## IDENTIFICATION

PRODUCT CODE: MAINDEC-8E-D8AC-D

PRODUCT NAME: DK8E CLOCKS DIAGNOSTIC

DATE CREATED: OCTOBER 8, 1971

MAINTAINER: DIAGNOSTIC PROGRAMMING GROUP

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## 1. ABSTRACT

THE DK8E CLOCKS DIAGNOSTIC IS DESIGNED TO VERIFY CORRECT OPERATION OF THE DK8-EA, DK8-EC, DK8-ES, AND DK8-EP REAL TIME CLOCK OPTIONS. THE PROGRAM UTILIZES AND TESTS IOT'S ASSOCIATED WITH THE DK8-EA LINE, DK8-EC CRYSTAL, AND THE DK8-EP/DK8-ES PROGRAMMABLE REAL TIME CLOCKS.

## 2. REQUIREMENTS

### 2.1 EQUIPTMENT

A PDP-8E WITH THE DK8-EA, DK8-EC, DK8-ES, OR THE DK8-EP OPTION INSTALLED AND AN ASR-33 TELETYPE OR EQUIVALENT.

A SPECIAL TEST CABLE IS NECESSARY TO CONNECT THE CLOCK FRONT PANEL TO THE PDP8/E POWER SUPPLY FOR THE DK8-ES CLOCK OPTION.

A SPECIAL CABLE IS NECESSARY TO CONNECT THE DK8-EA CLOCK MODULE TO THE PDP8/E POWER SUPPLY FOR THE DK8-EA CLOCK OPTION.

### 2.2 STORAGE

THE PROGRAM OCCUPIES LOCATIONS 0000-6600.

### 2.3 PRELIMINARY PROGRAMS

ALL PROGRAMS FOR THE BASIC PDP-8E MUST HAVE BEEN RUN SUCCESSFULLY.

## 3. LOADING PROCEDURE

### 3.1 METHOD

THE PROGRAM IS LOADED INTO BANK 0, USING THE STANDARD BINARY LOADER TECHNIQUE.

## 4. STARTING PROCEDURE

### 4.1 CONTROL SWITCH SETTINGS

| | |
|---|---|
| SWR0=1 | FOR DK8-EP/DK8-ES REGISTER TEST |
| SWR1=1 | FOR DK8-ES SCHMITT TRIGGER LOGIC TEST |
| SWR2=1 | FOR INHIBIT ERROR PRINT OUT |
| SWR3=1 | FOR INHIBIT ERROR BELL |
| SWR4=1 | FOR INHIBIT ERROR HALT |
| SWR5=1 | FOR ENTER SCOPE LOOP ON ERROR |
| SWR6=1 | FOR LOOP ON NON-FAILING TEST |
| SWR7=1 | FOR DK8-EP/DK8-ES EXTERNAL PULSE SCOPE LOOP TEST |

SWR8=1 FOR DK8-ES EXTERNAL CLOCK SCOPE LOOP TEST

### 4.1.1 FREQUENCY SWITCH SETTINGS FOR DK8-EA/DK8-EC TEST

SWR9-11=0 TEST 1 CPS CRYSTAL CLOCK
SWR9-11=1 TEST 50 CPS CRYSTAL CLOCK
SWR9-11=2 TEST 50 CPS LINE CLOCK
SWR9-11=3 TEST 60 CPS LINE CLOCK
SWR9-11=4 TEST 500 CPS CRYSTAL CLOCK
SWR9-11=5 TEST 5000 CPS CRYSTAL CLOCK

## 4.2 STARTING ADDRESS

THE STARTING ADDRESS IS 0200 OCTAL.

## 4.3 OPERATOR ACTION

### 4.3.1 DK8-EA/DK8-EC TEST

WITH THE PROGRAM IN BANK 0, SET SWITCH REGISTER TO 0200.

PRESS ADDRESS LOAD.

SET THE SWITCH REGISTER TO 0000.

SET SWITCH REGISTER TO INDICATE FREQUENY OF DK8-EA OR DK8-EC CLOCK UNDER TEST.

PRESS CLEAR AND THEN PRESS CONTINUE.

THE PROGRAM SHOULD RUN UNTIL AN ERROR OCCURES OR UNTIL STOPPED BY THE OPERATOR.

THE TTY WILL SIGNAL "DK8E PASS COMPLETE" AT THE COMPLETION OF EVERY PASS.

### 4.3.2 DK8-EP/DK8-ES REGISTER TEST

WITH THE PROGRAM IN BANK 0, SET SWITCH REGISTER TO 0200.

PRESS ADDRESS LOAD.

SET SWITCH REGISTER TO 0000.

SET SWITCH REGISTER TO INDICATE DK8-EP/DK8-ES REGISTER TEST.

PRESS CLEAR AND THEN PRESS CONTINUE.

THE PROGRAM SHOULD RUN UNTIL AN ERROR OCCURES OR UNTIL STOPPED BY THE OPERATOR.

THE TTY WILL SIGNAL "DK8E PASS COMPLETE" AT THE COMPLETION OF EVERY PASS.

### 4.3.3 DK8-ES SCHMITT TRIGGER INPUT LOGIC TEST

WITH THE PROGRAM IN BANK 0, SET THE SWITCH REGISTER TO 0200.

PRESS ADDRESS LOAD.

SET SWITCH REGISTER TO 0000.

SET THE SWITCH REGISTER TO INDICATE DK8-ES SCHMITT TRIGGER INPUT LOGIC TEST.

PRESS CLEAR AND THEN CONTINUE.

THE PROGRAM SHOULD RUN UNTIL AN ERROR OCCURES OR UNTIL STOPPED BY THE OPERATOR.

THE TTY WILL SIGNAL "DK8E PASS COMPLETE" AT THE COMPLETION OF EVERY PASS.

### 4.3.4 DK8-EP/DK8-ES EXTERNAL PULSE SCOPE LOOP TEST

WITH THE PROGRAM IN MEMORY, SET THE SWITCH REGISTER TO 0200.

PRESS ADDRESS LOAD.

SET SWITCH REGISTER TO 0000.

SET SWITCH REGISTER TO INDICATE EXTERNAL PULSE SCOPE LOOP TEST.

PRESS CLEAR AND THEN PRESS CONTINUE.

USE OSCILLOSCOPE TO VERIFY 40 MICRO SECOND PULSE RATE AT FJ2,FJ1,HM1, AND HM2 ON THE DK8-EP/DK8-ES MODULES.

USE OSCILLOSCOPE TO VERIFY 40 MICRO SECOND PULSE RATE AT OVERFLOW ON DK8-ES CLOCK FRONT PANEL. (DK8-ES ONLY)

### 4.3.5 DK8-ES EXTERNAL CLOCK SCOPE LOOP TEST

WITH THE PROGRAM IN MEMORY, SET THE SWITCH REGISTER TO 0200.

PRESS ADDRESS LOAD.

SET SWITCH REGISTER TO 0000.

SET SWITCH REGISTER TO INDICATE EXTERNAL CLOCK SCOPE LOOP TEST.

PRESS CLEAR AND THEN PRESS CONTINUE.

GROUND CLOCK IN ON DK8-ES CLOCK FRONT PANEL.

THE TTY BELL WILL SIGNAL, IF AN EXTERNAL CLOCK IN WAS RECEIVED.

## 5. OPERATING PROCEDURE