HAKKO 652 Feed Controller

HAKKO 652 Feed Controller Instruction Manual

Contents

HAKKO 652 Feed Controller

Product Information

The product is a versatile and high-performance device designed to meet the needs of various users. It is built with advanced technology and features that enhance its functionality and usability. The product is known for its durability and reliability, making it suitable for both personal and professional use.

Frequently Asked Questions

- **Q:** How do I update the device's software?
  - **A:** To update the device's software, go to the settings menu and select the "Software Update" option. Follow the on-screen instructions to check for available updates and install them.
- **Q:** Can I expand the device's storage capacity?
  - **A:** Yes, you can expand the device's storage capacity by inserting a compatible memory card into the provided memory card slot. Refer to the user manual for the supported memory card types and installation instructions.
- **Q:** How do I reset the device to factory settings?
  - **A:** To reset the device to factory settings, go to the settings menu and select the "Backup & Reset" option. Choose the "Factory Data Reset" option and follow the on-screen instructions to initiate the reset process. Note that this will erase all data on the device, so make sure to back up any important files beforehand.
- **Q:** How long does the battery last on a full charge?
  - **A:** The battery life of the device may vary depending on usage and settings. Under normal conditions, the battery can last up to [battery life duration] on a full charge. However, running power-intensive applications or using features like GPS may reduce the battery life.

- **Q:** Is the device water-resistant?
  - **A:** Yes, the device is water-resistant up to a certain level. It is designed to withstand splashes or brief immersion in water. However, it is not recommended to submerge the device completely or expose it to water for an extended period.

Thank you

Thank you for purchasing the HAKKO 652 Feed Controller.

This unit is a Feed Controller which is used in combination with the HAKKO 651 Feeder Head to reduce labor and automate the soldering process.
Please read this manual before operating the HAKKO 652, and store the manual in a safe easily accessible place for future reference.

Packing List

- Main unit
- Z axis air tube (1.5m, 4.91)
- 1/0 cable /24 core (2m, 6.61)
- **part number:** C1114

Specifications

- **Ratings:** 20W 50/60Hz
- **Air pressure:** 4 – 5kgf/cm'.
- **Solder diameter (mm):** 05. 06. 08. 10 12 1.6
  - **(inch):** 0.0197.0.024.0.031.0.039.0.047.0.063
- **Soldering conditions:** 100 for each CW/PW
- **Soldering method:** Point work (PW)
  - Continuous work(CW)
- **Primary solder feed amount:** 0.0 – 20.0mm
- **Secondary solder feed amount:** 00.0 – 99.9mm
  - (PW only)
- **Secondary solder feed speed:** 00.0 – 99.9mm/s
- **Preheat time:** 0.0 – 9.9s
- **Heat up time:** 0.0 – 9.9s
- **Primary/secondary solder return amount:** 0 – 9mm
- **Return speed:** 0 -99mm/s
- **Weight:** 2.6kg (5.7lbs.)

Safety and Other Precautions

Since mishandling may lead to fire or damage, be sure to comply with the following precautions.

CAUTION

- Make sure the wiring is correct before turning on the power.
- Do not press the keys with sharp objects such as ball-point pens or metal rods.
- Avoid strong impact to the unit.
- Use only genuine HAKKO parts.
- Do not modify or disassemble the unit.
- Do not allow the unit to become wet.

Mounting location

- Avoid locations containing corrosive gas, dust, or oil.
- Avoid locations close to sources of electrical noise or subject to the effects of electromagnetic fields.
- Avoid locations where strong mechanical vibration or shock may affect the unit.
- Avoid direct sunlight.

Write protect

This unit has a write protect feature to prevent accidental data loss. When updating the software program, you must first disable this feature using the following procedure.

1. Turn off the power via the power switch.
2. Turn the power back on and then quickly press [MODE] key, holding it down until the menu appears.

This procedure will disable the write protect feature until the power is turned off again. After updating the software program, turn the power off and then on again to enable the write protect feature.

Point work (PW) and continuous work (CW)

PW stands for “point work”, and point refers to soldering. CW stands for “continuous work” and refers to line soldering or flow soldering. In CW operations, the unit is moved in the X and Y directions with the Z2 axis lowered while secondary solder feed continues at the speed set with S2.

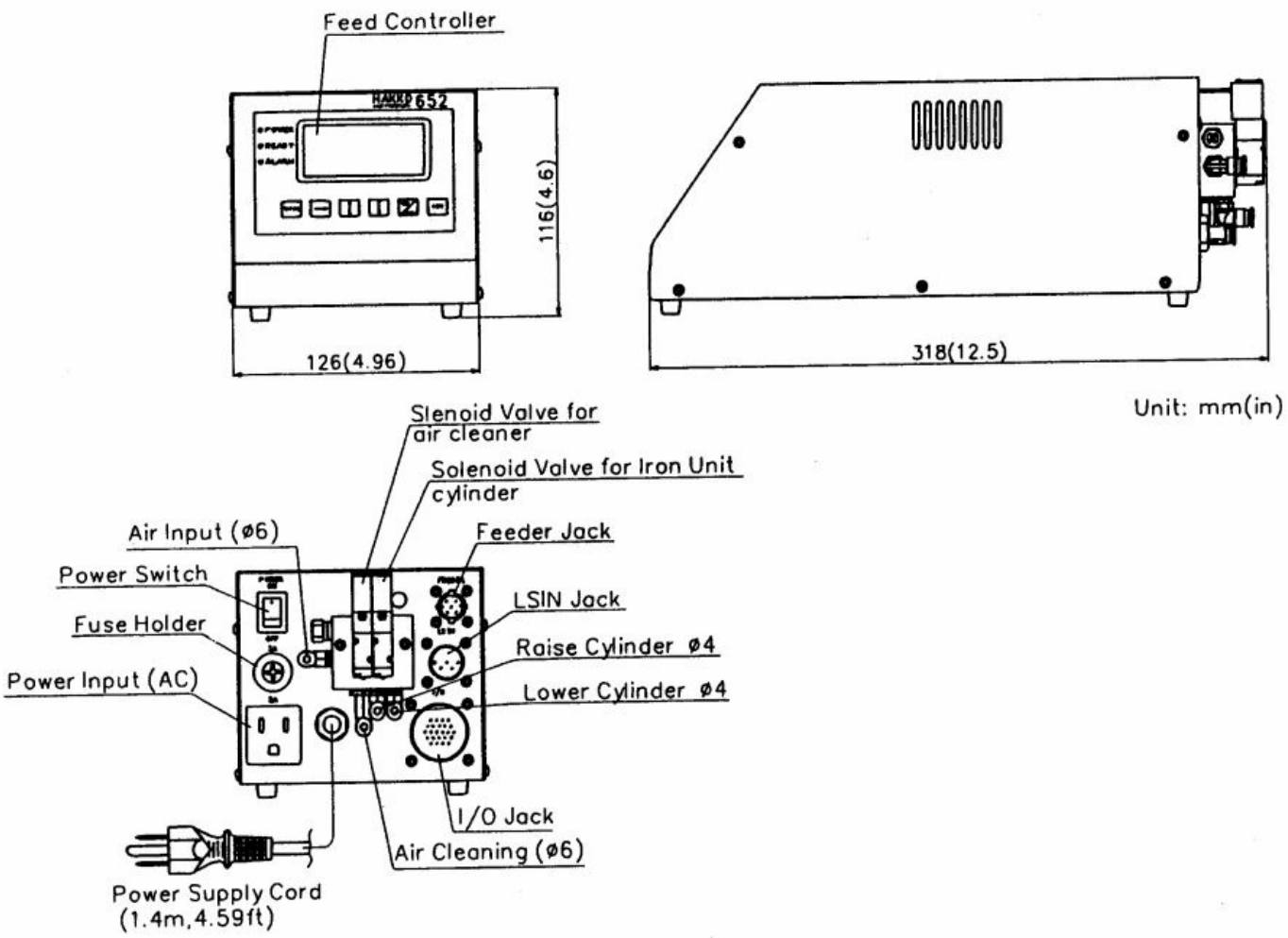
Solder unclog feature

This unit is equipped with a feature that automatically clears solder clogging. When solder blockage is detected, the solder is withdrawn to the point at which solder feeding began and then feeding is restarted. This procedure is repeated as many times as necessary to clear the blockage or until the specified number of times is reached.

Air tubing

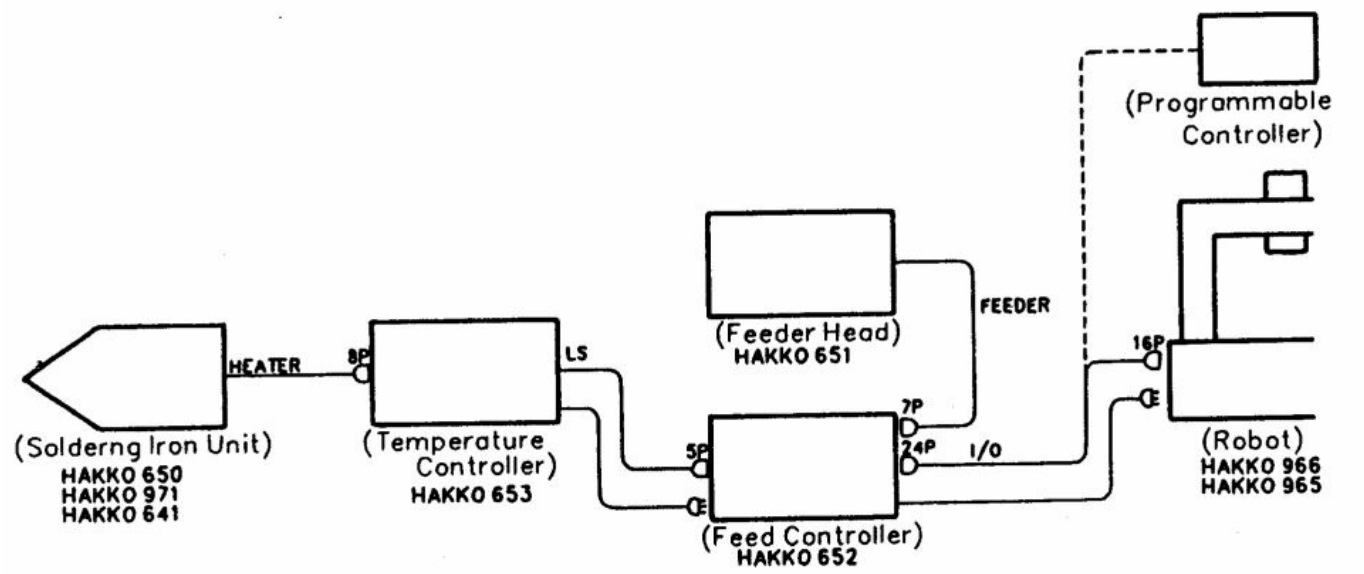
- When connecting to a HAKKO robot (HAKKO 965/966), there is no need to connect an air tube to the jack on the rear panel of the feed controller.
- When connecting to a robot made by another company, a head Z.2 cylinder and an air cleaning tube are required.

Names of Parts



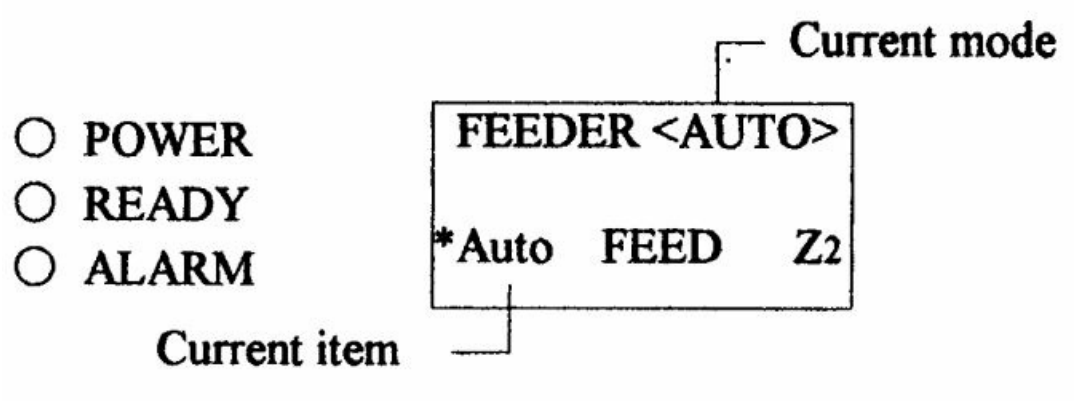
Connection with Other Units

*See Interface Specification (P14) for 1/O Connection & timing Chart.



Operation

Display

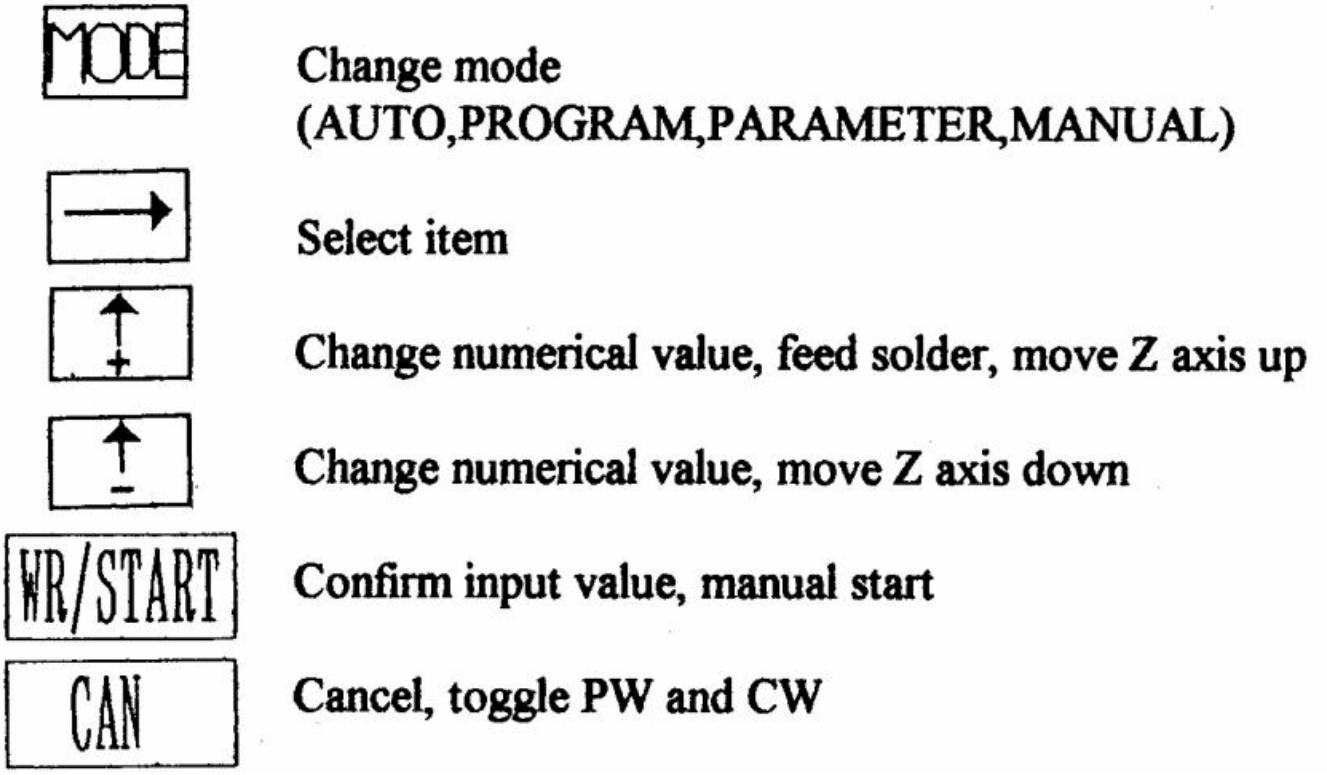


The current mode is displayed in the top right corner of the display. An asterisk (*) is shown to the left of the current item. Use the <→> key to move the asterisk and select the desired item.

Indicator lamps

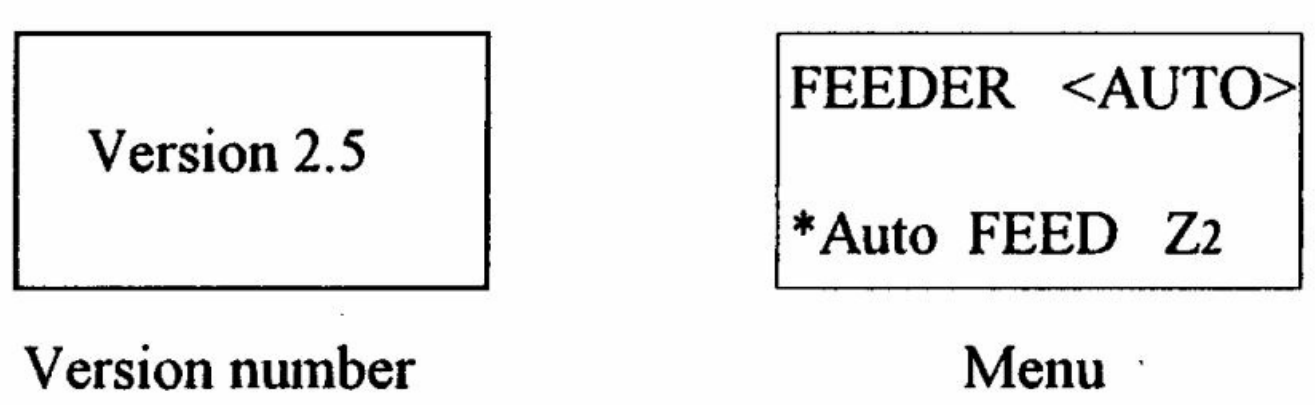
- **POWER:** The power lamp is lit when the power is on.
- **READY:** The ready lamp is lit when start preparations are complete.
- **ALARM:** The alarm lamp is lit when an error has occurred.

Key functions



- When changing settings, until you press < WR/START> to confirm the input, you can use < CAN> to cancel the change and restore the previous value.

Start up



- When all connections have been made, press the [POWER] switch. The version number will be displayed and the unit will enter AUTO mode.

Mode selection

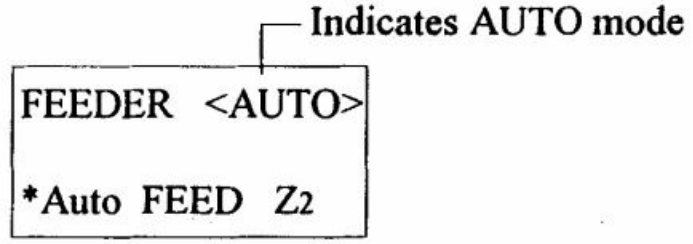
Select the appropriate mode for the job.

- To perform soldering in accordance with a program:
  - Select AUTO mode.
- To set the conditions for soldering:
  1. Disable the write protect.
  2. Select PROGRAM mode.
- To check the soldering operation:
  - Select MANUAL mode.
- To view stored data:
  - Select PROGRAM mode or MANUAL mode.
- To change the initial settings:
  1. Disable the write protect.
  2. Select PARAMETER mode.
- To feed the solder or to raise/lower the cylinder:
  - Select AUTO mode.

AUTO mode

Control soldering with a program

To change to AUTO mode, push the <MODE> key repeatedly until the word “AUTO” appears in the top right comer of the display. Nonnally the unit will enter AUTO mode automatically when the power is turned on.



AUTOSTART

FEEDER <AUTO>
*Auto FEED Z2

Use to perform soldering according to programmed commands from a robot or other external source.

SOLDER FEED

FEEDER <AUTO>
Auto *FEED Z2

Use to feed the solder manually during adjustment procedures. (See page 9 Manual Speed Adjustment)
Example: Use when changing the solder.
When the asterisk is next to FEED, the < ↑ > key can be used to feed the solder.

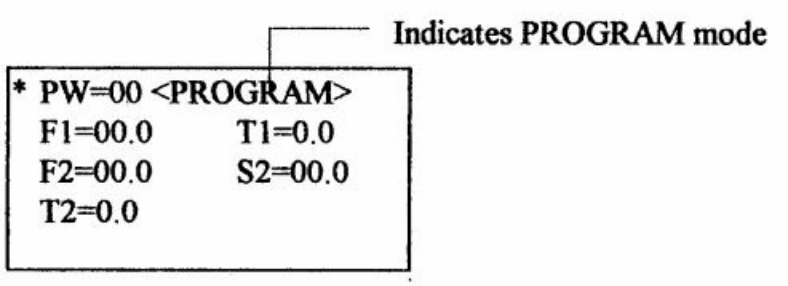
RAISE/LOWER CYLINDER

FEEDER <AUTO>
Auto FEED *Z2

Use to raise or lower the Z2 cylinder manually when positioning soldering surfaces or performing other adjustments.
When the asterisk is next to Z2, press < ↑ > to raise Z2 and < ↓ > to lower Z2.

PROGRAM mode

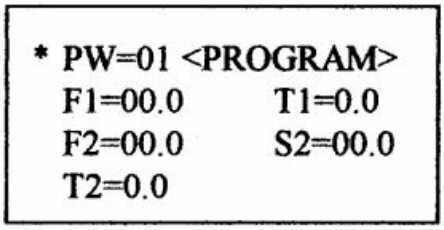
Set soldering conditions, view stored data

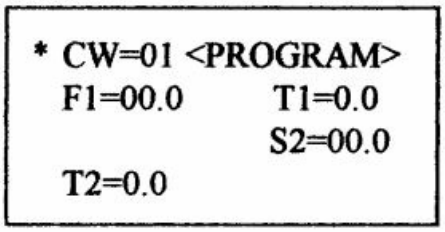


To change to PROGRAM mode, press the <MODE> key repeatedly until the word “PROGRAM” appears in the top right comer of the display.

To change the data, it is necessary to disable the write protect feature.
In this menu, if you cannot move the asterisk to different items by pressing the <→> key, the write protect feature is enabled. Tum off the unit and start again from the beginning.

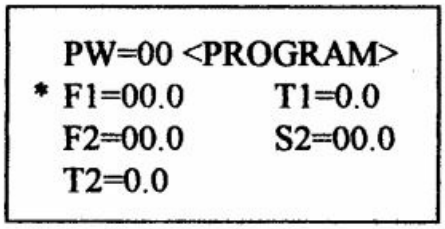
Program No. (PW = 00 - 99 , CW = 00 - 99)





- The desired program can be called up from either AUTO or MANUAL mode using the program number.
  Use the < ↑ > and < ↓ > keys to call up the desired program number (PW=00-99, CW=00-99).
- Note that operation is completely different for PW and CW.
- Press <CAN> to change from PW to CW or vice versa.
- To continue on to the primary solder feed amount setting, press the <→> key repeatedly until the asterisk aligns with F1.

Primary solder feed amount (00.0 - 20.0mm)



- Input the numerical value using the < ↑ > and < ↓ > keys. Then press <WR/START>.
- Use the <→> key to move to a different item.

```
  CW=01 <PROGRAM>
* F1=01.0   T1=0.0
       S2=00.0
  T2=0.0
```

PREHEAT TIME (0.0 - 9.9s)

```
  PW=01 <PROGRAM>
  F1=01.0  *T1=1.0
  F2=00.0   S2=00.0
  T2=0.0
```

- The input method is the same as for the primary solder feed amount (previous page).

```
  CW=01 <PROGRAM>
  F1=00.0  *T1=1.0
       S2=00.0
  T2=0.0
```

Secondary solder feed amount (00.0 - 99.9mm)

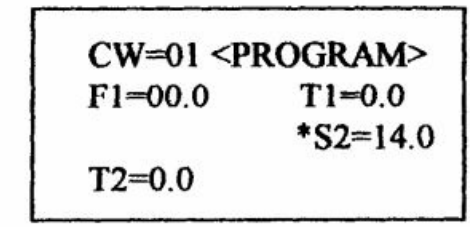
```
  PW=01 <PROGRAM>
  F1=01.0   T1=1.0
* F2=01.2   S2=00.0
  T2=0.0
```

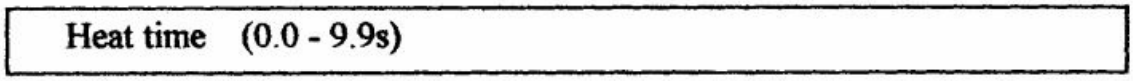
* No secondary solder feed amount for CW.
- The input method is the same as the primary solder feed amount (previous page).

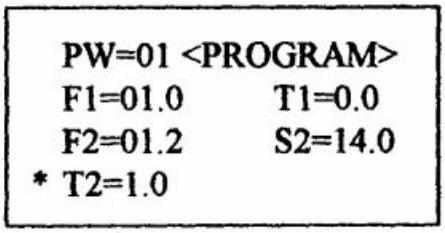
Secondary solder feed speed (00.0 - 99.9mm/s)

```
  PW=01 <PROGRAM>
  F1=01.0   T1=1.0
  F2=01.2  *S2=14.0
  T2=2.0
```

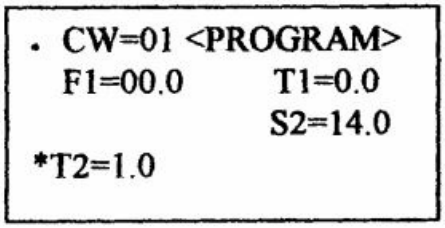
- The input method is the same as the primary solder feed amount (previous page).







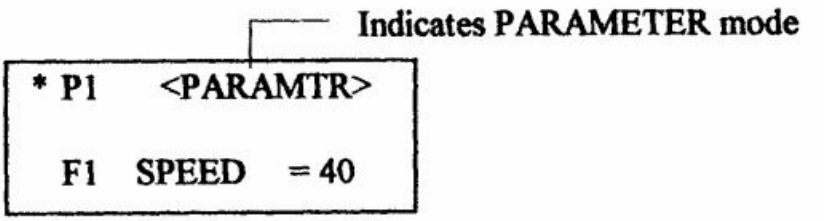
- The input method is the same as for the primary solder feed amount



PARAMETER mode

Change initial settings

To change to PARAMETER mode, press and hold the <MODE> key until the word “PARAMTR” appears in the top right comer of the display.



PARAMETER Mode Menu

- To change the data, it is necessary to disable the write protect feature.(P2)
- In this menu, if you cannot move the asterisk to different items by pressing the < ↑ >< ↓ > key, the write protect feature is enabled. Turn off the unit and start again from the beginning.

Primary solder feed speed (00 - 99mm/s) Initial setting: 40mm/s

```
* P1 <PARAMTR>

  F1 SPEED = 40
```

Manual speed (00 - 99mm/s) Initial setting: 40mm/s

```
* P2 <PARAMTR>

  FEED SPEED= 40
```

. Use to set the speed for feeding the solder to the FEED position in AUTO mode.

Return speed (00 - 99mm/s) Initial setting: 20mm/s

```
* P3 <PARAMTR>

  BACK SPEED  = 20
```

. Use to set the speed for solder return after primary and secondary solder feeds.

Return amount (0 - 9mm) Initial setting: 2mm

```
* P4 <PARAMTR>

  BACK 1  = 2
```

. Use to set the amount of solder returned after primary and secondary solder feeds.
BACK 1 is the return amount for primary feed.

```
* P5 <PARAMTR>

  BACK 2  = 2
```

BACK 2 is the return amount for secondary feed

Solder unclog setting (0 - 9 times)	Initial setting: 3 times

* P6 <PARAMTR>
ERROR = 3

- When solder blockage occurs, the unit automatically clears the blockage through reverse rotation. If the blockage is not cleared after set number of reverse rotation times, an alarm sounds and the unit stops.

Heat up (00 - 99s)	Initial setting: 5s

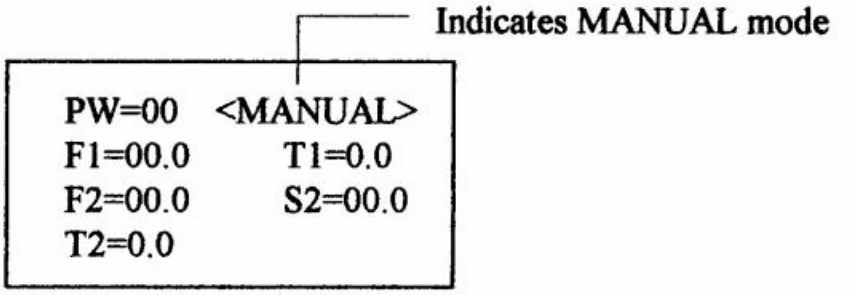
* P7 <PARAMTR>
HEAT TIMER = 05

- Use to set the time from attainment of the setting temperature, ±T℃, to output of the heater ready signal.(T can be set via the temperature controller.)

MANUAL mode

Check the sodering operation

To change to MANUAL mode, press and hold the <MODE> key until the word “MANUAL” appears in the top right comer of the display.



MANUAL Mode Menu

- Use the<↑>and<↓> keys to select the number of the program you want to execute, then start the program by pressing the <WR/START> key.
- There is no MANUAL operation for CW.

Alarms

Alarm messages

When an abnormality is detected, the alarm lamp lights up and one of the following messages is displayed. Correct the cause of the alarm as indicated in the message. Except for the EMERGENCY STOP alarm, you will be unable to start processing again until you press the <CAN> key.

ALARM 4. EMERGENCY STOP!	An emergency signal has been received from a robot, external programmable controller, or the like. (EMERGENCY STOP input circuit OFF)
ALARM 5. HEATER OFF!	A heater error has occurred. (HEATER ERROR input circuit OFF)
ALARM 6. Z2 DOWN!	The Z2 cylinder is still in the down position. (Z2 UP LS input circuit OFF)
ALARM 7. SOLDER CLOG!	The aperture is clogged with solder. (SOLDER CLOG input circuit ON)
ALARM 10. SOLDER END!	The solder has been used up or the solder has broken. (SOLDER END input circuit OFF)

About heater errors

The cause of a heater error may be in the heater, the sensor, or another part of the system. Check the display on the HAKK.O 653 or other temperature controller and find the cause of the error.

When no message is displayed

- Sometimes the ALARM lamp lights up and the unit stops operating but no message is displayed.
- In such cases, change to MANUAL mode and perfonn a manual start. This will cause the message to appear.

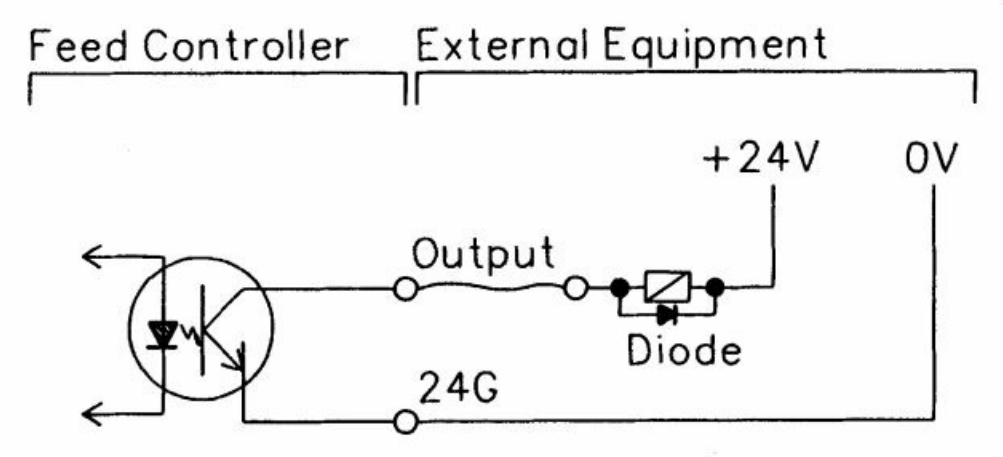
When multiple errors occur simultaneously

When multiple errors occur at the same time, the error messages will be displayed one at a time: when the error whose message is currently be displayed is corrected, that message will disappear and the next error message will appear. When multiple errors include a CYLINDER DOWN error, however, this message will not be displayed. Therefore, when the unit does not operate even after all the displayed errors have been resolved, check to see whether or not the cylinder is in the DOWN position.

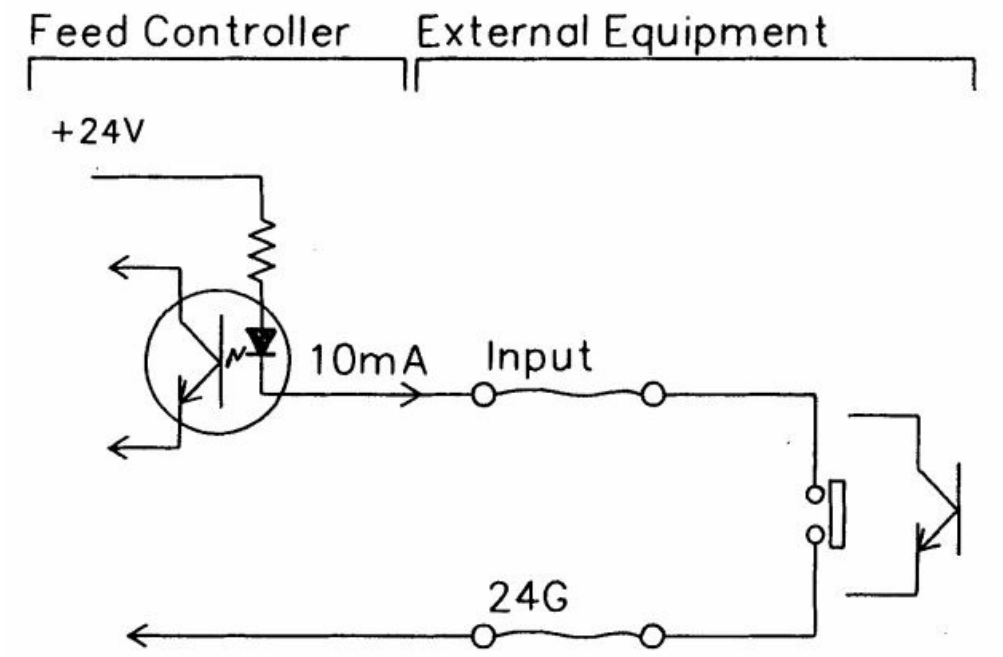
Interface Specifications

I/O output

- Transistor open collector output (DC24V – 100 mA)
- When connecting a relay or the like, be sure to mount a surge absorber as shown below.



I/O input



- Photocoupler input
  - A current of about 10mA flows to the external input.

I/O circuits

[I/ 0]

PW Input

- This is the start-up input for point soldering in AUTO mode. Point soldering for O – 99 channels can be performed by using the PW input and the channel select input.

CW Input

- This is the start-up input for continuous soldering in AUTO mode.
- Continuous soldering for O – 99 channels can be performed by using the CW input and the channel select input.

EMERGENCY STOP Input

- This input stops the solder feeder when an emergency signal is received from an external programmable controller, a robot, or the like. Connect to 24G when not used.
- This input is normally ON. When this input is turned back ON after an EMERGENCY STOP, the EMERGENCY STOP condition is cancelled and the system returns to AUTO mode.

Air Cleaning Input

- When the air cleaning input is turned on, the air cleaner solenoid valve on the back panel is activated.

Z2 Cylinder Input

- Z2 cylinder control can be performed automatically by connecting 24P to 1P.
- When using a HAKKO robot, the 24P-1P connection is not necessary.

Ready Output

- In AUTO or MANUAL mode, this output turns ON when start preparation is complete.
- When there is an error or when in a mode other than AUTO or MANUAL mode, this output will not turn ON.

END Output

- Sends the END output signal according to the timing of the timing chart.

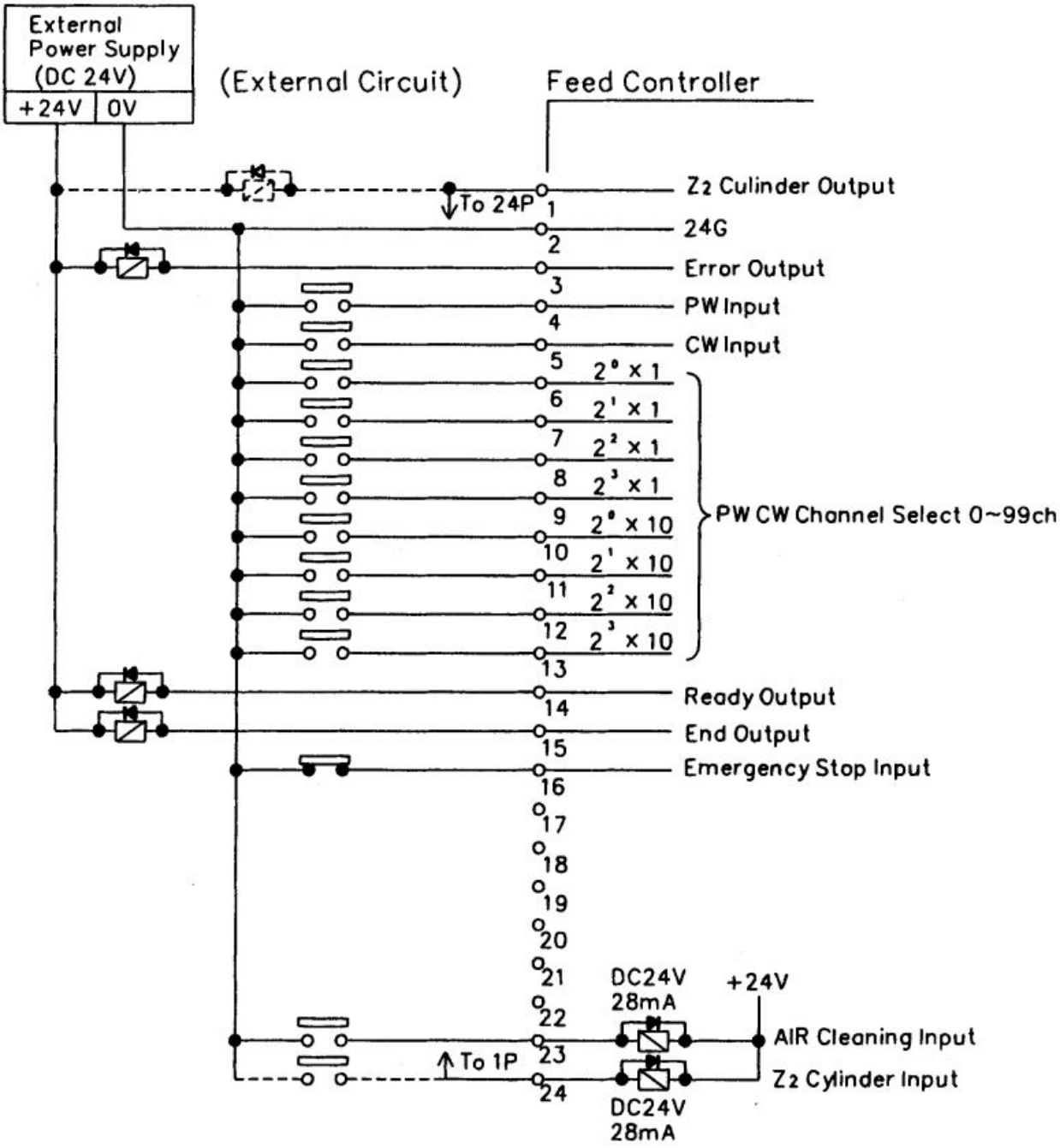
Error Output

- Tums OFF when there is and error.

Z2 Cylinder Output

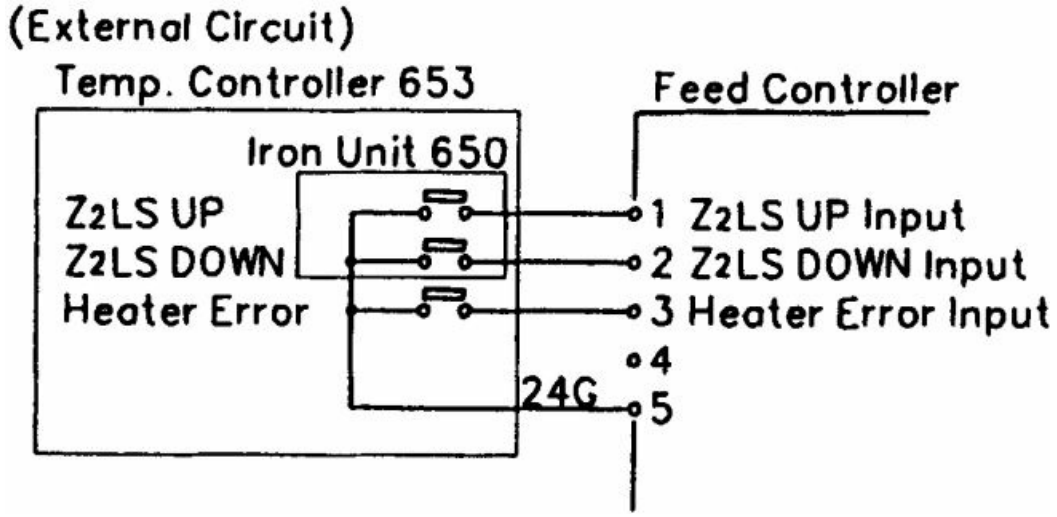
- This is the operation output for the 22 cylinder of the soldering iron unit.

I/O connector (connection example)



LS IN connector

Connect to HAKKO 653 temperature controller.



Z2 LS UP

- Iron unit, Air cylinder limit switch upper end (ON at upper end)

Z2 LS DOWN

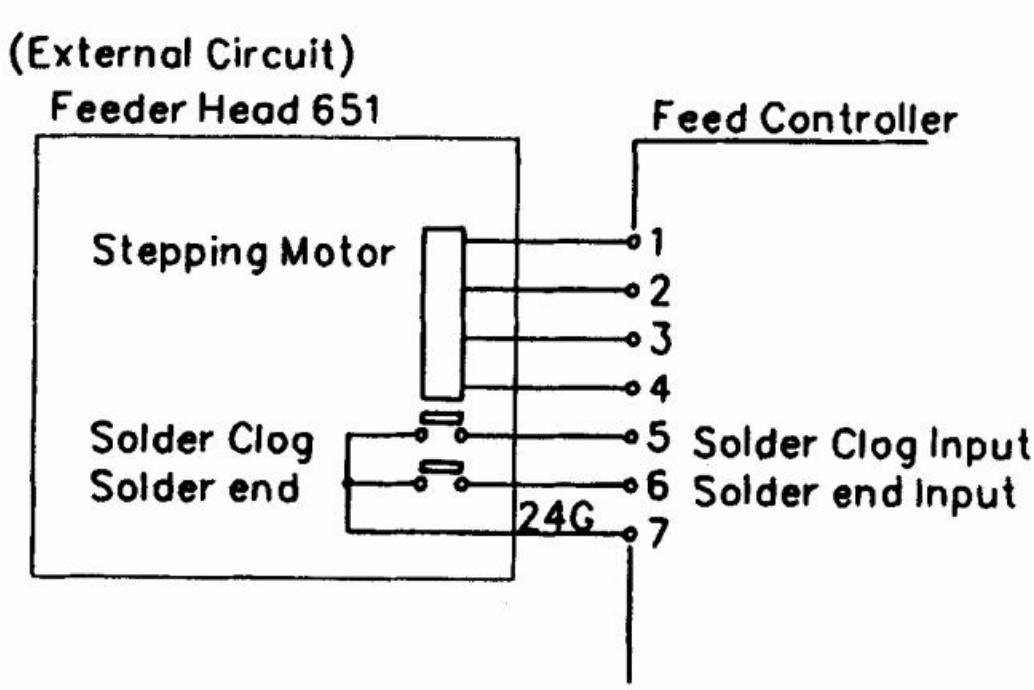
- Iron unit, Air cylinder limit switch lower end (ON at lower end)

Beater error

- Heater error, output from temperature controller (OFF when there is an error)

FEEDER connecter

Connect to HAKK.O 651 feeder head.



Stepping motor

- Feeder head stepping motor

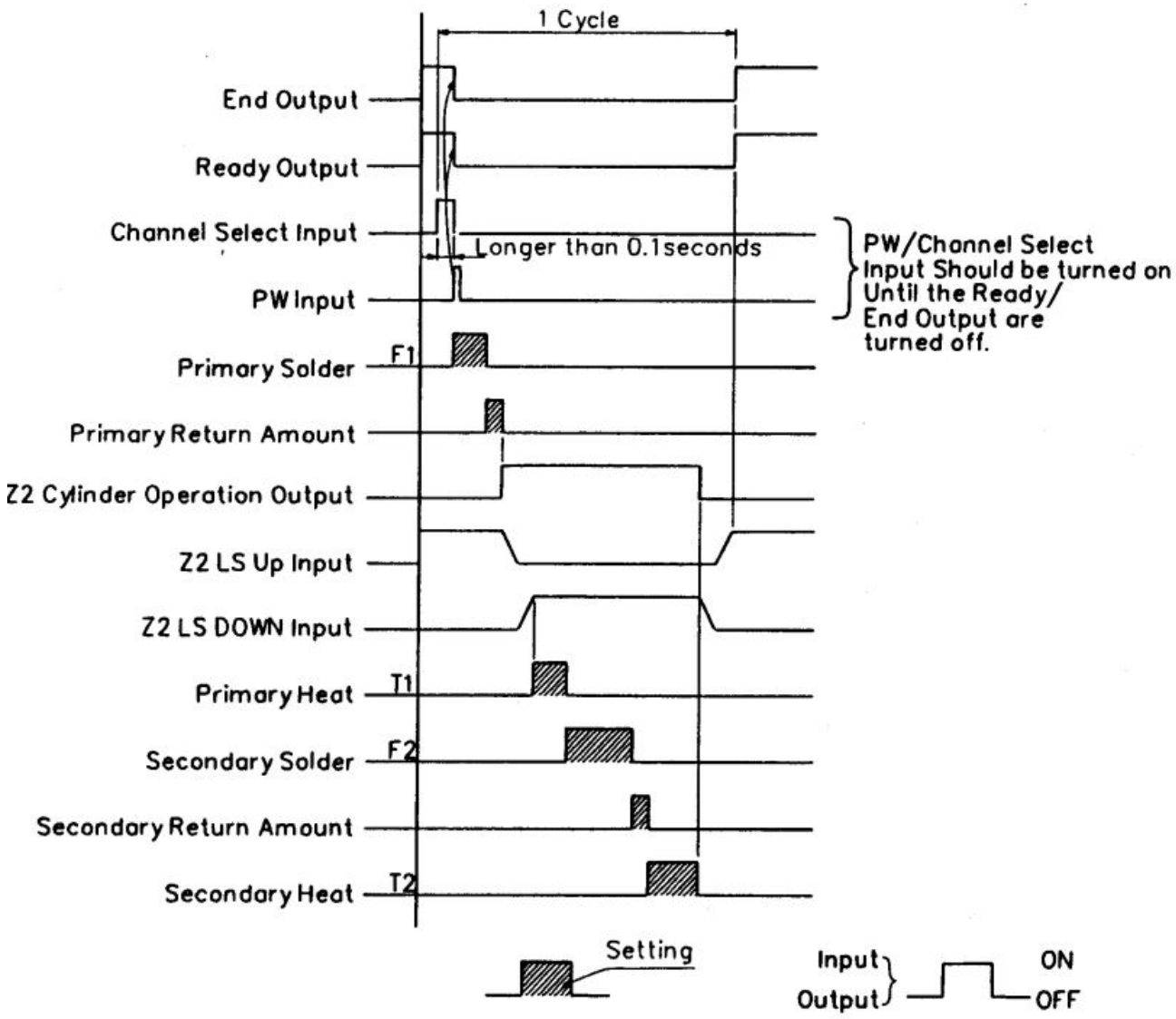
Solder clog

- Clog detection signal from feeder head
- (ON when there is a clog)

Solder end

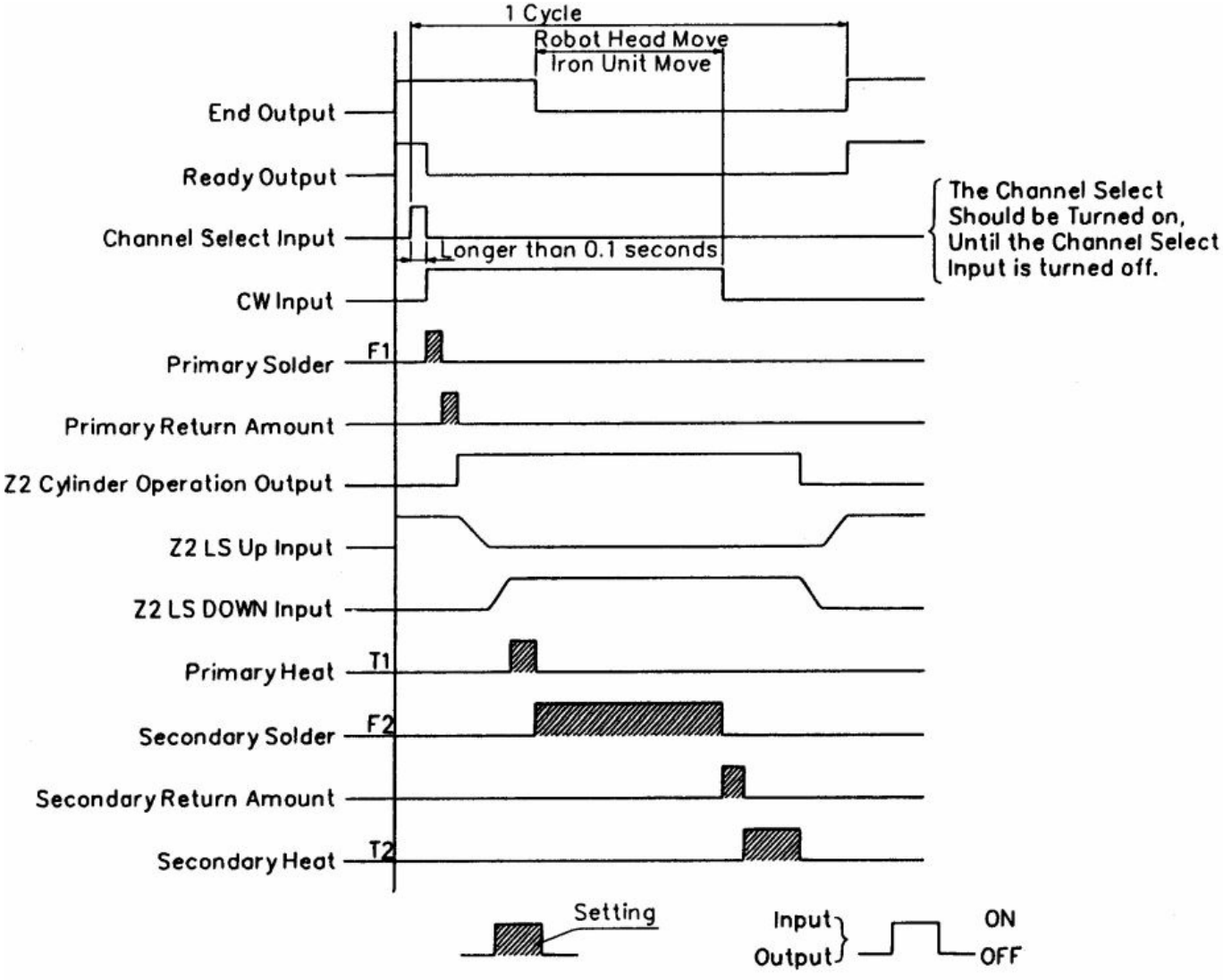
- Solder end signal from feeder head
- (ON when solder is used up or broken)

PW operation: Point soldering timing chart



- During PW operation, the END and READY outputs are held OFF when there is an alarm.

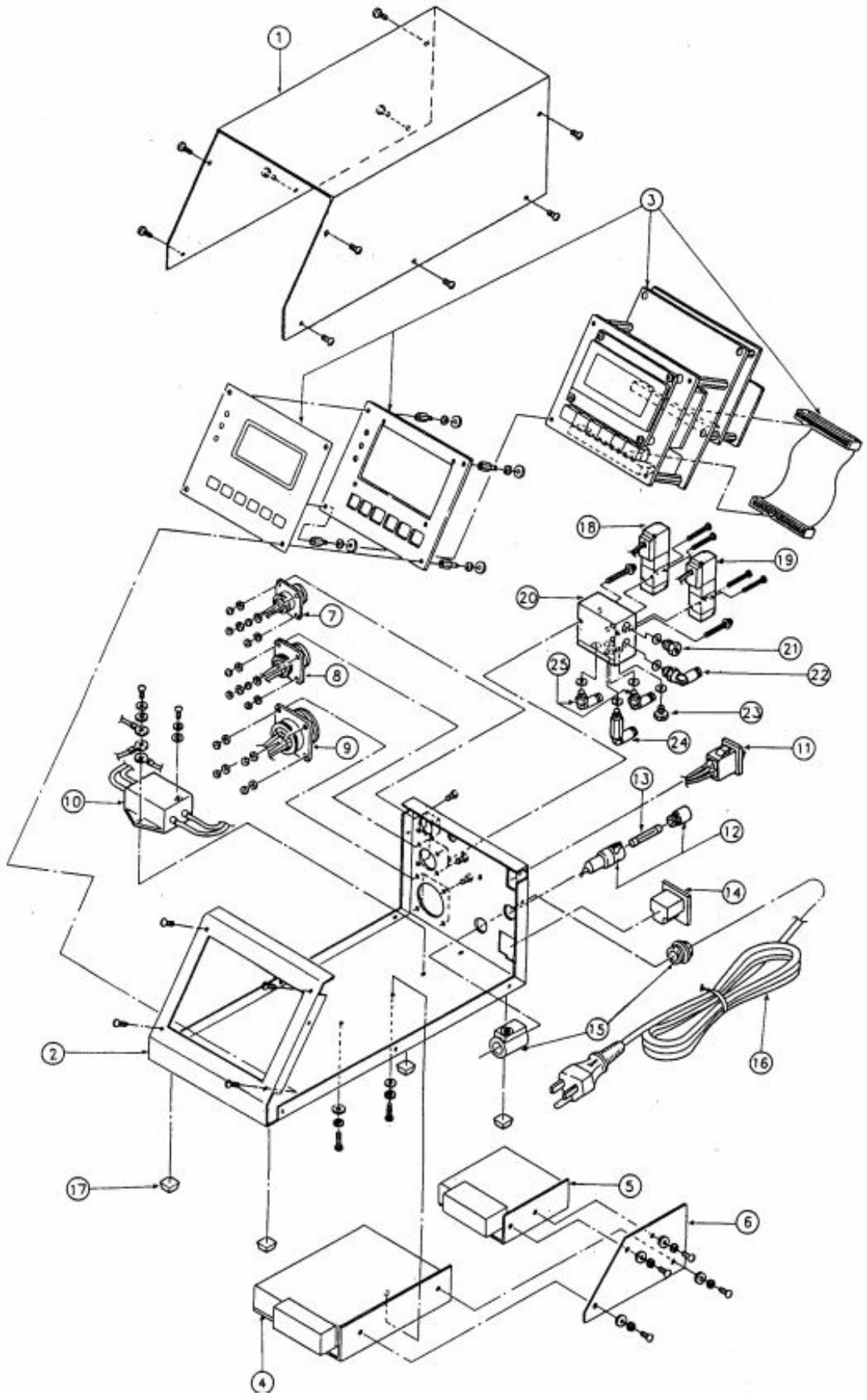
CW operation: Continuous soldering timing chart



- During CW operation, the END and READY outputs are held OFF when there is an alarm.

Replacement Parts

Part List for HAKKO 652 Feed Controller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4

No.	Part Name	Part Number	Qty.	Specifications
1	Cover		1	
2	Chassis		1	
3	CPU unit		1	
4	Switching power source		1	ERA21 FWA-B
5	Switching power source		1	ERS 24SA
6	P. source mounting plate		1	
7	Receptacle		1	RM12BRB-7S
8	Receptacle		1	SRCN2A13-5S
9	Receptacle		1	SRCN2A25-24S
10	Noise filter		1	ZGB2203-01U
11	Power switch		1	DS850S-F2-WD
12	Fuse holder		1	FH-S07
13	Fuse		1	125V-3A
14	Socket outlet		1	M1743
15	Cord stopper		1	EA-8
16	Power cord		1	Vinyl 3-core
17	Rubber stopper		4	
18	Solenoid valve		1	A040-4EI-10W DC24V
19	Solenoid valve		1	A040EI-2-1W DC24V
20	Manifold		1	040 M2A
21	Muffler		1	KM10
22	Joint		1	TL6-01M
23	Plug		1	EXF
24	Joint		1	TLL6-M5M
25	Joint		2	TL4-M5M
26	I/O cable	C-1114	1	2m / 6.6ft
27	Air tube for Z axis		1	1.5m /4.9ft

CONTACTS

HEAD OFFICE

- 45, SHIOKUSA 2-CHOME, NANIWA-KU, OSAKA, 556-0024 JAPAN
- **TEL:** +81-6-6561-3225
- **FAX:**+81-6-6561-8466

OVERSEAS AFFILIATES

- U.S.A.: AMERICAN HAKKO PRODUCTS, INC.
- 25072 ANZA DA. SANTA CLARITA, CA 91355, U.S.A.
- **TEL:** (661) 294-0090
- **FAX:** (661) 294-0096
- **Toll Free:** (800) 88-HAKKO
- www.hakkousa.com

SPORE: HAKKO PRODUCTS PTE., LTD.

- 1, GENTING LINK #02-04, PERFECT INDUSTRIAL
- BUILDING, SINGAPORE 349518
- **TEL:** 748-2277
- **FAX:** 744-0033

HONG KONG: HAKKO DEVELOPMENT CO., LTD.

- ROOM 1504 EASTERN HARBOUA CENTRE, 28 HOI CHAK STREET, QUARRY BAY, HONG KONG.
- **TEL:** 2811-5588
- **FAX:** 2590-0217

PHILIPPINES: HAKKO PHILS TRADING CO., INC.

- NO. 415 WINDSOR TOWER CONDOMINIUM, 163 LEGASPI ST., LEGASPI VILLAGE MAKATI, METRO MANILA, PHILIPPINES
- **TEL:** (02)817-0712, 815-4993
- **FAX:** (02)810-7649

MALAYSIA: HAKKO PRODUCTS SDN BHD
MALAYSIA HEAD OFFICE: PETALING JAYA

- LOT 35/1 THE HIGHWAY CENTRE JALAN 51/205 46050
- PETALING JAYA, SELANGOR DA RUL EHSAN, MALAYSIA
- **TEL:** (03)794-1333
- **FAX:** (03)791-1232

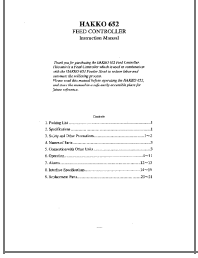
PENANG BRANCH

- **TEL:** (04)644-6669
- **FAX:** (04)644-8628

JOHORE BAHRU BRANCH

- **TEL:** (07)236-7766
- **FAX:** (07) 237-4655

Documents / Resources

	**HAKKO 652 Feed Controller** [pdf] Instruction Manual 652 Feed Controller, 652, Feed Controller, Controller

References

- **Manual-Hub.com - Free PDF manuals!**
- **User Manual**