

THIS PAGE IS UNCLASSIFIED

THIS PAGE IS UNCLASSIFIED

# SECRET

TWO

## GUNNERY PROFICIENCY

### The Proficiency Training Program

ADC crew training was conducted under a yearly flying training program, the aim of which was to raise and maintain the proficiency of crews to a level established by training standards which were issued by ADC for each type of tactical aircraft it possessed.

These training standards were ultimate or maximum goals of knowledge and skill required by a squadron to perform its mission. In addition to these optimum goals, ADC prescribed certain minimum requirements of flying time and skill in the operation of the aircraft and its equipment which the individual crews had to accomplish in order to be considered ready for combat.

The first unit proficiency training directives under which ADC crews trained were issued by the Continental Air Command in 1950. The ConAC training directive for all-weather crews, number 10-9,

\* Before a pilot could start the proficiency training program, he had to complete a program of transition into the particular unit's aircraft. ADC Headquarters prescribed only the minimum requirements of this program and left the flying training phase and time to the discretion of the squadron commander. Training accomplished during transition which was required by the unit proficiency directives could be applied to the latter. For the ADC requirements on transition, see reference note number one. In October 1954, a thorough and standardized transition training program was being prepared by ADC headquarters. When this program was put into effect, the training accomplished under it was not to be applied to the proficiency training requirements.

# SECRET

T  
H  
I  
S  
  
P  
A  
G  
E  
  
I  
S  
  
U  
N  
C  
L  
A  
S  
S  
I  
F  
I  
E  
D

T  
H  
I  
S  
  
P  
A  
G  
E  
  
I  
S  
  
U  
N  
C  
L  
A  
S  
S  
I  
F  
I  
E  
D

THIS PAGE IS UNCLASSIFIED

THIS PAGE IS UNCLASSIFIED

**SECRET**

programmed a total of 180 flying training hours and included such phases as airborne tracking, formation flying, instruments, and navigation.<sup>2\*</sup> For gunnery, five air-to-air missions at altitudes of from 10,000 to 20,000 feet, five camera gunnery missions above 25,000 feet, and two radar gunnery missions were required. These relatively low requirements lasted until June 1951 when ADC published its first proficiency directives. ADC required thirty-six aerial gunnery sorties, of which twelve were to be flown above 20,000 feet.<sup>3\*\*</sup> A total of twelve camera gunnery sorties were to be made above 25,000 feet.

ADC again raised the training requirements at the end of the year to 220 flying training hours, of which forty-two were in gunnery.<sup>4</sup> It became apparent almost immediately that these

---

\* Radar observers participated, along with the pilot, in nearly all phases of proficiency training. In the ADC directives, the radar observer was required in gunnery, for example, to become proficient in tracking and locking on to a radar reflector during gunnery passes and to be able to furnish the pilot with accurate range and closing speed information.

\*\* The ability to find and destroy a target did not result from the gunnery phase of training alone, but was the product of the combined training skills. Interception by an all-weather aircraft was the work of a team which included the intercept controller, the radar observer, and the pilot. Gunnery training is emphasized here, however, because the purpose is not to examine each and every phase of the intercept, but only the ability to shoot accurately.

It should be noted also that in addition to the flying training part, the unit proficiency directives had a ground training program which included armament training. This portion of the ground training provided lectures and demonstrations on the operation of the gun-sight, loading and arming the weapons, changing film magazines, film assessing, boresighting, and the theory and tactics of gunnery. For a complete training program, see the document cited in reference note number six.

T  
H  
I  
S  
  
P  
A  
G  
E  
  
I  
S  
  
U  
N  
C  
L  
A  
S  
S  
I  
F  
I  
E  
D

**SECRET**

**SECRET**

requirements were too high to be accomplished in the face of continued aircraft shortage and low in-commission rates. It will be recalled that it was during this period that the F-89 squadrons were having so much trouble with their aircraft. Because of this situation, in April 1952, the training time was put back to 180 hours. Aerial gunnery for all-weather squadrons was reduced to thirty-four hours with each pilot required to fly forty air-to-air gunnery sorties per year, of which twenty were to be above 20,000 feet.<sup>5</sup> Eight camera gunnery sorties were to be made above 20,000 feet and ten below.

These requirements were considered to be approximately the maximum which could be accomplished. Therefore, although new training directives were issued in mid-1952 and again in January 1953 (the last for the E-1 system aircraft), no great changes were made in the requirements. Both of these directives required forty day air-to-air gunnery sorties and one night sortie.<sup>6</sup> At least twenty of these were to be above 20,000 feet. In addition, each required twenty camera gunnery sorties, half of which were to be flown above 25,000 feet.

This then was the gunnery training program for the E-1 system aircraft squadrons. At the end of the first year (1951), the all-weather squadrons had flown about half of the required aerial gunnery sorties and only about one-third of the required camera gunnery.<sup>7</sup> At year's end, seventy-eight of the 126 all-weather crews (which included radar observers) were combat ready. All of those combat ready were in F-94 equipped squadrons. Only a few squadrons were behind in completion of the required aerial and camera gunnery sorties at the end of

T  
H  
I  
S  
  
P  
A  
G  
E  
  
I  
S  
  
U  
N  
C  
L  
A  
S  
S  
I  
F  
I  
E  
D

T  
H  
I  
S  
  
P  
A  
G  
E  
  
I  
S  
  
U  
N  
C  
L  
A  
S  
S  
I  
F  
I  
E  
D

**SECRET**

SECRET

the following year, but the ratio of combat readiness had not increased. Of 313 crews on hand (249 in F-94 squadrons, <sup>64</sup> in <sup>8</sup> F-89 squadrons), less than half, or 137, were combat ready.

Again, all of those combat ready were in the F-94 squadrons. Inability to qualify in gunnery was the primary cause for crews not being rated as combat ready.

Qualification in Gunnery

Training standards, as was mentioned earlier, were issued by ADC for each type of aircraft which established the maximum goals of skill required for performance of the mission. A training standard for F-94 equipped squadrons was issued in July 1951 and for F-89 equipped squadrons in January 1952. For gunnery proficiency, both standards required qualification as marksman or higher in accordance with rules established by Air Force Headquarters. <sup>9</sup> The Air Force rules called for scoring four consecutive missions, two above 20,000 <sup>10</sup> feet and two below 15,000 feet. To qualify as a marksman, a score of seventeen percent hits had to be made on the missions below 15,000 feet and twelve percent above 20,000 feet.

The first regulation issued by ADC establishing criteria for determining crew combat readiness was published on 31 January 1951. Starting cautiously at first with the idea of seeing what could be accomplished and of raising the requirements as more experience was gained, the requirements were considerably below the Air Force standards. Considering only the gunnery requirements, to be rated combat

T  
H  
I  
S  
  
P  
A  
G  
E  
  
I  
S  
  
U  
N  
C  
L  
A  
S  
S  
I  
F  
I  
E  
D

T  
H  
I  
S  
  
P  
A  
G  
E  
  
I  
S  
  
U  
N  
C  
L  
A  
S  
S  
I  
F  
I  
E  
D

SECRET

THIS PAGE IS UNCLASSIFIED

THIS PAGE IS UNCLASSIFIED

24

**SECRET**

ready, a pilot in an all-weather squadron had to complete a total of twelve aerial gunnery missions, of which two were to be above 20,000 feet. <sup>11</sup> He had to score a minimum of ten percent hits on one or more missions. No mention was made of the aircraft type in which qualification was to be accomplished. Presumably, it could be a different type from the one currently possessed by the pilot's squadron. If the pilot already possessed SSN 1058 (later changed to AFSC 1124B), i.e., rated as an F-89 or F-94 pilot, to qualify as combat ready he had only to accomplish the unit transition program and satisfy the squadron commander as to his ability.

Even with these relatively low requirements, the number of pilots qualified in gunnery was low. At mid-1951, of an average of 954 pilots assigned (both day and all-weather), a total of 695 or <sup>12</sup> seventy-three percent had not qualified. Of those who had qualified, only a small number were in all-weather squadrons. In the seven F-94 squadrons, four had no crews qualified and three had an average of twenty-eight percent of their crews qualified. The one F-89 squadron reported fifty-seven percent of its crews qualified. However, since the requirements did not specify qualification in the aircraft currently possessed by the squadron, there was no indication that qualification was accomplished in the all-weather types. In actuality, there were no F-89 crews qualified in this aircraft. This was shown when in September 1951, ADC rectified this discrepancy by requiring qualification in aircraft currently being used by the <sup>13</sup> squadron. When this standard became effective, no F-89 pilot

T  
H  
I  
S  
  
P  
A  
G  
E  
  
I  
S  
  
U  
N  
C  
L  
A  
S  
S  
I  
F  
I  
E  
D

T  
H  
I  
S  
  
P  
A  
G  
E  
  
I  
S  
  
U  
N  
C  
L  
A  
S  
S  
I  
F  
I  
E  
D

**SECRET**

THIS PAGE IS UNCLASSIFIED

THIS PAGE IS UNCLASSIFIED

SECRET

could be reported as combat-ready, for no firing for record had been accomplished in this aircraft.<sup>14</sup>

According to the USAF Inspector General, gunnery qualification being accomplished was not in the prescribed manner. Following an examination of the command in October 1951, the IG reported that ADC squadrons were accepting the highest score on any one mission and recording this as the qualification score. Their report concluded that "this has long become a general practice. The gunnery scores reflected on paper in no way reflect the real unit capability."<sup>15</sup> The Air Force rules for qualification in gunnery required that the lowest score in any one phase determine the degree of qualification in that particular event. The USAF inspectors also felt that there was too much latitude in the requirements and that the reports were not accurate.

To correct these deficiencies, General Benjamin W. Chidlaw, ADC's commander, advised the Air Force IG that more rigid and definite combat readiness requirements would be established and that the procedures for gunnery record firing would be standardized.<sup>16</sup> The new combat readiness criteria went into effect on 15 December 1951. The requirements were much higher, but still did not equal those prescribed by USAF. In gunnery, a pilot in an all-weather squadron, regardless of whether he had SSN 1058 or not, had to score a minimum of ten percent hits on two aerial gunnery targets above 20,000 feet in unit equipment aircraft.<sup>17</sup> The previous regulations had required scoring ten percent hits on one or more missions only, not necessarily above

T  
H  
I  
S  
  
P  
A  
G  
E  
  
I  
S  
  
U  
N  
C  
L  
A  
S  
S  
I  
F  
I  
E  
D

T  
H  
I  
S  
  
P  
A  
G  
E  
  
I  
S  
  
U  
N  
C  
L  
A  
S  
S  
I  
F  
I  
E  
D

SECRET

**SECRET**

20,000 feet. ADC's purpose and its plans for raising the level of gunnery proficiency was shown in a reply to a complaint made by the Eastern Air Defense Force that these requirements were too high:

In an effort to improve the level of gunnery proficiency within the command, the criteria for determining combat ready interceptor pilots has been raised periodically. It is anticipated that the criteria will eventually reach the level required for interceptor pilot weapons qualification in accordance with AFM 335-25...

The first step in raising the ADC requirements to this level was taken with the publication on 6 December 1951 of the second regulation of which General Chidlaw spoke. This regulation, "Interceptor Pilot Weapons Qualification," established rules and procedures for gunnery record firing. They were in accordance with those prescribed by Air Force Headquarters. Among the rules established were the following: use of a six by thirty foot target; firing four consecutive missions, two above 20,000 feet and two below 15,000 feet; and qualifying scores of thirty percent for an expert rating, twenty-three to twenty-nine percent for a sharpshooter rating, and fifteen to twenty-two percent for a marksman rating. Qualification in accordance with the rules established by this regulation was not specifically required, however, until April 1952. When the rules of this regulation were made effective, gunnery qualification requirements in ADC reached the level established by the USAF rules.

Qualification in gunnery, which was the best measure of the proficiency of pilots in gunnery, was always at a low level in the E-1 equipped all-weather aircraft squadrons. Qualification was never accomplished by any pilots in either F-89As or F-89Bs, and it was not

T  
H  
I  
S  
  
P  
A  
G  
E  
  
I  
S  
  
U  
N  
C  
L  
A  
S  
S  
I  
F  
I  
E  
D

**SECRET**

SECRET

until August 1953 that any pilots were reported qualified in F-89Cs (the 433rd Squadron reported nineteen percent of its pilots qualified).<sup>21</sup> Up to this time, only the F-94 pilots had been able to certify themselves as accurate gunners. Only a handful of F-94 squadrons could ever report all of their pilots qualified and none were able to reach this state until late in 1952. The chart on the following page shows the percentage of pilots qualified by quarter year, as far as possible, from the first reports to the spring of 1954 when the E-1 system aircraft had been reduced to an insignificant number.

Failure to Use the Complete Fire Control System

Neither the regulations establishing the standards for gunnery qualification, nor those establishing the rules and procedures for firing for record specified use of the AN/APG-33 radar of the E-1 fire control system. The criteria for gunnery qualification required only a certain percentage of hits in unit aircraft, and the weapons firing rules required only that missions be fired at ranges greater than 600 feet to be scored. Because of the emphasis placed on qualification in gunnery, the pilots wanted to get as many hits as possible and took the easiest way, the way that was most familiar, use of the sight only. The result was that pilots ignored their radar, placed the sight in a fixed position, and, moving in as closely as was permissible, fired visually. Most firing was accomplished from as close as 600 to 800 feet. Two reports of inspections made by the USAF Inspector General illustrate this situation.

T  
H  
I  
S  
  
P  
A  
G  
E  
  
I  
S  
  
U  
N  
C  
L  
A  
S  
S  
I  
F  
I  
E  
D

T  
H  
I  
S  
  
P  
A  
G  
E  
  
I  
S  
  
U  
N  
C  
L  
A  
S  
S  
I  
F  
I  
E  
D

SECRET



THIS PAGE IS UNCLASSIFIED

THIS PAGE IS UNCLASSIFIED

**SECRET**

The first, a report of an inspection of the 2nd Fighter-Interceptor Squadron at McGuire AFB, New Jersey (F-94s), made in August 1952, revealed that "gunnery was being accomplished with the sight locked in a fixed position and at a range of 1000 feet."<sup>22</sup> The second, a report of an inspection made of the 121st Fighter-Interceptor Squadron at Andrews AFB, Maryland (F-94s), in the same month, made the following observations:<sup>23</sup>

This squadron had recently completed one month of concentrated air-to-air gunnery training. During this period all participating pilots were qualified under existing gunnery proficiency criteria which does not require use of the AN/APG-33 radar.

No attempt was made to use the E-1 fire control system as intended. All air-to-air firing was accomplished at medium altitudes, using the A-1CM sight with the APG-33 radar locked out.

Such training not only lacked realism, but left a great gap in the pilot's training so that qualification actually meant little. In commenting on this situation, the commander of the 84th Fighter-Interceptor Squadron, Lieutenant Colonel Philip E. Joyal, stated in January 1952 that:<sup>24</sup>

Current lines of thinking toward qualification in aerial gunnery must be changed. This is especially true in the case of the All-Weather Interceptor Units. Emphasis should be placed more on firing at greater ranges rather than qualifying at certain altitudes. Any fighter pilot with any technique at all can learn to drive into minimum range and meet qualifying scores. This is unrealistic and is accomplished at the expense of skill at greater firing ranges; ranges at which he will and should be shooting under combat conditions.

ADC was not unaware of this situation, noting to EADF as early as the fall of 1951 the inherent dangers in pilots not using their

T  
H  
I  
S  
  
P  
A  
G  
E  
  
I  
S  
  
U  
N  
C  
L  
A  
S  
S  
I  
F  
I  
E  
D

T  
H  
I  
S  
  
P  
A  
G  
E  
  
I  
S  
  
J  
I  
:

**SECRET**

THIS PAGE IS UNCLASSIFIED IAW EO 13526

THIS PAGE IS UNCLASSIFIED

THIS PAGE IS UNCLASSIFIED

GUNNERY QUALIFICATION IN E-1 SYSTEM AIRCRAFT\*

(Percentage of pilots qualified as of the end of the month by quarter year so far as possible.)

Sqdn.	Acft.	Jul 1951	Sep 1951	Dec 1951	Apr 1952	Jul 1952	Sep 1952	Dec 1952	Mar 1953	Jun 1953	Sep 1953	Dec 1953	Mar 1954
2nd	F-94	5	6	35	19	13	8	23	conv.				
5th	F-94	14	7	71	47	37	34	48	48	34	0	conv.	
27th	F-89						0	conv.					
57th	F-89									0	0	47	48
58th	F-94				32	69	92	100	100	conv.			
59th	F-94	0	4	30	48	42	56	0/S					
61st	F-94	56	59	45	16	91	58	80	75 conv. to F-94B: 20	57 conv. to F-89: 0	0/S no rpt.	71	41
74th	F-89					0	0	0					
82nd	F-94				0	0	0	62	0/S				
83rd	F-89				0	0	0	0	conv.				
84th	F-89	57	62	0	0	0	0	0	conv. to F-94B-93	0	conv.		
121st	F-94		73	0	65	59	55	95th 100	77	conv.			
142nd	F-94		40	0	34	23	35	96th 67	100	100	conv.		

SECRET

SECRET

THIS PAGE IS UNCLASSIFIED IAW EO 13526

THIS PAGE IS UNCLASSIFIED

THIS PAGE IS UNCLASSIFIED

T

GUNNERY QUALIFICATION IN E-1 SYSTEM AIRCRAFT\*  
(Continued)

Sqdn.	Acft.	Jul 1951	Sep 1951	Dec 1951	Apr 1952	Jul 1952	Sep 1952	Dec 1952	Mar 1953	Jun 1953	Sep 1953	Dec 1953	Mar 1954
148th	F-94		0	0	0	55	51	46th 90	100	100	conv.		
176th	F-89					0	0	433d 0	copy to F-94	copy to F-89	32	38	21
317th	F-94	0	7	0	33	30	16	55	37	59	21	conv.	
318th	F-94	0	0	0	45	33	33	30	59	0/S			
319th	F-94	0	0	25	0/S								
438th	F-94									0	0	47	48
497th	F-94										0	7	2

\*SOURCE: ADC, Command Data Book, August 1951 to April 1954 (HRF 903).

T  
Y  
I  
S  
  
I  
A  
C  
E  
  
I  
S  
  
U  
N  
C  
L  
A  
S  
S  
I  
F  
I  
E  
D

SECRET

SECRET

THIS PAGE IS UNCLASSIFIED

THIS PAGE IS UNCLASSIFIED

**SECRET**

29

fire control system properly and in learning to go in as closely as permissible to the target. ADC urged that firing be done at greater ranges:

Firing at lesser angles and ranges with the A-1 series sights not only fails to utilize the designed purpose of the sight, but is also unrealistic tactically when the lethality of bomber armament is considered. It is believed that interceptor units can further their gunnery programs and combat technique development today by using the sight as it was intended to be used instead of closing to ranges which penalize the sight and which could be suicidal in the face of return fire.

ADC felt, however, that it was not possible to direct use of the complete system. Replying to the Inspector General's reports on improper use of the system, ADC excused the situation on the grounds that difficulties such as lack of test equipment, lack of suitable targets, and inadequate numbers of trained personnel, had prevented use of the complete system. Use of the fixed range feature for qualification, while definitely not the desired method, had given crews the experience in the basic elements of gunnery while these difficulties were being "ironed out." ADC concluded that, "As these difficulties are surmounted full use of the system will be stressed more and more."<sup>26</sup>

Firing at greater distances by the use of range information supplied by the radar was required by the Defense Forces by the fall of 1952. Because of the increased bullet dispersion at longer ranges and the lack of a target larger than the standard six by thirty foot size, getting hits was much more difficult. As a result there was a general lowering of gunnery scores for all-weather

T  
H  
I  
S  
  
P  
A  
G  
E  
  
I  
S  
  
U  
N  
C  
L  
A  
S  
S  
I  
F  
I  
E  
D

**SECRET**

THIS PAGE IS UNCLASSIFIED IAW EO 13526

THIS PAGE IS UNCLASSIFIED

THIS PAGE IS UNCLASSIFIED

30

**SECRET**

crews and a decline of interest in gunnery. To overcome this, ADC decided to give the all-weather crews a 1.5 for one scoring factor when firing at ranges of 800 to 400 yards (the actual number of hits were to be multiplied by 1.5).<sup>27</sup> This method of compensating for the bullet dispersion was incorporated in a revision of the weapons qualification procedures regulation issued in February 1953.<sup>28</sup> Actual scope firing with the E-1 fire control system was never required in training.

T  
H  
I  
S  
  
P  
A  
G  
E  
  
I  
S  
  
U  
N  
C  
L  
A  
S  
S  
I  
F  
I  
E  
D

**SECRET**

THIS PAGE IS UNCLASSIFIED IAW EO 13526