1982 Subaru 4 Tune-Up

TUNE-UP

1600, 1800

ENGINE IDENTIFICATION

Engine can be identified by a combination letter-number code stamped on machined pad on front right side of engine, near distributor.

ENGINE CODE

Application	Code
1600	
4-Spd.	EA71A
5-Spd.	EA71G
1800	
2-WD	
Man.Trans.	
4-Spd.	EA81A
5-Spd.	EA81G
Auto.Trans.	
Hardtop & Sedan	EA81T
Station Wagon	EA81M
4-WD	
DL & Standard	EA81W
GL	EA81P

COMPRESSION PRESSURE

Check pressure with engine warm, plugs removed, throttle valve wide open and engine at cranking speed.

COMPRESSION SPECIFICATIONS

Compression Ratio	9.0:1
Compression Pressure	
1600	175 psi (12.3 kg/cm²)
1800	171 psi (12.0 kg/cm²)
Max. Variation	7 psi (.5 kg/cm²)

VALVE CLEARANCE

With engine cold, bring piston of the cylinder to be checked to top dead center of compression stroke. Insert feeler gauge between valve stem and rocker arm. Loosen lock nuts and turn adjusting screws to proper clearance. Adjust valves in firing order sequence using valve clearance adjusting tool (498767000) or equivalent.

VALVE CLEARANCE SPECIFICATIONS

Application	[1] Clearance In. (mm)
Intake	.010 (.25)
Exhaust	.014 (.35)

[1] — Adjust valves with engine cold.

VALVE ARRANGEMENT

I-E-E-I (Both banks, front to rear)

SPARK PLUGS

SPARK PLUG TYPE

Application	NGK No.	Champion No.
All Models	BPR-6ES-11	RN9YC-4

SPARK PLUG SPECIFICATIONS

Application	Gap In. (mm)	Torque Ft. Lbs. (N.m)
All Models	.041 (1.0)	15 (20)

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 correct, or fluctuates from infinity to any value, replace high tension wires.

WIRE RESISTANCE

Application	Ohms
All Models	25,000

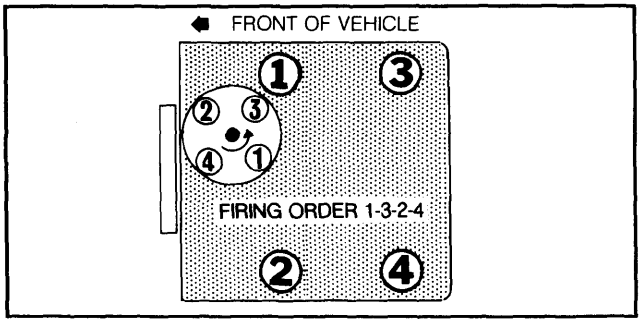
DISTRIBUTOR

All models are equipped with breakerless, electronic ignition systems. Nippondenso distributors are used in 2-WD models and Hitachi distributors are used in 4-WD models.

AIR GAP SPECIFICATIONS

Application	Gap In. (mm)
Hitachi	.012-.020 (.3-.5)
Nippondenso	.008-.016 (.2-.4)

Fig. 1: Firing Order and Distributor Rotation



IGNITION TIMING

Adjust timing with engine at normal operating temperature and transmission in neutral. Disconnect and

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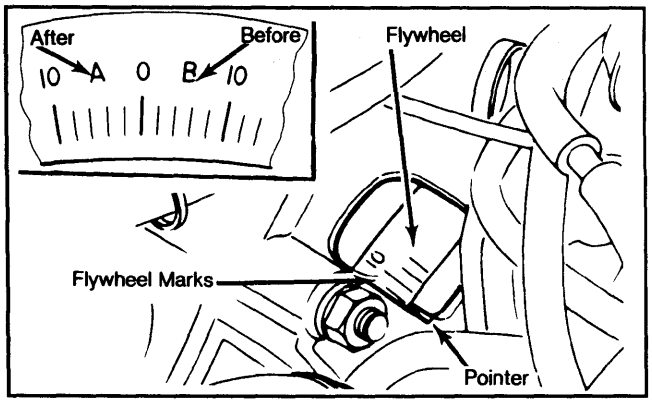
plug vacuum hoses at distributor. With engine at idle, check timing and turn distributor to adjust.

IGNITION TIMING (Degrees BTDC@RPM)

Application	Man.Trans.	Auto. Trans.
All Models	8@700	8@800

Fig. 2: Subaru Timing Mark Location

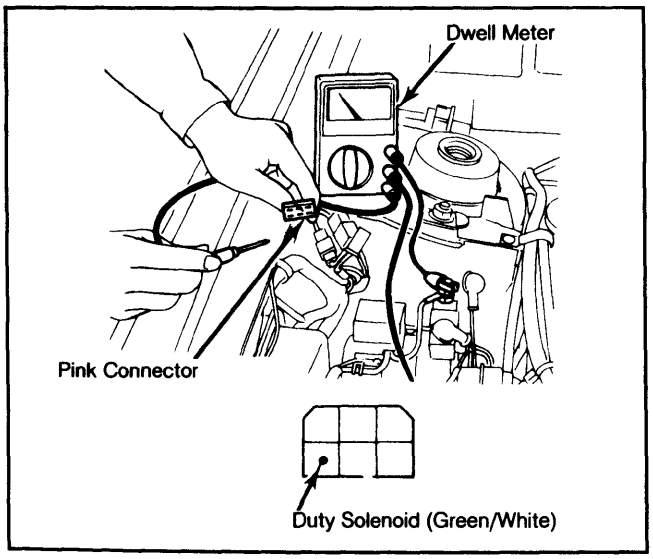


IDLE SPEED & MIXTURE

NOTE: Ignition timing and valve clearances must be correct and engine must be at normal operating temperature prior to adjusting idle speed and mixture.

1) Disconnect canister purge hose at check valve near intake manifold. Plug hose, then start engine and warm up for at least 5 minutes. Adjust idle speed with transmission in neutral.

Fig. 3: Idle Mixture Test Connections



NOTE: Idle mixture should not need adjustment unless carburetor has been removed and disassembled. Roll pin must be removed from in front of idle mixture screw before adjustments can be made.

2) Connect a dwell meter to Green/White wire in Pink connector near right front shock tower. Set meter on 4-cylinder scale and observe needle movement with engine idling. *See Fig. 3.*

3) Dwell meter needle should move up and down within 30-40° range. If not moving, run engine at 2000-3000 RPM for at least 2 minutes, then recheck.

4) If dwell meter needle movement is not within specified range, adjust idle mixture screw until needle movement is between 27-36°. Recheck idle speed, then remove test equipment, reconnect purge hose and install roll pin.

IDLE SPEED SPECIFICATIONS

Application	Man. Trans.	[1] Auto. Trans.
All Models	600-800	700-900

[1] — In Neutral.

FAST IDLE ADJUSTMENT

1-BBL. CARBURETOR MODELS

Check idle speed and mixture prior to adjusting fast idle speed. Start and run engine until it reaches normal operating temperature. Ensure that automatic choke is fully opened. Place fast idle adjusting screw on 3rd (middle) step of fast idle cam. Adjust fast idle speed to specifications.

FAST IDLE SPEED

Application	RPM
All Models	2000

2-BBL. CARBURETOR MODELS

With cam adjusting lever on first step of fast idle cam, primary throttle valve opening angle and clearance should be as specified. If not, adjust fast idle screw.

FAST IDLE SPECIFICATIONS

Application	Throttle Valve Opening Angle	Clearance Valve-to-Body
Man. Trans.		
1600	15°	.039" (.98 mm)
1800 2-WD Exc. Wagon	15°	.039" (.98 mm)
All Others	17.5°	.048" (1.22 mm)
Auto. Trans.	18.5°	.052" (1.33 mm)

FUEL PUMP

FUEL PUMP PERFORMANCE

Application	Pressure psi (kg/cm²)	Volume in 30 Sec. Pints (Liters)
All Models	1.7 (.12)	.5 (.24)

EXHAUST EMISSION SYSTEMS

See EXHAUST EMISSION SYSTEMS section.

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GENERAL SERVICING

IGNITION

DISTRIBUTOR

Breakerless, electronic ignition systems are used on all models. Hitachi systems are used on four-wheel drive models, and Nippondenso systems are used on all other models.

IGNITION COIL

RESISTANCE Ohms@68°F (20°C)

Application	Primary	Secondary
Hitachi	1.04-1.27	7360-11,040
Nippondenso	1.13-1.38	10,795-14,605

FUEL SYSTEMS

CARBURETORS

All models equipped with a 1-Bbl. carburetor use a Carter TYF type carburetor. All models with 2-Bbl. carburetors use a Hitachi DCP type carburetor.

ELECTRICAL

BATTERY

BATTERY SPECIFICATIONS

Application	Amp Hr. Rating
W/O Power Steering	60
W/Power Steering	65

STARTER

All models use Nippondenso starters. 1800 models use a gear reduction-type starter.

STARTER SPECIFICATIONS

Application	Volts	Amps	Test RPM
1600	11.0	50	5000
1800			
Man. Trans.	11.5	90	3000
Auto. Trans.	11.5	90	4100

ALTERNATOR

All models use a Hitachi alternator.

ALTERNATOR SPECIFICATIONS

Application	Rated Amp. Output
All Models	55

ALTERNATOR REGULATOR

All models are equipped with Hitachi alternator regulators.

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

Application	Voltage
All Models	14.2-14.8

SERVICE SPECIFICATIONS

BELT ADJUSTMENT

Application	[1] Deflection In. (mm)
Alternator Belt	.51-.55 (13-14)
Power Steering Belt	.59-.79 (15-20)

[1] — Deflection is with 22 lbs. (10 kg) pressure applied midway on longest belt run.

REPLACEMENT INTERVALS

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

FLUID CAPACITIES

Application	Quantity
Crankcase (Includes Filter)	
1600	3.7 qts. (3.5L)
1800	4.2 qts. (4.9L)
Cooling System	
1600	5.6 qts. (5.3L)
1800	5.8 qts. (5.5L)
Man. Transaxle (SAE 85W-90)	
2-WD	2.9 qts. (2.7L)
4-WD	3.2 qts. (3.0L)
Auto. Transaxle (Dexron)	5.9-6.3 qts. (5.6-6.0L)
Differential (SAE 85W-90)	
Front	2.6 pts. (1.2L)
Rear (4-WD)	1.6 pts. (.8L)
Fuel Tank	
Hatchback	
2-WD	13.2 gals. (50.0L)
4-WD	11.9 gals. (45.0L)
All Other Models	
2-WD	15.8 gals. (59.8L)
4-WD	14.5 gals. (54.9L)