TUNE-UP

320i

ENGINE IDENTIFICATION

Engine number is stamped into engine block on left side above starter. Engine can also be identified by first 4 numbers in chassis code, located on sill above right front wheel.

Application	Code
Man. Trans.	1739
Auto. Trans.	1749

COMPRESSION PRESSURE

With battery fully charged, engine at normal operating temperature, throttle fully open and engine at cranking speed, compression pressure should be as follows:

Compression Pressure

Condition	Pressure
Good	Above 149 psi (10.5 kg/cm²)
Normal	135-149 psi (9.5-10.5 kg/cm²)
Poor	Below 128 psi (9.0 kg/cm²)

VALVE CLEARANCE

Adjust valves with engine cold. Remove valve cover, loosen nut on rocker arm, and use a piece of wire to adjust eccentric cam. Adjust valves in firing order sequence at TDC of compression stroke.

Adjust Cylinder at Top Dead Center	When Valves Of Cylinder Overlap
No. 1	No. 4
No. 3	No. 2
No. 4	No. 1
No. 2	No. 3

Valve Clearance Specifications

Application	Clearance In. (mm)
Intake & Exhaust (Cold)	.006-.008 (.15-.20)

VALVE ARRANGEMENT
Left Side – All Intake.
Right Side – All Exhaust.

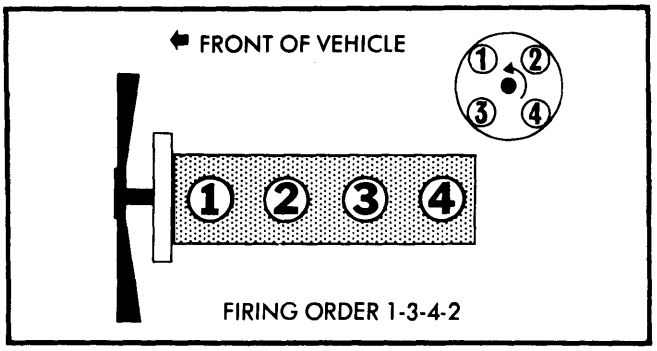

Fig. 1 Firing Order and Distributor Rotation

SPARK PLUGS

Application	Gap In. (mm)	Torque Ft. Lbs. (mkg)
All Models	.024 (.6)	18 (2.5)

Spark Plug Type

Application	Bosch No.
All Models	WR9DS

HIGH TENSION WIRE RESISTANCE

Carefully remove ends of wire from spark plug and distributor. Using an ohmmeter, check resistance of wire while gently twisting wire. If resistance is not to specification, or fluctuates from infinity to any value, replace wire.

Resistance (Ohms) Per Wire

Application	Resistance
All Models	25,000-30,000

DISTRIBUTOR

All models are equipped with Bosch transistorized electronic ignition. No adjustments are necessary.

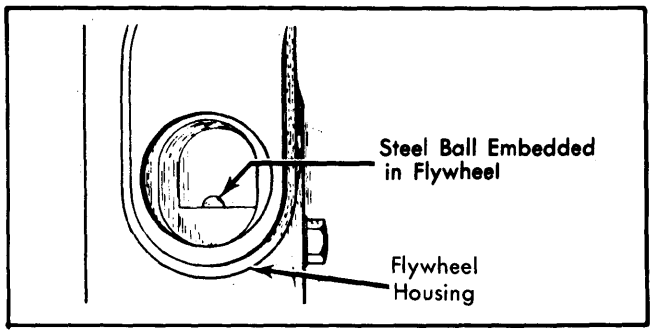

Fig. 2 Ignition Timing Mark Location

IGNITION TIMING

With engine at normal operating temperature, connect a timing light and tachometer to vehicle. Disconnect and plug distributor vacuum line. Start engine and adjust speed to specifications shown in following table. To adjust ignition timing, rotate distributor until center of ball embedded in flywheel is visible at edge of inspection hole.

Ignition Timing Specifications

Application	RPM	Dynamic Timing
All Models	2200	25° BTDC

TUNE-UP (Cont.)

IDLE SPEED & MIXTURE

1) Connect tachometer to engine. Remove caps at exhaust manifold test points and connect CO meter. Warm engine to normal operating temperature and check ignition timing and idle speed. Adjust idle by turning idle air screw on throttle housing.

2) Measure CO level. Disconnect oxygen sensor (plug below distributor on fender panel) and note CO reading. If level changes, adjustment is necessary.

NOTE – *Do not accelerate engine while adjusting CO%.*

3) Adjust mixture with Allen wrench through opening in fuel distributor (remove plug). After adjustment, reconnect oxygen sensor and ensure CO level does not change. Repeat procedure until both mixture and idle speed are correct.

Idle Speed & CO Level

Application	Idle RPM	CO%
Man. Trans.	800-900	①0.2-1.2
Auto. Trans.	900-1000	①0.2-1.2

① – Oxygen sensor disconnected.

FUEL PUMP PRESSURE

Application	psi (kg/cm²)
All Models	64-74 (4.5-5.2)

EXHAUST EMISSION SYSTEMS

See EXHAUST EMISSION SYSTEMS section.

GENERAL SERVICING

IGNITION

DISTRIBUTOR

All models are equipped with Bosch electronic ignition systems.

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

IGNITION COIL

Resistance	Ohms at 68°F (20°C)
Primary	1.7-2.1

FUEL SYSTEMS

FUEL INJECTION

All models are equipped with Bosch Lambda CIS fuel injection with oxygen sensor.

Other Data & Specifications – *See Tune-Up and Bosch Lambda CIS Fuel Injection in FUEL SYSTEMS Section.*

ELECTRICAL

BATTERY

Application	Amp. Hr. Rating
All Models	55

Battery Location – In engine compartment.

STARTER

All models are equipped with Bosch Starters.

ALTERNATOR

Application	Rated Amp. Output
All Models	55

ALTERNATOR REGULATOR

All models are equipped with Bosch Alternator Regulators with an operating voltage of 13.9-14.2 volts at 68°F (20°C).

FILTERS

Filter	Service Interval (Miles)
Oil Filter	Replace every 7500
Air Filter	Replace every 30,000
Fuel Filter	Replace every 30,000

GENERAL SERVICING (Cont.)

BELT ADJUSTMENT

Application	①Deflection
Alternator Belt	.2-.4" (5-10 mm)
Air Conditioning Belt	.5" (12 mm)

① – Measured with moderate hand pressure applied midway between pulleys on longest belt run.

CAPACITIES

Application	Quantity
Crankcase (Includes Filter)	4.3 qts.
Cooling System (Includes Heater)	7.4 qts.
Man. Trans. (SAE 80)	3.0 pts.
Auto. Trans. (Dexron)	2.1 qts.
Rear Axle (SAE 90)	2.0 pts.
Fuel Tank	15.9 gals.