

HUNDRED AND TWENTY-SEVENTH REPORT

PUBLIC ACCOUNTS COMMITTEE (1987-88)

(EIGHTH LOK SABHA)

INDUCTION OF AN AIRCRAFT IN THE INDIAN AIR FORCE

MINISTRY OF DEFENCE



Presented to Lok Sabha on 22-4-1988

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**LOK SABHA SECRETARIAT
NEW DELHI**

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(1987-88)

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(iv)

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INTRODUCTION

1, the Chairman of the Public Accounts Committee, do present on their behalf this Hundred and Twenty-seventh Report on Paragraph 35 of the Report of the Comptroller and Auditor General of India for the year 1985-86, Union Government (Defence Services) relating to induction of an aircraft in the Indian Air Force.

2. The Report of the Comptroller and Auditor General of India for the year 1985-86, Union Government (Defence Services) was laid on the Table of the House on 8th May, 1987.

3. The Committee have strongly deprecated the lack of serious and purposeful approach on the part of the concerned agencies in the matter of selection of the aircraft 'A'. The Committee have recommended that the Government should be extremely judicious in the matter of selection of defence equipment and keep in view not only the existing but also consider the development of technology in the field, so that the ultimate choice made is the very best for ensuring that the defence forces are kept effectively equipped all the time.

4. Two orders were placed on the PSU for the indigenous licensed production of 50.6 per cent of 'P' number of aircraft 'A'. The first order was placed on 27 July, 1979 for the manufacture and supply of 30 per cent of 'P' number of aircraft 'A'. These aircraft were to be assembled from imported components, requisite kits for which were received between May 1981 and September, 1984. As per original schedule, supplies against this order were to be completed between 1982-83 and 1985-86. The Committee have noted with dismay that even though the Government agreed in January 1981 for the import of additional sub-assemblies costing Rs. 4.4 crores to enable the PSU to adhere to the delivery schedule for 30 per cent of 'P' number of aircraft, the PSU could deliver only 19.3 per cent aircraft upto March 1986.

The second order for 20.6 per cent of 'P' number of aircraft, to be manufactured from raw material was placed on the PSU on 23 August, 1982. According to the schedule, delivery of 10.6 per cent of aircraft was to be effected in 1986-87 and the delivery of the remaining 10 per cent of the aircraft was to be made during 1987-88. This delivery schedule was reviewed and revised by the concerned Project Board in August, 1985. According to the revised schedule supplies against both the orders of 1979 and 1982 were to be affected between 1982-83 and 1988-89. Till date the PSU has completed the supplies against the first order of 1979. According to the Ministry, supplies of the remaining aircraft are expected to be completed by 1989-90,

(vi)

The Committee have deprecated the lack of seriousness and purposive approach on the part of the concerned authorities in meeting the urgent and pressing requirements of the Air Force. The Committee have recommended that concerted efforts should be made by all concerned to ensure that supply of the remaining aircraft is completed by 1989-90 positively.

5. The Committee have been concerned to note yet another negative impact of delay on the part of the Government in sanctioning the raw-material phase of production. The Ministry have conceded that due to this delay, an additional expenditure of Rs. 5.33 crores had to be incurred in importing certain components which were earlier proposed to be manufactured indigenously.

6. The curtailment in the manufacturing programme from 73.3 per cent of 'P' number to 50.6 per cent of 'P' number of aircraft resulted in an extra financial burden of Rs. 105.92 crores to be borne by the present manufacturing programme. The Committee have been concerned to note that this huge additional cost aspect due to curtailment in the manufacturing programme was lost sight of at the time of taking the decision.

7. The Committee have been deeply concerned to note that out of the 292 rotables identified by the Air Head Quarters as requiring repair/overhaul, facilities for which were to be established in the PSU, such facilities have so far been established in respect of 120 rotables only. Total expenditure incurred till October 1986 on repair of aircraft rotables abroad amounted to Rs. 7.85 crores. The Committee have strongly urged upon the authorities to make all out efforts in establishing the entire repair/overhaul facilities, expeditiously.

8. The Committee (1987-88) examined Audit Paragraph 35 at their sitting held on 23 September, 1987 and 28 and 29 January, 1988. The Committee considered and finalised the Report at their sitting held on 12 April, 1988. Minutes of the sitting form Part II* of the Report.

9. For facility of reference and convenience, the observations and recommendations of the Committee have been printed in thick type in the body of the Report and have also been reproduced in a consolidated form in Appendix III of the Report.

10. The Committee would like to express their thanks to the Officers of

*Not Printed (one Cyclostyled copy laid on the Table of the House and five copies placed in Parliament Library).

(vii)

the Ministry of Defence for the cooperation extended to them in giving information to the Committee.

11. The Committee place on record their appreciation of the assistance rendered to them in the matter by the Office of Comptroller and Auditor General of India.

NEW DELHI ;
April 20, 1988
Chaltra 31, 1910(S)

AMAL DATTA
Chairman,
Public Accounts Committee.

REPORT

1. This Report is based on Paragraph 35 of the Report of the Comptroller and Auditor General of India for the year 1985-86, Union Government (Defence Services), which is at Appendix I.

2. The Audit paragraph highlights delays at different stages in the selection, procurement and production of a deep penetration strike aircraft for induction in the Indian Air Force. The facts of the case as brought out in the Audit paragraph and revealed as a result of examination by the Committee are recounted in the succeeding paragraphs.

INTRODUCTORY

Need for a deep penetration strike aircraft

3. On an enquiry by the Committee about the circumstances necessitating the need for such an aircraft the Deputy Chief of Airstaff explained during evidence that after the 1971 war a need was felt for a deep penetration strike aircraft. In 1971, Hunters and Canberras performed this task. It was found that these two aircraft had very low speed, range and radius of action. They were relatively slow in flying. They lacked facilities like sophisticated nav-attack system. In 1973 a need for DPSA was formally recognised by a body called APEX-I and in 1975 this was confirmed by another body, a Committee which went into it, called the APEX-II. Short-listing of the three aircrafts viz. A, B and C was done. Evaluation was carried out of all these machines and the evaluation showed that all the three aircraft were suitable for our requirement although they differed from each other in specific areas. Since aircraft 'C' had an engine manufactured in another foreign country and transfer of technology of this engine was not allowed by that country, it was given up.

4. Of the remaining two aircrafts 'A' and 'B' the performance parameters being comparable, aircraft 'A' was selected due to techno-economic considerations and the time schedule for supply was more favourable.

5. The Cabinet Committee on Political Affairs approved in October, 1978 the acquisition of 'P' number of aircraft 'A' for maintaining Q number of squadrons for the Air Force. A letter of intention to proceed was issued by the Government in October, 1978 in favour of manufacturer 'X' which was followed by conclusion of two agreements in April 1979. Under the first agreement the manufacturer 'X' was to supply 26.7 per cent of aircraft 'A' in

fly away condition alongwith associated equipment. The second agreement provided for the licensed manufacture by a Public Sector Undertaking (PSU) of the remaining 73.3 per cent aircraft during 1982 to 1989 in a phased manner. The aircraft supplied by manufacturer 'X' were received during September 1980 to October 1982 and were inducted into squadron service.

Delay in selection of a suitable aircraft

6. ASR (Air Staff Requirement) for the acquisition of strike aircraft was finalised in 1973 and the evaluation of aircraft 'A' was done in 1975. Thereafter the proposal of aircraft was approved by CCPA in October 1978. The Committee enquired about the reasons for delay in evaluating the three aircraft when all of them were in production. The Ministry of Defence explained that APEX-I, while accepting the need for a DPSA, had recommended that the procurement of a suitable aircraft should be first pursued with a specified friendly foreign country. Some aircraft offered by that country were found to fall short in critical requirements such as range and armament load. Meanwhile, proposal from the firm for supply of aircraft 'A' had lapsed. Consequent to India's peaceful nuclear explosion in 1974, there was a change in that country's attitude and their earlier proposal for supply of aircraft 'A' could not be reviewed till June, 1975. Flight evaluation of aircraft 'A' and 'B' was accordingly undertaken in December 1975. Grounding of aircraft 'C' prevent its flight evaluation which was postponed to June 1976. In the interim report submitted to the Guidance Committee the necessity of flight evaluation of the 3 aircraft was stressed.

7. Asked about the reasons for a further delay of 3 years in approving the acquisition of aircraft 'A' in October 1978, the Ministry explained that urgency for acquisition of DPSA was highlighted by CAS in presentation given to the PM on 27 May 77. The proposal was put up to the Cabinet on 31 Oct. 77. After CCPA approval for holding negotiations, the manufacturers were invited to India for preliminary discussions in Jan/Feb 78. Since full details could not be provided by the manufacturers, it was decided to send composite teams to the respective countries to hold discussions and obtain the required data. Urgency was again highlighted by CAS in his letters to Defence Secretary on 30 June 78 and 1 Aug. 78. Further analysis of commercial offers was required before the decision to acquire aircraft 'A' could be put up for the approval of CCPA.

8. After the 1971 war, a need was felt for a class of aircraft with deep penetration strike capability. The aircraft then in use in the country were not so effective. Secondly, these aircrafts were affected with corrosion problem. In

1973, a need for such an aircraft was formally recognised by a body called APEX-I and in 1975 this was confirmed by another body called APEX-II. The Cabinet Committee on Political Affairs (CCPA) approved in October 1978 the acquisition of 'P' number of aircraft 'A'. The very fact that the Government took seven years to accord approval to the acquisition of aircraft 'A' goes to prove the lackadaisical approach of the Government from the initial stage itself in meeting the urgent requirements of the Air Force. The Committee desire that such delays must be eliminated in future in the interest of the country's defence preparedness and recommend that appropriate changes should be made in the decision making process to achieve this end.

Choice of the aircraft

9. On an enquiry by the Committee about the distinct advantage in selecting aircraft 'A' as compared to other aircraft, the Ministry informed that all three were found capable of meeting their requirements. Aircraft 'C' was powered by an engine of another country, who would not agree to the transfer of licence for its manufacture in this country. According to the Ministry between 'A' and 'B', 'A' was selected due to the following considerations :

- (i) Package cost of aircraft 'B' offer was 22% higher than that of aircraft 'A'.
- (ii) Aircraft 'A' manufacturing programme would be completed by 1989-90, compared to 1990-91 for aircraft 'B'.
- (iii) Twin engined aircraft 'A' had better survivability.
- (iv) Estimated operating cost of aircraft 'A' squadron was less as compared to that of aircraft 'B'.
- (v) Aircraft 'A' engine was of latest technology with capability for further development.

10. On an enquiry by the Committee whether the manufacturer of aircraft 'B' had initially offered the transfer of technology of advanced version of the aircraft (aircraft L) which was already finalised in that country, in case the government agreed to purchase aircraft 'B' from them, the Ministry confirmed about the receipt of such an offer but stated that an impression that a commitment to allow production of aircraft 'L' had been made was not correct. Aircraft 'L' could not be evaluated since it was only at the prototype stage at that point of time and might not have reached the commercial production stage. The Ministry further stated that the Indian Air Force had requirement at that time only for strike aircraft for which available offers were examined.

11. Aircraft 'A' was selected for induction in IAF during the period 1982-89. The Committee desired to know the specific reasons for selecting this aircraft which had the design concept of sixties and for which production line of the manufacturer was closed in 1982, i.e. even before the first aircraft was expected to be assembled in India. The Ministry explained that all the three aircraft 'A', 'B' and 'C', which met the requirements, had the design concepts of the sixties. 'A' was selected on techno-economic grounds. At that time, there was no indication that the production line would be closed in 1982. Closure of production line would have depended on receipt of orders. Product support in any case was assured by the manufacturers till 2004 AD.

12. The Committee desired to know the compelling reasons in 1978 to go in for acquisition of aircraft 'A' without evaluating in greater detail all the multi-role or technologically better aircraft under manufacture at that time. The Ministry stated that no true multi-role aircraft was under manufacture at that time. Until the early eighties multi-role capability was very desirable but unattainable goal of protagonists of air power. Further, in 1972 the strike force of Canberra and Hunter Squadrons had been reduced. Aircraft 'L' (multi-role version of aircraft 'A') was only at a proto-type stage and, therefore, there was considerable uncertainty about its future and operational parameters. The Ministry did not think it prudent to link the immediate operational requirement of the Air Force with likely development/production of this multi-role aircraft. Had a decision been taken in favour of aircraft 'L' induction would have been possible in 1985-86 with the squadrons becoming operational in 1986-87 by which time a serious depletion would have occurred in strike potential and would have involved considerable risk.

13. According to the Ministry the primary role of aircraft 'B' was air defence with secondary strike capability. The Committee asked as to how far the initial selection of aircraft 'D' which was essentially a multi-role aircraft would have been a better choice as the eventual switching over to the manufacture of its advanced version (aircraft 'L') would have been easier, cheaper and less time consuming. The Ministry explained that the air staff requirement was clearly for a DPSA, a task which could not have been performed to the desired level of satisfaction by aircraft 'B' as it did not have a nav/attack system. Selection of aircraft 'B' in preference to 'A' would have had the disadvantages listed out in para above.

14. As far as the question of licence production of aircraft 'B' and its advanced version (aircraft 'L') is concerned the Ministry stated that the 2 aircraft belonged to different generations, and there was no commonality between air frames, engines or avionics.

15. Further elucidating the reasons for going in for aircraft 'A' in preference to a multi-role aircraft 'B', the Defence Secretary explained during evidence that they had gone in for aircraft 'A' because the objective was to acquire a system which was optimised for deep penetration. On the other hand, if they had tried to make a package, low-flying capability interdiction, etc., this package would have resulted in degradation of several other features, which meant non-optimisation of any single feature. Aircraft 'L' which was acquired later, is a multi-role aircraft. In the role of ground attack, this aircraft was slightly inferior to aircraft 'A'. But it has certain other virtues.

16. The Committee pointed out that the scope of the indigenous manufacturing programme of aircraft 'A' was reviewed during October 1981 mainly on the following grounds :

- (i) the production line of manufacturer 'X' for aircraft 'A' was to be closed in 1982, whereas the assembly of indigenous aircraft by the PSU was to commence only in 1982.
- (ii) the design concept of aircraft 'A' was of the sixties and more sophisticated aircraft had been inducted in the Air Force of other countries.
- (iii) another aircraft 'L' was proposed to be inducted into the IAF.

In this connection the Defence Secretary explained during evidence that a stage came when there was a veritable revolution in the combat aircraft design and that was somewhere around the middle of 1980 onwards. Suddenly there were a number of aircraft on the horizon. These aircrafts were on the drawing board when they went in for aircraft 'A'. In retrospect, it would now appear that if they had waited for two more years, they could have acquired a different family of aircraft. But at that specific point of time, these were the aircraft that were available for their specific objective and they were accordingly evaluated.

17. It may be mentioned that the Financial Adviser, Defence Services had pointed out in October 1977 itself that technological obsolescence should not constitute a ground for curtailing domestic production of the eventually selected aircraft.

18. A letter of intention to proceed was issued by the Government in October 1978 in favour of manufacturer 'X', which was followed by two agreements concluded in April 1979. The Committee enquired why the matter was not reviewed either in October, 1978 or in April 1979 from the view point of

possible obsolescence. The Defence Secretary explained that regarding the possibility of revision, assessment of air defence, it was done and the process of acquisition of all these high value sophisticated items was by definition, by compulsion, so elaborate, so time-consuming that by the time they reached the stage of negotiation, signing of the contract, placement of the order and acceptance of the first instalment of the commodity, it generally took something like 5 years. During this period the technology moved forward and therefore, by the time the first baby arrived it was already obsolescent, if not obsolete. Therefore, it was impossible to have that satisfaction that they had acquired a commodity which was an absolute state-of-the-art.

19. The Committee pointed out that in 1979 the latest generation aircraft had taken off the drawing board stage and were also test flown. Further in 1978-79 the strategic environment in this sub-continent was not so bad as to be stampeded into some kind of immediate purchases. The Committee desired to know as to why it was not found possible to wait for some time more in the selection of an aircraft. The representative of the Ministry explained that in the first quarter of 1978 a high level Committee, which consisted of the Defence Secretary, the Defence Production Secretary, the Finance Secretary, the Chief of Air Staff and the Financial Adviser, went round the world to see the three aircraft that were available and presented a report which unequivocally decided that aircraft 'A' was the best buy. After that, with regard to the question as to why they had been suddenly stampeded into taking the decision, he explained that the reasons were two-fold. First, after the high level Committee made its report, the Chief of Air Staff wrote two letters to Government pointing out the extremely serious position which had existed as far as Canberras and Hunter squadrons were concerned. This presented a gap in the capability of the Air Force. Secondly, there were certain corrosion problems which had arisen on this fleet, which could spread very fast and lead to grounding of the entire fleet. These were the circumstances in which the CCPA paper was prepared in the Ministry in May 1978, and ultimately the decision was taken by the CCPA in September 1978.

20. The Committee pointed out that around 1978 there was a perception that immediate replacement of aging Hunters or Canberras had to be done but in 1981 the immediate need vanished and the Ministry started waiting for the latest technology development. To this the Deputy Chief of Air Staff replied that it was not a replacement for the entire fleet or Canberras or Hunters. It was only for those which were aging out. There was no technical life left in them. The corrosion problem did not affect each and every machine. They were worried that their force level was dropping as compared to the authorised level.

21. The selection of aircraft 'A' was based on the recommendations of a team which evaluated three aircraft 'A', 'B' and 'C' for the deep penetration role. According to the Ministry of Defence, aircraft 'A' was selected due to techno-economic consideration and favourable time schedule. On the other hand, the objective was to acquire a system which is optimized for deep penetration role. The Ministry of Defence have, however, conceded that the design concept of all the 3 aircraft which were evaluated was of the sixties. From the study of all the facts placed before the Committee the Committee have an inescapable impression that the selection of aircraft 'A' was not well considered. There appears to be considerable evidence that Government was aware of the technological obsolescence of aircraft 'A' at the time of making the selection. For instance, the Financial Adviser, Defence Services had pointed out in October, 1977 itself that technological obsolescence should not constitute a ground for curtailing domestic production of eventually selected aircraft. This conclusion of the Committee is further borne out by the facts discussed in the succeeding paragraphs.

22. The Committee feel that even between aircraft 'A' and 'B' to which the choice was confined, the latter with a multi-role capability would definitely have been a better choice at that time. Apart from fulfilling the requirement of deep penetration, it could also perform the combat role. Secondly, there was also an offer for the transfer of technology of aircraft 'L' (a real multi-role aircraft) in case it was agreed to purchase aircraft 'B'. In fact the first proto-type of aircraft 'L' had flown in March 1978. The very fact that all the three aircraft initially evaluated were going to be replaced by a new generation of aircraft in their respective countries should have abundantly cautioned the authorities to exercise utmost prudence in the matter of selection. In the opinion of the Committee, such prudence in the selection of the aircraft in the then prevailing circumstances was conspicuously lacking. The draft Air Staff Requirement was prepared in 1973 but the supply agreement was concluded in April 1979. Keeping in view the fact that the technology change in the area of defence equipment is rapid, the Committee are convinced that the position should have been thoroughly reviewed having regard to the changes already made in the proto-types flown and predicted before approval in 1978. Such a thorough review was all the more necessary keeping in view the huge investment of about Rs. 1500 crores involved in the project more particularly when the aircraft was to serve the needs of the country during the next 25 years. Further when the approval of the proposal could wait from 1971 to 1979 the authorities could have as well waited for 3 years. Had it been done, the huge expenditure incurred on aircraft 'A' would have been utilised in a much better way by the selection of a multi-role aircraft like 'L'

which the country ultimately had to go in for. The Committee strongly deprecate the lack of serious and purposive approach on the part of the concerned agencies in the matter of selection of the aircraft. The Committee recommend that the Government should be extremely judicious in the matter of selection of defence equipment and keep in view not only the existing but also consider the development of technology in the field, so that the ultimate choice made is the very best for ensuring that the defence forces are kept effectively equipped all the time.

Indigenous Manufacture of aircraft 'A'

23. Under the first of the two agreements concluded by the Government with manufacturer 'X' in April 1979, the manufacturer was to supply 26.7 per cent of aircraft 'A' in a fly away condition along with associated equipment at a cost of Rs. 399.69 crores, whereas the second agreement provided for the licensed manufacture by the PSU of the remaining 73.3 per cent aircraft during 1982 to 1989 in a phased manner, 30 per cent to be manufactured by the PSU from imported components supplied by manufacturer 'X' and the balance 43.3 per cent to be manufactured by the PSU from raw material.

24. The aircraft supplied by manufacturer 'X' were fitted with engine 'D' manufactured by engine manufacturer 'Y'. However, another engine 'E' manufactured by the same manufacturer 'Y' was selected for the aircraft to be manufacturer indigenously. The requirement of engine for 73.3 per cent aircraft was assessed to be 'R' number. Agreements were entered into by the Government in December 1978 with manufacturer 'Y' for the supply of 17.6 per cent engines at a cost of Rs. 53.63 crores and for the licensed manufacture by the PSU of the balance 82.4 per cent of engines, technical assistance being provided by manufacturer 'Y' to the PSU for setting up of facilities for manufacture, assembly, repair overhaul of engine 'E'.

25. The scope of the indigenous manufacturing programme of aircraft 'A' was reviewed during October 1981. Consequently the proposed production programme of the aircraft was curtailed by 22.7 per cent and reduction in the number of proposed squadron by 20 per cent. Though the CCPA initially wanted the manufacture to be limited to only 30 per cent of 'P' number for which order had already been placed on the PSU. In June, 1982 it approved the proposal for the licensed manufacture of 20.6 per cent more of 'P' number of aircraft 'A'. With the reduction in the manufacturing programme of aircraft 'A' by 22.7 per cent, the quantum of engines to be manufactured indigenously was also decided to be curtailed by 34.4 per cent.

26. The Committee pointed out that in 1981 it was decided to scale

down the indigenous production programme but in 1982, different view was taken. The Committee desired to know the reasons which called for so many changes in the production schedule. The Defence Secretary explained that in 1981 the CCPA had *inter alia* said that the cost effectiveness of the balance 20.6 per cent of 'P' number of aircraft needed to be examined by the Ministry. Consequently, the Ministry went to CCPA afresh in the middle of 1982 and explained to them the final consequences of this suggestion. Whereupon the CCPA cleared the order for additional 20.6 per cent of 'P' number of aircraft. He further explained that in this case the Cabinet considered the circumstances as they were emerging at that stage, the revolutionary changes which had taken place in the aircraft capability, the fresh option which were available, the amount of money that they had. It was thus considered that they would rather put their limited resources with aircraft 'L' which represente the state-of-the-art. He further explained that in the early 1980s, there was a veritable revolution in the aircraft industry and it was essential to appreciate that revolution. Secondly, one of our immediate neighbours had meanwhile not only acquired but they had trained themselves in all these things and it was necessary to take this factor in view because of this threat perception.

27. Other reasons advanced by the Ministry for the decision taken in 1982 for indigenous production of 20.6% of 'P' number of aircraft 'As were as follows :

- (a) The IAF would not be able to sustain a viable squadron strength for a period of 15 years, with only 26.7 per cent of 'P' number by Direct Supply + 30 per cent of 'P' number to be assembled from kits.
- (b) Total project cost for 30 per cent of 'P' number of aircraft from assembly was Rs. 888.4 crores, with each aircraft costing Rs. 19.11 crores whereas for 50.6 per cent of 'P' number of aircraft the project cost was Re. 1076 crores. It was found that the addition of Rs. 187.63 crores to the investment, could provide 20.6 per cent 'P' number of additional aircraft 'A' at an incremental cost of only Rs. 6.05 crores per aircraft, which was very economical.

28. Following orders were placed on the Public Sector Undertaking for the supply of aircraft 'A' :—

- (i) Order dated 27 July, 1979 for the manufacture and supply of 30 per cent of 'P' number of aircraft 'A' to be manufactured from imported components.
- (ii) Order dated 23 August, 1982 for 20.6 per cent of 'P' number of aircraft 'A' to be manufactured from raw material.

29. According to the Ministry setting up of infrastructure at PSU was completed by June, 1985 in aircraft division and by July, 1986 in engine division. The Committee enquired as to when the work of setting up of infrastructure was initially proposed to be completed. The Ministry stated that the infrastructure required for manufacture of aircraft 'A' from the raw material phase was proposed to be completed by September 1983 as indicated in the Detailed Project Report dated July 1980 for manufacture of 73.3 per cent of 'P' number of aircraft. This proposal was contingent on the sanction for capital and DRE being received before 31st March 1980. Sanction for Capital and DRE for the raw material Phase was received partially only in October 1982 after the Government had approved in August 1982 manufacture of 20.6 per cent of 'P' number of aircraft from the raw material phase. Considering that commitment towards capital and DRE for the raw material phase could commence only after release of sanction in October 1982, there was no delay in setting up of the facilities. This took about 3 years and was considered normal for such a project. For engine Division also, the facilities were set up by June 1985, except for one machine tool for which the offers received against the initial tenders were not suitable and retendering process had to be gone through.

30. Due to delay by Government in sanctioning raw material phase of production of aircraft by PSU, certain parts proposed for indigenous manufacture in earlier phases were proposed to be imported to meet the production programme. The cost of such additional imports was indicated in the Detailed Project Report of September, 1983 as Rs. 17.53 crores (FE Rs. 15.88 crores). According to the Ministry, the breakup of the cost of additional imports as indicated in the Detailed Project Report of September, 1983 is as follows :

	<i>Rs. In crores.</i>
(a) Parts which were earlier proposed to be manufactured indigenously	5.33
(b) Parts which were not proposed to be manufactured indigenously	7.50
(c) Items procured due to introduction of modified new Navigation System	4.70
Total	17.53

The components valued at Rs. 5,33 crores imported for earlier phase were subsequently manufactured at PSU in the raw material phase after setting up the necessary facilities.

31. As per original schedule, supplies to the first order of July, 1979 were to be completed between 1982-83 to 1985-86. Supply of kits by the Licensor for the aircraft involved in the order was affected from May, 1981 to September, 1984. However, isolated shortages were followed up and received progressively by March, 1986.

32. Even though the Government agreed in January, 1981 [for the import of additional sub-assemblies costing Rs. 4.4 crores to enable the PSU to adhere to the delivery schedule for 30 per cent of the aircraft, the PSU could deliver only 19.3 per cent aircraft upto March, 1986. According to the Ministry, following were the reasons for slippage and for revision of the schedule carried out in 1985 :—

- (i) Delay by manufacturer 'Y' in finalising the modification to engine 'E' which was selected for the aircraft to be manufactured indigenously.
- (ii) Delay by manufacturer 'X' in finalising airframe modification to removed restriction on engine 'E'.
- (iii) Delay in finalising Navigation System 'G'.

33. The Ministry have further explained that according to the delivery schedule indicated in the Detailed Project Report of July, 1980, supplies in respect of 73.3 per cent of the 'P' number of aircraft were to be affected between 1982-83 to 1988-89. This delivery schedule was reviewed by the concerned project Board in August, 1985 which revised the schedule considering the manpower needed for maintaining the above schedule which would become surplus subsequently in the absence of any new project for PSU. According to the revised schedule, supplies against both the orders of 1979 and 1982 were to be affected between 1982-83 to 1988-89.

34. Till date the PSU has completed the supplies against the first order of 1979. Supplies of the remaining aircraft are expected to be completed by 1989-90.

35. Explaining the reasons for slippages in delivery schedule the Ministry had intimated Audit in November, 1986 that some delay could also be attributed to a longer time taken in fabrication of indigenous tooling as well as re-work on tooling supplied by manufacturer. Besides, there was uncertainty about the total number of aircraft to be indigenously manufactured.

36. On an enquiry by the Committee whether there were delays on the part of the IAF in taking delivery of the aircraft after they were signalled out, the Ministry have confirmed that there was a time lag in IAF taking delivery of the aircraft after they were signalled out by the PSU in 1985-86 and 1986-87 as a result of which storage and maintenance charges amounting to Rs. 7.14 lakhs had to be incurred and absorbed by the PSU. The reasons advanced by the Ministry for delay in taking over by IAF are indicated at Appendix II.

37. The Committee asked about the actual indigenous content in the production of aircraft 'A' at PSU from raw material. The representatives of the Undertaking explained that in the case of aircraft 'A', approximately 80 per cent of the components were being manufactured by the PSU. The components which were not manufactured were those for which the manufacture would not be cost effective. He also stated that they depended on procurement of raw material from abroad. Most of the raw material for aircraft 'A' was imported. Raw material of aeronautical specification were not made in the country yet. He further clarified that the indigenous content in the raw material phase of aircraft 'A' was approximately 42 per cent by value. The witness admitted that most of it was labour cost. To a pointed question as to what would be the indigenous content in terms of material alone, the witness conceded that it was very little. He further conceded that it was very small because aeronautical materials were not made in this country.

38. According to the approval accorded by the Cabinet Committee on Political Affairs (CCPA) in October, 1978, 73.3 per cent of 'P' number of aircraft 'A' were required to be manufactured by PSU under licence agreement with foreign manufacturer 'X'. The scope of the indigenous manufacturing programme was reviewed during October, 1981, as a result of which, the indigenous manufacturing programme was curtailed to 50.6 per cent of 'P' number. The reduction was mainly on the grounds that the design philosophy of the aircraft was of the sixties, other countries had inducted new generation aircraft and the foreign manufactures of this aircraft had themselves planned stoppage of production of the aircraft in 1982. Keeping in view the obsolescence of the aircraft and other related factors, the CCPA had initially desired the indigenous manufacture to be confined to only 30 per cent of 'P' number but in 1982, it approved the proposal for additional 20.6 per cent of 'P' number raising the licensed indigenous production programme to 50.6 per cent of 'P' number at a total cost of Rs. 1076.03 crores. Undoubtedly, the review conducted by the CCPA in 1981 amounts to the questioning of the wisdom of decision taken in 1978. Secondly, right from 1971 the Air Force requirements were stated to be of a very passing nature due to the inadequacy and depleting strength of the

then existing aircrafts which were badly affected by corrosion. Strangely enough the decision taken as a result of the review conducted in 1981 is not in consonance with the plea for urgent requirements of the Air Force for such an aircraft. These contradictions undoubtedly, establish that the authorities concerned had neither a clear conception of their requirements nor the total perception of the continuing technological advancements in the aeronautical field all over the world. The Committee strongly deprecate these contradictions and recommended that the Government should always keep themselves fully abreast of the technological research and advancement in the respective fields while working out the defence requirements so as to ensure that the Air Force is equipped effectively all the time.

39. Two orders were placed on the PSU for the indigenous licensed production of 50.6 per cent of 'P' number of aircraft 'A'. The first order was placed on 27 July, 1979 for the manufacture and supply of 30 per cent of 'P' number of aircraft 'A'. These aircraft were to be assembled from imported components, requisite kits for which were received between May 1981 and September, 1984. As per original schedule, supplies against this order were to be completed between 1982-83 and 1985-86. The Committee note with dismay that even though the Government agreed in January 1981 for the import of additional sub-assemblies costing Rs. 4.4 crores to enable the PSU to adhere to the delivery schedule for 30 per cent of 'P' number of aircraft, the PSU could deliver only 19.3 per cent aircraft upto March 1986.

40. The second order for 20.6 per cent of 'P' number of aircraft, to be manufactured from raw material was placed on the PSU on 23 August, 1982. According to the schedule, delivery of 10.6 per cent of aircraft was to be effected in 1986-87 and the delivery of the remaining 10 per cent of the aircraft was to be made during 1987-88. This delivery schedule was reviewed and revised by the concerned Project Board in August, 1985. According to the revised schedule supplies against both the orders of 1979 and 1982 were to be affected between 1982-83 and 1988-89. Till date the PSU has completed the supplies against the first order of 1979. According to the Ministry, supplies of the remaining aircraft are expected to be completed by 1989-90. These are deviations even from the revised schedule fixed by the Project Board in 1985. The Committee deprecate the lack of seriousness and purposive approach on the part of the concerned authorities in meeting the urgent and pressing requirements of the Air Force. The Committee recommend that concerted efforts should be made by all concerned to ensure that supply of the remaining aircraft is completed by 1989-90 positively.

41. The Committee are concerned to note yet another negative impact of

delay on the part of the Government in sanctioning the raw-material phase of production. The Ministry have conceded that due to this delay, an additional expenditure of Rs. 5.33 crores had to be incurred in importing certain components which were earlier proposed to be manufactured indigenously.

42. According to the Detailed Project Report dated July 1980, infrastructure required for manufacture of Aircraft 'A' from the raw material phase was proposed to be completed by September, 1983. Due to delay in according sanction for capital and DRE for the raw material phase, setting up of infrastructure at PSU was completed by June 1985 in aircraft division and by July 1986 in engine division. Since production of aircraft 'A' is to be completed by 1989-90 very costly and comprehensive infrastructure created, would be utilised only for 4-5 years. Since aircraft 'A' is the last of 3 particular technological line the Committee apprehend that the costly infrastructure may not be suitably utilised on completing the supply of 50.6 per cent of 'P' number of aircraft, The Committee strongly recommend that suitable ways and means should be devised to utilise this costly infrastructure to the maximum possible extent to strengthen the indigenous aeronautical base. The ways and means, so devised should be intimated to the Committee.

43. The Committee are unhappy to note that an infructuous and avoidable expenditure of Rs. 7.14 lakhs had to be incurred towards storage and maintenance charges due to delay on the part of the IAF in taking delivery of the aircraft after they were signalled out by the PSU in 1985-86 and 1986-87. This expenditure was absorbed by the PSU. The Committee are not convinced with the justification given by the Ministry about the lengthy procedure involved in taking over aircraft from PSU. The Committee believe that by proper co-ordination between the IAF and PSU the infructuous expenditure would have been avoided. The Committee deplore the lack of seriousness on the part of the concerned authorities.

44. The Committee are also unhappy to note that the value of indigenous production of the aircraft, apart from the labour component is negligible till now and would remain so till the end, thoroughly keeping the country dependent on foreign supplies of either components of raw materials for components. Achievement of self reliance has been sadly neglected in spite of enormous expenditure incurred for the project.

Delay in Selection and Development of a Navigation System

45. Aircraft 'A' supplied by manufacturer 'X' was fitted with navigation system 'H' of an older type, which had low reliability. It was, therefore,

decided at the time of conclusion of the supply agreement that the aircraft would be re-equipped with an advanced navigation system 'G'.

46. According to the Ministry, the development of system 'G' was commenced in August, 1980. The first flight of an aircraft equipped with this system took place in December 1983. Production aircraft with system 'G' were delivered from March 1985 onwards. Explaining the reasons for delay, the Ministry have stated that this system is a sophisticated one being developed and integrated for the first time in the country and as such its development and integration was bound to be lengthy and to some extent unpredictable.

47. Due to delay in selection and development of navigation system 'G', all the direct supply aircraft and 4 per cent of 'P' number of aircraft supplied by the PSU were equipped with system 'H', which apart from low reliability is prone to frequent repairs. Expenditure on repair abroad of system 'H' amounted to Rs. 4 99 crores upto October, 1986. According to the Ministry, there is no proposal to replace system 'H' fitted in some aircraft by system 'G'. The Committee are surprised that a superior Nav-attack system is not to be fitted in a large number of aircraft in spite of its availability, particularly where so much trouble was taken, funds spent and delay undergone for development of the latter system 'G'. Since the aircraft are meant for role in which a superior Nav-attack system might make all the difference, the Committee recommend that the decision for not fitting system 'G' in aircraft already having system 'H' should be carefully reviewed having regard to all the operational consequence.

Extra Burden due to Curtailment of requirements for Indigenous Manufacture

48. According to Audit, the extra financial burden to be borne by the present manufacture due to the curtailment would work out to Rs. 105.92 crores. The break up of estimated expenditure for infrastructure of Rs. 342.68 crores is as follows :

Capital	= Rs. 115.94 crores
DRE	= Rs. 177.00 crores
Licence fee and	= Rs. 49.74 crores
Technical	
Assistance fee	

49. According to the Ministry Capital and DRE were estimated for production of 50.6 per cent and not 73.3 per cent of 'P' number of aircraft and that licence fee and technical assistance fee are not linked with the

number of aircraft but one time payment for transfer to know-how. Therefore, according to the Ministry there was no extra financial burden due to curtailment on the production programme.

50. When the Committee pointed out that the reduction in output would increase the cost of the indigenous aircraft, the Defence Secretary conceded it and stated that the reduced production would result in a slight increase in the cost of production³.

51. The Audit Paragraph reveals that the curtailment in the manufacturing programme from 73.3 per cent of 'P' number to 50.6 per cent of 'P' number of aircraft resulted in an extra financial burden of Rs. 105.92 crores to be borne by the present manufacturing programme. The Committee do not agree with the Ministry that there was no extra financial burden due to the curtailment of the production programme. Total project cost for 30 per cent of 'P' number of aircraft from assembly was Rs. 883.4 crores, whereas for 50.6 per cent of 'P' number of aircraft, the project cost was Rs. 1076 crores. The very fact that the addition of Rs. 187.63 crores to the investment, could provide 20.6 per cent of 'P' number of additional aircraft, goes to unequivocally prove the contention of the Audit, for 105.92 crores of the extra burden due to the curtailment. The Defence Secretary also conceded during evidence that if they reduced the production run, there was a slight increase in the cost of production. The Committee are concerned to note that this huge additional cost aspect due to curtailment in the manufacturing programme was lost sight of at the time of taking the decision

Buy-Back Arrangements

52. The agreements entered into with Manufacturers 'X' and 'Y' provided for buy back arrangements from PSU to the extent of Rs. 63 crores and between £20 million and £32 million respectively. The Committee desired to know the basis for arriving at these monetary figures. The Ministry of Defence explained that the manufacturing facilities available at the PSU and facilities to be set up were taken into consideration while these figures of buy back arrangements and quantum thereof were mutually agreed during negotiation as a package but that basically this was a matter of commercial bargaining.

53. Asked the extent to which these arrangements were actually operated upon the Ministry have stated that PSU has received buy back orders from firm 'X' to the extent of £ 6.78.164 (valued at Rs. 1,56 crores at current exchange rate) and from manufacture 'Y' to the extent of £ 1.03 million

3. Refer appendix II for details.

(Rs. 2.37 crores at current exchange rate). Within the original schedule of 6 years from the date of the contract, buy back orders placed by 'X' and 'Y' amounted to £4,52,201 (valued at Rs. 1.04 crores at current exchange rates) and £ 0.97 million (Rs. 2.23 crores at current exchange rates), respectively.

54. According to the Ministry obligation of manufacturer 'X' to place buy back orders on the PSU in being constantly persued with them. They have stated that they would do their best to place further buy back orders on PSU. Manufacturer 'X' has also indicated their intention to place order on the PSU worth Rs. 11.38 crores. A firm order worth Rs. 0.91 crore has already been received. They have also sent enquiries for another order worth Rs. 11.34 crores.

55. The agreements entered into with mgnufacturers 'X' and 'Y' provided for buy back arrangements from the PSU to the extent of Rs. 63 crores and between £20 million and £32 million respectively. These buy back arrangements were to be effected within a period of 6 years from the dates of agreements i.e. April, 1985 and December 1984, respectively. The underlying idea of these arrangements was to improve the economics of the project by reducing the net out-go of foreign exchange. So far, the PSU received buy back orders from firm 'X' and 'Y' to the extent of Rs. 1.56 crores, and Rs. 2.37 crores, respectively. The Committee are extremely unhappy over the dismal extent of operation of these arrangements. The Committee would like to know the detailed reasons due to which these arrangements could not be operated upon to the extent set out in the agreements. The Committee urge that efforts should be made to derive maximum possible benefits in the spirit of these agreements.

Fitment of Radar

56. Manufacturer 'X' had accepted the responsibility for fitment of radar 'F' in some of the indigenously manufactured aircraft for maritime strike capability. For this purpose, an advance payment of Rs. 1.00 crore was made to manufacturer 'X' in April 1982. According to the Ministry, the responsibilities of manufacturer 'X' in this regard were as follows : -

- (i) To supply the modification kits and test equipment required.
- (ii) To modify some aircraft for the fitment of the Radar.
- (iii) To carry out physical fitment of the Radars on some of the aircraft.
- (iv) To jointly develop the modification upto clearance and assist GOI in obtaining full operational clearance.

Manufacturer 'X' have fulfilled the tasks (i) and (iv) and was required to

compensate GOI for the tasks undertaken by Indian agencies, which matter is under discussion.

57. The supply agreement had also provided for training of 85 personnel of the IAF on the maintenance of equipment including radar 'F'. However, due to change in the programme of modification of aircraft and fitment of Radar, the training on the Radar was not included in the programme of training given by the foreign manufacturer. Subsequently, an expenditure of Rs. 11.23 lakhs had been incurred towards maintenance training on radar 'F' imparted to the IAF personnel by firm 'Z'. According to the Ministry following the decision to move fitment of the Radars to PSU production, it was decided that no useful purpose would be served by training the personnel 3 to 4 years in advance. Therefore, manufacturer 'X's training commitment was fully utilised by training other tradesmen. Subsequently, in 1984, personnel were sent for training with the manufacturer of the Radar.

58. The Committee take a serious note of the fact that due to delay in the fitment of Radar F, the training facilities provided for in the supply agreement with manufacturer 'X' could not be fully availed of. Consequently an additional expenditure of Rs. 11.23 lakhs had to be incurred subsequently towards maintenance training on the radar imparted to the IAF personnel by firm Z. The Committee also recommend that the question of obtaining compensation from manufacture 'X' for fulfilling only a part of their responsibility for fitment of radar, should be pursued vigorously.

Induction of Indigenous Aircraft 'A'

59. Aircraft 'A' were to be stationed at Stations 'S' and 'T' after their induction. While the delivery of indigenous aircraft manufactured by PSU was to commence in 1982-83, the civil works required for their induction at station 'T', were initiated only in December, 1980. However, due to financial constraints the works were sanctioned by the Government only in March 1984 at an estimated cost of Rs. 4.73 crores, to be completed in April 1987. The Ministry have confirmed that works services have since been completed. According to the Ministry, since the first aircraft 'A' base was already set up at station 'S' and was fully operational, the work services for second base was not accorded operational priority. Work services were ready for the second base, however, except for second line servicing facilities by the time the squadrons moved.

60. Due to non-completion of civil works, the aircraft were sent from station 'T' to station 'S' for repairs. According to the Ministry, each aircraft was flown about 45 minutes each way for servicing requirements. These

hours were utilised for pilot training within normal authorised training syllabus and no additional expenditure was incurred. According to the Ministry, the administrative difficulties experienced were non-availability of second line servicing facilities and access to simulator for pilot training. These were overcome by utilising the facilities established at station 'S'. According to the Ministry on completion of all civil works, complete servicing facilities will be available upto second line servicing at each station. Simulator will also be available for pilots training at both bases.

61. The Committee take a serious view of the fact that completion of work services at base 'T', one of the two bases meant for stationing these aircraft after their induction was badly delayed. The work services were completed as late as by April 1987. The difficulties experienced as a result of this delay are non-availability of second line servicing facilities, and access to simulator for pilot training. For second line servicing the aircraft had to be sent from station 'T' to station 'S'. Obviously, this resulted in additional flying time and avoidable fuel cost. The Committee deprecate the lack of seriousness on the part of the authorities in making the necessary facilities available in time.

Installation of Simulator

62. The Government also concluded a contract with foreign firm 'Z' in December 1980 for the supply of 2 simulators for aircraft 'A' to be delivered by January 1983 and June 1983. The first simulator was received at Station 'S' and installed in July 1984 and the second was received at station 'T' in July 1985 and installed in September 1985. Thus while aircraft 'A' were inducted into service at Station 'S' in 1980 the simulator at Station 'S' was commissioned only in July 1984 and simulator was not available for training of pilots for a period of over 3 years.

63. According to the Ministry two simulators were to be received by April 1983 and October 1983 (24 and 30 months from the date of 1st payment). The first simulator was shipped to India by end 1983. The simulator could not be transported by air due to large size of dome segments and had to await transportation by sea. The second simulator was to be built to System 'G' standards, and required relevant components, delivery of which were delayed due to difficulties in finalising the contract with one of the vendors. The simulator was delivered in January 1985, after they fulfilled their obligations, and was received in India in April 1985.

64. The training on combat aircraft can be primarily divided into three distinct phases. The first phase involves initial conversion on the new air-

craft. In the second phase, applied operational training and consolidation are carried out to bring the pilot to fully operational status. The third phase involves a regular ongoing training programme to maintain the required level of proficiency. A flight simulator finds application to varying degree, in each of the three phases of training. A good deal of training exercises are practised on flight simulators. The scope and application of the simulator training, however, varies according to phase of training. The flight simulators, therefore, do not substitute the actual flying training, but complement it.

65. The flight simulators essentially improve the qualitative content of the training. Advantages can be broadly summarised as follows :—

- (a) An improvement in the skill of the pilot.
- (b) Ability to repeat problems that require special emphasis.
- (c) Increasing pilot proficiency to handle serious/multiple emergencies by simulation.

66. The Committee are deeply concerned to note the lack of planning and foresight resulting in unpardonable delay in making the two simulators available. The simulators were installed in July 1984 and September 1985 whereas the direct supply aircraft started arriving from September 1980 onwards. A flight simulator finds application to varying degree in each of the three phases of training. A good deal of training exercises are practised on flight simulator which apart from improving the skill of the pilot increases pilot proficiency to handle serious/multiple emergencies by simulation. The non-availability of simulators for training purposes for such a long time apart from increasing the training cost might have to some extent impeded the trainees in attaining the desired proficiency.

Establishment of Overhaul Facilities

67. The PSU was also entrusted with the responsibility for repair/overhaul of rotables for aircraft 'A'. In 1981, Air HQ identified only 292 rotables of aircraft 'A' to be repaired/overhauled by the PSU. Of these 255 rotables were assigned to overhaul division of the PSU. Out of 255 rotables of aircraft 'A' repair facility for 72 rotables had been established by November 1986. Total expenditure incurred till October 1986 on repair of aircraft rotables abroad amounted to Rs. 7.85 crores.

68. According to the Ministry, in 1981, only 66 rotables of Direct Supply aircraft were identified and PSU was in the process of setting up the facilities. In 1986 task force committee identified 189 more rotables of System 'G' aircraft making a total of 255. Subsequently on review, 23 were

deleted on the basis of techno-economic consideration lacking as 232 rotables. As of today, facilities for 120 rotables have been established. The delay in setting up remaining facilities is due to delay in obtaining publications and spares from the vendors, who were initially reluctant to supply them. Intervention of manufacturer was required to sort out this problem. Repair facilities for all the remaining rotables are planned to be established progressively by and 1988.

69. The Ministry of Defence have also intimated that after October 1986, expenditure has been incurred for repairing sub-assemblies abroad only for Navigation System 'A' and other items for which setting up facilities in India were not technically and financially viable. Payments made from October, 1986 till date for such repairs amounted to Rs. 173.23 lakhs.

70. The Committee are deeply concerned to note that out of the 292 rotables identified by the Air Head Quarters as requiring repair/overhaul, facilities for which were to be established in the PSU, such facilities have so far been established in respect of 120 rotables only. Total expenditure incurred till October 1986 on repair of aircraft rotables abroad amounted to Rs. 7.85 crores. Absence of the necessary repair/overhaul facilities not only results in avoidable expenditure in the shape of outgo of precious foreign exchange but also leads to a considerable time lag in obtaining the necessary repairs. The Committee strongly urge upon the authorities to make all out efforts in establishing the entire repair/overhaul facilities, expeditiously.

NEW DELHI ;

April 20, 1988

Chaitra 31, 1910 (Saka)

AMAL DATTA

Chairman,

Public Accounts Committee.

APPENDIX I

(Vide Para 1)

*Audit Paragraph 35 of the Report of C & AG for the year 1985-86,
Union Government (Defence Services) regarding Induction of an
aircraft in the Indian Air Force*

Based on the recommendations of a team which evaluated various aircraft for the deep penetration strike role, the Cabinet Committee on Political Affairs (CCPA) approved in October 1978 the acquisition of 'P' number of aircraft 'A' for maintaining 'Q' number of squadrons for the Air Force. 26.7 per cent of the aircraft were to be procured in a fly away condition from foreign manufacturer 'X' and the balance 73.3 per cent to be manufactured indigenously by a public sector undertaking (PSU) under licence agreement with manufacturer 'X'. A letter of intention to proceed was issued by the Government in October 1978 in favour of manufacturer 'X', which was followed by two agreements concluded in April 1979. Under the first agreement the manufacturer 'X' was to supply 26.7 per cent of aircraft 'A' in a fly away condition along with associated equipment at a cost of Ra. 399.69 crores whereas the second agreement provided for the licensed manufacture by the PSU of the remaining 73.3 per cent aircraft during 1982 to 1989 in a phased manner, 30 per cent to be manufactured by the PSU from imported components supplied by manufacturer 'X' and the balance 43.3 per cent to be manufactured by the PSU from raw material. For the licensed manufacture by the PSU, manufacture 'X' was to be paid a licence fee of Rs. 23.94 crores and a royalty at the rate of 2.5 per cent of the cost of manufacture of the aircraft. The aircraft supplied by manufacturer 'X' were received during September 1980 to October 1982 and were inducted into squadron service.

2. The aircraft supplied by manufacturer 'X' were fitted with engine 'D' manufactured by another foreign manufacturer 'Y'. However, another engine 'E' manufactured by the same manufacturer 'Y' was selected for the aircraft to be manufactured indigenously. The requirement of engine for 73.3 per cent aircraft was assessed to be 'R' number. Agreements were entered into by the Government in December 1978 with manufacturer 'Y' for the supply of 17.6 per cent engines at a cost of Rs. 53.63 crores and for the licensed manufacture by the PSU of the balance 82.4 per cent of engines, technical assistance being provided by manufacturer 'Y' to the PSU for setting up of facilities for

manufacture, assembly, repair/overhaul of engine 'E'. The manufacture 'Y' was to be paid a licence fee of Rs. 4.8 crores and technical assistance fee of Rs. 1.84 crores.

3. In June 1979, the Government authorised the PSU to incur capital and deferred revenue expenditure (DRE) upto a ceiling of Rs. 12.5 crores and Rs. 20.8 crores respectively (revised last in September 1985 to Rs. 115.94 crores and Rs. 177.00. crores respectively) for setting up facilities required for manufacture of aircraft 'A', engine 'E' and related accessories.

4. In July 1979 the Government sanctioned placement of first order on the PSU for the manufacture and supply of 30 per cent of 'P' number of aircraft 'A' as per the following schedule :

<i>Year</i>	<i>Percentage of aircraft to be delivered</i>
1982-83	5.3
1983-84	10.7
1984-85	10.7
1985-86	3.3

In order to avoid slippages in the production schedule of 30 per cent aircraft ordered on the PSU, Government approved in January 1981 import of sub-assemblies from manufacturer 'X' at an additional cost of Rs. 4.4 crores. These sub-assemblies were earlier planned to be manufactured from raw material by the PSU.

5. The scope of the indigenous manufacturing programme of aircraft 'A' was reviewed during October 1981 mainly on the following grounds :

the production line of manufacturer 'X' for aircraft 'A' was to be closed in 1982, whereas the assembly of indigenous aircraft by the PSU was to commence only in 1982.

the design concept of aircraft 'A' was of the sixties and more sophisticated aircraft had been inducted in the Air Force of other countries and

another aircraft 'L' was proposed to be inducted into the IAF.

As a result of the review. Ministry of Defence (Ministry) proposed curtailment of the production programme of the aircraft by 22.7 per cent and reduction in the number of proposed squadrons of aircraft 'A' by 20 per cent.

Though the CCPA initially wanted the manufacture to be limited to only 30 per cent of 'P' number for which order had already been placed on the PSU, in June 1982 it approved the proposal for the licensed manufacture of 50.6 per cent of 'P' number of aircraft 'A' by the PSU at a total estimated cost of Rs. 1076.03 crores (Free Foreign Exchange : Rs. 768.28 crores . The reduction of 20 per cent in the proposed number of squadrons was also approved' The Government, accordingly sanctioned in August 1982 placement of a second order on the PSU for the manufacture and supply of additional 20.6 per cent of 'P' number of aircraft 'A'. The delivery schedule under the second order was as follows :

1986-87	10.6 per cent
1987-88	10 per cent

With the reduction in the manufacture programme of aircraft 'A' by 22.7 per cent, the quantum of engines to be manufactured indigenously was also decided to be curtailed by 34.4 per cent.

The curtailment in the planned production of aircraft 'A' and engine 'E' by the PSU has resulted in the licence and technical assistance fees totalling Rs. 49.74 crores at March 1985 estimates payable to the foreign manufacturers 'X' and 'Y' and capital and deferred revenue expenditure totalling Rs. 292.94 crores at March 1985 estimates incurred by the PSU being borne by 50.6 per cent of 'P' number of aircraft as against 73.3 per cent of 'P' number of aircraft originally planned. The extra financial burden to be borne by the present manufacture due to the curtailment would work out to Rs. 105.92 crores. The Ministry, however, stated in November 1986 that the amount of licence fee was paid for transfer of technology. This was a fixed amount which was generally not related to the number of aircraft manufactured. The capital and deferred revenue facilities were to be established regardless of the number of aircraft to be produced from raw material. While capital facilities would be made use of for subsequent Project as well, a major portion of DRE facilities like test equipment, rigs and some of the assembly rigs would be transferred to the PSU when the overhaul of the aircraft was taken up.

The fact, however, remains that due to curtailment of the number of aircraft to be manufactured by the PSU, the fixed cost had to be borne by a fewer number of aircraft, thereby increasing the per capita cost of aircraft to be manufactured.

6. Even though the Government agreed in January 1981 for the import

of additional sub-assemblies costing Rs. 4.4 crores to enable the PSU to adhere to the delivery schedule for 30 per cent of the aircraft, the PSU could deliver only 19.3 per cent aircraft upto March 1986. The expected and actual delivery of aircraft was as follows :

<i>Year</i>	<i>Expected delivery (percentage)</i>	<i>Actual delivery (percentage)</i>
1982-83	5.3	2.9
1983-84	10.7	2.7
1984-85	10.7	5.3
1985-86	3.3	9.3
Total :	30.0	19.3

The slippage in the delivery schedule was reviewed by the project board in August 1985 and the delivery schedule for the balance aircraft was revised as follows :

<i>Year</i>	<i>Revised delivery schedule (percentage)</i>	<i>Aircraft already delivered (percentage)</i>
Upto		
1984-85	10.0	10.0
1985-86	9.3	9.3
1986-87	8.7	—
1987-88	7.3	—
1988-89	8.0	—
1989-80	7.3	—
Total :	50.6	19.3

Thus, as per current estimates, the formation of the squadrons will be completed only in 1989-90 as against 1986.87 envisaged in the original project of 1879. The Ministry stated in November 1986 that the slippages in the delivery schedule were on account of problems experienced during flight trials with modified engine 'E' which called for the manufacturer to make certain modifications to the aircraft system. Further, there was delay in development of system 'G' by organisation 'M' and problems experienced during integration of system 'G' in aircraft 'A'. The Ministry also stated that some delay

could also be attributed to the longer time taken in fabrication of indigenous tooling as well as re-work on tooling supplied by manufacturer. Besides, there was uncertainty about the total number of aircraft to be indigenously manufactured.

7. Delay in development of Navigation system

Aircraft 'A' supplied by manufacturer 'X' was fitted with navigation system 'H' of a vintage type, which had low reliability. It was, therefore, decided at the time of conclusion of the supply agreement that the aircraft would be re-equipped with an advanced navigation system 'G'. For the development of system 'G' and its integration with aircraft 'A' an organisation on 'M' was put up by the Government in April 1980 and Rs. 23 crores were sanctioned for the purpose. Due to delay in selection of the required navigation system 'G', it was decided to incorporate system 'G' only in the aircraft to be produced by the PSU commencing from April 1984. The Government sanctioned in August 1983 structural modification, wiring and installation of system 'G' in 3 aircraft at an estimated cost of Rs. 2.61 crores. Of the aircraft delivered up to March 1986 by the PSU, 4 per cent of 'P' number of aircraft were equipped with navigation system 'H' and 15.3 per cent of 'P' number of aircraft were equipped with system 'G'. The Ministry stated in November 1986 that there were no immediate plans to replace system 'H' by system 'G' in the direct supply aircraft.

System 'H' was prone to frequent repairs. One of the main sub-assemblies of system 'H' costing Rs. 21.8 lakhs had to be prematurely withdrawn frequently from the aircraft for repairs. The total expenditure incurred on repair of the sub-assemblies abroad during the period July 1980 to October 1986 was Rs. 4.99 crores.

8. Delay in fitment of Radar

Aircraft 'A' supplied by manufacturer 'X' did not have the maritime strike capability. In order to add this capability the agreement concluded with manufacturer 'X' in April 1979 for supply of aircraft 'A' had *inter alia* provided for necessary modification in 5.33 per cent aircraft and fitment of radar 'F' at a cost of Rs. 1.78 crores. While the modification was to be done in 5.33 per cent of the aircraft, radar 'F' was to be fitted only in 4 per cent aircraft. Radar 'F' corresponding to 4.66 per cent of the aircraft (for fitment in 4 per cent and reserve for 0.66 per cent of aircraft) were procured in February 1981 from another foreign firm 'Z' at a total cost of Rs. 3.03 crores. These radars carried warranty upto August 1984 and were stored with manufacturer 'X'. At the time of signing of supply agreement in April 1979, it was envisaged that the aircraft on which radar 'F' would be fitted would also be re-

equipped with the advanced navigation system 'G', But due to delay in selection of system 'G', it was decided in October 1979 to fit radar 'F' in the aircraft to be manufactured by PSU instead of the aircraft to be supplied by manufacturer 'X', as the former were to be equipped with navigation system 'G'. Simultaneously, Air HQ also proposed shifting of the point of fitment of radar 'F' from nose to pod of the aircraft to enhance the operational capability of aircraft. As manufacturer 'X' demanded an additional amount of Rs. 1.17 crores for integration of podded version of radar 'F', the Government did not approve the proposal. It was finally decided in November 1981 to embody the radars in the nose of indigenously manufactured aircraft. Manufacturer 'X' had accepted the responsibility for fitment of radar 'F' in the indigenously manufactured aircraft. For this purpose, an advance payment of Rs. 1.00 crore was made to manufacturer 'X' in April 1982.

The Ministry had entrusted in April 1983, the task of integration of radar 'F' with navigation system 'G' at a cost of Rs. 4.3 crores (FFE : Rs. 4 crores to organisation 'M' which was associated with the development of navigation system 'G'. Due to the delay in selection of suitable navigation system 'G', the radar procured in February 1981 at a cost of Rs. 3.03 crores, for which installation charges of Rs. 1.00 crore had already been paid in April 1982 to the manufacturer 'X' would now be installed in aircraft 'A' to be manufactured during 1986-87 and 1987-88. Meanwhile, the warranty period for these radars had already expired in April 1984. The radars which were stored with the foreign manufacturer 'X' were transferred to the PSU in July 1985. A suitable maritime strike weapon system was to be selected and integrated with radar 'F'. Though aircraft 'A' equipped with radar 'F' would be delivered during 1986-87, it will have no strike capability as the weapon system had not been procured till November 1986.

The Ministry stated in November 1986 that the delay in the delivery of the radar till such time the integration of the new navigation system was completed would have resulted in un-acceptable liabilities on account of escalation. Further, it was not possible to cancel the radar procurement as it would have resulted in penalties and in the radar not being available when required. The servicability of the radars procured in 1981 was tested immediately on transfer from manufacturer 'X' and again before installation in the aircraft. The Ministry further stated that the weapon system suitable for integration with the radar and the maritime aircraft has been identified and negotiations with the suppliers have been completed.

The supply agreement had also provided for training of 85 personnel of the IAF on the maintenance of equipment including radar 'F'. However,

due to change in the programme of modification of aircraft and fitment of radar 'F', the training on radar 'F' was not included in the programme of training given by the foreign manufacturer. Subsequently an expenditure of Rs. 11.23 lakhs had been incurred towards maintenance training on radar 'F' imparted to the IAF personnel by firm 'Z'. The Ministry stated in November 1986 that even if the training on maintenance of radar had been undertaken in 1981-82, it would not have been of much use and it would have been necessary later either to train the additional personnel or to undertake refresher course subsequently.

9. *Induction of indigenous aircraft 'A'*

Aircraft 'A' were to be stationed at stations 'S' and 'T' after their induction, while the delivery of indigenous aircraft manufactured by PSU was to commence in 1982-83, the civil works required for their induction at station 'T' were initiated only in December 1980. However, due to financial constraints the works were sanctioned by the Government only in March 1984 at an estimated cost of Rs. 4.73 crores. The works services were still in progress and were due to be completed by April 1987. Some of the important works yet to be completed were industrial shops, special internal electrification and staff quarters.

The indigenous aircraft were positioned in squadron 'N' at Station 'T' from August 1985. The establishment for the squadron was, however, posted in January 1985 itself. Due to non-completion of essential shop facilities aircraft 'A' stationed at 'T' were being sent to Station 'S' for some essential repairs.

The Ministry stated in November 1986 that due to financial constraints the case could not be processed. However, the delay in sanction and completion of the work services at Station 'T' has not resulted in any extra expenditure. The Ministry further stated that the main industrial shops were likely to be completed by November 1986. During the interim period aircraft used to be sent to Station 'S' for their periodical second line servicing which had since been discontinued.

10. *Installation of simulator*

The Government also concluded a contract with foreign firm 'Z' in December 1980 for the supply of 2 simulators for aircraft 'A' to be delivered by January 1983 and June 1983. The first simulator was received at Station 'S' and installed in July 1984 and the second was received at Station 'T' in July 1985 and installed in September 1985. Thus, while aircraft 'A' were inducted into service at Station 'S' in 1980 the simulator Station 'S' was

commissioned only in July 1984 and simulator was not available for training of pilots for a period of over 3 years. The Ministry stated in November 1986 that even if the simulator had been available from 1980 it would still have been necessary to send pilots abroad for conversion training as simulator training was not a complete substitute for cockpit flying.

The facilities for the overhaul of the simulators have not been established in the country as according to the Air Hq such facilities will not be cost effective. It was, however, seen that the average serviceability of the simulator at Station 'T' was only 48.2 per cent it being totally unserviceable during December 1985 and March 1986.

11. *Establishment of overhaul facilities*

The PSU was also entrusted with the responsibility for repair/overhaul of rotables for aircraft 'A'. In 1981, Air HQ identified only 292 rotables of aircraft 'A' to be repaired/overhauled by the PSU. Of these 255 rotables were assigned to overhaul division of the PSU. Out of 255 rotables of aircraft 'A' repair facility for 72 rotables had been established by November 1986. Total expenditure incurred till October 1986 on repair of aircraft rotables abroad amounted to Rs. 7.85 crores.

12. *Under-utilisation of an equipment*

One of the ground equipment supplied by manufacturer 'X' under the supply agreement of April-1979 was an equipment 'K', which was meant to reduce the cockpit temperature to a comfortable level before the pilot gets into the cockpit and also to cool the special avionics system of the aircraft. Based on the requirements projected by the users, the technical details and specifications for equipment 'K' were exclusively designed by firm 'X' for the IAF and were approved by the users. 8 numbers of equipment 'K' costing Rs. 40.36 lakhs were received by IAF during April 1982 to July 1983.

Performance trials in July 1982 and January, 1983 after receipt of the equipment revealed that it was technically unsuitable from user's angle due to design snags and due to the operational and logistic problems. The use of equipment 'K' was, therefore, restricted and the average annual rate of utilisation was 36 hours per equipment as against the designed capacity of 600 hours per annum. The Ministry stated in November 1986 that even though the equipment were designed to IAF specification certain shortcomings were noticed during their use which were projected to the manufacturer and rectified without any extra cost. The under-utilisation of the equipment was not due to design snags but due to loss flying task during peace time in summer. The Ministry further stated that none of the constraints would be

effective during operations when these equipments would have to be used. Thus, equipment 'K' procured at a cost of Rs. 40.36 lakhs was put to negligible use due to operational and logistic problems.

13. *Summing up*

The main points brought out are summed up as follows :

Even though the original plan 73.3 per cent of 'P' number of aircraft required for 'Q' number of squadrons were to be manufactured by PSU under licence with foreign manufacturer 'X', the number of aircraft to be manufactured by PSU was reduced to 50.6 per cent of 'P' number after a review in October 1981. The reduction was mainly on the ground that the design philosophy of the aircraft was of the sixties. Other countries had inducted new generation aircraft and the foreign manufacturer of aircraft 'A' had themselves planned stoppage of production of the aircraft in 1982, even before the first indigenous aircraft was to be assembled by the PSU.

The curtailment in the manufacturing programme resulted in an extra financial burden of Rs. 105.92 crores to be borne by the present manufacturer due to the capital and DRE on infrastructure and licence/technical assistance fee payable to the foreign manufacturer being borne by lesser number of aircraft. According to the Ministry capital facilities would be made use of for subsequent projects as well and a major portion of DRE facilities would be transferred to the PSU when the overhaul 'A' was taken up.

Against the expected delivery of 30 per cent aircraft by 1985-86, the PSU had delivered only 19.3 per cent aircraft, despite the Government agreeing to an additional expenditure of Rs. 4.4 crores for import of additional sub-assemblies to avoid slippages in delivery schedule of the aircraft.

Due to delays in selection and development of navigation system 'G', 26.7 per cent aircraft supplied by manufacturer 'X' as well as 4 per cent supplied by the PSU were equipped with system 'H' which was of a vintage type and was prone to frequent repairs. Expenditure on repair abroad of system 'H' amounted to Rs. 4.99 crores up to October 1986.

Due to delay in selection of the navigation system, radar 'F' procured in February 1981 at a cost of Rs. 3.03 crores could not be installed in aircraft 'A' supplied by manufacturer 'X' as planned. The radar 'F' is now planned to be fitted in indigenous aircraft 'A' to be manufactured by the PSU during 1986-87 and 1987-88. Meanwhile, the warranty period of radar 'F' had expired in August 1984. The charges amounting to

Rs. 1.00 crore for modification of aircraft and fitment of radar 'F' had already been paid to manufacturer 'X' in April 1982.

The weapon system to be integrated with radar 'F' had not been procured till November, 1986 in the absence of which the aircraft 'A' equipped with radar 'F' which are expected to be delivered in 1986-87 would not have maritime strike capability.

Because of the decision to fit radar 'F' in aircraft to be manufactured by the PSU instead of in the aircraft to be supplied by manufacturer 'X', necessary training in radar 'F' which was the responsibility of manufacturer 'X' could not be imparted to IAF personnel. The training in radar 'F' had to be arranged to the IAF personnel later through another firm at an extra cost of Rs. 11.23 lakhs.

Works services for induction of indigenous aircraft was initiated in 1980 but sanction was accorded only in 1984 and the works services were due to be completed by April 1987. Due to the non-setting up of some shops because of none-completion of works services, aircraft had to be sent from station 'T' to 'S' for periodical second line servicing.

Though aircraft 'A' supplied by manufacturer 'X' were inducted into service from 1980, its simulator was installed only in 1984 and the simulator for the aircraft manufactured by the PSU was installed only in 1985. Thus, simulators were not available for over three years period for training of pilots.

The PSU which was responsible for repair/overhaul of rotables of aircraft 'A' had established repair facilities for only 72 out of 255 rotables. The inadequate repair facilities resulted in rotables being sent abroad for repairs at a cost of Rs. 7.85 crores till October 1986.

Ground equipment 'K' specially designed for the IAF and procured during the period April 1982 and July 1983 at a cost of Rs. 40.36 lakhs were found to be technically unsuitable for operational use and their utilisation was negligible due to operational and logistic problems.

APPENDIX II

Extracts from Proceedings and Written Information

1 (*Vide Para 36*)

Procedures involved in taking over aircraft from PSU

- (a) After receiving the signal from PSU, Maint Dte. allots the aircraft to the operational unit in consultation with the Ops. Dte. of Air HQ.
- (b) Thereafter, allottee unit has to position a ground party at PSU for physically checking the aircraft and its associated equipment for completeness as per the standard of preparation.
- (c) Simultaneously a Board of Officer is assembled to take over the aircraft.
- (d) In the interim period, the ferry pilot has to air test the aircraft. Till the aircraft is cleared of all snags by the ferry pilot, and the physical check of the associated equipment of aircraft is completed by the ground party, the Board of Officer cannot take over the aircraft and it has to be perforce maintained by PSU, being the sellers and the aircraft on their charge.
- (e) This entire procedure takes about 3 to 6 weeks time. In some cases where the aircraft is found to have a long list of snags the time taken for acceptance of aircraft goes upto 3 months. The maintenance charges during this period has to be borne by PSU.

2 (*Vide Para 50*)

The position is that the entire expenditure—capital or revenue—can be broadly divided into two parts : one would remain inelastic. This would consist of plant and machinery, civil works and then the deferred revenue expenditure which includes tooling, test equipments, training, and technical assistance as also licence fees. These are the items which remain inflexible, whatever the number of aircrafts we produce. On the other hand, there are three items which make a difference. These are : material, labour and payments for royalty. So if we produce 50.6 per cent of 'P' number of aircrafts, in these three items there would be a difference. We are not saying that there would not be any economics of scale, in the second case. There would be. For example, we worked

out that we would be producing 50.6 per cent of 'P' number of aircrafts, and the cost per aircraft would be Rs. 14.16 crores. If, on the other hand, we produce say 13 aircraft less than the above number of aircraft,...it would mean a production cost of Rs. 15.86 crores. Taking it further, if were to productionize 4 aircrafts more than 50.6 per cent of 'P' number of aircrafts, then the cost of production comes to Rs. 13.72 crores. So, we are not saying that additional aircraft would not mean any additional expenditure ; but there are many items due to which the expenditure does not increase. On the other hand, there would be a direct relationship between expenditure and the number of aircraft produced, in the matter of royalty, material and handling work.

APPENDIX III

Conclusions and Recommendations

<i>Sl. No.</i>	<i>Para No.</i>	<i>Ministry Concerned</i>	<i>Conclusion/Recommendations</i>
1	2	3	4
1	8	Defence	<p>After the 1971 war, a need was felt for a class of aircraft with deep penetration strike capability. The aircraft then in use in the country were not so effective, Secondly, these aircraft were affected with corrosion problem. In 1973, a need for such an aircraft was formally recognised by a body called APEX-I and in 1975 this was confirmed by another body called APEX-II. The Cabinet Committee on Political Affairs (CCPA) approved in October 1978 the acquisition of 'P' number of aircraft 'A'. The very fact that the Government took seven years to accord approval to the acquisition of aircraft 'A' goes, to prove the lackadaisical approach of the Government from the initial stage itself in meeting the urgent requirements of the Air Force. The Committee desire that such delays must be eliminated in future in the interest of the country's defence preparedness and recommend that appropriate changes should be made in the decision making process to achieve this end.</p>
2	21	-do-	<p>The selection of aircraft 'A' was based on the recommendations of a team which evaluated three aircraft 'A', 'B' and 'C' for the deep penetration role. According to the Ministry of Defence, aircraft 'A' was selected due to techno-economic considerations and favourable time schedule. On the other hand, the objective was to acquire a system which is optimised for deep penetration role. The Ministry of Defence have, however, conceded that the design concept of all the 3 aircraft which were evaluated was of the sixties. From the study of all the facts placed before the Committee, the Committee have an inescapable impression that the selection of aircraft 'A' was not well considered. There appears to be considerable evidence that Government was aware of the technological obsolescence of aircraft 'A' at the time of</p>

making the selection. For instance, the Financial Advisor, Defence Services had pointed out in October 1977 itself that technological obsolescence should not constitute a ground for curtailing domestic production of eventually selected aircraft. This conclusion of the Committee is further borne out by the facts discussed in the succeeding paragraphs.

3 22 -do-

The Committee feel that even between aircraft 'A' and 'B' to which the choice was confined, the latter with a multi-role capability would definitely have been a better choice at that time. Apart from fulfilling the requirement of deep penetration, it could also perform the combat role. Secondly, there was also an offer for the transfer of technology of aircraft 'L' (a real multi-role aircraft) in case it was agreed to purchase aircraft 'B'. In fact the first proto-type of aircraft 'L' and flown in March 1978, The very fact that all the three aircraft initially evaluated were going to be replaced by a new generation of aircraft in their respective countries should have abundantly cautioned the authorities to exercise utmost prudence in the matter of selection. In the opinion of the Committee, such prudence in the selection of the aircraft in the then prevailing circumstances was conspicuously lacking. The draft Air Staff Requirement was prepared in 1973 but the supply agreement was concluded in April 1979. Keeping in view the fact that the technology change in the area of defence equipment is rapid, the Committee are convinced that the position should have been thoroughly reviewed having regard to the changes already made in the proto-types flown and predicted before approval in 1978. Such a thorough review was all the more necessary keeping in view the huge investment of about Rs. 1500 crores involved in the project more particularly when the aircraft was to serve the needs of the country during the next 25 years. Further when the approval of the proposal could wait from 1971 to 1979 the authorities could have as well waited for 3 years. Had it been done, the huge expenditure incurred on aircraft 'A' would have been utilised in a much better way by the selection of a multi-role aircraft like 'L' which the country ultimately had to go in for. The Committee strongly deprecate the lack of serious and purposive approach on the part of the concerned agencies in the matter of selection of the aircraft. The Committee

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recommend that the Government should be extremely judicious in the matter of selection of defence equipment and keep in view not only the existing but also consider the development of technology in the field, so that the ultimate choice made is the very best for ensuring that the defence forces are kept effectively equipped all the time.

4 38 Defence

According to the approval accorded by the Cabinet Committee on Political Affairs (CCPA) in October, 1978. 73.3 per cent of 'P' number of aircraft 'A' were required to be manufactured by PSU under licence agreement with foreign manufacturer 'X'. The scope of the indigenous manufacturing programme was reviewed during October, 1981, as a result of which, the indigenous manufacturing programme was curtailed to 50.6 per cent of 'P' number. The reduction was mainly on the grounds that the design philosophy of the aircraft was of the sixties, other countries had inducted new generation aircraft and the foreign manufacturers of this aircraft had themselves planned stoppage of production of the aircraft in 1982. Keeping in view the obsolescence of the aircraft and other related factors, the CCPA had initially desired the indigenous manufacture to be confined to only 30 per cent of 'P' number but in 1982. it approved the proposal for additional 20.6 per cent of 'P' number raising the licensed indigenous production programme to 50.6 per cent of 'P' number at a total cost of Rs. 1976.03 crores. Undoubtedly, the review conducted by the CCPA in 1981 amounts to the questioning of the wisdom of decision taken in 1978. Secondly, right from 1971 the Air Force requirements were stated to be of a very pressing nature due to the inadequacy and depleting strength of the then existing aircrafts which were badly affected by corrosion. Strangely enough the decision taken as a result of the review conducted in 1986 is not in consonance with the plea for urgent requirements of the Air Force for such an aircraft. These contradictions undoubtedly, establish that the authorities concerned had neither a clear conception of their requirements nor the total perception of the continuing technological advancements in the aeronautical field all over the world. The Committee strongly deprecate these contradictions and recommend that the Government should always keep themselves fully abreast of the technological

research and advancement in the respective fields while working out the defence requirements so as to ensure that the Air Force is equipped effectively all the time.

5 39 -do-

Two orders were placed on the PSU for the indigenous licensed production of 50.6 per cent of 'P' number of aircraft 'A'. The first order was placed on 27 July, 1979 for the manufacture and supply of 30 per cent of 'P' number of aircraft 'A'. These aircraft were to be assembled from imported components, requisite kits for which were received between May 1981 and September, 1984. As per original schedule, supplies against this order were to be completed between 1982-83 and 1985-86. The Committee note with dismay that even though the Government agreed in January 1981 for the import of additional sub-assemblies costing Rs. 4.4 crores to enable the PSU to adhere to the delivery schedule for 30 per cent of 'P' number of aircraft, the PSU could deliver only 19.3 per cent aircraft upto March 1986.

6 40 -do-

The second order for 20.6 per cent of 'P' number of aircraft, to be manufactured from raw material was placed on the PSU on 23 August, 1982. According to the schedule, delivery of 10.6 per cent of aircraft was to be effected in 1986-87 and the delivery of the remaining 10 per cent of the aircraft was to be made during 1987-88. This delivery schedule was reviewed and revised by the concerned Project Board in August, 1985. According to the revised schedule supplies against both the orders of 1979 and 1982 were to be affected between 1982-83 and 1988-89. Till date the PSU has completed the supplies against the first order of 1979. According to the Ministry, supplies of the remaining aircraft are expected to be completed by 1989-90. There are deviations even from the revised schedule fixed by the Project Board in 1985. The Committee deprecate the lack of seriousness and purposive approach on the part of the concerned authorities in meeting the urgent and pressing requirements of the Air Force. The Committee recommend that concerted efforts should be made by all concerned to ensure that supply of the remaining aircraft is completed by 1989-90 positively.

7 41 -do-

The Committee are concerned to note yet another negative impact of delay on the part

of the Government in sanctioning the raw-material phase of production. The Ministry have conceded that due to this delay, an additional expenditure of Rs. 5.33 crores had to be incurred in importing certain components which were earlier proposed to be manufactured indigenously.

8 42 Defence

According to the Detailed Project Report dated July 1980, infrastructure required for manufacture of Aircraft 'A' from the raw material phase was proposed to be completed by September, 1983. Due to delay in according sanction for capital and DRE for the raw material phase, setting up of infrastructure at PSU was completed by June 1985 in aircraft division and by July 1986 in engine division. Since production of aircraft 'A' is to be completed by 1989-90, very costly and comprehensive infrastructure created, would be utilised only for 4-5 years. Since aircraft 'A' is the last of a particular technological line the Committee apprehend that the costly infrastructure may not be suitably utilised on completing the supply of 50.6 per cent of 'P' number of aircraft. The Committee strongly recommend that suitable ways and means should be devised to utilise this costly infrastructure to the maximum possible extent to strengthen the indigenous aeronautical base. The ways and means, so devised should be intimated to the Committee.

9 43 -do-

The Committee are unhappy to note that an infructuous and avoidable expenditure of Rs. 7.14 lakhs had to be incurred towards storage and maintenance charges due to delay on the part of the IAF in taking delivery of the aircraft after they were signalled out by the PSU in 1985-86 and 1986-87. This expenditure was absorbed by the PSU. The Committee are not convinced with the justification given by the Ministry about the lengthy procedure involved in taking over aircraft from PSU. The Committee believe that by proper coordination between the IAF and PSU the infructuous expenditure would have been avoided. The Committee deplore the lack of seriousness on the part of the concerned authorities.

10 44 -do-

The Committee are also unhappy to note that the value of indigenous production of the aircraft, apart from the labour component is negligible till now and would remain so till the

end, thoroughly keeping the country dependent on foreign supplies of either components or raw materials for components. Achievement of self reliance has been sadly neglected in spite of enormous expenditure incurred for the project.

11 47 -do-

Due to delay in selection and development of navigation system 'G' all the direct supply aircraft and 4 per cent of 'P' number of aircraft supplied by the PSU were equipped with system 'H', which apart from low reliability is prone to frequent repairs. Expenditure on repair abroad of system 'H' amounted to Rs. 4.99 crores upto October, 1986. According to the Ministry, there is no proposal to replace system 'H' fitted in some aircraft by system 'G'. The Committee are surprised that a superior Nav-attack system is not to be fitted in a large number of aircraft in spite of its availability, particularly where so much trouble was taken, funds spent and delay undergone for development of the latter system 'G'. Since the aircraft are meant for role in which a superior Nav-attack system might make all the difference, the Committee recommend that the decision for not fitting system 'G' in aircraft already having system 'H' should be carefully reviewed having regard to all the operational consequences.

12 51 -do-

The Audit Paragraph reveals that the curtailment in the manufacturing programme from 73.3 per cent of 'P' number to 50.6 per cent of 'P' number of aircraft resulted in an extra financial burden of Rs. 105.92 crores to be borne by the present manufacturing programme. The Committee do not agree with the Ministry that there was no extra financial burden due to the curtailment of the production programme. Total project cost for 30 per cent of 'P' number of aircraft from assembly was Rs. 883.4 crores, whereas for 50.6 per cent of 'P' number of aircraft, the project cost was Rs. 1076 crores. The very fact that the addition of Rs. 187.63 crores to the investment, could provide 20.6 per cent of 'P' number of additional aircraft, goes to unequivocally prove the contention of the Audit, for 105.92 crores of the extra burden due to the curtailment. The Defence Secretary also conceded dur-

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ing evidence that if they reduced the production run, there was a slight increase in the cost of production. The Committee are concerned to note that this huge additional cost aspect due to curtailment in the manufacturing programme was lost sight of at the time of taking the decision.

13 **55** **Defence**

The agreement entered into with manufacturers 'X' and 'Y' provided for buy back arrangements from the PSU to the extent of Rs. 63 crores and between £20 million and £32 million respectively. These buy back arrangements were to be effected within a period of 6 years from the dates of agreements i.e. April, 1985 and December 1984, respectively. The underlying idea of these arrangements was to improve the economics of the project by reducing the net out-go of foreign exchange. So far, the PSU received buy back orders from firm 'X' and 'Y' to the extent of Rs. 1.56 crores and Rs. 2.37 crores, respectively. The Committee are extremely unhappy over the dismal extent of operation of these arrangements. The Committee would like to know the detailed reasons due to which these arrangements could not be operated upon to the extent set out in the agreements. The Committee urge that efforts should be made to derive maximum possible benefits in the spirit of these arrangements.

J4 **58** **-do-**

The Committee take a serious note of the fact that due to delay in the fitment of radar F, the training facilities provided for in the supply agreement with manufacturer 'X' could not be fully availed of. Consequently an additional expenditure of Rs. 11.23 lakhs had to be incurred subsequently towards maintenance training on the radar imparted to the IAF Personnel by firm Z. The Committee also recommend that the question of obtaining compensation from manufacture 'X' for fulfilling only a part of their responsibility for fitment of radar, should be pursued vigorously.

SI **61** **-do-**

The Committee take a serious view of the fact that completion of work services at base

- 16 66 Defence
- 'T', one of the two bases meant for stationing these aircraft after their induction was badly delayed. The work services were completed as late as by April 1987. The difficulties experienced as a result of this delay are non-availability of second line servicing facilities, and access to simulator for pilot training. For second line servicing the aircraft had to be sent from station 'T' to station 'S'. Obviously, this resulted in addition flying time and avoidable fuel cost. The Committee deprecate the lack of seriousness on the part of the authorities in making the necessary facilities available in time.
- The Committee are deeply concerned to note the lack of planning and foresight resulting in unpardonable delay in making the two simulators available. The simulators were installed in July 1984 and September 1985 whereas the direct supply aircraft started arriving from September 1980 onwards. A flight simulator finds application to varying degree in each of the three phases of training. A good deal of training exercises are practised on flight simulator which apart from improving the skill of the pilot increases pilot proficiency to handle serious/multiple emergencies by simulation. The non-availability of simulators for training purposes for such a long time apart from increasing the training cost might have to some extent impeded the trainees in attaining the desired proficiency.
- 17 70 Defence
- The Committee are deeply concerned to note that out of the 29 rotables identified by the Air Head Quarters as requiring repair/overhaul, facilities for which were to be established in the PSU, such facilities have so far been established in respect of 120 rotables only. Total expenditure incurred till October 1986 on repair of aircraft rotables abroad amounted to Rs. 7.85 crores. Absence of the necessary repair/overhaul facilities not only results in avoidable expenditure in the shape of outgo of precious foreign exchange but also leads to a considerable time lag in obtaining the necessary repairs. The Committee strongly urge upon the authorities to make all out efforts in establishing the entire repair/overhaul facilities, expeditiously.

