SETTING THE 12-METER SURFACE

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1. Introduction

I promised to review and bring up-to-date the tasks which need to be done to bring the surface measuring and setting system into use. The following notes give the tasks which need work from the Green Bank Shops and the NRAO Electronics Division. I have attempted to say who is responsible for defining each task, and also to say when work might begin on each task. I have generally left the duration of the jobs to be decided when they reach the people concerned.

2. Machine Shop - Fred Crews

(a) The template - This has been designed by W-Y. Wong (WYW) and built by the shop. It looks to me to be very satisfactory. The next steps will be:

(i) WYW will test it for repeatability, and if all goes well will proceed to mount and align all 12 sensors. WYW and the Green Bank shops will consult together to see if much (or any) shop time will be needed for the sensor mounting. But it will probably be minimal. This work has already started.

(ii) G. Peery (GP) and F. Crews are planning the lift and transport system to be used in the GB warehouse to move the template between the BUS and the reference jig. They can go ahead as soon as they wish on on making this system and installing it in the warehouse.

(b) The reference jig (RJ)

(i) The shops have already built the base support for the RJ. GP hopes to have a contractor soon to fabricate the RJ plate and to mate it with the base support. The only shop work needed here is to install 2 end dowels. This must wait till the RJ is delivered. J. Ralston (JR) will oversee this. GP will supply a date for delivery of the RJ.

(ii) The stepping bar is 90% complete. The final completion must await the RJ delivery. JR will provide the final design details. JWF has asked JMP to look for another distance sensor if one more is needed.

(c) The back-up structure (BUS) - The timing of work here assumes that the BUS is built as already designed. With this assumption, we can go ahead as follows:

(i) At the center of the BUS a center-beam support for the large tooling ball (which defines the nominal surface center) is needed. JR already has a design for this support. This design should now go to the GB shops for fabrication. There is a possibility that this support may conflict later with the final electronics system. If so, we shall have to remove it at some stage at Tucson.

(ii) The N-III at the BUS center will be used (at first) mounted on its tripod. The legs of the tripod will be located in a positive way on the central hub of the BUS. This will be done by JR. There may be a small effort needed from the GB shops when the BUS is being erected at Green Bank.

(d) The edge of the BUS

(i) At the edge of the BUS there is a series of members which are intended to carry kinematic supports for the outer edge of the template. Within a short time (perhaps by the end of January), the first tests of the template should be advanced enough to allow us to design these supports. WYW will make a design, and he and JR will send this to the GB shops.

Since a total of about 144 edge support points will be needed, we wish to be assured that the design is OK. This task may reach the GB shops in early February.

(ii) The task of positioning these edge supports on the BUS will fall to the GB shops, with JR/JWF fixing and measuring positions. (The edge supports will be welded in place.) The start of this work is determined by the time of completion of the BUS erection. JR will oversee this task.

(e) Panel support hardware (PSH) - This is the responsibility of WGH, but it is worth repeating it here. The steps are:

(i) WGH makes a design. in GB according to Buck and Bill

(ii) WGH gets 8 supports fabricated and sent to GB. Steps (i) and (ii) have already been requested.

(iii) If the schedule permits, JWF will test 6 or 8 PSH's as supports for the ESSCO panel already at GB.

48 needed

Mounting these will want about a day of shop time, WGH will tell GB and JWF when this might be done.

(iv) WGH will procure the 480 pieces of PSH.

(v) WGH will, with JR/JWF, arrange to mount these on the BUS ready to receive the panels. The timing and duration of this work will be decided by WGH.

(f) Feed-leg holes - Again, this is a WGH task. WGH and LJK will design the holes to be cut in the panels. (LJK has already started this in Memo No. 108.) WGH/LJK will get the panels cut and extra supports made, if needed. This work will fall on the GB shops.

I have checked with ESSCO and all panels should be complete by February 1, 1982, so this work could begin soon after that date.

(g) Edge targets (JWF and JR) - We have not designed these yet, and do not expect to need any outside help.

3. The GB Carpenters Shop (R. Moore).

There are three tasks which need work from this shop. GP and JR have these in hand, so I just list them.

(i) Make a timber platform to carry the N-III observer at the BUS center.

(ii) Similarly, make an observer's N-III platform outside the BUS.

(iii) Make a platform on wheels to carry workers at and around the BUS edge.

None are needed until the BUS is complete at GB.

4. Electronics Division (M. Balister (MB))

I list my tasks here as all belonging to MB, although most may go to GB. However, perhaps MB will have someone in CV do (iii) (the temperature sensors) and (ii). I will be responsible for specifying all tasks more precisely. I now plan to set up the whole measuring system in the GB warehouse, not in a GB office as originally suggested.

(i) The template. After WYW has mounted all the 12 depth sensors, cable these to the control center (CC). Remember this cabling is needed to work with the template on all radii of the BUS and also when it rests on the RJ.

(ii) Set up the CC in the warehouse - This means: move the Apple complete with an ADIOS to GB. Integrate the new multiplexer (already completed by D. Schiebel). Perhaps rack-mount some bits of the electronics, including a test panel. (I will suggest the design.)

(iii) Template sensors - Provide 8 temperature sensors; 2 each for the RJ and the template and 4 for the BUS. These are just stuck onto the steel. They should be cabled to the ADIOS Bin in the 8-multiplexer mode. (See my Memo No. 84.)

Technically they should read from 0° C to about 25° C to about ± 0.1° C accuracy when used with ADIOS at Bin.

They need a power supply and should be cabled permanently to the ADIOS at the CC.

(iv) The stepping-bar - The electronics for the distance transducer should be mounted on the stepping-bar and both transducers cabled to ADIOS from the RJ. See 2(b)(ii) which notes that this must wait until the RJ is delivered.

(v) Display to the BUS screw-turner - A center-reading meter will be driven from ADIOS to points below the BUS. JWF will design and build this at some stage.

5. Warehouse, General (R. Moore)

We probably need a few lights for illuminating targets, etc. The general layout of BUS, RJ and control center is with GP, but JWF wants to sit at the CC with easy sight and sound paths to the BUS and RJ. No intercom is needed.