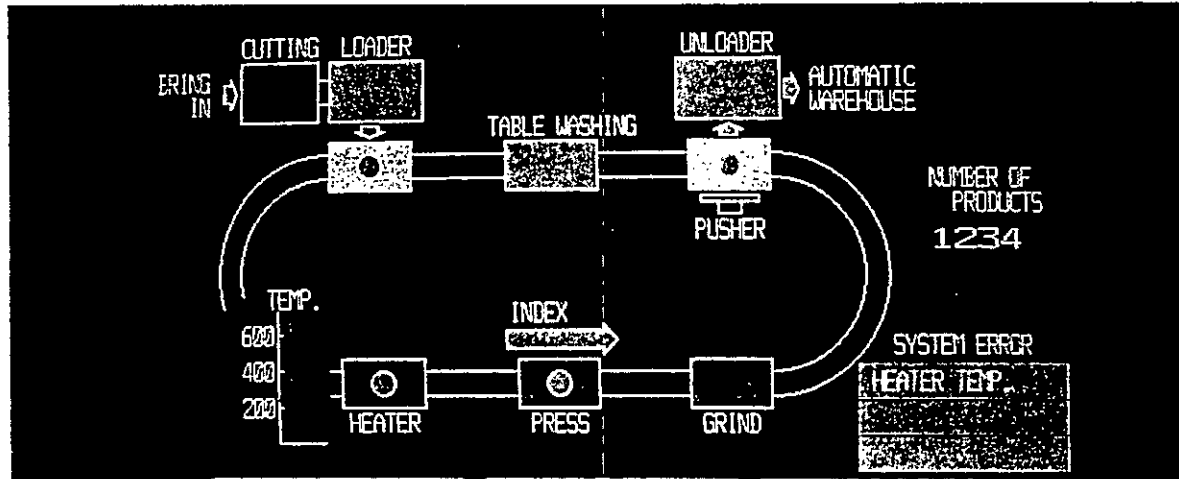


Control Pack CP-9200/9200H

INTEGRATED CONTROLLER (PLC & MOTION)

CRT CONTROLLER USER'S MANUAL
STEP-IV

YASKAWA

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1. INTRODUCTION

CP-9200/9200H CRT controller has been developed based on our FA monitor ACGC 411/421 STEP-IV assuming its functions, operability, etc. to the fullest extent possible by converting its hardware to a single board.

Accordingly, user's manual for either FA monitor ACGC411/421 user's manual SIE-C815-45 or FA monitor STEP-III, IV user's manual SIE-C815-45.3 (included in the above material) can be used with only minor alterations.

In this section, based on the above mentioned user's manual, only points that differ from CP-9200/9200H CRT controller will be explained.

NOTE

Correspondence to STEP-IV is made after 87920-30001-S0200.

Note that STEP-III corresponds up to 87920-3000X-S0103. For STEP-III, FA monitor STEP-III user's manual SIE-C815-45.1 can also be used.

Also, when version from STEP-III to STEP-IV is made, careful attention must be paid.

PRECAUTIONS

1. When system PROM (S010X) of STEP-III is replaced with system PROM (S020Y) of STEP-IV, if you have pictures or programs prepared by STEP-III system, it must be saved in a floppy disk before replacing PROM. Then, reload from the floppy disk. (If comparison is made after this operation, an error will be shown but this is not a major fault.)
2. After it is loaded from STEP-III floppy, set Communication Control (Ref. Page 19 of ACGC 411/421 user's manual, SIE-C815-45).
It is recommended to save it as a floppy of STEP-IV with a new file name after an operation is checked.
3. Floppy disk prepared by STEP-IV cannot be loaded to STEP-III.
4. ROM programs prepared by STEP-III system cannot be used with STEP-IV.
Prepare a new floppy disk of STEP-IV according to the procedure described in Par. 2., above, and prepare user ROM program again based on this floppy disk.
5. Distinction between STEP-III and STEP-IV
 - (1) Display at the bottom right of menu screen in edit mode:
REV-C003-××: STEP-III
REV-C004-××: STEP-IV
 - (2) Label indication of system PROM on CRT controller board:
S010X: STEP-III
S020Y: STEP-IV
 - (3) Stamp of electric equipment control code No. on CRT controller board:
87920-3000X-S010X: STEP-III
87920-3000X-S020Y: STEP-IV

Note that if only system PROM is replaced after receipt of the board, PROM must be checked in the manner described in (2) above.

2. MAJOR DIFFERENCES

- Hardware configuration
- No host CPU port
- Optional memory can not be added. (Memory capacity for user program/screen is 256 kB)
- 80 kB of memory is separately provided for file memory
- User screen /program can be stored in ROM.

3. DETAILS OF DIFFERENCES

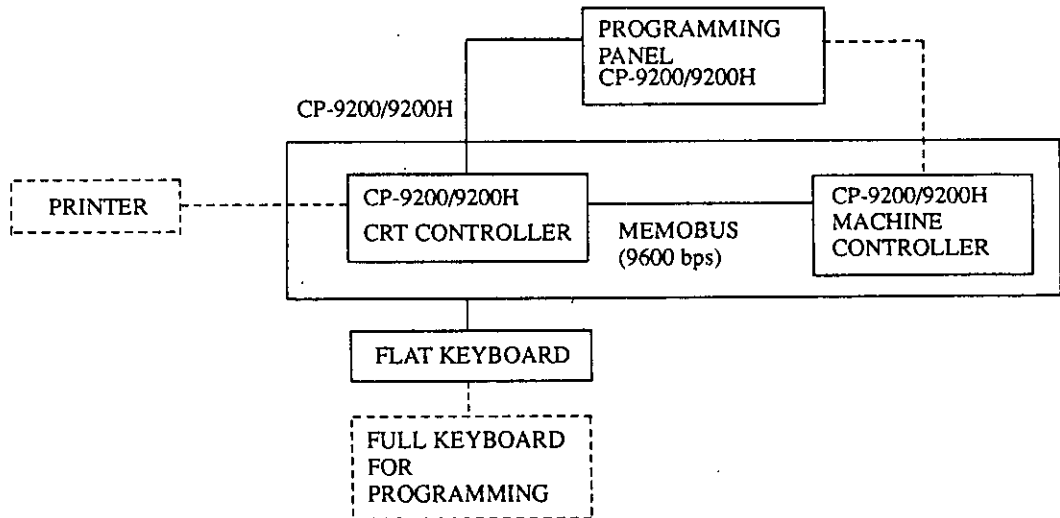
Differences are enumerated for each item of previously stated ACGC user's manual as follows.

(1) Read "Memocon-SC (M-SC)" as "Sequencer and other equipment with MEMOBUS port" throughout the manual. In particular, it shows "Machine controller part" in CP-9200/9200H.

(2) Read all ACGC400, ACGC411, ACGC421, etc. as "CP-9200/9200H CRT controller.

In the following, explanations are given according to "ACGC411/421 user's manual" (SIE-C815-45).

(3) System Configuration (Ref. Page 2)



(4) Component Type (Ref. Page 3)

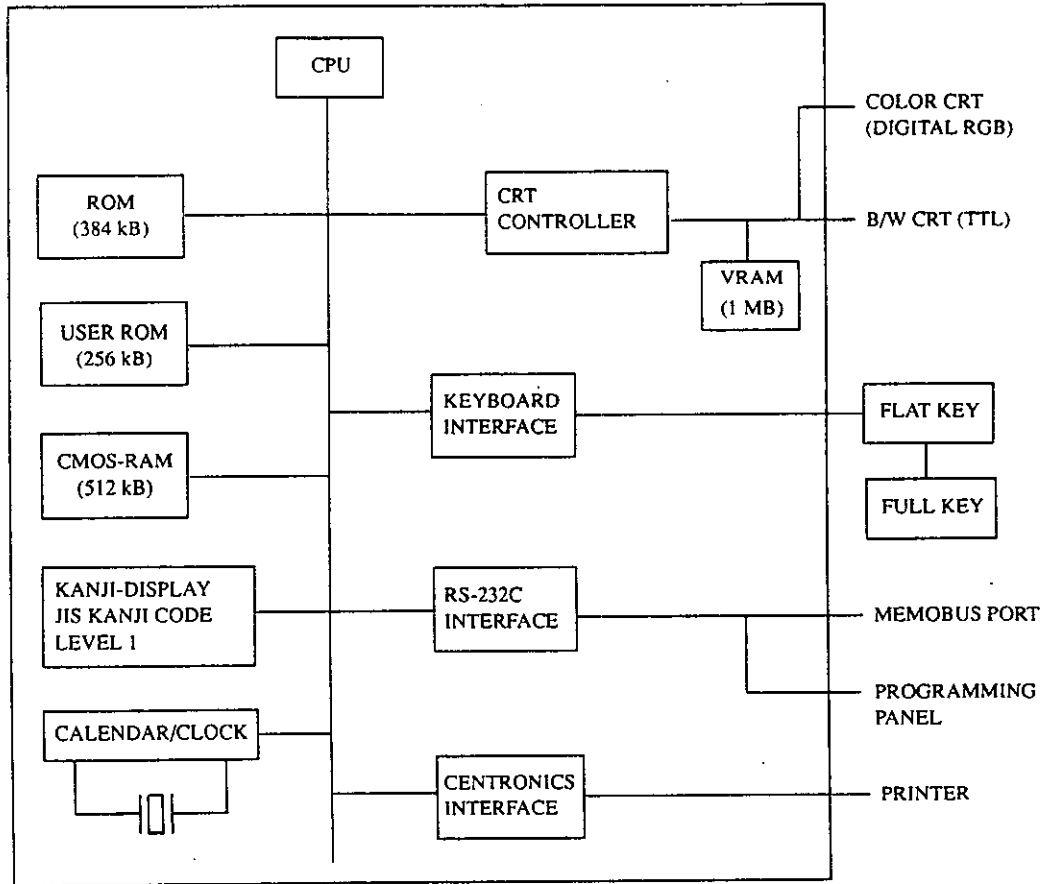
Component	Type or Code No.	Specifications
CRT Controller	87920-3000X-S020Y	Equivalent to ACGC411/421 STEP-IV
Flat Keyboard	87920-7100X	Cable (2 m) with EDIT SW
Full Keyboard	DISCT-KB400	For programming
Tablet	DISCT-KB401	With 60 function keys
Modem	DISCT-J1078	Use when MEMOBUS port is more than 15 m away.
Modem	DISCT-J2078	

Notes : 1. Last digit of code number of X and Y shows the sequence of modification and a number between 0 to 9 will be entered.

2. When a code number of CRT controller is 87920-3000X-S010Y, it is equivalent to ACGC411/421 STEP-III.

3. DETAILS OF DIFFERENCES (Cont'd)

(5) Hardware Configuration (Ref. Pages 4 to 5)



3. DETAILS OF DIFFERENCES (Cont'd)

(6) Specifications (Ref. Page 7)

Item		Specifications
CPU		NEC 70216 (8 MHz)
Memory	PROM CMOS-RAM	384 kB (system program) + 256 kB (user program) 512 kB
Communication Port	MEMOBUS P150 Full Keyboard	RS-232C 1200 to 9600 bps RS-232C 1200 to 9600 bps RS-232C 9600 bps
Display	CRT Color No. of Dots/ Screen Characters Attribute	External installation 7 colors (red, green, blue, yellow, magenta, cyan, white) + black. 640 × 400 dots Numerals, symbols, Katakana : 154 characters Kanji, Hiragana : JIS Kanji code level 1 Blink : Can be specified for each dot. Reverse : Characters only Enlargement : Characters only (1 to 16 times as large as original character can be specified.)
Flat Key		9 function keys, 5 cursor keys, 12 numeric keys and 7 other keys.
Video Output		Digital RGB, B/W TTL
No-brake Clock		Year, month, date, day, hour, min., sec (battery backup)

3. DETAILS OF DIFFERENCES (Cont'd)

(7) Software Specifications (Ref. Page 8)

Item	Specifications
Max No. of Screens to be Created (G10 to G200)	191
No. of Display Elements (B1 to B2000)	2000
No. of ON/OFF Signal Read Points (I)	2048
No. of Read Registers (R)	1920 (2-byte data)
No. of Internal ON/OFF Signal Points (L1 to L999)	999
No. of Internal Registers (D1 to D2000)	2000 (4-byte data)
File Capacity (F1 to F10)*1	10 files total 40 k words, 1 file 32 k words Max.
No. of Machine Monitor Lines (E 1 to E999)	999 lines
No. of Timer/ Counters (C1 to C999)	999 (4-byte data)
No. of System Errors to be Registered	999
No. of Characters per System Error	A maximum of 48 characters*2 (half-size of characters)
Max Memory Capacity per Screen	8 k bytes
No. of Element Synthesis Points per Screen	500
No. of Numeral Synthesis Points per Screen	500
Max Memory Capacity per Element	4 k bytes
Max Capacity per program	See Par. 6.5, FA monitor (ACGC 411/421) user's manual.
Buffer Capacity for Printer	4 k bytes

*1: With 87920-3000X-S010Y, 5 files of F1 to F5.

*2: With 87920-3000X-S010Y, less than 32 characters in half-size.

(8) Edit Mode Switch (Ref. Page 9)

Change line mode and edit mode with a switch attached to a flat key.

Since edit mode will not be required at the end, this switch can be installed behind the panel. When a connector for the switch is disconnected, it automatically changes to line mode.

(9) Reference No. SXXX (Ref. Page 11)

S036: Not used (Originally for ± 12 VDC power error occurs)

S037: Not used (Originally for abnormal temperature)

3. DETAILS OF DIFFERENCES (Cont'd)

(10) File Definition (Ref. Page 16)

File capacity has the following limit.

When File 1 to File n are used (n : 1 to 10)*1

$$\sum_{i=1}^n (\text{Record No. } i \times \text{No. of items } i) \leq 40 \text{ k words}$$

Capacity of 1 file ≤ 32 k words

As this capacity uses a special file area, user area does not change.

*1: For 87920-3000X-S010Y, n: 1 to 5.

(11) Set MEMOBUS Address (Ref. Page 17)

Name of model selection item displays "CP" instead of "584". Select this item when connected to various CP series including CP-9200/9200H.

Form of transmission is exactly the same as "GL60S".

(12) Contact Output to the External (Ref. Page 57)

"Contact Output to the External" is not provided.

(13) Communication with Host CPU (Ref. Pages 59 to 63)

"Communication with Host CPU" is not provided.

(14) File Compatibility between CP-9200/9200H and ACGC400

Data floppy disk of CP-9200/9200H CRT controller and that of ACGC400 are not compatible.

(15) System Screen Operation (Ref. Page 67)

001: Reference search

002: Slave MEMOBUS communication status monitor

003: Display of reference contents

004: Trace back

005: File contents display

006: Touch panel check screen

007: Setting of date & time

008: System reserved

009: System reserved

} Same as before

} Added by STEP-III

(16) Video Interface (Ref. Pages 72 to 73)

ACGC411 video interface is not available.

RGB1 signal is output out of ACGC421 video interface, at 6CN.

At 7CN, signal for B/W CRT, liquid crystal and plasma display is output.

Change of actual specifications is required according to the display.

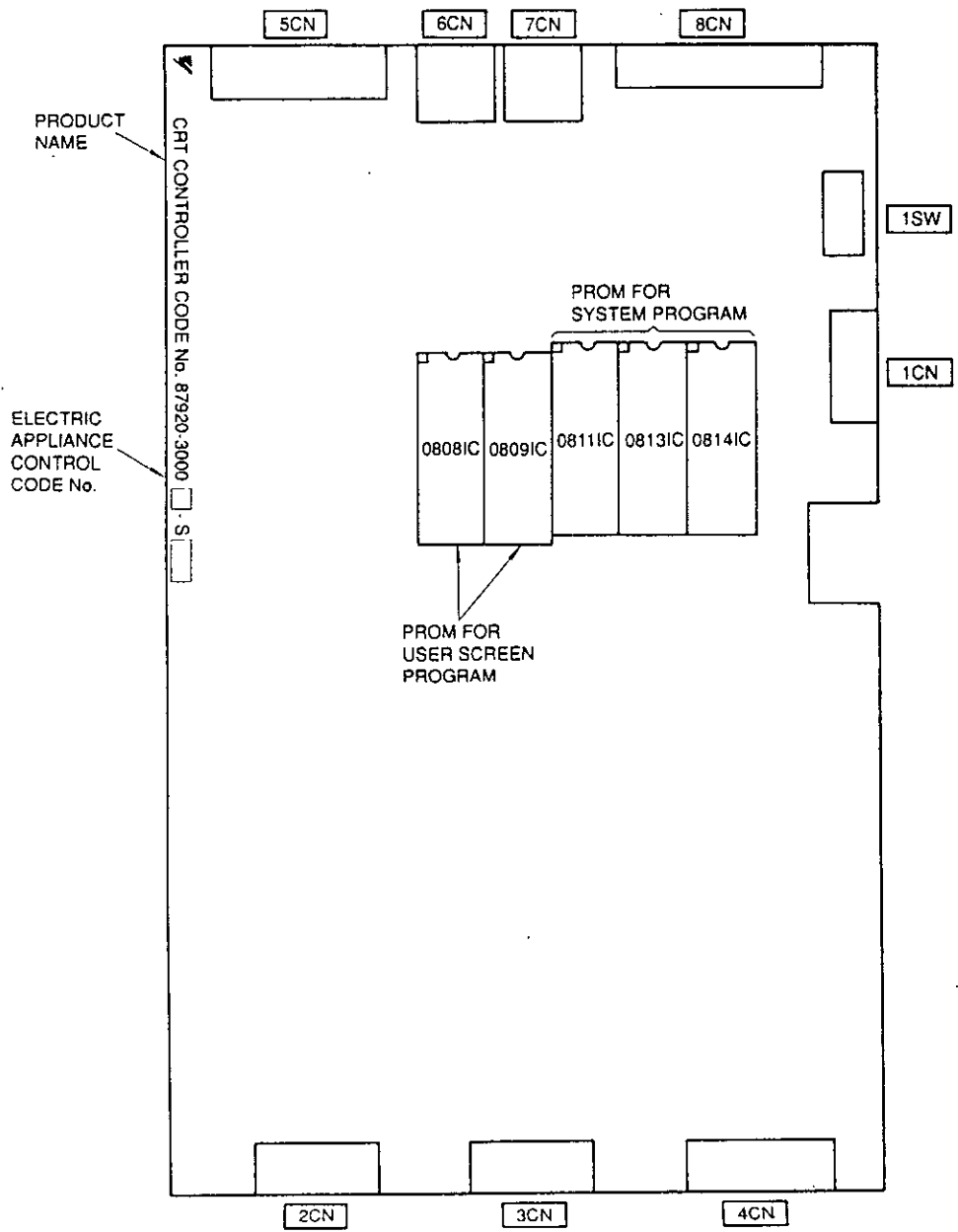
Contact your YASKAWA representative.

(17) Installation/Connection to External Units and Cables (Ref. Pages 74 to 92)

Since this item is a proper item for CP-9200/9200H system, refer to CP-9200/9200H operating maintenance manual. For your quick reference, a portion relating to CRT controller is shown on the following page.

3. DETAILS OF DIFFERENCES (Cont'd)

(a) Appearance Drawing



3. DETAILS OF DIFFERENCES (Cont'd)

(b) Setting Switches

1SW

No.	Name	Standard Setting	Description
1	ENGLISH/JAPANESE	OFF	ON in English mode and OFF in Japanese mode
2	—	OFF	Not used
3	—	OFF	Not used
4	KB401/KB400	OFF	ON when tablet (KB401) with 60 function keys is used and OFF when standard full keyboard (KB400) is used.
5	RAM/ROM	Per system	ON when user prepared screen program is run on RAM with battery backup and OFF when it is run on ROM.
6	BATTERY ALARM DISABLE	OFF	When user program is installed on ROM, battery is not required. If this SW is turned ON with no battery connection, it disables the battery alarm (S035).
7	—	OFF	Not used
8	RESET	OFF	When this SW is switched from ON to OFF, system is reset and returns to the same condition as when power is turned ON.

(c) Connector

Refer to "Connection between CP-9200/9200H and Peripherals" of CP-9200/9200H maintenance manual (SIE-C879-30 4).

13.3.1 256 k-Byte Memory Package (Ref. Page 78 of SIE-C815-45)

Optional memory is not available.

8.1 CMOS Backup (Ref. Page 64)

Optional memory is not available. CMOS memory is 256 kB.

4. INSTALLATION OF SCREEN/USER PROGRAM ON ROM

With CP-9200/9200H, CRT controller screen and user program can be installed on ROM. In this way, loading of screen/user program from programming panel becomes unnecessary and it is also true for battery loading.

However, if there is no battery backup, calendar and clock within CRT controller stops when power is turned OFF and machine monitoring function may not operate normally.

For the method to install screen/user program onto ROM, refer to "Method to Install User Program on ROM" of programming panel operating manual (SIE-C879-30.5).

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INTEGRATED CONTROLLER (PLC & MOTION)

CRT CONTROLLER USER'S MANUAL

STEP-IV

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