The Widex Utility

This document describes the use of the Widget routine, V1.0

5/10/84

The Command Line

The command line at the top of the screen shows the available options that the user may instruct the program to execute. Some commands affect the status or mode of a test's execution. Others dynamically initiate, terminate, or interrupt a test's execution. Each individual test will be descibed below under the heading "Command Definitions".

The Screen

Below the command line the screen is divided into a number of special purpose regions. Two lines below the title "Widget Widex Routine V1.0" is the status line. At other locations of the screen, windows containing information may appear. Among these are the error window, the test status window, and the test menu window.

Command Definitions

B)egin

This command starts the full Widex test. This test consists of the following : Hard reset, 10 restores, 50 seeks from track 565 to track 0, 50 seeks from track 512 to track 513 with auto-offset, 50 seeks from track 512 to track 513 with diagnostic reads, and 50 random reads. If an error is detected, the error window will be displayed and the test will be terminated. Otherwise, the test will run to completion and then return control to the user.

E)rror stop

Two modes of error handling exist. One is to report an error via the error window, and then continue execution of the test. The other is to report the error, and then stop testing. Error stop is a toggle switch. The current mode of stop on error or no stop on error is reported in the status line right hand corner.

Halt freezes the program.   Operation can only be resumed by the
R)estart command.

I)ntrpt

This is a software interrupt command that will stop any program,
looping or otherwise, and return control to the command line. I)ntrpt
must also be used to exit the T)ests window described below.

O)utput

The user may direct the error windows information to be stored to any
SOS device that is properly attached to the test system. The default
device is Silentype, however, diskettes or hard disks may be used to
store large error files. When a storage device is full, the status
line reports "Outfile full" and no more error windows will be stored.

T)ests

Invoking this command brings a pull down menu in a window at the right
of the screen.   The tests on this menu are intended to be used in a
diagnostic environment. Items on this menu are selected by using the
arrows to move up or down to the desired menu item, and then hit the
left/right arrows to deselect/select the menu item. If multiple menu
items that are functional tests are selected, then each test is
performed in sequential order in a continuous loop of execution.

The Full test on the pulldown menu is identical to the test executed
when B)egin is hit from the command line. However, when the full test
is selected from the T)ests pulldown menu the test is looped on, being
cycled thru repeatedly. Rand seeks are seeks to random tracks.
Restores will continuously send restore commands to the widget. Butt
seeks sends the drive seeking from tracks 541 -0, 1-540, 539-2, etc.
Trk seeks asks the user to input two tracks to seek to, and displays
these inputted tracks in a window across the status line. Single seeks
sends the drive seeks from tracks 0-1, 1-2, 2-3... etc.   The R/W test
seeks to the ID (inner diameter of disk) , does 10 iterations of 50
reads and 1 write, and then seeks to the OD and does the same.

The first 8 menu items are tests, whereas the next four items are
specifiable modes of operation. Recovery off and auto-offset do as
they say – they force recovery off or auto-offsets on every operation.
Conversely, if recovery off or auto-offset are not selected, then
recovery will be on for every operation and auto-offsets will not be

taken.   Default set leaves the recovery and auto-offset conditions that are built into every test as the outcome. In general all seeks and reads have recovery-off built in, and diagnostics reads are done with auto-offset.   The final mode item, Reads mode, will append a diagnostic read to the end of every seek, whether it is a Rand seek, Butt seek, Single seek, or Trk seek.

FST ALGORITHM

FUNCTION	TIME	DRIVE ACTION	ERROR MESSAGE
1. POWER OFF.	30 SECONDS.	NOTHING.	
2. POWER ON. MOTOR COMES UP TO SPEED.	20 SECONDS.	BOTH CONTROLLER AND MOTOR BD. LED'S GO ON 1 SECOND, THEN MOTOR LED GOES OFF, AND CONTROLLER LED FLASHES.	COMM ERROR 01DBE0
3. BRAKE RELEASE.	1 SECOND.	BRAKE RELEASES, MOTOR LED GOES ON FOR 1 SECOND, CONTROLLER LED STOPS FLASHING, AND STAYS ON.	COMM ERROR 3F DBE0
4. FIND SPARE TABLE.	5 SECONDS.	RECAL, SCAN DISK FROM 00 TO 10 AND DO STEP 5 WHEN SPARE TABLE IS FOUND. MOTOR LED FLASHES DURING SCANNING, AND CONTROLLER LED STAYS ON.	COMM ERROR R/W 03DBE0 SPARE TABLE 01DBE0
5. SCAN DISK TO FIND OR CREATE ZONE TABLE.	20-30 SECONDS.	SAME AS STEP 4.	ZONE TABLE SPARE TABLE
6. WAIT FOR 2 MINUTE ON CYCLE TO FINISH. (SELF TEST).	60-70 SECONDS.	NOTHING. BOTH LEDS ON.	
7. COMMUNICATION TEST.	10 SECONDS.	HARD RESET, THEN NOTHING. MOTOR LED FLASHES DURING HARD RESET, WHILE CONTROLLER LED STAYS ON. AFTER HARD RESET, BOTH LEDS REMAIN ON.	DEVICE I.D. CHECK SUM, MAX OFF PARITY, UNEXPECTED ILLEGAL BANK SWITC
8. R/W TEST.	20 MINUTES.	R/W AT O.D. (TRACK -1) AND I.D. (TRACK 203 HEX). ABOUT 40K TRANSFERS EACH. BOTH LEDS ON DURING R/W. MOTOR LED FLASHES WHEN SEEKED FROM O.D. TO I.D., CONTROLLER LED ALWAYS ON.	R/W HEADS
9. POSITION TEST.	8 MINUTES.	FIXED AND RANDOM SEEKS. LEDS AS USUAL.	SHORT, LONG, MEDIUM, AND FATAL SEEKS
10. INITIALIZE DISK.	6-8 MINUTES.	WRITES DATA TO ALL DATA FIELDS (BLOCKS) AND VERIFIES(?). LEDS AS USUAL.	SPARE TABLE, HARD EI
11. MULTIBLOCK TRANSFERS. # OF BLOCKS TRANSFERED BEGINS TO BE DISPLAYED ON MONITOR.	3 - 3.5 HOURS.	RANDOM BLOCK TRANSFER. 420K BLOCKS TRANSFERED, 300-500 BLOCKS AT A TIME. LEDS AS USUAL.	SPARE TABLE, HARD EI
12. POWER CYCLE.		TURNS POWER OFF FOR ? LONG. WHEN POWER TURNS BACK ON AGAIN, DRIVE RETURNS TO STEP 2 AND START OVER, OMITTING STEP 10. THIS LOOP REPEATS A TOTAL OF 16 TIMES FOR A TOTAL OF 6.3 MILLION TRANSFERS.	
13. LOGS RESULTS OF TEST; SPARES, FORCED SPARES, ETC.	1-2 SECONDS.	NOTHING.	
14. REPEATS STEPS 7-9 TO GIVE DRIVE ONE LAST CHANCE TO FAIL.	28 MINUTES.	SAME AS 7-9.	
15. DRIVE TURNS OFF.	0	NOTHING. SCREEN SHOWS STATUS.	

RC Code	Explanation	Procedure
1	Disk not attached	
2	Disk not ready (busy)	CkBsy
3	Unexpected Response	GetWRsp
4	Nonzero status returned from drive	MRdNRes, MWtDone
5	Incorrect header for boot block	
6	Timeout error	WFBsy1, WFNBsy1
7	Reset signal not sensed	CkCres
8	Reset signal stuck at low level	CkCres
9	Buffer test read/write error	
10	Parity error	CalcSm, DiagChk, ErrCk
11	Data checksum error	CalcSm
12	Unrecoverable CRC error	CalcSm
13	Seek error reading status block	ReadOK
14	Block has been spared	
20	Reset error	MultiLp
21	Write verify error (asked for more than one)	MultiWt
22	Bad multi-block count (usually zero)	MultiRd, MWBdCnt

THESE
CODES ARE
LISA BURN-IN
TEST FAILURE
CODES