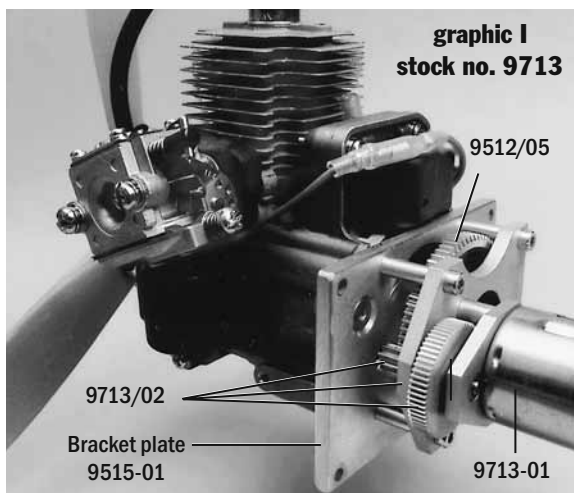


9713 Compact on-board starter for Titan ZG-23SL, Zenoah G23 (aviation engines)

9613 Complete on-board starter for Titan ZG-23SLM, Zenoah G23M (naval aviation engines)



The compact on-board starter 9713/9613 can be attached directly to the aluminium bracket plate which is existing serially on the engine. The bracket plate includes all threads that are necessary for the installation.

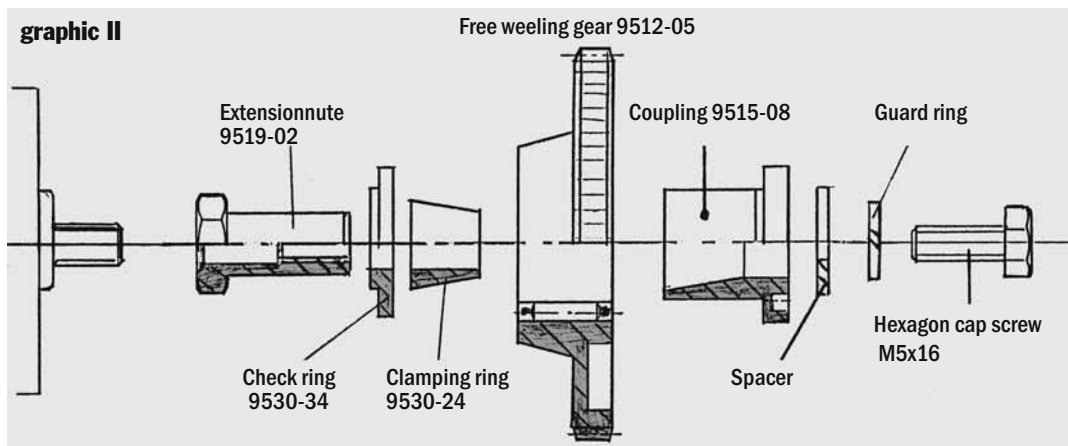
Hint

If you have an engine without bracket plate you can order it under the stock number 9519/01.

Before starting the installation of the compact on-board starter remove the cable control starter and the coupling on the back of the engine.

Install the extension nut 9519-02 onto the thread of the engine shaft. Apply some strong adhesive or lockite onto the flight to secure it (do not install the securing ring). Please check the concentric running of the extension nut. Rework the bearing surface of the flywheel if the extension nut is not running concentrically.

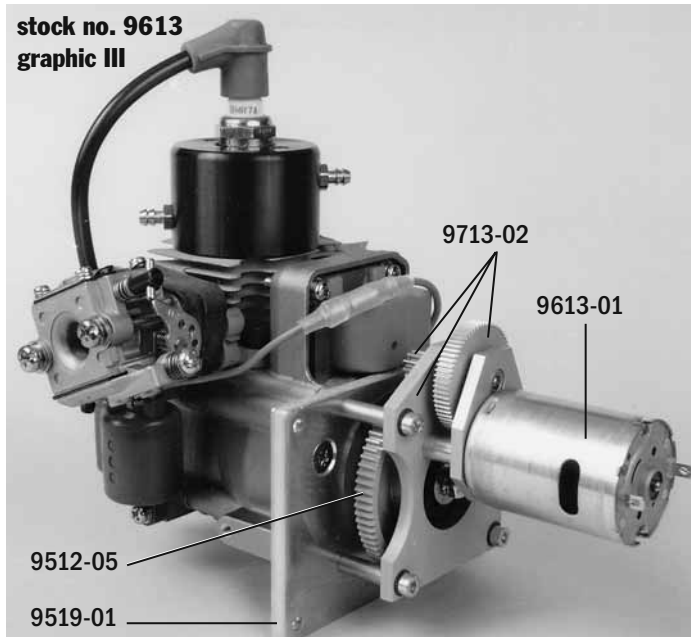
To install the free-wheeling gear see graphic II. First put the check ring 9530-34 and the clamping ring 9530-24 onto the extension nut. Then install the free-wheeling gear 9512-05 with the coupling 9515-08. The next step is to install the starter engine with the pinion 9713-01 or 9613-01 onto the plate including transmission 9713-02 as shown in graphic I. When fastening the screws M3x25 make sure that there is a slight tooth clearance and



that the gearbox can easily be twisted. Now install the complete gear unit on the aluminium bracket plate 9519-01 of the internal combustion engine. Four distance bolts 18 mm long are used as spacers. They are fixed by four screws M4x25 mm. After fastening the screws check the tooth clearance. If the toothed wheels jam or if there is too much tooth clearance the borings in the plate 9713-02 have to be re-filed.

Additionally required parts: 1 NC storage battery 9.6V/ at least 1.0Ah.

stock no. 9613 graphic III



Hint for the naval aviation version;

stock number 9613, graphic III

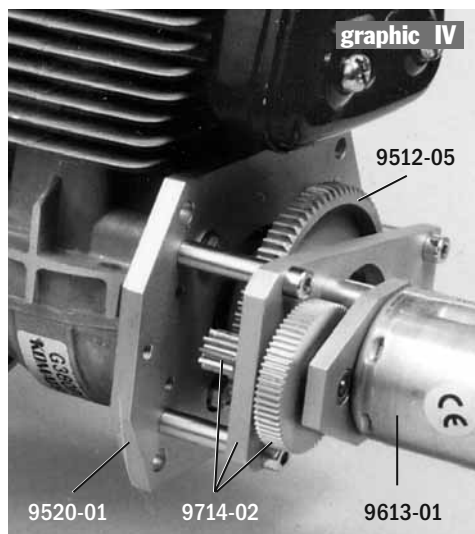
Titan ZG-23 SLM, Zenoah G 230 PU and Zenoah G 23 M with "red field coil" require a high starting speed. It is highly recommendable to use and NC storage battery of 12V and at least 1Ah. We additionally recommend to use a "flywheel" with a weight of ca. 250 g. The flywheel is installed at the output end of the internal combustion engine.

Maximum operating temperature in the free-wheel +70°C.

Important hint

For further information concerning control and operation see enclosed assembly instructions.

9714 Compact on-board starter for Titan ZG-38, Zenoah G38 (aviation engines)



graphic IV

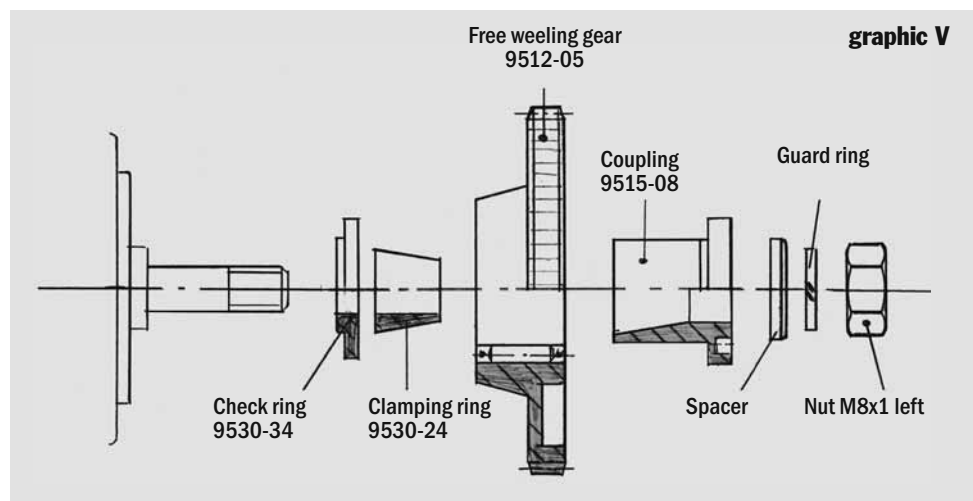
These internal combustion engines are delivered without bracket plate. First install bracket plate 9520-01 – which is included in the kit – according to graphic IV.

Hint

The bearing points for the bracket plate of the Titan ZG-38 are not treated. The bearing points have to be filed plane. Make sure that all bearing points have the same height. You can easily check this by putting on it the bracket plate. The casing has to be re-filed as well if necessary.

After installing the bracket plate the free-wheeling gear 9512-05 is attached. First put the check ring 9530-34 and the clamping ring 9530-24 onto the engine shaft. The collar of the check ring is directed to the internal combustion engine. Then install the free-wheeling gear and the coupling 9515-08 as shown in graphic V.

The installation of the starter engine with the pinion 9613-01 and of the plate including transmission 9714-02 to the complete gearbox unit is identical with the installation of the compact on-board starter 9713.



graphic V

Important hint

For further information concerning control and operation see enclosed assembly instructions.

To avoid a blowback of the internal combustion engine when switching it off we recommend to build in a contact breaker as described at the Titan ZG-62 on page 5.

Additionally required parts: 1 NC storage battery 12V/ at least 1.0Ah.

Spare parts

Naming	9713	9613	9714
Bracket plate	9519-01	9519-01	9520-01
Extension nut	9519-02	9519-02	-
Check ring	9530-34	9530-34	9530-34
Clamping ring	9530-24	9530-24	9530-24
Free-wheeling gear	9512-05	9512-05	9512-05
Coupling	9515-08	9515-08	9515-08
Nut M 8 x 1 left	-	-	9520-02
Starter motor including pinion	9713-01	9613-01	9613-01
Plate includ. transmission	9713-02	9713-02	9714-02