### 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.

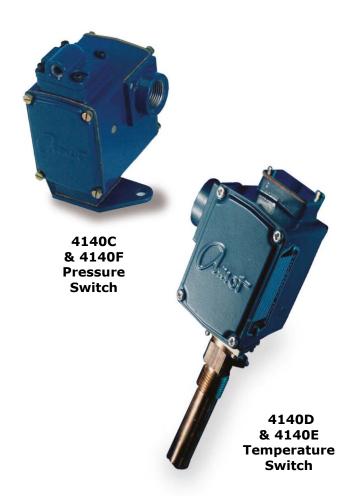
### **Typical applications**

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





# Specification

Finish Epoxy polyester powder coating  Pressure sensing wetted parts  Temperature Sensing probe Sheath or bi-metallic disc (range 6)  Vibration Resistant up to 14G/100Hz Refer to microswitch type  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  Types Single Dual Combined pressure and temperature  Set point adjustment Fully adjustable upon opening the housing  Set point indication Clear visibility on scale plate  Microswitch current Ereminations  Microswitch current 15A resistive at 15V d.c. 0.5A resistive at 250V d.c. 15A resistive at 250V a.c. Type R & S microswitch only  Type R & S microswitch only  Side fitments PG 13.5 thread standard page 5  Pressure sensing 0.28 to 40 bar (4 to 580 PSI) See table page 3			
Fitted with nitrile rubber diaphragm  Wetted parts  Temperature sensing probe  Wax element enclosed in copper sheath or bi-metallic disc (range 6)  Wibration  Resistant up to 14G/100Hz  Refer to microswitch type  Temperature switch  Pressure switch  Pressure switch  Dual  Combined pressure and temperature  Set point adjustment  Fully adjustable upon opening the housing  Set point indication  Clear visibility on scale plate  Microswitch terminations  Screw terminals  Common, normally open and normally closed connections. Easily wired for rising or falling set points  Microswitch current  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  Side fitments PG 13.5 thread standard page 5  Pressure sensing  O.28 to 40 bar (4 to 580 PSI)  See table page 3	Housing materials	Diecast aluminum alloy casting	Fully gasketed and weatherproof
Wetted parts Temperature sheath or bi-metallic disc (range 6)  Wibration Resistant up to 14G/100Hz Refer to microswitch type Temperature  Temperature  Temperature switch Pressure switch Pressure switch  Combined pressure and temperature  Set point adjustment Fully adjustable upon opening the housing  Set point indication Clear visibility on scale plate  Microswitch terminations  Microswitch current Fully adjustable at 15V d.c.  0.5A resistive at 15V d.c.  15A resistive at 250V d.c.  15A resistive at 250V a.c.  Type R & S microswitch only  Side fitments PG 13.5 thread standard page 5  Pressure sensing  O 28 to 40 bar (4 to 580 PSI)  See table page 3	Finish	Epoxy polyester powder coating	
sheath or bi-metallic disc (range 6)  Wibration Resistant up to 14G/100Hz Refer to microswitch type  Temperature Temperature switch Pressure sensing  Single Dual Combined pressure and temperature  Set point adjustment Pully adjustable upon opening the housing  Common, normally open and normally closed connections. Easily wired for rising or falling set points  Screw terminals Pressure sensing  Side fitments PG 13.5 thread standard Pressure sensing  See table page 3	Pressure sensing wetted parts	Fitted with nitrile rubber diaphragm	
Temperature  Temperature switch  Temperature sembient  Temperature sembient  Temperature sembient  Temperature switch  Temperature sembient  Temperature sembient  Temperature switch  Temperature sembient  Temperature sem	Temperature sensing probe	• •	
Cable entry   Cable page 5   Pressure sensing   Cable page 3   Cable page 4   Cable page 4   Cable page 5   Cable page 4   Cable page 4   Cable page 5   Cable page 4   Cable page 5   C	Vibration	Resistant up to 14G/100Hz	Refer to microswitch type
Types  Single  Dual  Combined pressure and temperature  Set point adjustment Fully adjustable upon opening the housing  Set point indication  Microswitch terminations  Screw terminals  Common, normally open and normally closed connections. Easily wired for rising or falling set points  Microswitch current  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  Side fitments PG 13.5 thread standard page 5  Pressure sensing  O.28 to 40 bar (4 to 580 PSI)  See table page 3	Temperature	Temperature switch	
Dual  Combined pressure and temperature  Set point adjustment  Fully adjustable upon opening the housing  Clear visibility on scale plate  Screw terminals  Common, normally open and normally closed connections. Easily wired for rising or falling set points  Microswitch current  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  Side fitments PG 13.5 thread standard page 5  Pressure sensing  0.28 to 40 bar (4 to 580 PSI)  See table page 3		Pressure switch	
Combined pressure and temperature  Fully adjustable upon opening the housing  Clear visibility on scale plate  Common, normally open and normally closed connections. Easily wired for rising or falling set points  Microswitch current  I5A 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  Side fitments PG 13.5 thread standard page 5  Pressure sensing  0.28 to 40 bar (4 to 580 PSI)  See table page 3	Types	Single	
Set point adjustmentFully adjustable upon opening the housingSet point indicationClear visibility on scale plateMicroswitch terminationsScrew terminalsCommon, normally open and normally closed connections. Easily wired for rising or falling set pointsMicroswitch current15A resistive at 15V d.c.Type R & S microswitch only0.5A resistive at 250V d.c.Type R & S microswitch only15A resistive at 250V a.c.Type R & S microswitch onlyCable entrySide fitments PG 13.5 thread standard page 5For options refer to 'How to order' page 5Pressure sensing0.28 to 40 bar (4 to 580 PSI)See table page 3		Dual	
Clear visibility on scale plate  Screw terminals  Common, normally open and normally closed connections. Easily wired for rising or falling set points  Microswitch current  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  Side fitments PG 13.5 thread standard page 5  Pressure sensing  0.28 to 40 bar (4 to 580 PSI)  Sce table page 3		Combined pressure and temperature	
Microswitch terminations  Screw terminals  Common, normally open and normally closed connections. Easily wired for rising or falling set points  Microswitch current  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  Side fitments PG 13.5 thread standard page 5  Pressure sensing  0.28 to 40 bar (4 to 580 PSI)  See table page 3	Set point adjustment	Fully adjustable upon opening the hous	ing
terminations  normally closed connections. Easily wired for rising or falling set points  Microswitch current  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  Side fitments PG 13.5 thread standard page 5  Pressure sensing  0.28 to 40 bar (4 to 580 PSI)  See table page 3	Set point indication	Clear visibility on scale plate	
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  Cable entry Side fitments PG 13.5 thread standard page 5  Pressure sensing 0.28 to 40 bar (4 to 580 PSI) See table page 3	Microswitch terminations	Screw terminals	normally closed connections. Easily wired for rising or falling
15A resistive at 125V a.c. Type R & S microswitch only 15A resistive at 250V a.c. Type R & S microswitch only  Cable entry Side fitments PG 13.5 thread standard page 5  Pressure sensing 0.28 to 40 bar (4 to 580 PSI) See table page 3	Microswitch current	15A resistive at 15V d.c.	
15A resistive at 250V a.c. Type R & S microswitch only  Cable entry Side fitments PG 13.5 thread standard page 5  Pressure sensing 0.28 to 40 bar (4 to 580 PSI) See table page 3		0.5A resistive at 250V d.c.	
Cable entry  Side fitments PG 13.5 thread standard page 5  Pressure sensing  Side fitments PG 13.5 thread standard For options refer to 'How to order' page 5  See table page 3		15A resistive at 125V a.c.	Type R & S microswitch only
page 5  Pressure sensing 0.28 to 40 bar (4 to 580 PSI) See table page 3		15A resistive at 250V a.c.	Type R & S microswitch only
, , , , , , , , , , , , , , , , , , , ,	Cable entry		For options refer to 'How to order'
<b>Temperature sensing</b> 16°C to 250°C (61°F to 485°F) For range see 'How to order' page	Pressure sensing	0.28 to 40 bar (4 to 580 PSI)	See table page 3
	Temperature sensing	16°C to 250°C (61°F to 485°F)	For range see 'How to order' page

### 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.

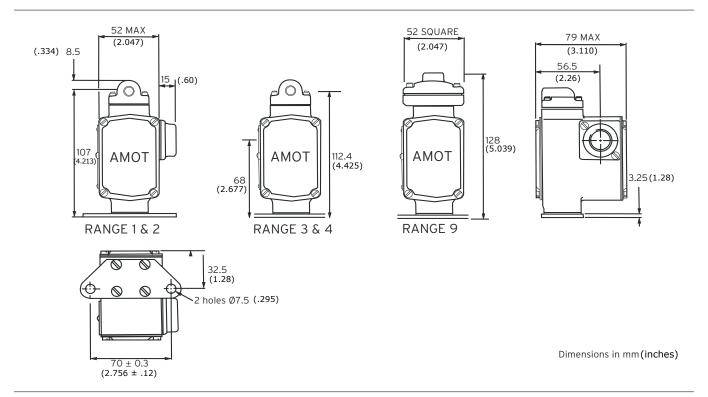
# Pressure (BAR)

Switch	Range	Pressu	ire rang	е		Switch	pressui	re differen	itial	Pressure dif	ferential	Sensed
type	no.	Falling	ing Rising			Switch	1	Switch 2		Switch 2 abo	ove Switch 1	pressure max
		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

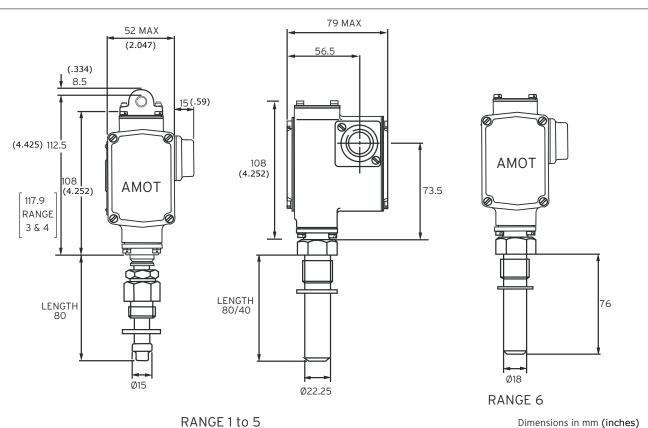
# Pressure (PSI)

Switch	Range	Pressu	re rang	е		Switch	pressui	re differer	itial	Pressure dif	ferential	Sensed
type	no.	Falling	l	Rising		Switch	1	Switch 2		Switch 2 ab	pressure max	
		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**



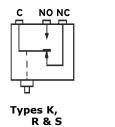
# **Dimensions - Temperature switch**

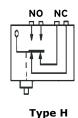


Datasheet\_4140\_Press\_Temp\_Switch\_Dec15\_Rev8

page 4

### **Microswitch**





**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	Δ	C	D	C
	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		

### How to order

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

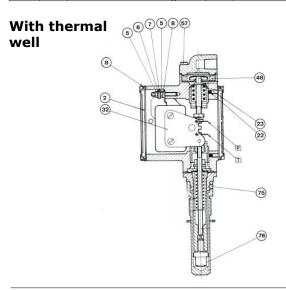
Evamula sada	4140	Α	К	1	Α	Н	3	1	2	С	-EE	Code Description		
Example code	4140	^	K	_	^	-''	,	_			-LL	Model & Revision Level		
Model & revision level	4140											4140		
	7170											Model type		
		Α										Combined pressure and temperature		
Madel home		С										Single step pressure		
Model type		D										Single step temperature		
		Е										Dual step temperature		
		F										Dual step pressure		
												Microswitch type		
Microswitch type	e (see p	age	Н									Double break  Low reset differential 4G at 100Hz		
4)		_	K R									High vibration/shock resistant 14G at 100Hz		
			S									High vibration/shock resistant 14G at 100Hz w	ith gold plate contacts	
												Finish	у от раста соттема	
Finish				1								Standard		
				3								Corrosion protected		
												Conduit thread		
1					Α							No bonnet fitted	-	
					С							1/2" NPT		
					Е							PG 13.5	Standard	
Conduit thread					Н							M20 * 1.5		
					V							PG9		
					M							1/2" NPT		
					P S							PG 13.5 M20 * 1.5	Protected	
					W							PG9		
					VV							Pressure connection		
1						1						1/8" BSPTr		
						2						1/8" NPT	Standard	
<b>D</b>						3						1/8" BSPPL		
Pressure connec	tion					4						1/8" BSPTr		
						5						1/8" NPT	Protected	
						6						1/8" BSPPL		
						0						Temperature switch		
Pressure range												Pressure range		t or unset. If set, please id whether falling or
							3					See Pressure Range table on page 3		
												Temperature stem length		
Temperature ste	m lengt	th						Α				Pressure switch		
								С				80mm		
								Е				40mm	Blatin -	Manage (bank
									Α			Temperature stem adaptor	Plating Zinc plate	Max pessure (bar)
									В			No adaptor fitted/pressure switch Slip coupling 1/2" BSPPL	Zinc plate Zinc plate	17.5
									C			Slip coupling 1/2" NPT	Aluminum bronze	17.5
									E			Thermowell 1/2" BSPPL	Aluminum bronze	105
Temperature ste	m adap	tor							G			Thermowell 3/4" BSPPL	Aluminum bronze	105
									Н			Thermowell 3/4" BSPPL	Stainless steel	207
									К			Thermowell 1/2" BSPPL temp range 6 only	Aluminum bronze	69
									L			Thermowell 1/2" NPT temp range 6 only	Aluminum bronze	69
									М			Thermowell 1/2" NPT	Aluminum bronze	105
												Temperature range		Please advise if set or
												°F	°C	unset. If set, please advise set point and whether falling or rising.
										1		60 - 130	16 - 54	
Temperature ran	ge									2		120 - 160	49 - 71	
	J-									3		150 - 190	66 - 87	
										4		180 - 220	83 - 104	
										5		210 - 255	99 - 123	
										6*	$\vdash$	248 - 482	120 - 250	
										0		Pressure switch		
Special requirem	onto											Special requirements Standard product		
Special requirem	ents										-EE	Customer special code assigned		
												castorner special code assigned		

### Service kits - model 4140A

#### **Service kit contents**

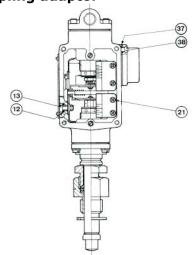
Ref. no.	Qty	Description	Ref. no.	Qty	Description
2	2	Gasket housing cover	37	1	Gasket, conduit bonnet
5	2	Locknut	38	2	Screw
6	1	Washer, shakeproof	48	1	Diaphragm assembly R 1 & 2
7	1	Washer, cup, terminal	53	1	Diaphragm Range 3 & 4
8	3	Washer, spring	57	4	Screw Range 1 to 4
12	2	'O' ring	65	1	Diaphragm 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.

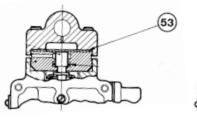


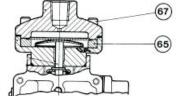
Example code	44046L	1	1	0	Code description			
					Microswi	tch type		
		2			Н	Double break		
		4			К	Std: low reset/ differential		
7					R	Vibration/shock resistant		
Microswi	Microswitch type 8				S	as K, gold plated contacts		
	9			Υ	as R, gold plated contacts			
					Pressure	range and finish		
			1		Range 1	Standard		
			2		Range 2	Standard		
			3		Range 3	Standard		
Pressure	range		4		Range 4	Standard		
and finis			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		
					Temperat	ture connection		
				0	None fitte	d		
Temperature					1/2" BSP (	or NPT		
connection				2	3/4" BSP (	or NPT		
					High temp	erature (range 6)		
				4	M20 x 1.5	mm		

#### With slip-coupling adaptor

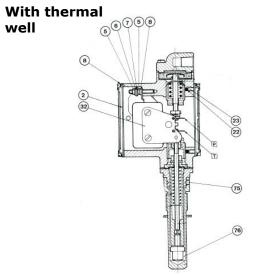


### Pressure ranges 3 and 4 Pressure range 9

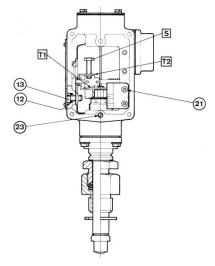




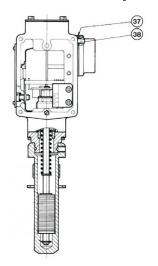
### Service kits - models 4140D & E



### 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 de	scription		
Service					Service	kit part number		
kit part number	44048L				Service k	it for model 4140D		
	44049L				Service k	it for model 4140E		
					Microsw	itch type		
		2			Н	Double break		
		4			K	Std: low reset/ differential		
		7			R	Vibration/shock resistant		
Microsw	Microswitch type				S	as K, gold plated contacts		
		9			Y	as R, gold plated contacts		
Pressure					Pressure	e range and finish		
and finis	sh		0		Temperat	cure version		
					Tempera	ature Connection		
				0	None fitte	ed		
Tempera	Temperature connection					or NPT		
				2	3/4" BSP	or NPT		
				3	High temperature (range 6)			
				4	M20 x 1.	5mm		

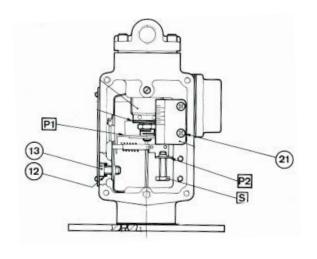
#### Service kit contents

Ref no.	Qty	Description		Ref no.	Qty	Descripton
2	2	Gasket housing cover	1	21	2	Screw
5	2	Locknut	1	22	1	Nylon ball
6	1	Washer, Shakeproof	1	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	1	75	2	Screw
				76	1	Tube of heat transfer compound

### 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			



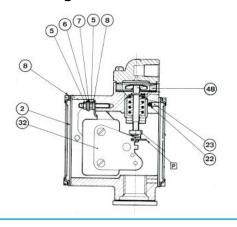
A spare part service kit, part no.: 44047L\*\*\* is available for models 4140C and part no.: 44050L for 4140F and full details of kit contents are listed here. Please quote the switch model number and serial number in full, together with the service kit part number required when ordering parts. For more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

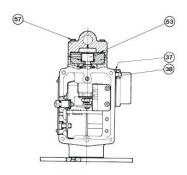
Example code	44047L	1	1	0	Code description		
Service					Service	kit part number	
kit part number	44047L				Service k	it for model 4140C	
	44050L				Service k	it for model 4140F	
					Microsw	itch type	
		2			Н	Double break	
		4			К	Std: low reset/ differential	
	Microswitch type 8				R	Vibration/shock resistant	
Microswit					S	as K, gold plated contacts	
		9			Y	as R, gold plated contacts	
					Pressure finish	e range and	
			1		Range 1	Standard	
Duaganna			2		Range 2	Standard	
Pressure and finish			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	Pressure version					e version	
				0	Pressure	version	

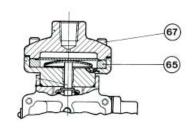
### Pressure ranges 1 and 2

#### Pressure ranges 3 and 4

Pressure range 9







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