Sterling's turn with the ArmaLite AR-18 & AR-180

Researched and compiled by Michael Vickers.

Author's note: The goal of this article isn't to provide a comprehensive history of the Sterling Armament Company manufactured ArmaLite Inc. AR-18/AR-180, but draw out interesting information gleaned from records saved following Sterling's closure in the late 1980s. Special thanks to Mr. J. Edmiston, Mr. A.J.R. Cormack, Mr. M.A. Westrom and the UK Defence Academy for their contributions to this article.

AR-18S with fore grip and no stock.

With an eye towards expanding their product line in the early 1970s, Sterling Armament Company of the United Kingdom (UK) looked for inspiration both inside and outside the company. Externally they considered the Foote Automatic Carbine 1970 (FAC-70), but it was still in an embryonic stage of development. Internally their Chief Designer, Frank Waters, created the Sterling Automatic Rifle (SAR) and company consultant, A.J.R. Cormack, designed a bullpup configuration automatic rifle.

Foote Automatic Carbine 1970 (FAC-70)

SAR as featured on company brochure offset printing plate (plate damaged by corrosion).

SAR as featured on company brochure offset printing plate.

SAR as featured on company brochure offset printing plate.

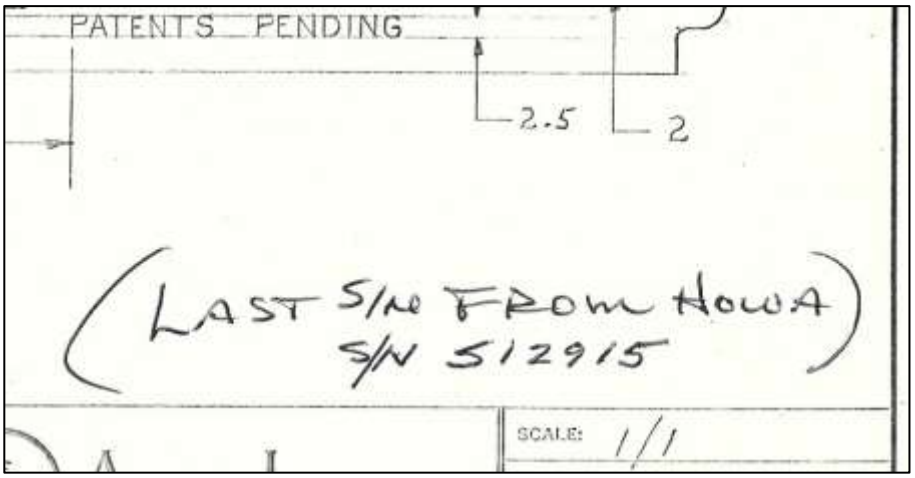
Cormack concept bullpup rifle.

Cormack concept bullpup rifle.

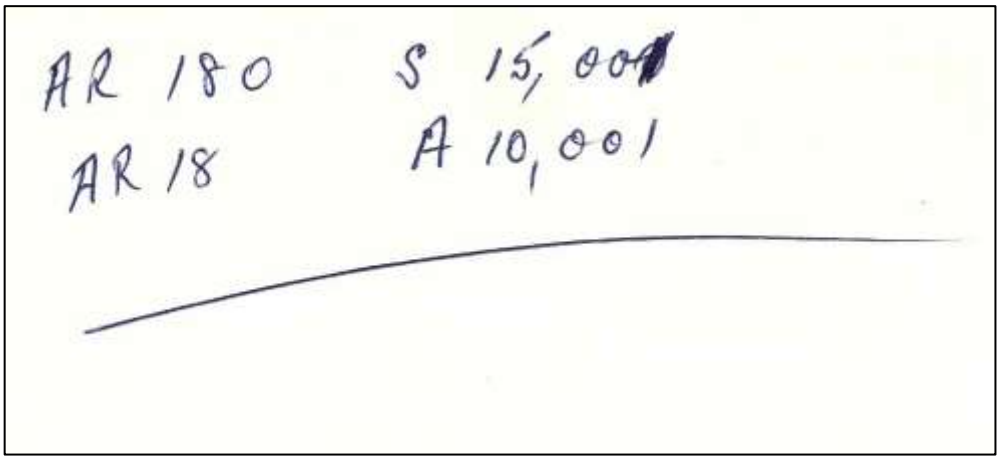
Correspondence between Sterling and ArmaLite Inc. of the United States (US) stretched back to at least 1966, but it was the demise of licensed manufacture of the AR-180 by Howa of Japan in the early 1970s that the two companies' needs aligned.

While ArmaLite and Howa had produced thousands of AR-18 and AR-180 rifles there were still many details to be worked out. The Sterling tool room rebuilt much of the AR-18 tooling provided by ArmaLite prior to taking the rifle into production. With the barrels being over twice as long as the legacy submachine

gun barrels, Sterling invested in new barrel manufacturing machinery including deep hole drilling, reaming, and button rifling equipment. Other tasks included estimating production time (6.09 hours), determining where the serial number sequences for the new rifles would start and creating a new user handbook. Sterling worked through each challenge with clear attention to detail.

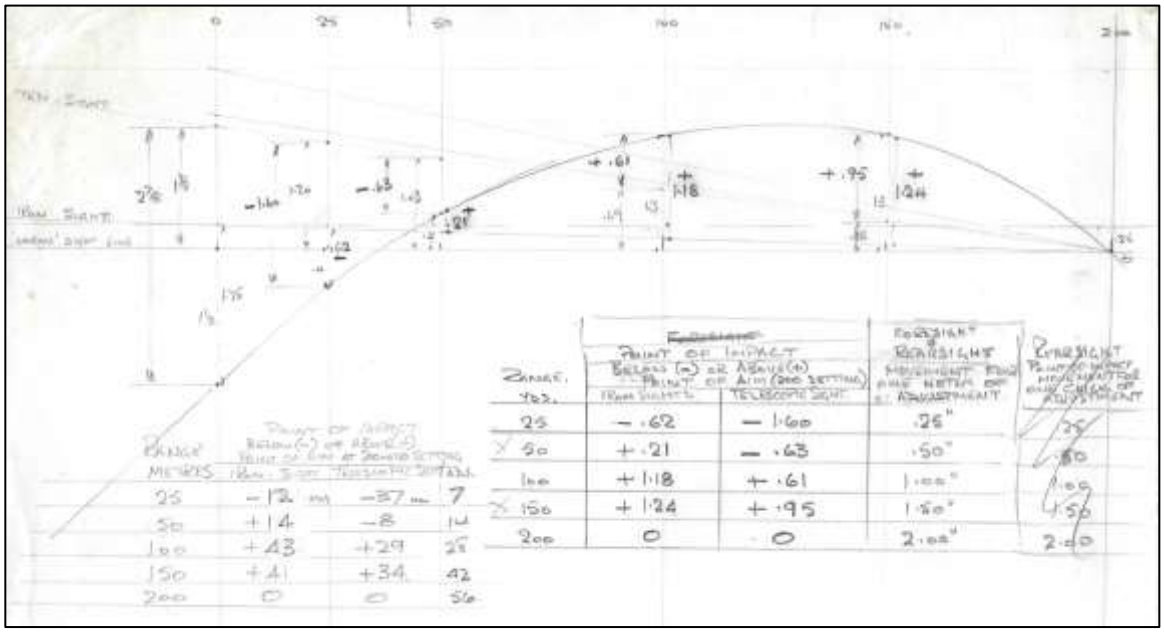


Note written on Howa AR-180 upper receiver markings blue print indicating serial number of last rifle produced by Howa.



Note written on back of AR-180 lower receiver markings blue print indicating where Sterling would start their AR-180 and AR-18 serial numbers (“S” and “A” prefix respectively). The AR-18S, a 10 inch barreled fully automatic rifle, was given the serial number prefix “AS” (i.e. AS042).

Concept drawing for Sterling AR-18 User Handbook & Spares Catalogue.



RANGE YDS.	POINT OF IMPACT BELOW (−) OR ABOVE (+) POINT OF AIM (200 SETTING) IRON SIGHTS	TELESCOPE SIGHT	ADJUSTMENT REQUIRED MOVEMENT AND DIRECTION OF ADJUSTMENT
25	−.62	−1.60	.26"
50	+.21	−.63	.50"
100	+1.18	+.61	1.00"
150	+1.24	+.95	1.50"
200	0	0	2.00"

RANGE METRES	POINT OF IMPACT BELOW (−) OR ABOVE (+) POINT OF AIM AT 200 METRES IRON SIGHTS	TELESCOPIC SIGHTS	
25	−12 mm	−37 mm	7
50	+14	−8	14
100	+43	+29	28
150	+41	+34	42
200	0	0	56

Calculations for AR-18 User Handbook zeroing table.

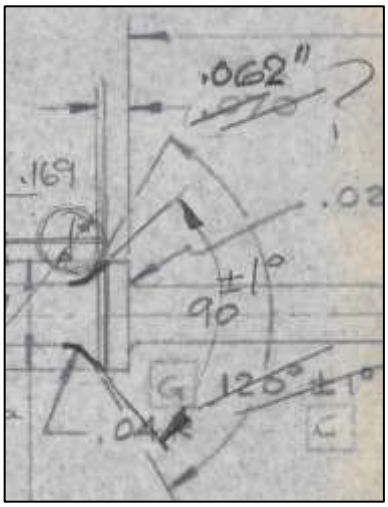
19.5 ZEROING TABLE.

RANGE		POINT OF IMPACT Below (-) or above (+) point of aim.	
Metres	Yards	Iron sights	Telescopic
25		−12mm	−37mm
100		+43mm	+29mm
200		0	0
	25	−0.62"	−1.6"
	100	+1.18"	+0.61"
	200	0	0

Zeroing table as published in Sterling AR-18/180 User Handbook.

By late 1975 Sterling had completed a batch of 12 sample short-barreled AR-18S fully automatic rifles, one of which was shipped to ArmaLite for evaluation. Sterling also requested permission to make alterations and improvements to the AR-18 and AR-180. ArmaLite considered their own experience with the rifles and backwards compatibility with previously manufactured rifles before approving such changes. Due to cycling issues with the initial batch of AR-18S rifles Sterling produced they lengthened the barrel 1-inch. By altering the distance between the end of the barrel and gas port they adjusted the dwell time and improved reliability. In early 1976, Sterling requested two changes to the firing pin (Part No. 2671 H) dimensions and while one was approved (change 120° to 90° in drawing below) the other was rejected (lessening .070” to .062” in drawing below). ArmaLite indicated the take-down pin saw the land as a stop with some rifles taken in for servicing showing heavy battering in the area and were concerned any lessening of the dimension may reduce its strength too much. Sterling also explored strengthening the stock hinge and bulkhead weld assemblies by switching from a metal pressing/stamping to a metal casting, but ArmaLite turned this down.

Production Sterling AR-18S (AS063) with 1-inch longer barrel (courtesy UK Defence Academy).



AR-18 firing pin changes requested by Sterling (Part No 2671 H).

AR-18S w/o stock (left), AR-18 (center), AR-18S (right, muzzle cropped in original photo). Note shorter AR-18S barrel length.

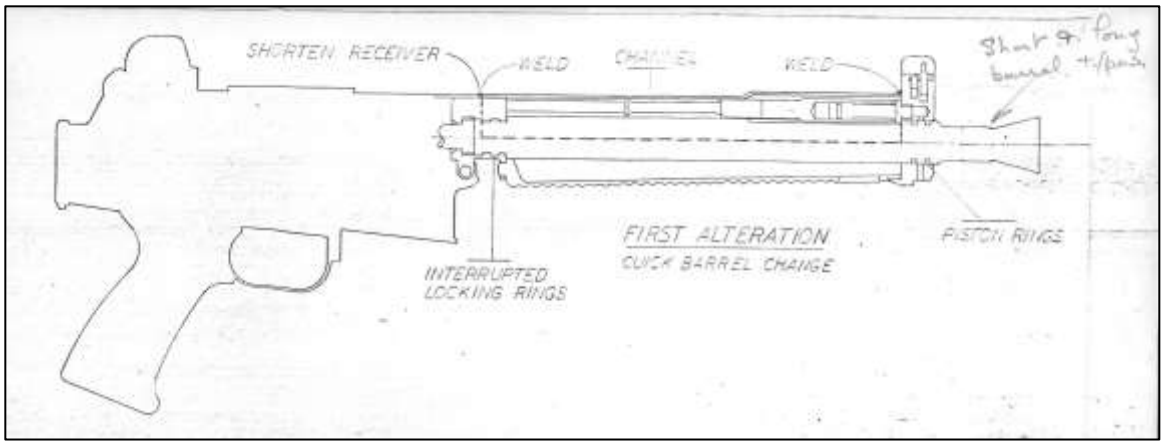
Though the available information is not comprehensive, ArmaLite ordered large numbers of AR-180 rifles, magazines, and parts for the US market in the late 1970s and early 1980s. The initial AR-180 order appears to have been for 5,000 rifles with deliveries commencing in mid-1976. In 1979 ArmaLite ordered 2,400 AR-180 rifles, which were delivered over the next 12 months, 10,000 40-round

magazines to be delivered at a rate of 2,040 every 90 days and 8,455 parts for spares and warranty servicing. In addition to 50 stock hinge weld assemblies, ArmaLite specifically highlighted the need for bolt catches and requested 100 in the order.

The first batch of 100 AR-180 rifles produced by Sterling arrived in the US in the summer of 1976. Of these, one was shipped by ArmaLite to J&G Rifle Ranch, a distributor in Turner, Montana, which eventually made its way into the hands of a U.S. Army officer stationed in West Germany. In 1977 the new owner of the rifle wrote to ArmaLite requesting a new barrel after noting pitting in the bore from corrosion. Owing to his proximity to the UK, ArmaLite put him in touch with Sterling directly, which replaced the barrel under warranty. Years later the U.S. Army officer, Mark A. Westrom, would retire from the military and revive the then dormant ArmaLite brand, eventually putting the AR-180 back into production as the AR-180B. He still owns his original Sterling AR-180.

Sterling had an evident desire for product development and produced several unique versions of the AR-18 and AR-180. This included the AR-180 SCS, which had a wooden thumbhole stock and serial number prefix “PH” (i.e. PH00357) as well as the AR-180SP, a semi-automatic pistol with a serial number prefix of “SP” (i.e. SP001). In May 1982 the AR-180SP was shipped to the US Bureau of Alcohol, Tobacco, and Firearms (ATF) to determine its suitability for import. The available records don’t show if it was ever approved or if they were imported beyond the sample sent to the ATF. Company consultant A.J.R. Cormack also created a Light Support Weapon (LSW) prototype with a quick barrel change capability and completed a caliber conversion to 7.62x39mm.

AR-18 LSW prototype.



AR-18 Quick Barrel Change Concept

Demonstrations were conducted for militaries and government organizations around the world including Lebanon, Oman, Egypt, Dubai and Greece, with large purchases placed by Botswana (400 AR-18), Swaziland (200 AR-18, 150 AR-18S) and Nigeria (1000 AR-180). Despite these sales the rifle never became a major military success. One limiting factor was all-foreign sales (outside the UK and US) of the rifle had to be approved by the US Department of State (DoS). That said the DoS approved the sale of 50 rifles to China North Industries Corporation (NORINCO) in 1982, but it does not appear the sale was ever completed. The bulk of the Sterling made rifles were purchased by ArmaLite and sold in the US.

Chartered Industries of Singapore (CIS), who produced the Colt M-16 under license, was approached by Sterling to manufacture the AR-18 under license. CIS had already been blocked from selling their license built M-16 outside of Singapore and was concerned it would be the same for the AR-18. Seeing an opportunity, Sterling resurrected the dormant Sterling Automatic Rifle project and sent two prototype rifles to CIS in 1977. With assistance from Sterling, in addition to their own firearms manufacturing experience, CIS began producing prototype rifles under the Sterling Combat Rifle moniker. The project would eventually become the SAR 80.

Early CIS prototype Sterling Combat Rifle with wood furniture circa 1978. With assistance from Sterling the wood was soon replaced with plastic furniture.

Production SAR 80 with plastic furniture.

CASE No. 23		CASE No. 24		CASE No. 25	
27135	27271	27279	27285	27295	27301
168	272	280	288	297	302
207	274	281	289	298	304
269	275	282	293	299	305
270	278	284	294	300	306
CASE No. 26		CASE No. 27		CASE No. 28	
27307	27312	27318	27323	27328	27335
308	313	319	324	331	336
309	314	320	325	332	337
310	316	321	326	333	338
311	317	322	327	334	339
CASE No. 29		CASE No. 30		CASE No.	
27340	27347	27353	27358		
341	348	354	359		
342	350	355	360		
345	351	356	361		
346	352	357	362		

Serial numbers of the last 80 Sterling AR-180 rifles shipped to ArmaLite.

By early 1984 Sterling ceased production of the AR-18 & AR-180 following the sale of ArmaLite and all the tooling for the manufacture of the rifles to the Philippines. ArmaLite placed a final order for 300 Sterling AR-180 rifles in August 1983 with the final batch of 80 rifles shipped to the US in March 1984. Even with manufacturing ended available records show there were a few remaining AR-180 SCS rifles that were sold in late 1985. Though now long out of production the concepts introduced in the ArmaLite AR-18 live on in many modern firearms.

Completed rifles (Manufacture, location and date unknown. Photo courtesy UK Defence Academy).

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