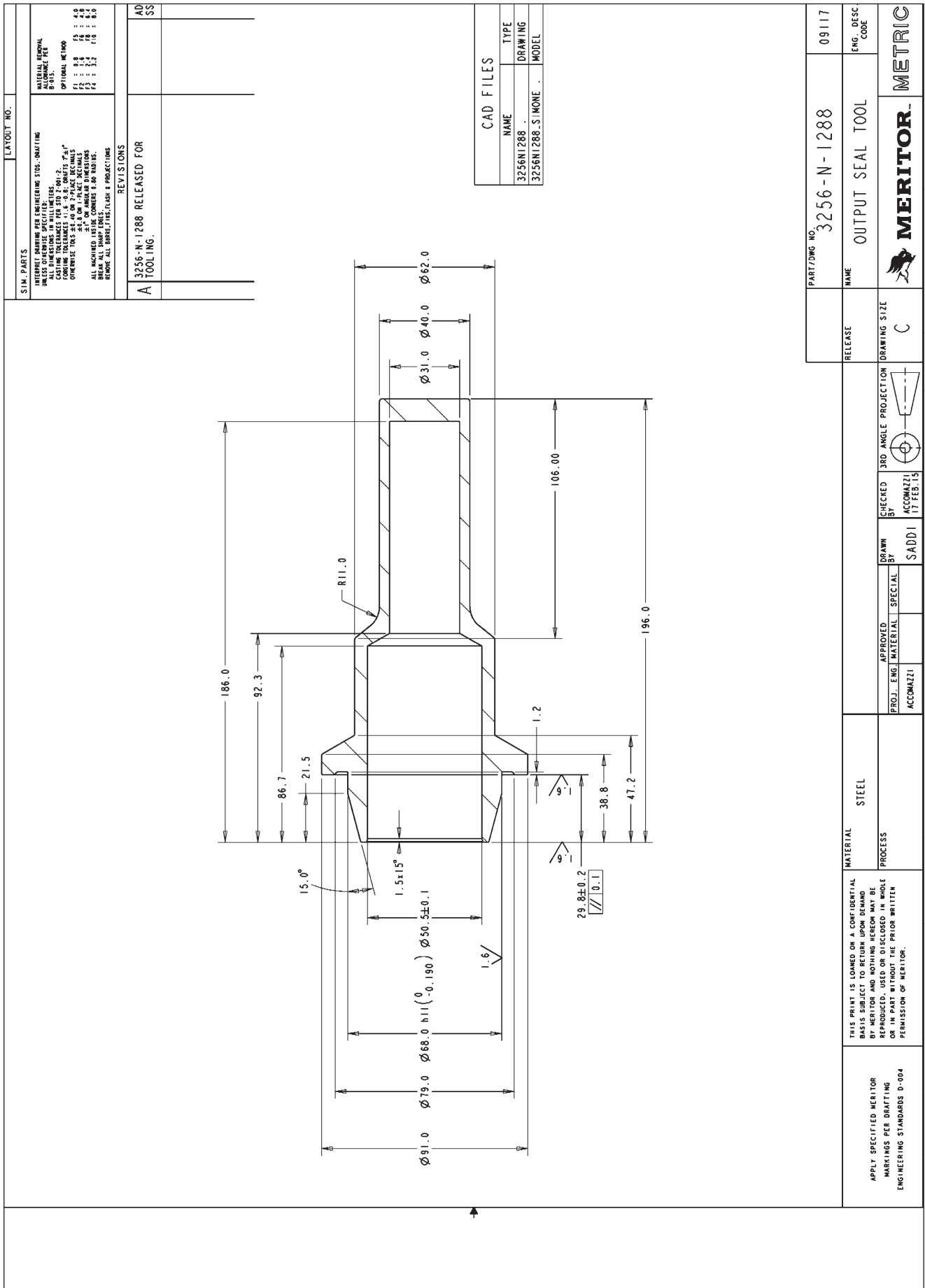
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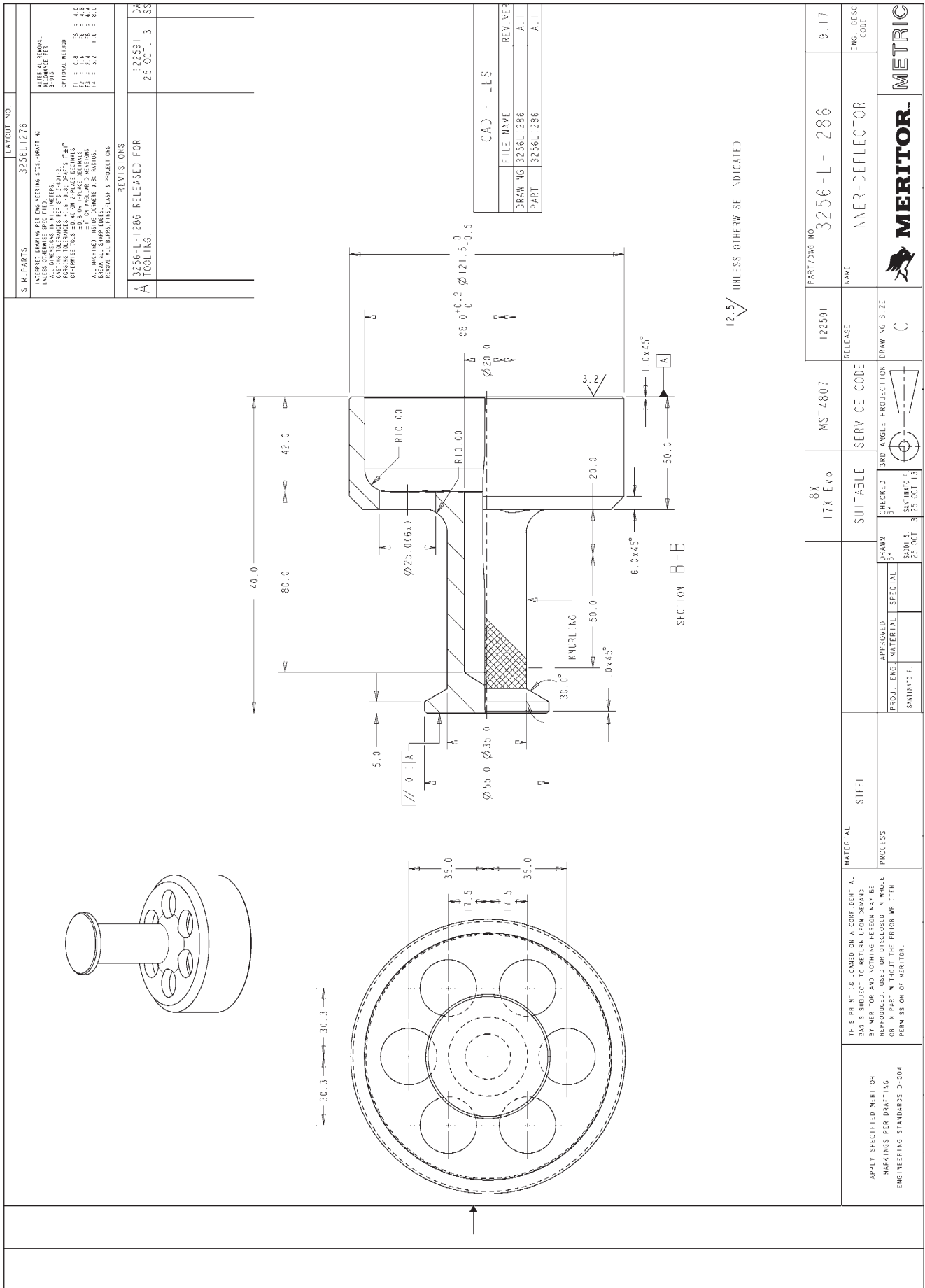
7 Service Tools

MST4412 Output seal tool



7 Service Tools

MST4807 Inner deflector



12.5 UNLESS OTHERWISE INDICATED

Fig. 7.14

7 Service Tools

MST4808 Inner ring

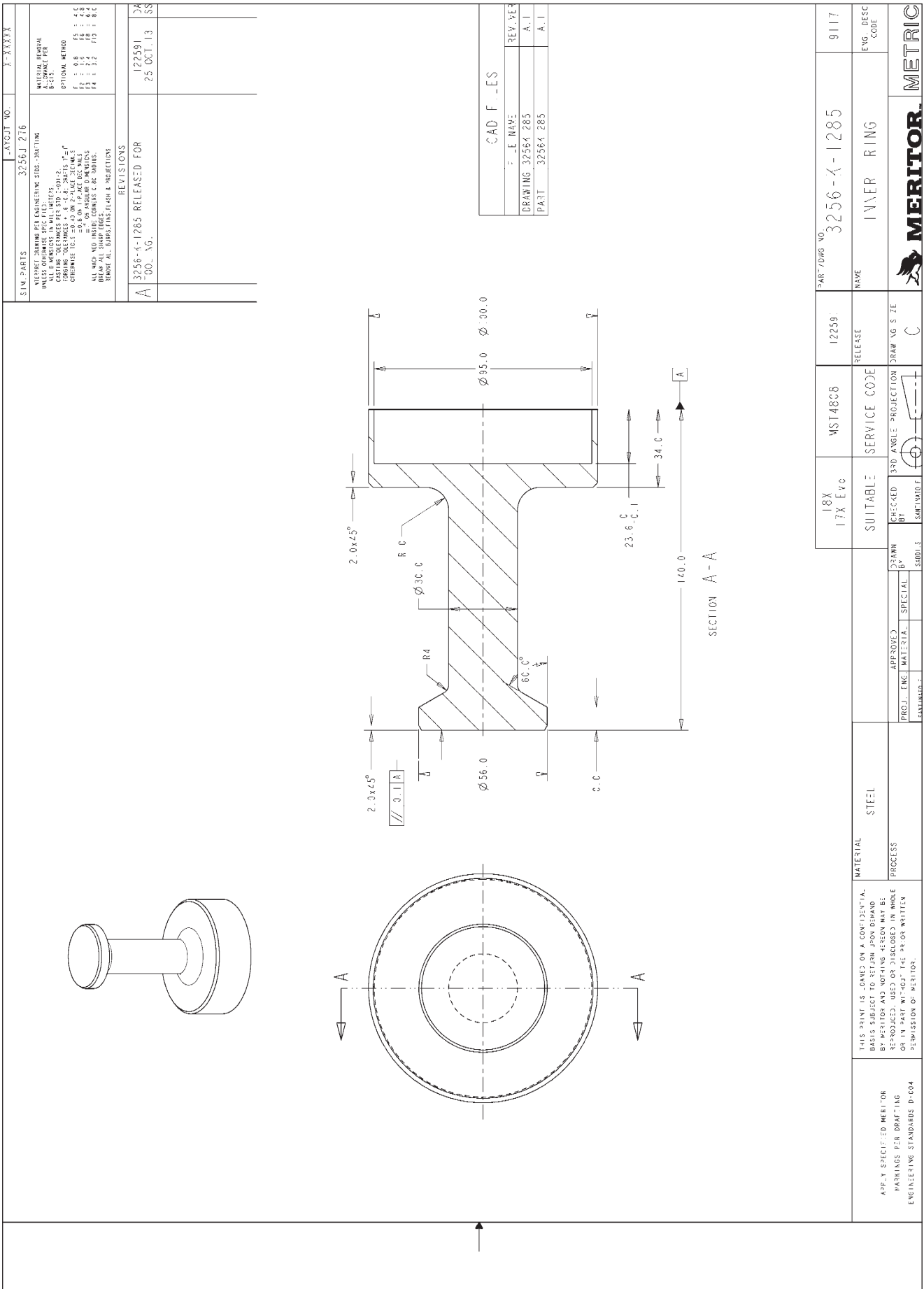


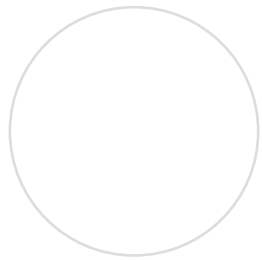
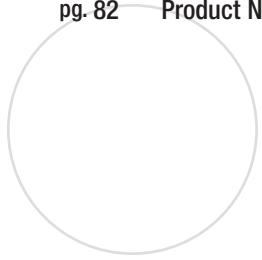
Fig. 7.15

Annex 1

8



pg. 82 Product Notification Letter



8 Product Notification Letter

Introduction Date: First quarter 2013

Subject: MT610 development with separated bearing caps.

Product: RS1352HV; RS1370HV; RTH3312; RSH1370,
RTH2610B; RT2610HV; RTH3212E; RTH3212D;
RT3210HV; RS1365HV; RSH1370E.

NOTE: for any information not included in this section please refer to Part 1 of this manual.

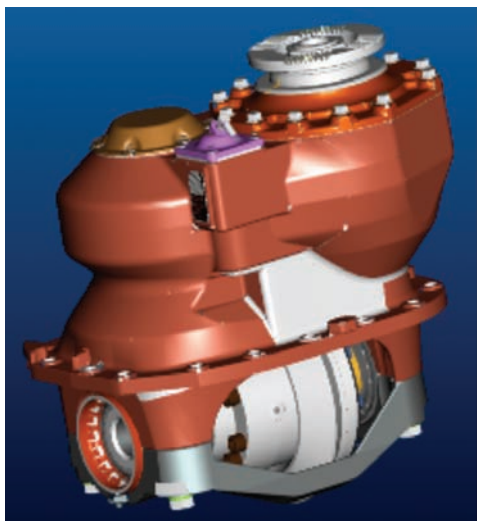
Forward and rear carriers for MT610 axles will be updated with a new design solution.

The current product has a bridge between the two bearing caps, with the planned change this bridge will be removed.

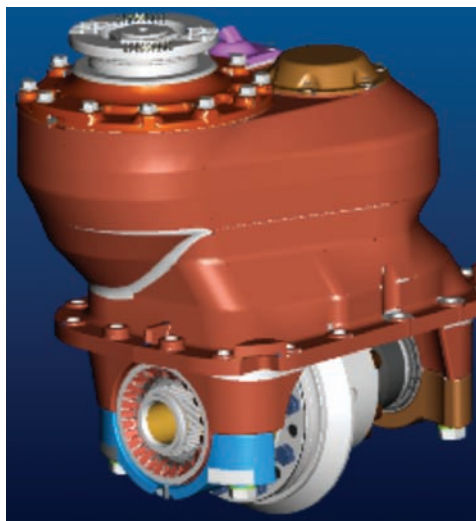
Both old and new carriers will be interchangeable.

The introduction of this change is driven by product optimization.

Old

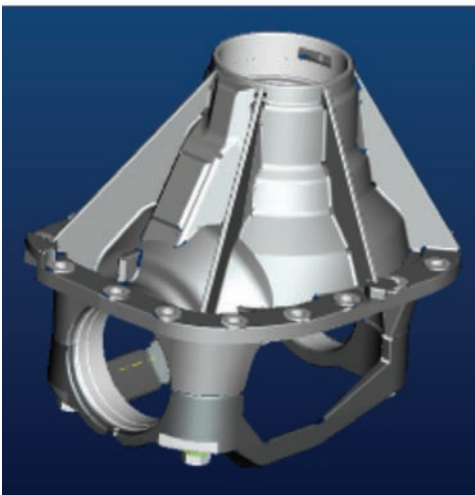
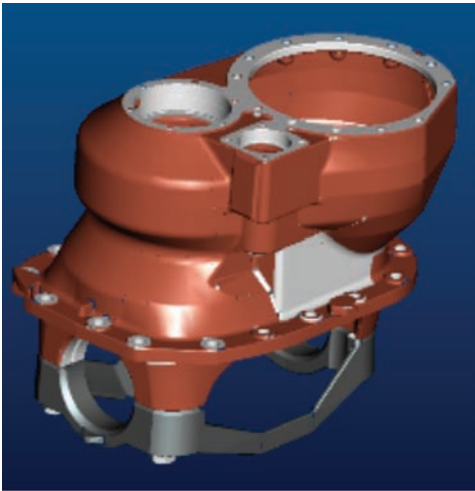


New

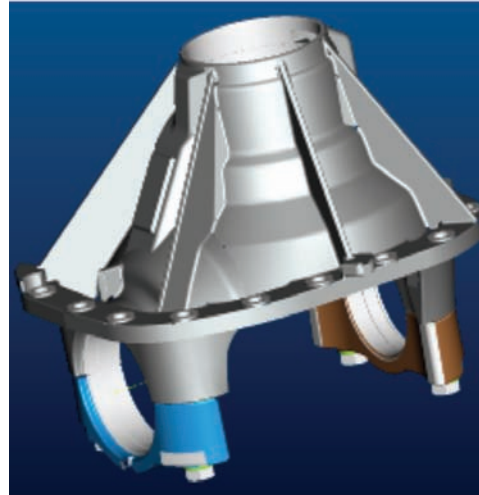
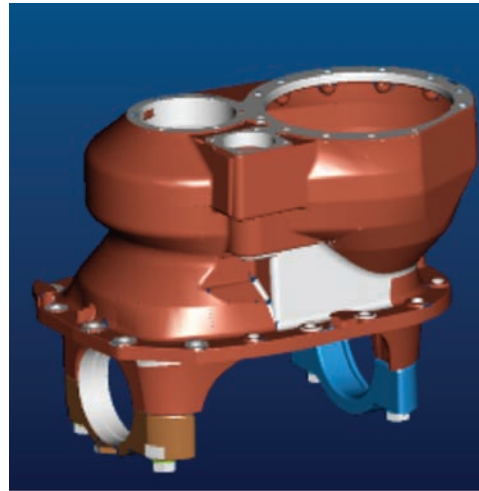


8 Product Notification Letter

Old



New



Parts that will be replaced are as follows :

Old p/n	Name	PCS	New p/n	Name	PCS
1524916	Carrier Housing DS70	1	A23200W2415	Carrier Housing DS70	1
A23200F2060	Carrier Housing DS65	1	A23200T2412	Carrier Housing DS65	1
A23200C2057	Carrier Housing DT100	1	A23200S2411	Carrier Housing DT100	1

8 Product Notification Letter

Assembly instructions will change as follow.

Adjust Axial Play of Differential Bearings

Solution one: carriers with leg cap bridges.

The axial play of the differential bearings is adjusted to 0.05 +/- 0.05 mm. The play is measured after tightening the bolts to 200 Nm, tighten another 90 +/- 5 degrees.

No bearing preload is allowed.

Solution two: Carriers without leg cap bridges.

Tighten the differential bearing caps screws PN6 min 40Nm .

- Tighten the crown wheel side bearing adjuster ring while turning the crown wheel by hand. When a resistance is felt at the crown wheel stop tightening the adjuster ring.
- Back off the adjuster ring till the back lash spec is reached (approx.. 2 segments/notches).
- Set a DTI gauge at machined surfaces (RL+LU) or (LL+RU) or (LM+RM). Set both DTI gauges to "0". See Figure 4.1.
- Move to the opposite side of the crown wheel and tighten the bearing adjusting ring until there is movement on the DTI gauges.

NOTE:The bearing cap divergence figure is the combined reading of both DTI gauges.

Example:

(RL) Gauge 1 = 0.12mm

(LU) Gauge 2 = 0.07mm

Bearing cap divergence is:

0.12mm + 0.07mm = 0.19mm.

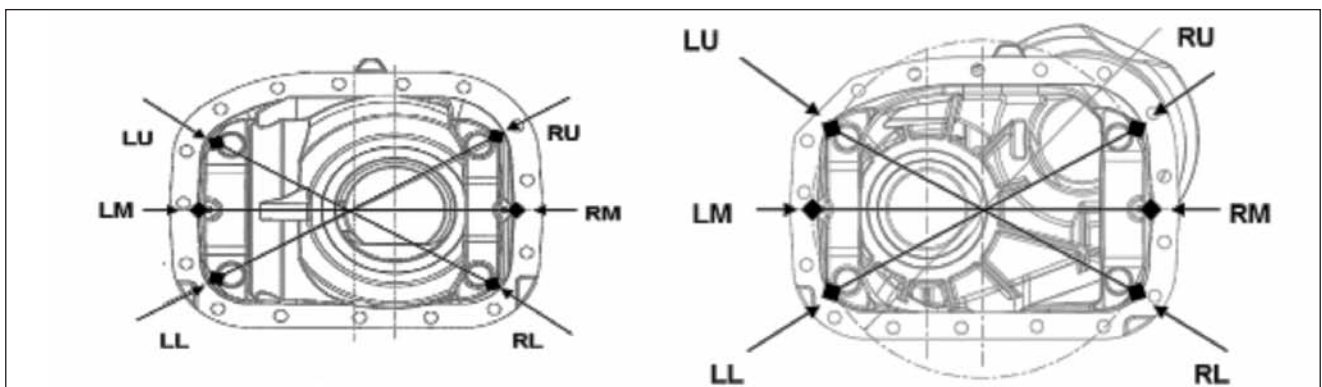


Fig. 8.1

- Continue to tighten the bearing adjuster ring until a bearing cap divergence value between 0.05mm and 0.20mm is obtained. Measurements should be taken on (LM+RM) or on both (RU+LL) and (RL+LU) and both have to be inside the tolerance 0.05÷0.20.

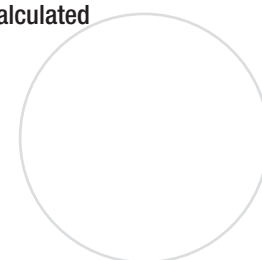
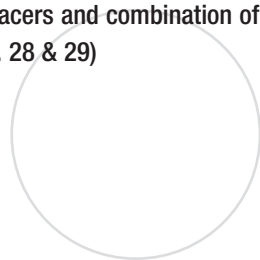
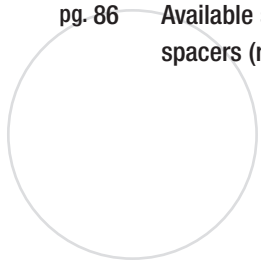
This will ensure the correct bearing pre-load is achieved.

Tightening the bolts to 200 Nm, tighten another 90 +/- 5 degrees.

Diameters (RU,LL) and (RL,LU) should be max 420.90(for DS70) and max 460.90.

Appendix

9



pg. 86 Available spacers and combination of calculated spacers (ref. 28 & 29)

9 Appendix

Available spacers and combination of calculate spacers (positions 28 & 29)

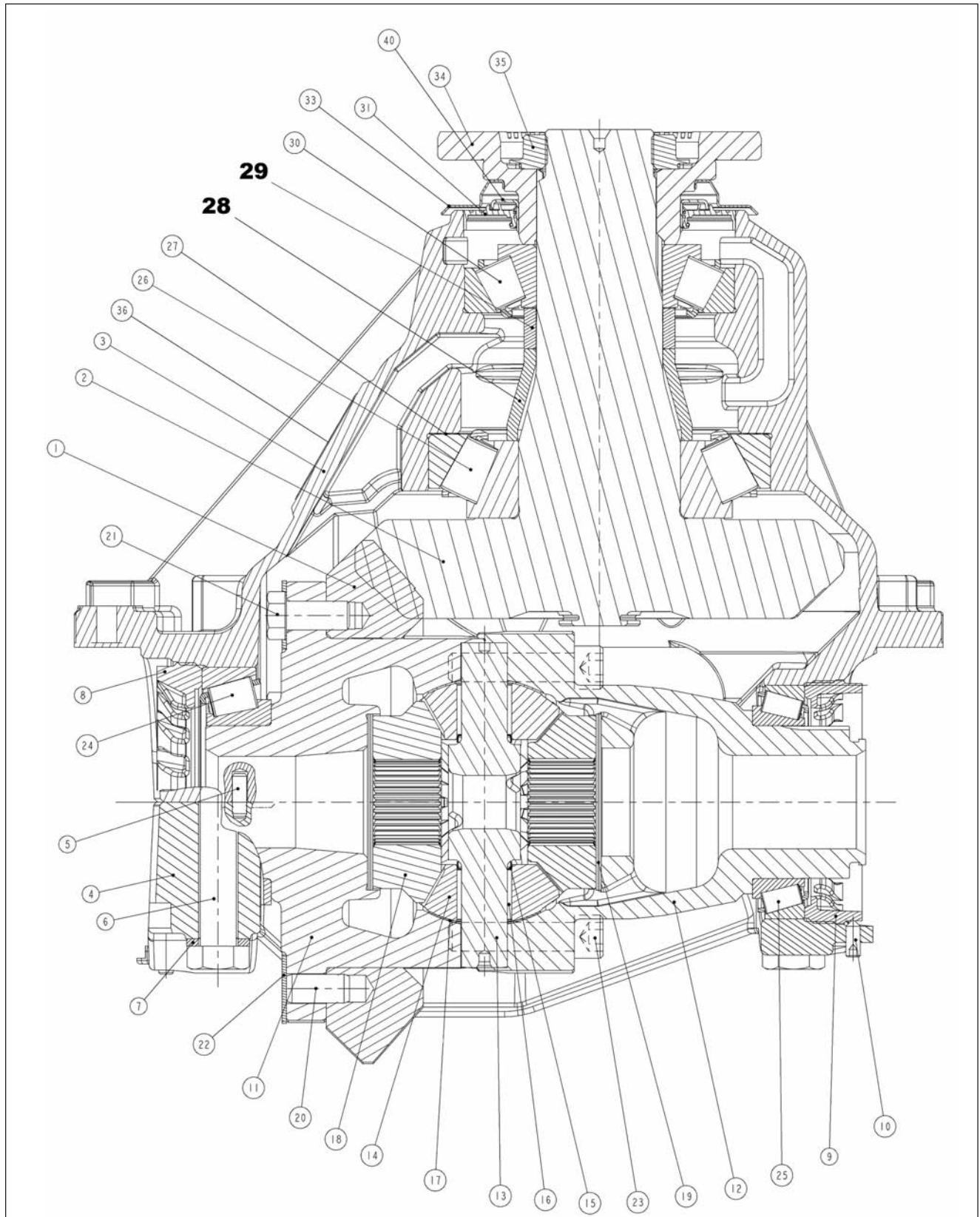


Fig. 9.1

9 Appendix

Available spacers and combination of calculate spacers (positions 28 & 29)

Ref. 28

Conical spacer - sleeve	
Part no.	Dim. (mm)
1524929	51.1
1524930	51.7
1524931	52.3

Ref. 29

Cylindrical spacer - sleeve	
Part no.	Dim. (mm)
1523232	7.46
1523233	7.48
1523234	7.54
1523235	7.60
1523236	7.66
1523237	7.68

Cylindrical spacer combination

Spacer (mm)	7.46	7.48	7.54	7.6	7.66	7.68
Meritor P/N	1523232	1523233	1523234	1523235	1523236	1523237
Total Spacer						
22.38	3					
22.40	2	1				
22.42	1	2				
22.44		3				
22.46	2		1			
22.48	1	1	1			
22.50		2	1			
22.52	2			1		
22.54	1		2			
22.56		1	2			
22.58	2				1	
22.60	1	1			1	
22.62			3			
22.64		2				1
22.66	1		1		1	
22.68	1		1			1
22.70		1	1			1
22.72	1			1	1	
22.74	1			1		1
22.76			2			1
22.78	1				2	
22.80				3		
22.82	1					2
22.84		1				2
22.86			1		2	
22.88			1		1	1
22.90			1			2
22.92				1	2	
22.94				1	1	1
22.96				1		2
22.98					3	
23.00					2	1
23.02					1	2
23.04						3

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