TUNE-UP

ENGINE IDENTIFICATION

Engine can be identified by the fourth digit of the engine Build Date Code number, located on a tag attached to right side of block between No. 2 and 3 cylinders. The same identification code is used as the seventh digit of the Vehicle Identification Number.

Engine Identification Codes

Application	Code
258" (4.2L) 2-Bbl.	C

MODEL IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

A 13 digit Vehicle Identification Number is stamped on a metal plate attached to left hand side of firewall under the hood. Seventh digit identifies engine.

VIN Engine Codes

Application	VIN Code
258" 2-Bbl.	C

TUNE-UP NOTES

CAUTION — *IDLE SPEED ADJUSTMENT: 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 FUEL SYSTEMS Section or EMISSION CONTROL Section.*

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.*

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.*

ENGINE COMPRESSION

Compression Ratio	8.3:1
Recommended Fuel	Unleaded Only (87 AKI Minimum)
Compression Pressure	120-150 psi
Maximum Pressure Variation	30 psi

Measure compression pressure with engine at normal operating temperature, spark plugs removed, throttle and choke valves wide open and engine at cranking speed.

VALVE TAPPET CLEARANCE

Hydraulic Lifters	Zero Lash

VALVE ARRANGEMENT

E-I-I-E-I-E-E-I-E-I-I-E (front to rear).

SPARK PLUGS

Gap	.033-.038"
Torque	22-33 ft. lbs.

Spark Plug Type

Application	Champion No.
Federal	N13L or RN13L
Calif.	N14L or RN14L

HIGH TENSION WIRE RESISTANCE

Do not puncture spark plug wires with any type of probe. Remove spark plug wire and check resistance using an ohmmeter.

Resistance (Ohms)

Wire Length	Minimum	Maximum
0-15"	3000	10,000
15-25"	4000	15,000
25-35"	6000	20,000
Over 35"	8000	25,000

DISTRIBUTOR

All models are equipped with Solid State Ignition (S.S.I.) systems and no adjustments are required.

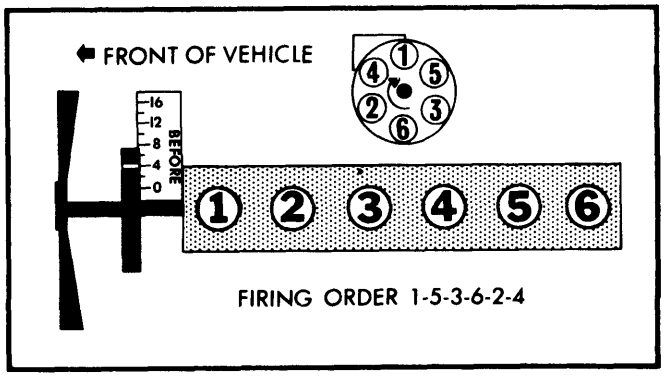

Fig. 1 258" Firing Order & Timing Mark Identification

IGNITION TIMING

NOTE — *Engines are equipped with a receptacle for a magnetic probe timing light, located 10°ATDC. Do not use this location to check timing with a conventional light.*

1) Connect timing light using inductive pickup or adaptor. Do not puncture spark plug wire. Connect tachometer, then disconnect and plug vacuum hose at distributor.

2) Start engine and adjust idle speed to specifications. Set timing at idle by loosening distributor clamp bolt and turning distributor. Recheck timing after clamp bolt is tightened.

TUNE-UP (Cont.)

Ignition Timing Specifications (Degrees BTDC@RPM)

Application	Man. Trans.	Auto. Trans.
258" 2-Bbl.		
CJ Models		
Federal	8@700	10@600
Calif.	6@700	8@600
Cherokee, Wagoneer, Truck	8@700	8@600

HOT (SLOW) IDLE RPM

1) Set parking brake and block drive wheels. Warm engine to normal operating temperature with transmission shift lever in "NEUTRAL" (Man. Trans.) or "DRIVE" (Auto. Trans.).

2) On carburetors without solenoid, turn curb idle adjusting screw to obtain specified curb idle speed. On carburetors with solenoid, turn nut on solenoid plunger to obtain specified idle speed. Tighten lock nut, if equipped. Then, disconnect solenoid wire and adjust curb idle screw to obtain 500 RPM idle speed. Reconnect solenoid wire.

Slow Idle Speed RPM

Application	Man. Trans.	Auto. Trans.
258" 2-Bbl.	600-800	500-700

IDLE MIXTURE

NOTE – *Be sure idle speed and timing are set before performing idle mixture adjustment. If mixture setting takes more than 3 minutes, run engine at 2000 RPM in neutral for one minute, then resume adjustment.*

TACHOMETER (LEAN DROP) PROCEDURE

1) Warm engine to normal operating temperature. Turn idle mixture screws to full counterclockwise position, note location of screw slot, and remove limiter caps. If screw moved during cap removal, adjust to prior position.

2) Start engine and run at idle in neutral (manual) or "D" (automatic). Turn mixture screw clockwise (leaner) until engine speed begins to drop. Then turn screw counterclockwise (richer) until highest RPM reading is obtained. This is lean best idle. Finally, turn screw clockwise until specified "Lean Drop" is obtained.

NOTE – *If final RPM differs more than 30 RPM from specified curb idle speed, reset curb idle and repeat mixture adjustment.*

3) Carefully install new limiter caps with tabs positioned against full rich stop. Press caps firmly into place.

Lean Drop RPM

Application	Man. Trans.	Auto. Trans.
258" 2-Bbl.		
Federal		
CJ Models	20	25
Cherokee, Wagoneer Truck	25	25
Calif.	50	20

COLD (FAST) IDLE RPM

Disconnect EGR vacuum line and plug carburetor ports. Disconnect TCS solenoid. With vacuum hoses disconnected and plugged at distributor, set curb idle speed. With engine running at normal operating temperature, place fast idle speed screw on second step of fast idle cam, and against shoulder of high step. Adjust screw to obtain specified fast idle speed.

Fast Idle Speed RPM

Application	Man. Trans.	Auto. Trans.
258" 2-Bbl.	1600-1800	1750-1950

AUTOMATIC CHOKE SETTING

To adjust automatic choke, loosen coil housing retaining screws and rotate housing in direction indicated by arrow on face of housing. Adjust to 2NR and tighten housing retaining screws.

FUEL PUMP PRESSURE & VOLUME

Pressure (at Idle)	4.0-5.0 psi
Volume (at Idle)	1 pint in 30 seconds
Vacuum (at Idle)	10 In. Hg (Minimum)

EMISSION CONTROL

See appropriate article in EMISSION CONTROL Section.

GENERAL SERVICING

IGNITION

DISTRIBUTOR

Motorcraft ..... Breakerless Solid State

Other Data & Specifications – *See Tune-Up & Motorcraft Distributors in ELECTRICAL Section.*

IGNITION COIL

Resistance	
Primary	1.13-1.23 ohms
Secondary	7700-9300 ohms
Coil Output	24 KV minimum

GENERAL SERVICING (Cont.)

FUEL SYSTEMS

CARBURETORS

Application	Model
258"	Carter BBD 2-Bbl.

Other Data & Specifications – *See Tune-Up and Carter Carburetors in FUEL SYSTEMS Section.*

ELECTRICAL

BATTERY

12 Volt – Negative Ground.

Application	Reserve Capacity	Cranking Amps
Green Code	75 minutes	380
Red Code	90 minutes	450

STARTER

Motorcraft	Positive Engagement Type
Free Speed Voltage	12
Free Speed Amperage	77
Free Speed RPM Range	8900-9699

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

ALTERNATOR

Delco	Solid State, Integral Regulator

Application	Amp. Output
Standard	37
Optional	63

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

ALTERNATOR REGULATORS

Delco	Solid State, Integral With Alternator (Non-Adjustable)

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

ENGINE

MANIFOLD TIGHTENING

Tighten manifold bolts in sequence shown to 23 ft. lbs.

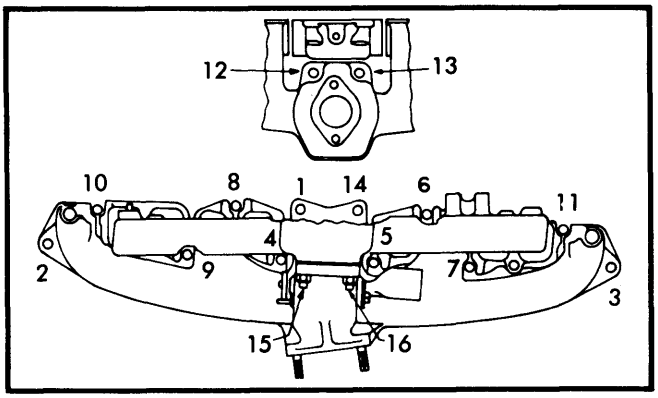

Fig. 2 Intake Manifold Tightening Sequence

CAPACITIES

Application	Capacity
Cooling System (Includes Heater)	10.5 qts.
Crankcase (Includes Filter)	5 qts.
Man. Trans.(SAE 85W-90)	
CJ5	3.5 pts.
All Others	3.0 pts.
Auto. Trans. (Dexron)	
Refill	8.5 pts.
Overhaul	17.0 pts.
Transfer Case	
CJ Series (SAE 85W-90)	4.0 pts.
Quadra-Trac (SAE 10W-30)	4.0 pts.
All Others (SAE 10W-30)	6.0 pts.
Drive Axles	Fill to bottom of filler plug hole
Fuel Tank	
CJ Series	14.8 gals.
Cherokee & Wagoneer	20.3 gals.
Truck	19.0 gals.

BELT ADJUSTMENT

Tension (Lbs.) Using Strand Tension Gauge

Application	New Belt	Used Belt
Air Pump & Pwr. Strg.①	65-75	60-70
All Other Belts	125-155	90-115

① – 3/8" belt only.

FILTERS & CLEANERS

Filter or Cleaner	Service Intervals (Miles) Regular Use	Severe Use①
Oil Filter	5000	3000
Air Filter	30,000	15,000
Fuel Filter	15,000	15,000
Auto. Trans. Filter	30,000	10,000
Fuel Vapor Canister Filter	30,000	30,000
PCV Valve	30,000	30,000
Oil Filler Cap	30,000	30,000

① – Severe use includes 30% or more of time on off road or dusty conditions, commercial hauling, snow plowing, and towing trailers over 2000 pounds, and extended idling.