The Engineering Staff Of
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TM 990/452 DEVELOPMENT BASIC ENHANCEMENT SOFTWARE INSTALLATION GUIDE

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PREFACE

This document describes Texas Instruments' TM 990/452 Development POWER BASIC Enhancement Software Package. POWER BASIC is an interactive programming language used with the TM 990/101M or the TM 990/100M microcomputers.

The following manuals present additional information relative to the use of POWER BASIC.

Hardware:

MP321 "TM 990/100M Microcomputer User's Guide"
MP337 "TM 990/101M Microcomputer User's Guide"
MP334 "TM 990/201 and TM 990/206 Expansion Memory Boards"
MP344 "TM 990/302 Hardware User's Guide"

Software:

MP308 "TM 990 POWER BASIC Reference Manual"
MP311 "TM 990 POWER BASIC Elementary Tutorial Manual"

I. Introduction

The TM 990/452 Development Basic Enhancement Software Package EPROM set, when used in conjunction with the TM 990/451 Development Basic EPROM set, provides the user with extended capabilities for program development. These extended features include decimal print formatting and error message printing. If used in conjunction with the TM 990/302 Software Development Board, audio cassette storage and EPROM Programming of the user's BASIC program are also supported. This Enhancement Package is only applicable for use with TM 990/451 Development Basic. The TM 990 Power Basic Reference Manual (MP 308 REV. *A) contains operating instructions for the Enhancement Package's additional features.

II. Installation

The Enhancement Package is shipped as a software package consisting of two TMS 2716 EPROMs. These EPROMs are inserted into sockets on the TM 990/302 Software Development Board or on the TM 990/201 Memory Expansion Board, depending on system configuration. Both EPROMs are marked with the part number (TM 990/452), and socket ID's U14 and U16. If the user system contains a TM 990/302 board, the EPROMs are inserted into the U14 and U16 sockets, respectively. If the user system contains a TM 990/201 board, the EPROM marked as U14 should be inserted into the TM 990/201 socket marked U65; and U16 into the socket marked U57. (Refer to Table 1 on following page.)

CAUTION

> Boards should only be removed from and placed in a system when the power is off. Additionally, the EPROMs contained in this software package are MOS devices and can be damaged by a static discharge. They should remain in their anti-static foam until insertion into the sockets and handled as little as possible.

The TM 990/452 Development Basic Enhancement Software package requires that the two EPROM set marked as U14 and U16 reside at location 3000_{16} to $3FFF_{16}$. Two EPROM's of the TM 990/451 Development Basic marked as U15 and U17 reside on the expansion EPROM board from 2000_{16} to $2FFF_{16}$. The dip switch settings to position the expansion EPROM from 2000_{16} to $3FFF_{16}$ are listed in the table below for the TM 990/302 Software Development Board and the TM 990/201 Expansion Memory Board. Also shown are the switch settings to place the RAM area from $EFFF_{16}$ down. (The user must assure that memory blocks do not overlap the same area so that board damage does not result.)

Further details on the Enhancement Package are contained in the TM 990 POWER BASIC Reference Manual.

TABLE 1

EPROM POSITIONS

BOARD SOCKET ID	EPROM SOCKET ID	
	U14	U16
302	U14	U16
201	U65	U57

TABLE 2

EXPANSION MEMORY CONFIGURATION

MEMORY BOARD	EXPANSION EPROM 4K WORDS USED	EXPANSION RAM K WORDS	SWITCH SETTINGS							
			S1	S2	S3	S4	S5	S6	S7	S8
TM 990/302 (Note 1)	4K x 16	2K x 16	OFF	ON	OFF	ON	X	X	X	X
TM 990/201-41 (Note 2)	4K x 16	2K x 16	ON	ON	OFF	OFF	OFF	ON	OFF	OFF
TM 990/201-42 (Note 2)	8K x 16	4K x 16	ON	ON	OFF	OFF	ON	ON	ON	OFF
TM 990/201-43 (Note 2)	16K x 16	8K x 16	ON	ON	OFF	OFF	ON	ON	ON	ON

Note 1: Jumpers E1-E2 and E5-E6 must be installed on the TM 990/302 board when it is used as RAM expansion.

Note 2: Assumes the TM 990/302 on board RAM is disabled, if TM 990/302 is used in system.

(X indicates position is irrelevant to system operation.)

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