MOTOROLA

ASTRO MODEM CARD

(Option X437AA)

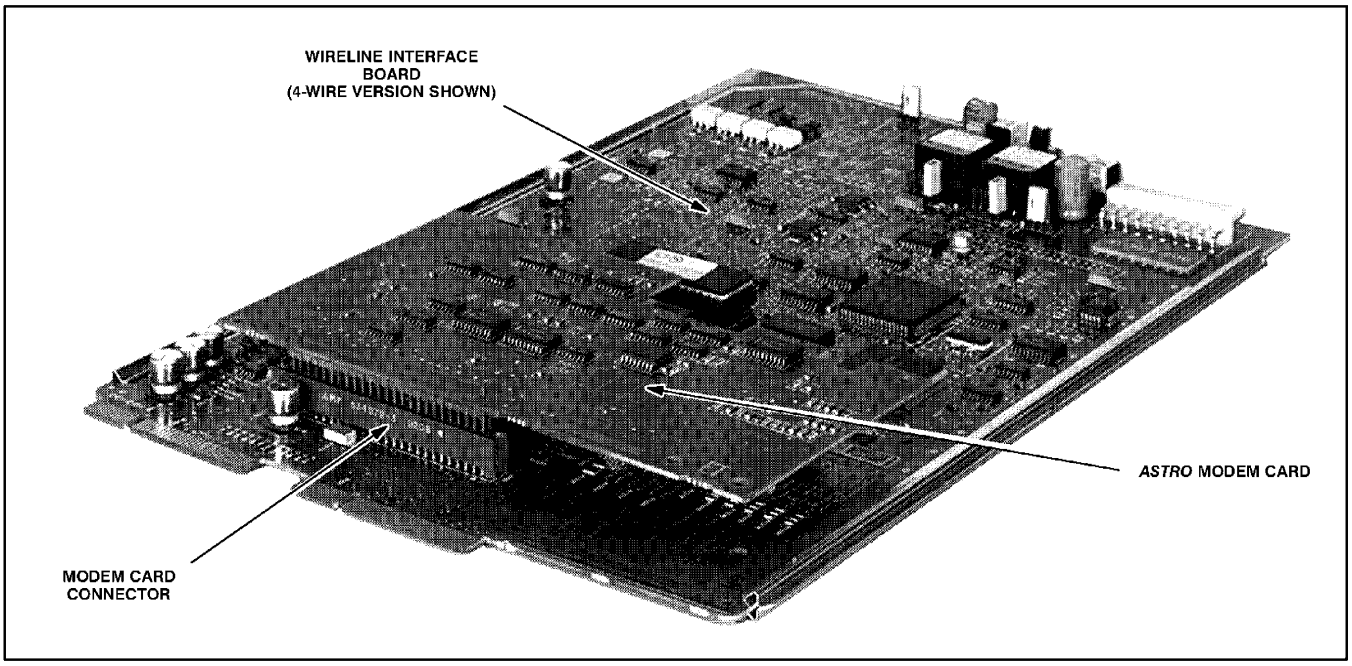

Figure 1. *ASTRO* Modem Card Installed on Wireline Interface Board

1 DESCRIPTION

Option X437AA provides a single *ASTRO* Modem Card for use with *Quantar* station products. The *ASTRO* Modem Card provides the interface between the station and the wireline in systems using *ASTRO* 9.6 kbps signaling. The card connects to the Wireline Interface Board, as shown in Figure 1. Note that 8-wire Wireline Interface Boards are equipped with connectors for two *ASTRO* modem cards.

General Description

Note: *The* ASTRO *modem card contains no jumpers or switches and requires no adjustments. The card is auto-configured upon station power-up.*

The modem card accepts *ASTRO* modem signaling from the wireline and converts the signal to detected data, which is then fed to the Station Control Module for further processing. Data from the Station Control Module is fed to the modem card, which converts the signal to an *ASTRO* modem signal and outputs the signal to the wireline. (Refer to the Wireline Interface Board sections in this manual for block diagrams showing the interface between the *ASTRO* modem card and the wireline/station.)

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PERIPHERAL TRAY

(Option X696AA)

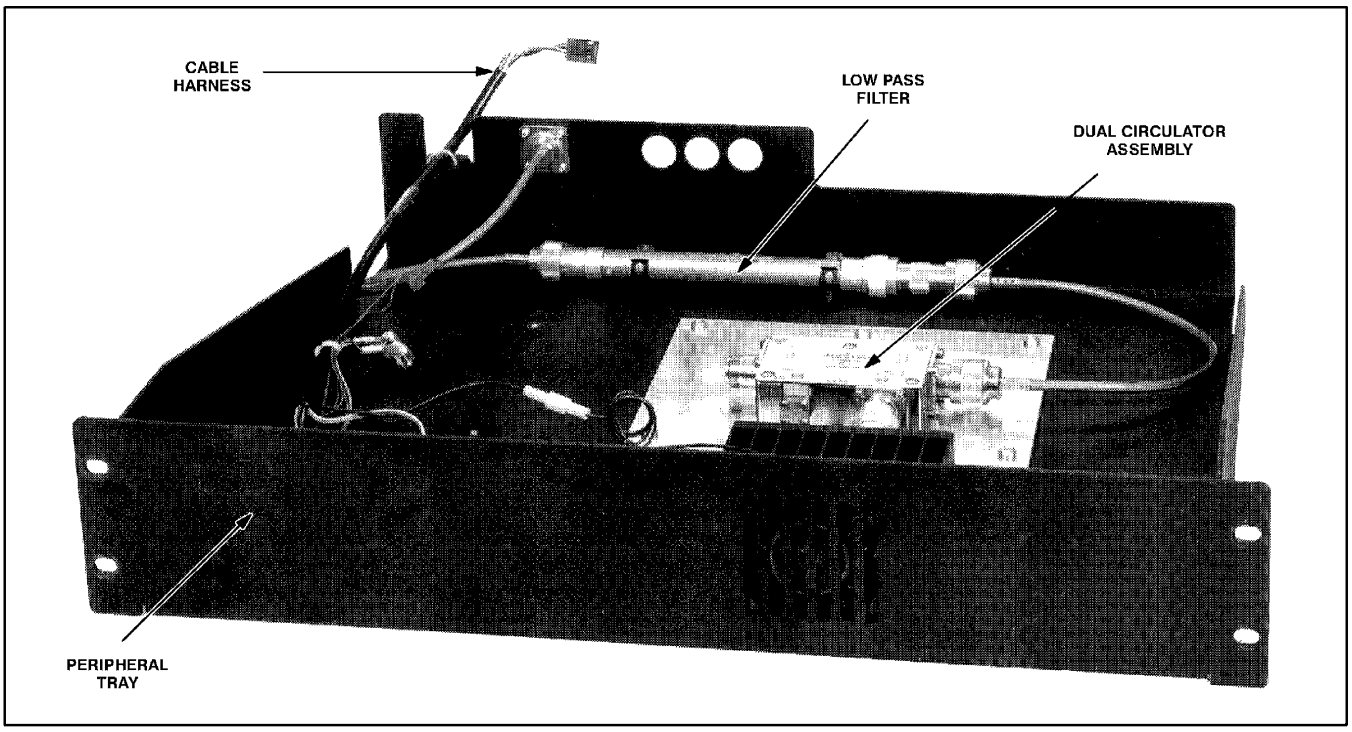

Figure 1. Peripheral Tray with Internal Components (900 MHz Components Shown)

1 DESCRIPTION

Option X696AA provides a peripheral tray and cable harness for use with *Quantar* station products. This section provides a general description, option complement, and identification of inputs/outputs. The information provided is sufficient to give service personnel a functional understanding of the module, allowing maintenance and troubleshooting to the module level. (Refer also to the Maintenance and Troubleshooting section of this manual for detailed troubleshooting procedures for all modules in the station.)

General Description

The peripheral tray is comprised of a rack–mount tray. The tray (shown in Figure 1) allows various ancillary equipment (circulators, filters, etc.) to be housed and electrically connected to the station.

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2 OPTIONS COMPLEMENT

Table 1 shows the contents for the Option X696AA Peripheral Tray option.

Option Complement Chart

Table 1. Peripheral Tray Option X696AA Complement

Model/Part No.	Description
TRN7751A	Peripheral Tray Assembly
0383498N08	Self–tapping screws (4)
2785203U01	Peripheral Tray Shelf

3 PERIPHERAL TRAY CONTENTS AND INPUTS/OUTPUTS

Figure 2 shows the Peripheral Tray equipped with dual circulator assembly and low pass filter.

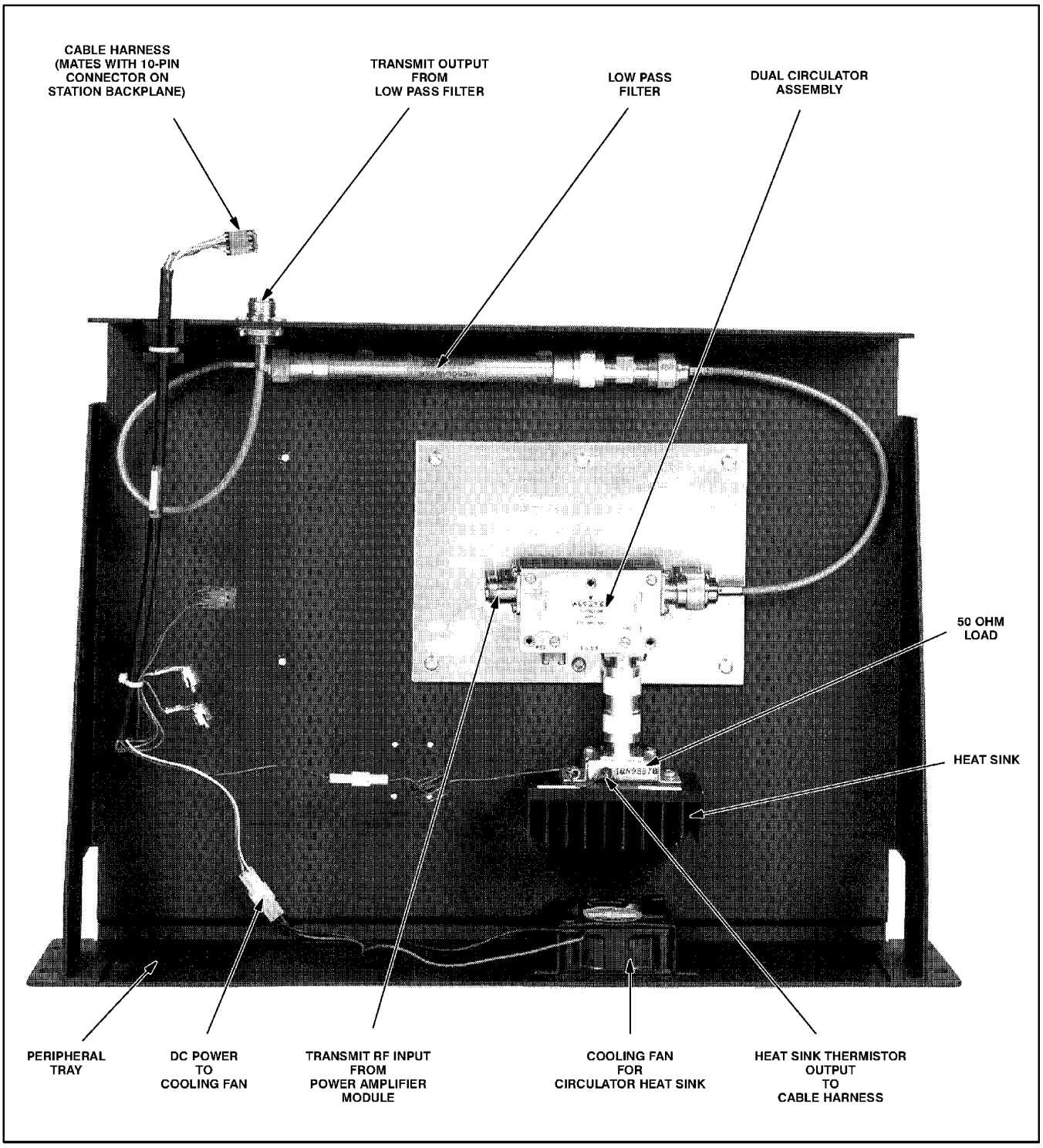

Figure 2. Peripheral Tray Contents and Inputs and Outputs (900 MHz Circulator and Low Pass Filter Shown)

MOTOROLA

ULTRA HIGH STABILITY OSCILLATOR (UHSO) MODULE (Internal)

Option X873AA

1 DESCRIPTION

The Option X873AA UHSO Module is described in this section. A general description, identification of inputs/outputs, functional block diagram, and functional theory of operation are provided. The information provided is sufficient to give service personnel a functional understanding of the module, allowing maintenance and troubleshooting to the module level. (Refer also to the Troubleshooting section of this manual for detailed troubleshooting procedures for all modules in the station.)

General Description

The X873AA Option provides an Ultra–High Stability Oscillator Module which significantly increases the frequency accuracy of the station's internal frequency reference circuitry (located on the Station Control Module). The UHSO module is designed to slide into the 2nd receiver slot of the station card cage and is powered by the station power supply (via the backplane).

The module consists of a sealed ovenized element, voltage regulator circuitry, and control and diagnostics circuitry.

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2 IDENTIFICATION OF INPUTS/OUTPUTS

Figure 1 shows the UHSO Module input and output external connections.

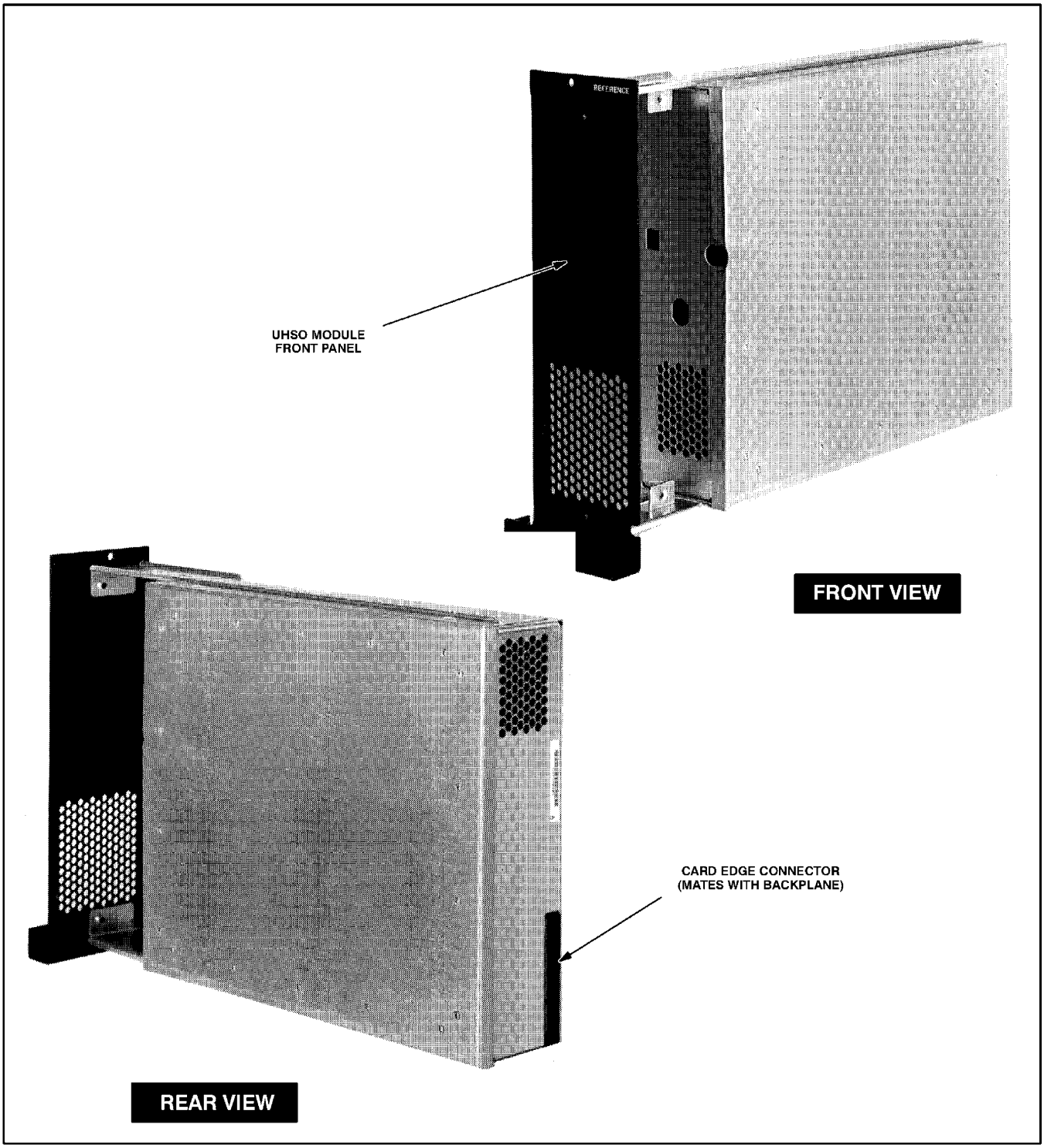

Figure 1. UHSO Module Inputs and Outputs

3 FUNCTIONAL THEORY OF OPERATION

The following theory of operation describes the operation of the UHSO Module circuitry at a functional level. The information is presented to give the service technician a basic understanding of the functions performed by the module in order to facilitate maintenance and troubleshooting to the module level. Refer to the block diagram shown in Figure 2.

+10V Regulator Circuitry

A series pass regulator circuit accepts +14.2 V from the backplane and generates a +10 V dc supply voltage. This +10 V is used to power the ovenized 5 MHz element as well as other circuitry on the UHSO board.

5 MHz Oscillator Circuitry

A sealed ovenized 5 MHz element provides a highly stable 5 MHz reference output. This output is fed to the Station Control Module (via the backplane) and is used to control the reference oscillator circuitry (located on the SCM board) to maintain improved frequency accuracy. A sample of the 5 MHz signal is fed to one of the A/D converter inputs (p/o Diagnostics Circuitry).

The ovenized element also generates a +8V dc voltage. This +8V is used to power the buffers associated with the steering voltage, and allows the steering voltage and ovenized element to "track", eliminating the need for additional temperature compensation. The + 8V dc voltage is also scaled and buffered to provide a +8V sample which is fed to one of the A/D converter inputs (p/o Diagnostics Circuitry).

Control Circuitry

The control circuitry accepts 12 bits of data from the Station Control Module (via the SPI bus) and outputs a corresponding dc voltage. This voltage is scaled and buffered and output as a dc steering voltage which controls the frequency output of the 5 MHz oscillator. [Note that this is not a closed feedback loop system. The 12 bits are sent only during station power up and when performing the reference oscillator calibration procedure (using the RSS).]

The dc steering voltage is also scaled and buffered to provide a steering voltage sample which is fed to one of the A/D converter inputs (p/o Diagnostics Circuitry).

Address Decode Circuitry

The address decode circuitry allows the Station Control Board to use the address bus to select a specific device on a specific station board for control or data communications purposes (via the SPI bus). If the board select circuitry decodes address lines A2 thru A5 as the UHSO module address, it enables the chip select circuitry. The chip select circuitry then decodes address lines A0 and A1 and generates chip select signals for the D/A and A/D converters.

Diagnostics Circuitry

Various dc voltages and sample signals are input to an A/D converter which converts the signals to a binary representation. The data is then sent to the Station Control Module (via the SPI bus) for monitoring and diagnostics purposes.

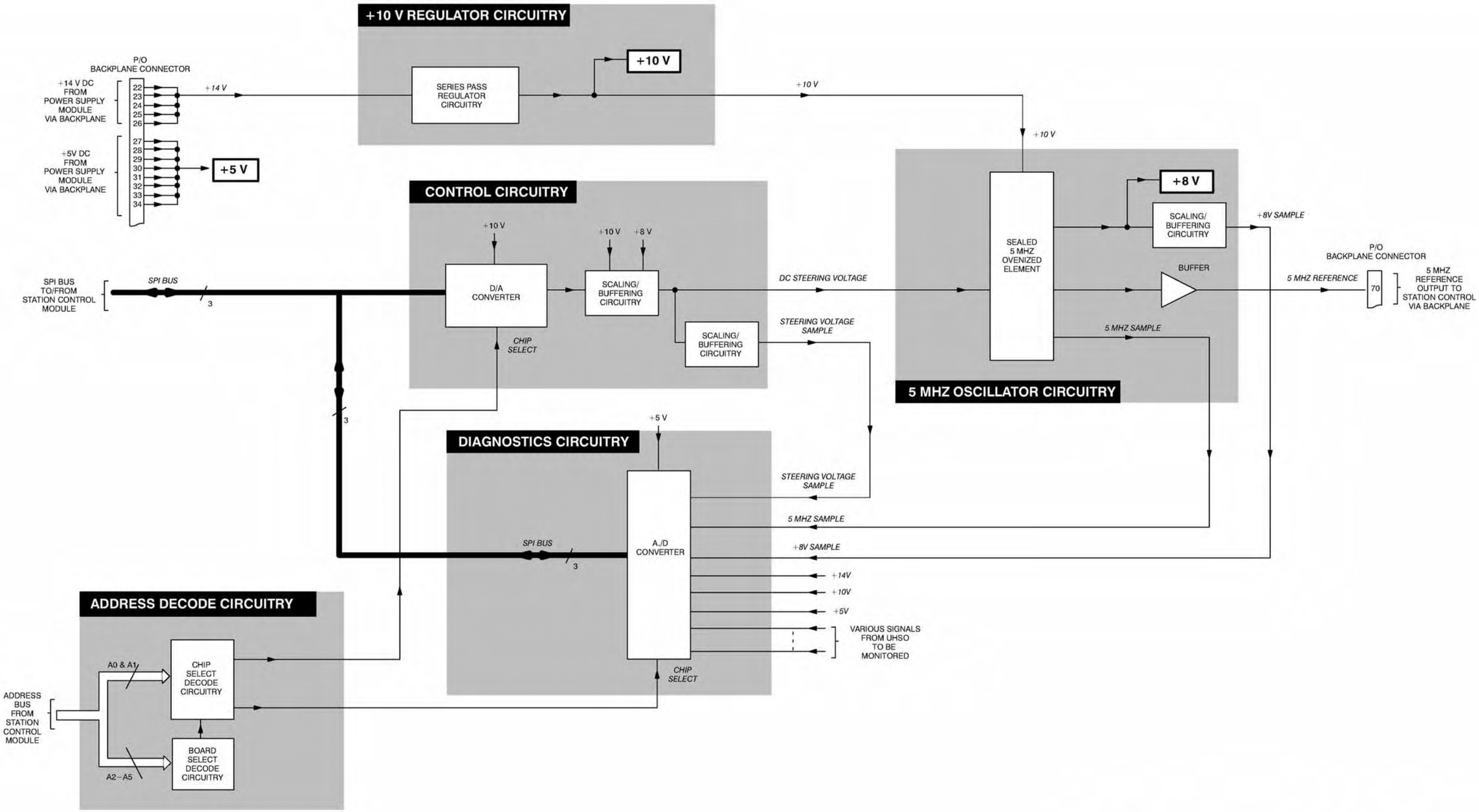

Figure 2. Internal UHSO Module Functional Block Diagram

END OF PART 13