

HX & HY Service Data Sheet 1 of 16

⚠ WARNING

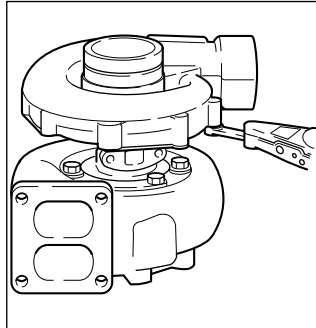


Turbochargers can be hazardous when not used as specified by the manufacturer. To prevent damage and personal injury:

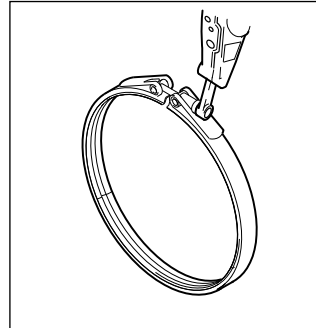
- Always use the turbocharger part number specified by the engine manufacturer.
- Use only in applications approved by the engine manufacturer.
- Do not touch before checking surface temperatures.
- Do not work on a running turbocharger or engine.
- Do not modify the turbocharger in any way.
- Disassemble and re-assemble using the engine manufacturer's instructions.
- Use only approved spare parts.

For advice on the safe use of turbochargers contact www.holset.com

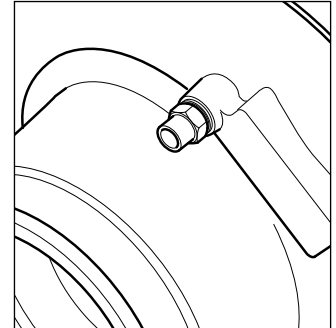
Bolt, Compressor Housing (Item 59)



Locknut, V-Band Compressor (Item 29)



Air Tapping - Male Union (Item 105)



Turbo Model

Nm (lb. in)

Nm (lb. in)

Nm (lb. in)

Aluminium
Housing

Cast Iron
Housing

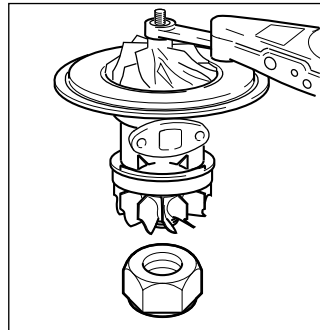
HX20W	N/A	N/A	N/A	N/A
HX25/25W/27W	N/A	N/A	N/A	N/A
HX30 (68mm wheel)	N/A	N/A	N/A	N/A
HX30 (72mm wheel)	N/A	N/A	N/A	N/A
HX32	N/A	N/A	N/A	N/A
HX35	N/A	N/A	N/A	N/A
HX40	N/A	N/A	N/A	N/A
HX50 (98mm wheel)	8.5 (75)	N/A	N/A	N/A
HX50 (108 / 112 mm wheel)	8.5 (75)	N/A	N/A	N/A
HX55/52	N/A	8.5 (75)	N/A	8.5 (75)
HX60/HT60	N/A	8.5 (75)	N/A	N/A
HX80/85	N/A	8.5 (75)	8.5 (75)	N/A
HT80	N/A	8.5 (75)	N/A	N/A
HX82	N/A	8.5 (75)	12 (106)	N/A
HX83	N/A	N/A	12 (106)	N/A
HY30W	N/A	N/A	N/A	N/A
HY35W (DCX MY01)	N/A	N/A	N/A	N/A
HY35W (DCX MY03)	N/A	N/A	N/A	N/A

⚠ CAUTION

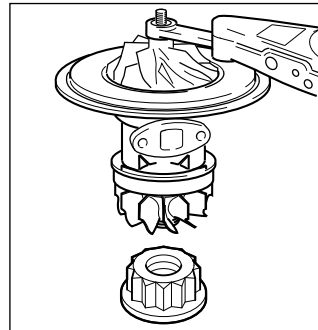
Always refer to **Service Notes** before using this service data.

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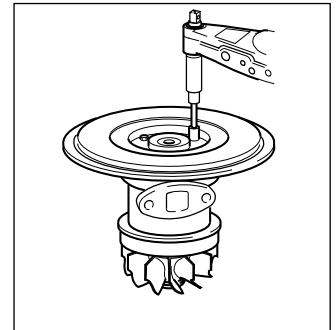
Locknut, Compressor
Wheel (Item 61)



Locknut, Compressor
Wheel (Item 61)



Screw, Diffuser
(Item 56)



Turbo Model

Nm (lb. in)

6 pt.
Hexagon

Nm (lb. in)

12 pt.
Hexagon

Nm (lb. in)

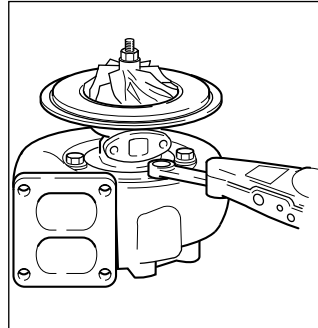
HX20W	T1:1.5 (14)T2:2.5 (22) see note 9	N/A	N/A
HX25/25W/27W	T1: 3.9 (35)T2: 4.9 (44) see note 9	N/A	N/A
HX30 (68mm wheel)	15 (133)	14 (124)	N/A
HX30 (72mm wheel)	15 (133)	14 (124)	N/A
HX32	15 (133)	14 (124)	N/A
HX35	15 (133)	14 (124)	N/A
HX40	15 (133)	14 (124)	N/A
HX50 (98mm wheel)	17 (150)	N/A	N/A
HX50 (108 / 112 mm wheel)	17 (150)	N/A	N/A
HX55/52	17 (150)	N/A	N/A
HX60/HT60	40.7 (360)	N/A	N/A
HX80/85	45.2 (400)	N/A	24.9 (220)
HT80	45.2 (400)	N/A	24.9 (220)
HX82	45.2 (400) see note 19	N/A	24.9 (220)
HX83	N/A	N/A	N/A
HY30W	N/A	14 (124)	N/A
HY35W (DCX MY01)	N/A	14 (124)	N/A
HY35W (DCX MY03)	N/A	14 (124)	N/A

⚠ CAUTION

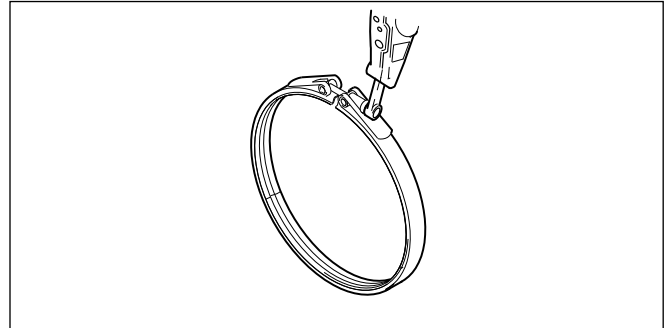
Always refer to [Service Notes](#) before using this service data.

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**Bolt, Turbine
Housing (Item 57)**



Locknut, V-Band Turbine (Item 28)



Turbo Model

Nm (lb. in)

Nm (lb. in)

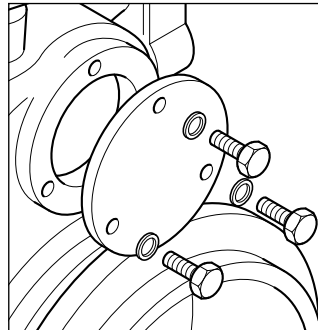
HX20W	N/A	3.4 +/-0.5 (30 +/- 4) (see note 13)	N/A
HX25/25W/27W	N/A	8.3 +/-0.5 (74 +/- 4) (See note 13)	N/A
HX30 (68mm wheel)	N/A	8.5 (75)	N/A
HX30 (72mm wheel)	N/A	8.5 (75)	N/A
HX32	N/A	8.5 (75)	N/A
HX35	26 (230)	N/A	N/A
HX40	26 (230)	N/A	N/A
HX50 (98mm wheel)	31.6 (280) see note 6	N/A	N/A
HX50 (108 / 112 mm wheel)	31.6 (280) see note 6	N/A	N/A
HX55/52	31.6 (280) see note 6	8.5 (75) - see note 18	11.3 (100) - see note 18
HX60/HT60	N/A	8.5 (75) - see note 14	11.3 (100) - see note 14
HX80/85	20.3 (180)	N/A	N/A
HT80	20.3 (180)	N/A	N/A
HX82	20.3 (180)	N/A	N/A
HX83	20.3 (180)	N/A	N/A
HY30W	N/A	8.5 (75)	N/A
HY35W (DCX MY01)	N/A	8.5 (75)	N/A
HY35W (DCX MY03)	N/A	8.5 (75)	N/A

⚠ CAUTION

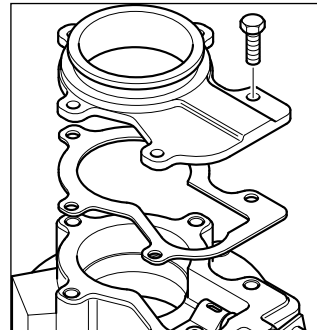
Always refer to **Service Notes** before using this service data.

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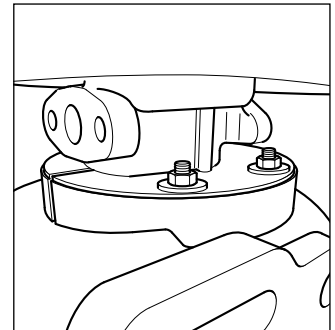
**Bolt, Cover Plate
(item 67)**



**Bolt, Exhaust Adapter
(item 67)**



**Locknut, Heatshield,
External (item 108)**



Turbo Model

Nm (lb. in)

Nm (lb. in)

Nm (lb. in)

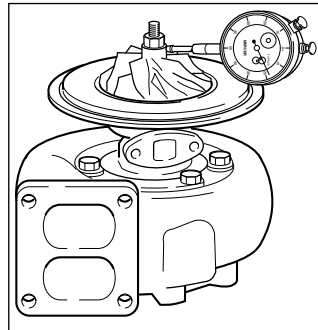
HX20W	N/A	N/A	N/A
HX25/25W/27W	N/A	N/A	N/A
HX30 (68mm wheel)	N/A	N/A	N/A
HX30 (72mm wheel)	N/A	N/A	N/A
HX32	N/A	25 (220)	N/A
HX35	N/A	25 (220)	N/A
HX40	N/A	25 (220)	N/A
HX50 (98mm wheel)	8.5 (75)	30.7 (270)	N/A
HX50 (108 / 112 mm wheel)	8.5 (75)	30.7 (270)	N/A
HX55/52	8.5 (75)	30.7 (270)	1.1 (10)
HX60/HT60	8.5 (75)	N/A	N/A
HX80/85	N/A	N/A	N/A
HT80	N/A	N/A	N/A
HX82	N/A	N/A	N/A
HX83	N/A	N/A	N/A
HY30W	N/A	25 (220)	N/A
HY35W (DCX MY01)	N/A	25 (220)	N/A
HY35W (DCX MY03)	N/A	25 (220)	N/A

⚠ CAUTION

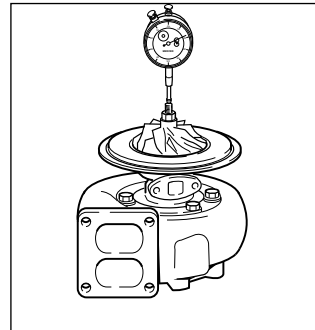
Always refer to [Service Notes](#) before using this service data.

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**Radial Movement
(TIR)**



Axial Clearance



Turbo Model

mm (in)

mm (in)

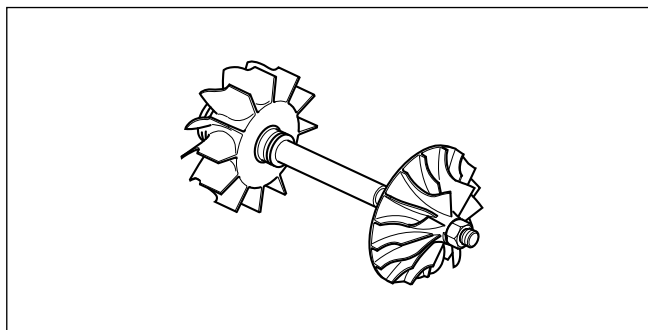
HX20W	0.394 - 0.602 (0.016 - 0.024)	0.027 - 0.073 (0.001 - 0.003)
HX25/25W/27W	0.394 - 0.602 (0.016 - 0.024)	0.010 - 0.076 (0.0004 - 0.003)
HX30 (68mm wheel)	0.330 - 0.508 (0.013 - 0.020)	0.025 - 0.127 (0.001 - 0.005)
HX30 (72mm wheel)	0.330 - 0.508 (0.013 - 0.020)	0.025 - 0.127 (0.001 - 0.005)
HX32	0.330 - 0.508 (0.013 - 0.020)	0.025 - 0.127 (0.001 - 0.005)
HX35	0.330 - 0.508 (0.013 - 0.020)	0.025 - 0.127 (0.001 - 0.005)
HX40	0.330 - 0.508 (0.013 - 0.020)	0.025 - 0.127 (0.001 - 0.005)
HX50 (98mm wheel)	0.381 - 0.610 (0.015 - 0.024)	0.025 - 0.127 (0.001 - 0.005)
HX50 (108 / 112 mm wheel)	0.381 - 0.610 (0.015 - 0.024)	0.025 - 0.127 (0.001 - 0.005)
HX55/52	0.406 - 0.610 (0.016 - 0.024)	0.025 - 0.127 (0.001 - 0.005)
HX60/HT60	0.406 - 0.584 (0.016 - 0.023)	0.051 - 0.152 (0.002 - 0.006)
HX80/85	0.254 - 0.787 (0.010 - 0.031)	0.025 - 0.152 (0.001 - 0.006)
HT80	0.254 - 0.787 (0.010 - 0.031)	0.025 - 0.152 (0.001 - 0.006)
HX82	0.254 - 0.787 (0.010 - 0.031)	0.025 - 0.152 (0.001 - 0.006)
HX83	0.254 - 0.787 (0.010 - 0.031)	0.025 - 0.152 (0.001 - 0.006)
HY30W	0.356 - 0.559 (0.014 - 0.022)	0.025 - 0.127 (0.001 - 0.005)
HY35W (DCX MY01)	0.326 - 0.508 (0.013 - 0.020)	0.025 - 0.127 (0.001 - 0.005)
HY35W (DCX MY03)	0.326 - 0.508 (0.013 - 0.020)	0.025 - 0.127 (0.001 - 0.005)

⚠ CAUTION

Always refer to **Service Notes** before using this service data.

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Rotor Balance (see note 15)



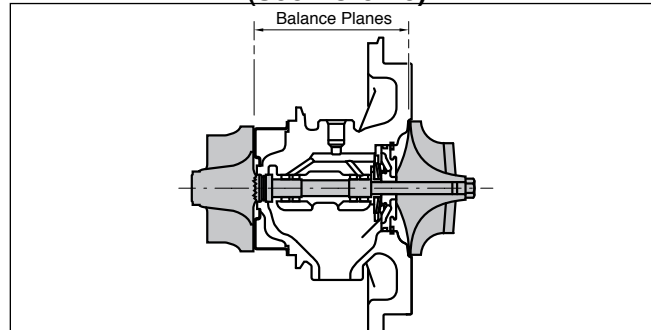
Turbo Model	g. mm (oz. in)	g. mm (oz. in)
	Turbine End	Compressor End
HX20W	N/A	N/A
HX25/25W/27W	N/A	N/A
HX30 (68mm wheel)	1.1 (0.0015)	1.1 (0.0015)
HX30 (72mm wheel)	1.4 (0.0019)	1.4 (0.0019)
HX32	1.4 (0.0019)	1.4 (0.0019)
HX35	1.4 (0.0019)	1.4 (0.0019)
HX40	1.4 (0.0019)	1.4 (0.0019)
HX50 (98mm wheel)	2.2 (0.003)	4.4 (0.006)
HX50 (108 / 112 mm wheel)	2.2 (0.003)	4.4 (0.006)
HX55/52	2.2 (0.003)	4.4 (0.006)
HX60/HT60	4.4 (0.006)	4.4 (0.006)
HX80/85	7.2 (0.010)	7.2 (0.010)
HT80	7.2 (0.010)	12.3 (0.017)
HX82	7.2 (0.010)	12.3 (0.017)
HX83	N/A	N/A
HY30W	1.1 (0.0015)	1.1 (0.0015)
HY35W (DCX MY01)	1.1 (0.0015)	1.1 (0.0015)
HY35W (DCX MY03)	1.1 (0.0015)	1.1 (0.0015)

CAUTION

Always refer to [Service Notes](#) before using this service data.

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Core Balance at
4000 rev/min
(see note 16)



Turbo Model

g. mm (oz. in)

g. mm (oz. in)

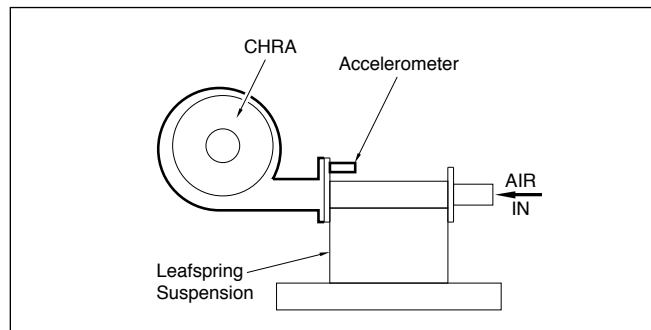
	Turbine End	Compressor End
HX20W	N/A	N/A
HX25/25W/27W	N/A	N/A
HX30 (68mm wheel)	0.75 (0.0010)	1.0 (0.0014)
HX30 (72mm wheel)	0.9 (0.0012)	1.25 (0.0017)
HX32	1.4 (0.0019)	1.4 (0.0019)
HX35	1.5 (0.0020)	1.8 (0.0025)
HX40	1.5 (0.0020)	1.8 (0.0025)
HX50 (98mm wheel)	2.2 (0.0030)	4.4 (0.0060)
HX50 (108 / 112 mm wheel)	2.7 (0.0037) see note 20	5.3 (0.0073) see note 20
HX55/52	2.2 (0.0030)	4.4 (0.0060)
HX60/HT60	4.4 (0.0060)	7.2 (0.010)
HX80/85	7.2 (0.010)	12.3 (0.017)
HT80	5.8 (0.0080)	5.8 (0.0080)
HX82	7.2 (0.010)	12.3 (0.017)
HX83	N/A	N/A
HY30W	0.9 (0.0012)	1.25 (0.0017)
HY35W (DCX MY01)	1.4 (0.0019)	1.4 (0.0019)
HY35W (DCX MY03)	1.4 (0.0019)	1.4 (0.0019)

⚠ CAUTION

Always refer to [Service Notes](#) before using this service data.

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Vibration Level on VSR rig



Turbo Model

g-force peak

At speeds up to 100,000 rev/
min

g-force peak

At speeds between
100,000 and 130,000 rev/min

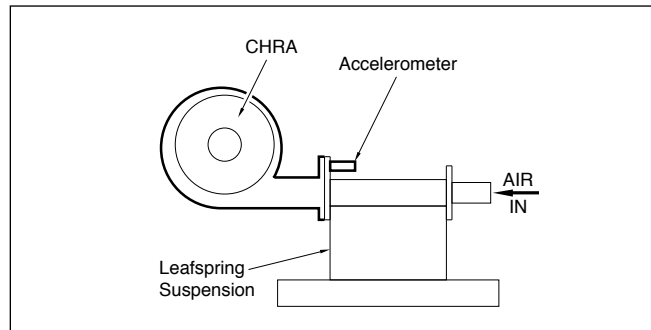
HX20W	1 g see note 11	2 g see note 11
HX25/25W/27W	1 g see note 11	2 g see note 11
HX30 (68mm wheel)	N/A	N/A
HX30 (72mm wheel)	N/A	N/A
HX32	N/A	N/A
HX35	N/A	N/A
HX40	N/A	N/A
HX50 (98mm wheel)	N/A	N/A
HX50 (108 / 112 mm wheel)	N/A	N/A
HX55/52	N/A	N/A
HX60/HT60	N/A	N/A
HX80/85	N/A	N/A
HT80	N/A	N/A
HX82	N/A	N/A
HX83	N/A	N/A
HY30W	N/A	N/A
HY35W (DCX MY01)	N/A	N/A
HY35W (DCX MY03)	N/A	N/A

CAUTION

Always refer to **Service Notes** before using this service data.

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Vibration Level on VSR rig



Turbo Model

g-force peak

At speed between 35,000 and
55,000 rev/min

g-force peak

At speed of
100,000 rev/min

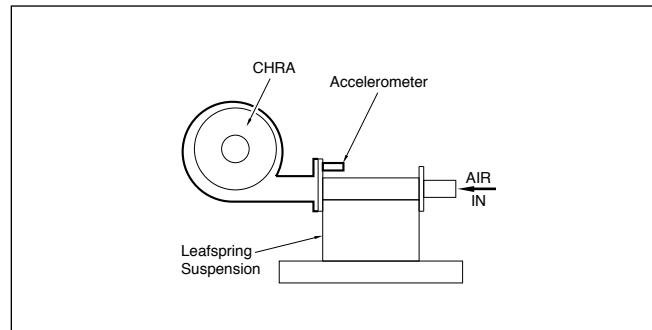
HX20W	N/A	N/A
HX25/25W/27W	N/A	N/A
HX30 (68mm wheel)	2 g see note 17	3.5 g see note 17
HX30 (72mm wheel)	2 g see note 17	3.5 g see note 17
HX32	2 g see note 17	3.5 g see note 17
HX35	2 g see note 17	3.5 g see note 17
HX40	2 g see note 17	3.5 g see note 17
HX50 (98mm wheel)	N/A	N/A
HX50 (108 / 112 mm wheel)	N/A	N/A
HX55/52	N/A	N/A
HX60/HT60	N/A	N/A
HX80/85	N/A	N/A
HT80	N/A	N/A
HX82	N/A	N/A
HX83	N/A	N/A
HY30W	N/A	N/A
HY35W (DCX MY01)	2 g see note 17	3.5 g see note 17
HY35W (DCX MY03)	2 g see note 17	N/A

⚠ CAUTION

Always refer to **Service Notes** before using this service data.

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Vibration Level on VSR rig



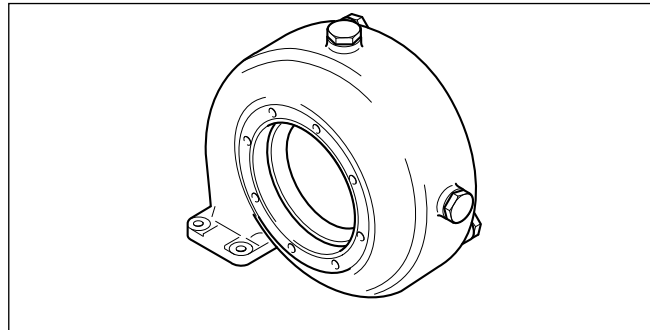
Turbo Model	g-force peak	g-force peak
	At speed of 110,000 rev/min	At speed of 120,000 rev/min
HX20W	N/A	N/A
HX25/25W/27W	N/A	N/A
HX30 (68mm wheel)	N/A	N/A
HX30 (72mm wheel)	N/A	N/A
HX32	N/A	N/A
HX35	N/A	N/A
HX40	N/A	N/A
HX50 (98mm wheel)	N/A	N/A
HX50 (108 / 112 mm wheel)	N/A	N/A
HX55/52	N/A	N/A
HX60/HT60	N/A	N/A
HX80/85	N/A	N/A
HT80	N/A	N/A
HX82	N/A	N/A
HX83	N/A	N/A
HY30W	N/A	N/A
HY35W (DCX MY01)	N/A	N/A
HY35W (DCX MY03)	2.7 g see note 17	2.9 g see note 17

⚠ CAUTION

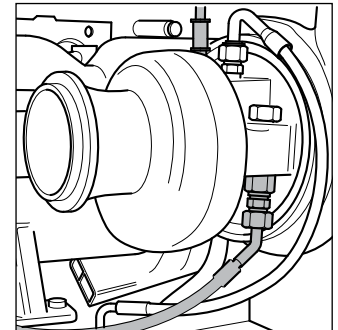
Always refer to **Service Notes** before using this service data.

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Turbine Housing Water Fittings
Straight Thread,
(Item 101/102/103)



Bearing Housing Water Fitting,
(Item 101/103/105)



Turbo Model

Nm (lb. in)

Nm (lb. in)

Nm (lb. in)

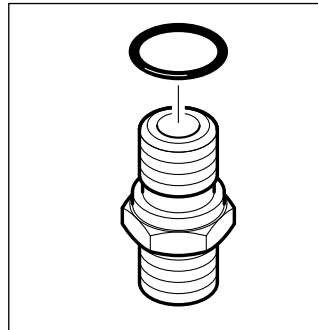
HX20W	N/A	N/A	N/A
HX25/25W/27W	N/A	N/A	N/A
HX30 (68mm wheel)	N/A	N/A	N/A
HX30 (72mm wheel)	N/A	N/A	N/A
HX32	N/A	N/A	N/A
HX35	67.8 (600)	N/A	40 (354)
HX40	67.8 (600)	N/A	40 (354)
HX50 (98mm wheel)	67.8 (600)	N/A	N/A
HX50 (108 / 112 mm wheel)	67.8 (600)	N/A	N/A
HX55/52	67.8 (600)	N/A	N/A
HX60/HT60	N/A	N/A	N/A
HX80/85	74.6 (660)	67.8 (600)	N/A
HT80	N/A	N/A	N/A
HX82	N/A	N/A	N/A
HX83	N/A	N/A	N/A
HY30W	N/A	N/A	N/A
HY35W (DCX MY01)	N/A	N/A	N/A
HY35W (DCX MY03)	N/A	N/A	N/A

⚠ CAUTION

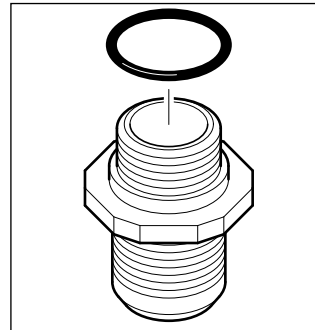
Always refer to [Service Notes](#) before using this service data.

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Adapter, Oil
Inlet (Item 113)



Adapter, Oil
Drain (Item 116)



Turbo Model

Nm (lb. in)

Nm (lb. in)

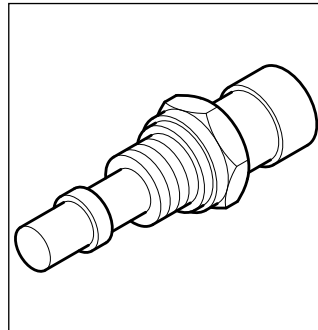
HX20W	24 (212)	N/A
HX25/25W/27W	24 (212)	N/A
HX30 (68mm wheel)	35 (310)	N/A
HX30 (72mm wheel)	35 (310)	N/A
HX32	35 (310)	N/A
HX35	35 (310)	N/A
HX40	40 (354)	25 (221)
HX50 (98mm wheel)	40 (354)	N/A
HX50 (108 / 112 mm wheel)	40 (354)	N/A
HX55/52	N/A	N/A
HX60/HT60	N/A	N/A
HX80/85	N/A	N/A
HT80	N/A	N/A
HX82	N/A	N/A
HX83	N/A	N/A
HY30W	35 (310)	N/A
HY35W (DCX MY01)	35 (310)	N/A
HY35W (DCX MY03)	35 (310)	N/A

⚠ CAUTION

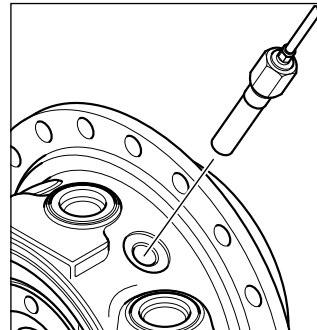
Always refer to [Service Notes](#) before using this service data.

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Temperature Sensor /
Blanking Plug
(Item 158/103)



Speed Sensor
(Item 112)



Turbo Model

Nm (lb. in)

Nm (lb. in)

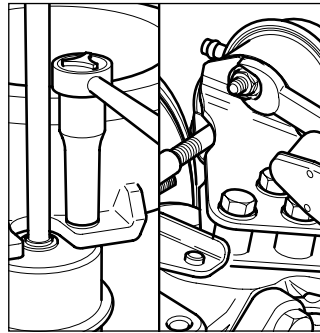
HX20W	N/A	N/A
HX25/25W/27W	N/A	N/A
HX30 (68mm wheel)	N/A	N/A
HX30 (72mm wheel)	N/A	N/A
HX32	N/A	N/A
HX35	17 (150)	N/A
HX40	17 (150)	N/A
HX50 (98mm wheel)	N/A	N/A
HX50 (108 / 112 mm wheel)	N/A	N/A
HX55/52	N/A	N/A
HX60/HT60	N/A	N/A
HX80/85	N/A	N/A
HT80	N/A	N/A
HX82	N/A	12 (106)
HX83	N/A	12 (106)
HY30W	N/A	N/A
HY35W (DCX MY01)	17 (150)	N/A
HY35W (DCX MY03)	17 (150)	N/A

⚠ CAUTION

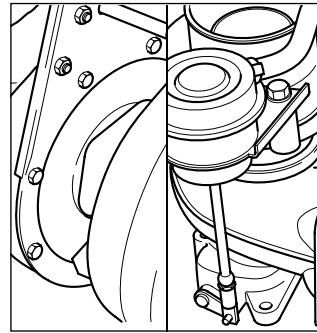
Always refer to **Service Notes** before using this service data.

HX & HY Service Data Sheet 14 of 16

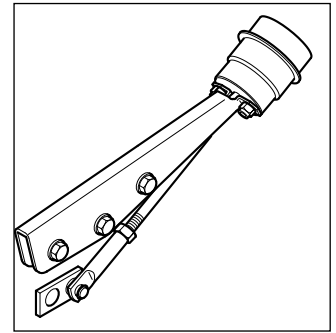
**Nut, Wastegate
Actuator (Item 83)**



**Screw, Wastegate
Actuator (Item 106)**



**Screw, Wastegate
Brace Bracket
(Item 139/142)**



Turbo Model

Nm (lb. in)

Nm (lb. in)

Nm (lb. in)

HX20W	N/A	19.6 +/- 1 (173 +/- 9)	N/A
HX25/25W/27W	N/A	19.6 +/- 1 (173 +/- 9)	N/A
HX30 (68mm wheel)	8.5 (75)	N/A	25 (220)
HX30 (72mm wheel)	8.5 (75)	N/A	25 (220)
HX32	8.5 (75)	N/A	25 (220)
HX35	8.5 (75)	19.6 (173)	25 (220)
HX40	8.5 (75)	19.6 (173)	25 (220)
HX50 (98mm wheel)	N/A	8.5 (75)	25 (220)
HX50 (108 / 112 mm wheel)	N/A	8.5 (75)	25 (220)
HX55/52	8.5 (75)	N/A	25 (220)
HX60/HT60	8.5 (75)	N/A	25 (220)
HX80/85	N/A	N/A	N/A
HT80	N/A	N/A	N/A
HX82	N/A	N/A	N/A
HX83	N/A	N/A	N/A
HY30W	8.5 (75)	N/A	N/A
HY35W (DCX MY01)	8.5 (75)	N/A	N/A
HY35W (DCX MY03)	8.5 (75)	N/A	N/A

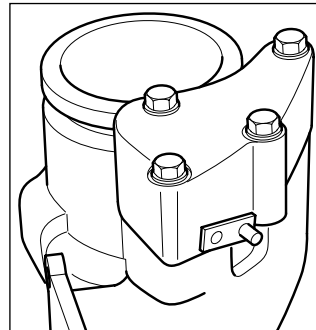
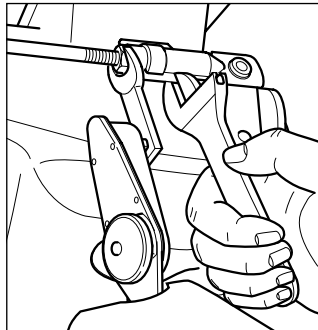
⚠ CAUTION

Always refer to **Service Notes** before using this service data.

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**Jam Nut, Wastegate
Actuator (Item 128)**

**Screw, Wastegate
Valve Body (Item 79)**



Turbo Model

Nm (lb. in)

Nm (lb. in)

HX20W	6.9 +/- 1.9 (61 +/- 17)	N/A
HX25/25W/27W	6.9 +/- 1.9 (61 +/- 17)	N/A
HX30 (68mm wheel)	8.5 (75)	N/A
HX30 (72mm wheel)	8.5 (75)	N/A
HX32	8.5 (75)	N/A
HX35	8.5 (75)	N/A
HX40	8.5 (75)	N/A
HX50 (98mm wheel)	8.5 (75)	30 (267)
HX50 (108 / 112 mm wheel)	8.5 (75)	30 (267)
HX55/52	8.5 (75)	30 (267)
HX60/HT60	8.5 (75)	N/A
HX80/85	N/A	N/A
HT80	N/A	N/A
HX82	N/A	N/A
HX83	N/A	N/A
HY30W	8.5 (75)	N/A
HY35W (DCX MY01)	8.5 (75)	N/A
HY35W (DCX MY03)	8.5 (75)	N/A

⚠ CAUTION

Always refer to [Service Notes](#) before using this service data.

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Service Data Sheet Notes

- 1 The list of turbocharger models represents the majority of current specifications. If your model does not appear in the Service Data Sheets, please refer to your nearest distributor for guidance.
- 2 Service Data is sourced from Engineering Specifications and Drawings.
- 3 All permissible Service Allowances are included in this data set.
- 4 Where nominal torque is quoted always aim to achieve this mid-point value during turbocharger assembly processes. To avoid ineffective clamp loading or plastic deformation of components through under or over tightening respectively, nominal torque must be applied using a calibrated torque wrench with not less than ± 1 Nm (± 10 lbf.in) capability. For low torque joints, use equipment that can achieve the specified calibration accuracy. Never use breakaway torque to check clamping efficiency as this can vary up to 40% from nominal.
- 5 Some models have optional specifications (e.g. turbine housing bolts or V-band arrangements). Both are shown for reference.
- 6 European OEM's and Holset Aftermarket's torque tightening concession of 31.6 Nm (280 lb.in) now adopted in Engineering Specifications.
- 7 For the latest Service Data Sheets and Bulletin Board information refer to www.holsetaftermarket.com.
- 8 Wastegate versions of H series turbochargers are pre-fixed with a "W". Refer to your nearest distributor for wastegate installation instructions.
- 9 HX20/25/27 compressor wheel nut (61) is tightened in 2 stages. Always use a new nut. Apply Molycote to nut or shaft thread. Torque to T1, loosen and re-torque to T2.
- 10 Not applicable
- 11 Re-built CHRA must be core balanced using high-speed vibration sorting rig (VSR).
- 12 All fasteners must be visually clean and be lubricated with light oil prior to torque tightening except where the Service Repair Manual instructs to the contrary.
Exceptions are:
 - HX20W/HX25/25W/27W Compressor Wheel Locknut, (61) V-Band Locknut, (28) - apply molycote.
 - All other V-Band Locknut (28) (29) and Wastegate Valve Body Screw (79) - fit dry.
 - All fasteners treated with a thread locking patch - fit dry and within 5 minutes of insertion. Use slow tightening feed rate to prevent activation of locking patch prior to full thread engagement.
- 13 Refer to HX20W and HX25/25W/27W Service Repair Manuals for tightening procedure.
- 14 V-band Part no. 3539458 (11.3 Nm) superceded Part no. 3504959 (8.5 Nm) from October 2002. Check part number to ensure correct torque setting is used during reassembly.
- 15 Use core balance process when facilities are available.
- 16 Use VSR process if facilities are available.
- 17 VSR pass/fail limits are rig specific and advisory. Refer to repairer to warrant durability, noise and vibration of repair.
- 18 V-band Part no. 3595763 (11.3 Nm) superceded Part no. 3535399 (8.5Nm) from January 2006. Check part number to ensure correct torque setting is used during reassembly.
- 19 HX82 turbocharger assembly 4044033 is torque tightened to 80Nm (708 lbf.in).
- 20 Some HX50 and derivative turbochargers are fitted with titanium compressor wheels. Always check wheel diameter and use appropriate core balance specification.

CAUTION

Always refer to **Service Notes** before using this service data.