

Sturmey's new offerings

A closer look at the latest from SunRace Sturmey-Archer

Several years have passed since SunRace of Taiwan rescued the asset-stripped remnants of long-established British hub gear maker Sturmey-Archer from the liquidators. SunRace have been very cautious about getting things right before strongly publicising their new product range. However, with the long-awaited launch of their new eight-speed hub, comes a comprehensive 60-page product catalogue (shown below). In this article, we take a look at what SunRace Sturmey-Archer have to offer.

SunRace, hitherto considered by most pundits to be a second-division component manufacturer of rather downmarket derailleurs, were keen to acquire Sturmey-Archer to add hub gear expertise to their palette. This would enable them better to challenge Shimano and SRAM. In retrospect, it is unfortunate that SunRace's first offer was rejected by Sturmey's (and Raleigh's) previous owner, Derby, in favour of Lenark, the fly-by-night firm that acquired Sturmey-Archer for £30, emptied the coffers and 'did a runner'. Had Derby sold Sturmey to SunRace, there would probably still be a Sturmey-Archer factory and workforce

in the UK, albeit smaller than before and heavily supported by far-eastern plants.

As it is, SunRace's European HQ is in The Netherlands. The 'apostolic succession' and continuity with Sturmey's illustrious British past is maintained by Alan Clarke, who worked for many years at the Nottingham plant. SunRace also have an office in the USA. Chief office is, of course, in Taiwan. This is the company's traditional manufacturing base and there is also a facility in mainland China.

PRODUCT RANGES

SunRace have three main product ranges – S, M and R. The Sturmey-Archer products form the S range. The M range comprises competition, performance and recreational derailleur systems. The R (for 'Roots') range consists of road racing derailleur systems, from cheapo entry-level friction-shift 10-speeds to what SunRace describe as "high performance road racing" 18-speed indexed types.

I shall leave it to Frank Berto to comment on the derailleur ranges, should he wish. It's the S range of hub gears and related products that we will concentrate on here.

SPROCKETS

Starting with mundane but important matters, the catalogue shows a comprehensive range of sprocket fittings, lock-washers, wheel nuts, cables, cable adjusters, brake arm clips, fulcrum clips, fulcrum levers and even traditional cable pulleys for diamond-frame down tubes and top tubes. A sensible-looking protective cover has been introduced for the otherwise rather exposed gear selector



guide pulley used with the 5-speed. There are standard and short versions of the traditional flared guide nut through which the indicator rod chain emerges.

Sprockets for 5-speed and 3-speed hubs are now available as follows:

For 1/8" chain, dished sprockets: 22, 21, 20, 19, 18 & 17 tooth.

For 1/8" chain, flat sprockets: 19, 17, 16 and 15 tooth.

The catalogue also shows 14 and 13 tooth flat sprockets but the detailed descriptions of current SunRace Sturmey-Archer 5-speed and 3-speed hubs reveal that nothing smaller than 15 tooth can be used with them. The 14 and 13 tooth sprockets are only suitable for the SunRace Sturmey's CBS single-speed coaster. They **should** work with older, British-made Sturmey hubs but I cannot guarantee this.

I raised the question of smaller sprockets with SunRace's Amsterdam-based Ebert van Fliet. He told me that they have made a special driver (the part of the hub on which the sprocket clips) for a batch of AW 3-speeds ordered by a Taiwanese folding bicycle maker. This driver had the sprocket mounted further away from the ballcup, thus giving enough chain clearance for a 13-tooth sprocket to be used. The standard new 3-speed and 5-speed hub drivers will not work with anything smaller than a 15-tooth sprocket.

SunRace Sturmey-Archer also make a range of 3/32" sprockets. These are a flat 16 tooth and dished 22, 19, 18 and 17 tooth sprockets.

The new 8-speed hubs have much larger diameter drivers than other Sturmey hubs. Only two sprocket sizes are offered, 23 and 25 tooth, both being dished and for 1/8" chain.

SPOKE DRILLINGS

Disappointingly for users of smaller wheel sizes, the catalogue shows all the current Sturmey hubs as being supplied only with 36-hole spoke drillings. However, Ebert van Fliet has confirmed that, in reality, all alloy shells are also available in 28-hole, although they may not be held in stock in Europe. Steel shells can also be supplied in 28-hole but only if ordered in large quantities.

CRANKS AND SHIFTERS

We don't traditionally think of Sturmey-Archer in terms of cranks. (No wisecracks about hub-gear enthusiast, thank you!) However, they now sell four models of cotterless chainwheel/crank arms.

Two of these are available in 42 tooth and one also in 44 tooth. Of particular interest are two ranges specially introduced for use with the new 8-speed hubs. These are both offered with a choice of 33, 36 or 38 tooth chainwheels.

When it comes to shifters, you are almost spoiled for choice. There are five different types for the 3-speeds alone: the classic trigger, the Nimbus 3 thumb-shifter, the Orion 3 shifter (thumb-lever for down-shifts, press-button for up-shifts) and two different twist-grips. The 5-speeds have a similar choice, except that there is no classic trigger option, there never having been one for single-cable 5-speeds.

THE HUBS

Here's the list of current Sturmey-Archer hubs. All bearings are traditional ball cage type, except a couple of ungeared brake hubs which have sealed cartridge bearings. All axles have anti-rotation flats and are 13/32" diameter, unless otherwise stated. Steel shells are silver-painted,

except where described below as having EDSN finish. OLN means over lock nut dimension, the critical 'rear jaw' width between the drop-outs of your frame/rear suspension.

Brake only hubs

CBS single-speed coaster, steel shell, 3/8" axle in 24 or 26 threads per inch, 110mm OLN.

X-RD 70mm rear drum brake, alloy shell, 9mm axle, 135.6 or 129.3mm OLN, sealed cartridge bearings.

X-FD 70mm front drum brake, alloy shell, 9mm axle, 100mm OLN, sealed cartridge bearings.

BF 90mm front drum brake, steel shell with EDSN finish, 3/8" axle, 100mm OLN.

SBF as BF but with silver-painted shell and 70mm brake drum.

3-speeds

The S30/S3S range of 3-speeds descends from the original 1930s AW, designed by William Brown. However, since buying Sturmey-Archer, SunRace claim to have made more than twenty improvements, including stronger pinions and a stronger coaster brake arm. Ratios are unchanged, being direct drive, an increase of 33%, a decrease of 25% and an overall range of 177%. In proportionate terms, there are two equal up-shifts of 33%. The options are:

AW3 with no brake, steel shell, 175, 162.7 or 148mm OLN.

AWB with band/servo brake, steel shell, 3/8" slotted axle, 119.5mm OLN.

AWC with coaster brake, steel shell, 118.7mm OLN.

SAB3 with 70mm drum brake, steel shell, 117.7mm OLN.

AB3 with 90mm drum brake, steel shell, EDSN finish, 117.5mm OLN.

S-RF3 with no brake, alloy shell, 126.8,

118.9, 117.3 or 107.7mm OLN.

S-RB3 with band/servo brake, alloy shell, 3/8" slotted axle, 119.5mm OLN.

S-RC3 with coaster brake, 118.7mm OLN.

X-RD3 with 70mm drum brake, alloy shell, 117.3mm OLN.

5-speeds

The old S5 continues in the guise of the S50/S55 range but with more than fifteen claimed improvements. The patented ball-locking mechanism for the sun pinions, evolved at Nottingham not long before the original company's demise, has been retained. Overall range remains 225%, with direct drive, increases of 26.7% and 50%, and decreases of 21% and 33.3%.

S5 with no brake, steel shell, 180 or 171.2mm OLN.

S5C with coaster brake, steel shell, 125.1mm OLN.

AB5 with 90mm drum brake, steel shell, EDSN finish, 121.7mm OLN.

X-RF5 with no brake, alloy shell, 130.4 or 113.7mm OLN.

X-RC5 with coaster brake, alloy shell, 125.3mm OLN.

X-RD5 with 70mm drum brake, alloy shell, 119.7mm OLN.

8-speeds

The long-awaited 'Phoenix' 8-speed, based on ideas developed at Nottingham, is finally released, after very prolonged testing. It uses a series of modular epicyclic gear trains. SunRace has the potential to design future hubs incorporating more of these modules, and therefore offering more gears (16 perhaps?), without huge re-tooling. We showed the internals on page 37 of issue 68.

The overall range is a massive 305% and the six middle gears are evenly spaced at 13% intervals. Top and bottom gears have much bigger jumps of 28%.

X-RD8 with 70mm drum brake, alloy shell, 131mm OLN.

X-RR8 with roller brake or no brake, alloy shell, 131mm OLN. (116mm version due very soon.)

A CLOSER LOOK AT THE 8-SPEED

There is only one shifter for the 8-speeds, an easy-to-read twist-grip. A fulcrum lever for the shifter cable is fitted to the sprocket side of the hub, so there is no need for brazed-on or clip-on fulcrums (cable sheath anchorages). The shifter cable is inboard of the chainstay/rear suspension fork and therefore protected from damage. The cable wraps around a spring-loaded drum to which it is attached. hence, the twist-grip gear shifter pulls the cable, which rotates the drum, which in turn

effects the gear changes inside the hub. This is similar in principle to the system used by Shimano on some of their hubs but was first devised by Sturmey early in the 1970s, when they patented their first 7-speed, a design which was never mass-produced.

Adjustment of the 8-speed Sturmey is easy and wheel removal is less frustrating than with the Shimano Nexus hubs.

Whilst not exactly lightweight, the hub is not heavy by hub gear standards. According to the manufacturer's data, the X-RR8 is only 270gm heavier than the alloy-shelled non-brake version of the 5-speed.

It is also not that expensive, at about £144 for the non-brake/roller brake version and £159 for the drum brake



The X-RD8 alloy-shelled 8-speed/drum brake combination, with fulcrum arm removed.

model, including sprocket, shifter, cables, etc.

Initial reviews in *A to B* and *Velo Vision* have been positive. *Velo Vision's* editor, Peter Eland, wrote: "It didn't have the superb shifting-under-load performance of the Nexus 4-speed or Rohloff, but gear shifts were generally well-behaved if you briefly ease up pedalling ... it didn't seem to be sucking away energy in any particular gear."

ANY GOOD FOR A MOULTON?

An interesting aspect of the the 'Phoenix' design is that direct drive is bottom gear. So, when fighting your way up that mountain, you have at least the consolation that you are in the most efficient mode.

As mentioned earlier, the choice of sprockets is limited to 23 and 25 tooth. So, with a 52 tooth chainwheel, you would get a range of about 38" to 117" by using a

23 tooth sprocket, and 35" to 107" with a 25 tooth sprocket – rather on the high side. Using one of the special Sturmey cranksets (available in 33, 36 or 38 tooth versions for about £9 each), you would get, for example, 24" to 75" by using a 36 tooth chainwheel and 25 tooth sprocket, or 28" to 86" with a 38/23 combination.

I would advise aiming for something that gives about 74" in seventh gear. A 42 tooth chainwheel driving a 23 tooth sprocket with a 17" wheel would give you the following gears: 31, 40, 45, 51, 58, 65, 74, 95" – a very useful range, with a reasonably low and very efficient first gear, six medium-spaced middle gears, including a nice 74 for cruising, plus a big top gear for when the wind is behind you.

With a 20" wheel (a 406-format rim with wide tyres or a 451 rim with 'skinnies'), you would need a 30 or 31 tooth chainwheel with the same 23 tooth sprocket to achieve roughly the same



The 8-speed's twist-grip shifter has an easy-to-read display and a reminder of which way, gearwise, is up and which way down.

spread.

Using Sturmey's 33 tooth chainwheel and a 25 tooth sprocket with the 20" wheel would give 26, 34, 38, 43, 49, 55, 63, 81". This is a better bet for those riding in hilly terrain, although you might miss the 74" and find yourself 'hunting' between seventh and eighth gear. It is my intention to try this range with the new 8-speed hub on my adapted APB with 451 format wheels.

STURMEY SUPPLIES & INFO

Theoretically, just about any cycle dealer should be able to obtain SunRace Sturmey-Archer hubs, accessories and spares for you. However, this is the real world. So, if your dealer acts dumb, our Sturmey friends at European HQ suggest

contacting their main distributor, Bill Nichols, at Nichols Agencies, 3 Bridge Street, Barford, Warwick, CV35 8EH, UK, tel: 01926 624031.

For other information, you can contact the European HQ:

SunRace Sturmey-Archer Europe, Keienbergweg 79, 101GE, Amsterdam ZO, The Netherlands.

Tel: +31 (0)20-609-0221

Fax: +31 (0)20-609-0211

Email: info@sunrace.nl

Websites: www.sunrace.com

www.sturmey-archer.com

Note, however, that at the time of writing, the websites have little or nothing on the newer products. In fact, the S-A site looks a good candidate for *Time Team's* first foray into website archaeology.



SunRace Sturmey-Archer's inexpensive and neat little FCS30 crankset. The crank arms and boss are in alloy, whilst the swaged-on 33 tooth chainwheel is steel.