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THE EUROPEAN AEROSPACE INDUSTRY

TRADING POSITION AND FIGURES

(Commission staff working paper)

PREFACE

This document is a compilation of the most relevant statistical data available to the Commission on the aerospace sector in Europe and the United States.

The Directorate-General for the Internal Market and Industrial Affairs has been compiling and collating these data since 1972 ; its very first communication to the Council, dated 19 July 1972 (document COM(72)850), included a statistical annex on the trading position of the aerospace sector (market and manufacturing base).

In subsequent years*, it became possible to make a more detailed analysis, owing mainly to the co-operation of the industrial associations in each Member State, which collaborated actively with the Commission in conducting an annual survey on turnover and employment among companies in the sector.

* Documents : SEC(73)813, 1 March 1973.
III/243/73, 31 December 1973.
SEC(75)1539, 23 April 1975.
SEC(76)2657, 9 July 1976.
SEC(77)2939, 2 August 1977.

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THE EUROPEAN AEROSPACE INDUSTRYTRADING POSITION AND FIGURES

- June 1978 -

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S U M M A R YMARKET

1. In 1977 the growth rate for scheduled passenger traffic stood at 8 %, a level which, although below that for the period 1965-75 (11 %) was well above the 5 % rate of the crisis years 1974 and 1975.
2. As regards the sales of large civil aircraft, 18 Airbuses were sold in 1977, and of the American medium-range wide-bodied type of aircraft six DC-10-10s and eight Lockheed 1011s were sold. Twelve Fokker F28s were ordered in the same year.
3. Although the value of the European market increased from 21 % of the "Western" market for large civil aircraft in 1970 to 24.9 % in December 1976, the share of this market won by European civil aircraft decreased from 9.5 % in 1970 to 7.8 % in December 1976. By the end of 1976 the European industry was supplying no more than 2.4 % of the market for long-range aircraft and 12 % of the market for short- and medium-range aircraft (in terms of value).
4. The trend in demand for helicopters enabled European firms to increase their turnover and improve their trading position on the world market for civil and military aircraft in 1976.

Nevertheless, helicopters of US design still predominate in the world's military and civil fleets ; they account for 77 % of the civil fleet of the EEC as a whole, and 93 % of the world civil fleet (excluding the USSR, East European countries and China).

5. The world fleet (excluding the same countries) of single-engined private aircraft, aircraft used for aerobatics and aircraft used for aerial work comprises approximately 162 000 machines, 92 % being of US design. Of the EEC fleet of approximately 17 000 machines, 53.7 % are of European design. Aircraft of European design account for only 8 % of the world fleet.

Of the world fleet of twin-engined and/or multi-engined executive aircraft, 93 % are of US design, only 6 % are of European design and 1 % are of Japanese design.

6. Of the Community's military fleet (aircraft and helicopters), 59.9 % are of European design, but the position varies very widely from one Member State to another; exports of military aircraft from Member States go mainly to the Middle East and North Africa and to non-EEC Europe.
7. In intra-Community trade in aircraft and components (excluding equipment, for which no data were available), France and the United Kingdom show a positive balance and the Federal Republic of Germany shows a negative balance. With respect to the USA, all Member State balances are negative, with the sole exception of the positive UK balance for engines.

TURNOVER

8. The sum of final turnovers of the Member States, at current values, continued to increase as a share of the "Western" total : from 14.9 % in 1971 to 28.0 % in 1976. Expressed in constant 1970 values, the sum increased by 40 % from 1970 to 1976, which represents an annual growth rate of 5.7 % (during the same period GDP increased by only 2.9 %).

9. The proportion of final turnover relating to exports of components and parts produced by industrial co-operation between the Member States increased steadily, rising from 8.6 % in 1972 to 14.3 % in 1976.
10. Military sales account for 72 % of the final turnover of the Community's aerospace industry. This turnover breaks down as follows:

| | |
|-------------------------|---------------------------------|
| - State | : 51.5 % (United States 67.5 %) |
| - Internal civil market | : 12.9 % (United States 8.6 %) |
| - Exports | : 35.6 % (United States 23.9 %) |

The breakdown by subsectors is as follows:

| | |
|-------------------|----------|
| - Aircraft | : 63.6 % |
| - Engines | : 18.5 % |
| - Instrumentation | : 14.9 % |
| - Space | : 3.0 % |

11. The shares of aerospace activities in the Community accounted for by the State (approximately 52 %), the internal civil market (approximately 13 %) and exports (approximately 35 %) are very similar to those in the United States.
12. State intervention is as follows:

| | <u>EEC</u> | <u>USA</u> |
|------------------------------------|------------|------------|
| R&D contracts | 39 % | 29 % |
| Purchase and maintenance contracts | 61 % | 71 % |

MANPOWER

13. In 1975 and 1976 the size of the workforce remained practically unchanged at about 430 000 persons.
14. At Community level, the breakdown of the work-force by occupational grading is as follows:

VII

| | <u>Aircraft</u> | <u>Engines</u> | <u>Equipment</u> | <u>Space</u> |
|--------------------------------|-----------------|----------------|------------------|--------------|
| | % | % | % | % |
| Engineers and managerial staff | 15 | 12 | 16 | 18 |
| Executive staff: | | | | |
| - technical | 25 | 19 | 19 | 43 |
| - administrative | 16 | 14 | 15 | 15 |
| Manual workers | 44 | 55 | 50 | 24 |
| | <u>100</u> | <u>100</u> | <u>100</u> | <u>100</u> |

COMPANIES

15. Three US companies have a turnover in the region of or more than three thousand million EUA (1 EUA = \$ 1.118 in 1976) and eight US companies have a turnover of more than one thousand EUA, whereas in the EEC only three companies (four including British Aerospace, created in 1977 by a merger chiefly involving BAC and Hawker Siddeley) have a turnover in the region of or more than one thousand million EUA.
16. There is a difference in size between the European and American companies (see point 15), but the degree of concentration in the European industry is similar to that in the American industry.
17. The value of helicopter production in the Community is fairly similar to that in the United States
18. Although EEC firms increased their overall production of light and executive aircraft compared with 1975, this is still only 7 % of United States production (in terms of numbers).

PUBLIC FINANCING OF RESEARCH AND DEVELOPMENT

19. Within the EEC, the civil aerospace sector receives approximately 55 % of the public funds allocated to industrial productivity and technology; this percentage reflects a fairly typical situation in the United Kingdom, France, the Netherlands and the Federal Republic of Germany.

I. THE MARKET

A. Civil air traffic and the civil transport market

1. Civil air traffic

(a) Scheduled traffic (world)¹

In 1973, 1974, 1975, 1976 and 1977 (estimates), total passenger-km output of the airlines of the 141 Member States of the ICAO on scheduled domestic and international services was as follows (in '000 millions)²:

Table 1

| | (excluding USSR) | <u>trend</u> | (including USSR) | <u>trend</u> |
|------|------------------|--------------|------------------|--------------|
| 1973 | 520 | + 12 % | 618 | + 10 % |
| 1974 | 548 | + 5 % | 656 | + 6 % |
| 1975 | 575 | + 5 % | 697 | + 6 % |
| 1976 | 632 | + 10 % | 762 | + 9 % |
| 1977 | 685 | + 8 % | 822 | + 8 % |

Provisional figures on traffic for 1977 (+ 8 %) indicate that the growth rate, although lower than that for the period 1965-75 (11 %, excluding USSR figures), has remained above the 5 % rate of the crisis years, 1974 and 1975.

¹ Notes are given at the end of this paper. The first note gives a table for converting national currencies and EURs (see earlier editions of "Trading position and figures") into the new European Unit of Account (EUA).

The AEA (Association of European Airlines)³, reports an increase in total traffic of 8.8 % from 1975 to 1976.

The breakdown of total world scheduled traffic of the airlines of ICAO member countries, including the USSR, is as follows (provisional figures or estimates for 1977):

Table 2

| <u>('000 million passenger-km)</u> | | | | |
|------------------------------------|-------------|------------|-------------|------------|
| | <u>1976</u> | <u>%</u> | <u>1977</u> | <u>%</u> |
| Total AEA | 135 | 18 | 141 | 17 |
| US airlines | 281 | 37 | 303 | 37 |
| USSR | 130 | 17 | 137 | 17 |
| Rest of the world | 216 | 28 | 241 | 29 |
| | <u>762</u> | <u>100</u> | <u>822</u> | <u>100</u> |

A comparison between these figures and those for previous years shows that the AEA's percentage share of traffic has remained steady, the figure for the rest of the world has risen and that for the United States has dropped.

Passenger-km covered by AEA airlines⁴

Over the last few years the breakdown of passenger-km has been as follows:

Table 3

| <u>(percentage)</u> | <u>1974</u> | <u>1975</u> | <u>1976</u> |
|--------------------------|--------------|--------------|--------------|
| Intra-European traffic | 26.9 | 27.8 | 28.3 |
| Domestic traffic | 8.9 | 8.8 | 9.2 |
| Intercontinental traffic | 64.2 | 63.4 | 62.5 |
| | <u>100.0</u> | <u>100.0</u> | <u>100.0</u> |

From 1972 to 1976 total passenger-km logged by AEA airlines increased by an annual average of 9.1 %, the percentage changes being as follows:

Table 4 -

| | <u>Intra-European traffic</u> | <u>Domestic traffic</u> | <u>Intercontinental traffic</u> | <u>TOTAL</u> |
|---------|-------------------------------|-------------------------|---------------------------------|--------------|
| 1972-73 | + 12.8 | + 13.8 | + 23.4 | + 19.4 |
| 1973-74 | + 2.6 | + 3.5 | + 4.3 | + 3.8 |
| 1974-75 | + 8.1 | + 4.9 | + 4.0 | + 5.2 |
| 1975-76 | + 11.0 | + 13.2 | + 7.2 | + 8.8 |
| 1972-76 | + 39.3 | + 38.8 | + 43.4 | + 41.9 |

The annual average of 9.1 % is well below the increase from 1972 to 1973, but the figure has risen steadily since then. Intercontinental traffic - which accounted for 62.5 % of the total in 1976 - expanded at the same rate (+ 9.4 % per year) as domestic and intra-European traffic (8.5 % and 8.6 % per year respectively). During the last few years domestic and intra-European traffic has expanded faster than intercontinental traffic.

Medium-range European traffic (intra-European and domestic) amounted to no more than approximately 56 thousand million passenger-km, whilst US domestic traffic chalked up something like 250 thousand million passenger-km⁵. In contrast, the intercontinental services of AEA airlines logged some 85 thousand million passenger-km, whilst the international and territorial services of US airlines logged about 54 thousand million passenger-km.

(b) Trends in non-scheduled traffic⁵

It should be remembered that in 1974 and 1975 non-scheduled traffic represented about 25 % of ICAO international traffic.

A drop of about 5 % compared with 1976 has been noted for the non-scheduled transatlantic services of IATA airlines (whereas the number of passengers on scheduled flights increased by 4.7 %).

By contrast, preliminary figures would indicate that non-scheduled carriers have considerably expanded their transatlantic business. Non-American carriers - mainly European airlines - have reported an increase of over 50 % in their non-scheduled traffic, whereas the charter services of American carriers have expanded by only 11 %.

With approximately 1.3 million passengers in 1977, the non-scheduled services of non-American airlines accounted for 40 % of the charter market and 11 % of total scheduled and non-scheduled traffic between Europe and the United States (the equivalent figures for American airlines being 60 % and 16 % respectively).

Expansion in non-scheduled flights in Europe appears to have been minimal in 1977 (0 to 5 %).

2. The civil transport market⁶

(a) Orders and deliveries

The numbers of aircraft ordered and delivered in recent years have been as follows:

Table 5
Orders and deliveries

| AIRCRAFT | Ordered by 31/12/77 | Delivered by 31/12/77 | 1975 | Orders 1976 | 1977 |
|--------------------------------|---------------------------|-----------------------------|------------|----------------|------------|
| <u>Long-range</u> | | | | | |
| Concorde | 9 | 9 | - | - | - |
| Boeing 707 | 780 | 763 | 3 | 4 | 4 |
| 720 | 154 | 154 | - | - | - |
| 747 | 357 | 315 | 19 | 14 | 42 |
| DC-8 | 556 | 556 | - | - | - |
| DC-10-30/40 | 163 | 153 | 7 | 15 | 25 |
| VC-10 | 35 | 35 | - | - | - |
| Comet | 51 | 51 | - | - | - |
| CV-880/990 | 83 | 83 | - | - | - |
| <u>Short- and medium-range</u> | | | | | |
| A 300 B (*) | 53 | 41 | 16 | 3 | 18 |
| Caravelle | 278 | 278 | - | - | - |
| Bac 1-11 | 222 | 221 | 5 | 2 | - |
| Boeing 727 | 1 491 | 1 308 | 49 | 113 | 134 |
| 737 | 540 | 507 | 33 | 39 | 38 |
| Fokker F-27 | 662(**) | 646 | 23 | 3 | 3 |
| F-28 | 131 | 111 | 26 | 6 | 12 |
| HS Trident | 117 | 113 | - | - | - |
| Mercure | 10 | 10 | - | - | - |
| DC-9 | 927 | 869 | 30 | 25 | 51 |
| 10-10 | 111 | 94 | - | 1 | 6 |
| Lockheed L-1011 | 168 | 152 | - | 8 | 8 |
| VFW-614 | 16 | 10 | 1 | 6 | - |
| HS-748 | 318 | 304 | 1 | 11 | 3 |
| TOTAL | 7 232 | 6 783 | 213 | 250 | 344 |

(*) On 6 April 1978 the position was as follows: 84 firm orders, 53 options.
(**) Of these, 205 built under licence in the United States by Fairchild.

Total sales of the abovementioned aircraft were as follows:

Table 6

| Total sales by 31 December (number) | | | | | | | | | |
|-------------------------------------|-------------|------|------|-------------------|------|------|-------|------|------|
| | US aircraft | | | European aircraft | | | Total | | |
| | 1975 | 1976 | 1977 | 1975 | 1976 | 1977 | 1975 | 1976 | 1977 |
| Long-range | 1989 | 2022 | 2093 | 95 | 95 | 95 | 2084 | 2117 | 2188 |
| Short/medium range | 2814 | 3000 | 3237 | 1740 | 1771 | 1807 | 4554 | 4771 | 5044 |
| Total | 4803 | 5022 | 5330 | 1835 | 1866 | 1902 | 6638 | 6888 | 7232 |

Sales of short- and medium-range aircraft rose (4.8 % increase in 1976 and 5.7 % increase in 1977) and their percentage share of the market increased from 68.6 % in 1975 to 69.7 % in 1977.

(b) Numbers of aircraft in service and on order

An accurate picture of the fleet position is given by the numbers of aircraft in service and on order at a given date. The following table gives a comparison of the position as at 31 October 1974 with that as at 31 December 1976:

Table 7

| Category | Number | | Value (m EUA) ¹ | |
|--------------------|--------|------|----------------------------|---------|
| | 1974 | 1976 | 1974 | 1976 |
| Long-range | 1886 | 1819 | 18517.3 | 23510.1 |
| Short/medium-range | 4348 | 4957 | 17337.2 | 28360.7 |
| Total | 6234 | 6776 | 35854.5 | 51870.8 |

The trend in mean aircraft value (m EUA) was as follows:

| | <u>1974</u> | <u>1976</u> |
|--------------------|-------------|-------------|
| Long-range | 9.817 | 12.924 |
| Short/medium-range | 3.986 | 5.721 |

It should be noted that there are now very few long-range non-turbojets, whereas there are over 1 200 short- and medium-range turboprops.

The trend in breakdown by value between long-range aircraft and short- and medium-range aircraft was as follows:

Table 8

| | 1970 | 1971 | 1973 | 1974 | 1976 |
|--------------------|-------|-------|-------|-------|-------|
| Long-range | 55.2 | 51.1 | 51.1 | 51.6 | 45.3 |
| Short/medium-range | 44.8 | 48.9 | 48.9 | 48.4 | 54.7 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

This table shows how the market share of the short- and medium-range aircraft has grown. However, too much significance should not be attached to the abrupt 1976 increase, as this is largely due to a new method of breaking down types of aircraft into the two categories⁷ and to a few modifications to the aircraft types which have been taken into account in the study. The slow but steady percentage increase over the period is more significant.

In December 1976 the value of aircraft in service and on order in individual fleets was as follows (table 9):

Table 9

Value of aircraft in service or on order but not yet delivered at 31 December 1976 (m EUA)

| Origin Fleet | Long-range | | | Short/medium-range | | | Total | % | % |
|------------------------------|------------|--------|-------|--------------------|---------|-------|----------|-------|-------|
| | USA | EUROPE | OTHER | USA | EUROPE | OTHER | | | |
| Fed. Rep. of Germany | 797.3 | 0 | 1.2 | 552.3 | 206.4 | 0 | 1 557.2 | | 17.4 |
| Belgium | 235.9 | 2.0 | 0 | 114.8 | 44.5 | 0 | 397.2 | | 4.4 |
| Denmark | 14.8 | 0 | 0 | 42.7 | 36.5 | 0 | 94.0 | | 1.1 |
| France | 1 025.3 | 233.6 | 0 | 235.8 | 507.5 | 0 | 2 002.2 | | 22.4 |
| Ireland | 94.8 | 0.5 | 0 | 57.3 | 2.9 | 0 | 155.5 | | 1.7 |
| Italy | 464.6 | 0 | 0 | 454.0 | 53.2 | 0 | 971.8 | | 10.9 |
| Luxembourg | 41.4 | 0 | 3.7 | 0 | 3.8 | 0 | 48.9 | | 0.6 |
| Netherlands | 642.1 | 0 | 0 | 191.5 | 33.6 | 0 | 867.2 | | 9.7 |
| UK | 1 309.8 | 310.0 | 8.7 | 647.9 | 558.3 | 0 | 2 834.7 | | 31.8 |
| EEC | 4 625.0 | 546.1 | 13.6 | 2 296.3 | 1 446.7 | 0 | 8 928.7 | 17.2 | 100.0 |
| Other countries in Europe | 2 174.5 | 0 | 2.5 | 1 613.1 | 183.6 | 8.6 | 3 982.3 | 7.7 | |
| Europe | 6 800.5 | 546.1 | 16.1 | 3 909.4 | 1 630.3 | 8.6 | 12 911.0 | 24.9 | |
| USA | 6 601.0 | 0 | 0 | 1 503.3 | 45.6 | 34.3 | 21 704.2 | 41.8 | |
| Rest of the world | 9 522.2 | 11.4 | 13.9 | 5 835.1 | 1 739.6 | 134.4 | 17 255.6 | 33.3 | |
| World | 22 922.7 | 557.5 | 30.0 | 24 767.8 | 3 415.5 | 177.3 | 51 870.8 | 100.0 | |

There has been little change in the breakdown of fleet value between Member States. On the other hand, there has been a further decrease in the relative value of the US fleet and a further increase in that of the "Rest of the world" fleet:

Table 10

| Breakdown of civil fleet value | 1970 | 1973 | 1974 | 1976 |
|---------------------------------------|--------|--------|--------|--------|
| EEC | 14.7 | 18.2 | 18.0 | 17.2 |
| Other European countries ⁸ | 6.3 | 8.1 | 8.0 | 7.7 |
| Europe | (21.0) | (26.3) | (26.0) | (24.9) |
| USA | 63.9 | 53.0 | 45.4 | 41.8 |
| "Rest of the world" | 15.1 | 20.7 | 28.6 | 33.3 |
| | 100.0 | 100.0 | 100.0 | 100.0 |

As can be seen, the fleet of the "rest of the world" has doubled in six years, whilst during the same period the US fleet has decreased by one third and the European fleet has remained much the same (still in relative values).

The following table compares trends in fleet value and in the market share won by aircraft built in the European Economic Community (the balance being almost entirely supplied by the US industry).

As regards the origin of the aircraft, those constructed elsewhere than in the Community or the United States represent only 0.4 % of the overall value (CL-44 and YS-11).

Table 11

| Market | Relative size of market (%) | | | | Market share won by aircraft built in the EEC (%) | | | |
|---------------------------|-----------------------------|--------|--------|-------------------|---|--------|--------|--------------|
| | 1970 % | 1974 % | 1976 % | change 70/76 (8a) | 1970 % | 1974 % | 1976 % | change 70/76 |
| EEC | 14.7 | 18.0 | 17.2 | + 2.5 | 33.0 | 21.4 | 22.3 | - 10.7 |
| Other countries in Europe | 6.3 | 8.0 | 7.7 | + 1.4 | 23.1 | 7.7 | 4.6 | - 18.5 |
| EUROPE | (21.0) | (26.0) | (24.9) | (+ 3.9) | (30.1) | (17.2) | (16.9) | (- 13.2) |
| USA | 63.9 | 45.4 | 41.8 | -22.1 | 2.1 | 0.4 | 0.2 | - 1.9 |
| Rest of the world | 15.1 | 28.6 | 33.3 | +18.2 | 12.1 | 12.6 | 10.1 | - 2.0 |
| | 100.0 | 100.0 | 100.0 | - | 9.5 | 8.2 | 7.7 | - 1.8 |

The "rest of the world" market is continuing to grow at the expense of the US market.

Although the market penetrations by aircraft constructed in the EEC have been falling since 1970 (9.5 % in 1970, 8.2 % in 1974 and 7.7 % in 1976), the number of Airbuses sold in 1977 (18) and 1978 (40 at 6 April 1978) should to some extent redress the balance.

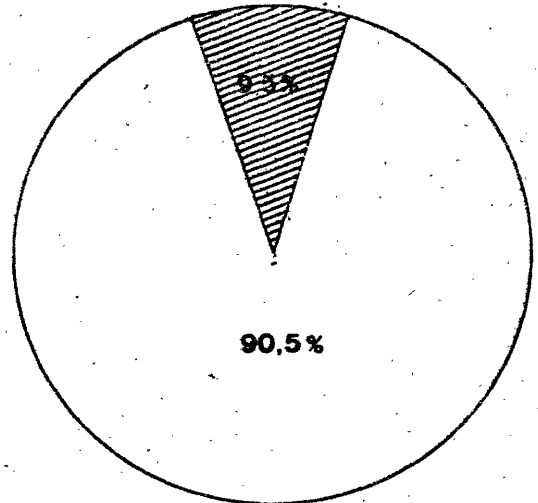
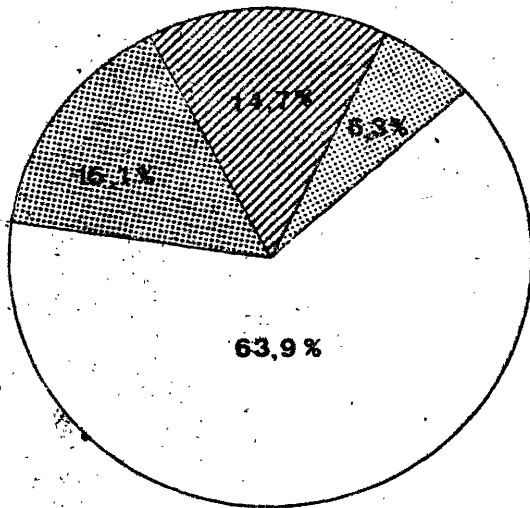
REPARTITION DU MARCHÉ

SHARE OF THE MARKET

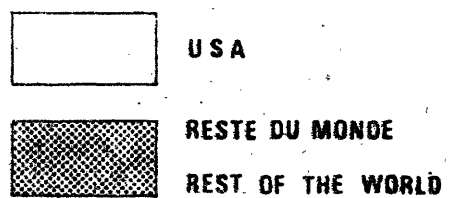
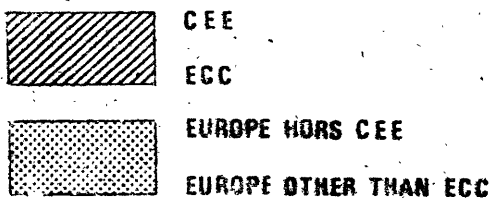
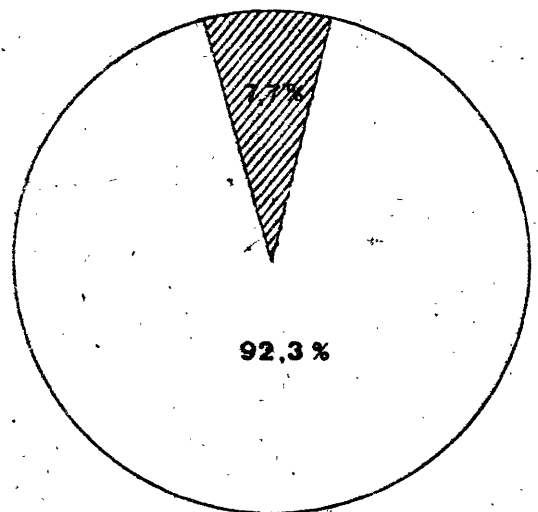
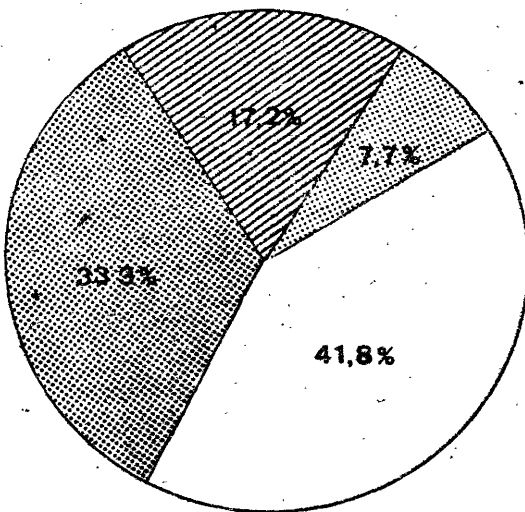
PLACE PRISE SUR LE MARCHÉ MONDIAL PAR LES MATÉRIELS CONSTRUITS AU SEIN DE LA CEE PAR RAPPORT AUX MATÉRIELS USA

PROPORTION OF THE WORLD MARKET HELD BY EEC MANUFACTURED PRODUCTS COMPARED TO USA MANUFACTURED PRODUCTS

1970



1976



(c) Long-range aircraft - If the analysis is extended to aircraft type, the results are as follows (aircraft in service and on order at 31 December 1976):

Table 12 (value in m EUA)¹

| | EEC | Other countries in Europe | Europe | USA | Rest of the world | WORLD |
|----------------------|---------------|---------------------------|---------------|---------------|-------------------|----------------|
| B-707/720 | 827.5 | 176.3 | 1003.8 | 1436.9 | 3894.0 | 6304.7 |
| B-747 | 2468.8 | 1109.2 | 3578.0 | 3434.9 | 3542.3 | 10555.2 |
| DC-8 | 254.2 | 247.3 | 501.5 | 828.2 | 660.4 | 1990.1 |
| DC-10/30-40 | 1075.0 | 639.6 | 1714.6 | 930.2 | 1424.9 | 4069.7 |
| CV-880/990 | - | 2.2 | 2.2 | 0.8 | 0.5 | 3.5 |
| US aircraft | 4625.5 | 2174.6 | 6800.1 | 6601.0 | 9522.1 | 22923.2 |
| Concorde | 525.6 | - | 525.6 | - | - | 525.6 |
| Comet | 4.3 | - | 4.3 | - | 0.5 | 4.8 |
| Britannia | 5.4 | - | 5.4 | - | 2.9 | 8.3 |
| VC-10 | 10.8 | - | 10.8 | - | 7.9 | 18.7 |
| Eur. aircraft | 546.1 | 0 | 546.1 | - | 11.3 | 557.4 |
| CL-44 | 13.7 | 2.5 | 16.2 | - | 13.7 | 29.9 |
| TOTAL | 5185.3 | 2177.1 | 7362.4 | 6601.0 | 9547.1 | 23510.5 |

The drop in the value of the US fleet compared with that given in Table 16 of the previous study is largely due to the new price evaluation of aircraft with reference to the different versions, and to minor changes of approach in the study.⁷

Trends in relative market sizes and in the market shares won by European long-range aircraft were as follows:

Table 13

| Market | Relative size of market (%) | | | Market share won by aircraft built in the EEC (%) | | |
|---------------------------|-----------------------------|--------|---------|---|--------|-------------|
| | 1974 % | 1976 % | Trend | 1974 % | 1976 % | Trend 74/76 |
| EEC | 22.0 | 22.0 | - | 8.6 | 10.5 | + 1.9 |
| Other countries in Europe | 7.0 | 9.3 | + 2.3 | - | - | - |
| Europe | (29.0) | (31.3) | (+ 2.3) | 6.5 | 7.4 | + 0.9 |
| USA | 38.9 | 28.1 | -10.8 | - | - | - |
| Rest of the world | 32.1 | 40.6 | + 8.5 | 3.0 | 0.1 | - 2.9 |
| World | 100.0* | 100.0 | | 2.9 | 2.4 | - 0.5 |

As can be seen, the markets of Europe and the rest of the world have grown at the expense of the US market. The share of the EEC market won by aircraft built in Community countries is hardly increasing, whilst their share of the world market is declining. The breakdown (by value) of long-range aircraft in December 1976 was as follows:

Table 14

| | | | |
|---------------------|---------|---|-------|
| "Standard" aircraft | 35.6 % | (| |
| "wide bodies" | 62.2 % | (| 100 % |
| Supersonics | 2.2 % | (| |
| Boeing | 71.7 % | (| |
| McD. Douglas | 25.8 % | (| |
| Other US aircraft | ... (x) | (| 100 % |
| European | 2.4 % | (| |
| Other | 0.1 % | (| |

(d) Short- and medium-range aircraft

Analysis by aircraft type gives the following results (aircraft in service and on order at 31 December 1976)

Table 15

(value in m EUA)¹

| | EEC | Other countries in Europe | Europe | USA | Rest of the world | WORLD |
|-------------------|--------|---------------------------|--------|---------|-------------------|---------|
| B-727 | 653.2 | 375.8 | 1029.0 | 6229.2 | 1295.2 | 8553.4 |
| B-737 | 438.0 | 78.8 | 516.8 | 1078.0 | 1656.9 | 3251.7 |
| DC-3/4/6/7 | 1.7 | 10.6 | 12.3 | 31.4 | 91.0 | 134.7 |
| DC-9 | 550.5 | 1144.9 | 1695.4 | 2315.6 | 1332.4 | 5343.4 |
| DC-10-10 | 116.3 | - | 116.3 | 2877.9 | - | 2994.2 |
| L-100 | - | - | - | 134.2 | 147.6 | 281.8 |
| L-188 | - | 2.0 | 2.0 | 34.2 | 34.8 | 71.0 |
| L-1011 | 536.0 | - | 536.0 | 2278.0 | 1259.6 | 4073.6 |
| CV-440/580/640 | 0.2 | 0.6 | 0.8 | 27.4 | 7.1 | 35.3 |
| FH-227 | - | 0.6 | 0.6 | 17.4 | 11.0 | 29.0 |
| US aircraft | 2295.9 | 1613.3 | 3909.2 | 15023.3 | 5835.6 | 24768.1 |
| Caravelle | 31.6 | 20.5 | 52.1 | 0.4 | 15.4 | 67.9 |
| A-300 | 473.1 | - | 473.1 | - | 267.4 | 740.5 |
| Mercure | 71.6 | - | 71.6 | - | - | 71.6 |
| Vanguard | 18.8 | - | 18.8 | - | 4.0 | 22.8 |
| Viscount | 6.1 | 0.5 | 6.6 | - | 8.1 | 14.7 |
| Bac 1-11 | 243.3 | 21.1 | 264.4 | 25.1 | 212.0 | 501.5 |
| Herald | 5.9 | - | 5.9 | - | 2.2 | 8.1 |
| Trident | 295.0 | - | 295.0 | - | 176.8 | 471.8 |
| HS-748 | 37.5 | 2.7 | 40.2 | 2.7 | 254.6 | 297.5 |
| F-27/28 | 190.5 | 130.8 | 329.3 | 17.4 | 799.5 | 1146.2 |
| VFW-614 | 72.7 | - | 72.7 | - | - | 72.7 |
| European aircraft | 1446.1 | 183.6 | 1629.7 | 45.6 | 1740.0 | 3415.3 |
| YS-11 | - | 8.6 | 8.6 | 34.3 | 134.4 | 177.3 |
| TOTAL | 3742.0 | 1805.5 | 5547.5 | 15103.2 | 7710.0 | 28360.7 |

(x) ... : negligible

Changes in relative market sizes and in the market shares won by European short- and medium-range aircraft were as follows:

Table 16

| Market | Relative size of market (%) | | | Market share won by aircraft built in the EEC (%) | | |
|---------------------------|-----------------------------|--------|----------------|---|------|--------------|
| | 1974 | 1976 | Change 1974/76 | 1974 | 1976 | Change 74/76 |
| | EEC | 13.8 | 13.2 | - 0.6 | 42.9 | 38.6 |
| Other countries in Europe | 9.1 | 6.4 | - 2.7 | 14.1 | 10.2 | - 3.9 |
| Europe | (22.9) | (19.6) | (- 3.3) | 31.5 | 29.4 | - 2.1 |
| USA | 52.3 | 53.2 | + 0.9 | 0.7 | 0.3 | - 0.4 |
| Rest of the world | 24.8 | 27.2 | + 2.4 | 25.7 | 22.6 | - 3.1 |
| World | 100.0 | 100.0 | - | 13.9 | 12.0 | - 1.9 |

Relative sizes of the markets for short- and medium-range aircraft have remained much the same since 1974. The decline in the size of the European market is perhaps more apparent than real and stems from the slight changes in the form of the study.

The European industry lost further ground on all markets.

The trend in value breakdown by manufacturer was as follows:

Table 17

| | 1974 | 1976 | |
|------------------------|------|------|---------|
| Standard aircraft | 73 | 72.5 | } 100 % |
| Wide bodies | 27 | 27.5 | |
| Boeing | 40.3 | 41.6 | } 100 % |
| McDonnell Douglas | 30.4 | 29.9 | |
| Lockheed | 14.2 | 15.6 | |
| Other USA | 0.5 | 0.8 | |
| European manufacturers | 13.9 | 12.0 | |
| Others | 0.7 | 0.1 | |

(e) The European-built civil aircraft market

For the European aircraft listed in the table below, which was compiled on the basis of figures relating to the position as at 31 December 1976, the breakdown of aircraft in service or on order but not yet delivered was as follows in the airlines and countries mentioned in footnote 6, (aircraft built under European transnational co-operation are included in the "EEC market" column):

Table 18

| | National market | EEC market | Other countries in Europe | Europe | USA | Rest of the world | World |
|-----------|-------------------|------------|---------------------------|--------|-----|-------------------|-------|
| Britannia | 6 | 11 | - | 11 | - | 6 | 17 |
| Comet | 16 | 16 | - | 16 | - | 2 | 18 |
| VC-10 | 15 | 15 | - | 15 | - | 11 | 26 |
| Concorde | - | 9 | - | 9 | - | - | 9 |
| Caravelle | 65 | 97 | 23 | 120 | 2 | 54 | 176 |
| Mercure | 10 ⁽⁹⁾ | 10 | - | 10 | - | - | 10 |
| A-300 | - | 23 | - | 23 | - | 13 | 36 |
| Vanguard | 6 | 14 | - | 14 | - | 3 | 17 |
| Viscount | 37 | 37 | 3 | 40 | - | 61 | 101 |
| Bac 1-11 | 60 | 73 | 4 | 77 | 34 | 62 | 173 |
| Herald | 20 | 22 | - | 22 | - | 8 | 30 |
| Trident | 52 | 52 | - | 52 | - | 31 | 83 |
| HS-748 | 13 | 14 | 1 | 15 | 1 | 95 | 111 |
| F-27 | 6 | 68 | 21 | 89 | 12 | 251 | 352 |
| VFW-614 | - | 14 | - | 14 | - | - | 14 |
| F-28 | - | 9 | 17 | 26 | 1 | 61 | 88 |

For all these programmes together, the breakdown of sales by value (aircraft in service and on order at 31 December 1976) is as follows:

Table 19

| | | |
|--|-----------------|---------------|
| National markets (national programmes) | : | 16.7 % |
| Markets of other Member States (national programmes) | : | 5.0 % |
| Transnational aircraft sold within the EEC | : | 28.4 % |
| | <u>EEC</u> : | <u>50.1 %</u> |
| Other European countries | : | 4.6 % |
| | <u>EUROPE</u> : | <u>54.7 %</u> |
| USA | : | 1.1 % |
| Rest of Western world | : | 44.2 % |

It should be noted that, of this entire fleet, only the Airbus A 300 B and the F 28 have a real sales potential in the next few years: the other programmes have been completed, are limited, are at the end of the production now or are being abandoned.

B. The helicopter market

The comments in this section refer to the world helicopter market excluding the USSR, China and East European countries.

Most of the helicopters built are still absorbed by the military market, which constitutes about 65 % of the total market. The civil helicopter market absorbs about 35 % of production. The distribution of the civil helicopter fleets at the beginning of 1977 is given in the following table:

Table 20

| Country | <u>Civil helicopter fleet (beginning of 1977)</u> | | | | | |
|------------------------|---|----------|---------------|----------|-----------------|----------|
| | <u>Design</u> | | | | | |
| | <u>Helicopters</u> | | <u>USA</u> | | <u>European</u> | |
| | <u>Fleet</u> | <u>%</u> | <u>Number</u> | <u>%</u> | <u>Number</u> | <u>%</u> |
| Belgium | 22 | 2.5 | 13 | 59 | 9 | 41 |
| Denmark | 39 | 2.7 | 39 | 100 | - | - |
| France | 235 | 16.3 | 119 | 51 | 116 | 49 |
| Ireland | 8 | 0.5 | 5 | 63 | 3 | 37 |
| Italy | 120 | 8.3 | 93 | 78 | 27 | 22 |
| Luxembourg | - | - | - | - | - | - |
| Netherlands | 17 | 1.0 | 13 | 76 | 4 | 24 |
| FR Germany | 713 | 50.0 | 575 | 81 | 138 | 19 |
| United Kingdom | 284 | 19.7 | 255 | 90 | 29 | 10 |
| EEC | 1438 | 14 % | 1112 | 77 | 326 | 23 |
| Rest of Western Europe | 389 | 4 | 321 | 83 | 68 | 17 |
| Rest of the world | 2400 | 24 | 2150 | 89.5 | 250 | 10.5 |
| USA + Canada | 5800 | 58 | 5630 | 97 | 170 | 3 |
| TOTAL | 10027 | 100% | 9213 | 92 | 814 | 8 |

It is worth noting that the world civil helicopter fleet 8 % are European-designed and 92 % are American-designed machines.

It is thought that European helicopter manufacturers could corner a major share of the market during the eighties.

The previous tables give the breakdown of the helicopter fleets into US and European-designed machines. The US-designed group includes those built under licence in other countries.

Of this total fleet the EEC owns 14 %, the USA and Canada 58 %, the rest of Western Europe 4 % and the rest of the world 24 %. Trends in fleet ownership over the past few years have been as follows:

Table 21

| | <u>1973</u> | <u>%</u> | <u>1974</u> | <u>%</u> | <u>1975</u> | <u>%</u> | <u>1976</u> | <u>%</u> | <u>Increase</u> <u>73 - 76</u> |
|-------------------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|-----------------------------------|
| USA and Canada | 4968 | 62,5 | 5206 | 62,1 | 5670 | 63,0 | 5800 | 58 | + 16,7 % |
| Europe | 1000 | 12,5 | 1090 | 13,0 | 1180 | 13,1 | 1827 | 18 | + 82,7 |
| Rest of the world | 1990 | 25,0 | 2090 | 24,9 | 2150 | 23,9 | 2400 | 24 | + 20,6 |
| <hr/> | <hr/> | <hr/> | <hr/> | <hr/> | <hr/> | <hr/> | <hr/> | <hr/> | <hr/> |
| TOTAL | 7958 | 100 | 8386 | 100 | 9000 | 100 | 10027 | 100 | + 26,0 |

The European civil helicopter fleet has grown so fast chiefly because the helicopter is preferred to the light aircraft for reasons of geography and because industrial centres are not well equipped with facilities for handling light aircraft.

Use in agriculture, the inspection of electrical installations in inaccessible areas, recreational air travel in mountain areas, traffic between the mainland and drilling and extraction platforms in the North Sea and business travel have also been strong stimuli to growth.

C. The general and executive aircraft market

The following tables summarize the position as regards the world fleet of general aircraft at the beginning of 1977, excluding rotary-wing aircraft, gliders and balloons.

Table 22

| <u>General aircraft fleet - single-engine</u> | | | | | | | | | | | | |
|---|--|----------|---------------|----------|---------------|----------|--------------|----------|------------------|----------|--|--|
| <u>Beginning of 1977</u> | | | | | | | | | | | | |
| <u>Country</u> | <u>Single-engined light aircraft fleet</u> | | <u>design</u> | | | | | | | | | |
| | | | <u>USA</u> | | <u>Europe</u> | | <u>Japan</u> | | <u>East Eur.</u> | | | |
| | | <u>%</u> | <u>No.</u> | <u>%</u> | <u>No.</u> | <u>%</u> | <u>No.</u> | <u>%</u> | <u>No.</u> | <u>%</u> | | |
| Belgium | 706 | | 347 | 49 | 359 | 51 | - | - | - | - | | |
| Denmark | 760 | | 525 | 69 | 235 | 31 | - | - | - | - | | |
| France | 5700 | | 1292 | 23 | 4358 | 76 | - | - | 50 | 1 | | |
| Ireland | 191 | | 51 | 27 | 140 | 73 | - | - | - | - | | |
| Italy | 993 | | 358 | 36 | 635 | 64 | - | - | - | - | | |
| Luxembourg | 39 | | 25 | 64,5 | 13 | 33,5 | 1 | 2 | - | - | | |
| Netherlands | 362 | | 291 | 80 | 71 | 20 | - | - | - | - | | |
| FR Germany | 5378 | | 3453 | 64,2 | 1871 | 34,8 | 88 | 1,6 | - | - | | |
| UK | 3232 | | 1587 | 49 | 1645 | 51 | - | - | - | - | | |
| EEC | 17361 | 10,7% | 7929 | 45,5 | 9327 | 53,7 | 89 | 0,5 | 50 | 0,3 | | |
| Rest of Western Europe | 4366 | 2,7 | 3121 | 71,5 | 1245 | 28,5 | 1 | - | - | - | | |
| Europe | 21727 | - | 11050 | 50,8 | 10572 | 48,6 | 90 | 0,4 | 50 | 0,2 | | |
| United States of America | * 140000 | 86,6 | 137200 | 98 | 2800 | 2 | - | - | - | - | | |
| TOTAL : | 161727 | 100,0% | 148250 | 92 | 13372 | 8 | | | | | | |

* Estimate

There are about 17 000 single-engined aircraft in the EEC, 45.5 % of which are of American design. 53.7 % of single-engined light aircraft in the EEC are European-designed and 90 % of these are powered by American-designed engines.

It is worth noting that the single-engined light aircraft fleet of the Federal Republic of Germany includes about 90 Japanese single-engined machines (1.6 % of the German light aircraft fleet), and that Japanese aircraft account for 0.5 % of the total EEC single-engine fleet.

In France the single-engine light aircraft fleet has grown by about 50 machines for aerobatics: 1 % of the total fleet is of East European origin (chiefly Czechoslovakia and Poland), and the penetration rate of East European aircraft is 0.3 % of the total EEC single-engine fleet.

About 80 % of the single-engine fleet of the rest of Western Europe is of American design. There are far fewer aircraft than in the US,

It is estimated that 98 % of the US single-engine light aircraft fleet (140 000 machines) is US-designed.

Table 23

| <u>General aircraft fleet - twin and multi-engine</u> | | | | | | | | | | |
|---|--|----------|---------------|----------|---------------|----------|--------------|----------|--------------|----------|
| <u>Beginning of 1977</u> | | | | | | | | | | |
| <u>Country</u> | <u>Twin-engined private and executive aircraft</u> | | <u>Design</u> | | | | | | | |
| | | | <u>USA</u> | | <u>Europe</u> | | <u>Japan</u> | | <u>Other</u> | |
| | <u>No</u> | <u>%</u> | <u>No</u> | <u>%</u> | <u>No</u> | <u>%</u> | <u>No</u> | <u>%</u> | <u>No</u> | <u>%</u> |
| Belgium | 76 | 4 | 60 | 79 | 16 | 21 | - | - | - | - |
| Denmark | 112 | 5 | 90 | 80 | 22 | 20 | - | - | - | - |
| France | 661 | 31 | 511 | 77 | 150 | 23 | - | - | - | - |
| Ireland | 15 | 1 | 12 | 80 | 3 | 20 | - | - | - | - |
| Italy | 202 | 10 | 141 | 70 | 61 | 30 | - | - | - | - |
| Luxembourg | 5 | - | 5 | 100 | - | - | - | - | - | - |
| Netherlands | 51 | 2 | 39 | 76 | 12 | 24 | - | - | - | - |
| FR Germany | 159 | 8 | 115 | 72.4 | 43 | 27 | 1 | 0.6 | - | - |
| UK | 829 | 39 | 597 | 72 | 232 | 28 | - | - | - | - |
| EEC | 2110 | 7% 100 | 1590 | 74.4 | 540 | 25.55 | 1 | 0.05 | - | - |
| Rest of Western Europe | 762 | 3% 100 | 607 | 79.7 | 142 | 18.6 | 13 | 1.7 | - | - |
| Europe = | 2872 | - 100 | 2177 | 75.8 | 682 | 23.7 | 14 | 0.5 | - | - |
| United States of America | * 25500 | 90% | 24225 | 95 | 1020 | 4 | 255 | 1 | - | - |
| TOTAL : | 28372 | 100% | 26402 | 93 | 1702 | 6 | 269 | 1 | - | - |

* Estimate

At the beginning of 1977 the EEC' multi-engine fleet comprised 2 110 machines 74.2 % of which were of American design, 25.55 % European-designed and 0.05 % Japanese-designed. The only twin-engine machine of Japanese design and origin is registered in the Federal Republic of Germany.

On the other hand, Japanese machines in this category have won a foothold in the multi-engine aircraft fleet of the rest of Western Europe, with 1.7 % of a fleet of 762 machines, 79.7 % of which are American-designed and the remainder (18.6 %) European-designed.

The United States of America has by far the largest private and executive multi-engine fleet, estimated at 25 500 machines, of which 95 % are American-designed, 4 % European-designed and 1 % Japanese-designed.

The rest of the world's light and executive aircraft fleet was estimated at some 25 000 at the end of 1976. However, no reliable breakdown into single-engined and twin-engined aircraft is available.

The entire world fleet of light and executive aircraft (excluding the USSR, China and Eastern Europe) was estimated at 215 000 machines at the end of 1976, 90 % being machines of American design.

The Japanese penetration, though still small, has grown since 1972. In particular the Mitsubishi MU 2, a twin turboprop private and executive aircraft, has made spectacular inroads world-wide: 500 have been sold at mid-March 1978.

Of the European-designed multi-engine aircraft, 95 % are powered by American-designed engines.

The distribution pattern of the total fleet of light and executive aircraft changed as follows from 1973 to 1976:

Table 23 a

| <u>Distribution of the world fleet of light and executive aircraft</u> <u>(excluding the USSR, China and Eastern Europe)</u> | | |
|---|----------------------------------|--------------------|
| <u>Geographical zone</u> | <u>Percentage of total fleet</u> | |
| | <u>1973</u> | <u>End of 1977</u> |
| USA | 74.2 | 77 |
| Europe | 8 | 10.5 (9 + 1.5) |
| Rest of the World { | 5.5 | } 12.5 |
| Canada | 0.5 | |
| Far East | 6.0 | |
| Latin America | 2.0 | |
| Australia | 4.0 | |
| Africa and Middle East | | |
| | 100.0 | 100.0 |

* EEC: 9; Rest of Europe: 1.5

D. The military aviation market

Analysis of the numbers of military aircraft and helicopters in service in 1976 (excluding the socialist countries) on the basis of the American DMS study (Defense Aerospace Market Intelligence)¹⁰ demonstrates the relative proportions, in the fleets of the Member States, of aircraft of EEC origin and those (most of the remainder) of US origin.

This breakdown was investigated from two points of view:

- firstly, design: European (EEC) or American (machines designed in other countries represent only 0.8 % of the total);
- secondly, manufacture: of American-designed machines: in the Community or in the United States. The question hardly arises in respect of European-designed (EEC) aircraft, as almost all these are built in the Community.

Table 24

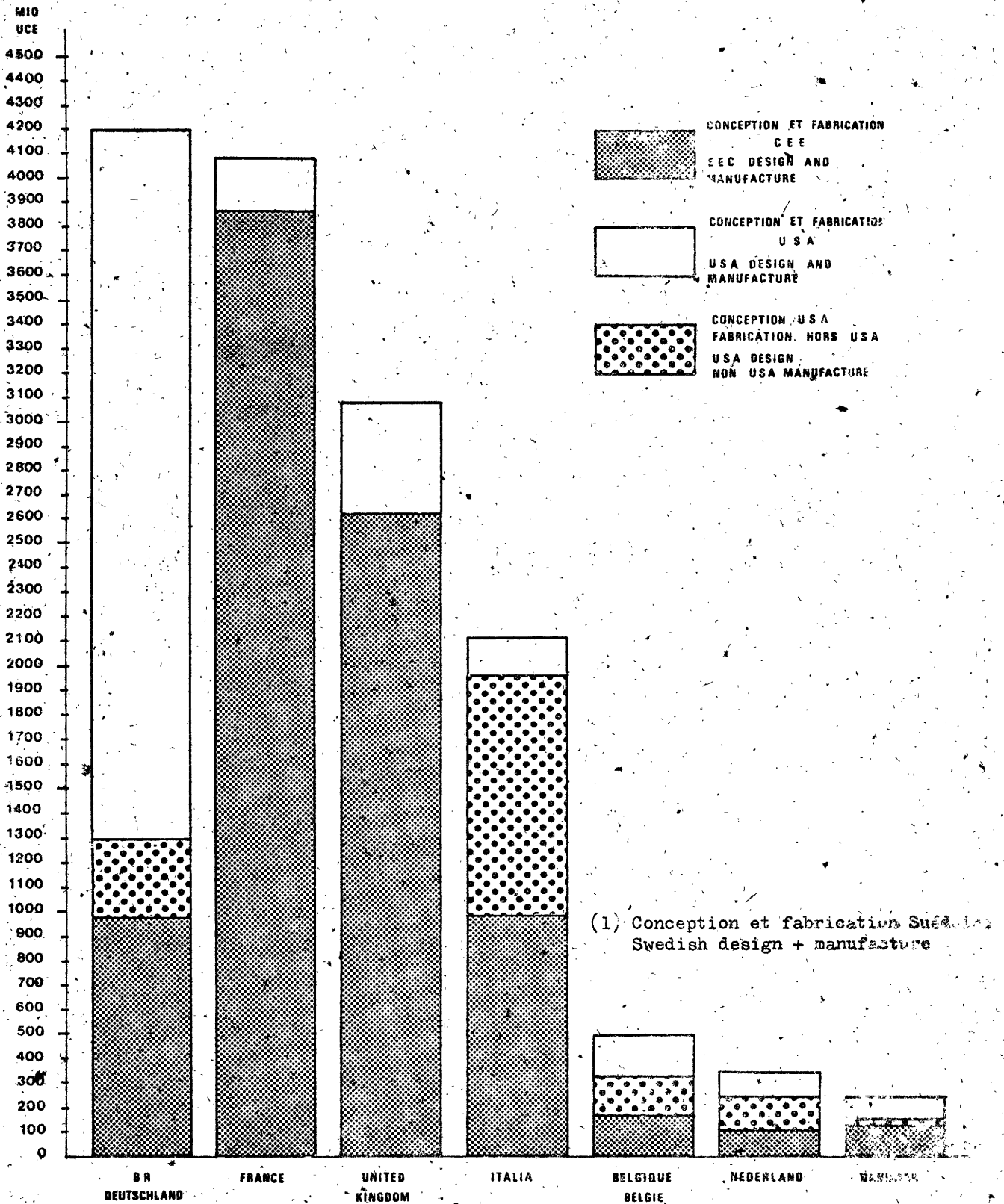
| | Value of aircraft and helicopters in service in the EEC and breakdown according to design | | | | | | | | | | | | |
|----------------|--|--------------|---------------|-------------|---------------|--------------|---------------|-------------|--------------|------------|----------------|---------------|----------------|
| | EEC | | | | USA | | | | Other | | Total | Total | Total |
| | Aircraft | Helicopters | Total | % | Aircraft | Helicopters | Total | % | Aircraft | % | aircraft | Helicopters | |
| FR Germany | 909.5 | 67.0 | 976.5 | 23.2 | 2910.8 | 313.5 | 3224.3 | 76.8 | - | 0.0 | 3820.3 | 380.5 | 4200,8 |
| Belgium | 150.6 | 17.0 | 167.6 | 34.2 | 320.3 | 2.4 | 322.7 | 65.8 | - | 0.0 | 470.9 | 19,4 | 490,3 |
| Denmark | - | 1.6 | 1.6 | 0,7 | 111,7 | 7,6 | 119,3 | 50,8 | 113,9* | 48,5 | 225,6 | 9,2 | 234,8 |
| France | 3426.8 | 441.8 | 3868.6 | 94.9 | 206.1 | 2.6 | 208.7 | 5.1 | - | 0.0 | 3632.9 | 444.4 | 4077,3 |
| Ireland | 1.6 | 1.6 | 3.2 | 97.0 | 0.1 | - | 0.1 | 3.0 | - | 0.0 | 1.7 | 1,6 | 3,3 |
| Italy | 969.8 | 2.6 | 972.4 | 45.8 | 777.1 | 374.3 | 1151.4 | 54,2 | - | 0.0 | 1746.9 | 376.9 | 2123,8 |
| Netherlands | 77.4 | 30.3 | 107.7 | 31.5 | 231.8 | 2.2 | 234.0 | 68.5 | - | 0.0 | 309,2 | 32,5 | 341,7 |
| United Kingdom | 2209.1 | 405.3 | 2614.4 | 85.2 | 449.2 | 5.5 | 454.7 | 14,8 | 1.0 | 0.0 | 2659,3 | 410.8 | 3070,1 |
| EEC | 7744.8 | 967.2 | 8712.0 | 59.9 | 5007.1 | 708.1 | 5715.2 | 39.3 | 114.9 | 0.8 | 12866.8 | 1675.3 | 14542,1 |

* Swedish-designed and manufacture.

- Breakdown according to design

**VALEUR DES FLOTTES MILITAIRES DES ETATS MEMBRES (Avions et hélicoptères)
REPARTITION SELON LA CONCEPTION ET LA FABRICATION DU MATERIEL**

**VALUE OF MILITARY FLEETS IN THE MEMBER STATES (Aircraft and helicopters)
BREAKDOWN OF EQUIPMENT BY DESIGN AND MANUFACTURING ORIGIN**



(1) Conception et fabrication Suédoise
Swedish design + manufacture

(1) Conception et fabrication Suédoise
Swedish design + manufacture

About 60 % by value of the aircraft in service in 1976 in Member States' fleets were European-designed (EEC), but the figures vary widely from one Member State to the next:

Table 25

| Proportion of EEC-designed aircraft in the fleets of the Member States: | | | | | |
|---|---|--------|-------------|---|--------|
| Ireland | : | 97.0 % | Belgium | : | 34.2 % |
| France | : | 94.9 % | Netherlands | : | 31.5 % |
| United Kingdom | : | 85.2 % | FR Germany | : | 23.2 % |
| Italy | : | 45.8 % | Denmark | : | 0.7 % |

The breakdown of the total value of the Member States' fleets is as follows:

Table 26

| | | |
|----------------|---|---------|
| FR Germany | : | 28.9 % |
| Belgium | : | 3.4 |
| Denmark | : | 1.6 |
| France | : | 28.0 |
| Ireland | : | 0.1 |
| Italy | : | 14.6 |
| Netherlands | : | 2.3 |
| United Kingdom | : | 21.1 |
| | | <hr/> |
| | | 100.0 % |

Breakdown of US-designed aircraft by manufacturing origin

The breakdown by manufacturing origin (EEC or United States) of US-designed aircraft in Member States where these aircraft represent a large proportion of the total: *

Table 27

| (percentage value) | | |
|--------------------------------|----------|--|
| <u>US-designed aircraft</u> | | |
| <u>Manufactured in the EEC</u> | | <u>Manufactured in the United States</u> |
| Italy | : 85.4 % | 14.6 % |
| Belgium | : 52.3 % | 47.7 % |
| Netherlands | : 42.4 % | 36.8 % |
| FR Germany | : 9.6 % | 90.4 % |
| Denmark | : 0 | 85.4 % |

As can be seen, purchasing policy differs from Member State to Member State. It should also be said that the position changes with each large order for new machines.

As regards exports of military aircraft to countries outside the Community, the United States holds 82.2% of the market with US-designed aircraft, its share rising to over 99% in the home market and covering 88% of the Canadian market, 74% of the Oceania market, 67% of the Australian and 58% of the Latin American market. Soviet aircraft have a large share of the market in Africa south of the Sahara and Madagascar (44.1%), the Middle East and North Africa (34.3%) and Asia (29.7 %) (for Africa south of the Sahara, the Middle East and North Africa and non-EEC Europe, see the list of countries at the bottom of table 28).

The European share is relatively large only in South Africa and Rhodesia (82.7 %), South America (28.3 %), Australia (27.5 %), Oceania (19.4 %) and non-EEC Europe (16.2 %).

Sales of European aircraft account for only 5.9 % of the non-EEC market (including the United States). Nevertheless, on the world market excluding the EEC and the United States, the share accounted for by the European industry rises to 18.4 %.

* In the case of the Netherlands and Denmark, a very small proportion of these aircraft is built neither in the Community nor in the United States.

Table 28

| Value on non-EEC markets of aircraft and helicopters in service in 1976, broken down by design origin | | | | | | | | | | | | | | |
|---|----------|--------|--------|------|----------|--------|---------|------|----------|--------|--------|------|----------|------|
| Designed in | EEC | | | | USA | | | | USSR | | | | Other | |
| | Aircraft | Helic. | Total | % | Aircraft | Helic. | Total | % | Aircraft | Helic. | Total | % | Aircraft | % |
| USA | 362.8 | - | 362.8 | 0.6 | 48299.2 | 7317.7 | 55616.9 | 99.4 | - | - | - | 0.0 | 1.5 | 0.0 |
| Canada | 15.5 | - | 15.5 | 3.6 | 315.8 | 69.8 | 385.6 | 88.9 | - | - | - | 0.0 | 32.4 | 7.5 |
| Latin America | 470.7 | 53.2 | 523.9 | 28.3 | 919.5 | 157.4 | 1076.9 | 58.1 | - | 3.2 | 3.2 | 0.2 | 248.3 | 13.4 |
| Non-EEC Europe * | 728.9 | 86.6 | 815.5 | 16.2 | 1681.1 | 862.4 | 2043.5 | 40.6 | 383.4 | 13.2 | 396.6 | 7.8 | 1788.2 | 35.4 |
| Middle East + North Africa ** | 1047.0 | 246.5 | 1293.5 | 12.8 | 4188.2 | 677.0 | 4865.2 | 48.3 | 3268.8 | 182.5 | 3451.3 | 34.3 | 461.6 | 4.6 |
| Africa south of the Sahara + Madagascar *** | 156.7 | 52.1 | 208.8 | 28.4 | 140.6 | 37.5 | 178.1 | 24.3 | 315.9 | 7.6 | 323.5 | 44.1 | 23.6 | 3.2 |
| South Africa + Rhodesia | 686.3 | 105.8 | 792.1 | 82.7 | 166.0 | - | 166.0 | 17.3 | - | - | - | 0.0 | 0.1 | 0.0 |
| Asia | 564.0 | 98.9 | 662.9 | 9.8 | 2447.7 | 597.8 | 3045.5 | 45.0 | 1953.5 | 56.0 | 2009.5 | 29.7 | 1044.9 | 15.5 |
| Australia | 174.8 | 29.8 | 204.6 | 27.5 | 458.8 | 41.6 | 500.4 | 67.3 | - | - | - | 0.0 | 38.4 | 5.2 |
| Oceania | 37.8 | 2.4 | 40.2 | 19.4 | 122.3 | 31.1 | 153.4 | 74.1 | - | - | - | 0.0 | 13.5 | 6.5 |
| World outside EEC | 4244.5 | 675.3 | 4919.8 | 5.9 | 58739.2 | 9292.3 | 68031.5 | 82.2 | 5921.6 | 262.5 | 6184.1 | 7.5 | 3652.5 | 4.4 |

* : Austria, Finland, Greece, Norway, Portugal, Spain, Switzerland, Turkey, Yugoslavia.

** : Abu Dhabi, Algeria, Dubai, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Saudi Arabia, South Yemen, Sudan, Syria, Tunisia.

*** : Cameroon, the Central African Empire, Chad, Ethiopia, Gabon, Ghana, Ivory Coast, Kenya, Madagascar, Niger, Nigeria, Somalia, Tanzania, Uganda, Zaïre, Zambia.

The distribution of exports of European-designed military aircraft is as follows:

Table 29

| | |
|--|---------|
| Middle East and North Africa** | 26.3 % |
| Non-EEC Europe* | 16.6 % |
| South Africa and Rhodesia | 16.1 % |
| Asia | 13.5 % |
| Latin America | 10.6 % |
| United States | 7.4 % |
| Africa south of the Sahara and Madagascar*** | 4.2 % |
| Australia | 4.2 % |
| Oceania | 0.8 % |
| Canada | 0.3 % |
| | <hr/> |
| | 100.0 % |

The only parts of the world outside the EEC where a significant proportion of European-designed aircraft in service in non-EEC countries is built are South Africa, Rhodesia, Asia and Australia (approximately one third of the total value of European-designed aircraft in service in these areas).

Most US-designed aircraft, on the other hand, are manufactured in the United States, although some are built in the user countries - chiefly in Asia - and a few in the Community (e.g. American-designed aircraft in use in the fleets of non-EEC Europe, the Middle East and North Africa).

* Austria, Finland, Greece, Norway, Portugal, Spain, Switzerland, Turkey, Yugoslavia.

** Abu Dhabi, Algeria, Dubai, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Saudi Arabia, South Yemen, Sudan, Syria, Tunisia.

*** Cameroon, the Central African Empire, Chad, Ethiopia, Gabon, Ghana, Ivory Coast, Kenya, Madagascar, Niger, Nigeria, Somalia, Tanzania, Uganda, Zaïre, Zambia.

E. International trade in civil aircraft

(a) Trade between Member States

Figures on trade between Member States for "helicopters, light aircraft, airliners and parts and spares" and for "engines for aerodynes, turbojets and turboprops and parts and spares" are given in 11 and 12 respectively. It should be pointed out that these figures are taken from customs statistics and are not comparable with those resulting from an analysis of turnover.

Intra-Community trade balances by Member State are as follows (1976):

Table 30

| (m EUA) | Helicopters, light aircraft, airliners and parts and spares | Engines for aerodynes, turbojets and turboprops and parts and spares |
|--------------------|---|--|
| FRG | - 374.9 | + 52.0 |
| Belgium/Luxembourg | - 63.1 | - 61.9 |
| Denmark | - 2.8 | + 0.8 |
| France | + 336.2 | + 52.0 |
| Italy | + 16.5 | - 15.0 |
| Ireland | - 2.3 | + 0.8 |
| Netherlands | + 12.8 | - 39.5 |
| UK | + 77.6 ¹¹ | + 10.9 |

It can be seen that, for helicopters, light aircraft, airliners and parts and spares, France is the main supplier and the Federal Republic of Germany is the main customer; it should, however, be borne in mind that, as indicated in the note, the UK statistics relate only to parts and spares, since information on the other items is regarded as secret.

In the case of engines for aerodynes, turbojets and turboprops and parts and spares, those Member States which have a large-scale engine industry supply the other Member States.

Total intra-Community trade amounts to 1 081.1 million EUA for helicopters, light aircraft and airliners and parts and spares, and 487.9 million EUA for engines, etc.

(b) Trade between Member States and other countries

- Helicopters, light aircraft and airliners, parts and spares

The tables giving figures for trade between the Member States and the United States, Canada, Japan and the world are to be found in notes 13 and 14.

The Member States' trading balances with the United States, Canada, Japan and the world were as follows in 1976:

Table 31

| (m EUA) | <u>Trading balance with:</u> | | | |
|------------------------|------------------------------|---------------|--------------|--------------|
| | <u>United States</u> | <u>Canada</u> | <u>Japan</u> | <u>World</u> |
| FR Germany | - 242.9 | - 1.7 | - 0.1 | - 323.7 |
| Belgium and Luxembourg | - 26.3 | + 2.2 | - 0.1 | - 56.3 |
| Denmark | - 30.1 | + ... | + ... | - 35.5 |
| France | - 178.4 | - 1.7 | + 0.2 | + 361.9 |
| Italy | - 157.6 | - 0.2 | + ... | - 180.4 |
| Ireland | - 2.1 | + ... | - | + 1.0 |
| UK * | + 69.9 | + 9.3 | + 1.2 | + 235.3 |

It can be seen that, all Member States except the United Kingdom have a negative balance with the United States and almost even balances with Canada and Japan. France and the United Kingdom have large positive balances in trade with the world as a whole, and the Federal Republic of Germany and Italy have large negative balances.

- Engines for aerodynes, turbojets and turboprops, parts and spares

The Member States' trading balance with the United States, Canada, Japan and the world were as follows in 1976:

* Parts and spares only.

Table 32

| (m. EUA) | <u>Trading balances with:</u> | | | |
|----------------|-------------------------------|---------------|--------------|--------------|
| | <u>United States</u> | <u>Canada</u> | <u>Japan</u> | <u>World</u> |
| FR Germany | - 24.4 | - 0.5 | + ... | + 57.3 |
| Belg. and Lux. | - 3.2 | - 2.4 | - ... | - 76.9 |
| Denmark | - 12.8 | - 0.3 | + ... | - 16.4 |
| France | - 127.5 | - 3.1 | + 0.7 | - 22.7 |
| Italy | - 39.1 | - 10.0 | - ... | - 41.1 |
| Ireland | - 0.7 | - | - | + 0.1 |
| UK | + 95.3 | + 6.6 | + 21.6 | + 184.0 |

For engines, etc., the UK alone has a sizeable positive balance, including a positive balance with the USA; the other Member States except the Federal Republic have negative balances, although smaller than in the case of helicopters, light aircraft, etc.

II. MANUFACTURING BASE

A. Sector and subsectors

1. Turnover¹

(a) General pattern

The salient feature of the sector in the western world¹⁵ is the dominant role played by the US industry.

Although declining, the US share still represents 64.5 % of the total for the West. According to the data available, the turnovers achieved are as follows:

Table 33

| Aerospace sector: Turnover of the principal manufacturing countries of the West. (in current EUA for aerospace products and services only) | | | | | | | | | | | |
|---|------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|
| | | 1972 | % | 1973 | % | 1974 | % | 1975 | % | 1976 | % |
| USA | (16) | 17,993 | 73.0 | 17,437 | 70.2 | 18,735 | 68.9 | 19,016 | 65.6 | 21,488 | 64.5 |
| Canada | (17) | 568 | 2.3 | 541 | 2.2 | 617 | 2.3 | 634 | 2.2 | 751 | 2.3 |
| EEC | (18) | 5,155 | 20.9 | 5,842 | 23.5 | 6,552 | 24.0 | 7,917 | 27.4 | 9,309 | 28.0 |
| Other European countries | (19) | 230 | 0.9 | 310 | 1.2 | 377 | 1.4 | 383 | 1.3 | 500 | 1.5 |
| Europe | | (5,385) | (21.8) | (6,152) | (24.7) | (6,929) | (25.4) | (8,300) | (28.7) | (9,811) | (29.5) |
| Japan | (20) | 396 | 1.6 | 401 | 1.6 | 572 | 2.1 | 617 | 2.1 | 746 | 2.2 |
| Other "Western" countries | (21) | 309 | 1.3 | 325 | 1.3 | 341 | 1.3 | 413 | 1.4 | 500 | 1.5 |
| | | 24,651 | 100.0 | 24,856 | 100.0 | 27,194 | 100.0 | 28,980 | 100.0 | 33,294 | 100.0 |

Two major changes have been made to this table since previous editions of "Trading Position and Figures":

- the substitution of the EUA for the EUR¹;
- the AIAA has revised all turnover figures for the United States¹⁶.

An increase in total value calculated in current EUAs can be observed; this is mainly attributable to the EEC industry, whose share has grown from 20.9 % in 1972 to 28 % in 1976.

The table below shows the trends followed since 1970 by the final turnovers of individual Member States, the sum of these (EEC), and the final turnover of the US industry.

Table 34

| <u>Final turnovers of individual Member States, sum of these (EEC), and turnover of the United States</u> | | | | | | | | |
|---|------------|--------------|---------------|--------------|-----------------|-----------|------------|------------|
| (million current EUA ¹ ; figures rounded off - see table 42; revised series - see notes giving breakdown by countries) | | | | | | | | |
| | <u>FRG</u> | <u>Belg.</u> | <u>France</u> | <u>Italy</u> | <u>Netherl.</u> | <u>UK</u> | <u>EEC</u> | <u>USA</u> |
| | (22) | (23) | (24) | (25) | (26) | (27) | (28) | (16) |
| 1970 | 770 | 39 | 1310 | 227 | 113 | 1576 | 4035 | 21,779 |
| 1971 | 823 | 53 | 1386 | 219 | 119 | 1610 | 4210 | 18,750 |
| 1972 | 908 | 65 | 1529 | 359 | 169 | 2125 | 5155 | 17,993 |
| 1973 | 1138 | 61 | 1993 | 353 | 160 | 2137 | 5842 | 17,437 |
| 1974 | 1213 | 74 | 2263 | 361 | 141 | 2500 | 6552 | 18,735 |
| 1975 | 1279 | 99 | 2924 | 494 | 227 | 2894 | 7917 | 19,016 |
| 1976 | 1531 | 111 | 3790 | 491 | 280 | 3106 | 9309 | 21,488 |

According to an AIA estimate which allows for the fact that not all the engines, instrumentation and space subsector undertakings replied to the questionnaire²⁵ in detail, the actual turnover figure for Italy is 506 million EUA.

For all Member States, the figures given above for 1972 onwards are those provided by the national manufacturers' associations. The values shown are expressed in million EUA¹ at the rate prevailing for the year concerned (current EUA). In the table below, these results have been corrected to allow for real currency values. Price indices for GDP at market prices (1970 = 100) have been applied to the amounts in current national currencies, and the results converted into EUA at the 1970 rates of exchange. Thus, the trend in turnover at 1970 constant values is as follows (cf. note 29):

Table 35

| Final turnover in 1970 constant prices (million EUA) | | | | | | | | |
|--|-------------|---------------|----------------|---------------|------------------|------------|-------------|-------------|
| | FRG (29) | Belg. (29) | France (29) | Italy (29) | Netherl. (29) | UK (29) | EEC (29) | USA (29) |
| 1970 | 770 | 39 | 1310 | 227 | 113 | 1573 | 4035 | 21779 |
| 1971 | 764 | 50 | 1310 | 205 | 110 | 1479 | 3918 | 18292 |
| 1972 | 761 | 58 | 1359 | 319 | 139 | 1898 | 4534 | 18057 |
| 1973 | 823 | 48 | 1580 | 313 | 115 | 1988 | 4867 | 18168 |
| 1974 | 771 | 50 | 1690 | 295 | 88 | 2081 | 4975 | 17178 |
| 1975 | 746 | 59 | 1779 | 358 | 125 | 2071 | 5138 | 16587 |
| 1976 | 808 | 57 (30) | 2164 | 346 | 134 | 2122 | 5631 | 16067 |

It is clear that the increase in EEC at a mean annual compound rate of 5.7 % (as against 4.3 % for the period 1969/74) has reduced the lead held by the USA:

In 1970 EEC turnover represented 18.5 % of that of the US industry, whereas in 1976 this percentage reached 35 %.

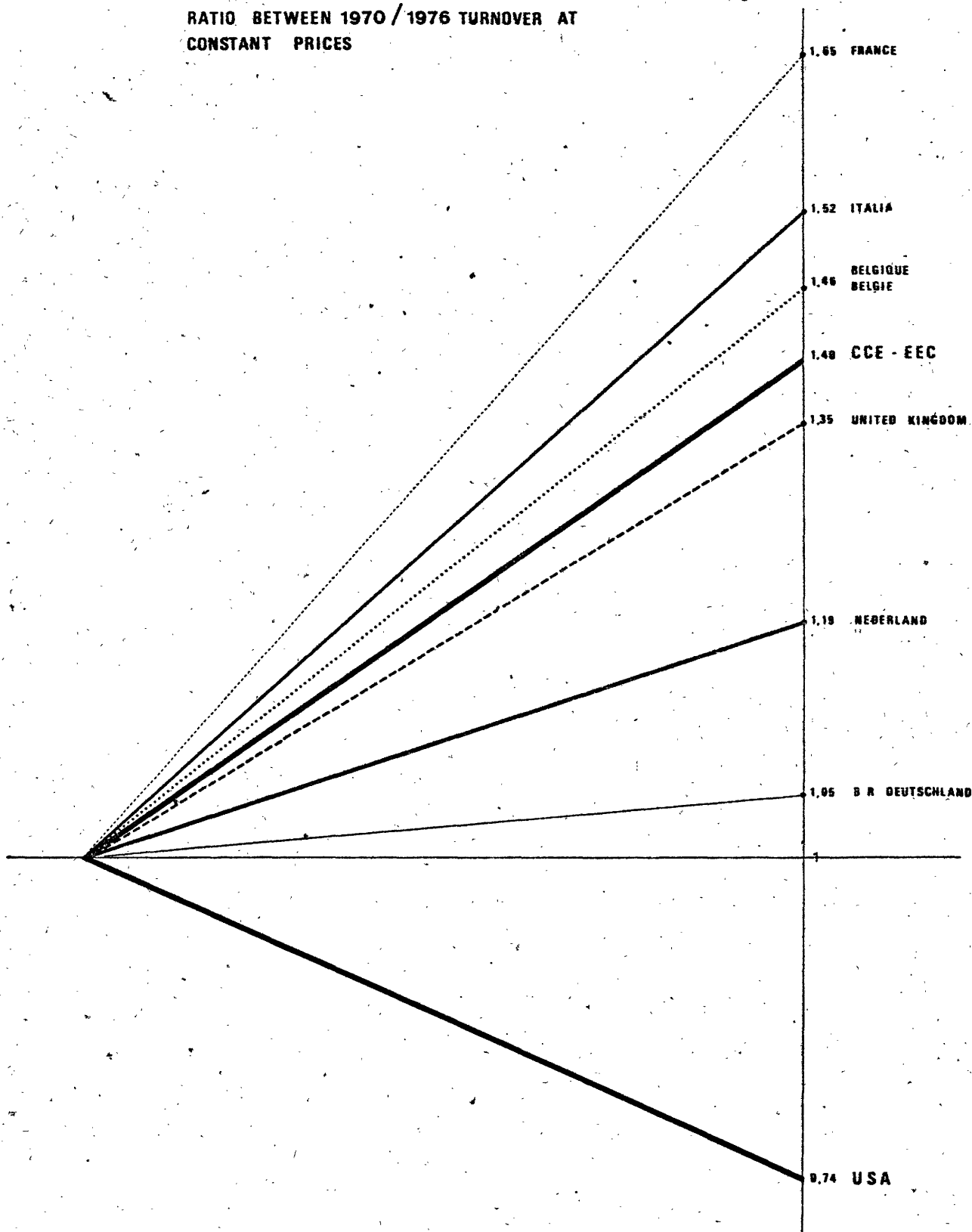
It is also useful to compare the trend in aerospace industry turnover with the trend in GDP at constant prices and 1970 rates of exchange over the six-year period 1970/1976:

Table 36

| Trend in turnover in the aerospace industry and GDP, 1970-1976 | | | | | | | | |
|--|--------|-------|--------|-------|---------|------|------|--------|
| | FRG | Belg. | France | Italy | Nethrl. | UK | EEC | USA |
| <u>Percentage over the period</u> | | | | | | | | |
| <u>Turnover</u> | | | | | | | | |
| Aero.ind | 4.9 | 46.1 | 65.2 | 52.4 | 18.5 | 34.6 | 39.6 | - 26.2 |
| GDP | : 16.0 | 21.8 | 28.4 | 18.7 | 24.0 | 12.5 | 19.2 | 18.5 |
| <u>Mean annual compound rate</u> | | | | | | | | |
| <u>Turnover</u> | | | | | | | | |
| Aero.ind | 0.8 | 6.5 | 8.7 | 7.2 | 2.8 | 5.0 | 5.7 | neg. |
| GDP | : 2.5 | 3.3 | 4.2 | 2.8 | 3.6 | 1.9 | 2.9 | 2.8 |

RAPPORTS 1970/1976 ENTRE LES CHIFFRES D'AFFAIRES FINALS
EN VALEUR CONSTATE

RATIO BETWEEN 1970/1976 TURNOVER AT
CONSTANT PRICES



Growth in the aerospace industry has been greater than growth in GDP in the EEC as a whole and in all individual Member States with the exception of the Federal Republic of Germany and the Netherlands. At Community level the trend for the aerospace industry's turnover to grow faster than GDP has become more marked over the last few years.

Table 37

| <u>Trend in aerospace industry turnover and GDP</u> | | | | |
|---|--------------------|--------------------|--------------------|--------------------|
| <u>Mean annual compound rate</u> | | | | |
| | <u>1969 - 1972</u> | <u>1969 - 1974</u> | <u>1970 - 1975</u> | <u>1970 - 1976</u> |
| Aerospace turnover | 1.7 | 4.3 | 4.9 | 5.7 |
| GDP | 4.0 | 3.9 | 2.4 | 2.9 |

The Community aerospace industry, then, is a growth sector. The analysis below shows how this expansion has come about. At constant 1970 prices, the turnover for the United States industry decreased by 26.2 % during the period 1970-76. A closer look should be taken at this decrease.

Table 38

| <u>1970-76 trend in turnover in the US aerospace industry, by main sectors (at constant 1970 prices)</u> | | |
|--|--------------------------------|------------------------|
| <u>Department of Defense</u> | <u>NASA and other agencies</u> | <u>Other customers</u> |
| - 37.4 % | - 35.3 % | + 14.9 % |

It will be noted that the decrease is due to a sharp drop in the military and space subsectors whilst manufacturing for civil aviation has expanded.

The expansion of the industry in the Community and the relative drop in its contribution to GDP in the United States mean that in both cases it now accounts for about 1 % of GDP.

Table 39

| | EEC | | | USA | | |
|--------------------------------|-------|-------|-------|-------|-------|-------|
| | 1970 | 1975 | 1976 | 1970 | 1975 | 1976 |
| Aerospace turnover as % of GDP | 0.667 | 0.752 | 0.780 | 2.264 | 1.535 | 1.411 |

Within the EEC, the relative share of the aerospace industry is largest in the UK (1.583 %) and France (1.222 %).

(b) Breakdown

There has been further progress in the programme to improve statistics, the latest ones available being for 1976. It is therefore possible to analyse overall and final turnover figures at sector and subsector level.

For each country a distinction must be made between:

- overall turnover, which includes transactions (sale of aerospace goods and services) between companies in the aerospace industry of the country; and
- final turnover (output of the aerospace sector), which does not include transactions between companies in the aerospace industry of the country. The difference between overall and final turnover is the figure for sales of aerospace goods and services by companies in one national subsector to those in another (aircraft, engines, equipment, space) and sales by one company to another in the same national subsector (by subcontracting for certain subassemblies between aircraft manufacturers³¹).

The overall turnovers of the Member States in 1976 were as follows:

Table 40

| <u>Overall turnovers in 1976 in millions of current EUA</u> | | | | | | |
|---|--------------|---------------|--------------|-----------------|-----------|------------|
| <u>FRG</u> | <u>Belg.</u> | <u>France</u> | <u>Italy</u> | <u>Netherl.</u> | <u>UK</u> | <u>EEC</u> |
| 1815.7 | 113.9 | 4715.2 | 623.4 | 300.4 | 3547.6 | 11116.2 |

(32)

The breakdown by subsector is as follows:

(This breakdown is better than a breakdown of final turnovers, since sales between one subsector and another are not excluded. The turnover of the "aircraft" subsector includes the value of equipment and engines purchased by the aircraft manufacturers, and this causes the relative contribution of these two subsectors to total aerospace turnover to be underestimated.)

Table 41

| <u>Breakdown of overall turnovers by subsector</u> | | | | | | | |
|--|------------|--------------|---------------|--------------|-----------------|------------|------------|
| | <u>FRG</u> | <u>Belg.</u> | <u>France</u> | <u>Italy</u> | <u>Netherl.</u> | <u>UK</u> | <u>EEC</u> |
| Aircraft | 66.5 | 54.5 | 61.6 | 61.3 | 92.4 | 39.7 | 56.2 |
| Engines | 10.6 | 17.2 | 17.9 | 17.0 | - | 30.9 | 20.3 |
| Equipment | 15.3 | 15.6 | 18.7 | 14.9 | 5.3 | 28.1 | 20.5 |
| Space | 7.6 | 12.7 | 1.8 | 6.8 | 2.3 | 1.3 | 3.0 |
| | <u>100</u> | <u>100</u> | <u>100</u> | <u>100</u> | <u>100</u> | <u>100</u> | <u>100</u> |

The "aircraft" subsector occupies a dominant position in the Netherlands and a very important one in the other Member States; the most equal balance between the three main subsectors, viz aircraft, engines and equipment, exists in the UK.

If the amounts (cf. note 31) corresponding to transactions between manufacturers within the sector of a given country are subtracted, the national final turnover is obtained; this represents the actual level of activity of each country (already given in table 34).

Table 42

| <u>Final turnover, by Member State and subsector, in 1976 (m. current EUA)</u> | | | | | |
|--|-----------------|----------------|------------------|--------------|-----------------------|
| | <u>Aircraft</u> | <u>Engines</u> | <u>Equipment</u> | <u>Space</u> | <u>Final turnover</u> |
| FR Germany | 1004,2 | 175,8 | 244,9 | 105,7 | 1530,6 |
| Belgium | 61,7 | 19,5 | 17,6 | 12,2 | 111,0 |
| France | 2711,1 | 703,8 | 291,5 | 83,7 | 3790,1 |
| Italy | 313,0 | 76,6 | 62,1 | 38,9 | 490,6 |
| Netherlands | 256,6 | - | 16,0 | 6,9 | 279,5 |
| United Kingdom | 1389,6 | 928,6 | 743,4 | 44,1 | 3105,7 |
| Total | 5736,2 | 1904,3 | 1375,5 | 291,5 | 9307,5 |

The final turnover of the Member States represents the level of activity of the industry in each Member State and takes into account such factors as co-operation programmes in respect of which the national manufacturers associations provided answers only for the share of the programme for which the national industry is responsible.

The figures on the "Total" line are the sum of the national final turnovers.

The final turnover for each Member State includes the sale of aerospace goods and services by manufacturers in every Member State to manufacturers in the others. The figures are given in note 33.

It is useful to examine the percentage trend in these amounts, as being a measure of the scale of intra-Community industrial co-operation in relation to the final turnover of each Member State, insofar as they concern exports of parts from one Member State to another.

Table 43

| <u>Percentage of final turnover of each Member State exported to industrial undertakings in other Member States</u> | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|
| | <u>1972</u> | <u>1973</u> | <u>1974</u> | <u>1975</u> | <u>1976</u> |
| FR Germany | 7.0 | 4.8 | 14.7 | 12.1 | 22.8 |
| Belgium | 45.6 | 42.0 | 56.9 | 60.3 | 59.4 |
| France | 9.3 | 10.7 | 9.3 | 10.8 | 7.8 |
| Italy | 11.0 | 14.6 | 11.0 | 15.0 | 9.1 |
| Netherlands | 1.0 | 2.3 | 5.6 | 6.3 | 7.5 |
| United Kingdom | 7.8 | 13.0 | 13.6 | 15.4 | 18.0 |
| Total | 8.6 | 11.3 | 12.5 | 13.5 | 14.3 |

For all the Member States a slow but steady increase can be observed in the percentage of final turnovers represented by this intra-Community industrial trading.

In 1973, 1974, 1975 and 1976 the amounts relating to intra-Community co-operation exceeded 70 % of the value of industrial transactions at the national level. Composed with the figures for national transactions, sales of aerospace goods and services to aerospace companies in non-EEC countries were approximately 38 % in 1973, 31 % in 1974, 26 % in 1975 and 21 % in 1976.

If transactions between manufacturers in different Member States are subtracted from the sum of the national final turnovers, we obtain the final EEC turnover, which breaks down as follows:

Table 44

| <u>Final turnover for the Community in 1976 (m. current EUA)</u> | | | | |
|--|----------------|------------------|--------------|---------------------------|
| <u>Aircraft</u> | <u>Engines</u> | <u>Equipment</u> | <u>Space</u> | <u>EEC final turnover</u> |
| 5070.9 | 1478.2 | 1183.2 | 242.1 | 7974.4 |

Since 1972 the trends in final turnover for the EEC and the USA respectively have been as follows:

Table 45

| <u>Final turnovers for the EEC and the USA (m. current EUA)</u> | | |
|---|------------|------------|
| | <u>EEC</u> | <u>USA</u> |
| 1972 : | 4741 | 17993 |
| 1973 : | 5213 | 17437 |
| 1974 : | 5732 | 18735 |
| 1975 : | 6848 | 19016 |
| 1976 : | 7974 | 21488 |

The table shows an increase of 68.2 % in the EEC and 19.4 % in the USA.

The breakdown of the final EEC turnover is as follows, with figures given separately for the civil and military sectors (the breakdown by subsector is given in notes 39 to 43):

Table 46

| <u>Breakdown of final EEC turnover in 1976 (m. current EUA)</u> | | |
|---|--------------|-----------------|
| | <u>Civil</u> | <u>Military</u> |
| I. State | | |
| (a) <u>Research and development</u> | | |
| FR Germany | 77.2 | 548.0 |
| Belgium | - | - |
| France ³⁴ | 123.4 | 440.4 |
| Italy | 2.2 | 3.7 |
| Netherlands | 1.0 | - |
| UK | 64.4 | 352.5 |
| | <hr/> | <hr/> |
| | 268.2 | 1344.6 |

Table 46 (continued)

| | <u>Civil</u> | <u>Military</u> |
|--|--------------|-----------------|
| (b) <u>Modifications, repairs and maintenance</u> | | |
| FRG | 8.7 | 189.5 |
| Belgium | 1.0 | 19.7 |
| France | 8.8 | 84.5 |
| Italy | 2.3 | 47.1 |
| Netherlands | - | - |
| UK | 10.2 | 156.0 |
| | <u>31.0</u> | <u>496.8</u> |
| (c) <u>Sales</u> | | |
| FRG | 13.2 | 185.5 |
| Belgium | 1.7 | 7.6 |
| France | 16.8 | 784.3 |
| Italy | 4.9 | 94.8 |
| Netherlands | - | 8.0 |
| UK | 29.9 | 585.5 |
| | <u>66.5</u> | <u>1665.7</u> |
| Subtotal I : | 365.7 | 3507.1 |
| II. <u>Aerospace companies in non-EEC countries</u> | | |
| FRG | 18.7 | 16.5 |
| Belgium | 9.3 | 1.2 |
| France ³⁵ | 17.4 | 42.7 |
| Italy ³⁶ | 48.8 | 5.4 |
| Netherlands | 0.2 | 1.2 |
| UK ³⁷ | 108.1 | 113.8 |
| | <u>202.5</u> | <u>180.8</u> |
| Subtotal II : | 202.5 | 180.8 |

Table 46 (continued)

| <u>III. End users</u> | <u>Civil</u> | <u>Military</u> |
|------------------------------|--------------|-----------------|
| <u>(a) National</u> | | |
| FRG | 38.0 | |
| Belgium | 0.1 | |
| France | 393.7 | |
| Italy | 9.8 | |
| Netherlands | 7.1 | |
| UK ³⁷ | 329.5 | |
| | 778.2 | |
| | | |
| <u>(b) EEC</u> | | |
| FRG | 27.5 | 5.4 |
| Belgium | 0.1 | 2.0 |
| France ³⁵ | 117.8 | 143.1 |
| Italy | 23.9 | 37.1 |
| Netherlands | 6.4 | 12.3 |
| UK ³⁷ | 74.1 | 31.7 |
| | 249.8 | 231.6 |
| | | |
| <u>(c) Non-EEC countries</u> | | |
| FRG | 27.6 | 25.0 |
| Belgium | 2.4 | - |
| France ³⁵ | 137.1 | 1186.0 |
| Italy | 7.1 | 158.7 |
| Netherlands | 219.2 | 3.1 |
| UK ³⁷ | 227.9 | 464.6 |
| | 621.3 | 1837.4 |
| Subtotal III : 1649.3 | | 2069.0 |

Table 46 (continued)

| | <u>Civil</u> | | <u>Military</u> |
|----------------------------|---------------|---|-----------------|
| Subtotal : I | 365.7 | | 3507.1 |
| II | 202.5 | | 180.8 |
| III | <u>1649.3</u> | | <u>2069.0</u> |
| Final turnover for the EEC | 2217.5 | + | 5756.9 = 7974.4 |
| Percentages: | 27.8 | + | 72.2 = 100 % |

It will be noted that the relative shares of the civil and military sectors have remained practically unchanged since 1975. If allowance is made for the fact that military sales to end users in the EEC are sales to the "public authority" (State), we arrive at the following breakdown of the final EEC turnover by major headings taken from the preceding table:

Table 47

| <u>Percentage breakdown of final EEC turnover</u> | | | | | | |
|---|--------------|---------------|--------------|---------------|--------------|---------------|
| | <u>1974</u> | | <u>1975</u> | | <u>1976</u> | |
| | <u>civil</u> | <u>milit.</u> | <u>civil</u> | <u>milit.</u> | <u>civil</u> | <u>milit.</u> |
| <u>I. State</u> | | | | | | |
| Research and development | 7.2 | 16.0 | 5.0 | 17.9 | 3.4 | 16.9 |
| Repairs, maintenance and sales | 1.5 | 32.2 | 1.4 | 30.7 | 1.2 | 27.1 |
| Governments of other Member States | - | 1.9 | - | 1.6 | - | 2.9 |
| <u>II. Aerospace companies in non-EEC countries</u> | 3.7 | 2.5 | 3.9 | 1.9 | 2.5 | 2.3 |
| <u>III. End users</u> | | | | | | |
| - national | 7.8 | - | 6.4 | - | 9.8 | - |
| - EEC | 1.3 | - | 1.8 | - | 3.1 | - |
| - non-EEC countries | 8.6 | 17.5 | 9.4 | 20.0 | 7.8 | 23.0 |
| | <u>29.9</u> | <u>70.1</u> | <u>27.9</u> | <u>72.1</u> | <u>27.8</u> | <u>72.2</u> |

The following trend will be noted:

- a drop in the percentage share of civil R & D;
- an increase in the percentage of civil sales in the manufacturing countries and other Member States;

- an increase in the percentage of military sales to non-EEC countries.

In the USA, the military sector represented 65 % of the total in 1974 and 1976, and 67 % of the total in 1975.

Although we have stated that the best possible calculation of the breakdown by subsector is that made on the basis of overall national turnover, a comparison between the EEC and the USA can be made only on the basis of final turnover.

Table 48

Percentage breakdown of final EEC and USA turnovers, by subsector

| | <u>Aircraft</u> | | <u>Engines</u> | | <u>Equipment</u> | | <u>Space</u> | |
|------|-----------------|------------|----------------|------------|------------------|------------|--------------|--------------|
| | <u>EEC</u> | <u>USA</u> | <u>EEC</u> | <u>USA</u> | <u>EEC</u> | <u>USA</u> | <u>EEC</u> | <u>USA</u> |
| 1974 | 56.1 | 45.8 | 23.4 | 13.6 | 17.0 | 14.9 | 3.5 | (38) 25.7 |
| 1975 | 57.8 | 46.1 | 23.0 | 12.5 | 16.6 | 15.1 | 2.6 | 26.3 |
| 1976 | 63.6 | 46.8 | 18.5 | 14.7 | 14.9 | 15.9 | 3.0 | 22.6 |

The proportion represented by "Space" (again relating only to sales of goods and provision of services by the industry) is still small in the EEC compared with the corresponding percentage in the USA, and this means that the relative contribution of the "Aero" subsectors is higher here than in the breakdown for the USA.

It is also useful to compare the breakdown of final turnover for the EEC and for the USA between the State, the domestic civil market and exports, at the following levels:

- Aerospace activities
- Aero sector
- Subsectors: aircraft, engines and equipment.

The breakdown by subsector and by Member State is given in notes 39 to 43.

Before we examine in detail how State intervention is structured, certain general observations can be made:

- Although lower than 1974, State backing for the industry is still much higher in relative terms in the USA (67.5 %) than in the EEC; this is due chiefly to the scale of government space contracts.
- Taking the aerosector separately: because the Community domestic civil market has expanded considerably, the situation on both sides of the Atlantic is very similar:
 - State : about 52.0 % of final turnover
 - Domestic civil market : about 12.5 % of final turnover
 - Exports : about 35.5 % of final turnover.
- In the aircraft subsector the percentage exported by the United States and the EEC is about the same (approximately 40 %). In 1976, exports to civilian end users from the EEC amounted to 447 million EUA and from the United States to 2 643 million EUA. In the Community the State's share decreased to the advantage of the domestic civil market.
- In the engine subsector, the domestic civil market in the Community is growing, but it is still relatively much smaller than in the United States.
- In the equipment subsector the State is a relatively larger customer in the Community than in the United States.

(c) The structure of State intervention

Within the EEC, governments provide support in both the civil and military sectors in the form of maintenance and purchase contracts with the industry, and research and development contracts.

In the USA, federal funding of aerosector research and development over the last few years has been as follows:

Table 50

| | <u>NASA</u> | <u>DOD</u> (x) | <u>DOT</u> (x) | <u>TOTAL</u> |
|------|-------------|----------------|----------------|--------------|
| 1974 | 233 | 1408 | 62 | 1703 |
| 1975 | 253 | 1312 | 60 | 1625 |
| 1976 | 291 | 1736 | 76 | 2103 |

*DOD : Department of Defense - *DOT : Department of Transportation

Total State backing for the aerospace industry (in absolute values) is of the order of 14 500 million EUA for the USA and 4 100 million EUA in the EEC, with the following breakdown by contract type:

table 51

| <u>Percentage breakdown of State intervention</u> | | |
|---|------------|------------|
| | <u>EEC</u> | <u>USA</u> |
| Research and development contracts: | | |
| civil | 6.5 | |
| military | 32.8 | 28.6 |
| | 39.3 | |
| Purchase and maintenance contracts: | | |
| civil | 2.4 | |
| military | 58.3 | 71.4 |
| | 60.7 | |

On both sides of the Atlantic the distribution between R&D and purchase and maintenance contracts has remained stable for several years.

In the USA, the industry receives part of the funds made available to the NASA and the Department of Transportation for civil aeronautical research programmes. In addition, it should be noted that military research and development contracts also benefit aircraft construction, for many civil programmes derive from military projects which were backed by federal funds.

In the EEC, the breakdown of the State contribution to the industry's turnover in the three aero subsectors is as follows:

Table 52

| | <u>1974</u> | <u>1975</u> | <u>1976</u> |
|-------------------------------------|--------------|--------------|--------------|
| <u>AIRCRAFT</u> | | | |
| Research and development contracts: | | | |
| civil : | 9.7 | 6.2 | 3.0 |
| military : | 35.4 | 38.3 | 39.5 |
| Purchase and maintenance contracts: | | | |
| civil : | 1.3 | 1.4 | 1.6 |
| military : | 53.6 | 54.1 | 55.9 |
| | <u>100.0</u> | <u>100.0</u> | <u>100.0</u> |
| <u>ENGINES</u> | | | |
| Research and development contracts: | | | |
| civil : | 13.4 | 9.4 | 6.1 |
| military : | 18.6 | 27.6 | 28.8 |
| Purchase and maintenance contracts: | | | |
| civil : | 4.0 | 4.3 | 3.5 |
| military : | 64.0 | 58.7 | 61.6 |
| | <u>100.0</u> | <u>100.0</u> | <u>100.0</u> |
| <u>EQUIPMENT</u> | | | |
| Research and development contracts: | | | |
| civil : | 0.6 | 1.5 | 0.3 |
| military : | 21.5 | 22.5 | 21.5 |
| Purchase and maintenance contracts: | | | |
| civil : | 4.9 | 3.5 | 3.2 |
| military : | 73.0 | 72.5 | 75.0 |
| | <u>100.0</u> | <u>100.0</u> | <u>100.0</u> |

A decline in the relative share represented by civil research and development contracts can be observed in all three subsectors.

Military purchase and maintenance contracts occupy a dominant position in all three subsectors, but first and foremost in the equipment subsector, followed by engines and aircraft in that order; military research and development contracts, on the other hand, represent a larger share in the aircraft subsector than they do in the equipment subsector. There has been no change in this situation since 1972-73.

In 1976 the total number of civil contract (R&D + purchase and maintenance) awarded to the three subsectors accounted for less than 10 % of total State expenditure in the industry.

2. Workforce

(a) At sector level

Recent trends in the total workforce of the aerospace industry have been as follows:

Table 53

| | <u>1972</u> | <u>1973</u> | <u>1974</u> | <u>1975</u> | <u>1976</u> |
|---------------------------|-------------|-------------|-------------|-------------|-------------|
| FRG ⁴⁴ | 52 455 | 52 985 | 52 982 | 51 914 | 51 367 |
| Belgium ²³ | 4 941 | 4 380 | 4 422 | 4 025 | 5 015 |
| France ⁴⁶ | 108 525 | 106 132 | 106 769 | 108 915 | 107 454 |
| Italy ²⁵ | 28 500 | 30 000 | 30 000 | 30 768 | 31 991 |
| Netherlands ²⁶ | 6 600 | 7 000 | 6 555 | 7 682 | 7 865 |
| UK ²⁷ | 207 500 | 201 700 | 210 100 | 233 792 | 227 402 |
| EEC ⁴⁴ | 408 521 | 402 197 | 410 828 | 437 096 | 431 094 |
| USA ⁴⁷ | 922 000 | 948 000 | 965 000 | 942 000 | 899 000 |
| Canada ⁴⁵ | 28 800 | 31 700 | 28 400 | 27 300 | 25 300 |
| Japan ²⁰ | 26 000 | 26 026 | 25 550 | 26 746 | n.a. |

It can be seen that in the EEC the size of the workforce has remained stable, whereas in the USA it is distinctly smaller than in 1972.

The figures given for the workforces of Member States are those obtaining on 31 December 1976 (June 1976 in the case of the UK). They were obtained from a survey which was launched under the auspices of the Commission and conducted with the collaboration of the national aerospace and space industry associations. This is the second year reading that information has been obtained by this survey on categories of staff and their principal activities in the various subsectors.

The figures should be used with some caution, since it is extremely difficult to establish common definitions for the various occupational grades.

The results of this survey constitute an important first step in the comparison of the employment situation in the various countries, but refinements will no doubt be made.

Certain comparisons have also been made difficult by the fact that not all the countries were able to give full answers to the survey questionnaire. (Full answers will be available after the next survey on the situation as at 31 December 1977.)

(b) At subsector level, the results are as follows:

AIRCRAFT : The breakdown by country and occupational grading is as follows:

Table 54

| <u>Occupational grading</u> | <u>FRG</u> | <u>B.</u> | <u>F</u> (46) | <u>I</u> | <u>NL</u> | <u>UK</u> | <u>EEC</u> |
|--------------------------------|--------------|-------------|------------------|--------------|-------------|--------------|---------------|
| Engineers and managerial staff | 2678 | 238 | 10075 | 300 | 423 | 16565 | 30279 |
| Executive staff: | | | | | | | |
| - technical | 10192 | 384 | 20150 | 5293 | 751 | 14044 | 50814 |
| - administrative | 5606 | 427 | 8298 | 1783 | 1134 | 15483 | 32731 |
| Skilled workers | 10409 | 2066 | 20743 | 9179 | 2876 | 31807 | 91030 |
| Non-skilled workers | 2594 | 51 | | 2836 | 411 | 8058 | |
| | <u>31479</u> | <u>3166</u> | <u>59266</u> | <u>19391</u> | <u>5595</u> | <u>85957</u> | <u>204854</u> |

Thus, the aircraft subsector employs 47.5%⁴⁴ of the total workforce. The average distribution - by occupational grading - for the Community as a whole is as follows (%):

Table 55

| | | |
|---------------------------------|--------------------|--------------------|
| Engineers and managerial staff: | <u>1975</u> : 13 % | <u>1976</u> : 15 % |
| Executive staff: | | |
| - technical | 23 % | 25 % |
| - administrative | 17 % | 16 % |
| Workers | 47 % | 44 % |
| | <u>100 %</u> | <u>100 %</u> |

The figures for the individual Member States do not generally diverge much from the average; nevertheless, the proportion of engineers and managerial staff is great in those Member States with the greatest responsibilities in the major programmes (United Kingdom, France, Federal Republic of Germany),

whilst the industry in the remaining Member States (Belgium, Italy, Netherlands) has a higher proportion of workers.

The breakdown by principal activity is as follows:

Table 56

| <u>Principal activity</u> | <u>FRG</u> | <u>B</u> | <u>F</u> | <u>I</u> | <u>NL</u> | <u>UK</u> | <u>EEC</u> |
|---------------------------|---------------|--------------|---------------|---------------|--------------|---------------|----------------|
| R. & D. | 6 919 | 27 | 15 646 | 1 272 | 1 001 | 14 189 | 39 054 |
| Production | 19 147 | 2 267 | 31 885 | 15 861 | 4 303 | 51 393 | 124 856 |
| Marketing and management | 5 413 | 872 | 11 735 | 2 258 | 291 | 20 375 | 40 944 |
| | <u>31 479</u> | <u>3 166</u> | <u>59 266</u> | <u>19 391</u> | <u>5 595</u> | <u>85 957</u> | <u>204 854</u> |

The average distribution - by principal activity - for the Community as a whole is as follows (%):

Table 57

| | <u>1975</u> | <u>1976</u> |
|----------------------------|-------------|-------------|
| R&D : | 22 | 19 |
| Production : | 61 | 61 |
| Marketing and management : | 17 | 20 |
| | <u>100</u> | <u>100</u> |

Like "engineers and managerial staff", R&D as a principal activity is more strongly represented in France, the Federal Republic of Germany, the Netherlands and the United Kingdom than in the other Member States.

Production accounts for between 54% (France) and 82% (Italy) of jobs. On average, about 20% of the staff are employed in marketing and management.

ENGINES : The breakdown by country and occupational grading is as follows:

Table 58

| <u>Occupational grading</u> | <u>FRG</u> | <u>B</u> | <u>F</u> | <u>I</u> | <u>NL</u> | <u>UK</u> | <u>EEC</u> |
|--------------------------------|--------------|------------|---------------|--------------|-----------|---------------|----------------|
| Engineers and managerial staff | 751 | 83 | 2 990 | 65 | - | 8 535 | 12 424 |
| Executive staff: | | | | | | | |
| - technical | 1 175 | 111 | 7 361 | 970 | - | 9 870 | 19 487 |
| - administrative | 1 073 | 115 | 2 760 | 551 | - | 8 967 | 13 466 |
| Skilled workers | 3 416 | 436 | 9 892 | 2 981 | - | 32 526 | 55 999 |
| Non-skilled workers | 288 | 234 | | 733 | - | 5 493 | |
| | <u>6 703</u> | <u>979</u> | <u>23 003</u> | <u>5 300</u> | - | <u>65 391</u> | <u>101 376</u> |

Thus the engines subsector employs 24 % of the total workforce.

The average distribution - by occupational grading - for the Community as a whole is as follows (%):

Table 59

| | <u>1975</u> | <u>1976</u> |
|----------------------------------|--------------|--------------|
| Engineers and managerial staff : | 15 % | 12 % |
| Executive staff: | | |
| - technical | 14 % | 19 % |
| - administrative | 14 % | 14 % |
| Workers | 57 % | 55 % |
| | <u>100 %</u> | <u>100 %</u> |

For all the Member States taken together, there has been no significant change. However, in France, as in 1975, there is a higher percentage of technical executive staff (32 %) than in the other Member States, and a correspondingly lower percentage (43 %) of workers.

The breakdown by principal activity is as follows:

Table 60

| <u>Principal activity</u> | <u>FRG</u> | <u>B</u> | <u>F</u> | <u>I</u> | <u>NL</u> | <u>UK</u> | <u>EEC</u> |
|---------------------------|--------------|------------|---------------|--------------|-----------|---------------|----------------|
| R. & D. | 902 | 41 | 5 981 | 275 | - | 17 376 | 24 575 |
| Production | 4 369 | 903 | 12 192 | 4 091 | - | 38 003 | 59 558 |
| Marketing and management | 1 432 | 35 | 4 830 | 934 | - | 10 012 | 17 243 |
| | <u>6 703</u> | <u>979</u> | <u>23 003</u> | <u>5 300</u> | <u>-</u> | <u>65 391</u> | <u>101 376</u> |

The average distribution - by principal activity - for the Community as a whole is as follows:

Table 61

| | | |
|--------------------------|-------------|-------------|
| | <u>1975</u> | <u>1976</u> |
| R. & D. | 22 | 24 |
| Production | 59 | 59 |
| Marketing and management | 19 | 17 |
| | <u>100</u> | <u>100</u> |

The proportion of the workforce allocated to R&D is far higher in the United Kingdom and France than in the other Member States.

EQUIPMENT : The breakdown by country and occupational grading is as follows:

Table 62

| <u>Occupational grading</u> | <u>FRG</u> | <u>B</u> | <u>F</u> | <u>I</u> | <u>NL</u> | <u>UK</u> | <u>EEC</u> |
|--------------------------------|--------------|------------|---------------|--------------|--------------|---------------|----------------|
| Engineers and managerial staff | 1 427 | 45 | 1 523 | 205 | 218 | 14 775 | 18 193 |
| Executive staff: | | | | | | | |
| - technical | 2 558 | 153 | 7 489 | 1 597 | 442 | 10 276 | 22 515 |
| - administrative | 1 312 | 149 | 2 857 | 610 | 517 | 12 714 | 18 159 |
| Skilled workers | 3 004 | 211, | 13 316 | 2 941 | 604 | 28 405, | 58 525 |
| Non-skilled workers | 1 008 | 13 | | 597 | 299 | 8 127 | |
| | <u>9 309</u> | <u>571</u> | <u>25 185</u> | <u>5 950</u> | <u>2 080</u> | <u>74 297</u> | <u>117 392</u> |

Thus, the equipment subsector employs 27.2 % of the total workforce.

The average distribution - by occupational grading - for the Community as a whole is as follows (%):

Table 63

| | <u>1975</u> | <u>1976</u> |
|----------------------------------|--------------|--------------|
| Engineers and managerial staff : | 15 % | 16 % |
| Executive staff: | | |
| - technical | 19 % | 19 % |
| - administrative | 17 % | 15 % |
| Workers | 49 % | 50 % |
| | <u>100 %</u> | <u>100 %</u> |

The distribution is much the same from one country to the next, except in the United Kingdom, where the percentage of engineers and managerial staff is higher.

The breakdown by principal activity is as follows:

Table 64

| <u>Principal activity</u> | <u>FRG</u> | <u>B</u> | <u>F</u> | <u>I</u> | <u>NL</u> | <u>UK</u> | <u>EEC</u> |
|---------------------------|--------------|------------|---------------|--------------|--------------|---------------|----------------|
| R. & D. | 2 178 | 25 | 5 038 | 463 | 83 | 13 522 | 21 309 |
| Production | 5 759 | 473 | 16 118 | 4 685 | 1 053 | 48 608 | 76 696 |
| Marketing and management | 1 372 | 73 | 4 029 | 802 | 944 | 12 167 | 19 387 |
| | <u>9 309</u> | <u>571</u> | <u>25 185</u> | <u>5 950</u> | <u>2 080</u> | <u>74 297</u> | <u>117 392</u> |

The average distribution - by principal activity - for the Community as a whole is as follows (%):

Table 65

| | <u>1975</u> | <u>1976</u> |
|--------------------------|-------------|-------------|
| R. & D. | 24 | 18 |
| Production | 57 | 65 |
| Marketing and management | 19 | 17 |
| | <u>100</u> | <u>100</u> |

In the Netherlands, as in the previous year, there is a high proportion of the workforce allocated to marketing and management, and a low proportion of R&D personnel.

There are no other significant variations from this average.

SPACE : These figures do not include France, as the figures for personnel employed in the space subsector are in this survey again incorporated in those for the aircraft subsector.

The breakdown by country and occupational grading is as follows:

Table 66

| <u>Occupational grading</u> | <u>FRG</u> | <u>B</u> | <u>I</u> | <u>NL</u> | <u>UK</u> | <u>5 countries</u> |
|--------------------------------|--------------|------------|--------------|------------|--------------|--------------------|
| Engineers and managerial staff | 356 | 101 | 34 | 63 | 568 | 1 122 |
| Executive staff: | | | | | | |
| - technical | 1 433 | 61 | 756 | 59 | 297 | 2 606 |
| - administrative | 494 | 12 | 118 | - | 303 | 927 |
| Skilled workers | 195 | 121 | 384 | 50 | 487 | 1 237 |
| Non-skilled workers | 59 | 4 | 58 | 18 | 102 | 241 |
| | <u>2 537</u> | <u>299</u> | <u>1 350</u> | <u>190</u> | <u>1 757</u> | <u>6 133</u> |

In these five countries, space activities employ 1.9 % of the total aerospace workforce.

The distribution by occupational grading is as follows:

Table 67

| | <u>1975</u> | <u>1976</u> |
|---------------------------------|-------------|-------------|
| Engineers and managerial staff: | 14 | 18 |
| Executive staff: | | |
| - technical | 40 | 43 |
| - administrative | 20 | 15 |
| Skilled workers | 22 | 20 |
| Non-skilled workers | 4 | 4 |
| | <u>100</u> | <u>100</u> |

As the workforce in this subsector in the Federal Republic of Germany is 41 % of the total of the five countries, its distribution is a major factor in the average for the five. In FR Germany the proportion of technical executive personnel is high and that of workers is low, which reflects the nature of the activities of the subsector.

The breakdown by major activity is as follows:

Table 68

| | <u>FRG</u> | <u>B</u> | <u>I</u> | <u>NL</u> | <u>UK</u> | <u>5 countries</u> |
|--------------------------|--------------|------------|--------------|------------|--------------|--------------------|
| R. & D. | 2 199 | 109 | 497 | 96 | 498 | 3 399 |
| Production | 38 | 169 | 673 | 49 | 825 | 1 754 |
| Marketing and management | 300 | 21 | 180 | 45 | 434 | 980 |
| | <u>2 537</u> | <u>299</u> | <u>1 350</u> | <u>190</u> | <u>1 757</u> | <u>6 133</u> |

The breakdown for the five countries is as follows for 1976:

Table 69

| | |
|--------------------------|------------|
| R. & D. | 55 |
| Production | 29 |
| Marketing and management | 16 |
| | <u>100</u> |

In the Federal Republic of Germany and the Netherlands a larger proportion of personnel is employed by R&D activities than in the other three countries. In Belgium the majority of the workforce is employed in production.

(c) The EEC workforces compare in size with the US workforces as follows:

Table 70

| | <u>EEC</u> | <u>%</u> | <u>% in 1975</u> | |
|--------------------|-------------------|----------------|------------------|------------|
| Aircraft (44) (46) | 204 854 + 1 339 = | 206 193 | 48 | 47 |
| Engines | | 101 376 | 24 | 24 |
| Equipement | | 117 392 | 27 | 28 |
| Space | | 6 133 | 1 | .1 |
| | | <u>431 094</u> | <u>100</u> | <u>100</u> |

The US statistics are presented in a form which makes comparisons difficult:

Table 71

| | | |
|----------------------------|----------------|--|
| - aerospace (47) | 485 000 | { aircraft 262 000 engines 132 000 équipement : 91 000 |
| - missiles and space | 85 000 | |
| - communications equipment | 135 000 | |
| - other | 194 000 | |
| | <u>899 000</u> | persons employed in the aerospace industry |

B. COMPANIES

1. Turnover and workforce of the major companies

The following table shows the trend in turnover (expressed in m. current EUA)¹ for the major European and US aerospace companies, listed in descending order from the figures for 1976:

Table 72

| <u>Country</u> | <u>Company</u> | <u>1973</u> | <u>1974</u> | <u>1975</u> | <u>1976</u> |
|----------------|-------------------------------------|-------------|-------------|-------------|-------------|
| USA | Boeing (48) | 2713 | 3125 | 3000 | 3505 |
| USA | Mac Donnell Douglas ⁽⁴⁹⁾ | 2442 | 2575 | 2627 | 3169 |
| USA | Lockheed (50) | 2242 | 2746 | 2734 | 2864 |
| USA | General Dynamics (51) | 1335 | 1647 | 1748 | 2284 |
| USA | Pratt & Whitney (52) | 1381 | 1624 | 1760 | 2204 |
| USA | General Electric (53) | 1310 | 1605 | 1591 | 1404 |
| USA | Grumman | 884 | 931 | 1089 | 1360 |
| USA | Rockwell Int. | 773 | 1053 | 1183 | n.a. |
| USA | Northrop (54) | n.a. | 715 | 796 | 1131 |
| France | Aerospatiale | 651 | 817 | 1353 | 1684 |
| France | Dassault-Breguet | 634 | 636 | 798 | 1109 |
| UK | Rolls-Royce | 859 | 919 | 1073 | 998 |
| UK | B.A.C. (55) | 346 | 532 | 547 | 777 |
| FRG/NL | VFW-Fokker | 427 | 441 | 528 | 628 |
| FRG | M.B.B. | 372 | 481 | 503 | 581 |
| France | SNECMA | 318 | 308 | 359 | 474 |
| UK | Hawker-Siddeley(55) | 401 | 368 | 433 | 441 |
| UK | Westland | 137 | 161 | 193 | 211 |
| Italy | Aeritalia | 116 | 103 | 142 | 178 |
| FRG | Dornier | 149 | 169 | 124 | 177 |
| France | Turbomeca | 87 | 112 | 155 | 176 |
| FRG | M.T.U. (Munich)(58) | 169 | 171 | 149 | 144 |
| Italy | Agusta (Groupe) | 80 | 93 | 118 | 209 |
| Italy | Fiat Aviazione | 41 | 42 | 71 | n.a. |
| Belgium | SABCA (56) | 25 | 28 | 35 | 41 |

The following table shows the trend in the size of workforce for the same companies:

Table 73

| <u>Country</u> | <u>Company</u> | <u>1973</u> | <u>1974</u> | <u>1975</u> | <u>1976</u> |
|----------------|---------------------|-------------|-------------|-------------|-------------|
| USA | Boeing | 63 200 | 75 400 | 72 600 | 65 400 |
| USA | Mc Donnell Douglas | 78 799 | 70 739 | 62 830 | 57 867 |
| USA | Lockheed | 66 900 | 62 100 | 57 567 | 55 100 |
| USA | General Dynamics | 62 400 | 63 600 | 63 800 | 71 600 |
| USA | Pratt & Whitney | 33 000 | 33 500 | 43 000 | 44 000 |
| USA | General Electric | 23 000 | 23 000 | n.a. | 22 000 |
| USA | Grumman | 27 000 | 30 000 | 28 000 | n.a. |
| USA | Northrop (54) | n.a. | 26 200 | 23 300 | 24 000 |
| France | Aérospatiale | 41 399 | 40 242 | 36 000 | 35 882 |
| France | Dassault-Breguet | 14 855 | 15 161 | 15 000 | 14 980 |
| UK | Rolls-Royce | 59 988 | 60 515 | 60 941 | 60 000 |
| UK | B.A.C. | 34 124 | 34 994 | 35 000 | 34 528 |
| FRG/NL | VFW-Fokker | 17 120 | 17 978 | 18 565 | 18 543 |
| FRG | M.B.B. | 18 697 | 19 978 | 20 030 | 20 123 |
| France | SNECMA (57) | 14 160 | 14 225 | 13 850 | 10 900 |
| UK | Hawker-Siddeley Av. | 35 000 | 35 000 | 32 000 | 33 800 |
| UK | Westland | 11 414 | 11 904 | 12 599 | 13 000 |
| Italy | Aeritalia | 9 100 | 9 283 | 9 000 | 9 284 |
| FRG | Dornier | 7 136 | 7 000 | 6 723 | 6 641 |
| France | Turbomeca | 4 436 | 4 558 | 4 700 | 4 399 |
| FRG | M.T.U. (58) | 6 118 | 5 711 | 5 514 | 5 574 |
| Italy | Agusta (groupe) | 3 097 | 3 392 | 3 700 | 8 200 |
| Italy | Fiat Aviazione | 2 400 | 2 460 | 2 500 | n.a. |
| Belgium | SABCA | 1 800 | 1 750 | 1 750 | 1 840 |

The average size of the major European companies (BAC and Hawker-Siddeley Aviation still treated as separate companies) calculated on the basis of turnover, has increased from approximately 30 % of that of the major US companies in 1972 to approximately 37 %.

Nevertheless, the three major US airframe manufacturers have an annual turnover of nearly three thousand million EUA or over and that eight US companies have a turnover of over one thousand million EUA, whilst in Europe only three companies (four if we add British Aerospace) have a turnover of more than one thousand million EUA.

The following table highlights the contribution made by the largest companies:

Table 74

| <u>Percentage of final turnover</u> | <u>EEC</u> | | <u>USA</u> | |
|-------------------------------------|-------------|-------------|-------------|-------------|
| | <u>1972</u> | <u>1976</u> | <u>1972</u> | <u>1976</u> |
| - largest company | 17.6 | 21.1 | 13.5 | 16.3 |
| - two largest companies | 30.3 | 35.0 | 25.7 | 31.0 |
| - three " " | 38.9 | 47.5 | 37.5 | 44.3 |
| - four " " | 47.0 | 57.2 | 45.1 | 55.0 |
| - five " " | 54.4 | 65.1 | 52.6 | 65.2 |
| - six " " | 61.6 | 72.4 | 59.9 | 71.8 |
| - seven " " | 68.4 | 78.3 | 63.2 | 78.1 |
| - eight " " | 74.3 | 83.9 | 66.6 | 83.4 |

In the EEC, there has been a general increase in concentration since 1972, which is pronounced at the level of the three largest companies (+ 8.6 points) and continues up to the level of the sixth largest company (+ 10.8 points), but starts to drop at the level of the eight largest companies (+ 9.6 points).

In the USA, there has also been a general increase in concentration; in this case it does not become significant until the level of the four largest companies (+ 9.9 points), but continues to rise until it reaches + 16.8 points at the level of the eight largest companies.

Thus, the degree of concentration, which in 1972 was lower in the USA than in the EEC, is now very close to the EEC level (the eight largest companies accounting for 83 % of final turnover).

2. Helicopter manufacturers

The table below shows the trend in the turnover of the helicopter divisions of the four Community undertakings which produce virtually all the civil and military helicopters in the EEC. Turnovers are given in million EUA :

Table 75

| COMPANY/YEAR | <u>1973</u> | <u>1974</u> | <u>1975</u> | <u>1976</u> |
|------------------------|---------------|---------------|---------------|-----------------------|
| Aerospatiale SNIAS (F) | 204.15 | 232.59 | 282.11 | 402.32 |
| Agusta (Italy) | 80.05 | 93.19 | 118.51 | 137.64 ^(*) |
| M.B.B. (FRG) | 67.44 | 81.58 | 66.18 | 49.70 |
| Westland (UK) | 94.80 | 104.93 | 133.86 | 154.95 |
| Total | 446.44 | 512.29 | 600.66 | 744.61 |

The total workforce of these helicopter divisions increased from approximately 22 500 in 1975 to 23 500 by the end of 1976. During the same period the workforce of the USA companies building helicopters dropped from 27 000 to 24 000.

The trend in US helicopter sales was as follows (million EUA):

Table 76

| HELICOPTER/YEAR | <u>1973</u> | <u>1974</u> | <u>1975</u> | <u>1976</u> |
|------------------|---------------|---------------|---------------|------------------|
| for civil use | 98.46 | 161.14 | 235.13 | 272.80 |
| for military use | 249.01 | 170.31 | 308.10 | 330.05 |
| Total | 347.47 | 331.45 | 543.23 | 602.85 ** |

The figures given in the table above do not include the value of helicopters manufactured under licence outside the USA (mainly in Europe), or the value of parts and spares.

* This figure does not include Sp. A Elicotteri Meridionali, which had a turnover of 45 353 million EUA in 1976.

** If parts and spares are included, this figure becomes 1 340 million EUA.

In 1976 exports of US-built helicopters increased to 454 machines, to a value of 192.49 million EUA. Of these, 315 machines, to a value of 101.43 million EUA, were for civil use, whilst 139 (value: 91.06 million EUA) were for military use.

Of the helicopters for civil use, 201, to a value of 25.22 million EUA, had an unladen weight of under 900 kg, whilst 114, to a value of 76.21 million EUA, had an unladen weight of over 900 kg; 82 helicopters were exported to Europe, to a value of 51.61 million EUA.

3. Manufacturers of light and executive aircraft

The turnover of the companies whose sole activity, or one of whose activities, is the production of light and executive aircraft for civil or military use was as follows:

Table 77

| | <u>1973</u> | <u>1974</u> | <u>1975</u> | <u>1976</u> |
|----------------------------------|-------------|-------------|-------------|-------------|
| <u>Turnover</u> (million EUA) | 220.22 | 233.53 | 457.74 | 354.83 |

The turnover shown in the last two columns of this table covers not only the production of civil light and executive aircraft but also the production of light aircraft for military use, subcontracting, manufacture under licence and maintenance and repair activities.

Readers are referred to the "Trading Position and Figures" of 2 August 1977 (Doc. SEC(77)2939) for a definition of general aviation.

With the closing-down of the Belgian company Fairey SA (Gosselies), the number of undertakings manufacturing light aircraft now stands at eighteen.

Approximately 25 000 persons are employed by Community undertakings in the light and executive aircraft subsector whose sole activity, or one of whose activities, is the manufacture of this type of aircraft.

An estimate of the numbers of light and executive aircraft (including machines for military uses) manufactured by Community undertakings during the period 1973-76 is given in the following table:

Table 78 (number)

| Type of aircraft / Year | 1973 | 1974 | 1975 | 1976 |
|---|-------------|-------------|------------|-------------|
| Single- and twin- engined light aircraft | 1500 | 1200 | 800 | 960 (x) |
| Executive aircraft | 100 | 70 | 70 | 80 |
| | <u>1600</u> | <u>1270</u> | <u>870</u> | <u>1040</u> |

A slight upturn in production in 1976 will be noted; over half of this production was for export. In the USA, the trend from 1973 to 1976 in the number of aircraft produced and their value was as follows:

Table 79

| Aircraft / Value / Year | 1973 | 1974 | 1975 | 1976 |
|---|------------------|------------------|------------------|-------------------|
| Total number of which single-engined aircraft | 13645 10633 | 14165 11000 | 14057 11798 | 15447 12300 |
| Total value (m. EUA) of which single-engined aircraft | 672.46 192.15 | 760.50 207.77 | 833.95 233.51 | 1099.28 313.06 |

In 1976 exports from the United States totalled 3 214 machines, to a value of 322.36 million EUA, i.e. 21 % of total production. This sum breaks down into 66.1 million EUA for 237 single-engined aircraft, and 256.26 million EUA for 840 twin-engined aircraft (15.47 million EUA for 228 aircraft with an unladen weight of less than 1 400 kg and 240.79 million EUA for 612 aircraft with an unladen weight of over 1 400 kg).

To these exports should be added executive aircraft with an unladen weight of less than 15 000 kg to the value of 67.35 million EUA.

Exports to Europe in 1976 totalled 927 aircraft to the value of 90.88 million EUA, and supplied about 47 % of the European market in that year.

* Over one third of these machines were produced by the Reims Aviation (France) operating under Cessna (USA) licence.

C. Public financing of research and development

In section II.A.1, which deals with an analysis of turnover, the scale of State support of the research and development activities of companies was examined. The figures for this, however, represent only a part of the contribution made by the State in this field, since substantial funds are allocated to national research centres, universities, etc.

An overall view of the funding of aero sector research and space research is provided by the Statistical Office of the European Communities in its report entitled "Public financing of research and development in the countries of the Community" (Detailed Report 1970/1977 - CREST/45/77- EUROSTAT 326/77).

Of the total appropriations set aside for all R&D, France and the United Kingdom each allocate to the aero sector a higher proportion (4.2 %) than the other Member States. Compared with total R&D funds for industrial productivity and technologies and space research, the United Kingdom devotes to the aero sector a greater proportion than do the other Member States, and this shows the priority given to this sector. In terms of absolute value, however, France sets aside much larger appropriations for aero sector R&D.

Table 80

| Public financing of research and development in civil aircraft construction in 1976 (000's EUA) | | | | | | | |
|--|---------|----------|----|---------|-------|----------|----------|
| | FRG | France | I. | NL | B. | UK | EEC |
| Aircraft construction R&D funding | 62879.0 | 140633.6 | - | 10060.3 | 266.6 | 111506.3 | 325345.8 |
| as % of productivity and industrial technology R&D funding* | 12.0 | 24.6 | - | 16.9 | 0.4 | 45.3 | 20.1 |
| as % of total funding | 1.3 | 4.2 | - | 1.3 | 0.1 | 4.2 | 2.6 |
| as % of GDP | 0.02 | 0.05 | - | 0.01 | ... | 0.06 | 0.03 |

* and exploration and exploitation of space.

Out of total appropriations for productivity, industrial technology and space exploration and exploitation, the proportions allocated to space exploration and exploitation by Italy, the Federal Republic of Germany, Denmark and the Netherlands are above the EEC average. In terms of absolute value, the Federal Republic of Germany and France head the list, followed at a distance by the United Kingdom and Italy. Belgium, the Netherlands and Denmark are also active in this sector.

Table 81

| Public financing of space research and development in 1975 (000's EUA) | | | | | | | |
|---|---------------|--------------|-----------|----------------|-----------|-----------|------------|
| <u>FRG</u> | <u>France</u> | <u>Italy</u> | <u>NL</u> | <u>Belgium</u> | <u>UK</u> | <u>DK</u> | <u>EEC</u> |
| <u>Funding of space R&D</u> | | | | | | | |
| 207760.2 | 180724.0 | 55543.7 | 21393.9 | 23132.5 | 60630.1 | 8592.9 | 557777.3 |
| <u>as % of funding of productivity, industrial technology and space R&D</u> | | | | | | | |
| 39.9 | 31.7 | 46.1 | 36.0 | 32.4 | 24.6 | 37.8 | 34.5 |
| <u>as % of total funding</u> | | | | | | | |
| 4.5 | 5.5 | 8.8 | 2.7 | 5.0 | 2.3 | 4.0 | 4.4 |
| <u>as % of GDP</u> | | | | | | | |
| 0.05 | 0.06 | 0.04 | 0.03 | 0.04 | 0.03 | 0.03 | 0.05 |

At Community level, the funds allocated to research and development for space exploration and exploitation are far larger than those allocated to the aero sector. Space research is the element which brings to much the same level in most Member States the ratio of public financing of space and aero sector research and development to the total expended on productivity, industrial technology and space.

Table 82

| Appropriations for aero sector and space R&D as a percentage of total appropriations for productivity, industrial technologies and space | | | | | | | |
|--|---------------|--------------|-----------|----------------|-----------|-----------|------------|
| <u>FRG</u> | <u>France</u> | <u>Italy</u> | <u>NL</u> | <u>Belgium</u> | <u>UK</u> | <u>DK</u> | <u>EEC</u> |
| 52 | 56 | 46 | 53 | 33 | 65 | 38 | 55 |

NOTES

1. The 1972 to 1977 editions of "Trading Position and Figures" used the EUR currency unit. In a communication to the Council in December 1974, the Commission proposed a new type of unit, the European Unit of Account (EUA), which is gradually going to replace the various units of account used in the Community. The EUA is a unit of the "basket" type based on a certain quantity of each Community currency (see Monthly General Statistics Bulletin 9-1977, p. 166). The parities used in this paper to convert the national currencies and the old EUR into the new EUA are those adopted by the Statistical Office of the European Communities (average value for the year): 1 EUA =

| | <u>1970</u> | <u>1971</u> | <u>1972</u> | <u>1973</u> | <u>1974</u> | <u>1975</u> | <u>1976</u> | <u>1977</u> |
|---------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| DM | 3,741 | 3,645 | 3,576 | 3,276 | 3,083 | 3,049 | 2,815 | 2,648 |
| FF | 5,677 | 5,772 | 5,657 | 5,467 | 5,733 | 5,319 | 5,344 | 5,606 |
| Lit | 638,8 | 647,4 | 654,2 | 716,4 | 775,7 | 809,5 | 930,1 | 1006 |
| Fl | 3,700 | 3,657 | 3,599 | 3,428 | 3,202 | 3,134 | 2,955 | 2,800 |
| Bfrs/ Lfrs | 51,11 | 50,86 | 49,36 | 47,80 | 46,39 | 45,56 | 43,16 | 40,88 |
| £ | 0,4259 | 0,4285 | 0,4489 | 0,5023 | 0,5098 | 0,5600 | 0,6215 | 0,6537 |
| DKr | 7,666 | 7,752 | 7,789 | 7,415 | 7,259 | 7,122 | 6,761 | 6,855 |
| EUR | 1,022 | 1,023 | 1,023 | 0,9831 | 0,9549 | 0,9383 | 0,8825 | - |
| \$ US | 1,022 | 1,047 | 1,121 | 1,231 | 1,192 | 1,240 | 1,118 | 1,141 |
| Yen | 368,0 | 363,8 | 339,7 | 333,1 | 347,4 | 367,6 | 331,2 | 305,8 |

The Market

2. ITA Bulletin 5-F, 1978
3. Association of European Airlines. The AEA airlines are: Aer Lingus, Air France, Alitalia, Austrian Airlines, British Airways, BCAL (since 1973), Finnair, Iberia, Icelandair, JAT, KLM, Lufthansa, Olympic Airways, Sabena, SAS, Swissair, TAP, THY (since 1972) and UTA (since 1973).
4. ITA Bulletin 44-F, 1977
5. ITA Bulletin 7/8-F, 1978
6. Analysis of numbers of civil aircraft in service and on order in October 1974 and December 1976.

Source: ITA consolidated report

(a) The analysis covers the following countries:

- the Nine Member States of the Community
- the other European countries: Austria, Cyprus, Finland, Greece, Iceland, Malta, Norway, Portugal, Spain, Sweden, Switzerland, Turkey and Yugoslavia
- the USA
- the rest of the world:
 - . in October 1974 : 104 countries (including the People's Republic of China)
 - . in December 1976: 122 countries (including the People's Republic of China) whose air transport companies use aircraft of western design.

(b) The analysis covers the 400 major airlines operating in October 1974 and almost all the airlines using the aircraft listed in (c) below in 1976 (i.e. over 450 airlines).

(c) The analysis covers the following Western aircraft:

Long-range

- US aircraft

Boeing 707 series 120/120-B/320/420/320-B/320-C
Boeing 720 and 720-B
Boeing 747 100-200
DC-8-20/30/40/50/50-F/61/61-F/62-62-F/63/63-F

DC-10-30/40

Convair series 880-990

- European aircraft

Britannia

VC-10

Comet

Concorde

- Aircraft from other Western countries

CL-44

Short- and medium-range

- US aircraft

Boeing 727-100/200

Boeing 737-100/200

DC-3

DC-4

DC-6

DC-7

DC-9-10/20/30

DC-10-10

Lockheed Electra

Lockheed L-100

Convair 440

Convair 580-640

Fairchild FH-227

- European aircraft

Caravelle 3-6/10-11-12

A-300

Mercure

Vanguard

Viscount 700

Viscount 800

BAC 1-11-200-300/400/475-500

Herald

Trident 1/2-3

HS 748

F-27-100/200-300/400-500-600

F-28

VFW 614

- Aircraft from other Western countries

YS 11

Aircraft prices were calculated as follows:

- aircraft still under construction at 31 December 1976: the price of a new aircraft;
- aircraft no longer in production at 31 December 1976: the estimated price of such aircraft halfway through their useful life.

7. Some changes have been made to the presentation used in previous studies, chiefly in the designation of aircraft as long-range and short- and medium-range machines, and in price calculations.

- The DC-6, DC-7 and L-100 are defined as short- or medium-range aircraft in this study because of the ranges over which they are currently used.
- The Convair 580 and 600 have been added to the Convair 440.
- The Fairchild FH-227 built in the United States has been added to the tables of values.
- In the comparative tables, the figures for June 1976 have been replaced by figures for December 1976.
- We have used the prices for the various versions of the aircraft in order to give more exact valuation of the fleets. As a result, there are some differences between this report and the one for June 1976, particularly for the Boeing 707. Two prices are given in the previous study - one for the B 707-320 and the other for the B 707-120-220-420. In this report we give separate prices for the B 707-120, the B 707-120-B, the B 707-420, the B 707-320-B and the B 707-320-C. There is a big difference between the price of the B 707-320-C and prices for the other versions, which affects the valuation of the 707 fleet as a whole. This factor is less marked for other types of aircraft.
- We give figures for the entire DC-6 and DC-3 fleet, whereas the previous study covered only the DC-6-B and part of the DC-3 fleets.

8. The SAS fleet is included under Sweden ("Rest of Europe" fleet).
- 8a. Six original Member States + the UK. Accurate comparisons can be made at European level for 1970/76 and at EEC level for 1974/76.
8. In tables 18 and 19 we have treated the Mercure as a national programme, whereas in the June 1976 study it appears as a multi-national programme (table No. 22, p. 13 of the June 1976 study).
10. DMS, Greenwich, Connecticut: World Aircraft Forecast to 1986.

TURNOVER

15. This section relates only to the "Western" world, i.e. it excludes the USSR, the East European countries and China. It should, however, be borne in mind that the USSR in particular has a very strong aerospace industry.
16. USA: Aerospace industries Association of America Aerospace Facts and Figures 1977/78. The AIAA has revised all turnover figures since 1970 inclusive.
17. Canada: Canadian Mission to the European Communities. Air Industries Association of Canada (AIAC) 1976: preliminary figures.
Total sales break down as follows:
- | | 1974 | 1975 | 1976 |
|---------------------------------|------|------|------|
| (military | 32 % | 32 % | 34 % |
| (commercial and civil | 68 % | 68 % | 66 % |
| (domestic market | 20 % | 20 % | 23 % |
| (Exports (including re-exports) | 80 % | 80 % | 77 % |
| Imports in million EUA | 593 | 573 | 395 |
18. EEC: sum of final turnovers of the Member States (cf. tables 34 and 42).
19. Other Europ. countries: estimated turnover of Spain, Sweden and Switzerland.
20. Japan: source: GIFAS report.
21. Other "Western" countries: estimated turnover of Israel, India and Brazil. Other "Western" countries which have an aerospace industry are Australia, Argentina, New Zealand and South Africa.
22. Federal Republic of Germany: sources: 1970 and 1971, Bundesministerium für Wirtschaft, subsequent years, BDLI -Bundesverband der Deutschen Luft- und Raumfahrtindustrie).
23. Belgium: GEBECOMA (Groupement Belge des Constructeurs de Matériel Aérospatial).
24. France: GIFAS (Groupement des Industries françaises aéronautiques et spatiales).
25. Italy: AIA (Associazione Industrie Aerospaziali). The figures for 1972, 1973 and 1974 cover companies employing 67 %, 79 % and 83 % respectively of the total aerospace workforce.

The 1976 turnover figures for the engines, equipment and aerospace subsectors are to be raised by 6 % to take account of the absence of certain details in the replies; this increases the final turnover for Italy from 491 to 506 million current EUA.

26. Netherlands: information provided by the industry.
27. United Kingdom: 1970 and 1971, Department of Industry, Business Statistics Office: Survey of the United Kingdom Aerospace Industry, 1975, page 27, table 23: Total + launching aid; subsequent years, SBAC (Society of British Aerospace Companies).
28. EEC: sum of the final turnovers of the Member States.
29. Conversion of national turnovers expressed in current EUA (table 34) into national turnover expressed in EUA at constant 1970 values: the national turnovers obtained from the sources given in notes 16 and 22 to 27 in national currencies at current values were converted into national currencies at constant 1970 values by applying the price index for GDP at market prices (Statistical Office of the European Communities: National Accounts, Aggregate 1960/1976). The results were converted into EUA at the 1970 rates of exchange.
30. Belgium: estimated GDP price index and estimated GDP.
31. In 1976 sales of goods and services between aerospace manufacturers in each of the Member States amount to (m. current EUA)

| | <u>Aircraft</u> | <u>Engines</u> | <u>Equipment</u> | <u>Space</u> | <u>Total</u> |
|---------|-----------------|----------------|------------------|--------------|---------------|
| FRG | 204.0 | 15.8 | 32.1 | 33.2 | 285.1 |
| Belgium | 0.4 | 0.1 | 0.1 | 2.3 | 2.9 |
| France | 195.0 | 142.0 | 588.1 | - | 925.1 |
| Italy | 69.2 | 29.4 | 30.9 | 3.3 | 132.8 |
| NL | 20.9 | - | - | - | 20.9 |
| UK | 20.0 | 167.2 | 254.3 | 0.4 | 441.9 |
| | <u>509.5</u> | <u>354.5</u> | <u>905.5</u> | <u>39.2</u> | <u>1808.7</u> |

32. Sum of the total turnovers of the Member States.
33. Sales of aerospace goods and services by the manufacturers of each Member State to the manufacturers in the same sector of other Member States were as follows in 1976 (m. current EUA):

| | <u>Aircraft</u> | <u>Engines</u> | <u>Equipment</u> | <u>Space</u> | <u>Total</u> |
|---------|-----------------|----------------|------------------|--------------|---------------|
| " FRG " | 234.5 | 53.5 | 33.7 | 28.1 | 349.8 |
| " B " | 38.6 | 9.0 | 6.4 | 11.9 | 65.9 |
| " F " | 129.1 | 123.1 | 41.9 | - | 294.1 |
| " I " | 18.0 | 14.5 | 8.0 | 4.3 | 44.8 |
| " NL " | 21.0 | - | - | - | 21.0 |
| " UK " | 224.1 | 226.0 | 102.3 | 5.1 | 557.5 |
| | <u>665.3</u> | <u>426.1</u> | <u>192.3</u> | <u>49.4</u> | <u>1333.1</u> |

Comments on the table (breakdown of final Community turnover for 1976):

34. As a working assumption, the entire amount spent by the State on space research has been allocated to civil R&D.
35. In items II (Aerospace companies in non-EEC countries), IIIb (EEC end users) and IIIc (End users in non-EEC countries), the breakdown figures for equipment between civil and military uses are estimates.
36. As a working assumption for all four subsectors, 90 % of the sums relating to sales to aerospace companies of non-EEC countries has been allocated to civil uses and 10 % to military uses.
37. In the equipment subsector, some relatively small amounts, for which no breakdown into civil and military uses was given, have been allocated in the same proportion as the other sums under this item.
38. Including missiles.

39. Final EEC turnover (m. current EUA)

Aircraft subsector

| | <u>FRG</u> | <u>Belgium</u> | <u>France</u> | <u>Italy</u> | <u>NL</u> | <u>UK</u> | <u>EEC</u> |
|---|--------------|----------------|---------------|--------------|--------------|---------------|---------------|
| <u>State</u> | | | | | | | |
| <u>R&D</u> | | | | | | | |
| - civil | 3,8 | - | 42,7 | 0,1 | 0,5 | 23,1 | 70,2 |
| - military | 492,1 | - | 261,9 | 0,3 | - | 173,9 | 928,2 |
| <u>Repairs, maintenance and sales</u> | | | | | | | |
| - civil | 8,5 | 0,1 | 21,5 | 3,0 | - | 4,9 | 38,0 |
| - military | 182,5 | 15,6 | 569,1 | 72,0 | 8,0 | 299,4 | 1146,6 |
| Governments of other Member States | 0,4 | 0,5 | 116,4 | 28,2 | 0,8 | 18,5 | 164,8 |
| <u>Aerospace companies in non-EEC countries</u> | 16,1 | 6,9 | - | 34,0 | 0,2 | 9,4 | 66,6 |
| <u>End users:</u> | | | | | | | |
| National | 5,8 | - | 334,0 | 1,0 | 7,1 | 169,2 | 517,1 |
| EEC (civil activities) | 24,6 | - | 73,0 | 1,4 | - | 32,8 | 131,8 |
| Non-EEC countries | 35,9 | - | 1163,4 | 155,0 | 219,0 | 434,3 | 2007,6 |
| | <u>769,7</u> | <u>23,1</u> | <u>2582,0</u> | <u>295,0</u> | <u>235,6</u> | <u>1165,5</u> | <u>5070,9</u> |

Breakdown at EEC level:

| | | | |
|------------------------|---|--------|-------------|
| State | : | 2347,8 | <u>46,3</u> |
| Domestic civil market: | | 648,9 | 12,8 |
| Exports | : | 2074,2 | <u>40,9</u> |
| | | | 100,0 |

Breakdown of "State" heading

| | <u>Civil</u> | <u>Military</u> | <u>TOTAL</u> |
|-------------------------------------|--------------|--------------------------|----------------|
| Research and development : | 70,2 (3,0%) | 928,2 (39,5%) | 998,4 (42,5%) |
| Repairs, maintenance and sales : | 38,0 (1,6%) | 1146,6 (55,9%) +164,8 | 1349,4 (57,5%) |
| | | | 100,0 |

40. Final EEC turnover (m. current EUA)

Engines subsector

| <u>State</u> | <u>FRG</u> | <u>Belgium</u> | <u>France</u> | <u>Italy</u> | <u>NL</u> | <u>UK</u> | <u>EEC</u> |
|---|------------|----------------|---------------|--------------|-----------|-----------|------------|
| <u>R&D</u> | | | | | | | |
| - civil | 2.0 | - | 14.4 | - | | 35.9 | 52.3 |
| - military | 26.1 | - | 170.3 | 1.0 | | 50.5 | 247.9 |
| <u>Repairs, maintenance and sales</u> | | | | | | | |
| - civil | 2.1 | - | 2.8 | 1.1 | | 24.5 | 30.5 |
| - military | 72.9 | 9.5 | 165.2 | 44.5 | | 213.6 | 505.7 |
| Governments of other Member States | - | - | 18.7 | 0.4 | | 5.2 | 24.3 |
| <u>Aerospace companies in non-EEC countries</u> | 15.7 | 1.0 | - | 8.2 | | 157.7 | 182.6 |
| <u>End users:</u> | | | | | | | |
| National | 3.3 | - | 38.7 | 5.7 | | 90.0 | 137.7 |
| EEC (civil activities) | 0.1 | - | 23.8 | 0.2 | | 14.3 | 38.4 |
| Non-EEC countries | 0.1 | - | 146.8 | 1.0 | | 110.9 | 258.8 |
| | 122.3 | 10.5 | 580.7 | 62.1 | | 702.6 | 1478.2 |

Breakdown at EEC level:

| | | | |
|------------------------|---|-------|-------|
| State | : | 860,7 | 58,2 |
| Domestic civil market: | | 176,1 | 11,9 |
| Exports | : | 441,4 | 29,9 |
| | | | 100,0 |

Breakdown of the "State" heading

| | <u>Civil</u> | <u>Military</u> | <u>TOTAL</u> |
|--------------------------------|--------------|-----------------|---------------|
| Research and development: | 52.3 (6.1%) | 247.9 (28.8%) | 300,2 (34.9%) |
| Repairs, maintenance and sales | 30.5 (3.5%) | 505.7 (61.6%) | 560,5 (65.1%) |
| | | + 24.3 | 100.0 |

41. Final EEC turnover (m. current EUA)

Equipment subsector

| | <u>FRG</u> | <u>Belgium</u> | <u>France</u> | <u>Italy</u> | <u>NL</u> | <u>UK</u> | <u>EEC</u> |
|---|------------|----------------|---------------|--------------|-----------|-----------|------------|
| <u>State</u> | | | | | | | |
| <u>R&D</u> | | | | | | | |
| - civil | 1.2 | - | 0.4 | - | - | 0.5 | 2.1 |
| - military | 27.7 | - | 8.2 | 2.3 | - | 119.9 | 158.1 |
| <u>Repairs, maintenance and sales</u> | | | | | | | |
| - civil | 10.1 | 2.5 | 1.3 | 2.3 | - | 7.1 | 23.3 |
| - military | 119.6 | 2.2 | 134.5 | 24.7 | - | 227.0 | 508.0 |
| <u>Governments of other Member States</u> | 5.0 | 1.5 | 8.0 | 8.4 | 11.5 | 8.0 | 42.4 |
| <u>Aerospace companies in non-EEC countries</u> | 1.4 | 2.4 | 60.1 | 5.9 | 1.2 | 52.3 | 123.3 |
| <u>End users:</u> | | | | | | | |
| National | 27.9 | 0.1 | 21.0 | 0.6 | - | 58.7 | 108.3 |
| EEC (civil activities) | 2.3 | 0.1 | 3.2 | 0.2 | - | 20.3 | 26.1 |
| Non-EEC countries | 16.0 | 2.4 | 12.9 | 9.7 | 3.3 | 147.3 | 191.6 |
| | 211.2 | 11.2 | 249.6 | 54.1 | 16.0 | 641.1 | 1183.2 |

Breakdown at EEC level:

| | | <u>%</u> |
|-----------------------|---------|----------|
| State | : 733.9 | 62.0 |
| Domestic civil market | : 134.4 | 11.4 |
| Exports | : 314.9 | 26.6 |
| | | 100.0 |

Breakdown of the "State" heading:

| | <u>Civil</u> | <u>Military</u> | <u>TOTAL</u> |
|-------------------------------------|--------------|-----------------|---------------|
| Research and development: | 2.1 (0.3%) | 158.1 (21.5%) | 160.2 (21.8%) |
| Repairs, maintenance and sales : | 23.3 (3.2%) | 508.0 (75.0%) | 573.7 (78.2%) |
| | | + 42.4 | 100.0 |

42. Final EEC turnover (m. current EUA)

Space subsector

| | <u>FRG</u> | <u>Belgium</u> | <u>France</u> | <u>Italy</u> | <u>NL</u> | <u>UK</u> | <u>EEC</u> |
|---|-------------|----------------|---------------|--------------|------------|-------------|--------------|
| <u>State</u> | | | | | | | |
| <u>R&D</u> | | | | | | | |
| - civil | 70.2 | | 65.9 | 2.1 | 0.5 | 4.9 | 143.6 |
| - military | 2.1 | - | - | 0.1 | - | 8.2 | 10.4 |
| <u>Repairs, maintenance and sales</u> | | | | | | | |
| - civil | 1.2 | 0.1 | - | 0.8 | - | 3.6 | 5.7 |
| - military | - | - | - | 0.7 | - | 1.5 | 2.2 |
| <u>Governments of other Member States</u> | - | | - | 0.1 | - | - | 0.1 |
| <u>Aerospace companies in non-EEC countries</u> | 2.0 | 0.2 | - | 6.1 | - | 2.5 | 10.8 |
| <u>End users:</u> | | | | | | | |
| National | 1.0 | - | - | 2.5 | - | 11.6 | 15.1 |
| EEC (civil activities) | 0.5 | | 17.8 | 22.1 | 6.4 | 6.7 | 53.5 |
| Non-EEC countries | 0.6 | - | - | 0.1 | - | - | 0.7 |
| | <u>77.6</u> | <u>0.3</u> | <u>83.7</u> | <u>34.6</u> | <u>6.9</u> | <u>39.0</u> | <u>242.1</u> |

Breakdown at EEC level:

| | | <u>%</u> |
|-----------------------|-------|------------|
| State | 162.0 | 66.9 |
| Civil domestic market | 68.6 | 28.3 |
| Exports | 11.5 | <u>4.8</u> |
| | | 100.0 |

Breakdown of "State" heading:

| | <u>Civil</u> | <u>Military</u> | <u>TOTAL</u> |
|--------------------------------|---------------|-----------------|---------------|
| Research and development | 143.6 (88.6%) | 10.4 (6.4%) | 154.0 (95.0%) |
| Repairs, maintenance and sales | 5.7 (3.5%) | 2.2+0.1 (1.5%) | 8.0 (5.0%) |
| | | | 100.0 |

43. Final EEC turnover (m. current EUA)

Aerospace total

| | <u>FRG</u> | <u>Belgium</u> | <u>France</u> | <u>Italy</u> | <u>NL</u> | <u>UK</u> | <u>EEC</u> |
|---|------------|----------------|---------------|--------------|-----------|-----------|------------|
| <u>State</u> | | | | | | | |
| <u>R&D</u> | | | | | | | |
| - civil | 77.2 | - | 123.4 | 2.2 | 1.0 | 64.4 | 268.2 |
| - military | 548.0 | - | 440.4 | 3.7 | - | 352.5 | 1344.6 |
| <u>Repairs, maintenance and sales</u> | | | | | | | |
| - civil | 21.9 | 2.7 | 25.6 | 7.2 | - | 40.1 | 97.5 |
| - military | 375.0 | 27.3 | 868.8 | 141.9 | 8.0 | 741.5 | 2162.5 |
| <u>Governments of other Member States</u> | 5.4 | 2.0 | 143.1 | 37.1 | 12.3 | 31.7 | 231.6 |
| <u>Aerospace companies in non-EEC countries</u> | 35.2 | 10.5 | 60.1 | 54.2 | 1.4 | 221.9 | 383.3 |
| <u>End users:</u> | | | | | | | |
| National | 38.0 | 0.1 | 393.7 | 9.8 | 7.1 | 329.5 | 778.2 |
| EEC (civil activities) | 27.5 | 0.1 | 117.8 | 23.9 | 6.4 | 74.1 | 249.8 |
| Non-EEC countries | 52.6 | 2.4 | 1323.1 | 165.8 | 222.3 | 692.5 | 2458.7 |
| | 1180.8 | 45.1 | 3496.0 | 445.8 | 258.5 | 2548.2 | 7974.4 |

Breakdown at EEC level:

| | | <u>%</u> |
|-----------------------|--------|-------------|
| State | 4104.4 | 51.5 |
| Domestic civil market | 1028.0 | 12.9 |
| Exports | 2842.0 | <u>36.6</u> |
| | | 100.0 |

Breakdown of "State" heading:

| | <u>Civil</u> | <u>Military</u> | <u>TOTAL</u> |
|-----------------------------------|--------------|----------------------|----------------|
| Research and development | 268.2 (6.5%) | 1344.6 (32.8%) | 1612.8 (39.3%) |
| Repairs, maintenance and sales | 97.5 (2.4%) | 2162.5+231.6 (58.3%) | 2491.6 (60.7%) |
| | | | 100.0 |

COMPANIES

44. The BDLI adds to the four subsectors a further subsector for materials and accessories employing 1 339 persons who are included in the figures of 51 367 for the Federal Republic of Germany and 431 094 for the EEC.
45. Canada: The Canadian aerospace equipment manufacturing industry - Canadian Government paper - Industry and Commerce.
46. France: The aircraft subsector comprises airframes, engines, helicopters and space.
47. USA: Aerospace Facts and Figures 1977/78: The figures given for the aero sector include the workforce for missiles and space in recent years. They do not, however, represent the entire aerospace workforce, which is estimated at 899 000.
48. Boeing 1977: Turnover - 3 522 million EUA; workforce - 79 500.
49. McDonnell Douglas 1977: Turnover - 3 106 million EUA; workforce - 61 577.
50. Lockheed 1977: Turnover - 2 956 million EUA; workforce - 55 100.
51. General Dynamics 1977: Turnover - 2 542 million EUA; workforce - 73 700.
52. Pratt & Whitney: A division of United Technologies, whose turnover was 4 620 million EUA in 1976 and 4 864 million EUA in 1977, with a workforce of 133 000 and 139 000 respectively.
53. General Electric: Total turnover (all activities, i.e. not aerospace only) was 14 039 million EUA in 1976 and 15 695 million EUA in 1977, with a workforce of 380 000 and 384 000 respectively.
54. Northrop: Source - GIFAS report.
55. BAC and Hawker-Siddeley Aviation are now part of British Aerospace, which in 1977 had a turnover of 1 314 million EUA with a workforce of 68 000.
56. SABCA: Turnover - 53 million EUA in 1977; workforce - 1 835.
57. SNECMA: Workforce for 1977 instead of 1976.
58. MTU 1977: Turnover - 153 million EUA; workforce - 5 819.