Honeywell

Universal Work Station Installation, Operation, and Service

UW02-500

Honeywell

LCN Service - 2

Universal Work Station Installation, Operation, and Service

UW02-500
Release 500
9/95

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Revision 01 – September 15, 1995

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About This Publication

This publication supports Universal Work Station (UWS) in an existing LCN-based TDC 3000^X System. The need to refer to several publications in the standard LCN bookset is minimized by providing, in this publication, the information needed by experienced users to install, checkout, implement, operate, and service a UWS.

This publication supports TDC 3000^X Software Release 500.

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Acronyms

CRT	Cathode Ray Tube
ESD	Electrostatic Discharge
HM	History Module
LCN	Local Control Network
Mw	Megaword
NCF	Network Configuration File
ORU	Optimum Replaceable Unit
SP	Setpoint
US	Universal Station
UWS	Universal Work Station

References

Publication Title	Publication Number	Binder Title	Binder Number
Five/Ten-Slot Module Service	LC13-500	LCN Service - 2	3060-2
Universal Station Service	US13-500	LCN Service - 1	3060-1
Keyboards	SW09-508	Implementation/Engineering Operations - 1	3032-1
Network Data Entry	SW11-505	Implementation Startup & Reconfiguration - 1	3030-1

SECTION 1 - INTRODUCTION AND OVERVIEW

The improved Universal Work Station (UWS) is a lower-cost alternative to the Universal Station (US). The UWS is intended for use by engineers and supervisors, and can be located away from the control room in an office, laboratory, or other location.

This work station provides enhancements and features not available in some of its predecessors, including an improved-definition 14" CRT monitor, optional 21" CRT monitor, optional higher-speed processor, and optional high-capacity cartridge disk drives. The enhanced keyboard includes both operator and engineer keyboards. Models that have the enhanced keyboard assembly include 4 megawords of memory.

1.1 GENERAL DESCRIPTION

The UWS consists of an electronics module, a 14" or 21" color monitor, one or two keyboards, and a mouse. It may also include one of two optional removable-media drives and an optional printer. The removable-media drives are either two floppy-disk drives or two high-capacity cartridge disk drives.

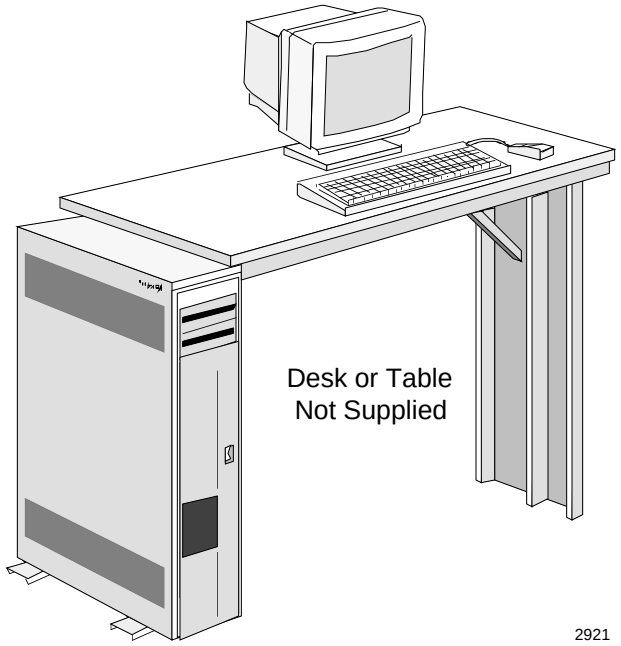

Figure 1-1 — Universal Work Station

As shown in Figure 1-1, the monitor, keyboard, and optional printer are intended to rest on a desk or table, and the electronics module is intended to rest on the floor, adjacent to the desk. When supplied, the removable-media drives are installed in the top of the electronics module.

There are three versions of the Universal Work Station:

- **Supervisor's Station**—uses the **Supervisor's Keyboard** (see Figure 1-2 and 1-3) and can have removable-media drives and a printer as options.

- **Engineer's Station**—uses the **Engineer's Keyboard** (see Figure 1-4) and can also include optional removable-media drives and a printer.

- **Universal Personality Station—**uses the **Enhanced Keyboard Assembly**, which includes the **Enhanced Operator's Keyboard** (see Figure 1-2) and the **Engineer's Keyboard** (see Figure 1-3), and can also include optional removable-media drives and a printer.

Normally the Supervisor's Keyboard and the Engineer's Keyboard cannot be connected to the UWS at the same time. It is possible to change keyboards, but to do so, jumper pins on the EPDGP I/O interface board must be changed (see subsection 2.5 and Figure 2-4).

In the Dual Personality Station, both the Enhanced Operator's Keyboard and the Engineer's Keyboard may be connected to the UWS at the same time. The Enhanced Operator's Keyboard is connected to the EPDGP I/O and the Engineer's Keyboard is connected to the Enhanced Operator's Keyboard.

Operation of the UWS is very similar to that of the US. The UWS can run in either the Operator Personality or the Engineering Personality. UWS Supervisor's Stations are intended to run in only the Operator Personality. UWS Engineer's Stations can run in either personality. The UWS Universal Personality Stations run in the Universal Personality which includes both the Operator Personality and the Engineering Personality.

In either personality, all of the standard displays are available on the UWS. Because the schematic displays (custom or graphic displays) in the Operator Personality are related to the area database, they can appear only if their pathnames are configured in the area database that is loaded in that UWS. If a unique area database is configured for and loaded into a UWS, which might be so if it is located apart from the control room, that UWS can't look at schematics in other areas unless their pathnames are also configured in its area database. You can use the area change function on the console status display to acquire the database for other areas.

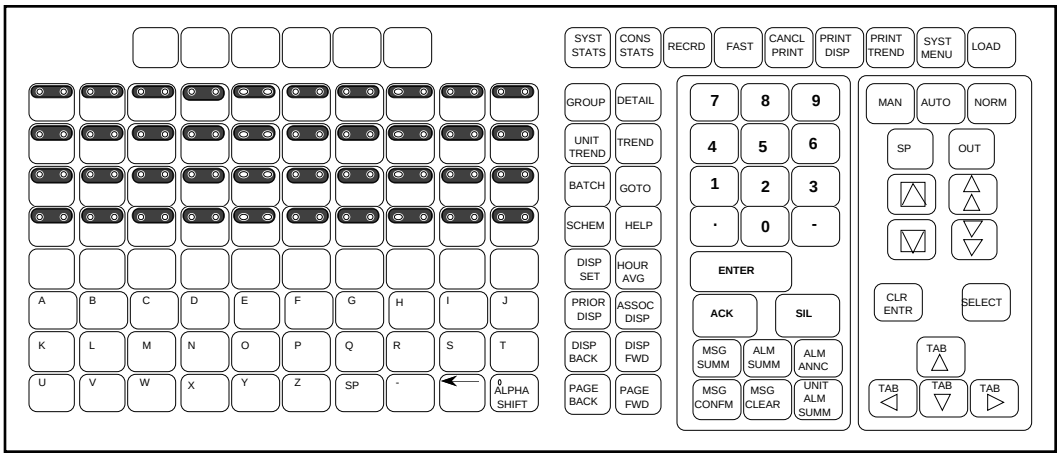

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Figure 1-2 — Supervisor's Keyboard and Enhanced Operator's Keyboard

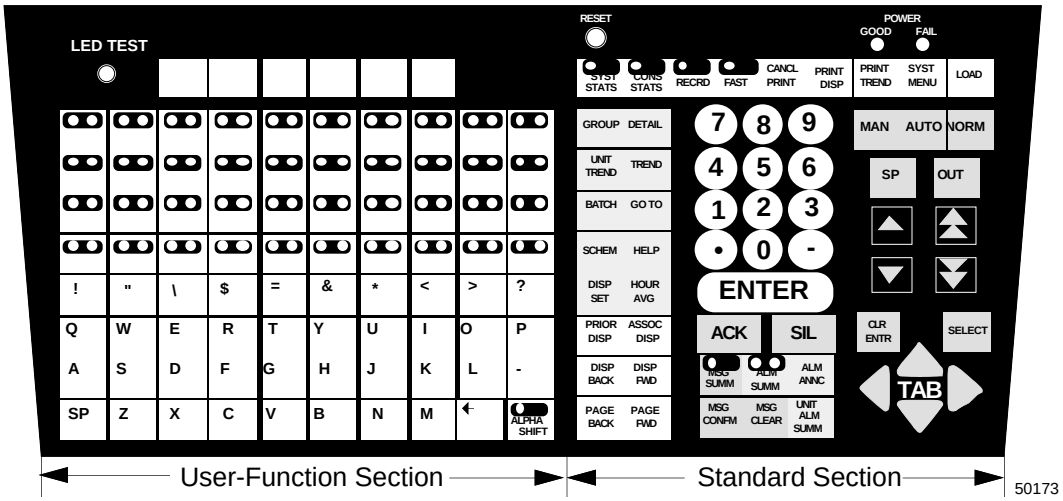

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Figure 1-3 — Supervisors QWERTY Keyboard

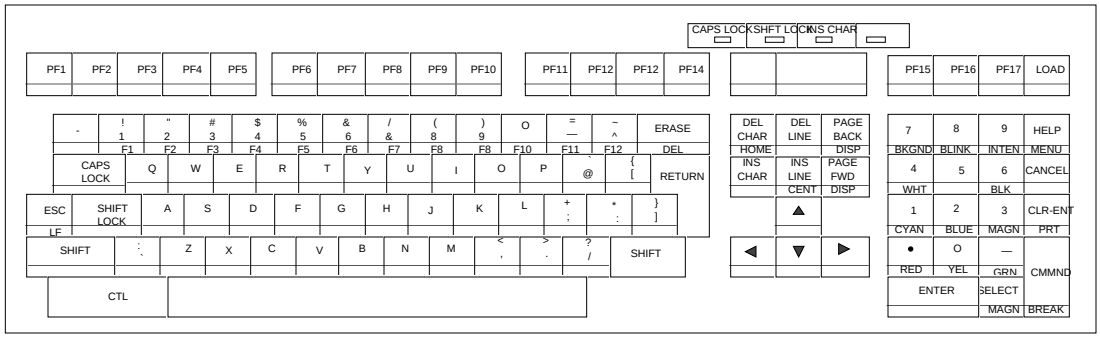

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Figure 1-4 — Engineer's Keyboard

1.2 RELATED PUBLICATIONS

The following publications apply to the TDC 3000^X System and should be referred to as required and available:

Title	Binder
LCN Planning or TDC 3000^X System Site Planning	System Site Planning - 1
System Maintenance Guide	LCN Service - 1
Test System Executive	LCN Service - 3
Hardware Verification Test System	LCN Service - 3
Core Module Test System	LCN Service - 3
Maintenance Test Operations	LCN Service - 1
Universal Station Service	LCN Service - 1
Network Forms	Implementation/Configuration Forms
Network Form Instructions	Implementation/Startup & Reconfiguration - 1
Network Data Entry	Implementation/Startup & Reconfiguration - 1
Keyboards	Implementation/Engineering Operations - 1
Engineer's Reference Manual	Implementation/Startup & Reconfiguration - 2
Process Operations Manual	Operation/Process Operations
Button Configuration Data Entry	Implementation/Engineering Operations - 1
Button Configuration Form Instructions	Implementation/Engineering Operations - 1

SECTION 2 - SITE PREPARATION AND INSTALLATION

This section provides the following information for the Universal Work Station: Storage conditions, site requirements, electrical requirements, unpacking, cabling, and node addressing.

2.1 STORAGE CONDITIONS

The Universal Work Station (UWS) is protectively packaged for shipment in a cardboard box. The color monitor, keyboard or keyboards, mouse and printer are in separate packages.

If the Universal Work Station is to be placed in storage, the "general industrial" environmental constraints listed here must be followed:

Temperature	-35° + 70°C
Humidity (RH)	10 - 80%, max. wet bulb 20 - 30°C
Vibration	1.0g*
Shock	3.0g*

* When enclosed in the original shipping container.

Note that the temperature/relative humidity shall not be cycled such that moisture condensation occurs on the equipment—rate of change less than 6% per hour.

2.2 SITE REQUIREMENTS

The Universal Work Station (UWS) is intended for office use, that is, a relatively dust-free environment (dust particles filtered to ≤10 micron size), and an operating temperature range of 0°C to 35°C (32°F to 95°F).

In UWS models configured for 120 Vac operation, the electronics module, monitor, and printer are each equipped with 1.8 m (6 ft.), standard 3-prong grounding power cords (NEMA 5-15P). There must be two standard duplex 120 Vac grounded electrical outlets (NEMA 5-15R) accessible to these items.

In UWS models configured for 220/240 Vac operation, CEE 7 Standard VII Dual Earthing power cables are supplied. Two duplex outputs of this type must be accessible to the UWS for power.

When selecting a location for the UWS, consider the LCN coax or fiber-optic cable limits specified in Appendix A of the *LCN Site Planning* or the *TDC 3000^X System Site Planning*. The monitor, keyboard, printer, and mouse are equipped with 1.8 m (6 ft.) signal cables that terminate inside the electronics module, as shown on Figure 2-4 and 2-5.

2.2.1 Dimensions and Weight

These are the approximate weight and dimensions for the electronics module and monitors:

	Electronics Module	14" Color Monitor	21" Color Monitor
Height	72.24 cm (28.44")	361 mm (14.2")	455 mm (17.91")
Width	18.4 cm (7.23")	358 mm (14.1")	484 mm (19.05")
Depth	57.15 cm (22.50")	442 mm (17.4")	525 mm (20.66")
Weight	34.02 kg (75 lb)	18 kg (39.7 lb)	33 kg (72.8 lb)

2.3 ELECTRICAL REQUIREMENTS

The customer selected ac power option is installed in the UWS before shipment. The inrush current to the electronics module is limited to 10 A @ 120 V.

2.3.1 AC Voltage and Frequency Options

Voltage: 120, 220, 240 Vac +10%, -15% Frequency: 47 Hz to 63 Hz

2.3.2 Current in Amperes at 120 Vac (1.0 Power Factor)

	Avg. RMS	True RMS	Peak	Watts	BTUs/hr
5-Slot Module	*	*	*	*	*
Typical	1.10 / 0.88	1.75 / 1.30	8.60 / 7.15	210 / 156	716 / 532
Maximum	1.63 / 1.35	2.65 / 2.02	10.8 / 9.06	271 / 206	924 / 702
Monitor, 14 inch CRT					
Typical	0.53	0.85	2.0	64	218
Maximum	0.75	1.25	3.0	150	512
Monitor, 21 inch CRT					
Typical	0.8	1.5	4.1	83	283
Maximum	1.2	2.4	6.6	160	545.6
Cartridge Drive Power	*	*	*	*	*
Typical	0.57 / 0.37	0.89 / 0.57	5.50 / 1.90	107 / 068	365 / 232
Maximum	1.30 / 0.82	2.05 / 1.20	9.10 / 3.24	210 / 122	716 / 416
Floppy Drive Power	*	*	*	*	*
Typical	0.17 / 0.37	0.34 / 0.58	2.90 / 1.92	041 / 069	140 / 235
Maximum	0.38 / 0.74	0.98 / 1.08	5.30 / 2.95	100 / 110	341 / 376

* The first value is for a UWS with the standard Five-Slot Power Supply (51400712). The second value is for a UWS with the Enhanced Power Supply (51195066), also known as the 'Acme' supply. See NOTE in Section 2.5.1.

2.4 UNPACKING

When the equipment arrives at the system site, open each shipping box, remove the protective wrapping and carefully inspect each piece for any physical damage. If damaged, immediately notify the carrier and your Honeywell sales representative as to extent and type of damage. Also check each piece of equipment against the invoice list for missing items.

2.5 ASSEMBLY AND CABLING

Do all LCN cabling, node address pinning, keyboard pinning, and accessory cabling at the same time, because the rear panel of the electronics cabinet must be removed.

2.5.1 LCN Cabling and Node Address Setup

CAUTION

Before removing the rear panel, ensure that the power switch is OFF and that the power cord is unplugged.

1. Refer to Figure 2-1. Push power switch on the front panel to the OFF position. Unplug the power cord and remove six screws from the rear panel. Note that the screws require star washers. Set the panel close to, and beside, the rear opening.

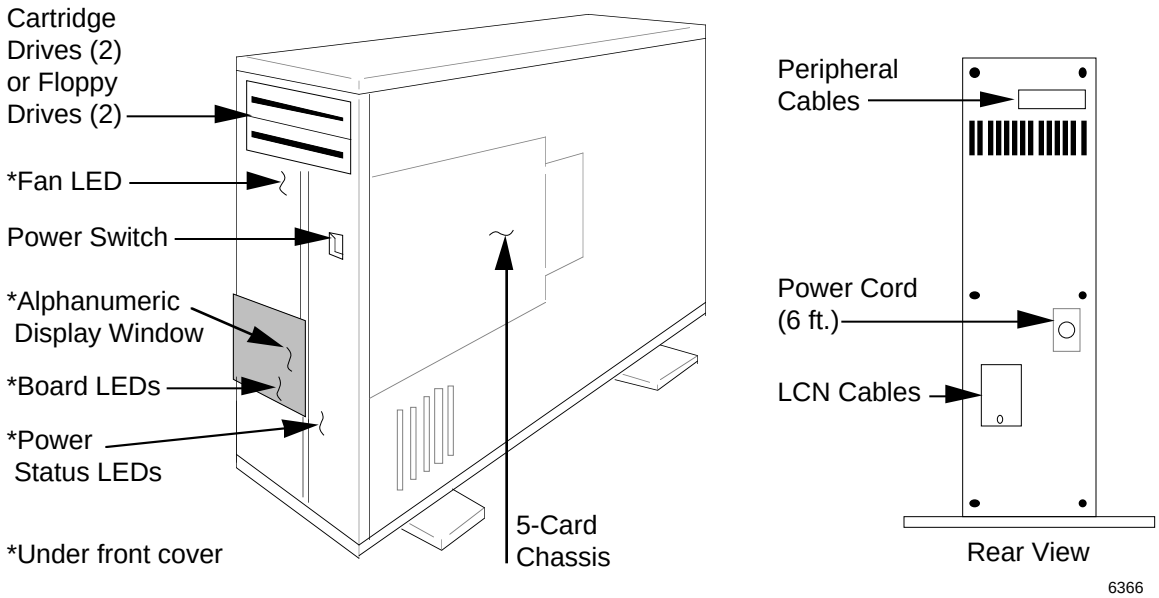


Figure 2-1 — Universal Work Station Parts Identification

NOTE

In later-production versions of the UWS that include the floppy or cartridge drives, the separate floppy disk or Winchester Power Supply shown in Figures 2-1 and 2-5 is not used. In these later units, power for the drives is taken from the Enhanced Power Supply in the Five-Slot Module, using cable 51304490-100.

2. Remove the LCN I/O board from rear slot 1. Set up the UWS node address (node number) on the header or switch pack, as illustrated in Figure 2-2. This node address (number) is also used in network configuration (see 4.1.3).

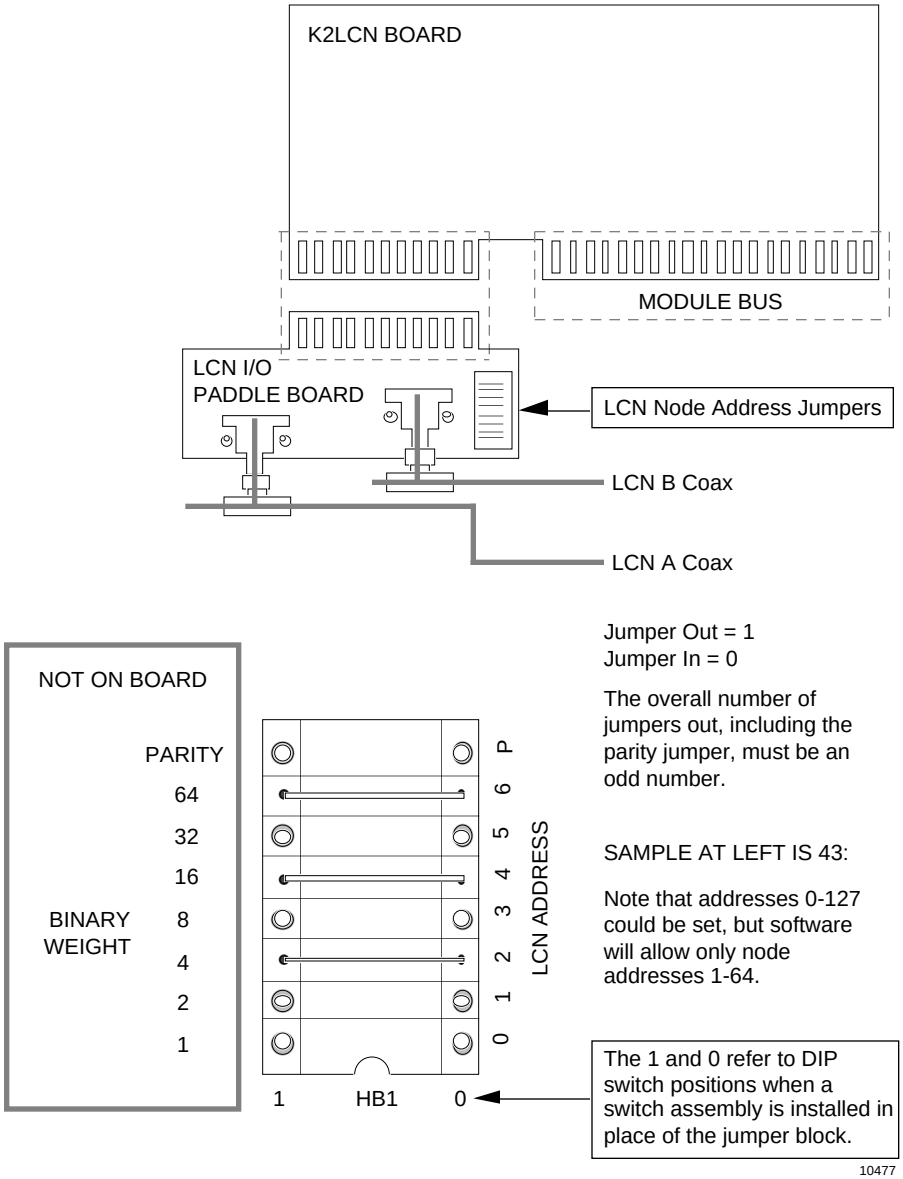


Figure 2-2 — LCN I/O Board, Address Jumpers

3. Install the LCN I/O board in rear slot 1.

4. Thread the LCN cables through the LCN cable cutout in the lower rear panel (see Figure 2-1 and 2-3). Attach LCN Cable A to the connector marked **LCN A** on the LCN I/O board. In a similar manner, attach Cable B to the **LCN B** connector.

   It is essential that LCN cable A is cable A to all nodes. Make certain that LCN cables are not crossed. Do not substitute LCN cables with unauthorized cable.

   The LCN I/O board must have two (2) BNC Tee-connectors (51190728-105). **Note that these tees are not the same as those used on the Data Hiway—do not substitute.** Terminator resistors (30732052-001) are required at each end of both LCN cables.

5. Loop the LCN cables around the top of the cabinet as shown in Figure 2-3. Secure the cables under cable clamps on the side and top of the cabinet as shown. **Do not allow a bend radius less than the width of the cabinet.**

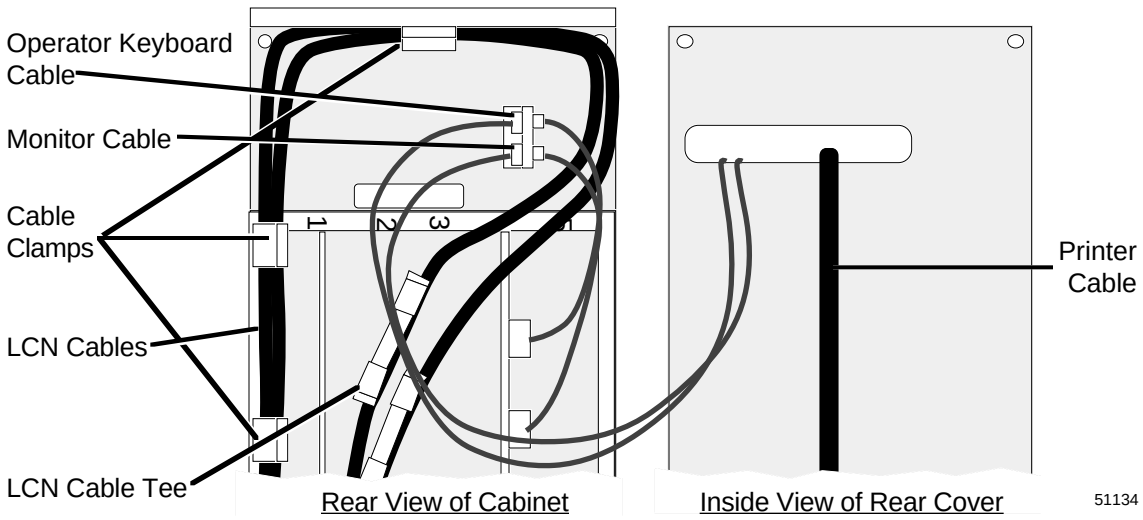


Figure 2-3 — Cable Routing at Rear of Cabinet

2.5.2 Pinning and Cabling to EPDGP I/O Board

CAUTION

Some cables may already be attached to the EPDGP I/O board in slot 4. Use care not to disturb them in the following steps.

1. Remove the EPDGP I/O board from rear slot 4. Determine if you have a Supervisor's Keyboard or an Engineer's Keyboard (see Figures 1-2 and 1-3). Set the pinning on TS1 to either the Supervisor's **KEY BD** or **ENG KEY BD** position as shown in Figure 2-4 and on the EPDGP I/O board itself. If the UWS has the Enhanced Keyboard Assembly (both the Enhanced Operator's Keyboard and the Engineer's Keyboard), set the pinning on TS1 in the Supervisor's **KEY BD** position.

NOTE

The **adapter cables** mentioned in steps 2 and 3 may already have been installed at the factory with their connectors mounted on the top of the I/O Cardfile as shown in Figure 2-3. If so, jump to step 4 and continue.

2. Connect one end of the mouse adapter cable (51304033-045) to the J1 **CURSOR** connector on the EPDGP I/O board (see Figure 2-4). Fasten the free connector of the mouse adapter cable to the top of the I/O cardfile with two of the cable ties provided (see Figure 2-3 and 2-5). Carefully reinstall the EPDGP I/O board.

3. Route the monitor cable through the cutout in the rear panel (see Figures 2-1 and 2-3. Connect the monitor cable to the monitor connector (top position) shown in Figure 2-3. Attach the cable to the connector with the screws in the connector. Use two of the cable ties provided to secure the connector. Refer to Figures 2-3, 2-4, and 2-5.

   Connect the BNC ends of the cable to the connectors by the red, green and blue color coded markings. The grey end goes to H/HV and Black goes to V.

4. Route the keyboard cable through the cutout in the rear panel (see Figures 2-1 and 2-3). Connect the monitor cable to the monitor connector (bottom position) shown in Figure 2-3. Attach the cable to the connector with the screws in the connector. Use two of the cable ties provided to secure the connector. Refer to Figures 2-3, 2-4, and 2-5.

5. If an optional printer is being connected to the UWS, route the cable through the rear panel cutout and connect it to the J2 **PRINTER** connector on the EPDGP I/O board (see Figure 2-4). Secure the cable to the board with the two screws provided. Place the cable under the cable clamp on the rear panel as shown in Figure 2-3.

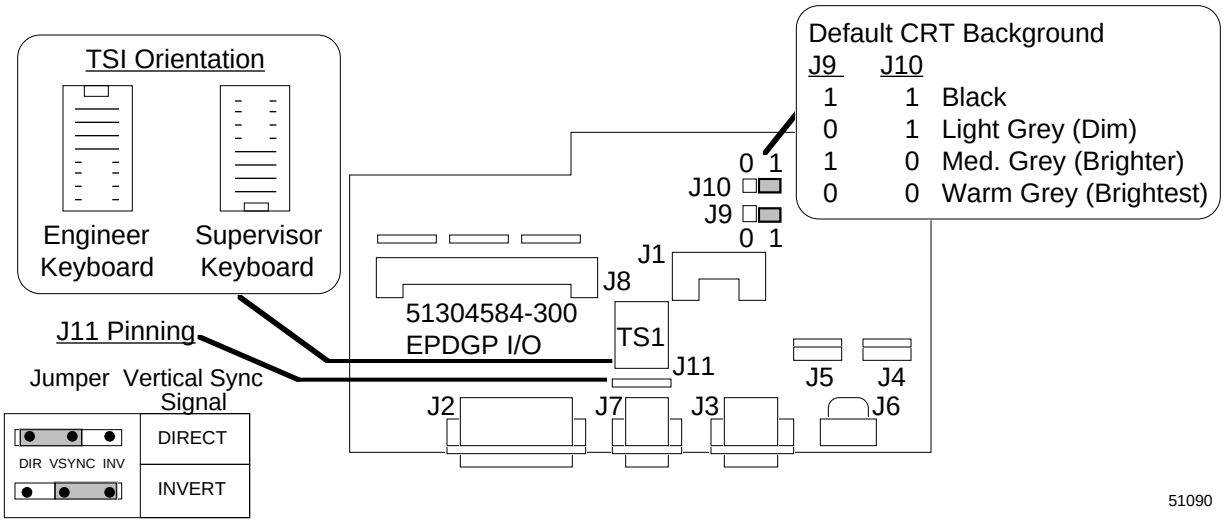


Figure 2-4 — EPDGP I/O Cabling and Configuration

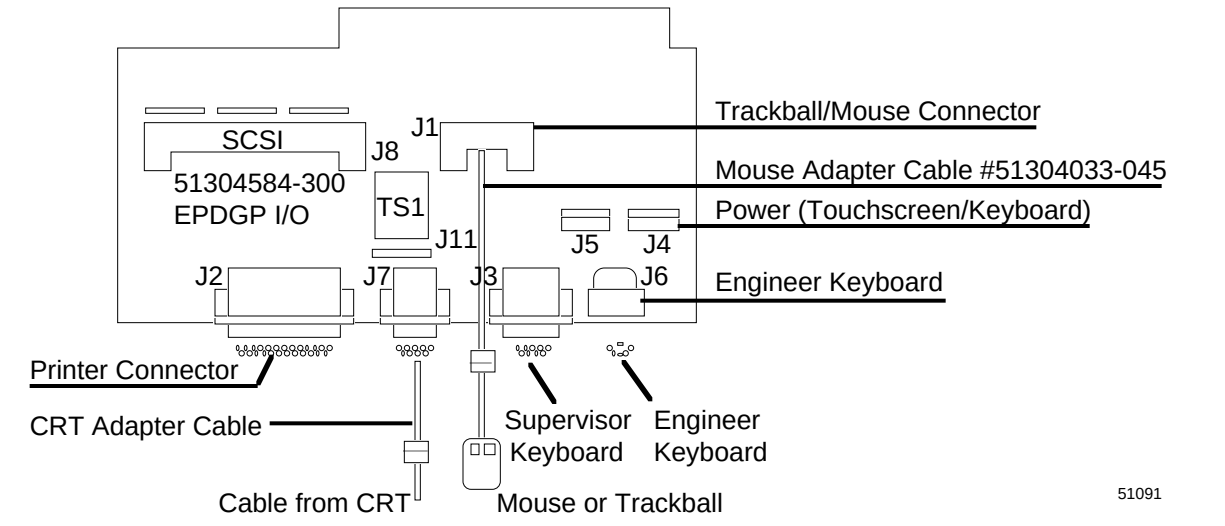


Figure 2-5 — EPDGP I/O Cabling

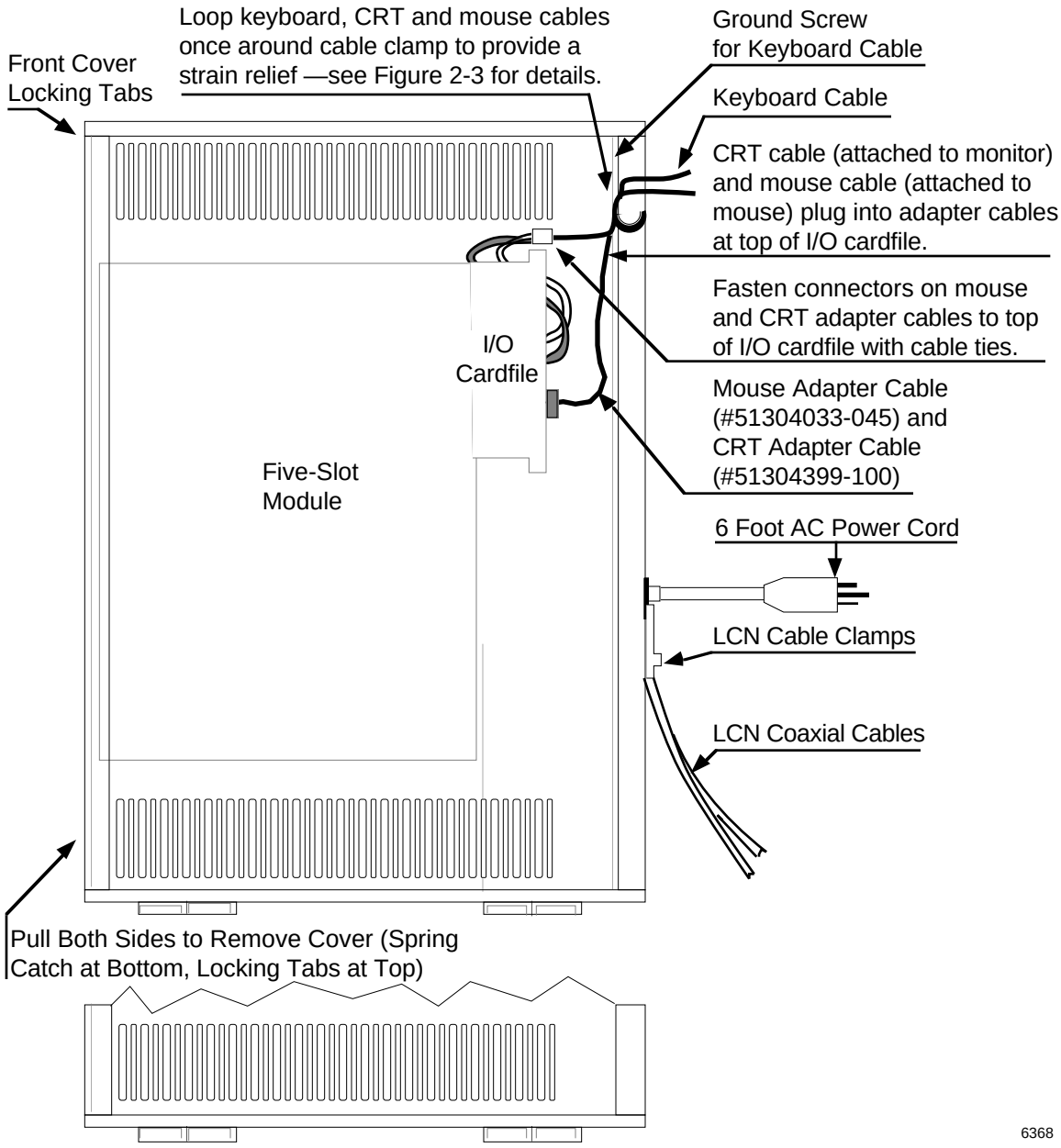


Figure 2-6 — Cable Connections and Power Supply Locations

NOTE

In later-production versions of the UWS that include the floppy or cartridge drives, the separate floppy disk or Winchester Power Supply shown in Figures 2-1 and 2-5 is not used. In these later units, power for the drives is taken from the Enhanced Power Supply in the Five-Slot Module using cable 51304490-100.

2.5.3 Assembly Wrap-Up

1. If equipped with cartridge drives, earlier versions of the UWS may include the Winchester Power Supply to power the drives. If this supply is included (see Figure 2-5 for location), be sure the ac power switch/circuit breaker on the rear of the supply is in the ON (1) position. Likewise, if equipped with floppy disk drives, earlier versions of the UWS may include the Floppy Power Supply. If this supply is included (see Figure 2-5 for location), be sure the ac power switch/circuit breaker on the front of the supply is in the ON (1) position. Refer to Figure 2-5 for the location of this switch in the cabinet you have. Check it before closing the rear panel because this supply remains on as long as power is applied at the line cord.

2. Check to see that all cable clamps are closed and the peripheral cables are secure at all connectors and entry points. Do not tighten the LCN cable clamp at the bottom of the rear panel yet.

3. Install the rear panel with the six screws and star washers which were removed earlier. The star washers are required to ensure electrical bonding. Do not strain, cut or mash the LCN or peripheral cables as you replace the panel.

4. Tighten the LCN cable clamp screws at the bottom of the panel (see Figure 2-5).

SECTION 3 - CHECKOUT

This section tells you what to look for after the unit is plugged in and the power switch is turned on.

3.1 POWER-ON TEST

NOTE

The front panel may be removed or replaced while power is on because there are no lethal voltages exposed. Of course, observe caution with metallic objects because the equipment may still be damaged if low voltages are shorted.

Use both hands to remove the front panel by grasping the edges of the panel near the bottom and pulling the panel straight out. Spring-loaded catches on each side of the panel disengage, and the panel may be removed by pulling it out and down.

3.1.1 Cabinet Electronics Tests

Refer to Figure 2-1 for the location of parts mentioned in the following text.

After the UWS is installed according to Section 2, plug in the power cord and push the POWER switch ON. Check the power status display and see that the **PWR OK** green LED is lit and no red LEDs are on.

If the UWS is equipped with optional Floppy Disk Drives, note the access LED on the drives flashes momentarily as the power switch is turned on. If the UWS is equipped with optional Cartridge Drives, the drives may only be tested when a cartridge is inserted later in this test (don't insert a cartridge now).

Also notice that the red LEDs on the board(s) in the module light for a few seconds (less than 30), then turn off and the green LEDs turn on. Check the "fan alarm" LED near the top of the 5-card chassis to ensure that its red LED is off. Check the boards and note that all green LEDs are on and the status alphanumeric display indicates the node address.

Turn power off and then back on. The red LEDs momentarily go on as above, then go out when the green LEDs come on. Recheck the power supply, board, and fan LEDs as above. The alphanumeric display still indicates the node address.

If the UWS is equipped with optional cartridge drives, carefully insert a cartridge in the loading slot of the drive. Note the green LED on the drive blinks for 5 to 10 seconds, then comes on steady and the yellow LED flashes once. After this, the yellow LED will flash only when the cartridge is accessed. The green LED will remain steadily on as long as the cartridge is in service. To remove the cartridge, press the stop button on the drive and note the green LED blinks for several seconds, then goes OFF. You may safely remove the cartridge ONLY while the green LED is OFF. **DON'T ATTEMPT TO REMOVE THE CARTRIDGE WHILE THE GREEN LED IS ON OR BLINKING.**

If all the above tests are performed satisfactorily, replace the front panel by holding it with both hands and catching the top of the cover into the locking tabs at the top of the cabinet. Be sure the sides of the cover are on the outside of the cabinet. Now swing the bottom of the cover into place, pressing firmly on the bottom until the cover is secured by both spring-loaded catches.

3.1.2 CRT Monitor Check

Plug in the monitor power cord and set the power switch to ON (1). On the 14" monitor, the power switch is located at the right rear of the monitor. On the 21" monitor, the power switch is located on the right front of the monitor, just below the display screen.

If you have a 14" monitor, adjust the brightness (under the right front lower lip) for best resolution on the blinking character that appears on the upper-left side of the screen. Position (tilt) the screen display for comfortable viewing.

If you have a 21" monitor, adjust the brightness and contrast (two left-most controls under the front of the monitor) for best resolution on the blinking character that appears on the upper-left side of the screen. Position (tilt) the screen display for comfortable viewing.

3.1.3 Printer Check

If you have an optional printer, run the self-test. Refer to the appropriate section of *Universal Station Service* for a detailed description of the self-test.

If any of the above conditions is not met, refer to Section 6, Service.

SECTION 4 - IMPLEMENTATION

This section guides you through the configuration and data entry process for the UWS. If you have been through network, area, and button configuration, you may be able to implement your UWS with little or no reference to the standard LCN bookset, but in case you need them, references are provided to the binders and publications that contain the detailed implementation references and instructions.

4.1 NETWORK CONFIGURATION

Each of the network configuration activities you use can be made effective through the use of an on-line reconfiguration installation unit, thus allowing the LCN and most of the nodes on it to remain operational and the process to remain "on control." If you are adding the UWS to an LCN that is inoperative or on which all nodes need to be shut down and restarted, you can use off-line network configuration to add the UWS to the network.

- Off-line network configuration procedures are under subsection 7.3 in the *Network Data Entry* publication.
- On-line reconfiguration procedures are under subsection 7.4 in the *Network Data Entry* publication.
- Instructions for adding a node to an operating LCN are provided in Section 6 of the *LCN Guidelines Implementation, Troubleshooting Service.*

4.1.1 Area Names

If you are going to use an existing area database in your UWS, or if you are going to use only the Engineering functions of the Universal Personality, no configuration data needs to be entered.

If you are using an existing area database, you should record the exact area name for use in subsection 4.1.3 LCN Nodes. The area name should be recorded on *Network Configuration Form SW88-507*. It may also be available in an NCF printout (this procedure is in Table 7-16 in the *Network Data Entry* publication).

If you are configuring a unique area database for the UWS or if it is to be a member of a new area, you should add the new area name and description on *Area Names Configuration Form SW88-507* in the Network Forms manual, and you need to enter it through on-line reconfiguration or off-line network configuration.

- **Form instructions**: See subsection 7.3 in the *Network Form Instructions*.
- **Data entry instructions**: See subsections 7.4 or 7.3 in *Network Data Entry*.

4.1.2 Console Names

If you are configuring the UWS as a member of an existing console, you need to note the console number for use in subsection 4.1.3 Console Names. The console numbers and names should be recorded on *Network Form SW88-508.* They may also be available in an NCF printout (this procedure is in Table 7-17 in *Network Data Entry*.

If you are configuring the UWS as a new 1-station console or as a member of a new console, you should add the new console description on *Network Form SW88-508* and you need to enter it through on-line reconfiguration or off-line network configuration.

- **Form instructions**: See subsection 4.3 *Network Form Instructions*.
- **Data entry instructions**: See subsection 7.4 or 7.3 *Network Data Entry*.

4.1.3 LCN Nodes

You should add the UWS as a new node on *Network Form SW88-209 (R230)* or *SW88-309 (R300)*. Enter US at the node number for the UWS (the node number is selected by pinning on the LCN I/O board - see Figure 2-2). In the Type column, enter US. In the Redundant Node column, enter N.

On *Network Form SW88-410* you should enter data for the UWS, as follows:

- NODE — The node number
- CONSOLE # — Enter the console # from subsection 4.1.2.
- STATION # — Enter any unique number for a station in this console.
- DEFAULT AREA — Enter the area name from subsection 4.1.1.
- FLOPPY DISC NUMBERS — If this UWS has media storage capability, enter any two unique numbers for the drives in this console.
- TREND PEN NUMBER — Make no entry.
- STATION DEFAULT ACCESS LEVEL — Select either VIEW or OPER.
- TOUCH SCREEN — Select YES.
- OPERATORS KEYBOARD — If this UWS has a Supervisor's Keyboard, select YES—if it has an Engineer's Keyboard, select NO. If it has the Enhanced Keyboard Assembly (both keyboards), select YES.

- ENGINEERS KEYBOARD — If this UWS has an Engineer's Keyboard, select YES—if it has a Supervisor's Keyboard, select NO. If it has the Enhanced Keyboard Assembly (both keyboards), select YES.

Select LCN NODES on the Engineering Main Menu and enter the data for this UWS on the SELECT DESIRED NODE display. On that display, make the entry at the correct node number. In the TYPE column, enter US. In the REDUNDANT NODE column, enter N (none).

Add the new node (UWS) to the NCFs for all other USs and UWSs on the LCN through on-line reconfiguration, or in off-line network configuration, through a restart of all LCN nodes.

- **Form instructions**: See subsection 4.3 in *Network Form Instructions*.
- **Data entry instructions**: See subsections 7.4 or 7.3 in *Network Data Entry*.

4.2 BUTTON CONFIGURATION

As on the Operator's Keyboard on the US, you can configure any 85 configurable buttons on the Supervisor's Keyboard to call up displays or to initiate other actions and functions. There is virtually no difference in button configuration on a UWS or a US, but on the UWS, you can also configure the PF1 through PF17 keys on the Engineer's Keyboard, and you can configure buttons on either keyboard to emulate a key switch in the Operator Personality.

There are no LEDs in the configurable buttons on the Supervisor's Keyboard, therefore, any entry in the LED UNIT field of *Button Configuration Form SW88-570* is meaningless. If you have the Enhanced Keyboard Assembly, the LEDs on the Enhanced Operator’s Keyboard are functional and entries on the form would be meaningful.

The pathname for your button-configuration object file must be entered in the pathname catalog in the area database that the UWS uses when running the Operator Personality. See subsection 4.3 Area Configuration.

4.2.1 Configure PF1-PF17 Keys on the Engineer's Keyboard

To allow the Engineer's Keyboard to be used with the Operator Personality, each of the PF1 through PF17 programmable keys can be configured to emulate a configurable button or a function key (SYST STATS, CONS STATS, MAN, AUTO, NORM, SP, OUT, etc.) on the Supervisor's Keyboard or Operator's Keyboard on the US.

PF1 through PF17 behave as if they were 51 programmable keys. This is because there are these possible functions for each key:

(1) when the key alone is pressed,

(2) when SHIFT is held and the key is pressed,

(3) when CTL is held and the key is pressed.

There is no OPER/SUPVR/ENG key switch on the Engineer's Keyboard. In the Operator Personality, if you need to change the key-switch access level for the UWS, you must configure one, two, or three of these keys to do so. See subsection 4.2.2.

PF1 through PF17 are configured through the BUTTON CONFIGURATION activity on the Engineering Main Menu. Figure 4-1 shows the button configuration display that is used to select one of these keys for configuration. To call up this display, select BUTTON CONFIGURATION on the Engineering Main Menu, and when the first page of configurable buttons appears, press PAGE FWD.

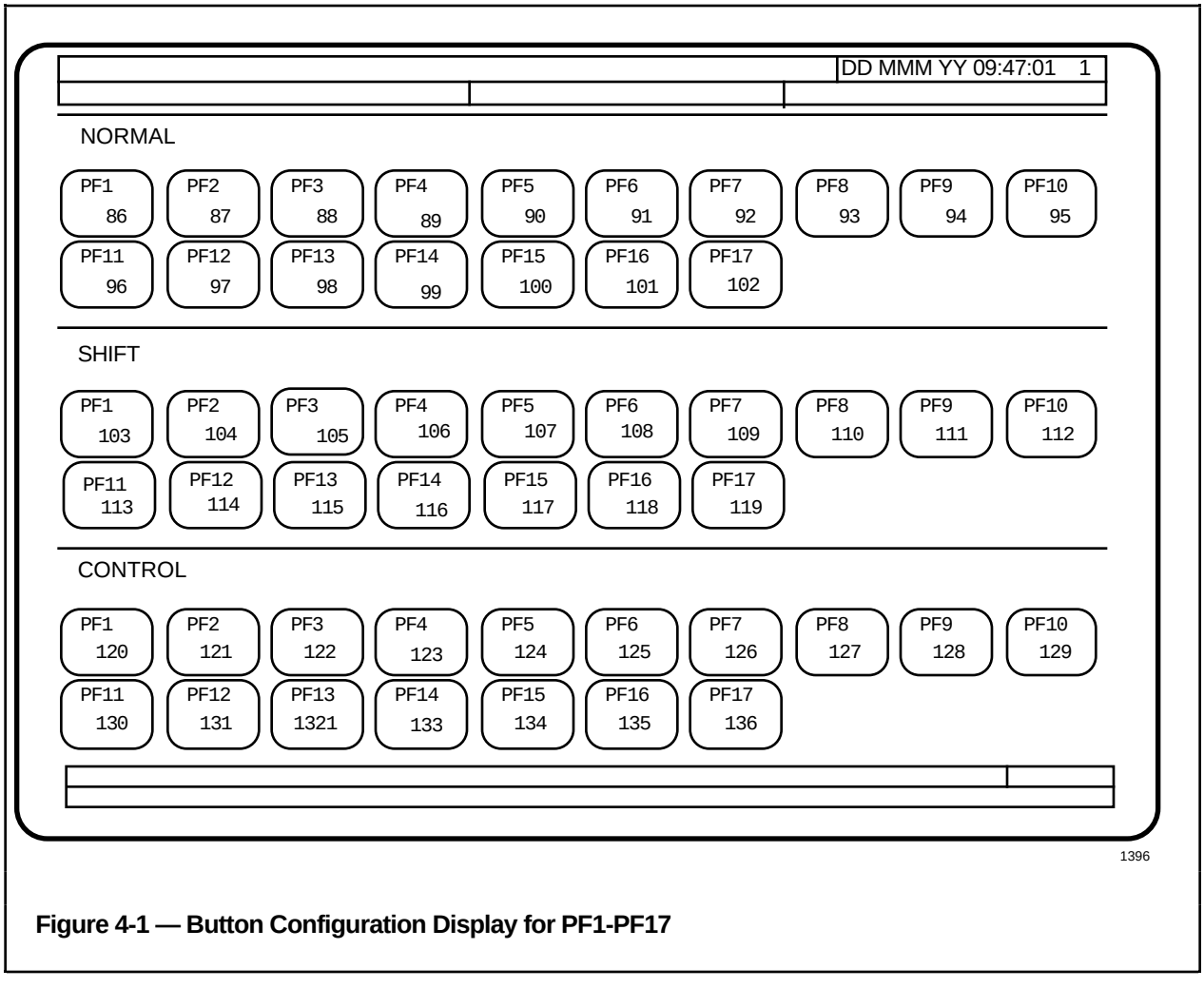


Figure 4-1 — Button Configuration Display for PF1-PF17

4.2.2 Configure Key Switch Buttons on the Supervisor's Keyboard

There is no OPER/SUPVR/ENG key switch on the Supervisor's Keyboard, but you can configure one, two, or three of the configurable buttons for that function. When started in the Operator Personality, the UWS is at the operator access level. A button must be configured for each key switch level you intend to use. If you need to change to all three levels, you must configure three buttons—one to select the supervisor access level, one to select the engineer access level, and one to go back to the operator access level.

Figure 4-2 shows the button configuration display that is used to specify button actions. To call up this display, select BUTTON CONFIGURATION on the Engineering Main Menu, then select any button on the first two button selection pages.

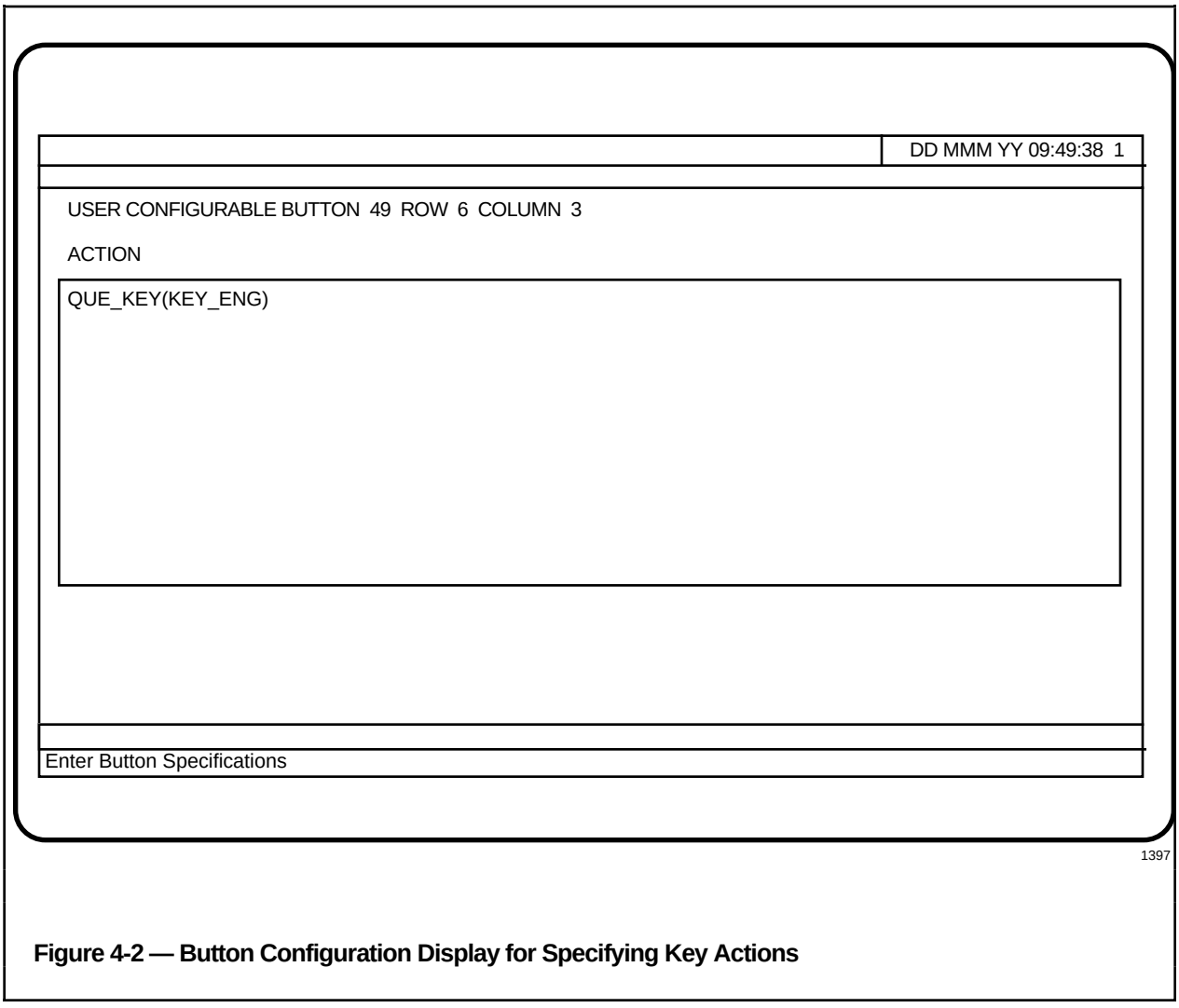


Figure 4-2 — Button Configuration Display for Specifying Key Actions

4.3 AREA CONFIGURATION

When loading and starting a UWS (or US) with the Operator Personality, an area database is loaded. You can use an existing area database (in volume &Dnn, where "nn" is a number from 1 to 10 that indicates the specific area database), or you can configure a completely new area database for the UWS, or for the console of which it is a member.

Once the UWS is running the Operator Personality, you can use the AREA CHANGE activity on the Console Status display to change to any other available area database on the LCN (on an HM), or on a media storage cartridge, or floppy disk.

If you configure PF1-PF14 keys (subsection 4.2.1) or one or more key switch buttons (subsection 4.2.2), that configuration must be in the button configuration object file that the area's Pathname Catalog points to. This means that where you will be using more than one area database on the UWS, you must add your PF1-PF14 configuration, or your key switch button configuration to the button configuration object file in each area. You can do this through the BUTTON CONFIGURATION activity on the Engineering Main Menu. In that activity, you read in the appropriate button configuration source file, make the changes, and recompile the source file, which results in a new object file with the changes in it, ready for use by each area whose pathname catalog points to it.

There is no unique area configuration activity for the UWS—it's the same as for a US.

SECTION 5 - OPERATION

NOTE

The new mouse, 51195083-200, replaces mouse, 51195083-100, in system production and for field replacements. The new mouse is fully backwards compatible with the old mouse, but has an additional third button not found on the old mouse.

The third button (middle) is not currently used by Honeywell software programs. **It has been fully tested and is reserved for future applications.**

The right and left buttons are functionally identical to the right and left buttons of the original two button mouse.

5.1 OPERATION OF THE SUPERVISOR'S STATION

A UWS with the Supervisor's Keyboard (Figure 1-2) is intended to operate in only the Operator's Personality. Operation of the UWS is as described in the *Process Operations Manual* with the following exceptions:

- **No touch screen**—Either use the TAB keys to move the cursor or use the mouse to move the cursor. Once the cursor is in a target (pick) that you wish to select, press the SELECT button.

NOTE

A touchscreen option is available as a special. The special includes a cable to adapt the touchscreen cable to the EPDGP I/O board.

- **No key switch**—The UWS starts with the operator key switch access level. If configurable buttons have been configured to change the access level (see 4.2.2), those buttons can be used to change to the supervisor or engineer level, or back to operator level.

- **No audible annunciators**—There is no terminal board in the UWS to accept connections to customer-provided devices such as audible alarm annunciators.

- **No LEDs in configurable buttons**—There are no light emitting diodes (LEDs) in the user-configurable buttons on the Supervisor's Keyboard. (See subsection 5.3)

- **RESET button and POWER GOOD/FAIL LEDs not present**—To reset the UWS, turn the power switch on the electronics module to off, wait a few seconds, and then turn it back on.

5.2 OPERATION OF THE UNIVERSAL PERSONALITY STATION

The Universal Personality Station includes two keyboards - the Enhanced Operator's Keyboard and the Engineer's Keyboard. Operation with the Enhanced Operator's Keyboard is the same as operation with the Supervisor's Keyboard (see subsection 5.1) with the exception that the Enhanced Operator's Keyboard has LEDs in the configurable buttons. The 40 configurable keys with LEDs are in a cluster of four rows of ten keys each in the upper-left section of the keyboard (see Figure 1-2). These keys are configured by selecting BUTTON CONFIGURATION under the Engineering Main Menu. For further information, see *Button Configuration Data Entry* and *Button Configuration Form Instructions.*

The Enhanced Keyboard Assembly is intended to operate with the Universal Personality software, which includes both the Operator functions and the Engineer functions. When first loaded with the Universal Personality, the Console Status display appears. To access Engineer functions from the Console Status display or any other Operator display, use the Engineer's Keyboard to call up the Engineering Main Menu by holding CTL and pressing HELP. To access Operator functions from the Engineering mode, return to the Engineering Main Menu, then use the Operator Keyboard to call up any Operator display.

The UWS with an Engineer's Keyboard is intended to operate with either the Operator Personality or the Universal Personality. Operation is the same as that of a US with an Engineer's Keyboard, with the following exceptions:

- **No touch screen**—Either use the TAB keys to move the cursor or use the mouse to move the cursor. Once the cursor is in a target (pick) that you wish to select, press the SELECT key.

- **RESET button and POWER GOOD/FAIL LEDs not present**—To reset the UWS, turn the power switch on the electronics module to off, wait a few seconds, and then turn it back on.

- **LOAD key on Engineer's Keyboard**—On a US, the Engineer's Keyboard and the Operator's Keyboard share the same LOAD button. On a UWS, the Supervisor's Keyboard has a LOAD button and the Engineer's Keyboard has a LOAD key.

5.2.1 Universal Personality Station - Operator Functions

- **No key switch**—The UWS starts with the operator key switch access level. If one, two, or three of the PF1-PF14 keys have been configured to change the access level (see 4.2.2), those keys can be used to change to the supervisor or engineer level, or back to operator level.

- **No audible annunciators**—There is no terminal board in the UWS to accept connections to customer-provided devices such as audible alarm annunciators.

- **Configurable PF1-PF14 keys**—The PF1 through PF14 keys at the top of the Engineer's Keyboard can be configured to emulate buttons and function keys on the Supervisor's (or Operator's) Keyboard (see 4.2.1). One, two, or three of these keys can be configured to change key switch access levels (see 4.2.2).

5.2.2 Universal Personality Station - Engineer Functions

- **No key switch**—The UWS starts with the operator key switch access level. In the Universal Personality, the PF1 key changes the key switch access level, as follows:

  Change to **engineer** level: press PF1.

  Change to **supervisor** level: hold SHIFT and press PF1.

  Change to **operator** level: hold CTL and press PF1.

- **CMND key**—on the US's Engineer's Keyboard, the Command key is labeled COMND. On the UWS's Engineer's Keyboard it is labeled CMMD.

- **DEL key on the edge of ERASE**—on the US's Engineer's Keyboard, the DEL (delete) key is a separate key. On the UWS's Engineer's Keyboard it is on the front edge of the ERASE key (for the delete function, hold CTL and press ERASE).
- **LF key on the edge of ESC**—on the US's Engineer's Keyboard, the LF (line feed) key is a separate key. On the UWS's Engineer's Keyboard it is on the front edge of the ESC key (for the line feed function, hold CTL and press LF).

- **All Caps, Shift, and Insert Character modes shown by LEDs**—The CAPS LOCK, SHIFT, and INS CHAR keys are alternate action keys. The CAPS LOCK, SHIFT LOCK, and INS CHAR indicators at the top of the keyboard indicate the current mode. For example, the first time you press INS CHAR, the INS CHAR indicator comes on, indicating that the keyboard is in the insert-character mode (characters are inserted at the cursor position). Then next time you press INS CHAR, the indicator goes out, indicating the normal character-overwrite mode.

5.3 MONITOR OPERATION

The Universal Work Station may be using one of following two types of IDEK monitors:

- IDEK 21–inch Multiscan Color Monitor (older monitor Model MF-5221). Section 5.4.1 explains the analog, rotary-type screen control knobs.

- IDEK 21–inch Vision Master Monitor (newer monitor Model MF-8221). Section 5.4.2 explains the digital, push-button screen controls.

The newer IDEK monitor is essentially identical to the older monitor including the touchscreen option. There are small physical differences between them primarily in the layout and location of the screen controls. The new monitor has its screen controls mounted inside a recessed, sliding tray (drawer) located below the screen. The screen controls on the new monitor cannot be accessed once the drawer is closed (pushed in). The overall dimensions of the newer monitor are slightly larger than the older monitor. Electrically, the video cable plug and pinning are identical in both.

Both monitors have an optional touchscreen (infrared touchscreen frame with plastic bezel assembly) which are physically different. The touchscreen option for the newer monitor has 4 mounting ‘buttonholes’ (two on each side), and is only compatible with the newer monitor. The older monitor has 2 ‘buttonholes’ (one on each side). The touchscreen controller (electronics) and cable for the new monitor is identical to the older monitor and can be easily transferred.

The following information describes the operation, differences in layout and location of the screen controls for these two monitors.

5.3.1 IDEK Model MF-5221

Section 5.4.1 describes the operational controls of the IDEK 21-inch Multiscan Color Monitor (older monitor Model MF-5221). The numbered description of each analog, rotary-type screen control knobs are referenced to the identification number shown in Figure 5-1.

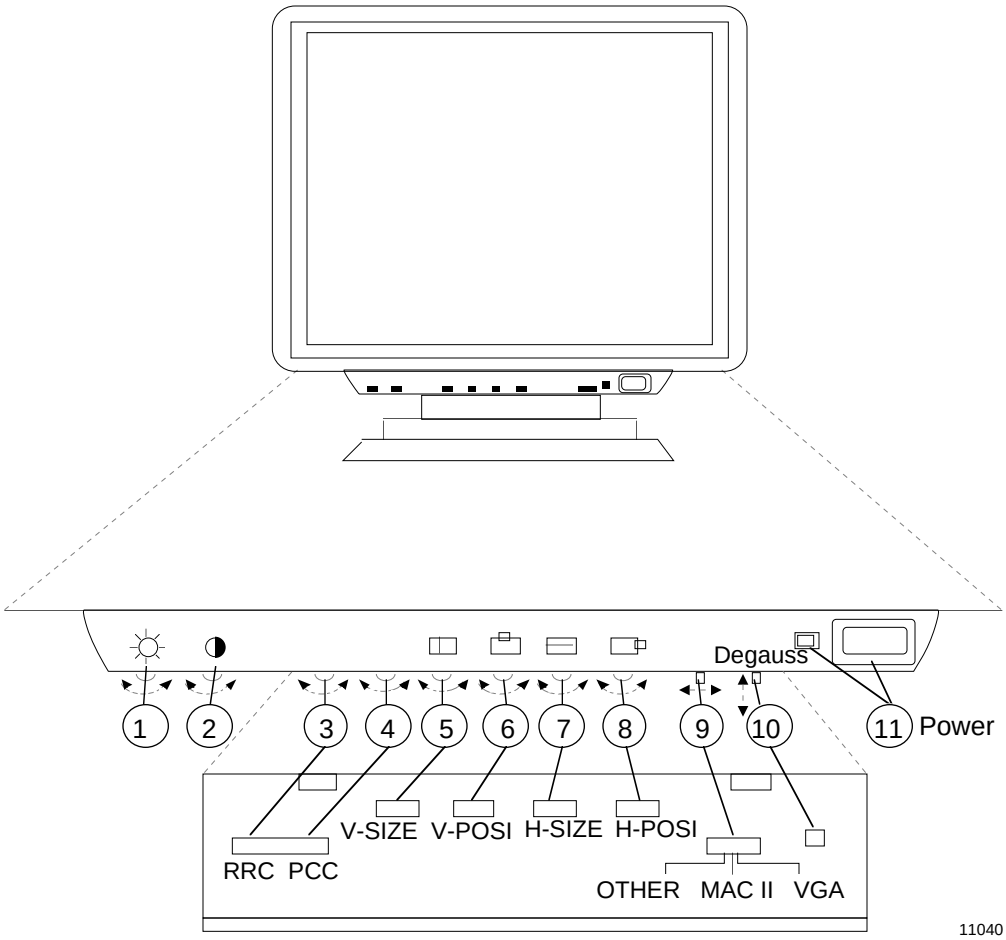
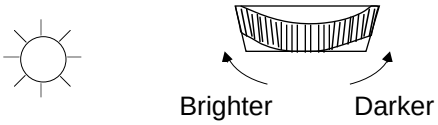
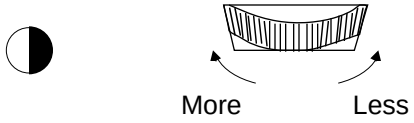


Figure 5-1 — Location and Function of Front Controls (IDEK #5221)

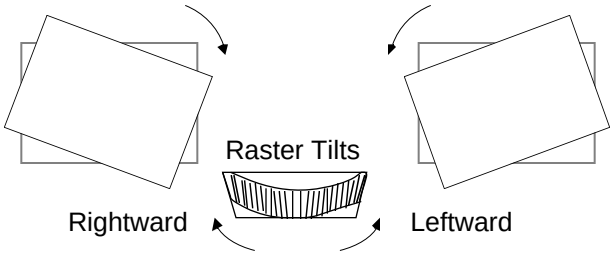
1. BRIGHT (brightness) control
   Turn this control to adjust the brightness of the display.



2. CONT (contrast) control
   Turn this control to adjust the contrast of the display.

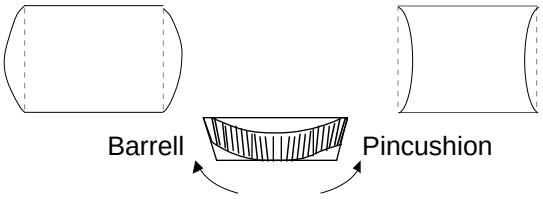


3. RRC (Raster Rotation Circuit) control
   Turn this control to correct the raster tilt.

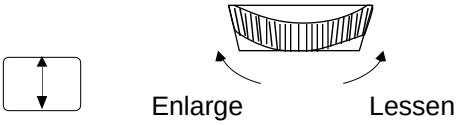


   NOTE: Using this control also removes poor purity from around the CRT, which is generated when swiveling the unit.

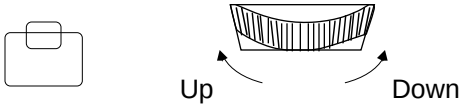
4. PCC (Pincushion Correction Circuit) control
   Turn this control to correct both right and left side distortion of the display.



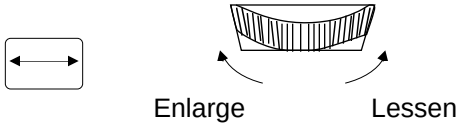
5. V-SIZE (vertical size) control
   Turn this control to adjust the vertical size of the display.



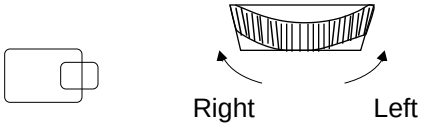
6. V-POSI (vertical position) control
   Turn this control to adjust the center of the display vertically.



7. H-SIZE (horizontal size) control
   Turn this control to adjust the horizontal size of the display.



8. H-POSI (horizontal position) control
   Turn this control to adjust the center of the display horizontally.



9. SIGNAL SELECT switch
   VGA: Select VGA when using a VGA graphics card.
   MACII: Select MACII when using an Apple Macintosh II (with the standard Apple Video card) or PGC graphics card.
   OTHER: Select OTHER when using any other graphics card or generator than the above with a horizontal frequency between 30 and 80 kHz.

10. DEGAUSS button
    Press this button to degauss CRT.

11. POWER switch and indicator
    To turn on the power of the unit, press this switch. The indicator will light up.
    To turn off the unit, press it again.

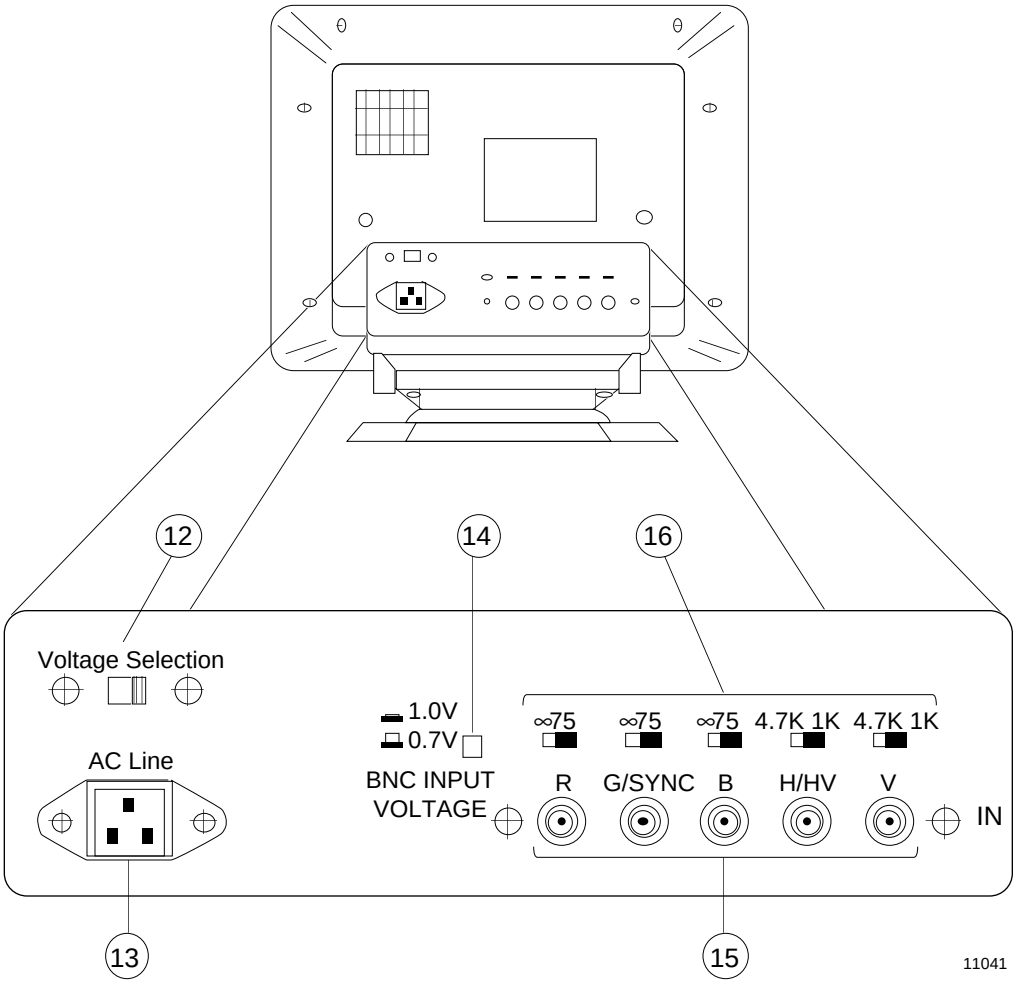


Figure 5-2 — Location and Function of Rear Controls (IDEK #5221)

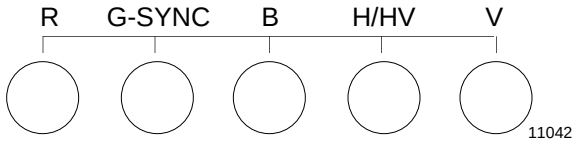
12. AC INPUT VOLTAGE selector
    Set to the local power line voltage, 115 V or 220 V.

13. AC INPUT connector
    Connect to the AC outlet with the supplied AC power cord.

14. BNC INPUT VOLTAGE
    Select the appropriate BNC video input voltage for your computer, 0.7 V or 1.0 V.

BNC INPUT VOLTAGE selector — 1.0 V / 0.7 V

15. ANALOG RGB INPUT connectors (5 BNC)
Allows a computer having analog RBG output to be connected.



BNC analog signals

Connector	Sync on Green	Composite sync	Separate sync
R	Red	Red	Red
G/SYNC	Sync on Green	Green	Green
B	Blue	Blue	Blue
H.HV	GND/unused	HV sync	H-sync
V	GND/unused	GND /unused	V-sync

16. TERMINATION switches
Select the appropriate line impedance (75Ω or infinity) for video and (1 KΩ or 4.7 KΩ) for sync.

If the monitor is used in a loop-through operation, set these switches to the left (infinity for video, 4.7 K for sync). For single unit operation, or when the monitor is the last unit in a loop-through string, set these switches to the right (75 for video, 1 K for sync). The switches of unused BNC connectors should also be set to the right.

5.4.2 IDEK Model MF-8221

Subsection 5.4.2 describes the operational controls of the IDEK 21-inch Vision Master Monitor (newer monitor Model MF-8221). The numbered description of each of the digital, pushbutton screen controls make reference to the identification number shown in Figure 5-3.

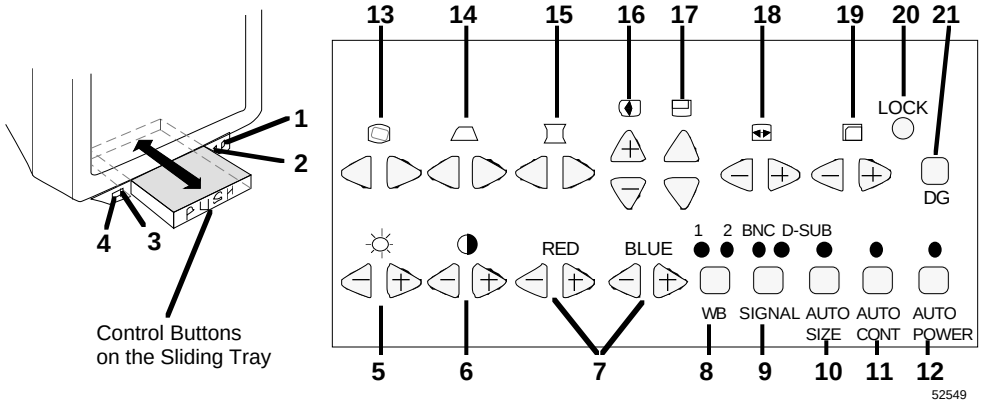


Figure 5-3 — Location and Function of Front Controls (IDEK #8221)

1. POWER SWITCH (ON/OFF)
   - Use to turn the power ON or OFF.
   - Press the switch to turn ON and press it again to turn OFF.

2. POWER/STANDBY INDICATOR
   - Indicates power-ON/OFF or standby state.
   - When the power is ON, green light comes on, and it goes off when the power is OFF. When the AUTO POWER-OFF SENSOR is activated and switches to the standby state, the green light turns red.

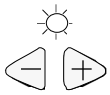
3. AUTO POWER-OFF SENSOR
   - To save energy, it detects the presence of an operator and powers down to the standby state automatically when no one is in front of the monitor for over an hour.
   - To turn the power back on in the standby state, the following two ways are available: One is to press the AUTO POWER-OFF setup switch.
     The other is to press the POWER SWITCH and make sure the red light goes off. Then press it again and green light will come on.

   Note: - Do not place anything in front of the sensor. It doesn't operate properly when it is dirty or covered.

4. AUTO CONTRAST SENSOR
   - To avoid eye strain and reduce energy, it adjusts the screen contrast automatically as the ambient light of the room changes.

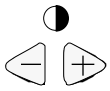
   Note: - Do not place anything in front of the sensor. It doesn't operate properly when it is dirty or covered.

5. BRIGHTNESS CONTROL BUTTONS



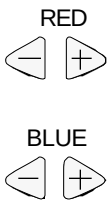
- Press to adjust the picture brightness.
- When you press the BRIGHTNESS CONTROL BUTTONS at the same time for over three seconds, you will hear a beep and the adjusted brightness will be canceled and set back to the factory setting "center."

6. CONTRAST CONTROL BUTTONS



- Press to adjust the picture contrast.
- You will hear short beeps when the contrast reaches its maximum setting.

7. TONE CONTROL BUTTONS (RED/BLUE)



- Use to adjust the white tone as you prefer, other than WB1/WB2 selectable by the WHITE SELECT BUTTON.
- When the + button is kept pressed, the color tone becomes vivid gradually. When the - button is kept pressed, it fades gradually.
- The user adjusted tone is automatically stored. It is recalled and readjustable by pressing either one of the TONE CONTROL BUTTONS once when using WB1/WB2.
- You will hear a beep and the user adjusted tone will be canceled and set back to the factory setting "WB1" when you press the WHITE SELECT BUTTON for over three seconds.

8. WHITE SELECT BUTTON (WB1/WB2)

- Use to select white balance either WB1 (9300˚K: bluish white) or WB2 (6500˚K: reddish white).
- Pressing the button alternates between the white balances and the indicator will be illuminated in either case.
- Neither indicator blinks when the user adjusted/adjustable tone is selected by pressing either one of the TONE CONTROL BUTTONS once.

9. SIGNAL SELECT BUTTON (BNC/D-SUB)

- Use to select the input signal either from the BNC CONNECTORS or from the 15PIN D-SUB CONNECTOR.
- Pressing the button alternates between the input connectors and the indicator will be illuminated in either case.

10. AUTO SIZE/POSITION SETUP BUTTON (ON/OFF)

AUTO SIZE

- Use to operate or cancel the automatic horizontal and vertical picture sizing and centering function which recognizes the picture size and position according to the signal applied to the monitor and adjusts automatically.
- The indicator will be illuminated when the automatic function is on.
- While the automatic function is on, it operates every time you turn the power on or change the input signal. It is best to keep the button off when it is not necessary.

Note
- When you operate the automatic function, you will need full-size picture information on the screen and the video input signal with the maximum brightness such as Windows screen. It may not operate properly with special picture information such as only a prompt C> on the screen.
- When the picture adjusted by the automatic function needs to be changed, operate the SIZE or POSITION BUTTON you desire to change.

11. AUTO CONTRAST SETUP BUTTON (ON/OFF)

AUTO CONT

- Use to operate or cancel the AUTO CONTRAST SENSOR.
- The indicator will be illuminated when the sensor is in operation.

Note
- When set to ON it will automatically adjust the CRT contrast as the ambient light of the room changes.

12. AUTO POWER-OFF SETUP BUTTON (ON/OFF)

AUTO POWER

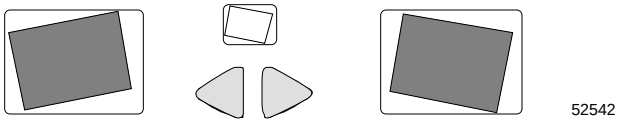
- Use to operate or cancel the AUTO POWER-OFF SENSOR.
- The indicator will be illuminated when the sensor is in operation.

Note
- When set to ON it will sense the presence of an operator in front of the monitor. It will automatically power down the monitor when an operator is absent for more than an hour. The power indicator will be green in a normal operation and red when in stand-by-state. To restore operation, either cycle power or press the AUTO POWER button (cancels sensor).

13. RRC CONTROL BUTTONS

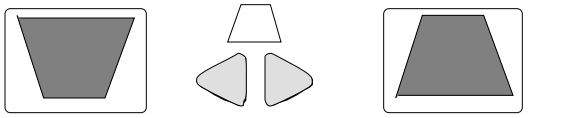
- Press to correct raster rotation or poor purity caused by magnetism when the monitor is swiveled while in operation.
- When you press the RRC CONTROL BUTTONS at the same time for over three seconds, you will hear a beep, and the adjusted condition will be canceled and set back to the factory setting “center.”

Note:
- The RRC CONTROL BUTTONS must be used after degauss has been operated.

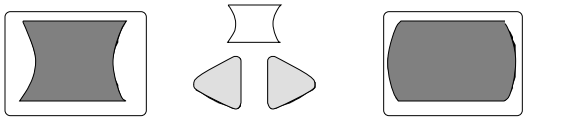


52542

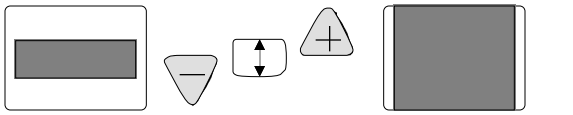
14. TRAPEZOID CONTROL BUTTONS
- Press to correct trapezoid distortion and to produce parallel vertical edges.



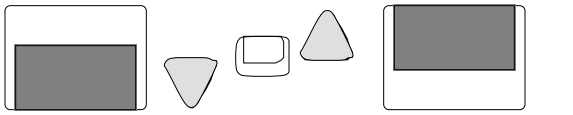
15. PCC CONTROL BUTTONS
- Press to correct pincushion or barrel distortion and to produce straight vertical edges.



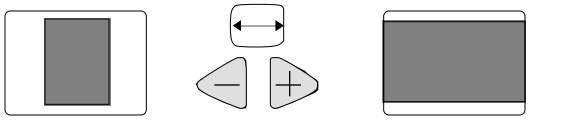
16. V-SIZE CONTROL BUTTONS
- Press to adjust the vertical size of the picture.



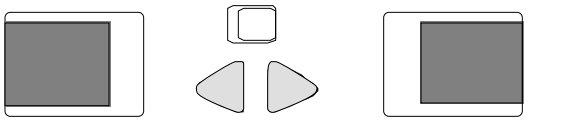
17. V-POSITION CONTROL BUTTONS
- Press to adjust the vertical position of the picture.



18. H-SIZE CONTROL BUTTONS
- Press to adjust the horizontal size of the picture.



19. H-POSITION CONTROL BUTTONS
- Press to adjust the horizontal position of the picture.



20. LOCK BUTTON

- Use to protect the picture information from unintentional operation of the control buttons.
- When the LOCK BUTTON is pressed, you will hear a beep and the following control buttons will be locked and stop operating: TONE, AUTO SIZE/POSITION SET UP, RRC, TRAPEZOID, PCC, V-SIZE, V-POSITION, H-SIZE, H-POSITION.
- When you try to use the locked control buttons, you will hear short beeps as an alarm.
- To release the locked condition, press the LOCK BUTTON again, and you will hear a beep and the control buttons will start working again.

21. DEGAUSS BUTTON

- Use to cancel magnetism when swiveling or moving the monitor causes poor purity.
- The button operates for approx. 10 seconds and goes off automatically.

Note: - Degauss occurs automatically on power on and it is best to leave 30 minutes between each degauss operation.

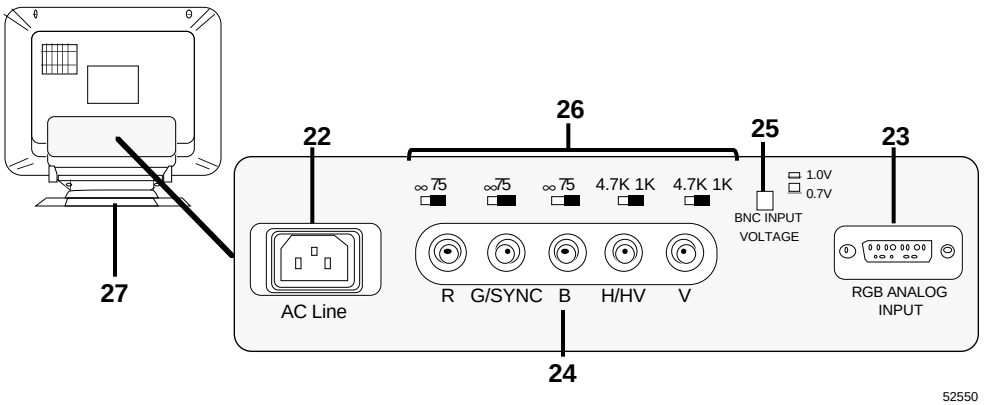


Figure 5-4 — Location and Function of Rear Controls for IDEK #8221

22. AC INPUT CONNECTOR
    - Connect to the AC outlet with the supplied AC power cord.

    Note: - Make sure the POWER SWITCH is turned OFF before connecting the power cord.

23. 15PIN D-SUBSIGNAL INPUT CONNECTOR
    - Allows equipment having analog RGB output to be connected.

24. BNC SIGNAL INPUT CONNECTORS
    - Allows equipment having analog RGB output to be connected.

25. BNC INPUT VOLTAGE SWITCH (.07V/1.0V)
    - Used to select the appropriate BNC video input voltage for your equipment.
    - Set to 0.7V for 0.74 volt peak-to-peak or 1.0V for 1.0 volt peak-to-peak.

26. BNC IMPEDANCE SELECT SWITCHES (VIDEO: ∞/75Ω, SYNC: 4.7KΩ/1KΩ)
    - Select 75Ω for line impedance.
    - If the monitor is used in a loop-through operation, set these switches to the left (∞ for video, 4.7KΩ for sync). For single unit operation, or when the monitor is the last unit in a loop-through string, set the switches to the right (75Ω for video, 1KΩ for sync). The switches of the unused BNC SIGNAL INPUT CONNECTORS should also be set to the right.

27. TILT-SWIVEL STAND
    - Allows the screen angle to be adjusted by 90 degrees horizontally, 15 degrees up and 5 degrees down.

SECTION 6 - SERVICE

This section presents service instructions unique to the Universal Work Station.

6.1 SERVICE OVERVIEW

The UWS 5-slot module is similar to all other LCN 5-slot modules. Also, the media storage devices (cartridge drives and floppy disk drives) and their power supplies are the same or similar to those used in the Universal Station (US) except for their physical mounting arrangement. For Cartridge Drives service information for these peripherals, refer to *Universal Station Service*.

Current production UWSs have a larger capacity Enhanced Power Supply in the Five-Slot Module. This enhancement has eliminated the need for a separate power supply to provide power for cartridge or floppy drives. In place of the Winchester Power Supply or Floppy Power Supply is a cable harness that connects to the back of the Five-Slot Module.

Several board placement configurations are possible based on the vintage of the station and the options installed. The following tables show the possible board placements.

NOTE

TDC 3000^X R500 software does not support older MCPU or EMPU processor boards. Any UWSs containing these processors must be upgraded to HMPU, HPK2, K2LCN or K4LCN prior to loading R500. A station must have at least 4mw of memory to run Operator Personality and 6mw of memory to run Universal Personality. The standard configuration for current-build stations is 4mw or 8mw. The 8mw memory size accommodates more memory resident schematics.

Table 6-1— HPK2 UWS (4 Mw) without Drives

SLOT	BOARD TYPE	I/O BOARD TYPE
5	EPDG	EPDGP I/O*
4		
3	EMEM	
2	LLCN**	LCN I/O
1	HPK2-3	

Table 6-2— HPK2 UWS (4 Mw) with Cartridge Drives

SLOT	BOARD TYPE	I/O BOARD TYPE
5	EPDG	EPDGP I/O*
4		
3	EMEM	
2	LLCN**	LCN I/O
1	HPK2-3	

Table 6-3 — HPK2 UWS (4Mw) with Floppy Drives

SLOT	BOARD TYPE	I/O BOARD TYPE
5	EPDG	EPDGP I/O*
4	FDC	FDC I/O
3	EMEM	
2	LLCN**	LCN I/O
1	HPK2-3	

Table 6-4 — K2LCN UWS (4 Mw) without Drives

SLOT	BOARD TYPE	I/O BOARD TYPE
5	Do Not Use	
4	EPDG	EPDGP I/O*
3		
2		
1	K2LCN-4	LCN I/O

Table 6-5 — K2LCN UWS (4 Mw) with Cartridge Drives

SLOT	BOARD TYPE	I/O BOARD TYPE
5	Do Not Use	
4	EPDG	EPDGP I/O*
3		
2		
1	K2LCN-4	LCN I/O

* EPDGP I/O and EPDG I/O are interchange unless color palate is in use.

** LLCN and LCNI are interchangeable.

Table 6-6 — K2LCN UWS (4 Mw) with Floppy Drives

SLOT	BOARD TYPE	I/O BOARD TYPE
5	Do Not Use	
4	EPDG	EPDGP I/O*
3	FDC	FDC I/O
2		
1	K2LCN-4	LCN I/O

Table 6-7 — K2LCN UWS (6 Mw) without Drives

SLOT	BOARD TYPE	I/O BOARD TYPE
5	Do Not Use	
4	EPDG	EPDGP I/O*
3		
2		
1	K2LCN-6	LCN I/O

Table 6-8— K2LCN UWS (6Mw) with Cartridge Drives

SLOT	BOARD TYPE	I/O BOARD TYPE
5	Do Not Use	
4	EPDG	EPDGP I/O*
3		
2		
1	K2LCN-6	LCN I/O

Table 6-9 — K2LCN UWS (6 Mw) with Floppy Drives

SLOT	BOARD TYPE	I/O BOARD TYPE
5	Do Not Use	
4	EPDG	EPDGP I/O*
3	FDC	FDC I/O
2		
1	K2LCN-6	LCN I/O

Table 6-10 — K2LCN UWS (8 Mw) without Drives

SLOT	BOARD TYPE	I/O BOARD TYPE
5	Do Not Use	
4	EPDG	EPDGP I/O*
3		
2		
1	K2LCN-8	LCN I/O

* EPDGP I/O and EPDG I/O are interchangeable unless color palate is in use.

Table 6-11 — K2LCN UWS (8 Mw) with Cartridge Drives

SLOT	BOARD TYPE	I/O BOARD TYPE
5	Do Not Use	
4	EPDG	EPDGP I/O*
3		
2		
1	K2LCN-8	LCN I/O

Table 6-12 — K2LCN UWS (8 Mw) with Floppy Drives

SLOT	BOARD TYPE	I/O BOARD TYPE
5	Do Not Use	
4	EPDG	EPDGP I/O*
3	FDC	FDC I/O
2		
1	K2LCN-8	LCN I/O

Table 6-13 — K4LCN UWS (4 Mw) without Drives

SLOT	BOARD TYPE	I/O BOARD TYPE
5	Do Not Use	
4	EPDG	EPDGP I/O*
3		
2		
1	K4LCN-4	LCN I/O

Table 6-14 — K4LCN UWS (4 Mw) with Cartridge Drives

SLOT	BOARD TYPE	I/O BOARD TYPE
5	Do Not Use	
4	EPDG	EPDGP I/O*
3		
2		
1	K4LCN-4	LCN I/O

Table 6-15 — K4LCN UWS (4 Mw) with Floppy Drives

SLOT	BOARD TYPE	I/O BOARD TYPE
5	Do Not Use	
4	EPDG	EPDGP I/O*
3	FDC	FDC I/O
2		
1	K4LCN-8	LCN I/O

* EPDGP I/O and EPDG I/O are interchangeable unless color palate is in use.

Table 6-16 — K4LCN UWS (6 Mw) without Drives

SLOT	BOARD TYPE	I/O BOARD TYPE
5	Do Not Use	
4	EPDG	EPDGP I/O*
3		
2		
1	K4LCN-6	LCN I/O

Table 6-17 — K4LCN UWS (6 Mw) with Cartridge Drives

SLOT	BOARD TYPE	I/O BOARD TYPE
5	Do Not Use	
4	EPDG	EPDGP I/O*
3		
2		
1	K4LCN-6	LCN I/O

Table 6-18 — K4LCN UWS (6 Mw) with Floppy Drives

SLOT	BOARD TYPE	I/O BOARD TYPE
5	Do Not Use	
4	EPDG	EPDGP I/O*
3	FDC	FDC I/O
2		
1	K4LCN-6	LCN I/O

* EPDGP I/O and EPDG I/O are interchangeable unless color palate is in use.

Table 6-19 — K4LCN UWS (8 Mw) without Drives

SLOT	BOARD TYPE	I/O BOARD TYPE
5	Do Not Use	
4	EPDG	EPDGP I/O*
3		
2		
1	K4LCN-8	LCN I/O

Table 6-20 — K4LCN UWS (8 Mw) with Cartridge Drives

SLOT	BOARD TYPE	I/O BOARD TYPE
5	Do Not Use	
4	EPDG	EPDGP I/O*
3		
2		
1	K4LCN-8	LCN I/O

Table 6-21 — K4LCN UWS (8 Mw) with Floppy Drives

SLOT	BOARD TYPE	I/O BOARD TYPE
5	Do Not Use	
4	EPDG	EPDGP I/O*
3	FDC	FDC I/O
2		
1	K4LCN-8	LCN I/O

* EPDGP I/O and EPDG I/O are interchangeable unless color palate is in use.

6.2 FIELD ADJUSTMENT

The only field adjustments for the Universal Work Station are those for the 21" color monitor, and the LCN I/O board. The LCN I/O board, in rear slot #2, has a module address switch/jumper pack that must be characterized for the particular node address it occupies on the LCN. See Section 2, paragraph 2.5, and Figure 2-2 for how this is done.

6.2.1 MONITOR ADJUSTMENTS

The analog, rotary-type screen control knob adjustments for the IDEK 21-inch Multiscan color monitor are located on the front, just below the screen. The digital, push-button screen control adjustments for the IDEK 21-inch Vision Master color monitor are located inside a recessed, sliding tray (drawer) located below the screen. These adjustments are summarized in Table 6-22.

Table 6-22 — 21-inch Monitor Adjustments

CONTROL	ADJUSTMENT
Brightness	Turn knob or press button to adjust the brightness of the display
Contrast	Turn knob or press button to adjust the contrast of the display
Raster rotation	Turn knob or press button to correct the raster tilt of the display
Pincushion correction	Turn knob or press button to correct both the right and left side distortion of the display
Vertical size	Turn knob or press button to adjust the vertical size of the display
Vertical position	Turn knob or press button to adjust the center of the display vertically
Horizontal size	Turn knob or press button to adjust the horizontal size of the display
Horizontal position	Turn knob or press button to adjust the center of the display horizontally
Signal select switch (three-position switch)	VGA: Select VGA when using a VGA graphics card MACII: Select MACII when using an Apple Macintosh or PGC graphics card. OTHER: Select OTHER when using any other graphics card or generator than the above, with a horizontal frequency between 30 and 80 khz. For the UWS, place this switch in the **MACII** position.
Degauss	Press this button to degauss the CRT

6.3 CLEANING

The monitor screen and the media storage drive heads must be periodically cleaned. For cleaning intervals and instructions, refer to *Universal Station Service*.

6.4 TROUBLESHOOTING

WARNING

DO NOT REMOVE OR REPLACE CIRCUIT BOARDS WITH THE POWER ON.

Do not remove, handle, or transport circuit boards without observing proper Electrostatic Discharge (ESD) procedures. To review ESD procedures, see the *LCN Planning* manual or *TDC 3000X System Site Planning* manual in the *System Site Planning -1* binder.

Note that the front (large) boards can be accessed from the front of the UWS by removing the front cover. The front cover slips under the top front edge and snaps into the two bottom spring catches. The rear (small) boards must be accessed from the rear, because of the cables (see Section 2, paragraph 2.5).

To isolate a failed board, power supply, fan assembly, or other Optimum Replaceable Unit (ORU), follow the service procedures provided in *Five/Ten-Slot Module Service.*

Service Information for the removable-media drives (cartridge drives or floppy disk drives) and the optional printer is provided in *Universal Station Service*.

6.5 SPARE PARTS

Along with other parts, Table 6-23 includes board types for all UWS configurations. Refer to Tables 6-1 through 6-21 to determine the boards included in your specific UWS.

Table 6-23 Parts List

PART NUMBER	DESCRIPTION	
*51196286-100	14" CRT	14 Inch CRT Color Monitor (7)
*51196075-100	21" CRT	21-Inch FST Desk-Top Color Monitor
*51196363-100	21" CRT	21-Inch Multi-Sync CRT Color Monitor
51195904-XXX	CABLE SET	Video Copier to EPDG Cable
*51197007-100	TOUCH SCREEN FOR 21" CRT	T/S for 21” FST Desk-Top Col. Mon. (8)
*51197019-100	TOUCH SCREEN FOR 21" CRT	T/S for 21” Multi-Sync Color Monitor (9)
*51197005-100	CONTROL BOX	Control Box for 21" Touchscreen (8)
*51302287-100	MICRO CABLE	Micro cable for 21" Touchscreen (8)
*51302297-100	UTDC CABLE	UTDC cable for 21" Touchscreen (8)
*51108385-508A	M4X8 SCREWS-21" TCH SCRN	Cable connector Screws at M/F (8)
*51107403-100	LOCAL CNTL NTWK TRNSCV	LCN I/O Board
*51109701-100	5 1/4 INCH FLOP DSK DRV	5 1/4 Inch Floppy Disk Drive (3)
*51195156-200	BETA 20	20 MB Cartridge Drive (4)
*51196483-100	IOMEGA’s MultiDisk 150	150 MB Cartridge Drive
51304199-100	SCSI INTERFACE CABLE	Cable Cartridge Disk Interface
51308055-100	POWER CORD	Drive Cable DC Power
*51107595-100	WINCHESTER PS	Cartridge Drive Power Supply (4)
*51109818-100	POWER SUPPLY 5 1/4" FLOPPY	Floppy Power Supply (3)
*51195792-100	MOUSE SPARES KIT	Mouse and attached cable
51303508-100	POWER CORD	AC Power Cord, 5 Card Module
51303654-092	AC 125V POWER CORD	AC Pwr. Cord, Floppy/Cartridge (3, 4)
51304037-183	POWER CORD	AC Power Cord, Electronics Module
*51400975-100	AUX. STA ENGINEERS KEYBD	Engineer’s Keyboard (2)
*51400990-100	UWS SUPERVISOR KYBD ASM	Supervisor Keyboard Assy. (1)
*51401437-100	ENHCD OPERATOR KYBD ASM	Enhanced Operator’s Kybd Asm (5)

(Continued)

* ORU Level Replacement Item
(1) Supervisor's Station
(2) Engineer's Station
(3) Floppy Disk Drive Option only. Not used in later units when power is taken from 5-slot power supply.
(4) Cartridge Drive Option only. Not used when power is taken from 5-slot power supply.
(5) Enhanced Keyboard Option only
(7) 14" Color Monitor no longer available as a replacement unit
(8) Complete 21" Touch Screen Asm. available by ordering: MX-MTTS11-100 (not including monitor)
(9) This 21" Touch Screen Asm. is for the newer model and has a slightly larger plastic bezel housing.

Table 6-18 — Parts List (Continued)

PART NUMBER	DESCRIPTION	
*51109336-100	I/O 5 1/4 IN FDD	FDC I/O Board (3)
*51401286-100	EPDG	EPDG Board
*51304584-100	EPDGP I/O	EPDGP I/O Board
*51400910-100	1 M-WORD ENHANCED MEMORY	EMEM Board
*51400669-100	FLOPPY DISC CONTROLLER	FDC Board (3)
*51401291-100	LOW POWER LCN	LLCN Board
*51401072-300	3 M-WORD ENHANCED MEMORY	QMEM-3 Board
*51401072-400	4 M-WORD ENHANCED MEMORY	QMEM-4 Board
*51401288-200	HIGH PERF. KERNEL	HPK2-3 Board
*51401551-300	K2LCN Processor/LCN/Memory	K2LCN-3 with 3 Mw
*51401551-401	K2LCN Processor/LCN/Memory	K2LCN-4 with 4 Mw
*51401551-601	K2LCN Processor/LCN/Memory	K2LCN-6 with 6 Mw
*51401551-801	K2LCN Processor/LCN/Memory	K2LCN-8 with 8 Mw
*51401946-100	K4LCN Processor	
*51201645-400	4 Mw MEMORY MODULE FOR K4LCN	
*51201645-800	8 Mw MEMORY MODULE FOR K4LCN	
*51201645-160	16 Mw MEMORY MODULE FOR K4LCN	
51304032-003	UWS SUPERVISOR KEYBD CBL	Cable, Supervisor Keyboard (1)
51304038-100	UWS FLOPPY STATUS CABLE	Cable, Floppy Status Cable (3)
51304039-122	UWS FLOPPY DC PWR CABLE	Cable, Floppy Drive DC Power (3)
51304040-101	UWS FLOPPY COMMAND CABLE	Cable, UWS Floppy Command (3)
51304033-045	MOUSE CABLE	Adapter Cable inside enclosure
51304392-100	DISK DC POWER CABLE	Cable, Cartridge Drive DC Power (4)
51304396-100	CRTG DISK INTERFACE CBL	Cable, Cartridge Drive Interface (4)
51304399-100	UWS 14" CRT CABLE	14 Inch CRT Data Cable
51195904-106	UWS 21" CRT CABLE	21 Inch CRT Data Cable
*51304490-100	CARTRIDGE DC POWER CABLE	Floppy/Cartridge DC Power Cable (6)
*51304494-003	ENHCD OPERATOR KYBD CBL	Enhanced Operator Kybd Cable (5)

* ORU Level Replacement Item
(1) Supervisor's Station
(3) Floppy Disk Drive Option only
(4) Cartridge Drive Option only
(5) Enhanced Keyboard Option only
(6) Used with enhanced 5-slot power supply to eliminate need for floppy or Winchester power supply.

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Title of Publication:	**Universal Work Station Installation, Operation, and Service**
Issue Date:	**9/95**
Publication Number:	**UW02-500**
Writer:	**D. Downey/C. Phillips**

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