

HONEYWELL

DPS 8
SITE PREPARATION
MANUAL
FOR DPS 8 SYSTEMS

HARDWARE

DPS 8

**SITE PREPARATION MANUAL
FOR DPS 8 SYSTEMS**

SUBJECT

Instructions for Preparing a DPS 8 System Site

SPECIAL INSTRUCTIONS

This is the original issue of DU34-00. This manual supersedes Site Preparation Manual, DN01-01, dated August 1982.

The following notice is provided in accordance with the United States Federal Communications Commission's (FCC) regulations.

Warning: This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. The equipment manufactured after October 1, 1983 has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Includes Update Pages Issued as Addendum A in August 1986.

ORDER NUMBER

DU34-00

January 1986

Honeywell

PREFACE

The primary purpose of this manual is to assist you in planning your system site. Remember, however, a successful installation depends ultimately on how well you allocate individual responsibilities and how carefully the overall site planning and follow-up work is performed.

This manual guides you through all phases of site preparation planning whether your engineering personnel or outside consultants formalize the site preparation requirements. To help achieve an efficient computer installation, observe closely the design requirements and recommendations outlined in this manual.

This manual includes information for site preparation planning, site facility requirements, and individual device specifications.

A postpaid feedback remarks form is provided in the back of this manual. Comments from the users of this manual are appreciated.

The information and specifications in this document are subject to change without notice. Consult your Honeywell Marketing Representative for product or service availability.

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SECTION 1

INTRODUCTION

The purpose of this manual is to assist the customer in site planning and preparation for installation of the Honeywell DPS 8 Central System. The manual is divided into seven sections, which are described below:

Section 1, Introduction, briefly outlines the contents of the manual.

Section 2, Site Planning, describes the site planning tasks from start to completion. The entire site preparation is outlined.

Section 3, Site Facility Requirements, is intended to aid you in selecting and preparing the area where your system is to be installed. It provides information concerning the space requirements, construction, lighting and other area requirements.

Section 4, Site Power Requirements, describes the system power requirements and provides information pertinent to the installation of the primary power wiring.

Section 5, Site Environment Requirements, specifies the air conditioning and air cleaning needs of the system.

Section 6, Safety Precautions, recommends safety procedures and certain types of protective equipment which should be utilized on the system site.

Section 7, Installation Planning, consists of summary information and Installation Planning Drawings. The Installation Planning Drawings contain the specifications for Honeywell supplied data processing equipment which may be installed on your site.

It is suggested that you review this manual in its entirety before starting your site plan. Honeywell representatives are available to assist in interpreting this manual and to help in resolving situations not covered by this manual.

1.1 REFERENCE DOCUMENTATION

This section lists documents, and their source, which are useful in planning and developing your site and for reference.

Order Honeywell publications from:

Honeywell Information Systems Inc.
 Manager, Computer Supplies, MA06-01
 47 Harvard Street
 Westwood, MA 02090
 U.S.A.
 (Telephone Orders: 1-800-343-6665)

TABLE 1-1. REFERENCE MATERIALS

<u>MANUAL</u>	<u>ORDER NUMBER</u>
Honeywell Publications Catalog	* AB81
National Distribution Operations (NDO) Sales Catalog Supplies and Accessories	* GF60
NDO Sales Catalog Supplies and Accessories Supplement	* GM99
NDO Sales Catalog Hardware	* GK51
Small Systems and Terminals Publications Catalog	* CT50
Electrostatic Discharge (ESD) Protection Specifications	VB95
DPS 8 Site Planning Template Kit	FZ97
Honeywell Power Conditioning Units Installation & Operation Manual (3 to 10kVA units available)	GM27
VIP7300 Family Display Terminals Customer Site Preparation Manual	CR26
VIP7201 Display Terminals Site Preparation Manual	CJ82
Page Printer II	CJ81
Level 6 Site Preparation Manual (including Sorters) ..	AY52
DPS 6 Site Preparation Manual (including Sorters)	CP77

* Available at no charge

National Fire Code, National Electric Code, and NFPA references are available from:

National Fire Protection Association
 Batterymarch Park
 Quincy, MA 02269
 U.S.A.

SECTION 2 SITE PLANNING

2.1 SITE PREPARATION TASKS

A Honeywell representative must be contacted if any characteristic of the site does not meet the requirements specified in this manual.

Before starting site planning and preparation, you may want to make such arrangement as you deem necessary for professional consultant services. Also, Honeywell representatives are available to assist you in planning your site; see Appendixes A and B for guidelines and checklist. The site preparation checklist must be utilized by CSD during all site preparation activities. Appendix C contains Site Preparation Audit Report.

Table 2-1 outlines the sequence of events in Site Planning and Preparation. It describes the steps to take and the assistance Honeywell offers during system installation to customers who lease or purchase their system directly from Honeywell. It does not apply to any equipment designated by Honeywell as a customer installable unit. In some cases, when a schedule changes, the sequence of events may vary.

TABLE 2-1. INSTALLATION RESPONSIBILITIES

WHAT YOU DO

Select the site for your Honeywell computer system.

(Refer to Code Requirements in this section.)

Prepare the site.

(Refer to Code requirements in this section.)

WHAT HONEYWELL DOES

Honeywell representatives can help you decide among possible sites (existing or new) and help determine the applicability of the selected site for the layout. Using building specifications you supply, Honeywell can help you develop a system layout.

This manual provides site-related product specifications for the use of your plant engineer, architect, or outside consultant in installing the air conditioning and electrical power required for your particular system and its associated peripherals.

Before system delivery, a Honeywell Customer Services Site Planner can audit your completed site, per Appendix C, to help ensure a successful installation.

WHAT YOU DO

Agree with Honeywell on a shipment date for the system (a tentative shipment date should be established at the time the contract is signed).

Alert your Honeywell Marketing Representative if delivery impediments exist or are anticipated (e.g., small elevator, second floor delivery, no receiving dock, etc.).

Accept the delivery and record any damage to the equipment or containers. Declare exceptions before signing to accept delivery. Notify your Honeywell Representative upon system arrival. The carrier (van lines only) is to move all equipment including those in cartons or on skids and/or pallets into the computer area. This equipment must be removed from the cartons, off the skids and pallets, then placed in accordance with the plan layout.

Install any special length or custom cables.

2.1.1. CODE REQUIREMENTS

It is important that both local and national code requirements be adhered to in the construction of your site. National codes are contained in the National Electric Code, NFPA 70 and the Standards for Protection of Data Processing Equipment, NFPA 75. Local codes should be obtained from your local building inspection department.

WHAT HONEYWELL DOES

System components are carefully packed and readied for shipment from the factories to your site. Honeywell ordinarily selects an independent carrier and method of delivery.

If the carrier is selected by Honeywell, Honeywell will notify the carrier of anticipated delivery problems.

When your equipment arrives, Honeywell Customer Services will:

- o Supervise unpacking and positioning of all Honeywell equipment in accordance with your layout.
- o Inspect cable routing, physically connect approved standard length Honeywell interconnecting signal and control cables and, where applicable, connect the ac plugs.
- o Check out the system by performing certain test and verification routines.

2.1.2 SITE SELECTION

The selection of the site for your Honeywell computer system is one of the most significant factors in planning and preparing for the installation.

The choice of a location for the computer facility should be based on the applicable requirements for: aggregate space, clearance and floor load for the computer and peripherals; air conditioning, electrical power, safety and fire prevention equipment; support functions and equipment; audible noise levels; adequate delivery capabilities; storage space and expansion of the system. These considerations apply to both new and old buildings.

Outlined below are some major site considerations that should be answered prior to selecting your computer site.

CAUTION

YOUR HONEYWELL COMPUTER EQUIPMENT MUST NOT BE OPERATED WITH CONDENSED MOISTURE PRESENT OR IN A DUST-LADEN OR CORROSIVE ATMOSPHERE.

- o Is space available to house the air conditioning equipment: the compressor, air handlers, evaporators, condensers, and cooling tower equipment?
- o Is electrical power available and adequate? Are outlets sufficient as to type and location?
- o Is there a separate room for the motor generator, (MG)? (This is not applicable where the MG is not required such as when the customer is furnishing an uninterruptible power supply, or the ride-thru options are installed.)
- o Is the lighting adequate?
- o Is the floor of the computer area structurally adequate to sustain the weight of the computer together with any other loads that may be imposed on it, or will floor load limits be exceeded?
- o The U.S.A. standard 8 ft (2.5m in some countries) ceiling from the top of the raised floor is ordinarily satisfactory for the Honeywell systems described in this manual.
- o Do the surrounding walls and ceiling have any type of existing acoustical treatment to help reduce noise?

- o Are permanent walls and partitions located to help reduce noise?
- o Is accessibility for unloading the delivery van adequate?
- o If the building (or facility) is more than one story high, is elevator accessibility and capacity adequate?
- o Are there any building modifications necessary before moving in the computer equipment?
- o Is the air filtration system (air cleaners) adequate?
- o Is the fire and smoke detection system adequate?
- o Is the fire extinguishing system adequate?
- o Are support function areas (e.g., office space, media storage and equipment maintenance area) satisfactory?
- o Are the related work areas suitable?
- o Are the size and location of entrances and exits adequate for equipment delivery?
- o Is there room for growth? Can new equipment be added, when necessary, without causing radical changes to the currently allocated space?
- o Does the site selection minimize, to the extent practicable, the possibility of loss or damage due to "Acts of God" or the negligence of others?

Some additional factors you might consider are:

- o Insurance costs can be affected by the type of building construction used and by the location of the site in relation to fire hazards and firefighting facilities.
- o Zoning regulations may affect site location, construction, use and expansion.
- o Before finalizing your site plans, investigate the building codes for your area; these often require that your drawings be approved by a locally licensed architect and/or city engineer.
- o Existing customer facilities and/or operations may be disturbed temporarily by the installation of Honeywell computer and data communication equipment.
- o Electromagnetic interference (EMI) sources in the proximity of the computer system may have an adverse effect on computer system operation.
- o Communications facilities should provide for future expansion of data communication equipment.

After your computer site has been selected, the following factors are worthy of consideration:

- o Work flow - For efficient work flow, consideration should be given to related work areas, human factors, storage, and noise isolation.
- o Service area - Space should be provided near the system for equipment supplies and media storage.
- o Security - To protect both data and equipment, security measures are essential. You may want to consider:
 - Physical Security - Site access, fire and other damage controls, including controlled personnel access.
 - Control and Procedures - The audit of personnel, clearly defined areas of responsibility, followed by controlled access to the computer system areas.
 - Recovery and Backup Procedures - The protection of record storage to help ensure continued operation, duplication and safe storage of priority, sensitive and crucial data.

2.2 SITE LAYOUT

Once your site has been selected, you should proceed with developing the drawings for the site layout. Specific considerations for designing an efficient processing center vary from installation to installation, but five major considerations for space and specifications apply to most installations:

- o Do not underestimate growth potential. The trend has always been for additional computer applications; this means additional equipment and, in turn, additional space.
- o Make sure that the equipment is situated for the best operating efficiency and comfort.
- o Deviations from the recommended environmental specifications or requirements included in this manual may cause serious problems in the operation and maintenance of the equipment.
- o To prevent loss of processing capability during voltage reductions or brownout, power isolation and voltage regulation may be required.
- o When applicable, space in the computer room must be allotted for a Maintenance Processor Unit (MPU) and for at least one site spares storage/maintenance cabinet.

After evaluating the possible sites, you should prepare equipment layouts for each area under consideration. A Site Planning Template Kit (Order No. FZ97) is available for you to order. Figure 2-1 is an example of a site layout using the Site Planning Template Kit. The Site Planning Template Kit is made to scale. Your Honeywell representative is available to assist you in developing your site layout.

You may order the Site Planning Template Kit, FZ97, from:

Honeywell Information Systems Inc.
Manager, Computer Supplies, MA06-01
47 Harvard Street
Westwood, MA 02090
U.S.A.

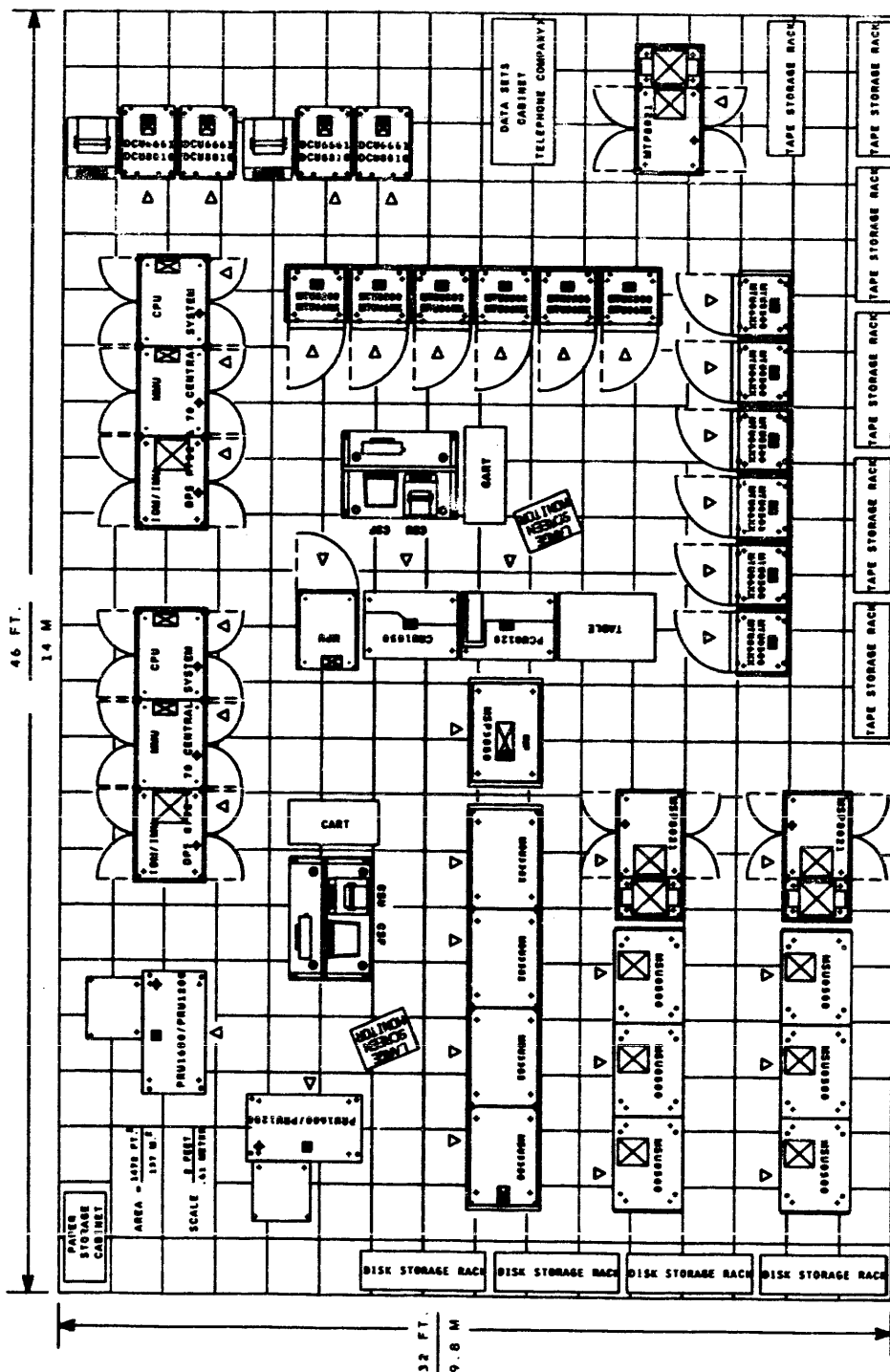
The following details should be shown on the site layout drawing:

- o Size and shape of the computer room.
- o Entries and exits. (Doors should open outward.)
- o Adjacent corridors size, elevators, ramps and staircases.
- o Building columns, internal and external windows.
- o Any underfloor or above-floor obstructions that may affect the installation or routing of interconnecting cables.

CAUTION

DO NOT EXCEED THE MAXIMUM PERMISSIBLE CABLE LENGTHS IN DESIGNING THE SYSTEM LAYOUT. AN ALLOWANCE MUST BE MADE FOR A STUBOUT LENGTH FOR EACH END OF THE CABLE.

- o Location of the central system(s) and all peripherals.
- o If used, location of motor generator control unit or uninterruptible power system control unit in the computer room.
- o Location of motor generator or uninterruptible power system, if used.
- o Emergency power-off switches.



NOTE: EXAMPLE ONLY - NOT DRAWN TO SCALE

FIGURE 2-1. EXAMPLE OF A SITE LAYOUT USING THE SITE PLANNING TEMPLATE KIT

- o Circuit breaker load centers.
- o The ac ground point and the system ground point.
- o Site storage and maintenance cabinet locations.
- o Media storage area.
- o Related work tables and an area for carts.
- o Communication terminals, communication data sets, and data modems.

2.3 SITE PREPARATION SCHEDULING

2.3.1 PREINSTALLATION SCHEDULE

After you have selected the equipment complement that suits your requirements, establish a schedule incorporating all phases of preinstallation and system installation work. Although it should be understood that scheduling concerns and timeframes may vary depending upon particular circumstances, a typical preinstallation schedule for a Honeywell computer system follows.

2.3.1.1 NINETY DAYS BEFORE DELIVERY

You and the Honeywell representative should establish a preliminary drawing that shows the intended arrangement of the equipment at the selected site. The site layout should be approved by you, Honeywell Customer Services and the Honeywell Marketing Representative before starting site construction.

After site layout approval, the following steps are typical:

- o Verify site dimensions and building access dimensions.
- o Review and order any necessary accessories to support your operation. Your order for data modems, data sets and telephones should be placed as early as possible to ensure all telephone communication equipment is installed before equipment delivery.
- o Ensure that the proposed floor loading meets the building specifications and applicable city codes and ordinances.
- o Determine the location and type of the primary power source (in-plant diesel generator, public utility, etc.) and the length of power runs.
- o Determine the electrical power source capacity and quality vs. the system needs.

- o Arrange for the installation of any necessary additional electrical power.
- o Determine the voltage fluctuations at the power service entrance over a one week period. (A power analyzer should be used for this purpose.) If the voltage fluctuations are greater than the equipment specifications, voltage regulation is required.
- o Determine if additional air conditioning is necessary and arrange for installation.

2.3.1.2 SIXTY DAYS BEFORE DELIVERY

Honeywell Customer Services should be provided with approved copies of the site layout drawings and specifications, including accesses, docks, door sizes, elevator sizes, etc.

- o Order circuit breaker load center(s) and raised flooring.
- o Establish a plan to vacate the selected site if it is presently occupied.
- o Arrange for insurance you may need for your computer site.
- o If you wish to purchase supplies from Honeywell, you should place your order at least 30 days before equipment delivery. Order from the Honeywell National Distribution Operations Sales Catalog Supplies and Accessories, Order Number GF60, and Supplies and Accessories Supplement, GM99.

2.3.1.3 THIRTY DAYS BEFORE DELIVERY

- o Install primary power equipment, MG(s), MG control unit(s), uninterruptible power supply system, etc.
- o Install ac power.
- o Install ground braid and ground wiring.
- o Install earth ground.
- o Install lighting fixtures.
- o Install air conditioning.
- o Install fire and smoke detection system.

- o Install fire extinguishing system.
- o Install raised flooring.
- o Verify that all accessory equipment, such as data modems, data sets, remote terminals, teleprinters, and communication lines function properly.
- o Complete the support facilities (such as media storage and Customer Services maintenance area).
- o Ensure that a data modem (Honeywell DCD2124 or equivalent) and telephone are available for the Distributed Maintenance Service (DMS). The DMS Data Modem Options information is included in Section 7.

2.3.1.4 SEVEN DAYS BEFORE DELIVERY

All electrical and structural elements of the site should have been installed and checked out, including air conditioning, fire and smoke detection system, fire extinguishing system and the raised flooring.

2.4 ASSURANCE REVIEWS

2.4.1 USER RESPONSIBILITY

It is your responsibility to prepare the facility from start to finish so that the equipment can be installed, operated and maintained as outlined in this manual. Refer to the following two lists. The first includes overall readiness of the computer site and building facilities prior to ship date.

The second list involves the computer area, building access, rigging and carrier packing arrangements prior to delivery date.

IMPORTANT

THE CUSTOMER SHALL INSTALL, AT NO EXPENSE TO HONEYWELL, AND SHALL BE SOLELY RESPONSIBLE FOR, ALL INTERNAL BUILDING WIRING INCLUDING POWER AND SPECIAL SIGNAL CABLES (NOT RESTRICTED TO THE COMPUTER ROOM IN WHICH THE EQUIPMENT IS INSTALLED), IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND ALL LOCAL CODES, REGULATIONS AND REQUIREMENTS.

2.4.1.1 STATUS BEFORE SHIP DATE

o CONSTRUCTION (if applicable)

- New dry wall installed, painted, etc.
- Doors and windows installed.

o Lighting installed.

o ELECTRICAL

- Electrical power equipment and wiring installed according to specifications.
- Convenience outlets working.
- Transformers and voltage regulators wired correctly.
- Communication and interconnecting cables installed; e.g., data modems, data sets, teleprinters, remote terminals and telephones. (Contact your local telephone communications representative.)
- Power receptacles or connectors available and installed.

o AIR CONDITIONING

- Ensure that the cooling capacity and humidity control of the system is adequate to meet the design environmental specifications.
- Ducts and air filters clean.

o GENERAL FACILITIES

- Fire protection facilities installed.
- Data storage area complete.
- Elevators reserved and checked for carrying capacity.
- Equipment delivery access route through the building established and checked for clearance dimensions.
- Rigging arrangements and street availability checked for permits.

2 4.1.2 STATUS BEFORE DELIVERY DATE

o CONSTRUCTION

- Card, tape, printer paper and disk media storage facilities completed.
- Raised floor cutouts cut and floor panels reinstalled.
- All computer areas clean and free from dust.

o ELECTRICAL

- Circuit breaker load center(s) wired, correct size breakers installed and checked out for each device.
- Conduit (when used) installed.
- All wires pulled through conduit from circuit breaker load center to the appropriate junction box. Proper device and power connectors or receptacles installed.
- Ensure that proper grounding techniques for the system are used. DO NOT USE THE CONDUIT AS A GROUND CONNECTION.
- Data modems and data sets installed and wired properly. (Contact your local telephone communications representative.)

o AIR CONDITIONING

- Cooling and air circulation checked out.
- Humidity and temperature controls checked out.
- Air vents and registers installed and checked out.

o GENERAL FACILITIES

- Elevators reserved and marked accordingly.
- All access routes checked for clearance and accessibility. All obstructions should be clearly marked.
- Carrier parking permit secured.
- Carrier and rigging company schedule checked.
- Carpets and/or raised floor should be protected during moving in or out of equipment (15mm (5/8 in.) plywood should be adequate). This should be arranged with the carrier prior to equipment delivery.

IMPORTANT

DURING THE FACILITY PLANNING PHASE, A HONEYWELL REPRESENTATIVE IS AVAILABLE TO REVIEW THE SITE PREPARATION PLANS THAT HAVE BEEN MADE BY YOUR FACILITIES PERSONNEL OR CONTRACTOR. YOUR HONEYWELL REPRESENTATIVE CAN EVALUATE THESE PLANS TO HELP ENSURE THEIR CONFORMANCE WITH THE REQUIREMENTS OF THE COMPUTER SYSTEM YOU HAVE SELECTED.

DURING THE COURSE OF SITE PLANNING, SITE PREPARATION AND SYSTEM INSTALLATION, HONEYWELL IS AVAILABLE TO CONDUCT PERIODIC PROGRESS REVIEWS WITH YOUR FACILITIES PERSONNEL OR CONTRACTOR TO HELP ENSURE THAT PLANNING AND PREPARATIONS ARE PROCEEDING AS REQUIRED AND IN A MANNER CONSISTENT WITH A SMOOTH, EFFICIENT INSTALLATION.

A REVIEW BY HONEYWELL WILL ORDINARILY BE MADE SHORTLY BEFORE SHIPMENT OF THE SYSTEM TO HELP ENSURE THAT ALL IS IN READINESS FOR AN EFFICIENT AND COMPLETE INSTALLATION. EXPERIENCE HAS SHOWN THAT IT IS TO YOUR ADVANTAGE TO HAVE ALL SITE PREPARATIONS COMPLETED BEFORE RECEIVING YOUR SYSTEM. THE HONEYWELL REPRESENTATIVE CAN, WITH THE HELP OF YOUR FACILITIES PERSONNEL OR CONTRACTOR, EXAMINE YOUR PREPARATIONS. IF WORK IS NOT COMPLETE, HE OR SHE WILL WORK WITH YOUR REPRESENTATIVE TO ARRIVE AT A NEW SCHEDULE FOR COMPLETION AND SHIPMENT OF YOUR SYSTEM.

HOWEVER, THE FAILURE OF HONEYWELL TO DETECT OR NOTIFY YOU OF ANY NONCONFORMANCE TO SITE PREPARATION OR LAYOUT PLANS OR TO SITE SPECIFICATIONS OR REQUIREMENTS OR RECOMMENDATIONS DOES NOT RELIEVE YOU OF ANY CONTRACTUAL OR OTHER RESPONSIBILITY THAT YOU MAY HAVE WITH RESPECT TO SITE PREPARATION AND SYSTEM INSTALLATION NOR SHALL HONEYWELL BE LIABLE FOR FAILURE TO DETECT OR NOTIFY YOU OF SUCH NONCONFORMANCE.

SECTION 3

SITE FACILITY REQUIREMENTS

IMPORTANT

THE FOLLOWING RECOMMENDATIONS AND REQUIREMENTS ARE SUBJECT TO APPLICABLE LOCAL CODES, REGULATIONS AND ORDINANCES, WHICH, IN THE EVENT OF ANY CONFLICT OR INCONSISTENCY, WILL CONTROL AND PREVAIL OVER THE FOLLOWING RECOMMENDATIONS.

3.1 FLOOR REQUIREMENTS

The system is designed for underfloor access of power and logic cables. The customer should provide a raised floor or its equivalent. The raised floor must meet the following requirements:

- o Minimum height between subfloor and raised floor of 200mm (8 in.), or 300mm (12 in.) if used as an air plenum.
- o A ramp rise of 85mm to 100mm per meter (one inch to 1-3/16 inches per foot), approximately 5 degrees, is recommended. This is defined as a Class A ramp. The ramp must not exceed 20 degrees. All mainframe units require support on ramps greater than 15 degrees.

WARNING

**UNITS MARKED "TRANSPORTATION TIP HAZARD"
REQUIRE SPECIAL HANDLING ON STEEP RAMPS TO
ENSURE SAFETY OF PERSONNEL AND EQUIPMENT.**

- o Level within 6mm (1/4 inch) within 3m (10 ft).
- o Floor loading capacity shall be capable of sustaining:
 - Leveling pad - 35kg/sq cm (500 lbs/sq in.) maximum.
 - Caster - The casters on some equipment may impose a higher point loading on the floor than the floor design specifies, therefore it is recommended that the raised floor be protected (such as using plywood) while moving heavy equipment into place.

- Maximum load of any single unit - 1000 kg/sq m (200 lbs/sq ft) (weight of the unit divided by the area actually occupied by the unit).
- The distributed floor load for the entire system may be calculated by adding the weights of all units to be installed, including auxiliary equipment and dividing by the total area of the computer room.

IMPORTANT

THE METAL FRAME SUPPORTING THE FALSE FLOOR MUST HAVE A SOLID BUILDING GROUND AS SPECIFIED UNDER GROUNDING SYSTEM IN SECTION 4.

If power receptacles located under a raised floor are exposed to water, waterproof connectors must be used. Proper drainage must be provided to guard against flooding or trapping water under the false floor in the computer room. This is especially important in buildings where the regular floor is depressed and the raised surface is level with the adjacent areas.

If carpeting is used, it must be of a type specifically manufactured for computer room application and be rated at 2.0kV or less at 70°F (21°C) and 20% humidity.

3.1.1 CABLE ACCESS CUTOUT HOLES

WARNING

TO PREVENT INJURY TO PERSONNEL OR CABLE DAMAGE, THE CUTOUT HOLE EDGES MUST BE DEBURRED OR LINED WITH VINYL MOLDING STRIPS OR GROMMET.

CARE MUST BE TAKEN DURING THE PERIOD BETWEEN CUTTING FLOOR HOLES AND INSTALLATION OF THE EQUIPMENT TO ENSURE THAT THE HOLES ARE TEMPORARILY COVERED TO PREVENT ACCIDENTAL INJURY TO PERSONNEL.

A drawing of each cabinet base, included in Section 7, can be used to locate cutout holes for system cable access and ac power cables. Using these drawings as a guide, the computer room floor access holes can be cut prior to delivery of the system. Cutout hole edges must be prepared in a way that will prevent cable damage. Floor panel manufacturers can provide vinyl molding strips for lining the cutout holes.

The scaled template set, FZ97, can be provided by your Honeywell representative.

After system installation on sites with underfloor air conditioning, the ac power and logic cable access holes must be blocked off in an appropriate manner with UL approved nonflammable material to prevent uncontrolled air flow. This is essential to balance air flow effectively and to prevent air at too low a temperature from entering the units.

3.1.2 FLOOR COVERING

Many considerations besides appearance and cost determine the best floor covering material for a computer installation. For example, materials that produce or trap lint and dust or require much water to clean pose a direct hazard to the equipment installed in the area. Certain materials are more prone to generation of static electricity and should be avoided. A conductive flooring is recommended. Special conductive flooring materials include terrazo, vinyl tile and carpet.

3.1.2.1 TILE

Honeywell considers high-pressure laminated fiber-resin floor surfacing material to be a superior product for raised flooring computer installations. The extremely hard surface is highly resistant to scratching, scarring, denting and cigarette burns. Also, it possesses excellent color stability and glare control. These surfaces do not ordinarily require waxing and need only an occasional damp mopping.

In computer areas where raised flooring is not used, conductive vinyl or terrazo tile should be used. Examples of material that should not be used are: asbestos-filled vinyl which may present a health hazard and asphalt tile because it chips easily, producing dust that could cause equipment problems.

3.1.2.2 CARPET

WARNING

UNDER SOME FIRE CODES, CARPETING IS NOT ALLOWED IN COMPUTER AREAS.

Carpeting offers many advantages over tile. A good grade of carpet can be treated to be lint free and lasts as long as good vinyl tile, but a poor grade of carpet can wear rapidly and produce great amounts of lint that may damage the equipment. Carpeting is attractive and serves as an excellent sound suppressor. It also is more comfortable for operating personnel.

Carpeting may be permitted if it will not contribute to the spread of fire, is not readily ignited by sparks or burning embers, and does not restrict lifting the panels for access to the underfloor space.

Provisions must be made to prevent a buildup of static electricity, beginning with the selection of the carpet fiber. Pure nylon carpet, for example, is unacceptable because of its static attraction. Be sure to select carpeting with permanent, built-in static protection which limits static buildup to less than 2kV at 20% relative humidity and 70°F (21°C). When the carpet is installed on access floors, its electrical resistance from surface to ground should be no higher than 250 kilohms to help provide both personnel safety and good static performance.

Keeping the humidity within specifications will further minimize static buildup. In existing static producing carpeted areas, one of the anti-static spray products can be an effective treatment to minimize static. However, this treatment must be repeated on a regular basis.

3.1.2.3 FLOOR MATS OR RUNNERS

Electrically conductive floor mats or runners can be used in areas requiring localized protection against static. Honeywell has determined that electrostatic discharge (ESD) produced by static electricity may upset the logic in your computer, minicomputer, terminal subsystems, processing stations or other related computer equipment. Carefully locate floor mats or runners in your computer area so that any static charge can be harmlessly eliminated from personnel who enter the area. Mats should be placed wherever operators are likely to step before actually touching the equipment.

For example:

- o Around all computer work stations, data entry terminals, minicomputers and processors.
- o As a runner at the entrance to data processing areas (especially if the area is entered from a carpeted floor).
- o As a runner in front of a row of peripherals, such as tape handlers and disk drives.
- o Around any sensitive peripherals in the data processing area where contact with operating personnel is frequent.

For additional information on static electricity, send for the pamphlet, Electrostatic Protection in the Computer Equipment Environment, Honeywell Order Number VB95 (see Paragraph 1.1).

3.1.2.4 MAINTENANCE

CAUTION

NEVER ALLOW STEEL WOOL POLISHING PADS TO BE USED IN THE COMPUTER ROOM.

Place tack rugs at all entrances to catch dust, grit and abrasives brought in from other areas. Daily removal of loose traffic dust can help minimize the risk of damage to the computer equipment.

Water must not be used freely for cleaning because of the possible electrical shock hazard involved. On raised floor, water can seep between the floor panels and damage the cables below. For tile floors, a well-wrung mop or a vacuum cleaner may be used, but the preferred method is to use clean dust absorbing cloths which are often available on a rent-exchange basis. The method removes dust without stirring it up. On carpet, use a tightly sealed vacuum cleaner with a good filter.

With raised floors, be sure that lint from scrub brushes and airborne particles or corrosive cleaning agents do not seep between the panels where they can be drawn into the equipment by their internal circulation fans. Periodic cleaning of the subfloor area is recommended to prevent dust and debris from accumulating.

3.2 WALL AND CEILING REQUIREMENTS

3.2.1 WALLS

Perimeter walls must be installed between the subfloor and the permanent ceiling. Partitions within the computer area complex should be installed between the raised floor and the ceiling. Partitions lower than ceiling height should be avoided to minimize dust and noise in the area. If partitions are installed between adjacent raised floor areas, they should clear the subfloor by at least 140mm (5.5 inches) along their base, except at post locations, or they should rest on the raised floor. This allows clearance for interconnecting cables and for power conduits.

Consider the use of movable steel partitions which are usually 80% reusable and can be provided with a one hour fire rating, a broad range of prefinished colors and surface materials and with effective acoustical treatment.

All computer room doors should open outward and be fire resistant. The outer walls should be fireproof.

3.2.2 CEILINGS

The USA standard 8 ft (2.5m in some countries) ceiling as measured from the top of the raised floor is satisfactory for the Honeywell computer systems described in this manual.

Any commercial grade of fire resistant ceiling tile is usually adequate. Your architect or consultant can recommend ceiling materials which require minimal maintenance and may help reduce the cost of heating, lighting and air conditioning.

Acoustic treatment of the ceiling is advisable. Sprayed on acoustical ceilings and mineral based fissured, dropped ceiling tiles should be avoided because they flake. Dropped or suspended ceilings generally have the best combination of noise absorption characteristics, appearance and low maintenance. A perforated metal pan ceiling with a sound absorption backing pad or matte-faced fiberglass is desirable.

3.2.3 FINISHES

The finish of the walls and ceilings should be free from flakes, chips and chalking materials. Do not install glassfiber tiles that might produce abrasive particles. Avoid using any paint that powders or flakes.

3.2.4 SOUNDPROOFING

A computer area has a higher noise level than a clerical office containing light office equipment. To keep the noise in the computer area and nearby areas to an acceptable level, pay particular attention to the use of sound absorbing materials and to the arrangement of barriers that will deflect sound. To isolate the area acoustically, the perimeter walls should be heavy and as free from cracks and openings as possible. Open doors, for example, destroy acoustic isolation.

Partitioning is usually sufficient to reduce the sound level in adjacent offices to an acceptable range of 50 to 55 decibels. Quiet study or conference rooms should not be located near the computer equipment.

It is normal practice to provide an acoustical ceiling suspended below the structural ceiling. See CEILINGS in this section for details.

In some installations, acoustic treatment of the walls may be also required. Take care that the materials chosen are durable. Heavy curtains (over walls or windows) are acoustically effective but require removal for cleaning. For window areas where light is desired, tilted venetian blinds may substitute for closed curtains. The vanes of the blinds reduce the direct reflection of sound.

Untreated surfaces that are broken by columns, decoration or irregular room shapes disperse sound better than flat surfaces.

Structure borne vibration that causes noise in areas adjacent to or below the computer area is usually negligible unless the floor is in very poor condition. Raised floors should have extra support jacks at strategic places to prevent transmission of vibration along the surface.

In some installations, where the air conditioning fan is close to the computer area, some special treatment may be required to reduce its contribution to the area noise level.

Your architect or consultant can suggest some of the more popular soundproofing materials for your consideration. Check with your contractor about the reactive noise reduction coefficients of available materials. Materials are preferred which have significant absorption properties at the lower frequencies (125-250 Hz bands) as well as at the higher frequencies.

When special problems exist and the installation of acoustic material requires special techniques, consult a specialist.

3.3 LIGHTING

An intensity of approximately 861-1076 lux (80-100 footcandles) at desk level is ordinarily adequate for the computer area. Fluorescent lighting is preferred because it generates little heat and illuminates the work area evenly. Personnel operate switches, read indicators, read video displays, etc., therefore, the room must be free of glare. This should be considered in the design and position of the lighting fixtures. Flush or recessed fixtures are suggested since they are attractive and are less likely to collect dust than hanging fixtures.

Direct sunlight should be avoided because a lower level of illumination is needed to observe the indicator lights on the equipment. Also, light sensitive sensors are used in certain Honeywell computer equipment and the sunlight can cause false reactions. Windows which receive sunlight should be fitted with venetian blinds, glazed with tinted glass or treated with other material to protect against sunlight.

Even when not required by code for certain areas, some type of emergency lighting should be provided. Emergency lighting can be of the ordinary battery operated type, that turns on automatically when power to the main lighting system is interrupted. These units are wired to and controlled by the lighting circuit and are activated by a relay or a light sensor.

3.4 FIRE PROTECTION

Permanent fire protection equipment should be installed during the construction phase of your site preparation. Information is given in Section 6 concerning fire detection and fire extinguishing equipment.

3.5 EQUIPMENT COLORS

Customer selected Standard or Optional accent color is applied within the system to specific units preselected by Honeywell to enhance the appearance of the operating environment. Optional colors are available on an RPQ (Request Price Quote) additional cost basis.

Color chips are available for use by the customer or subcontractors for color matching computer room accessory equipment and decor. They may be ordered from:

Honeywell Information Systems Inc.
Finish Control Center
200 Smith Street
Waltham, MA 02154
U.S.A.

(Telephone 617-895-6098)

Order by color name and chip number as given below:

TABLE 3-1. SYSTEM COLORS AND CHIP NUMBERS

	<u>SYSTEM COLOR</u>	<u>CHIP NUMBER</u>
STANDARD	Gothic Black	58000100-003
Color Scheme	Executive White	58000100-703
Accent P-1	Caribbean Blue	58000100-001
STANDARD	Gothic Black	58000100-003
Color Scheme	Executive White	58000100-703
Accent P-2	Hunter Red	58000100-004
OPTIONAL	Gothic Black	58000100-003
Color Scheme	Executive White	58000100-703
Accent P-3	Aztec Yellow	58000100-005
OPTIONAL	Gothic Black	58000100-003
Color Scheme	Executive White	58000100-703
Accent P-4	Maritime Green	58000100-006
OPTIONAL	Gothic Black	58000100-003
Color Scheme	Executive White	58000100-703
Accent P-5	Rebel Red	58000100-265

3.6 MEDIA STORAGE AREA

Media must be stored conveniently and under proper environmental conditions. Depending on the size of your computer installation, space must be allotted for the storage of tab cards, printer paper, magnetic tapes, disk packs, printer ribbons and other supplies. Savings in operator time over the life of the system can justify dedication of sufficient storage space convenient to the point of use.

Consider fireproof storage for critical magnetic tapes and disk packs. The amount of space to be allotted for disk pack storage depends upon the total number of disk packs required by the system and the possible division of these disk packs into two or more storage areas. Users normally desire a disk storage area within the processing center for the current disk packs. You may want to duplicate current disk packs as a safety factor in case of fire or loss of information through operator or machine errors. If duplicate disk packs are used, provide a second disk pack storage facility in a remote area.

The disk packs can be stored in any of several size cabinets (housing 8 to 12 disk packs per cabinet). The recommended storage positions for disk packs is flat in a horizontal position.

All media storage areas must be temperature and humidity controlled within the same limits as for the computer system.

3.7 MOTOR GENERATOR ROOM

If you have or are planning for a motor generator for your site, it is recommended that it be located in an adjacent room. There should be approximately .9m (3 ft) clearance on all sides of the MG. (Refer to the Installation Planning Drawings for the MGs in Section 7.) The room must have clean ventilating air within the limits of -18°C to 40°C (0°F to 104°F) and relative humidity of 5% to 95%, with sufficient air circulation to dissipate the heat.

3.8 MAINTENANCE AREA

An area must be provided for maintenance work and for the storage of spare parts and maintenance equipment. It should be an enclosed area capable of being secured from unauthorized access and should be adjacent to the computer room at the same floor level. If necessary, a ramp suitable for movement of test equipment must be provided. For a single system, the area must be at least 18.6m^2 (200ft^2), or for a dual system, the area must be 23.2m^2 (250ft^2).

The following facilities should be provided in the maintenance area to facilitate efficient maintenance of your system:

- o A workbench with a wooden top.
- o A standard office desk.
- o A four drawer filing cabinet.
- o A desk chair and a steel posture stool.
- o Two duplex convenience outlets, (120V, 20A for 60 Hz) or (220V, 16A for 50 Hz).
- o A telephone
- o Standard office level lighting.

3.9 RELATED WORK AREA

You should allot space in your site layout for carts, tables and storage racks for use by your operators and programmers. It is recommended that decollating equipment and tab punch operations be located in a different room from your computer, as should any pickup/drop off area for the computer jobs, printouts, etc.

SECTION 4 SITE POWER REQUIREMENTS

4.1 AC POWER REQUIREMENTS

You must furnish and install utility power for the computer site in accordance with the system power schematic, Figure 4-1. It is also your responsibility to furnish and install the electrical equipment for the installation, including fittings, circuit breaker load center(s), the raised floor cutouts, transformer(s), voltage regulator(s) and, if utilized, motor generator(s) or uninterruptible power system. Future site expansion should always be considered. Provision for extra power facilities can save added installation costs later.

Problems associated with computer operations can originate in the utility ac power system. Disturbances such as electrical noise, power interruptions and lightning must be factored into the plans for the power systems since power fluctuations or interruptions can substantially affect computer system performance. Close coordination with the electrical utility representative can help correct potential problems originating in the utility system supplying power to the building. Many of the services and disturbances that can seriously affect an operation are generated within the building itself. Your plant engineer and the electrical utility engineer must identify these disturbances and take steps to prevent possible adverse effects on the operation of the computer system.

The power source for the computer system should be completely isolated from the other power systems in the facility. This will help reduce the electrical interference caused by motors, fluorescent lights and on/off electrical loads found on most utility systems.

This isolation can be provided by an isolation transformer or motor generator or uninterruptible power supply. Under most circumstances the transformer along with the Capacitor Ride-thru option will provide adequate power to last through short interruptions in the power source. However, if any power loss is critical to your operation, you should consider the installation of an uninterruptible power supply. Be sure to include extra capacity in the power source you choose to allow for future expansion of your site.

NOTE: OTHER BUILDING POWER LOADS SHOULD NOT BE SUPPLIED FROM YOUR COMPUTER SYSTEM POWER SOURCE.

4.1.1 AC POWER SPECIFICATIONS

The electrical power supplied to the information processing system must meet the following requirements:

- o 60 Hz or 50 Hz nominal for the central system. Allowable frequency variation \pm 0.5 Hz maximum.
- o 208V wye +10% or -15% 60 Hz or 220V wye +5% or -15% 50 Hz for the central system. Neutral is not used.
- o For the peripheral equipment the requirements are: five-wire, four wires plus ground, 208Y/120 volts \pm 10% for 60 Hz or 380Y/220 volts +10% or -15% for 50 Hz. Allowable frequency variation \pm 0.5 Hz maximum.
- o A total harmonic content of 6% or less of the fundamental frequency.
- o Three phase with a maximum phase variation of 6 degrees or less from the nominal 120 degrees relationship.

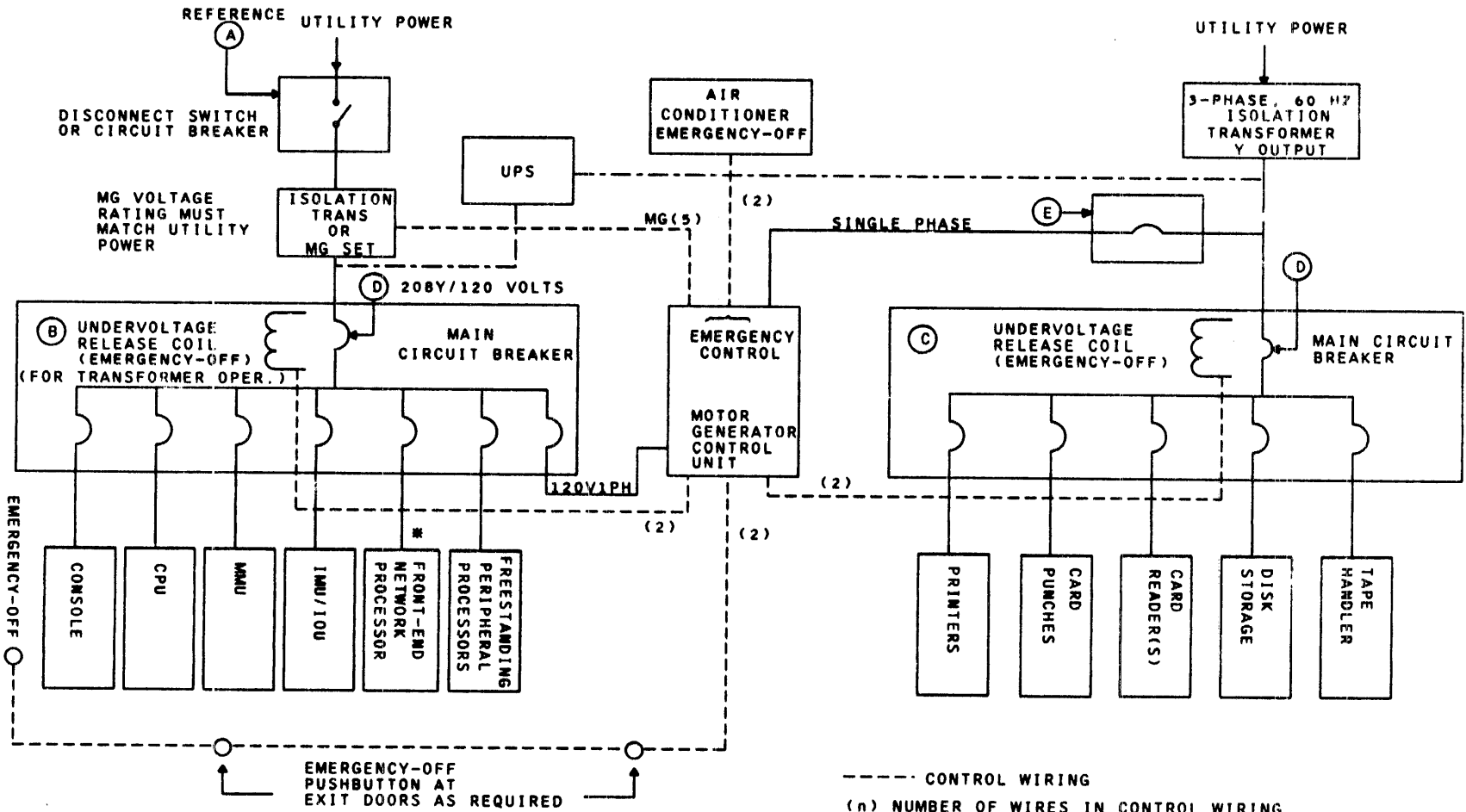
If your system availability criterion necessitates an uninterruptible power system (UPS), your Honeywell representative can assist in obtaining interface requirements.

4.2 AC POWER DISTRIBUTION

Figure 4-1 shows a typical power system diagram. It is the customer's responsibility to supply, install, and maintain the following materials. (See Section 7 for required circuit breaker capacities.)

- o The disconnect switch or circuit breaker for the input to the transformer or motor generator set (Reference A, on Figure 4-1).
- o The circuit breaker load center and circuit breakers for the central system (Reference B). The rating of the main breaker is determined by the total load.
- o The circuit breaker load center and circuit breakers for peripheral equipment (Reference C).
- o The main circuit breakers with a 24Vdc undervoltage release coil for the circuit breaker load centers. The rating of the circuit breaker is determined by the total load (Reference D).
- o A 15A single pole circuit breaker for MG control unit (Reference E) if an MG is utilized. The MG control unit is connected to both the motor generator output and the utility power as indicated.

FIGURE 4-1. POWER SYSTEM DIAGRAM



----- CONTROL WIRING
 (n) NUMBER OF WIRES IN CONTROL WIRING
 -.-.-.- ALTERNATE POWER SOURCE
 * FOR 50 HZ OPERATION, FNP WILL BE CONNECTED TO 220V

- o The wiring and conduit from the circuit breaker load centers to each central system unit and each peripheral unit, including connecting the input power to the disconnect switches on each unit. Order and install sufficient wire for a 0.6m (2 ft) stubout length for each unit.
- o The safety ground from the circuit breaker load center and each unit in the computer system to ground. This is the fifth wire indicated in Sections 2 and 7 and it must be green/yellow.
- o The control wiring from the MG control unit to the MG, circuit breaker load centers and emergency-off switches. See Emergency Power-Off Wiring in this section.
- o The ducts and/or cable trays for interconnecting logic cables if required by the electrical code or site layout.
- o Any transformer(s) that may be required to provide an isolated power circuit for the system independent of other building power.
- o The mounting for the circuit breaker load centers, isolating them from each other and from any contact with the building ground.

NOTES:

- o Aluminum wire is not acceptable for this application.
- o Certain peripherals are equipped with ac power cords (see Section 7).
- o The 15A circuit breaker must be connected to the utility as shown in Figure 4-1 (Reference E) to permit the air conditioner to start up automatically after a power outage. When power is lost, the main circuit breaker in the peripheral circuit breaker load center must be manually reset to restore power to the devices it supplies. If the MG control unit took power from the peripheral circuit breaker load center, the air conditioning is not restored until the main breakers are reset.
- o All runs in metal conduit must be isolated for their entire length from building ground. Insulated conduit material may be required to meet this specification. Plastic bushings are required to electrically isolate conduit from the computer units (see Figure 7-3 in Section 7).

It is also the customer's responsibility to install the following Honeywell-supplied items:

- o The motor generator set and MG control unit.
- o The ground braid from utility, UPS or MG to MMU location.

4.3 MOTOR GENERATOR SPECIFICATIONS

If you require a motor generator (MG) set, it should normally be shipped to your site one month prior to the arrival of your system. The MG should be installed, wired and tested by your electrician or contractor before the installation of the system.

The motor generator set must be selected in accordance with the utility power provided at the site and with the system load, taking into account line losses and future expansion. Refer to the Installation Planning Drawings in Section 7. In some cases, it may be necessary to change the motor wiring to match the utility voltage available at the site. Instructions for doing this will usually be found on the motor frame and/or in the instruction manual shipped with the MG set. The MG usually comes factory wired for 440-480 volts, but may be reconnected on site to accommodate 208-240V.

Line losses must be considered if the load approaches the rating of the generator and the generator is remotely located.

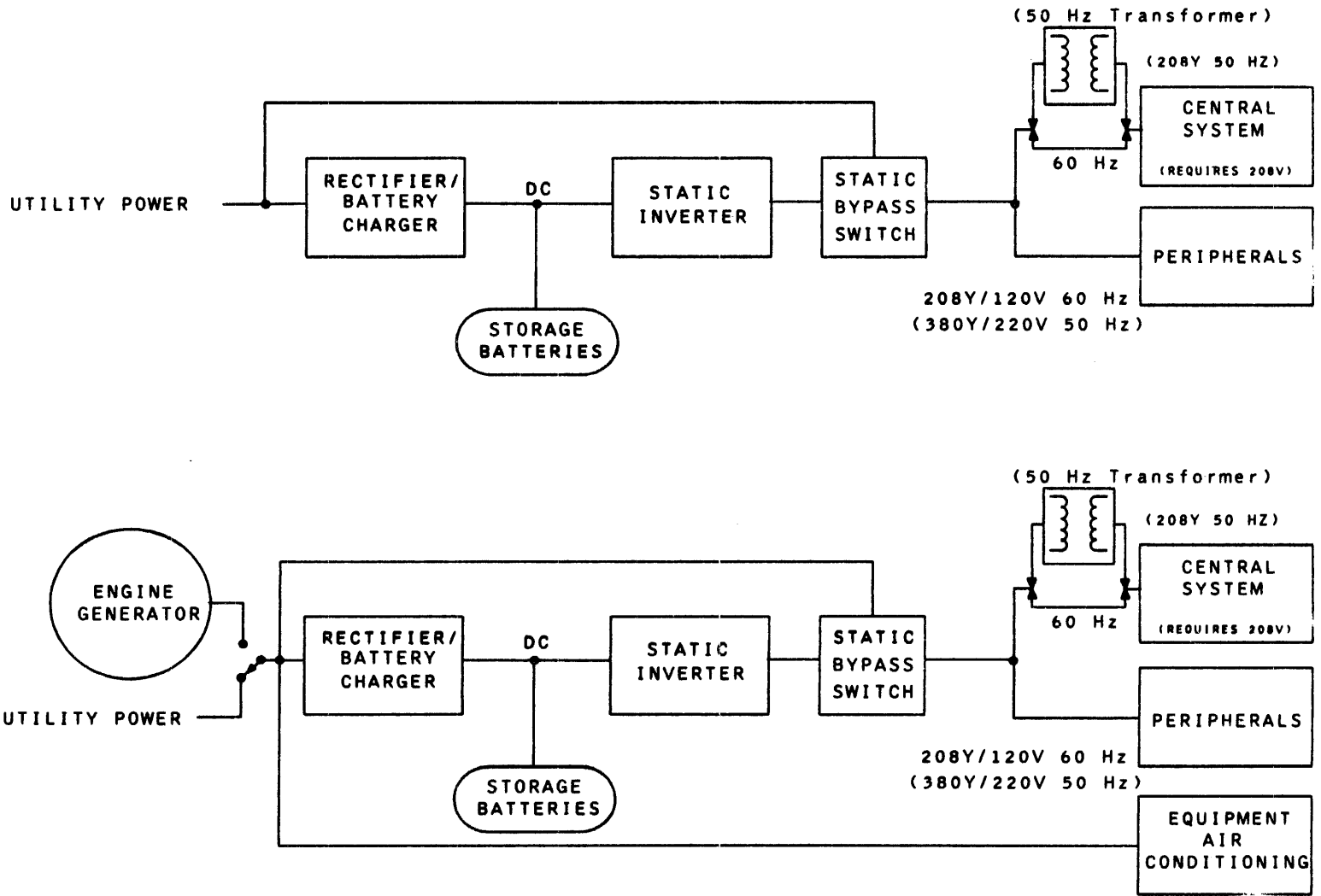
4.4 UNINTERRUPTIBLE POWER SYSTEM

If your system availability criterion necessitates an uninterruptible power system, your Honeywell representative can assist in obtaining interface requirements. Figure 4-2 illustrates two UPS designs. With only storage batteries as backup, the length of time the system could continue to operate would be limited. From a practical viewpoint, it is suggested that 15 minutes of battery holdup time be provided. With engine generator backup, and with room air conditioning supported by the UPS, the system will continue to operate regardless of the length of time utility power is interrupted. Honeywell Engineering can evaluate UPS design for your operation upon submission of complete specification of the UPS and its loads, via Request for Price Quote (RPQ).

4.5 50/60 HZ OPERATION

The central system units have jumper connections to select 50 or 60 Hz operation at the time of installation. Peripheral processors and devices must be ordered for 50 Hz or 60 Hz operation by model number. Honeywell does not supply a 50 Hz motor generator.

FIGURE 4-2. TYPICAL UNINTERRUPTIBLE POWER SUPPLY SYSTEMS



4.6 AC POWER REQUIREMENTS BY UNIT

Section 7 of this manual includes an installation planning drawing for each unit in your system. These include typical values for:

- o Amps per phase
- o kVA
- o kW

These values are for general information only to estimate the power load. They may differ slightly in each unit due to manufacturing tolerances. They have not been derated for duty cycle. Size and duration of the starting current is shown where it is significant. To meet NFPA 70 electrical code, the primary distribution has been sized by nameplate rating and the typical current as shown in Section 7.

The values shown for circuit breakers and wire size meets current NFPA 70 code. Follow your local code if larger sizes are required. The quantity of wires shown includes the required green/yellow wire (safety ground conductor).

4.7 PHASE LOAD BALANCING

In a three-phase, wye-connected system with grounded neutral, phase imbalance currents flow in the neutral wire. Attention must be given to balancing loads on the power distribution transformer, UPS, or MG set in order to maintain proper line to neutral voltages.

Values given in Section 7 for amperes per phase are not adequate for phase balancing. Manufacturing and operating variables exceed the required tolerance for good phase balance. Therefore, it is necessary to measure exact current per phase on each unit and calculate an optimum balance by exchanging values. The units should then be reconnected and the total current per phase measured. This must be done separately if the central system and the peripherals are on separate power sources. Keep in mind that some peripheral equipment have phase sensitive motors. This must be taken into account when trying to switch loads to balance the utility power.

4.8 AC CONVENIENCE OUTLETS

All convenience outlets in the computer room must be on a feeder separate from the computer system to help reduce electrical noise interference. Sufficient outlets must be provided so no unit of the system is more than 4.6m (15 ft) from an outlet. Convenience outlets capacity should be 15A for 60 Hz or 16A for 50 HZ. A three-wire system, including ground, must be used.

4.9 SAFETY EMERGENCY POWER-OFF WIRING

The National Electrical Code, NFPA 75 and the electrical code in many cities require a switch at each exit of the room to cycle off all power to the system and to the air conditioning in an emergency situation.

The customer should supply appropriate emergency-off switches for the exit doors. The switch should be activated by a push-to-open/pull-to-close mechanism, be UL listed (CSA certified for applications in Canada), and have normally-closed contacts rated at 5A, 125v. Refer to Figure 4-3. An emergency-off switch is supplied with the system control pod at the system console, and it may be connected at the discretion of the customer. The control wiring for these switches is supplied and installed by the customer. No. 14AWG (1.6mm) wire can be used. The connection is to the undervoltage release coil on the main circuit breaker for transformer or UPS operation (refer to Figure 4-1), or to the MG Control Unit for MG operation (refer to Figure 4-4).

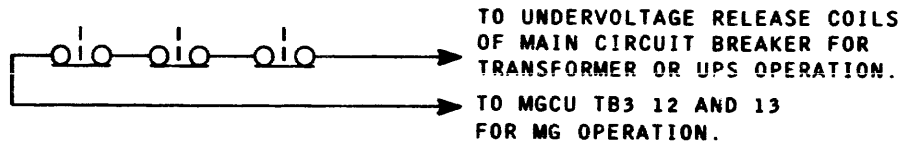


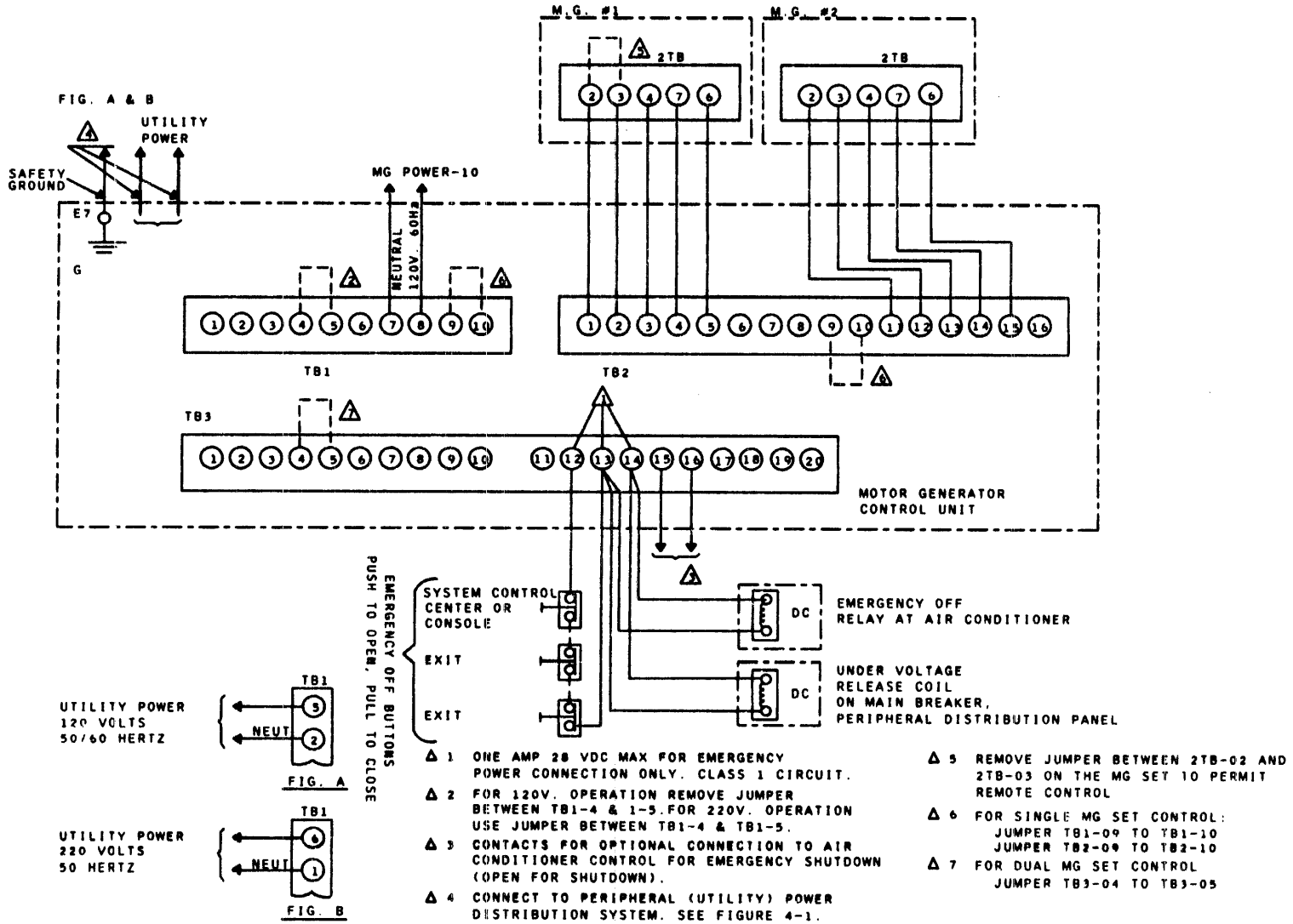
FIGURE 4-3. SAFETY EMERGENCY POWER-OFF SWITCHES WIRING

Operation of an emergency-off switch at the console or other location causes the emergency control to:

- o Trip the main circuit breaker in the circuit breaker load center(s) through the 24Vdc undervoltage release coil.
- o Turn off the air conditioning and UPS, if connected for emergency shutdown.
- o Turn off the motor generator set(s).

In the U.S.A., the National Electrical Code (NEC) NFPA 70 classifies the emergency-off circuit wiring connecting the MG control unit to the emergency-off switches and to the devices disconnecting main service power to the computer room (and to the air conditioning system) serving the computer room as class 1 remote-control circuits to safety-control devices. The wiring method for class 1 systems must comply with Article 725 of the (NEC) NFPA 70, or with local code requirements for remote control safety circuits where such local code differs. In Canada, refer to the Canadian Electrical Code, Part 1, Section 16, Class 1, Circuits.

FIGURE 4-4. MOTOR GENERATOR CONTROL UNIT CONNECTIONS



4.10 MOTOR GENERATOR CONTROL UNIT WIRING CONTROL CONNECTIONS

The control connection for all functions of MG control and emergency control are shown in Figure 4-4. See the Installation Planning Drawings of the Motor Generator Control Unit in Section 7 for the MG to MG Control Unit wire size versus length. Both ends of the control wiring must be permanently tagged to identify the connections to be made.

4.11 GROUNDING SYSTEM

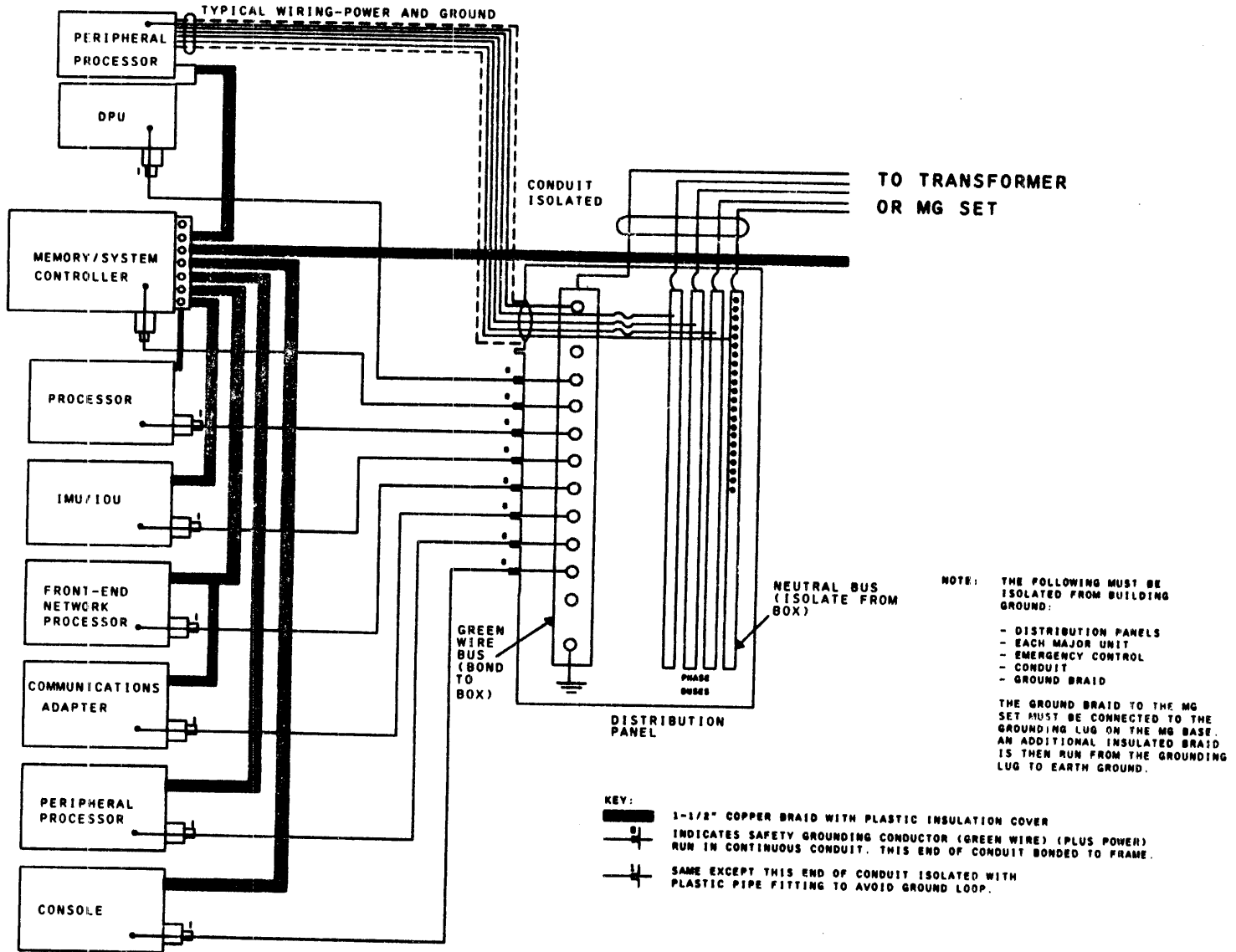
Successful operation of a large scale computer system can be dependent upon proper grounding. Refer to Figure 4-5. If proper grounding techniques are overlooked, ignored or misunderstood, system performance may be degraded. This may result in costly troubleshooting and maintenance, with the possibility of the system not being operational when needed.

The most important reasons for grounding electronic equipment are:

- o To provide a low impedance, fault return path to protect the personnel and the equipment in the event of an ac power fault to ground. The objectives are to keep the voltage potential between the equipment and adjacent structures low enough for personnel safety and to cause the power system protective devices to open before the equipment is damaged by a power fault.
- o To provide a low impedance path to earth for lightning current with sufficient shunting effect to keep the potential at the equipment frame within safe limits.
- o To provide a common equipotential plane for the overall computer system installation. The objective here is to keep all of the equipment at the same potential by shorting out equipment potential differences caused by electrical fields of many frequencies.
- o To provide a low impedance path to earth for static electricity which might otherwise build up enough potential to spark, causing electrical noise or system malfunction.

It must be understood that while all ground circuits are eventually connected to earth ground, ground conductors should not be used indiscriminately for the various ground functions. Signal grounds must be isolated from other grounds (conduit, circuit breaker load center(s), raised floor supports, etc.) to help prevent interaction between signal path and electrical noise voltages.

FIGURE 4-5. SYSTEM GROUND DIAGRAM



4.11.1 EARTH CONNECTION

The most important part of any grounding system is the actual connection to earth. The low resistance path from the system ground point to earth ground is dependent upon the adequacy of this connection and the design objective should be to reduce this resistance to as near zero as possible. A maximum of 25 ohms is allowed as measured with a ground megger to meet the National Electrical Code.

Earth grounds are usually of two types:

- o Connections to underground metal water piping systems, metal frame structures of buildings or other metal structures that are in good contact with the earth. In many large structures, the building or architectural ground is most often used since it is the most readily available point of connection.
- o Connections to ground rods or plates which have been placed in the earth for the specific purpose of providing an adequate ground connection.

When considering water piping as ground, precautions must be taken to ensure that the metal piping does not connect with plastic piping just outside of the building.

A resistance path to earth of less than 25 ohms can be obtained by using multiple ground rod electrodes. In some instances, it may be necessary to use this method to provide an acceptable ground.

Regardless of the type of ground conductor used, many conditions affecting the ground must be considered in attempting to make an adequate ground connection. The effectiveness of the ground electrode is determined by:

- o The characteristics of the electrode.
- o The resistivity of the soil around the electrode.

Some of these factors are subject to change over a period of time. This must be considered in evaluating the effectiveness of the ground connection (for example, the soil condition will likely change with the seasons).

Underground piping used for grounding must have the following characteristics:

- o At least 3m (10 ft) of metallic length underground.
- o Continuous and not corroded.
- o It must not be coated or wrapped with insulating material.
- o Deep burial to reduce the effects of seasonal soil changes.

Where grounding to water piping systems is not practical or not permitted by local code, rod type electrodes driven into the ground can be used. These are less expensive than other types of grounds such as buried plates or grids, but because they are usually shallow, they may be susceptible to changes in soil resistivity caused by climatic changes.

In most cases, two or more rods in parallel can be used to decrease ground resistance. However, primary consideration must be given to the spacing of the rods. Rods spaced closer than 1.8m (6 ft) will appear as a single rod with almost no reduction in ground resistance over that obtained with a single rod. Because of this characteristic, the ground rods should be spaced at least 6.1m (20 ft) apart.

Ground inspections should be a normal part of your building maintenance routine. Ground connections should be checked on a periodic basis for tightness, damage and corrosion. Inspection should be performed at least every six months under ordinary circumstances, but in the event of unusual weather conditions or events, more frequent inspection is recommended.

4.11.2 SAFETY GROUND WIRE

- o Every equipment power run must have a separate, continuous insulated wire for use as a (safety) grounding conductor. (This is sometimes referred to as the green wire ground and it may be green/yellow.) It is run inside the conduit or power cord with the current carrying conductors (including the ac neutral). The frame ground (green/yellow) wire must be securely fastened to the frame ground bus (or a terminal provided in the equipment), then to the circuit breaker load center frame (or ground bus). The circuit breaker load center must then be connected to earth ground as shown in Figure 4-5 and in detail on Figures 7-1 and 7-2. This wire must not connect to any grounded current carrying conductor, i.e., ac neutral or power return.
- o The single-point ground system must always be used with all green/yellow wire grounding conductors tied together at the circuit breaker load center. The circuit breaker load center should have a copper ground bus to which all equipment grounding conductors can be attached. The grounding conductors for the central system(s) and grounding conductors for the peripherals must not be tied together at the circuit breaker load center.
- o The motor generator (or UPS) neutral must be connected to the building service ground. The connection to this neutral must be made to the grounding bolt provided on the frame beneath the generator.
- o In all equipment, the safety grounding (green/yellow wire) conductor is connected directly to the safety ground lug inside the unit ac junction box. DO NOT connect it to the ac neutral bus or to the system ground lug (braid connection).

- o Conduits are not acceptable as grounding conductors for units in a computer system. For safety reasons all conduit runs should be bonded at the primary power end. All paint, coatings or similar insulating materials must be removed from boxes, panels, etc., before the conduit is attached.

4.11.3 CENTRAL SYSTEM SIGNAL GROUND

In spite of the grounding practices described previously, the dc interface between the central system equipment makes ground loops (current loops) inherent in the central system. To help reduce the inductance of these loops, with the high frequencies involved, low impedance conductors of tinned copper braid are used to establish a system ground network. This ground network provides the low impedance connection required to keep the reference ground of all equipment in the central system at a common potential. See Figure 4-5.

Each central system cabinet has a low impedance conductor of 40mm (1-1/2 inch) tinned copper braid connected at the cabinet ground bracket. The other end of this conductor is terminated at the System Control Unit (SCU) cabinet ground bracket.

From the SCU cabinet, an insulated braid, provided by Honeywell as part of the system installation service, is connected to the ground stud of the system power transformer or MG base or UPS. From there, an insulated ground wire, provided by the customer, is connected to the earth ground. Due to the probability of a remote location of the motor generator set and the required routing of the braid through wall or floor openings, the customer should install the ground braid from the MG to the SCU cabinet location. The material will be provided in advance of system delivery.

4.11.4 FLOOR SUPPORT GROUNDING

When the raised floor is supported by a metal frame, this entire framework must be maintained as close to building ground as possible. Follow NFPA 70, NFPA 75 and local codes for grounding of the framework.

SECTION 5 SITE ENVIRONMENT REQUIREMENTS

5.1 COOLING SYSTEM REQUIREMENTS

Just as any other equipment consuming electrical energy, computer equipment produces heat. Therefore, as a result, air conditioning and system cooling become important considerations in the site planning. The equipment and media can only tolerate environmental conditions within certain limits. Temperature regulation, humidity control and air filtration are all essential to proper system operation.

Use the following parameters as a guide in the design and installation of your computer room air conditioning:

- o For optimum performance, a design point of 73°F (23°C) and 50% relative humidity is recommended; however, the operating environment can vary between 68 to 78°F (20 to 26°C) and a relative humidity of 40 to 60%. When the design point has been selected, the temperature and humidity in the room, as measured at the breathing line of 1.6m (5 ft 4 in.) from the floor and at various places in the room, should not fluctuate from the design point by more than $\pm 2^{\circ}\text{F}$ (1°C) and $\pm 5\%$ relative humidity, either during operation or when the computer is completely shut down.

The store room for cassettes, diskettes, disks, tapes, paper media, and any other necessary supplies should have the same design point as the computer room. This is to avoid conditioning time when these media are brought into the computer room. This requirement should be considered when designing your air conditioning system.

- o The equipment requires a clean atmosphere. Corrosive and dusty atmospheres, such as those present in steel mills and chemical plants, are not considered normal. The room should be under positive air pressure with filtered input air. The humidifier, when required, can be located in the supply air stream if care is taken to ensure against condensation on the equipment.
- o In addition to providing the air conditioning and humidity control for the computer, the air conditioning system should provide a comfortable working environment for personnel. Therefore, most facilities are designed for 73°F (23°C) and 50% relative humidity, which is the recommended design point for computer operations.

5.2 COOLING SYSTEM CAPACITY

The heat loads, in kcal(kBTU) per hour, for each unit of the computer system are shown in Section 7 of this manual. The heat load ratings are derived from the operating kilowatt rating of the unit. Derating for an intermittent duty cycle is not recommended.

Be sure that the calculations for system capacity give adequate consideration for the following:

- o Growth in the computer system.
- o Other heat producing equipment in the room.
- o Personnel in the room.
- o Outdoor air for ventilation.
- o Roof, wall and window heat loads.
- o Lighting load.
- o Humidity control.

It is suggested that the room walls be adequately sealed to reduce operating costs and eliminate moisture problems.

5.3 AIR FLOW REQUIREMENTS

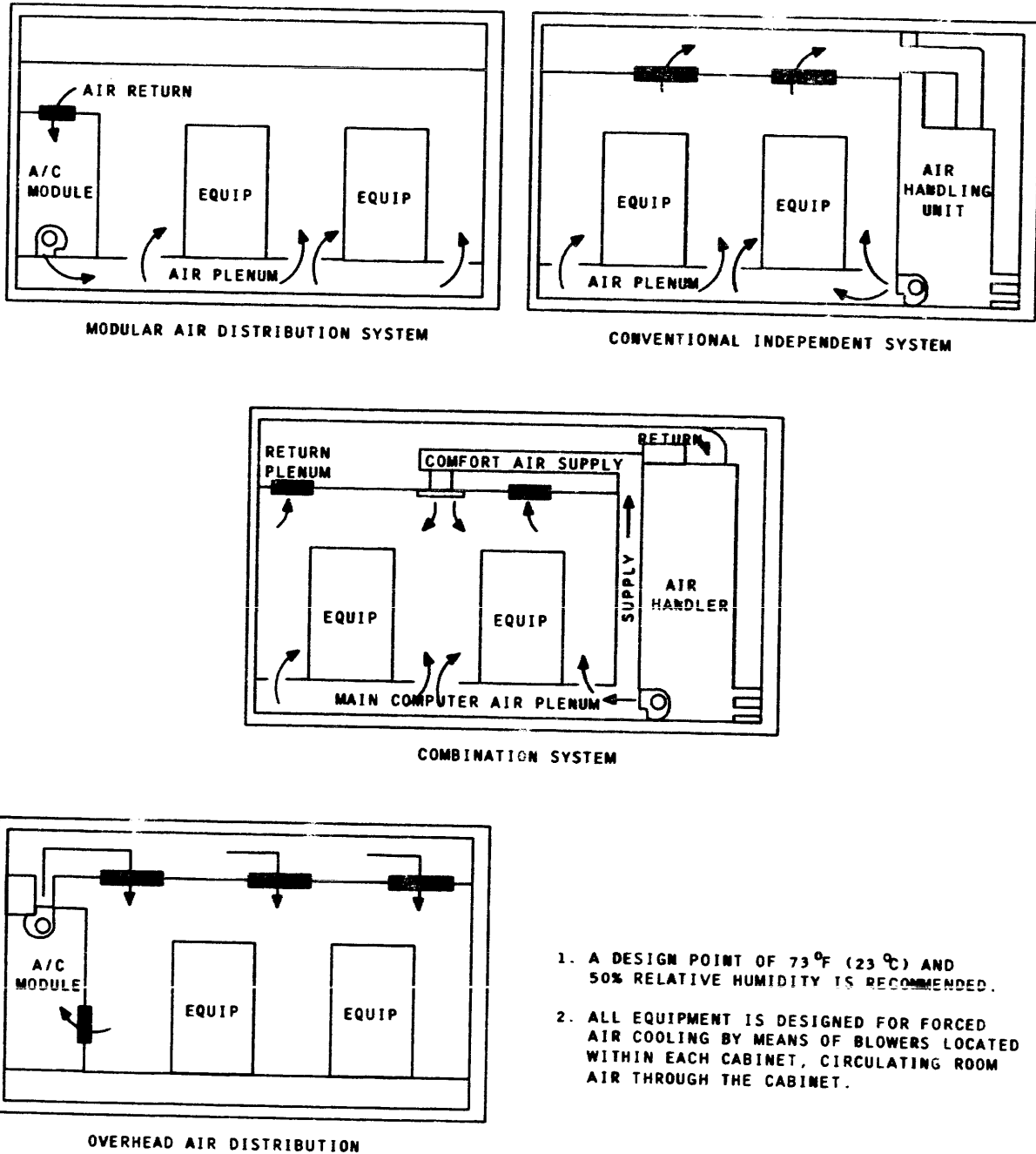
All equipment is designed for forced air cooling by means of blowers located within each cabinet utilizing the room air.

Air distribution in the computer room may be through overhead ductwork or plenum or underfloor ducts or plenum. Refer to Figure 5-1. Careful consideration must be given to placement, design of air outlet grilles and air returns to provide proper air flow within the room. The air flow should be restricted to the computer room only. Air flow from the air conditioning system must not interfere with air flow in the equipment.

NOTE: Some local codes may require underfloor cables and hoses to be installed in sealed ducts if underfloor area is used as a plenum.

In the underfloor air distribution system, conditioned air is supplied to an underfloor ductwork or plenum. Distribution to the room is through adjustable grilles located so that cold air mixes with room air before being taken into the computer cabinets by internal blowers. Grilles should permit a high volume, low velocity pattern and must be equipped with adjustable dampers.

In the overhead air distribution system, incoming air should enter the room through diffusers which will spread the air throughout the room. Diffusers must be of the adjustable air pattern type and must be balanced to provide a distribution of air which will eliminate hot spots. Diffusers must not be located above perforated ceiling sections due to the difficulty of balancing air flow through these materials to eliminate hot spots.



1. A DESIGN POINT OF 73°F (23°C) AND 50% RELATIVE HUMIDITY IS RECOMMENDED.
2. ALL EQUIPMENT IS DESIGNED FOR FORCED AIR COOLING BY MEANS OF BLOWERS LOCATED WITHIN EACH CABINET, CIRCULATING ROOM AIR THROUGH THE CABINET.

FIGURE 5-1. TYPICAL COMPUTER AIR CONDITIONING EXAMPLES

5.4 TEMPERATURE AND HUMIDITY MONITORING

Continuous monitoring of installation temperature and humidity conditions is recommended. This can best be accomplished through the use of recording instruments that provide a continuous visual record of the conditions in the computer room. As a result, if the air conditioning requirements are not met, a visual record is available to indicate the extent and duration of the undesirable condition. A quick check of the record indicates whether a drying-out period is required and if so, the duration. In some cases, the temperature and humidity recording instruments may save computer downtime.

Direct reading instruments with seven-day charts should be used to monitor temperature and humidity conditions. These instruments should be placed so as to satisfy the following conditions:

- o At the breathing line, 1.6m (5 ft 4 in.) above the floor.
- o Not in line with the air stream from the distribution grilles.
- o Not in line with the air discharge from the computer equipment.

The recorder should satisfy the following criteria:

- o Range - The relative humidity range should be 0-100%. The temperature should be 0° to 100°F (-18° to 38°C).
- o Accuracy - Relative humidity reading should be accurate to within plus or minus 2% of the total span. The temperature reading should be accurate to within plus or minus 1% of the total span.
- o Period per revolution - seven days.
- o Drive - Mechanical (spring wound), or electrical.
- o Mounting - Portable or permanently mounted.

5.5 TEMPERATURE CONTROLS AND ALARMS

Even a short period of overheating during system operation may cause system malfunction. Problems may also be experienced if the temperature of the air entering the units drops below the recommended limits.

A well-designed control system is essential to eliminate these causes of lost system operating time. Controls should be tamperproof and located as appropriate for temperature measurement. A method of capacity modulation control is suggested to meet the temperature and relative humidity variation permitted.

Alarms should be provided to alert the system operator when the environment approaches the operating limits. If the equipment is left unattended, or if no alarms are provided, automatic controls are required which will shut the system down when temperature or humidity exceeds specifications.

5.6 AIR CLEANING

Minimizing airborne dust improves the efficiency of the air conditioning system, reduces the frequency of cleaning the equipment and media, and improves the computer system reliability. Mechanical air filters will suffice unless the installation is subject to salt air, corrosive gases, metallic dust particles, or other unusual conditions. The air filters should have an efficiency rating of not less than 20% by the National Bureau of Standards discoloration test. The filters must meet UL and fire code standards (refer to NFPA 90A publication).

Electronic air cleaners are highly recommended where clean air is a major concern. They require special application engineering to avoid electromagnetic interference with the computer system. Honeywell offers a complete line of electronic air cleaners which can be installed by your air conditioning contractor. For direct information and assistance in sales or service, contact:

Honeywell Inc.
Electronic Air Cleaners G2122
P.O. Box 524
Minneapolis, Minnesota 55440
U.S.A.

5.7 BALANCING

After the system is installed and operating, the air supply dampers must be adjusted to balance the temperature throughout the room. Care must be taken to locate and eliminate hot spots. It is suggested that an independent firm specializing in air balancing be retained by the customer to balance the room and provide certified test results.

In large facilities containing more than two systems, different design point temperatures may exist at remote areas of the room. This should cause no problem as long as, at any one measurement point, the temperature does not change more than previously described as being allowable.

5.8 DUST CONTROL, MAINTENANCE

Control of dirt and dust is important for satisfactory system operation. To avoid raising dust that will clog the air conditioning system and computer filters, a tightly sealed vacuum cleaner with a good filter is recommended for cleaning the computer room. Floors can be cleaned with a moistened mop.

Also, a regular schedule of filter maintenance in the air conditioning system must be established. Periodic cleaning of the sub-floor area is recommended to prevent accumulation of dirt and debris. Impregnated mats at each entrance reduce dust brought in from other areas on the soles of shoes.

SECTION 6

SAFETY PRECAUTIONS

6.1 GENERAL PRECAUTIONS

The computer room and the tape/disk library should be monitored during nonoperating periods for fire and overtemperature conditions. Special precautions should be taken if the equipment is left with power on. The equipment should be protected against damage due to condensation, leakage or other discharges from any overhead piping.

6.2 PERSONNEL TRAINING

The site personnel must be thoroughly trained in the function of all fire detector equipment, the desired response to alarm conditions and the use of all available extinguishing equipment. This training should include both the capabilities and the limitations of each available type of extinguisher.

Training should include, but not be limited to:

- o Emergency telephone numbers.
- o Emergency power shutdown procedures.
- o Location and use of available fire extinguishing equipment.
- o Special instructions on extinguishing a fire in data processing equipment.
- o Personnel evacuation procedures.

6.3 FIRE PROTECTION EQUIPMENT

Halon 1301 or Halon 1211 fire extinguisher types of suitable size and number should be provided in the computer room. These extinguishing agents are nonconductors of electricity and are for Class C fires (may be applied to energized electrical equipment). The extinguishers should be provided and maintained in accordance with NFPA No. 10 or in accordance with all applicable local codes. Carbon dioxide extinguishers should be used with caution around personnel because of the very low temperatures of the released agent.

While your selection of one or more of the extinguisher types will be used as the primary extinguishing agent, it is advisable to have a standpipe or hose unit within effective range of the system area as a secondary extinguishing agent for Class A hazards (paper or other solid combustible materials).

Local fire protection codes or fire insurance regulations may require the installation of automatic extinguishing systems. If this is a requirement, you may wish to consider one of the following systems:

- o Automatic HALON 1301 Total Flooding System - An automatic total flooding HALON 1301 system may be used to provide complete computer room protection. The system requires automatic early detection of fire and timed release of the 1301 extinguishing agent. The system must be engineered for the specific area to be protected in accordance with NFPA No. 12A, Halogenated Extinguishing Agent Systems - Halon 1301.
- o An Automatic Sprinkler System - If an automatic sprinkler system is to be utilized, it is to be installed in accordance with NFPA No. 13, Installation of Sprinkler Systems.

6.4 FIRE DETECTION AND ALARM SYSTEM

The Commercial Division of Honeywell Inc. can provide complete custom designed fire detection and alarm systems to meet requirements for computer room protection. The system may include ionization-smoke detection, heat detection, alarm annunciation, alarm signalling and interface to new or existing fire alarm equipment, as well as tie-in to fire extinguishing systems. For further information, if desired, please contact:

Honeywell Inc.
P.O. Box 524
Minneapolis, Minnesota 55440
U.S.A.

6.5 EMERGENCY LIGHTING

Some local codes require a special battery-operated lighting unit that will automatically illuminate an area in case of power or lighting circuit failure. These units are wired to and controlled by the lighting circuit. Even when not required by code, it is recommended that such lighting be installed.

6.6 LIGHTNING PROTECTION

To help ensure the safety of the equipment and personnel, the primary transformers should be protected by lightning arresters. It is highly desirable that similar protection be provided at the service entrance to the building. These arresters will reduce the possibilities that excessive voltage and currents due to lightning strikes will seek some indeterminate, low impedance path to ground, such as building metallic structures or equipment cabinets.

SECTION 7 INSTALLATION PLANNING

This section contains summary information and the individual installation planning drawings on each major unit in your system. The 50 Hz model numbers are enclosed in parentheses (Model Number) where applicable. Your Honeywell representative can provide updated sheets if the specifications change or for additional products as required for system expansion.

In some units, power requirements vary with the quantity and type of option modules. The specification sheets show the maximum value so that future expansion of the option content will not impact the facility design. Typical unit electrical values may differ slightly between units due to manufacturing tolerances. They have not been derated for duty cycle. Size and duration of starting current are shown only where significant. Primary distribution is sized by the nameplate rating to meet the NFPA 70 electrical code.

When units are installed with an underfloor cooling air supply, the open area between the cables must be sealed with a removable, noncombustible sealant, except for the MSU0500/0501.

7.1 SYSTEM ELECTRICAL REQUIREMENTS SUMMARY

7.1.1 GENERAL

- o The ac power is to be supplied by the customer based on the requirements listed in these specifications.
- o The electrical power source is to be independent and isolated from all other loads.
- o The customer is solely responsible for costs of installation and/or modification of all power and signal cables not supplied by Honeywell, including Honeywell-supplied cables which require building alterations to accomplish installation.

CAUTION

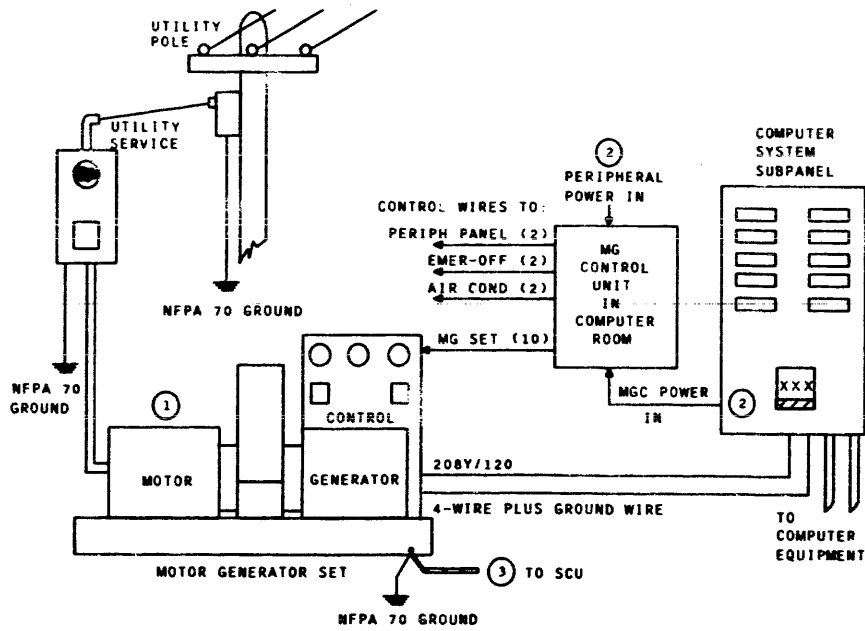
**ALL AC POWER WIRING CONNECTIONS MUST BE
SECURELY TIGHTENED.**

All wiring installations must be in accordance with the national electrical code and all other local codes and ordinances.

- o An allowance for future site expansion is recommended.
- o The system is designed for underfloor access of power and logic cables.

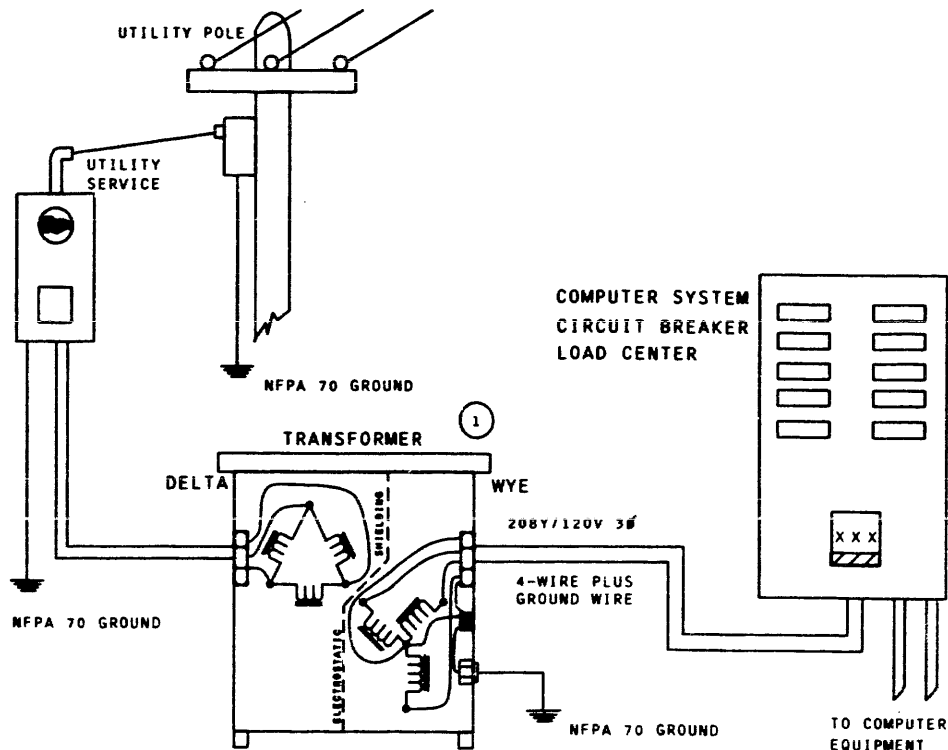
7.1.2 REQUIREMENTS

- o The customer shall supply and install all ac receptacles as required.
- o The electrical specifications are:
 - Voltage: 208Y/120 +10% or -15%, 3 phase, for 60 Hz or 50 Hz for the central system. For the balance of the system: 208Y/120 ± 10% for 60 Hz or 380Y/220 +10% or -15% for 50 Hz.
 - Frequency: 60 Hz ± 0.5 Hz, or 50 Hz ± 0.5 Hz.
 - Number of wires: 4 wires, Y connected, plus a fifth wire for equipment ground. The neutral return wire is not used on some equipment. (Aluminum wire is UNACCEPTABLE.)
 - Maximum load: _____ kVA. Determine total load from your site configuration.
 - Some Honeywell equipment contains ac power wiring conforming to the international color code. Table 7-6 compares these colors with the U.S.A. ac power wiring color code.
- o The system requires power isolation and may require voltage regulation, depending upon local conditions.
- o MSUs and MTUs are NOT to be connected to MG power (data written while MG frequency is decreasing before power shutdown often gives Read errors when power is returned to normal).
- o The equipment neutral wire must not be connected to the building ground except at the power source (transformer, or building service entrance).
- o Interconnecting cables between units shall be protected from mechanical damage.



- ① UTILITY POWER TO THE MG MAY BE 208V, 440V, OR 480V. EACH SSU REQUIRES A SEPARATE MG.
- ② CIRCUIT BREAKERS ARE REQUIRED FOR MGCU. SEE FIGURE 4-1.
- ③ GROUND BRAID IS SUPPLIED BY HONEYWELL.

FIGURE 7-1. ELECTRICAL CONNECTIONS (MOTOR GENERATOR)



- ① THIS TRANSFORMER PROVIDES ISOLATED POWER TO THE COMPUTER SYSTEM. NO OTHER LOADS ARE TO BE CONNECTED TO THIS TRANSFORMER.

FIGURE 7-2. ELECTRICAL CONNECTIONS (TRANSFORMER)

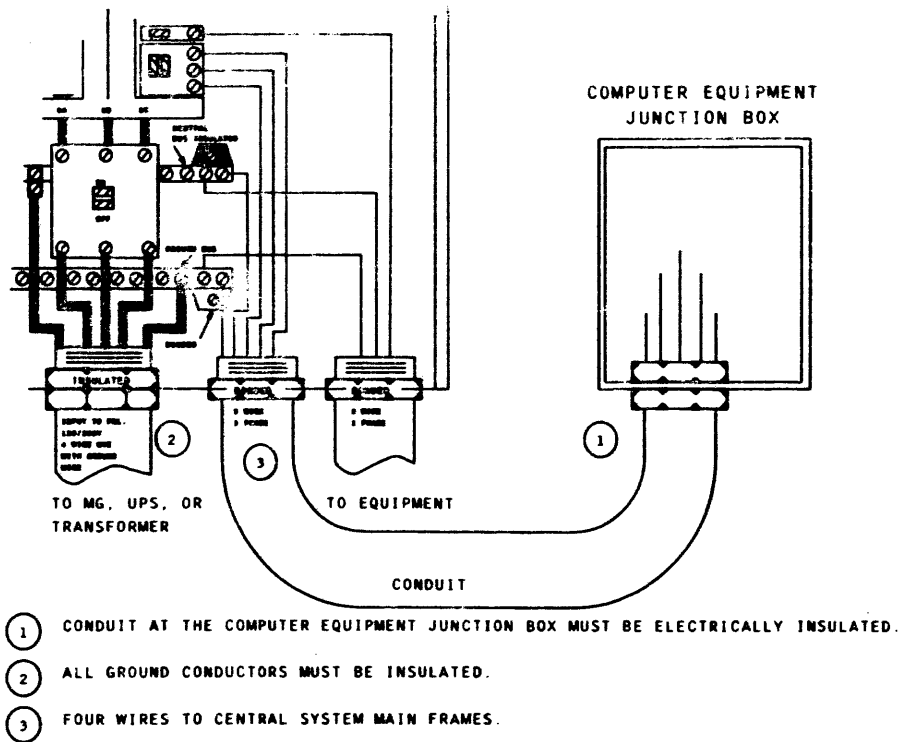


FIGURE 7-3. JUNCTION BOX AND CONDUIT

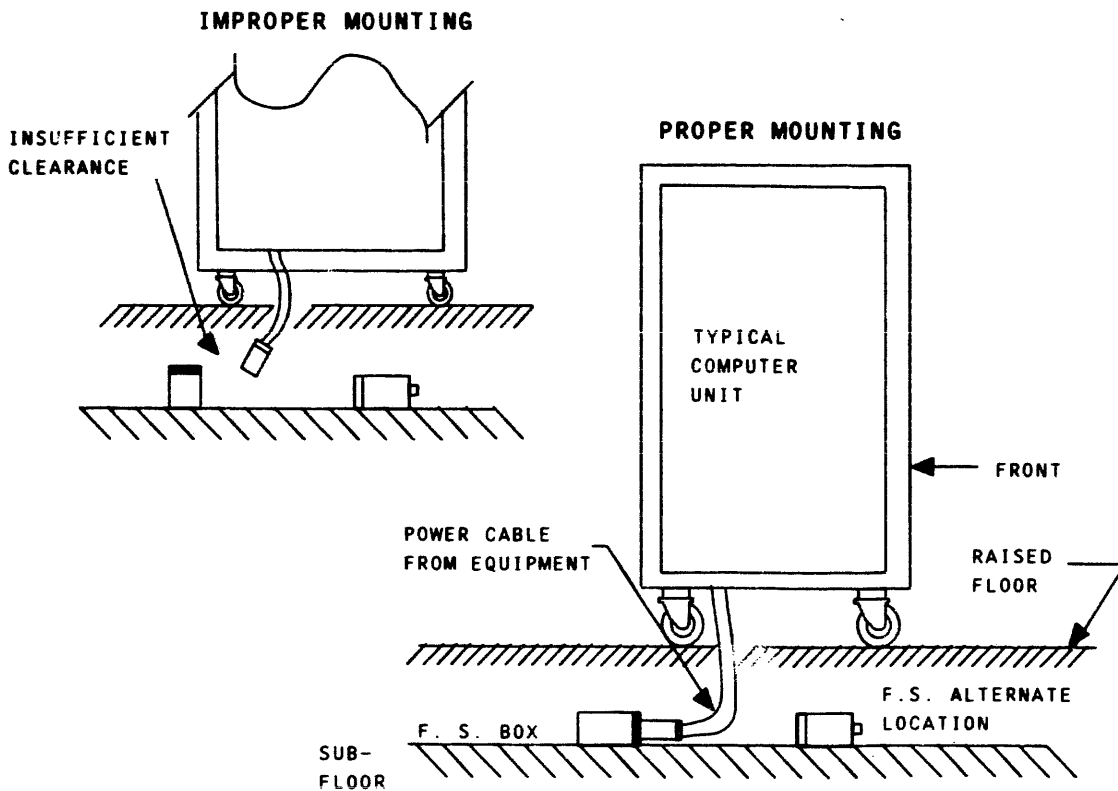


FIGURE 7-4. TYPICAL RECEPTACLE MOUNTING

TABLE 7-1. 60 HZ EQUIPMENT SUMMARY DATA

UNIT	CIRCUIT BREAKER	WIRE (AWG)	AMPS PER PHASE			KVA	KW	KBTU	LB	
			A	B	C					
--Central System--										
CPU66/68LA	3P20A	4/#12	10.6	10.5	9.4	3.7	3.5	11.9	1100	
CPU66/68LB	3P20A	4/#12	10.3	9.4	8.3	3.3	3.1	10.6	1030	
IOU100A	3P30A	4/#10	12.8	14.5	14.4	5.1	4.8	16.4	1120	
IOU66LA	3P30A	4/#12	9.1	7.4	9.8	3.2	2.9	9.8	1100	
MMU66LA	3P20A	4/#12	8.8	7.0	9.0	3.0	2.6	8.9	1450	
MMU66LB	3P20A	4/#12	9.3	7.3	9.4	3.1	2.9	9.8	1098	
--Diagnostic Processor--										
MPU9001	1P15A	3/#14	7.9	-	-	1.0	0.7	2.4	326	
--System Consoles--										
CSU8400/8402	1P15A	3/#14	3.1	-	-	0.4	0.3	1.0	285	
VIP7201	1P15A	3/#14	1.5	-	-	0.2	0.2	0.7	24	
PRU8400	1P15A	3/#14	0.6	-	-	.07	.24	.24	20.5	
CSF8805	1P15A	3/#14	0.5	-	-	0.6	0.6	0.2	75	
--Datanets--										
DCU6661	3P30A	5/#10	20	20	20	7.8	4.9	16.6	900	
DCU8010	2P30A	4/#10	23	23	-	5.5	3.5	11.9	550	
DCF8001	1P15A	3/#14	2.4	-	-	0.3	0.3	2.0	212	
--Peripheral Processors--										
MSP060X	3P15A	5/#14	5.2	4.0	5.4	1.8	1.6	5.9	735	
MTP06XX	3P15A	5/#14	5.2	4.0	5.4	1.8	1.6	5.9	735	
URP060X	3P15A	5/#14	5.2	4.0	5.4	1.8	1.6	5.9	735	
MSP0611/0612	3P15A	4/#14	7.2	6.7	5.6	2.4	2.1	7.2	1062	
MSP3880	3P15A	4/#14	4.7	4.7	4.7	1.7	1.6	5.5	720	
MSP8021/8022	3P20A	4/#12	9.9	10.2	8.8	3.5	3.2	10.8	1094	
--Mass Storage--										
MSU0402/0451	2P20A	3/#12	7.5	7.5	-	1.6	1.3	4.5	700	
MSU0500/0501	3P20A	5/#12	*7.5	7.5	7.5	2.7	2.1	7.3	1080	
MSU3380	3P60A	4/#6	6.7	6.7	6.7	2.4	1.8	6.0	1200	
MSU3382	-	-	6.1	6.1	6.1	2.2	1.5	5.1	1000	
--Magnetic Tapes--										
MTP0611	3P15A	4/#14	6.1	8.0	7.3	2.5	2.1	6.6	1016	
MTP8021	3P20A	4/#12	9.9	10.2	8.8	3.5	3.2	10.8	1094	
MTU0500	3P15A	4/#14	*6.2	5.7	6.2	2.2	1.8	6.1	750	
MTU0600	3P20A	4/#12	*8.9	11.7	10.6	4.2	3.8	13.0	1025	
MTU0610	3P20A	4/#12	*9.8	9.8	9.2	3.1	2.9	9.9	900	
MTU0630	1P30A	3/#10	15.8	-	-	1.9	1.5	5.2	650	
MTS820X	3P60A	4/#4	(Variable - Refer to Page 7-43							790
MTU820X	(Power is furnished by MTS820X)								480	
--Card Equipment--										
CRU0501	1P15A	3/#14	2.0	-	-	0.2	.24	.72	73	
CRU1050	1P20A	3/#12	9.2	-	-	1.1	1.0	3.4	460	
PCU0121	3P15A	5/#14	*7.0	8.5	8.0	2.8	2.5	8.5	800	
CCU0401	3P15A	5/#14	*7.0	8.5	8.0	2.8	2.5	8.5	800	
--Printers--										
PRU0903/1203	1P15A	3/#14	8.1	-	-	.97	.77	2.7	460	
PRU1200/1600	3P15A	5/#14	*8.2	9.1	9.3	3.1	2.6	8.9	1780	
--Peripheral Switch--										
PSU8000/8001	1P15A	3/#14	0.5	-	-	.06	.06	0.2	300	
--Motor Generator Control Unit--										
MGC655AB	1P15A	3/#14	1.0	-	-	0.2	0.2	0.4	50	

* Devices are phase-sensitive.

TABLE 7-2. 50 HZ EQUIPMENT SUMMARY DATA

UNIT	CIRCUIT BREAKER	WIRE (mm)	AMPS PER PHASE			KVA	KW	KCAL	KG	
			A	B	C					
--Central System--										
CPU66/68LA	3P20A	4/2mm	10.6	10.5	9.4	3.7	3.5	2797	499	
CPU66/68LB	3P20A	4/2mm	10.3	9.4	8.3	3.4	3.1	2607	469	
IOU100A	3P30A	4/2.5mm	12.8	14.5	14.4	5.1	4.8	4040	508	
IOU66LA	3P30A	4/2.5mm	9.1	7.4	9.8	3.2	2.9	2353	499	
MMU66LB	3P20A	4/2mm	9.3	7.3	9.4	3.1	2.9	2448	498	
MMU66LB	3P20A	4/2mm	8.0	7.0	8.0	2.8	2.4	3095	658	
--Diagnostic Processor--										
MPU9001B	1P15A	3/1.6mm	7.9	-	-	1.0	0.7	594	148	
--System Consoles--										
CSU8400/8402	1P10A	3/1.6mm	3.1	-	-	0.4	0.3	257	129	
VIP7201	1P10A	3/1.6mm	0.9	-	-	0.2	0.2	164	11	
PRU8400	1P10A	3/1.6mm	0.6	-	-	.07	0.24	60	20.5	
CSF8805	1P10A	3/1.6mm	0.5	-	-	0.6	0.6	51	75	
--Datanets--										
DCU8010B	1P30A	3/2.5mm	23	23	-	5.5	3.5	3012	250	
DCF8001B	1P10A	3/1.6mm	2.4	-	-	0.3	0.3	250	96	
--Peripheral Processors--										
MSP0611	3P15A	4/1.6mm	7.2	6.7	5.6	2.4	2.1	1656	545	
MSP3880	3P15A	5/1.6mm	4.7	4.7	4.7	1.7	1.6	1377	325	
MSP8021/8022	3P20A	4/2mm	9.9	10.2	8.8	3.5	3.2	2733	496	
--Mass Storage--										
MSU045XB	1P20A	3/2mm	7.5	7.5	-	1.6	1.3	1118	318	
MSU05XXB	4P15A*	5/1.6mm	**7.5	7.5	7.5	2.7	2.1	1807	490	
MSU3380	3P60A*	5/4mm	6.7	6.7	6.7	2.4	1.8	1506	545	
MSU3382	-	-	6.1	6.1	6.1	2.2	1.5	1291	455	
--Magnetic Tapes--										
MTP0611	3P15A	4/1.6mm	6.1	8.0	7.3	2.5	2.1	1794	461	
MTP8021	3P20A	4/2mm	9.9	10.2	8.8	3.5	3.2	2732	496	
MTU0500B	4P15A*	5/1.6mm	**6.2	3.7	6.2	2.2	1.8	1549	341	
MTU0610B	4P15A*	5/1.6mm	**9.8	9.8	9.2	3.1	2.9	2495	409	
MTU0630B	1P15A	3/1.6mm	8.6	-	-	0.24	0.23	1305	295	
MTS820X	3P40A	4/3.15mm	(Variable - Refer to Page 7-43)							360
MTU820X	(Power is furnished by MTS820X)								218	
--Card Equipment--										
CRU0501B	1P15A	3/1.6mm	2.0	-	-	0.24	0.23	181	33	
CRU1050B	1P15A	3/1.6mm	9.2	-	-	1.1	1.0	861	209	
--Printers--										
PRU0903B/										
PRU1203B	1P15A	3/1.6mm	8.1	-	-	0.97	0.77	430	209	
PRU1X00B	4P20A*	5/2mm	**8.2	9.1	9.3	3.1	2.6	2236	808	
--Peripheral Switch--										
PSU8001B	1P10A	3/1.6mm	0.5	-	-	.06	.06	52	136	

* Some countries require a circuit breaker in the neutral line.
 ** Devices are phase-sensitive.

The Amps Per Phase ratings are given for the 380Y/220 volts connection, except for the Central System which is 208V wye. Other than the exception noted, the equipment is available to operate on several other 50 Hz voltages including delta connections.

WARNING

LONG CABLES (I.E., OVER 15 METERS (50 FEET) LONG) REQUIRE THAT PARTICULAR ATTENTION BE PAID TO THE GROUNDING REQUIREMENTS GIVEN IN THIS MANUAL. SPECIFICALLY, ANY CURRENTS FLOWING IN THE GROUND SYSTEM CAN CREATE A SAFETY HAZARD OR CAUSE EQUIPMENT DAMAGE, OR BOTH.

INTERCONNECTION CABLES WHICH RUN OUTSIDE OR BETWEEN BUILDINGS, WHETHER ABOVE OR BELOW GROUND, REQUIRE SPECIAL INSTALLATION PROCEDURES. SUCH CONNECTION IS IN VIOLATION OF THE NATIONAL ELECTRIC CODE UNLESS FITTED WITH PROTECTIVE DEVICES AS DEFINED BY ARTICLE 800 OF THAT CODE. OTHER LOCAL CODES MAY IMPOSE FURTHER RESTRICTIONS. INADEQUATE OR IMPROPER INSTALLATION MAY CAUSE EITHER EQUIPMENT DAMAGE OR PERSONNEL INJURY, OR BOTH. CONTACT YOUR HONEYWELL CUSTOMER SERVICES SITE PREPARATION SPECIALIST FOR ASSISTANCE.

TABLE 7-3. DATA CABLES SUMMARY DATA

<u>FROM</u>	<u>TO</u>	<u>MAXIMUM LENGTH</u> m(ft)*
SCU/MMU	CPU	15.2(50)
SCU	IMU	15.2(50)
IMU	CONSOLE	45.5(150)
IMU(n)	IMU(n+1)	15.2(50)
IMU	MSP	23(75)
IMU	MSU	23(75)
IMU	FIPS Cables	122(400)
IMU	Card Equipment and Printers (DAI)	23(75)
IMU	DN	23(75)
MSP	MSU	23(75)
SCU	MTU	23(75)
DN	Modems	15.2(50)
DN	Consoles	15.2(50)
MPU	Various	15.2(50)

* Allow approximately 1.5 m (5 ft) stubout length on each end of the cable when determining the distance between units.

7.2 DATA MODEM FOR DISTRIBUTED MAINTENANCE SERVICE

For Honeywell Distributed Maintenance Service (DMS), you will need to provide a Honeywell DCD2124 Data Modem, or its equivalent, and a telephone at the maintenance console. Table 7-4 gives the jumper connections or switch settings necessary for proper operation of the data modem on DMS.

Examples of equivalent data modems are Western Electric/Bell Data Set 212A and Rixon T212A. In countries other than the USA, contact your local telephone company for equivalent type data modem information.

The local telephone company communications representatives should be consulted early enough that all data modem lines will be installed and checked out prior to system delivery.

TABLE 7-4. DMS DATA MODEM OPTIONS

<u>FEATURE</u>	<u>CHOICE</u>	<u>DESCRIPTION</u>
Tip Ring Make Busy	OUT	Connects Resistor from Tip to Ring Which Makes Line Go Busy
CC Indication for Analog Loop	ON	CC Circuit ON during AL Test
Speed Control	HS Button	HS Button Controls Speed
Interface Controlled Make Busy/Analog Loop	OUT	AL/Make Busy Controlled Only by AL Button, CN Internally Held Off
Transmitter Timing	INTERNAL	1200 BPS Transmitter Driven by Internal Clock
1200 BPS Operation	Async/ Start-Stop	Character-Oriented Operation in the High Speed Mode
Character Length	10 Bit	Character Format is 10 Bit for 1200 BPS Asynchronous/Start-Stop
Receiver Responds to Digital Loop	IN	Digital Loop Can be Remotely Activated in the High Speed Mode
Interface Controlled Remote Digital Loop	OUT	RL Circuit Not Connected to Interface

<u>FEATURE</u>	<u>CHOICE</u>	<u>DESCRIPTION</u>
Loss of Carrier Disconnect	OUT	Loss of Carrier Does Not Drop Call
Receive Space Disconnect	IN	Call is Dropped If Steady Space is Received
CB and CF Indications	COMMON	CB Circuit is Turned Off Whenever CF Circuit Goes Off
Send Space Disconnect	IN	Steady Space Transmitted Before Disconnecting
Automatic Answer	IN	Unattended Answer If DC Circuit Is On
Answer Mode Indication - CE	OFF	Circuit CE Turns Off After Call is Answered
Speed Mode	DUAL	Data Can Cross Interface in Both Speed Modes
Interface Speed Indication	OUT	Circuit CI Disconnected From Interface
CN and TM Assignments	CN25, TM NC	CN on Pin 25, TM Not Connected
Signal Ground to Frame Ground	IN	Protective Ground and Signal Ground Tied Together

The customer is required to provide and install the following to support each Modem:

- o USOC RJ11 telephone jack, which must not be connected to a key system. Each modem requires a separate jack, and each jack is to be installed within five (5) feet of the MPU to which it is to be connected.
- o Standard NEMA 5-15R power receptacle, connectd to the Central System power source, and located within five (5) feet of the MPU.

7.3 SYSTEM ENVIRONMENTAL REQUIREMENTS SUMMARY

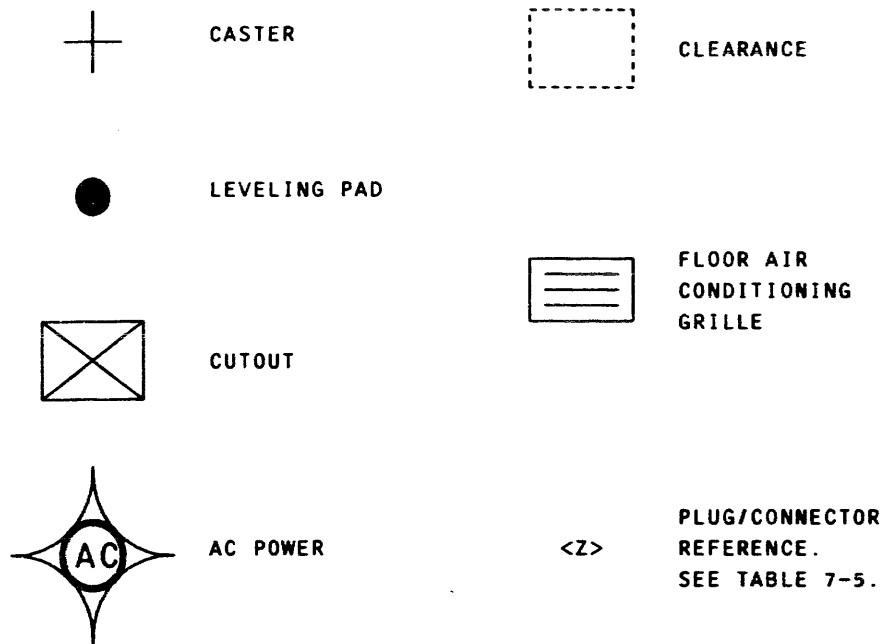
7.3.1 GENERAL

The heat load dissipation figures listed for each unit do not include heat gain from other sources: e.g., lighting, people, building transmission and fresh air loads.

7.3.2 REQUIREMENTS

The air conditioning specifications are:

- o Cooling required for the equipment only: _____ kcal/hr (Btu/hr), or _____ watts. (This is equivalent to _____ tons.) Determine total load from your site configuration.
- o Temperature: 20 to 26°C, \pm 1°C (68 to 78°F, \pm 2°F)
Measured at the breathing line.
- o Relative humidity: 40% to 60% \pm 5%.
- o Filtration: Normal, unless the environment is subjected to corrosive gases, salt air, or other unusual conditions, in which special filtering will be required.
- o Computer rooms require year-round cooling. (Window type air conditioning units are not appropriate for this use.)
- o Costs for installing and/or modifying the air conditioning will be the responsibility of the customer.



THE BOTTOM OF A UNIT FOOTPRINT IS THE FRONT, UNLESS OTHERWISE NOTED BY THE LETTER "F".

FIGURE 7-5. LEGEND FOR INSTALLATION PLANNING DRAWINGS

TABLE 7-5. CONNECTION SYMBOLS USED ON INSTALLATION PLANNING DRAWINGS

TYPE	AMPS/ VOLTS	PHASES/ WIRE	MFG.*	UNIT PLUG (Honeywell)		REQUIRED RECEPTACLE (Customer)		
				NEMA STD	CAT. NO.	NEMA STD.	RECPT.	CONN.
<A>	30/600	3/5W	H or A		25415		25403	25414
<F>	15/125	1/3W	H	5-15P	5266-C	5-15R	5261	5269-C
<M>	60/600	3/4W	R&S		7328		7324	7428
<V>	15/250	3/4W	R&S		3730		3744	3914
<Y>	20/125	1/3W	H	L5-20P	2311	L5-20R	2310	2313
<Z>	30/125	1/3W	H	L5-30P	2611	L5-30R	2610	2613

* Manufacturer Abbreviations:

H = Hubbell, A = Arrow-Hart, R&S = Russell & Stoll

NOTE: All connector information is for 60 Hz installations only.

TABLE 7-6. AC POWER WIRING COLOR CODES

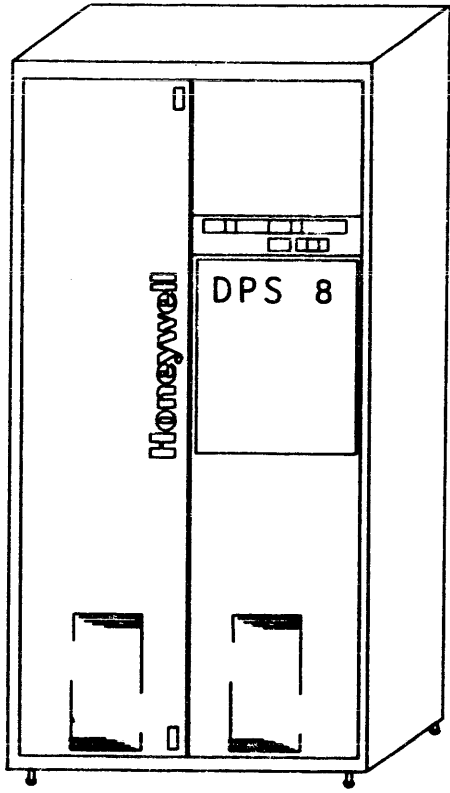
<u>CONDUCTOR</u>		<u>U.S.A. CODE</u>	<u>INTERNATIONAL CODE</u>
Neutral	(W)	White	Blue
Ground	(G)	Green or Green with Yellow stripe	Green with Yellow stripe
Phase A	(X)	Black	Brown
Phase B	(Y)	Red	Black*
Phase C	(Z)	Blue	Black*

* Black wires may have color stripe to aid in identification.

TABLE 7-7. CORRESPONDING STANDARD WIRE SIZES

AWG	METRIC WIRE SIZES	
	<u>mm</u>	<u>mm sq</u>
#2	6.30	35.0
#4	5.00	25.0
#6	4.00	16.0
#8	3.15	10.0
#10	2.50	6
#12	2.00	4
#14	1.60	2.5
#16	1.25	1.5

CENTRAL PROCESSOR UNIT
CPU66LA, CPU68LA



----- PHYSICAL -----

Dimensions: Millimeters(Inches)

<u>Front*</u>	<u>Side</u>	<u>Height</u>
1030(40.6)	826(32.5)	1854(73)

Required Clearances:

<u>Front</u>	<u>Back</u>	<u>Right</u>	<u>Left</u>
914(36)	762(30)	0	0

Weight: kg(lb)

<u>Shipping</u>	<u>Installed</u>
499(1100)	499(1100)

----- ELECTRICAL -----

Circuit

<u>Volts</u>	<u>Hz</u>	<u>Breaker</u>	<u>Wiring</u>
208	60	3P20A	4/#12
208	50	3P20A	4/2mm**

<u>Amps Per Phase</u>			<u>Max.</u>	<u>Op.</u>
<u>A</u>	<u>B</u>	<u>C</u>	<u>kVA</u>	<u>kW</u>
10.6	10.5	9.4	3.7	3.5

Power Cable: conduit connected Connection hardwired

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

<u>Maximum</u>	<u>Operating</u>
2797(11.9)	

Airflow:

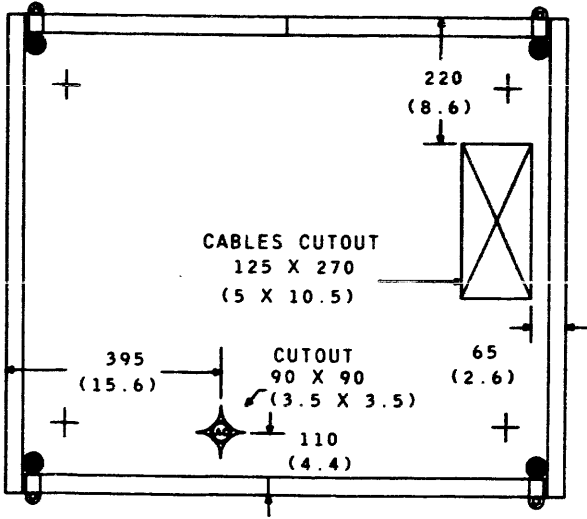
<u>In</u>	<u>Out</u>
lower front, lower rear	top, side panels

----- DATA CABLES -----

Length: m(ft) maximum
15.2(50) to MMU66LA

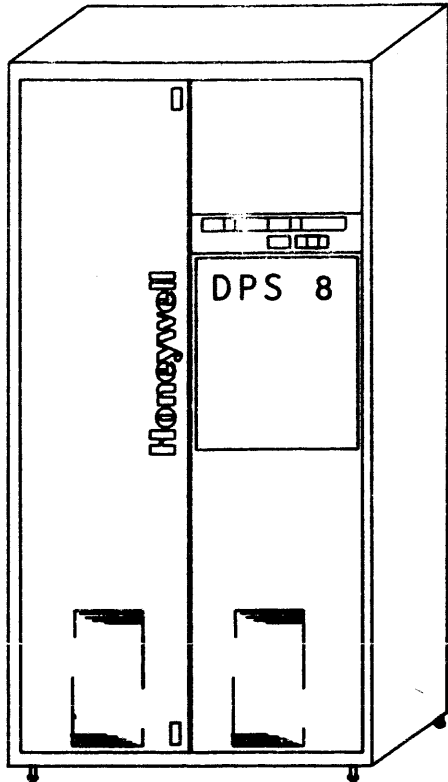
NOTES:
* Adjacent like frames may be bolted together. If so, adjacent side panels are to be removed. Deduct 33 (1.3) for each panel removed.

** Neutral is not used.



Footprint Template - HIS 7487

CENTRAL PROCESSOR UNIT
CPU66LB, CPU68LB



----- PHYSICAL -----

Dimensions: Millimeters(Inches)

Front*	Side	Height
1030(40.6)	826(32.5)	1854(73)

Required Clearances:

Front	Back	Right	Left
914(36)	762(30)	0	0

Weight: kg(lb)

Shipping	Installed
469(1032)	469(1032)

----- ELECTRICAL -----

Volts	Hz	Circuit	
		Breaker	Wiring
208	60	3P20A	4/#12
208	50	3P20A	4/2mm**

Amps Per Phase			kVA	Max. kW	Op. kW
A	B	C			
10.3	9.4	8.3	3.4	3.1	

Power Cable: conduit connected Connection hardwired

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:
Maximum Operating
2607(10.6)

Airflow:

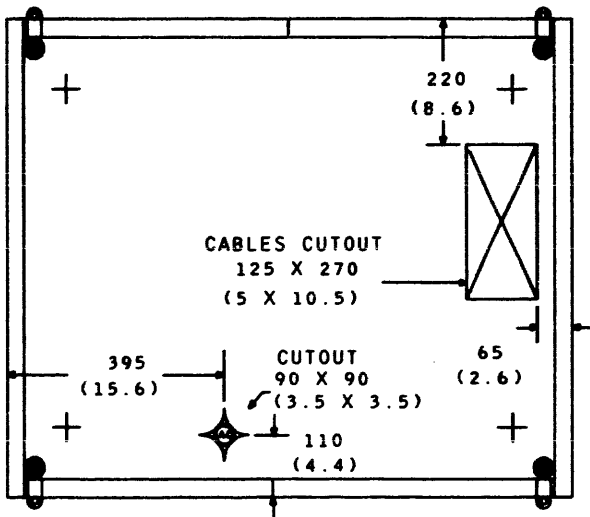
<u>In</u>	<u>Out</u>
lower front,	top, side panels
lower rear	

----- DATA CABLES -----

Length: m(ft) maximum
15.2(50) to SCU/MMU

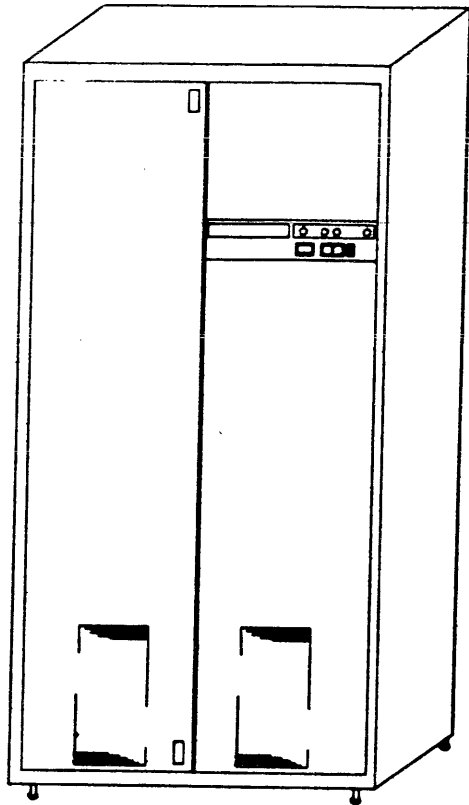
NOTES:

- * Adjacent like frames may be bolted together. If so, adjacent side panels are to be removed. Deduct 33 (1.3) for each panel removed.
- ** Neutral is not used.



Footprint Template - HIS 7487

INFORMATION MULTIPLEXER UNIT (IMU)
IOU100A



----- PHYSICAL -----

Dimensions: Millimeters(Inches)

Front*	Side	Height
1030(40.6)	826(32.5)	1854(73)

Required Clearances:

Front	Back	Right	Left
914(36)	762(30)	0	0

Weight: kg(lb)

Shipping	Installed
508(1120)	508(1120)

----- ELECTRICAL -----

Volts	Hz	Circuit	
		Breaker	Wiring
208	60	3P30A	4/#10
208	50	3P30A	4/2.5mm**

Amps Per Phase			kVA	Max. kW	Op. kW
A	B	C			
12.8	14.5	14.4	5.1	4.8	

Power Cable: conduit connected
Connection: hardwired

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

Maximum	Operating
4040(16.4)	

Airflow:

In	Out
lower front, lower rear	top, side panels

----- DATA CABLES -----

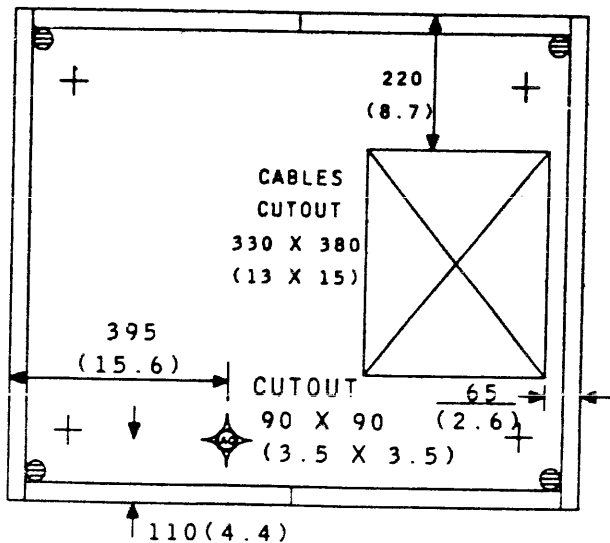
Length: various
see Data Cables Summary

NOTES:

- * Adjacent like frames may be bolted together. If so, adjacent side panels are to be removed. Deduct 33 (1.3) for each panel removed.

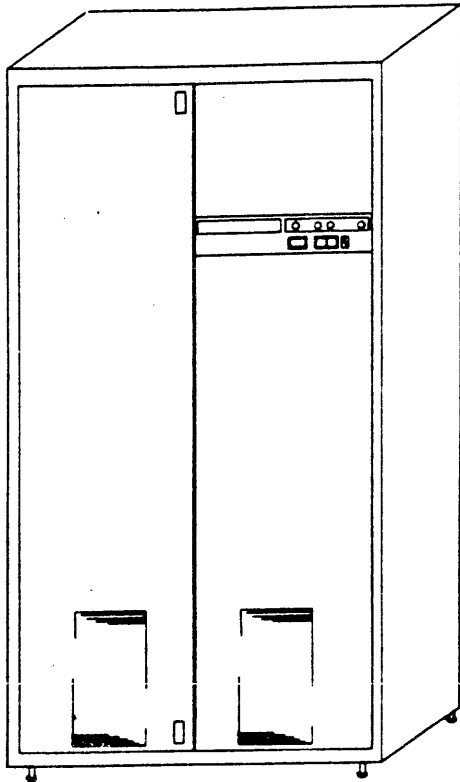
** Neutral is not used.

If IMU configuration exceeds four (4) FIPS channels or includes a DAU option you must order an auxiliary cable cabinet.



Footprint Template - HIS 7487

INPUT/OUTPUT MULTIPLEXER (IOM)
IOU66LA



----- PHYSICAL -----

Dimensions: Millimeters(Inches)
Front* Side Height
 1030(40.6) 826(32.5) 1854(73)

Required Clearances:

Front Back Right Left
 914(36) 762(30) 0 0

Weight: kg(lb)

Shipping Installed
 499(1100) 499(1100)

----- ELECTRICAL -----

Circuit
Volts Hz Breaker Wiring
 208 60 3P30A 4/#10
 208 50 3P30A 4/2.5mm**

Amps Per Phase Max. Op.
A B C kVA kW kW
 9.1 7.4 9.8 3.2 2.9

Power Cable: Connection
 conduit connected hardwired

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:
Maximum Operating
 2353(9.8)

Airflow:

In Out
 lower front, top, side panels
 lower rear

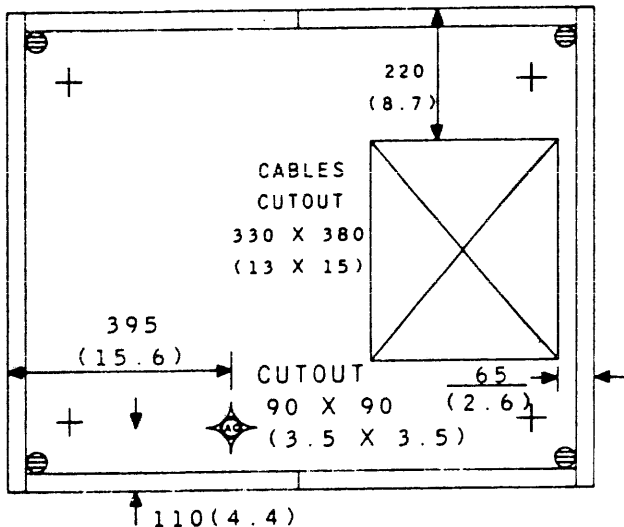
----- DATA CABLES -----

Length: various
 see Data Cables Summary

NOTES:

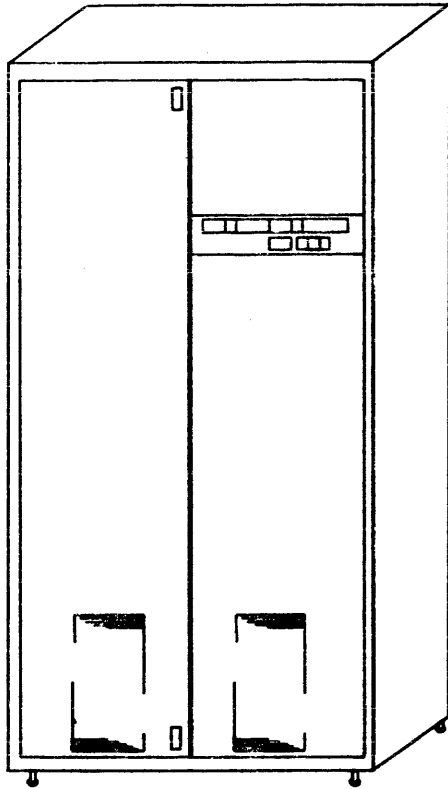
* Adjacent like frames may be bolted together. If so, adjacent side panels are to be removed. Deduct 33 (1.3) for each panel removed.

** Neutral is not used.



Footprint Template - HIS 7487

MEMORY/SYSTEM CONTROL UNIT
MMU66LA



----- PHYSICAL -----
Dimensions: Millimeters(Inches)
Front Side Height
1030(40.6) 826(32.5) 1854(73)

Required Clearances:
Front Back Right Left
914(36) 762(30) 0 0

Weight: kg(lb)
Shipping Installed
658(1450) 658(1450)

----- ELECTRICAL -----
Circuit
Volts Hz Breaker Wiring
208 60 3P20A 4/#12
208 50 3P20A 4/2.mm

Amps Per Phase Max. Op.
A B C kVA kW kW
8.8 7.0 9.0 3.0 2.6

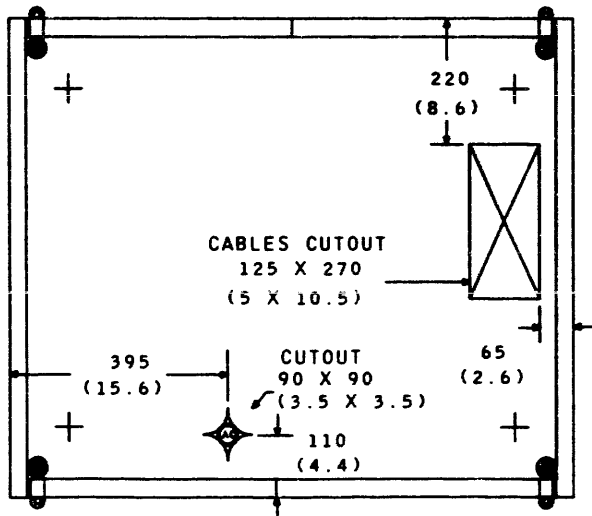
Power Cable: Connection
conduit connected hardwired

----- ENVIRONMENTAL -----
kcal(kBTU)/hour:
Maximum Operating
2095(8.9)

Airflow:
In Out
lower front, top, side panels
lower rear

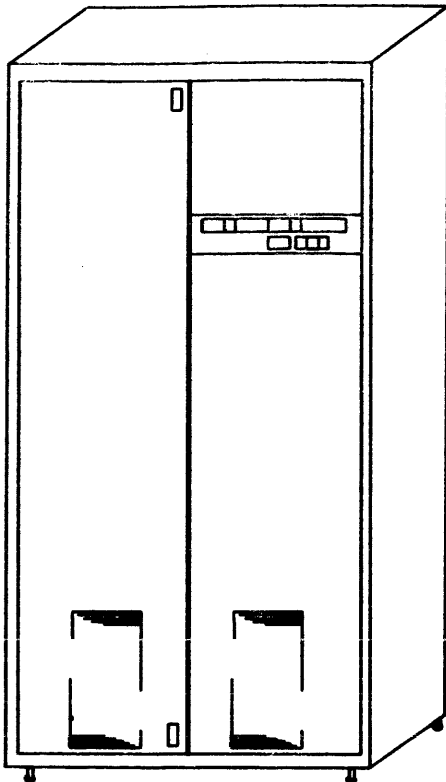
----- DATA CABLES -----
Length: m(ft) maximum
15.2(50) to CPU
15.2(50) to IOU

- NOTES:
1. Adjacent like frames may be bolted together. If so, adjacent side panels are to be removed. Deduct 33 (1.3) for each panel removed.
 2. Neutral is not used.



Footprint Template - HIS 7487

MEMORY/SYSTEM CONTROL UNIT
MMU66LB



----- PHYSICAL -----

Dimensions: Millimeters(Inches)
Front Side Height
 1030(40.6) 826(32.5) 1854(73)

Required Clearances:
Front Back Right Left
 914(36) 762(30) 0 0

Weight: kg(lb)
Shipping Installed
 498(1098) 498(1098)

----- ELECTRICAL -----

Circuit
Volts Hz Breaker Wiring
 208 60 3P20A 4/#12
 208 50 3P20A 4/2.mm

Amps Per Phase			kVA	Max. kW	Op. kW
A	B	C			
9.3	7.3	9.4	3.1	2.9	

Power Cable: Connection
 conduit connected hardwired

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:
Maximum Operating
 3095(9.8)

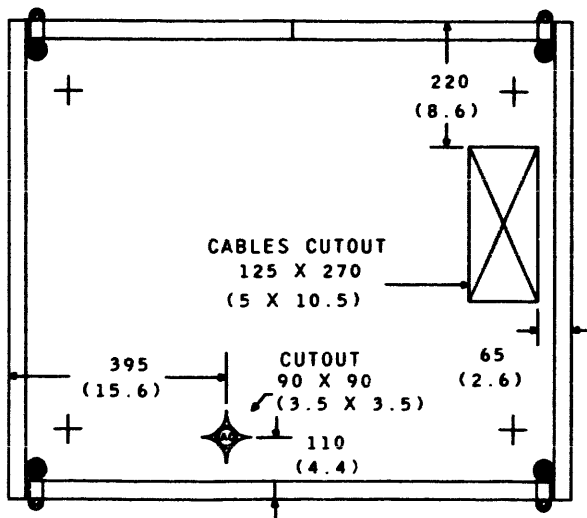
Airflow:
In Out
 lower front, top, side panels
 lower rear

----- DATA CABLES -----

Length: m(ft) maximum
 15.2(50) to CPU
 15.2(50) to IMU
 23(75) to MTUs

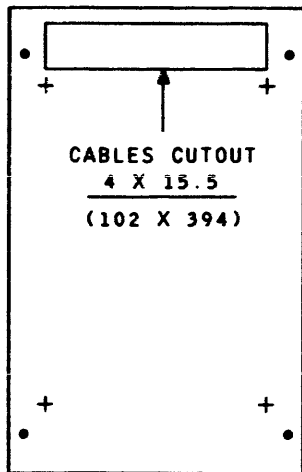
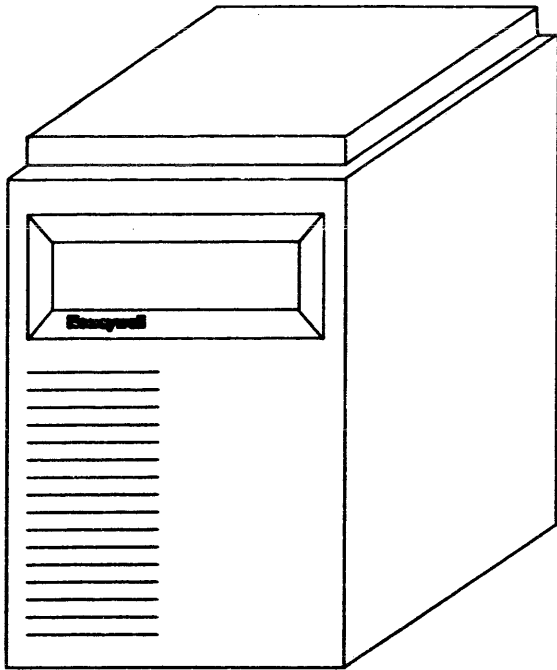
NOTES:

1. Adjacent like frames may be bolted together. If so, adjacent side panels are to be removed. Deduct 33 (1.3) for each panel removed.
2. Neutral is not used.



Footprint Template - HIS 7487

DIAGNOSTIC PROCESSOR UNIT
MPU9001 (MPU9001B)



Footprint Template - HIS 7570

----- PHYSICAL -----

Dimensions: Millimeters(Inches)
Front Side Height
 511 (20.5) 838(33) 762(30)

Required Clearances:
Front Back Right Left
 914(36) 762(30) 0 0

Weight: kg(lb)
Shipping Installed
 148(326) 148(326))

----- ELECTRICAL -----

Circuit
Volts Hz Breaker Wiring
 120 60 1P15A 3/#14
 220 50 1P15A 3/1.6mm

Amps Per Phase			kVA	Max.	Op.
A	B	C		kW	kW
7.9	-	-	1.0	0.7	

Power Cable: m(ft) Connection
 1.8(6) <F>

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:
Maximum Operating
 594(2.4)

Airflow:
In Out
 front rear

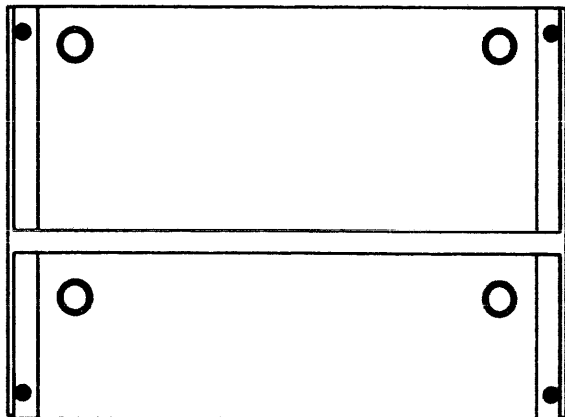
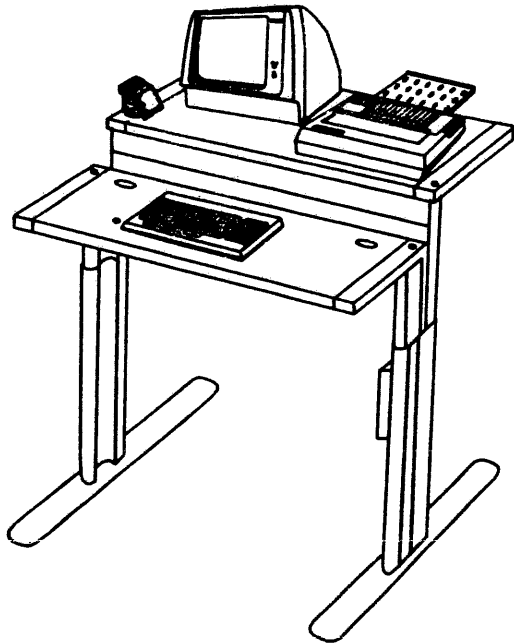
----- DATA CABLES -----

Length: m(ft) maximum
 15.2(50) EIA RS-232-C

NOTES:

1. The values shown include the VIP.
2. The VIP Data Set and telephone may be placed on top of the unit.

SYSTEM CONSOLE
 CSU8400 or CSU8402



Footprint Template - HIS 7542

----- PHYSICAL -----

Dimensions: Millimeters(Inches)

Front	Side	Height
1295(51)	990(39)	1000(39.4)

Required Clearances:

Front	Back	Right	Left
915(36)	100(4)	100(4)	100(4)

Weight: kg(lb)

Shipping	Installed
129(285)	129(285)

----- ELECTRICAL -----

Volts	Hz	Circuit	
		Breaker	Wiring*
120	60	1P15A	3/#14
220	50	1P10A	3/1.6mm

Amps Per Phase			kVA	Max. kW	Op. kW
A	B	C			
3.1	-	-	0.4	0.3	

Power Cable: m(ft) Connection
 see device <F>

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

Maximum	Operating
257(1.0)	

Airflow:

In	Out
NA	NA

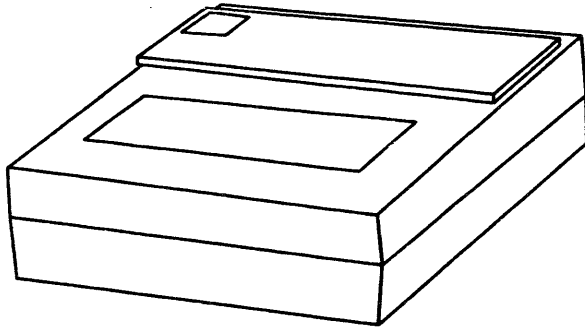
----- DATA CABLES -----

Length: m(ft) maximum
 45.5(150) to IMU, RS-232

NOTES:

- * Provide a duplex receptacle above or below the floor. Connect to same power source as Central System.
- o The Control Pod is on the first System Console only.
- o The Console Printer option is PRU8400.
- o Values include the console table and VIP only.

CONSOLE PRINTER
PRU8400



----- PHYSICAL -----

Dimensions: Millimeters(Inches)

<u>Front</u>	<u>Side</u>	<u>Height</u>
415(16.3)	330(13)	175(6.9)

Required Clearances:

<u>Front</u>	<u>Back</u>	<u>Right</u>	<u>Left</u>

Weight: kg(lb)

<u>Shipping</u>	<u>Installed</u>
9.3(20.5)	9.3(20.5)

----- ELECTRICAL -----

Circuit

<u>Volts</u>	<u>Hz</u>	<u>Breaker</u>	<u>Wiring</u>
120	60	1P15A	3/#14
220	50	1P10A	3/1.6mm

<u>Amps Per Phase</u>			<u>kVA</u>	<u>Max. kW</u>	<u>Op. kW</u>
<u>A</u>	<u>B</u>	<u>C</u>			
0.6	-	-	.07	0.24	

Power Cable: m(ft) Connection

1.8(6)	<F>
--------	-----

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

<u>Maximum</u>	<u>Operating</u>
060(0.24)	

Airflow:

<u>In</u>	<u>Out</u>

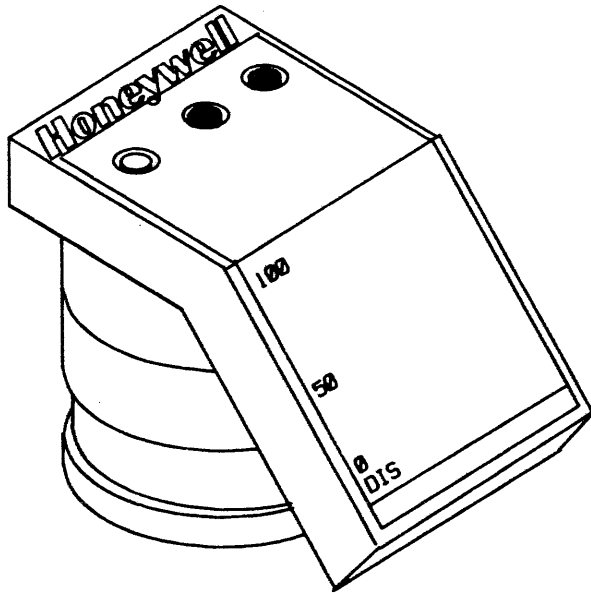
----- DATA CABLES -----

Length: m(ft) maximum

45.5(150) TO IMU, RS-232

- NOTES:
- o The printer mounts on the system console table.

CONTROL POD
 WLCC012B



----- PHYSICAL -----
 Dimensions: Millimeters(Inches)
Front Side Height
 105(4.13) 222.6(8.76) 170(6.7)

Required Clearances:
Front Back Right Left

Weight: kg(lb)
Shipping Installed

----- ELECTRICAL -----
 Circuit
Volts Hz Breaker Wiring
 NA

Amps Per Phase Max. Op.
A B C kVA kW kW

Power Cable: m(ft) Connection
 NA NA

----- ENVIRONMENTAL -----
 kcal(kBTU)/hour:
Maximum Operating

Airflow:
In Out
 NA NA

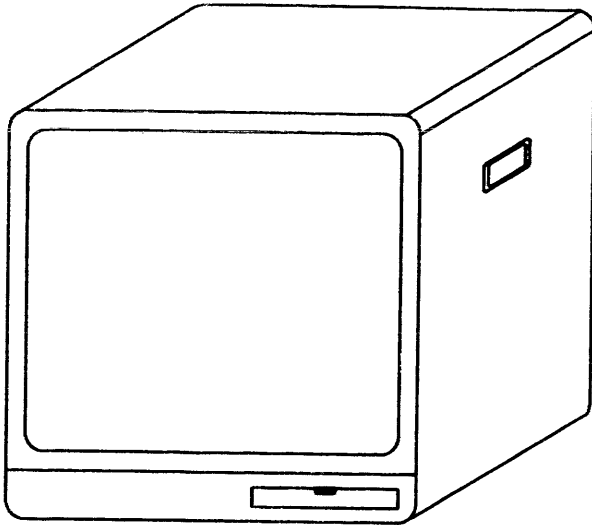
----- DATA CABLES -----
 Length: m(ft) maximum

NOTES:

- o The Control Pod mounts on the System Console.
- o An angle bracket 572(22.5) by 43(1.7) by 58(2.3) with 5 connectors mounted on it is to be attached to the underside of the console table.

Footprint Template - None

REMOTE DISPLAY UNIT, LARGE SCREEN
CSF8805 (CSF8805B)



----- PHYSICAL -----

Dimensions: Millimeters(Inches)		
<u>Front</u>	<u>Side</u>	<u>Height</u>
570(22.5)	425(16.8)	535(21)

Required Clearances:

<u>Front</u>	<u>Back</u>	<u>Right</u>	<u>Left</u>

Weight: kg(lb)

<u>Shipping</u>	<u>Installed</u>
34(75)	34(75)

----- ELECTRICAL -----

Circuit					
<u>Volts</u>	<u>Hz</u>	<u>Breaker</u>	<u>Wiring</u>		
120	60	1P15A	3/#14		
220	50	1P10A	3/1.6mm		

Amps Per Phase			<u>Max.</u>	<u>Op.</u>
<u>A</u>	<u>B</u>	<u>C</u>	<u>kVA</u>	<u>kW</u>
0.5	-	-	0.6	0.6

Power Cable: m(ft) Connection

1.8(6)	<F>
--------	-----

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

<u>Maximum</u>	<u>Operating</u>
51(0.2)	

Airflow:

<u>In</u>	<u>Out</u>

----- DATA CABLES -----

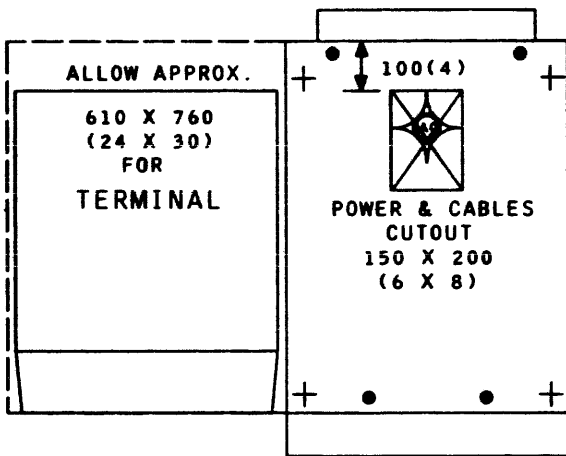
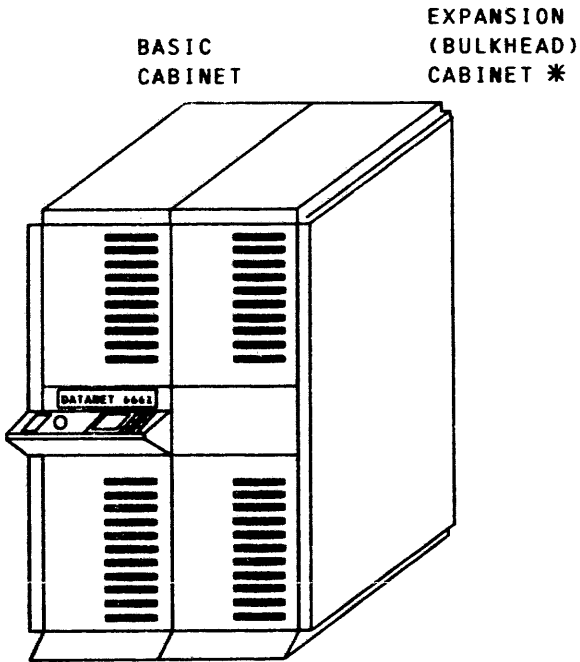
Length: m(ft) maximum

300(1000)

- NOTES:
- o Do not mount monitor above any heat generating equipment or do not block any ventilation.
 - o CSF8806 is the optional ceiling mounting bracket. Make sure there is sufficient clearance beneath it for personnel.

Footprint Template - None

DATANET 66
DCU6661



Footprint Template - HIS 7505

----- PHYSICAL -----

Dimensions: Millimeters(Inches)

Front	Side	Height
610(24)	917(36.1)	1575(62)

Required Clearances:

Front	Back	Right	Left
915(36)	760(30)	0	0

Weight: kg(lb)

Shipping	Installed
409(900)	409(900)

----- ELECTRICAL -----

Volts	Hz	Breaker	Wiring
208Y/120	60	3P30A	5/#10

Amps Per Phase**			Max.	Op.
A	B	C	kVA	kW
20	20	20	7.8	4.9

Power Cable: m(ft) Connection

1.8(6)	<A>
--------	-----

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

Maximum	Operating
4117(16.6)	

Airflow:

In	Out
front	back

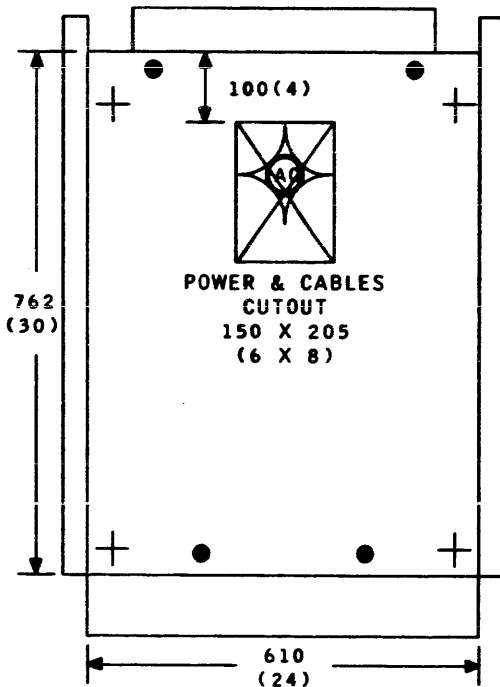
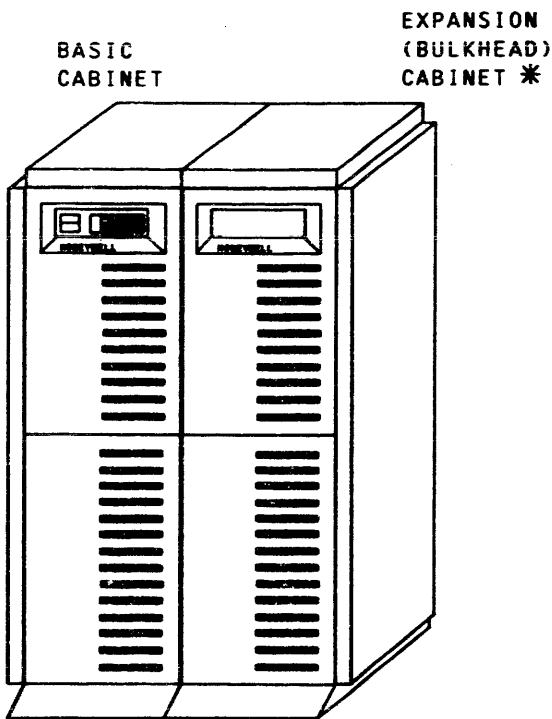
----- DATA CABLES -----

Length: m(ft) maximum

23(75) to IO unit
15(50) to Modems

- NOTES:
- * The expansion cabinet is necessary for over 64 lines.
 - ** Amps Per Phase vary 5A to 20A, according to options.
 - o Accompanying terminal requires 120V 15A service.

DATANET 8
DCU8010 (DCU8010B)



----- PHYSICAL -----
Dimensions: Millimeters(Inches)
Front** Side Height
686(27) 921(36.3) 1562(61.5)

Required Clearances:
Front Back Right Left
915(36) 760(30) 0 0

Weight: kg(lb)
Shipping Installed
250(550) 250(550)

----- ELECTRICAL -----
Circuit
Volts Hz Breaker Wiring
208Y/120 60 2P30A 4/#10
220 50 1P30A 3/2.5mm

Amps Per Phase*** Max. Op.
A B C kVA kW kW
23 23 - 5.5 3.5

Power Cable: m(ft) Connection
1.8(6) <A>

----- ENVIRONMENTAL -----
kcal(kBTU)/hour:
Maximum Operating
3012(11.9)

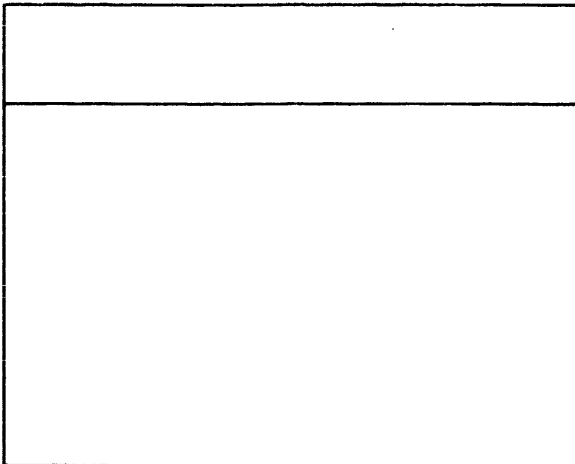
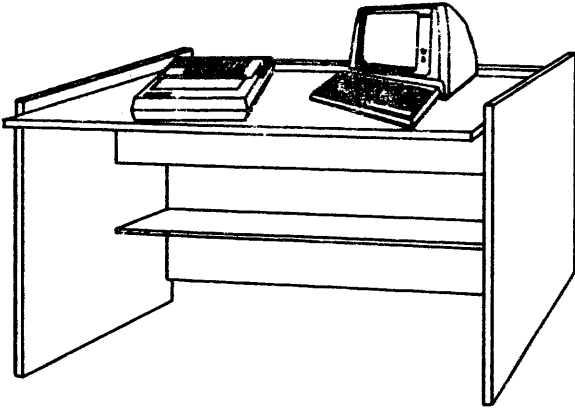
Airflow:
In Out
front back

----- DATA CABLES -----
Length: m(ft) maximum
23(75) to IO unit
15(50) to Modems

- NOTES:
- * The expansion cabinet is necessary for over 64 lines.
 - ** For a dual cabinet, the front is 1295(51).
 - *** Amps Per Phase vary up to values shown according to options. 50 Hz is up to 25A single phase.

Footprint Template - HIS 7682

DATANET CONSOLE
DCF8001 (DCF8001B)



----- PHYSICAL -----

Dimensions: Millimeters(Inches)*

<u>Front</u>	<u>Side</u>	<u>Height</u>
1245(49)	889(35)	686(27)

Required Clearances:

<u>Front</u>	<u>Back</u>	<u>Right</u>	<u>Left</u>
915(36)	0	0	0

Weight: kg(lb)

<u>Shipping</u>	<u>Installed</u>
96(212)	96(212)

----- ELECTRICAL -----

<u>Volts</u>	<u>Hz</u>	<u>Circuit Breaker</u>	<u>Wiring**</u>
120	60	1P15A	3/#14
220	50	1P10A	3/1.6mm

<u>Amps Per Phase</u>			<u>Max.</u>	<u>Op.</u>
<u>A</u>	<u>B</u>	<u>C</u>	<u>kVA</u>	<u>kW</u>
2.4	-	-	0.3	0.3

<u>Power Cable:</u>	<u>m(ft)</u>	<u>Connection</u>
see device		<F>

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

<u>Maximum</u>	<u>Operating</u>
250(2)	

Airflow:

<u>In</u>	<u>Out</u>
NA	NA

----- DATA CABLES -----

Length: m(ft) maximum

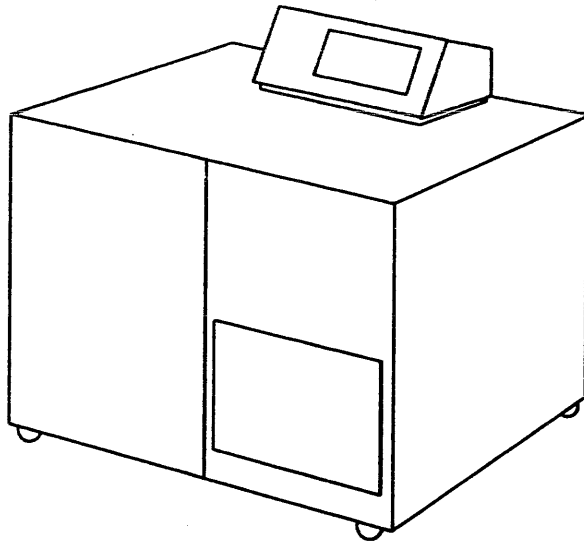
15(50)	EIA RS-232-C
46(150)	EIA RS-232-C, optional
300(1000)	VIP to video monitor

NOTES:

- * Dimensions are for the console table. The rest of the data includes the table, VIP, and console printer.
- ** Provide a duplex receptacle above or below the floor for connection of the power cords from the devices mounted on the console table.

Footprint Template - HIS 7541

PERIPHERAL PROCESSOR
MSP060X, MTP06XX, & URP060X



----- PHYSICAL -----

Dimensions: Millimeters(Inches)

Front	Side	Height
1283(55)	711(28)	1283(50.5)

Required Clearances:

Front	Back	Right	Left
915(36)	760(30)	0	0

Weight: kg(lb)

Shipping	Installed
329(735)	318(700)

----- ELECTRICAL -----

Volts	Hz	Breaker	Wiring
208Y/120	60	3P15A	5/#14

Amps Per Phase			Max.	Op.
A	B	C	kVA	kW
5.2	4.0	5.4	1.8	1.6

Power Cable:	m(ft)	Connection
conduit connected		hardwired

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

Maximum	Operating
1377(5.5)	

Airflow:

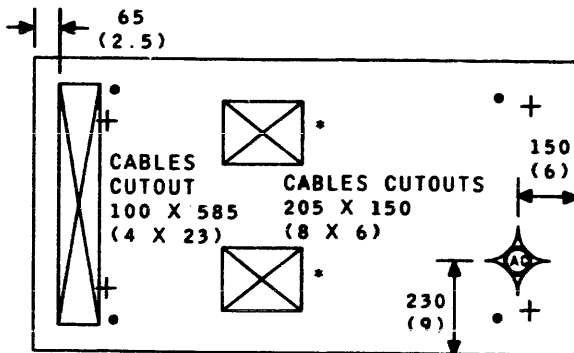
In	Out
front	back

----- DATA CABLES -----

Length: m(ft) maximum
23(75) to IO unit
23(75) to peripherals

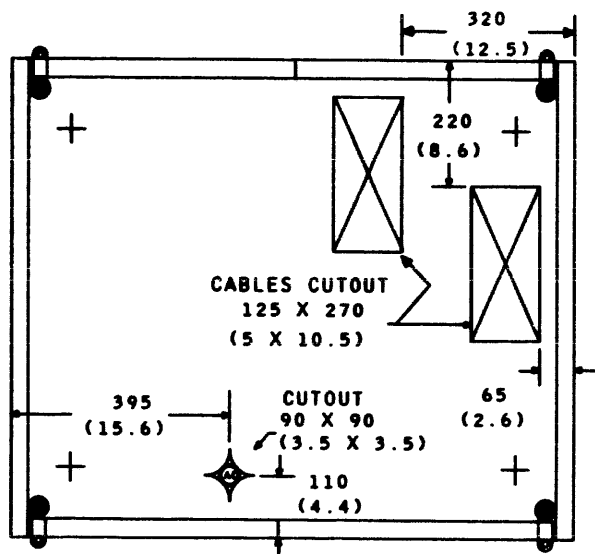
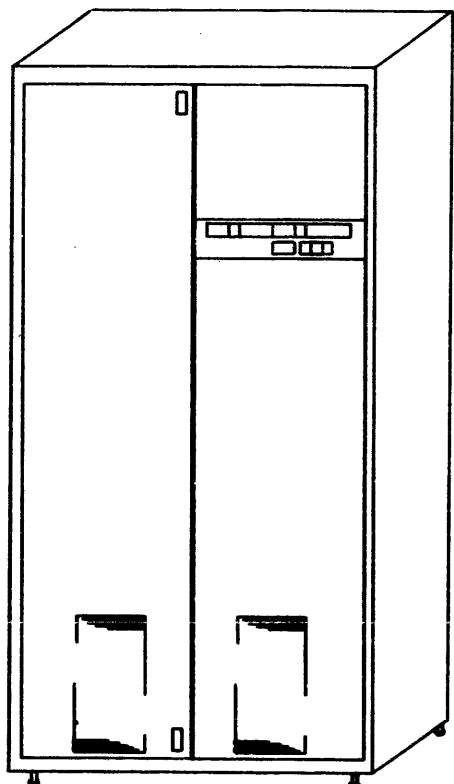
NOTES:

* Data cable cutouts are for the dual channel disk option.



Footprint Template - HIS 7509

MASS STORAGE PROCESSOR
MSP0611, MSP0612



Footprint Template - HIS 7684

----- PHYSICAL -----

Dimensions: Millimeters(Inches)		
<u>Front*</u>	<u>Side</u>	<u>Height</u>
1030(40.6)	826(32.5)	1854(73)

Required Clearances:

<u>Front</u>	<u>Back</u>	<u>Right</u>	<u>Left</u>
915(36)	760(30)	0	0

Weight: kg(lb)

<u>Shipping</u>	<u>Installed</u>
482(1062) van	482(1062)
545(1200) crate	

----- ELECTRICAL -----

Circuit			
<u>Volts</u>	<u>Hz</u>	<u>Breaker</u>	<u>Wiring**</u>
208	60	3P15A	4/#14
208	50	3P15A	4/1.6mm

<u>Amps Per Phase</u>			<u>Max.</u>	<u>Op.</u>
<u>A</u>	<u>B</u>	<u>C</u>	<u>kVA</u>	<u>kW</u>
7.2	6.7	5.6	2.4	2.1

Power Cable: m(ft) Connection
conduit connected hardwired

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

<u>Maximum</u>	<u>Operating</u>
1656(7.2)	

Airflow:

<u>In</u>	<u>Out</u>
lower front,	top,
lower back	side panels

----- DATA CABLES -----

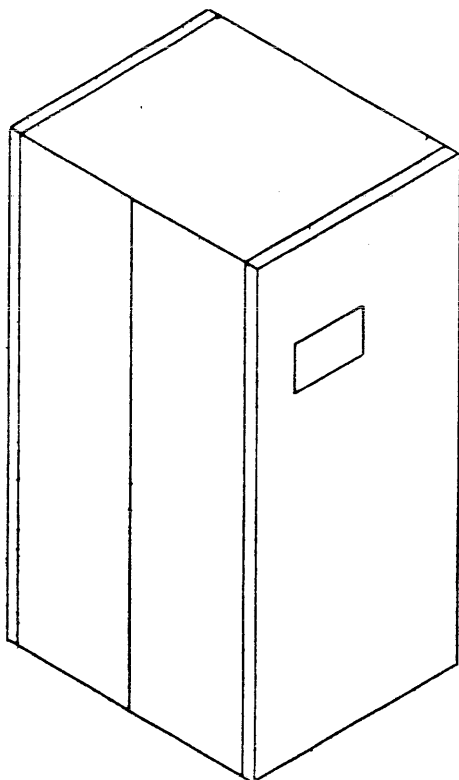
Length: m(ft) maximum
23(75) to IO unit
23(75) to peripherals

NOTES:

* Adjacent like frames may be bolted together. If so, adjacent side panels are to be removed. Deduct 33(1.3) for each panel removed.

** Neutral is not used.

MASS STORAGE PROCESSOR
MSP3880



----- PHYSICAL -----

Dimensions: Millimeters(Inches)

<u>Front</u>	<u>Side</u>	<u>Height</u>
1130(44.5)	815(32)	1790(70.5)

Required Clearances:

<u>Front</u>	<u>Back</u>	<u>Right</u>	<u>Left</u>
760(30)	1120(44)	865(34)	0

Weight: kg(lb)

<u>Shipping</u>	<u>Installed</u>
	325(720)

----- ELECTRICAL -----

<u>Volts</u>	<u>Hz</u>	<u>Breaker</u>	<u>Wiring</u>
*	60	3P15A	4/#14
	50	3P16A	5/1.6mm

Amps Per Phase**

<u>A</u>	<u>B</u>	<u>C</u>	<u>kVA</u>	<u>Max. kW</u>	<u>Op. kW</u>
4.7	4.7	4.7	1.7	1.6	

Power Cable: m(ft) Connection

4.27(14)	<V>
----------	-----

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

<u>Maximum</u>	<u>Operating</u>
1377(5.5)	

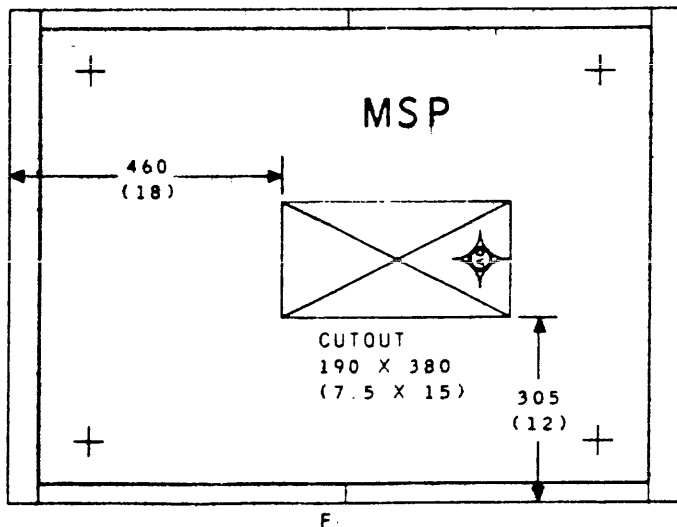
Airflow:

<u>In</u>	<u>Out</u>
bottom	top

----- DATA CABLES -----

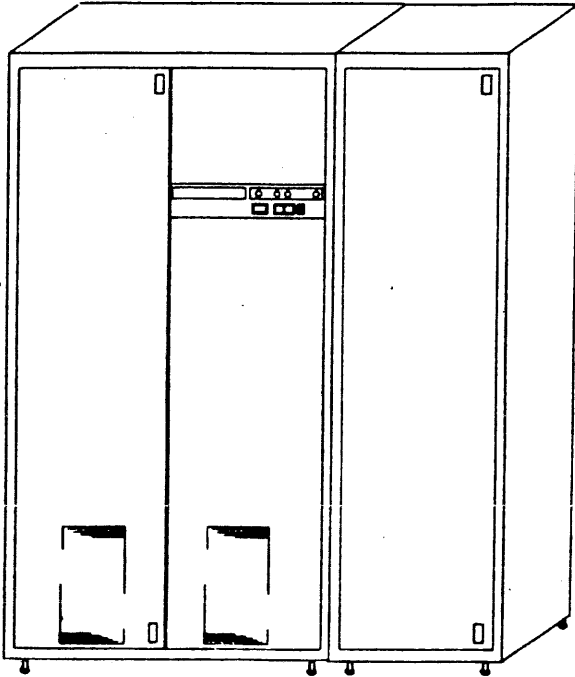
Length: m(ft) maximum
60(200) to MSU3380

- NOTES:
- * Operating voltages include: 200, 208, and 240 for 60 Hz
200, 220, 380, 400, and 415 for 50 Hz.
 - ** Amps Per Phase calculated from kVA for 208Y volts.

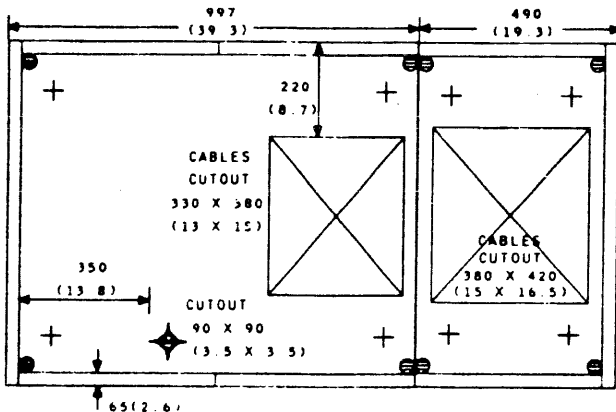


Footprint Template - HIS 7580

MASS STORAGE PROCESSOR
MSP8021* AND CABLE CABINET



IF AN MSP SHIELDED CABLE OPTION IS SELECTED, CABLE ACCESS IS THROUGH THE CABLE CABINET ONLY AND THE MSP CABINET CABLES FLOOR CUTOUT IS NOT REQUIRED.



Footprint Template - HIS 7579

----- PHYSICAL -----

Dimensions: Millimeters(Inches)
Front** Side Height
 1487(58.6) 826(32.5) 1854(73)

Required Clearances

Front Back Right Left
 915(36) 760(30) * 0

Weight: kg(lb)

Shipping Installed
 496(1094) VAN (MSP) 496(1094)
 601(1344) CRATE (MSP)
 105(235) CC 105(235)

----- ELECTRICAL -----

Circuit
Volts Hz Breaker Wiring***
 208 60 3P20A 4/#12
 208 50 3P20A 4/2mm

Amps Per Phase Max. Op.
A B C kVA kW kW
 9.9 10.2 8.8 3.5 3.2

Power Cable Plug provided
 conduit connected hardwired

----- ENVIRONMENTAL -----

kcal(kBTU)/hour
Maximum Operating
 2733(10.8)

Airflow
In Out
 lower front, top,
 lower back side panels

----- DATA CABLES -----

Length: m(ft) maximum
 23(75) to IO unit
 23(75) to peripherals

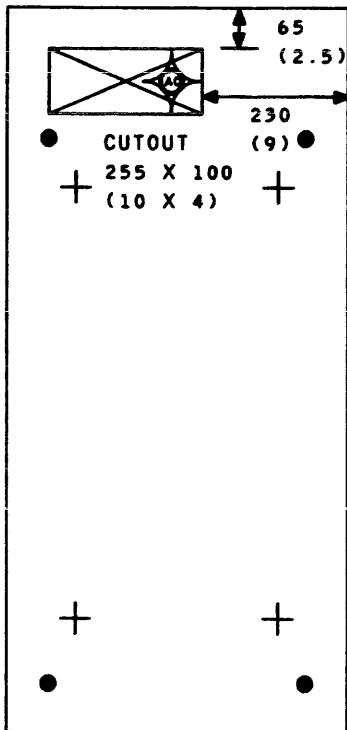
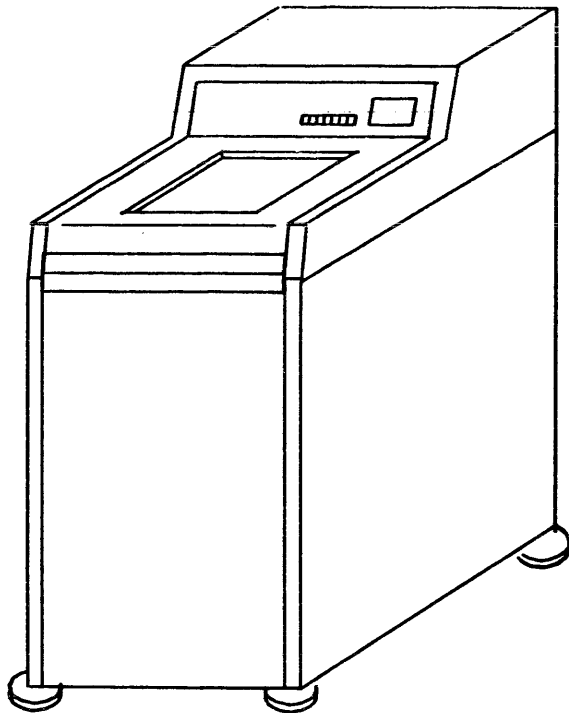
NOTES:

* An additional peripheral processor may be added: MSP8022 for disk, or MTP8023 for tape

** Adjacent like frames may be bolted together. If so, adjacent side panels are to be removed. Deduct 33(1.3) for each panel removed.

*** Neutral is not used.

MASS STORAGE UNIT
MSU0402, MSU0451 (MSU045XB)



Footprint Template - HIS 7514

----- PHYSICAL -----

Dimensions: Millimeters(Inches)

<u>Front</u>	<u>Side</u>	<u>Height</u>
565(22.3)	1130(44.5)	990(39)

Required Clearances:

<u>Front</u>	<u>Back</u>	<u>Right</u>	<u>Left</u>
915(36)	760(30)	0	0

Weight: kg(lb)

<u>Shipping</u>	<u>Installed</u>
341(750)	318(700)

----- ELECTRICAL -----

<u>Volts</u>	<u>Hz</u>	<u>Circuit</u>	
		<u>Breaker</u>	<u>Wiring</u>
208	60	2P20A	3/#12
220	50	1P20A	3/2mm

<u>Amps Per Phase*</u>			<u>kVA</u>	<u>Max. kW</u>	<u>Op. kW</u>
<u>A</u>	<u>B</u>	<u>C</u>			
7.5	7.5	-	1.6	1.3	

<u>Power Cable:</u>	<u>m(ft)</u>	<u>Connection</u>
3(10)		<A>

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

<u>Maximum</u>	<u>Operating</u>
1118(4.5)	

Airflow:

<u>In</u>	<u>Out</u>
lower front	upper back

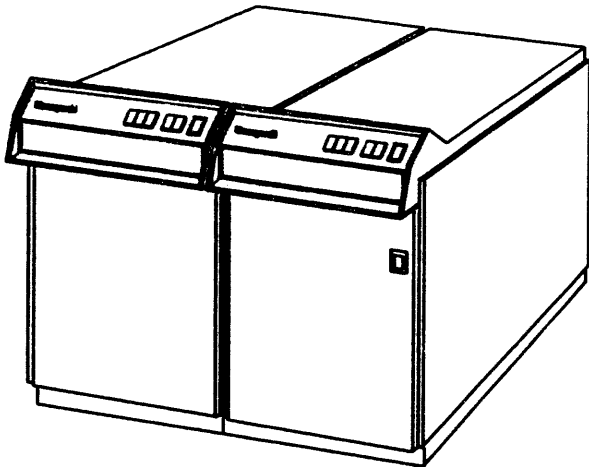
----- DATA CABLES -----

<u>Length:</u>	<u>m(ft) maximum</u>
23(75)	

NOTES:

- * 50 Hz is 8.5A single phase.
- o Rotate phases on all installed drives so the total load is balanced.
- o The neutral wire is not required for 60 Hz.
- o Starting current is 40A for 10 seconds maximum.

MASS STORAGE UNIT
MSU0500, MSU0501 (MSU05XXB)



----- PHYSICAL -----

Dimensions: Millimeters(Inches)

Front*	Side	Height
1067(42)	845(33.2)	1128(44.4)

Required Clearances:

Front	Back	Right	Left
915(36)	760(30)	0	0

Weight: kg(lb)

Shipping	Installed
499(1100)	490(1080)

----- ELECTRICAL -----

Circuit

Volts	Hz	Breaker	Wiring
208Y/120	60	3P20A	5/#12
380Y/220	50	4P15A	5/1.6mm

Amps Per Phase**

Amps Per Phase**			kVA	Max. kW	Op. kW
A	B	C			
7.5	7.5	7.5	2.7	2.1	

Power Cable: m(ft) Connection

4.5(15)	60 Hz	<A>
3(9.8)	50 Hz	

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

Maximum	Operating
1807(7.3)	

Airflow:

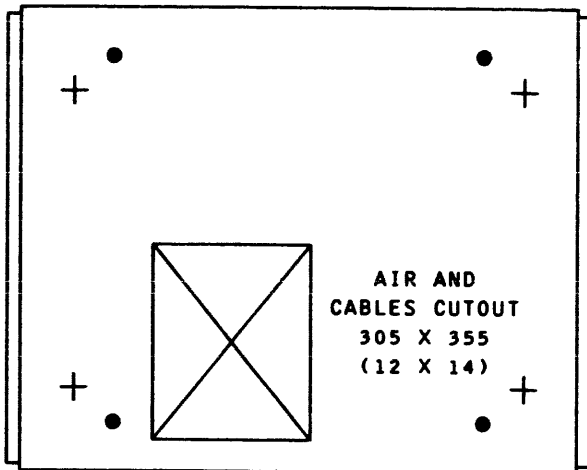
In	Out
lower front	upper back

----- DATA CABLES -----

Length: m(ft) maximum
23(75)

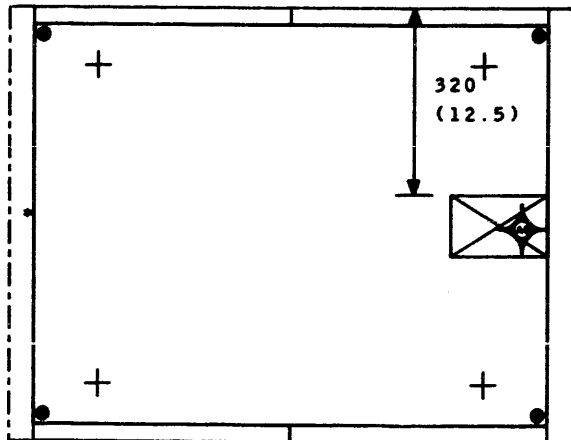
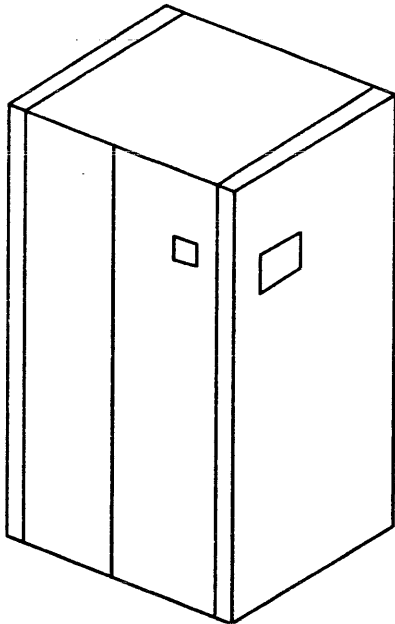
NOTES:

- * Add 30(1.2) for each side panel.
- ** The device is phase-sensitive. Starting current is 17A for 3 seconds.
50 Hz is 4.1A per phase.



Footprint Template - HIS 7515

MASS STORAGE UNIT
MSU3380



Footprint Template - HIS 7580

----- PHYSICAL -----

Dimensions: Millimeters(Inches)

Front*	Side	Height
1075(42.3)	865(34)	1790(70.5)

Required Clearances:

Front	Back	Right	Left
815(32)	815(32)	865(34)	0

Weight: kg(lb)

Shipping	Installed
	545(1200)

----- ELECTRICAL -----

Volts	Hz	Circuit	
		Breaker	Wiring
**	60	3P60A	4/#6
	50	3P60A	5/4mm

Amps Per Phase***				Max.	Op.
A	B	C	kVA	kW	kW
6.7	6.7	6.7	2.4	1.8	

Power Cable: m(ft) Connection

4.27(14)	<M>
----------	-----

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

Maximum	Operating
1506(6)	

Airflow:

In	Out
lower back	top

----- DATA CABLES -----

Length: m(ft) maximum
60(200) to MSP3880

NOTES:

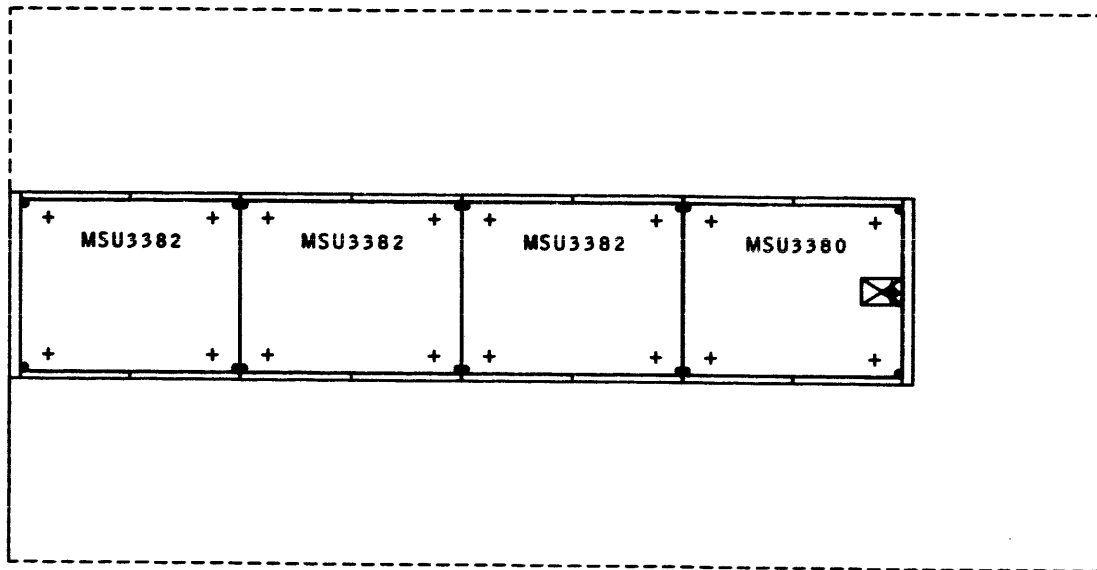
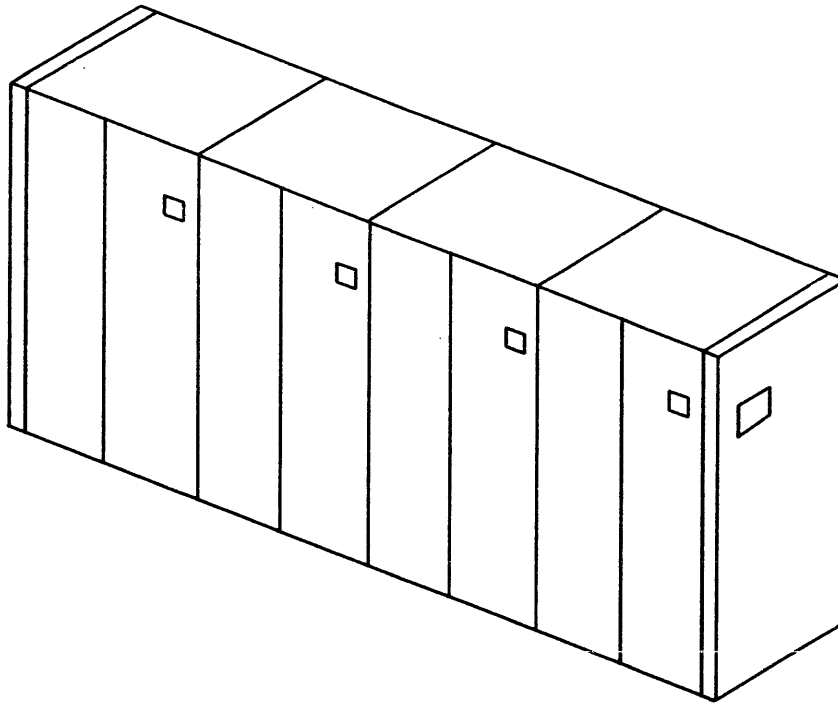
* Front is 1130(44.5) if no MSU3382 is connected.

** Operating voltages include: 200, 208, and 240 for 60 Hz
200, 220, 380, 400, and 415 for 50 Hz.

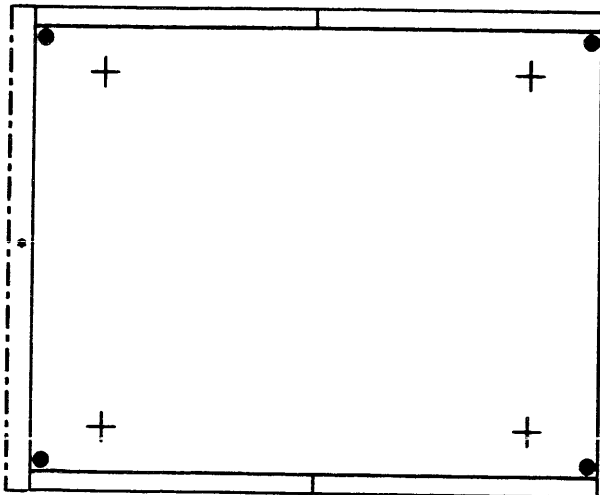
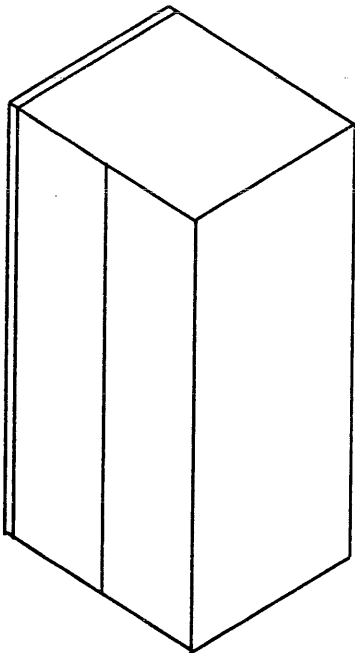
*** Amps Per Phase calculated from kVA for 208Y volts.

o Up to 3 MSU3382s may be connected to this unit.

MASS STORAGE UNIT
MSU3380/MSU3382



MASS STORAGE UNIT
MSU3382



Footprint Template - HIS 7580

----- PHYSICAL -----

Dimensions: Millimeters(Inches)

<u>Front*</u>	<u>Side</u>	<u>Height</u>
1015(40)	815(32)	1790(70.5)

Required Clearances:

<u>Front</u>	<u>Back</u>	<u>Right</u>	<u>Left</u>
815(32)	815(32)	0	0

Weight: kg(lb)

<u>Shipping</u>	<u>Installed</u>
	455(1000)

----- ELECTRICAL -----

<u>Volts</u> **	<u>Hz</u>	<u>Circuit Breaker</u>	<u>Wiring</u>		
Amps Per Phase***				<u>Max.</u>	<u>Op.</u>
<u>A</u>	<u>B</u>	<u>C</u>	<u>kVA</u>	<u>kW</u>	<u>kW</u>
6.1	6.1	6.1	2.2	1.5	

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

<u>Maximum</u>	<u>Operating</u>
1291(5.1)	

Airflow:

<u>In</u>	<u>Out</u>
lower back	top

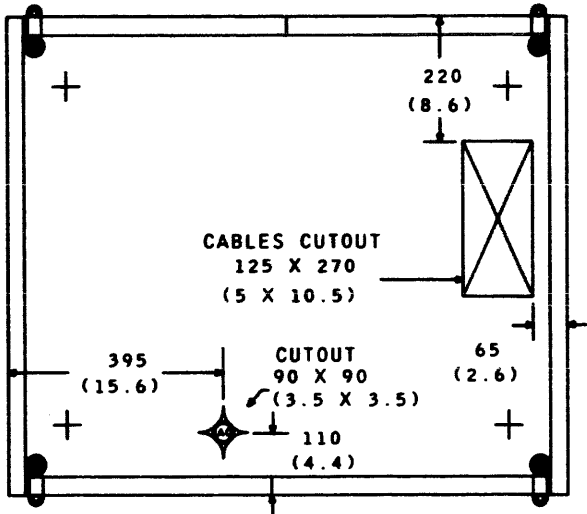
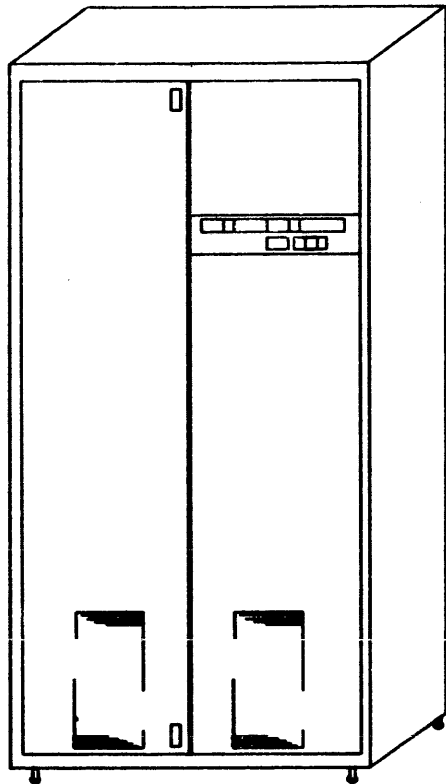
----- DATA CABLES -----

Length: m(ft) maximum
**

NOTES:

- * Front is 1075(42.3) for leftmost device.
- ** This unit is connected to the MSU3380 for power and data cables.
- *** Amps Per Phase calculated from kVA for 208Y volts.

MAGNETIC TAPE PROCESSOR
MTP0611



Footprint Template - HIS 7487

----- PHYSICAL -----

Dimensions: Millimeters(Inches)

Front*	Side	Height
1030(40.6)	826(32.5)	1854(73)

Required Clearances:

Front	Back	Right	Left
915(36)	760(30)	0	0

Weight: kg(lb)

Shipping	Installed
461(1016) van	461(1016)
545(1200) crate	

----- ELECTRICAL -----

Circuit

Volts	Hz	Breaker	Wiring**
208	60	3P15A	4/#14
208	50	3P15A	4/1.6mm

Amps Per Phase			Max.	Op.
A	B	C	kVA	kW
6.1	8.0	7.3	2.5	2.1

Power Cable:	Connection
conduit connected	hardwired

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

Maximum	Operating
1794(6.6)	

Airflow:

In	Out
lower front, lower back	top, side panels

----- DATA CABLES -----

Length: m(ft) maximum

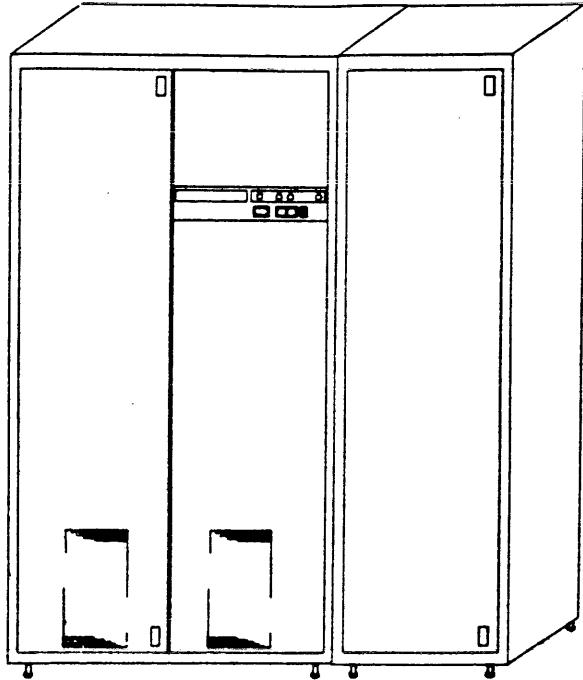
23(75) to IO unit
23(75) to peripherals

NOTES:

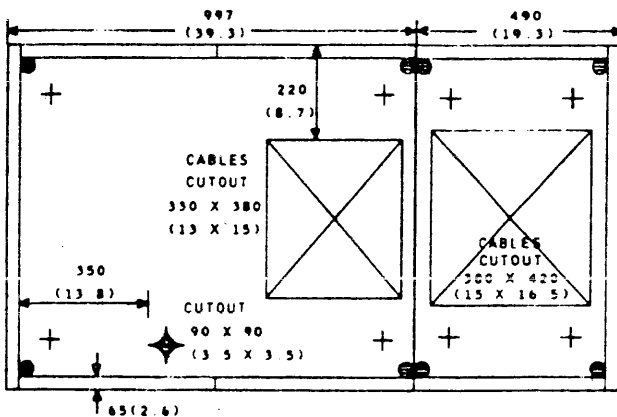
* Adjacent like frames may be bolted together. If so, adjacent side panels are to be removed. Deduct 33(1.3) for each panel removed.

** Neutral is not used.

MAGNETIC TAPE PROCESSOR
MTP8021*



IF AN MTP SHIELDED CABLE OPTION IS SELECTED, CABLE ACCESS IS THROUGH THE CABLE CABINET ONLY AND THE MTP CABINET CABLES FLOOR CUTOUT IS NOT REQUIRED.



Footprint Template - HIS 7579

----- PHYSICAL -----

Dimensions: Millimeters(Inches)

Front**	Side	Height
1487(58.6)	826(32.5)	1854(73)

Required Clearances:

Front	Back	Right	Left
915(36)	760(30)	*	0

Weight: kg(lb)

Shipping	Installed
496(1094) VAN (MTP)	496(1094)
610(1344) CRATE (MTP)	
105(235) CC	

----- ELECTRICAL -----

Circuit			
Volts	Hz	Breaker	Wiring***
208	60	3P20A	4/#12
208	50	3P20A	4/2mm

Amps Per Phase			Max.	Op.
A	B	C	kVA	kW
9.9	10.2	8.8	3.5	3.2

Power Cable: m(ft) conduit connected Connection hardwired

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:
Maximum Operating
 2733(10.8)

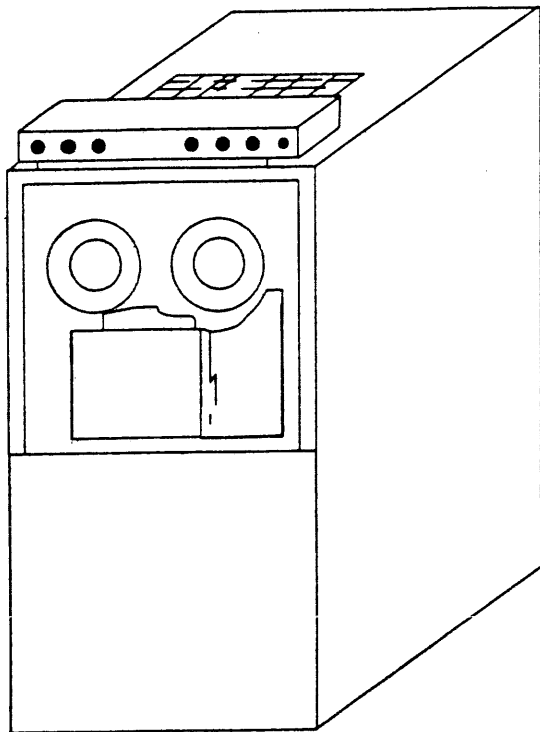
Airflow:
In Out
 lower front, top,
 lower back side panels

----- DATA CABLES -----

Length: m(ft) maximum
 23(75) to IO unit & to peripherals

- NOTES:
- * An additional peripheral processor may be added: MTP8022 for tape, or MSP8023 for disk.
 - ** Adjacent like frames may be bolted together. If so, adjacent side panels are to be removed. Deduct 33(1.3) for each panel removed.
 - *** Neutral is not used.

MAGNETIC TAPE UNIT
MTU0500 (MTU0500B)



----- PHYSICAL -----

Dimensions: Millimeters(Inches)

Front	Side	Height
762(30)	762(30)	1676(66)

Required Clearances:

Front	Back	Right	Left
915(36)	760(30)	0	0

Weight: kg(lb)

Shipping	Installed
363(800)	341(750)

----- ELECTRICAL -----

Volts	Hz	Circuit	
		Breaker	Wiring
208	60	3P15A	4/#14*
380Y/220	50	4P15A	5/1.6mm

Amps Per Phase**			Max. kW	Op. kW
A	B	C		
6.2	5.7	6.2	1.8	

Power Cable:	m(ft)	Connection
1.2(4)		<A>

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

Maximum	Operating
1549(6.1)	

Airflow:

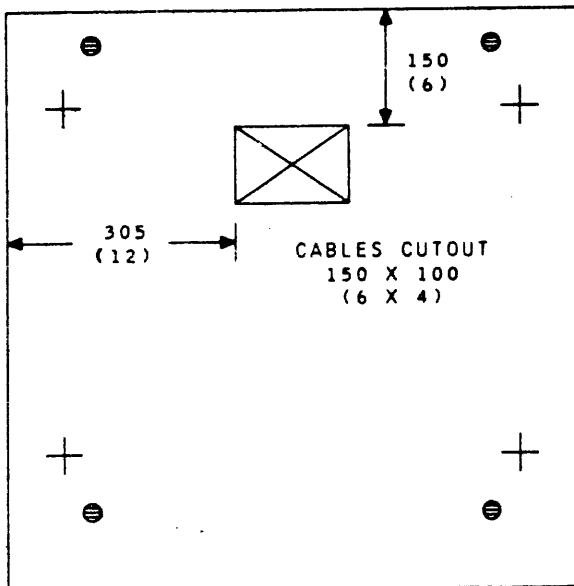
In	Out
lower back	top

----- DATA CABLES -----

Length:	m(ft) maximum
23(75)	

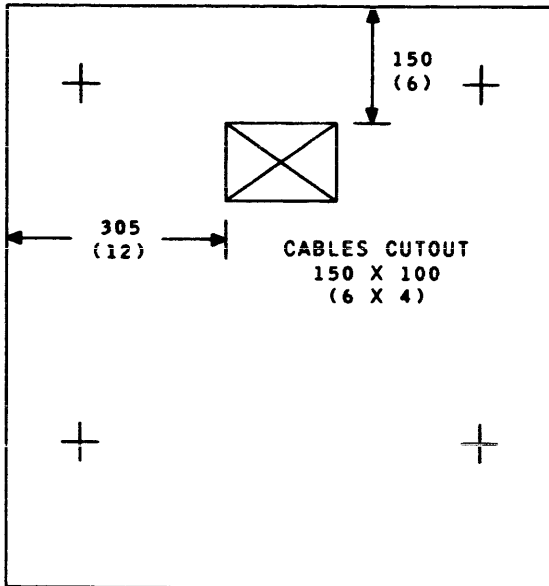
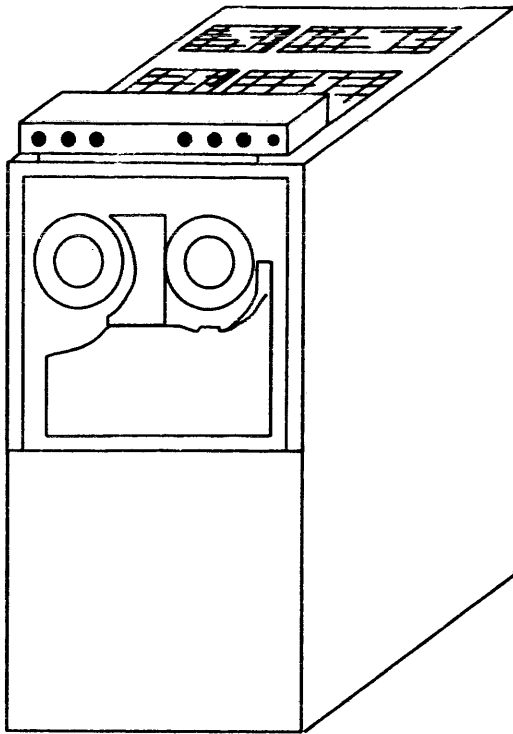
NOTES:

- * Neutral is not used on 60 Hz.
- ** The device is phase-sensitive. The starting current is 30A for 0.2 seconds maximum. 50 Hz is 4.8A, 3.9A, and 1.8A



Footprint Template - HIS 7517

MAGNETIC TAPE UNIT
MTU0600



Footprint Template - HIS 7518

----- PHYSICAL -----

Dimensions: Millimeters(Inches)

Front	Side	Height
762(30)	762(30)	1676(66)

Required Clearances:

Front	Back	Right	Left
915(36)	760(30)	0	0

Weight: kg(lb)

Shipping	Installed
477(1050)	465(1025)

----- ELECTRICAL -----

Circuit

Volts	Hz	Breaker	Wiring*
208	60	3P20A	4/#12

Amps Per Phase**

A	B	C	kVA	Max. kW	Op. kW
8.9	11.7	10.6	4.2	3.8	

Power Cable: m(ft) Connection
<A>

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

Maximum	Operating
3270(13)	

Airflow:

In	Out
back	top

----- DATA CABLES -----

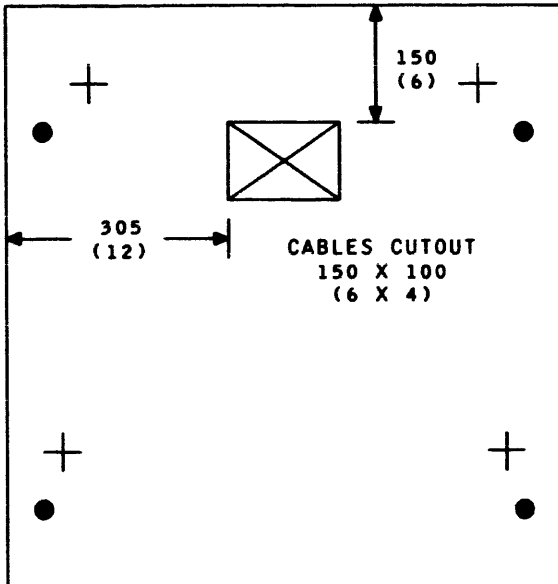
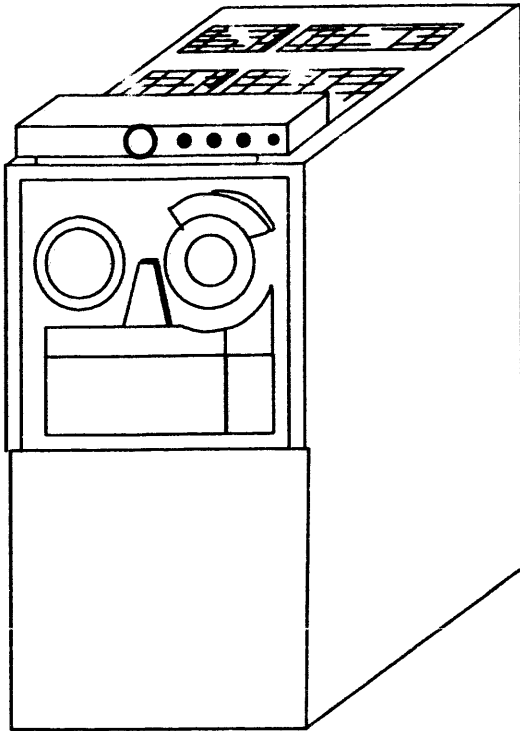
Length: m(ft) maximum
23(75)

NOTES:

* Neutral is not used.

** The device is phase-sensitive.
The starting current is 65A for
0.5 second maximum.

MAGNETIC TAPE UNIT
MTU0610 (MTU0610B)



Footprint Template - HIS 7519

----- PHYSICAL -----

Dimensions: Millimeters(Inches)

Front	Side	Height
775(30.5)	762(30)	1681(66.2)

Required Clearances:

Front	Back	Right	Left
915(36)	760(30)	0	0

Weight: kg(lb)

Shipping	Installed
431(950)	409(900)

----- ELECTRICAL -----

Volts	Hz	Breaker	Wiring
208	60	3P20A	4/#12*
380Y/220	50	4P15A	5/1.6mm

Amps Per Phase**			Max.	Op.
A	B	C	kVA	kW
9.8	9.8	9.2	3.1	2.9
				2.2

Power Cable: m(ft) Connection
<A>

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

Maximum	Operating
2495(9.9)	1860(7.4)

Airflow:

In	Out
lower front, lower back	top

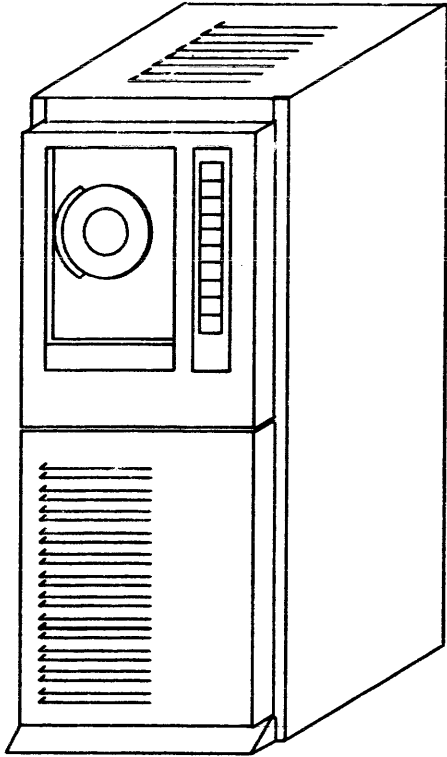
----- DATA CABLES -----

Length: m(ft) maximum
23(75)

NOTES:

- * Neutral is not used on 60 Hz.
- ** The device is phase-sensitive.
50 Hz is 5.3A, 5.3A, and 5.0A.

MAGNETIC TAPE UNIT
MTU0630



----- PHYSICAL -----

Dimensions: Millimeters(Inches)

Front	Side	Height
610(24)	947(37.3)	1563(61.5)

Required Clearances:

Front	Back	Right	Left
915(36)	915(36)	0	0

Weight: kg(lb)

Shipping	Installed
295(650)	295(650)

----- ELECTRICAL -----

Volts	Hz	Circuit	
		Breaker	Wiring
120	60	1P30A	3/#10
220	50	1P15A	3/1.6mm

Amps Per Phase*			kVA	Max. kW	Op. kW
A	B	C			
15.8	-	-	1.9	1.5	

Power Cable:	m(ft)	Connection
4.6(15)		<Z>

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

Maximum	Operating
1305(5.2)	

Airflow:

In	Out
lower front	top

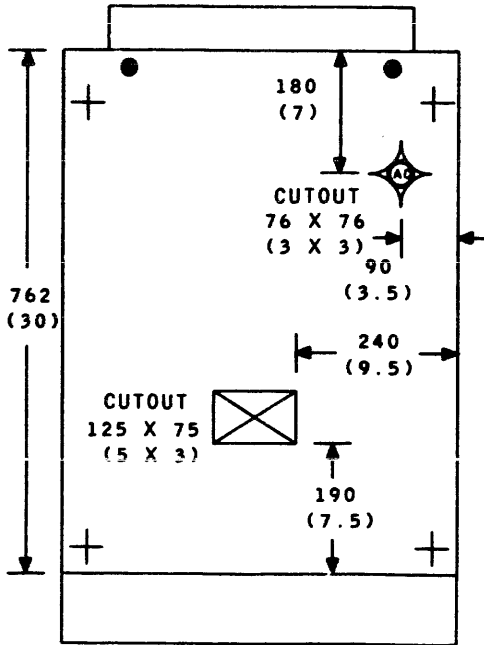
----- DATA CABLES -----

Length: m(ft) maximum

23(75)

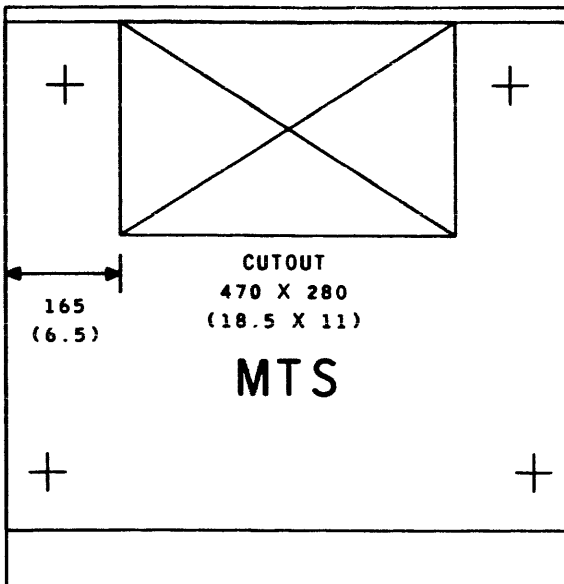
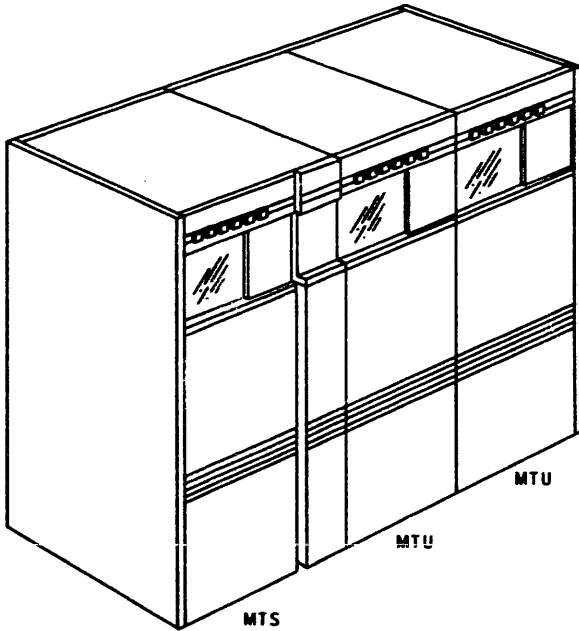
NOTES:

* 50 Hz is 8.6A.



Footprint Template - HIS 7520

MAGNETIC TAPE SUBSYSTEM
MTS820X



Footprint Template - HIS 7690

----- PHYSICAL -----

Dimensions: Millimeters(Inches)		
Front	Side	Height
787(31)	762(30)	1575(62)

Required Clearances:

Front	Back	Right	Left
760(30)	760(30)	0	0

Weight: kg(lb)

Shipping	Installed
	360(790)

----- ELECTRICAL -----

Circuit			
Volts	Hz	Breaker	Wiring
*	60	3P60A	4/#4
	50	3P40A	4/3.15mm

Amps Per Phase*			Max.	Op.
A	B	C	kVA	kW
			*	*

Power Cable:	m(ft)	Connection
4.6(15)		R&S 7328

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

Maximum	Operating
*	*

Airflow:

In	Out
bottom of front door and back	top

----- DATA CABLES -----

Length: m(ft) maximum

NOTES:

* Refer to charts.

- o Up to 7 MTU820Xs may be connected to this unit: up to 4 on one side (either), and up to 3 on the other.
- o Side covers shipped with this unit, removed during installation, are to be attached to the exposed ends of the subsystem. Added width is 38(1.5) total.

MAGNETIC TAPE SUBSYSTEM
MTS820X

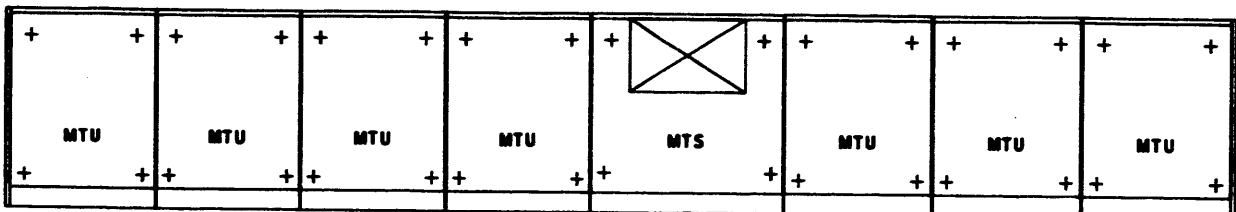
POWER CONSUMPTION

	----- 60 Hz -----					----- 50 Hz -----				
	OPERATING		READY		Min. Service at 208V	OPERATING		READY		Min. Service at 220V
	kVA	kW	kVA	kW		kVA	kW	kVA	kW	
1 x 1	1.8	1.8	1.6	1.5	15A	2.1	2.0	1.7	1.6	10A
1 x 2	3.2	3.0	3.0	2.7	25A	3.4	3.3	2.9	2.8	15A
1 x 3	4.1	4.0	3.9	3.8	30A	4.5	4.4	4.0	3.8	25A
1 x 4	5.4	5.2	5.1	4.9	30A	5.7	5.6	5.2	5.2	30A
1 x 5	6.6	6.4	6.2	6.1	40A	7.0	6.9	6.5	6.4	30A
1 x 6	7.4	7.4	7.1	7.1	40A	8.2	8.1	7.6	7.6	40A
1 x 7	8.6	8.5	8.3	8.2	50A	9.3	9.3	8.8	8.8	40A
1 x 8	9.8	9.7	9.7	9.4	60A	10.5	10.5	9.9	9.9	40A

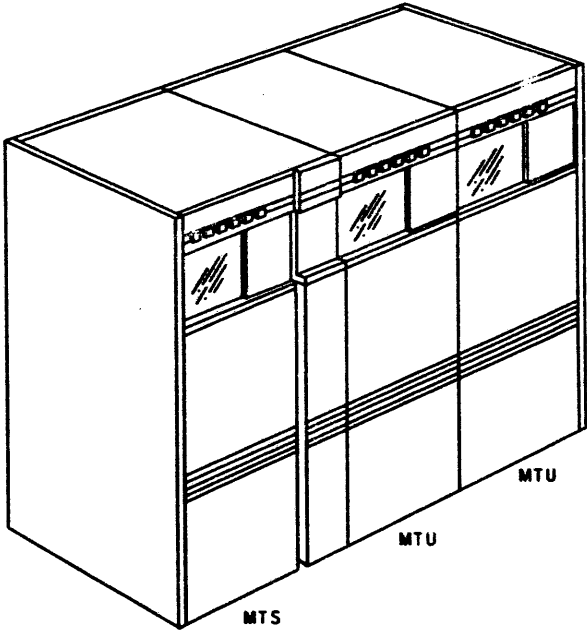
VOLTAGES: 200, 208, and 240 at 60 Hz 390 and 408 at 50 Hz
(+6%, -10% for all voltages - 50 Hz and 60 Hz)

HEAT DISSIPATION
kcal(kBTU)/hour

	----- 60 Hz -----		----- 50 Hz -----	
	OPERATING	READY	OPERATING	READY
1 x 1	1550(6.1)	1290(5.1)	1805(7.2)	1375(5.5)
1 x 2	2580(10.2)	2320(9.2)	2840(11.3)	2410(9.6)
1 x 3	3440(13.7)	3270(13.0)	3870(15.4)	3440(13.7)
1 x 4	4475(17.8)	4215(16.7)	4900(19.5)	4475(17.8)
1 x 5	5505(21.8)	5245(20.8)	5935(23.6)	5505(21.8)
1 x 6	6365(25.3)	6020(23.9)	6965(27.6)	6535(25.9)
1 x 7	7310(29.0)	7050(27.0)	8000(31.7)	7560(30.0)
1 x 8	8340(33.1)	7580(30.1)	9030(35.8)	8600(34.1)



MAGNETIC TAPE UNIT
 MTU820X (OPTION TO MTS820X*)



----- PHYSICAL -----

Dimensions: Millimeters(Inches)

<u>Front</u>	<u>Side</u>	<u>Height</u>
597(23.5)	762(30)	1575(62)

Required Clearances:

<u>Front</u>	<u>Back</u>	<u>Right</u>	<u>Left</u>
760(30)	760(30)	0	0

Weight: kg(!b)

<u>Shipping</u>	<u>Installed</u>
	218(480)

----- ELECTRICAL -----

Circuit

<u>Volts</u>	<u>Hz</u>	<u>Breaker</u>	<u>Wiring</u>
Power is furnished by MTS820X**			

----- ENVIRONMENT -----

kcal(kBTU)/hour:

<u>Maximum</u>	<u>Operating</u>
**	**

Airflow:

<u>In</u>	<u>Out</u>
bottom of front door	top

----- DATA CABLES -----

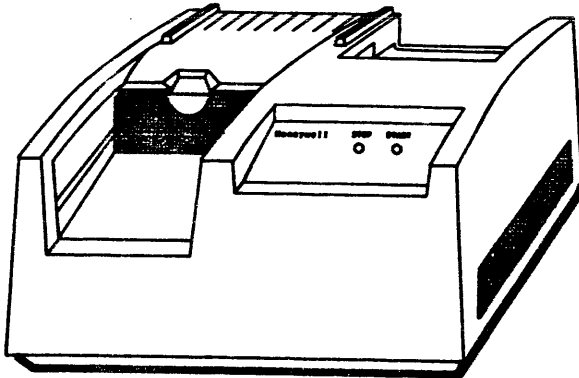
Internal to subsystem MTS820X

NOTES:

- * Up to 7 MTU820Xs may be connected to MTS820X.
- ** Refer to charts on MTS820X.

Footprint Template - HIS 7690

CARD READER
CRU0501 (CRU0501B)



----- PHYSICAL -----

Dimensions: Millimeters(Inches)		
<u>Front</u>	<u>Side</u>	<u>Height</u>
546(21.5)	457(18)	259(10.2)

Required Clearances:

<u>Front</u>	<u>Back</u>	<u>Right</u>	<u>Left</u>
915(36)	305(12)	0	0

Weight: kg(lb)

<u>Shipping</u>	<u>Installed</u>
41(90)	33(73)

----- ELECTRICAL -----

<u>Volts</u>	<u>Hz</u>	<u>Circuit</u>	
		<u>Breaker</u>	<u>Wiring</u>
120	60	1P15A	3/#14
220	50	1P15A	3/1.6mm

<u>Amps Per Phase*</u>			<u>kVA</u>	<u>Max. kW</u>	<u>Op. kW</u>
<u>A</u>	<u>B</u>	<u>C</u>			
2.0	-	-	0.24	0.23	

<u>Power Cable:</u>	<u>m(ft)</u>	<u>Connection</u>
1.8(6)		<F>

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

<u>Maximum</u>	<u>Operating</u>
181(0.72)	

Airflow:

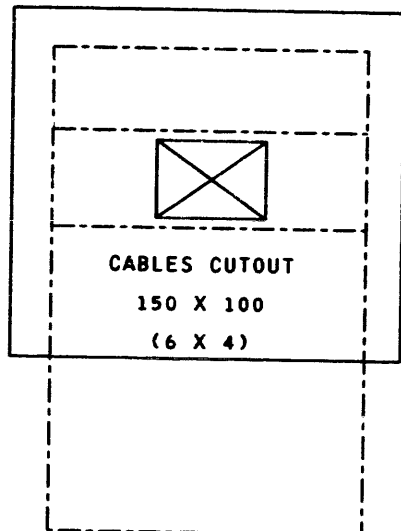
<u>In</u>	<u>Out</u>

----- DATA CABLES -----

<u>Length:</u>	<u>m(ft) maximum</u>
23(75)	

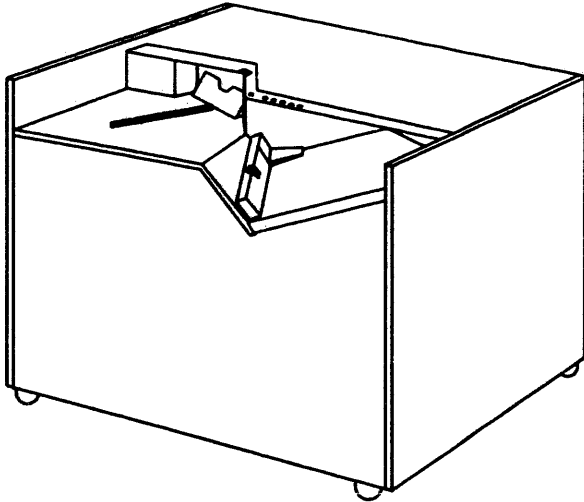
NOTES:

* 50 Hz is 1.0A.



Footprint Template - HIS 7523

CARD READER
CRU1050 (CRU1050B)



----- PHYSICAL -----

Dimensions: Millimeters(Inches)
Front Side Height
 1143(45) 762(30) 917(36.1)

Required Clearances:
Front Back Right Left
 915(36) 760(30) 0 0

Weight: kg(lb)
Shipping Installed
 227(500) 209(460)

----- ELECTRICAL -----

Circuit
Volts Hz Breaker Wiring
 120 60 1P20A 3/#12
 220 50 1P15A 3/1.6mm

Amps Per Phase* Max. Op.
A B C kVA kW kW
 9.2 - - 1.1 1.0

Power Cable: m(ft) Connection
 1.2(4) <Y>

----- ENVIRONMENTAL -----

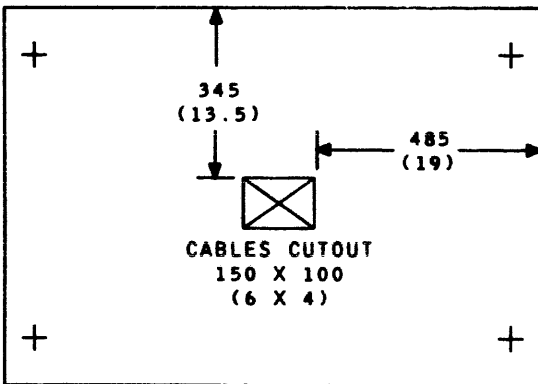
kcal(kBTU)/hour:
Maximum Operating
 861(3.4)

Airflow:
In Out
 bottom upper back

----- DATA CABLES -----

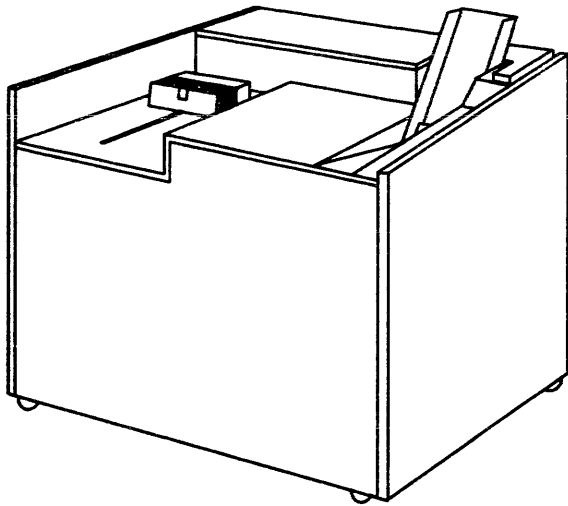
Length: m(ft) maximum
 23(75)

NOTES:
 * 50 Hz is 5.0A.



Footprint Template - HIS 7524

CARD READER/PUNCH
 PCU0121, CCU0401



----- PHYSICAL -----
 Dimensions: Millimeters(Inches)

<u>Front</u>	<u>Side</u>	<u>Height</u>
1143(45)	762(30)	1016(40)

Required Clearances:

<u>Front</u>	<u>Back</u>	<u>Right</u>	<u>Left</u>
915(36)	760(30)	0	0

Weight: kg(lb)

<u>Shipping</u>	<u>Installed</u>
386(850)	363(800)

----- ELECTRICAL -----
 Circuit

<u>Volts</u>	<u>Hz</u>	<u>Breaker</u>	<u>Wiring</u>
208Y/120	60	3P15A	5/#14

<u>Amps Per Phase*</u>			<u>Max.</u>	<u>Op.</u>
<u>A</u>	<u>B</u>	<u>C</u>	<u>kVA</u>	<u>kW</u>
7.0	8.5	8.0	2.8	2.5

Power Cable: m(ft) Connection
 <A>

----- ENVIRONMENTAL -----
 kcal(kBTU)/hour:

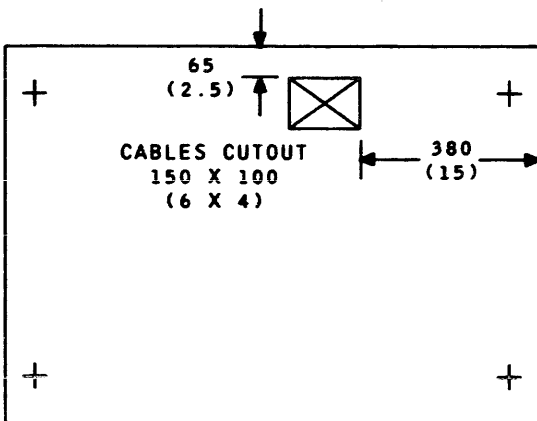
<u>Maximum</u>	<u>Operating</u>
2151(8.5)	

Airflow:

<u>In</u>	<u>Out</u>
bottom	upper back

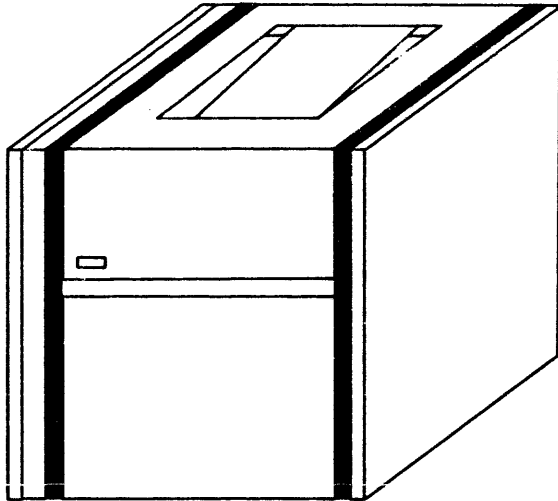
----- DATA CABLES -----
 Length: m(ft) maximum
 23(75)

NOTES:
 * The device is phase-sensitive.



Footprint Template - HIS 7521

PRINTER
 PRU0901, PRU1201
 PRU0903, PRU1203



----- PHYSICAL -----

Dimensions: Millimeters(Inches)
Front Side Height
 919(36.2) 660(26) 1000(39.4)

Required Clearances:
Front Back Right Left
 1000(39) * 0 **

Weight: kg(lb)
Shipping Installed
 200(440) PRINTER 170(374)
 52(114) STACKER 39(86)

----- ELECTRICAL -----
 Circuit

Volts Hz Breaker Wiring
 120 60 1P15A 3/#14
 220 50 1P15A 3/1.6mm

Amps Per Phase*** Max. Op.
 A B C kVA kW kW
 8.1 - - 0.97 0.77

Power Cable: m(ft) Connection
 4(13) <F>

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:
Maximum Operating
 430(2.7)

Airflow:
In Out
 lower left back

----- DATA CABLES -----

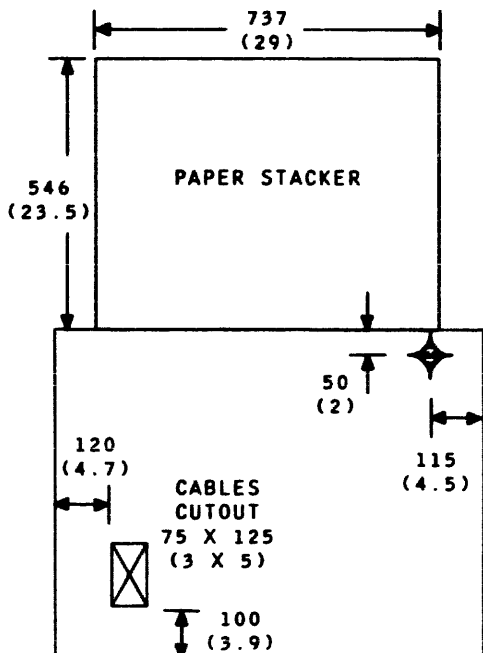
Length: m(ft) maximum
 23(75) DAI option

NOTES:

* Back clearance: 1500(60) or 1800(70) if Paper Stacker is present.

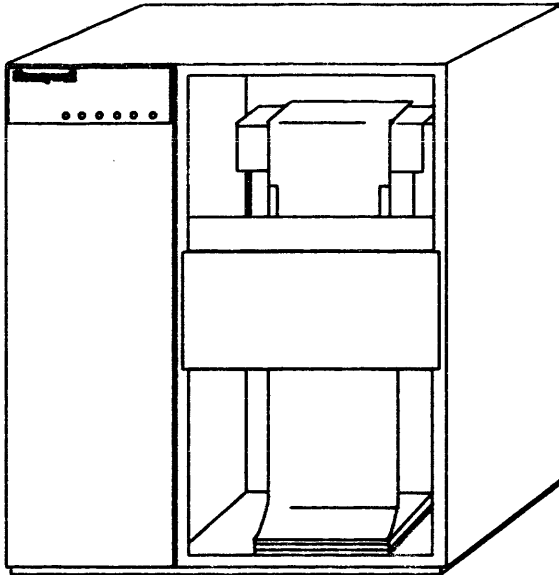
** Left clearance: 915(36) or may be 0 if printer can be moved for maintenance.

*** 50 Hz is 3.2A.



Footprint Template - HIS 7526

PRINTER
 PRU1200, PRU1600 (PRU1X00B)



----- PHYSICAL -----
 Dimensions: Millimeters(Inches)
Front Side Height
 1397(55) 762(30) 1549(61)

Required Clearances:
Front Back Right Left
 915(36) 1525(60) 760(30) 760(30)

Weight: kg(lb)
Shipping Installed
 863(1900) 808(1780)

----- ELECTRICAL -----
 Circuit
Volts Hz Breaker Wiring
 208Y/120 60 3P15A 5/#14
 380Y/220 50 4P20A 5/2mm

Amps Per Phase*			kVA	Max.	Op.
A	B	C		kW	kW
8.2	9.1	9.3	3.1	2.6	

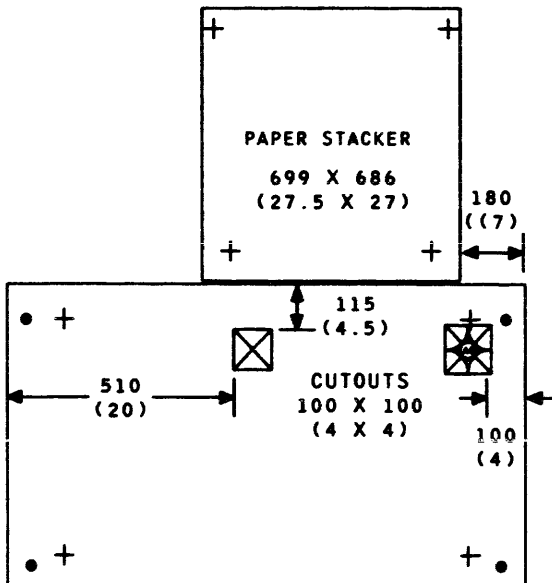
Power Cable: m(ft) Connection
 1.2(4) <A>

----- ENVIRONMENTAL -----
 kcal(kBTU)/hour:
Maximum Operating
 2236(8.9)

Airflow:
In Out
 bottom top

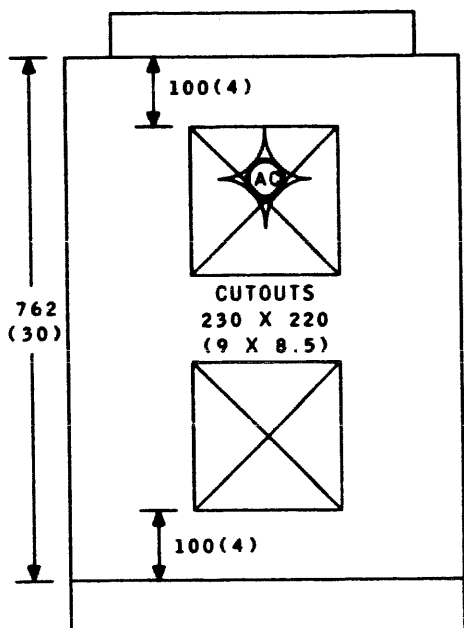
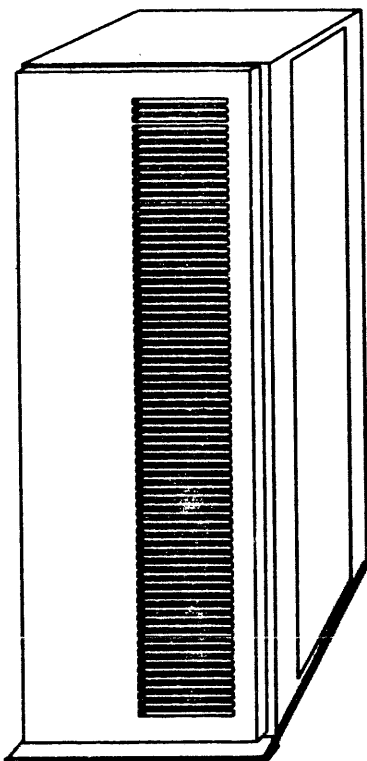
----- DATA CABLES -----
Length: m(ft) maximum
 23(75)

NOTES:
 * The device is phase-sensitive.
 50 Hz is 4.5A, 5.0A, and 5.1A.



Footprint Template - HIS 7527

PERIPHERAL SWITCH UNIT
 PSU8000, PSU8001 (PSU8001B)



Footprint Template - HIS 7540

----- PHYSICAL -----

Dimensions: Millimeters(Inches)

Front	Side	Height
610(24)	902(35.5)	1562(61.5)

Required Clearances:

Front	Back	Right	Left
760(30)	760(30)	0	0

Weight: kg(lb)

Shipping	Installed
136(300)	136(300)

----- ELECTRICAL -----

Circuit

Volts	Hz	Breaker	Wiring
120	60	1P15A	3/#14
220	50	1P10A	3/1.6mm

Amps Per Phase

A	B	C	kVA	Max. kW	Op. kW
0.5*	-	-	0.06	0.06	

Power Cable: m(ft) Connection

0.6(2)	<F>
--------	-----

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

Maximum	Operating
52(0.2)	

Airflow:

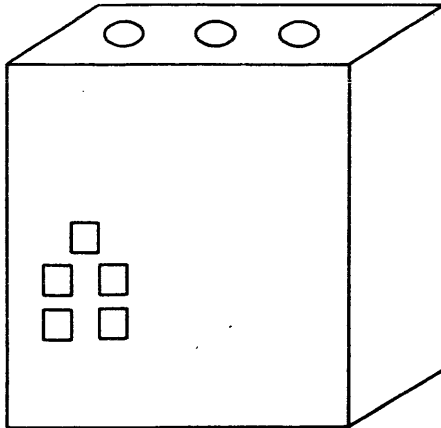
In	Out
NA	NA

----- DATA CABLES -----

Length: m(ft) maximum
 46(150)**

- NOTES:
- * Maximum current up to 5A during multiple switching, typical 1A during switching one switch.
 - ** Do not exceed maximum length as specified on Installation Planning drawing for unit connected through peripheral switch.

MOTOR GENERATOR CONTROL UNIT
MGC655AB



The unit is wall mounted in the computer room.*

----- PHYSICAL -----

Dimensions: Millimeters(Inches)

<u>Front</u>	<u>Side</u>	<u>Height</u>
518(20.4)	152(6)	445(17.5)

Required Clearances:

<u>Front</u>	<u>Back</u>	<u>Right</u>	<u>Left</u>
762(30)	0	152(6)	152(6)

Weight: kg(lb)

<u>Shipping</u>	<u>Installed</u>
	23(50)

----- SERVICE WIRING -----

<u>Volts</u>	<u>Hz</u>	<u>Circuit Breaker</u>	<u>Wiring</u>
UTILITY	60	1P15A	3/#14
TO MG		1P15A	2/#14

<u>Amps Per Phase</u>			<u>Max.</u>	<u>Op.</u>
<u>A</u>	<u>B</u>	<u>C</u>	<u>kVA</u>	<u>kW</u>
1.0	-	-	0.2	0.2

Power Cable: m(ft) Connection
conduit connected hardwired

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

<u>Maximum</u>	<u>Operating</u>
100.8(0.4)	

Airflow:

<u>In</u>	<u>Out</u>
NA	NA

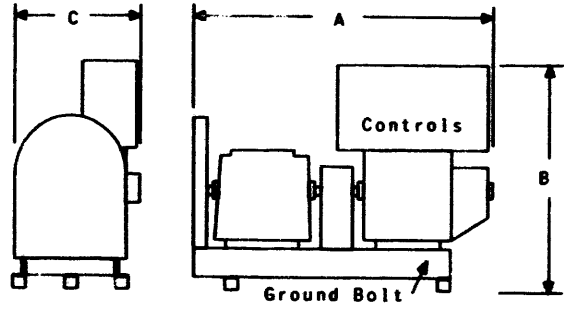
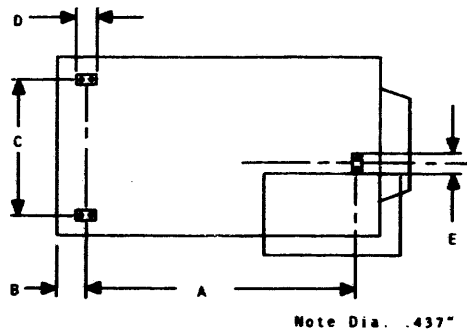
----- CONTROL WIRING -----

Length: m(ft) maximum
**, to MG (5 wires)

NOTES:

- * Allow for conduit access above and below the MGC unit.
- ** Distance, m(ft), MGC to MG and required wire size:
61(200) use #14(1.6mm) wire
99(325) use #12(2mm) wire***
152(500) use #10(2.5mm) wire***
***pigtail to #14(2.6mm) at the MGC

MOTOR GENERATOR
MG8030B, MG8031B



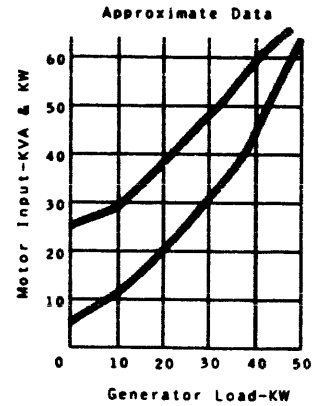
Mounting Pad Dimensions

Model	KW	A	B	C	D	E
8030	25	39"	13"	22"	4.12"	5.12"
8031	50	44.5"	12.75"	27"	4.12"	5.12"

Model	KW	A	B	C	Weight *
8030	25	67"	45"	28"	1650 lbs
8031	50	72"	55"	33"	2750 lbs

AC POWER REQUIREMENTS

Motor - Generator Set	Load		Motor		KVA	KW	kBTU/hr.
	Run	Start	HP	Code			
4WMG8030 Output	87	4 sec.	40	G, H	31.3	25	26
	Input-208 Volts	108	570		38.8	32.1	
	Input-440 Volts	51	300		38.8	32.1	
	Input-480 Volts	51	330		42.3	32.6	
4WMG8031 Output	174	4 sec.	78	E, G	62.5	50	43.7
	Input-208 Volts	212	950	(G)	76.0	62.8	
	Input-240 Volts	196	1140	(G)	81.4	62.8	
	Input-440 Volts	100	500	(G)	76.0	62.8	
	Input-480 Volts	98	570	(G)	81.4	62.8	



Footprint Template - HIS 7548

MOTOR GENERATOR
 MG8030B, MG8031B

----- PHYSICAL -----
 Dimensions: Millimeters(Inches)
Front Side Height
 * * *

Required Clearances:
Front Back Right Left
 1070(42) 914(36) 914(36) 914(36)

Weight: kg(lb)
Shipping Installed
 * *

-----SERVICE WIRING-----
 Circuit
Volts Hz Breaker Wiring
 * **

Amps Per Phase Max. Op.
A B C kVA kW kW

Power Cable: Connection
 conduit connected hardwired

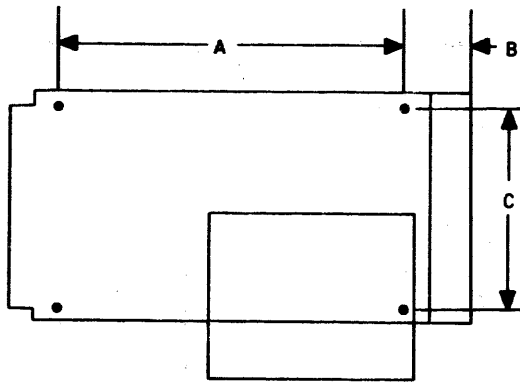
----- ENVIRONMENTAL -----
 kcal(kBTU)/hour:
Maximum Operating
 *

Airflow:
In Out

-----CONTROL WIRING-----
 Length: m(ft) maximum

NOTES:
 * See tables on opposite page.
 ** Wiring to/from MG should have negligible voltage drop.

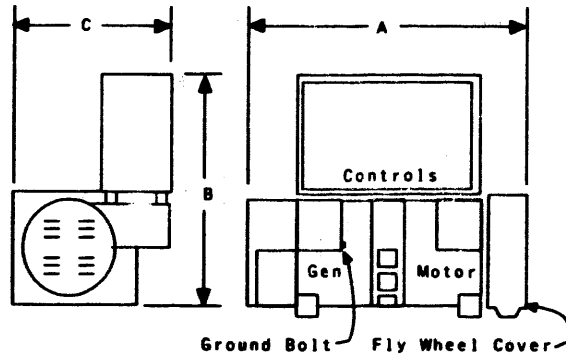
MOTOR GENERATOR
MG8030C, MG8031C



Use 1/2" Bolts

MOUNTING PAD DIMENSIONS

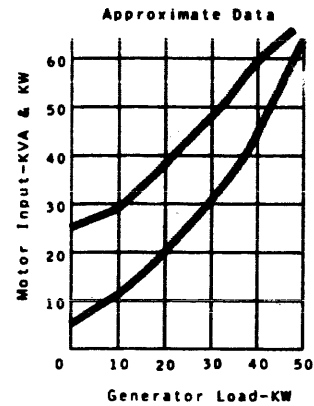
Model	KW	A	B	C
8030	25	31"	11"	19.5"
8031	50	31.75"	12"	19.5"



Model	KW	A	B	C	Weight*
8030	25	55"	50"	26"	1800 lbs
8031	50	60"	40"	33"	2700 lbs

AC POWER REQUIREMENTS

Motor - Generator Set	Load Amps/Phase		Motor		KVA	KW	kBTU/hr.
	Run	Start	HP	Code			
4WMG8030		4 sec.	40	G, H			30
Output	87				31.3	25	
Input-208 Volts	108	595			38.8	32.1	
Input-440 Volts	51	315			38.8	32.1	
Input-480 Volts	51	345			42.3	32.6	
4WMG8031		4 sec.	78	E, G			46
Output	174				62.5	50	
Input-208 Volts	212	1180		(G)	76.0	62.8	
Input-240 Volts	196	1360		(G)	81.4	62.8	
Input-440 Volts	100	625		(G)	76.0	62.8	
Input-480 Volts	98	662		(G)	81.4	62.8	



Footprint Template - HIS 7548

MOTOR GENERATOR
 MG8030C, MG8031C

----- PHYSICAL -----

Dimensions: Millimeters(Inches)

<u>Front</u>	<u>Side</u>	<u>Height</u>
*	*	*

Required Clearances:

<u>Front</u>	<u>Back</u>	<u>Right</u>	<u>Left</u>
1070(42)	914(36)	914(36)	914(36)

Weight: kg(lb)

<u>Shipping</u>	<u>Installed</u>
	*

-----SERVICE WIRING-----

<u>Volts</u>	<u>Hz</u>	<u>Circuit Breaker</u>	<u>Wiring</u>
*			**

Amps Per Phase			Max.	Op.
<u>A</u>	<u>B</u>	<u>C</u>	<u>kVA</u>	<u>kW</u>

<u>Power Cable:</u>	<u>Connection</u>
conduit connected	hardwired

----- ENVIRONMENTAL -----

kcal(kBTU)/hour:

<u>Maximum</u>	<u>Operating</u>
*	

Airflow:

<u>In</u>	<u>Out</u>
-----------	------------

-----CONTROL WIRING-----

Length: m(ft) maximum

NOTES:

- * See tables on opposite page.
- ** Wiring to/from MG should have negligible voltage drop.

7.4 SITE PLANNING TEMPLATES

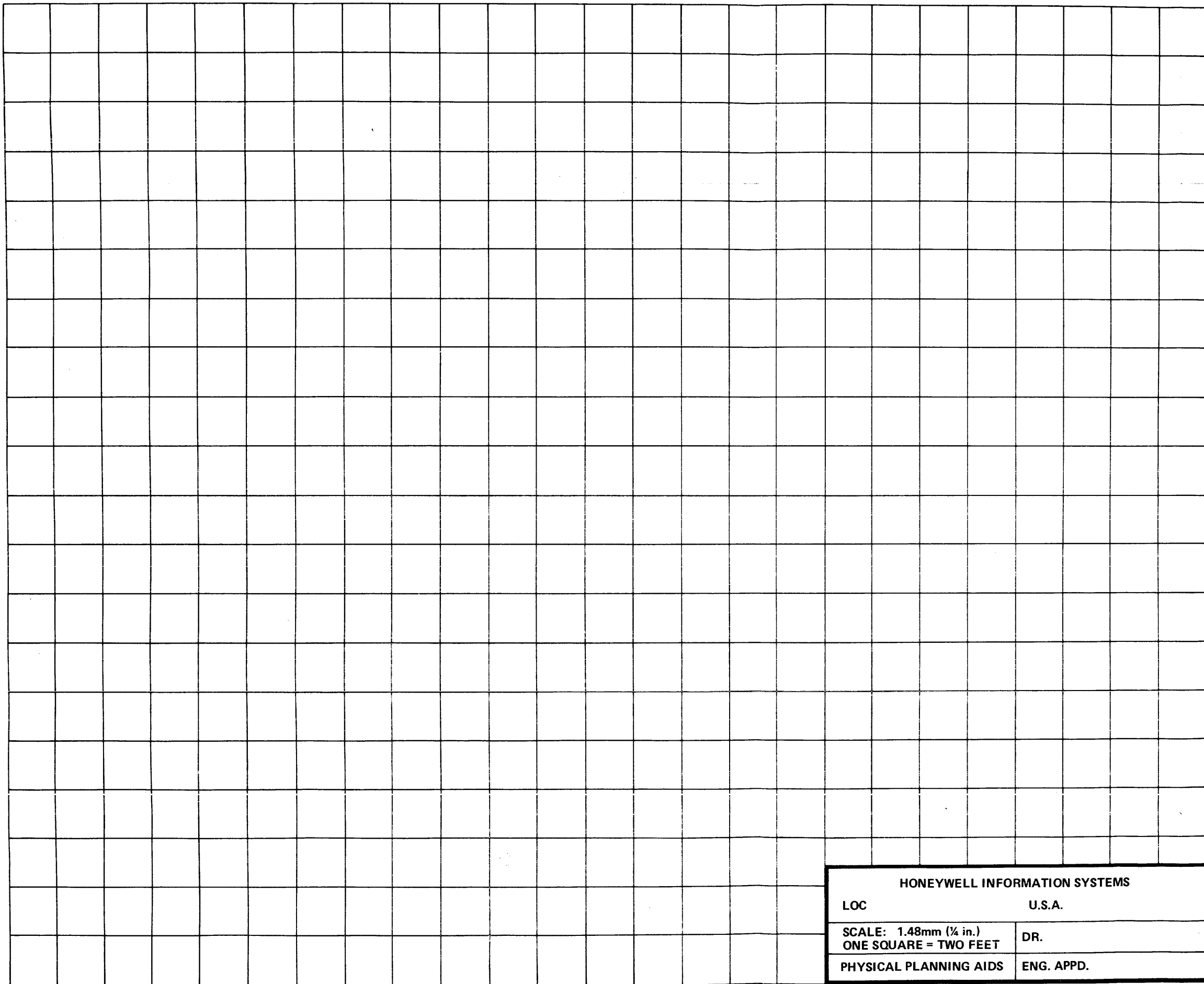
Mylar templates of DPS 8 system equipment are available for site planning purposes. The templates (1 to 48 scale) may be mounted on floor grid layouts such as HIS 7536, which is an 11" by 17" grid layout. The grid layouts are available in larger sizes and may be ordered when you order the DPS 8 Site Planning Template Kit, Order No. FZ97.

On the templates, the letter "F" (not circled) indicates the front of the device. The inside bold lines indicate the main portion of the device cabinetry; the outside dashed lines indicate the swing of the doors and/or drawers together with the required clearances for servicing. Clearances may be overlapped. The approximate location of floor cutouts for ac receptacles/ connectors (with symbols which are circled), cables and hoses are shown on the template.

For your convenience, circuit breaker load center warning labels are provided on a bright adhesive-backed sheet, HIS 3602. Score the surface of the labels around the warning label(s) desired with a razor-edge type knife, and peel the label off of the backing sheet. Place the appropriate labels on your branch circuit breaker load center where computer room power is isolated from other building power. If the computer room power is isolated at the main circuit breaker load center, place the labels there and at the computer room circuit breaker load center(s).

TABLE 7-8. SITE PLANNING TEMPLATES ORDER NUMBERS

<u>MODEL NUMBER</u>	<u>EQUIPMENT</u>	<u>ORDER NUMBER</u>
DPS 8 Site Planning Template Kit Order Number:		FZ97
CPU66LA, CPU68LA, CPU66LB, CPU68LB	Central Processor Unit	HIS 7487
MMU66LA, MMU66LB	System Control Unit	HIS 7487
IOU100A	Information Multiplexer Unit (IMU)	HIS 7487
IOU66LA	Input/Output Multiplexer (IOM)	HIS 7487
MPU9001	Diagnostic Processor Unit	HIS 7570
CSU8400	System Console	HIS 7542
CSU8402	Optional System Console	HIS 7542
DCU6661	Datanet 66	HIS 7505
DCU8010	Datanet 8	HIS 7506
DCF8001	Datanet Console	HIS 7541
MSP060X	Mass Storage Processor	HIS 7509
MSP06XX	Magnetic Tape Processor	HIS 7509
URP060X	Unit Record Processor	HIS 7509
MSP0611, MSP3880 MSP8021, MSP8022	Mass Storage Processor	HIS 7487
MSP3880	Mass Storage Processor	HIS 7580
MSP8021	Mass Storage Processor	HIS 7579
MSU0402, MSU0451	Mass Storage Unit	HIS 7514
MSU0500, MSU0501	Mass Storage Unit	HIS 7515
MSU3380, MSU3382	Mass Storage Unit	HIS 7580
MTP0611	Magnetic Tape Processor	HIS 7487
MTP8021	Magnetic Tape Processor	HIS 7479
MTU0500	Magnetic Tape Unit	HIS 7517
MTU0600	Magnetic Tape Unit	HIS 7518
MTU0610	Magnetic Tape Unit	HIS 7519
MTU0630	Magnetic Tape Unit	HIS 7520
CRU0501	Card Reader	HIS 7523
CRU1050	Card Reader	HIS 7524
PCU0121, CCU0401	Card Reader/Punch	HIS 7522
PRU0901, PRU1201	Printer	HIS 7526
PRU1200, PRU1600	Printer	HIS 7527
PSU8000, PSU8001	Peripheral Switch Unit	HIS 7577
MGC655AB	Motor Generator Control Unit	HIS 7502
MG8030B, MG8031B MG8030C, MG8031C	Motor Generator	HIS 7502
	Computer Room Furniture	HIS 7533
	Computer Room Furniture	HIS 7534
	Floor Grid (11" x 17")	HIS 7536
	Floor Plain (11" x 17")	HIS 7535
	Floor Grid (22" x 17")	HIS 7410
	Floor Plain (22" x 17")	HIS 7411
	Floor Grid (22" x 34")	HIS 7412
	Floor Plain (22" x 34")	HIS 7413
	Circuit Breaker Load Center Decals	HIS 3602



REVISIONS

REV	AUTHORITY	DATE			SIGNATURE
		YR	MO	DAY	

LEGEND

- + CASTERS
 - ◆ LEVELERS
 - ◆ LEVEL AND LOCK CASTERS
 - ◆ RUBBER NUBS
 - ⊕ CASTERS WITH LOCKING DEVICE
 - F FRONT OF UNIT
 - LEGS AND CASTERS (CASTERS ARE REPLACED BY LEVELERS)
 - ↑ AIR FLOW
 - CLEARANCE
 - AC UNIT CUTOFF AND M.G. OR AC INPUT
 - POWER PANEL (BY CUSTOMER)
 - CONTROL PANEL
 - 15 RACEWAY CALLOUT
 - LOGIC SIGNAL CONNECTIONS FOR FREE STANDING UNITS
- (A) 30A 120/208V
N/A
 - (F) 15A 120V
5 15R
 - (U) 15A 120V
L5 - 15R
 - (Y) 20A 120V
L5 - 20R
 - (Z) 30A 120/208V
L5 - 30R

RECEPTACLE CONNECTOR SUPPLIED AND INSTALLED BY CUSTOMER (WHEN SPECIFIED)

REFERENCE ELECTRICAL POWER SECTION

HONEYWELL INFORMATION SYSTEMS	
LOC	U.S.A.
SCALE: 1.48mm (1/4 in.) ONE SQUARE = TWO FEET	DR.
PHYSICAL PLANNING AIDS	ENG. APPD.

TITLE:			
CUSTOMER:			
SIZE	DWG. NO./SYSTEM NO.	SH	REV
		OF	

APPENDIX A
DPS 8 SITE PREPARATION GUIDELINES

PURPOSE

To provide a guide for all involved in marketing, site preparation, and installation of Honeywell DPS 8 systems.

RESPONSIBILITIES

The customer is responsible for preparation of the site prior to arrival of the Honeywell system. The Marketing Account Representative should contact the CSD District Manager as early as possible during the sales effort to ensure customer awareness of Honeywell requirements for site preparation.

The CSD district manager will assist the customer in site preparation activities by ensuring that all support required by the customer is provided. The CSD Customer Service Account Representative (CSAR) and the CSD Site Preparation Specialist will provide the following services:

1. Technical assistance to:
 - a. Ensure correct interpretation of the Site Preparation Manual, DU34, and all other information provided to the customer.
 - b. Develop a scaled floor plan consistent with customer operational needs and within Honeywell engineering restrictions, as reflected in hardware specifications.
2. If a nonstandard layout is required, the Marketing Representative must generate and submit a Request for Price Quotation (RPQ) for layout approval. A scaled floor plan, provided by the CSD Site Preparation Specialist, must be attached to the RPQ. An RPQ is also required if the customer plans to provide a power source other than the standard motor-generator set, or the capacitor ride-thru option.
3. Provide the customer with installation specifications consisting of the following requirements (see DPS 8 Site Preparation Manual, DU34):
 - a. Electrical power
 - b. Air conditioning
 - c. Physical characteristics
 - d. Scaled floor plan
4. Provide Marketing Scheduling with a configuration diagram and a scaled floor plan for use in generating the installation parts list.

5. Preparation and distribution of the site preparation checklist, predelivery site survey, and site preparation audit report.
6. Provide follow-up prior to shipment to ensure that:
 - a. The customer site is inspected to verify conformance to Honeywell installation specifications.
 - b. The CSD personnel responsible for installing the equipment are aware of the shipping and installation plans.

APPENDIX B
DPS 8 SITE PREPARATION CHECKLIST

Prepared by _____ Tel # _____ Date _____

Customer name & complete address (include building # & zip code):

Indicate delivery address, if different

System # _____ System Type: DPS 8/ _____

Scheduled ship date: _____

Telephone contacts:

(Customer, Contractor, Marketing, CSD DM, CSAR, ICC)

THREE MONTHS PRIOR TO SCHEDULED SHIP DATE:

Identify major units of the system configuration (refer to requisition).

Run the on-line site prep program (LARGE1) to obtain system specifications for presentation to the customer. Contact the Installation Control Center (ICC) for any required assistance.

Assure an adequate supply of 1:48 scale templates is available for use in creating scaled equipment layouts. Request DPS 8 Site Planning Template kit, FZ97, from:

Honeywell Information Systems Inc.
Manager, Computer Supplies, MA06-01
47 Harvard Street
Westwood, MA 02090
U.S.A.

Schedule first site visit with Honeywell Marketing Representative, CSD District Manager, Customer Account Representative (CSAR), customer's Facility Manager/Engineer or contractors, and the customer's Data Processing Operations Manager.

Initial site visit attendees:

<u>Name</u>	<u>Organization and function</u>	<u>Telephone #</u>
-------------	----------------------------------	--------------------

During the site initial visit, ensure that the customer has the following items:

DPS 8 Site Preparation Manual, DU34, with all revisions.

Equipment specification packages (qty _____)

Other _____

Define location, size, and restrictions of customer's facility.

Determine customer operational requirements for equipment layout (floor plan) considerations.

Follow entire delivery path from off-load point to computer room, making careful and accurate measurements. Record all required data on predelivery site survey, HIS Form 2921. Include any drawings required for clarity.

During the meeting, discuss all requirements related to:

- | | |
|---|--|
| <input type="checkbox"/> General construction | <input type="checkbox"/> Electrical power |
| <input type="checkbox"/> Equipment grounding | <input type="checkbox"/> Air conditioning |
| <input type="checkbox"/> Total space requirements | <input type="checkbox"/> Safety |
| <input type="checkbox"/> DMS (remote maintenance)
Refer to DU34, Section 7,
for modem information | <input type="checkbox"/> Equipment delivery |
| | <input type="checkbox"/> Disposition of crates and
packing material |

Create a scaled floor plan of the entire system. Include all items planned to occupy the area in which the system will be installed, including customer furniture, tape racks, and all items which may affect delivery, installation, and/or maintenance access of the system. Identify the following items on the floor plan:

- | | |
|---|--|
| <input type="checkbox"/> Customer name/address | <input type="checkbox"/> Scale of drawing |
| <input type="checkbox"/> System type & number | <input type="checkbox"/> Electrical power connectors |
| <input type="checkbox"/> Each unit to be connected
to DPS & Central System | <input type="checkbox"/> Peripheral switch plan |
| <input type="checkbox"/> Your name & telephone # | <input type="checkbox"/> Raised floor height
(clearance from subfloor to
panel bottom) |
| <input type="checkbox"/> Cable run obstructions | <input type="checkbox"/> Revision status & date |
| <input type="checkbox"/> MG and MGCU | <input type="checkbox"/> Ground braid:
MG-SCU 0 _____ meters/ft |
| <input type="checkbox"/> Floor panel size, mm(in.) | <input type="checkbox"/> Central Sys. Power Sequencer |
| <input type="checkbox"/> Facility ground location | <input type="checkbox"/> Access door to computer room |
| <input type="checkbox"/> Equipment color (see DU34) | |
| <input type="checkbox"/> CSD maintenance room, with
ESD-protected work station | |

Obtain floor plan approval:

Customer Marketing CSD LCPD Engineering*

* Only if a nonstandard floor plan is submitted. When submitting a nonstandard floor plan for approval, identify any unique considerations which may affect cable lengths.

Discuss potential conversion or phase-in concerns where existing equipment is involved (CSAR must be present).

Downtime requirements

Rearrangement sequence

Installation overtime requirements

Complete site data form (SDF) and configuration connectability layout (CCL) to ensure that all IPL cable requirements are conveyed to Marketing Administration.

Record all questions asked during the meeting; attach the list to this checklist, and provide answers to all questions as soon as possible, and no later than the next scheduled meeting with the customer.

Attach floor plan, system configuration diagram, predelivery site survey, site data form, configuration connectability layout, and all other pertinent documents to this completed checklist. Distribute to:

<input type="checkbox"/> CSD CSAR	<input type="checkbox"/> CSD District Manager
<input type="checkbox"/> Marketing Representative	<input type="checkbox"/> Customer
<input type="checkbox"/> ICC Manager, Phoenix	<input type="checkbox"/> Marketing Scheduling, Phoenix
<input type="checkbox"/> All Traffic Departments affected by requisition	<input type="checkbox"/> File copies as required

TWO MONTHS (60 DAYS) PRIOR TO SCHEDULED SHIP DATE:

The CSD CSAR will prepare an installation plan, and review this plan with the CSD District Manager. When preparing the installation plan, refer to the installation goal letter from the ICC.

Obtain a copy of the customer's engineering drawings of the facility for review. Notify the customer, CSD CSAR, and the ICC immediately if there are any discrepancies.

Review the latest ship schedule for possible changes. When reviewing the schedule, note the ship dates, and notify the CSD CSAR of the dates.

ONE MONTH (30 DAYS) PRIOR TO SCHEDULED SHIP DATE:

Conduct a site readiness inspection, accompanied by the CSD CSAR. During this inspection, verify compliance with all specifications in DU34. Record all required data on the Site Preparation Audit Report, and notify the customer and the CSD CSAR immediately if any discrepancies are noted. Distribute the Site Preparation Audit Report to:

- | | |
|---|---|
| <input type="checkbox"/> CSD CSAR | <input type="checkbox"/> CSD District Manager |
| <input type="checkbox"/> Marketing Representative | <input type="checkbox"/> Customer |
| <input type="checkbox"/> ICC Manager, Phoenix | <input type="checkbox"/> Marketing Scheduling,
Phoenix |
| <input type="checkbox"/> All Traffic Departments
affected by requisition | <input type="checkbox"/> File copies as required |

APPENDIX C
DPS 8 SITE PREPARATION AUDIT REPORT

Prepared by _____ Tel # _____

Customer name _____ System # _____

Address _____

Ship date _____ Date of this audit _____

	YES	NO	NA	SCHEDULED COMPLETION DATE
1. FLOORING				
a. Raised floor installed	[]	[]	[]	_____
b. Floor panel access holes cut and trimmed	[]	[]	[]	_____
c. Raceways installed	[]	[]	[]	_____
2. AIR CONDITIONING/COOLING				
a. Air conditioning system installed and tested	[]	[]	[]	_____
b. Recorders and alarms installed and tested	[]	[]	[]	_____
c. Underfloor area cleaned	[]	[]	[]	_____
d. Ducts blown clean	[]	[]	[]	_____
3. ELECTRICAL POWER SYSTEM				
a. MG/MGCU installed and tested	[]	[]	[]	_____
b. Backup power system installed and tested	[]	[]	[]	_____
c. Load centers installed and wired	[]	[]	[]	_____
d. Breaker sizes verified per specifications	[]	[]	[]	_____
e. Wiring from load centers to units in place	[]	[]	[]	_____
f. Connectors installed	[]	[]	[]	_____

	YES	NO	NA	SCHEDULED COMPLETION DATE
4. GROUNDING SYSTEM				
a. Grounding system installed .	[]	[]	[]	_____
b. Ground impedance tested	[]	[]	[]	_____
5. SAFETY SYSTEMS				
a. Emergency-off switches installed and tested	[]	[]	[]	_____
b. Fire/smoke detection system installed and tested	[]	[]	[]	_____
c. Fire suppression system installed and tested	[]	[]	[]	_____
d. Emergency lighting installed and tested	[]	[]	[]	_____
6. SUPPORT FACILITIES & EQUIPMENT				
a. RMI Modem telephone jack installed and tested	[]	[]	[]	_____
b. Maintenance area/room completed	[]	[]	[]	_____
c. ESD-protected work station completed	[]	[]	[]	_____
d. Storage area/room(s) completed	[]	[]	[]	_____
7. Revision and date of scaled layout used for this audit (verify computer room dimensions per drawing)				

Revision _____ Date _____

If the system is shipped as scheduled, can it be safely and properly delivered, installed, operated, and maintained with existing site conditions?

[] YES

[] NO

Explain incomplete items and make necessary comments below.
(Continue on reverse side if necessary.)

HONEYWELL INFORMATION SYSTEMS
Technical Publications Remarks Form

TITLE

DPS 8
SITE PREPARATION MANUAL
(Includes Addendum A)

ORDER NO.

DU34-00

DATED

JANUARY 1986

ERRORS IN PUBLICATION

[Empty box for errors in publication]

SUGGESTIONS FOR IMPROVEMENT TO PUBLICATION

[Empty box for suggestions for improvement to publication]



Your comments will be investigated by appropriate technical personnel and action will be taken as required. Receipt of all forms will be acknowledged; however, if you require a detailed reply, check here.

PLEASE FILL IN COMPLETE ADDRESS BELOW.

FROM: NAME _____

DATE _____

TITLE _____

COMPANY _____

ADDRESS _____

CUT ALONG LINE

CUT ALONG LINE

FOLD ALONG LINE

FOLD ALONG LINE

PLEASE FOLD AND TAPE-
NOTE: U.S. Postal Service will not deliver stapled forms

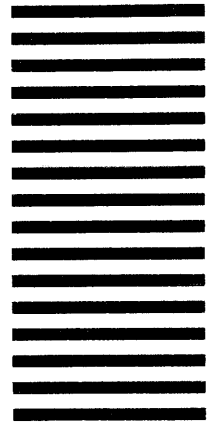


NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 39531 WALTHAM, MA 02154

POSTAGE WILL BE PAID BY ADDRESSEE

HONEYWELL INFORMATION SYSTEMS
200 SMITH STREET
WALTHAM, MA 02154



ATTN: PUBLICATIONS, MS486

Honeywell

Together, we can find the answers.

Honeywell

Honeywell Information Systems

U.S.A.: 200 Smith St., MS 486, Waltham, MA 02154

Canada: 155 Gordon Baker Rd., Willowdale, ON M2H 3N7

Mexico: Av. Constituyentes 900, 11950 Mexico, D.F. Mexico

U.K.: Great West Rd., Brentford, Middlesex TW8 9DH **Italy:** 32 Via Pirelli, 20124 Milano

Australia: 124 Walker St., North Sydney, N.S.W. 2060 **S.E. Asia:** Mandarin Plaza, Tsimshatsui East, H.K.

46964, 2C187, Printed in U.S.A.

DU34-00
(+ A)