

CHAPTER 4 SPECIAL MEMORY MODULES

This chapter explains the seven special memory modules used in the Type 164 Magnetic Core Memory System. These modules are analogue in nature and are not explained in the standard logic handbook. To aid the maintenance personnel with troubleshooting, a brief functional description of each module that indicates the input and output signals is provided. A block diagram of each module is also provided.

4.1 G005 SENSE AMPLIFIER

This double-height module detects the ONE and ZERO outputs from coincident-current core memory systems. Each module has the capability of sensing one of four fields. The field being sensed is selected by holding the appropriate preamplifier field select gate at the -3 Vdc level and the other three field select gates are deselected with a -6 Vdc level. Refer to Figure 4-1 for the following functional description.

To obtain optimum operation, each preamplifier has a balance potentiometer that is used to adjust the preamplifiers output within ± 200 mV of balance. The outputs of the four preamplifiers are connected in parallel to a common amplifier. From the common amplifier, the output signal is applied to a rectifying slicer and the resultant signal from the slicer is used to enable a DCD gate. When the selected core output is a ONE, the DCD gate is enabled and the pulse amplifier is gated by the 40 ns strobe pulse. The pulse amplifier generates a 100 ns output pulse.

A G008 Master Slice Control determines the operating current of the preamplifier and the common amplifier and also the slice level for the rectifying slicer.

Inputs

Preamplifier:	Accepts a signal up to a 50 mV from the sense lines.
Strobe:	A 40 ns negative pulse that draws 1 mA at -3 Vdc and negligible current at ground.
Field Select:	SELECT: A -3V level that draws approximately 5 mA due to the transient effect of the memory stack capacitance. DESELECT: A -6V level that draws approximately 10 mA.
First Stage (Clamp Level):	Operates at 3.8 Vdc with respect to +15 Vdc and draws 0.7 mA.
Second Stage (Clamp Level):	Operates at 8.0 Vdc with respect to +15 Vdc and draws 0.3 mA.
Slice Level:	Operates at a dc level between 5.5V to 5.9V with respect to +10 Vdc and draws 0.4 mA.

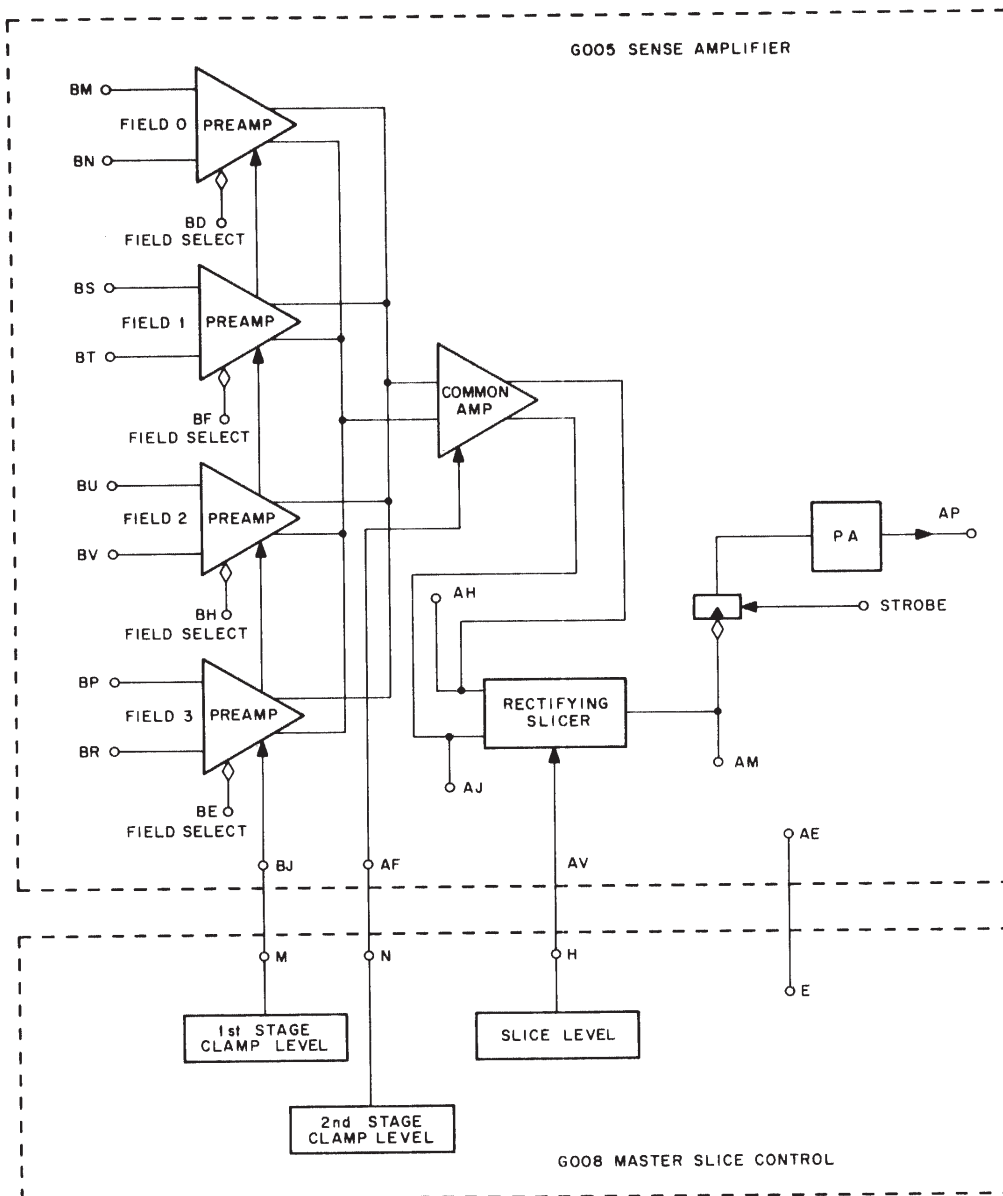


Figure 4-1 G005 Sense Amplifier

Output

- Amplifier: Overall amplifier gain between 65 and 85, measured single - ended at the outputs AJ or AH.
- Rectifying Slicer: Output capable of driving 1.0 mA at ground level and 8.5 mA at -3 Vdc.
- Pulse Amplifier: A 100 ns 3V negative pulse capable of driving 10, 2-mA diode gates. A negative pulse out is a ONE.