



Powering Business Worldwide

Aerospace Group
Conveyance Systems Division
Carter[®] Brand Ground Fueling Equipment

IN64303

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Applicable additional manuals:

IN64235

IN64108

IN64702

SU64235

Installation Instructions

Digital Manifold and Coupler with Air Operated Hydrant

Model 64303

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Installation Instructions

Digital Manifold

Carter® Model 64303

1.0 Scope

These installation instructions have been developed for use in mounting the 64303 solenoid manifold assembly on any hydrant servicer vehicle for use in controlling Eaton's Carter brand Models Carter 64702, 64802, 64804 and 64902 hydrant couplers and an air operated hydrant pit valve, such as Model 60554. These instructions do not

cover all requirements for such an installation which might be dictated by other authorities which have jurisdiction over the use of the vehicle. The responsibility for proper final installation configuration is that of the OEM. Consult with the local airport authority or corporate authority for further information.

2.0 Equipment Supplied by Customer

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The following is a listing of the required equipment supplied by the customer on the refueling vehicle. The digital system (Digital II) needs to interface with all of the items below:

- Mounting hardware needed to affix the 64303 to the vehicle.
- Wire to connect solenoids A thru D to the Digital II control panel.
- Hose and fittings to connect between the 64303 manifold assembly and the hydrant coupler being operated by the 64303.

- Hose and fittings to connect between the 64303 and hydrant pit valve being operated by the 64303.

- An accumulator to be utilized as the fluid power source for the 64303. It is recommended that an accumulator with a minimum volume of 2.5 cubic feet be utilized. An accumulator of lesser volume can be used, especially if the hydrant system pressure is never lower than 90 psi. The amount of volume used provides a capability to operate longer at lower pressures. If a smaller accumulator is used, contact Carter prior to proceeding.

3.0 General Description

3.1 The 64303 is an assembly of two solenoid valves mounted to a manifold block to constitute a pilot to operate a pressure control coupler such as Carter Model 64802 digital coupler and an additional solenoid to operate the hydrant pit valve. Solenoid valve "A" is a normally closed (N/C) valve and solenoid "B" is normally open (N/O) with solenoid "C" being a normally closed (N/C) valve which works to control surge. Solenoid "D" is a 3-way normally closed valve (N/C) to control the hydrant pit.

3.2 The manifold block is equipped with two fittings with two orifice screws labeled "A" and "B" located next to each other on one side of the manifold block. These are factory installed orifices which are critical to the function of the digital system. **Do not tamper with these two fittings, or the orifices with in them, in any way other than as stated within this document. Take great care to keep these orifices**

clean at all times, especially during first wetting of the system. If these orifices become blocked, it will adversely affect performance of the pressure control valve.

3.3 One hose, or other suitable conduit, will be utilized to connect the center passage of the manifold to the control cavity of the pressure control coupler.

3.4 Two wires will be connected to each of the four solenoid valves of the manifold assembly (eight (8) wires total) to connect them to the Model 64235 Digital II control module.

3.5 The 64303 can be mounted at any convenient location on the refueling vehicle in any orientation. However, it is best, if possible, to mount the assembly with the valves upright and the manifold on the bottom.

- 3.6 An accumulator must be used to store fluid power to be utilized as the source of inlet pressure for the 64303 manifold block.

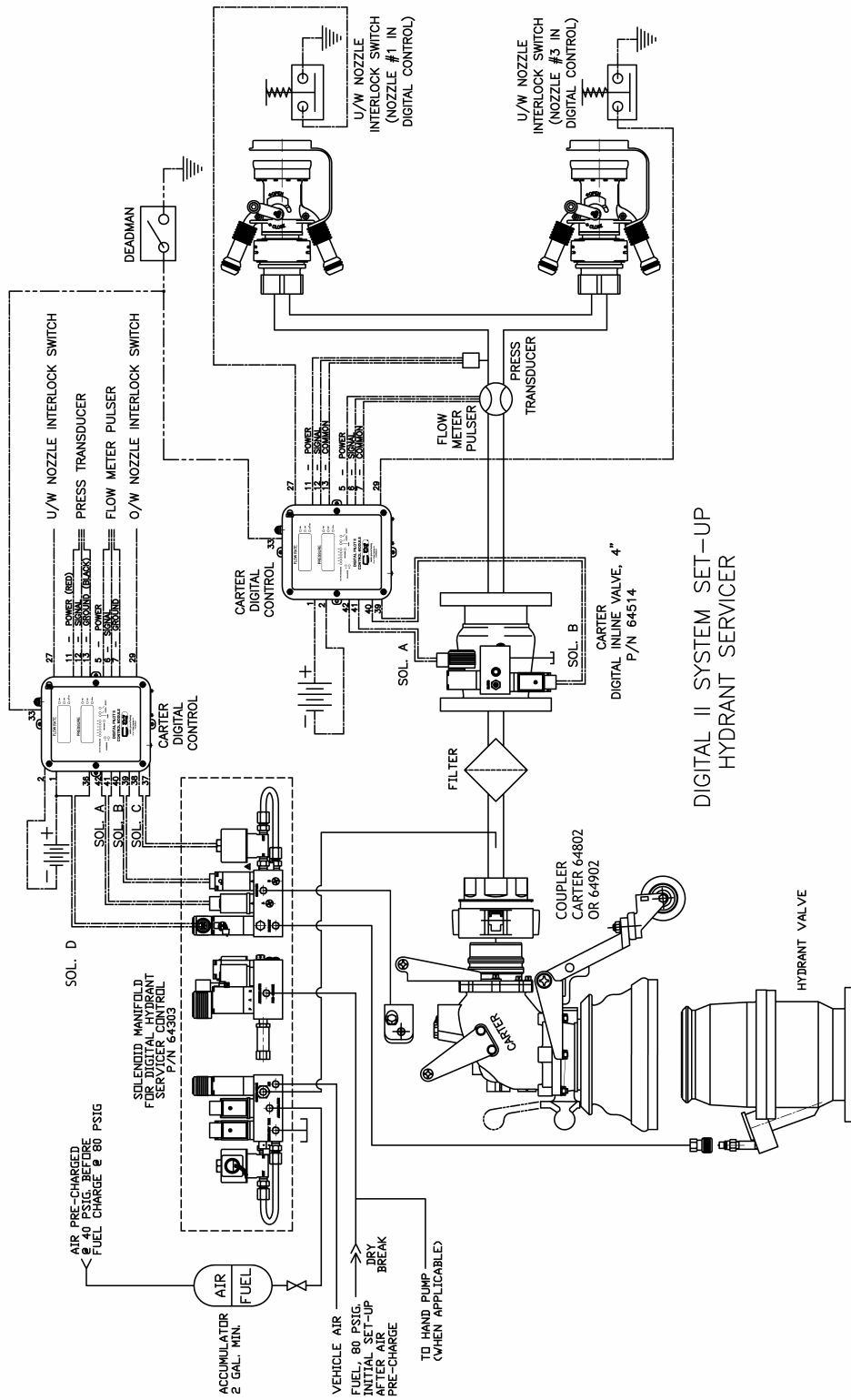
4.0 Installation

- 4.1 Mounting 64303 on the vehicle: greater than the pressure within the accumulator.
- 4.1.1 The manifold assembly can be mounted to the refueling vehicle by utilizing the two holes drilled through the face of the manifold block. 4.3.4 Also connect the fuel reservoir portion of the accumulator to the inlet of the manifold block used to control the digital coupler.
- 4.2 Solenoid Connections 4.3.5 Pre-charge the gas end of the accumulator with 60 psi of air (or nitrogen) pressure.
- 4.2.1 Solenoids "A", "B" and "D" can be connected to the Digital II control module by pulling the female connectors and screws from the block and connecting 18 gauge (recommended) insulated wires to the solenoids then securing lid, screws and female connectors. 4.4 Manifold Fluid/Air Connections
- 4.2.2 Solenoid "A" (slightly shorter of the two) should be wired to the terminals numbered 41 and 42 on the control board for Digital II. 4.4.1 There are nine ports on the manifold block, each a female 1/4" NPT. Four of these fluid ports will have to be connected to other fluid sources on the vehicle. One will connect to a pneumatic source on the vehicle.
- 4.2.3 Solenoid "B" (slightly taller of the two) should be wired to the terminals numbered 39 and 40 on the control board for Digital II. 4.4.2 The two fittings marked "A" and "B" located on either side of the port marked "coupler" have factory installed orifices within them which are critical to the function of the digital valve system. **Do not tamper with these two fittings, or the orifices with in them, in any way other than as stated within this document. Take great care to keep these orifices clean at all times, including during first wetting of the system.**
- 4.2.3 Solenoid "D" should be wired to the battery "hot side" and the terminal numbered 36 on the control board for Digital II.
- 4.2.4 Solenoid "C" has a length of wire extending from the housing that will need to be connected to another piece of wire of suitable length for connection to the Digital II control board. Solenoid "C" should be wired to the terminals numbered 37 and 38. 4.4.3 Connect the high pressure source, such as an accumulator used in conjunction with the coupler to the port marked "accumulator" on the manifold block. Use a 1/4" or 3/8" inside diameter hose, tube or pipe for this application.
- 4.3 Accumulator 4.4.4 Connect the port marked "accumulator pre-charge" on the manifold block to the accumulator hand pump. Use a 1/4" or 3/8" inside diameter hose, tube or pipe for this application.
- 4.3.1 Any 2.5 gallon bladder accumulator can be utilized for the fluid power source for the manifold block used to control the digital coupler. Follow the manufacturer's instructions for mounting the accumulator on your vehicle. 4.4.5 Connect the low pressure point to the port marked "recovery tank". Use a 1/4" or 3/8" inch inside diameter hose, tube or pipe for this application. NOTE: The hose or conduit selected for this purpose must be free flowing. Any major resistance to flow in this line will adversely affect the operation of the 64303. Free flow of fluid in this line is imperative.
- 4.2.2 Connect a line to the fuel reservoir portion of the accumulator from a high pressure source on the vehicle. This line will be used to charge the accumulator with fuel pressure.
- 4.3.3 Install a check valve in this line which will allow flow from the vehicle plumbing into the accumulator but not allow flow from the accumulator back into the plumbing. The result is that fuel pressure will be applied to the inlet of the manifold block from the accumulator and it will become re-charged whenever the pressure in the vehicle is 4.4.6 Connect the hose or conduit which carries fluid to the pressure control coupler to the port on the manifold block marked "coupler". Use a 1/4" or 3/8" inside diameter hose, tube or pipe for this application. If using hose, it must be a braid reinforced hose

- suitable for 300 psi service or some other very stiff conduit. For best results, use the stiffest (least inflatable) hose you can. (Good results have been accomplished with the ¼" DAYCO 6L2 hose.) The hoses can be no longer than 60 feet. The other end of the hose or conduit is connected to the control cavity of the pressure control coupler.
- 4.4.6.1 When making this connection, use free flowing fittings which will not restrict flow through this conduit. Any major resistance to flow in this line will adversely affect the operation of the coupler. Free flow of fluid in this line is imperative.
- 4.4.7 Connect the port marked "air" on the manifold block to an air source on the vehicle. Use a 1/4" or 3/8" inside diameter hose, tube or pipe for this application.
- 4.4.8 Connect the hose or conduit which carries air to the hydrant pit valve to the port on the manifold block marked "hydrant". The other end of the hose or conduit is connected to pilot on the hydrant pit valve.
- 4.5 Air Bleeding
- 4.5.1 Once the physical installation is complete and the vehicle is filled with fuel, upon first pressurization, the hoses and/or tubes that connect the 64303 manifold assembly to the digital coupler and its internal cavity must be bled of air.
- 4.5.2 The 64303 is equipped with a rapid bleed valve feature to assist in bleeding trapped air from the coupler command line.
- 4.5.3 Use the hand pump to ensure the accumulator has at least 80 psi of fuel pressure. Remove the fuel command line from the coupler and press the rapid bleed valve button on the 64303 catching the fuel emitted from the control line in a suitable container. Release the button and place a finger over the end of the command line to minimize further ingestion of air. Reconnect the line to the coupler.
- 4.5.4 Using the hand pump recharge the accumulator to 80 psi fuel pressure. Loosen the bleed plug on the top of the hydrant coupler and press the rapid bleed button on the 64303 again. When the residual air is bled, tighten the bleed plug on the coupler. Repeat this step if necessary until satisfied that all the air is removed from the control line and from the control cavity of the coupler.
- The unit is ready for testing and setup of the digital control system. Refer to manual SU64235 for instructions.

5.0 Illustrations

See following page.



DIGITAL II SYSTEM SET-UP
HYDRANT SERVICER

Figure 1
64303 Connection Schematic

Aerospace Group
Conveyance Systems Division
9650 Jeronimo Rd
Irvine, CA 92618
Ph (949) 452-9500
Fax (949) 452-9992

