


Type 4b: 804 "HR/5" Audubon Mark II — Extra Wide Field

1989—1999 (approx.)	
Focus Knob: extra long, between hinges; rubber coated.	<div>Type 4b(1)</div> 
Eyecups: Rubber, "convertible" style.	
Strap attachment: plastic lugs at rear.	
Tripod attachment: Center hinge; spring loaded.	
Objective Cap: Shock-absorbing rubber; thin black band.	
Field of View (ft.): 430	
Eye relief (mm): 14	
Close Focus (ft.): 13	
Weight (oz.): 29.5	
Cover Plate: R) Audubon HR/5 (gold); L) Swift reticule (gold), Multi-Coated Optics.	
Made by: Hiyoshi Kogaku, Ltd. JL B-56.	
<p>Type 4b is the last of the "standard" porro-prism 804 Audubons. It uses the same casting and optics as Type 4a, and displays Swift's latest gold dot reticle emblem on the front as well as other marking changes—most notably the well-known "HR/5." Unofficially, it is thought to mean "High Resolution/5-element" ocular. The original issue, Type 4b(1), shown at top and lower left, is marked "Multi-Coated Optics" (MC) like Type 4a. The later version, Type 4b(2), is marked "Fully Multi-Coated" (FMC) and has darker green coatings. It was probably introduced about 1992 along side Type 4c, although specific marketing dates are elusive.</p>	
 <div>Multi-Coated Optics (MC)</div> <div>Type 4b(1) 1989-1992 (approx.)</div>	 <div>Full Multi-Coated (FMC)</div> <div>Type 4b(2) 1992-1999 (approx.)</div>

Type 4c: 804ED "HR/5" Audubon Mark II — Extra Wide Field

1992–1999 (approx.)	
Focus Knob: extra long, between hinges; rubber coated.	 <p>Red Band</p>
Eyecups: Rubber, "convertible" style.	
Strap attachment: plastic lugs at rear.	
Tripod attachment: Center hinge; spring loaded.	
Objective Cap: Shock-absorbing rubber; thin red/white band.	
Field of View (ft.): 430	
Eye relief (mm): 14	
Close Focus (ft.): 13	
Weight (oz.): 29.5	
Cover Plate: R) ED (red) AUDUBON (gold); L) HR/5 Fully Multi-Coated and Swift's reticule mark (gold)	
Made by: Hiyoshi Kogaku, Ltd., JL B-56.	

Type 4c uses an ED (Extra low Dispersion) air-spaced objective lens and redesigned "showerproof" ocular cells. Optically, the air-spaced objective elements may be as significant as the use of ED glass, but that is usually overlooked. It was introduced with the standard Type 4b(2) and is the forerunner of the current Model 620ED. Like the standard models, it has Swift's gold dot reticule emblem on the right prism housing and is marked HR/5. However, it also has an unmistakable red ED emblem and red band around the objective cap.

(Photos of 804ED HR/5 courtesy of Fan Tao)



The Innovative Small Body Design

The reader is referred to Stephen Ingraham's comprehensive review of the Audubon 804, Type 4, to which only minor insights might be added (Ingraham, 1994). Like most porro-prism designs, it will fog under very wet conditions, and it needs re-collimation after years of hard use. That is only to be expected. One aspect that has not received the full attention it deserves, however, is the superb ergonomics built into this small body version.



Type 1c (804FW) — hard to reach wheel.



Type 4a (804R) — easy to reach wheel.



Better light baffling and redesigned objective caps improve scene contrast.



10x50 Model 826 Kestrel Audubon HR/5 with FMC optics.

Unlike the ponderously heavy "Feather Weights," the focus control can be thumbbed easily from below, which allows a natural elbows-in stance to support the binoculars' weight. Hence, it can be as comfortable and easy to use as any modern roof prism binocular of similar weight (e.g., Swarovski 10x42 SLC, Zeiss 10x40, etc.). As shown in the photo on the lower left, better light baffling, and shock absorbing rubber objective caps that block sidelight also improved contrast and glare. The same advantages apply to the somewhat larger Model 826 10x50 Kestrel Audubon (lower right) that shares the same design features as the 8.5x44 Audubon. However, the objective cap doesn't provide quite as much shading or lens protection.

Audubon Roof-Prism Binoculars

Although this 'Swift Audubon story' is primarily concerned with the company's most famous binocular, the Model 804 8.5x44 porro-prism, somewhat more needs to be said about their continuing efforts to develop roof-prism Audubons. This part of the story provides a better-balanced historical understanding of the company's business approach, and helps to explain why it continues to have an enormous presence in today's birding community.

The Price of Affordability: While Swift's Audubon porro-prism binoculars are one of the great birding glasses of all time, still capable of holding their own against all high-end competitors, irrespective of brand, the company itself was really not on the forefront of R&D like Zeiss, Leitz/Leica, Swarovski, and Nikon. This statement does them no disservice, since their very successful business model was to work with Japanese manufacturers to produce reasonably priced quality optics. Accordingly, Swift became a role model for *'affordable' birding binoculars*, and in so doing took advantage of ongoing technology developments rather than leading the pack with new innovations. A major exception, of course, must be made for the origination of the 8.5x44 configuration, which, in all fairness, was co-opted 40 years later by Swarovski with its much more expensive 8.5x42 EL birding binocular. Although Stephen Ingraham complemented the new 820ED as perhaps "the poor man's Swarovski EL" (Ingraham, 2000a), looking back to an earlier era the Audubon's outstanding performance and affordability arguably made it the poor man's Zeiss if ever there was one.

Swift's rather conservative approach can be appreciated better by putting the 8.5x44 Audubon into competitive perspective. When it was first introduced in the early sixties, the porro prism concept was already quite dated, and increasingly mundane compared to the interesting innovations being offered at that time by the German optical industry. As early as 1963, for instance, Leitz boldly discontinued all their porro prism models, in order to make way for the Trinovid roof prism series. Zeiss had anticipated a similar switch to roof prism binoculars, by first acquiring a majority holding in Hensoldt in the early fifties — including their famous "Dialyt" binoculars. By 1964 all binocular production had been moved to their Hensoldt subsidiary works in Wetzlar, where it was to become a fully owned member of the Carl Zeiss Oberkochen group in 1968. So, the die was cast, and from 1964 onward Zeiss' attention was on developing Dialyt technology almost exclusively. Why? Basically because roof prism binoculars offered the *potential* to be lighter, smaller, and more waterproof than traditional porro prisms, while still having equivalent optical capabilities. The optical potential was not fully realized for nearly a quarter century, however, with Zeiss' crucial invention of phase coating in 1988. The relatively greater expense of manufacturing top quality roof-prism binoculars, however, remains to this day.

Therein lay the key to the Swift Audubon's success. For more than two decades porro prisms were optically as effective or better than roof prisms, cheaper to produce, and with a ready market of practical minded birders and sportsmen to buy them. Enter the revolutionary Swift 8.5x44 Audubon in 1961, with its power exactly centered between a 7x

and 10x, and an objective lens area midway between a 35mm and 50mm. Except for weight, it was a perfect compromise for a community accustomed to using 7x35 or 10x50 binoculars. Of course they were heavier, and more cumbersome than the elegant roof binoculars, but many birders simply didn't care when they could be bought for less than half the price!

Okay, Let's Make a Roof Prism: In 1981, when Zeiss chose to issue a limited collector's edition of their 10x50 porro prism model (discontinued in 1969) in its original, *non-multicoated* form, they were also making a statement that porro prisms were a thing of the past, and that roof prisms were the *de facto* standard. As Swift must have observed this progress for two decades, did they follow? Yes, they did, but in an unexpected way. The challenge, of course, was to not only produce a roof prism binocular (Swift already had the Mark III Trilyte series) but one of really high quality — namely, an *Audubon* roof. It was introduced to the market in 1989 as a fully armored, waterproof compact, with true internal focusing. Curiously, however, the configuration was 7x35, not the 8.5x44 as might be expected of an Audubon. What would account for this?

The Roof Prism Audubons		
		
Model 825 Compact Audubon c. 1989	Model 827 Audubon c. 1999	Model 828 HHS Audubon c. 2001

In the same year that Swift introduced the Model 825 7x35 Audubon, Leitz announced a new range of binoculars and stopped production of their older Trinovids. One of these discontinued models was the 7x35 BA, produced between 1981 and 1983. This nice little binocular was very popular among birders in the US (according to some knowledgeable sources, production might even have been intended especially for the US market). A reasonable conjecture is that Swift sensed a continuing demand for it, and therefore produced a Trinovid look-alike with their model 825. In any case, with its rubber armoring and diopter control wheel at the forward end of the hinge, there is more than a fleeting suggestion of a Leitz influence on the 825's design — all that was missing was Leica's famous red dot emblem. Swift's gold dot reticule emblem appeared in 1991.

While this first Audubon 7x35 roof prism binocular was of very good quality and produced for several years, its price was also relatively high — fifty percent more than the 804 — and more importantly, it wasn't the Audubon roof one would expect as a modern alternative to the classic 8.5x44 porro prism. It was not until the late 1990's that the first true 8.5x44 Audubon roof prism was introduced, — the Model 827. This attempt had a lightweight aluminum housing, but, in all candor, it simply was not handsome enough to write a new chapter in Audubon history. Finally, with the turn of the millennium a solid, modern, roof prism 8.5x44 Audubon appeared that can proudly stand beside its predecessors, the Model 828 HHS Audubon (Ingraham, 2000b; Mones, 2002). It is waterproof, phase coated, nitrogen filled, close focusing, and comes with twist down eyecups. Optically it is considered almost as sharp and bright as the standard Model 820 porro, and priced very competitively. So, the Swift Audubon lives on — and there is yet another story in the making

We end with this quote:

"The new Audubon roof is the last glass that Humphrey H. Swift, founder and longtime president of Swift Instruments, personally worked on before his death, and the new glass will be a "memorial edition" (hence the "HHS" in the model designation) for the first year of its sales. It is a worthy legacy for one of the great innovators in optics for birding, for the man who just might have "invented" the birding specific binocular." (Ingraham, 2002)

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ⁱ Personal communication with EMH

ⁱⁱ Personal communication with RdV

ⁱⁱⁱ Stated in Vol. 56, 60, 62 catalogs 1982—1987.

^{iv} Ted Nordhagen, Montana, reports an 804R variant with white triangle marked “Wide Field” rather than “Mark II.”