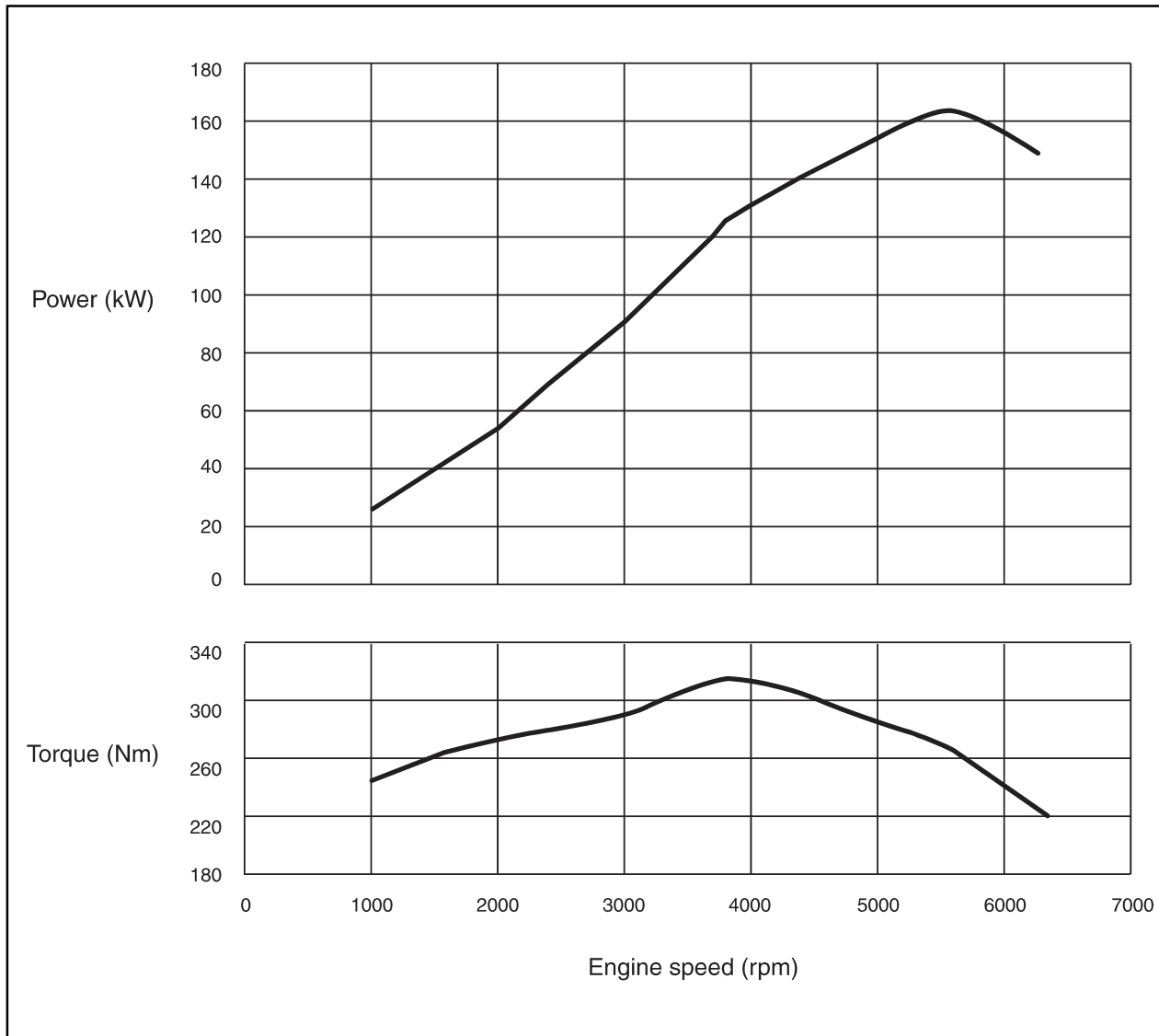


ENGINE ASSEMBLY**1113-01****GENERAL****1. SPECIFICATIONS****1) ENGINE SPECIFICATIONS**

Application			M162 Engine
Engine model			M162.990
Displacement		(CC)	3199
Cylinder (Bore x Stroke)		(mm)	89.9 x 84.0
Fuel injection / Ignition system			MSE 3.63D
Compression ratio			10 : 1
Number of cylinders			6
Camshaft valve arrangement			DOHC
Camshaft drive type			Chain-Driven
Max. output		(ps/rpm)	220 / 6000
Max. torque		(kg·m/rpm)	31.6 / 3900
Firing order			1 - 5 - 3 - 6 - 2 - 4
Ignition type			Distributorless double ignition
Ignition timing			BTDC 8°
Valve timing	Intake	Open/Close	ATDC 11° / ABDC 34°
Valve clearance adjustment			Automatic control
Idle speed		(rpm)	700 ± 50
Fuel injection pressure		(kg/cm ²)	3 ~ 4
Oil capacity		(liter)	9
Lubrication type			Forced by gear pump
Oil filter type			Full flow with paper filter
Fuel			Unleaded gasoline

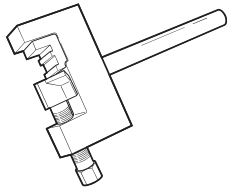
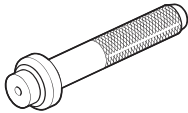
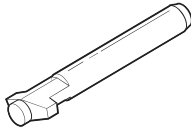
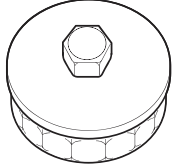
Modification basis	
Application basis	
Affected VIN	

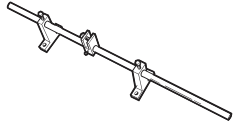
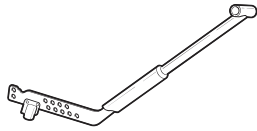
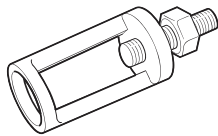
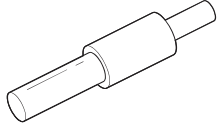
2) PERFORMANCE CURVE



Modification basis	
Application basis	
Affected VIN	

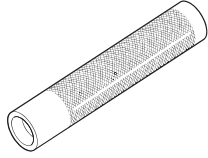
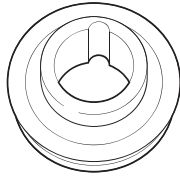
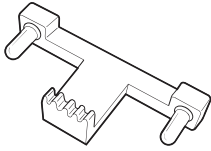
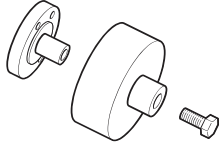
2. SPECIAL TOOLS AND EQUIPMENT

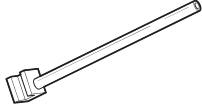
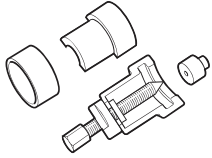
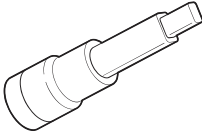
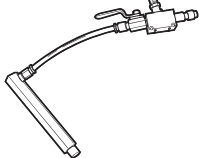
Name and Part Number
000 589 58 43 00 Chain Assembly 
W9911 0010B (102 589 00 15 00) Drift 
A9911 0050B (102 589 12 15 00) Drift 
A9910 0050A (103 589 02 09 00) Oil Filter Remover 

Name and Part Number
A9917 0101B (111 589 01 59 00) Supporting Bar 
A9917 0111B (111 589 18 61 00) Lever Pusher 
A9917 0121B (111 589 25 63 00) Thrust Piece 
A9913 0061B (116 589 01 34 00) Threaded Pin 

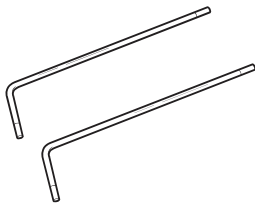
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Modification basis	
Application basis	
Affected VIN	

Name and Part Number
A9917 0171B (119 589 00 43 00) Drift 
A9911 0060B (601 589 03 14 00) Crankshaft Front Seal Installer 
A9910 0150B (602 589 00 40 00) Engine Lock 
W991 1 0020B (601 589 03 43 00) Crankshaft Rear Seal Installer 

Name and Part Number
A9910 0150A (603 589 00 40 00) Fan Clutch Holder 
W9910 0150A (615 589 01 33 00) Crankshaft Sprocket Puller 
A9912 0080B (617 589 00 10 00) Allen Wrench Socket 
A9911 0012B (DW1 10-090) Connecting Hose 

Modification basis	
Application basis	
Affected VIN	

Name and Part Number
A9917 0012B (DW110-120) Holding Pin


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Modification basis	
Application basis	
Affected VIN	

3. FASTENER TIGHTENING SPECIFICATIONS

Application	Nm	Lb-Ft	Lb-In
A/C bracket bolt	22.5 ~ 27.5	16.6 ~ 20.3	-
Armature bolt in camshaft actuator	35	26	-
Belt tensioning pulley nut	40.5 ~ 49.5	29.9 ~ 36.5	-
Camshaft actuator bolt	9 ~ 11	-	80 ~ 97
Camshaft adjuster mounting nut	60 ~ 70	44 ~ 52	-
Camshaft bearing cap bolt	22.5 ~ 27.5	16.6 ~ 20.3	-
Chain tensioner assembly	72 ~ 88	53 ~ 65	-
Chain tensioner screw plug	40	30	-
Connecting rod bearing cap bolt	40 + 5 90° + 10°	30 + 3.7 90° + 10°	-
Cooling fan bracket bolt	22.5 ~ 27.5	16.6 ~ 20.3	-
Crankshaft bearing cap bolt	50 ~ 60 90° + 5°	37 ~ 44 90° + 5°	-
Crankshaft sealing rear cover mounting bolt	9 - 11	-	80 ~ 97
Cylinder block drain plug	30	22	-
Cylinder head bolt	55 +90° +90°	41 +90° +90°	-
Cylinder head cover bolt	9 ~ 11	-	80 ~ 97
Cylinder head front cover bolt	22.5 ~ 27.5	16.6 ~ 20.3	-
Engine mounting bracket nut	70	52	-
Exhaust camshaft sprocker bolt	18 ~ 22 90° ± 5°	13 ~ 16 90° ± 5°	-
Exhaust manifold and pipe	30	22	-
Flywheel mounting bolt	45 + 5 90° + 10°	33 + 3.7 90° + 10°	-
Fuel feed and return hose to fuel rail	21 ~ 25	15 ~ 18	-
Generator carrier bolt	25	18	-
Intake air duct nut	9 ~ 11	-	80 ~ 97
Intake flange shaft bolt	18 ~ 22 90° ± 5°	13 ~ 16 90° ± 5°	-
Lower engine mounting nut	38	28	-
Oil dipstick guide tube bolt	9 ~ 11	-	80 ~ 97
Oil drain plug	22.5 ~ 27.5	16.6 ~ 20.3	-

Modification basis	
Application basis	
Affected VIN	

1) Fastener Tightening Specifications (Cont'd)

Application		Nm	Lb-Ft	Lb-In
Oil filter bolt		22.5 ~ 27.5	16.6 ~ 20.3	-
Oil filter cover		25	18	-
Oil gallery screw plug in cylinder head		15	11	-
Oil pan bolt	M10	40	30	-
	M8	22.5 ~ 27.5	16.6 ~ 20.3	-
	M6	9 ~ 11	-	80 ~ 97
Oil pressure relief valve screw plug		50	37	-
Oil pump drive sprocket bolt		29 ~ 35	21 ~ 26	-
Oil pump mounting bolt		22.5 ~ 27.5	16.6 ~ 20.3	-
Oil pump sprocket bolt		29 ~ 35	21 ~ 26	-
Spark plug cover bolt		9 ~ 11	-	80 ~ 97
Steering pump bolt		22.5 ~ 27.5	16.6 ~ 20.3	-
Tensioning device bolt		26 ~ 32	19 ~ 24	-
Timing gear case cover bolt	M8	22.5 ~ 27.5	16.6 ~ 20.3	-
	M6	9 ~ 11	-	80 ~ 97
Torque converter mounting bolt		42	31	-
Transmission mounting nut		54 ~ 68	40 ~ 50	-
Under cover		28 ~ 47	21 ~ 35	-
Upper engine mounting nut		70	52	-
Vibration damper center bolt		180 ~ 220 90° + 10°	133 ~ 162 90° + 10°	-
Water pump pulley bolt		22.5 ~ 27.5	16.6 ~ 20.3	-

Modification basis	
Application basis	
Affected VIN	