APPLICATION			REVISIONS	
NEXT ASSY	USED ON	LTR	DESCRIPTION	DATE
	7506			

```
+-------------------+
|REV STATUS OF SHEETS |
|                     |
|REV  | | | | | | | | | | | | | | | | |
|     |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
|SHEET| | | | | | | | | | | | | | | | |
+-----+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+--+
```

RELEASE AND UPDATE INFORMATION, DNOS ONLINE
DIAGNOSTICS, RELEASE 1.1.0-990

TEXAS INSTRUMENTS INCORPORATED DATA SYSTEMS GROUP	drawing number 2276733-9901
	REV. *A SHEET 1 OF 19

SECTION 1

FACTS TO BE REVIEWED

1.1   General Information

The first 3 sections of this document describe modifications and
additions to the DNOS Online Diagnostic system. Each of the
changes is essential to run extended online diagnostic programs
under the control of the operating system, and/or to provide the
capability to run online diagnostics from a remote system.

The next 3 sections describe the changes to the DNOS Online
Diagnostics and System Log Analysis Task 1.1 Release. Extensive
updates and modifications were made to the Online Diagnostics and
the System Log Analysis Task that require the release of a new
software package. The instructions for installing either the
source or the object can be found in the READ FIRST installation
guides.

The information in this document should be available with the
DNOS Online Diagnostics and System Log Analysis Task User's Guide,
(Release 1.1).

1.2   Extended Disk DSR Sysgen

Online Diagnostics has a new, upgraded disk diagnostic. However,
to use any of the extended disk tests (Tests 5-11) or the CH
(Clean Heads) verb, you must answer YES to the prompt "ONLINE
DIAGNOSTICS SUPPORT?" during system generation (SYSGEN). This
ensures that the Extended Disk DSR is sysgen'ed rather than the
smaller Default Disk DSR.

1.3   Operating System Revision

Online diagnostics must be used with the current release of DNOS.
This implies that DNOS version 1.1.1 must be installed and
operational on your system.

1.4 Online Installation

You can execute Online Diagnostics directly from the disk version
of the Object Installation Kit without actually installing the
object. The README file outlines this procedure.

The Online Diagnostics Driver does NOT require that global LUNO
>17 be assigned before execution of the XODD command. The XODD
command now assigns this LUNO, and the driver task releases it.

1.5 Disk Space Required For Installation

The SLA and Online Diagnostics tasks require the following amounts
of disk ADU storage area:

| | | Online Diagnostics | |
Disk Type	SLA	W Help	W/O Help
WD500	311	1694	1418
WD800	105	683	545
CD1400 (1)	297	1416	1416
CD1400 (2)	51	283	237
DS50	122	416	370

Notes:
(1): 16 MByte removable disk
(2): 80 MByte fixed disk

Be aware that these are approximate figures only, since other
factors can affect disk storage area (such as added material on
the disk and disk fragmentation).

The System Log Analyzer must be installed on the system disk.
However, Online Diagnostics can be executed independently of the
SLA installation. This can be especially convenient when using
easily removed media such as a double-sided, double-density (DSDD)
diskette.

SECTION 2

UNDOCUMENTED ITEMS

2.1   General Information

This section describes useful information that is not yet included
in the User or Installation guides. It will be added to the next
revisions of the applicable documents.

2.2   Installation from Magnetic Tape

The online diagnostics have been combined with an OS update on the
magnetic tape. Thus, when the magnetic tape is restored to an
interim directory, there will be additional first level entries to
this interim directory besides those of the online diagnostics.
Consult your OS update installation information as to the proper
use of these files.

The files and directories necessary for use by the online
diagnostics are as follows:

```
            FILE PATHNAME              TYPE      FUNCTION
            -------------              ----      --------
  < interim directory >.ODS$PROC       DIR       PROCEDURES
                      .PATCH           DIR       PATCHES
                      .README          SEQ       INSTALLATION
                      .S$ODIAG         DIR       ONLINE DIAGS
                      .S$SLA           DIR       SYSTEM LOG ANAL
                      .XODD            SEQ       ONLINE PROCEDURE
```

These are the same files and directories that exist when you
receive the online diagnostics on a disk volume. The normal
procedure is to restore these files to any convenient interim
directory anywhere on the system, since the necessary procedures,
program files, and so on, are all self contained.

After restoring the magnetic tape to the interim directory, locate
the online files where they are convenient.

NOTE

The SLA task and procedures must be installed
on the system disk.

2.3   Installation Prompt Documentation

The Object Installation Guide does not document all the prompts
for the Restore Directory (RD) and Verify Backup (VB) commands.
The CONTROL ACCESS NAME and FOREGROUND prompts are omitted. In
both cases use the defaults, (press the RETURN key).

The VB documentation also does not inform you to rewind a tape
before doing the verify (if you are using that medium). After you
perform the RD command, rewind the tape unit.   If you are
unfamiliar with these commands, refer to the SCI Reference Volume
of the DNOS 1.1 manuals.

2.4   CT Verb Operation

The Change Termination (CT) verb and the termination on time value
are accurate within a minute. If you select a time value of 8
minutes, then the task will terminate within 7 to 9 minutes.

2.5   Additional Mag Tape Coverage

The documentation does not inform you that the MT979 diagnostic
task also tests the new Cartridge Tape and MT1600 tape drives.
These are normal MTxx type devices, and the MT979 magnetic tape
diagnostic will properly test both.

2.6   Unavailable Disk Systems

The documentation informs you that the FD300 and the WD300 disk
systems are supported. Ignore any references to these disk
systems.

2.7   XSLAP Procedure

The Online Diagnostic User's Guide does not explain the XSLAP command. This command purges existing data from the SLA master log file .S$DML when hardware problems have been corrected and the error data needs to be eliminated from the SLA report. The prompts are as follows:

```
        PURGE RECORDS IN .S$DML FILE - VERSION 1.1.0
            STARTING DATE (MMDD):
             ENDING DATE (MMDD):
                   DEVICE NAME:
```

The STARTING DATE prompt requires a 4 digit input, 2 for the month (MM) and 2 for the date (DD). The ENDING DATE prompt requires the same type of input. All records between these 2 dates will be purged where they concern the device you specify to the DEVICE NAME prompt. The DEVICE NAME prompt can be:

*   A device class (DS, LP, ST, and so on)

*   A specific device (DS01, LP03, and so on)

*   ALL (All devices)

2.8   Command and Verb Usage

The following list provides additional information concerning verb usage in batch and TTY modes.

The following verbs are not allowed when operating in batch mode:

```
    LDC - List Device
    SF  - Show File
    SMM - Show Memory Map
    SP  - Show Picture
```

The following verbs are not usable when operating from a TTY device:

```
    SMM - Show Memory Map
    SP  - Show Picture
```

SECTION 3

KNOWN PROBLEMS

3.1 General Information

This section documents problems that exist with the Online
Diagnostics DNOS version 1.1 release. These problems should be
fixed by next release.

NOTE

Please   pay   particular   attention to   the
paragraph immediately following in order to
properly   test   your   system's   memory without
overloading your system.

3.2 Number of Memory Tests Determination

One capability of the memory tests is to insure that all of the
available system memory is filled. This causes the system to roll
memory tasks and provides vigorous system operation that is more
likely to provoke error conditions.

Presently, the number of memory tests is a user specified option.
If you start an excessively large number of memory tests, the time
interval required for completion can be excessively long. This
long completion time is aggravated if the Online Diagnostics are
running in conjunction with other production operations.

An Online memory test task takes approximately 36 Kbytes. The
following method should be used to determine an optimum number of
memory tests:

1. Using the Show Memory Map (SMM) command, find the
   figures (in Kbytes) for both the STATIC MEMORY and the
   MEMORY SIZE values. STATIC MEMORY refers to the size of
   the installed operating system whereas MEMORY SIZE is

the total memory installed on the system.

2. Subtract the STATIC MEMORY value from the MEMORY SIZE
   value.

3. Divide the result by 36 Kbytes and round the difference
   down to the nearest integer.

When no other tasks are active, this is the approximate number of
memory tests needed to fill memory.

The Show Memory Map (SMM) command is used to monitor the memory
occupancy by the Online Driver Task and other tasks, while the
tests are executing. Use the SMM command from within the driver
to check the memory occupancy status only. Use the SMM command
activated from another terminal to view the long term progress of
the Online Diagnostics, especially noting that the memory test
tasks are moved around the memory area.

                              CAUTION

          Do   not   leave   the   SMM   display   active
          continuously when activated from within the OD
          driver as it will disable processing of Online
          Diagnostic progress messages.   The SP verb   .
          should be the   normal   mode   of   viewing
          diagnostic progress.

3.3 KD Verb Operation

The Kill Diagnostic (KD) verb does not always cause rapid
termination of the specified tests. This is most pronounced if an
excessive number of memory tests have been initiated.   In this
case, if memory test termination is desired, the entire diagnostic
task operation must be killed by use of the "hard break" exit
sequence (Blank orange key followed by control "X"). If any tasks
are left over, do an XODD followed by an SS verb.   The leftover
tasks will terminate.

Also, check to see that the XODD operation has been completely
stopped by verifying that the driver and all of it's associated
tasks are missing from the STS (Show Task Status) display. In
extreme cases, any tasks still in execution must then be stopped
using the KT procedure (Kill Task).

3.4 Double ENTER Key Operation

While the XODD driver is in operation, pressing the ENTER key
twice has the same effect as the "hard break" exit sequence
described above.

3.5 CP Verb Operation

Be careful when using the CP verb to change online diagnostic task
priorities. It is recommended that you change all tasks of the
same priority level. If selected tasks are different priorities,
(such as DS02 = 2, DS01 = 1, ST03 = 3), it is possible that a
priority 3 task message service request for the driver could block
the message queue to the driver if it is rolled by the operating
system for long periods of time. This condition will not occur if
all the tasks are the same priority.

3.6 SLA Memory Error Processing

The output format from the SLA for memory errors (level 2 and 3
reports) does not preserve the month/day format, but instead
reports a Julian date. Also, the device name is reported in 4
character rather than 8 character format.

3.7 SSD Verb Operation

The SSD verb mistakenly shows support for RP printers. The
onlines do not support testing of RP devices.

3.8 SF Verb Operation

The SF (Show File) verb is only available during an interactive
test session and cannot be accessed from a batch stream.

3.9 Logical Name Assignment

If a logical device name is assigned to a test device that is the
same as the test device name then an >0A error will be reported
when the applicable test is executed.

3.10 SP Verb Operation

When using the SP verb, do not follow activation of the SP verb
with an SS verb. This will cause status messages to be displayed
during the show picture update and cause the show picture to be
abnormal.   The SS verb is obsolete and will be deleted in
subsequent releases.

SECTION 4

CHANGES - DNOS ONLINE DIAGNOSTICS

4.1   DSRW - Extended Disk Diagnostic

The online diagnostic tests for all of the disk systems (DSRW) have had major enhancements. There are now four groups of tests:

1. Tests 1 - 2:   Read-Only File I/O.

2. Tests 3 - 4:   Write/Read File I/O.

3. Tests 5 - 8:   Extended Read-Only.

4. Tests 9 - 11: Extended Write/Read (Scratch disk only).

The extended disk tests allow the capability to read or write on the total surface of the disk volume. Also, many specific features of the various disk controllers are tested.

4.2   LP600 - 300/600 Printronix Diagnostic

The online diagnostic test for the Printronix line printers (LP600) exercises both the LP300 and LP600 line printers. There are 15 noninteractive tests available.

4.3   LP840 - 840 RO Line Printer Diagnostic

The online diagnostic test for the 840 RO line printer (LP840) provides 13 noninteractive and 1 interactive tests.

4.4   911 Subtests Split into Separate Tests

The online diagnostic for the 911 VDT (STxx) now has 6 noninteractive and 1 interactive tests. Two subtests were split out from the older version of test 1 and made into individual tests.

4.5   ST940 - 940 Terminal Diagnostic

The online diagnostic test for the 940 VDT (ST940) provides testing for the Business System series 940 VDT. This diagnostic has five noninteractive and 1 interactive tests.

4.6   DSXX - FD1000 DSDD Clean Head (CH)

The Clean Head verb allows the capability to use a special cleaning diskette to clean the heads on a FD1000 DSDD drive.

4.7   DIAG - Diagnostic Verb to Place Devices in the Diagnostic State

The DIAG verb allows changing the state of devices from ONline to DIAGnostic within the driver task. Thus, you do not need to exit the driver, perform the DIAG or MDS commands via SCI, and then reenter the driver to continue testing.

4.8   ON - Online Verb to Place Devices in the Online State

The ON verb allows changing the state of devices from DIAGnostic to ONline inside the driver without requiring use of the ON or MDS commands via SCI.

4.9   SF - Show Diagnostic Files

The new Show Diagnostic File (SF) verb replaces the Show History
(SH) verb. The SF verb is functionally equivalent to the Show
File (SF) command in SCI. However, only the following diagnostic
related files are available:

       -   ONLINE HISTORY   .S$ODIAG.HISTORY (1)
       -   ONLINE ERROR   .S$ODIAG.ERRORS (2)
       -   SYSTEM LOG 1   .S$SLOG1
       -   SYSTEM LOG 2   .S$SLOG2
       -   SYSTEM LOG ANALYSIS REPORT   .S$SLARPT

Notes:
(1) This is the default history file name, and may differ
according to the history file name you specified earlier.
(2) This is the default error file name, and may differ according
to the error file name you specified earlier.

4.10 SP - Show Picture

The SP verb shows a picture of the online diagnostic status of all
active diagnostic tasks. The error and pass counts for each task
are also displayed.

4.11 XSLA - Execute System Log Analysis Task

The XSLA verb executes the System Log Analysis Task from the
Online Diagnostic Driver while in the diagnostic session. The SF
verb can then be used to display the analysis report file
(.S$SLARPT), if the default (0) for the output printer has been
accepted.

4.12 Test Description HELP Messages for the XD Verb

Test descriptions for each diagnostic were added in the XD verb.
When the prompt:

             ENTER DIAGNOSTIC TEST (INTEGER, ALL)?

appears, then enter H, HELP or ?, and a description of the tests

will be displayed.

4.13 Master Total Error Count for Automatic Batch Mode Execution

A Master Error Count appears when the session is complete. This is to inform you if any errors occurred in the diagnostic session. If the error count is non-zero, then you should refer to the history file.

4.14 Conditional Error Flag Processing For Automatic Batch Mode Execution

A conditional error synonym flag (DIAGERRS) is set internally by the driver if the total error count is non-zero. This allows checking of the DIAGERRS synonym to provide conditional error processing in the automatic batch mode.

4.15 Optional Installation of Help Messages to Reduce Size

The object installation kit allows the "OCLIP" file to be installed without HELP messages. This will save approximately 100 ADUs. However, this is not recommended since it reduces the functionality of the online driver.

4.16 LDC - List Device Configuration

The LDC verb calls the List Device Configuration task to show the current device configuration from the online driver.

4.17 SMM - Show Memory Map

The SMM verb calls the Show Memory Map task to show the current memory map of the system from the online driver. This is helpful when executing memory diagnostics to determine if memory is completely full.

CAUTION

Do   not leave this display active at all times
as   it   will   disable   processing   of   online
diagnostic   progress   messages.   The   SP verb
should   be   the   normal   mode   of   viewing
diagnostic progress.

SECTION 5

CHANGES - SYSTEM LOG ANALYSIS TASK

5.1   Level 3 Report for Remote High/Medium Summary Analysis

The level 3 report provides a combination of level one and level
two reports. For hardware type errors, level 3 gives a level 1
report plus an expanded listing of any errors for those devices
that have recommendations due to possible hardware failures.
However, this listing does not give expanded messages for devices
having only operational errors.

5.2   XSLAP - Purge Master Log Data File by Date and Device

The XSLAP proc allows the capability to delete any data from the
master log file (S$DML).   Thus, if a corrected malfunction has
filled the file with obsolete error messages, these obsolete
messages (specified by device type) may be deleted from the file.
The prompts for the command are as follows:

                PURGE RECORDS IN .S$DML FILE - VERSION 1.1.0
                    STARTING DATE (MMDD):
                    ENDING DATE (MMDD):
                          DEVICE NAME:

The STARTING DATE prompt requires a 4 digit input, 2 for the month
(MM) and 2 for the date (DD). The ENDING DATE prompt requires the
same type of input. All records between these 2 dates will be
purged where they concern the device you specify to the DEVICE
NAME prompt.

5.3   SLA Execution Regardless of Log File Content

The System Log Analysis Task has been extensively enhanced to
allow the task to execute regardless of the content of the system
log files or the appearance of any data that would not normally be
considered by the analysis task. Previous versions of the task
would   terminate   abnormally without completing a report if

unexpected conditions were encountered. The goal of this version
is to always provide a report before termination of SLA.

5.4   Specific Device Selection using XSLA Procedure

Rather than generating a full report, you can generate a report
for a specific device. You can request any report for any level
of device using the following options:

- All Devices, ie, ALL
- Like Type Class Devices; ie. DS
- Specific Device; ie, DS01

5.5 Level 1 and Level 2 Tasks Merged into One Single Task

The previous release had two separate tasks for level 1 and 2
report generations. This release combines those tasks into a
single task (>51) for a disk space savings in excess of >8000
bytes of storage.

5.6 Master Log Data File Reorganized to hold More System Log Data

The SLA master log file (S$DML) has been reorganized to hold more
system log data. Thirty records are created at installation time.

5.7   Report Format Enhancements

The following major report enhancements have been incorporated in
this release:

- Install/unload volume names tracked by devices
- Concatenation of statistics counters
- Recommendation messages expanded for more precise explanations
- Report run time and date
- Revision level of analysis task

SECTION 6

STRs CLOSED
The following STRs were closed as a result of this release:

STR NUMBER	DESCRIPTION
13144	AN >1111 ERROR IS REPORTED TO THE HISTORY FILE WHEN THE DRIVER IS RUN IN BACKGROUND.
13143	THE "FILL IN MATERIAL FOR MESSAGE IS TOO LONG" AND "ABNORMAL TERMINATION" ERROR MESSAGES ARE REPORTED WHEN THE 940 INTERACTIVE TEST IS RUN.
13142	THE SYSTEM HANGS UP WHEN THE 940 INTERACTIVE TEST IS RUN.
13007	THE WRONG STACK AND HEAP PARAMETERS ARE BEING USED IN THE MDS PROC FOR DNOS 1.1.
13006	SLA DOES NOT PLACE ANY DATA IN THE SLARPT FILE WHEN BID FROM THE DRIVER.
13005	THE 940 EDT TEST WOULD NOT EXECUTE.
13004	>2BFD ERROR WHEN BIDDING THE 810 PRINTER TEST.
12879	WITHIN THE DISK DIAGNOSTICS, THE DIAG AND LDC COMMANDS ARE NOT WORKING.
12665	THE DISK TEST RETURNS AN SVC 03 ERROR (LUNO NOT ASSIGNED) UNDER DNOS.
11273	THE INSTALLATION COPIES TASKS WITHOUT ATTACHED PROCEDURES.
11274	'RD' REQUIRED FOR INSTALLATION FROM TAPE ON ONE-DISK SYSTEMS.
10772	SYNONYM 'VOL' DISCREPANCY IN BATCH STREAM.
10885, 9730	>0FFC ERROR ON 'XODD' EXECUTION (OCCURS ONLY IF YOU CHOSE NOT TO INSTALL ALL DIAGNOSTIC TASKS).

10773, 10357, 9585	EXECUTION OF SLA FAILED WITH MESSAGE: "HALT CALLED IN MODULE SDERR".
9945	SLA CANNOT HANDLE "GARBAGE" (**** IN THE TYPE FIELD) IN THE SYSTEM LOG FILE.
9819	ONLINES CAN ONLY BE INSTALLED ON THE SYSTEM DISK.
9810	SLA ABORTS WHEN IT ENCOUNTERS A SPECIAL DEVICE NUMBER.
9727	ERROR WHEN EXECUTING ONLINES ON SYSTEM DISK.
9722	SLA FAILS (.S$DML POINTER PROBLEM).
9721	SLA FAILS WHEN COMPRESSING .S$SLG OR .S$DML.