Government of Canada
Gouvernement du Canada

Regional Industrial Expansion
Expansion industrielle régionale

Canada

Regional Industrial Expansion
Ottawa Canada
K1A 0H5

AIAC
Aerospace Industries Association of Canada
Rm. 601, Royal Trust Bldg — 116 Albert St.
Ottawa, Ontario K1P 5G3 (613) 232-4297

BUSINESS FORECAST ENQUIRY

SURVEY 87

Regional Industrial
Expansion
Ottawa Canada
K1A 0H5

Aerospace Industries Association of Canada
Rm. 601, Royal Trust Bldg.—116 Albert St.
Ottawa, Ontario K1P 5G3 (613) 232-4297

BUSINESS FORECAST ENQUIRY

SURVEY 87

FOREWORD

In 1983 the Aerospace Industries Association of Canada and the Department of Industry Trade and Commerce jointly initiated an Annual Business Forecast Enquiry. The purpose of this enquiry was to provide a statistical base for discussions between the Association and the Federal Government with respect to government support for the Industry Sector. This survey assumed increasing importance with the signing of the Memorandum of Understanding between the Association and the Minister of Regional Industrial Expansion on May 29, 1985.

The memorandum committed the government to increase the level of support under the Defence Industries Productivity Program, and established Performance Targets which the Industry Sector agreed to meet if given the additional support. This Annual Survey in addition to providing a consistent base of Industry Statistics, also provides the means of comparing Industry Performance with the agreed performance targets.

The survey is carried out by the Department of Regional Industrial Expansion on behalf of the Association. For Survey '87 the questionnaires were mailed to 59 companies or divisions of multi-divisional companies. 47 companies responded, and survey totals have been increased by 3% to reflect those omissions. The totals were inflated by a further 5% to allow for companies not surveyed. Responses were tabulated by DRIE to form the basis for this report. All company data is treated as "Company Confidential" and retained within DRIE. The aggregated data is then made available to the association in the form of this report. This year, for the first time, the report is available to the general public.

TABLE OF CONTENTS

APPENDICES

LIST of CHARTS

LIST of REFERENCE TABLES

1.0 INDUSTRY PERFORMANCE versus M.O.U. TARGETS

1986 was a year of substantial growth for the Aerospace Industry, with continued growth forecast through 1991.

The Performance Targets contained in the AIAC/DRIE Memorandum of Understanding were generally achieved or exceeded, but R & D Investment fell short of the goal.

1.1 SALES GROWTH - the Target was established as 5 % per year growth in Net Sales from the 1985 level. Net Sales (Gross Sales minus sales to Original Equipment Manufacturers) totalled $ 4726 million, up 16 % from 1985. They are forecast to continue to grow at the compound rate of 11 % per year, well in excess of the M.O.U. Target.

1.2 EXPORT SALES - The M.O.U. Target requires Export Sales to exceed 70 % of Net Sales. Export Sales totalled $ 3447 million in 1986, an increase of 21.4 % over 1985. They are forecast to grow at a compound rate of 11.3 % per year from 1986 through 1991. Exports equated to 73 % of Net Sales in 1986 and will reach 74.1 % by 1991, thus comfortably meeting the target.

1.3 QUALITY OF SALES - Quality of Sales, within the context of the M.O.U. is seen as an increase in sales of Proprietary Products as a percentage of Net Sales. The stipulated target is that this percentage should increase by 1 % per year. Proprietary Product Sales in 1986 totalled $ 2899 million, an increase of 18 % over 1985. They represented 61.3 % of Net Sales in 1986, and will increase to 66 % by 1991. marginally short of the targetted growth rate.

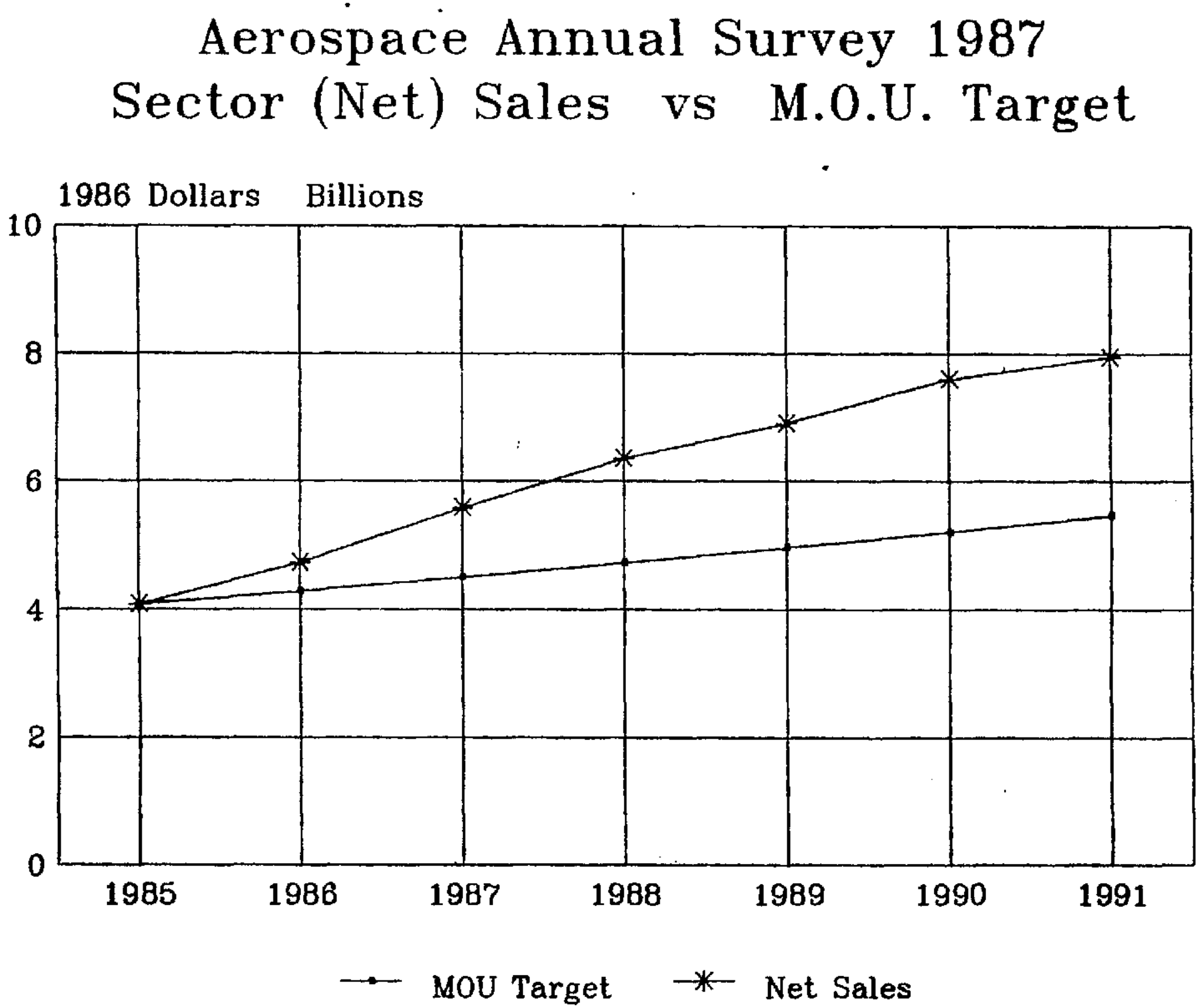


Chart T 1 Dec. 1 1987

Aerospace Annual Survey 1987
Export Sales vs M.O.U. Target

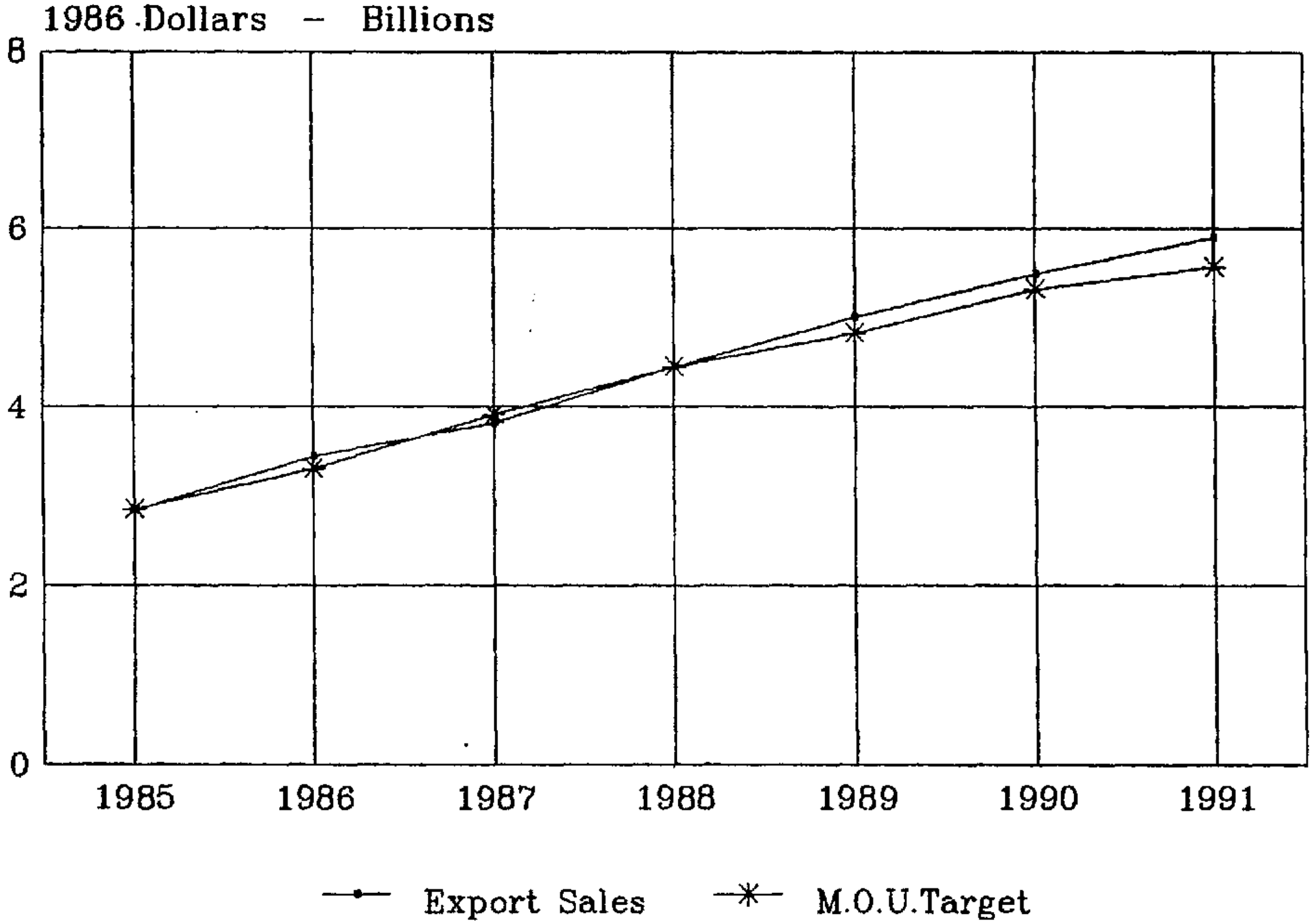


Chart T 2 Dec. 1 1987

Aerospace Annual Survey 1987
Proprietary Product as % of Net Sales

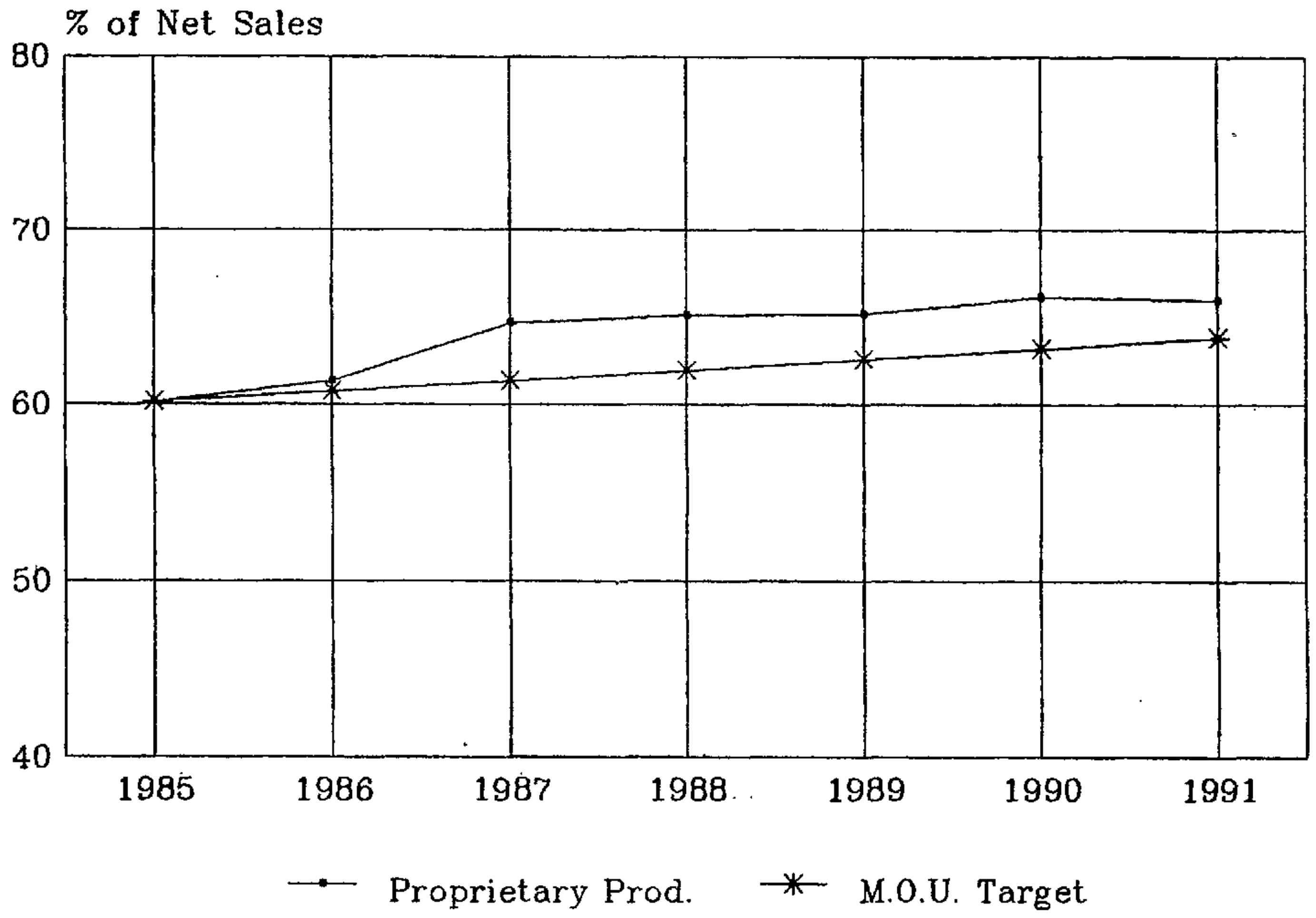


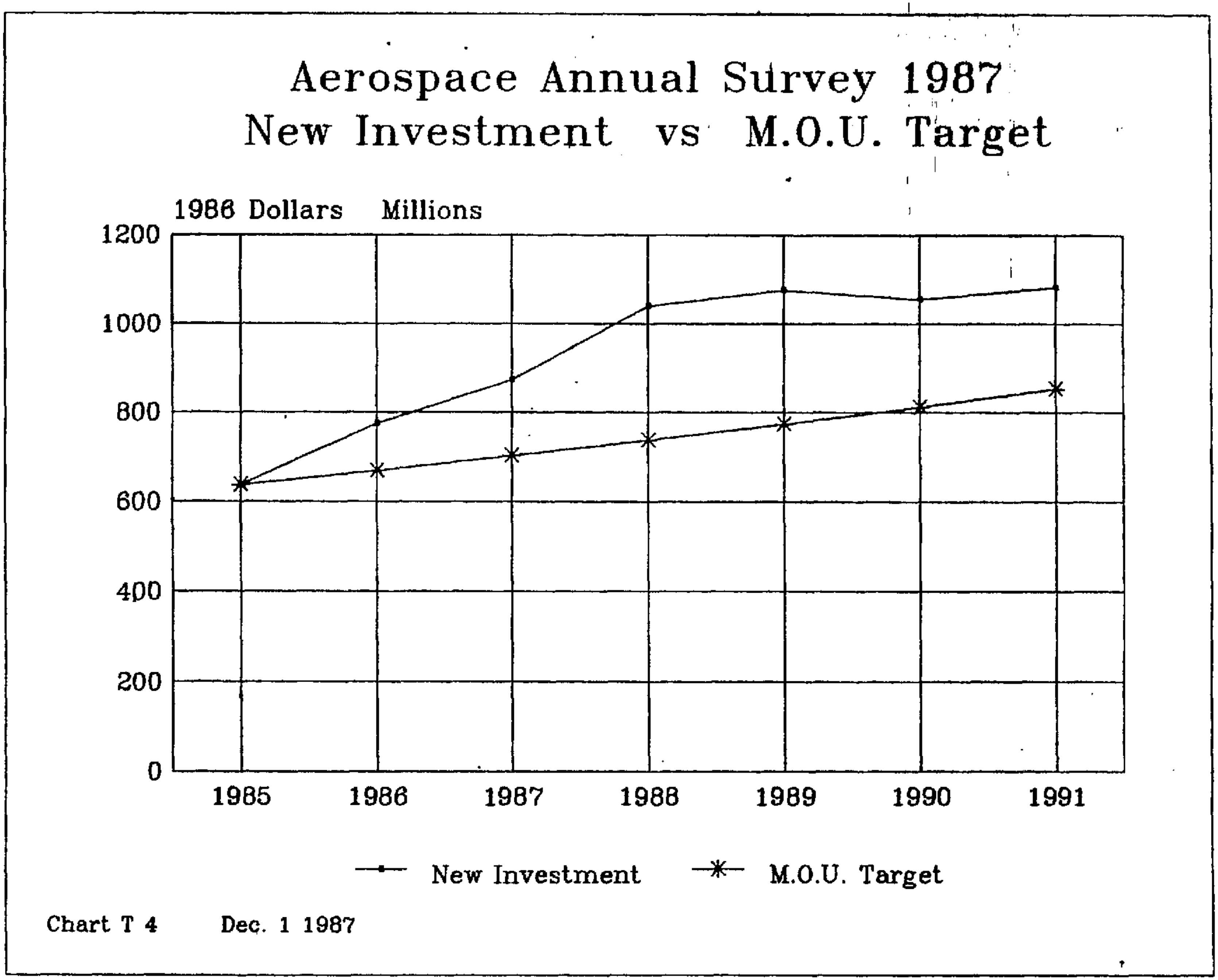
Chart T 3 Dec.1 1987

1.4 NEW INVESTMENT - The M.O.U. proposes that New Investment should be proportionate to the growth in Sales and therefore establishes a target of 5 % growth per year. New Investment in 1986 totalled $ 774 million, up 20 % from that reported in 1985. It is forecast to grow at a compound rate of 6.9 % from 1986 through 1991, less than the annual growth in Net Sales (11.0 %), but still above target.

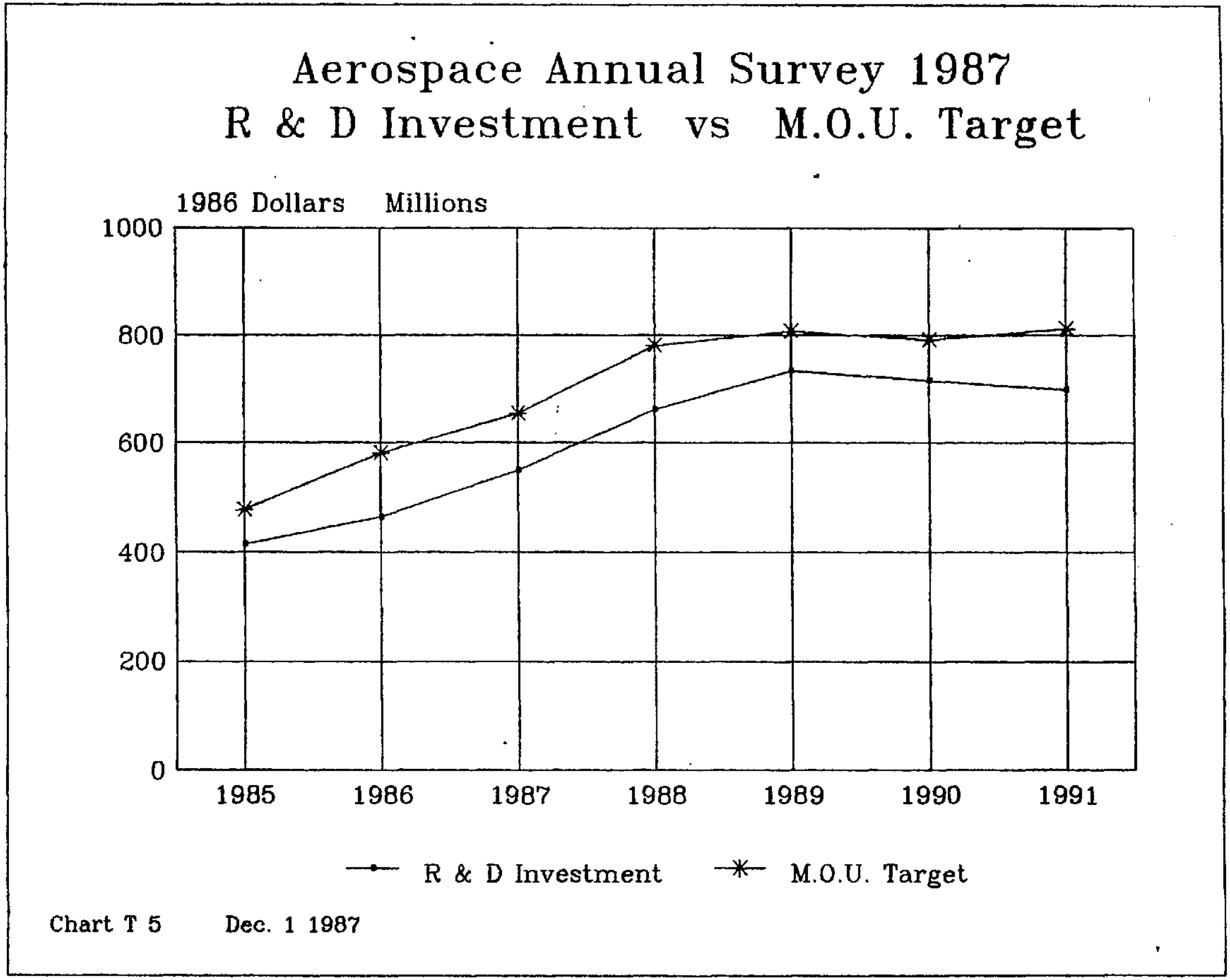
1.5 RESEARCH AND DEVELOPMENT INVESTMENT - Recognizing the importance of ongoing Research and Development, the M.O.U. Target requires R&D expenditures to account for 75 % of New Investment within 5 years (ie 1990). Based upon the data reported in this survey, it appears that performance will fall about 7 % short of this target. R&D expenditures of $ 465.2 million in 1986 represented 60.1 % of New Investment, down from 65.1 % in 1985. Although R&D Investment is forecast to increase at a faster rate than Total Investment through 1991, it will not meet the M.O.U. target, and will represent only 67.8 % of new investment in 1990.

1.6 EMPLOYMENT - Employment in 1986 totalled 53,678, up by 12.7 % from 1985. It is forecast to grow at a compound rate of 4.3 % per year through 1991, exceeding the M.O.U. Target of 3 % per year, although the growth in 1988 and 1991 actually falls below target

1.7 TRAINING- The M.O.U. stipulates as a target that the Investment in Training should increase by 1 % per year. Training investment in 1986 was reported as $ 28.92 million and is forecast to increase at a compound rate of 4.7 % through 1991. Although it does meet the Target, Training Investment represents, on average, less than one half of one percent of sales per year.



Aerospace Annual Survey 1987
New Investment vs M.O.U. Target
1986 Dollars Millions
1200
1000
800
600
400
200
0
1985
1986
1987
1988
1989
1990
1991
New Investment
M.O.U. Target
Chart T 4
Dec. 1 1987



Aerospace Annual Survey 1987
R & D Investment vs M.O.U. Target
1986 Dollars Millions
1000
800
600
400
200
0
1985
1986
1987
1988
1989
1990
1991
R & D Investment
M.O.U. Target
Chart T 5
Dec. 1 1987

Aerospace Annual Survey 1987
Employment vs M.O.U. Target

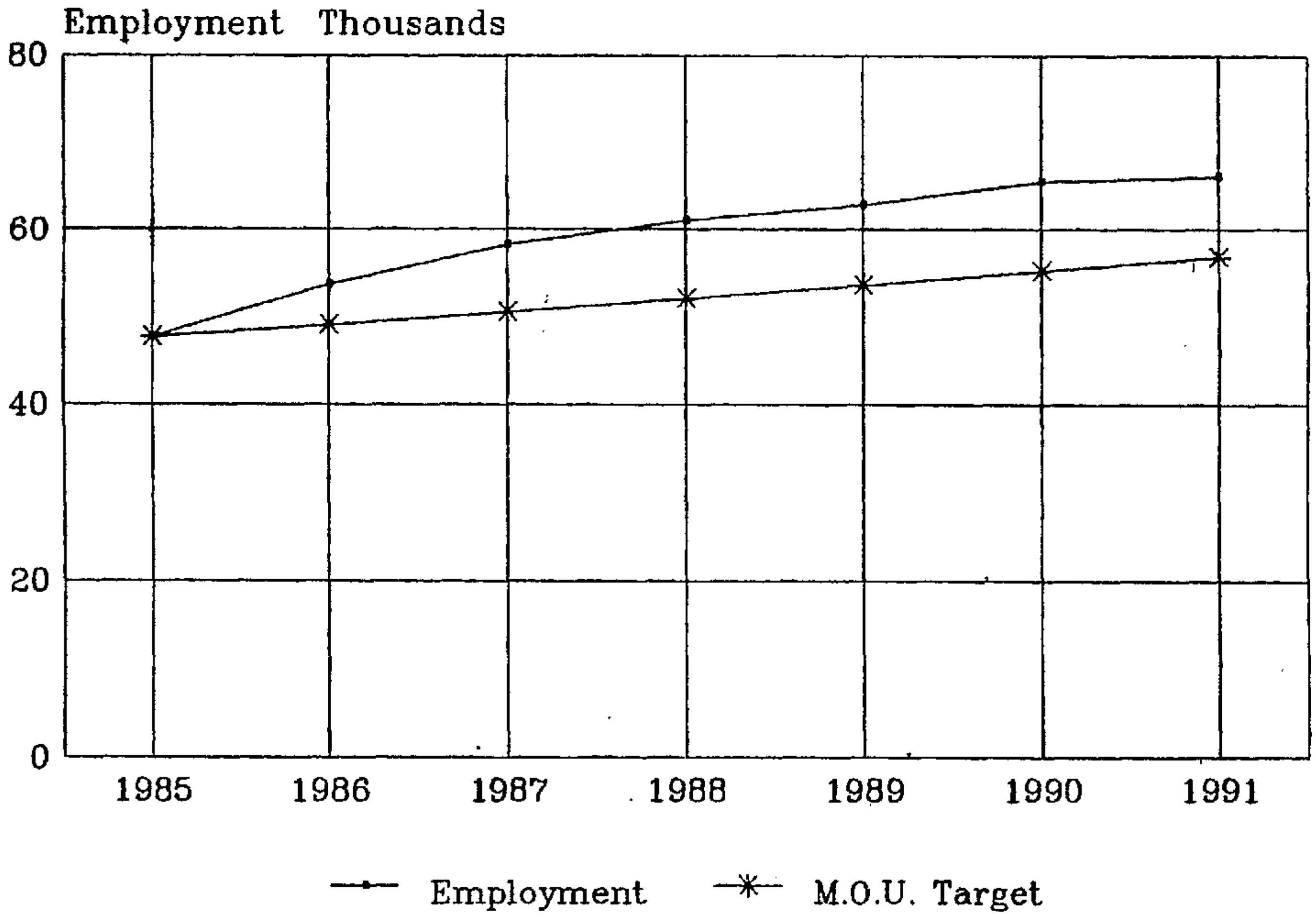


Chart T 6 Dec. 1 1987

Aerospace Annual Survey 1987
Training Investment vs M.O.U. Target

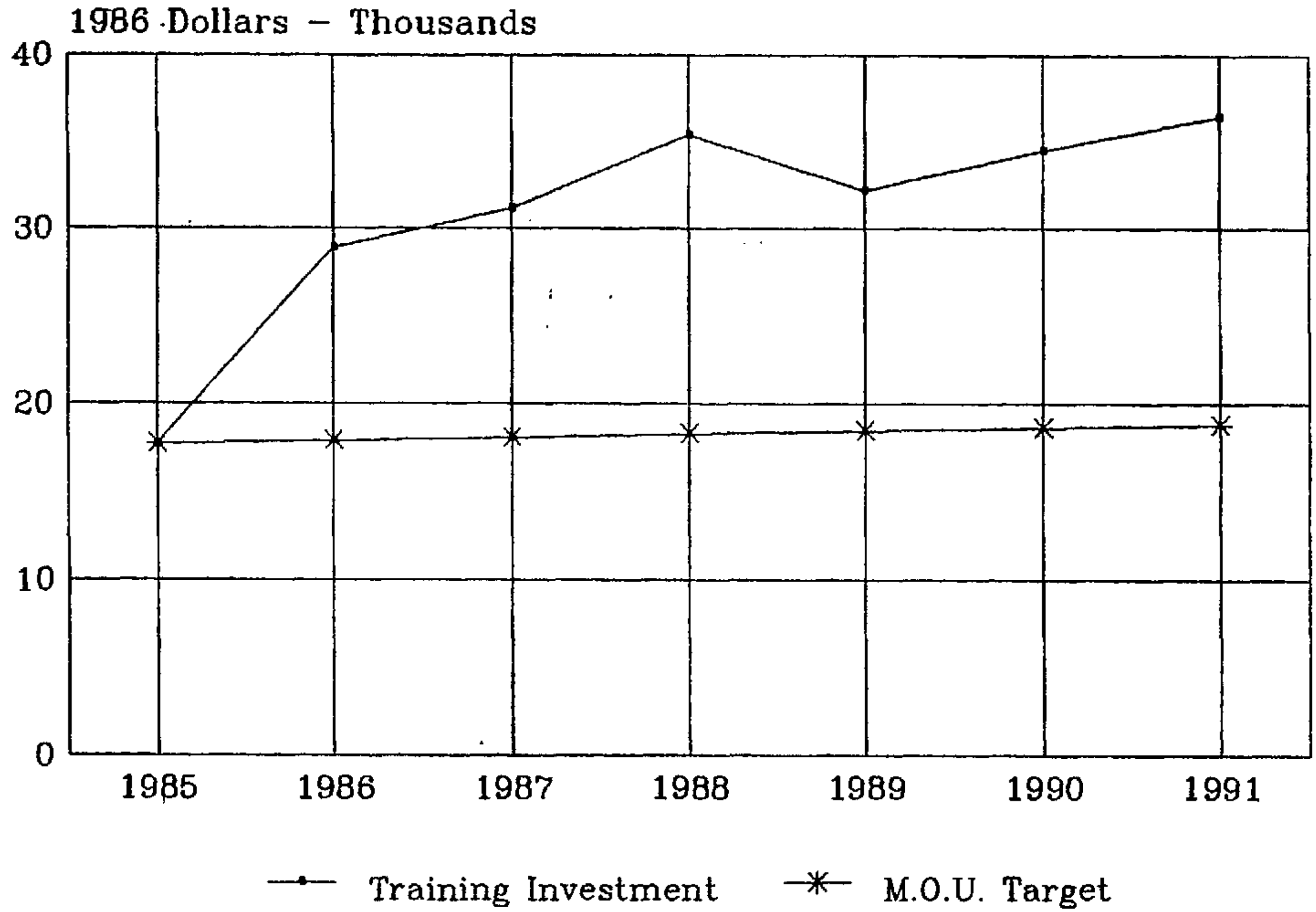


Chart T 7 Dec. 1 1987

2.0 SECTOR SALES

2.1 NET SALES - of the Canadian Aerospace Industry totalled $4726.2 million, 15.9 % higher than the $ 4078.2 million reported in 1985. Sales are forecast to grow at the rate of 11 % per year (compounded) from 1986 to reach a level of $ 7950 million in 1991. This is well in excess of the 5 % Annual Growth Target set out in the Memorandum of Understanding between the Aerospace Industries Association of Canada and the Minister of Regional Economic Expansion.

2.2 DEFENCE/MILITARY SALES - were $1808.25 million in 1986, up 16.5 % from the 1985 level of $1552.6, represented 38.26 % of the Net Sales. Although Defence Sales in dollar terms are forecast to increase at the compound rate of 6 % per year through 1991, they will represent a smaller proportion of Net Sales, declining from 38.3 % in 1986 to 30.5 % in 1991.

2.3 EXPORT SALES - grew from $2841 in 1985 to $ 3447 in 1986, an increase of 16.5 % . Annual growth is forecast to continue, albeit at the lesser rate of 11.3% (Compounded) throughout the period from 1986 to 1991. Export Sales represented 73 % of Net Sales in 1986, and are forecast to represent 74 % by 1991. The MOU target stipulates that Export Sales should exceed 70 % of Net Sales. Although the target will be achieved in most years, Export Sales in 1988 are forecast to be only 68.35 % of Net Sales for that year.

The United States - is the major export customer, procuring goods and Services valued at $2405.4 million in 1986, up 12.2 % from the 1985 level of $2143.4 million. This trend is forecast to continue. Exports to the U.S. are expected to increase at the compound rate of 10.8 % per year through 1991. Exports to the US will comprise between 65.5 and 73 % of Canadian Export Sales from 1986 through 1991. Direct Sales to the US Government were a minor element, totalling $337.8 million in 1986, representing only 14 % of Canadian Sales to The US Market.

2.4 NET DOMESTIC SALES - for 1986, at $1278.6 million were up 3.4 % from the 1985 level of $1237 million. They are forecast to increase at a compound rate of 9.9 % per year through 1991, representing 25.8 % of Net Sales in that year. Sales to Original Equipment Manufacturers were $ 282.4 million in 1986, and are forecast to increase at the compound rate of 8 % per year through 1991. The O.E.M. Sales in 1986 represented 6 % of Net Sales, or 22 % of Total Domestic Sales.

The Canadian Government - was the largest domestic customer, procuring goods and services valued at $ 866 million in 1986. This was an increase of 6.1 % over the 1985 level of $815.9 million. This growth is forecast to continue at a compound rate of 9.8 % per year through 1991. Canadian Government Procurement ranges from 17.4 to 19.3 % of Net Sales, or 56 to 70 % of Domestic Sales over the next five years.

Aerospace Annual Survey 1987
Sector Sales

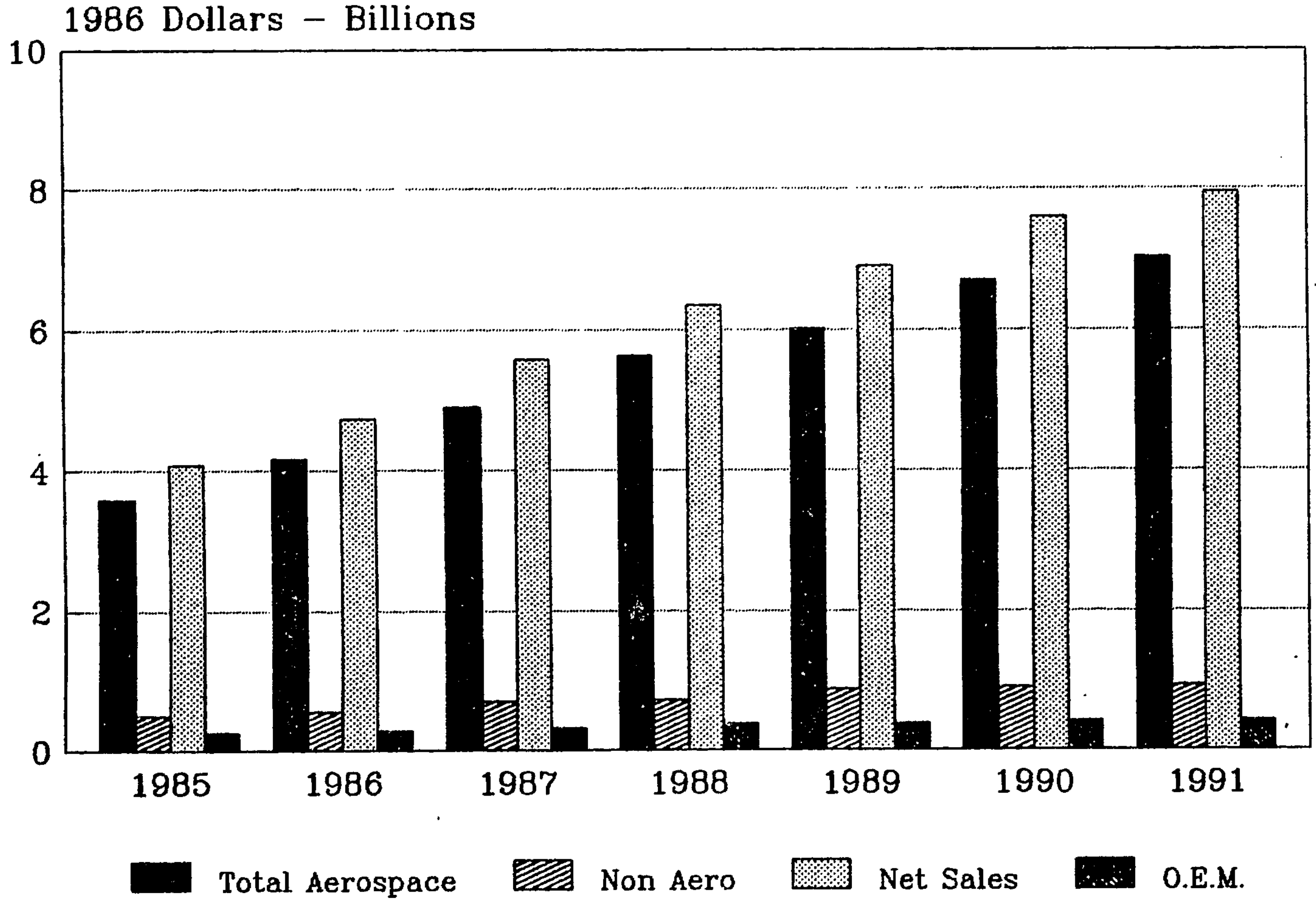


Chart 1 Dec. 1 1987

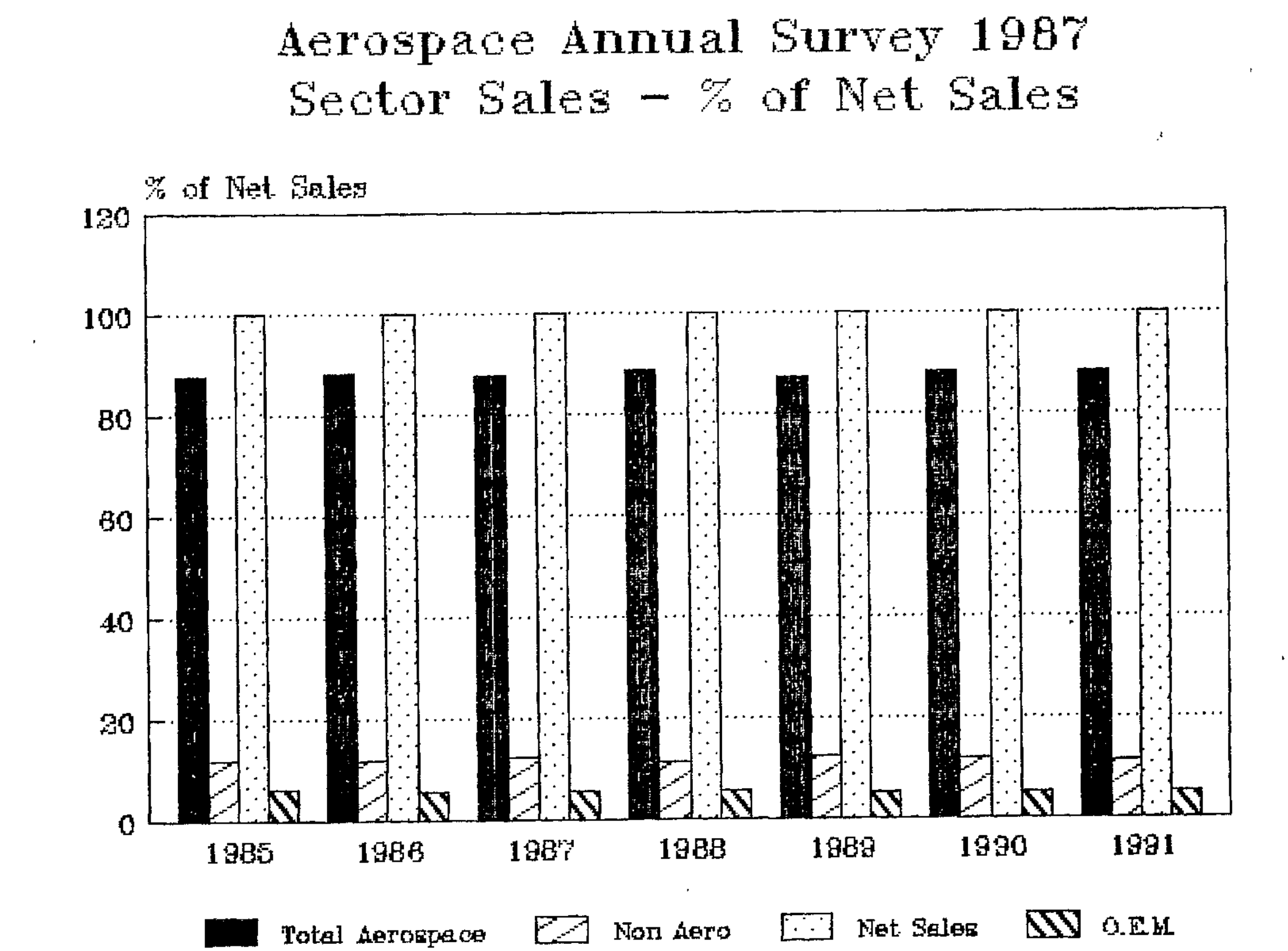


Chart 1 B Dec. 1 1987

Aerospace Annual Survey 1987
Aerospace Sales by Sub-Sector

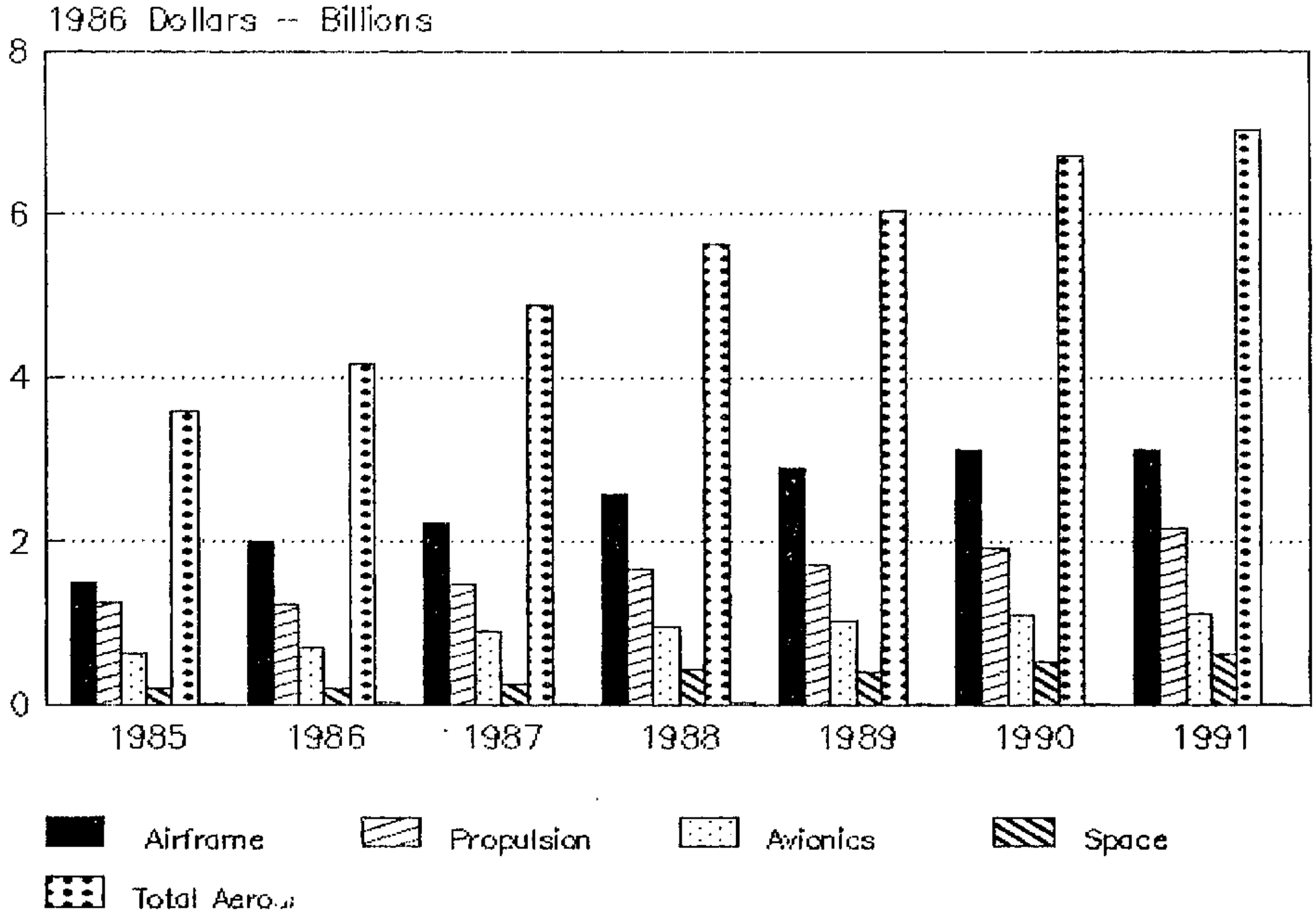


Chart 2 Dec. 1 1987

Aerospace Annual Survey 1987
Aerospace Sales as % of Net Sales

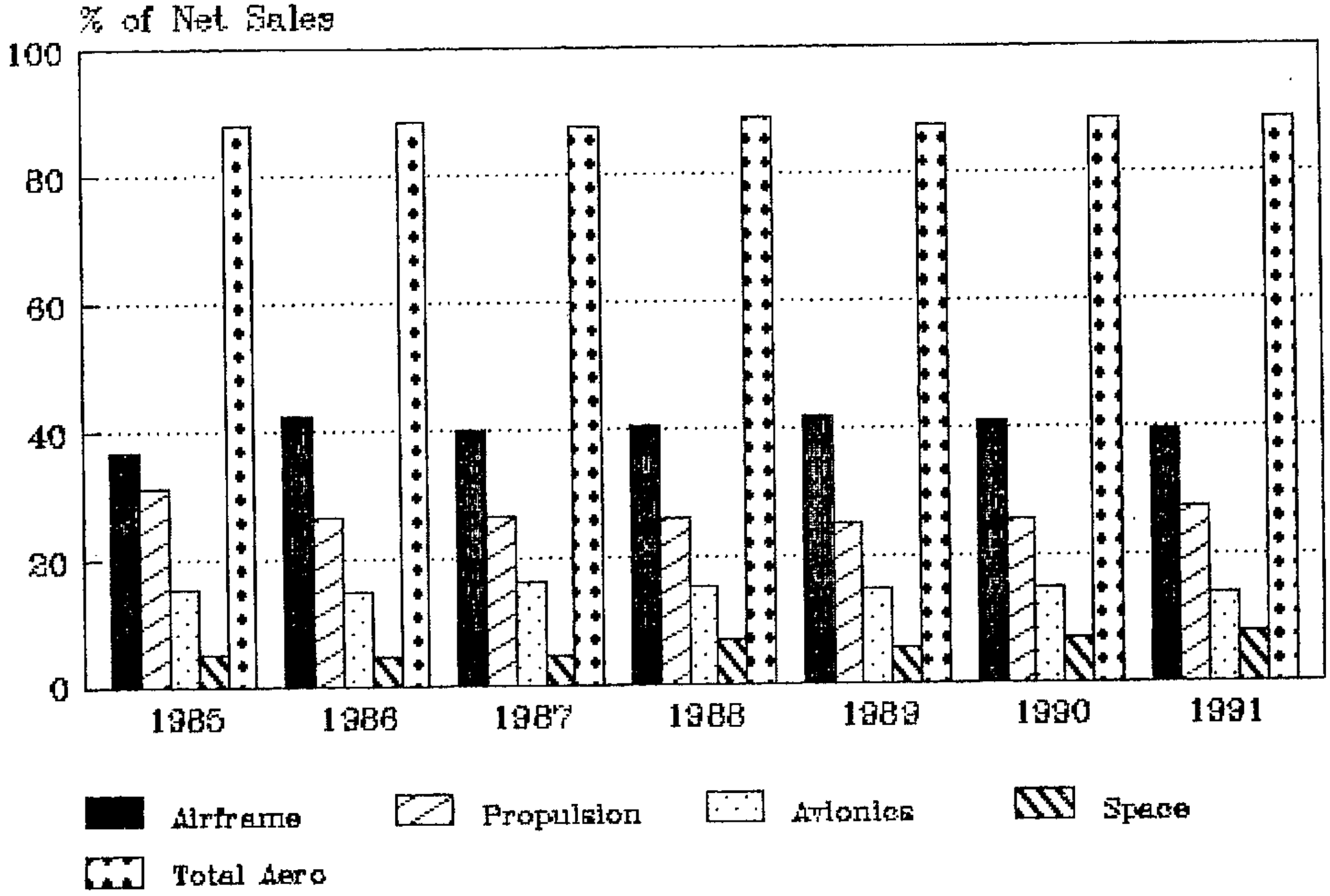


Chart 2 B Dec. 1 1987

Aerospace Annual Survey 1987
Defence Sales

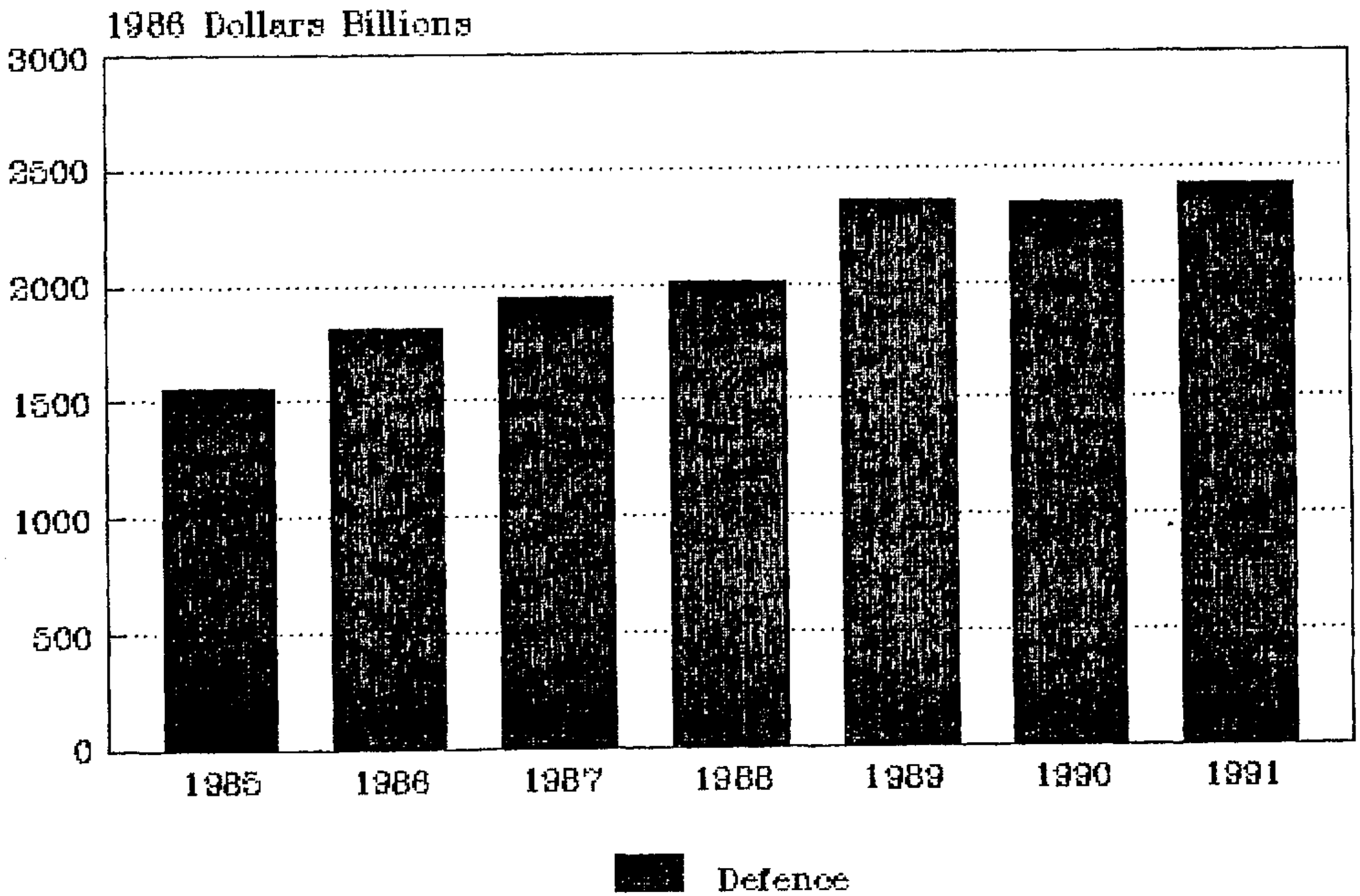


Chart 8 Dec. 1 1987

Aerospace Annual Survey 1987
Sales by Class - Percent of Net Sales

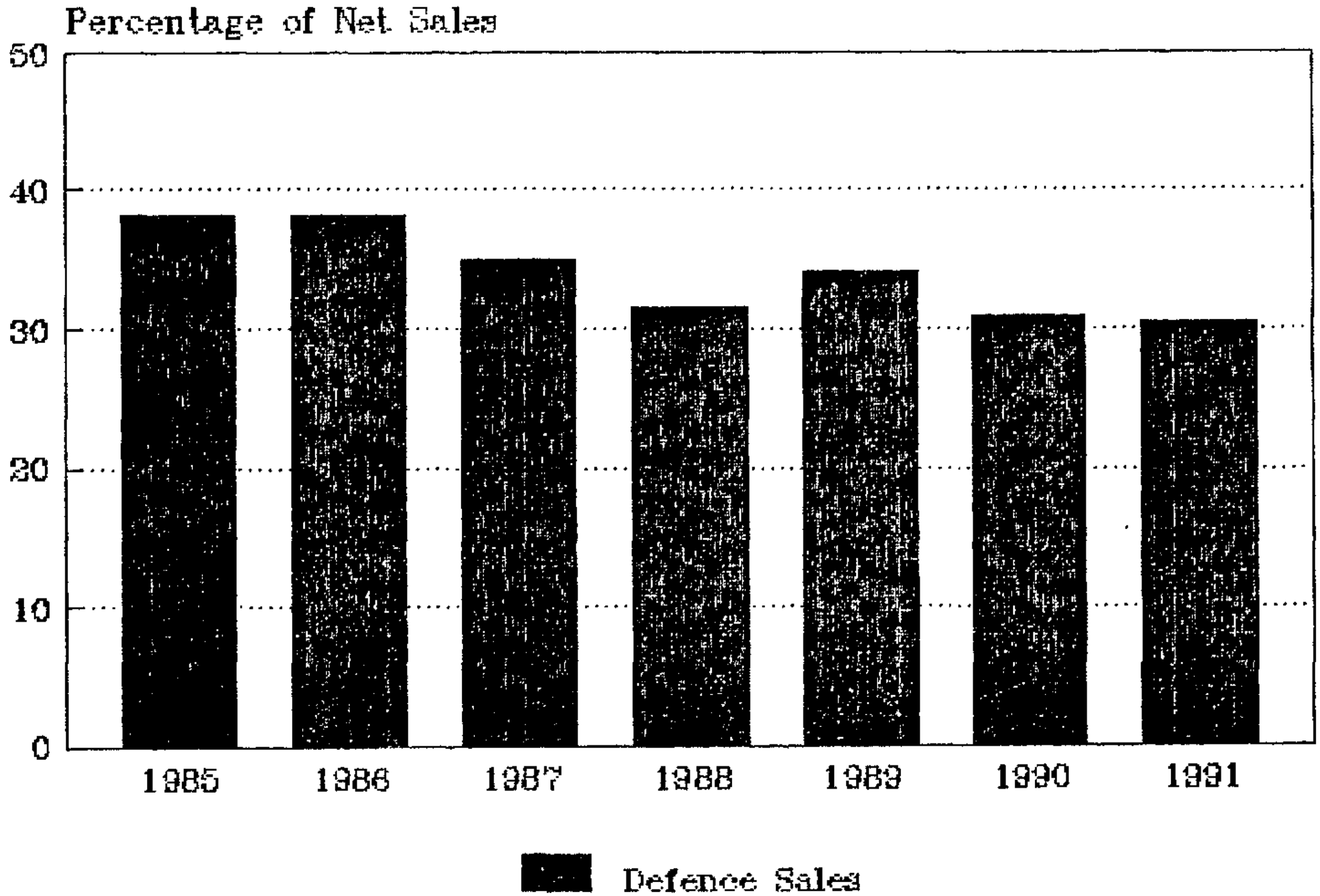


Chart 8 B Dec. 1 1987

Aerospace Annual Survey 1987
Exports by Class of Customer

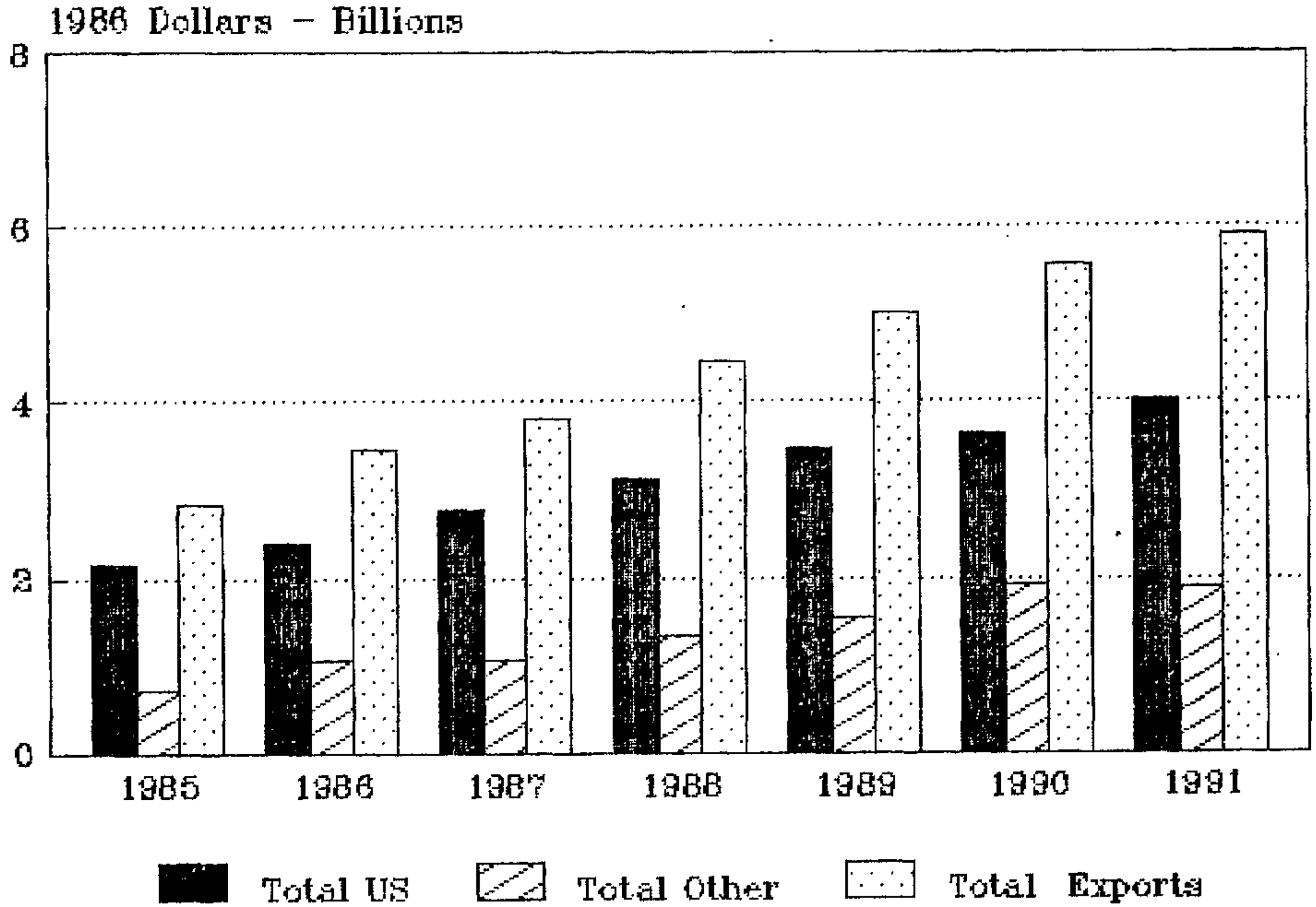


Chart 5 Dec. 1 1987

Aerospace Annual Survey 1987
Exports by Customer % of Net Sales

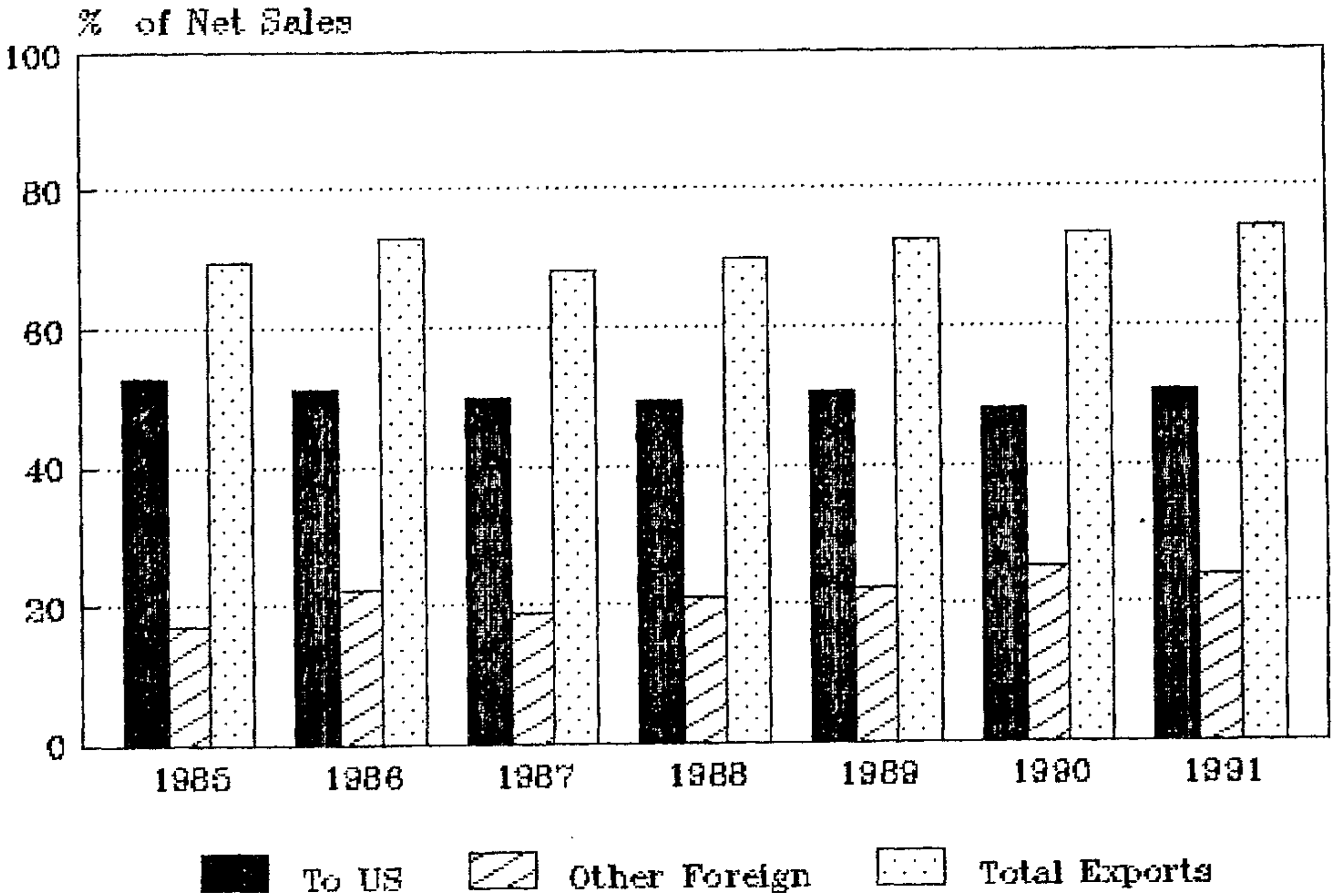


Chart 5 B Dec. 1 1987

Aerospace Annual Survey 1987
Exports by Customer as % Total Exports

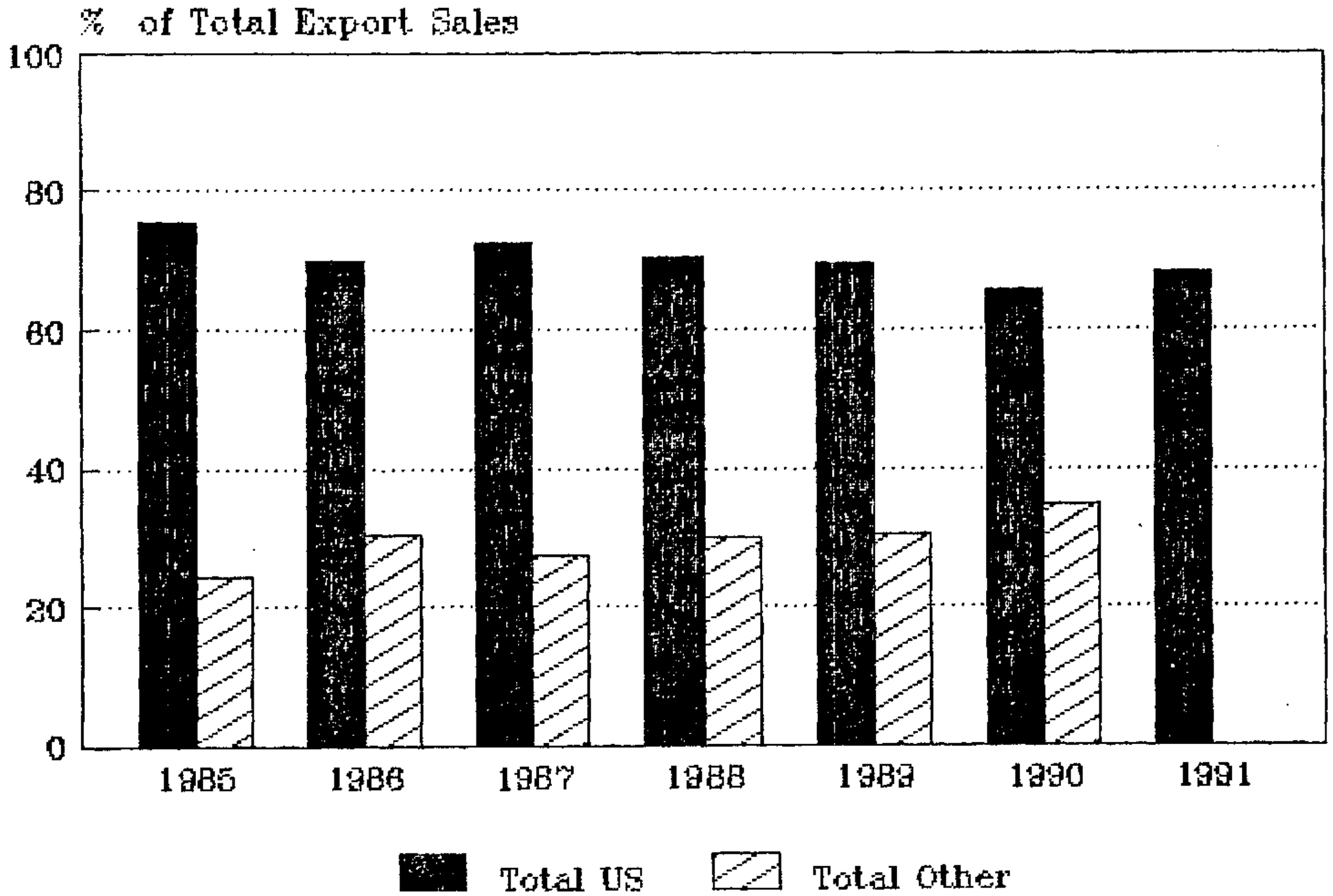


Chart 5 C Dec. 1 1987

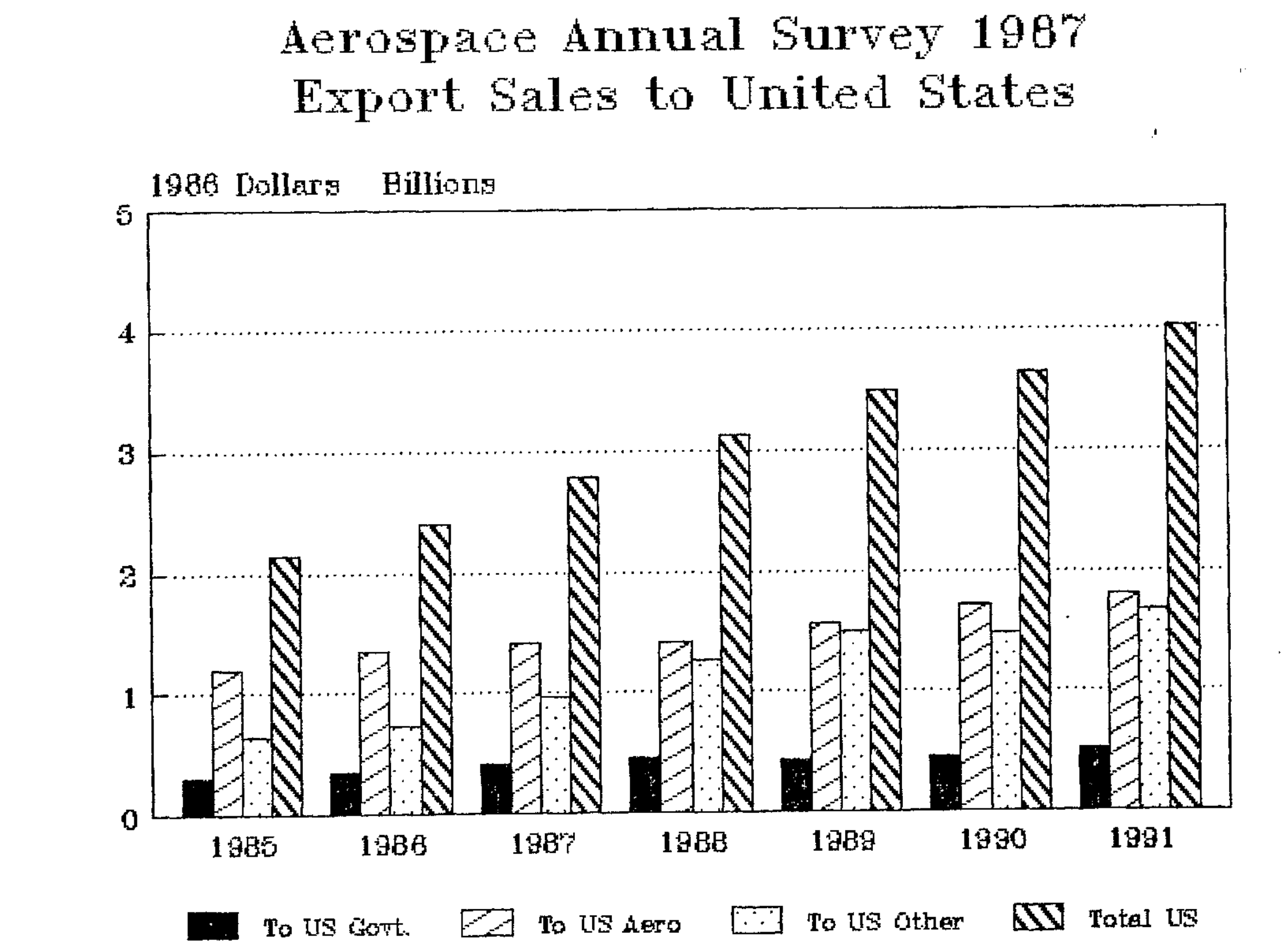
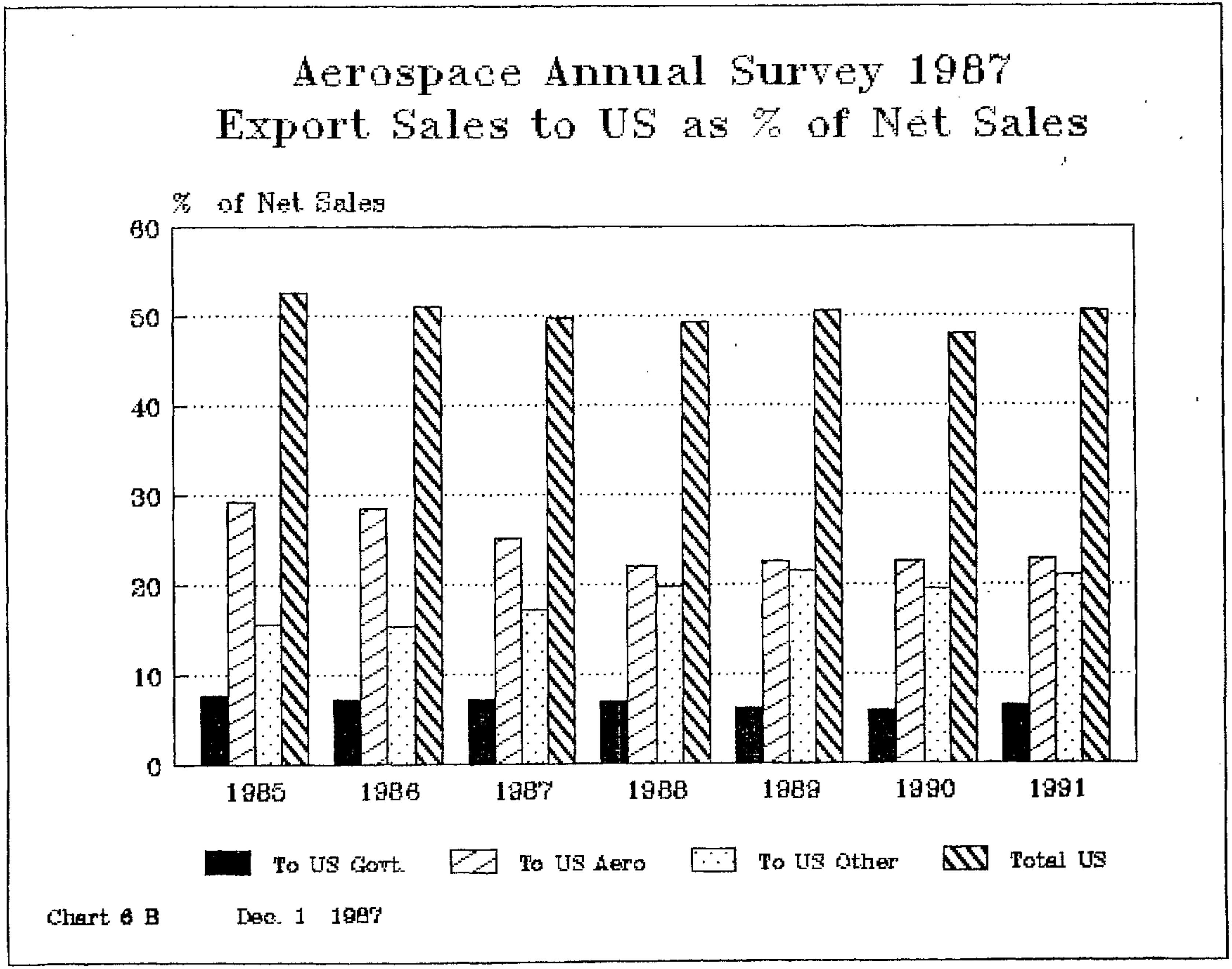
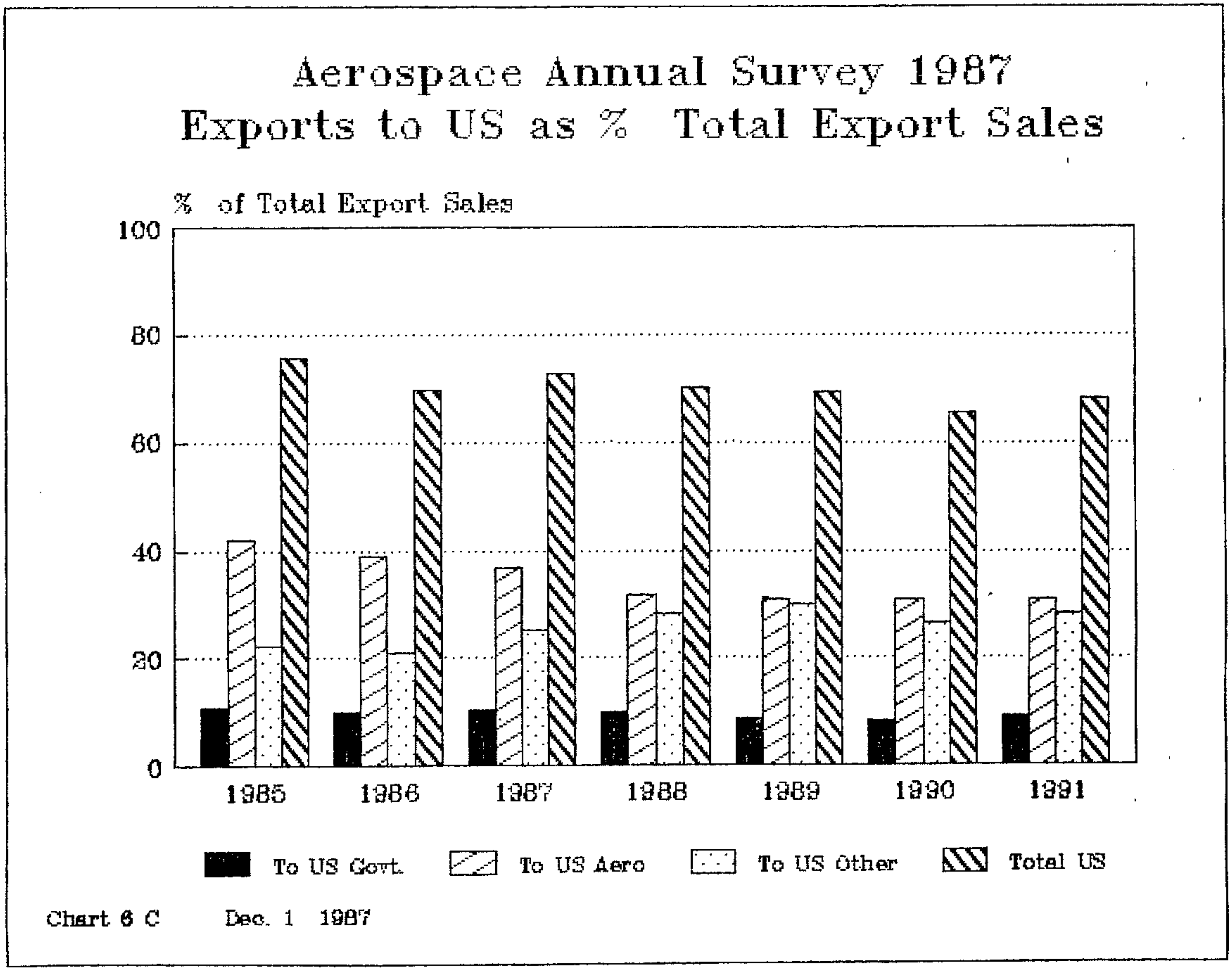
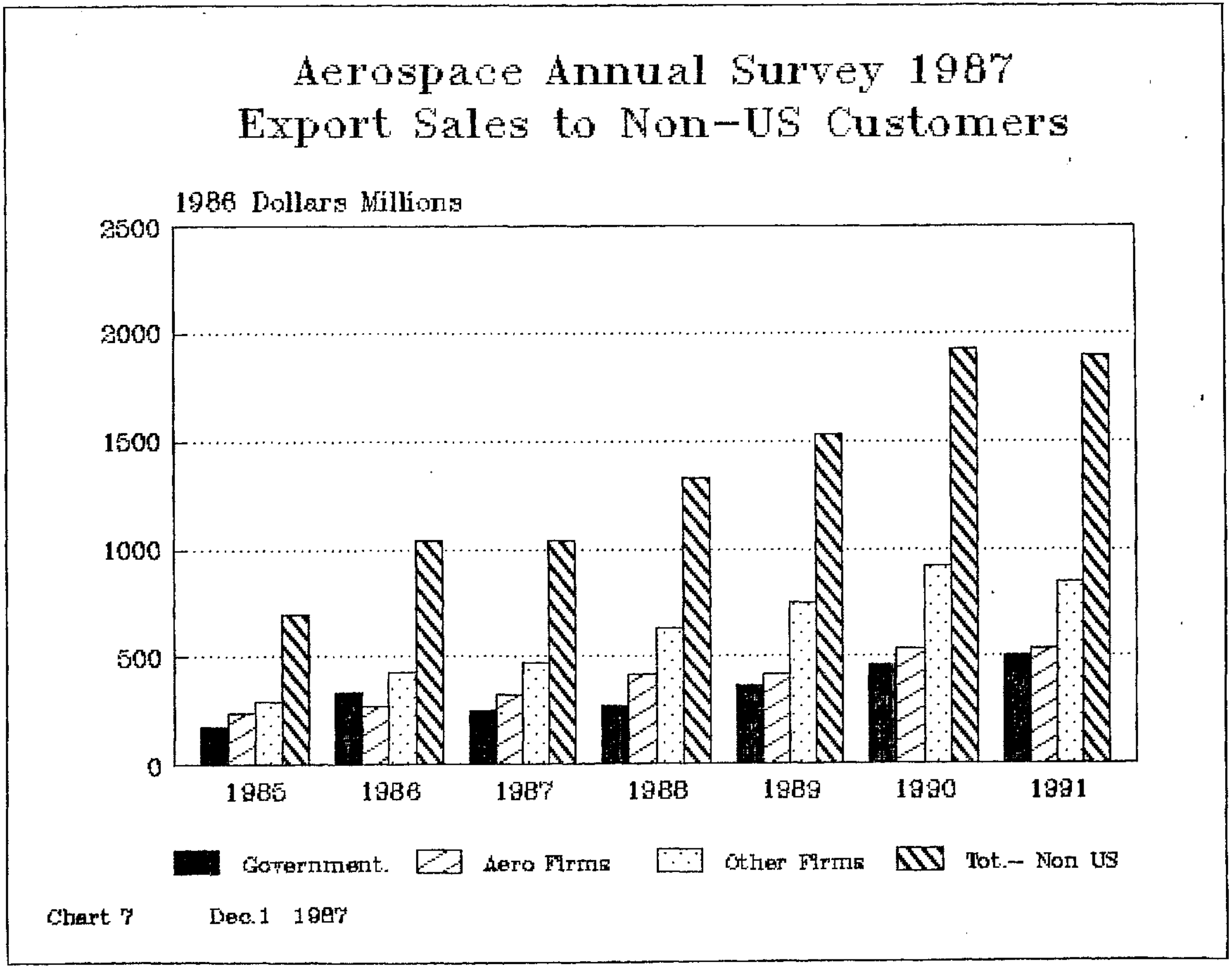


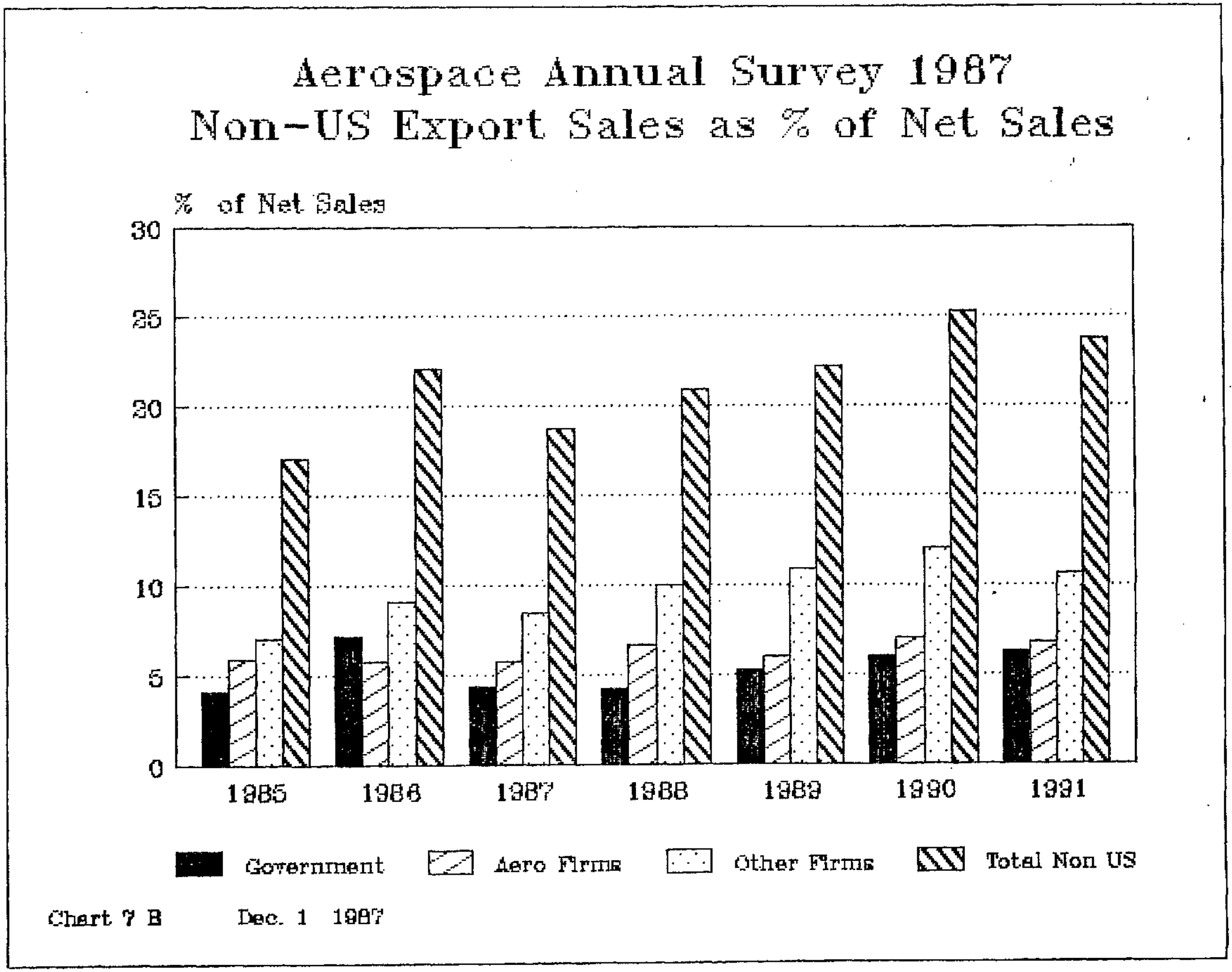
Chart 6 Dec. 1 1987

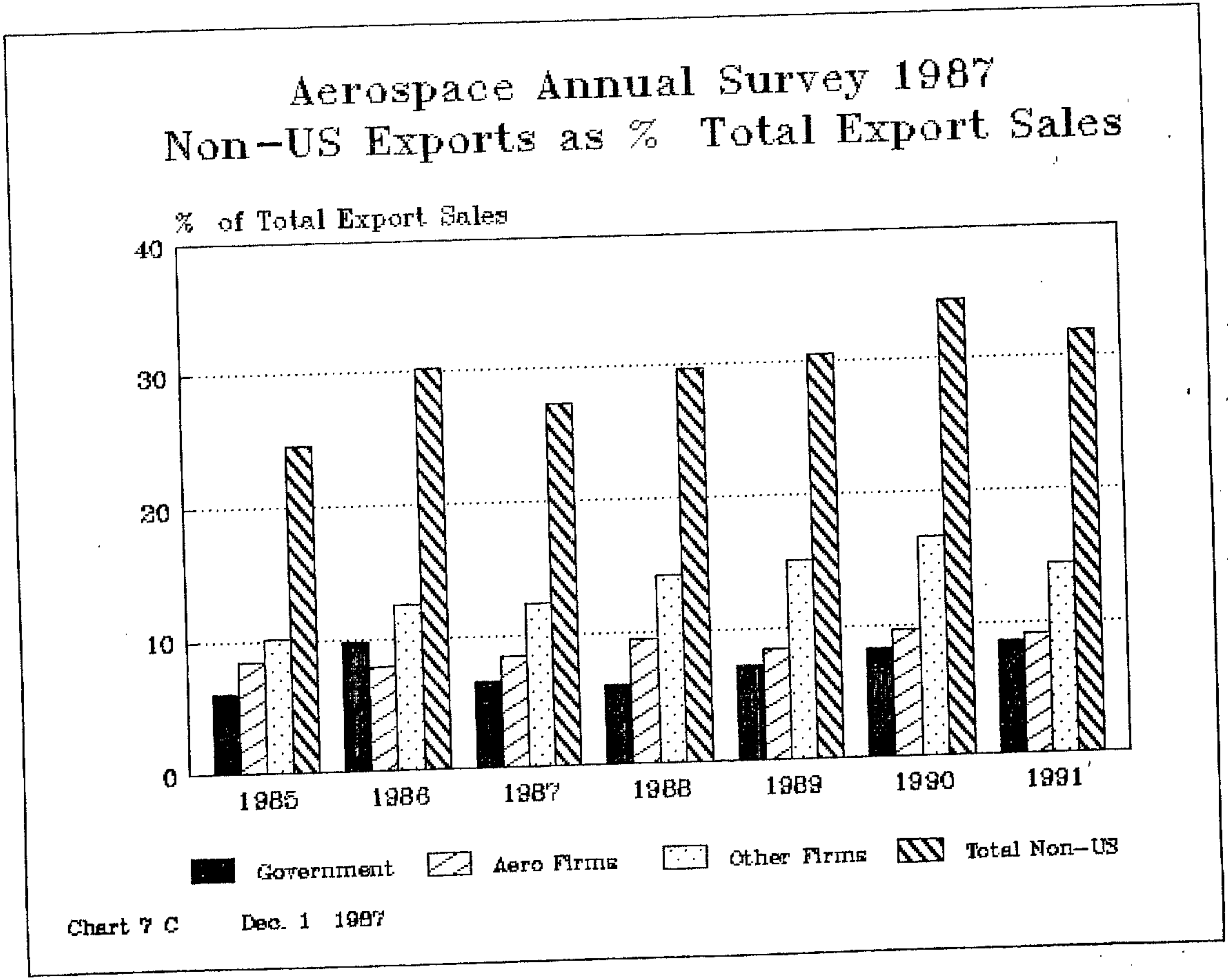

Aerospace Annual Survey 1987
Export Sales to US as % of Net Sales
% of Net Sales
60
50
40
30
20
10
0
1985
1986
1987
1988
1989
1990
1991
To US Govt.
To US Aero
To US Other
Total US
Chart 6 B
Dec. 1 1987

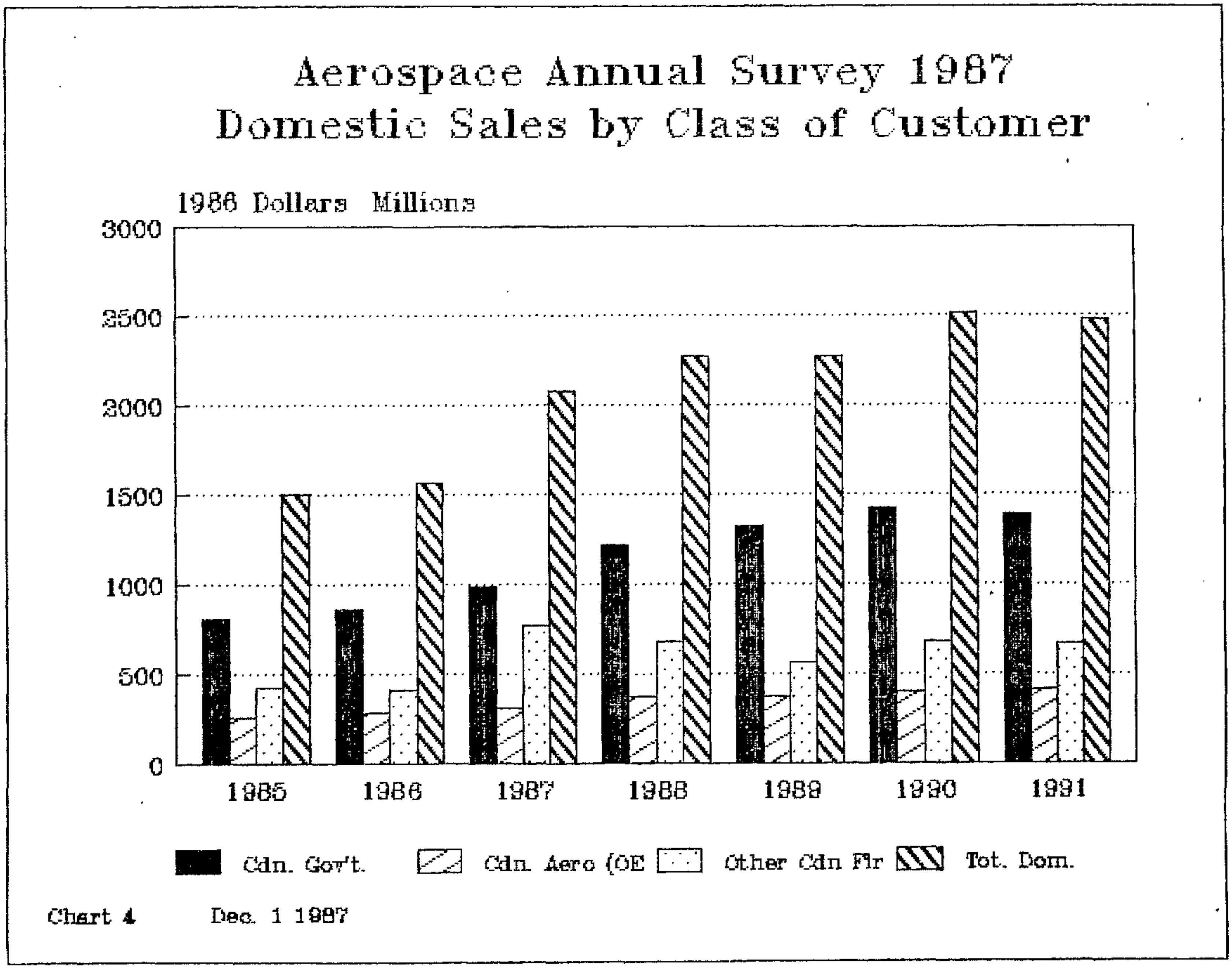

Aerospace Annual Survey 1987
Exports to US as % Total Export Sales
% of Total Export Sales
100
80
60
40
20
0
1985
1986
1987
1988
1989
1990
1991
To US Govt.
To US Aero
To US Other
Total US
Chart 6 C
Dec. 1 1987

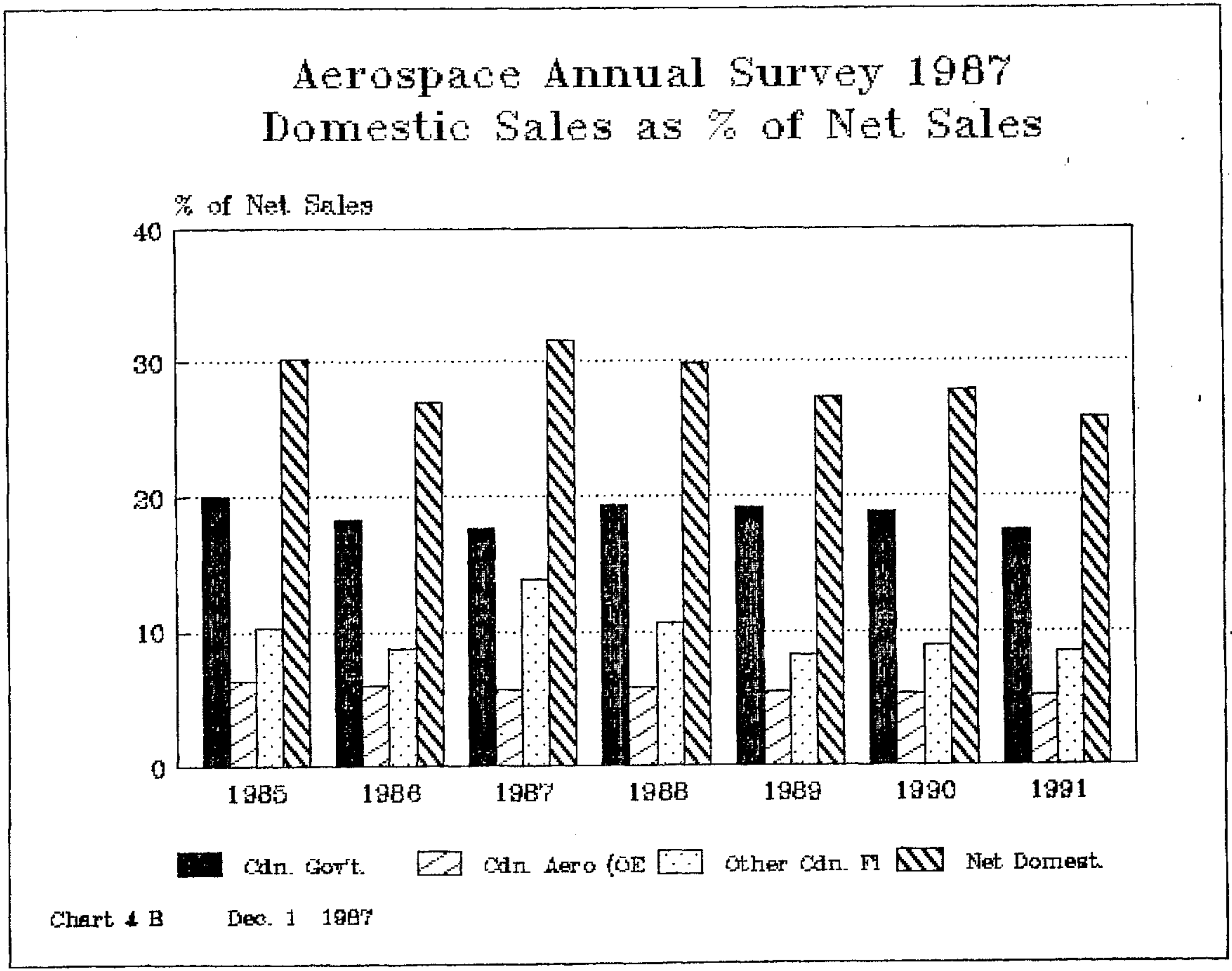


Aerospace Annual Survey 1987
Export Sales to Non-US Customers
1986 Dollars Millions
2500
2000
1500
1000
500
0
1985
1986
1987
1988
1989
1990
1991
Government.
Aero Firms
Other Firms
Tot.– Non US
Chart 7
Dec.1 1987

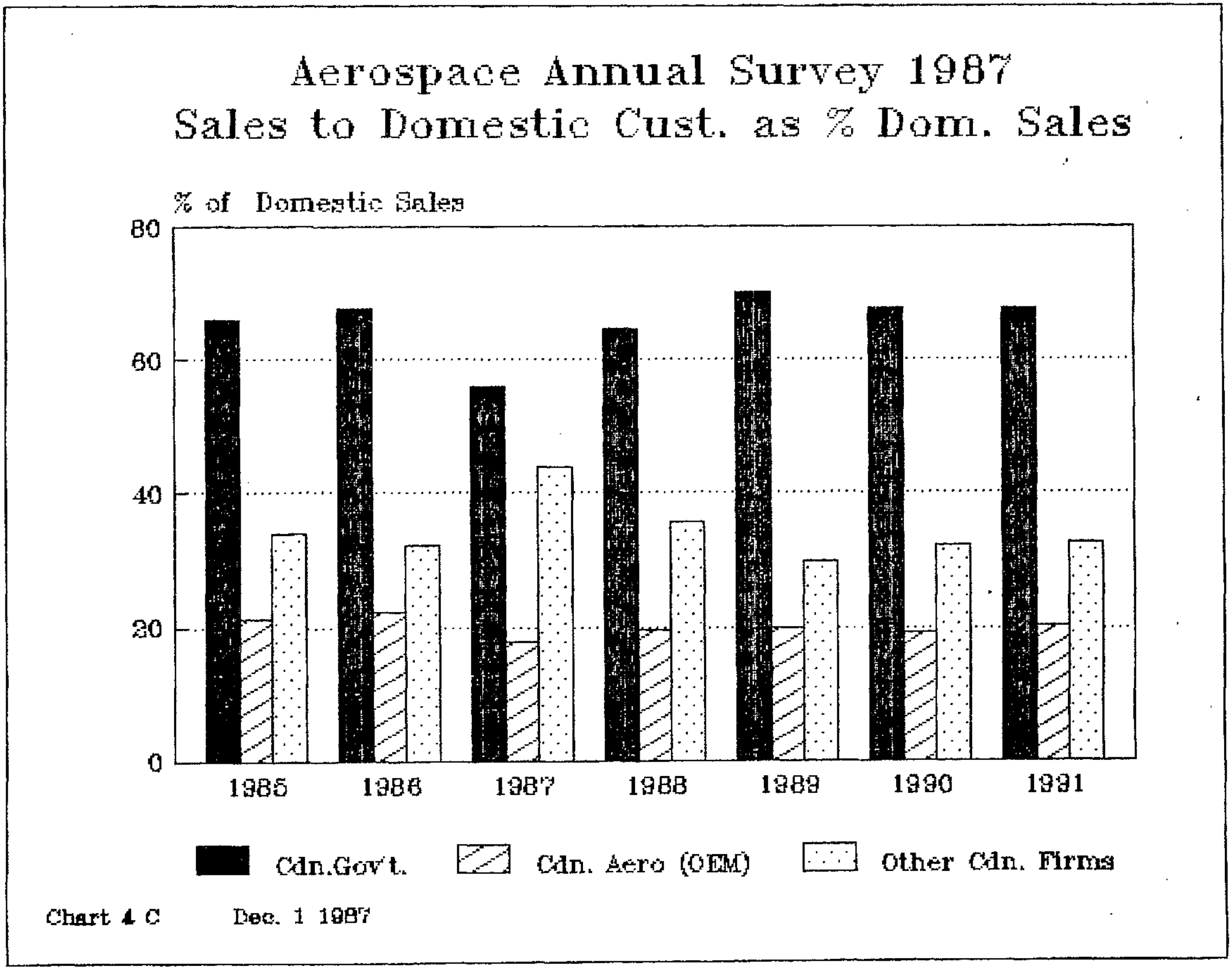

Aerospace Annual Survey 1987
Non-US Export Sales as % of Net Sales
% of Net Sales
30
25
20
15
10
5
0
1985
1986
1987
1988
1989
1990
1991
Government
Aero Firms
Other Firms
Total Non US
Chart 7 B
Dec. 1 1987


Aerospace Annual Survey 1987
Non-US Exports as % Total Export Sales
% of Total Export Sales
40
30
20
10
0
1985
1986
1987
1988
1989
1990
1991
Government
Aero Firms
Other Firms
Total Non-US
Chart 7 C
Dec. 1 1987


Aerospace Annual Survey 1987
Domestic Sales by Class of Customer
1986 Dollars Millions
3000
2500
2000
1500
1000
500
0
1985
1986
1987
1988
1989
1990
1991
Cdn. Gov't.
Cdn. Aero (OE
Other Cdn Fir
Tot. Dom.
Chart 4
Dec. 1 1987



Aerospace Annual Survey 1987
Domestic Sales as % of Net Sales
% of Net Sales
40
30
20
10
0
1985
1986
1987
1988
1989
1990
1991
Cdn. Gov't.
Cdn. Aero (OE
Other Cdn. Fi
Net Domest.
Chart 4 B
Dec. 1 1987


Aerospace Annual Survey 1987
Sales to Domestic Cust. as % Dom. Sales
% of Domestic Sales
80
60
40
20
0
1985
1986
1987
1988
1989
1990
1991
Cdn.Gov't.
Cdn. Aero (OEM)
Other Cdn. Firms
Chart 4 C
Dec. 1 1987

3.0 SECTOR SALES BY PRODUCT LINE

3.1 PROPRIETARY PRODUCT SALES - totalled $2899. million in 1986, up 18.2 % from the 1985 level of $2453 million. This represented 61.3 % of Net Sales in 1986, and is forecast to equate to 65.96 % by 1991 as Proprietary Product Sales continue to grow at a compound rate of 12.6 % per year. The AIAC/DRIE Memorandum of Understanding seeks an improvement in the "Quality of Sales" and as a target,requires that Proprietary Product Sales(as a percentage of Net Sales) shall increase by 1% per year. The rate of increase was 2 % in 1986 and is forecast to maintain an annual growth rate of 1.5% (compounded) for the period 1986 through 1991, comfortably above the target.

3.2 SUB CONTRACT SALES - for 1986 totalled $980.8 million, 24.1 % above the $790.2 million which was achieved in 1985. This equates to 20.8 % of Net Sales in 1986, but will decline to 17.9 % by 1991 even though, in dollar terms, Sub-Contract Sales will increase at an annual rate of 7.7 % (compounded) over the same period.

3.3 AGENCY SALES - also show growth in dollar value, but decline as a percentage of Net Sales through 1991. Agency Sales of $197.5 million were reported in 1986,this is down 14 % from the 1985 level of $229.6 million. The growth rate is forecast to improve and achieve an overall rate of 7.2 % (compounded) through 1991. Agency Sales represented 4.2 % of Net Sales in 1986, and are forecast to equate to 3.5 % by 1991.

3.4 REPAIR and OVERHAUL SALES - Totalled $ 648.9 million, up 7.1 % from the 1985 level of $ 605.7 million. They will grow at an average annual rate of 9.2 %, and will reach $ 1.0 billion by 1991.

3.5 SPARE PARTS SALES - totalled $517.5 million in 1986, and are forecast to increase at a compound rate of 8.4 % through 1991 to reach $ 774.6 million. They represent approximately 10 % of Net Sales through this period.

Aerospace Annual Survey 1987
Sales by Product Line

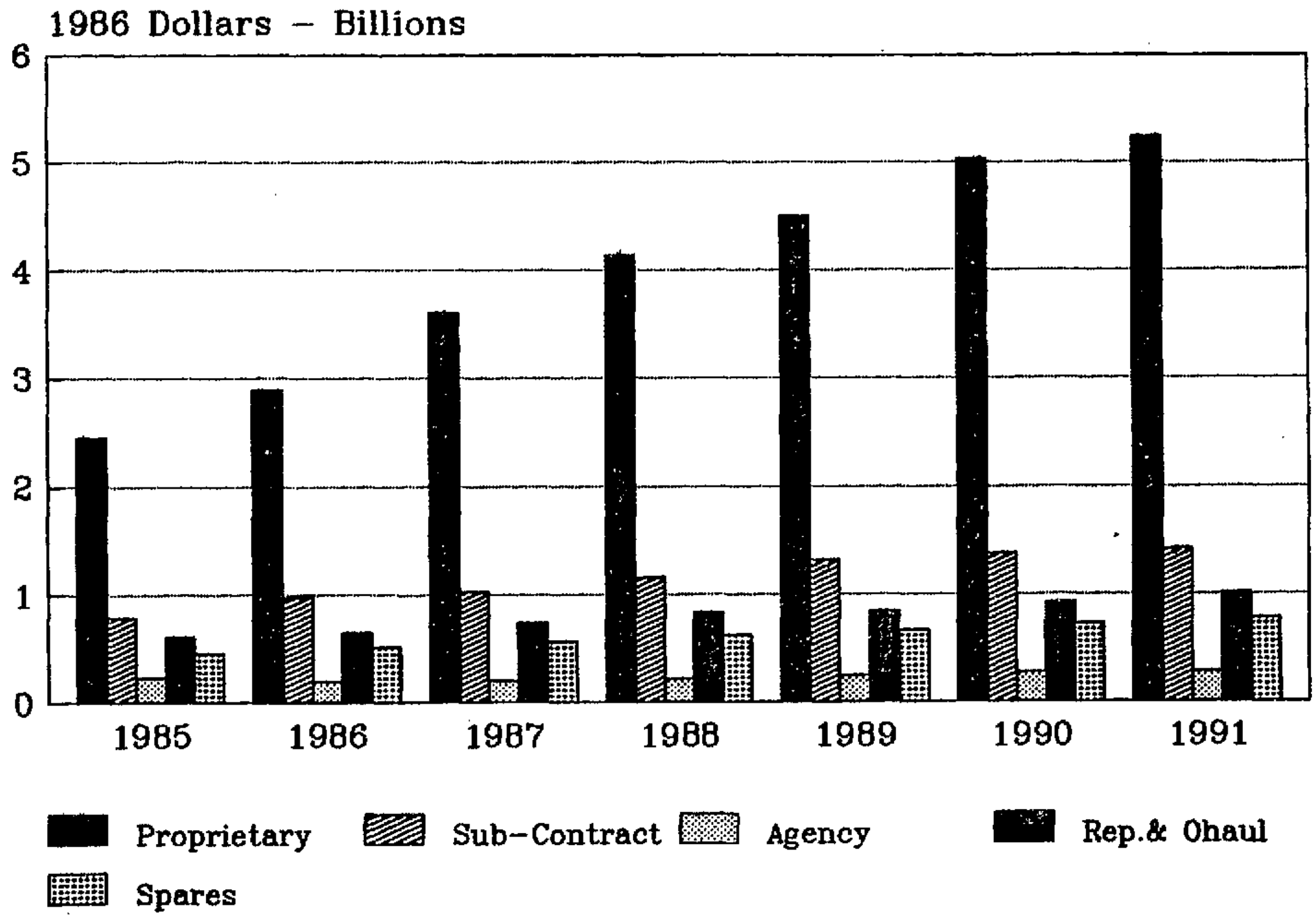


Chart 3 **Dec. 1 1987**

Aerospace Annual Survey 1987
Sales by Product Line as % of Net Sales

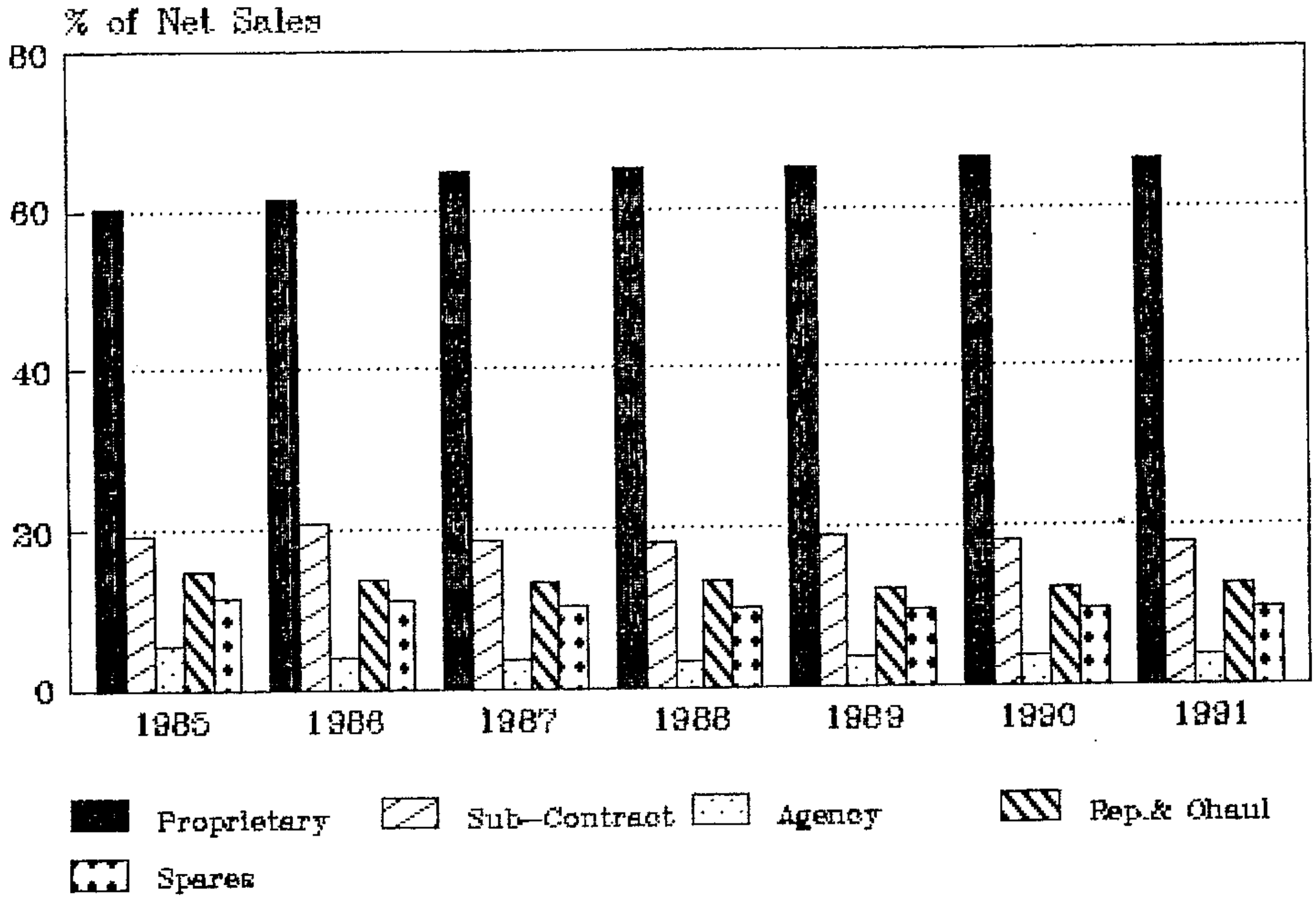


Chart 2 B Dec. 1 1987

4.0 COST OF SALES

Cost of Sales - for 1986 was reported as $4286.5 million, 90.7 % of the value of Net Sales. Although the cost is forecast to increase at a compound rate of 9.53 % through 1991,it is also forecast to decline as a percentage of Net Sales, reaching 85 % by 1991.

4.1 CANADIAN MATERALS

CANADIAN MATERALS - valued at $633.5 million were procured in 1986 up 23.7 % from the 1985 level of $512.2. It is forecast to increase at a compound rate of 12.9 % to reach $ 1161.1 milion by 1991. This represents 14.8 % of the Total Cost of Sales.It is expected to remain in the 15 - 17% range through 1991. This is approximately 32% of the total cost of materials and will range between 13.5 and 14.6 % of Sector (Net) Sales through the 1986-1991 period.

4.2 U.S. Materials

U.S. Materials - valued at $1237.8 million in 1986, represented 28.9 % of Total Cost Of Sales. It is forecast to remain between 28 and 29.8% through 1991, equating to approximately 63% of the Total Cost of Material. US Materials Cost equated to 26.2 % of Net Sales in 1986, and will equate to 24.7 % in 1991. The Dollar value of US Materials in 1991 is expected to be $ 1966.5 million.

4.3 TARIFFS and DUTIES

TARIFFS and DUTIES - at $6.7 million in 1986 represented less than 0.1% of Total Cost of Sales and averaged less than 0.15 % the Total Cost of Materials. These averages hold true through 1991. The value in 1986 was $ 6.7 million. By 1991 it is expected to approximate $ 8.0 million.

4.4 PERSONNEL COST

PERSONNEL COST - (Labour) as a percentage of Cost of Sales is forecast to decline. Labour cost was reported as $1734.6 million in 1986, and is forecast to increase at the compound rate of 7.75 % per year to reach $ 2519.1 million in 1991. It represented 40.5% of the Total Cost of Sales in 1986 and is forecast to decline to 37.3% by 1991. These levels equate to 36.7 and 31.7 % of the value of Sector (Net) Sales respectively.

4.5 TRAINING COST - reported as $28.9 million in 1986 represented 0.67% of Total Cost of Sales. The forecast training costs exhibit some inconsistency from year to year, but show an overall (compound) growth rate of 4.7% per year through 1991, when they are expected to reach $ 36.5 million. This is well in excess of the M.O.U. Target growth rate of 1% per year, but Training expenditures will represent less than one half of one percent of Net Sales through 1991.

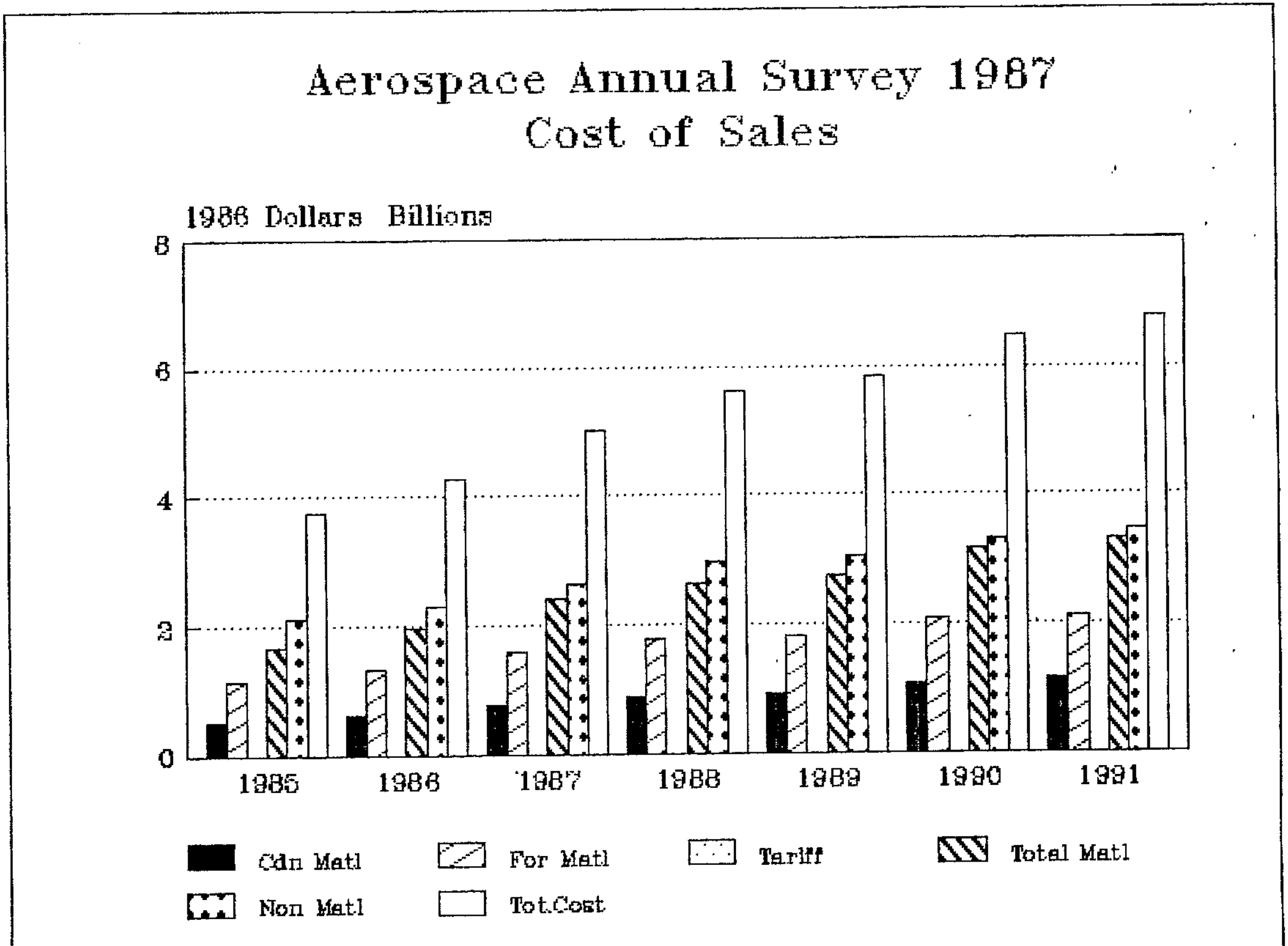

Aerospace Annual Survey 1987
Cost of Sales
1986 Dollars Billions
8
6
4
2
0
1985
1986
1987
1988
1989
1990
1991
Cdn Matl
For Matl
Tariff
Total Matl
Non Matl
Tot.Cost

Chart 9

Aerospace Annual Survey 1987
Cost of Sales as % of Net Sales

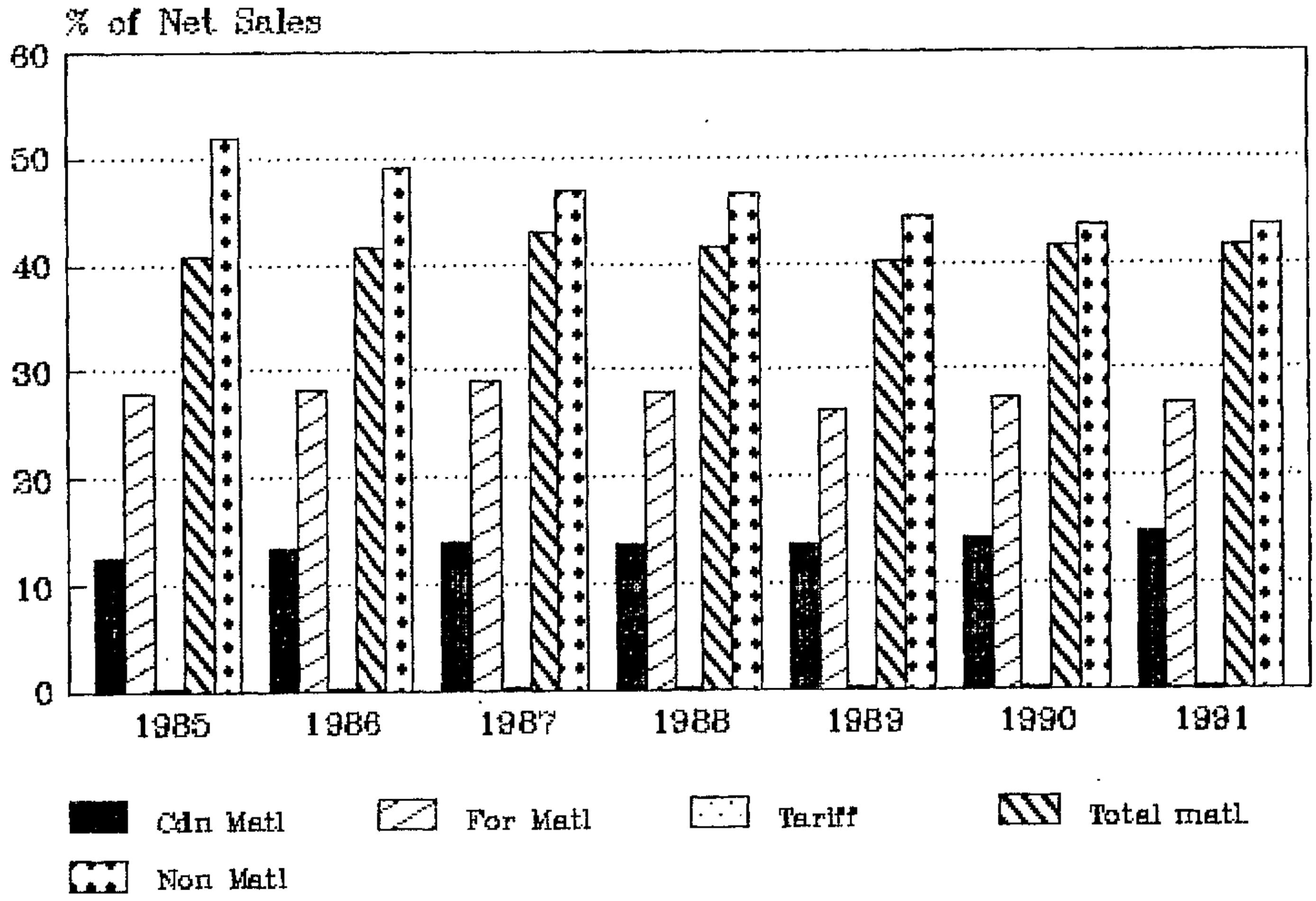


Chart 9 B Dec. 1 1987

Aerospace Annual Survey 1987
Cost of Sales as % Tot. Cost of Sales

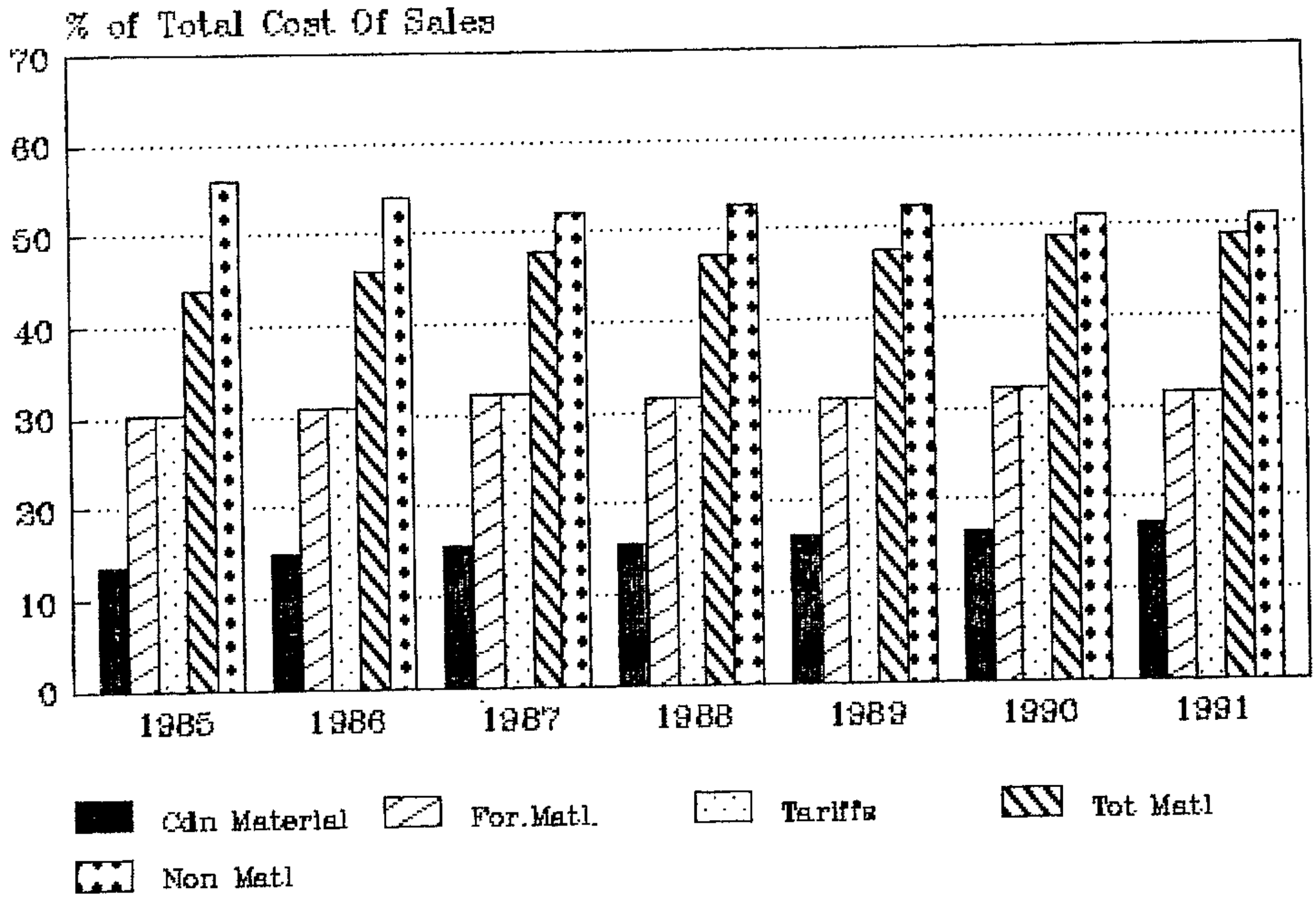


Chart 9 C   Dec. 1 1987

38

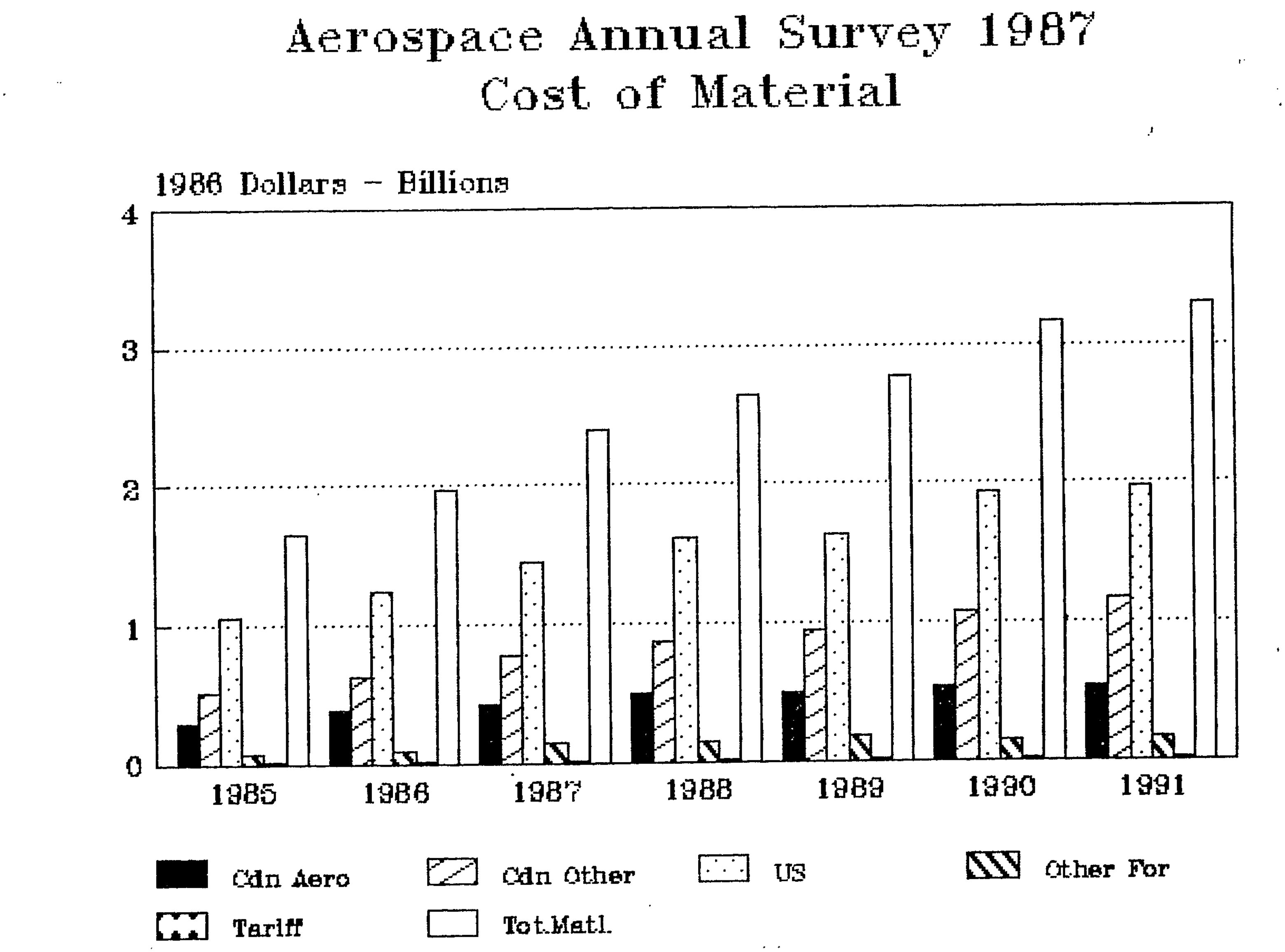


Chart 10 Dec. 1 1987

Aerospace Annual Survey 1987
Cost of Material as % of Net Sales

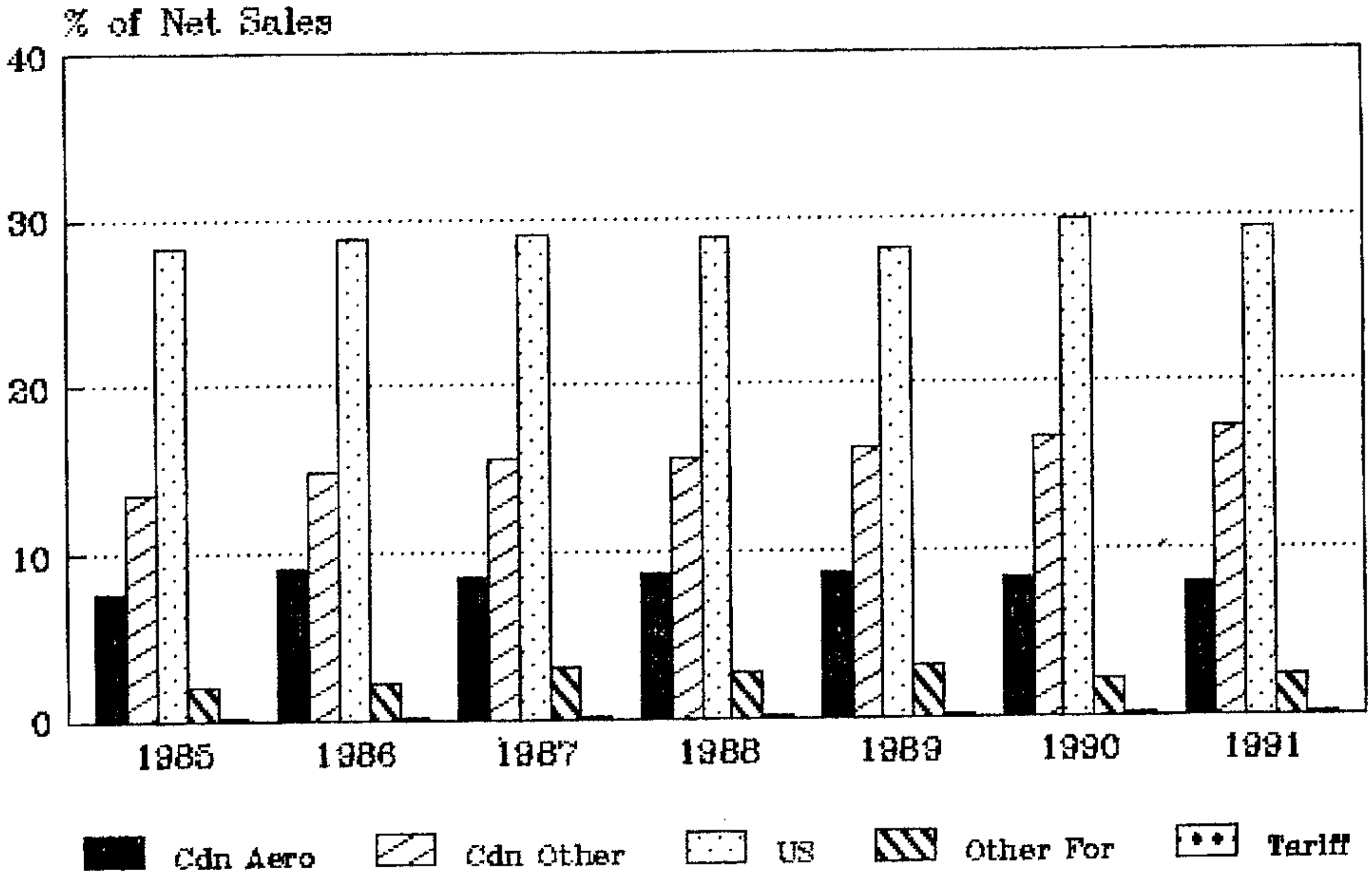
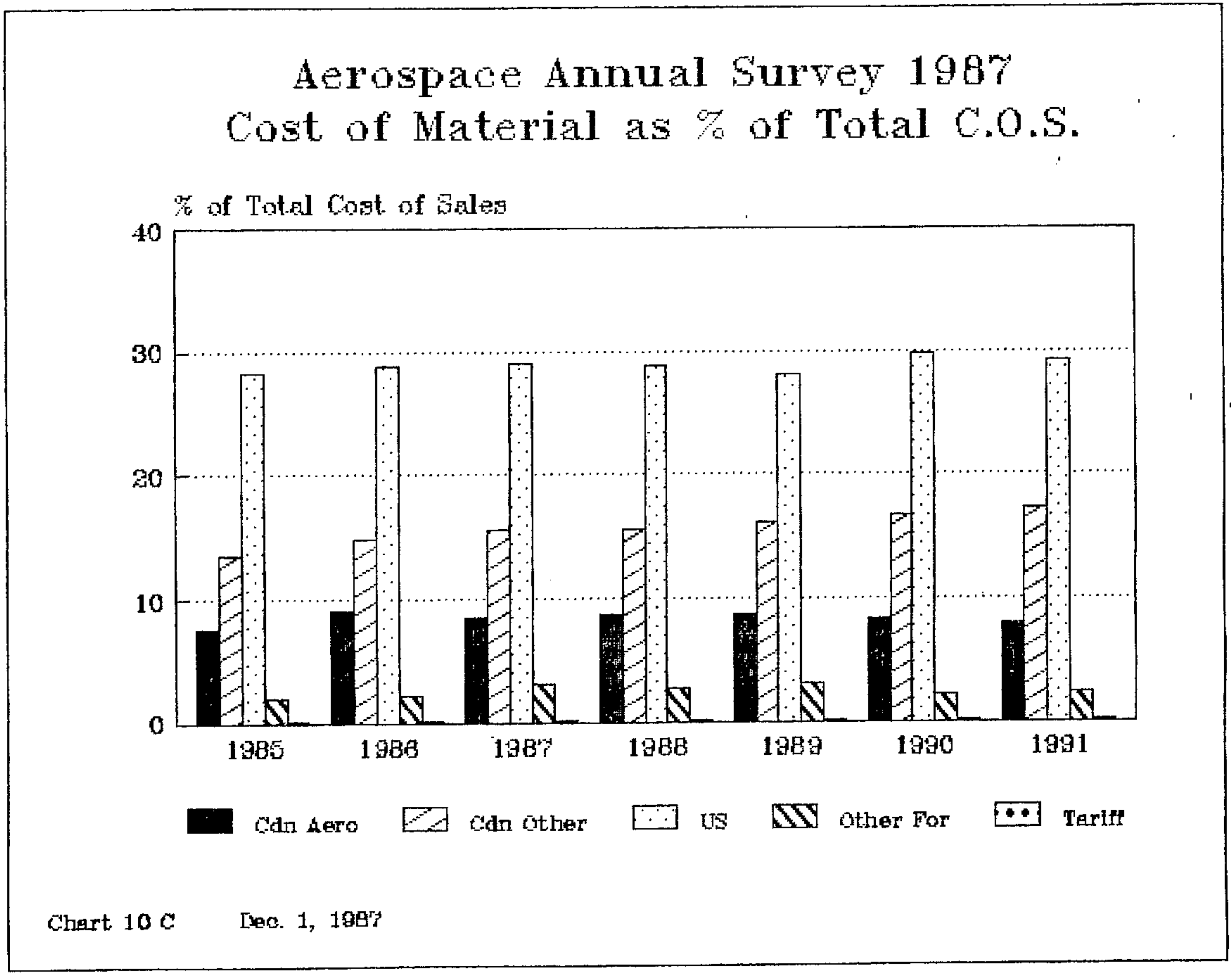
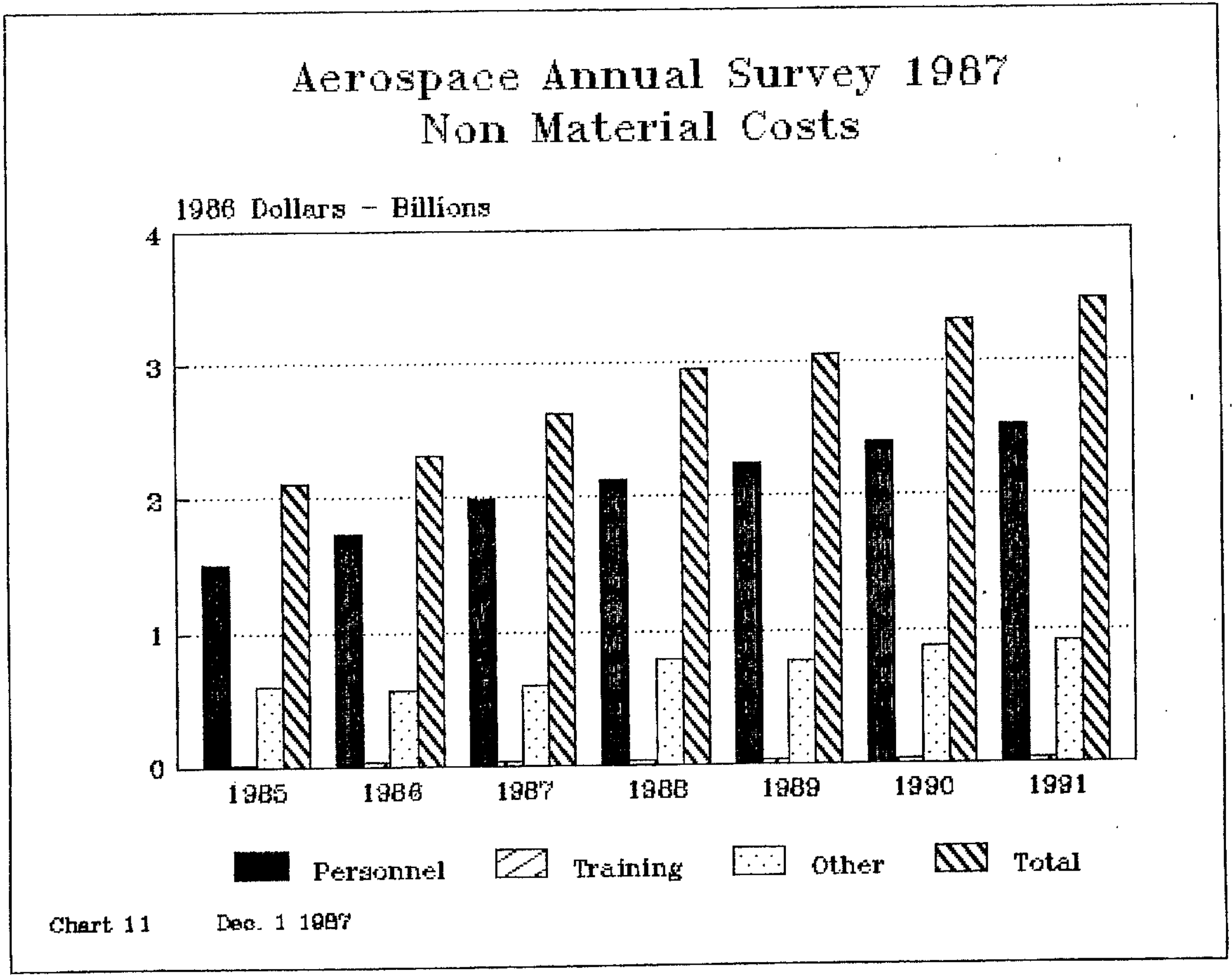


Chart 10 B


Aerospace Annual Survey 1987
Cost of Material as % of Total C.O.S.
% of Total Cost of Sales
40
30
20
10
0
1985
1986
1987
1988
1989
1990
1991
Cdn Aero
Cdn Other
US
Other For
Tariff
Chart 10 C
Dec. 1, 1987


Aerospace Annual Survey 1987
Non Material Costs
1986 Dollars - Billions
4
3
2
1
0
1985
1986
1987
1988
1989
1990
1991
Personnel
Training
Other
Total
Chart 11
Dec. 1 1987

Aerospace Annual Survey 1987
Non Material Costs as % of Net Sales

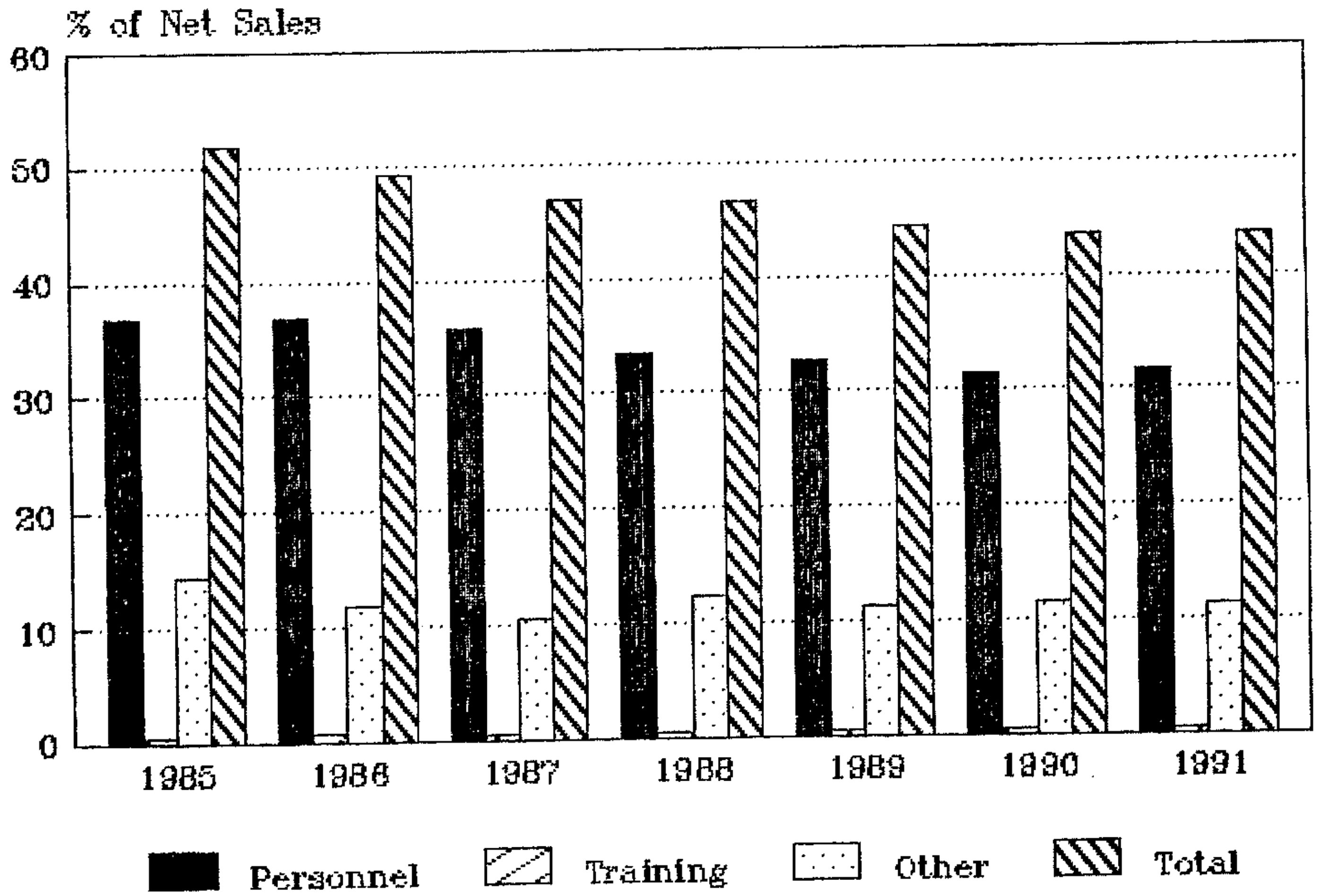
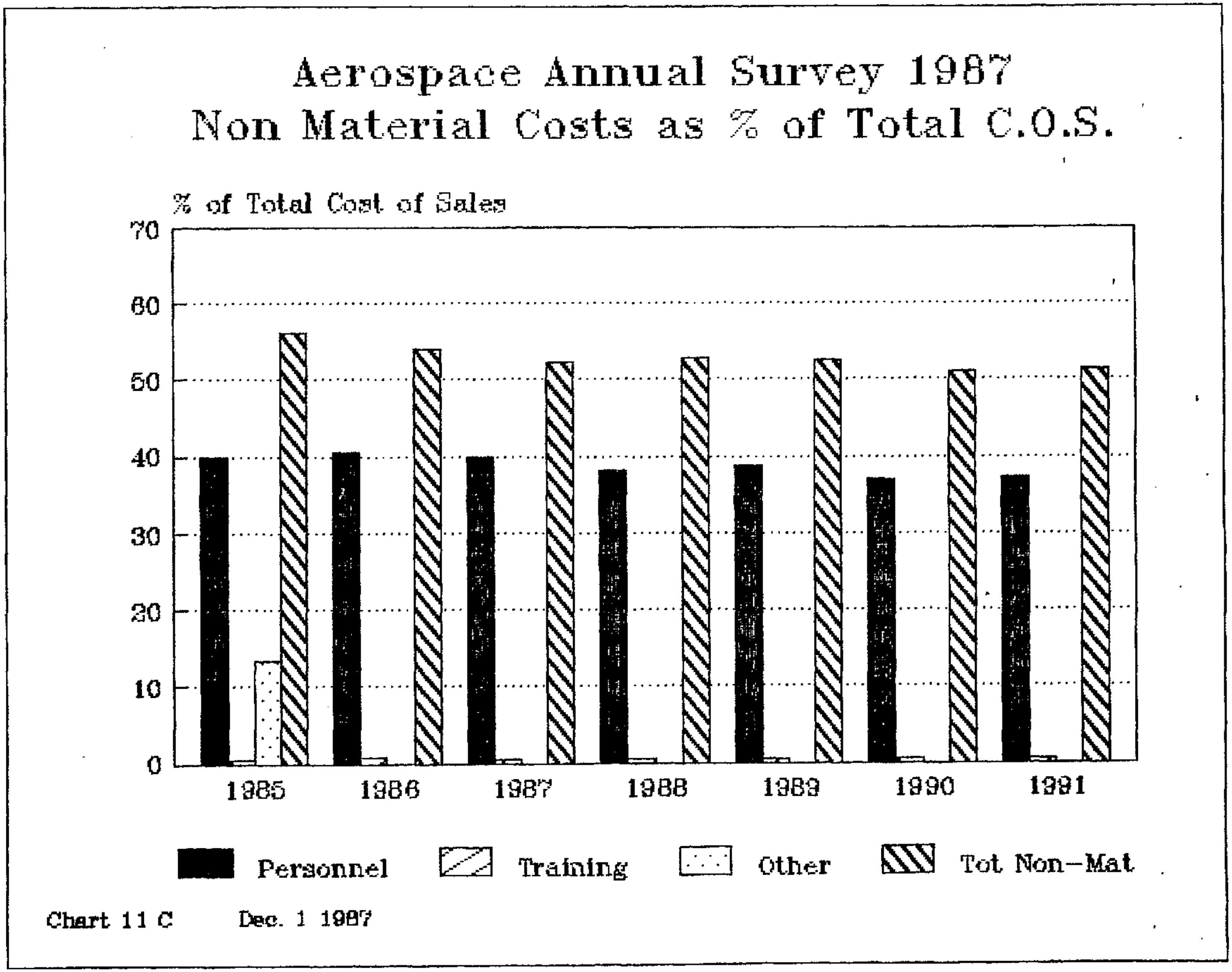


Chart 11 B Dec. 1 1987



Aerospace Annual Survey 1987
Non Material Costs as % of Total C.O.S.
% of Total Cost of Sales
70
60
50
40
30
20
10
0
1985
1986
1987
1988
1989
1990
1991
Personnel
Training
Other
Tot Non-Mat
Chart 11 C
Dec. 1 1987

5.0 SALES by SUB-SECTORS

Aerospace Sales were reported to be $4165 Million in 1986,up 16.3 % from the 1985 level of $ 3582.4 million. They are forecast to increase at the rate of 11 % per year through 1991.They constituted 88.2 % of Net Sales in 1986,and are expected to constitute 88.5 % in 1991.

5.1 AIRFRAME SUB-SECTOR SALES

The Airframe Sub-Sector is the largest, but is forecast to be the slowest growing of the Aerospace Sub-Sectors. Sales of $ 2004.2 Million in 1986 represented 42.4 % of the Net Sales for the Sector. The dollar value of Airframe Sales is forecast to increase at the compound rate of 9.3 % per year through 1991 to reach $3126.5 million in 1991, but Airframe Sales as a percentage of Sector Net Sales will decline from 42.4 % to 39.3 %

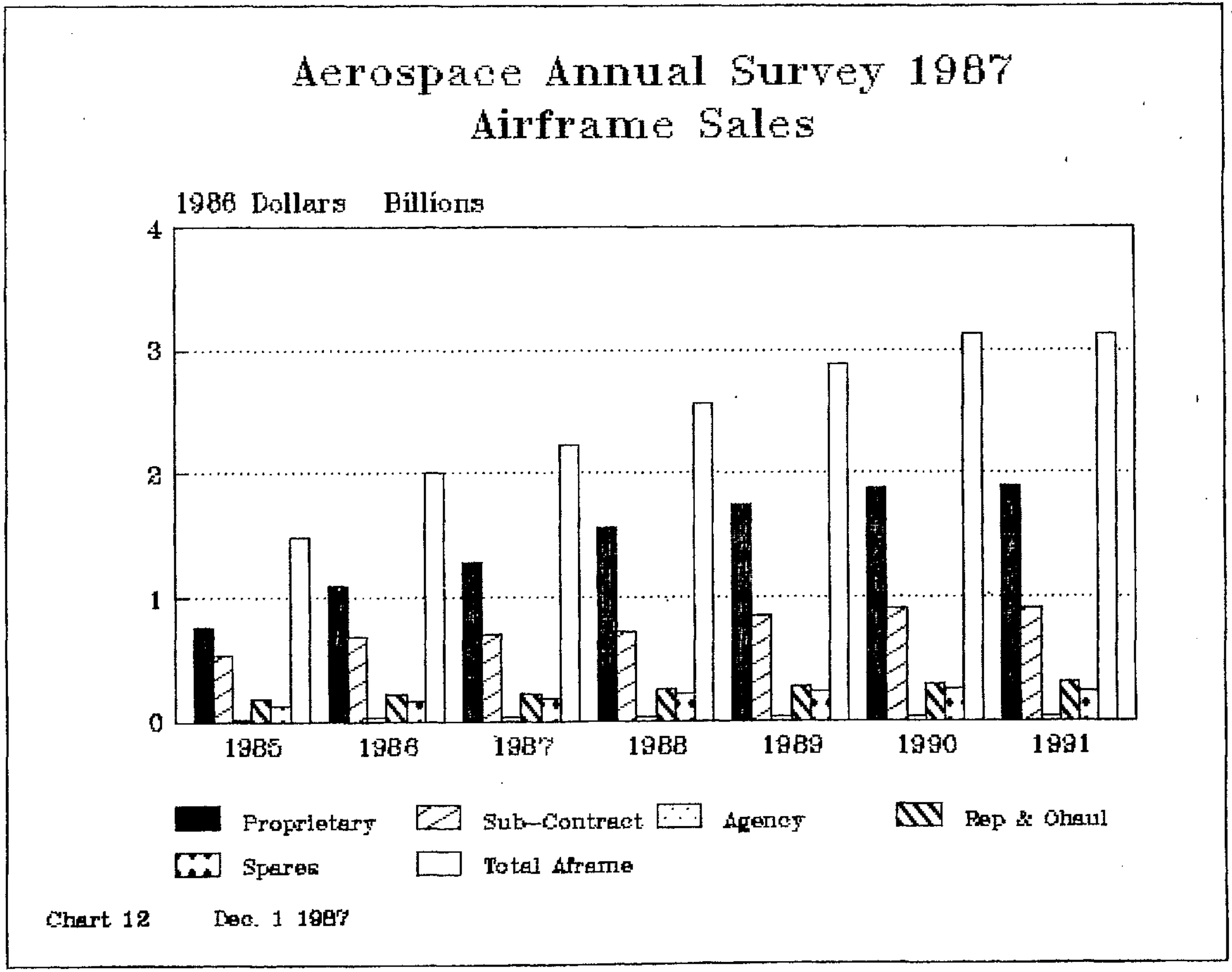
Airframe Proprietary Products - constitute the largest product group within the Airframe Sub-Sector. Sales in 1986 were reported at $ 1092.4 million, and are forecast to increase at the rate of 11.6 % per year,to reach $ 1888 million in 1991. These levels represent 23.1 % and 23.8 % of Sector (Net) Sales or 54.5 to 60.4 % of Airframe Sub-Sector Sales. The annual increase in Quality of Sales ie. Proprietary Products as a percentage of Sub-Sector Sales is 2.1 %, comfortably exceeding the M.O.U. Target for the Sector as a whole.

Airframe Sub-Contract Sales - constitute the second largest product group within the Aerospace Sub-Sector. Sales of $ 675.9 million were reported for 1986, and forecast to increase at 5.9 % per year to reach $ 902.1 million by 1991. Although the growth in sales volume is positive, Sub-Contract Sales as a percentage of Sector (Net) Sales decline from 14.3 % in 1986, to 11.4 % in 1991. Sub-Contract Sales represented 33.7 % of the sales in the Airframe Sub-Sector in 1986, but will fall to 28.8 % by the end of the period.

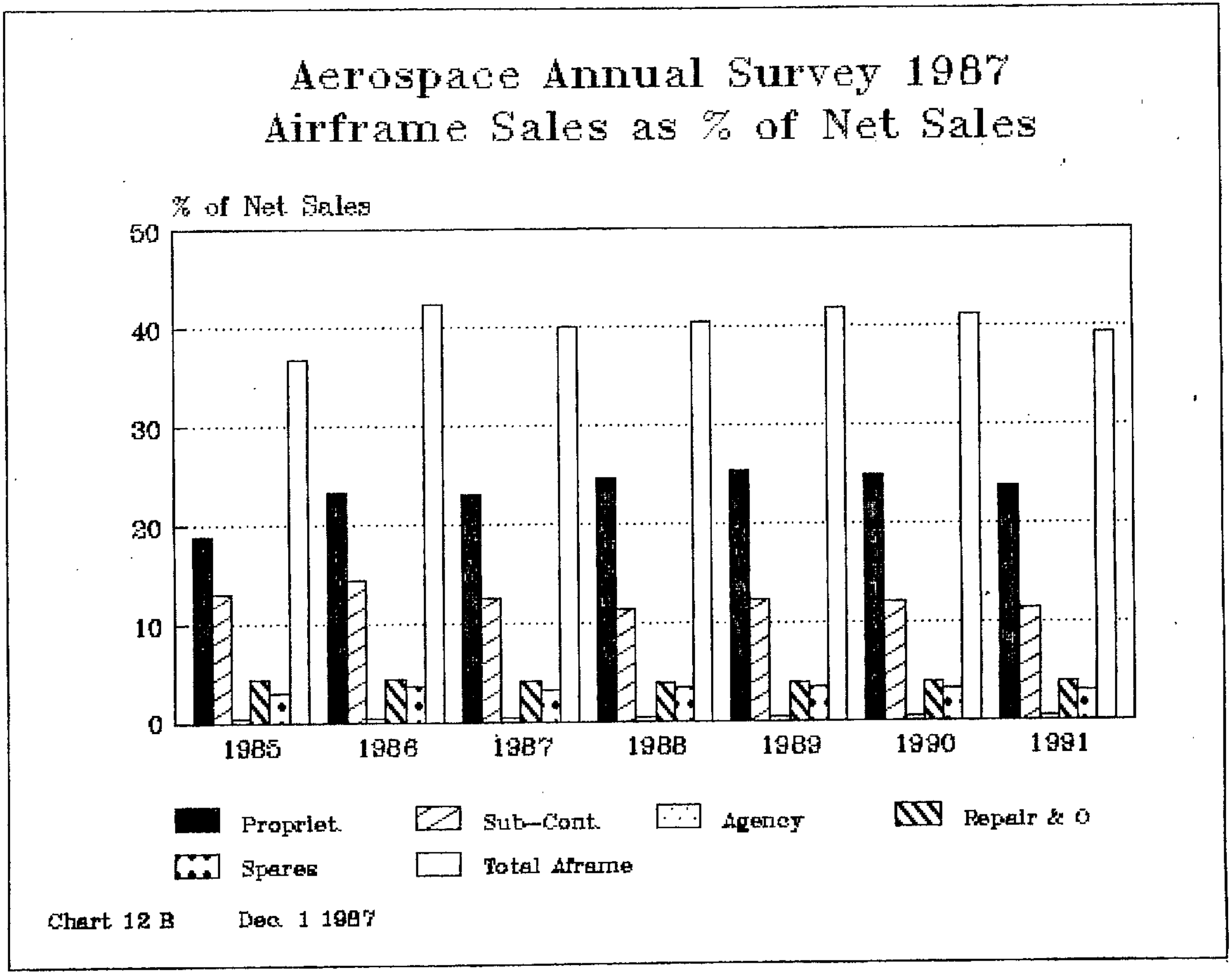
Airframe Agency Sales form only a minor portion of the sales in this sub-sector, averaging slightly more than 1 % of sub-sector Sales, and less than 0.5 % of Net Sales for the Sector as a whole. The dollar value was $ 25 million in 1986, and will reach $ 32 million by 1991, This equates to a growth rate of 5.1 % per year (compounded).

Airframe Repair and Overhaul Sales - were reported as $ 210.8 million in 1986, increasing at the compounded rate of 7.6 % per year to $ 304.5 million in 1991. This averages 10 % of Airframe Sub-Sector Sales or 4 % of Net Sales for the Industry Sector over the 1986-1991 period.

Airframe Spare Parts Sales - average approximately 8 % of Airframe Sub-Sector Sales or 3 % of Sector (Net) Sales, declining very slightly in both cases. The dollar value of Spare Parts Sales will increase from $ 171 million in 1986 to $ 241.3 million in 1991.



Aerospace Annual Survey 1987
Airframe Sales
1986 Dollars Billions
4
3
2
1
0
1985
1986
1987
1988
1989
1990
1991
Proprietary
Sub-Contract
Agency
Rep & Ohaul
Spares
Total Aframe
Chart 12
Dec. 1 1987


Aerospace Annual Survey 1987
Airframe Sales as % of Net Sales
% of Net Sales
50
40
30
20
10
0
1985
1986
1987
1988
1989
1990
1991
Propriet.
Sub–Cont.
Agency
Repair & O
Spares
Total Aframe
Chart 12 B
Dec. 1 1987

Aerospace Annual Survey 1987
Airframe Prod. as % Tot. Airframe Sales

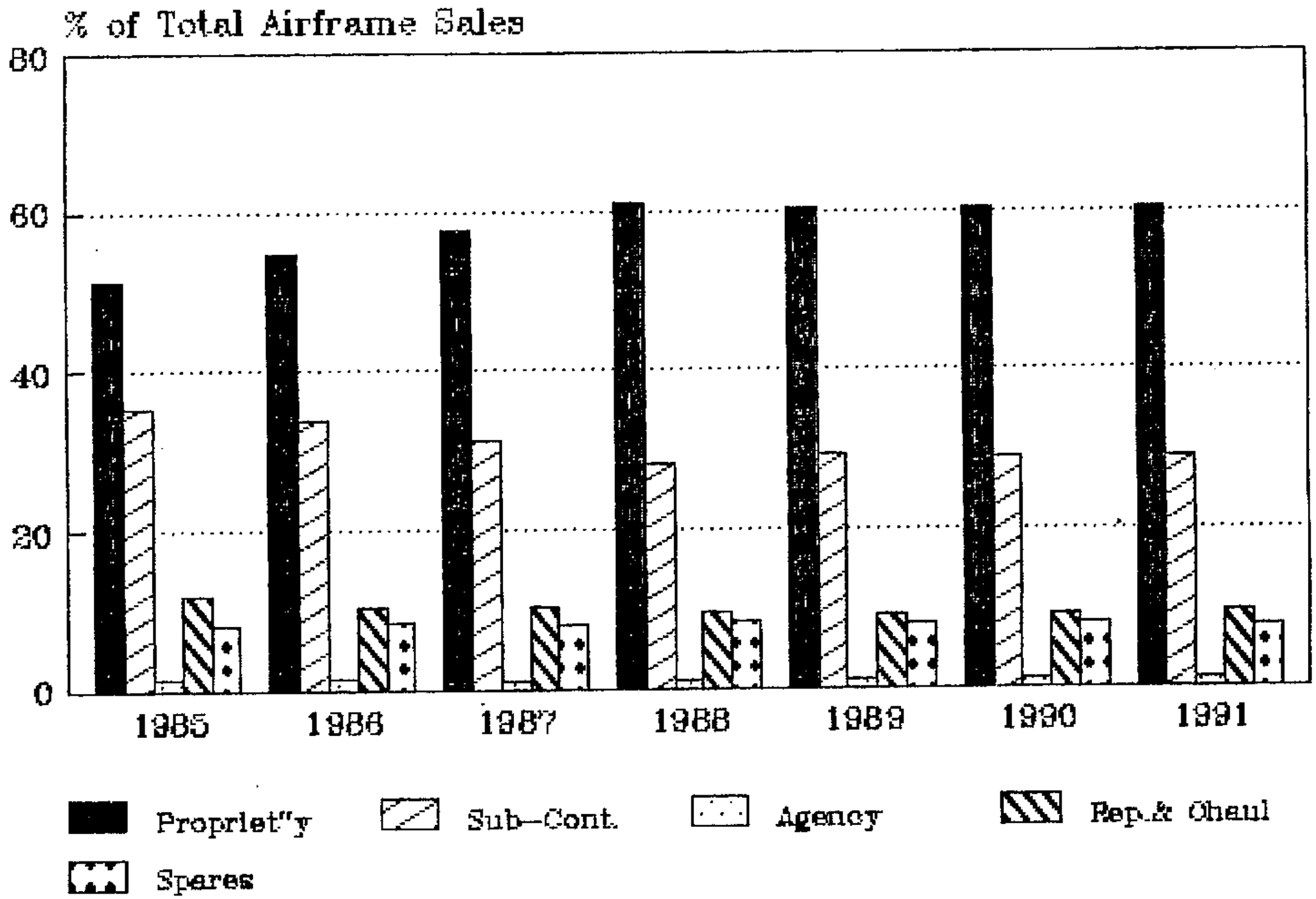


Chart 12 C   Dec. 1 1987

5.2 PROPULSION SUB-SECTOR SALES

Propulsion is the second largest and second fastest growing sub-sector of the Aerospace Industry. Sales for 1986 were reported as $ 1247.2 million and are forecast to increase at the compound rate 11.7 % per year, to reach $ 2168.3 million by 1991.This is marginally higher growth than that reported for the Aerospace Sector as a whole.The Propulsion Sub-Sector Sales represented 26.4 % of Sector (Net) Sales in 1986,and will represent 27.3 % in 1991.

Propulsion Proprietary Products - the fastest growing product group in this Sub-Sector, reported sales of $642.1 million in 1986, and is forecast to grow at 14.4 % per year to reach $ 1258.1 million by 1991. As percentages of Sector (Net) Sales, these values equate to 13.6 and 15.8 % respectively. Proprietary Product Sales comprised 51.5 % of Propulsion Sub-Sector Sales in 1986, and are forecast to comprise 58.0 % in 1991, giving an annual increase of 2.4 % per year (compounded) in the "Quality of Sales". This exceeds the 1 % per year target established for the Aerospace Sector as a whole.

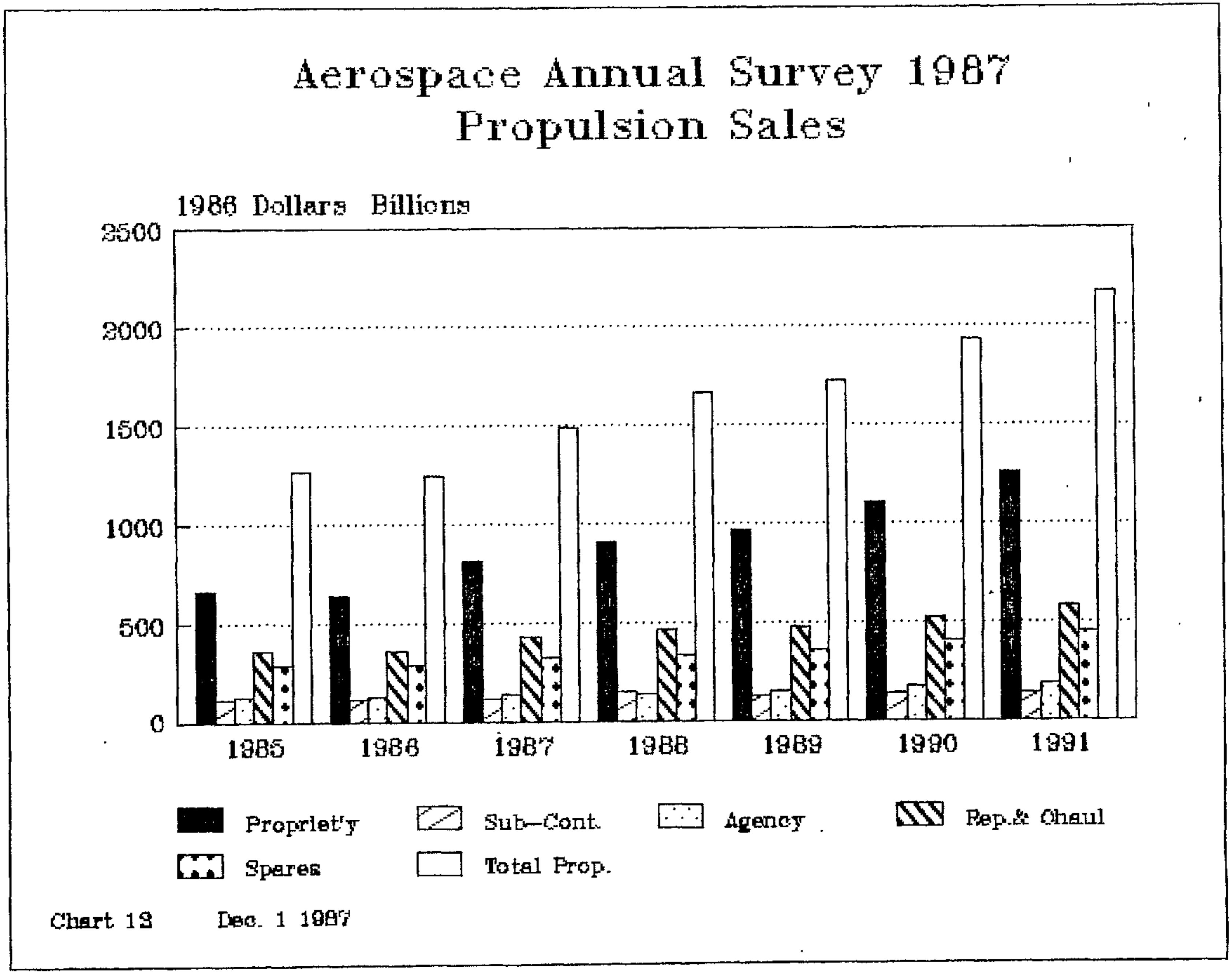
Propulsion Sub-Contract Sales - rank lowest of the four product lines in this sub-sector. 1986 sales of $117.5 million are forecast to grow at a compound rate of 3.9 % annually,to reach $ 142.4 million by 1991. This equates to 2.5 % of Sector (Net) Sales in 1986,and 1.8 % in 1991. As percentages of Propulsion Sales, these equate to 9.4 and 6.6 % respectively.

Propulsion Agency Sales - rank third in importance in this Sub-Sector. Sales of $ 124.1 million in 1986, are forecast to increase at the compound rate of 8.5 % per year to reach $ 186.4 million by 1991. On average Agency Sales represent 2.25 % of Sector (Net) Sales, or 8.5 % of Propulsion Sub-Sector Sales.

Propulsion Repair and Overhaul - is the second ranking product line in this sub-sector, with sales of $ 363.5 million in 1986, increasing at an annual rate of 9.9 % (compounded) to reach $ 581.4 in 1991. This equates to 7.7 % of Sector (Net) Sales in 1986, and 7.3 % in 1991.

Repair and Overhaul Sales decline from 29.1 % to 26.8 % of Propulsion Sub-sector Sales over the period.

Propulsion Spare Parts - represent approximately 21 % of Propulsion Sub-sector Sales, or 5 .5 % of Sector (Net) Sales. The trend in relation to Sub-sector Sales is slightly negative, and in relation to Sector Sales it is flat. Dollar value was $ 285 million in 1986, and is forecast to reach $ 447.6 million by 1991.


Aerospace Annual Survey 1987
Propulsion Sales
1986 Dollars Billions
2500
2000
1500
1000
500
0
1985
1986
1987
1988
1989
1990
1991
Propriet'y
Sub-Cont.
Agency
Rep.& Ohaul
Spares
Total Prop.
Chart 12
Dec. 1 1987

Aerospace Annual Survey 1987
Propulsion Sales as % Tot. Prop. Sales

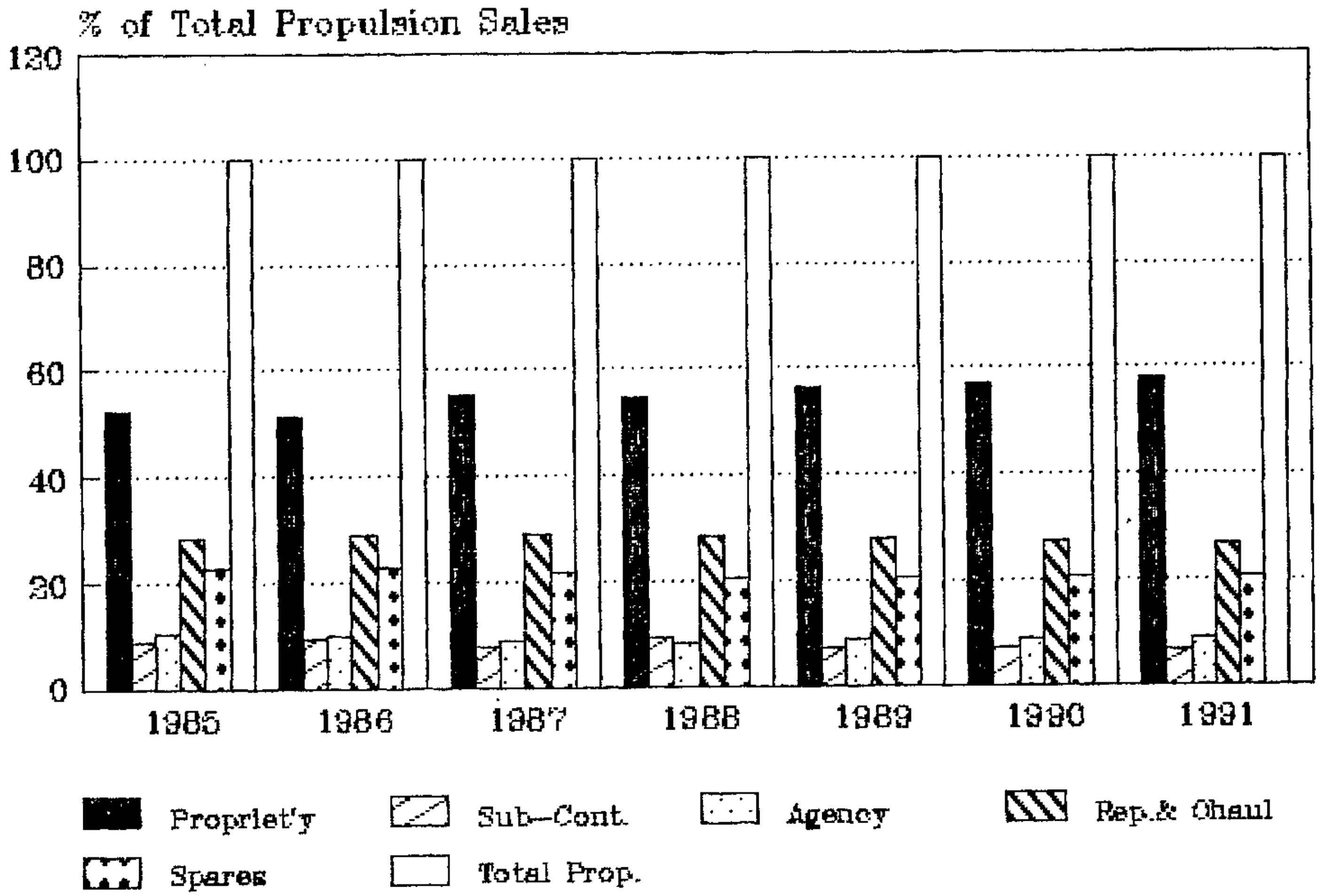
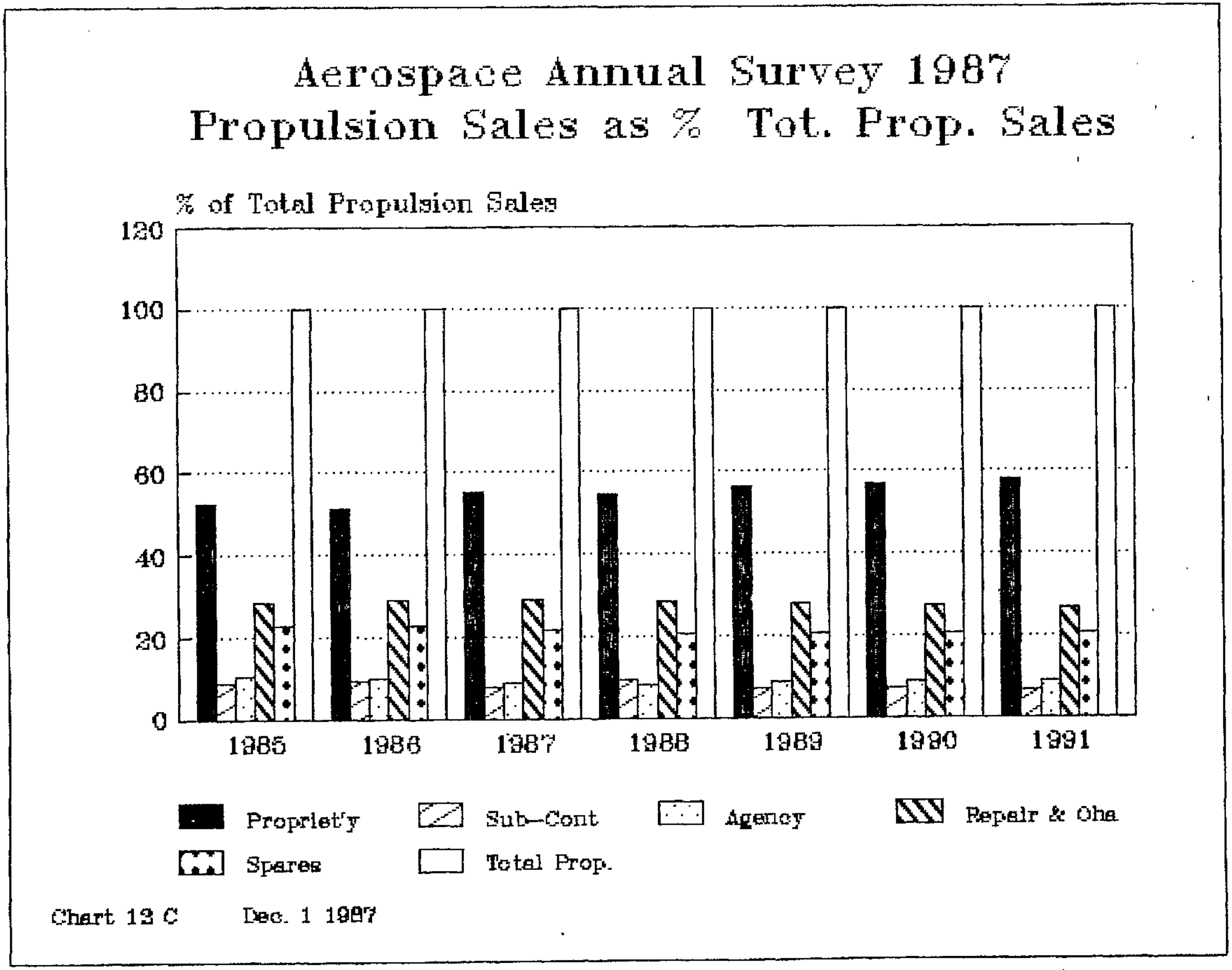


Chart 12 B Dec. 1 1987


Aerospace Annual Survey 1987
Propulsion Sales as % Tot. Prop. Sales
% of Total Propulsion Sales
120
100
80
60
40
20
0
1985
1986
1987
1988
1989
1990
1991
Propriet'y
Sub-Cont
Agency
Repair & Ohs
Spares
Total Prop.
Chart 13 C
Dec. 1 1987

5.3 AVIONICS SUB-SECTOR SALES

The Avionics Sub-Sector is the third ranking sub-sector within the Aerospace Sector, both in terms of sales volume and forecast rate of growth in sales volume. Sales of $ 613.7 million in 1986 are expected to grow at 9.6 % per year, (compounded)to reach $1119.5 million by 1991. Avionics Sale represented 15 % of Sector (NET) Sales in 1986, but will represent only 14 % by the end of the period as the Propulsion Sub-Sector gains a larger share of Sector activity.

Avionics Proprietary Products - is the most significant product line in this Sub-sector, representing between 86.8 % (1986) and 87.6 % (1991) of Avionics Sales. Reported sales of $ 613.7 in 1986,are forecast to grow at the compound rate of 9.6 % per year to reach $ 980.8 million by 1991. These levels represent 13 % of Sector (Net) Sales in 1986, declining to 12.3 % by 1991.

The improvement in "Quality of Sales" (Proprietary Products as a percentage of Avionics Sales) is calculated to be 0.2 % compounded, well below the sector target of 1 % per year.

Avionics Sub-Contract Sales - is the third ranking product line in this Sub-Sector. Sales of $ 24.59 million in 1986 are forecast to increase at the compound rate of 10.4 % to reach$ 40.25 million by 1991. In relation to Sector (Net) Sales the trend line is flat, averaging 0.5% this is also the case in relation to Avionics Sub-Sector Sales where it averages approximately 3.5 % over the period.

Avionics Agency Sales - is the fourth ranking product line in the Avionics Sub-Sector. Sales of $ 17.3 million reported in 1986 are forecast to increase at the compoundrate of 3.9 % annually reaching $ 20.1 by 1991. Agency Sales represent less than 0.3 % of Sector (Net) Sales, and between 2.4 % (1986) and 1.9 % (1991) of Avionics Sub-Sector Sales.

Avionics Repair and Overhaul - is the second ranking Avionics product line in volume, but ranks third in growth rate. Sales of $ 51.3 million were reported for 1986, and are forecast to grow at 8.6 % per year (compounded) to reach $ 77.5 million by 1991. It represents approximately 6.75 % of Avionics Sub-Sector Sales and 1 % of Sector (Net) Sales over the survey period. The trend in relation to Sector and Sub-Sector Sales is flat.

Avionics Spare Parts Sales - constitute approximately 5.25 % of Avionics Sub-Sector Sales or 0.75 % of Sector (Net) Sales. The trend is flat in both cases. Dollar value of Spares Sales was $ 41.2 million in 1986, $ 60 million in 1991, the annual growth rate is 7.8 % (compounded).

Aerospace Annual Survey 1987
Avionics Sales

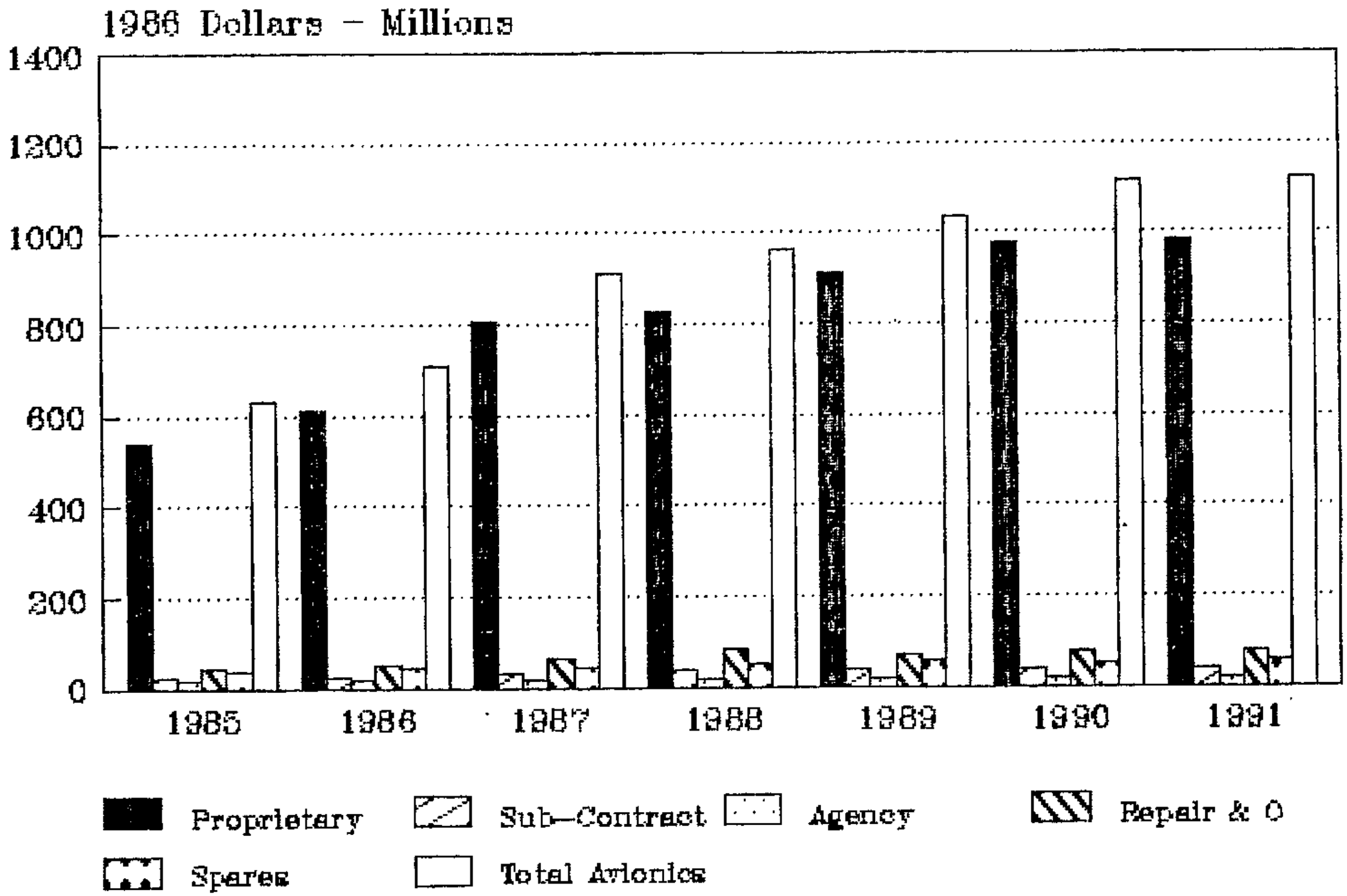
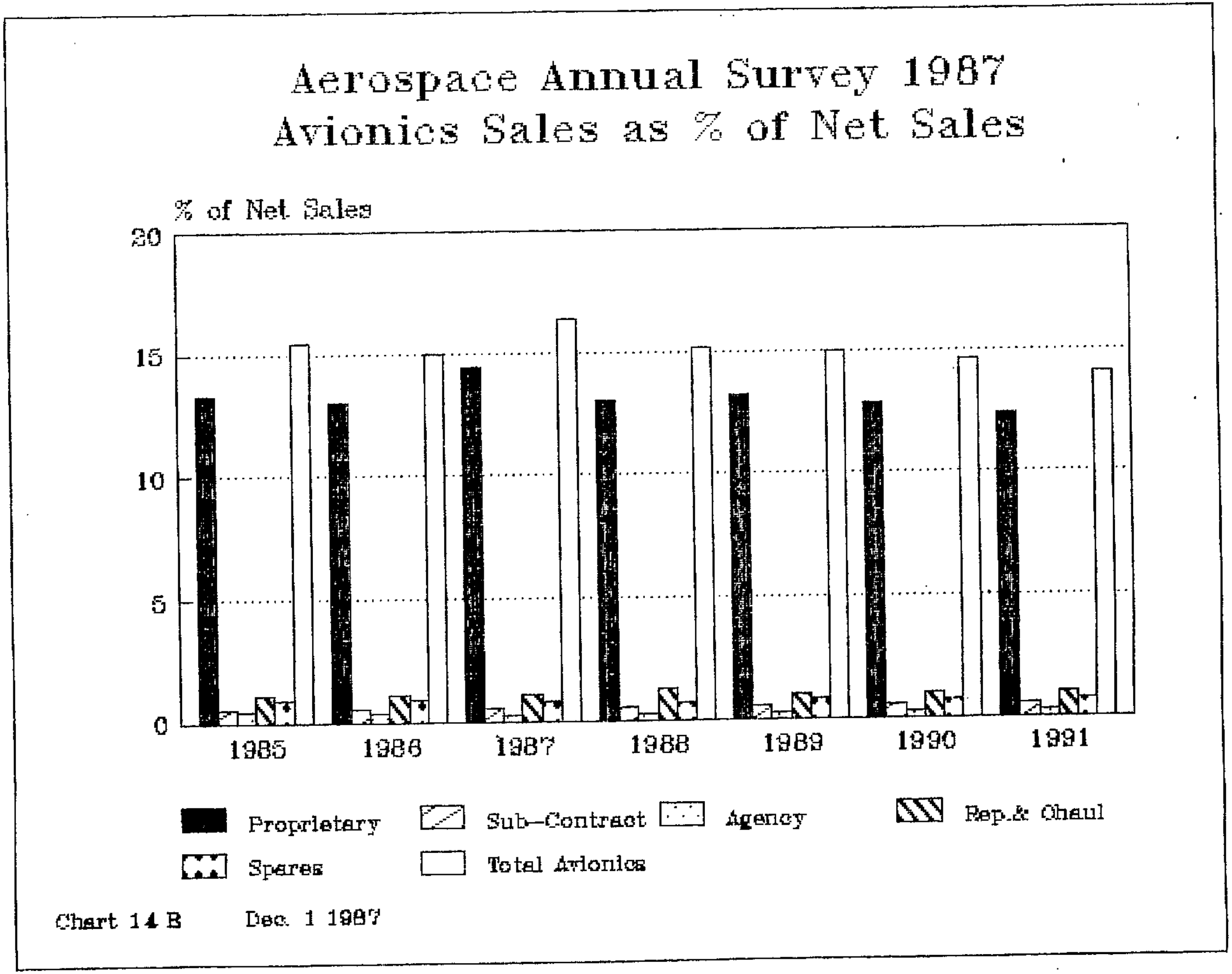


Chart 14 Dec. 1 1987


Aerospace Annual Survey 1987
Avionics Sales as % of Net Sales
% of Net Sales
20
15
10
5
0
1985
1986
1987
1988
1989
1990
1991
Proprietary
Sub—Contract
Agency
Rep.& Ohaul
Spares
Total Avionics
Chart 14 B
Dec. 1 1987

Aerospace Annual Survey 1987
Avionics Sales as % Tot. Avionics Sales

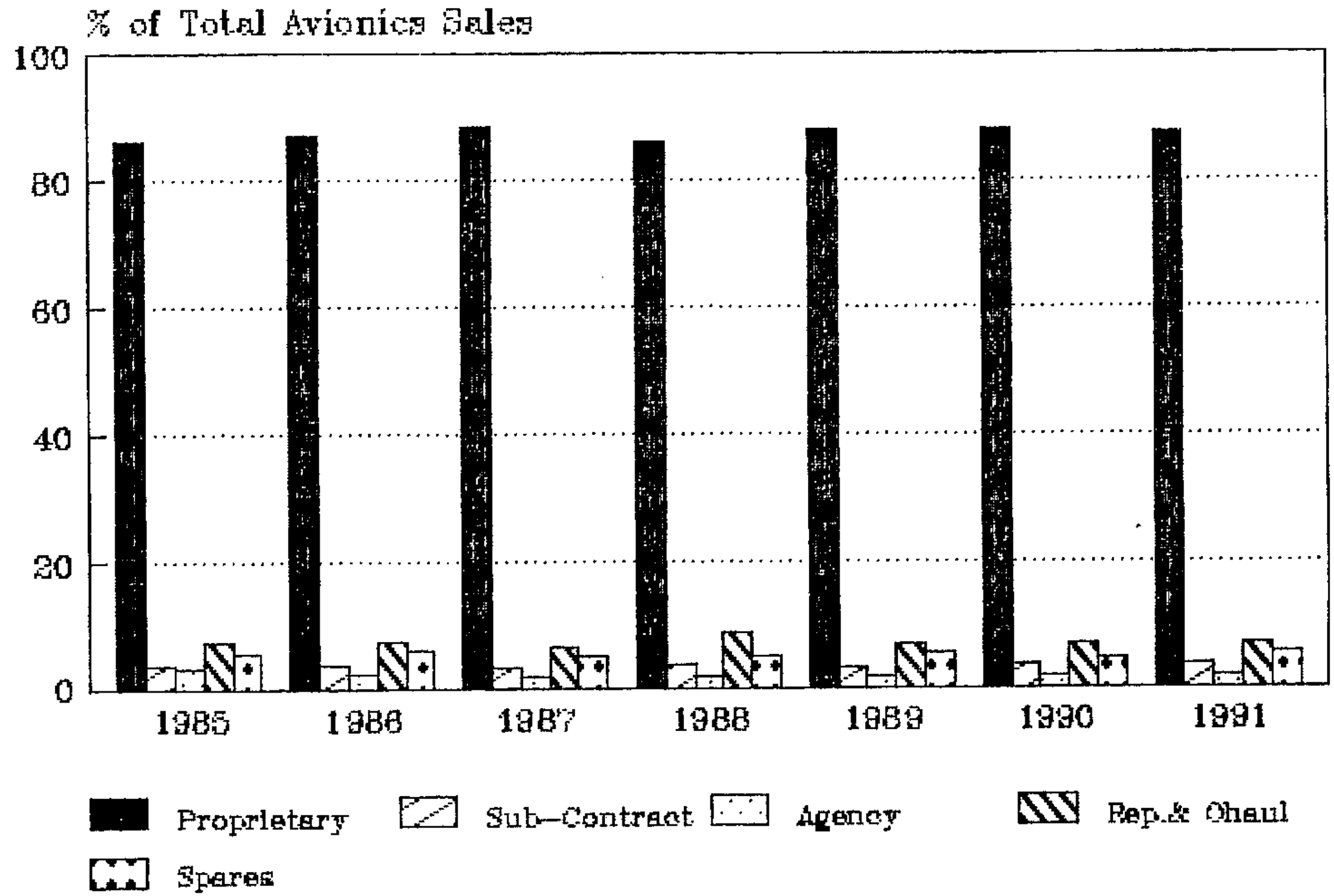


Chart 14 C Dec. 1 1987

5.4 SPACE SUB-SECTOR

The Space Sub-Sector is the fourth ranking Sub-Sector in terms of current sales volume, and will remain so through the period. It does however have the highest forecast growth rate of any Sub-Sector within the Aerospace Sector, with an average annual (Compound) growth rate of 24.5 % being forecast. This will increase Sub-Sector Sales from $ 206.8 million (4.7 % of Sector Sales) to $ 618.2 million (7.8 %) by 1991.

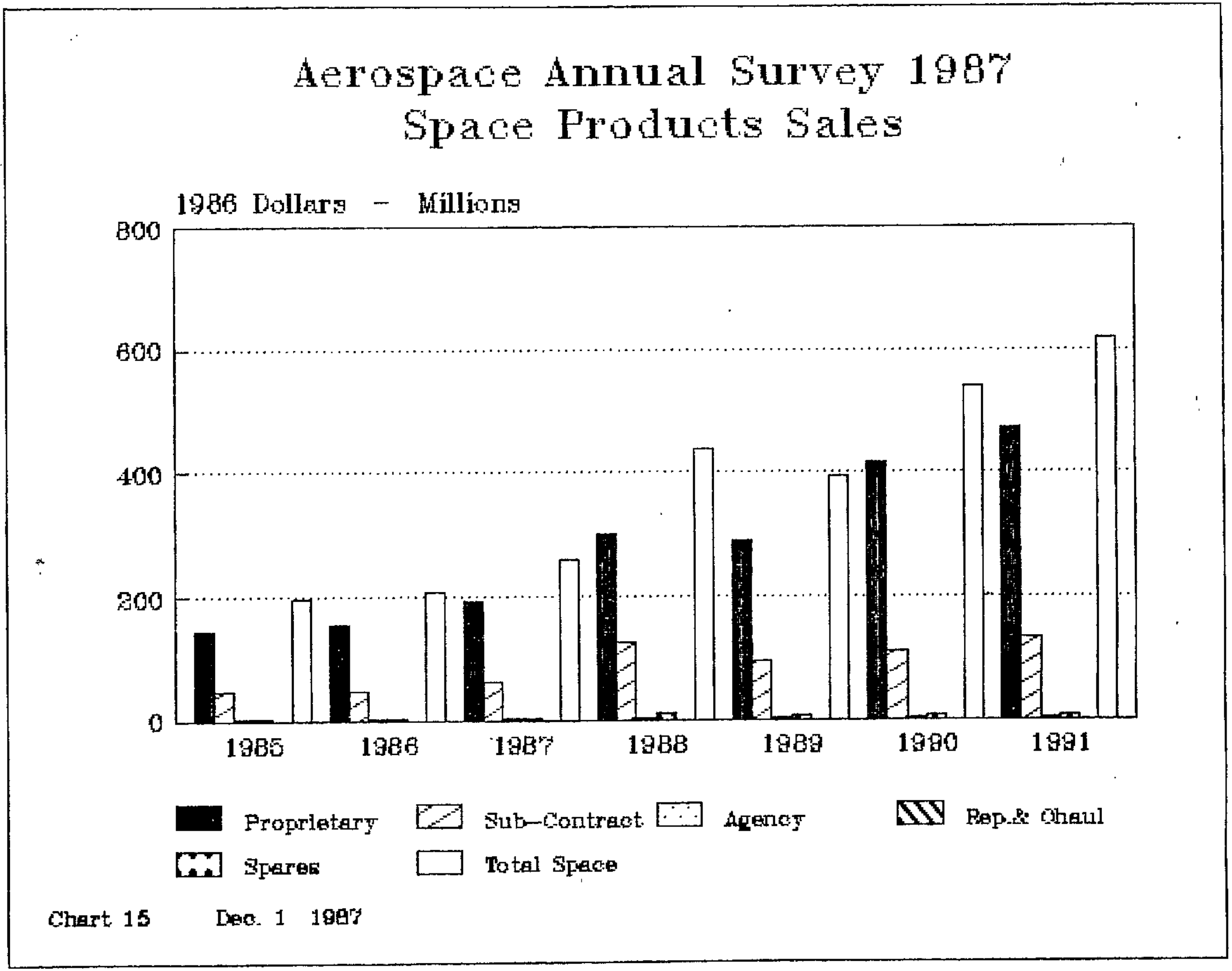
Proprietary Space Products Sales is the highest ranking, fastest growing product line in the Space Sub-Sector. Sales were reported to be $ 154.9 million in 1986,and are forecast to grow by 25 % per year to reach $ 472.5 million by 1991. As a percentage of Sector (Net) Sales this represents an average increase of 12.6 % per year. Proprietary Products constitute 3.3 % of Sector (Net) Sales in 1986,and will constitute 5.9 % in 1991. This is well in excess of the sector target for improvement in "Quality of Sales". These levels equate to 74.9 and 76.4 % of Space Sub-Sector Sales.

Sub-Contract Sales - the second ranking "Space" product line in terms of sales volume and Sales Growth represents approximately 22.3 % of Space Sub-Sector Sales in 1986 and 21.7 % in 1991. Sales of $ 46.8 million reported for 1986 are forecast to increase at the compound rate of 23.8 % per year to reach $ 134.3 million in 1991. This product line is is expected to grow from 0.98 % of Sector (Net) Sales in 1986, to 1.7 % by 1991.

Agency Sales - the fourth ranking "Space" product line represents less than 1 % of Sub Sector Sales, and less than 0.1 % of Space Sector Sales, with both trend lines declining. Sales volume was $ 2.9 million in 1986,and is forecast at $ 3.2 million in 1991.

Repair and Overhaul - the third ranking product line in the Space Sub-Sector, is forecast to remain so.
It represents, on average 1.4 % of Space Sub-Sector Sales, or less than 1 % of Sector Sales over the period. Dollar volumes were $ 2.9 million in 1986, and 8.2 million forecast for 1991.

Spare Parts Sales - are negligible in this sub-sector and expected to remain so through 1991.


Aerospace Annual Survey 1987
Space Products Sales
1986 Dollars – Millions
800
600
400
200
0
1985
1986
1987
1988
1989
1990
1991
Proprietary
Sub–Contract
Agency
Rep.& Ohaul
Spares
Total Space
Chart 15
Dec. 1 1987

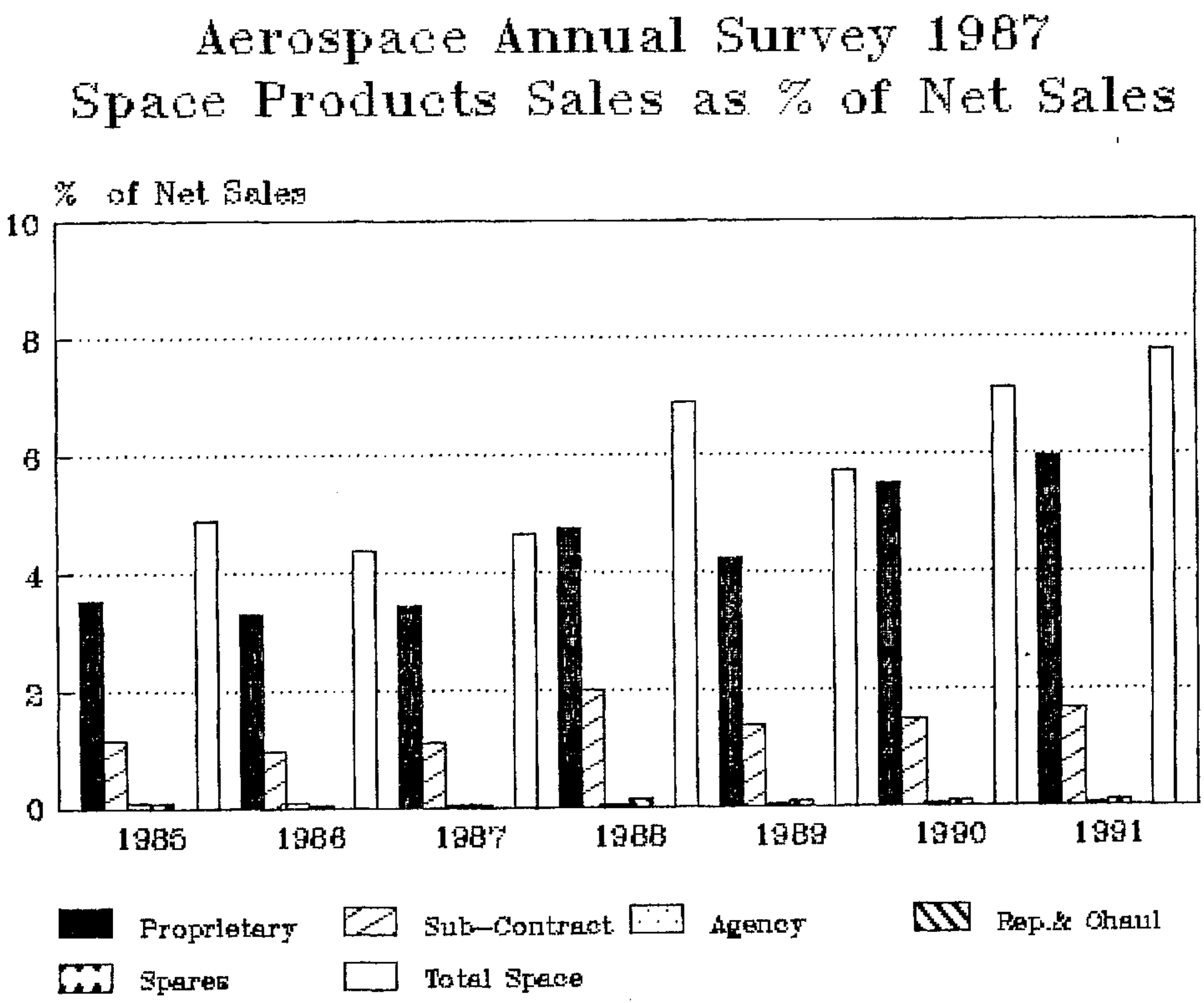


Chart 15 B Dec. 1 1987

Aerospace Annual Survey 1987
Space Products as % of Tot. Space Sales

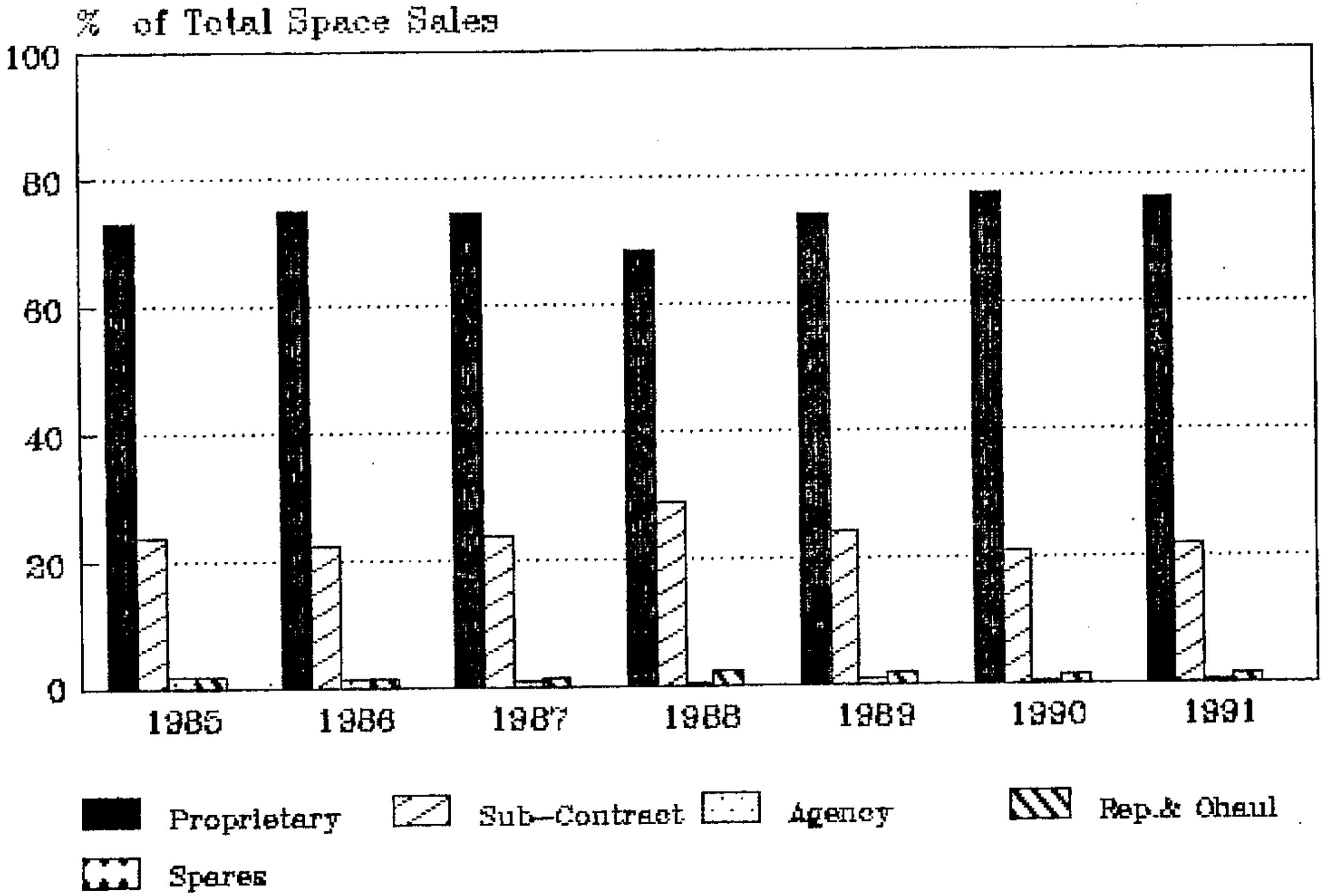


Chart 15 C Dec. 1 1987

5.5 NON-AEROSPACE PRODUCTS

Thirty three of the companies or Divisions included in the Survey reported some portion of their sales to be Non-Aerospace Products. These included shipborne equipment such as Helicopter Hauldown equipment, Security Systems, and Test Equipment, some of which is Aerospace derived or Aerospace related. Others clearly related to commercial products or services with little or no direct relationship. Non-Aerospace products represented between 1 and 50 % of the sales for twenty five of the companies, companies fell within the 51-75 % range, and six reported Non-Aero Sales to comprise between 76 and 100 % of their total Sales. These Non-Aerospace Sales average 12 % of Sector (Net) Sales over the forecast period ie. a flat trend. The annual growth in dollar volume of Non-Aero Sales is 10.34 % , with 1986 sales reported at $ 495.8 million and forecast to grow to $ 917.7 million by 1991.

Proprietary Products - represent between 70 and 74 % of Non-Aerospace Sales over the forecast period. Sales of $ 395.8 million were reported in 1986 and are forecast to increase at an annual rate of 10.25 % (compounded) to reach $ 644.7 million in 1991. This represents a decrease from 8.4 % of Sector (Net) Sales in 1986 to 8.1 % by the end of the period.

Sub-Contract Sales - is the second ranking product line in the Non-Aerospace category, averaging between 18.7 and 24.3 % of Non-Aerospace Sales. 1986 Sales of $ 116.7 are forecast to increase by 11.5 % per year to achive $ 201.5 million in 1991. This represents 2.5 % of Sector (Net) Sales in both years, but there is an excursion to 3.0 % in 1989.

Agency Sales - represent approximately 4 % of Non-Aero Sales,or 0.5 % o Sector (Net) Sales. Dollar volume grows from $28.2 million in 1986 to $ 37.1 million in 1991.

Repair and Overhaul - of Non-Aerospace Products represents less than 0.4 % of Sector (Net) Sales or slightly more than 3 % of Non-Aero Sales. In Dollar terms the 1986 sales of $ 20.4 million will grow to $ 34.5 million in 1991.

Spare Parts - (Non-Aerospace) equate to less than 0.4 % of Sector (Net) Sales or approximately 2.5 % of Non-Aero Sales. The Trend is - 5 % per year. Dollar Value was $ 20.4 million in 1986 and is forecast to reach $25.75 million in 1991.

Aerospace Annual Survey 1987
Non-Aerospace Product Sales

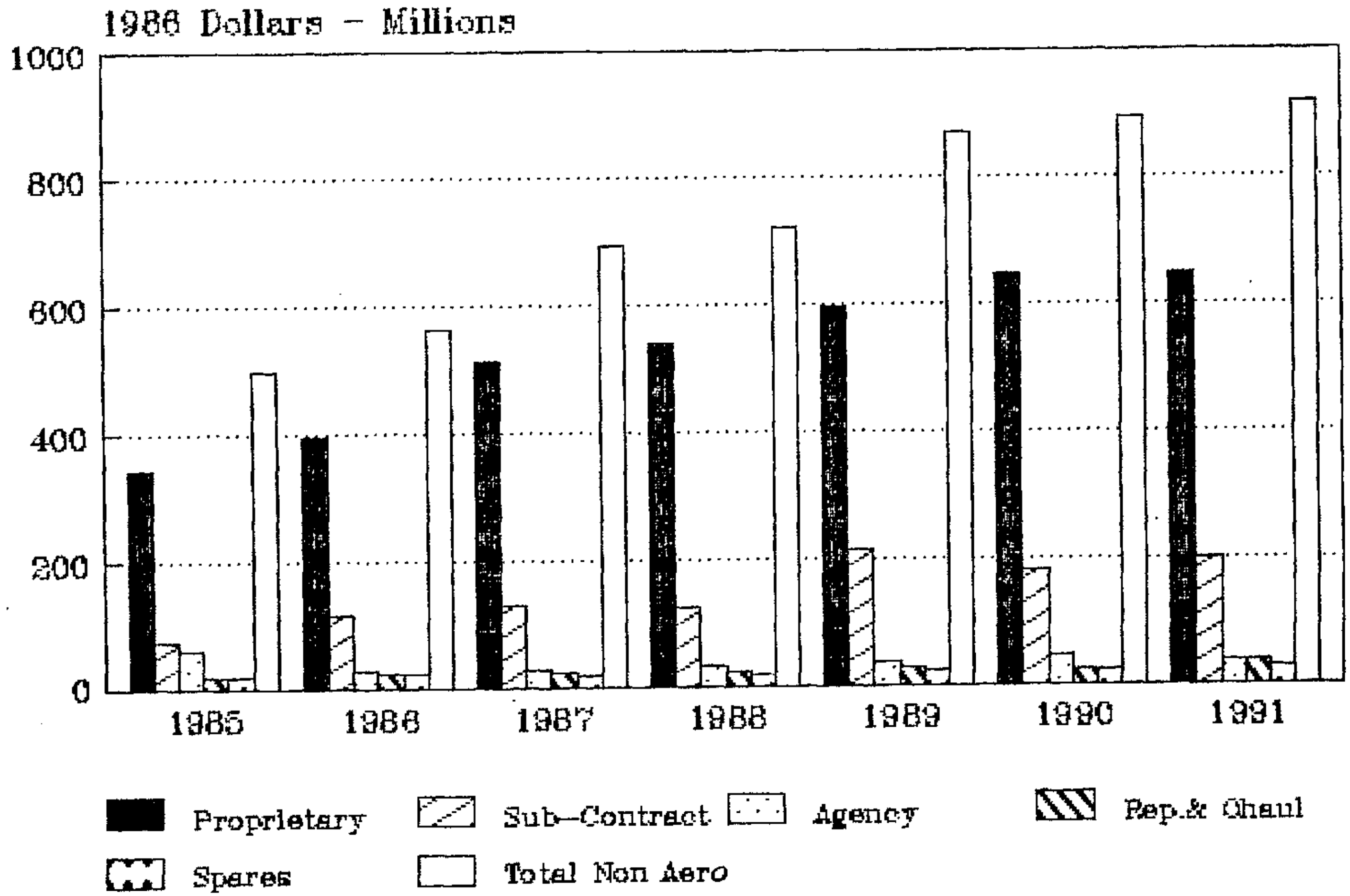


Chart 16 Dec. 1 1987

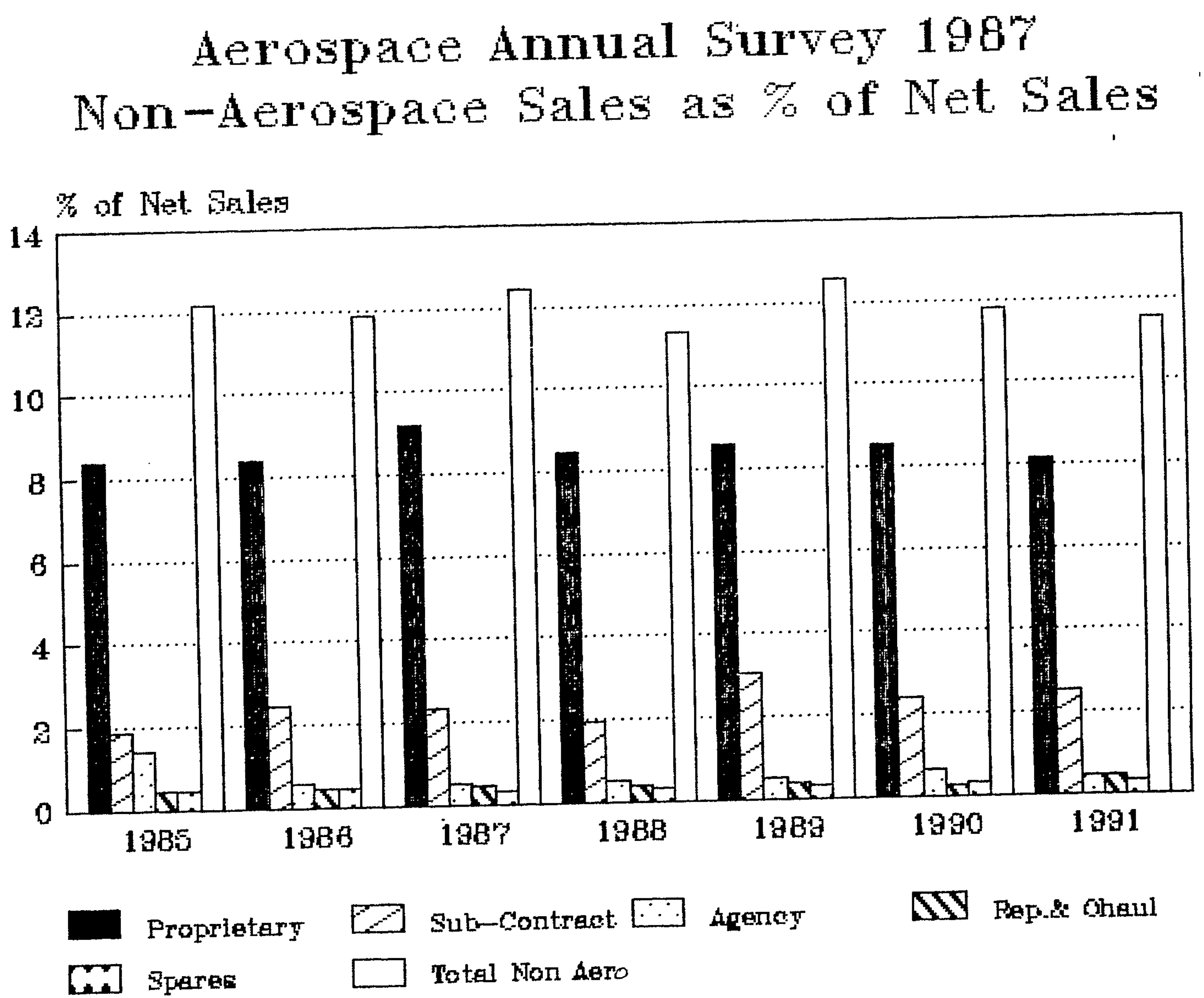
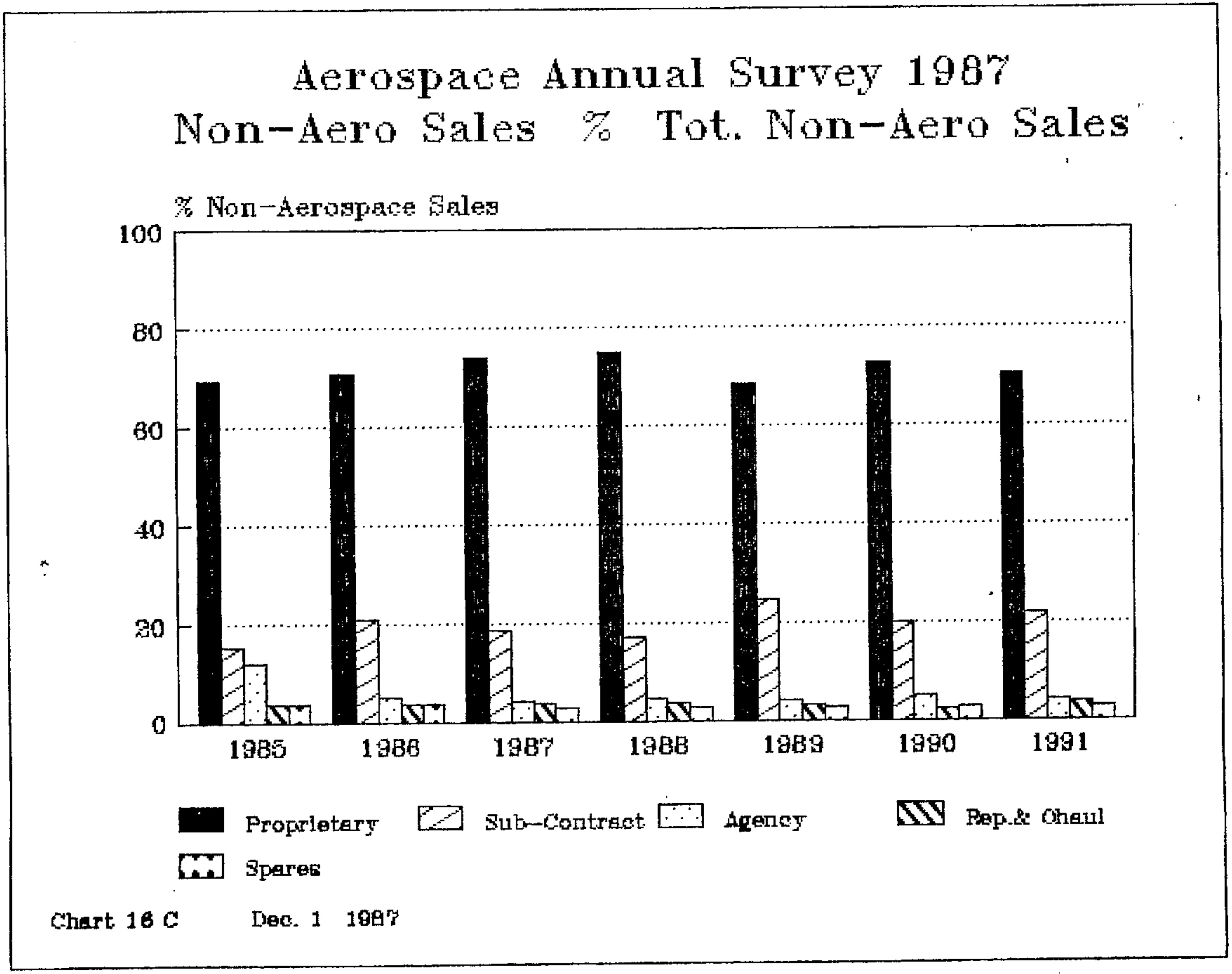

Aerospace Annual Survey 1987
Non-Aerospace Sales as % of Net Sales
% of Net Sales
14
12
10
8
6
4
2
0
1985
1986
1987
1988
1989
1990
1991
Proprietary
Sub-Contract
Agency
Rep.& Ohaul
Spares
Total Non Aero

Chart 16 B


Aerospace Annual Survey 1987
Non-Aero Sales % Tot. Non-Aero Sales
% Non-Aerospace Sales
100
80
60
40
20
0
1985
1986
1987
1988
1989
1990
1991
Proprietary
Sub-Contract
Agency
Rep.& Ohaul
Spares
Chart 16 C
Dec. 1 1987

6.0 NEW INVESTMENT

New Investment totalled $ 774 million in 1986 and is forecast to increase at the compound rate of 6.9 % per year to reach $ 1082.5 million in 1991. The growth rate, while lower than the growth rate in sector sales still exceeds the M.O.U. Target of 5 % annual increase.

Plant Investment - the third ranking category of new investment exhibits a declining trend in magnitude, as a percentage of Total Investment and as a percentage of Sector (Net) Sales. Investment in Plant is forecast to decline from $ 81.1 million in 1986, at a rate of 1.4 % per year to reach $ 75.5 million by 1991. This corresponds to a decline from 10.5 % to 7 % of Total New Investment, and equates to a decrease from 1.7 % to 0.95 % of Net Sales.

Investment in Machinery - exhibits a positive trend in terms of dollars but declines as a percentage of Sector Sales, and as a percentage of Total Investment. Investment in Machinery totalled $ 227.7 million in 1986 and is expected to rise at the compound rate of 6.3 % annually to a level of $ 309.5 million in 1991. This represents 29.4 % of Total Investment in 1986, and 28.6 % in 1991 and equates to 4.8 and 3.9 % of Sector (Net) Sales for these years.

Investment in Research and Development - is the largest element of new investment. It exhibits a rising trend in Dollar Value and as a Percentage of New Investment, but declines as a percentage of Sector (Net) Sales, representing only 8.8 % of Net Sales in 1991, as opposed to 9.8 % in 1986. R & D Investment was reported to be $ 465.2 million in 1986, and is forecast to increase at the compound rate of 8.4 % per year to reach $ 697.5 million in 1991. These values equate to 60.1 and 64.4 % of Total Investment, and fall well short of the M.O.U. Target of 75 % of Total Investment.

Aerospace Annual Survey 1987
New Investment

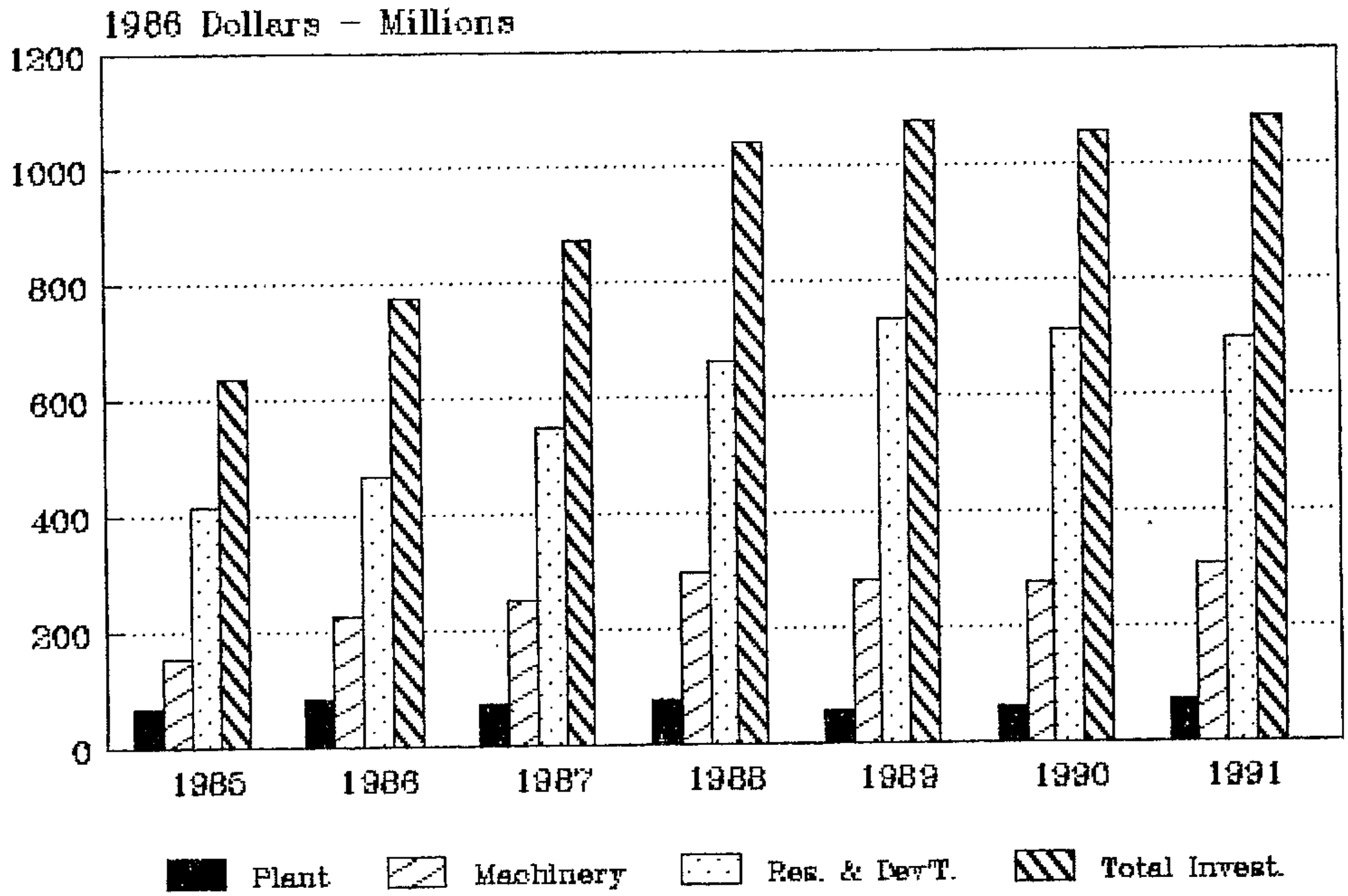
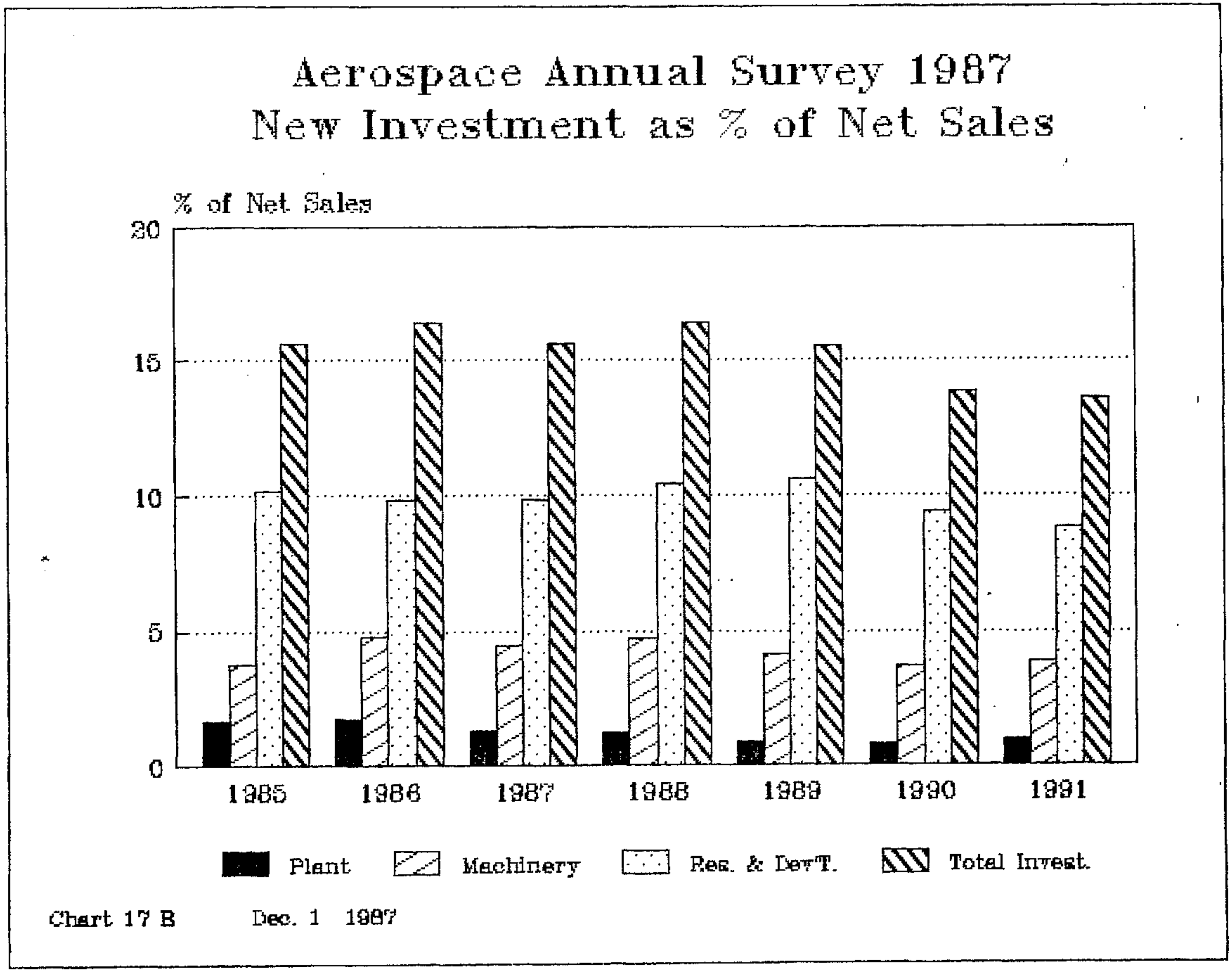


Chart 17 Dec. 1 1987


Aerospace Annual Survey 1987
New Investment as % of Net Sales
% of Net Sales
20
15
10
5
0
1985
1986
1987
1988
1989
1990
1991
Plant
Machinery
Res. & DevT.
Total Invest.
Chart 17 B
Dec. 1 1987

Aerospace Annual Survey 1987
Percent of New Investment

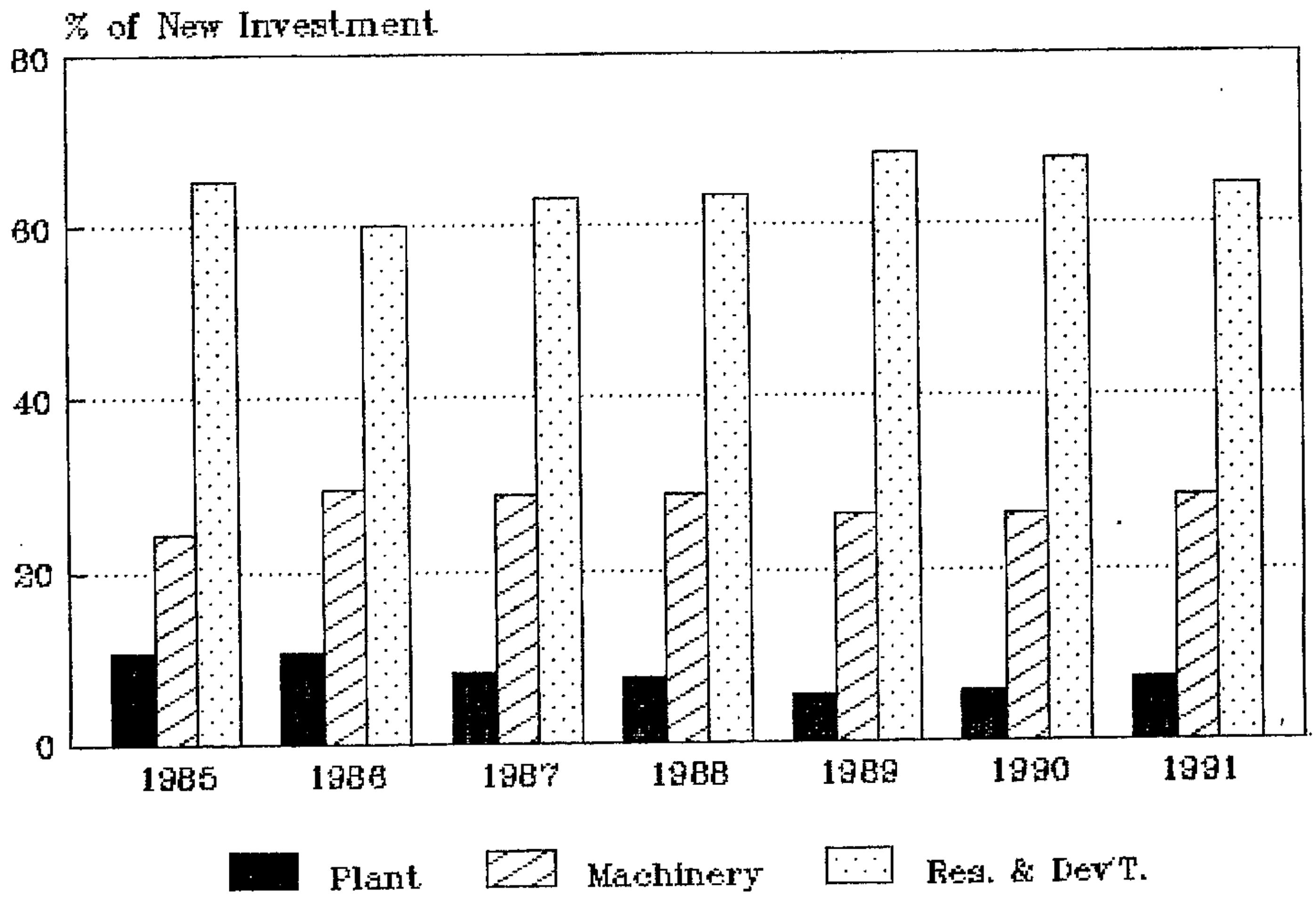


Chart 17 C   Dec. 1 1987

7.0 GOVERNMENT INVESTMENT

Government Investment in the Aerospace Industry was reported to be $ 166,1 million in 1986, increasing by 7 % (compounded) per year to reach $ 232.57 million in 1991. The Department of Regional Industrial Expansion was the source of 88% of this funding in 1986. Its share is forecast to rise to 98 % by 1991. The Drie Investment,as reported by the Industry, was $146.2 million in 1986 and is forecast to increase at a compounded rate of 9.3 % per year to reach $ 228.1 million in 1991. These values equate to 18.9 and 21 % of Total New Investment. The DRIE investment averages approximately 3 % of Sector Sales.

Research and Development - is the largest element of DRIE investment representing 85 and 95 % of the total DRIE investment between 1986 and 1991. It was reported to be $ 206.8 million in 1986 and is forecast to increase by 11.7 % per year (compounded) to reach $ 206.8 million in 1991. DRIE investment constituted 25.4 % of every Aerospace R & D Dollar invested in 1986,and is forecast to constitute 29.7 % by 1991. The DRIE R & D Investment equates to approximately 2.5 % of Sector Sales.

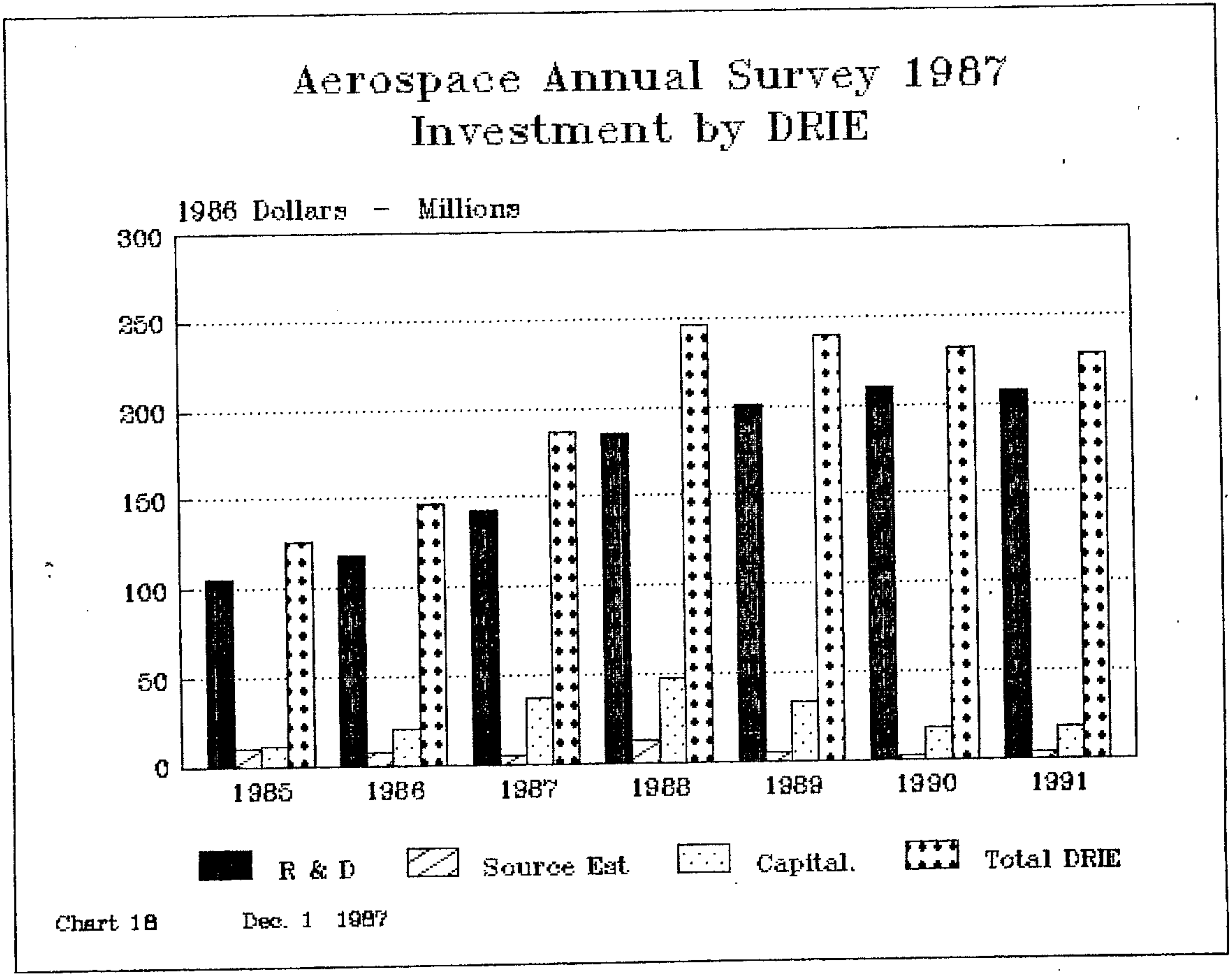
Source Establishment - Source Establishment investment by DRIE was reported to be $ 9.4 million in 1986. It is forecast to decline at the compound rate of 12.6 % per year,to reach a level of $ 3.6 million in 1991. It represented 0.9 % of Total New Investment in 1986 but will decline to 0.33 % by the end of the period.
It equates to less than 1 % of Sector (Net) Sales.

Capital Assistance - is the second largest area of DRIE Investment and is the area exhibiting the greatest volatility through the survey period.
DRIE Capital Assistance expenditure was reported to be $10.9 million in 1985, $ 20.6 million in 1986, forecast to rise to $46.1 milliom in 1988 and decline to $ 17.2 million in 1991. It represents 14 % of DRIE Investment in 1986, peakes at 21 % in 1988 and declines to 7.5 % by 1991.
It equates to between 1.6 and 4.5 % of New Investment over the period,and less than 0.75 % of Sector Sales.

Feasibility Study Support - is the element of the DRIE Investment program which is least used by the companies participating in the survey. It represents,on average,expenditure of less than $ 0.6 million per year over the survey period,and equates to less than 0.1 % of Sector Sales or Sector Investment.

Payback - Cost recovery from DRIE Investment,as reported by the Industry, ranges from $ 17.6 million in 1986,through $ 34.4 million in 1988,to 17.2 million in 1991. Cost recovery averages 11.2 % per year of the DRIE Investment over the 1986 - 1991 period.

Investment by Other Departments - Aerospace investment by other Federal Departments was reported as $ 4.6 million in 1985,peaking at $ 28.2 million in 1988,and declining to $ 4.5 million in 1991. This represents, at its peak, 11.4 % of Total Federal Government Investment and, at its nadir, 1.9%.


Aerospace Annual Survey 1987
Investment by DRIE
1986 Dollars – Millions
300
250
200
150
100
50
0
1985
1986
1987
1988
1989
1990
1991
R & D
Source Est
Capital.
Total DRIE
Chart 18
Dec. 1 1987

Aerospace Annual Survey 1987
Investment by DRIE as % of Net Sales

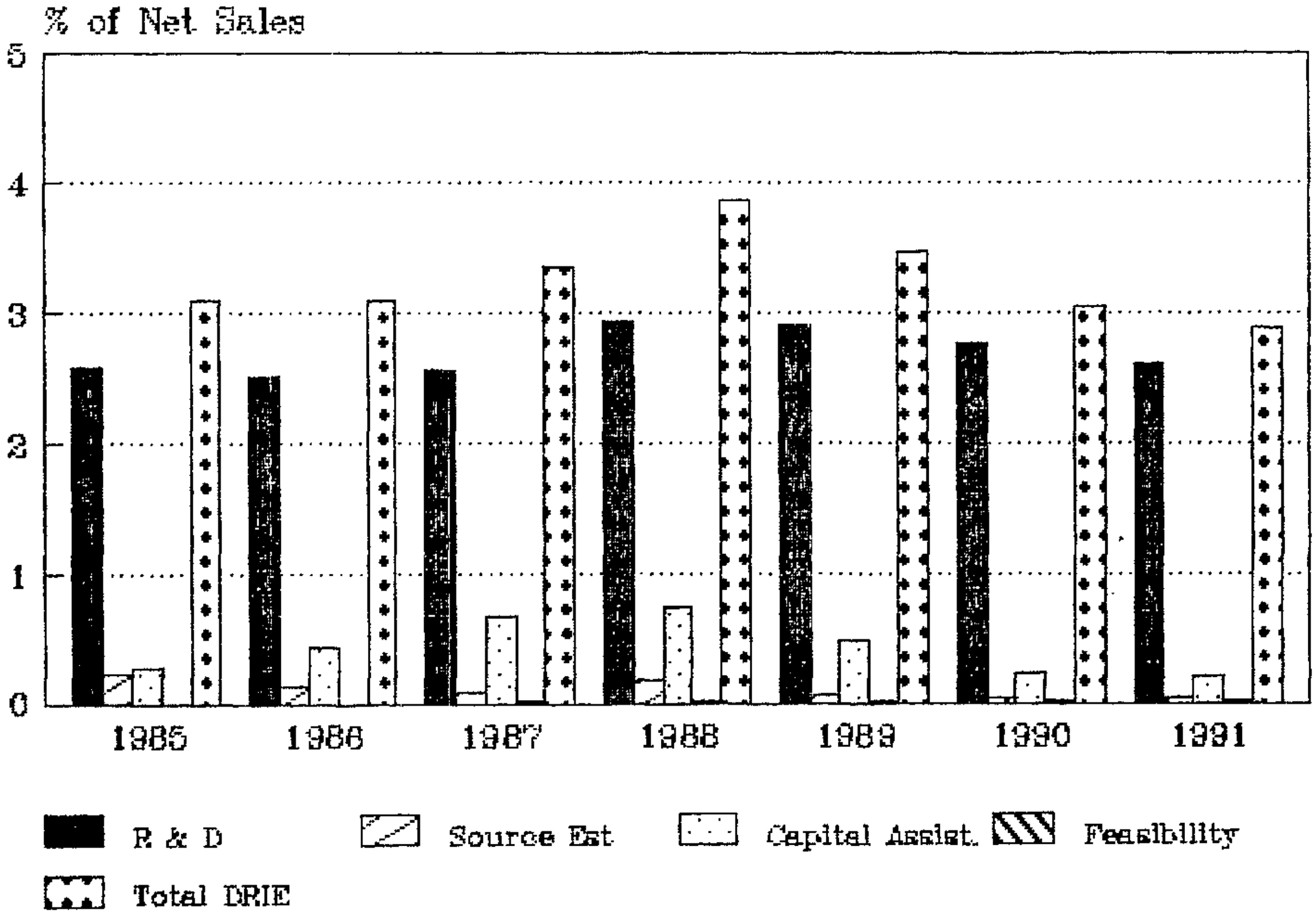
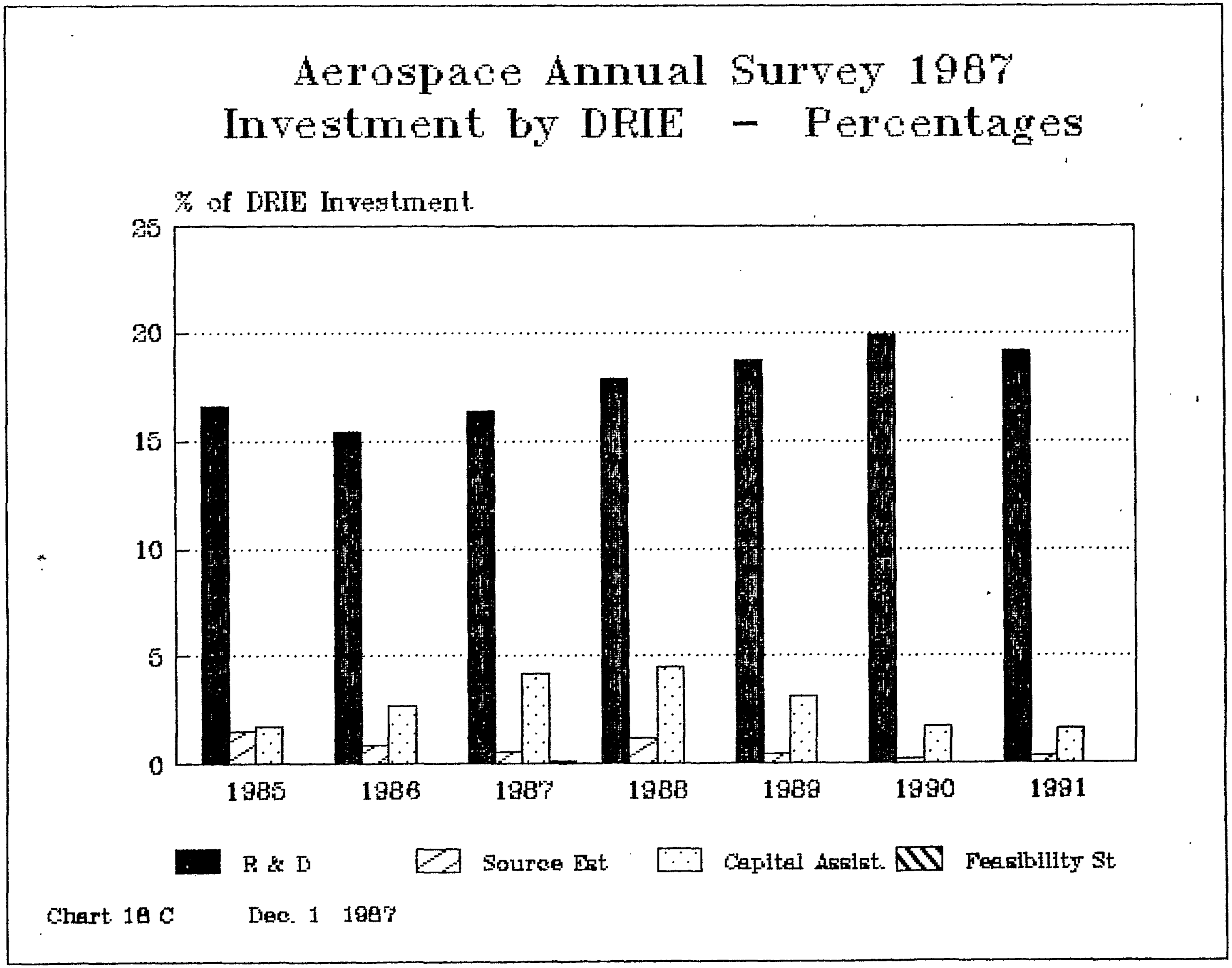


Chart 18 B Dec. 1 1987


Aerospace Annual Survey 1987
Investment by DRIE - Percentages
% of DRIE Investment
25
20
15
10
5
0
1985
1986
1987
1988
1989
1990
1991
R & D
Source Est
Capital Assist.
Feasibility St
Chart 18 C
Dec. 1 1987

8.0 EMPLOYMENT

Employment was reported to be 53,678 in 1986, up 12.7 % from the 1985 level of 47,627. It is forecast to increase at the compound rate of 4.3 % per year to reach 66,111 in 1991. This is well above the M.O.U. Target of 3 % per year growth from 1985 levels.

Engineering/Scientific Employment - reported as 9,515 in 1986, up 16 % from the 1985 level of 8,206 Engineering/Scientific employment is forecast to grow at an annual (compound) rate of 6.9 % to reach 13,280 by 1991. As a percentage of total employment it represented 17.2 % in 1986 and will represent 20.1 % in 1991. The growth rate is higher than the rate forecast for Total Employment and well above the M.O.U.target.

Production Employment - Production Employees comprised 56.1 % of the labour force in 1986 and will comprise 54 % in 1991. The 1986 level of 30,136 was up 16.6 % from the 25,855 report in 1985. A growth rate of 3.4 % per year (compounded) is forecast for the remainder of the survey period, giving a level of 35,681 Production Employees in 1991.

Other Employment - Employment in other categories was reported as 14,027 in 1986, up 3.4 % from the 1985 level of 13,566. It is forecast to increase by 4.1 % annually,to reach 17,150 in 1991.This is marginally below the 4.3 % annual growth rate forecast for Total Employment.

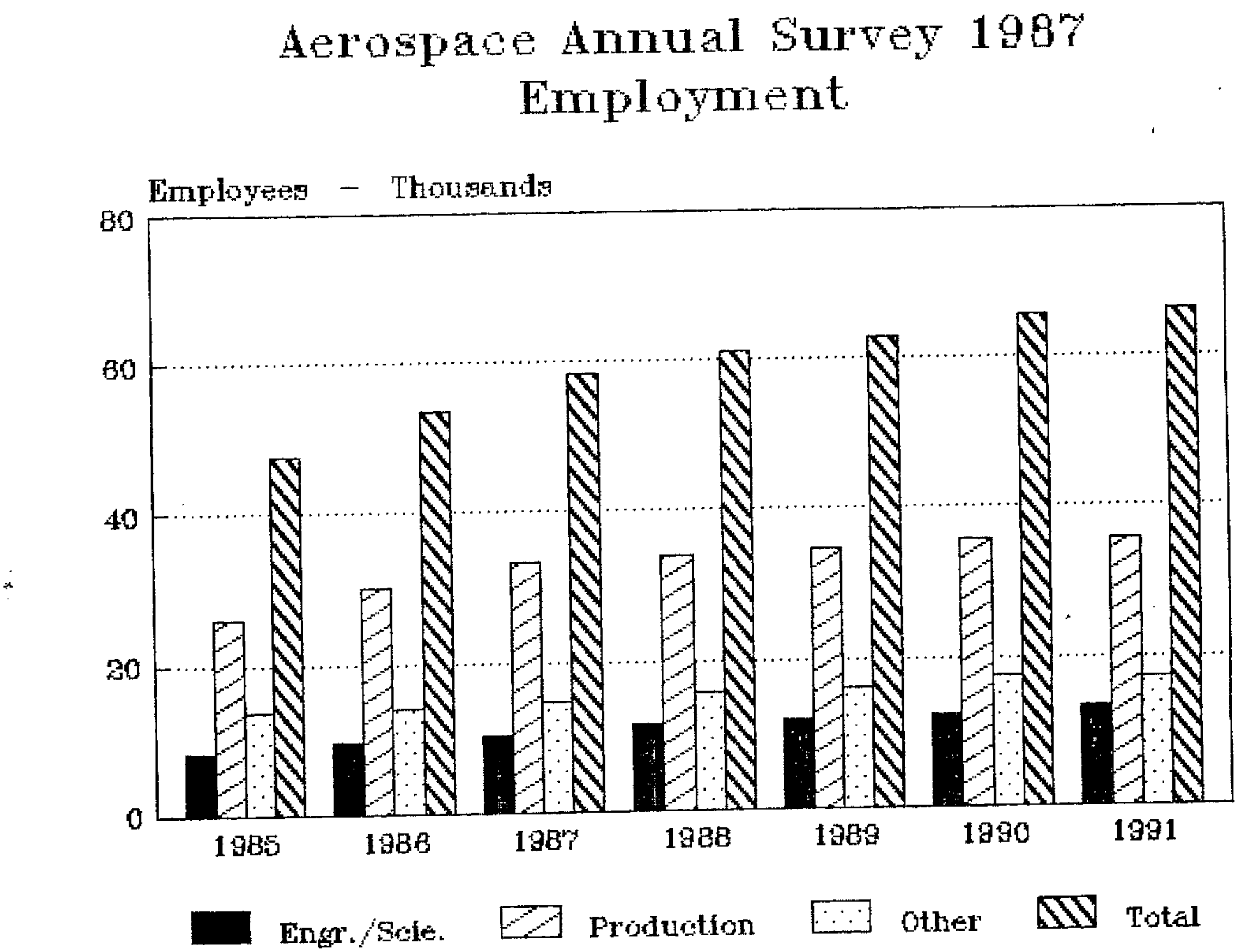
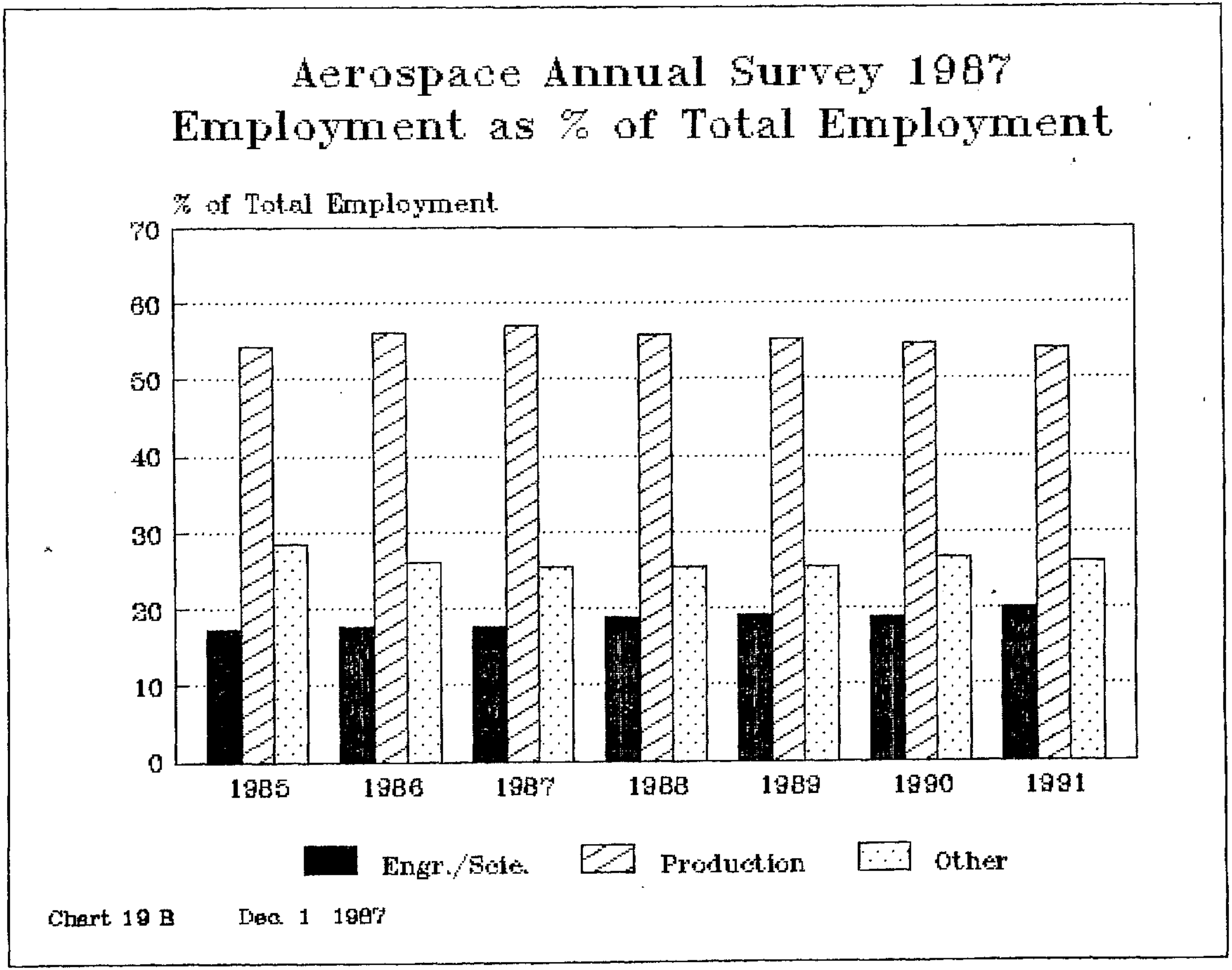


Chart 19 Dec. 1 1987



Aerospace Annual Survey 1987
Employment as % of Total Employment
% of Total Employment
70
60
50
40
30
20
10
0
1985
1986
1987
1988
1989
1990
1991
Engr./Scie.
Production
Other
Chart 19 B
Dec. 1 1987

9.0 EMPLOYMENT RELATIONSHIPS

Sector (Net) Sales per Employee - were calculated to be $85,630 in 1985, $ 88,040 in 1986 and are forecast to grow at a compound rate of 6.43 % per year to reach $ 120,250 in 1991.

Total Investment per Employee - was calculated to be $ 13,360 in 1985, $ 14,420 in 1986 and forecast to grow by 2.57 % per year, to reach $ 16,370 in 1991.

R & D Investment per Employee - was calculated to be $ 8,700 per employee in 1985, $ 8,670 in 1986 and is forecast to grow at 4 % per year (compounded) to reach $ 10,550 in 1991.

DRIE Investment per Employee - was calculated to be $ 2.640 in 1985, $ 2,720 in 1986 and forecast to increase at 4.8 % per year (compounded) to reach $3,450 in 1991.

Training Cost per Employee - was calculated to be between $ 530 and $ 550 from 1986 through 1991.

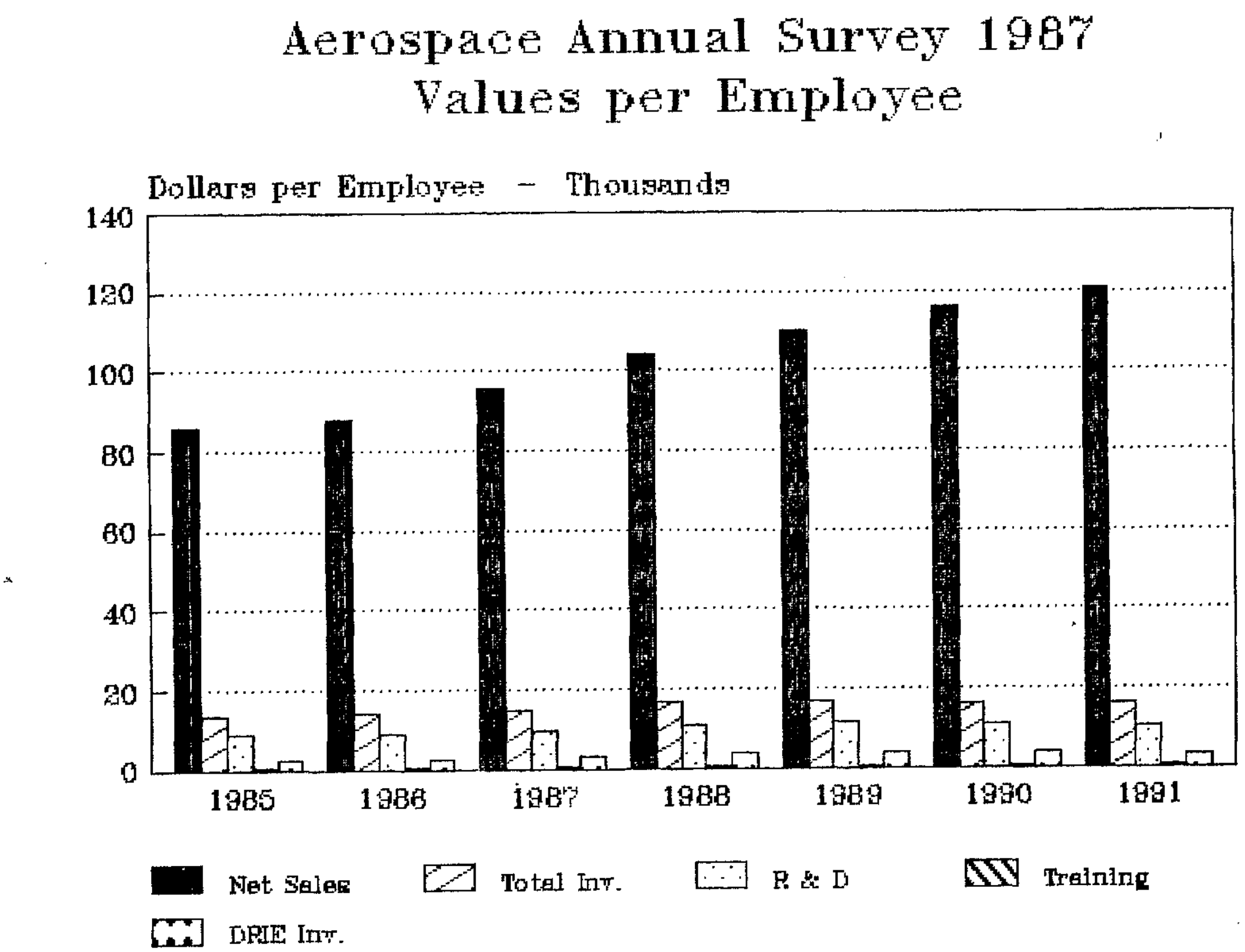


Chart 21 Dec. 1 1987

10.0 MISCELLANEOUS

Tariffs and Duties - The Aerospace Industry operates in an essentially " Free Trade " environment. Tariffs and Duties are forecast to range from $ 6.7 million in 1968, to $ 8 million in 1991. This represents less than 0.2 % of Sector Sales.

Backlog - The backlog of orders was reported as $ 5565.4 million in 1986 and forecast to rise to $ 7324.8 million in 1991.

Inventory - Closing Inventories were valued at $ 1667.4 million in 1986 and forecast to increase to $ 2216.7 million in 1991.

Canadian Value Added - was calculated to be $ 3397.5 million in 1986 and is forecast to rise to $ 5823.52 in 1991. This equates to 71.9 % of the value of Sector (Net) Sales in 1986, and 73.25 % in 1991.

Aerospace Annual Survey 1987
Miscellaneous Data

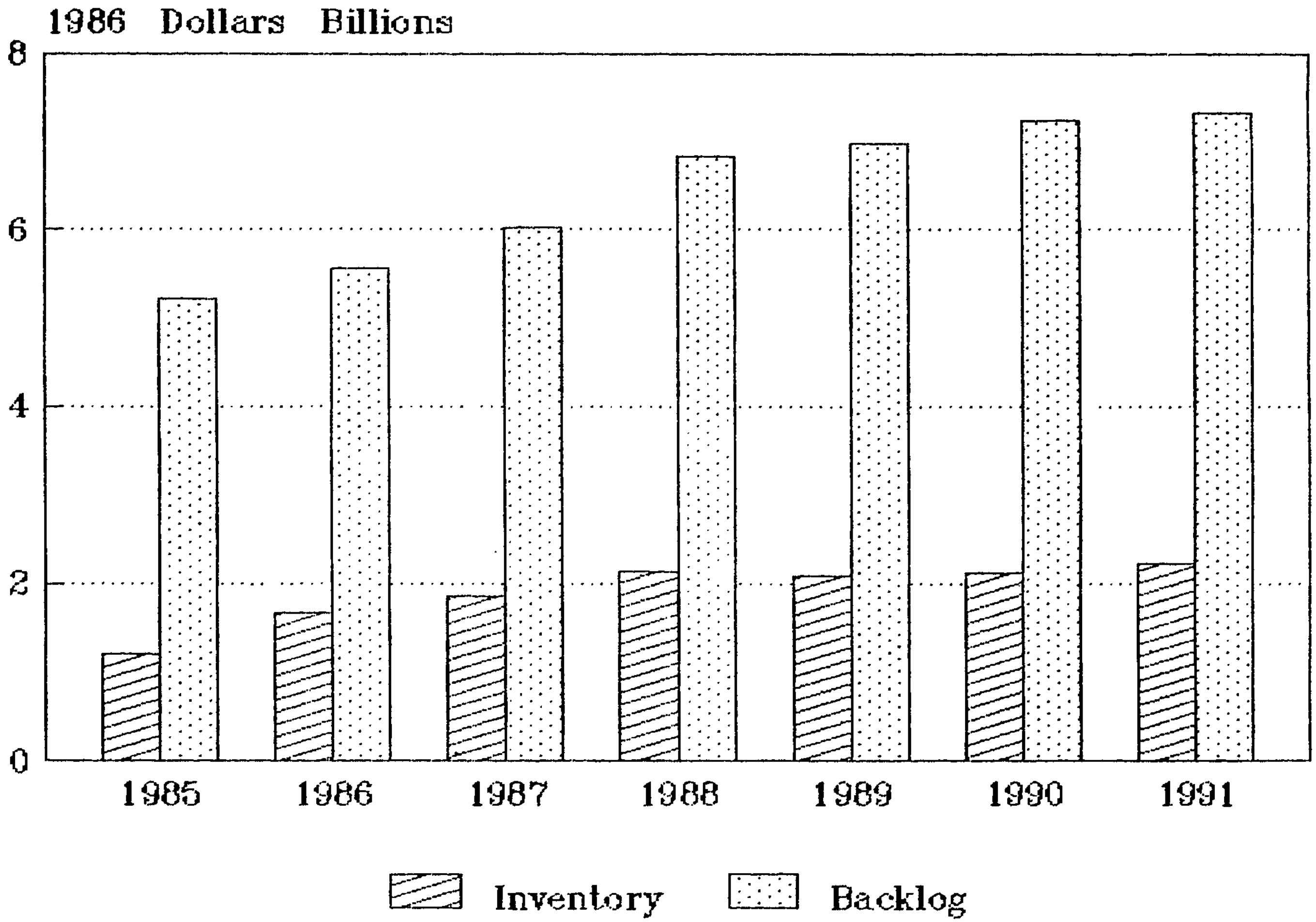
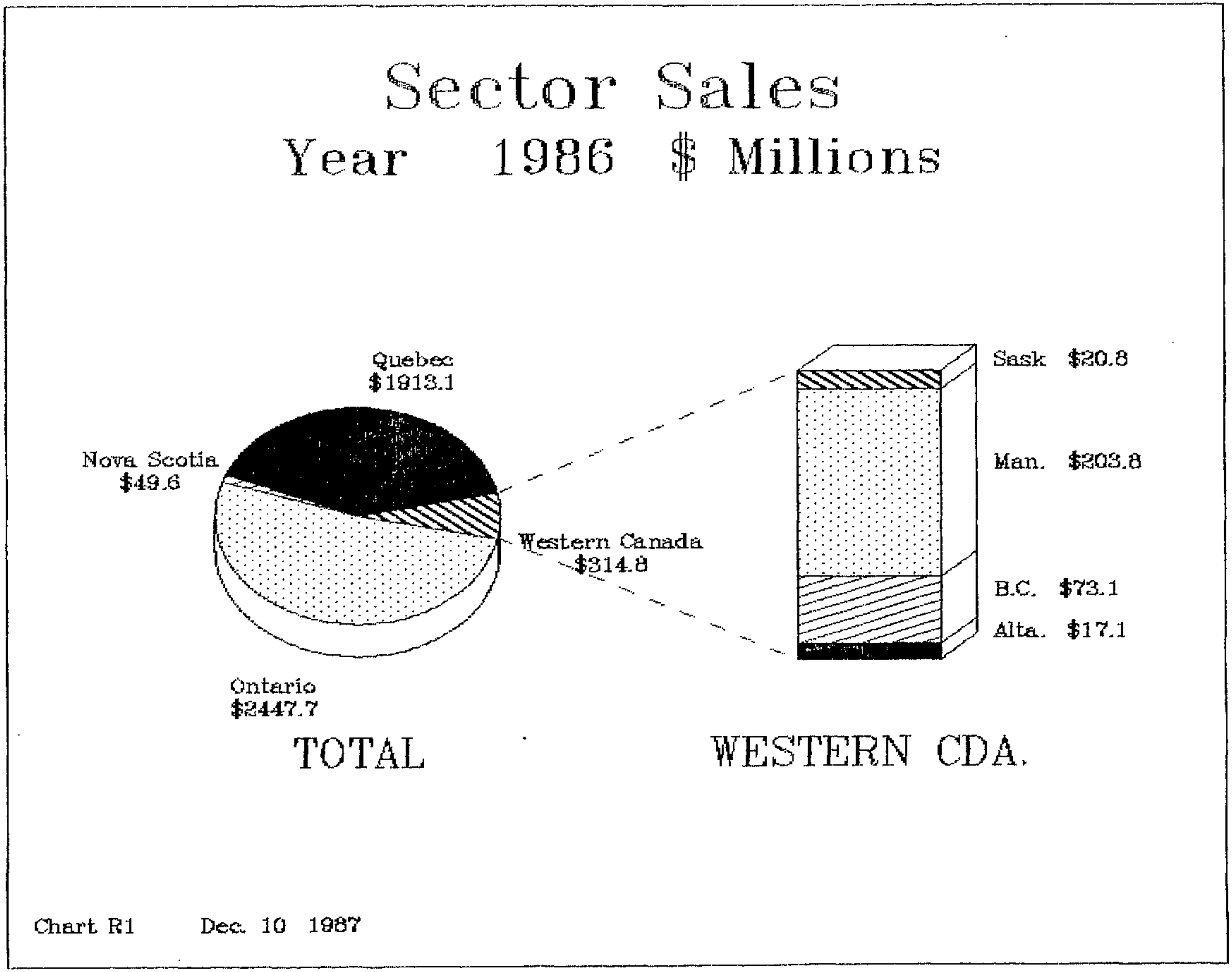
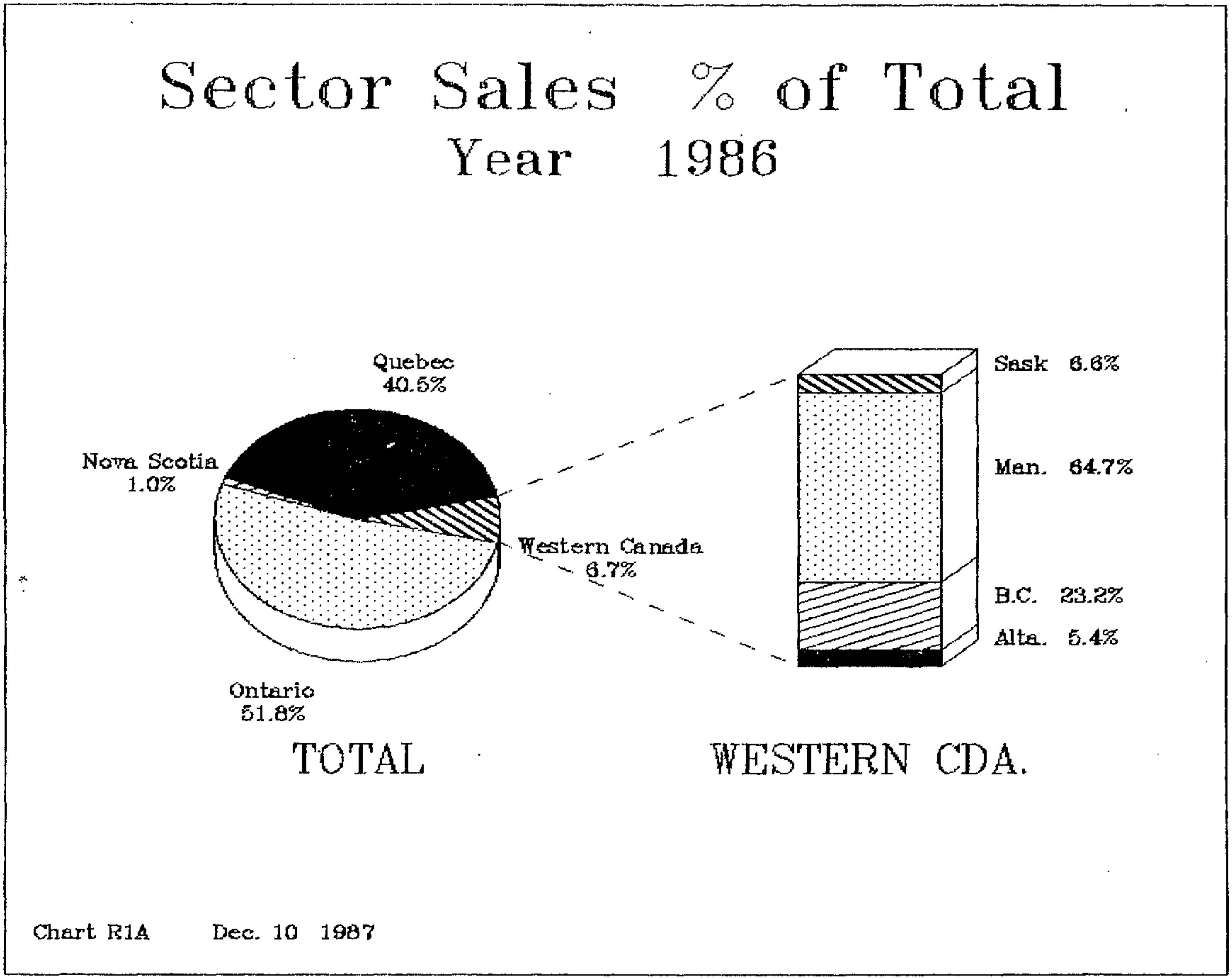


Chart 20 December 15, 987


Sector Sales
Year 1986 $ Millions
Quebec
$1913.1
Nova Scotia
$49.6
Western Canada
$314.8
Ontario
$2447.7
Sask $20.8
Man. $203.8
B.C. $73.1
Alta. $17.1
TOTAL
WESTERN CDA.
Chart R1 Dec. 10 1987



Sector Sales % of Total
Year 1986
Quebec 40.5%
Nova Scotia 1.0%
Western Canada 6.7%
Ontario 51.8%
Sask 6.6%
Man. 64.7%
B.C. 23.2%
Alta. 5.4%
TOTAL
WESTERN CDA.
Chart R1A Dec. 10 1987

Export Sales
1986 Data

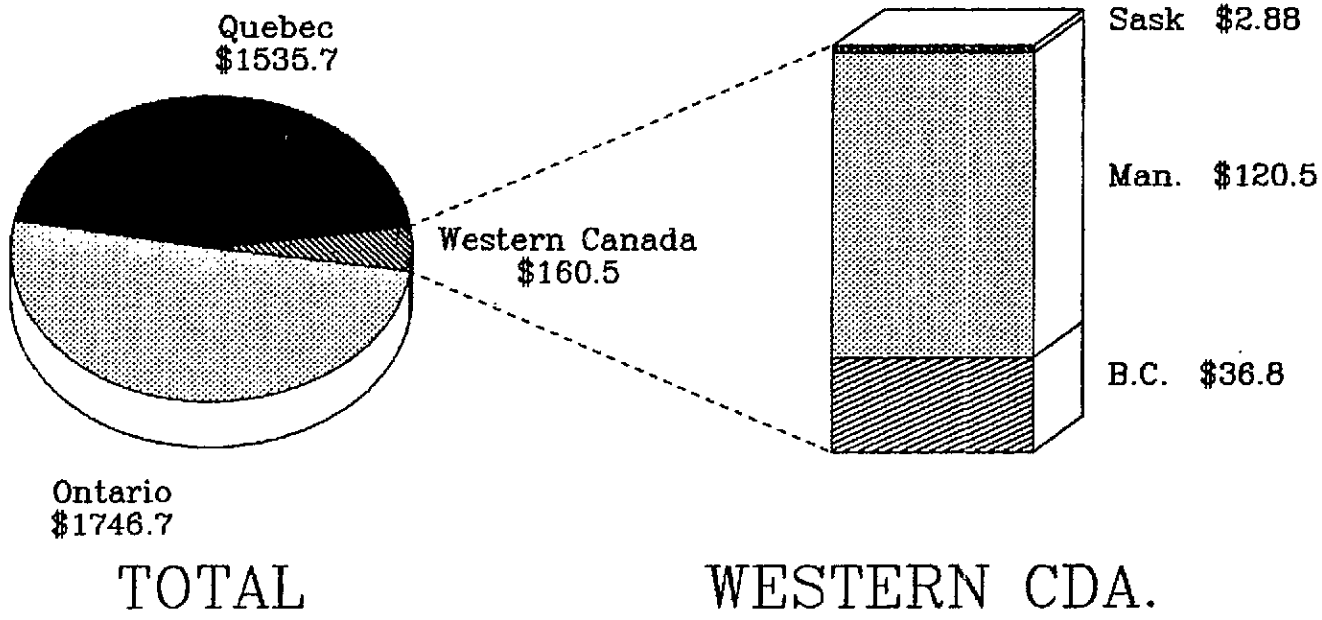


Chart R2 Dec. 10 1987

Export Sales % of Total

Year 1986

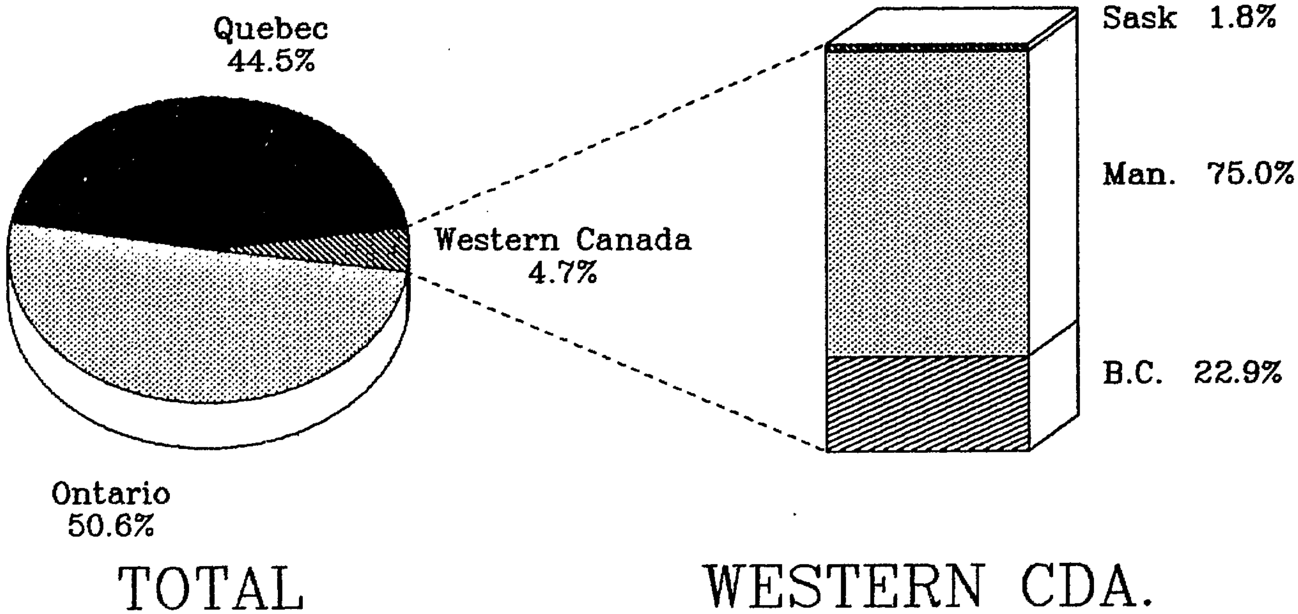


Chart R2A Dec. 10 1987

DEFENCE SALES

1986 Data $ Millions

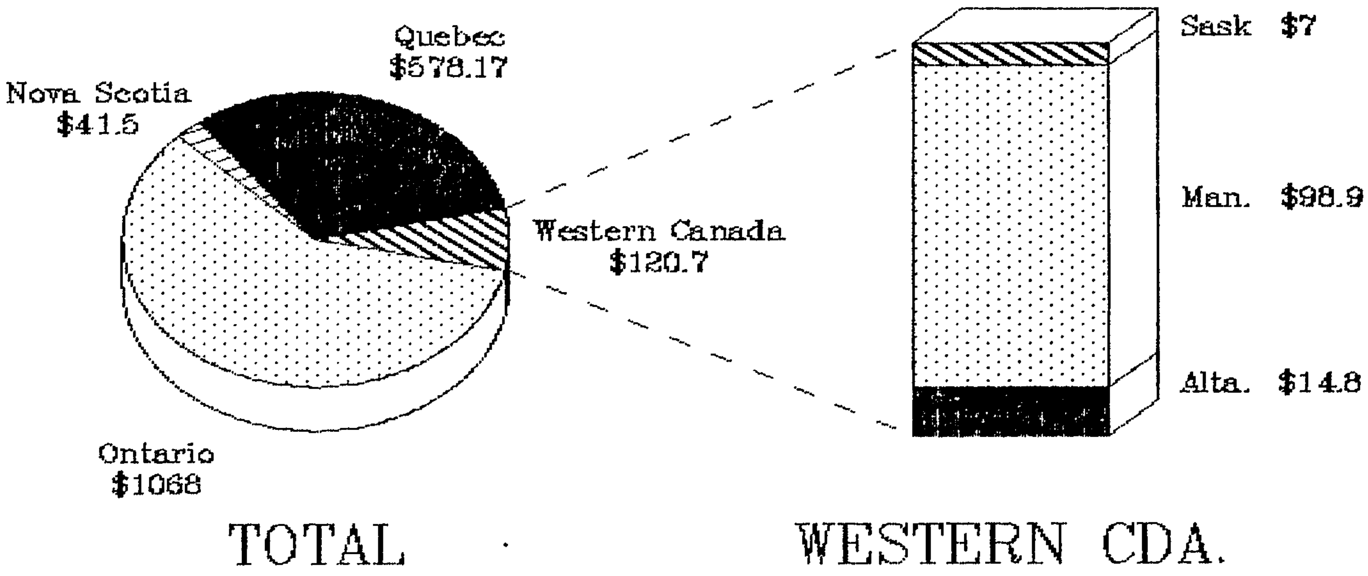


Chart R3 Dec. 17 1987

DEFENCE SALES
1986 Data

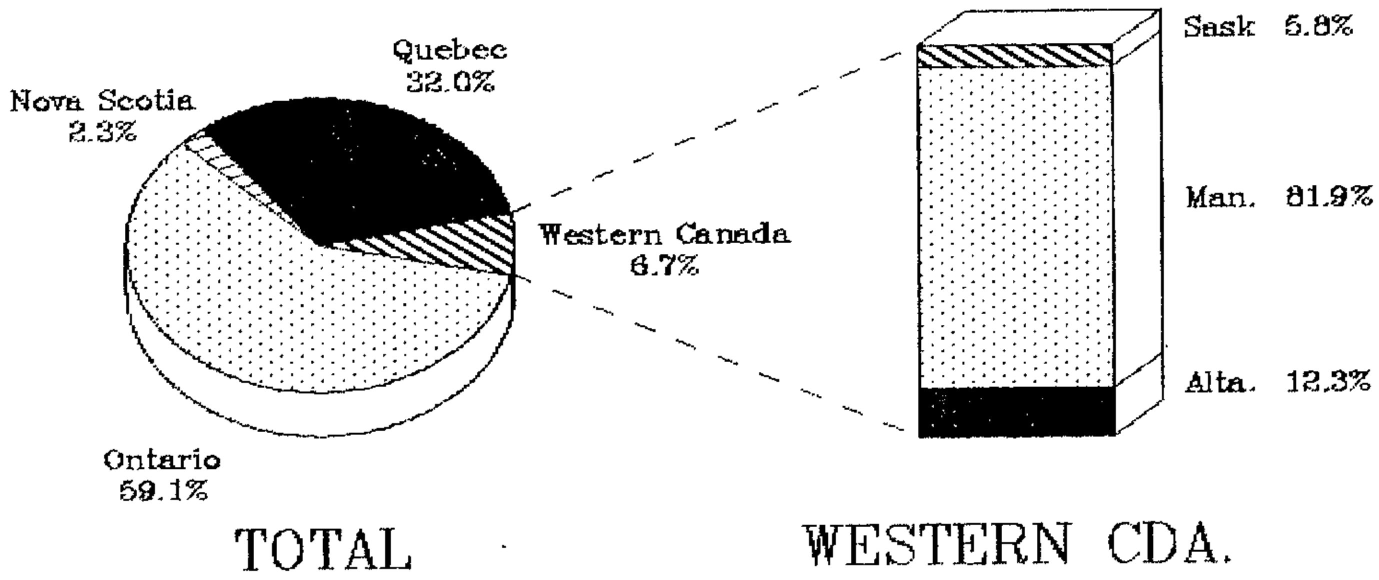
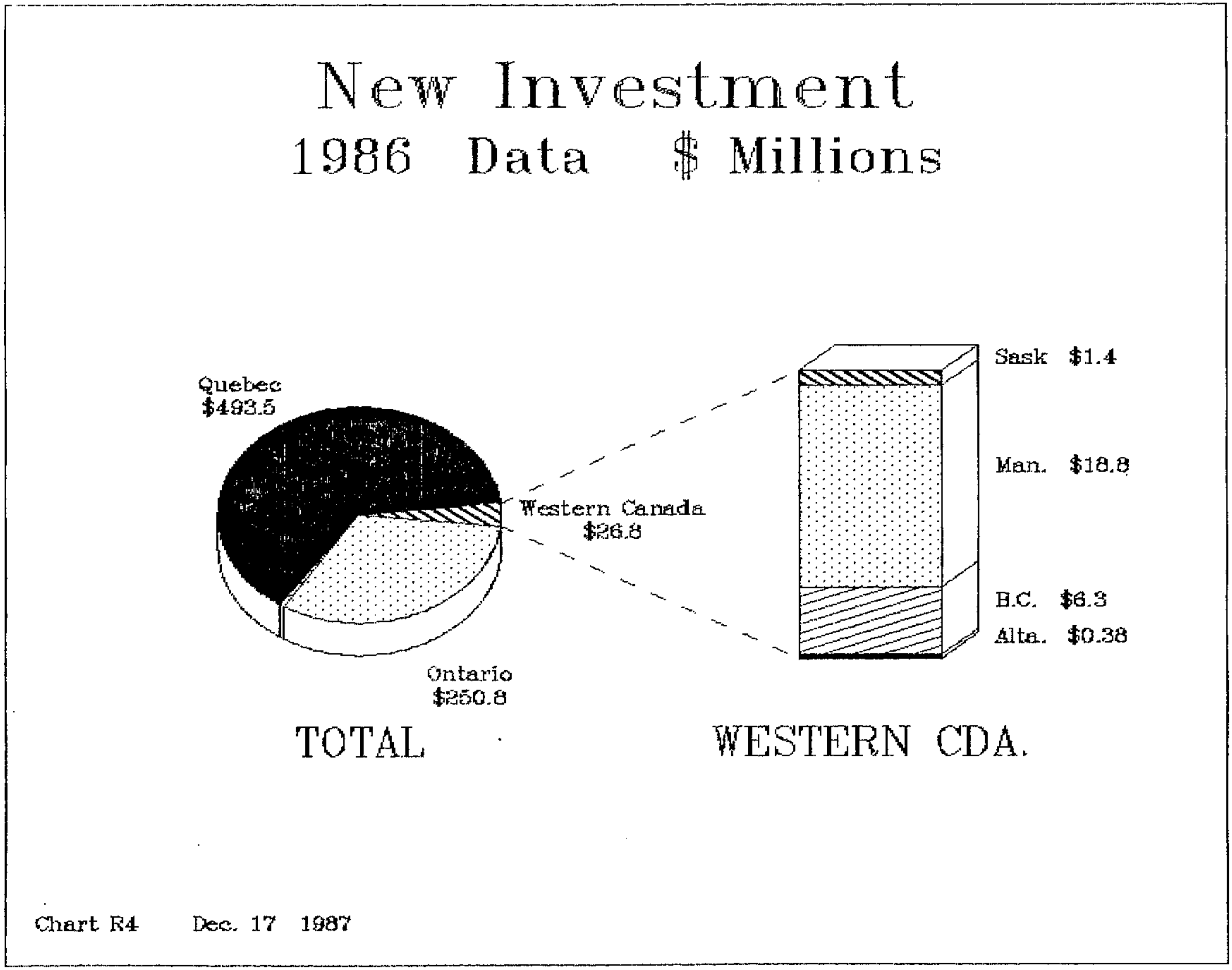


Chart R3A Dec. 10 1987


New Investment
1986 Data $ Millions
Quebec
$493.5
Western Canada
$26.8
Ontario
$250.8
Sask $1.4
Man. $18.8
B.C. $6.3
Alta. $0.38
TOTAL
WESTERN CDA.
Chart R4 Dec. 17 1987

New Investment % of Total
1986 Data

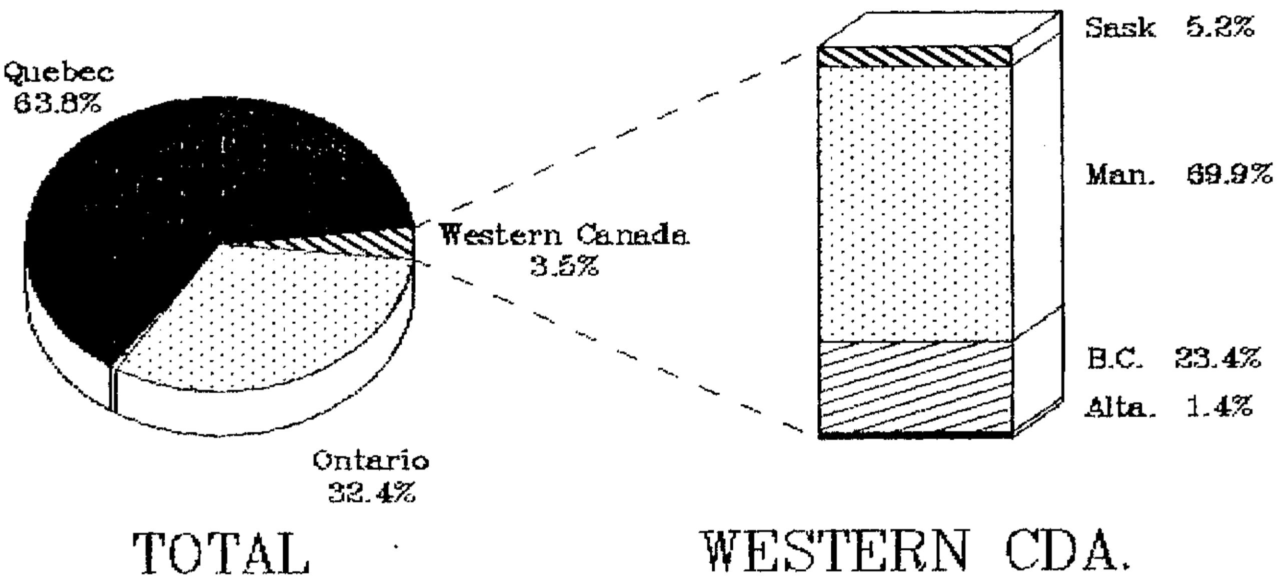


Chart R4A Dec. 10 1987

DRIE Investment

1986 Data $ Millions

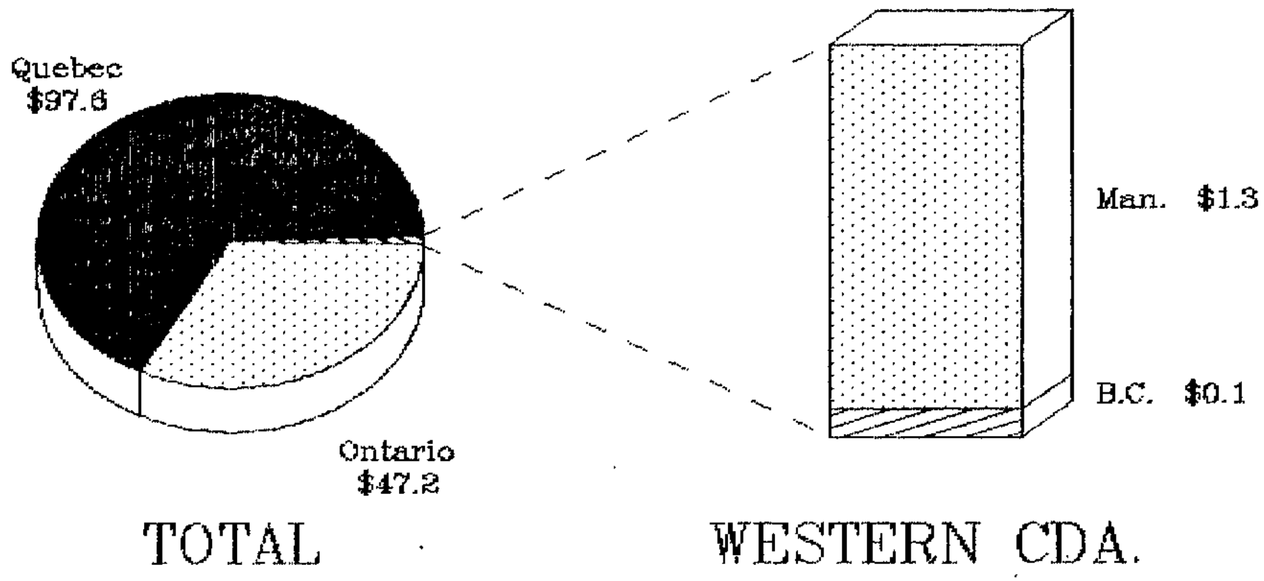


Chart R 5 Dec. 17 1987

DRIE Investment
1986 Data

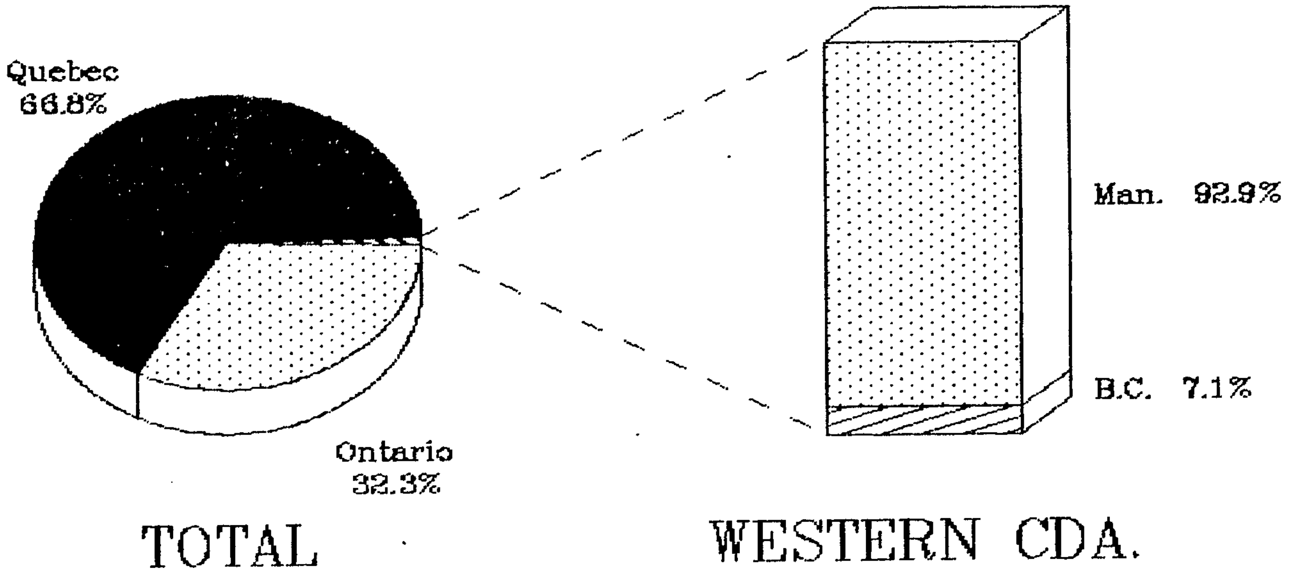
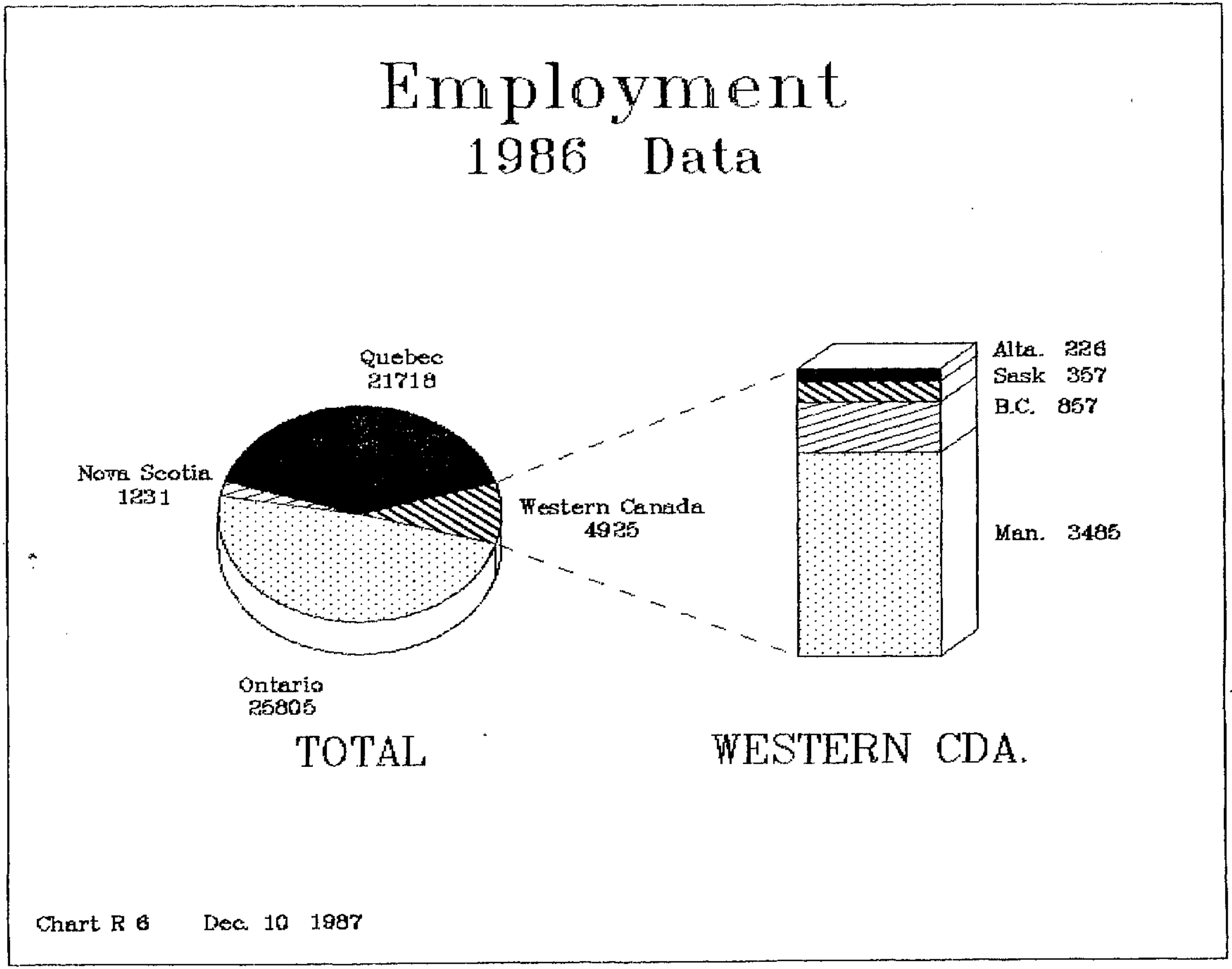
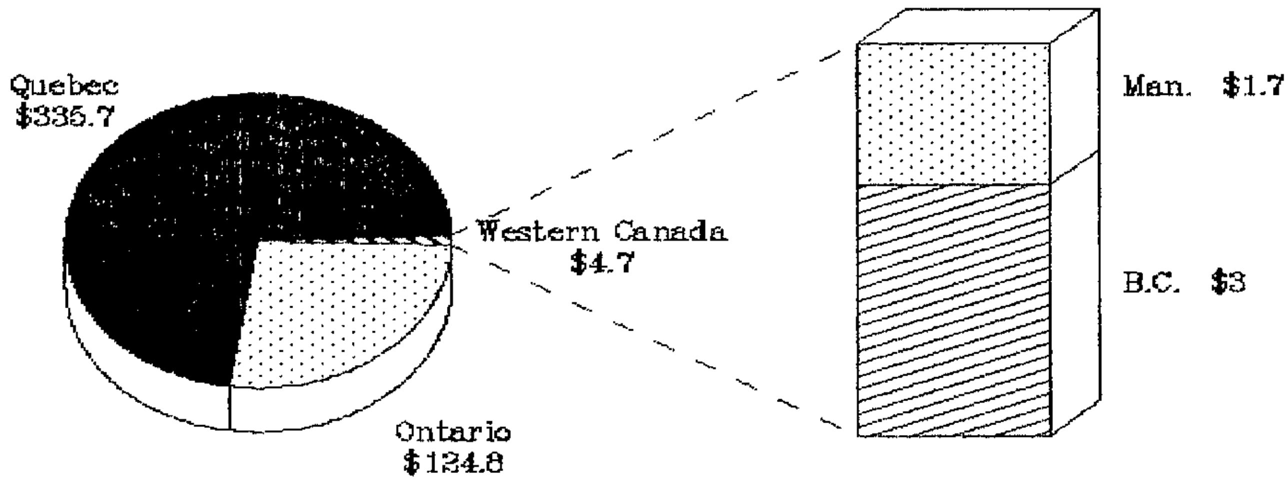


Chart R 5 A Dec. 10 1987


Employment
1986 Data
Quebec
21718
Nova Scotia
1231
Western Canada
4925
Ontario
25805
Alta. 226
Sask 357
B.C. 857
Man. 3485
TOTAL
WESTERN CDA.
Chart R 6
Dec. 10 1987

R & D Investment

1986 Data $ Millions



TOTAL WESTERN CDA.

Chart R7 Dec. 17 1987

R & D Investment

1986 Data

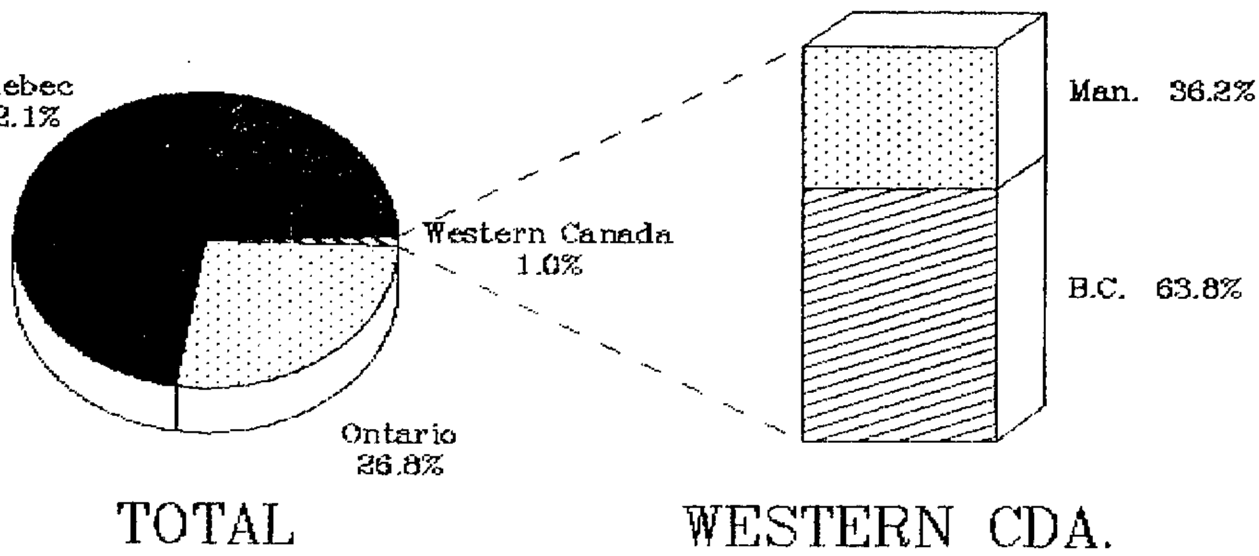


Chart R7A. Dec. 10 1987

Dec.1
Survey 87
Revised - December 1, 1987

Table 1

Sector Sales
1986 Constant Dollars - Millions

	1985	1986	1987	1988	1989	1990	1991
SALES							
Airframe	1493.12	2004.18	2232.99	2571.17	2887.76	3120.78	3126.53
Propulsion	1261.36	1247.20	1483.69	1661.54	1715.18	1932.73	2168.28
Avionics	629.55	706.85	911.34	962.44	1035.91	1110.52	1119.47
Space	198.37	206.76	258.18	437.49	395.03	539.47	618.22
Total Aerospace	3582.40	4164.99	4886.21	5632.64	6033.88	6703.49	7032.50
Non Aerospace	495.82	561.03	693.88	718.78	868.13	894.66	917.66
Net Sales	4078.22	4726.02	5580.09	6351.43	6902.01	7598.16	7950.16
M.O.U.Target for Net Sales	4078.22	4282.13	4496.23	4720.94	4957.07	5205.03	5465.22
Sales to CDN. OEMs (Contained in Net Sales)	262.10	282.40	315.40	372.04	376.45	405.30	414.69

Table 1A

Sector Sales
Percentage Change from Previous Year

	1986	1987	1988	1989	1990	1991	86-91 Compound Rate
SALES							
Airframe	34.2	11.4	15.1	12.3	8.1	0.2	9.3
Propulsion	-1.1	19.0	12.0	3.2	12.7	12.2	11.7
Avionics	12.3	28.9	5.6	7.6	7.2	0.8	9.6
Space	4.2	24.9	69.5	-9.7	36.6	14.6	24.5
Total Aerospace	16.3	17.3	15.3	7.1	11.1	4.9	11.0
Non Aerospace	13.2	23.7	3.6	20.8	3.1	2.6	10.3
Net Sales	15.9	18.1	13.8	8.7	10.1	4.6	11.0
Sales to CDN. OEMs (Contained in Net Sales)	7.7	11.7	18.0	1.2	7.7	2.3	8.0

Survey 87
Revised December 1, 1987

Table 1B

Sector Sales
As a Percentage of Net. Sales

	1985	1986	1987	1988	1989	1990	1991
SALES							
Airframe	36.61	42.41	40.02	40.48	41.84	41.07	39.33
Propulsion	30.93	26.39	26.59	26.16	24.85	25.44	27.27
Avionics	15.44	14.96	16.33	15.15	15.01	14.62	14.08
Space	4.86	4.37	4.63	6.89	5.72	7.10	7.78
Total Aerospace	87.84	88.13	87.57	88.68	87.42	88.23	88.46
Non Aerospace	12.16	11.87	12.43	11.32	12.58	11.77	11.54
Net Sales	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Sales to CDN. OEMs (Contained in Net Sales)	6.43	5.98	5.65	5.86	5.45	5.33	5.22

Survey 87
Revised - December 1, 1987

Table 2

Sector Sales by Class
1986 Constant Dollars - Millions

Class of Sales	1985	1986	1987	1988	1989	1990	1991
Defence	1552.64	1808.25	1947.40	2003.47	2353.32	2342.51	2423.51
Export	2841.15	3447.41	3813.78	4450.39	5008.83	5486.60	5897.19
M.O.U. Target (Exports)	2854.75	3308.22	3906.06	4446.00	4831.41	5318.71	5565.11

Table 2A

Sector Sales by Class
Percentage Change from Previous Year

Class of Sales	1986	1987	1988	1989	1990	1991	86-91 Comp.Rate
Defence	16.46	7.70	2.88	17.46	-0.46	3.46	6.03
Export	21.34	10.63	16.69	12.55	9.54	7.48	11.33

Table 2B

Sector Sales by Class
Percentage of Net Sales

Class of Sales	1986	1987	1988	1989	1990	1991
Defence	38.26	34.90	31.54	34.10	30.83	30.48
Export	72.95	68.35	70.07	72.57	72.21	74.18
M.O.U. Target (Export Sales)	70.00	70.00	70.00	70.00	70.00	70.00

Table 3

Sector Sales by Product Line
1986 Constant Dollars - Millions

Product Line	1985	1986	1987	1988	1989	1990	1991
Proprietary	2452.73	2898.88	3606.79	4135.34	4498.67	5027.31	5244.10
Sub-Contract	790.16	980.81	1026.89	1162.93	1311.12	1374.72	1420.38
Agency	229.61	197.48	204.95	217.89	245.44	276.75	279.63
Repair & Overhaul	605.72	648.85	741.46	835.26	846.79	919.37	1006.05
Net Sales	4078.22	4726.02	5580.09	6351.43	6902.01	7598.16	7950.16
Spares (Contained in above)	461.89	517.53	569.01	622.42	665.25	725.37	774.56

Table 3A

Sector Sales by Product Line
Percentage Change from Previous Year

Product Line	1986	1987	1988	1989	1990	1991	86-91 Compound Rate
Proprietary	18.2	24.4	14.7	8.8	11.8	4.3	12.6
Sub-Contract	24.1	4.7	13.2	12.7	4.9	3.3	7.7
Agency	-14.0	3.8	6.3	12.6	12.8	1.0	7.2
Repair & Overhaul	7.1	14.3	12.7	1.4	8.6	9.4	9.2
Net Sales	15.9	18.1	13.8	8.7	10.1	4.6	11.0
Spares (Contained in above	12.0	9.9	9.4	6.9	9.0	6.8	8.4

Survey 87
Revised December 1, 1987

Table 3B

Sector Sales by Product Line
As a Percentage of Net Sales

Product Line	1985	1986	1987	1988	1989	1990	1991
Proprietary	60.14	61.34	64.64	65.11	65.18	66.16	65.96
Sub-Contract	19.38	20.75	18.40	18.31	19.00	18.09	17.87
Agency	5.63	4.18	3.67	3.43	3.56	3.64	3.52
Repair & Overhaul	14.85	13.73	13.29	13.15	12.27	12.10	12.65
Net Sales	100.00	100.00	100.00	100.00	100.00	100.00	100.00
M.O.U. Target (Proprietary)	60.14	60.74	61.35	61.96	62.58	63.21	63.84
Spares (Contained in above)	11.33	10.95	10.20	9.80	9.64	9.55	9.74

Survey 87
Revised December 1, 1987

Table 4

Domestic Sales by Class of Customer
1986 Constant Dollars - Millions

Class of Customer	1985	1986	1987	1988	1989	1990	1991
Canadian Government	815.91	866.02	988.22	1224.99	1326.73	1430.60	1384.99
Cdn. Aero (OEM) Co's.	262.10	282.40	315.40	372.04	376.45	405.30	414.69
Other Cdn. Companies	421.16	412.60	778.10	676.05	566.45	680.96	667.99
Gross Domestic Sales	1499.17	1561.01	2081.71	2273.08	2269.62	2516.86	2467.67
Net Domestic Sales (GDS minus OEM Sales)	1237.07	1278.62	1766.31	1901.04	1893.18	2111.56	2052.98

Table 4A

Domestic Sales by Class of Customer
Percentage Change from Previous Year

Class of Customer	1986	1987	1988	1989	1990	1991	86-91 Compound Rate
Canadian Government	6.1	14.1	24.0	8.3	7.8	-3.2	9.8
Cdn. Aero (OEM) Co's.	7.7	11.7	18.0	1.2	7.7	2.3	8.0
Other Cdn. Companies	-2.0	88.6	-13.1	-16.2	20.2	-1.9	10.1
Gross Domestic Sales	4.1	33.4	9.2	-0.2	10.9	-2.0	9.6
Net Domestic Sales	3.4	38.1	7.6	-0.4	11.5	-2.8	9.9

Survey 87
Revised December 1, 1987

Table 4B

Domestic Sales by Class of Customer
As a Percentage of Net Sales

Class of Customer	1985	1986	1987	1988	1989	1990	1991
Canadian Government	20.01	18.32	17.71	19.29	19.22	18.83	17.42
Cdn. Aero (OEM) Co's.	6.43	5.98	5.65	5.86	5.45	5.33	5.22
Other Cdn. Companies	10.33	8.73	13.94	10.64	8.21	8.96	8.40
Net Domestic Sales	30.33	27.05	31.65	29.93	27.43	27.79	25.82

Table 4D

Domestic Sales by Class of Customer
As A Percentage of Net Domestic Sales

Class of Customer	1985	1986	1987	1988	1989	1990	1991
Canadian Government	65.96	67.73	55.95	64.44	70.08	67.75	67.46
Cdn. Aero (OEM) Co's.	21.19	22.09	17.86	19.57	19.88	19.19	20.20
Other Cdn. Companies	34.04	32.27	44.05	35.56	29.92	32.25	32.54

Survey 87
Revised December 1, 1987

Table 5

Export Sales by Class of Customer
1986 Constant Dollars - Millions

Class of Customer	1985	1986	1987	1988	1989	1990	1991
US Government	312.36	337.74	402.23	450.46	428.79	452.27	523.65
US Aero Companies (OEM)	1191.12	1343.12	1408.79	1410.98	1553.03	1712.11	1808.15
US Other	639.90	724.55	960.36	1263.02	1496.03	1474.80	1678.14
Total US Export Sales	2143.38	2405.41	2771.38	3124.46	3477.85	3639.18	4009.95
Other Foreign Govt.s	170.86	337.66	247.49	268.13	361.27	462.00	504.07
Other Foreign Aero Co.	240.81	274.87	322.76	423.61	417.62	537.47	537.47
Other Foreign Co.	286.09	429.46	472.14	634.18	752.09	921.20	845.70
Total Other Foreign Exports.	697.77	1041.99	1042.40	1325.93	1530.98	1920.67	1887.24
Total Export Sales	2841.15	3447.41	3813.78	4450.39	5008.83	5559.84	5897.19

Table 5A

Export Sales by Class of Customer
Percentage Change from Previous Year

Class of Customer	1986	1987	1988	1989	1990	1991	86-91 Compound Rate
US Government	8.1	19.1	12.0	-4.8	5.5	15.8	9.2
US Aero Companies (OEM)	12.8	4.9	0.2	10.1	10.2	5.6	6.1
US Other	13.2	32.5	31.5	18.4	-1.4	13.8	18.3
Total US Export Sales	12.2	15.2	12.7	11.3	4.6	10.2	10.8
Other Foreign Govt.s	97.6	-26.7	8.3	34.7	27.9	9.1	8.3
Other Foreign Aero Co.	14.1	17.4	31.2	-1.4	28.7	0.0	14.4
Other Foreign Co.	50.1	9.9	34.3	18.6	22.5	-8.2	14.5
Total Other Foreign Exports	49.3	0.0	27.2	15.5	25.5	-1.7	12.6
Total Export Sales	21.3	10.6	16.7	12.5	11.0	6.1	11.3

Survey 87
Revised December 1, 1987

Table 5B

Export Sales by Class of Customer
As a Percentage of Net Sales

Class of Customer	1985	1986	1987	1988	1989	1990	1991
US Government	7.66	7.15	7.21	7.09	6.21	5.95	6.59
US Aero Companies (OEM)	29.21	28.42	25.25	22.22	22.50	22.53	22.74
US Other	15.69	15.33	17.21	19.89	21.68	19.41	21.11
Total US Export Sales	52.56	50.90	49.67	49.19	50.39	47.90	50.44
Other Foreign Govt.s	4.19	7.14	4.44	4.22	5.23	6.08	6.34
Other Foreign Aero Co.	5.90	5.82	5.78	6.67	6.05	7.07	6.76
Other Foreign Co.	7.02	9.09	8.46	9.98	10.90	12.12	10.64
Total Other Foreign Exports	17.11	22.05	18.68	20.88	22.18	25.28	23.74
Total Export Sales	69.67	72.95	68.35	70.07	72.57	73.17	74.18

Table 5D

Export Sales by Class of Customer
As A Percentage of Total Export Sales

Class of Customer	1985	1986	1987	1988	1989	1990	1991
US Government	10.99	9.80	10.55	10.12	8.56	8.13	8.88
US Aero Companies (OEM)	41.92	38.96	36.94	31.70	31.01	30.79	30.66
US Other	22.52	21.02	25.18	28.38	29.87	26.53	28.46
Total US Export Sales	75.44	69.77	72.67	70.21	69.43	65.45	68.00
Other Foreign Govt.s	6.01	9.79	6.49	6.02	7.21	8.31	8.55
Other Foreign Aero Co.	8.48	7.97	8.46	9.52	8.34	9.67	9.11
Other Foreign Co.	10.07	12.46	12.38	14.25	15.02	16.57	14.34
Total Other Foreign Exports	24.56	30.23	27.33	29.79	30.57	34.55	32.00
Total Export Sales	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Survey 87
Revised December 1, 1987

Table 6

Cost of Sales by Source
1986 Constant Dollars - Millions

	1985	1986	1987	1988	1989	1990	1991
Cost of Sales							
Material							
Canadian Aero	286.58	385.66	425.12	492.53	503.27	542.38	533.30
Canadian Other	512.17	633.54	780.85	868.18	939.42	1079.81	1161.11
Net Canadian Material	512.17	633.54	780.85	868.18	939.42	1079.81	1161.11
US Source	1063.52	1237.81	1456.82	1614.92	1633.14	1927.70	1966.50
Other Foreign Sources	74.62	90.73	153.07	153.04	183.61	146.49	160.14
Total Foreign Material	1138.14	1328.54	1609.89	1767.95	1816.75	2074.19	2126.64
Tariffs and Duties	6.03	6.68	6.71	6.62	7.79	7.39	8.04
Total Material Cost	1656.34	1968.76	2397.45	2642.75	2763.96	3161.40	3295.80
Personnel Cost	1502.86	1734.66	1996.37	2130.03	2253.09	2393.08	2519.09
Training Cost	17.74	28.92	31.19	35.42	32.19	34.53	36.45
Other Cost	590.54	554.14	590.96	787.90	769.70	879.14	904.75
Total Non-Material Cost	2111.14	2317.72	2618.52	2953.36	3054.98	3306.74	3460.29
Total Cost of Sales	3767.48	4286.49	5015.97	5596.11	5818.94	6468.14	6756.09
Training Cost - MOU Target	17.74	17.92	18.10	18.28	18.46	18.64	18.83

Survey 87
Revised December 1, 1987

Table 6A

Cost of Sales by Source
Percentage Change from Previous Year

	1985	1986	1987	1988	1989	1990	1991	86-91 Comp.Rate
Cost of Sales								
Material								
Canadian Aero	N/A	34.57	10.23	15.86	2.18	7.77	-1.67	6.70
Canadian Other	N/A	23.70	23.25	11.18	8.21	14.94	7.53	12.88
Net Canadian Material	N/A	23.70	23.25	11.18	8.21	14.94	7.53	12.88
US Source	N/A	16.39	17.69	10.85	1.13	18.04	2.01	9.70
Other Foreign Sources	N/A	21.60	68.70	-0.02	19.98	-20.22	9.32	12.03
Total Foreign Material	N/A	16.73	21.18	9.82	2.76	14.17	2.53	9.87
Tariffs and Duties	N/A	10.94	0.40	-1.42	17.77	-5.12	8.81	3.77
Total Material Cost	N/A	18.86	21.77	10.23	4.59	14.38	4.25	10.85
Personnel Cost	N/A	15.42	15.09	6.70	5.78	6.21	5.27	7.75
Training Cost	N/A	63.03	7.84	13.58	-9.11	7.24	5.56	4.73
Other Cost	N/A	-6.16	6.64	33.33	-2.31	14.22	2.91	10.30
Total Non-Material Cost	N/A	9.79	12.98	12.79	3.44	8.24	4.64	8.35
Total Cost of Sales	N/A	13.78	17.02	11.57	3.98	11.16	4.45	9.53

Table 6B

Cost of Sales by Source
As a Percentage of Net Sales

	1985	1986	1987	1988	1989	1990	1991
Cost of Sales							
Material							
Canadian Aero	7.03	8.16	7.62	7.75	7.29	7.14	6.71
Canadian Other	12.56	13.41	13.99	13.67	13.61	14.21	14.60
Net Canadian Material	12.56	13.41	13.99	13.67	13.61	14.21	14.60
US Source	26.08	26.19	26.11	25.43	23.66	25.37	24.74
Other Foreign Sources	1.83	1.92	2.74	2.41	2.66	1.93	2.01
Total Foreign Material	27.91	28.11	28.85	27.84	26.32	27.30	26.75
Tariffs and Duties	0.15	0.14	0.12	0.10	0.11	0.10	0.10
Total Material Cost	40.61	41.66	42.96	41.61	40.05	41.61	41.46
Personnel Cost	36.85	36.70	35.78	33.54	32.64	31.50	31.69
Training Cost	0.43	0.61	0.56	0.56	0.47	0.45	0.46
Other Cost	14.48	11.73	10.59	12.41	11.15	11.57	11.38
Total Non-Material Cost	51.77	49.04	46.93	46.50	44.26	43.52	43.52
Total Cost of Sales	92.38	90.70	89.89	88.11	84.31	85.13	84.98

Survey 87
Revised December 1, 1987

Table 6D

Cost of Sales by Source
As A Percentage of Total Cost of Sales

	1985	1986	1987	1988	1989	1990	1991
Cost of Sales							
Material							
Canadian Aero	7.61	9.00	8.48	8.80	8.65	8.39	7.89
Canadian Other	13.59	14.78	15.57	15.51	16.14	16.69	17.19
Net Canadian Material	13.59	14.78	15.57	15.51	16.14	16.69	17.19
US Source	28.23	28.88	29.04	28.86	28.07	29.80	29.11
Other Foreign Sources	1.98	2.12	3.05	2.73	3.16	2.26	2.37
Total Foreign Material	30.21	30.99	32.10	31.59	31.22	32.07	31.48
Tariffs and Duties	0.16	0.16	0.13	0.12	0.13	0.11	0.12
Total Material Cost	43.96	45.93	47.80	47.22	47.50	48.88	48.78
Personnel Cost	39.89	40.47	39.80	38.06	38.72	37.00	37.29
Training Cost	0.47	0.67	0.62	0.63	0.55	0.53	0.54
Other Cost	15.67	12.93	11.78	14.08	13.23	13.59	13.39
Total Non-Material Cost	56.04	54.07	52.20	52.78	52.50	51.12	51.22
Total Cost of Sales	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Survey 87
Survey 87 -
Revised December 1, 1987

Table 7

Airframe Sales by Product Line
1986 Constant Dollars - Millions

Product Line	1985	1986	1987	1988	1989	1990	1991
Proprietary	766.35	1092.42	1283.13	1565.84	1740.31	1885.55	1887.98
Sub-Contract	529.48	675.93	695.73	724.26	843.64	907.22	902.01
Agency	19.69	25.02	26.34	29.28	33.13	34.58	32.04
Repair & Overhaul	177.61	210.81	227.79	251.79	270.67	293.43	304.50
Total Airframe Sales	1493.12	2004.18	2232.99	2571.17	2887.76	3120.78	3126.53
Spares (Contained in above)	120.10	170.97	184.87	216.69	233.45	247.91	241.28

Table 7A

Airframe Sales by Product Line
Percentage Change from Previous Year

Product Line	1986	1987	1988	1989	1990	1991	86-91 Comp.Rate
Proprietary	42.5	17.5	22.0	11.1	8.3	0.1	11.6
Sub-Contract	27.7	2.9	4.1	16.5	7.5	-0.6	5.9
Agency	27.1	5.3	11.2	13.2	4.4	-7.3	5.1
Repair & Overhaul	18.7	8.1	10.5	7.5	8.4	3.8	7.6
Total Airframe Sales	34.2	11.4	15.1	12.3	8.1	0.2	9.3
Spares Contained in above)	42.4	8.1	17.2	7.7	6.2	-2.7	7.1

Survey 87
Revised December 1, 1987

Table 7B

Airframe Sales by Product Line
As a Percentage of Net Sales

Product Line	1985	1986	1987	1988	1989	1990	1991
Proprietary	18.79	23.12	22.99	24.65	25.21	24.82	23.75
Sub-Contract	12.98	14.30	12.47	11.40	12.22	11.94	11.35
Agency	0.48	0.53	0.47	0.46	0.48	0.46	0.40
Repair & Overhaul	4.36	4.46	4.08	3.96	3.92	3.86	3.83
Total Airframe Sales	36.61	42.41	40.02	40.48	41.84	41.07	39.33
Spares (Contained in above)	2.94	3.62	3.31	3.41	3.38	3.26	3.03

Table 7D

Airframe Sales by Product Line
As A Percentage of Total Airframe Sales

Product Line	1985	1986	1987	1988	1989	1990	1991
Proprietary	51.33	54.51	57.46	60.90	60.27	60.42	60.39
Sub-Contract	35.46	33.73	31.16	28.17	29.21	29.07	28.85
Agency	1.32	1.25	1.18	1.14	1.15	1.11	1.02
Repair & Overhaul	11.90	10.52	10.20	9.79	9.37	9.40	9.74
Total Airframe Sales	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Spares (Contained in above)	8.04	8.53	8.28	8.43	8.08	7.94	7.72

Survey 87
Revised December 1, 1987

Table 8

Propulsion Sales by Product Line
1986 Constant Dollars - Millions

Product Line	1985	1986	1987	1988	1989	1990	1991
Proprietary	657.77	642.13	814.51	903.98	963.23	1102.62	1258.13
Sub-Contract	114.64	117.46	111.17	152.06	126.15	137.03	142.38
Agency	129.16	124.13	131.57	138.03	152.54	170.86	186.35
Repair & Overhaul	359.78	363.48	426.44	467.47	473.27	522.21	581.42
Total Propulsion	1261.36	1247.20	1483.69	1661.54	1715.18	1932.73	2168.28
Spares (Contained in above)	287.99	284.99	318.63	337.89	355.23	400.62	447.59

Table 8A

Propulsion Sales by Product Line
Percentage Change from Previous Year

Product Line	1986	1987	1988	1989	1990	1991	86-91 Compound Rate
Proprietary	-2.4	26.8	11.0	6.6	14.5	14.1	14.4
Sub-Contract	2.5	-5.4	36.8	-17.0	8.6	3.9	3.9
Agency	-3.9	6.0	4.9	10.5	12.0	9.1	8.5
Repair & Overhaul	1.0	17.3	9.6	1.2	10.3	11.3	9.9
Total Propulsion	-1.1	19.0	12.0	3.2	12.7	12.2	11.7
Spares (Contained in above)	-1.0	11.8	6.0	5.1	12.8	11.7	9.4

Table 8B

Propulsion Sales by Product Line
As a Percentage of Net Sales

Product Line	1985	1986	1987	1988	1989	1990	1991
Proprietary	16.13	13.59	14.60	14.23	13.96	14.51	15.83
Sub-Contract	2.81	2.49	1.99	2.39	1.83	1.80	1.79
Agency	3.17	2.63	2.36	2.17	2.21	2.25	2.34
Repair & Overhaul	8.82	7.69	7.64	7.36	6.86	6.87	7.31
Total Propulsion	30.93	26.39	26.59	26.16	24.85	25.44	27.27
Spares (Contained in above)	7.06	6.03	5.71	5.32	5.15	5.27	5.63

Table 8D

Propulsion Sales by Product Line
As A Percentage of Total Propulsion Sales

Product Line	1985	1986	1987	1988	1989	1990	1991
Proprietary	52.15	51.49	54.90	54.41	56.16	57.05	58.02
Sub-Contract	9.09	9.42	7.49	9.15	7.35	7.09	6.57
Agency	10.24	9.95	8.87	8.31	8.89	8.84	8.59
Repair & Overhaul	28.52	29.14	28.74	28.13	27.59	27.02	26.81
Total Propulsion	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Spares (Contained in above)	22.83	22.85	21.48	20.34	20.71	20.73	20.64

Survy 87
Revised December 1, 1987

Table 9

Avionics Sales by Product Line
1986 Constant Dollars - Millions

Product Line	1985	1986	1987	1988	1989	1990	1991
Proprietary	541.07	613.69	805.77	827.91	911.58	975.46	980.81
Sub-Contract	23.32	24.59	29.11	35.96	35.10	37.93	40.25
Agency	18.47	17.27	15.86	16.57	19.48	21.39	20.96
Repair & Overhaul	46.69	51.29	60.61	82.00	69.74	75.73	77.46
Total Avionics Sales	629.55	706.85	911.34	962.44	1035.91	1110.52	1119.47
Spares (Contained in above)	35.31	41.17	46.29	48.97	54.45	52.80	59.94

Table 9A

Avionics Sales by Product Line
Percentage Change from Previous Year

Product Line	1986	1987	1988	1989	1990	1991	86-91 Compound Rate
Proprietary	13.4	31.3	2.7	10.1	7.0	0.5	9.8
Sub-Contract	5.5	18.4	23.5	-2.4	8.0	6.1	10.4
Agency	-6.5	-8.2	4.5	17.5	9.8	-2.1	3.9
Repair & Overhaul	9.9	18.2	35.3	-14.9	8.6	2.3	8.6
Total Avionics Sales	12.3	28.9	5.6	7.6	7.2	0.8	9.6
Spares (Contained in above)	16.6	12.4	5.8	11.2	-3.0	13.5	7.8

Table 9B

Avionics Sales by Product Line
As a Percentage of Net Sales

Product Line	1985	1986	1987	1988	1989	1990	1991
Proprietary	13.27	12.99	14.44	13.04	13.21	12.84	12.34
Sub-Contract	0.57	0.52	0.52	0.57	0.51	0.50	0.51
Agency	0.45	0.37	0.28	0.26	0.28	0.28	0.26
Repair & Overhaul	1.14	1.09	1.09	1.29	1.01	1.00	0.97
Total Avionics Sales	15.44	14.96	16.33	15.15	15.01	14.62	14.08
Spares (Contained in above)	0.87	0.87	0.83	0.77	0.79	0.69	0.75

Table 9D

Avionics Sales by Product Line
As A Percentage of Total Avionics Sales

Product Line	1985	1986	1987	1988	1989	1990	1991
Proprietary	85.95	86.82	88.42	86.02	88.00	87.84	87.61
Sub-Contract	3.70	3.48	3.19	3.74	3.39	3.42	3.60
Agency	2.93	2.44	1.74	1.72	1.88	1.93	1.87
Repair & Overhaul	7.42	7.26	6.65	8.52	6.73	6.82	6.92
Total Avionics Sales	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Spares (Contained in above)	5.61	5.82	5.08	5.09	5.26	4.75	5.35

Survey 87
Revised December 1, 1987

Table 10

Space Sales by Product Line
1986 Constant Dollars - Millions

Product Line	1985	1986	1987	1988	1989	1990	1991
Proprietary	144.69	154.86	191.79	299.57	291.04	416.56	472.51
Sub-Contract	46.87	46.14	60.89	126.19	94.74	112.54	134.29
Agency	3.09	2.89	2.45	2.36	3.17	3.23	3.23
Repair & Overhaul	3.72	2.87	3.05	9.37	6.09	7.14	8.19
Total Space Sales	198.37	206.76	258.18	437.49	395.03	539.47	618.22
Spares (Contained in above)	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 10A

Space Sales by Product Line
Percentage Change from Previous Year

Product Line	1986	1987	1988	1989	1990	1991	86-91 Compound Rate
Proprietary	7.0	23.9	56.2	-2.8	43.1	13.4	25.0
Sub-Contract	-1.6	32.0	107.2	-24.9	18.8	19.3	23.8
Agency	0.0	0.0	0.0	0.0	0.0	0.0	2.3
Repair & Overhaul	-22.8	6.0	207.9	-35.0	17.2	14.7	23.3
Total Space Sales	4.2	24.9	69.5	-9.7	36.6	14.6	24.5
Spares (Contained in the above)	0	0	0	0	0	0	0

Survey 87
Revised December 1, 1987

Table 10B

Space Sales by Product Line
As a Percentage of Net Sales

Product Line	1985	1986	1987	1988	1989	1990	1991
Proprietary	3.55	3.28	3.44	4.72	4.22	5.48	5.94
Sub-Contract	1.15	0.98	1.09	1.99	1.37	1.48	1.69
Agency	0.08	0.06	0.04	0.04	0.05	0.04	0.04
Repair & Overhaul	0.09	0.06	0.05	0.15	0.09	0.09	0.10
Total Space Sales	4.86	4.37	4.63	6.89	5.72	7.10	7.78
Spares (Contained in the above)	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 10D

Space Sales by Product Line
As A Percentage of Total Space Sales

Product Line	1985	1986	1987	1988	1989	1990	1991
Proprietary	72.94	74.90	74.29	68.47	73.67	77.22	76.43
Sub-Contract	23.63	22.32	23.59	28.84	23.98	20.86	21.72
Agency	1.56	1.40	0.95	0.54	0.80	0.60	0.52
Repair & Overhaul	1.88	1.39	1.18	2.14	1.54	1.32	1.32
Total Space Sales	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Spares (Contained in the above)	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Survey 87
Revised December 1. 1987

Table 11

None-Aerospace Sales by Product Line
1986 Constant Dollars - Millions

Product Line	1985	1986	1987	1988	1989	1990	1991
Proprietary	342.86	395.78	511.59	538.06	592.51	647.13	644.67
Sub-Contract	75.84	116.69	129.99	124.45	211.48	180.00	201.45
Agency	59.20	28.18	28.74	31.64	37.12	46.68	37.06
Repair & Overhaul	17.92	20.39	23.57	24.63	27.01	20.85	34.48
Total Non-Aerospace Sales	495.82	561.03	693.88	718.78	868.13	894.66	917.66
Spares (Contained in above)	18.48	20.40	19.21	18.88	22.12	24.03	25.75

Table 11A

None-Aerospace Sales by Product Line
Percentage Change from Previous Year

Product Line	1986	1987	1988	1989	1990	1991	86-91 Comp.Rate
Proprietary	15.44	29.26	5.17	10.12	9.22	-0.38	10.25
Sub-Contract	53.85	11.40	-4.26	69.93	-14.89	11.92	11.54
Agency	-52.41	1.99	10.12	17.32	25.75	-20.61	5.64
Repair & Overhaul	13.75	15.62	4.48	9.69	-22.81	65.34	11.08
Total Non-Aerospace Sales	13.15	23.68	3.59	20.78	3.06	2.57	10.34
Spares (Contained in above)	10.36	-5.81	-1.76	17.19	8.62	7.16	4.77

Survey 87
Revised December 1, 1987

Table 11B

None-Aerospace Sales by Product Line
As a Percentage of Net Sales

Product Line	1985	1986	1987	1988	1989	1990	1991
Proprietary	8.41	8.37	9.17	8.47	8.58	8.52	8.11
Sub-Contract	1.86	2.47	2.33	1.96	3.06	2.37	2.53
Agency	1.45	0.60	0.51	0.50	0.54	0.61	0.47
Repair & Overhaul	0.44	0.43	0.42	0.39	0.39	0.27	0.43
Total Non-Aerospace Sales	12.16	11.87	12.43	11.32	12.58	11.77	11.54
Spares (Contained in above)	0.45	0.43	0.34	0.30	0.32	0.32	0.32

Table 11D

None-Aerospace Sales by Product Line
As A Percentage of Non-Aerospace Sales

Product Line	1985	1986	1987	1988	1989	1990	1991	
Proprietary	69.15	70.55	73.73	74.86	68.25	72.33	70.25	
Sub-Contract	15.30	20.80	18.73	17.31	24.36	20.12	21.95	
Agency	11.94	5.02	4.14	4.40	4.28	5.22	4.04	
Repair & Overhaul	3.61	3.63	3.40	3.43	3.11	2.33	3.76	
Total Non-Aerospace Sales	100.00	100.00	100.00	100.00	100.00	100.00	100.00	
Spares (Contained in above)	3.73	3.64	2.77	2.63	2.55	2.69	2.81	
Total Avionics Sales		-3.1	9.2	-7.2	-1.0	-2.6	-3.7	-1.2
Spares (Contained in above		0.6	-4.8	-7.1	2.3	-11.9	8.5	-2.8

Table 12

New Investment
1986 Constant Dollars - Millions

	1985	1986	1987	1988	1989	1990	1991
New Investment							
Plant	67.49	81.14	71.28	78.55	58.58	61.18	75.52
Equipment	154.57	227.68	251.24	300.79	283.91	279.10	309.48
Research & Development	414.38	465.22	549.54	660.98	733.67	714.91	697.47
Total New Investment	636.44	774.04	872.07	1040.31	1076.16	1055.20	1082.47
M.O.U. Target - New Investment	636.44	668.26	701.68	736.75	773.60	812.29	852.90
MOU Target - R & D Investment	477.33	580.53	654.05	780.23	807.12	791.40	811.85

Table 12A

New Investment
Percentage Change from Previous Year

	1986	1987	1988	1989	1990	1991	86-91 Compound Rate
New Investment							
Plant	20.2	-12.2	10.2	-25.4	4.4	23.4	-1.4
Equipment	47.3	10.3	19.7	-5.6	-1.7	10.9	6.3
Research & Development	12.3	18.1	20.3	11.0	-2.6	-2.4	8.4
Total New Investment	21.6	12.7	19.3	3.4	-1.9	2.6	6.9

Survey 87
Revised December 1, 1987

Table 12B

New Investment
As a Percentage of Net Sales

New Investment	1985	1986	1987	1988	1989	1990	1991
Plant	1.65	1.72	1.28	1.24	0.85	0.81	0.95
Equipment	3.79	4.82	4.50	4.74	4.11	3.67	3.89
Research & Development	10.16	9.84	9.85	10.41	10.63	9.41	8.77
Total New Investment	15.61	16.38	15.63	16.38	15.59	13.89	13.62

Table 12D

New Investment
As A Percentage of Total Investment

New Investment	1985	1986	1987	1988	1989	1990	1991
Plant	10.6	10.5	8.2	7.6	5.4	5.8	7.0
Equipment	24.3	29.4	28.8	28.9	26.4	26.5	28.6
Research & Development	65.1	60.1	63.0	63.5	68.2	67.8	64.4
Total New Investment	100.0	100.0	100.0	100.0	100.0	100.0	100.0
R&D Inv./Tot.New Inv.-MOU Target	75.00	75.00	75.00	75.00	75.00	75.00	75.00

Survey 87
Revised - December 1, 1987

Table 13

Government Investment
1986 Constant Dollars - Millions

Sources of Investment	1985	1986	1987	1988	1989	1990	1991
Drie Research & Develop	105.36	118.84	142.94	185.35	200.84	209.86	206.77
Drie Source Establishment	9.40	6.84	4.79	12.10	4.72	2.57	3.58
Drie Capital Assistance	10.89	20.56	36.98	47.36	33.18	18.08	17.17
Drie Feasibility Study Support	0.00	0.00	1.61	0.88	0.57	0.57	0.58
Total Drie	125.65	146.24	186.33	245.69	239.31	231.09	228.10
Payback	14.58	17.58	16.52	34.38	22.87	21.62	27.01
Net Drie	111.07	128.67	169.81	211.31	216.45	209.47	201.09
Other Departments (Fed)	4.62	19.87	21.56	28.16	10.55	9.28	4.47
Net Federal Gov't.	115.69	148.54	191.37	239.48	227.00	218.76	205.56
Gross Fed. Gov't.	130.27	166.11	207.89	273.85	249.86	240.37	232.57
Drie as % Gross Fed.	96.45	88.04	89.63	89.72	95.78	96.14	98.08

Table 13A

Government Investment
Percentage Change from Previous Year

Sources of Investment	1986	1987	1988	1989	1990	1991	86-91 Compound Rate
Drie Research & Develop	12.8	20.3	29.7	8.4	4.5	-1.5	11.7
Drie Source Establishment	-27.2	-30.0	152.6	-61.0	-45.5	39.2	-12.1
Drie Capital Assistance	88.8	79.9	28.1	-29.9	-45.5	-5.0	-3.5
Drie Feasibility Study Support	0	0	-45.2	-35.1	0.0	0.9	ERR
Total Drie	16.4	27.4	31.9	-2.6	-3.4	-1.3	9.3
Payback	20.5	-6.0	108.1	-33.5	-5.5	25.0	9.0
Net Drie	15.8	32.0	24.4	2.4	-3.2	-4.0	9.3
Other Departments (Fed)	330.1	8.5	30.6	-62.5	-12.0	-51.8	-25.8
Net Federal Gov't.	28.4	28.8	25.1	-5.2	-3.6	- 6.0	6.7
Gross Fed. Gov't.	27.5	25.1	31.7	-8.8	-3.8	- 3.2	7.0

Survey 87
Revised December 1, 1987

Table 13B

Government Investment
As a Percentage of Net Sales

Sources of Investment	1985	1986	1987	1988	1989	1990	1991
Drie Research & Develop	2.58	2.51	2.56	2.92	2.91	2.76	2.60
Drie Source Establishment	0.23	0.14	0.09	0.19	0.07	0.03	0.05
Drie Capital Assistance	0.27	0.44	0.66	0.75	0.48	0.24	0.22
Drie Feasibility Study Support	0.00	0.00	0.03	0.01	0.01	0.01	0.01
Total Drie	3.08	3.09	3.34	3.87	3.47	3.04	2.87
Payback	0.36	0.37	0.30	0.54	0.33	0.28	0.34
Net Drie	2.72	2.72	3.04	3.33	3.14	2.76	2.53
Other Departments (Fed)	0.11	0.42	0.39	0.44	0.15	0.12	0.06
Net Federal Gov't.	2.84	3.14	3.43	3.77	3.29	2.88	2.59
Gross Fed. Gov't.	3.19	3.51	3.73	4.31	3.62	3.16	2.93

Table 13D

Government Investment
As A Percentage of Total Investment

Sources of Investment	1985	1986	1987	1988	1989	1990	1991
Drie Research & Develop	16.56	15.35	16.39	17.82	18.66	19.89	19.10
Drie Source Establishment	1.48	0.88	0.55	1.16	0.44	0.24	0.33
Drie Capital Assistance	1.71	2.66	4.24	4.55	3.08	1.71	1.59
Drie Feasibility Study Support	0.00	0.00	0.18	0.08	0.05	0.05	0.05
Total Drie	19.74	18.89	21.37	23.62	22.24	21.90	21.07
Payback	2.29	2.27	1.89	3.30	2.12	2.05	2.50
Net Drie	17.45	16.62	19.47	20.31	20.11	19.85	18.58
Other Departments (Fed)	0.73	2.57	2.47	2.71	0.98	0.88	0.41
Net Federal Gov't.	18.18	19.19	21.94	23.02	21.09	20.73	18.99
Gross Fed. Gov't.	20.47	21.46	23.84	26.32	23.22	22.78	21.49

Table 14

Employment

Employment Class	1985	1986	1987	1988	1989	1990	1991
Engineering/Scientific	8206	9515	10264	11477	12060	12391	13280
Production	25855	30136	33149	34056	34704	35728	35681
Other	13566	14027	14843	15574	16091	17427	17150
Total	47627	53678	58256	61107	62856	65546	66111
M.O.U. Target for Employment	47627	49056	50527	52042	53604	55214	56871

Table 14A

Employment
Percentage Change from Previous Year

Employment Class	1986	1987	1988	1989	1990	1991	86-91 Compound Rate
Engineering/Scientific	16.0	7.9	11.8	5.1	2.7	7.2	6.9
Production	16.6	10.0	2.7	1.9	3.0	-0.1	3.4
Other	3.4	5.8	4.9	3.3	8.3	-1.6	4.1
Total	12.7	8.5	4.9	2.9	4.3	0.9	4.3

Table 14B

Employment
As A Percentage of Total Employment

Employment Class	1985	1986	1987	1988	1989	1990	1991
Engineering/Scientific	17.2	17.7	17.6	18.8	19.2	18.9	20.1
Production	54.3	56.1	56.9	55.7	55.2	54.5	54.0
Other	28.5	26.1	25.5	25.5	25.6	26.6	25.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Survey 87
Revised December 1, 1987

Table 15

Employment Related Data
1986 Dollars - Thousands

	1985	1986	1987	1988	1989	1990	1991	86-91 Compound
Net Sales per Employee	85.63	88.04	95.79	103.94	109.81	115.92	120.25	6.43
Total Investment per Employee	13.36	14.42	14.97	17.02	17.12	16.10	16.37	2.57
R & D Investment per Employee	8.70	8.67	9.43	10.82	11.67	10.91	10.55	4.01
DRIE Investment per Employee	2.64	2.72	3.20	4.02	3.81	3.53	3.45	4.84
Training Cost per Employee	0.37	0.54	0.54	0.58	0.51	0.53	0.55	0.46

Survey 87
Revised December 16, 1987

Table 16

Miscellaneous Data
1986 Constant Dollars - Millions

	1985	1986	1987	1988	1989	1990	1991
Tariffs and Duties	6.03	6.68	6.71	6.62	7.79	7.39	8.04
Inventory	1207.43	1677.44	1865.90	2144.87	2081.66	2127.88	2216.70
Backlog of orders	5213.70	5565.35	6021.29	6828.36	6985.37	7242.83	7324.81

Table 16A

Miscellaneous Data
Percentage Change from Previous Year

	1985	1986	1987	1988	1989	1990	1991	86-91 Compound Rate
Tariffs and Duties		10.9	0.4	-1.4	17.8	-5.1	8.8	3.8
Inventory		38.9	11.2	15.0	-2.9	2.2	4.2	5.7
Backlog of orders		6.7	8.2	13.4	2.3	3.7	1.1	5.6

Survey 87
Revised December 16, 1987

Table 16B

Miscellaneous Data
As a Percentage of Gross Sales

	1985	1986	1987	1988	1989	1990	1991
Tariffs and Duties	0.15	0.14	0.12	0.10	0.11	0.10	0.10
Inventory	29.61	35.49	33.44	33.77	30.16	28.01	27.88
Backlog of orders	127.84	117.76	107.91	107.51	101.21	95.32	92.13

Appendix A

Government of Canada / Gouvernement du Canada
Regional Industrial Expansion / Expansion industrielle régionale
Ottawa, Canada
K1A 0H5

Aerospace Industries Association of Canada
AIAC
Rm. 601, Royal Trust Bldg. — 116 Albert St.
Ottawa, Ontario K1P 5G3 (613) 232-4297

le 1 mai 1987

Destinataire: Sociétés canadiennes de l'aérospatiale

OBJET: ENQUÊTE DE 1987 SUR LES VENTES DU SECTEUR DE L'AÉROSPATIALE

Monsieur,

Le document ci-joint a trait à la procédure établie pour recueillir des données sur l'industrie canadienne de l'aérospatiale, par le truchement de l'enquête annuelle sur les ventes. Ce sondage est conçu pour répondre aux besoins de l'industrie et du gouvernement, comme le précise le protocole d'entente sur la planification de l'industrie conclu par l'Association des industries aérospatiales du Canada (AIAC) et le ministère de l'Expansion industrielle régionale (MEIR). Il englobe une définition de toute l'industrie et précise le genre de détails nécessaires à la planification d'une stratégie à long terme; par ailleurs, il se distingue d'autres questionnaires du fait qu'il insiste sur les ventes.

Les résultats de l'enquête de 1986 ont été dévoilés à l'industrie lors de séances d'information tenues aux bureaux régionaux du MEIR à Winnipeg, Toronto, Ottawa et Montréal. Ces séances ont favorisé une discussion des résultats du sondage et permis d'orienter l'enquête de 1987.

Dans le questionnaire de 1987, on posera les mêmes questions que lors des sondages précédents. On ne saurait trop insister sur la nécessité des renseignements requis aux fins de la mise en oeuvre efficace d'un protocole d'entente entre l'AIAC et le MEIR; nous tenons à ajouter que le MEIR se fera un point d'honneur de préserver le caractère confidentiel des renseignements que vous lui fournirez, car il n'utilisera que des données globales.

Pour de plus amples renseignements, veuillez communiquer avec M. Jamie Slattery, Division du développement sectoriel et de l'analyse, Direction générale de l'aérospatiale, de la défense et des retombées industrielles, au (613) 954-3146. Nous vous saurions gré de retourner votre questionnaire dûment rempli dans l'enveloppe pré-adressée jointe à cette fin. Tous les répondants recevront une mise à jour des résultats de l'enquête de 1987, de même qu'un exemplaire du rapport final.

K. E. Lewis
Président
Association des industries aérospatiales du Canada

T. F. Garrard
Directeur général
Direction générale de l'aérospatiale, de la défense et des retombées industrielles

Canada

Government of Canada — Gouvernement du Canada
Regional Industrial Expansion — Expansion industrielle régionale

AEROSPACE BUSINESS FORECAST INQUIRY SURVEY - 1987

ENQUÊTE SUR LES VENTES DU SECTEUR DE L'AÉROSPATIALE - 1987

Company Name - Nom de la compagnie	Contact - Personne ressource	Tel. No. - N° de tél	Date

Please Report all data in 1986 & subsequent years in 1986 Constant Dollars
Veuillez reporter toutes les données pour 1986 et les années suivantes en dollars constants de l'année 1986

EXPLANATORY NOTES

Q1 - Q3 Sales totals and their break-down are required in order to define the size and performance of the industry and to establish

- civil v. military
- domestic v. export
- direct v. indirect sales

NOTES EXPLICATIVES

Q1 - Q3 Le total des ventes et leur ventilation sont nécessaires pour définir la taille et le rendement de l'industrie et pour établir une distinction entre

- les ventes civiles et militaires
- les ventes intérieures et à l'exportation
- les ventes directes et indirectes

SALES - VENTES	ACTUAL - RÉELLES		FORECAST - PRÉVUES				
	1985	1986	1987	1988	1989	1990	1991
1. Domestic Au Canada							
a. to Canadian Government / au gouvernement canadien							
b. to other Canadian aerospace companies / à d'autres sociétés canadiennes, d'aéros							
c. to other Canadian customers / à d'autres clients canadiens							
Total Domestic Sales / Total des ventes au Canada							
2. Exports - Exportations							
a. to U.S. Government / au gouvernement américain							
b. to U.S. contractors / à des entrepreneurs américains							
c. to other U.S. customers / à d'autres clients américains							
d. to other foreign governments / à d'autres gouvernements étrangers							
e. to other foreign contractors / à d'autres entrepreneurs étrangers							
f. to other foreign customers / à d'autres clients étrangers							
Total Export Sales / Total des ventes à l'exportation							
3. Total Sales (1 and 2) / Total des ventes (1 et 2)							
4. Estimate military/defence sales % of total / Estimation pourcentage des ventes de matériel de défense							

Q5 - Q8 Cost details are required to form the basis of analytical studies such as productivity, indirect benefits and supplier relationships

Q5 - Q8 Une ventilation des coûts est nécessaire pour former la base d'études analytiques qui incluraient la productivité, les bénéfices indirects et les relations avec les fournisseurs.

COST DETAILS OF SALES - COÛT DÉCOULANT DES VENTES							
5. Personnel Costs / Coûts du personnel							
6. Materials and Supplies Purchased From. / Matériaux et fournitures achetés de sources:							
a. Domestic - other Canadian aerospace companies / Canadienne - autres sociétés canadiennes d'aérospatiale							
- other Canadian sources / - autres sources canadiennes							
b. Imported - from U.S. suppliers / Étrangère - fournisseurs américains							
- from other foreign sources / - autres sources étrangères							
Total Materials and Supplies Purchased / Total des achats de matériaux et fournitures							
7. Training Costs / Coûts de formation							
8. Other Costs and Expenditures / Autres coûts et dépenses							

FINANCIAL INFORMATION - RENSEIGNEMENTS FINANCIERS							
9. Investment - Investissement.							
a. plant / usine							
b. machinery / machines							
c. R & D							
Total New Investment / Total des nouveaux investissements							

DRIE 1028 (3-87)
TB-CT-REG 8/2359

Q10. Funding details will permit cross checking and forecast information will be particular value in future budgetary planning.

Q10. Les détails sur le financement permettront une contre-vérification des réponses fournies et les données relatives aux prévisions seront particulièrement utiles aux fins de planification budgétaire future.

GOVERNMENT SUPPORT - AIDE GOUVERNEMENTALE

	ACTUAL - RÉELLES		FORECAST - PRÉVUES				
	1985	1986	1987	1988	1989	1990	1991
10. Government Support from DRIE Aide gouvernementale du MEIR a. R & D							
b source establishment établissement des fournisseurs							
- capital assistance établissement des fournisseurs							
- feasibility study études de faisabilité d'une mise en marché							
- from other Departments d'autres ministères							
- repayments remboursements							

Q11. Tariff information of any kind will be used to guide ongoing GATT negotiations which seek the elimination of foreign duties on trade in aircraft and parts.

Q12 & 13 Inventory and backing data will serve to indicate the immediate business outlook and the annual trend

Q11. Les données de toute sorte sur les tarifs serviront à orienter les négociations permanentes du GATT qui tentent d'éliminer les tarifs douaniers étrangers sur le commerce des avions et des pièces d'avion

Q12 et 13 Les données sur les stocks et les carnets de commandes permettront de connaître la situation commerciale à un moment donné et la tendance annuelle

OTHER - AUTRES

11. Tariffs and Duties (Aerospace only) Tarifs et douanes (aérospatiale seulement)							
12. Opening Inventory Stocks d'ouverture							
13. Backlog - unfilled orders at year end Carnet de commandes - Commandes en attente à la fin de l'année							
14. Employment - engineering and scientific Emploi - science de l'ingénieur et scientifique							
- production							
- other autre							
- Total							

Responses to the balance of the questions will provide inputs to the general database and permit the development of sector and sub-sector profiles, assessments of the composition, performance competitiveness and outlook of the industry

Les réponses fournies aux autres questions alimenteront la base de données générales et permettront d'élaborer des profils du secteur et des sous-secteurs, et d'évaluer la composition, le rendement la compétitivité et les perspectives de l'industrie.

SUB-SECTOR

The purpose of this enquiry is to establish an accurate portrayal of Canadian aerospace in terms of Sub-sector Composition/Activity.

SOUS-SECTEURS

Cette enquête vise à fournir une description exacte du secteur canadien de l'aérospatiale pour ce qui est de la composition et des activités de ses sous-secteurs

BREAKDOWN OF SALES (Expressed as a percentage of total) - VENTILATION DES VENTES (Exprimer en pourcentage du total)

	Airframe Cellule	Propulsion Propulsion	Avionics Avionique	Space Espace	Other (non-aerospace) Autres (non liés à l'aéro)
Proprietary Parts & Systems Pièces et systèmes brevetés					
Sub-contract Sous-traitance					
Agency Sales Ventes d'agences					
Repair & Overhaul Réparation et révision					
*% Spares *% des pièces de rechange					

(Model Response is shown below to illustrate form of reply for breakdown of sales).
* An indication (inclusive) of how much of the above sales were for Spares i.e. After Market

(Modèle de réponse est indiqué ci-dessous pour illustrer la forme de réponse pour la ventilation des ventes)
* Indication (comprise) de la proportion des ventes ci-dessus que représentaient les ventes de pièces de rechange

MODEL RESPONSE - MODÈLE RÉPONSE

The purpose of the example is to illustrate how a company engaged in a number of different activities would report this in terms of sales percentage and thereby establish the size of the Canadian sub-sectors.

Hypothesis

1 - 30 percent of sales concern hydro mechanical accessories which the company designs and manufactures. A further 5 percent involves R. and O of this type of component. (Airframe)

2. - 10 percent of sales concern the sale of seals and filters, supplied by its foreign parent for the Canadian market. (Airframe)

3 - 20 percent of sales concern the sub-contract machining and/or processing of thrust reversing systems (equally for the Propulsion and Space sub-sectors)

4 - 30 percent of sales concern aircraft instruments - one-third of company's products, one-third of its parents and the remainder R. and O., of various originator which a license has been obtained. (Avionics)

5. - 5 percent of sales concern sub-contract making for the Nuclear and Automotive industries. (Other)

Cet exemple vise à illustrer comment une société ayant plusieurs activités différentes ferait rapport de son pourcentage de ventes et établirait ainsi la taille des sous-secteurs canadiens.

Hypothèse

1 - Les accessoires hydro-mécaniques que la société conçoit et fabrique représentent 30 p. 100 des ventes Un autre 5 p. 100 concerne la réparation et la révision de ces accessoires. (Cellules)

2. - Les diaphragmes obturateurs et les filtres, fournis par sa société-mère étrangère pour le marché canadien représentent 10 p. 100 des ventes (Cellules)

3. - 20 p. 100 des ventes concernent l'usinage ou la transformation de systèmes d'inversion de poussée effectués en sous-traitance (répartis également entre les sous-secteurs de la propulsion et de l'espace).

4. - 30 p. 100 des ventes concernent les instruments de bord - un tiers des produits de la société, un tiers de ceux de sa société-mère et le reste, la réparation et la révision, de diverses origines pour lesquels une licence a été obtenue. (Avionique)

5. - La fabrication en sous-traitance pour les industries nucléaires et de l'automobile représente 5 p. 100 des ventes. (Autres)

BREAKDOWN OF SALES - (Expressed as a percentage of total) - VENTILATION DES VENTES - (En tant que pourcentage du total)

	Airframe - Cellules	Propulsion	Avionics - Avionique	Space - Espace	Other - Autres
Proprietary Parts & Systems Pièces et systèmes brevetés	30	--	10	--	--
Sub-contract - Sous-traitance	--	10	--	10	5
Agency Sales - Ventes d'agences	10	--	10	--	--
R O - Réparation et révision	5	--	10	--	--
% Spaces - % des pièces	25	5	20	--	--

COMPANIES SURVEYED – 1987 AEROSPACE SURVEY

AIR CANADA	QUE
AIRCRAFT APPLIANCES AND EQUIPMENT LTD	ONT
ANDREW ANTENNA COMPANY LTD	ONT
BELL HELICOPTER TEXTRON	QUE
BENDIX AVELEX INC. (FORMERLY AEL)	QUE
BOEING OF CANADA LTD (WINNIPEG)	MAN
BOEING OF CANADA LTD (ARNPRIOR)	ONT
BRISTOL AEROSPACE LTD	MAN
CAE ELECTRONICS LTD	QUE
CANADAIR INC	QUE
CANADIAN AIRCRAFT PRODUCTS LTD	BC
CANADIAN ASTRONAUTICS LIMITED	ONT
CANADIAN MARCONI CO (AVIONICS DIV)	QUE
CERCAST 1979 INC	QUE
CHICOPEE MANUFACTURING LTD	ONT
COM DEV LTD	ONT
COMPUTING DEVICES COMPANY	ONT
CP AIR - *	BC
DEHAVILLAND AIRCRAFT OF CANADA LTD	ONT
DEVTEK CORP	ONT
DIEMASTER TOOL INC - *	ONT
DOWTY CANADA LIMITED	ONT
DSMA ATCON LTD - *	ONT
ENHEAT INC	NS
FAG BEARINGS LTD - *	ONT
FIELD AVIATION COMPANY LTD	ONT
FLEET INDUSTRIES	ONT
GARRETT CANADA	ONT
GODFREY HOWDEN	QUE
HALEY INDUSTRIES LTD - *	ONT
HAWKER SIDDELEY CANADA INC (ORENDA)	ONT
HEROUX INC	QUE
HONEYWELL LIMITED	ONT
I.M.P. GROUP LTD	NS
INDAL TECHNOLOGIES INC. (DAF INDAL)	ONT
INNOTECH AVIATION LTD - *	QUE
LEIGH INSTRUMENTS LTD	ONT
LEIGH NAVIGATION SYSTEMS LTD	QUE
LITTON SYSTEMS CANADA LTD	ONT
LUCAS INDUSTRIES CANADA LTD - *	QUE
MA ELECTRONICS - *	ONT
MCDONALD DETTWILER & ASSOCIATES	BC
MBB HELICOPTER CANADA LIMITED	ONT
MCDONNELL DOUGLAS CANADA	ONT
MENASCO AEROSPACE LTD	ONT
MILLER - *	ONT
NORTHWEST INDUSTRIES LTD	ALTA
PRATT & WHITNEY CANADA LTD	QUE
RAYTHEON CANADA LTD	ONT
RCA CANADA / GE CANADA	ONT
ROLLS-ROYCE (CANADA) LTD	QUE
SED SYSTEMS INC	SASK
SPAR AEROSPACE INC	QUE
SPAR AEROSPACE LTD RMSD	ONT
SPAR AEROSPACE LTD DEF. SYST. DIV	ONT
STANDARD AERO LTD	MAN
VALCOM LTD - *	ONT
VARIAN - *	ONT
WALBAR OF CANADA INC - *	ONT

GUIDELINES AND GLOSSARY OF TERMS

FOR

AEROSPACE BUSINESS FORECAST INQUIREY

SURVEY - 1987

Company Name -

Please use the legal name of the company, and in the case of multi divisional companies, indicate the Division or Divisions/ Subsidiaries to which the data relates.

Contact Person -

Indicate the person to be contacted in the event that clarification of data is required.

Currency -

Please report data for years 1986 through 1991 in 1986 Constant Dollars. Data for 1985 should be reported in 1985 Dollars.

Sales -

This represents the total sales of the Canadian Company or in the case of multi-divisional companies, the sales of the Division or subsidiary reporting. It should not include the sales of divisions or subsidiaries which are not involved in the Aerospace Industry, but should include sales by aerospace oriented divisions and subsidiaries located outside Canada. These will be treated as sales by the Canadian company.

The sales reported should be those sales billed in the Calendar year, and should include progress payments claimed during that period.

1. Domestic Sales -

Sales made to companies domiciled in Canada, where the products or services are delivered to a Canadian address including sales by a U.S. Subsidiary to Canadian companies.

a. Sales to the Canadian Government -

Sales to any Department or Agency of the Federal Government including Crown Corporations.

b. Sales to Canadian Aerospace Companies -

This category covers sales to Canadian Aerospace companies which will incorporate the product into a higher assembly. The intention is to eliminate double counting of sales.

Example - A machine shop manufacturing parts which are sold to a Canadian engine manufacturer would report these sales as "Sales to a Canadian Aerospace Company."

If the engine manufacturer sells engines to a Canadian aircraft manufacturer these sales would be reported as "Sales to a Canadian Aerospace Company".

If however the engine manufacturer sells an engine to an aircraft operator such as an airline, the sale would be reported as "Sales to other Canadian customers".

c. Sales to other Canadian Customers -

This category covers the sale of materials to Canadian customers who are not in the business of manufacturing and selling higher assemblies or products. It includes sales to aircraft operators, maintenance facilities and other non-manufacturing customers.

Total Domestic Sales -

The sum of a, b, c, preceding.

2. Export Sales -

This category covers all sales where the product or service is delivered to an address outside Canada, including sales by a Foreign Subsidiary of a Canadian company.

a. Sales to the United States Government -

All sales to the United States Federal Government, its agencies, Departments, and Administrations.

b. Sales to U.S. Contractors -

All sales to U.S. companies which incorporate the product into higher order assemblies.

c. Sales to other U.S. customers -

All sales to U.S. customers not included in a. and b. preceding.

d. Sales to other foreign governments -

All sales to federal governments, agencies, administrations, and crown corporations except Canada and the United States.

e. Sales to other foreign contractors -

All sales to foreign companies (other than U.S.) where the product will be incorporated into a higher order assembly.

7. Training Costs -

The estimated cost of employee training whether carried out in house or in external institutions. Does not include that portion of training cost borne by Federal, Provincial, or other government agencies.

8. Other Costs and Expenses -

All other costs and expenses not defined above.

9. Investment -

Total investment from all sources. Includes government contribution.

a. Plant -

Acquisition or improvements to real property, acquisition, construction or improvements to buildings, and investment in services such as access to electricity, water etc. Includes construction and improvements to specialized test facilities such as test cells.

b. Machinery -

Acquisition and replacement of machinery, tooling, and specialized equipment where it is the normal practice of the company to capitalize the costs. Includes laboratory equipment.

c. Research and Development -

All research, design, and development including customer funded R&D. Does not include plant engineering, production engineering, or quality engineering.

Includes engineering research and development; materials and components; construction, test, and evaluation of prototypes; and such special equipment as may be required for such activities, including pre-production costs.

10. Government Support -

All support in the form of grants and contributions from the Federal Government. Does not include R&D carried out under contract, but support from funded assistance programs such as DIPP, IRDP, etc. is included. Repayment contributions are included.

a. Support from DRIE for Research and Development -

Support for R&D under the R&D elements of the DIPP and IRDP Programs.

b. Support from DRIE for Source Establishment -

Support from DRIE under the Source Establishment element of the DIPP Program.

c. Support from DRIE Capital Assistance -

Contributions from DRIE for the acquisition of advanced production equipment to modernize or upgrade manufacturing capability.

d. Support from DRIE for Feasibility Studies -

Grants and Contributions from other Federal Government Departments, agencies, and or Crown Corporations.

e. Repayments -

Repayments to the government of contributions which had been made under the DIPP Program.

11. Tariffs and Duties -

Tariffs and duties levied on aerospace materials imported into Canada but excluding duty drawbacks.

12. Opening Inventory -

Company owned inventory on hand December 31, 1986.

13. Backlog of Orders -

Firm orders on the books at Dec. 31. Includes provisional orders (e.g., letter of intent) and but excluded options to be confirmed at a later date.

14. Employment -

- Engineering/Scientific -

Engineers, scientists, and technicians involved in Design, Research, and Development. Does not include administrative, secretarial, or support staff.

- Production -

  All employees engaged in production functions, including, production engineering, quality engineering, material procurement and material handling. Excludes secretarial, administrative, and support staff.

- Other Employment -

  All employees not covered in the preceding two groups.

Breakdown of Sales -

Airframe (Sub-sector) -

All structural elements, accessories, components, systems and sub-systems which form part of an aircraft with the exception of avionics and propulsion systems.

Propulsion (Sub-sector) -

All structural elements, components, accessories, systems and sub-systems which form part of the propulsion system of an aircraft.

Avionics (Sub-sector) -

All electronics systems, sub-systems and components which are carried aboard an aircraft. Includes electrical power generation and conditioning systems. Excludes spacecraft electronics which for the purposes of this survey are considered to be part of the Space Sub-sector.

For the purpose of this survey earth station equipment for navigation and air traffic control, and aircraft simulators are considered to be part of the avionics sub-sector.

Space (Sub-sector) -

All structural elements, components, accessories, systems and sub-systems which form part of a space vehicle or satellite, including its payload, propulsion system, imaging radar, and remote sensing equipment.

All elements of the launch complex and earth stations for command, control of, and communication with a space vehicle, including equipment for enhancement of remotely sensed images. Does not include earth station equipment for transmission and reception of commercial telecommunications or television signals.

Other -

All non-aerospace products and services provided by companies which also produce products or services defined in one or more of the preceding sub-sectors.

Sales of Proprietary Parts and Systems -

This covers parts and systems which your company manufactures to your own design or specification.

Sub-contract Sales -

This covers parts which your company produces under sub-contract to a design or specification controlled by others. It includes special services such as heat treatment, impregnation, surface coating, testing, and quality assurance activities carried out under sub-contract.

Agency Sales -

This covers the sale and distribution of products not of your own manufacture.

Repair and Overhaul -

This covers repair and overhaul activities carried out under contract. It does not include repair and overhaul activities carried out by airlines or aircraft operators for their own account.

Spares -

In this section you are requested to estimate the percentage of your sales in each sub-sector which are sold as spare parts.