

Installation Instructions

Pneumatic Operated Retractable Ceiling Column



BEACONMEDÆS™

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Introduction

Location, sequence of services and orientation of Surgical Ceiling Columns are specified on the building plans. Be certain installation is in agreement with these specifications. All piping, testing, and verification of services should be in accordance with recommendations contained in National Fire Protection Association Standard for Health Care Facilities, NFPA 99. All electrical connections, testing and verification should conform to national and local codes where applicable.

Definition of Statements

Statements in this manual preceded by the following words are of special significance:

⚠ WARNING: Means there is a possibility of injury or death to yourself or others.

⚠ CAUTION: Means there is a possibility of damage to the unit or other property.

NOTE: Indicates points of particular interest for more efficient and convenient operation.

⚠ WARNING:

Keep all parts and tools free of oil, grease, and dirt. Failure to do so may result in fire.

Rough-in Installation

1. Provide structural support for column similar to Figure 1.

⚠ CAUTION:

Structural supports for column to be securely attached to structural members and be capable of supporting a minimum 400 lb load. Anti-sway supports must hold the column when pressure is applied to sides of column.

2. Position rough-in plate and securely fasten to structural support installed in step 1.

3. Verify plate is plumb by placing a level against bottom. Adjust plate as necessary. Bottom of mounting plate should be even with finished ceiling height.

NOTE:

Verify orientation of rough-in plate by ensuring notch in plate is facing the direction side 1 is intended to face.

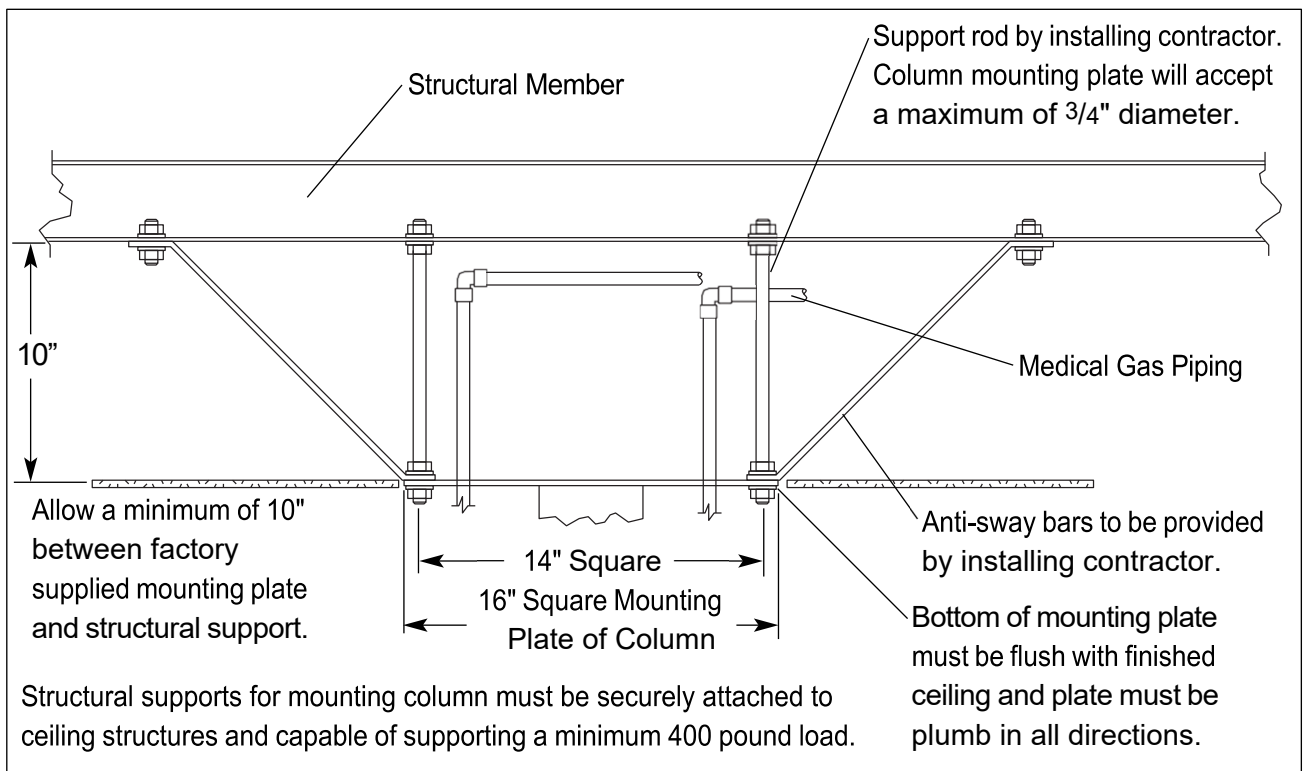
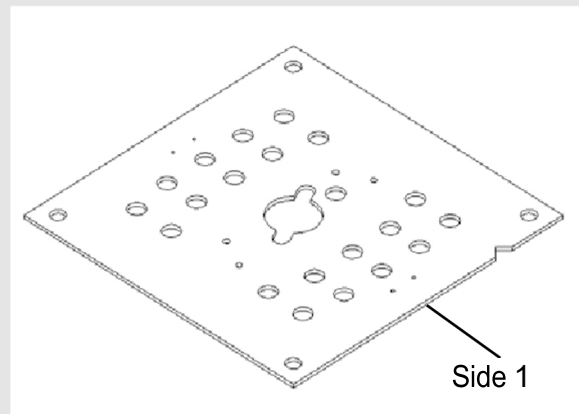


Figure 1

4. Make final connections to medical gas inlet tubes on top of the column (Figure 2). Follow procedures defined in NFPA 99 for installation of medical gas pipelines.

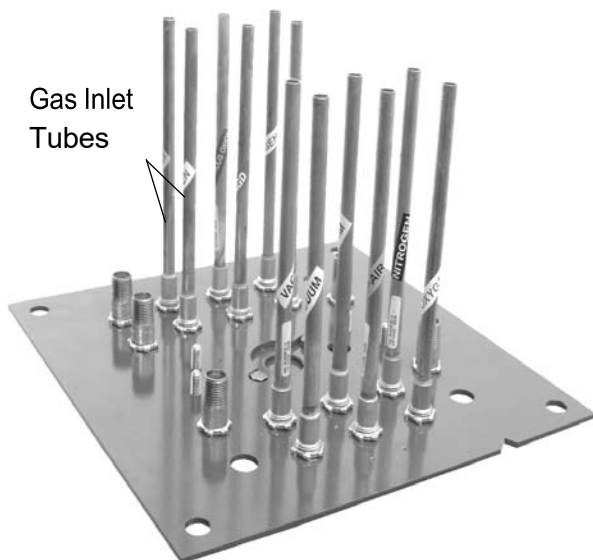


Figure 2

5. Connect electrical conduit to 1/2" NPSL conduit nipple provided on top side of column (Figure 2).
6. Remove junction box cover plates located on bottom side of rough-in plate and remove wire nuts contained in junction box (Figure 3).

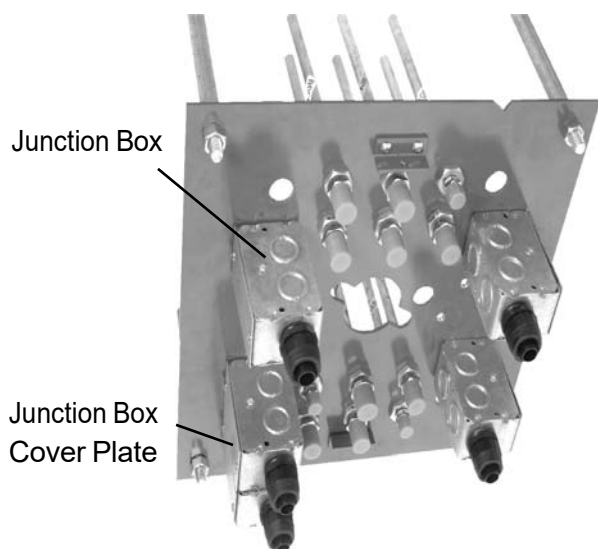


Figure 3

7. Pull wire through conduit into junction box(es). Leave ample pigtail length of wire (approx 8") in junction box for final make up of wiring connections. Install wire nuts on the ends of all bare wires to prevent shock hazards.

NOTE:

Prior to connection of hose assemblies, initial blow down and initial pressure tests shall be performed as defined in NFPA-99, Installer performed tests.

8. Run building equipment ground wire through rough-in plate with 12" excess wire (This will be equipment ground when finish assembly is installed).

Finish Assembly Installation

1. Remove packaged fasteners from inside the accessory carton and install 3/8" bolts with lock washers in locations corresponding to keyhole slots in rough-in bracket as shown in Figure 4 (Install bolts enough to slightly protrude through upper side of plate).
3. Install 2 additional 3/8" bolts with lock washers into remaining holes and tighten.
4. Verify all bolts are securely tightened.

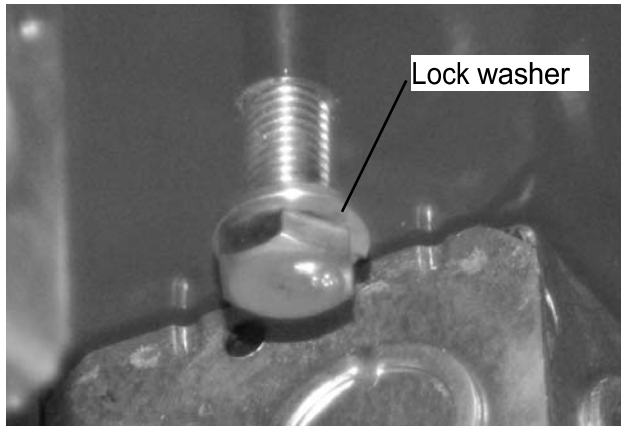


Figure 4

2. Raise column enough to put bolt heads through enlarged holes in keyhole feature and slide unit over as shown in Figure 5 (Unit should be hanging from 2 bolts).

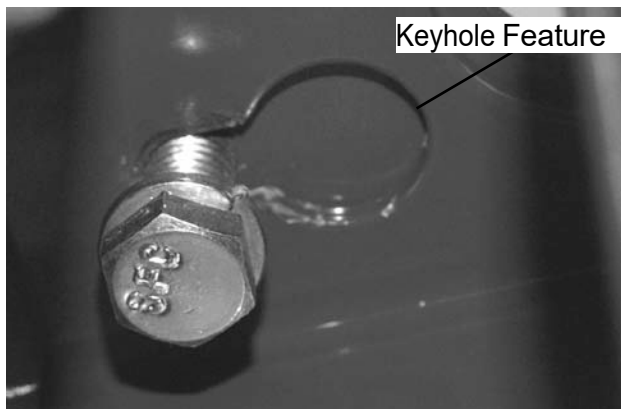


Figure 5

⚠ WARNING:

Column is unstable while hanging from two bolts and care should be taken not to dislodge column from the bolts. Provide suitable support below column until all bolts are securely installed.

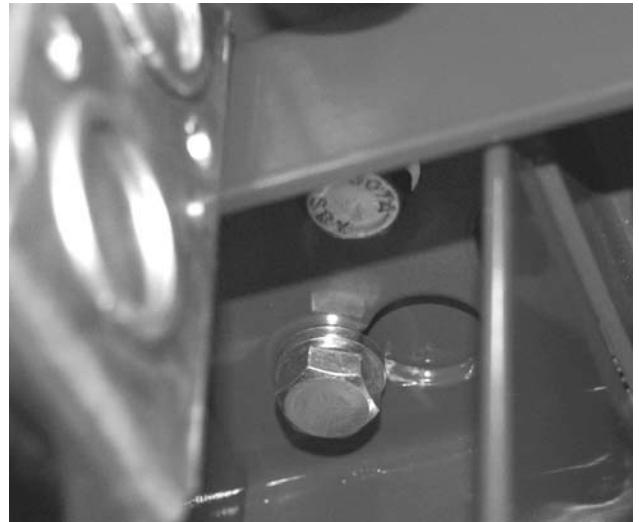


Figure 6

5. Connect equipment ground wire to cable lug on top of column finished assembly as shown in Figure 7.

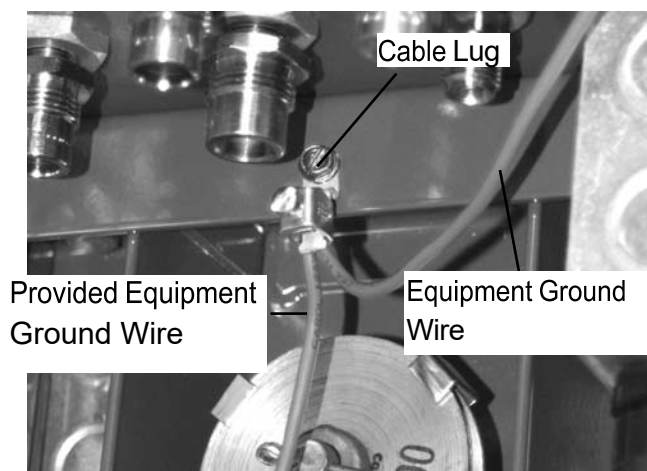


Figure 7

NOTE:

Hose assemblies used in retractable ceiling columns are gas specific and will connect only to correspondingly marked inlet tube assembly.

NOTE:

Inlet tubes and hose assemblies are numbered. Connect tube to corresponding inlet tube.

6. Install correct hoses to DISS fittings on rough-in plate (Figure 8). DO NOT OVER TIGHTEN.

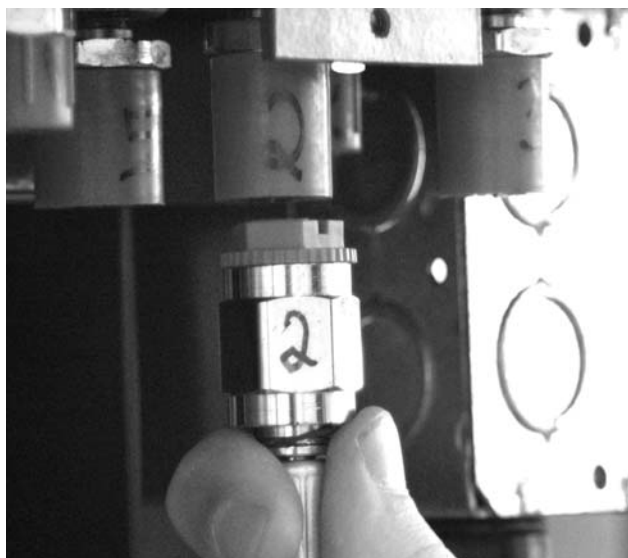


Figure 8

NOTE:

Inlet tube marked with "13" is for column gas supply source. Small hose assembly attached to regulator in column will also be marked "13". This gas is used to power column up and down.

7. Route conduit into junction boxes on rough-in plate and connect wires using wire nuts provided in junction box (Figure 9).



Figure 9

NOTE:

Junction boxes and conduit are numbered to ensure correct connection.

Miscellaneous Electrical Accessory Wiring

1. Install wiring (by others) for grounding receptacles, RJ-45 Data Jacks, and 5-Pin Patient Monitoring Receptacles in proper junction box on column head. Wiring must be designed for flexing. Allow adequate length for nominal 16" column movement from fully retracted to fully extended positions.

Pneumatic Switch Installation

1. Position rocker switch cover plate inside trim plate.
2. Attach female spade connectors to spades on back of rocker switch (red wire attaches to middle, black and white to top and bottom) (Figure 10).
3. Screw cover plate to column head using #6 x 5/8" oval head screws in kit (Figure 11).
4. Wire switch as shown in Figure 12 and confirm correct operation and speed.

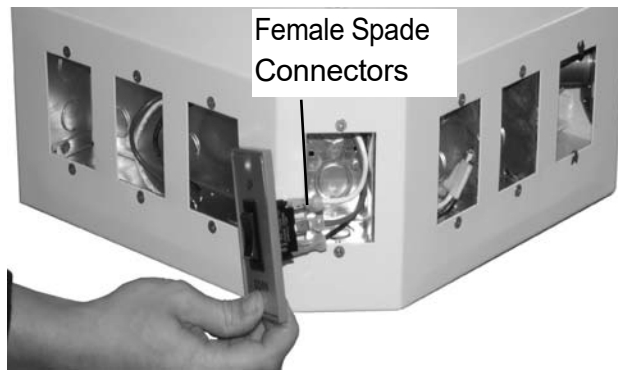


Figure 10



Figure 11

NOTE:

If unit operates in opposite manner of label on cover plate, switch where the black and white wires connect on rocker switch.

NOTE:

If unit operates too quickly or slowly, turn adjustment screw on flow control mufflers on solenoid valve to achieve desired speed.



Adj. Screw

Lock nut

Flow Control Muffler

NOTE:

Wires from solenoid valve are routed into junction box through rubber grommet on bottom of box.

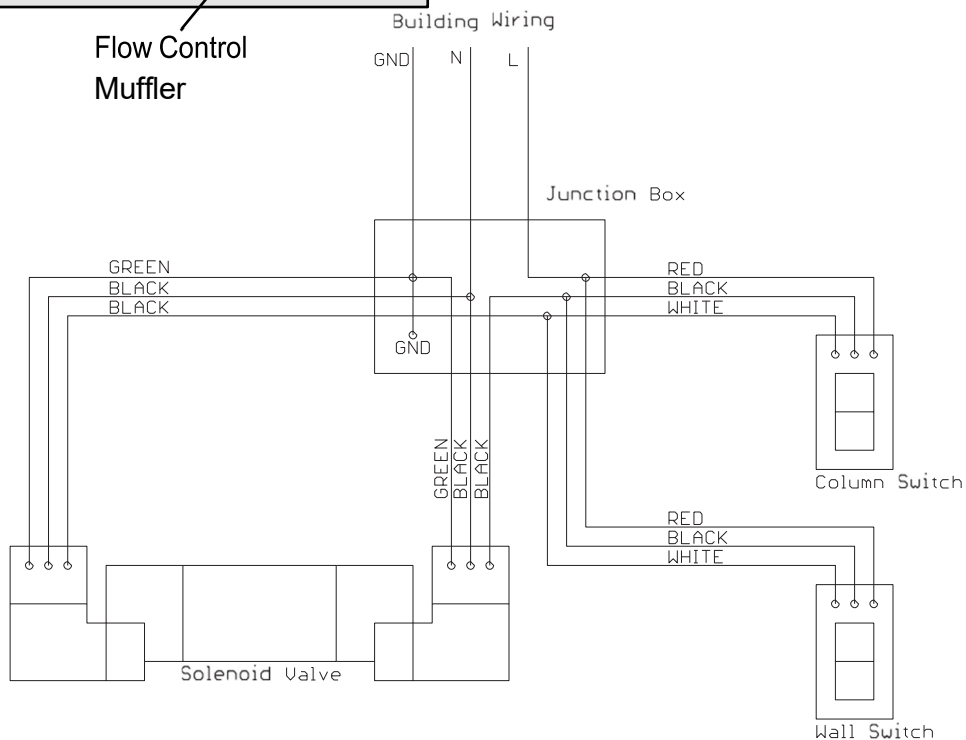


Figure 12

Electrical Receptacle Installation

1. Remove receptacle from accessory carton and remove ears, screws, and all other factory supplied hardware until only bare tabs remain.
2. Securely attach wires to receptacle terminals (Figure 13).

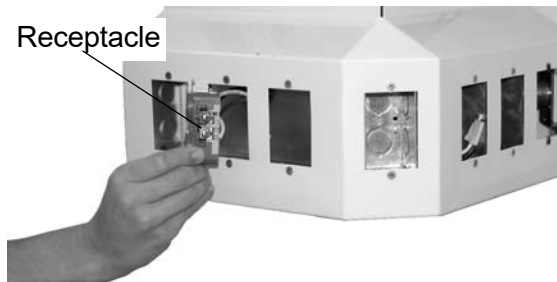


Figure 13

3. Using #6 X 3/4" flat head screws provided in kit, secure receptacle to column (Figure 14).



Figure 14

4. Place cover plate into trim ring and attach to receptacle with #32 x 5/8" truss head screw provided in kit (Figure 15).



Figure 15

Ground Receptacle Installation

NOTE:

Wiring to ground receptacle opening must be completed prior to installing receptacle.

1. Obtain ground receptacle and trim ring from accessory carton.
2. Place receptacle in trim ring.
3. Attach ground wire to back of receptacle (Figure 16).

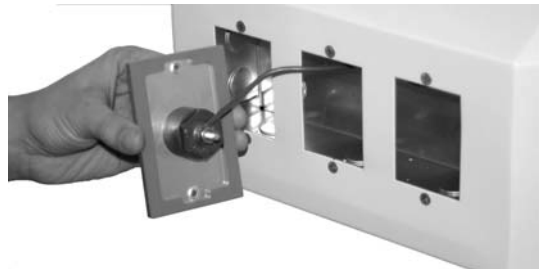


Figure 16

4. Attach receptacle to column using #6 x 5/8" long oval head screws provided in kit (Figure 17).



Figure 17

5-Pin Monitoring Receptacle Installation

NOTE:

Wiring to monitoring receptacle opening must be completed prior to installing receptacle.

1. Remove 5-Pin patient monitoring kit from accessory carton.
2. Attach wiring to terminals as directed by monitor manufacturer.
3. Attach monitor bracket to column with #6 x 3/4" flat head screws provided in kit (Figure 18).

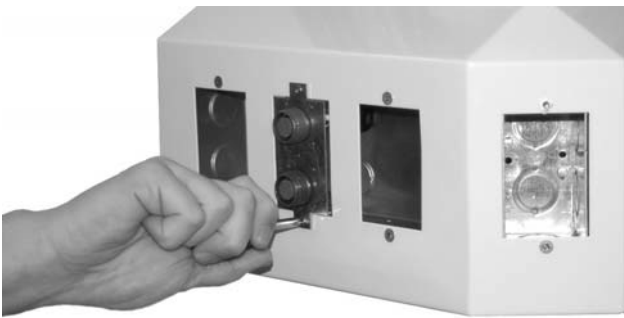


Figure 18

4. Remove cover plate and a trim ring from kit.
5. Place cover plate in trim ring and secure cover plate to column using #6 x 3/8" truss head screws provided in kit. (Figure 19).



Figure 19

IV Hook Installation

1. Screw #10 nut onto IV hook as far as possible (Figure 20).
2. Install IV hook through cover plate, trim ring, and screw into mounting plate (Figure 20).
3. Back up #10 nut until it is against cover plate (DO NOT OVERTIGHTEN OR IT WILL DISTORT THE COVER PLATE).
4. Screw to unit using #6 x 1" oval head screws provided in kit.
5. Final adjustments may be made by adjusting amount of engagement by IV hook and nut.

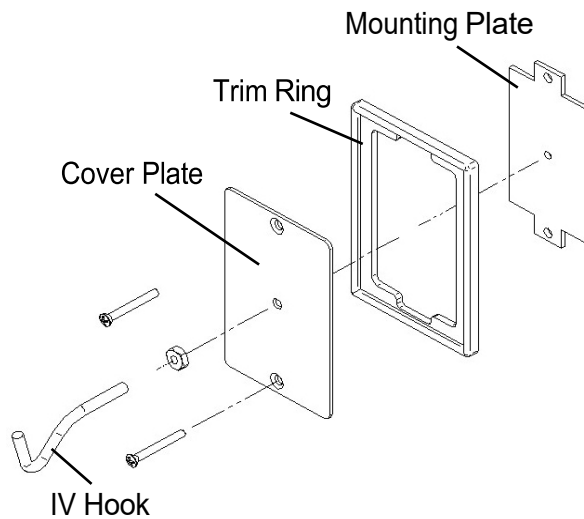


Figure 20

Vacuum Slide Bracket Installation

1. Remove Slide Bracket from kit bag and place cover plate inside trim ring.
2. Screw assembly into head of unit using #6 x 1 1/4" truss head screws.

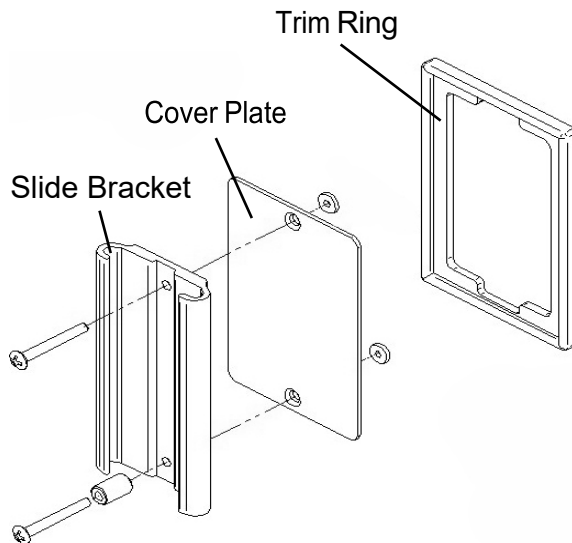


Figure 21

RJ-45 Data Jack Installation

NOTE:

Wiring to RJ45 Data Jack must be completed prior to installing it.

1. Remove RJ45 Data Jacks from kit and snap into gray plastic housing.
2. Remove ears from housing to fit into trim ring.
3. Securely attach wires to jack according to manufacturer's recommendations.
4. Using #6 X 3/4" flat head screws provided in kit, secure housing to column (Figure 22).



Figure 22

5. Place cover plate into trim ring and attach to housing with #32 x 1/2" truss head screw provided in kit (Figure 23).



Figure 23

Hubbellock® Receptacle Installation

1. Remove receptacle from kit and remove screws, and all other factory supplied hardware until only bare tabs remain.
2. Securely attach wire to receptacle terminals (Figure 24).



Figure 24

3. Using #6 X 3/4" flat head screws provided in kit, secure receptacle to column (Figure 25).



Figure 25

4. Place cover plate into trim ring and attach to receptacle with #32 x 5/8" truss head screws provided in kit (Figure 26).



Figure 26

Medical Gas Outlet Installation

1. Select latch valve for same gas service as rough-in assembly to be installed.
2. Slide gray trim ring over back side of outlet. Cover plate of the latch valve will rest in indentation of trim ring.
3. Align indexing pin of outlet with indexing hole in rough-in assembly (Figure 27). Push latch valve into rough-in until the back of trim ring is flush with finish surface.



Figure 27

4. Tighten screws only until outlet will not slide when force is applied to sides of trim ring (Figure 28). **Over tightening may cause damage to outlet or distort lower cover plate.**
5. Perform standing pressure and cross connection tests per NFPA 99.



Figure 28

Shroud Installation

1. Place Lower Shroud halves on unit as shown in Figure 29.



Figure 29

2. Attach lower shroud halves to unit using provided #10 x 1/4" truss head screws ensuring screw goes through both shroud halves and into PEM fastener on channel underneath as shown in Figure 30 (DO NOT OVERTIGHTEN)

NOTE:

Start all screws before final tightening.



Figure 30

3. Install upper shroud halves by supporting them using locating pin as shown in Figure 31. Align holes on both shroud halves with PEM nuts on steel part underneath and fasten to unit using #10 x 1/4" truss head screws provided (Figure 32).

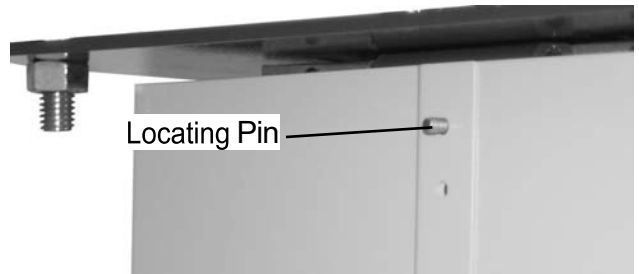


Figure 31

4. Attach shrouds together using #10 x 1/4" truss head screws as shown in Figure 32.



Figure 32

5. Attach side of shrouds to tab on rough-in plate using #10 x 1/4" truss head screws provided (Figure 33).



Figure 33

Cornice Installation

1. Screw 4 pieces of cornice to shrouds using #10 x 1/4" truss head screws and tighten enough to position on unit.
2. Adjust to proper height bringing cornice flush with finished ceiling and tighten screws as shown in Figure 34 (DO NOT OVER TIGHTEN).



Figure 34

3. Adjust edges of cornices to align corners (Figure 35).



Figure 35

Final Checkout

1. Verify column extends and retracts, at a constant speed without much interference from hoses.
2. Medical gas outlets should be certified for proper connection, flow, and verification against cross connections per NFPA 99.

⚠ WARNING:

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

3. Electrical receptacles must be verified by a competent testing organization or inspector.

⚠ WARNING:

Use care when wiping down electrical outlets to prevent electrical shock.

4. Outlets may be wiped down with alcohol or mild detergent solution to clean.
5. Unit may be disinfected by using a high level disinfectant such as Cidex®. Ensure disinfectant will not damage plastic, rubber, or metal.
6. Means to disconnect electrical devices on this product shall be provided by end user/customer.
7. This device has not been tested in regard to potential electromagnetic or other interference between this device and others. Be aware of any potential problems this could cause.

Column Extension

1. To extend column press and hold down side of switch.
2. Release button at desired height to stop column extension.

Column Retraction

1. To retract column press and hold up side of switch.
2. Release button at desired height to stop column retraction.

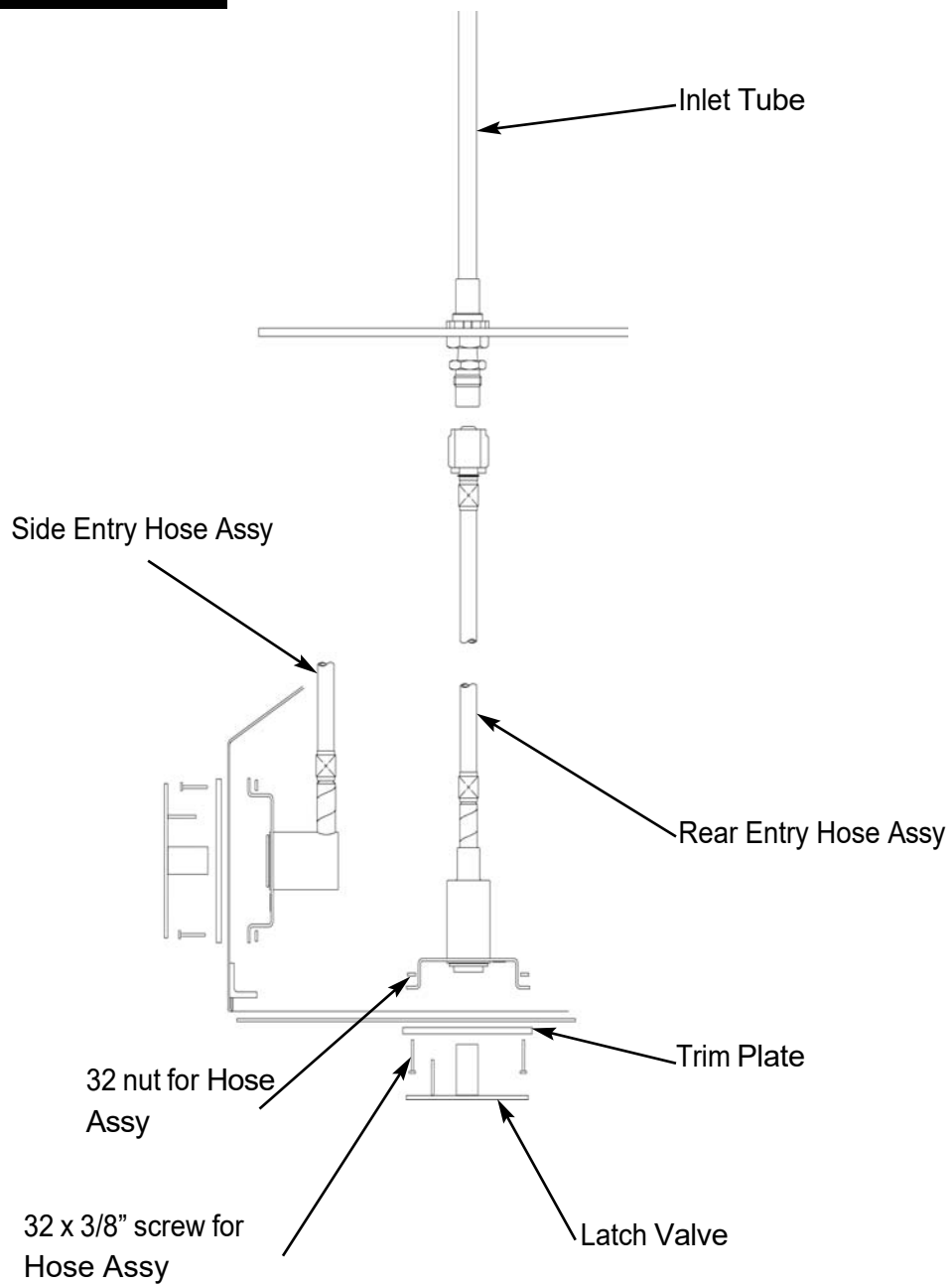
⚠ WARNING:

Verify electrical power to column is turned off before working on column.

General Inspection

1. Hoses should be inspected every 6 months for wear and leakage. Replace as necessary.
2. Electrical conduit should be inspected every 6 months for wear. Replace as necessary.
3. Conduit fittings should be inspected every 6 months to see if they are still firmly connected to proper electrical box on rough-in plate and in column head.
4. Verify wiring routed from electrical solenoid is in good condition.

Gas Parts Illustration



Note: Refer to service manual for information and repair parts for series B Quick Connect and DISS outlets. (Form 847036-00)

Gas Parts List

Rear Entry Hose Assy for 9' Retractable Columns

Part Number	Gas
132800-11	N2O
132800-10	O2
132800-13	VAC
132800-16	AIR INTL
132800-12	AIR
132800-20	CO2
132800-14	N2
132800-18	IAIR
132800-19	WAGD
132800-17	VAC INTL
132800-23	He-O2
132800-24	O2-He
132800-21	CO2-O2
132800-22	O2-CO2

Rear Entry Hose Assy for 9'6" Retractable Columns

Part Number	Gas
132801-11	N2O
132801-10	O2
132801-13	VAC
132801-16	AIR INTL
132801-12	AIR
132801-20	CO2
132801-14	N2
132801-18	IAIR
132801-19	WAGD
132801-17	VAC INTL
132801-23	He-O2
132801-24	O2-He
132801-21	CO2-O2
132801-22	O2-CO2

Rear Entry Hose Assy for 10' Retractable Columns

Part Number	Gas
132802-11	N2O
132802-10	O2
132802-13	VAC
132802-16	AIR INTL
132802-12	AIR
132802-20	CO2
132802-14	N2
132802-18	IAIR
132802-19	WAGD
132802-17	VAC INTL
132802-23	He-O2
132802-24	O2-He
132802-21	CO2-O2
132802-22	O2-CO2

Side Entry Hose Assy for 9' Retractable Columns

Part Number	Gas
132803-11	N2O
132803-10	O2
132803-13	VAC
132803-16	AIR INTL
132803-12	AIR
132803-20	CO2
132803-14	N2
132803-18	IAIR
132803-19	WAGD
132803-17	VAC INTL
132803-23	He-O2
132803-24	O2-He
132803-21	CO2-O2
132803-22	O2-CO2

Side Entry Hose Assy for 9'6" Retractable Columns

Part Number	Gas
132804-11	N2O
132804-10	O2
132804-13	VAC
132804-16	AIR INTL
132804-12	AIR
132804-20	CO2
132804-14	N2
132804-18	IAIR
132804-19	WAGD
132804-17	VAC INTL
132804-23	He-O2
132804-24	O2-He
132804-21	CO2-O2
132804-22	O2-CO2

Side Entry Hose Assy for 10' Retractable Columns

Part Number	Gas
132805-11	N2O
132805-10	O2
132805-13	VAC
132805-16	AIR INTL
132805-12	AIR
132805-20	CO2
132805-14	N2
132805-18	IAIR
132805-19	WAGD
132805-17	VAC INTL
132805-23	He-O2
132805-24	O2-He
132805-21	CO2-O2
132805-22	O2-CO2

Geometric Quick Connect Latch Valves

Part Number	Gas
230931-00	N2O
230930-00	O2
230933-00	VAC
230937-00	AIR INTL
230932-00	AIR
230939-00	WAGD
230938-00	VAC INTL

Pin Index Quick Connect Latch Valves

Part Number	Gas
230941-00	N2O
230940-00	O2
230943-00	VAC
230947-00	AIR INTL
230942-00	AIR
230946-00	WAGD
230948-00	VAC INTL

Latch Key Index Quick Connect Latch Valves

Part Number	Gas
230951-00	N2O
230950-00	O2
230953-00	VAC
230957-00	AIR INTL
230952-00	AIR
230959-00	WAGD
230958-00	VAC INTL

DISS Latch Valves

Part Number	Gas
230911-00	N2O
230910-00	O2
230913-00	VAC
230917-00	AIR INTL
230912-00	AIR
230920-00	CO2
230914-00	N2
230916-00	IAIR
230919-00	WAGD
230918-00	VAC INTL
230923-00	He-O2
230924-00	O2-He
230921-00	CO2-O2
230922-00	O2-CO2

Inlet Tubes

Part Number	Gas
4107 2267 80	N2O
4107 2267 79	O2
4107 2267 82	VAC
4107 2267 81	AIR INTL
4107 2267 81	AIR
4107 2267 86	CO2
4107 2267 83	N2
4107 2267 84	IAIR
4107 2267 85	WAGD
4107 2267 82	VAC INTL
230813-23	He-O2
230813-24	O2-He
230813-21	CO2-O2
230813-22	O2-CO2

Common Components for Gas Service

Part Number	Description
821017-00	NUT, HEX, #32
811751-00	SCREW, #32 X 3/8
616358-00	PLATE, TRIM

Electrical Parts List

Electrical Accessory Kits	
Part Number	Description
230230-09	POWER RECEPTACLE, DUPLEX 125V, 20AMP, IVORY
230230-04	POWER RECEPTACLE, DUPLEX 125V, 20AMP, GRAY
230230-05	POWER RECEPTACLE, DUPLEX 125V, 20AMP, RED
230230-10	POWER RECEPTACLE, DUPLEX 125V, 15AMP, IVORY
230230-06	POWER RECEPTACLE, DUPLEX 125V, 15AMP, GRAY
230230-07	POWER RECEPTACLE, DUPLEX 125V, 15AMP, RED
230230-08	POWER RECEPTACLE, TWIST-LOCK, 125V, 20AMP
230227-01	ASSY, GROUNDING RECEPTACLE

Electrical Components	
Part Number	Description
865010-GR	ELECTRICAL WIRE, 12 AWG, GR, MTW
865010-WH	ELECTRICAL WIRE, 12 AWG, WH, MTW
865010-BK	ELECTRICAL WIRE, 12 AWG, BK, MTW
865020-00	CONDUIT, FLEXIBLE, 1/2"
Local Source	CONDUIT FITTING - METAL - PIPE
865018-00	CONDUIT FITTING - METAL - ELBOW
821067-00	LOCKNUT, 1/2" CONDUIT
816001-00	NIPPLE, 1/2" X 2" LONG
865021-00	CONNECTOR, MULTI-POSITION, CONDUIT, FLEX, 1/2"
865022-00	CONNECTOR, STRAIGHT, CONDUIT, FLEXIBLE, 1/2"
860000-00	ELECTRICAL BOX, SINGLE
425574-00	ELECTRICAL BOX - 3 GANG

Notes on Electrical Components

1. Rivnut Tool Kit is needed to install any new electrical boxes (231001-00).
2. Kits contain accessory to be installed, trim plate, cover plate, and all fasteners.
3. Wire and conduit length for new drops listed in table on right.
4. Multi-Position conduit connector holds conduit to electrical box in head.
5. Straight conduit connector holds conduit to electrical box in rough-in.
6. Conduit nipple and locknut are used to connect two single boxes that are side by side and on the same drop, or to attach new electrical box to rough-in.
7. Metal conduit elbow and pipe are used to attach two electrical boxes that are not side by side on same drop.

Ceiling Height	White Wire (865010-WH)	Black Wire (865010-BK)	Green Wire (865010-GR)	Conduit (865020-00)
9' 0"	60"	60"	60"	42"
9' 6"	66"	66"	66"	48"
10' 0"	72"	72"	72"	54"

Parts needed too add new electrical outlet and drop in 10' ceiling column:

- 1 - Rivnut tool kit
- 1 - Electrical accessory kit
- 2 - Electrical box single
- 1 - Conduit nipple
- 2 - Conduit locknut
- 72" - White, Black, and Green wires
- 54" - Conduit
- 1 - Multi-position conduit connector
- 1 - Straight connector.

Misc. Parts

Accessory Kits

Part Number	Description
230230-12	IV HOOKS
230230-03	PATIENT MONITORING DUPLEX 5 PIN CONNECTOR
230227-14	RJ-45 VOICE/DATA PACKAGED ACCESSORY
230227-13	BLANK SERVICE PACKAGED ACCESSORY
230230-15	SLIDE BRACKET ASSY

Notes:

1. All accessory kits except the blank require an electrical box from previous page for new install.
2. All accessory kits require rivnut tool kit from previous page for new install.
3. Blanks will work on side and bottom locations.
4. Blanks on bottom require 2 speednuts from table below (826006-00).

Fasteners

Part Number	Description
811003-00	SCREW, MACHINE, PAN HEAD, #3-48 X .312 LG.
811705-00	SCREW, MACHINE, TRUSS HEAD, #4-40 X .25 LG.
811706-00	SCREW, MACHINE, TRUSS HEAD, #8-32 X .25 LG.
4107 6519 48	SCREW, MACHINE, TRUSS HEAD, #8-32 X .375 LG.
811707-00	SCREW, MACHINE, TRUSS HEAD, #10-32 X .25 LG.
811708-00	SCREW, MACHINE, TRUSS HEAD, #10-32 X .625 LG.
811500-00	SCREW, MACHINE, HX HD, #10-32 X .375 LG.
814008-00	SCREW, GROUNDING, #10-32 X .375 LG.
4107 6522 69	RIVNUT, #6-32 .160 MAX GRIP STL
826006-00	SPEED NUT, #32
4107 6519 57	NUT, HEX, #10-32 UNC 2-B
831384-00	RIVET, BLIND
4107 6523 40	LOCK-WASHER, 3/8"
821014-00	NUT, HEX, 1/4-28 UNF-2B
821016-00	NUT, HEX, 3/4-10 UNC-2B
832430-00	WASHER, 3/4 FLAT
813504-00	BOLT, HEX HEAD, 3/8 X 1 LG.

Notes:

1. The #10-32 x .25 screws (811707-00) hold on the shrouds and cornices and are the most common screws needed for replacement.

Nitrogen Control Panel Parts

Part Number	Description
811060-00	SCREW, #8-32 X 1.00 LG., PHILLIPS, FLAT HEAD, SS
132112-04	HOSE ASSY, NITROGEN CONTROL PANEL
120396-00	N2 CONTROL PANEL ASSY, DISS INLET

Notes:

1. These parts are only usable on columns ordered with a N2 control panel.
2. A N2 control panel may not be added to a standard column.

Misc Pneumatic Components

Part Number	Description
838200-00	CYLINDER, 2" BORE, 16" STROKE
838200-01	NUT, MOUNTING, 1 1/4-12 HEX
821015-00	NUT, HEX, 12-20 UNF-2B
513506-00	NUT, COUPLING, HEX, 12-20 UNF-2B
515667-00	ELBOW, SWIVEL MALE, 5/32 O.D. TUBE X 1/4 NPT
122013-00	PRESSURE REGULATOR
130119-00	GAUGE, 1 -1/2" DIA., 1/8 NPT CENTER MOUNT
515730-00	STREET ELBOW, 1/8 NPT MALE X 1/8 NPT FEMALE
103807-00	SOLENOID, ELECTRIC
515635-00	CONNECTOR, MALE, 5/32 TUBE X 1/8 NPT
645026-00	MUFFLER, FLOW CONTROL, 1/8 NPT MALE
611642-00	TUBING, NYLON 11 .156 O.D. X .106 I.D. X .025 WALL
103806-00	QUICK CONNECT, WIRING, ELECTRIC SOLENOID
230230-16	SWITCH, PNEUMATIC, ACCESSORY (WALL OR UNIT)
611646-00	TUBING, VINYL, .625 O.D. X .500 I.D. X .063 WALL

Troubleshooting Guide

Symptom	Possible Cause	Corrective Action
1) Restricted Gas Flow	a. Hoses are becoming crimped inside column.	a. Adjust hose positions.
2) Column will not fully retract	a. Hose or conduit interference will not allow the column to fully retract.	a. Adjust hose and conduit positions.
3) Column movement is too fast/slow?	a. Flow control mufflers need to be adjusted b. Incoming pressure is too high/low.	a. Adjust flow control mufflers to reach desired speed. b. Turn knob on pressure regulator to increase/decrease pressure.
4) Gaps in trim at ceiling.	a. Cornices are not lining up properly.	a. Gently push and pull edges of cornice to line them up.
5) Lower shrouds are not fitting properly.	a. The head of the unit is not perpendicular to the frame.	a. Adjust head position relative to frame so that they are perpendicular.
6) Column will not stay in position.	a. Leaks in tubing or pipe fitting b. Defective Cylinder c. Defective Solenoid Valve	a. Inspect and replace/tighten as necessary b. Replace Cylinder c. Replace Solenoid Valve
7) Column will not move up or down.	a. Defective Switch b. Defective Solenoid c. No power to Solenoid	a. Test, replace as necessary b. Test, replace as necessary c. Check circuit breaker and electrical power to Solenoid. Refer to diagram on pg. 12 of this manual.

Notes

[illegible]

[illegible]

Warranty

BeaconMedæS warrants the Ceiling Columns to be free of defects in materials or workmanship when installed and operated in accordance with instructions. The warranty period is 30 months from shipment date or 24 months from startup, whichever period terminates earlier.

This warranty covers all necessary parts and labor required for correction of the defect whether by any or all of repair, replacement, or credit, which election shall be made by Beacon at its sole discretion.

This warranty requires the owner to ensure that the equipment is 1) started up or placed in service by an authorized representative of BeaconMedæS, 2) certified in accordance with NFPA 99, most recent edition, by a properly qualified certification agency, and 3) maintained in strict accordance with Operation and Maintenance Instructions provided with the product.

Warranty claims will be honored only after examination by BeaconMedæS and only when such examination shall disclose to Beacon's reasonable satisfaction that such equipment has not been damaged in shipment or installation, improperly installed, operated outside of any published operating limits (including but not limited to temperature, pressure, humidity, or ventilation), improperly or inadequately maintained, field modified in any way, improperly repaired, or in any other way improperly applied or used.

All claims against this warranty require prompt

notification, within the warranty period, of any seeming defect. Failure to promptly notify Beacon of the seeming defect will invalidate all warranties.

This warranty excludes damage or defect caused by shipping, acts of God, fire, war, labor difficulties, action of government, or other cause beyond the reasonable control of BeaconMedæS.

This warranty is given in lieu of all other warranties, expressed or implied, including implied warranties of fitness for a particular purpose and merchantability. In no event shall BeaconMedæS be liable for damages in excess of the value of the defective product, nor shall BeaconMedæS be liable for any direct, special or consequential damages, loss of profit of any kind, or for loss of use of the products.



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