PORSCHE

Service Information

Technical Bulletins
January 1988 - December 1988

Book E

Technical Bulletin	Model	Group
	928 S4	6
Subject: Adjustable Sliding Roof Wind Deflector	Part Identifier	Number
	6033	8804

The sliding roof wind deflector angle is adjustable with two screws (Figure 1) to minimize wind noise.

From production date: January 1987
New wind deflector part number:
928 564 023 03

For basic adjustment an angle gauge can be fabricated out of cardboard, wood, or similar material according to attached templates (Figure 2). Align gauge as shown in Figure 3.

Final adjustment can differ from basic adjustment because of body and installation tolerances.

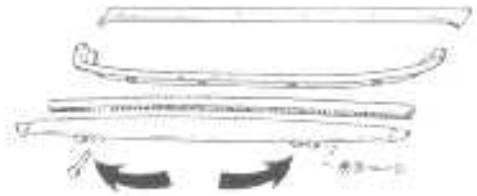

Figure 1

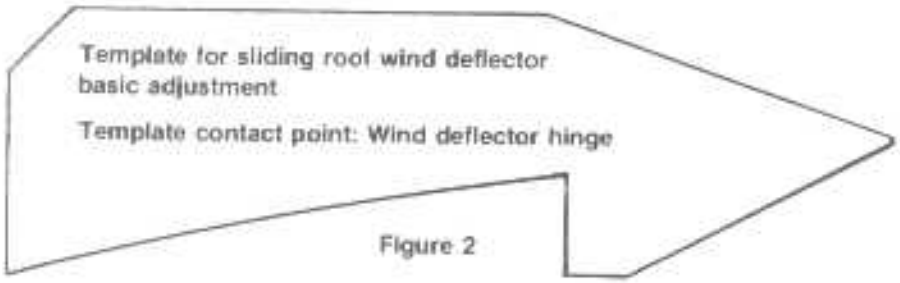

Figure 2

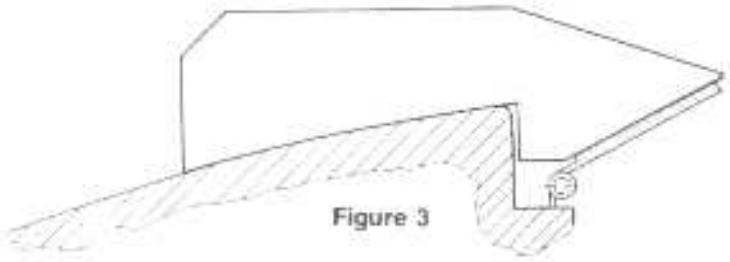

Figure 3

Abbreviations currently in use:

911	911 (various 6 cylinder)
911T	911 model (1968-73)
911T	911 Turbo
911S	911S (1975-77)
911SC	911SC (1978-83)
911C	911 Carrera (1984-89)
912E	912E (1976)
914	914 (various models)
924	924 (various models)
924T	924 Turbo
924S	924S (1987-88)
928	928 (various 8 cylinder)
928S	928S
928 S4	928 S4 (1987-91)
928 GT	928 GT (1989-91)
944	944 (various models)
944T	944 Turbo
944TS	944 Turbo S (1988)
944S	944S (1987-88) (4 valve)
944 S2	944 S2 (1989-91) (4 valve)

Examples: 944/S/S2/T/TS = 944
944 S
944 S2
944 Turbo
944 Turbo S

Important Notice: Porsche Cars N.A Technical Bulletins are intended for use by professional technicians, not a "Do-it-yourselfer." They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Special tools may be required to perform certain operations identified in these bulletins. Use of tools and procedures other than those recommended in these bulletins may be detrimental to the safe operation of your vehicle. Properly trained technicians have the equipment, tools, safety instructions and know-how to do a job properly and safely. If a condition is described, do not assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your Porsche Dealer for information on whether your vehicle may benefit from the information. Part numbers listed in these bulletins are for reference only. Always check with your authorized Porsche dealer to verify correct part numbers.

Part Number - PNA 000 076

Edition - 1/89, Reprinted 3/99

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Technical Bulletin

Model	Group
All	0

Subject: New Vehicle Storage

Part Identifier	Number
0300	8801

The following instructions should be observed when putting new vehicles in storage.

Tires: Increase the tire pressure to 4 Bars (58psi). It is not recommended to lift the vehicle due to the possibility of corrosion on shock absorber pistons.

The vehicle should be moved slightly, approximately every 4 weeks, to prevent flat spots on the tires.

Climate control: The air conditioning system should be in good working condition and fully charged.

Engine, watercooled: Check antifreeze concentration and correct if necessary.

Engine all: Seal the air intake ducts and the muffler tailpipe using towels or tape.

Windshield/Headlight washer: Check antifreeze/cleaning solution.

Electric: The battery should be removed from the vehicle and stored in a cool and dry place, not on a cement floor. Recharge battery every 3 months. If the battery remains in the vehicle with cables connected, it is necessary to check, remove and recharge the battery every 2-3 weeks.

Do not fast charge batteries. Charge batteries at a rate of 4-6 amps for 10-12 hours.

Caution: Not following this procedure may cause battery sulphation and render the battery unusable. Refer to Technical Bulletin Group 2, Number 8801.

Vehicle Interior: The interior must be dry, especially in the area of the floor carpets. The use of drying agents (Silica-Gel) is recommended in vehicles with leather interior and in areas with high humidity. The recommended amount is 3 fabric bags of 500 grams each placed on the floor carpets.

Windows, doors, lids and top must be closed.

On cars with manual heating/ventilation systems, air flaps should be open.

Brakes and shifting: Brake discs and brake pads should be completely dry to prevent corrosion. Do not apply handbrake.

Engage 1st or 2nd gear on 4 cyl. cars and 2nd or 4th gear on 6 and 8 cyl. cars with manual transmission to prevent shift rod corrosion.

Vehicles stored outdoors in direct sunlight: Precautions should be taken to prevent sunlight from entering the cars interior. Cover windshield, door, side and rear glass.

Putting vehicle in service: Remove intake duct and tailpipe sealing. Check for nesting creatures under the hood and evidence of fluid leaks under the car. Install battery. Start engine.

Do not depress the accelerator pedal. Do not run engine at high RPM during warm up.

Switch on A/C at idle RPM and check state of charge. Correct if necessary.

Adjust tire pressure to specified pressure.

Caution. Brakes may not have the highest possible braking efficiency after long storage. Apply brakes several times at low road speed.

Technical Bulletin

Model	Group
All	0

Subject: Used Vehicle Storage

Part Identifier	Number
0300	8802

In order to address customer inquiries regarding storage of their Porsche, the following information can be made available to them.

Clean vehicle thoroughly inside and outside.

Clean engine and engine compartment.

Under carriage and chassis components should be free of dirt and salt deposits.

If required, apply cosmoline to under carriage.

Caution: Do not apply cosmoline to brake system components.

Fuel Tank: Fill up fuel tank.

Tires: Increase the tire pressure to 4 bars (58psi). It is not recommended to lift the vehicle, due to the possibility of corrosion on shock absorber pistons.

The vehicle should be moved slightly, approximately every 4 weeks, to prevent flat spots on the tires.

Climate Control: The air conditioning system should be in good working condition and fully charged.

Engine, water-cooled: Check antifreeze concentration and correct if necessary.

Engine:

Change oil and filter. Run engine for several minutes.

Spray cold engine with corrosion inhibitor. (Do not spray it on the exhaust system or belts.)

If the vehicle remains in storage for more than 3 months, remove spark plugs and disconnect coil wire(s) from distributor cap(s). Ground the coil wire(s) using jumper cable(s).

Squirt 3-5cm³ engine oil into each combustion chamber.

Reinstall spark plugs and torque to 25-30 Nm (18-22 ft. lbs.).

Do not connect spark plug wires.
Crank engine for 5-8 seconds.
Do not operate gas pedal.

Connect spark plug and coil wires.

Do not operate engine until vehicle is put back in service.

Seal the air intake ducts and the muffler tailpipe using towels or tape.

Windshield/Headlight Washer: Check and correct antifreeze/cleaning solution level as necessary.

Electric: The battery should be removed from the vehicle and stored in a cool and dry place, not on a cement floor. Recharge battery every 3 months. If the battery remains in the vehicle with cables connected, it is necessary to check, remove and recharge the battery every 2-3 weeks.

Do not fast charge batteries. Refer to Technical Bulletin Group 2, Number 8801 for charging information.

Vehicle Interior: The interior must be dry, especially in the area of the floor carpets. The use of drying agents (Silica-Gel) is recommended in vehicles with leather interior and in areas with high humidity. The recommended amount is 3 fabric bags of 500 grams each placed on the floor carpets.

Windows, doors, lids and top must be closed.

On cars with manual heating/ventilation systems, air flaps should be open.

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Brakes and shifting: Brake discs and brake pads should be completely dry to prevent corrosion. Do not apply hand brake.

Engage a gear on cars with manual transmission to move the shift rod all the way into the transmission to prevent shift rod corrosion.

Vehicles stored outdoors in direct sunlight: Precautions should be taken to prevent sunlight from entering the car's interior. Cover windshield, door, side and rear glass.

Putting vehicle in service: Remove intake duct and tailpipe sealing. Check for nesting creatures under the hood and evidence of fluid leaks under the car. Install battery. Start engine.

Do not depress the accelerator pedal. Do not run engine at high RPM during warm up.

Should the engine not start after two starting attempts, remove spark plugs and check for oil deposits. If necessary, clean or replace spark plugs.

Caution: Do not crank engine with spark plugs removed.

Switch on A/C at idle RPM and check state of charge. Correct if necessary.

Adjust tire pressure to specified pressure.

Caution: Brakes may not have the highest possible braking efficiency after long storage. Apply brakes several times at low road speed.

Technical Bulletin	Model	Group
	All	0
Subject: Maintenance Requirements — M.Y. 1989	Part Identifier	Number
	03..	8803

This Technical Bulletin contains the maintenance schedules for 1989 Porsche Models 944, 944 Turbo, 911, 911 Turbo, and 928 S4. Suggested repair times for these operations are also included.

Important changes in the maintenance schedules for M.Y. '89 are listed below:

Changes

- **First service is now at 2,000–2,500 miles.**
- Required every 45,000 miles - Replace camshaft belt on 4 cylinder cars.
- Required every 60,000 miles - Replace camshaft belt on 928 S4.

Additional Operations to 2000–2500 Mile Service

- Front axle toe check (all models) (A warranty claim is to be filed if adjustment is required.)
- Check operation of convertible top (911, 911 Turbo)
- Diagnosis system - Readout fault memory and perform system adaption (928 S4 all services)

Deleted Operations from 2000–2500 Mile Service

- Check and correct rear wheel bearing play (911 Turbo and Turbo-look).
- Check tightness of rocker shaft seats (911 and 911 Turbo).
- Engine idling test (928 S4).

Technical Bulletin

Model	Group
All	0

Subject: Maintenance Requirements — M.Y. 1989

Part Identifier	Number
03..	8803

Operation No.	Maintenance Service	944	944 Turbo	911	911 Turbo	928 S4
03 05 00 09	Maintenance, 2,000-2,500 miles, manual transmission and power assisted steering. Includes all operations listed in bulletin.	270	370	370	630	190
03 05 00 10	Maintenance, 2,000-2,500 miles, automatic transmission and power assisted steering. Includes all operations listed in bulletin.	280				200
61 01 01 00	Cabrio top-check operation			20	20	
03 07 00 00	Maintenance, 7,500, 22,500 37,500 miles, etc.		70		70	
03 15 00 07	Maintenance, 15,000, 45,000, 75,000 miles etc., manual transmission. Includes all operations in bulletin	310	450	460	700	250
03 15 00 08	Maintenance, 15,000, 45,000, 75,000 miles, etc., automatic transmission. Includes all operations listed in bulletin	320				270
03 30 00 07	Maintenance 30,000, 60,000, 90,000 miles etc., manual transmission. Includes all operations listed in bulletin	360	490	500	760	480
03 30 00 08	Maintenance, 30,000, 60,000, 90,000 miles, etc., automatic transmission. Includes all operations listed in bulletin	420				580
42 58 05 50	Every 15,000 miles on vehicles with Turbo-look. Check and adjust rear wheel bearing play, both sides.			100		
37 35 17 50	Every 30,000 miles change automatic transmission fluid.	70				120
15 24 19 50	Every 45,000 miles, replace camshaft belt. Check condition and tension after 2,000-2,500 miles and document in space provided in vehicle maintenance booklet.	140	140			
24 69 19 00	Every 60,000 miles, replace oxygen sensor.	20	30	40	40	130

Technical Bulletin

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All	0

Subject: Maintenance Requirements — M.Y. 1989

Part Identifier	Number
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Operation No.	Maintenance Service	944	944 Turbo	911	911 Turbo	928 S4
34 35 17 50	Every 60,000 miles, change transmission oil	20	20	20	20	20
39 01 17 50	Every 60,000 miles, change differential oil.	20				20
20 60 19 53	Every 60,000 miles, change fuel filter.	20	20	20	20	30
15 24 19 50	Every 60,000 miles, replace camshaft belt. Check condition and tension after 2,000-2,500 miles and document in space provided in vehicle maintenance booklet					330
19 38 17 50	Every 2 years, change coolant.	20	20			60
47 08 55 00	Every 2 years, change brake fluid.	60	60	60	60	60
03 37 00 50	Every 4, 8, 10 and then every 2 years, air bag system check as per maintenance procedure	20	20			

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2,000-2,500 Mile Maintenance Service	944	944 Turbo	911	911 Turbo	928 S4
1. Front axle - check toe adjustment, tire condition and tire pressure.	x	x	x	x	x
2. Diagnosis system - Read out fault memory and perform system adaption.					x
3. Change engine oil.	x	x	x	x	x
4. Replace engine oil filter.	x	x	x	x	x
5. Check and adjust valve clearance (replace cover gaskets, sealing nuts and washers).			x	x	
6. Check and adjust tension of camshaft and balance shaft drive belt.	x	x			
7. Cooling and heating system, check coolant level, anti-freeze content, outside of radiator for foreign particles, and hoses for tightness; correct if necessary.	x	x			x
8. Check tightness of hose connections on the crankcase ventilation.	x	x	x	x	x
9. Check intake air hoses, lines and connections for tightness.	x	x	x	x	x
10. Exhaust system: visual inspection of the exhaust system for leaks and damage, check all connections for tightness.	x	x	x	x	x
11. Check engine and transmission for leakage.	x	x	x	x	x
12. Check and correct ATF level in automatic transmission and oil level in final drive.	x				x
13. Check and correct oil level in manual transmission.	x	x	x	x	x

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2,000–2,500 Mile Maintenance Service (continued)	944	944 Turbo	911	911 Turbo	928 S4
14. Check and adjust clutch and brake pedal free play, visually inspect hoses and lines for leaks, damage and corrosion. Check brake fluid level, top up if necessary. This should also include checking brake lines and hoses for correct routing and sufficient clearances to fuel and hydraulic lines, electrical wiring, body parts and moving suspension components.	x	x	x	x	x
15. Check operation of convertible top			x	x	
16. Check and adjust engine idle and CO content	x	x	x	x	
During Road and Dynamometer Test:					
17. Check braking, parking brake, clutch, steering, heating, ventilation, A/C, and cruise control systems.	x	x	x	x	x
18. Check kick-down operations.	x				x
19. Check all instruments, control and warning lights	x	x	x	x	x
20. Engine, visual inspection for leaks after road test.	x	x	x	x	x
7,500, 22,500, 37,500 Miles, etc., Maintenance Service Turbo engines only					
1. Change engine oil		x		x	
2. Replace engine oil filter		x		x	

Technical Bulletin	Model	Group
	All	0
Subject: Maintenance Requirements — M.Y. 1989	Part Identifier	Number
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15,000, 45,000, 75,000 Mile Maintenance Service	944	944 Turbo	911	911 Turbo	928 S4
1. Diagnosis system: read out fault memory and perform system adaption.					x
2. Change engine oil.	x	x	x	x	x
3. Replace engine oil filter.	x	x	x	x	x
4. Check and adjust valve clearance (replace cover gaskets, sealing nuts and washers).			x	x	
5. Check and adjust tension of balance shaft drive belt. Note: Camshaft belt is replaced at 45,000 miles. See note at the end of this bulletin.	x	x			
6. Cooling and heating system: check coolant level, anti-freeze content, outside radiator for foreign particles and hoses for tightness, correct if necessary.	x	x			x
7. Check tightness of hose connections on the crankcase ventilation.	x	x	x	x	x
8. Fuel system: visual inspection for leaks and tightness of line connections.	x	x	x	x	x
9. Check intake air hoses, lines and connections for tightness.	x	x	x	x	x
10. Exhaust system: visual inspection of the exhaust system for leaks and damage, check all connections for tightness.	x	x	x	x	x
11. Check engine and transmission for leakage.	x	x	x	x	x
12. Check and correct ATF level in automatic transmission and oil level in final drive.	x				x
13. Check and correct oil level in manual transmission.	x	x	x	x	x

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Subject: Maintenance Requirements — M.Y. 1989

Part Identifier	Number
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15,000, 45,000, 75,000 Mile Maintenance Service (continued)	944	944 Turbo	911	911 Turbo	928 S4
14. Check and adjust clutch and brake pedal free play, visually inspect hoses and lines for leaks, damage and corrosion, check brake fluid level, top up if necessary. This should also include checking brake lines and hoses for correct routing and sufficient clearances to fuel and hydraulic lines, electrical wiring, body parts and moving suspension components.	x	x	x	x	x
15. Parking brake: check free travel of parking brake lever and correct if necessary.	x	x	x	x	x
16. Brake system: visual inspection of brake pads and discs for wear.	x	x	x	x	x
17. Clutch: check disc for wear (except 911 and 911 Turbo) and the hydraulic clutch cylinders for leaks.	x	x	x	x	x
18. Steering: check bolt connections for tightness, visual inspection of the rubber boots. Tie rod ends: check play, tightness and dust boots.	x	x	x	x	x
19. Power steering: visual inspection for leaks, check fluid level and correct if necessary.	x	x			x
20. Suspension ball joints: visual inspection of dust boots for damage. A-arm: check bolt connections for tightness.	x	x	x	x	x
21. Front wheel bearings: check play and adjust if necessary.	x	x	x	x	x
22. Rear wheel bearings: check play and correct if necessary (also 911 Turbo-look).				x	
23. Drive shaft/CV joints: visual inspection of boots for leaks and damage.	x	x	x	x	x

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All	0

Subject: Maintenance Requirements — M.Y. 1989

Part Identifier	Number
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15,000, 45,000, 75,000 Mile Maintenance Service (continued)	944	944 Turbo	911	911 Turbo	928 S4
24. Tires: check condition and correct pressure.	x	x	x	x	x
25. Doors: lubricate hinges.			x	x	
26. Check operation and lubricate door check rods.	x	x	x	x	x
27. Check door, engine hood locks and safety hooks on front hood for tightness and function.	x	x	x	x	x
28. Door and top weather strips; remove rubber residue from contacting areas and coat with suitable rubber lubricant.	x	x	x	x	x
29. Check operataion of safety switch for fuel pump.				x	
30. Check operation of safety switch for boost pressure.				x	
31. Check operation of all lights, horns, wipers and washers.	x	x	x	x	x
32. Check and correct headlight adjustments.	x	x	x	x	x
33. Lubricate retractable headlight linkage (also: 911 Slant-nose).	x	x			
34. Check accelerator linkage for smooth operation.	x	x	x	x	x
35. Check and correct aim of headlight and washer nozzles, operation and fluid level.	x	x	x	x	x
36. Check and correct battery electrolyte level.	x	x	x	x	x
37. Check the operation of all electrical control equipment and options.	x	x	x	x	x
38. Check operation of heater, ventilation and A/C fans.	x	x	x	x	x

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During Road or Dynamometer Test:	944	944 Turbo	911	911 Turbo	928 S4
39. Check operation of brakes, parking brake, clutch, steering, heating, ventilation, A/C, cruise control system, instruments and warning lights.	x	x	x	x	x
40. Check kick-down operations.	x				x
41. Engine: visual inspection for leaks after road test.	x	x	x	x	x

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30,000, 60,000, 90,000 Mile Maintenance Service	944	944 Turbo	911	911 Turbo	928 S4
1. Diagnosis system: read out fault memory and perform system adaption					x
2. Change engine oil	x	x	x	x	x
3. Replace engine oil filter.	x	x	x	x	x
4. Check and adjust valve clearance (replace cover gaskets, sealing nuts and washers).			x	x	
5. Check and adjust tension of camshaft and balance shaft drive belts. Note: See camshaft belt replacement information at the end of this bulletin.	x	x			x
6. V-belt and Polyrib belt: check condition and tension, correct if necessary.	x	x	x	x	x
7. Check and replenish oil level in drive belt tensioner.					x
8. Check ignition timing and correct if necessary.				x	
9. Replace spark plugs (at least every two years).	x	x	x	x	x
10. Replace filter element for auxiliary air pump.				x	x
11. Replace air filter element.	x	x	x	x	x
12. Cooling and heating system: check coolant level, anti-freeze content, outside radiator for foreign particles and hoses for tightness, correct if necessary.	x	x			x
13. Check tightness of hose connections on the crankcase ventilation.	x	x	x	x	x
14. Fuel systems: visual inspection for leaks and tightness of line connections.	x	x	x	x	x
15. Check intake air hoses, lines and connections for tightness.	x	x	x	x	x

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30,000, 60,000, 90,000 Mile Maintenance Service (continued)	944	944 Turbo	911	911 Turbo	928 S4
16. Exhaust system: visual inspection for leaks and damage, check all connections for tightness.	x	x	x	x	x
17. Check engine and transmission for leakage.	x	x	x	x	x
18. Change ATF fluid, clean ATF strainer, check oil level in final drive.	x				x
19. Check and correct oil level in manual transmission; check for leaks.	x	x	x	x	x
20. Check and adjust clutch and brake pedal free play, visually inspect hoses and lines for leaks, damage and corrosion, check brake fluid level, top up if necessary. This should also include checking brake lines and hoses for correct routing and sufficient clearances to fuel and hydraulic lines, electrical wiring, body parts and moving suspension components.	x	x	x	x	x
21. Parking brake: check free travel of brake lever and correct if necessary.	x	x	x	x	x
22. Brake system: visual inspection of brake pads and discs for wear.	x	x	x	x	x
23. Clutch: check disc for wear (except 911 and 911 Turbo) and the hydraulic cylinders for leaks.	x	x	x	x	x
24. Steering: check bolt connections for tightness, visual inspection of the rubber boots, tie rod ends; check plug tightness and dust boots.	x	x	x	x	x
25. Power steering: visual inspection for leaks, check fluid level and correct if necessary.	x	x			x
26. Suspension ball joints: visual inspection of dust boots for damage. A-arm: check bolt connections for tightness.	x	x	x	x	x

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30,000, 60,000, 90,000 Mile Maintenance Service (continued)	944	944 Turbo	911	911 Turbo	928 S4
27. Front wheel bearings: check play and adjust if necessary.	x	x	x	x	x
28. Rear wheel bearings: check play and correct if necessary (also Turbo-look)				x	
29. Drive shafts/cv joints: visual inspection of boots for leaks and damage.	x	x	x	x	x
30. Tires: check condition and correct pressure.	x	x	x	x	x
31. Doors: lubricate hinges.			x	x	
32. Check operation and lubricate door check rods.	x	x	x	x	x
33. Check door, engine hood locks and safety hooks on front hood for tightness and function.	x	x	x	x	x
34. Door and top weatherstrips: remove residue from contacting areas and coat with suitable rubber lubricant.	x	x	x	x	x
35. Check operation of safety switch for fuel pump.			x	x	
36. Check operation of safety switch for boost pressure.			x	x	
37. Check operation of all lights, horns, wipers and washers.	x	x	x	x	x
38. Check and correct headlight adjustments.	x	x	x	x	x
39. Lubricate retractable headlight linkage (also 911 Slant-nose).	x	x			
40. Check accelerator linkage for smooth operation.	x	x	x	x	x

30,000, 60,000, 90,000 Mile Maintenance Service (continued)	944	944 Turbo	911	911 Turbo	928 S4
41. Check and correct aim of windshield and headlight washer nozzles, operation and fluid level	x	x	x	x	x
42. Check and correct battery electrolyte level.	x	x	x	x	x
43. Check the operation of all electrical control equipment and options.	x	x	x	x	x
44. Check operation of heater, ventilation and A/C fans.	x	x	x	x	x
During Road or Dynamometer Test:					
45. Check operation of brakes, parking brake, clutch, steering, heating, ventilation, A/C, cruise control system, instruments and warning lights.	x	x	x	x	x
46. Check kick-down operations.	x				x
47. Engine: visual inspection for leaks after road test.	x	x	x	x	x
48. Check and adjust tension of air pump drive belt after road test.				x	

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All	0

Subject: Maintenance Requirements — M.Y. 1989

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	944	944 Turbo	911	911 Turbo	928 S4
Required Every 45,000 Miles					
Replace camshaft drive belt. Check condition and adjust tension 2,000-2,500 miles after replacement and document in space provided in the warranty and maintenance booklet.	x	x			
Required Every 60,000 Miles					
Replace camshaft drive belt. Check condition and adjust tension 2,000-2,500 miles after replacement and document in space provided in the warranty and maintenance booklet.					x
Replace fuel filter.	x	x	x	x	x
Replace oxygen sensor.	x	x	x	x	x
Change oil in manual transmission.	x	x	x	x	x
Change oil in final drive on automatic transmission.	x				x
Required every 2 years					
Change brake fluid.	x	x	x	x	x
Change coolant.	x	x			x
Required after 4, 8, 10 years and then every 2 years					
Airbag: check as per maintenance procedure.	x	x			

Technical Bulletin	Model	Group
	928 S4	0
Subject: Interpretation of Fault Codes with Tester 9268	Part Identifier	Number
	0300	8804

From Model Year 1988

The chart below should help the technician diagnosing and repairing some fault codes indicated on tester 9268.

Fault Code	Part/System Checked	Possible Cause	Repair Instructions
1113 (1213)*	Full load contact (ground contact)	Starting engine with accelerator pedal fully depressed. (Full load position)	Check throttle valve switch according to EZK/LH test plan (WKD 493 921). Test steps 5 and 12. If no problem is found, instruct owner to start engine without depressing accelerator pedal
2121 (2221)*	Load signal from LH control unit	Possibly a system related code. May not indicate a malfunction	1) Check control units ground (MP IX). 2) Disconnect and check EZK/LH plugs. 3) Connect ohmmeter on EZK plug term 9 and LH plug term 25. Reading: 0 ohms. If reading is not 0, check wiring. **Important:** Fault memory must be read prior to this test, since disconnecting EZK/LH plugs erases the memory.
2131 (2231)* 2132 (2232)*	Knock sensor I Knock sensor II	Knock sensor wiring and/or connections.	Check plug connections on knock sensor. (visual inspection).
2134 (2234)*	Hall sender signal	Pinched wire in the area of the drive belt cover.	1) Check Hall sender wiring for correct routing. 2) Check Hall sender signal according to EZK/LH test plan (WKD 493 921) Test step 7.

*Fault code for intermittent fault.

Technical Bulletin	Model	Group
	928 S4	0
Subject: Use of Tester 9268 on 1989 Model Year Cars	Part Identifier	Number
	0300	8805

System adaption **MUST** be performed on every scheduled Maintenance Service on 1989 model 928 S4.

Diagnosis Tester 9268 can be used to perform this function in conjunction with two adapter cables (included in 1989 tool package)

9288/1 Part Number 000 721 928 81 (Figure 1) and 9268/2 Part Number 000 721 926 82 (Figure 2)

A new 19 pin diagnosis plug is located underneath the radio booster cover next to the passenger seat (Figure 3).

The 12 pin test plug on the control unit bracket is discontinued.

For diagnosis and system adaption instructions with tester 9268 refer to 928 Workshop Manual Volume 1, Group 03 starting on page 03-1.

For additional information on diagnosing fault memories on 1989 Model Year vehicles refer to: Service Information Technik 928 S4 '89 (WKD 495 521)

Figure 1

Figure 2

Figure 3

Important Notice

PCNA Technical Bulletins are intended for use by professional technicians, not a "Do-it-yourselfer." They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Special tools may be required to perform certain operations identified in these bulletins. Use of tools and procedures other than those recommended in these bulletins may be detrimental to the safe operation of your vehicle. Properly trained technicians have the equipment, tools, safety instructions and know-how to do a job properly and safely. If a condition is described, do not assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your Porsche Dealer for information on whether your vehicle may benefit from the information. Part numbers listed in these bulletins are for reference only. Always check with your authorized Porsche dealer to verify correct part numbers.

Technical Bulletin

Model	Group
924S, 944, 944S, 944T	1

Subject: Poly Rib Pulley Bolts Changed

Part Identifier	Number
1380	8801

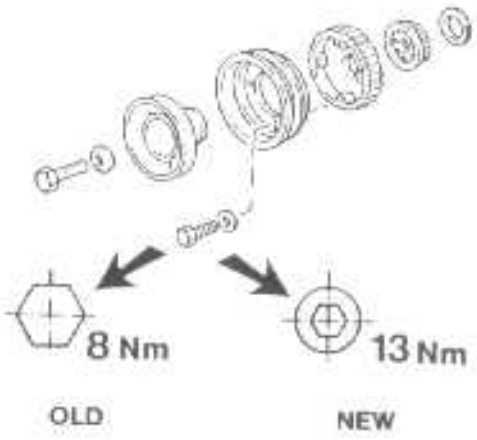
The bolts and washers mounting the poly rib pulley to the crank shaft drive gear for the balance shafts have been changed.

The new bolts are 9mm longer, M6x25, and are of allen head design. The bolt torque is increased to 13Nm. (9.5 ft. lb.)

New bolt Part Number 900 067 279 08
New washer Part Number 900 031 011 02

New type bolts are installed in production from the following engine numbers:

43 H 11261—924S, 944 Manual trans.
43 H 62894—924S, 944 Auto trans.
42 H 05462—944S
45 H 03874—944 Turbo



IMPORTANT

Because the new bolts are longer, the drive gear bolt holes are drilled and tapped completely through. This means the new type bolts cannot be installed in old style drive gears.

Former version hex bolts, M6x16 with a torque of 8Nm (6 ft. lb.) are still available for repairs to earlier vehicles.

Technical Bulletin

Model	Group
924S, 944, 944S, 944 Turbo	1

Subject: Replacing Oil Pressure Reducing Valve and Pressure Relief Valve

Part Identifier	Number
1724/1726	8802

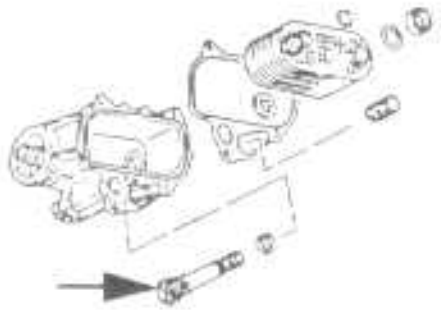
1

When repairing engines which have experienced bearing failure or damage resulting in metal contamination of the engine oil, the following non-serviceable components must be replaced.

Oil pressure relief valve
PN 944 107 035 11 up to Model 87
PN 944 107 035 01 Model 87 on

Refer to Technical Bulletin Group 1, Number 8716, Book D, page 65 for application and engine number breaks.

Pressure reducing valve
PN 944 107 139 00 944S Model 87 on (in cylinder head)

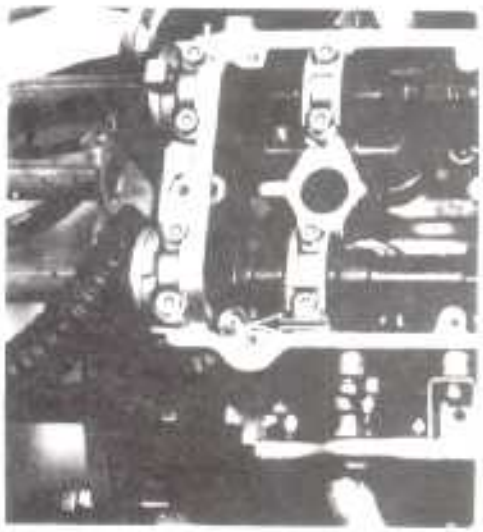


Oil Pressure Relief Valve

In addition, all oil passages must be cleaned. See Technical Bulletin Group 1, Number 8614, Book C, page 35.

Refer to Technical Bulletin Group 1, Number 8626, Book C, page 61 for 944S cylinder head pressure reducing valve removal and installation procedures.

Refer to Workshop Manual Vol. 1, page 17-16 for servicing 2-valve cylinder head oil check valve.



944S Pressure Reducing Valve

Important Notice

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Technical Bulletin

Model	Group
924S, 944, 944S 944 Turbo/Turbo S	1

Subject: Poly Rib Belt Tensioning Procedure

Part Identifier	Number
1378	8804

1

The tensioning procedure for the poly rib belt which drives the A/C compressor and the alternator has been changed.

After tensioning the belt to a scale value of 9.5 on tool 9201, turn the tensioning rod 1 additional turn (formerly 2 turns).

This procedure applies to all vehicles from 85/2 with 6 groove poly rib belts.

PORSCHE CARS NORTH AMERICA, INC.

Technical Bulletin	Model	Group
	928 S4	1
Subject: High Engine Operating Temperature	Part Identifier	Number
	1935	8805

The ball pin for the cooling flap pull rod received a self locking nut (arrow in picture).

From production date: October 5, 1987
VIN 92 JS 960757—

If the engine operating temperature is high or the cooling flap operation is impaired on vehicles prior to the above VIN, check the ball pin for tightness and replace the nut with self-locking nut part number 900 910 109 00.

Technical Bulletin	Model	Group
	928 S4	1
Subject: Oil Drain Holes in Pistons	Part Identifier	Number
	1310	8806

Pistons installed in 928 S4 engines have holes drilled below the piston pin casting boss for faster oil drain (Pictures 1 and 2).

Picture 1

Picture 2

From production date: January 1988

Engine Numbers: 81J00851 Manual trans.
81J07200 Automatic trans.

During any engine repairs requiring removal of all pistons on vehicles before the above engine numbers, the pistons should be modified.

Repair Procedure:

Holes can only be drilled with the pistons removed.

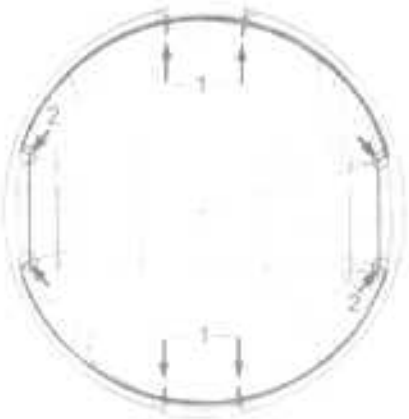
Be careful not to damage piston skirts when drilling holes.

1. Cut out the template (supplied with this bulletin).
2. Extend the casting lines on the inside of the piston using a pencil (Picture 3).

Picture 3

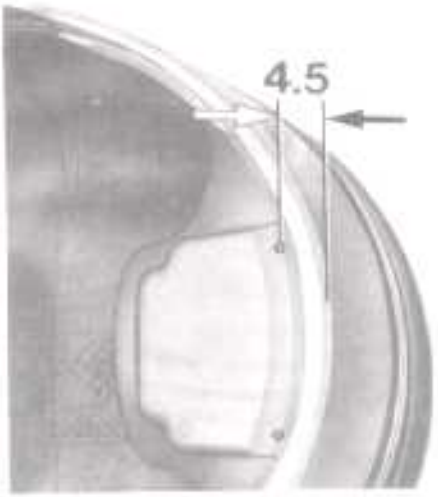
1

3. Insert the template, line up with pencil lines, and mark center of holes (arrows in Picture 4). Remove template.



Picture 4

4. Make sure the distance from the center of the hole to the outer edge of piston is at least 4.5mm (Picture 5).



Picture 5

If distance is less than 4.5 mm on one side, insert and center template again and remark holes.

5. Center punch markings.
6. Drill 4mm diameter holes using stationary drill press.
7. Bevel edges on both sides of holes to remove metal burrs.

Labor Operation: 13104450

Time Units: 70

Drill oil drains on 8 pistons with pistons removed.

Technical Bulletin	Model 944S	Group 1
Subject: Replacement of Camshaft Drive Belt/ Checking and Adjustment	Part Identifier 1524	Number 8807

1

This Bulletin is also included in the Book on Campaigns/Actions from January 1985.

This is to notify you of a service action for 1987/88 model 944S Porsches. It has been determined by Porsche AG that in some cases the camshaft drive belt on such vehicles may fail. Continued driving with this belt may result in its breakage and cause extensive engine damage.

An improved belt is now available and must be installed on the vehicles within the following VIN ranges, so to ensure the proper service life for the camshaft drive belt:

Model 1987: WP0AA094__HN450101 — WP0AA094__HN453127
WP0AA294__HN465101 — WP0AA294__HN465113

Model 1988: WP0AA294__JN465061 — WP0AA294__JN465544

Customer Notification

Porsche Cars North America will notify all known owners directly by first class mail during the week of April 4, 1988 as per the attached copy of the customer notification letter.

For those vehicles which are in dealers inventory or for which the sales information is not in our files, the notification will be addressed to the dealer. If the vehicle is in dealer inventory, the camshaft drive belt replacement and placing of the maintenance insert into the Warranty Maintenance Booklet should be performed without delay. If the vehicle has been retailed or dealer traded, the dealer is to make the necessary arrangements to have the customer or receiving dealer contacted and the service action performed.

NOTE: This service action consists of:

a) Replace camshaft drive belt.

b) Place insert, page 24 a/b, into the vehicle's Warranty Maintenance Booklet.

c) Check and adjust the new camshaft drive belt after 2000-2500 miles of driving.

d) Log the belt adjustment information on page 24b in the Warranty Maintenance Booklet.

Technical Bulletin	Model 944S	Group 1
Subject: Replacement of Camshaft Drive Belt/ Checking and Adjustment	Part Identifier 1524	Number 8807

Work Procedure

See Attachments

Parts Requirements

The parts and the insert for the Warranty Maintenance Booklet required to perform the service action will be shipped to you in the amount required according to your affected vehicle allocation in the week of April 4, 1988. The parts required to perform this service action are:

Quantity	Part Number	Description
1	944 105 323 00	Camshaft Drive Belt
2	999 064 092 02	Lock Nuts
1	PNA 000 015	Warranty Maintenance Booklet insert, page 24a/b

Additional quantities, after the initial allocation is made, should be ordered as needed, through normal parts channels using the above part numbers.

Time Allowance

See Administrative Procedures

Administrative Procedure

See Attachments

ADMINISTRATIVE PROCEDURE
SERVICE ACTION 088

Replacement of Camshaft Drive Belt

Warranty Claims should be submitted via DCS

Affected VINs:	WP0AA094__HN450101 — WP0AA094__HN453127 WP0AA294__HN465101 — WP0AA294__HN465113 WP0AA294__JN465061 — WP0AA294__JN465544
Warranty Code	R

Replacement of camshaft drive belt.

Damage Code:	15 24 99 0882
Labor Operation:	15 24 19 07
Time Units:	280
Part Number:	944 105 323 00, 999 064 092 02 (2x), PNA 000 015
Warranty Parts $:	59.00

NOTE: THE REMOVED BELT, #944 105 157 06, IS ON MANDATORY PART SUBMISSION REQUEST AND MUST BE FORWARDED TO PCNA UPON REQUEST BY PCNA WARRANTY.

In cases where the service action cannot be performed, submit the information on a claim via DCS with the appropriate disposition code by inserting the code in at the last digit of the damage code.

Disposition	Damage Code To Be Used	Parts and Labor
3 - Total loss	15 24 99 0883	Not applicable
4 - Vehicle stolen	15 24 99 0884	"
5 - Vehicle left U.S.A.	15 24 99 0885	"
6 - Customer moved, new address unknown	15 24 99 0886	"
7 - Vehicle sold, new owner unknown	15 24 99 0887	"
9 - Customer refused to comply	15 24 99 0889	"

Owner Name and Address Change

If owner name and address is shown incorrectly, submit correction using name/address change postcard from the Warranty and Maintenance Booklet or service action mailing, or report to PCNA via DCS to USPCWARRANTY including VIN.

ADMINISTRATIVE PROCEDURE
SERVICE ACTION 188
Checking and Adjustment of Camshaft Drive Belt

1

Warranty Claims should be submitted via DCS

Affected VINs:	WP0AA094__HN450101 — WP0AA094__HN453127 WP0AA294__HN465101 — WP0AA294__HN465113 WP0AA294__J N465061 — WP0AA294__J N465544
Warranty Code:	R

Checking and adjustment of camshaft drive belt 2000 - 2500 miles after Service Action 088

Damage Code:	15 24 99 1881
Labor Operation:	15 24 05 07
Time Units:	70
Part Number:	00
Warranty Parts $	00

In cases where the service action cannot be performed, submit the information on a claim via DCS with the appropriate disposition code by inserting the code in at the last digit of the damage code.

Disposition	Damage Code To Be Used	Parts and Labor
3 - Total loss	15 24 99 1883	Not applicable
4 - Vehicle stolen	15 24 99 1884	"
5 - Vehicle left U.S.A.	15 24 99 1885	"
6 - Customer moved, new address unknown	15 24 99 1886	"
7 - Vehicle sold, new owner unknown	15 24 99 1887	"
9 - Customer refused to comply	15 24 99 1889	"

Owner Name and Address Change

If owner name and address is shown incorrectly, submit correction using name/address change postcard from the Warranty and Maintenance Booklet or service action mailing, or report to PCNA via DCS to USPCWARRANTY including VIN.

WORK PROCEDURE

PORSCHE 944S — CAMSHAFT DRIVE BELT REPLACEMENT

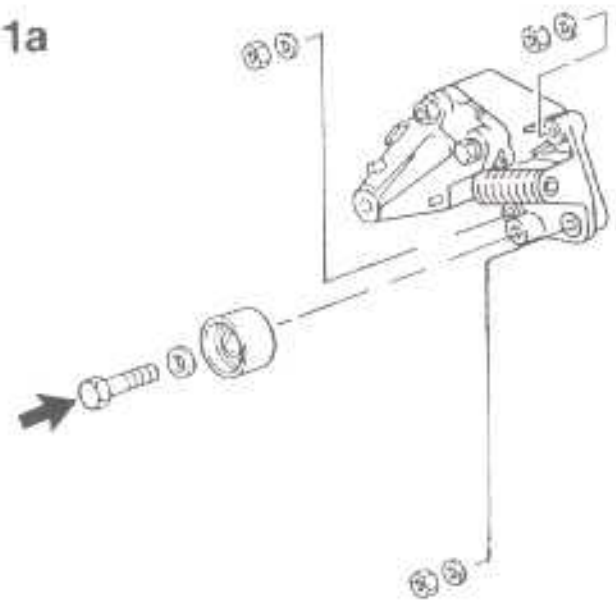
NOTE: The engine must be cold to perform this operation.

1. Open front hood and install fender covers.
2. Disconnect minus cable on battery.
3. Remove complete air filter housing.
4. Remove air hose from top cam belt housing.
5. Remove cable holder from top cam belt housing.
6. Remove top camshaft drive belt housing (7 bolts-M6x12).
7. Remove high tension wire on distributor cap, coming from coil.
8. Remove top metal drive belt cover together with the installed distributor cap and move to the rear.
9. Lift car and remove lower engine protection cover.
10. Loosen adjusting rod for servo pump and remove belt.
11. Loosen adjusting rod for alternator and A/C compressor and remove Polyrib belt.
12. Remove bottom drive belt cover. (4 bolts-M6x12).

    NOTE: Do not loosen or remove pulley pack on crankshaft!
13. Turn engine to TDC of No. 1 cylinder, firing position.
14. Loosen nut on balance shaft tensioning wheel approximately 1 turn, to loosen belt turn counter clockwise.
15. Remove bolt M10x35 and washers from lower balance shaft, use special tool 9200 to counter-hold.
16. Mark belt for reinstallation, must run in the same direction as before! (Do not twist belt!)
17. Remove balance shaft belt.
18. Lower car.
19. Loosen camshaft drive belt, by loosening the M8 bolt and nut on the belt tensioner, using special tool 9200.
20. Slide off belt from camshaft gear.

21. Remove idle roller on oil pump (1 bolt M10x30), see photo #1a.

1a

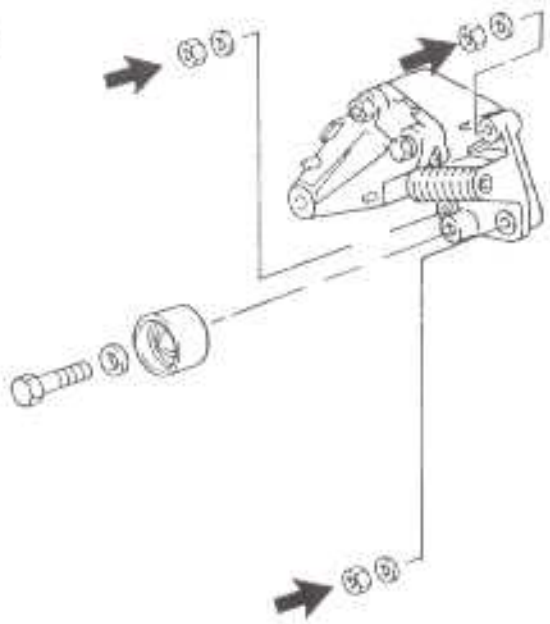


22. Remove both M6 nuts on belt guide rail and pull off guide rail.

23. Remove three M8 nuts on tensioner and remove complete unit. (see photo #1b)

NOTE: For easier removal of the belt, bring tensioner into the center adjusting area of tensioner.

1b



24. Remove camshaft drive belt.

25. Inspect gears, if dirty, clean with a brass wire brush.

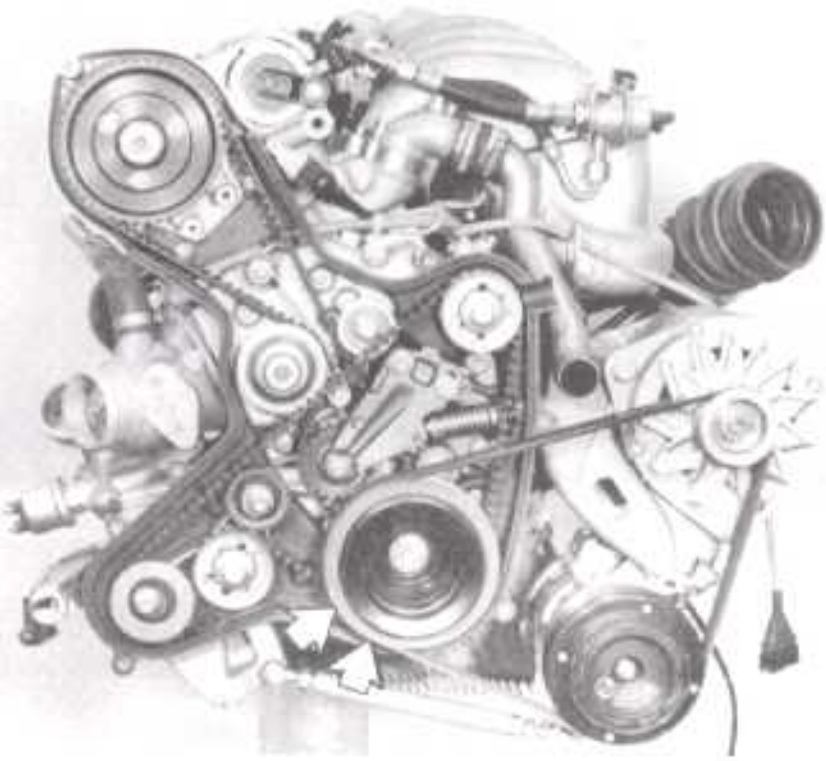
26. Lift car.

NOTE: It is absolutely necessary to lift the car, since the installation of the belt can only be done from the bottom.

27. Install the new drive belt, part #944.105.323.00, without forcing, by slipping the belt over the pulley pack, start at the bottom right (in driving direction) push over balance shaft drive gear. See photo #2, if necessary push rear cam cover back for more clearance.

NOTE: Do not use sharp tools!

2



28. Check crankshaft TDC mark on flywheel-bell housing and if necessary bring to TDC by turning the crankshaft slightly to the right or left.

NOTE: To avoid piston/valve contact, do not rotate crankshaft more than 20 degrees either side of TDC.

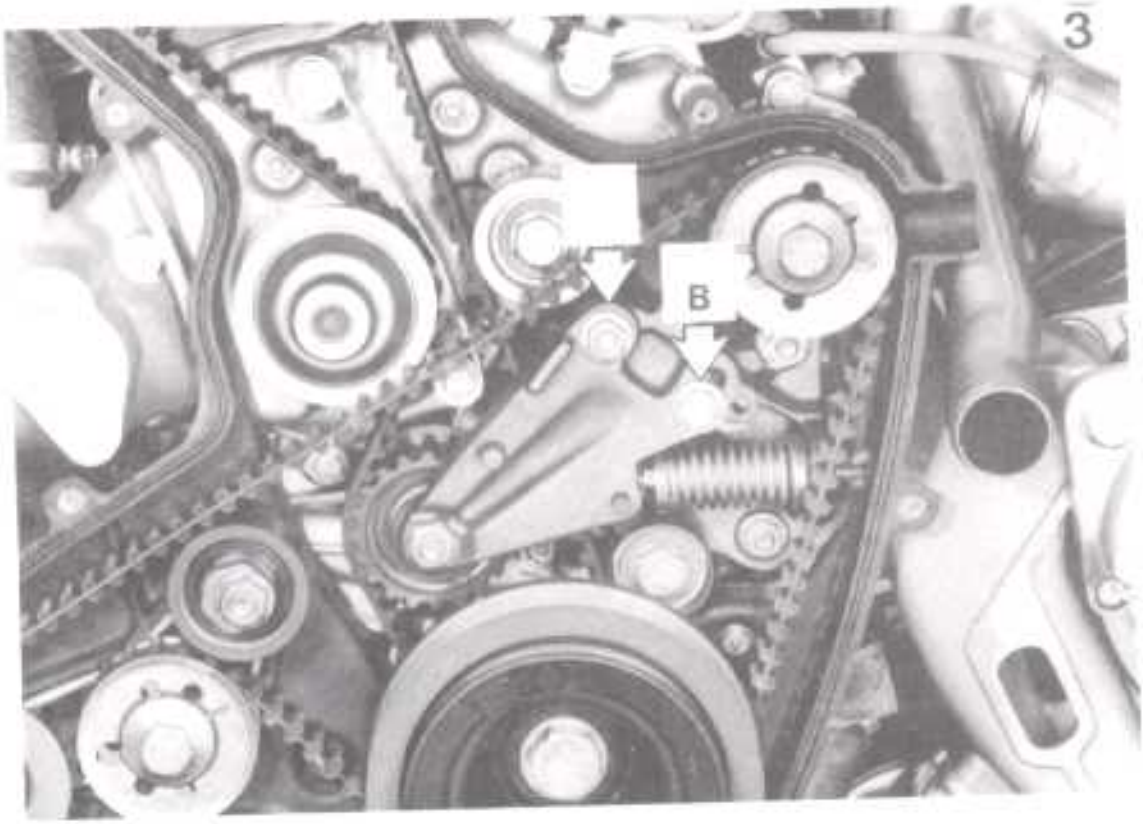
29. Lower car.

30. Reinstall belt tensioner, torque the three M8 nuts to 20 Nm (14 ft. lbs.).

31. Move tensioner into the fully off position, using special tool 9200.

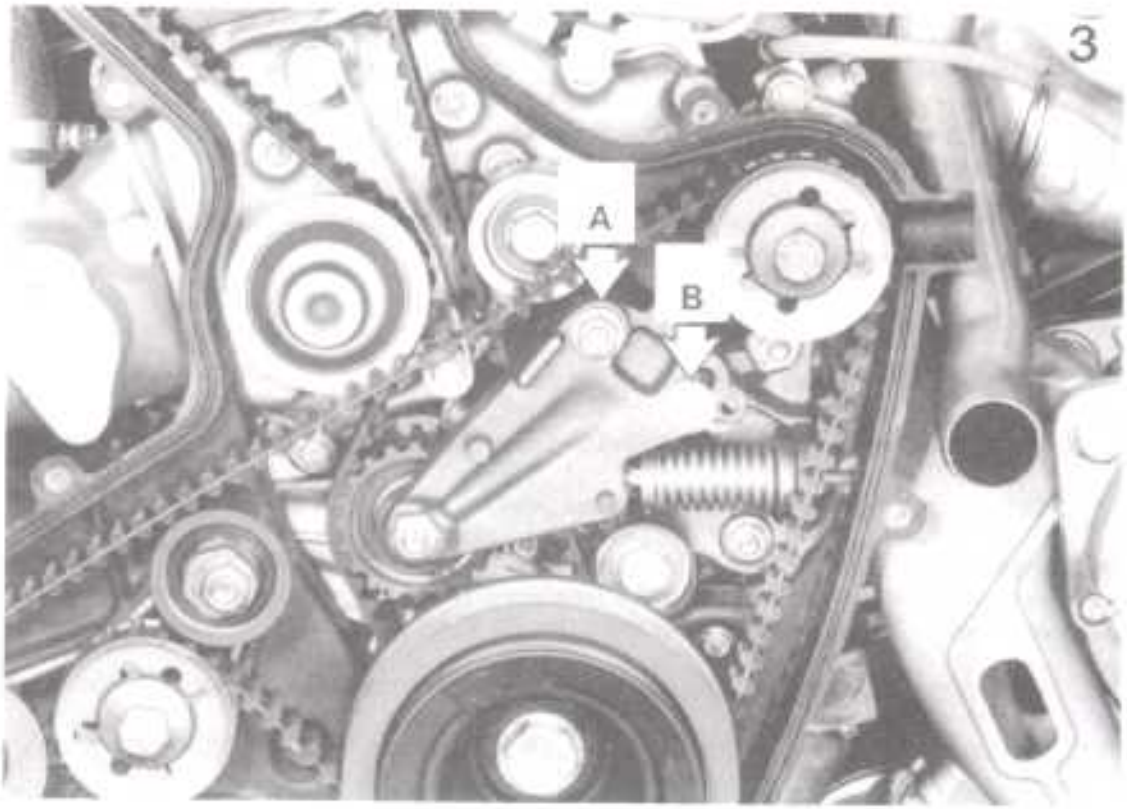
32. Slip new cam belt onto camshaft drive gear, do not move the camshaft!

NOTE: On cars of Model Year 1987 up to engine No. 42H02372 it is possible that the tensioner adjusting area is not enough to slip the belt onto the camshaft drive gear. In these cases, remove the tensioner bolt M8x45 to loosen the tensioner more (photo #3, arrow B).



3

33. Loosen nut 'A' and bolt 'B' to tension the camshaft drive belt (photo #3). Then tighten bolt and nut.



34. Reinstall idler roller onto the oil pump. Torque bolt to 45 Nm (33 ft. lbs.).

35. Reinstall belt rail, using 2 new M6 nuts part #999.084.092.02, torque to 8 Nm (6ft. lbs.).

36. Lift car.

37. Rotate engine two crankshaft revolutions and bring engine back to TDC — No. 1.

38. Lower car.

39. Check TDC position on crank and camshaft, the mark on the camshaft gear must be back in line with the housing mark.

NOTE: The position of the camshaft gear to the camshaft itself need not be checked.

40. Readjust cam belt, by loosening the bolt and nut on the tensioner. Then torque bolt and nut to 20 Nm (14 ft. lbs.)

41. Mark the timing notch on the camshaft gear with white paint for better identification at the 2500 mile adjustment procedure.

42. Lift car.

43. Reinstall balance shaft drive belt, assure correct position of the balance shaft.

NOTE: The old belt must be installed to run in the same direction as before the removal.

44. Loosen idler pulley and turn into relaxed position.

45. Adjust balance shaft belt tension with special tool 9201 to the value of 2.7 + 0.3 on the tool scale. Use special tool 9207 to move tensioning wheel clockwise to tension belt. Then torque M10 nut on the tensioning wheel to 45 Nm (33 ft. lbs.).

46. Adjust idler pulley with special tool 9207 and 1mm belt pre-load, torque to 45 Nm (33 ft. lbs.).

47. Reinstall lower balance shaft drive gear bolt and washers, torque to 45 Nm (33 ft. lbs.)

48. Reinstall lower cam belt cover.

49. Reinstall polyrib belt for alternator and A/C compressor, tension belt.

NOTE: The tension of the belt has changed from previous information. Adjust belt to 9.5 on the special tool 9201, plus 1 complete turn on the adjusting rod (not 2 turns!).

50. Reinstall servo pump belt and tension belt (approx. 5mm belt deflection).

51. Reinstall lower engine protection cover.

52. Lower car.

53. Reinstall top metal camshaft cover with the distributor cap.

54. Reinstall drive belt cover and cable harness clamp for the hall sensor.

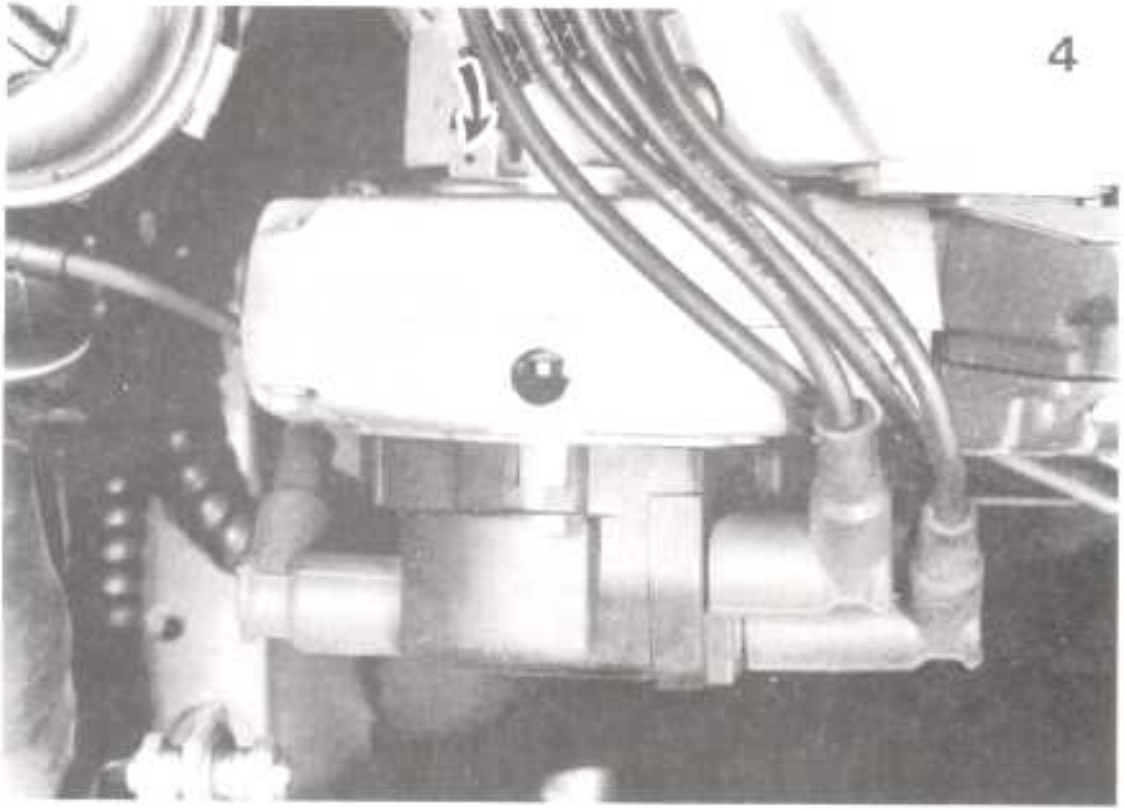
55. Reinstall air hose on cam housing.

56. Reinstall high tension wire on distributor cap.

57. Reinstall air filter.

58. Reconnect battery and reset time clock.

59. Mark top cam housing with center punch for identification purpose, that a new type belt was installed (see photo #4 — arrow).



60. Start engine, check operation.

61. Remove fender covers, close hood.

NOTE: The new type camshaft drive belt, Part #944.105.323.00, is to checked and adjusted at 2500 miles, 30,000 miles and by 45,000 miles the belt has to be replaced. After replacement of the belt, the cycle repeats itself.

The check and adjust operation at 15,000 miles is eliminated and should not be performed.

WORK PROCEDURE

PORSCHE 944S — CAMSHAFT DRIVE BELT CHECKING AND ADJUSTMENT AT 2000–2500 MILES AFTER REPLACEMENT

NOTE: The engine must be cold to perform this operation.

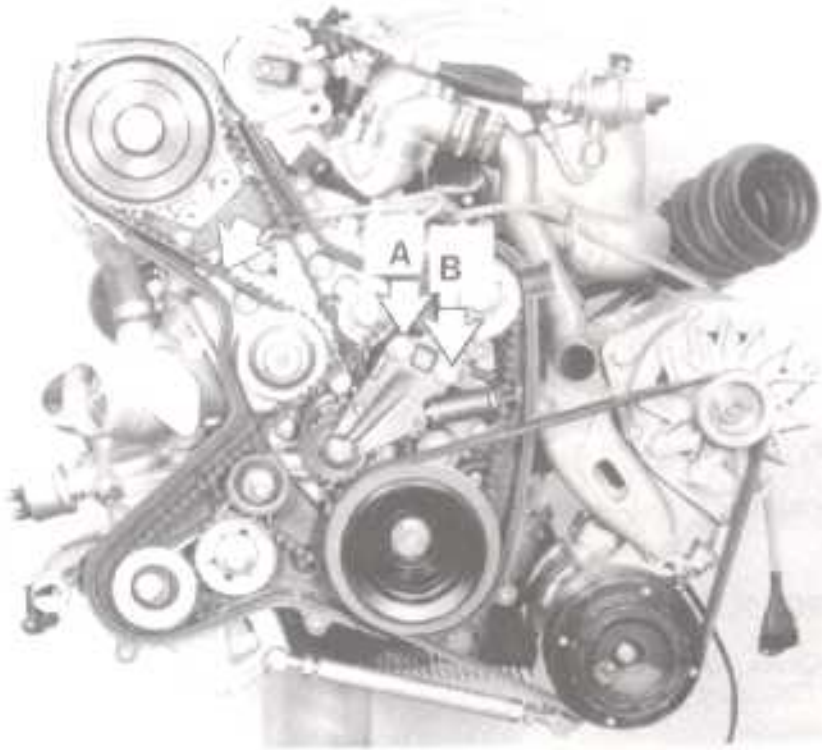
1. Open front hood and install fender covers.
2. Disconnect minus cable on battery.
3. Remove complete air filter housing.
4. Remove air hose from top cam belt housing.
5. Remove cable holder from top cam belt housing.
6. Remove top camshaft drive belt housing (7 bolts-M6x12).
7. Remove high tension wire on distributor cap, coming from coil.
8. Remove top metal drive belt cover together with the installed distributor cap and move to the rear.
9. Turn engine to TDC of No. 1 cylinder; firing position.

   NOTE: Check condition of camshaft drive belt while slowly turning the crankshaft clockwise until TDC mark (No. 1 cylinder) on camshaft drive sprocket is aligned with mark on rear toothed belt cover.

10. Lift car.
11. Check TDC marking alignment on flywheel — bell housing which is visible without removal of the lower engine protection cover. If necessary, turn crankshaft slightly more clockwise to align markings.
12. Lower car.

13. Adjust camshaft drive belt tension as follows:

    a. Loosen nut "A" and bolt "B" (see photo).
    b. Press belt twice with your thumb against the belt housing (see arrow in photo) between the camshaft sprocket and water pump pulley.
    c. Torque nut "A" and bolt "B" to 20 Nm (14 ft. lbs.).



14. Reinstall top metal camshaft cover with the distributor cap.

15. Reinstall drive belt cover and cable harness clamp for the hall sensor.

16. Reinstall air hose on cam belt housing.

17. Reinstall high tension wire on distributor cap.

18. Reinstall air filter.

19. Reconnect battery and reset time clock.

20. Start engine, check operation.

21. Remove fender covers, close hood.

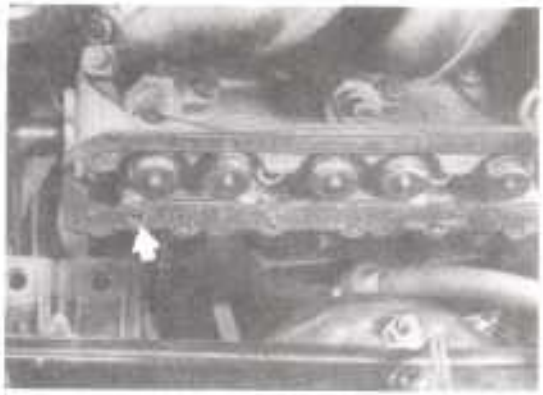
Technical Bulletin

Model	Group
924S, 944 944 Turbo 928 2 Valve Eng.	1

Subject: Cam Housing Gasket Installation

Part Identifier	Number
1580	8808

When installing the cam housing gasket, be certain the oil feed hole of the gasket (arrow) is correctly positioned over the oil check valve bore. In some instances the words "oben-top" may not be on the correct side of the gasket. This could lead to improper installation resulting in lack of lubrication to the camshaft and related parts. If the "oben-top" indication is found to be incorrect, turn the gasket over to correctly align the oil bore. Either side of the gasket can mate with the cylinder head or cam housing.



Technical Bulletin

Model	Group
924S, 944, 944S, 944 Turbo, 928	1

Subject: Cylinder Wall Preparation

Part Identifier	Number
1319	8809

Porsche water cooled engine cylinder walls are specially treated. When replacing piston rings, **DO NOT** use glaze breaking equipment on the cylinder walls, since it will cause damage to the cylinder wall surface. If the cylinders are not worn or damaged, wipe them clean with a lint-free towel and oil lightly before installing piston with new piston rings.

Technical Bulletin	Model 928 S4	Group 1
Subject: Troubleshooting Engine Cooling Flap and Fan System	Part Identifier 1901	Number 8810

1

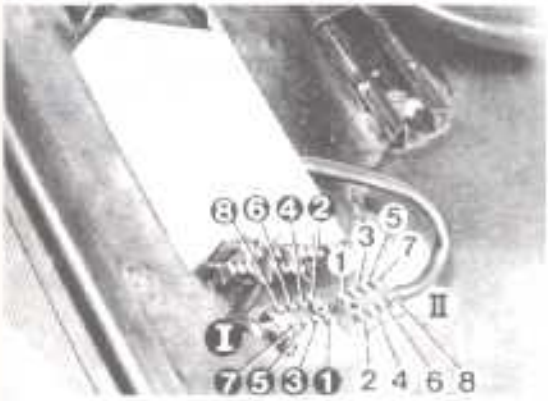
The troubleshooting guide for 928 S4 cooling air flap and fan system, published in the 928 Repair Manual Volume 1 pages 19-22 through 19-25 has been revised. When troubleshooting the air flap and fan system, use the information from this bulletin. Please make a note to that effect on those pages in the Repair Manual.

Refer to Workshop Manual and 1987 Technical Information booklet WKD 493 421 for principles of system operation.

Troubleshooting

Make sure battery is fully charged before beginning this procedure.

Disconnect plug I and plug II from control unit.



1. **Test Voltage Supply**

   a) Connect voltmeter to pin 2 (plus) and pin 7 (minus) of plug 1.

   Reading: battery voltage.

   b) Connect voltmeter to pin 4 (plus) and pin 7 (ground) of plug 1.

   Ignition on.

   Reading: battery voltage.

   Ignition off.

   Reading: 0 Volts.

   If the specified readings are not obtained, check wiring continuity and repair as necessary.

2. **Function test of AC button**

   Connect voltmeter to pin 7 (ground) of plug I and pin 5 (plus) of plug II.

   Ignition on.

   Press AC button and move slide from 'off' position.

   Reading: battery voltage.

   If battery voltage is not read, check wiring continuity and AC switch operation and repair as necessary.

3. **Function-testing the individual senders with an ohmmeter.**

   a) Temperature sender, Coolant.

   A resistance between 1000 ohm and 4000 ohm, depending on engine temperature should be measurable between pin 1 of plug II and pin 7 of plug I.

   Reading:

   60° C (140° F) = 3862 ohm ± 150 ohm
   85° C (185° F) = 1582 ohm ± 54 ohm
   100° C (212° F) = 967 ohm ± 36 ohm

   If readings are incorrect, check wiring and connectors before replacing sender.

b) Pressure sender, Refrigerant

Pin 4, plug II and pin 7, plug I.

Resistance is between 20 ohm and 150 ohm, depending on refrigerant pressure.

Reading:

1.5 bar (22PSI) = 22 ohm ± 4 ohm
5.0 bar (72.5PSI) = 53 ohm ± 4 ohm
10.0 bar (145PSI) = 92 ohm ± 5 ohm
15.0 bar (217.5PSI) = 125 ohm ± 5 ohm

If the readings are incorrect, check wiring and connectors before replacing sender.

c) Engine-compartment lid switch

Pin 6, plug II and pin 7, plug I

Engine-compartment lid closed

Reading: infinite ohm

Engine-compartment lid open

Reading: 0 ohm — 20 ohm

If readings are incorrect check wiring and connectors before replacing switch.

d) Intake temperature switch & automatic transmission temperature switch

Pin 3, plug II and pin 7, plug I

Intake temperature switch
>87.5°C (189.5°F) reading: 0 ohm
<82.5°C (180.5°F) reading: infinite ohm

Temperature switch, automatic transmission

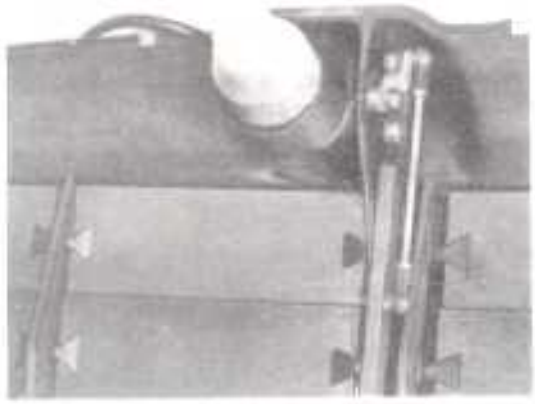
>110°C (230°F) reading: 0 ohm
<105°C (221°F) reading: infinite ohm

If the values stated are not reached, disconnect one switch and measure again to determine which switch is not reading properly. Check wiring from switch to plug. If OK, replace switch.

4. **Function-testing the flap positioning motor**

a) With a jumper cable, connect pin 7 (ground) of plug I and pin 5 of plug I for approximately 2-4 seconds.

The flap positioning motor moves to the closed position.



b) Connect pin 7, plug I and pin 2, plug II for approximately 2-4 seconds.

The flap positioning motor moves to the 30% open position.

c) Connect pin 7, plug I and pin 1, plug I for approximately 2-4 seconds.

The flap positioning motor moves to the 100% open position.

If the flap positioning motor fails to assume one of the positions stated, use an ohmmeter to check the wiring harness from the control unit to the flap positioning motor.

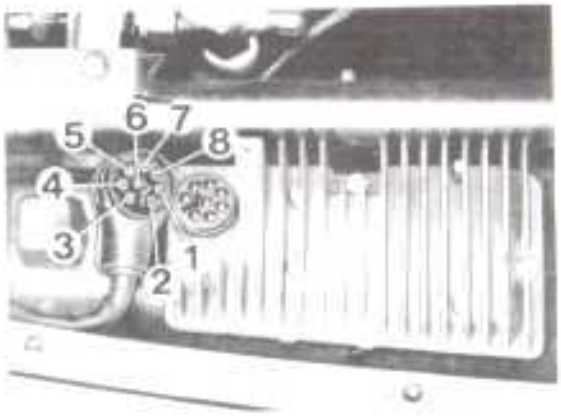
If the wire harness is OK and the flaps function properly mechanically, the flap positioning motor is defective.

If flaps still do not function properly under operating conditions, replace control unit.

5. **Function-testing the output stage**

Plugs I and II must be connected to the control unit.

Checking voltage supply:



a) Connect voltmeter to pin 3 (ground) and pin 4 (plus) of the fan output-stage plug connector.

Reading: battery voltage

b) Connect voltmeter to pin 3 (ground) and pin 2 (plus).

Ignition on.

Reading: battery voltage

NOTE: Voltage remains after ignition is switched off. (fan run on)

If battery voltage is not read, check wiring continuity between control unit and output stage. If OK, replace control unit.

6. **Function-testing the control signal to the output stage**

Reconnect output-stage plug connector. Remove cover from plug I of control unit.

Engine temperature >79° C (174° F)

Use Analog/Digital Multimeter such as the Fluke 70 series and observe analog beam diagram.

a) Pin 7, plug I (ground) and pin 6 (plus).

Ignition on.

Press AC button and move slide from 'off' position.

Reading: approximately 7 volts

b) Pin 7, plug I (ground) and pin 8 (plus).

Ignition on.

Press AC button and move slide from 'off' position.

Reading: approximately 7 volts

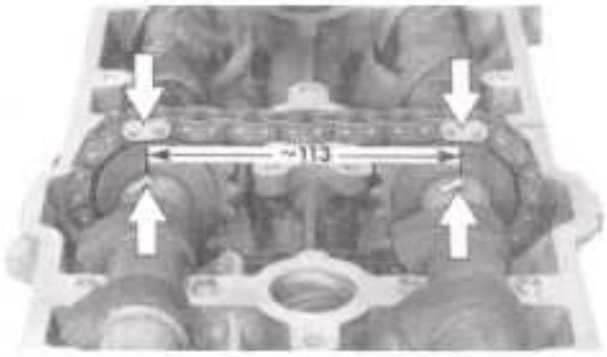
If either fan does not operate when the AC button is pressed and the slide is moved from the 'off' position while the ignition is on, check the wiring to the fan. If OK, the output stage is defective.

PORSCHE CARS NORTH AMERICA, INC.

Technical Bulletin	Model 944S	Group 1
Subject: Camshaft Basic Setting	Part Identifier 1505	Number 8811

To be certain the camshafts are installed correctly in the timing chain, measure the distance between the casting tabs. The distance should be approximately 113mm (see photo).

Use the above procedure when chain link markings are not visible.



Technical Bulletin

Model	Group
924S, 944 944 Turbo/S	1

Subject: Mechanical Tensioner Material Changed

Part Identifier	Number
1527	8812

1

The material of the mechanical camshaft belt tensioner has been changed from cast iron to aluminum. The new aluminum tensioner also has a formed washer (arrow) in the area of the elongated bolt hole, to prevent damage to the aluminum housing when tightening.

As of December 1987 from engine number,

46J05973	924, 944 Manual transmission
46J61413	924, 944 Automatic transmission
45J01667	944 Turbo
47J00573	944 Turbo S

The new aluminum belt tensioner can be installed in earlier vehicles where the cast iron version was installed.

NOTE: The above information **does not** apply to 944S.

Technical Bulletin

Model	Group
924S, 944 944S, 944 Turbo	1

Subject: New Oil Cooler O-Rings

Part Identifier	Number
1740	8813

This bulletin contains the latest part number for the oil cooler O-ring seals.

New Oil Cooler O-Rings

The sealing O-rings (A, figure 1) located on the oil cooler of normally aspirated cars and on the connecting pipe of the oil thermostat housing of Turbo cars, have been changed. The new version O-ring is now green in color (formerly red). When repairing, use ONLY the new version green O-rings.
Part Number 999 707 043 40.

The new version O-rings are installed from the following engine numbers.

46 J 06772	924S, 944 Manual trans.
46 J 61599	924S, 944 Auto trans.
42 J 01420	944S
45 J 01753	944 Turbo
47 J 00899	944 Turbo S

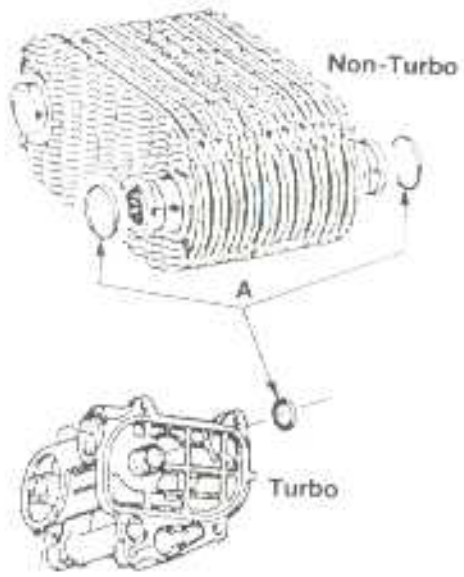


Figure 1

Information in this bulletin is consolidated in Technical Bulletin Group 1, Number 8904, dated March 17, 1989 along with other pertinent information.

Technical Bulletin

Model	Group
944S	1

Subject: Cam Belt Tensioner Roller Noise

Part Identifier	Number
1527	8814

Cam belt tensioning and idler rollers may exhibit a slight amount of noise when spun by hand. This noise is considered normal on a used roller.

New spare part tensioning rollers make less noise because the lubrication is new and still thick and acts as a noise damper.

As with all bearings, replacement is necessary only if significant bearing noise can be heard while the engine is running.

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SERVICE

Technical Bulletin

Model	Group
924S, 944, 944S, 944 Turbo/S	1

Subject: Part Number on Poly Rib Belt Invalid

Part Identifier	Number
1378	8815

1

Poly rib belts installed during early 1988 model production have an invalid part number 999 192 285 51, printed directly on the belt.

These belts were installed between the following engine numbers:

46 J 05024 — 05953	924S-944 Manual Transmission
46 J 61231 — 61412	924S-944 Auto Transmission
42 J 01077 — 01289	944S
45 J 01597 — 01659	944 Turbo
47 J 00212 — 00597	944 Turbo S

Incorrectly marked belts are still usable.

When replacing, disregard the invalid part number on the old belt and use Poly Rib Belt Part Number 999 192 285 50.

Technical Bulletin

Model	Group
928 S4	1

Subject: Reinforced Head Cover Gasket

Part Identifier	Number
1580	8816

1

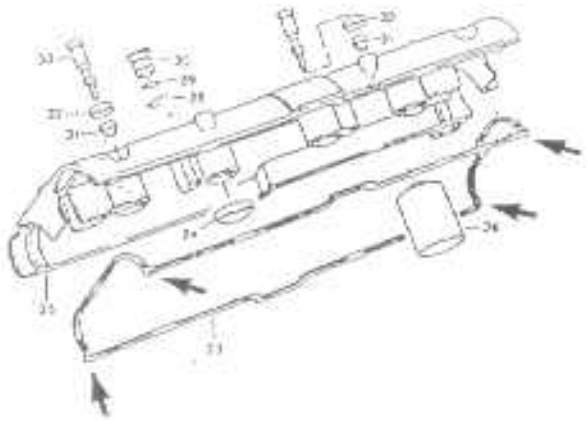
The cylinder head cover gasket was reinforced, from production date March 18, 1988.

Engine numbers:
- 81 J 01019 manual transmission
- 81 J 07625 automatic transmission

New cylinder head cover gasket part number: 928 104 447 09

When installing the new type gasket, additional sealing in the area where the camshaft bearing caps meet the head cover mating surface is still required.

Refer to Technical Bulletin Group 1, Number 8622, Book C, page 53.



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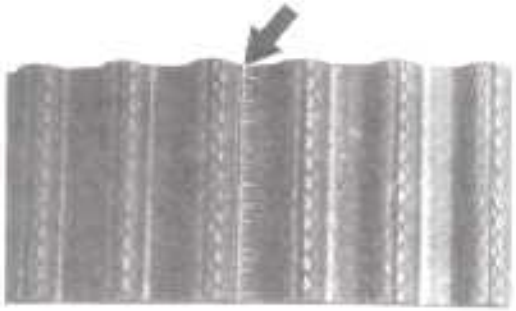
944S Only

The new camshaft drive belt,
PN 944 105 323 00
from Pirelli, can have visible seams (arrows) in the web/tooth base area.



These seams are a result of the manufacturing process, and must not be mistaken for damage type "cracks at base of teeth" as shown on page 4, example 1, of Technical Bulletin Group 1, Number 8715, Book D, page 90. These production seams have no effect on the service life of the belt.

Always replace the former version camshaft drive belt (Uniroyal, PN 944 105 157 06), with the new type Pirelli belt.

Technical Bulletin

Model	Group
924S, 944, 944S 944 Turbo/S	1

Subject: Oil Pump/Crankcase Sealing and Surface Alignment

Part Identifier	Number
1010	8819

1

The sealing of the upper and lower crankcase sections and the oil pump to the crankcase is accomplished with Loctite 574. To ensure proper curing of the 574, Loctite Activator N, Part Number 000 043 124 00 should be applied. Proceed as follows:

- All sealing surfaces must be free of grease and oil.
- Apply activator N to upper crankcase section. Apply Loctite 574 to lower crankcase section and assemble as follows:

Align the surfaces (arrows) where the oil pump seals to the crankcase.

Tighten the M12 nuts of the lower crankcase half to 10 Nm (7.2 ft. lbs.). Use a straight edge to check the alignment of the oil pump sealing surface. If adjustment is required, use a plastic hammer and carefully tap the lower crankcase section in the direction needed to obtain perfect alignment.

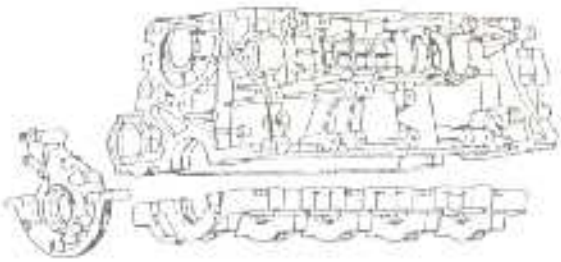
Tighten the M12 nuts in the following sequence:

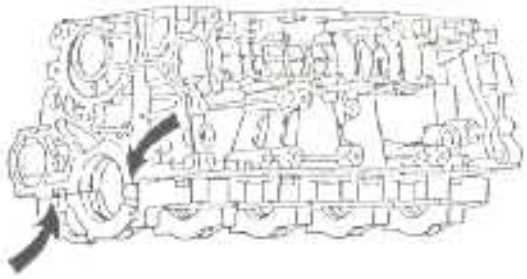
1st step 20 Nm (14 ft. lbs.)
2nd step 50 Nm (36 ft. lbs.)
3rd step 90 Nm (65 ft. lbs.)

Re-check the oil pump sealing surface alignment. Tighten the remaining bolts and nuts to:

M10 — 1st step 20 Nm (14 ft. lbs.)
2nd step 50 Nm (36 ft. lbs.)
M8 — 20 Nm (14 ft. lbs.)
M6 — 10 Nm (7.2 ft. lbs.)

When installing oil pump to crankcase, apply activator N to the oil pump housing and Loctite 574 to the crankcase, then assemble. Torque M6 bolts to 8Nm (5.9 ft. lbs.) and M10 bolt to 45Nm (33 ft. lbs.).





Technical Bulletin

Model	Group
924S, 944, 944S 944 Turbo/S	1

Subject: Camshaft Belt Adjustment

Part Identifier	Number
1524	8820

When adjusting the camshaft drive belt tension, from '87 Models on, it is important to ensure free movement of the belt idler pivot. After loosening nut A and bolt B, apply downward thumb pressure twice, pressing the cambelt against the belt cover in the area indicated (arrow).

Afterwards, retorque nut A and bolt B to 20 Nm (14 ft. /bs.)

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Technical Bulletin

Model	Group
928 S4	1

Subject: Cylinder Head Modified

Part Identifier	Number
1570	8821

1

The cylinder heads are 20mm thicker in the area of the bearing surface for the cylinder head mounting bolts (arrows in Fig. 1).

From engine numbers:
- 81 K 00121 manual transmission
- 81 K 06240 automatic transmission

The cylinder head mounting bolts are longer accordingly.

New cylinder head bolt part numbers:
- 928 101 231 02 - M12x1.5x199
- 928 101 233 02 - M12x1.5x149

Tightening procedures remain unchanged.

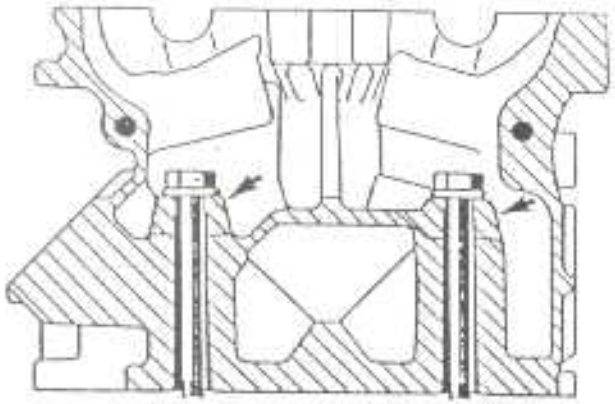


Figure 1

Technical Bulletin

Model	Group
928 S4	1

Subject: High Engine Operating Temperature

Part Identifier	Number
1935	8822

1

If the engine temperature is high while driving at high speeds, check the air guide at the cooling air inlet grille (Fig. 1, arrows 1) for correct installation. If the air guide is disengaged, air flow could be restricted at high speed.

To repair a disengaged air guide, first install two clips, Part Number 999 591 328 01 on the air guide (location shown in Fig. 1, arrows 2), and then re-engage air guide and clips on front air inlet grille (Fig. 2).

Also refer to Technical Bulletin Group 1, Number 8805, dated March 25, 1988.

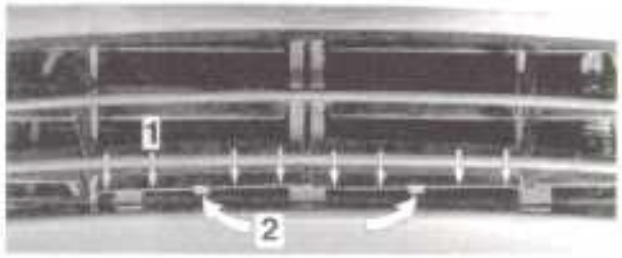


Figure 1

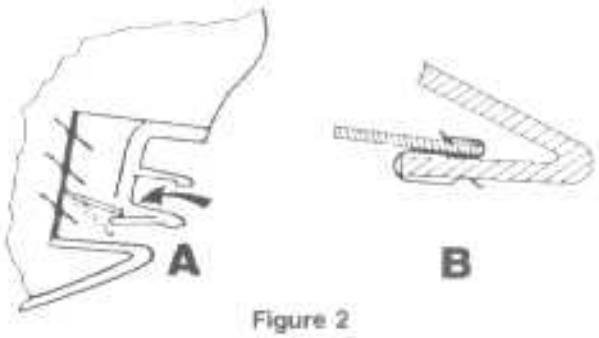


Figure 2

A - Location of air guide

B - Guide installed with clip

Technical Bulletin

Model	Group
928 S4	2

Subject: Tapping Noise From Injection Valves

Part Identifier	Number
2440	8802

Fuel injectors open and close during operation. This may cause a tapping noise in the area of the cylinder head. The noise level between one injection valve and another can be different. This noise is normal and does not affect the function of the injectors or engine performance.

Do not replace injection valves for noise reasons.

The following information contains troubleshooting and replacement procedures for the intermediate transmission type starter/solenoid. To determine if the starter or solenoid should be replaced, proceed as follows:

Be sure battery is fully charged and that battery voltage can be read at terminal 30 of the starter.

Important: Place transmission selector lever in park or neutral.

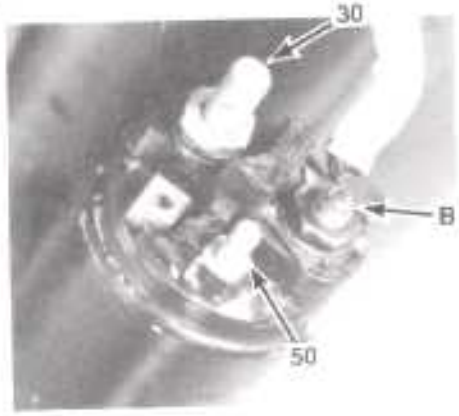


Fig. 1

Refer to figure 1.
With a suitable jumper, bridge terminal 30 and terminal 50. Do not allow connections to touch chassis ground. If the starter runs, check the ignition/starter switch and terminal 50 path. Repair as necessary.

If the starter does not run, remove the jumper from terminal 30 to terminal 50 and install from terminal 30 to terminal B. Do not allow connections to touch chassis ground. If the starter motor runs, replace the solenoid. If the motor does not run, replace the entire starter. If the solenoid is to be replaced, proceed as follows:

Part Number Information

Solenoid - 951 604 902 00
Screw - 951 604 901 00 (3 required)

Note: The solenoid can be replaced without removal of the starter.

1. Disconnect battery ground strap from the battery.
2. Remove wiring and positive cable from starter solenoid.
3. Disconnect starter motor cable (figure 2, arrow 1) from solenoid (M8 Nut).

Fig. 2

4. Remove the three **posi-drive** solenoid retaining screws (Fig. 3) and pull solenoid straight off.

Fig. 3
(Starter Removed)

Note: Retain solenoid piston return spring.

5. Before installing new solenoid, lightly coat the 3 screw mounting flange with 730 RTV sealer.
   Part Number 000 043 019 00.
   After installation of the solenoid, torque posi-drive screws to 5.5 Nm or 4 ft. lbs. **New** posi-drive screws must be used when replacing the solenoid.

6. Reinstall starter motor cable removed in Step 3.

7. Reconnect battery positive cable and remaining wires.

8. Reconnect battery ground strap at the battery.

Technical Bulletin

Model	Group
4 Cylinder & 8 Cylinder	2

Subject: Handling of Polyamide Fuel Lines

Part Identifier	Number
2400	8808

The rubber fuel hoses (Fig. 1) on 4 and 8 cylinder cars were replaced by rubber lined polyamide fuel lines during 1988 model year.

Rubber lined polyamide fuel lines can be recognized by loose (not crimped) or missing sleeves (Fig. 2 & 3). The sleeves are only used as a stop on the connectors.

Repairing polyamide fuel lines or connectors is not possible.

Important:
Polyamide fuel lines may not be bent or clamped.

Consequently the return hose on the pressure regulator cannot be clamped to perform a fuel system pressure holding test. The revised test procedure is below:

Figure 1

New Pressure Holding Test Procedure

Instructions for Building Fuel Pressure with Engine Not Running

4 Cylinder Cars:

Remove DME relay (G5) from relay socket of CEB and bridge terminals 87b and 30.

8 Cylinder Cars:

Remove fuel pump relay (xx) from relay socket of CEB and bridge terminals 87 and 30 to build up fuel pressure.

Figure 2

Figure 3

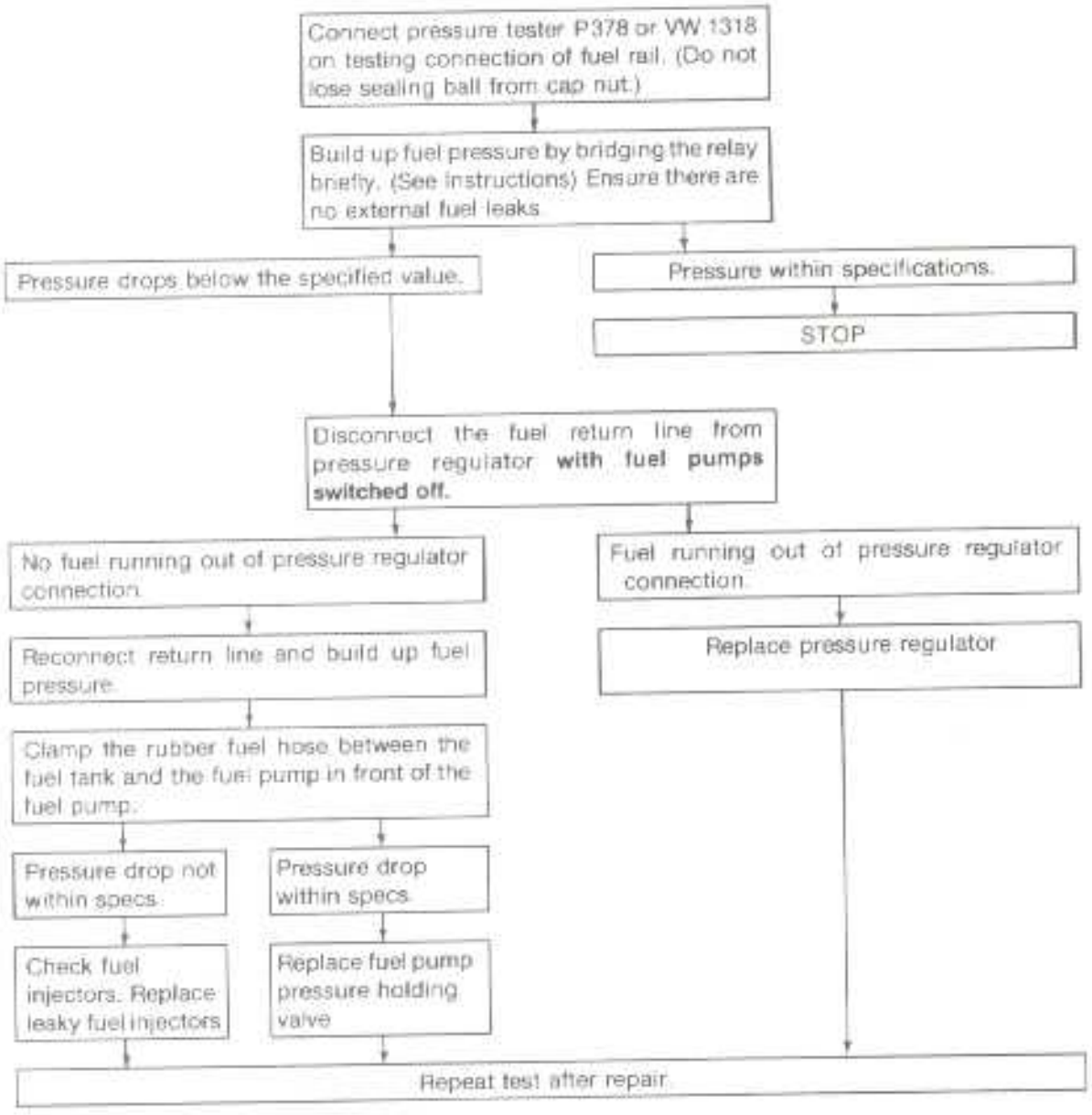
Specifications

924S, 944, 944S: 3.8 ± 0.2 bar
944 Turbo and Turbo S: 2.5 ± 0.2 bar

928 S4 from 1987 Model Year: 3.8 ± 0.2 bar

Maximum pressure drop on a warm engine: 0.5 bar in 30 minutes

New Pressure Holding Test Procedure:



Technical Bulletin	Model	Group
	928 S4	2
Subject: Starter Cable Routing	Part Identifier	Number
	2760	8809

The starter cable (yellow wire, terminal 50) could touch the engine cover plate on 1987 Model Cars and 1988 Model Cars up to VIN 92 JS861591 if the tie-wrap (arrow in Fig. 1) is missing or incorrectly installed.

When engine cover plate is removed, check tightness and location of tie-wrap. If tie-wrap is missing, install tie-wrap. Refer to arrow in Fig. 1. Check starter cable insulation and tape the cable if necessary.

Figure 1

Technical Bulletin	Model	Group
	928 S4	2
Subject: Calibrating Fuel Level System	Part Identifier	Number
	2015	8810

Model Year 1989

If instrument display "Fuel Reserve" is inaccurate or the fuel tank, fuel level sender or instrument cluster is replaced, the fuel level system must be calibrated.

Calibrating procedures:

1. Fill a completely drained fuel tank with precisely 15 liters (3.96 gallons) of gasoline.
2. Wait at least one minute.
3. Pull back the operating lever of the backlighted instrument cluster (Fig. 1) and turn on the ignition switch simultaneously until

TANKEICHEN		15 LITER

is displayed in instrument cluster.

4. Press the zero button (Fig. 2) until the number 15 appears in the center display box.

   This indicates fuel level system is calibrated.

   Calibrating procedures are stopped by turning off the ignition or starting the engine.

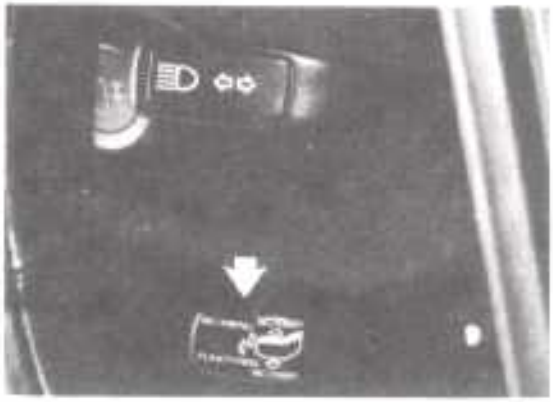


Figure 1

Figure 2

Technical Bulletin	Model 911 Turbo	Group 2
Subject: Engine Performance	Part Identifier 2511	Number 8811

Loose or poor ground connections may cause intermittent loss of power or poor engine performance. To check for this condition inspect MP XII (location A in Figure 1) and correct as follows:

1. Remove intercooler.
2. Remove M8 nuts from locations A, B and C.
3. Lift coil bracket and use sandpaper to remove the paint from bracket in the area of stud hole C top and bottom and stud hole B topside.
4. Clean ground wire terminal and check terminal crimping.
5. Apply light coat of battery pole grease on all cleaned bracket surfaces.
6. Reinstall coil bracket. Relocate ground wire A onto location B and torque M8 nuts to 20 Nm (14 ft. lbs.).
7. Reinstall intercooler using new O-ring seals.
   Time Allowance: 50 T.U.

Figure 1

Technical Bulletin

Model	Group
928 S4	2

Subject: Constant Current Draw

Part Identifier	Number
2706	8812

When checking constant current draw on a battery, proceed as follows:

1. Remove ignition key from ignition switch.
2. Open rear hatch and disconnect two-pin connector for rear hatch switch.
3. Lock doors.
4. Disconnect battery ground cable from body.
5. Connect ammeter between ground cable and body. Reading: After approximately 15 seconds maximum 30 milliamps.

Important: Several components such as temperature sensors continue to draw current after engine is shut off. Therefore, this test should only be performed after engine is turned off for at least 45 minutes.

Technical Bulletin

Model	Group
911 Carrera	3

Subject: Shift Rod Rattle

Part Identifier	Number
3417	8802

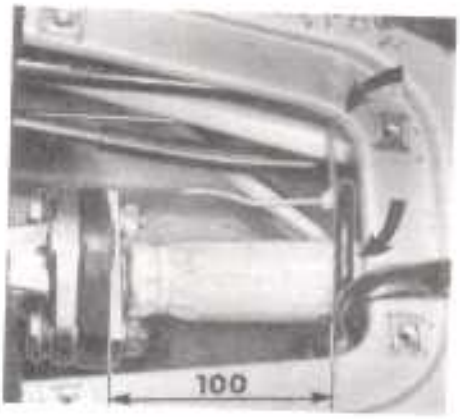
To further reduce shift rod rattle on 1987 and 88 models, an additional rubber ring may be installed on the shift rod.

First check, and if applicable, repair vehicle according to Bulletin Group 3, Number 8704, dated July 31, 1987.

If a shift rod rattle is still noticeable proceed as follows:

1) Remove shift rod coupling access plate.
2) With shift lever in neutral, disconnect front shift rod from coupling.
3) Move shift lever in 3rd gear position and slide rubber ring over front shift rod. Rubber ring: Part Number 999 701 969 40.
4) Reconnect shift coupling.
5) With shift lever in neutral, slightly tension the rubber ring with a tie down strap attached to the left side hand brake cable guide tube. The distance from the shiftrod flange to the rubber ring should be approx. 100mm (see picture).
6) Reinstall the access plate. Roadtest car. If rattle is still audible increase tension on rubber ring slightly.

Conversion time: 30 TU



Front of Car

Technical Bulletin

Model	Group
911 Carrera	3

Subject: New Shift Rod Seal

Part Identifier	Number
3448	8803

G50 Transmission

The shift rod seal material has been changed.

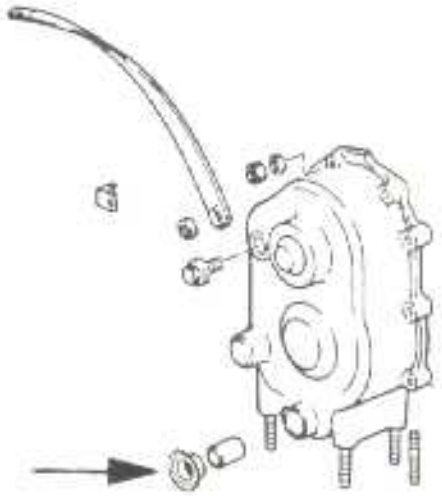
From production date: March 31, 1988
Transmission numbers: G 5001 1J 04 704
G 5001 2J 11 420 (limited slip)

New part number: 999 113 404 40

The new seal should not be glued in place.

Old type seal part number 999 113 354 40 must be glued in place with loctite 495, instant adhesive super bonder, available from local suppliers.

Old seal has been superseded and will no longer be sold.



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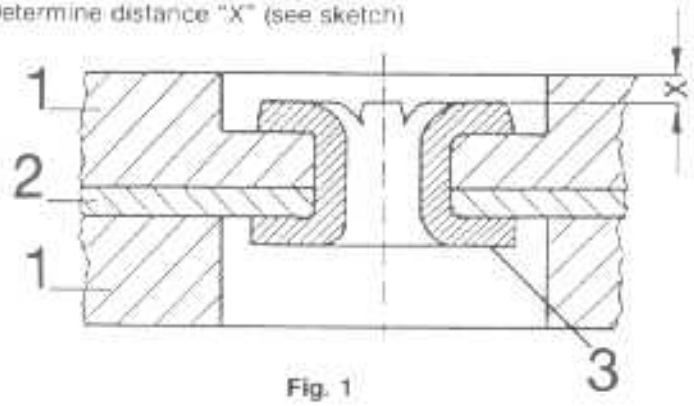
Technical Bulletin	Model	Group
	924S, 944, 944S, 944 Turbo	3
Subject: Measuring Clutch Lining Thickness	Part Identifier	Number
	3056	8804

When measuring the clutch disc lining thickness, proceed as follows:

Determine distance "X" (see sketch)



1 = Clutch lining
2 = Clutch plate
3 = Retaining rivet head

Fig. 1

Measure from the clutch lining material (Fig. 1) to the retaining rivet. Be sure to measure only **opposite** the rivet head.

Specifications:

	924S 944 944S	944 Turbo
Distance X(mm)	**Model 82-87**	**Model 88**	**Model 86-88**
New	1.15mm-1.30mm	.85mm-1.00mm	.85mm-1.00mm
Minimum	0.20mm	0.20mm	0.20mm

The clutch disc should **only** be replaced when the lining thickness (Distance X) falls below 0.20mm.

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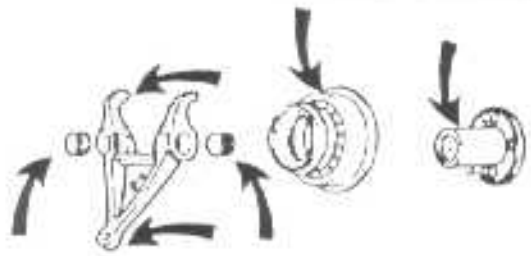
Technical Bulletin

Model	Group
All	3

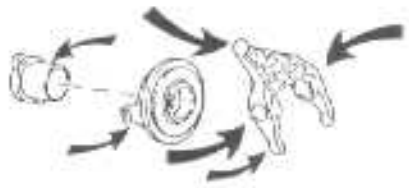
Subject: Lubrication of Clutch Parts

Part Identifier	Number
3001	8805

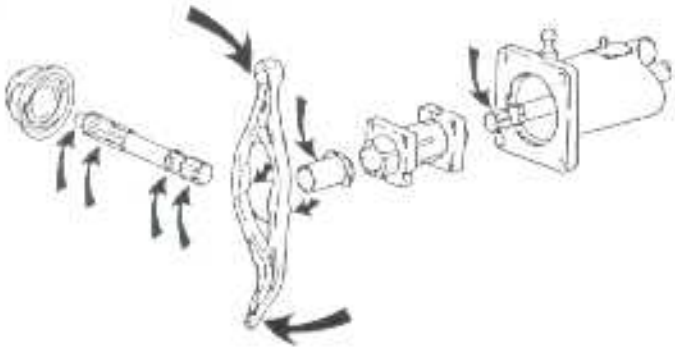
When making repairs in the area of the clutch, always use Olista Longtime 3 EP grease PN 000 043 024 00 to lubricate the parts in areas indicated by arrows.



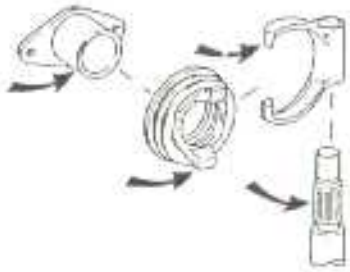
All 4 Cylinder



911



All 8 Cylinder



911 Turbo

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Technical Bulletin

Model	Group
911 Carrera Coupe, Targa	3

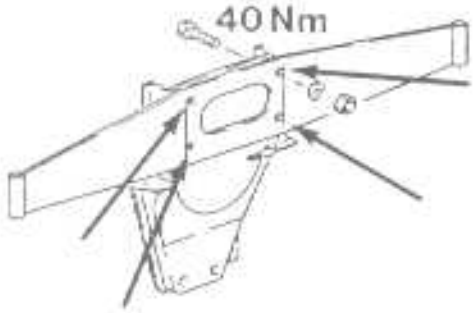
Subject: Transmission Noise

Part Identifier	Number
3435	8806

G50 Transmission from 1987 Model Year

Misalignment between the transmission and engine mounts may cause stress resulting in the transfer of transmission noises to the vehicle body.

In case of transmission noise complaints, loosen all four engine carrier bolts together (see picture) and retorque to 40 Nm (29 ft. lbs.).



Technical Bulletin	Model	Group
	911 Carrera	3
Subject: Transmission Jumps Out Of 1st or 2nd Gear	Part Identifier	Number
	3581	8807

G50 Transmission from Model Year 1987

The guide sleeve for 1st and 2nd gear is now coated with a sliding lubricant to prevent the transmission from jumping out of gear.

From production date: August 19,1987

Transmission numbers:

G5001 1J 01190
G5001 2J 10672 (limited slip differential)

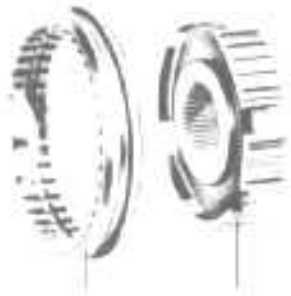
Furthermore, the guide sleeve and shifting sleeve are now only available as a set.

New Part Number:

Guide sleeve with shift sleeve:
960 304 031 03

Important
In case of complaints of jumping out of gear, always check the shift rod adjustment first.

Refer to Technical Bulletin Group 3, Number 8705, Book D, Page 140.



1 - Shift Sleeve

2 - Guide Sleeve

Technical Bulletin	Model	Group
	924S - 944	3
Subject: ATF Loss From Vent of Automatic Transmission	Part Identifier	Number
	3860	8808

The following parts and procedures have been developed to reduce the chance of ATF loss from the automatic transmission housing vent. A temperature switch installed in the automatic transmission cooling circuit at the radiator closes at approximately 87° C (189° F) causing the engine cooling fans to run at maximum speed to reduce the temperature of the ATF. The cooling fans operate independently of engine coolant temperature when activated by high ATF temperature.

Parts kit required for service installation
(See Fig. 1) PN 000 043 106 00 includes:

1 - Temperature switch
PN 928 606 217 00

2 - Switch Adapter

3 - Hollow Bolt

4 - Sealing Rings
PN 013 814.8

Fig. 1

Note: The cable harness (5) is not supplied in the Parts Kit and, therefore, must be made locally to the following specification:

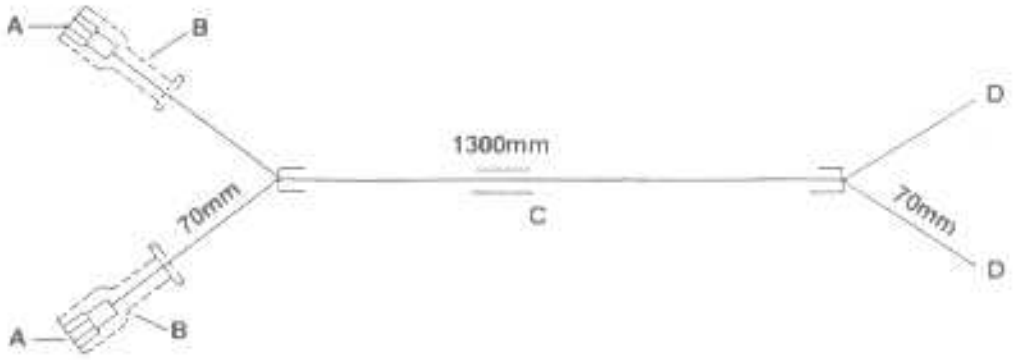
2 lengths of 0.5mm x 1440mm electrical wire

1 length 1300mm of wire covering for the above wiring. (electrical tape can be used)

4 Electrical connections PN 999 652 113 10

4 Connector boots PN 311 971 867 A

Note: When assembling the wire harness, leave approximately 70mm of free wire at both ends of harness. In addition, attach 2 connector boots and electrical connectors on one end of the harness only. The remaining connectors will be attached later. (see Fig. 2)



A - Connector
B - Rubber boot
C - Harness covering
D - Open end of harness

Fig. 2

Installation Procedure:

Temperature switch installation:

1. Remove lower engine cover and drain engine coolant and radiator.
2. Remove lower radiator hose from radiator. Catch residual antifreeze in a drain pan.
3. Remove the hollow bolt for the lower ATF cooling hose. Caution! To avoid damage to the radiator, counter-hold the radiator fitting adapter.
4. Install the temperature switch into the switch adapter and torque to 30Nm (22 ft. lbs.). Pre-assemble the switch adapter along with the new hollow bolt and sealing rings onto ATF line and install onto radiator. Position the temperature switch as shown in Fig. 3 and 4. Tighten the entire assembly to 30Nm (22 ft. lbs.). Be sure to counter-hold the radiator fitting adapter.

Fig. 3

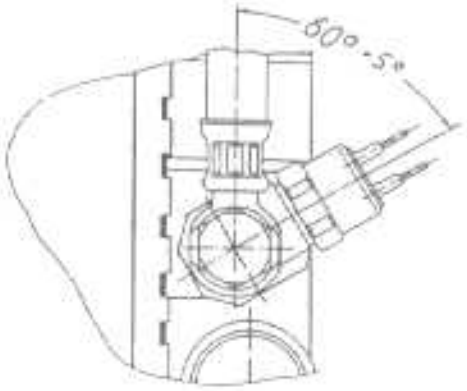


Fig. 4

5. Reinstall the lower radiator hose and tighten clamp.
6. Connect the locally made wiring harness to the temperature switch. (Fig. 5)

Fig. 5

Route the harness to the left under the cooling fans (Fig. 6).

Fig. 6

Note: On 944 with air conditioning, route the end of the harness to the area of the high pressure switch on the receiver dryer. On 944 without air conditioning and all 924S, route the harness to the radiator fan switch at the left upper area of the radiator.

Note: Refer to included wiring diagram (Fig. 9)

7. Disconnect the existing wires from the connecting point (Fig. 7) on 944 with air conditioning or from the radiator fan switch (944 without air conditioning and all 924S) and cut the connectors off. Remove the existing connector boots and discard.

Fig. 7

8. Connect one wire from the ATF temperature switch harness to one wire to the radiator fan switch or the high pressure switch. Repeat the procedure for the remaining wire. Install the connector boots over the joined wires and crimp the remaining two connectors onto the wires. (Fig. 8)

Fig. 8

Reconnect the wires to the high pressure switch or to the radiator fan switch, (depending on model type and equipment). Properly secure wires with tie wraps.

Refill the cooling system and bleed free of air. (Refer to 944 Workshop Manual Vol. 1, Page 19-1.)

Reinstall lower engine cover.

Test drive and check for leaks and proper ATF and coolant levels.

944 with A/C

944 without A/C and
924S with or without A/C

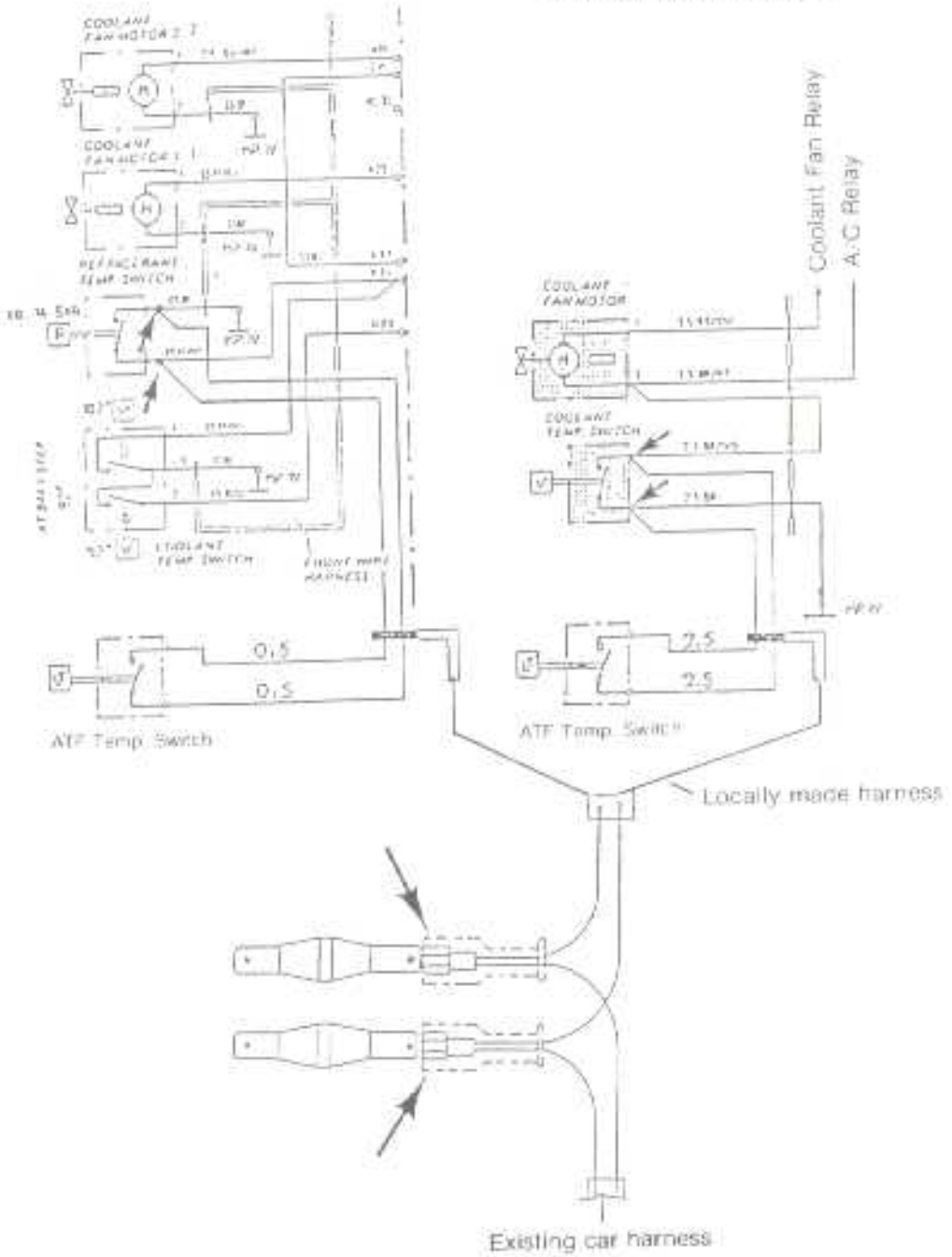
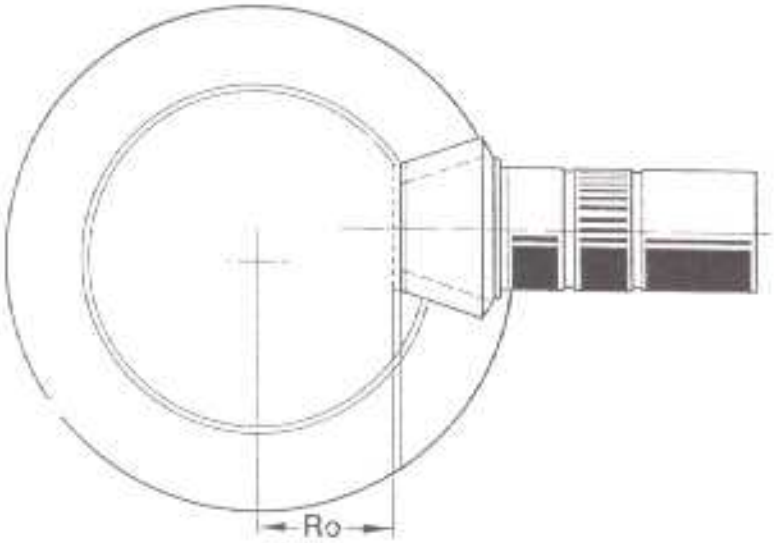


Fig. 9

Technical Bulletin	Model 944S	Group 3
Subject: Different 'Ro' Value for Pinion	Part Identifier 3908	Number 8809

When adjusting the pinion depth of 944S manual transmissions type 083 D AGP or AGR, use the 'Ro' value of 58.15mm (see sketch).



58.15mm

All other 924S, 944 and 944 Turbo 5 speed transmissions still use an 'Ro' value of 59.65mm.

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Technical Bulletin

Model	Group
All	4

Subject: Shock Absorbers—M.Y. 1988

Part Identifier	Number
4090, 4293	8802

	Front Axle	Rear Axle	System: Single Chamber	System: Double Chamber	System: Pressureless	System: Gas Pressure	Make: Boge	Make: Bilstein	Make: F & S	Make: Koni	Make: VW	Make: Spare Part	Shock Absorbers Paint Color Identification
924S	X			X	X						X		Black
		O		O	O				O				Grey
924S —Sport Shocks	X			X	X					X			Black—blue ring
	X			X	X					X		X	Yellow
		O		O		O				O			Yellow
944, 944S	X			X	X				X				Black
		O		O	O				O				Grey
944 Turbo	X			X		X			X				Black
		O		O		O			O				Grey—green stripe
944, 944S 944 Turbo 944 Turbo S —Clubsport —Sport Shocks	X			X		X				X			Yellow
		O		O		O				O			Yellow

X = Front Axle O = Rear Axle

Visible differences between pressureless and gas pressure shock absorbers are

—A removed pressureless shock absorber will remain in any position.

—A gas pressure shock absorber will move against the upper stop.

Technical Bulletin

Model	Group
All	4

Subject: Shock Absorbers—M.Y. 1988

Part Identifier	Number
4090, 4293	8802

	System						Make					
	Front Axle	Rear Axle	Single Chamber	Double Chamber	Pressureless	Gas Pressure	Boge	Bilstein	F & S	Koni	VW	Shock Absorbers Paint Color Identification
911 Carrera	X			X		X	X					Black—blue dot
		O		O		O	O					Black—blue ring
911 Carrera —Sport Shocks —Turbo Look —Clubsport	X			X		X	X					Black—brown dot
		O		O		O	O					Black—brown ring
911 Turbo	X		X			X		X				Green
		O	O			O		O				Green—blue ring
928 S4	X			X		X	X					Grey
		O		O		O	O					Grey
928 S4 —Sport Shocks —Clubsport	X			X		X	X					Red
		O		O		O	O					Red
	X*		X			X		X				Gold colored
		O*	O			O		O				Gold colored

*Shock absorber make selected at time of assembly by factory.

X = Front Axle O = Rear Axle

Visible differences between pressureless and gas pressure shock absorbers are:

—A removed pressureless shock absorber will remain in any position.

—A gas pressure shock absorber will move against the upper stop.

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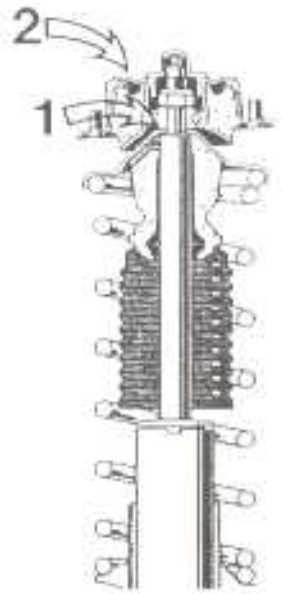
Technical Bulletin	Model 944, 944S 944 Turbo	Group 4
Subject: Strut Mount with Additional Washer	Part Identifier 4088	Number 8805

For Model Year 88, some cars received an additional washer, Part Number N 012 233 3, between the upper spring plate and strut mount (arrow 1). Cars with the additional washer can be recognized by a yellow paint dot on the upper strut mounting plate (arrow 2).

When repairing cars marked in this way, be certain to reinstall the additional washer, otherwise the spring plate may touch the upper strut mount resulting in a noise.



4

Technical Bulletin	Model	Group
	928 S4	4
Subject: Alignment Procedure	Part Identifier	Number
	4485/95	8808

The toe check is the first step to be performed at the 2,000-2,500 mile service. It must be performed before the vehicle is raised on a hoist. This is to ensure that the suspension is in its normal position. In addition, if the vehicle must be raised to install alignment equipment, the following procedures must be carried out **prior** to the front toe check.

1. Drive onto the alignment rack slowly to avoid excessive movement of the suspension.
2. Install and compensate alignment equipment.
3. Install engine support 10-222A as shown (Photo A) onto front tow hooks. Pull the vehicle down 60-70mm below the standard ride height specifications and maintain it for one minute, then release.
4. Lightly move the vehicle up and down approximately 1 inch (25mm) to create some minor suspension movement. Repeat on the rear of the vehicle.
5. Proceed with toe check.

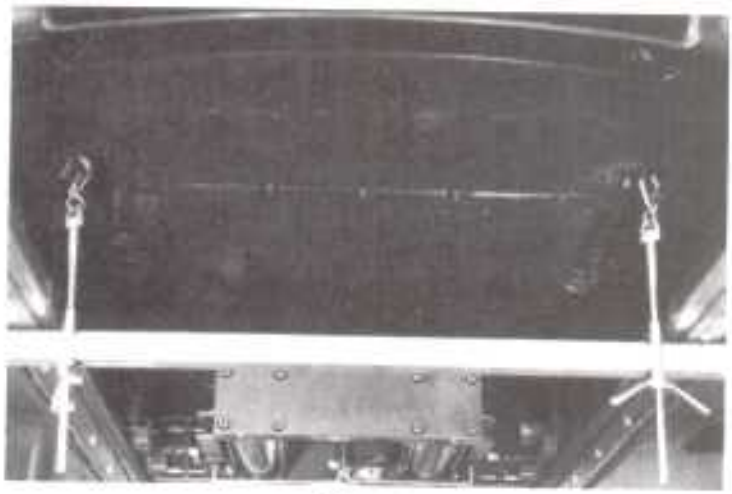
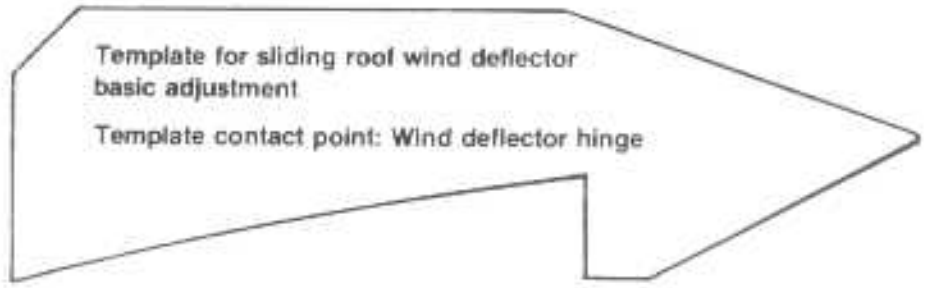
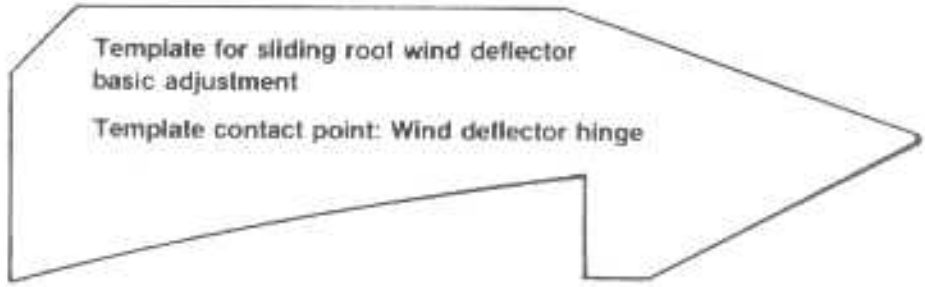
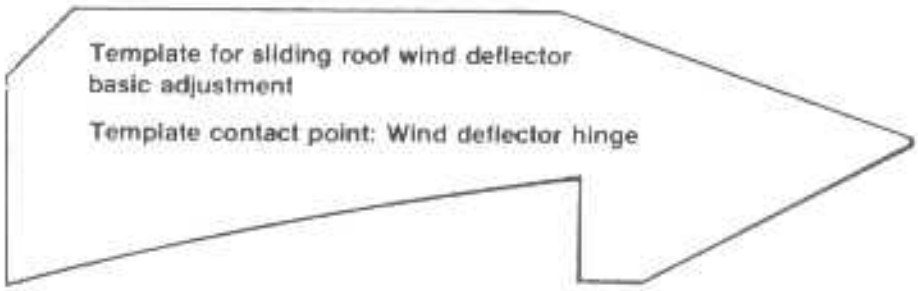


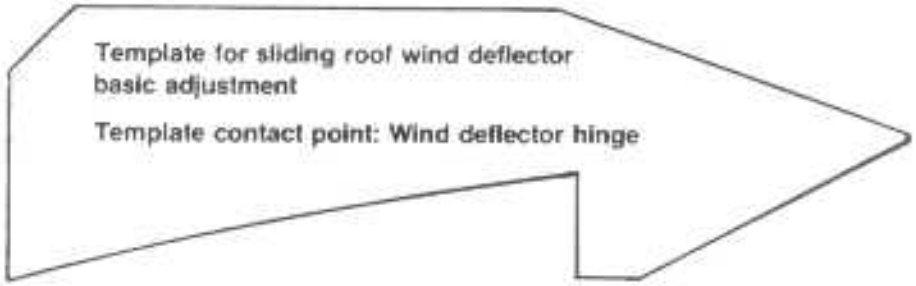
Photo A

CUT HERE


Template for sliding roof wind deflector
basic adjustment
Template contact point: Wind deflector hinge


Template for sliding roof wind deflector
basic adjustment
Template contact point: Wind deflector hinge


Template for sliding roof wind deflector
basic adjustment
Template contact point: Wind deflector hinge


Template for sliding roof wind deflector
basic adjustment
Template contact point: Wind deflector hinge

Technical Bulletin	Model	Group
	928 S4	6
Subject: Window Opener Relay 1989 Model	Part Identifier	Number
	6456	8805

928 S4 Model Year 1989 window lift electric circuit has been modified.

Only window lift relay
Part Number: 944 615 116 00 must be installed in 1989 model cars

The relay part number for 1987 and 1988 model years is: 928 615 126 00.

The relays can only be recognized by the part number printed on the relay housing. Installing an incorrect relay causes damage to the Central Electric Board.

Technical Bulletin

Model	Group
928 S4	7

Subject: Seat Heating Operation

Part Identifier	Number
7276	8801

The function of the Seat Heating System on seats with memory differs from seats without memory. The table below describes these differences.

Seat Heating	without Seat Memory	with Seat Memory
Switching on (Ignition on)	Push upper part of seat switch	
Heating	Approx. 15 min. continuous operation	Approx. 6 min. continuous operation, then interval heating 20 sec. on, 40 sec. off, 20 sec. on, etc.
Switching off manual	Push lower part of seat switch	
Switching off automatic	After approx. 15 min. via time relay or switch off ignition	Switch off ignition

Both versions of seat heating could be found on one car if one seat has memory and the other seat does not have memory.

Technical Bulletin	Model 928 S4	Group 7
Subject: Troubleshooting Seat and Mirror Control System	Part Identifier 7293	Number 8803

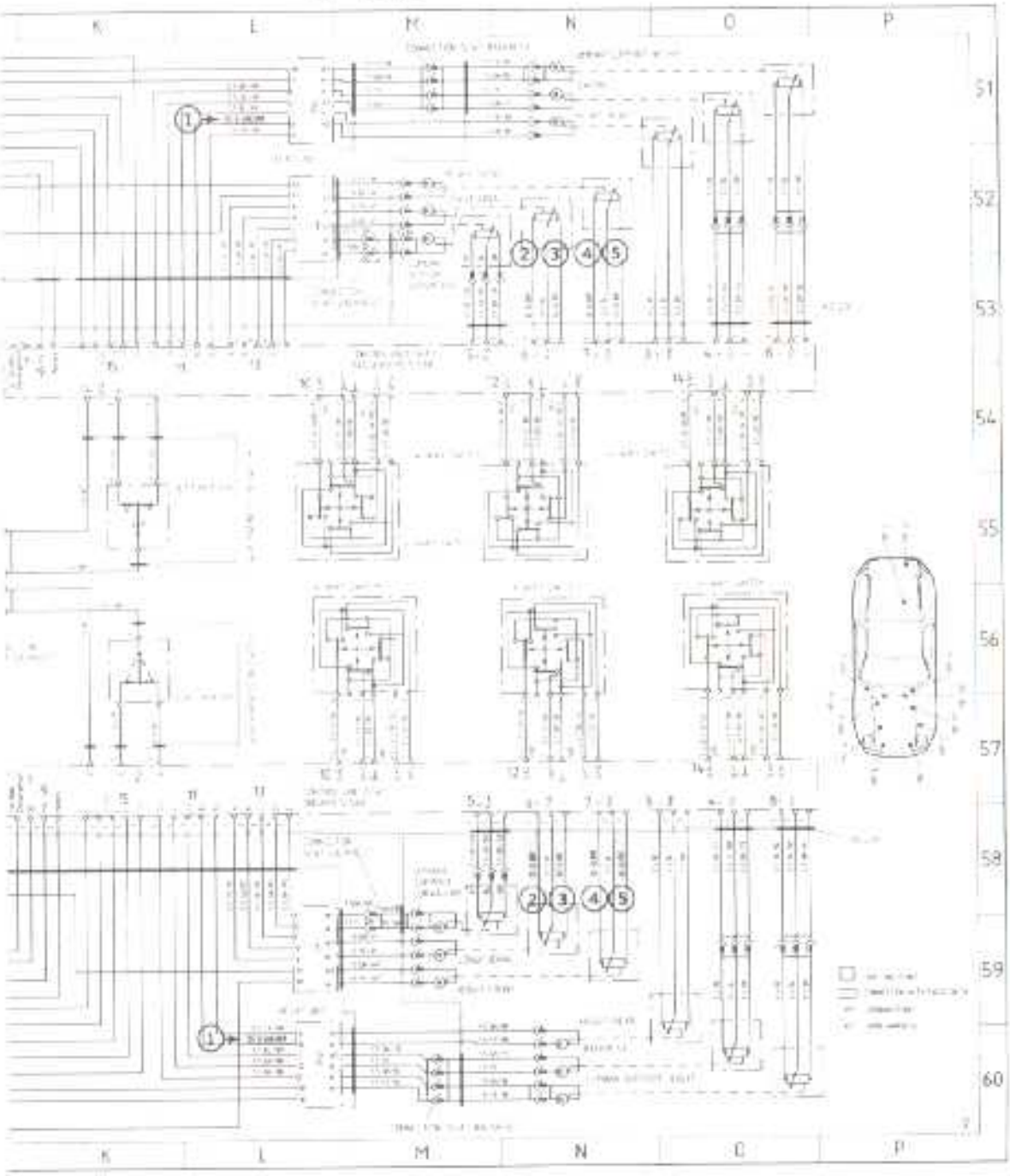
The troubleshooting guide for the 1987 and 1988 model 928 S4 seat and mirror control system published in the 928 Workshop Manual V, pages 72-13 through 72-22 and Wiring Diagram Sheet 7 has been clarified. When troubleshooting the seat and mirror control system, use the information from this bulletin. Please make a note to that effect on those pages in the Workshop Manual and the wiring diagrams.

Refer to Workshop Manual Volume V, Repair Group 72 for component locations and principles of system operation.

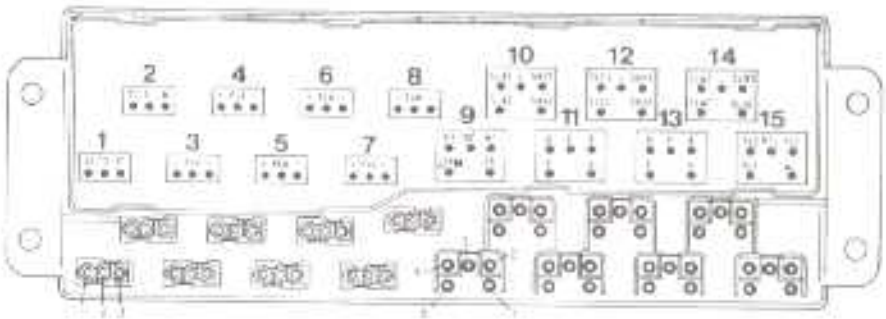
Updated Wiring Diagram

Corrections:

1- 0.5 GN/BR
2- 0.5 BR
3- 0.5 RE
4- 0.5 BR
5- 0.5 RE



Terminal Designation Chart for Seat Adjustment



Plug		Terminal Designation	Pin
1	30	- Ter. 30	1
	15	- Ter. 15	2
	31	- Ter. 31	3
2	87	- Ter. 87, seat heating relay	1
	E	- Tip switch, seat heating on	2
	A	- Tip switch, seat heating off	3
3	+	- Potentiometer height rear +	1
	PHR+	- Potentiometer, height rear, pick-off	2
	-	- Potentiometer, height rear -	3
4	+	- Potentiometer, backrest +	1
	PLE	- Potentiometer, backrest, pick-off	2
	-	- Potentiometer, backrest -	3
5	+	- Potentiometer, lumbar support shape +	1
	PLW	- Potentiometer, lumbar support pick-off	2
	-	- Potentiometer, lumbar support shape -	3
6	+	- Potentiometer, fore-and-aft adjustment +	1
	PLA	- Potentiometer, fore-and-aft adj., pick-off	2
	-	- Potentiometer, fore-and-aft adjustment -	3
7	+	- Potentiometer, height, front +	1
	PHV	- Potentiometer, height, front, pick-off	2
	-	- Potentiometer, height, front -	3
8	-	- Potentiometer, lumbar support, height -	1
	PLH	- Potentiometer, lum. sup. height pick-off	2
	+	- Potentiometer, lumbar support, height +	3
9	58	- Ter. 58	1
	MT	- Memory key	2
	30	- Ter. 30 for mirror memory control unit	3
	PT	- Position key	4
	+SPM	- Ter. 31 for mirror memory control unit	5

Plug		Terminal Designation	Pin
10	SHV2	- Seat switch, height, front downward	1
	SHV1	- Seat switch, height, front upward	2
	-	- Ter. 31 for seat switch 1	3
	SLA1	- Seat switch, fore-and-aft adjustment, toward rear	4
	SLA2	- Seat switch, fore-and-aft adjustment, toward front	5
11	A	- Relay unit 2	1
	B	- Relay unit 2	2
	C	- Relay unit 2	3
	D	- Relay unit 2	4
	E	- Relay unit 2	5
12	SHH2	- Seat switch, height, rear downward	1
	SHH1	- Seat switch, height, rear upward	2
	-	- Ter. 31 for seat switch 2	3
	SLE1	- Seat switch, backrest, toward rear	4
	SLE2	- Seat switch, backrest, toward front	5
13	A	- Relay unit 1	1
	B	- Relay unit 1	2
	C	- Relay unit 1	3
	D	- Relay unit 1	4
	E	- Relay unit 1	5
14	SLH2	- Seat switch, lum. sup. height, downward	1
	SLH1	- Seat switch, lum. sup. height, upward	2
	-	- Ter. 31 for switch 3	3
	SLW1	- Seat switch, lumbar support shape, retract	4
	SLW2	- Seat switch, lumbar support shape, extend	5
15	WL	- Pilot lamp	1
	PL3	- Lamp for position key 3	2
	PT+	- Ter. 31 for operating switch	3
	PL2	- Lamp for position key 2	4
	PL1	- Lamp for position key 1	5

TROUBLESHOOTING

Make sure battery is fully charged before testing is started. Check and record voltage reading for future reference.

Checking Seat Control System

1. Remove seat.
2. Lay seat on a protected surface near the car.
3. Connect adaptor cable (Special Tool 9269) (Fig. 1) between disconnected wiring harness plugs on car and seat. Terminal 30 (battery plus) and Terminal 31 (ground) can be picked off the 2 pole plug for some test steps. Use a voltmeter to identify + and - terminals.

   Do not connect two pin plug to any seat harness plugs.
4. Store a seat position into memory with position key 1.
5. Detach control unit from seat frame and open flap.

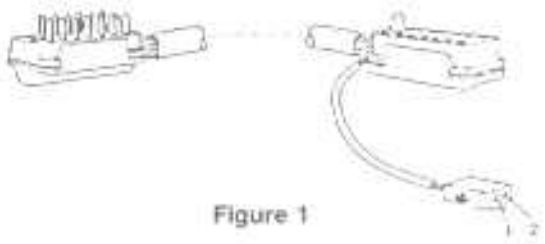


Figure 1

Checking Power Supply

6. Disconnect plug 1. Connect Voltmeter (+) to terminal 1 and (-) to terminal 3 in plug receptacle.

   Reading: Battery voltage.

   If no reading check:

   Fuse 21 (Terminal 30) 1987 Model Year
   Fuse 20 (Terminal 30) 1988 Model Year

   If fuses are okay, check wiring.

   Connect Voltmeter (+) to Terminal 2 and (-) to Terminal 3.

   Switch on ignition.
   Reading: Battery voltage.

   If no reading check:

   Fuse 7 (Terminal 15) 1987 model year
   Fuse 8 (Terminal 15) 1988 model year

   If fuses are okay check wiring.

   Switch off ignition and reconnect plug.

Checking Seat Heating

7. Remove cover of plug 2.

   Leave plug connected:

   Connect Voltmeter to ground on 2 pole plug of adaptor cable and terminal 1 of plug 2.

   Switch on ignition and seat heating.

   Reading: Battery voltage.

   Switch off seat heating.

   Reading: 0 Volt

   If readings are not correct, check seat heating switch and wiring.

   Switch off ignition.

Checking Potentiometers

8. Disconnect plug 3.
   Connect Voltmeter (+) to pin 1 and (-) to pin 3 of control unit.

   Press position key 1.

   Reading: approx. 5 volts

   NOTE: Voltage is applied only for approximately 30 to 60 seconds.

9. Connect ohmmeter to plug 3 terminal 1 and terminal 3.

   Reading: 2.2-3.2 K ohm

   Connect ohmmeter to plug 3 terminal 2 and 3.

   Reading: 0-3 K ohms, depending on set position.

10. Check plugs 4 through 8 in exactly the same way as described in steps 8 and 9.

    If values are not reached, check wiring.

    If okay, replace Potentiometer.

    Refer to Terminal designation chart on page 3 of this bulletin for plug-potentiometer application.

Checking Memory Switch and Wiring

11. Remove plug cover from plug 9.
    Leave plug connected.

    Connect Voltmeter (+) to terminal 3 and (-) to terminal 5.

    Press position key 1.

    Reading: Battery voltage.

    NOTE: Voltage is applied only for approximately 30 to 60 seconds.

    Install plug cover and disconnect plug.

    Connect Voltmeter (+) to Terminal 1 of plug receptacle and (-) to ground.

    Switch on parking lights.

    Reading: Battery voltage.

12. Connect ohmmeter to terminal 2 and ground.

    Press memory key.

    Reading: 0-2 ohm.

    Connect ohmmeter to terminal 4 and ground.

    Press position key 1.

    Reading: 0-1 ohm.

    Press position key 2.

    Reading: approx. 240 ohm.

    Press position key 3.

    Reading: approx. 820 ohm.

    If values are not reached, check wiring and memory switch.

Checking Seat Switches

13. Disconnect plug 10.

    Connect voltmeter to terminal 3 of control unit and plus (+) on 2 pole plug of adaptor cable.

    Reading: Battery voltage.

14. Connect ohmmeter to terminal 1 and terminal 3 of plug receptacle.

    Press seat switch 1 down.

    Reading: 0.0-0.3 ohms.

    Connect ohmmeter to terminal 2 and terminal 3.

    Press seat switch 1 up.

    Reading: 0.0-0.3 ohms.

    Connect ohmmeter to terminal 3 and terminal 4.

    Press seat switch 1 toward rear.

    Reading: 0.0-0.3 ohm.

    Connect ohmmeter to terminal 3 and terminal 5.

    Press seat switch 1 forward.

    Reading: 0.0-0.3 ohms.

    If values are not reached, check wiring.

    If wiring is okay, replace switch.

15. Check plug 12 for switch 2 and plug 14 for switch 3 exactly the same way as described in step 13 and 14.

    Refer to terminal designation chart on page 3 of this bulletin for plug/switch applications.

Checking Relay Units

16. Disconnect plug 11.
    Connect voltmeter (+) to plus on 2 pole plug of adaptor cable and . . .

    a. (-) to terminal 1 of control unit. Press switch 3 up, press switch 2 up, press switch 2 toward rear sequentially.
    Reading: Battery voltage in each case.

    b. (-) to terminal 2 of control unit. Press switch 3 down, switch 2 down, switch 2 forward sequentially.
    Reading: Battery voltage in each case.

    c. (-) to terminal 3 of control unit. Press switch 3 up, switch 3 down sequentially.
    Reading: Battery voltage in each case.

    d. (-) to terminal 4 of control unit. Press switch 2 forward, switch 2 toward rear sequentially.
    Reading: Battery voltage in each case.

    e. (-) to terminal 5 of control unit. Press switch 2 up, switch 2 down sequentially.
    Reading: Battery voltage in each case.

Checking Relay Units (continued)

17. Disconnect plug 13
Connect Voltmeter (+) to plus on 2 pole plug of adaptor cable and . . .

a. (-) to terminal 1 of control unit. Press switch 1 up, switch 1 toward rear, switch 3 forward sequentially.
Reading: Battery voltage in each case.

b. (-) to terminal 2 of control unit. Press switch 1 forward, switch 1 down, switch 3 toward rear sequentially
Reading: Battery voltage in each case.

c. (-) to terminal 3 of control unit. Press switch 3 forward, switch 3 toward rear sequentially.
Reading: Battery voltage in each case.

d. (-) to terminal 4 of control unit. Press switch 1 forward, switch 1 toward rear sequentially.
Reading: Battery voltage in each case.

e. (-) to terminal 5 of control unit. Press switch 1 up, switch 1 down sequentially.
Reading: Battery voltage in each case.

If values are not reached check wiring.

If wiring is okay replace relay unit. Refer to terminal designation chart on page 3 of this bulletin for plug-relay unit application.

Checking Control Unit

18. Remove cover of plug 15.

Leave plug connected.

Connect Voltmeter (-) to ground on 2 pole plug of adaptor cable and (+) to terminal 1 of plug 15.

Press position key 2 or 3 briefly.

Reading: Battery voltage.

Connect Voltmeter to plus (+) on 2 pole plug of adaptor cable and terminal 3 of plug 15.

Reading: Battery voltage

19. Switch on lights.

Connect Voltmeter (-) to ground on 2 pole plug of adaptor cable and (+) to terminal 2 of plug 15.

Press position key 3 and move seat to position stored in memory.

Reading: Approximately 1.8 V

20. Connect Voltmeter (-) to ground on 2 pole plug of adaptor cable and (+) to terminal 4 of plug 15.

Press position key 2 and move seat to position stored in memory.

Reading: approximately 1.8 V

21. Connect Voltmeter (-) to ground on 2 pole plug of adaptor cable and (+) to terminal 5 of plug 15.

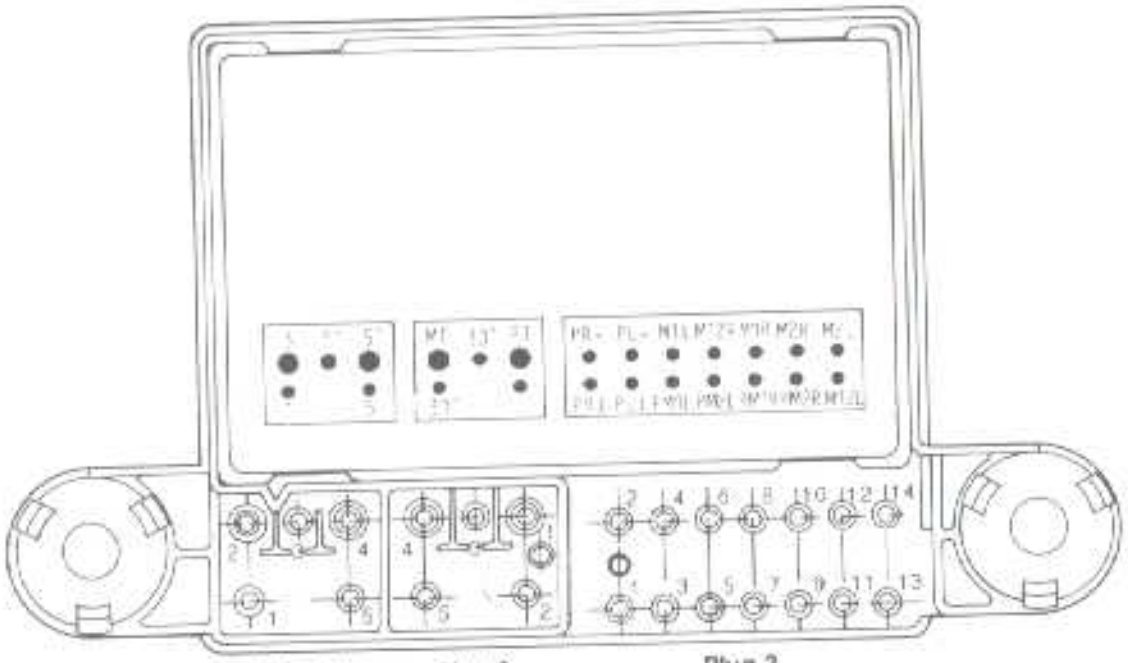
Press position key 1 and move seat to position stored in memory.

Reading: approximately 1.8 V

Switch off lights.

If values are not reached check wiring.
If wiring is okay replace control unit.

PLUG ASSIGNMENT, CONTROL UNIT FOR MIRROR ADJUSTMENT



Plug 1 Plug 2 Plug 3

Plug		Terminal Designation	Pin
1	1	- Driver's side mirror left/right	1
	2	- Polarity, motor ½	2
	3	- Passenger-side mirror left/right	3
	4	- Passenger-side mirror up/down	4
	5	- Driver's mirror up/down	5
2	F*	- Position key1	1
		not occupied	2
	30	- Ter. 30 from seat memory control unit	3
	M1	- Memory key	4
	31	- Ter. 31 from seat memory control unit	5

Plug		Terminal Designation	Pin
3	PR -	- Potentiometer right -	1
	PR +	- Potentiometer right +	2
	PL -	- Potentiometer left -	3
	PL +	- Potentiometer left +	4
	PLIL	- Potentiometer, motor 1 left	5
	M1L	- Motor 1 left	6
	PM2L	- Potentiometer, motor 2 left	7
	M2R	- Motor ½ right	8
	PM1R	- Potentiometer, motor 1 right	9
	M1R	- Motor 1, right	10
	PM2R	- Potentiometer, motor 2 right	11
	M2R	- Motor 2, right	12
	M2L	- Motor ½ left	13
	M2L	- Motor 2, left	14

left – driver's-side mirror

right – passenger-side mirror

motor 1 – vertical travel

motor 2 – horizontal travel

Checking Mirror Control System

1. Store mirror position into memory with position key 1.
2. Detach mirror control.

The mirror control unit is mounted on the side wall in the driver's side footwell beside the ABS control unit.

Checking Mirror Control Switches

3. Disconnect plug 1.
4. Set mirror selector switch to driver side mirror.
5. Connect Voltmeter (+) to terminal 1 and (-) to terminal 2 of plug receptacle.

   Push mirror adjuster switch to left.

   Reading: Battery voltage.

   Connect Voltmeter (-) to terminal 1 and (+) to terminal 2.

   Push mirror adjuster switch to right.

   Reading: Battery voltage.
6. Connect Voltmeter (+) to terminal 5 and (-) to terminal 2.

   Push mirror adjuster switch up.

   Reading: Battery voltage.

   Connect Voltmeter (-) to terminal 5 and (+) to terminal 2.

   Push mirror adjuster switch down.

   Reading: Battery voltage.
7. Set mirror selector switch to passenger side mirror.
8. Connect Voltmeter (+) to terminal 3 and (-) to terminal 2.

   Push mirror adjuster switch to left.

   Reading: Battery voltage.

   Connect Voltmeter (-) to terminal 3 and (+) to terminal 2.

   Push mirror adjuster switch to right.

   Reading: Battery voltage.
9. Connect Voltmeter (+) to terminal 4 and (-) to terminal 2.

   Push mirror adjuster switch up.

   Reading: Battery voltage.

   Connect Voltmeter (-) to terminal 4 and (+) to terminal 2.

   Push mirror adjuster switch down.

   Reading: Battery voltage.

   If values are not reached, check wiring and mirror selector and adjuster switches.

   Reconnect plug 1.

Checking Memory Switch and Power Supply

10. Disconnect plug 2 from mirror control unit.

    Disconnect plug 9 from seat memory control unit.

    Connect ohmmeter to ground and terminal 1 of plug receptacle.

    Press position key 1.

    Reading: 0–2 ohms.

    Press position key 2.

    Reading: approximately 240 ohms.

    Press position key 3.

    Reading: approximately 820 ohms.

    Reconnect plug 9 on seat memory control unit.
11. Connect ohmmeter to ground and terminal 4.

    Press memory key.

    Reading: 0–2 ohms.

Checking Memory Switch and Power Supply (continued)

12. Connect Voltmeter (+) to terminal 3 and (-) to terminal 5.

    Press position key 1.

    Reading: Battery voltage.

    Reconnect plug 2 on mirror control unit.

    If values are not reached check wiring and memory switch.

    NOTE: Voltage is applied for approximately 30 seconds after position keys are pressed.

Checking Mirror Control Unit

13. Open plug cover of plug 3.

    Leave plug connected.

14. Connect Voltmeter (-) to terminal 1 and (+) to terminal 2.

    Press position key 1.

    Reading: approximately 4.7 volts.

15. Connect Voltmeter (-) to terminal 3 and (+) to terminal 4.

    Press position key 1.

    Reading: approximately 4.7 volts.

16. Connect Voltmeter (+) to terminal 4 and (-) to terminal 5.

    Press position key 1.

    Reading: 0.3–4.5 volts.

17. Connect Voltmeter (+) to terminal 4 and (-) to terminal 7.

    Press position key 1.

    Reading: 0.3–4.5 volts.

18. Connect Voltmeter (+) to terminal 2 and (-) to terminal 9.

    Press position key 1.

    Reading: 0.3–4.5 volts.

19. Connect Voltmeter (+) to terminal 2 and (-) to terminal 11.

    Press position key 1.

    Reading: 0.3–4.5 volts.

    NOTE: Voltage is applied for approximately 30 seconds after position keys are pressed.

20. Set mirror selector switch to driver side mirror.

21. Connect Voltmeter (+) to terminal 6 and (-) to terminal 13.

    Push mirror adjuster switch up.

    Reading: approximate battery voltage.

22. Connect Voltmeter (-) to terminal 6 and (-) to terminal 13.

    Push mirror adjuster switch down.

    Reading: approximate battery voltage.

23. Connect Voltmeter (-) to terminal 13 and (+) to terminal 14.

    Push mirror selector switch to left.

    Reading: approximate battery voltage.

24. Connect Voltmeter (+) to terminal 13 and (-) to terminal 14.

    Push mirror adjuster switch to right.

    Reading: approximate battery voltage.

25. Set mirror selector switch to passenger side mirror.

26. Connect Voltmeter (-) to terminal 8 and (-) to terminal 10.

    Push mirror adjuster switch up.

    Reading: approximate battery voltage.

Checking Mirror Control Unit (continued)

27. Connect Voltmeter (+) to terminal 8 and (-) to terminal 10.

    Push mirror adjuster switch down.

    Reading: approximate battery voltage.

28. Connect Voltmeter (-) to terminal 8 and (+) to terminal 12.

    Push mirror adjuster switch to left.

    Reading: approximate battery voltage.

29. Connect Voltmeter (+) to terminal 8 and (-) to terminal 12.

    Push mirror adjuster switch to right.

    Reading: approximate battery voltage.

If values are not reached, check wiring.

If wiring is okay, replace mirror control unit. Reinstall plug cover.

NOTE: approximate battery voltage can be somewhat lower than actual battery voltage.

Checking Memory Switch and Wiring

1. Remove memory switch panel.
2. Disconnect plug.
3. Connect Voltmeter (+) to terminal 1 and (-) to terminal 4 of plug receptacle in harness.

   Reading: Battery voltage.

   If no reading, check wiring to seat control unit.
4. Connect ohmmeter to terminal 1 and terminal 4 of disconnected switch.

   Reading: infinite ohms.

   Press key 1.

   Reading: approximately 0 ohms.

   Press key 2.

   Reading: approximately 240 ohms.

   Press key 2.

   Reading: approximately 820 ohms.
5. Connect ohmmeter to terminal 2 and terminal 4 of disconnected switch.

   Reading: infinite ohms.
   Press memory key.

   Reading: approximately 0 ohms.

   If values are not reached, replace memory switch.

   Reinstall seat and control units.

Technical Bulletin

Model	Group
928 S4	8

Subject: Fresh Air Fan Changes Speed

Part Identifier	Number
8529	8802

If the fresh air blower motor intermittently switches to high speed by itself, the bimetal temperature switch on the fan housing could be the cause.

The gap between the bimetal strip and the resistor coils may be insufficient.

To repair, remove the switch from the vehicle. Remove the cover and increase the gap by approximately 1 to 2mm. Using a screwdriver, bend all four coils away from the bimetal strip (picture).

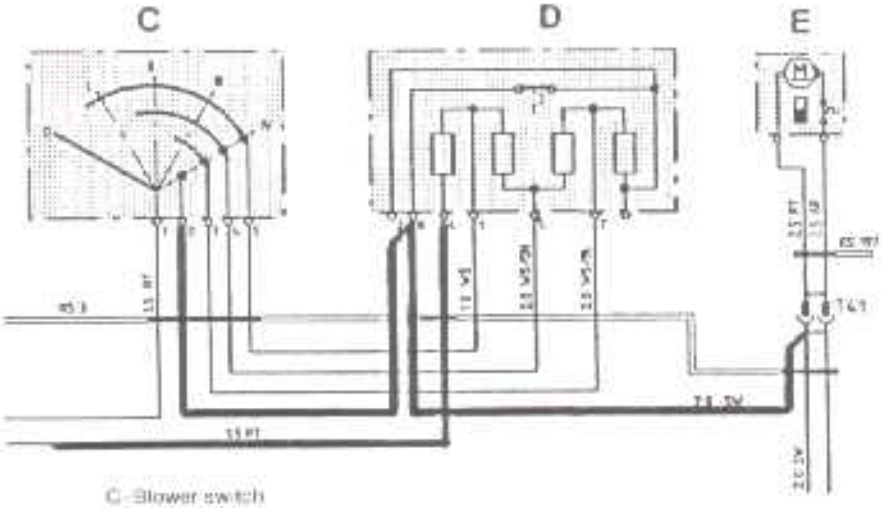
Caution: Be careful not to damage the coils. The windings within each coil must not touch each other.

Technical Bulletin	Model 928 S4	Group 8
Subject: Bimetal Temperature Switch Modified	Part Identifier 8529	Number 8805

The bimetal temperature switch for the fresh air blower speed control was replaced by a thermo switch and the circuitry has been changed.

From VIN 92 KS 86 0062
New Part Number: 928 616 101 00

The fresh air blower is no longer switched to maximum speed to protect the resistors against excessive heat, but instead the blower is switched off.



C - Blower switch

D - Resistor group

E - Fresh air blower

Lines drawn bold = changed circuitry

Important Notice

PCNA Technical Bulletins are intended for use by professional technicians, not a "Do-it-yourselfer." They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Special tools may be required to perform certain operations identified in these bulletins. Use of tools and procedures other than those recommended in these bulletins may be detrimental to the safe operation of your vehicle. Properly trained technicians have the equipment, tools, safety instructions and know-how to do a job properly and safely. If a condition is described, do not assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your Porsche Dealer for information on whether your vehicle may benefit from the information. Part numbers listed in these bulletins are for reference only. Always check with your authorized Porsche dealer to verify correct part numbers.

Technical Bulletin	Model	Group
	928 S4	8
Subject: Volume of Refrigerant R 12	Part Identifier	Number
	8700	8806

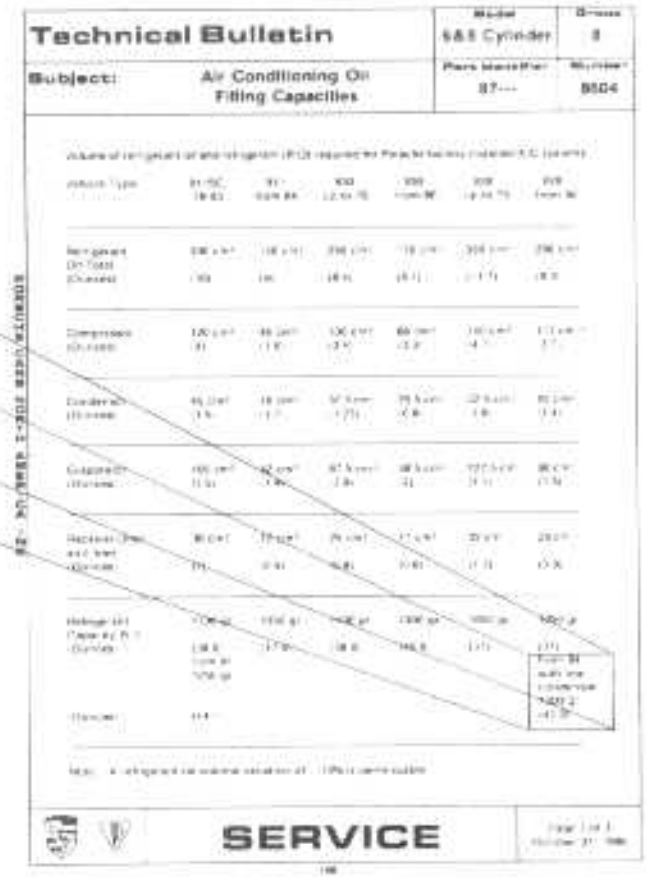
1989 Model Year

A smaller, more efficient condenser is installed in 1989 model cars.

This change means a reduction in the refrigerant volume to 1150 gr. (40.5 ounces).

Affix the supplied sticker to Technical Bulletin Group 8, Number 8604, Book C, page 198 as shown below.

from 84
with rear
evaporator
1200 gr. (42.3)
from 89
1150 gr. (40.5)



Technical Bulletin	Model 928S	Group 9
Subject: Replacement Central Warning Control Units	Part Identifier 9152	Number 8803

Up to and Including Model Year 1983

Replacement central warning light control units, Part Number 928 641 602 01, have modified wiring plug connections.

The 25 pin plugs must be connected 180 degrees turned to each other (was parallel).

Technical Bulletin	Model 911 Carrera 911 Turbo, 928 S4	Group 9
Subject: Whistling Noise From Radio	Part Identifier 9120	Number 8804

Whistling noises from the radio and/or tape player with the engine running could be caused by a bad ground connection for the radio or radio booster.

Ground points (MP) for radio and booster:

911 Carrera and 911 Turbo

MP I is in the front compartment between the battery and fuse box. Check for tightness, corrosion and wire terminal crimping. Repair as necessary.

928 S4

MP V above central electric board. Check for tightness, corrosion and wire terminal crimping.

If no improvement, disconnect existing ground wire from booster and tape the terminal. Install a new 4mm gauge ground wire approximately 180mm long. Connect terminal to one of the booster mounting bolts.

Technical Bulletin	Model	Group
	928S, 928 S4	9
Subject: Interior Light/Alarm System Self-activation	Part Identifier	Number
	9607	8805

Model Year 1986 and 1987

If the interior lights and/or the alarm system activate by themselves intermittently, the rear lid lock contact switch could be the cause.

With the rear lid closed make sure the wire terminal of the switch does not contact the mounting bolt/bracket for the locking motor.

If necessary bend the wiring terminal away from the locking motor bracket.

Technical Bulletin

Model	Group
928 S4	9

Subject: Loudspeaker Grille Mounting

Part Identifier	Number
9141	8807

The loudspeaker grille mounting has been modified on the 1989 model year cars.

The grille is held in place by locking tabs (Fig. 1). To remove the grille, insert screwdriver or similar tool 2 to 3mm into cutouts as shown in Fig. 2 and gently pry off grille.

Important

Do not insert tool more than 2 to 3mm into cutouts; otherwise speaker could get damaged.

Figure 1

Black arrows: Locking tabs

White arrows: Cutouts

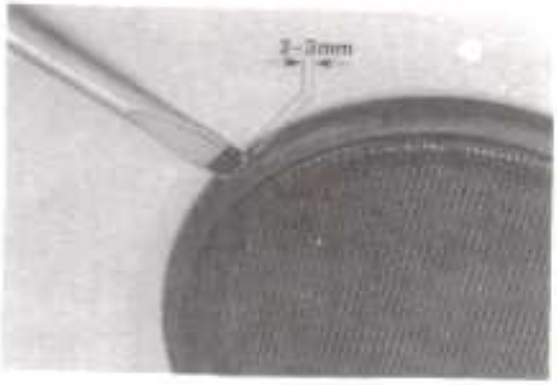


Figure 2

Technical Bulletin	Model	Group
	928S, 928 S4	9
Subject: Repairing Loudspeaker Mounting	Part Identifier	Number
	9141	8808

Model Years 1983 Through 1988

Door speakers that are broken in the area of the mounting screws can be repaired as follows:

1. Unscrew speaker grille and remove speaker.
2. Cut out template (supplied with this Bulletin) according to Fig. 1. Glue template to backside of speaker mounting. For easy alignment hold speaker against light.
3. Using a drill press, support speaker with a piece of wood and drill four 4.5mm holes (see Fig. 1).

   Check hole distance (75.5mm and 108.5mm in Fig. 1) with a vernier caliper.
4. Remove template.
5. The drilled holes must be countersunk on the front side of the speaker. Installed screws should be approximately flush with the speaker mounting surface (Fig. 2).
6. Use black tape to cover the old holes.
7. Install speaker. **Do not over torque mounting screws.** Install speaker grille.
8. Switch on radio and check speaker function.

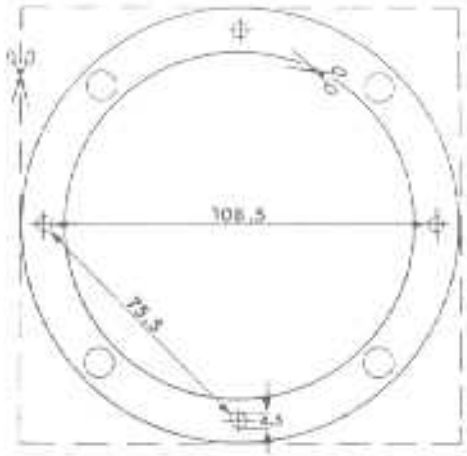


Figure 1

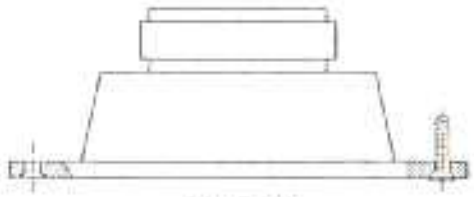


Figure 2

Parts needed: Four screws 4.2x19

Part Number: 900 145 084 07

Required time units:
One door: 50 T.U.
Both doors: 90 T.U.

Attachment to
Technical
Bulletin
Group 9, No. 8808

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