



Series B Medical Gas Service Outlet Upgrade Kits

Installation Instructions

For additional information concerning operation of Puritan Bennett Series B Quick-Connect Outlet Valves, refer to Operating Instructions (P/N 6-847587-00). For additional information concerning operation of Series B Diameter-Index Safety System (DISS) Outlet Valves,

refer to Operating Instructions (P/N 6-847588-00). For information concerning repair components and service to outlets, refer to Puritan Bennett Series B Quick-Connect and DISS Outlet Service Manual (P/N 6-847036-00).

Parts List

Item	Part No.	Description
1.	Outlet upgrade kits	
	<u>DISS</u>	
	6-232200-00	Oxygen (U.S. labeling)
	6-232201-00	Nitrous oxide
	6-232202-00	Air (U.S. labeling)
	6-232203-00	Vacuum (U.S. labeling)
	6-232209-00	WAGD
	6-232210-00	Oxygen (international labeling)
	6-232212-00	Air (international labeling)
	6-232213-00	Vacuum (international labeling)
	<u>Puritan Bennett quick-connect</u>	
	6-232020-00	Oxygen (U.S. labeling)
	6-232021-00	Nitrous oxide
	6-232022-00	Air (U.S. labeling)
	6-232023-00	Vacuum (U.S. labeling)
	6-232024-00	WAGD
	6-232025-00	Oxygen (international labeling)
	6-232027-00	Air (international labeling)
	6-232028-00	Vacuum (international labeling)
1a.	6-232029-00	Series B slide upgrade kit
2.	6-232034-00	Connector (litharged outlets)
3.	6-232033-00	Connector (series '73 outlets)
4.	6-232032-00	Connector (series A outlets)
5.	6-325161-00	Coverplate (5" centerline)
6.	6-325160-00	Coverplate (3-1/4" centerline)
7.	6-315014-00	Standoff (5" centerline)
8.	6-315013-00	Standoff (3-1/4" centerline)
9.	6-232031-00	Adapter nut assembly (buried outlets)

Tools and Service Materials

- Heat gun - 400 watt (litharged outlets)
- Teflon® tape (litharged outlets)
- Truarc retaining ring pliers
- 1/4" pipe thread tap (litharged outlets)
- Oxygen compatible leak detector solution
- Staked connector replacement tool kit (P/N 6-138024-00) (series 73 outlets)
- Phillips head screw driver
- 5/16" open end wrench
- 7/8" socket wrench
- 11/16" socket wrench
- Pop rivet tool
- Measuring scale
- No. 30 drill
- Pliers
- Vacuum cleaner (portable)

Introduction

The performance and operation of the earlier series of Puritan Bennett outlets can be improved by installing Series B Upgrade Kits. Puritan Bennett outlets are identified by design configurations applicable to each of the three outlet series: Litharge, Series 73 and Series A. The complete upgrade kit consists of three component assemblies: a gas service specific outlet valve, a coverplate and standoff for either 3-1/4" or 5" centerline spaced outlets and a connector for either

litharged, series 73 or series A outlets.

An upgrade program begins with an inventory of the outlet series to be upgraded. The illustration below will aid in identifying the outlet series and ordering the correct upgrade kits. Outlets are best identified by the design of the outlet block. Removal of the coverplate may be necessary to be certain the correct connector is ordered.

Outlet Identification and Upgrade Components

Update kits, item 1, page 1 are used with all outlet series types. Connectors, items 2, 3, and 4, page 1 are used with specific series types. Coverplates and standoffs, items 5 through 8, page 1, are also used with specific series types. Figure 1 below shows key

identification components of the three outlet series types while Figure 2 shows the appropriate upgrade components. See Parts List on page 1 for part number information.

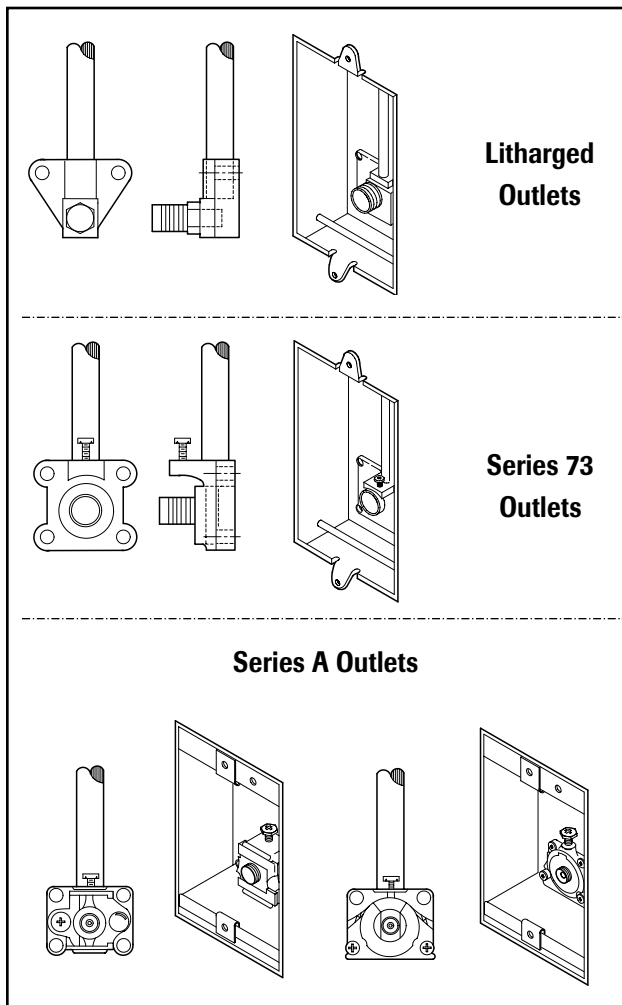


Figure 1: Identification Components

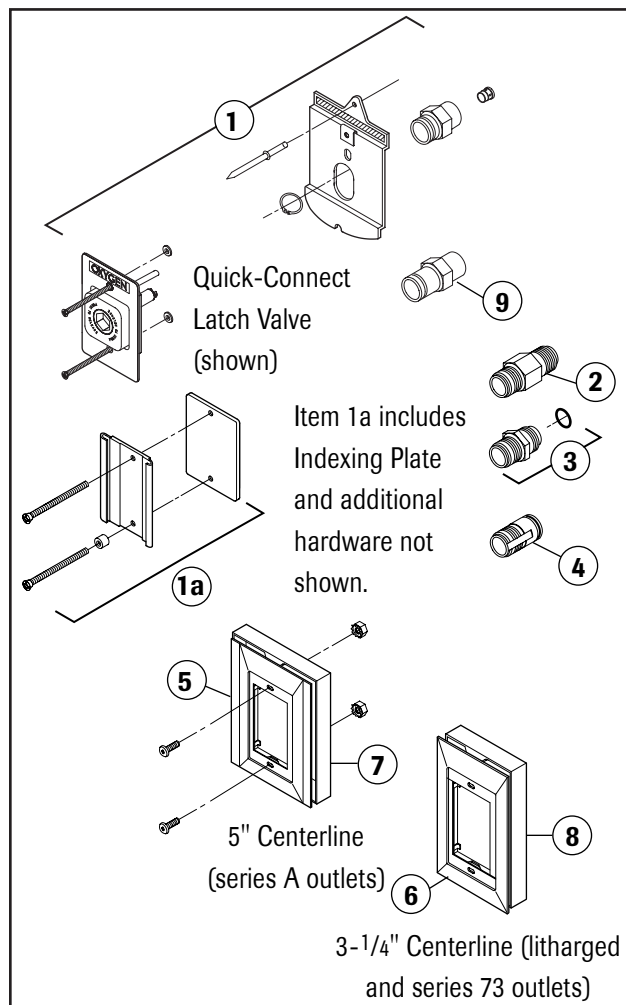


Figure 2: Upgrade Components

Removing the Coverplate and Primary Valve (Figures 3 and 4)

WARNING:

Oxygen, while not flammable, supports rapid combustion of flammable substances. Keep tools and parts free of oil, grease, and other contaminants. Notify appropriate authorities before turning off the medical gas supply to the outlet. Gas service outlets must be shut off and the pressure bled completely from service lines before upgrading begins.

1. Remove and discard the old coverplate insert and escutcheon. Ganged outlets may have a single coverplate assembly.
2. Peel the protective backing from the corresponding gas identification (ID) label provided with the upgrade kit and apply it to the wall directly beneath the outlet. This is to identify the outlet during the upgrade process.
3. Remove the primary valve with its spring and poppet by turning it counterclockwise until free of the connector. Series 73 and series A outlets have a locking screw that must be removed to allow rotation of the primary valve for removal. Discard the locking screw, primary valve, spring, and poppet. Litharged outlets have threaded connections secured with litharge luting compound that requires heat to loosen. Removing the litharged primary valve is more conveniently done when removing the connector as explained in the next section.

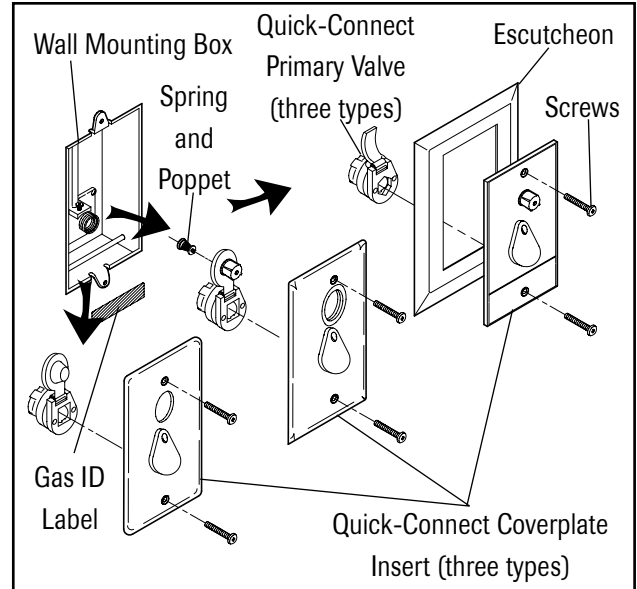


Figure 3

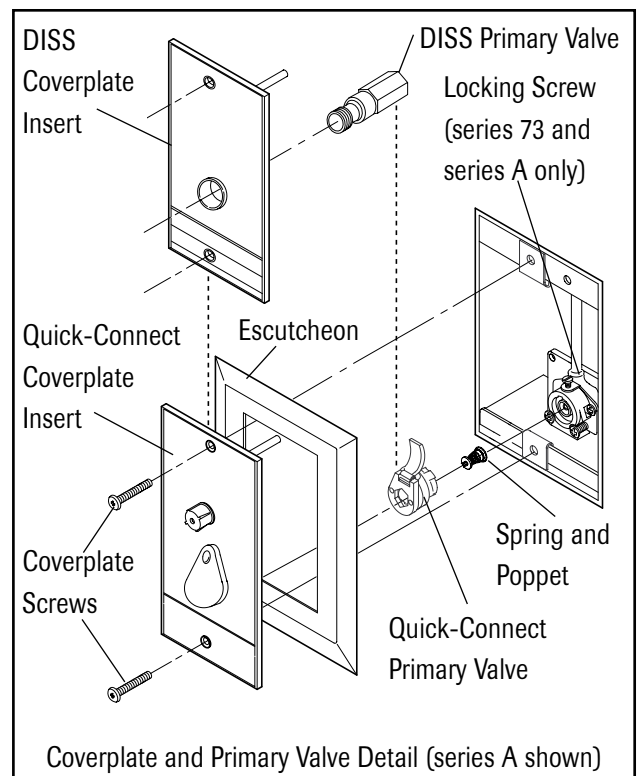


Figure 4

Removing a Litharged Primary Valve and Connector (Figure 5a)

1. The valve and connector are held in place by litharge, an oxygen compatible luting compound that must be heated in order to loosen parts for removal. Use a heat gun to direct heat on the valve and connector. Use care not to overheat the outlet block.
2. Once the litharge is softened, use pliers to remove the valve and an $11/16$ " socket to remove the connector by turning counterclockwise. Discard the valve and connector. Clean the threads of the block with a $1/4$ " pipe tap. Remove loose chips and debris from the outlet and mounting box with a vacuum cleaner.

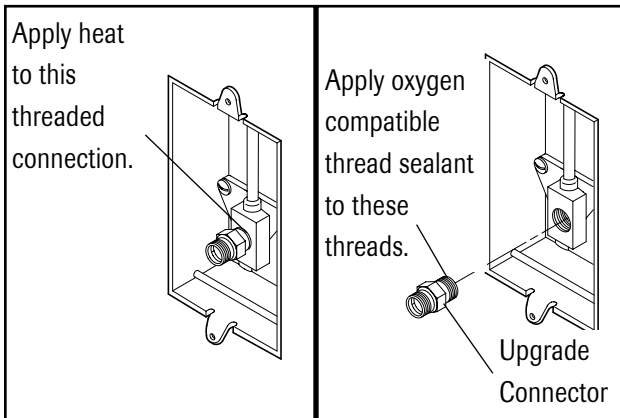


Figure 5a

Figure 5b

Installing a Litharged Upgrade Connector (Figure 5b)

1. Apply oxygen compatible thread sealant (e.g. Teflon tape per Mil-T-27730) to the $1/4$ " pipe thread end of the upgrade connector.
2. Carefully start the connector in the outlet block by hand until the threads are properly engaged. Tighten securely with an $11/16$ " socket wrench.

Removing a Series 73 Connector (Figure 6a)

This connector is held in place by staking, a process that forces a portion of the outlet block into two grooves in each side of the connector. Use special tool (P/N 6-900128-00) to remove the connector by turning counterclockwise. Outlet block threads must be chased with a $5/8-24$ bottom tap (P/N 6-995903-00). These two tools along with a $5/16$ " open end wrench are supplied in a kit (P/N 6-138024-00). In some instances the threads may have been sealed with litharge and heat must be applied to loosen (see section Removing a Litharged Primary Valve and Connector). Remove loose chips and debris from the block and mounting box with a vacuum cleaner.

NOTE:

Remove the old O-ring from the outlet block and discard. When retapping, make certain the tap is straight and square with the block to prevent cross-threading.

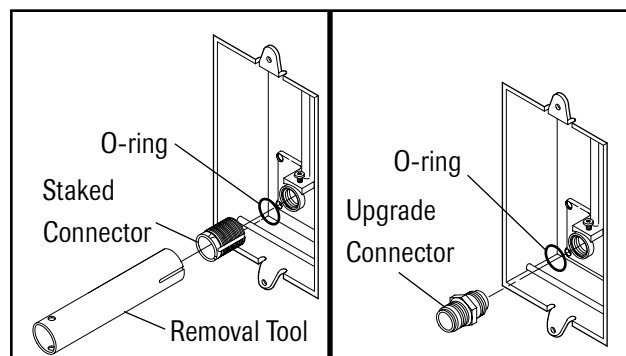


Figure 6a

Figure 6b

Installing a Series 73 Upgrade Connector (Figure 6b)

Place the new O-ring (supplied with the upgrade kit) on the end of the connector. Carefully hand thread the connector into the outlet block and then tighten with an $11/16$ " socket wrench until snug. Use care to prevent cross-threading. Be certain the O-ring is seated in the outlet block.

Removing a Series A Connector (Figure 7a and 7b)

The connector is held in the outlet block by an indexing collar. There are two types of series A indexing collars:

1. **Round in shape:** Remove the two screws at the bottom of the collar and discard the collar. Beneath the collar is a retaining plate; remove the two screws from the retaining plate and lift it from the block. Remove the connector and service valve (vacuum outlets do not have a service valve). Retain the plate and two screws for use when installing the upgrade connector (Figure 7a).
2. **Square in shape:** It cannot be removed from the outlet block. Remove the screw opposite the brass screw with no slot. Push the metal slide on the collar past the space that had been occupied by the screw. Remove the connector and service valve (pressure outlets only) and discard (Figure 7b).

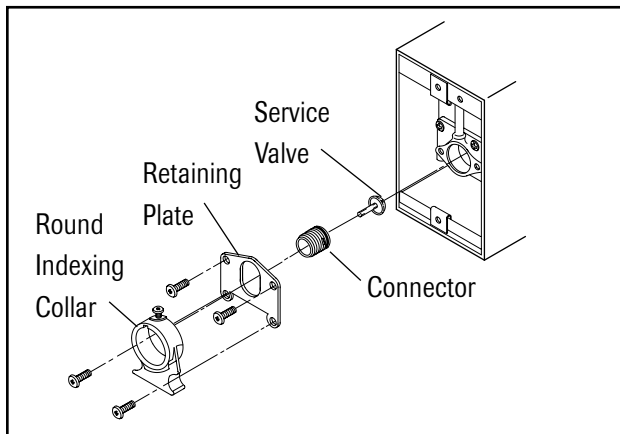


Figure 7a

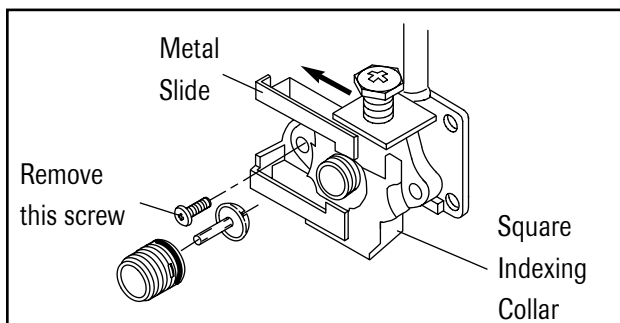


Figure 7b

Installing a Series A Upgrade Connector (Figure 8a and 8b)

1. Be certain the outlet block and mounting box are free of dirt and debris. Clean with a vacuum cleaner.
2. Make certain the new O-ring seal is in place in the groove on the end of the connector.

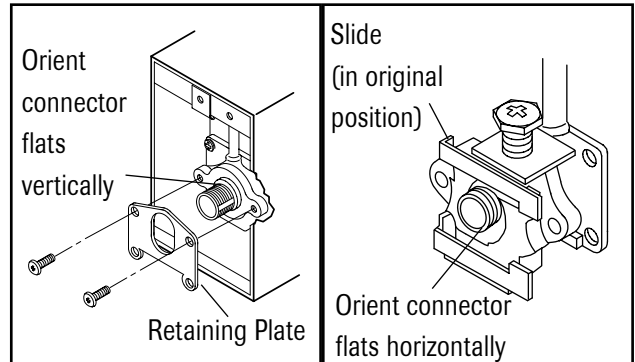


Figure 8a

Figure 8b

3. Insert the connector into the outlet block, O-ring end first. The flats on the connector must be oriented vertically to align with the retaining plate when installed on outlet blocks with the round indexing collar. Connector flats must be oriented horizontally to pass through the slide on outlet blocks with the square indexing collar.
4. **Round collar:** Place the retaining plate over the connector and reinstall the two mounting screws on the block (Figure 8a).
5. **Square collar:** Push the slide back into position and reinstall the collar mounting screw (Figure 8b).

Buried Outlets (Figure 9)

Some outlets may have been installed below the finished wall surface too far to permit upgrade installation. A modified adapter nut assembly, designed to compensate for this variance, is available (P/N 6-232031-00). To determine if the modified adapter nut assembly is required, measure the distance from the end of the upgrade connector to the finished wall surface. If the dimension exceeds $\frac{13}{16}$ " , the modified adapter nut assembly is required.

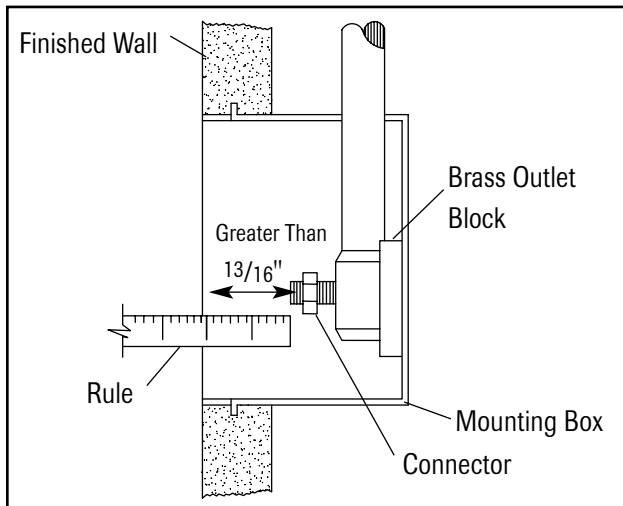


Figure 9

Adapter Nut Assembly Installation (Figure 10)

After the connector has been installed, the remaining procedures and hardware are the same regardless of outlet type.

1. Reinstall the O-ring seal in the adapter nut if not already in place (see cross-section Figure 10).
2. Install the secondary check valve in the adapter nut, making certain it is oriented correctly. (Vacuum and evacuation outlets do not require the secondary check valve.)
3. Thread the adapter nut onto the connector by hand and then tighten until snug with a $\frac{7}{8}$ " socket wrench.
4. Pressurize the outlet and check for leaks using an oxygen compatible leak detector solution. Listen for leaks in vacuum and evacuation outlets after sealing the adapter nut with the plastic cap provided in the upgrade kit.

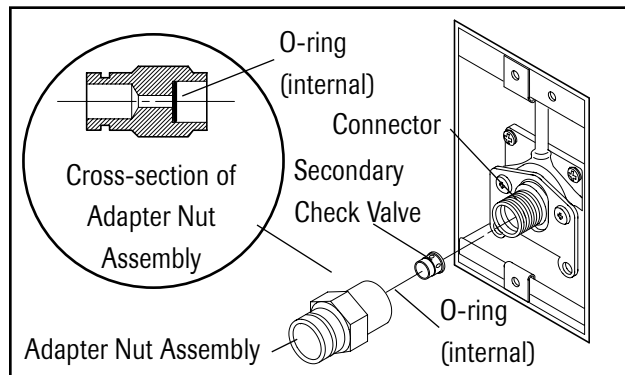


Figure 10

Indexing Plate Installation (Figure 11)

WARNING:

It is the installer's responsibility to make certain that medical gas service outlets are correctly installed and gas specific to the pipeline. Each installation should be verified for proper function and gas indexing.

The indexing plate provides gas-specific pin indexing and color-coded labeling for upgraded outlets to prevent cross connection of outlets to the piping system.

1. Locate the top screw hole in the wall mounting box and drill out the threads using a No. 30 drill (.128 dia). Series A outlets have a speed nut instead of a tapped hole. Do not remove the speed nut but drill it through as well. Drill out only the top hole in each box.
2. Attach the indexing plate to the outlet box with the pop rivet supplied with the plate. If the plate will not fit over the adapter nut and center in the box, the adapter nut may be pried until centered. Make this adjustment before riveting the indexing plate.
3. Use external retaining ring pliers to install the retaining ring in the groove in the adapter nut. Be certain the ring is seated in the groove on the adapter nut.

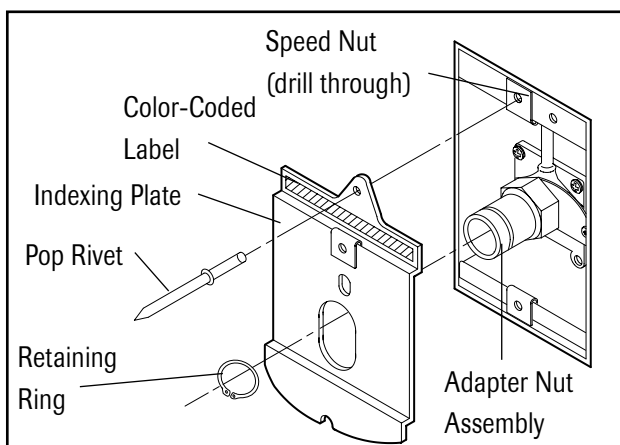


Figure 11

Standoff and Coverplate Installation (Figure 12)

Assemble the standoff and coverplate by inserting the two screws through the coverplate mounting holes and attaching with the two keps nuts on the backside (Figure 12). Align the edges of the coverplate and standoff before tightening the screws. The screws must be tightened securely.

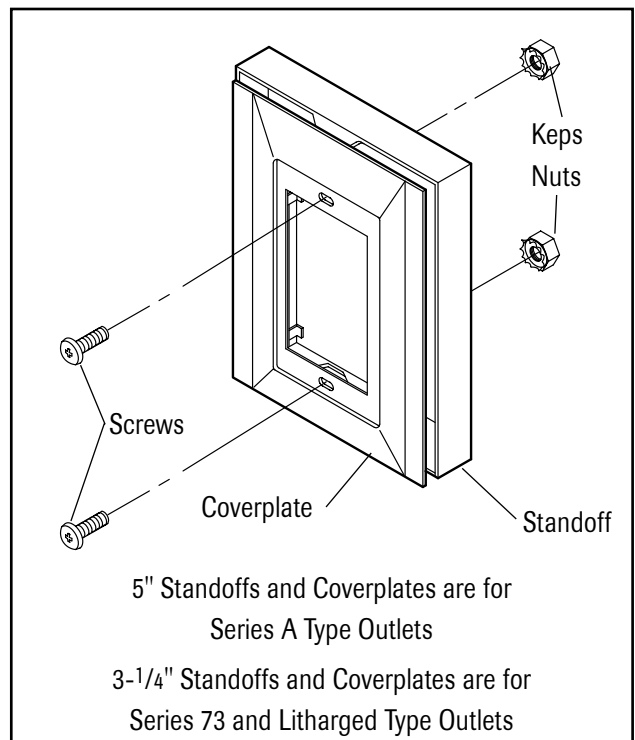


Figure 12

Outlet Valve Installation (Figure 13)

1. Insert the outlet valve into the assembled standoff and coverplate.
2. Align the assembled parts with the mounting box and insert the outlet valve connector into the adapter nut while also inserting the indexing pin into the hole in the indexing plate (Figure 13).
3. Secure the assembly in place using the two screws provided. The upper mounting screw threads into the speed nut on the indexing plate while the lower screw fits into the threaded hole in the bottom of the mounting box (speed nut in series A outlets). A shorter screw is supplied for use in the bottom of series 73 outlets when there is box mounting frame interference. If the buried outlet adapter nut is used, the longer screws supplied with the upgrade kit may be used.
4. When outlets are ganged together, proper alignment of coverplates can be achieved by loosening all mounting screws. Place a straightedge along the bottom of the standoffs, butt the adjoining standoffs together to eliminate gaps, then retighten the screws.
5. Test the outlet for proper function and gas indexing before returning to service.

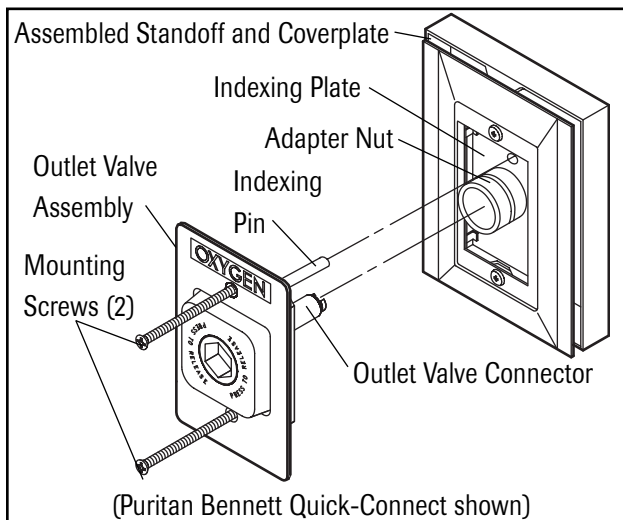


Figure 13

Slide Assembly Installation (Figure 12)

The slide assembly fits onto the mounting box in the same manner as an outlet upgrade but has no connector, adapter, or retaining ring. The indexing plate is not gas specific but provides mounting holes for the slide assembly mounting screws. See sections Indexing Plate Installation and Standoff and Coverplate Installation (page 7) in preparation for installing the slide assembly. Refer to Figure 14 for the proper order of components for installing the slide assembly. A longer screw is provided if needed for boxes buried deeply in the wall.

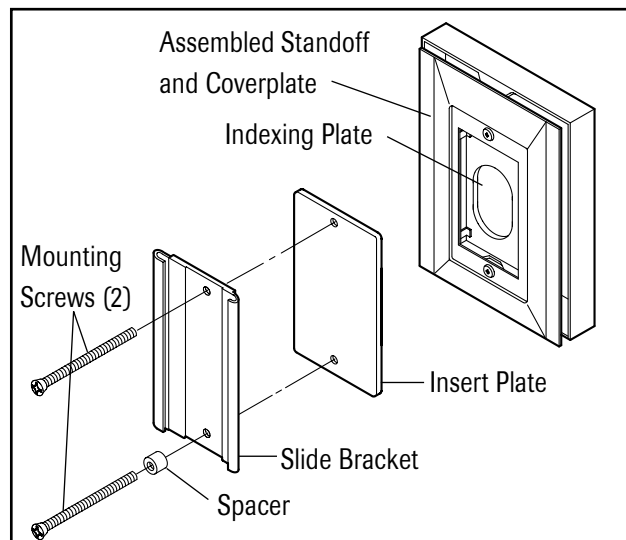


Figure 14