THIESS

ASSEMBLY
REPORT

THIESS COMPONENT REBUILD CENTRE

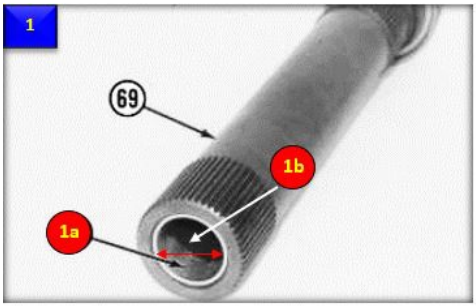
2023

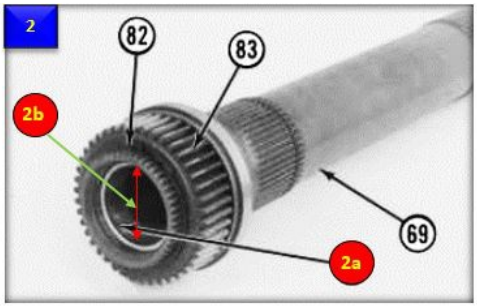
Integritas Akuntabilitas Inovasi Hasil Kerja | KESELAMATAN

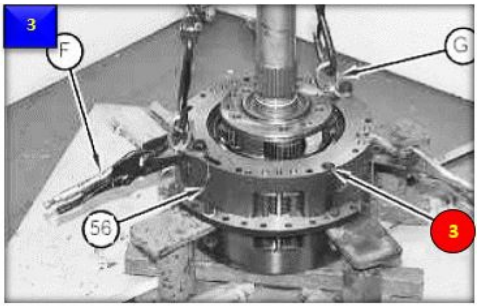
Digital Assembly Checksheet

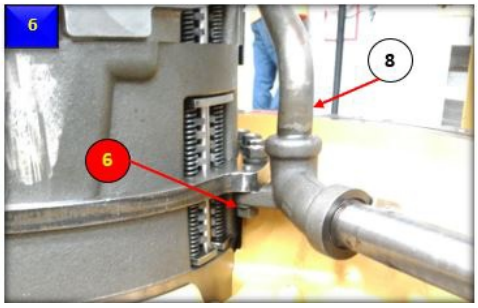
Work Order Number	Unit Number	
6743613	DZ1581	
Work Order Description	**Unit Description**	**Component**
TCRC-DZ1581-CAT D8R-REPAIR TRANSMISSION(CONTINUE LIFE)	Cat D8R	Transmission

Section: 1.T/M Planetary Assembly







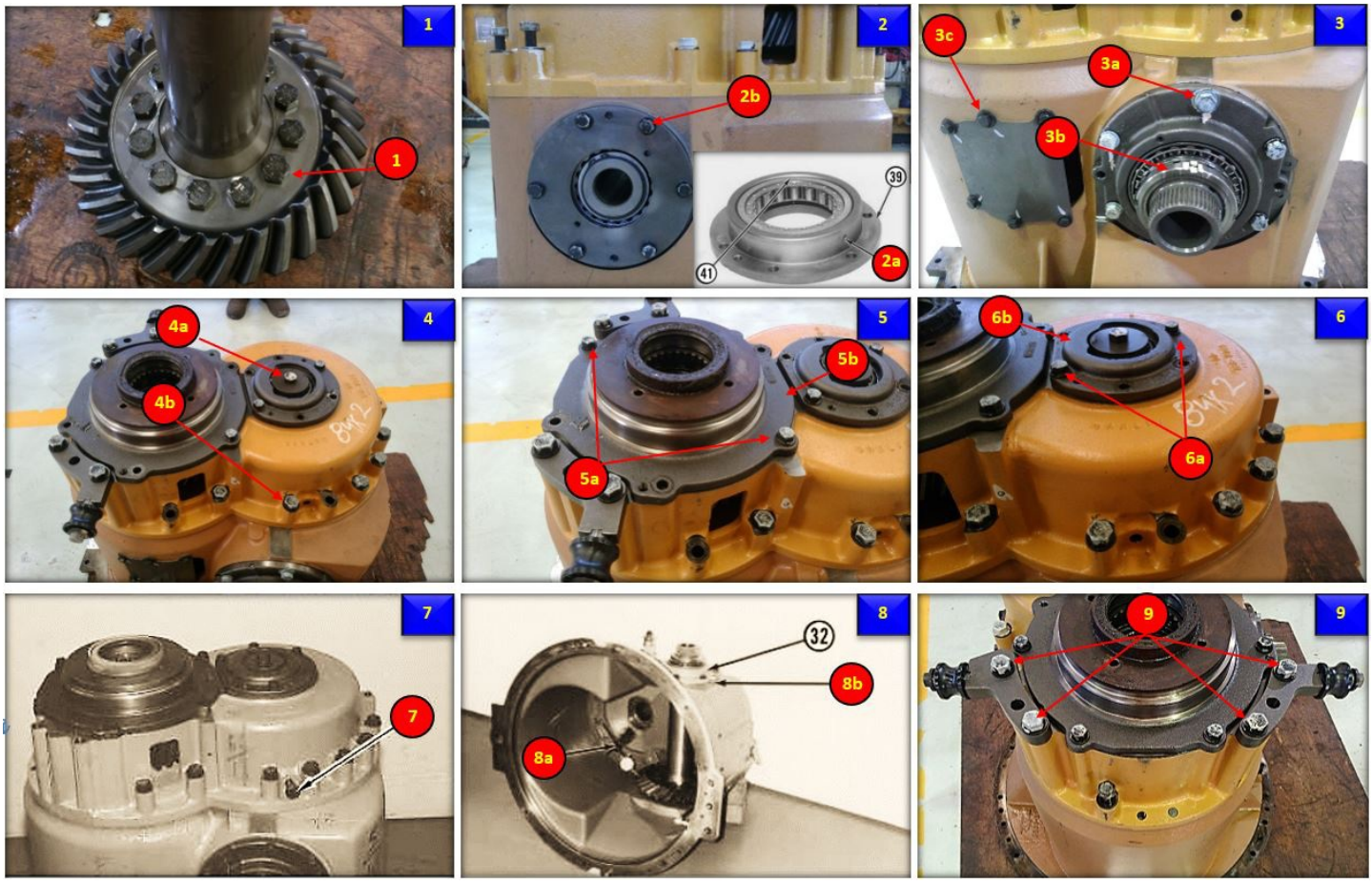


No	Activity	Measurement Type	Technical Spesification	Actual Measurement	Mech	LH
a	In the beginning, always calibrate torque wrench before use. (Di awal, selalu calibrasi torque wrench sebelum digunakan).	OK			MHajir	Cwidodo
b	Note : Mark the bolts after giving torque. (Catatan : Tandai baut setelah diberi toque).	OK			MHajir	Cwidodo

c	Note:Cleanliness is an important factor. Before assembly, thoroughly clean all parts in cleaning fluid. Allow the parts to air dry. Do not use wiping cloths or rags to dry parts. Lint may be deposited on the parts which may cause trouble. Inspect all parts. Dirt and other contaminants can damage the precision component. Perform assembly procedures on a clean work surface. Keep components covered and protected at all times.(Catatan: kebersihan adalah factor yang penting. Sebelum perakitan, semua part harus secara menyeluruh dibersihkan dalam cairan pembersih. Biarkan part tersebut kering dengan sendirinya. Tissue atau kain lap tidak boleh digunakan untuk mengeringkan part. Serat dari tissue atau kain lap dapat menempel pada part yang dapat menyebabkan masalah dikemudian. Kotoran dan kontaminan dapat merusak komponen dengan keakuratan. Lakukan pemasangan komponen pada permukaan yang berih. Pastikan komponen selalu tertutup dan terlindungi setiap saat).	OK			MHajir	Cwidodo
1a	Install the bearing (1a) to a depth of 2.0 ± 0.5 mm (0.079 ± 0.020 inch).	Metric	2 ± 0.5 mm	2 mm	MHajir	Cwidodo
1b	Check the inside diameter of the bearing (1b). The correct inside diameter after installation is 50 ± 0.049 mm (2 ± 0.002 inch).	Metric	50 ± 0.049 mm	50 mm	MHajir	Cwidodo
2a	Install the bearing (2a) to a depth of 13.0 ± 0.5 mm (0.519 ± 0.020 inch).	Metric	13 ± 0.5 mm	13 mm	MHajir	Cwidodo
2b	Check the inside diameter of the bearing (2b). The correct inside diameter after installation is 56 ± 0.061 mm (2 ± 0.0024 inch).	Metric	56 ± 0.061 mm	56 mm	MHajir	Cwidodo
3	Install bolts (3) and tighten the bolts to a torque of 50 ± 7 N·m (37± 5 lb ft).	US	37 ± 5 lb ft.	40 lb ft.	MHajir	Cwidodo
4	Install bolts (4) and tighten bolts (4) to a torque of 115 ± 7 N·m (85 ± 5 lb ft).	US	85 ± 5 lb ft.	90 lb ft.	Esantoso	Mdawam
5	Install bolts (5) and tighten bolts (5) to a torque of 115 ± 7 N·m (85 ± 5 lb ft).	US	85 ± 5 lb ft.	90 lb ft.	MHajir	Cwidodo
6	Install tube (8) and bolt (6). Tighten the bolt (6) to a torque of 115 ± 7 N·m (85 ± 5 lb ft).	US	85 ± 5 lb ft.	90 lb ft.	Esantoso	Mdawam

	Approved By	**Approved Date**
Mechanic	MHajir	15/06/2023
Supervisor	Atakdir	15/06/2023

Section: 2.Bevel and Transfer Gear assemble



No	Activity	Measurement Type	Technical Spesification	Actual Measurement	Mech	LH
1	Tighten bolts (1) to a torque of 475 ± 60 N·m (350 ± 45 lb ft).	US	350 ± 45 lb ft.	350 lb ft.	Asaman	ssyahrizal
2a	Align the dowel hole in bearing race (41) with the hole in bearing cage (39), and install the bearing in the bearing cage. Install dowel (2a) in the bearing cage in order to hold the bearing.	OK			Asaman	ssyahrizal
2b	Tighten bolts to (2b) a torque of 135 ± 20 N·m (100 ± 15 lb ft).	US	100 ± 15 lb ft.	100 lb ft.	Asaman	ssyahrizal
3a	Tighten bolts to (3a) a torque of 135 ± 20 N·m (100 ± 15 lb ft).	US	100 ± 15 lb ft.	100 lb ft.	Asaman	ssyahrizal
3b	Tighten nut (3b) to a torque of 612 ± 68 N·m (452 ± 49 lb ft). Bend the tab on lock. **Note : Apply Locktite Graphite 50 Nut 3B to the threads and face of the locknut prior to installation.** & Three Colour narking Mechanic,**Leader** & **Qc**	US	452 ± 49 lb ft.	450 lb ft.	Asaman	ssyahrizal

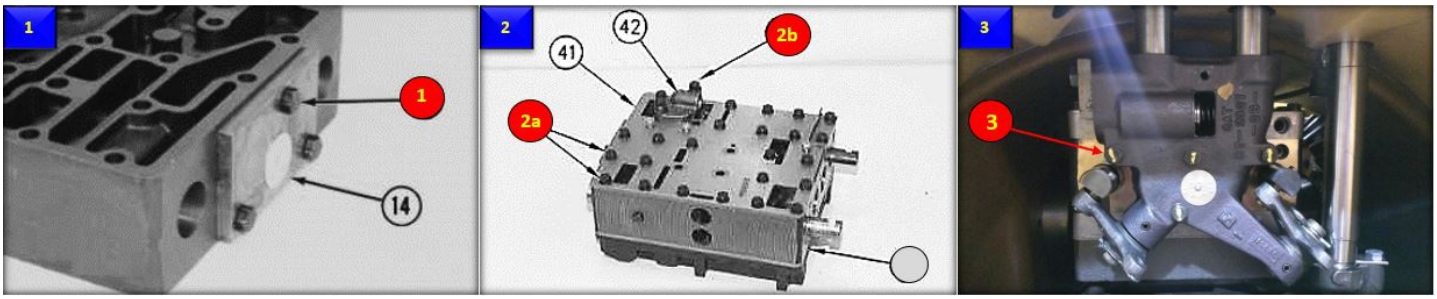
3c	Install bolts (3c) and tighten the bolts to a torque of 50 ± 7 N·m (37± 5 lb ft).	US	37 ± 5 lb ft.	35 lb ft.	Asaman	ssyahrizal
4a	Install bolt (4a) and the retainer. Tighten the bolt to a torque of 270 ± 40 N·m (200 ± 30 lb ft).	US	200 ± 30 lb ft.	200 lb ft.	Asaman	ssyahrizal
4b	Install 12 bolts (4b) with the washers. Tighten bolts (4b) to a torque of 270 ± 40 N·m (200 ± 30 lb ft).	US	200 ± 30 lb ft.	200 lb ft.	Asaman	ssyahrizal
5a.1	Install two bolts (5a) and two washers directly across from each other.	n/a			Asaman	ssyahrizal
5a.2	Rotate the transfer gear by a minimum of three revolutions so that the bearings seat correctly. Tighten two bolts (5a) evenly to a torque of 4.5 N·m (3.3 lb ft).	US	3.3 ± 0 lb ft.	n/a lb ft.	Asaman	ssyahrizal
5a.3	Rotate the transfer gear by a minimum of three revolutions so that the bearings seat correctly. Tighten two bolts (5a) evenly to a torque of 9 N·m (6.6 lb ft).	US	6.6 ± 0 lb ft.	n/a lb ft.	Asaman	ssyahrizal
5a.4	Rotate the transfer gear by a minimum of three revolutions so that the bearings seat correctly. Tighten two bolts (5a) again to a torque of 9 N·m (6.6 lb ft).	US	6.6 ± 0 lb ft.	n/a lb ft.	Asaman	ssyahrizal
5b.1	Use a feeler gauge to measure the gap between bearing cage (5b) and the transfer gear case. Measure the gap at the edges of the bearing cage in alignment with the two bolts (5a).	US	± Inch	n/a Inch	Asaman	ssyahrizal
5b.2	Use a feeler gauge to measure the gap between bearing cage (5b) and the transfer gear case. Measure the gap at the edges of the bearing cage in alignment with the two bolts (5a).	US	± Inch	n/a Inch	Asaman	ssyahrizal
5b.3	Average the two measurements. Record the result.	US	± Inch	n/a Inch	Asaman	ssyahrizal
5b.4	Add 0.36 mm (0.014 inch) to the average from the measurements. Use this result for the thickness of the shim pack.	US	± Inch	n/a Inch	Asaman	ssyahrizal
5b.5	Tighten bolts (5a) to a torque of 135 ± 20 N·m (100 ± 15 lb ft).	US	100 ± 15 lb ft.	100 lb ft.	Asaman	ssyahrizal
5b.6	Check the end play with a dial indicator. The correct bearing end play is 0.10 ± 0.05 mm (0.004 ± 0.0020 inch).	US	0.004 ± 0.002 Inch	0.003 Inch	Asaman	ssyahrizal
6a.1	Install two bolts (6a) and two washers directly across from each other.	n/a			Asaman	ssyahrizal

6a.2	Rotate the transfer gear by a minimum of three revolutions so that the bearings seat correctly. Tighten two bolts (6a) evenly to a torque of 4.5 N·m (3.3 lb ft).	US	3.3 ± 0 lb ft.	n/a lb ft.	Asaman	ssyahrizal
6a.3	Rotate the transfer gear by a minimum of three revolutions so that the bearings seat correctly. Tighten two bolts (6a) evenly to a torque of 9 N·m (6.6 lb ft).	US	6.6 ± 0 lb ft.	n/a lb ft.	Asaman	ssyahrizal
6a.4	Rotate the transfer gear by a minimum of three revolutions so that the bearings seat correctly. Tighten two bolts (6a) again to a torque of 9 N·m (6.6 lb ft).	US	6.6 ± 0 lb ft.	n/a lb ft.	Asaman	ssyahrizal
6b.1	Use a feeler gauge to measure the gap between bearing cage (6b) and the transfer gear case. Measure the gap at the edges of the bearing cage in alignment with the two bolts (6a).	US	± Inch	n/a Inch	Asaman	ssyahrizal
6b.2	Use a feeler gauge to measure the gap between bearing cage (6b) and the transfer gear case. Measure the gap at the edges of the bearing cage in alignment with the two bolts (6a).	US	± Inch	n/a Inch	Asaman	ssyahrizal
6b.3	Average the two measurements. Record the result.	US	± Inch	n/a Inch	Asaman	ssyahrizal
6b.4	Add 0.43 mm (0.017 inch) to the average from the measurements. Use this result for the thickness of the shim pack.	US	± Inch	n/a Inch	Asaman	ssyahrizal
6b.5	Tighten bolts (6a) to a torque of 135 ± 20 N·m (100 ± 15 lb ft).	US	100 ± 15 lb ft.	100 lb ft.	Asaman	ssyahrizal
6b.6	Check the end play with a dial indicator. The correct bearing end play is 0.10 ± 0.05 mm (0.004 ± 0.0020 inch).	US	0.004 ± 0.002 Inch	0.003 Inch	Asaman	ssyahrizal
7	Install one 5/8 inch by 11 NC setscrew (7) in the transfer gear case. Tighten the forcing screw (7) until the clearance at the pinion is zero. Make sure that the forcing screw (7) is between the teeth of the gear.	OK			Asaman	ssyahrizal
8a.1	Use a dial indicator (8a) to measure the gear clearance (backlash) between the bevel gear and the pinion. The correct clearance is 0.36 ± 0.12 mm (0.014 ± 0.005 inch). Measure the clearance at three teeth that are equally spaced around the gear.	US	0.014 ± 0.005 Inch	0.014 Inch	Asaman	ssyahrizal

8a.2	Use a dial indicator (8a) to measure the gear clearance (backlash) between the bevel gear and the pinion. The correct clearance is 0.36 ± 0.12 mm (0.014 ± 0.005 inch). Measure the clearance at three teeth that are equally spaced around the gear.	US	0.014 ± 0.005 Inch	0.014 Inch	Asaman	ssyahrizal
8a.3	Use a dial indicator (8a) to measure the gear clearance (backlash) between the bevel gear and the pinion. The correct clearance is 0.36 ± 0.12 mm (0.014 ± 0.005 inch). Measure the clearance at three teeth that are equally spaced around the gear.	US	0.014 ± 0.005 Inch	0.014 Inch	Asaman	ssyahrizal
8a.4	The range of the measurements must be a maximum of 0.15 mm (0.006 inch).	US	0.003 ± 0.003 Inch	0 Inch	Asaman	ssyahrizal
8b	Check the gear clearance (backlash). If adjustment is required, add or remove shims (8b).	OK			Asaman	ssyahrizal
8c	Install a shim pack (48) of the correct thickness under bearing cage (32).	OK Inch			Asaman	ssyahrizal
9	Install the 4 bolts (9) of brackets. Tighten the 4 bolts (9) evenly to a torque of 270 ± 40 N·m (200 ± 30 lb ft).	US	200 ± 30 lb ft.	200 lb ft.	Asaman	ssyahrizal

	Approved By	Approved Date
Mechanic	Asaman	09/06/2023
Supervisor	CWalim	15/06/2023

Section: 3.Control Valve Assembly



No	Activity	Measurement Type	Technical Spesification	Actual Measurement	Mech	LH
1	Install cover (14) and the three bolts (1). Tighten the bolts (1) to a torque of 30 ± 7 N·m (22 ± 5 lb ft).	US	22 ± 5 lb ft.	25 lb ft.	MHajir	Cwidodo
2a	Install bolts (2a) with the washers. Tighten bolts (2a) to a torque of 30 ± 4 N·m (22 ± 3 lb ft).	US	22 ± 3 lb ft.	25 lb ft.	MHajir	Cwidodo
2b	Install the elbow with bolts (2b). Tighten bolts (2b) to a torque of 30 ± 4 N·m (22 ± 3 lb ft).	US	22 ± 3 lb ft.	22 lb ft.	MHajir	Cwidodo
3	Tighten bolts (3) to a torque of 30 ± 4 N·m (22 ± 3 lb ft).	US	22 ± 3 lb ft.	22 lb ft.	MHajir	Cwidodo

	Approved By	Approved Date
Mechanic	MHajir	07/06/2023
Supervisor	Atakdir	15/06/2023

Section: 4.Completion

No	Activity	Measurement Type	Technical Spesification	Actual Measurement	Mech	LH
1	Install four bolts (1) that fasten the control valve to the transmission. Tighten the bolts to a torque of 48 ± 4 N·m (35 ± 3 lb ft).	US	35 ± 3 lb ft.	35 lb ft.	Esantoso	Mdawam
2	Install bolts (2a) and tighten the bolts to a torque of 50 ± 7 N·m (37± 5 lb ft).	US	37 ± 5 lb ft.	40 lb ft.	Esantoso	Mdawam
3a	Install bolts (3) and tighten the bolts to a torque of 135 ± 20 N·m (100 ± 15 lb ft).	US	100 ± 15 lb ft.	100 lb ft.	Esantoso	Mdawam
3b	Install bolts (2b) and tighten the bolts to a torque of 50 ± 7 N·m (37± 5 lb ft).	US	37 ± 5 lb ft.	40 lb ft.	Esantoso	Mdawam

	Approved By	Approved Date
Mechanic	Esantoso	15/06/2023
Supervisor	WJaya	15/06/2023