                CONTROL VALVE POSITION CONTROL   Filename: 142D7274.DOC
                142D7274G1 AND G3

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¦            **TEST INSTRUCTIONS FOR THE LYNN BOARD 142D7274**          ¦
¦  THIS BOARD CONTAINS A FEEDBACK AMPLIFIER..A SUMMING AMPLIFIER..A METER ¦
¦  AMPLIFIER......AND 2 REGULATED POWER SUPPLIES                        ¦
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1.0 APPLICABLE DOCUMENTS

     ELEMENTARY DIAGRAM
     MATERIAL LIST

2.0 EQUIPMENT
     TWO POWER SUPPLIES CAPABLE OF 22 VOLTS AT 1AMP

3.0 PROCEDURE

     3.1 APPLY A POSITIVE 22 VOLTS TO PIN 37, COMMON TO PIN 39 AND A
          NEGATIVE 22 VOLTS TO PIN 41.

     3.2 VOLTAGE AT TP1(WH) SHOULD READ +15.7 +/- 1VDC.
     3.3 VOLTAGE AT TP2(RD) SHOULD READ -15.7 +/- 1VDC.

     3.4 CONNECT TP6(6) TO COMMOM. VERIFY THAT VR56 WILL ADJUST VTP5
          THRU ZERO. SET FOR ZERO. REMOVE TP6 FROM COMMON.

     3.5 APPLY 1 VDC TO TP6(6). WITH VR8 FULLY CW MEASURE VOLTAGE AT TP5
          TO COMMON TO BE -6.59 TO -7.98 VDC.

     3.6 ADJUST VR8 FULLY CCW. TP5 SHOULD READ -1.18 TO -1.24 VDC

4.0 METER AMPLIFIER IC3

          4.1 MEASURE VOLTAGE AT TP53(BK), WITH VR10 FULLY CW YOU SHOULD
               READ -22VDC.
          4.2 ADJUST VR10 FULLY CCW AND VOLTAGE SHOULD INCREASE TO -5.8 TO
               -6.85VDC.

          4.3 CONNECT TP5 TO COMMON AND NULL IC3 BY ADJUSTING VR50 TO ZERO
               VOLTS AT TP4(BRN). (LOOK AT PIN 17 AND TP4 ON G3).

          4.4 CONNECT AN INPUT OF 1VDC TO TP5 AND READ AN OUTPUT OF 1VDC
               AT TP4. (LOOK AT PIN 17 FOR G3) REMOVE 1 VOLT INPUT.

          4.5 CONNECT AN INPUT OF -10.0 VDC TO TP5 AND MEASURE AN OUTPUT
               CURRENT OF 1.5 TO 1.6 MA AT PIN 24 WITH VR5 ADJUSTED FULLY CW.

          24.6 ADJUST VR5 FULLY CCW AND MEASURE 0.82 TO 0.92 MA OF CURRENT.

          4.7 DISCONNECT -10 VOLT INPUT.

5.0 SUMMING AMPLIFIER (IC2) STEADY STATE

     5.1 ADJUST VR4 FULLY CCW AND READ ZERO VOLTS AT TP60 (VIOLET).

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                    142D7274G3

5.2   ADJUST VR4 FULLY CW AND READ -5.0 TO -6.0 VOLTS AT TP60.

5.3   WITH VR53 FULLY CCW ADJUST VR7 FULLY CCW AND READ ZERO VOLTS AT
      TP55 (GREEN).

5.4   ADJUST VR7 FULLY CW AND READ -12.0 TO -14.1 VOLTS AT TP55.

5.5   WITH VR2 FULLY CW, ADJUST VR1 FULLY CCW AND MEASURE 4.7 TO 4.9
      VOLTS AT TP61 (WHITE)

5.6   ADJUST VR1 FULLY CW AND MEASURE +17.2 TO +17.8 VDC AT TP61.

5.7   WITH VR54 FULLY CW ADJUST VR3 FULLY CCW AND READ ZERO VOLTS AT TP64
      (BROWN).
5.8   ADJUST VR3 FULLY CW AND READ -12.0 TO -14.1 VOLTS AT TP64.

6.0 NULL

6.1   GROUND TP61(WH), TP62(RD), TP67(BU), TP56(OR), TP66(OR), AND
      TP63(BK). ASSURE THAT VR55 ADJUSTS TP3 THRU ZERO. SET TP3 FOR ZERO.

6.2   REMOVE TP61 FROM GROUND. WITH VR1 ADJUST TP61 FROM +18 VOLTS TO
      +5 VOLTS. SET IT FOR +10 VOLTS.

7.0 AMPLIFIER GAINS

7.1   ADJUST VR7 FULLY CCW.

7.2   CONNECT TP7, TP54, TP5, TP65 TO GROUND.

7.3   CONNECT TP58 TO TP59 AND TP52 TO TP57.

7.4   WITH +10.0 VOLTS AT TP61 AND VR2 FULLY CW VERIFY OUTPUT AT TP3
      READS -10.0 TO -10.05 VOLTS.

7.5   ADJUST VR2 FULLY CCW AND VERIFY TP3 READS -9.96 TO -10.01 VOLTS.

7.6   CONNECT TP61 TO GROUND AND REMOVE TP52 TO TP57 CONNECTION.

7.7   OPEN CONNECTION TO TP56 AND APPLY +1.0 VDC

7.8   WITH VR6 FULLY CCW VERIFY TP3 TO READ -0.98 TO -1.02 VOLTS.

7.9   ADJUST VR6 FULLY CW. APPLY .5 VOLTS TO TP56 AND VERIFY TP3 TO READ
      -10.31 TO -11.64 VOLTS.

7.10 WITH TP57 SHORTED TO TP52. CONNECT TP66, TP63 AND TP61 TO GROUND.

7.11 WITH VR53 FULLY CW, ADJUST VR7 UNTIL TP54 READS -5.0 VOLTS.

7.12 SET VR51 FULLY CCW. PUT +1VDC IN AT TP7. TP3 SHOULD
      READ APPROX. -1.5VDC.

7.13 WITH VR7 FULLY CCW AND VR51 FULLY CW INCREASE VOLTAGE AT TP7 TO
      10.0 VDC. TP3 SHOULD READ APPROXIMATELY -.50 VDC.

8.0 FEEDBACK GAINS

8.1 WITH TP57 SHORTED TO TP52. CONNECT TP7, TP54 AND TP61 TO COMMON.

8.2 WITH VR52 AND VR3 FULLY CCW. APPLY INPUT VOLTAGE TO PIN 6 UNTIL TP5
     READS +1.00 VDC. VERIFY TP3 READS -.120 TO -.088 VDC.

8.3 ADJUST VR52 FULLY CW. TP3 SHOULD READ -2.44 TO -2.55 VDC.

8.4 A.   ADJUST VR52 TO OBTAIN -2.00 VDC AT TP3.
     B.   ADJUST VR54 FULLY CCW.
     C.   CONNECT DVM TO TP65. ADJUST VR3 UNTIL METER READS -5.00 VDC.
     D.   THE VOLTAGE AT TP3 SHOULD READ -1.865 TO -1.890 VDC.

8.5 ADJUST VR54 FULLY CW AND SET TP65 FOR -2.00 VOLTS WITH VR3. TP3
     SHOULD READ 0.00 +/- .1VDC.

     !!! NOTE DO NOT REMOVE GROUNDS OR SHORTS!!!

9.0 LIMIT CIRCUIT

9.1 WITH TP58 & TP59 SHORTED, OUTPUT AT TP3 SHOULD READ +/- 2.5
     +/-0.5VDC (SOFT LIMIT).

9.2 REMOVE SHORT BETWEEN TP58 & TP59. TP3 SHOULD READ 0.3 +/- 0.1 VDC
     (HARD LIMIT).

10.0 SATURATION PROTECTION

10.1 VOLTAGE AT PIN 2 AND PIN 3 OF IC2 SHOULD READ A VOLTAGE EQUAL TO
     OR LESS THAN 0.6 VDC.

11.0 SUMMING AMPLIFIER-TRANSIT STATE

11.1 ADJUST VR6 FULLY CCW AND CONNECT TP61, TP7 AND TP54 TO GROUND.
     REMOVE TP52 FROM TP57. CONNECT TP66 TO GROUND.

11.2 SET VOLTAGE AT TP5 TO 1.00 VDC. WITH VR52 CCW , VOLTAGE AT TP3
     SHOULD READ -.086 TO -.106 VDC.

11.3 ADJUST VR6 FULLY CW. WITH VOLTAGE AT TP5 SET AT 1.00 VDC THE
     VOLTAGE AT TP3 SHOULD READ -1.72 TO -2.33 VDC.

!! NOTE: IF YOU CANNOT GET VOLTAGES, CHECK IC2 NULL. REMOVE VOLTAGE AT
    TP5 AND RE-ADJUST VR55 AT TP3.

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142D7274G3

REV	INIT	DESCRIPTION OF FAILURE	DATE
001	JJW	RELEASED TO FINAL FLOOR	05/19/1994
002	JJW	CONVERTED FROM A WORDPERFECT FILE TO A DOC FILE IN WINWORD	08/15/1995
003	JJW	COMBINED G1 & G3 INSTRUCTIONS	03/13/1996