

Introduction

Purpose

This document provides information to replace Steering Manifold Valves and Valve Coils in Encore® fixed blenders. The following table lists the kits that are to be used for the replacement procedure.

Kit Number	Kit Name
K96642-01	Steering Manifold Valve Kit
K96643-01	Valve Coil Kit

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Required Tools

The following tools are required for the installation of the kit:

- Absorbent Pad
- Approved Fuel Container
- Catch Pan
- Phillips® Head Screwdriver
- 7 mm and 10 mm Drive Socket Sets
- 6' (minimum) Occupational Safety and Hazard Association (OSHA) approved Frame Ladder
- Silicone Grease or Vaseline®
- Wire Cutter/Stripper

Note: Tools are required only for the replacement of valve coils, and not for the K96643-01 kit.

Related Documents

Document Number	Title	GOLD Library
MDE-3804	Encore and Eclipse® Start-up/Service Manual	Encore and Eclipse

Abbreviations and Acronyms

Term	Description
OSHA	Occupational Safety and Hazard Association
STP	Submerged Turbine Pump

Parts List

Steering Manifold Valve Kit K96642-01

The following table lists the parts included in the kit.

Item	Description	Part Number	Quantity
1	Assembly, Valve	M00223B001	1
2	Steering Manifold Valve and Valve Coil Replacement Kits (K9664X-01) for the Encore Series	MDE-3900	1

Valve Coil Replacement Kit K96643-01

The following table lists the parts included in the kit.

Item	Description	Part Number	Quantity
1	Kit, Coil Assembly	M00223B003	1
2	Steering Manifold Valve and Valve Coil Replacement Kits (K9664X-01) for the Encore Series	MDE-3900	1

Read NFPA 30A and NFPA 70

Before installing equipment, read, understand, and follow the following codes:

- The National Electric Code (NFPA 70)
- The Automotive and Marine Service Code (NFPA 30A)
- Any national, state, and local codes that may apply

Failure to service the equipment in accordance with NFPA 30A and NFPA 70 may adversely affect the safe use and operation of the system.

Important Safety Information

This section introduces the hazards and safety precautions associated with installing, inspecting, maintaining or servicing this product. Before performing any task on this product, read this safety information and the applicable sections in this manual, where additional hazards and safety precautions for your task will be found. Fire, explosion, electrical shock or pressure release could occur and cause death or serious injury, if these safe service procedures are not followed.


Preliminary Precautions


You are working in a potentially dangerous environment of flammable fuels, vapors, and high voltage or pressures. Only trained or authorized individuals knowledgeable in the related procedures should install, inspect, maintain or service this equipment.

Emergency Total Electrical Shut-Off

The first and most important information you must know is how to stop all fuel flow to the pump/dispenser and island. Locate the switch or circuit breakers that shut off all power to all fueling equipment, dispensing devices, and Submerged Turbine Pumps (STPs).

⚠ WARNING

 The EMERGENCY STOP, ALL STOP, and PUMP STOP buttons at the cashier's station WILL NOT shut off electrical power to the pump/dispenser. This means that even if you activate these stops, fuel may continue to flow uncontrolled.

 You must use the TOTAL ELECTRICAL SHUT-OFF in the case of an emergency and not the console's ALL STOP and PUMP STOP or similar keys.

Total Electrical Shut-Off Before Access

Any procedure that requires access to electrical components or the electronics of the dispenser requires total electrical shut off of that unit. Understand the function and location of this switch or circuit breaker before inspecting, installing, maintaining, or servicing Gilbarco equipment.

Evacuating, Barricading and Shutting Off

Any procedure that requires access to the pump/dispenser or STPs requires the following actions:



- An evacuation of all unauthorized persons and vehicles from the work area
- Use of safety tape, cones or barricades at the affected unit (s)
- A total electrical shut-off of the affected unit (s)

Read the Manual

Read, understand and follow this manual and any other labels or related materials supplied with this equipment. If you do not understand a procedure, call a Gilbarco Authorized Service Contractor or call the Gilbarco Support Center at 1-800-800-7498. It is imperative to your safety and the safety of others to understand the procedures before beginning work.

Follow the Regulations

Applicable information is available in National Fire Protection Association (NFPA) 30A; *Code for Motor Fuel Dispensing Facilities and Repair Garages*, NFPA 70; *National Electrical Code (NEC)*, Occupational Safety and Hazard Association (OSHA) regulations and federal, state, and local codes. All these regulations must be followed. Failure to install, inspect, maintain or service this equipment in accordance with these codes, regulations and standards may lead to legal citations with penalties or affect the safe use and operation of the equipment.

Replacement Parts

Use only genuine Gilbarco replacement parts and retrofit kits on your pump/dispenser. Using parts other than genuine Gilbarco replacement parts could create a safety hazard and violate local regulations.

Safety Symbols and Warning Words

This section provides important information about warning symbols and boxes.

Alert Symbol



This safety alert symbol is used in this manual and on warning labels to alert you to a precaution which must be followed to prevent potential personal safety hazards. Obey safety directives that follow this symbol to avoid possible injury or death.

Signal Words

These signal words used in this manual and on warning labels tell you the seriousness of particular safety hazards. The precautions below must be followed to prevent death, injury or damage to the equipment:



DANGER: Alerts you to a hazard or unsafe practice which will result in death or serious injury.



WARNING: Alerts you to a hazard or unsafe practice that could result in death or serious injury.



CAUTION with Alert symbol: Designates a hazard or unsafe practice which may result in minor injury.
CAUTION without Alert symbol: Designates a hazard or unsafe practice which may result in property or equipment damage.

Working With Fuels and Electrical Energy

Prevent Explosions and Fires

Fuels and their vapors will explode or burn, if ignited. Spilled or leaking fuels cause vapors. Even filling customer tanks will cause potentially dangerous vapors in the vicinity of the dispenser or island.

Important Safety Information

No Open Fire



Open flames from matches, lighters, welding torches or other sources can ignite fuels and their vapors.



No Sparks - No Smoking

Sparks from starting vehicles, starting or using power tools, burning cigarettes, cigars or pipes can also ignite fuels and their vapors. Static electricity, including an electrostatic charge on your body, can cause a spark sufficient to ignite fuel vapors. Every time you get out of a vehicle, touch the metal of your vehicle, to discharge any electrostatic charge before you approach the dispenser island.

Working Alone

It is highly recommended that someone who is capable of rendering first aid be present during servicing. Familiarize yourself with Cardiopulmonary Resuscitation (CPR) methods, if you work with or around high voltages. This information is available from the American Red Cross. Always advise the station personnel about where you will be working, and caution them not to activate power while you are working on the equipment. Use the OSHA Lockout/ Tagout procedures. If you are not familiar with this requirement, refer to this information in the service manual and OSHA documentation.

Working With Electricity Safely

Ensure that you use safe and established practices in working with electrical devices. Poorly wired devices may cause a fire, explosion or electrical shock. Ensure that grounding connections are properly made. Take care that sealing devices and compounds are in place. Ensure that you do not pinch wires when replacing covers. Follow OSHA Lockout/Tagout requirements. Station employees and service contractors need to understand and comply with this program completely to ensure safety while the equipment is down.

Hazardous Materials

Some materials present inside electronic enclosures may present a health hazard if not handled correctly. Ensure that you clean hands after handling equipment. Do not place any equipment in the mouth.

WARNING

The pump/dispenser contains a chemical known to the State of California to cause cancer.

WARNING

The pump/dispenser contains a chemical known to the State of California to cause birth defects or other reproductive harm.

In an Emergency

Inform Emergency Personnel

Compile the following information and inform emergency personnel:

- Location of accident (for example, address, front/back of building, and so on)
- Nature of accident (for example, possible heart attack, run over by car, burns, and so on)
- Age of victim (for example, baby, teenager, middle-age, elderly)
- Whether or not victim has received first aid (for example, stopped bleeding by pressure, and so on)
- Whether or not a victim has vomited (for example, if swallowed or inhaled something, and so on)

WARNING



Gasoline ingested may cause unconsciousness and burns to internal organs.
Do not induce vomiting.
Keep airway open.
Oxygen may be needed at scene.
Seek medical advice immediately.

WARNING



Gasoline inhaled may cause unconsciousness and burns to lips, mouth and lungs.
Keep airway open.
Seek medical advice immediately.

WARNING



Gasoline spilled in eyes may cause burns to eye tissue.
Irrigate eyes with water for approximately 15 minutes.
Seek medical advice immediately.

WARNING



Gasoline spilled on skin may cause burns.
Wash area thoroughly with clear water.
Seek medical advice immediately.

IMPORTANT: Oxygen may be needed at scene if gasoline has been ingested or inhaled. Seek medical advice immediately.

Lockout/Tagout

Lockout/Tagout covers servicing and maintenance of machines and equipment in which the unexpected energization or start-up of the machine(s) or equipment or release of stored energy could cause injury to employees or personnel. Lockout/Tagout applies to all mechanical, hydraulic, chemical or other energy, but does not cover electrical hazards. Subpart S of 29 CFR Part 1910 - Electrical Hazards, 29 CFR Part 1910.333 contains specific Lockout/ Tagout provision for electrical hazards.

Installation Instructions

Preliminary Steps for Kit K9664X-01 Installation



- 1 Close and test all shear valves.
- 2 Turn off associated Submerged Turbine Pump (STP) power. Use system circuit breakers. Multiple disconnects may be required.
- 3 Place nozzle(s) into an approved container to drain and bleed pressure. Some residual pressure may remain.
- 4 Position an approved container for catching fuel under the steering valve assembly being serviced.

Accessing Steering Valve Manifold

To access the Steering Valve Manifold, proceed as follows:

The Steering Manifold Valves for each side are located on the right of the upper housing as you face that side.

Note: You may find it easier to work on Steering Valve components on a particular side from the opposite side. For example, access Side 1 valves from position on Side 2 of the unit. While this involves some reaching out, it provides greater visibility of the components and work area.

- 1 Remove the four bolts, lifting hooks, and washers from the bottom of the upper housing. Retain all hardware for reassembly.
- 2 Carefully lift the top cover off the unit. Retain the top cover for reassembly.
Note: Place the top cover in a protected area and on appropriate material to prevent damage to the sheet metal and/or paint.
- 3 Remove six bolts from the top sheathing. Retain the bolts for reassembly.
- 4 Remove the top sheathing. Retain the top sheathing for reassembly.
Note: The inner sheathing does not have to be removed to access the steering valve components.
- 5 To replace the Steering Manifold Valves and Valve Coils in Encore fixed blenders, proceed as follows:
 - If you are using the K96643-01 kit to replace the Steering Valve Coil, refer to [“Installing the Valve Coil Replacement Kit \(K96643-01\)”](#) on page 6.
 - If you are using the K96642-01 kit to replace the Steering Valve, refer to [“Installing the Steering Manifold Valve Replacement Kit \(K96642-01\)”](#) on page 8.

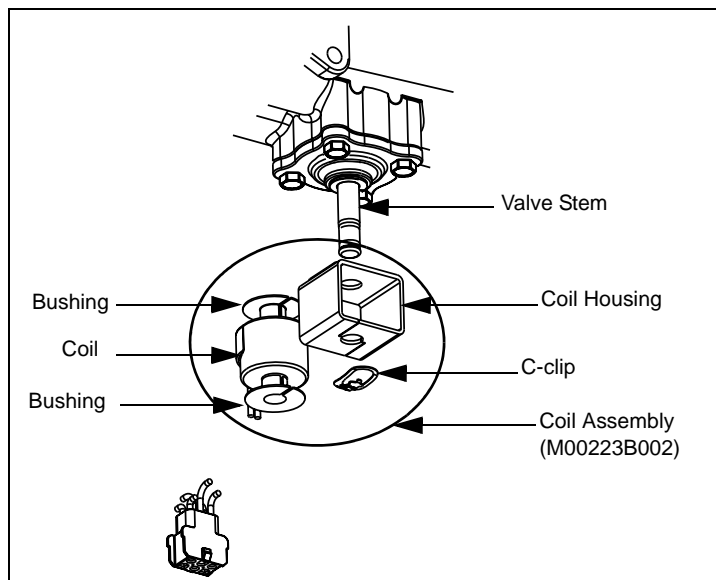
Installing the Valve Coil Replacement Kit (K96643-01)

Note: Before proceeding, ensure that you read and understand all safety instructions. Refer to "Important Safety Information" on page 3.

Removing the Existing Valve Coil

To remove the existing Valve Coil, proceed as follows:

Figure 1: Manifold Valve Coil



- 1 Remove the C-clip from the valve stem.
- 2 Pull the coil frame and coil assembly down and off the valve stem.
- 3 Locate the open side of the coil housing that contains two dimples. Push the coil out of the coil housing from the dimpled side.
Note: Be careful to extract the coil in such a way that the bushings at the top and bottom of the coil do not fall off.
- 4 Remove the bushings from the top and bottom of the coil and retain the bushings for reassembly.
- 5 Cut the wire at a point close to the valve coil.

Installing the New Valve Coil

To install the new Valve Coil, proceed as follows:

- 1 Install the bushings in the new coil.
- 2 With the bushings in place, press the coil into the coil housing from the open side of the housing without dimples.
- 3 Line up the hole in the coil with the holes in the coil housing.
- 4 Mount the coil and the coil housing on the valve stem.
- 5 Secure the coil assembly in place with the C-clip.
- 6 Proceed to [“Connecting Wires”](#).

Connecting Wires

To connect the wires, proceed as follows:

CAUTION

Wires must be connected according to the wire chart below, otherwise the equipment may not function properly.

- 1 Using two wire nuts, connect the new valve coil to the six-position connector according to the following wire chart:


From	To
K1-1	J701-3
K1-2	J701-6
K2-1	J701-2
K2-2	J701-5
K3-1	J701-1
K3-2	J701-4


- 2 Proceed to [“Completing Installation”](#) on [page 9](#).

Installing the Steering Manifold Valve Replacement Kit (K96642-01)

Note: Before proceeding, ensure that you read and understand all safety instructions. Refer to "Important Safety Information" on page 3.

⚠ WARNING

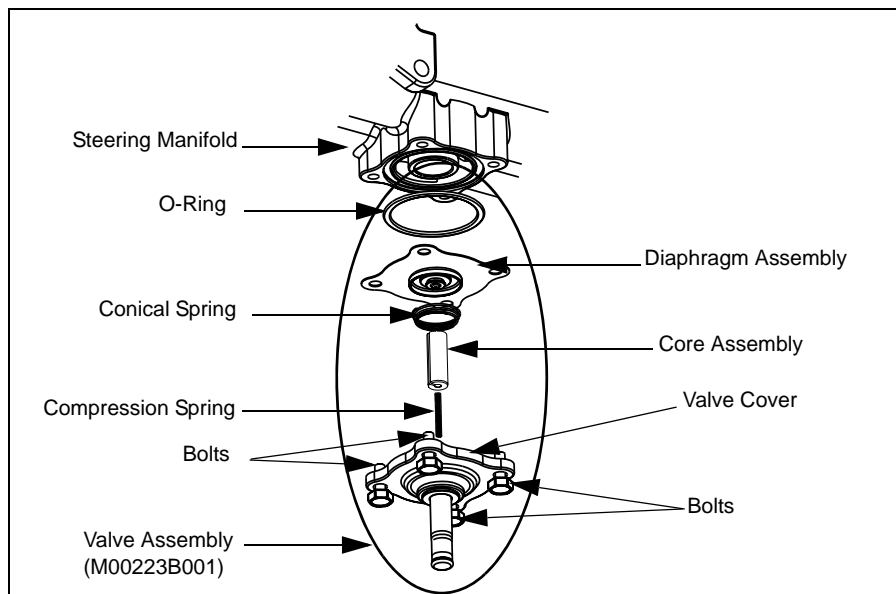
 Residual pressure and entrapped fuel may still be present and may spray when removing parts. Fire and explosion could result in severe injury or death.

 Wear eye protection and remove parts slowly. Catch fuel in approved containers. Clean up all spills promptly.

Removing the Existing Steering Manifold Valve Assembly

To remove the existing Steering Manifold Valve assembly, proceed as follows:

Figure 2: Manifold Valve Assembly



- 1 Remove the C-clip from the valve stem.
- 2 Pull the coil frame and coil assembly down and off the valve stem.
- 3 Using approved materials and practices, prepare for any residual fuel and pressure that may be in the valve. Place a catch pan and absorbent pad beneath the manifold assembly.
- 4 Slowly and carefully loosen the four bolts on the valve cover to allow residual pressure (if present) to bleed off and fuel to drain.

- 5 Carefully remove and set the cover aside. Save the bolts.
Note: The compression spring, core assembly, conical spring, and diaphragm assembly should come off with the valve cover. Discard these parts.

- 6 Remove the existing valve body O-Ring and discard.

Installing the New Steering Manifold Valve Assembly

To install the new Steering Manifold Valve assembly, proceed as follows:

- 1 Lightly coat the O-Ring with silicone grease or Vaseline and install it in the valve body groove.
- 2 Before installing the valve cover, verify if the following components are installed on the cover in the following order (see [Figure 2](#) on [page 8](#)):
 - Compression Spring
 - Core Assembly
 - Conical Spring
 - Diaphragm Assembly
- 3 Install two of the bolts retained in step 3 of “[Removing the Existing Steering Manifold Valve Assembly](#)” on [page 8](#) on the opposite corner holes of the valve body cover and valve diaphragm, to align the valve diaphragm.
- 4 Position the valve cover assembly on the valve body, and hand tighten the two bolts to hold the assembly in place.
Note: Ensure that the O-Ring is still in place before installing the cover.
- 5 Install the remaining two bolts, and tighten all four valve cover bolts.
Note: Bolts must be tightened evenly with torque applied in a bolt-to-bolt pattern, or the cover may be damaged and the seal integrity may be lost.
- 6 Proceed to “[Completing Installation](#)”.

Completing Installation

To complete the installation, proceed as follows:

- 1 Open the shear valve on the dispensers.
- 2 Restore power to the unit and to the STP. In the distribution box, place the unit in normal operation.
- 3 Purge air and check for leaks. If there is a leak, proceed as follows:
 - a Refer to “[Important Safety Information](#)” on [page 3](#) and follow all the steps.
 - b Correct the leak(s) and proceed again to step 1 of this procedure.
- 3 Check the unit for proper operation (refer to MDE-3804 Encore and Eclipse Start-up/Service Manual).
- 4 Replace the unit top cover and top sheathing.

This completes the installation of the Steering Manifold Valve and Valve Coil Replacement Kit.

Installation Instructions

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7300 West Friendly Avenue · Post Office Box 22087
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Phone (336) 547-5000 · <http://www.gilbarco.com> · Printed in the U.S.A.
MDE-3900A Steering Manifold Valve and Valve Coil Replacement Kits (K9664X-01) for Encore® Series · August 2008