## GENERAL INFORMATION - MAINTENANCE - 00

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## **SPIDER**



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ENGINE (	1975 to	1978)
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Type	1975/1976 1977/1978 132A1.040.5 132A1.040.6 132A1.031.5 132A1.031.6
Cycle	Four-stroke, gasoline
No. of cylinders	Four
Bore	3.31 in. (84 mm)
Stroke	3.12 in. (79.2 mm)
Displacement	107.13 cu. in. (1756 cc)
Compression ratio	8 to 1
Horsepower rating, S.A.E. net	86 HP 6200 rpm
Horsepower rating, S.A.E. net (catalytic converter version)	83 HP 5800 rpm
Torque rating, S.A.E. net	90 ft. lbs. 2800 rpm
Torque rating, S.A.E. net (catalytic converter version)	86 ft. lbs. 2800 rpm
Arrangement	Front in line
Valve arrangement	Overhead valves. Twin overhead camshafts driven by toothed timing bel with tensioner.
Valve Timing: Intake	5° B.T.D.C.
Opens	53° A.B.D.C.
Opens	53° B.B.D.C. 5° A.T.D.C.
Valve clearance:  — for checking valve timing	0.031 in. (0.80 mm)
Intake	0.018 in. (0.45 mm) 0.020 in. (0.50 mm)

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#### **ENGINE (1979)**

Type 49 State version	132C2.040 132C2.031
Cycle	Four-stroke, gasoline
No. of cylinders	Four
Bore	3.31 in. (84 mm)
Stroke	3.54 in. (90 mm)
Displacement	121.74 cu. in. (1995 cc)
Compression ratio	8.1 to 1
Horsepower rating, S.A.E. net at rpm 49 State version	86 HP at 5100 rpm 80 HP at 5000 rpm
Torque rating, S.A.E. net at rpm 49 State version	104.3 ft. lbs. at 3000 rpm 100.0 ft. lbs. at 3000 rpm
Arrangement	Front in line
Valve arrangement	Overhead valves. Twin overhead cam- shafts driven by toothed timing belt with tensioner.
Valve timing:	, , , , , , , , , , , , , , , , , , ,
Intake Opens Closes Exhaust	5° B.T.D.C. 53° A.B.D.C.
Opens	53° B.B.D.C. 5° A.T.D.C.
Valve clearance: For checking valve timing	0.031 in. (0.80 mm)
Intake	0.018 in. (0.45 mm) 0.020 in. (0.50 mm)

### ENGINE (1980)

Type Carburetor version	132C3.040
Fuel injected version	132C3.031
Cycle	Four-stroke, gasoline
No. of cylinders	Four
Bore	3.31 in. (84 mm)
Stroke	3.54 in. (90 mm)
Displacement	121.74 cu. in. (1995 cc)
Compression ratio	8.1 to 1
Horsepower rating, S.A.E. net at rpm Carburetor version	80 HP at 5000 rpm 102 HP at 5500 rpm
Torque rating, S.A.E. net at rpm Carburetor version	100 ft. lbs. at 3000 rpm 110 ft. lbs. at 3000 rpm
Arrangement	Front in line
Valve arrangement	Overhead valves. Twin overhead cam- shafts driven by toothed timing belt with tensioner.
Valve timing: Intake	
Opens	5° B.T.D.C. 53° A.B.D.C.
Opens	53° B.B.D.C. 5° A.T.D.C.
Valve clearance: For checking valve timing	0.031 in. (0.80 mm)
Intake	0.018 in. (0.45 mm) 0.020 in. (0.50 mm)

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#### ENGINE (1981 and 1982)

Type Fuel injected version and turbocharged version	132C3.031
Cycle	Four-stroke, gasoline
No. of cylinders	Four
Bore	3.31 in. (84 mm)
Stroke	3.54 in. (90 mm)
Displacement	121.74 cu. in. (1995 cc)
Compression ratio	8.1 to 1
Horsepower rating, S.A.E. net at rpm Turbocharged version	120 HP at 6000 rpm 102 HP at 5500 rpm
Torque rating, S.A.E. net at rpm Turbocharged version	130 ft. lbs. at 3600 rpm 110 ft. lbs. at 3000 rpm
Arrangement	Front in line
Valve arrangement	Overhead valves. Twin overhead cam shafts driven by toothed timing belt with tensioner.
Valve timing: Intake Opens . Closes . Exhaust Opens . Closes .	5° B.T.D.C. 53° A.B.D.C. 53° B.B.D.C. 5° A.T.D.C.
Valve clearance: For checking valve timing	0.031 in. (0.80 mm)
Intake	0.018 in. (0.45 mm) 0.020 in. (0.50 mm)

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#### **FUEL SYSTEM**

#### Carburetor Version

Vertical, dual-barrel downdraft WEBER carburetor with differential opening of the secondary throttle, automatic butterfly valve choke and idle stop solenoid.

Enrichment system consists of mechanical and vacuum assisted accelerator pumps and a power valve.

Carburetor fed by mechanical pump. Fuel filter installed in fuel line between fuel pump and carburetor.

Carburetor equipped with thermostatic air cleaner containing paper cartridge element.

#### Fuel Injection Version

Electronically controlled fuel injection with engine and exhaust sensors supplying information to the electronic control unit to optimize the fuel/air mixture in all engine operating conditions.

Four injectors, one per cylinder and a cold start valve, all supplied at constant fuel pressure.

Fuel flow controlled by variation in opening time of injectors.

An air flow sensor to measure air flow variation.

Air cleaner with paper cartridge installed before air flow sensor.

#### LUBRICATION SYSTEM

Forced circulation by gear pump.

Pressure limiter valve on delivery circuit. Normal lubrication pressure at rated engine rpm and oil temperature 50 to 71 psi  $(3.5 \text{ to } 5 \text{ kg/cm}^2)$ .

Full-flow cartridge oil filter,

#### COOLING SYSTEM

Radiator and translucent expansion tank. Water circulated by centrifugal pump.

Thermostat with controlled by-pass on cylinder head water outlet duct,

Four-blade fan driven by electric motor controlled by thermostatic switch on radiator: cut-in temperature about 194°F (90°C).

#### **EMISSION CONTROL SYSTEMS**

Engine fuel system provided with fuel recirculation (closed circuit) and evaporative emission control system.

Crankcase emission control (CEC) system (closed circuit) by recirculation of blow-by gases and oil vapors.

Exhaust emission control system separate from CEC system. System reduces air pollution from exhaust by gas recirculation, post-combustion processes and catalytic converter.

#### **CHASSIS**

#### CLUTCH

Single-plate, dry, with disc spring mechanically controlled.

#### TRANSMISSION

Manual transmission: five forward speeds (all synchronized) and reverse.

Automatic transmission: three forward speeds and reverse, fully automatic.

		Manua!		
Gear Ratios	1975-1978	1979-1980	1981-1982	Automatic
First	3.667	3.612	3.667	2.4 to 1
Second	2.1	2.045	2.1	1.48 to 1
Third	1.361	1.357	1.361	1 to 1
Fourth	1	1	1	_
Fifth	0.881	0.830	0.881	_
Reverse	3.526	3.244	3.244	1.92 to 1

#### PROPELLER SHAFT

Dual, center pillow with ball bearing mounted on rubber cushion. Universal joints at rear section. Flexible joint at transmission end.

#### REAR AXLE

Semi-floating,

Hypoid final drive,

Gear ratio: 4.30 to 1 (10/43) - 1975 to 1978

3.58 to 1 (12/43) — Automatic Trans. 1979 and up 3.90 to 1 (10/39) - Manual Trans.

#### STEERING

Worm screw and roller type,

Ratio: 1/16.4

Turning circle diameter: 34 ft. 2 in. (10.4 m)

Steering column of the break-away mount type with two universal joints. Independent and symmetric track rods to each wheel. Sealed-for-life joints. Hydraulic, double-acting damper on relay support.

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#### **BRAKES**

Hydraufically operated by pedal through vacuum servo and tandem master cylinder.

Disk type, with floating caliper and one cylinder to each wheel.

Independent front and rear circuits.

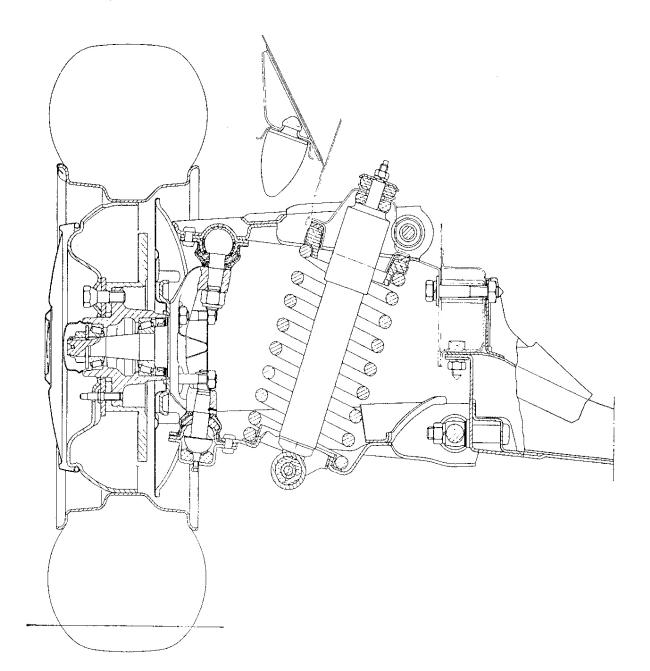
Proportioning valve in rear circuit for car load and deceleration rate variation compensations.

Device for automatic wear take-up.

Parking hand brake acting on rear brakes.

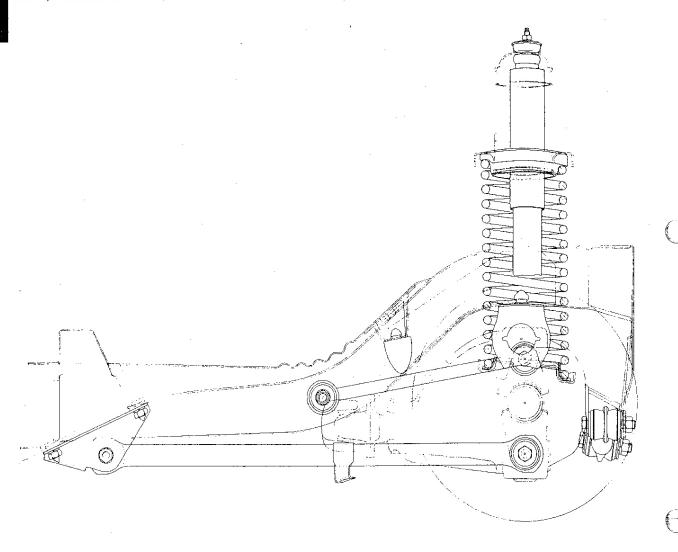
#### FRONT SUSPENSION

Independent wheels, by swinging arms, with coil springs and hydraulic, double-acting telescopic shock absorbers. Stabilizer bar. Sealed-for-life articulations.



#### **REAR SUSPENSION**

By rigid axle anchored to body through 5 reaction rods — 4 longitudinal and 1 transversal. Coil springs, hydraulic double-acting telescopic shock absorbers. Asymmetric wheel motions stabilized by elastic mounts of reaction rods.



#### WHEELS AND TIRES

Disk wheels, ventilated, with rim size 5 J x 13"
Radial-ply tires, size
or
Alloy wheels, ventilated, with rim size 5.5 J $\times$ 14"
Radial-ply tires, size,

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#### **ELECTRICAL SYSTEM**

	1975 to 1977	1978 to 1980	1981 and ON
	Voltage	Voltage	Voltage
	Alternator	Alternator	Alternator
	Continuous current rating 44 Amps Incorporated current rectifiers. Automatic voltage regulator. Cut-in speed at starting of engine (with users off).	Continuous current rating 55 Amps Incorporated current rectifiers. Automatic voltage regulator. Cut-in speed at starting of engine (with users off).	Continuous current rating 65 Amps Incorporated current rectifiers. Automatic voltage regulator. Cut-in speed at starting of engine (with users off).
			Battery
	With grounded negative; capacity at 20-hr discharge rate 60 Amp. hr. Cold (-18°C) high-discharge test current 255 Amp.	Battery With grounded negative; capacity at 20-hr discharge rate 60 Amp. hr. Cold (-18°C) high-discharge	With grounded negative; capacity at 20-hr discharge rate 60 Amp.hr. Cold (-18°C) high-discharge test current
'}	test current	test current 255 Amp.	Starter
	Starter Power rating	Starter  Power rating 1.3 kW  Direct engagement by splengid and face	Power rating
	Direct engagement by solenoid and free- wheeling pinion.	Direct engagement by solenoid and free- wheeling pinion.	Heater Fan Motor
	Heater Fan Motor	Heater Fan Motor	Power rating 20 W
	Power rating	Power rating	Engine Radiator Fan Motor Power rating. 110 W
			Power rating
	Engine Radiator Fan Motor Power rating	Engine Radiator Fan Motor	Windshield Wiper Motor Power rating28 W
		Power rating 110 W	Ignition System (1979 and on)
	Windshield Wiper Motor	Windshield Wiper Motor	Firing order 1-3-4-2
	Power rating 28 W	Power rating 28 W	Electronic, with inductive discharge ignition distributor.
	Ignition System (1975 & 1976)	Ignition System (1977 & 1978)	Basic ignition timing
~~	Firing order	Firing order	at 800 to 850 rpm (manual transmission), at 700 to 750 rpm (automatic transmission)
THE STATE OF THE S	Dwell angle, for distributor contacts gap check (at 850 ± 50 rpm) 55°	Dwell angle, for distributor contacts gap check (at 850 ± 50 rpm)	Automatic advance
	Breaker additional points gap .3149 mm (.012019 in.) Spark Plugs: CHAMPION N 7 Y or	Breaker additional points gap .3149 mm (.012019 in.) Spark Plugs:	Standard Type: CHAMPION N9 Y AC DELCO 42-XLS MARELLI CW 7LP FIAT 1L4J
	AC DELCO 41-42 XLS or MARELLI CW 78 LP Thread size 14 x 1.25 mm Gap	Standard Type: CHAMPION N9 Y AC DELCO 42-XLS MARELLI CW 7LP BOSCH W175 T30 Resistor Type: CHAMPION RN9 Y	HAT 1L4J BOSCH W 7D Resistor Type: CHAMPION RN9 Y or RN1 QY AC DELCO R42-XLS or R43 - XLS
		AC DELCO R42-XLS MARELLI CW 7LPR BOSCH W175 TR30	MARELLI CW 7LPR or CW 67 LPR FIAT 1L4JR
		Thread size 14 x 1.25 mm  Gap: Standard type — 6 to 7 mm	BOSCH WR7D or WR7D2 Thread size 14 × 1.25 mm
		Standard type — .6 to .7 mm (.023027 in.) Resistor type — .7 to .8 mm (.027031 in.)	Thread size 14 x 1.25 mm Gap: Standard type — .6 to .7 mm (.023027 in.)
			(.023027 (n.) Resistor type — .7 to .8 mm (.027031 in.)

#### **PERFORMANCE**

#### (1975 to 1978)

#### (1979 and On)

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14	axiinum:	speeds	di	le	1	J	e c	įΚ	-1	η,	•	u	11	Ý	d	u	e,	1:						
																							1	n.p.h.
	1st gear.				٠.																			28
	2nd gear																							
	3rd gear																	,	,	,	,			75
	4th gear																							102
	5th gear,	over.																						105

Gradeability		
Maximum grades glimable	fully	ı

aximum grades climable, fully laden:
1st gear
2nd gear
3rd gear
4th gear
5th dear

#### WEIGHTS

Curb weight
2 adults (300 lbs) + 130 lbs, of luggage
Gross weight (fully laden) 2,680 lbs.
Designated seating capacity 2 persons
Occupant distribution 2 in front

#### Speeds

Maximum speeds after break-in, fully laden:

	Manual Trans.	Auto. Trans.
1st gear	 28	47
2nd gear	 50	76
3rd gear	 76	103
4th gear	104	
5th gear, over	 105	

#### Gradeability

Maximum grades climable, fully laden:

	%	%
1st gear	48	. 48
2nd gear	29	30
3rd gear	17	20
4th gear	12	
5th gear	9	

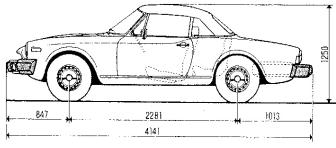
#### WEIGHTS

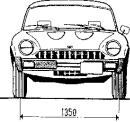
Curb weight:	Manual
	Automatic 2,400 lbs.
Vehicle load ca	apacity (total 430 lbs.):
	2 adults (300 lbs.) + 130 lbs. of luggage
Gross weight:	Manual
(fully laden)	Automatic 2,830 lbs.

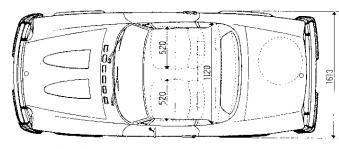
Designated seating capacity . . . . . . . . . . . . 2 persons Occupant distribution . . . . . . . . . . . . . . . . 2 in front

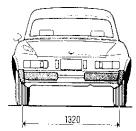
## MAIN DIMENSIONS (ALL)

mm	520	847	1,013	1,120	1,250	1,320	1,350	1,613	2,281	4,141
in.	20.5	33.4	39.9	44	49.2	52	53.2	63.5	89.7	163









Overall height is measured with unladen car. Frunk volume: 180 cu. cm. (6.4 cu. ft.).

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#### **CAPACITIES**

		QUANTIT	ſΥ		
UNIT	lt	kg	U.S. Units		REFILL
Fuel tank	43	_	11.4 gals.	Leaded (no catalytic converter) or unleaded gasoline with octane ratio of at least 91 (Research Method)	
Radiator, cylinder jackets and heating system	8		8.5 qts.	Use 50-50 antifreeze and water mix	
Engine sump and filter (*)	4.125	3.75	4.25 qts.	See table	below
Transmission					
Manual	1.65	1.50	1.75 qts.		//90 oil (not EP) containing
Automatic	2.8	2.5	3.0 qts.	special anti-wear additives.  DEXRON automatic transmission fluid (**)	
Rear axle	1.30	1.20	1.40 qts.	SAE 80W	//90 EP oil
Steering box	0.215	0.195	0.40 pts.	SAE 80W/90 EP oil ATF type A (suffix A)	
Hydraulic brake circuits	0.38	0.38	0.40 pts.	s. DOT 3 motor vehicle brake f F.M.V.S. No. 116	
Windshield washer bottle	Temper	ature	Sol	vent in bot	tle
	above 32°F (0°C) down to 14°F (-10°C) below 14°F (-10°C)		3% 50% 100%	Pure water plus high quality windshield washer solvent	
Engine oil	· · · · · · · · · · · · · · · · · · ·				
usage, temperature		Uni	grade oil		Multigrade oil
Below 5°F (-15°C) 5°F (-15°C) to 32°F (0°C) 32°F (0°C) to 95°F (35°C) Above 95°F (35°C)		VS10W (SAE 10 VS20W (SAE 20 VS30 (SAE 30) VS40 (SAE 40)			

<sup>(\*)</sup> Total capacity including sump, filter and lines is 5½ qts. Amount indicated in table is the requirement for periodic oil changes. (\*\*) Fluid refill quantity for new or overhauled transmission is 6 qts.

#### **LUBRICATION SPECIFICATIONS**

FIAT TYPE	INTERNATIONAL DESIGNATION	APPLICATION	
VS	Low ash content detergent oil API service SE, CC to MIL-L-46152 and the European sequence.	Engine	
ZC 90	SAE 80W/90 oil (not EP) with anti-wear additives.	Manual transmission	
GI/A	ATF - DEXRON type	Automatic transmission	
W 90/M	SAE 80W/90 EP oil to MIL-L-2105B	Rear axle Manual steering box	
Jota 1	Lithium-base grease N.L.G.1, No. 1	Seat rails	
MR 3	Lithium-base grease N.L.G.I. No. 3	Starter, ball joints, front wheel bearings	

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#### TUNE-UP

This section contains information needed to perform a tune-up of the engine. Perform the tasks in this section according to the MAINTENANCE chart.

Example: If doing tune-up at 7,500 miles, check spark plugs. If doing tune-up at 15,000 miles, change spark plugs.

#### SPARK PLUGS

Remove plugs. Inspect plugs for condition. Clean or replace plugs.

Adjust plug gap.

Gap

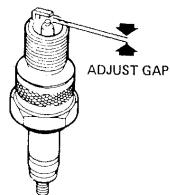
Normal

Resistor

0.023 to 0.027 in. (0.6 to 0.7 mm).

0.027 to 0.031 in. (0.7 to 0.8 mm)

NOTE: If checking tappet clearance, leave plugs out until clearance is adjusted.





#### Fuel Injected and Turbocharged Engines

Loosen clamps (1) on molded air intake line (2) and remove line (on turbocharged engines, remove air plenum).

Disconnect line (3) to auxiliary air regulator (4). Remove two bolts holding auxiliary air regulator to cylinder head.

Disconnect coolant line (5) at throttle plate heater (6).

Remove six bolts (7) and two nuts (8) on intake manifold half (9). Carefully lift and move manifold back so that it is positioned clear of cam cover (10).

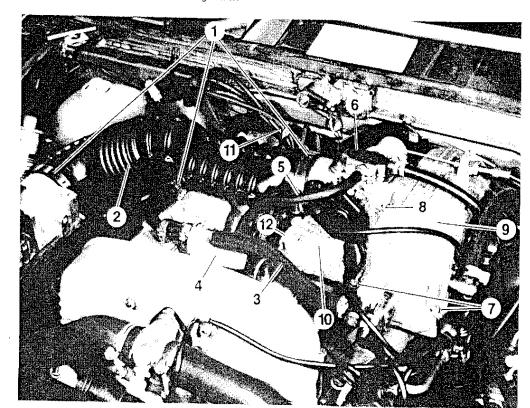
NOTE: If intake manifold gasket is damaged it must be replaced.

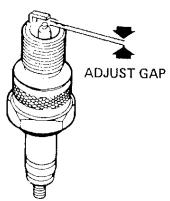
Remove spark plug wires (11) from support.

Remove four bolts (12) holding cam covers. Remove covers and gaskets.



- 2. Air intake line
- 3. Auxiliary air
- regulator line 4. Auxiliary air regulator
- 5. Coolant line
- 6. Throttle plate heater
- 7. Bolt
- 8. Nut
- 9. Intake manifold
- 10. Cam cover
- Spark plug wires
- 12. Bolt





#### Carburetored Engines

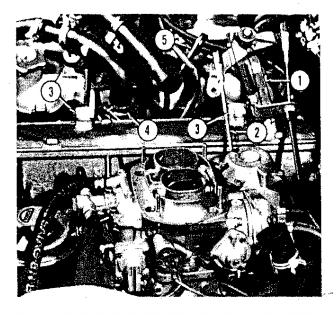
Remove air cleaner. Disconnect accelerator rod (2) from carburetor

On engines with air pump, remove hose from air pump check valve (4).

Remove spark plug wires from support (5).

Remove four bolts (3) holding camshaft covers, Remove covers and gaskets.

1, Support 2. Accelerator rod 3, Bolts 4, Check valve 5, Support

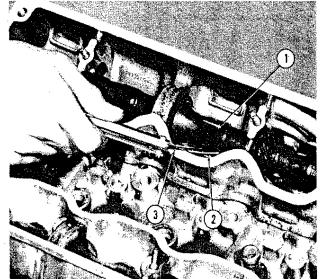


#### All Engines

Position camshaft so that lobe for valve being checked is pointing up and at right angle to valve.

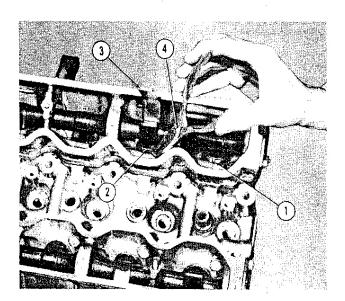
Clearance: Intake - 0.017 to 0.019 in. (0.43 to 0.48 mm)
Exhaust - 0.019 to 0.021 in. (0.48 to 0.53 mm)

1. Camshaft lobe 2. Tappet 3. Feeler gauge



Adjust clearance as necessary by replacing tappet plates (2). After adjusting, install cam covers, and all removed parts.

1. Notch on tappet 2. Tappet plate 3. Clamping tool 4. Tool

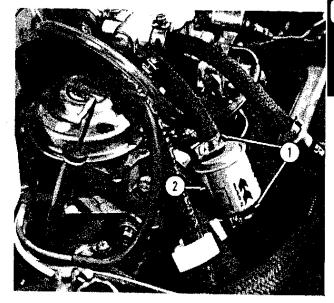


#### **FUEL FILTER**

#### Carburetor

Replace fuel filter (2) by loosening two fuel line clamps (1), then pulling fuel lines from filter. Install in reverse order. Do not use plastic type filters.

1. Clamps 2. Fuel filter



#### **Fuel Injection**

CAUTION: Before disconnecting fuel lines, system must first be depressurized (refer to Fuel Injection section).

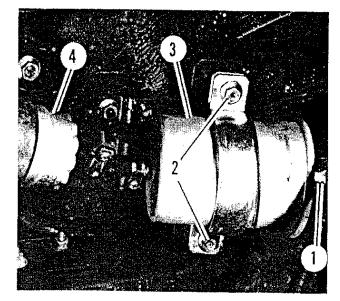
Fuel filter (3) is located underneath vehicle on left side, just forward of rear axle.

Loosen line clamps (1) and disconnect lines. Remove two nuts (2) and clamp to remove filter.

CAUTION: Replace filter with same type as was removed.

Fuel injection system pressure is higher than
carburetor system and requires special filter.

1. Clamp 2. Nut 3. Fuel filter 4. Fuel pump

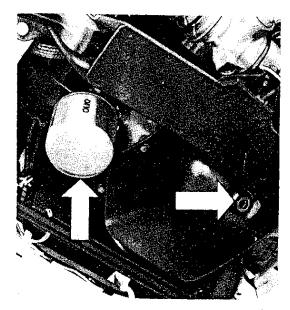


#### ENGINE OIL

With engine warm, drain oil. Remove oil filter.

Coat seal on new filter with oil.

Thread filter on by hand until seal touches plate. Turn filter down ½ turn more. Fill oil sump to full mark. Run engine and check for oil pressure. Check around filter for leaks. Stop engine and add oil if necessary to bring level ot full mark.



#### **IGNITION TIMING**

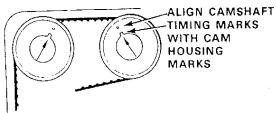
CAUTION: On Engines with electronic ignition, DO NOT disconnect high tension coil wire while engine is running or being cranked for starting or other testing.

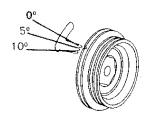
Remove rubber plugs from timing belt rear cover.

Turn engine to align camshaft timing marks with pointers on cam housing.

Check that crank pulley notch aligns with zero degree timing pointer. If not, adjust cam timing. Engine is now set to fire on No. 4 cylinder.

## **CHECK CAM TIMING**





**PULLEY TIMING** MARK IS AT 0°BTDC

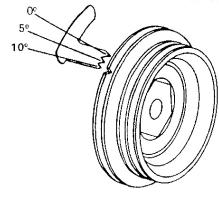
Connect timing light. Start engine and run at normal idle.

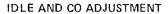
Check initial timing. (Refer to timing specifications in this section.)

To adjust, loosen distributor and hold down nut and rotate distributor. Fully tighten distributor hold down nut. Adjust carburetor settings.

#### CHECK IGNITION TIMING

**PULLEY TIMING** MARK IS AT 10° BTDC





NOTE: Refer to fuel injection section for adjustments to this system.

#### Carburetor

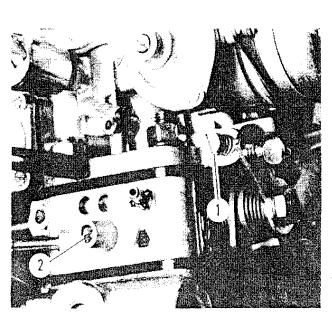
On cars with air induction, remove air cleaner cover and block inlet to reed valves. Reinstall cover.

On cars with air pump, pinch off air injection hose between check valve and tee fitting.

On all cars, connect tachometer. Apply handbrake. Start engine and allow it to warm up. Insert CO tester probe in tailpipe.

On cars with automatic transmission, place lever in DRIVE.

Check normal idle and CO. On cars with automatic transmisssion, normal idle speed should be 800 to 900 rpm. On cars with manual transmission, normal idle speed should be 700 to 800 rpm. CO level should be as stated on underhood tag.



## AIR CLEANER (Carburetor)

#### Installation

Install air cleaner (3) on carburetor with four nuts and plate. Connect hoses to bottom of air cleaner.

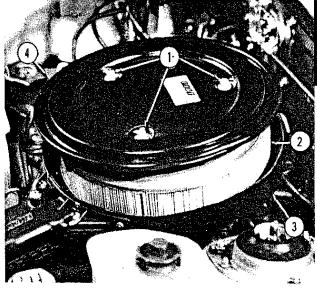
Place element (2) in air cleaner, Place cover (4) on air cleaner, Secure cover with three nuts (1) and washers.

Install heated air hose on snorkel.

On cars with air induction, install reed valve hoses on air cleaner.

On cars with air pump, install air injection hose on air cleaner.

1, Nut 2, Filter element 3, Air cleaner 4, Cover



## REED VALVE FILTER (Carburetored Engines With Air Induction)

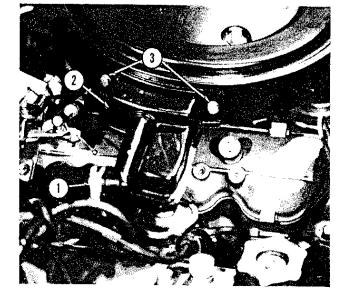
#### Removal and Installation

Loosen clamp (1) and remove hose from air induction filter housing (2).

Remove two bolts (3) and washers and remove air induction filter housing from air filter. Remove filter.

Install in reverse order.

1. Clamp 2. Air induction filter housing 3. Bolts



## AIR CLEANER (Fuel Injection)

#### Removal and Installation

NOTE: The air filter element should be changed every 30,000 miles. If vehicle is frequently driven in heavy traffic or sandy or dusty areas, it is recommended to replace filter every 15,000 miles.

Using a screwdriver, release the four catches (1).

Lift the cover (2) off and remove the filter (3).

Install new filter and replace cover.

Secure catches by pressing on curved section.

1. Catches 2. Cover 3. Filter 4. Housing 5. Air Flow Sensor

