TUNE-UP

ENGINE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER CODE

Engine can be identified by 8th digit of Vehicle Identification Number. The VIN number is stamped on a metal plate attached to top left corner of instrument panel cover.

VIN Engine Codes

Application	Code
1.6L (98") 2-Bbl.	2
2.3L (140") 2-Bbl.	A

TUNE-UP NOTES

NOTE — *Due to running changes in production and emission standards, manufacturer recommends that specifications shown on engine compartment Emission Control Tune-Up Decal be used in all instances.*

NOTE — *If the Dura Spark 2-piece distributor cap must be removed, first remove top portion, then rotor, then bottom portion. If any spark plug wire is disconnected with this system, connection must first be greased with silicone grease before it is attached.*

NOTE — *When connecting a tachometer to Dura Spark ignition coil, install the alligator clip on tachometer into the "DEC" (TACH TESTING) cavity.*

CAUTION — *On vehicles equipped with catalytic converters, do not allow or create a condition of engine misfire in more than one cylinder for more than 30 seconds. Damage to converter may result due to loading of converter with unburned air/fuel mixture.*

ENGINE COMPRESSION

Test compression with all spark plugs removed and engine warm. Crank engine through at least five compression strokes before recording pressure. Maximum compression variation between highest and lowest cylinder must not exceed 25%.

VALVE CLEARANCE

Application	Clearance
Hydraulic Lifters	Zero Lash

VALVE ARRANGEMENT

1.6L
I-E-I-E-I-E-I-E (Front to Rear)
2.3L
E-I-E-I-E-I-E-I (Front to Rear)

SPARK PLUGS

Application	Gap (In.)	Torque Ft. Lbs. (N·m)
1.6L	.042-.046	17-23 (23-31)
2.3L	.032-.036	5-10 (7-14)

Spark Plug Type

Application	Autolite No.
1.6L	AGSP-32
2.3L	AWSF-42

HIGH TENSION WIRE RESISTANCE

1) Using suitable tool (T74P-6666-A), loosen wires from spark plugs by twisting spark plug boot carefully to loosen its seal on spark plug. Turn ignition switch off and remove distributor cap.

2) Using an ohmmeter, check resistance of each wire by connecting one lead to spark plug terminal and other lead to distributor cap insert. If resistance exceeds 5000 ohms per inch, remove wire from cap and check resistance again. If still in excess of 5000 ohms per inch, replace wire.

NOTE — *Whenever a high tension wire is disconnected, the interior of the spark plug terminal boot must be coated with dielectric silicone grease before reconnection.*

DISTRIBUTOR

All models with 1.6L engine and automatic transaxle use a Thick Film Integrated (TFI) Ignition System. This system uses a small module attached to the distributor body instead of the Dura-Spark II ignition module. All other models use Dura-Spark II.

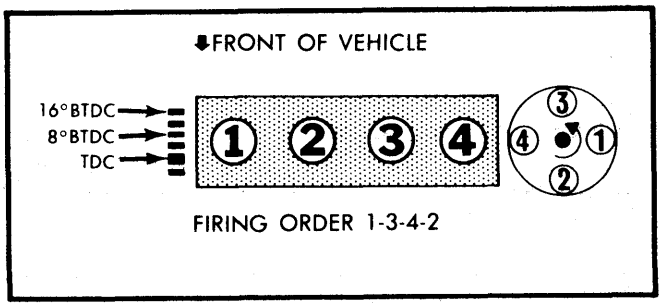

Fig. 1 1.6L Firing Order and Timing Marks

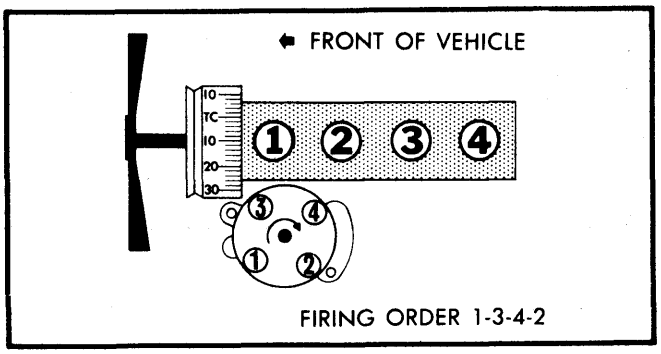

Fig. 2 2.3L Firing Order and Timing Marks

IGNITION TIMING

NOTE — *Timing instrument should be connected to number one spark plug wire using a suitable adapter or snap-on connector. Do not puncture spark plug wire or boot to make connection.*

TUNE-UP (Cont.)

1) Connect tachometer and timing light, then warm engine to normal operating temperature. Disconnect and plug vacuum hose at distributor advance unit.

NOTE – *If equipped with 3 connector Dura-Spark module with barometric pressure switch, disconnect switch and connect a jumper wire across Yellow and Black wires in distributor connector. Remove jumper and reconnect after adjustment is completed.*

2) With engine idling at specified RPM, check timing. If within ±2° of specified timing, do not reset. If not, loosen distributor and adjust timing.

3) On all models, remove test equipment. Reconnect vacuum line at distributor.

Ignition Timing Specifications (Degrees BTDC@RPM)

Application	Man. Trans.	Auto. Trans.
1.6L	10@800	10@800
2.3L	6@700	12@700

HOT (SLOW) IDLE RPM

1.6L ENGINES ONLY

1) Warm engine to normal operating temperature and wait until cooling fan comes on. Check idle speed with fan running and transmission selector in "D".

2) Place transmission in "N" and accelerate engine briefly. Recheck idle speed and adjust if necessary, using curb idle screw.

3) If equipped with dashpot, adjust clearance. If curb idle speed has been increased by 100 RPM or decreased by any amount, adjust automatic transmission linkage.

4) If equipped with air conditioning or throttle kicker, place heater controls in "HEAT" position and fan on high speed. Disconnect and plug hose at throttle kicker, then connect a jumper hose from manifold vacuum to kicker.

5) Run engine until cooling fan is operating. Check kicker speed and adjust using screw on top of kicker. Remove jumper hose, then unplug and reconnect kicker hose.

2.3L ENGINES ONLY

1) Warm engine to normal operating temperature and turn air conditioning off. Disconnect electric cooling fan (if equipped).

2) Place transmission selector in "D". Adjust curb idle using appropriate screw. See *Fig. 3*. Reconnect cooling fan and remove test equipment.

NOTE – *No A/C-ON adjustment is necessary.*

Idle Speed Specifications (RPM)

Application	Curb Idle	Throttle Kicker
1.6L	800	①
2.3L		
Man. Trans.	850	.....
Auto. Trans.	800	.....

① – See Emission Control Decal for specifications.

IDLE MIXTURE ADJUSTMENT

IDLE MIXTURE PLUG REMOVAL

All Engines – Drill a 3/32" hole through mixture screw plug. Remove both metal and plastic caps with a screw extractor.

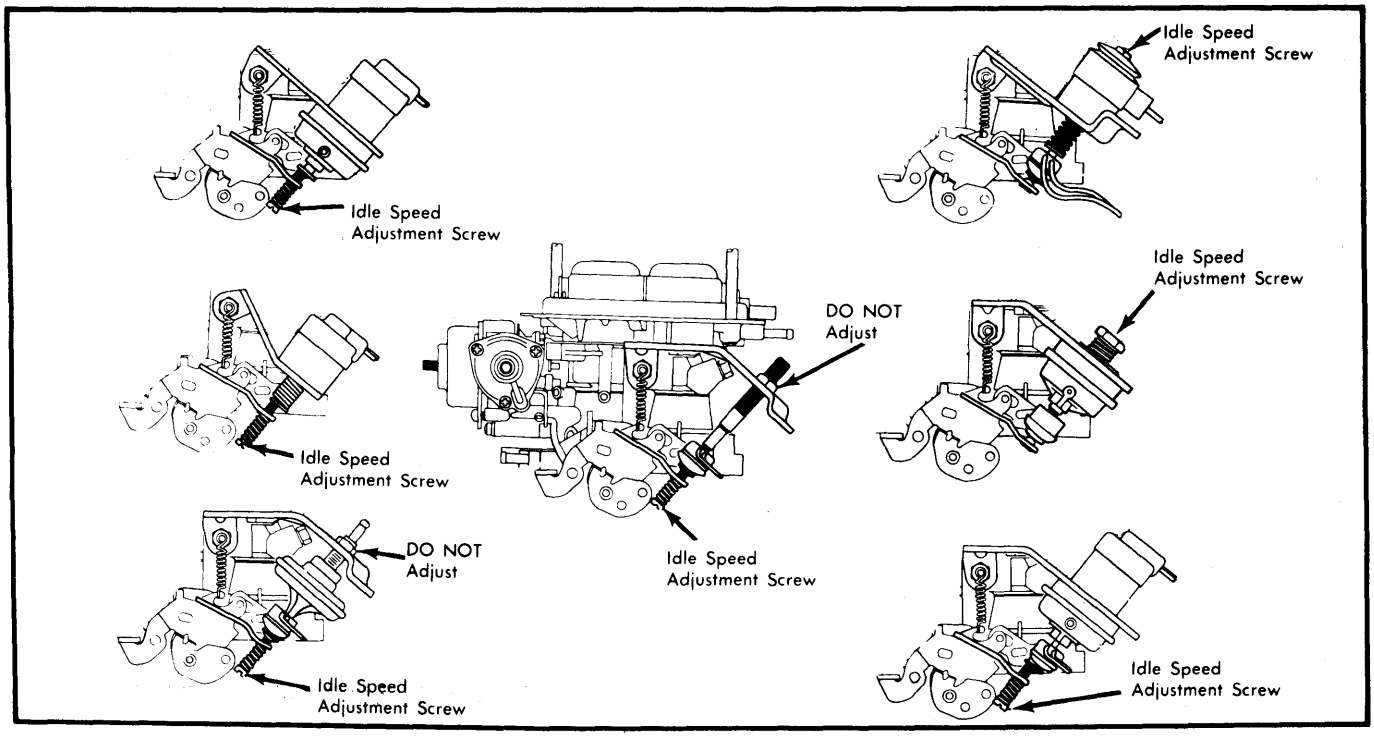

Fig. 3 2.3L Idle Adjustment Locations

TUNE-UP (Cont.)

Count the number of turns required to seat needle, then remove needle and check for wear or damage. Reinstall needle at original position.

PROPANE ENRICHMENT PROCEDURE
1.6L & 2.3L ENGINES

1) Connect tachometer and timing light. Ensure hot idle compensator is closed (if equipped). Disconnect and plug canister purge return hose at engine or air cleaner. Disconnect fresh air duct from air cleaner and insert hose from propane tank 3/4 way into air cleaner duct.

2) Disconnect and plug the 2 hoses at dump valve portion of dump valve/diverter valve. On vehicles with feedback carburetor, disconnect wires from PVS. Leave all hoses connected to air cleaner, but position air cleaner aside to make adjustments. Air cleaner must be installed when measuring RPM.

3) Check idle speed and timing. Reset if necessary. Remove PCV valve from grommet and allow to draw air. On 1.6L engines, no PCV valve is used. Locate crankcase vent hose connector and disconnect hose at air cleaner. Allow to draw fresh air.

4) Run engine briefly at 2500 RPM before each mixture check. With engine idling, gradually open propane valve and watch for RPM gain. When RPM begins to drop off, note maximum RPM gained. If gain is within "RPM Gain" specifications, do not reset.

5) If not within specifications, remove carburetor and mixture needle plug. Reinstall carburetor. Warm engine to operating temperature, run briefly at 2500 RPM, then continue procedure.

6) If measured speed gain was higher than specified, turn mixture screw counterclockwise (rich) slightly, then repeat propane procedure until gain matches "Reset RPM" speed.

7) If measured speed gain was lower than specified, turn mixture screw clockwise (lean) slightly, then repeat propane procedure until gain matches "Reset RPM" speed.

8) Reconnect PCV hose and other disconnected lines or wiring. Readjust idle speed, then install mixture screw plugs and remove test equipment.

Idle Mixture Adjustment Specifications

Application	RPM Gain	Reset RPM
1.6L		
2.3L		
Man. Trans.	70-110	100
Auto. Trans.	40-80	60

COLD (FAST) IDLE RPM

1.6L ENGINE ONLY

Warm engine to normal operating temperature, then disconnect and plug EGR hose. Place fast idle screw on 2nd step of cam and run engine until cooling fan comes on. Loosen locknut and adjust fast idle RPM. Tighten locknut and reconnect EGR hose.

NOTE – *See Emission Control Decal for specifications.*

2.3L ENGINE ONLY

1) Warm engine to normal operating temperature, then disconnect and plug EGR and purge valve hoses. If equipped with electric cooling fan, diconnect fan. Disconnect electric Ported Vacuum Switch (PVS) on models with feedback carburetor.

2) Place fast idle adjustment screw on 2nd step of cam and adjust fast idle speed. Reconnect hoses and wiring.

NOTE – *See Emission Control Decal for specifications.*

DASHPOT ADJUSTMENT

1.6L ENGINES

Dashpot must be adjusted after curb idle speed is adjusted. With engine off, collapse dashpot and measure clearance between plunger and throttle lever pad. Adjust clearance by rotating dashpot.

Dashpot Clearance Specifications

Application	Clearance (In.)
1.6L	
Man. Trans. ①	.12-.16
Auto. Trans.	.14-.18

① – Calibrations 2-3C-RO, 2-3E-RO and 2-3X-RO, set to .04-.08".

AUTOMATIC CHOKE

All models are equipped with tamper-proof choke covers that are riveted on. No adjustment is possible.

FUEL PUMP

Make all tests with engine at normal operating temperature and at idle speed with transmission in neutral. When making pressure test pinch off pump-to-tank fuel return line.

Application	Specification
Pressure	
1.6L	4.5-6.5 psi
2.3L	5.0-7.0 psi
Volume	
1.6L	1 pint in 30 sec.
2.3L	1 pint in 20 sec.

EXHAUST EMISSION SYSTEMS

See EXHAUST EMISSION SYSTEMS section.

GENERAL SERVICING

IGNITION

DISTRIBUTOR

Models with 1.6L engines and automatic transaxle are equipped with the TFI ignition system. All other models use Dura-Spark II ignition systems.

IGNITION COIL

Coil Resistance (Ohms@75°F)

Application	Primary	Secondary
Dura-Spark II	0.8-1.6	7700-10,500
TFI	0.3-1.0	8000-11,500

CARBURETION

CARBURETORS

Application	Model
1.6L	Motorcraft 740
2.3L	Motorcraft 5200 or 6500

ELECTRICAL

BATTERY

Application	Standard Amps	Optional Amps
1.6L	48	.....
2.3L	45, 54	54

STARTER

Motorcraft positive engagement type.

Starter Specifications

Application	Volts	Amps	Test RPM
All Models	12	67	7380-9356

ALTERNATOR

Motorcraft external regulator alternator.

Application	Std. Amp.	Opt. Amp.
All Models	40	60, 65

ALTERNATOR REGULATOR

Motorcraft Solid State Electronic Regulator, calibrated and preset by manufacturer. No adjustment is required or possible on this unit.

COOLING CAPACITIES

Application	Capacity
Escort, EXP, LN7 & Lynx	8.1 qts.
All Other Models	
Standards	8.6 qts.
With A/C	9.4 qts.

BELT ADJUSTMENTS

Tension (Lbs.) With Strand Tension Gauge

Application	New Belt	①Used Belt
Standard "V" Belt	50-80	40-60
Ribbed Belts②		
4K		
Air Pump	90-130	90-120
All Others	110-150	100-130
5K	130-170	120-150

① — Any belt operated more than 10 minutes.
② — 4K or 5K indicates number of grooves per inch.

TRANSMISSION & DIFFERENTIAL CAPACITIES

Application	Capacity
Man. Transaxle (ATF Type "F")	5.0 pts.
Man. Trans. (Man. Trans. Lube)	
4 Spd.	
80ET	2.8 pts.
SR4	3.5 pts.
SROD	4.5 pts.
5 Spd.	3.7 pts.
Auto. Transaxle (ATF Type "F")	9.8 qts.
Auto. Trans.	
C-3 (Dexron II)	8.0 qts.
C-5 (ATF Type "H")	11.0 qts.
Rear Axle (Hypoid Gear Lube)	
6.75" Axle	2.5 pts.
7.5" Axle	3.2 pts.

OIL & FUEL CAPACITIES

Application	Capacity
Crankcase	
1.6L (Add .5 qt. for filter)	3.5 qts.
2.3L (Add 1 qt. for fillter)	4.0 qts.
Fuel Tank	
Escort, Lynx	
Man. Trans.	10.0 gals.
Auto. Trans.	11.3 gals.
EXP, LN7	11.3 gals.
Capri, Mustang	15.4 gals.
Cougar, Fairmont, Granada, Zephyr	
Std.	16.0 gals.
Opt.	20.0 gals.

REPLACEMENT INTERVALS

Component	Interval (Miles)
Oil Filter	
1.6L	15,000
2.3L	7500
Air Filter	30,000
PCV Filter	
1.6L	30,000
2.3L	52,500
Spark Plugs	30,000
Timing Belt (1.6L)	60,000