TUNE-UP

ENGINE IDENTIFICATION

Engine can be identified by eighth digit of Vehicle Identification Number, stamped on metal plate attached to left hand side of firewall. Also on metal tag attached to right bank cylinder head cover. Engine CID also cast in cylinder block on both banks between first and second core plug locations.

Application	Code Letter
304" 2-Bbl.	H
360" 2-Bbl.	N
360" 4-Bbl.	P

MODEL IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

A thirteen digit Vehicle Identification Number is stamped on a metal plate affixed to left hand side of firewall under hood. Number is decoded as follows:

J3M144CH00001

First Digit – Manufacturer.
Second Digit – Model Year.
Third Digit – Transmission Type & Assembly Plant.
Fourth & Fifth Digit – Chassis Type.
Sixth Digit – Body Style.
Seventh Digit – Group (G.V.W.).
Eighth Digit – Engine Code.
Remaining Digits – Sequence Build Number.

TUNE-UP NOTES

► *IDLE SPEED ADJUSTMENT CAUTION* – Procedures and specifications for idle speed adjustment must be followed exactly as outlined. *See "Hot (Slow) Idle RPM" under Tune-Up.*

NOTE – For other items affecting Tune-Up, see CARBURETION Section or EMISSION CONTROL Section.

COMPRESSION PRESSURE

With engine at normal operating temperature, spark plugs removed, throttle and choke valves wide open and engine at cranking speed, variation between cylinders should be no more than 10 psi.

VALVE TAPPET CLEARANCE

Hydraulic Lifters ..... Zero Lash

VALVE ARRANGEMENT

E-I-I-E-E-I-I-E (both banks, front to rear).

SPARK PLUGS

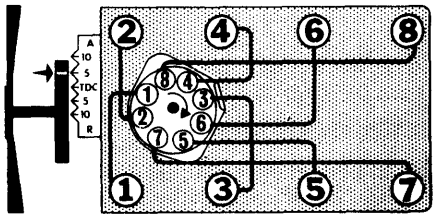
Gap ..... .033-.037"
Torque ..... 22-33 ft. lbs.

Spark Plug Type

Application	Champion No.
All	N-12Y

DISTRIBUTOR

Point Gap ..... .016"
Cam Angle ..... 29-31°
Breaker Arm Spring Tension ..... 17-21 ozs.
Condenser Capacity ..... .18-.23 mfd.



3JE01

FIRING ORDER & TIMING MARKS

IGNITION TIMING

With engine at operating temperature, running at 500 RPM and vacuum line disconnected and plugged, set timing to specifications.

Application	Timing
All	5°BTDC

HOT (SLOW) IDLE RPM

NOTE – Do not idle engine for over three minutes at a time. If idle mixture adjustment is not completed within three minutes, run engine at 2000 RPM for one minute before continuing, repeat as necessary.

To adjust engine idle RPM, engine must be at normal operating temperature and air cleaner installed. Idle RPM can be adjusted by either a standard tachometer procedure or a preferred "IR", Infared Analyzer procedure. Idle limiter caps are installed on idle mixture screws to effectively control exhaust emission levels at idle. These caps must be removed to perform standard tachometer or "lean drop idle" procedure. Caps do not normally need removal during "IR" procedure. To remove caps, install a sheet metal screw in center of cap and turn clockwise. Discard caps.

Idle Speed RPM

Application	Man. Trans.	Auto. Trans.
All	750	700

NOTE – If limiter caps are removed during either procedure, new (blue) caps must be installed. Install new caps over idle mixture screws with ear positioned against full rich stop. Do not turn mixture screws while installing new caps, as it will change setting. Press caps squarely on mixture screws.

INFARED (IR) ANALYZER PROCEDURE

With engine at normal operating temperature, Auto. Trans. in "D", Man. Trans. in "N", insert probe of analyzer 18" into tailpipe. *NOTE – If equipped with dual exhaust, insert probe into side opposite heat valve. Exhaust system must be free of leaks to obtain proper reading.* Adjust idle RPM by turning hex

TUNE-UP (Cont.)

screw on throttle stop solenoid to obtain specified RPM. To set idle mixture adjustment, observe CO level; if less than specified, turn counterclockwise 1/16 turn at a time until specified reading is obtained. If greater than specified, turn screws clockwise until specified reading is obtained. Allow ten seconds for meter to stabilize after each adjustment. If idle speed adjustment changed more than 30 RPM during mixture adjustment, reset as previously outlined and repeat mixture adjustment.

Specified CO Level

Application	CO%
4700 & 4800 Truck (Calif. Only)	1.5-1.8
All Others	0.5-1.0

TACHOMETER PROCEDURE

With engine at normal operating temperature, Auto. Trans. in "D", Man. Trans. in "N", and limiter caps removed, adjust idle RPM to 30 RPM above specified by turning hex screw on throttle stop solenoid. To adjust idle mixture, turn mixture screws from full rich stop clockwise until a loss of engine RPM is indicated, then turn screws counterclockwise until highest RPM reading is obtained at "lean best idle" setting. *NOTE — If idle speed changes more than 30 RPM during mixture adjustment, reset idle RPM as previously outlined and repeat mixture adjustment.* As a final adjustment, turn mixture screws clockwise until specified RPM drop is obtained.

Specified RPM Drop

Application	Man. Trans.	Auto. Trans.
All	40	40

COLD (FAST) IDLE RPM

With engine at normal operating temperature, set fast idle screw against second step (2-Bbl.) and middle step (4-Bbl.), and against shoulder of high step of fast idle cam. Turn fast idle adjusting screw to obtain specified fast idle RPM.

Application	Fast Idle RPM
All	1600

AUTOMATIC CHOKE SETTING

To adjust automatic choke, loosen choke cover retaining screws and rotate cover in desired direction as indicated on cover, to desired setting.

Application	Setting
All Man. Trans. (Except 4700 & 4800 W/360")	1 Rich
All Man. Trans. (4700 & 4800 W/360")	2 Rich
All Auto. Trans.	2 Rich

FUEL PUMP PRESSURE & VOLUME

Pressure	①5-6.5 psi
Volume	①1 qt. in 1 minute

① — Measured at 500 RPM.

EMISSION CONTROL

See appropriate article in EMISSION CONTROL Section.

IGNITION

DISTRIBUTOR

Application	Delco-Remy No.
304"	
Man. Trans.	1112179
Auto. Trans.	1112214
360"	
Man. Trans.	①1112112
Auto. Trans.	1112215

① — 4700 & 4800 W/360" 2-Bbl. use 1112215.

Other Data & Specifications — *See Tune-Up and Delco Distributors in ELECTRICAL Section.*

IGNITION COIL

Delco	1115266
American Motors	201632

Resistance	Ohms @ 75°F
Primary (Delco)	1.77-2.05
Secondary (Delco)	3000-20000
Primary (Amer. Mtrs.)	1.64-1.80
Secondary (Amer. Mtrs.)	9300-11800
Ballast Resistor Loom	1.30-1.40

Current Draw (Engine Stopped) ..... 3-3.5 Amps.

CARBURETION

CARBURETORS

Ford 2100

Application	Man. Trans.	Auto Trans.
304"	3DM2	3DA2
360"		
(Except 4700 & 4800)	3DM2	3RA2
360" (4700 & 4800)	3RHD2	3RHD2

Ford 4300

Application	Man. Trans.	Auto. Trans.
All	3TM4	3TA4

Other Data & Specifications — *See Tune-Up and Ford Carburetors in CARBURETION Section.*

ACCELERATOR AND DOWNSHIFT LINKAGE ADJUSTMENT

NOTE — Accelerator linkage is cable type and no adjustment is required.

Downshift Switch Adjustment — With accelerator throttle lever held in wide open throttle position, adjust switch so that plunger is fully depressed.

ELECTRICAL

BATTERY

12 Volt – Negative Ground

Application	Amp. Hr. Rating
Standard (304")	50
Standard (360")	60
Optional (All)	70

ALTERNATOR

Application	Amps.
Standard (Except 4800 Truck)	37
Standard (4800 Truck)	51
Optional (Standard W/Air Cond.)	51

Other Data & Specifications – *See Motorola Alternators in ELECTRICAL Section.*

STARTER

Application	Ford No.
All	DOFF-11001-B

Other Data & Specifications – *See Ford Starters in ELECTRICAL Section.*

ALTERNATOR REGULATOR

Application	Motorola No.
All	8RD2001

Other Data & Specifications – *See Motorola Alternator Regulators in ELECTRICAL Section.*

ENGINE

INTAKE MANIFOLD TIGHTENING

Tighten intake manifold bolts evenly to 37-47 ft. lbs.

FILTERS & CLEANERS

Filter or Cleaner	Service Interval (Miles)
Oil Filter	Replace 5000
Air Filter	①Clean 5000
Fuel Filter	Replace 15000
Auto. Trans. Filter	Replace 25000
PCV Valve	Replace 15000
Oil Filler Cap	Clean 15000

① – Replace every 1500 miles.

CAPACITIES

Application	Quantity
Cooling System	
304" (Includes Heater)	14 qts.
360" (Includes Heater)	13 qts.
Crankcase (Includes Filter)	5 qts.
Man. Trans.	
3 Speed	2.75 pts.
4 Speed	6.5 pts.
Auto. Trans.	
Oil Change	10 pts.
Overhaul	22 pts.
Transfer Case	3.25 pts.
Differential	Fill to bottom of filler plug hole.
Fuel Tank	
CJ, DJ, Commando	15.5 gals.
Wagoneer	22.0 gals.
Truck	19.0 gals.

BELT ADJUSTMENT

Tension (Lbs.) Using Strand Tension Gauge

Application	New Belt	Used Belt
All	125-155	90-115

NOTE – If A.I.R. pump is driven by power steering pump, maximum belt tension is 50 lbs.