

# When Technology Becomes Motion

The Campagnolo freewheel. What makes it special?

With the exception of having 5, 6, or 7 speeds, the freewheel for professional use has remained unchanged. Then in 1980, Campagnolo began the development of a "super" freewheel. The result was a combination of aluminum, titanium, and steel with an advanced three pawl ratchet system. In the short time since its introduction, the Campagnolo freewheel has become the standard of the Industry.

Campagnolo's freewheel offers three significant advantages:

- 1) lightweight (145 gr. 6 speed 13-18t)
- 2) the patented "helical" clutch eliminates damage to the freewheel body by completely engaging the removal tool (#0520/40)
- 3) three ratchet pawls in the freewheel body (insures operation even if one of the pawls should break.)

Although this freewheel is rugged enough for any application, it was developed for the competition minded athlete. Many professional teams like 7-Eleven, La Vie Claire, and Carrera; as well as individuals like John Howard, Race Across America (RAAM) finisher Michael Shermer, 1985 Winner Jonathan Boyer and 1986 Winner and new record holder Pete Penseyres have equipped their road machines with Campagnolo's freewheel, to mention only a few. Gold medalist amateur teams like Ten Speed Drive/-Campagnolo at the 1986 National Team Time Trial (TTT) and Individual Time Trial events were won on Campagnolo freewheels. Here the product has been subjected to the greatest punishment in the shortest period of time without incident or failure. The consumer can expect the exact same performance from the product.

Since the majority of its parts are aluminum, Campagnolo's freewheel requires maintenance at regular intervals, just like any quality product. However,



it is not uncommon to obtain results better than the above mentioned performances (that exceed 3,000 + miles) when proper maintenance and service is *performed regularly*. With every day use the freewheel's internal mechanism should be lubricated once a month. The new Campagnolo spray lube #08-TH is perfect for this. The cogs should be kept dirt free and the freewheel should be used in conjunction with its own chain to wear evenly. These measures will insure the maximum life of the sprockets. It is recommended, also, that the freewheel body be disassembled at least once a year for cleaning and inspection. The Campagnolo freewheel tool kit (#0521/00) is designed exclusively for this purpose. (It should be noted that it is not possible to perform this task without the proper tools.) At this time, it is also recommended that a new matched set of Campagnolo stainless steel ball bearings (#050074) be installed. While the freewheel is apart we suggest that you inspect the pawls, pawl springs, and body; as well as inspect the cogs most frequently used and replace if necessary.

When reassembling the freewheel body, a light coating of Campagnolo grease #02-ZPT should be used on the bearing surfaces only. This will hold the loose balls in place for fast and easy assembly. (NOTE: never use grease to lubricate the freewheel during regular maintenance periods, use Campagnolo's 08-TH light oil.)

Now you're ready to put the freewheel back together.

With the external portion of the body on the workbench, (big end up), insert the internal portion of the body, (this is the one with the pawls), into the external half and turn counter clockwise. The two halves will engage together. Now, flip the assembled pieces over and tighten the adjustable cone by hand (REMEMBER: this part is left hand thread) as much as possible. Next, place the assembled body on the special Campagnolo platform tool (#5) and tighten the adjustable cone with tool #6 very firmly. Check the body for smooth operation and assemble the individual cogs in their correct order using tool #2. Remember to lubricate the freewheel threads with grease before installing onto the hub.

Here is some useful technical data on the freewheel: Ball bearings - stainless steel, 1/8", matched set of 72 within 1/1000 mm, 41 balls in the big end, 31 balls in the small end. Threading - BSC standard (FR & ITL upon request). Cogs - position F-13, DE-14 and B-16 are produced in titanium alloy for extended wear. Cogs are available from 12 to 28 teeth. Freewheels are available in both 6 and 7 speeds in standard cog spacing. Weights of common size 6 speed freewheels: 12-17 (139gr), 12-19 (143.5 gr), 13-18 (145 gr), 13-21 (158 gr), 13-22 (165 gr), 13-23 (175 gr).

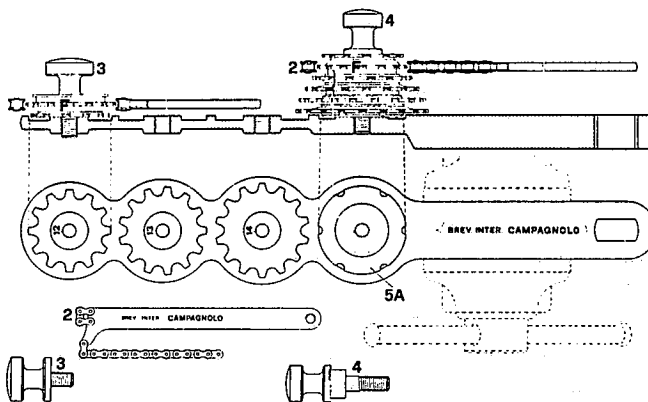
Note: it has been our experience that most broken freewheels are a result of improper removal. One should use only the Campagnolo removal tool (#0520/00) when taking the freewheel off the hub.

# Freewheel Tool Kit



0521/00

NOTE: Freewheel does not come with the Kit; a space is provided for storage of a spare.

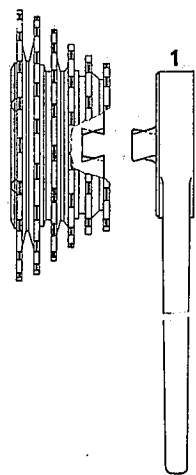
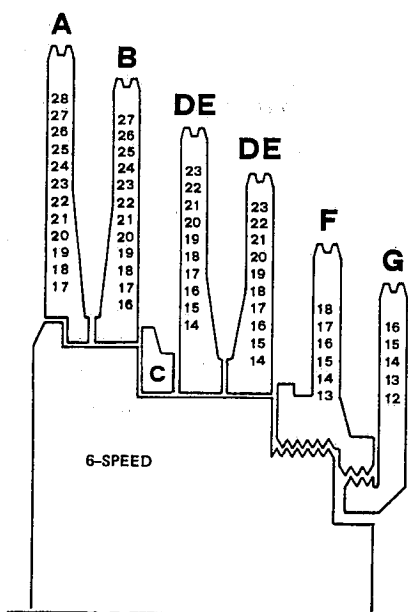


### Instructions for unscrewing the first and second sprocket easily

Settle the smallest sprocket in the slot of the fixed key 5 by means of the screw 3, and by the chain-key 2 wind up the second sprocket (F) and unscrew it.

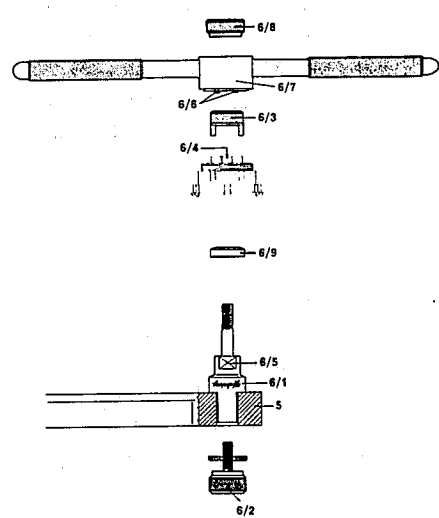
### Instructions to easily remove the various sprockets from the body of the Campagnolo freewheel

Settle the freewheel in the suitable seat 5A and fasten it with the screw 4. By the chain-key 2 always wind up the second sprocket (F) and unscrew.



### Instructions for the eventual assembling and disassembling of the Campagnolo freewheel body

1. Insert in the rectangular hole of the key 5 the axle 6/1 and fix it by the screw 6/2.
2. Insert the freewheel body on the axle 6/1.
3. Engage the two teeth of the ring nut 6/3 in the slots 6/4 of the freewheel body and rotate to insert



the ring nut 6/3 in the peg 6/5, so that the rotation of the body is prevented.

4. Insert the two pegs 6/6 of the key 6/7 in the two slots in the adjusting cone.

N.B. - During the disassembling, screw up to the left ring nut 6/8, which assures that the pegs 6/6 of the key 6/7 do not come out of the slots of the adjusting cone.

