

## MANUTENZIONE PREVENTIVA DELLE POMPE GIII E GIV H-SERIES PREVENTIVE MAINTENANCE OF GIII AND GIV H-SERIES PUMPS

OBIETTIVI	GOAL
<p>Il presente documento ha lo scopo di istruire riguardo la periodicità per la verifica e la modifica dei componenti relativi alle versioni GIII e GIV delle pompe modelli SAP, UAP e S-UAP; Anche se i componenti non hanno raggiunto le ore di utilizzo presentate in questo documento, prevarrà sempre l'analisi di un tecnico qualificato, che determinerà le condizioni di utilizzo, o la necessità di sostituire i componenti qui mostrati;</p>	<p><i>This document has the purpose to instruct the periodicity for the verification and changes of the components related to the GIII and GIV of the models SAP, UAP and S-UAP pumps;</i></p> <p><i>Even that the components did not reach the hours of use presented on this document, always will prevail the analyze of a qualified technician, who will determine the use conditions, or the need to switch the components here introduced;</i></p>
ARGOMENTI TRATTATI	TOPIC COVERED
<p>Dati tecnici presenti:</p> <ul style="list-style-type: none"> <li>• Le informazioni presenti in questo documento si basano su dati pratici sul campo e test di prestazione effettuati presso HPP o congiuntamente con clienti e partner;</li> <li>• I valori qui presentati sono validi solo per i lavori secondo le raccomandazioni tecniche di HPP presentate su tutti i file, inclusi schede tecniche, manuali e cataloghi. Non deve essere applicato ad applicazioni speciali, compreso il pompaggio di acqua (o altri fluidi) al di fuori degli standard stabiliti;</li> <li>• Questo documento copre solo le generazioni GIII e GIV dei modelli di pompe SAP, UAP e S-UAP;</li> <li>• I valori illustrati possono variare, tenendo conto delle condizioni di utilizzo dell'apparecchiatura;</li> </ul> <p>Garanzia:</p> <ul style="list-style-type: none"> <li>• Tutte le informazioni incluse in questo documento sono raccomandazioni di manutenzione, non sono applicabili alle richieste di garanzia</li> </ul>	<p><i>Present technical data:</i></p> <ul style="list-style-type: none"> <li>• <i>The information present on this document is based on practical field data and performance tests accomplished at HPP or jointly with customers and partners;</i></li> <li>• <i>The values here presented are valuable only for works according to technical recommendations of HPP presented on all the files, including datasheets, manuals, and catalogues. Must not be applied to specials applications, including water pumping (or other fluids) out of the established standards;</i></li> <li>• <i>This document covers only GIII and GIV of the models SAP, UAP and S-UAP pumps;</i></li> <li>• <i>The values introduced may vary, taking into account the condition of the equipment use;</i></li> </ul> <p><i>Warranty:</i></p> <ul style="list-style-type: none"> <li>• <i>All the information included on this document are maintenance recommendations, it is not applicable to warranty requisitions</i></li> </ul>
NOMENCLATURA	NOMENCLATURES
<p><b>O = Da verificare</b></p> <p>I campi contrassegnati dal simbolo "O" (da verificare) devono essere interpretati come una periodicità la cui verifica del componente deve essere effettuata, da un tecnico qualificato, cercando di rilevare eventuali danni su di esso. In caso di usura comprovata, inizio di danneggiamento o danneggiamento del componente, questo deve essere sostituito o riparato (se possibile), al fine di garantire il pieno funzionamento dell'intera pompa.</p> <p><b>X = Da cambiare</b></p> <p>I campi con il simbolo "X" (da modificare) devono essere interpretati come una periodicità di sostituzione o riparazione del componente (ove previsto), da parte di un tecnico qualificato, anche se il pezzo non presenta danni visibili, al fine di evitare rotture impreviste che potrebbero causare fratture e altri guasti non visibili.</p>	<p><b>O = To verify</b></p> <p><i>The fields with the symbol "O" (to verify) must be interpreted as a periodicity which the verification of the component should be made, by a qualified technician, looking to detect any possible damage on it. In case of wear proven, begin of damage, or damage on the component, it must be switched or repaired (when applicable), in order to guarantee a fully functioning of the entire pump.</i></p> <p><b>X = To change</b></p> <p><i>The fields with the symbol "X" (to change) must be interpreted as a periodicity which the component should be replaced or repaired (when applicable), by a qualified technician, even if the part does not present visible damages, in order to avoid unexpected breaks that could result in fractures and other failures not visible.</i></p>

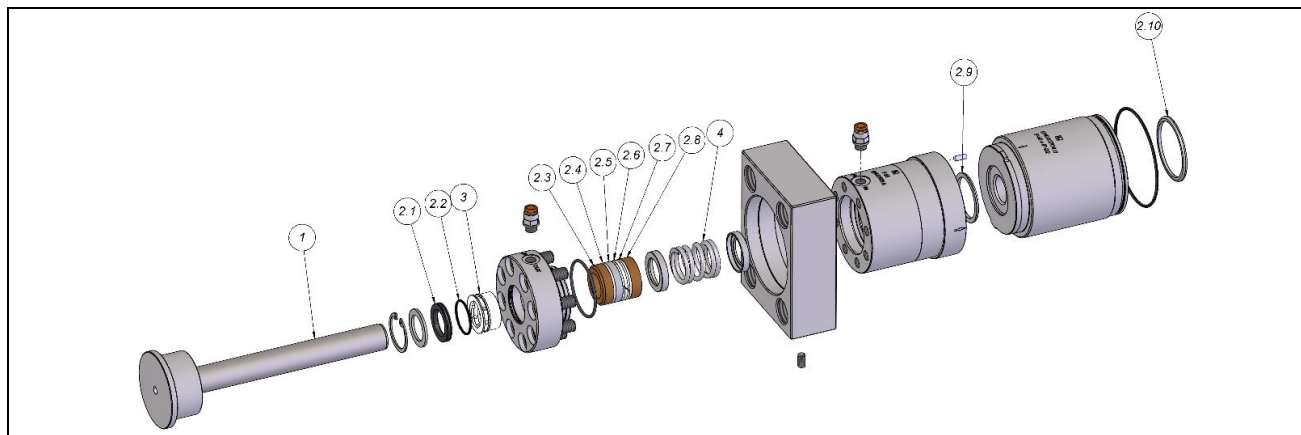
SPECIFICHE DEL FLUIDO		WATER SPECIFICATIONS			
<p>Sottolineiamo che lo stato dell'acqua ha un impatto diretto sulle prestazioni dell'apparecchiatura, nel caso avesse disciolto solidi nell'acqua e il PH fosse alterato può contribuire al guasto prematuro di componenti e/o accessori della pompa.</p> <p>Piccole bolle di gas in sospensione, che è possibile rilevare da un'ispezione visiva del serbatoio dell'acqua possono inoltre contribuire al danneggiamento dei componenti.</p> <p>Ricordiamo che la semplice osservazione dell'acqua non garantisce la qualità dell'acqua richiesta da utilizzare sulle apparecchiature di water jetting.</p> <p>Consigliamo una valutazione rigorosa da parte di un professionista, specialista in "qualità dell'acqua" e, se si rilevano variazioni nell'acqua, il nostro consiglio è di chiedere aiuto per tornare alle condizioni consigliate.</p>		<p><i>We emphasize that the condition of the water has impact directly on the performance of the equipment, having dissolved solids in the water and destabilized PH (singly or together with more water properties) can contribute for the premature failure, like pump components and/or accessories cracking.</i></p> <p><i>Little bubbles of gases in suspension, that it is possible to detect in visual inspection of the water tank while searching for bubbles and/or lather, can additionally contribute for components damages.</i></p> <p><i>We remind that the simple observation of crystal water does not guarantee the required quality of water to use on the hydro jetting equipment.</i></p> <p><i>We recommend a rigorous evaluation by a professional person, specialist in "water quality" and, if any variation is detected in the water, our advice is to ask for help for "water conditioning and purification".</i></p>			
SPECIFICATIONS	Unit	VALUE			DESCRIPTION
		Level 01	Level 02	Level 03	
Max Temperature:	°C	35°C	45°C	80°C	Maximum
Pump Family:	-	UAP/UHP	SAP/HP	Process	-
Work Pressure:	MPa	170 to 310	Until 170	-	-
Degree of Filtration:	µm	1	25	75	-
Total hardness:	ppm de <b>CaCO<sub>3</sub></b>	53,4-178	53,4-356	53,4-356	1° dH=17,8 ppm
PH:	PH	6,5 – 8,5	6,5 – 8,5	6,5 – 8,5	*
Volume of Chlorine:	ppm <b>Cl</b>	0,5	0,5	0,5	Maximum
Volume of Iron:	ppm de <b>Fe</b>	0,2	0,2	1	Maximum
Volume of Manganese:	ppm <b>Mn</b>	0,05	0,05	0,05	Maximum
Volume of Chloride:	ppm <b>Cl-</b>	100	100	100	Maximum
Volume of Sulfide:	ppm <b>SO<sub>4</sub><sup>-2</sup></b>	100	100	100	Maximum
Dissolved oxygen:	ppm <b>O</b>	5	5	5	Minimum
Harmful abrasive substances scattered in water:	ppm	20	50	150	Maximum
Conductivity:	µS/cm	1000	1000	1000	Maximum
Organic substances:	ppm <b>MnO<sub>4</sub></b>	12	12	12	Maximum
<b>Note:</b> 1) Riferimenti: 1.a) Tutti i valori aggiuntivi devono essere conformi alla DIN 50930; 1.b) Engel, Simon, and Labus, Thomas, An Overview of Waterjet Fundamentals and Applications, 3rd edition, 1993, or 4th Edition, 1999, or 5th edition, 2001, Section 8.0 "Industrial Applications and Comparison of Laser and Abrasive Water Jet Technologies. WJTA. Original reference Labus, T.J. "Plant Design and Operational Considerations for Fluid Jet Systems", Society of Manufacturing Engineers Paper No. MS88-134, May 1988; 2) 1 ppm = 1 mg/l; 3) * Dipende dalla concentrazione di carbonio nell'acqua; 4) Se l'origine dell'acqua è da un processo di trattamento per osmosi inversa o deionizzazione, si consiglia di prestare attenzione alle "Sostanze abrasive nocive sparse nell'acqua", che non possono essere inferiori a 0,5 ppm.		<b>Notes:</b> 1) <b>References:</b> 1.a) All additional values must comply with DIN 50930; 1.b) Engel, Simon, and Labus, Thomas, An Overview of Waterjet Fundamentals and Applications, 3rd edition, 1993, or 4th Edition, 1999, or 5th edition, 2001, Section 8.0 "Industrial Applications and Comparison of Laser and Abrasive Water Jet Technologies. WJTA. Original reference Labus, T.J. "Plant Design and Operational Considerations for Fluid Jet Systems", Society of Manufacturing Engineers Paper No. MS88-134, May 1988; 2) 1 ppm = 1 mg/l; 3) * Depends on the concentration of Carbon in the water; 4) If the origin of the water is from a treatment process by reverse osmosis or deionization, we suggest paying attention to the "Harmful abrasive substances scattered in water", which cannot be lower than 0,5 ppm. Water with "Harmful abrasive substances scattered in			

<p>L'acqua con "sostanze abrasive nocive sparse nell'acqua" inferiore a 0,5 ppm provoca danni ai componenti che sono composti da carburo, come pistoni e o-ring di supporto;</p> <p>5) Soitamente le forniture di acqua potabile comunali rientrano nelle suddette specifiche;</p> <p>6) Privo di additivi con proprietà corrosive sui metalli pesanti non ferrosi;</p>	<p><i>water" lower than 0,5 ppm cause damages in the components that are composed with carbide, like pistons and back up o'rings;</i></p> <p>5) <i>Usually, municipal drinking water supplies fall within the above specifications;</i></p> <p>6) <i>Free of additives with corrosive properties on non-ferrous heavy metals;</i></p>
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<p><b>ATTENZIONE!</b></p>	<p><b>ATTENTION!</b></p>
<ul style="list-style-type: none"> <li>• UTILIZZARE FILTRI ACQUA NON LAVABILI.</li> <li>• L'ATTREZZATURA STAZIONARIA DEVE ESSERE MESSA A TERRA.</li> </ul> <p>In caso di valori diversi o aggiunta di sostanze chimiche nell'acqua, contattare HPP, perché la scarsa qualità dell'acqua riduce la durata dei componenti e degli accessori delle apparecchiature, compromettendo la sicurezza.</p>	<ul style="list-style-type: none"> <li>• NON-WASHABLE WATER FILTER.</li> <li>• STATIONARY EQUIPMENT MUST BE GROUNDED</li> </ul> <p><i>In case of different values or chemical addition in water, contact HPP, because poor water quality reduces the lifespan of equipment components and accessories, compromising security.</i></p>

## RACCOMANDAZIONI DI MANUTENZIONE MAINTENANCE RECOMMENDATION

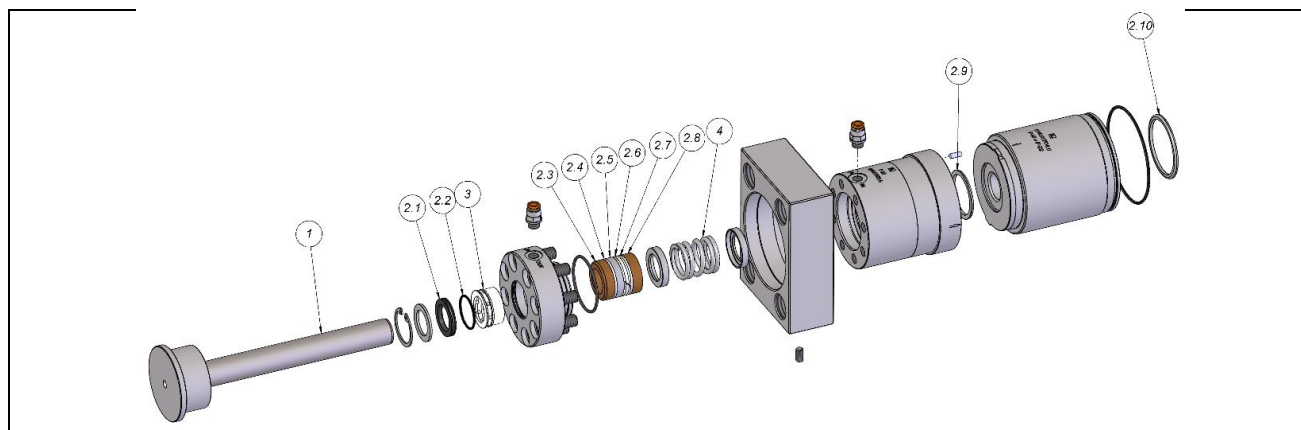
### PISTON KIT



<b>GIV</b>	<b>Piston Kit P-18 SAP</b>	<b>Q231010022060</b>
	<b>Piston Kit P-20 SAP</b>	<b>Q231010020520</b>
	<b>Piston Kit P-22 SAP</b>	<b>Q231010020530</b>
	<b>Piston Kit P-24 SAP</b>	<b>Q231010020540</b>

ITEM	QTY	DESCRIPTION	MODEL				HOURS			
			P-18	P-20	P-22	P-24	250	500	750	1000
1	3	Piston	Q231010022070	Q231010020730	Q231010020200	Q231010020210		O		X
2	1	Seal kit	Q231020002187	Q231020002203	Q231020002221	Q231020002241	O	X	O	X
3	3	Sliding bushing	Q231110017510	Q231110016250	Q231110015280	Q231110022080		O		X
4	3	Spring	Q231500001930	Q231500002060	Q231500001070	Q231500001080		X		X

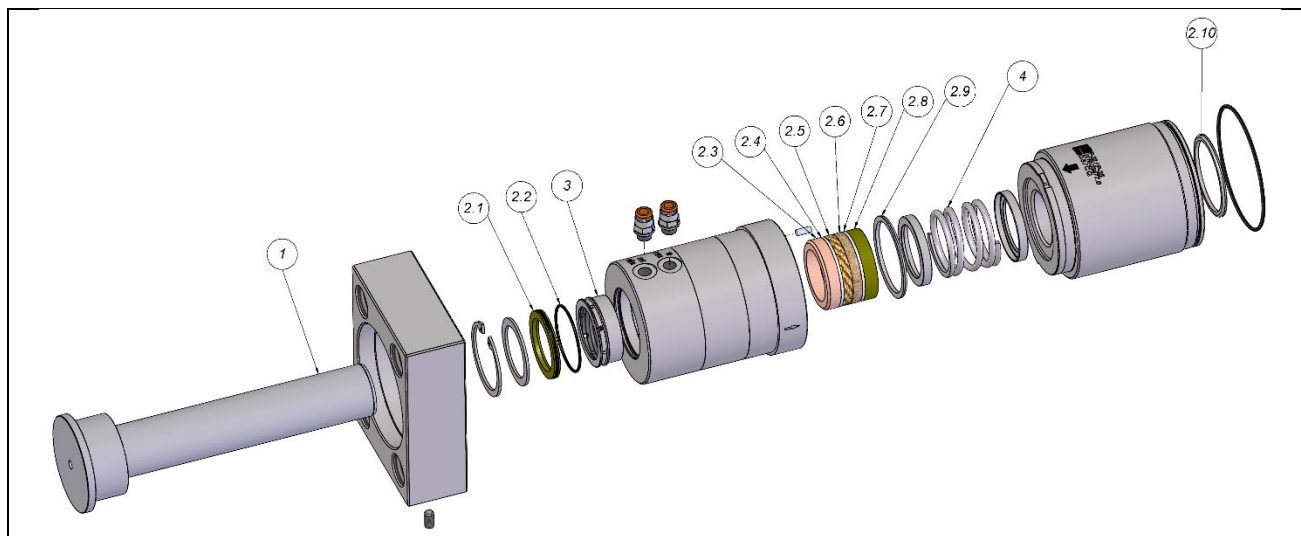
O = Verify | X = Change



<b>GIV</b>	<b>Piston Kit P-26 SAP</b>	<b>Q231010019980</b>
	<b>Piston Kit P-28 SAP</b>	<b>Q231010019990</b>
	<b>Piston Kit P-30 SAP</b>	<b>Q231010020000</b>

ITEM	QTY	DESCRIPTION	MODEL			HOURS			
			P-26	P-28	P-30	250	500	750	1000
1	3	Piston	Q231010020220	Q231010020230	Q231010020240		O		X
2	1	Seal kit	Q231020002261	Q231020002281	Q231020002301	O	X	O	X
3	3	Sliding bushing	Q231110013900	Q231110013890	Q231010013880		O		X
4	3	Spring	Q231500001090	Q231500001100	Q231500001460		X		X

O = Verify | X = Change

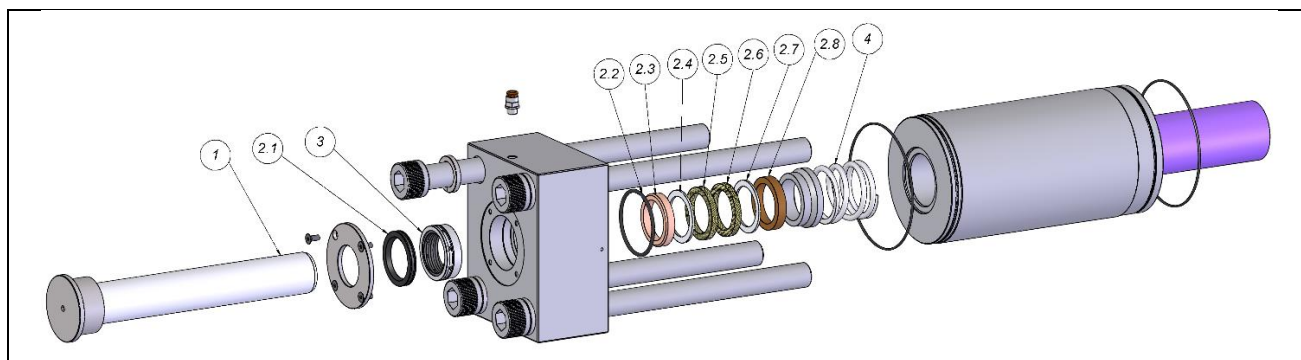


**GIV**

<b>Piston Kit P-32 SAP</b>	<b>Q231010020490</b>
<b>Piston Kit P-35 SAP</b>	<b>Q231010018200</b>
<b>Piston Kit P-40 SAP</b>	<b>Q231010020010</b>

ITEM	QTY	DESCRIPTION	MODEL				HOURS			
			MODEL			300-350	500	600-700	900-1050	
			P-32	P-35	P-40					
1	3	Piston	Q231010004340	Q231010004060	Q231010006260	O		O	X	
2	1	Seal kit	Q231020002321	Q231020002351	Q231020002404	X		X	X	
3	3	Sliding bushing	Q231010013870	Q231010013860	Q231010044510	O		O	X	
4	3	Spring	Q231500001110	Q231500002270	Q231500002330	O		X	O	

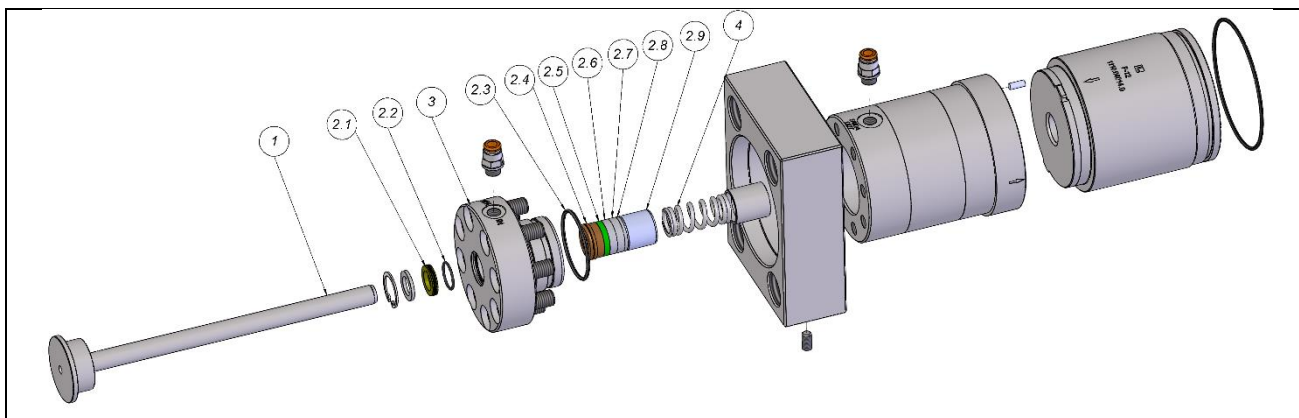
O = Verify | X = Change



**Piston Kit P-40 (H550/4) SAP**      **Q231010020600**  
**Piston Kit P-45 (H550/4) SAP**      **Q231010019310**

ITEM	QTY	DESCRIPTION	MODEL		HOURS			
			MODEL		250	500	750	1000
			P-40	P-45				
1	3	Piston	Q231010005480	Q231010010800	O	O	O	X
2	1	Seal kit	Q231020002406	Q231020002450	X	X	X	X
3	3	Sliding bushing	Q231010044510	Q231010044520	O	X	O	X
4	3	Spring	Q231500002260	Q231500002260	O	O	X	O

O = Verify | X = Change



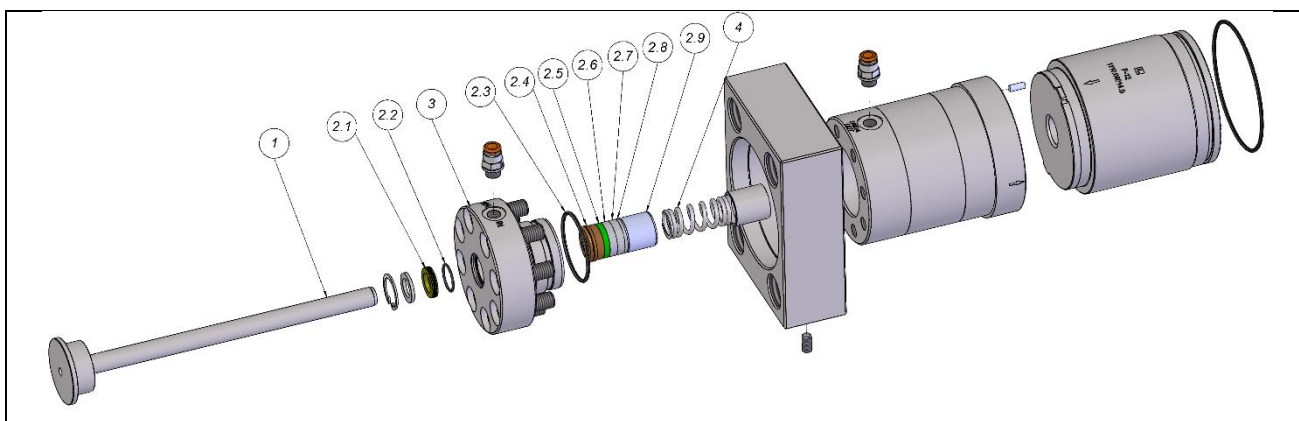
**GIV**

Piston Kit P-11 UAP	-
Piston Kit P-12 UAP	Q231010022150
Piston Kit P-14 UAP	Q231010020740

**HOURS**

ITEM	QTY	DESCRIPTION	MODEL			200	400	600	800
			P-11	P-12	P-14				
1	3	Piston	-	Q231010022160 Q231010022161(*)	Q231010020750 Q231010020751(*)	O	O	O	X
2	1	Seal kit	-	Q231020002124	Q231020002144	X	X	X	X
3	3	Flange with sliding bushing	-	Q231010022170	Q231010022090	O	X	O	X
4	3	Spring	-	Q231500002160	Q231500002290	O	O	O	X

O = Verify | X = Change | \* Traded and interchangeable item



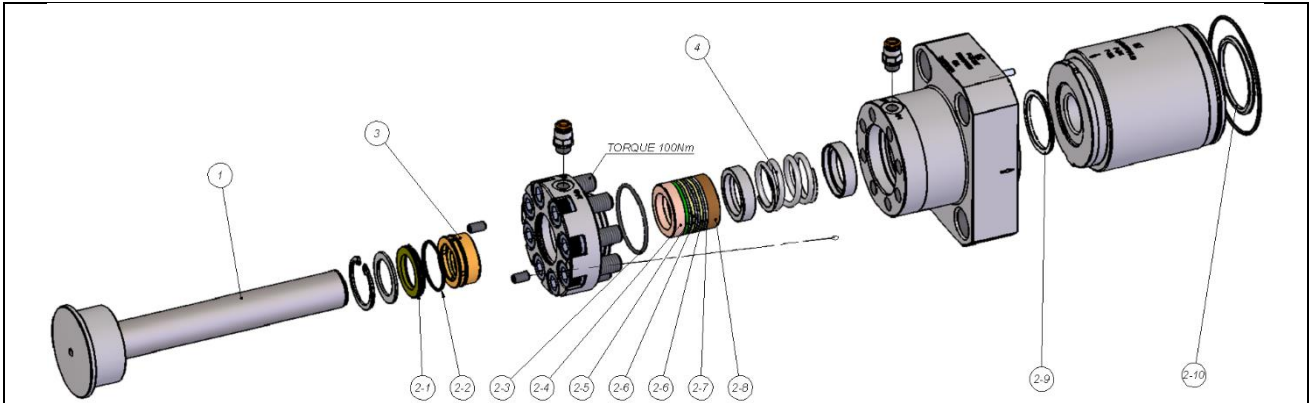
**GIV**

Piston Kit P-16 UAP	Q231010018460
Piston Kit P-18 UAP	Q231010019940
Piston Kit P-20 UAP	Q231010017200

**HOURS**

ITEM	QTY	DESCRIPTION	MODEL			200	400	600	800
			P-16	P-18	P-20				
1	3	Piston	Q231010018470 Q231010018471(*)	Q231010019950 Q231010019951(*)	Q231010017220 Q231010017221(*)	O	O	O	X
2	1	Seal kit	Q231020002166	Q231020002188	Q231020002204	X	X	X	X
3	3	Flange with sliding bushing	Q231010022100	Q231010022110	Q231010022120	O	X	O	X
4	3	Spring	Q231500002240	Q231500001930	Q231500002060	O	O	O	X

O = Verify | X = Change | \* Traded and interchangeable item



**Piston Kit P-26 S-UAP Q231010022920**

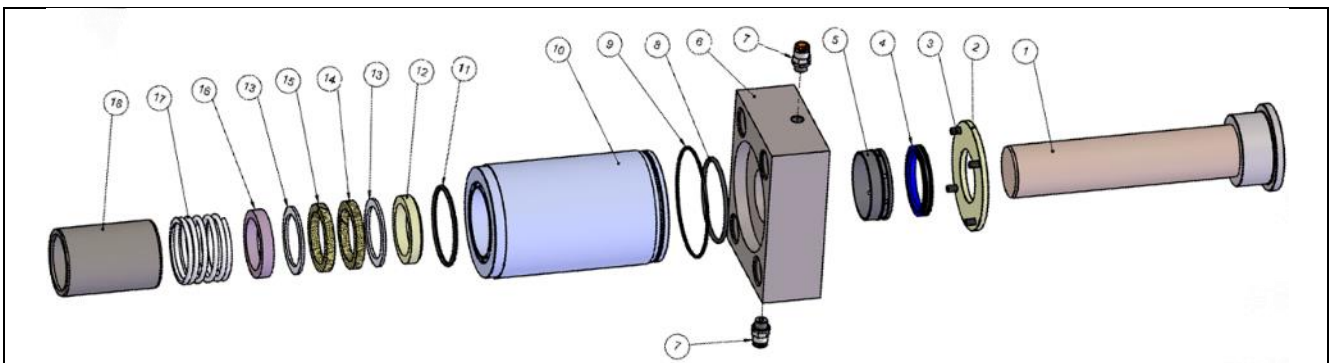
**GIV**

**HOURS**

	250	500	750	1000
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ITEM	QTY	DESCRIPTION	MODEL				250	500	750	1000
					P-26					
1	3	Piston			Q231010022990		O		X	
2	1	Seal kit			Q231020002263	O	X	O	X	
3	3	Sliding bushing			Q231110041040		O		X	
4	3	Spring			Q231500001090		X		X	

O = Verify | X = Change



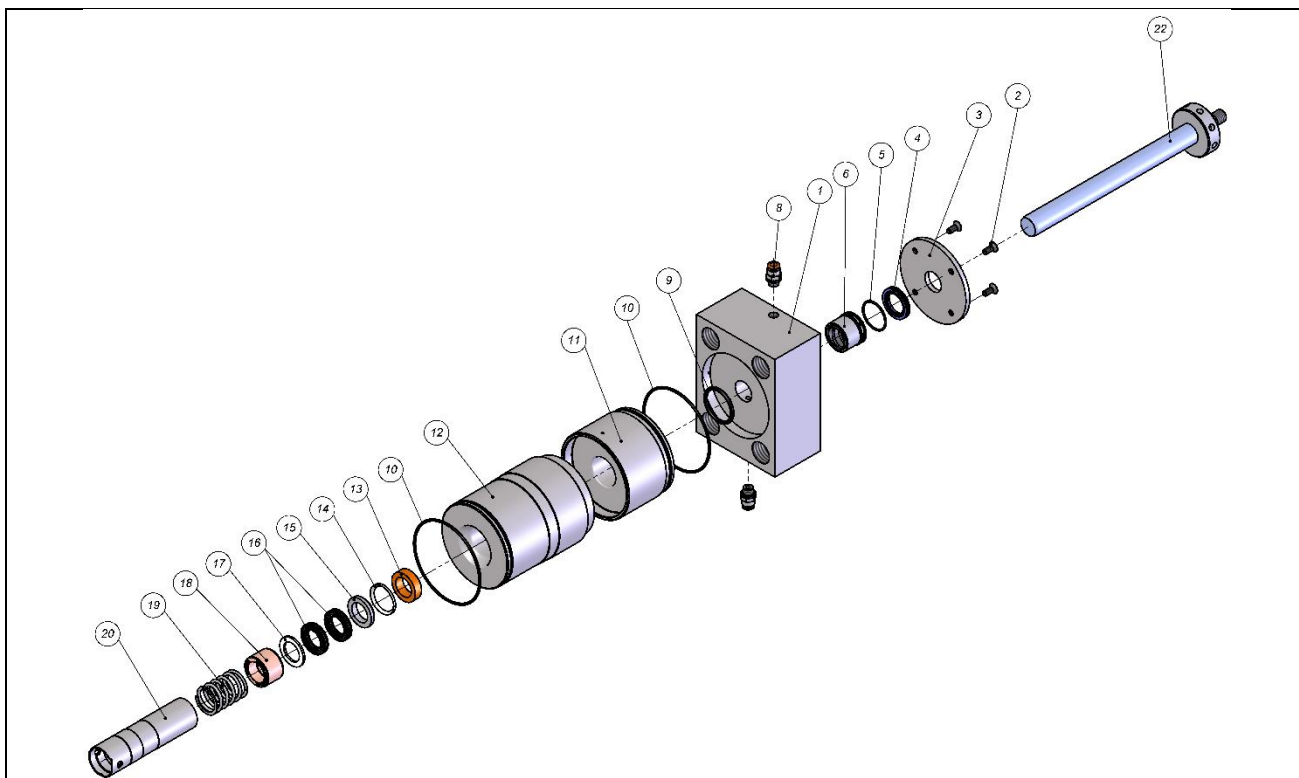
**GIII**  
**Piston Kit P-26 SAP Q231010004850**  
**Piston Kit P-30 SAP Q231010004240**  
**Piston Kit P-40 SAP Q231010013750**  
**Piston Kit P-45 SAP Q231010012660**

**HOURS**

	250	500	750	1000
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ITEM	QTY	DESCRIPTION	MODEL				250	500	750	1000
			P-26	P-30	P-40	P45				
1	3	Piston	Q231010003310	Q231010004680	Q231010006260	Q231010008700	O	O	O	X
4										
8										
12										
13	1	Seal kit	Q231020002260	Q231020002300	Q231020002401	Q231020002450		X		X
14										
15										
16										
5	3	Sliding bushing	Q231110013900	Q231010013880	Q231010044510	Q231110044520		X		X
17	3	Spring	Q231500001100	Q231500001110	Q231500001650	Q231500001530				X

O = Verify | X = Change

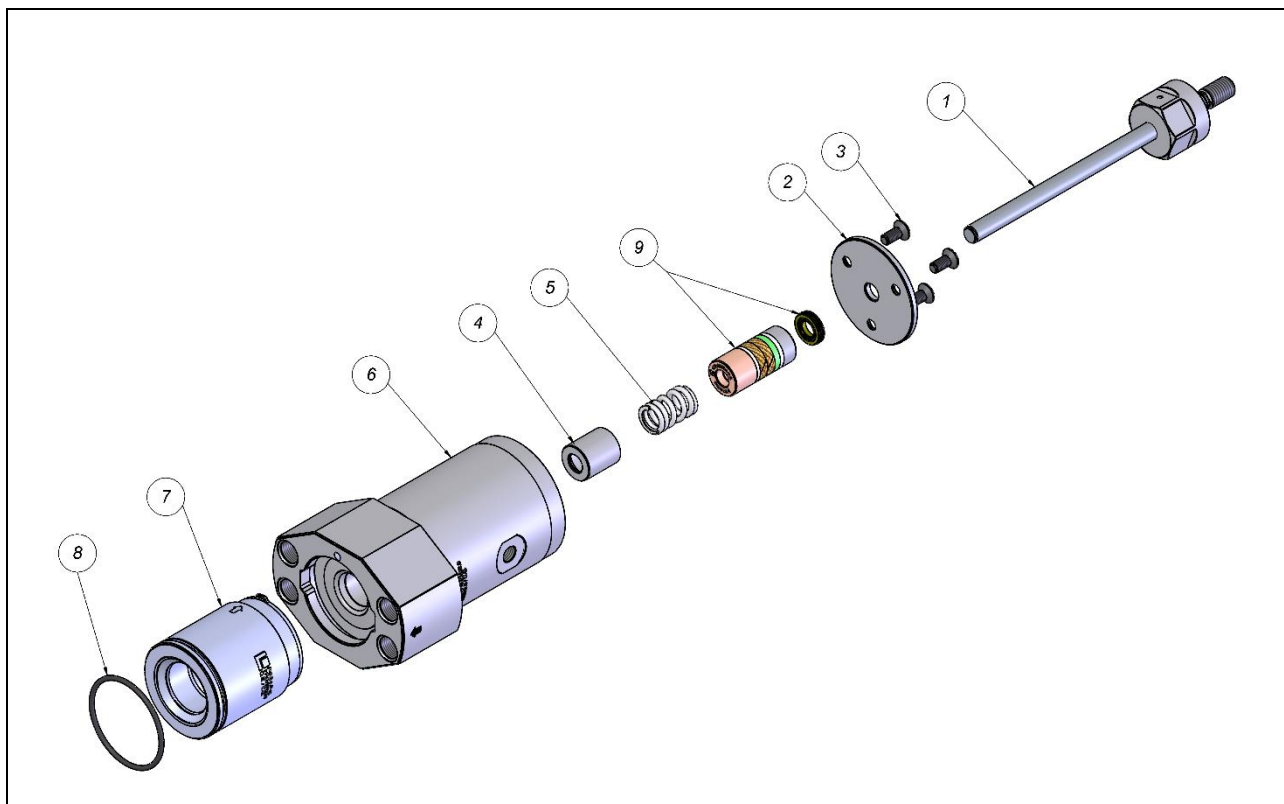


**GIII** Piston Kit P-20 UAP III Q231010011151

ITEM	QTY	DESCRIPTION	MODEL		HOURS					
					P-20	200	400	600	800	1000
22	03	Piston			Q231010010380	O	O		X	
4 5 9 13 14 15 16 17 18	1	Seal kit			Q231020002201	X	X			
6	3	Sliding bushing			Q231010010360			X		
20	3	Spring guide P20 UAP III			Q231110030370		X		X	
19	3	Spring			Q231500002060					X

O = Verify | X = Change



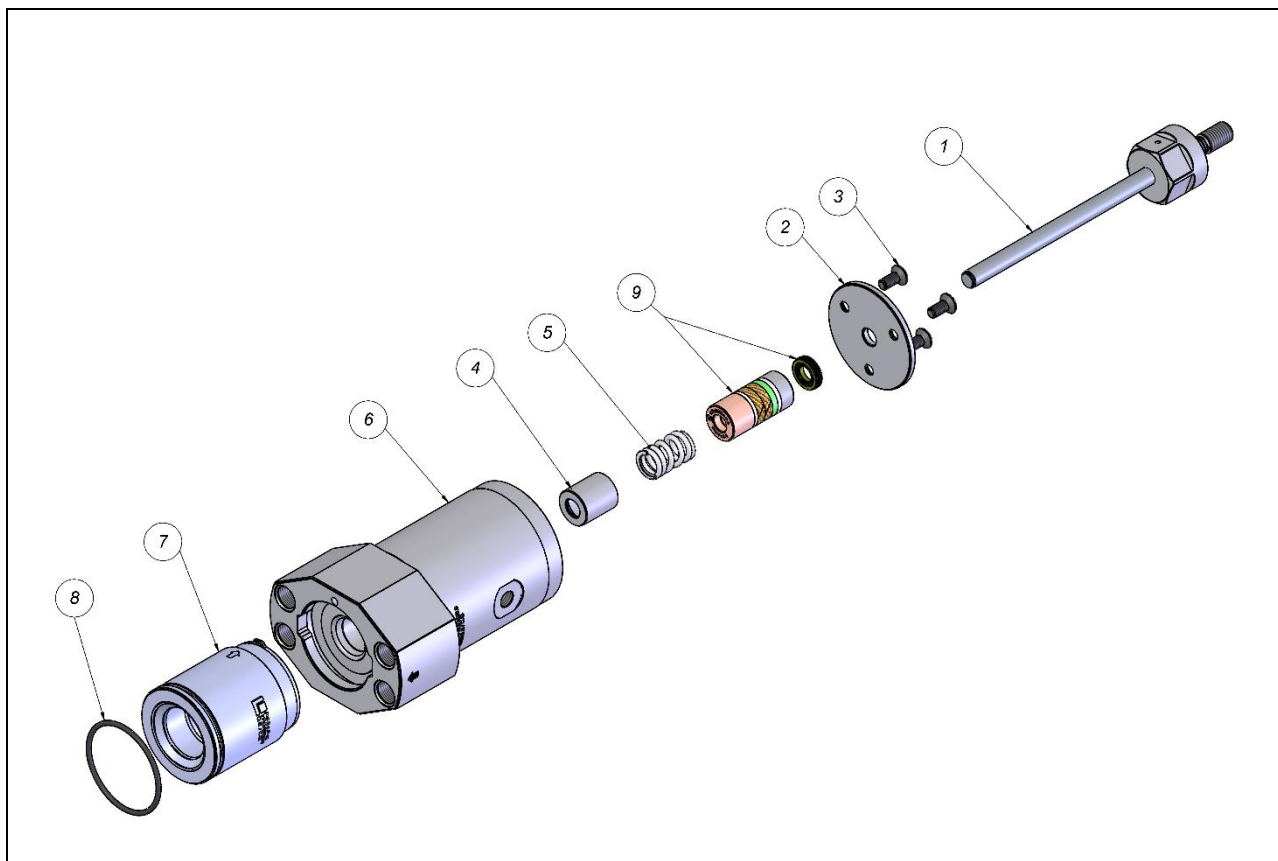


**EFV** Piston Kit P-8,5 UAP Q231010017860  
Piston Kit P-10 UAP Q231010020960

**HOURS**

ITEM	QTY	DESCRIPTION	MODEL				HOURS			
			P-8,5		P-10		200	400	600	800
			Q231010017850	Q231010020920	Q231010019230	Q231010020980				
1	3	Piston	Q231010017850	Q231010020920					X	
6	3	Jacket	Q231010019230	Q231010020980					O	
9	1	Seal Kit	Q231020004040	Q231020004360					X	
5	3	Spring	Q231500002190	Q231500002350					X	

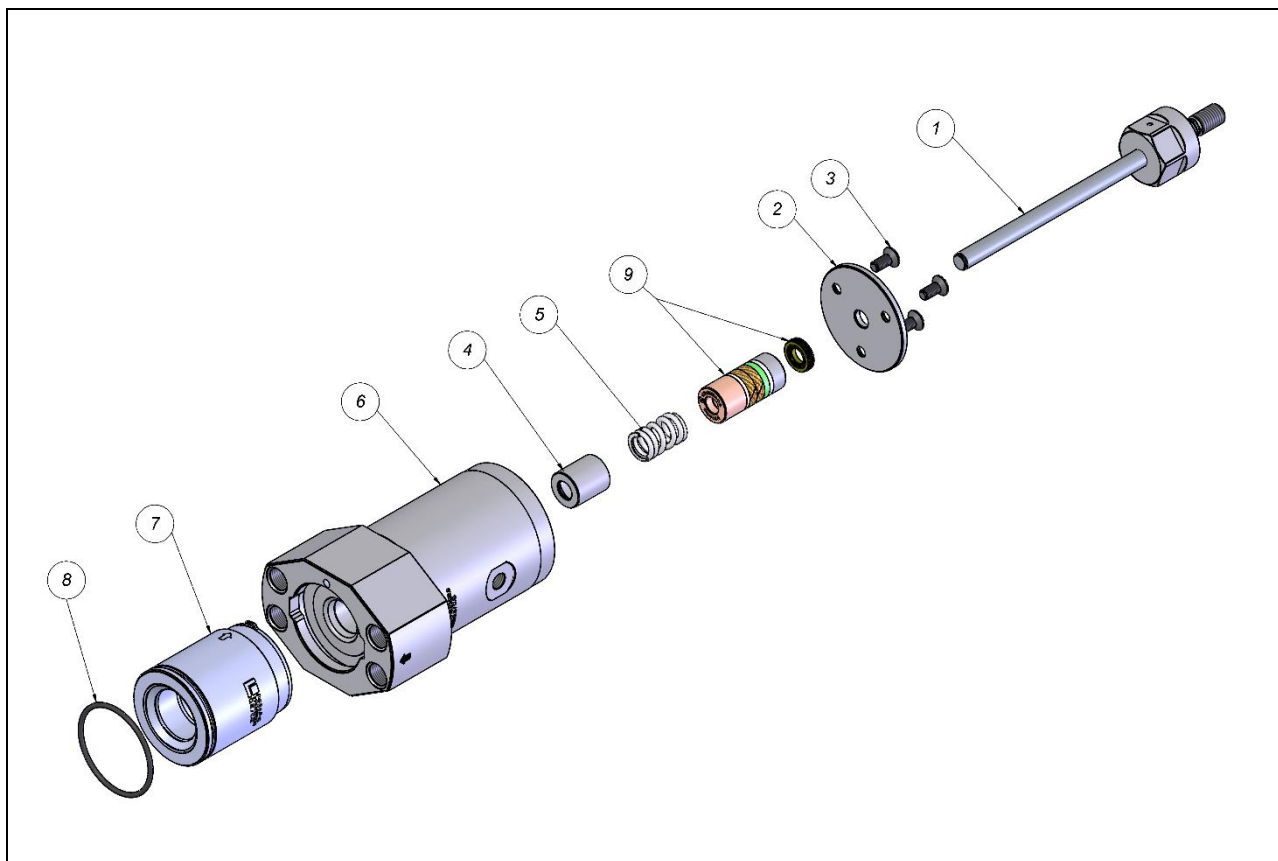
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**EFV**     Piston Kit P-11 SAP    Q231010017110  
           Piston Kit P-12 SAP    Q231010019360  
           Piston Kit P-13 SAP    Q231010018600

ITEM	QTY	DESCRIPTION	MODEL			HOURS			
			P-11	P-12	P-13	250	500	1000	1500
			1	3	Piston	Q231010017110	Q231010019370	Q231010016910	O
6	3	Jacket	Q231010019240	Q231010019380	Q231010018620	O	O	O	X
9	1	Seal Kit	Q231020003560	Q231020002122	Q231020002130	O	X	X	X
5	3	Spring	Q231500002160	Q231500002160	Q231500002210	O	O	O	X

O = Verify | X = Change



**Piston Kit P-14 SAP Q231010019340**  
**Piston Kit P-15 SAP \***  
**Piston Kit P-16 SAP Q231010018800**

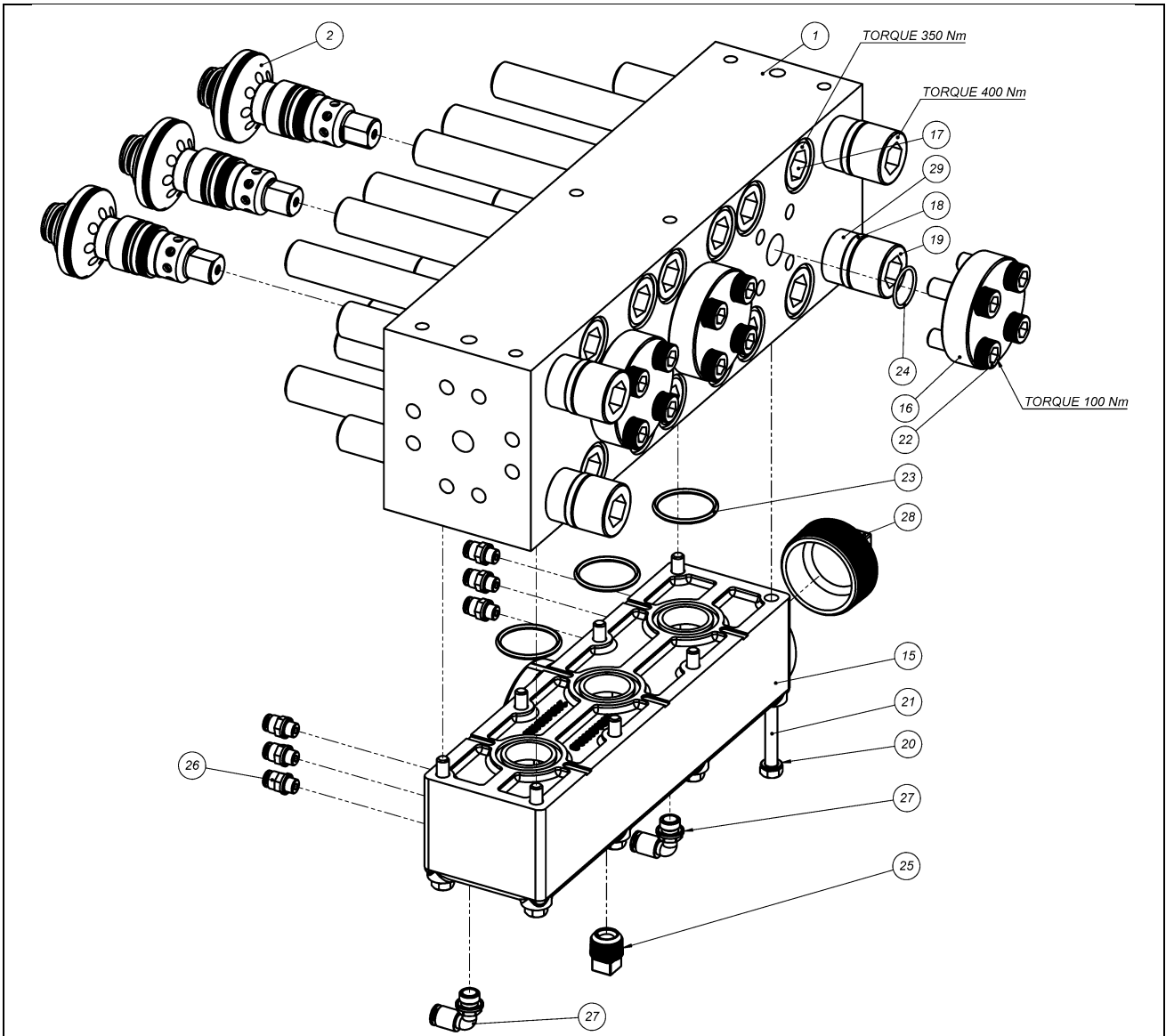
EFV

**HOURS**

ITEM	QTY	DESCRIPTION	MODEL			HOURS			
			P-14	P-15	P-16	250	500	1000	1500
1	3	Piston	Q231010019370	*	Q231010018810	O	O	O	X
6	3	Jacket	Q231010019320	*	Q231010019250	O	O	O	X
9	1	Seal Kit	Q231010002146	*	Q231020002165	O	X	X	X
5	3	Spring	Q231500002290	*	Q231500002240	O	O	O	X

O = Verify | X = Change | \* = Upon Request

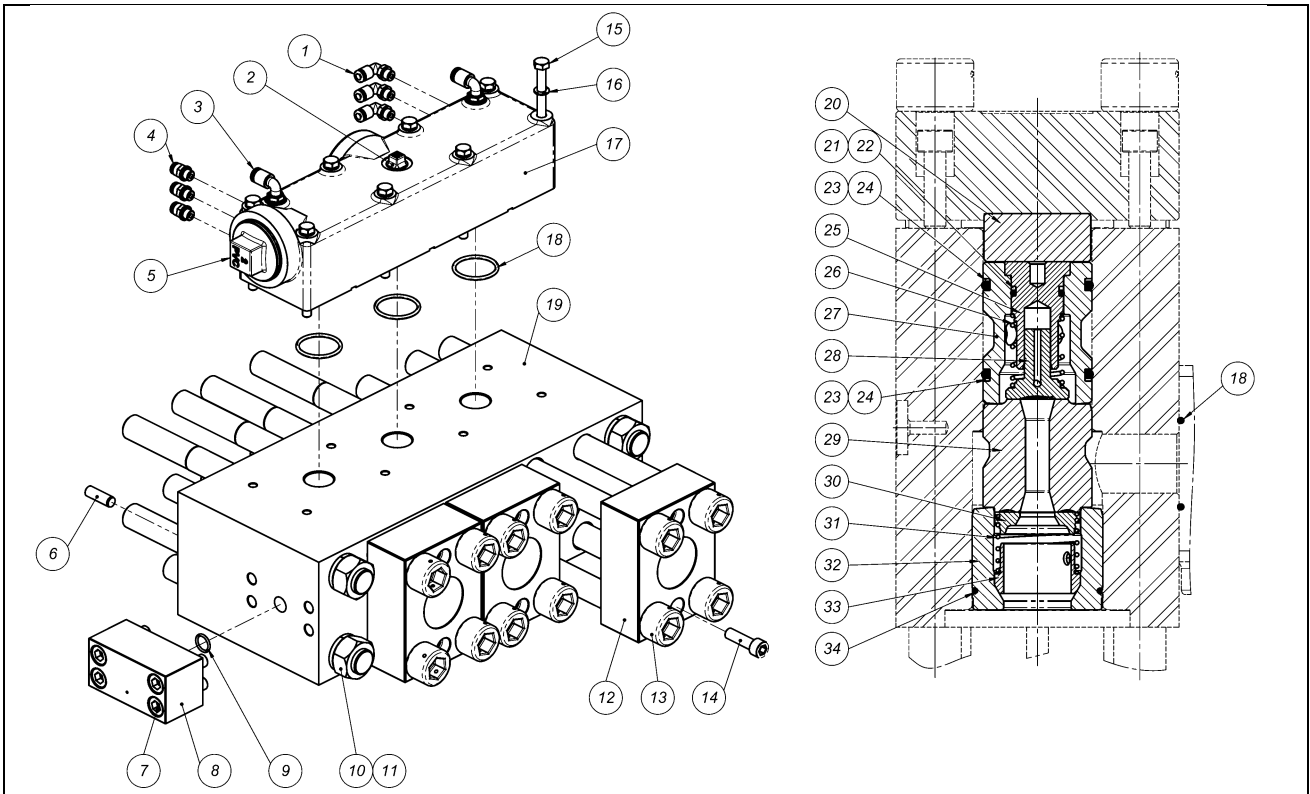
**HEAD**



**GIV**    Head SAP IV    Q231010018140

ITEM	QTY	DESCRIPTION	CODE	HOURS					
				200	400	600	1000	2000	5000
2	3	Intellivalve	Q231010018151			X			
17	12	Sleeve Allen Screw	Q231200009410					O	X
29	4	Spacer Bush	Q231110036920				X		
18	4	Lock Washer	Q231200003630				O	O	X
19	4	Head Allen Screw	Q231200009980					O	X
24	3	Flange O'ring	Q231300001790	O	X				
22	12	Flange Allen Screw	Q231200002930					O	X
23	3	Duct O'ring	Q231300001930	O	X				

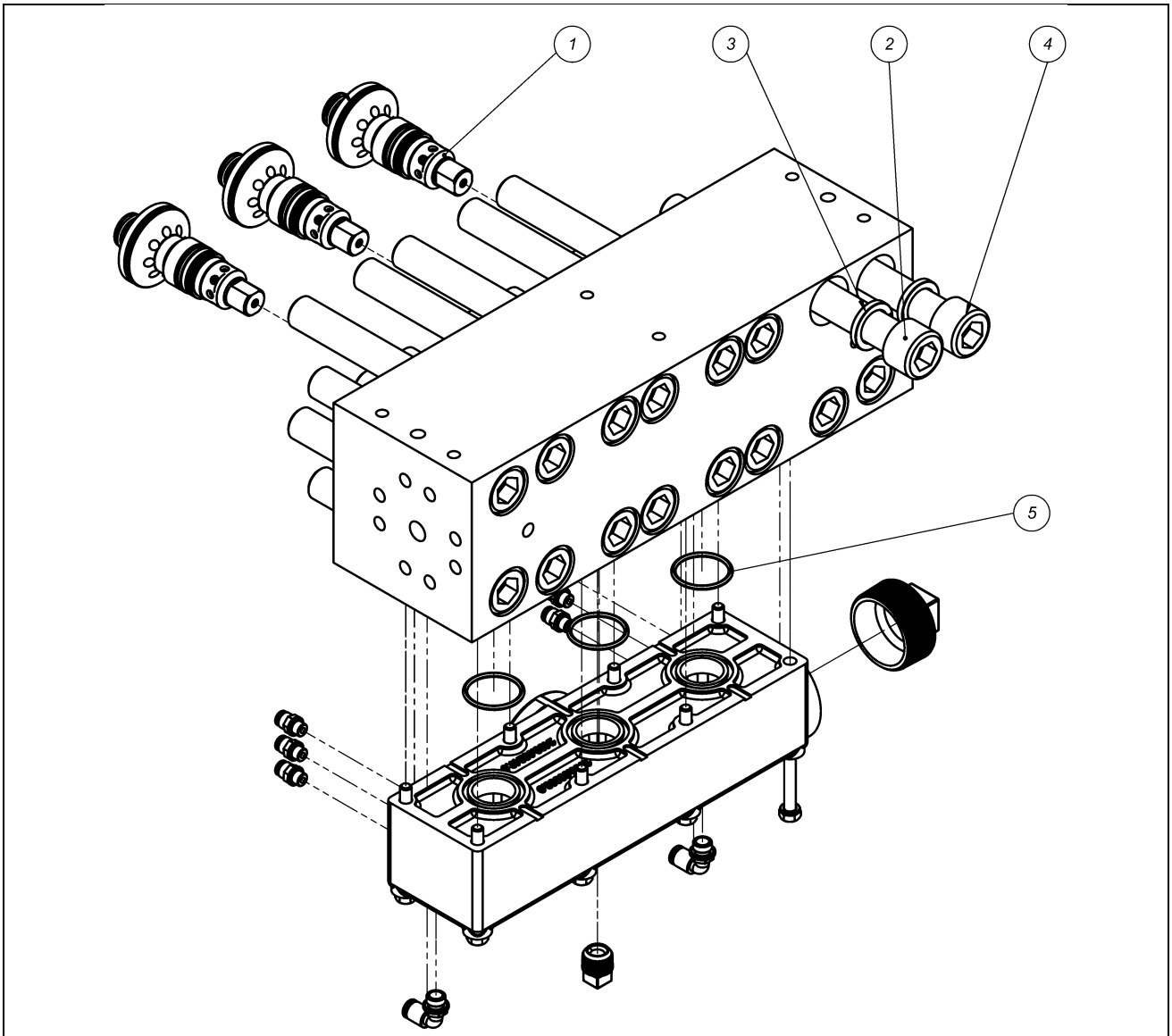
O = Verify | X = Change |



**GIII**    Head SAP III    Q231010003160

ITEM	QTY	DESCRIPTION	CODE	HOURS					
				200	400	500	1000	2000	5000
29	3	Double Seat	Q231100001080			X	X		
27	3	Six Cover	Q231010001040			X	X		
32	3	SAP Intermediate	Q231110008720			X	X		
28	3	Pressure Valve	Q231100001070			X	X		
26	3	Pressure Spring	Q231500001040			X	X		
30	3	Suction Valve	Q231100001090			X	X		
31	3	Suction Spring	Q231500001050			X	X		
33	3	Suction Spring Guide					X	X	
23 24 34	1	Head Repair Kit	Q231020001120			X	X		
11	4	Pressure Washer	Q231200003630				O	O	X
10	4	Nut	Q231200001490				O	O	X
7	4	Screw	Q231200001320				O	O	X
9	1	O'ring	Q231300001060			X	X		
13	12	Screw	Q231200003600				O	O	X
14	6	Screw	Q231200001630				O	O	X
18	3	Duct O'ring	Q231300001930			X			

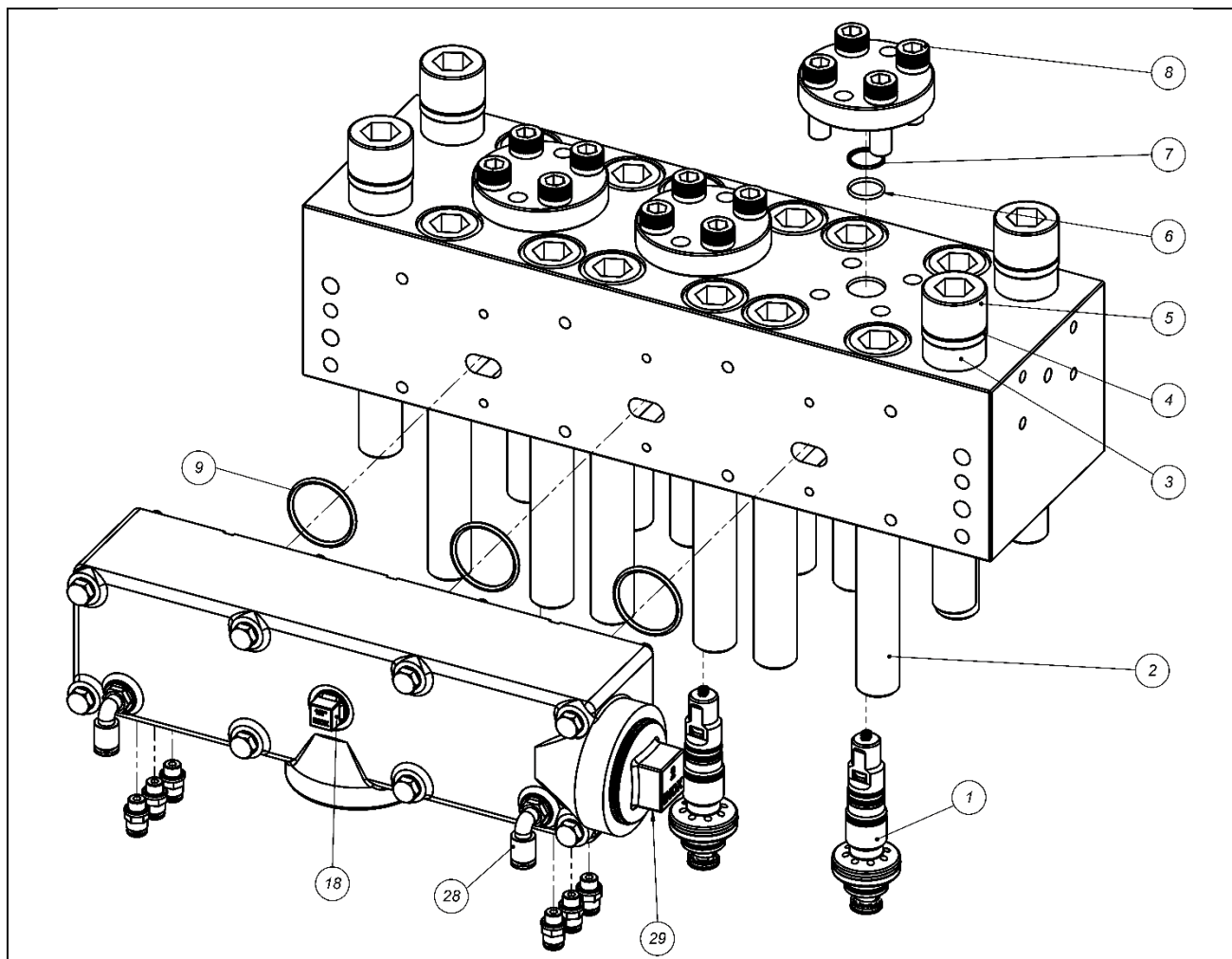
O = Verify | X = Change



**GIV**     Head S-UAP IV     Q231010023010

ITEM	QTY	DESCRIPTION	CODE	HOURS					
				200	400	500	1000	2000	5000
1	3	Intellivalve	Q231010018151			X			
2	12	Sleeve Screw	Q231200011460					O	X
3	16	Pressure Washer	Q231200003630				X		
4	4	Head Screw	Q231200011470				O	O	X
5	3	Duct O'ring	Q231300001930	O	X				

O = Verify | X = Change |

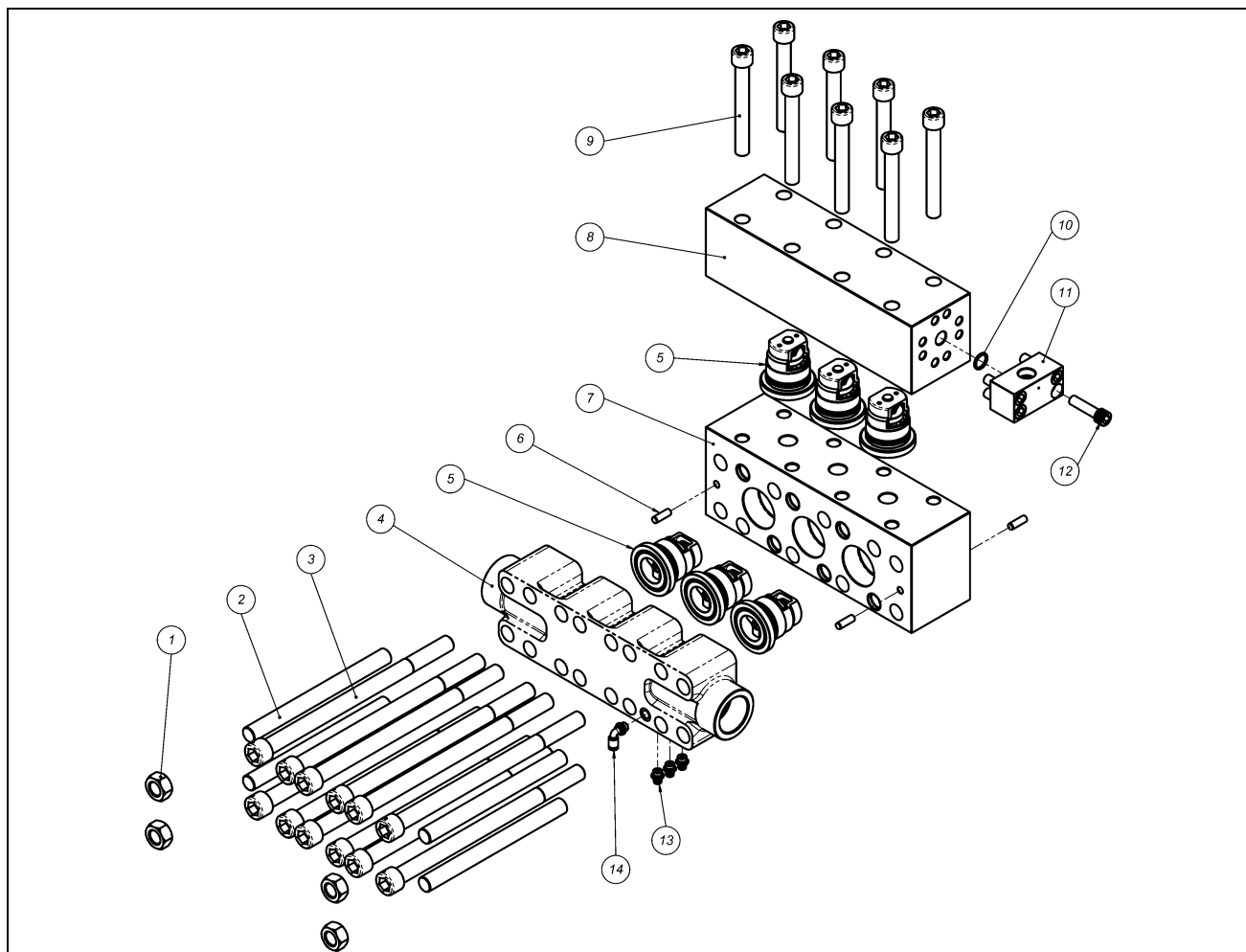


**GIV**      Head UAP IV      Q231010017210

		HOURS					
		200	400	500	1000	2000	5000
1	3			O	X		
2	12					O	X
3	4				X		
4	4				O	O	X
5	4					O	X
6	3	O	X				
7	3	O	X				
8	12					O	X
9	3	O	X				

ITEM	QTY	DESCRIPTION	CODE
1	3	Intellivalve	Q231010017100
2	12	Sleeve Screw	Q231200009410
3	4	Spacer Bush	Q231110036920
4	4	Pressure Washer	Q231200003630
5	4	Head Screw	Q231200009980
6	3	Flange O'ring	Q231300001790
7	3	Back Ring	Q231300010630
8	12	Flange Screw	Q231200002930
9	3	Dusct O'ring	Q231300001930

O = Verify | X = Change



Head SAP L

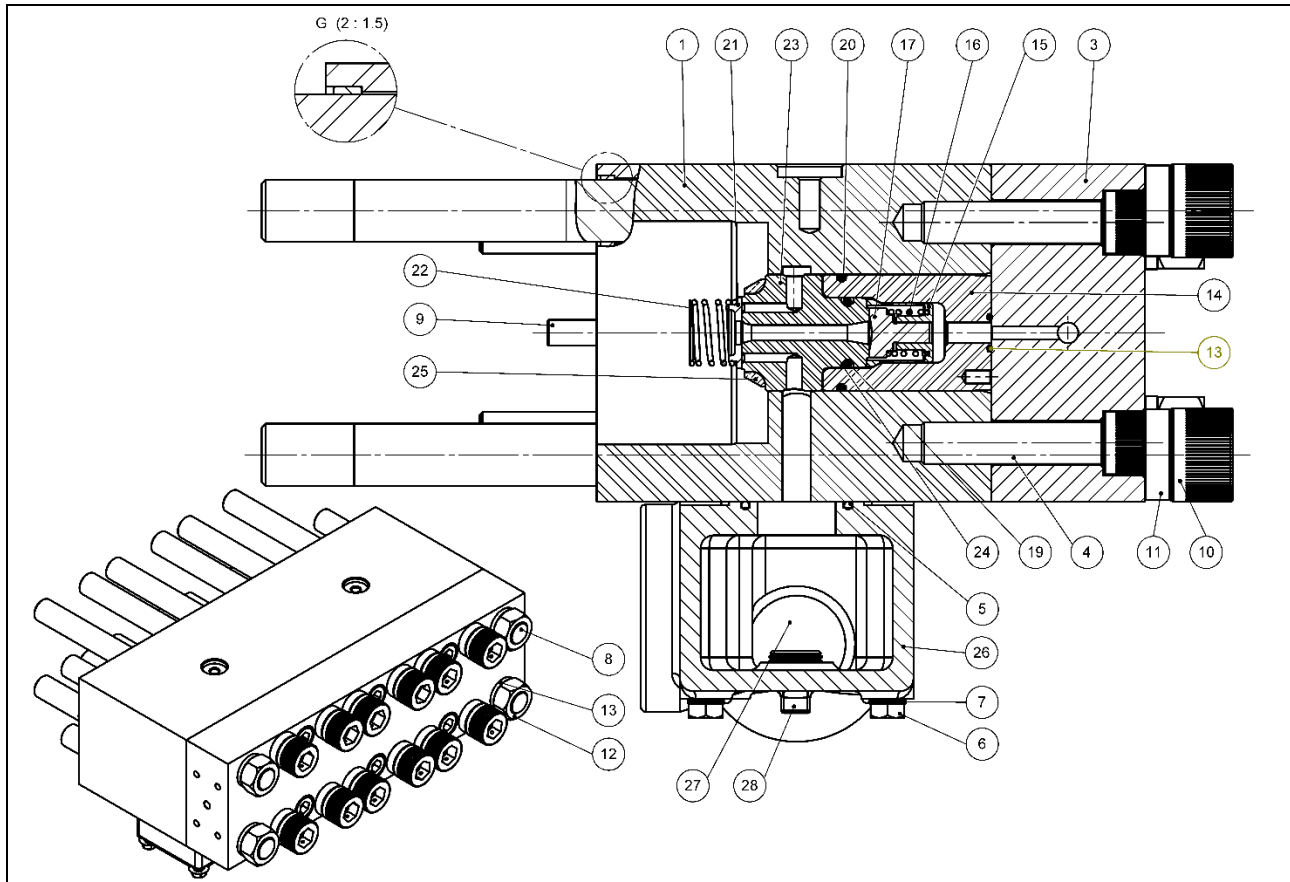
Q231010012670

HOURS

ITEM	QTY	DESCRIPTION	CODE	HOURS			
				500	1000	2000	5000
1	4	Nut	Q231200001490			O	X
3	12	Sleeve Screw	Q231200003600			O	X
5	6	Cartridge	Q231010012680	O	X	X	
9	8	Manifold Screw	Q231200008720			O	X
10	1	O'ring	Q231300001010	O	X	X	
12	4	Screw	Q231200008840			O	X

O = Verify | X = Change



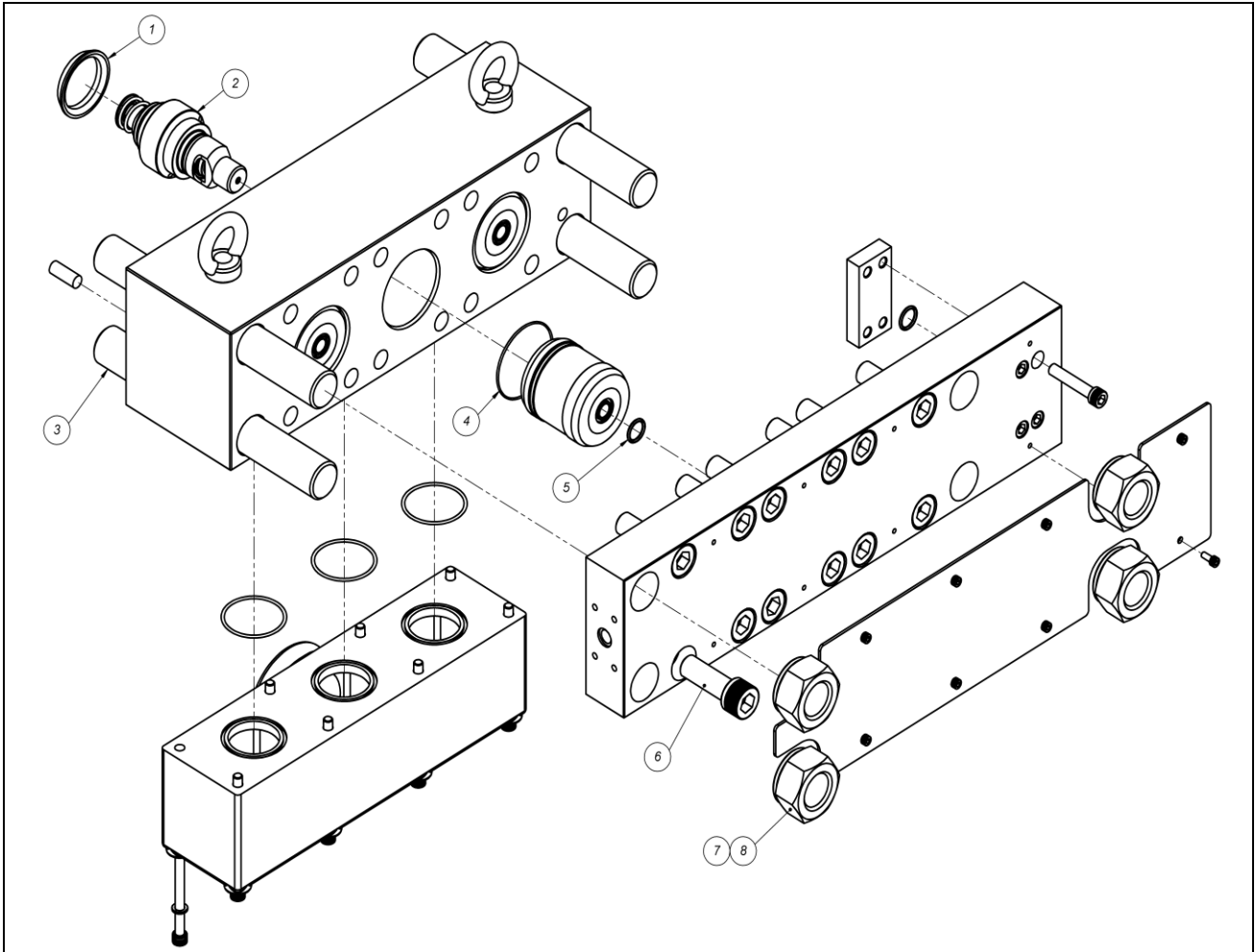


**GIII Head UAP III Q231010014850**

**HOURS**

ITEM	QTY	DESCRIPTION	CODE	HOURS				
				300	400	800	1000	5000
2	03	UAP Pressure Spring Guide	Q231110011950		O	X		
3	03	Spring	Q231500001450		X	O		
4	03	UAP Pressure Valve	Q231100001790		X	O		
6	03	UAP III Double Seat	Q231100002240			X		
7	03	Suction Valve	Q231100001800		X	O		
9	03	Suction Spring	Q231500001440		X	O		
12	03	Plug	Q231110012790				X	
14	12	Screw	Q231200003840					X
15	12	Spacer Bush	Q231200013090					X
16	06	Screw	Q231200003760					X
24	04	Pressure Washer	Q231200003630					X
25	04	Nut	Q231200001490					X
5 13 17 18	01	UAP III Head Repair Kit	Q231020001331		X			

O = Verify | X = Change



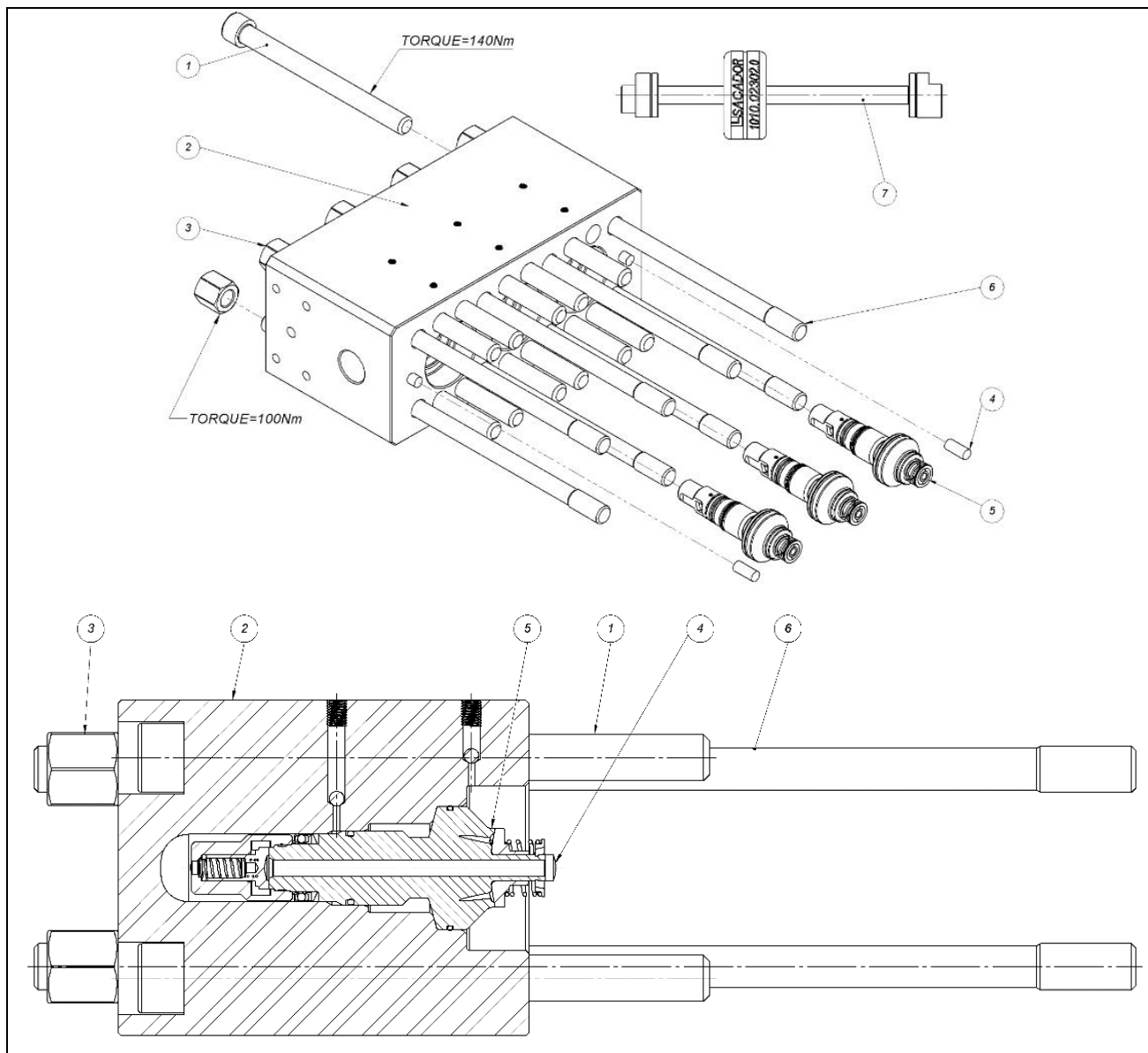
**Head SAP H-550/4      Q231010019300**

**HOURS**

500	1000	2000	5000
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ITEM	QTY	DESCRIPTION	MODEL				
			SAP H-550/4				
1	3	Suction Seal	Q231300008390	O	X		
2	3	Intellivalve	Q231010019280	O	X		
3	4	Screw M42x340	Q231200007580			O	X
4	3	O'Ring	Q231300005820	O	X		
5	4	O'Ring	Q231300004430	O	X		
6	12	Allen Screw M24x70	Q231200006800	O	O	X	
7	4	Pressure Washer M42	Q231200007600			O	X
8	4	Nut M42	Q231200007590			O	X

O = Verify | X = Change



**EFV**      **Blind Head EFV**      **Q231010028250**

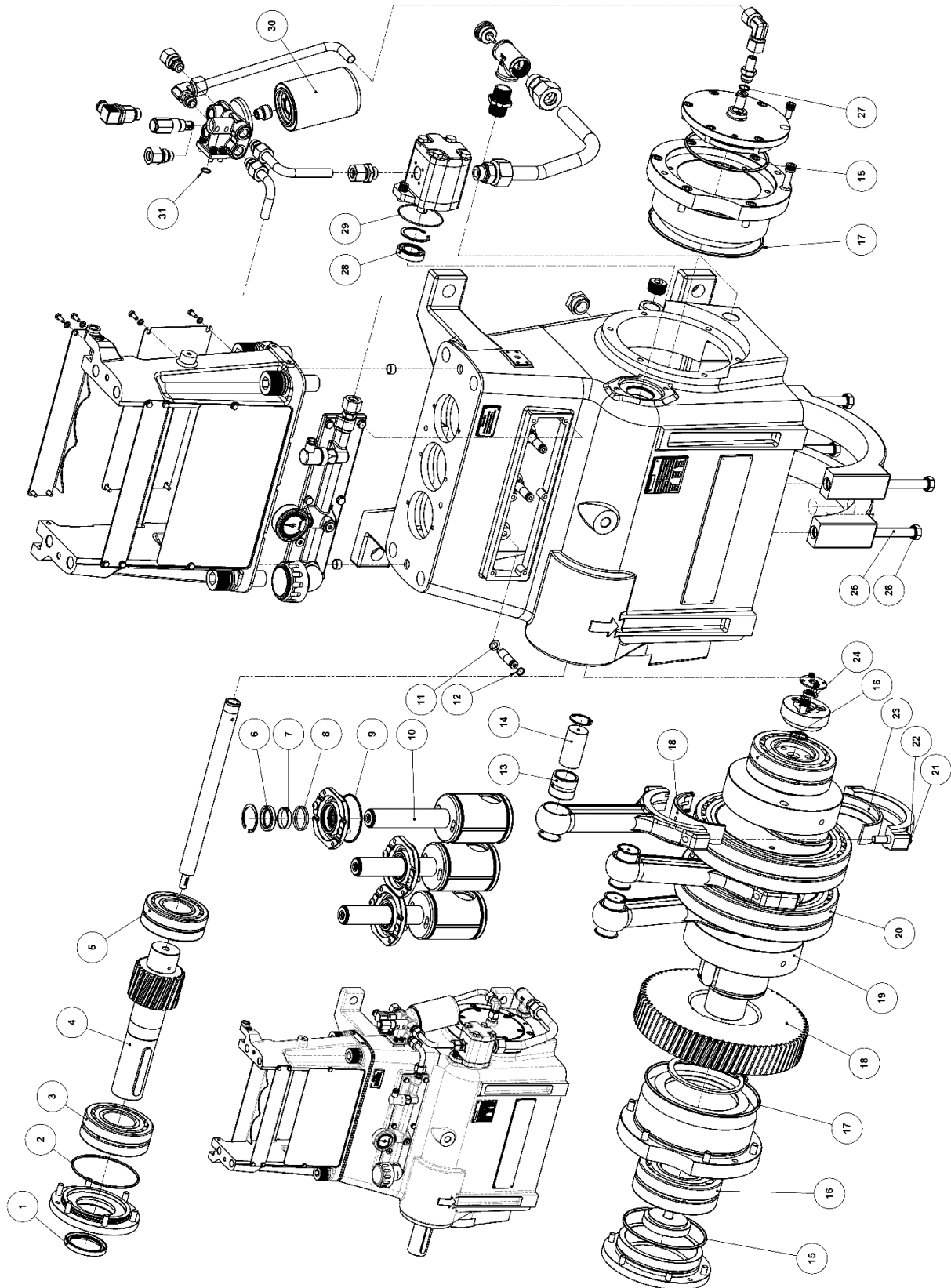
**HOURS**

	300	500	1000	1500	3000
1				O	X
2				O	O
3				O	X
4				O	O
5		O		X	
6				O	X
7				O	O

ITEM	QTY	DESCRIPTION	CODE
1	03	Allew Screw M14X160	Q231200009960
2	03	HPP EFV Head	Q231010028240
3	03	Nut M14	Q231200010230
4	03	Guide pin ø8x20mm	Q231200003830
5	03	Intellivalve 2800 bar	Q231010017100
6	03	Screw M14 X 335	Q231200009950
7	01	Intellivalve Puller Tool	Q231010023020

O = Verify | X = Change

**PUMPS POWER END**



Power end H100/2  
 Power end H120/2  
 Power end H150/3

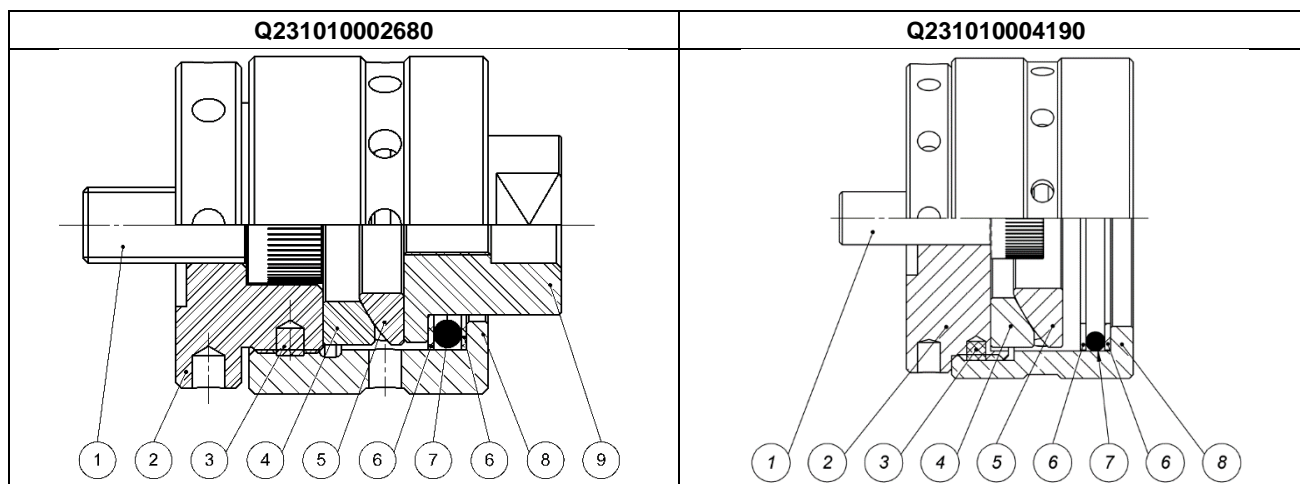
ITEM	QTY	DESCRIPTION	MODEL			HOURS			
			H100/2	H120/2	H150/3	1000	2000	5000	10000
1	1	Retainer	Q231300005350	Q231300005350	Q231300005350		X		
2	1	O'Ring	Q231300001110	Q231300001110	Q231300001110		X		
3	1	Bearing	Q231700001160	Q231700001160	Q231700001160			X	
4	1	Shaft	Q231110010770	Q231110010770	Q231110010770				X
5	1	Bearing	Q231700001510	Q231700001510	Q231700001510			X	
6	3	Retainer	Q231300011340	Q231300011340	Q231300011340	X			
7	3	Sliding Ring	Q231300011210	Q231300011210	Q231300011210	X			
8	6	O'Ring	Q231300001910	Q231300001910	Q231300001910	X			
9	3	O'Ring	Q231300001170	Q231300001170	Q231300001170	X			
10	3	Piston Guide	Q231010011110	Q231010011110	Q231010011110	O	O	X	
11	3	Copper Ring	Q231300001760	Q231300001760	Q231300001760		X		
12	3	O'Ring	Q231300002130	Q231300002130	Q231300002130		X		
13	3	Piston Rod Sleeve	Q231700001350	Q231700001350	Q231700001350		X		
14	3	Piston Rod Pin	Q231100001960	Q231100001960	Q231100001960			X	
15	2	O'Ring	Q231300009550	Q231300009550	Q231300009550		X		
16	2	Bearing	Q231700001380	Q231700001380	Q231700001380			X	
17	2	O'Ring	Q231300003810	Q231300003810	Q231300003810		X		
18	1	Crown 60Hz	Q231110010760	Q231110010760	Q231110010760				X
19	1	Crackshaft	Q231010007710	Q231010007710	Q231010007710				X
20	1	Bearing	N/A	N/A	Q231700001500			X	
21	6	Hex Bolt	Q231200001870	Q231200001870	Q231200001870		X		
22	6	Washer	Q231200001900	Q231200001900	Q231200001900		X		
23	3	Bearing Connecting Rod	Q231700001250	Q231700001250	Q231700001250		X		
24	1	Roto Glyd	Q231300005020	Q231300005020	Q231300005020		X		
25	2	Scew	N/A	N/A	Q231200003610		X		
26	2	Washer	N/A	N/A	Q231200001900		X		
27	1	O'Ring	Q231300008480	Q231300008480	Q231300008480		X		
28	1	Bearing	Q231700001950	Q231700001950	Q231700001950			X	
29	1	O'Ring	Q231300005820	Q231300005820	Q231300005820		X		
30	1	Oil Filter	Q233000021470	Q233000021470	Q233000021470	Every 300 hours			
31	1	O'Ring	Q231300001060	Q231300001060	Q231300001060		X		
*32	3	Rubber Protection Bellows	Q233000029320	Q233000029320	Q233000029320	Every 500 hours			

O = Verify | X = Change | \* Only for vertical assembled pumps

ITEM	QTY	DESCRIPTION	MODEL			HOURS			
			H200/4	H300/4	H550/4	1000	2000	5000	10000
1	1	Retainer	Q231300003360	Q231300004780	Q231300006700		X		
2	1	O'Ring	Q231300008200	Q231300003810	Q231300006800		X		
3	1	Bearing	Q231700001310	Q231700001150	Q231700001610			X	
4	1	Shaft	Q231110024330	Q231110008760	Q231110015750				X
5	1	Bearing	Q231700001380	Q231700001310	Q231700001330			X	
6	3	Retainer	Q231300011340	Q231300011340	Q231300007040	X			
7	3	Sliding Ring	Q231300011210	Q231300011210	Q231300006850	X			
8	6	O'Ring	Q231300001910	Q231300001910	Q231300006860	X			
9	3	O'Ring	Q231300001170	Q231300001170	Q231300006840	X			
10	3	Piston Guide	Q231010008850	Q231010008850	Q231010005360	O	O	X	
11	3	Copper Ring	Q231300001760	Q231300001760	Q231300003480		X		
12	3	O'Ring	Q231300002130	Q231300002130	Q231300001060		X		
13	3	Piston Rod Sleeve	Q231700001350	Q231700001350	Q231700001600		X		
14	3	Piston Rod Pin	Q231100001960	Q231100001960	Q231100002100			X	
15	2	O'Ring	Q231300003810	Q231300004390	Q231300006750		X		
16	2	Bearing	Q231700001150	Q231700001330	Q231700001620			X	
17	2	O'Ring	Q231300003820	Q231300004380	Q231300006760		X		
18	1	Crown 60Hz	Q231110022140	Q231110008770	Q231110015740				X
19	1	Crackshaft	Q231010007720	Q231010007730	Q231010007740				X
20	2	Bearing	Q231700001280	Q231700001320	Q231700001720			X	
21	6	Hex Bolt	Q231200001870	Q231200001870	Q231200006760		X		
22	6	Washer	Q231200001900	Q231200001900	Q231200003810		X		
23	3	Bearing Connecting Rod	Q231700001250	Q231700001340	Q231700001590		X		
24	1	Roto Glyd	Q231300005020	Q231300005020	Q231300005020		X		
25	4	Screw	Q231200001880	Q231200002870	Q231200006710		X		
26	4	Washer	Q231200001900	Q231200003810	Q231200006690		X		
27	1	O'Ring	Q231300008480	Q231300008480	Q231300001620		X		
28	1	Bearing	Q231700001950	Q231700001950	Q231700001440			X	
29	1	O'Ring	Q231300005820	Q231300005820	Q231300005820		X		
30	1	Oil Filter	Q233000021470	Q233000021470	Q233000021470	Every 300 hours			
31	1	O'Ring	Q231300001060	Q231300001060	N/A		X		
*32	3	Rubber Protection Bellows	Q233000028290	Q233000028290	Q233000028290	Every 500 hours			

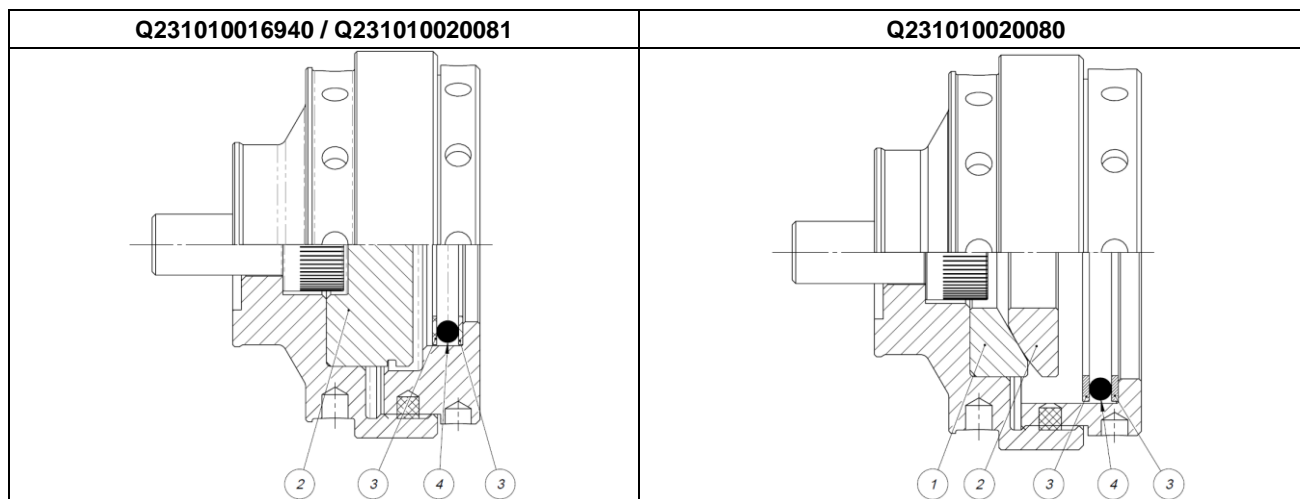
O = Verify | X = Change | \* Only for vertical assembled pumps

### ELF-CENTERING



ITEM	QTY	DESCRIPTION	MODEL		HOURS			
			Q231010002680	Q231010004190	250	500	750	1000
4	3	Back Spherical Ring	Q231110006310	Q231110013240	O	O	O	X
5	3	Top Spherical Ring.	Q231110006300	Q231110013230	O	O	O	X
6	6	Back-up Ring	Q231110007240	Q231110013330	O	O	O	X
7	3	O'Ring	Q231300003610	Q231300006040	O	O	O	X

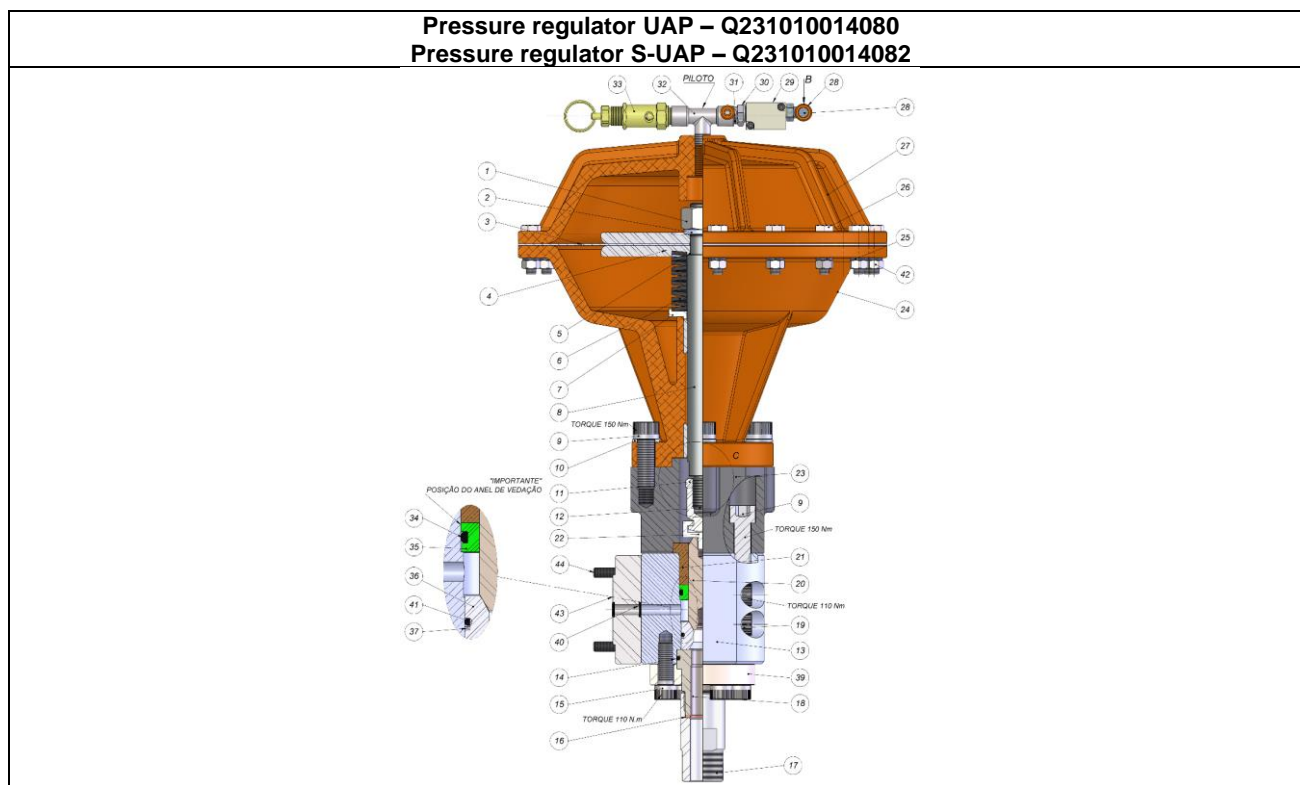
O = Verify | X = Change



ITEM	QTY	DESCRIPTION	MODEL			HOURS			
			Q231010016940	Q231010020081	Q231010020080	250	500	750	1000
1	3	Back Spherical Ring	-	-	Q231110036090	O	O	O	X
2	3	Top Spherical Ring.	Q231110040020		Q231110036080	O	O	O	X
3	6	Back-up Ring	Q231110007240	Q231110036130	Q231110036130	O	O	O	X
4	3	O'Ring	Q231300003610	Q231300010240	Q231300010240	O	O	O	X

O = Verify | X = Change

## PRESSURE REGULATOR VALVES

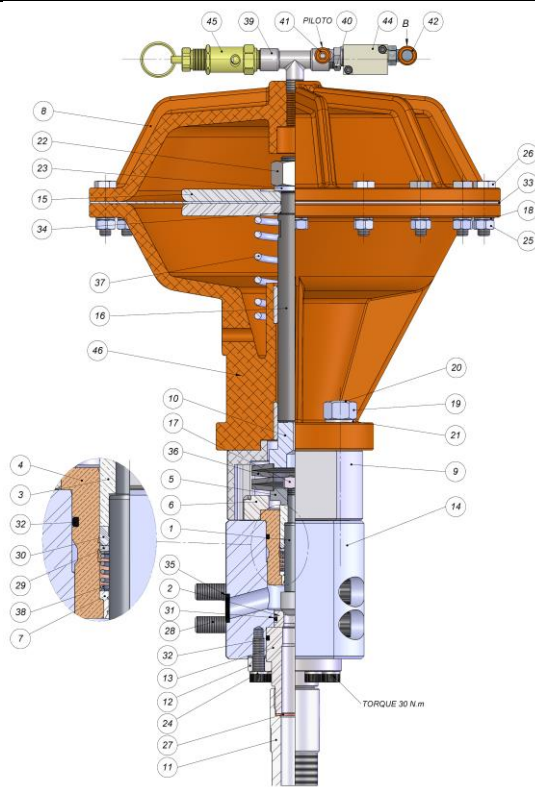


KIT / MODEL	ITEM	QTY	DESCRIPTION	CODE	HOURS								
					150	300	600	900	1000	1200	1500	2000	
Q231020001760 UAP	20	01	Pressure Regulator Shaft	Q231100002290	X								
	36	01	Pressure Regulator Seat	Q231100002300	X								
	41	01	O'ring	Q231300001880	X								
	37	01	Back Ring	Q231300009260	X								
Q231020001750 UAP	06	12	Disk Spring	Q231500001990							X		
	08	01	Pressure Regulator Shaft	Q231110029740							X		
	40	02	O'ring	Q231300001040							X		
	20	01	Pressure Regulator Spindle	Q231100002290							X		
	34	01	O'ring	Q231300003650							X		
	35	01	Seal Ring	Q231300008860							X		
	36	01	Pressure Regulator Seat	Q231100002300							X		
	41	01	O'ring	Q231300001880							X		
37	01	Back Ring	Q231300009260							X			

O = Verify | X = Change | \* Only for MAP/L manual pressure regulator



**Pressure regulator SAP – Q231010014830**  
**Pressure regulator SAP – Q231010014831**



KIT / MODEL	ITEM	QTY	DESCRIPTION	CODE	HOURS							
					300	500	600	900	1000	1200	1500	2000
Q231020004730 SAP	01	01	Regulator Spindle Stem	Q231110044300		X			X		X	
	02	01	Pressure Regulator Seat	Q231100001060		X			X		X	
	31	01	O'ring	Q231300001520		X			X		X	
Q231020004720 SAP	01	01	Regulator Spindle Stem	Q231110044300								X
	02	01	Pressure Regulator Seat	Q231100001060								X
	29	01	Teflon Disc	Q231300001470								X
	30	01	Gasket	Q231300001480								X
	31	01	O'ring	Q231300001520								X
	32	02	O'ring	Q231300001930								X
	35	01	O'ring	Q231300002050								X
38	01	Spring	Q231500001150									X

O = Verify | X = Change | \* Only for MAP/L manual pressure regulator