

SYNC PULSE AMPLIFIER AM1/509

Introduction

The AM1/509 accepts a 2-mA positive-going sync-pulse signal at low impedance and provides a negative-going output signal at 2 volts p-p across 75 ohms. (See Sync Switch Panels PA18/508 and PA18/509, Instruction V.13 and also Instruction V.15, Part 1.)

The unit requires power supplies at +12 volts (16 mA) and -6 volts (14 mA). It is constructed on a CH1/12A chassis with index peg positions 3 and 13.

Circuit Description (Fig. 26)

The signal circuit consists of a common-base input stage followed by a common-emitter amplifier stage and two cascaded emitter-followers. The signal level at TR1 collector is 1 volt p-p and at TR2 collector it is 4 volts p-p. The low-impedance output is padded by R14 to approximately 75 ohms and so the final output level across 75 ohms is 2 volts.

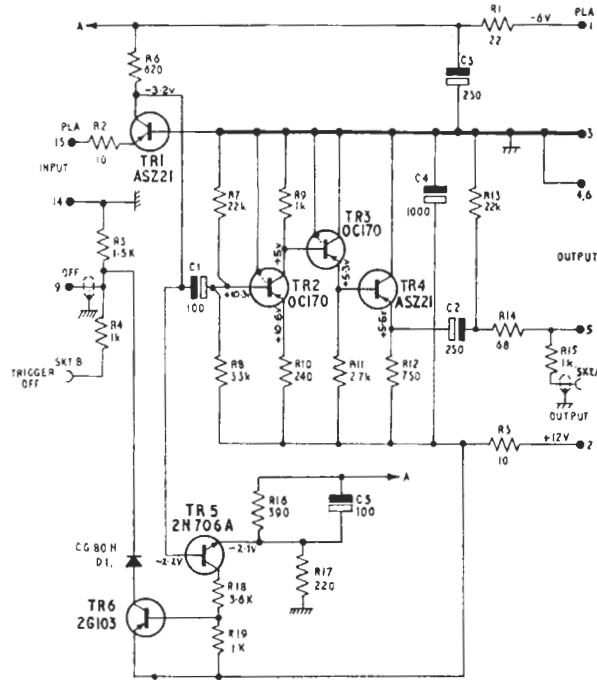
The amplifier incorporates a trigger guard circuit (transistors TR5 and TR6) which functions in conjunction with associated Sync Pulse Switch Units UN9/516 (see Instruction V.14). This circuit

reinforces the electrical interlock arrangements which are meant to ensure that two switch units are not switched simultaneously to the *On* condition. The emitter of TR5 is biased from a potential divider and the base is connected directly to the collector of TR1; in normal operation this collector does not become less negative than -2.2 volts and so both TR5 and TR6 are cut-off. If two sync switches are simultaneously in the *On* condition then the input current to TR1 is doubled, the collector potential falls to a level at which TR5 is driven into conduction; the action of TR5 clamps the collector of TR1 at about -1.4 volts. Transistor TR6 is bottomed, the anode of diode D1 is clamped to the +12 volt rail and the *Off* trigger output of the unit is held at about +11.7 volts. This condition persists until only one switch is in the *On* condition.

In normal switching operations between the associated sync switch units the selected channel is switched on before the discarded channel is switched off. In these circumstances the trigger guard circuit produces a narrow pulse on the *Off* line which accelerates the changeover switching action.

WJP 9/66

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TRANSISTOR TERMINATIONS
VIEW ON LEADS.

COMP	TYPE	TOLERANCE PER CENT	COMP	TYPE	TOLERANCE PER CENT
C1	Plessey CE1214/445	25V	R8	Erie 109	2
C2	Plessey CE1256/422	12V	R9	Erie 109	2
C3	Plessey CE1287/420	6V	R10	Erie 109	2
C4	Plessey CE1236/436	12V	R11	Erie 109	2
C5	Plessey CE1233/414	6V	R12	Erie 109	2
			R13	Erie 109	2
R1	Erie 108	2.5	R14	Erie 109	2
R2	Erie 109	5	R15	Erie 109	2
R3	Erie 109	2	R16	Erie 109	2
R4	Erie 109	2	R17	Erie 109	2
R5	Erie 108	5	R18	Erie 109	2
R6	Erie 109	2	R19	Erie 109	2
R7	Erie 109	2			

SYNC PULSE AMPLIFIER AMI/509: CIRCUIT