REVISIC

GENERAL DESCRIPTION

This board sums the speed error signal, the load reference signal, the valve opening bias signal, the valve closing bias signal (during chest/shell warming) to produce a d-c signal at the output for the intercept valve position loops. Zero volts or less drives the valves to the closed position; +5 volts call for the valves to go wide open. A biasing network limits the output to +5 volts if a higher voltage is called for, and drives the output negative (via contact KT101) opening on an emergency trip. The transistor circuit is used only for current amplification - the base to emitter drop may be neglected.

The intercept valves will be biased full open (+5 volts output) during starting up and loading by -5 volts at TP6.

If an overspeed occurs, the resulting speed error will act to cancel the bias voltages and load reference signal. The intercept valves have a regulation of 2%, therefore, the speed error resulting from a 2% overspeed will cancel 5 volts at the output. A 100% load with 5% control valve regulation and a load reference of -5 volts, will start to close the valve at 5% overspeed, and will be fully closed at 107% of rated speed. The overspeed required to start the valves closing is due to the fact that more than 5 volts must be cancelled at the output.

During chest/shell warming a (+) 5.50 VDC input valve closing bias will assure that intercept valves remain closed.

The gain seen by the speed error input (equal to 5 in the steady state) increases to 2.5 during a transient change through the Resistor - capacitor input path.

ACTIVE FOR Test
BY LC DATE 2/10/71

ET-2
273-
273-
273-
273-
273-
PRINTS

P3K-AL-0179

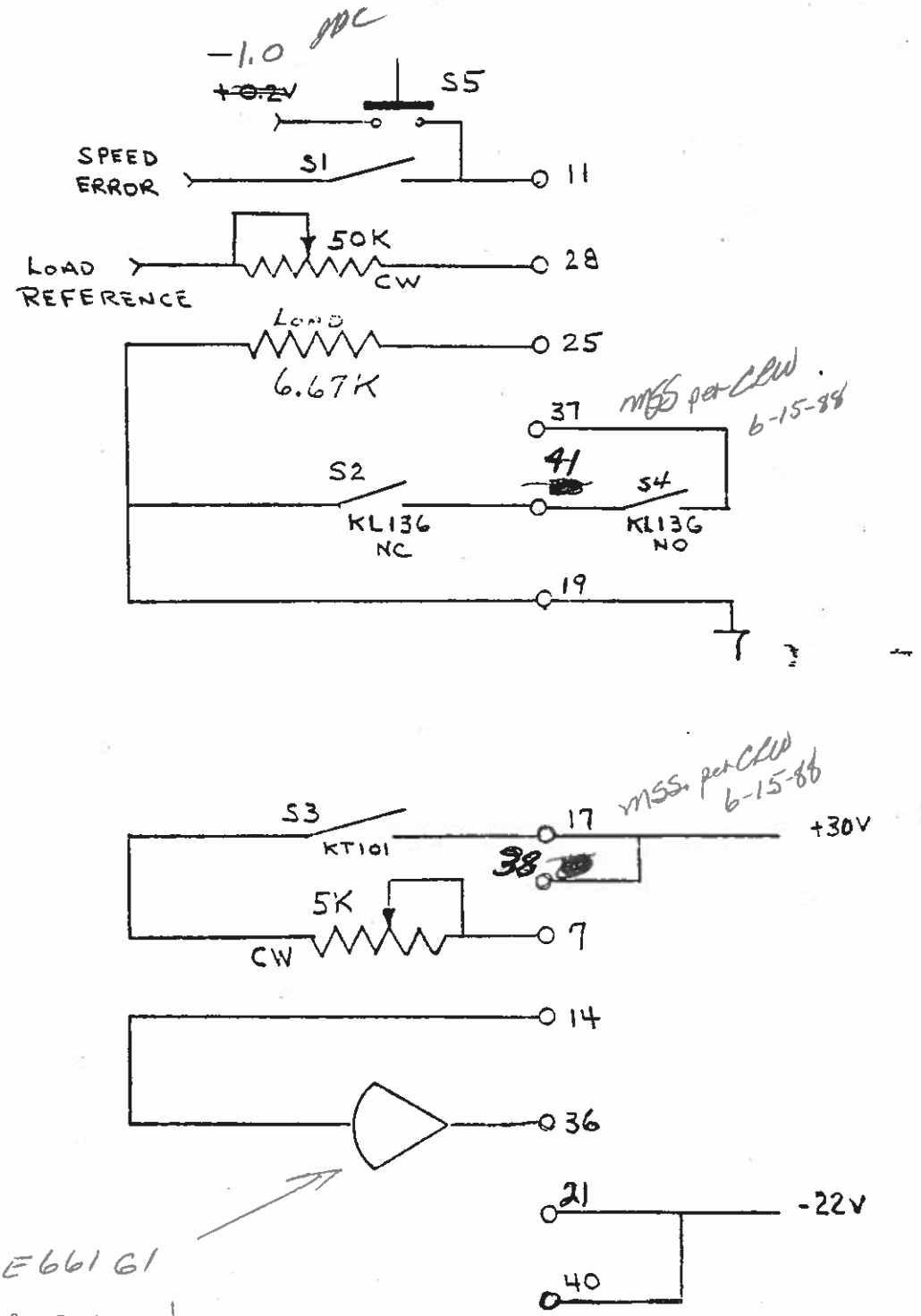
CONT ON SHEET 3 SH NO. 2

TITLE

INTERCEPT VALVE AMPLIFIER CIRCUIT BOARD TEST

FIRST MADE FOR 170X463

REVISIC



784E6161

OPP AMP board
+30 – Pin 17
-22 – Pin 21
Com – Pin 19

ET-2
273-
273-
273-
273-
273-
PRINTS

REV NO. G

P3K-AL-0179

CONT ON SHEET 4 SH NO. 3

TITLE

INTERCEPT VALVE AMPLIFIER CIRCUIT BOARD TEST

FIRST MADE FOR 170X463 CKT. BD. 118D1517G1

REVISIONS

Input voltages should be set to ± 10 MVDC, output voltages should be read within ± 100 MVDC of stated values, unless specified otherwise.

1. Hook up card as per test setup, close S1, S2 and S3, open S4 and S5. Set speed error to 0.0 volts.

2. Set load reference to 0.0 volts.

3. Adjust R5 for -5.0 volts at TP6.

4. Set 5K pot fully CW. Set 50K pot fully CCW.

5. Set +2.5 volts on the speed error input and -5.0 volts on the load reference input.

6. Adjust the 50K pot until the output is +5.0 volts. TP8

7. Increase the speed error input to +3.5 VDC. The voltage at TP8 should be 0.0 volts.

8. Set load reference to 0 VDC.

9. Set speed error to -5.0 volts.

10. Adjust 5K pot until output at TP8 is +5.0 volts.

11. Open S3. The voltage at TP8 should be (-) 9.8 ± 1.0 VDC.

12. Close S3. Set speed error to 0.0 volts.

13. Open S2, close S4, TP8 voltage should be (-) 5.0 ± 0.5 VDC.

14. ~~Hook up memory scope to hold a single trace of the voltage at TP8.~~

15. ~~Open S1 and push S5. Scope trace should appear as shown in Figure 1.~~

16. ~~Remove the probe from TP8. Close S1 and release S5~~

omit MSS 7Chr 6-15-88

FAILURES: Any values that are not obtained, or any adjustments that cannot be reached is condition for rejection and Control Engineering should be notified.

PRINTS

MADE BY	APPROVALS		
D.Mone Jan. 17, 1973		Steam Turbine DIV OR DEPT	P3K-AL-0179
ISSUED JAN 1 3 1973		Schenectady, N.Y. LOCATION	CONT ON SHEET 4 SH NO 3

P3K-AL-0179-A01

CONT ON SHEET 5 SH NO. 4

TITLE

INTERCEPT VALVE AMPLIFIER CIRCUIT BOARD TEST

FIRST MADE FOR 170X463

REVISIO

Voltage AT TP8

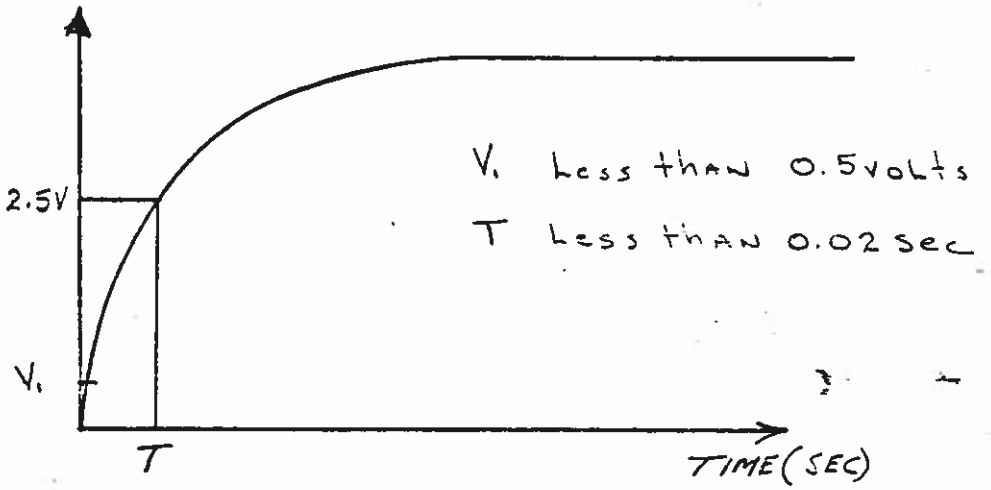


FIGURE 1

PRINTS

P3K-AL-0179

CONT ON SHEET – SH NO. 5

INTERCEPT VALVE AMPLIFIER CIRCUIT BOARD TEST

FIRST MADE FOR 170X463

REVISI

PREPARED BY: J. Dombrosky DATE: 1-10-73

J. Dombrosky
EHC DESIGN ENGINEERING

APPROVED BY: P.C. Callan DATE: 1-16-73

P.C. Callan - MANAGER
EHC DESIGN ENGINEERING

APPROVED BY: _____ DATE: _____

R.J. Dellorfano
EHC TEST ENGINEER

PRINT

Data Sheet

Job # _____

Serial # _____

Date _____

Data Sheet for __118D1517G003_____

Test Procedure __P3K-AL-0179_____

Burn-in Start _____

Burn-in Stop _____

Technician _____

Test Procedure Step	Nominal	Lower Limit	Pre-Burn in Results	Post Burn in Results	Upper Limit	Pot Values If applicable CW	Pot Values If applicable CCW	Pass/Fail
7	0V					-	-	
11*	-9.8VDC	-8.8V			-10.8V	-	-	
13*	-5.0VDC	-4.75V			-5.25V	-	-	
R5	-	-	-	-	-			
Comments:	"*" = Tolerances tighten x 10 for Brunswick							

1/9/2012

cw