PERFORMANCE REPORTING OPTION (PRO) 500
IDENTIFICATION INFORMATION
CALL MANAGEMENT SYSTEM (CMS)

CONTENTS PAGE

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†Registered trademark of the Intelligent Systems Corporation.

‡Registered trademark of AT&T.

CONTENTS PAGE

CONTENTS PAGE

1. GENERAL

1.01 This practice provides identification of equipment, optional hardware, and software features of the Performance Reporting Option (PRO) 500 used with a Call Management System (CMS) for DIMENSION* PBX.

1.02 Whenever this section is reissued, the reason(s) for reissue will be listed in this paragraph.

2. IDENTIFICATION

2.01 The PRO 500 equipment is located on customer premises and provides administrative, traffic, and system reports for the CMS feature. The PRO 500 operates in conjunction with a DIMENSION 2000 PBX equipped with FP8, Issue 2.

2.02 The PRO 500 equipment consists of a PDP minicomputer, an LA120 DECWRITER printer terminal, a disk unit, and a magnetic tape unit.

A. PDP 11/70 Minicomputer

2.03 The PDP 11/70 minicomputer is the heart of the PRO 500 and provides the capability to handle up to 15 terminal devices, such as display terminals and printers. Another port is reserved for a dial-up maintenance line. The minicomputer is equipped as listed in Table A.

2.04 The PRO 500 consists of four cabinets for the PDP minicomputer and TWE16 magnetic tape subsystem and a separate cabinet for the RWP06 disk pack drive subsystem and weighs approximately 1530 kg (3400 lb). The PRO 500 equipment configuration is given in Table B.

2.05 Each cabinet for the minicomputer and magnetic tape subsystem is 54.6 cm wide by 76.2 cm deep by 181.3 cm high (21.5 in. by 30 in. by 71.5 in.). The cabinet for the disk pack drive subsystem is 81.3 cm wide by 81.3 cm deep by 118.1 cm high (32 in. by 32 in. by 46.5 in.).

*Registered trademark of AT&T.

B. LA120 DECWRITER Printer Terminal

2.06 The LA120 DECWRITER printer terminal is used primarily to input commands for starting or stopping the PRO 500. This printer terminal can input/output data at a rate of 1200 baud and has a 132-column print with approximately four characters per centimeter (ten characters per inch) horizontal spacing. The printer terminal has tractor feed and allows six copies to be made at once. See Table C for LA120 identification information.

C. RWP06 Disk Pack Drive Subsystem

2.07 The RWP06 disk pack drive subsystem is the mass data storage device for the PRO 500. See Table D for RWP06 identification information.

D. TWE16 Magnetic Tape Subsystem

2.08 The TWE16 magnetic tape subsystem is an input/output data device to the PRO 500 data bases. This subsystem is used to input data such as boot and initialization programs. The TWE16 magnetic tape subsystem is used in conjunction with the RWP06 disk pack drive subsystem. See Table E.

E. PRO 500 Minicomputer Software

2.09 The PRO 500 software is provided on magnetic tape. The PRO 500 software is proprietary and owned by the Western Electric Company. See Table F for PRO 500 software identification.

F. Display Terminals

ADM-42 Display Terminal (Lear Siegler, Inc)

2.10 The ADM-42 display terminal provides a black and white display which is used by PRO 500 supervisors.

2.11 The ADM-42 display terminal is 48.3 cm wide by 64.8 cm deep by 45.7 cm high (19 in. by 25.5 in. by 18 in.) and weighs approximately 22.7 kg (50 lb). This display terminal must be ordered with options listed in Table G.

TABLE A

MINICOMPUTER CABINET EQUIPMENT

IDENTIFICATION	DESCRIPTION
SM70CVD-CK	Central processing unit (CPU), console, and cabinet
DH11-AD	Asynchronous multiplexer
DZ11-A	Asynchronous multiplexer
DL11-WA	Serial line unit and line frequency clock
H960-DA	Cabinet and expander box
MK11-C	512KB metal-oxide-semiconductor (MOS) memory unit
M9312	Bootstrap loader

TABLE B

PRO 500 PERIPHERAL IDENTIFICATION

PERIPHERAL IDENTIFICATION (NOTE)	DESCRIPTION
LA120 DECWRITER Printer Terminal	Printer terminal
RWP06 Disk Pack Drive Subsystem	176MB disk drive and controller
TWE16 Magnetic Tape Subsystem	Magnetic tape drive
ADM-42 Display Terminal	Black and white display terminal
INTECOLOR 8001 Display Terminal	Color display terminal
DATASPEED 40 Printer	Printer
202T Data Set	For remote display terminal and printer operation
212A Data Set	For remote maintenance operation

Note: The M25-type cables, M12R null modems, and communications code 824373641 spacers must be ordered.

TABLE C

PRO 500 PRINTER TERMINAL IDENTIFICATION

IDENTIFICATION	DESCRIPTION
LA120	Printer terminal equipped with BC05F-25 cord
H9850-PA	Printer terminal paper
LAXXR-12	Printer terminal ribbon (12 per box)
LAXX-KD	Printer terminal wire shelf

TABLE D

PRO 500 DISK PACK DRIVE SUBSYSTEM IDENTIFICATION

DISK DRIVE AND CONTROLLER	DISK PACK CODE
RWP06	882EF (two required)

TABLE E

PRO 500 MAGNETIC TAPE SUBSYSTEM IDENTIFICATION

TAPE DRIVE AND CONTROLLER	MAGNETIC TAPE CODE	DISK PACK DRIVE SUBSYSTEM REQUIREMENT
TWE16	TUN24-C* (ten required)	RWP06

* 731.5m (2400 ft) certified at 630 b/cm (1600 b/in.).

TABLE F

PRO 500 SOFTWARE IDENTIFICATION

MAGNETIC TAPE SUBSYSTEM	J59212G-1 LIST NUMBER	MAGNETIC TAPE/ GENERIC PROGRAM (NOTE)
TWE16*	L1	TP-65000-01/M1R
	L3	TP-65000-03/M2R
	L4	TP-65000-04/M4R

Note: In addition to the tapes listed, one additional tape is required to configure the PRO 500 driver.

* The TWE16 magnetic tape subsystem is used with the RWP06 disk pack drive subsystem.

TABLE G

OPTIONS FOR ADM-42 DISPLAY TERMINAL

OPTION REQUIREMENT	OPTION DESCRIPTION
Full duplex	Simultaneously send and receive data
No parity	Parity check bit not used
One start bit	One data bit for beginning a character
Eight data bits	Eight-bit American Standard Code for Information Interchange (ASCII) characters
One stop bit	One data bit to end character
Uppercase and lowercase characters	Display is combination of uppercase and lowercase characters
RS-232C	Extension and male-to-male 4.6m (15-ft) cable

INTECOLOR 8001 Display Terminal

2.12 The INTECOLOR 8001 display terminal provides a color display which is generally used by PRO 500 upper level supervisors.

2.13 The INTECOLOR 8001 display terminal is 49.2 cm wide by 57.2 cm deep by 44.5 cm high (19.38 in. by 22.5 in. by 17.5 in.) and weighs 38.6 kg (85 lb). This display terminal must be ordered with options as listed in Table H.

Local or Remote Operation

2.14 The display terminal(s) may be used either locally or remotely. Distances from 6.1 to 304.8m (20 to 1000 ft) from the minicomputer are considered local operation while distances greater than 304.8m (1000 ft) from the minicomputer are considered remote operation. When the display terminal is connected locally, the M12R cord (null modem) is used with the M25A cords and/or B6A cables. The M25A cords are supplied in 1.5, 2.7, 7.6, or 15.2m (5-, 9-, 25-, or 50-ft) lengths and can be ordered up to 30.5m (100 ft) long. The B6A cables are provided in standard 30.5m (100-ft) lengths or to specified lengths over 30.5m (100 ft). Custom lengths are available up to 304.8m (1000 ft). When the display terminal is connected remotely, two 202T data sets are required, one at the minicomputer and one at the display terminal. Table I lists the local display terminal cabling configuration, and Table J lists the remote display terminal cabling configuration.

G. DATASPEED 40 Printer

2.15 The DATASPEED 40 printer is used by the PRO 500 to produce a hard copy of reports either displayed on a display terminal or automatically routed to a printer. The printer(s) may be used locally [up to 91.4m (300 ft) from the minicomputer] without the use of data sets or remotely [more than 91.4m (300 ft) from the minicomputer] with the use of 202T data sets. The printer is equipped as listed in Table K.

H. 212A Data Set

2.16 The 212A data set is used with the PRO 500 to provide maintenance dial-up access. One data set is required at the minicomputer and is used in conjunction with a 2565HKM telephone set which is connected to the PBX cross-connect field. The 212A data set should be optioned as shown in Table L.

I. 202T Data Sets

2.17 The 202T data sets are used in the PRO 500 for remote operation of a display terminal. Two data sets are required, one for use at the minicomputer and one at the display terminal. The 202T data sets should be optioned as shown in Table M. The M25A-87 cords are required at the minicomputer and display terminal to connect to the data sets.

2.18 The 202T data sets are also used for remote operation of a DATASPEED 40 printer. One 202T data set type 18s (or equivalent) must be used at the minicomputer and another at the printer when the distance between the minicomputer and printer exceeds 91.4m (300 ft). The 202T data sets should be optioned as shown in Table M. An M25A-87 cord modified per SD-66953-01 Cad 2 [J59212A-() Det 1] is required to connect the data set to the minicomputer.

J. Asynchronous Line Driver (ALD)

2.19 The ALD is used between the peripheral interface circuit (PIC) and the PRO 500 interface when the distance is greater than 22.9m (75 ft). The ALD operates at 2400 baud.

K. 2565HKM Telephone Set

2.20 This telephone set is used with the 212A data set to provide a dial-up maintenance line.

3. POWER REQUIREMENTS

3.01 Arrangements should be made to provide the installation and wiring of an approved panel board equipped with thermal magnetic circuit breakers and wall-mounted receptacles. In all cases, wiring and equipment must comply with applicable local codes.

3.02 The PRO 500 power and connectors required are listed in Table N. All receptacles must be unswitched and separately fused. The input voltage may vary from 208 to 254 Vac and the frequency from 59.5 to 60.5 Hz.

If brownout conditions are anticipated which will cause the input voltage and/or current to be less than required, an alternate power source or power reserve should be provided.

3.03 System "crashes" will result if the following ac power variations are exceeded:

- Transient line noise—250V peak for 100 ns into 100-ohm load
- AC power dropout—4 ms.

Therefore, it is recommended that in areas where power fluctuations exceed the above noted tolerances that the minicomputer be powered by an uninterruptible power supply (UPS) to protect against outages. A 4-gauge ground cable (equipped with a QA4C-B solderless lug, manufactured by the Burndy Corporation, or equivalent) should be provided from a suitable low-impedance ground to the ground stud provided in the central processing unit (CPU) cabinets. This ground cable will be provided, installed, and connected by computer maintenance personnel.

3.04 Due to the static electricity problems between the printer terminal and the minicomputer, the H7005 filter should be used with the PRO 500 and installed between the printer terminal and the minicomputer by computer maintenance personnel.

TABLE H

OPTIONS FOR "INTECOLOR" 8001 DISPLAY TERMINAL

OPTION REQUIREMENT	OPTION DESCRIPTION
Full duplex	Simultaneously send and receive data
No parity	Parity check bit used
One start bit	One data bit for beginning a character
Eight data bits	Eight-bit American Standard Code for Information Interchange (ASCII) characters
One stop bit	One data bit to end character
1200 baud	1200 bits per second
Graphic plot (=1)	Used to divide individual characters into eight discrete parts
Point and graph mode (=2)	Used with graphic plot for character segment display
Background color (=4)	Black, red, green, yellow, dark blue, light blue, purple, white
Insert and delete (=5)	Used to add or change a line anywhere on screen
Scroll mode (=15)	Used to move display up for addition of bottom line
Cursor and color keyboard (=22)	Cursor is one character block which marks location of next displayed character. Colors are same as background colors (see above)
03LC lowercase characters	Used to display lowercase character set
Option 38	Special software used to display uppercase character set
M25B Cord	Male-to-female 3m (10-ft) cord

TABLE I

LOCAL CABLING CONFIGURATION FOR
ADM-42 OR "INTECOLOR" 8001 DISPLAY TERMINAL

CONNECTION	CONNECTION DESCRIPTION
M25A Cord	Connects one line of DH11-AD multiplexer in the minicomputer to a null modem (M12R cord)
M12R Cord (null modem)	Used as an interface for the cable from the minicomputer. One required per black and white or color display terminal
B6A Cable or M25E Cord	Double-ended to connect black and white or color display terminal to M12R cord
Display Terminal Cord	Male-to-male cord bought from manufacturer or M25B cord for color display terminal
A25B and A25D Cords	Double-ended to connect black and white or color display terminal when B6A cable is not used
D25D Cord	Double-ended to connect A25B cord to black and white or color display terminal

TABLE J

REMOTE CABLING CONFIGURATION FOR
ADM-42 OR "INTECOLOR" 8001 DISPLAY TERMINAL

CONNECTION	CONNECTION DESCRIPTION
M25A Cord	Connects one line of DH11-AD multiplexer in the minicomputer to a 202T data set (or equivalent)
202T Data Set (or equivalent)	Provides full-duplex transmission and reception of serial binary data between the black and white or color display terminal and minicomputer. One required for each display terminal
Network	Four-wire private line network
Display Terminal Cord	Male-to-male cord bought from manufacturer or M25B cord for color display terminal

TABLE K

OPTIONS FOR "DATASPEED" 40 PRINTER

MODEL NUMBER	UNIFORM SERVICE ORDER CODES (USOCs)	USOC IDENTIFICATION	OPTION REQUIREMENTS
4010-3MOJ	40R1F	40CAB 353/ZZ cabinet	The printer shall be ordered with the following nonfactory options: 18A 19C 19D 39A 48A 58B 59G* 101L* 125B 143B 146B 151B 156D 157A 158C
		40P201/22 132-column printer	
		TP-400777 uppercase and lowercase characters	
	4TMEC	Pedestal	
	4TN00	Paper rack	
		TP402444 ribbon	

* If the printer is connected in a remote application, the printer must operate at 1200 baud with options 59E and 101F.

TABLE L

OPTIONS FOR 212A DATA SET

OPTIONS	OPTION DESCRIPTION
F	Trip, ring make busy
ZF	CC indication for analog loop
YF	CN circuit
YJ	Character length
S	Loss of carrier disconnect
V	Receive space disconnect
A	CB and CF indications
ZH	Automatic answer
YP	Speed mode
Q	Signal ground to frame connection

TABLE M

OPTIONS FOR 202T DATA SET

OPTIONS FOR USE WITH REMOTE LINE PRINTER		OPTIONS FOR USE WITH REMOTE TERMINAL	
OPTIONS	OPTION DESCRIPTION	OPTIONS	OPTION DESCRIPTION
A2	Point to point	ZN	Continuous carrier
B3	Talk back		
C6	No local copy	ZK	4-wire operation
D7	No local copy on reverse channel		
E9	Telephone Company (TELCO) timing 1200 baud		
F9	1200 baud		

TABLE N

EQUIPMENT POWER REQUIREMENTS

DEVICE	POWER-WATTS (115 Vac, 60 Hz)	RECEPTACLE (NOTE)	CIRCUIT (AMPERES)
PDP 11/70 Minicomputer H960-CA (Cabinet 0)	1610, phase to neutral, 3-phase wye	IG2810* (NEMA-IGL21-30R)	30
H960-DA (Cabinet 2) (with tape unit)	1150, single-phase	IG2610* (NEMA-IGL5-30R)	30
H960-DA (Cabinet 3)	1150, single-phase	IG2610* (NEMA-IGL5-30R)	30
MK11-C Memory in H960-DA (Cabinet 1)	1150, single-phase	IG2610* (NEMA IGL5-30R)	30
RWP06 Disk Pack Drive Subsystem	1460, 3-phase wye	IG2510* (NEMA-IGL21-20R)	20
LA120 DECWRITER Printer Terminal †	440, single-phase	IG5262* (NEMA IG5-15R)	15
DATASPEED 40 Printer ‡	230, single-phase	IG5262* (NEMA-IG5-15R)	15
ADM-42 Display Terminal ‡	65, single-phase	IG5262* (NEMA-IG5-15R)	15
INTECOLOR 8001 Display Terminal ‡	250, single-phase	IG5262* (NEMA-IG5-15R)	15
202T Data Set ‡	7	IG5262* (NEMA-IG5-15R	15
212A Data Set	9	IG5262* (NEMA-IG5-15R	15
Equipment Room Utility Outlet	—	IG5262* (NEMA-IG5-15R)	15

Note: Or equivalent isolated ground receptacles, customer provided.

* Manufactured by Harvey Hubbell, Incorporated.

† The printer terminal may be wired from the H960-CA cabinet.

‡ One NEMA-IG5-15R receptacle, or equivalent, required per display terminal, printer, and 202T data set.

4. PREORDERING INFORMATION

4.01 The PRO 500 must be locally engineered to meet customer needs and may or may not include all equipment and optional features identified in this section.

4.02 Tables O and P contain items that can be ordered as maintenance spares or replacements. Table Q contains miscellaneous equipment used in the PRO 500.

5. REFERENCES

5.01 The following J-drawings are associated with the PRO 500 and may be referred to for additional information:

DRAWING	TITLE
J59212A-1	PBX System — 11A Customer Information System — ACD-ESS Management Information System (AEMIS) — Minicomputer Equipment Specification
J59212AA-1	PBX Systems — 11A Customer Information System — ACD-ESS Management Information System (AEMIS) — Terminal Equipment Specification
J59212AB-1	PBX Systems — 11A Customer Information System — ACD-ESS Management Information System (AEMIS) — Data Set Equipment Specification
J59212G-1	PBX Systems — 11A Customer Information System — ACD-ESS Management Information System (AEMIS) — Software Equipment Specification

5.02 The following SD and associated CD is applicable to the PRO 500 and may be referred to when required:

DRAWING	TITLE
SD-66953-01	PBX Systems — Customer Information — AEMIS — System Circuit

5.03 The following sections should be referred to for additional information:

SECTION	TITLE
554-010-143	Performance Reporting Option (PRO) 500 — Descriptive Information — Call Management System (CMS)
554-010-145	Performance Reporting Option (PRO) 500 — Preinstallation Information — Call Management System (CMS)

5.04 The following Task Oriented Practice (TOP) provides additional information on the PRO 500:

TOP	TITLE
554-010-146	Performance Reporting Option (PRO 500) — Call Management System (CMS) — Installation, Test, and Maintenance

TABLE O

PRO 500 TELEPHONE SET AND DATA SET CODES FOR ORDERING SPARES

EQUIPMENT	APPARATUS CODES
Telephone sets	2565HKM (or equivalent)
Data set (remote maintenance)	212A (or equivalent)
Data set (remote operation)	202T (or equivalent)

TABLE P

PRO 500 CABLE IDENTIFICATION FOR ORDERING SPARES

M12R-87 (Null Modem)	One M12R cord (null modem) is required for each terminal device that connects to the minicomputer
B6A Cable	Double-ended extension cable used to connect terminal devices to M12R cord (null modem). Several cables can be connected end-to-end. Cables are available in standard 30.5m (100-ft) lengths or to specified lengths over 30.5m (100 ft). Custom lengths are available to 304.8m (1000 ft). Cable can also connect to M25A cord
M25A-87 Cord	A 1.5, 2.7, or 15.2m (5-, 9-, 25-, or 50-ft) cord used to connect the minicomputer to M12R cord (null modem), 212A L1/L2 data set, 202T data set, DATASPEED 40 printer, and terminal devices. Mates with B6A cable for combined maximum length of 304.8m (1000 ft)
A25B Cable	A 9.1. 24.4, 30.5, or 61m (30-, 80-, 100-, or 200-ft) double-ended cable used when M25A-87 cord length is exceeded (B6A cable preferred)
A25D Cord	A 0.9, 1.8, or 2.7m (3-, 6-, or 9-ft) double-ended cord required to connect two A25B cables
D25D-61 Cord	An adapter cord required to connect the black and white or color display terminal to an A25B cable
M25E-87 Cord	An adapter cord required to connect the M12R-87 null modem to an A25B cable

TABLE Q

PRO 500 MISCELLANEOUS EQUIPMENT

42A Connecting Block	A 4-conductor connecting block which accepts the cord from the 2565HKM telephone set. Furnished with cover in ivory (100009323*), olive gray (100009331*), and brown (101328847*)
44A Connecting Block	A 10-conductor connecting block. Cover not furnished

* 9-digit comcode ordering number.