



ALLEN-BRADLEY

Bulletin 1336 Adjustable Frequency AC Drive

User Manual



Important User Information



ATTENTION: Identifies information about practices or circumstances that can lead to personal injury or death, property damage or economic loss.

Attentions help you:

- Identify a hazard.
- Avoid the hazard.
- Recognize the consequences.

IMPORTANT: Identifies information that is especially important for successful application and understanding of the product.



DANGER labels may be located on or inside the drive to alert people that dangerous voltage may be present.

Summary of Changes

Summary of Manual Changes

This release of the 1336-5.0 User Manual contains some new and updated information. The new and updated information is summarized in the table below. For further information, refer to the page numbers provided.

Description of New or Updated Information	Page	Type
Unit Schematics – Figures 3.1, 3.2, 3.3, 3.4	3-2 – 3-9	Updated
General Installation Requirements Attention	5-1	New
General Wiring Procedures Attention	6-1	New

Table of Contents

Pre-Installation Care	1-1
Receiving – Once you have received your drive, careful inspection for shipping damage must be made. Damage to the shipping carton is usually a good indication that it has received improper handling. Any and all damage should be immediately reported to the freight carrier and your nearest Allen-Bradley Area Sales/Support Center.	1-1
Storage – If the drive will not immediately be installed, it should be stored in a clean, dry area where the ambient temperature is not less than -405C nor more than +855C. The drive must not be stored in a corrosive environment nor subject to conditions in excess of the storage environment parameters stated in Chapter 4 — Specifications.	1-1
Handling – Depending upon the rating and options ordered, the weight of your drive can vary. To guard against injury to personnel, proper safety precautions and practices must be observed whenever the drive is being moved from one location to another.	1-1
Shipping – The carton and materials that came with your drive have been designed and tested to provide reasonable protection against damage during transit. Should the drive be shipped to another location, it is recommended that the original shipping carton and packing material be used to protect the drive from damage in transit. . . .	1-1
Electrostatic Discharge – Electrostatic discharge generated by static electricity can damage the	1-2
Precautions – Complimentary metallic oxide semiconductor devices on various drive boards. It is recommended that you perform these procedures to guard against this type of damage when circuit boards are removed or installed:	1-2
Overview	3-1
Wiring	6-1
Important User Information	2

Manual Objective

This manual defines the installation, operation, startup and fault codes for the Allen-Bradley 1336 Adjustable Frequency AC Drive. It is intended for use by personnel familiar with the functions of solid-state drive equipment. Also provided are interconnection drawings for 1336 logic interface options in Appendix A.

The 1336 User Manual is designed to be read and used like an ordinary textbook. Read the manual once from the beginning in the order presented to gain basic knowledge about your drive. Each chapter builds upon information presented in the previous chapter.

To assure successful installation and operation, the material presented in each chapter must be thoroughly read and understood before proceeding to the next chapter. Particular attention should be directed to the Attention and Important statements contained within. Become familiar with tasks that must be performed in a sequence for safety and successful completion.

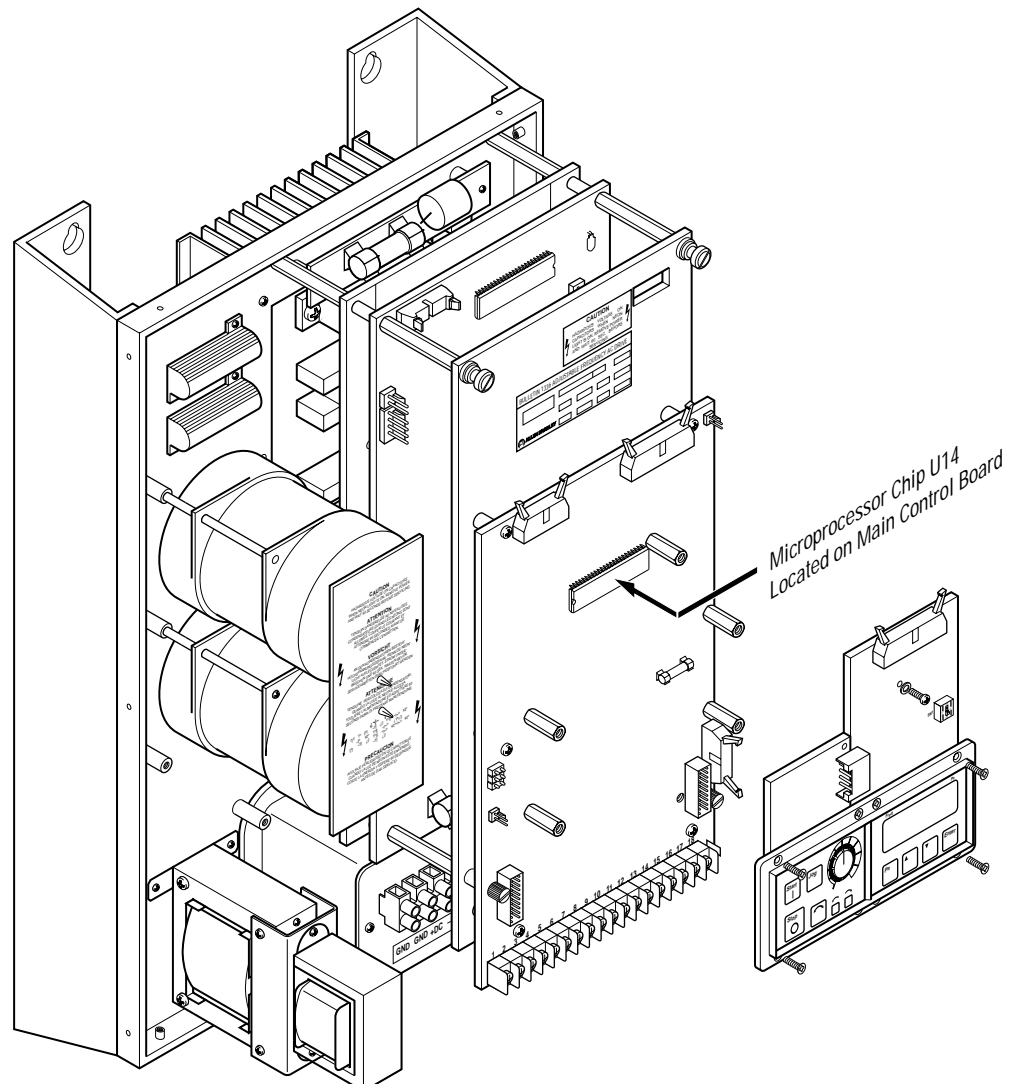
Important: The Handheld Programming Terminal (Cat. No. 1336-MOD-E1) firmware must be upgraded with Kit SP-148340 (Version 2.01) to be compatible with drive firmware Version 2.01 and 3.01. The Monitor Display (Cat. No. 1336-MOD-E2) firmware must be upgraded with Kit SP-148341 (Version 2.01) to be compatible with drive firmware Version 2.01 and 3.01.

Manual Objective (cont.)

Firmware versions are marked at two locations in the drive – on the Main Control Board and on the Base Driver/Power Supply Board.

For all drive ratings, the microprocessor chip U14 located on the Main Control Board has the following firmware identification:

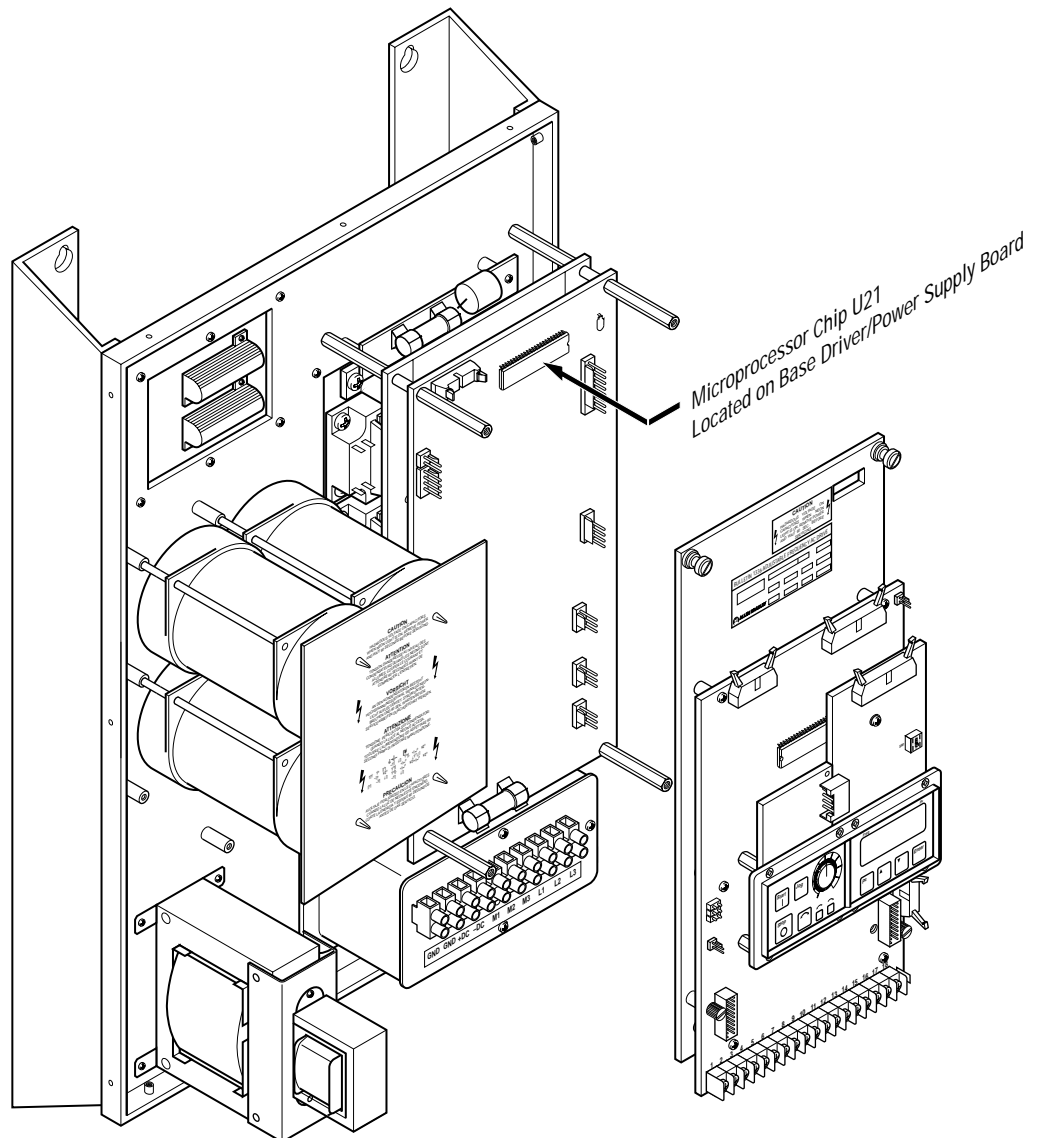
- P/N XXXXXXV1.01 — Firmware Version 1.01.
- P/N XXXXXXV1.10 — Firmware Version 1.10.
- P/N XXXXXXV1.11 — Firmware Version 1.11.
- P/N XXXXXXV2.01 — Firmware Version 2.01.



Manual Objective (cont.)

For B003-B030 & C003-C030 ratings, microprocessor chip U21 located on the Base Driver/Power Supply Board has the following firmware identification:

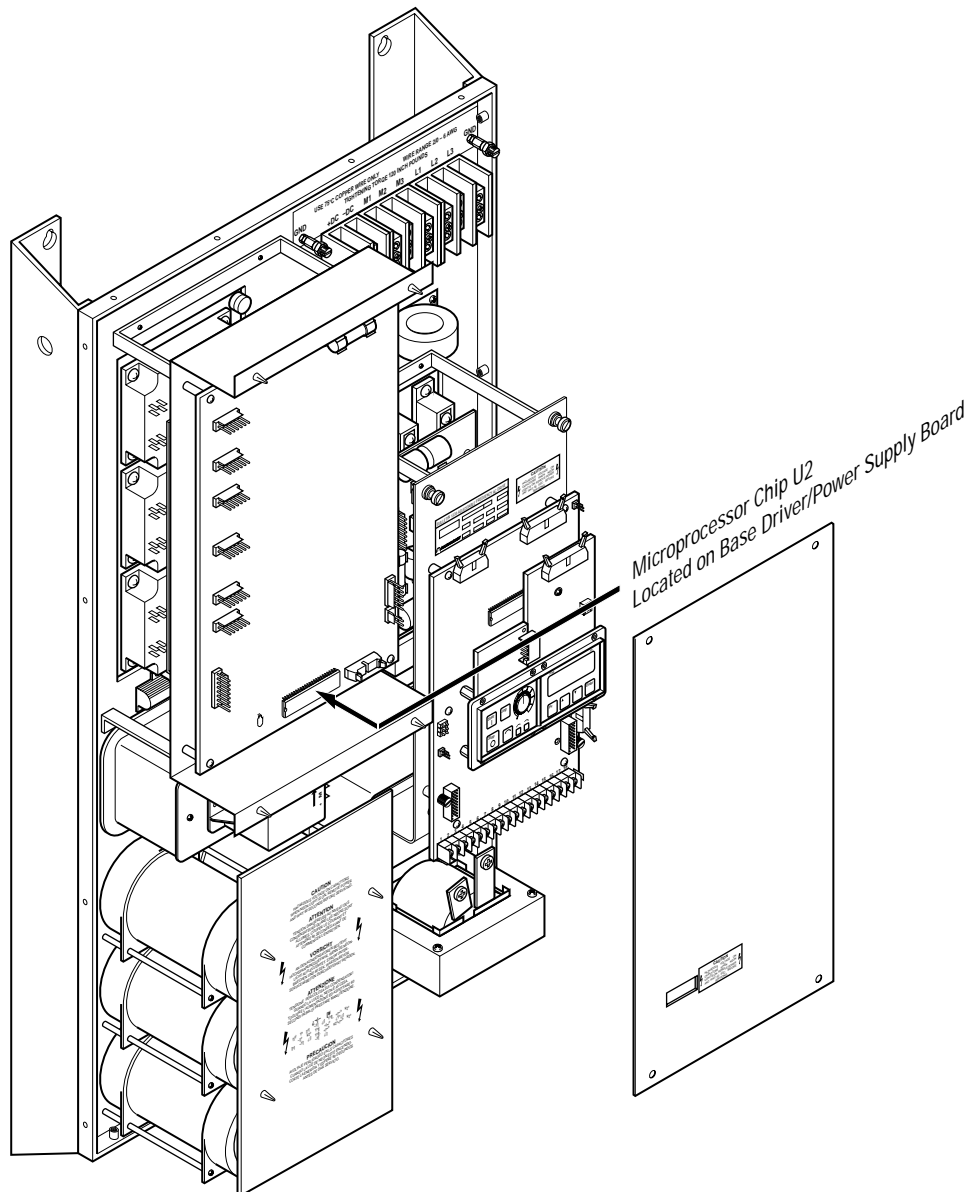
- P/N XXXXXXV1.01 — Firmware Version 1.01.
- P/N XXXXXXV1.11 — Firmware Version 1.11.
- P/N XXXXXXV1.13 — Firmware Version 1.13.
- P/N XXXXXXV1.14 — Firmware Version 1.14.
- P/N XXXXXXV3.01 — Firmware Version 3.01.



Manual Objective (cont.)

For B040-B050 & C040-C050 ratings, microprocessor chip U2 located on the Base Driver/Power Supply Board has the following firmware identification:

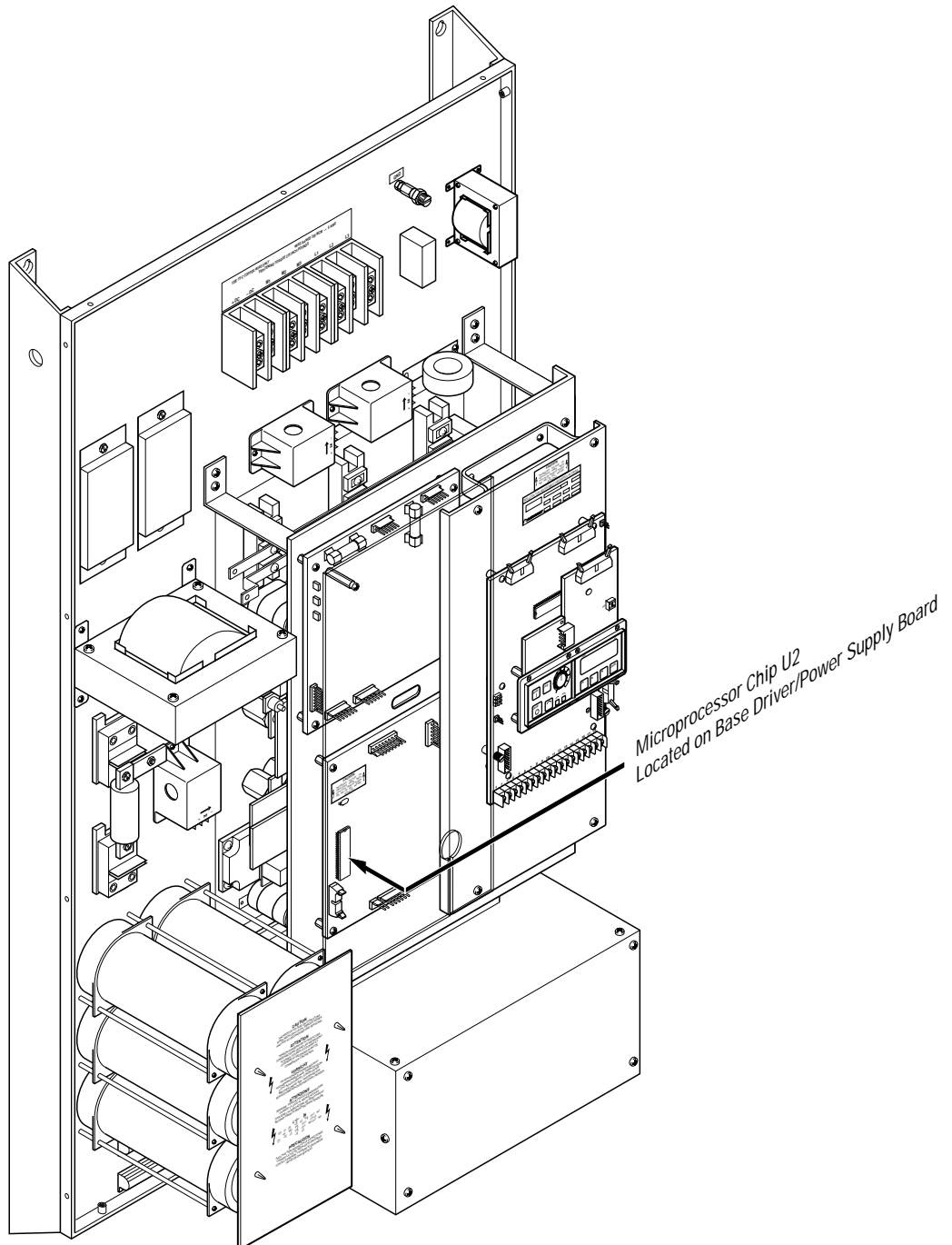
- P/N XXXXXXV1.11 — Firmware Version 1.11.
- P/N XXXXXXV1.13 — Firmware Version 1.13.
- P/N XXXXXXV1.14 — Firmware Version 1.14.
- P/N XXXXXXV3.01 — Firmware Version 3.01.



Manual Objective (cont.)

For B075-B125 & C075-C125 ratings, microprocessor chip U2 located on the Base Driver/Power Supply Board has the following firmware identification:

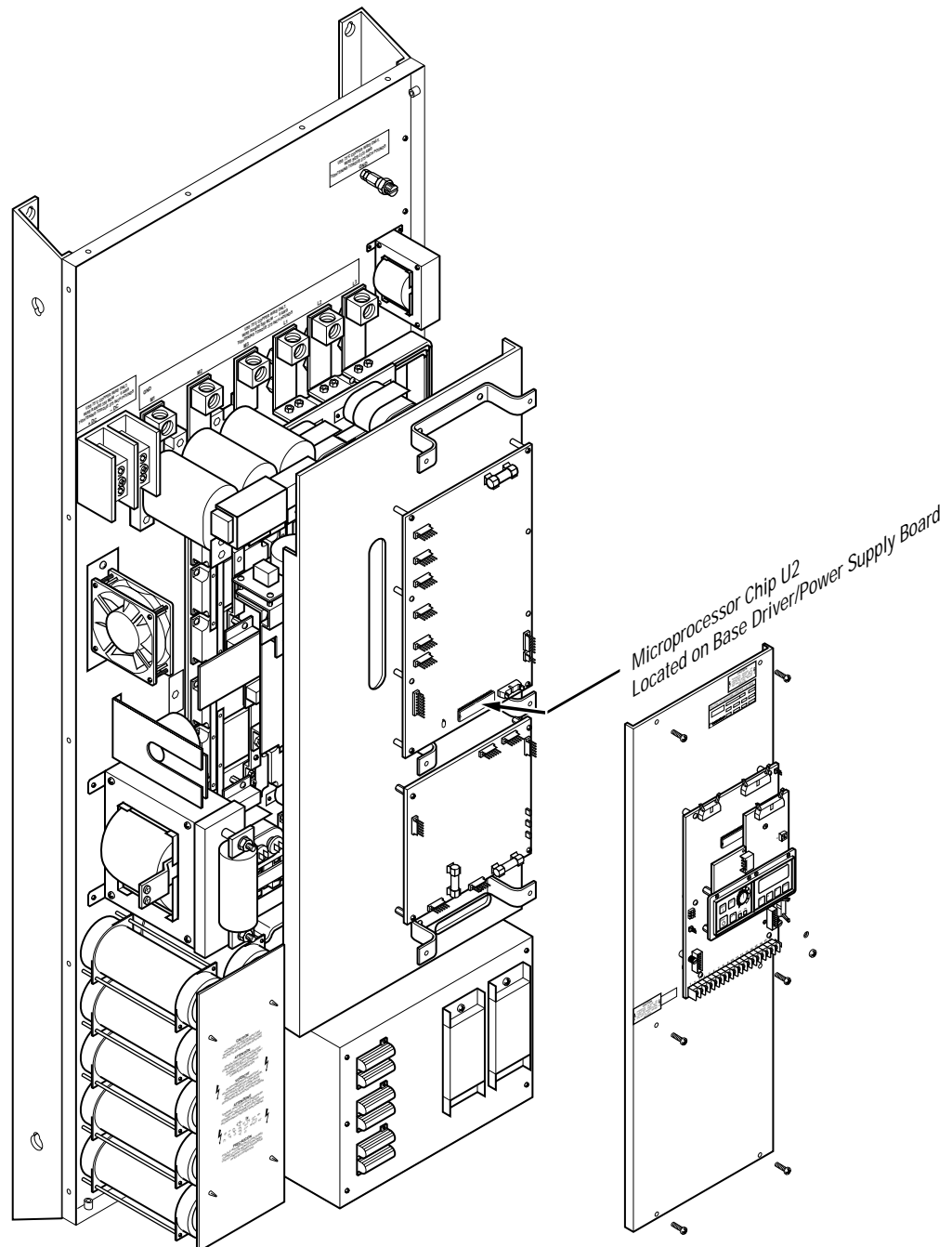
- P/N XXXXXXV1.11 — Firmware Version 1.11.
- P/N XXXXXXV1.13 — Firmware Version 1.13.
- P/N XXXXXXV1.14 — Firmware Version 1.14.
- P/N XXXXXXV3.01 — Firmware Version 3.01.



Manual Objective (cont.)

For B150-B200 & C150-C200 ratings, microprocessor chip U2 located on the Base Driver/Power Supply Board has the following firmware identification:

- P/N XXXXXXV1.11 — Firmware Version 1.11.
- P/N XXXXXXV1.13 — Firmware Version 1.13.
- P/N XXXXXXV1.14 — Firmware Version 1.14.
- P/N XXXXXXV3.01 — Firmware Version 3.01.



Manual Objective (cont.)

This manual is meant to guide the user with interface, installation, setup and troubleshooting of a 1336. The contents are arranged in order from a general description to troubleshooting and maintenance. To assure successful installation and operation, the material presented must be thoroughly read and understood before proceeding. Particular attention must be directed to the Caution, Warning and Important statements contained within.

Important Information about this Manual

This manual has been prepared primarily to support this product in a single application. It is a standard document that is intended to help the user understand the individual operating characteristics and limitations of this equipment including hazards associated with installation and setup procedures. Note the following points:

- This equipment has been designed to meet the requirements of a component in an integrated system.
- It must be noted that special considerations are to be given to characteristics of other peripheral solid-state control equipment and the cumulative impact on safety.
- Manufacturers and engineering groups responsible for specification or design of electrical control equipment must refer to applicable industry standards and codes for specific safety guidelines and interface requirements.
- In the actual factory environment, the user is responsible to assure compliance with applicable machine and operator safety codes or regulations which are beyond the scope and purpose of this document.

General Precautions

In addition to the precautions listed throughout this manual, the following statements which are general to the system must be read and understood.



ATTENTION: Only personnel familiar with the 1336 AC Drive and associated machinery should plan or implement the installation, start-up and subsequent maintenance of the system. Failure to comply may result in personal injury and/or equipment damage.



ATTENTION: This assembly may contain parts and sub-assemblies that are sensitive to electrostatic discharge. Static control precautions are required when testing, servicing or repairing this assembly. Component damage may result if you ignore electrostatic discharge control procedures. If you are not familiar with static control procedures, reference Allen-Bradley Publication 8000-4.5.2, Guarding Against Electrostatic Damage or any other applicable ESD protection handbook.



ATTENTION: An incorrectly applied or installed system can result in component damage or reduction in product life. Wiring or application errors, such as undersizing the motor, incorrect or inadequate AC supply, or excessive ambient temperatures may result in malfunction of the system.

Pre-Installation Care

Before installing and operating your 1336, carefully read this manual and observe all precautions. The catalog number of your drive as explained in Chapter 2 — Drive and Option Identification lists the drive rating, type of enclosure, nominal line voltage, phase and frequency, as well as any additional options that you may have specified. Specifications for all drives including standard controls, adjustment range, diagnostics and environmental qualifications are listed in Chapter 4 — Specifications.

Receiving

Once you have received your drive, careful inspection for shipping damage must be made. Damage to the shipping carton is usually a good indication that it has received improper handling. Any and all damage should be immediately reported to the freight carrier and your nearest Allen-Bradley Area Sales/Support Center.

Carefully unpack the drive, taking care to save the shipping carton and any packing material should return be necessary. Verify that the items on the packing list or bill of lading agree with your order.

Storage

If the drive will not immediately be installed, it should be stored in a clean, dry area where the ambient temperature is not less than -40°C nor more than $+85^{\circ}\text{C}$. The drive must not be stored in a corrosive environment nor subject to conditions in excess of the storage environment parameters stated in Chapter 4 — Specifications.

Handling

Depending upon the rating and options ordered, the weight of your drive can vary. To guard against injury to personnel, proper safety precautions and practices must be observed whenever the drive is being moved from one location to another.

Shipping

The carton and materials that came with your drive have been designed and tested to provide reasonable protection against damage during transit. Should the drive be shipped to another location, it is recommended that the original shipping carton and packing material be used to protect the drive from damage in transit.



ATTENTION: This assembly contains parts and sub-assemblies that are sensitive to electrostatic discharge. Static control precautions are required when servicing this assembly. Component damage may result if you ignore electrostatic discharge control procedures. If you are not familiar with static control procedures, reference Allen-Bradley Publication 8000-4.5.2, Guarding Against Electrostatic Damage, or any other applicable ESD protection handbook.

Electrostatic Discharge Precautions

Electrostatic discharge generated by static electricity can damage the complimentary metallic oxide semiconductor devices on various drive boards. It is recommended that you perform these procedures to guard against this type of damage when circuit boards are removed or installed:

- Wear a wrist type grounding strap that is grounded to the drive chassis.
- Attach the wrist strap before removing the new circuit board from the conductive packet.
- Remove boards from the drive and immediately insert them into their conductive packets.

Drive and Option Identification

The following is an explanation of the catalog numbering system for 1336 Adjustable Frequency AC Drives and options. The catalog number is coded to identify the drive power rating and can be found on the drive shipping carton.

1336 Drive Catalog Numbers

1336	—	B 015	—	EAE	—	FA2	—	L2	—	S1
Bulletin Number		Drive Rating		Enclosure Type		Options		Options		Options

Bulletin Number

The Allen-Bradley reference number identifying the type or family of products.

Drive Ratings

A group of four characters coded to indicate input voltage and output power rating.

The first character indicates the input voltage range of the drive.

Drives with a code “B” are suitable for operating from any one of the following voltage inputs: 380/415/460V AC, 50/60 Hz, 3-phase.

Drives with a code “C” are suitable for operating only from 500 or 575V AC, 50/60 Hz, 3-phase voltage input.

Fan Transformer Reconnection for Alternate Drive Input Voltages

Important:

For drives rated C003-C200, reconnection of Fan Transformer T1 is not necessary.

For drives rated B003-B030, reconnection of Fan Transformer T1 is not necessary.

For drives rated B040-B200, Fan Transformer T1 must be reconnected for 380 or 415V operation. If Fan Transformer T1 is not connected to match the incoming voltage, overtemperature fault F08 may occur. Refer to Chapter 6 for wiring details.