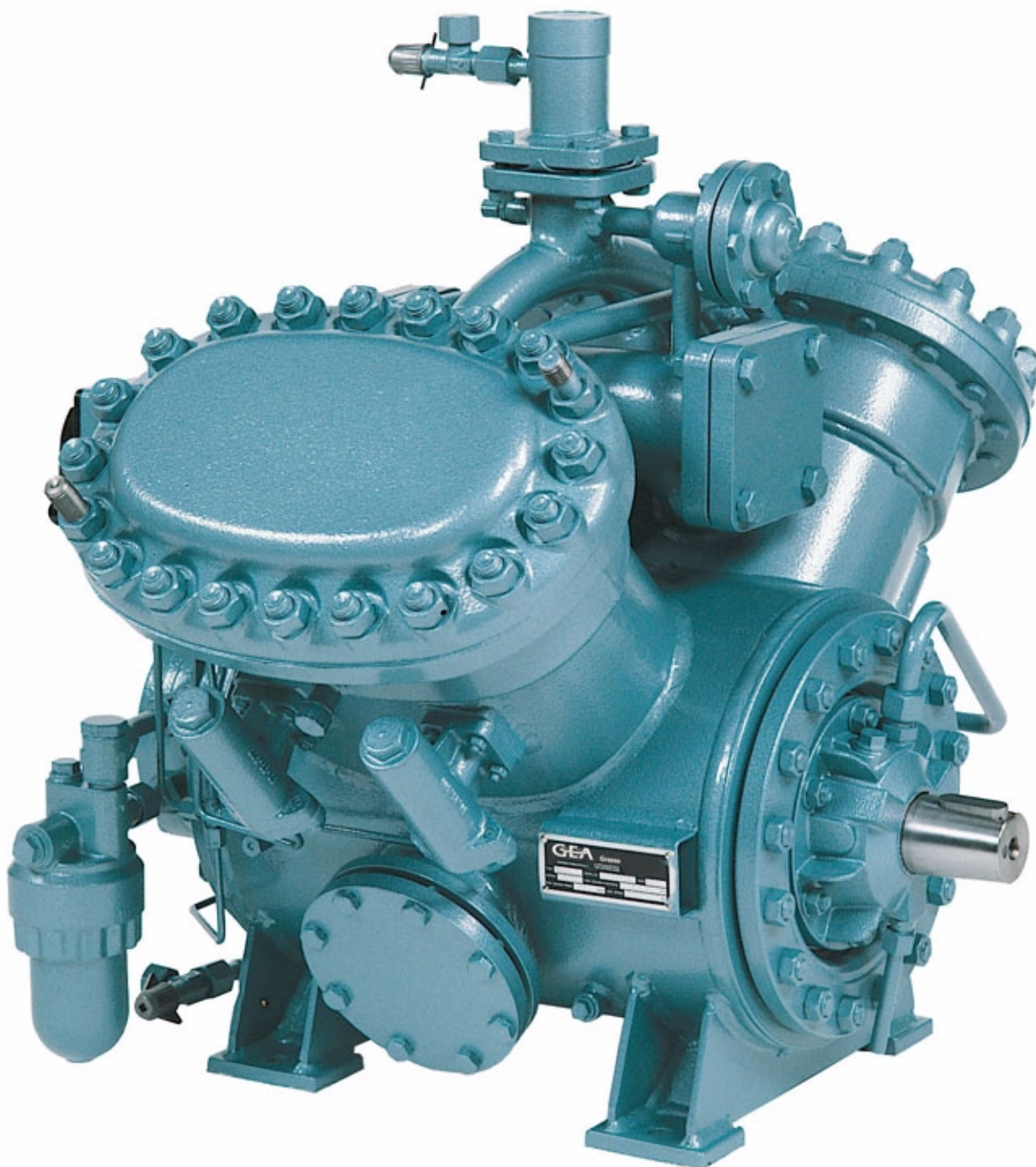


Reciprocating Compressors for industrial refrigeration Series RC9

Parts List (PL)



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This manual must be carefully read and understood prior to installing and servicing the compressor (package)

General Safety

All service operations described in this servicemanual are only to be carried out by well-trained/qualified personnel and even then only after this service manual has been read carefully and is fully understood.

Personal safety

Observe all (inter)national and/or local safety standards, measures and regulations during reinstalling, repairing and connecting the compressor (package).

Mechanical safety

If the compressor does not have to be removed from its base, it is advisable to put warning labels on vital parts of the compressor saying that the plant is out-of-operation and must not be started up.

If the compressor has to be opened for service, the frigerant has to be pumped down and the electric supply has to be cut off.

After having run the initial 100 operating hours, it is essential (in both new and modified plants) to replace the red running-in filter element with the permanent filter element supplied.

On reinstalling a compressor, it should be checked whether the direction of rotation of the compressor has remained the same.

Table of Contents

Section	Title	Page
1	PARTS COMPRESSOR	9
2	PARTS ACCESSORIES	37
3	HISTORY PARTS	51

Preface

This preface gives a survey of the types of documentation and software available for this Grasso compressor series.



All Grasso documentation and Grasso selection software is available on CD-Roms (Consult Grasso).

1) Grasso Refrigeration Equipment Catalogue (REC)

Contents

This catalogue contains all Product Information (engineering data) and all brochures of the reciprocating compressors, screw compressors, air purgers, chillers, packages, etc. This catalogue also includes the CD-Rom 'Grasso Software' and the CD-ROM 'Documentation Navigator'.

User group

Project engineers, applications engineers, sales managers and product managers for both end-users and contractors.

Distribution

Sales Department of Grasso.

2) Grasso CD-ROM 'Grasso Software'

Contents

COMSEL programme (the Grasso COMPRESSOR SELECTION programme), PURGER programme (to calculate energy savings and pay-back time) and REVALCO software (to select Revalco valves, check valves, Revalco parts etc.).

User group

Project engineers, application engineers, sales managers, product managers for both end-users and contractors.

Distribution

Sales Department of Grasso.

3) Grasso CD-ROM 'Documentation Navigator'

Contents

All Grasso documentation including a user friendly navigation system.



With this CD-rom it is possible to re-use all text, graphics, tables, etc. for various purposes (presentations, reports, ...)

User group

Project engineers, application engineers, sales managers, product managers for both end-users and contractors.

Distribution

Sales Department of Grasso.

4) Product Information (Engineering Data Sheets; ED)

Contents

All product information (engineering data) for this series compressor and the corresponding recommended accessories. It is meant to be a guide to the selection of these components.

User group

Project engineers, application engineers, sales managers, product managers for both end-users and contractors.

Distribution

Sales Department of Grasso.

5) Installation and maintenance manual (IMM)

Contents

This manual will provide information on how to transport, install, start-up and maintain the compressor (package). It also contains a number of "Product Information Sheets" and the current "Parts List"

User group

To be used in the field by qualified personnel for both end-user and contractor.

Distribution

Supplied together with the compressor.

6) Instructions for Accessories (IFA)

Contents

All the relevant mounting and installation instructions and spare parts information for those accessories supplied with the compressor.

User group

To be used in the field by qualified personnel for both end-user and contractor.

Distribution

Supplied together with the compressor.

7) Parts list (PL)

Contents

All current parts of the compressor and accessories together with the design changes applicable to previous supplied components ("History").

User group

Service and parts department for both end-user and contractor.

Distribution

Service and Parts Department of Grasso.

8) Service & Maintenance Schedules (SMS)

Contents

Complete set of service and maintenance schedules for 100 operating hours up to 48000 operating hours (inspection, renewal, measuring, cleaning, ...) of the bare shaft compressor.

User group

Service and parts department and in the field by qualified personnel for both end-user and contractor.

Distribution

Service and Parts Department of Grasso.

9) Service and Maintenance Manual (SIM)

Contents

Description of (re)assembling, inspection, repair and part or total overhaul of the bare shaft compressor. This manual should be used together with the 'Installation and Maintenance Manual'.

User group

To be used in the field by qualified personnel of refrigeration installers or contractors.

Distribution

Service and Parts Department of Grasso.

10) Miscellaneous

Typographic signs:

Indicates a caution, note or procedure to which you should pay special attention.
READ IT CAREFULLY!



Indicates a **WARNING**. **READ IT CAREFULLY!**



Indicates an **IMPORTANT** note or procedure to which you should pay special attention.



Indicates a **HINT**.

Values between []

Values between [] are read-outs of Grasso's electronic control device Monitron CR.

Release Notes Parts List (PL) RC9

	Description	Date M-YY	Ref.
1	Previous version 00.89.278-v003.00.04	03-01	KK

Cylinder numbering of Grasso reciprocating compressors

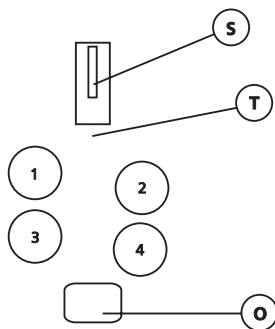


Fig. 1 Cylinder numbering Grasso reciprocating compressors

Legend	
1, 2, 3, ...	Cylinder numbers
T	Top view of compressor
S	Shaft-end of compressor
O	Oil pump of compressor

Booster or single-stage operation

Booster operation applies if condensing temperature $< 5^{\circ}\text{C}$.

Single stage operation applies if condensing temperature $\geq 5^{\circ}\text{C}$.

1. PARTS COMPRESSOR

Table of Contents

Parts List	Page	Figure
COMPRESSOR HOUSING WITH CONNECTIONS AND OVERFLOW SAFETY VALVES	10	RC9-01
BEARING COVERS	12	RC9-02
CRANKSHAFT	14	RC9-03
PISTON AND CONNECTING ROD	16	RC9-04
CYLINDER AND VALVE LIFTING MECHANISM	18	RC9-05
SUCTION AND DISCHARGE VALVE	20	RC9-06
ROTARY SHAFT SEAL	22	RC9-07
OIL PUMP	24	RC9-08
OIL FILTERS (from serial nr. 95021100)	26	RC9-09
OIL RETURN LINES	28	RC9-10
SUCTION GAS STRAINER	30	RC9-11
MAIN FLANGE SEALING RINGS	32	RC9-12
STANDARD SETS OF PARTS, SEALS AND TOOLS	34	RC9-13

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-01 COMPRESSOR HOUSING WITH CONNECTIONS AND OVERFLOW SAFETY VALVES					
1	HEXAGON NUT	M20	0115110	20	quantity per cylinder cover
2A	CYLINDER COVER	441x298KA85 M	2315502	-	without temperature sensor plug holes
2B	CYLINDER COVER	441x298KA85 M	2315510	-	with temperature sensor plug holes
3	GASKET	206x441x1.5	0907206	1	
4	STUD	M20x55	0151155	18	quantity per cylinder head
5	STUD	M20x80	0151180	2	
6	CAP NUT	G21	0331021	-	
7	GASKET	124x136x1.5	0903124	-	
8	SERVICE COVER	184	0530184	2	
9	HEXAGON HEAD BOLT	M12x40	0110640	8	
10	SERVICE COVER	185V65M8	0516666	2	quantity per cylinder cover
11	WELDABLE COUPLING	6x11	0335006	-	on 6-cylinder compressors only
12	STUD	M16x35	0151835	32	
13a	WELDABLE NIPPLE	G21R	0335021	-	up to compr. serial nr. 89011000
13b	WELDABLE COUPLING	6x11	0335012	1	from compr. serial nr. 89011000
15	GASKET	50x65x1.5	0903050	2	
16	SIGHT GLASS	65x15	1226065	1	for 6-cyl. compr.: Quantity x2
17	SIGHT GLASS FLANGE	65	0516065	1	
18	HEXAGON HEAD BOLT	M8x30	0110430	6	
19	NON-RETURN VALVE	5	0627505	-	1 per cyl. head in single stage compr. and on LP-side of two-stage compr.
20	PLUG	T13	0365013	-	1 per cyl. head on HP-side of two-stage compr.
21	HEXAGON NUT (ZINC PLATED)	M10	0115510	6	
22	VALVE COVER	18x8	4813218	1	
23	HEX. HEAD BOLT	M10x55	0110555	2	
24	HEXAGON HEAD BOLT	M10x40	0110540	4	
25.1	TEFLON RING	0x23x3	0942230	1	from compr. serial nr. 83015000
25.2	VALVE GUIDE	22x75	4840322	1	
25.3X	PRESSURE SPRING	4.5X25X9.5X8 3	1131452	1	in item 25X
25.3Y	PRESSURE SPRING	5X25X9.5X87	1131502	1	in item 25Y
25.4	FLAT WASHER	M16x28	1113829	-	quantity depends on adjustment
25.6	OILIT SEALING RING	61x71x1.5	0903063	1	
25X	VALVE SET	R-NH3-12RC9	4827512	1	for 12-bar-type valve
25Y	VALVE SET	R-NH3-21 RC9	4827522	1	for 21-bar-type valve
26	VALVE HOUSING		4802621	1	
27X	VALVE ASSY	12 bar LD	4827524	1	
27Y	VALVE ASSY	21 bar HD	4827525	1	

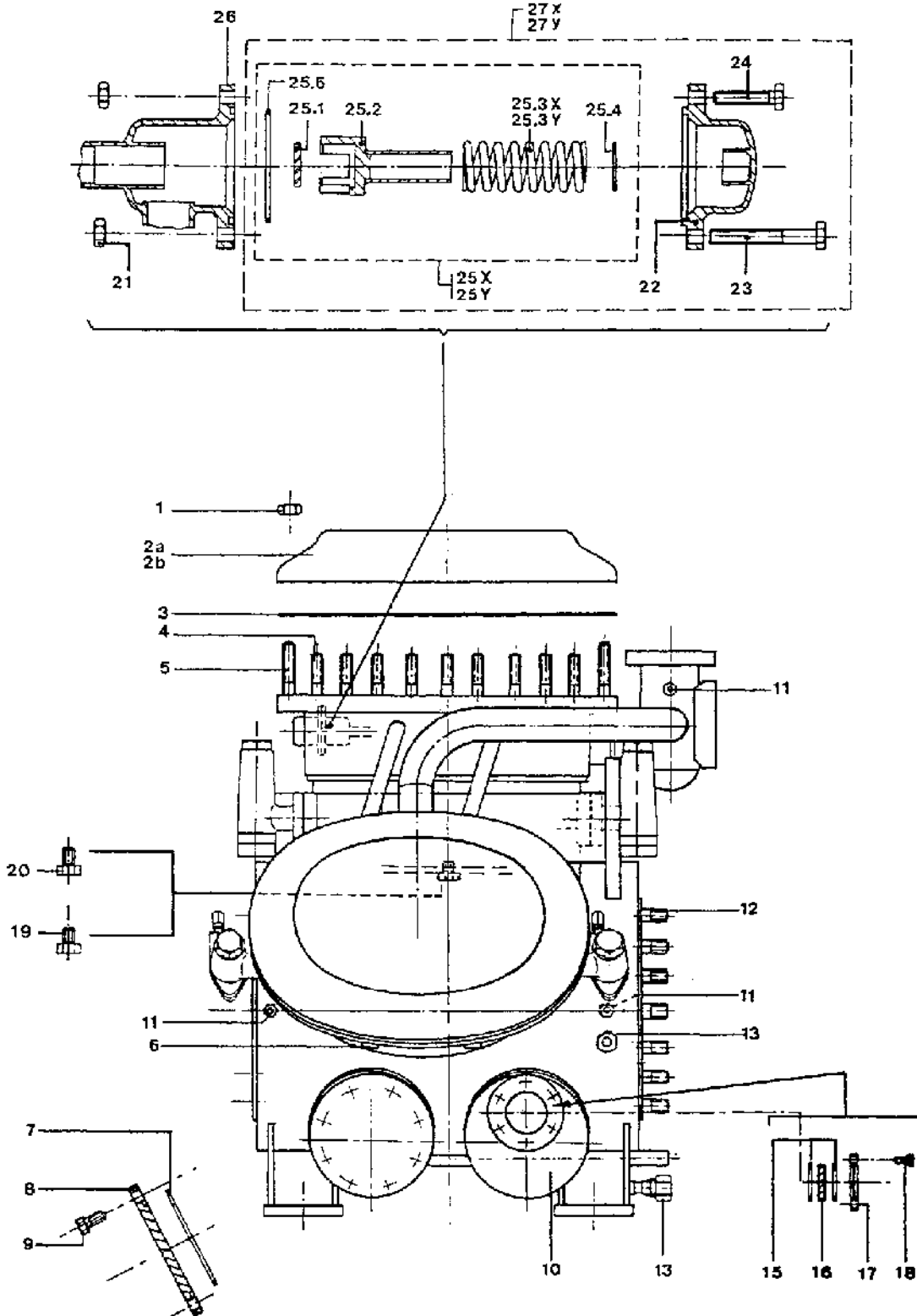


Fig. 1-1 RC9-01

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-02 BEARING COVERS					
1	BEARING COVER ASSY	KA85MSB	*	1	oil pump side
1.1	BEARING COVER	KA85M	2114921	1	
1.2	CYLINDRICAL PIN	4x12	1106412	1	
1.3	BEARING BUSH	65x72x65	1146766	1	
1.4	STUD	M12x138	0151617	6	
2	BEARING COVER ASSY	KA85M SUB A	*	1	drive side: from compr. serial nr. 97011830
2.1	BEARING COVER	B KA85	2114931	1	from compr. serial nr. 97011830
2.2	DOWEL PIN	4x8	1106408	1	from compr. serial nr. 97011830
2.3	BEARING BUSH	65x72x62	1146767	1	from compr. serial nr. 97011830
2.4	STUD	M12x35	0151635	6	from compr. serial nr. 97011830
2.5	BRONZE THRUST RING	72x102x15	1168172	1	from compr. serial nr. 97011830
2.6	STEEL THRUST RING	71x109x1	1168171	1	from compr. serial nr. 97011830
3a	OILIT SEALING RING	242x258x1	0902242	2	1 mm thick
3b	OILIT SEALING RING	242x258x1.5	0903242	2	1.5 mm thick
4	HEXAGON NUT	M16	0115810	32	

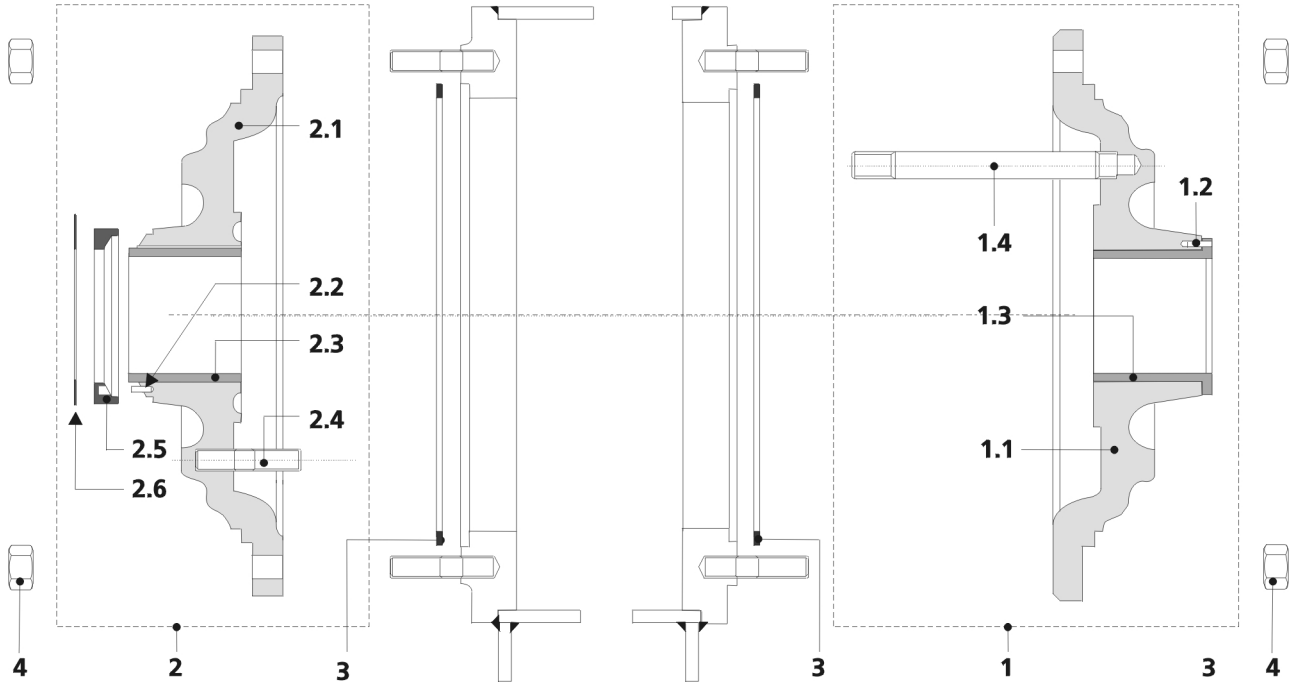


Fig. 1-2 RC9-02

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-03 CRANKSHAFT					
1.1	CRANKSHAFT	E/K-RC9	*	1	
1.2	DOWEL PIN	4x8	1106408	1	
1.3	CARRIER DISC	57x9	1125009	1	
1.4	LOCKING BOLT	M6X16	0165316	4	
1.5	SPACER ASSEMBLY	65x130x36A	1112966	1	for 3-cyl. compressors only!
1.6	DOWEL PIN	6x12	1106612	2	
1.5.1	FITTED BOLT	M10x12x25	0124501	2	for 3-cyl. compressors only!
1.5.2	SPACER ASSY	65x130	*	1	for 3-cyl. compressors only!
1.5.3	LOCKING NUT (ZINC PLATED)	M10	0145500	2	for 3-cyl. compressors only!
1A.a	CRANKSHAFT	E-KA20	2215202	1	2-cyl. compressor
1A.b	CRANKSHAFT	K-KA20	2215212	1	
1B.a	CRANKSHAFT	E-KA40	2215402	1	3 and 4 cyl. compressor
1B.b	CRANKSHAFT	K-KA40	2215412	1	
1C.a	CRANKSHAFT	E-KA60	2215602	1	6-cyl. compressor
1C.b	CRANKSHAFT	E-KA60	2215612	1	
2	KEY	16x10x56	1102656	1	to be supplied with flywheel or flexible coupling
3	HUB FIXING	M16x82	1915882	1	to be supplied with flywheel or flexible coupling
4	LOCKING PLATE	M16xM8	1114848	1	to be supplied with flywheel or flexible coupling
5	FLAT WASHER	M8	1113401	4	to be supplied with flywheel or flexible coupling
6	HEXAGON HEAD BOLT	M8x30	0110430	4	to be supplied with flywheel or flexible coupling

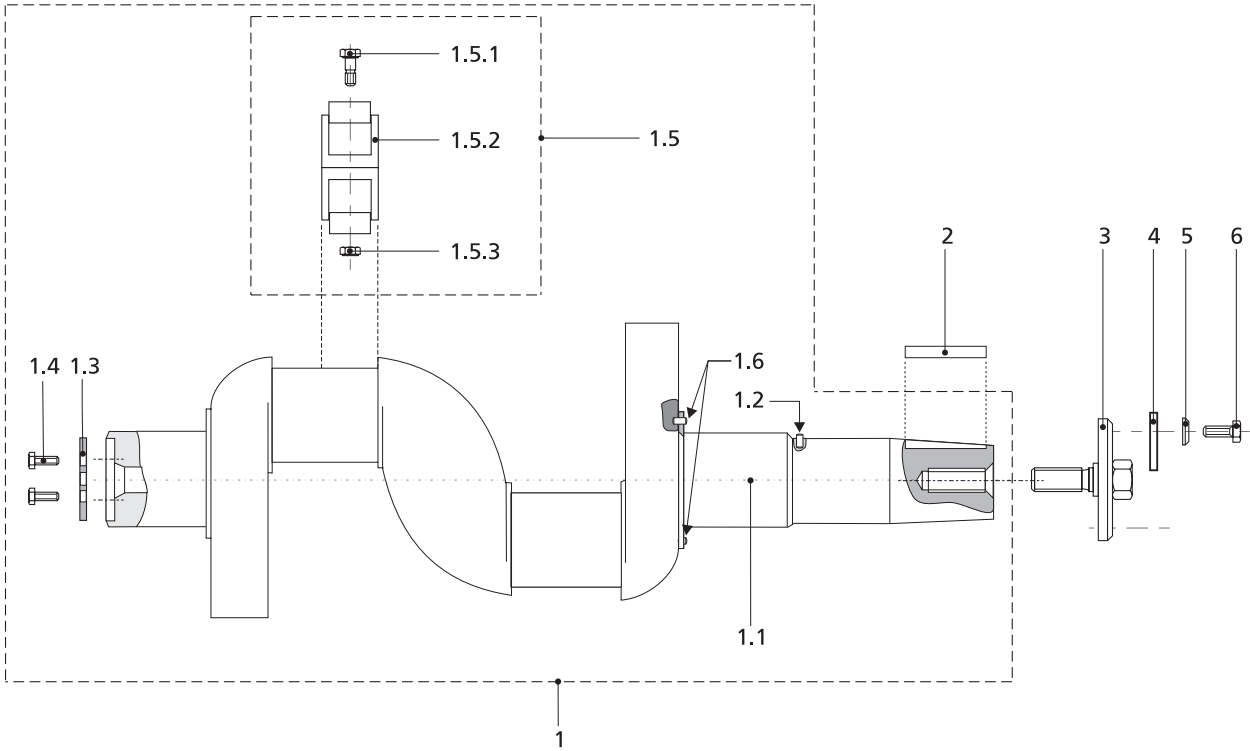


Fig. 1-3 RC9-03

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-04 PISTON AND CONNECTING ROD					
1	PISTON ASSY	S110x40x110F A85	2406000	1	
1.1	GUDGEON PIN	28x40x90RC9	2420300	1	
1.2	PISTON		*	1	
1.3	SET OF PISTON RINGS	110KA85	0974114	1	
1.4	LOCKING RING	40	1104040	1	
2.1a	BEARING BUSH	40x46x38	1146440	1	in single stage compressors and in LP-cyl. of two-stage compressors
2.1b	NEEDLE BEARING	RNA 69/32	1163452	1	in HP-cyl. of two-stage compr. only
2.2a	CONNECTING ROD	E70x210KA85	*	1	in single stage compressors and in LP-cyl. of two-stage compressors
2.2b	CONNECTING ROD	70x210RC9 HD	*	1	in HP-cyl. of two-stage compr. only
2.3	BEARING SHELL	65x30	1144365	1	
2.4	CONNECTING ROD BOLT	MF12	0111601	2	
2.5	LOCKING RING SET	13-ST-G.V.	1139600	2	
2.6	HEXAGON NUT	MF12	0147605	2	
2a	CONNECTING ROD	S65x210KA85	2406500	1	in single stage compressors and in LP-cyl. of two-stage compressors
2b	CONNECTING ROD	65x210RC9HD	2421550	1	in HP-cyl. of two-stage compr. only

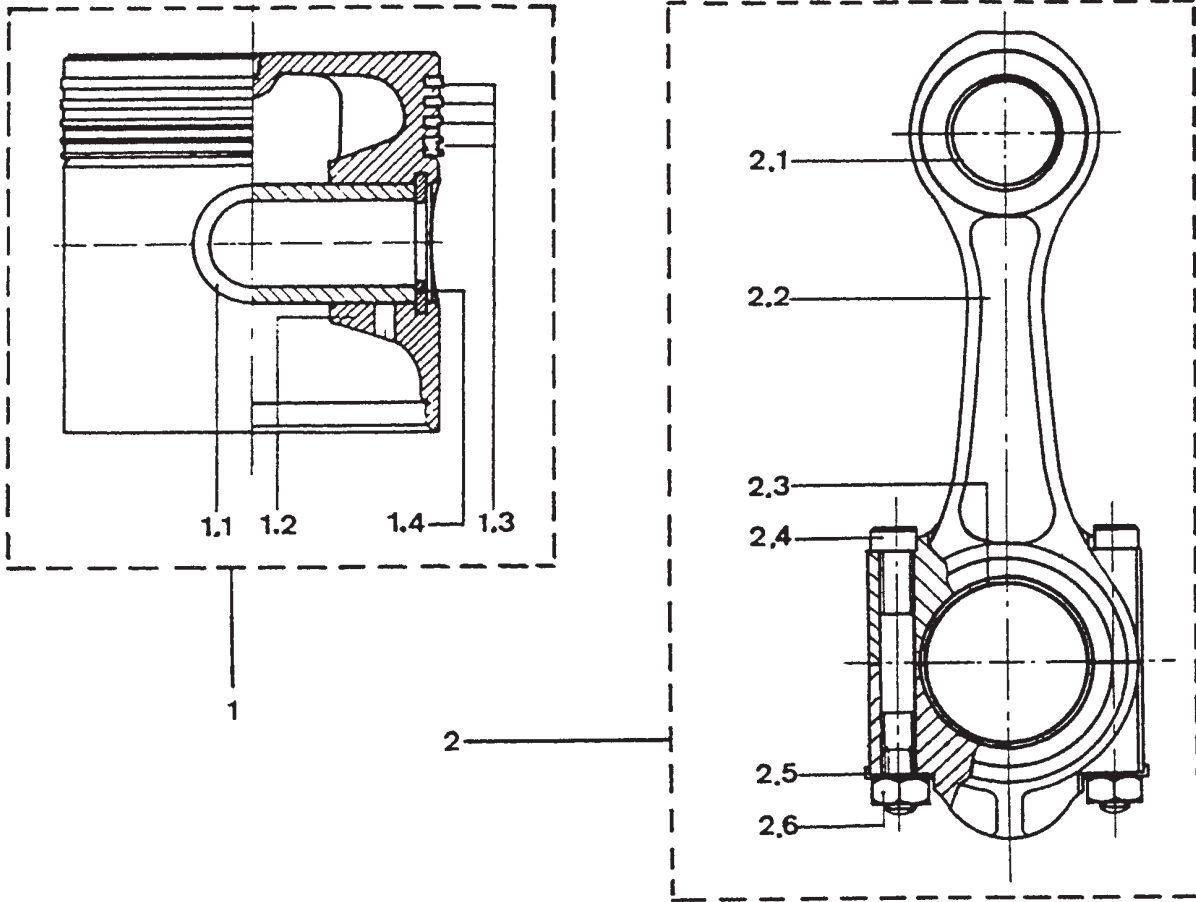


Fig. 1-4 RC9-04

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-05 CYLINDER AND VALVE LIFTING MECHANISM					
1	CYLINDER LINER	110FA85	2306000	1	
2	LIFTING BUSH	FA85	2706600	1	
3a	OILIT SEALING RING	150x160x1	0902150	1	1 mm thick
3b	OILIT SEALING RING	150x161.5x1.25	0901150	1	1.25 mm thick
3c	OILIT SEALING RING	150x160x1.5	0903150	1	1.5 mm thick
4	VALVE-LIFTING MECHANISM		*	1	
4.1	PLUG	G33	0136336	1	
4.2	O-RING	3x33	0952300	1	
4.3	PISTON HOUSING VALVE LIFT.	FA55M	2710501	1	with O-ring groove only, this piston housing (Ref. Nr. 2710501) always includes an O-ring with Ref. Nr. 0952367.
4.4	PRESSURE SPRING	3.2x22x9x80	1131322	1	
4.5	CONTROL PISTON		2710520	1	
4.6	SEMI CIRCULAR LEVER	FA85	2710550	1	
4.7	O-RING	3.53x23.4	0952360	1	
4.8	O-RING	3.5x36	0952348	1	
4.9a	GLAND FLANGE	060G13	0538013	1	for 2- and 4-cyl. compressors
4.9b	FLANGE, VALVE LIFTING	KA8560x85A	2714605	1	for 6-cyl. compressors
4.10a	HEXAGON HEAD BOLT	M10x25	0110525	2	for 2- and 4-cyl. compressors
4.10b	SOCKET HEAD SCREW	M10x20	0104520	2	for 6-cyl. compressors
4.11a	NIPPLE COUPLING	6G13	0338136	1	for 2- and 4-cyl. compressors
4.11b	NIPPLE COUPLING	6G10	0338106	1	for 6-cyl. compressors
5a	GASKET	20x58x1.5	0907020	1	for housing (4.3) with gasket recess
5b	O-RING	3.5x36	0952367	1	for housing (4.3) with O-ring groove
6	STUD	M8x22	0151422	4	
7	FLAT WASHER	M8	1113401	4	
8	HEXAGON NUT	M8	0115410	1	

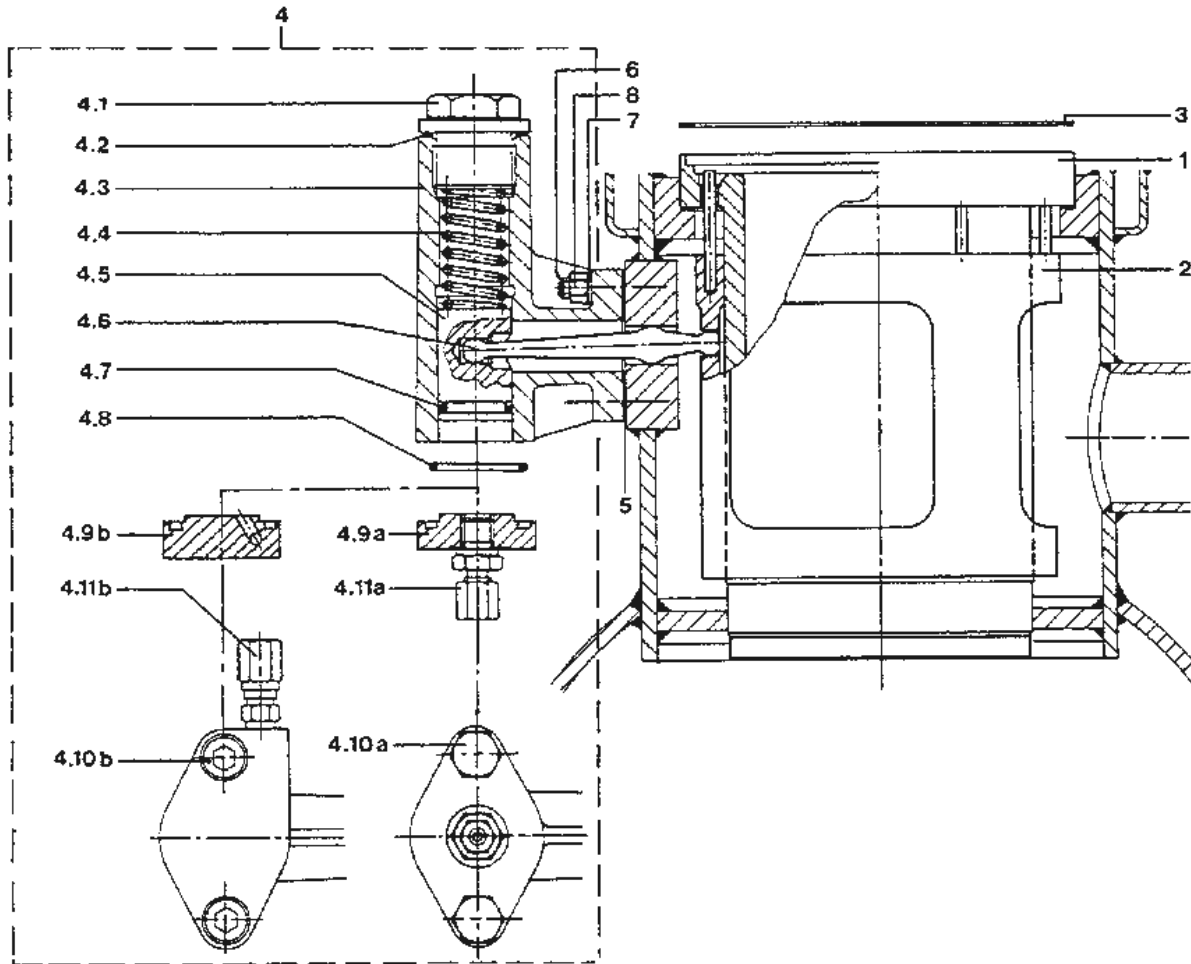


Fig. 1-5 RC9-05

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-06 SUCTION AND DISCHARGE VALVE					
1	PRESSURE SPRING	18x111x3x11 8	1131183	1	
2a	DISCHARGE VALVE ASSY	RC9A	2721101	1	for all refrigerants except R502/R404A/R507
2b	DISCHARGE VALVE ASSY	RC9-R502	2721111	1	for refrigerants R502/R404A/R507 only
2.1a	SOCKET HEAD SCREW	M6x25	0104325	2	
2.1b	FITTED BOLT	M6x74	0124862	1	
2.2a	STROKE LIMITOR	RC9	2720350	1	
2.2b	LOCKING NUT	M16	0145800	1	
2.3a	SINUSOIDAL SPRING	90x115	*	4	use complete spring set
2.3b	STROKE LIMITOR	RC9-R502	2720360	1	
2.4a	DISCHARGE VALVE RING	90x115x1	*	1	
2.4b	SINUSOIDAL SPRING	90x115	*	3	R502/R404A/R507
2.5a	VALVE SEAT	RC9B	*	1	
2.5b	DISCHARGE VALVE RING	90x115x1	*	1	
2.6b	VALVE SEAT	RC9-R502	2720111	1	
3	SINUSOIDAL SPRING	121x150	*	1	
4	SUCTION VALVE RING	121x150x1	*	1	
5	DISCHARGE RING & SPRING SET		1134850	1	one set per cylinder, use only 3 of 4 springs of set
6	SUCTION RING & SPRING SET		1134852	1	one set per cylinder (for item 2a only)

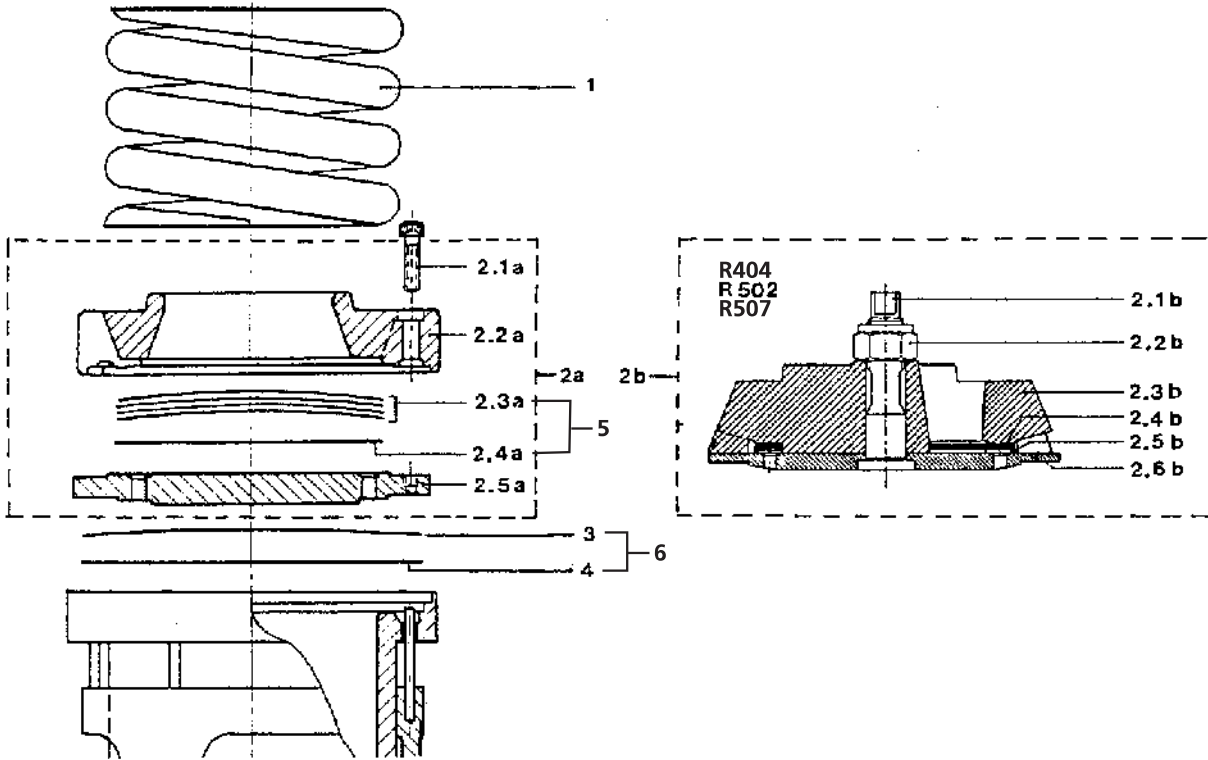


Fig. 1-6 RC9-06

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-07 ROTARY SHAFT SEAL					
1a	SHAFT SEAL HOUSING	RC9	2606211	1	from compressor serial nr. 92061500
1b	SHAFT SEAL HOUSING	RC9	2606210	1	from compressor serial nr. 89011000
2	ALU.SEALING RING	17x21x1	0912016	1	
3	NIPPLE COUPLING	12G17	0338171	1	
4	HEXAGON NUT	M12	0115610	6	
5	SHAFT SEAL SET	060-B, incl. o-ring	0962910	1	from compr. serial nr. 88112400
5.1	SLIP RING ASSEMBLY		*	1	from compr. serial nr. 88112400
5.2	COUNTER SLIP RING ASSEMBLY		*	1	from compr. serial nr. 88112400
5.1.1	O-RING	3.53x59.72	0952359	1	from compr. serial nr. 88112400
5.2.1	O-RING	3.53x69.44	0952318	1	from compr. serial nr. 88112400
6	O-RING	5.33x133.4	0952540	1	
7	PLUG	G21	0136216	1	
8	NIPPLE COUPLING	16G21	0338212	1	from compr. serial nr. 92061500
9	WELDED BEND	12x1.5	0402212	1	

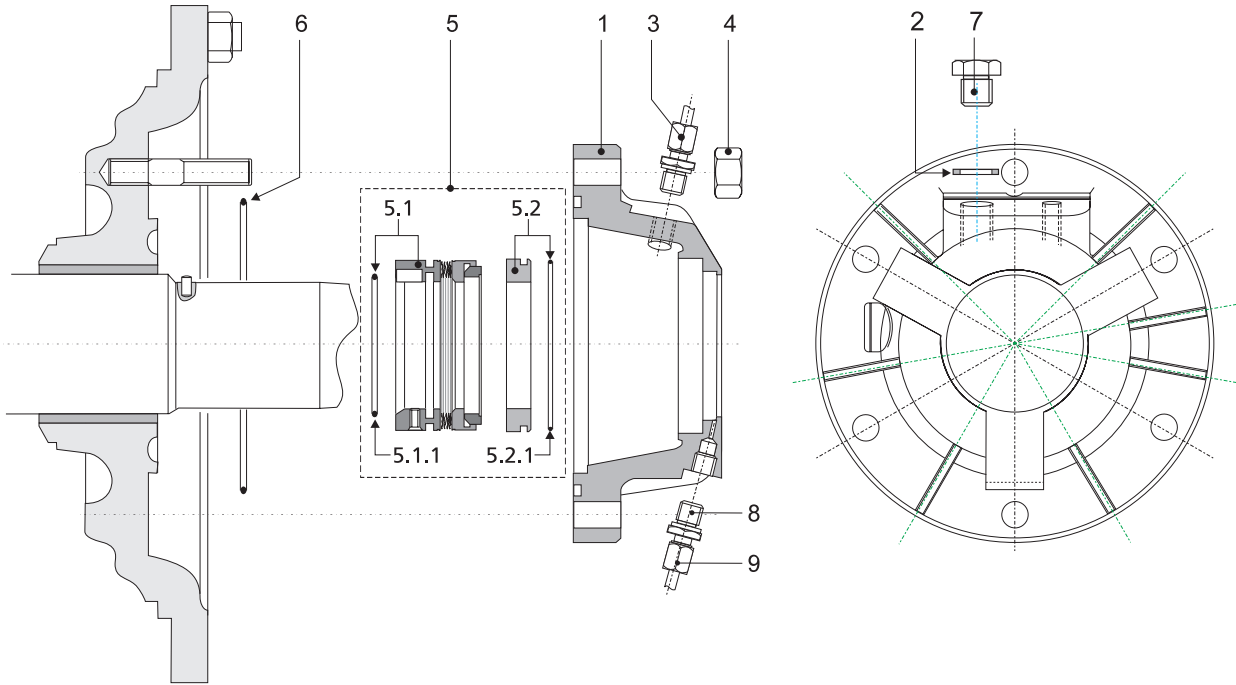


Fig. 1-7 RC9-07

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-08 OIL PUMP					
1	GEAR PUMP	RC9	1810150	1	
1.1	PUMP HOUSING	KA85M	2614501	1	
1.2	GEAR WHEEL	2x17G18	1937467	2	obtainable as set only
1.3	GEAR WHEEL	2x17D18	1937417	1	obtainable as set only
1.4	BEARING BUSH	18x24x61	1146718	1	
1.5	BEARING BUSH		1146418	2	
1.6	O-RING	5.33x133.4	0952540	2	
1.7	PUMP, SPACER PLATE	KA85	2614700	1	
1.8	PUMP COVER	KA85	2614600	1	
1.9	VALVE PLUNGER	10K110M	2616801	1	
1.10	PISTON ASSY	30K110	2617830	1	
1.11	PRESSURE SPRING	1.1x15x15x97	1131117	1	
1.12a	ALU.SEALING RING	34x44x1	0912034	1	
1.12b	O-RING	3x33	0952300	1	
1.13	PLUG	G33	0136336	1	
1.14	ALU SEALING RING	13.5x20x1	0912014	1	
1.15	NIPPLE COUPLING	6G13	0338136	1	
1.16	T-COUPLING	E6x6x6	0340306	1	
1.17	DOWEL PIN	6x12	1106612	1	
1.18	BEAMING BALL	W10	1119006	1	
1.19	PRESSURE SPRING	1.25x9.5x9.5x36	1131137	1	
1.20	PLUG	G13x19	0136140	1	
1.21	HEXAGON HEAD BOLT	M6x35	0110335	2	
1.22	SPRING SEAT		1106811	1	
2	HEXAGON NUT	M12	0115610	6	
3	O-RING	5.33x133.4	0952540	1	
4	FLAT WASHER	M12	1113601	6	

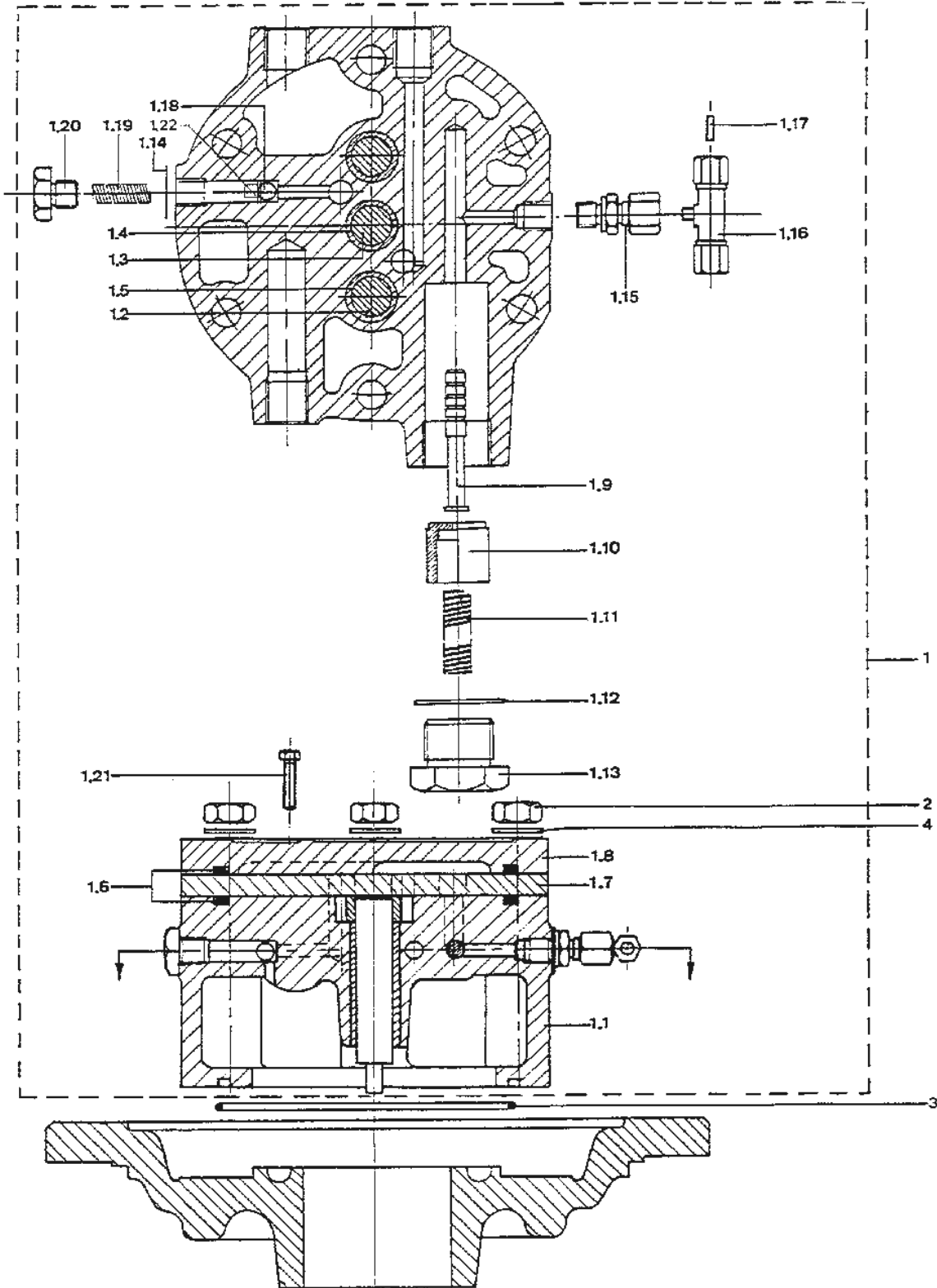


Fig. 1-8 RC9-08

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-09 OIL FILTERS (from serial nr. 95021100)					
1X	OILFILTER HOUSING	RC9	0715909	1	EX 4405624 on compr. types RC29/49/219
1Y	OILFILTER HOUSING	RC9	0715969	1	EX 4405629 on compr. types RC69/219
1.1	FILTER UPPER HOUSING ASSY		*	1	
1.2	SWIVEL COUPLING	16G21	0339216	1	
1.3	STEEL PRECISION PIPE	16x2	*	-	form one welded piece
1.4	WELDABLE NIPPLE	G21L	*	1	form one welded piece
1.5	UNION NUT	G21R	*	1	form one welded piece
1.6	PIPE END	G21	*	-	
1.7	ALU SEALING RING	10x18x1	0912010	2	
1.8	UNION SOCKET	G21RxG21L	0329921	1	
1.9	STOP VALVE	TAH8	0607013	1	
1.10	CAP NUT	GK21R	0117021	1	
1.11	STEEL PRECISION PIPE	16x2	*	-	
1.12	NIPPLE COUPLING	16G21	0338212	1	
1.13	PLUG	G21	0136216	2	
1.14	ALU SEALING RING	21x27x2	0914023	2	
1.15	SET OF SEALS		0990030	1	
1.16	SUCTION OIL FILTER SET (BLUE MARKED)	24	2038128	1	
1.17	FILTER CUP	25	*	1	
1.18	SPRING		*	1	
1.19	RING NUT		*	1	
2	OIL FILTER HOUSING	RC9	0715809	1	
2.1	FILTER UPPER HOUSING ASSY		*	1	
2.2	SWIVEL COUPLING	16G21	0339216	1	
2.3	STEEL PRECISION PIPE	16x2	*	-	
2.4	NIPPLE COUPLING	16G21	0338212	3	
2.5	PLUG	G21	0136216	2	
2.6	ALU SEALING RING	21x27x2	0914023	3	
2.7	SET OF SEALS		0990030	1	
2.8	DISCHARGE OIL FILTER SET (GREY MARKED)	24	2038124	1	incl. sealing rings
2.9	FILTER CUP	25	*	1	
2.10	SPRING		*	1	
2.11	RING NUT		*	1	
2.12	STEEL PRECISION PIPE	16x2	*	-	
3	ALU SEALING RING	10x18x1	0912010	1	
4	ALU SEALING RING	21x27x2	0914023	3	

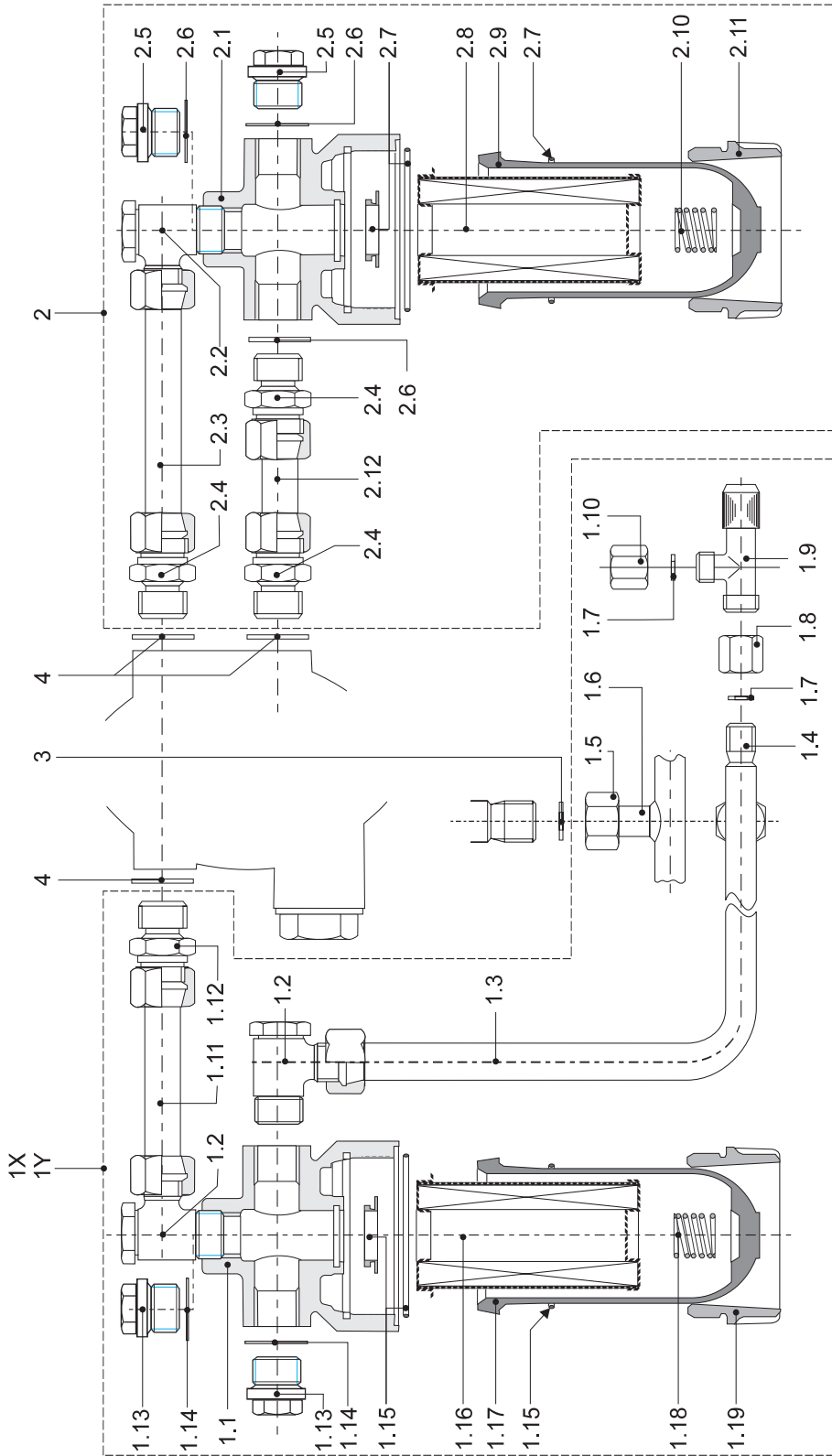


Fig. 1-9 RC9-09

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-10 OIL RETURN LINES					
1a	OIL RETURN LINE	G21x360	4405924	1	for 2-cyl. compressor
1b	OIL RETURN LINE	G21x400	4405945	1	for 3- and 4-cyl. compressor, piping has to be adapted for shaft seal covers mounted on compressors with serial nrs up to 89011000
1c	OIL RETURN LINE	G21x440	4405964	1	for 6-cyl. compressors
1.1	VALVE HOUSING	H9K	*	1	
1.2	ALU SEALING RING	21.5x27x1	0912022	1	
1.3	BEAMING BALL	W16	1119010	1	
1.4	PRESSURE SPRING	1.25x14x9x35 .5	1131134	1	
1.5	THRUST BOLT	G21x60S	0135218	1	
1.6	O-RING	1.78x8.73	0952184	1	
1.7	NIPPLE	G21CxG21	0304921	1	
1.8	ALU SEALING RING	10x18x1	0912010	1	
1.9	CAP NUT	GK21R	0117021	1	
1.10	WELDABLE COUPLING	6x11	0335006	1	
2	NIPPLE COUPLING	16G21	0338212	1	
3	WELDABLE COUPLING	6x11	0335006	1	

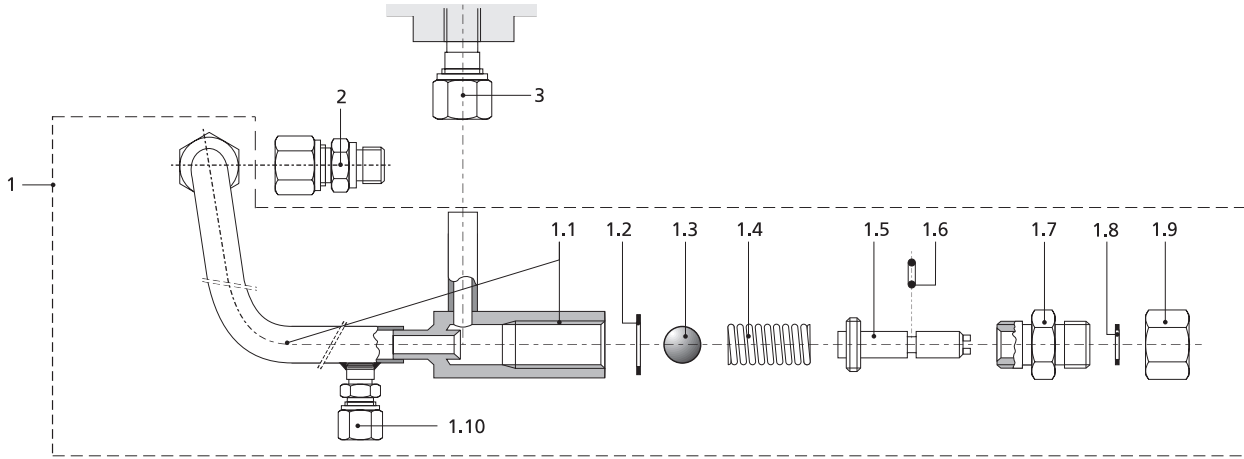


Fig. 1-10 RC9-10

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-11 SUCTION GAS STRAINER					
1	SUCTION STRAINER HOUSING		*	1	
2a	HEXAGON HEAD BOLT	M16x60	0110860	8	RC29/49/219
2b	HEXAGON HEAD BOLT	M20x70	0110170	8	RC69/429
3a	BLIND FLANGE	89B	0514089	1	RC29/49/219
3b	BLIND FLANGE	108B	0514108	2	RC69/429
4a	GASKET	98x112x1.5	0903098	2	RC29/49/219
4b	GASKET	117x131x1.5	0903117	2	RC69/429
5a	HEXAGON NUT	M16	0115810	8	RC29/49/219
5b	HEXAGON NUT	M20	0115110	8	RC69/429
6	WELDABLE COUPLING	6x11	0335006	-	
8	WELDING FLANGE	89-60	0502261	1	RC29/49/219
9a	STRAINER ELEMENT	360x110	0716360	1	RC29
9ba	STRAINER ELEMENT	600x110	0716600	1	RC49/219
9bb	STRAINER ELEMENT	600x110	0716600	2	RC69/429

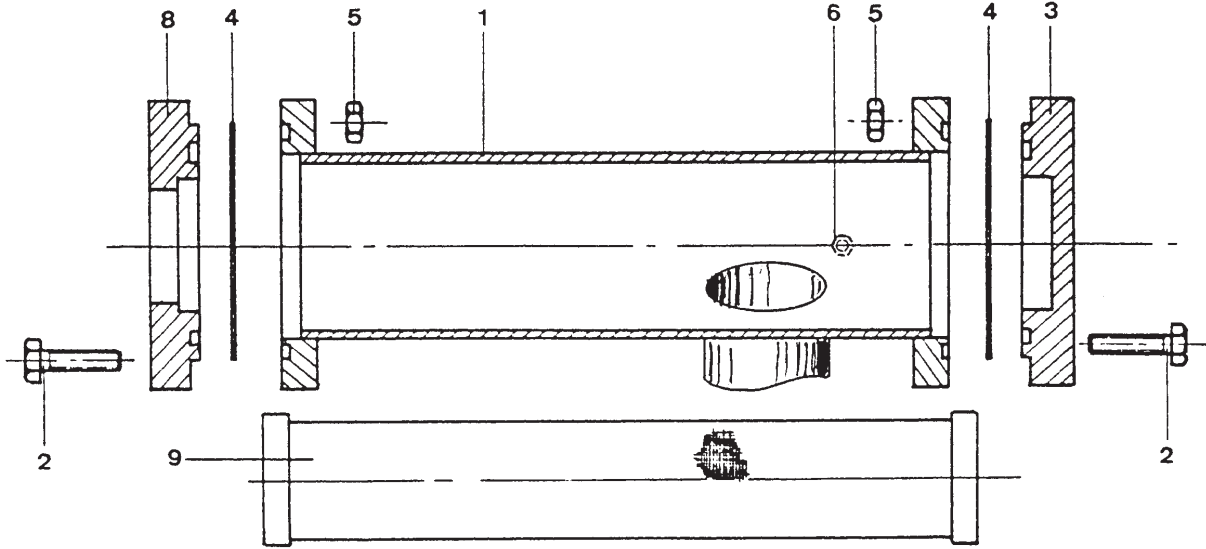


Fig. 1-11 RC9-11

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-12 MAIN FLANGE SEALING RINGS					
1.a	GASKET	98x112x1.5	0903098	1	RC 29/49/219/69
1.b	GASKET	84x98x1.5	0903084	1	RC 429
2.a	GASKET	48x58x1.5	0903048	1	RC 219/429
3.a	GASKET	48x58x1.5	0903048	1	RC 219
3.b	GASKET	84x98x1.5	0903084	1	RC 429
4.a	GASKET	48x58x1.5	0903048	1	RC 29/219
4.b	GASKET	67x81x1.5	0903067	1	RC 49
4.c	GASKET	84x98x1.5	0903084	1	RC 69/429

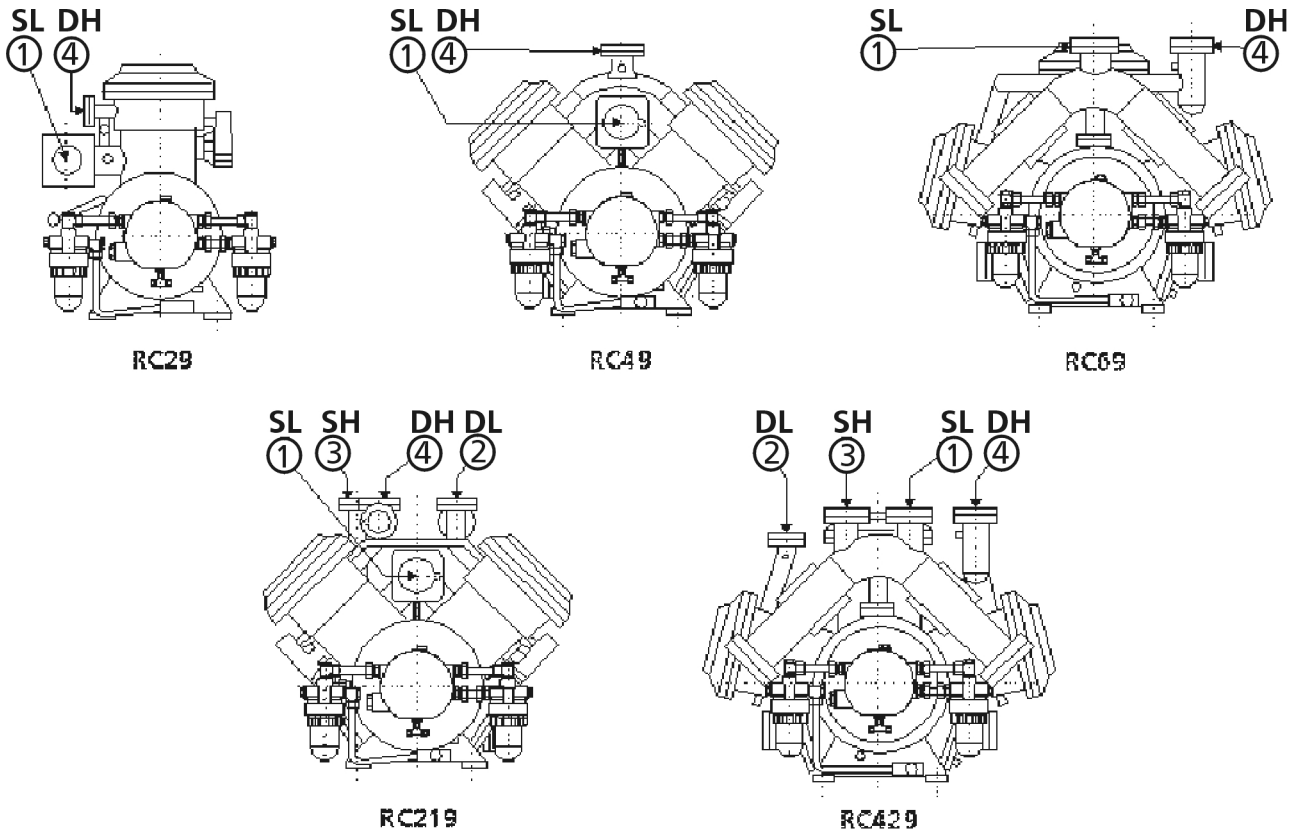


Fig. 1-12 RC9-12

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-13 STANDARD SETS OF PARTS, SEALS AND TOOLS					
1	SET OF TOOLS		2020010	1	
2a	SET OF SPARE PARTS		2020022	1	
2b	SET OF ADD. SPARE PARTS		2020031	-	one set for RC219/49, two for RC429/69
3a	GASKETS (BASIC SET)		0990007	1	
3b	GASKETS (ADDITIONAL SET)		0990008	-	RC29 (one set), RC219/49 (two sets), RC429/69 (three sets)

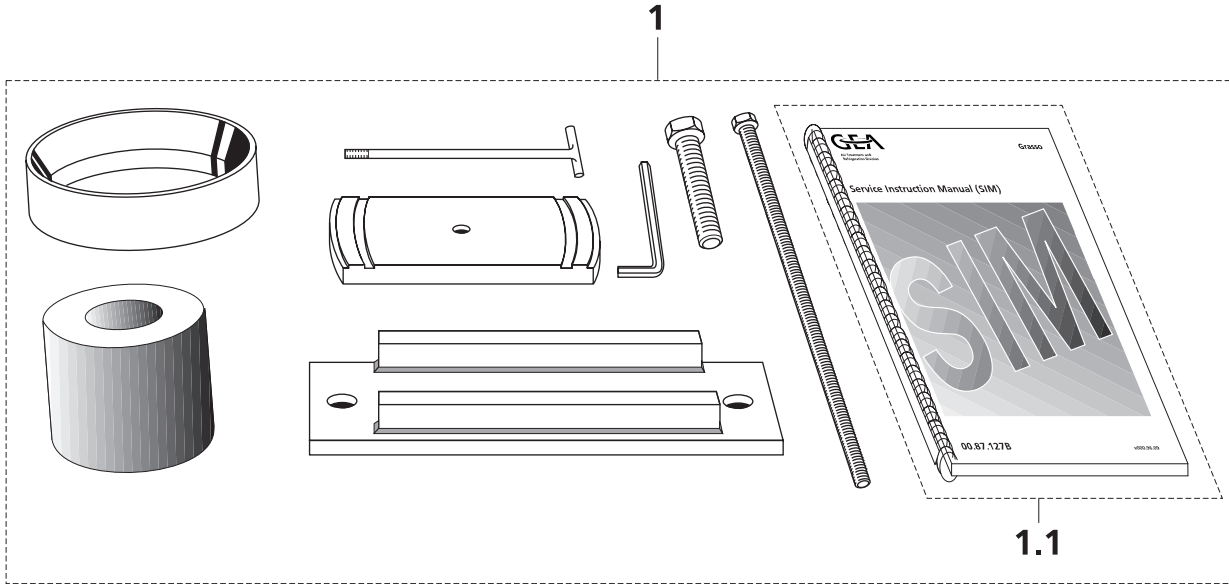


Fig. 1-13 RC9-13

2. PARTS ACCESSORIES

Table of Contents

Parts List	Page	Figure
MANUALLY OPERATED CAPACITY CONTROL	38	RC9-A1
ELECTRICALLY OPERATED CAPACITY CONTROL	40	RC9-A2
PRESSURE GAUGE PANEL	42	RC9-A3
STANDARD SAFETY SWITCH PANEL	44	RC9-A4
ELASTIC COUPLING (available since April 1989)	46	RC9-A5
PARTS FOR CLAMP COUPLINGS	48	RC9-A6

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-A1 MANUALLY OPERATED CAPACITY CONTROL					
1	MANUALLY CAPACITY CONTROL	6x6G13	1273114	1	
1.1	DISTRIBUTOR HOUSING	R6x613	*	1	
1.2	PLUG	G13	0136136	1	
1.3	ALU SEALING RING	13.5x20x1	0912014	-	
1.4	PRESSURE SPRING	0.75x5.2x7.5x 18	1131083	1	
1.5	BEAMING BALL	W6	1119004	1	
1.6	BALL BEARING	6004	*	2	
1.7	DISTRIBUTOR SPINDLE	42x106	*	1	
1.8	O-RING	2.5x10	0952252	2	
1.9	O-RING	3.5x44	0952350	1	
1.10	COVER	90x15	*	1	
1.11	INDICATION PLATE	088	1176088	1	
1.12	BUSH	8x8	4846108	1	
1.13	SOCKET HEAD SCREW	M10x20	0104520	3	
1.14	HAND GRIP	040	0249040	1	
1.15	CYLINDER HEAD SCREW	M4x20	0168220	1	
1.16A	SWIVEL COUPLING	6G13	0339136	-	total quantity: 5
1.16B	PLUG	G13	0136136	-	total quantity: 5
1.17	NIPPLE COUPLING	6G13	0338136	1	
1.18	COUNTERSUNK HEAD SCREW	M5x10	0169910	4	
2	HEX. HEAD BOLT	M8x16	0110416	4	
3	FLAT WASHER	M8	1113401	4	
4	SUPPORT	1180x240	0234824	1	except 6-cyl. compressor

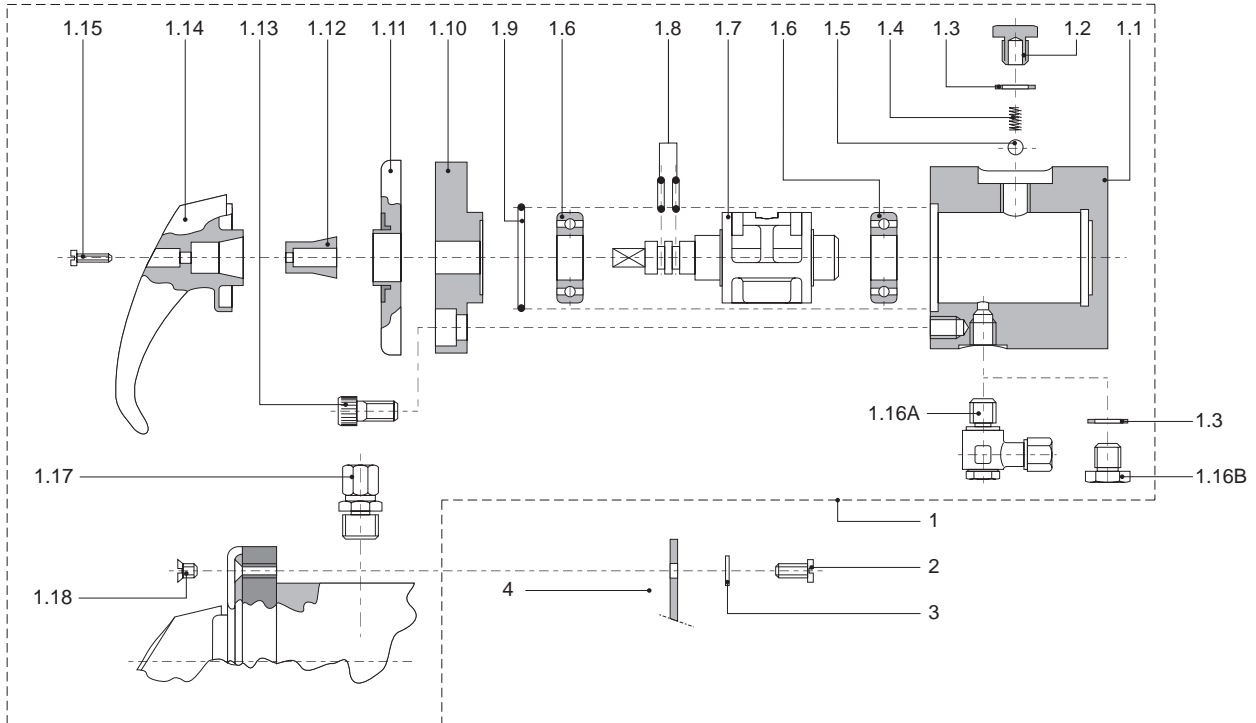


Fig. 2-1 RC9-A1

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-A2 ELECTRICALLY OPERATED CAPACITY CONTROL					
1	SUPPORT	I180x240	0234824	1	
2	SUPPORT	L30x110A	0238313	1	from compr. serial nr. 90112030
3	HEX. HEAD BOLT	M8x16	0110416	2	
4	SERRATED LOCK WASHER	M8	1113403	2	
5	HEXAGON NUT	M8	0115410	2	
6	THREE-WAY SOLENOID VALVE	220HB	0680410	-	from compr. serial nr. 90112030
6.1a	VALVE COIL	110-120/50-60	1316311	-	
6.1b	VALVE COIL	220-240/50-60	1316322	-	
7	SOCKET COUPLING	6G10	0337106	1	quantities per valve
8	ANGLE COUPLING	EV6X6	0352006	(2)	quantities per valve
9	TEE-COUPLING	EV6X6X6	0354006	(2)	quantities per valve
10	NIPPLE COUPLING	6G10	0338106	2	quantities per valve, from compr. serial nr. 90112030
11	SOCKET HEAD SCREW	M5x8	0104208	2	quantities per valve, from compr. serial nr. 90112030
12	HEXAGON NUT	M4	0115211	2	from compr. serial nr. 90112030
13	WASHER	M4	1113201	2	from compr. serial nr. 90112030
14	CYLINDER HEAD SCREW	M4x16	0168216	2	from compr. serial nr. 90112030
15	JUNCTION BOX		*	1	
15.1a	LAMP, BAJONET FITTING	24V	1308624	-	
15.1b	LAMP, BAJONET FITTING	48V	1308648	-	
15.1c	LAMP, BAJONET FITTING	110V	1308610	-	
15.1d	LAMP, BAJONET FITTING	230V	1308620	-	
16a	CONNECTOR	DIN	1316610	1	without LED without LED
16b	CONNECTOR	220/240 V AC, DIN incl. LED	1316611	1	with 220V-AC/DC LED with 220V-AC/DC LED
16c	CONNECTOR	24/48 V AC/DC, DIN incl. LED	1316615	1	with 48V-AC/DC LED with 48V-AC/DC LED

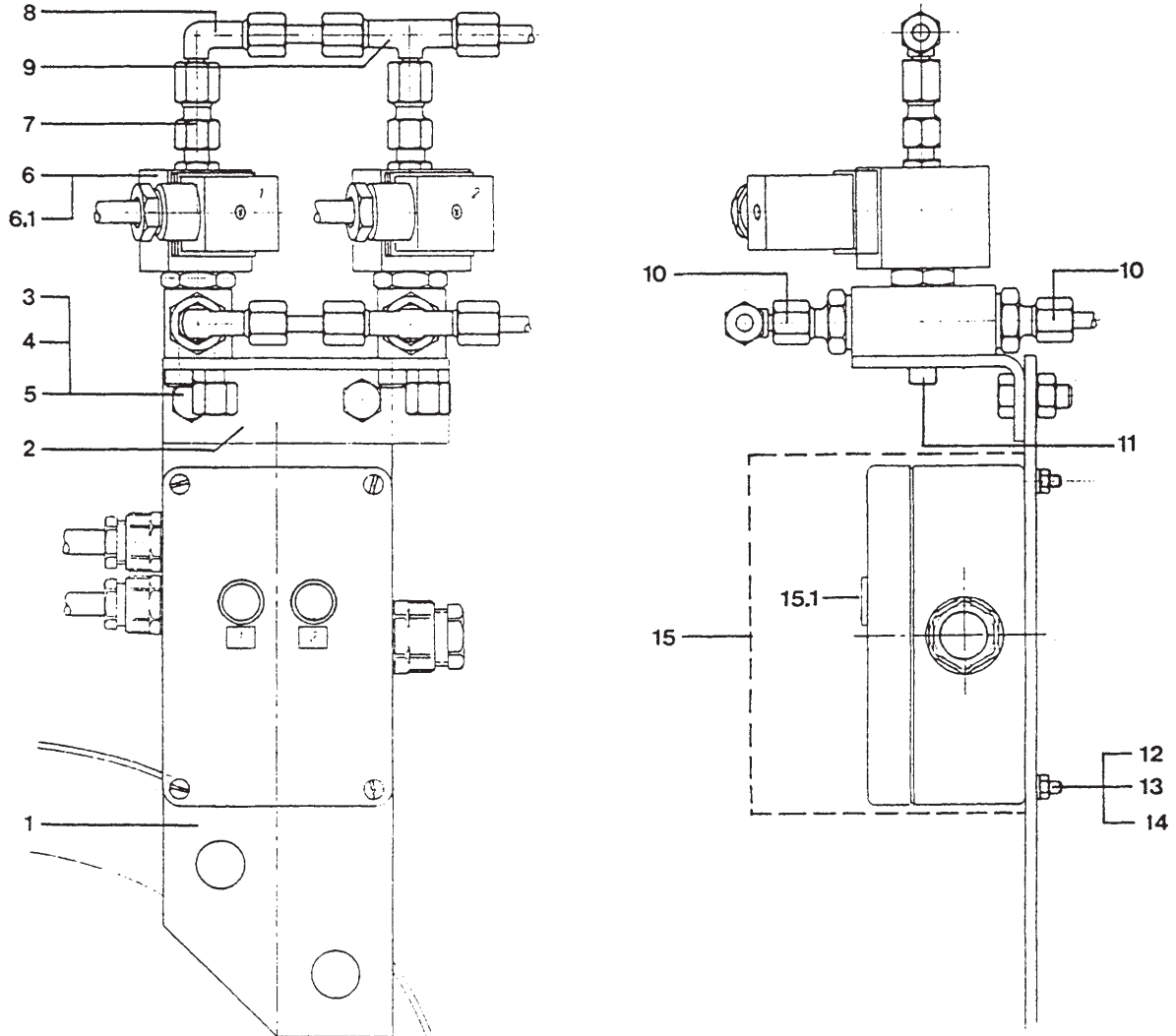


Fig. 2-2 RC9-A2

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-A3 PRESSURE GAUGE PANEL					
1a	PRESSURE GAUGE	NH3-P-100	1210113	1	NH3, single stage and booster
1b	PRESSURE GAUGE	R-P-100	1212113	1	R22, single stage and booster
1c.a	PRESSURE GAUGE	NH3-Z-100	1210114	1	single stage and booster NH3
1c.b	PRESSURE GAUGE	NH3-Z-100	1210114	2	NH3, two-stage and booster
1d.a	PRESSURE GAUGE	R-Z-100	1212116	1	R22, single-stage
1d.b	PRESSURE GAUGE	R-Z-100	1212116	2	R22, two-stage and booster
1e	PRESSURE GAUGE	R-O-100	1215114	2	for NH3 and halocarbons
2	STOP VALVE	TAH4C	0607007	1	quantities per gauge
3	ALU.SEALING RING	6.5x11x1	0912007	1	quantities per gauge
4	UNION SOCKET	G21RxG21L	0329921	1	quantities per gauge
5	HEXAGON NUT	MF12	0147605	1	quantities per gauge
6	CLAMPING SLEEVE	S6	0334106	2	quantities per gauge
7	UNION NUT	MF12x1.5	0351006	2	quantities per gauge
8	HEXAGON NUT (ZINC PLATED)	M10	0115510	2	
9	MOUNTING STRIP		*	1	
10	HEXAGON HEAD BOLT	M10x20	0110520	2	
11	HEXAGON HEAD BOLT	M6x45	0110345	2	
12	FRONT PANEL		*	1	
13	SPACER SLEEVE	13.7x2.2x31	*	2	
14	HEXAGON NUT	M6	0115310	2	

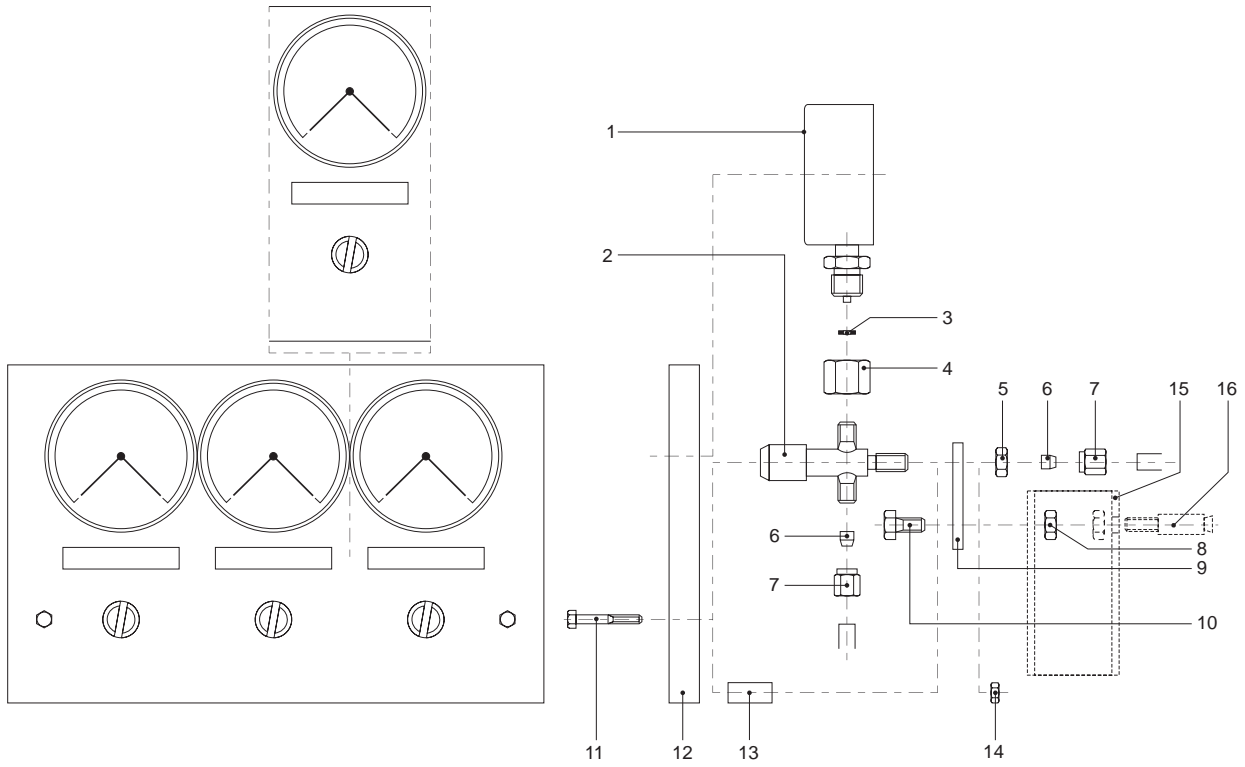


Fig. 2-3 RC9-A3

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-A4 STANDARD SAFETY SWITCH PANEL					
1	PANEL	5x100	*	1	
2	HEX. HEAD BOLT	M10x50	0110550	2	
3	SPACER SLEEVE	17.1x2.3x34	*	2	
4	HEXAGON NUT (ZINC PLATED)	M10	0115510	2	
5	GROMMET	2x12	0924212	2	
6	CYLINDER HEAD SCREW	M4x50	0168250	6	
7	HEXAGON NUT	M4	0115211	6	
8	LOCK WASHER	M4	1113203	6	
9a	PRESSURE SAFETY SWITCH	RT5	1261151	1	
9b	PRESSURE SAFETY SWITCH	RT5A	1260151	1	
10a	PRESSURE SAFETY SWITCH	RT1	1261121	1	
10b	PRESSURE SAFETY SWITCH	RT1A	1260121	1	
11a	PRESSURE SAFETY SWITCH	MP55	1261232	1	
11b	PRESSURE SAFETY SWITCH	MP55A	1260232	1	
11c	PRESSURE SAFETY SWITCH	RT260A	1260240	1	
12	ALU.SEALING RING	8x14.5x1	0912008	4	for NH3
13	SOCKET COUPLING	6G17	0337176	4	for NH3
14	SOCKET NIPPLE	6F6	0337906	4	
15	UNION NUT		*	4	for R12/R22-compressors
16	CLAMPING SLEEVE	S6	0334106	4	for R12/R22-compressors
17	T-COUPLING	S6x6x6	0340006	1	

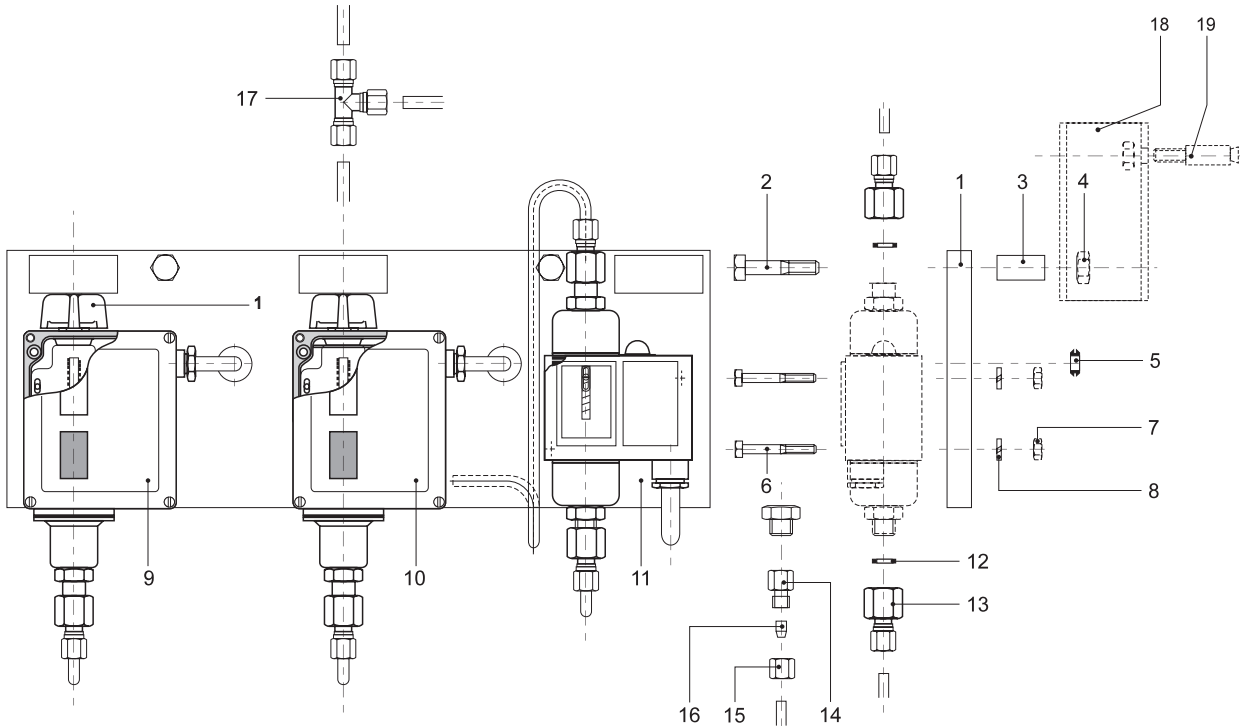


Fig. 2-4 RC9-A4

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-A5 ELASTIC COUPLING (available since April 1989)					
1a	COUPLING	type 42, complete	*	1	Item 1a to 1d: to facilitate mounting, a steel strip is clamped around the coupling element, which must be removed before putting the compressor into operation
1b	COUPLING	type 61, complete	*	1	
1c	COUPLING	type 91, complete	*	1	
1d	COUPLING	type 182, complete	*	1	
1.1a	COUPLING ELEMENT	42	1918842	1	
1.1b	COUPLING ELEMENT	61	1918861	1	
1.1c	COUPLING ELEMENT	91	1918891	1	
1.1d	COUPLING ELEMENT	182	1918818	1	
2	CLAMPING SLEEVE	-	*	1	
3a	TIRE CLAMP	232	1508232	1	for coupling element 42, when ordering this tire clamp always indicate the type number of the elastic coupling
3b	TIRE CLAMP	244	1508244	1	for coupling element 61, when ordering this tire clamp always indicate the type number of the elastic coupling
3c	TIRE CLAMP	280	1508280	1	for coupling element 91, when ordering this tire clamp always indicate the type number of the elastic coupling
3d	TIRE CLAMP	376	1508376	1	for coupling element 182, when ordering this tire clamp always indicate the type number of the elastic coupling
4	HUB FIXING	M16x82	1915882	1	to be supplied with flywheel or flexible coupling
5	LOCKING PLATE	M16xM8	1114848	1	to be supplied with flywheel or flexible coupling
6	FLAT WASHER	M8	1113401	1	to be supplied with flywheel or flexible coupling
7	HEXAGON HEAD BOLT	M8x30	0110430	4	to be supplied with flywheel or flexible coupling

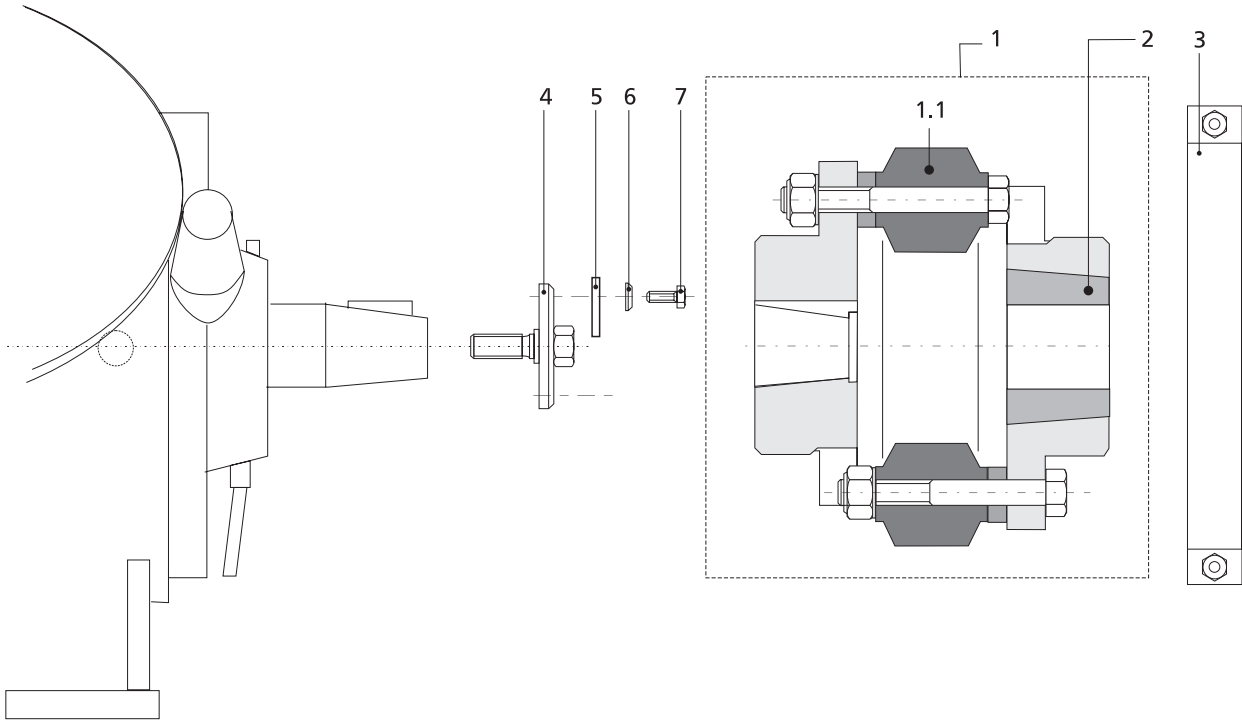


Fig. 2-5 RC9-A5

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-A6 PARTS FOR CLAMP COUPLINGS					
1A	CLAMPING SLEEVE	P6	0334506	-	for couplings: 0337106/176/0338131/136/0339136/0340006/ 0335006
1B	CLAMPING SLEEVE	P16	0334516	-	for couplings: 0335016/0338212
2A.a	UNION NUT	M12x1.5 (DIN 2353)	*	-	for couplings: 0337106/176/0338131/136/0339136/0340006
2A.b	UNION NUT	M14x1.5 (DIN 2353)	*	-	for couplings: 0335006
2B	UNION NUT	M24x1.5 (DIN 2353)	*	-	for couplings: 0335016/0338212
3	CLAMPING SLEEVE	S6	0334106	-	for couplings: 0352006/0354076
4	UNION NUT	MF12x1.5	0351006	-	for couplings: 0352006/0354076

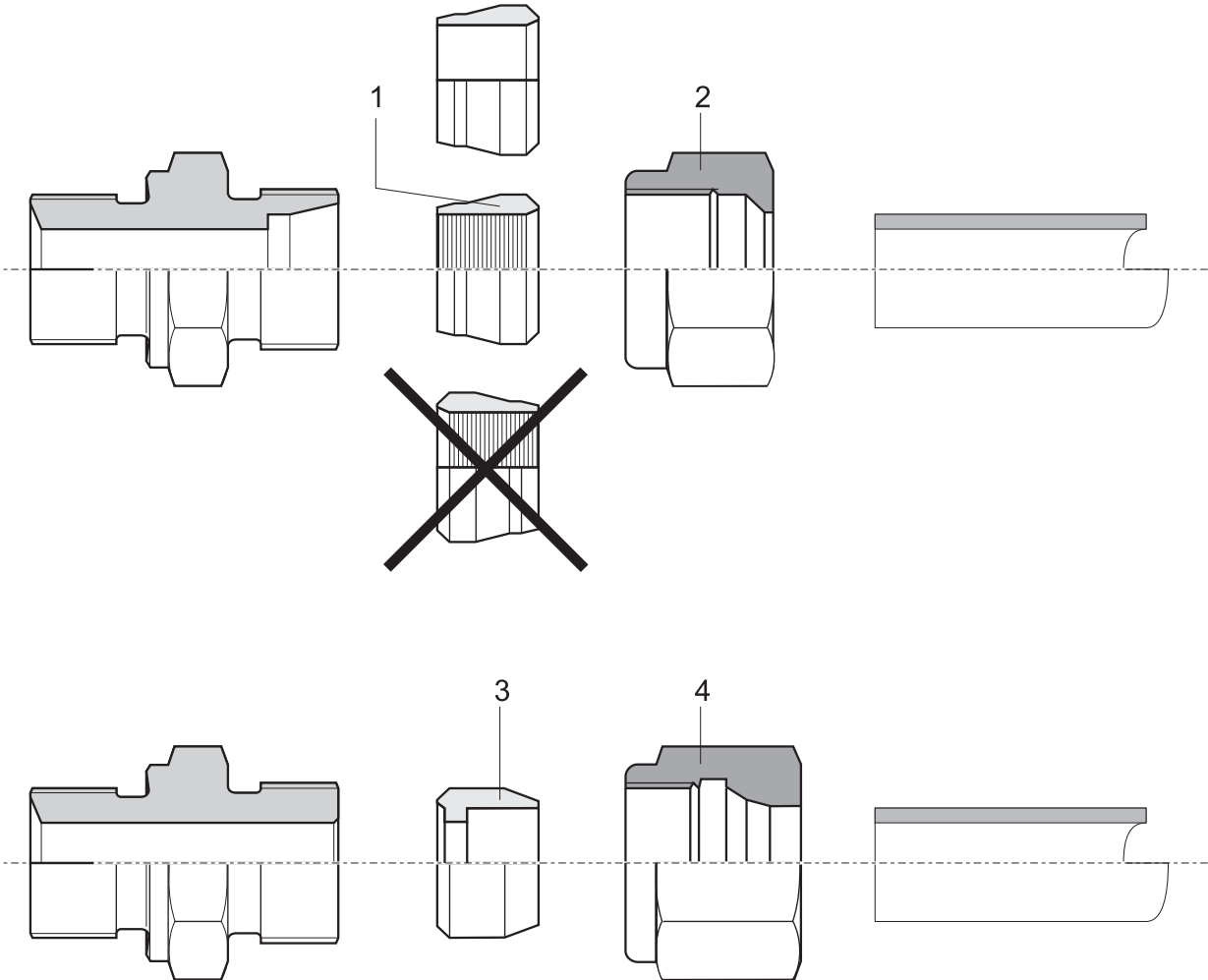


Fig. 2-6 RC9-A6

3. HISTORY PARTS

Table of Contents

Parts List	Page	Figure
OVERFLOW SAFETY VALVE	52	RC9-H1
ROTARY SHAFT SEAL ["A"-0962061/261]["B"-0962062]["C"]	54	RC9-H2
OIL FILTERS	56	RC9-H3a
OIL FILTERS (from serial nr. 83105000 up to 95021100)	58	RC9-H3b
DIRECT DRIVE	62	RC9-H4
ELECTRICALLY OPERATED CAPACITY CONTROL	64	RC9-H5
BEARING COVER	66	RC9-H6

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-H1 OVERFLOW SAFETY VALVE					
22	HOUSING TOP HALF	18-17	*	1	
23a	SOCKET HEAD SCREW	M10x35	0104535	2	on 12 bar-type valve only
23b	SOCKET HEAD SCREW	M10X40	0104540	2	on 22.5 bar-type valve
24	SOCKET HEAD SCREW	M10x25	0104525	4	
25.5	GASKET		0904054	1	

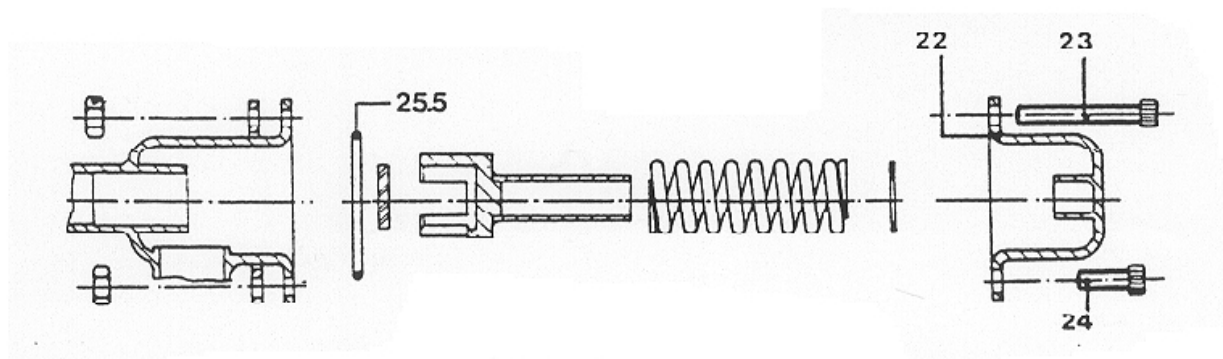


Fig. 3-1 RC9-H1

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-H2 ROTARY SHAFT SEAL ["A"-0962061/261]["B"-0962062]["C"]					
1A	SHAFT SEAL HOUSING		*	1	up to compr. serial nr. 89011000
1B	SHAFT SEAL HOUSING		*	1	up to compr. serial nr. 92061500
2	ALU.SEALING RING	17x21x1	0912016	2	
3	NIPPLE	G17xG21	0304121	1	up to compr. serial nr. 89011000
6	O-RING	5.33x133.4	0952540	1	
7	NIPPLE COUPLING	6G13	0338136	1	
8	PLUG	G17	0136176	1	
9	NIPPLE COUPLING	12G13	0338131	1	
10	WELDED BEND	12x1.5	0402212	1	
A061	ROTARY SHAFT SEAL		*	-	This shaft seal can be replaced by the shaft seal "C"with Ref. nr. 0962165
A261	ROTARY SHAFT SEAL		*	-	This shaft seal can be replaced by the shaft seal "C"with Ref. nr. 0962165
A5.3	O-RING	6x60	0952603	1	
A5.5	O-RING	6.5x67	0952653	1	
B062	ROTARY SHAFT SEAL		*	-	This shaft seal can be replaced by the shaft seal "C"with Ref. nr. 0962165
B5.1.2	O-RING	60x2.62	0952260	1	
B5.2.1	O-RING	PTFE 73x31.5	*	1	
B5.3.4	O-RING	75x2.62	0952275	1	
C5	SHAFT SEAL SET	060B	0962912	-	incl. o-ring - up to serial nr. 88.11.2400
C5.1	SLIP RING ASSEMBLY		*	1	
C5.2	COUNTER SLIP RING ASSEMBLY		*	1	
C5.1.1	O-RING	3.53x59.72	0952359	1	
C5.2.1	O-RING	3.53x69.44	0952318	1	

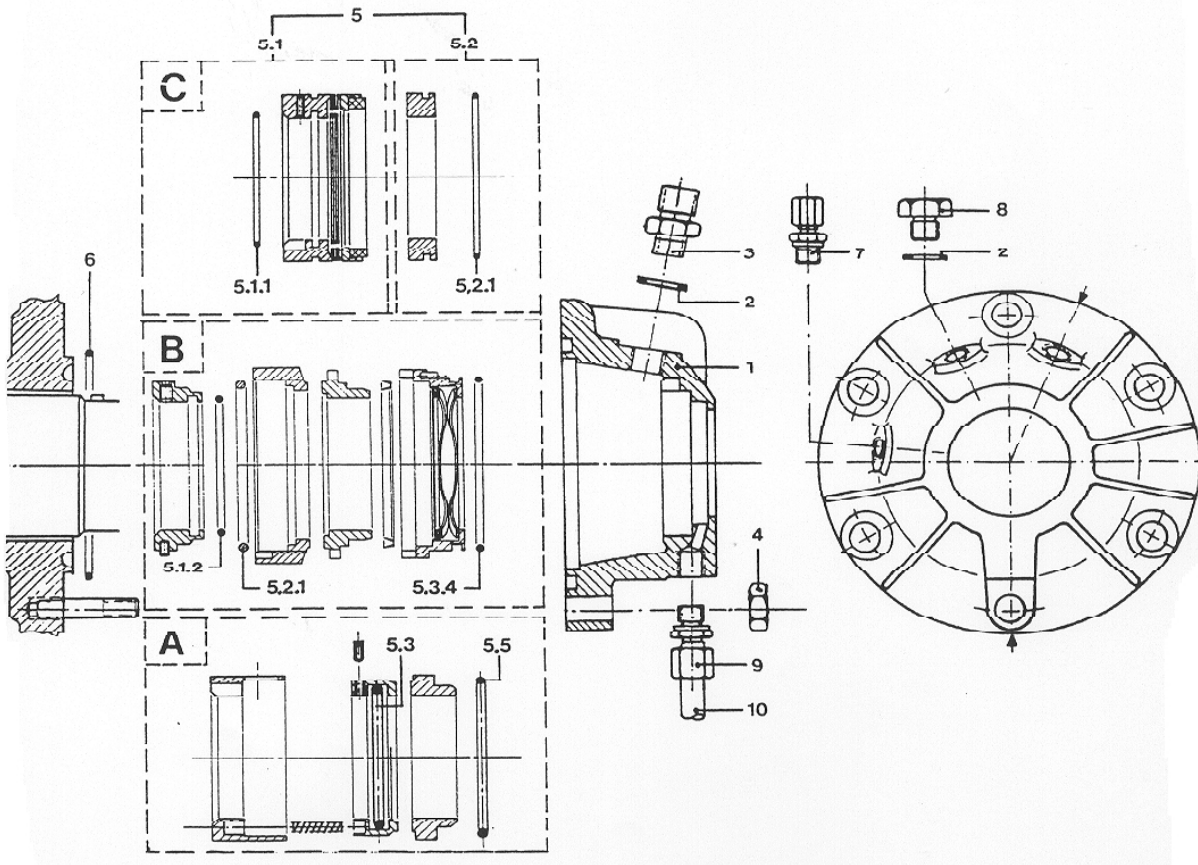


Fig. 3-2 RC9-H2

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-H3a OIL FILTERS					
1.1	HOUSING TOP HALF		*	1	
1.13	SOCKET HEAD SCREW	M10x20	0104520	10	
1.18	GASKET	89x99x2	0904089	1	
1.19	HOUSING BOTTOM HALF		*	1	
1.20	HEXAGON NUT (ZINC PLATED)	M10	0115510	10	
2.1	HOUSING TOP HALF		*	1	
2.6	SOCKET HEAD SCREW	M10x20	0104520	10	
2.7	GASKET	89x99x2	0904089	1	
2.16	HOUSING BOTTOM HALF		*	1	
2.17	HEXAGON NUT (ZINC PLATED)	M10	0115510	10	

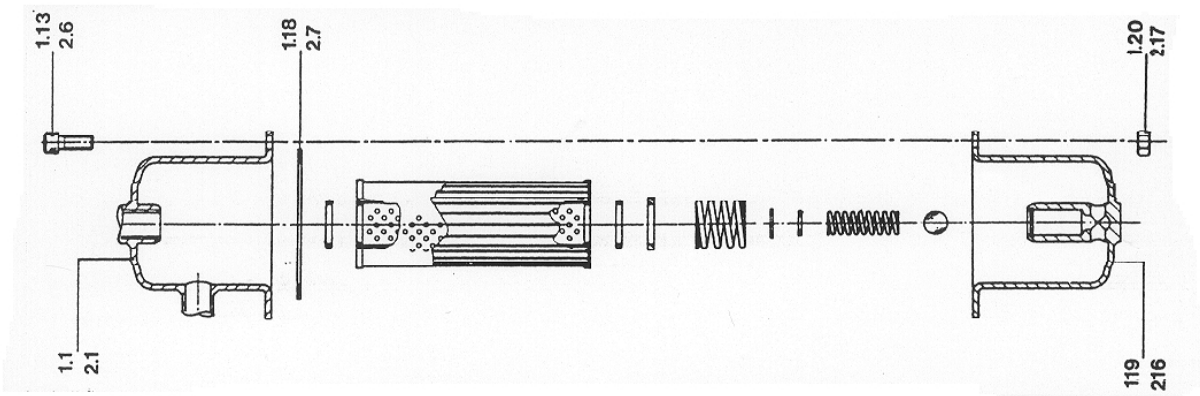


Fig. 3-3 RC9-H3a

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-H3b OIL FILTERS (from serial nr. 83105000 up to 95021100)					
1.1	HOUSING TOP HALF		*	1	form one welded piece, from compr. serial nr. 83015000
1.2	STEEL PRECISION PIPE	16x2	*	-	form one welded piece
1.3	WELDABLE NIPPLE	G21L	*	1	form one welded piece
1.4	UNION NUT	G21R	*	1	form one welded piece
1.5	PIPE END	G21	*	1	form one welded piece
1.6	ALU SEALING RING	10x18x1	0912010	2	
1.7	UNION SOCKET	G21RxG21L	0329921	1	
1.8	STOP VALVE	TAH8	0607013	1	
1.9	CAP NUT	GK21R	0117021	1	
1.10	NIPPLE COUPLING	16G21	0338212	1	
1.11	PLUG	G17	0136176	1	
1.12	ALU.SEALING RING	17x23.5x1	0912017	1	
1.13	HEXAGON HEAD BOLT	M12x45	0110645	6	from compr. serial nr. 83015000
1.14	O-RING	2.65x17.5	0952274	2	
1.15	GAUZE STRAINER ELEMENT	800x600	0716080	1	
1.16	FLAT WASHER	M8	1113921	1	
1.17	PRESSURE SPRING	2.5x24x4.5x2 7.5	1131254	1	
1.18	GASKET	97x107x1.5	0903097	1	from compr. serial nr. 83015000
1.19	LOWER HOUSING HALF	18x46	*	1	from compr. serial nr. 83015000
1.20	HEXAGON NUT	M12	0115610	6	from compr. serial nr. 83015000
1X	OIL SUCTION FILTER ASSEMBLY	200x240	*	1	on compr. types RC29/49/219
1Y	OIL SUCTION FILTER ASSEMBLY	223x240	*	1	on compr. types RC69/429
2	OIL DISCHARGE FILTER SET	16G21x2	*	1	form one welded piece
2.1	HOUSING TOP HALF		*	1	form one welded piece, from compr. serial nr. 83015000
2.2	STEEL PRECISION PIPE	16x2	*	-	form one welded piece
2.3	NIPPLE COUPLING	16G21	0338212	2	
2.4	PLUG	G17	0136176	1	
2.5	ALU.SEALING RING	17x23.5x1	0912017	1	
2.6	HEXAGON HEAD BOLT	M12x45	0110645	6	from compr. serial nr. 83015000
2.7	GASKET	97x107x1.5	0903097	1	from compr. serial nr. 83015000
2.8	O-RING	2.65x17.5	0952274	2	
2.9	FILTER SET	800x15	0711912	1	
2.10	FLAT WASHER	M8	1113921	1	
2.11	PRESSURE SPRING	2.5x24x4.5x2 7.5	1131254	1	
2.12	SNAP RING	13	1104013	1	
2.13	FLAT WASHER	M5x13	1113013	1	
2.14	PRESSURE SPRING	0.8x8x1.5x33	1131084	1	
2.15	BEAMING BALL	W10	1119006	1	
2.16	LOWER HOUSING HALF	18x46	*	1	from compr. serial nr. 83015000

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-H3b OIL FILTERS (from serial nr. 83105000 up to 95021100)					
2.17	HEXAGON NUT	M12	0115610	6	from compr. serial nr. 83015000
3	ALU SEALING RING	10x18x1	0912010	1	
4	O-RING	12x2	0952012	1	from compr. serial nr. 89031300

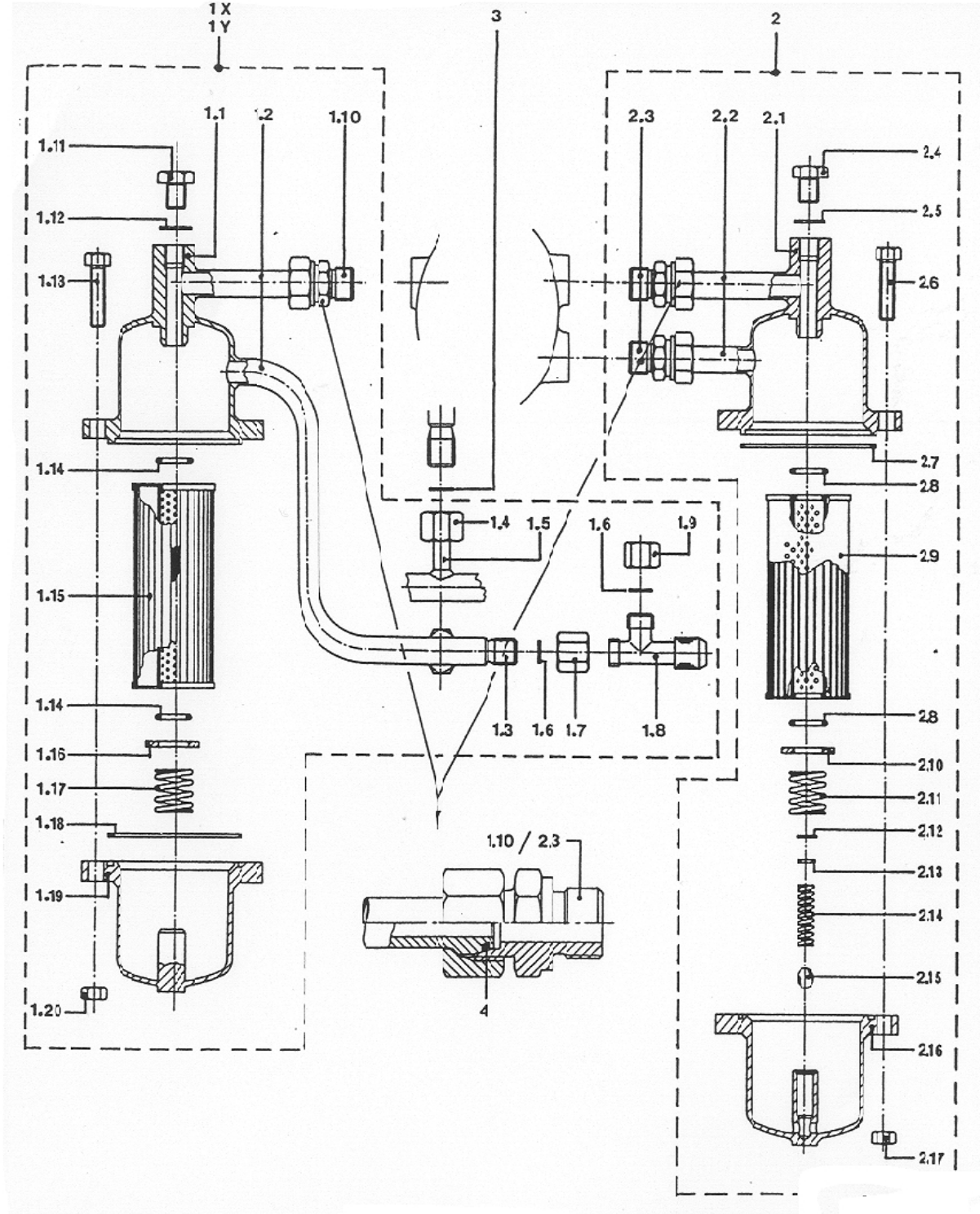


Fig. 3-4 RC9-H3b

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-H4 DIRECT DRIVE					
1a	COUPLING (MACHINED)	18-1	*	1	
1b	COUPLING (MACHINED)	22-1	*	1	
1c	COUPLING (MACHINED)	25-1	*	1	
1d	COUPLING (MACHINED)	26-1	*	1	
1.1a	WAVED BAND	418X	1918930	1	
1.1b	WAVED BAND	222X	1918937	1	
1.1c	WAVED BAND	225X	1918938	1	
1.1d	WAVED BAND	426X	1918939	1	
2	HUB FIXING	M16x82	1915882	1	
3	LOCKING PLATE	M16xM8	1114848	1	
4	FLAT WASHER	M8	1113401	1	
5	HEXAGON HEAD BOLT	M8x30	0110430	1	

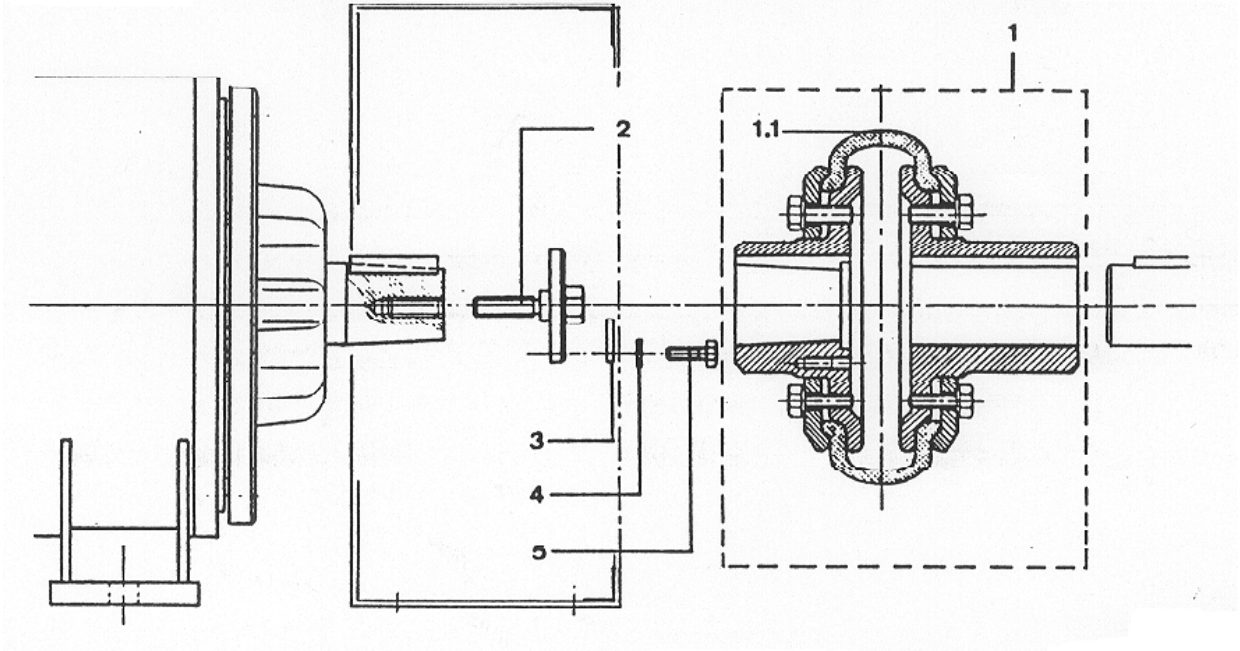


Fig. 3-5 RC9-H4

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-H5 ELECTRICALLY OPERATED CAPACITY CONTROL					
6	THREE-WAY SOLENOID VALVE	220HA	*	-	this valve is replaced by the valve with Ref. Nr. 0680410 as mentioned in the compr. spare parts list for compressors with serial nrs. from 90112030 and over
10	NIPPLE COUPLING	6G13	0338136	2	
11	SOCKET HEAD SCREW	M6x10	0104310	2	
12	HEXAGON NUT	M5	0115911	2	
13	FLAT WASHER	M 5B	1113001	2	
14	CYLINDER HEAD SCREW	M5x25	0168925	2	

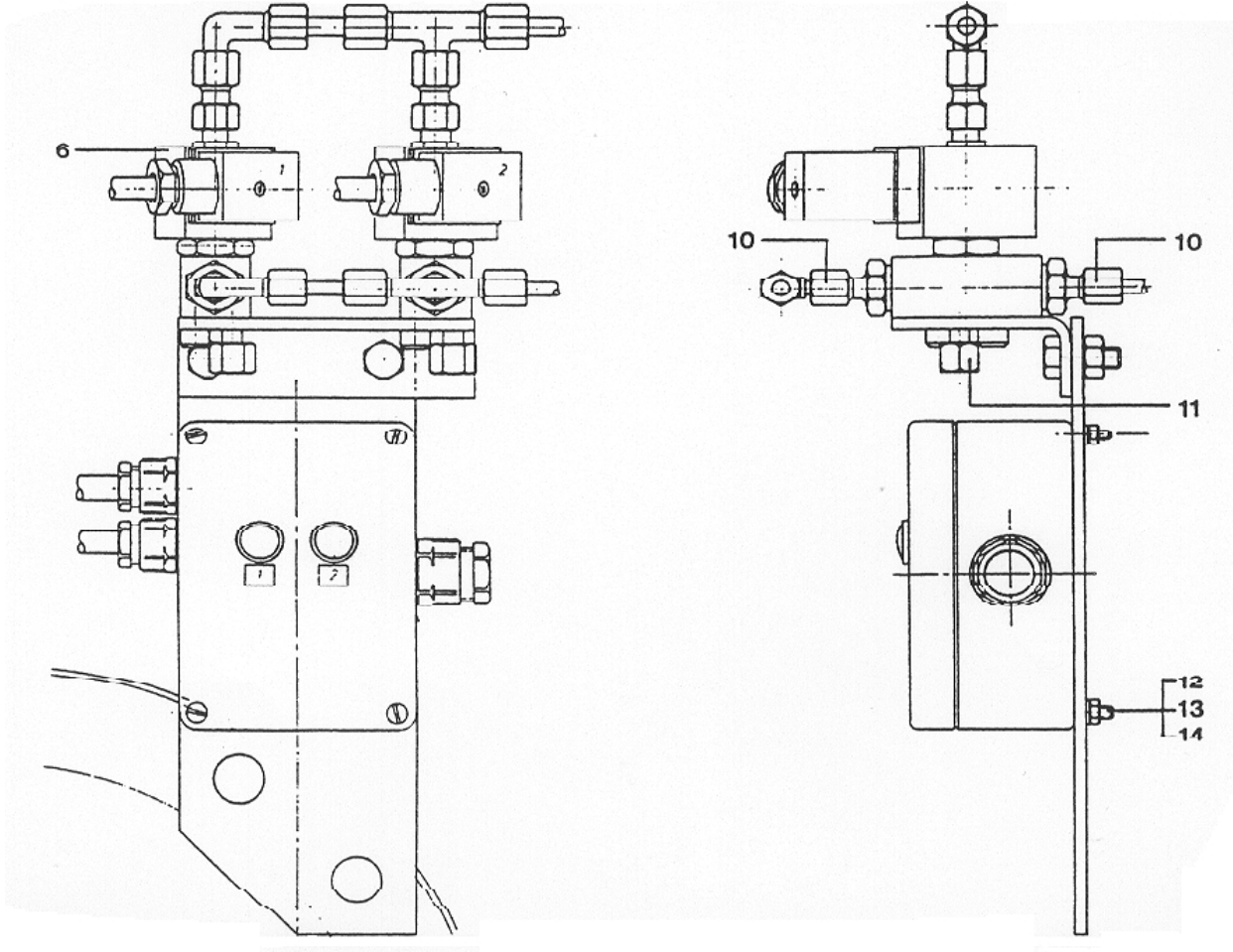


Fig. 3-6 RC9-H5

Item	Description	Dims.	Ref. No.	Qty	Remarks
Fig. RC9-H6 BEARING COVER					
2	BEARING COVER ASSEMBLY	KA85MSA	*	-	
2.1	BEARING COVER	KA85M	2114921	1	
2.2	CYLINDRICAL PIN	4x12	1106412	1	
2.3	BEARING BUSH	65x72x65	1146766	1	
2.4	STUD	M12x35	0151635	6	

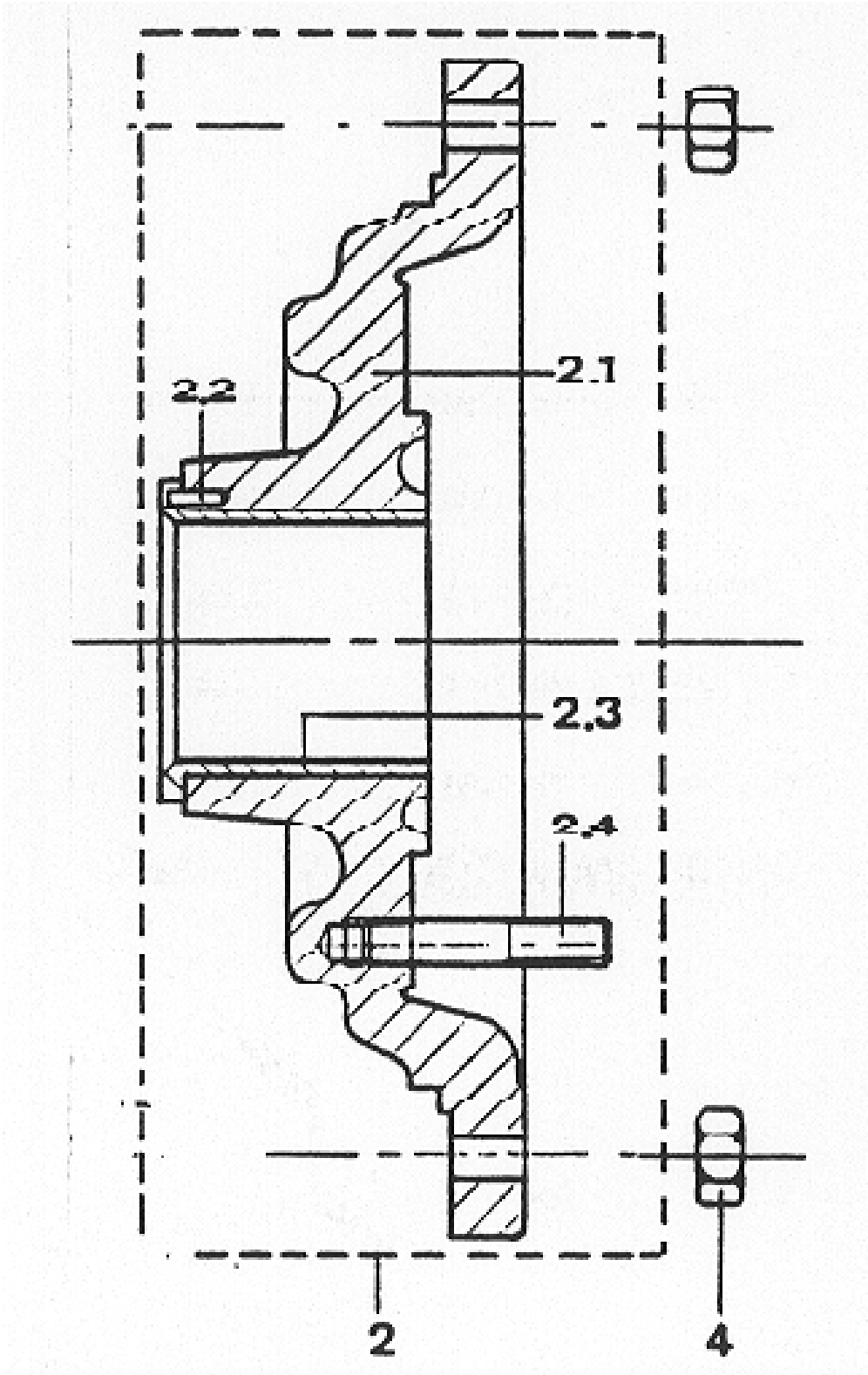


Fig. 3-7 RC9-H6

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Please contact the technical department of your supplier for extra information.