DESCRIPTION

The Audio Logic Block combines functions of audio signal processing and Audio Logic Block. Programming and personality information is stored in FLASH and EEPROM memory on the Audio Logic Block.

Electrical interfaces are achieved between this Block and the Transmitter Block, the Receiver Block, the Synthesizer Block.

All radio control signals originate or terminate on the Audio Logic Block. Two microcomputers share the processing load. Control signals are connected through a high speed digital link with the Control unit, either through the control unit, making possible either front or remote control for the radio. The same link also makes possible dual radio or dual control unit configuration. An RS-232 compatible digital link is available at the option interface, to facilitate programming or Radio Data Interface to Mobile Digital terminals.

This Block also generates Type 99, Channel Guard, GE-Star, C4FM, EDACS and DTMF signals if so programmed.

The Audio Logic Block consists of the following control logic and audio circuits.

- CONTROLLER ASIC: HILLARY (IC701)
- Flash EPROM (IC702)
- SRAM (IC703, IC704)
- EEPROM (IC706)
- MIXED SIGNAL ASIC: PATTI (IC801)
- Voltage Regulator (IC941, IC942, IC943, IC951, IC952, IC953, IC954)
- Audio Amplifier (IC802)
- DSP (IC901)
- RS-485 (IC708)
- RS-232 (IC707)
- Reset Circuit (IC710)
- Address Decoder (IC705)
- Serial Number ROM (IC709)
- Bilateral Switch (IC803)

CIRCUIT ANALYSIS

CONTROLLER ASIC: HILLARY (IC701)

The main microcomputer circuit in the JAGUAR700M radio consists of Hillary IC701, EEPROM IC706, Flash EEPROM IC702, SRAM IC703 and IC704 . This circuitry tuns at a 19.2 MHz rate determined by crystal XU701.

- Controlling the PATTI, FLASH EEPROM , SRAM and DSP.
- Loading data to the frequency synthesizer.
- Fetching and processing the PTT, monitor, channel, selection and volume control.
- Controlling the radio circuit.
- Decoding the squelch
- Encoding/Decoding the Channel Guard and Digital Channel Guard.
- Controlling the loading interface for the radio data.
  (channel number and signaling

FLASH EPROM (IC702)

This memory contains the software to control the microprocessor. This Flash EPROM has a storage capacity of 2 M x 8 bits.

SRAM (IC703, IC704)

This SRAM has a storage capacity of 1M x 8 bits. The memory is available for variable, buffers, etc.

EEPROM (IC706)

This EEPROM has a storage capacity of 16 K bits. The memory contains the user configurable parameters that must be maintained through a power cycle. The EEPROM is used for storing tracking data, variable personalities.

The data mainly consists of the following:

- Channel Frequency Data
- Channel Guard/Digital Channel Guard Data
- TX power, TX Modulation Data
- Squelch Data
- Display Data, etc.

MIXED SIGNAL ASIC,PATTI (IC801)

PATTI has three major functions. That provides functions as follows:

- Fast digitizer
- Voice CODEC
- DAC’s

Voltage Regulators (IC941,IC942,IC943,IC951,IC952,IC953 and IC954)

Voltage regulators IC951 and IC952 each generate a 5 Vdc for the System Control board and IF section. Voltage regulator IC953 and IC954 each generate a 9 Vdc for the RF/SYNTHE Unit and TX Unit. Voltage regulators IC943 generate a 3.3 Vdc for the DSP. Voltage regulators IC942 generate a 1.8 Vdc(1.5Vdc at New DSP) for the DSP.

Audio Amplifier (IC802)

The audio amplifier is located between the ASIC and speaker. Amplifier IC802 amplifies the output signal of the ASIC(IC801) to the level adequate for driving speaker.

DSP (IC901)

The DSP interfaces with Controller ASIC,HILLARY.

RS-485 (IC708)

This is a high speed differential tri-state bus/line transceiver designed to meet the requirements of EIA standard RS-485 specification.

Control Unit Interface.

RS-232 (IC707)

The IC consists of line driver/receivers designed to meet the requirements of EIA standard RS-232 specifications. The IC707 is located between the radio unit and the ORCC connector.

Reset Circuit (IC710)

This is an active low reset IC which includes a delay time generating circuit. Delay time can be set up by externally using a capacitor. The function of this IC is to accurately reset the system after detecting voltage at the time of switching power on and instantaneous power off.

Address Decoder (IC705)

This circuit decode of address of SRAM. The memory map is as follows;

H'00000-H'7FFFF : SRAM(IC703)

H'80000-H'FFFFF : SRAM(IC704)

Serial Number ROM (IC709)

The Serial Number ROM is a electronic registration number that provides an absolutely unique identity which can be determined with minimal electronic interface. The IC consists of a factory-lasered, 64bit ROM that includes a unique 48bit serial number, an 8bit CRC, and an 8bit Family code (01h).

Bilateral Switch (IC803)

This Bilateral switches use in order to control a voice line. When a control signal becomes "H", a voice line becomes Pass State.