

TUNE-UP

Celica
Corolla
Corona

Pickup
Starlet
Tercel

ENGINE IDENTIFICATION

Each engine serial number contains an identifying code for engine identification. All numbers are stamped on the left side of engine block. Engine codes are also provided on decal at front edge of valve cover.

Engine Code

Application	Code
Celica, Corona & Pickup	22R
Corolla	3T-C
Starlet	4K-C
Tercel	3A-C

COMPRESSION PRESSURE

With engine at normal operating temperature, spark plugs removed, throttle valve wide open and engine at cranking speed, compression pressures should be as follows with a maximum variation between cylinders of 14 psi (1 kg/cm²):

Compression Pressure Specifications

Application	Standard psi (kg/cm ²)	Minimum psi (kg/cm ²)
Celica, Corona & Pickup	171 (12.0)	142 (10.0)
Corolla	163 (11.5)	128 (9.0)
Starlet	156 (11.0)	128 (9.0)
Tercel	177 (12.5)	128 (9.0)

VALVE CLEARANCE

NOTE — Before starting the engine, plug hose end for following systems: Starlet and Corolla, HIC system. Tercel, Air Suction (AS) system for Federal models and HIC system, all models. Celica, Corona and Pickup, HAI system & MC system.

Check or adjust valve clearance with engine at normal operating temperature. Remove valve cover and set No. 1 cylinder at TDC. Turn crankshaft with a wrench to align timing marks. Check that rocker arms for No. 1 cylinder are loose and for No. 4 cylinder are tight. Adjust intake valve on cylinders No. 1 and No. 2 and exhaust valve on cylinders No. 1 and No. 3. Turn crankshaft 360°. Adjust intake valve on cylinders No. 3 and No. 4 and exhaust valve on cylinders No. 2 and No. 4.

Valve Clearance Specifications[Ⓞ]

Application	Intake In. (mm)	Exhaust In. (mm)
Corolla	.008 (.20)	.013 (.33)
All Other Models	.008 (.20)	.012 (.30)

Ⓞ — Set with engine warm.

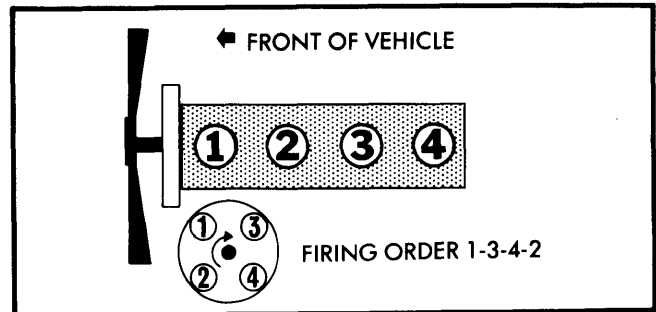


Fig. 1 Firing Order and Distributor Rotation (Celica, Corona and Pickup)

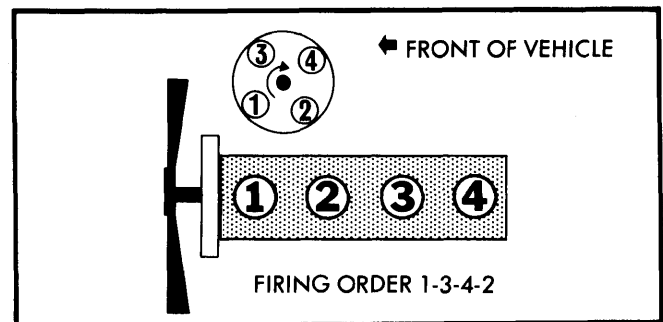


Fig. 2 Firing Order and Distributor Rotation (Corolla and Starlet)

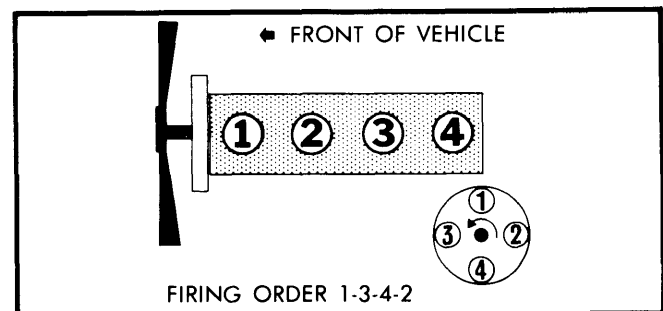


Fig. 3 Firing Order and Distributor Rotation (Tercel)

VALVE ARRANGEMENTS

Starlet — E-I-I-E-E-I-I-E

Tercel — I-E-E-I-I-E-E-I

All Other Models

Right Side — All Intake

Left Side — All Exhaust

SPARK PLUGS

Application	Gap In. (mm)	Torque Ft. Lbs. (N·m)
Celica, Corona & Pickup	.031 (0.8)	11-15 (15-20)
Corolla	.043 (1.1)	11-15 (15-20)
Starlet		
Federal	.043 (1.1)	11-15 (15-20)
Calif.	.031 (0.8)	11-15 (15-20)
Tercel	.043 (1.1)	11-15 (15-20)

TUNE-UP (Cont.)

Spark Plug Type

Application	NGK No.	Nippondenso No.
Celica, Corona & Pickup	BPR5EA-L	W16EXR-U
Corolla		
Federal	BPR5EA11	W16EXR-U11
Calif.	BPR5EA-L11	W16EXR-U11
Starlet		
Federal	BPR5EA-L11	W14EXR-U11
Calif.	BPR5EA-L	W14EXR-U
Tercel		
Federal	BPR5EA11	W16EXR-U11
Calif.	BPR5EA-L11	W16EXR-U11

Ignition Timing Specifications (Degrees BTDC @ RPM)

Application	①Setting
Celica, Corona & Pickup	8 @ 950
Corolla	7 @ 950
Starlet	8 @ 950
Tercel	5 @ 950

① - With distributor sub-diaphragm hose disconnected.

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).

Resistance (Ohms) Per Wire

Application	Ohms
All Models	25,000 Maximum

DISTRIBUTOR

All models use transistorized ignition which eliminates breaker points. Reluctor-to-pickup air gap is the only adjustment. Measure air gap with a non-magnetic feeler gauge and move pickup if necessary to correct air gap.

Air Gap008-.016" (.2-.4 mm)

IGNITION TIMING

- 1) Connect a tachometer and timing light to engine. The positive lead of tachometer is connected to the (-) terminal of coil on all models except Celica, Corona and Pickup. On these models, connect tachometer positive lead to service connector from igniter, located at coil (covered with rubber cap).
- 2) With engine at normal operating temperature, be sure all hoses are connected, choke valve is fully open, transmission in "N" position, and all accessories are turned off. Adjust idle speed to timing specifications.
- 3) On models with dual diaphragm distributors, disconnect and plug hoses at sub-diaphragm and main diaphragm. On all models, check timing and adjust by turning distributor. When timing is set, reconnect sub-diaphragm hose. Timing marks should move. Reconnect main diaphragm hose.

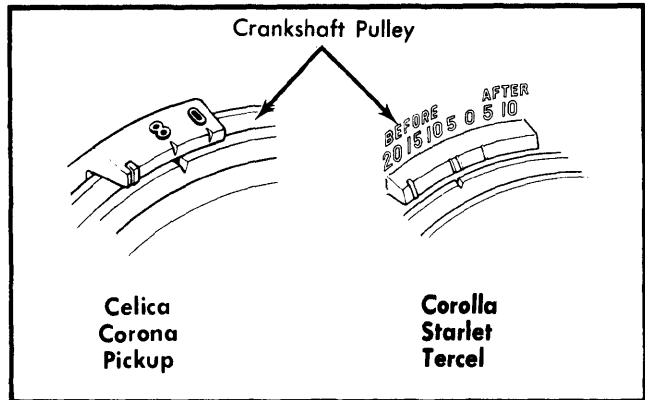


Fig. 4 Ignition Timing Marks

IDLE SPEED & MIXTURE

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

- 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) Place transmission in neutral and check that fuel level in carburetor sight glass is about mid-way. Remove idle mixture screw protective cover and idle limiter caps, if installed, and adjust idle speed to specifications.
- 3) Turn idle mixture adjusting screw to obtain maximum RPM. Now, turn idle speed screw until IDLE MIXTURE SPEED is obtained. Repeat adjustments again, turning idle mixture screw to obtain maximum RPM, then idle speed screw to obtain idle mixture speed. Repeat until highest RPM is obtained before setting final idle mixture speed.
- 4) Once idle mixture speed is set after the highest possible RPM is obtained using the previous procedures, turn in idle mixture adjusting screw until normal IDLE SPEED is obtained. Install replacement mixture screw caps and protective cover, if so equipped.

TUNE-UP (Cont.)

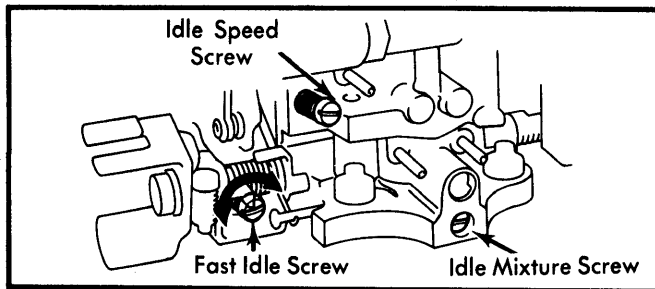


Fig. 5 Carburetor Adjusting Screws (All Models)

Idle Speed & Mixture Specifications

Application	Idle Mixture RPM	Idle Speed RPM
Celica & Corona		
Man. Trans.	740	700
Auto. Trans.	790	750
Corolla		
Man. Trans.①	820	650
Auto. Trans.①	880	750
Pickup		
Man. Trans.	740	700
Auto. Trans.②	790	750
Starlet		
Federal	680	650
Calif.	730	700
Tercel		
Man. Trans.		
4-Spd.	600	550
5-Spd.	700	650
Auto. Trans.	850	800

① — With power steering, set to 940/850 RPM.

② — With Federal 4-Spd. Auto. Trans., set to 740/700 RPM.

COLD (FAST) IDLE RPM

Celica, Corona & Pickup — 1) After setting idle speed and mixture, stop engine. Remove air cleaner. Disconnect and plug hoses at distributor vacuum advance, choke opener diaphragm and EGR valve. On manual transmission models, disconnect and plug hoses for hot air intake and mixture control system.

2) On all models, hold throttle valve slightly open. Push choke valve closed and release throttle valve. Without touching accelerator, start engine. Set fast idle to specifications by turning fast idle adjusting screw.

Corolla — 1) After setting idle speed and mixture, stop engine. Remove air cleaner. Disconnect hoses at hot idle compensation system, choke opener diaphragm to BVSV at diaphragm, and 2nd stage choke breaker diaphragm to jet restrictor at diaphragm.

2) Hold throttle valve slightly open. Push choke valve closed and release throttle valve. Without touching accelerator, start engine. Set fast idle to specifications by turning fast idle adjusting screw.

Starlet — 1) After setting idle speed and mixture, stop engine. Remove air cleaner. Disconnect and plug hoses for hot idle compensation system, EGR valve and choke opener diaphragm.

2) Start engine. Pull choke knob out about half way and depress accelerator pedal once. Check that fast idle cam is at 2nd stage and that engine speed has increased to about 3500 RPM.

3) Fully open choke valve. With engine cooling fan off, adjust fast idle speed to specifications by turning fast idle adjusting screw.

Tercel — 1) After setting idle speed and mixture, stop engine. Remove air cleaner. Disconnect and plug air suction (AS) hose on Federal models. Disconnect hose from EGR valve and from choke opener diaphragm. Hold throttle valve slightly open. Push choke valve closed and release throttle valve.

2) Without touching accelerator, start engine. With engine cooling fan off, adjust fast idle speed to specifications by turning fast idle adjusting screw.

Fast Idle Speed Specifications

Application	Fast Idle RPM
Celica, Corona & Pickup	2600
Corolla	
Man. Trans.①	3400
Auto. Trans.①	3200
Starlet	3500
Tercel	3600

① — If equipped with power steering set speed 200 RPM lower.

FUEL PUMP PRESSURE & VOLUME

Pressure	2.1-4.3 psi (.15-.3 kg/cm ²)
Volume	1 pint in 30 seconds

EXHAUST EMISSION SYSTEMS

See EXHAUST EMISSION SYSTEMS section.

1981 Toyota 4 Tune-Up

GENERAL SERVICING

IGNITION

DISTRIBUTOR

All models are equipped with transistorized ignition systems.

IGNITION COIL

Resistance Specifications (Ohms @ 68°F)

Application	Primary	Secondary
Celica, Corona, Corolla & Tercel	0.8-1.0	11,500-15,500
Pickup	0.4-0.5	8500-11,500
Starlet	1.3-1.7	11,900-16,100

FUEL SYSTEMS

CARBURETORS

All models use Aisan 2-Bbl. carburetors.

ELECTRICAL

BATTERY

Application	Amp. Hr. Rating
Standard	50
Optional	60

Battery Location — In engine compartment.

STARTER

All models are equipped with Nippondenso starters.

Starter Specifications

Application	Volts	Amps	Test RPM
Celica, Corolla, Corona & Pickup	11.5	90	3000
Starlet & Tercel			
Conventional	11.0	50	5000
Reduction	11.5	90	3000

ALTERNATOR

Application	Rated Amp. Output
Celica, Corona & Pickup	40, 55 & 60
Corolla, Starlet & Tercel	50 & 55

ALTERNATOR REGULATOR

All models are equipped with Nippondenso alternator regulators. Operating voltage range is 13.8-14.8 volts.

BELT ADJUSTMENT

Tension Using Tension Gauge

Application	New Belt Lbs. (kg)	Used Belt Lbs. (kg)
All Models	100-150 (45-68)	60-100 (27-45)

FILTERS

Filter	Service Interval (Miles)
Oil Filter	Replace every 10,000
Air Filter	Replace every 30,000
Fuel Filter	Replace every 60,000

CAPACITIES

Application	Quantity
Crankcase (Includes Filter)	
Celica, Corona & Pickup	4.9 qts.
Corolla	4.0 qts.
Starlet & Tercel	3.7 qts.
Cooling System (Includes Heater)	
Celica, Corona & Pickup	8.9 qts.
Corolla	7.8 qts.
Starlet	6.0 qts.
Tercel	5.5 qts.
Man. Trans. (SAE 80W-90)	
Celica	2.5 qts.
Corolla	1.8 qts.
Corona	2.7 qts.
Pickup	
4-Spd.	2.1 qts.
5-Spd.	2.7 qts.
Starlet	2.6 qts.
Man. Transaxle (SAE 80W-90)	3.5 qts.
Auto. Trans. (ATF Type F)	2.5 qts.
Auto. Transaxle (ATF Type F)	2.3 qts.
Transfer Case (SAE 80W-90)	3.4 pts.
Differential (SAE 80W-90)	
Celica & Corona	
Banjo-Type	2.8 pts.
Unitized-Type	2.6 pts.
Corolla & Starlet	2.2 pts.
Pickup	
2-WD	
7.5"	3.6 pts.
8.0"	3.8 pts.
4-WD (Front and Rear)	4.6 pts.
Tercel (Front with Auto. Transaxle)	2.0 pts.
Fuel Tank	
Celica	16.1 gals.
Corolla	
Exc. Station Wagon	13.2 gals.
Station Wagon	12.4 gals.
Corona	
Exc. Station Wagon	16.1 gals.
Station Wagon	15.5 gals.
Pickup	
Short Bed	13.5 gals.
Long Bed	16.0 gals.
Starlet	10.6 gals.
Tercel	11.9 gals.