

TUNE-UP

ENGINE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER CODE

Engine can be identified by the 8th digit of the Vehicle Identification Number. This number is stamped on a plate located on top left corner of instrument panel.

VIN Engine Codes

Application	Code
4.2L (255") 2-Bbl.	D
5.0L (302") 2-Bbl.	F
5.0L (302") EFI	F
5.8L (351") 2-Bbl.	G

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, and then bottom portion. If any spark plug wire is disconnected with this system, the connection must first be greased with silicone grease before reconnection.

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

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 converter with unburned air/fuel mixture.

VALVE CLEARANCE

Hydraulic Lifters Zero Lash

VALVE ARRANGEMENT

All Models
 E-I-E-I-E-I-E-I (Left bank, front to rear).
 I-E-I-E-I-E-I-E (Right bank, front to rear).

SPARK PLUGS

Application	Gap (In.)	Torque Ft. Lbs. (N·m)
All Models048-.052	10-15 (16-20)

Spark Plug Type

Application	Autolite No.
4.2L & 5.0L	ASF-52
5.8L	ASF-42

HIGH TENSION WIRE RESISTANCE

1) Loosen wires from spark plugs by twisting spark plug boot carefully to loosen seal on plug. Remove wires by pulling on plug boot. Remove distributor cap from distributor, leaving wires connected to cap.

NOTE — DO NOT disconnect wires from distributor cap unless replacement is necessary.

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

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

DISTRIBUTOR

Models not equipped with EEC III use Dura Spark II ignition systems. EEC III models use Dura Spark III. No adjustment is required on any model.

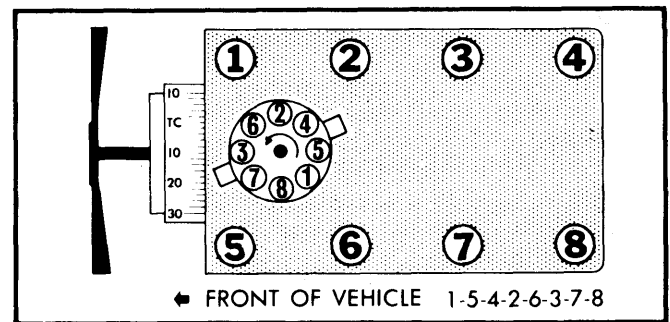


Fig. 1 4.2L & 5.0L Firing Order & Timing Marks

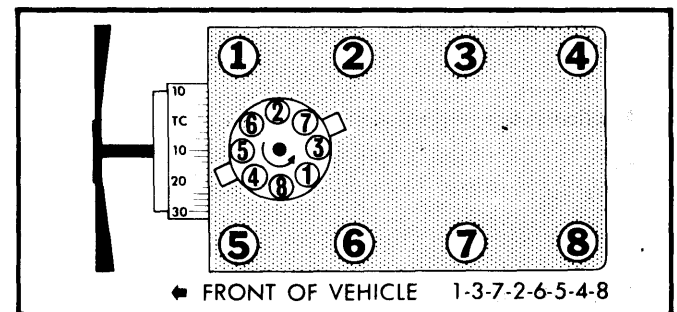


Fig. 2 5.8L Firing Order & Timing Marks

IGNITION TIMING

NOTE — The Continental Mark VI is equipped with electronic fuel injection which incorporates the EEC (Electronic Engine Control) system and there are no adjustments to ignition timing.

Non-EEC Engines — 1) Place transmission in "P" or "N" and place air conditioner and heater in "OFF" position. Remove vacuum hoses at vacuum advance connection on distributor and plug hoses.

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- 2) Connect inductive timing light and tachometer. If vehicle is equipped with barometric pressure switch, disconnect it from the ignition module and put a jumper wire across connector pins at ignition module.
- 3) If equipped with MCU (Microprocessor Control Unit), disconnect MCU wire harness at ignition module and place jumper wire across connector pins at ignition module.
- 4) Start engine and allow it to reach normal operating temperature. With engine at timing RPM, check and or adjust ignition timing to specifications.
- 5) Unplug and reconnect hoses, remove jumper wires from barometric pressure switch and MCU, and reconnect wires.

**Ignition Timing Specifications
(Degrees BTDC@RPM)**

Application	Man. Trans.	Auto. Trans.
4.2L		
Federal		8@800
Calif.		12@800
5.0L	12@800	8@800
5.8L		①8@600

① — Calibration number 2-24P-R10 is 12@600.

HOT (SLOW) IDLE RPM

NOTE — Relocate air cleaner while making adjustments, but leave all hoses connected. Install air cleaner while making speed checks. Do not apply foot brake on hydro-boost systems as engine RPM will be affected during speed checks.

NOTE — Adjustment procedures vary with engine size and carburetor type or fuel injection. Locate the appropriate procedure for the vehicle being serviced and follow only the steps indicated for that vehicle.

ALL V8 ENGINES

2150 2-Bbl. & 7200 2-Bbl. — 1) With transmission in "N" or "P" and air conditioning and heater "OFF", warm engine to normal operating temperature. Disconnect and plug vacuum hose at throttle kicker.

2) With transmission in specified position, check curb idle RPM. If adjustment is necessary, adjust curb idle speed screw or saddle bracket adjusting screw (if equipped) as necessary.

3) Place transmission in "N" or "P" and increase engine RPM momentarily. Place transmission in specified position and recheck curb idle RPM. Also check and or adjust dashpot clearance. Reconnect vacuum hose at throttle kicker.

EFI — 1) With transmission in "N" or "P" and air conditioner and heater "OFF", warm engine to normal operating temperature.

2) Place transmission in specified position and turn off engine. Restart engine and run at 2000 RPM for 60 seconds in neutral. Let engine stabilize for 15 seconds. Check and or adjust curb idle speed within 60 seconds.

3) Place transmission in "D" to adjust curb idle RPM. If curb idle RPM is to low, turn engine off and turn saddle bracket adjusting screw 1 full turn clockwise. Repeat steps 2) and 3) until specified curb idle RPM is reached.

4) If curb idle RPM is to high, turn saddle bracket adjusting screw counterclockwise until specified RPM is reached and recheck.

Curb Idle Speed

Application	①RPM
4.2L 2-Bbl.	
All Models	500
5.0L	
2-Bbl.	500
EFI	550
5.8L 2-Bbl.	
Police Only	600

① — With transmission in "D".

IDLE MIXTURE ADJUSTMENT

NOTE — No idle mixture adjustment is possible on vehicles with EFI or 7200VV 2-Bbl. carburetors. If engine performance is unsatisfactory, see Ford Electronic Engine Control in COMPUTERIZED ENGINE CONTROL Section.

MIXTURE SCREW CAP REMOVAL

Remove carburetor, drain fuel bowl, and mount upside down. Place pliers underneath mixture cap to support it, then tap plug tang with pin punch and drive cap out. Repeat procedure for second mixture screw cap. After adjustment, replace mixture screw caps.

**PROPANE ENRICHMENT PROCEDURE
2150 CARBURETORS ONLY**

1) Leave all vacuum signal hoses attached to air cleaner assembly when relocating air cleaner for carburetor adjustments. Air cleaner must be installed for engine speed checks.

CAUTION — Do not let engine idle for extended periods, as catalyst overheating may cause excessive underbody temperatures.

2) Apply parking brake and block wheels. Disconnect automatic brake release and plug vacuum connection. Connect tachometer. Remove fresh air duct from air cleaner and insert hose from propane supply 3/4 way into air cleaner.

3) Ensure hot idle compensator is closed (if equipped). Disconnect canister purge return hose at engine and plug connection. Disconnect purge valve hose at air cleaner and plug nipple.

4) On vehicles with air injection, and 2 dump valve vacuum fittings, disconnect and plug both hoses. On vehicles with 1 fitting, remove and plug hose, then connect a hose from manifold vacuum to fitting.

5) Check engine idle and timing and correct if necessary. Disconnect PCV valve from grommet and allow to draw fresh air. Run engine briefly at 2000 RPM.

6) With engine idling, open propane valve slowly and watch for RPM gain. When speed begins to drop off, note maximum speed gain. If gain is within "RPM Gain" specifications, do not reset.

7) If not within specifications, remove carburetor and mixture screw plugs. Reinstall carburetor and run engine until warm, then accelerate briefly to 2000 RPM. Proceed with adjustment.

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

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

10) Install mixture screw caps. Reconnect PCV valve and other vacuum lines. Readjust idle speed if necessary, then remove test equipment.

Idle Mixture Adjustment Specifications

Application	RPM Gain	Reset RPM
5.0L Fed. Capri & Mustang	10-30	10
All Other Models	30-90	60

COLD (FAST) IDLE RPM

EFI - 1) Warm engine to operating temperature. Disconnect and plug vacuum line at EGR valve and fast idle pulldown motor. Stop engine.

2) Set fast idle lever on specified step of fast idle cam. Start engine and check idle speed between 20-60 seconds after engine is started. Adjust if necessary.

NOTE — *If speed is not checked between 20-60 seconds after engine starts, stop engine and repeat procedure.*

3) Reconnect vacuum line at EGR valve and fast idle pulldown motor. Remove test equipment.

All Except EFI — Warm engine to operating temperature. Disconnect and plug hose at EGR valve. Place fast idle screw on specified step of fast idle cam and adjust RPM. Reconnect EGR vacuum line and remove test equipment.

NOTE — *Fast idle adjustment specifications not available from manufacturer. See Emission Control Decal in engine compartment for specifications.*

AUTOMATIC CHOKE

No choke adjustment is possible due to riveted, tamperproof choke assembly.

FUEL PUMP

Carbureted Models — Check fuel pump volume and pressure at idle RPM. Pinch off fuel return line.

Fuel Injected Models — Disconnect the return line at throttle body and connect hose to container. Connect pressure gauge at diagnostic fitting on throttle body. Disconnect wiring connector at fuel tank and apply 12 volts to pump with jumper wire for 10 seconds.

Fuel Pump Specifications

Application	Specification
Mechanical Pump	
Pressure	6.0-8.0 psi
Volume	1 pt. in 20 seconds
Electric Pump (EFI)	
Pressure	
Pumping	35-45 psi
Rest	Min. 30 psi
Volume	10 oz. in 10 seconds

EXHAUST EMISSION SYSTEMS

See EXHAUST EMISSION SYSTEMS section.

GENERAL SERVICING

IGNITION

DISTRIBUTORS

All vehicles with EEC are equipped with Dura Spark III ignition modules. All others are equipped with Dura Spark II ignition modules.

IGNITION COIL

Coil Resistance (Ohms 75°F)

Application	Primary	Secondary
All Models	1.13-1.23	7700-9300
Ballast Resistor (@75° F)	1.05-1.15 ohms	
Coil Output (@75° F)	28 KV Min.	

CARBURETION/FUEL INJECTION

CARBURETORS

Application	Model
4.2L & 5.0L	
Federal	
Ford & Mercury with AOT	Motorcraft 7200VV
All Other Models	Motorcraft 2150
Calif.	Motorcraft 7200VV
5.8L	
All Models	Motorcraft 7200VV

FUEL INJECTION

All Lincoln and Mark VI models are equipped with electronic fuel injection (EFI).

GENERAL SERVICING (Cont.)

ELECTRICAL

BATTERY

Application	Amps
Ford, Mercury, Mustang, Thunderbird, Cougar XR7	36
Lincoln Continental	45
Capri, Fairmont, Zephyr	54
Lincoln Town Car & Mark VI	54

STARTER

All models use a Motorcraft positive engagement starter.

Application	Volts	Amps	Test RPM
All Models			
4" Armature	12	80	6700 Min.
4½" Armature.....	12	85	7380-9356

ALTERNATOR

Motorcraft external regulator alternator.

Application	Rated Amp Output
All Models	60

ALTERNATOR REGULATORS

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

REPLACEMENT INTERVALS

Application	Interval (Miles)
Oil Filter	7,500
Air Filter	30,000
Fuel Filter	50,000
PCV Valve	30,000
Spark Plugs	30,000

OIL & FUEL CAPACITIES

Application	Quantity
Crankcase (includes filter)	
All Models	5.0 qts.
Fuel Tank	
Capri & Mustang	15.4 gals.
Fairmont & Zephyr	
Standard	16.0 gals.
Optional	20.0 gals.
Ford & Mercury	20.0 gals.
Lincoln Continental	22.6 gals.
Lincoln Town Car & Mark VI	18.0 gals.
Thunderbird & XR-7	21.0 gals.

COOLING CAPACITIES

Application	Quantity
4.2L	
Capri & Mustang	
Standard	14.7 qts.
With A/C	15.0 qts.
Fairmont & Zephyr	15.2 qts.
Ford & Mercury	
Standard	14.8 qts.
With A/C	15.2 qts.
Thunderbird & XR-7	
Standard	14.9 qts.
With A/C	15.0 qts.
5.0L	
Capri & Mustang	
Standard	13.1 qts.
With A/C	13.4 qts.
Ford & Mercury	
Sedan	13.0 qts.
Police & Station Wagon	13.4 qts.
Trailer Package	14.6 qts.
Continental, Mark VI & Town Car	
Standard	13.4 qts.
Trailer Package	14.6 qts.
5.8L (Police Only)	
Ford & Mercury	13.8 qts.

BELT ADJUSTMENT

Tension (Lbs.) Using Strand Tension Gauge

Application	New Belt	ⓐUsed Belt
V-Belts		
¼"	50-80	40-60
All Except Air Pump ..	120-160	90-120
Air Pump	90-130	90-120
V-Ribbed Beltsⓑ		
5K		
(w/Fixed Adjuster) ..	130-170	120-150
6K		
(w/Fixed Adjuster) ..	140-180	130-160
6K		
(w/Tensioner)	85-140	80-140

ⓐ — Any belt operated for more than 10 minutes.

ⓑ — "K" designation indicates number of V-ribs per inch.

GENERAL SERVICING (Cont.)

TRANSMISSION & DIFFERENTIAL CAPACITIES	
Application	Quantity
Man. Trans. (Ford Man. Trans. Lube)	
Capri & Mustang	
4-Speed F.I.G.	2.8 pts.
4-Speed SR4	3.5 pts.
4-Speed Overdrive	4.5 pts.
5-Speed Overdrive	3.7 pts.
Fairmont & Zephyr	
4-Speed	2.8 pts.
Auto. Trans.	
C-5 (Type H Motorcraft ATF)	
Capri, Cougar XR7, Fairmont, Mustang,	
Zephyr	11.0 qts.
AOT (Dexron II)	
Continental, Ford, Mercury, Mark VI,	
Thunderbird, Lincoln Town Car	12.0 qts.
Rear Differential (Hypoid Gear Lube)	
Capri, Fairmont, Mustang, Zephyr	
6.75" Ring Gear	2.5 pts.
7.50" Ring Gear	3.2 pts.
Ford, Mercury, Lincoln Town Car, Mark VI	
8.50" Ring Gear	3.75 pts.
Cougar XR7 & Thunderbird	3.25 pts.