

TM10849 - 310SJ Backhoe Loader (S.N. 159760—) Second Speed Clutch Disassemble and Assemble

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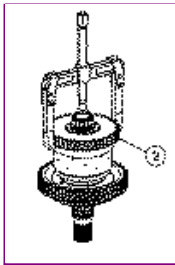


1. TX1020533-UN: Seal Ring Remove

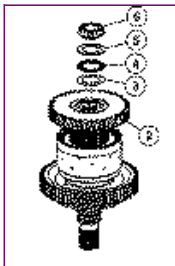
LEGEND:

1 - Seal Ring

Remove seal ring (1).



2. TX1020537-UN: Disc Carrier Remove

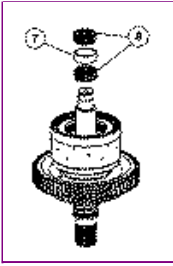


TX1020538-UN: Bearing, Thrust Washer, Needle Bearing Remove

LEGEND:

2 - Disk Carrier
3 - Thrust Washer (1 mm) (0.04 in.)
4 - Needle Bearing
5 - Thrust Washer (beveled) (3.5 mm) (0.14 in.)
6 - Bearing

- Remove bearing (6).
3. Remove thrust washers (3 and 5) and needle bearing (4).
 4. Remove disk carrier (2).
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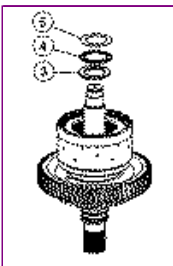


5. TX1020539-UN: Needle Bearing and Bushing Remove

LEGEND:

- 7 - Bushing
8 - Needle Bearing (2 used)

Remove needle bearings (8) and bushing (7).



6. TX1020541-UN: Needle Bearing and Thrust Washers Remove

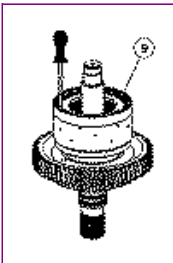
LEGEND:

- 3 - Thrust Washer (beveled) (3.5 mm) (0.14 in.)
4 - Needle Bearing
5 - Thrust Washer (1 mm) (0.04 in.)

Remove thrust washers (3 and 5) and needle bearing (4).

7. **IMPORTANT:**

Avoid transmission component damage. DO NOT re-use end plate snap ring when servicing second speed clutch assembly. Always replace with new snap ring.

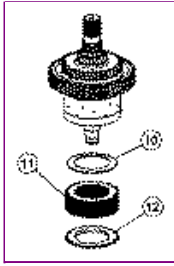


- TX1020542-UN: End Plate Snap Ring Remove

LEGEND:

- 9 - End Plate Snap Ring

Remove end plate snap ring (9) and discard.



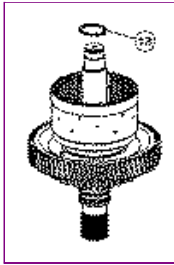
8. TX1020543-UN: End Plate, Disks and Plates, and Disk Spring Remove

LEGEND:

- 10 - Disk Spring
 11 - Disk and Plate Assembly
 12 - End Plate

Remove end plate (12).

9. Remove disk and plate assembly (11).
 10. Remove disk spring (10).
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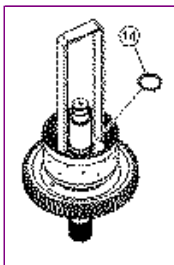


11. TX1020544-UN: Snap Ring Remove

LEGEND:

- 13 - Snap Ring

Remove snap ring (13).

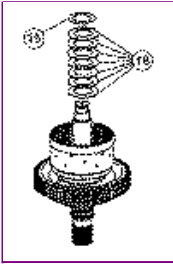


12. TX1020545-UN: Snap Ring Remove

LEGEND:

- 14 - Snap Ring

Remove snap ring (14) using JDG10510 Assembly Aid.

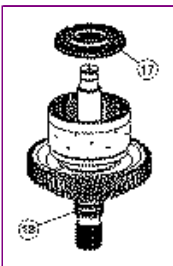


13. TX1020565-UN: Washer and Disk Spring Remove

LEGEND:

- 15 - Washer
16 - Disk Spring (7 used)

Remove washer (15) and disk springs (16).

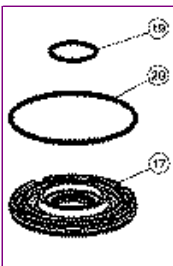


14. TX1020567-UN: Piston Remove

LEGEND:

- 17 - Piston
18 - Oil Passage

Remove piston (17) by using compressed air through oil passage (18).

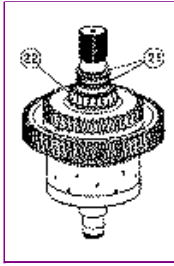


15. TX1020568-UN: Piston O-Rings

LEGEND:

- 17 - Piston
19 - O-Ring
20 - O-Ring

Remove O-rings (19 and 20).



16. TX1020569-UN: Seal Ring and Roller Bearing Remove

LEGEND:

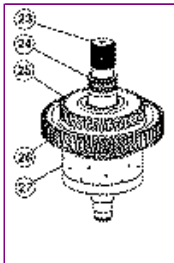
- 21 - Seal Ring (2 used)
22 - Roller Bearing

Remove seal rings (21).

17. Remove roller bearing (22).

18. **IMPORTANT:**

Gears, drum, and shaft are serviced as an assembly. Do not take apart or damage will occur.



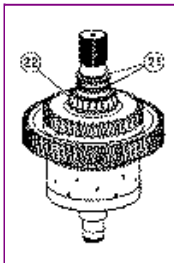
TX1020572-UN: Parts Not Serviced Separately

LEGEND:

- 23 - Oil Passage
24 - Shaft
25 - Gear
26 - Gear
27 - Hub

Check all oil passages with compressed air.

19. Replace parts as necessary.



20. TX1020569-UN: Seal Ring and Roller Bearing Install

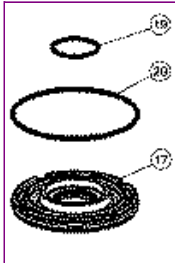
LEGEND:

- 21 - Seal Ring (2 used)
22 - Roller Bearing

Heat roller bearing to specification.

Item	Measurement	Specification
Bearing	Temperature	120°C 248°F

21. Install roller bearing (22) until contact is made.
22. Install seal rings (21).

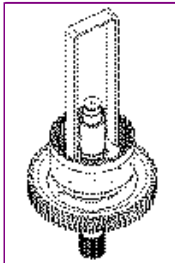


23. TX1020568-UN: Piston O-Rings Install

LEGEND:

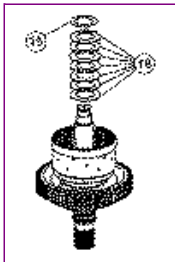
- 17 - Piston
- 19 - O-Ring
- 20 - O-Ring

Install O-rings (19 and 20).



24. TX1021997-UN: Piston Install

Install piston using JDG10510 Assembly Aid.

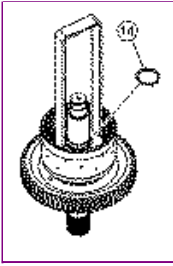


25. TX1020565-UN: Washers and Disk Spring Install

LEGEND:

- 15 - Washer
- 16 - Disk Springs (7 used)

Install disk springs (16) and washer (15).

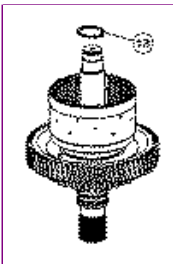


26. TX1020545-UN: Snap Ring Install

LEGEND:

14 - Snap Ring

Install snap ring (14) using JDG10510 Assembly Aid.

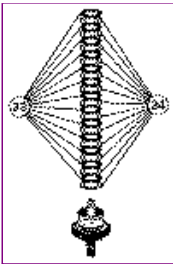


27. TX1020544-UN: Snap Ring Install

LEGEND:

13 - Snap Ring

Install snap ring (13).



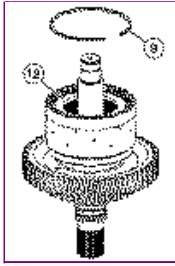
28. TX1020574-UN: Clutch Plate and Disk Install

LEGEND:

33 - Disk (13 used)

34 - Plate (13 used)

Starting with a plate, alternately install plates (34) and disks (33).



29. TX1021999-UN: End Plate Snap Ring and End Plate Install

LEGEND:

- 9 - End Plate Snap Ring
12 - End Plate

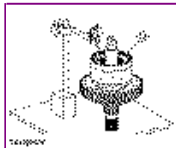
Install end plate (12) with flat side down on disks and plate.

30. **IMPORTANT:**

Avoid transmission component damage. DO NOT re-use end plate snap ring when servicing second speed clutch assembly. Always replace with new snap ring.

Install end plate snap ring (9).

31. Check end plate clearance:



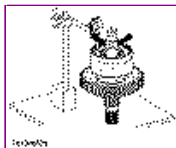
- a. TX1020576-UN: End Plate Clearance Measurement

LEGEND:

- 12 - End Plate

Apply 20 N (4.5 lb) of pressure to end plate (12) and set dial indicator to zero.

Item	Measurement	Specification
Applied To Clutch End Plate	Force	20 N 4.5 lb.



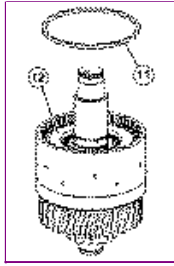
- b. TX1020578-UN: End Plate Clearance Measurement

Using screwdrivers, pry up on end plate and read the disk clearance.

- c. Determine correct thickness of end plate snap ring to be used to obtain this specification.

Item	Measurement	Specification
Second Speed Clutch	Distance	2.2—2.5 mm 0.087—0.098 in.

NOTE:



TX1021982-UN: End Plate Snap Ring and End Plate Install

LEGEND:

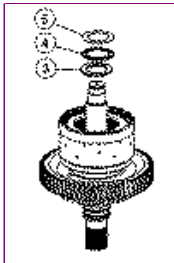
- 11 - End Plate Snap Ring
- 12 - End Plate

End Plate Snap ring (11) is available in the following thicknesses:

Item	Measurement	Specification
End Plate Snap Ring	Thickness	2.0 mm 0.079 in. 2.25 mm 0.089 in. 2.5 mm 0.098 in. 2.75 mm 0.108 in. 3.0 mm 0.118 in. 3.25 mm 0.128 in. 3.5 mm 0.157 in.

32. **IMPORTANT:**

If beveled thrust washer is installed with bevel side toward needle bearing, internal transmission damage will occur. Install flat surface of thrust washer facing needle bearings.



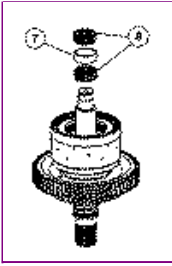
TX1020541-UN: Needle Bearing and Thrust Washer Install

LEGEND:

- 3 - Thrust Washer (beveled) (3.5 mm) (0.14 in.)
- 4 - Needle Bearing
- 5 - Thrust Washer (1 mm) (0.04 in.)

Install thick 3.5 mm (0.14 in.) thrust washer (3) with beveled side facing toward snap ring of clutch pack.

33. Install needle bearing (4) and thin 1 mm (0.04 in.) thrust washer (5).



34. TX1020539-UN: Needle Bearing and Bushing Install

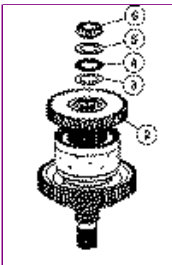
LEGEND:

- 7 - Bushing
8 - Needle Bearing (2 used)

Install needle bearings (8) and bushing (7).



35. TX1061689-UN: Bearing, Thrust Washer, Needle Bearing, and Disk Carrier Install



- TX1020538-UN: Bearing, Thrust Washer, Needle Bearing, and Disk Carrier Install

LEGEND:

- 2 - Disk Carrier
3 - Thrust Washer (1 mm) (0.04 in.)
4 - Needle Bearing
5 - Thrust Washer (beveled) (3.5 mm) (0.14 in.)
6 - Bearing

Install disk carrier (2) until contact is obtained.

36. Install thin 1 mm (0.04 in.) thrust washer (3) and needle bearing (4).

37. **IMPORTANT:**

If beveled thrust washer is installed with bevel side toward needle bearing, internal transmission damage will occur. Install flat surface of thrust washer facing needle bearings.

Install thick 3.5 mm (0.14 in.) thrust washer (5) with beveled side facing toward bearing (6).

38. Heat bearing (6) to specification.

Item	Measurement	Specification
Bearing	Temperature	120°C 248°F

39. Install bearing (6).



40.

TX1061688-UN: Seal Ring Install

LEGEND:

- 1 - Seal Ring
- 28 - Oil Passage

Install seal ring (1).

- 41. Check closing and opening of clutch by use of compressed air through oil passage (28).

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