



**Australian Government**  
**Department of Defence**

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The Defence Sub-Committee of

The Joint Standing Committee on Foreign Affairs, Defence and Trade

**Inquiry into RAAF F-111 Deseal/Reseal Workers and their Families**

**Response to a Question from the Chair concerning  
Trades involved in Tank Entry during F-111 Fuel Tank Maintenance**

27 October 2008

## **PARLIAMENTARY INQUIRY INTO RAAF F-111 DESEAL-RESEAL WORKERS AND THEIR FAMILIES.**

### **Trades Involved in Tank Entry During F-111 Fuel Tank Maintenance**

#### **1. Background**

1.1 On 17 October 2008, the Chair of the Parliamentary Inquiry sought advice on which trade groups, represented amongst the estimated<sup>1</sup> 2300 personnel from No. 482, No. 1 and No. 6 Squadrons, No 3 Aircraft Depot and No 501 Wing, entered F-111 fuel tanks to carry out ad hoc fuel tank leak repair (or 'pick and patch')<sup>2</sup>.

1.2 The F-111 Deseal/Reseal Board of Inquiry Report of 2 July 2001 is a major source of information concerning the four formal F-111 Deseal/Reseal Programs. However, data concerning ad hoc fuel tank leak repair is less readily available, though some information can be gleaned from various Defence publications and from the recollection of personnel involved.

1.3 Individual personnel records are also a source of information. The Airmen's Trade Progress Sheet and the RAAF Record of Training and Employment are individual personnel records providing detail of qualifications and authorisations. From these records reasonable assumptions can be made as to activities carried out by individuals. However, these records were often retained by personnel when they departed the Air Force, as they are useful for future employment, and were not retained on Air Force files. Air Force personnel records do usually contain individual 'personal history' documents, but these may not provide the level of detail required to determine whether a member was involved in maintenance work involving entry to F-111 fuel tank entry. Depending upon the era involved, personnel records may be either archived in paper files or included in the Air Force personnel computer system.

1.4 For the purposes of providing the information requested by the Chair, some personnel with relevant experience in F-111 maintenance were interviewed and samples of past aircraft maintenance records were examined, noting that these records are incomplete before 1991.

#### **2. Clarification of figure of 2300 personnel**

2.1 The figure of 2300 personnel was used in the Joint Submission by the Department of Defence and the Department of Veterans' Affairs of 16 September 2008 as the basis for costs estimates for various options. This figure was an outside estimate of the number of

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<sup>1</sup> Defence has advised the Committee that approximately 2300 people from the F-111 weapons stream were involved in fuel tank leak repair over the period 1973 to 2000. This estimation is based on the authorised number of Airframe Fitter/Aircraft Technician positions for the Units listed with an assumption that staff would have spent an average three year posting in situ.

<sup>2</sup> 'Pick and Patch' – fuel tank leak repair - is a method of replacing fuel tank sealant and is normally performed only on smaller sections within the aircraft. F-111 fuel tank leak repair has been performed on an ad hoc basis since the aircraft was introduced into service in 1973 and can be performed both inside fuel tanks and on their exterior.

Air Frame Fitters (AFFITTs) – later renamed as Aircraft Technicians (ATECHs) - employed in the F-111 weapons stream from 1973 to 2000. This estimate covers No. 482, No. 1 and No. 6 Squadrons as well as No. 3 Aircraft Depot and No. 501 Wing.

2.2 Therefore, the figure of 2300 covers all AFFITT/ATECH personnel involved in the four formal deseal/reseal programs and at F-111 Squadrons and aircraft depots. Consequently, it is clear that a number of these personnel, approximately 600, have already received an ex gratia lump sum payment from their involvement in the deseal/reseal programs.

2.3 Note that the AFFITT/ATECH trade group was solely responsible<sup>3</sup> for the formal deseal/reseal programs and was the trade that had responsibility for ad hoc fuel tank leak repair, which has become known colloquially as ‘pick and patch’. As discussed in the joint submission, it was AFFITT/ATECH personnel involved in ad hoc fuel tank leak repair that shared many aspects of the unique working environment of the second formal F-111 deseal/reseal program (see section 3.1 of the Joint Submission.)

2.4 The personnel in the trade groups identified below did enter the F-111 fuel tanks for short periods to carry out their trade related tasks, but not to carry out ‘pick and patch’ ad hoc fuel tank leak repair.

### **3. Constraints**

3.1 The collection of authoritative evidence, to identify with certainty the trade groups that entered F-111 fuel tanks during maintenance, was not possible during the requested time period.<sup>4</sup>

3.2 Information for the purpose of this response was partially obtained from authoritative documents but also by way of sampling and through interview/discussion with personnel involved. Therefore, some of this information is based on anecdotal response and personal recollection.

3.3 Accordingly, the response below identifies the personnel trades that were *most likely* to have entered F-111 fuel tanks during maintenance activities at relevant units during the period 1973 - 2001.

### **4. Trades likely to have entered fuel tanks.**

4.1 The consensus among personnel interviewed and from a review of documents was that the following trade groups were likely to have been involved in entry to F-111 fuel tanks for fuel tank maintenance activities.

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<sup>3</sup> Table 3.3 – paragraph 3.24 Part 1 Chapter 3, Vol 2, of the F-111 DS/RS Board of Inquiry Report, July 2001.

<sup>4</sup> A more detailed examination of aircraft maintenance records (EE505, EE508 and FTE sheets) could be performed to further confirm which trade groups were entering F-111 fuel tanks during F-111 fuel tank maintenance.

A more detailed review could be performed to ascertain the authorised numbers of various trade groups the relevant Units had during the period in question.

Where maintenance documentation has not recorded a trade group but did record a person’s name, it might be possible to determine the trade group using personnel records. This may assist in providing documented evidence that certain trade groups routinely entering F-111 fuel tanks to perform maintenance.

4.1.1 Airframe Fitters - in fuel tanks continuously to remove and replace fuel tank components and repair sealant.

4.1.2 Electrical Fitters - in fuel tanks for short periods to remove, repair and/or install electrical components, eg. boost pumps.

4.1.3 Instrument Fitters - entered tanks for short periods to remove, repair and/or install fuel probes and may have also undertaken basic electrical work.

4.1.4 Aircraft Metal Workers - in fuel tanks for short periods to perform structural and minor metal repairs.

4.1.5 Photographers - in fuel tanks for short periods to take imagery for technical issues, eg. imagery for Defect Reports.

4.1.6 Surface Finishers - in fuel tanks after removal of sealant to apply surface coatings prior to applying of sealant.

4.1.7 Non-Destructive Inspection Technicians - in fuel tanks for short periods on an as-required basis to perform technical inspections of tank structures.

## **5. Documented evidence of fuel tank entry.**

5.1 Documented evidence that some of these trade musterings were entering F-111 fuel tanks was established by examining a small sample of maintenance records for aircraft A8-142, for the period 1998-2001 (when the aircraft was allotted to 6SQN). In particular a sample of EE505 and Confined Space Entry sheets were examined.

## **6. Trades that cannot be excluded**

6.1 The anecdotal evidence indicates that the following groups *cannot* be excluded from having entered F-111 fuel tanks, although there was no consensus on their involvement nor documented evidence in the sampled aircraft maintenance records.

6.1.1 Engineering officers - entered tanks for short periods to view issues and progression of pick and patch activities.

6.1.2 General Hands - may have entered fuel tanks as directed to perform basic 'pick and patch work'.

## **7. Excluded**

7.1 The anecdotal evidence indicates that transport drivers and pool flight staff<sup>5</sup> were *not* likely to have entered F-111 fuel tanks.

## **8. Personnel Numbers**

8.1 No analysis has been conducted to determine the potential number of personnel in the trade groups likely to have entered fuel tanks. Analysis similar to that conducted on the AFFITT/ATECH trade group (to determine that the potential number of personnel

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<sup>5</sup> 'Pool Flight' consisted of unassigned staff; for example those waiting the start of formal training or a posting.

involved was 2300) may be possible for other trade groups. Such research and analysis would take considerable time and resources.

## **9. Reorganisation of Units**

9.1 Following Air Force organisational restructuring over the period, changes were made to responsibility for maintenance of the F-111.

9.1.1 1 Feb 1981: Responsibility for F-111 operational level maintenance transferred to 1SQN & 6SQN along with 202 technical staff. 482SQN continued with technical assistance to 82WG, 1SQN and 6SQN.

9.1.2 2 Dec 1991: 482SQN and 3AD amalgamate to form 501WG.

9.1.3 30 June 1992: 482SQN and 3AD disbanded with 501WG assuming their functions.

## **10. Current Methods**

10.1 In 2001 the Commonwealth contracted F-111 Deeper Maintenance to Boeing Australia Limited (BAL). The contract included Fuel Tank Repair (FTR) and ad hoc pick and patch repair on F-111 aircraft. BAL have utilised the revised sealant removal procedure since the start of the contract. No. 82 Wing maintenance staff perform fuel tank entry only to remove and install aircraft components installed inside the fuel tanks, ie. they do not perform pick and patch repairs on fuel tank sealant.