1967-73 SAAB V-4

GENERAL SPECIFICATIONS										
Year	Displ.		Carburetor	HP at RPM	Torque (Ft. Lbs. at RPM)	Compr. Ratio	Bore		Stroke	
	cu. ins.	cc					in.	mm	in.	mm
1967-70	91.4	1498	1-Bbl.	65@4700	85@2500	9.0-1	3.54	90.0	2.32	58.86
1971-73	104	1698	1-Bbl.	65@4700	85@2500	8.0-1	3.54	90.0	2.63	66.80

ENGINE IDENTIFICATION

Engine number is die stamped on upper left surface under thermostat boss. *NOTE — Engines come in three colors; black, silver, and blue. Black and silver engines use short reach spark plugs and blue engines use long reach spark plugs. Do not interchange long or short reach plugs as damage to engine will result.*

ENGINE REMOVAL

All Models Except Sonett — 1) Disconnect battery ground cable and remove headlights and indicator light wiring harnesses. Remove hood. Disconnect windshield washer hose. Drain engine oil and radiator coolant.

2) On 1967-70 models, loosen four screws in front panel and detach two radiator supports. Remove clamping straps from radiator and remove hood lock and control wire. On 1969-72 models, remove headlight decor frames.

3) On 1971-73 models, disconnect hoses for headlight washers. Loosen four screws for front panel and remove radiator supports. Remove clamping straps from radiator and remove control wire. Loosen lower screw for expansion tank bracket and bend bracket so that headlight cleaner motor will clear. Disconnect cables and remove front panel, taking care not to damage paint.

4) Disconnect radiator and expansion tank hoses and remove radiator. Remove air cleaner. Disconnect all hoses and cables from engine and note their locations for reassembly.

5) Disconnect throttle control and engine slide support at cylinder head. Disconnect preheater casing. Remove flange nuts for exhaust pipes at cylinder heads. Remove lower clamps for exhaust pipe at engine mounts.

6) Remove rubber cushions for middle exhaust pipe from under floor. Remove two front engine mounts, working from above. Remove spacers at cylinder heads and lower muffler as far as possible.

7) Remove alternator and mounting bracket. Disconnect water distribution pipe from engine and water pump. Attach lifting sling and lift engine about two inches to clear oil pan. Place stand under transmission.

8) Disconnect starter motor. Remove cover plate in front of flywheel and remove screws attaching clutch housing. Slide engine forward until clutch shaft clears clutch center and lift out engine.

Sonett Models — 1) Disconnect battery ground cable, remove headlights and indicator light wiring harnesses, and remove hood. Drain engine oil and radiator coolant.

2) Disconnect radiator and expansion tank hoses and remove radiator. Remove air cleaner. Disconnect all hoses and cables from engine and note their locations for reassembly.

3) Disconnect throttle control and engine slide support at cylinder head. Remove flange nuts for exhaust pipes at cylinder heads. Remove lower clamps for exhaust pipe at engine mounts.

4) Remove rubber cushions for middle exhaust pipe from under floor. Remove two front engine mounts, working from above. Remove spacers at cylinder heads and lower muffler as far as possible.

5) Disconnect freewheel control from transmission. Remove rear bolt attaching clutch cylinder and hang cylinder aside. Note placement of brake light control.

6) Remove gear shift rod from transmission by removing tapered pins. Disconnect speedometer cable from transmission.

7) Lift front part of floor mat and remove right hand pedal plate so that center screw of rear engine bracket can be removed.

8) Jack up vehicle and place stands to support front of vehicle. Remove large clamps from inner universal joint rubber boots.

9) Attach lifting sling to engine and lift engine about two inches. Slide transmission stub out of rear engine bracket.

10) Loosen inner universal joints, first right then left side. Do this with "T" shaped pieces of drive shaft located vertically and engine pushed over as far as possible in opposite direction.

11) Lift engine out of vehicle and remove transmission, if necessary.

INTAKE MANIFOLD REMOVAL

Removal — 1) Remove air cleaner.

2) Drain engine coolant.

3) Disconnect battery ground cable.

4) Remove distributor cap and ignition cables.

5) Disconnect vacuum hose and primary lead to distributor and remove distributor.

6) Disconnect hoses from radiator and heater.

7) Disconnect fuel line and remove carburetor.

8) Remove valve covers.

9) Remove manifold nuts and bolts and lift off manifold and gasket.

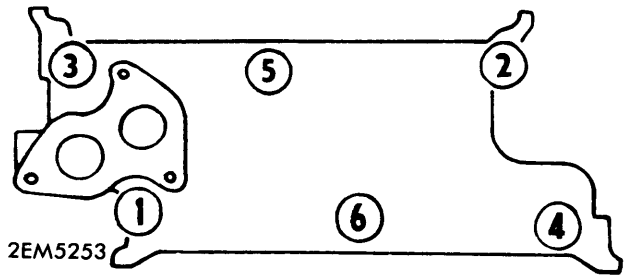
Installation — 1) Apply sealing compound to front and rear edges of cylinder heads where intake manifold contacts cylinder heads.

2) Install intake manifold gasket and position manifold.

3) Tighten screws and bolts to specifications (see illustration).

4) Reverse removal procedure for remaining components.

1967-73 SAAB V-4 (Cont.)



INTAKE MANIFOLD TIGHTENING SEQUENCE

CYLINDER HEAD REMOVAL

Cylinder heads are removed with engine out of vehicle using following procedure:

Removal – 1) Remove air cleaner, distributor cap and ignition cables. Disconnect vacuum line from distributor and remove distributor. Remove valve covers.

2) Disconnect fuel line and remove carburetor. Remove intake manifold nuts and bolts and lift off manifold and gasket. See *Intake Manifold Removal.*

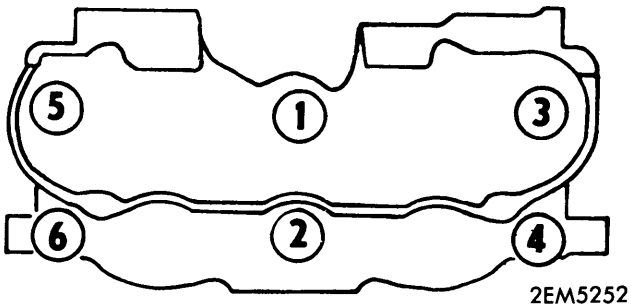
3) Remove rocker arm assemblies by alternately loosening bolts. Remove oil return plates. Withdraw push rods and keep them in proper sequence.

4) Remove head bolts and lift off cylinder heads and gaskets.

Installation – 1) Install head gaskets. Head gaskets are right and lift sides. Place proper gasket in position with markings "FRONT" and "TOP" up and forward on engine.

2) Install head and bolts. Torque head bolts in three stages (see specifications). *NOTE – Outer rear bolt on right hand cylinder head is a special bolt for attaching engine ground cable.*

3) Reverse removal procedures to install remaining components.



CYLINDER HEAD TIGHTENING SEQUENCE

VALVES

Engine & Valve	Head Diam. In. (mm)	Face Angle	Seat Angle	Seat Width In. (mm)	Stem Diameter In. (mm)	Stem Clearance In. (mm)	Valve Lift In. (mm)
V-4							
Int.	1.46 (37.08)	45°	45°	.059-.070 (1.49-1.77)	.3159-.3166 (8.02-8.04)	.00078-.0024 (.02-.06)	.38 (9.65)
Exh.	1.26 (32.00)	45°	45°	.059-.070 (1.49-1.77)	.3149-.3156 (7.99-8.01)	.0018-.0035 (.04-.08)	.38 (9.65)

VALVE ARRANGEMENT

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

VALVE GUIDES

If valve guide becomes worn, it is reamed to fit oversize valve stems. Start with a small reamer using kerosene as a cutting lubricant, ream until guide clearance of nearest oversize stem is achieved. Any time a guide is reamed, valve seat must be refaced to assure proper valve seal.

VALVE STEM OIL SEALS

Remove valve keepers, collars and springs. Slide off old oil seals and install new seals with large opening facing cylinder head. Reinstall springs, collars and keepers. Seals may be replaced with cylinder heads in place. Rotate engine until piston of cylinder to be worked on is at TDC. Using suitable tool remove keepers, springs and collars. Make sure cylinder to be worked on is at TDC, so valve will not fall down into cylinder.

VALVE SPRINGS

Engine	Free Length In. (mm)	PRESSURE (LBS.) Lbs. @ In. (kg @ mm)	
		Valve Closed	Valve Open
V-4 1967	1.78 (45.21)	39-47 @ 1.59 (18-21 @ 40.38)	.....
1968-73	1.91 (48.51)	60-68 @ 1.59 (27-31 @ 40.38)	.....
Monte Carlo & Sonett	1.85 (46.99)	59-66 @ 1.59 (28-30 @ 40.38)	.....

ROCKER ARM ASSEMBLY OVERHAUL

Removal – 1) Remove air cleaner.

2) Disconnect ignition cables from spark plugs and valve covers.

3) Remove valve covers.

1967-73 SAAB V-4 (Cont.)

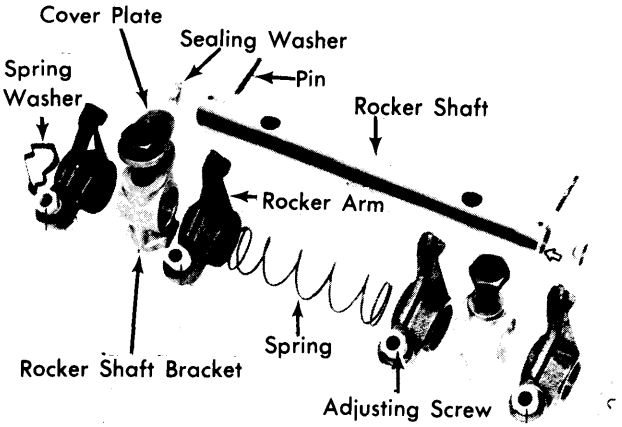
4) Remove rocker arm assemblies by alternately loosening two attaching bolts. Lift off rocker assembly and oil return plate.

Disassembly – 1) Drive roll pins out of shaft.

2) Remove spring washers, rocker arms, brackets and springs.

Reassembly – 1) Drive a roll pin in one end of rocker shaft.

2) Install rocker arms, spring, bracket and spring washers in proper order (see illustration).



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ROCKER ARM ASSEMBLY

3) Install oil holes facing down toward head. Position of oil holes is marked by a grinding mark on end of rocker shaft. Oil hole on right hand head is to rear of engine and oil hole on left hand head is to front of engine.

4) Alternately tighten rocker arm assembly bolts to specifications.

5) Readjust tappets.

6) Before installing valve covers, run engine to make sure rocker arm assemblies are oiling properly.

7) Reinstall all remaining components.

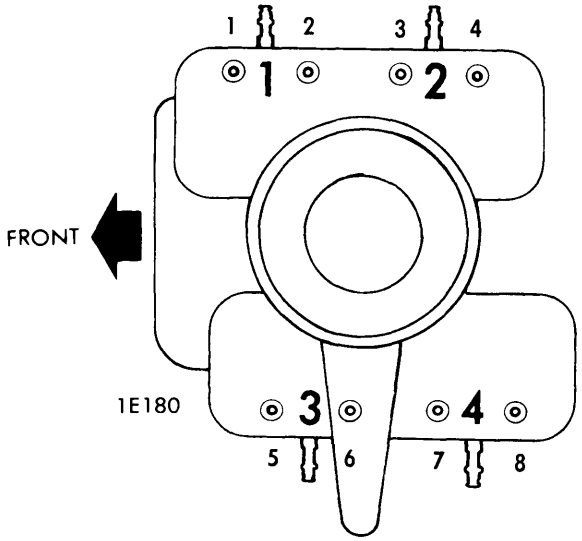
VALVE CLEARANCE ADJUSTMENT

Valve clearances with engine cold are intake .014" (.35 mm) and exhaust .016" (.40 mm).

1) Position mark on pulley opposite TDC mark on timing cover. If crankshaft is rotated slightly back and forth in this position, rocker arms at first and fourth cylinders will rock in opposite directions.

2) Adjust valves and then rotate crankshaft one revolution and adjust remaining valves. If rocker arms at No. 4 cylinder rock, adjust valves No. 1, 2, 4 and 6.

3) If rocker arms at No. 1 cylinder rock, adjust valves No. 3, 5, 7 and 8.



VALVE NUMBERING SEQUENCE

PISTONS, PINS, RINGS

Engine	PISTONS	PINS		RINGS		
	Clearance In. (mm)	Piston Fit In. (mm)	Rod Fit In. (mm)	Rings	End Gap In. (mm)	Side Clearance In. (mm)
V-4	.0011-.0024 (.02-.06)	.....	.....	Comp.	.010-.020 (.25-.50)	.0015-.003 (.03-.07)
				Oil	.015-.055 (.38-1.39)	.001-.008 (.02-.20)

OIL PAN REMOVAL

Removal – With engine out of vehicle, remove oil pan bolts and lift off oil pan and gasket.

Installation – 1) Insert rubber seal in groove in rear main bearing cap. Apply coat of sealing compound to two corner joints where timing cover, intermediate plate and edges of oil pan meet.

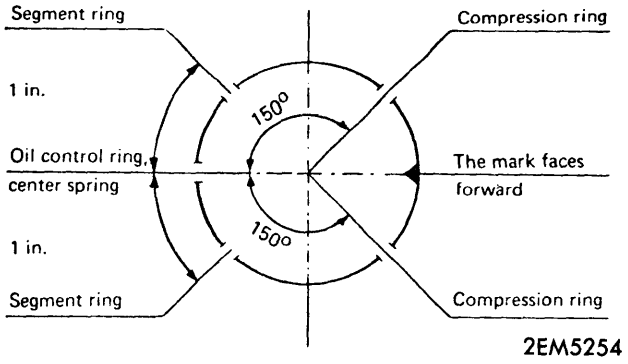
2) Position oil pan gasket on block and insert two tabs on cork gasket under recesses in rear bearing cap rubber seal. Install oil pan, placing two bolts with rubber washers at rear balance shaft bearing. Tighten all bolts to specifications.

PISTON & ROD INSTALLATION

Install and position rings on pistons (see illustration). Insert piston and rod in cylinder with notch on piston crown facing

1967-73 SAAB V-4 (Cont.)

forwards and rod and cap numbers mated side by side. Torque rod bolts to specifications. *NOTE — Always use new connecting rod bolts when reassembling rods.*



PISTON RING GAPS

PISTON PIN REPLACEMENT

Piston pin cannot be replaced as an individual item. It is shrink fitted in connecting rod and must be replaced as a piston and connecting rod assembly.

FITTING PISTONS

Check ring clearance in grooves. Measure piston thrust face at bottom of skirt. Take cylinder bore measurements at several different depths. If clearance is excessive replace piston. Pistons come as piston/connecting rod assemblies only.

Check end gap of rings by placing ring in cylinder and using a piston to position ring. If end gap is to close file ends of ring to specifications. If end gap exceeds specifications install a larger ring. Chrome plated compression ring goes in top groove and stepped ring goes in second groove with step facing downward.

CRANKSHAFT MAIN & CONNECTING ROD BEARINGS

Engine	MAIN BEARINGS				CONNECTING ROD BEARINGS		
	Journal Diam. In. (mm)	Clearance In. (mm)	Thrust Bearing	Crankshaft End Play In. (mm)	Journal Diam. In. (mm)	Clearance In. (mm)	Side Play In. (mm)
V-4							
Red	2.2437-2.244 (56.98-56.99)	.00047-.00188 (.01-.04)	Center	.004-.008 (.10-.20)	2.1255-2.1256 (53.98-53.99)	.00055-.0021 (.01-.05)	.....
Blue	2.2433-2.2437 (56.97-56.98)	.00047-.00188 (.01-.04)	Center	.004-.008 (.10-.20)	2.1252-2.1255 (53.97-53.98)	.00055-.0021 (.01-.05)	.....

REPLACEMENT BEARINGS

Standard bearing inserts are supplied in two different thicknesses. They are identified by either a red color dot or a blue color dot. Red bearing inserts increase and blue bearing inserts decrease clearance. Inserts are also available in undersizes.

CONNECTING RODS & MAIN BEARINGS

Use the Plastigage method to determine bearing clearances. When replacing standard bearings, first try to obtain correct clearance by installing red bearing inserts regardless of color that engine, bearing caps, crankshaft and connecting rods are marked. If red inserts are too loose, use a red and blue or two blues. If clearance is excessive with two blues, regrind crankshaft to first undersize.

Before fitting rear main bearing cap, apply sealing compound to the rear parting surfaces of the block and bearing cap. With inserts installed, place front and center main bearing caps with arrows facing to front of engine. Torque bearing caps to specifications. See *Thrust Bearing Alignment*. Install connecting rods with piston and rods facing in proper direction and rod and cap numbers matched. Using new rod bolts, torque to specifications.

THRUST BEARING ALIGNMENT

With main bearing caps installed, tighten front and rear bearing caps to specifications. Tighten center main bearing cap finger tight. Press crankshaft forward and pry center main bearing to rear. While holding crankshaft in this position tighten center main bearing cap.

REAR MAIN BEARING OIL SEAL

1) With clutch and flywheel removed, pull out seal using suitable tool (Saab Tool No. 786216).

2) Lubricate inner diameter of new seal and press into place using suitable tool (Saab Tool No. 786217).

ENGINE FRONT COVER

The timing cover may be removed with engine in vehicle. If cover is removed in vehicle, front section oil pan gasket will probably be damaged. As oil pan cannot be removed with engine in vehicle, a new pan gasket will be cut and glued to pan, replacing section exposed by timing cover removal.

Removal – 1) With engine removed from vehicle, remove fan and fan pulley.

2) Remove oil pan.

3) Disconnect hoses from water pump.

4) Remove balance shaft pulley.

5) Remove attaching bolts and withdraw timing cover.

Installation – 1) Apply a thin coat of sealing compound to timing cover joint face. Place gasket in position on timing cover. Locate timing cover to block and center it with suitable tool (Saab Tool No. 786214) until all bolts are tightened.

2) Reinstall pulleys and oil pan.

ENGINE FRONT COVER OIL SEAL

With timing cover removed, drive out old seal and drive in new seal.

1967-73 SAAB V-4 (Cont.)

CAMSHAFT			
Engine	Journal Diam. In. (mm)	Clearance In. (mm)	Lobe Lift In. (mm)
V-4			
1967-72			
Front	1.6402-1.6404 (41.66-41.67)	.0009-.003 (.02-.07)	.256 (6.50)
Center	1.6244-1.6255 (41.25-41.28)	①	
Rear	1.6094-1.6105 (40.87-40.90)		
1973			
Front	1.6344-1.6355 (41.51-41.54)	.0009-.003 (.02-.07)	2.56 (6.50)
Center	1.6194-1.6205 (41.13-41.16)	①	
Rear	1.6044-1.6055 (40.75-40.77)		

① – End play is .001-.003" (.02-.07 mm).

CAMSHAFT & BEARING REPLACEMENT

Removal – 1) With intake manifold, cylinder heads and timing cover and gears removed, remove fuel pump and fuel pump push rod. Mark end of push rod that rests against fuel pump for reassembly.

2) Using a piece of bent wire inserted in small holes below tappets, lift out tappets and retain in correct order.

3) Remove attaching bolts and thrust plate.

4) Carefully slide camshaft out of block. *NOTE – Camshaft can be removed only from front of engine even if rear cover plate is removed.*

5) Drive Woodruff key out of camshaft and remove spacer.

Installation – 1) Lubricate camshaft bearings and install camshaft.

2) Spacers come in two thickness, red spacer (thin) and blue spacer (thick). Select spacer giving proper end play for camshaft. Install spacer on camshaft with countersunk side facing camshaft. Install Woodruff key.

3) Reinstall cover plate with plate positioned to cover main oil gallery hole.

4) Reverse removal procedures for remaining components.

CAMSHAFT & BALANCE GEAR REPLACEMENT

NOTE – Timing gears may be replaced separately. Camshaft gear may be removed with engine in vehicle after removing front panel and radiator. Engine must be removed when replacing crankshaft and balance shaft gears.

Removal – 1) With timing cover removed, loosen camshaft and crankshaft mounting bolts.

2) Rotate crankshaft until timing marks are aligned.

3) Remove bolt and washer from camshaft gear, pull off gear by hand.

4) Remove balance shaft gear.

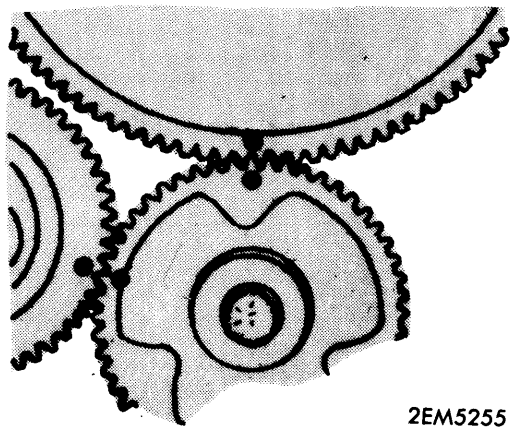
5) Using a suitable gear puller (Saab Tool No. 786218), pull off crankshaft gear.

Installation – 1) Reinstall key in crankshaft and slide gear onto shaft. Install bolt and washer and tighten to specifications.

2) Rotate gear until timing mark faces camshaft.

3) Install balance shaft gear and camshaft gear with their timing marks properly aligned. Install bolts and washers and tighten to specifications.

4) Reinstall timing cover and oil pan.



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TIMING GEAR MARKS

BALANCE SHAFT REMOVAL

Removal – 1) With timing cover and flywheel removed, remove attaching bolt and slide balance shaft gear off of balance shaft.

2) Using a plastic mallet, drive balance shaft sealing plug and balance shaft out the rear of engine.

3) Inspect shaft and bearings for wear or damage, replace if necessary.

Installation – 1) Install balance shaft through rear of engine.

2) Insert new sealing plug and drive in place with a plastic mallet.

3) Install balance shaft gear properly aligning timing marks. Torque attaching bolt to specifications.

4) Reinstall timing cover and flywheel.

VALVE TIMING				
	INTAKE		EXHAUST	
Engine	Open (BTDC)	Close (ABDC)	Open (BBDC)	Close (ATDC)
V-4	21°	82°	63°	40°

VALVE TIMING

With timing cover removed, rotate engine until timing marks are properly aligned. If marks will not come to proper alignment, remove camshaft or balance shaft gear and reposition shaft until gear will slide on in proper position.

1967-73 SAAB V-4 (Cont.)

ENGINE OILING

ENGINE OILING SYSTEM

Lubrication system is a force feed type with a full flow oil filter. A rotor type oil pump located in the crankcase and driven by a shaft connected to distributor drive gear provides oil to all parts of the engine. Oil pump forces oil through the oil filter. After leaving oil filter, oil travels through a drilled passage in engine block to an oil gallery. One secondary passage from this main passage goes to the rear balance shaft bearing. From oil gallery passages go to crankshaft main bearings, camshaft bearings, rocker arm assemblies and front balance shaft bearing. Connecting rods receive oil from passages in crankshaft which are connected to main bearing journals. A spray hole in connecting rods lubricates pistons and cylinder walls.

Crankcase Capacity – 3.3 qts. with filter.

Oil Filter Replacement – Replace 6,000 miles.

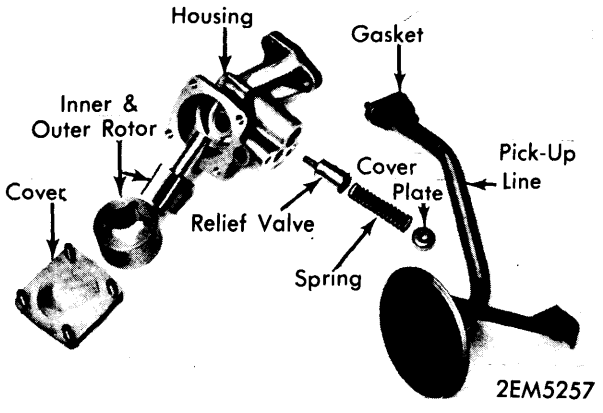
Normal Oil Pressure – 47-55.5 psi. (3.3-3.9 kg/cm^2).

Pressure Regulator Valve – Non-adjustable.

OIL PUMP

Removal – 1) With oil pan removed, remove attaching bolts from oil pump and pick-up tube.

2) Lift off oil pump and remove drive shaft.



OIL PUMP

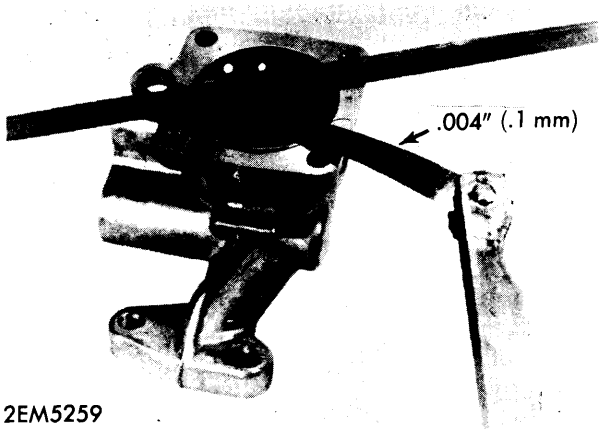
Overhaul – 1) Unscrew pick-up line from oil pump.

2) Remove pump cover and withdraw inner and outer rotor from pump housing.

3) Make a hole in relief valve cover plate. Screw in a self-tapping screw and pry out cover plate.

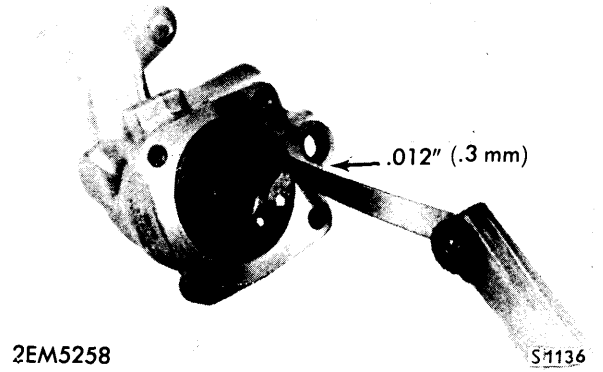
4) Remove spring and oil relief valve.

5) Insert new inner and outer rotors in pump housing. Lay a straightedge across pump face and check clearance (see illustration). Grind either pump face or rotor faces until proper clearance is achieved. *NOTE – Inner and outer rotors are replaced as matched pairs only.*



ROTOR SIDE CLEARANCE

6) Check clearance between outer rotor and pump housing (see illustration). If maximum permissible clearance is exceeded, replace pump housing.



ROTOR RADIAL CLEARANCE

7) Install relief valve and spring, coating them with oil. Install new cover plate with flat side facing outwards. Press plate in until it bottoms against stop.

8) Install rotors and cover and tighten bolts to specifications. Insert drive shaft and check that pump turns freely.

9) Install pickup tube and new gasket to pump housing.

1967-73 SAAB V-4 (Cont.)

ENGINE OILING (Cont.)

Installation – 1) Insert drive shaft into engine block with pointed end facing distributor. *NOTE – Holding ring is located 5.02" (127.5 mm) from pump end of drive shaft.*

2) Using a new gasket, push oil pump onto drive shaft. Tighten oil pump bolts and then pickup line bolt to specifications.

NOTE – In 1973 a gasket is no longer used between oil pump and engine block.

Oil Pump Specifications

Rotor Side Clearance	.004" (.1 mm)
Rotor Radial Clearance	.012" (.3 mm)
Drive Shaft	
Holding Ring-to-Pump End	5.02" (127.5 mm)

ENGINE COOLING

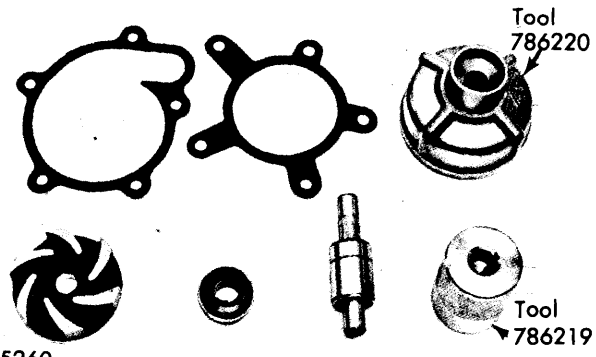
WATER PUMP

Removal – 1) Drain coolant from radiator.

2) Remove alternator and its bracket and take off fan belt.

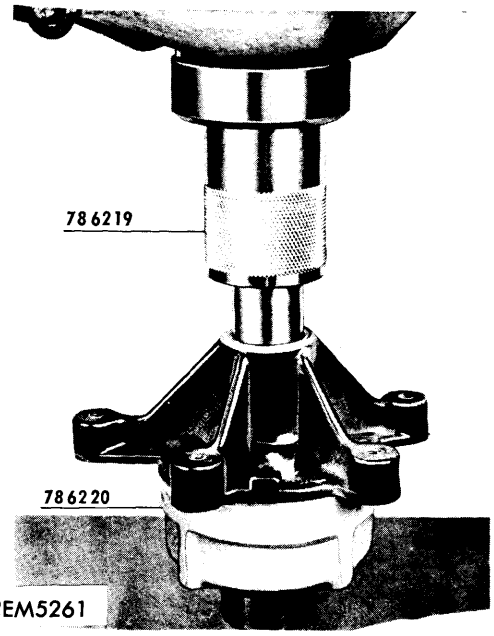
3) Loosen water pump bolts, but let them remain in timing cover. Remove water pump.

NOTE – A water pump repair kit and tools are available (see illustration).



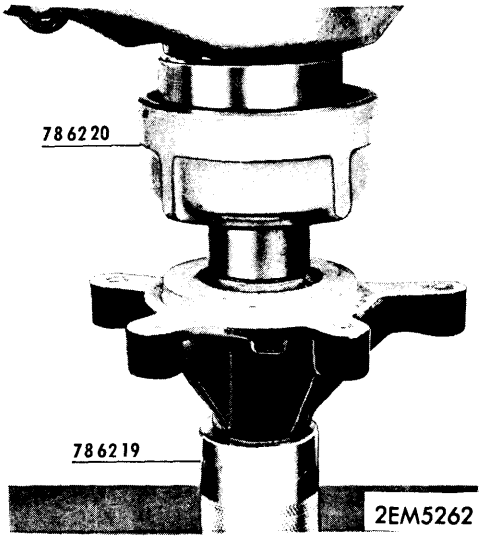
WATER PUMP REPAIR KIT

Disassembly – Using suitable drift and press, press pump shaft, bearing, and impeller out of pulley and pump housing. Discard all parts except pulley and pump housing.



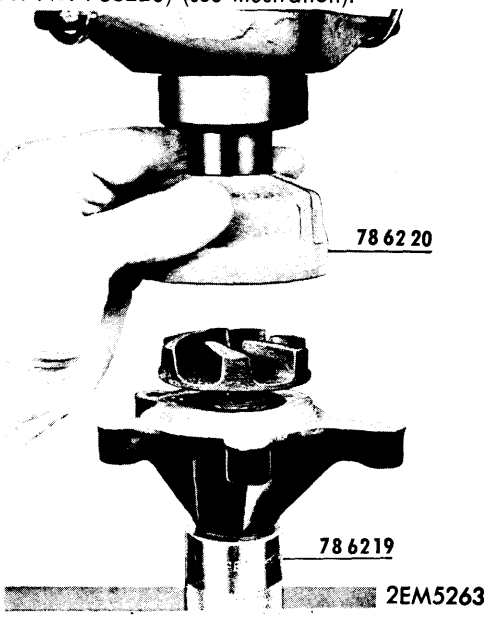
INSTALLING PUMP BEARING

Reassembly – 1) Place pump housing on suitable tool (Saab Tool No. 786220) and press long end of shaft into upper pump housing face with aid of suitable tool (Saab Tool No. 786219), short hole (see illustration). *NOTE – Coat outer face of bearing with Loctite before installation.*



INSTALLING PUMP SEAL

2) Place housing in reverse position using suitable tool (Saab Tool No. 786219 and 786220). Place on pressing table. Position seal and press it in firmly with small edge of suitable tool (Saab Tool No. 786220) (see illustration).



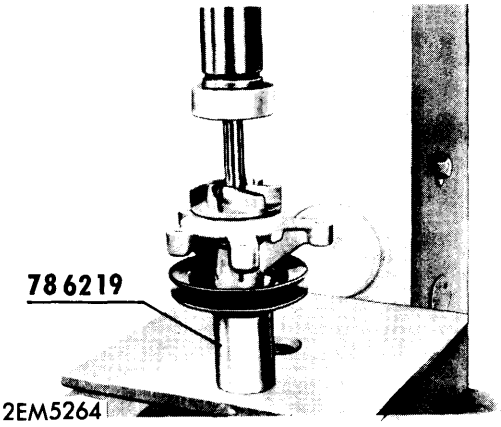
INSTALLING IMPELLER

1967-73 SAAB V-4 (Cont.)

ENGINE COOLING (Cont.)

3) In the same position, mount impeller on pump shaft and press it on with suitable tool (Saab Tool No. 786220), until it bottoms out (see illustration).

4) Install pulley in suitable tool (Saab Tool No. 786219), and press with a mendrel on pump shaft until shaft protrudes .03-.08" (.76-2.03 mm) beyond pulley (see illustration). *NOTE – Press on pump shaft and not on impeller.*



INSTALLING PUMP PULLEY

Installation – 1) Reinstall water pump and new gasket.

2) Reverse removal procedures for remaining components.

THERMOSTAT

Removal – 1) Drain radiator.

2) Remove air cleaner and carburetor.

3) Disconnect water hoses.

4) Remove bolts attaching thermostat cover. Lift off cover and remove thermostat.

Testing – Place thermostat with a thermometer in a pan of water. Heat water and see if thermostat opens at 181°-189°F. Then place thermostat in cold water and see if it closes. Replace thermostat if defective.

Reassembly – *NOTE – Thermostat retaining bracket must be perpendicular to longitudal axis of vehicle, otherwise bracket will be squeezed by water outlet tail piece.*

1) Insert thermostat with bridge side up, position new gasket and attach upper fitting.

2) Reconnect water hoses.

3) Reinstall air filter and carburetor.

4) Refill cooling system.

Cooling System Chart

Cooling System Capacity with Heater:	
1969	7.2 qts.
1969 USA	7.5 qts.
1967-68	7.9 qts.
1970-72	8.0 qts.
Thermostat Opening	181°-189°F.
Radiator Cap	
(1967-72)	2.2-4.3 psi (.15-.30 kg/cm²)
(1973)	7.55-10.3 psi (.53-.72 kg/cm²)

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (mkg)
Main Bearing Cap	72 (9.9)
Connecting Rod	25 (3.4)
Crankshaft Gear	36 (4.9)
Flywheel-to-Crankshaft	50 (6.9)
Camshaft Thrust Plate	15 (2.0)
Camshaft Gear	36 (4.9)
Cylinder Head in Three Stages	
Stage 1	40 (5.5)
Stage 2	50 (6.9)
Stage 3	68 (9.3)
Intake Manifold up-to and incl. Chassis No. 95/66, 249, 96/524.379 in 2 Stages.	
Stage 1 Bolts	3-6 (.4-.8)
Stage 2 Bolts	16-21 (2.2-2.9)
Stage 1 Nuts	2-4 (.3-.4)
Stage 2 Nuts	11-13 (1.5-1.7)
From Chassis No. 95/66.250, 96/524.380	
Stage 1 Bolts & Nuts	3-6 (.4-.8)
Stage 2 Bolts & Nuts	15-18 (2.0-2.4)
Intermediate Plate-to-Block	15 (2.0)
Timing Cover	15 (2.0)
Water Pump	7 (.9)
Pulley-to-Balance Shaft	36 (4.9)
Oil Pump-to-Block	11 (1.5)
Oil Pan	4 (.5)
Thermostat Housing	15 (2.0)
Valve Cover	4 (.5)
Rocker Shaft Bracket	32 (4.4)