729-12

TO: DISTRIBUTION

SUBJECT: BLUE WHALE 1610 DOWNLOADER
           AND DEVELOPMENT STATION

Attached is the documentation describing required set-up and
operational procedure for Blue Whale 1610 Downloader and
Development Station.

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1. Introduction

    This is the documentation for the first stage of Blue Whale 1610
    Downloader Development Station on TSX system, which basically
    downloads the 1610 programs up to 20K decle into Keyboard's memory.

    The second stage station will provide break points, trace,
    memory and register check, and other features.

2. Hardware Set-Up
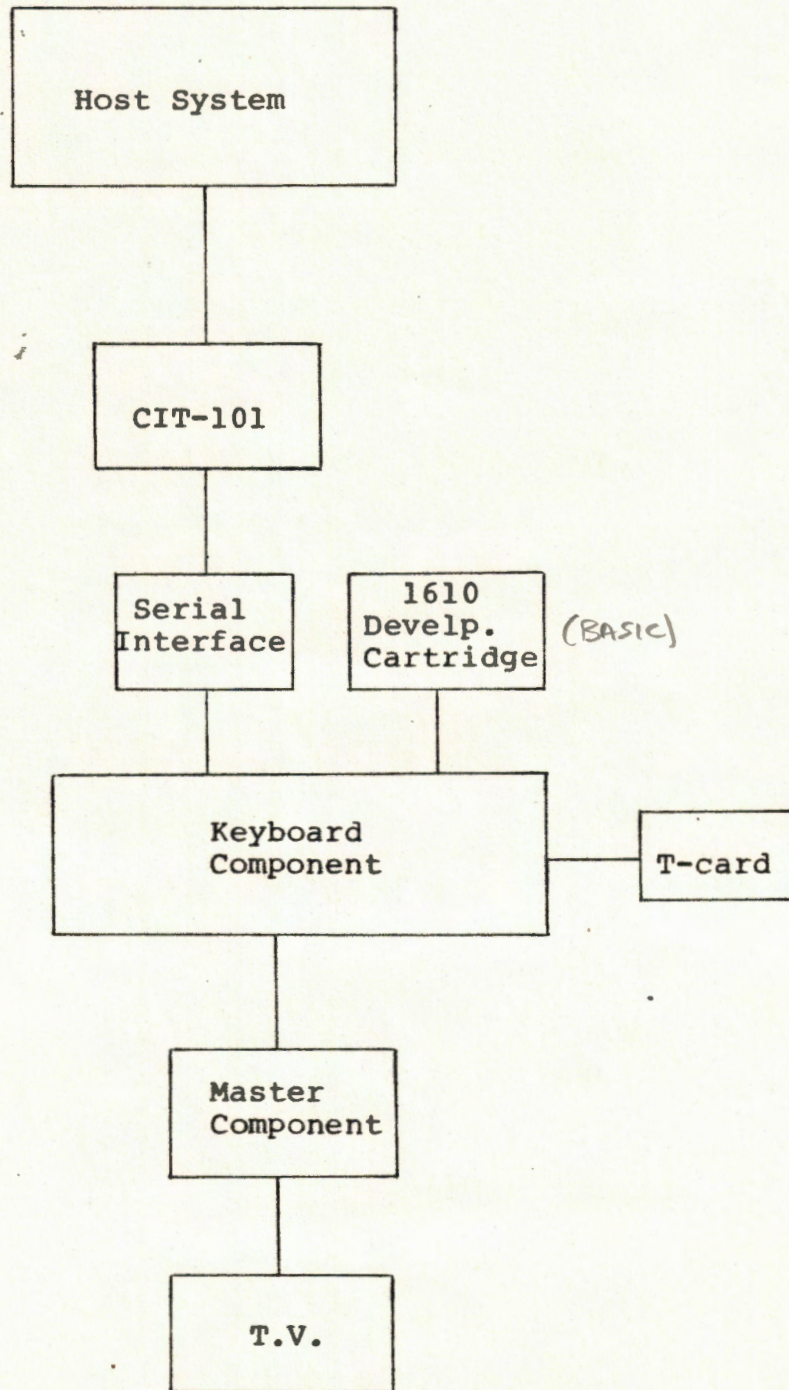
    A. List of items

        1. Keyboard component
        2. Master component
        3. Keyboard Serial Interface
        4. 1610 Development Program Cartridge (Basic Cartridge)
        5. Universal T-card with 8K decle RAM and WRITE protect switch
        6. T.V. set
        7. C. Itoh, CIT-101 terminal with AUX port feature
        8. One (1) long serial cable from CIT-101 to computer system.
            CIT end is female connector. System and connector sex and
            "switchness" will have to be determined.
        9. One (1) short serial "straight" cable from serial interface
            board to CIT-101 AUX port approximately 10 feet. Both
            connectors are male.

    B. Memory Space Available

        1. T-card   (8K decle, WRITE protect)
            5000 - 5FFF
            6000 - 6FFF

        2. Dual Port RAM   (12K decle)
            9000 - 9FFF
            A000 - AFFF
            B000 - BFFF

C. Functional Diagram

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                    ┌─────────────────────┐
                    │                     │
                    │    Host System      │
                    │                     │
                    └──────────┬──────────┘
                               │
                               │
                    ┌──────────┴──────────┐
                    │                     │
                    │      CIT-101        │
                    │                     │
                    └──────────┬──────────┘
                               │
                               │
              ┌────────────────┴──┐   ┌──────────────┐
              │    Serial         │   │    1610      │
              │    Interface      │   │   Develp.    │  (BASIC)
              │                   │   │  Cartridge   │
              └────────────┬──────┘   └──────┬───────┘
                           │                 │
                    ┌──────┴─────────────────┴──────┐   ┌──────────┐
                    │                               │   │          │
                    │         Keyboard              ├───┤  T-card  │
                    │         Component             │   │          │
                    └──────────────┬────────────────┘   └──────────┘
                                   │
                                   │
                          ┌────────┴────────┐
                          │                 │
                          │     Master      │
                          │   Component     │
                          └────────┬────────┘
                                   │
                                   │
                          ┌────────┴────────┐
                          │                 │
                          │      T.V.       │
                          │                 │
                          └─────────────────┘
```

3. <u>Software Requirements</u>

A. Diskette - Single density

    containing file:
    Whale. SAV   - object code for the 1610 downloader.

B. Eprom 2732
    1610 Development program   - object code for the development
                                      program

4. <u>Operational Procedure</u>

A. Insure that the CIT-101 is communicating in a normal manner
    with TSX. If not, press the Set-Up key and then the reset
    (0) key.

B. Set AUX port to 7 bits per character.

C. Reset master component

D. Type in "L" ⟨CR⟩ on Keyboard

E. The T.V. screen will display a message
    "Welcome to 1610 Development System"

F. Enter the command "WHALE" in CIT-101. This will start the
    downloader program.

G. The program will now display the message "Starting Load"
    and "Load Complete" when done on CIT-101, and T.V. will
    display the record status and the addresses to be relocated
    to.

H. After "Load Complete", reset Master Component

I. Type in "C" ⟨CR⟩ on Keyboard to run the program loaded in

J. Repeat the sequence A-I to download other 1610 programs

K. Set T-card WRITE protect switch off before downloading, and
    set it on after downloading.