

MegaStar

User's Manual

Integrated Business Computers

**21621 Nordhoff Street • Chatsworth, CA 91311
Telephone (818) 882-9007 • Telex 215349**

Copyright (C) 1985 by Integrated Business Computers, Inc. All rights reserved. No part of this document may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language or computer language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual, or otherwise, without the prior written permission of Integrated Business Computers, Inc.

- NOTICE TO OWNER -

Federal Communications Commission
Radio Frequency Interference
Statement (U.S.A. Only)

Warning: This equipment generates and uses radio frequency energy and, if not installed in accordance with the instruction manual, may cause interference to radio communications. This equipment has been tested and found to comply with the limits for a Class A computing or peripheral device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at his or her own expense will be required to take whatever measures may be required to correct the interference.

Documentation: G. L. Ayres

First Edition
Version: 1.1 October 1985

IBC (Integrated Business Computers, Inc.) products are warranted in accordance with the terms of the applicable IBC product specifications. Product performance is affected by system configuration, software, and operator control among other factors. While IBC products are considered to be compatible with most peripheral devices, the product's functional performance may vary depending upon its implementation.

Therefore, the suitability of a product for a specific application must be determined by the customer and is not warranted by IBC.

This manual is as complete and factual as possible at the time of printing; however, the information in this manual may have been updated since that time. IBC reserves the right to change the functions, features, or specifications of its products at any time, without notice.

[®]
OASIS is a trademark of Phase One Systems, Inc.

TABLE OF CONTENTS

1. INTRODUCTION

- 1.1 Introduction
- 1.1 Conventions Used in this Manual
- 1.1 Highlights
- 1.2 The HELP Feature
- 1.2 Comments About this Document

2. UNPACKING AND INSTALLATION

- 2.1 Unpacking and Inspecting the Computer
- 2.2 Site Requirements
- 2.2 Power Requirements
- 2.3 Physical Requirements
- 2.3 Removing the Floppy Drive Head Protector
- 2.4 Connecting the Power Cable
- 2.5 Installation Checklist

3. TERMINAL INSTALLATION

- 3.1 Terminal Characteristics
- 3.2 Terminal Connectors and Wiring
- 3.2 Port Layout

4. PRINTERS

- 4.1 Serial Printer Connectors and Wiring
- 4.2 Parallel, or Centronics, Printer Interfaces

5. THE FLOPPY DISK DRIVE

- 5.1 Dual Floppy Drive Systems
- 5.2 Diskette and Drive Specifications
- 5.3 Inserting and Removing Diskettes
- 5.4 Diskette Handling
- 5.5 Floppy Disk Drive Care

Contents (continued)

6. REMOVABLE MEDIA HARD DISK DRIVES

- 6.1 The Removable Media Hard Disk Drive
- 6.2 Inserting and Removing Disk Cartridges
- 6.3 SETDISK for the Removable Media Hard Disk Drive
- 6.3 Servo-Writing Disk Cartridges
- 6.4 Reformatting Previously Servo-Written Disk Cartridges

7. TAPE DRIVES

- 7.1 Operating Characteristics
- 7.2 Inserting Tape Cartridges
- 7.4 Removing Tape Cartridges
- 7.4 Cartridge and Drive Care
- 7.7 Using 600 Foot Tapes

8. EXTERNAL STORAGE DEVICES (Desk Top Model Only)

- 8.1 Installing the Standoffs
- 8.3 Installing the External Hard Disk Drive
- 8.5 Installing the External 8" Floppy Disk Drive
- 8.9 Installing the External Cartridge Tape Drive

9. INTERNAL SWITCH SETTINGS

- 9.1 Opening the MegaStar's Cabinet
- 9.2 Selecting the Boot/Diagnostic PROM Configuration
- 9.3 Selecting the Baud Rates for the Serial I/O Ports
- 9.4 Selecting the Base/Bank Sizes
- 9.5 Selecting Floppy Disk drive Capacity
- 9.5 Setting the Clear to Send Protocol

10. REPACKING AND SHIPPING

- 10.1 Using the HOME Command
- 10.2 Installing the Floppy Drive Head Protector
- 10.2 Removable Media Hard Disk Drives
- 10.2 Cartridge Tape Drives
- 10.3 Disconnecting Peripherals
- 10.3 External Devices and Add-On Options
- 10.3 Repackaging

11. SYSTEM STARTUP AND BOOT ROUTINES

- 11.1 Powerup
- 11.2 Diagnostics: Booting from the Hard Disk Drive
- 11.4 Diagnostics: Booting from the Floppy Disk Drive
- 11.5 Automatic Boot Using the Hard Disk Drive
- 11.6 Automatic Boot Using the Floppy Disk Drive

12. INVOKING MULTI-USER OASIS

- 12.1 The SET MEMORY Command
- 12.3 The START and STOP Commands

13. ATTACHING DEVICES

- 13.1 The ATTACH Command
- 13.3 ATTACH Command Examples
- 13.5 Using the SYSGEN Command to Store and Cancel ATTACHments

14. USING THE SYSTEM'S DEVICES

- 14.1 Formatting Diskettes with INITDISK
- 14.3 The COPYFILE Command
- 14.4 Using the ARCHIVE and RESTORE Commands
- 14.8 Using the BACKUP Command
- 14.9 Copying Diskettes --- Single Floppy Drive System
- 14.10 IBC's ARCHIVE and RESTORE Options

15. SYSTEM SHUTDOWN

- 15.1 Bringing the System Down to Single-User Mode
- 15.4 The SHOWDISK and REPAIR Commands
- 15.5 Shutdown

16. THE IBC SETDISK UTILITY

- 16.2 Using the SETDISK Utility as a Command
- 16.5 Using the SETDISK Utility Interactively
- 16.8 SETDISK Utility Examples

Contents (continued)

17. BANKED NUCLEUS OVERLAY

17.1 Banked Nucleus Overlay Mode

18. USING CACHE

18.3 The Cache Ramdisk Mode

18.2 Starting the Cache Banks: The MCACHE Command

1. INTRODUCTION

The purpose of this document is to help guide you in your dealings with the IBC MegaStar.

At the beginning of each section, an honest attempt has been made to explain what subjects that section will be dealing with. Hopefully, this will help save you having to read through any sections that do not pertain to your current interests.

Conventions Used in this Manual

When explaining concepts and/or commands unique to the OASIS operating system, this manual assumes that you have a readily available copy of the OASIS System Reference Manual. The System Reference Manual will, once you know where to look for things, tell you everything you need to know about standard OASIS commands and features.

Hopefully, the MegaStar User's Manual will tell you whatever you need know about both the MegaStar and the supplemental commands produced by IBC.

In most instances, this manual makes every attempt to reproduce all OASIS commands using the same format as used in the OASIS System Reference Manual. These conventions are explained in the chapter Documentation Conventions in the OASIS System Reference Manual.

In the interest of clarity, all commands explained in this manual have been listed in their long form -- no effort has been made to abbreviate them. The OASIS System Reference Manual shows command abbreviations by underlining the minimum acceptable portion of the command.

Highlights

This manual also uses indented paragraphs to highlight certain different types of pertinent information. The conventions used for these paragraphs are as follows:

WARNING. A warning indicates the very real possibility of physical

injury to either yourself or others, and suggests what to do to avoid injury.

CAUTION. A caution warns of the possibility of damage to the equipment, and suggests a course of action to prevent that damage.

IMPORTANT. This expression is used to call attention to very important information about the use of either the computer or the operating system.

NOTE. A note is used to point out information that will help make using the system easier or increase its efficiency.

The HELP Feature

If you are not already familiar with OASIS, you may want to use the built-in HELP feature to help get you acquainted with the commands.

You may enter the HELP command without any arguments to receive a list of all the available OASIS and IBC commands as well as a brief description of each command's function. Using the HELP command followed by another OASIS command as an argument will produce a more detailed description of the command's function followed by a list of available arguments and options and a description of their functions.

The OASIS operating system contains an on-line listing of available command abbreviations. If you want to call up the list of available abbreviations, use the SHOW SYN command.

Comments About This Document

If you have any comments, suggestions for improvement, questions, or criticisms concerning this document, please feel free to make them known.

Address correspondence to:

IBC/ Integrated Business Computers
21621 Nordhoff Street
Chatsworth, CA 91311

Attn: Technical Publications

2. UNPACKING AND INSTALLATION

This section covers the preliminary unpacking and installation of the IBC MegaStar computer. Details concerning how to configure the MegaStar to specific peripherals (and vice versa) are covered in the following sections.

Specifically, this section covers the following aspects of unpacking and installation:

- 1) Unpacking and inspecting the computer for signs of possible damage after shipping.
- 2) The power and general site requirements needed at the installation site.
- 3) Removing the head protector(s) from the floppy disk drive(s).
- 4) Connecting the power cable.

A brief checklist has been provided at the end of this section for your use in making sure that you did not skip any part of the installation process. If you have installed other IBC MegaStar computers and are already familiar with the installation process, you may skip the following descriptions and go directly to the checklist.

Unpacking and Inspecting the Computer

Before accepting delivery of the computer, you should inspect the shipping container for any obvious signs of damage. If damage is found, make a note of it on the waybill and require the delivery agent to sign the waybill. You should also notify the transfer company immediately and submit a damage report to the carrier, your dealer, and IBC.

After you receive the computer, it will probably be easier and safer to leave the computer in its original packing material while moving it to the installation site.

WARNING: The IBC floor mount model MegaStar weighs approximately 65 pounds (29.5 kilos). The desk top MegaStar weighs approximately 38 pounds (17 kilos). If you feel that you cannot lift this weight comfortably, do not risk injuring yourself or damaging

IBC/ Megatar Unpacking and Installation

the computer. Get someone to help you lift the computer out of its shipping container.

To unpack the computer, carefully cut the tape holding the top of the container closed and open the shipping container. Lift the top half of the packing foam upward and out of the box. Gently lift the computer up and out of the box.

Save all packing materials to use when reshipping the computer.

Site Requirements

Before you proceed with the actual installation of the computer, make sure that you are ready with the proper power source and an adequate table or stand to set the computer on.

Power Requirements

Depending on your location, the computer has been configured to operate with either 115 VAC (United States) or 230 VAC (International).

The power requirements for the MegaStar are shown in Table 2-1.

- 115 VAC $\pm 10\%$, 47-63 Hz @ 2 amps max
- 230 VAC $\pm 10\%$, 47-63 Hz @ 1 amp max
- 350 watts
- NEMA standard 5-15R, 3-prong receptacle (US only)

Table 2-1. Power Requirements.

IBC/ Megatar
Unpacking and
Installation

| Desk Top | Floor Mount |
|----------------------------------|--------------------|
| Surface area (footprint): | |
| Width: 12.0" (30.5 cm) | 8.5" (21.6 cm) |
| Depth: 20.0" (50.8 cm) | 22.0" (55.9 cm) |
| Vertical clearance: | |
| 6.75" (17.1 cm) | 22.8" (57.9 cm) |
| Weight: | |
| 37.5 lbs (17.0 kg) | 65.0 lbs (29.5 kg) |

Table 2-3. Physical Requirements.

To remove the head protector, first remove the packing tape that holds the drive door shut. With the tape removed, press the latch located in the middle of the floppy disk drive below the diskette opening. The locking tab will slide up and the cardboard head protector will jump outward far enough for you to grab it. Pull the head protector straight out.

CAUTION: To prevent damage to the drive's read/write heads, never attempt to operate the computer with the head protector(s) installed.

Be sure to save the head protector for later use when shipping or moving the computer.

Connecting the Power Cable

After removing the head protectors from the floppy disk drive, you may connect the power cable to the computer.

For the 115 VAC configuration, use the three-prong plug which is provided with the computer and make sure that your outlet is grounded. If an adapter is used, be sure that its pigtail is grounded.

For the 230 VAC configuration, cut off the US-style three-prong plug provided and install a connector compatible with your local power receptacles. The power cable wires are color coded as shown in Table 2-2.

| | |
|--------|--------------------------------|
| Green: | Earth (ground) |
| Black: | Primary Power (hot) |
| White: | Primary power return (neutral) |

Table 2-2. Power Cable Color Coding.

Physical Requirements

You should be absolutely certain that whatever you are going to mount the computer on is both strong enough to hold the computer and stable enough not to wobble. The computer must not be subjected to jostling, bumping, banging, or vibrations (for example, running a printer on the same table as the computer would almost certainly produce a level of vibration that would prove harmful to the computer).

The recommended ventilation clearance is 4 inches (10 cm) on all sides. Do not block or cover any ventilation holes. You will also probably want to arrange the computer in such a way that it will be possible to have fairly easy access to the ports at the back of the computer.

Removing the Floppy Drive Head Protector

To prevent damage to the heads during shipping, a cardboard head protector is inserted into each computer's floppy disk drive(s). Before using the system, you must be sure to remove the head protector.

**IBC/ Megatar
Unpacking and
Installation**

The power cable has both a male and female end. The female end plugs into the three-pronged male outlet at the back of the computer (there is only one way that it will fit); and the male end plugs into the electrical outlet. Make sure that both ends of the power cable are plugged securely into their respective outlets.

Installation Checklist

Before you proceed to the next section (or switch on the computer) check to ensure that you have installed the computer correctly.

1. Did you install the correct plug for your wall outlet?
2. Did you remove the floppy disk drive(s) head protector(s)?
3. Is the power cable connected to the computer and plugged into the proper electrical outlet?

If your answers to these questions are yes, then you are ready to proceed.

- Baud Rates Supported:
 - 300, 600, 1200, 2400, 4800,
9600, 19200, 38400
- 8 Data Bits (No Parity)
- 1 or 2 Stop Bits
- Full Duplex

Table 3-1. Terminal Characteristics - Both Models.

Terminal Connectors and Wiring

Terminals are connected to the MegaStar's serial ports with standard RS-232 connectors (using EIA standard RS-232 for signal definitions). It is, of course, important that the terminals used with the MegaStar are correctly wired to the connectors.

If you are planning to make your own terminal cables you should bear in mind that the EIA standard recommends that the length of serial cables should exceed 50 feet.

The serial port pin assignments are shown in Tables 3-2 through 3-5.

Port Layout

The MegaStar is available with either 16 or 11 serial I/O ports. The floor mount model has 16 ports, and the desk top model has 11 ports. The serial I/O ports are located at the back of the cabinet on both models.

On the both the floor mount and desk top MegaStar, PORT 1 has been reserved for use as a console port. The console port's baud rate is switch selectable, and must be set to reflect the baud rate of the terminal connected as the console. Section 9, Internal Switch Settings explains how to set the baud rates for the console.

When setting up your system, you should bear in mind that it is a good operating procedure to connect the terminals starting at the lowest

3. TERMINAL INSTALLATION

The MegaStar is able to support a number of different types of terminals at a number of different baud rates, and is compatible with most of the terminals available on the market today.

The purpose of this section is to help guide you through the task of installing terminals as part of your system. This section describes the basic aspects of the interface between the MegaStar and the terminals:

- 1) The terminal characteristics necessary to ensure a proper interface between the terminals, the MegaStar, and the OASIS operating system.
- 2) The information necessary to allow you to correctly wire and connect terminals to the MegaStar.

Terminal Characteristics

The baud rates that the MegaStar will support, as well as the non-settable terminal characteristics, are shown in Table 3-1. The terminals you use with the system must be able to run at one of these baud rates. This should not create any difficulties as these are the most commonly available baud rates for both terminals and modems.

With the exception of the console port, the baud rates for all of the MegaStar's serial ports are software selectable. Section 8, Internal Switch Settings, explains how to set the baud rate for the console port. Section 11, Invoking Multiuser OASIS, explains how to set the baud rates for all the system's other ports.

The MegaStar is able to support terminals that have either one or two stop bits, eight data bits, and run in full duplex mode.

The only significant restrictions the MegaStar has with regard to terminals are as listed in Table 3-1.

**IBC/ MegaStar
Terminal Installation**

| | |
|---------------------------|----|
| Chassis Ground | 1 |
| Receive Data (RXD) | 2 |
| Transmit Data (TXD) | 3 |
| Clear to Send (CTS) | 4 |
| Request to Send (RTS) | 5 |
| Signal Ground | 7 |
| Data Carrier Detect (DCD) | 8 |
| Data Terminal Ready (DTR) | 20 |

**Table 3-4. Desk Top MegaStar Serial Port
Pin Assignments - Port 11.**

| | |
|---------------------------|----|
| Chassis Ground | 1 |
| Receive Data (RXD) | 2 |
| Transmit Data (TXD) | 3 |
| Clear to Send (CTS) | 4 |
| Request to Send (RTS) | 5 |
| Signal Ground | 7 |
| Data Carrier Detect (DCD) | 8 |
| Data Terminal Ready (DTR) | 19 |

**Table 3-5. Floor Mount MegaStar Serial Port
Pin Assignments - Ports 1 through 16.**

numbered port (PORT 1) and to continue connecting terminals in ascending order. Serial printers should be connected starting with the highest numbered port (PORT 16 on the floor mount model and PORT 11 on the desk top model) and connected in descending order.

After inserting each connector into its port, and after making sure that the connector is firmly seated, tighten the screws located on either side of the connector's cover to secure the connector to the port.

| MegaStar | Terminal |
|--------------------|-------------------|
| Chassis Ground 1* | 1 Chassis Ground |
| Receive Data 2* | 2 Transmit Data |
| Transmit Data 3* | 3 Receive Data |
| Clear to Send 5 | 4 Request to Send |
| Request to Send 4* | 5 Clear to Send |
| Signal Ground 7* | 7 Signal Ground |

* - Minimum Required For Operation

Table 3-2. Desk Top MegaStar Serial Port Pin Assignments - Ports 1 and 4-10.

| | |
|-----------------------|---|
| Chassis Ground | 1 |
| Receive Data (RXD) | 2 |
| Transmit Data (TXD) | 3 |
| Request to Send (RTS) | 4 |
| Clear to Send (CTS) | 5 |
| Signal Ground | 7 |

Table 3-3. Desk Top MegaStar Serial Port Pin Assignments - Ports 2 and 3.

4. PRINTER INSTALLATION

The MegaStar is able to support a number of different types of printers, both serial and parallel, from a number of different manufacturers. This makes the MegaStar compatible with most of the printers available on the market today.

The purpose of this section is to describe what is required to connect printers to the MegaStar. Two different types of printers are dealt with:

- 1) Serial printers.
- 2) Parallel (or Centronics interface) printers.

Diagrams showing the proper pin assignments for each type of printer connector (serial and parallel) have been included with each description.

Serial Printer Connectors and Wiring

Serial printers are connected to the MegaStar's serial ports with standard RS-232 connectors (using EIA standard RS-232C for signal definitions). It is, of course, important that the printers used with the MegaStar are correctly wired to the connectors.

With the exception of PORT 1 (which has been reserved as the console port), any serial port not otherwise occupied may be used as a port for a serial printer.

If you are planning to make your own serial printer cables, please bear in mind that the EIA standard recommends that each serial cable be no more than 50 feet long.

The serial port pin assignments to be used with printers are shown in Table 4-1.

When setting up your system, you should bear in mind that it is a good operating procedure to connect printers starting at the highest numbered port (PORT 16 on the floor mount model and PORT 11 on the desk top model) and to continue connecting any additional printers in descending order. Terminals should be connected starting with the lowest numbered port and connected in ascending order.

IBC/ MegaStar
Printer Installation

After inserting each connector into the port, and after making sure that the connector is both correctly and firmly seated, tighten the screws located on either side of the connector's cover to secure the connector to the port.

| MegaStar | Terminal |
|-------------------|------------------|
| Chassis Ground 1* | 1 Chassis Ground |
| Receive Data 2* | 2 Transmit Data |
| Transmit Data 3** | 3 Receive Data |
| Clear to Send 5?? | ?? Printer Busy |
| Signal Ground 7 | 7 Signal Ground |

Key:

* - Required for software handshaking (X O N-X O F F protocol).
** - Required for hardware handshaking
?? - Refer to your printer manual for "Printer Busy" pin number.

Table 4-1. Desk Top MegaStar Serial Port
Pin Assignments - Ports 1 and 4-10.

| | |
|-----------------------|---|
| Chassis Ground | 1 |
| Receive Data (RXD) | 2 |
| Transmit Data (TXD) | 3 |
| Request to Send (RTS) | 4 |
| Clear to Send (CTS) | 5 |
| Signal Ground | 7 |

Table 4-2. Desk Top MegaStar Serial Port
Pin Assignments - Ports 2 and 3.

| | |
|---------------------------|----|
| Chassis Ground | 1 |
| Receive Data (RXD) | 2 |
| Transmit Data (TXD) | 3 |
| Clear to Send (CTS) | 4 |
| Request to Send (RTS) | 5 |
| Signal Ground | 7 |
| Data Carrier Detect (DCD) | 8 |
| Data Terminal Ready (DTR) | 20 |

Table 4-3. Desk Top MegaStar Serial Port
Pin Assignments - Port 11.

| | |
|---------------------------|----|
| Chassis Ground | 1 |
| Receive Data (RXD) | 2 |
| Transmit Data (TXD) | 3 |
| Clear to Send (CTS) | 4 |
| Request to Send (RTS) | 5 |
| Signal Ground | 7 |
| Data Carrier Detect (DCD) | 8 |
| Data Terminal Ready (DTR) | 19 |

**Table 4-4. Floor Mount MegaStar Serial Port
Pin Assignments - Ports 1 through 16.**

Parallel, or Centronics, Printer Interfaces

In addition to supporting a number of serial printers, the MegaStar is also able to support printers with parallel, or Centronics, interfaces.

On the floor mount model, the parallel port is located at the rear of the cabinet below serial PORT 16. On the desk top model, the parallel port is located at the rear of the cabinet between PORT 10 and PORT 11.

The pin assignments for cables used to connect devices to the MegaStar's parallel port are shown in Tables 4-5, 4-6, and 4-7. If you are planning to make your own parallel cables, IBC recommends that you make them no more than ten feet long.

When connecting parallel cables, always bear in mind that as you look at the back of the MegaStar pin 1 is on the lower left and pin 2 is on the upper left.

Parallel cables for the MegaStar are also available from IBC (p/n DCA144 for desk top, DCA145 for floor mount).

| Pin Number Signal | Pin Number Signal |
|----------------------|----------------------|
| 1 - Signal Ground | 21 - Signal Ground |
| 2 - Data Strobe | 22 - Busy |
| 3 - Signal Ground | 23 - Signal Ground |
| 4 - Data 1 | 24 - Paper Out |
| 5 - Signal Ground | 25 - Input Prime |
| 6 - Data 2 | 26 - Select |
| 7 - Signal Ground | 27 - Fault |
| 8 - Data 3 | 28 - Signal Ground |
| 9 - Signal Ground | 29 - Not Connected |
| 10 - Data 4 | 30 - Not Connected |
| 11 - Signal Ground | 31 - Not Connected |
| 12 - Data 5 | 32 - Signal Ground |
| 13 - Signal Ground | 33 - Not Connected |
| 14 - Data 6 | 34 - Not Connected |
| 15 - Signal Ground | 35 - Not Connected |
| 16 - Data 7 | 36 - Not Connected |
| 17 - Signal Ground | 37 - Not Connected |
| 18 - Data 8 | 38 - Not Connected |
| 19 - Signal Ground | 39 - Not Connected |
| 20 - Acknowledge | 40 - Not Connected |

Table 4-5. Centronics Pin Assignments - Desk Top Model.
MegaStar Side (40 Pin Connector).

| Pin Number Signal | Pin Number Signal |
|----------------------|----------------------|
| 1 - Data Strobe | 21 - Busy |
| 2 - Signal Ground | 22 - Signal Ground |
| 3 - Data 1 | 23 - Paper Out |
| 4 - Signal Ground | 24 - Input Prime |
| 5 - Data 2 | 25 - Select |
| 6 - Signal Ground | 26 - Fault |
| 7 - Data 3 | 27 - Signal Ground |
| 8 - Signal Ground | 28 - Not Connected |
| 9 - Data 4 | 29 - Not Connected |
| 10 - Signal Ground | 30 - Not Connected |
| 11 - Data 5 | 31 - Signal Ground |
| 12 - Signal Ground | 32 - Not Connected |
| 13 - Data 6 | 33 - Not Connected |
| 14 - Signal Ground | 34 - Not Connected |
| 15 - Data 7 | 35 - Not Connected |
| 16 - Signal Ground | 36 - Not Connected |
| 17 - Data 8 | 37 - Not Connected |
| 18 - Signal Ground | 38 - Not Connected |
| 19 - Acknowledge | 39 - Not Connected |
| 20 - Signal Ground | 40 - Not Connected |

Table 4-6. Centronics Pin Assignments - Floor Mount Model.
MegaStar Side (40 Pin Connector).

| Pin Number Signal | Pin Number Signal |
|----------------------|----------------------|
| 1 - Data Strobe | 19 - Signal Ground |
| 2 - Data 1 | 20 - Signal Ground |
| 3 - Data 2 | 21 - Signal Ground |
| 4 - Data 3 | 22 - Signal Ground |
| 5 - Data 4 | 23 - Signal Ground |
| 6 - Data 5 | 24 - Signal Ground |
| 7 - Data 6 | 25 - Signal Ground |
| 8 - Data 7 | 26 - Signal Ground |
| 9 - Data 8 | 27 - Signal Ground |
| 10 - Acknowledge | 28 - Signal Ground |
| 11 - Busy | 29 - Signal Ground |
| 12 - Paper Out | 30 - Signal Ground |
| 13 - Select | 31 - Input Prime |
| 14 - Signal Ground | 32 - Fault |
| 15 - Not Connected | 33 - Empty |
| 16 - Signal Ground | 34 - Not Connected |
| 17 - Chassis Ground | 35 - Not Connected |
| 18 - + 5 Vdc Bias | 36 - IHZ |

Table 4-7. Centronics Pin Assignments - Both Models.
Printer Side (36 Pin Connector).

**IBC/ MegaStar
Printer Installation**

5. THE FLOPPY DISK DRIVE

The MegaStar contains either one or two internally mounted 5.25" floppy disk drives. These drives are capable of using either double-sided double-density diskettes or double-sided high-density double-track diskettes. The diskettes must be soft sectored.

Both the floor mount and the desk top MegaStar are also capable of supporting an 8" floppy disk drive. The drive may be mounted internally in the floor mount model, but must be mounted externally on the desk top model.

This section provides information on the following subjects:

- 1) The location of drive 0 and drive 1 (dual floppy disk drive systems only).
- 2) Diskette specifications and recommendations. Floppy disk drive specifications.
- 3) Instructions for inserting diskettes into the drive and instructions for removing diskettes from the drive.
- 4) Instructions for general diskette handling and care, and some suggestions on how to prolong their useful life.
- 5) Instructions for caring for the floppy disk drive, and suggestions for how to increase the length of its useful life.

Dual Floppy Drive Systems

If your system is equipped with dual floppy disk drives, you must use drive 0 when booting the system. The system can not be booted from drive 1.

On the floor mount system, drive 0 is always the drive furthest to the left; drive 1 will always be to the right. On the desk top model drive 0 is always the bottom drive; drive 1 is always the top drive.

The drive on single floppy drive systems will always be designated as drive 0.

IBC/ MegaStar Floppy Disk Drive

Diskette and Drive Specifications

The diskettes used may be those provided by any reputable manufacturer. While the quality of the diskettes will have only a slight (perhaps even negligible) effect upon the drive's performance, it is important to realize that the quality of the diskettes may affect their ability to store and retain your data. Inexpensive diskettes, if they are of a poor quality, may not last as long or work as well as diskettes of a higher quality (which are often a higher price as well). The criteria you should employ when selecting which diskettes to use should be directly linked to the difficulty of replacing the data that will be stored on those diskettes.

IBC recommends using Maxell MD2-HD diskettes with the MegaStar's 5.25" floppy disk drive (available from IBC, p/n DSK102). The MegaStar may also use other brands of diskettes as long as they are 96 tpi, soft-sectored, high density (sometimes referred to as quad density) diskettes.

If your system has an 8" floppy disk drive, IBC recommends using Maxell FD2-XD diskettes (available from IBC, p/n DSK100). You may also use other brands of diskettes as long as they employ a format equivalent to IBM diskette 1, 2, or 2D.

| | |
|--------------------------|------|
| Kilobytes (unformatted) | 1600 |
| Kilobytes (formatted) | 985 |
| Formatted (bytes/sector) | 256 |
| Tracks per Inch | 96 |
| Number of Cylinders | 77 |
| Number of Tracks | 154 |

Table 5-1. Diskette Specifications.

Tables 5-2 and 5-3 contain the performance and functional specifications for the MegaStar's floppy disk drive.

| | |
|---|-----|
| Transfer Rate (kilobits per second) | 500 |
| Access Times (milliseconds) | |
| Track to Track | 3 |
| Settling Time | 15 |
| Average (including step time of 3 milliseconds and settling time) | 91 |
| Head Loading Time | 50 |

Table 5-2. Performance Specifications.

| | |
|-----------------------------------|-------|
| Recording Density (bits per inch) | 9646 |
| Magnetic Flux Inversion Density | 9646 |
| Encoding Method | MFM |
| Number of Heads | 2 |
| Rotation Speed (rpm) | 360 |
| Rotation Period (milliseconds) | 166.7 |

Table 5-3. Functional Specifications.

Inserting and Removing Diskettes

The diskettes are easily inserted in, and removed from, the disk drive. Instructions for ATTACHing, and then using, the floppy disk drive can be found in sections 11 and 12, respectively.

If the floppy disk drive is not being used, the drive door should be left open to prevent damage to the drive.

When inserting diskettes, be sure that they are always inserted into the drive with their label facing upwards, and with the oval-shaped data slot facing away from you (and going into the drive first). The diskettes

should slide easily into the drive -- with only a minimum of resistance from the release spring. If you encounter any difficulties inserting diskettes, stop, check to see if there is already a diskette in the drive, and try inserting the diskette again.

To insert a diskette, hold it with the label towards you, and gently insert it into the drive. Insert the disk (by pushing it by its back, or "spine") until the spring pressure stops. When the pressure stops, you will hear the diskette click into place.

Push the tab at the top of the drive door downward until it engages the drive's latch (located directly below the tab).

To remove the diskette, press the drive's latch until it releases the locking tab. As the tab is released, it will spring upward and the disk will jump outward far enough for you to grasp and remove it. Slide the diskette straight outward and out of the drive.

Diskette Handling

Because the diskettes that you use will eventually contain information that was important enough to copy (and presumably important enough that you will want to save a copy of), it is essential that you exercise proper care when handling and storing your diskettes.

The following are some suggestions for prolonging the useful life of your diskettes.

1. Do not expose your diskettes to things that may generate magnetic fields.
2. Do not fold or bend diskettes. It's a misnomer: They are not really that flexible; and they certainly do not "flop" very well.
3. Always keep diskettes well protected when not in use. When the diskettes are not actually in the drive they should always be in their protective sleeves. It is also a good idea to store the diskettes in their own diskette storage box.
4. Never touch the exposed data area of the diskettes. Fingerprints are not immediately fatal -- they will often wait until the best possible (and most awkward) moment to actually come out and destroy the data on your diskette. It may take a while, but if you touch the exposed data area of

your diskettes the fingerprints will ruin them. Diskettes that have been touched should be immediately copied and then left somewhere to die. Do not attempt to clean your diskettes! Fluids, and especially solvents, have very adverse affects upon diskettes.

5. Do not leave diskettes in direct sunlight, where temperatures are too high, or where it is dusty. Leaving diskettes in your car on a hot day is never a good idea. Storing your diskettes in the heater closet is an even worse idea. Get them too hot and they invariably die horrible deaths -- carrying their data with them to the grave.

6. Do not write on the diskette's jacket. Write only in the label area and do not use pencil or ball-point pens. You may even want to write out the labels before you stick them on the diskettes.

Basically keep this in mind when dealing with diskettes: if you treat them badly they will always turn on you and make your life miserable. You cannot fool them -- they will always have the last say as to whether you have been treating them well or not.

Floppy Disk Drive Care

During the course of their normal operation, the read/write heads of all disk drives will tend to accumulate a certain amount of contamination (usually in the form of oxide particles from the diskettes' recording surfaces, dust and smoke particles from the general atmosphere, and whatever else is in the area). As this particulate contamination accumulates, it becomes a source of read/write errors.

The read/write heads on the floppy disk drive should really be kept as clean as possible. To ensure that the heads remain adequately clean, the drive should be cleaned occasionally using a standard floppy disk drive cleaning kit.

When cleaning the drive, do not use acetone, lacquer thinner, aerosol sprays, or rubbing alcohol.

Do not attempt to oil or lubricate any part of the floppy disk drive. Adding oil or lubricant to the drive may destroy its original lubrication.

Do not attempt to adjust any part of the floppy disk drive.

**IBC/ MegaStar
Floppy Disk Drive**

6. REMOVABLE MEDIA HARD DISK DRIVES

The MegaStar is available with an optional 10Mbyte (formatted) removable media hard disk drive. This drive may be used either to create ARCHIVEs or as another logical disk drive.

This section deals with the following topics:

- 1) A brief description of the removable media hard disk drive.
- 2) Instructions for inserting and removing disk cartridges.
- 3) Using SETDISK to set up the removable media hard disk drive.
- 4) Servo-writing and formatting disk cartridges.

The Removable Media Hard Disk Drive

All of the controls for opening, starting and stopping the removable media hard disk drive are located on the front of the drive where they may be easily accessed. Also on the front of the drive are the drive's status indicators.

DCL Lever. On the left side of the the drive is the DCL lever. This lever allows the drive drawer, which houses the disk cartridge, to be opened and closed. When the lever is in upright position, the drawer is closed and locked. To open the drawer, turn the lever clockwise to the horizontal position. After the drawer has been opened, turn the lever counter clockwise to the upright position to allow the drawer to be closed and locked (the drawer will not close until the lever has been turned).

Drive Status LEDs. On the right side of the drive are two LEDs. The upper LED is the red "Selected LED," the lower LED is the green "Ready LED."

The green Ready LED will indicate four different conditions:

Not Flashing. A steady glow indicates that the drive is ready for operation and will accept commands.

Flashing at 1 Hz Rate. The drive is spinning up to speed. If the disk cartridge has been servo-written, this condition should not last more than 30 seconds. If the disk cartridge is being servo-written, this condition will last approximately three to four minutes.

Flashing at 2 Hz Rate. The disk is spinning down. This condition should last approximately 10 seconds, after which the disk will be stopped.

Flashing at 4 Hz Rate. A fault has been detected or the disk cartridge has not been servo-written.

The red Selected LED will glow when the drive is being accessed either for a read or a write operation.

Run/Stop Button. This button is located on the right side of the drive. The Run/Stop button is used to start and stop the drive when changing disk cartridges.

Inserting and Removing Disk Cartridges

The disk cartridge is inserted into the drive's drawer. When the cartridge is inserted and the drawer is closed the drive is ready to use.

To open the drive's drawer, apply power to the system. If the system is not switched on, the drawer will not open. With the power on, press the Run/Stop Button and wait for the green Ready LED to stop flashing. When the Ready LED stops flashing, and is off, rotate the DCL lever clockwise to the horizontal position. Slide the drive drawer out until it clicks into the stop position. Gently tilt the front of the drawer forward until it raises the cartridge receiver and clicks into position.

Before inserting a new disk cartridge, remove the cartridge's protective outer sleeve and the strip of tape that holds the armature plate in position. If the tape is not removed, it may cause permanent damage to the drive and/or disk cartridge.

If you are inserting a previously written disk cartridge, it is possible to write protect the cartridge by removing the the red plastic plug from the corner of the cartridge. Replacing the plug will allow the cartridge to be written to.

Cartridges are inserted into the drive with the steel armature plate facing downward and the write protect plug facing outward.

To insert the disk cartridge into the drive, simply slide the cartridge into the receiver until it clicks into place. Close the front of the drawer and turn the DCL lever counter clockwise to the vertical "lock" position. Slide the drawer into the drive until it clicks, and locks, into position.

To start the drive, press the Run/Stop button. When the green Ready LED stops flashing, and glows steadily, the drive is ready to use.

To remove the disk cartridge, stop the drive by pressing the Run/Stop button. Wait for the green light to stop flashing. When the Ready LED stops flashing, rotate the DCL lever clockwise to the horizontal position. Slide the drive drawer out until it clicks into the stop position. Gently tilt the front of the drawer forward until it raises the cartridge receiver and clicks into position. Slide the disk cartridge out of its receiver.

SETDISK for the Removable Media Hard Disk Drive

Before using the removable media hard disk drive, you must first issue the SETDISK command to enable the system to recognize the existence of the drive.

For example, if your system has a 55 Mbyte Fujitsu hard disk drive, you would enter the following command:

SETDISK (DEV F55 S D10 S

Of course, if your system has a different type of hard disk drive, you would use that drive's designation rather than the "F55" shown in this example.

After issuing this command, reboot the system.

Servo-Writing Disk Cartridges

Each new disk cartridge must be servo-written and formatted before it can be used for the first time. Servo-writing is performed as a function of the INITDISK command. This procedure takes between three and five minutes.

**IBC/ MegaStar
Removable Media
Hard Disk Drives**

To servo-write a new disk cartridge, use the following procedure.

ATTACH the removable media hard disk drive. You might, for example, enter:

ATTACH C DISK4

Use the INITDISK command to servo-write and format the disk cartridge. In this example, you would enter:

INITDISK C (FORMAT

Answer the questions and prompts as usual. The system will begin by servo-writing the disk cartridge. When the servo-writing has been completed, press RETURN to begin the regular Oasis disk formatting.

Reformatting Previously Servo-Written Disk Cartridges

When reformatting a previously servo-written disk cartridge there is no need to servo-write the cartridge again. You may skip the servo-writing phase by entering the command:

INITDISK C (FORMAT QUICK

This will not servo-write the disk cartridge, although it will format it.

7. TAPE DRIVES

The MegaStar is available with the choice of two different optional internal cartridge tape drives: the Kennedy model 8455 and the Kennedy model 8470. Both drives are very similar in the way they are operated (both are operated by the same commands), and there are few noticeable physical differences between the way that each operates. The primary difference between the two drives is that they both have a different number of recording heads and subsequently store different amounts of information on a single tape cartridge.

This section deals with the following topics:

- 1) A brief description of the internal cartridge tape drive and a listing of some of its operating characteristics.
- 2) Instructions for inserting and removing tape cartridges.
- 3) Instructions for taking care of both your tape cartridges and the internal cartridge tape drive.
- 4) Setting the drive to allow it to use 600 foot tapes. This procedure requires switching a jumper located on the bottom of the drive.

Operating Characteristics

Tables 7-1 and 7-2 show the operating characteristics of the MegaStar's two available internal cartridge tape drives.

When installed, the cartridge tape drive is mounted in the computer's front panel, directly below the floppy disk drive.

| | |
|--------------------|---|
| Cartridge Type | 3M DC100A type Isoelastic Data Cartridge |
| Tape Length | 300, 450, or 600 feet |
| Capacity | 11.5 Mbytes at 300 feet 17.3 Mbytes at 450 feet 23.0 Mbytes at 600 feet |
| Recording Density | 6400 bpi |
| Number of Tracks | 4 tracks (serpentine configuration) |
| Read/Write Speed | 30 ips |
| Fast Tape Speed | 90 ips |
| Data Transfer Rate | 192,000 bits/sec 24,000 bytes/sec |
| Host Interface | Pico Bus, TTL low true, 34 pin 3M flat cable |

Table 7-1. Kennedy Model 6455.

Inserting Tape Cartridges

The tape cartridge is easily inserted and removed. The cartridge will only fit into the drive one way (with the hinged tape opening and idler wheel facing inward, and with the metal side of the cartridge facing downward).

Each tape cartridge has a write enable/disable plug in its top left corner. This plug can be rotated by using a screwdriver. For protected read-only mode, rotate the plug until its pointer faces the "SAFE" position. For unprotected read or write modes, rotate the plug's pointer away from the "SAFE" position. The plug's pointer must be set to whichever position you desire before the cartridge is inserted into the drive; you will not be able to rotate the plug after the cartridge has been inserted.

| | |
|--------------------|---|
| Cartridge Type | 3M DC300A, DC300XL, or DC600A Isoelastic Data Cartridge |
| Tape Length | 300, 450, or 600 feet |
| Capacity | 28.8 Mbytes at 300 feet 43.2 Mbytes at 450 feet 57.6 Mbytes at 600 feet |
| Recording Density | 6400 bpi |
| Number of Tracks | 10 tracks (serpentine configuration) |
| Read/Write Speed | 37 ips |
| Fast Tape Speed | 75 ips |
| Data Transfer Rate | 240,000 bits/sec 30,000 bytes/sec |
| Host Interface | Pico Bus, TTL low true, 34 pin 3M flat cable |

Table 7-2. Kennedy Model 6470.

To insert the tape cartridge, simply slide the cartridge gently into the drive until it clicks into place. When you hear and/or feel the cartridge click into place, you can be pretty certain that it is fully inserted. If the cartridge feels snug in the drive, it is correctly inserted. A portion of the tape cartridge will protrude from the drive after the cartridge is inserted.

NOTE (Kennedy drive model 6455 only): Each time a command involving the cartridge tape drive is issued after either powering up the system, resetting the system, removing and reinserting the tape cartridge, or inserting a new tape cartridge, the tape drive will automatically wind and then rewind the entire tape to ensure that it is tensioned correctly. Auto-tensioning is a function of the cartridge tape drive (and not a function of the operating system). Auto-

tensioning will usually take approximately two minutes.

NOTE (Kennedy drive model 6470 only): Each time a command involving the cartridge tape drive is issued after either powering up the system, resetting the system, removing and reinserting the tape cartridge, or inserting a new tape cartridge, the tape drive will automatically initialize its read/write heads to ensure that they are correctly positioned. The only way that you will know whether the drive is initializing or not is by the fact that the drive will make some "tapping" noises. Initialization is a function of the cartridge tape drive (and not a function of the operating system). Initialization will usually take only a few seconds.

Removing Tape Cartridges

CAUTION: Before removing a tape cartridge, always be sure that the tape has stopped moving.

To remove the tape cartridge, wait until the tape has wound all the way to the end, grasp the cartridge firmly (either in the center or at both edges), and remove it by pulling straight outward.

Cartridge and Drive Care

To ensure that you receive the best performance, and longest possible life, from your cartridges and cartridge drive, it is important that you care for them properly.

The tape cartridge has very few real needs. The cartridge is well covered to prevent the tape itself from being touched or damaged, and to prevent any unnecessary dust contamination. Leave the cartridge's tape cover closed, and do not touch the tape.

As with the system's diskettes, always keep tapes out of direct sunlight, away from magnetic fields, and away from extreme temperatures.

The tape cartridges may be stored in the same environment as the computer or the diskettes.

The drive itself should be inspected occasionally for signs of dirt or oxide accumulation. If the head surfaces begin to look dirty, they can be gently cleaned with a mild solvent (trichloroethane or isopropyl alcohol

are recommended) and a swab. When using swabs, such as Q-tips, be careful that the wood or plastic handle does not come into contact with the head surfaces.

Do not touch the tape heads with your fingers! If you do accidentally touch the head surfaces, be sure to clean the surfaces as described above.

When cleaning the drive, do not use acetone, lacquer thinner, or aerosol sprays. Also, be careful not to allow any solvent to seep or penetrate into the capstan motor, as it will destroy the motor's bearing lubrication.

Do not attempt to oil or lubricate any of the drive's bearings. Adding oil or lubricant to the bearings may destroy their original lubrication.

Do not attempt to adjust any part of the tape drive.

Using 600 Foot Tapes

The optional internal cartridge drives supplied with the MegaStar are capable of using tape cartridges which hold either 300/450 or 600 foot tapes. All systems shipped with cartridge drives have had their drives set to use both 300 and 450 foot tapes. Before it is possible to use cartridges with 600 foot tapes, it is first necessary to reset one of the drive's settings.

The length of tape that the drive is capable of reading from and writing to is set by means of a small "jumper". The jumper itself is a small plastic "plug" which covers, or jumpers, two prongs of a three-pronged outlet. The combination of which two of the three prongs are jumpered determines how the drive will operate.

NOTE: Drives jumpered to use cartridges with 300 or 450 foot tapes cannot be used with cartridges that have 600 foot tapes. Conversely, drives jumpered to use cartridges with 600 foot tapes, will not be able to use either 300 or 450 foot tapes. As a rule, you should decide which tape lengths you want to use, either 300/450 or 600, and then stick to that decision.

Before attempting to reset the cartridge tape drive's jumper, always make sure that the system's power has been switched off.

On the floor mount MegaStar, the jumper is located on the underside of the cartridge tape drive. To gain access to the jumper, you must remove

**IBC/ MegaStar
Tape Drives**

the right side panel from the MegaStar's cabinet. To remove the side panel, first remove the three phillip's head screws from the bottom of the panel. With the three screws removed, lift the panel upward and clear of the cabinet. After removing the side panel, you will have access to the bottom of the cartridge tape drive.

To change the jumper's setting, first remove the jumper plug by carefully sliding it down and off of the three-pronged outlet. After removing the jumper plug, the drive can be reset to enable it to use cartridges with 600 foot tapes by simply replacing the plug on the correct prongs.

8. EXTERNAL STORAGE DEVICES (Desk Top Model Only)

The desk top MegaStar is capable of supporting a number of external storage devices (all of these external devices can be supported internally by the floor mount model). IBC manufactures hard disk drives, cartridge tape drives, and 8" floppy disk drives for the desk top MegaStar. Each of these external storage devices is housed in a cabinet which matches the MegaStar's, and contains its own power supply.

This section provides detailed instructions for installing the following IBC external storage devices:

- 1) Installing the external hard disk drive.
- 2) Installing the external cartridge tape drive.
- 3) Installing the external 8" floppy disk drive.

Installing the Standoffs

Before beginning to install any of the IBC external storage devices, you must first remove the four rubber feet from the bottom of the MegaStar's cabinet and replace them with four steel standoffs. These standoffs will later be used to mate the MegaStar's cabinet to the external storage device cabinet.

CAUTION: Before beginning to install the standoffs, be sure that you have:

- a) HOMEd the hard disk.
- b) Switched the computer's power off.
- c) Inserted the floppy disk drive's cardboard head protector.

After you have HOMEd the hard disk, it is also a good idea to disconnect all peripherals from the computer (while this is not strictly necessary, it will make working with the computer much easier).

The procedure for installing the steel standoffs is as follows:

Installing the External Hard Disk Drive

Prior to beginning this procedure, be sure that you have the four ribbon cables (IBC part numbers DCA124, DCA128, DCA166, and DCA168). Without these cables you cannot connect the external hard disk drive to the MegaStar.

CAUTION: Before beginning to install the external hard disk drive, be sure that you have:

- a) HOMEd the hard disk.
- b) Switched the computer's power off.
- c) Inserted the floppy disk drive's cardboard head protector.
- d) Substituted the four steel standoffs for the MegaStar's rubber feet.

Please read, and be sure you understand, the following instructions before beginning to install the external hard disk drive.

1. Set the MegaStar on top of the hard disk drive expansion cabinet. Be sure that the standoffs are seated in the holes provided for them in the expansion cabinet.
2. With the computer facing you, lift the front of the MegaStar's cabinet. With the cabinet tilted up in the front (and with the rear standoffs still seated in the rear holes of the expansion cabinet), begin to thread the cables leading from external hard disk up and into the Middi's cabinet. This is often easier to do if you have someone else hold the computer while you thread the cables into the cabinet.
3. Gently lower the MegaStar back down onto the expansion cabinet.
4. Lift the front of the MegaStar's circuit board carrier tray up and off its hanger (so that the front of the tray tilts upward slightly). There is no need to lift the rear of the carrier tray.
5. With the front of the carrier tray lifted, carefully reach under the tray and pull the external hard disk's two cables up and toward the front of the MegaStar's cabinet. Be careful not to pull the cables so hard that it puts a strain on the point where it connects to the external hard disk drive.

6. Disconnect the internal hard disk drive's cables. The internal hard disk drive's cables are located on the lower of the two boards in the carrier tray. As you look at the carrier tray from the front you will see three cable connections. The two cables furthest to the right are the internal hard disk drive's interface cables.

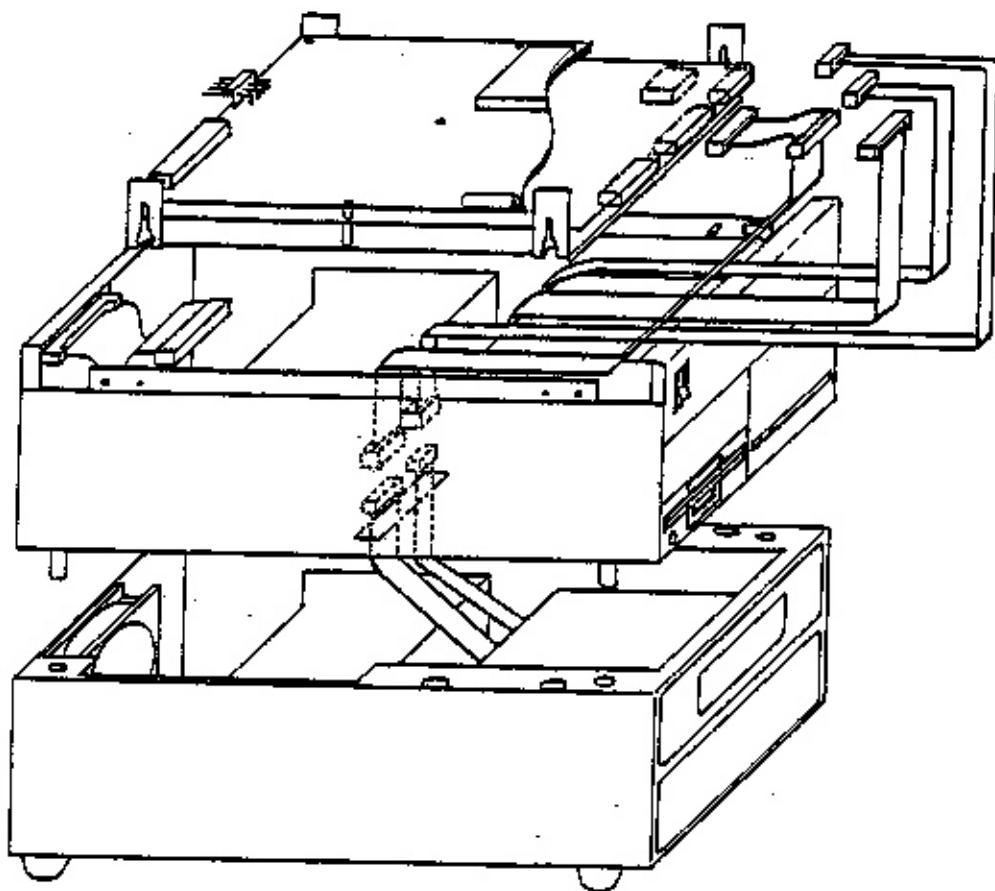


Figure 8-1. Installing the External Hard Disk Drive.

The larger center cable is called the control cable; the smaller cable on the right is called the radial data cable.

7. Connect the external hard disk drive's control cable to the socket formerly occupied by the internal disk drive's control cable

(the center socket). Make sure that the connector has seated firmly in its socket.

8. Connect the internal hard disk drive's control cable to the socket located on the external drive's control cable. Make sure that the connector has seated firmly in its socket.

9. Connect the external hard disk radial data cable to the socket directly behind the one used by the internal hard disk's radial data cable. Make sure that the connector has seated firmly in its socket.

10. Replace the internal hard disk drive's cable in its socket. Again, make certain that the connector is firmly seated in its socket.

11. Lower the circuit board carrier tray onto its hangers.

12. Replace the MegaStar's cover.

13. Connect the power cable to external hard disk drive.

14. Reconnect the system's peripherals and remove the floppy disk drive head protector. The system is now ready to use.

Please note that the external hard disk drive cannot be used as the System disk.

Before using the external hard disk drive, you must first use the SETDISK command to allocate the disk. Section 16 explains how to use the SETDISK command.

Installing the External 8" Floppy Disk Drive

The external 8" floppy disk drive can only be used with MegaStar systems having a single internal floppy disk drive. MegaStars with dual internal floppy disk drives will not support an additional 8" floppy disk drive.

CAUTION: Before beginning to install the external 8" floppy disk drive, be sure that you have:

- a) HOMEd the hard disk.
- b) Switched the computer's power off.
- c) Inserted the floppy disk drive's cardboard head protector.

- d) Substituted the four steel standoffs for the MegaStar's rubber feet.

Please read, and be sure you understand, the following instructions before beginning to install the external 8" floppy disk drive.

1. Set the MegaStar on top of the 8" floppy disk drive expansion cabinet. Be sure that the standoffs are seated in the holes provided for them in the expansion cabinet.
2. With the computer facing you, lift the front of the MegaStar's cabinet. With the cabinet tilted up in the front (and with the rear standoffs still seated in the rear holes of the expansion cabinet), begin to thread the cable leading from external floppy up and into the Middi's cabinet. This is often easier to do if you have someone else hold the computer while you thread the cable into the cabinet.
3. Gently lower the MegaStar back down onto the expansion cabinet.
4. Lift the front of the MegaStar's circuit board carrier tray up and off its hanger (so that the front of the tray tilts upward slightly). There is no need to lift the rear of the carrier tray.
5. With the front of the carrier tray lifted, carefully reach under the tray and pull the external floppy's cable up and toward the front of the MegaStar's cabinet. Be careful not to pull the cable so hard that it puts a strain on the point where it connects to the external floppy disk drive.
6. Disconnect the internal floppy disk drive's cable. The internal floppy drive's cable is located on the lower of the two boards in the carrier tray. As you look at the carrier tray from the front you will see three cable connections. The cable on the left, just below the board's serial number, is the internal floppy disk drive's interface cable.
7. Make sure that the cable makes a 180 degree twist before connecting it to the MegaStar. The cable is marked with a red stripe down one side to help make this task a little easier. If necessary, trace the route of the cable from the external floppy disk drive to the MegaStar.

If the cable is not twisted 180 degrees, the external floppy disk drive will not work.

8. Connect the external floppy drive's cable to the socket directly behind the socket used by the internal floppy disk drive. Make sure that the cable connector is correctly seated in the socket.

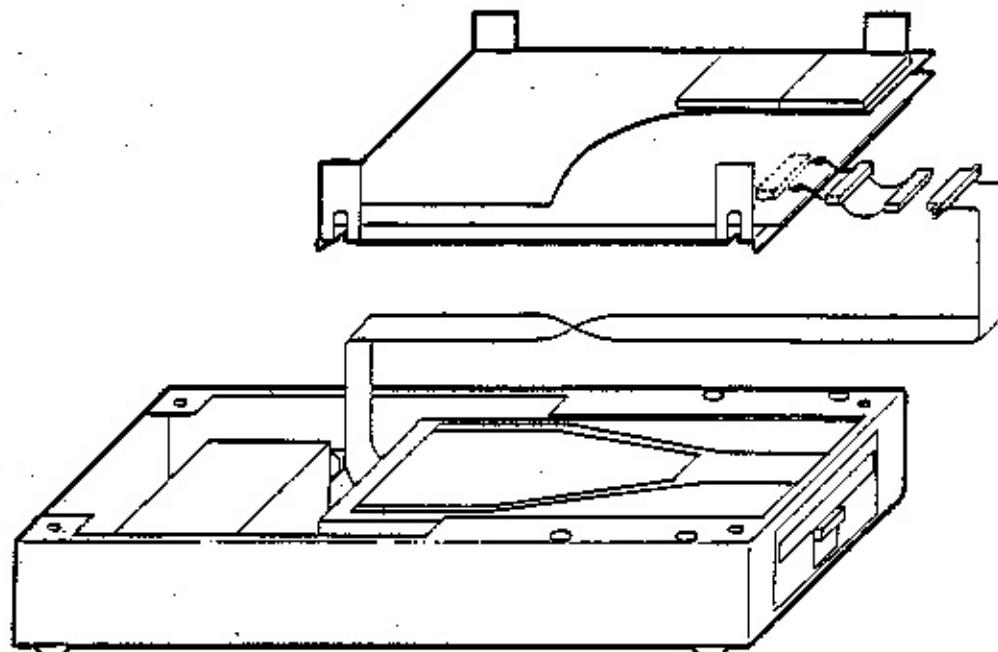


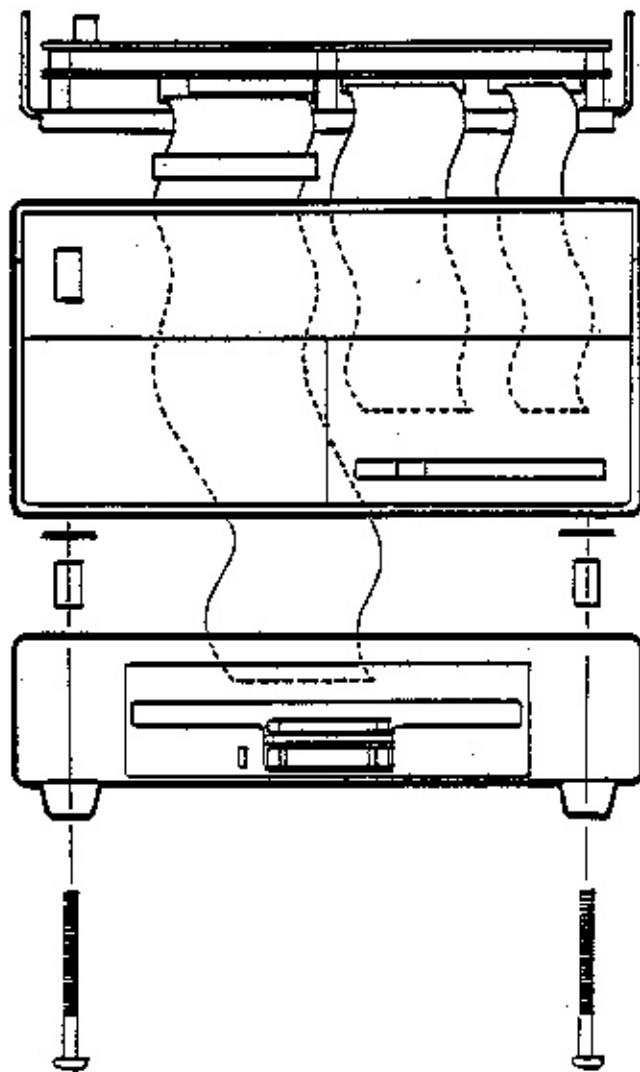
Figure 8-2. Installing the External 8" Floppy Disk Drive.

9. Replace the internal floppy disk drive's cable in its socket. Again, make certain that the connector is correctly seated in its socket.

10. Lower the circuit board carrier tray onto its hangers.

11. With the front of the computer facing you, carefully slide the computer and external floppy drive cabinet forward toward the edge of the table until the two rubber feet hang over the edge of the table.

**IBC/ MegaStar
External Storage Devices**



**Figure 8-3. Securing the External Floppy Disk Drive
to the MegaStar's Cabinet.**

Insert the long screws into the feet. The screws must go up, through the expansion cabinet, and be screwed into the standoffs.

12. Turn the computer and floppy disk expansion cabinet so that their backs face you. Carefully slide the computer toward the edge of the table until the two rear rubber feet hang over the edge of the table.

Insert the long screws into the two rear feet. The screws must go up, through the expansion cabinet, and be screwed into the standoffs.

13. Replace the MegaStar's cover.

14. Connect the power cable to external floppy disk drive.

15. Reconnect the system's peripherals and remove the floppy disk drive head protector. The system is now ready to use.

Please note that the external floppy disk drive must be ATTACHED as FLOPPY2. For example, to attach the external floppy, you would enter:

ATTACH G FLOPPY2

For more information on ATTACHing devices, please see section 13.

Installing the External Cartridge Tape Drive

CAUTION: Before beginning to install the external cartridge tape drive, be sure that you have:

- a) HOMEd the hard disk.
- b) Switched the computer's power off.
- c) Inserted the floppy disk drive's cardboard head protector.
- d) Substituted the four steel standoffs for the MegaStar's rubber feet.

Please read, and be sure you understand, the following instructions before beginning to install the external cartridge tape drive.

1. Set the MegaStar on top of the cartridge tape drive expansion cabinet. Be sure that the standoffs are seated in the holes provided for them in the expansion cabinet.

2. Place the computer so that its back faces you. Lift the rear of the MegaStar's cabinet. With the cabinet tilted up in the rear (and with the front standoffs still seated in the front holes of the

**IBC/ MegaStar
External Storage Devices**

expansion cabinet), begin to thread the cable leading from external cartridge tape drive up and into the MegaStar's cabinet. This is often easier to do if you have someone else hold the computer while you thread the cable into the cabinet.

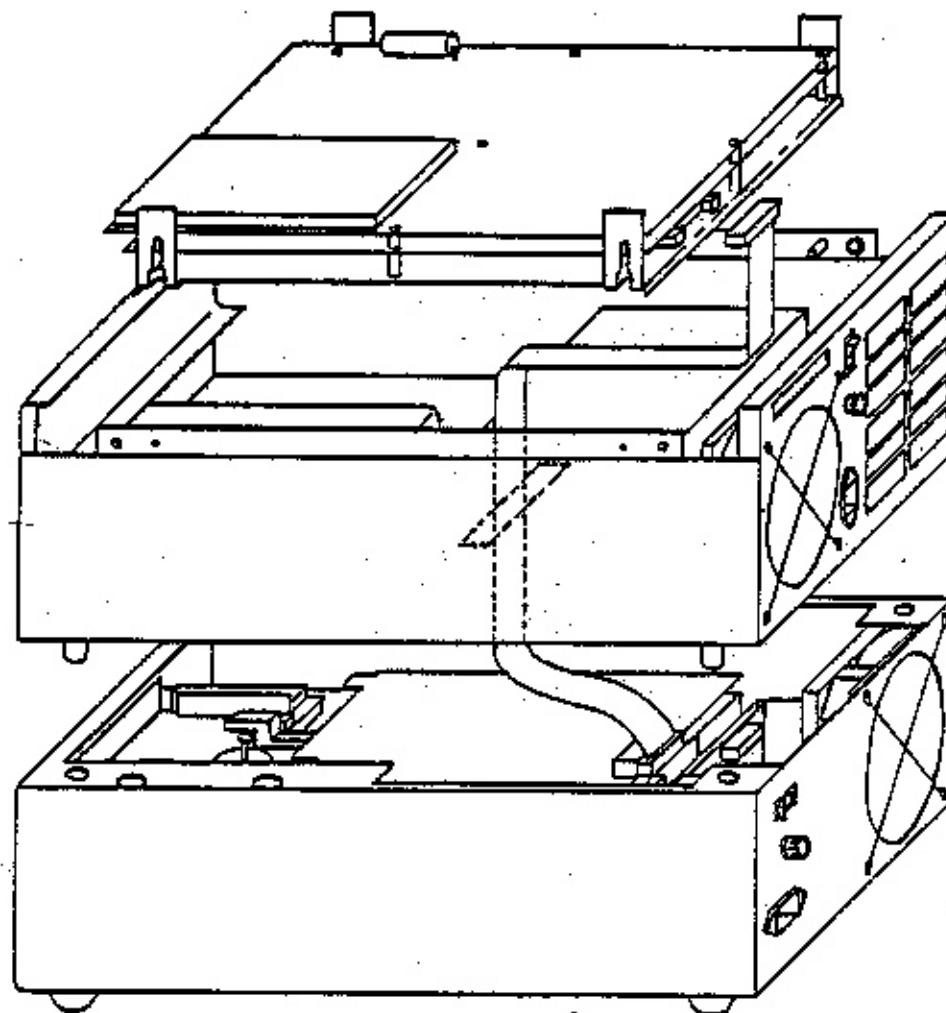


Figure 8-4. Installing the External Cartridge Tape Drive.

3. Gently lower the MegaStar back down onto the expansion cabinet.

4. Disconnect the DC cables and the I/O cable. Both of these cables are located at the rear of the upper circuit board.

The DC cables are the multi-colored cables that plug into the center of the rear edge of the circuit board. The I/O cable is the grey cable that runs from the right of the upper circuit board to the back of the I/O port panel. It is usually easier to disconnect the I/O cable on the circuit board side.

5. Lift the rear of the MegaStar's circuit board carrier tray up and off its hanger (so that the rear of the tray tilts upward slightly). There is no need to lift the front of the carrier tray.

6. With the rear of the carrier tray lifted, carefully reach under the tray and pull the external cartridge tape drive's cable up and toward the rear of the MegaStar's cabinet. Be careful not to pull the cable so hard that it puts a strain on the point where it connects to the external cartridge tape drive.

7. Make sure that the cable makes a 180 degree twist before connecting it to the MegaStar. The cable is marked with a red stripe down one side to help make this task a little easier. If necessary, trace the route of the cable from the external cartridge tape drive to the MegaStar.

If the cable is not twisted 180 degrees, the external cartridge tape drive will not work.

8. Connect the external cartridge tape drive's cable to the socket located on the left rear edge of the lower circuit board. Make sure that the cable connector is correctly seated in the socket.

9. Replace the DC cables and the I/O cable in their respective sockets. Again, make certain that the connector is correctly seated in its socket.

10. Lower the circuit board carrier tray onto its hangers.

11. Replace the MegaStar's cover.

12. Connect the power cable to external cartridge tape drive.

IBC/ MegaStar
External Storage Devices

13. Reconnect the system's peripherals and remove the floppy disk drive head protector. The system is now ready to use.

Please note that the external cartridge tape drive must be ATTACHED as CART, and that it uses the logical device name TAPE1 rather than one of the single-letter logical device names used by disk drives.

For example, to attach the external cartridge tape drive, you would enter:

ATTACH TAPE1 CART

For more information on ATTACHing devices, please see section 16.

9. INTERNAL SWITCH SETTINGS

The MegaStar contains a number of switches which are used to set various aspects of the system's internal configuration. Before each MegaStar is shipped from IBC, all of these switches are set to allow the computer to be operated in a more or less standard way using more or less standard peripherals. However, because of the current plurality of standards within the industry (as well as new technologies, changing tastes, and so on), the MegaStar was designed with switches that may be reset as often as necessary — thus ensuring the MegaStar is, and will remain, compatible with a large number of peripherals.

This section explains the following:

- 1) How to open the computer's cabinet and gain access to the system's internal switches.
- 2) Selecting which device (hard disk or floppy disk) the system will boot from.
- 3) Selecting the baud rates for the system's peripherals.
- 4) Selecting the size of the internal memory base and banks.
- 5) Selecting the floppy disk drive capacity (either 1.0 or 1.8 megabytes).

Opening the MegaStar's Cabinet

The MegaStar's option switches are mounted inside of the computer's cabinet on the CPU board. To gain access to the option switches it is necessary to remove the cabinet cover or side panel (depending on which model you have).

WARNING: Before starting to remove the MegaStar's cabinet cover or side panel, always be sure that the system's power is switched off.

If you have a floor mount MegaStar, you must remove the left side panel. To remove the panel, first remove the two phillips head screws from the bottom of the panel. With the two screws removed, lift the panel upward

IBC/ MultiStar III Internal Switch Settings

and clear of the cabinet. As you look at the CPU board, you will see the option switch in the lower right hand corner, at location A-34/35.

To remove the cabinet cover on the desk top model, simply remove the four phillips head screws which secure the two sides of the cover. Lift the cover carefully up and clear of the cabinet. The option switch is located on the front left corner of the CPU board, at location A-34/35.

| Location | Function |
|----------|----------------------------|
| 1, 2, 3 | Boot Loader Selection |
| 4, 5, 6 | Band Rate Selection |
| 7 | Base/Bank Size Selection |
| 8 | 1.0/1.8MB Floppy Selection |

Table 9-1. Switch Locations and Functions - Both Models.

After all of the switches have been correctly set, replace the cabinet cover, and secure the cover in place with the phillips head screws. When you start the system, any settings that you have changed will be in effect.

Selecting the Boot/Diagnostic PROM Configuration

The MegaStar is capable of booting from either its floppy disk drive or its hard disk drive. The option switches are arranged to allow you to set the system so it will either a) boot automatically from the hard disk without any further intervention, or b) boot automatically from the floppy disk without any further intervention, or c) prompt for instructions on whether you want it to boot using the floppy disk drive or the hard disk drive.

These three boot modes are known as hard disk, floppy disk, and diagnostic. (Section 11 contains instructions on how to use each of these boot modes.)

To allow you the choice of booting from either the floppy drive or hard disk drive when you first receive your MegaStar, the computer is shipped from IBC with its boot mode set for diagnostics.

The MegaStar's boot modes are selected from an eight-position DIP switch located at A-34/35 on the CPU board. Only the first three switches should be set. The settings used for selecting the boot mode are shown in Table 9-3.

| Switch 1 | Switch 2 | Switch 3 | Option Selected |
|----------|----------|----------|-----------------------------|
| On | Off | On | Boot from Hard Disk |
| On | On* | On* | Boot from Floppy |
| Off* | On* | On* | Diagnostics |
| Off | On | Off | Memory Test (Upper 512K) |
| On | On | Off | Memory Test (Lower 512K) |

* - Factory Switch Settings

Table 9-3. Boot Mode Selection - Both Models.

Selecting Baud Rates for the Serial I/O Ports

The baud rates the MegaStar uses when communicating with its peripherals are set using the ATTACH command, although the baud rate for the PORT 1 console terminal must be set using the system's eight-bit option switch. This is necessary to allow the console to communicate with the computer before the ATTACH command (which opens the file SYSTEM.DEVNAMES) has been read by the operating system.

The computer is shipped from IBC with the console port's baud rate set for 9600 baud. The console port's baud rate can easily be reset to support terminals with rates other than 9600. Figure 8-2 shows the baud rates supported by the MegaStar, and the switch settings for those baud rates.

IBC/ MultiStar III Internal Switch Settings

To set the baud rate for the console, you will need to set the switches located at positions 4, 5, and 6.

| Switch 4 | Switch 5 | Switch 6 | Baud Rate Selected |
|----------|----------|----------|--------------------|
| On | On | On | 300 |
| Off | On | On | 600 |
| On | Off | On | 1200 |
| Off | Off | On | 2400 |
| On | On* | Off* | 4800 |
| Off* | On* | Off* | 9600 |
| On | Off | Off | 19200 |
| Off | Off | Off | 38400 |

* - Factory Switch Settings

Table 9-2. Baud Rate Switch Notation - Both Models.

Selecting the Base/Bank Sizes

The MegaStar's base and bank sizes can be set to allow optimum use of the system's memory resources when running a particular application.

As the computer is shipped from IBC, the base/bank configuration is set to provide the 16K base and 48K banks necessary for supporting the OASIS operating system.

| Switch 7 | Base Size | Bank Size |
|---------------------|----------------------|----------------------|
| Off | 16K | 48K |
| On | 40K | 24K |

Table 9-4. Base and Bank Size Selection - Both Models.

Figure 9-4 shows the base/bank sizes supported by the MegaStar. To change the base/bank sizes, you will need to set position 7 of the eight-position DIP switch located at A-34/35 on the CPU board.

Selecting Floppy Disk Drive Capacity

The MegaStar's floppy disk drive can read and write diskettes with either 1.0MB or 1.8MB capacities. To inform the system of which capacity diskette is being used, set position 8 of the option switch.

| Switch 8 | Diskette Capacity |
|---------------------|------------------------------|
| On | 1.0MB Floppy |
| Off | 1.8MB Floppy |

Table 9-5. Selecting Floppy Diskette Capacity - Both Models.

Setting Clear to Send Protocol

Unlike most other IBC computers, the MegaStar's clear to send protocol is enabled using the ENAB4 option of the ATTACH command. There is no switch.

**IBC/ MultiStar III
Internal Switch Settings**

5

10. REPACKING AND SHIPPING INSTRUCTIONS

If you should ever need to move or reship the computer, it is important that you first be certain it has been properly prepared and repacked.

NOTE: It is always a good operating procedure to make a complete ARCHIVE of all the files on the hard disk before shipping the system. This is especially important when shipping systems to IBC for repair since many repairs require that the system's disk be reinitialized. When systems are returned to IBC for repairs, IBC cannot be held responsible for preserving the contents of the hard disk.

This section contains detailed instructions for:

- 1) Using the HOME command to protect the hard disk drive.
- 2) Installing the floppy disk drive head protector(s).
- 3) Disconnecting the system's peripherals.
- 4) Disconnecting external devices and add-on options.
- 5) Repackaging the system for reshipping.

Using the HOME Command to "Lock" the Hard Disk Drive

Before the computer can be shipped, the hard disk drive's heads must be HOMEd. The HOME command instructs the hard disk drive to shift its read/write heads off their normal position above the disks and onto a safe "landing pad" area. Once the read/write heads have been HOMEd, they will not harm either the disks or themselves if the system is jarred.

The HOME command should be issued from the console terminal. To use the HOME command, enter:

HOME

This command will stop all active processes and will render the entire system inoperative. The system will not function until it has been rebooted.

**IBC/ MegaStar
Repacking & Shipping**

If your system has any external hard disk drives connected to it, the HOME command will also HOME those drives if they are switched on when the command is issued. (The external drives do not need to be ATTACHED to be HOMEd -- simply switched on.)

IBC shall void the warranty of any computer returned to them without its hard disk drive properly HOMEd.

Installing the Floppy Drive Head Protector

To help prevent any possible damage to the heads during shipping, the floppy disk drive must have its cardboard head protector inserted into it.

CAUTION: Before inserting the floppy disk drive head protector, be sure the system is switched off.

To install the head protector, open the the floppy disk drive and insert the cardboard head protector. The head protector is clearly marked as to which end should be inserted into the drive first. After inserting the head protector, close and latch the floppy disk drive.

If your system has dual floppy disk drives, be sure to install head protectors in both drives.

IBC shall void the warranty of any computer returned to them without its floppy disk drive head protector(s) properly installed.

Removable Media Hard Disk Drives

Aside from being certain that there isn't disk cartridge in the drive, and that you have closed and locked the drive's drawer, there are no special precautions or packing instructions for the removable media hard disk drives.

Cartridge Tape Drive

Aside from being certain that there isn't a tape cartridge in the drive, there are no special precautions or repacking instructions for the tape drive.

Disconnecting Peripherals

After the system has been shut down, disconnect all peripherals. Remove all terminal, printer, or other device cables from the ports. Disconnect the power cable from the computer.

When shipping computers to IBC for service or repair, it is not necessary to include the power cable.

External Devices and Add-On Options

If your system has any external storage devices or expansion cabinets connected to it, they must be removed before the system is shipped.

All of the MegaStar's external devices and/or add-on peripherals must be packaged and shipped separately.

Packaging

When reshipping (or when moving the computer for any distance) you should always repack it in its original container and use the original packing materials. The original packaging has been specifically designed to offer the computer the best possible protection while in transit.

To repackage the computer, set one half (either half — both halves are the same) of the foam padding in the bottom of the box, and gently lower the computer into the foam padding.

WARNING: The IBC floor mount model MegaStar weighs approximately 65 pounds (29.5 kilos). The desk top MegaStar weighs approximately 38 pounds (17 kilos). If you feel that you cannot lift this weight comfortably, do not risk injuring yourself or damaging to the computer. Get someone to help you lift the computer into its shipping container.

The computer can be turned either way on the foam padding, it doesn't matter. However, do not turn the computer so that it rests either upside down or on its side.

Be sure that the computer has seated completely into the foam padding. If the computer is not correctly seated in the bottom padding, you will not be able to close the box properly.

**IBC/ MegaStar
Repacking & Shipping**

After the computer has seated in the bottom padding, place the top half of the padding on the computer and close the box. If the computer is being shipped, be sure that the box is adequately taped shut. Use heavy duty packing tape (at least 2-1/2 inches wide) to seal the box.

When shipping your computer, common sense should offer two points of advice: use a reputable carrier; and be certain to obtain insurance against any imaginable (or unimaginable) mishaps.

11. SYSTEM STARTUP AND BOOT ROUTINES

The MegaStar will boot directly from either floppy or hard disk. The system will need to be booted every time it is either switched on or reset. Which device you use when booting the system will depend upon the circumstances. For example, after a normal shutdown you will almost certainly be able to boot from the hard disk. However, after a system crash which has altered or damaged the hard disk you will almost certainly have to boot from the floppy disk.

This section deals with the following subjects:

- 1) Turning on the computer (this procedure assumes that all necessary peripherals have already been connected as described in sections 3 through 7 of this manual, and that any internal switches have been set as necessary).
- 2) Using the diagnostic boot mode for booting from the system's hard disk.
- 3) Using the diagnostic boot mode for booting from the system's floppy disk drive (you will probably only use this routine when you are attempting to recover from a system crash or some other abnormal and unhealthy event).
- 4) Using the automatic boot mode to boot from the system's internal hard disk drive.
- 5) Using the automatic boot mode to boot from the system's internal floppy disk drive.

Which boot mode your system uses will be determined by the system's internal option switch settings. Section 7 explains how to change the internal switch settings.

Powerup

The system startup procedure assumes that you have already wired and connected your terminals, printers, and what have you, to the computer. If you have just received your computer and are booting up for the first time, it is also important that you first check to make sure you have

**IBC/ MegaStar
System Startup and
Boot Routines**

unlocked the hard disk drive, removed the floppy disk drive protector from the floppy drive, and have set the baud rate for the console port before you attempt to start the computer. (If your system has an optional cartridge tape drive be sure that you have also removed the drive's spindle protector.)

Before starting the computer, turn on the console terminal (the terminal plugged into PORT 1). The system will only accept boot instructions from the console terminal. You cannot boot the system from any other port.

To start the computer, simply turn the key clockwise to the "on" position. The key will click into position, and the computer will begin to receive power. As soon as the computer begins to receive power, you will hear the fan motor and hard disk drive both begin to hum. After waiting 10-15 seconds for the hard disk drive to come completely up to speed, you may begin the boot routine.

Diagnostics: Booting from the Hard Disk Drive

To boot from the hard disk drive, you must use the console terminal (the terminal plugged into PORT 1). The system will only accept boot instructions from the console terminal. You cannot boot the system from any other port (the system will, however, look as though it is booting if you use a terminal connected to another port).

After switching the computer on (or after pressing the "reset" button), you may begin the hard disk boot routine. Go to the console and press:

ESC

At the console, the system will then display the Loader PROM message:

IBC Loader PROM - MegaStar* V1.0

Just below the Loader PROM message the system will prompt you with an asterisk. When you receive the asterisk prompt, enter:

BS

There is no need to press RETURN after this entry. What this command does is instruct the computer to begin booting from the default system

disk. The default system disk will be the computer's internal hard disk drive (unless set otherwise).

The computer will load the OASIS operating system, inform you that it has done so, and display what it assumes to be the current time and date. You may, for example, receive a message similar to this:

```
Oasis8 version 8.1-S #8-18-00000, 512 Kbytes
Copyright (c) 1984 Timothy S. Williams
Portions Copyright (c) IBC
All rights reserved.
09:00:00 Monday, June 3, 1985
```

Of course, the serial number for your particular OASIS operating system will be different than the one shown; and, if yours is a 1024 Kbyte system, this message will display "1024 Kbytes" rather than "512 Kbytes".

Below the OASIS message will be the prompt:

Logon please:

Enter the name of the account that you wish to log on to, and press RETURN. If the account does not have a password, the system will display the Command String Interpreter's (CSI) right angle bracket prompt to show that you are now logged on.

All systems are shipped with one standard account named SYSTEM. This account contains all of the system's files. The computer is shipped without a password on the SYSTEM account (it is possible for you to assign a password to the SYSTEM account, if you like).

If the account that you are logging on to has been assigned a password, you will receive the following additional prompt:

Password?

As you enter the password, the system will display asterisks rather than the actual characters that you enter. After entering the password, press RETURN.

If you have entered the password correctly, the system will display the CSI's right angle bracket prompt to show that you are now logged on.

**IBC/ MegaStar
System Startup and
Boot Routines**

If you enter the password incorrectly, or if you enter an incorrect password, the system will respond by politely offering you the "Logon please:" prompt again. When this occurs, you must re-enter the account name before you will be given another opportunity to enter the password.

Diagnostics: Booting from the Floppy Disk Drive

To boot from the floppy drive, you must use the console terminal (the terminal plugged into PORT 1), just as you would when doing an automatic boot. The system will only accept boot instructions from the console terminal. You cannot boot the system from any other port (the system will, however, look as though it is booting if you use a terminal connected to another port).

During the course of the boot from floppy procedure, you will need to have available a copy of the OASIS system disk.

After switching the computer on (or after pressing the "reset" button), insert the boot floppy, or system disk, into the floppy disk drive. If your system has more than one floppy disk drive, you must insert the system disk into drive 0 (drive 0 will always be the drive on the bottom).

Go to the console and press:

ESC

The system will then display the Loader PROM message:

IBC Loader PROM - MegaStar* V1.0

Just below the Loader PROM message the system will prompt you with an asterisk. When you receive the asterisk prompt, enter:

BF

There is no need to press RETURN after this entry. What this command does is instruct the computer to begin booting from the disk in the floppy disk drive. The floppy drive will thus become, by default, the SYSTEM, or "S", drive.

The computer will load the OASIS operating system, inform you that it has done so, and display what it assumes to be the current time and date.

You may, for example, receive a message similar to this:

Oasis8 version 8.1-S #8-18-00000, 512 Kbytes
Copyright (c) 1984 Timothy S. Williams
Portions Copyright (c) IBC
All rights reserved.
09:00:00 Monday, June 3, 1985

Of course, the serial number for your particular OASIS operating system will be different than the one shown; and, if yours is a 1024 Kbyte system, this message will display "1024 Kbytes" rather than "512 Kbytes".

Below the OASIS message will be the prompt:

Logon please:

Assuming that you have had to boot from the floppy disk as the result of a system crash, you are probably going to want to log on to your SYSTEM account (or its equivalent) and begin repairing the damage.

Automatic Boot Using the Hard Disk Drive

To automatically boot from the hard disk drive, you must use the console terminal (the terminal plugged into port 0). The system will only accept boot instructions from the console terminal. You cannot boot the system from any other port (the system will, however, look as though it is booting if you use a terminal connected to another port).

After switching the computer on (or after pressing the "reset" button), the system will perform the automatic hard disk boot routine.

The computer will automatically load the OASIS operating system, inform you that it has done so, and display what it assumes to be the current time and date. You may, for example, receive a message similar to this:

Oasis8 version 8.1-S #8-18-00000, 512 Kbytes
Copyright (c) 1984 Timothy S. Williams
Portions Copyright (c) IBC
All rights reserved.
09:00:00 Monday, June 3, 1985

Of course, the serial number for your particular OASIS operating system

IBC/ MegaStar
System Startup and
Boot Routines

will be different than the one shown; and, if yours is a 1024 Kbyte system, this message will display "1024 Kbytes" rather than "512 Kbytes".

Below the OASIS message will be the prompt:

Logon please:

Enter the name of the account that you wish to log on to, and press RETURN. If the account does not have a password, the system will display the Command String Interpreter's (CSI) right angle bracket prompt to show that you are now logged on.

If the account that you are logging on to has been assigned a password, you will receive the following additional prompt:

Password?

As you enter the password, the system will display asterisks rather than the actual characters that you enter. After entering the password, press RETURN.

If you have entered the password correctly, the system will display the CSI's right angle bracket prompt to show that you are now logged on.

If you enter the password incorrectly, or if you enter an incorrect password, the system will respond by politely offering you the "Logon please:" prompt again. When this occurs, you must re-enter the account name before you will be given another opportunity to enter the password.

Automatic Boot Using the Floppy Disk Drive

To execute the automatic floppy boot, you must use the console terminal (the terminal plugged into PORT 1). The system will only accept boot instructions from the console terminal. You cannot boot the system from any other port (the system will, however, look as though it is booting if you use a terminal connected to another port).

During the course of the boot from floppy procedure, you will need to have available a copy of the OASIS system disk.

After switching the computer on (or after pressing the "reset" button), insert the boot floppy, or System disk, into the floppy disk drive. If your

IBC/ MegaStar
System Startup and
Boot Routines

system has more than one floppy disk drive, you must insert the system disk into drive 0 (drive 0 will always be the drive on the bottom).

If there is a viable System disk loaded in the floppy drive, the computer will automatically load the OASIS operating system from the floppy disk, inform you that it has done so, and display what it assumes to be the current time and date. If there is not a viable System disk in the floppy disk drive, you may press ESCAPE to go to the Diagnostics: Booting from the Hard Disk Drive routine (see above).

After the system loads the operating system, you may, for example, receive a message similar to this:

Oasis8 version 6.1-S #8-18-00000, 512 Kbytes
Copyright (c) 1984 Timothy S. Williams
Portions Copyright (c) IBC
All rights reserved.
09:00:00 Monday, June 3, 1985

As usual, the serial number for your particular OASIS operating system will be different than the one shown; and, if yours is a 1024 Kbyte system, this message will display "1024 Kbytes" rather than "512 Kbytes".

Below the OASIS message will be the prompt:

Logon please:

Assuming that you have had to boot from the floppy disk as the result of a system crash, you are probably going to want to log on to your SYSTEM account (or its equivalent) and begin repairing the damage.

**IBC/ MegaStar
System Startup and
Boot Routines**

12. INVOKING MULTIUSER OASIS

Each time you execute the system startup and boot routine, or after each time you reset and reboot the computer, the OASIS operating system will automatically default to a single user mode. In this default mode, the person operating the console is the system's only user.

The purpose of this section is to explain how to bring the system up to multiuser mode. Specifically, this section deals with the following subjects:

- 1) Using the SET MEMORY command to allocate portions of the system's memory. A port cannot be used until it has been allocated at least some portion of the system's memory resources.
- 2) Using the START and STOP commands to activate and deactivate the system's memory resources and to set the baud rates for the system's terminals.

All commands discussed in this section are also explained in the OASIS System Reference Manual. Any SET MEMORY and START commands that you use regularly can be made to execute automatically by including them as part of your system's IPL.EXEC file (see Chapter 2 of the OASIS System Reference Manual).

The SET MEMORY Command

The first step in invoking the multiuser mode is to allocate memory resources between the system's various users. The SET MEMORY command does this by allocating the system's banks of memory. It is also possible to use the SET MEMORY command to partition off the banks into smaller portions which may be shared between different users or tasks. As a default, the SET MEMORY command will allocate an entire bank.

The SET MEMORY command should always use the following format:

SET MEMORY <pin> [<size> <bank>]

IBC/ MegaStar
Invoking MultiUser
OASIS

The pin, or partition identification number, identifies a partition and allows that partition to be associated with a particular user or task. Partition identification numbers must always be allocated in ascending order and removed in descending order.

The partition size is the amount of memory (up to one full bank) to be allocated to the user or task. The first allocation from a particular bank will allocate the entire bank to the specified pin — no matter what size is specified. To allocate an entire bank to a particular pin it is sufficient to enter a "1" as the partition size for that bank.

Because the MegaStar has more than one bank, in most instances it is more practical to allocate a separate bank to each user rather than to partition off one bank for a number of users.

When allocating subsequent partitions from the bank it is possible to specify the number of bytes that you want to be allocated to a particular partition. When partitioning memory banks (i.e creating partitions that are less than a full bank in size), it is important to understand that the system will remove each subsequent partition's allotment from the previous partition's allotment. For example, a 48K bank would be divided into three 16K partitions by allotting the full 48K to the first partition, 32K to the second partition (leaving 16K in the first partition), and allotting 16K to the third partition (leaving 16K in the second partition).

The bank number is used to associate the memory allocation with a particular bank of memory. If no bank number is specified, the system will assume that all allocations are an attempt to partition bank 0. Banks must always be allocated in ascending order and deallocated in descending order.

An example of how the SET MEMORY command might look when being used to allocate memory to ports 2 through 5, one full bank each, banks 1 through 4, would look like this:

```
SET MEMORY 2 1 1  
SET MEMORY 3 1 2  
SET MEMORY 4 1 3  
SET MEMORY 5 1 4
```

The SET MEMORY command does not activate users. To activate users you must use the START command.

The SET MEMORY command is also used to deallocate memory partitions. Before it is possible to deallocate a particular partition, the partition must first be STOPped. If there are any other partitions with higher identification numbers, they must be STOPped and deallocated prior to deallocating any partition with a lower identification number. For example, to deallocate pin 3 of the memory that was allocated in the previous example, you would enter:

```
SET MEMORY 5
SET MEMORY 4
SET MEMORY 3
```

All memory allocations remain in effect until they have been deallocated by another SET MEMORY command, or until the system is either shut down or reset. Memory which has been deallocated may be immediately reallocated, if desired.

The SHOW MEMORY command will display a listing of the system's current memory allocations.

The START and STOP Commands

The purpose of the START command is to activate a previously allocated partition and to associate a user or task with that partition. The purpose of the STOP command is to deactivate a previously allocated and active partition.

The START command activates whatever port is specified as part of the command (or the default port). When the command executes, the system will send a "Logon please:" message to the specified port. The "Logon please:" message will be repeated each time the RETURN key is pressed at the terminal until the prompt is adequately answered. In those instances where the terminal connected to the port being STARTed was not turned on when the command was issued (and thus could not receive the "Logon please:" message) the prompt will be displayed after the terminal is turned on and RETURN is pressed.

The format for the START command is as follows:

```
START <pin> [<portn> [<bnnnn> [<enn>]]]
<command>
```

IBC/ MegaStar
Invoking MultiUser
OASIS

The pin, or partition identification number, identifies a previously allocated partition and assigns that partition a particular user or task. Partition identification numbers may be STARTed in any order.

The portn option allocates the partition that has been specified by the partition identification number, to a particular port. If no port number is specified, the system will allocate the port that has the same number as the pin.

The bauuu option indicates the baud rate of the serial device connected to the port that has been associated with the partition. If no baud rate is specified, the system will default to 9600 baud for that port. The baud rates supported by the MegaStar are: 300, 600, 1200, 2400, 4800, 9600, 19200, and 38400.

The~cn option indicates the class of terminal or printer associated with the assigned port. This option allows the system to take full advantage of each terminal's particular characteristics. Appendix G of the OASIS System Reference Manual contains a list of the available OASIS class codes.

When used with the command option, the START command will run the specified command as a background activity. The specified command will be executed in the first allocated and inactive partition available. After the command has executed, the partition will become inactive again (there will be no need to deactivate the partition by using the STOP command).

The following is an example of what the START command might look like when used to activate partitions 2 through 5:

```
START 2 (PORT2 B19200 C31
START 3 (PORT3 C7
START 4 (PORT4 B2400 C17
START 5 (PORT5 B38400 C31
```

As you can see, not only does this example set different baud rates for each of the several devices being STARTed, but also that there are different types of serial devices being STARTed (hence different class codes).

NOTE: Please be aware that the START command does not in any way allocate memory. Before the START command can be used, sufficient memory must first be allocated by using the SET MEMORY command.

The format for the STOP command is essentially the same as the format for the start command:

STOP <pin>

The STOP command can be used to deactivate a port after it has been STARTed. Before the STOP command can execute, anyone using the port to be STOPped must first log off. The STOP command does not have any effect upon a port if there is someone currently logged on to it.

NOTE: Please be aware the STOP command does not have the ability to release memory used by the partition. To deallocate memory you must use the SET MEMORY command (however, a port must be STOPped before it can be deallocated).

**IBC/ MegaStar
Invoking MultiUser
OASIS**

13. ATTACHING DEVICES

When the system is initially booted up, it will have no devices attached to it (other than the console and the system disk). Before it is possible to use any of the system's devices, such as disks, tapes, printers, and so on, they must first be ATTACHED. After initially booting the system, you may make permanent any ATTACHments by using the SYSGEN command.

Devices may be both ATTACHED, disATTACHED, and reATTACHED as necessary.

The purpose of this section is to explain how to ATTACH devices to the system. Specifically, this section addresses the following subjects:

- 1) The purpose and advantages of the ATTACH command (briefly), and a description of the ATTACH command's arguments.
- 2) Common uses of the ATTACH command, suggested syntax for the command, and a brief explanation of what each command variation accomplishes.
- 3) Using the SYSGEN command to store or cancel ATTACHments.

The ATTACH command, and all of its options, is also explained in the OASIS System Reference Manual. Any ATTACH commands that you use regularly can be made to execute automatically by including them as part of your system's IPL.EXEC file (see Chapter 2 of the OASIS System Reference Manual).

The ATTACH Command

The ATTACH command is used to associate the system's physical device drivers with a logical device name. The ease with which the association can be made and cancelled allows the operating system to be easily configured to make optimal use of your system's available peripherals.

The ATTACH command uses the following format:

```
ATTACH [<logdev> [<phydev>] [<options>...]]]
```

IBC/ MegaStar ATTACHing Devices

Used on its own, without any arguments or options, the ATTACH command will return a listing of the logon account's current ATTACHments.

The **logdev** is the logical device name of the device to be attached to the physical device. A logical device is not really a device or a peripheral, but rather a common communication link between an application program and a specific physical device.

Specifying a logical device name and **not** a physical device name in the ATTACH command will cause any currently ATTACHED device with the name specified to be disATTACHED.

The **phydev** designates the device's physical device name. The physical device name must be one recognized by the system. Table 13-1 provides a listing of all the physical device names recognized by the system.

IMPORTANT: The physical device names recognized by the MegaStar are not always the same as the physical device names listed in the OASIS System Reference Manual. To avoid confusion, please use the physical device names listed in Table 13-1 and **not** those found in the OASIS System Reference Manual.

| | | |
|---------|-------|--------|
| DISK1 | PORT0 | PORT8 |
| DISK2 | PORT1 | PORT9 |
| DISK3 | PORT2 | PORT10 |
| DISK4 | PORT3 | PORT11 |
| DISK5 | PORT4 | PORT12 |
| DISK6 | PORT5 | PORT13 |
| | PORT6 | PORT14 |
| FLOPPY1 | PORT7 | PORT15 |
| FLOPPY2 | | |
| | CART | BISYNC |
| CENT | REEL | |

Table 13-1. Physical Device Names.

With the exception of the ENABL and Onn options -- which are **not** implemented -- all of the options associated with the ATTACH command

have been implemented as described in the OASIS System Reference Manual.

NOTE: The OASIS operating system does not allow duplicate physical device names. Attempting to ATTACH a device using the same physical device name as another device, which is currently ATTACHED, will disATTACH the currently ATTACHED physical device and will ATTACH the device specified in the most recent command.

ATTACH Command Examples

To help present some idea of how to use the ATTACH command, the following examples have been included along with a brief explanation of each. The following is really only a sampling of the ATTACH command's arguments and options. For an explanation of all the ATTACH arguments and options, please refer to the OASIS System Reference Manual.

Listing Current ATTACHments. Issuing an ATTACH command without any arguments or options will return a listing of the all currently ATTACHED devices available to your account. To receive a listing of current ATTACHments, enter:

ATTACH

The ATTACHment listing will always show at least two devices as being ATTACHED for your account: the System disk (which will always have the logical device name "S") and the CONSOLE (which will always be ATTACHED to whichever port you are currently using).

ATTACHing Disks (Hard Disk Drive). To ATTACH one of the system's other disks (in addition to the System disk) as logical device "A", you would use the command:

ATTACH A DISK1

This command would ATTACH the physical device DISK1 to logical device "A". However, the disk would only be accessible to the partition responsible for ATTACHing it. If you want to allow other users to be able to share the disk's resources, you must ATTACH the disk as a public volume. All initial public disk ATTACHments must be done in single user mode. To ATTACH one of the system's disks as a public disk with the logical device name "A", you would enter:

IBC/ MegaStar
ATTACHing Devices

ATTACH A DISK1 (PUBLIC)

Please note that all initial public disk ATTACHments must be done in single user mode. Disks which are initially ATTACHED as public may be disATTACHED and reATTACHED as a different logical device while in multiuser mode. Disks that were not ATTACHED as public before invoking the multiuser mode cannot later be made public without bringing the system back down to single user mode.

ATTACHing the Floppy Disk Drive(s). To ATTACH the floppy disk drive as logical device "F" (usually most people prefer to ATTACH the floppy drives as logical devices "F" and "G" to distinguish them from the hard disks), you would enter:

ATTACH F FLOPPY1

If your system has dual floppy disk drives, the top (or second) drive must be attached as FLOPPY2.

DisATTACHing Devices. To disATTACH a device all that you need to do is issue the ATTACH command and the device's logical name. For example, to disATTACH the floppy drive that was ATTACHED in the above example, you would enter:

ATTACH F

ATTACHing Printers. To ATTACH a serial printer to PORT 10, you would enter:

ATTACH PRINTER1 PORT10

If there is more than one printer connected to your system, it is always a good idea to specify PRINTER1, PRINTER2, and so on. This will help to prevent any possible confusion about which printer is being used by whom.

To ATTACH a parallel printer to the Centronics port, you would enter:

ATTACH PRINTER2 CENT

When ATTACHing printers you may also specify options such as the line length (which is also sometimes referred to as the print width), the page size (or number of lines per page), printer class code, and so on.

ATTACHing Tape Drives. An example of what the ATTACH command might look like when used to ATTACH a cartridge tape drive would be:

ATTACH TAPE1 CART

Or, to ATTACH a nine-track reel-to-reel tape drive, you could enter:

ATTACH TAPE2 REEL

Changing Terminal Class Codes. Should you ever need to change the class code associated with your terminal, you may do so using the ATTACH command. For example:

ATTACH CONSOLE PORT2 (C31)

This command ATTACHes the terminal connected to PORT 2 as a TeleVideo model 950.

The terminal class codes may also be changed by using the START command.

Using the SYSGEN Command to Store and Cancel ATTACHments

The SYSGEN command allows you to save your ATTACHments when the system is switched off or reset. If the ATTACHments are not SYSGENed, the devices will have to be reATTACHED each time the system is rebooted.

To use SYSGEN, simply make all of the ATTACHments that you are going to want to save, and then enter the command:

SYSGEN

This command will save any ATTACHments that were in effect when it was issued.

To remove ATTACHments that have been SYSGENed, simply use the ATTACH command to disATTACH the device, and then reissue the SYSGEN command to make permanent the disATTACHment.

The SYSGEN command must be issued while you are in single user mode.

**IBC/ MegaStar
ATTACHing Devices**

14. USING THE SYSTEM'S DEVICES

After ATTACHing the system's device, you may begin to make use of commands which allow you to copy files between devices, ARCHIVE and RESTORE the contents of whole accounts from one device to another, and BACKUP the contents of one disk to another.

- 1) Formatting or initializing new, and unused, floppy disks using the INITDISK command.
- 2) Copying files using the COPYFILE command.
- 3) Using the ARCHIVE command to make highly compressed "off-line" copies of either selected files or entire accounts. Using the RESTORE command to expand and restore either selected files or complete accounts that have been ARCHIVED.
- 4) Making copies of entire disks with the BACKUP command (primarily used with dual floppy drive systems).
- 5) Copying the contents of one floppy disk to another floppy disk (this procedure need only be used with systems having a single floppy drive; systems having dual floppy drives may use the COPYFILE or BACKUP commands).
- 6) Special ARCHIVE and RESTORE options for use with cartridge tape drives.

All commands discussed in this section are also explained in the OASIS System Reference Manual.

Formatting Diskettes with INITDISK

Before any new floppy disk can be used, it must first be initialized using the INITDISK command with the FORMAT argument. Each diskette needs to be formatted only once at the outset of its career (although formatting can also be used as a very efficient means of erasing the entire contents of a disk).

Before using the INITDISK command, the floppy drive must first be ATTACHED.

IBC/ MegaStar
Using the System's Devices

To begin formatting a diskette, insert the diskette in the drive and enter the command:

INITDISK (FORMAT HEAD 2)

The FORMAT argument instructs the system to format the disk, while the HEAD 2 arguments inform the system that there are two heads (and, therefore, two viable data surfaces).

The INITDISK program will provide you with three prompts before it begins to format the disk. Answering either of the (Y/N) prompts with an N, will cause the program to be exited without any alterations being made to the disk. Answering the last prompt incorrectly will also cause the program to be exited without any alterations being made.

After you issue the INITDISK command the system will return the prompt:

INITDISK will erase all files on drive F(1)
Do you wish to continue (Y/N)?

(The drive designation will, of course, reflect the drive that you are actually using.)

If you answer this prompt with a Y, the system will continue the formatting process by prompting you for a disk label. The disk label must follow the same naming conventions as a filename: it must begin with an alphabetical character, may be between two and eight alphanumeric characters long, and may not include any spaces or special characters other than the \$ (dollar) sign.

After you enter the disk label, the system will display a list of the default values that it will use when formatting the disk. Any of the defaults can be changed by specifying the correct value as an argument to the INITDISK command. If you use the INITDISK command with the HEAD 2 arguments, these values will be correct for drives supplied with the MegaStar. Before the system will continue formatting the disk, you must enter a Y to specify that you wish the default values to be used.

As the disk is formatted, the system will display a counter showing which track is currently being initialized.

The COPYFILE Command

The COPYFILE command allows files to be copied either individually or in groups. In addition, it is also possible to copy only selected portions of a file, or to append one copied file to another. The COPYFILE command does not alter the file being copied.

Before using the COPYFILE command to copy files either to or from the floppy drive, the floppy drive must first be ATTACHED.

One commonly used form of the COPYFILE command uses the following format:

```
COPYFILE <file-desc1> <file-desc2> [<options>]
```

At its simplest, the COPYFILE command might be used to copy a file from drive S (the System disk) to drive F (the floppy disk) while maintaining the original file name for both files. An example of such a command might look like this:

```
COPYFILE MEGASTAR.SCRIPT:S MEGASTAR.SCRIPT:F
```

This command would copy the file MEGASTAR.SCRIPT from drive S to drive A. The new file would be named MEGASTAR.SCRIPT:F, while the original file would still be named MEGASTAR.SCRIPT:S.

To make it possible to select groups of similarly named files, the COPYFILE command can also be used with the same "wildcards" that are used when listing files. The acceptable wildcards are: the * (asterisk), ? (question mark), @ (at), # (number), and = (equals). For more information about the definitions and uses of these wildcards, see "System Conventions" in the OASIS System Reference Manual.

The = (equals) sign is used to indicate that either the file name or the file type of copied file are to remain the same as the original. This wildcard may only be used with the COPYFILE and RENAME commands, and may only be used as part of the destination file name.

```
COPYFILE MEGASTAR.SCRIPT:S =.=:F
```

In the above example there are two sets of = signs, so both the file name and the file type will be the same as the original.

IBC/ MegaStar

Using the System's Devices

Other wild cards, such as the * (asterisk) may also be used when copying files. For example, if you want to copy all of the files in an account with the extension SCRIPT, to the floppy drive F, you would enter:

```
COPYFILE *.SCRIPT:S =.=:F
```

This command would copy all of the account's SCRIPT files from drive S to drive F, and would give the copies the same names and filetype as the original. The * designation may only be used as part of the origin file name.

OASIS will not allow two files with identical names to reside on the same disk and in the same account. If you attempt to copy a file and the file name is already being used on the destination disk/account, you will receive a message telling you that the file already exists and that no copy was made. If you want to have the new copy replace the existing file, you must use the REPLACE option with the COPYFILE command. For example:

```
COPYFILE MEGASTAR.SCRIPT:S =.=:F (REPLACE)
```

This command would copy the file MEGASTAR.SCRIPT from drive S to drive A, would retain the original file name, and would replace the existing version of MEGASTAR.SCRIPT on drive F.

Using the ARCHIVE and RESTORE Commands

The ARCHIVE command can be used to create off-line copies of a file, group of files, entire account, or disk volume. The ARCHIVE command is an excellent way to make backup copies of your system's files since it compresses the files as it ARCHIVES them. Because the files are compressed, a floppy disk can hold more ARCHIVED files than COPYFILEd files.

After files have been ARCHIVED to the floppy disk, the RESTORE command is used (appropriately enough) to restore them.

Before using either the ARCHIVE or RESTORE commands, the floppy drive must first be ATTACHED.

IMPORTANT: When making ARCHIVES, do not use any disks which contain files that you are either using or want to save. The ARCHIVE command will overwrite the floppy disk completely —

including the directory. Because of the structure of the ARCHIVE command, it will "consume" at least an entire disk each time it is used (even if it is only used to ARCHIVE a single file).

IMPORTANT: When making an ARCHIVE of a large number of files, of an account, or of an entire disk volume, it is very probable that one floppy will not be sufficient to hold everything. Such circumstances do not create any problems: you will be simply prompted as to when to change the floppies -- although it is essential that you have a number of initialized diskettes handy (since you will not be able to stop and initialize disks during the ARCHIVE). When making an ARCHIVE which consists of more than a single volume always be sure to mark each disk's label to indicate both its volume number (or order within the set) and the date the ARCHIVE was performed.

The ARCHIVE command's arguments and options can be manipulated in a number of different ways which will help to allow you to accurately "target" the files that you want to ARCHIVE.

The ARCHIVE command uses the following format:

ARCHIVE [<fn> <ft>] <fd1> <fd2> [<option>...]

The file name and file type may specify a particular file, may be replaced by a combination of wildcards, or may be omitted completely.

To make an ARCHIVE on drive F of all the files in an account with the extension SCRIPT, you would enter:

ARCHIVE *.SCRIPT S F

This command would copy all of the files on drive S that are owned by the logon account and have the file type SCRIPT. If there are more files than will fit on a single floppy disk, the system will pause to allow you to change floppy disks.

To make an ARCHIVE of all the files in the logon account on drive S you would enter:

ARCHIVE S F

The file name and file type may specify a particular file, may be replaced by a combination of wildcards, or may be omitted completely.

IBC/ MegaStar
Using the System's Devices

To make an ARCHIVE on drive F of all the files in an account with the extension SCRIPT, you would enter:

ARCHIVE *SCRIPT S F

This command would copy all of the files on drive S that are owned by the logon account and have the file type SCRIPT. If there are more files than will fit on a single floppy disk, the system will pause to allow you to change floppy disks.

To make an ARCHIVE of all the files in the logon account on drive S you would enter:

ARCHIVE S F

This command would write the ARCHIVE to drive F, pausing as necessary to allow you to mount new disks on the floppy drive.

To ARCHIVE the contents of an entire disk volume, regardless of which account(s) they may be owned by, you would enter:

ARCHIVE S F (VOLUME)

This command would ARCHIVE all of the files on drive S to floppy drive F -- regardless of which account they belong to. As always, the system will pause to allow floppy disks to be changed as they become full.

It is also possible to have the system target the ARCHIVE selections according to the date on which the file was last updated. This system would allow you to make ARCHIVE copies of just those files that had been updated since the last ARCHIVE. For example, if you wanted to ARCHIVE all of the files on a disk that had been updated either on or after September 28th 1984, you would enter:

ARCHIVE S F (9/28/84)

This command would ARCHIVE only those files in the logon account that had been updated either on or before September 28th, 1984.

The RESTORE command is used to restore files from the ARCHIVE disks. The RESTORE command uses the following format:

RESTORE [<fn> <ft>] <fd1> <fd2> [<option>...]

When you use the RESTORE command, you must always be sure to begin by mounting the first disk volume in the set of ARCHIVED disks. Because the first volume of the ARCHIVE contains the directory information, the system will not begin a RESTORE unless that volume is the first mounted. Subsequent volumes must also be mounted in the same order as they were made (first made first mounted, second made second mounted, and so on).

When you are restoring entire accounts or volumes, or when you are using wildcards with the RESTORE command, RESTORE will always start with the first disk volume, and will continue through each subsequent volume in sequence until the entire account or volume has been RESTOREd or until the entire set of ARCHIVED disks have been searched.

The RESTORE command uses the most of the same arguments and options as the ARCHIVE command — except that they are used in a reverse order.

For example, to RESTORE the SCRIPT files that were ARCHIVED using the ARCHIVE *SCRIPT:S G command, you would enter:

RESTORE *SCRIPT:F S

Of course, if the SCRIPT files already existed in the destination account you would have to use the REPLACE option if you wanted to use the ARCHIVED version of the file(s) rather than the existing version.

To restore all of the files ARCHIVED from the logon account, you would use the command:

RESTORE F S

Again, if there are already files in the logon account that have the same names as those being RESTOREd, you must use the REPLACE option if you want to have the ARCHIVED version to replace the existing version.

To RESTORE only one file, such as the file MEGASTAR.SCRIPT, you would enter:

RESTORE MEGASTAR.SCRIPT:F S

IBC/ MegaStar Using the System's Devices

This command would search through the entire set of ARCHIVE disks until it found the file MEGASTAR.SCRIPT, which would be RESTORED on the condition that the file name is not already being used. If the file name is being used, and you want the ARCHIVED version to replace the existing version, you must use the REPLACE option.

Using the BACKUP Command

The BACKUP command allows you to copy the contents of an entire disk onto another disk. The BACKUP command can only be used to make copies between like media (you cannot, for example, BACKUP between hard and floppy disks). The BACKUP command is generally only used with systems having dual floppy disk drives.

BACKUP is not a selective command; it does not provide either options or arguments to allow for the copying of anything less than an entire disk.

The BACKUP command uses the following format:

```
BACKUP [<fd1> <fd2>] [<option>...]
```

If no directory is specified, the BACKUP command will assume that the drive attached as S is the source disk, and that the drive attached as A is the destination disk.

The only option available with the BACKUP command is noverify. The purpose of the noverify option is simply to prevent the system from performing a read after write operation and comparing the copy to the original. In most instances this option is entirely unnecessary.

For example, to make a copy of your OASIS system diskette, you would attach the two floppy drives as drive F and drive G, put the System disk in drive F and put a formatted floppy in drive G. Enter:

```
BACKUP F G
```

The system will respond with the message:

```
Source on drive F(7)  
Destination on drive G(8)  
Mount disk now (Y/N) -
```

If the drives shown in the message are correct, enter a Y in response to the prompt. If the drives are not correct, enter an N and you will be allowed to change the drive designations.

After the system receives a Y response (or after the source and destination drives have been reentered), the volumes in the drives will be mounted and the system will display the disk labels for both the source and destination disks. If the labels are correct enter another Y to instruct the system to proceed with the BACKUP.

After the backup has been made, the system will display the message:

End of copy, Again (Y/N) -

What this message is trying to convey is that the BACKUP has been completed, and that the system would like to know whether you want to make another BACKUP.

Copying Diskettes -- Single Floppy Drive System

With the OASIS operating system it possible to make "quick" copies of a diskette without having to use a second floppy drive, and without having to copy the files individually by name.

The obvious advantage of this feature is that it allows you to make backup or working copies of any software that you may receive on a floppy disk.

IMPORTANT: Always make at least one copy of your OASIS System files (it is usually a good idea to make more than one copy). Always make a copy of the System files before beginning to use or modify any of the files. Use the copy(s) and save the original in a safe place.

To use the single drive disk copy feature, ATTACH the floppy drive (the drive in this example is ATTACHED as G), insert the disk to be copied into the drive, and enter:

COPYFILE *.*:G =.=:S

This command copies all of the files from the floppy to the hard disk. After the COPYFILE command has finished executing, enter:

IBC/ MegaStar
Using the System's Devices

FILELIST G (EXEC FT)

This command will create the file SELECTED.EXEC which contains a listing of all the files on the floppy disk. To copy all of the files that were originally on the source floppy (and which are also now on the hard disk), insert an initialized disk into the floppy drive and enter:

SELECTED COPYFILE S =.:G (NOQUERY)

All of the files listed in SELECTED.EXEC will be copied from drive S to the floppy drive.

If you are copying your System disk, it should be pointed out that the file containing the names, synonyms, and privilege levels of any accounts that you may have created, will not be copied along with the other files. If you want to save a record of your current account structure along with your System disk, use the command:

ACCOUNT (COPY=F)

If you do not use this command, the only account on your System disk will be the SYSTEM account.

IBC's ARCHIVE and RESTORE Options

IBC has created a few additional options for use with the ARCHIVE and RESTORE commands. The purpose of these options is to enable you use the ARCHIVE and RESTORE commands more easily and efficiently.

A. Options Used With Any ARCHIVE Media

PUBLIC. Used with the ARCHIVE command, this option allows you to do an ARCHIVE of a public disk while still in multiuser mode.

ARCHIVE S A (PUBLIC)

DIR. Lists the directory files of an ARCHIVE onto the CRT without actually doing a RESTORE of any of the files.

RESTORE TAPE1 (DIR)

DIRP. Same as DIR, only standard output is sent to a printer rather than the CRT.

B. Options Used Only with Floppy Disk Drives

RESTART. When used with the ARCHIVE command, this option will allow you to RESTART an ARCHIVE by inserting the last volume created by the ARCHIVE and continuing from that point.

When used with the RESTORE command, this option allows you to RESTORE from any volume of the ARCHIVE. This would save you having to search through all the volumes of an ARCHIVE to find a particular file, or allow you to skip past a bad volume.

Syntax:

ARCHIVE S F (RESTART)

RESTORE F S (RESTART)

C. Options Used Only with Tape (Cartridge or Nine-Track)

The new options for performing an ARCHIVE to tape include, multiuser mode ARCHIVE, multi-volume ARCHIVES on the same tape, and appending to an existing volume.

NOREW. Disables the REWIND option after the completion of an ARCHIVE. This is used for multiple ARCHIVES.

The NOREW option may also be used with RESTORE.

CONT. Disables the REWIND option before the next ARCHIVE begins. This option is also used with multiple ARCHIVES.

The CONT option may also be used with RESTORE.

For example, to put three consecutive ARCHIVES onto a single tape, you might use the following commands:

```
ARCHIVE S TAPE1 (NOREW  
ARCHIVE A TAPE1 (CONT NOREW  
ARCHIVE B TAPE1 (CONT
```

The first command line ARCHIVES the entire "S" drive to the tape, and then stops and does not rewind. The second command line continues writing the ARCHIVE information on the tape where the previous

IBC/ MegaStar
Using the System's Devices

command left off, ARCHIVEs all of drive "A" to the tape, and then stops and does not rewind. The third command line continues writing ARCHIVE information on the tape where the second command left off, ARCHIVEs all of drive "B" to the tape, and then stops and rewinds to the beginning of the tape.

To restore from the ARCHIVE tape that was created by these commands, you would use the following sequence of commands:

```
RESTORE TAPE1 S (NOREW  
RESTORE TAPE1 A (CONT NOREW  
RESTORE TAPE1 B (CONT
```

The NOREWind and CONTinue options may only be used when performing ARCHIVEs and RESTOREs to magnetic tape.

APPEND. Locates the end of the last ARCHIVE on the tape and begins the current ARCHIVE from that point without corrupting any previous ARCHIVEs.

LAST nnn. Informs the tape drive that ARCHIVE nnn is the last ARCHIVE on the tape.

For example, if a particular tape has three ARCHIVEs on it, but ARCHIVE 003 has an unrecoverable flaw, this option will allow the retention of the previous two ARCHIVEs and will begin the current ARCHIVE at the end of ARCHIVE 002. The syntax for this command would be:

```
ARCHIVE S TAPE1 (LAST 002
```

FILE nnn. Instructs the tape drive that FILE nnn is the ARCHIVE you wish to RESTORE, thereby skipping past previous ARCHIVEs before performing the RESTORE.

BLOCK. Allows you to specify the block size when performing ARCHIVEs to tape. Maximum block size is determined by the physical drive limitations and memory available for the buffer. The greater the block size specified, the less space will be wasted between records.

For example, to use a block size of 20 enter:

```
ARCHIVE S TAPE1 (BLOCK 20
```

If the block size you specified is too large, an "insufficient memory" error will be returned.

IBC/ MegaStar
Using the System's Devices

15. SYSTEM SHUTDOWN

If you are the system administrator or manager, one of your responsibilities should be to decide when to shut down the system. As you are making this decision, there are two main things that you should take into account: what is the best way to maintain the integrity of your data, and what is the best way to accommodate the physical needs of the computer itself.

In theory, there are really very few reasons for ever having to shut the system down. Of course, leaving the computer running unattended (or attended by the wrong sort of people), leaves your entire system much more vulnerable to possible problems and potential disasters. As a general rule, if you are not going to be using the computer overnight or over the weekend, it is a good idea to shut it down and turn it off.

It is not good for the computer to be cycled on and off frequently. It is best to leave the computer running when you are going to leave it for an hour or so (for instance when you go to lunch). As a rule, you should not switch the computer on or off more than once a day.

This section contains the following information:

- 1) A suggested procedure for bringing the system down to single user mode prior to shutting it down (this procedure should help to make system shutdown as uneventful as possible).
- 2) Pre-shutdown maintenance (some hints on how to check the system's disks for possible misallocations, and instructions for correcting any misallocations that may be found).

Bringing the System Down to Single-User Mode

When you shut the system down, you should always try to do it as gracefully as possible. You should not simply turn the computer off. You want to tidy things up and then shut down and switch off.

NOTE: Because you will be bringing the system down to single-user mode, you must use the PORT 1 console terminal. The shutdown procedure will also be easier if you are logged on to the SYSTEM account.

**IBC/ MegaStar
System Shutdown**

The first step in shutting down should be to bring the system back down to single-user mode. Doing this will both ensure that you are not interrupting another user's session, and will also enable you to do any general system maintenance that may be necessary (such as an ARCHIVE of the system's files).

Unless you are absolutely certain that you are the only one using the system, it is always a good idea to check to see whether there are any other sessions running. To check for other sessions use the SHOW MEMORY command. The SHOW MEMORY command will return a listing showing all allocated memory partitions, whether the partition is active or not, and whether or not anyone is currently logged on to that partition.

The SHOW MEMORY command will display the word "SHOW" to indicate your own partition, and will display either the word "LOGON" (to indicate which partitions are not currently being used), the name of the process currently running (if the partition is currently being used), or nothing (to indicate an allocated but unSTARTed partition).

If there are any other partitions currently active which have processes running, the decent thing for you to do would be to send their owners a message to the effect that you are going to be shutting the system down soon. If there are not any currently active partitions, you may carry on with the shutdown.

To warn other users that the system is being prepared for a shutdown, you might want to use the MSG, or message, command. The MSG command can be sent by any user, and might convey a message such as the following:

```
MSG *
Enter Message text, terminate input by empty line
THE SYSTEM IS GOING TO BE
SHUT DOWN IN 15 MINUTES.
PLEASE CONCLUDE WHATEVER YOU ARE DOING.
```

This command would send the message to all of the system's users.

If the people at your site are fairly conscientious, they will conclude what they are doing and log off. If you are logged on to the SYSTEM account (and thus have a privilege level of 5) it is your prerogative to forcibly terminate any processes that are still running. Before doing this, you might want to try some slightly less draconian measures -- perhaps something like sending another message, or going around to your reluctant

coworker and having a few polite words about who is, in fact, really running the system. If all else fails, use the FORCE command.

NOTE: Before using the FORCE command, read the cautions included with its description in the OASIS System Reference Manual.

If you have been running the OASIS spooler, the next step in the shutdown procedure is to STOP and QUIT the spooler.

With the spooler STOPped and QUIT, you may then begin to STOP any active partitions. The partitions must be STOPped beginning with the highest numbered partition and working down to the lowest. You cannot skip past a partition without STOPping it. After STOPping all of the partitions, use the SET MEMORY command with only the bank argument to deallocate all of the banks.

The system's banks must also be deallocated beginning with the highest numbered bank and working down to the lowest. You cannot skip past a bank without deallocating it.

The following is an example of the commands that would be used to shut down a system which had five active partitions and was running the OASIS spooler.

```
SPOOLER STOP
SPOOLER QUIT
STOP 5
STOP 4
STOP 3
STOP 2
SET MEMORY 4
SET MEMORY 3
SET MEMORY 2
SET MEMORY 1
```

Executing these commands would bring the system in this example down to single-user mode. However, if there are any users still logged on to the system, the STOP command will fail and you will have to log that user off before you can continue bringing the system down to single-user mode.

The SHOW DISK and REPAIR Commands

Once the system is in single-user mode, it is always a good operating procedure to issue a SHOW DISK command to verify that all of the system's disks are in good order. The SHOW DISK command checks each disk's allocation bit map against its directory to ensure that there are no misallocations.

The SHOW DISK command can be issued at any time, although by issuing it at the end of the day before shutdown you will often be able to take measures to correct any potential problems -- while they are still easily correctable.

NOTE: To ensure that you do not inadvertently duplicate any existing problems, you should always use the SHOW DISK command before making either BACKUP or ARCHIVE copies of your files. Before making an ARCHIVE or BACKUP copy of your files, be sure to correct any problems that you might find.

The SHOW DISK command will display six lines of information about the status of each of the attached disks, as well as validating the allocation of each disk. The SHOW DISK command is explained in the OASIS System Reference Manual.

If the SHOW DISK command discovers any misallocations it will only indicate whether the misallocation is positive or negative and how many kilobytes are misallocated. A positive misallocation indicates that there are more bytes allocated to files than are listed as being in use; while a negative misallocation indicates that not all bytes which are listed as being used have actually been allocated to files.

When SHOW DISK discovers misallocations, it is then necessary to use the REPAIR command to identify and, in some circumstances, correct them. When used without any arguments, the REPAIR command will identify which files are competing for the same disk space and/or which space has not been allocated.

Negative misallocations can often be corrected by using the REPAIR command with the FIX argument. The REPAIR command is explained in the OASIS Diagnostic and Conversion Utilities Program Reference Manual.

Unfortunately, the FIX argument is primarily only useful for correcting negative misallocations. Positive misallocations generally require that a

note be made of the names of the files which REPAIR shows as having either "collisions" or "invalid EOF pointers".

In some instances it is possible to use the REPAIR command with the FIX argument to correct positive misallocations. However this command-argument pair will usually only help in cases where the REPAIR command does not show any collisions or invalid EOF pointer messages.

In cases where there are collisions, it is important that you examine both of the files involved in the collision. What you must do is determine which portions (if any) of which files are in any way salvageable.

If you want to try to salvage a damaged file, you may try to copy it, then KILL the old file name, and rename the copied file to return its previous name. However, please note that OASIS will not allow some badly damaged files to be copied. In such instances you may just have to KILL the file and RESTORE it again from your most recent ARCHIVE.

After KILLing a file, you will probably have a few negative misallocations since the KILL command removes the filename without updating the bit map. Use the REPAIR command with the FIX argument to correct any negative misallocations.

Shutdown

If all of the disks check out okay, you may switch off all external devices connected to the computer (if you prefer, you may leave the console terminal on until after you have switched off the computer).

To be on the safe side, it is usually a good operating procedure to get into the habit of using the HOME command before switching the computer off.

Enter,

HOME

Switch the computer off.

**IBC/ MegaStar
System Shutdown**

16. THE SETDISK UTILITY

The OASIS operating system is capable of supporting between 1 and 8 logical disk units. Each of these logical disk units may be as large as 16 Mbytes (which means that OASIS is capable of supporting a maximum of 128 Mbytes of disk storage).

If any of the system's disk storage devices are larger than 16 Mbytes (formatted), they must be configured into smaller, discrete units. As long as the system is configured with not more than eight units, and each logical disk unit is not larger than the 16 Mbyte maximum, the details of the system's disk configuration can be left to the discretion of the system's administrator or manager. The ability to allocate discrete portions of the system's disk resources can also be used as a convenient way of organizing disk space, account structures, and system security.

All allocations are made by using the IBC SETDISK utility.

This section deals with the following aspects of the SETDISK utility:

- 1) Allocating the system's disk resources by using the SETDISK utility as a command.
- 2) Using the SETDISK utility to allocate disk resources interactively. Using the OASIS Disk Configuration Table.
- 3) Examples of how to use the SETDISK utility.

The allocation of disk space may be done either by allocating the disk surface by surface, by requesting a certain amount of space, or by a combination of both. Allocating the system's hard disk resources by requesting entire disk surfaces is called "head" mode. Allocating the system's hard disk resources by requesting specific amounts of disk space is called "shell" mode.

Before using the SETDISK utility, please be sure that you have read this section and understand the implications of what you are doing.

The SETDISK utility was designed by IBC and is only available for IBC computers. This utility is not described in any of the OASIS manuals.

IBC/ MegaStar
The SETDISK Utility

Using the SETDISK Utility as a Command

To use the SETDISK utility as a command, you must boot from the floppy disk drive (using the floppy drive as the System disk), and remain in single-user mode until you have completed the hard disk configuration. There are two reasons for using the floppy drive as the System disk: 1) because you will be configuring the hard disk, you will not be able to use the System files resident on it; and 2) after reconfiguring the hard disk you will also have to INITDISK each of the newly configured disk units.

IMPORTANT: If you are reconfiguring your hard disk, rather than installing the current configuration on a floppy, it will be necessary to reinitialize the hard disk after using the SETDISK utility. If you have any files on the hard disk that you want to save, be sure to ARCHIVE them before beginning the SETDISK routine.

There are two ways of using SETDISK: either in command or interactive mode. The format of the SETDISK utility is as follows:

```
[SHOW]
SETDISK
[<fd>]
[<fd>] [(FILE)
[<fd>] [(MB]
[<fd>] [(BOOT] DEV <type mode> [<type mode> [... [...]]]]
```

When used without any arguments, the SETDISK command will display the OASIS Disk Configuration Table and will begin the prompting, or interactive mode. When using the interactive mode, the SETDISK utility will check the validity of the drive assignments and will report both correct assignments and any errors. See below.

The argument SHOW will display a listing of all the different device type codes that may be used with the MegaStar. Before using SETDISK, it is important that you know what type of hard disk drive your system has. If your system has an additional external hard disk drive, use the SETDISK command with the SHOW argument to find the drive's device type code.

When used with no other arguments or options, the fd argument indicates where the SYSTEM.NUCLEUS file to be modified resides. The default for this argument is drive S.

The FILE option causes the previous SETDISK setup, which is found in the

file **SETDISK.CONFIGUR:<fd>** to be reinstalled. The SETDISK.CONFIGUR file must exist on the drive stated in the command before this option is invoked.

The **MB** option takes the SETDISK setup from the file **SETDISK.MB:<fd>**. The SETDISK.MB file must be constructed before it can be read by this command.

The SETDISK command may contain arguments for as many as four devices. To enter the devices directly by their type and mode, use the **DEV** argument.

The type, or device type, argument specifies the type, and manufacturer, of the system's hard disk drive. The device types which refer to the MegaStar's standard internal drives are F27, F55, and F86.

The mode argument must indicate either "H" for head mode or "S" for shell mode. The head mode argument will configure each disk surface as a separate physical device. The shell mode argument will configure the disk into as many 16 Mbyte units as possible (with any additional disk space being allocated to a single, smaller unit). The MegaStar is shipped in shell mode.

Each additional set of arguments applies to a second, third, and fourth disk drives. Device arguments may be left null by entering **NA** instead of an argument.

When using the SETDISK utility with arguments, the system will not interactively check the validity of any of the arguments.

There are also three special units for booting. They are:

- 1 Boot floppy
- 3 Boot hard disk
- 8 Boot hard disk (removable media)

If your system has a removable media hard disk drive, that device must be listed as part of the last device argument. If a removable media device is listed prior to the last device argument, SETDISK will still assume that the removable media device is the last device and will ignore any subsequent arguments.

IBC/ MegaStar

The SETDISK Utility

The **BOOT** argument allows you to use the removable media hard disk drive as a boot device.

If your system has a 27 megabyte Fujitsu hard disk drive, the **SETDISK** command to reconfigure the disk in shell mode would be:

SETDISK (DEV P27 S)

This command would configure the the system's hard disk drive as two separate and distinct physical devices (with the first device being allocated a full 16 Mbytes, and the second device being allocated the remaining 4.9 Mbytes of the disk's [formatted] capacity).

If you used this command with a 86 Mbyte drive, there would be five devices containing a full 16 Mbytes each, and one device containing the remaining 6.3 Mbytes.

The Megastar's drives should not be configured in head mode. The reason for this is that the Fujitsu drives used in the MegaStar all have more than six surfaces, and any surfaces (or heads) in excess of six would not be used. As a result, configuring the MegaStar's drive(s) in head mode would fail to use the disk's full capacity.

After entering the **SETDISK** command, ATTACH each of the physical devices and enter an **INITDISK** command with the **FORMAT** option to initialize each device.

With the disks initialized, the System files can be copied from the floppy drive to the hard disk drive. As unit 2 is the first logical disk unit (or DISK1 in the OASIS terminology), it is recommended that it contain a viable System image (Appendix E of the OASIS System Reference Manual lists the files which constitute a viable System image). Having a viable System image resident on unit 2 will allow the system to boot from the hard disk.

RESTORE the files to the hard disk from the system's ARCHIVE.

Using the SETDISK Utility Interactively

To use the SETDISK utility interactively, you must boot from the floppy disk drive (using the floppy drive as the System disk), and remain in single-user mode until you have completed the hard disk configuration. There are two reasons for using the floppy drive as the System disk: 1) because you will be configuring the hard disk, you will not be able to use the System files resident on it; and 2) after reconfiguring the hard disk you will also have to INITDISK each of the newly configured disk units.

IMPORTANT: If you have any files on the hard disk that you want to save, be sure to ARCHIVE them before beginning the SETDISK routine.

Because you will be allocating the system's disk resources, it is important that you know what type of hard disk drive your system has.

To initiate the interactive mode enter:

SETDISK

The system will re-write the screen and display the OASIS Disk Configuration Table (Figure 16-1).

The OASIS Disk Configuration Table uses the commands shown at the bottom of the screen. All that you will need to do is enter the first letter of the command (there is no need to press RETURN).

The original command choices consist of:

The **(C)heck** command which is used to check the drive assignments that you have entered.

The **(E)dit** command which allows you to change the information contained in either section of the table. Entering this command will first give you the choice of which section you would like to edit, and will then go on to show you the available Edit subcommands. While editing, your position on the configuration table will be marked by an asterisk.

The **(Q)uit** command which is used to exit from the OASIS Disk Configuration Table without saving any of the changes that you may have made to the table (as long as you have not Sysgened your changes, the system will continue to use its previous disk structure).

IBC/ MegaStar
The SETDISK Utility

The (R)ead command which deletes all changes that you may have made to the configuration table and reads the parameters that were in effect at the time of the last Sysgen into the table again.

The (S)ysgen command which stores all of your changes and reconfigures the system.

IBC-OASIS DISK CONFIGURATION - Setdisk Rel.2-Mar 1985

PHYSICAL DISK DRIVES

| Drive | Manufacturer | Size | Tracks | Heads | Sector |
|-------|---------------|------|--------|-------|--------|
| 0 | FUJITSU | 27 | 320 | 8 | 32 |
| 1 | not available | 0 | 0 | 0 | 0 |
| 2 | not available | 0 | 0 | 0 | 0 |
| 3 | not available | 0 | 0 | 0 | 0 |

OASIS 'PHYSICAL' DISK UNITS

| Unit | Base Parameters | | | Max Parameters | | Megabytes |
|------|-----------------|-------|------|----------------|------|-----------|
| | Drive | Track | Head | Track | Head | |
| 0 | -1 | -1 | -1 | -1 | -1 | |
| 1 | -1 | -1 | -1 | -1 | -1 | |
| 2 | 0 | 0 | 0 | 255 | 8 | 16 |
| 3 | 0 | 255 | 0 | 85 | 8 | 4 |
| 4 | 0 | 0 | 0 | 0 | 1 | |
| 5 | 0 | 0 | 0 | 0 | 1 | |
| 6 | 0 | 0 | 0 | 0 | 1 | |
| 7 | 0 | 0 | 0 | 0 | 1 | |

Command:

(C)heck, (E)dit, (Q)uit, (R)ead, or (S)ysgen

Figure 16-1. The OASIS Disk Configuration Table.

The first thing you should do when making changes to your disk configuration is to check and, if necessary, change, the Physical Disk Drive "Manufacturer" listing. Enter (E)dit. When given the Edit choices, enter "(P)hysical disk drives". You may then change the listing for "Manufacturer" using the "(N)ext device type" command. When you have found the correct device type for your system, use the "(Q)uit" subcommand

to return to the original command listing. If your system has more than one hard disk drive, you may move between physical drives by entering the number corresponding to the drive you want to move to.

With the Physical Disk Drive table in order, you may begin making changes to the OASIS 'Physical' Disk Units table. Enter the "(O)asis physical disk units" command. After you enter this command, you will notice that an asterisk will appear to mark your position in the table. The asterisk, and thus your position on the table, can be moved with the commands (U)p, (D)own, (L)eft, and (R)ight. You may change the values on the table by entering a numerical value and pressing RETURN. Any fields on the table which will not contain active values must be filled with a "-1".

When you have finished making changes to the table, enter "(Q)uit" to return to the original command listing.

After you have entered new values, use the "(C)heck" command to have the system examine the drive assignments to determine whether they are functionally possible.

You may use your new values to configure the system's hard disk by entering "(S)ysgen". If you have not Sysgened your changes, and you do not wish to have the values that you just entered used to configure the system, enter "(Q)uit" to exit from the OASIS Disk Configuration Table and leave the system's disk configuration as it was previously.

NOTE: When configuring the disk in the shell mode, always be sure to keep a record of each how much space was allocated to each unit.

After entering either the "(S)ygen" or "(Q)uit" command, attach each of the physical devices and enter an INTDISK command with the FORMAT option to initialize each device.

With the disks initialized, the System files can be copied from the floppy drive to the hard disk drive. As unit 2 is the first logical disk unit (or DISKL in the OASIS terminology), it is recommended that it contain a viable System image (Appendix E of the OASIS System Reference Manual contains a list of the files which constitute a viable System image). This allows the system to boot from the hard disk.

RESTORE the files to the hard disk from the system's ARCHIVE.

IBC/ MegaStar
The SETDISK Utility

SETDISK Utility Examples

The following pages contain examples of how to use the SETDISK utility. Please keep in mind that these examples are correct only for the standard internal hard disk drives used in the MegaStar and for the drives used in the IBC external hard disk expansion cabinet. Other drives may have different specifications and may not correspond to the values shown in these examples.

IBC-OASIS DISK CONFIGURATION - Setdisk Rel.2-Mar 1985

PHYSICAL DISK DRIVES

| Drive | Manufacturer | Size | Tracks | Heads | Sector |
|-------|---------------|------|--------|-------|--------|
| 0 | FUJITSU | 55 | 754 | 7 | 32 |
| 1 | not available | 0 | 0 | 0 | 0 |
| 2 | not available | 0 | 0 | 0 | 0 |
| 3 | not available | 0 | 0 | 0 | 0 |

OASIS 'PHYSICAL' DISK UNITS

| Unit | Base Parameters | | | Max Parameters | | Megabytes |
|------|-----------------|-------|------|----------------|------|-----------|
| | Drive | Track | Head | Track | Head | |
| 0 | -1 | -1 | -1 | -1 | -1 | |
| 1 | -1 | -1 | -1 | -1 | -1 | |
| 2 | 0 | 0 | 0 | 292 | 7 | 16 |
| 3 | 0 | 292 | 0 | 292 | 7 | 16 |
| 4 | 0 | 584 | 0 | 170 | 7 | 9 |
| 5 | 0 | 0 | 0 | 0 | 1 | |
| 6 | 0 | 0 | 0 | 0 | 1 | |
| 7 | 0 | 0 | 0 | 0 | 1 | |

Command:

(C)heck, (E)dit, (Q)uit, (R)ead, or (S)ysgen

Figure 16-2. The Fujitsu 55 Configured in Shell Mode.

Example One: Fujitsu 55 Drive — Shell Mode. To provide some idea of the correspondence between using the SETDISK utility in the command mode and using it in the interactive mode, the following is an example of a SETDISK command and its corresponding table entry:

SETDISK (DEV F55 S

This command will configure the disk in head mode, which means that each of the drive's disk surfaces would become a physical device and would have a size equal to the capacity of one surface.

Issuing this command would modify the OASIS Disk Configuration Table to look as it does in Figure 16-2. The table could also be modified by using the interactive mode to obtain exactly the same results.

IBC-OASIS DISK CONFIGURATION - Setdisk Rel.2-Mar 1985

PHYSICAL DISK DRIVES

| Drive | Manufacturer | Size | Tracks | Heads | Sector |
|-------|---------------|------|--------|-------|--------|
| 0 | FUJITSU | 27 | 320 | 8 | 32 |
| 1 | not available | 0 | 0 | 0 | 0 |
| 2 | not available | 0 | 0 | 0 | 0 |
| 3 | DMA | 10 | 612 | 2 | 32 |

OASIS 'PHYSICAL' DISK UNITS

| Unit | Base Parameters | | | Max Parameters | | Megabytes |
|------|-----------------|-------|------|----------------|------|-----------|
| | Drive | Track | Head | Track | Head | |
| 0 | -1 | -1 | -1 | -1 | -1 | |
| 1 | -1 | -1 | -1 | -1 | -1 | |
| 2 | 0 | 0 | 0 | 255 | 8 | 16 |
| 3 | 0 | 255 | 0 | 65 | 8 | 4 |
| 4 | 0 | 0 | 0 | 0 | 1 | |
| 5 | 0 | 0 | 0 | 0 | 1 | |
| 6 | 0 | 0 | 0 | 0 | 1 | |
| 7 | 3 | 0 | 0 | 612 | 2 | 10 |

Command:

(C)heck, (E)dit, (Q)uit, (R)ead, or (S)ysgen

Figure 16-3. The Fujitsu 27 with DMA 10 Boot Device

IBC/ MegaStar
The SETDISK Utility

Example Two: Fujitsu 27 Mbyte Drive with DMA Boot Device. If you wanted to use a 27 Mbyte Fujitsu hard disk drive with a 10 Mbyte DMA removable media hard disk drive, and have the system boot from the DMA drive, you would have to alter the configuration table to look as it does in Figure 16-3.

You could also do the same thing with the command:

SETDISK (BOOT DEV F27 S D10 S

17. BANKED NUCLEUS OVERLAY

Because the OASIS operating system is very powerful, and therefore requires a large amount of memory, OASIS has been broken down into eight "overlays". These overlays make it possible to minimize the amount of main memory required for the operating system at any one time: information not needed at a particular time is simply allowed to remain on disk until it is needed.

Unfortunately, this savings in memory is offset by the additional amount of time required to load the overlays when they are needed. A "banked nucleus overlay" mode has been provided to help compensate for the increased time required to load the overlays.

This section covers the following subject:

- 1) An explanation of the overlay bank mode and how it is used.

Banked Nucleus Overlay Mode

Version 6.1S of OASIS supports a "banked nucleus overlay". When the banked nucleus overlay switch is activated, the system's eight nucleus overlays are loaded into the top of the last bank of memory as part of the boot procedure. As a result, the overlays are merely moved from one bank of memory to another, instead of being loaded from the system disk. This decreases the amount of disk access and increases the overall performance of the system.

The eight overlays contain: the routines for ISAM and KEYED file access modes, the routines for opening and closing files as well as for SEQUENTIAL and DIRECT file access modes, and the routines required for loading and executing commands and error processing.

You should always use OVLBANK if your particular application can afford the loss of 12K of system memory.

If your application requires file access modes in different overlays, or the heavy use of commands, it may be a prime candidate for the use of the banked nucleus overlay mode. However, when deciding on whether or not to use the banked nucleus overlay mode, bear in mind that your

IBC/ MegaStar
Banked Nucleus Overlay

"application" is defined by the needs of all the users on the system. (For example, even though one user only requires DIRECT files, and another requires only ISAM, there may still be a heavy use of the overlays.)

The primary advantage of the banked nucleus overlay mode is a potentially significant decrease in the amount of time required to load overlays. Speed increases of 20 to 30 percent are possible on hard disk systems where heavy use of the OASIS overlays is required (the increase in speed will be significantly greater on floppy-based systems).

While system performance is substantially enhanced, the banked nucleus overlay causes a system trade-off. The trade-off is that the last bank of memory has about twelve thousand bytes taken from the top to store the overlays. This effectively reduces the last portion to running small background tasks.

This switch is only checked if the system is multi-user and there is more than one bank.

To activate the banked nucleus overlay, simply enter the following command at the CSI prompt:

SET OVLBANK ON

After entering this command, reset the computer. The banked nucleus overlay switch will remain on until the switch is reset. To reset the banked nucleus overlay switch, enter the following command at the CSI prompt:

SET OVLBANK OFF

Again, after entering this command, reset the computer.

18. USING CACHE

In addition to the banked nucleus overlay mode, the MegaStar is also capable of supporting a cache ramdisk mode. The cache ramdisk mode is may be used to load any frequently used files into the system's main memory -- thereby decreasing response times.

The banked nucleus overlay and the cache ramdisk modes are similar in that both use the system's main memory to reduce the amount of disk access required for normal operations. There are, however, certain significant differences between the way banked nucleus overlay and cache ramdisk operate.

This section covers the following subjects:

- 1) An explanation of the cache ramdisk mode and some general notes on its theory of operation.
- 2) Instructions for preparing the system disk to be used with cache ramdisk.
- 3) Using the MCACHE command to initialize cache ramdisk and begin cache ramdisk operations.

The Cache Ramdisk Mode

Originally, cache was used primarily to load each of the eight system overlays into the main memory. However, with the introduction of the banked nucleus overlay feature, cache is no longer needed for this purpose. If the system's memory resources are sufficient, other frequently accessed files and/or commands may be loaded into cache to further improve the system's overall response times.

Cache disk memory consists of 20 to 960K of memory that has been dedicated to cache. After the cache ramdisk is activated, the files must be copied into the ramdisk. After being read from the disk the files remain in the ramdisk until until the system is reset or turned off.

IMPORTANT: When the system is turned off or reset, all files in the ramdisk will be lost.

Starting the Cache Banks: The MCACHE Command

The MCACHE command is used to initialize the cache ramdisk mode and allocate the desired bank(s) for use by cache.

The format of the MCACHE command is:

```
MCACHE [<fd> <bankn>]
```

Where:

fd Indicates the label of the disk drive containing the files to be included in cache ramdisk. The disk label must always be A.

bankn Indicates the starting bank number. All memory beginning with the bank number specified is allocated to cache ramdisk. Memory allocated to cache ramdisk cannot be used for other purposes, and is made "invisible" to OASIS from this point on.

If the MCACHE command is used without arguments, the system will return a listing of the bank numbers and amount of memory currently allocated to cache ramdisk.

The cache ramdisk mode will remain in operation until the system is reset or turned off.

For example, the command:

```
MCACHE A 4
```

assigns all bank 4 and all successive banks of memory to cache, and displays a message showing the total amount of memory allocated to cache.

ATTACH the ramdisk to the desired drive. The ramdisk must always be ATTACHED as physical device DISK7. For example, to ATTACH the ramdisk as logical disk B, you would enter:

```
ATTACH B DISK7
```

INITDISK the ramdisk to set the desired directory size. The default is 16. Use the following format:

INITDISK <fd> (F [SIZE xxx])

After running INITDISK, the ramdisk is ready to have files copied into it.

IBC/ MegaStar
Using Cache

MegaStar

User's Manual

Integrated Business Computers

**21621 Nordhoff Street • Chatsworth, CA 91311
Telephone (818) 882-9007 • Telex 215349**