

1. Introduction

The Miyachi IS-221A Welding Power Supply is a high frequency inverter type resistance welding power supply which uses giant transistors (G.T.R.). The built-in welding timer can be programmed with the MA-201C Program, unit (optional accessory).

This unit has the following features:

- (1) G.T.R. Inverter : It is a high frequency inverter power supply using large capacity giant transistors.
- (2) Constant current control : Uses a primary welder current feedback control system. The product of the current is kept constant.
- (3) Inverter seam welding : Seam welding with repeated WELD and OFF is possible.
- (4) 15 welding schedules : Up to 15 schedules can be set.
- (5) Current monitor : Fluctuation against set current values can be monitored.
- (6) Current Step-up : Poor welding due to wearing-out of tips can be prevented.
- (7) Count monitor : Missed welds can be detected.
- (8) Error detection monitor : No current, excessive current, and thermostat trouble can be detected.

2. Configuration

- 2-1) High Frequency Inverter Type Resistance Welding Power Supply: IS-221A
- 2-2) Program Unit (optional): MA-201C
- 2-3) Welding transformer (optional) : IT-512A or IT-422A
- 2-4) Block Diagram : Welding transformer IT-206A
Welding head
circuitry power source
GTR drive circuitry
- 2-5) Welding power supply IS-221A : Control circuitry
Welding current
Voltage between tips
- 2-6) MA-201C Program Unit

3. Specifications

- 3-1) Welding Power : 3 phase 220VAC $\pm 10\%$, 50 or 60 Hz
- 3-2) Control Power : same as welding power
- 3-3) Output Voltage : single phase 300VAC (peak value at 220VAC input)
- 3-4) Output Current : 200A (peak value)
- 3-5) Output Frequency : 1KHz
- 3-6) Maximum Capacity : 60KVA
- 3-7) Rated Capacity : 23KVA
- 3-8) Average Max. Duty Ratio: 7% (Note 1)
- 3-9) Momentary Max. Duty : 15% (Note 2)
- 3-10) Control System : Primary constant current control by primary current limiter.
- 3-11) Constant Current Accuracy : Within $\pm 3\%$ of maximum output current
- 3-12) Breakdown Voltage : Main circuitry, 2,500VAC, 1 minute
- 3-13) Cooling System : Forced air cooling
- 3-14) Ambient Temperature, Humidity : 0 - 45C, less than 90% (avoid dew)
- 3-15) Installation : Indoors away from direct sunlight or corrosive gas.

Note 1: Maximum welding time must be less than 0.6 seconds. (30 cycles in an area with 50Hz, 36 cycles in an area with 60Hz)

Note 2: Momentary maximum duty rate - use values less than those shown in charts. 3-1, 3-2, 3-3.

3-21 Data Setting

(1) Spot Welding measured in cycles

<u>ITEM</u>	<u>SETTING RANGE</u>
Schedule	1-15 (SCHEDULE)
Squeeze	0-99 (CYC)
Up Slope	0-20 (")
Weld I	0-30 (")
Cool	0-99 (")
Weld II	0-30 (")
Down Slope	0- 9 (")
Hold	0-99 (")
Off	0-99 (")
Valve	1- 2 Note 2
Pulsation	1- 9 impulses
Weld Count Monitor	0-999 (000 is Count Monitor OFF)
Current 1 (C.C Control)	0.5-9.99KA (optional), but accuracy is guaranteed only above 1.0KA.
Current 2 (" ")	"
Current Monitor \pm Setting	0-99 (0 is Count Monitor OFF)(times)
Step-up Schedule	4 schedules, corresponding to valves
Step No.	1-5 (100% is the fixed increase rate of step1)
Current Change %	100-200 (%) x 15 schedules
Step-up Count	0-9999 welds
Pulse Width Upper Limit	50-100%
Transformer Turn Ratio	0-200

Note 1) 0-36 cycles can be set in an area with 60 Hz.

Note 2) This setting is used for the step-up function and an actual valve output (from terminal board) is not available.

