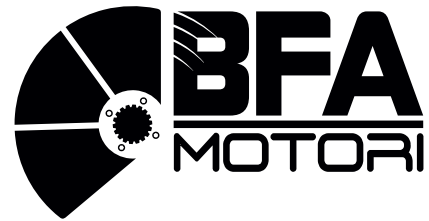




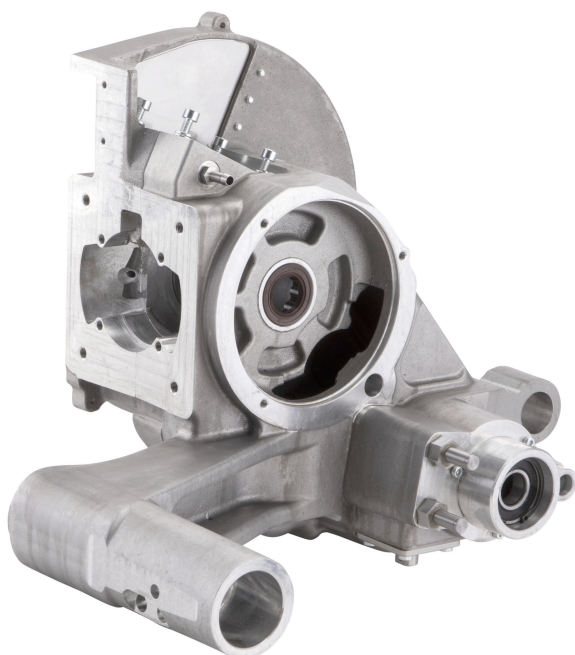
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## SIP – BFA Engine Instruction Manual

Components included in the delivery:

2	23579900	Bolt Brake Pads SIP BFA engine
1	11352680	Counter Bearing Brake Cable
1	11352670	Counter Bearing Clutch Cable
4	23329500	Stud M8x59 mm
4	23329600	Nut M8 mm, copper, AF 10mm, h 6,5mm
1	11352660	Bush input shaft
2	23580010	Bushings SIP casing half
2	47162000	Stud M7x50 mm
4	PI709099	Screw M6x16 mm, inner hexagonal, cilinder head
2	PI831320	Screw M6x12 mm, inner hexagonal, counter sunk
4	23328800	Screw M5x8 mm, inner hexagonal, fillister head
4	23328900	Screw M4x10 mm, inner hexagonal, counter sunk
3	23329400	Screw M4x10 mm, inner hexagonal, cilinder head
1	90004100	Screw / Bolt Kit M8 mm, inner hexagonal, cilinder head
1	23328600	Cover Sheet air duct



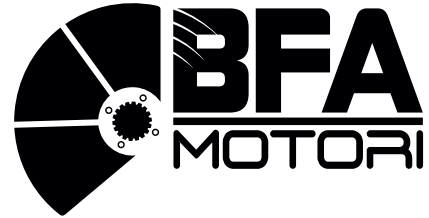
Components not included but recommended or required:

2	17472410	Rubber Engine Mounting Bush engine swing-arm
1	25482401	Rubber Engine Mounting Bush shock absorber
1	78482000	Dust Cover rear wheel
1	97181000	Brake Cam rear
1	16520600	Kickstart Lever Buffer Rubber
1	78245700	Vacuum Connection
or		
1	78247000	Vacuum Connection Blind Plug
1	23328500	Cover Sheet flywheel cover
1	23321700	Cylinder Cowling Vespa T5
1	23515600	Flywheel Cover Vespa T5
1	90056100	Bearing Crankshaft BFA engine flywheel side
1	90056200	Bearing Crankshaft SIP BFA engine clutch side
1	43473600	Bearing driveshaft wheel side
1	90040000	Bearing driveshaft selector box
1	90060000	Bearing input shaft
1	90081000	Needle Set input shaft
1	17019100	Bearing for kickstart shaft flywheel side
1	17019200	Bearing kickstart shaft clutch side
1	91033600	Oil Seal kickstart shaft
1	91033700	Oil Seal crankshaft flywheel side
1	91043000	Oil Seal driveshaft
1	91033800	Oil Seal crankshaft clutch side
1	51106000	Kickstart Lever SIP for SIP BFA engine Rally Style
or		
1	51105000	Kickstart Lever SIP for SIP BFA engine PX Style
1	11352650	Kickstart Gear modified for BFA carter
1	14858000	Kickstart Shaft Rally/T5
or		
1	14857200	Kickstart Shaft PX
1	78245200	Intake Manifold SIP BFA





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## Specific Assembly Details:

### Adapter plate for the flywheel cover/cylinder cowling

This adapter plate (#23328500) allows the flywheel cover and the cylinder cowling to be connected together.

### Brake camshaft

This brake operation camshaft requires faces the engine, to a length of 95mm.



### Main engine casings gasket

The SIP-BFA engine casings use a heat-resistant gasket material between the engine halves.

### Gearbox oil

The SIP-BFA engine casings require 450ml of a 10W/30 (15W/40) gearbox oil.

### Kickstarter rubber:

The SIP-BFA engine casings need just one kickstart buffer rubber to be fitted. Due to their relatively compact internal dimensions the Vespa smallframe kickstart rubber is used and its width must be reduced to 10mm.

### Brake shoe return spring:

The design of these engine casings does not include a small, flat area for a larger diameter brake shoe return spring that can be found on some models to be fitted. We have a smaller diameter return spring (#16115000) available to do the job.

### Kickstarter:

We recommend the use of the Vespa T5 kickstart with the T5 kickstart shaft. The Vespa Rally kickstart is also compatible with the kickstart shaft from the T5. The Vespa PX kickstart and kickstart shaft can also be used but the engine casings will probably require slight modification around the threading for the front lower flywheel cover fixing bolt. The SIP-BFA engine casings have a little less room available for kickstarts that require a nut and bolt to be fixed to the kickstart shaft. To solve this, we also have kickstarts available with an internal fixing thread (#51105000 and #51106000).

### Kickstarter gear:

The SIP-BFA engine casings can only be equipped with a machined kickstart gear (#11352650) with a diameter of 41.4mm.

### Clutch cover:

According to the clutch type and version of clutch cover available, they may require modification to be compatible with these SIP-BFA engine casings. The BFA clutch requires a cover with at least a 122mm internal diameter and 20mm of depth available.

### Clutch:

The SIP-BFA engine casings can be equipped with the BFA cogged clutches, as well as clutch types without this cogged feature. The deciding

factor is the type of crankshaft required for the engine build.

### Crankshaft bearings:

These engine casings are conceived for the use of a fixed bearing (#90056100) on the flywheel side and a needle roller bearing (#90056200) on the clutch side of the crankshaft.

### Flywheel cover:

These engine casings were intended to be combined with Vespa T5 flywheel covers, although other types can be modified to fit.

### Input shaft:

Due to the added size of the crankcase reinforcements and the input shaft mounting, less room is available to fit an input shaft. These require the threaded end to be shortened by 1.2mm.



### Centring bush:

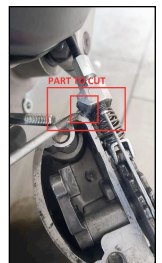
The engine casings are fitted together with the help of two centring bushes (#23580010). The lower bush can vibrate loose and be lost while the motor is running. To avoid this, we recommend that it be secured by using fixing screws at both ends of the centring bush.

### Squish clearance:

The recommended squish clearances for the BFA cylinders are: 306 – 1.7mm / 225 – 1.5mm.

### Gear selector box:

In some cases a corner of the gear selector box may require removal to fit.



### Carburettor:

Due to the confines of the carburettor mounting space, between the cooling channel and the shock absorber, we recommend the use of Dell'Orto PHSA/PHAB/VHSA/VHSB/VHSC carburettors. Their slim-bodied design fits ideally into the available room.

### Ignition:

These engine casings have been optimised to allow the inclusion of our SIP Performance ignition kit (BFA 306 needs Art.-nr.51007320). If another ignition type is used, care should be taken that the flywheel weighs between 1 & 1.8 Kg. Ignitions including an adjustable curve from the IDM ignition type should be programmed for a 25° @ 1500 rpm ignition point.

### Cylinder cowling:

These engine casings were designed for the use of the cylinder cowling found originally on Vespa T5 models (Art.-Nr. 23321700). The only exception is provided by the engine casings designed for use with the ORIGINAL Vespa PX 200cc cylinder. Other cylinder cowlings can also be included but require slight modification.