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CABINET

THE AIRCRAFT INDUSTRY

MEMORANDUM BY THE MINISTER OF SUPPLY

The difficulties of the aircraft industry have become such that the Government need to consider their future policy towards it.

2. The industry has a two-fold importance:—

(i) It provides the means, whether these be manned or unmanned, both of delivering the nuclear deterrent and of defending it; its efficiency is therefore indispensable to an effective deterrent policy.

(ii) It has become an industry of considerable economic consequence. Its work involves the application of a high degree of technical skill to a relatively small quantity of imported raw materials. It is an industry of rapidly developing technique, and its progress has brought in its train accompanying advances in other fields—*e.g.*, metallurgy, light engineering, fuel efficiency, electrics and electronics—advances which would certainly not have been achieved without its stimulus. By its nature therefore it is very much the kind of industry we ought to have. Further, it is our second largest individual exporter of engineering products, with exports now running at over £100 million a year. To the extent that United Kingdom and other Commonwealth air operators purchase its products instead of importing from abroad it saves foreign currency, chiefly dollars; *e.g.*, the adoption by the British Overseas Airways Corporation of the Vickers VC. 10 will avoid spending over £100 million in dollars. At the present rate of increase, world air traffic will double itself in the next six years. There is a strong presumption of economic advantage in seeking to capture as large a share as possible of the resulting market for aircraft and aero-engines and so reaping the maximum dividend from our past investment in the industry.

3. These two considerations, the military and the civil, reinforce each other. The military demand helps the industry the better to equip itself for its commercial battles—indeed it has been the foundation on which the industry has been built; while the commercial demand conduces to the better discharge of the military function. And the industry has grown up as one, serving alike military and civil aviation.

4. The industry's main overseas competitor is the American aircraft industry, which enjoys the natural advantage of a large domestic market and thus the prospect of a handsome return to offset the inevitably heavy outlay on research and development.

5. This natural advantage of the American industry has been reinforced by State action in two main forms:—

(i) Research, carried out by the National Advisory Committee for Aeronautics, the United States Air Force and the United States Navy, has been conducted almost entirely with State funds.

(ii) The military demand for aircraft for transport purposes has been a powerful addition to the civil demand and more often than not has

preceded it. For example, military orders for the Service version of the Boeing Strato-Cruiser numbered over 850. And the Boeing 707 is largely identical with the KC. 135 tanker, for which there are also very large military orders. In contrast, R.A.F. Transport Command's orders for Britannias and Comets are 20 and 13 respectively.

6. Another State-supported though weaker competitor is the French aircraft industry, which is partly nationalised, while in the longer term formidable competition is threatened by the Russians.

7. In Britain, State support of the industry has been given in the following ways:—

(i) Research work has been carried out in Ministry of Supply Establishments, *e.g.*, the Royal Aircraft Establishment and the National Gas Turbine Establishment, with assistance from the National Physical Laboratory and the Universities. The Establishments have also given assistance in overcoming specific difficulties with new civil types, *e.g.*, the Comet and the Britannia engine. Sometimes, when it has been a question of trying out ideas of special novelty, the Ministry of Supply has placed contracts with one or more chosen firms for the design and construction of experimental aircraft.

(ii) In the case of aircraft for operational use, military or civil, the production order has usually been preceded by a development contract placed by the Ministry of Supply with a chosen firm. The State has usually contributed the whole cost of development in the case of military aircraft, and the major part of the cost of developing civil aircraft. In return for its contribution the State receives a levy (now running at £5-6 million a year) on all aircraft sold to non-Government customers. State contributions to the development of civil aircraft were begun after the war as part of the policy of re-establishing the industry in civil aircraft manufacture. In the early days there was little expectation of recovering the whole or even a substantial part of the original State outlay. In recent years, however, the situation has changed and the companies themselves have been contributing increasingly to the cost of development as well as bearing the initial cost of production.

8. In both the United States and the United Kingdom, then, research has been financed by the State; but in the case of civil operational aircraft, State support in the United States has been indirect by way of orders, while in the United Kingdom it has been direct by way of a financial contribution to development, though decreasingly so.

9. The White Paper on Defence cannot but make infinitely more difficult the transition from Government finance for civil aircraft to private venture. Not only do the reductions in military orders reduce the turnover on which overheads can be recovered; they also deprive the civil side of some of the benefit of the experimentation which first took place in the military field. The principles governing flight are the same, whether the purpose is military or civil; but the main advances have first been pioneered in military aviation and subsequently adapted to civil use. For instance: nearly every aero-engine that has powered a civil aircraft—and half the civil aircraft in the world have British aero-engines—was first tried out in a military aircraft, so that its safety and reliability were proved before it was brought into civil use. For the first time since the war there is now no forward-looking aero-engine in the programme. Nor can work on guided weapons, though a branch of the general science of aeronautics, contribute, as did that on manned military aircraft, to the technical advance of civil aircraft. In our new situation the British aircraft industry has been suddenly and severely hit, while its American rival is untouched, and there arises in an acute form the question how research and development for civil purposes is henceforth to be done.

10. The cost of research and of experimental aircraft, while of ultimate benefit both to military and civil aviation, has hitherto been borne as part of the cost of defence. Similarly the cost of developing an aero-engine, though its subsequent application may have been civil as well as military, has been carried on the Defence Budget. What is to happen to this work of potential civil use in the light of the reduced emphasis on military aircraft? To discontinue it or to stop it at an arbitrary point—*e.g.*, limiting it to below certain speeds—would block

further progress both in manned aircraft and guided missiles and sooner or later leave us so far behind other countries that we should be forced to retire from the air business altogether. To saddle the industry with the cost of research would be to impose a burden which not even its more powerful American competitor bears and would sink it. I suggest that while we must seek to shape the industry so as to increase its self-reliance still further, we must also maintain the momentum of forward research at Government expense and give effective, if gradually diminishing, State support to the development of selected civil projects.

11. The industry must clearly contract to a size commensurate with the reduced military load. But if the civil role is to expand, the units of the industry, while fewer in number, must also be made individually more powerful, financially, in their technical and production resources, and in their sales and servicing organisations overseas. Government influence should therefore be brought to bear to hasten the formation of suitable groupings.

12. In outline I recommend the following policy:—

- (i) The Government should use their power both of persuasion and of contracts to shape the industry into units which are fewer in number but larger in size.
- (ii) The one consideration which above all others will induce a manufacturer to develop a new civil aircraft as a private venture is an initial domestic order of adequate size. The Government should therefore seek, where possible, to match together the requirements of the Corporations and of Transport Command so as to ensure that the initial domestic order is as large as possible. The machinery for this already exists in the Transport Aircraft Requirements Committee.
- (iii) In the light of their success with (i) and (ii) above, the Government should increasingly look to the industry itself to finance the cost of developing civil aircraft and their engines. Individual projects will, however, need to be examined on their merits. And certain major projects, such as a supersonic transport with its related engine, and a helicopter of advanced design, will not be realisable without a considerable measure of Government finance.
- (iv) The momentum of research and of experimental aircraft work should be maintained and its cost should continue to be borne by the Government. There should, however, be an increasing shift to the civil Budget from the defence Budget, and applied research should be increasingly directed to the transport role of aircraft in place of the combat role. This change of ultimate objective should lead to some reduction in expenditure under the general head of research.

13. I seek the approval of my colleagues for this policy.

A. J.

*Ministry of Supply, W.C. 2,
28th June, 1957.*