
Title : Removal and RE-fixing of Front end boxes
 on the GMRT antenna prime focus cage.

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ABSTRACT

A procedure should be finalized for removal and re-fixing of front end boxes on the prime focus cage of GMRT antenna. This note discusses on practical approach with the given configuration of the Cherry Picker.

TECHNICAL NOTE

The front end boxes mounted inside the stools fixed on the prime focus cage of the GMRT antennas may have to be removed for repairs of electronics housed inside. This removal has to be done with the help of the high-lift mobile platform (conventionally called the "Cherry Picker"). Extensive discussions were held before finalizing the design of the cage of this cherry picker in which one or two mechanics/electricians/laboratory assistants will travel to a height of 28-m above the ground to reach the level of the prime focus cage. At that stage, all the feeds were only in the first level of design and front ends were not conceived in terms of size and weights. In the last one and a half year, many changes have taken place on feeds and their mountings. Corresponding changes have not reflected on the cage of the cherry picker. Also, the front end boxes have been designed, fabricated and installed in a few antennas, without a serious discussion about the procedure for their removal and re-fixing (for maintenance purpose) with the help of the cherry picker, the suitability of which may be in question. An answer to this must be found now.

This note discusses one procedure which ensures safety of the person in the cherry picker cage (at 28 m height), ease of removal of the front end boxes and the repeatability of this operation at 30 antennas.

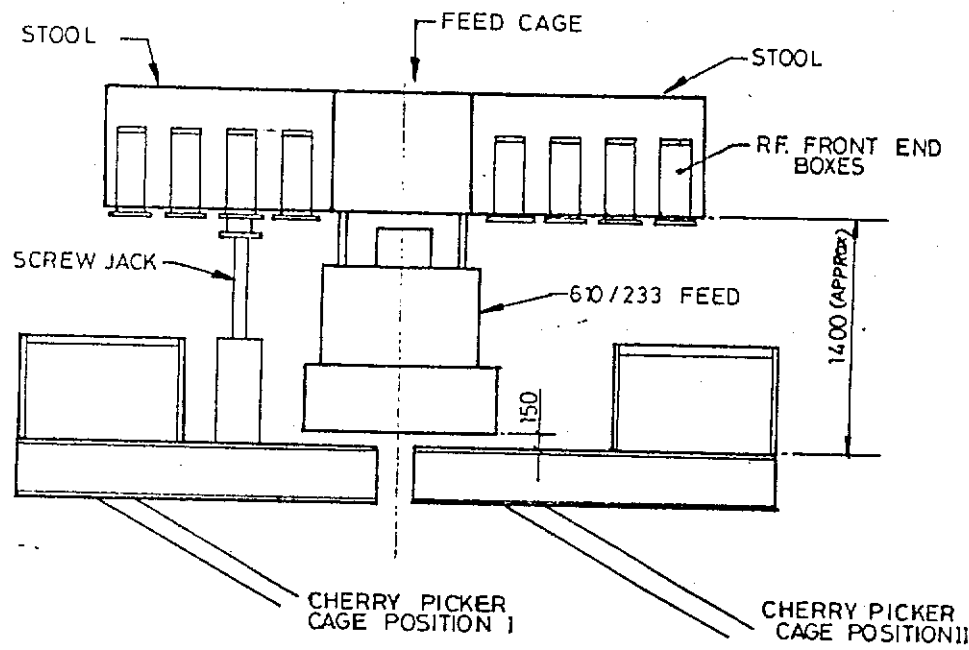
Following "common sense" assumptions have been made:

- 1) The cage of the cherry picker is fully deployed condition at 28 m height is not very stable - sways a lot from side to side.
- 2) No physical connections should be made between the cherry picker cage and feed cage.
- 3) The person in the Cherry Picker cage should not be expected to balance himself with a 15 Kg. weight of 500 x 500 x 200mm size, held at the chest level.
- 4) Handrails for the cherry picker cage should not be removed at any stage of operation.
- 5) Cherry Picker cage should not be re-positioned for other than height adjustment purpose.
- 6) It is better to transfer the weight of RF boxes directly on to Cherry Picker cage rather than through a person standing there in.

With the above, the following procedure is enclosed:

The RF boxes are fixed in the stools of 150 and 327 MHz feeds such that the front of these boxes is on the same side as the front of the 610/233 MHz feed.

The cherry picker cage will be positioned below each of the stools without disturbing the 610/223 feed which is facing the ground. The front of the RF boxes is also facing the ground. Two positions of the cherry picker will cover the two sets of RF boxes (one set in each stool). A screw jack will be deployed such that its top plate touches the front end of the RF box (not directly but through 4 legs specially provided for the purpose of avoiding contact with projecting connectors etc). Holding screws of the RF box are released so that the weight of the box now rests on the jack. By lowering the jack, the box can be brought down, lifted from the top of jack and kept on cherry picker cage floor. The reverse of this exercise may be done for re-fixing the RF box.



GIANT METERWAVE RADIO TELESCOPE PROJECT, PUNE

	SIGN	DATE
Traced		
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SCHMATIC DIAGRAM OF FEED AND CHERRY PICKER

Scale ~ DRG. NO. 10/420