TUNE-UP

924
924 Turbo

ENGINE IDENTIFICATION

Engine identification number is located on the left side of the engine crankcase next to the clutch housing.

Engine Code

Application	Code
924	VC
924 Turbo	M 31/04

COMPRESSION PRESSURE

Check compression with engine at normal operating temperature, fully open throttle, all spark plugs removed and at normal cranking speed. Crank engine at least 12 "puffs" per cylinder.

Compression Pressure Specifications

Application	Pressure psi (kg/cm²)
Normal (New Engine)	114-156 (8-11)
Minimum	85 (6)
Maximum Variation	42 (3)

VALVE CLEARANCE

1) Warm engine to normal operating temperature. Remove cylinder head cover. Rotate crankshaft until cam lobe of cylinder to be adjusted points upward. Check valve clearance.

2) Correct adjustment (if necessary) by using US 8005 adjusting tool and making complete turns of adjusting screw. See *Fig. 1*. Each turn changes clearance by .002" (.05 mm).

NOTE – *Various adjusting screws are available. Camshaft must be removed to replace screws.*

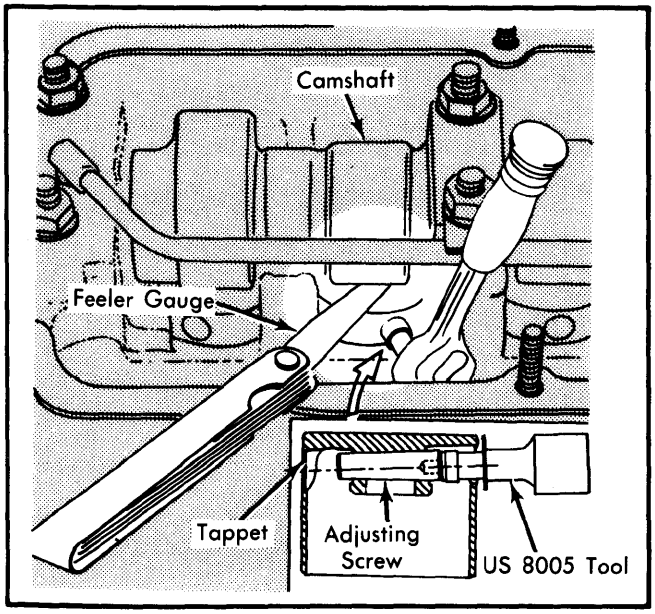

Fig. 1 Adjusting Valve Clearance

Valve Clearance Specifications

Application	Intake In. (mm)	Exhaust In. (mm)
All Models		
Warm	.008 (.20)	.018 (.45)
Cold	.004 (.10)	.016 (.40)

VALVE ARRANGEMENT

I-E-I-E-I-E-I-E (front to rear).

SPARK PLUGS

Application	Gap In. (mm)	Torque Ft. Lbs. (N·m)
All Models	.028 (0.7)	22 (30)

Spark Plug Type

Application	Bosch
All Models	①WR6DS

① – 924 Turbo also uses Champion N7GY.

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 wire. 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	6,000

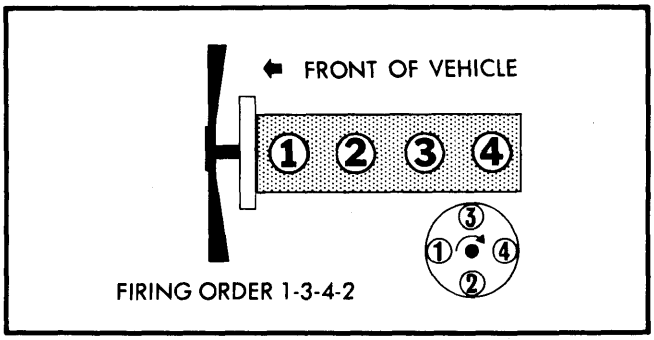

Fig. 2 Firing Order and Distributor Rotation

DISTRIBUTOR

All models are equipped with a breakerless, electronic ignition system. On 924 models, a Bosch Hall Effect distributor is used with an electronic idle stabilizer. 924 Turbo models have an electronic digital ignition timing control (DITC) system, using a flywheel sensor and a timing control unit. Distributors on 924 Turbo models are used only to distribute the spark to the proper spark plug.

Air Gap (Rotor-to-Stator)	.010" (.25 mm)

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TUNE-UP (Cont.)

IGNITION TIMING

924 – Check or adjust ignition timing with engine at normal operating temperature and RPM, as specified in the following table. When timing engine, idle stabilizer connectors should be disconnected and plugged together, by-passing the idle stabilizer.

924 Turbo – The 924 Turbo uses a DITC (digital ignition timing control) system. With this system ignition timing is controlled electronically and no timing adjustment is necessary.

Ignition Timing Specifications

Application	Timing RPM	Setting
924	750-800	①TDC
924 Turbo	Less than 900	②6-10° BTDC

① – With distributor vacuum hoses connected.
② – No adjustment necessary.

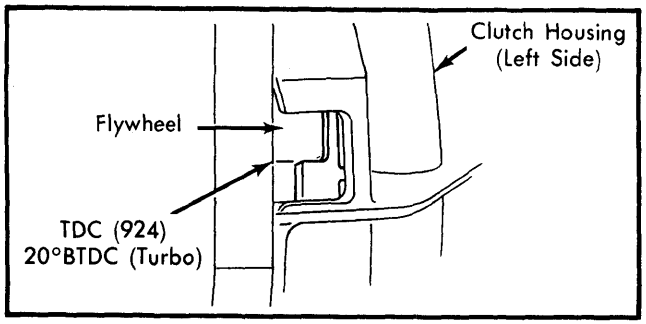

Fig. 3 924 Flywheel Ignition Timing Marks

IDLE SPEED & MIXTURE

924 Models – 1) Remove rubber cap from plug terminal for oxygen sensor and pull off plug. Connect exhaust probe line at test connection of catalytic converter. Connect CO tester and tachometer.

NOTE – *All tests should be performed with engine at normal operating temperature and timing properly set.*

2) With radiator fan switched OFF, turn control screw or by-pass screw on throttle housing until specified speed is reached. If mixture adjustment is required, remove mixture control unit. Remove tamper-proof plug between fuel distributor and venturi. Insert adjusting tool (P 377 or equivalent).

NOTE – *Do not force or press down on adjusting tool during adjustments or engine will stall. Turn adjusting screw in very small increments as the slightest adjustment will change the CO level considerably.*

3) Remove adjusting tool and install plug each time CO level is checked or adjustment is made or a false CO level will be indicated. Accelerate engine briefly and allow engine to return to stabilized idle. Recheck both CO level and idle speed. Adjust if necessary. Install plug terminal for oxygen sensor and install cap on probe connection at catalytic converter.

924 Turbo Models – 1) Remove temperature sensor from intake manifold and plug hole with suitable plug (M 14 x 1.5). With wiring still connected to temperature sensor, place it in fresh air tray behind firewall. Sensor temperature must be below 120°F (50°C).

2) Start engine and warm to normal operating temperature. Connect CO tester and timing light.

3) Adjust idle control screw (by-pass air screw) until timing mark on flywheel is completely visible and jumps partially below reference mark.

4) Idle speed should now be below 900 RPM. Timing will vary slightly because it is being regulated.

5) If mixture adjustment is necessary, remove plug from mixture control unit. Insert adjusting tool (P 377) and turn carefully to adjust mixture. Replace plug after each adjustment and remove test equipment.

Idle Speed (RPM) & CO Level (%)

Application	Idle RPM	CO%
924	750-800	①.5-1.0
924 Turbo	900	①.5-1.0

① – Measured ahead of catalytic converter with oxygen sensor wire off.

FUEL PUMP PRESSURE & VOLUME

Two electric fuel pumps are used, one in fuel tank and one in right rear fender.

Pressure	
924	65-75 psi (4.6-5.3 kg/cm²)
924 Turbo	77-85 psi (5.4-6.0 kg/cm²)
Volume	1 qt. in 40 sec.

EXHAUST EMISSION SYSTEMS

See EXHAUST EMISSION SYSTEMS section.

GENERAL SERVICING

IGNITION

DISTRIBUTOR

All models are equipped with breakerless, electronic ignition systems. The 924 models have a Bosch Hall Effect distributor and electronic idle stabilizer. Turbo models are equipped with digital ignition timing control (DITC) system. The distributor only distributes spark to the appropriate spark plug.

IGNITION COIL

Coil Resistance (Ohms@68° F)

Application	Primary	Secondary
All Models	1.0-1.35	5500-8000

FUEL SYSTEMS

FUEL INJECTION

All models are equipped with Bosch Lambda CIS fuel injection with oxygen sensor.

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GENERAL SERVICING (Cont.)

ELECTRICAL

BATTERY

Application	Amp. Hr. Rating
All Models	45 or 63

Battery Location – Battery is located at right rear corner of engine compartment.

ALTERNATOR

Application	Rated Amp. Output
All Models	75

ALTERNATOR REGULATOR

All models are equipped with Bosch alternator regulators. With rear window defogger and headlights turned on, operating voltage should be 13.5-14.5 volts at 2000 RPM.

BELT ADJUSTMENT

Tension is correct when center portion of belt can be depressed approximately $^{3}/_{16}$ to $^{3}/_{8}$" (5-10 mm) by firm thumb pressure. Adjustment is made by shifting position of alternator. Remove small plate from alternator cover for access to adjustment lock screw.

REPLACEMENT INTERVALS

Component	Interval (Miles)
Oil Filter	
924	15,000
924 Turbo	7,500
Air Filter	30,000
Fuel Filter	30,000
Spark Plugs	30,000
Oxygen Sensor	30,000

CAPACITIES

Application	Quantity
Crankcase (Includes Filter)	5.3 qts.
Cooling System	8.5 qts.
Man. Trans. (Hypoid Gear Lube)	2.6 qts.
Auto. Trans. (Dexron II)	
Drain & Refill	3.0 qts.
Overhaul	6.4 qts.
Differential (Hypoid Gear Lube)	1.1 qts.
Fuel Tank	17.4 gals.

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