SERVICE LETTER

(Cust. Documentation Ref PIB DK3026)

DATE: February 28, 1975

NUMBER: DK3025

SUBJECT: ONE SHOT DATA DECODE PHASE IN/ADJUSTMENT PROCEDURES

Prior to 1975 the one-shot read/write decode technique was used primarily for special interfaces, and was available on request only. However, due to increasing customer demands for these special interfaces, higher disk densities, and machine speed requirements, our phase lock loop (PLL) will be replaced by one-shots on all future shipments. Although the internal operation of PLL and one-shot differ significantly the data reliability factor remains unchanged. The most desirable feature of the one-shot technique is quick data acquisition time, which offers the versatility of using any one of a number of different sector formats.

Additional advantages for superceding the PLL are outlined below:

- CONTINUITY OF DESIGN

  One-shot read/write versions provide compatability throughout the product line, whether 100 or 200 TPI, 1500 or 2400 RPM. Consequently one-shot and PLL PCBA's can be changed between drives with no loss in performance.

- MAINTAINABILITY

  Since no phase lock loop circuitry is required, the one-shot PCBA's are much less complex with fewer components. Less electronic components improves maintainability in the form of simpler preventive maintenance adjustment procedures and minimal MTTR. Ultimately this will reduce long term maintenance cost.

Achieving the goal of one universal read/write PCBA currently necessitates two one-shot versions.

103721 - 100TPI disk drives
103751 - 200TPI disk drives

In the future, these two PCBA's will become one, and all drives from that point will be equipped with the 103751 version.

To ensure the most recent adjustment procedures reach the field in a timely manner, we are attaching them for your added convenience. Schematics and assembly drawings may be obtained upon request.

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READ/WRITE ADJUSTMENT PROCEDURE 1500/2400 RPM ONE SHOT
103721 - Assembly
103720 - Schematic

****NOTE****

Ensure oscilloscope time base is calibrated either via external calibration box or by using 10 MHZ oscillator on logic PCBA.

1.0 (NCLK) ADJUSTMENT

Applicable to all revisions. Revision C and higher PCBA's have had R138 deleted and the adjustment is now fixed.

1.1 Set disk hand held exerciser to
a) 1.562 MHZ data rate for 1500 RPM.
b) 2.500 MHZ data rate for 2400 RPM.

1.2 Write all zeros on any track.

1.3 Read all zeros.

1.4 Trigger (-) internal and observe (NCLK) at U20-6 or (*TP22).

1.5 While reading all zeros, adjust R138 (Ref Fig 1) to
a) 100 ns or maximum pulse width for 1500 RPM.
b) 80 ns $\pm$ 3 for 2400 RPM.

2.0 Adjust (long) R115 (Ref Fig 1)

2.1 Trigger (-) internal on U20-6 (*TP22) (NCLK) on Channel A at oscilloscope.

2.2 Monitor U20-2 or (*TP21) with Channel B of oscilloscope.

2.3 Read all "zeros" written from previous step.

2.4 While reading, adjust center pot R115 (long) to
a) 500 ns for 1500 RPM.
b) 320 ns for 2400 RPM.

3.0 Adjust (short) R113 (Ref Fig 1)

3.1 Trigger (-) internal on U20-6 (*TP22) (NCLK).

3.2 Monitor U20-2 (*TP21).

3.3 Write all "ones".

3.4 Read all "ones".

3.5 While reading all ones adjust R113 (short) to
a) 480 ns for 1500 RPM.
b) 300 ns for 2400 RPM.

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READ/WRITE ADJUSTMENT PROCEDURE 1500/2400 RPM ONE SHOT
102721 - Assembly
103720 - Schematic

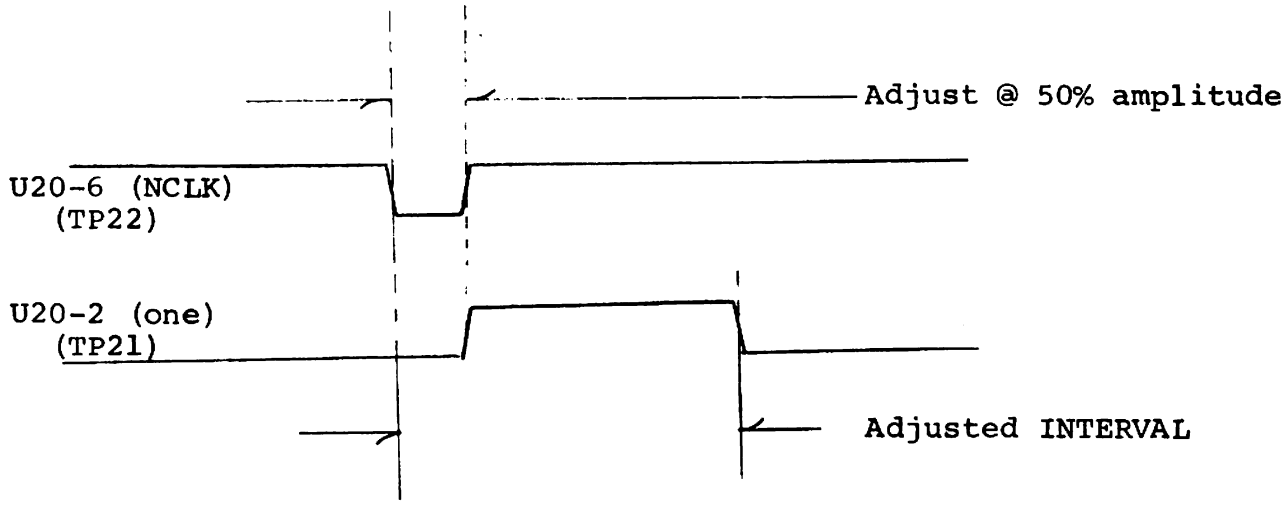

FIGURE 1

*Rev "C" one/shot PCBA's or higher will have TP's 21 and 22.
Rev "B" must be adjusted using circuit pin locations.

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READ/WRITE ADJUSTMENT PROCEDURE 1500/2400 RPM
103751 - Assembly
103750 - Schematic

1.0 Adjust output of U30 (700-8020) for 40 to 45 nanoseconds pulse width (Ref Fig 1) measured at 50% amplitude.

1.1 Trigger (+) internal and monitor TP25.

1.2 Adjust R157 to 40 to 45 ns.

****NOTE****

Ensure oscilloscope time base is calibrated either via external calibration box or using 10 MHZ oscillator on logic PCBA.

2.0 Adjust (long) one-shot.

2.1 Trigger (+) internal on U30-11 (TP25) (RPN).

2.2 Monitor U27-6 (TP23) (one's window).

2.3 Write all zeros with hand held tester
a) 2.500 MHZ data rate ≒ 2400 RPM.
b) 1.562 MHZ data rate = 1500 RPM.

2.4 Read all zeros.

2.5 While reading, adjust potentiometer R115 as follows (Ref Fig 1)
a) 1500 RPM = 500 nanoseconds
b) 2400 RPM = 312 nanoseconds

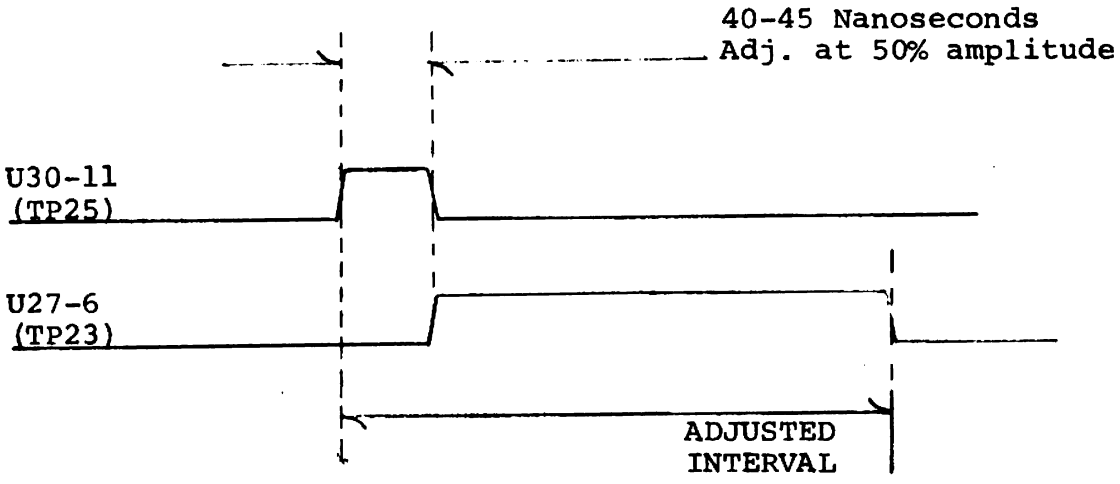

FIGURE 1

3.0 Adjust (short) one-shot.

3.1 Trigger (+) internal on U30-11 (TP25) (RPN).

3.2 Monitor U27-6 (TP23) (one's window).

3.3 Write all ones with hand held tester
a) 2.5 MHZ data rate = 2400 RPM
b) 1.562 MHZ data rate = 1500 RPM

3.4 Read all ones with hand held tester.

3.5 While reading all ones, adjust R113 (short) as follows: (Ref Fig 1)
a) 1500 RPM = 480 nanoseconds
b) 2400 RPM = 302 nanoseconds

4.0 Adjust read data and read clock.

4.1 Trigger (+) internal on U30-11 (TP25) (RPN).

4.2 Read the all ones pattern previously written in Step 3.3.

4.3 Monitor U28-11 (TP15) and adjust potentiometer (R153) for 125 ± 25 ns.

4.4 Monitor U28-8 (TP16) and adjust potentiometer (R155) for 125 ± 25 ns.

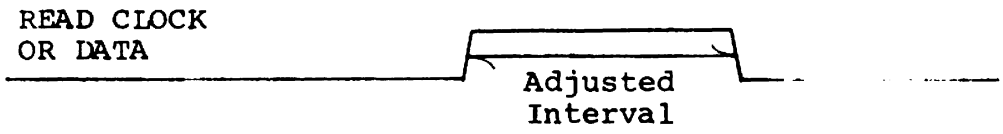

FIGURE 2