

ARMED SERVICES BOARD OF CONTRACT APPEALS

Appeal of -- )  
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Grumman Aerospace Corporation ) ASBCA No. 46834  
)  
Under Contract No. F04606-86-C-0122 )

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OPINION BY ADMINISTRATIVE JUDGE DELMAN

This is the second opinion we have issued on the merits under this contract. In *Grumman Aerospace Corp.*, ASBCA Nos. 46834, *et al.*, 03-1 BCA ¶ 32,203, *aff'd on recon.*, 03-2 BCA ¶ 32,289, we denied ASBCA No. 51526 and sustained ASBCA No. 48006 in part, and remanded ASBCA Nos. 48006 and 46834 for negotiation and settlement.<sup>1</sup>

The parties were unable to settle the appeals, and pursuant to Board order the parties briefed the remaining issues. This opinion involves the claim of the Department of the Air Force (AF) under ASBCA No. 46834.<sup>2</sup> Familiarity with our lengthy, prior

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<sup>1</sup> Administrative Judge Ronald Jay Lipman, who participated in the first opinion, is deceased.

<sup>2</sup> In its posthearing brief on entitlement and quantum, the AF withdrew its two claims for instrumentation assistance rendered by AF personnel (\$63,243.56), and its claim to recover costs for additional contractor support rendered by General Dynamics to repair the software test stations (\$53,815.00). (AF br. at 1)

decision is presumed. We shall only restate those findings and conclusions that are necessary for the disposition of this appeal.

### FINDINGS OF FACT

1. In the early 1980s, the AF sought to modernize the avionics for the F-111 fleet (avionics modernization program or AMP). Included in this effort was the modernization of the FB-111A, the F-111A, the F-111E and the EF-111A aircraft. General Dynamics Corporation (GDC) was the original manufacturer of the F-111. In 1983, the AF decided to award a contract to GDC on a sole source basis to modernize the FB-111A, known as the “FB-111A AMP” and to compete the AMP for the F-111A/E and EF-111A models (GAC R4, tab 2910). The AF determined that “[t]he competition will be conducted concurrent with the ongoing integration effort for the FB-111 aircraft rather than in tandem” (GAC R4, tab 2909).

2. Grumman Aerospace Corporation (GAC or appellant) manifested an interest in the program. By letter to GAC dated 20 July 1984, the contracting officer (CO) from the Sacramento Air Logistics Center (SM-ALC) provided GAC with, *inter alia*, a draft Statement of Work (SOW) and a list of deliverables for review and comment. (GAC R4, tab 3487)

3. GAC later submitted a proposal under the AF’s RFP, and the AF awarded the subject contract to GAC, effective 21 January 1986. The contract included a SOW for the F-111A/E aircraft and the EF-111A aircraft, as modified by a SOW which added a Global Positioning System (GPS) in each model aircraft, and also included a System Segment Specification (SSS) for the aircraft, as modified by a GPS SSS.<sup>3</sup> Briefly stated, appellant was to, *inter alia*, design, manufacture and furnish kits that would contain all the equipment, wiring and documentation necessary to install the updated avionics in accordance with contract requirements. Appellant was also tasked to develop and test, among other things, the operational flight program for the mission computer (MC-OF) for the aircraft in accordance with contract requirements. A number of standard FAR clauses were part of the contract, including: Clause E-2, FAR 52.246-2, INSPECTION OF SUPPLIES-FIXED-PRICE - ALTERNATE I (JUL 1985) (“the Inspection clause”), and Clause I-580, FAR 52.245-2, GOVERNMENT PROPERTY (FIXED-PRICE CONTRACTS) (APR 1984) (R4, tab 1 at 35, 70).

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<sup>3</sup> The GPS SSS and GPS SOW materially revised certain provisions of the underlying SSS and SOW but left other provisions intact. Our citations in the record to the “SSS” or “SOW” will be to the underlying SSS and SOW unless otherwise indicated as GPS.

## Kitproofing

4. As part of the contract work, appellant was to provide a conforming AMP kit to be installed by the AF for each model aircraft: F-111A, F-111E and EF-111A (R4, tab 1 at 13, 14, 25). This installation exercise was known as “kitproofing.” Each kitproof kit was to include the appropriate parts, equipment, wiring, drawings and instructions needed for the installation by the AF. (Ex. G-126 at 13) GAC was also to support the AF installation of these kits as provided by the contract at SOW § 7200 (R4, tab 1 at 518).

5. Under Clause F-623(b) of the contract, as awarded, appellant’s delivery of F-111A and F-111E kitproof kits was due on or before 1 December 1987 (R4, tab 1 at 36A).

6. Clause F-623(c) of the contract, as awarded, established the following relevant F-111A/E major engineering milestones:

MC [OFF] Software FQT [Formal Qualification Test]	87 DEC 15
Flight Test begins at SM-ALC	88 FEB 15
Kit Proof begins at SM-ALC	88 FEB 15
First Production Grp A Kit Recv’d at SM-ALC	89 JAN 01

(*Id.* at 38)

7. Contract Modification No. P00045 (“P00045”), signed by appellant on 29 July 1988, adjusted the contract schedule, and insofar as pertinent, provided for GAC delivery of kits for kitproofing on or before 15 February 1988, and for AF kit installation on 15 April 1988 (AF R4 supp., vol. 79, tab 1BS at 1<sup>st</sup>, 3<sup>rd</sup> and 5<sup>th</sup> pages). P00045 also pushed back the start of flight testing at SM-ALC to 15 April 1988 (*id.* at 5).

8. The AF commenced F-111E kitproofing in April, 1988. The kitproof exercise revealed many errors in appellant’s kit. The AF technicians who performed the kitproof installation recorded these discrepancies on documents known as “hot sheets.” Copies of hot sheets were provided to appellant’s on-site personnel (ex. G-263 at 5). Summaries of these hot sheets were also provided in writing to appellant’s New York office periodically under AFTO Form 82, and appellant responded to the problems identified pursuant to SOW § 7200.4 (R4, tab 1 at 518).

9. Typically, a hot sheet would describe the technical question or problem raised by the AF without ascribing blame or contract responsibility for its resolution. GAC agreed to make fixes when necessary without regard to fault (tr. 49/29-30).

10. By letter to appellant dated 15 August 1988, the AF rejected appellant's F-111E kitproof, stating that over 800 discrepancies had been written against the kitproof, and the kitproof effort was only about half-completed. The AF directed, *inter alia*, that appellant provide a corrected F-111E kit for a new kitproof installation by the AF (the "rekitproof"), and directed appellant to provide a revised performance schedule. (R4, tab 336)

11. In the above letter, the AF also advised appellant that the AF would continue its installation efforts on the rejected kit as a "protoproof" (*id.*). The AF was of the view that the protoproof would enable GAC to more quickly troubleshoot the problems in its F-111E kit. The CO viewed this additional government effort as assistance to, and cooperation with appellant (ex. G-141 at 39, 40).

12. Appellant replied by letter dated 24 August 1988 with its proposed revised schedule. In this letter, appellant did not challenge the propriety of the kitproof rejection by the AF, nor did it suggest that the AF was to blame, in whole or in part, for the kitproof failures. Rather, appellant closed the letter as follows:

Grumman's objective is to restore Air Force confidence in our performance to effect production kit installations at the earliest possible date.

(R4, tab 343)

13. The AF issued over 1,600 hot sheets on the F-111E kitproof, and a total of 3,089 hot sheets on the F-111E kitproof, the F-111E rekitproof and the F-111A kitproof combined (ex. G-126 at 37, 96). With respect to the F-111E kitproof it is undisputed, and we find that 157 hot sheets – less than 10 percent – required AF, not GAC action. There were also a small, insignificant number of duplicate hot sheets.

14. Mr. Stephen M. Farrell was responsible for managing the GAC engineers who designed and installed the AMP modification. He also managed the design of the mechanical portions of the kit and provided engineering support in connection with trial aircraft installation and kitproof activities. (Ex. A-46 at 1) We find instructive his internal memorandum to GAC personnel dated 24 August 1988, which states in pertinent part as follows:

Attached is a list of generic problems encountered on the F-111A/E kit proof effort at SM-ALC. In my office are copies of a few hundred hot sheets which further amplify this list.

*It is imperative that the problems encountered on the F-111A/E kit proofing NOT be repeated on the EF-111A.* Towards that end you are directed to follow the EF-111A trial aircraft buildup closely to assure our drawings are clear and correct. [Italics only added]

*Our joint effort to remedy our F-111A/E mistakes and preclude EF-111A errors, will have a major bearing on our future business prospects with SM-ALC. Your ardent dedication to this task is requested.* [Emphasis added]

(AF R4 supp. 2<sup>nd</sup>, tab 1737.280)

15. By unilateral contract Modification No. P00050 dated 9 September 1988, the AF revised contract delivery dates, and established 1 May 1989 as the date for the F-111E rekitproof (AF R4 supp., vol. 79, tab 1BX). The AF completed this rekitproof in or around late December, 1989.

16. Appellant's chief witness on hot sheets was Mr. Raymond P. Thek, who was in charge of assembling and coordinating the data to prepare the Time Compliance Technical Order (TCTO) that would be incorporated in the AMP modification (ex. A-47 at 1). The AF's chief witness on hot sheets was Mr. Charles C. Foster, who was the F-111 engineering section chief in the AMP office, and who was qualified as an expert witness (ex. G-126 at 2-6). Both witnesses were cross-examined thoroughly. Mr. Thek was impeached on a number of occasions through prior inconsistent statements (tr. 49/90-95, 181) and his recollection at times was weak (tr. 49/97-101). Mr. Foster was testy and abrasive on occasion (tr. 70/72-73, 92). Overall, we find that Mr. Foster's testimony was more credible with respect to hot sheet issues, and we have taken this into account in the issuance of our findings.

17. We find that only a small, insignificant number of the roughly 1,600 F-111E hot sheets issued were attributable to defective AF baseline drawings and documentation. We find that only a small, insignificant number of the roughly 1,600 F-111E hot sheets issued were attributable to out-of-scope drawing preferences imposed by the AF. Overall, we find that the hot sheets issued by the AF were reasonable and justified given GAC's poor design practices, inadequate attention to detail design and/or lack of quality control. (Ex. G-126 at 97-98)

18. Appellant's evidence reflected that many of the hot sheet-related problems were within its control (tr. 49/18-27). Also, the few hot sheets that were AF-caused could not be quantified by appellant (tr. 49/103). Overall, we find that the AF's rejection

of appellant's F-111E kitproof was primarily due to deficiencies in appellant's performance (tr. 71/18).

### The F-111A/E Integrated Flight Test at SM-ALC

19. As provided in the F-111A/E GPS SOW at § 4320, the AF was to conduct -- and GAC was to support -- 15 months of flight testing ("QT&E") to verify system and software integration at an anticipated flight rate of 10 flights per month, for a total of 150 sorties (R4, tab 1 at 323). Pursuant to Modification No. P00068 (P00068), the AF increased the total number of F-111 test flights, including test flights for the kitproof aircrafts, to a total of 300 sorties, and agreed to pay appellant for this additional flight test support (AF R4 supp., vol. 79, tab 1CP).

20. Appellant had to pass two milestone tests prior to beginning the integrated flight test at SM-ALC. First, the MC-OFP had to successfully complete a formal qualification test (FQT). In brief, this was a test of appellant's developed MC-OFP software on the upgraded software test station (STS), to be performed by the AF. Second, the trial aircraft, as modified by GAC, had to successfully complete a less comprehensive flight test regimen conducted by the AF, known as the functional flight test (FFT) at appellant's facility, per SOW § 4310 (R4, tab 1 at 475).

21. Under the contract as awarded, appellant was to make its MC-OFP available for FQT by 15 December 1987 (R4, tab 1 at 38). There is no dispute, and we find that appellant's MC-OFP was unable to successfully complete the FQT by this date. Given this fact, the AF agreed to allow appellant to demonstrate verification of only a portion of the software under Section 16 of FQT procedures to ensure that the aircraft was safe to fly for purposes of follow-on testing (GAC R4, tab 2577). The AF expected full FQT compliance at a later date (tr. 64/46).

22. This Section 16 procedure, also known as the "pre-FFT software test," was scheduled by the CO to take place on 5-7 April 1988. The CO advised appellant in writing that "this need for pre-FFT lab testing is a consequence of not being able to conduct a successful FQT prior to FFT" (R4, tab 262).

23. The Section 16 test procedure was performed by the AF on 13 May 1988. Section 16 procedures focused on safety of flight issues, and sought to ensure, at a minimum, that the MC-OFP could be safely flown (tr. 30/142). Some sections of the test procedure were skipped due to time constraints or because they were not deemed critical for the follow-on functional flight test. (GAC R4, tab 2579)

24. With respect to that portion of the test that was performed, the results were generally satisfactory so as to allow appellant to move to FFT. (*Id.*)

25. As part of FFT, the AF flew seven sorties in May-June 1988. In the “Sortie Summary and Recap” report dated 8 June 1988, the AF test director stated as follows:

Further sorties at Calverton will not be cost effective. It would require a lengthy wait for another OFP release. It is now necessary to fully involve the data analysts at SM-ALC, with FDAPS data at hand, to determine the problems and sources of the problems being experienced. Plans are to send both aircraft back to SM-ALC to begin active QT&E as soon as possible.

(GAC R4, tab 2580)

26. The integrated flight testing at SM-ALC began in July, 1988. The first few sorties by the AF revealed significant problems with the F-111A/E MC-OFP. Given these problems, the AF determined that further testing against the approved test plan was not warranted. The AF suspended flight testing against the approved test plan on or about 13 July 1988 (tr. 64/85). Appellant’s witnesses at the trial conceded that its MC-OFP was not in compliance with the SSS, and we so find (tr. 30/54-55; 74/216).

27. By letter dated 8 August 1988, the CO issued a cure notice to appellant. The CO advised that appellant’s failure to timely deliver conforming MC software was endangering the performance of the contract, and that “unless you respond with your plan for corrective action to the undersigned within 10 days of this notice, the Government may terminate for default . . . .” (R4, tab 331)

28. Appellant’s president replied to the cure notice by letter dated 17 August 1988. In this letter, he did not contest the AF’s decision to suspend flight testing, nor did he contest the existence of problems in appellant’s software that led to this suspension. (R4, tab 339)

29. After the AF suspended integrated testing against the approved test plan, it continued to conduct flights – known as “data gathering” flights – to assist appellant to isolate software problems and to facilitate fixes (tr. 64/86). GAC provided the AF with specific sortie scenarios for the AF to fly in order to facilitate this assistance (tr. 30/46).

30. By letter to appellant’s president dated 18 November 1988, the AF issued a second cure notice to appellant. Insofar as pertinent, the AF took appellant to task for its failure to make adequate progress in resolving software trouble reports (STRs). (GAC

R4, tab 2584) Appellant's reply, dated 12 December 1988, did not contest the cure notice or the legitimacy of the STRs (GAC R4, tab 2585).

31. The AF resumed MC-OFP testing against the approved test plan in May, 1989 (tr. 63/52). This phase of testing was basically completed in September, 1990 (tr. 30/29-30).

### The Standard Inertial Navigation Unit

32. The Standard Inertial Navigation Unit (SINU) provided velocity, acceleration, position, heading, attitude and related navigation data to the aircraft navigation software, which used the information to calculate the position of the aircraft (tr. 5/168). The parties do not dispute, and we find that the SINU was government furnished property (GFP) under this contract.

33. Contemporaneous with the F-111 avionics modernization program, the AF was working on a separate program for the development of a SINU that could be used on many different aircraft. The SINU program was managed by the Aeronautical Systems Division (ASD) at Wright-Patterson Air Force Base. Litton and Honeywell were two SINU manufacturers that participated in this program.

34. As part of the AMP contract, Litton and Honeywell were to supply SINUs for appellant's avionics modernization effort as GFP, and appellant was to enter into associate contractor agreements with each vendor (R4, tab 1 at 58-59).

35. In accordance with F-111A/E SSS § 3.7.5, the SINU units were to be designed by the vendors in accordance with a specification known as SNU 84-1. Only one SINU was to be installed in each aircraft. (R4, tab 1 at 280) The F-111A/E SSS § 3.2.1.5 provided that appellant was to design its system "to provide the capability to install any AF Standard INU designed to SNU 84-1 specification" (R4, tab 1 at 265). Hence, appellant's newly designed navigation system was also to be designed consistent with the SNU 84-1 specification, and was to be capable of integrating the Litton and Honeywell units and any other SNU 84-1 compliant boxes.

36. Given this common design baseline and the contract requirement above, we find that GAC had reason to expect that the SINUs from each manufacturer would be essentially interchangeable in form, fit and function and would be relatively transparent to GAC's integrated SNU 84-1 compliant design.

37. The contract's "AMP GFE Requirements List" provided that the AF was required to furnish three SINUs from each manufacturer to appellant, one in March, 1987 for the MC STS; one in April, 1987 for the laboratory integrated mockup; and one in



September, 1987 for the trial aircraft (R4, tab 1a at i-9). In accordance with the GOVERNMENT PROPERTY clause, 52.245-2(a)(3) (finding 3), said units were to be delivered in a condition “suitable for the intended use.”

38. Shortly after contract award, the AF foresaw integration problems for appellant with the Litton and Honeywell units. By telegram from the AF program office to ASD issued on 10 March 1986, the AF program office advised in part as follows:

2. . . . The F/EF-111A/E AMP integration contract requires integration of the standard navigation unit spec 84-1 INU at the specification interface level. It is our requirement that Grumman complies with our direction to perform laboratory and flight testing to verify STD INU ring laser gyro (RLG) interchangeability/compatibility.

3. We concur that integrating the INU RLG at the specification level should require only minor aircraft software (S/W) changes. *However, known differences in internal workings between the two current source INU RLG configurations suggest S/W impacts to an integrator [Grumman] which will far exceed minor changes even when only considered at the specification level.* [Emphasis added]

(GAC R4, tab 1288)

39. The AF delivered the SINUs to appellant a number of months later than prescribed by the contract (R4, tab 999 at 10-11). By memorandum to the CO dated 5 February 1988 regarding “SINU Anomalies – Request for Direction,” appellant notified the AF of its general dissatisfaction with the SINUs furnished by the government. No specific problem was identified in the memorandum, but appellant invited the AF to contact its engineering department for details of the problems. Appellant sought the CO’s attention to these anomalies, and sought contract direction to remedy them. (GAC R4, tab 1372)

40. On 10 February 1988, a SINU meeting was held as part of an executive program management review (PMR) to discuss pending SINU software problems and proposed fixes. AF, GAC, Litton and Honeywell representatives attended. The CO did not attend but he received a written summary of the technical issues addressed at the meeting. By letter to appellant dated 23 February 1988, the CO provided the minutes of the meeting to appellant and stated as follows:

We acknowledge your [5 February] letter . . . and share your concerns. We have taken the following actions in attempt to rectify the impact on the F-111A/E/EF AMP. Reference (b) minutes contain agreements between the SINU Program Office, both SINU vendors, SM-ALC, and Grumman. These agreements will result in the upgrade of the SINUs in Grumman's possession and establish a forum to resolve the vertical loop problem.

(GAC R4, tab 1376)

41. During 1988, GAC continued to experience problems with the Litton and Honeywell SINUs. By memorandum to the AF program office dated 15 July 1988, with a copy to the CO, appellant documented these problems with particularity. GAC stated that a number of the problems resulted from specification inadequacies, inability of the SINU vendors to meet specification requirements, and differing interpretations of the specifications by the vendors which affected their interchangeability with GAC's OFP. (GAC R4, tab 1423)

42. The AF documented SINU problems for the SM-ALC Commander in a report entitled "Commander's Special Interest Item," dated 3 August 1989. Insofar as pertinent, this report stated as follows:

1. Grumman's version 42 of the F-111A/E software was received 26 Jun 89 and was scheduled to correct miscellaneous software problems. *Problems with GFE (SINU and GPS) has been a hindrance to testing of load 42.*

2. The standard inertial navigation unit (SINU) is a dual sourced item. Honeywell and Litton are the two sources. *This unit is in development and we do not have a firm design. We are having problems with both units.* Another version of the Honeywell software is due around 15 Aug 89. It may be some time before the Litton problems are resolved.  
[Emphasis added]

(GAC R4, tab 1564)

43. As of December, 1989, the lack of transparency between the SINUs had not been resolved (GAC R4, tab 1602). As a result, GAC had to provide additional code in the system depending on which SINU was used, and this code development also required additional code testing and validation (ex. A-25 at 7). Appellant in effect designed an

OFP dedicated to the Honeywell unit and an OFP dedicated to the Litton unit (tr. 32/24). We find that the contract did not require separate OFPs for each unit. On the contrary, F-111A/E SSS § 3.2.1.5 called for a basic design that would accommodate any unit designed to SNU 84-1 (finding 35).

44. SINU defects also impacted appellant's Kalman filter. The Kalman filter is part of the MC-OFP and processes position measurement data from various sources, and among other things, inputs data to the SINU to keep the SINU navigational data as accurate as possible. When the Kalman filter would determine that the SINU's position information was in error, it would send a correction message to the SINU. However, the SINU boxes did not properly implement these corrections which resulted in the generation of inaccurate data. The SINU vendors reworked their boxes and appellant had to redesign the Kalman filter to accommodate these changes. Also, the Litton SINU did not time-tag data correctly. As a result, incorrect data was sent to the Kalman filter which caused the latter to create and to send incorrect correction data back to the SINU, which in turn further exaggerated the nature of the error. After Litton corrected this problem, the Kalman filter also had to be adapted accordingly. Appellant also encountered problems with the "best available true heading" (BATH) mode. When the aircraft was in this mode, the Kalman filter expected to receive a certain type of data from the SINUs, but instead they provided the Kalman filter with different information which caused certain data processing errors. GAC had to expend significant effort to determine the cause of these problems and to rework the Kalman filter as necessary. (Ex. A-25 at 2-6) We find that these problems were attributable to the GFE SINUs.

45. There were also problems with the baro-inertial loop in the SINU. The baro-inertial loop is a mathematical function that helps to determine altitude by taking into consideration vertical velocity and barometric altitude data which is input by the standard central air data computer (SCADC). The SINU boxes were not correctly implementing the data received from the SCADC and as a result were generating inaccurate altitude data. (Ex. A-25 at 3) Two of these problems were identified at a SINU meeting on 16 August 1989 during integrated flight test. (GAC R4, tab 1569 at 34895) The Honeywell SINU unit also had problems implementing altitude corrections received from the Kalman filter, which we find were attributable to the GFE SINU (ex. A-25 at 3, 4). We find that the baro-inertial loop problems – and the additional effort incurred by appellant to address these problems in its MC-OFP – were attributable to the GFE SINUs (ex. A-25 at 3, 4).

46. In sum, we find that the SINU defects and the lack of transparency between the so-called "standard" units were attributable to the AF, the provider of this government-furnished property. We find that the SINUs were not suitable for their intended purpose and use, as mandated by the Government Property clause. We also find that these problems impacted flight testing to some extent and created additional cost for

appellant. With respect to the data-gathering flights flown by the AF (finding 29), many of the sortie summaries documented problems with the operation of the SINUs (AF R4, tabs 1988, 1992, 1995, 1996, 2000, 2003, 2008, 2012, 2022, 2033, 2035-38).

### The AF Claim

47. By letter to GAC dated 25 March 1993, the AF asserted a demand against GAC in the amount of \$5,596,331.06 (R4, tab 978). The AF updated this demand letter by letter dated 16 June 1993 (R4, tab 982).

48. The CO issued a decision on the AF claim on 26 August 1993. After making a number of adjustments for GAC entitlements, the AF asserted a net claim against GAC in the amount of \$5,516,826.61 (R4, tab 985 at 16).<sup>4</sup> The Board docketed GAC's appeal on 23 November 1993 under ASBCA No. 46834. The AF claim consists of the elements stated below.

### Extended Contractor Support

49. The AF contends that it incurred additional costs for contractor support under various contracts, in the amount of \$2,859,430.16, attributable to appellant's deficient performance (*see ex. G-143 at 1* stating \$2,913,245.10, from which we subtract the General Dynamics contract support claim that has been withdrawn, note 2, *supra*).

50. According to the CO, the AF had two contracts with Vanguard Technologies ("Vanguard"), one contract to provide technical support for the data library kept by the AF, and the other for flight test support. The AF contends that GAC's multiple submissions of documents created additional record-keeping and related expenses in the data library, for which Vanguard charged the AF. The AF seeks reimbursement of the costs incurred from March, 1988 to May, 1989, in the amount of \$642,910.95. According to the CO, Vanguard's flight test support was also extended because of Grumman's failure to deliver an OFP that was ready to support flight testing. The cost for Vanguard flight test support from March, 1988 to May, 1989 for which the AF seeks reimbursement was \$415,023.21. In total, the AF seeks reimbursement under the Vanguard contracts in the amount of \$1,057,934.16. (Ex. G-143 at 11, incorrectly stating \$1,057,934.10.)

51. The AF failed to introduce into evidence either of the Vanguard contracts. Nor did the AF provide any credible evidence with respect to the award date and performance period of the contracts, the scope of work under the contracts, and any

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<sup>4</sup> The AF claim before us excludes consideration of the GAC entitlements as well as 3 AF claims, note 2, *supra*, and presently seeks the amount of \$6,007,771.

extensions thereof. Nor did the AF call any Vanguard personnel to address the work performed under these contracts during the claim period. The AF failed to present any credible evidence demonstrating that the work performed by Vanguard and the claimed costs by the AF resulted from GAC wrongdoing. We find that the CO's testimony in support of the claim was uncorroborated hearsay.

52. The AF contracted with VERAC/Ball for technical support of the AMP contract. According to the CO, GAC's inability to deliver a conforming OFP caused the extension of this contract, and caused the contractor to support the AF data-gathering flights from March, 1988 to May, 1989. The total contract cost for this period was \$982,901.00. The CO determined that 10% of these contract costs were attributable to work on another program, and reduced the amount attributable to GAC to \$884,611.00, for which the AF seeks reimbursement as part of the claim. (Ex. G-143 at 8)

53. The record reflects that under P00002 of the VERAC/Ball contract, dated 3 March 1988, the AF exercised its option to continue contract support from 1 April 1988 through 30 June 1989, pursuant to a SOW dated 8 January 1987 (AF R4 supp., tab 2540, 9<sup>th</sup> and 10<sup>th</sup> pages under tab). This SOW was dated over 18 months prior to the need for the data-gathering flights. This SOW also included many engineering tasks and report deliverables that were not directly related to the AF data-gathering flights. (*Id.*, ¶ 3 Requirements, at 32<sup>nd</sup> through 35<sup>th</sup> page under tab) Under P00003 dated 30 March 1988, the AF added additional work to the contract per a revised SOW – which is not of record – but the record shows that this revised SOW was dated 24 August 1987, roughly a year before the data-gathering flights. (*Id.*, 6<sup>th</sup> page under tab)

54. The AF did not present any VERAC/Ball witnesses or any contemporaneous documentation to provide a connection between the work actually performed by VERAC/Ball during the claim period and GAC wrongdoing under the AMP contract. We find that the CO's testimony in support of the claim was uncorroborated hearsay.

55. Rockwell International ("Rockwell") provided technical support under contract for the AMP program. According to the CO, Rockwell's support was extended due to Grumman's inability to supply an OFP that would support meaningful flight testing (ex. G-143 at 9). As part of the claim, the AF seeks reimbursement for technical support costs incurred under a number of different delivery orders, from March, 1988 through May, 1989, in the amount of \$806,163.00. (Ex. G-143 at 8-11; AF R4 supp., tabs 2543, 2544, 2547, 2550).

56. In support of the claim the AF listed, in summary fashion, Rockwell charges to the AF, per month, under four separate delivery orders. However the AF did not offer into evidence the testimony of any Rockwell witness to address the work Rockwell performed during this period, and how it related to any Grumman wrongdoing. Nor did

the AF provide any contemporaneous project records that related Rockwell's charges to GAC's performance. We find that the CO's testimony in support of this claim – which purported to connect all the Rockwell monthly charges to GAC performance deficiencies and delays -- was uncorroborated hearsay.

57. The Singer Company, The Kearfott Division ("Singer-Kearfott" or "SK") provided, *inter alia*, the weapons navigation computer (WNC) for integration by GAC under the AMP contract. The WNC was government furnished material (R4 tab 1 at 59). Effective 1 October 1988, the AF awarded Contract F04606-89-C-0053 to SK to provide engineering support to SM-ALC for the period 1 October 1988 through 30 September 1989. It appears that this contract was novated to Plessey Electronics Systems Corp. and was extended through 30 September 1990 (AF R4, tab 2553). It also appears that the AF had a similar support contract with Singer for 1987-1988 (AF R4 supp., tab 2541). According to the CO, the contractor supported the AF's data-gathering flights as part of its engineering support duties (ex. G-143 at 8; tr. 64/63).

58. The AF contends that GAC's failure to timely provide conforming MC-OFPP precluded the AF from conducting flight tests in a timely manner, and caused the AF to retain the contractor beyond the expiration of its support contracts, at a cost of \$110,722.00 (ex. G-143 at 8). However, the AF provided no credible evidence to link GAC wrongdoing with any specific contract expiration or extension. The AF provided no SK testimony to explain the specific type of work performed in the claim period, nor did the AF provide any contemporaneous records documenting SK's performance for the period, or otherwise connecting SK's work to GAC wrongdoing. We find that the CO's testimony in support of this claim was uncorroborated hearsay.

#### Additional/Extended Program Management

59. According to the CO, the AF program management team for the AMP contract consisted of 54 military and civilian personnel, and they had to work longer and on different activities than originally planned, from March, 1988 thru May, 1989, due to appellant's deficient performance. The claim seeks reimbursement of the AF's salary cost for these employees for this period, plus related installation support cost, in the amount of \$2,289,701.06. (AF R4 supp., tabs 2555, 2558 at 2-3; ex. G-143 at 2-3)

60. These AF employees did not use time cards or other contemporaneous documentation to record their time on the AMP contract. In developing the claim, it appears that the CO contacted these employees – roughly five years after performing their work on the contract – to obtain their recollection as to how much time they devoted to AMP program management at the time (exs. G-141 at 18, G-143 at 2). For an undefined number of employees that were not available due to retirement or transfer, the CO asked their co-workers or supervisors to recollect how much time these employees

spent on this contract (ex. G-141 at 18). The AF did not offer any testimony from any of the 54 employees or their supervisors on this subject, except for the testimony of the CO who prepared the claim. We find that the CO's testimony on this subject was uncorroborated hearsay, and in some respects, uncorroborated double-hearsay.

61. After collecting the hourly estimates, the CO asked the SM-ALC Financial Management office to determine the hourly pay rate for each of these 54 individuals, using official Air Force records and rates, and to calculate the costs for the time spent by these individuals during this time period, plus installation support costs. As extended, the claim totaled \$2,289,701.06 (ex. G-143 at 2-3).

#### Extended Flight Test/Data-Gathering Flights

62. As part of the claim, the AF seeks to recover \$443,751.00 for sorties flown by the AF to assist appellant to gather data to resolve MC-OFP deficiencies. According to the AF, it flew 77 hours of data-gathering sorties on GAC's behalf. Pursuant to Air Force Regulation 173-13, dated 2 September 1988, it cost \$5,763.00 per hour to fly an F-111A aircraft. Hence, the total cost claimed for these flights was \$443,751.00. (Ex. G-143 at 4-6)

63. In support of the claim, the CO listed 46 data-gathering flights between 29 June 1988 and 11 May 1989 (R4, tab 978 at 9<sup>th</sup>-11<sup>th</sup> pages; ex. G-143 at 5-7). When the AF reinstated QT&E test flights against the approved test plan, the record shows that the AF flew 104 QT&E sorties between 23 May 1989 and 26 September 1990, excluding QT&E #16 which was for training and was not considered a QT&E flight (GAC R4, tab 2608, GAC0001703-1715). This made for a total of 150 F-111A sorties. The contract, as awarded, provided that the AF would fly 150 F-111 test sorties. This number was increased to 300 flights, pursuant to bilateral contract modification P00068 (finding 19).

64. With respect to the 77 hours of flight time claimed for the data-gathering flights, many of the sortie summaries documented problems with the operation of the SINUs (finding 46). We have found that the SINUs were GFP and that the AF was responsible for SINU problems (*id.*). The AF claim fails to exclude, or otherwise account for flight time necessary to address these SINU problems.

#### Extended Kitproof/ Rekitproofing

65. Under this part of the claim, the AF sought the additional costs incurred for the installation of appellant's kit in aircraft F-111E, No. 68-050, known as the F-111E rekitproof. According to the CO, this particular aircraft was scheduled for a later kit installation under an AF contract with British Aerospace Ltd. (BAE) in the United

Kingdom, at a negotiated contract rate of \$452,899.00, but instead it was used as the rekitproof aircraft, with an installation cost of \$714,588.00. The AF claimed that the difference – the additional cost to install this kit, in the amount of \$261,689.00 -- was the responsibility of GAC. (Ex. G-143 at 7)

66. The AF provided no evidence to corroborate these cost figures. The CO referenced a “G-004B records document” to support the rekitproof cost of \$714,588.00 (ex. G-141 at 19), but this document was not introduced into evidence. No document was introduced into evidence to support the claimed BAE installation cost of \$452,899.00. We find the CO testimony in support of this claim was uncorroborated hearsay.

### Defective Production Kits

67. Contract clause H-1052, KITS SHALL FIT THE AIRCRAFT, provides that “[e]ach kit that is provided to the Government under this agreement shall fit the ‘tail number’ aircraft for which it is provided. Should the kit fail to fit, the Contractor shall either replace the kit with one that does fit or remanufacture the non-fitting kit so that it does fit.” (R4, tab 1 at 56)

68. After the AF accepted the production kits and during their installation by BAE, BAE discovered kits with certain defects. These defects caused BAE to perform additional work under its installation contract with the AF, which work was charged to, and paid for by the AF. As part of this claim, the AF seeks reimbursement for these additional costs, in the amount of \$105,162.84, based upon GAC’s violation of Clause H-1052 (incorrectly identified as Clause H-1051) (ex. G-143 at 13-17).

69. The AF introduced into evidence hundreds of pages of technical, hand-written work request proposals and discrepancy reports that appear to identify certain kit problems or defects. However, the AF did not provide any witness to explain the nature of the technical problems with the kits, specifically, whether the problems were of such nature and magnitude so as to render the kits incapable of fitting the aircrafts in violation of Clause H-1052, nor did the AF adduce evidence that appellant was given the opportunity to make the necessary corrections in each aircraft but failed to do so, in violation of the clause. For example, Work Request Proposal No. 35, dated 5 July 1991, Aircraft 68-041, involves the BAE removal and replacement of a “damaged connector” (AF R4 supp., tab 2538 at 41-44). AF did not provide any evidence to show that this damage rendered the kit incapable of fitting the aircraft, and did not provide evidence to show that it notified an authorized representative of appellant who refused or failed to correct it, as required by Clause H-1052.

70. Insofar as pertinent, the contract’s Inspection clause states as follows:



INSPECTION OF SUPPLIES –FIXED-PRICE  
ALTERNATE I (JUL 1985)

. . . .

(k) Inspections and tests by the Government do not relieve the Contractor of responsibility for defects or other failures to meet contract requirements discovered before acceptance. *Acceptance shall be conclusive, except for latent defects, fraud, gross mistakes amounting to fraud, or as otherwise provided in the contract.* [Emphasis added]

(R4, tab 1 at 35) The AF did not provide any evidence showing that there were any latent defects in each of the claimed kits, nor did it provide evidence of any of the other exceptions, referenced in the clause above, to the conclusiveness of its acceptance of the kits under the contract.

Additional BAE Travel Cost

71. BAE charged the AF for costs incurred by its personnel to visit SM-ALC to observe the AF kitproof installation that began in April, 1988 (AF R4 supp., tab 2557). The kit installation was not successful and the AF rejected the kit, the BAE team returned to England in July, 1988, and returned to SM-ALC for the rekitproof in 1989. As part of the claim, the AF seeks to recover from GAC, pursuant to the Inspection clause in the contract, the amounts charged to the AF for the first trip, in the amount of \$48,037.29, contending that the trip was of no value to BAE or the AF (ex. G-143 at 12).

72. Insofar as pertinent, the contract's Inspection clause states as follows:

INSPECTION OF SUPPLIES—FIXED-PRICE  
ALTERNATE I (JUL 1985)

. . . .

(e) (1) When supplies are not ready at the time specified by the Contractor for inspection or test, the Contracting Officer may charge to the Contractor *the additional cost of inspection or test.* [Emphasis added]

(2) The Contracting Officer may also charge the Contractor *for any additional cost of inspection or test* when prior

rejection makes reinspection or retest necessary. [Emphasis added]

(R4, tab 1 at 35) The AF failed to introduce any evidence showing that the BAE personnel were involved in the inspection or test of the kitproof kit. The AF did not offer into evidence the testimony of any of the BAE employees that visited SM-ALC.

## DECISION

### The Testimony of the CO

The CO was the only witness to testify about the basis of the AF claim. The CO testified about how the work of many persons – including those employed by third parties - was impacted by GAC wrongdoing, and how the AF was allegedly injured as a result. However, the AF failed to demonstrate that the CO had personal knowledge of the varied work activities performed by all of these persons and how their work related to GAC wrongdoing. The AF also failed to offer into evidence any contemporaneous documentation from these persons connecting their work -- and the related charges to the AF -- to GAC. Nor did the AF call any of these persons to testify related to the AF claim. (Findings 49-60). The AF also failed to explain the technical import of certain documents of record (finding 69), and failed to introduce certain key documents altogether (findings 51, 66).

For the most part, the CO's testimony in support of the AF claim was uncorroborated hearsay, and lacked credibility. We conclude that the AF's evidence in support of its claim was inadequate and not persuasive.

### Extended Contractor Support

The AF seeks to have appellant pay for the costs of two contracts with Vanguard, in the amount of \$1,057,934.16, contending that Vanguard's work and the related costs were attributable to GAC wrongdoing during the claim period. This claim is unsupported by any credible evidence. The AF failed to introduce into evidence the Vanguard contracts. The testimony of the CO on this subject was uncorroborated hearsay, and was not credible. (Finding 51)

The AF contends that the costs it incurred under its VERAC/Ball contract, from March, 1988 to May, 1989, in the amount of \$884,611.00, were attributable to appellant's deficient performance. The record does not support this contention. The AF failed to adduce any credible evidence demonstrating that VERAC/Ball's work and the related costs during this period resulted from GAC wrongdoing (finding 54).

The AF also contends that its monthly Rockwell technical support costs between March, 1988 and May, 1989, in the amount of \$806,163.00, were attributable to appellant's deficient performance. However, the AF failed to provide any credible evidence connecting Rockwell's work and the related costs to GAC wrongdoing (finding 56). The CO's testimony was uncorroborated hearsay, and was not credible.

Similarly, the AF contends that the costs it incurred under its SK contracts, from March, 1988 to May, 1989, in the amount of \$110,722.00, were solely attributable to appellant. The record does not support this contention. The AF failed to adduce any credible evidence demonstrating that the work performed by SK and the related costs incurred during this period resulted from GAC wrongdoing (finding 58).

In view of all the foregoing, we must deny the AF's extended contractor support claim.

#### Additional/Extended Program Management

Under this claim element, the AF seeks to recover as damages the salaries and related installation support costs of 54 AF employees, in the amount of \$2,289,701.06, who worked on the AMP contract from March, 1988 through May, 1989, contending that all of these costs related to GAC wrongdoing and were the responsibility of appellant. However, this claim presupposes that the time of each employee devoted to the AMP contract during the claim period was spent solely to address GAC wrongdoing under the contract. None of the 54 AF employees testified to this effect. We find this presupposition unsupported by any credible evidence.

The AF quantum claim is also built upon stale, unreliable estimates and speculation that includes multiple levels of uncorroborated hearsay (finding 60). We cannot accord such a damage computation any weight or credibility.

For reasons stated, we must deny this element of the claim.<sup>5</sup>

#### Extended Flight Test/Data-Gathering Flights

The AF seeks to recover \$443,751.00 for sorties flown by the AF to assist appellant in data-gathering to resolve MC-OFP deficiencies. We believe that the AF has failed to meet its burden of proof on this claim for a number of reasons. First, the AF has

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<sup>5</sup> By denying the claim on these grounds, we need not address the additional grounds asserted by appellant to support denial of the claim.

not proven that appellant's deficient performance caused the AF to fly more sorties than provided by the contract. The contract, as awarded, provided that the AF would fly 150 F-111 test sorties, and as modified by P00068, provided that the AF would fly 300 F-111 test sorties (finding 19). Excluding flights for training AF personnel—which are not part of the claim—the AF actually flew a total of 150 F-111 sorties. (Finding 63) In short, the AF has failed to show that it incurred any damages under this contract with respect to the F-111 sorties flown. *See Nalle v. United States*, 51 Ct. Cl. 43, 51 (1916) (government failed to show that claimed additional services were in excess of those contemplated under the original contract period).

The AF also has failed to persuade us that the claimed 77 hours of flight time were logged to address problems for which appellant was solely responsible. On many of the sortie summaries, there were references to SINU operation problems, which we have found were the AF's responsibility (finding 46). The AF has failed to provide any evidence to exclude, or otherwise account for the flight time for which GAC was not responsible.

For reasons stated, we must deny this element of the claim.<sup>6</sup>

#### Extended Kitproof/ Rekitproofing

The AF seeks the difference between its claimed cost to kitproof aircraft F-111E, No. 68-050, as part of the rekitproof effort (\$714,588.00), and the costs it claims it would have incurred to install a kit in this same aircraft as part of BAE's planned installation of production kits in the United Kingdom (\$452,899.00), in the amount of \$261,689.00. The AF did not provide any documentary evidence to substantiate or corroborate these claimed cost figures, nor do we have any credible evidence showing that the efforts being compared reflect identical scopes of work. All we have of record is the conclusory, hearsay testimony of the CO regarding these purported costs, which was not credible. (Finding 66) Given this lack of persuasive evidence, we have no reasonable basis to conclude that the actual kit installation on this aircraft cost more than the planned installation. Accordingly, we must deny this element of the claim.<sup>7</sup>

#### Defective Production Kits

The AF contends that it incurred costs of \$105,162.84 for BAE's repair of defective production kits, as a result of appellant's violation of contract clause H-1052. However pursuant to the clause, the AF has not shown: (1) that each of appellant's

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<sup>6</sup> See note 5, above.

<sup>7</sup> See note 5, above.

production kits under the claim did not fit their respective aircrafts; and (2) that appellant failed to replace or correct the kits that did not fit. In short, the AF has not shown that GAC violated this clause. (Finding 69)

More fundamentally, this claim must fail because the AF failed to prove that the claimed defects in each kit were latent so as to avoid the conclusiveness of its acceptance of the kits under the Inspection clause (finding 70). *Ordnance Parts & Engineering Co.*, ASBCA No. 40277, 90-3 BCA ¶ 23,142. *PAE International*, ASBCA No. 45314, 98-1 BCA ¶ 29,347, cited by the AF to support its position that the Inspection clause does not bar a government breach claim, is distinguishable. *PAE* involved a contract for services containing the FAR Inspection clause for services that did not contain the contract language regarding the conclusiveness of acceptance that governs here (finding 70).<sup>8</sup>

For reasons stated, we must deny this element of the claim.<sup>9</sup>

#### Additional BAE Travel - Related Cost

The AF seeks to recover amounts paid to BAE, in the amount of \$48,037.29, for its representatives to travel to SM-ALC, Sacramento, CA, and to observe the ultimately unsuccessful F-111E kitproofing in the Spring of 1988, contending that these costs are recoverable as “additional cost of inspection or test” under the standard FAR Inspection clause. The record does not support this contention. The AF did not provide any credible evidence showing that BAE personnel were involved in the inspection or test of the kitproof, as provided for under this clause. No BAE witness, or other witness with personal knowledge testified to this effect. (Finding 72) Assuming *arguendo*, that these BAE charges could be claimed as breach of contract damages related to appellant’s failure to provide a conforming kit for kitproofing, the AF has not shown that these “third-party observation” damages were foreseeable at the time of contract award. *Hughes Communications Galaxy, Inc. v. United States*, 271 F.3d 1060, 1066 (Fed. Cir. 2001).

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<sup>8</sup> *PAE*’s citation, at 145,921, to *General Electric Co.*, ASBCA No. 45936, 94-1 BCA ¶ 26,578 at 132,241 (Riismandel, concurring), viewing with favor Judge Riismandel’s opinion, joined in by Judge Ruberry, that the Inspection clause for supply contracts, FAR 52.246-2, does not preclude a Government breach of contract claim, is of little help to the AF here, since Judge Riismandel expressly limited his discussion to the claim “as presented in this case” (at 132,241), *i.e.*, where the purported injury occurred prior to final acceptance. Here, the AF asserts injury that occurred after final acceptance of the production kits.

<sup>9</sup> See note 5, above.

For reasons stated, we must deny this element of the claim.<sup>10</sup>

### Jury Verdict

The AF contends that if we are unsatisfied with the quantification of any of its claim elements, we can award the AF damages on a jury verdict basis. The AF, as claimant, has the burden to demonstrate entitlement to a jury verdict. The claimant must show clear proof of injury; that there is no more reliable method of computing damages; and that the evidence is sufficient to make a fair and reasonable approximation of damages. The claimant must show a justifiable inability to substantiate its claim by direct and specific proof. *See Dawco Constr., Inc., v. United States*, 930 F.2d 872, 880-81 (Fed. Cir. 1991), *overruled in part on other grounds, Reflectone, Inc. v. Dalton*, 60 F.3d 1572 (Fed. Cir. 1995) (*en banc*). *See NavCom Defense Electronics, Inc.*, ASBCA Nos. 50767, *et al.*, 01-2 BCA ¶ 31,546 at 155,786, *rev'd in part on other grounds*, 53 Fed. App. 897 (Fed. Cir. 2002).

The AF has failed to meet its burden. The AF failed to show clear proof of damage or injury attributable to GAC, either under a contract clause or as reasonably foreseeable and provable breach of contract damages. The AF also failed to provide credible evidence to show a justifiable inability to substantiate its claims by direct and specific proof, and that the jury verdict method is the most reliable method of computing damages under the circumstances. Finally, assuming *arguendo*, that it has met these elements, it has not persuaded us that the evidence it has presented, overall, was sufficient in terms of its credibility to allow for a fair and reasonable approximation of damages. Accordingly, we must deny the AF's request for a jury verdict.

### CONCLUSION

The AF has failed to prove its claim. The appeal is sustained.

Dated: 19 September 2005

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JACK DELMAN  
Administrative Judge

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<sup>10</sup> *See* note 5, above.

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Armed Services Board  
of Contract Appeals

I concur

I concur

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MARK N. STEMLER  
Administrative Judge  
Acting Chairman  
Armed Services Board  
of Contract Appeals

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RICHARD SHACKLEFORD  
Administrative Judge  
Acting Vice Chairman  
Armed Services Board  
of Contract Appeals

I certify that the foregoing is a true copy of the Opinion and Decision of the Armed Services Board of Contract Appeal in ASBCA No. 46834 Appeal of Grumman Aerospace Corporation, rendered in conformance with the Board's Charter.

Dated:

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CATHERINE A. STANTON  
Recorder, Armed Services  
Board of Contract Appeals