



Figure 3: SAR Operator's Console.

The main operator interface with the radar control system is from this location and is accessed from a series of menu selections from the CRT screen in the centre of the rack. Seen also is the monitor panel for the RF system (developed under a subcontract to Canadian Astronautics Ltd.), the antenna drive and power supplies for the control electronics. An oscilloscope is provided for monitoring various signals from the radar from switch selections made by the operator. Empty rack space is for a companion X-band radar to be installed in 1987.

- The pulse repetition frequency to velocity ratio (PRF/V) defines the ambiguity level in the image for a specific SAR antenna. It also defines the maximum ground speed of the aircraft for the RTSP image formation since the PRF maximum is 382 Hz.
- The receiver fine gain is normally set to minimize output image saturation at the ADC while maintaining an acceptable output dynamic range. Other criteria for both coarse attenuation and fine gain can be used for special mission objectives.
- The STC law selected for a mission is matched to the primary targets in the radar scene as described in Section 2.4.
- The range gate delay offset is normally maintained at its default value of zero, but may be adjusted in special cases.
- The terrain altitude (in feet ASL) is required for both STC law and ground range conversion. For high relief terrain, a *reference altitude* is required and slant range presentation may be preferred.

The operating envelope of the aircraft is described in Table III.

2.8 Outputs

Figure 5 shows schematically the possible outputs from the C-band SAR. The upper portion of the diagram shows the airborne *in flight* outputs; while the lower portion shows outputs which are generated after acquisition and are termed *ground outputs* in the diagram.

Two different signal sets can be recorded simultaneously.

1. Either the like- or cross-polarized receiver channel is processed to an image in real time and normally recorded on three forms of media: image HDDT, at both full and half resolution, comprising 5 HDDT tracks; dry silver paper scroll; and video cassette (VCR). This is the 8-bit magnitude data set output by the azimuth processor of the RTSP and depends on the processing option set selected during acquisition.
2. The range compressed, motion-compensated signal data can be recorded as 8-bit, I and Q data over 14 tracks of an HDDR at the rate of one range line per radar pulse. The recording can be either the full swath at one polarization or the near or far range half swath for both receive polarizations. This data stream does not constitute a detected image until further azimuth correlation is accomplished at a later time on a ground-based processor.