

POST OFFICE

tele **communications**

JOURNAL

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AND

SIXPENCE

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Televising the Grand National

THE GRAND NATIONAL WAS TELEVIEWED THIS YEAR for the first time—the BBC's greatest television operation since the State Opening of Parliament.

Sixteen cameras were used and each was connected to one of the BBC control points, of which there were four; the Master Control was in the old Telegraph Room of Tattersall's Stand and the other three were Mobile Control Rooms (MCR) as used regularly for television outside broadcasts. The very impressive Master Control was built up mainly from equipment taken from Mobile Control Rooms "derigged" for that purpose.

The Post Office function in respect of vision signals was to use convenient pairs in telephone-type cables for interconnecting the Control Rooms; most of the cables had been installed previously for sound broadcasting purposes and connected the stand area with no fewer than 60 points around the course and along the motor track, but three new points were necessary for the Grand National. Liverpool Telephone Manager's staff provided these new points by laying two 7-pair cables to Becher's Brook. Fig. 1 shows the vision circuits provided, the working circuits in full line and Post Office reserve circuits in broken line; arrowheads indicate the direction of transmission.

Vision signals from BBC equipment pass out through coaxial feeders; that is, they are unbalanced, and must be returned to the BBC in the same condition. Normal telephone cables are balanced, and introduce heavy loss at vision frequencies; the higher the frequency the greater the loss. Post Office equipment was therefore required to accept unbalanced signals, convert them to balanced signals, make good the loss introduced by the cable, and send out unbalanced signals as nearly as possible identical with those received.

Frank Leggett, Assistant Engineer in charge of the North West Regional television outside broadcast team had a special problem because of space limitations, in addition to his normal task of

ensuring that the large amount of equipment was in first class condition. The Master Control Room was so congested that he was allowed an annex measuring only 12 feet by 5 feet, and at the MCR3 point our normal outside broadcast vehicle would not suffice for the amount of equipment necessary at

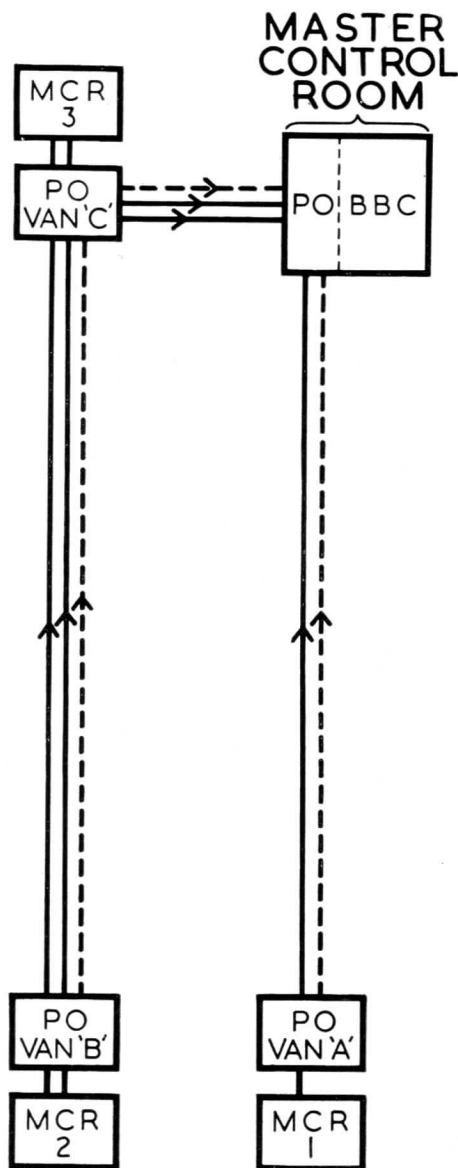


Fig. 1: Vision circuits



Mobile control room and Post Office vehicle at Becher's Brook

that point. The problem was solved by two means; a not very elegant but large-capacity stores vehicle was borrowed from Fleet Transport and the equipment for it, and for the Master Control point, was assembled on racks specially constructed from slotted angle.

Power Supplies

Common power supplies and earth points are desirable where BBC and Post Office equipment are associated and it is therefore usual for Post Office power and earth to be taken from the BBC. At Aintree, however, BBC power vans necessary at two mobile points were not able to supply the total current required in our vehicles. At these two points therefore our line equipment used power taken from the BBC power vans but the test gear was supplied from our transportable diesel-electric sets.

Three cameras were connected to MCR2, three (including the Roving Eye) to MCR3, one to MCR1, and nine to the Master Control directly. Production was planned in great detail so that the Producer sitting at his desk in the Master Control could at any instant connect a selected camera to the

national television network via a BBC radio link. This radio link was a temporary one set up between the Master Control Room and the Post Office radio station at Windy Hill near Oldham, where injection equipment was used on our permanent radio link from Kirk-o-Shotts to Manchester.

The total signal path served by any camera "on the air" was indeed great, and to state it gives some idea of the temporary and permanent lines and equipment necessary for such an undertaking. For example camera No. 11 used MCR2, equipment in our vehicle B, cable to our vehicle C, equipment in our vehicle C, MCR3, more equipment in our Master Control, vehicle C, cable to our equipment in Master Control, temporary radio link to Windy Hill, permanent Post Office radio link to Manchester, permanent Post Office cable link to the BBC, London, and then back over permanent Post Office cable and radio links to all BBC switching centres and transmitting stations.

H. CHEETHAM.

The BBC published a brief description in the March 18 Radio Times, and we are able to publish this outline of the engineering organization in which the Post Office played a part, by courtesy of the Corporation.