

---

# PREPARATION

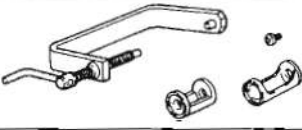
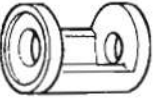
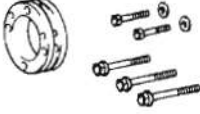


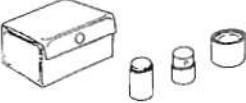





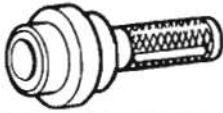
ENGINE MECHANICAL .....	PP-1
TURBOCHARGING .....	PP-8
EMISSION CONTROL .....	PP-11
ELECTRONIC CONTROL DIESEL .....	PP-13
ENGINE FUEL .....	PP-15
COOLING .....	PP-18
LUBRICATION .....	PP-22
STARTING .....	PP-27
CHARGING .....	PP-30

**PP**

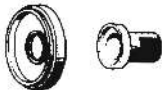
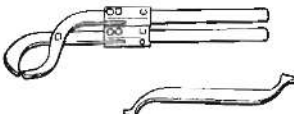








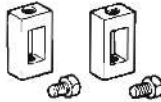


## ENGINE MECHANICAL

## SST (Special Service Tools)

PP209-01

	09202-70020	Valve Spring Compressor	CYLINDER HEAD
	(09202-00010)	Attachment	CYLINDER HEAD
	09213-58012	Crankshaft Pulley Holding Tool	TIMING GEAR
	09214-60010	Crankshaft Pulley & Gear Replacer	TIMING GEAR
	09214-76011	Crankshaft Pulley Replacer	TIMING GEAR
	09222-67010	Connecting Rod Bushing Remover & Replacer <mk2>	CYLINDER BLOCK
	(09222-06010)	Remover & Replacer	CYLINDER BLOCK
	(09222-06020)	Guide	CYLINDER BLOCK
	(09222-06030)	Base <mk2>	CYLINDER BLOCK
	09223-00010	Cover & Seal Replacer	TIMING GEAR
	09223-15030	Oil Seal & Bearing Replacer	CYLINDER BLOCK
	09223-50010	Crankshaft Front oil Seal Replacer	CYLINDER HEAD

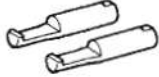
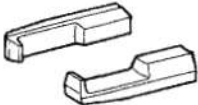


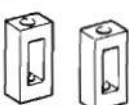


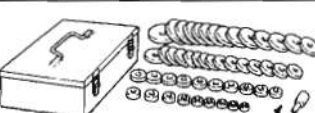





PP







	09223-78010	Crankshaft Oil Seal Replacer	TIMING GEAR
	09248-55050	Valve Clearance Adjust Tool Set	VALVE CLEARANCE
	(09248-05510)	Valve Lifter Press	VALVE CLEARANCE
	(09248-05520)	Valve Lifter Stopper	VALVE CLEARANCE
	(09252-10010)	No. 1 Replacer Handle	CYLINDER BLOCK
	09308-10010	Oil Seal Puller	TIMING GEAR
	09330-00021	Companion Flange Holding Tool	TIMING GEAR
	09950-20017	Universal Puller <mk2>	TIMING GEAR
	09950-40011	Puller B Set	TIMING GEAR TIMING BELT
	(09951-04010)	Hanger 150	TIMING GEAR TIMING BELT
	(09952-04010)	Slide Arm	TIMING GEAR TIMING BELT
	(09953-04020)	Center Bolt 150	TIMING GEAR TIMING BELT
	(09954-04010)	Arm 25	TIMING GEAR TIMING BELT

PP

PREPARATION - ENGINE MECHANICAL

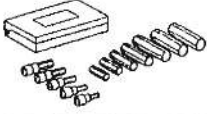
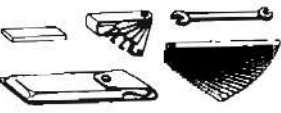

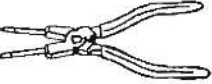
PP

	<p>(09955-04041) Claw No.4</p>	<p>TIMING GEAR</p>
	<p>(09955-04061) Claw No.6</p>	<p>TIMING BELT</p>
	<p>09950-50012 Puller C Set</p>	<p>TIMING GEAR</p>
	<p>(09951-05010) Hanger 150</p>	<p>TIMING GEAR</p>
	<p>(09952-05010) Slide Arm</p>	<p>TIMING GEAR</p>
	<p>(09953-05010) Center Bolt 100</p>	<p>TIMING GEAR</p>
	<p>(09954-05020) Claw No.2</p>	<p>TIMING GEAR</p>
	<p>09950-60010 Replacer Set</p>	<p>CYLINDER HEAD</p>
	<p>(09951-00280) Replacer 28</p>	<p>CYLINDER HEAD</p>
	<p>(09951-00500) Replacer 50</p>	<p>CYLINDER HEAD</p>
	<p>(09952-06010) Adapter</p>	<p>CYLINDER HEAD</p>
	<p>09950-70010 Handle Set</p>	<p>CYLINDER HEAD</p>
	<p>(09951-07100) Handle 100</p>	<p>CYLINDER HEAD</p>

	09960-10010 Variable Pin Wrench Set	TIMING GEAR
	(09962-01000) Variable Pin Wrench Arm Assy	TIMING GEAR
	(09963-00600) Pin 6	TIMING GEAR
	09992-00025 Cylinder Compression Check Gauge Set	COMPRESSION
	(09992-00121) No. 4 Attachment	COMPRESSION
	(09992-00211) Gauge Assy	COMPRESSION

PP

# RECOMMENDED TOOLS

	<p>09040-00011 Hexagon Wrench Set .</p>	
	<p>09200-00010 Engine Adjust Kit .</p>	
	<p>09904-00010 Expander Set .</p>	
	<p>09905-00013 Snap Ring Pliers .</p>	

PP

# EQUIPMENT

PP

Carbide cutter	
Caliper gauge	
Connecting rod aligner	
Cylinder gauge	
Dial indicator	
Dye penetrant	
Engine tune-up tester	
Gasket scraper	
Heater	
Micrometer	
Magnetic finger	
Piston ring compressor	
Piston ring expander	
Plastigage	
Precision straight edge	
Soft brush	
Spring tester	Valve spring
Steel square	Valve spring
Tachometer	
Thermometer	
Torque wrench	
Valve seat cutter	
V-block	
Vernier calipers	

**SSM (Special Service Materials)**

08826-00080	Seal Packing Black or equivalent (FIG)	
08826-00100	Seal Packing 1282B, THREE BOND 1282B or equivalent (FIG)	Water temperature sender gauge
08833-00070	Adhesive 1324, THREE BOND 1324 or equivalent	Flywheel Drive plate


**PP**



# TURBOCHARGING


## SST (Special Service Tools)

PP3GB-01

	09992-00242 Turbocharger Pressure Gauge	TURBOCHARGER
---	---	--------------

PP

# RECOMMENDED TOOLS

	09082-00040 TOYOTA Electrical Tester.	
---	---------------------------------------	--

# EQUIPMENT

Dial indicator	
Protractor	
Steel square	
Torque wrench	

PP

# EMISSION CONTROL

## RECOMMENDED TOOLS

PP287-01



09082-00040 TOYOTA Electrical Tester.

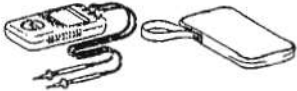
# EQUIPMENT

MITYVAC (Hand-held vacuum tester)	
Torque wrench	
Vacuum gauge	

# ELECTRONIC CONTROL DIESEL

## RECOMMENDED TOOLS

PF289-01

	09082-00040 TOYOTA Electrical Tester.	
---	---------------------------------------	--

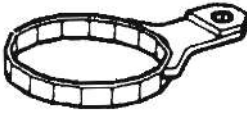



# EQUIPMENT

19 mm deep socket wrench	
22 mm deep socket wrench	
OBD II scan tool	
Torque wrench	
Vacuum gauge	

# ENGINE FUEL


## SST (Special Service Tools)

PP18B-02

	<p>09228-64010 Fuel Filter Wrench</p>	
	<p>09023-12700 Union Nut Wrench 17mm</p>	
	<p>09023-12900 Union Nut Wrench 19mm</p>	
	<p>09992-00242 Turbocharger Pressure Gauge</p>	



# RECOMMENDED TOOLS

	09082-00040 TOYOTA Electrical Tester.	
---	---------------------------------------	--

**EQUIPMENT**

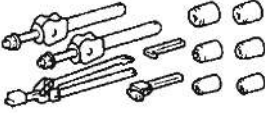
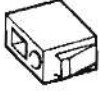
PP28D-01

Torque wrench	
OBD II scan tool	

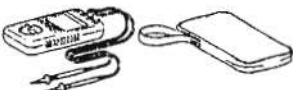
# COOLING

## SST (Special Service Tools)

PP136-04

	<p>09230-01010 Radiator Service Tool Set</p>	<p>RADIATOR</p>
	<p>09231-14010 Punch</p>	<p>RADIATOR</p>

# RECOMMENDED TOOLS

	09082-00040 TOYOTA Electrical Tester.	
---	---------------------------------------	--

# EQUIPMENT



Heater	
Radiator cap tester	
Thermometer	
Torque wrench	
Vernier calipers	

**COOLANT**

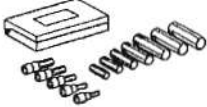

Item	Capacity	Classification
Engine coolant w/ Rear heater M/T A/T w/o Power heater M/T A/T	 10.5 liters (11.1 US qts, 9.2 Imp. qts) 11.0 liters (11.6 US qts, 9.7 Imp. qts)  9.5 liters (10.0 US qts, 8.4 Imp. qts) 10.0 liters (10.6 US qts, 8.8 Imp. qts)	"Toyota Long Life Coolant" or equivalent

**LUBRICATION****SST (Special Service Tools)**

PP3G6-01

	09032-00100 Oil Pan Seal Cutter	OIL PUMP
	09228-10002 Oil Filter Wrench	OIL AND FILTER

# RECOMMENDED TOOLS

	<p>09040-00011 Hexagon Wrench Set .</p>	
	<p>09200-00010 Engine Adjust Kit .</p>	



# EQUIPMENT

Oil pressure gauge	
Torque wrench	

**LUBRICANT**

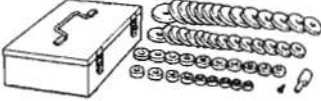

Item	Capacity	Classification
Engine oil Dry fill Drain and refill w/ Oil filter change w/o Oil filter change	7.5 liters (7.9 US qts, 6.6 Imp. qts)  7.0 liters (7.4 US qts, 6.2 Imp. qts) 6.4 liters (6.8 US qts, 5.6 Imp. qts)	API grade CF-4 (You may also use API CF or CE or CD)

**SSM (Special Service Materials)**


08826-00080 Seal Packing Black or equivalent (FIG)	Oil pump Oil pan
08833-00080 Adhesive 1344 THREE BOND 1344 LOCTITE 242 or equivalent	Oil pressure switch

**STARTING****SST (Special Service Tools)**

PP27R-01

	09950-60010 Replacer Set	
	(09951-00340) Replacer 34	Brush holder

# RECOMMENDED TOOLS



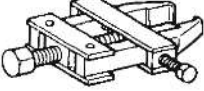

	09082-00040 TOYOTA Electrical Tester.	
---	---------------------------------------	--

**EQUIPMENT**

Dial indicator	Commutator
Feeler gauge	
Sandpaper	Commutator
Vernier calipers	Commutator, Brush
Torque wrench	
V-block	
Vise	

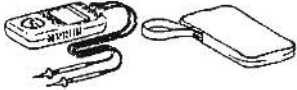
**CHARGING****SST (Special Service Tools)**

PPGGA-01

	09285-76010 Injection Pump Camshaft Bearing Cone Replacer	Rotor rear bearing cover
	09286-46011 Injection Pump Spline Shaft Puller	Rectifier end frame
	09820-00021 Alternator Rear Bearing Puller	
	09820-00030 Alternator Rear Bearing Replacer	

**RECOMMENDED TOOLS**

PP17H-03

	09082-00040 TOYOTA Electrical Tester.	
---	---------------------------------------	--



**EQUIPMENT**

Ammeter(A)	
Battery specific gravity gauge	Except maintenance-free battery
Torque wrench	
Vernier calipers	Rotor (Slip ring)

