LICENSED PROGRAM SPECIFICATION

and

STATEMENT OF PROGRAM SERVICE

for the

IBM 3270 WORKSTATION PROGRAM

90X7283

The following Licensed Program Specification applies only to the United States and Puerto Rico.

IBM 3270 Workstation Program

Licensed Program Specification

Statement of Limited Warranty

IBM 3270 Workstation Program is warranted to conform to this Licensed Program Specification when properly used in its designated hardware and software environment. Any other documentation with respect to this licensed program, excluding any documentation referenced in this program specification, is provided for information purposes only and does not extend or modify this IBM 3270 Workstation Program Licensed Program Specification. The IBM 3270 Workstation Program Licensed Program Specification may be updated from time to time. Such updates may constitute a change to these specifications.

This limited warranty and the 90-day program media warranty are contained in the IBM Program License Agreement supplied with this product and is available to all licensees of IBM 3270 Workstation Program.

Statement of Function Warranted

IBM warrants that:

- The media of the software disks, the *IBM 3270 Workstation Program User's Guide and Reference* manual, and the *Problem Determination Guide and Reference* manual are not defective;

- The program is properly recorded on media;

- The *IBM 3270 Workstation Program User's Guide and Reference* and *Problem Determination Guide and Reference* manuals are substantially complete and correct and contain the information which IBM deems is necessary for use of the software;

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- The program functions substantially as described in the *IBM 3270 Workstation Program User's Guide and Reference* and *Problem Determination Guide and Reference* manuals.

Statement of Operating Environment

Hardware Requirements

Systems configurations should be made using system configurators, then checked with this list for compatibility.

The IBM Personal System/2 displays are supported on their appropriate systems for native attachment or with the appropriate IBM Personal System/2 adapter. The function remains the same but the IBM Personal System/2 adapters provide higher resolution as defined by the display documentation.

The IBM 3270 Workstation Program Version 1.0 is designed to operate in the following environments grouped by machine types/models and features.

- IBM Personal System/2 Models 50 and 60:

  The following optional communications features are supported within this group:

  - IBM 3270 Connection Adapter
  - IBM Token-Ring Network PC Adapter/A
  - IBM PC Network Adapter II/A.

  The IBM Personal System/2 80286 Expanded Memory Adapter/A, an optional memory feature, is supported within this group.

  The following optional displays and display adapters are supported within this group:

  - IBM Personal System/2 Monochrome Display 8503
  - IBM Personal System/2 Color Display 8512
  - IBM Personal System/2 Color Display 8513
  - IBM Personal System/2 Color Display 8514
  - IBM Personal System/2 Display Adapter 8514/A.

- IBM Personal System/2 Model 30
  IBM Personal Computer AT (5170) Models 068, 099, 319, 339
  IBM Personal Computer XT (5160) Models 068, 078, 086, 087, 088,
  089, 267, 268, 277, 278.

  The following optional communications features are supported
  within this group:
  - IBM 3278/79 Emulation Adapter
  - IBM Token-Ring Network PC Adapter
  - IBM Token-Ring Network PC Adapter II
  - IBM PC Network Adapter II
  - IBM Asynchronous Communications Adapter
  - IBM Voice Communications Adapter.

  The IBM 2MB Expanded Memory Adapter, an optional memory
  feature, is supported within this group.

  The following optional displays and display adapters are sup-
  ported within this group:
  - IBM Personal System/2 Monochrome Display 8503
  - IBM Personal System/2 Color Display 8512
  - IBM Personal System/2 Color Display 8513
  - IBM Personal System/2 Color Display 8514
  - IBM Personal System/2 Display Adapter/2
  - IBM Enhanced Color Display with IBM Enhanced Graphics
    Adapter
  - IBM Monochrome Display with IBM Monochrome Display and
    Printer Adapter.

- IBM 3270 Personal Computer AT (5273) Models: 020, 041, 042,
  061, 062, 070, 071, P70, P71
  IBM 3270 PC (5271) Models: 002, 004, 006, 030, 031, 050, 051, 070,
  071, P30, P31, P50, P51, P70, P71.

  The following optional communications features are supported
  within this group:
  - IBM Token-Ring Network PC Adapter
  - IBM Token-Ring Network PC Adapter II
  - IBM PC Network Adapter II
  - IBM Asynchronous Communications Adapter
  - IBM Voice Communications Adapter.

The following optional memory features are supported within this group:

- — IBM 3270 PC Expanded Memory Adapter
- — IBM 2MB Expanded Memory Adapter.

The following optional displays are supported within this group:

- — IBM 5151 Monochrome Monitor
- — IBM 5272 Color Display
- — IBM Host Programmed Symbols Adapter
- — IBM PC All-Points-Addressable Adapter.

Software Requirements

The IBM 3270 Workstation Program Version 1.0 requires IBM Personal Computer DOS 3.3.

Memory Requirements

The memory requirements of the IBM 3270 Workstation Program and its environment vary based upon a number of factors. Users of this program are responsible in determining memory requirements for their particular configuration requirements. Refer to your IBM marketing representative or authorized IBM Advanced Product Dealer and the *IBM 3270 Workstation Program User's Guide and Reference* for additional information.

Software Prerequisites

The IBM 3270 Workstation Program supports the following programs:

- IBM PC LAN Program Version 1.2 and IBM Local Area Network Support Program for messenger, receiver, and redirector level support on the IBM Token-Ring NetworK and IBM PC Network (broadband only).

- IBM Host Connectivity Programs:

  - — Appropriate versions of host program support for IBM 3278 and 3279 Displays are required.

  - — The IBM 3274 Control Unit microcode Release 65 or above when under Distributed Function Terminal (DFT) mode.

  - — Host File Transfer Programs:

- IBM 3270-PC File Transfer Program, 5665-311 (MVS/TSO)
- IBM 3270-PC File Transfer Programs, 5664-281 (VM/SP2.1)
- IBM CICS/VS 3270-PC File Transfer Program, 5798-DQH (CICS/VS 1.5).

- IBM Enhanced Connectivity Facility
- 3270 high level language programs created with:

  - IBM 3270-PC High Level Language Application Program Interface Version 3.0

  - The EEHLLAPI component of IBM PC 3270 Emulation Program, Entry Level Version 1.1.

- IBM GDDM linked with GDDM-PCLK through IBM 3270 Work-station Program provides host graphics terminal support for GDDM host applications.

Hardware Compatibility

The 80287 Math Co-Processor is supported on the 80286 based machines for one PC session at a time.

Other Considerations

Compatibility Considerations: Programs should use the documented DOS and BIOS interfaces, and not write directly to any absolute memory address, or do an 'in' or 'out' to an I/O port address. The *IBM 3270 Workstation Program Programming Guide* describes how to write compatible programs that will run in background mode as well as foreground.

General Limitations:

- Use of the IBM GDDM-PCLK Program is limited to a single Personal Computer session at one time. Each such session requires one PC session and one host session.

- One Personal Computer session at a time can use the Lotus/Intel/Microsoft Expanded Memory Specification configuration.

- Two PC sessions can use the virtual disk configuration.

- An ECF application requires both a PC DOS session and a host session. Under the IBM Workstation Program only the first host session of the four available and only one of the six PC DOS sessions available can be used by a single ECF application.

Hardware Dependent Limitations: The following is a list of limitations while running the IBM 3270 Workstation Program Versions 1.0 and 1.1 on non-3270 PC hardware (non-5271/3 systems).

- Applications that write directly to the display buffer will always be displayed in full screen mode when they are active even if they have been sized. When they are not active or when the system is in WSCTRL mode they will be displayed as they were sized.

- Programs dependent on specific keyboards or display sizes may encounter difficulties on dissimilar systems.

- Applications running in the IBM PC DOS sessions must not reprogram the PC timer.

The following limitations apply to systems using IBM Personal Computer XT or AT keyboards (88 keys):

- No keyboard definition utility functions will be available for these keyboards.

- The WSCTRL functions available from the keyboard are:
  - Jump
  - Change Screen
  - Enlarge
  - Print Screen (Alt, Ctrl, Print)
  - Quit (Print Screen or WSCTRL API)
  - Dump (Alt, Ctrl, Test)
  - List
  - Select Window
  - Select Screen.

For the IBM PC XT systems using a directly connected Enhanced PC Keyboard (no keyboard adapter card installed) and for the IBM Personal System/2 Model 30, the keyboard definition utility will become available in the IBM 3270 Workstation Program Version 1.1.

Display Adapter Related Limitation: Programs that write directly to the display buffer cannot run in the background as they do on 5271/73 systems and on IBM Personal System/2 Model 80 with the 3270 Workstation Program Version 1.1.

Limitations Related to Single DOS session configuration (Single DOS means non multi-DOS):

- All Personal Computer applications are suspended whenever the PC window is not the active window.

- Applications using the IBM 3270 PC High Level Language API for inter-session functions must use only the PC session as the active session.

Performance Considerations: Applications which exhibit the following characteristics will not perform as well in a multi-DOS environment:

- Applications which use the older style File Control Blocks instead of the newer File "Handles".

- Applications which use BIOS Video calls to write to the display instead of DOS calls.

When configured for a Single-DOS PC session, performance may be less than a multi-DOS configuration with only one PC session active.

On a Personal Computer AT or 3270 Personal Computer AT with an Expanded Memory Adapter installed, applications over 430K in size may perform at speeds comparable to that of a Personal Computer XT. The larger the application above 430K, the more the performance alteration.

On the IBM Personal System/2 Model 30 with an Expanded Memory Adapter installed, applications with intense writing to the display may perform at speeds comparable to that of a Personal Computer XT with an Expanded Memory Adapter installed.

Asynchronous communications requires a higher rate of interrupt handling than other protocols and may be limited to low transmission rates.

Statement of Program Service

Program service for the IBM 3270 Workstation Program is Central Service, including the IBM Support Center. Program services will be provided only for the current release of the licensed program and for the prior release to the licensed program for ninety (90) days following distribution of the current release.

All program services for this program will be discontinued by September 30, 1988.

IBM does not guarantee service results, or that the program will be error-free, or that all program defects will be corrected.

Qualification for program service: Program service is available only through registered service coordinators. Program users must contact their service coordinator to obtain this service.

IBM defines service coordinator as the customer-designated representative registered to interface with IBM for defect support of designated IBM licensed programs.

Customers of IBM North-Central or South-West Marketing Divisions should contact their IBM Marketing Representative to obtain information on how to qualify for registered service coordinators.

Authorized IBM Advanced Product Dealers are the registered service coordinator for retail customers.

Service Coordinator Responsibilities

The service coordinators' responsibilities include, but are not limited to:

- Problem Determination
- Problem Source Identification
- Submitting APAR Data

- Applying Preventive and Corrective Service

- Performing Activities recommended by IBM Support
  Organization(s).

Corrective Service

IBM Central Service will respond to a defect in the unaltered portion
of a supported release of the licensed program by issuing: Defect
correction documentation, corrected code, or notice of availability of
corrected code, a restriction, or a bypass.

For customers of IBM North-Central or South-West Marketing Divi-
sions, the IBM Support Center will provide the customer's service
coordinator with telephone assistance in problem determination,
problem source identification, and problem resolution. The service
coordinator may call the IBM Support Center at any time and will
receive a call back within eight (8) business hours. The IBM Support
Center will contact the service coordinator's location Monday through
Friday, 8:00 a.m. - 5:00 p.m. local customer time.

For Retail Customers, requests for program service should be made
through your Authorized IBM Advanced Product Dealer.

Preventive Service: Preventive service may be provided on a cumu-
lative basis through updates to the licensed program. Updates may
be distributed to designated service coordinators on diskettes, either
on request or by general distribution, as determined by IBM.

When an update is available, one copy of the program and its sup-
porting documentation will be provided to the service coordinator
location. The service coordinator location is responsible for making
and distributing copies to the work stations with the IBM 3270 Work-
station Program installed, not to exceed the total copies licensed to
the customer.