

Massey Ferguson®

3615 / 3625 / 3635 / 3645
Tractor

WORKSHOP SERVICE MANUAL 4283084M2

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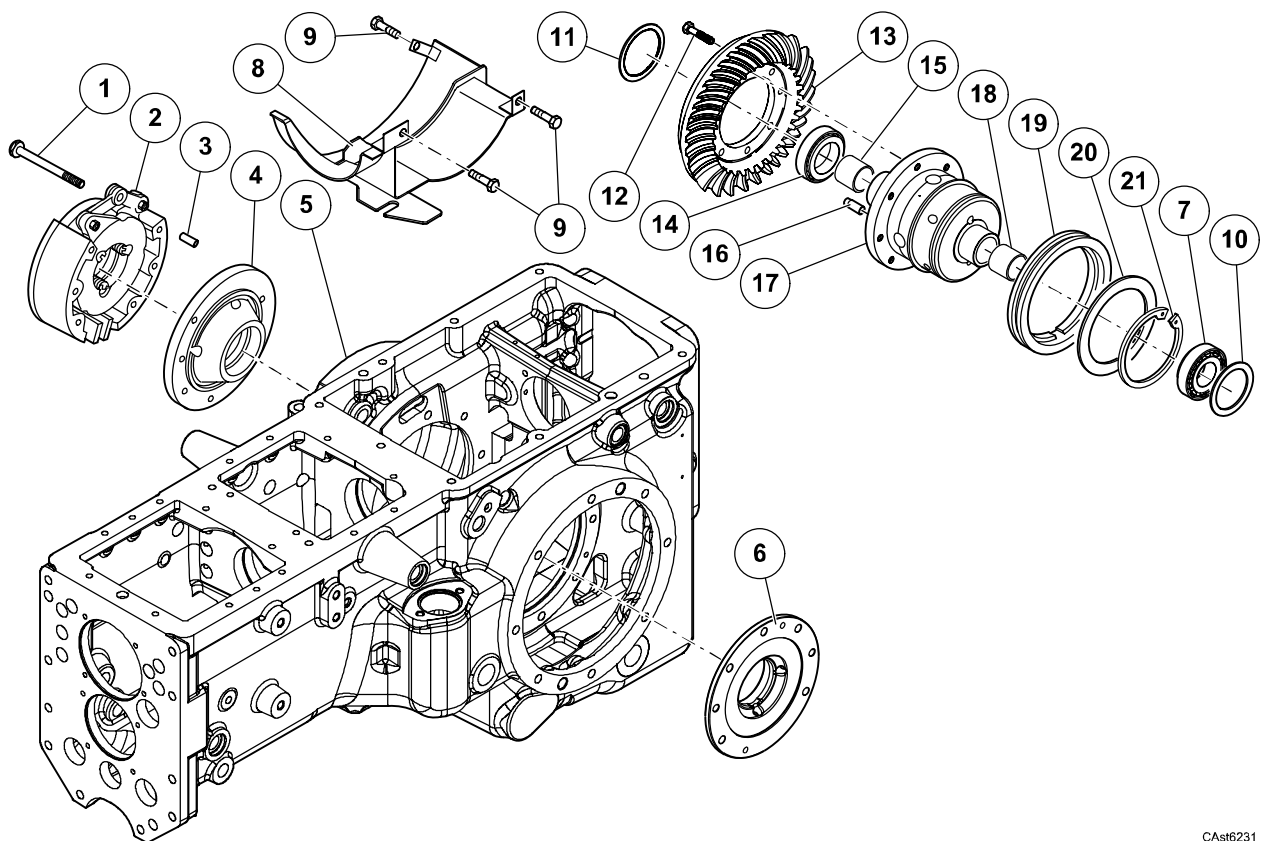
Differential Assembly

Section 3

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Differential Assembly



CAst6231

**8+8
synchro
reverser**

**12+12
synchro
reverser**

**24+24
synchro
reverser and
synchro splitter**

**24+24
synchro reverser
and power
splitter**

**12+12
power
reverser**

**24+24
power reverser
and synchro
splitter**

For models

1

1

1

1

1

1

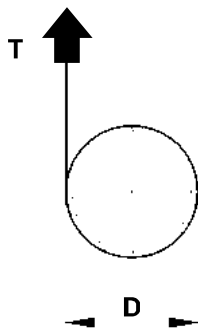
DISASSEMBLY

1. Before starting the disassembly, use a dynamometer whose cord is wound on the pinion ring nut with diameter $D=80$ mm to check for bearing preload. If during assembly the bearings are not changed, the expected load will have a value 40-50% lower than the expected for new bearings.

Refer to: figures 1 and 2.



Figure 1



CAst6287

Figure 2

2. Disconnect brake control.
3. Disassembly screws (1).
4. Remove brake (2).
[Refer to: section D.XX.](#)
5. Remove flange (4).
6. Remove bearing cup (14) from flange (4).
7. Repeat the same operations from the other side.
8. Remove bearings cones (14) and (7) from differential box (17).
9. Remove screws (12) and disassemble bevel gear crown (13).
10. Remove screws (9).
11. Remove guard (8).

Differential Assembly

ASSEMBLY

1. Assemble guard (8).
2. Assemble screws (9) to requested torque.

Refer to: [section C.4](#)

3. Check guard adjustment (it must not chatter).
4. Assemble differential box (17) as in the figure.

Refer to: [figure 3](#)

5. Before matching surfaces, make sure that they are perfectly clean, degrease and clean them with appropriate detergents.
6. Place bevel gear crown (13) on differential half box (17).
7. Apply the prescribed sealant on the thread and tighten screws (12) to the requested torque.

Refer to: [figure 4](#)

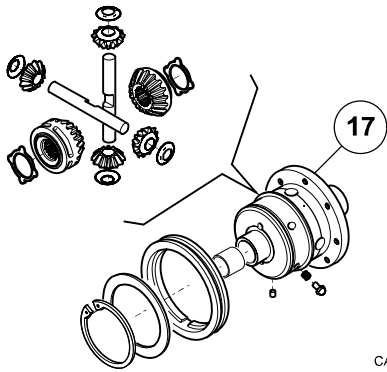


Figure 3

CAst6284



Figure 4

CAst054

8. Assemble cones of bearings (14) and (7) on the differential box (17) with the special tool CA715093.

NOTE: Calculate quantity (11) and (10) of shims required if the flanges (4) and (6) or the differential (17) are replaced.

If parts (4), (6) or (17) are not replaced, use shims collected during disassembly.

9. Choose shims (11) and (10) with total thickness of 1.0 mm (necessary for first check), among the available shims range. Assemble into flanges (4) and (6) shims (11) and (10).

Refer to: [figure 5](#)

SHIMS RANGE

Thickness - mm	0.05	0.10	0.30	0.50
Quantity	--	--	---	---

10. Assemble bearings cups (14) and (7) to differential support flanges. If necessary use special tool CA715583.

Refer to: [figure 6](#)



Figure 5

CAst080



Figure 6

CAst081

11. Assemble differential group.
12. Assemble flanges (4) and (6).

Refer to: [figure 7](#)

Refer to: [figure 8](#)



Figure 7



Figure 10



Figure 8

13. Assemble brake flange without brake assy. Tighten 5 screws (1).

Refer to: figure 9

14. Measure bevel gears backlash.
The measured backlash value must be within the prescribed range:

0.10÷0.30 mm

Refer to: figure 10

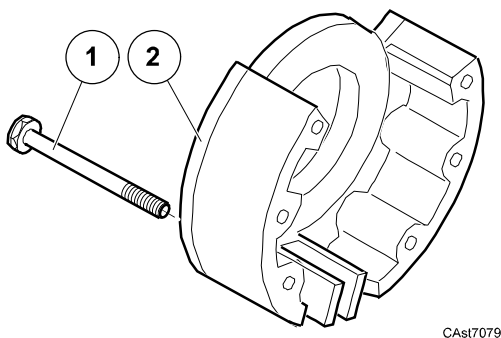


Figure 9

15. Choose shims (11) and (10) among the range available.

SHIMS RANGE

Thickness - mm	0.05	0.10	0.30	0.50
Quantity	--	--	--	--

Refer to: figure 11

16. Adjust shims (11) and (10), remembering that:

[a] if the measured backlash is less than the given tolerance range, increase shims (10) from the side opposite to bevel gear crown and decrease shims (11) of the same measure;

[b] if the measured backlash is greater than the given tolerance range, increase shims (11) from the side of bevel gear crown and decrease shims (10) of the same measure.

Refer to: figure 12

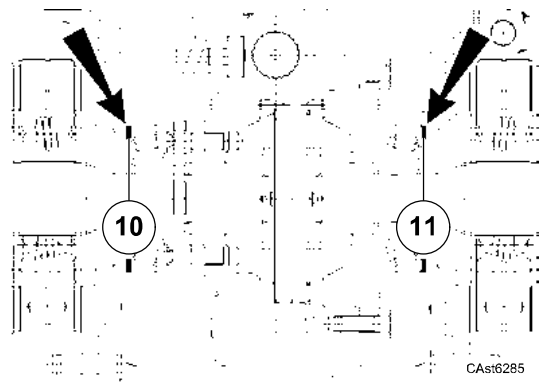


Figure 11

Differential Assembly

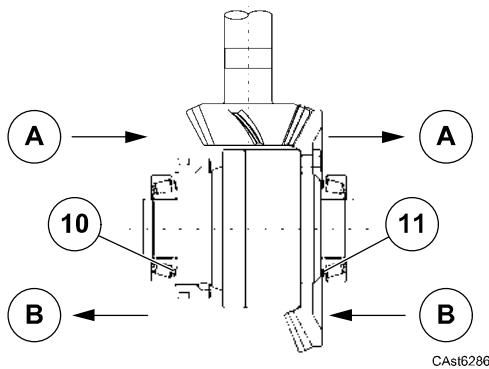


Figure 12

17. Once pinion-bevel gear crown backlash has been established, measure the total preloading T of bearings (pinion-bevel gear crown system). Use a dynamometer whose cord is wound on the pinion ring nut with diameter $D=80$ mm. The measured value should be within the following range:

$$T = (P+5.8) \div (P+8.8) N$$

Warning: values for new bearings.

Refer to: figures 13 and 14



Figure 13

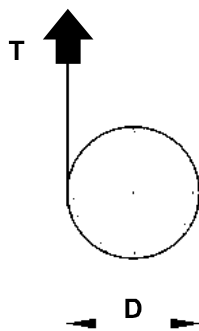


Figure 14

CAst6287

18. If the measurement is not within the requested range, check well the assembly of each component and operate on the shims (11) and (10) remembering that:
 [c] if the total preloading is less than the given range, increase shims (11) and (10) by the same measure, keeping pinion-ring gear backlash value unchanged;
 [d] if the total preloading is greater than the given range, decrease shims (11) and (10) by the same measure, keeping pinion-ring gear backlash value unchanged.

Refer to: figure 13

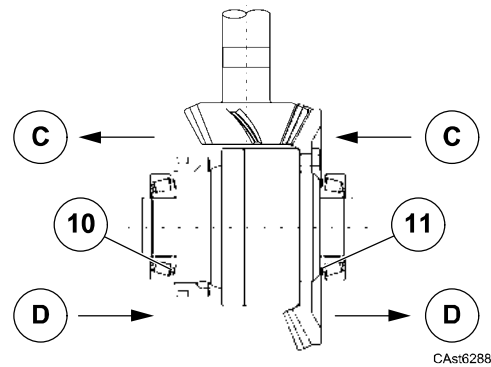


Figure 15

19. Remove screws (1) and brake flange (2).
 20. Fasten with screws the differential support flange (4).
 21. Assemble with tool 2 pins (3).
 22. Remove screws.

Refer to: figure 16



Figure 16



Figure 17

23. Assemble preassembled brake (2).

[Refer to: figure 18](#)

24. Look for the position of screw holes.

25. Assemble 5 screws (1) and tighten to the requested torque.

[Refer to: figure 19 and section C.4](#)



Figure 18

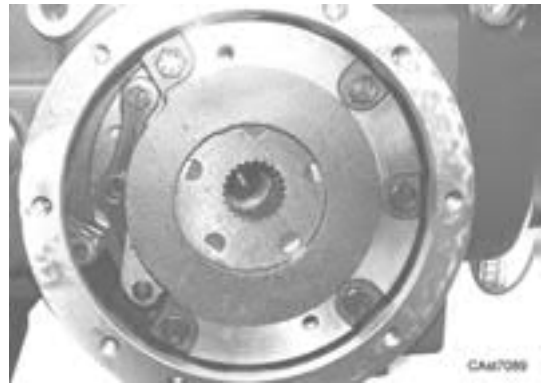


Figure 19

26. Check bevel gear crown backlash.

27. Connect brake control.

[Refer to: figure 20](#)



Figure 20

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