PEMBINA CONTROLS INC

Presco®-Switch
Pressure Control Switch
Installation and Operation Manual

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1.0 Manual Scope

This manual is intended to aid in the installation and operation of the Presco-Switch pressure control switch. Keep this manual in an accessible location for future reference and troubleshooting.

1.1 Important Terms and Symbols:

Indicates an action or hazard which if not avoided would result in death, serious injury or major property damage.

Indicates an action or hazard which if not avoided could result in an injury or property damage.

Failure to follow instruction may result in improper operation of the Presco-Switch.

1.2 Pre-installation Inspection:

After receiving the Presco-Switch visually inspect the switch, wires, valves and accessories for signs of damage. If damaged during shipment, a claim must be filed with the courier. Otherwise contact Pembina Controls.

2.0 Installation:

Installation is to be done by qualified personnel only and must comply with all municipal/provincial/state/federal regulations and codes. To ease future calibration and repair it is recommended to install an isolator valve before the Presco-Switch.

2.1 Mechanical Installation:

Apply a high-quality PTFE based thread sealant to the 2" NPT process connection to prevent galling and corrosion. Teflon tape should only be used if required. Before applying any pressure to the Presco-Switch, ensure the threaded connections are tight and no leaks are detected.

Only use a pipe wrench on the knurled area of the base. Applying torque to other areas can cause damage.

This device must be protected from overpressure. Do not exceed the MWP shown on the nameplate.

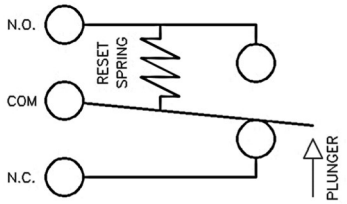
Install the Presco-Switch vertically up only.

2.2 Electrical Installation:

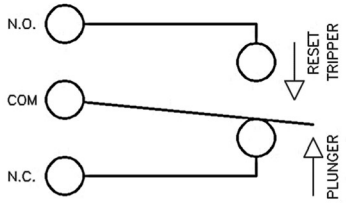
Install a conduit seal on the hub of the Presco-Switch housing rated for Class 1 Div. 1 Group D. Complete the wiring of the microswitch circuit using an appropriate gauge wire and the diagram below for the microswitch installed. A ground screw is provided inside the housing indicated by a 'GR' cast into the body. This must be connected to an earth ground at the same wire gauge or larger than those connected to the microswitch.

Ensure the area is non-hazardous before opening the cover and connecting wires. Do not exceed the nameplate voltage ratings.

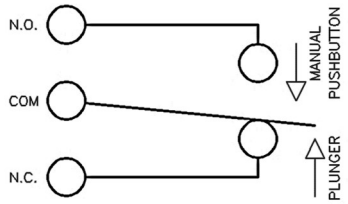
Fixed Differential Circuit
Housing F, FF or FV:



Variable Differential Circuit
Housing FV, V or VV:



Manual Reset Circuit
Housing M:



3.0 Microswitch Settings:

Installer must set the trip points for each microswitch individually. Before opening the cover

Ensure the area is non-hazardous, de-energize and lockout the Presco-Switch before opening the cover.

To obtain an accurate setting do not apply downward pressure on the adjusting screws.

Before closing the housing cover, ensure the wiring and insulation does not interfere with the operation of the microswitches. Check for proper operation of the Presco-Switch before entering service.

3.1 Auto Reset with a Fixed Differential Microswitch (Housing Styles F, FF or FV):

Each circuit has a single setting for either falling or rising pressure. Slowly turn the brass adjusting screw in the red block clockwise to decrease the trip pressure or counter clockwise to increase the trip pressure. This microswitch will automatically reset once outside a fixed differential of approximately 4% (or less) of the spring range.

3.2 Auto Reset with a Variable Differential Microswitch (Housing Styles V or FV):

Each circuit has two points that need to be set by the user. A high (rising) and low (falling) pressure setting. Difference between these two settings is the variable differential gap.

The brass adjusting screw in the larger red block attached to the microswitch is for the high-pressure trip point. Slowly turn this screw clockwise to decrease the trip pressure or counter clockwise to increase the trip pressure.

Next, the low-pressure trip point can be set. The set point screw is in the smaller red block located in the center of the switch. Adjust the differential gap by turning the brass screw clockwise to decrease the differential and counter clockwise to increase the differential.

A minimum differential of approximately 8% to 12% of the spring range is required between the two pressure settings for proper operation.

3.3 Manual Reset with a Fixed Differential Microswitch (Housing Style M):

Each circuit only has a single rising pressure trip point setting and is maintained after being tripped until the reset button is pressed. Turn the brass adjusting screw clockwise to decrease the trip point and counter clockwise to increase the trip point. After tripping, to reset the switch, press the manual reset button.

3.4 Auto Reset with a Dual Variable Differential Microswitch (Housing Styles VV):

This switch has dual circuits and each circuit has two points that need to be set by the user. A high (rising) and low (falling) pressure setting. Difference between the two settings is the variable differential gap.

The brass adjusting screws in the red blocks attached to the microswitch are for the setting the high-pressure trip point. Slowly turn this screw clockwise to decrease the trip pressure or counter clockwise to increase the trip pressure. Set both sides.

Next, the low-pressure trip points can be set. The screws are in the white block in the center of the switch. The brass screw is for major adjustment and the smaller silver screws for fine adjustment. Adjust the trip point by turning the screws clockwise to decrease the differential and counter clockwise to increase the differential.

A minimum differential of approximately 8% to 12% of the spring range is required between the two pressure settings for proper operation.

4.0 Operation:

The Presco-Switch pressure control switch senses pressure with either a diaphragm (Base D) or lapped plunger (Base S) through a piston rod. Resistance is provided by a heavy-duty spring. When the set pressure is reached, a trip plate attached to the piston rod will actuate the microswitch plunger, opening or closing the circuit. A positive pressure stop allows the Presco-Switch to withstand over-range and surge conditions without requiring recalibration.

4.1 Pressure Sensing Base Descriptions:

Base	Design	Operating Conditions	Maximum Working Pressure
Style D	NBR Diaphragm pressure sensor with backup plunger	Standard oilfield and mild sour / corrosive gas, crude oil and water service	20,684kPag (3,000psig) *
Style S	Lapped plunger pressure sensor with energized PTFE/Elgiloy® seal	Sour / corrosive gas, crude oil, water service and other liquids for higher pressure service	34,474kPag (5,000psig)

* Models with 1-1/4" piston limited to 1379kPag (200psig). See range chart on page 8.

4.2 Microswitch Housing Arrangement Descriptions:

Housing	Switch Function	Description
Style F	Auto reset with a fixed dead band	One adjustable microswitch for applications that require a single switching point. Differential is approximately 4%.
Style FF	Dual auto reset with a fixed dead band	Two independently adjustable microswitches for applications that require two separate switching points or dual circuits. Differential is approximately 4%.
Style FV	Auto reset with a fixed & variable dead band	Two independently adjustable microswitches provide separate circuits; one with a fixed differential and one with a variable differential.
Style V	Auto reset with a variable dead band	One adjustable microswitch with an adjustable dead band for applications that require a high/low switch. Minimum differential is approximately 8% - 12%.
Style VV	Dual auto reset with a variable dead band	Two independently adjustable microswitches provide separate circuits with an adjustable dead band for applications that require dual high/low switches. Minimum differential is approximately 8% - 12%.
Style M	Manual reset	One adjustable microswitch trips on increasing pressure. After the pressure decreases, and the manual reset knob is pushed, the microswitch will reset.

4.3 General Specifications:

Electrical Rating	5A – 125/250/480 VAC; 0.5A – 125VDC; 0.25A – 250VDC; SPDT
Electrical Classification	CSA c/us Approved per C22.2/UL1203/UL508; Class 1, Group D Hazardous Locations; Dual Seal Compliant per ANSI/ISA-12.27.01 requirements
Electrical Temperature Rating	-50°C…82°C (-58°F…180°F)
Electrical Housing	Cast Aluminum; 90mm (3-1/2" OD) with 21.3mm (1/2") NPT(f) connection
Repeatability	1% to 2% of adjustable range
Service	Standard corrosion resistant trim and H_2S NACE MR0175 on Select Models
Pressure Connection	60.3mm (2") NPT(m); Zinc Electroplated High Strength Carbon Steel
Pressure Ratings (MWP)	Type D (1.25" piston): 1,379kPag @ -50°C…82°C; (200psig @ -58°F…180°F) Type D (0.63" piston): 20,684kPag @ -50°C…82°C; (3,000psig@ -58°F…180°F) Type S (all sizes): 34,474kPag @ -50°C…82°C; (5,000psig @ -58°F…180°F)
Canadian Registration Number	OF20302.213
Quality Program	AQP-5164

5.0 Maintenance and Repair:

Maintenance and repair are to be done by qualified professionals only, using only Presco-Switch original parts. Inspect the Presco-Switch pressure control switch and check trip points annually, or as soon as a malfunction is suspected to maintain proper functioning.

Substitution with non-approved parts can impair proper operation of the Presco-Switch.

Ensure the area is non-hazardous, de-energize and lockout the Presco-Switch before starting maintenance or repair

5.1 Maintenance

Wipe away any dirt and oil build up on the outside of the switch. If there is fluid leaking from the weep holes this indicates there is a pressure seal issue that needs immediate attention.

Process fluids may contain hazardous substances that when depressurized release to atmosphere

If the switch is connected to an isolator valve, close the valve and carefully bleed pressure from base according to your company procedures. Confirm the Presco-Switch is in good working order, that there are no corroded or damaged parts, and check each microswitch trips at the correct setting. If no repairs are required, return the Presco-Switch to regular service. Otherwise see below for repair instructions.

5.2 Electrical Housing Repair (all models)

Ensure the area is Non-Hazardous and open all circuits before removing the cover.

Open the cover to the electrical housing, re-confirm there is no power to the circuit wires and ground then disconnect the wiring. Turn the brass adjusting screw counter-clockwise to remove microswitch assemblies from the housing. Replace the microswitch and any other damaged parts. See section 7.0 for part breakdowns.

If no repairs are required to the pressure base sensor, re-install the microswitch assemblies and set the trip points before closing the cover and returning to service. See section 3.0 for instructions on setting the microswitch trip point.

5.3 Pressure Base Sensor Repair (all models)

To make repairs to the base the Presco-Switch will need to be safely removed from the piping system.

Only use a pipe wrench on the knurled area of the base. Applying torque to other areas including the aluminum housing can cause damage.

After the microswitch assemblies are removed (section 5.2 above), remove the center locking nut and pull out the roll pin in the base. Unscrew the trip plate from the piston. Remove the set screw locking the base and switch housing together then separate them.

Remove the piston, pressure spring and shims. Then remove the piston sleeve with the special installation tool. (P/N: 31-34010280). After the sleeve is removed, finish disassembly by removing any remaining parts from the base.

Inspect for any damaged and replace parts as needed, including any diaphragms, U-cup seals and O-rings depending on the model. See section 7.0 for parts breakdown.

When re-installing parts, apply a very thin coating of petroleum-based jelly to the friction surfaces and all seals. Apply an anti-seize compound to the threads.

Applying too much grease to the diaphragm, seals or other moving parts may cause them to stick.

Begin by installing the parts in the order they were taken out. When re-installing the piston sleeve, it must be torqued to the values in Table 5.4 using the special installation tool.

5.4 Piston Sleeve Torque:

Base Style	Plunger Diameter	Torque Value
D	1.25”	65 ft-lb (88 N-m)
D	0.63”	100 ft-lb (136 N-m)
S	All	100 ft-lb (136 N-m)

Failure to torque the piston sleeve properly will result in improper sealing of the diaphragm or O-ring.

After re-torqueing the piston sleeve, replace the piston, shims and spring. When replacing the aluminum microswitch housing pay careful attention to the U-cup seal when passing the threads. After hand tightening the housing to the base, re-tighten the setscrew to lock them in place.

When removing and installing the microswitch housing, do not damage the u-cup seal.

Screw on the trip plate to the piston until it touches the bottom of the electrical housing, then back off a quarter turn. Install the nut onto the piston and then align trip plate with the roll pin hole. Install the roll pin.

Do not install the trip plate more than a half turn from above the bottom as the switch range may not be correct afterwards.

Re-install the microswitch assemblies, and tripper arm (if used) and set the trip points before closing the cover. See section 3.0 for instructions on setting the trip point. Re-install onto the isolator valve and return the Presco-Switch to service.

5.5 Troubleshooting

Fluid is coming out from the weep holes in the base	• The primary pressure seal or diaphragm is worn and needs to be replaced • The O-ring is worn and needs replacement • The piston is damaged and requires replacement
There is no signal from the Presco-Switch	• Power to the switch is off • There is a break in the wiring, check loop continuity • Wires are connected to the wrong terminals on the microswitch • The microswitch needs to be reset *(press the small button on top of the microswitch or the manual reset button if applicable)* • Microswitch needs replacement
Presco-Switch trips at the wrong pressure	• Check the calibration of the Presco-switch and re-calibrate the set point • Check for obstructions inside the electrical housing impeding the trip plate movement
Presco-Switch doesn’t maintain a repeatable set-point	• Microswitch is not tight to the mounting block • Adjusting spring is broken • Microswitch requires replacement • Main pressure spring needs replacement

6.0 Presco-Switch Model Number Breakdown:

Base Arrangement:

- **D** – Diaphragm pressure sensor for mildly sour and corrosive gas, crude oil and water service
- **S** – Lapped plunger pressure sensor for sour and corrosive gas, crude oil and water service

Microswitch Housing Arrangement:

- **F** – Single Fixed Differential Switch, approximately +/- 4% differential
- **FF** – Dual Fixed Differential Switch, with independent circuits, approximately +/- 4% differential
- **FV** – One Fixed Differential Switch, One Variable Differential Switch
- **V** – Single Variable Differential Switch, for high / low setting differential
- **VV** – Dual Variable Differential Switch, with independent circuits for high / low setting differential
- **M** – Manually reset after trip, single switch

Spring Range Number:

Select spring range from the chart below.

SFF – 100*

6.1 Presco-Switch Pressure Range Chart:

Range No.	Style D Base			Style S Base		
	Piston dia.	Switch Pressure Range		Plunger dia.	Switch Pressure Range	
		kPag	psig		kPag	psig
7	1.25”	69 – 483	10 – 70			
15	1.25”	103 – 621	15 – 90			
20	1.25”	138 – 1,379	20 – 200			
30				0.87”	276 – 2,068	40 – 300
40	0.63”	276 – 2,758	40 – 400	0.87”	345 – 2,758	50 – 400
50	-	-	-	0.87”	414 – 3,447	60 – 500
60	0.63”	414 – 4,137	60 – 600	0.87”	483 – 4,137	70 – 600
70				0.87”	621 – 4,826	90 – 700
80				0.63”	689 – 5,516	100 – 800
100	0.63”	689 – 6,895	100 – 1,000	0.63”	862 – 6,895	125 – 1,000
125	0.63”	1,034 – 8,618	150 – 1,250	0.63”	1,103 – 8,618	160 – 1,250
150	0.63”	2,068 – 10,342	300 – 1,500	0.63”	1,379 – 10,342	200 – 1,500
200	0.63”	2,758 – 13,789	400 – 2,000	0.38”	1,896 – 13,790	275 – 2,000
250	0.63”	3,447 – 17,237	500 – 2,500	0.38”	2,413 – 17,237	350 – 2,500
300	0.63”	4,137 – 20,684	600 – 3,000	0.38”	2,930 – 20,684	425 – 3,000

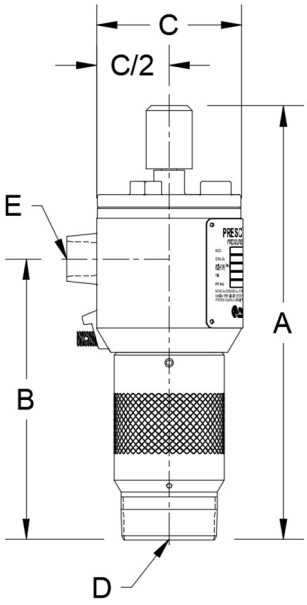
Component wetted parts meeting the requirements of NACE MR0175 are available on select models.
* Additional letters may be used to designate different trim or material options. Assigned by Pembina Controls.

6.2 Presco-Switch Spring Chart:

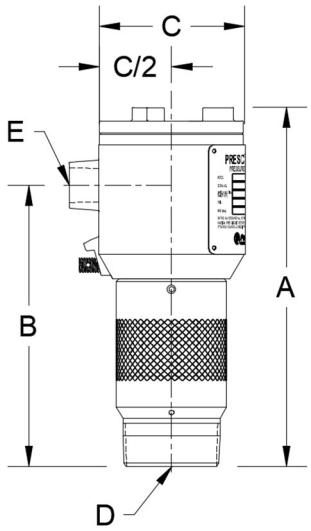
Spring Colour (OD)	Part No.	Style D Base		Style S Base		
		1-1/4” Piston	5/8” Piston	7/8” Plunger	5/8” Plunger	3/8” Plunger
Red (0.81”)	31-75000001	No.7				
Green (1.0”)	31-75000013	No.15	No.40			
Blue (1.0”)	31-75000010	No.20	No.60			
White/Red (1.0”)	31-75010292		No.100	No.30		
Red (1.0”)	31-75000011		No.125	No.40	No.80	No.200
Yellow (1.0”)	31-75010269		No.150	No.50	No.100	No.250
Red (1.25”)	31-75000025		No.200	No.60	No.125	No.300
Yellow (1.25”)	31-75000008		No.250	No.70	No.150	
Short Yellow (1.25”)	31-75000028		No.300			

6.3 Presco-Switch Weights and Dimensions – Metric:

Base	Microswitch Housing Style	A	B	C	D (NPT)	E (NPT)	Weight
Style D	Auto Reset	225 mm	176 mm	90.5 mm	60mm	21mm	3.4 kg
	Manual Reset	272 mm	176 mm	90.5 mm	60mm	21mm	3.5 kg
Style S	Auto Reset	236 mm	187 mm	90.5 mm	60mm	21mm	3.9 kg
	Manual Reset	283 mm	187 mm	90.5 mm	60mm	21mm	4.0 kg



Manual Reset
Style M

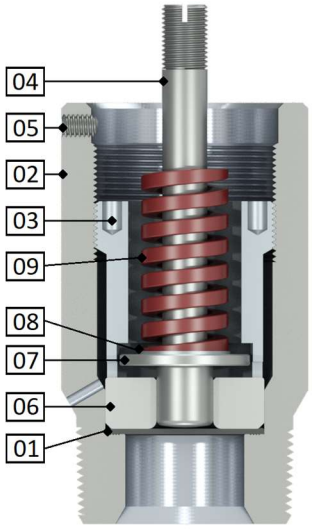


Auto Reset
Style F, FF, FV, V, VV

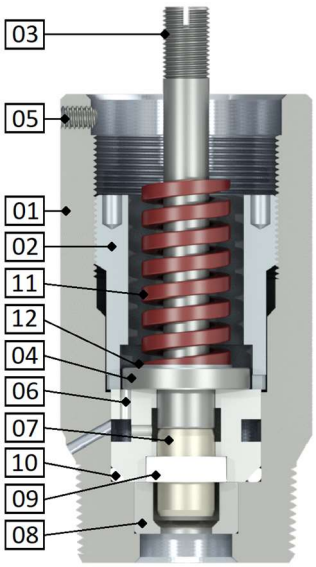
6.4 Presco-Switch Weights and Dimensions – Imperial:

Base	Microswitch Housing Style	A	B	C	D (NPT)	E (NPT)	Weight
Style D	Auto Reset	8.85”	6.94”	3.56”	2”	1/2”	7.6 lbs.
	Manual Reset	10.72”	6.94”	3.56”	2”	1/2"	7.8 lbs.
Style S	Auto Reset	9.28”	7.37”	3.56”	2”	1/2”	8.6 lbs.
	Manual Reset	11.15”	7.37”	3.56”	2”	1/2”	8.8 lbs.

7.0 Parts:



5/8" piston shown



5/8" plunger shown

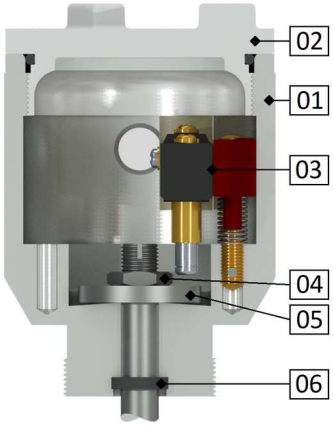
7.1 Base Housing – Style D:

Item	Part No.	Description
01△	**31-34000087**	Diaphragm
02	**31-397728**	Type D Base (NACE)
03	**31-34000081**	Piston Guide Sleeve
04	**31-34010017**	Piston, Low Pressure, 1-1/4" dia.
	31-34000084	Piston, Med Pressure, 5/8" dia.
05	**31-70000087**	Set Screw
06	**31-34010022**	Piston Guide, 1-1/4" dia.
	31-34000079	Piston Guide, 5/8" dia.
07	**31-34000085**	Spring Base Plate
08	**Varies**	Shim, contact Pembina Controls
09	**Varies**	See 6.2 Presco-Switch Spring Chart

7.2 Base Housing – Style S:

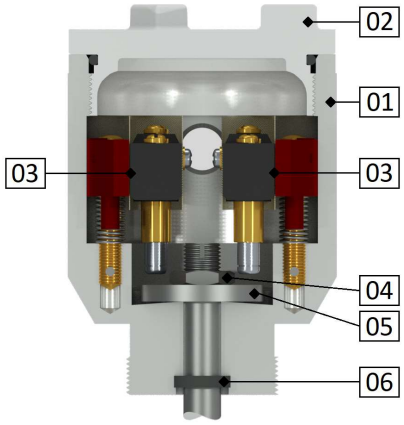
Item	Part No.	Description
01	**33-397700**	Type S Base (NACE)
02	**31-34000177**	Piston Guide Sleeve
03	**31-34000178**	Piston Extension
04	**31-34000179**	Spring Base Plate
05	**31-70000087**	Set Screw
06	**31-34000193**	Plunger Guide, 3/8" dia.
	31-34000188	Plunger Guide, 5/8" dia.
	31-397701	Plunger Guide, 5/8" dia., NACE
	31-34000180	Plunger Guide, 7/8" dia.
07	**31-34000194**	Plunger, 3/8" dia.
	31-34000189	Plunger, 5/8" dia.
	31-397702	Plunger, 5/8" dia., NACE
	31-34000181	Plunger, 7/8" dia.
08	**31-34000195**	Plunger Retainer, 3/8" dia.
	31-34000190	Plunger Retainer, 5/8" dia.
	31-397703	Plunger Retainer, 5/8" dia., NACE
	31-34000182	Plunger Retainer, 7/8" dia.
09△	**31-71510084**	Plunger Seal, 3/8" dia.
	31-71510085	Plunger Seal, 5/8" dia.
	31-71510086	Plunger Seal, 7/8" dia.
10△	**31-71000050**	O-Ring
11	**Varies**	See 6.2 Presco-Switch Spring Chart
12	**Varies**	Shim, contact Pembina Controls

△ Recommended Spare Part



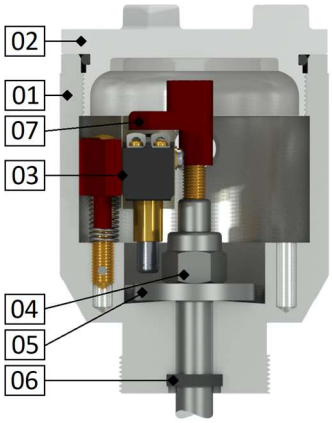
7.3 Part 31-34000070; Electrical Housing Style F:

Item	Part No.	Description
01	**31-34000071**	Switch Housing
02	**31-34010216**	Switch Housing Cover Assembly
03	**31-34000218**	Fixed Microswitch Assembly
04	**31-34000031**	Locknut
05	**31-34000023**	Trip Plate
06△	**31-71510128**	U-cup Seal
NS	**31-34010166**	Grounding Screw (not shown)
NS	**31-34000032**	Drain Screw (not shown)
NS	**31-70000023**	Roll Pin (not shown)



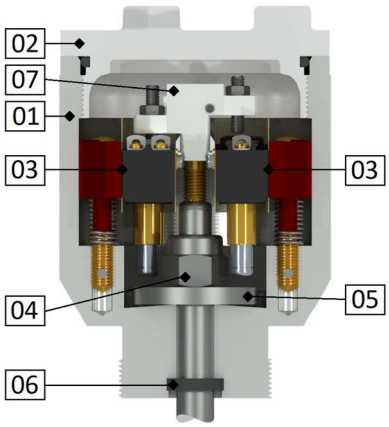
7.5 Part 31-34000113; Electrical Housing Style FF:

Item	Part No.	Description
01	**31-34000071**	Switch Housing
02	**31-34010216**	Switch Housing Cover Assembly
03	**31-34000218**	Fixed Microswitch Assembly
04	**31-34000031**	Locknut
05	**31-34000023**	Trip Plate
06△	**31-71510128**	U-cup Seal
NS	**31-34010166**	Grounding Screw (not shown)
NS	**31-34000032**	Drain Screw (not shown)
NS	**31-70000023**	Roll Pin (not shown)



7.4 Part 31-34000170; Electrical Housing Style V:

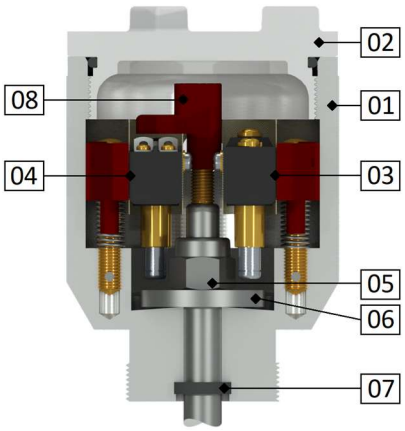
Item	Part No.	Description
01	**31-34000071**	Switch Housing
02	**31-34010216**	Switch Housing Cover Assembly
03	**31-34000050**	Variable Microswitch Assembly
04	**31-34000052**	Extension Nut
05	**31-34000023**	Trip Plate
06△	**31-71510128**	U-cup Seal
07	**31-34000053**	Tripper Arm Assembly
NS	**31-34010166**	Grounding Screw (not shown)
NS	**31-34000032**	Drain Screw (not shown)
NS	**31-70000023**	Roll Pin (not shown)



7.6 Part 31-34000172; Electrical Housing Style VV:

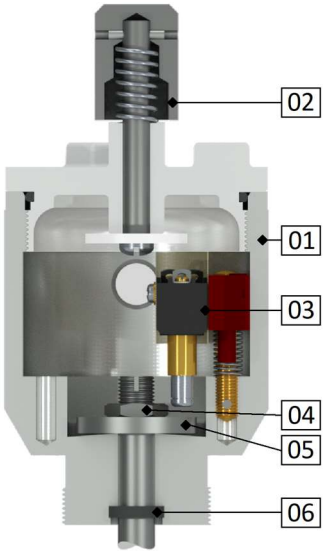
Item	Part No.	Description
01	**31-34000071**	Switch Housing
02	**31-34010216**	Switch Housing Cover Assembly
03	**31-34000050**	Variable Microswitch Assembly
04	**31-34000052**	Extension Nut
05	**31-34000023**	Trip Plate
06△	**31-71510128**	U-cup Seal
07	**31-34000053**	Dual Tripper Arm Assembly
NS	**31-34010166**	Grounding Screw (not shown)
NS	**31-34000032**	Drain Screw (not shown)
NS	**31-70000023**	Roll Pin (not shown)

△ Recommended Spare Part



7.7 Part 31-340-00174; Electrical Housing Style FV:

Item	Part No.	Description
01	**31-34000071**	Switch Housing
02	**31-34010216**	Switch Housing Cover Assembly
03	**31-34000218**	Fixed Microswitch Assembly
04	**31-34000050**	Variable Microswitch Assembly
05	**31-34000052**	Extension Nut
06	**31-34000023**	Trip Plate
07△	**31-71510128**	Seal Buna-N
08	**31-34000053**	Tripper Arm Assembly
NS	**31-34010166**	Grounding Screw (not shown)
NS	**31-34000032**	Drain Screw (not shown)
NS	**31-70000023**	Roll Pin (not shown)

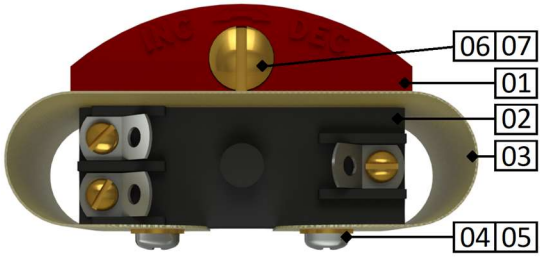


7.8 Part 31-34000191; Electrical Housing Style M:

Item	Part No.	Description
01	**31-34000071**	Switch Housing
02	**31-34000116**	Manual Housing Cover Assembly
03	**31-34000050**	Manual Microswitch Assembly
04	**31-34000031**	Locknut
05	**31-34000023**	Trip Plate
06△	**31-71510128**	Seal Buna-N
NS	**31-34010166**	Grounding Screw (not shown)
NS	**31-34000032**	Drain Screw (not shown)
NS	**31-70000023**	Roll Pin (not shown)

7.9 Part 31-34000218; Fixed Assembly:

Item	Part No.	Description
01	**31-34000028**	Switch Mounting Block
02△	**31-73010010**	Microswitch, Fixed
03	**31-34000029**	Insulating Barrier
04	**31-70010763**	Machine Screw
05	**31-70010292**	Washer
06	**31-34000024**	Adjusting Screw Assembly
07	**31-75000009**	Adjusting Spring (not shown)



7.10 Part 31-34000050; Manual/Variable Assembly:

Item	Part No.	Description
01	**31-34000028**	Switch Mounting Block
02△	**31-73010011**	Microswitch, Variable/Manual
03	**31-34000029**	Insulating Barrier
04	**31-70010763**	Machine Screw
05	**31-70010292**	Washer
06	**31-34000024**	Adjusting Screw Assembly
07	**31-75000009**	Adjusting Spring (not shown)

△ Recommended Spare Part

8.0 Warranty

Presco-Switch assemblies have a 12-month warranty on material and workmanship from the time of installation or 18-month from the shipment date, whichever occurs first. Presco-Switch parts have a 12-month warranty from the shipment date. Warranty only applies to the original purchaser of the product and is non-transferable.

Returns

Pembina Controls must be notified within five (5) business days in writing of any suspected defect with the product purchased. Products are to be returned prepaid to Pembina Controls Inc. and free of any duties, brokerage, taxes, or other associated cost. (DDP – Incoterms 2020). Any product returned for warranty consideration will be verified to the satisfaction of Pembina Controls Inc. for the alleged defect.

If the product has been in service, it must be cleaned and flushed of any fluids, residue and certified to be free of any hazardous material prior to being returned. An SDS is to be provided for the hazardous materials the switch was in contact with. Product that has not been properly cleaned and without an accompanying SDS will be rejected and returned at sender expense.

Repair or Replacement

Products that are verified to be defective and are warrantable will be repaired or replaced at the discretion of Pembina Controls. Only the defect is covered and does not include any other portion of the product or shipping. Any labour, repair and replacement costs required that are not a direct result of the defect, will be charged to the customer.

Limited Liability

Warranty will be void for any product in respect to and/or as a result of:

- Repair or alteration of any product, portion of the product or parts by parties other than Pembina Controls Inc.
- Improper installation, operation, maintenance, repair or service of the product
- Installation of non-approved parts
- Corrosion or deterioration of product materials due to service conditions or the environment
- Failure to notify Pembina Controls Inc. in a timely manner of any alleged defect
- Misuse, vandalism, negligence, accidents, acts of God, or other circumstances that are outside the control of Pembina Controls Inc.

Warranty is exclusive and in lieu of any other warranties whether direct or implied whatsoever. Any suggestion of suitability to the application shall not be constituted as warranty, unless confirmed as such in writing by Pembina Controls Inc. Liability of Pembina Controls Inc. shall in no event exceed the original contract price. Pembina Controls Inc. shall not be subject to any and all consequential, incidental and contingent damages whatsoever.

Well LSD:_____

Site Name:_____

Tag Number:_____

Model Number:_____

Serial Number:_____

Installation Date:_____

Microswitch #1 Set Pressure:_____ Reset Pressure:_____

Microswitch #2 Set Pressure:_____ Reset Pressure:_____

Notes:

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