1982 Ford V6 Tune-Up

TUNE-UP

ENGINE IDENTIFICATION

The engine can be identified by the eighth digit of the Vehicle Identification Number (VIN), which is stamped on a metal plate located at the upper left corner of dash.

VIN ENGINE CODES

Application	VIN Code
3.8L (232") 2-Bbl.	3

TUNE-UP NOTES

NOTE: Due to production changes, always refer to Engine Tune-Up Decal in engine compartment before attempting tune-up. In the event of a conflict between specifications given in this manual and decal specifications, use the decal specifications.

CAUTION: When performing tune-up on vehicles equipped with a catalytic converter, do not allow or create a condition of engine misfire in one or more cylinders for an extended period of time. Damage to converter from overheating may occur due to loading with unburned fuel.

ENGINE COMPRESSION

Test compression with all spark plugs removed and engine at normal operating temperature. Crank engine through at least 5 compression strokes before recording reading. Maximum compression variation should not exceed 25% between highest and lowest cylinder.

VALVE CLEARANCE

All models are equipped with hydraulic lifters. Valves should be adjusted to zero lash.

VALVE ARRANGEMENT

I-E-I-E-I-E (Front to rear, both banks)

SPARK PLUGS

SPARK PLUG SPECIFICATIONS

Application	Gap In. (mm)	Torque Ft. Lbs. (N.m)
All Models	.044 (1.2)	17 (23)

SPARK PLUG TYPE

Application	Motorcraft No.
All Models	AGSP-52

HIGH TENSION WIRE RESISTANCE

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

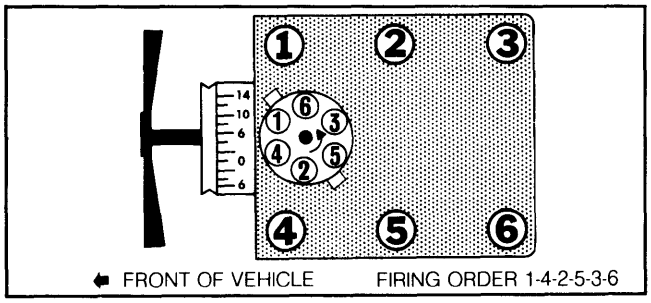
2) Using an ohmmeter, check resistance of each wire. Connect one ohmmeter lead to spark plug terminal and other lead to distributor cap insert.

3) Replace any wire with over 5000 ohms resistance per inch. New wires should have a resistance of 7000 ohms per foot.

DISTRIBUTOR

All models are equipped with Dura-Spark II ignition system. No adjustments are necessary.

Fig. 1: Timing Mark and Firing Order



Receptacle for magnetic timing light is located at 135° ATDC.

IGNITION TIMING

1) Place transmission in neutral or "Park". Remove vacuum hose from distributor vacuum advance connection, and plug hose. Place mark on proper degree line of damper (or of pointer and damper notch). Connect timing light using inductive pickup or adapter.

2) Do not puncture spark plug leads. Connect an accurate tachometer. If vehicle is equipped with a barometric pressure switch, disconnect it from ignition module. Connect a jumper wire across pins at ignition module connector. Start engine and warm to operating temperature.

3) With engine idling in neutral, check timing. If within 2°, do not reset. If outside specifications, loosen distributor hold-down bolt and rotate distributor to set timing. Recheck after tightening bolt. Ensure desired degree mark on timing pointer aligns with center of timing slot on damper (not leading or trailing edge of slot).

IGNITION TIMING (Degrees BTDC@RPM)

Application	Auto. Trans.	Man. Trans.
All Models	10@900	12@800

HOT (SLOW) IDLE RPM

Curb Idle & TSP-Off RPM

1) Place transmission in neutral or "PARK". Bring engine to operating temperature. Place A/C control

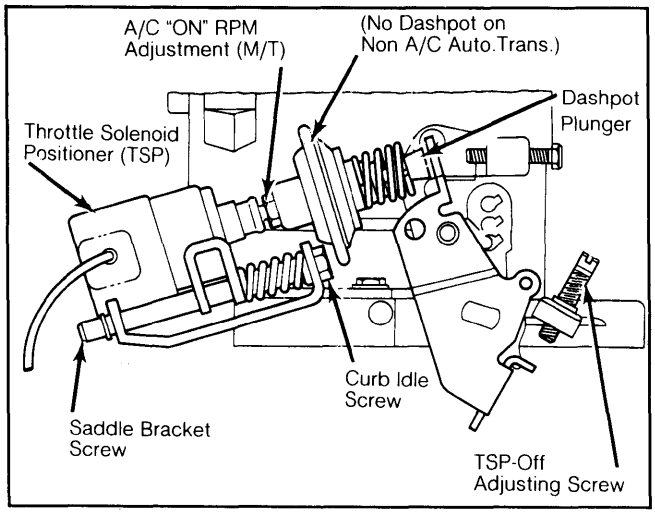
1982 Ford V6 Tune-Up

TUNE-UP (Cont.)

on "OFF" position. Disconnect and plug the vacuum hoses to thermactor air bypass valve.

2) Adjust curb idle to correct RPM. On air conditioned vehicles with manual transmission, use the saddle bracket adjusting screw. *See Fig. 2.*

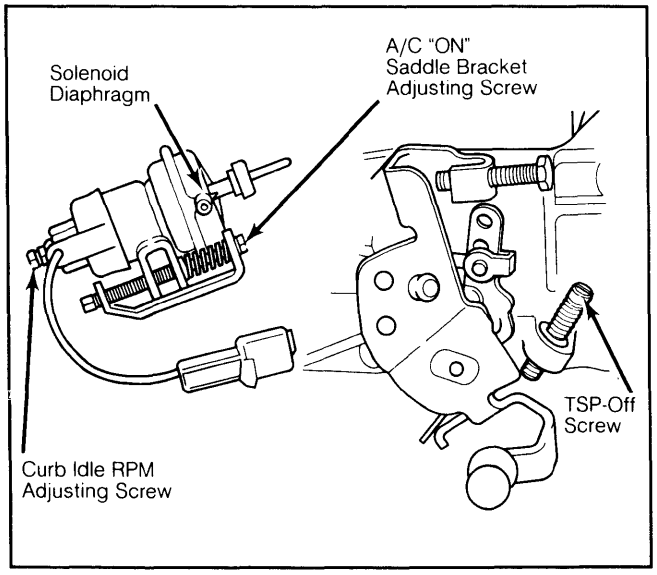
Fig. 2: Adjusting Saddle Bracket Screw



Man. Trans. with A/C, Auto. Trans. w/o A/C.

3) If vehicle has automatic transmission, use the hex head protruding from the rear of the TSP (Throttle Solenoid Positioner) diaphragm assembly. *See Fig. 3.*

Fig. 3: Adjusting Curb Idle With Hex Head Screw

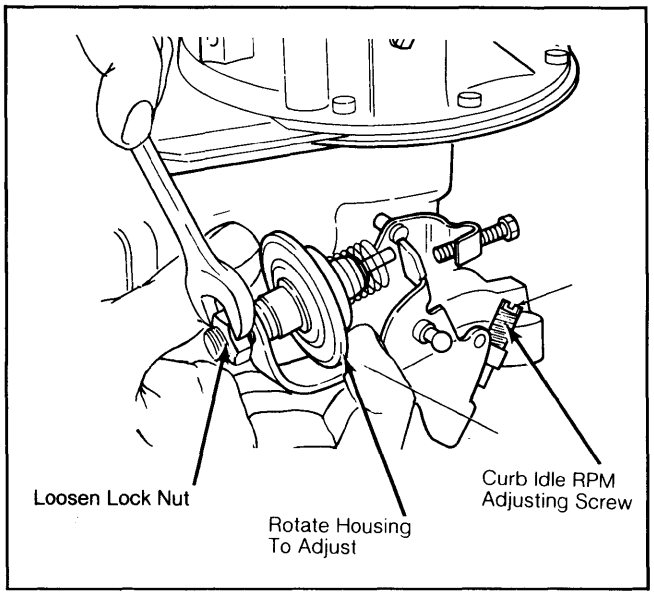


Auto. Trans. with A/C.

4) If vehicle does not have air conditioning, use saddle bracket adjusting screw for vehicles with automatic transmissions. *See Fig. 2.* Use curb idle screw for vehicles with manual transmission. *See Fig. 4.*

5) Disconnect TSP wire. Check TSP-Off RPM. Adjust if necessary with adjusting screw. *See Fig. 2 and Fig. 4.* Reconnect TSP wire. Check and adjust dashpot clearance to .09-.14" (2.3-3.6 mm). Remove plug from thermactor air by-pass valve vacuum hose and reconnect.

Adjusting Curb Idle



Man. Trans. without A/C.

CURB IDLE SPEED (RPM)

Application	Curb Idle	TSP-Off
Man. Trans.	750	
Auto. Trans.	[1] 700	[1] 550

[1] — Calibration No. 2-56D-R0 curb idle 600, TSP-Off RPM not available from manufacturer.

TSP-On RPM

NOTE: TSP-On adjustment is required on vehicles with A/C only.

1) Bring engine to normal operating temperature. Adjust curb idle to correct RPM. Disconnect A/C clutch wire. Turn A/C to maximum cooling and high blower position.

2) Adjust TSP-On RPM. *See Emission Control Decal for specification.* If vehicle has manual transmission, use hex on solenoid dashpot assembly. *See Fig. 3.* If vehicle has automatic transmission, use saddle bracket adjusting screw. *See Fig. 2.*

COLD (FAST) IDLE RPM

NOTE: Before performing Cold (Fast) Idle RPM adjustment, perform Hot (Slow) Idle RPM preliminary adjustments.

1) Place transmission in neutral or "PARK". Bring engine to normal operating temperature. Disconnect the vacuum hose at the EGR valve and plug. Disconnect the vacuum hoses at thermactor air by-pass valve and plug.

2) Disconnect the vacuum hose at the EVAP purge valve. Place the fast idle adjustment mechanisim on top step of the fast idle cam. Adjust idle to specification. Remove the plugs from hoses and reconnect.

1982 Ford V6 Tune-Up

TUNE-UP (Cont.)

FAST IDLE RPM

Application	Man. Trans.	Auto. Trans.
All Models	2100	2200

IDLE MIXTURE

NOTE: If adjustments to the air/fuel mixture are made that require removing the idle limiter caps, it is imperative that the BLUE SERVICE LIMITER CAPS be installed. Idle mixture should be adjusted only during carburetor repair or when necessary as a result of government inspection laws.

PROPANE ENRICHMENT PROCEDURE

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 vacuum parking brake release (if equipped), and plug vacuum connection. Connect tachometer.

3) Disconnect and plug fuel evaporative purge valve signal hose at engine. Disconnect purge hose at air cleaner and plug nipple.

4) Disconnect flexible fresh air tube from air cleaner duct or adapter. Insert hose from propane enrichment tool (Rotunda T75L-9600-A) about ¾ of the way into duct or fresh air tube. Disconnect PCV valve from grommet, and allow valve to draw underhood air during adjustment.

5) For vehicles equipped with thermactor, disconnect and plug hoses of dump valves equipped with 2 fittings. If valves have 1 fitting, remove and plug hose at valve. Connect slave hose to dump valve and intake manifold vacuum source.

6) Verify ignition timing is set to specification and adjust if necessary. With engine at normal operating temperature, check curb idle speed or A/C-Off RPM. Adjust as necessary. Run engine at 2500 RPM for 15 seconds before each mixture check.

7) With engine idling in neutral, gradually open propane tool valve and watch for engine speed gain on tachometer. When speed reaches maximum and begins to drop off, note amount of speed gain.

NOTE: Propane cartridge must be in vertical position. If engine speed will not drop off, check bottle gas supply. If necessary, repeat test with new bottle.

8) Compare measured speed gain with specifications. If mixture adjustment is necessary, adjust so gain is within "Reset RPM" specifications. If propane enrichment speed gain is within "RPM Gain" specifications, proceed to step **11)**.

9) If measured speed gain is greater than specification, turn mixture screws counterclockwise in equal amounts, and recheck until measured speed rise is within "Reset RPM" specifications. Then proceed to step **11)**.

10) If measured speed gain is less than specification, turn mixture screws clockwise in equal amounts, and recheck until measured speed rise is within "Reset RPM" specifications. Then proceed to step **11)**.

11) Check curb idle, and remove all test equipment. Reconnect hoses in original positions, and connect PCV valve.

IDLE MIXTURE SPECIFICATIONS (PROPANE ENRICHMENT)

Application	RPM Gain (Check)	Reset RPM (Adjust)
All Models	20-80	30

AUTOMATIC CHOKE

Loosen choke thermostat cover screws and turn cover in direction indicated on cover to specified setting. Tighten screws.

AUTOMATIC CHOKE SPECIFICATIONS

Application	Choke Setting
All Models	"V" Notch

FUEL PUMP

Check fuel pump at idle RPM. Engine should be at normal operating temperature. Pinch off fuel return line during test.

FUEL PUMP SPECIFICATIONS

Application	Pressure psi (kg/cm²)	Volume Pints (Liters)
All Models	6.0-8.0 psi (2.8-3.8)	1 in 20 sec. (.47 in 20 sec.)

EMISSION CONTROL

NOTE: See appropriate article in EMISSION CONTROL Section.

GENERAL SERVICING

IGNITION

DISTRIBUTOR

All models are equipped with Duraspark II Ignition systems. Units are self-contained and require no adjustments.

DISTRIBUTOR PICKUP COIL RESISTANCE (Ohms)

All Models	400-1000

1982 Ford V6 Tune-Up

GENERAL SERVICING (Cont.)

TOTAL SPARK ADVANCE@2500 RPM

Application	W/Vac. Advance	W/O Vac. Advance
Man. Trans.	31-41°	17-22°
Auto. Trans.	33-41°	16-20°

IGNITION COIL

COIL RESISTANCE (Ohms)

Application	Primary	Secondary
All Models	0.8-1.6	7700-10,500

FUEL SYSTEMS

CARBURETORS

Application	Model
All Models	Motorcraft 2150A

ELECTRICAL

BATTERY

BATTERY SPECIFICATIONS

Application	Capacity (Amp. Hours)	Discharge Rate (Amps.)
Standard	36	155
Optional	45	190

STARTER

Motorcraft positive engagement type with either a 4" or 4½" armature.

STARTER SPECIFICATIONS

Application	Volts	Amps.	Test RPM
4" Armature	12	70	6700 Min.
4½" Armature	12	80	7380-9356

ALTERNATORS

All models use Motorcraft alternators.

ALTERNATOR SPECIFICATIONS

I.D. Tag Color	Rated Amp. Output
Rear Terminal	
Orange	40
Green	60
Side Terminal	
Black	70
Red	100
Field Current Draw@12 Volts	
All Models	4.0 Amps.

ALTERNATOR REGULATORS

Two Motorcraft electronic voltage regulators are used. Although both look alike, they are not interchangeable.

REGULATOR IDENTIFICATION

Application	Color Coding
Used with Ammeter	Blue label
Used with Indicator Lamp	Black label

ADJUSTMENTS

BELT ADJUSTMENT

Application	Tension Using Strand Tension Gauge Lbs. (Kg)
New Belt	
Serpentine	160-190 (72-86)
Air Conditioning	135-145 (61-66)
Alternator	120-160 (54-72)
All Others	120-130 (54-59)
Used Belt [1]	
Serpentine	130-160 (59-72)
Air Conditioning	90-100 (41-45)
Alternator	90-120 (41-54)
All Others	70-80 (32-36)

[1] — Any belt operated 10 minutes or more.

SERVICE INTERVALS

REPLACEMENT INTERVALS

Application	Miles
Oil Filter	10,000
Air Filter	30,000
PCV Filter	30,000
Fuel Filter	5000
Spark Plugs	30,000

CAPACITIES

FLUID CAPACITIES

Application	Quantity
Cooling System	
Standard Cooling	10.0 qts. (9.5L)
Super Cooling	11.0 qts. (10.4L)
Crankcase	[1] 6.0 qts. (5.6L)
Auto. Trans.	
C5 3-Speed	22 pts. (10.4L)
C6 3-Speed	24 pts. (11.2L
Man. Trans.	
Ford 3.03 3-Speed	3.5 pts. (1.6L)
New Process 435 4-Speed	
W/Ext. Housing	7.0 pts. (3.3L)
W/O Ext. Housing	6.5 pts. (3.0L)
S.R.O.D. 4-Speed	4.5 pts. (2.1L)
Fuel Tank	
Short Bed	
Standard	16.5 gals. (62.1L)
Auxiliary	19.0 gals. (71.9L)
Long Bed	
Standard	19.0 gals. (71.9L)
Auxilary	19.0 gals. (71.9L)

[1] — Includes 1qt. (.95L) for filter change.