



Handleiding

CMO hydraulische voerpomp

CM PAP G2500.700

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INSTRUCTION MANUAL ENGLISH

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1. MANUFACTURER'S INTRODUCTION

The hydro pneumatic pump, that you are going to use, is a product guaranteed by the used technology, by the quality of employed materials and by the constructive techniques based on the high professionalism of business personnel.

The pump is the only one, of its kind, entirely built in aluminium and brass, with mechanical details exclusively made on the numerically controlled work centre. It guarantees the product uniformity.

Every pump is tested and is guaranteed for 12 months.

A constant applied search, has allowed to introduce in the market the exclusive pump with remote control.

This model is very appreciated from end-users thanks to its convenience and safety pump with RC (Remote Control) boasts illustrious attempts of imitation by competition.

Produces, with special patent, hydro pneumatic pumps operated with Radio control too, this allows, to manage up to three hydro pneumatic unities with a pocket Remote control.

Apply the following easy instructions and our PUMP will be to your service for many years. Good work and thank-you to have chosen.

2. GENERAL INSTRUCTIONS

Before install and use the pump read carefully this handbook and follow the simple instructions. The manual will have to follow the pump and the machinery on which it will be assembled, also in case of transfer of the same one. Builder supplies hydro pneumatic pump with EC certificate. It's forbidden to end users its put in operating before that the machinery in which will be incorporated or assembled has not been declared conforming with rules, EC 89/392, 91/368, 93/44, 93/68 as well as to the following laws. EC declaration is up to builder of end product. Before put in operating the pump verify that has not had damages or oil losses during transport. In case of visible damages or oil losses, notify to transporter how much found, not install the pump and contact the builder for information and instructions. The builder declines every responsibility for no observance of what has been written in this handbook.

3. TRANSPORT, STOCKING AND DISINPACKING

The pump's packing must not be turned upside-down for avoiding the defusing of the same one. The stocking, when the use has made many time after the purchase, must be done in rooms adequately protected from atmospheric agents and with temperatures between +10° and 40° centigrade. It is suggested to stack the boxes until a maximum of n. 3 pumps. The empty packing must be destroyed according the laws in force.

4. PRODUCT DESCRIPTION

The PUMP is a multiple of pressure with a variable setting, it can be set only by builder in testing phase it allows to obtain a hydraulic capacity from a pneumatic feeding. It can feed a hydraulic device with single effect. Every other use of pump is unsuited. The pump is used for car-lift in the garage, in the body shop, in the naval and mechanical industry always in connection with hydraulic devices and rams.

Manufacturer declines every responsibility for damages caused by a no correct use of the pump.

5. SAFETY

It is forbidden the pump tampering or the change of any its pieces. This causes situations of danger for users and involves the immediate decadence of guarantee; it declines builder from every responsibility.

- The employment of pump, and the machinery or the device with which this will be assembled is allowed to people with more than 18 years, who knows the operating of it well and have read the handbook.
- The work area will have to allow safety manoeuvres for the operator, and most of all the presence of slippery or corrosive substances on the floor must be avoided.
- The pump must be exclusively put in operating with feet, in the pedal models, and exclusively manually in the models with Remote Control (RC) and with Radio control (TX).
- The operator will have to wear fit protective garments as required by the safety laws in force.
- It is necessary to leave the pump away from excessive sources of heat or flames. Maximum environmental temperature will never have to overcome 50° centigrade.
- It's necessary disconnect the pressure before disconnecting pipings or hydraulic circuit connected.
- In case of breakdown remove the feeding from the pump and contact the assistance.
- No try in any case to tamper the settings planned by the builder.
- Before beginning to work make sure that the machinery on which the pump is put in operating has EC conformity.

6. TECHNICAL CHARACTERISTICS

6.1 GENERAL CHARACTERISTICS.

- The entry pressure can change from a minimum of 6 to a maximum of 10 Bar.
- We suggest a pressure of feeding of 8 Bar (116 PSI).
- The employment pressure can change according to the setting required by customer, by a minimum of 100 bar to a maximum of 700 Bar.
- In the model HPB, HPB RC, the tank contains 1,3 Lt. of oil; in the model GHIBLI, GHIBLI RC, GHIBLI TX the tank contains 2,5 Lt. of oil; and in the model SPH LT e SPH LT RC the tank contains 5 Lt. of oil. The oil tolerance of for any model of pumps $\pm 0,1$ Lt.
- For periodical substitution it's necessary to use oil: (MOBIL DTE 11- SHELL TELLUS OIL T15-CASTROL HYSPIN AWH15 or similar).
- The standard air connection is 1/4" Gas.
- The standard oil connection is 3/8" Gas
- The standard flex, where supplied is mm 1.500 long the dimension of diameter is of 1/4"
- The cable of remote control, in the RC model, is 3.000 mm long.
- The Radio-control is fed with a battery a 9 Volt. We suggest (Super Pila GF22B TRANSISTOR 9 V. or similar).

6.2 SPECIFIC CHARACTERISTICS IN THE MODEL WITH RADIO-CONTROL

- The model TX is constituted by 1 transmitter (Radio-control) and 1 receiver, or more receivers until a maximum of 4.
- The receiver is installed on the pump.
- The transmitter is already endowed with battery a 9 Volt.
- The put in operating of the receiver is allowed by a rechargeable battery at 12 Volt installed on the carter.

- The receiver gives impulses to 2 pneumatic electro-valves at 12 Volt (ON-OFF) that are normally closed. When the receiver is in action a red led signals the operation. The receiver gains commands transmitted by the Radio control and allows the operating of pumps.
- The other constructive materials and the other particulars of which is composed the pump are similar to which of GHIBLI model as well as the function of every piece.
- A switch is placed on the Carter for the pump lighting, one as well as a bright signaller that points out the charge of battery . The special battery charger at 220 Volt allows the recharging when this is necessary. If required the battery charger can be furnished with a 110 Volt voltage.

7. INSTALLATION AND PUT OPERATING

The pump must be put on the floor in horizontal position. The RC and TX models can be installed in elevated horizontal position using its special stirrups. The pump is already furnished complete of oil.

A) CONNECTION TO THE COMPRESSED AIR.

Before connecting the discharge pipe verify that the feeding air (8 bar-116 PSI) comes from a filter regulator endowed with slingers (to guarantee lubricated air with no impurity) It's necessary to use a coupling which is good for the apparatus in equipment. To guarantee an air opportunity dry, we suggest the dessicator employment on the air compressed system; such shrewdness will make the performance of the hydraulic pumps and any other pneumatic equipment longer.

B) OIL CONNECTIONS.

The connection between pump and the use must have realized with flexible pipes and fit couplings to bear the nominal pressure multiplied by 3. It is advised to wind the fillets with ribbon Teflon. Make sure, in case of use of ribbon Teflon, that this doesn't obstruct the oil passage. Tighten with care the connections and make sure that engagements are correctly inserted.

C) VENT PLUG.

In the HPB-GHIBLI-GHIBLI RC-GHIBLI TX-SPH LT- SPH LT RC replace the hermetic plug, with that special composed by a rod, so that it will be the possible check the oil level. This special plug is furnished in endowment. In the model HPB RC unscrew with screwdriver the screw that it is on the oil plug and leave free the hole for the air vent. Check the oil level using a special rod (no supplied in endowment).

8. USE

8.1 PRUDENCE!!!

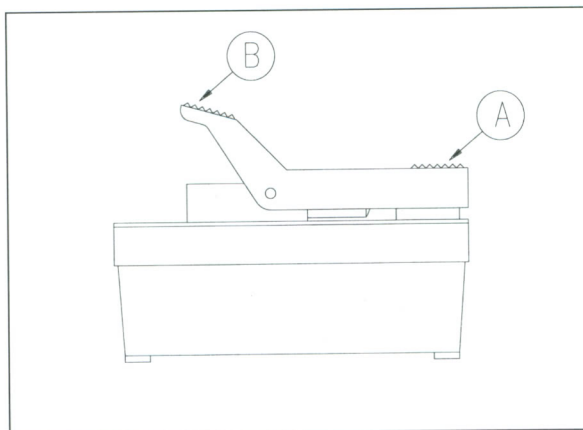
To avoid damaging the pump and the cylinder to it connected not insist to pump when the cylinder -stem is to end run. It is advised not to bring stem to the end run but to stop it with slight advance.

The pump employment in all versions is very simple:

8.2 EMPLOYMENT OF THE PEDAL.

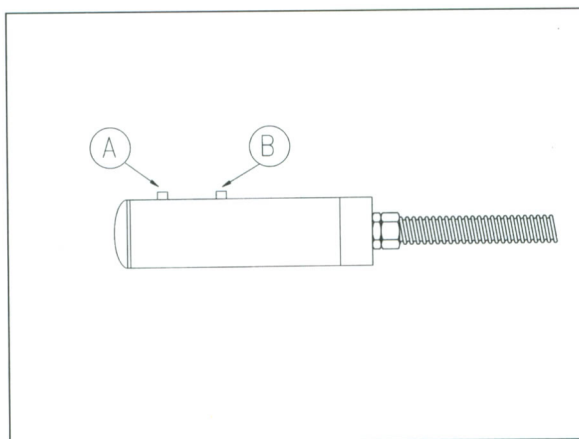
- Put in operate the pump pressing with the foot, without do an excessive pressure, in the zone pointed out by letter A. The pump will begin to produce hydraulic pressure having the driving of the destination employment through output of oil in the hydro-pneumatic circuit.
- Leaving the pedal and removing the foot, the pump will stop its cycle and will remain in pressure, leaving the employment of destination hold where it arrived .

- To come back the employment to rest, bring the pressure to zero, pressing the pedal in the zone indicated by the letter B. The oil will come back in the tank emptying the hydro-pneumatic circuit.



8.3 EMPLOYMENT OF REMOTE CONTROL.

- Pressing the button indicated with the letter A the pump begin to work.
- Releasing the button A to keep pression.
- Pressing button indicated with letter B the circuit is brought in unloading.
- Leaving the operated button the employment of destination stops.



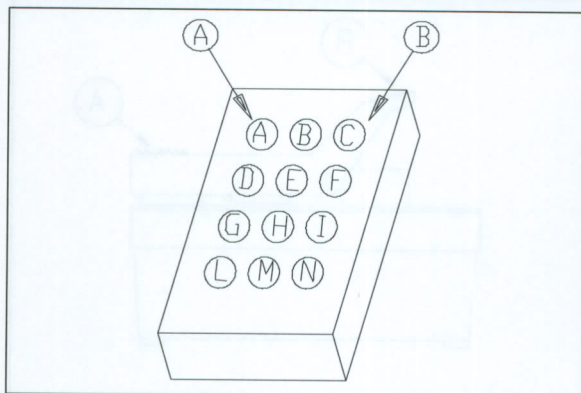
8.4 EMPLOYMENT OF RADIO- CONTROL.

Radio control consists in a pocket push-button panel fed with batteries for transistor a 9 Volt, suitable to operate up to 4 hydro-pneumatic pumps.

- In case of more pumps preventively verify the correspondence of letter wrote on the pocket push button panel with that indicated on the Carter of the pump (Es: ABC/DEF/GHI or LMN).
- To let the pump work press the button A/D/G or L on the left column of the radio-control corresponding to the letter indicated on the same pump.
- To unload the hydro-pneumatic circuit and have the pump in rest position press the button C/F/I or N on the right column of the radio-control corresponding to the letter indicated on the same pump.

- Release the operating button to stop the employment of destination during the oil in and out hydraulic phase.

The button operation is signalled by a red led placed on the frontal part of the Radio-Control.



9. RE-PRIME OF PUMP

Pumps usually haven't necessity to be primed again. Eventually where a defuse happened follow these procedures:

- A) Take off the pump from the tank, check the oil level and if necessary to add up to the maximum quantity indicated for the pump model that you are using (see chapter n°6 "Characteristics Techniques").
- B) Upset the pump setting it on a table, press the "Start" button in alternate way.
- C) During the working phase spill a little quantity of oil in the aspiration filter till the hose stiffen itself.
- D) Put the body of pump in the tank dipping it in the oil.
- E) Verify if there is the re-prime, working for the activation of the employment.
- F) If the pump is not activated repeat the operation described in the point B.

10. MAINTENANCE

We suggest to follow the operations of maintenance only after having read with attention this handbook and learned with the practical use.

The operations described following are the only ones that the users are authorized to follow:

- Any other intervention on the pump or parts of that it is considered as a tampering and it will involve the automatic decadence of guarantee.
- Every reparation of maintenance must be done with the cylinder completely re-entered and after having disconnected the air feeding.

10.1 CHECK OF HYDRAULIC CONNECTIONS.

At least every 10 days verify the hydraulic and pneumatic connections. The check must be effected both on the links, to verify that is not loosened and that they have not damages, that on the pipings, to verify that they have not cuts or cracks.

10.2 CHECK OF THE OIL AND COMPLETE SUBSTITUTION.

At least every 10 days check the oil level with a special rod. If necessary to fill up the oil using the recommended brands or equivalent hydraulic oil. The operation of level oil check or periodic integral substitution must be effected with the cylinder of the employment completely re-entered. The integral substitution is recommended at least every two months of job, in relationship to the frequency of pump employment and the height of environmental

temperatures. In the decants use always a funnel with filter to avoid the introduction of impurity or silt that would prejudice the pump duration and functionality.

- For the oil integral substitution proceed as follow:
- Take the cylinder in rest position and empty it from oil.
- Disconnect the air fed in entry.
- Unscrew the plug of vent.
- Upset the pump on a fit container to pick up the exhausted oil and leave drain the contained oil.
- Fill the pump with the new oil (see quantity to the chapter n°6 “Characteristic Techniques” with special funnel.
- Insert plug and clean the pump with a cloth.
- Connect the air of entry and do a some cycles in going and in return.

10.3 PERIODIC CLEANING AND SUBSTITUTION OF FILTER.

Every two months of work replace the air filter, using only pieces supplied by builder. Periodic cleaning must be made every 10 days removing the filter (unscrew up to extraction) and blowing it with compressed air. There fore screw again, in its socket, without excessively forcing and avoiding to break it.

11. PROBLEMS AND REMEDIES

In the following paragraph you can find some verifiable anomalies with their remedies. If, applying all that it has been described so far, you have not solved the critical situation, consult the builder.

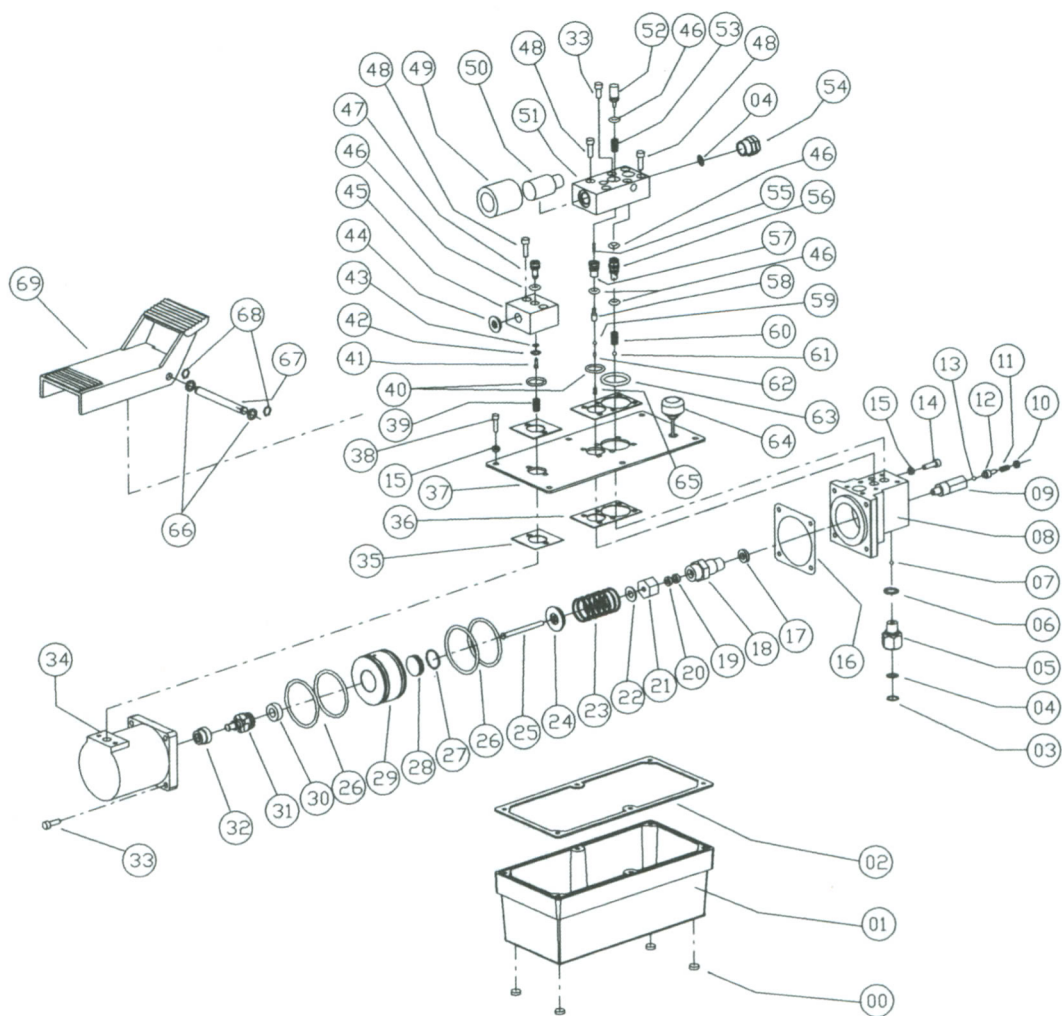
PROBLEM	POSSIBLE CAUSE	REMEDY
The pump doesn't work.	The line of the air compressed is closet or obstructed.	Verify that compressed air arrives to the pump.
The pump is stopped under load.	Air pressure too low.	Verify that the pump pressure of feeling (compressed air) is between 6 and 10 bar.
	Air filter dirty or obstructed.	Clear and replace the filter.
The pump works but it doesn't send oil in pressure	Loss of the oil in the general hydraulic apparatus.	Verify the presence of the loss and mend where necessary.
	Internal loss of pump.	Verify the pump loss and send back it to the builder to the repairing.
	Level of oil too low.	Verify the level oil, and if necessary to fill up.
The pump doesn't reach the maximum pressure.	Air pressure too low.	Verify that the pump pressure of feeling (compressed air) is between 6 and 10 bar.
	Inside safety valve out setting.	Contact the builder.
	Loss of the oil in the general hydraulic apparatus.	Verify the presence of the loss and to mend where necessary.
The pump goes to pressure but the load it is not moved.	Excessive load.	Decrease the load.
	The oil doesn't correctly circulate.	Verify that the pipings are deprived of neck down and that the cylinder is not detective.
The piston re-enters even if the pedal or the button of return is not pressed.	If the return is foreseen to gravity, possible lack of load on the cylinder.	Verify the line of oil feeling.
	Cylinder spring break.	Send back it to the builder to the repairing.
Insufficient pump capacity.	Air pressure too low.	Verify that the pump pressure of feeling (compressed air) is between 6 and 10 bar.
	Air filter dirty or obstructed.	Clear and replace the filter.

12. DEMOLITION AND SELLING OF THE PUMP

If pump has to be cleared empty it of contained oil and clear it according to the laws in force in the country in which the clearing happens. The other parts of the pump must be sold off considering the typology of the materials that constitute it.

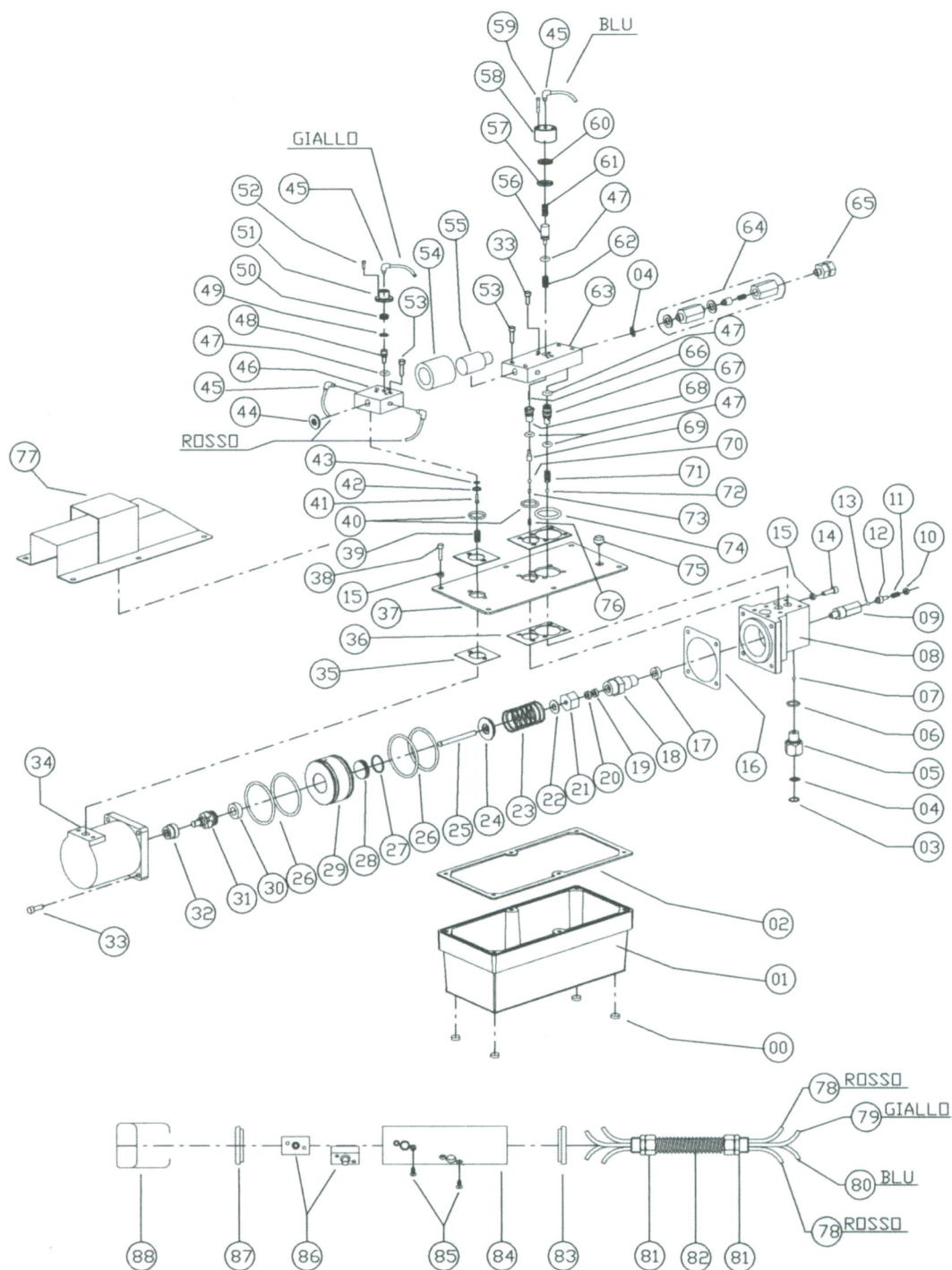
13. ESPLOSI E PARTI DI RICAMBIO – DIAGRAMS AND SPARE PARTS LIST

13.1 POMPA A PEDALE HPB – PEDAL PUMP HPB



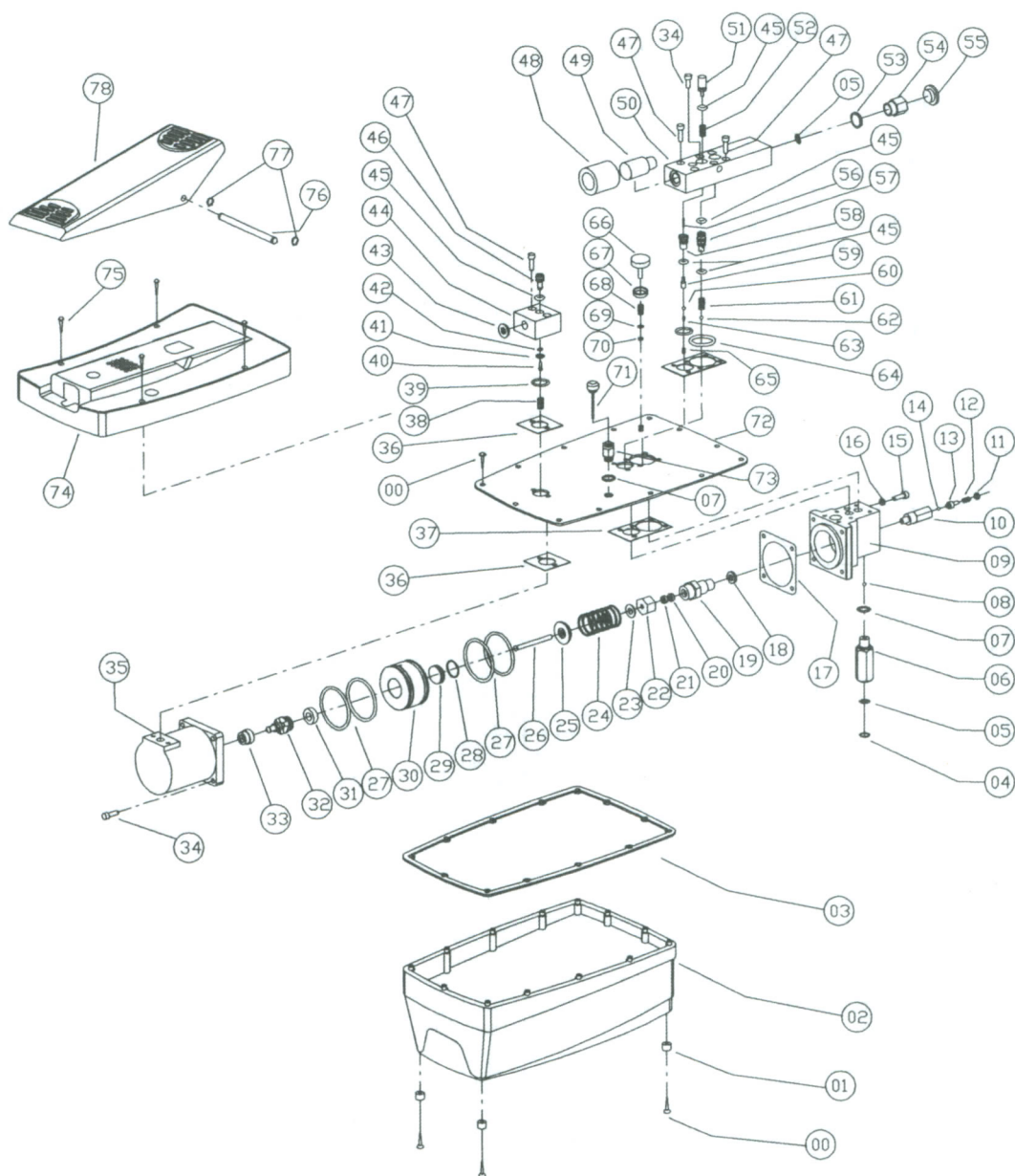
00	11A.01	26	6R.01	52	70.19		
Piedino		Guarnizione		Perno scarico olio			
Small Foot		Packing		Oil unloaded pin			
01	70.01	27	6A.06	53	70.50		
Vaschetta		Guarnizione		Molla			
Tank		Packing		Spring			
02	6S.12	28	70.22	54	3B.02		
Guarnizione		Tappo chiusura pistone		Tappo			
Packing		Plug		Plug			
03	4B.01	29	70.09	55	70.16		
Anello seeger		Pistone		Rullino spillo scarico			
Ring seeger		Ram		Unloaded needle			
04	12A.01	30	6O.01	56	70.31		
Filtro		Guarnizione		Astuccio valvola non ritorno			
Filter		Packing		Casing for no return valve			
05	70.03	31	70.10	57	70.18		
Attacco filtro		Pistoncino invertitore		Astuccio scarico			
Filter fastening		Reverser piston		Unloaded casing			
06	3B.01	32	6S.06	58	70.15		
Rondella bonded		Guarnizione invertitore		Perno scarico pistone			
Rove bonded		Reverser packing		Unloading pin			
07	5A.03	33	1C.20	59	5A.01		
Sfera		Vite		Sfera			
Sphere		Screw		Sphere			
08	70.04A	34	70.12	60	70.42		
Corpo pomp		Cilindro		Molla			
Body pump		Ram		Spring			
09	70.61	35	6M.01	61	5A.06		
Valvola max pressione		Guarnizione in carta		Sfera			
Max pression valve		Packing in paper		Sphere			
10	70.61.3	36	6M.02	62	70.13		
Fermo per molla		Guarnizione in carta		Guida sfera			
Spring stop		Packing in paper		Guide sphere			
11	70.61.2	37	7017C	63	6A.20		
Molla		Coperchio vaschetta		Guarnizione			
Spring		Cover tank		Packing			
12	70.61.1	38	1B.01	64a	8A.10		
Guida molla		Vite		Tappo			
Spring guide		Screw		Plug			
13	5A.02	39	70.47A	64b	8A.05		
Sfera		Molla		Tappo con asta			
Sphere		Spring		Plug with rod			
14	1C.16	40	6A.18	65	70.26		
Vite		Guarnizione		Molla			
Screw		Packing		Spring			
15	3C.01	41	1C.04	66	3H.01		
Rondella in rame		Vite		Molla a tazza			
Rove		Screw		Spring			
16	6M.03	42	70.20	67	70.28		
Guarnizione in carta		Scodellino porta guarnizioni		Perno pedale			
Packing in paper		Casing packing		Pedal pin			
17	3B.03	43	6E.02	68	4C.01		
Rondella bonded		Guarnizione		Anello benzing			
Rove bonded		Packing		Ring benzing			
18	70.05P1/P2/P3	44	8A.04	69	70.27		
Porta pompante (700/500/300 bar)		Tappo		Pedale			
Plunger casing (700/500/300 bar)		Plug		Pedal			
19	6E.02/6E.03/6E.06	45	70.21				
Guarnizione (700/500/300 bar)		Blocchetto aria					
Packing (700/500/300 bar)		Air block					
20	70.05K1/K2	46	6A.23				
Bronzina (700/500 bar)		Guarnizione					
Bronze bearing (700/500 bar)		Packing					
21	70.06P1/P2/P3	47	70.53				
Tappo (700-500/300 bar)		Spillo ingresso aria					
Casing plug (700-500/300 bar)		Needle					
22	6S.02	48	1C.21				
Guarnizione		Vite					
Packing		Screw					
23	70.14A	49	9A.02				
Molla		Silenziatore in gomma					
Spring		Silencer in rubber					
24	70.07K1/K2/K3	50	9A.01				
Scodellino (700/500/300 bar)		Silenziatore in nylon					
Casing cup (700/500 bar)		Silencer in nylon					
25	70.08K1/K2/K3	51	70.25				
Pompante (700/500/300 bar)		Blocchetto olio					
Plunger (700/500/300 bar)		Oil block					

13.2 POMPA CON COMANDO A DISTANZA HPB RC - REMOTE CONTROL PUMP HPB RC



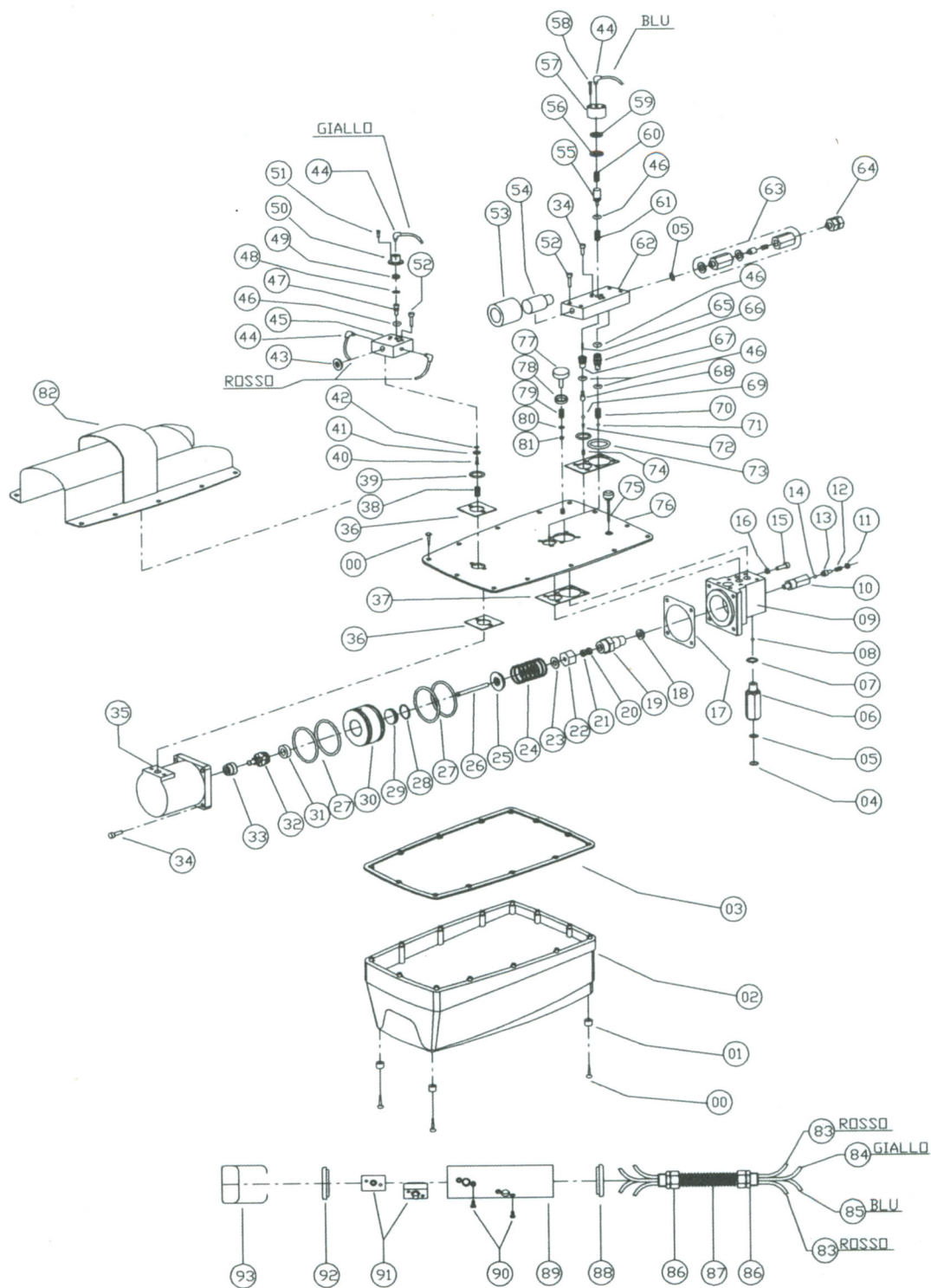
00	11A.01	26	6R.01	52	1C.08	78	7B.03
Piedino		Guarnizione		Vite		Tubo rosso	
Small Foot		Packing		Screw		Hose red	
01	70.01	27	6A.06	53	9A.02	79	7B.02
Vaschetta		Guarnizione		Silenziatore in gomma		Tubo giallo	
Tank		Packing		Silencer in rubber		Hose yellow	
02	6S.12	28	70.22	54	9A.01	80	7B.01
Guarnizione		Tappo chiusura pistone		Silenziatore in nylon		Tubo blu	
Packing		Plug		Silencer in nylon		Hose blue	
03	4B.01	29	70.09	55	70.16	81	17A.04
Anello seeger		Pistone		Rullino spillo scarico		Raccordo	
Ring seeger		Ram		Unloaded needle		Coupling	
04	12A.01	30	6O.01	56	71.11	82	7C.01
Filtro		Guarnizione		Perno scarico olio		Cavo flex	
Filter		Packing		Oil unloaded pin		Cable flex	
05	70.03	31	70.10	57	6A.15	83	8B.02
Attacco filtro		Pistoncino invertitore		Guarnizione		Tappo	
Filter fastening		Reverser piston		Packing		Plug	
06	3B.01	32	6S.06	58	71.03	84	71.07
Rondella bonded		Guarnizione invertitore		Cilindretto blocchetto aria		Manopola telecomando	
Rove bonded		Reverser packing		Cylinder oil block		Handle hand remote control	
07	5A.03	33	1C.20	59	1C.12	85	1D.01
Sfera		Vite		Vite		Vite	
Sphere		Screw		Screw		Screw	
08	70.04A	34	70.12	60	71.10	86	18A.01
Corpo pomp		Cilindro		Pistoncino blocchetto olio		Microvalvola pneumatica	
Body pump		Ram		Piston oil block		Microvalve	
09	70.61	35	6M.01	61	71.70	87	8B.01
Valvola max pressione		Guarnizione in carta		Molla		Tappo	
Max pression valve		Packing in paper		Spring		Plug	
10	70.61.3	36	6M.02	62	70.50	88	71.72
Fermo per molla		Guarnizione in carta		Molla		Maniglia	
Spring stop		Packing in paper		Spring		Assist strap	
11	70.61.2	37	7017C	63	71.02		
Molla		Coperchio vaschetta		Blocchetto olio			
Spring		Cover tank		Oil block			
12	70.61.1	38	1B.01	64	71.60 C		
Guida molla		Vite		Valvola controllo discesa			
Spring guide		Screw		Balanced valve			
13	5A.02	39	70.47A	65	3B.02		
Sfera		Molla		Tappo			
Sphere		Spring		Plug			
14	1C.16	40	6A.18	66	70.16		
Vite		Guarnizione		Rullino spillo scarico			
Screw		Packing		Unloaded needle			
15	3C.01	41	1C.04	67	70.31		
Rondella in rame		Vite		Astuccio valvola non ritorno			
Rove		Screw		Casing no return valve			
16	6M.03	42	70.20	68	70.18		
Guarnizione in carta		Scodellino porta guarnizioni		Astuccio scarico			
Packing in paper		Casing packing		Unloaded casing			
17	3B.03	43	6E.02	69	70.15		
Rondella bonded		Guarnizione		Perno scarico pistone			
Rove bonded		Packing		Unloading pin			
18	70.05P1/P2/P3	44	8A.04	70	5A.01		
Porta pompante (700/500/300 bar)		Tappo		Sfera			
Plunger casing (700/500/300 bar)		Plug		Sphere			
19	6E.02/6E.03/6E.06	45	17B.02	71	70.42		
Guarnizione (700/500/300 bar)		Raccordo girevole		Molla			
Packing (700/500/300 bar)		Turning coupling		Spring			
20	70.05K1/K2	46	71.04	72	5A.06		
Bronzina (700/500 bar)		Blocchetto aria		Sfera			
Bronze bearing (700/500 bar)		Air block		Sphere			
21	70.06P1/P2/P3	47	6A.23	73	70.13		
Tappo (700-500/300 bar)		Guarnizione		Guida sfera			
Plug (700-500/300 bar)		Packing		Sphere guida			
22	6S.02	48	70.53	74	6A.20		
Guarnizione		Spillo ingresso aria		Guarnizione			
Packing		Needle		Packing			
23	70.14A	49	6A.05	75	8A.13		
Molla		Guarnizione		Tappo			
Spring		Packing		Plug			
24	70.07K1/K2/K3	50	71.06	76	70.26		
Scodellino (700/500/300 bar)		Pistoncino blocchetto aria		Molla			
Casing cup (700/500 bar)		Piston air block		Spring			
25	70.08K1/K2/K3	51	71.05	77	71.77		
Pompante (700/500/300 bar)		Cilindretto blocchetto aria		Carter			
Plunger (700/500/300 bar)		Cylinder air block		- Carter			

13.3 POMPA A PEDALE GIBLI – PEDAL PUMP GIBLI



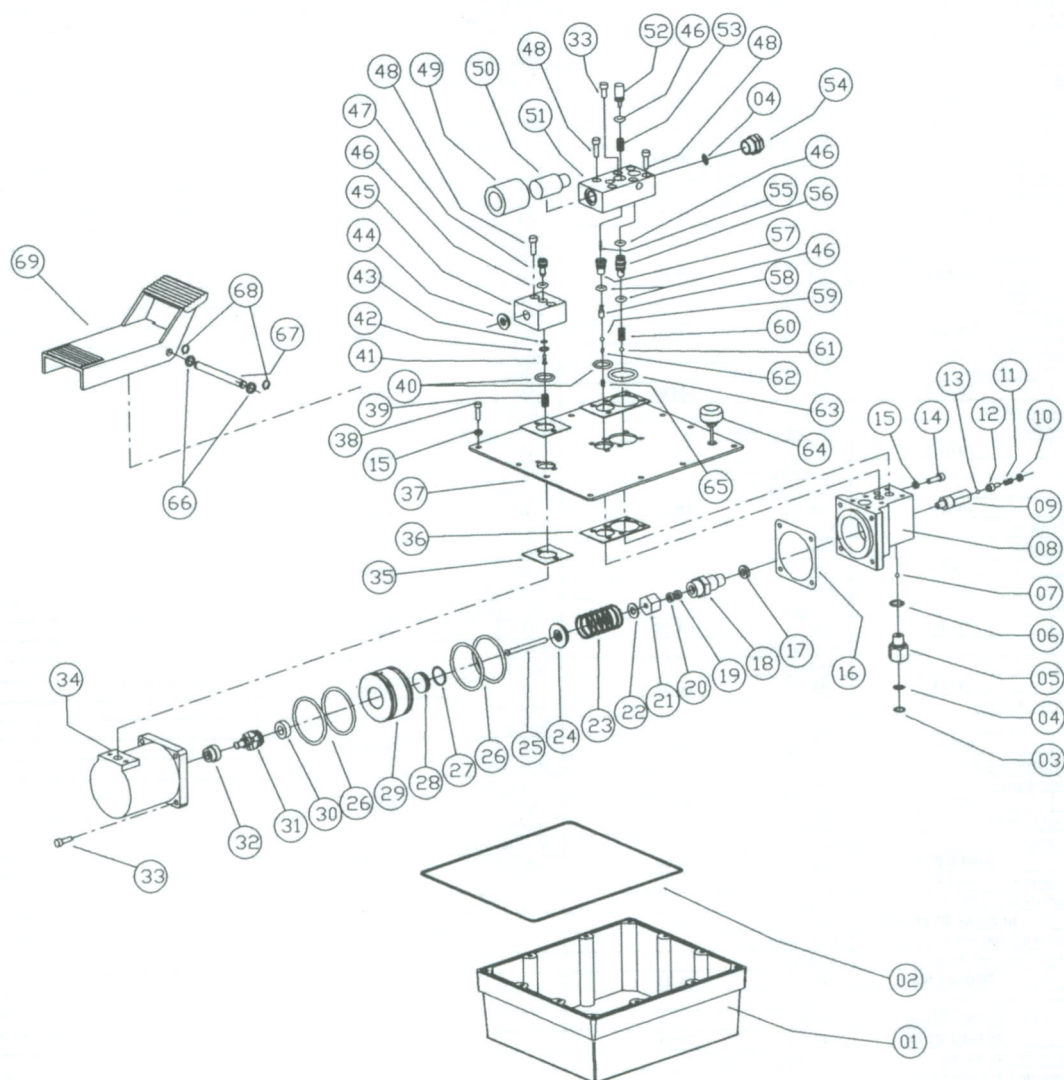
00	1F.05	26	70.08K1/K2/K3	52	70.50	77	4C.01
Vite		Pompante (700/500/300 bar)		Molla		Anello Benzing	
Screw		Plunger (700/500/300 bar)		Spring		Ring benzing	
01	11A.04	27	6R.01	53	3B.02	78	G2500.04
Piedino		Guarnizione		Tappo		Pedale	
Small foot		Packing		Plug		Pedal	
02	G2500.02	28	6A.06	54	15C.05		
Vaschetta		Guarnizione		Colonneta			
Tank		Packing		Stud			
03	6S.13	29	70.22	55	8A.02		
Guarnizione		Tappo		Tappo			
Packing		Plug		Plug			
04	4B.01	30	70.09	56	70.16		
Anello seeger		Pistone		Rullino spillo scarico			
Ring seeger		Ram		Unloaded needle			
05	12A.01	31	6O.01	57	70.31		
Filtro		Guarnizione		Astuccio valvola non ritorno			
Filter		Packing		Casing no return valve			
06	G2500.08	32	70.10	58	70.18		
Attacco filtro		Pistoncino invertitore		Astuccio scarico			
Filter fastening		Reverser piston		Unloaded casing			
07	3B.01	33	6S.06	59	70.15		
Rondella bonded		Guarnizione		Perno scarico pistone			
Rove bonded		Packing		Unloading pin			
08	5A.03	34	1C.20	60	5A.01		
Sfera		Vite		Sfera			
Sphere		Screw		Sphere			
09	70.04A	35	70.12	61	70.42		
Corpo pompa		Cilindro		Molla			
Body pump		Cylinder		Spring			
10	70.61	36	6M.01	62	5A.06		
Corpo valvola max pressione		Guarnizione in carta		Sfera			
Body max pression valve		Packing in paper		Sphere			
11	70.61.3	37	6M.02	63	70.13		
Fermo per molla		Guarnizione in carta		Guida sfera			
Spring stop		Packing in paper		Guide sphere			
12	70.61.2	38	70.47A	64	6A.20		
Molla		Molla		Guarnizione			
Spring		Spring		Packing			
13	70.61.1	39	6A.18	65	70.26		
Guida molla		Guarnizione		Molla			
Spring guide		Packing		Spring			
14	5A.02	40	1C.04	66	G2500.09		
Sfera		Vite		Perno spurgo aria			
Sphere		Screw		Air drainage pin			
15	1C.16	41	70.20	67	6Z.04		
Vite		Scodellino porta guarnizioni		Guarnizione			
Screw		Casing packing		Packing			
16	3C.01	42	6E.02	68	G2500.10		
Rondella in rame		Guarnizione		Molla			
Rove		Packing		Spring			
17	6M.03	43	8A.04	69	3A.03		
Guarnizione in carta		Tappo		Rondella			
Packing in paper		Plug		Rove			
18	3B.03	44	70.21	70	4A.01		
Rondella bonded		Blocchetto aria		Anello seeger			
Rove bonded		Air block		Ring seeger			
19	70.05P1/P2/P3	45	6A.23	71a	8A.01		
Porta pompante (700/500/300 bar)		Guarnizione		Tappo			
Plunger casing (700/500/300 bar)		Packing		Plug			
20	6E.02/6E.03/6E.06	46	70.53	71b	8A.20		
Guarnizione (700/500/300 bar)		Spillo ingresso aria		Tappo con asta			
Packing (700/500/300 bar)		Needle		Plug with rod			
21	70.05K1/K2	47	1C.21	72	G2500.01		
Bronzina (700/500 bar)		Vite		Coperchio vaschetta			
Bronze bearing (700/500 bar)		Screw		Cover tank			
22	70.06P1/P2	48	9A.02	73	15G.01		
Tappo (700-500/300 bar)		Silenziatore in gomma		Colonneta			
Plug (700-500/300 bar)		Silencer in rubber		Stud			
23	6S.02	49	9A.01	74	G2500.03		
Guarnizione		Silenziatore in nylon		Scocca superiore			
Packing		Silencer in nylon		Superior body pump			
24	70.14A	50	G2500.05	75	1F.05		
Molla		Blocchetto olio		Vite			
Spring		Oil block		Screw			
25	70.07K1/K2/K3	51	71.11	76	G2500.06		
Scodellino (700/500/300 bar)		Perno scarico olio		Perno pedale			
Casing cup (700/500/300 bar)		Oil unloaded pin		Pedal pin			

13.4 POMPA CON COMANDO A DISTANZA GIBLI RC – REMOTE CONTROL PUMP GIBLI RC



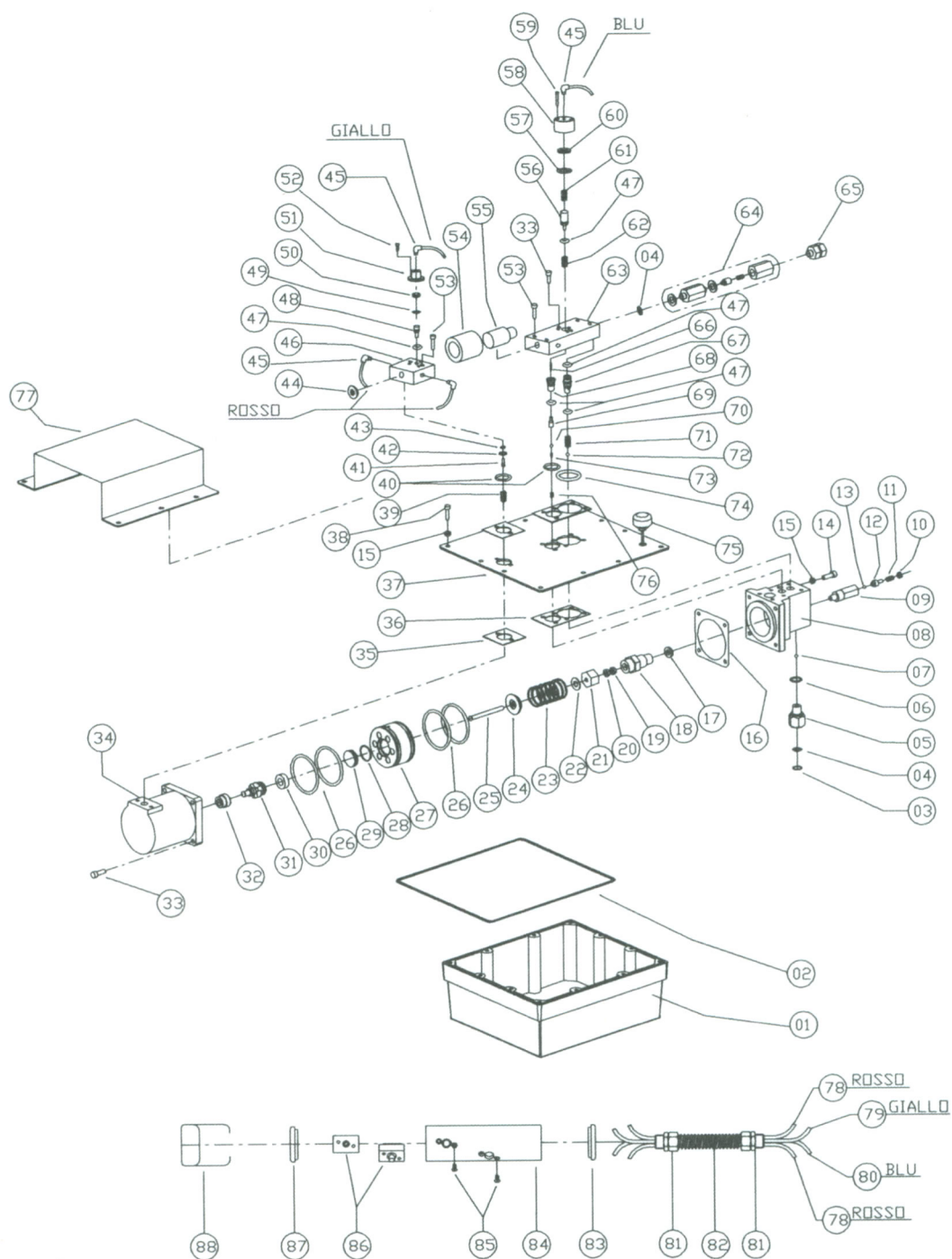
00	1F.05	26	70.08K1/K2/K3	52	1C.21	77	G2500.09
Vite		Pompante (700/500/300 bar)		Vite		Perno spurgo aria	
Screw		Plunger (700/500/300 bar)		Screw		Air drainage pin	
01	11A.04	27	6R.01	53	9A.02	78	6Z.04
Piedino		Guarnizione		Silenziatore in gomma		Guarnizione	
Small foot		Packing		Silencer in rubber		Packing	
02	G2500.02	28	6A.06	54	9A.01	79	G2500.10
Vaschetta		Guarnizione		Silenziatore in nylon		Molla	
Tank		Packing		Silencer in nylon		Spring	
03	6S.13	29	70.22	55	71.11	80	3A.03
Guarnizione		Tappo		Perno scarico olio		Rondella	
Packing		Plug		Oil unloaded pin		Rove	
04	4B.01	30	70.09	56	6A.15	81	4A.01
Anello seeger		Pistone		Guarnizione		Anello seeger	
Ring seeger		Ram		Packing		Ring seeger	
05	12A.01	31	6O.01	57	71.03	82	G2501.01
Filtro		Guarnizione		Cilindretto blocchetto olio		Carter	
Filter		Packing		Cylinder oil block		Carter	
06	G2500.08	32	70.10	58	1C.12	83	7B.03
Attacco filtro		Pistoncino invertitore		Vite		Tubo rosso	
Filter fastening		Reverser piston		Screw		Hose red	
07	3B.01	33	6S.06	59	71.10	84	7B.02
Rondella bonded		Guarnizione		Pistoncino blocchetto olio		Tubo giallo	
Rove bonded		Packing		Piston oil block		Hose Yellow	
08	5A.03	34	1C.20	60	70.70	85	7B.01
Sfera		Vite		Molla		Tubo blu	
Sphere		Screw		Spring		Hose blue	
09	70.04A	35	70.12	61	70.50	86	17A.04
Corpo pompa		Cilindro		Molla		Raccordo pressacavo	
Body pump		Cylinder		Spring		Coupling	
10	70.61	36	6M.01	62	71.02	87	7C.01
Corpo valvola max pressione		Guarnizione in carta		Blocchetto olio		Cavo flex	
Body max pression valve		Packing in paper		Oil block		Cable flex	
11	70.61.3	37	6M.02	63	71.60 C	88	8B.02
Fermo per molla		Guarnizione in carta		Valvola controllo discesa		Tappo	
Spring stop		Packing in paper		Balanced valve		Plug	
12	70.61.2	38	70.47A	64	8A.02	89	71.07
Molla		Molla		Tappo		Manopola telecomando	
Spring		Spring		Plug		Handle hand remote control	
13	70.61.1	39	6A.18	65	70.16	90	1D.01
Guida molla		Guarnizione		Rullino spillo scarico		Vite	
Spring guide		Packing		Unloaded needle		Screw	
14	5A.02	40	1C.04	66	70.31	91	18A.01
Sfera		Vite		Astuccio valvola non ritorno		Microvalvola pneumatica	
Sphere		Screw		Casing no return valve		Pneumatic microvalve	
15	1C.16	41	70.20	67	70.18	92	8B.01
Vite		Scodellino porta guarnizioni		Astuccio scarico		Tappo	
Screw		Casing packing		Unloaded casing		Plug	
16	3C.01	42	6E.02	68	70.15	93	71.72
Rondella in rame		Guarnizione		Perno scarico pistone		Maniglia	
Rove		Packing		Unloading pin		Assist strap	
17	6M.03	43	8A.04	69	5A.01		
Guarnizione in carta		Tappo		Sfera			
Packing in paper		Plug		Sphere			
18	3B.03	44	17B.02	70	70.42		
Rondella bonded		Raccordo girevole		Molla			
Rove bonded		Turning coupling		Spring			
19	70.05P1/P2/P3	45	71.04	71	5A.06		
Porta pompante (700/500/300 bar)		Blocchetto aria		Sfera			
Plunger casing (700/500/300 bar)		Air block		Sphere			
20	6E.02/6E.03/6E.06	46	6A.23	72	70.13		
Guarnizione (700/500/300 bar)		Guarnizione		Guida sfera			
Packing (700/500/300 bar)		Packing		Guide sphere			
21	70.05K1/K2	47	70.53	73	6A.20		
Bronzina (700/500 bar)		Spillo ingresso aria		Guarnizione			
Bronze bearing (700/500 bar)		Needle		Packing			
22	70.06P1/P2	48	6A.05	74	70.26		
Tappo (700-500/300 bar)		Guarnizione		Molla			
Plug (700-500/300 bar)		Packing		Spring			
23	6S.02	49	71.06	75a	8A.13		
Guarnizione		Pistoncino blocchetto aria		Tappo			
Packing		Piston air block		Plug			
24	70.14A	50	71.05	75b	8A.05		
Molla		Cilindretto blocchetto aria		Tappo con asta			
Spring		Cylinder air block		Plug with rod			
25	70.07K1/K2/K3	51	1C.08	76	G2501.02		
Scodellino (700/500/300 bar)		Vite		Coperchio vaschetta			
Casing cup (700/500/300 bar)		Screw		Cover tank			

13.5 POMPA A PEDALE SPH LT – PEDAL PUMP SPH LT



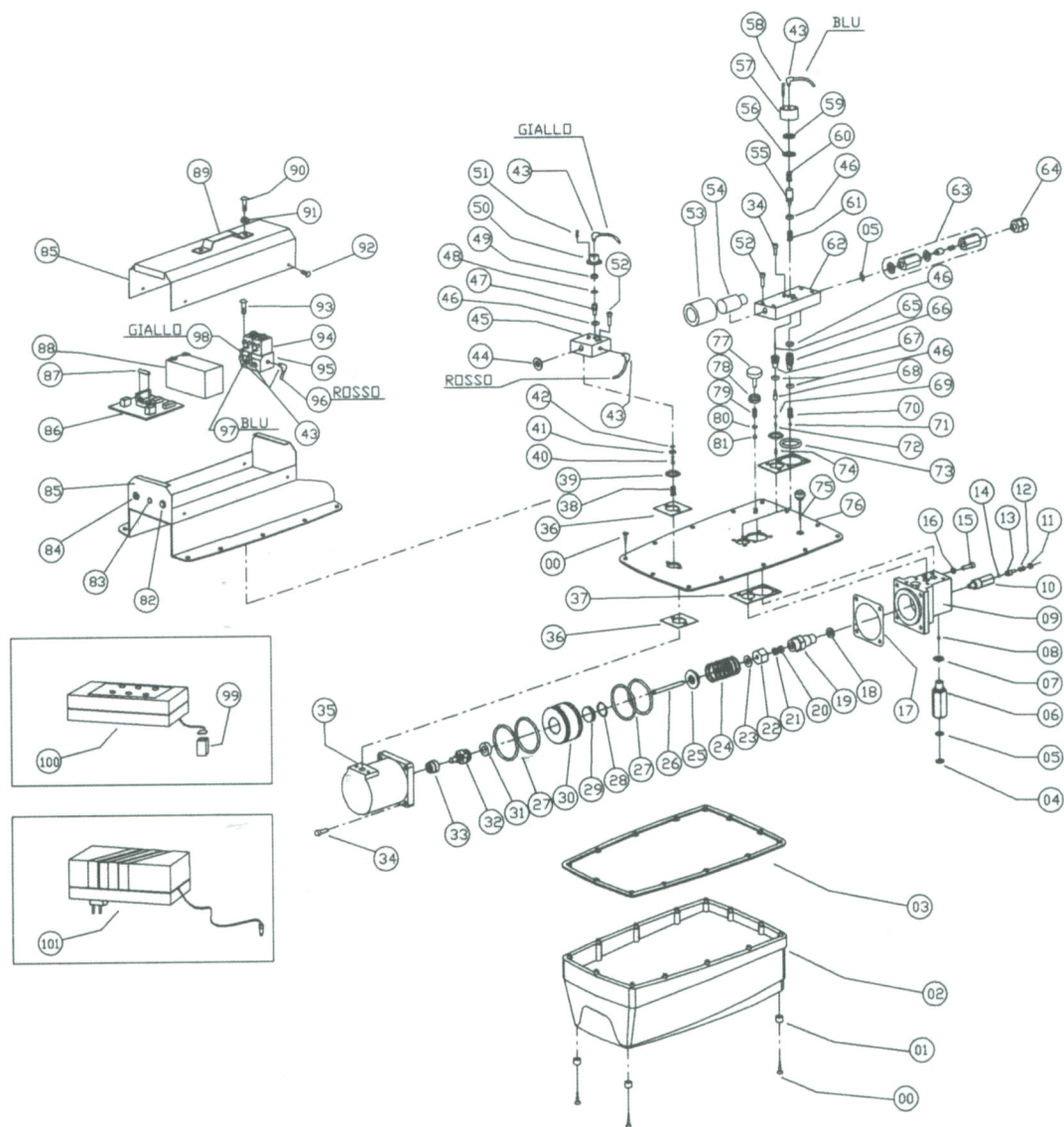
01	74.01	27	6A.06	53	70.50
Vaschetta		Guarnizione		Molla	
Tank		Packing		Spring	
02	6S.11	28	70.22	54	3B.02
Guarnizione		Tappo chiusura pistone		Tappo	
Packing		Plug		Plug	
03	4B.01	29	70.09	55	70.16
Anello seeger		Pistone		Rullino spillo scarico	
Ring seeger		Ram		Unloaded needle	
04	12A.01	30	60.01	56	70.31
Filtro		Guarnizione		Astuccio valvola non ritorno	
Filter		Packing		Casing for no return valve	
05	70.03	31	70.10	57	70.18
Attacco filtro		Pistoncino invertitore		Astuccio scarico	
Filter fastening		Reverser piston		Unloaded casing	
06	3B.01	32	6S.06	58	70.15
Rondella bonded		Guarnizione invertitore		Perno scarico pistone	
Rove bonded		Reverser packing		Unloading pin	
07	5A.03	33	1C.20	59	5A.01
Sfera		Vite		Sfera	
Sphere		Screw		Sphere	
08	70.04A	34	70.12	60	70.42
Corpo pomp		Cilindro		Molla	
Body pump		Ram		Spring	
09	70.61	35	6M.01	61	5A.06
Valvola max pressione		Guarnizione in carta		Sfera	
Max pression valve		Packing in paper		Sphere	
10	70.61.3	36	6M.02	62	70.13
Fermo per molla		Guarnizione in carta		Guida sfera	
Spring stop		Packing in paper		Guide sphere	
11	70.61.2	37	74.17	63	6A.20
Molla		Coperchio vaschetta		Guarnizione	
Spring		Cover tank		Packing	
12	70.61.1	38	1B.01	64a	8A.10
Guida molla		Vite		Tappo	
Spring guide		Screw		Plug	
13	5A.02	39	70.47A	64b	8A.05
Sfera		Molla		Tappo con asta	
Sphere		Spring		Plug with rod	
14	1C.16	40	6A.18	65	70.26
Vite		Guarnizione		Molla	
Screw		Packing		Spring	
15	3C.01	41	1C.04	66	3H.01
Rondella in rame		Vite		Molla a tazza	
Rove		Screw		Spring	
16	6M.03	42	70.20	67	70.28
Guarnizione in carta		Scodellino porta guarnizioni		Perno pedale	
Packing in paper		Casing packing		Pedal pin	
17	3B.03	43	6E.02	68	4C.01
Rondella bonded		Guarnizione		Anello benzing	
Rove bonded		Packing		Ring benzing	
18	70.05P1/P2/P3	44	8A.04	69	70.27
Porta pompante (700/500/300 bar)		Tappo		Pedale	
Plunger casing (700/500/300 bar)		Plug		Pedal	
19	6E.02/6E.03/6E.06	45	70.21		
Guarnizione (700/500/300 bar)		Blocchetto aria			
Packing (700/500/300 bar)		Air block			
20	70.05K1/K2	46	6A.23		
Bronzina (700/500 bar)		Guarnizione			
Bronze bearing (700/500 bar)		Packing			
21	70.06P1/P2/P3	47	70.53		
Tappo (700-500/300 bar)		Spillo ingresso aria			
Casing plug (700-500/300 bar)		Needle			
22	6S.02	48	1C.21		
Guarnizione		Vite			
Packing		Screw			
23	70.14A	49	9A.02		
Molla		Silenziatore in gomma			
Spring		Silencer in rubber			
24	70.07K1/K2/K3	50	9A.01		
Scodellino (700/500/300 bar)		Silenziatore in nylon			
Casing cup (700/500 bar)		Silencer in nylon			
25	70.08K1/K2/K3	51	70.25		
Pompante (700/500/300 bar)		Blocchetto olio			
Plunger (700/500/300 bar)		Oil block			
26	6R.01	52	70.19		
Guarnizione		Perno scarico olio			
Packing		Oil unloaded pin			

13.6 POMPA CON COMANDO A DISTANZA SPH LT RC – REMOTE CONTROL PUMP SPH LT RC



01	74.01	27	6A.06	53	9A.02	79	7B.02
Vaschetta		Guarnizione		Silenziatore in gomma		Tubo giallo	
Tank		Packing		Silencer in rubber		Hose yellow	
02	6S.11	28	70.22	54	9A.01	80	7B.01
Guarnizione		Tappo chiusura pistone		Silenziatore in nylon		Tubo blu	
Packing		Plug		Silencer in nylon		Hose blue	
03	4B.01	29	70.09	55	70.16	81	17A.04
Anello seeger		Pistone		Rullino spillo scarico		Raccordo	
Ring seeger		Ram		Unloaded needle		Coupling	
04	12A.01	30	6O.01	56	71.11	82	7C.01
Filtro		Guarnizione		Perno scarico olio		Cavo flex	
Filter		Packing		Oil unloaded pin		Cable flex	
05	70.03	31	70.10	57	6A.15	83	8B.02
Attacco filtro		Pistoncino invertitore		Guarnizione		Tappo	
Filter fastening		Reverser piston		Packing		Plug	
06	3B.01	32	6S.06	58	71.03	84	71.07
Rondella bonded		Guarnizione invertitore		Cilindretto blocchetto aria		Manopola telecomando	
Rove bonded		Reverser packing		Cylinder oil block		Handle hand remote control	
07	5A.03	33	1C.20	59	1C.12	85	1D.01
Sfera		Vite		Vite		Vite	
Sphere		Screw		Screw		Screw	
08	70.04A	34	70.12	60	71.10	86	18A.01
Corpo pomp		Cilindro		Pistoncino blocchetto olio		Microvalvola pneumatica	
Body pump		Ram		Piston oil block		Microvalve	
09	70.61	35	6M.01	61	71.70	87	8B.01
Valvola max pressione		Guarnizione in carta		Molla		Tappo	
Max pression valve		Packing in paper		Spring		Plug	
10	70.61.3	36	6M.02	62	70.50	88	71.72
Fermo per molla		Guarnizione in carta		Molla		Maniglia	
Spring stop		Packing in paper		Spring		Assist strap	
11	70.61.2	37	74.17	63	71.02		
Molla		Coperchio vaschetta		Blocchetto olio			
Spring		Cover tank		Oil block			
12	70.61.1	38	1B.01	64	71.60 C		
Guida molla		Vite		Valvola controllo discesa			
Spring guide		Screw		Balanced valve			
13	5A.02	39	70.47A	65	3B.02		
Sfera		Molla		Tappo			
Sphere		Spring		Plug			
14	1C.16	40	6A.18	66	70.16		
Vite		Guarnizione		Rullino spillo scarico			
Screw		Packing		Unloaded needle			
15	3C.01	41	1C.04	67	70.31		
Rondella in rame		Vite		Astuccio valvola non ritorno			
Rove		Screw		Casing no return valve			
16	6M.03	42	70.20	68	70.18		
Guarnizione in carta		Scodellino porta guarnizioni		Astuccio scarico			
Packing in paper		Casing packing		Unloaded casing			
17	3B.03	43	6E.02	69	70.15		
Rondella bonded		Guarnizione		Perno scarico pistone			
Rove bonded		Packing		Unloading pin			
18	70.05P1/P2/P3	44	8A.04	70	5A.01		
Porta pompante (700/500/300 bar)		Tappo		Sfera			
Plunger casing (700/500/300 bar)		Plug		Sphere			
19	6E.02/6E.03/6E.06	45	17B.02	71	70.42		
Guarnizione (700/500/300 bar)		Raccordo girevole		Molla			
Packing (700/500/300 bar)		Turning coupling		Spring			
20	70.05K1/K2	46	71.04	72	5A.06		
Bronzina (700/500 bar)		Blocchetto aria		Sfera			
Bronze bearing (700/500 bar)		Air block		Sphere			
21	70.06P1/P2/P3	47	6A.23	73	70.13		
Tappo (700-500/300 bar)		Guarnizione		Guida sfera			
Plug (700-500/300 bar)		Packing		Sphere guida			
22	6S.02	48	70.53	74	6A.20		
Guarnizione		Spillo ingresso aria		Guarnizione			
Packing		Needle		Packing			
23	70.14A	49	6A.05	75	8A.13		
Molla		Guarnizione		Tappo			
Spring		Packing		Plug			
24	70.07K1/K2/K3	50	71.06	76	70.26		
Scodellino (700/500/300 bar)		Pistoncino blocchetto aria		Molla			
Casing cup (700/500 bar)		Piston air block		Spring			
25	70.08K1/K2/K3	51	71.05	77	75.01 C		
Pompante (700/500/300 bar)		Cilindretto blocchetto aria		Carter			
Plunger (700/500/300 bar)		Cylinder air block		Carter			
26	6R.01	52	1C.08	78	7B.03		
Guarnizione		Vite		Tubo rosso			
Packing		Screw		Hose red			

13.7 POMPA CON RADIO COMANDO GIBLI TX – RADIO CONTROL PUMP GIBLI TX



00	1F.05	26	70.08K1/K2/K3	52	1C.21	77	G2500.09
Vite		Pompante (700/500/300 bar)		Vite		Perno spurgo aria	
Screw		Plunger (700/500/300 bar)		Screw		Air drainage pin	
01	11A.04	27	6R.01	53	9A.02	78	6Z.04
Piedino		Guarnizione		Silenziatore in gomma		Guarnizione	
Small foot		Packing		Silencer in rubber		Packing	
02	G2500.02	28	6A.06	54	9A.01	79	G2500.10
Vaschetta		Guarnizione		Silenziatore in nylon		Molla	
Tank		Packing		Silencer in nylon		Spring	
03	6S.13	29	70.22	55	71.11	80	3A.03
Guarnizione		Tappo		Perno scarico olio		Rondella	
Packing		Plug		Oil unloaded pin		Rove	
04	4B.01	30	70.09	56	6A.15	81	4A.01
Anello seeger		Pistone		Guarnizione		Anello seeger	
Ring seeger		Ram		Packing		Ring seeger	
05	12A.01	31	6O.01	57	71.03	82	21A.02
Filtro		Guarnizione		Cilindretto blocchetto olio		Pulsante accensione	
Filter		Packing		Cylinder oil block		Switch on	
06	G2500.08	32	70.10	58	1C.12	83	21B.01
Attacco filtro		Pistoncino invertitore		Vite		Led	
Filter fastening		Reverser piston		Screw		Led	
07	3B.01	33	6S.06	59	71.10	84	21C.05
Rondella bonded		Guarnizione		Pistoncino blocchetto olio		Presca per spinotto	
Rove bonded		Packing		Piston oil block		Plug for pin	
08	5A.03	34	1C.20	60	70.70	85	G2502.01
Sfera		Vite		Molla		Carter	
Sphere		Screw		Spring		Carter	
09	70.04A	35	70.12	61	70.50	86	21E.01
Corpo pompa		Cilindro		Molla		Scheda per ricevitore	
Body pump		Cylinder		Spring		Receiver card	
10	70.61	36	6M.01	62	71.02	87	21D.02
Corpo valvola max pressione		Guarnizione in carta		Blocchetto olio		Fusibile	
Body max pression valve		Packing in paper		Oil block		Link	
11	70.61.3	37	6M.02	63	71.60 C	88	21G.01
Fermo per molla		Guarnizione in carta		Valvola controllo discesa		Batteria	
Spring stop		Packing in paper		Balanced valve		Battery	
12	70.61.2	38	70.47A	64	8A.02	89	19A.04
Molla		Molla		Tappo		Maniglia	
Spring		Spring		Plug		Handle	
13	70.61.1	39	6A.18	65	70.16	90	1B.02
Guida molla		Guarnizione		Rullino spillo scarico		Vite	
Spring guide		Packing		Unloaded needle		Screw	
14	5A.02	40	1C.04	66	70.31	91	3A.03
Sfera		Vite		Astuccio valvola non ritorno		Rondella	
Sphere		Screw		Casing no return valve		Rove	
15	1C.16	41	70.20	67	70.18	92	1E.01
Vite		Scodellino porta guarnizioni		Astuccio scarico		Vite	
Screw		Casing packing		Unloaded casing		Screw	
16	3C.01	42	6E.02	68	70.15	93	1C.02
Rondella in rame		Guarnizione		Perno scarico pistone		Vite	
Rove		Packing		Unloading pin		Screw	
17	6M.03	43	17B.02	69	5A.01	94	24C.07
Guarnizione in carta		Raccordo girevole		Sfera		Bobina	
Packing in paper		Turning coupling		Sphere		Coil	
18	3B.03	44	8A.04	70	70.42	95	21S.02
Rondella bonded		Tappo		Molla		Base per bobina	
Rove bonded		Plug		Spring		Coil support	
19	70.05P1/P2/P3	45	71.04	71	5A.06	96	7B.03
Porta pompante (700/500/300 bar)		Blocchetto aria		Sfera		Tubo rosso	
Plunger casing (700/500/300 bar)		Air block		Sphere		Hose red	
20	6E.02/6E.03/6E.06	46	6A.23	72	70.13	97	7B.01
Guarnizione (700/500/300 bar)		Guarnizione		Guida sfera		Tubo blu	
Packing (700/500/300 bar)		Packing		Guide sphere		Hose blue	
21	70.05K1/K2	47	70.53	73	6A.20	98	7B.02
Bronzina (700/500 bar)		Spillo ingresso aria		Guarnizione		Tubo giallo	
Bronze bearing (700/500 bar)		Needle		Packing		Hose yellow	
22	70.06P1/P2	48	6A.05	74	70.26	99	21H.01
Tappo (700-500/300 bar)		Guarnizione		Molla		Transistor	
Plug		Packing		Spring		Transistor	
23	6S.02	49	71.06	75a	8A.13	100	21M.01
Guarnizione		Pistoncino blocchetto aria		Tappo		Trasmettitore	
Packing		Piston air block		Plug		Transmitter	
24	70.14A	50	71.05	75b	8A.05	101	21I.02
Molla		Cilindretto blocchetto aria		Tappo con asta		Carica batteria	
Spring		Cylinder air block		Plug with rod		Battery charger	
25	70.07K1/K2/K3	51	1C.08	76	G2501.02		
Scodellino (700/500/300)		Vite		Coperchio vaschetta			
Casing cup (700/500/300)		Screw		Cover tank			