

The card slot above the Record/Cue Board holds the Output Module. This board contains amplifiers which drive the channel's differential line output. FET switches select one of three possible inputs for the line output. They are: the line input from the Record/Cue Board; the cue signal, also from the Record/Cue Board; and the repro signal from the Reproduce Board. The FETs are controlled by the individual channel status (CUE, RECORD-READY) and master status (TAPE, INPUT, AUTO) buttons on the remote unit.

A bias defeat switch, mounted on this board, is used for spot erasures. This switch prevents recording on the channel when it is pressed in. The erase head, however, is unaffected. Any signals on the track will be erased in record mode, but no audio or bias will be recorded on the track.

The Reproduce Board is located in the top card slot. This board contains the amplifiers and equalization networks for the signals coming from the repro head. Level and equalization adjustments for the repro signal are also located on the board.

A button switch, at the edge of the card, selects the equalization networks involved in aligning the channel to either NAB or IEC standards. Signals from the transport's speed select switch alter the equalization networks to correspond with the selected tape speed.

## 4.2 Recording

Figure 4-1 is a block diagram of the circuitry involved in recording. It shows the audio signal flow from the line input to the record head for one channel. All channels are identical. The origin and flow of the bias and erase signals are also shown. For detailed information, see the schematic diagrams for each board at the end of this section. Use the block diagram to link the schematics together. Note that the Bus Board shown in the block diagram represents the Bus Board located in the right drawer assembly. The Bus Boards in the other two drawers do not have 210 kHz master oscillators.

Record mode is initiated by pressing the channel's individual status record-ready button and pressing the transport's record button. The transport's record button can be pressed while

the transport is in play mode or concurrently with the play button from stop.

Record mode is exited by releasing the channel's record-ready button or by pressing the transport's play or stop button. Pressing the individual status record-ready button takes that channel only out of record. Pressing the play or stop button takes all channels out of record.

Two relays energize to allow recording on each channel. A record relay, K1 on the Strip Board, turns on in response to the record momentary, record hold and record completion signals. It, in turn, energizes a cue relay, K1, located on the Record/Cue Board.

The record relay allows current to flow through transformers T1 and T2 from the bias and erase drivers. It switches the erase signal to the erase head and the bias signal to the Record/Cue Board. It energizes the cue relay on the Record/Cue Board. It also enables the cross feed amplifier.

The cue relay, when energized, connects the output of the record amplifiers and the bias to the record/cue head. When de-energized, it connects the record/cue head to the input of the cue amplifiers.

The source of the bias signal is the 210 kHz sine wave from the master oscillator. The 210 kHz is applied differentially to the bias amplifiers. The gain at this stage is independently controlled for each speed. High or low speed bias adjustment potentiometers are selected with FETs by the HI EQ or LO EQ signals from the speed select switch.

These equalization signals also select the ramp timing and delay for the QUIOR (QUIet Initiation Of Record). QUIOR delays the bias with respect to the erase signal to compensate for the physical distance between the erase head and the record head. The amplitude of the bias and erase signals is ramped to reduce transient noise.

The source of the erase signal is one phase of the 210 kHz master oscillator frequency. A D flip-flop divides this signal down to 105 kHz. An erase amplifier applies the flip-flop output to transformer T2. The amplitude of the erase signal is adjusted by T2 and the erase peaking capacitor C20.