Travel Gear Case Disassemble and Assemble

Disassemble Travel Gear Case



TX1135944

TX1135944-UN: Travel Gear Case

LEGEND:

- EGEND: 1 Check Plug 2 O-Ring 3 Plug (2 used) 4 O-Ring (2 used) 5 Wire Retainer 6 Cover 7 O-Ring 8 Thrust Ring 9 Input Shaft and First Stage Sun Gear 10 Snap Ring 11 First Stage Planetary Carrier 12 Thrust Washer 13 Second Stage Sun Gear 14 Snap Ring (3 used) 15 Thrust Washer (6 used) 16 Bearing Pin (3 used) 17 Needle Bearing (3 used) 18 First Stage Planetary Gear (3 used) 19 Spring Pin (3 used) 20 Snap Ring (4 used) 21 Thrust Washer (4 used) 22 Second Stage Planetary Gear (4 used) 23 Needle Bearing (4 used) 24 Bearing Race (4 used) 25 Thrust Washer (4 used) 26 Snap Ring

27 - Ring Gear 28 - Bearing (2 used) 29 - Snap Ring 30 - Metal Face Seal 31 - Travel Motor Housing and Second Stage Planetary Carrier

-: Specifications

SPECIFICATIONS		
Travel Gear Case and Motor Assembly Weight (approximate)	48 kg 110 lb.	
Travel Gear Case Oil Capacity	0.6 L 20 oz.	
Plug Torque	47—52 N·m 35—38 lbft.	
Check Plug Torque	12—18 N·m 107—159 lbin.	

1

Prevent possible crushing injury from heavy component. Use appropriate lifting device.

Remove travel gear case using appropriate lifting device. See Travel Gear Case Remove and Install . (Group 0250.)

Item	Measurement	Specification
Travel Gear Case and Motor Assembly	Weight (approximate)	48 kg 110 lb.

2. Drain gear oil. See Drain and Refill Travel Gear Case Oil . (Operator's Manual.)

Item	Measurement	Specification
Travel Gear Case Oil	Capacity	0.6 L 20 oz.

3. Remove sprocket. See Sprocket Remove and Install . (Group 0130.)

4. Apply alignment marks at mating positions of cover (6), ring gear (27), and travel motor housing and second stage planetary carrier (31).

5. Remove check plug (1), plugs (3), and O-rings (2 and 4).



TX1135951A-UN: Travel Gear Case Cover

LEGEND:

6

5 - Wire Retainer 6 - Cover 7 - O-Ring 32 - Retainer Port

Rotate cover until the end of wire retainer (5) is visible through retainer port (32). Continue rotating the cover, pulling the wire retainer out through retainer port.

IMPORTANT: 7.

Avoid possible damage to O-ring (7). Use caution not to damage O-ring when removing cover.

Remove cover and O-ring (7).

8. Remove thrust ring (8).

IMPORTANT: 9

Avoid possible damage to gear case components. Spring pins (19) and bearing pins (16) are compressed into first stage planetary carrier (11) and cannot be removed. If spring pins or bearing pins are damaged, replace first stage planetary carrier as an assembly.

NOTE:

Keep parts for each planetary gear together.

Remove snap rings (14), thrust washers (15), first stage planetary gears (18), and needle bearings (17) from bearing pins (16).

10. Remove input shaft and first stage sun gear (9).

- 11. Remove snap ring (10), first stage planetary carrier (11), and thrust washer (12).
- 12. NOTE:

NOTE:

Keep parts for each planetary gear together.

Remove second stage sun gear (13), snap rings (20), thrust washers (21 and 25), second stage planetary gears (22), needle bearings (23), and bearing races (24).

13.

Further disassembly is not necessary unless bearings (28) or metal face seal (30) require replacement. Bearings will be destroyed during removal; if removed, replace with new bearings.





LEGEND:

- 26 Snap Ring 27 Ring Gear 28 Bearing (2 used) 29 Snap Ring 30 Metal Face Seal 31 Travel Motor Housing and Second Stage Planetary Carrier 33 Clamp (3 used)

Compress ring gear using clamps (33) so snap ring (26) can be removed. Remove snap ring (26).

14. Push travel motor housing and second stage planetary carrier out of ring gear using a shop press.

15. IMPORTANT:

Avoid damage to metal face seal (30). Seal must be kept together as a set because of wear patterns. Metal face seals can be reused if they are not worn or damaged.

NOTE:

Keep seal rings together as a matched set with a piece of clean cardboard between them to protect the seal ring face.

Remove metal face seal (30) from ring gear and travel motor housing and second stage planetary carrier.

To determine if seals can be reused, see Inspect Metal Face Seals . (Group 0130.)

- 16. Remove snap ring (29) and bearings (28) from ring gear for replacement only. Bearings are a pressed fit.
- 17. Repair or replace parts as necessary.

Assemble Travel Gear Case



TX1135944

TX1135944-UN: Travel Gear Case

LEGEND:

- EGEND:

 1 Check Plug
 2 O-Ring
 3 Plug (2 used)
 4 O-Ring (2 used)
 5 Wire Retainer
 6 Cover
 7 O-Ring
 8 Thrust Ring
 9 Input Shaft and First Stage Sun Gear
 10 Snap Ring
 11 First Stage Planetary Carrier
 12 Thrust Washer
 13 Second Stage Planetary Gear (3 used)
 15 Thrust Washer (6 used)
 15 Thrust Washer (6 used)
 16 Bearing Pin (3 used)
 17 Needle Bearing (3 used)
 18 First Stage Planetary Gear (3 used)
 19 Spring Pin (3 used)
 20 Snap Ring (4 used)
 21 Thrust Washer (4 used)
 22 Second Stage Planetary Gear (4 used)
 23 Needle Bearing (4 used)
 24 Bearing Race (4 used)
 25 Thrust Washer (4 used)
 26 Snap Ring
 27 Ring Gear
 28 Bearing (2 used)
 29 Snap Ring
 31 Travel Motor Housing and Second Stage Planetary Carrier
 1. IMPORTANT:
- IMPORTANT: 1.

Prevent possible machine damage. Apply clean gear oil on to parts to prevent parts from seizing.



LEGEND:

26 - Snap Ring 27 - Ring Gear 28 - Bearing (2 used) 29 - Snap Ring 30 - Metal Face Seal 31 - Travel Motor Housing and Second Stage Planetary Carrier

If removed, install new bearings (28) and snap ring (29) in ring gear (27).

2 **IMPORTANT:**

Avoid damage to metal face seal (30). Metal face seal and seat surfaces must be clean, dry, and oil free so seal does not slip.

Thoroughly clean seat surfaces on travel motor housing and second stage planetary carrier (31), ring gear, and metal face seal (30) using non-petroleum base solvent and lint-free tissues.

3. NOTE:

A volatile, non-petroleum base solvent or talcum powder may be used as a lubricant.

Apply equal pressure with fingers at four equally spaced points on metal face seal. Metal face seal must "pop" down into place so it is tight against seat surface.

Install metal face seal to ring gear and travel motor housing and second stage planetary carrier. Apply equal pressure with fingers at four equally spaced points on seal face. Metal face seal must "pop" down into place so O-ring is tight against seal bore.

4. Wipe fingerprints and foreign material off seal ring face using volatile, non-petroleum base solvent and lint-free tissues. Apply a thin film of oil to metal seal face.

5. Using alignment marks, install travel motor housing and second stage planetary carrier to ring gear.



TX1135954-UN: Ring Gear Assembly

LEGEND:

- 27 Ring Gear 31 Travel Motor Housing and Second Stage Planetary Carrier 33 Clamp (3 used)

Compress ring gear using clamps (33) so snap ring (26) can be installed. Install snap ring (26).

- 7. Check that ring gear can be turned. If not, bearings or metal face seals are not installed properly; disassemble and assemble again.
- 8. Install thrust washers (21 and 25), bearing races (24), needle bearings (23), second stage planetary gears (22), and snap rings (20).
- 9. Install second stage planetary sun gear (13) and thrust washer (12).
- 10. Install first stage planetary carrier (11) and snap ring (10) to second stage planetary sun gear.
- 11. Install thrust washers (15), needle bearings (17), first stage planetary gears (18), and snap rings (14) to bearing pins (16).
- 12. Install input shaft and first stage sun gear (9) and thrust ring (8).
- 13. Install O-ring (7) to cover (6).
- 14. Using alignment marks, install cover into ring gear.



LEGEND:

5 - Wire Retainer 6 - Cover 7 - O-Ring 32 - Retainer Port

Bend end of wire retainer (5) to 90° approximately 6 mm (0.24 in.) from end.

16. Rotate cover until retainer port (32) aligns with groove inside cover. Push wire retainer through retainer port and into groove inside cover and ring gear.

17. Rotate cover to push remaining wire retainer into the groove.

18. Install plugs (3) and O-rings (4). Tighten to specification.

Item	Measurement	Specification
Plug	Torque	47—52 N∙m

35—38 lb.-ft.

19. Install check plug (1) and O-ring (2). Tighten to specification.

Item	Measurement	Specification
Check Plug	Torque	12—18 N·m 107—159 lbin.

20.

Prevent possible crushing injury from heavy component. Use appropriate lifting device.

Install travel gear case using appropriate lifting device. See Travel Gear Case Remove and Install . (Group 0250.)

Item	Measurement	Specification
Travel Gear Case and Motor Assembly	Weight (approximate)	48 kg 110 lb.

21. Install sprocket. See Sprocket Remove and Install . (Group 0130.)

22. Add gear oil to travel gear case. See Drain and Refill Travel Gear Case Oil . (Operator's Manual.)

23. Perform travel motor and park brake start-up procedure. See Travel Motor and Park Brake Start-Up Procedure . (Group 0260.)

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Travel Motor and Park Brake Remove and Install

NOTE:

The travel gear case, travel motor, and park brake are enclosed in the same housing.

See Travel Gear Case Remove and Install . (Group 0250.)

To access travel motor, travel gear case must be disassembled. <u>See Travel Gear Case Disassemble and Assemble</u> . (Group 0250.)

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Travel Motor and Park Brake Disassemble and Assemble



TX1187148

TX1187148-UN: Travel Motor and Park Brake

LEGEND:

- 1 Drive Shaft 2 Ball Bearing 3 Oil Seal 4 Piston 5 Travel Motor Housing 6 Swash Plate 7 Pivot Ball (2 used) 8 O-Ring 9 Valve Plate

- 10 Backup Ring 11 O-Ring 12 Park Brake Piston 13 O-Ring 14 Backup Ring

- 13 O-Ring
 14 Backup Ring
 15 Plate (2 used)
 16 Park Brake Disk
 17 Spacer
 18 Snap Ring
 19 Oil Seal
 20 Spring
 21 Cylinder Block
 22 Pin (3 used)
 23 Ball Guide
 24 Retainer Plate
 25 Piston (9 used)
 26 Cap Screw (7 used)
 27 Park Brake Valve Housing
 28 Pin
 29 Ball Bearing
 30 Spring Pin
 31 O-Ring (2 used)
 32 Park Brake Spring (8 used)

-: Specifications

SPECIFICATIONS	
Park Brake Piston Air Pressure	100—300 kPa 1—3 bar 14—43 psi
Cap Screw (26) Torque	52—66 N·m 38.36—48.68 lbft.

-: Other Material

OTHER MATERIAL
Loctite ® 515™ Gasket Eliminator®

DISASSEMBLE

4.

- 1. Remove cap screws (26) and remove park brake valve housing (27) from travel motor housing (5).
- 2. Remove O-rings (8 and 31).
- 3. Remove valve plate (9) and park brake springs (32).

Prevent possible injury from components under pressure. Park brake piston (12) may come out quickly with considerable force. Use only regulated air pressure and stand clear of park brake piston when removing.

Carefully apply specified air pressure to brake release oil passage to remove park brake piston (12).

Item	Measurement	Specification
Park Brake Piston	Air Pressure	100—300 kPa 1—3 bar 14—43 psi

- 5. Remove backup rings (10 and 14) and O-rings (11 and 13).
- 6. Remove plates (15), park brake disk (16), and spacer (17).
- 7. Remove cylinder block (21).
- 8. Remove pistons (25), retainer plate (24), ball guide (23), and pins (22).
- 9. Remove swash plate (6).
- 10. Remove pivot balls (7) and piston (4).
- IMPORTANT: 11.

Prevent possible machine damage. Do not remove ball bearing (2) from drive shaft (1). Replace as an assembly.

Remove drive shaft (1) with ball bearing (2).

12. Remove and discard oil seal (3).

IMPORTANT

Prevent possible machine damage. Do not remove ball bearing (29) and spring pin (30). Replace as the park brake valve housing (27).

ASSEMBLE IMPORTANT:

To prevent seizing, apply clean hydraulic oil to parts before assembling.

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- Apply clean hydraulic oil to internal components of travel motor and park brake.
 Apply Loctite® 515[™] Gasket Eliminator® to oil seal (3).
 Tighten cap screws (26) to specification.

Item	Measurement	Specification
Cap Screw (26)	Torque	52—66 N·m 38.36—48.68 lbft.

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Park Brake Valve Disassemble and Assemble



- -: Specifications

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SPECIFICATIONS		
Shuttle Valve-to-Valve Housing Plug Torque	12—18 N·m 106—159 lbin.	
Speed Change-to-Valve Housing Plug Torque	46—51 N·m 34—38 lbft.	
Counterbalance-to-Valve Housing Plug Torque	196—245 N·m 145—180 lbft.	$\left[\right]$

- 1. Remove travel motor and park brake. See Travel Motor and Park Brake Remove and Install . (Group 0260.)
- 2. Remove plugs (17), O-rings (18), and shuttle valve (19).
- 3. Drain hydraulic oil from valve housing (20).
- 4. IMPORTANT:

Damage to travel counterbalance spool can occur if disassembled. Do not disassemble unless necessary.

Remove plugs (1 and 10), O-rings (2 and 8), springs (3), washers (4), counterbalance spool (5), valves (6), springs (7), and spring seats (9).

- 5. Remove plugs (11), O-rings (12), spring seat (13), spring (14), speed change spool (15), and speed change valve (16).
- 6. Repair and replace parts as necessary.
- 7. Thoroughly clean O-rings and seat surfaces using volatile, non-petroleum base solvent and lint-free tissues.
- 8. IMPORTANT:

To prevent seizing, apply clean hydraulic oil to parts before assembling.

Apply a thin film of clean hydraulic oil to components.

9. Install shuttle valve (19), O-rings (18), and plugs (17). Tighten to specification.

Item	Measurement	Specification
Shuttle Valve Plug-to-Valve Housing	Torque	12—18 N·m 106—159 lb -in

10. Install speed change valve (16), speed change spool (15), spring (14), spring seat (13), O-rings (12), and plugs (11). Tighten to specification.

Item	Measurement	Specification
Speed Change Plug-to-Valve Housing	Torque	46—51 N·m 34—38 lbft.

11. Install O-rings (2 and 8), plug (10), spring seats (9), springs (7), valves (6), counterbalance spool, washers, and springs (3).

12. Fill travel motor and park brake with clean hydraulic oil.

13. Install plug (1) and tighten to specification.

Item	Measurement	Specification
Counterbalance Plug-to-Valve Housing	Torque	196—245 N·m 145—180 lbft.

14. Install travel motor and park brake. See Travel Motor and Park Brake Remove and Install . (Group 0260.)

15. Perform travel motor and park brake start-up procedure. See Travel Motor and Park Brake Start-Up Procedure . (Group 0260.)

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