

General Description

MECHANICAL

1. General Description

A: SPECIFICATION

Engine	Model				2.0 L		
	Cylinder arrangement				Horizontally opposed, liquid cooled, 4-cylinder, 4-stroke gasoline engine		
	Valve system mechanism				Chain driven, double overhead camshaft, 4-valve/cylinder		
	Bore × Stroke				mm (in)	84.0 × 90.0 (3.31 × 3.54)	
	Displacement				cm ³ (cu in)	1,995 (121.73)	
	Compression ratio				10.5		
	Compression pressure (at 200 — 300 rpm)		kPa (kg/cm ² , psi)	Standard	1,050 — 1,400 (11 — 14, 152 — 203)		
	Number of piston rings				Compression ring: 2 Oil ring: 1		
	Intake valve timing		Open	Max. retard	ATDC 25°		
				Min. advance	BTDC 43°		
			Close	Max. retard	ABDC 85°		
				Min. advance	ABDC 17°		
	Exhaust valve timing		Open	Max. retard	ABDC 3°		
				Min. advance	BBDC 52°		
			Close	Max. retard	ATDC 47°		
				Min. advance	BTDC 8°		
	Cam clearance		mm (in)	Intake		Standard	0.13±0.03 (0.0051±0.0012)
Exhaust				Standard	0.24±0.03 (0.0094±0.0012)		
Idle speed (For CVT model, select lever in “P” or “N” range. For MT model, gear shift lever in neutral position.)			rpm	No load		Standard	650±50
				A/C ON		Standard	800 — 900±50
Ignition order						1 → 3 → 2 → 4	
Ignition timing				BTDC/rpm		Standard	16°±10°/650

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NOTE:

OS: Oversize US: Undersize

Cam-shaft	Bending		mm (in)	Limit	0.020 (0.00079)
	Cam lobe height	mm (in)	Intake	Standard	40.77 — 40.87 (1.605 — 1.609)
			Exhaust	Standard	40.15 — 40.25 (1.581 — 1.585)
	Cam base circle diameter		mm (in)	Standard	34.0 (1.339)
	Journal outer diameter		mm (in)	Standard	25.946 — 25.963 (1.0215 — 1.0222)
	Thrust clearance		mm (in)	Standard	0.068 — 0.116 (0.0027 — 0.0047)
	Oil clearance		mm (in)	Standard	0.037 — 0.072 (0.0015 — 0.0028)
Cylinder head	Warpage (mating surface with cylinder block)		mm (in)	Limit	0.035 (0.0014)
	Grinding limit			mm (in)	To 98.4 (3.874)
	Height		mm (in)	Standard	98.5 (3.878)
Valve & valve guide	Valve overall length		mm (in)	Intake	103.3 (4.067)
				Exhaust	94.1 (3.705)
	Valve head edge thickness	mm (in)	Intake	Standard	0.8 — 1.2 (0.031 — 0.047)
			Exhaust	Standard	1.0 — 1.4 (0.039 — 0.055)
	Valve stem outer diameter	mm (in)	Intake	Standard	5.455 — 5.470 (0.2148 — 0.2154)
			Exhaust	Standard	5.445 — 5.460 (0.2144 — 0.2150)
	Valve guide inner diameter		mm (in)	Standard	5.500 — 5.512 (0.2165 — 0.2170)
	Clearance between valve and valve guide	mm (in)	Intake	Standard	0.030 — 0.057 (0.0012 — 0.0022)
Exhaust			Standard	0.040 — 0.067 (0.0016 — 0.0026)	
	Valve guide protrusion amount		mm (in)	Standard	11.4 — 11.8 (0.449 — 0.465)
Valve & valve shim	Valve stem end outer diameter	mm (in)	Intake	Standard	5.455 — 5.470 (0.2148 — 0.2154)
			Exhaust	Standard	5.445 — 5.460 (0.2144 — 0.2150)
	Valve shim inner diameter		mm (in)	Standard	5.500 — 5.560 (0.2165 — 0.2189)
	Clearance between valve and valve shim		mm (in)	Standard	0.030 — 0.115 (0.0012 — 0.0045)
Valve seat	Seating width between valve and valve seat	mm (in)	Intake	Standard	0.8 — 1.6 (0.031 — 0.063)
			Exhaust	Standard	1.1 — 1.7 (0.043 — 0.067)
	Seating angle between valve and valve seat				90°
	Seating position between valve and valve seat				Valve face center
Valve spring	Free length		mm (in)	Standard	41.06 (1.617)
	Tension/spring height	N (kgf, lb)/mm (in)	Set	Standard	182 — 210 (18.56 — 21.41, 40.92 — 47.22)/33.0 (1.299)
			Lift	Standard	552 — 610 (56.29 — 62.20, 124.11 — 137.15)/22.0 (0.866)
	Squareness				Standard

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Cylinder block & piston	Cylinder block warpage (Mating surface with cylinder head)			mm (in)	Limit	0.025 (0.00098)
	Grinding limit of cylinder block				mm (in)	To 204.9 (8.067)
	Height of cylinder block			mm (in)	Standard	205.0 (8.071)
	Inner diameter of cylinder liner	mm (in)	Cylinder bore size mark A	Standard	84.005 — 84.015 (3.3073 — 3.3077)	
			Cylinder bore size mark B	Standard	83.995 — 84.005 (3.3069 — 3.3073)	
	Cylindricity of cylinder liner			mm (in)	Limit	0.015 (0.0006)
	Out-of-roundness of cylinder liner			mm (in)	Limit	0.010 (0.0004)
	Piston grade point				mm (in)	38.0 (1.50)
	Piston outer diameter	mm (in)	Standard Size	Grade A	Standard	83.975 — 83.985 (3.3061 — 3.3065)
				Grade B	Standard	83.965 — 83.975 (3.3057 — 3.3061)
			0.25 (0.0098) OS		Standard	84.215 — 84.235 (3.3155 — 3.3163)
			0.50 (0.0197) OS		Standard	84.465 — 84.485 (3.3254 — 3.3262)
Clearance between cylinder liner and piston			mm (in)	Standard	0.020 — 0.040 (0.00079 — 0.00157)	
Inner diameter of cylinder liner boring limit (diameter)				mm (in)	To 84.505 (3.3270)	
Piston and piston pin	Degree of fit				Piston pin must be fitted into position with thumb at 20°C (68°F).	
	Clearance between piston and piston pin			mm (in)	Standard	0.004 — 0.008 (0.0002 — 0.0003)
Piston ring	Closed gap	mm (in)	Compression ring	Top ring	Standard	0.20 — 0.35 (0.0079 — 0.0138)
				Second ring	Standard	0.40 — 0.50 (0.0157 — 0.0197)
			Oil ring (upper rail and lower rail)		Standard	0.20 — 0.50 (0.0079 — 0.0197)
	Clearance between compression ring and piston		mm (in)	Top ring	Standard	0.040 — 0.080 (0.0016 — 0.0031)
			Second ring	Standard	0.030 — 0.070 (0.0012 — 0.0028)	
Connecting rod and connecting rod bearing	Bend or twist per 100 mm (3.94 in) in length			mm (in)	Limit	0.10 (0.0039)
	Thrust clearance			mm (in)	Standard	0.070 — 0.330 (0.0028 — 0.0130)
	Connecting rod bearing thickness (at center)	mm (in)	Standard size		Standard	1.492 — 1.508 (0.0587 — 0.0594)
			0.03 (0.0012) US		Standard	1.511 — 1.515 (0.0595 — 0.0596)
			0.05 (0.0020) US		Standard	1.521 — 1.525 (0.0599 — 0.0600)
			0.25 (0.0098) US		Standard	1.621 — 1.625 (0.0638 — 0.0640)
	Oil clearance			mm (in)	Standard	0.017 — 0.047 (0.0007 — 0.0019)
Piston pin & connecting rod bushing	Clearance between piston pin and connecting rod bushing			mm (in)	Standard	0.004 — 0.026 (0.0002 — 0.0010)

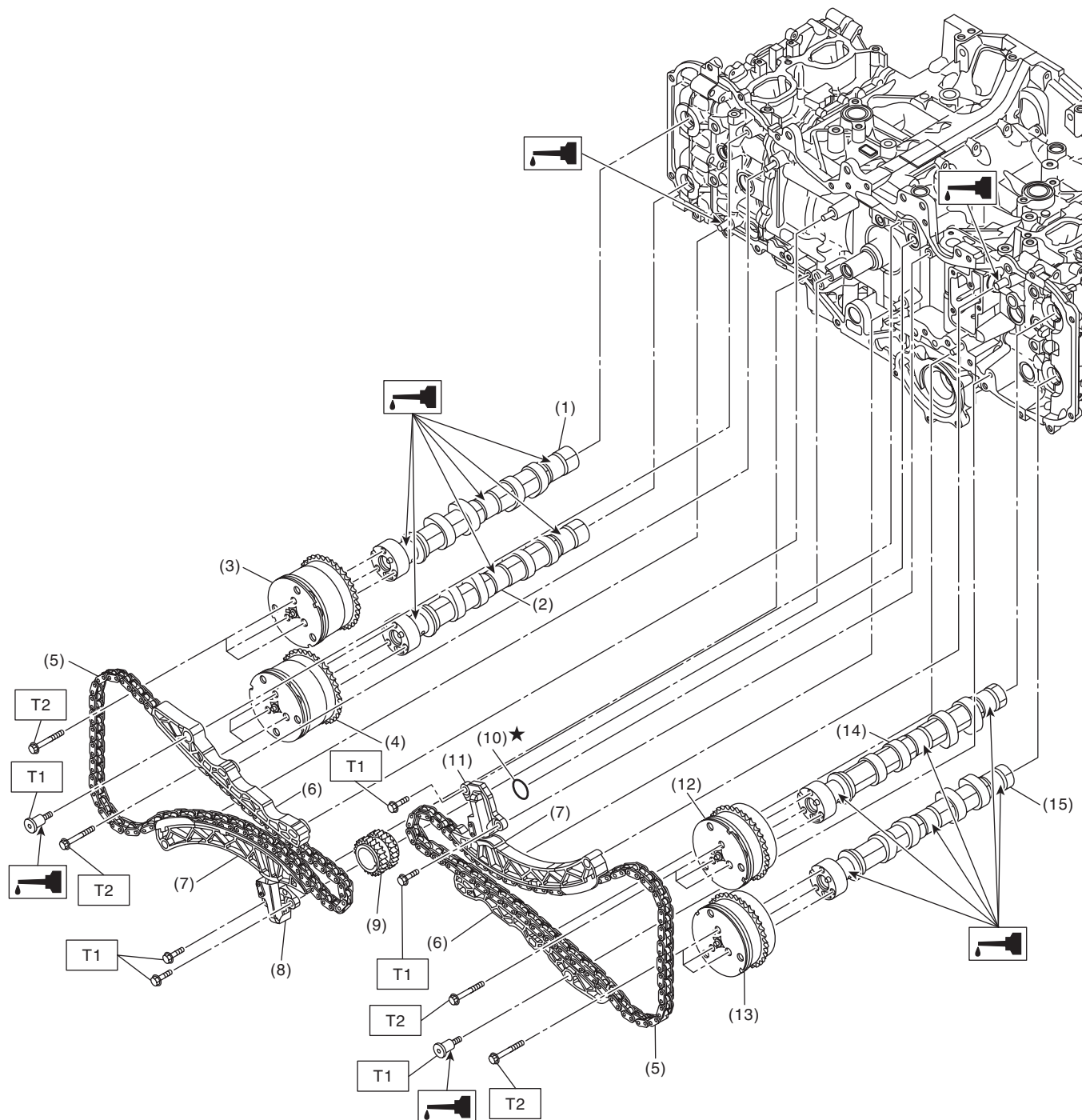
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Crankshaft and crankshaft bearing	Bending		mm (in)	Limit	0.035 (0.0014)		
	Crankshaft pin	Cylindricality	mm (in)	Limit	0.006 (0.0002)		
		Out-of-roundness	mm (in)	Limit	0.005 (0.0002)		
		Grinding limit (dia.)		mm (in)	To 47.726 (1.8790)		
		Crankshaft journal	Cylindricality	mm (in)	Limit	0.006 (0.0002)	
	Out-of-roundness		mm (in)	Limit	0.005 (0.0002)		
	Grinding limit (dia.)		mm (in)	To 67.735 (2.6667)			
	Crankshaft pin outer diameter		mm (in)	Standard size	Standard	47.976 — 48.000 (1.8888 — 1.8898)	
				0.03 (0.0012) US	Standard	47.946 — 47.970 (1.8876 — 1.8886)	
				0.05 (0.0020) US	Standard	47.926 — 47.950 (1.8868 — 1.8878)	
				0.25 (0.0098) US	Standard	47.726 — 47.750 (1.8790 — 1.8799)	
	Crankshaft journal outer diameter		mm (in)	Standard size	Standard	67.985 — 68.009 (2.6766 — 2.6775)	
				0.03 (0.0012) US	Standard	67.955 — 67.979 (2.6754 — 2.6763)	
				0.05 (0.0020) US	Standard	67.935 — 67.959 (2.6746 — 2.6755)	
				0.25 (0.0098) US	Standard	67.735 — 67.759 (2.6667 — 2.6677)	
	Crankshaft bearing thickness (at center)		#1, #2, #3, #4	mm (in)	Standard size	Standard	2.495 — 2.513 (0.0982 — 0.0989)
				0.03 (0.0012) US	Standard	2.519 — 2.522 (0.0992 — 0.0993)	
				0.05 (0.0020) US	Standard	2.529 — 2.532 (0.0996 — 0.0997)	
				0.25 (0.0098) US	Standard	2.629 — 2.632 (0.1035 — 0.1036)	
			#5	Standard size	Standard	2.493 — 2.511 (0.0981 — 0.0989)	
				0.03 (0.0012) US	Standard	2.517 — 2.520 (0.0991 — 0.0992)	
				0.05 (0.0020) US	Standard	2.527 — 2.530 (0.0995 — 0.0996)	
				0.25 (0.0098) US	Standard	2.627 — 2.630 (0.1034 — 0.1035)	
	Thrust clearance			mm (in)	Standard	0.130 — 0.308 (0.00512 — 0.01213)	
	Oil clearance			mm (in)	Standard	0.013 — 0.031 (0.00051 — 0.00122)	

B: COMPONENT

1. TIMING CHAIN



ME-06796

General Description

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- | | | |
|-----------------------------|------------------------------|--------------------------|
| (1) Intake camshaft RH | (8) Chain tensioner RH | (15) Exhaust camshaft LH |
| (2) Exhaust camshaft RH | (9) Crank sprocket | |
| (3) Intake cam sprocket RH | (10) O-ring | |
| (4) Exhaust cam sprocket RH | (11) Chain tensioner LH | |
| (5) Timing chain | (12) Intake cam sprocket LH | |
| (6) Chain guide | (13) Exhaust cam sprocket LH | |
| (7) Chain tension lever | (14) Intake camshaft LH | |

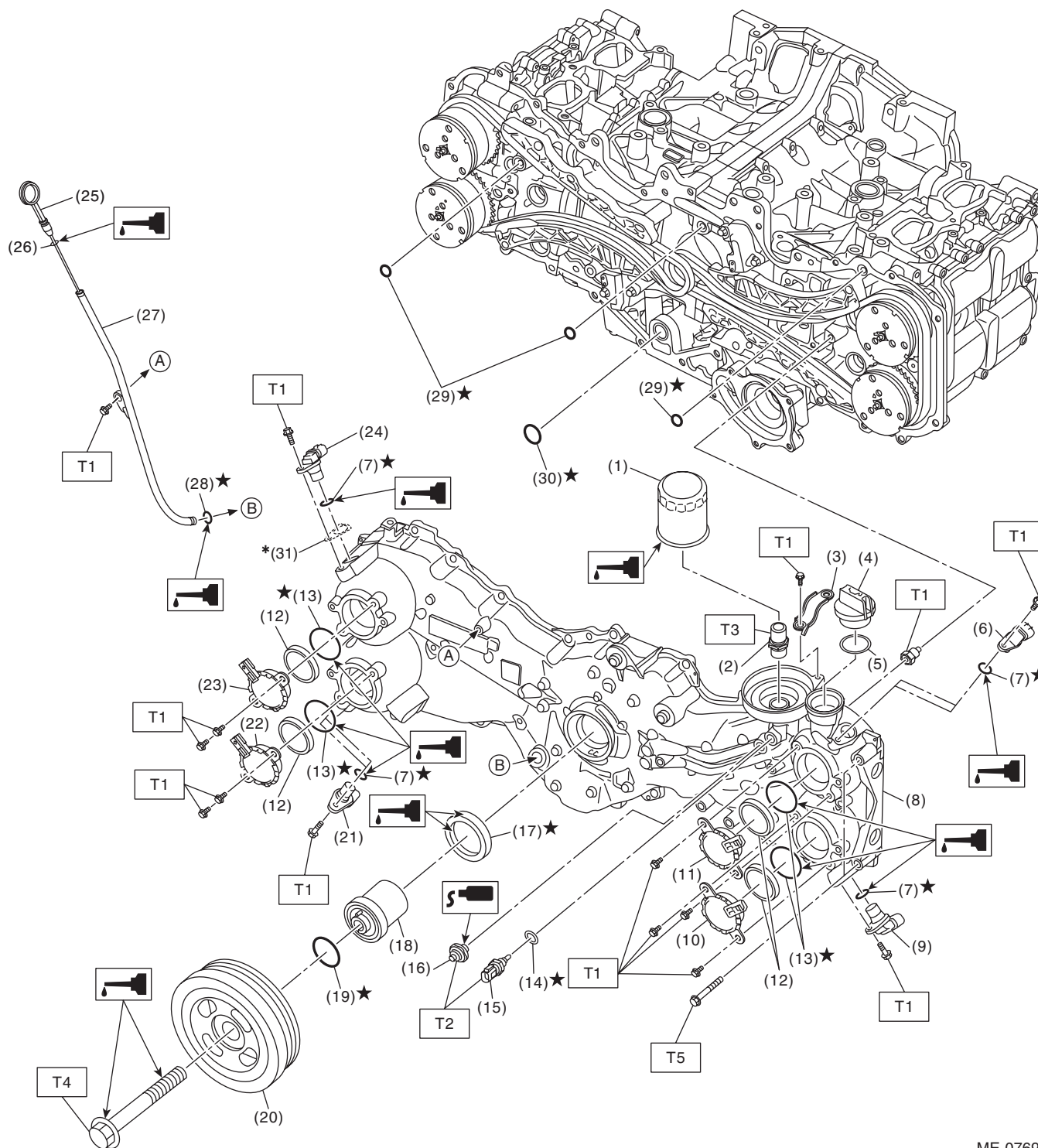
Tightening torque: N·m (kgf-m, ft-lb)

T1: 6.4 (0.7, 4.7)

T2: 18 (1.8, 13.3)

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2. CHAIN COVER



ME-07692

General Description

MECHANICAL

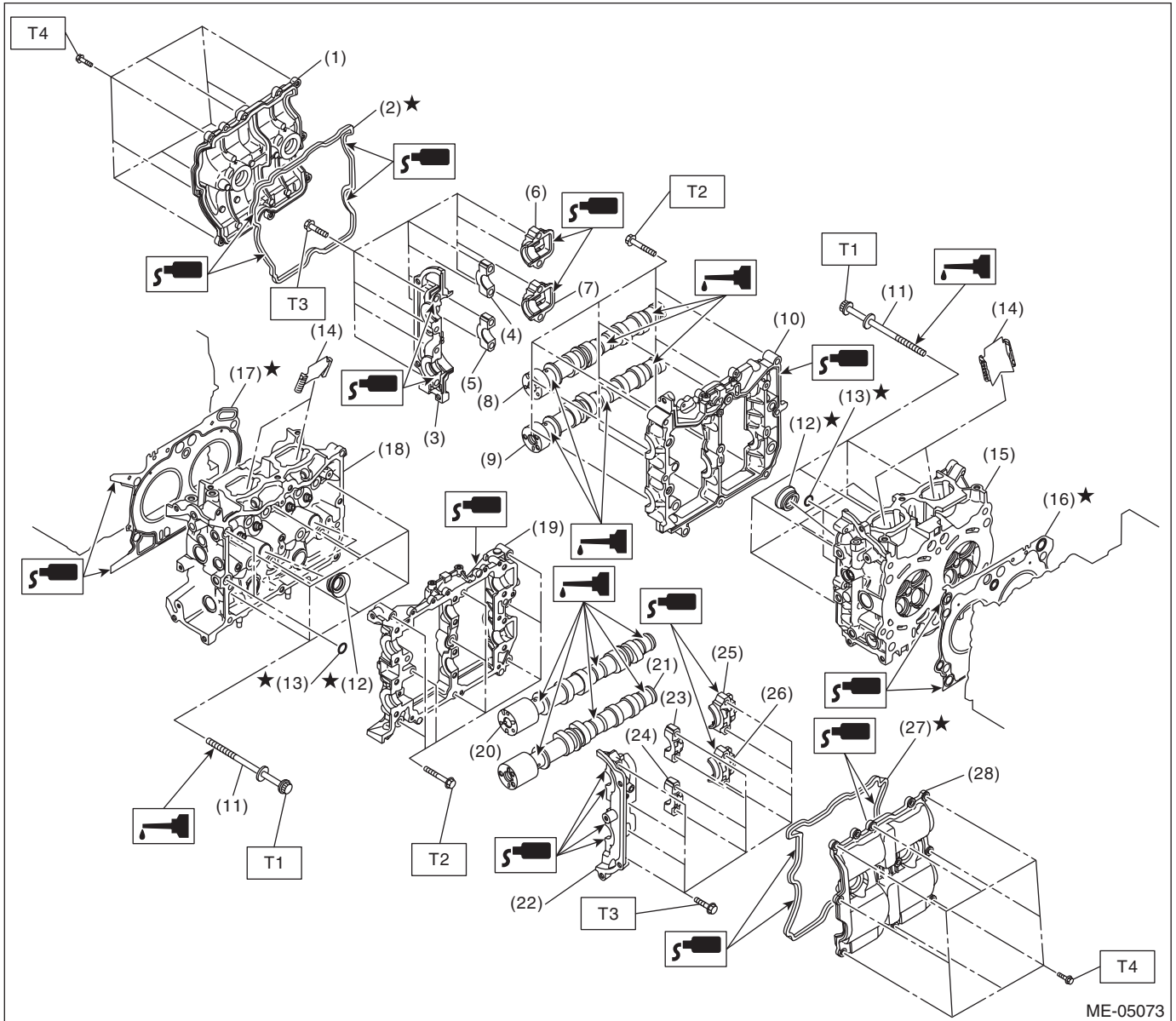
(1) Oil filter	(14) Gasket	(27) Oil level gauge guide
(2) Oil pump union	(15) Engine oil temperature sensor	(28) O-ring
(3) Generator cord stay	(16) Oil pressure switch	(29) O-ring
(4) Oil filler cap	(17) Front oil seal	(30) O-ring
(5) Gasket	(18) Crank pulley boss	(31) Spacer
(6) Intake camshaft position sensor LH	(19) O-ring	
(7) O-ring	(20) Crank pulley	<i>Tightening torque: N·m (kgf-m, ft-lb)</i>
(8) Chain cover	(21) Exhaust camshaft position sensor RH	<i>T1: 6.4 (0.7, 4.7)</i>
(9) Exhaust camshaft position sensor LH	(22) Exhaust oil control solenoid RH	<i>T2: 18 (1.8, 13.3)</i>
(10) Exhaust oil control solenoid LH	(23) Intake oil control solenoid RH	<i>T3: 45 (4.6, 33.2)</i>
(11) Intake oil control solenoid LH	(24) Intake camshaft position sensor RH	<i>T4: <Ref. to ME(H4DO)-86, INSTALLATION, Crank Pulley.></i>
(12) Back-up ring	(25) Oil level gauge	<i>T5: <Ref. to ME(H4DO)-97, INSTALLATION, Chain Cover.></i>
(13) O-ring	(26) O-ring	

* Use one or no spacer to adjust the gap.

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3. CYLINDER HEAD AND CAMSHAFT



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(1) Rocker cover RH	(13) O-ring	(24) Exhaust center camshaft cap LH
(2) Rocker cover gasket RH	(14) Cylinder head plate	(25) Intake rear camshaft cap LH
(3) Front camshaft cap RH	(15) Cylinder head RH	(26) Exhaust rear camshaft cap LH
(4) Intake center camshaft cap RH	(16) Cylinder head gasket RH	(27) Rocker cover gasket LH
(5) Exhaust center camshaft cap RH	(17) Cylinder head gasket LH	(28) Rocker cover LH
(6) Intake rear camshaft cap RH	(18) Cylinder head LH	
(7) Exhaust rear camshaft cap RH	(19) Cam carrier LH	
(8) Intake camshaft RH	(20) Intake camshaft LH	
(9) Exhaust camshaft RH	(21) Exhaust camshaft LH	
(10) Cam carrier RH	(22) Front camshaft cap LH	
(11) Cylinder head bolt	(23) Intake center camshaft cap LH	
(12) Spark plug pipe gasket		

Tightening torque: N·m (kgf-m, ft-lb)

T1: <Ref. to ME(H4DO)-203, INSTALLATION, Cylinder Head.>

T2: <Ref. to ME(H4DO)-164, INSTALLATION, Cam Carrier.>

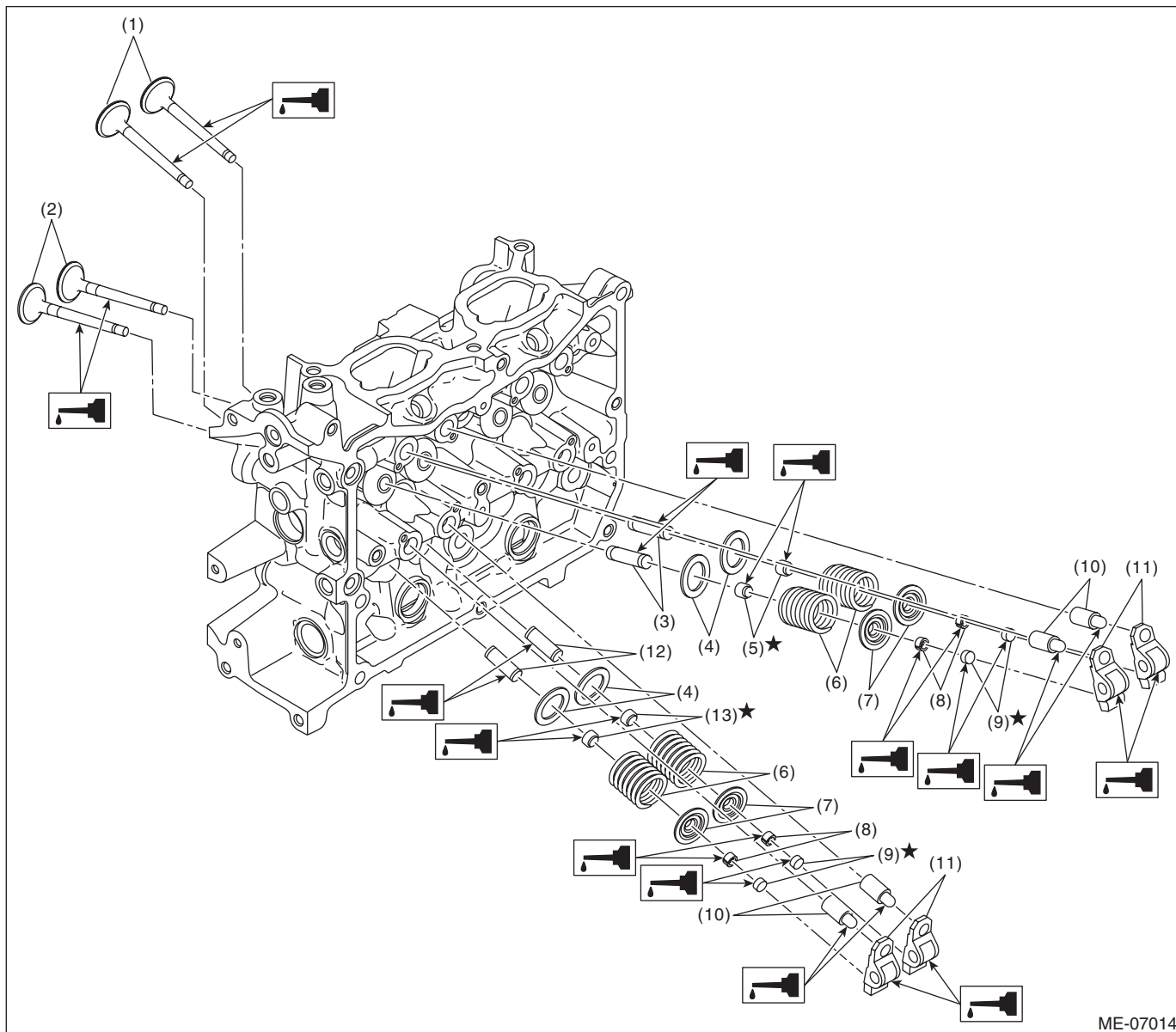
T3: <Ref. to ME(H4DO)-189, ASSEMBLY, Cam Carrier.>

T4: <Ref. to ME(H4DO)-145, INSTALLATION, Rocker Cover.>

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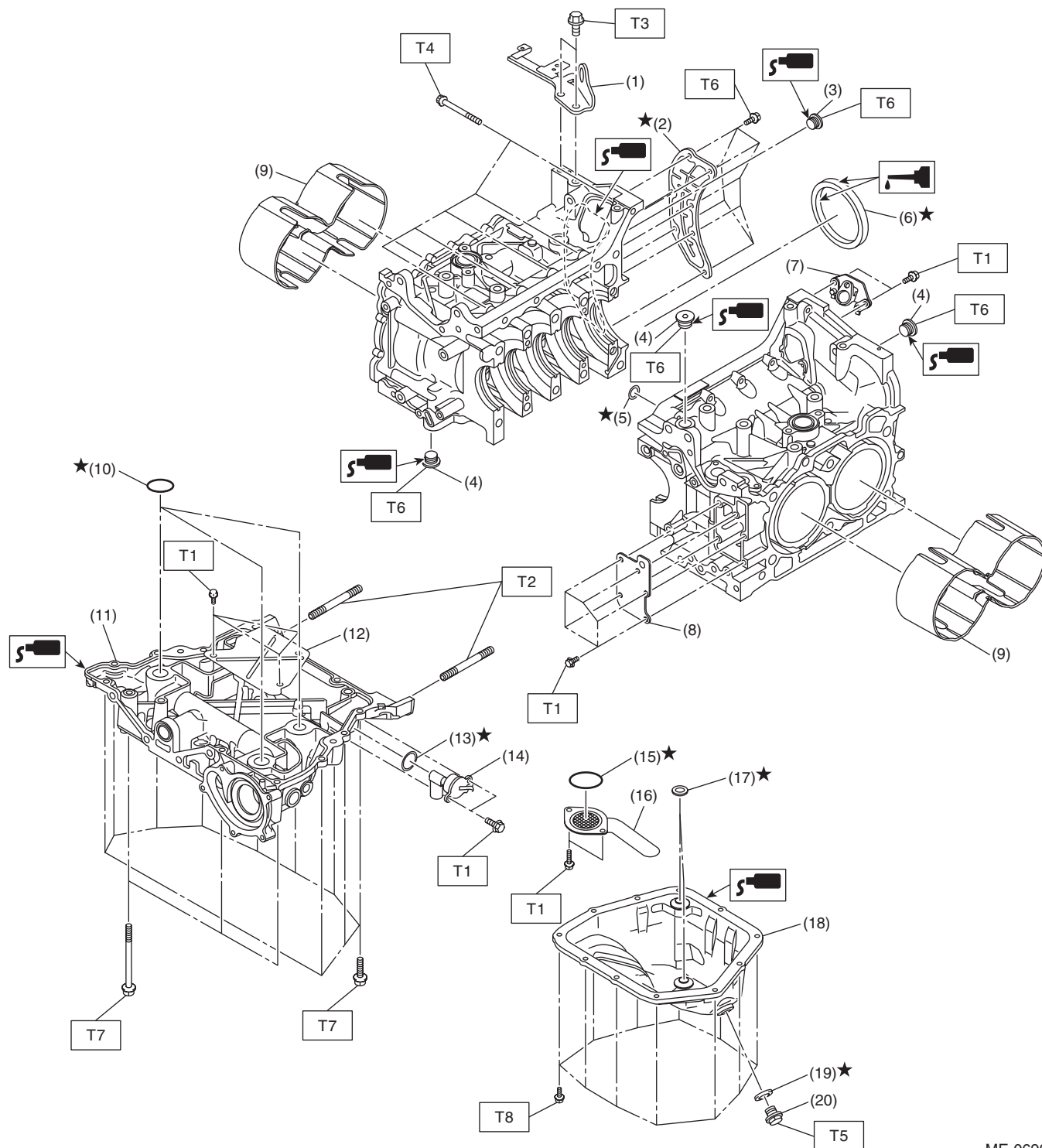
4. VALVE ASSY



ME-07014

- | | | |
|---------------------------|------------------------------|-----------------------------|
| (1) Exhaust valve | (6) Valve spring | (11) Roller rocker arm |
| (2) Intake valve | (7) Valve spring retainer | (12) Exhaust valve guide |
| (3) Intake valve guide | (8) Valve collet | (13) Exhaust valve oil seal |
| (4) Valve spring seat | (9) Valve shim | |
| (5) Intake valve oil seal | (10) Roller rocker arm pivot | |

5. CYLINDER BLOCK 1



ME-06990

General Description

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|---------------------------------------|------------------------|
| (1) Engine rear hanger | (11) Oil pan upper |
| (2) Oil separator cover | (12) Baffle plate |
| (3) Cylinder block plug | (13) O-ring |
| (4) Main gallery plug | (14) Oil level switch |
| (5) O-ring | (15) O-ring |
| (6) Rear oil seal | (16) Oil strainer |
| (7) Crankshaft position sensor holder | (17) Oil pan seal ring |
| (8) Cylinder block plate | (18) Oil pan |
| (9) Water jacket spacer (XV model) | (19) Drain plug gasket |
| (10) O-ring | (20) Drain plug |

Tightening torque: N·m (kgf-m, ft-lb)

T1: 6.4 (0.7, 4.7)

T2: 10 (1.0, 7.4)

T3: 21 (2.1, 15.5)

T4: 25 (2.5, 18.4)

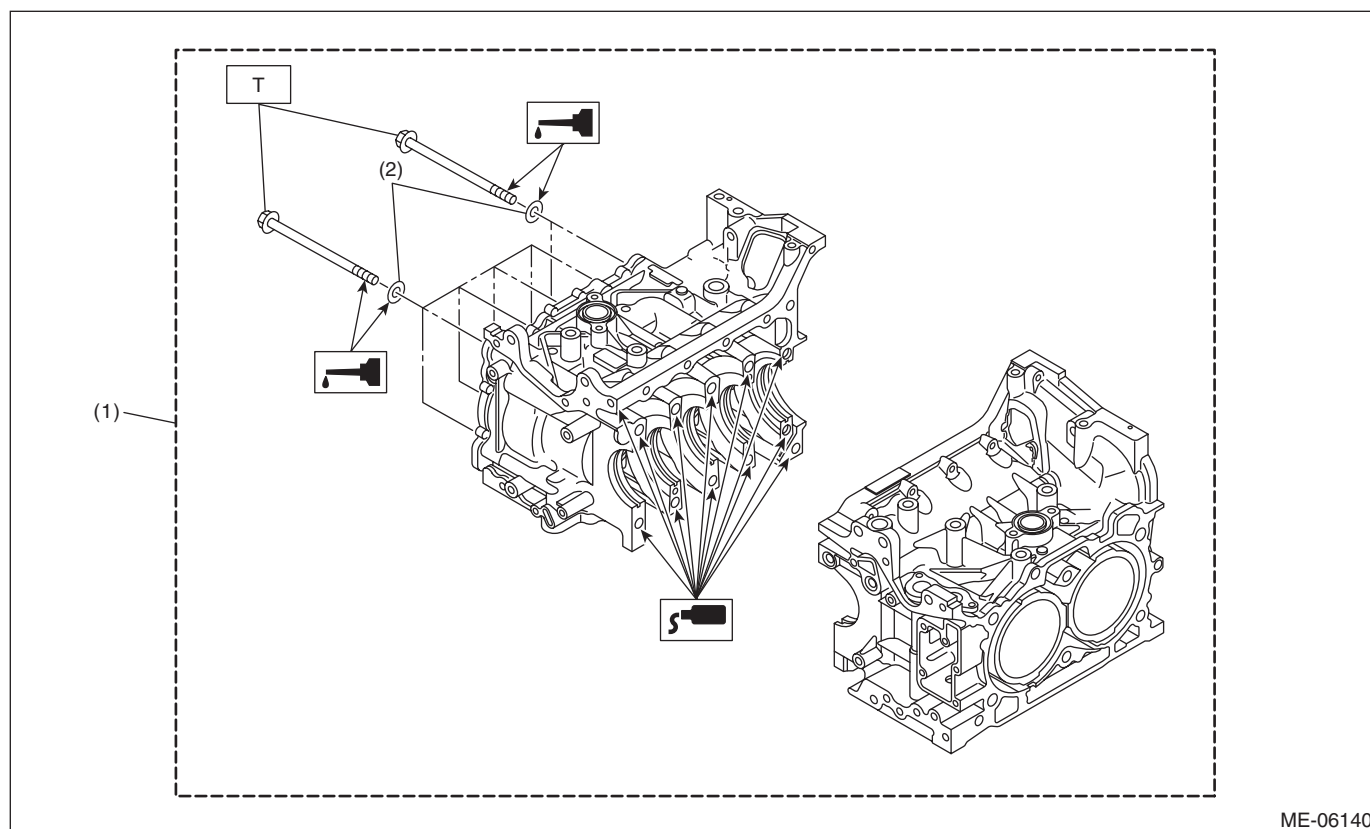
T5: 41.7 (4.3, 30.8)

T6: <Ref. to ME(H4DO)-309, CYLINDER BLOCK, ASSEMBLY, Cylinder Block.>

T7: <Ref. to ME(H4DO)-261, INSTALLATION, Cylinder Block.>

T8: <Ref. to LU(H4DO)-16, OIL PAN, INSTALLATION, Oil Pan and Strainer.>

6. CYLINDER BLOCK 2



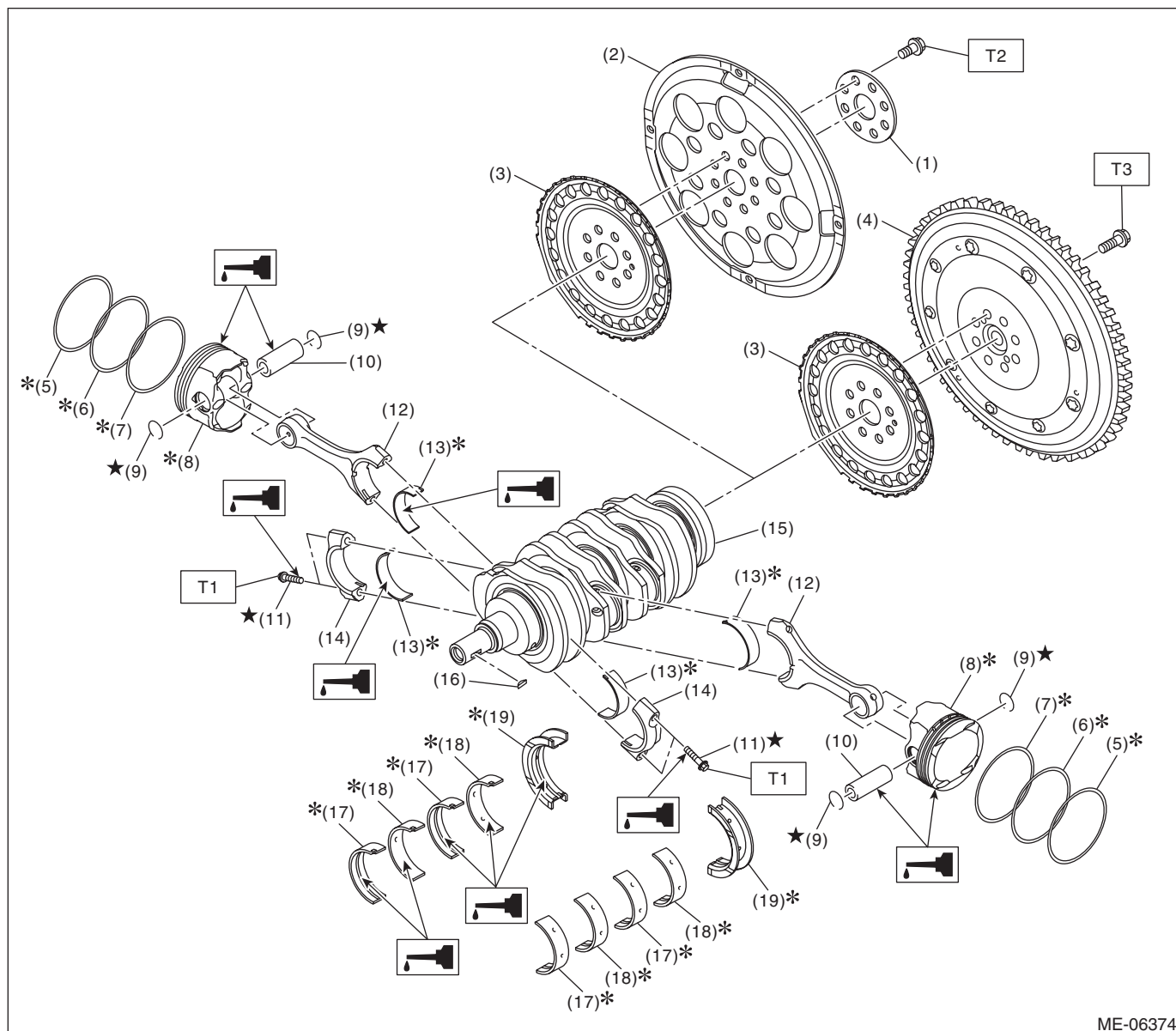
ME-06140

- | | |
|-------------------------|------------|
| (1) Cylinder block ASSY | (2) Washer |
|-------------------------|------------|

Tightening torque: N·m (kgf-m, ft-lb)

T: <Ref. to ME(H4DO)-261, INSTALLATION, Cylinder Block.>

7. CRANKSHAFT AND PISTON



ME-06374

- | | |
|--------------------------------------|------------------------------|
| (1) Reinforcement (CVT model) | (9) Circlip |
| (2) Drive plate (CVT model) | (10) Piston pin |
| (3) Crankshaft position sensor plate | (11) Connecting rod cap bolt |
| (4) Flywheel (MT model) | (12) Connecting rod |
| (5) Top ring | (13) Connecting rod bearing |
| (6) Second ring | (14) Connecting rod cap |
| (7) Oil ring | (15) Crankshaft |
| (8) Piston | (16) Woodruff key |

- | |
|--------------------------------|
| (17) Crankshaft bearing #1, #3 |
| (18) Crankshaft bearing #2, #4 |
| (19) Crankshaft bearing #5 |

Tightening torque: N·m (kgf-m, ft-lb)

T1: <Ref. to ME(H4DO)-261, INSTALLATION, Cylinder Block.>

T2: <Ref. to CVT-150, INSTALLATION, Drive Plate.>

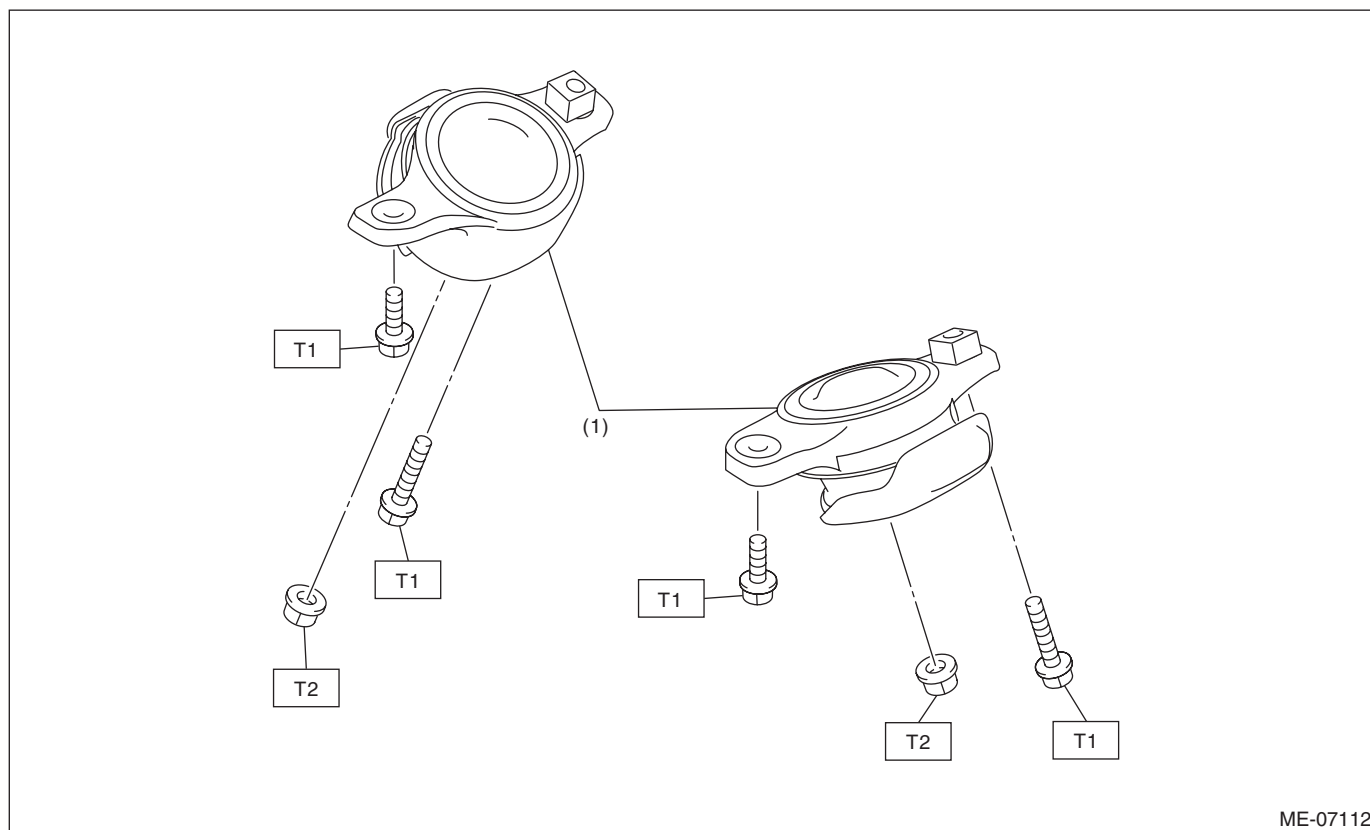
T3: <Ref. to CL-12, INSTALLATION, Flywheel.>

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8. ENGINE MOUNTING

- CVT model



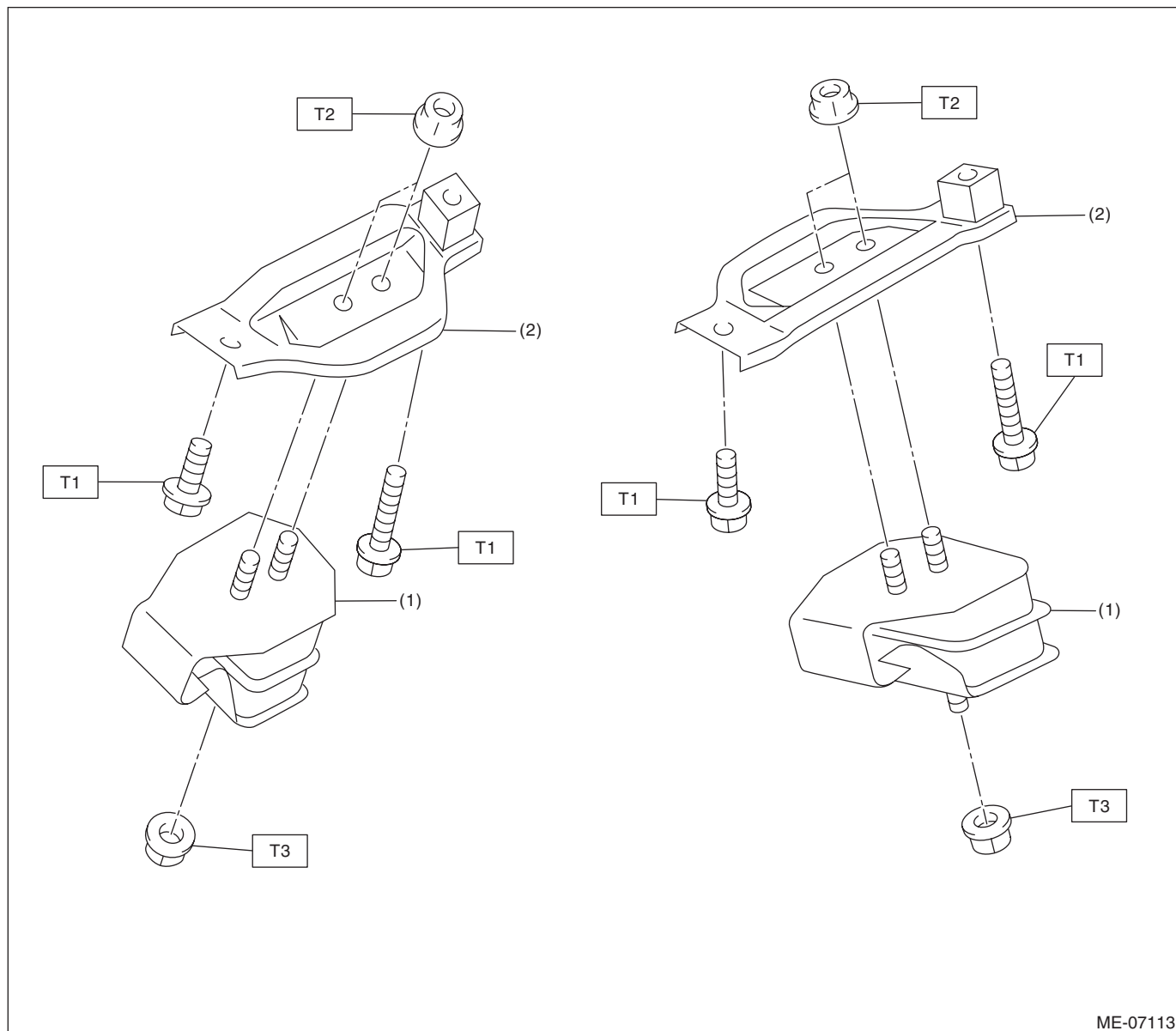
(1) Front cushion rubber

Tightening torque: N·m (kgf-m, ft-lb)

T1: 35 (3.6, 25.8)

T2: 45 (4.6, 33.2)

- MT model



ME-07113

(1) Front cushion rubber

(2) Front engine mounting bracket

Tightening torque: N·m (kgf·m, ft·lb)

T1: 35 (3.6, 25.8)

T2: 42 (4.3, 31.0)

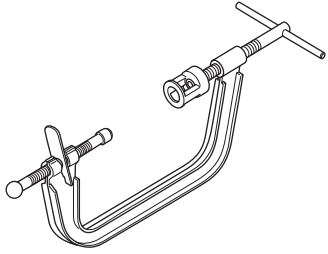
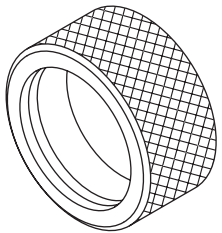
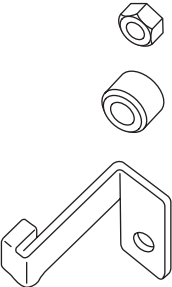
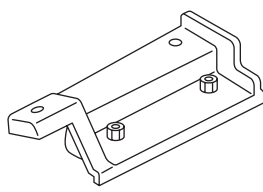
T3: 45 (4.6, 33.2)

C: CAUTION

- Prior to starting work, pay special attention to the following:
 1. Always wear work clothes, a safety cap, protective shoes. Additionally, wear a helmet, protective goggles, etc. if necessary.
 2. Protect the vehicle using a seat cover, fender cover, etc.
 3. Prepare the service tools, clean cloth, containers to catch grease and oil, etc.
 - Vehicle components are extremely hot immediately after driving. Be wary of receiving burns from heated parts.
 - When performing a repair, identify the cause of trouble and avoid unnecessary removal, disassembly and replacement.
 - Before disconnecting connectors of sensors or units, be sure to disconnect the ground cable from battery.
 - Always use the jack-up point when the shop jacks or rigid racks are used to support the vehicle.
 - Remove or install the engine in an area where chain hoists, lifting devices, etc. are available for ready use.
- When lifting up the vehicle, make sure to support the vehicle at the jack-up points.
- Be careful not to let any oil or grease contact the clutch disc or flywheel.
 - Remove contamination including dirt and corrosion before removal, installation, disassembly or assembly.
 - Keep the removed parts in order and protect them from dust and dirt.
 - All removed parts, if to be reused, should be reinstalled in the original positions with attention to the correct directions, etc.
 - Rotating parts and sliding parts such as piston, bearing and gear should be coated with oil when being assembled.
 - Bolts, nuts and washers should be replaced with new parts as required.
 - Be sure to tighten the fasteners including bolts and nuts to the specified torque.

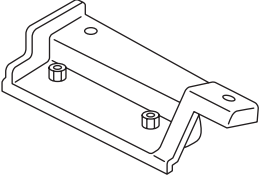
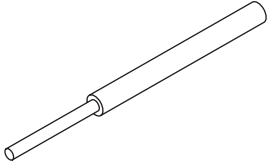
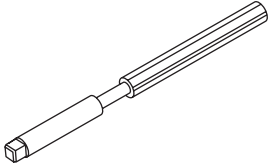
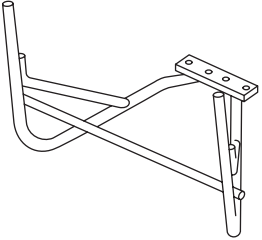
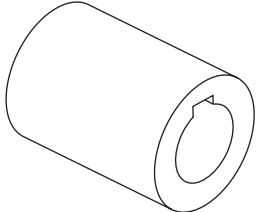
D: PREPARATION TOOL

1. SPECIAL TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p>ST0920287002000</p>	0920287002000	REMOVER AND REPLACER	Used for removing and installing valve spring.
 <p>ST-398437700</p>	398437700	OIL SEAL INSTALLER	Used for installing the front oil seal of engine.
 <p>ST-498277200</p>	498277200	STOPPER SET	Used for preventing the torque converter from falling when removing and installing the engine.
 <p>ST-498457000</p>	498457000	ENGINE STAND ADAPTER RH	<ul style="list-style-type: none"> Used for disassembling and assembling engine. Used together with ENGINE STAND (499817100) and ADAPTER (18362AA020).

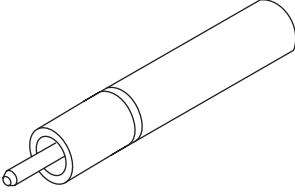
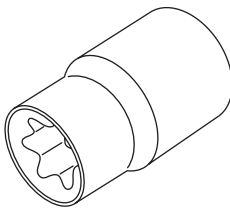
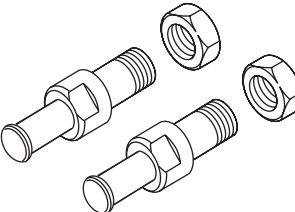
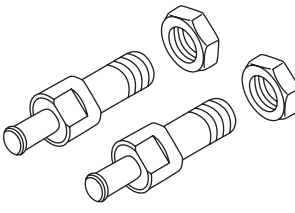
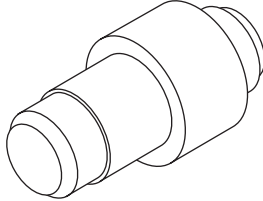
General Description

MECHANICAL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p>ST-498457100</p>	498457100	ENGINE STAND ADAPTER LH	<ul style="list-style-type: none"> Used for disassembling and assembling engine. Used together with ENGINE STAND (499817100) and ADAPTER (18362AA020).
 <p>ST-499765700</p>	499765700	VALVE GUIDE REMOVER AND INSTALLER	Used for removing and installing valve guide.
 <p>ST-499765900</p>	499765900	VALVE GUIDE REAMER	Used for reaming valve guides.
 <p>ST-499817100</p>	499817100	ENGINE STAND	<ul style="list-style-type: none"> Used for disassembling and assembling engine. Used together with ADAPTER (18362AA020), ENGINE STAND ADAPTER RH (498457000) and LH (498457100).
 <p>ST18252AA000</p>	18252AA000	CRANKSHAFT SOCKET	Used for rotating crankshaft.

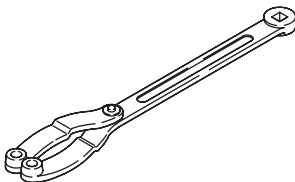
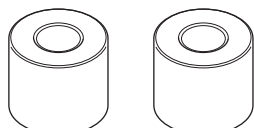
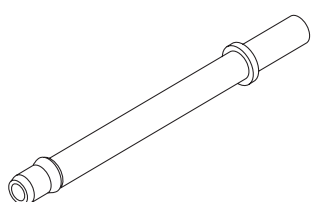
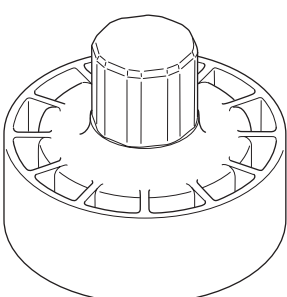
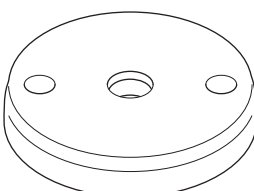
General Description

MECHANICAL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p>ST18261AA010</p>	18261AA010	VALVE OIL SEAL GUIDE	Used for press-fitting of intake valve guide stem seals and exhaust valve guide stem seals.
 <p>ST18270AA020</p>	18270AA020	SOCKET	Used for removing and installing connecting rod.
 <p>ST18334AA000</p>	18334AA000	PULLEY WRENCH PIN SET	<ul style="list-style-type: none"> • Used for removing and installing the crank pulley. • Used together with PULLEY WRENCH (18355AA000).
 <p>ST18334AA030</p>	18334AA030	PULLEY WRENCH PIN SET	<ul style="list-style-type: none"> • Used for removing and installing water pump pulley, intake cam sprocket and exhaust cam sprocket. • Used together with PULLEY WRENCH (18355AA000).
 <p>ST18350AA000</p>	18350AA000	CONNECTING ROD BUSHING REMOVER AND INSTALLER	Used for removing and installing the connecting rod bushing at connecting rod small end.

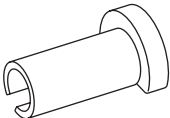
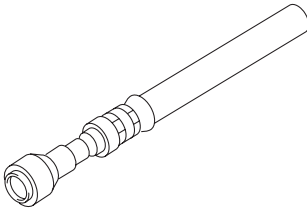
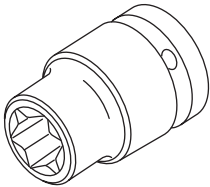
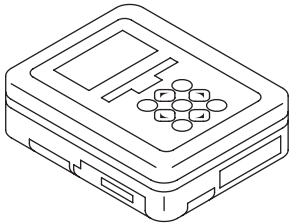
General Description

MECHANICAL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p>ST18355AA000</p>	18355AA000	PULLEY WRENCH	<ul style="list-style-type: none"> Used for installing and removing the water pump pulley. Used for removing and installing the crank pulley. Used for removing and installing intake cam sprocket and exhaust cam sprocket. Used together with PULLEY WRENCH PIN SET (18334AA030) or PULLEY WRENCH PIN SET (18334AA000).
 <p>ST18362AA020</p>	18362AA020	ADAPTER	<ul style="list-style-type: none"> Used for disassembling and assembling engine. Used together with STAND (499817100), ENGINE STAND ADAPTER RH (498457000) and LH (498457100). Bolt used: M10 × 50 (SUBARU genuine Part No.: 010410500)
 <p>ST18471AA000</p>	18471AA000	FUEL PIPE ADAPTER	Used for inspecting the fuel pressure.
 <p>ST18657AA030</p>	18657AA030	OIL SEAL INSTALLER	<ul style="list-style-type: none"> Used for installing the rear oil seal of engine. Used together with OIL SEAL GUIDE (18671AA020).
 <p>ST18671AA020</p>	18671AA020	OIL SEAL GUIDE	<ul style="list-style-type: none"> Used for installing the rear oil seal of engine. Used together with OIL SEAL INSTALLER (18657AA030).

General Description

MECHANICAL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p>ST42099AE000</p>	42099AE000	QUICK CONNEC-TOR RELEASE	Used for removing the quick connector.
 <p>ST42075AG690</p>	42075AG690	FUEL HOSE	Used for inspecting the fuel pressure. NOTE: This is the SUBARU genuine part.
 <p>ST18270KA010</p>	18270KA010	SOCKET	Used for installing and removing intake cam sprocket and exhaust cam sprocket.
 <p>ST1B022XU0</p>	1B022XU0	SUBARU SELECT MONITOR III KIT	Used for various inspections.

2. GENERAL TOOL

TOOL NAME	REMARKS
Compression gauge	Used for measuring compression.
Vacuum gauge	Used for measuring intake manifold vacuum.
Oil pressure gauge	Used for measuring engine oil pressure.
Fuel pressure gauge	Used for measuring fuel pressure.
Piston ring compressor	Used for installing the piston into the cylinder block.
Thickness gauge	Used for various inspections.
Angle gauge	Used for angle tightening.