# 1982 Fiat 4 Tune-Up

## TUNE-UP

**Spider 2000, Spider 2000 Turbo, X1/9**

### ENGINE IDENTIFICATION

On Spider models, engine code and identification numbers are stamped on crankcase near oil filter mount. On X1/9 models, code and numbers are stamped on crankcase at flywheel end.

***ENGINE CODE***

| Application | Code |
|---|---|
| Spider | 132C3.031 |
| X1/9 | 138BS.031 |

### ENGINE COMPRESSION

***COMPRESSION SPECIFICATIONS***

| | |
|---|---|
| Compression Ratio | |
| Spider | 8.1:1 |
| Spider Turbo | 8.2:1 |
| X1/9 | 8.5:1 |

### VALVE CLEARANCE

Adjust valves with engine cold.

***VALVE CLEARANCE SPECIFICATIONS***

| Application | Clearance In. (mm) |
|---|---|
| Spider | |
| Intake | .019 (.48) |
| Exhaust | .021 (.53) |
| X1/9 | |
| Intake | .014 (.35) |
| Exhaust | .018 (.45) |

### VALVE ARRANGEMENT

Spider
Right Side — All Exhaust
Left Side — All Intake
X1/9
E-I-I-E-E-I-I-E (Front to rear)

### SPARK PLUGS

***SPARK PLUG TYPE***

| Application | Champion No. |
|---|---|
| All Models | RN9Y |

***SPARK PLUG SPECIFICATIONS***

| Application | Gap In. (mm) | Torque Ft. Lbs. (N.m) |
|---|---|---|
| All Models | .029 (.73) | 25 (34) |

### HIGH TENSION WIRE RESISTANCE

Carefully remove ends of wire from spark plug and distributor. Using an ohmmeter, check resistance of wire while gently twisting wire. If resistance is incorrect or fluctuates from infinity to any value, replace wire.

***WIRE RESISTANCE***

| Application | Ohms |
|---|---|
| All Models | 25,000-30,000 |

### DISTRIBUTOR

All models are equipped with breakerless, electronic ignition systems. Spider uses a Marelli system, and X1/9 uses a Bosch unit.

***Fig. 1: Spider Firing Order and Distributor Rotation***

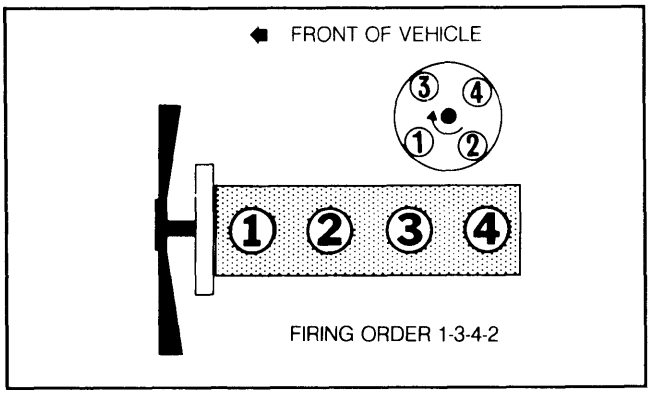
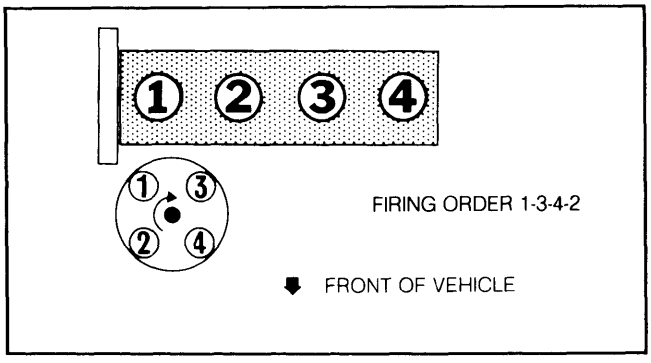



***Fig. 2: X1/9 Firing Order and Distributor Rotation***




### IGNITION TIMING

Check or adjust ignition timing with engine warm, Man. Trans. in neutral or Auto. Trans in "D" and idle speed adjusted. To adjust timing, turn distributor and align mark on drive pulley or flywheel with specified pointer.

***IGNITION TIMING (Degrees BTDC@RPM)***

| Application | Man.Trans | [1] Auto Trans. |
|---|---|---|
| All Models | 10°@825 | 10°@725 |

[1] — Transmission in "D".

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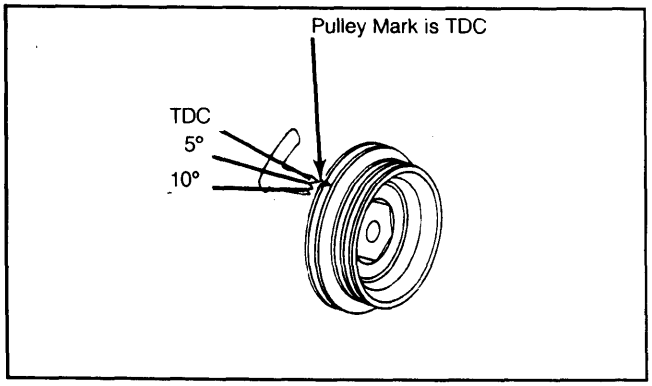
## TUNE-UP (Cont.)

*Fig. 3: Ignition Timing Mark Location*

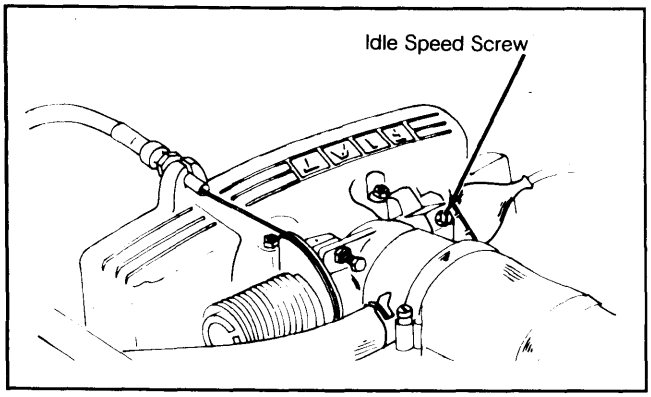



### IDLE SPEED & MIXTURE

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

**1)** Warm engine to operating temperature (electric fan has cycled twice). Place manual transmission in neutral or automatic in "D". Wait until electric fan is off to adjust idle.

*Fig. 4: Fuel Injection Idle Speed Adjustment*



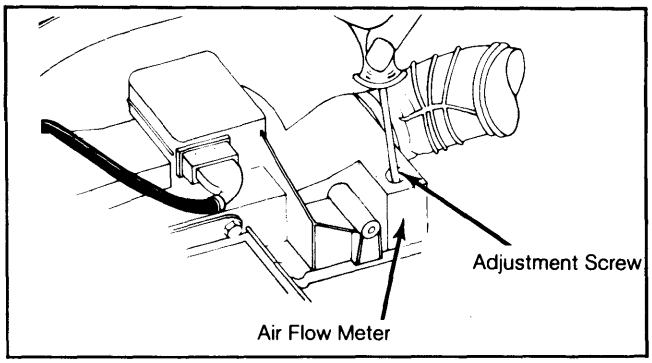

*Be sure cooling fan has cycled twice and is off before adjusting idle speed.*

**2)** Turn air bypass screw on top of intake manifold to adjust idle speed. *See Fig. 4.*

**3)** Connect CO meter to pipe tap in front of catalytic converter. Disconnect plug from oxygen sensor and ensure that neither side is grounded. Remove plug from air flow meter and adjust CO%. *See Fig. 5.*

**4)** Ground control unit side of oxygen sensor connector. CO level should rise to at least 1.5%. Reconnect oxygen sensor and check for CO level of 0.3-0.6%. Remove test equipment and plug air flow meter screw. *See Fig. 5.*

*Fig. 5: Fuel Injection Mixture Adjustment*




***IDLE SPEED & CO LEVEL***

| Application | Idle RPM | CO% |
|---|---|---|
| All Models | | |
| Man. Trans | 800-900 | 0.5-0.9 |
| Auto. Trans [1] | 700-800 | 0.5-0.9 |

[1] — Transmission in "D".

### FUEL PUMP

***FUEL PUMP PERFORMANCE***

| Application | Pressure psi (kg/cm²) |
|---|---|
| All Models [1] | 39-45 (2.8-3.2) |

[1] — Disconnect hose to pressure regulator.

### EXHAUST EMISSION SYSTEMS

See EXHAUST EMISSION SYSTEMS section.

## GENERAL SERVICING

### IGNITION

#### DISTRIBUTOR

All models are equipped with breakerless, electronic ignition systems. Spider uses a Marelli system, X1/9 uses a Bosch unit.

***TOTAL SPARK ADVANCE@2500 RPM***

| Application | W/Vac. Advance | W/O Vac. Advance |
|---|---|---|
| Spider & X1/9 | | 18° |
| Spider Turbo | 33° | 18° |

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## GENERAL SERVICING (Cont.)

### IGNITION COIL

***RESISTANCE Ohms@68°F (20°C)***

| Application | Primary | Secondary |
|---|---|---|
| Bosch Coil | 1.1-1.7 | 6000-10,000 |
| Marelli Coil | .75-.81 | 10,000-11,000 |

### FUEL INJECTION

All models are equipped with Bosch AFC electronic fuel injection.

## ELECTRICAL

### BATTERY

***BATTERY SPECIFICATIONS***

| Application | Amp. Hr. Rating |
|---|---|
| All Models | 60 |

### STARTER

Spider models are equipped with Fiat starters. X1/9 models use Bosch starters on Man. Trans. models and Marelli starters on Auto. Trans models.

### ALTERNATORS

All models use Bosch alternators.

***ALTERNATOR SPECIFICATIONS***

| Application | Rated Amp. Output |
|---|---|
| All Models | 65 |

### ALTERNATOR REGULATOR

All models use Bosch alternator regulators.

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

| Application | Voltage |
|---|---|
| All Models | 12.5-14.5 |

## SERVICE SPECIFICATIONS

***BELT ADJUSTMENT***

| Application | [1] Deflection In. (mm) |
|---|---|
| All Drive Belts | .4-.6 (10-15) |

[1] — With 22 lbs. (10 kg) pressure applied midway between pulleys on longest belt run.

***REPLACEMENT INTERVALS***

| Component | Miles |
|---|---|
| Oil Filter | 7500 |
| Air Filter | 15,000 |
| Fuel Filter | 15,000 |
| Spark Plugs | 30,000 |

***FLUID CAPACITIES***

| Application | Quantity |
|---|---|
| Crankcase (Includes Filter) | 4.3 qts. (4.1L) |
| Cooling System (Includes Heater) | |
| Spider | 8.5 qts. (8.1L) |
| X1/9 | 12.2 qts. (11.6L) |
| Man. Transmission (SAE 90) | 3.5 pts. (1.6L) |
| Auto. Transmission (Dexron) | 6.0 pts. (2.8L) |
| Rear Axle (SAE 90) | |
| Spider | 2.8 pts. (1.3L) |
| Man. Transaxle (SAE 90) | |
| X1/9 | 6.4 pts. (3.0L) |
| Auto Transaxle | |
| Transmission (Dexron) | 6.4 pts. (3.0L) |
| Differential (SAE 90) | 1.5 pts. (.7L) |
| Fuel Tank | |
| Spider | 11.5 gals. (43L) |
| X1/9 | 12 gals. (46L) |