1. General:

We thank you for purchasing a Bols Motoren B.V. product and wish you and the end user many hours of pleasant driving.

The success of this transaction and thus your satisfaction are determined by 2 factors:

- Quality of the product supplied
  Bols Motoren B.V. has done everything to ensure the quality of the product supplied.
- Quality of fitting
  We would also ask you to take a close look at these fitting instructions to avoid any problems or inconvenience.
  Damage resulting from incorrect fitting does not come under the warranty.

If however problems do arise at a later stage, please contact our company immediately.

We would advise you, when dismantling and fitting, always to use the manufacturer's original specifications. Only if these are not available, should these general instructions be used.

On this page you will find fitting instructions of a general nature.
The specific technical information that applies to your product can be found by clicking on the button "specific product information" and then using a menu and go to our web shop and look for the information you want.

2. Reception:

- Check the product on receipt for any transport damage.
  If you spot this type of damage, you must make a note of this on the driver's consignment. Only then can the damage be claimed for with the insurance of the relevant haulier. If you fail to do so and sign the consignment note as correct, you may no longer put in a claim and any related costs are charged to you.
  If possible, take photos of the damage. This can simplify things and speed up the process.
- Check that the product type delivered is the right one. Here pay particular attention to the holes for the wires in the block, and also the fastening points for the different sensors.
  We supply some products with temporary pats. (Distribution cover, oil suction sieve, crank case and or flap cover)
  If this is the case, you must replace this at your cost with the parts of your old motor. Before changing, you must give these parts a good cleaning and check them for quality.

3. Tracing old damage:

To prevent the newly delivered product experiencing the same damage as the old part, the cause of the old damage must be traced and removed. Here you should consider for example:

- Air intake system;
  - Check the quality of the air intake system. Leaks in this can allow dirt or dust through that will lead to increased wear and tear
  - Check the intake manifold for the presence of foreign and/or broken parts. Knock it to make sure it is empty and then blow it out with air.
  - Check the gasket surface of the intake manifold.

- Cooling; optimum cooling is of vital importance in terms of the life of your product.

- Check that the radiator is working
- Check that the ventilator, sensors and thermostat are working
- Check de working van de viscous coupling unit
- Check the cap of the radiator and/or expansion tank
- Check the quality of the water hoses and hose clips
- If we have not supplied the water pump, you must check your old pump for the quality of the bearing, the retainer ring and excessive corrosion.
- Check rubber sealing strips and baffle plates to ensure good air flow. Dirt from the ventilator can also cause vibrations.

- Fuel supply system; with an incorrect ratio of the fuel mix, overheating and/or excessive wear and tear of piston rings and cylinders may occur.
  - Check the quality of the fuel filter. This can also lead to differences in the ratio of the fuel mix.
  - Check the diaphragm of the feed pump. A leaking diaphragm can lead to dilution of the motor oil, which in turn can lead to bearing damage.
  - Have a specialist check the intake parts. The correct setting and injection timing are of vital importance in terms of the performances of the motor.
    An incorrect setting and/or injection timing can cause excessive wear and tear and lead to bad motor performance.
  - Have the injectors checked by a specialist. A leaking injector can for example cause direct piston damage.

- Ignition system; the quality and the point of ignition determine to a significant extent the life of the motor and also the performance.
  - Check the different parts of the motor management system with special testing equipment.
  - Check the ignition system point in older ignition systems.
  - Check the hoses and the diaphragm of the vacuum unit

- Crank case ventilation system; a blocked crank case ventilation system will cause increased pressure in the crank case and may lead to oil retainer rings and seals leaking.

- Exhaust system; check in the exhaust system that the passage is not blocked by the presence of broken parts.

4. Assembly

Take the time to fit the product the right way. Ultimately this will prevent problems and you will save you a lot of expensive time. As far as possible, fit any modification parts to the product on your workbench and not later in the motor area. This is more pleasant for you and you have better control of your own work.

- Cleaning
  - Begin with the cleaning of the motor compartment; this is considerably more pleasant for you and gives an extra service to your customer.
  - Clean all mounting parts of your old motor that you need when constructing the building of the product delivered. This prevents damage to screw thread and differences in the tightening strains.
  - Carefully clean all parts required in the assembly, before fitting these. Think here for example of: injection pipes, intake system, exhaust system, crank case ventilation system, the different parts of the cooling system.

- If the oil cooler is not supplied, this must be cleaned/rinsed.
- If you have purchased a cylinder head, you must also clean (if applicable) the camshaft, pushers, rockers, rocker fulcrum pin. Pay particular attention here to any internal oil channels. Make sure that these are properly open.
- Always check here the quality of the different parts and replace parts if you have any doubts about the quality.
- Make sure that the seals are always fitted the right way, and do not inadvertently block holes.

- Filters
  - Fit a good-quality, new air filter and clean the air filter box
  - Fit a good-quality, new oil filter. When you purchase a motor, a new oil filter nearly always comes with it.
  - Fit a good-quality, new fuel filter. Check the old filter to see if water particles have settled in the fuel supply system. If this is the case, you must clean the whole fuel supply system including the tank.

- Nuts and bolts
  - Stretch bolts must not be re-used.
  - Always tighten nuts and bolts to the specified torque.
  - Always use the specified torque that applies to the type of nut and/or bolt. As the torque depends on the type of bolt and the design, this would otherwise cause damage.
  - Stretch bolts must be tightened to a torque, after which it is always followed by a specific angle tightening.
  - Always check that you have the right information in relation to the tightening strains.
  - The tightening sequence for bolts may be specified and you are asked to follow this exactly.
  - Before the flywheel is fitted, you must check that the holes for the bolts are drilled through the crankshaft. If this is the case, you must smear the screw thread of the de flywheel bolts with a sealing compound.
  - Tighten the nuts and bolts of the injection parts to the right torque. This can definitely prevent problems in the modern motors. Think here of the injector pipes.

- Assembly of cylinder head
  - Never sit a cylinder head on the head surface. This allows you to prevent damage to the flaps and/or the sealing surface.
  - If you have to transfer parts for the flap operation from your old part, these must be well checked for quality.
  - Check the cams of the camshaft for wear and tear.
  - Check cam ladders and rockers for wear and tear.
  - Replace these parts if you have doubts about the quality
  - Make sure the gasket surfaces of the cylinder head are cleaned and free of grease before fitting them on the motor block.
  - Check the motor block for distortion.
  - Remove excessive carbon deposits on the pistons
  - Clean the block surface and make it free of grease.
  - Check that the thickness of the head gasket is correct.
  - Set the head gasket with the right side upwards and make sure it is correctly centred.

- With the head bolts, you must put a small bit of oil/molycote on the thread section and between the head of the head bolt and the washer. Do not put any oil between the washer and the cylinder head itself.
- For tightening the head bolts use the right torque and the right specified tightening sequence.
- When in doubt, replace the hydraulic pushers.
- Adjust the de valve clearance as per the specification. Due to the run-in process of the valve on the seat, we recommend holding the valve clearance a few hundredths of millimetres wider.

- Assembly of motor
  - Make sure that the motor supplied is standing firmly on your work bench. Watch here on which side you set down the product.
  - If you have to move transport parts, you must either use the gaskets supplied or a good quality liquid sealant.
  - Most openings in the motor are fitted with red sealing caps. Only remove these caps when installing the fittings. You will thus prevent foreign parts ending up in the motor and you also prevent dirt in the motor during installation.
  - Fit all fittings with the right tightening strains.
  - Carefully fit the camshaft pulley. Check the retainer ring run surface and make sure the drive key is correctly located on assembly.
  - The camshaft pulley bolt must be tightened to the right torque. In a number of cases, the use of a liquid sealing compound is desired.
  - Fit the distribution carefully as per factory specifications. The tiniest difference here can have serious consequences.
  - Check the setting of the fuel pump with the factory data
  - Fit the injectors with new seals and fire panels.
  - Fit protective caps carefully and check that these do not touch any moving parts.
  - Renew the V-cord/Multi-belt.
  - If an automatic gearbox is fitted, you must carefully press the hollow shaft of the toque converter into the oil pump of the box. When doing so, make sure that the drive cams of the hollow shaft fit correctly into the recesses of the oil pump.
  - To avoid damage to the radiator, we recommend dismantling before the motor is fitted.
  - Use the right lifting equipment to fit the motor in the motor area. This prevents damage when fitting.
  - Check all plug connections on assembly.
  - Use good hoses and hose clips.
  - Use a good quality motor oil and coolant and fill both to the right level. It is important here that the cooling system is properly de-aerated.

5. Starting procedure

Before starting, it is important that you are sure that all parts are firmly mounted, that there is sufficient oil in the crank case, that there is sufficient coolant in the cooling system and that the belt tension is correct.

- In a petrol motor, first remove the spark plugs. In a diesel motor, the fuel supply must go to the cylinders.
- Start the motor off first until it has sufficient oil pressure. If this does not work, then you must de-aerate the lubrication system by filling the oil filter with oil and squirt the oil passage full with an oil can.

- If there is sufficient oil pressure, you can connect the spark plugs or in the case of a diesel motor, open the fuel supply to the cylinders.
- Let the motor start and let it run with increased idling revolutions.
- Closely check the oil pressure and temperature of the motor.
- Add sufficient coolant during de-aeration.
- Check if any oil and/or water leaks appear.
- Adjust the ignition system and carburettor as per specification.
- Check that the whole cooling system works properly. Check that the thermostat opens. Check that the ventilator works.

6. Running-in

- Make sure that the motor comes to the correct operating temperature before loading it.
- Up to 1000 kilometres, you should avoid extreme loads. So change down gear in time so that the motor is not running with low revolutions and a high load.
- Only load the engine to 80% of its capacity.
- Avoid long idling and driving with constant revolutions.
  Do not be too careful either. This means the piston rings do not have the chance to run in the right way and oil consumption can result.

7. Returning old parts

- Remove all oil- and fuel residue from the old part to be returned.
- Seal all wholes with the red caps that were in the product supplied by us.
- Check if the old part is complete. Missing parts is recalculated and as such deducted from the deposit to be credited.
- Pack the old part in the packaging or frame supplied by us.
- Complete the transport note supplied with your information and fax it to the fax number given. After this the haulier will call with you in a few days to pick up the old part.

8. Re-checking

- After 1000 kilometres we recommend you check the motor.
- Check all fixings to see if anything has come loose on vibration.
- Check the oil and coolant levels.
- Check for leaks of oil and/or coolant.
- Replace the oil filter every 1000 kilometres

The abovementioned instructions are of a general nature. Consequently we would clearly point out that Bols Motoren B.V. cannot be held liable for damages resulting from deviations in the aforementioned instructions, in comparison with original instructions from the manufacturer. Neither can Bols Motoren B.V. be held liable for any errors in interpretation and/or printing errors in the information provided by us.

All the staff at Bols Motoren B.V. wish you many hours of pleasant driving.