1974-79 TUNE-UP PROCEDURES
Subaru 4-Cylinder

Brat, 1400, 1600

ENGINE IDENTIFICATION

Engine can be identified by characters stamped on machined pad on side of engine, near distributor and below carburetor.

1974-75 ENGINE CODES

Application	Code
All Models	EA63

1976 ENGINE CODES

Application	Code
1400	
4-Speed	EA63AFA
4WD 4-Speed	EA63EF4
5-Speed	EA63AP5
1600	EA71AT

1977 ENGINE CODES

Application	Code
4-Speed Trans.	
Federal	EA71AF
Calif.	EA71F2
High Altitude	A71AF3
4WD 4-Speed Trans.	
Federal	EA71EF
Calif.	EA71EF2
High Altitude	EA71EF3
5-Speed Trans.	
Federal	EA71AP
Calif.	EA71AP2
High Altitude	EA71AP3
Auto. Trans.	
Federal	EA71AT4
Calif.	EA71AT5
High Altitude	EA71AT6

1978 ENGINE CODES

Application	Code
4-Speed Trans.	
Federal	EA71AA
Calif.	EA71AC
High Altitude	EA71AH
4WD 4-Speed Trans.	
Federal	EA71WA
Calif.	EA71WC
High Altitude	EA71WH
5-Speed Trans.	
Federal	EA71GA
Calif.	EA71GC
High Altitude	EA71GH
Auto. Trans.	
Federal	EA71TA
Calif.	EA71TC
High Altitude	EA71TH

1979 ENGINE CODES

Application	Code
Federal	
Man. Trans.	EA71AA, EA71GA, EA71WA
Auto. Trans.	EA71TA
Calif.	
Man. Trans.	EA71AC, EA71WC
Auto. Trans.	EA71TC

MODEL IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

Vehicle Identification Number is located on left side of instrument panel and is visible through windshield. Chassis number may be found on firewall, in engine compartment.

ENGINE COMPRESSION

Check pressure with engine warm, plugs removed, throttle valve wide open and engine at cranking speed (350 RPM). Pressure should be as specified with a maximum variation of 7 psi (.5 kg/cm²) between cylinders.

COMPRESSION PRESSURE SPECIFICATIONS

Application	Pressure psi (kg/cm²)
All Models	156 (11)

VALVE CLEARANCE

With engine cold, bring piston to be checked to TDC of compression stroke. Loosen lock nuts and turn adjusting screws to proper clearance. Adjust valves in firing order sequence (1-3-2-4) using Valve Clearance Adjuster (398760100).

VALVE CLEARANCE SPECIFICATIONS

Application	Clearance In. (mm)
1974-75 Models	
Intake	.011-.013 (.28-.32)
Exhaust	.013-.015 (.33-.37)
1976-79 Models	
Intake	.010 (.25)
Exhaust	.014 (.35)

VALVE ARRANGEMENT

1974-76 Models

E-I-I-E - Front-to-rear, both banks.

1977-79 Models

I-E-E-I - Front-to-rear, both banks.

SPARK PLUGS

SPARK PLUG SPECIFICATIONS

Application	Specifications
Gap	.032" (.8 mm)
Torque	13-17 ft. lbs. (18-23 N.m)

SPARK PLUG TYPE

Application	NGK No.
All Models	BP6ES

HIGH TENSION WIRE RESISTANCE

Carefully remove high tension wires from spark plugs and ignition coil. Remove distributor cap with wires still in place. Using an ohmmeter, check high tension wire resistance between free end of wire and distributor cap electrode. If resistance is not to specifications, or fluctuates from infinity to any value, replace high tension wire(s).

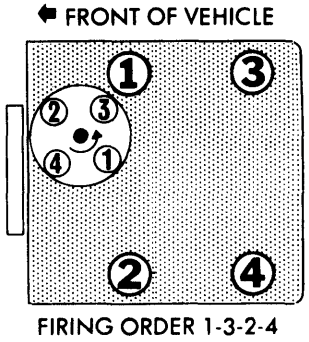

Fig. 1: Firing Order & Distributor Rotation

1974-79 TUNE-UP PROCEDURES
Subaru 4-Cylinder (Cont.)

HIGH TENSION WIRE RESISTANCE

Application	Resistance (Ohms)
1974-76 Models	25,000-30,000
1977-79 Models	15,000 Max.

DISTRIBUTOR

Models are equipped with Hitachi or Nippondenso distributors.

DISTRIBUTOR SPECIFICATIONS

Application	Specification
Air Gap [1]	
Nippondenso	.008-.016" (.20-.40 mm)
Hitachi	.012-.016" (.30-.40 mm)
Point Gap	.016-.020" (.40-.50 mm)
Dwell Angle	49-55°
Breaker Arm Spring Tension	14-19 ozs. (400-550 g)
Condenser Capacity	.22 mfd.

[1] - Electronic ignition systems only.

IGNITION TIMING

1) Adjust timing with shift lever in Neutral or Park position. Disconnect and plug vacuum hoses from distributor retard and advance mechanism. Connect timing light to No. 1 cylinder ignition wire.
2) Adjust engine idle speed to specifications. To set timing, loosen distributor lock-down bolt and turn distributor to specified setting. Tighten lock-down bolt after adjustment.

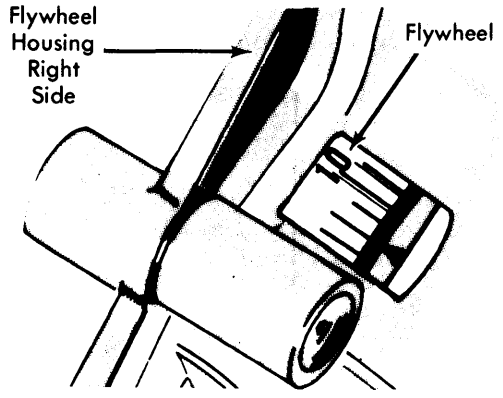

Fig. 2: Ignition Timing Marks On Flywheel

IDLE SPEED & MIXTURE

1974 Models - **1)** Warm engine to normal operating temperature. Be sure ignition timing and valve clearance are to specifications. Connect tachometer and exhaust gas analyzer to vehicle.
2) Check CO% level. If CO% level is incorrect, pry limiter cap off idle mixture screw and turn screw until correct CO% level is obtained. Recheck idle speed and adjust if necessary.
3) With correct CO% level obtained, install a new limiter cap over idle mixture screw. Cap must be installed so tang on limiter cap is seated against idle mixture screw stop.
1975-76 Models Without Air Injection System - Warm engine to normal operating temperature. Be sure ignition timing and valve clearance are to specifications. Connect tachometer and exhaust gas analyzer to vehicle. Adjust CO% level to specifications using throttle screw and idle speed screw.

NOTE: On 1975 models, adjustment can be made with air injection valve connected or plugged.

1974-76 IDLE SPEED & CO% LEVEL SPECIFICATIONS

Application	Idle RPM	CO%
1974 Models	800	1.0-3.0
1975 Models		
Air Valve Connected	[1] 850-950	.15-.55
Air Valve Plugged	[1] 850-950	0.5-1.5
1976 Models		
With Air Injection	850-950	0.5-1.5
W/O Air Injection	850-950	.15-.55

[1] - At 750-850 RPM on manual transmission equipped models.

1976-79 Models With Air Injection System - **1)** Warm engine to normal operating temperature. Be sure ignition timing and valve clearance are to specifications. Disconnect air suction hose from silencer.
2) Cap open end of silencer with tape. With air cleaner in place, turn both throttle adjusting screw and idle mixture adjusting screw to obtain specified idle speed and CO% level.
3) Remove tape from end of silencer. Connect air suction hose from the air cleaner to the silencer. Check that idle and CO% level are within specifications.

1977-78 IDLE SPEED & CO% LEVEL SPECIFICATIONS

Application	Idle RPM	CO%
Federal	850	[1] 1.0-2.0
Calif.	900	[2] 0.5-1.0

[1] - Set to 0.5-1.5 percent with air suction hose connected.
[2] - Set to 0.1-0.5 percent with air suction hose connected.

1979 IDLE SPEED & CO% LEVEL SPECIFICATIONS

Application	Idle RPM	CO%
Federal	800	[1] 0.5-2.5
Calif.		
Man. Trans.	900	[2] 2.0-4.0
Auto. Trans.	900	[2] 1.0-3.0

[1] - Set to 0.25-2.0 percent with air suction hose connected.
[2] - Set to 0.5-1.0 percent with air suction hose connected.

COLD (FAST) IDLE RPM

With cam adjusting lever on 4th step of fast idle cam, check primary throttle valve opening angle (degrees) and clearance. If settings are incorrect, adjust fast idle screw.

FAST IDLE SPECIFICATIONS

Application	Throttle Valve Opening Angle	Clearance In. (mm) Valve-to-Body
1974-76 Models	18	.055 (1.40)
1977-78 Models		
Federal	16	.043 (1.09)
Calif. & High Alt.	19	.060 (1.53)
1979 Models		
Federal	14	.041 (1.05)
Calif.	17	.054 (1.38)

FUEL ENRICHMENT ADJUSTMENT

1977 High Altitude Models With Hitachi DCJ306-9 Carburetor - An adjustment screw is provided on the choke chamber to adjust carburetor to proper altitude. Stop engine before adjusting carburetor. For altitudes higher than 4000 feet, turn screw in until it bottoms and back out 6 turns. For altitudes less than 4000 feet, turn screw in until it stops.

1974-79 TUNE-UP PROCEDURES
Subaru 4-Cylinder (Cont.)

FUEL PUMP

FUEL PUMP SPECIFICATIONS

Application	Specification
Pressure	1.9-2.6 psi (.13-.18 kg/cm²)
Volume	.09 pts. in 1 min.

EXHAUST EMISSION SYSTEMS

See appropriate articles in EXHAUST EMISSION SYSTEMS section.

IGNITION SYSTEM

DISTRIBUTOR

Models are equipped with Hitachi or Nippondenso distributors.

Other Data & Specifications – See Hitachi and Nippondenso distributors in DISTRIBUTORS & IGNITION SYSTEMS section.

IGNITION COIL

1974-78 IGNITION COIL SPECIFICATIONS

Application	Resistance (Ohms)
Primary	[1] 1.35-1.65
Secondary	
Hitachi	[2] 6800-10,200
Nippondenso	11,100-13,700

[1] – On California Hitachi equipped models, primary resistance is .81-99 ohms.

[2] – On California Hitachi equipped models, secondary resistance is 8500-12,900 ohms.

1979 IGNITION COIL SPECIFICATIONS

Application	Resistance (Ohms)
Primary	
Hitachi	1.17-1.43
Nippondenso	1.33-1.63
Secondary	
Hitachi	7800-11,600
Nippondenso	12,600-15,400

FUEL SYSTEMS

CARBURETORS

On 1974-76 models, set automatic choke setting to index mark.

CARBURETORS

Application	Model
All Models	Hitachi DCJ 2-Bbl.

Other Data & Specifications – See appropriate Hitachi Carburetor article in FUEL SYSTEMS section.