

TUNE-UP

Celica
Corolla
Corona
Pickup
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 Identification Codes

Application	Code
Celica, Corona, Pickup	20R
Corolla	3T-C
Tercel	1A-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):

Application	Compression Pressure	
	Standard psi (kg/cm ²)	Minimum psi (kg/cm ²)
Celica, Corona, Pickup	156 (11.0)	128 (9.0)
Corolla	163 (11.5)	128 (9.0)
Tercel	177 (12.5)	128 (9.0)

VALVE CLEARANCE

Check or adjust valve clearance with engine warm. Remove valve cover and set number 1 cylinder at TDC. On Corolla models, adjust valves 1,2,4 & 5 (counting from front to back), turn crankshaft 360°, and adjust valves 3,6,7 & 8. On all other models, adjust 1,2,4 & 6, turn crankshaft 360°, then adjust valves 3,5,7 & 8.

Valve Clearance Specifications

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

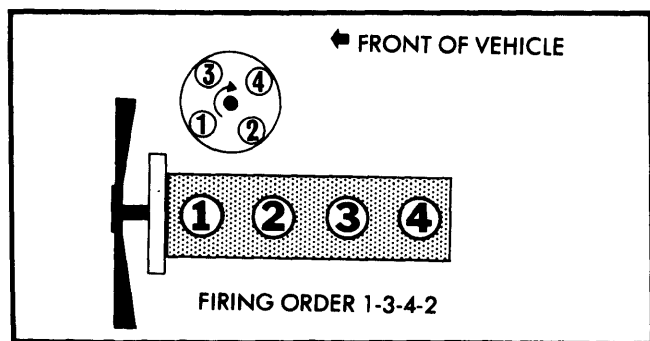


Fig. 1 Firing Order and Distributor Rotation (Corolla)

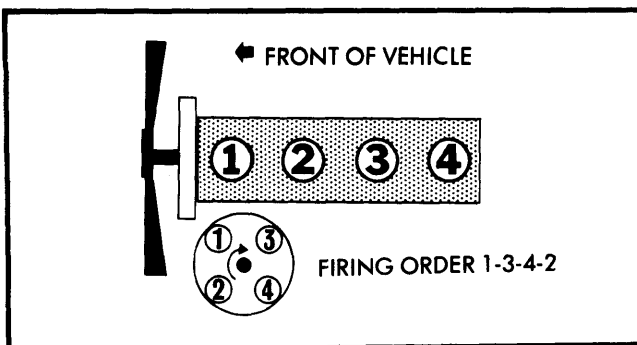


Fig. 2 Firing Order and Distributor Rotation (Celica, Corona and Pickup)

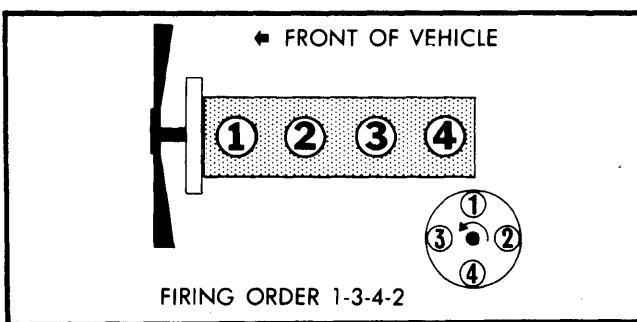


Fig. 3 Firing Order and Distributor Rotation (Tercel)

VALVE ARRANGEMENTS

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. (mkg)
Celica, Corona, Pickup	.031 (.8)	11-15 (1.5-2.1)
Corolla	.043 (1.1)	11-15 (1.5-2.1)
Tercel	.039 (1.0)	11-15 (1.5-2.1)

Spark Plug Type

Application	NGK No.	Nippondenso No.
Celica, Corona, Pickup	BPR5EA-L	W16EXR-U
Corolla	BP5EA-L11	W16EX-U11
Tercel	BP6EKA	W20ETS

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).

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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 tachometer and timing light to engine. The positive lead of tachometer is connected to the (-) terminal of coil on all models except Tercel and Federal Corolla. On these models, connect tachometer positive lead to service connector located at coil (covered with rubber cap).

2) With engine at normal operating temperature, be sure all hoses are connected and all accessories are turned off. Adjust idle speed to specifications.

3) On models with dual diaphragm distributors, disconnect and plug hose at sub-diaphragm (closest to distributor body). On all models, check timing and adjust by turning distributor. When sub-diaphragm hose is connected, timing should advance 8-10°.

Ignition Timing Specifications

Application	Timing
Celica, Corona, Pickup	⓪8° BTDC
Corolla	⓪10° BTDC
Tercel	⓪5° BTDC

⓪ — With distributor sub-diaphragm hose disconnected.

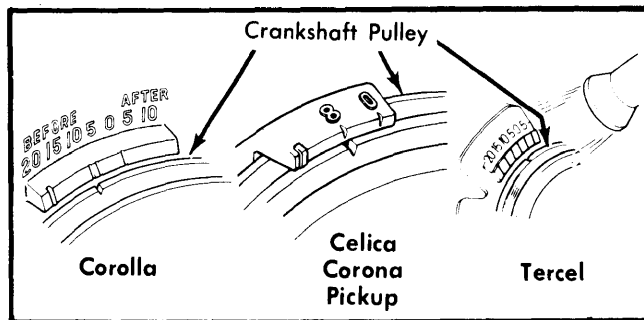


Fig. 4 Ignition Timing Marks
IDLE SPEED & MIXTURE

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

2) Set transmission in "N" and check that fuel level in carburetor sight glass is about mid-way.

3) On California vehicles, use special tool (09243-00020) to remove idle mixture screw protective cover and to adjust mixture screw.

4) Remove idle limiter caps, if installed, and adjust idle speed to specifications.

5) 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 maximum RPM, then idle speed screw to idle mixture speed. Repeat until highest RPM is obtained before setting final idle mixture speed.

6) Once idle mixture speed is set after the highest possible RPM is obtained using the above procedure, turn in idle mixture adjusting screw until normal IDLE SPEED is obtained.

7) Install replacement mixture screw caps. On California models, install protective cover.

Idle Speed and Mixture Specifications

Application	Idle Mixture RPM	Idle Speed RPM
Celica, Corona		
4 Spd.	750	700
5 Spd.	870	800
Auto. Trans.	920	850
Corolla		
Man. Trans.⓪	760	700
Auto Trans.⓪	810	750
Pickup	870	800
Tercel		
Man. Trans.	750	650
Auto Trans.	900	800

⓪ — With power steering, set to 920/850 RPM.

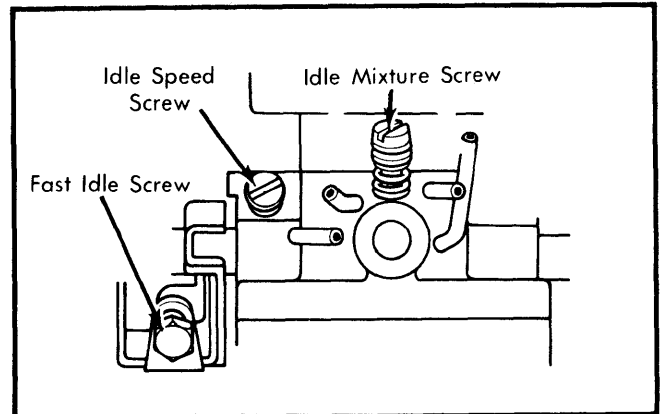


Fig. 5 Carburetor Adjusting Screws
(All Models)

COLD (FAST) IDLE RPM

1) After setting idle mixture and speed, stop engine. Remove air cleaner. On Corolla, plug HIC hose after removing air cleaner, and disconnect and plug hose from choke opener.

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2) On Tercel, disconnect hose from port "M" of TVSV and plug port, then disconnect and plug hose from EGR valve. On Celica, Corona, and Pickup, disconnect and plug hoses at distributor advance, and EGR valve.

Fast Idle Speed

Application	RPM
Celica, Corona, Pickup	2400
Corolla	
Federal ^⓪	3000
Calif. ^⓪	2800
Tercel	3600

⓪ — If equipped with power steering, set fast idle speed 200 RPM lower.

3) With engine stopped, open throttle, pull open choke linkage, and set screw on high step of fast idle cam. Without touching accelerator, start engine.

4) Set fast idle speed to specifications. On Corolla, reconnect hose to choke opener diaphragm and check for idle speed to drop to 1800 RPM or less. Reconnect hoses on all models.

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.

GENERAL SERVICING

IGNITION

DISTRIBUTOR

All models are equipped with transistorized ignition systems.

Other Data & Specifications — See Tune-Up article and appropriate article in DISTRIBUTORS & IGNITION SYSTEMS section.

IGNITION COIL

Coil Resistance (Ohms@68°F)

Application	Primary	Secondary
Tercel	.4-.5	8500-11,500
Corolla		
Federal	.4-.5	8500-11,500
Calif.	.8-1.0	11,500-15,500
Celica, Corona		
Federal	.5-.6	11,500-15,500
Calif.	.8-1.0	11,500-15,500
Pickup		
Federal	1.3-1.7	12,000-16,000
Calif.	.8-1.0	11,500-15,500

FUEL SYSTEMS

CARBURETORS

Application	Make
All Models	Aisan 2-Bbl.

Other Data & Specifications — See Tune-Up and Aisan Carburetors in FUEL SYSTEMS Section.

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
Tercel			
Conventional	11.0	50	5000
Reduction	11.5	90	3000
Corolla	11.5	90	3000-3500
All Others			
Conventional	11.0	50	5000
Reduction	11.5	90	3500

ALTERNATOR

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

ALTERNATOR REGULATOR

All models are equipped with Nippondenso alternator regulators. Separate alternator regulators have an operating voltage of 14.0-14.7 volts. Integral regulators have an operating voltage of 13.8-14.8 volts.

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GENERAL SERVICING (Cont.)

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 30,000

CAPACITIES

Application	Quantity	Application	Quantity
Crankcase (Includes Filter)		Differential (SAE 90)	
Celica, Corona, Pickup	4.9 qts.	Celica, Corona	2.6 pts.
Corolla	4.0 qts.	Corolla	2.2 pts.
Tercel	3.7 qts.	Tercel (with Auto. Trans.)	2.0 pts.
Cooling System (Includes Heater)		Pickup	
Celica, Corona, Pickup	8.9 qts.	2-WD	3.6 pts.
Corolla	8.4 qts.	4-WD Front	4.8 pts.
Tercel	5.4 qts.	4-WD Rear	4.6 pts.
Man. Trans. (SAE 90)		Fuel Tank	
Celica, Corona	2.8 qts.	Celica	16.1 gals.
Corolla	1.8 qts.	Corolla	
Pickup		Station Wagon	12.4 gals.
4 Spd.	2.0 qts.	Except Station Wagon	13.2 gals.
5 Spd.	2.8 qts.	Corona	
Man. Transaxle (SAE 90)		Station Wagon	15.6 gals.
Tercel	3.5 qts.	Except Station Wagon	16.1 gals.
Auto. Trans. (ATF Type F)		Tercel	11.9 gals.
Tercel	2.3 qts.	Pickup	
All Other Models	2.5 qts.	Short Bed	13.5 gals.
Transfer Case (SAE 90)		Long Bed	16.0 gals.