

1 December 1980

Use of the Contingency

1. The use of the contingency relates primarily to the fact that the original estimates were based on incomplete designs and because there have been significant design changes. Also the inflation formula does not correct fully for inflation. All major design changes have been notified to the Construction Committee during the course of the project.
2. The cost increases, after correction using the inflation formula, for the various sections were as follows at the end of July. These figures are still provisional since the inflation indices have yet to be confirmed and amendments to contracts have to be included.

<u>Item</u>	<u>Original Estimate</u>	<u>Cost to 1/8/80 at 15/2/77 prices</u>	<u>Increase %</u>
Chamber & Vacuum Enclosure	£297,235	£338,433	+14
Optical System	£86,925	£94,719	+9
Chamber Temperature Control	£46,640	£41,051	-12
Expansion System	£58,488	£62,450	+7
Vacuum System	£36,599	£59,250	+62
Acc for Control etc	£17,798	£13,281	-25
Mechanical Handling	£29,120	£45,916	+58
Iron Support Structure	£78,000	£115,688	+48
Transportation	£18,200	£9,295	-49
Miscellaneous	£1,040	-	-
TOTAL	£670,000	£780,083	+16.4

3. The main reasons for the cost increases are as follows:

- 3.1 Chamber & Vacuum Enclosure

- 3.1.1 All welded structure with integral vacuum tank end plate £30,000
- 3.1.2 Modified end plate design £15,000

3.1.3	Fiducial ring added	£5,000
3.1.4	Additional heat exchangers	£3,500
3.1.5	New vacuum tank centre section	£4,000
	TOTAL for Section 3.1	<u>£57,700</u>
3.2	<u>Optical System</u>	
3.2.1	Addition of optics cart and larger lens plate	£6,250
3.2.2	Revised window layout	
3.3	<u>Chamber Temperature Control</u>	
	No significant changes	
3.4	<u>Expansion System</u>	
3.4.1	Addition of compensating piston	£3,750
3.4.2	Use of 340 bars to gain speed	£5,750
	TOTAL for Section 3.4	<u>£9,500</u>
3.5	<u>Vacuum System</u>	
3.5.1	Extra work involved in making double seals	£3,750
3.5.2	More complex controls	£2,500
	TOTAL for Section 3.5	<u>£6,250</u>
3.6	<u>Acc for control etc</u>	
	No significant changes	
3.7	<u>Mechanical Handling</u>	
3.7.1	Piston-bellows handling gear	£9,500
3.7.2	Fiducial ring handling gear	£2,500
3.7.3	Rotational & transverse adjustment gear	£5,250
	TOTAL for Section 3.7	<u>£17,250</u>
3.8	<u>Iron Support Structure</u>	
3.8.1	Completely revised design with forged cross bars and larger, case end plates	<u>£37,000</u>

The sum of these figures, £133,950, does not equate exactly with the extra cost identified in Section 2 because some cost savings were made on some items.

4. It is important to note that had full inflation indexing been allowed the final cost would have been ~14% above the original estimate.

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13 March 1981