

TUNE-UP - 4-CYL

1986 Isuzu Trooper II

1986 Isuzu 4 Tune-Up
TUNE-UP

I-Mark, P'UP, Trooper II

IDENTIFICATION

ENGINE IDENTIFICATION

I-Mark engine serial number is stamped on flange near transaxle mounting toward front of vehicle. P'UP and Trooper II engine serial numbers are stamped on right upper center part of cylinder body.

ENGINE CODES

Application	Code
I-Mark (1.5L)	4XC1-U
P'UP	
1.9L	G200Z
2.3L	4ZD1
Trooper II (2.3L)	4ZD1

TESTING

ENGINE COMPRESSION

Test compression with engine at normal operating temperature, spark plugs removed, throttle valve wide open and engine at cranking speed (300 RPM).

COMPRESSION SPECIFICATIONS

Application	Specification
Compression Ratio	
I-Mark (1.5L)	9.6:1
P'UP	
1.9L	8.4:1
2.3L	8.3:1
Trooper II (2.3L)	8.3:1
Compression Pressure	
I-Mark	178 psi (12.5 kg/cm ²)
P'UP & Trooper II	171 psi (12 kg/cm ²)
Minimum Compression Pressure	
I-Mark	125 psi (8.8 kg/cm ²)
P'UP & Trooper II	120 psi (8.4 kg/cm ²)
Maximum Variation Between Cylinders	
I-Mark	7 psi (0.6 kg/cm ²)
P'UP & Trooper II	9 psi (0.6 kg/cm ²)

SPARK PLUGS

SPARK PLUG TYPE

Application	NGK No.
All Models	BPR6ES-11

SPARK PLUG SPECIFICATIONS

Application	Gap: In. (mm)	Torque: Ft. Lbs. (N.m)
All Models040 (1.05)	18-25 (24-34)

HIGH TENSION RESISTANCE

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

HIGH TENSION WIRE RESISTANCE

Application	Ohms
I-Mark	4000-13,000
P'UP	31,500-73,500 per foot
Trooper II	9600-22,600 per foot

ADJUSTMENTS

VALVE CLEARANCE

NOTE: Before adjusting valve clearance, ensure rocker arm shaft brackets are properly tightened to 16 ft. lbs. (22 N.m).

1) Adjust valves every 15,000 miles with engine cold. Measure valve clearance between rocker arm and valve stem.

2) Position No. 1 piston on TDC of compression stroke and adjust valves listed in table. Turn crankshaft one full turn (No. 4 piston on TDC of compression stroke) to adjust remaining valves.

VALVE ADJUSTMENT SEQUENCE

Piston On TDC	Adjust Intake #	Adjust Exhaust #
1	1 & 2	1 & 3
4	3 & 4	2 & 4

VALVE CLEARANCE SPECIFICATIONS

Application	In. (mm)
Intake (Cold)006 (.15)
Exhaust (Cold)010 (.25)

VALVE ARRANGEMENT

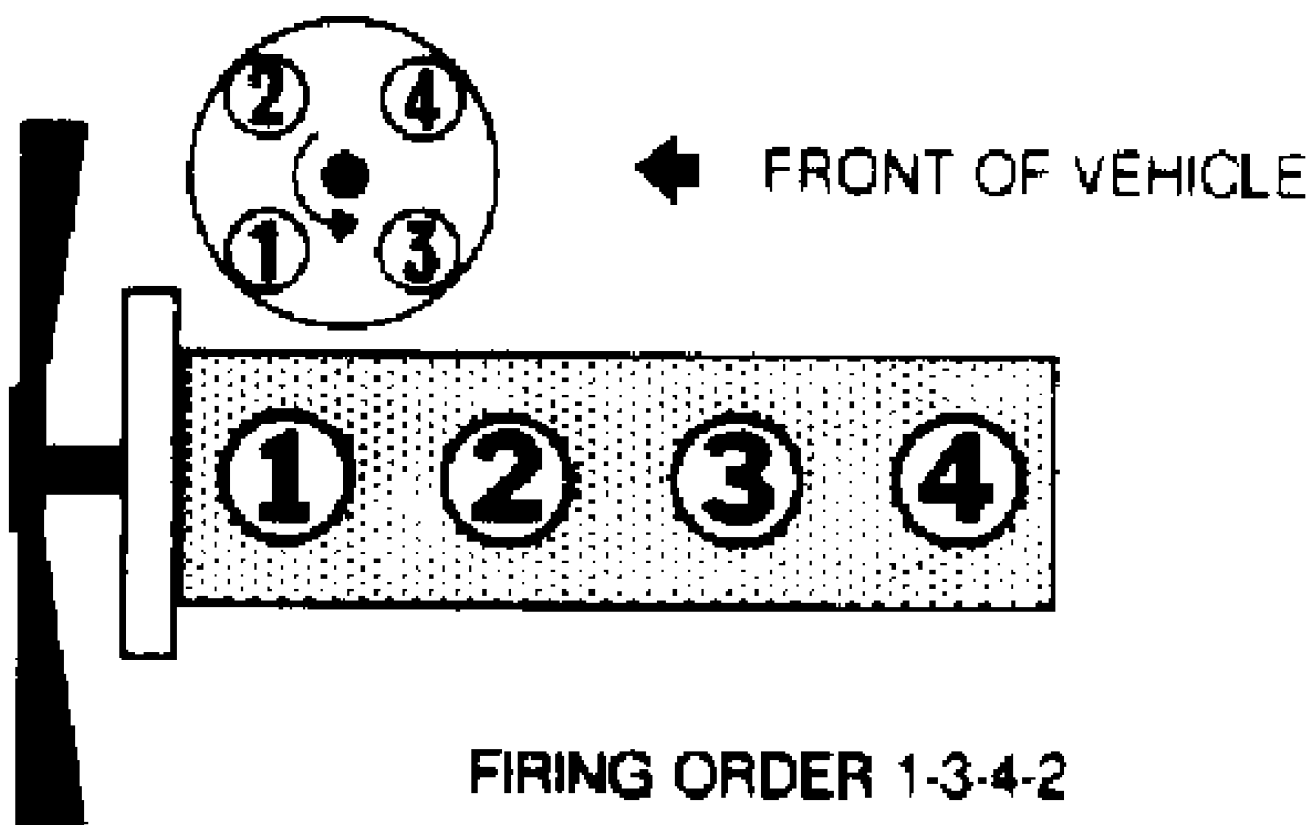
- * Right Side - All intake.
- * Left Side - All exhaust.

DISTRIBUTOR

I-Mark, P'UP & Trooper II are equipped with a Nippondenso electronic distributor.

DISTRIBUTOR PICK-UP AIR GAP

Application	In. (mm)
All Models008-.016 (.2-.4)



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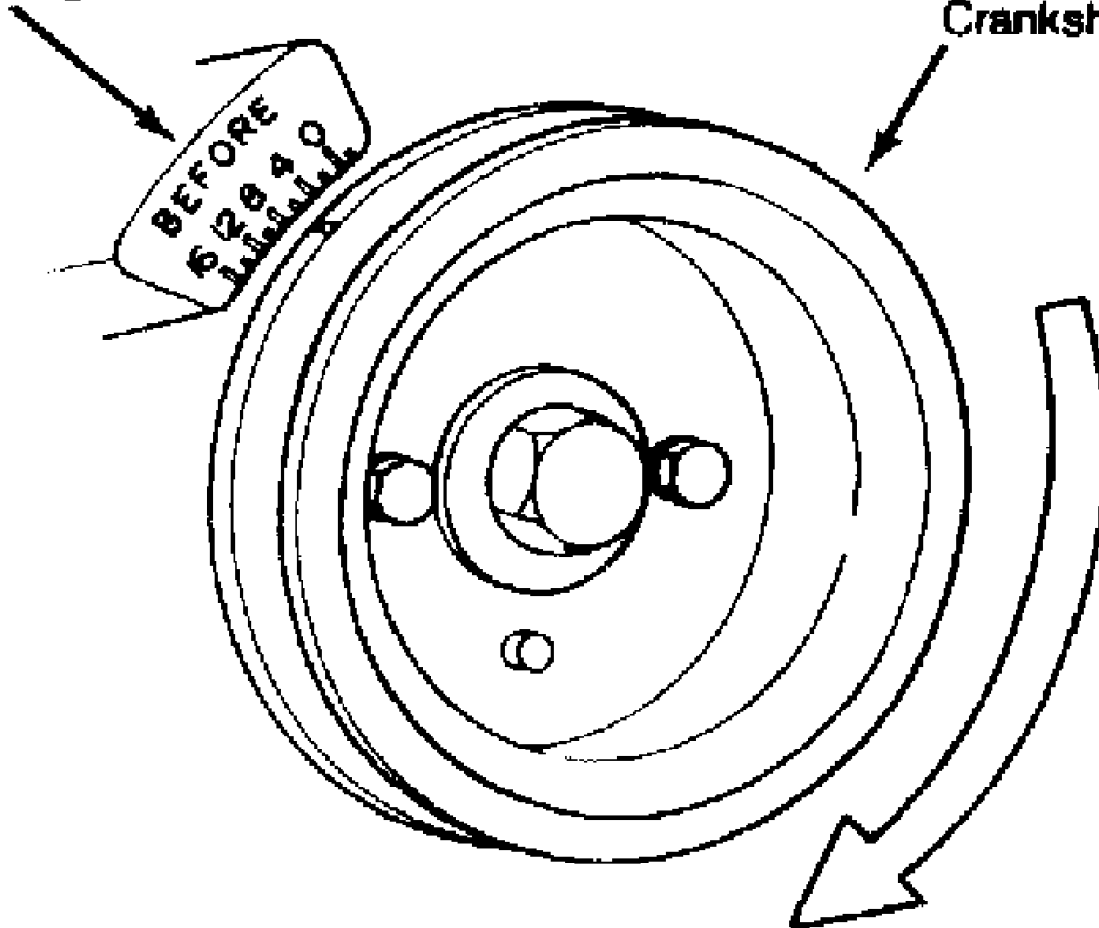
Fig. 1: Firing Order & Distributor Rotation
Courtesy of Isuzu Motor Co.

IGNITION TIMING

Ensure engine is at normal operating temperature. Connect timing light to either No. 1 or No. 4 cylinder. Loosen distributor clamping bolts and turn distributor in either direction until timing is within specifications. See Fig. 2 and IGNITION TIMING table.

Timing Mark

Crankshaft Pulley



46053

Fig. 2: Isuzu Timing Mark Location
Courtesy of Isuzu Motor Co.

IGNITION TIMING (DEGREES BTDC @ RPM)

Application	Setting
I-Mark	
Man. Trans.	(1) 15@750
Auto. Trans.	(1) 10@1000
P'UP	
All Exc. Federal Man. Trans.	6@900
Federal Man. Trans.	6@800
Trooper II	
Calif.	6@900
Federal	6@800

(1) - With vacuum hose connected. Ignition timing is 3° BTDC with vacuum hose disconnected and plugged.

IDLE SPEED

1) Before adjusting idling speed and mixture, check engine timing. If ignition timing is off, adjust to proper value before

adjusting idling speed and mixture.

2) Set parking brake and block drive wheels. Place transmission in "NEUTRAL" or "PARK" position. Make idling speed adjustment with engine at normal operating temperature. Install air cleaner and open choke valve.

3) Turn off air conditioning, (if equipped). If equipped with power steering, front wheels should be facing straight ahead. Turn off all accessories and wait until engine cooling fan stops rotating.

4) Disconnect distributor vacuum line from carburetor, canister purge line, EGR vacuum line and Inlet Temperature Control valve (ITC) vacuum line. Adjust throttle adjusting screw to 750 RPM (manual transaxle) and 1000 RPM (automatic transaxle).

5) If equipped with air conditioning, turn air conditioner on and set temperature control lever to "MAX COLD" position. Set blower to highest position. Use FICD adjusting screw at tip of carburetor throttle lever to set correct fast idle speed.

6) Set manual transaxle vehicles to 850 RPM and automatic transaxle vehicles to 980 RPM. To complete adjustment, see IDLE MIXTURE.

IDLE SPEED SPECIFICATIONS

Application	Idle RPM
I-Mark	
Auto. Trans.	1000
Man. Trans.	750
P'UP	
All Except Federal Man. Trans.	900
Federal Man. Trans.	800
Trooper II	
Calif.	900
Federal	800

IDLE MIXTURE

NOTE: Mixture adjustment is NOT a part of a normal tune-up procedure and should not be performed unless carburetor is overhauled, fuel injection system components are replaced, or vehicle fails emissions testing.

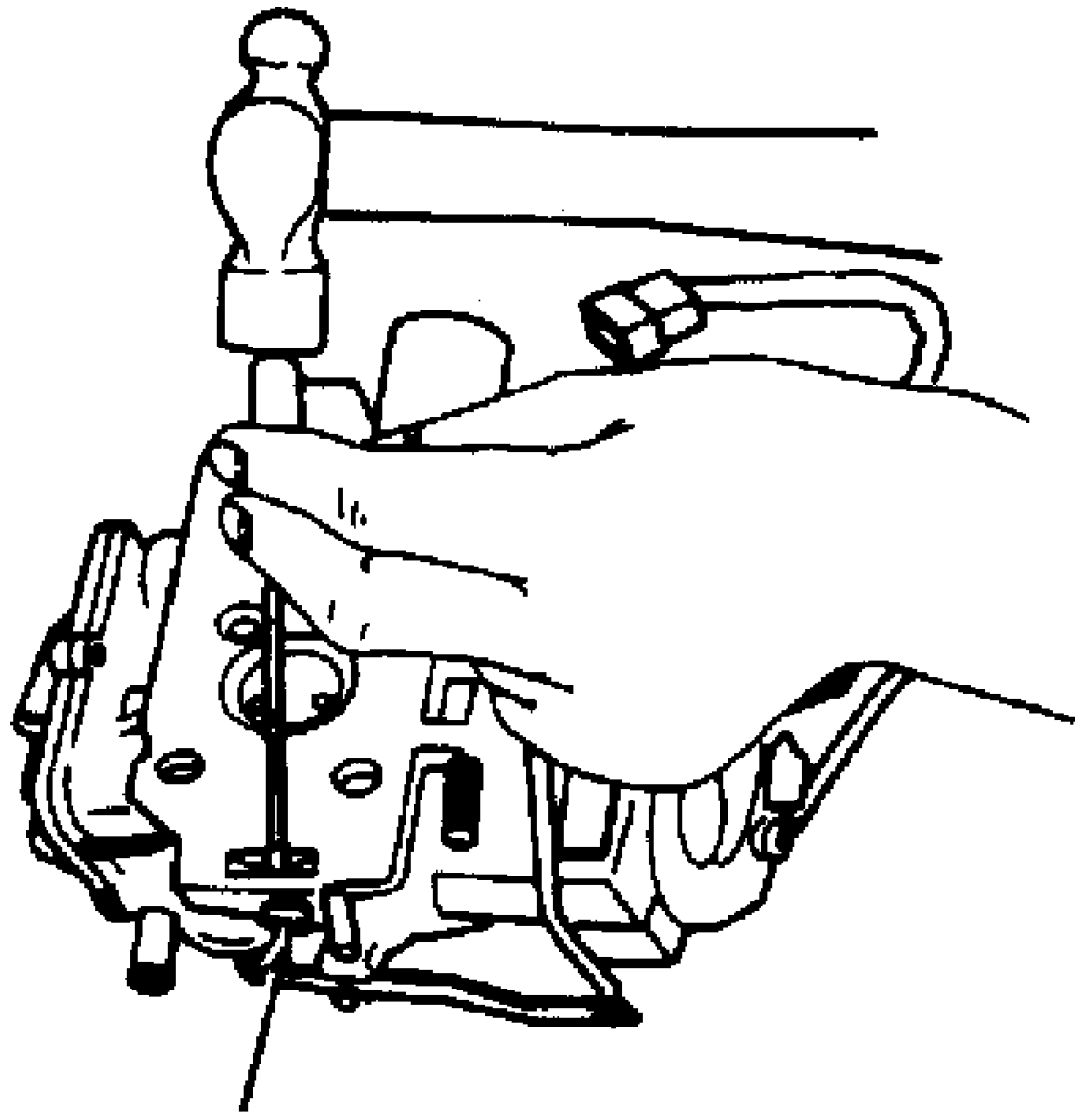
I-Mark, Calif. P'UP & Trooper II Models

1) Set parking brake and block drive wheels. Place transmission in "NEUTRAL" or "PARK" position. Remove carburetor from vehicle.

2) Drill a hole in seal plug and remove. See Fig. 3. Remove shavings with compressed air. Install carburetor.

3) On all models, disconnect and plug distributor vacuum hose, canister purge line and EGR vacuum line. Disable idle compensator vacuum line by pinching rubber hose. With engine at normal operating temperature, choke open and A/C off (if equipped), adjust idle speed.

4) Connect positive lead of dwell meter or duty meter to duty monitor. Ground negative terminal. Turn idle mixture screw in all the way. Back out 1 1/2 turns.



Idle Mixture Screw Plug

46055

Fig. 3: Removing Mixture Screw Plug
Courtesy of Isuzu Motor Co.

5) Adjust throttle adjusting screw to specified RPM. See IDLE SPEED SPECIFICATION table in this article. Check meter and ensure that dwell is varying. Adjust setting of idle mixture screw to obtain an average dwell or duty as specified.

6) Reset throttle adjusting screw. Put idle mixture screw plug back in place. If equipped with A/C, follow steps 3) and 4) of IDLE SPEED under ADJUSTMENTS.

DWELL OR DUTY METER SETTING

Application	Setting
Dwell Meter	36°
Duty Meter	40%

Federal P'UP & Trooper II Models

1) Set parking brake and block drive wheels. Place transmission in Neutral. Remove carburetor from vehicle. Drill a hole in plug and remove. See Fig. 3. Remove shavings with compressed air. Install carburetor.

2) Disconnect and plug distributor vacuum hose, canister purge line and EGR vacuum line. Disable idle compensator vacuum line by bending rubber hose. With engine at normal operating temperature, choke open and A/C off (if equipped).

3) Adjust idle speed screw to 750-850 RPM on man. trans. or 850-950 RPM on auto. trans. Turn idle mixture screw in all the way and back out 3 turns. Adjust throttle screw to 800 RPM on man. trans. and 900 RPM on auto. trans.

4) Adjust idle mixture screw to achieve maximum speed. Reset idle speed screw to 850 RPM on man. trans. and 950 RPM on auto. trans.

5) Turn idle mixture screw clockwise (lean) until engine speed is down to 750-850 RPM on man. trans. and 850-950 RPM on auto. trans. Replace idle mixture screw plug. If equipped with A/C, follow steps 3) and 4) of IDLE SPEED under ADJUSTMENT.

COLD (FAST) IDLE SPEED

1) Fast idle speed is determined by opening angle of throttle valve on carburetor. It is not set by adjusting engine speed.

2) Remove carburetor from engine. Turn throttle stop screw in all the way before measuring clearance. Adjust throttle valve opening with fast idle screw on first step of fast idle cam.

3) Close choke valve completely and measure primary throttle valve opening angle. Adjust opening angle with fast idle adjusting screw. Install carburetor.

4) With engine at normal operating temperature, distributor, idle compensator and EGR valve vacuum hoses disconnected and plugged, fast idle speed should be about 3200 RPM.

FAST IDLE SPEED SPECIFICATIONS

Application	Throttle Valve Opening Angle
Man. Trans.	15-17 °
Auto. Trans.	17-19 °

HIGH ALTITUDE ADJUSTMENT

Federal vehicles, not originally designed for high altitude applications, can be adjusted to operate at high altitudes by performing the following procedure:

1) Engine timing should be advanced up to 4 degrees from the recommended setting. However, timing should not be advanced if spark knock occurs at high altitude.

2) Engine speeds should be adjusted to the specification shown on the emission control decal.

AUTOMATIC CHOKE

Automatic choke setting is preset at factory and is non-adjustable.

SERVICING

EMISSION CONTROL

See EMISSIONS section.

SPECIFICATIONS

IGNITION

Distributor

I-Mark, P'UP and Trooper II models are equipped with a Nippondenso electronic distributor.

DISTRIBUTOR PICK-UP COIL RESISTANCE

Application	Ohms
I-Mark, P'UP & Trooper II	140-180

IGNITION COIL RESISTANCE - OHMS @ 68°F (20°C)

Application	Primary	Secondary
I-Mark	1.1-1.4	12,100-14,900
P'UP & Trooper II	1.1-1.4	8,600-13,000

FUEL SYSTEM

CARBURETOR SPECIFICATIONS

Application	Model
I-Mark	Stromberg DFP 340 2-Bbl
P'UP (Fed.)	Stromberg DCH 340 2-Bbl
P'UP (Calif.)	Stromberg DFP 340 2-Bbl
Trooper II (Fed.)	Stromberg DCH 340 2-Bbl
Trooper II (Calif.)	Stromberg DHP 340 2-Bbl

FUEL PUMP PERFORMANCE

Application	Pressure: psi (kg/cm ²)
I-Mark, P'UP & Trooper II	3.56 (.25)

BATTERY

BATTERY SPECIFICATIONS

Application	Amp Hr. Rating
All Models	50

STARTER

All models are equipped with Hitachi starters.

STARTER SPECIFICATIONS

Application	Volts	Amps	Test RPM
All Models	11.5	60	6000

ALTERNATOR

All models use Hitachi alternators.

ALTERNATOR SPECIFICATIONS

Application	Rated Amp Output
I-Mark, P'UP & Trooper II	50

ALTERNATOR REGULATOR

All models use Hitachi alternator regulators.

REGULATOR OPERATING VOLTAGE @ 68°F (20°C)

Application	Voltage
I-Mark, P'UP & Trooper II	13.8-14.8

SERVICE INTERVALS

REPLACEMENT INTERVALS

Component	Interval (Miles)
Air Filter	30,000
Fuel Filter	30,000
Oil Filter	15,000
Oxygen Sensor	30,000
Spark Plugs	30,000

BELT ADJUSTMENT

BELT ADJUSTMENT

Application	(1) Deflection: In. (mm)
All Belts	3/8 (10)

(1) - Moderate hand pressure applied midway between pulleys on longest belt run.

CAPACITIES

FLUID CAPACITIES

Application	Quantity
Crankcase (Includes Filter)	
I-Mark & Trooper II	3.4 qts. (3.2L)
P'UP	3.3 qts. (3.1L)

Cooling System

I-Mark	5.7 qts. (5.4L)
P'UP	
Man. Trans.	8.5 qts. (8.0L)
Auto. Trans.	8.2 qts. (7.8L)
Trooper II	8.5 qts. (8.0L)
Auto Transaxle (Dexron II) - I-Mark	6.1 (5.8)
Auto. Trans. (Dexron II) - P'UP	6.4 qts. (6.0L)
Man. Transaxle - I-Mark	5.9 (2.8)
Man. Trans. (SAE 30)	
4-Speed - P'UP	2.7 pts. (1.3L)
5-Speed	3.3 pts. (1.6L)
Rear Axle (SAE 90) - P'UP & Trooper II	2.7 pts. (1.3L)
Front Axle (SAE 90)	
P'UP	1.7 pts. (0.8L)
Trooper II	2.1 pts. (1.0L)
Transfer Case (SAE 30)	
P'UP	5.2 pts. (2.5L)
Trooper II	5.2 pts. (2.5L)
Fuel Tank	
I-Mark	13.7 gals. (52.0L)
P'UP	
Long Bed	19.1 gals. (72.4L)
All Others	13.2 gals. (50.0L)
Trooper II	21.9 gals. (87.6L)
