![Global Specialties logo]

GSK-948 DIGITAL CLOCK

This circuit uses IC FUJISU MB95F264 which is a new IC generation, small size, -and provides memory up to 20 kilobytes. The circuit is suitable to utilize as a current time showing or apply with other application by re-programming an IC.

Technical Specifications

- Power supply: 12VDC. 90mA. max.
- Display in 24-hour format.
- There are two display formats; Hour:Minute or Minute:Second operation.
- There is a connecting point with FUJISU programmer MB2146-08-E.
- PCB dimensions: 2.35 x 2.94 in.

Circuit Assembling

External connecting and fitting are shown in Figure 2. It is recommended to start the assembly with the lowest component for easy assembly.
First the diodes, then resistors, electrolyte capacitors, transistors and sequence from the lowest to the highest.
Be cautious during assembly, before fitting any devices be assure that the PCB poles and components are matched. Otherwise, wrong fitting will cause damage to the PCB and devices. Soldering iron should not exceed 40W, and soldering lead with a tin and lead ratio of 60/40 together with a joint solution inside.
Recheck the assembled circuit for your own assurance. Better to use a lead sucker or a-lead -wire absorber in case of misplacing component to protect PCB from damaged. For MB95 board, assembling and loading program were done completely by factory.

Testing

When the assembly is complete supply 12VDC to the circuit. The display will show 0:00 (when the colon point blinks that means the circuit is working).

Setting the Current Time

1. Connect the battery backup 4.5V to BACKUP point.
2. Supply 12VDC to the circuit. The display will show 0:00 (colon point will blink).

3. Press switch S1 or S2 (colon point will light)
4. Press switch S1 to set hour digit and press switch S2 to set minute digit.
5. When the time setting is completed, press switch S3, the display will show minute:second format, then press switch SI or S2, the display will show hour:minute format, and colon point will blink.

Note:

During the setting of the time if you don't press any switch within 5 seconds, the circuit will exit from the current time setting automatically and work normally.

While setting an hour, a minute or a second digit if you want to adjust the figure faster, press and hold the switch.

Reset the Current Time (0:00)

Press and hold switch S3, follow with switch S2. The display will show 0:00.
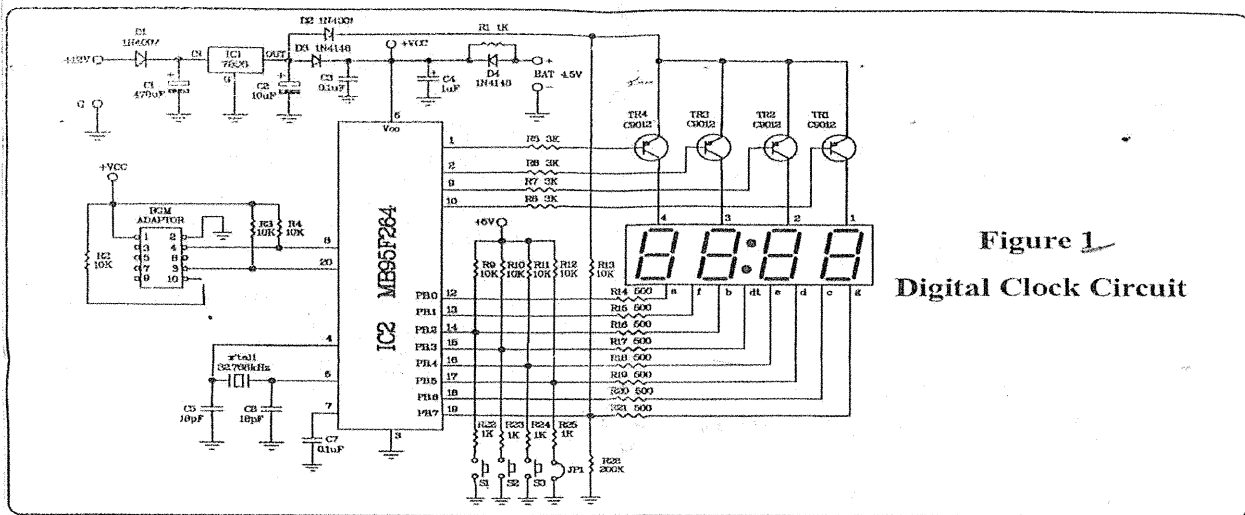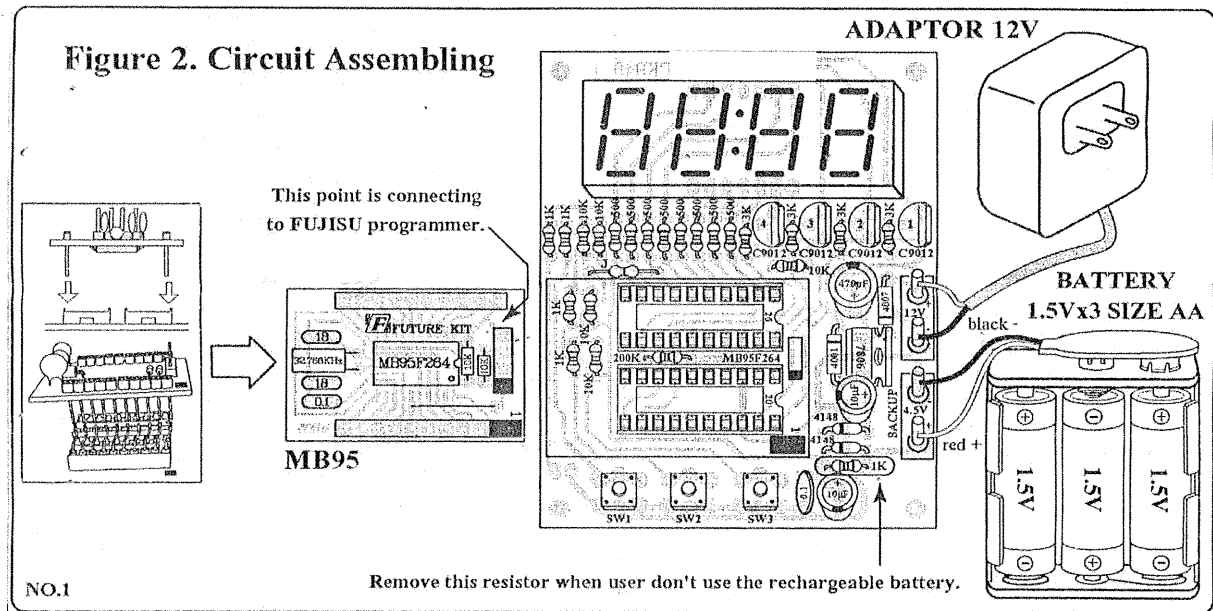
Figure 1
Digital Clock Circuit

Figure 2. Circuit Assembling

ADAPTOR 12V

This point is connecting to FUJISU programmer.

MB95

BATTERY
1.5Vx3 SIZE AA

black -

red +

NO.1

Remove this resistor when user don't use the rechargeable battery.

RESISTORS

R1,R22-R25	1kΩ	- brown-black-red-gold
R2-R4,R9-R13	10kΩ	- brown-black-orange-gold
R5-R8	3kΩ	- orange-black-red-gold
R14-R21	500Ω	- green-black-brown-gold
R26	200kΩ	- red-black-yellow-gold

ELECTROLYTIC CAPACITORS

C1	=	470 μF
C2	=	10 μF
C4	=	1 μF

CERAMIC CAPACITOR

| C3,C7 | = | 0.1 μF or 104 | C5,C6 | = | 18pF |

TRANSISTORS   TR1-TR4   =   C9012

DIODES

| D1,D2 | = | 1N4001 or 1N4007 |
| D3,D4 | = | 1N4148 |

IC

| IC1 | = | 7806 | IC2 | = | MB95F264 |

Figure 3. Components Installing

RESISTOR
R .....Ω

ELECTROLYTIC CAPACITOR
C .....μF
Watch the polarity!

IC 7806

TRANSISTOR
PNP

CERAMIC CAPACITOR
C .....μF

TACT SW

DIODE