MITSUBISHI



Mitsubishi Programmable Controller

SAFETY PRECAUTIONS •

(Read these precautions before using.)

When using Mitsubishi equipment, thoroughly read this manual and the associated manuals introduced in this manual.

Also pay careful attention to safety and handle the module properly. These precautions apply only to Mitsubishi equipment. Refer to the CPU module user's manual for a description of the PC system safety precautions.

These ● SAFETY PRECAUTIONS ● classify the safety precautions into two categories: "DANGER" and "CAUTION".

🗘 DANGER CAUTION properly.

Procedures which may lead to a dangerous condition and cause death or serious injury if not carried out properly.

Procedures which may lead to a dangerous condition and cause superficial to medium injury, or physical damage only, if not carried out properly.

Depending on circumstances, procedures indicated by $\underline{\bigwedge}$ CAUTION may also be linked to serious results.

In any case, it is important to follow the directions for usage.

Store this manual in a safe place so that you can take it out and read it whenever necessary. Always forward it to the end user.

[DESIGN PRECAUTIONS]

🔿 DANGER Install a safety circuit external to the PC that keeps the entire system safe even when there are problems with the external power supply or the PC module. Otherwise, trouble could result from erroneous output or erroneous operation. (1) Outside the PC, construct mechanical damage preventing interlock circuits such as emergency stop, protective circuits, positioning upper and lower limits switches and interlocking forward /reverse operations. (2) When the PC detects the following problems, it will stop calculation and turn off all output. The power supply module has over current protection equipment and over voltage protection equipment. The PC CPUs self-diagnostic functions, such as the watchdog timer error, detect problems. In addition, all output will be turned on when there are problems that the PC CPU cannot detect, such as in the I/O controller. Build a fail safe circuit exterior to the PC that will make sure the equipment operates safely at such times. See Section 8.1 of this user's manual for example fail safe circuits. See this user's manual for example fail safe circuits. (3) Output could be left on or off when there is trouble in the outputs module relay or transistor. So build an external monitoring circuit that will monitor any single outputs that could cause serious trouble. When overcurrent which exceeds the rating or caused by short-circuited load flows in the output module for a long time, it may cause smoke or fire. To prevent this, configure an external safety circuit, such as fuse. Build a circuit that turns on the external power supply when the PC main module power is turned on. If the external power supply is turned on first, it could result in erroneous output or erroneous operation. When there are communication problems with the data link, the communication problem station will enter the following condition. Build an interlock circuit into the PC program that will make sure the system operates safely by using the communication state information. Not doing so could result in erroneous output or erroneous operation. (1) For the data link data, the data prior to the communication error will be held. (2) The MELSECNET (II,/B,/10) remote I/O station will turn all output off. (3) The MELSECNET/MINI-S3 remote I/O station will hold the output or turn all output off depending on the E.C. remote setting. Refer to the data link manuals regarding the method for setting the communication problem station and the operation status when there are communication problem. When configuring a system, do not leave any slots vacant on the base. Should there be any vacant slots, always use a blank cover (A1SG60) or dummy module (A1SG62). When the extension base A1S52B, A1S55B or A1S58B is used, attach the dustproof cover supplied with the product to the module installed in slot 0. If the cover is not attached, the module's internal parts may be dispersed when a short-circuit test is performed or overcurrent/overvoltage is accidentally applied to the external I/O area. CAUTION Do not bunch the control wires or communication cables with the main circuit or power wires, or install them close to each other. They should be installed 100 mm (3.94 inch) or more from each other. Not doing so could result in noise that would cause erroneous operation.

[DESIGN PRECAUTIONS]

 When controlling items like lamp load, heater or solenoid valve using an output module, large current (approximately ten times greater than that present in normal circumstances) may flow when the output is turned OFF→ON. Take measures such as replacing the module with one having sufficient rated current.

[INSTALLATION PRECAUTIONS]

•	Use the PC in an environment that meets the general specifications contained in this manual. Using this PC in an environment outside the range of the general specifications could result in electric shock, fire, erroneous operation, and damage to or deterioration of the product.		
•	Install so that the pegs on the bottom of the module fit securely into the base unit peg holes, and use the specified torque to tighten the module's fixing screws. Not installing the module correctly could result in erroneous operation, damage, or pieces of the product falling.		
•	Tightening the screws too far may cause damages to the screws and/or the module, resulting in fallout, short circuits, or malfunction.		
•	When installing more cables, be sure that the base unit and the module connectors are installed correctly. After installation, check them for looseness. Poor connections could result in erroneous input and erroneous output.		
•	Correctly connect the memory cassette installation connector to the memory cassette. After installation, be sure that the connection is not loose. A poor connection could result in erroneous operation.		
•	Do not directly touch the module's conductive parts or electronic components. Doing so could cause erroneous operation or damage of the module.		

[WIRING PRECAUTIONS]

- Completely turn off the external power supply when installing or placing wiring. Not completely turning off all power could result in electric shock or damage to the product.
- When turning on the power supply or operating the module after installation or wiring work, be sure that the module's terminal covers are correctly attached. Not attaching the terminal cover could result in electric shock.



- Be sure to ground the FG terminals and LG terminals to the protective ground conductor. Not doing so could result in electric shock or erroneous operation.
- When wiring in the PC, be sure that it is done correctly by checking the product's rated voltage and the terminal layout. Connecting a power supply that is different from the rating or incorrectly wiring the product could result in fire or damage.

[WIRING PRECAUTIONS]

- Do not connect multiple power supply modules in parallel. Doing so could cause overheating, fire or damage to the power supply module. If the terminal screws are too tight, it may cause falling, short circuit or erroneous operation due to damage of the screws or module.
- Tighten the terminal screws with the specified torque. If the terminal screws are loose, it could result in short circuits, fire, or erroneous operation.
- Tightening the terminal screws too far may cause damages to the screws and/or the module, resulting in fallout, short circuits, or malfunction.
- Be sure there are no foreign substances such as sawdust or wiring debris inside the module. Such debris could cause fires, damage, or erroneous operation.
- External connections shall be crimped or pressure welded with the specified tools, or correctly soldered. For information regarding the crimping and pressure welding tools, see the I/O module's user's manual. Imperfect connections could result in short circuit, fires, or erroneous operation.

[STARTUP AND MAINTENANCE PRECAUTIONS]

- Do not touch the terminals while power is on. Doing so could cause shock or erroneous operation.
- Correctly connect the battery. Also, do not charge, disassemble, heat, place in fire, short circuit, or solder the battery. Mishandling of battery can cause overheating or cracks which could result in injury and fires.
- Switch all phases of the external power supply off when cleaning the module or tightening the terminal screws. Not doing so could result in electric shock. If the screws are too tight, it may cause falling, short circuit or erroneous operation due to damage of the screws or modules.
- Tightening the screws too far may cause damages to the screws and/or the module, resulting in fallout, short circuits, or malfunction.

- The online operations conducted for the CPU module being operated, connecting the peripheral device (especially, when changing data or operation status), shall be conducted after the manual has been carefully read and a sufficient check of safety has been conducted. Operation mistakes could cause damage or trouble of the module.
- Do not disassemble or modify the modules. Doing so could cause trouble, erroneous operation, injury, or fire.
- Switch all phases of the external power supply off before mounting or removing the module. If you do not switch off the external power supply, it will cause failure or malfunction of the module.

[DISPOSAL PRECAUTIONS]



When disposing of this product, treat it as industrial waste.

REVISIONS

*The manual number is given on the bottom left of the back cover.

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Mar., 1993	IB(NA)66407-A	First edition

Thank you for choosing the Mitsubishi MELSEC-A Series of General Purpose Programmable Controllers. Please read this manual carefully so that the equipment is used to its optimum. A copy of this manual should be forwarded to the end User.

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1. GENERAL DESCRIPTION

This manual explains how to use the SW0GHP-A61LSPE system floppy disk (hereafter called the A61LSPE) to set parameter data, limit switch function data, and positioning function data of the A61LS-type position detection module (hereafter called the A61LS).

The main functions of the A61LSPE are as follows:

- (1) Data setting
 - The following kinds of data are set and written to operate the A61LS:
 - 1) Parameter data
 - 2) Limit switch function data (hereafter LS data)
 - 3) Positioning function data (hereafter POS data)
- (2) Test operations

Set data and the A61LS operations are checked by the following test operations:

- ON/OFF operation of the A61LS is checked by simulation changing of a resolver address by using a peripheral device without actually connecting a resolver. (Online operation)
- 2) Forcible input of a zero point compensation signal
- 3) Change of a destination address when using a positioning function
- 4) Switching the execution program when using a limit switch function
- (3) Monitoring

Operations can be checked by monitoring the operating status of the A61LS.

When using the A61LS, refer to the A61LS Type Position Detection Module User's Manual when necessary.

POINT

The peripheral devices given in this manual consist of the following units:

A6GPP intelligent GPP

A6HGP handy graphic programmer

A6PHP plasma handy programmer

1.1 Functions

This section gives the functions of the A61LSPE.



2. SYSTEM CONFIGURATION

2.1 Overall Configuration

This section shows the system configuration for operating the A61LSPE.

2.1.1 When using an A6GPP



The A61LSPE cannot be used if an A6KB keyboard is connected to the A6GPP.

2.1.2 When using an A6PHP/A6HGP



the A6PHP/A6HGP.

3. OPERATING METHODS

This section explains the common operating items of peripheral devices and how to start up peripheral devices by using the A61LSPE.

3.1 Common Items

This section explains the operating methods that are common to all function when a peripheral device is started up by using the A61LSPE.

3.1.1 Key operations

This section gives a general description of A61LSPE key operations.

- (1) When using the A61LSPE, each function is designated on the screen by inputting a selection number or selection key.
- (2) When using the A61LSPE, only the MELSAP mode keys shown in the figure below can be utilized.



3. OPERATING METHODS

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	Keys	Valid Modes	Functions	Remarks
	[F1]	All modes	For DATA READ/WRITE mode setting	
	[F2]		For DATA SETTING mode setting	
	[F3]		For MONITOR mode setting	
(1) .	[F4]		For TEST mode setting	Always valid
	[F5]		For ROM mode setting	-
	[F6]		For FDD mode setting	
	[F7]		For PRINTER mode setting	
(2)	[F8]	DATA SETTING mode TEST mode FDD mode	(Vary according to the mode.)	
(3)	[F9]	DATA SETTING mode	Execution of FD automatic write (When FD automatic write is set)	
(4)	[F10]	DATA SETTING mode FDD mode	Switches to the file directory function.	
(5)	[CR]	All modes	 Used to define each set data. Used to interrupt printing temporarily when copying the screen of a peripheral device. However, if a printer is not connected, when the power supply to a printer goes OFF, or if the cable is not connected, the screen copy function cannot be interrupted. 	
(6)	[CAN]	All modes	Used to return a screen to the previous screen.	Always valid
(7)	[DEL]	DATA SETTING mode	The character where the cursor is located	
(8)	[BS]	FDD mode	is cleared when setting the system name or comment in the FDD function. The cursor moves one character to the left.	Always valid
(9)	[HOME] [CLEAR]	All modes	All characters on the line where the cursor is located are erased.	Always valid
(10)	[BREAK]	MONITOR mode TEST mode FDD mode PRINTER mode	(Vary according to the mode.)	
(11)	[ESC]	DATA READ/WRITE mode DATA SETTING TEST mode PRINTER mode	(Vary according to the mode.)	
(12)	[COPY]	All modes	Used for copying the screen of a peripheral device.	Always valid However, printer setting in PRINTER mode must be done beforehand.

3.1.2 How to change the high/low buzzer sounds of a peripheral device

This section explains how to change the volume of the electronic buzzer which sounds when data is input from the keyboard of a peripheral device.

(With the MELSAP mode keys) Simultaneously press the [CTRL] + [1] keys. The sound volume is factory-set to low. The sound volume is changed to high by pressing the [CTRL] + [1] keys simultaneously. To return to the low level, simultaneously press the [CTRL] + [1] keys once more.

POINT	
	the sound volumes of A6GPPs manufactured after March, 1986 e changed. Check the DATE area of the A6GPP's name plate.
DA	ATE <u>6 03</u> CC ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
The A	AGHGP and AGPHP do not have this restriction.

This section explains the display areas that are common to all peripheral device screens.

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	Names	Display Contents
(1)	Data display areas	 Display of each setting screen [] and () in this display area are used as follows. [] Data setting area When data has already been set, the set data is displayed. () Allowable data setting range or the selection key that can be input is displayed.
(2)	Message display area	Operation messages or error messages when keys are pressed are displayed.
(3)	File name display area	The corresponding file name and utilized drive when setting FD automatic write are displayed.
(4)	Mode display area	The switching operation key of each mode is always displayed. The operating mode is highlighted.

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3.2 Starting Up a Peripheral Device

This section tells how to start up a peripheral device using the A61LSPE.



POINT

If the system is started up with the A61LSPE inserted in drive B, the A6GPP operates by regarding drive B as drive A and vice versa.



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4. PROCEDURE FOR OPERATING THE LIMIT SWITCH FUNCTION

This section explains the operating procedures and methods for setting LS data.

4.1 Procedure for Setting New Parameters and Data

This section explains how to set new LS data.



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4.2 How to Correct Data

This section explains how to correct parameter data and LS data.

4.2.1 Correction using the DATA SETTING mode



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4.2.2 Correction using the TEST mode



CAN (Return to the function selection screen.) 5 CR (Select OFF-LINE TEST.) Operation to correct data using the offline operation function OR STOPHEX UTE (BREAK SETTENG UP +1 -1 DOWN LS DATA CHANGE See Section 4.8.4 SETT Offline operations. F6 F7 (Select FDD MODE.) (Select PRINTER MODE.) Store data to the Check the set data Select Section 7 See Section 8 floppy disk FDD MODE. by a printout PRINTER MODE. F3 (Select MONITOR MODE.) F4 (Select TEST MODE.) Check the operation using the MONITOR Check the operation using the TEST See Section 4.8 See Section 4.7 TEST Mode. MONITOR Mode. mode mode

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4.3 Auto-Write to FD Setting

This section explains how to set AUTO-WRITE TO FD when each data item is set.



Operation explanation

- (1) When AUTO-WRITE TO FD is set, created or corrective data is registered to the floppy disk automatically by pressing the [F9] key when each data item has been set or corrected.
- (2) Select the function by pressing the [1] to [3] keys in AUTO-WRITE TO FD.
 - [1], [CR] ... The AUTO-WRITE TO FD is first set, or the set system name is changed.
 - [2], [CR] ... Setting is not changed.

----AUTO-WRITE TO FD is not executed.

[3], [CR] ... AUTO-WRITE TO FD is canceled

...AUTO-WRITE TO FD is not executed.

(3) Press the [1] and [CR] keys to switch the screen to the system name and comment setting screen.

Press the [2] and [CR] or [3] and [CR] keys to the data setting screen

(4) Alphanumeric character keys and the [-] (minus) key are valid for system name setting; eight characters max. can be set.

However, be sure the first character input is an alphabet letter.

(5) Alphanumeric characters and special characters are valid for comment setting; 20 characters max. can be set.

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- (6) A file name in the user's floppy disk can be read by using a directory operation with the AUTO-WRITE TO FD setting.
- (7) Pressing the [F10] key enables directory operations.
- (8) A system name for automatic write can be designated by the displayed file name number after directory operations.
- (9) Use a directory operation as shown below to set a file name.
 - 1) To read all files in the floppy disk, only press the [CR] key without setting a file name.
 - To read the file of the designated system name and designated identifier, designate the file name as follows, and then press the [CR] key.

File name = [system name] [.] [Identifier]

- Abbreviations of the system name and identifier can be designated by pressing the [*] key during file name setting (see Section 7.3.5).
- (10)15 file names max. can be displayed on a screen by using a directory operation.

When there are 15 or more file names, press the [+] and [-] keys.

- [+] The next 15 file names are displayed.
- [-] 15 file names on the previous page are displayed.
- (11)The display format of a file name can be selected as shown in the directory setting function of the FDD mode. Section 7.5 gives details about setting methods.
 - 1) The file name, the number of sectors and comment are displayed.
 - 2) Only the file name is displayed.
- (12)When a designated system name exists in the floppy disk after setting a comment, the following message is displayed:

SYSTEM NAME ALREADY USED!	
PRESS [W] TO WRITE NEW DATA	
PRESS [R] TO READ STORED DATA	
FROM DISK	

Press the [W] key to clear all contents of a designated system name in the floppy disk; the automatic write function is executed.

Press the [R] key to execute the automatic write function after reading the contents of a designated system name in the floppy disk to the peripheral device.

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(13)If, after setting a comment, the designated system name does not exist in the floppy disk, the following message is displayed:

WRITE NEW DATA TO FD? ([Y] / [CAN])

Press the [Y] and [CR] keys to set the new system name is set in the floppy disk; the automatic write function is executed.

Press the [CAN] key to return the screen to the system name setting screen; a system name can be set again.

POINT

AUTO-WRITE TO FD is canceled automatically by any of the following;

- (1) The power supply of a peripheral device is turned OFF or is reset.
- (2) A function other than directory setting and verify is selected in FDD mode.
- (3) While executing automatic write, an error occurred.

(4) Read from an A61LS is selected in DATA READ/WRITE mode.

- (5) READ is selected in ROM mode.
- (6) TEST mode is selected.

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4.4 Parameter Setting

This section explains how to set A61LS parameters.

Basic operation			
Operation to select Image: CR and C	Control utput mode]CR - {CW correct value setting setting CR - {CW correct value correct correct tolerance CR - {CAN correct value setting setting setting can correct value setting setti		
[Comment setting operation]			
F8-• Comment setting]-•ESC	POINT		
[Parameter clear operation]	Operations using [F8], [F9], and [F10] are always valid.		
[Execution of AUTO-WRITE TO FD] (Only with the second seco	hen AUTO-WRITE TO FD is executed)		

Operation explanation 1

(1) The following parameter setting screen is displayed by selecting PA-RAMETER ([1], [CR]) on the data selection screen.



(2) Input setting item data where the cursor (►) is located to the key-in data area, and then press the [CR] key.

The set data of the key-in data area is set the at data setting area of the setting item where the cursor (\blacktriangleright) is located, and then the cursor (\blacktriangleright) is moved to the next setting item automatically by pressing the [CR] key.

The setting item where the cursor (\blacktriangleright) is located is highlighted.

- (3) Press the $[\downarrow]$ and $[\uparrow]$ keys to move the cursor (\blacktriangleright).
- (4) Set data in the order of RESOLVER TURN DIRECTION, PRESENT VALUE TOLERANCE, MODE, CW CORRECT VALUE, CCW COR-RECT VALUE, and CORRECTED VALUE TOLERANCE
- (5) {1. RESOLVER TURN DIRECTION setting}
 - 1) Set the resolver turn direction when increasing a resolver present value.
 - 2) Set the turn direction by pressing the [0] or [1] key, and then press the [CR] key.
 - [0], [CR] ... When the resolver is turning in the CW direction, the resolver present value increases.
 - [1], [CR] ... When the resolver is turning in the CCW direction, the resolver present value increases.
- (6) {2. PRESENT VALUE TOLERANCE setting}
 - Set the PRESENT VALUE TOLERANCE per unit time (6 msec) of the resolver present value.
 - 2) If resolver present value variations exceed the set values, an error occurs.
 - 3) Set values in the range of 0 to 4095.
- (7) {3. Control output modes setting}
 - 1) Set the control modes (limit switch function/positioning function) of each channel.
 - 2) The method of setting is as follows:
 - Set 0 or 1 for the channel number that is highlighted in 0 to F.
 - [0], [CR] ... Used for the limit switch function (LS mode).
 - [1], [CR] ... Used for the positioning function (POS mode).
 - When the setting of one channel has been completed, the next channel number is highlighted, and then setting is enabled.
 - Press the [→] and [←] keys to switch the channel number to be set.
 - If the [CR] key is pressed in the setting of channel F, the cursor
 (▶) moves to the CW CORRECT VALUE automatically.

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- (8) {4. CW CORRECT VALUE setting}
 - 1) Set the correct value when executing position correction by the position correct signal during resolver turning in the CW direction.
 - 2) Set values in the range of 0 to 4095.
- (9) {5. CCW CORRECT VALUE setting}
 - 1) Set the correct value when executing position correction by the position correct signal during resolver turning in the CCW direction.
 - 2) Set values in the range of 0 to 4095.
- (10){6. CORRECTED VALUE TOLERANCE setting}
 - Set the corrected value tolerance of the last value and present value in the compensation amount detection during position correction.
 - 2) If corrected value tolerances exceed the set values, an error occurs.
 - 3) Set values in the range of 0 to 4095.
- (11)When executing comment setting and parameter all clear, see operation explanations 2 and 3.
- (12)Press the [CAN] key when all parameter data setting has been completed.

The screen returns to the function selection screen.

Operation explanation 2 (Comment setting operation)

- (1) Add comments (such as the purpose) to each channel.
- (2) When setting LS data and POS data and when operating in MONI-TOR and TEST modes, the set comments are displayed by adding a comment in this mode.

Therefore, the use of each channel can be understood.

(3) When the [F8] key is pressed, the comment setting function becomes valid.

The cursor moves to the start of the comment setting area of channel 0.

- (4) Use alphanumeric and special characters to set the comments of each channel (max. 16 characters).
- (5) Press the [CR] key after inputting the comment of each channel to move the cursor to the comment setting area of the next channel.
- (6) When it is not necessary to set a comment at a channel, press the [↓], [→], [↑], and [←] keys to move the cursor to another channel.

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(7) Set comments can be changed and modified by pressing the following keys:
[HOME/CLEAR] All characters in the comment setting area where the cursor is are erased.
[SP] The character where the cursor is located is erased; the cursor moves one character to the right.

 $[\rightarrow], [\leftarrow], [\downarrow], [\uparrow] \dots$ The cursor is moved.

(8) When canceling comment setting, press the [ESC] key.

The cursor moves to the key-in data area.

Operation explanation 3 (Parameter all clear operations)

- (1) Erase all parameter data in the internal memory of a peripheral device.
- (2) The next data is set after the all clear operation.

(When the power supply of a peripheral device is started up, the next data is also set.)

RESOLVER TURN DIRECTION0 (CW)

PRESENT VALUE TOLERANCE 4095

MODE All channels: 0 (LS MODE)

CW CORRECT VALUE0

CCW CORRECT VALUE0

CORRECTED VALUE TOLERANCE 4095

(3) Press the [F10] key on the parameter setting screen to make the parameter all clear function valid in the parameter setting screen. Then, the following message is displayed:

[F10] PARAMETERS ALL CLEAR? ([Y] / [ESC])

[Y], [CR] . All clear is executed.

When execution has been completed, the cursor returns to the key-in data area.

[ESC] the all clear function is canceled, and the cursor is returned to the key-in data area.

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4.5 LS Data Setting

This section explains how to set LS data.

LS data uses the following functions:

Methods of setting data	
	By pattern writing Section 4.5.2
Data copying	——Set data is copied to the same or another channel Section 4.5.3
Data clear —	Set data is cleared Section 4.5.4

4.5.1 Data setting by designating a range

This section explains how to set LS data by designating a range.

Basic operation
AUTO-WRITE TO FD 3 CR 1 CR Program selection operation Select LS DATA Select LS DATA Setting BY PANGE
[Storage memory switching operation]
W
[Setting channel designation operation]
Operations using [W], [F8], [F10], and [F9] are always valid in the data setting screen.
[Display point switching operation]
[Executing AUTO-WRITE TO FD] (only when executing AUTO-WRITE TO FD)
- ESC

Operation explanation

- Program number setting screen is displayed by selecting LS DATA ([3], [CR]) in the data selection screen and selecting [1] and [CR] in the function selection screen.
- (2) Program number setting is as follows:
 - Select the program number to which data is set by pressing the [1] to [4] keys, and then press the [CR] key.
 - If a key other than the [1] to [4] is pressed, SETTING ERROR will be displayed in the message area.

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(3) After the setting program number, the following LS data setting screen is displayed:



- (4) The storage memory of data to be set in this section can be switched by pressing the [W] key:
 - Data is only written to the internal memory of a peripheral device.
 - Data is simultaneously written to the internal memory of a peripheral device and the A61LS memory.

POINT

When data is simultaneously written to the internal memory of a peripheral device and an A61LS memory, the A61LS must be connected to a peripheral device.

If the A61LS is not connected, a communication error occurs.

- (5) Perform setting in the order of CHANNEL and ON/OFF POINT
- (6) {CHANNEL setting}
 - 1) Set the channel number to which data is set or the channel number in which the set data is displayed.
 - 2) Set a channel number by pressing the [0] to [9], and [A] to [F] keys, and then press the [CR] key.
 - 3) After the setting has been completed, the cursor moves to the ON/OFF point setting area.

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- (7) {ON/OFF POINT}
 - 1) Set addresses at the leading edge (OFF \rightarrow ON) of an output signal and the fall (ON \rightarrow OFF) of an output signal.



 Set ON POINT and press the [CR] key, and then set OFF POINT and press the [CR] key.

Set the ON and OFF points in the range of 0 to 4095.

- 3) The OFF point value must be larger than the ON point value.
- 4) After setting the OFF point value and pressing the [CR] key, the set data is displayed at the top of data display area.
- 5) When setting the OFF point to the last address (4095), press the [F] and [CR] keys in the OFF point area.

FIN. is displayed in the OFF point display area.

- 6) Set all ON/OFF points by repeating operations 2) to 4).
- 7) Press the following keys when displaying set data in the display area:
 - $[\downarrow]$ Display area data is scrolled down.
 - $[\uparrow]$ Display area data is scrolled up.
 - [+] The next 10 ON/OFF points are displayed.
 - [-] The previous 10 ON/OFF points are displayed.

[F10], [address], [CR]Data after the ON/OFF point including the setting address is displayed.

8) As shown below, when the ON/OFF point set in the setting area is in the range including the set address, the address is changed to the most recently set address.

Example



(8) When setting the setting channel, press the [F8] key.

The cursor moves to the channel setting area, and then the channel can be changed.
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(9) When AUTO-WRITE TO FD is set, perform the following operation after the setting of all channels has been completed:

Register data of one program set in the internal memory of a peripheral device to the floppy disk.

 $[F9] \rightarrow [Y] [CR]$

(10)When changing the program number, press the [CAN] key.

The screen is switched to the program number setting screen.

Redo the operations from (2).

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4.5.2 Data setting by pattern writing

This section explains how to set LS data by pattern writing.

Basic operation	
AUTO-WRITE TO FD 3 CR 2 CR Program number selection operation	$CR + \phi \leftarrow - \phi + \phi$
[Storage memory switching operation] W [Automatic scrolling] F8-Esc	POINT Operations using [W], [F8], [F10], and [F9] are always valid in the data setting screen.
[Executing AUTO-WRITE TO FD] (only when exec	uting AUTO-WRITE TO FD)

Operation explanation

- Program number setting screen is displayed by selecting LS DATA ([3], [CR]) in the data selection screen and selecting [2] and [CR] in the function selection screen.
- (2) Program number setting is as follows:
 - Select the program number to which data is set by pressing the [1] to [4] keys, and then press the [CR] key.
 - If a key other than the [1] to [4] is pressed, SETTING ERROR will be displayed in the message area.

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(3) After the setting program number, the following LS data setting screen is displayed:

ata storage memory isplay area he present data stora nemory is highlighted.	ge	Cursor point display area The address of the cursor position is displayed.
LSIDATA PROGRAM POS COMMENT POS FOS POS ES LS ES S ES S	X GÓD HẠC NEMORY ONLY O O Q3 1 V V V 2 V V V 3 V V V 4 V V V 5 V V V 8 V V V 9 V V V V 8 V V V V 9 V V V V V 9 V V V V V V 9 V	
Comment display area A comment set in the parameter is displayed.	Display start point setting area Set the display start point when displaying ON/OFF point data.	ON/OFF data setting area Set ON/OFF data of each channe by pressing the following keys: [N]ON [F]OFF

- (4) The storage memory of data to be set in this section can be switched by pressing the [W] key:
 - Data is only written to the internal memory of a peripheral device.
 - Data is simultaneously written to the internal memory of a peripheral device and the A61LS memory.

POINT

When data is simultaneously written to the internal memory of a peripheral device and an A61LS memory, the A61LS must be connected to a peripheral device.

If the A61LS is not connected, a communication error occurs.

(5) Move the cursor to the setting address, and then set ON/OFF in the pattern.

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(6) The cursor movement and screen switching are as follows:



..... The cursor is moved one address to the right.

..... The cursor is moved one channel down.

- \uparrow The cursor is moved one channel up.
- + 50 is added to the display start address.

..... 50 is deducted from the start address.

F10 CR ESC ... The display address is switched to the designated address.

- (7) The address where the cursor is located is displayed in the upper right hand side of the screen.
- (8) Set ON/OFF by pressing the following keys:
 - [N] The address of the channel where the cursor is located is set to ON.
 - [F] The address of the channel where the cursor is located is set to OFF.

ON/OFF displays on the screen are as follows:



(9) 1 is automatically added to a display address every sec by pressing the [F8] key.

Therefore, the set data can be checked.

Press the [ESC] key to interrupt automatic scrolling.

(10)When AUTO-WRITE TO FD is set, perform the following operation after the setting of all channels has been completed: Register data of one program set in the internal memory of a peripheral device to the floppy disk.



(11)When changing the program number, press the [CAN] key. The screen is switched to the program number setting screen. Redo the operations from (2).

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4.5.3 Copy of set data

This section explains how to copy set data to the same channel or another channel.



Operation explanation

 Setting data copy screen is displayed by selecting LS DATA ([3], [CR]) in the data selection screen and selecting [3] and [CR] in the function selection screen.



- (2) Set the set data in this order: PROGRAM No./FROM, CHAN-NEL/FROM, START POINT/FROM, FINAL POINT/FROM, PROGRAM No./TO, CHANNEL/TO, and START POINT/TO.
- (3) {PROGRAM No./FROM setting}
 - 1) Set the program number in which the set data is stored.
 - Set the program number by pressing the [1] to [4] keys, and then press the [CR] key.
 The cursor moves to the copy CHANNEL/FROM setting area.
- (4) {CHANNEL/FROM setting}
 - 1) Set the channel number in which a set data is stored.
 - Set the channel number by pressing the [0] to [9], and [A] to [F] keys, and then press the [CR] key. The cursor moves to the START POINT/FROM setting area.

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- (5) {START POINT/FROM setting}
 - 1) Set the start address of the copy range.
 - Set the address by pressing the [0] to [9] keys, and then press the [CR] key.
 The cursor moves to the FINAL POINT/FROM setting area.
- (6) {FINAL POINT/FROM setting}
 - 1) Set the final address of the copy range.
 - Set the address by pressing the [0] to [9] keys, and then press the [CR] key.
 The cursor moves to the PROGRAM No./TO setting area.
- (7) {PROGRAM No./TO setting}
 - 1) Set the program number of copy destination.
 - Set the program number by pressing the [1] to [4] keys, and then press the [CR] key. The cursor moves to the CHANNEL/TO setting area.
- (8) {CHANNEL/TO setting}
 - 1) Set the channel number of the copy destination.
 - Set the channel number by pressing the [0] to [9], and [A] to [F] keys, and then press the [CR] key. The cursor moves to the START POINT/TO setting area.
- (9) {START POINT/TO setting}
 - 1) Set the start address in which data is to be stored.
 - 2) Set the address by pressing the [0] to [9] keys, and then press the [CR] key.
- (10)When changing the setting, move the cursor to the setting area of data to be changed by pressing the $[\leftarrow]$, $[\rightarrow]$, and $[\uparrow]$ keys.
- (11)When setting of START POINT/TO is completed, the following message of is displayed to confirm the execution:

 EXECUTE? ([Y] / [CAN])
 [Y], [CR] ... The copy function is executed. When copying has been completed, the cursor moves to the PROGRAM No./FROM setting area.
 [CAN] The cursor moves to the PROGRAM No./FROM setting area without executing the copy function.

(12)If the range set to the copy source exceeds address 4095 of the copy destination as shown below, data after address 4095 is ignored.

Example When data of the addresses 0 to 2000 of a copy source is copied after 2500 of the copy destination

2000 0 4095 Copy source 2500 4095 Copy destination

Data that exceeds 4095 is ignored.

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4.5.4 Clearing data

This section explains how to clear LS data from the internal memory of a peripheral device.



Operation explanation

(1) LS data clear screen is displayed by selecting DATA CLEAR ([4], [CR]) in the data selection screen and selecting [3] and [CR] in the function selection screen.

LS DATA	< LS DATA CLEAR >	
CH MODE : COMMENT :	1 ALL CLEAR	
0 POS HIGH SPEED SIGNAL 1 POS MEDIUM SPEED SIGNAL	2 PROGRAM SELECTION (ALL CHANNEL)	
2 POS LOW SPEED FORWARD	3 PROGRAM & CHANNEL SELECTION	
3 POS LOW REVERSE 4 LS LIMIT 1	NO.?	
5 LS LIMIT2 6 LS LIMIT3		
7 LS LIMIT4		
9 LS LIMITE		
A LS LIMIT7 B LS LIMIT8		
B LS LIMIT C LS LIMIT C LS LIMIT D LS E LS F LS		
E LS		
	7	
Comment display area		
A comment set in the		
parameter is displayed.		

- (2) The selection of clear range in the data clear screen is as follows:
 - [1], [CR] (all clear) All LS data is cleared.
 - [2], [CR] (designated program clear) Data in all channels of the designated program number is cleared.
 - [3], [CR] (designated program and Data of a designated chandesignated channel clear) nel of a designated program is cleared.
- (3) {1. ALL CLEAR setting}
 - When ALL CLEAR ([1], [CR]) is selected, the following message is displayed to confirm execution:

- [Y], [CR] ... All LS data is cleared. When execution has been completed, the cursor returns to the clear range selection.
- [CAN] The cursor returns to the clear range selection without executing all clear.

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(4) {2. PROGRAM SELECTION (ALL CHANNEL) setting}

1) When PROGRAM SELECTION (ALL CHANNEL) is selected, the following program number setting message is displayed, and then the cursor moves to the PROGRAM No. setting area.



POINT

It is not necessary to set a channel area by operating PROGRAM SELECTION (ALL CHANNEL).

- 2) Set the program number to be cleared by pressing the [1] to [4] keys, and then press the [CR] key.
- 3) When setting of the program number has been completed, the following message is displayed to confirm execution:

EXECUTE? ([Y] / [CAN])

- [Y], [CR] ... LS data of all channels of designated PROGRAM No. is cleared. When execution has been completed, the cursor returns to the clear range selection.
- [CAN] The cursor returns to a clear range selection without executing a clear of a designated program.
- (5) {3. PROGRAM & CHANNEL SELECTION setting}
 - 1) When PROGRAM & CHANNEL SELECTION ([3], [CR]) is selected, the following program number and channel setting message are displayed, and then the cursor moves to the PROGRAM No. setting area.



- Set the program number in which data to be cleared is stored by pressing the [1] to [4] keys, and then press the [CR] key. The cursor moves to the channel setting area.
- 3) Set the channel number to be cleared by pressing the [0] to [9] and [A] to [F] keys, and then press the [CR] key.
- 4) When returning the cursor to the PROGRAM No. setting area from the channel setting area, press the [[↑]] key.
- 5) When the setting of the channel number has been completed, the following message is displayed to confirm execution:

EXECUTE? ([Y] / [CAN])

[Y], [CR] ... LS data of designated channels of designated PRO-GRAM No. is cleared. When execution has been completed, the cursor returns to the clear range selection.

[CAN] The cursor returns to a clear range selection without executing a clear of a designated program.

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4.6 Writing, Reading, and Verifying Data To/From/With the A61LS

This section explains how to write, read and verify data between the A61LS and a peripheral device.



Operation explanation

(1) When the DATA READ/WRITE mode ([F1]) is selected in mode selection, the following is displayed:

	READ FROM A61LS	WRITE TO A61LS	VERIFY WITH A61LS
PARAMETER	1	6	11
POS DATA	2	7	12
LS DATA (SELECT)	3	8	13
LS DATA (ALL)	4	9	14
ALL DATA	5	10	15

(2) Select data and the function by pressing the [1] to [1][5] keys, and then press the [CR] key.

When LS DATA (SELECT)(3, 8, 13) is not set, the message of (4) is displayed.

When LS DATA (SELECT)(3, 8, 13) is set, the screen is moved to the operation of (3).

(3) Operation when LS DATA (SELECT) is selected (3, 8, and 13)

 When either 3, 8 or 13 is selected when selecting data and function, the following setting area is displayed: The cursor moves to the PROGRAM No. setting area.

PROGRAM №.	[1] (1 TO 4)
START POINT	[0] (0 TO 4095)
FAINAL POINT	[4095] (0 TO 4095)

- Data in the designated range is executed for all channels in the designated program by designating PROGRAM No., START POINT and FINAL POINT in LS DATA(SELECT).
- 3) {PROGRAM No. setting}

Set the program number of the LS data to be written, read or verified. Set the program number by pressing the [1] to [4] keys, and then press the [CR] key. The cursor moves to the start point setting area.

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- 4) {START POINT setting}
 Set a start address in the range of data to be written, read or verified. Set an address in the range of 0 to 4095 by pressing the [0] to [9] keys, and then press the [CR] key. The cursor moves to the final point setting area.
- 5) {FINAL POINT setting}
 Set a final address in the range of data to be written, read or verified. Set an address in the range of 0 to 4095 by pressing the [0] to [9] keys, and then press the [CR] key.
 The final point value must be larger than the start point.
 When setting of a final point has been completed, the message of (4) is displayed.
- 6) When changing the setting, press the [↑] key. The cursor moves one setting area up.
- (4) When all setting has been completed, the following message is displayed:

EXECUTE? ([Y] / [CAN]) [Y], [CR] .. Write, read or verify is executed.

[CAN] The cursor returns to the setting area without executing write, read or verify.

- (5) While executing write, read or verify, data name currently executed and the remaining capacity of execution are displayed as follows.
 - Parameter dataPARAMETER
 - POS dataPOS.DATA
 - LS dataLS.DATA

Remaining capacity of execution *** is displayed per 1 Kbyte.

• When ALL DATA is selected, the above PARAMETER, POS.DATA and LS.DATA are displayed in order.

Program number during

execution is displayed.

NO. 1

- (6) When execution is interrupted, press the [ESC] key.
- (7) When mismatched data is detected by verification, max. 10 mismatched data is displayed on the right hand side of the screen as follows:

When there are 11 or more mismatched data, verification is stopped when 10 mismatched data is detected.

And then, MORE THAN 10 ERRORS is displayed.

	READ FROM A61LS	WRITE TO A61LS	VERIFY WITH A61LS	PARAMETER
PARAMETER	1	6	11	PRESENT VALUE TOLERENCE CORRECT VALUE
POS DATA	2	7	12	POS DATA MEMORY ADDRESS
LS DATA (SELECT)	3	8	13	CH.O: DATA A: 13 CH.1: DATA B: 16
LS DATA (ALL)	4	9	14	IS DATA
ALL DATA	5	10	15	NO.1: CH.B: POINT 6 NO.1: CH.B: POINT 7
EXECUTE ? (V / CAN)	AN 10 ERRORS		NO.?	 NO.1: CH.B: POINT 8 NO.1: CH.B: POINT 9 NO.1: CH.B: POINT 10 NO.1: CH.B: POINT 11

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4.7 MONITOR Mode

This section explains how to monitor data stored in the buffer of the A61LS and the ON/OFF state of the A61LS I/O signal.



Operation explanation

(1) The following monitor screen is displayed by pressing the [F3] key on the mode selection screen:



(2) When displaying the comment of each channel, it is necessary to read parameter data beforehand in the internal memory of the peripheral device by using the FDD mode.

4.8 TEST Mode

This section explains how to execute test operations of the A61LS by using a peripheral device.

(1) The following functions are available in TEST mode:

. Output enable/disable when A61LS is in the online state (when Y10 is OFF) is set
 A position correct command is output to the A61LS without using the external position correct signal
• A position correct value of a parameter is changed
. A target address and set values A and B in the buffer of the A61LS are changed
. The limit switch function program number of the A61LS is changed, and the execution program is switched.
The present address is changed by a peripheral device without turning a resolver, and the ON/OFF output state is confirmed. (Available only when the A61LS is in the offline state (when Y10 is OFF).)
Errors such as OVERFLOW, UNDERFLOW, OVER CORRECT, and OVER SPEED and error codes are reset

(2) The following screen is displayed by selecting TEST mode ([F4]) on the mode selection screen.

TEST mode is used for both the test function and the monitoring function as shown on the following screen.



Section 4.7 gives details about monitor display.

- (3) The following test functions used for the limit switch function are explained in this section:
 - 1) OUT ENABLE/DISABLE
 - 2) POSITION CORRECT
 - 3) LS PROGRAM SELECTION
 - 4) OFF-LINE TEST
 - 5) RESET

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4.8.1 OUT ENABLE/DISABLE setting

This section explains how to operate OUT ENABLE/DISABLE when the A61LS is offline (when Y10 is OFF).



Operation explanation

(1) When the A61LS is offline, set whether or not an ON/OFF signal is externally output from each channel by the OUT ENABLE/DISABLE setting.

ENABLEEven if the A61LS is offline (Y10 is OFF), an ON/OFF signal is externally output.

(2) The following messages are displayed on a screen by pressing the [1] and [CR] keys on the test function selection screen:



[1], [CR] ... Output of all channels of the A61LS is enabled.

[2], [CR] ... Output of all channels of the A61LS is disabled. (OFF)

- (3) When the power supply of the A61LS is started up, DISABLE is set.
- (4) The present state is highlighted at the top of the OUT ENABLE/DIS-ABLE setting display.

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4.8.2 Position correct command

This section explains how to output the position correct command from a peripheral device to the A61LS without using the external position correct signal.



Operation explanation

(1) The following screen is displayed by pressing the [2] and [CR] keys on the mode selection screen:



- [1], [CR] ... The position correct command when a resolver is turning in the CW direction is output to the A61LS.
- [2], [CR] ... The position correct command when a resolver is turning in the CCW direction is output to the A61LS.

POINT

The position correct state display on the monitor screen does not change during position correct by a peripheral device.

- (2) Changing the position correct value of a parameter
 - 1) Pressing the [F8] key moves the cursor to CW POSITION COR-RECT.
 - Set the new value (0 to 4095) of CW POSITION CORRECT by pressing the [0] to [9] keys, and then press the [CR] key. The cursor moves to the CCW POSITION CORRECT setting area.
 - 3) Set the new value (0 to 4095) of CCW POSITION CORRECT by pressing the [0] to [9] keys, and then press the [CR] key.
 - To cancel the changed function of the position correct value, press the [ESC] key. The cursor returns to the position correct command setting area.
- (3) Present state of OUT ENABLE/DISABLE when the A61LS is offline is highlighted at the top of the position correct function display. Section 4.8.1 gives details about switching ENABLE/DISABLE.

4.8.3 Selecting a limit switch program

This section explains how to switch the execution program of the limit switch function.



Operation explanation

(1) The following message is displayed on a screen by pressing the [4] and [CR] keys on the mode selection screen:



- (2) Set the program number to be executed by pressing the [1] to [4] keys, and then press the [CR] key.
- (3) The set program number rewrites the program number setting area for the limit switch function of the A61LS buffer.
- (4) OUT ENABLE/DISABLE when the A61LS is offline is highlighted at the top of the limit switch function program selection function display. Section 4.8.1 gives details about switching ENABLE/DISABLE.

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4.8.4 Offline operations

This section explains how to change the present address from a peripheral device and confirm the ON/OFF state of an output without turning a resolver.

(Valid only when the A61LS is in the online state (when Y10 is OFF.)

POINT

The Y12 (limit switch function start signal) of the A61LS must be turned ON even when confirming limit switch function data by an offline operation.

When the Y2 is in the OFF state, ON/OFF of each channel cannot be controlled.



Operation explanation

(1) The following message is displayed on a screen by pressing the [5] and [CR] keys on the mode selection screen:



- (2) Present value change operation
 - 1) When the cursor is in the present value setting area, this operation is valid.
 - Set any present value in the range of 0 to 4095 by pressing the [0] to [9] keys, and then press the [CR] key. The ON/OFF state of each channel that corresponds to the set present value is displayed on the screen. When DISABLE is set in the OUT ENABLE/DISABLE setting of Section 4.8.1, the ON/OFF signal is also externally output.

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- 3) A present value can be changed by pressing the following keys:
 - $[\uparrow]$ 10 is added to the present value.
 - $[\downarrow]$ 10 is subtracted from the present value.
 - $[\rightarrow]$ 1 is added to the present value.
 - $[\leftarrow]$ 1 is subtracted from the present value.
- (3) LS data change operation
 - 1) LS data changing is valid only when the LS data storage memory installed in the A61LS is 16 KRAM.
 - 2) When changing data, display the address to be changed in the present value setting area, and then press the [F8] key. The cursor moves to the channel setting area.
 - Set the channel to which data is changed by pressing the [0] to
 [9] and [A] to [F] keys, and then press the [CR] key.
 - 4) Set ON/OFF by pressing the following keys:
 - [1] The address displayed in the present value setting area in the designated channel of an executing program is turned ON.
 - $[\downarrow]$ The address displayed in the present value setting area in the designated channel of an executing program is turned OFF.
 - 5) The address whose ON/OFF setting is to be changed can be changed by pressing the following keys:.
 - $[\rightarrow]$ 1 is added to the present value.
 - $[\leftarrow]$ 1 is subtracted from the present value.
 - 6) To cancel the LS data change function, press the [ESC] key. The cursor returns to the present value setting area.
- (4) The present output state enable/disable is highlighted when the A61LS is offline at the top of the offline test function display. Section 4.8.1 gives details about switching enable/disable.

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4.8.5 Error resetting

This section explains how to reset error-detected signals, etc., when an error occurs in the A61LS.



Operation explanation

(1) The following message is displayed on the screen by pressing the [6] and [CR] keys on the mode selection screen:

OUT DISABLE (OFF-LINE)
<reset></reset>
1 OVERFLOW RESET
2 UNDERFLOW RESET
3 OVER CORRECT & OVER SPEED &
Σ ERROR
ALL RESET No.? []

[1], [CR] ... Overflow detection is reset.

X2 (overflow detection) of the A61LS is reset, and 0 is stored in buffer address 1 (overflow detection flag).

[2], [CR] ... Underflow detection is reset.

X3 (underflow detection) of the A61LS is reset, and 0 is stored in buffer address 2 (underflow detection flag).

[3], [CR] ... The following error detection signals are reset:

• OVER CORRECT signal (X5)

- OVER SPEED signal (X6)
- ∑ ERROR (error other than a battery error) (X7)
 0 is stored in buffer address 8 (error code storage area).
- (2) The present state of OUT ENABLE/DISABLE is highlighted when the A61LS is offline at the top of the reset function display.

Section 4.8.1 gives details about switching ENABLE/DISABLE.

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5. PROCEDURE FOR OPERATING THE POSITIONING FUNCTION

This section explains the operating procedures and methods for setting POS data.

5.1 Procedure for Setting New Parameters and Data

This section explains how to set new POS data.



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5.2 How to Correct Data

This section explains how to correct parameter data and POS data.

5.2.1 Correction using the DATA SETTING mode



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5.2.2 Correction using the TEST mode



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 · · · ·]		
F3 (Selec	MONITOR MODE.)		F4 (Select	TEST MODE.)
Check the operation using the MONITOR mode	See Section 4.7 MONITOR Mode.		Check the operation using the TEST mode	See Section 5.4 TEST Mode.

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5.3 POS Data Setting

This section explains how to set POS data.



Operation explanation

(1) The following screen is displayed by selecting POS DATA: ([2] and [CR]) on the data selection screen.



- (2) The storage memory of data to be set in this section can be switched by pressing the [W] key:
 - Data is only written to the internal memory of a peripheral device.
 - Data is simultaneously written to the internal memory of a peripheral device and the A61LS memory.

POINT

When data is simultaneously written to the internal memory of a peripheral device and an A61LS memory, the A61LS must be connected to a peripheral device.

If the A61LS is not connected, a communication error occurs.

(3) Set data A and data B at each channel set for the positioning function by parameter setting.

Section of the A61LS User's Manual gives details about the set value of data A and data B of each channel.

(4) When data has been set, the set data is displayed in the data setting area.

If set data is outside the range of 0 to 4095, the corresponding area becomes blank.

- (5) Set the set value in the setting area where the cursor (\blacktriangleright) is located.
- (6) Set the set value by pressing the [0] to [9] keys in the key-in data area, and then press the [CR] key.

The set value in the key-in data area is displayed on the setting area where the cursor (\blacktriangleright) is located, and the cursor (\blacktriangleright) moves to the next setting area.

- (7) Press the following keys to move the cursor (\blacktriangleright):
 - $[\rightarrow]$ The cursor moves to the data B setting area of the same channel.
 - [←] The cursor moves to the data A setting area of the same channel.
 - $[\downarrow]$ The cursor moves to the next channel setting area.
 - $[\uparrow]$ The cursor moves to the previous channel setting.
- (8) When AUTO-WRITE TO FD is set, perform the following operation after the setting of all channels has been completed, and register the data set in the internal memory of a peripheral device to a floppy disk.

 $[F9] \rightarrow [Y] [CR]$

(9) To clear set positioning data, press the [F10] key.

The following message is displayed on the screen:

[F10] POS DATA ALL CLEAR? ([Y]/[ESC])

[Y], [CR] ... The positioning data in the internal memory of a peripheral device has been cleared.

When all clear has been completed, the cursor moves to the key-in data area.

[ESC] The cursor returns to the key-in data area without clearing positioning data.

5.4 TEST Mode

This section explains how to execute test operations of the A61LS by using a peripheral device.

(1) The following functions are available in TEST mode:

OUT ENABLE/DISABLE	Output enable/disable when A61LS is in the online state (when Y10 is OFF) is set
POSITION CORRECT	 A position correct command is output to the A61LS without using the external position correct signal
	• A position correct value of a parameter is changed
	A target address and set values A and B in the buffer of the A61LS are changed
LS PROGRAM SELECTION	The limit switch function program number of the A61LS is changed, and the execution program is switched
t	The present address is changed by a peripheral device without curning a resolver, and the ON/OFF output state is confirmed. (Available only when the A61LS is in the offline state (when Y10 is OFF).)
RESET	Errors such as OVERFLOW, UNDERFLOW, OVER CORRECT, and OVER SPEED and error codes are reset

(2) The following screen is displayed by selecting TEST mode ([F4]) on the mode selection screen.

TEST mode is used for both the test function and the monitoring function as shown on the following screen.

SPSED(rpm) PRESENT VALUE 500 1234	POSITION CORECT COW	
ERROR CODE ON OFF	CORRECT VALUE	POS ADDRESS
POS:0 POS:1 POS:2 POS:2 POS:3 LS:4 LS:5 LS:5 LS:6 LS:7 LS:6 LS:7 LS:6 LS:7 LS:6 LS:7 LS:6 LS:6 LS:7 LS:6 LS:7 LS:6 LS:7 LS:6 LS:7 LS:6 LS:7 LS:6 LS:7 LS:7 LS:7 LS:7 LS:7 LS:7 LS:7 LS:7	Y10 WDT ERROR X11 ON-LINE X12 OVERFLOW X3 UMDERLOW X4 CWL) / CCWL Y4 CWL) / CCWL Y5 OVER CORRECT X76 OVER CORRECT X70 SC READY Y1 PS ERARLE Y1 SC READY Y1 SC READY Y1 PS EARBLE Y2 SE ERARLE Y3 OVERFLOW RESET Y3 OVERFLOW RESET Y3 OVERFLOW RESET	<pre>< FUNCTION SELECTION > 1 OUT ENABLE / DISABLE 2 POSTITION CORRECT 3 POS MODE TEST 4 LS PROGRAM SELECTION 5 OFF-LINE TEST 6 RESET NO.2</pre>
		L

Section 4.7 gives details about monitor display.

- (3) The following test functions can be used for the POS mode test.
 - 1) OUT ENABLE/DISABLE
 - 2) POSITION CORRECT
 - 3) POS MODE TEST
 - 4) RESET

POS mode test used for the positioning function is explained in this section.

Section 4.8 gives details about other test functions.

5.4.1 POS mode test

This section explains how to change the destination address that is used for the positioning function and how to correct POS data.



Operation explanation

(1) The following is displayed on the screen by pressing the [3] and [CR] keys on the test function selection screen:

OUT DISABLE (OFF-LINE)
<pos mode="" test=""></pos>
POS ADDRESS []
[F8] POS DATA CHANGE/([ESC])
[CH.] [DATA.A] [DATA.B]

- (2) Destination address setting operation
 - 1) Valid when the cursor is in the POS address area.
 - 2) Set any desired address (0 to 4095) by pressing the [0] to [9] keys, and then press the [CR] key.

The destination address of buffer address 12 of the A61LS is changed.

- (3) Changing positioning data
 - 1) Positioning data set at buffer addresses 13 to 44 of the A61LS is changed.
 - 2) Press the [F8] key to change positioning data.

A channel set for the positioning function is displayed as follows, and the cursor moves to the data A setting area of the top channel number.

		DATA ATA.AJ		ANGE/([ESC]) ATA.B]
0	[200]	Ī	226]
1	[50]	Ī	70]
2]	3]	[4095]
З	l	4095]	I	2]

3) Pressing the following keys moves the cursor to the setting area of the channel to be changed:.

 $[\rightarrow]$ The cursor moves to the data B setting area.

- $[\leftarrow]$ The cursor moves to the data A setting area.
- $[\downarrow]$ The cursor moves to the channel setting area 1 line below.
- [↑]The cursor moves to the channel setting 1 line above.
- 4) Six channels max. can be displayed on a screen.

When more than six channels are set for the positioning function, the screen can be scrolled up and down by pressing the $[\downarrow]$ and $[\uparrow]$ keys.

5) Set new data by pressing the [0] to [9] keys, and then press the [CR] key.

The cursor moves to the next setting area.

- 6) When all changes have been made, press the [ESC] key.
- (4) The present output state enable/disable is highlighted when the A61LS is offline at the top of the POS mode test function display.

Section 4.8.1 gives details about switching enable/disable.

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6. ROM MODE

This section explains how to write and read LS data to/from the ROM.

6.1 ROM Mode Functions

The functions in ROM mode are shown below.



6.2 Precautionary Items When Using the ROM Mode

- Only a 16 KROM should be installed in the A61LSPE.
 If any ROM other than a 16 KROM is installed in A61LSPE, that ROM could be destroyed.
- (2) Write, read, or verify four LS data programs in batch in ROM mode. Programs cannot be processed separately by designating program numbers.
- (3) Data in the internal memory of a peripheral device is written to a ROM in ROM mode.

Therefore, when writing data to the ROM, that data in the internal memory of a peripheral device must be set by using the DATA SET-TING mode or FDD mode.

6.3 Operations When an A6GPP is Used

This section explains how to read, write, verify, and execute erase checking when using an A6GPP.



Operation explanation

- (1) After reading the ROM mode menu, press the [1] to [4] keys to select a function, and then press the [CR] key.
- (2) When a function is executed by pressing the [Y] and [CR] keys, 32 * symbols are displayed on the screen. Then, whenever one Kbyte is processed, one * symbol is cleared.
- (3) When the execution has been completed, "COMPLETED" is displayed.

6.4 Operations When an A6HGP/A6PHP is Used

This section explains how to read, write, verify, and execute erase checking when using an A6HGP/A6PHP.

Basic operation	
	ROM mode menu - Operation using an A6WU - CAN

POINT

Connect the A6WU after displaying the ROM mode menu screen on a peripheral device.

If the peripheral device displays any other screen, even when the A6WU is connected, nothing will be displayed on the A6WU indicator.

Operation explanation

(1) When an A6HGP/A6PHP is used, the following screen is displayed by selecting ROM MODE ([F5]):

•	OPERA	TION
1	CONNECTION	OTHERS
2	FUNCTION	ERASE CHECK WRITE READ VERIFY
3	-AbE	27256 (16KROM)
4	ADDRESSONER	00000 H+ 07FFF H

(2) When executing ROM read, write, verify, and erase check, use the following procedure to operate the A6WU. (The A6WU Operating Manual gives details about executing these operations.)



(3) When a screen other than this screen is displayed, A6WU operations are disabled.

PC NOT RESPOND appears on the display screen of the A6WU. In addition, if an A6HGP/A6PHP screen is switched during A6WU processing, PC NOT RESPOND appears on the display screen of A6WU, and A6WU processing is interrupted.

(4) Pressing the [CAN] key after completing the A6WU processing returns the screen to the initial menu screen.

7. FDD MODE

This section explains how to write parameters, LS data, and POS data to a floppy disk, and how to read created data from a floppy disk, etc..

7.1 FDD Mode Functions

The FDD mode functions are given below.



7.2 Precautionary Items When Using the FDD mode

7.2.1 File name configurations

- (1) File names are absolutely necessary when writing data to a floppy disk and constitute a kind of floppy disk index.
- (2) File names are configured as follows: File name = system name.identifier
- (3) The system name is set by the user. Alphanumeric characters and the - (minus) symbol can be used for the system name. Eight characters max. can be set. (Spaces are not allowed.) Be sure to always use an alphabet letter as the first character of file name.
- (4) The identifier is used to identify the contents in the memory. When writing data to a floppy disk, the identifier is added automatically after the system name.

Identifier	Data Name
L61	Parameter dataLS dataPOS data

7.3 FDD Mode Common Operations

This section explains the common operations for each FDD mode function

7.3.1 Directory number designation



- After doing the directory operation by pressing the [F10] key (see Section 7.3.5), pressing the [F8] key returns the cursor to the directory number setting area when directory deletion is done.
- (2) Press the [0] to [9] keys to set the number of the system name or the file name to be set, and then press the [CR] key. The system name or the file name that corresponds to the set directory number is displayed in the system name setting area or the file name setting area.

7.3.2 Changing drives

DRIVE : SYSTEM NAME	← T A T C R
[B][]]	+B-+

- (1) When an FDD mode function has been selected, the system name setting area or the file name setting area shown is displayed, and the cursor appears in the setting area.
- (2) Select the drive for the floppy disk to which data is written by moving the cursor to the drive setting area by pressing the [←] key, and then press the [CR] key. The cursor returns to the system name designation area or the file name designation area.

7.3.3 System name setting



(1) The following keys are valid for setting the system name:

[Alphanumeric character], [-] (minus) The input character is displayed where the cursor is located.		
[→], [←]	Move the cursor.		
[BS], [DEL]	The character where the cursor is lo- cated is cleared, and the cursor moves one character to the left.		
[HOME/CLEAR]	All characters in the system name desig- nation area are cleared, and the cursor moves to the left hand edge of the area.		
(2) Eight characters max. can be used to set the system name.			
POINT			
The [SP] key cannot be used when designating the system name. An error occurs if a system name having a blank space caused by pressing the [→] key is set. Example AD57 - 1			
Blank space			

7. FDD MODE

7.3.4 Comment setting



- (1) When the system name setting has been completed, the comment setting area shown above is displayed.
- (2) The following keys are valid for the comment designation:

	ecial character] he input character is displayed where he cursor is located.	
[→], [←] Μ	ove the cursor.	
ca	he character where the cursor is lo- ated is cleared, and the curser moves ne character to the right.	
ca	he character where the cursor is lo- ated is cleared, and the cursor moves ne character to the left.	
ar	I the characters in the comment area e cleared, and the cursor moves to the ft hand edge of the area.	
20 characters may can be used for the comment setting		

(3) 20 characters max. can be used for the comment setting.

7.3.5 Directory operation

Basic operation		
	F10 F10 F10 File name setting Value when there are 15 or more file name Value when there are 15 or more file name Hereitaria	

Operation explanation

(1) When an FDD mode function has been selected, the directory display area indicated below is displayed on the right side of the screen.

FINCTION SELECTION >	<pre>< III FILE DIRECTORY > DRIVE : FILE NAME</pre>
1 DIRECTORY SELECTION	
2 READ	NO RUE NAME SECTOR COMMENT
3 WRITE	
4 VERIFY	
5 COPY	
6 DELETE	
NO.?	
	ļ
e setting area for each fu	unction is displayed. This is always displayed.

(2) When the directory operation has been completed, file names written to the floppy disk are read and displayed on the screen.

7. FDD MODE

- (3) After performing the directory operation, system names or file names can be set by using the directory number.
- (4) Whether or not to display the comment added to each file can be selected when reading a file by using the directory operation. Section 7.5 gives details about this option.
- (5) Press the [F10] key to execute the directory operation. The cursor moves to the file name setting area.
- (6) The directory operation can be used for the following:

Reading all the files in a floppy disk

Reading the file which corresponds to the set system name or the set identifier.

- (7) To read all the files in the floppy disk, press the [F10] key, and then press the [CR] key.
- (8) To read the file corresponding to the set system name or the set identifier, press the [F10] key, set the file name, and then press the [CR] key.
- (9) When setting the file name, set the system name and the identifier as shown below.

File name = system name.identifier (Section 7.2.1 gives details about identifiers.)

- (10)File names can be set in batch by using the * as shown below.
 - 1) To read all files that have the same system name but different identifiers
 - System name.*

Example ABC. PMA] To read both files

- on the left . . .ABC. * ABC, L61
- 2) To read all files that have the same identifier Identifier Ex

ample	ABC. L61 BCD. L61	To read both files		
	CDE. L61	on the left*. L61		

3) To read all files that have similar system names System name. identifier

* is placed where the differences are

> Example ABC-1. L61) To read both files ABC-2. L61 on the left . . . ABC-*. L61 ABC-3. L61

- (11)15 file names max. can be displayed on a screen by using a directory operation. When there are 15 or more file names, press the following keys.
 - [+] The next 15 file names are displayed.

- (12)To change the file name after pressing the [+] key or the [-] key, press the [F10] key again.
- (13)Press the [F8] key to cancel the directory operation.
7.4 FDD Mode Menu Selection

This section shows how to display a desired setting screen from the FDD mode menu screen.



- To select a function from the FDD mode menu screen, press the corresponding [1] to [6] key, and then press the [CR] key to define it.
- (2) The screens shown below are displayed for each number.



7. FDD MODE

7.5 Directory Setting

This sets whether or not to display the comment added to each file when performing the directory operation.



Operation explanation

(1) When [1], [CR] (DIRECTORY SELECTION) is selected in the FDD mode menu, the following screen is displayed:



- [1], [CR] ... When performing the directory operation, the comment and the sector number are also displayed in addition to the file name.
- [2], [CR] ... When performing the directory operation, only the file name is displayed.
- (2) Directory selection is valid until the power supply of the peripheral device is turned OFF or reset.
- (3) When starting up the power supply of the peripheral device, select "2 FILE NAME-SECTOR-COMMENT".

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7.6 Reading From a Floppy Disk

This section shows how to read parameter data, LS data, and POS data written to a floppy disk to the internal memory of peripheral device.



Operation explanation

(1) When [2], [CR] (READ) is selected on the FDD mode menu screen, the following screen is displayed:



- (2) There are two ways to set the system name in the reading function.
 - Setting by directory number
 - Setting by system name
- (3) The cursor is displayed in the following locations:
 - When the directory operation was not done . . . system name setting area
 - When the directory operation was done . . . directory number setting area
- (4) Setting the directory number
 - 1) The directory number can be set after the directory operation has been completed.
 - 2) When the directory number is set, the file name that corresponds to the set number is displayed in the system name setting area, and the comment added to the file name is displayed in the comment display area.
 - 3) When directory number setting has been completed, the reading data selection message shown in (6) on the next page is displayed.

- (5) When reading by using system name setting, set a system name that is identical to the system name used when the file was written to the floppy disk. The comment added to the set file is displayed in the comment setting area, and the reading data selection message shown in (6) on the next page is displayed.
- (6) When the directory number setting or the system name setting has been completed, the reading data selection message shown below is displayed.

Selecting reading data makes it possible to read only the set data from the set file in the internal memory of the peripheral device.



- (7) Select the data to be read to the internal memory of the peripheral device by pressing the [1] to [5] keys, and then press the [CR] key.
- (8) When [1] to [4] is selected, the execution confirmation message shown below in (10) is displayed.
- (9) When [5] is selected, the following setting areas are displayed:

LS DATA EDITT	ING
	PROGRAM No. (1 TO 4)
FROM (FD)	
TO (MEMORY)	

- 1) Set the program number of the LS data written to the floppy disk as the source program number.
- 2) Set the program number where the LS data will be written to the internal memory of the peripheral equipment as the destination program number.
- 3) The data in the program that has the program number set as the source program number is read to the program that has the program number set as the destination program number.
- When the destination program number setting has been completed, the execution confirmation message shown in (10) below is displayed.
- (10)When all settings have been completed, the following message is displayed to confirm the setting:

EXECUTE? ([Y] / [CAN])

[Y] Set data from the floppy disk is read.

[CAN] Set data from the floppy disk is not read and the cursor returns to the setting area.

7. FDD MODE

7.7 Writing To a Floppy Disk

This section explains how to write parameter data, LS data, and positioning data in the internal memory of peripheral device to a floppy disk.



Operation explanation

(1) When [3], [CR] (WRITE) is selected on FDD mode menu screen, the following screen is displayed:

<[F8] WRITE> DIRECTORY №. [1	
DRIVE : SYSTEM NAME [B] [, ≣]	
COMMENT [1	

- (2) There are two ways to set the system name in the writing function.
 - Setting by directory number
 - Setting by system name
- (3) The cursor is displayed in the following locations:
 - When the directory operation was not done
 system name setting area
 - When the directory operation was done . . . directory number setting area
- (4) Setting by directory number
 - 1) The directory number can be set after the directory operation has been completed.
 - 2) When the directory number is set, the system name that corresponds to the set number is displayed in the system name setting area, and the cursor moves to the comment setting area. When a comment is added to the set file, the comment is also displayed in the comment setting area.
 - 3) When writing to the floppy disk has been completed by setting the directory number, new data is overwritten to the existing file.

- (5) Setting by system name
 - 1) When writing to the floppy disk has been completed by setting the system name, the system name can be set arbitrarily.
 - 2) When a system name identical to the set system name is already in the floppy disk, "SYSTEM NAME ALREADY USED" is displayed.

When writing to the same system name has been completed, new data is overwritten to the existing file.

- 3) When the system name setting has been completed, the cursor moves to the comment setting area.
- (6) When comment setting has been completed, the following message is displayed to confirm the setting:



- [Y], [CR] ... Data in the internal memory in the peripheral device is written to the floppy disk.
- [CAN] Data is not written to the floppy disk and the cursor returns to the setting area.

7.8 Verifying Using the Floppy Disk

Data written to a floppy disk and data in the internal memory of peripheral device are verified.



Operation explanation

(1) When [4], [CR] (VERIFY) is selected on the FDD mode menu screen, the following screen is displayed:

<[F8] VERIFY> DIRECTORY №. [1			
DRIVE : SYSTEM NAME [B] [•]		
COMMENT []	

- (2) There are two ways to set the system name in the verifying function.
 - Setting by directory number
 - Setting by system name
- (3) The cursor is displayed in the following locations:
 - When the directory operation was not done . . . system name setting area
 - When the directory operation was done . . . directory number setting area
- (4) Setting by directory number
 - 1) The directory number can be set after the directory operation has been completed.
 - 2) When the directory number is set, the system name that corresponds to the set number is displayed in the system name setting area.

When a comment is added to the set file, the comment is also displayed in the comment setting area.

 When setting the directory number has been completed, the execution confirmation message shown in (6) on the next page is displayed.

- (5) Setting by system name
 - The system name of a file in which data to be verified is written is set in the system name setting. When a comment is added to the set system name, the comment is also displayed in the comment display area.
 - 2) When the system name setting has been completed, the execution confirmation message shown in (6) on the next page is displayed.
- (6) When directory number setting or system name setting has been completed, the following message is displayed to confirm the setting:

EXECUTE? ([Y] / [CAN])

- [Y], [CR] ... Data in the internal memory of the peripheral device is written to the floppy disk.
- [CAN] Data is not written to the floppy disk and the cursor returns to the setting area.
- (7) When verifying has been completed normally, "COMPLETED" is displayed. When data in the floppy disk and data in the internal memory of the peripheral device do not match, "VERIFY ERROR" is displayed.

7.9 Copying a Floppy Disk

7.9.1 In the case of an A6GPP

Data written to a floppy disk is copied to the same floppy disk or another floppy disk.

Basic operation	
Copy selection operation After the directory operation After the directory operation Copy source directory No. setting CR	Ptting]CR Copy destination Image: Copy destination System name setting Image: Copy destination Image: Copy destination Image:
[Floppy disk batch copy operation] (drive A to dr	ive B)
CAN	
[Directory operation] (Section 7.3.5 gives details	.)
F10 File designation	POINT Directory operation by pressing the [F10] key is always valid.

Operation explanation

(1) When [5], [CR] (COPY) is selected on the FDD mode menu screen, the following screen is displayed:



- (2) Copying can be done with the following FDD combinations:
 - 1) FDD [A] \rightarrow FDD [B]
 - 2) FDD [B] \rightarrow FDD [A]
 - 3) FDD [A] \rightarrow FDD [A] (Copying to the same floppy disk)
 - 4) FDD [B] → FDD [B] (Copying to the same floppy disk)
- (3) When copying using two FDDs as indicated in 1) and 2) of (2) above, the system name of the copy source and the system name of the copy destination can be the same.
 When copying to the same floppy disk as indicated in 3) and 4) of (2) above, the system name of the copy source and the system name of the copy destination must be different. An error occurs if the same system name is set for both.

(4) Press the [F9] key to copy all the data in one floppy disk to another floppy disk.

Copying of all data can only be done only with the operatation shown in 1) of (2) on the previous page.

POINT

The A61LSPE floppy disk cannot be copied. If copying is attempted, the operation will be completed. However, peripheral device cannot be started up using the copied floppy disk.

- (5) There are two ways to set the copy source file and the copy destination file.
 - 1) Setting by directory number
 - 2) Setting by system name
- (6) Setting by directory number
 - 1) The directory number can be set after the directory operation has been completed.
 - 2) When the directory number is set, the system name that corresponds to the set number is displayed in the system name setting area.

When a comment is added to the set file, the comment is also displayed in the comment setting area.

- 3) When the destination file is set using the directory number, the data in the source file is overwritten to the existing file.
- (7) Setting by system name
 - 1) Set the system name of a file already written to the floppy disk as the system name of the copy source.
 - Any system name can be set as the system name of the copy destination.
 - When a system name identical with the system name of the set destination file already exists in the floppy disk, "SYSTEM NAME ALREADY USED" is displayed.
 When writing to the same system name has been completed, new data is overwritten to the existing file.
- (8) When setting of the copy source file and the copy destination file has been completed, the execution confirmation message indicated below is displayed.

EXECUTE? ([Y] / [0	CAN])
[Y], [CR]	Data in the source file is copied to the destination file.
[CAN]	Data in the source file is not copied and the cursor returns to the setting area.

7.9.2 In the case of an A6PHP/A6HGP

The contents of the copy source floppy disk are copied in batch to the copy destination floppy disk.



Operation explanation

POINTS
(1) Be sure to always use a formatted floppy disk as the floppy disk (copy destination floppy disk) to which data is written. Unformatted floppy disks cannot copy data.
(2) Before performing the copy operation, Be sure to always store all data in the internal memory of the A6PHP/A6HGP to other floppy disks. When the copy operation has been completed, all data in the inter-

(3) The A61LSPE floppy disk cannot be copied. If copying is attempted, the operation will be completed. However, the A6PHP/A6HGP cannot be started up using the copied floppy disk.

nal memory of the A6PHP/A6HGP is cleared.

 Select the copy function on the FDD mode initial screen. Insert the A61LSPE floppy disk into the FDD, and then press the [Y], [CR] keys. When the copy function has been loaded from the A61LSPE floppy disk, the screen shown below is displayed.



- (2) Insert the floppy disk from which data is to be copied (SOURCE FD) into the FDD, and then press the [CR] key.
- (3) The following message is displayed while reading from the source floppy disk (SOURCE FD) is being executed.

7. FDD MODE

 (4) When reading from the source floppy disk has been completed, the following message is displayed: Insert the destination floppy disk (DESTINATION FD) into the FDD.

and then press the [CR] key.

INSERT COPY SOURCE FD INTO DRIVE, AND PRESS [CR].

(5) The following message is displayed while writing to the destination floppy disk (DESTINATION FD) is being executed:

Writing TRACK = [][][]



(6) When writing and verifying has been completed, the screen returns to the screen shown in (1) above, and "COMPLETED" is displayed in the message area.

7. FDD MODE

7.10 File Deletion

This section shows how to delete unnecessary files from a floppy disk)



Operation explanation

(1) When [6], [CR] (DELETE) is selected on the FDD mode menu screen, the following screen is displayed:

<[F8] DELETE>					
DIRECTORY No.	ſ]			
DRIVE : FILE NAME [B] [COMMENT []]	

- (2) There are two ways to set the system name in the deletion function.
 - Setting by directory number
 - Setting by system name
- (3) The cursor is displayed in the following locations:
 - When the directory operation was not done .. system name setting area
 - When the directory operation was done directory number setting area
- (4) Setting by directory number
 - 1) The directory can be set after the directory operation has been completed.
 - When the directory number is set, the file name that corresponds to the set number is displayed in the system name setting area. When a comment is added to the set file, the comment is also displayed in the comment display area.
 - 3) When directory number setting has been completed, the execution confirmation message shown in (7) on the next page is displayed.

- (5) Setting by system name
 - 1) The file name from which data is to be deleted is set in the system name setting.

File name = system name.identifier

- 2) When a comment is added to the set file, the comment is displayed in the comment display area.
- 3) When the file name setting has been completed, the following execution confirmation message shown in (7) is displayed.
- (6) File names to be deleted can be set in batch by using the * as shown below.
 - 1) To delete all files that have the same system name but different identifiers

System name. * Example ABC. L61

ABC. LOT ABC. PMA

 \succ To delete both files on the left . . . ABC. *

2) To delete all files that have the same identifier
 *. Identifier
 Example ABC, L61

ample	ABC.	L61
	BCD.	L61
	CDE.	L61

To delete all files on the left . . . *. L61

3) To delete all files that have similar system names System name. identifier

L	Example
*** is placed where the differences are	p.o

ABC-1. L61 ABC-2. L61 ABC-3. L61	To delete all files on the left ABC-*. L61
--	---

- 4) To delete all files in the floppy disk
- (7) When directory number setting or file name setting has been completed, the following message is displayed to confirm the setting:

EXECUTE? ([Y] / [(CANJ)
[Y], [CR]	All files in the floppy disk are deleted.
[CAN]	All files in the floppy disk are not deleted and the cursor returns to the setting area.

The PRINTER mode is used to enable a printer to print parameter data, LS data, and POS data in the internal memory of a connected peripheral device.

8.1 PRINTER Mode Functions

The functions in PRINTER mode are shown below.



8.2 Precautionary Items When Using the PRINTER Mode

 When using a printer, be sure to set the printer after turning ON or resetting the power to a connected peripheral device. Therefore, the printer must be set.

Once printer setting has been done, it needs not be made again since setting contents are stored in memory unless the power to the peripheral device is turned off or the peripheral device is reset.

(2) The printer must be set beforehand when executing screen copy of a connected peripheral device.

The following printers can execute screen copy:

K6PR	
K6PR-K	
K7PR	
A7PR	

(3) When using a GT-10 printer in PRINTER mode, set GT-10A (0LD). When using a GT-10A1 printer, set GT-10A (NEW).

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8.3 Printer Setting

	This section explains how to set a printer connected to a peripheral devic	e.
Basic operation		
F7 1 CR 1 CR Select (KEPR PICA)		Printout data setting
Select PRINTER MODE. (KSPR PICA) (KSPR ELITE)		
	Baud rate CR-Paper length CR-Printing start CR-Y CR-	
	CAN	
6 CR 4	Paper length CR Printing start CR Y CR	
	CAN	
7 CR (GT-10A1 (NEW))		
8 CR (GT-10A (OLD))		
	Baud rate CR Parity CR Character length/]CR Paper length CR Printing start CR Y CR	

Operation explanation

(1) After selecting PRINTER MODE, press the [1] and [CR] keys to enable the printer setting function, and then the following screen is displayed:



- (2) If the power supply to a connected peripheral device has not been turned OFF or reset, the printer setting is valid. Therefore, the operations given in Section 8.4 can be executed by using the [2] and [CR] keys after selecting PRINTER MODE.
- (3) When executing screen copy of a peripheral device, it is necessary to set an external printer by using printer setting.
- (4) When [1] to [4], [7], or [8] is selected in the printer selection, the communications mode is automatically set beforehand, and the screen moves to the operations given in Section 8.4.

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(5) When [5], [6], or [9] is selected in the printer setting, the following communications mode setting areas are displayed on the screen:

1)	When K7PR ([5] and [CR])— is selected	Baud rate setting area
		Start position setting area
2)	When A7PR ([6] and [CR])	Sheet setting area
	is selected	Start position setting area
3)	When OTHER ([9] and —	Baud rate setting area
	[CR]) is selected	Parity setting area
		Character-string length and stop bit setting area
		Sheet setting area
		Start position setting area
	[Baud rate setting] (When K7	PR or OTHER is selected)

Set the communication speed of the printer. When K7PR is selected:

- [1] ... Select this when the communication speed of the K7PR is 2400 BPS.
- [2] ... Select this When the communication speed of the K7PR is 9600 BPS.

When OTHER is selected:

- [1] ... Select this when the communication speed of the other printer is 300 BPS.
- [2] ... Select this when the communication speed of the other printer is 600 BPS.
- [3] ... Select this when the communication speed of the other printer is 1200 BPS.
- [4] ... Select this when the communication speed of the other printer is 2400 BPS.
- [5] ... Select this when the communication speed of the other printer is 4800 BPS.
- [6] ... Select this when the communication speed of the other printer is 9600 BPS.

[Parity setting] (When OTHER is selected)

Set with/without parity check.

- [1] ... Without parity check is set.
- [2] ... Even parity check is set.
- [3] ... Odd parity check is set.

[Character-string length and stop bit setting] (When OTHER is selected)

Set the character-string length and the stop bit of send data.

- [1] ... Character-string length 7 & stop bit 1
- [2] ... Character-string length 7 & stop bit 2
- [3] ... Character-string length 8 & stop bit 1
- [4] ... Character-string length 8 & stop bit 2

[Paper length setting]

Set the length (distance between perforated lines) of the paper used in the printer.

- [1] ... Select this when using sheets of 11 inches (27.94 cm) length.
- [2] ... Select this when using sheets of 12 inches (30.48 cm) length.
- [3] ... Select this when using sheets of 16 inches (40.64 cm) length.

[Printing start position setting]

Set the printing start position of each line.

[0]	
to	
[9][9]	

- Printing starts at the set number of characters
 to the right of the printer head position.
- (6) When setting of the communications mode has been completed, the following message is displayed to confirm the setting:

SET PRINTER? ([Y] / [CAN])

- [Y], [CR] ... Setting is completed, and the screen moves to the printout data setting operation given in Section 8.4.
- [CAN] The cursor returns to the communications mode setting area.

8.4 Printout Data Setting

This Section explains the operations from selecting the data to be printed until printing is actually started.



Operation explanation

- (1) After selecting the PRINTER mode, the screen is switched to the operation of printout data setting screen by pressing the [2] and [CR] keys or executing the printer setting.
- (2) In printout data setting, the screen is switched to the operation to set the printing of each printout data by pressing the [1] to [4] keys.
- (3) {PRINT TITLE}
 - 1) In printout data selection, the following screen is displayed by pressing the [1] and [CR] keys (PRINT TITLE):



- 2) Because, with PRINT TITLE printing, the title of printed each data item is printed, each data item should be filed.
- 3) Set in the order of system name and comment.
- 4) [System name setting] Create an eight-character max. title to be printed by using alphanumeric character keys and the [-] (minus) key. When a system name that is the same as that registered in a floppy disk is set, the contents written to the floppy disk can be understood at a glance.
- 5) [Comment setting] 20 characters max. comments can be set by using alphanumeric characters and special characters.

6) When comment setting has been completed, the following message is displayed to confirm execution:

EXECUTE? ([Y] / [CAN])

[Y], [CR] ... The print title is printed.

[CAN] The print title is not printed and the cursor returns to the system name setting area.

(4) {PARAMETER & POS DATA}

1) In printout data selection, the following screen is displayed by pressing the [2] and [CR] keys (PARAMETER & POS DATA).

PAGE [1] (0 TO 99999)

- 2) Parameter data and POS data in the internal memory of a peripheral device are printed.
- 3) Set only printing page.
- 4) [PAGE]

Since the number of pages is printed on the final line of a sheet to be printed, file management is easy. The allowable setting range is 0 to 99999.

5) When the printing page setting has been completed, the following message is displayed to confirm execution:

EXECUTE? ([Y] / [CAN])

[Y], [CR] ... Parameter data and POS data are printed.

[CAN] Parameter data and POS data are not printed and the cursor returns to the printing page setting area.

POINT

If a positioning function channel is not parameter-set, only parameter data is printed.

When parameter data printing has been completed, POS MODE CH. NOTHING is displayed in the message area, and the printing is completed.

- (5) {LS DATA (SELECT)}
 - 1) In printout data selection, the following screen is displayed by pressing the [3] and [CR] keys (LS DATA (SELECT)):

PROGRAM №.	[1] (1 TO 4)
START POINT	[0] (0 TO 4095)
FINAL POINT	[4095] (0 TO 4095)
PAGE	[] (0 TO 99999)

- 2) Designated LS data in the range of the internal memory of a peripheral device is printed.
- 3) Set in the order of PROGRAM No., START POINT, FINAL POINT, and PAGE.

 4) [PROGRAM No.] Set the program number in which data to be printed is stored. The allowable setting range is 1 to 4.

- 5) [START POINT] Set the head address in the range of data to be printed in the program number set in 4). The allowable setting range is 0 to 4095.
- 6) [FINAL POINT]
 Set the final address in the range of data to be printed in the program number set in 4).
 The allowable setting range is 0 to 4095.
 However, set the address after 5) START POINT.
- 7) [PAGE] Since the number of pages is printed on the final line of a sheet to be printed, file management is easy. The allowable setting range is 0 to 99999.
- 8) When changing setting, use the [1] key tomove the cursor to the setting area whose data is top be changed , and the reset the data.
- 9) When the printing page setting has been completed, the following message is displayed to confirm execution:

EXECUTE? ([Y] / [CAN])

[Y], [CR] ... The designated range of LS data is printed.

[CAN]LS data is not printed and the cursor returns to the printing page setting area.

- 10) Item (9) gives the details of print format of LS data.
- (6) {LS DATA (ALL)}
 - 1) In printout data selection, the following screen is displayed by pressing the [4] and [CR] keys (LS DATA (ALL)):

PAGE [1] (0 TO 99999)

- 2) Parameter data and POS data in the internal memory of a peripheral device are printed.
- 3) Set only printing page.

 4) [PAGE] Since the number of pages is printed on the final line of a sheet to be printed, file management is easy. The allowable setting range is 0 to 99999.

5) When the printing page setting has been completed, the following message is displayed to confirm execution:

EXECUTE? ([Y] / [CAN])

[Y], [CR] ... All LS data is printed.

[CAN] LS data is not printed and the cursor returns to the printing page setting area.

- 6) 9) explains how to print LS data.
- (7) During printing, the following message is displayed, and EXECUTING is displayed in the message area:



By pressing the [ESC] key, the message in the is displayed. Press the [ESC] key to interrupt execution. Press the [CR] key to continue the operation. Press the [BREAK] key to stop the operation. When printing out has been interrupted, only the [CR] and [BREAK] keys can be used.

- (8) When printing has been completed normally, "COMPLETED" is displayed in the message area.
- (9) Printing of LS data is done as follows. The addresses where the ON/OFF data of each channel will be changes from OFF to ON or ON to OFF are searched, and the ON/OFF states of channels at the addresses is printed by 1/0. Example: When ON/OFF data is set as follows:



Printing example						
POINT	CHANNEL	0	1	2	3	4
0		0	0	0	0	0
5		0	1	Ō	ŏ	ŏ
13		1	1	Ó	Ő	Ō
21		1	1	1	Ó	Ō
29		1	0	1	0	0
34		1	0	1	1	0
50		0	0	1	1	Ō
60		0	0	1	0	Ō
				~~		
				•		-
ON/OFF change a	ddress		0	N/OFF (0: OFI 1: ON	F	

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(10)Printout examples (Printer setting: K6PR (PICA))

1) PRINT TITLE printing

Setting conditions

SYSTEM NAMEA61LS

*	* * * * * * * * * * * * * * * * * * *	* * *
*		*
* SYSTEM NAME	: AGILS L EDITED	*
* * * * * * * * * * * * * * * * * * *		*

2) PARAMETER & POS DATA printing

Setting conditions

PAGE 1

• Parameter printing

_ F F	RAMETER >				
			DATA	RANGE	
1	RESOLVER TURN DIRECTION		DATA	0:CW 1:CCW	
1 2			-		
-	PERMIT		300	0 ~ 4095	
3	CONTROL-OUT MODE		,	[COMMENT]
	CHANNEL	0	POS	{HIGH SPEED SIGNAL	}
	CHANNEL	1	POS	[MEDIUM SPEED SINGAL	}
	CHANNEL	2	POS	[LOW SPEED FORWARD]
	CHANNEL	3	POS	[LOW REVERSE]
	CHANNEL	4	LS	[LIMIT 1]
	CHANNEL	5	LS	[LIMIT 2]
	CHANNEL	6	LS	[LIMIT 3]
	CHANNEL	7	LS	[LIMIT 4]
	CHANNEL	8	LS	[LIMIT 5]
	CHANNEL	9	LS	[LIMIT 6	1
	CHANNEL	A	LS	[LIMIT 7]
	CHANNEL	в	LS	[LIMIT 8	}
	CHANNEL	с	LS	[LIMIT 9]
	CHANNEL	D	LS	Γ.]
	CHANNEL	Е	LS	C]
	CHANNEL	F	LS	ſ]
1	CW CORRECT VALUE		1000	0 ~ 4095	
5	CCW CORRECT VALUE		1100	0 ~ 4095	
5	CORRECTED VALUE TOLERANCE		4095	0 ~ 4095	

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						SYSTEM	NAME	: A61L8
: I	POS DATA	A >						
[CHANNEL	DATA A	DATA B	F	RANGE			
	0	300	750	0	~ 4095			
	1	100	150					
	2	4095	2					
	3	5	4095					

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3) LS DATA (SELECT)

Setting conditions

Program No.1

START POINT0

FINAL POINT 4095

PAGE1

	DATA >												1	: ON	0 : 0
PROGRAM	NO. 1														
POINT	CHANNEL	4	5	6	7	8	9	A	в	с	D	Е	F		
0 5 25 50 100		0 1 1 1	1 1 0 1	0 0 1 1	1 1 1 1	0 0 0 0	1 0 0	000000	1 1 1 1	00000	1 1 1 1	00000	1 1 1 1		
150 160 300 342 400		00000	0 0 1 1 0	1 1 0 0	1 1 1 1	0 0 1 1 1	0 1 1 0	000000000000000000000000000000000000000	1 1 1 1	00000	1 1 1 1	000000000000000000000000000000000000000	1 1 1 1		
500 600 800 1000 1024		00000	0 0 1 1 1	000000	11110	1 0 0 0	00011	1 1 1 0	1 1 1 0	00001	1 1 1 1	0 0 0 0	1 1 1 1		
1050 1200 1500 1600 1687		1 1 1 1 1	1 0 0 0	0 0 1 0	0000000	0000000	1 1 1 1 0	0000000	0000000	1 1 1 1	1 1 1 1 1 1	000000000000000000000000000000000000000	1 -1 1 1		
2000 2048 2400 2500 2800		1 1 1 1 1 1	1 1 1 0 0	000001	0 1 1 1	000000	0 0 1 1	00000	0 1 1 1 1	10000	10000	000000	1 0 0 0		
3000 3050 3072 3200 3500		000000000000000000000000000000000000000	1 0 0 0 1	1 1 1 0 0	1 1 0 0	0 0 0 0 1	00001	000000	1 1 0 0	00000	00000	000000	000000		
3678 3800 3890 4000		0 0 0 0	1 1 1 0	0 0 0 1 1	00000	0 1 1 0	1 1 0 0	0 0 1 1	0 0 0 0	0000	0 0 0	0000	00000		
4095		ō	ŏ	ī	ŏ	ŏ	ŏ	ī	ŏ	ŏ	ŏ	ŏ	ŏ		

4) LS DATA (ALL)

Setting conditions

PAGE 1

													SYSTEM N	AME :	A61LS
< LS PROGRAM	DATA > NO. 1												1 : 0	ON	0:0
POINT	CHANNEL	4 0	5	6 0	7	8 0	9	A	B	с 0	D	E	F		
0 55 50 100		1 1 1 1	1 1 0 1	0 0 1 1	1 1 1 1	0 0 0	1 0 0	00000	1 1 1 1	00000	1 1 1 1	00000	1 1 1 1		
150 160 300 342 400		00000	0 0 1 1 0	1 0 0	1 1 1 1	0 0 1 1 1	0 1 1 0 0	00000	1 1 1 1	00000	1 1 1 1	00000	1 1 1 1		
500 600 800 1000 1024		00000	0 0 1 1	000000	1 1 1 0	1 0 0 0	0 0 1 1	1 1 1 0	1 1 1 0	0 0 0 1	1 1 1 1	00000	1 1 1 1		
1050 1200 1500 1600 1687		1 1 1 1	1 0 0 0	0 0 1 0	000000	000000	1 1 1 0	000000	0 0 0 0	1 1 1 1	1 1 1 1	00000	1 1 1 1		
2000 2048 2400 2500 2800		1 1 1 1	1 1 0 0	0 0 0 1	0 1 1 1	0000000	0 0 1 1 1	000000	0 1 1 1	1 0 0 0	1 0 0 0	00000	1 0 0 0 0		
3000 3050 3072 3200 3500		000000	1 0 0 1	1 1 1 0	1 0 0	00001	0 0 0 1	000000000000000000000000000000000000000	1 1 0 0	000000000000000000000000000000000000000	000000000000000000000000000000000000000	00000	0 0 0 0 0		
3678 3800 3890 4000 4095		00000	1 1 1 0 0	0 0 0 1 1	000000	0 1 1 0 0	1 1 0 0 0	0 0 0 1 1	000000000000000000000000000000000000000	0000000	000000000000000000000000000000000000000	0000000			

This section shows the error messages displayed on the lower left hand side of the screen when operating a peripheral device.

· · · · · · · · · · · · · · · · · · ·			Displ	ay Mod	les				
Error Messages	DATA READ/ WRITE	DATA SETT- ING	MONI- TOR	TEST	ROM	FDD	PRINT- ER	Descriptions	Corrective Actions
A61LS ON-LINE				ο				When executing an offline operation, the A61LS is in the online state.	Turn OFF Y10 of the A61LS so that the A61LS goes into the offline state.
ADDRESS SETTING ERROR					ο			When operating the ROM by connecting an A6WU to an A6PHP/A6HGP, an address of the A6WU was set outside the range of 0 to 07FFFH	Set the address within the range of 0 to 07FFFH.
COMMENT MISMATCH						0		When comment data (set at parameter) of each channel is mismatched in FDD mode.	Data other than comment data is normal. Check the contents of the comment data.
	ο	ο	ο	0				Data communications is attempted when the peripheral device is not connected to an A61LS. Connection between the peripheral device and an A61LS is faulty.	 Check the A61LS and cable connection. Turn PC supply ON.
								Data communication is operated when a peripheral device is connected to the module other than an A61LS.	Connect the peripheral device to an A61LS correctly, and execute data communications.
CONNECTION ERROR	ο	ο	ο	0				Data communications is operated when the peripheral device is connected to a module other than an A61LS.	Connect the peripheral device to an A61LS correctly, and execute data communications.
DISK FULL		ο				0		The number of files in the floppy disk was more than 128 when writing to a floppy disk.	Replace the floppy disk or delete unnecessary files.
FILE MISSING		ο				0		A designated file does not exist in a floppy disk.	Perform the directory operation and set the correct system name or file name.

			Displ	ay Mod	les				
Error Messages	DATA READ/ WRITE	DATA SETT- ING	MONI- TOR	TEST	ROM	FDD	PRINT- ER	Descriptions	Corrective Actions
								The set file name is incorrect.	Set the correct file name.
FILE NAME ERROR		o				ο		• A character other than alphanumeric and - (minus) is used.	
								 The file name contains a blank. 	
								• The first character of the file name is not an alphabet letter.	
FLOPPY DISK ERROR		0				0		The floppy disk is not inserted or is faulty.	Insert or replace the floppy disk.
LS ENABLE (Y*2) ON								The limit switch function start signal (Y12) is ON when writing parameter data and LS data to the A61LS. Or it goes ON during writing.	Turn OFF the positioning start signal (Y11) and limit switch function start signal (Y12) when writing parameter data and LS data to the A61LS.
LS MODE CH. NOTHING		ο					ο	The following operations were attempted when the LS mode channel was not parameter- set.	Parameter-set the LS mode channel.
								 Setting of LS data Printout of LS data 	
								• Printout of LS data When changing the	Set the correct
LS PROGRAM NO. ERROR				0				LS program number during offline operations, a program number other than 1 to 4 was set.	program number in the A61LS.
MORE THAN 10 ERRORS	ο							When data is verified, the number of mismatched data exceeds 10.	Correct the mismatched data.
OPERATOR ERROR	0	ο	0	ο	0	0	ο	Incorrect key operation was performed.	Perform correct key operation.
PARAMETER NO SET			-	ο				A position correct operation was attempted when parameters were not set at an A61LS.	Set parameters at the A61LS.

			Displ	ay Mod	es				
Error Messages	DATA READ/ WRITE	DATA SETT- ING	MONI- TOR	TEST	ROM	FDD	PRINT- ER	Descriptions	Corrective Actions
POS ENABLE (Y*1) ON	o							The positioning start signal (Y11) was ON when writing parameter data and LS data to the A61LS. Or it went ON during writing.	Turn OFF the positioning start signal (Y11) and limit switch function start signal (Y12) when writing parameter data and LS data to the A61LS.
POS MODE CH. NOTHING		0		Ο			o	The following operations were attempted when the POS mode channel was not parameter- set. • Setting of POS data • Change of POS data in the test mode • Printout of POS data	Parameter-set the POS mode channel.
PRINTER NOT SET							ο	Printout was attempted without setting a printer.	Set a printer.
READ ERROR		ο				0		Data cannot be read from the floppy disk.	Change the drive and retry. Check that different file names can be read.
ROM NOT ERASED					0			Something is written in an installed ROM when writing to ROM or executing erase check.	Replace with a cleared 16 KROM, or clear the contents of the installed 16 KROM.
ROM SELECT	ο	ο		ο				A 16 KROM is installed in an A61LS when writing LS data to an A61LS.	Install a 16 KRAM and set the setting pins to RAM.
	ο	ο	ο	0	ο	0	0	Data is set out of the setting range.	Set data within the range.
SETTING ERROR						ο		Drive and system name of a floppy disk for copy destination are same as those for copy source when an A6GPP is used.	Copying cannot be executed by setting the same system name in the same floppy disk.
SYSTEM DISK ERROR			_					The system floppy disk is faulty when starting up the peripheral device. A system floppy disk copied by batch copy function is used.	Replace the system floppy disk and start it up again. A system floppy disk copied by batch copy function cannot be used.
SYSTEM NAME ALREADY USED		ο				0		The set system name file is already in the floppy disk.	Change the system name when not overwriting to the same file.

			Displ	ay Mod	es				
Error Messages	DATA READ/ WRITE	DATA SETT- ING	MONI- TOR	TEST	ROM	FDD	PRINT- ER	Descriptions	Corrective Actions
								The set system name is incorrect.	Set a correct system name.
SYSTEM NAME ERROR		o				0	0	• Character other than alphanumeric and - (minus) were used.	
LINON								 The system name contains a blank. 	
								 The first character of the system name is not an alphabet letter. 	
TIME CHECK OVER	ο	ο	ο	0				Data communications became impossible when communicating with an A61LS.	Operate the peripheral device again. And, if data communications cannot be done, reset a PC CPU.
VERIFY ERROR					ο	ο		The verify function in ROM mode and FDD mode detects differences between data in the internal memory of the peripheral device and that in the ROM or FD.	Check the data contents.
WRITE PROTECT		ο				ο		The floppy disk write- protect tab was set to write-disabled when executing writing to a floppy disk or clearing.	Set the write-protect tab to write-enabled.
	ο		· .	ο				The 16 KROM installed in the A61LS is faulty, or a 16 KROM is not installed in the A61LS.	Install or replace the 16 KROM.
WRITE-IN ERROR		ο				0		The capacity of the floppy disk was exceeded when data was written to a floppy disk.	Replace the floppy disk or delete unnecessary files.
					0			Writing to ROM was attempted without installing a 16 KROM in the peripheral device. Or the 16 KROM is faulty.	Install or replace the 16 KROM.
WRITE-IN FORBIDDEN	0			0				Data is written to the A61LS when the WRITE IN CPU switch of the peripheral device is set to FORBID.	Set the WRITE IN CPU switch to PERMIT.

			Displ	ay Mod	es				
Error Messages	DATA READ/ WRITE	DATA SETT- ING	MONI- TOR	TEST	ROM	FDD	PRINT- ER	Descriptions	Corrective Actions
WRONG KEY		0				ο	ο	An unusable character was input to the system name or file name.	Input the system name or file name by using available characters.

APPENDICES

APPENDIX 1 PROCESSING TIME

The following tables show the processing time in DATA READ/WRITE mode, ROM mode, FDD mode, and PRINTER mode.

(1) DATA READ/WRITE mode

Items	Functions	Read	Verify	Write
Parameter data		1 sec	1 sec	1 sec
Positioning (POS) data	1 sec	1 sec	1 sec
Limit switch function (LS) Select (0 to 4095)		29 sec	29 sec	32 sec
data	Batch	1 min 54 sec	1 min 54 sec	2 min 5 sec
All data		1 min 56 sec	1 min 56 sec	2 min 6 sec

(2) ROM mode

Functions Models	Read	Write	Verify	Erase Check
A6GPP	2 sec	2 min 17 sec	2 sec	2 sec
A6PHP A6HGP —— A6WU	59 sec	3 min 20 sec	1 min 3 sec	14 sec

(3) FDD mode

Functions			Read							
	All Para- POS		LS data		Write	Verify	One			
Models	data	meter data	data	Batch	Edit				Drives A to B Drives B to A	Batch
A6GPP	7 sec	5 sec	5 sec	8 sec	5 sec	20 sec	10 sec	26 sec	33 sec	6 min 54 sec
А6РНР А6НGР	7 sec	4 sec	3 sec	7 sec	4 sec	17 sec	10 sec			Data read : 1 min 4 sec Data write (including verify) : 3 min 15 sec

(4) PRINTER mode

Type of Printer	Print Data	Print Title	Parameter & POS Data	LS Data
K6PR	Pica	4 sec	1 min 37 sec	1 min 3 sec
	Elite	4 sec	1 min 57 sec	1 min 15 sec
K6PR-K	Pica	4 sec	44 sec	29 sec
	Elite	4 sec	59 sec	37 sec
K7PR	2400BPS	4 sec	36 sec	25 sec
	9600BPS	2 sec	36 sec	19 sec
A7PR		2 sec	28 sec	17 sec
GT-10A1		26 sec	2 min 12 sec	1 min 26 sec
GT-10A		33 sec	2 min 39 sec	1 min 44 sec

POINT

The processing time for LS data printing differs according to the number of ON/OFF change points.

The processing time in the table represents the time when the following LS data is printed:

- Print range1 program (0 to 4095)
- ON/OFF change pointON/OFF changes every 100 addresses.

Appendix 2 FLOPPY DISK USING INSTRUCTIONS



Do not place the FD in a place where temperature and/or humidity is high. If adversely affected by high temperature and/or humidity, the FD may warp. Also, if temperature and/or humidity change considerably, dew condensation may occur, resulting in error. Therefore, do not immediately use a FD, which has been mailed or brought into a room from the outside, but use it after adjusting the FD to the operating environment for 30 to 60 minutes.

Do not expose the FD to the direct rays of the sun. The FD may warp.





Do not touch the recording surface. The grease of fingers will stick to the magnetic head, resulting not only in error but also in the damage of magnetic disk. Also, fingerprints will lead to the reduction of output, the adhesion of dirt and dust, and the growth of mold.



Do not bend or break the FD. If bent or broken, the FD will warp, resulting in uneven rotation, error, etc.



Do not use thinner, alcohol, freon, and the like to clean the FD. Failure will result.

APPENDICES





Do not use an eraser.

If the waste rubber of an eraser attaches to the magnetic disk, error may result. Do not use an eraser near the FD.



Do not handle the FD roughly. Insert the FD into the FDD carefully and gently, being careful not to damage the FD. Rough handling also damages the magnetic head of the drive.



Do not eat, drink, or smoke near the FD. The smoke of cigarette will also result in error. Drinking and eating will also lead to error and system failure. Especially, never use the FD which is wet. Design the configuration of a system to provide an external protective or safety inter locking circuit for the PCs.

Under no circumstances will Mitsubishi Electric be liable or responsible for any consequential damage that may arise as a result of the installation or use of this equipment.

All examples and diagrams shown in this manual are intended only as an aid to understanding the text, not to guarantee operation. Mitsubishi Electric will accept no responsibility for actual use of the product based on these illustrative examples.

Owing to the very great variety in possible applications of this equipment, you must satisfy yourself as to its suitability for your specific application.

type SW0GHP-A61LSPE

Operating Manual

MODEL SW0GHP-A61LSPE-O-E

IB(NA)66407-A(9303)MEE

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE : MITSUBISHI DENKI BLDG MARUNOUCHI TOKYO 100-0005 TELEX : J24532 CABLE MELCO TOKYO NAGOYA WORKS : 1-14 , YADA-MINAMI 5 , HIGASHI-KU, NAGOYA , JAPAN

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