1982 Toyota 6 Tune-Up

TUNE-UP

Cressida, Land Cruiser, Supra

ENGINE IDENTIFICATION

Engines can be identified by prefix of engine serial number, stamped on right side of engine block. Engine code can also be found on front of valve cover.

ENGINE CODE

Application	Code
Cressida	5M-E
Land Cruiser	2F
Supra	5M-GE

COMPRESSION PRESSURE

Check compression pressure with engine at normal operating temperature. Remove all spark plugs and coil high tension wire. Hold throttle valve wide open and operate engine at cranking speed.

COMPRESSION SPECIFICATIONS

Normal Compression Pressure	
Cressida & Supra	156 psi (11.0 kg/cm²)
Land Cruiser	149 psi (10.5 kg/cm²)
Min. Compression Pressure	
Cressida & Supra	128 psi (9.0 kg/cm²)
Land Cruiser	114 psi (8.0 kg/cm²)
Max. Variation	14 psi (1.0 kg/cm²)

VALVE CLEARANCE

NOTE: Valve lash on Supra models is controlled by hydraulic lifters. No adjustment is necessary.

NOTE: Check or adjust valve clearance with engine at normal operating temperature.

CRESSIDA

1) Set No. 1 cylinder at TDC on compression stoke. Remove valve cover. Cylinder No. 1 rocker arms should be loose, cylinder No. 6 rocker arms should be tight. Adjust No. 1, 2 and 4 intake valves and 1, 3 and 5 exhaust valves. Turn crankshaft 360°. Adjust No. 3, 5 and 6 intake valves and 2, 4, and 6 exhaust valves.

2) Recheck clearance. Feeler gauge should have slight drag when pulled between valve stem and rocker arm. Install valve cover.

VALVE CLEARANCE SPECIFICATIONS

Application	[1] Clearance In. (mm)
Cressida	
Intake	.011 (.28)
Exhaust	.014 (.36)
Land Cruiser	
Intake	.008 (.21)
Exhaust	.014 (.36)
Supra	Hydraulic Lifters

[1] — Adjust valves with engine hot.

LAND CRUISER

Remove valve cover. Adjust from front to rear. Recheck clearance. Feeler guage should have slight drag when pulled between valve stem and rocker arm. Install valve cover.

VALVE ARRANGEMENT

CRESSIDA & SUPRA
Left Side — All Intake
Right Side — All Exhaust
LAND CRUISER
E-I-I-E-E-I-I-E-E-I-I-E (Front to rear)

SPARK PLUGS

SPARK PLUG TYPE

Application	NGK No.	Nippondenso No.
Cressida & Supra	BPR5EY	W16EXR-U
Land Cruiser	BPR4EY	W14EXR-U

SPARK PLUG SPECIFICATIONS

Application	Gap In. (mm)	Torque Ft. Lbs. (N.m)
All Models	.031 (0.8)	11-15 (15-20)

Fig. 1: Firing Order and Distributor Rotation (Cressida & Supra)

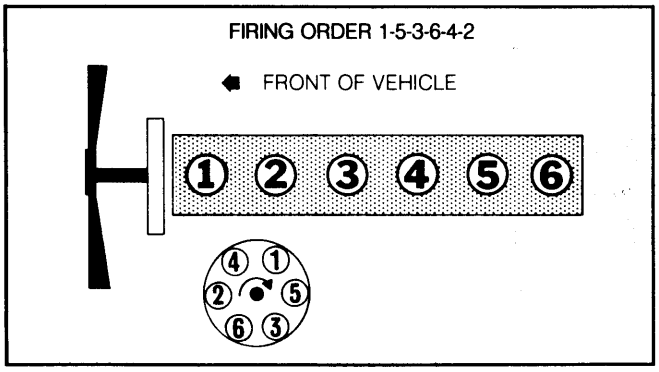
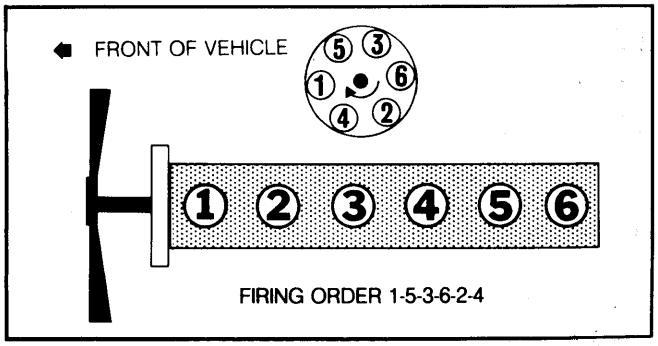


Fig. 2: Firing Order and Distributor Rotation (Land Cruiser)



1982 Toyota 6 Tune-Up

TUNE-UP (Cont.)

HIGH TENSION WIRE RESISTANCE

Carefully remove high tension wires from spark plugs and distributor cap. Using an ohmmeter, check high tension wire resistance while gently twisting wires. If resistance is not to specifications, or fluctuates from infinity to any value, replace high tension wire(s).

WIRE RESISTANCE

Application	Ohms
All Models	16,000-25,000

DISTRIBUTOR

All models with 6-cylinder engines are fitted with Nippondenso Transistorized Electronic Ignition Systems. The only in-service adjustment possible is to set the air gap.

DISTRIBUTOR PICK-UP COIL AIR GAP

Application	In. (mm)
All Models	.008-.016 (.2-.4)

IGNITION TIMING

1) Connect tachometer and timing light to engine. The positive (+) lead of tachometer is connected to negative (-) terminal of ignition coil. With engine at normal operating temperature, choke valve fully opened, and transmission in "N" or neutral position, be sure all hoses are connected and accessories turned off. Adjust idle speed to correct specification.

CAUTION: Do not allow tachometer connector to touch ground, or damage may occur to the system.

2) On models with dual diaphragm distributors, disconnect and plug vacuum hoses at both main and sub-diaphragms. On all models, adjust timing by turning distributor. Reconnect hoses to distributor diaphragms.

NOTE: On Federal low altitude Land Cruiser models, flywheel timing mark should move when vacuum hose between HAC valve and distributor sub-diaphragm is pinched near valve. On high altitude models, timing mark should move when sub-diaphragm hose is reconnected.

IGNITION TIMING (Degrees BTDC@RPM)

Application	Setting
Cressida & Supra	8@950
Land Crusier	7@950

IDLE SPEED & MIXTURE

NOTE: Mixture adjustment is NOT a part of normal tune-up procedure and should not be performed unless carburetor is overhauled, mixture control unit is replaced or vehicle fails emissions testing.

CARBURETED MODELS

NOTE: Attach tachometer positive terminal to coil negative terminal. Do not allow tachometer connector to touch ground, or damage may occur to system.

1) With air cleaner installed, engine at normal operating temperature, choke fully open, all accessories off and vacuum lines connected, be sure timing is set.

2) Set transmission in neutral and check to see that fuel level in carburetor sight glass is midway between marks. Remove idle speed screw limiter caps, if installed, and adjust idle speed RPM as specified.

3) Drill out and remove idle mixture screw cap. Remove any metal shavings created by drilling procedure. Remove idle mixture screw and check for damage. Reinstall mixture screw by turning in until fully seated. Unscrew mixture screw 2 full turns.

4) Turn idle mixture adjusting screw to obtain maximum RPM. Now, turn idle speed screw until idle mixture RPM is obtained. Repeat adjustments again, turning idle mixture screw to maximum RPM, then turn idle speed screw to idle mixture speed. Repeat until highest speed is obtained before setting final idle mixture RPM.

5) Once idle mixture RPM is set after the highest possible speed is obtained using this procedure, turn in idle mixture adjusting screw until idle speed RPM is obtained. Install replacement mixture screw caps and protective cover, if so equipped.

IDLE SPEED & MIXTURE

Application	Idle Speed RPM	Idle Mixture RPM
Land Cruiser	650	690

Fig. 3: Ignition Timing Marks

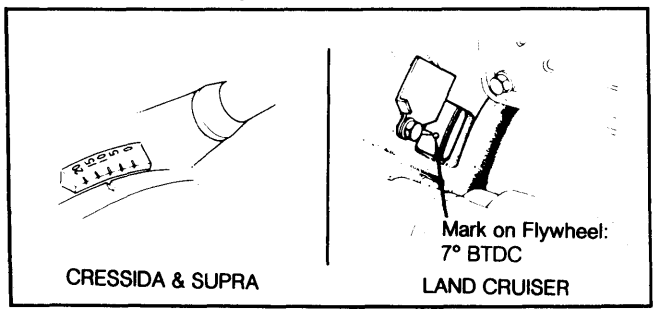
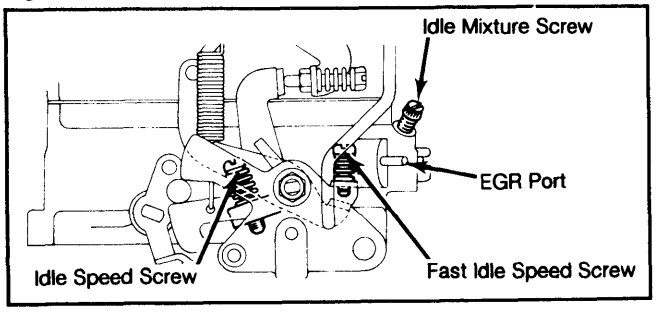


Fig. 4: Carburetor Adjustment Screw Locations



1982 Toyota 6 Tune-Up

TUNE-UP (Cont.)

FUEL INJECTED MODELS

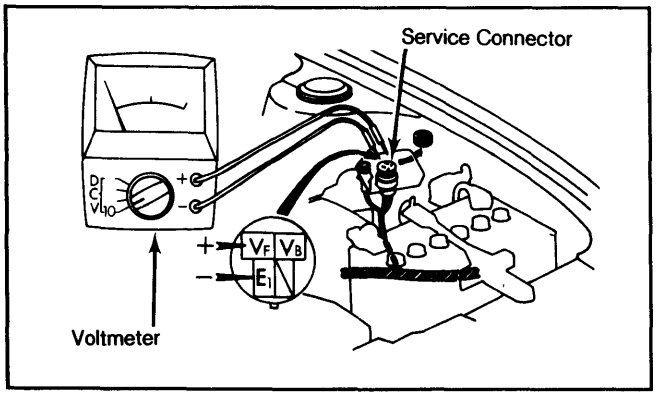
NOTE: Attach tachometer positive terminal to coil negative terminal. Do not allow tachometer connector to touch ground, or damage may occur to system.

1) With air cleaner installed, engine at normal operating temperature, all wiring connectors, vacuum lines, pipes and hoses connected and all accessories off, be sure timing is at correct specification.

2) Set transmission in neutral. Start engine and run at idle. Pinch air valve hose checking to see that engine RPM does not drop more than 50 RPM.

3) Remove rubber cap from service connector at left front fender. Connect voltmeter positive probe to "VF" and negative probe to "E1" using a pigtail connector. *See Fig. 5.* Do not damage connector terminals with voltmeter probes.

Fig. 5: Idle Speed Service Connections



4) Warm up engine at 2500 RPM for about 2 minutes. Voltmeter needle should fluctuate 8 times or more in 10 seconds. If it does not, check fuel injection system and replace oxygen sensor, if necessary.

5) Set idle speed as specified with idle speed adjusting screw. Voltmeter reading should now be 3-9 volts. If more than 9 volts, check air intake system for leaks. If less than 3 volts, check fuel injection system.

IDLE SPEED

Application	RPM
Cressida & Supra	800

COLD (FAST) IDLE RPM

NOTE: There is no fast idle speed adjustment for Electronic Fuel Injection equipped vehicles.

LAND CRUISER

1) After setting idle speed and mixture, stop engine. Pull choke knob fully out. Disconnect and plug hoses from distributor vacuum advance and from evaporation ports of the VCV and EGR valves.

2) Start engine and adjust fast idle speed to specification with fast idle adjusting screw. Engine should return to normal idle when choke knob is pushed in fully.

FAST IDLE SPEED

Application	RPM
Land Cruiser	[1] 1800

[1] — EGR, EVAP, and distributor diaphragm disconnected.

DASHPOT ADJUSTMENT

SUPRA

1) Run engine until it reaches operating temperature. Check and adjust idle speed. Connect a tachometer to engine. While maintaining an engine speed of 3000 RPM, pinch off vacuum hose leading to dashpot. Release throttle lever and note engine speed.

2) If engine speed is not as specified, adjust dashpot stop screw on throttle lever. Release dashpot vacuum hose. Engine should return to idle speed within 1 second. If not, thermal vacuum valve requires servicing.

DASHPOT SETTING SPEED

Application	RPM
Supra	2000

FUEL PUMP

FUEL PUMP PERFORMANCE

Application	Pressure psi (kg/cm²)	Volume in 30 Sec. Pints (Liters)
Cressida & Supra	[1] 33.0 (2.3)	
Land Cruiser	4.1 (.29)	2.5 (1.2)

[1] — Measured with vacuum hose at pressure regulator disconnected. With hose connected, 28 psi (2.0 kg/cm²).

EXHAUST EMISSION SYSTEMS

See EXHAUST EMISSION SYSTEMS section.

GENERAL SERVICING

IGNITION

DISTRIBUTOR

All models are equipped wih Nippondenso Transistorized Electronic Ignition Systems.

IGNITION COIL

RESISTANCE Ohms@68°F (20°C)

Application	Primary	Secondary
All Models	.5-.7	11,000-16,000

1982 Toyota 6 Tune-Up

GENERAL SERVICING (Cont.)

FUEL SYSTEMS

CARBURETORS

Land Cruiser models are equipped with Aisan 2-Bbl. carburetors.

FUEL INJECTION

Cressida and Supra models are equipped with Bosch AFC fuel injection with oxygen sensor.

ELECTRICAL

BATTERY

BATTERY SPECIFICATIONS

Application	Amp. Hr. Rating
All Models	70

STARTER

All models are equipped with Nippondenso solenoid-actuated starters.

STARTER SPECIFICATIONS

Application	Volts	Amps	Test RPM
Cresida & Supra			
Conventional	11.0	50	5000
Reduction	11.5	90	3500
Land Cruiser	11.0	50	5000

ALTERNATORS

All models are equipped with Nippondenso alternators.

ALTERNATOR SPECIFICATIONS

Application	Rated Amp. Ouput
Cressida & Supra	65
Land Cruiser	55

ALTERNATOR REGULATOR

All models are equipped with Nippondenso alternator regulators. Some alternators are equipped with integrated circuit regulators (mounted integrally with alternator).

REGULATOR OPERATING VOLTAGE@68°F (20°C)

Application	Voltage
Integral Regulator	13.8-14.4
External Regulator	14.0-14.9

SERVICE SPECIFICATIONS

BELT ADJUSTMENT
Lbs. (Kg) of Tension Using Strand Tension Gauge

Application	New Belt	Used Belt
Cressida & Supra	125 (57)	80 (36)
Land Cruiser		
A/C Belt	125 (57)	70 (32)
All Others	145 (66)	100 (45)

REPLACEMENT INTERVALS

Component	Miles
Oil Filter	10,000
Air Filter	30,000
Fuel Filter	60,000
Spark Plugs	
Federal	15,000
Calif.	30,000

FLUID CAPACITIES

Application	Quantity
Crankcase (Includes Filter)	
Cressida & Supra	4.9 qts. (4.6L)
Land Cruiser	8.2 qts. (7.8L)
Cooling System	
Cressida & Supra	9.5 qts. (9.0L)
Land Cruiser	16.0 qts. (15.0L)
Man. Trans. (SAE 80W-90)	
Land Cruiser	6.6 pts. (3.1L)
Supra	5.4 pts. (2.6L)
Auto. Trans. (ATF Type F)	2.5 qts. (2.4L)
Differential (SAE 90)	
Cressida & Supra	3.2 pts. (1.5L)
Land Cruiser	5.2 pts. (4.9L)
Transfer Case (SAE 90)	5.2 pts. (4.9L)
Fuel Tank	
Cressida	17.2 gals. (65.1L)
Land Cruiser	
Station Wagon	23.8 gals. (90.1L)
All Others	22.4 gals. (84.8L)
Supra	16.1 gals. (60.9L)