



SUN ELECTRIC CORPORATION

Model: MGA-9000 CO UNIT SETUP

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# Installation Instructions

**INSTALLATION MUST BE PERFORMED BY QUALIFIED SUN SERVICE PERSONNEL ONLY**

**INSTALLATION OVERVIEW:** \_\_\_\_\_

The MGA-9000 is shipped as a fully assembled unit, with the exception of the parts and accessories.

**PARTS & ACCESSORIES LIST:** \_\_\_\_\_

<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QTY</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QTY</u>
0124-0105-01	Hook, 4"	1	3988-0231-01	Exhaust Hose, Short	1
0131-0024	Regulators	2	6004-0262-05	Trigger Lead, Short	1
0144-0010-01	Rubber Strap	1	6004-0462	Volt/Ohm Lead	1
0301-0944-01	Filter, 75 Micron	4	6004-0566-01	Tach Lead (Blue)	1
0301-0945-01	Filter, 8 Micron	4	6004-0606-01	Modem Cable	1
0403-1541-08	Screws, 10-32x1/2"	2	6004-0614-01	Cable, RPM Antenna	1
0403-1411-08	Screws, 8-32x1/2"	2	6005-0181-01	Quad 4/Nissan Adapter	1
0424-0804-01	Velcro Loop 3"	1	6005-0184-01	BMW Adapter	1
0424-0804-02	Velcro Hook 3"	1	6005-0184-02	Acura Adapter	1
0552-0072-01	1.44 Floppy	1	7009-1700	Leak Check Adapter Kit	1
0552-0104-01	DOS 6.22 Package	1	7009-1869	Exhaust Probe Assy.	2
0552011301	Bar Code Scanner	1	7009-1929	Trigger Pickup	1
0552-0990-01	Keyboard, 101 Key	1	7009-2035-01	ID Tag, Low Scale	1
0552-0993-01	Keyboard Cover	1	7009-2035-02	ID Tag, Mid Scale	1
0647-0069	Brass Fitting	1	7009-2037-01	Antenna, Figure 8 (RPM)	1
0682-0808-01	Label, Service Call	1	8200-0100-02	Tubing	1
0682-1041-01	Keyboard Label	1	7009-2223-01	Nissan 300ZX Adapter	1
0692-2340-01	Installation Instructions	1	EAA0063KT1A	Black Threaded Gas Cap	1
0718-0103	Cable Clamp	2	EAA0063KT2A	Blue Threaded Gas Cap	1
0758-0200-01	Caps, Protective	2	EAA0063KT3A	Red Threaded Gas Cap	1
1374-0110-01	Black Plastic Plug	6	EAA0063K26A	Gas Cap Needle Probe	1
2161-0023	Lead Hanger	2	EASC044C20A	Bar Code Holster	1
3988-0230-01	Exhaust Hose, Long	1	EAW0039C00A	Cable, Bar Code Power	1

**REQUIRED TOOLS:** \_\_\_\_\_

- Complete Tool Kit
- Low Scale Cal Gas

- Service Box
- Mid Scale Cal Gas

- Service Kit
- Flow Gauge

**INSTALLATION INSTRUCTIONS:**

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1. Cut the Straps, and remove the top of the carton, top packing and carton sides.
2. Slide the MGA-9000 and carton base off of the pallet, and split the corners of the base carton.
3. Lean the MGA-9000 so that one half of the foam base can be removed.
4. Lean the MGA-9000 so the other half of the foam base can be removed.
5. Open the Computer Drawer and ensure the boards are seated properly in each backplane. Visually inspect all connectors, making sure they are all properly seated.

**NOTE:** *Connector P720 is normally not connected and is used for the PC Floppy Option.*

6. Remove the keyboard (0552-0990-01) from its box and plug the connector into the keyboard jack on the front of the tester. Attach the keyboard label (0682-1041-01) to the keyboard.
7. Remove connector P424 from the System Interface Board.
8. Using the Service Box, plug P424 into J424 on the System Interface Board.
9. Remove P412 from the Systems Storage Board and plug the Service Box in its place. Then reconnect P412 from hard drive into the T-Connector on the Service Box. Hang the Service Box on the side of the computer drawer.

**NOTE:** *When connecting the Service Box, be sure to use proper orientation on the ribbon cables. The red marked side of the cable normally goes towards the front of the tester.*

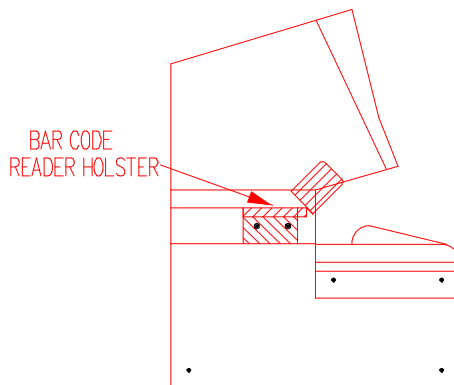


10. Check for proper AC and GROUND connections before turning the unit on.
11. Remove all tape from the lower printer and remove the carriage cover to gain access to the print head. Ensure that the printer ribbon cartridge is installed properly and remove the plastic stop that secures the print head.
12. Plug the tester into an A/C outlet. Push in the Circuit Breaker Switch on the rear of the computer drawer to turn on unit.
13. Place the Operate/Standby switch into the "Operate" position.
14. Load Software using the Service Box. On new units this procedure is completely automatic and needs no operator assistance. If a menu appears select #4, "Convert TAS to Another Type"

**NOTE:** *Formatting Hard Drive May Take Some Time.*

15. Verify that the accessories listed on the first page are all present on the bottom shelf of the MGA-9000.

16. Attach protective skin (0552-0993-01) to keyboard, secure by peeling off backing exposing adhesive.
17. In order to mount velcro turn keyboard upside down. Peel off backing on hook side of Velcro (0424-0804-02) and attach to keyboard. Attach mating soft side Velcro (0424-0804-01). Remove backing, exposing adhesive and place keyboard in its proper position and press firmly.
18. Repeat the last step for the Upper Printer.
19. Load a package of printer paper (0528-0994-01) or VIR forms (if the customer can supply them to you) into the lower printer.
20. Insert the 6 black plastic plugs (1374-0110-01) into the six holes, just above casters, on the base of the tester.
21. Using the two 10-32x1/2" screws (0403-1451-8), install the two hangers (2161-0023) into the slots on the side of the computer drawer.
22. Mount the 4" round hook (0124-0105-01) to the bottom shelf in the rear of the tester by screwing it to the weld nut located there. This is used to attach the rubber strap (0144-0010-01) and secure the gas bottles to the shelf.
23. Modem Option: Place the clamp (0718-0103) around the telephone cable. Mount clamp with hanger screw. Position screw so if disconnected from unit it will not hang closer than 18" from the floor. (See Service Bulletin #663)
24. Remove Bar Code Reader holster (EASC044C20A) from packing material.
25. Mount holster to left-hand side of tester between the two gray panels using hardware included (0403-1411-08). (See Figure 1)



**Figure 1 Location of Bar Code Reader Holster**

26. Connect one end of Bar Code Scanner cable (EAW0039C00A) to serial port B on back of unit. Secure with two screws attached.
27. Attach Bar Code Scanner (0552011301), to other end of Bar Code Scanner cable.
28. Connect the Tach Lead (6004-0566), Volt/Ohm Lead (6004-0462), Leak Check Adapter (7009-1700), Drain hose for Aspirator (8200-0100-01), and Exhaust Hose (3988-0230-01) to their respective connections.
29. Cut the Drain Hose to length so that it will not reach the Exhaust Port outlet.
30. Attach the Exhaust probes (7009-1869) to the two Exhaust Hoses (3988-0230-01 and 3988-0231-01), and place the short hose in the storage shelf in the rear, along with all the Tach Pickups, Anti-Dilution Probe, Filters, Printer Ribbon, and DOS 6.22 Package.
31. Attach the regulators (0131-0024) to the two gas bottles (0271-0041 and 0271-0066-01), and attach the two brass fittings (0647-0069) to the regulators.
32. Attach the hoses with labels to the proper tanks. (7009-2035-01 = Low Cal Port 1, 7009-2035-02 = Mid Cal Port 2)

33. Attach the 30 foot piece of tubing (for the Gas Cap Pressure Tester), to the port labeled "Cap Pressure" on the rear of the analyzer.
34. Connect Gas Cap Needle Probe to the other end of the tubing just installed.
35. At this time, the software should be loaded as indicated on the Screen. Power the MGA-9000 down using the Circuit Breaker/Switch on the back panel and remove the Service Box.
36. Reconnect cables that were disconnected in steps 5 through 7 (P424 and P412). Press the Circuit Breaker/Switch to power up the MGA-9000. The MGA will perform systems test and boot to the main menu. From the main menu enter the Service Access Code to proceed to the Service Menu.
37. Install new O<sup>2</sup> cell into the MGA-9000 Emissions drawer, in the O<sup>2</sup> Block. Attach harness to the top of the O<sup>2</sup> cell.
38. From the Service Menu, select "Manual Calibration". Select "Cal Port 1" and press "Enter".
39. With the IR Pump "ON", connect the Flow Meter from the exhaust port and record the flow rate.
40. Press "Enter", select "Cal Port 2", and press "Enter". Record the flow rate again.
41. Disconnect the Flow Meter from the exhaust port and connect it to the Low Scale Bottle. Turn the gas on and adjust the Regulator to match the flow of Cal Port 1, as recorded in step 36. Turn off the gas and disconnect the Flow Meter.
42. Disconnect the Flow Meter from the Low Scale bottle and connect it to the Mid Gas Tank. Turn the gas on and adjust the Regulator to match the flow of Cal Port 2, as recorded in step 36. Turn off the gas and disconnect the Flow Meter.
43. Place the gas bottles in the bottom of the cabinet and secure them with the Rubber Strap. Connect the Low Scale Gas Hose to Cal Port 1, and Mid Gas Hose to Cal Port 2.
44. From the Service Menu, Select "Set Time and Date". Follow the prompts on this page to enter the correct time and date, including Daylight Savings Time or Standard Time.
45. Install a new data disk.

**NOTE: All parameters other than State Parameters should be cleared.**

**INSTALLATION COMPLETE**