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CABINET

A NEW BASIC TRAINER FOR THE ROYAL AIR FORCE

Memorandum by the Secretary of State for Defence

My letter of 18 December 1984 to the Chief Secretary, Treasury, which was copied to some other Cabinet colleagues, described the position then reached in the competition for a new basic trainer aircraft for the Royal Air Force (RAF) to replace the existing Jet Provost fleet. We subsequently announced in a Written Answer that our evaluation of the four competing tenders had shown two of them - the Pilatus PC9 proposed by British Aerospace (BAe) in conjunction with the Swiss, and the Embraer Tucano proposed by Shorts in conjunction with the Brazilians - to have clear-cut advantages over the rest. Those two firms were accordingly invited to submit best and final offers. The other two contenders - Westlands with the A20 and Hunting with the Firecracker - subsequently asked to do so and this was agreed.

2. Evaluation of the four best and final offers has now been completed; the results are summarised in the Annex to this memorandum. In brief, the evaluation shows the PC9 and the Tucano to be technically acceptable. While the A20 and the Firecracker meet the minimum specifications on paper, both carry major technical risks because the former has not yet flown while the latter is now offered in a version very different from that currently flying. What is decisive is that the A20 and the Firecracker are substantially more expensive. With some regret, therefore, that the only British-designed contender, the Firecracker, should be rejected, I believe that both the A20 and the Firecracker should be excluded from further consideration. I also propose to discard the option, hitherto kept open, of refurbishing the Jet Provost. This option has long been recognised as less economical in the long run, and with the substantial price reductions achieved as a result of competition it is now easier to fund a new purchase from the defence budget.

3. We are thus left with the two front runners, the PC9 and the Tucano. In technical and performance terms either aircraft is capable of doing the job satisfactorily; though the PC9 is preferred by my military advisers as being more suitable on handling and performance grounds for the training tasks. The Tucano carries some programme and technical risk in that the engine variant now proposed is not yet in service, but despite the tight timescale for introduction into service the risk is considered acceptable. On costs, the Tucano at final bid is 10 per cent cheaper to buy than the PC9 and slightly cheaper to run. Even though BAe reduced their bid after

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the competition had closed, their bid remained substantially higher (5 per cent). In terms of impact on industry and jobs there are arguments both ways, with the PC9 bringing benefits mainly to Humberside (320-350 jobs) and Scotland (210-230 jobs) and the Tucano to Northern Ireland (630-680 jobs). Attractive offset proposals from the engine manufacturers Pratt and Whitney could give the PC9 a slight edge in job terms but the Garrett engine for the Tucano will effect 100 per cent offset. Success is undoubtedly more important to Shorts' corporate strategy than to that of BAE. As regards sales prospects, whichever aircraft were chosen would be a strong competitor in world markets. On paper the PC9 appears to have the advantage, but it is very hard to judge and there are more United Kingdom jobs attached to each Tucano sold. Whichever firm loses there will be some adverse or beneficial effects, as the case may be, on our relations with Switzerland and Brazil; and these will require careful handling.

4. The situation is thus very evenly balanced. My military advisers' clear preference is for PC9. This, however, is arguably to judge the Tucano by a more severe test than the minimum standard the bidding companies were asked to meet in the specification issued to them. In any case my military advisers acknowledge that the Tucano meets the specifications laid down, that they have not had the opportunity to fly the aircraft with the more powerful engine and that it would enable them to turn out pilots of the required standard. In making the choice, therefore, greater weight must necessarily be given to non-operational factors than would otherwise be the case.

5. Our procurement policy gives the strongest emphasis to competition. The present competition has been an extremely lively and successful one by any standards and we would have to have good reason for turning down the lowest bid. In this regard, Shorts have a clear advantage, whether on a fixed or firm price basis. The firm price is, of course, the more rigorous commercial test, and the placing of the firm price contract would set the standard that we wish to see other defence contractors follow, to get away from the era of variation of price clauses and into contractual arrangements which impose upon the company the discipline of managing cost pressures themselves rather than coming to the Government for extra resources. The in-service costs of the Tucano are also slightly lower.

6. More generally, I have the clear impression that Shorts have put rather more effort into this competition than have BAE and would continue to do so, not least in seeking sales in world markets. Such an impression is not surprising since, while an order of £150 million or so spread over six years is marginal to the turnover of BAE (with whom my Department spends £1,130 million a year), it is very much more significant for Shorts (with whom we spend £37 million a year). While small aircraft of this kind lie outside the mainstream of BAE's business, they fit much more neatly into the existing operations of Shorts who have already carved out a useful niche in the market for simple straightforward aircraft with orders from the United States Army, from China and from airlines in the United Kingdom (British Midland) and abroad. The Tucano order could well

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give the company just the boost they need to cement what appears to be a promising partnership with Embraer which may well spill over into other projects, more than offsetting any potential sales losses in Switzerland.

I accordingly propose to purchase the Tucano for the RAF and I seek colleagues' agreement accordingly.

M H

Ministry of Defence

19 March 1985

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ANNEX

COMPARATIVE ASSESSMENT OF CONTENDERS

1. Four aircraft have been considered in the final round; three of them are products of overseas manufacturers who have entered into a teaming arrangement with a British company with a view to manufacture in the UK, while the fourth (Firecracker) is a British product. The four aircraft are:-

- (a) the Pilatus PC9 (Swiss), to be manufactured by British Aerospace (BAe);
- (b) the Embraer Tucano (Brazilian), to be manufactured by Short Brothers Ltd;
- (c) the Australian Aircraft Corporation A20 (Australian), to be manufactured by Westlands Ltd;
- (d) the Firecracker NDN-IT, to be manufactured by Hunting Engineering Ltd.

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Following an earlier round of bidding, "best and final" offers were invited from BAe and Shorts. Westlands and Huntings asked to join in the final round, and this was agreed.

2. The results of the best and final offers confirm that the A20 and the Firecracker are uncompetitive on technical and cost grounds, and that the choice effectively lies between the PC9 and the Tucano. The latest proposal for the Tucano includes a new and more powerful engine from the US firm Garrett, which is judged to give the Tucano a better performance than the Pratt and Whitney engine previously proposed; all references to Tucano below relate to the Garrett version.

Technical and Performance Factors

3. Both the PC9 and the Tucano meet the minimum specification prescribed by MOD. Both have been extensively flown and evaluated by a wide range of experienced RAF pilots, who have unanimously concluded that the PC9 is the better aircraft. The PC9 is marginally superior in speed, especially at high altitudes, and in rate of climb; though the Tucano, with a somewhat greater fuel capacity, would

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provide rather more flexibility in the pattern of training sorties. The PC9's performance, and particularly its handling characteristics, are more akin to those of frontline aircraft; by providing a greater challenge to students, therefore, the PC9 would in the RAF's view make possible speedier development of training skills and quicker identification of students suitable or unsuitable for combat aircraft. This said, the Tucano too would provide training to an acceptable but less exacting standard.

4. The Garrett engine proposed for Tucano would be a new variant of an existing engine and the RAF would be the launch customer. This creates some technical risk but not in MOD's view an unmanageable one. And the Garrett engine would improve the performance of the Tucano.

5. The A20, unlike the other three aircraft, has not yet flown and its performance can therefore be judged only from a brochure. The latest proposals for the Firecracker incorporate extensive design changes, including new engines, to improve performance and design standards. It is not considered that Hunting's could produce the aircraft within the timescale required, ie with deliveries commencing in 1987/88.

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Cost

6. In the final round competing firms were asked to submit offers for 130 aircraft on two alternative price bases: fixed price (ie subject to variation for changes in economic conditions) and firm price (ie in cash terms and not subject to variation). The results, including ancillary costs, are as follows:-

	<u>£M VAT EXCLUSIVE</u>	
	<u>Fixed Price</u>	<u>Firm Price</u>
PC9	126.8	164.9
Tucano (with Garrett engine)	131.4	158.9
A20	168.2	None quoted
Firecracker	160.5	198.3

It will be seen that the A20 bid is over 30% higher than the cheapest bid, and the Firecracker bid some 25% higher. Prices were further reduced by British Aerospace and Shorts by mid-day Thursday 14 March to give the following:-

PC 9	125.4	162.9 (late bid 155.3)
Tucano	122.2	147.3

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7. Of the main contenders, and on the basis of the latest prices quoted by BAe and Shorts, the Tucano is cheaper than the PC9. If the Tucano were successful Shorts would receive central Government grants of £4.6M; the Treasury advise that these should be left out of the comparison. Shorts have offered HMG a 2.5% levy on the price of any aircraft sold overseas; BAe have offered 1.5% on any sales in which they take the lead. Shorts' price could be abated by some £2.5M if MOD did not take up the proffered warranty and instead relied on statutory and common law rights.

8. On the basis of 25 year life cycle costs, discounted, the difference between the PC9 and Tucano bids, although relatively small, favours the Tucano.

Industrial and employment factors

9. The PC9 would be built at Brough, Humberside and at Prestwick in Scotland; the Tucano would be built in Belfast. For BAe a PC9 order would account for only a small part of total turnover, but would provide some limited and temporary respite in dealing with their problem of over-capacity. By comparison, an order for Tucano would have a proportionately much bigger impact on Shorts' business, and DTI judge that it

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would fit in better with the company's long term strategy than would an order for PC9 in the BAe case; the link with Embraer is considered to be capable of useful development. An order for Tucano could strengthen Shorts as a competitor for refurbishment and support work for MOD. Against this it could be argued that by giving the order to Shorts (for whom no further military new construction work is in prospect) HMG would be promoting an extension of capacity in an industry where over-capacity already exists.

10. The PC9 is offered with a Pratt and Whitney engine. Pratt and Whitney have offered two forms of industrial offset in the event of PC9 being chosen: they would increase the UK content of this engine, and they would set up an overhaul facility for maintenance and overhaul of the engines they manufacture. They would also have an increased incentive to undertake licensed production in North America of the RTM 322 helicopter engine in which Rolls Royce have a major stake, though they may well decide to do this anyway. In the case of Tucano, Garrett have made a firm offer of a 50% offset, by way of work placed in the UK, against the value of their engines, plus a "best endeavours" undertaking to place further substantial work in the UK.

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11. Employment opportunities are assessed to be as follows:-

	<u>PC 9</u>	<u>Tucano</u>
Direct jobs: from RAF order	495	565
from exports	307	358
	<hr/>	<hr/>
	802	923
Indirect jobs	200-250	200-250
	<hr/>	<hr/>
	1002-1052	1123-1173
(of which at Brough	320-350)
(at Prestwick	210-230)
(in Northern Ireland		630-680)
Increased UK content of other Pratt & Whitney engines	100	
Establishment of a Pratt and Whitney engine overhaul facility.	200	
Other Garrett offset, excluding best endeavours undertaking*		35
	<hr/>	<hr/>
	1832-1932	1788-1888
	1302-1352	1158-1208

*estimated to be potentially up to 115.

Sales

12. Although assessment of sales prospects is difficult, the best information available suggests that 265 copies of the

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BAe PC9 could be sold abroad, compared with 200 copies of the Shorts Tucano. BAE would get 40% of the airframe work for PC9s jointly marketed with Pilatus; British equipment companies would also benefit. BAE see the combination of the PC9 and their own Hawk jet trainer as an attractive package for overseas customers.

13. Under their agreement with Embraer Shorts would have exclusive rights to market the Tucano in certain countries, but would be excluded from a number of Middle Eastern markets because of a separate arrangement between Embraer and an Egyptian company.

14. Whichever choice is made there could be adverse effects in the losing country - Switzerland or Brazil as the case might be. A prospective Swiss order for Land Rovers would probably be lost (though this is uncertain anyway because the decision rests with the Swiss Parliament); the climate for sales of Hawk to Switzerland would also be soured. Some proportion of sales to Brazil, which currently average some £50M a year, could be put at risk if Tucano were not chosen. Brazil is potentially a large market for arms sales, which selection of Tucano for the RAF would assist; but restrictions on credit terms for Brazil are in any case a major constraint on sales prospects.

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