

September 26th, 1960

NI/GP/60/44

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

GENERAL PURPOSES COMMITTEE

Magnet Plunging Mechanism for Nimrod  
Proton Beam Extraction

---

NOTE by T. G. Pickavance

The Committee's approval is requested for placing a contract with Messrs. Towler Bros., for two magnet plunging mechanisms at a total cost of £25,000 as recommended by the Nuclear Equipment Project Committee (after full consultation with the A.E.A. Contracts Branch) in the enclosed paper. This would be part of the £1M scheme for beam handling equipment approved by the committee on February 11th 1960 and subsequently approved by the Treasury.

---

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

GENERAL PURPOSES COMMITTEE

Nimrod Proton Beam Extraction - Magnet Plunging Mechanisms

Note by the Chairman of the Nuclear Equipment Project Committee

Tenders have been invited for two mechanisms to move the beam extraction magnets in precisely defined time-displacement cycles. Four firms have quoted definite prices for the mechanisms, namely:-

- |                                         |         |
|-----------------------------------------|---------|
| (1) Towler Bros (Patents) Ltd.,         | £25,000 |
| (2) Vickers Armstrong (Engineers) Ltd., | £25,213 |
| (3) Keelavite Hydraulics Ltd.,          | £35,000 |
| (4) Dowty Rotol Ltd.,                   | £37,350 |

The following comments on the proposed schemes can be made.

- (1) Towler Bros: (Patents) Ltd.,

This firm offer a system in which the magnet is moved by a hydraulic jack fed directly from a pump whose swashplate is controlled by a full servo-mechanism in accordance with the position of the magnet at any point. This system meets our requirements as embodied in the specification.

As a cheaper alternative to the above scheme Towler's proposed a coarse mechanical servo, but this does not satisfy our requirements.

- (2) Vickers Armstrong (Engineers) Ltd.,

Modifications were necessary to the original proposal to make it meet the minimum requirements as embodied in the specification. With these modifications the scheme is still technically inferior to that of Towlers.

- (3) Keelavite Hydraulic Ltd.,

This scheme meets our specification.

- (4) Dowty Rotol Ltd.,

This scheme meets our specification.

L. B. Mullett