

# Record News

SUMMER 1986

Vol. 2 No. 2

## CHAMPIONS WIN WORLD WIDE WITH CAMPAGNOLO

### GEARING — NEW POSSIBILITIES

The day has been tough. It seems as though you have been hammering at the front of the pack for an eternity. But it is only a few more miles to the end of the race and all of the fast flat miles are history. Now comes the part that will really put you to the test, the final climb to the finish. You reach for the shift lever and go for the 42, pushing forward with your thumb you feel the chain drop onto the inner ring and you pick up the cadence to maintain momentum. Surprise! They didn't mention that there was a "WALL". This is going to be real agony, especially since the rear is already on the 18 and there aren't anymore cogs left on the freewheel. You give it all you have, but it's not enough and the leaders get away. Soon, the pack moves by and you're off the back. The rest of the race turns to a lonely cruise to the line.

Has this ever happened to you? If not in a race, on a club or training ride? Did you ever wish for a slightly smaller gear, or one in between the one you had? If so, equipping your bike with something different than what is standard gearing for a road bike may be in order. With the introduction of the new series, C Record, Victory, and Triomphe components by Campagnolo, alternatives to the customary road bike chain wheel arrangement are now available and possibly more desirable. These new series cranksets are capable of accepting smaller chainrings than the traditional Super Record and Nuovo Record cranksets. The chainring range for the C Record group is from 39 to 57 teeth with 135mm bolt pattern. Both Victory and Triomphe chainrings (#3327/GS are completely

interchangeable (35 to 43T for inner, 50 to 53T for outer) with Gran Sport cranksets (#0304); all have a 116mm bolt pattern. The alternatives available with the new series chainring selections may be used to advantage in different ways depending upon the needs of the rider. It is now possible to create a gearing combination to provide a wider range, better intermediate gear selection, or to reduce-weight while maintaining the same gear range.

The typical road racing bike is equipped with 42 x 53 front chainwheels with a 13-18 freewheel. This combination is usually sufficient for most racers to negotiate the terrain normally encountered in road racing or training situations. Gearing combinations such as this provide an excellent progression for the performance cyclist. However, by substituting a 39 tooth ring for the 42 tooth normally used, it is possible to obtain a 58 inch gear instead of a 63 inch gear without disrupting the intermediate gear intervals. This is virtually the same gear that can be obtained by using a 20 tooth freewheel cog with a 42 tooth chainring, which is 57 inches.

The advantages of keeping a straight block freewheel for a racer are obvious. Consistently spaced, small increment gear spacing enables the rider to maintain maximum efficiency throughout the gear range easier than a gear arrangement that has large gaps in the gears available.

It has not been uncommon for a racer to have a freewheel built up to handle terrain that has severe climbs, with the balance either flat or of steep

descents. This will normally result in sacrificing the intermediate range of gears with something like a 13-14-15-18-20-22 type of arrangement on the freewheel. By using a 39 tooth inner ring with a 20 tooth freewheel it is possible to have virtually the same low, 52 inches, vs. 51 inches for the 42 x 22. The 39 tooth ring does not suffer from a large gap in the middle of the gear range because it is possible to use a freewheel that is of normal configuration such as a 13-14-15-16-18-20. It is immediately apparent that this freewheel configuration will provide a much smoother transition through the gear range regardless of which chainring, inner or outer, is being used at the time.

An additional benefit that can be obtained by using a smaller chainring installation is to reduce the weight of the drivetrain. Using the same 42 x 53 with a 13-18 freewheel as an example the overall gear range is 63 to 110 inches. It is possible to obtain virtually the same gear range, 62 to 110 inches, with a 39 x 49 chainwheel set coupled with a 12-17 freewheel. The smaller and lighter chainrings and freewheel also require less chain than the normally encountered 42 x 53 with 13-18, resulting in additional weight savings.

The advantages offered by smaller chainrings should be seriously considered by all performance minded cyclists. Whether it is to provide a lower gear with the same freewheel, an overall wider gear range, or to retain the same gear range with less weight, any or all of these benefits may be the solution that you are looking for.



# 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).

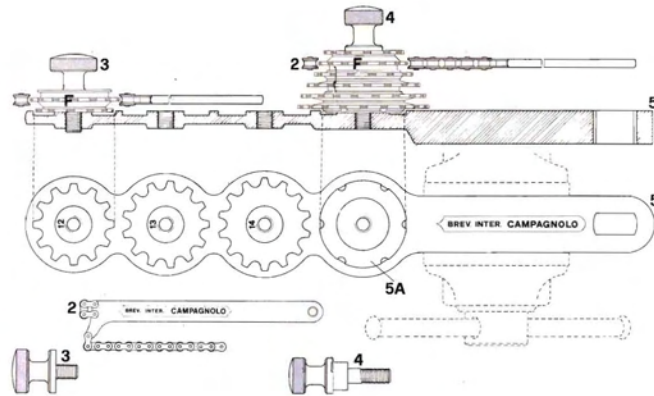
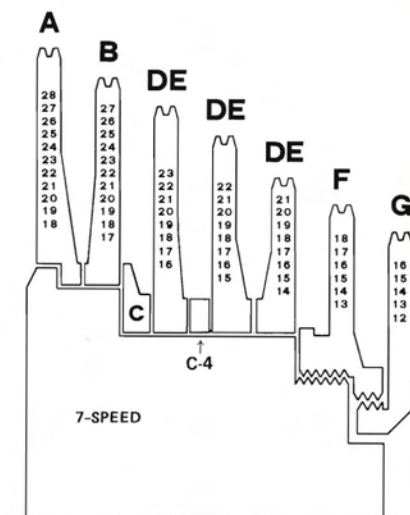
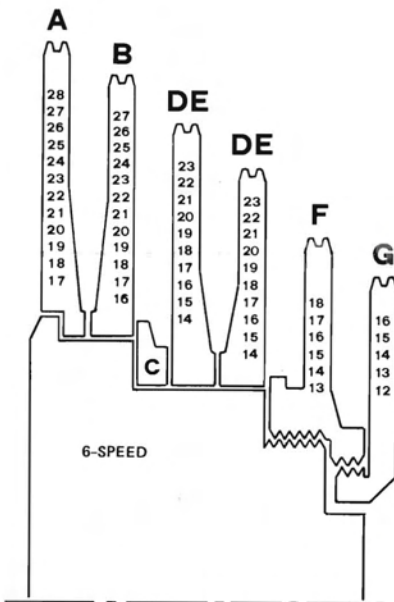
Note: it has been our experience that most broken freewheels are a result of improper removal. One should use only the Campagnolo removal tool (#0520/00) when taking the freewheel off the hub.

# Freewheel Tool Kit



0521/00

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

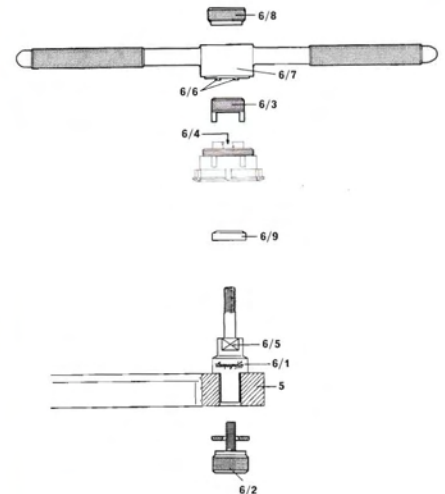
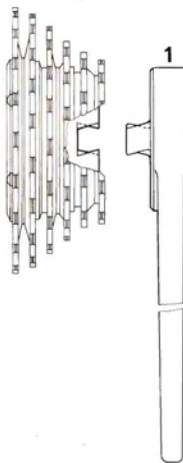


## Instructions for unscrewing the first and second sprocket easily

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.



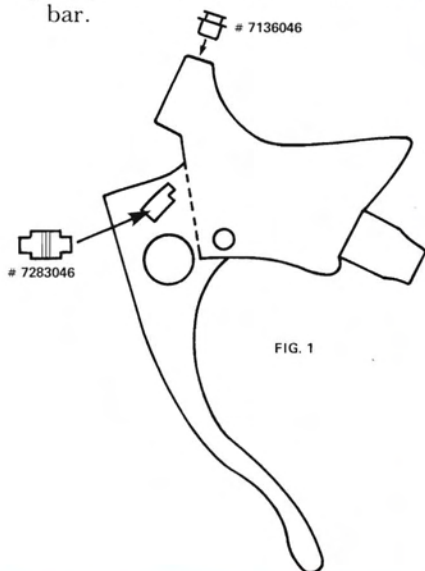
# Cobalto Brake Lever Installation

Since its American debut in January 1986 (BDS EXPO-LONG BEACH) the new Campagnolo "Cobalto" brake set has been enthusiastically received by dealers and consumers, alike. Fashioned after the Super Record caliper brake arch, this new product's center bolt is equipped with a cobalt blue "gem." However, the main attraction of the brakeset is the brake levers; whose handles resemble those of Campagnolo's 50th Anniversary Gruppo.

The C Record brake lever is a new design that permits the brake cable to be routed to meet the needs of the cyclist. By redesigning the body, lever, and gum rubber hood, Campagnolo engineers have made possible the aerodynamic routing of the brake cables without sacrificing brake efficiency or smoothness of operation. In addition, should the cyclist wish to route the cables in the traditional manner, the lever is designed to function this way as well.

Due to the design of the lever body, aerodynamic style installation is easily accomplished. And since the cobalto brake lever provide three (3) different possibilities of cable routing, the athlete should first consider one of the following options:

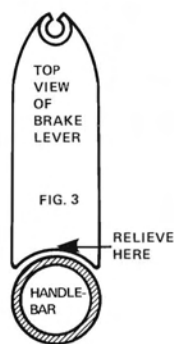
- 1) cable routed directly through the bar.
- 2) cable routed on the front side of bar.
- 3) cable routed on the rear side of the bar.



It should be noted that in these cases, it is necessary to insert the cable guide plate (#7283046) to direct the cable from the pivot pin back through the hole in the body. (see Fig. #1).

At this point it must be determined if the cable is to be routed directly through the center of the handlebar or along the outside. If the cable is to pass through the center of the bar, then the lever must be mounted to determine the location of the hole that must be drilled. After the position of the hole is determined, drill the handlebar and deburr the hole to eliminate the possibility of cable housing damage and to reduce the possibility of bar failure. (Note: this type of installation is not recommended for large riders or those that throw the bicycle side to side.) The preferred method of cable routing to satisfy these types of riders is to run the cables on the outside or inside exterior portion of the bars. For this type of installation, the lever body casting must be modified to allow the cable to exit (see Fig #2). First, remove the gum rubber hood. There is a noticeable indentation in the body on both sides, near the top of the body at the rear. The body is manufactured at these points to allow the easy removal with the use of a rat tail file. And because it is alloy, it is necessary to remove all burrs and smooth out the filed surface.

After completion, install the levers in the desired position and tighten the fixing clip nut. As the lever is drawn up



against the bar, check the top of the body and its proximity to the handlebar. The C Record brake lever body is designed in such a manner that it does not require complete contact with the bar to



mounting. All of the pressure exerted by the tightened fixing clip is designed to be distributed on the middle and lower edges of the lever body.

Should there be contact between the bar and lever body it must be eliminated by filing the body (see Fig #3). Removal of this material is required because the product was manufactured to be used on all types of handlebars. File the top of the lever body to follow the contour of the bar. Upon completion, install the levers. Now install the cables. For aerodynamic installation, Campagnolo engineers suggest the removal of the delrin lining from the cable housing to maintain brake efficiency. (Note: when installing the cable in the traditional manner for the best performance use the cable housing with the delrin liner.) After the cables are installed, wrap the bars. Lastly, install the small rubber plugs (part # 7136046) into the top of the gum rubber hoods to complete the job. (see Fig #1)

To provide optimum braking efficiency and smooth operation, use Campagnolo brake cables and cable housing. The cables are of special construction, prestretched and of unequalled strength. Campagnolo brake cable housing is made of spiral flat wound steel wire; housed in a nylon outer casing with a delrin liner. This combination will provide the most efficient braking with less cable stretch, cable housing compression, and distortion as well as improve the performance of any brakeset. The delrin cable housing liner reduces friction and is self lubricating.

With the C Record brake lever it is now possible to have an aerodynamic type installation that will give the consumer total satisfaction, functionally as well as aesthetically.



## QUICK RELEASES:

*Contact Your Campagnolo  
Distributor for the  
Following New Products:*

1. **Extra large toe clips for Triomphe, Victory, C Record** are now available. #1183023 for steel, #1183024 for alloy.
2. **C-Record Crankarm Extractor** (#1170005) left hand thread for road crank arms.
3. **C-Record Brake Levers** (#0118065) are now available separately. Levers permit conventional or internal routing of brake cables.
4. **C-Record Track Gruppings** (#182) are now available. **Chainrings** (#760/A) are same as **Super Record**.
5. Complete availability of **Crankarms for C-Record Road and Track** (165mm-180mm) as well as **Chainrings** (39T-57T ROAD), (42T-57T Track).  
NOTE: Crankarms should be retorqued after initial installation to ensure optimum fit. Torque requirements are 28.0-32.5 ft pds.
6. Combination **Pedal Dust Cap/Jockey Wheel Cone Wrench** (#7130021) for **C-Record** is available.
7. **Triomphe and Victory Chainrings** are the same as **Gran Sport Chainrings** (#3327/GS).
8. 130mm **C-Record Seat Post** (#316/102) is available. Round version enables user to fully lower the saddle for best fit and maintains a water tight seal like **Nuovo Record** and **Gran Sport** seat posts.
9. Wet weather braking can be improved with the use of **Victory Brake Pads** (#7289004). The rubber compound is specially formulated for wet conditions.
10. **C-Record Hub Dust Cap Extractor** (#1170004) now available.
11. **New Catalogues #18 -(SR/NR/GS) and #18-BIS (C-REC, VIC, TRIO)** now available through your full service distributors.

## Campagnolo C Record Hubs: Which Way Do They Go?

In the short time since its introduction, the Campagnolo C Record Gruppo has been enthusiastically received by discerning purchasers of quality bicycles. Technological refinement, innovative design, and traditional Campagnolo quality all combine to make the C Record Gruppo the components of choice for racers and serious enthusiasts, alike. The C Record Gruppo is also the overwhelming choice of manufacturers as original equipment on the finest bicycles.

One of the components of the gruppo that has changed significantly from its series counterpart is hubs. From the recontoured skewer, with a cleaner, sleeker look; to the all new hub shell with integral contoured dust covers, virtually every part is redesigned. An area that has been changed, as well, is the hub flange. The small flange version has been manufactured with alternately countersunk spoke holes. This is necessary because of the thickness and the design taper of the hub flange. (The large flange hubs are not drilled like the small flange hubs as the inner and outer flanges are parallel.)

As mentioned, Campagnolo manufactures its C Record small flange hubs to be built in symmetric or asymmetric lacing patterns. To determine the spoke pattern for a particular hub follow the procedures outlined below:

1. View the hub from the right hand (threaded) side.
2. Place the hub in front of you end-on, as it would be positioned in the bicycle.
3. Note the location of one of the countersunk spoke holes, in the flange facing (nearest) you. Place a spoke in the hole or **mark** it if necessary.
4. Look directly across the hub from the **first (marked) hole** to the far flange and locate the closest countersunk hole in the far flange.
5. If the countersunk spoke hole in the far (opposite) flange is to the **right** of the countersunk hole in the near flange, the hub will lace up **asymmetrically**.
6. If the countersunk spoke hole in the far (opposite) flange is to the **left** of the countersunk hole in the near flange, the hub will lace up **symmetrically**.
7. Lastly, when building up the wheel, be sure to place the heads of the spokes in to the countersunk spoke holes.

Once you have an opportunity to work with a few C Record small flange hubs, it will become quite easy to determine which offset pattern the hub is.

Actually, all of the above steps can be done in a glance, once you have become acquainted with it.



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## CHAMPIONS WIN WORLD WIDE WITH CAMPAGNOLO

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BERNARD HINAULT WINS THE COORS CLASSIC  
MORENO ARGENTIN WINS THE WORLD CHAMPIONSHIPS PRO RACE  
MARIA CANINS WINS THE TOUR de FRANCE FEMININ  
ANDREW HAMPSTED WINS TOUR of SWITZERLAND  
PETE PENSEYRES WINS THE RACE ACROSS AMERICA  
REBECCA TWIGG WINS THE ORE-IDA WOMAN'S CHALLENGE  
CARL MAXON WINS U.S. NATIONAL INDIVIDUAL TIME TRIAL  
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(KENT BOSTICK, TODD GOGULSKI, CARL MAXON, & ANDY PAULIN)

What do **all** of the above have in common? 2 THINGS.

**ALL** are **WINNERS** in their quest for the gold and. . .

**ALL HAVE WON ON**  
(to mention only a few!)

*Campagnolo*

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