

# Pressure & Temperature Switches

## Model 4140

### Overview

AMOT type 4140 switches are available as a single (types 4140C & F), dual step pressure or temperature switch (types 4140D & E), or a combined pressure and temperature switch (type 4140A). 4140 temperature switches and combined switches are supplied with a thermal well or slip coupling and are mounted by inserting the temperature sensing element into a properly located pipe boss.

### Typical applications

Suitable for industrial and marine applications. Providing protection and safety of:

- Diesel engines
- Compressors
- Pumps
- Transmissions
- Gearboxes

### Key benefits

- Gold and silver plated contacts - for use in I/S circuits
- Weatherproof enclosure IP56
- Single and dual set points - alarm and shutdown capabilities in one unit
- Combined temperature and pressure with independent, fully adjustable set points - for use in diverse applications



**4140C  
& 4140F  
Pressure  
Switch**



**4140D  
& 4140E  
Temperature  
Switch**

**amot**

# Pressure & Temperature Switches - 4140

## Specification

<b>Housing materials</b>	Diecast aluminum alloy casting	Fully gasketed and weatherproof
<b>Finish</b>	Epoxy polyester powder coating	
<b>Pressure sensing wetted parts</b>	Fitted with nitrile rubber diaphragm	
<b>Temperature sensing probe</b>	Wax element enclosed in copper sheath or bi-metallic disc (range 6)	
<b>Vibration</b>	Resistant up to 14G/100Hz	Refer to microswitch type
<b>Temperature</b>	Temperature switch	-40°F to +248°F -40°C to +120°C ambient
	Pressure switch	-40°F to 194°F -40°C to +90°C ambient
<b>Types</b>	Single	
	Dual	
	Combined pressure and temperature	
<b>Set point adjustment</b>	Fully adjustable upon opening the housing	
<b>Set point indication</b>	Clear visibility on scale plate	
<b>Microswitch terminations</b>	Screw terminals	Common, normally open and normally closed connections. Easily wired for rising or falling set points
<b>Microswitch current</b>	15A resistive at 15V d.c.	
	0.5A resistive at 250V d.c.	
	15A resistive at 125V a.c.	Type R & S microswitch only
	15A resistive at 250V a.c.	Type R & S microswitch only
<b>Cable entry</b>	Side fittings PG 13.5 thread standard page 5	For options refer to 'How to order'
<b>Pressure sensing</b>	0.28 to 40 bar (4 to 580 PSI)	See table page 3
<b>Temperature sensing</b>	16°C to 250°C (61°F to 485°F)	For range see 'How to order' page 5

## Marine classification information

In accordance with the Classification Societies rules a thermowell must be used on all temperature switch installations for liquid sensing, in marine applications. The following have been Type Approved by Germanischer Lloyd for marine applications:

Pressure ranges: 1, 2, 3, 4 and 9

Temperature ranges: 1, 2, 3, 4 and 5

Microswitch types: K, Y, R and S

Please contact AMOT Customer Services or Quality Department for types with GL Approval.

# Pressure & Temperature Switches - 4140

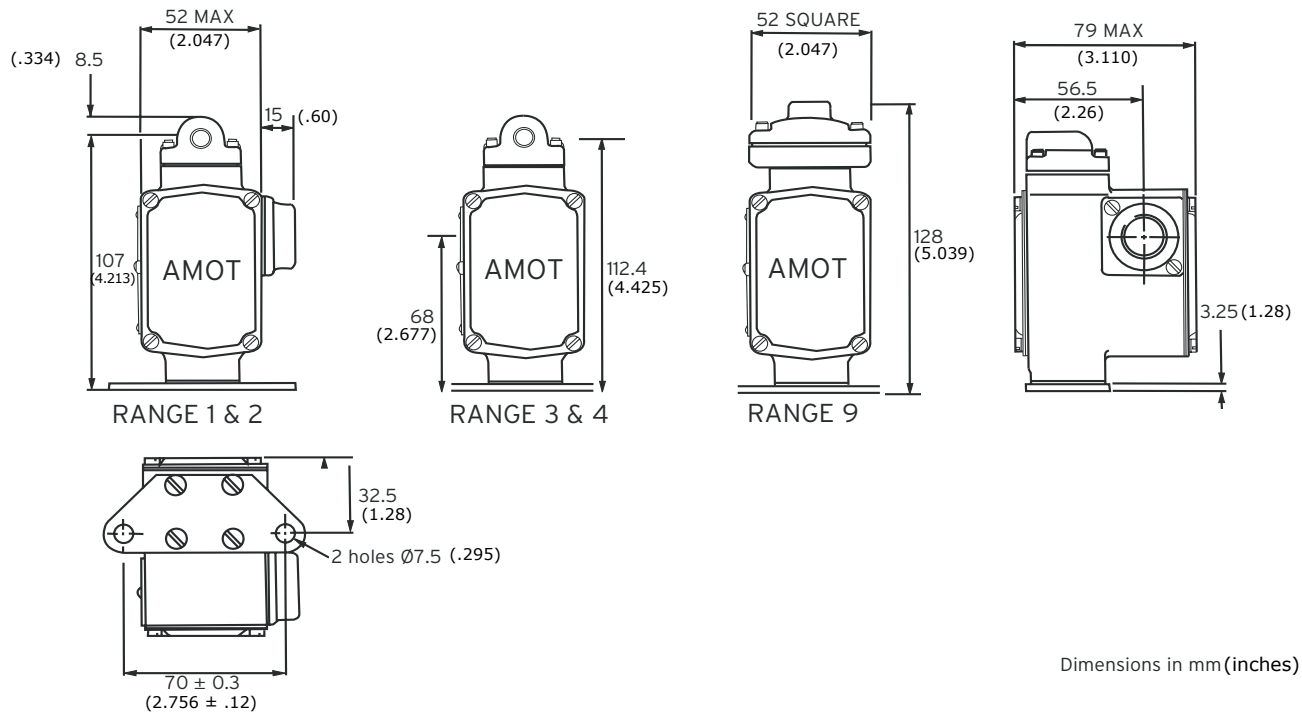
## Pressure (BAR)

Switch type	Range no.	Pressure range				Switch pressure differential				Pressure differential		Sensed pressure max
		Falling		Rising		Switch 1		Switch 2		Switch 2 above Switch 1		
		min	max	min	max	diff	tol +/-	diff	tol +/-	min	max	
K & Y	1	0.28	3.45	0.48	3.72	0.24	0.10	0.41	0.21	0.34	1.03	24
	2	3.45	6.89	3.66	8.34	0.31	0.10	0.55	0.28	0.69	1.38	24
	3	6.89	20.68	8.27	23.44	2.07	1.03	3.10	1.03	1.38	2.07	40
	4	8.96	34.47	12.41	40	4.48	1.38	6.89	2.07	4.14	6.21	40
	9	0.10	1.52	0.14	1.65	0.08	0.03	0.17	0.08	0.28	0.69	10
H, R, S	1	0.34	3.45	0.90	4.27	0.67	0.21	1.24	0.62	1.03	2.41	24
	2	2.76	7.45	3.38	9.37	0.93	0.31	11.86	0.90	2.07	2.76	24
	3	6.20	18.27	9.30	24.13	4.48	1.38	5.51	2.76	2.76	4.83	40
	4	8.96	29.65	15.86	40	8.62	1.72	10.34	2.76	4.14	6.21	40
	9	0.17	1.52	0.38	1.86	0.25	0.08	0.50	0.25	0.34	1.03	10

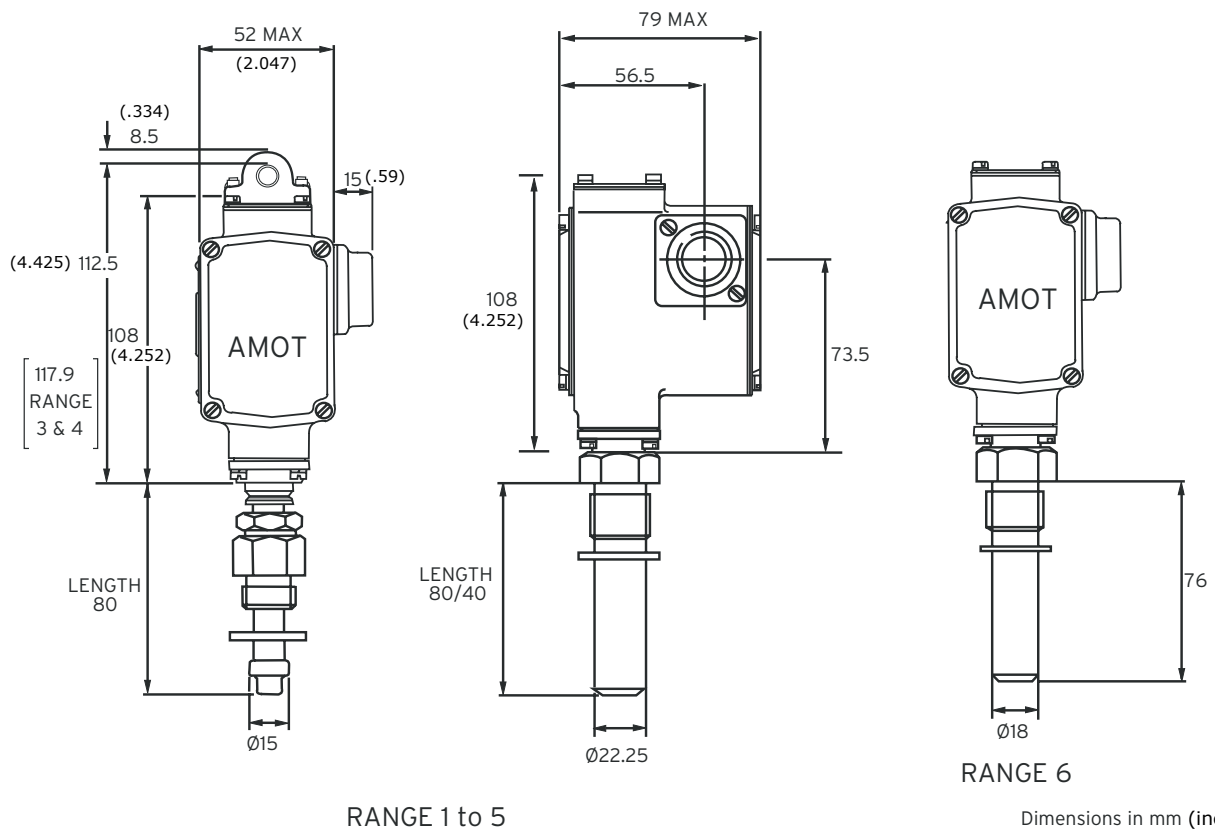
## Pressure (PSI)

Switch type	Range no.	Pressure range				Switch pressure differential				Pressure differential		Sensed pressure max
		Falling		Rising		Switch 1		Switch 2		Switch 2 above Switch 1		
		min	max	min	max	diff	tol +/-	diff	tol +/-	min	max	
K & Y	1	4	50	7	54	3.5	1.5	6	3	5	15	350
	2	50	100	53	121	4.5	1.5	8	4	10	20	350
	3	100	300	120	340	30	15	45	15	20	30	580
	4	130	500	180	580	65	20	100	30	60	90	580
	9	1.5	22	2	24	1.2	0.4	2.4	1.2	4	10	145
H, R, S	1	5	50	13	62	9	3	18	9	15	35	350
	2	40	108	49	136	13.5	4.5	27	13	30	40	350
	3	90	265	135	350	65	20	80	40	40	70	580
	4	130	430	230	580	125	25	150	40	60	90	580
	9	2.5	22	5.5	27	3.6	1.2	7.2	3.6	5	15	145

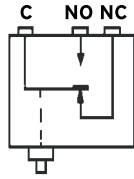
## Dimensions - Pressure switch



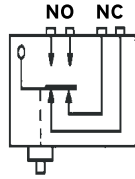
## Dimensions - Temperature switch



## Microswitch



Types K,  
R & S



Type H

**Terminations:** Terminal connection details are specified on the inside of the terminal cover plate next to the microswitch fitting. All microswitch types have common, normally open and normally closed screw terminal markings and can be wired to provide make or break action on rising or falling setpoints.

**Current rating:** The table opposite details maximum current rating (AMPS) for the standard K microswitch. For details of other rating of alternative switch types, consult AMOT.

### Maximum Current Rating for Microswitch K

Voltage	AC		DC	
	Resistive	Inductive	Resistive	Inductive
8			15	15
14			15	10
30			6	5
125			0.4	0.05
230			0.2	0.03
125	15	15		
250	15	15		
277	15	15		
460	15	15		

# Pressure & Temperature Switches - 4140

## How to order

Use the tables below to select the unique specification of your 4140 pressure/temperature switch

Example code	4140	A	K	1	A	H	3	1	2	C	-EE	Code Description			
Model & revision level												Model & Revision Level			
	4140											4140			
Model type												Model type			
	A											Combined pressure and temperature			
	C											Single step pressure			
	D											Single step temperature			
	E											Dual step temperature			
	F											Dual step pressure			
Microswitch type (see page 4)												Microswitch type			
	H											Double break			
	K											Low reset differential 4G at 100Hz			
	R											High vibration/shock resistant 14G at 100Hz			
	S											High vibration/shock resistant 14G at 100Hz with gold plate contacts			
Finish												Finish			
	1											Standard			
	3											Corrosion protected			
Conduit thread												Conduit thread			
	A											Standard	No bonnet fitted		
	C										1/2" NPT				
	E										PG 13.5				
	H										M20 * 1.5				
	V										PG9				
	M											Protected	1/2" NPT		
	P										PG 13.5				
	S										M20 * 1.5				
W										PG9					
Pressure connection												Pressure connection			
	1											Standard	1/8" BSPTr		
	2										1/8" NPT				
	3												1/8" BSPPL		
	4											Protected	1/8" BSPTr		
	5										1/8" NPT				
	6										1/8" BSPPL				
	0											Temperature switch			
Pressure range												Pressure range		Please advise if set or unset. If set, please advise set point and whether falling or rising.	
	3											See Pressure Range table on page 3			
Temperature stem length												Temperature stem length			
	A											Pressure switch			
	C											80mm			
	E											40mm			
Temperature stem adaptor												Temperature stem adaptor		Plating	Max pessure (bar)
	A											No adaptor fitted/pressure switch		Zinc plate	-
	B											Slip coupling 1/2" BSPPL		Zinc plate	17.5
	C											Slip coupling 1/2" NPT		Aluminum bronze	17.5
	E											Thermowell 1/2" BSPPL		Aluminum bronze	105
	G											Thermowell 3/4" BSPPL		Aluminum bronze	105
	H											Thermowell 3/4" BSPPL		Stainless steel	207
	K											Thermowell 1/2" BSPPL temp range 6 only		Aluminum bronze	69
	L											Thermowell 1/2" NPT temp range 6 only		Aluminum bronze	69
M											Thermowell 1/2" NPT		Aluminum bronze	105	
Temperature range												Temperature range		Please advise if set or unset. If set, please advise set point and whether falling or rising.	
												°F			
	1											60 - 130		16 - 54	
	2											120 - 160		49 - 71	
	3											150 - 190		66 - 87	
	4											180 - 220		83 - 104	
	5											210 - 255		99 - 123	
	6*											248 - 482		120 - 250	
0											Pressure switch				
Special requirements												Special requirements			
	-EE											Standard product			
	-***											Customer special code assigned			

# Pressure & Temperature Switches - 4140

## Service kits - model 4140A

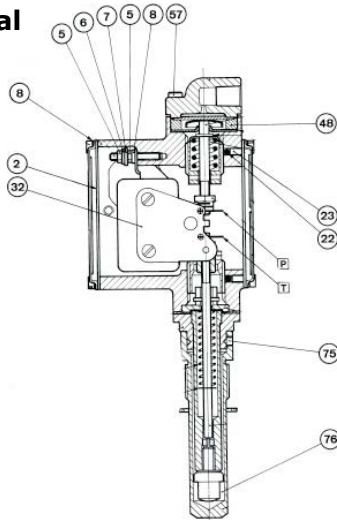
### Service kit contents

Ref. no.	Qty	Description	Ref. no.	Qty	Description
2	2	Gasket housing cover	37	1	Gasket, conduit bonnet
5	2	Locknut	38	2	Screw
6	1	Washer, shakeproof	48	1	Diaphragm assembly R 1 & 2
7	1	Washer, cup, terminal	53	1	Diaphragm Range 3 & 4
8	3	Washer, spring	57	4	Screw Range 1 to 4
12	2	'O' ring	65	1	Diaphragm assembly Range 9
13	2	Screw	67	4	Screw Range 9
21	2	Screw	75	2	Screw
22	1	Nylon ball	76	1	Tube of heat transfer compound
23	1	Screw, grub		1	Key, hexagonal
32	1	Microswitch assembly			

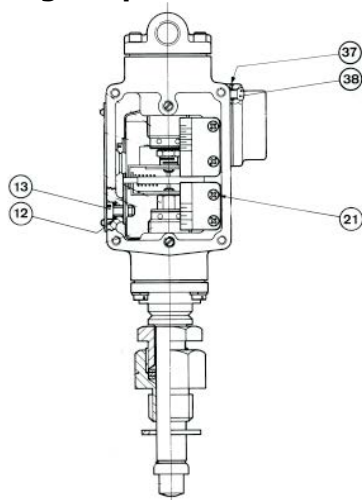
A spare part service kit, part no.: 44046L\*\*\* is available for model 4140A and full details of kit contents are listed here. Please quote the switch model and serial number in full, together with the service kit part number required when ordering spare parts.

Example code	44046L	1	1	0	Code description
<b>Microswitch type</b>					<b>Microswitch type</b>
		2			H Double break
		4			K Std: low reset/differential
		7			R Vibration/shock resistant
		8			S as K, gold plated contacts
		9			Y as R, gold plated contacts
<b>Pressure range and finish</b>					<b>Pressure range and finish</b>
		1			Range 1 Standard
		2			Range 2 Standard
		3			Range 3 Standard
		4			Range 4 Standard
		5			Range 1 Corrosion protected
		6			Range 2 Corrosion protected
		7			Range 3 Corrosion protected
		8			Range 4 Corrosion protected
		9			Range 9 Either of above
<b>Temperature connection</b>					<b>Temperature connection</b>
				0	None fitted
				1	1/2" BSP or NPT
				2	3/4" BSP or NPT
				3	High temperature (range 6)
				4	M20 x 1.5mm

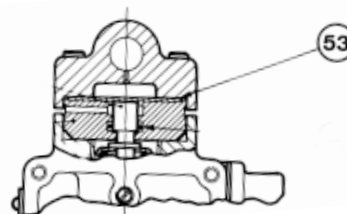
### With thermal well



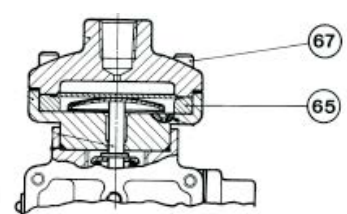
### With slip-coupling adaptor



### Pressure ranges 3 and 4



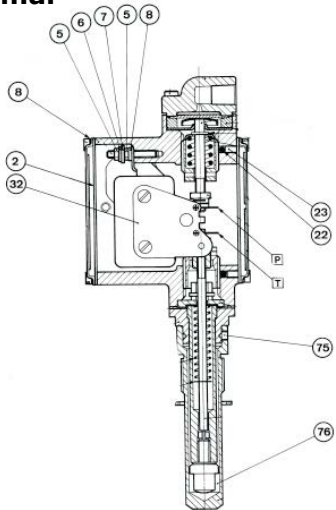
### Pressure range 9



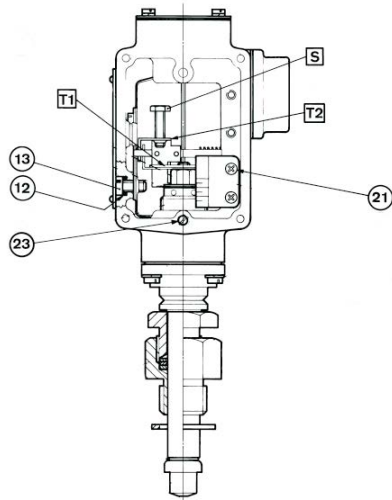
# Pressure & Temperature Switches - 4140

## Service kits - models 4140D & E

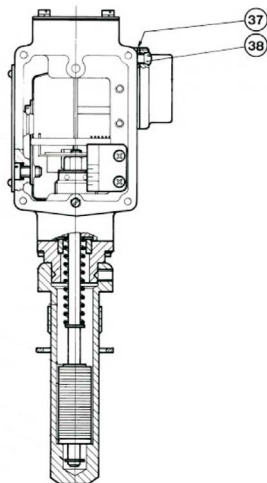
### With thermal well



### With slip-coupling adaptor



### Showing temperature range 6 bi-metallic disc element assembly



A spare part service kit, part no.: 44048L\*\*\* is available for models 4140D and part no.: 44049L for 4140E and full details of kit contents are listed here. Please quote the switch model number and serial number in full, together with the service kit part number required when ordering parts.

Example code	44048L	1	0	2	Code description
Service kit part number	44048L				Service kit for model 4140D
	44049L				Service kit for model 4140E
Microswitch type					<b>Microswitch type</b>
	2			H	Double break
	4			K	Std: low reset/differential
	7			R	Vibration/shock resistant
	8			S	as K, gold plated contacts
	9			Y	as R, gold plated contacts
Pressure range and finish					<b>Pressure range and finish</b>
		0			Temperature version
Temperature connection					<b>Temperature Connection</b>
		0			None fitted
		1			1/2" BSP or NPT
		2			3/4" BSP or NPT
		3			High temperature (range 6)
		4			M20 x 1.5mm

### Service kit contents

Ref no.	Qty	Description	Ref no.	Qty	Description
2	2	Gasket housing cover	21	2	Screw
5	2	Locknut	22	1	Nylon ball
6	1	Washer, Shakeproof	23	1	Screw, grub
7	1	Washer, cup, terminal	32	1	Microswitch assembly
8	3	Washer, spring	37	1	Gasket, conduit bonnet
12	2	'O' ring	38	2	Screw
13	2	Screw	75	2	Screw
			76	1	Tube of heat transfer compound



# Pressure & Temperature Switches - 4140

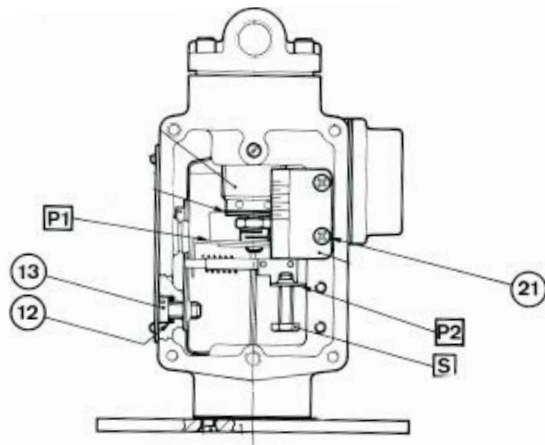
## Service kits - models 4140C & F

### Service kit contents

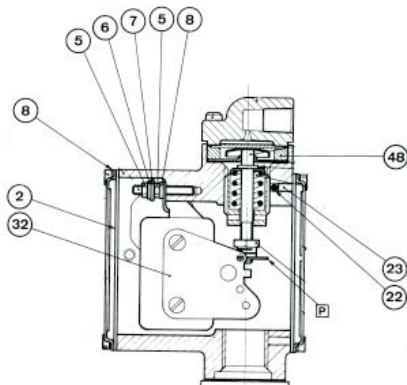
Ref no.	Qty	Description	Ref no.	Qty	Description
2	2	Gasket housing cover	32	1	Microswitch assembly
5	2	Locknut	37	1	Gasket, conduit bonnet
6	1	Washer, Shakeproof	38	2	Screw
7	1	Washer, cup, terminal	48	1	Diaphragm assembly Range 1 & 2
8	3	Washer, spring	53	1	Diaphragm Range 3 & 4
12	2	'O' ring	57	4	Screw Range 1 to 4
13	2	Screw	65	1	Diaphragm assembly Range 9
21	2	Screw	67	4	Screw Range 9
22	1	Nylon ball		1	Key hexagonal
23	1	Screw, grub			

A spare part service kit, part no.: 44047L\*\*\* is available for models 4140C and part no.: 44050L for 4140F and full details of kit contents are listed here. Please quote the switch model number and serial number in full, together with the service kit part number required when ordering parts. For more information see maintenance manual.

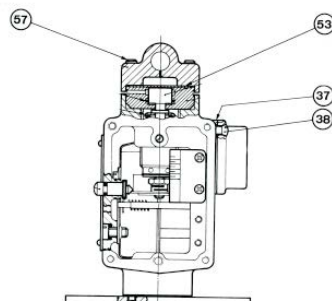
Example code	44047L	1	1	0	Code description
Service kit part number					Service kit part number
	44047L				Service kit for model 4140C
	44050L				Service kit for model 4140F
Microswitch type					Microswitch type
		2			H Double break
		4			K Std: low reset/differential
		7			R Vibration/shock resistant
		8			S as K, gold plated contacts
		9			Y as R, gold plated contacts
Pressure range and finish					Pressure range and finish
		1			Range 1 Standard
		2			Range 2 Standard
		3			Range 3 Standard
		4			Range 4 Standard
		5			Range 1 Corrosion protected
		6			Range 2 Corrosion protected
		7			Range 3 Corrosion protected
		8			Range 4 Corrosion protected
		9			Range 9 Either of above
Pressure version					Pressure version
		0			Pressure version



Pressure ranges 1 and 2



Pressure ranges 3 and 4



Pressure range 9

