

## TUNE-UP

Le Car  
18i

### ENGINE IDENTIFICATION

Type of vehicle and engine number are marked on a number plate riveted to the left rear side of the engine block. Plate is located just below cylinder head mating surface. First 5 digits on Le Car or 6 digits on 18i indicate engine type.

| Application  | Engine Code | Code     |
|--------------|-------------|----------|
| Le Car       |             | 847-25   |
| 18i          |             |          |
| Man. Trans.  |             | 843-7-18 |
| Auto. Trans. |             | 843-7-19 |

### VALVE CLEARANCE

Valves must be set with engine cold. To adjust valves, rotate crankshaft until valve listed in first column of table is fully open, then adjust valves listed in second column of table. On 18i models, note that valves (and cylinders) are numbered from REAR to FRONT.

| Valve Open | Valves to Adjust        |
|------------|-------------------------|
| No. 1 Exh. | No. 3 Int. & No. 4 Exh. |
| No. 3 Exh. | No. 4 Int. & No. 2 Exh. |
| No. 4 Exh. | No. 2 Int. & No. 1 Exh. |
| No. 2 Exh. | No. 1 Int. & No. 3 Exh. |

#### Valve Clearance Specifications ①

| Application | Intake In. (mm) | Exhaust In. (mm) |
|-------------|-----------------|------------------|
| Le Car      | .006 (.15)      | .008 (.20)       |
| 18i         | .008 (.20)      | .010 (.25)       |

① — Set valves with engine cold.

### VALVE ARRANGEMENT

E-I-I-E-E-I-I-E (Front to Rear)

### SPARK PLUGS

| Application | Gap In. (mm) | Torque Ft. Lbs. (N·m) |
|-------------|--------------|-----------------------|
| Le Car      | .024 (.6)    | 20 (27)               |
| 18i         | .026 (.65)   | 20 (27)               |

#### Spark Plug Type

| Application | Bosch | Champion |
|-------------|-------|----------|
| Le Car      |       | RN12Y    |
| Federal     |       |          |
| Calif.      | WD9DS |          |
| 18i         | WR7DS |          |

### HIGH TENSION WIRE RESISTANCE

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

#### Resistance (Ohms) Per Wire

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

### DISTRIBUTOR

All models are equipped with dual pick-up electronic ignition distributors. Trigger plate gap is adjustable and should be set to .012-.024" (.3-.6 mm).

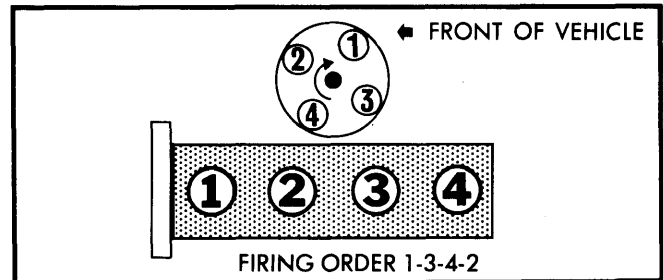


Fig. 1 Le Car Firing Order and Distributor Rotation

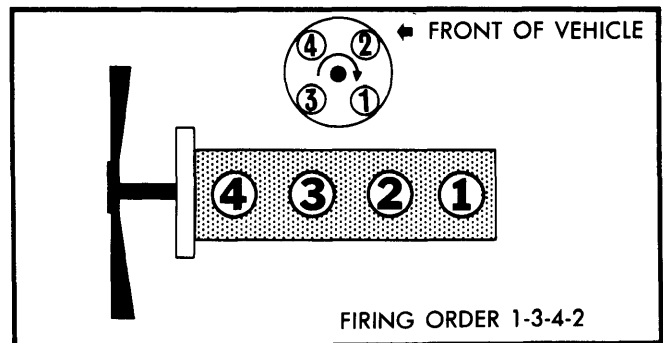


Fig. 2 18i Firing Order and Distributor Rotation

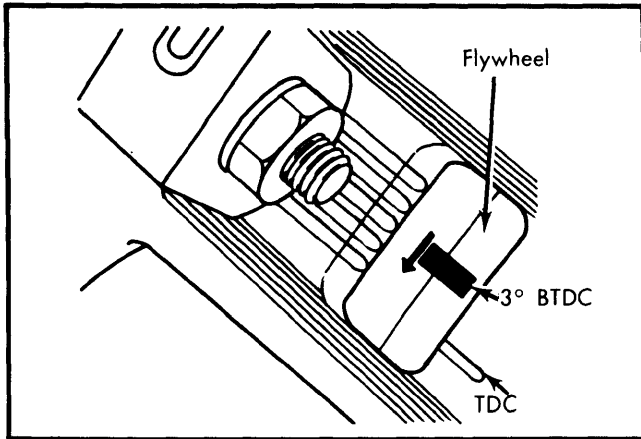
### IGNITION TIMING

Check or adjust ignition timing with vacuum line disconnected and plugged and engine running at idle speed. To adjust, turn distributor until specified mark on flywheel is aligned with specified graduation mark on clutch housing. Reconnect distributor vacuum hose.

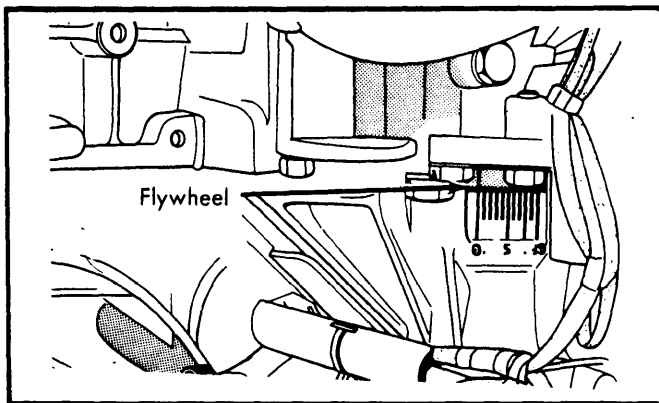
#### Ignition Timing Specifications (Degrees BTDC @ RPM)

| Application | Timing |
|-------------|--------|
| Le Car      | 3@750  |
| 18i         | 10@800 |

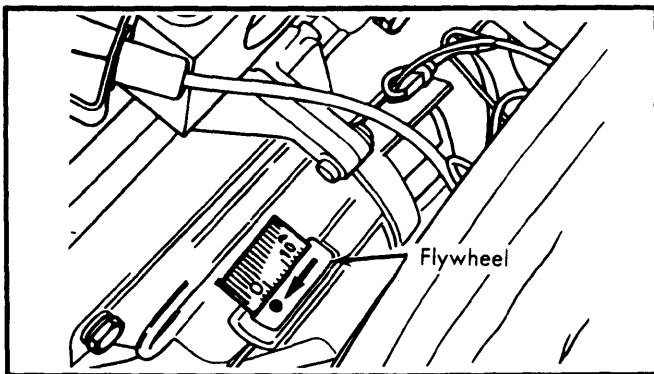
## TUNE-UP (Cont.)



**Fig. 3 Le Car Timing Mark Location**



**Fig. 4 18i Timing Mark Location (Man. Trans. Models)**



**Fig. 5 18i Timing Mark Location (Auto. Trans. Models)**

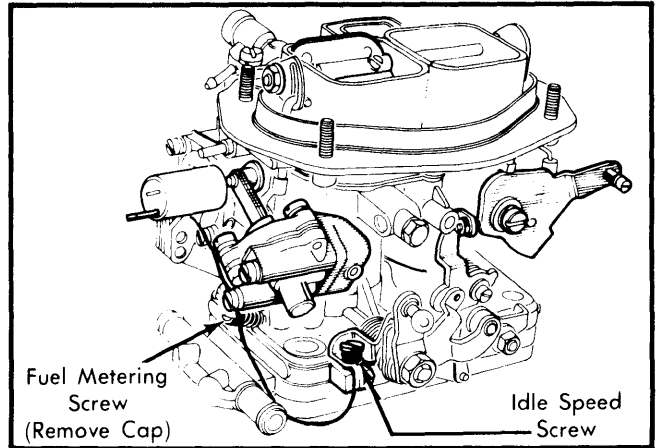
### IDLE SPEED & MIXTURE

#### CARBURETED MODELS (LeCar)

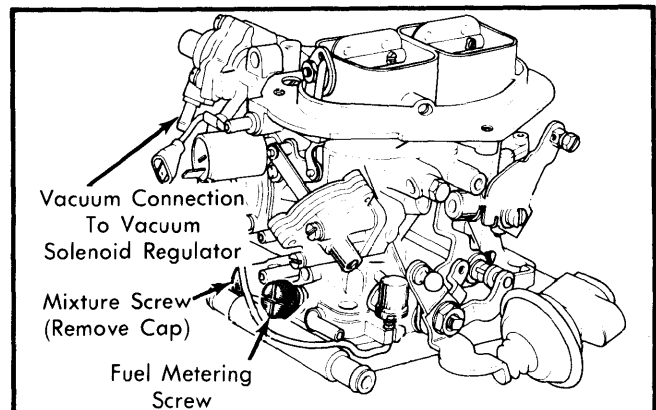
**Federal** - 1) Clamp, or disconnect and plug air pump hose to injection manifold. Connect tachometer.

2) Adjust idle speed screw to obtain 675-725 RPM idle. Remove cap and adjust fuel metering screw to obtain 0.5-2.0% CO level. Repeat procedure if necessary to have both speed and mixture correct.

3) Reconnect air injection. Idle speed must be 700-800 RPM. If not, adjust with idle speed screw. Remove test equipment.



**Fig. 6 Carburetor Adjustment Locations (Federal Models)**



**Fig. 7 Carburetor Adjustment Locations (Calif. Models)**

**California** - 1) Start engine and bring to normal operating temperature. Using a "T" connector, connect accurate vacuum gauge to line between carburetor and vacuum solenoid regulator.

2) Start engine and adjust idle speed with fuel metering screw to 700-800 RPM. Vacuum gauge should indicate  $1.5 \pm 1.2$  in. Hg.

3) If vacuum reading is not correct, remove brass cap from mixture screw. Adjust carefully until vacuum reading is within specifications. Remove test equipment.

#### FUEL INJECTED MODELS (18i)

**NOTE** - Idle mixture screw is sealed and idle mixture is normally adjusted only when air flow meter is replaced or vehicle fails emissions testing.

With engine at normal operating temperature, attach tachometer and adjust throttle plate bypass screw to obtain specified idle speed.

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## TUNE-UP (Cont.)

### Idle Speed & CO Level

| Application         | Idle RPM      | CO%      |
|---------------------|---------------|----------|
| Le Car              |               |          |
| Federal .....       | 700-800 ..... | ①0.5-2.0 |
| Calif. ....         | 700-800 ..... | ②        |
| 18i                 |               |          |
| Man. Trans. ....    | 800-900 ..... | ①1.0-2.5 |
| Auto. Trans.③ ..... | 600-700 ..... | ①1.0-2.5 |

- ① - Air injection disconnected.
- ② - CO% not measured.
- ③ - Transmission in "D".

### COLD (FAST) IDLE RPM

**Federal LeCar** - Connect intake manifold vacuum directly to throttle plate opener or to a vacuum pump. Apply a vacuum of at least 4.5 in. Hg or accelerate to 2500 RPM. Slowly release accelerator. If adjustment is necessary, turn fast idle adjusting screw.

**California LeCar** - Apply intake manifold vacuum directly to vacuum regulator (or apply 6 in. Hg vacuum on throttle plate

opener diaphragm). Set throttle plate opener to achieve fast idle speed.

### Fast Idle RPM

| Application         | RPM       |
|---------------------|-----------|
| Federal LeCar ..... | 1800-2000 |
| Calif. LeCar .....  | 1400-1600 |

### FUEL PUMP PRESSURE

| Pressure  |  |
|---|--|
| LeCar .....   | 2.5-3.5 psi (.18-.24 kg/cm <sup>2</sup> )    |
| 18i .....   | ①25.0-31.0 psi (1.8-2.2 kg/cm <sup>2</sup> ) |
| Volume  |  |
| Le Car .....  | .....  |
| 18i .....   | 2.1 pts. per minute                          |
| ① - Vacuum connected. If disconnected, 33.0-39.0 psi (2.3-2.7 kg/cm <sup>2</sup> ). |  |

### EXHAUST EMISSION SYSTEMS

See EXHAUST EMISSION SYSTEMS section.

## GENERAL SERVICING

### IGNITION

#### DISTRIBUTOR

All models are equipped with Ducellier electronic distributors.

#### IGNITION COIL

All models use an ignition coil which is mounted in an aluminum housing together with the electronic control module.

### FUEL SYSTEMS

#### CARBURETORS (LeCar)

| Application   | Model           |
|---------------|-----------------|
| Federal ..... | Weber 32 DIR 87 |
| Calif. ....   | Weber 32 DIR 80 |

#### FUEL INJECTION (18i)

All 18i models use Bosch L-Jetronic fuel injection systems.

### ELECTRICAL

#### BATTERY

| Application  | Amp. Hr. Rating |
|--------------|-----------------|
| Le Car ..... | 50              |
| 18i .....    | ①45             |

- ① - 60 with air conditioning.

**Battery Location** - Battery is located in right front corner of engine compartment.

#### STARTER

All models are equipped with a Paris Rhone starter.

#### ALTERNATOR

LeCar models are equipped with Paris Rhone alternators; 18i models may be equipped with Motorola, SEV Marchal, or Ducellier alternators.

#### ALTERNATOR REGULATOR

All models are equipped with Paris Rhone alternator regulators.

### BELT ADJUSTMENT

#### Tension With Strand Tension Gauge

| Application               | Lbs. (kg)     |
|---------------------------|---------------|
| Alternator Belt .....     | 80-90 (36-41) |
| Air Pump Belt .....       | 75-80 (34-36) |
| A/C Compressor Belt ..... | 80 (36)       |

### FILTERS

| Filter                | Service Interval (Miles) |
|-----------------------|--------------------------|
| Oil Filter .....      | Replace every 6,250      |
| Air Filter .....      | Replace every 12,500     |
| Air Pump Filter ..... | Replace every 12,500     |

### CAPACITIES

| Application                      | Quantity |
|----------------------------------|----------|
| Crankcase (Includes Filter)      |          |
| Le Car .....                     | 3.5 qts. |
| 18i .....                        | 4.5 qts. |
| Cooling System (Includes Heater) |          |
| LeCar .....                      | 6.5 qts. |
| 18i .....                        | 6.6 qts. |
| Manual Transaxle (SAE 80) .....  | 2.0 qts. |
| Automatic Transaxle① .....       | 3.0 qts. |
| Fuel Tank                        |          |
| Le Car .....                     | 10 gals  |
| 18i                              |          |
| Sedan .....                      | 14 gals. |
| Station Wagon .....              | 15 gals. |

- ① - Only acceptable fluid is part number R8980022. Do not use AMC fluid, part number 8992447 or 8992449.