1974-79 TUNE-UP PROCEDURES
Toyota 4-Cylinder

Celica, Corolla, Corona, Hi-Lux, Pickup

ENGINE IDENTIFICATION

Engine serial number contains an identifying engine code number. Engine codes are the first group of characters on Corolla models; the last group on all other models.

On Corolla 3K-C engine, the serial number appears on right side of engine block, below spark plugs. On Corolla 2T-C engine, the serial number appears on left side of engine block, behind dipstick. Engine serial numbers of Celica, Corona, Hi-Lux and Pickup 18R-C and 20R engines, are on right side of engine block.

ENGINE CODES

Application	Code
Corolla	3K-C
Corolla	2T-C
Corona, Celica, Hi-Lux & Pickup	18R-C & 20R

MODEL IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

Vehicle Identification Number is located on top of instrument panel. On pickups, number also appears on front left fender apron, near windshield fluid tank. On all other models, number also appears on firewall side of engine compartment. First set of characters identify engine and model series.

VIN CODES

Application	Engine	Model Code
Corolla		
1166 cc	3K-C	KE
1588 cc	2T-C	TE
Corona	18R-C & 20R	RT
Celica	18R-C & 20R	RA
Pickup	18R-C & 20R	RN

ENGINE COMPRESSION

Check compression pressure with engine at normal operating temperature, spark plugs removed, throttle valve wide open, and engine at cranking speed. Compression pressure should be as specified with a maximum variation between cylinders of 14 psi (.98 kg/cm²).

ENGINE COMPRESSION SPECIFICATIONS

Application	Standard psi (kg/cm²)	Minimum psi (kg/cm²)
Corolla (2T-C)	171 (12)	142 (10)
All Others	156 (11)	128 (9)

VALVE CLEARANCE

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

VALVE CLEARANCE SPECIFICATIONS

Application	Intake In. (mm)	Exhaust
Corolla (2T-C)	.008 (.20)	.013 (.33)
All Others	.008 (.20)	.012 (.30)

VALVE ARRANGEMENT

3K-C & 18R-C

E-I-I-E-E-I-I-E - Front-to-rear.

2T-C & 20R

Right Side - All Intake.

Left Side - All Exhaust.

SPARK PLUGS

SPARK PLUG SPECIFICATIONS

Application	Specification
Gap	.028-.032" (.70-.80 mm)
Torque	11-15 ft. lbs. (15-20 N.m)

SPARK PLUG TYPE

Application	NGK No.
1974 Models	BP6ES
1975-77 Models	BP5ES-L
1978 Models	BP5EA-L

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).

HIGH TENSION WIRE RESISTANCE

Application	Ohms
All Models	16,000-25,000

DISTRIBUTOR

Models are equipped with Nippondenso single-point or dual-point distributors, or Nippondenso electronic ignition systems.

DISTRIBUTOR SPECIFICATIONS

Application	Specification
Air Gap [1]	.008-.016" (.2-.4 mm)
Point Gap	.016-.020" (.40-.50)
Dwell Angle	50-54°
Breaker Arm Spring Tension	18-25 ozs. (500-700 g)
Condenser Capacity	.20-.24 mfd.

[1] - Electronic ignition system only.

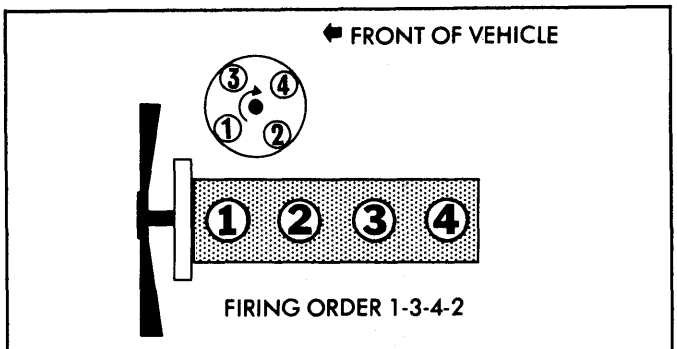

Fig. 1: Corolla (3K-C & 2T-C Engines) Firing Order & Distributor Rotation

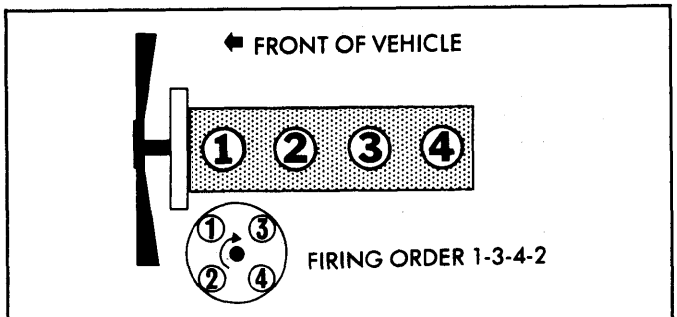

Fig. 2: Corona, Celica, Hi-Lux & Pickup (18R-C & 20R Engines) Firing Order & Distributor Rotation

1974-79 TUNE-UP PROCEDURES
Toyota 4-Cylinder (Cont.)

IGNITION TIMING

COROLLA (3K-C ENGINE)

1974 Models - Check or adjust ignition timing with engine at normal operating temperature and idle speed set to specifications. If timing is incorrect, adjust octane selector (on distributor) or turn distributor.

1977-79 Models - 1) Warm engine to normal operating temperature. Connect tachometer to engine. Check idle speed and adjust if necessary. Disconnect vacuum hose between High Altitude Compensation (HAC) valve and Bimetallic Vacuum Switching Valve (BVSV), if equipped.

2) Pinch off vacuum hose between carburetor heat insulator and the 4-way connector, and between check valve and carburetor. Check and adjust ignition timing.

1974 IGNITION TIMING SPECIFICATIONS

Application	RPM	Timing
Corolla		
3K-C & 2T-C Fed.	800	5°BTDC
2-TC Calif.	850	10°BTDC
18R-C		
Man. Trans.	650	7°BTDC
Auto. Trans.	800	7°BTDC

COROLLA (2T-C ENGINE)

1974-76 Models - 1) Check or adjust ignition timing with engine at normal operating temperature and idle speed set to specifications. If timing is incorrect, adjust octane selector (on distributor) or turn distributor.

2) On models with dual-point distributors, ground thermo switch connector and check auxiliary point timing. If timing is incorrect, adjust dwell angle to 52 degrees on auxiliary points.

1977-79 Models Without High Altitude Compensation (HAC) - 1) Warm engine to normal operating temperature. Connect tachometer to engine. Check idle speed and adjust if necessary.

2) Check ignition timing and adjust if necessary. If engine has cold weather distributor, pinch hose between Bimetallic Vacuum Switching Valve (BVSV) and carburetor. Timing should now read 20°BTDC.

1977-79 Models With High Altitude Compensation (HAC) - 1) Warm engine to normal operating temperature. Connect tachometer to engine. Check idle speed and adjust if necessary.

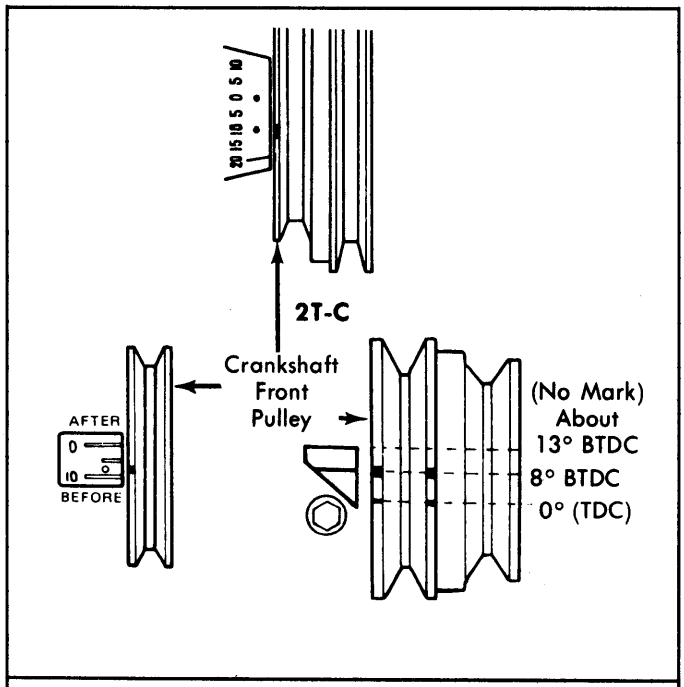

Fig. 3: Typical Ignition Timing Marks

2) Disconnect hose between HAC valve and distributor. Plug end of hose removed from distributor sub-diaphragm. Ignition timing should be 10°BTDC at 700-900 RPM.

3) If timing is incorrect, adjust octane selector (on distributor) or turn distributor. Reconnect hose to sub-diaphragm. Timing should now be about 20°BTDC. If incorrect, pinch hose between HAC valve and 3-way connector. Timing should now be 20°BTDC.

1975-76 IGNITION TIMING SPECIFICATIONS

Application	RPM	Timing
Corolla		
Single-Point	850	10°BTDC
Dual-Point		
Main Points	850	12°BTDC
Auxiliary Points	850	19-25°BTDC
All Others	850	8°BTDC

CELICA, CORONA, HI-LUX & PICKUP (18R-C & 20R ENGINES)

1974-76 Models - Check or adjust ignition timing with engine at normal operating temperature and idle speed set to specifications. If timing is incorrect, adjust octane selector (on distributor) or turn distributor.

1977-79 Models Without High Altitude Compensation (HAC) - Warm engine to normal operating temperature. Connect tachometer to engine. Check idle speed and adjust if necessary. Ignition timing should be 8°BTDC at 800 RPM (850 RPM on automatic transmission). If timing is incorrect, adjust octane selector (on distributor) or turn distributor.

1977-79 Models With High Altitude Compensation (HAC) - 1) Warm engine to normal operating temperature. Connect tachometer to engine. Check idle speed and adjust if necessary.

2) Disconnect hose between HAC valve and plug end removed from distributor sub-diaphragm. Timing should be 8°BTDC at 700-900 RPM. If timing is incorrect, adjust octane selector (on distributor) or turn distributor.

3) Reconnect hose to sub-diaphragm. Timing should now be about 13°BTDC. If incorrect, pinch vacuum hose between HAC valve and 3-way connector. Timing should now be 13°BTDC.

1977-79 IGNITION TIMING SPECIFICATIONS

Application	RPM	Timing
Corolla (3K-C)	750	8°BTDC
Corolla (2T-C) [1]	850	10°BTDC
All Others [2]		
Man. Trans.	800	8°BTDC
Auto. Trans.	850	8°BTDC

[1] - With HAC hose disconnected. With HAC hose connected, timing should be about 20°BTDC.

[2] - With HAC hose disconnected. With HAC connected, timing should be about 13°BTDC.

IDLE SPEED & MIXTURE

1974 Models - 1) Remove intake manifold vacuum plug and connect vacuum gauge to manifold. Turn throttle adjusting screw until engine operates smoothly and without stalling at lowest possible RPM.

2) Turn idle mixture screw to obtain maximum vacuum reading. Adjust idle speed to specifications. Connect exhaust gas analyzer to vehicle and check CO% level. Readjust idle mixture and idle speed if necessary.

1975-79 Models - 1) Place transmission in Neutral and warm engine to normal operating temperature. With ignition timing set to specification, be sure choke valve is fully open and all accessories are off. With air cleaner is installed and vacuum lines connected, ensure carburetor fuel level is correct.

2) On 3K-C engine, pinch off vacuum lines to HIC valve and 4-way connector (EVAP hose). Adjust idle mixture RPM to maximum by means

1974-79 TUNE-UP PROCEDURES
Toyota 4-Cylinder (Cont.)

of idle mixture screw. Adjust idle speed to specified RPM by means of idle speed adjusting screw.
3) Continue adjusting screws until maximum speed obtainable by idle mixture screw is same as mixture adjustment speed, then screw in idle mixture screw to obtain specified base idle RPM.

1974 IDLE SPEED & CO% LEVEL SPECIFICATIONS

Application	Idle RPM	CO%
3K-C	750	1.0-4.0
2T-C Federal		
Man. Trans.	750	1.0-4.0
Auto. Trans.	800	1.0-4.0
2T-C Calif.	850	0.5-3.0
18R-C		
Man. Trans.	650	1.0-4.0
Auto. Trans.	800	1.0-4.0

1975-76 IDLE SPEED & MIXTURE SPECIFICATIONS

Application	Idle Mixture RPM	Base Idle RPM
Corolla	930	850
All Others	900	850

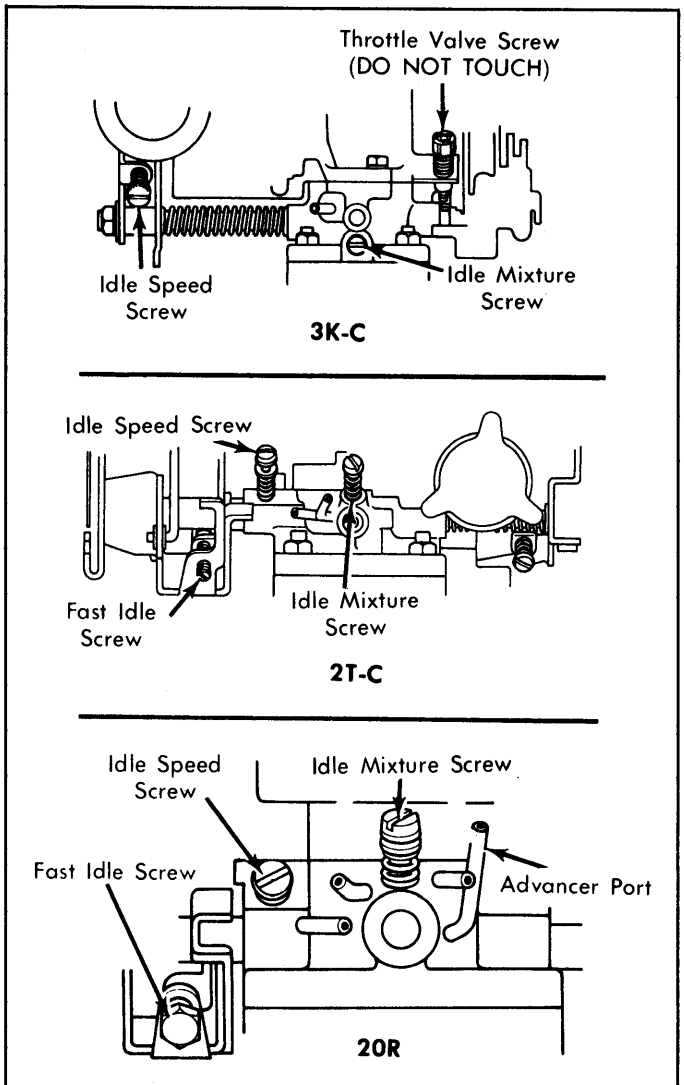

Fig. 4: Typical Carburetor Adjusting Screw Locations

1977-79 IDLE SPEED & MIXTURE SPECIFICATIONS

Application	Idle Mixture RPM	Base Idle RPM
Corolla (3K-C)	830	700-800
Corolla (2T-C)		
Federal	920	800-900
Calif. & High Alt.	910	800-900
All Others (20R)		
Man. Trans.	870	750-850
Auto. Trans.	920	800-900

COLD (FAST) IDLE RPM

1974 Models - Using throttle valve adjusting screw, set primary throttle valve so that it starts to open. Position choke valve at fully closed position. Throttle valve should be opened to specified angle (in degrees) from fully closed position. If not, bend fast idle lever.
1975-76 Models - 1) With engine at normal operating temperature, close choke and throttle valves. On all models except Corolla, disconnect EGR vacuum hose from valve.
2) Start engine without stepping on accelerator pedal and check fast idle speed. If incorrect, turn fast idle adjusting screw. Reconnect EGR vacuun hose if disconnected.
1977-79 Models - 1) With engine at normal operating temperature, close choke and throttle valves. On 20R engine, disconnect EGR vacuum hose from valve.
2) On Celica and Corona, pinch off vacuum hose between advance port and the Thermostatic Vacuum Switching Valve (TVSV). On pickups, pinch off vacuum hose between advance port and the Vacuum Transmitting Valve (VTV).
3) On all models, start engine without stepping on accelerator pedal. Check fast idle against specifications. Adjust by turning fast idle adjusting screw. Reconnect all hoses to original positions.

1974 FAST IDLE SPECIFICATIONS

Application	Throttle Valve Angle
3K-C	18
2T-C	20
18R-C	11

1975-76 FAST IDLE SPECIFICATIONS

Application	RPM
Corolla	
Federal	2800-3200
Calif.	2500-2900
All Others	2200-2600

1977-79 FAST IDLE SPECIFICATIONS

Application	RPM
Corolla (3K-C)	[1]
Corolla (2T-C)	
Federal	3000-3400
Calif. & High Alt.	2800-3200
All Others (20R)	[2] 2200-2600

[1] - Specification not available for this model.
[2] - With EGR hose disconnected and main vacuum hose pinched off.

AUTOMATIC CHOKE

1975-76 Corolla - Turn coil housing counterclockwise and ensure choke valve closes. Set coil housing scale to center line of thermostat case. Turn coil housing and adjust choke position to conform to vehicle operating conditions.
1977-79 Models - On 2T-C engines, an electric assist choke is used. The system consists of a choke breaker diaphragm, an electrically heated bimetallic choke cap, and a choke control relay. On 20R engines, the system consists of a choke breaker diaphgram and a coolant water-heated bimetal choke cap.

1974-79 TUNE-UP PROCEDURES
Toyota 4-Cylinder (Cont.)

THROTTLE POSITIONER ADJUSTMENT

1974-76 Models - **1)** Warm engine to normal operating temperature. Check idle speed and adjust if necessary. Disconnect throttle positioner diaphragm vacuum hose and thermo sensor connector (if equipped). Accelerate engine and release throttle.
2) Engine should idle at specified throttle positioner speed. If not, turn throttle positioner adjusting screw. *See Fig. 5.* Reconnect throttle positioner diaphragm vacuum hose and thermo sensor.

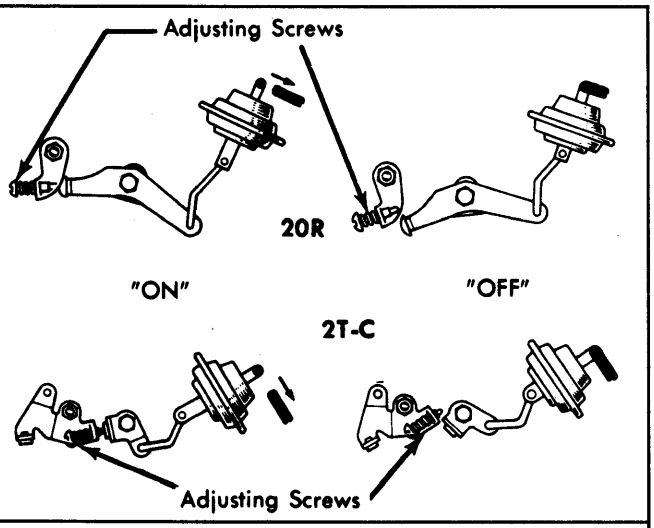

Fig. 5: Typical Throttle Positioner Adjustment Points

1974 THROTTLE POSITIONER SPECIFICATIONS

Application	RPM
2T-C & 18R-C	1400
3K-C	1500

1975-76 THROTTLE POSITIONER SPECIFICATIONS

Application	Man. Trans. RPM	Auto. Trans. RPM
Corolla	1400-1600	1300-1500
All Others	1300-1500	950-1150

FUEL PUMP

FUEL PUMP SPECIFICATIONS

Application	Specification
Pressure	
Corolla	2.8-4.3 (.2-.3 kg/cm²)
All Others	2.1-4.3 (.15-.3 kg/cm²)
Volume	
Corolla	[1] .9 pts. in 30 sec.
All Others	1.3 pts. in 30 sec.

[1] - Volume is 1.3 pints in 30 seconds on electric fuel pump equipped models.

EXHAUST EMISSION SYSTEMS

See appropriate articles in EXHAUST EMISSION SYSTEMS section.

IGNITION SYSTEM

DISTRIBUTOR

Models are equipped with Nippondenso single-point or dual-point distributors, or Nippondenso electronic ignition systems.
Other Data & Specifications - See appropriate Nippondenso ignition system article in DISTRIBUTORS & IGNITION SYSTEMS section.

IGNITION COIL

1974 IGNITION COIL SPECIFICATIONS

Resistance	Ohms
Primary	
2T-C	3.3
3K-C	3.6
18R-C	3.3-4.3
Secondary	
2T-C	8500
3K-C	7500
18R-C	7500-10,000

1975-76 IGNITION COIL SPECIFICATIONS

Resistance	Ohms
Primary	1.3-1.7
Secondary	
1975-76 Models	6500-10,500
1977-79 Models	12,000-16,000

FUEL SYSTEMS

CARBURETORS

CARBURETORS

Application	Make
All Models	Aisan 2-Bbl.

Other Data & Specifications - See Aisan Carburetors in FUEL SYSTEMS section.