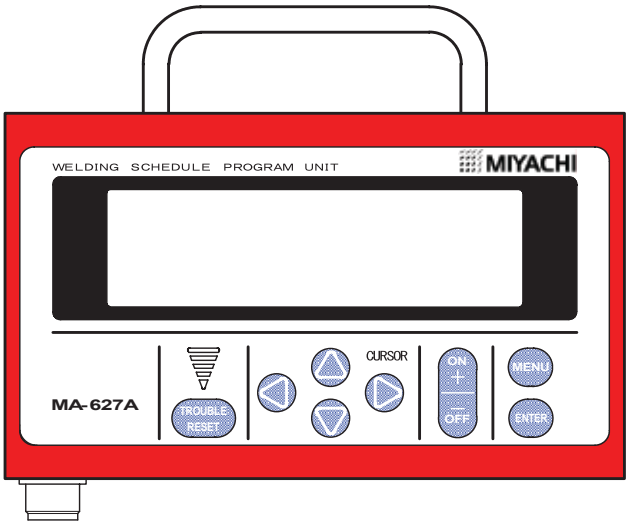
WSI WELD SYSTEMS INTEGRATORS, INC.

RESISTANCE WELDING. SOLVED.

OPERATION MANUAL

PROGRAM UNIT

MA-627A



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MIYACHI UNITEK

AMADA MIYACHI AMERICA

1. Special Precautions

Safety Precautions

Before using, read "Safety Precautions" carefully to understand the correct method of use.

- These precautions are shown for safe use of our products and for prevention of damage or injury to operators or others. Be sure to read each of them, since all of them are important for safety.
- The meaning of the words and symbols is as follows.

⚠ DANGER

Denotes operations and practices that may imminently result in serious injury or loss of life if not correctly followed.

⚠ WARNING

Denotes operations and practices that may result in serious injury or loss of life if not correctly followed.

⚠ CAUTION

Denotes operations and practices that may result in personal injury or damage to the Equipment, if not correctly followed.

These symbols denote "prohibition".
They are warnings about actions out of the scope of the warranty of the product.

These symbols denote actions which operators must take.

Each symbol with a triangle denotes that the content gives notice of DANGER, WARNING or CAUTION to the operator.

⚠ DANGER

Do not touch the inside of the Equipment unnecessarily

Since very high voltages are applied to the interior of this Equipment, it is dangerous to touch it unnecessarily. Do not open the cover for the purposes other than replacing the battery. When trouble occurs and inspection or repair is needed, consult Miyachi Technos Corp.

Never disassemble, repair or modify the Equipment

These actions can cause electric shock and fire. Do not do anything other than the maintenance described in the operation manual.

⚠ WARNING

Do not put your hands between the electrodes

When welding, keep your fingers and hands away from the electrodes.

Do not touch any welded part or electrodes during welding and just after welding finished

The welded part of a workpiece, electrodes and arm are very hot.
Do not touch them; otherwise you may be burnt.

Do not splash water on the Equipment

Water splashed over the electric parts can cause electric shock and short circuits.

Apply the specified power supply

Application of a voltage out of the specified range can cause fire and electric shock.

Connect the specified cables securely

Cables of insufficient current capacities and loose connections can cause fire and electric shock.

Do not damage the connecting cables

Do not tread on, twist or tense any cable. The connecting cables may be broken, and that can cause electric shock and fire. When repair or replacement is needed, consult Miyachi Technos Corp.

Stop the operation if any trouble occurs

Continuous operation after occurrence of a trouble such as burning smell, abnormal sound, abnormal heat, smoke, etc. can cause electric shock and fire. If such a trouble occurs, immediately consult Miyachi Technos Corp. or your distributor.

Persons with pacemakers must stay clear of the welding machine

A person who uses a pacemaker must not approach the welding machine or walk around the welding shop while the welding machine is in operation, without being permitted by his/her doctor. The welding machine generates a magnetic field and has effects on the operation of the pacemaker while it is turned on.

Protective gear must be worn

Put on protective gear such as protective gloves, long-sleeve jacket, leather apron, etc. Surface flash and expulsion can burn the skin if they touch the skin.

Wear protective glasses

If you look at the flash and expulsion directly during welding, your eyes may be damaged. If any surface flash and expulsion gets in your eye, you may lose your eyesight.

⚠ CAUTION

Do not place a water container on the Equipment

If water spills, insulation will deteriorate, and this may cause electric leak and fire.

Keep combustible matter away from the Equipment

Surface flash and expulsion can ignite combustible matter. If it is impossible to remove all combustible matter, cover them with non-combustible material.

Do not cover the Equipment with a blanket, cloth, etc.

If such a cover is used, it may be heated and burn.

Do not use this Equipment for purposes other than welding

Use of this Equipment in a manner other than specified can cause electric shock and fire.

Use ear protectors

Loud noises can damage hearing.

Keep a fire extinguisher nearby

Keep a fire extinguisher in the welding shop in case of fire.

Maintain and inspect the Equipment periodically

Maintain and inspect the Equipment periodically, and repair any damage nearby before starting operation.

Precautions for Handling

Do not use this Equipment in the following places:
damp places (where humidity is 90% or higher), places where chemicals are handled, dusty places, places near a high-frequency noise source, places where water will be condensed, places where the Equipment may be subjected to vibration or shock, or hot or cold places (where temperatures is above 45℃ or below 0℃).

Clean the outside of the Equipment with a soft, dry cloth or one wet with a little water. If it is very dirty, use diluted neutral detergent or alcohol. Do not use paint thinner, benzine, etc., since they can discolor or deform the Equipment.

Do not put a screw, a coin, etc., in the Equipment, since they can cause a malfunction.

Operate the Equipment according to the method described in this operation manual.

Operate the switches and buttons carefully by hand. If they are operated roughly or with the tip of a screwdriver, a pen, etc., this will cause malfunction or damage.

Operate the switches and buttons one by one. If two or more are operated at a time, the Equipment may malfunction or be damaged.

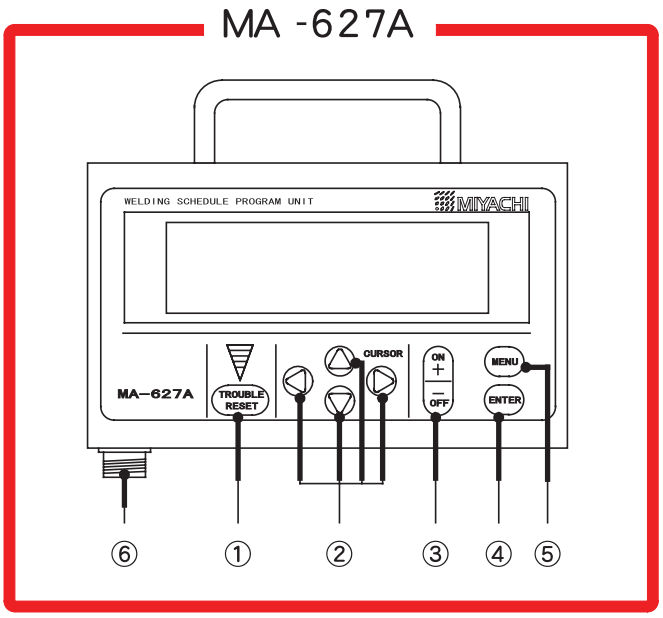
2. Introduction

The **MA-627A** is a program unit which is connected to our products and used to set the operating condition, etc. of those products.

The **MA-627A** can be connected to any product that is applicable to the **MA-627A**; it can be used by rewriting the contents of the battery-backed up memory.

CAUTION
Normally, the equipment can be used as a program unit just after the power is turned on. However, it takes several minutes to rewrite the contents of the memory in the following cases. • When the equipment is turned on for the first time after purchase. • When the backup battery is dead. • When the model name and program version of equipment which have been stored in the **MA-627A** differ from those of the equipment connected to the **MA-627A** and when rewriting the **MA-627A** memory (see p.4-1, ①).

3. Name and Functions of Each Part



① **[TROUBLE RESET] Key**
Pressing this key after the cause of trouble is eliminated while an error message is indicated turns off the error massage.

② **[CURSOR] Keys**
Pressing these keys moves the cursor to up, down, to the right or to the left to select an item.

③ **[+ON/-OFF] Key**
Pressing this key changes over the value of the currently selected items or changes that value. Pressing the +ON side selects YES, and pressing the -OFF side selects NO.

④ **[ENTER] Key**
Pressing this key enters the data set with the **[+ON/-OFF] key** in the product connected to the **MA-627A**.
The product connected to the **MA-627A** does not recognize the data settings until this key is pressed. After setting the data, be sure to press this key to enter the data.

⑤ **[MENU] Key**
Pressing this key changes the screen when there are two or more screens.

⑥ **Connector**
Receives the circuit cable. The other end of the cable must be connected to the **[PROGRAM UNIT] connector** of the product to be used with the equipment.

4. Explanation of Operation

Normally, the **MA-627A** can be used as a program unit of the connected product just after the power is turned on.
For how to operate, see the Operation Manual attached to the connected product.

In the following cases, however, the **MA-627A** works as a program unit several minutes after being turned on because of rewriting the contents of the memory.

- When the equipment is turned on for the first time after purchase (the test program for check is stored), or the equipment connected to the unit is changed.
  (See ① **[OVERWRITE]** screen)
- When the backup battery dies.
  (See ② **[DOWNLOAD]** screen)
- If the connected product is not applicable to the **MA-627A** or the communication line is broken or is not connected properly.
  (See ③ **[COMMUNICATION LINE ERROR]** screen)
- When you want to adjust the contrast of screen.
  (See ④ **[OPTION]** screen)

CAUTION

Setting and change for each item cannot be done from the start signal receiving to the weld sequence end.

If the setting is done during the weld sequence, the following screen appears. Press ① [TROUBLE RESET] key.

```
***** IS BUSY OR NOT CONNECTED

Please RESET key in
```

***** indicates the model name of welding power supply connecting to **MA-627A**.

Explanation of Screens

Letters used in the following explanation	
Hatched letters (000)	An item for which a value must be input or ON/OFF is set.
Outline letters (000)	An item which is indicated on the screen but cannot be changed by any operation.

① [OVERWRITE] screen

This screen appears when the model name and program version of the product stored in the **MA-627A** are different from the model name and program version of the connected product.

i) When the product is compatible with the model name and program version of the product stored in the **MA-627A**.

The following screen will appear when the **MA-627A** is connected.
Select **NO** for **OVERWRITE**, then press the **[ENTER]** key. You can use it, now.

```
CONNECT                MEMORY

IS-471B-MA [V00-01A]   IS-471B-MA [V00-02A]
IS-471B-S1 [V00-01A]   IS-471B-S1 [V00-02A]

                       OVER WRITE : NO
```

ii) When the product is not compatible with the model name and program version of the product stored in the **MA-627A**.

When the screen with "CONNECT IMPOSSIBLE!!" appears, you must select **YES** for **OVERWRITE** with **[+ON]** key, then press **[ENTER]** key to rewrite memory. Now, you can use the **MA-627A**.

```
CONNECT                MEMORY

IS-471B-MA [V00-01A]   IS-443B-MA [V00-02A]
IS-471B-S1 [V00-01A]   IS-443B-S1 [V00-02A]

CONNECT IMPOSSIBLE!!   OVER WRITE : YES
```

② [DOWNLOAD] screen

This screen is used when the **MA-627A** downloads the program from a product connected to the **MA-627A**. When downloading, select **YES** for **DOWNLOAD** with the **[+ON]** key, then press the **[ENTER]** key.

```
CONNECT                MEMORY

IS-471B-MA [V1-01A]      BACK UP ERASED
IS-471B-S1 [V1-01A]

                         DOWN LOAD : YES
```

③ [COMMUNICATION LINE ERROR] screen

If the following screen appears, check:
(i) the connected product for fault, and
(ii) the circuit cable for broken wire and for wrong connection.

```
 !!!TROUBLE!!!

    COMMUNICATION LINE ERROR
```

④ [OPTION] screen

This screen adjusts contrast of the **MA-627A** screen after program has been downloaded. (See ② **[DOWNLOAD]** screen)

```
-OPTION

LCD CONTRAST             4 (T 0--->7 D)
CURSOR BLINK OFF TIME    4
CORSOR BLINK ON  TIME    5

             DEFAULT     OFF
```

To go to the **[OPTION] screen**,

Download the program from the equipment for which the **MA-627A** accommodates.

↓

Go to the **[MENU]** screen.

↓

Press **[+ON]** key five times.

↓

Press **[-OFF]** key one time.

- **LCD CONTRAST**

  Adjust the screen thickness.
  The setting range is 0 to 7.
  The greater value makes the screen thicker.

  When program is downloaded, the **LCD CONTRAST** is set randomly.
  If the screen is extremely hard to view:

  Press **[MENU]** key once.

  ↓

  Press **[+ON]** and **[-OFF]** keys simultaneously for at least 4 seconds.

  Now, **LCD CONTRAST** is set to the initial setting. (You don't need to go to the **[OPTION]** screen)

- **CURSOR BLINK OFF/ON TIME**

  Sets the timing of the cursor blinking.
  When the cursor is not easy to view, change the value to adjust.

- **DEFAULT**

  Returns each item on the **[OPTION]** screen to the initial value when ON is selected.

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5. Replacement of Battery

The life of the lithium battery installed in the Equipment is five years. Replace the battery CR 2450 before it is dead, observing the following procedures.

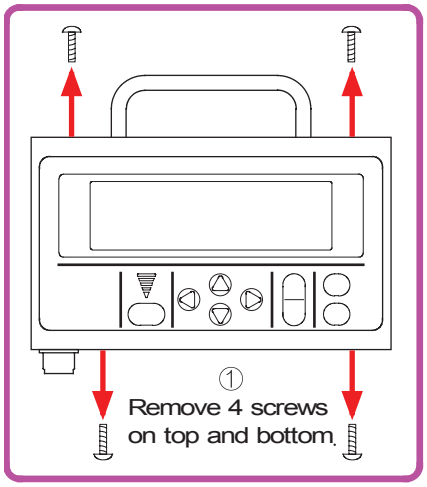
⚠ DANGER

When replacing the lithium battery, be sure to turn off the main power, so as not to get an electric shock.

CAUTION

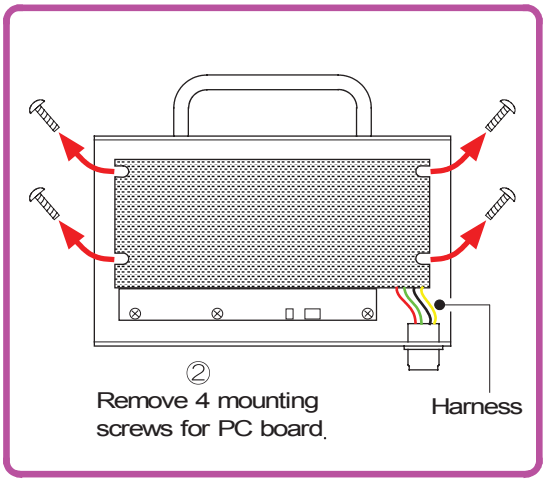
- When replacing the battery, work carefully to prevent damage to the printed circuit board and parts mounted on it.
- When the battery is replaced, the contents of the memory may be rewritten. Accordingly, be sure to download before starting the operation,

① Remove four screws on the top and bottom.



② Remove the rear cover, then four screws at the corners of the PC board.

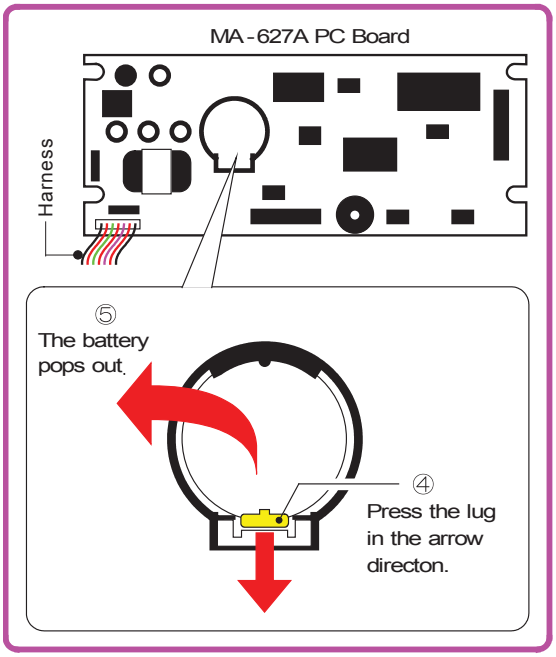
③ Turn over the PC board. Take care that you don't break the harness which connects the board and the unit body.



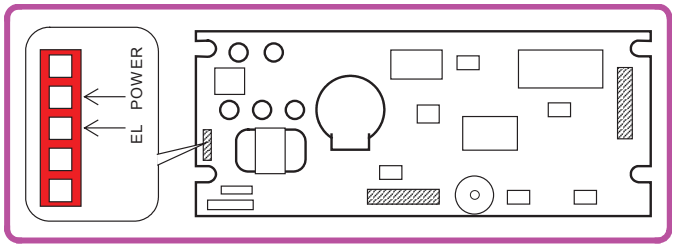
④ Components will appear (Right). Press the lug in the direction indicated by the arrow.

⑤ The lithium battery will pop out; pick it out.

⑥ Place a new battery in the battery holder with its plus (+) sign upward. Press and secure till it clicks.

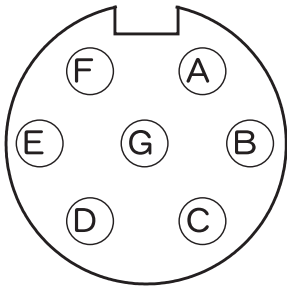


⑦ Re-assemble the PC Board into the unit body:
Align the three connectors (shaded portions in the drawing below) with the pins on the PC board and press them carefully, taking great care that you don't bend, break the pin.
Match the receptacle holes, EL and POWER, on the left-most and smallest connector in the drawing below, with the pins extending from the unit body.
Check a good connection of these connectors and pins, then secure the four corners of the board with the screws.



⑧ Re-place the rear cover; secure it with four screws on the top and bottom.

6. Connector Specifications



A: RD + / SD +

B: RD – / SD –

C: NC

D: +24 VDC IN supplied from the connected product (50 mA current consumption)

E: 0 V

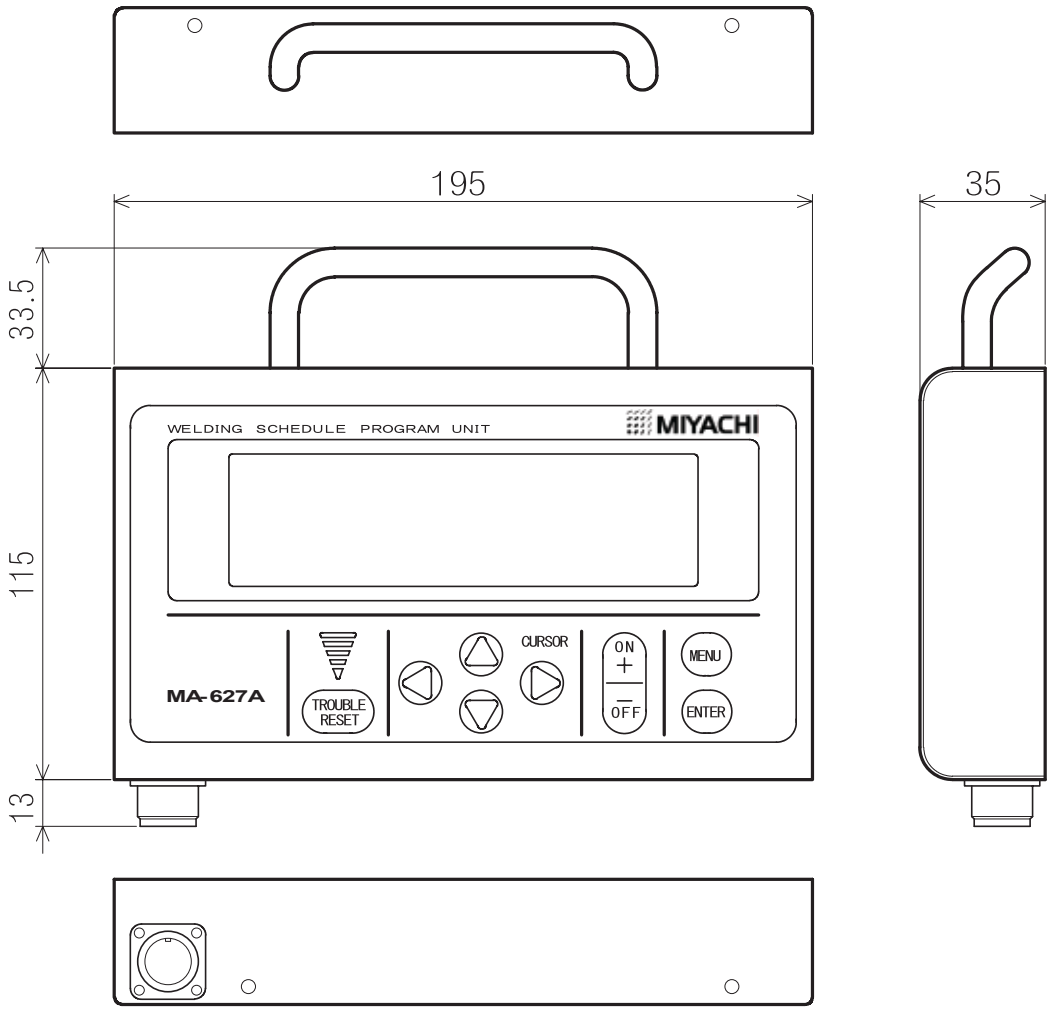
F: Shield

G: NC

CAUTION

Use the cable supplied to our product or one purchased from us.

7. Outline Drawing



(Unit in mm)

Mass: 680 g

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Weld Systems Integrators is a MASTER DISTRIBUTOR of resistance welders, consumables, spare parts, accessories, tooling, automation systems and robotic integration.

We work with trusted affiliates and partners to provide the most advanced resistance welding machinery and supplies. We keep a large, diverse inventory of **MIYACHI** weld checkers, controls, machinery, spare parts and consumables IN-STOCK at our Warrensville Heights, OHIO location (25 miles southwest of Cleveland) for quick shipment and delivery.

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