

Reports of the demise of this Web site are greatly exaggerated! We at sheldonbrown.com thank Harris Cyclery for its support over the years. Harris Cyclery has closed, but we keep going. Keep visiting the site for new and updated articles, and news about possible new affiliations.

## Sturmey-Archer Bicycle Hubs

Select Language ▼

Powered by Google Translate

Find us on Facebook

Donate



by **Sheldon "Epicyclic" Brown**

revised by **John "countercyclic" Allen**

---

### In this article:

[Sturmey-Archer History -- England and Taiwan](#)

[The Good, the Bad and the Finicky](#)

[Identification, Specifications, Rebuilding](#)

[Links](#)

### In other articles:

[Date and model identification](#)

[Cribsheet -- Sturmey-Archer hubs since the 1930s](#)

[General technical information-- applies to many hubs](#)

[Servicing Sturmey-Archer 3-speed hubs](#)

[Servicing Sturmey-Archer 4, 5 and 7- speed hubs](#)

[Servicing Sturmey-Archer 8-speed hubs](#)

[Indicator spindle compatibility](#)

---

## Sturmey-Archer History

Sturmey-Archer was one of two major manufacturers of internal-gear hubs in the early and mid 20th century. (Fichtel & Sachs in Germany was the other. Shimano has made internal-gear hubs since 1957.) The Sturmey-Archer AW 3-speed hub, by far the most popular one, was durable and, easy to maintain

and rebuild. The model name, AW, actually stands for "Type A, Wide-Ratio" but legend also expands it to "always works."

In the mid- and late 20th century, however, Sturme-y-Archer introduced new hubs which were not as reliable, sometimes because of the internal design and sometimes because of the shifters. Quality issues also began to creep in.

Sturme-y-Archer history is covered in the book *The Sturme-y-Archer Story* and its online update by [Tony Hadland](#); bits and pieces of the history are in the technical articles on this site.

Sheldon wrote, sometime before his untimely demise in 2008:

**A**lmost all English 3-speeds have Sturme-y-Archer rear hubs, and there have been many different models since the company started in 1902. [Sturme-y-Archer](#) was a division of Raleigh Industries until autumn, 2000, when the parent company ran into financial difficulties. Sturme-y-Archer (U.K.) was rendered homeless by various corporate maneuvers. For a while it appeared that it would disappear entirely into bankruptcy. The land the factory stood on was sold, and Sturme-y-Archer was nearly liquidated by a corporate raider. Fortunately, a Taiwanese company called [SunRace](#) came to the rescue, and bought the company assets more or less intact. The machinery and stock were moved to Taiwan. SunRace resumed production of Sturme-y-Archer hubs -- some pre-existing models, many new ones.

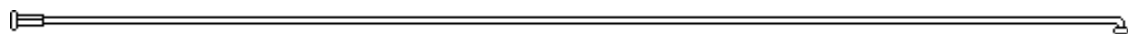
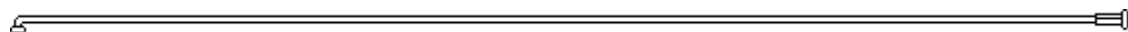
Sturme-y-Archer quality had been on a downward slide since the early 1960s, as the company's engineering efforts shifted from trying to make a better product, as they had been through the first half century, to finding ways to make an acceptable product cheaper. Sturme-y-Archer's quality peaked probably in the late '50s.

SunRace spent a great deal of money moving the machinery from England to Taiwan, but when it arrived, it turned out that most of the machinery was worn-out junk, no longer capable of manufacturing parts to the degree of precision appropriate to the 21st century.

I heard an interesting anecdote from a Sturme-y-Archer veteran employee, now with SunRace/Sturme-y-Archer:

Back in the day, sometimes a batch of internal parts would be just a bit out of tolerance, maybe a bit too small, or a bit too large, whatever. The production people would take a sample to the engineering department, where a grey-haired engineer would check it out and often say "Well, it is a bit out of spec, but not really enough to cause failure, so let's let it go."

SunRace didn't have those engineers who had grown up with Sturme-y-Archer in their blood, so when they found a batch of out-of-spec parts, they would say "That's out of spec! Melt it down, and make new ones, and do it right this time!"



## The good, the bad and the finicky

Sheldon also wrote the paragraph below:

In any case, the quality of Taiwanese production from SunRace/Sturme-y-Archer so far has been excellent, generally better than the quality of later English production. Sturme-y-Archer's selection of multi-speed hubs is much wider than that of the other manufacturers. Some folks don't believe that the Taiwanese can make stuff as well as the British did, but there's no factual basis for that belief, and in many cases this attitude may be traced to racism.

I find that Taiwan-made bicycles and bicycle components are generally of good quality, but, as Sheldon's observations about earlier English production make clear, problems with Sturme-y-Archer hubs are nothing new. Problems have occurred with Shimano and SRAM hubs as well. So, it is not shocking to discover that problems have occurred with Sturme-y-Archer in Taiwan. The problems occur due to marketing-driven design issues which are described in more detail in [the Trends section of our](#)

[article on internal-gear hub theory](#). Sheldon didn't live long enough to see these problems play out with Sturmey-Archer under SunRace management.

The problems are least with three-speed hubs. Generally speaking, their designs have been stable, and replacement parts are available either from Sturmey-Archer, or for the classic AW three-speed, from aftermarket suppliers [including Harris Cyclery](#), or a conscientious pack-rat bike shop mechanic or trash picker. [SJS Cycles](#) and [Oldbiketrader](#) in the UK maintain stocks of discontinued Sturmey-Archer hubs and parts and [Aaron's Bicycle Repair](#) in Seattle, Washington, USA has old and new parts. Complete parts lists and rebuilding information on hubs from the original 1902 model up through the year 2000 is available at the Sturmey-Archer Heritage Web site. Sheldonbrown.com has information on the hubs you are at all likely to see, and some rare ones.

A knowledgeable mechanic writes the following:

On the plus side, the current range of hubs has never been any larger than it is now. The traditional virtues of the brake hubs are still present, and if I were to choose a set of wheels for a robust city bike right now, they would probably have SA hubs in them. The brake hubs are (unlike Shimano Rollerbrakes) drag-free and the IGH's do at least coast well. Despite being ancient beyond belief, and vulnerable to knocks if not protected, the toggle chain is still the simplest and best method of controlling a 3-speed hub IMHO.

The no-intermediate-gear 3-speed and 5-speed hubs have a 'pawl actuator plate' fitted which is a common source of trouble. The plate either breaks up or comes detached from the driver it sits on. If you backpedal when shifting, this failure happens more quickly. If you wheel the bike backwards with your foot on the pedal slightly, I think you can damage the hub instantly. The part itself is not expensive but the consequences of failure can be.

The no-intermediate-gear hubs all have design features that create more drag when pedaling than necessary, in a similar way to the drag spring in a coaster brake. Probably these are no worse than running a good hub generator when the lights are off; this wouldn't be so bad if it were unavoidable, but it isn't, certainly not at a design stage. In some cases, it is possible to mitigate these losses with simple modifications, but in other cases it isn't.

The situation isn't as rosy with the five-speeds and eight-speeds. Sturmey-Archer has offered one series of these, then another since the move to Taiwan. It's too early to pass judgment on the newest hubs. There have been numerous reports of failures of the earlier versions. The Sturmey-Archer Web site no longer carries parts lists for them. -- though, again, parts are often available through aftermarket suppliers. The mechanic also comments:

The [previous version] (W) 5-speed hubs are not well designed; the planet pinion bushings are wholly inadequate, the dog locking is not strong enough (esp if the hub slips...), and the slot in the axle weakens it considerably.

If you buy a new (W) 5-speed hub and matching SL-50 shifter, you can expect trouble. Well before the hub wears normally, the gears will slip (on downshifts especially) because the shifter itself is too draggy and does not return to its detent positions correctly. It doesn't help that the instructions for shifting the hub are not accurate, either.

Brake hubs are currently supplied with cables for flat bars that have a nipple at both ends, but there is no lubrication on the cable. The brake action is draggy from day one when fitted with these cables. Most good Dutch manufacturers appear to use different cables.

The hub-brake shoes appear no longer to be readily available as spare parts; SA expect you to buy a whole new brake plate instead. The brakes themselves can take a year or so (of daily use) before they are bedded in properly, and then (because the brake mechanism isn't allowed to 'float' properly) the braking performance isn't as powerful as it could be. A very simple modification can improve the power of these brakes considerably.

If the above sounds like a condemnation of SA in particular, it isn't meant to be. I could similarly list design and manufacturing flaws from other IGH makers. The frustrating thing is that SA could so easily do better than this. Right now they are in a price war with SRAM (now also manufactured in Taiwan) for the original-equipment-market bread-and-butter stuff. This does not bode well for quality..

## Identification, Specifications, Technical Information

Our pages about servicing Sturmey-Archer hubs will guide you to the best information we could find, including information no longer available from Sturmey-Archer. So, we list those pages again here:




- [Date and model identification](#)
- [Cribsheet -- Sturmey-Archer hubs since the 1930s](#)
- [General technical information-- applies to many hubs](#)
- [Servicing Sturmey-Archer 3-speed hubs](#)
- [Servicing Sturmey-Archer 4, 5 and 7- speed hubs](#)
- [Servicing Sturmey-Archer 8-speed hubs](#)
- [Indicator spindle compatibility](#)

**More information:**

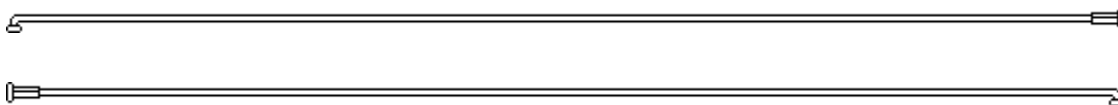
- [Sturmey-Archer Web site -- information on current hubs](#)
- [Sturmey-Archer Heritage Web site -- information on hubs from 1902 through 2000.](#)
- [Tony Hadland's Web Sturmey-Archer pages-- detailed history through 2000, and technical information](#)



**Links**

 <a href="#">Official Site</a>	
<a href="#">Heritage site</a>	
<a href="#">Three-Speed Parts from Harris Cyclery</a>	
<a href="#">English Three Speeds, Care and Feeding</a>	
<a href="#">Internal-Gear Hubs</a>	
<a href="#">Sturmey-Archer Hubs, General Information</a>	
<a href="#">Sturmey-Archer 1902-1952</a>	
<a href="#">Sturmey-Archer 1935-38 Catalogues</a>	
<a href="#">Evolution of the Raleigh Sports</a>	
	<a href="#">Sheldon's old Robin Hood</a>
<a href="#">Martin Hanczyc's roadster pages.</a>	
<a href="#">Tony Hadland's Sturmey-Archer Pages including the 1956 master catalogue with</a>	

<a href="#">rebuilding information for SWs and others.</a>
<a href="#">Sturmey-Archer documents at the Veteran Cycle Club Library.</a>
<a href="#">Hubstripping web site</a>
<a href="#">John Allen's spreadsheets of internal-hub gear ratios</a>
<a href="#">Retro Raleighs</a>
<a href="#">SW Hubs by Brian Hayes</a>
<a href="#">Jane Thomas's site with Sturmey-Archer service manuals.</a>
<a href="#">Menotomy Vintage Bicycles Chat forum on English bikes.</a>



## [What's New](#)    [Sheldon Brown on Facebook](#) [Site Feedback & Questions](#)

### [Articles by Sheldon Brown and Others](#)

[What's New](#)    [Beginners](#)    [Bicycle Glossary](#)    [Brakes](#)    [Commuting](#)    [Cyclecomputers](#)    [Do-It-Yourself](#)  
[Essays and Fiction](#)    [Family Cycling](#)    [Fixed-Gear](#)    [Frames](#)    [Gears and Drivetrains](#)    [Humor](#)  
[Old Bikes](#)    [Repair Tips](#)    [Singlespeed](#)    [Tandems](#)    [Touring](#)    [Video](#)    [Wheels](#)    [Translations](#)  
[Sheldon - the man](#)

**Reports of the demise of this Web site are greatly exaggerated! We at sheldonbrown.com thank Harris Cyclery for its support over the years. Harris Cyclery has closed, but we keep going. Keep visiting the site for new and updated articles, and news about possible new affiliations.**

**Copyright © 1998, 2008 Sheldon Brown**  
**[Harris Cyclery Home Page](#)**

If you would like to make a link or bookmark to this page, the URL is:  
<https://www.sheldonbrown.com/sturmey-archer.html>

Last Updated: 12/10/2023 20:52:28 by John Allen