TUNE-UP

Arrow
Arrow Pickup
Challenger
Champ
Colt
D50 Pickup
Sapporo

ENGINE IDENTIFICATION

Engine model and serial numbers are stamped on top edge of right front side of cylinder block. Engine model and serial numbers are as follows:

Displacement	Engine Model	Serial Number
1400 cc	G12B	12A00101 & Up
1600 cc	G32B	2A00101 & Up
2000 cc	G52B	52A00101 & Up
2600 cc	G54B	54A00101 & Up

COMPRESSION PRESSURE

Check compression pressure with engine at normal operating temperature, choke and throttle valves wide open and engine at cranking speed (250 RPM). Maximum variation between cylinders should not exceed 15 psi (1.1 kg/cm²).

Application	Pressure psi (kg/cm²)
All Models	149 (10.5)

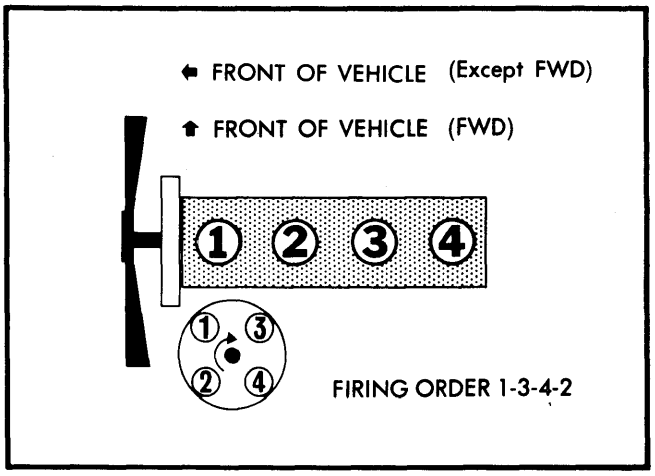

Fig. 1 Firing Order and Distributor Rotation

VALVE CLEARANCE

CAUTION — *Jet valve clearance must be adjusted before adjusting intake valve clearance. Loosen intake valve adjusting screw at least 2 full turns before adjusting jet valve.*

Check or adjust valve clearance with engine off and at normal operating temperature. To adjust valves, loosen lock nut and turn adjusting screw until specified clearance is obtained.

Valve Clearances

Application	Clearance
Jet	.006" (.15 mm)
Intake	.006" (.15 mm)
Exhaust	.010" (.25 mm)

VALVE ARRANGEMENT

Right Side — All Exhaust.
Left Side — All Intake.

SPARK PLUGS

Gap	.039-.043" (1.0-1.1 mm)
Torque	18-21 ft. lbs. (2.5-2.9 mkg)

Spark Plug Type

Application	NGK	Champion
2600 cc	BPR-5ES-11	RN-12Y
All Others	BPR-6ES-11	RN-9Y

HIGH TENSION WIRE RESISTANCE

Carefully remove high tension wires from spark plugs and distributor cap. Using an ohmmeter, check resistance of wire while gently twisting wire. If resistance is not to specification, or fluctuates from infinity to any value, replace wire.

Resistance (Ohms) Per Wire

Application	Resistance
All Models	Less Than 22,000

DISTRIBUTOR

Federal 1400 cc and 1600 cc engines use Mitsubishi single point distributors. California 1400 cc and 1600 cc engines, and all 2000 cc and 2600 cc engines use Mitsubishi Electronic Ignition systems.

Point Gap	.018-.021" (.45-.55 mm)
Cam Angle	49-55°
Breaker Arm Spring Tension	17-21 oz. (482-595 g)
Condenser Capacity	.22 mfd.

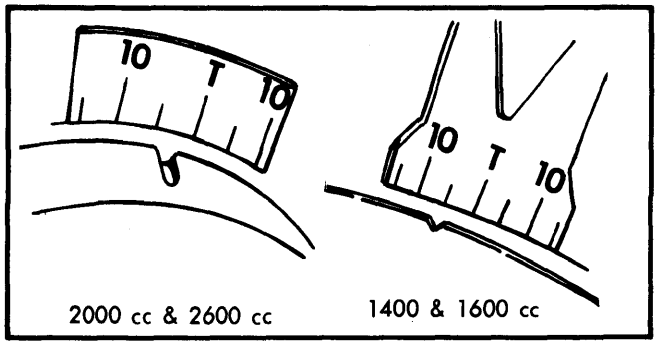

Fig. 2 Ignition Timing Mark Location

TUNE-UP (Cont.)

IGNITION TIMING

1) With engine at normal operating temperature, turn A/C controls and headlights off. Connect tachometer and timing light.

2) Loosen distributor nut and rotate distributor as necessary to adjust timing. Tighten mounting nut when timing is set to basic timing specification.

Ignition Timing Specifications

Application	①Timing
1400 cc	5°BTDC
1600 cc	5°BTDC
2000 cc	5°BTDC
2600 cc	7°BTDC

① – ±1°BTDC.

IDLE SPEED & MIXTURE

All Models (Exc. Federal Pickup with 2000 cc Eng.) – 1) Remove carburetor from engine if equipped with mixture screw caps. Loosen lock screw and remove inner sleeve and snap cap from outer sleeve. Reinstall inner sleeve (without snap cap) to outer sleeve. Tighten lock screw and mount carburetor on intake manifold.

2) Operate engine at idle until coolant temperature reaches 170-190°F. Place transmission in neutral; turn air conditioning and all electrical accessories off. Remove air cleaner-to-reed valve hose and plug air intake of reed valve. Adjust idle speed.

3) Using idle mixture adjusting screw, set mixture to obtain a CO level of .5-1.5%. Unplug reed valve air inlet and reconnect air hose. Reset idle speed with adjusting screw if necessary. Cover mixture screw with snap cap.

Federal Pickup with 2000 cc Eng. – 1) Warm engine to normal operating temperature. Turn air conditioning and all electrical accessories off. Check ignition timing and adjust if necessary.

2) Using idle speed adjusting screw, adjust idle to 80 RPM **above** specified idle speed.

3) Using idle mixture adjusting screw, adjust mixture to obtain a CO level of 1.0%. Use mixture adjusting screw again to lower idle speed to specified RPM.

4) Recheck idle CO%. Reading should now be at specified level. If engine misfires or CO% is incorrect, repeat steps **2)** and **3)**.

Idle Speed (RPM) & CO Level (%)

Application	Idle RPM	①CO%
1400 cc	650-750	.5-1.5
1600 cc & 2000 cc		
Man. Trans.	600-700	②.5-1.5
Auto. Trans	650-750	②.5-1.5
2600 cc	700-800	.5-1.5

① – Air injection disconnected.
② – Federal Pickup should measure .1% after adjustment.

FUEL PUMP PRESSURE & VOLUME

Pressure (At Idle)	
1400 cc & 1600 cc	3.7-5.1 psi (.26-.36 kg/cm²)
2000 cc & 2600 cc	4.6-6.0 psi (.32-.42 kg/cm²)
Volume (At 5000 RPM)	
1400 cc & 1600 cc	1.7 pts. in 30 sec.
2000 cc & 2600 cc	2.1 pts. in 30 sec.

EXHAUST EMISSION SYSTEMS

See EXHAUST EMISSION SYSTEMS section.

GENERAL SERVICING

IGNITION

DISTRIBUTOR

Federal 1400 cc and 1600 cc engines use Mitsubishi single point distributors. California 1400 cc and 1600 cc engines, and all 2000 cc and 2600 cc engines use Mitsubishi Electronic Ignition systems.

Other Data & Specifications – *See Tune-Up article and appropriate article in DISTRIBUTORS & IGNITION SYSTEMS section.*

IGNITION COIL

Coil Resistance (Ohms@68° F)

Application	Primary	Secondary
Conventional	0.95-1.15	15,000-20,000
Electronic	0.70-0.85	9000-11,000

FUEL SYSTEMS

CARBURETORS

Application	Model
All Models	Solex DIDTA 2-Bbl.

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

ELECTRICAL

BATTERY

Application	Amp. Hr. Rating
Challenger, Colt Wagon, Sapporo	65
All Other Models	45

Battery Location – Front left side of engine compartment.

GENERAL SERVICING (Cont.)

STARTER

All models use Mitsubishi overrunning clutch type starters.

Starter Testing Specifications

Application	Volts	Amps	Test RPM
1400 cc & 1600 cc			
Man. Trans.	11.5	53	6800
Auto. Trans.	11.5	60	6600
2000 cc & 2600 cc			
Man. Trans.	11.5	60	6600
Auto. Trans.	11.5	90	3300

ALTERNATOR

All 1600 cc engines (except Challenger and Sapporo) use Nippondenso alternators. All other models (including Challenger and Sapporo) use Mitsubishi Alternators.

Application	Rated Amp. Output
1400 cc & 1600 cc	45
2000 cc & 2600 cc	
Arrow, Challenger & Sapporo	50
All Others	45

ALTERNATOR REGULATOR

All 1600 cc engines (except Challenger and Sapporo) use Nippondenso alternator regulators. Regulators are mounted externally to the top rear half of Nippondenso alternators. All other models (including Challenger and Sapporo) use Mitsubishi alternator regulators with the regulator mounted internally to the brush holder.

Operating Voltage ..... 14.1-14.7@68°F (20°C)

BELT ADJUSTMENT

Pull belt between alternator and water pump pulley, using 22 lbs. force. Belt should deflect $\frac{1}{4}$-$\frac{3}{8}$" (7-10 mm).

FILTERS

Filter	Service Interval (Miles)
Oil Filter	①Replace every 15,000
Air Filter	Replace every 30,000
Fuel Filter	Replace every 15,000
Canister Filter	Replace every 30,000

① — At first 7,500 miles, then every other oil change.

CAPACITIES

Application	Quantity
Crankcase (Includes Filter)	
1400 cc	3.7 qts.
1600 cc	4.2 qts.
2000 cc	4.5 qts.
2600 cc	4.5 qts.
Cooling System (Includes Heater)	
1400 cc	4.7 qts.
1600 cc	
Arrow	8.1 qts.
All Others	4.7 qts.
2000 cc & 2600 cc	9.7 qts.
Manual Transmission (SAE 90)	
4-Speed	2.2 qts.
5-Speed	
1600 cc	2.1 qts.
2000 cc & 2600 cc	2.4 qts.
Manual Transaxle (SAE 80)	2.4 qts.
Automatic Transaxle (Dexron)	6.0 qts.
Automatic Transmission (Dexron)	7.2 qts.
Rear Axle (SAE 80W-90)	
Pickup	2.8 pts.
All Others	2.4 pts.
Fuel Tank	
Arrow & Colt Wagon	13.2 gals.
Challenger & Sapporo	15.8 gals.
Champ & Colt Hatchback	10.6 gals.
Pickup (Arrow & D50)	15.1 gals.