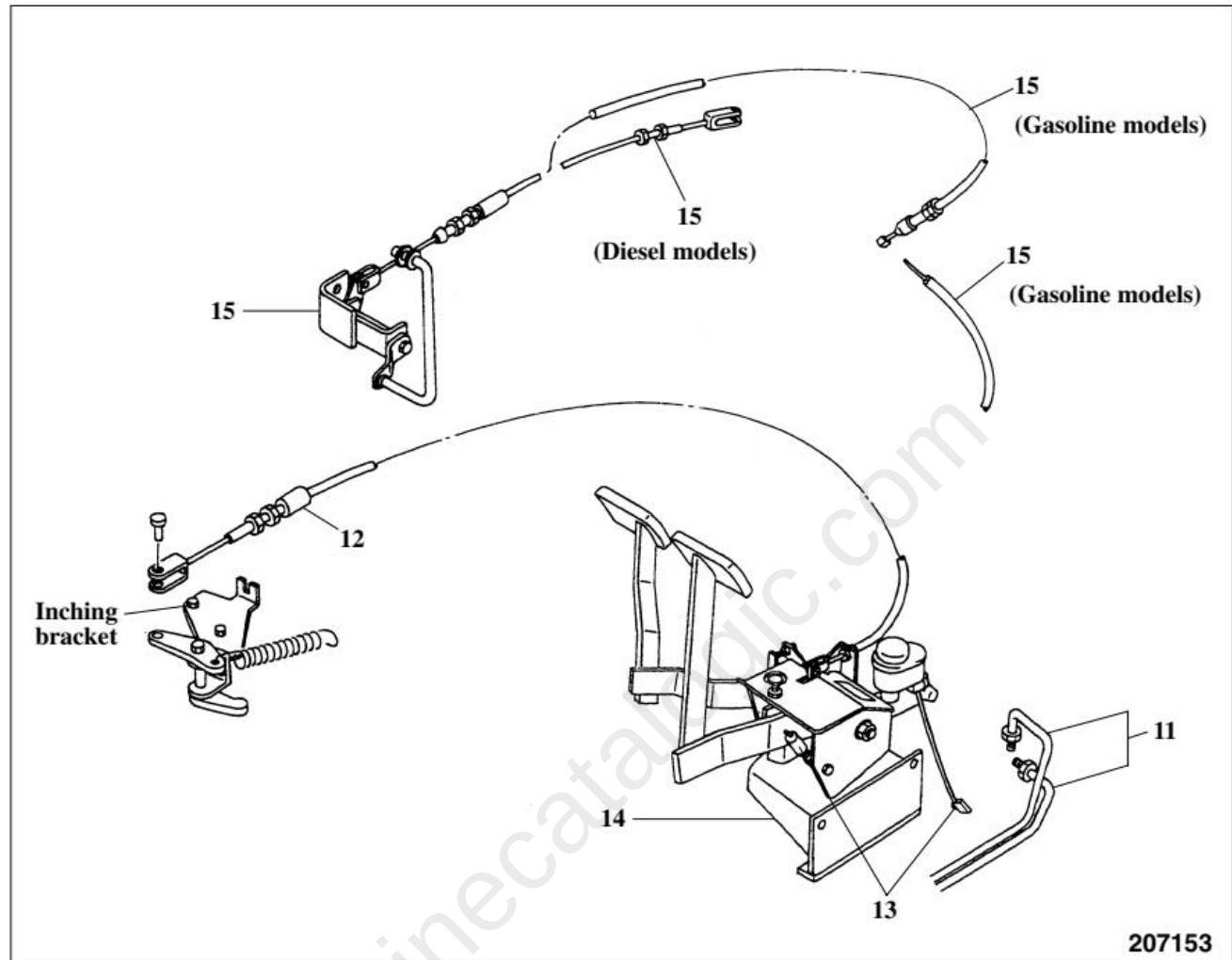


Service Manual

**GP15K, GP18K, GP20K, GP25K, GP30K, GP35K
DP15K, DP18K, DP20K, DP25K, DP30K, DP35K
Chassis, Mast & Options**

GP15K	ET31A-50001-up	DP15K	ET16B-55001-up	MC
GP18K	ET31A-75001-up	DP18K	ET16B-75001-up	
GP20K	ET17B-05001-up	DP20K	ET18B-05001-up	
GP25K	ET17B-55001-up	DP25K	ET18B-55001-up	
GP30K	ET13D-35001-up	DP30K	ET14C-35001-up	
GP35K	ET13D-55001-up	DP35K	ET14C-55001-up	

Control Linkage**Sequence**

- | | | | |
|----|--|----|---|
| 11 | Brake pipes | 14 | Pedal assembly |
| 12 | Inching cable, Clevis pin, Washer, Snap pin | 15 | Throttle cable, Accelerator pedal bracket, Pin, Washer, Choke cable |
| 13 | Connector (Brake fluid level sensor, Stop lamp switch) | | |

Suggestion

To remove inching cable 12, pull out pins and loosen lock nuts at the transmission and inching pedal sides of the cable.

Suggestions

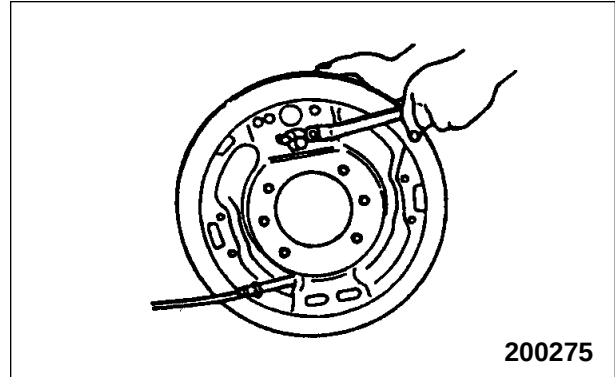
1. Wheel cylinder installation

Apply the liquid packing to the mounting face of the wheel cylinder before positioning the cylinder in place; and secure it by tightening to the specified torque:

A = Assembly standard

B = Repair or service limit Unit: N·m (kgf·m) [lbf·ft]

	1 to 1.8 ton models	2 to 3.5 ton models
Tightening torque for wheel cylinder	8 to 12 (0.8 to 1.2) [6 to 9]	18 to 26 (1.8 to 2.7) [13 to 20]



2. Greasing

Apply the specified brake grease to the following parts, forming a thin coat of grease at each:

(1) Shoe ledges (6 places)

The ledges are those portions of the backing plate in contact with the shoe.

(2) Anchor pin surface in contact with the shoe ends

3. Shoe and lining installation

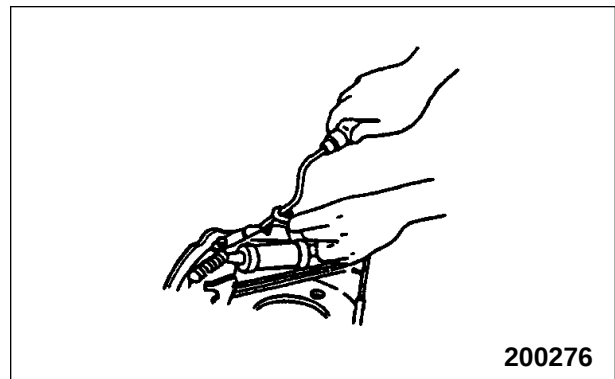
Check to be sure that each push rod of the wheel cylinder is snugly fitted to its shoe web.

4. Return spring installation

Use a special tool to install the return springs to the backing plate pins.

Special tool needed

Spring installer	65309-15413
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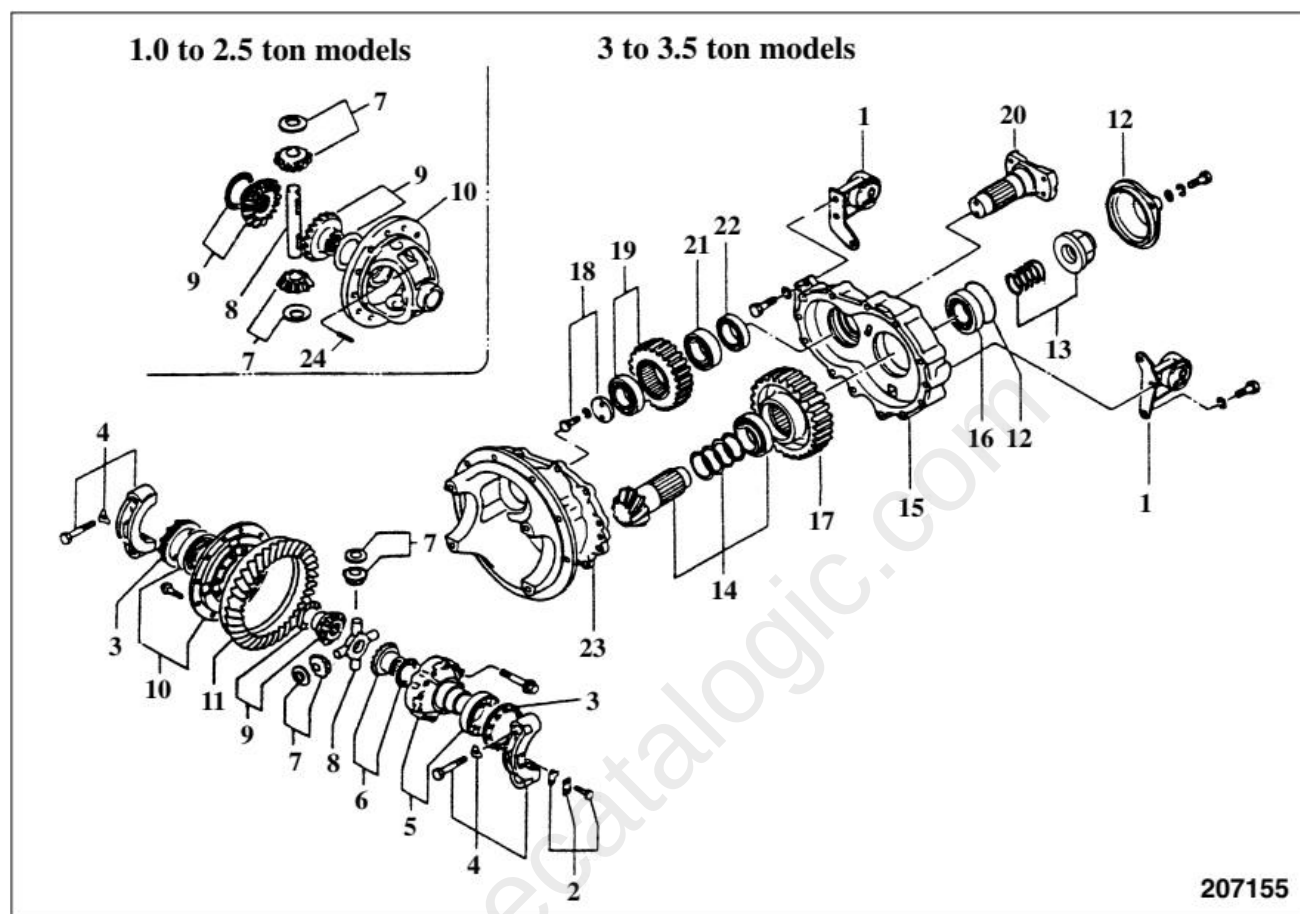


SERVICE DATA

	Nominal size		Pitch		With spring washer 101656								
													
Metric coarse thread	mm	in.	mm	in.	N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft
	10	0.39	1.5	0.06	33.3	3.4	24.6	43.1	4.4	31.8	67.7	6.9	49.9
	12	0.47	1.75	0.07	58.8	6.0	43.4	76.5	7.8	56.4	115.7	11.8	85.3
	14	0.55	2	0.08	96.4	9.8	70.9	124.5	12.7	91.9	182.4	18.6	134.5
	16	0.63	2	0.08	147.14	15.0	108.5	191.2	19.5	141.0	274.6	28.0	202.5
	18	0.71	2.5	0.10	203.0	20.7	149.7	264.8	27.0	195.3	383.4	39.1	282.8
	20	0.79	2.5	0.10	286.4	29.2	211.2	371.7	37.9	274.1	536.4	54.7	395.6
	22	0.87	2.5	0.10	383.4	39.1	282.8	499.2	50.9	368.2	715.9	73.0	528.0
	24	0.95	3	0.12	492.3	50.2	363.1	640.4	65.3	472.3	924.8	94.3	682.1
	27	1.06	3	0.12	724.7	73.9	534.5	942.2	96.1	695.1	1350.4	137.7	996.0
	30	1.18	3.5	0.14	969.9	98.9	715.3	1259.2	128.4	928.7	1843.7	188.0	1359.8
	33	1.30	3.5	0.14	1328.8	135.5	980.1	1727.0	176.1	1273.7	2477.2	252.6	1827.1
	36	1.42	4	0.16	1676.0	170.9	1236.1	2180.0	222.3	1607.9	3199.9	326.3	2360.1
	39	1.54	4	0.16	2219.2	226.3	1636.8	2884.1	294.1	2127.2	4118.8	420.0	3037.9
	42	1.65	4.5	0.18	2754.7	280.9	2031.8	3581.4	365.2	2641.5	5137.7	523.9	3789.4
	Nominal size		Pitch		Without spring washer 101656								
													
	10	0.39	1.5	0.06	39.2	4.0	28.9	51.0	5.2	37.6	79.4	8.1	58.6
	12	0.47	1.75	0.07	69.6	7.1	51.4	90.2	9.2	66.5	135.3	13.8	99.8
	14	0.55	2	0.08	112.8	11.5	83.2	146.1	14.9	107.8	215.7	22.0	159.1
	16	0.63	2	0.08	172.6	17.6	127.3	224.6	22.9	165.6	323.6	33.0	238.7
	18	0.71	2.5	0.10	239.3	24.4	176.5	311.9	31.8	230.0	451.1	46.0	332.7
	20	0.79	2.5	0.10	336.4	34.3	248.1	437.4	44.6	322.6	630.6	64.3	465.1
	22	0.87	2.5	0.10	392.3	40.0	289.3	587.4	59.9	433.3	842.4	85.9	621.3
	24	0.95	3	0.12	578.6	59.0	426.7	753.2	76.8	555.5	1088.5	111.0	802.9
	27	1.06	3	0.12	852.2	86.9	628.5	1108.2	113.0	817.3	1588.7	162.0	1171.7
	30	1.18	3.5	0.14	1140.5	116.3	841.2	1481.8	151.1	1092.9	2168.3	221.1	1599.2
	33	1.30	3.5	0.14	1563.2	159.4	1153.0	2031.9	207.2	1498.7	2915.5	297.3	2150.4
	36	1.42	4	0.16	1972.1	201.1	1454.6	2564.4	261.5	1891.4	3765.8	384.0	2777.5
	39	1.54	4	0.16	2610.5	266.2	1925.4	3393.1	346.0	2502.6	4845.5	494.1	3573.8
	42	1.65	4.5	0.18	3241.1	330.5	2390.5	4212.9	429.6	3107.3	6044.8	616.4	4458.4

Remarks: 1. The tolerance on these torque is $\pm 10\%$.

2. These torques are for “dry” condition.

Reduction Differential**Disassembly****Sequence [3-ton models]**

- | | |
|---|--|
| 1 Mount bracket assembly (right and left) | 12 Cover, O-ring |
| 2 Lock washer, Lock pawl, Bolt, Plate | 13 Lock nut, Shims |
| 3 Adjusting screw | 14 Reduction bevel pinion, Tapered roller bearing (inner), Shims |
| 4 Bearing cap, Lock washer, Bolt | 15 Carrier cover |
| 5 Differential case (right), Tapered roller bearing | 16 Tapered roller bearing |
| 6 Differential gear, Thrust washer | 17 Driven gear |
| 7 Differential pinion, Thrust washer (not used in 1-ton models) | 18 Plate |
| 8 Differential spider | 19 Drive gear, Ball bearing |
| 9 Differential gear, Thrust washer | 20 Input flange |
| 10 Differential case (left), Tapered roller bearing | 21 Ball bearing |
| 11 Reduction bevel gear | 22 Oil seal |
| | 23 Differential carrier |

NOTE

For the disassembly sequence for 1, 2-ton models, see the next page.

Sequence

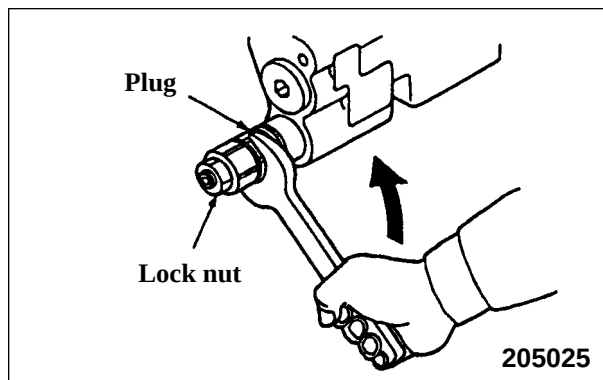
- | | |
|--------------------------------|---|
| 1 Tie rod bolts, Nuts | 22 Lift section |
| 2 End cover | 23 O-ring |
| 3 O-ring | 24 Spring, Poppet |
| 4 Main relief valve, O-ring | 25 Cap, Screw |
| 5 Connector, O-ring | 26 Spool |
| 6 Plug, O-ring | 27 Screw, O-ring, Seat, Spring |
| 7 Sleeve, Snap ring | 28 Plate, Wiper, O-ring |
| 8 Spool, Spring | 29 Tilt lock valve, Spring |
| 9 Plug | 30 Plate, Wiper, O-ring, Screw |
| 10 Housing, O-ring, Poppet | 31 Tilt section |
| 11 Spring | 32 O-ring |
| 12 Inlet section | 33 Spring, Poppet |
| 13 O-ring | 34 Cap, Screw |
| 14 Spring, Poppet | 35 Spool |
| 15 Cap, Screw | 36 Screw, Seat, Spring |
| 16 Spool | 37 Plate, Wiper, O-ring |
| 17 Screw, Seat, Spring | 38 Plate, Wiper, O-ring, Screw |
| 18 Plate, Wiper, O-ring | 39 Shutoff valve assembly (or Overload relief valve (option)) |
| 19 Plate, Wiper, O-ring, Screw | 40 Attachment section |
| 20 Plug, O-ring | |
| 21 Connector, O-ring | |

Suggestions**1. Main relief valve**

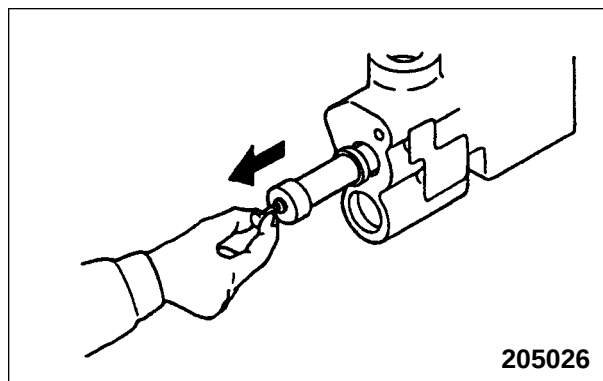
Do not remove main relief valve 4 unless it is defective. This applies to overload relief valve 39 (option) of the attachment section.

NOTE

To remove the main relief valve for cleaning or inspection, loosen its plug. Loosening the lock nut will disturb the pressure setting.

**2. Inlet section**

- (1) To remove connector 5, loosen plug 6 two or three full turns.
- (2) To remove spool 8, screw a bolt into the hole (M6 $\times$ 1) of the spool and pull out the spool squarely by gripping the bolt before removing sleeve 7.



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