



CENTRIFUGAL COMPRESSORS

RENEWAL PARTS

Supersedes: 160.49-RP2 (217)

Form 160.49-RP2 (317)

COMPRESSOR MODEL	COMPRESSOR CODE
YDHA-36 and LHA-36	G3
YDHA-41 and LHA-41	G4
YDHA-46 and LHA-46	H0
YPHA-50N and LHA-50N	H1
YDHA-50W and LHA-50W	H1
HA-57, YDHB-57 and LHB-57	H2
YDHB-61	H3
YDHA-65 and LHA-65A	J1
YDHA-73 and LHA-73	J2
YDHA-81 and LHA-81	J3
YDHA-90 and LHA-90	J4
YDHA-70 and LHA-70	J7

Issue Date:
March 6, 2017



IMPORTANT!

READ BEFORE PROCEEDING!

GENERAL SAFETY GUIDELINES

This equipment is a relatively complicated apparatus. During installation, operation maintenance or service, individuals may be exposed to certain components or conditions including, but not limited to: refrigerants, materials under pressure, rotating components, and both high and low voltage. Each of these items has the potential, if misused or handled improperly, to cause bodily injury or death. It is the obligation and responsibility of operating/service personnel to identify and recognize these inherent hazards, protect themselves, and proceed safely in completing their tasks. Failure to comply with any of these requirements could result in serious damage to the equipment and the property in

which it is situated, as well as severe personal injury or death to themselves and people at the site.

This document is intended for use by owner-authorized operating/service personnel. It is expected that these individuals possess independent training that will enable them to perform their assigned tasks properly and safely. It is essential that, prior to performing any task on this equipment, this individual shall have read and understood this document and any referenced materials. This individual shall also be familiar with and comply with all applicable governmental standards and regulations pertaining to the task in question.

SAFETY SYMBOLS

The following symbols are used in this document to alert the reader to specific situations:



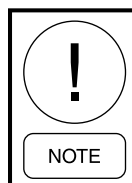
Indicates a possible hazardous situation which will result in death or serious injury if proper care is not taken.



Identifies a hazard which could lead to damage to the machine, damage to other equipment and/or environmental pollution if proper care is not taken or instructions are not followed.



Indicates a potentially hazardous situation which will result in possible injuries or damage to equipment if proper care is not taken.



Highlights additional information useful to the technician in completing the work being performed properly.



External wiring, unless specified as an optional connection in the manufacturer's product line, is not to be connected inside the control cabinet. Devices such as relays, switches, transducers and controls and any external wiring must not be installed inside the micro panel. All wiring must be in accordance with Johnson Controls' published specifications and must be performed only by a qualified electrician. Johnson Controls will NOT be responsible for damage/problems resulting from improper connections to the controls or application of improper control signals. Failure to follow this warning will void the manufacturer's warranty and cause serious damage to property or personal injury.

CHANGEABILITY OF THIS DOCUMENT

In complying with Johnson Controls' policy for continuous product improvement, the information contained in this document is subject to change without notice. Johnson Controls makes no commitment to update or provide current information automatically to the manual owner. Updated manuals, if applicable, can be obtained by contacting the nearest Johnson Controls Service office.

Operating/service personnel maintain responsibility for the applicability of these documents to the equipment. If there is any question regarding the applicability of

these documents, the technician should verify whether the equipment has been modified and if current literature is available from the owner of the equipment prior to performing any work on the chiller.

CHANGE BARS

Revisions made to this document are indicated with a line along the left or right hand column in the area the revision was made. These revisions are to technical information and any other changes in spelling, grammar or formatting are not included.

ASSOCIATED LITERATURE

MANUAL DESCRIPTION	FORM NUMBER
Solid State Starter – Operation & Maintenance	160.46-OM3.1
Installation	160.49-N1
Installation and Operation of Printers	160.49-N2
Wiring Diagram – Use with Electro-Mechanical Starter	160.49-PW1
Wiring Diagram – Field Connections (E-M Starter)	160.49-PW2
Wiring Diagram – Field Control Modifications	160.49-PW3
Wiring Diagram – Control Center with SS Starter	160.49-PW4
Wiring Diagram – Field Connections (SS Starter)	160.49-PW5
Wiring Diagram – With Solid State Starter	160.49-PW6
All Products - Replacement Parts Electrical Connectors	50.20-RP1
All Products - Replacement Parts Fittings	50.20-RP2

COMPRESSOR MODEL	COMPRESSOR CODE	BEARING KIT PART NUMBER	GASKET KIT PART NUMBER	TOOL KIT PART NUMBER
YDHA-36 and LHA-36	G3	664-48647-000	664-48648-000	364-48145-000
YDHA-41 and LHA-41	G4			
YDHA-46 and LHA-46	H0	664-48646-000	664-48648-000	364-48026-000
YPHA-50N and LHA-50N	H1			
YDHA-50W and LHA-50W	H1			
HA-57, YDHB-57 and LHB-57	H2			
YDHB-61	H3			
YDHA-65 and LHA-65A	J1	664-48645-000	664-48649-000	
YDHA-73 and LHA-73	J2			
YDHA-81 and LHA-81	J3	464-49802-000		
YDHA-90 and LHA-90	J4			
YDHA-70 and LHA-70	J7	664-48645-000	664-48649-000	

COMPRESSOR TOOL KIT (364-48145-000)

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
1	Gear Locking Tool	364-48023	1
2	Cap Screw, 5/8"	021-08389	1
3	Spacer Tool	364-48022	1
4	Cap Screw, 1/2"	021-08388	2
5	Washer, Plain, 1/2"	021-01276	2
6	Bar Tool	064-48345	1
7	Hex Nut, 1/4"	021-00451	4
8	Guide Pin	064-46499	2
9	Hook Tool	064-46610	2
10	Guide Pin	064-18716	3
11	Stud	064-14500	1
12	Hex Nut, 1/2" Heavy	021-00483	1
13	Eye Bolt, 7/8"	021-07703	1
14	Washer, Plain, 7/8"	021-05158	5
15	Eye Bolt, 3/8"	021-13498	3
16	Washer, Plain, 3/8"	021-05167	11
17	Eye Bolt, 5/16"	021-12420	2
18	Washer, Plain, 5/16"	021-05166	2
19	Pinion Tool	064-48133	1
23	Seal, O-Ring	028-12551	1
25	Adapter	064-48282	1

COMPRESSOR TOOL KIT (364-48026-000)

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
1	Gear Locking Tool	364-48023	1
2	Cap Screw, 5/8"	021-08389	1
3	Spacer Tool	364-48022	1
4	Cap Screw, 1/2"	021-08388	2
5	Washer, Plain, 1/2"	021-01276	2
6	Bar Tool	064-47031	1
7	Hex Nut, 1/4"	021-00451	4
8	Guide Pin	064-46499	2
9	Hook Tool	064-46610	2
10	Guide Pin	064-18716	3
11	Stud	064-14500	1
12	Hex Nut, 1/2" Heavy	021-00483	1
13	Eye Bolt, 7/8"	021-07703	1
14	Washer, Plain, 7/8"	021-05158	5
15	Eye Bolt, 3/8"	021-13498	3
16	Washer, Plain, 3/8"	021-05167	1
17	Eye Bolt, 5/16"	021-12420	2
18	Washer, Plain, 5/16"	021-05166	2
19	Pinion Tool (Models 65 and 73)	064-48028	1
20	Pinion Tool (Models 50 and 57)	064-48029	1
21	1 Pipe	023-15508	1

LIST OF TABLES

Table 1 - HA36 and HA41	6
Table 2 - HA36 and HA41 Bearing Kit (664-48647-000).....	7
Table 3 - HA36 AND HA41 Gasket Kit (664-48648-000)	7
Table 4 - Pre-Rotation Housing HA36, 41 and 46.....	12
Table 5 - HA46, HA50, HA57, HB57 and HB61	13
Table 6 - HA46-57, HB57-61 Bearing Kit (664-48646-000)	15
Table 7 - HA46-57, HB57-61 Gasket Kit (664-48648-000)	15
Table 8 - Pre-Rotation Housing HA50, HA57, HB57, HB61, HA65, HA70 AND HA73	20
Table 9 - HA65, HA70, HA73, HA81 and HA90 before April 2002	22
Table 10 - HA65-73 Bearing Kit (664-48645-000).....	24
Table 11 - HA81-90 Bearing Kit (464-49802-000).....	24
Table 12 - HA65-90 Gasket Kit (664-48649-000).....	24
Table 13 - HA65, HA73, HA81 and HA90 after April 2002	29
Table 14 - HA65-73 Bearing Kit (664-48645-000).....	31
Table 15 - HA81-90 Bearing kit (464-49802-000)	31
Table 16 - HA65-90 Gasket Kit (664-48649-000).....	31
Table 17 - Pre-Rotation Housing HA81 and HA90	35
Table 18 - Gear Sets	37
Table 19 - 60 Hertz Motors.....	38
Table 20 - 50 Hertz Motors.....	42
Table 21 - Shaft Seals.....	46
Table 22 - Bellows Seals.....	47
Table 23 - From Dynamic O-Ring To Bellows Seal Retrofit Kits	47
Table 24 - Rev. D and Later Chillers	48
Table 25 - Oil Sump Rev. "C" Chillers and Earlier.....	49

LIST OF FIGURES

Figure 1 - HA36 and HA41	8
Figure 2 - Pre-Rotation Housing (HA36, HA41 and HA46).....	12
Figure 3 - HA46, HA50, HA57, HB57 and HB61	16
Figure 4 - HA50, HA57, HB57, HB61, HA65, HA70 AND HA73	21
Figure 5 - HA65, HA70, HA73, HA81 and HA90	25
Figure 6 - HA65, HA73, HA81, HA90 and HA104	32
Figure 7 - Pre-Rotation Housing (HA81 and HA90).....	36
Figure 8 - Dynamic O-Ring Seal.....	46
Figure 9 - Bellows Seals.....	47
Figure 10 - Rev. D and Later Chillers	48
Figure 11 - Oil Sump Assembly	49

TABLE 1 - HA36 AND HA41

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
5	Support, Rotor with Bearing Housing	364-48227-000	1
6	Motor, Actuator	025-18411-000	1
8 ¹	Bearing, H.S. Rear	064-48212-000	1
9 ¹	Bearing, L.S. Rear	064-47901-000	1
10 ¹	Bearing, L.S. Front	064-47902-000	1
11 ¹	Bearing, Thrust, H.S. Forward	029-25645-000	1
12	Collar, Shaft Seal	See Shaft Seal page 46	
13 ¹	Collar, Thrust, H.S.	064-48051-000	1
14 ¹	Collar, Thrust, L.S.	064-47770-000	1
15	Collar, Impeller, Clamping	064-48132-000	1
16	Cover, Shaft Seal	See Shaft Seal page 46	
17	Bearing, Thrust, H.S., Rev.	029-20898-002	1
18 ²	Seal, O-Ring	028-12255-000	1
20	Cover, PRV Control Shaft	064-48861-000	1
21	Shaft, Control, PRV	364-29573-000	1
22	Retainer, BP Seal	064-48144-000	1
24	Ring, Shaft Seal	See Shaft Seal page 46	
25	Valve, Stop, Angle	022-05089-000	1
26	Transducer, Pressure	025-28678-001	1
27	Orifice, H.S., Oil Feed	064-48034-000	1
28	Washer, PRV	064-48503-000	1
29	Washer, Plain, 9/32 I.D.	021-05165-000	4
30	Nipple, Pipe 1/4"	023-15455-000	1
33	Lever, PRV, Internal	064-47482-001	1
34	Lever, PRV, External	064-47109-000	1
35	Lever, PRV, Motor	064-47925-000	1
37	Rod, Adjustable, PRV	064-47512-000	1
38	Link, External, PRV	064-47940-000	2
39	Valve, Solenoid	025-29636-000	1
40	Retainer, Bearing	064-46886-000	3
41	Cap, Flare	023-11362-000	1
42	Nipple, Pipe, 1"	023-14682-000	1
43	Connector, Flare	023-09668-000	2
44	Connector, Flare, Male	023-10785-000	1
45	Sensor, Temperature	025-28936-000	1
46	Retainer, Seal	See Shaft Seal page 46	
47	Valve, Stop, Angle	022-03836-000	2
51	Plug, Pipe, 1/4" Hex Socket	023-01973-000	2
52	Elbow, Flare	023-11343-000	4
54	Bolt, Shoulder	064-28262-000	1
55	Fillpiece, PRV	064-12328-000	1
56	Bearing, Rod End	029-08343-000	2
60	Fillpiece, PRV	064-28446-000	1
68	Connector, Flare	023-09671-000	3
72	Plate, Mounting	064-47998-000	1
73	Header, Spray	064-48003-000	1
77	Ring, Retaining	See Shaft Seal page 46	
78	Set Screw	029-00774-000	1
82	Pin, Dowel, Tapped 3/8"	029-18459-000	2
85	Seal, O-Ring	028-12209-000	1
86 ²	Seal, O-Ring	028-12513-000	2
87 ²	Gasket, 2-1/2 O.D. x 2 I.D.	064-47751-000	1
88	Oil Drain	364-48291-000	1
89	Valve, Check, Oil, 1/8"	022-04444-000	1
90	Seal, O-Ring	See Shaft Seal page 46	
92	Seal, O-Ring, 5-5/8 I.D.	028-12258-000	1
94 ²	Seal, O-Ring, 1-1/8 I.D.	028-12200-000	3
95 ²	Seal, O-Ring, 1" I.D.	028-12201-000	1
96	Plate, Cover, H.S.	064-48052-000	1
97	Flange, Oil Drain	064-48289-000	1
103 ¹	Bearing, Thrust	029-20839-001	1

¹ Included In Bearing Kit, see Table 2. ² Included In Gasket Kit, see Table 3.

TABLE 1 - HA36 AND HA41 (CONT'D)

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
104	Valve, Stop, Angle, 3/8	022-01582-000	2
106	Seal, O-Ring	028-12597-000	1
110 ²	Gasket, Rotor Support/Scroll	064-47875-000	1
111	Ring, Fill, Kit, Motor Lever	064-28284-000	1
112	Seal, O-Ring	028-05181-000	1
116	Elbow, Flare	023-09677-000	1
121 ²	Seal, O-Ring, 18 I.D.	028-12257-000	1
122 ²	Seal, O-Ring, 4-1/4 I.D.	028-12259-000	1
123	Ring, BP Seal	064-48211-000	1
124 ²	Seal, O-Ring, Spliced	028-12260-000	1
130	Pin, Slot, Spg	029-04138-000	1
132 ¹	Bearing, HS, Front	064-48050-000	1
134	Pin, Slot, Spg	029-04750-000	3
137	Valve, Solenoid	025-29152-000	1
139	Tee, 3/8" Tube	023-10595-000	1
141	Prox. Probe	<i>Refer to Forms 160.49-RP3 and 160.54-RP1</i>	
201	Impeller with Bal. Piston (HA36)	364-48122-000	1
	Impeller with Bal. Piston (HA41)	364-48125-000	1
202	Plate, Nozzle Base (HA36)	064-48128-000	1
	Plate, Nozzle Base (HA41)	064-48129-000	1
203	Plate, Diffuser (HA36)	064-48126-000	1
	Plate, Diffuser (HA41)	064-48127-000	1
204	Device, Pre-Rotation (HA36 & HA41)	See Table 4	1
206	Ring, Seal (Eye) (HA36)	064-48135-000	1
	Ring, Seal (Eye) (HA41)	064-48140-000	1
226	Seal, Double Shaft	029-22428-000	1
207	Retainer, Eye Seal (HA36)	064-48142-000	1
	Retainer, Eye Seal (HA41)	064-48143-000	1
208	Seal, O-Ring, 8-1/4 I.D.	028-12550-000	1
220	Orifice (for use on compressors w/o Item 137)	064-49229-000	1
227	Elbow, Flare, 3/8"	023-18969-000	1
229	Elbow, Flare, 3/8"	023-11343-000	1

¹ Included In Bearing Kit, see Table 2. ² Included In Gasket Kit, see Table 3.

TABLE 2 - HA36 AND HA41 BEARING KIT (664-48647-000)

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
8	Bearing, H.S. Rear	064-48212-000	
9	Bearing, L.S. Rear	064-47901-000	1
10	Bearing, L.S. Front	064-47902-000	1
11	Bearing, Thrust, H.S. Forward	029-25645-000	1
13	Collar, Thrust	064-48051-000	1
14	Collar, Thrust, L.S.	064-47770-000	1
103	Bearing, Thrust	029-20839-002	1
132	Bearing, H.S. Front	064-48050-000	1

TABLE 3 - HA36 AND HA41 GASKET KIT (664-48648-000)

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
18	Seal, O-Ring 8" I.D.	028-12255-000	1
86	Seal, O-Ring 5/16" I.D.	028-12513-000	3
87	Gasket	064-47751-000	1
94	Seal, O-Ring 1-1/8" I.D.	028-12200-000	3
95	Seal, O-Ring 1" I.D.	028-12201-000	1
121	Seal, O-Ring 18" I.D.	028-12257-000	1
122	Seal, O-Ring 4-1/4" I.D.	028-12259-000	1
124	Seal, O-Ring, Spliced 28.482" I.D.	028-12260-000	1
110	Gasket, Rotor, Support/Scroll	064-47875-000	1

HA36 AND HA41

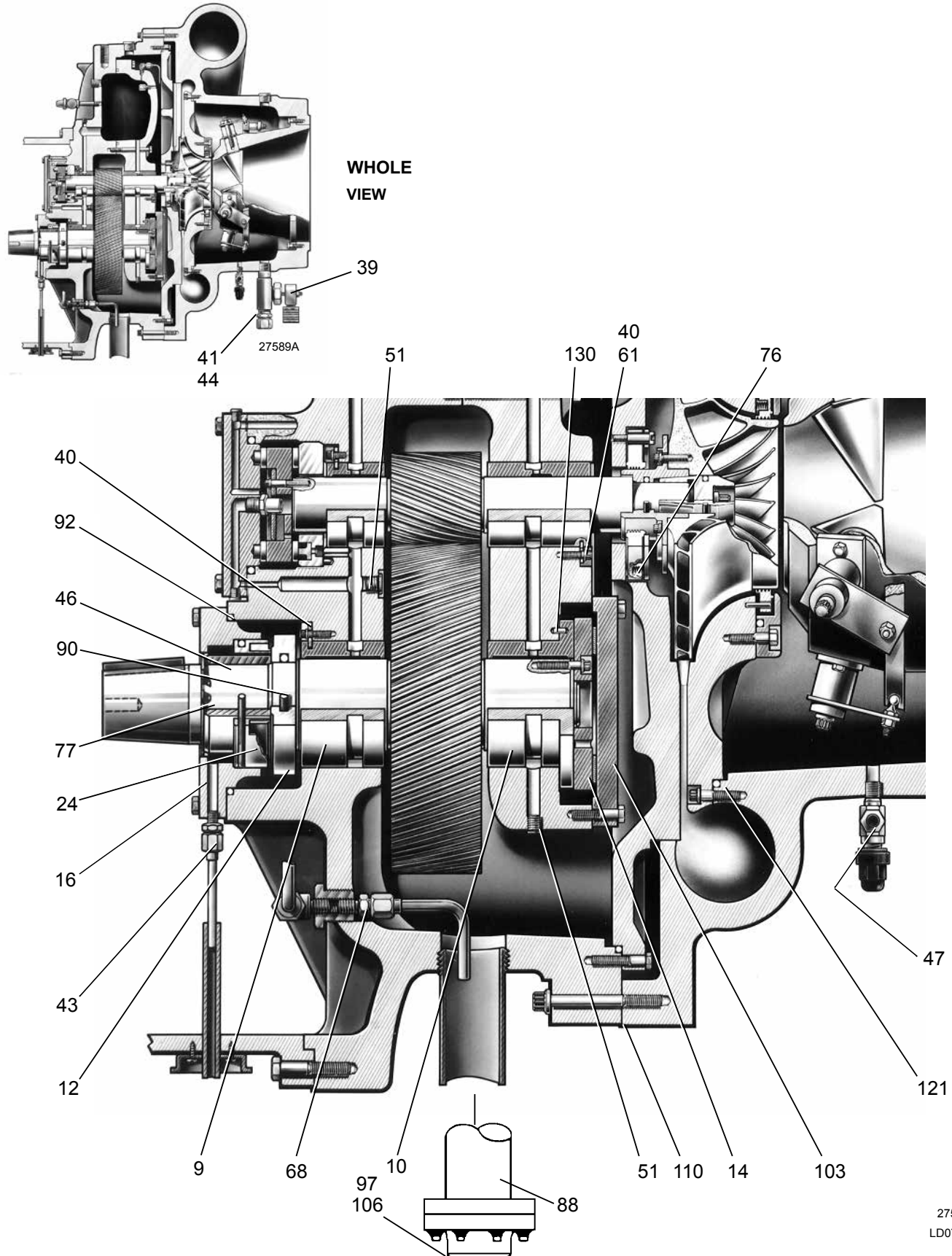


FIGURE 1 - HA36 AND HA41

HA36 AND HA41 (CONT'D)

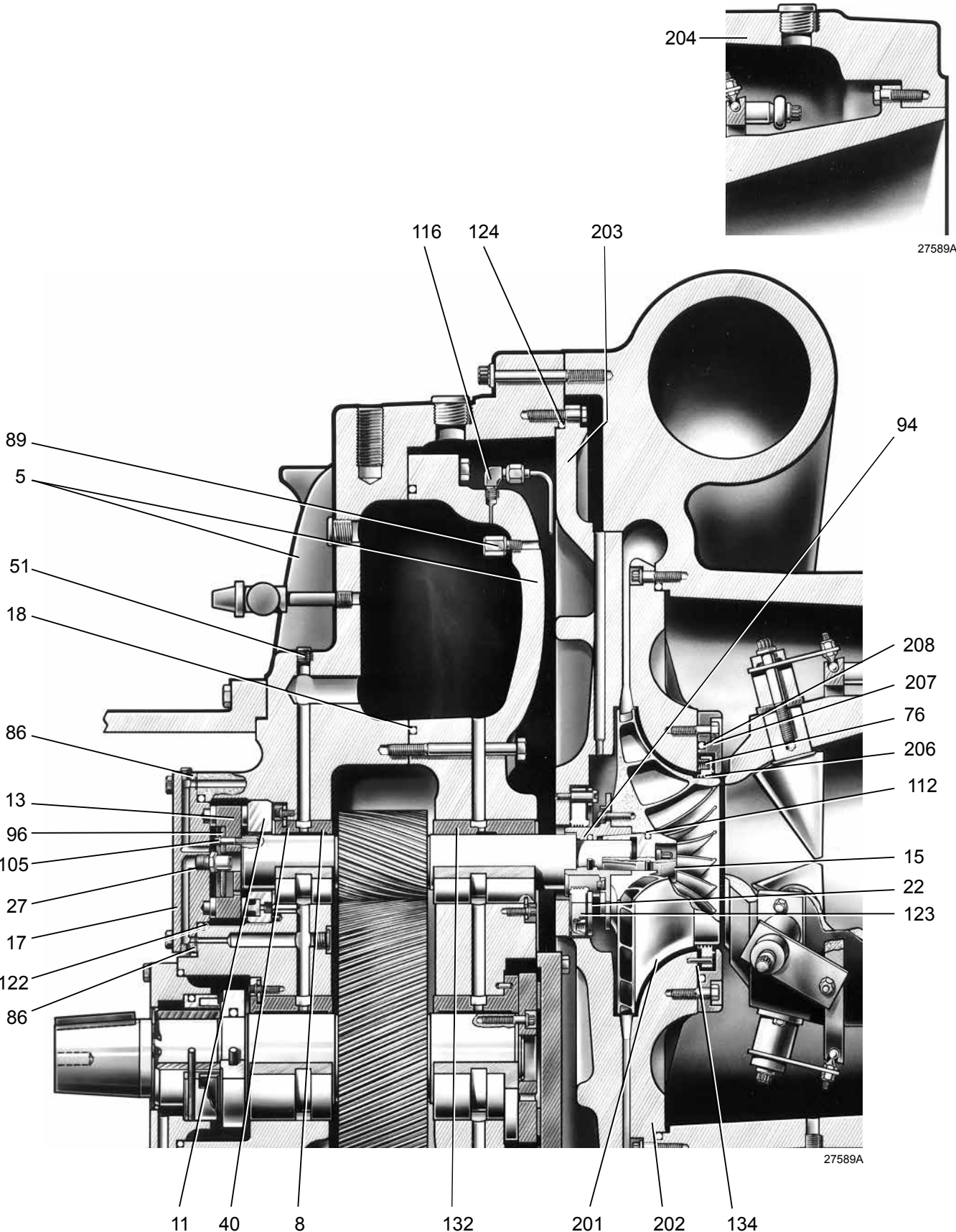
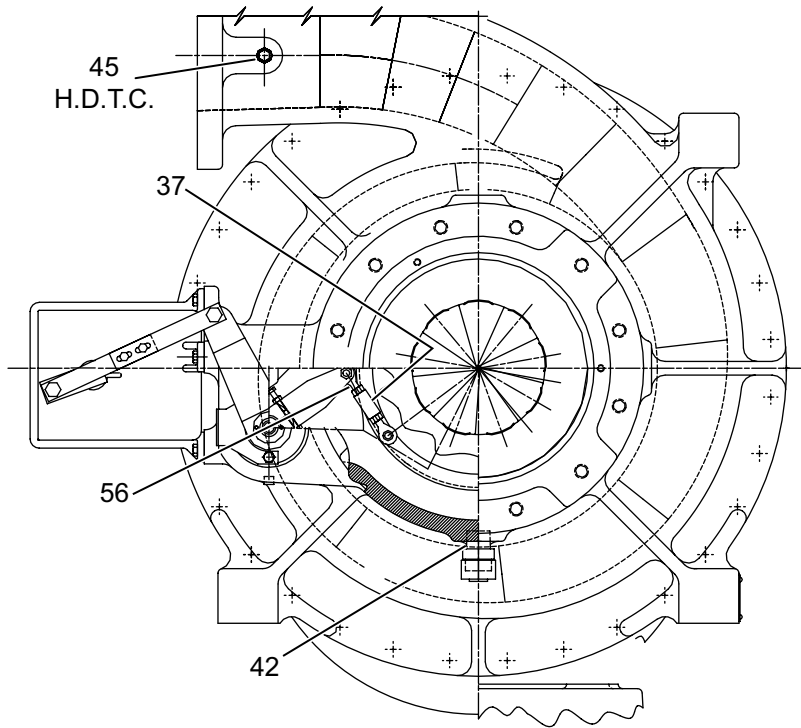
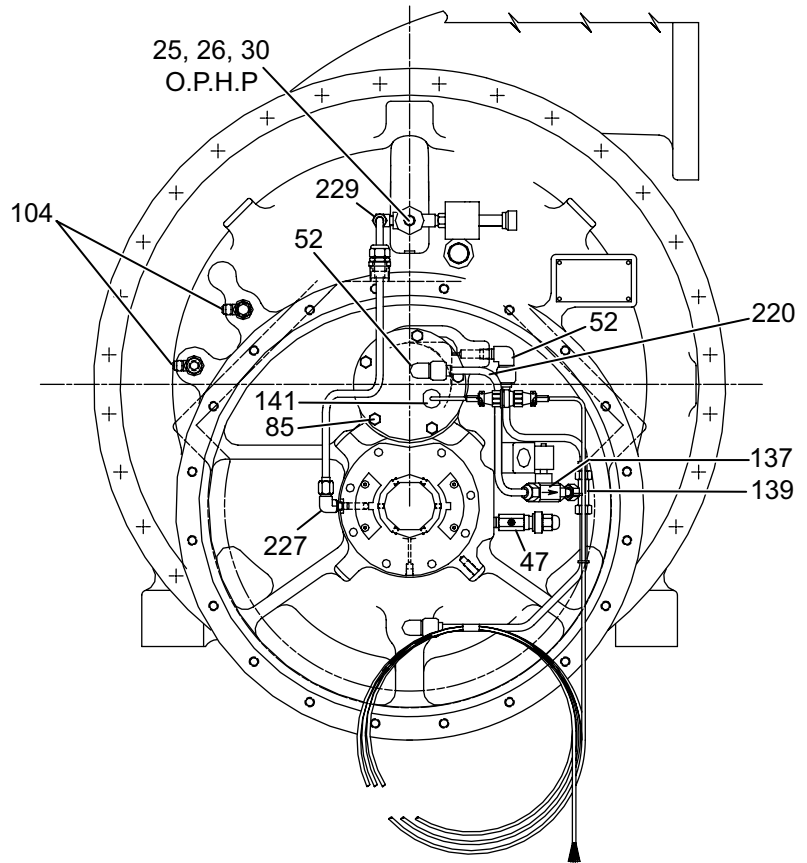


FIGURE 1 – HA36 AND HA41 (CONT'D)

HA36 AND HA41 (CONT'D)



LD07441



LD07440

FIGURE 1 – HA36 AND HA41 (CONT'D)

HA36 AND HA41 (CONT'D)

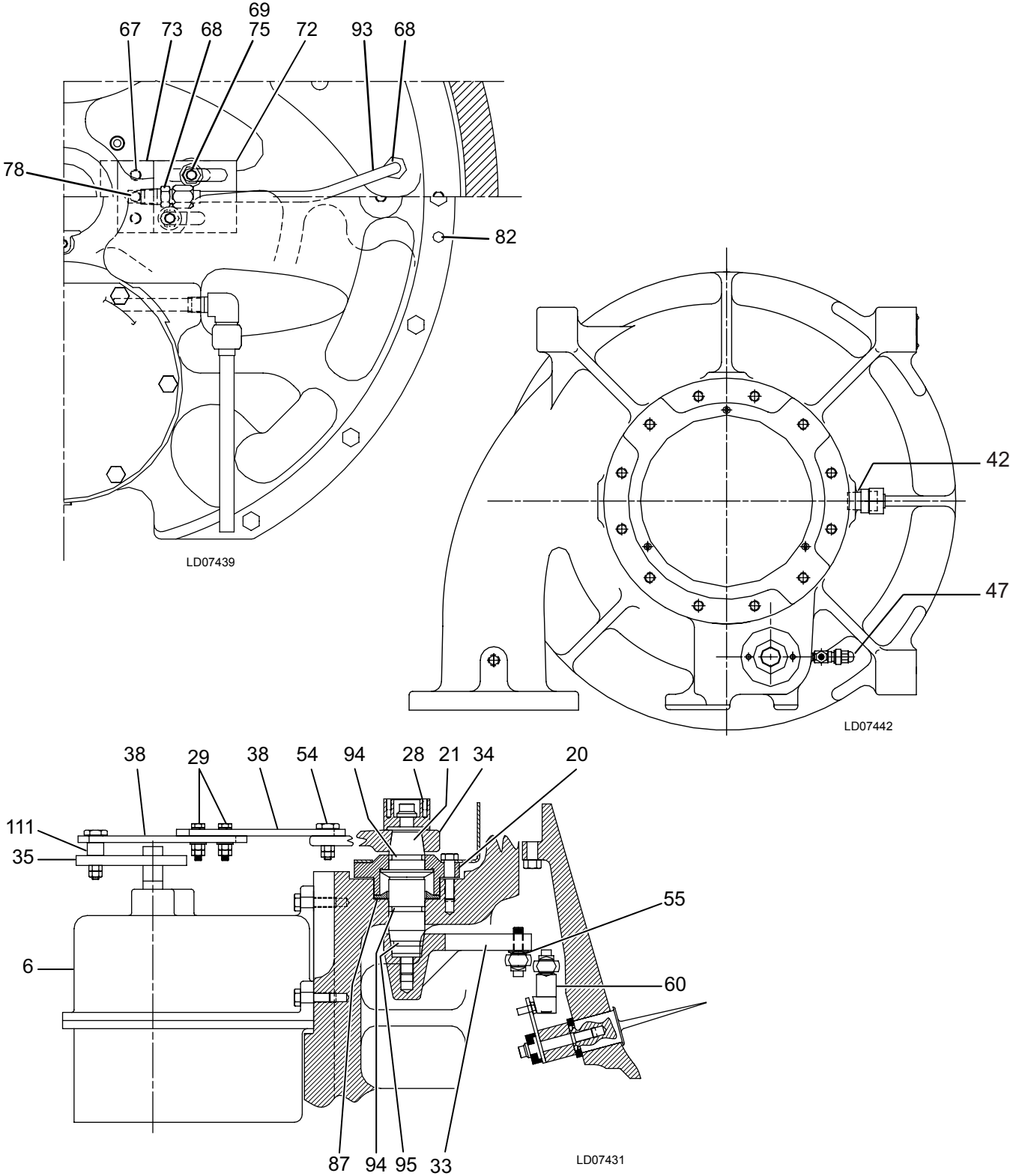


FIGURE 1 – HA36 AND HA41 (CONT'D)

TABLE 4 - PRE-ROTATION HOUSING – HA36, 41 AND 46

ITEM	DESCRIPTION	QUANTITY	PART NUMBER
	Pre-Rotation Complete Housing Assembly		
	HA36	1	364-47916-006
	HA41	1	364-47916-005
	HA46	1	364-47916-004
1	Ring	1	064-47926-000
2	Vane	9	064-49100-000
3	Retainer	9	064-48252-000
4	Arm, Vane	9	064-47952-000
5	Spacer, Arm	9	064-49101-000
6	Washer	9	064-09289-000
7	Washer, Plain	9	021-11973-000
8	Stud, Ball	9	029-15924-000
9	Screw, Cap 12 PT	9	021-16580-000
10	Screw, Cap Hex	18	021-01372-000
11	Nut, Self-Locking	9	021-12943-000
12	Housing, PRV	1	064-48193-000
	Ring, PRV Housing		
23	HA36	1	064-48194-000
	HA41	1	064-48195-000
	HA46	1	064-48196-000
	Screw, Cap Hex		
24	HA36 and HA46	3	021-01477-000
	HA41	3	021-01470-000

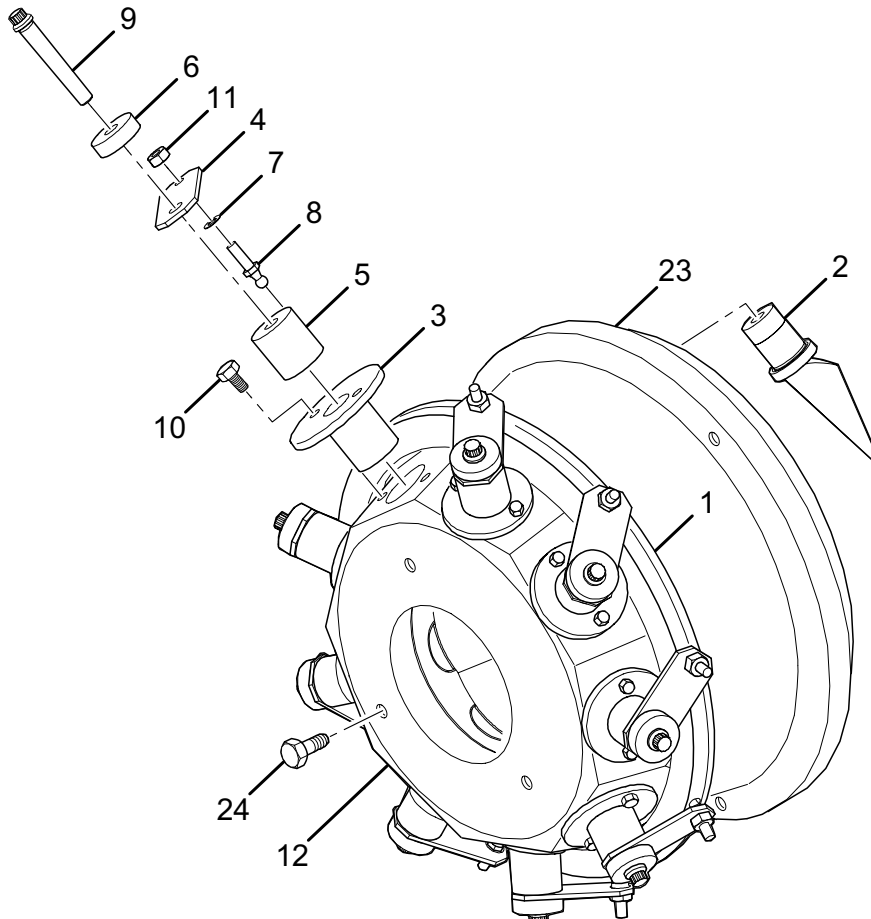


FIGURE 2 - PRE-ROTATION HOUSING (HA36, HA41 AND HA46)

TABLE 5 - HA46, HA50, HA57, HB57 AND HB61

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
5	Support, Rotor with Bearing Housing	364-48227-000	1
6	Motor, Actuator	025-18411-000	1
8 ¹	Bearing, H.S. Rear	064-48208-000	1
9 ¹	Bearing, L.S. Rear	064-47901-000	1
10 ¹	Bearing, L.S. Front	064-47902-000	1
11 ¹	Bearing, Thrust, H.S. Forward	029-20900-002	1
12	Collar, Shaft Seal	See Shaft Seal <i>page 46</i>	
13 ¹	Collar, Thrust, H.S.	064-47904-000	1
14 ¹	Collar, Thrust, L.S.	064-47770-000	1
15	Collar, Impeller, Clamping	064-48123-000	1
16	Cover, Shaft Seal	See Shaft Seal <i>page 46</i>	
17	Bearing, Thrust, H.S., Rev.	029-20898-002	1
18 ²	Seal, O-Ring	028-12255-000	1
20	Cover, PRV Control Shaft	064-13909-000	1
21	Shaft, Control, PRV	364-29573-000	1
22	Retainer, BP Seal	064-47906-000	1
24	Ring, Shaft Seal	See Shaft Seal <i>page 46</i>	
25	Valve, Stop, Angle	022-05089-000	1
26	Transducer, Pressure	025-28678-001	1
27	Orifice, H.S., Oil Feed	064-48034-000	1
28	Washer, SPL for PRV	064-48053-000	1
30	Nipple, Pipe 1/4"	023-15455-000	1
33	Lever, PRV, Internal (HA46, HA50)	064-47482-001	1
	Lever, PRV, Internal (HA57, HB57, HB61)	064-48153-000	1
34	Lever, PRV, External	064-47109-000	1
35	Lever, PRV, Motor	064-47925-000	1
37	Rod, Adjustable, PRV	064-47512-000	1
38	Link, External, PRV	064-47940-000	2
39	Valve, Solenoid	025-29636-000	1
40	Retainer, Bearing	064-46886-000	3
41	Cap, Flare	023-11362-000	1
42	Nipple, Pipe, 1"	023-14682-000	1
43	Connector, Flare	023-09668-000	1
44	Connector, Flare, Male	023-10785-000	1
45	Sensor, Temperature	025-28936-000	1
46	Retainer, Seal	See Shaft Seal <i>page 46</i>	
47	Valve, Stop, Angle 1/4	022-03836-000	2
51	Plug, Pipe, 1/4" Hex Socket	023-01973-000	3
52	Elbow, Flare	023-11343-000	3
54	Bolt, Shoulder	064-28262-000	1
55	Fillpiece, PR Device	064-12328-000	1
56	Bearing, Rod End	029-08343-000	2
60	Fillpiece, PRV	064-28446-000	1
68	Connector, Flare	023-09671-000	2
72	Plate, Mounting	064-47998-000	1
73	Header, Spray	064-48003-000	1
74	Screw, Set, Hex, Soc. Cup	021-03910-000	1
76	Spring, Helical	029-10757-000	32
77	Ring, Retaining	See Shaft Seal <i>page 46</i>	
78	Set Screw	029-00774-000	1
82	Pin, Dowel, Tapped 3/8"	029-18459-000	2
85	O-Ring	029-12209-000	1

¹ Included In Bearing Kit, see *Table 6*. ² Included In Gasket Kit, see *Table 7*.

TABLE 5 - HA46, HA50, HA57, HB57 AND HB61 (CONT'D)

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
86 ²	Seal, O-Ring	028-12513-000	3
87 ²	Gasket, 2-1/2 O.D. x 2 I.D.	064-47751-000	1
88	Oil Drain	364-48291-000	1
89	Valve, Check, Oil, 1/8"	022-04444-000	1
90	Seal, O-Ring, 2-3/4 I.D.	028-03241-000	1
92	Seal, O-Ring, 5-5/8 I.D.	028-12258-000	1
94 ²	Seal, O-Ring, 1-1/8 I.D.	028-03838-000	2
95 ²	Seal, O-Ring, 1 I.D.	028-03516-000	1
97	Flange, Oil Drain	064-48289-000	1
98	Screw, Cap, Hex, 3/8"	021-10037-000	16
101	Plug, Pipe, 3/4 Square	023-04208-000	1
103 ¹	Bearing, Thrust	029-20839-001	1
104	Valve, Stop, Angle 3/8	022-01582-000	2
106	Seal, O-Ring	028-12597-000	1
110 ²	Gasket, Rotor Support/Scroll	064-47875-000	1
111	Ring, Fill, Kit, Motor Lever	064-28284-000	1
116	Elbow, Flare	023-09677-000	1
121 ²	Seal, O-Ring, 18 I.D.	028-12257-000	1
122 ²	Seal, O-Ring, 4-1/4 I.D.	028-12259-000	1
123	Ring, BP Seal	064-48210-000	1
124 ²	Seal, O-Ring, Spliced	028-12260-000	1
130	Pin, Slot, Spg	029-04138-000	1
132 ¹	Bearing, HS, Front	064-47900-000	1
134	Pin, Slot, Spring	029-04750-000	1
137	Valve, Solenoid	025-29152-000	1
139	Tee, 3/8" tube	023-10595-000	1
141	Proximity Probe	<i>Refer to Forms 160.49-RP3 and 160.54-RP1</i>	
201	Impeller (HA46)	064-48061-000	1
	Impeller (HA50)	064-47911-000	1
	Impeller (HA57 & HB57)	064-47921-000	1
	Impeller (HB61)	064-48344-000	1
202	Plate, Nozzle Base (HA46)	064-48137-000	1
	Plate, Nozzle Base (HA50)	064-48064-000	1
	Plate, Nozzle Base (HA57 & HB57)	064-48068-000	1
	Plate, Nozzle Base (HB61)	064-48731-000	1
203	Plate, Diffuser (HA46)	064-48134-000	1
	Plate, Diffuser (HA50)	064-48063-000	1
	Plate, Diffuser (HA57 & HB57)	064-48067-000	1
	Plate, Diffuser (HB61)	064-48732-000	1
204	Device, Pre-Rotation (HA46)	<i>See Table 4</i>	1
	Device, Pre-Rotation (HA50, HA57, HB57 & HB61)	<i>See Table 8</i>	1
206	Ring, Seal (Eye) (HA46 & HA50)	064-47917-000	1
	Ring, Seal (Eye) (HA57 & HB57)	064-47920-000	1
	Ring, Seal (Eye) (HB61)	064-48354-000	1
207	Retainer, Eye Seal (HA46 & HA50)	064-47919-000	1
	Retainer, Eye Seal (HA57 & HB57)	064-47920-000	1
	Retainer, Eye Seal (HB61)	064-48356-000	1
208	Seal, O-Ring, 8-1/4 I.D. (HA46 & HA50)	028-12256-000	1
	Seal, O-Ring, 8-1/4 I.D. (HA57 & HB57)	028-05409-000	1
	Seal, O-Ring, 8-1/4 I.D. (HB61)	028-12902-000	1
209	Gasket Rot./Diff. (50N Only) HA50	064-48065-000	1

¹ Included In Bearing Kit, see Table 6. ² Included In Gasket Kit, see Table 7.

TABLE 5 - HA46, HA50, HA57, HB57 AND HB61 (CONT'D)

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
210	Gasket Noz. Base Plate/Scroll (50N Only) HA50	064-48066-000	1
225	Orifice (for use on compressors without Item 137)	064-49229-000	1
227	Elbow, Flare, 3/8"	023-18969-000	1
229	Elbow, Flare, 3/8"	023-11343-000	1

¹ Included In Bearing Kit, see Table 6. ² Included In Gasket Kit, see Table 7.

TABLE 6 - HA46-57, HB57-61 BEARING KIT (664-48646-000)

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
8	Bearing, H.S. Rear	064-48208-000	1
9	Bearing, L.S. Rear	064-47901-000	1
10	Bearing, L.S. Front	064-47902-000	1
11	Bearing, Thrust, H.S. Forward	029-20900-002	1
13	Collar, Thrust, H.S. Rear	064-47904-000	1
14	Collar Thrust	064-47770-000	1
103	Bearing, Thrust	029-20839-001	1
132	Bearing, H.S. Front	064-47900-000	1

TABLE 7 - HA46-57, HB57-61 GASKET KIT (664-48648-000)

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
18	Seal, O-Ring 8" I.D.	028-12255-000	1
86	Seal, O-Ring 5/16" I.D.	028-12513-000	3
87	Gasket	064-47751-000	1
95	Seal, O-Ring 1" I.D.	028-03516-000	1
94	Seal, O-Ring 1-1/8" I.D.	028-03838-000	3
110	Gasket, Rotor, Support/Scroll	064-47875-000	1
121	Seal, O-Ring 18" I.D.	028-12257-000	1
122	Seal, O-Ring 4-1/4" I.D.	028-12259-000	1
124	Seal, O-Ring, Spliced 28.482" I.D.	028-12260-000	1

HA46, HA50, HA57, HB57 AND HB61

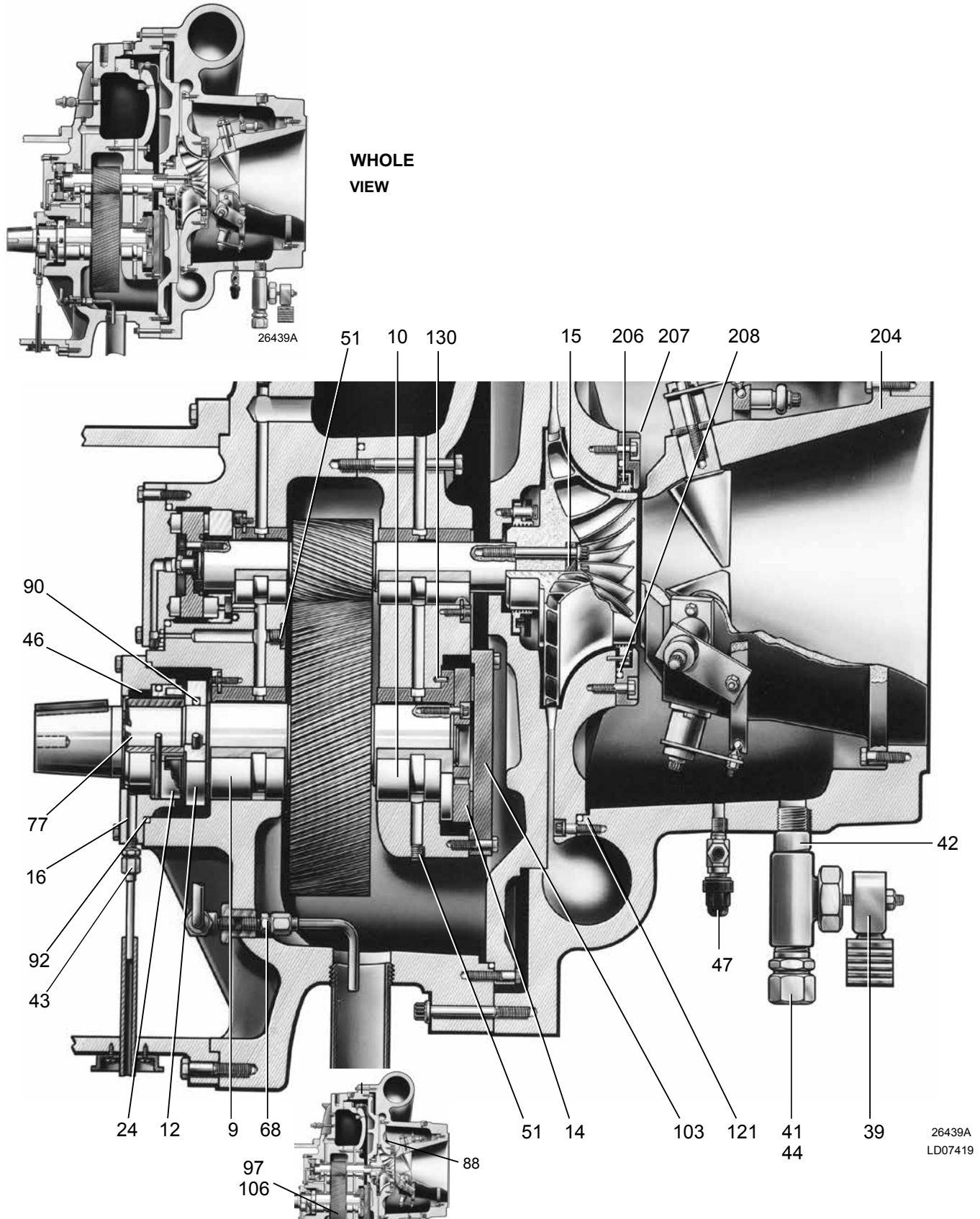


FIGURE 3 - HA46, HA50, HA57, HB57 AND HB61

HA46, HA50, HA57, HB57 AND HB61 (CONT'D)

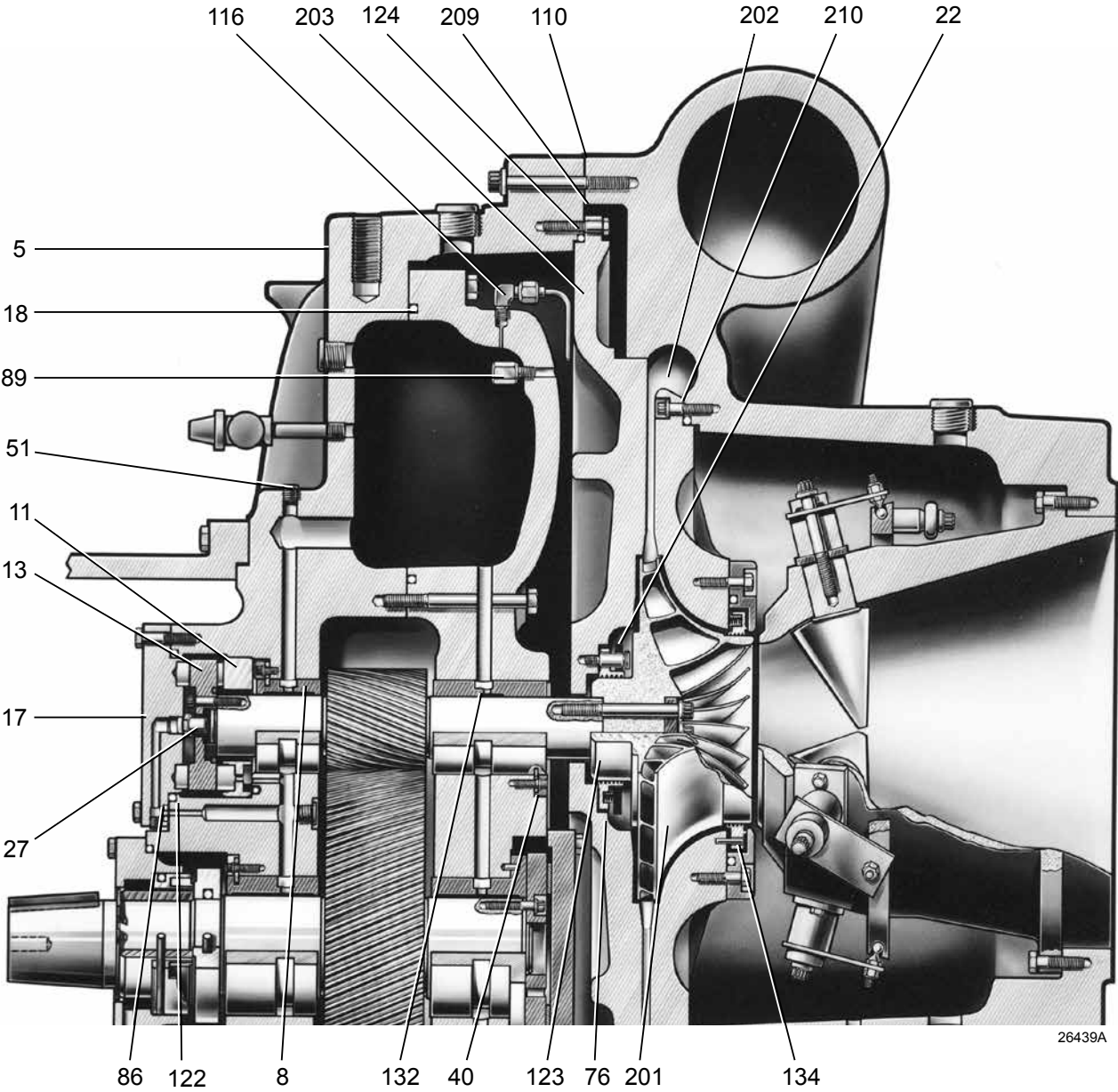


FIGURE 3 – HA46, HA50, HA57, HB57 AND HB61 (CONT'D)

HA46, HA50, HA57, HB57 AND HB61 (CONT'D)

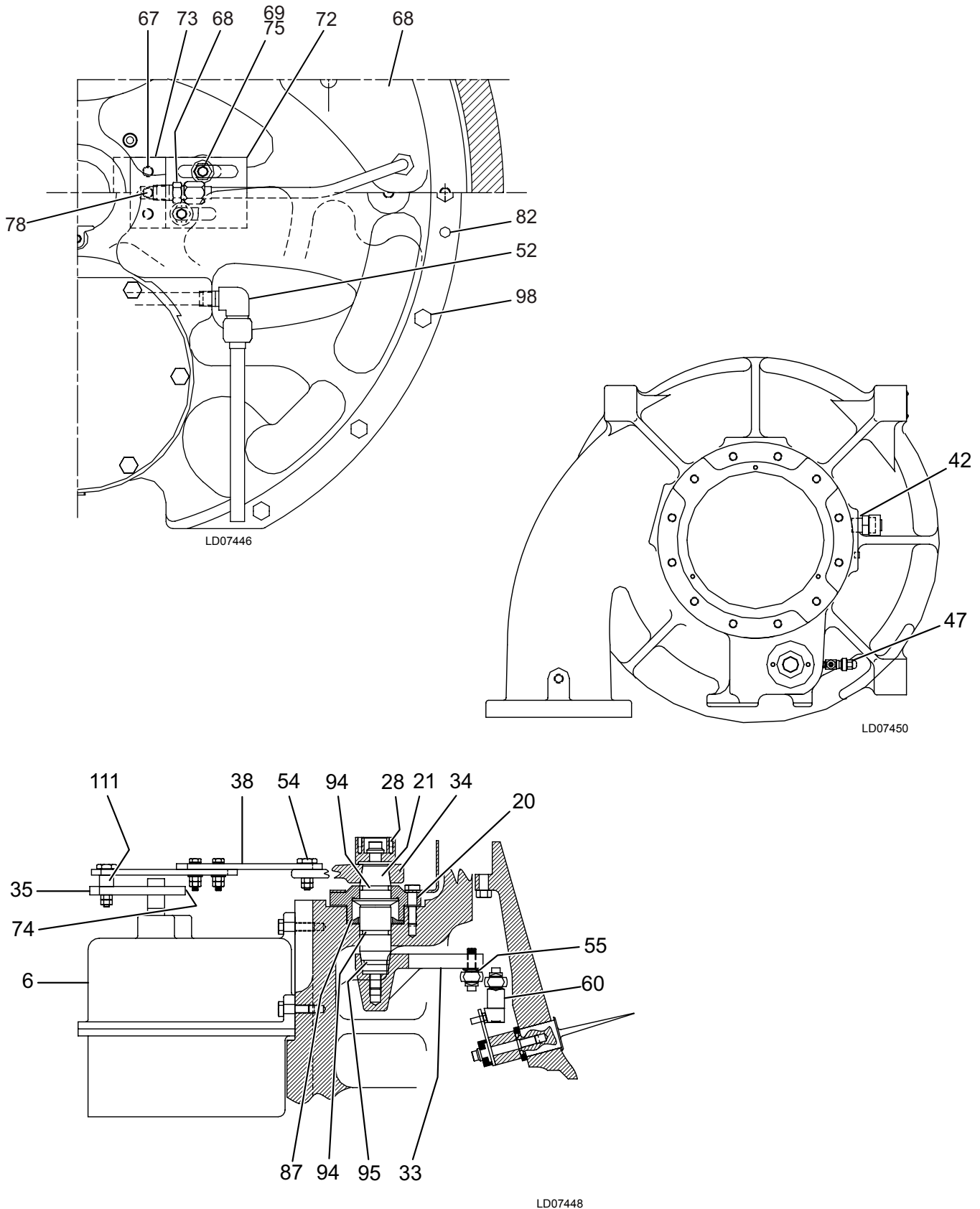


FIGURE 3 – HA46, HA50, HA57, HB57 AND HB61 (CONT'D)

HA46, HA50, HA57, HB57 AND HB61 (CONT'D)

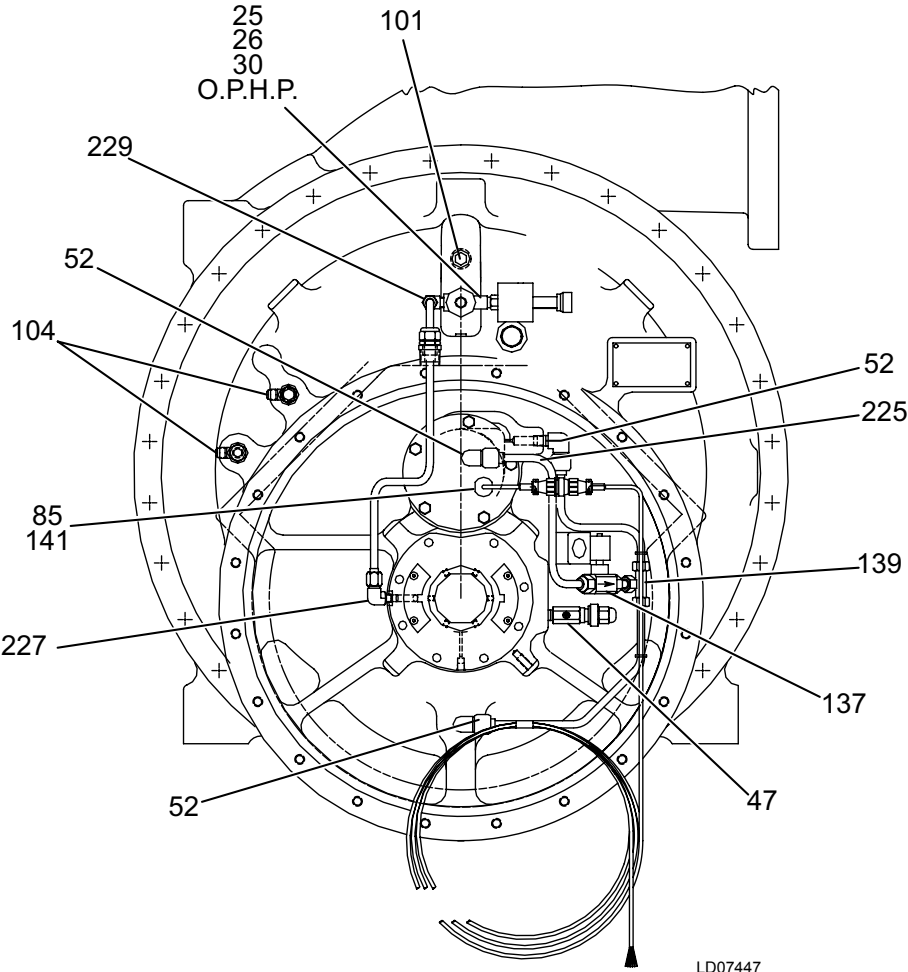
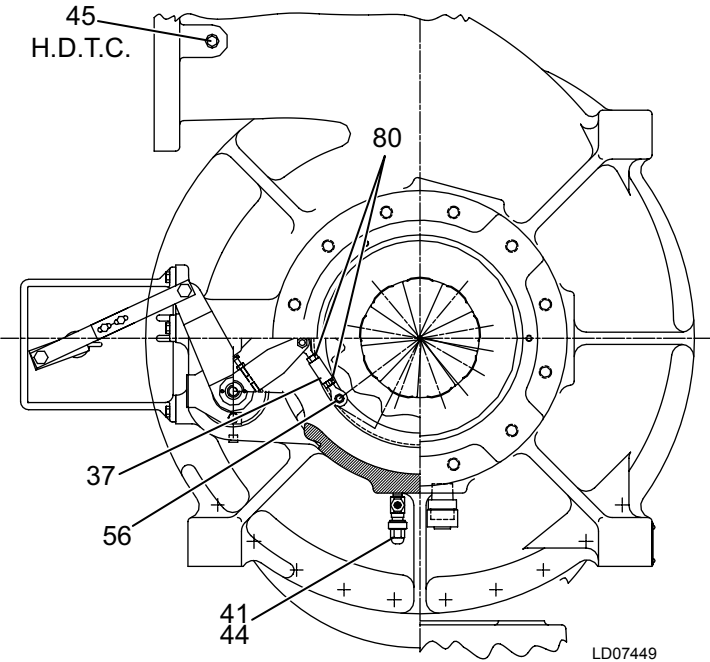
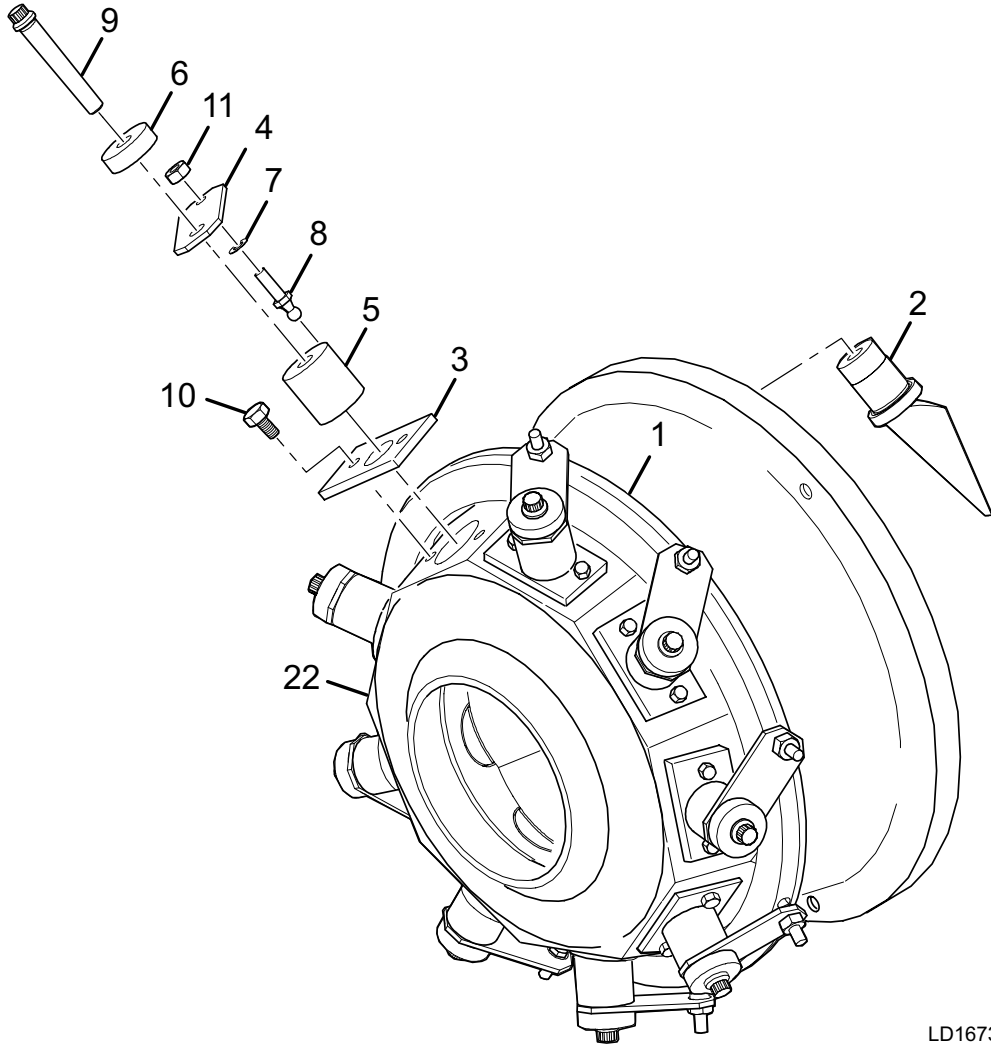


FIGURE 3 – HA46, HA50, HA57, HB57 AND HB61 (CONT'D)

TABLE 8 - PRE-ROTATION HOUSING HA50, HA57, HB57, HB61, HA65, HA70 AND HA73

ITEM	DESCRIPTION	QUANTITY	PART NUMBER
	Pre-Rotation Housing Complete Assembly		
	HA50	1	364-47916-002
	HA57 and HB57	1	364-47916-003
	HB61	1	364-47916-007
	HA65	1	364-47865-002
	HA65 Built after December 2001	1	364-50373-002
	HA70	1	364-50373-004
	HA73	1	364-47865-003
	HA73 Built after December 2001 (Consisting of the following Items)	1	364-50373-003
1	Ring		
	HA50, HA57, HB57, HB61	1	064-47926
	HA65, and HA73	1	064-47936
	HA65, HA70 and HA73 Built after December 2001	1	064-50370
2	Vane		
	HA50, HA57, H1357, HB61	9	064-47922
	HA65, and HA73	9	064-47883
3	Retainer	9	064-47504
4	Arm, Vane	9	064-47952
5	Spacer, Arm	9	064-47887
6	Washer	9	064-09289
7	Washer, Plain		
	HA50, HA57, HB57, HB61	9	021-11973
	HA65, and HA73	18	021-11973
8	Stud, Ball	9	029-15924
9	Screw, Cap 12 Point	9	021-17245
10	Screw, Cap Hex	18	021-01372
11	Nut, Self-Locking	9	021-12943
22	Housing, PRV		
	HA50	1	064-47914
	HA57 and HB57	1	064-47915
	HB61	1	064-48361
	HA65	1	064-47844
	HA65 Built after December 2001	1	064-50371
	HA70	1	064-50376
	HA73	1	064-47879
	HA73 Built after December 2001	1	064-50372



LD16737

FIGURE 4 - HA50, HA57, HB57, HB61, HA65, HA70 AND HA73

TABLE 9 - HA65, HA70, HA73, HA81 AND HA90 BEFORE APRIL 2002

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
1	Screw, Set, Hex Soc. Cup	021-00774-000	1
2 ¹	Bearing, HS, Front (HA65, HA70 & HA73)	064-48304-000	1
	Bearing, HS, Front (HA81 & HA90)	064-48223-000	1
5	Support, Rotor with Bearing Housing (HA65, HA70 & HA73)	364-48221-000	1
	Support, Rotor with Bearing Housing (HA81 & HA90)	364-48226-000	
6	Motor, Actuator	025-29657-000	1
7 ²	Seal O-Ring, 5/16 I.D.	028-12513-000	2
8 ¹	Bearing, H.S. Rear	064-48207-000	1
9 ¹	Bearing, L.S. Rear	064-47858-000	1
10 ¹	Bearing, L.S. Front	064-47857-000	1
11 ¹	Bearing, Thrust, H.S. Forward	029-25619-001	1
12	Collar, Shaft Seal	See Shaft Seal page 46	
13 ¹	Collar, Thrust, H.S.	064-47855-000	1
14 ¹	Collar, Thrust, L.S.	064-47856-000	1
15	Collar, Impeller, Clamping	064-47853-000	1
16	Cover, Shaft Seal	See Shaft Seal page 46	
17	Bearing, Thrust, H.S., Rev	029-20895-002	1
18 ²	Seal, O-Ring	028-12226-000	1
20	Cover, PRV Control Shaft	064-48861-000	1
21	Shaft, Control, PRV	364-29573-000	1
22	Retainer, BP Seal (HA65, HA70 & HA73)	064-47852-000	1
	Retainer, BP Seal (HA81 & HA90)	064-48233-000	1
24	Ring, Shaft Seal	See Shaft Seal page 46	
26	Ring, Fill, Kit, Lever, Motor	064-28284-000	1
27	Orifice, H.S., Oil Feed	064-49203-000	1
28	Washer, SPL for PRV	064-48503-000	1
30	Valve, Stop, Angle 3/8	022-01582-000	2
31	Connector, Flare	023-09671-000	3
33	Lever, PRV, Internal (HA65, HA70 & HA73)	064-47934-000	1
	Lever, PRV, Internal (HA81 & HA90)	064-47482-000	1
34	Lever, PRV, External (HA65, HA70 & HA73)	064-47872-000	1
	Lever, PRV, External (HA81 & HA90)	064-47108-000	1
35	Lever, PRV, Motor (HA65, HA70 & HA73)	064-47874-000	1
	Lever, External, Kit (HA81 & HA90)	464-50651-000	1
36	Linkage, External, PRV and Motor (HA65, HA70 & HA73)	064-28261-000	2
	Linkage, External, PRV and Motor (HA81 & HA90)	064-46880-000	2
37	Rod, Adjustable, PRV (HA65, HA70 & HA73)	064-47937-000	1
	Rod, Adjustable, PRV (HA81 & HA90)	064-09080-000	1
38	Valve, Stop, Angle 1/4	022-05089-000	2
39	Transducer, Pressure	025-28678-001	1
40	Retainer, Bearing	064-46886-000	3
42	Nipple, Pipe, 1"	023-14686-000	2
43	Connector, Flare	023-09668-000	1
44	Connector, Flare, Male	023-10785-000	1
46	Seal, Retainer	See Shaft Seal page 46	
47	Valve, Stop, Angle 1/4"	022-03836-000	2
50	Bolt, Shoulder	064-28282-000	1
51	Plug, Pipe, 1/4" Hex Socket	023-01973-000	2
52	Cap, Flare	023-11362-000	1
53	Sensor, Temperature	025-28936-000	1
54	Bolt, Shoulder	064-28262-000	1
55	Fillpiece, PR Device (HA65, HA70 & HA73)	064-10821-000	1
	Fillpiece, PR Device (HA81 & HA90)	064-09070-000	1
56	Bearing, Rod End (HA65, HA70 & HA73)	029-08343-000	2
	Bearing, Rod End (HA81 & HA90)	029-07015-000	2
60	Elbow, Flare	023-11343-000	4

1 Included In Bearing Kit, see Table 10 or Table 11. 2 Included In Gasket Kit, see Table 12.

TABLE 9 - HA65, HA70, HA73, HA81 AND HA90 BEFORE APRIL 2002 (CONT'D)

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
69	Valve, Solenoid	025-29636-000	1
73	Plate, Mounting	064-47998-000	1
75	Header, Spray	064-47999-000	1
76	Spring, Helical	029-10757-000	36
77	Ring, Retaining	See Shaft Seal page 46	
82	Pin, Dowel, Tapped 3/8"	029-18459-000	2
86	Seal O-Ring	028-12209-000	1
87 ²	Gasket, 2-1/2 O.D. x 2 I.D.	064-47751-000	1
88	Oil Drain	364-48291-000	1
89	Valve, Check, Oil, 1/8"	022-04444-000	1
90	Seal O-Ring	See Shaft Seal page 46	
92	Seal, O-Ring, 6-1/2 I.D.	028-12224-000	1
94 ²	Seal, O-Ring, 1-1/8 I.D.	028-03838-000	2
95 ²	Seal, O-Ring, 1 I.D.	028-03516-000	1
97	Flange, Oil Drain	064-48289-000	1
101	Plug, Pipe, 3/4" Square	023-04208-000	1
103 ¹	Bearing, Thrust	029-20839-001	1
106 ²	Seal, O-Ring	028-12597-000	1
110 ²	Gasket, Rotor Support/Scroll	064-47864-000	1
111	Fillpiece, PRV Device (HA65, HA70 & HA73)	064-47935-000	1
	Fillpiece, PRV Device (HA81 & HA90)	064-47727-000	1
113	Pin, Slot, Spring, 1/4"	029-06862-000	3
116	Elbow, Flare	023-09677-000	1
	Seal, O-Ring, Spliced (HA65, HA70 & HA73)	028-12227-000	1
121	Seal, O-Ring, Spliced (HA81 & HA90)	028-12569-000	
	Seal, O-Ring, 4-7/8 I.D.	028-12225-000	1
123	Ring, BP Seal (HA65, HA70 & HA73)	064-48209-000	1
	Ring, BP Seal (HA81 & HA90)	064-48230-000	1
124 ²	Seal, O-Ring, Spliced	028-12248-000	1
137	Valve, Solenoid	025-29152-000	1
139	Tee, 3/8" Tube	023-10595-000	1
141	Proximity Probe	Refer to Forms 160.49-RP3 and 160.54-RP1	
154	Bracket Support (Lower PRV)	064-48851-000	1
155	Elbow, Street, 1/4"	023-01684-000	1
156	Tee 1/4"	023-11353-000	1
159	Elbow, Flare, 3/8"	023-18969-000	1
161	Elbow Flare	023-11343-000	1
201	Impeller (HA65)	064-47835-000	1
	Impeller (HA70)	064-50099-000	1
	Impeller (HA73)	064-47836-001	1
	Impeller (HA81)	064-48155-000	1
	Impeller (HA90)	064-48156-000	1
202	Plate, Nozzle Base (HA65)	064-47847-000	1
	Plate, Nozzle Base (HA70)	064-49997-000	1
	Plate, Nozzle Base (HA73)	064-47848-000	1
	Plate, Nozzle Base (HA81)	064-48162-000	1
	Plate, Nozzle Base (HA90)	064-48163-000	1
203	Plate, Diffuser (HA65)	064-47849-000	1
	Plate, Diffuser (HA70)	064-49998-000	1
	Plate, Diffuser (HA73)	064-47850-000	1
	Plate, Diffuser (HA81)	064-48151-000	1
	Plate, Diffuser (HA90)	064-48152-000	1
204	Device, Pre-Rotation (HA65, HA70 & HA73)	See Table 8	
	Device, Pre-Rotation (HA81 & HA90)	See Table 17	

1 Included In Bearing Kit, see Table 10 or Table 11. 2 Included In Gasket Kit, see Table 12.

TABLE 9 - HA65, HA70, HA73, HA81 AND HA90 BEFORE APRIL 2002 (CONT'D)

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
206	Ring Eye Seal (HA65)	064-47867-000	1
	Ring Eye Seal (HA70)	064-50104-000	
	Ring Eye Seal (HA73)	064-47868-000	
	Ring Eye Seal (HA81)	064-48231-000	
	Ring Eye Seal (HA90)	064-48232-000	
207	Retainer, Eye Seal (HA65)	064-47869-000	1
	Retainer, Eye Seal (HA70)	064-48277-000	
	Retainer, Eye Seal (HA73)	064-47870-000	
	Retainer, Eye Seal (HA81)	064-48228-000	
	Retainer, Eye Seal (HA90)	064-48229-000	
208	Seal O-Ring (HA65, HA70, HA73)	028-12247-000	1
	Seal O-Ring (HA81)	028-12567-000	
	Seal O-Ring (HA90)	028-12568-000	
219	Orifice (units w/o item 137)	064-49229-000	1

1 Included In Bearing Kit, see Table 10 or Table 11. 2 Included In Gasket Kit, see Table 12.

TABLE 10 - HA65-73 BEARING KIT (664-48645-000)

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
2	Bearing, H.S. Front	064-48304-000	1
8	Bearing, H.S. Rear	064-48207-000	1
9	Bearing, L.S. Rear	064-47858-000	1
10	Bearing, L.S. Front	064-47857-000	1
11	Bearing, Thrust, H.S. Forward	029-25619-001	1
13	Collar, Thrust, H.S.	064-47855-000	1
14	Collar, Thrust, L.S.	064-47856-000	1
103	Bearing, Thrust	029-20839-001	1

TABLE 11 - HA81-90 BEARING KIT (464-49802-000)

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
2	Bearing, H.S. Front	064-48223-000	1
8	Bearing, H.S. Rear	064-48207-000	1
9	Bearing, L.S. Rear	064-47858-000	1
10	Bearing, L.S. Front	064-47857-000	1
11	Bearing, Thrust, H.S. Forward	029-25619-001	1
13	Collar, Thrust, H.S.	064-47855-000	1
14	Collar, Thrust, L.S.	064-47856-000	1
103	Bearing, Thrust	029-20839-001	1

TABLE 12 - HA65-90 GASKET KIT (664-48649-000)

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
7	Seal, O-Ring	028-12513-000	3
18	Seal, O-Ring	028-12226-000	1
87	Gasket	064-47751-000	1
94	Seal, O-Ring	028-03838-000	2
95	Seal, O-Ring	028-03516-000	1
106	Seal, O-Ring	028-12597-000	1
110	Gasket, Rotor, Support/Scroll	064-47864-000	1
122	Seal, O-Ring	028-12225-000	1
124	Seal, O-Ring, Spliced	028-12248-000	1

HA65, HA70, HA73, HA81 AND HA90

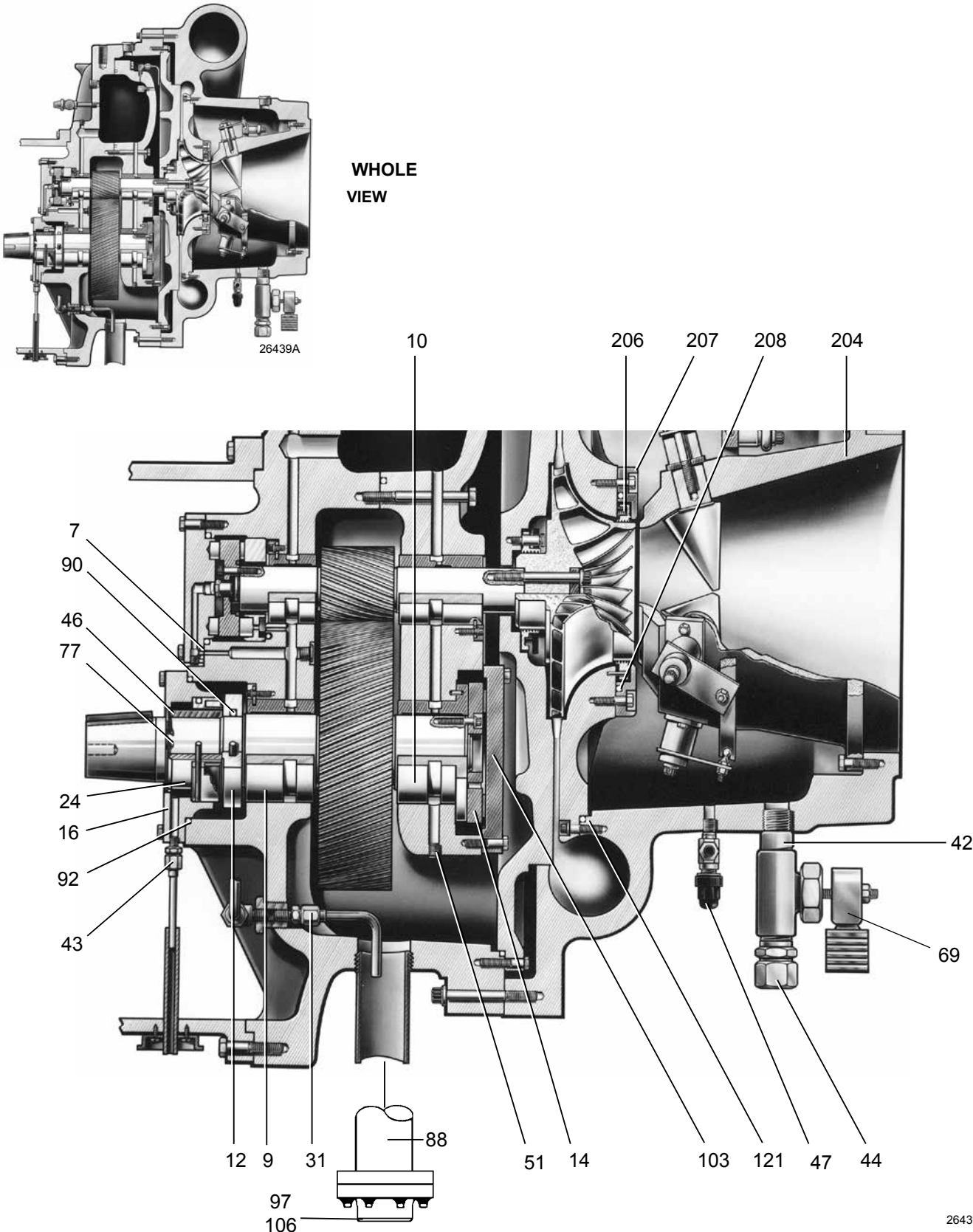


FIGURE 5 - HA65, HA70, HA73, HA81 AND HA90

HA65, HA70, HA73, HA81 AND HA90 (CONT'D)

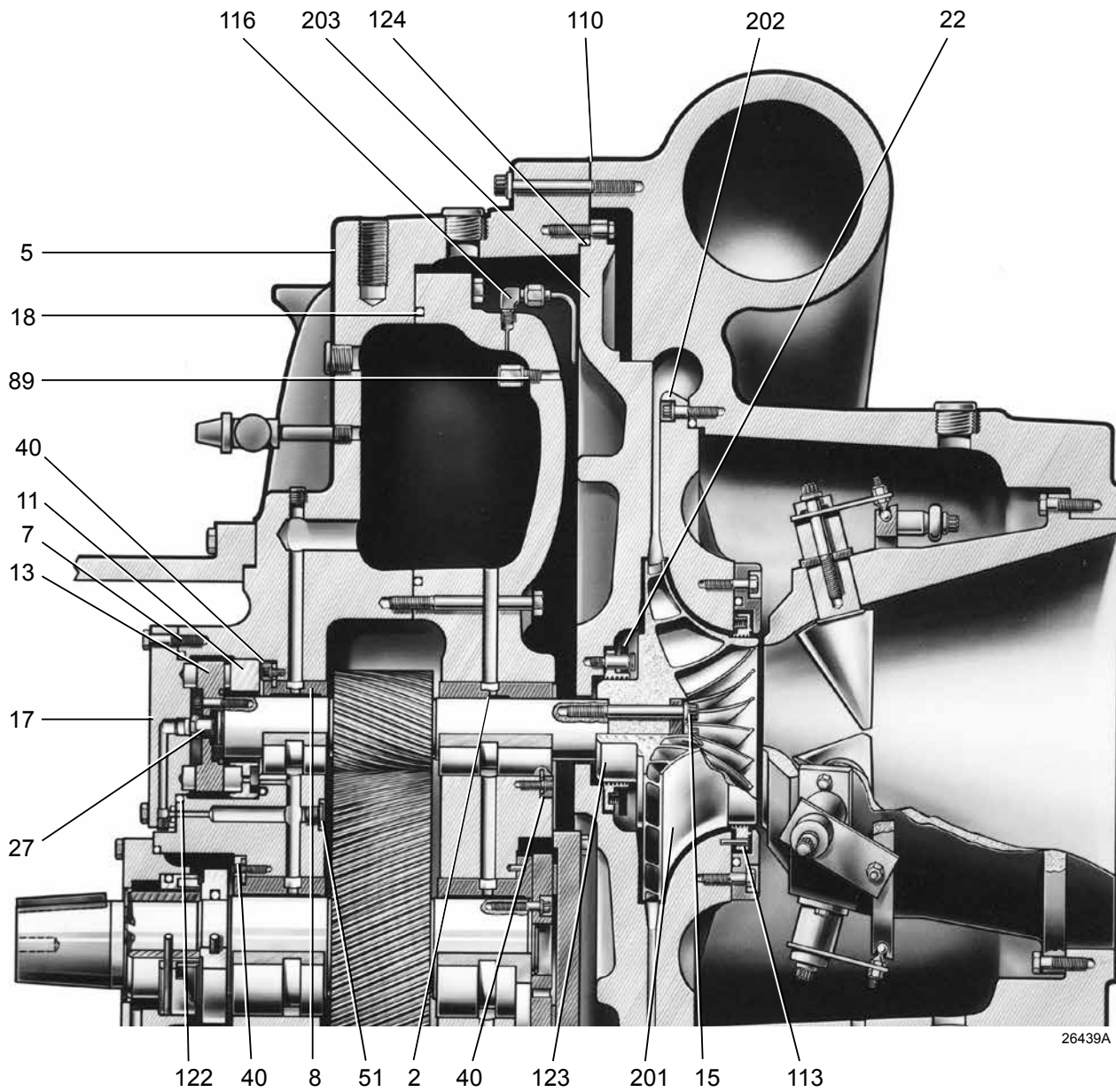


FIGURE 3 – HA65, HA70, HA73, HA81 AND HA90 (CONT'D)

HA65, HA70, HA73, HA81 AND HA90 (CONT'D)

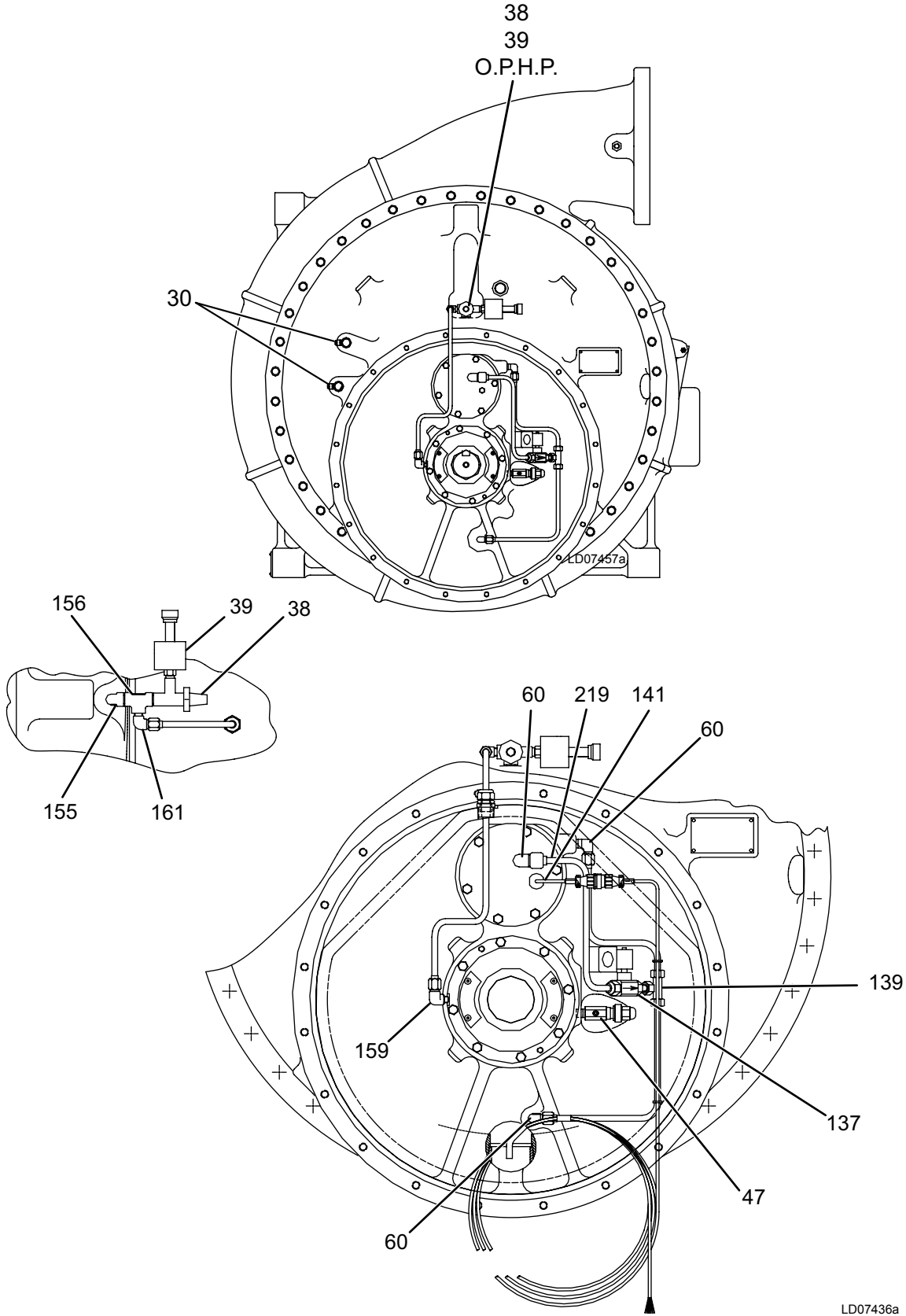
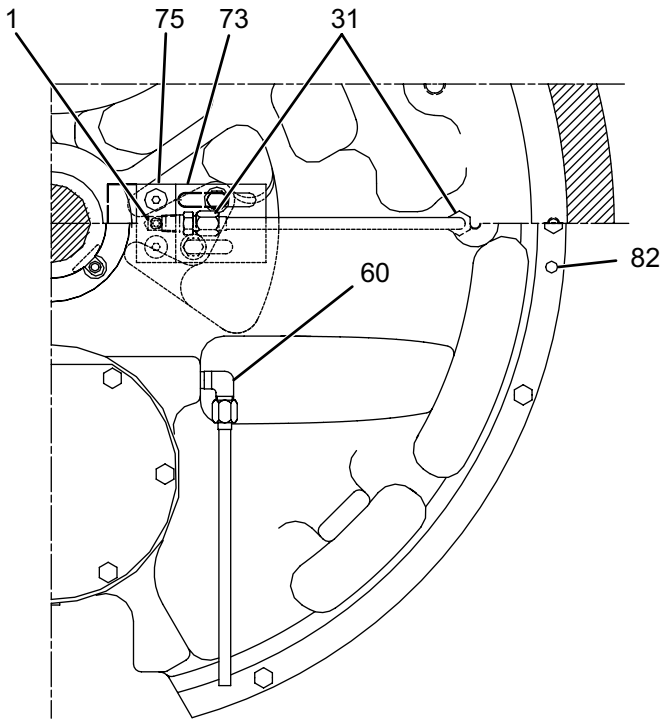
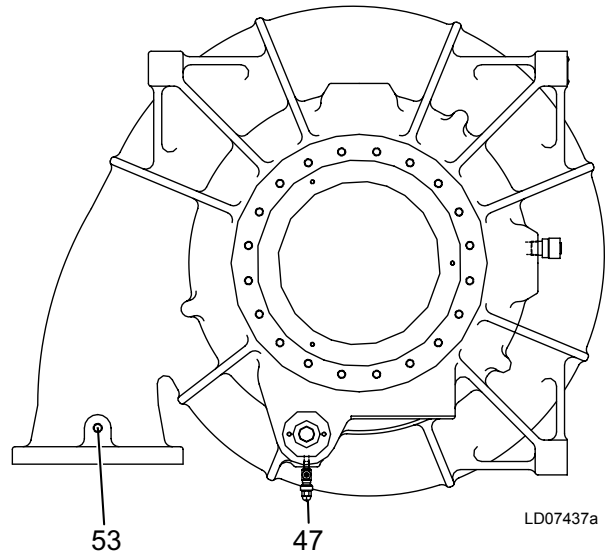


FIGURE 3 – HA65, HA70, HA73, HA81 AND HA90 (CONT'D)

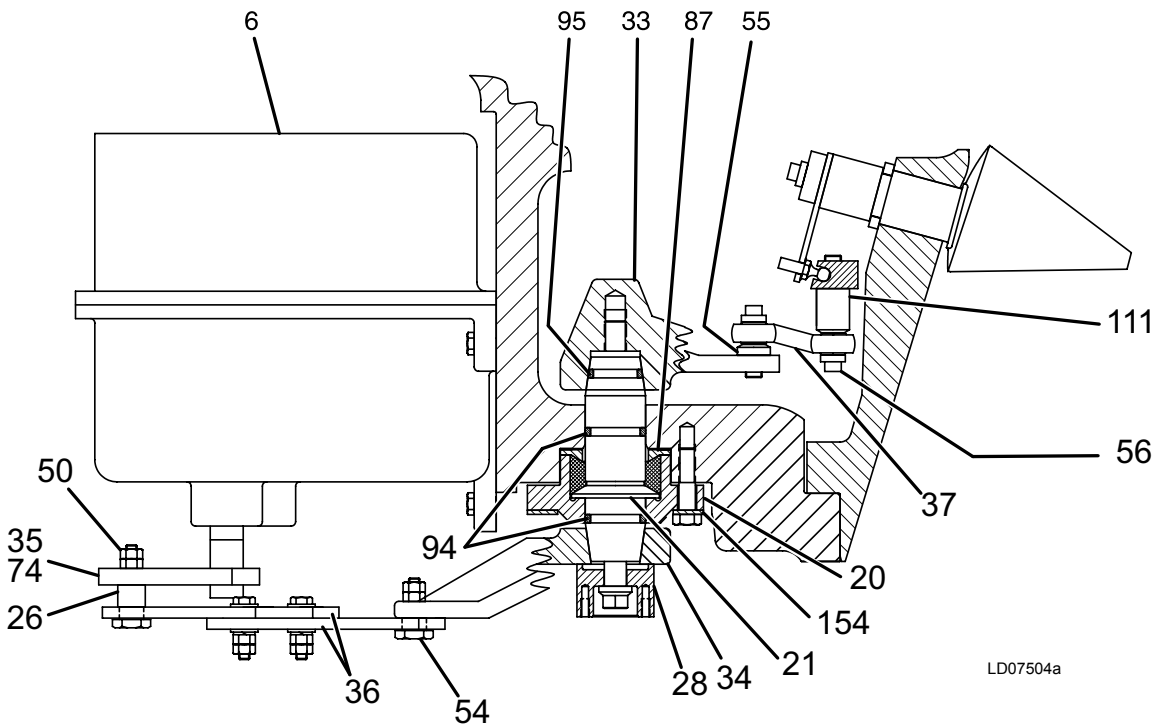
HA65, HA70, HA73, HA81 AND HA90 (CONT'D)



LD07433a



LD07437a



LD07504a

FIGURE 3 – HA65, HA70, HA73, HA81 AND HA90 (CONT'D)

TABLE 13 - HA65, HA73, HA81 AND HA90 AFTER APRIL 2002

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
1	Screw, Set, Hex Soc. Cup	021-00774-000	1
2 ¹	Bearing, HS, Front (HA65 & HA73)	064-48304-000	1
	Bearing, HS, Front (HA81, HA90 & HA104)	064-48223-000	
5	Support, Rotor with Bearing Housing (HA65 & HA73)	364-48221-000	1
	Support, Rotor with Bearing Housing (HA81 & HA90)	364-48226-000	
6	Motor, Actuator	025-29657-000	1
7 ²	Seal O-Ring, 5/16 I.D.	028-12513-000	2
8 ¹	Bearing, H.S. Rear	064-48207-000	1
9 ¹	Bearing, L.S. Rear	064-47858-000	1
10 ¹	Bearing, L.S. Front	064-47857-000	1
11 ¹	Bearing, Thrust, H.S., (10/93 - 8/96)	029-20896-002	1
	Bearing, Thrust, H.S., (After 8/96)	029-25619-000	
13 ¹	Collar, Thrust, H.S.	064-47855-000	1
14 ¹	Collar, Thrust, L.S.	064-47856-000	1
15	Collar, Impeller, Clamping	064-47853-000	1
17	Bearing, Thrust, H.S., Rev	029-20895-002	1
18 ²	Seal, O-Ring	028-12226-000	1
20	Cover, PRV Control Shaft	064-48861-000	1
21	Shaft, Control, PRV	364-29573-000	1
26	Ring, Fill, Kit, Lever, Motor	064-28284-000	1
27	Orifice, H.S., Oil Feed	064-49203-000	1
28	Washer, SPL for PRV	064-48503-000	1
30	Valve, Stop, Angle 3/8	022-01582-000	2
31	Connector, Flare	023-09671-000	3
33	Lever, PRV, Internal (HA65 & HA73)	064-47934-000	1
	Lever, PRV, Internal (HA81 & HA90)	064-47482-000	
34	Lever, PRV, External (HA65 & HA73)	064-47872-000	1
	Lever, PRV, External (HA81 & HA90)	064-47108-000	
35	Lever, PRV, Motor (HA65 & HA73)	064-47874-000	1
	Lever, PRV, Motor (HA81 & HA90)	064-48240-000	
36	Link, Ext., PRV & Motor (HA65 & HA73)	064-28261-000	2
	Link, Ext., PRV & Motor (HA81 & HA90)	064-46880-000	
37	Rod, Adjustable, PRV (HA65 & HA73)	064-47937-000	1
	Rod, Adjustable, PRV (HA81 & HA90)	064-09080-000	
38	Valve, Stop, Angle 1/4	022-05089-000	2
39	Transducer, Pressure	025-28678-001	1
40	Retainer, Bearing	064-46886-000	3
42	Nipple, Pipe, 1"	023-14686-000	2
43	Connector, Flare	023-09668-000	1
44	Connector, Flare, Male	023-10785-000	1
47	Valve, Stop, Angle 1/4"	022-03836-000	2
50	Bolt, Shoulder	064-28282-000	1
51	Plug, Pipe, 1/4" Hex Socket	023-01973-000	2
52	Cap, Flare	023-11362-000	1
53	Sensor, Temp	025-28936-000	1
54	Bolt, Shoulder	064-28262-000	1
55	Fillpiece, PR Device (HA65, HA73 & HA81)	064-10821-000	1
	Fillpiece, PR Device (HA90)	064-09070-000	1
56	Bearing, Rod End (HA65 & HA73)	029-08343-000	2
	Bearing, Rod End (HA81 & HA90)	029-07015-000	2
60	Elbow, Flare	023-11343-000	4
73	Plate, Mounting	064-47998-000	1
74	Screw, Set, Hex, Soc. Cup	021-03910-000	1
75	Header, Spray	064-47999-000	1
82	Pin, Dowel, Tapped 3/8"	029-18459-000	2

¹Included in Bearing Kit, see Table 14 or Table 15 ²Included in Gasket Kit, see Table 16.

TABLE 4 - HA65, HA73, HA81 AND HA90 AFTER APRIL 2002 (CONT'D)

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
86	Seal O-Ring	028-12209-000	1
87 ²	Gasket, 2-1/2 O.D. x 2 I.D.	064-47751-000	1
88	Oil Drain	364-48291-000	1
89	Valve, Check, Oil, 1/8"	022-04444-000	1
92	Seal, O-Ring, 6-1/2 I.D.	028-12224-000	1
94 ²	Seal, O-Ring, 1-1/8 I.D.	028-03838-000	2
95 ²	Seal, O-Ring, 1 I.D.	028-03516-000	1
97	Flange, Oil Drain	064-48289-000	1
101	Plug, Pipe, 3/4" Square	023-04208-000	1
103 ¹	Bearing, Thrust	029-20839-001	1
106 ²	Seal, O-Ring	028-12597-000	1
110 ²	Gasket, Rotor Support/Scroll	064-47864-000	1
111	Fillpiece, PRV Device (HA65 & HA73)	064-47935-000	1
	Fillpiece, PRV Device (HA81 & HA90)	064-47727-000	1
113	Pin, Slot, Spring, 1/4"	029-06862-000	3
116	Elbow, Flare	023-09677-000	1
121	Seal, O-Ring, Spliced (HA65 & HA73)	028-12227-000	1
	Seal, O-Ring, Spliced (HA81 & HA90)	028-12569-000	1
122 ²	Seal, O-Ring, 4-7/8 I.D.	028-12225-000	1
124 ²	Seal, O-Ring, Spliced	028-12248-000	1
137	Valve, Solenoid	025-29152-000	1
139	Tee, 3/8" Tube	023-10595-000	1
141	Proximity Probe	<i>Refer to Forms 160.49-RP3 & 160.54-RP1</i>	
154	Bracket Support (Lower PRV)	064-48851-000	1
155	Elbow, Street, 1/4"	023-01684-000	1
156	Tee 1/4"	023-11353-000	1
159	Elbow, Flare, 3/8"	023-18969-000	1
161	Elbow Flare	023-11343-000	1
201	Impeller (HA65)	064-47835-000	1
	Impeller (HA73)	064-47836-001	
	Impeller (HA81)	064-48155-000	
	Impeller (HA90)	064-48156-000	
202	Plate, Nozzle Base (HA65)	064-50249-000	1
	Plate, Nozzle Base (HA73)	064-50328-000	
	Plate, Nozzle Base (HA81)	064-50313-000	
	Plate, Nozzle Base (HA90)	064-50317-000	
203	Plate, Diffuser (HA65)	064-47879-000	1
	Plate, Diffuser (HA73)	064-47850-000	
	Plate, Diffuser (HA81)	064-50315-000	
	Plate, Diffuser (HA90)	064-50318-000	
204	Device, Pre-Rotation (HA65 & HA73)	<i>See Table 8</i>	
	Device, Pre-Rotation (HA81 & HA90)	<i>See Table 17</i>	
206	Ring Eye Seal (HA65)	064-50341-000	1
	Ring Eye Seal (HA73)	064-50320-000	
	Ring Eye Seal (HA81)	064-50247-000	
	Ring Eye Seal (HA90)	064-50250-000	
207	Retainer, Eye Seal (HA65)	064-50321-000	1
	Retainer, Eye Seal (HA73)	064-50322-000	
	Retainer, Eye Seal (HA81)	064-50311-000	
	Retainer, Eye Seal (HA90)	064-50314-000	
	Retainer, Eye Seal (HA104)	064-50331-000	
219	Orifice (units w/o item 137)	064-49229-000	1
222	Retainer, Bal Piston Seal (HA65 & HA73)	064-50196-000	1
	Retainer, Bal Piston Seal (HA81 & HA90)	064-50242-000	
	Retainer, Bal Piston Seal (HA104)	064-50239-000	

¹Included in Bearing Kit, see Table 14 or Table 15 ²Included in Gasket Kit, see Table 16.

TABLE 4 - HA65, HA73, HA81 AND HA90 AFTER APRIL 2002 (CONT'D)

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
223	Spring Washer, Bal Piston (HA65 & HA73)	064-50195-000	1
	Spring Washer, Bal Piston (HA81 & HA90)	064-50243-000	
224	Spring Washer, B.P. Seal (HA65 & HA73)	064-50195-000	1
	Spring Washer, B.P. Seal (HA81 & HA90)	064-50243-000	
225	Retainer, Eye Seal Washer (HA65)	065-50312-000	1
	Retainer, Eye Seal Washer (HA73)	064-50322-000	
	Retainer, Eye Seal Washer (HA81)	064-50311-000	
	Retainer, Eye Seal Washer (HA90)	064-50314-000	

¹Included in Bearing Kit, see Table 14 or Table 15 ²Included in Gasket Kit, see Table 16.

TABLE 14 - HA65-73 BEARING KIT (664-48645-000)

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
2	Bearing, H.S. Front	064-48304-000	1
8	Bearing, H.S. Rear	064-48207-000	1
9	Bearing, L.S. Rear	064-47858-000	1
10	Bearing, L.S. Front	064-47857-000	1
11	Bearing, Thrust, H.S. Forward	029-25619-001	1
13	Collar, Thrust, H.S.	064-47855-000	1
14	Collar, Thrust, L.S.	064-47856-000	1
103	Bearing, Thrust	029-20839-001	1

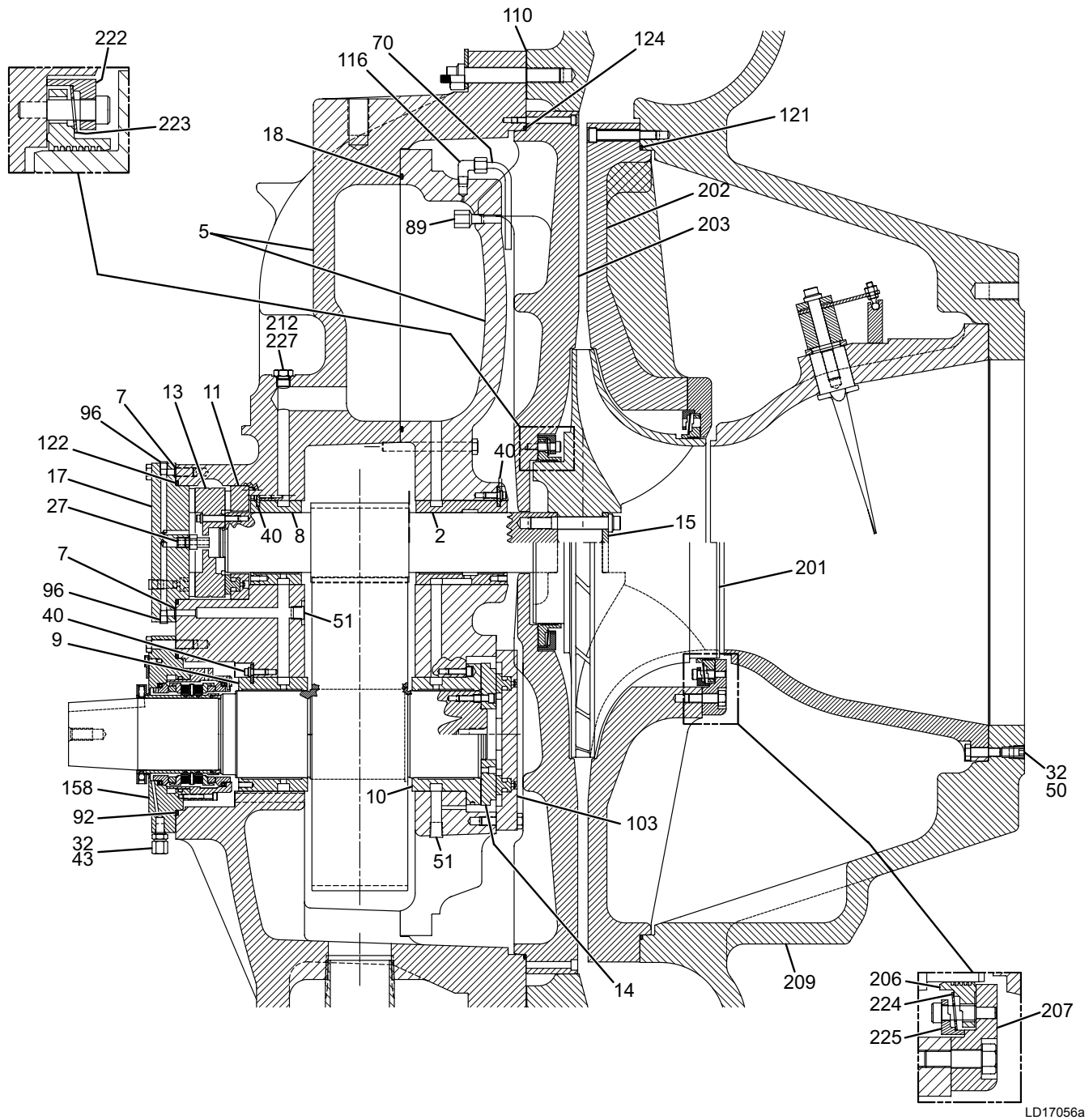
TABLE 15 - HA81-90 BEARING KIT (464-49802-000)

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
2	Bearing, H.S. Front	064-48223-000	1
8	Bearing, H.S. Rear	064-48207-000	1
9	Bearing, L.S. Rear	064-47858-000	1
10	Bearing, L.S. Front	064-47857-000	1
11	Bearing, Thrust, H.S. Forward	029-25619-001	1
13	Collar, Thrust, H.S.	064-47855-000	1
14	Collar, Thrust, L.S.	064-47856-000	1
103	Bearing, Thrust	029-20839-001	1

TABLE 16 - HA65-90 GASKET KIT (664-48649-000)

ITEM	DESCRIPTION	PART NUMBER	QUANTITY
7	Seal, O-Ring	028-12513-000	3
18	Seal, O-Ring	028-12226-000	1
87	Gasket	064-47751-000	1
94	Seal, O-Ring	028-03838-000	2
95	Seal, O-Ring	028-03516-000	1
106	Seal, O-Ring	028-12597-000	1
110	Gasket, Rotor, Support/Scroll	064-47864-000	1
122	Seal, O-Ring	028-12225-000	1
124	Seal, O-Ring, Spliced	028-12248-000	1

HA65, HA73, HA81 AND HA90



LD17056a

FIGURE 6 - HA65, HA73, HA81 AND HA90

HA65, HA73, HA81 AND HA90 (CONT'D)

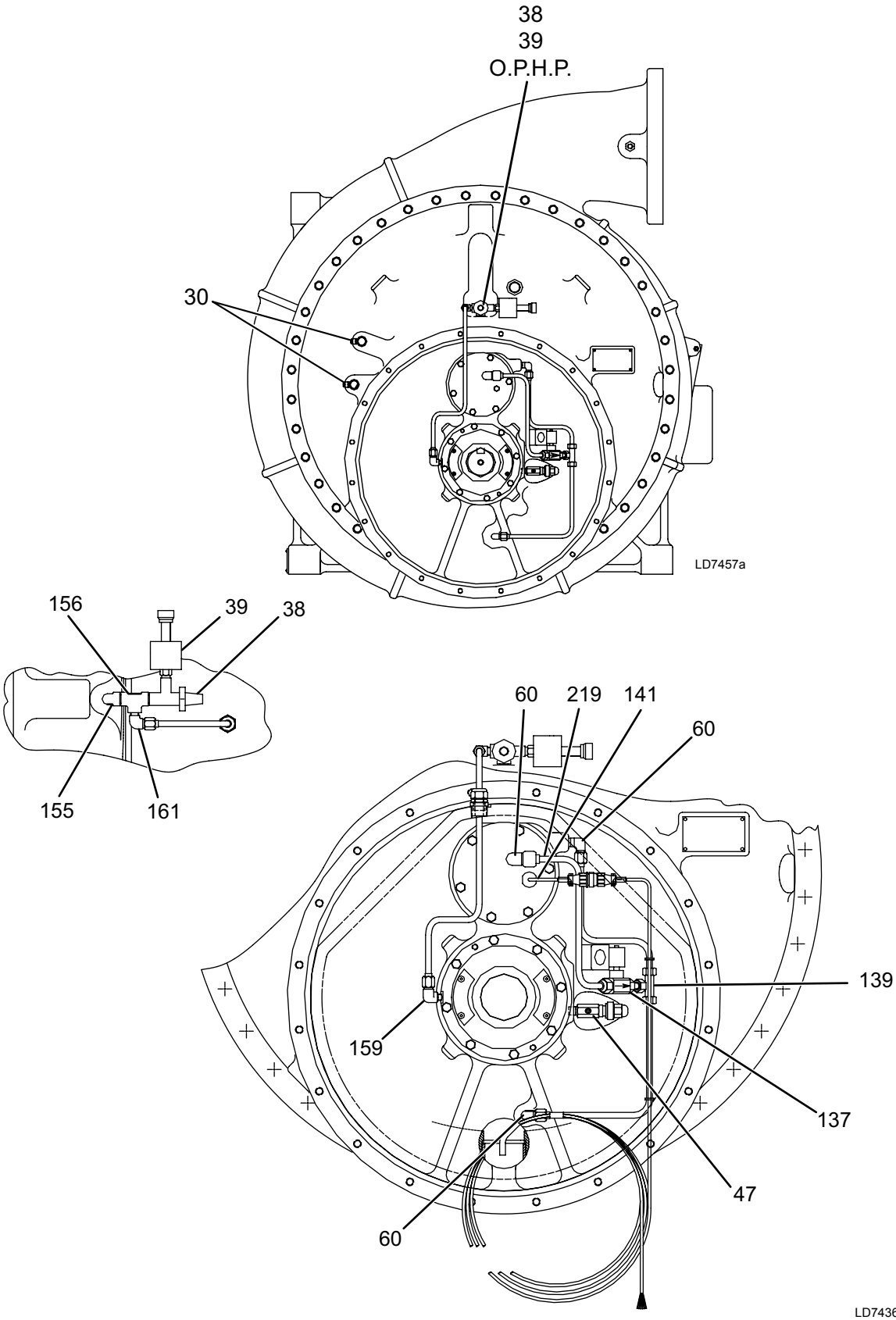
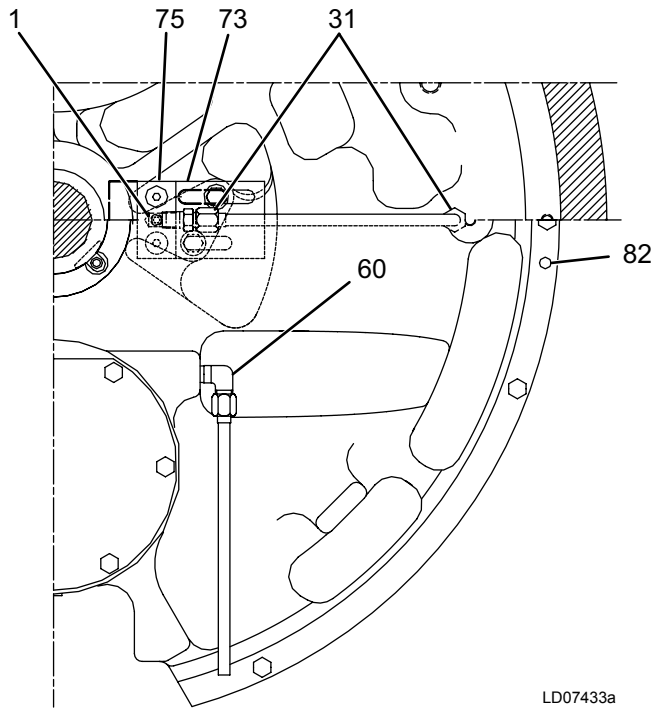
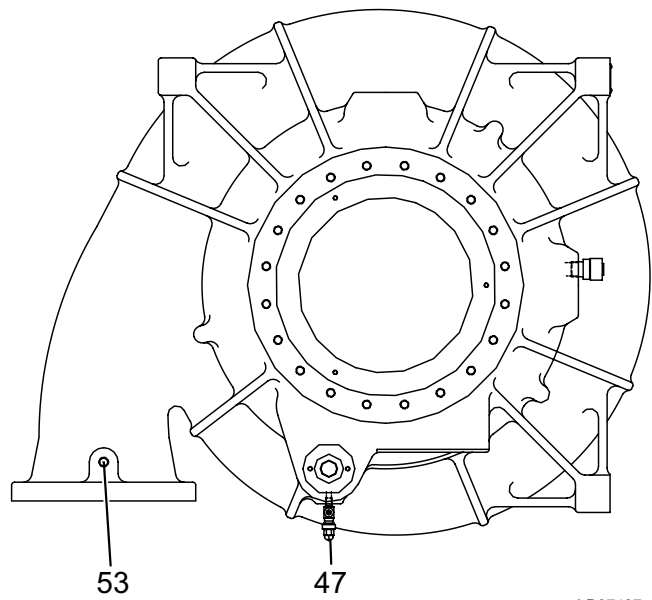


FIGURE 4 - HA65, HA73, HA81 AND HA90 (CONT'D)

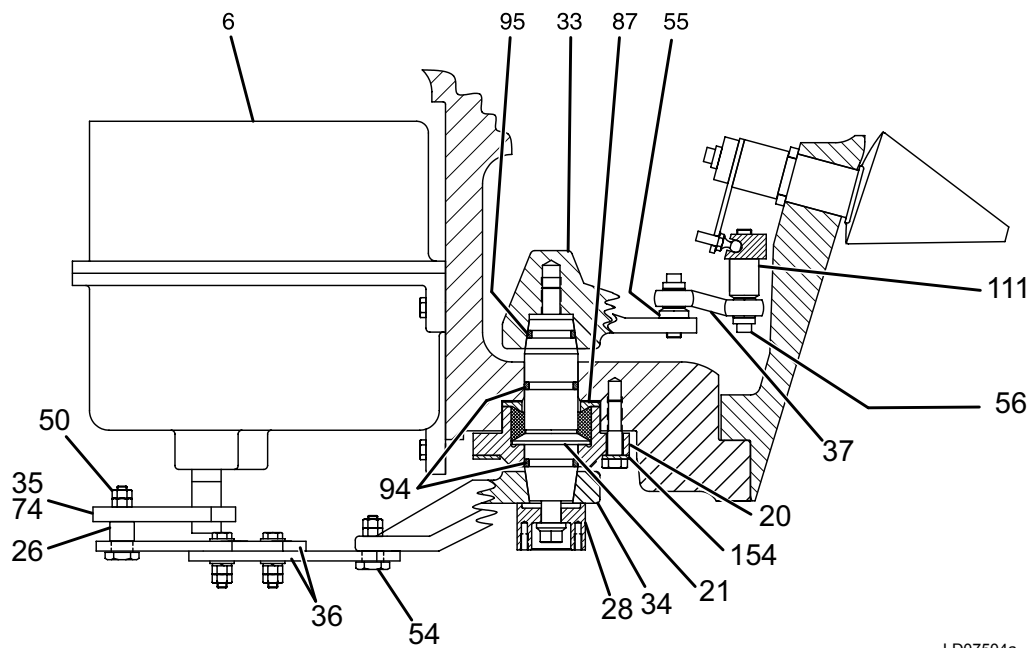
HA65, HA73, HA81 AND HA90 (CONT'D)



LD07433a



LD07437a



LD07504a

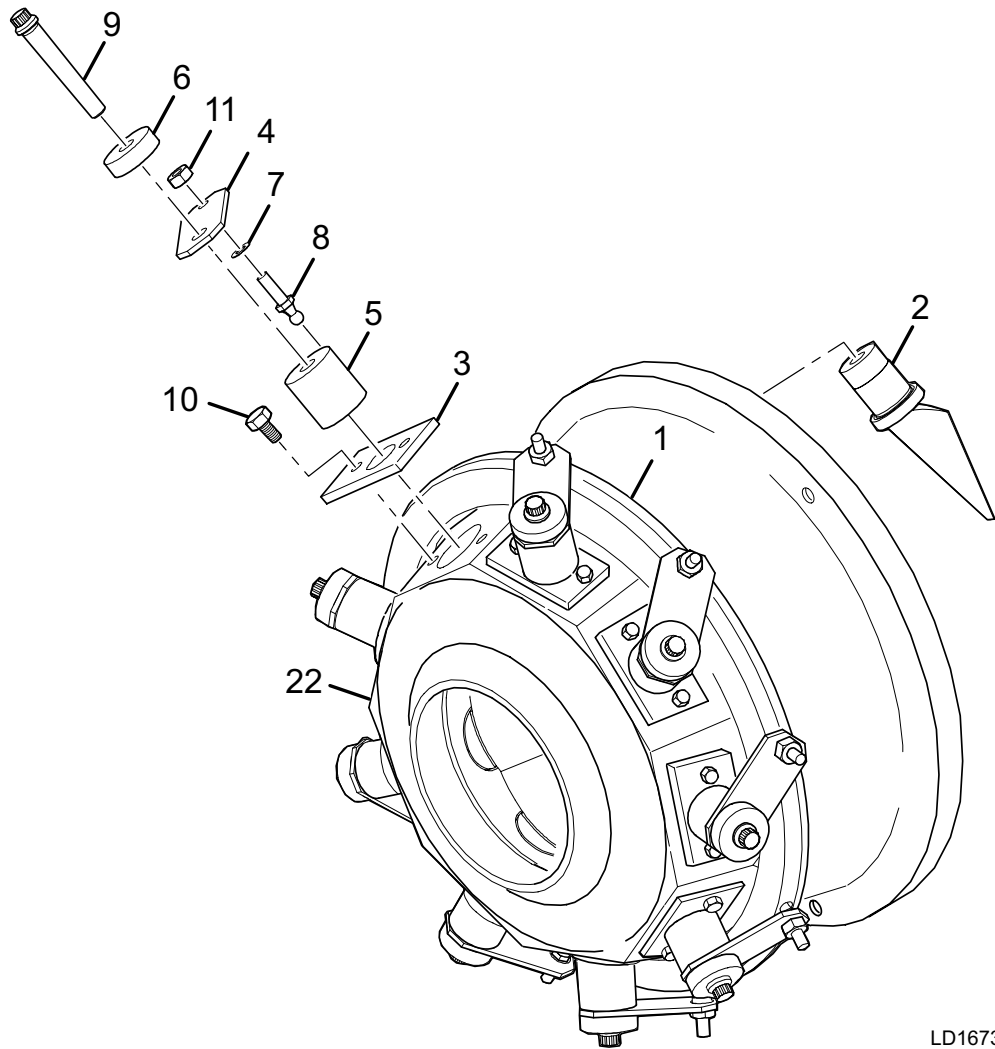
FIGURE 4 - HA65, HA73, HA81 AND HA90 (CONT'D)

TABLE 17 - PRE-ROTATION HOUSING – HA81 AND HA90

ITEM	DESCRIPTION	QUANTITY	PART NUMBER
	Pre-Rotation Housing Complete Assembly HA81 Built before July 2001 HA81 Built after July 2001 HA90 Built before July 2001 HA90 Built after July 2001 (Consisting of the following Items)	1 1 1 1	364-48202-002 364-50208-002 364-48202-003 364-50208-003
1	Ring HA81 and HA90 Built before July 2001 HA81 and HA90 Built after July 2001	1 1	064-48205 064-50205
2	Vane	9	064-48206
3	Retainer	9	064-47505
4	Arm, Vane	9	064-47508
5	Spacer, Arm	9	064-48199
6	Washer	9	064-47516
7	Washer, Plain	18	021-11973
8	Stud, Ball	9	029-15924
9	Screw, Cap 12 PT	9	021-17571
10	Screw, Cap Hex	18	021-01372
11	Nut, Self-Locking	9	021-12943
12	Housing, PRV HA81 Built before July 2001 HA81 Built after July 2001 HA90 Built before July 2001 HA90 Built after July 2001	1 1 1 1	064-48197 064-50206 064-48198 064-50207

NOTE:

Retrofit kit # 364-50235-000 is available for HA81 and HA90 PRV assemblies built prior to July 2001 for the addition of drive ring guide brackets which improves reliability of the PRV assemblies. YORK recommends installation of this kit whenever work is performed on the PRV assemblies of compressors built prior to July 2001 which do not have these guide brackets. Units manufactured after July 2001 do not require having this modification performed.



LD16737

FIGURE 7 - PRE-ROTATION HOUSING (HA81 AND HA90)

TABLE 18 - GEAR SETS

SPEED CODE	PART NUMBER
EA	029-14400-401
EB	029-14400-402
EC	029-14400-403
ED	029-14400-404
EE	029-14400-405
EF	029-14400-406
EG	029-14400-407
EH	029-14400-408
EJ	029-14400-409
EK	029-14400-410
EL	029-14400-411
EM	029-14400-412
EN	029-14400-413
EP	029-14400-414
EQ	029-14400-415
ER	029-14400-416
ES	029-14400-417
ET	029-14400-418
EU	029-14400-419
EV	029-14400-420
EW	029-14400-421
EX	029-14400-422
EY	029-14400-423
FA	029-14400-301
FB	029-14400-302
FC	029-14400-303
FD	029-14400-304
FE	029-14400-305
FF	029-14400-306
FG	029-14400-307
FH	029-14400-308
FJ	029-14400-309
FK	029-14400-310
FL	029-14400-311
FM	029-14400-312
FN	029-14400-313
FP	029-14400-314
FQ	029-14400-315
FR	029-14400-316
FS	029-14400-317

SPEED CODE	PART NUMBER
FT	029-14400-318
FU	029-14400-319
FV	029-14400-320
FW	029-14400-321
NA	029-14400-331
NB	029-14400-332
NC	029-14400-333
ND	029-14400-334
NE	029-14400-335
NF	029-14400-336
NG	029-14400-337
NH	029-14400-338
NJ	029-14400-339
NK	029-14400-340
NL	029-14400-341
NM	029-14400-342
NN	029-14400-343
NP	029-14400-344
NQ	029-14400-345
NR	029-14400-346
NS	029-14400-347
NT	029-14400-348
NU	029-14400-349
NV	029-14400-350
NW	029-14400-351
NX	029-14400-352
NY	029-14400-353
NZ	029-14400-354
PA	029-14400-355
PB	029-14400-356
PR	029-14400-392
PS	029-14400-393
PT	029-14400-394
PU	029-14400-395
PV	029-14400-396
PW	029-14400-397
PX	029-14400-398
PY	029-14400-399
PZ	029-14400-400

TABLE 19 - 60 HERTZ MOTORS

MOTOR CODE	NAME PLATE VOLTAGE	MOTOR PART NUMBER		
		RELIANCE	SIEMENS	TOSHIBA
CH	200/208	024-26178-019	024-26178-219	024-26178-619
CH	230/240	024-26178-020	024-26178-220	024-26178-620
CH	380	024-26178-021	024-26178-221	024-26178-621
CH	416	024-26178-022	024-26178-222	024-26178-622
CH	440/460/480	024-26178-023	024-26178-223	024-26178-623
CH	575/600	024-26178-024	024-26178-224	024-26178-624
CH	2300	024-26178-025	024-26178-225	—
CH	3300	024-26178-026	024-26178-226	—
CH	4000/4160	024-26178-027	024-26178-227	—
CJ	200/208	024-26178-028	024-26178-228	024-26178-628
CJ	230/240	024-26178-029	024-26178-229	024-26178-629
CJ	380	024-26178-030	024-26178-230	024-26178-630
CJ	416	024-26178-031	024-26178-231	024-26178-631
CJ	440/460/480	024-26178-032	024-26178-232	024-26178-632
CJ	575/600	024-26178-033	024-26178-233	024-26178-633
CJ	2300	024-26178-034	024-26178-234	—
CJ	3300	024-26178-035	024-26178-235	—
CJ	4000/4160	024-26178-036	024-26178-236	—
CK	200/208	024-26178-037	024-26178-237	024-26178-637
CK	230/240	024-26178-038	024-26178-238	024-26178-638
CK	380	024-26178-039	024-26178-239	024-26178-639
CK	416	024-26178-040	024-26178-240	024-26178-640
CK	440/460/480	024-26178-041	024-26178-241	024-26178-641
CK	575/600	024-26178-042	024-26178-242	024-26178-642
CK	2300	024-26178-043	024-26178-243	—
CK	3300	024-26178-044	024-26178-244	—
CK	4000/4160	024-26178-045	024-26178-245	—
CL	200/208	024-26178-046	024-26178-246	—
CL	230/240	024-26178-047	024-26178-247	024-26178-647
CL	380	024-26178-048	024-26178-248	024-26178-648
CL	416	024-26178-049	024-26178-249	024-26178-649
CL	440/460/480	024-26178-050	024-26178-250	024-26178-650
CL	575/600	024-26178-051	024-26178-251	024-26178-651
CL	2300	024-26178-052	024-26178-252	—
CL	3300	024-26178-053	024-26178-253	—
CL	4000/4160	024-26178-054	024-26178-254	—
CM	200/208	024-26178-055	024-26178-255	—
CM	230/240	024-26178-056	024-26178-256	024-26178-656
CM	380	024-26178-057	024-26178-257	024-26178-657
CM	416	024-26178-058	024-26178-258	024-26178-658
CM	440/460/480	024-26178-059	024-26178-259	024-26178-659
CM	575/600	024-26178-060	024-26178-260	024-26178-660
CM	2300	024-26178-061	024-26178-261	—
CM	3300	024-26178-062	024-26178-262	—
CM	4000/4160	024-26178-063	024-26178-263	—

TABLE 19 - 60 HERTZ MOTORS (CONT'D)

MOTOR CODE	NAME PLATE VOLTAGE	MOTOR PART NUMBER		
		RELIANCE	SIEMENS	TOSHIBA
CN	200/208	024-26178-064	024-26178-264	—
CN	230/240	024-26178-065	024-26178-265	024-26178-665
CN	380	024-26178-066	024-26178-266	024-26178-666
CN	416	024-26178-067	024-26178-267	024-26178-667
CN	440/460 /480	024-26178-068	024-26178-268	024-26178-668
CN	575/600	024-26178-069	024-26178-269	024-26178-669
CN	2300	024-26178-070	024-26178-270	—
CN	3300	024-26178-071	024-26178-271	—
CN	4000/4160	024-26178-072	024-26178-272	—
CP	200/208	024-26178-073	—	—
CP	230/240	024-26178-074	—	—
CP	380	024-26178-075	024-26178-275	024-26178-675
CP	416	024-26178-076	024-26178-276	024-26178-676
CP	440/460/480	024-26178-077	024-26178-277	024-26178-677
CP	575/600	024-26178-078	024-26178-278	024-26178-678
CP	2300	024-26178-079	024-26178-279	—
CP	3300	024-26178-080	024-26178-280	—
CP	4000/4160	024-26178-081	024-26178-281	—
CR	200/208	024-25569-001	—	—
CR	230/240	024-25569-002	—	—
CR	380	024-25569-003	024-25569-203	024-25569-603
CR	416	024-25569-004	024-25569-204	024-25569-604
CR	440/460/480	024-25569-005	024-25569-205	024-25569-605
CR	575/600	024-25569-006	024-25569-206	024-25569-606
CR	2300	024-25569-007	024-25569-207	—
CR	3300	024-25569-008	024-25569-208	—
CR	4000/4160	024-25569-009	024-25569-209	—
CS	200/208	024-25569-010	—	—
CS	230/240	024-25569-011	—	—
CS	380	024-25569-012	024-25569-212	024-25560-612
CS	416	024-25569-013	024-25569-213	024-25560-613
CS	440/460/480	024-25569-014	024-25569-214	024-25560-614
CS	575/600	024-25569-015	024-25569-215	024-25560-615
CS	2300	024-25569-016	024-25569-216	—
CS	3300	024-25569-017	024-25569-217	—
CS	4000/4160	024-25569-018	024-25569-218	—
CT	230/240	024-25569-020	—	—
CT	380	024-25569-021	024-25569-221	024-25569-621
CT	416	024-25569-022	024-25569-222	024-25569-622
CT	440/460/480	024-25569-023	024-25569-223	024-25569-623
CT	575/600	024-25569-024	024-25569-224	024-25569-624
CT	2300	024-25569-025	024-25569-225	—
CT	3300	024-25569-026	024-25569-226	—
CT	4000/4160	024-25569-027	024-25569-227	—
CU	230/240	024-25569-029	—	—
CU	380	024-25569-030	024-25569-230	024-25569-630
CU	416	024-25569-031	024-25569-231	024-25569-631

TABLE 19 - 60 HERTZ MOTORS (CONT'D)

MOTOR CODE	NAME PLATE VOLTAGE	MOTOR PART NUMBER		
		RELIANCE	SIEMENS	TOSHIBA
CU	440/460/480	024-25569-032	024-25569-232	024-25569-632
CU	575/600	024-25569-033	024-25569-233	024-25569-633
CU	2300	024-25569-034	024-25569-234	—
CU	3300	024-25569-035	024-25569-235	—
CU	4000/4160	024-25569-036	024-25569-236	—
CV	380	024-25569-039	024-25569-239	—
CV	416	024-25569-040	024-25569-240	024-25569-640
CV	440/460/480	024-25569-041	024-25569-241	024-25569-641
CV	575/600	024-25569-042	024-25569-242	024-25569-642
CV	2300	024-25569-043	024-25569-243	—
CV	3300	024-25569-044	024-25569-244	—
CV	4000/4160	024-25569-045	024-25569-245	—
CW	380	024-25569-048	024-25569-248	—
CW	416	024-25569-049	024-25569-249	—
CW	440/460/480	024-25569-050	024-25569-250	024-25569-650
CW	575/600	024-25569-051	024-25569-251	024-25569-651
CW	2300	024-25569-052	024-25569-252	—
CW	3300	024-25569-053	024-25569-253	—
CW	4000/4160	024-25569-054	024-25569-254	—
CX	380	024-25569-057	024-25569-257	—
CX	416	024-25569-058	024-25569-258	—
CX	440/460/480	024-25569-059	024-25569-259	—
CX	575/600	024-25569-060	024-25569-260	—
CX	2300	024-25569-061	024-25569-261	—
CX	3300	024-25569-062	024-25569-262	—
CX	4000/4160	024-25569-063	024-25569-263	—
CY	380	024-25569-066	024-25569-266	—
CY	416	024-25569-067	024-25569-267	—
CY	440/460/480	024-25569-068	024-25569-268	—
CY	575/600	024-25569-069	024-25569-269	—
CY	2300	024-25569-070	024-25569-270	—
CY	3300	024-25569-071	024-25569-271	—
CY	4000/4160	024-25569-072	024-25569-272	—
CZ	380	024-25569-075	024-25569-275	—
CZ	416	024-25569-076	024-25569-276	—
CZ	440/460/480	024-25569-077	024-25569-277	—
CZ	575/600	024-25569-078	024-25569-278	—
CZ	2300	024-25569-079	024-25569-279	—
CZ	3300	024-25569-080	024-25569-280	—
CZ	4000/4160	024-25569-081	024-25569-281	—
CA	380	024-25569-084	024-25569-284	—
CA	416	024-25569-085	024-25569-285	—
CA	440/460/480	024-25569-086	024-25569-286	—
CA	575/600	024-25569-087	024-25569-287	—
CA	2300	024-25569-088	024-25569-288	—
CA	3300	024-25569-089	024-25569-289	—
CA	4000/4160	024-25569-090	024-25569-290	—

TABLE 19 - 60 HERTZ MOTORS (CONT'D)

MOTOR CODE	NAME PLATE VOLTAGE	MOTOR PART NUMBER		
		RELIANCE	SIEMENS	TOSHIBA
CB	380	024-25569-093	024-25569-293	—
CB	416	024-25569-094	024-25569-294	—
CB	440/460/480	024-25569-095	024-25569-295	—
CB	575/600	024-25569-096	024-25569-296	—
CB	2300	024-25569-097	024-25569-297	—
CB	3300	024-25569-098	024-25569-298	—
CB	4000/4160	024-25569-099	024-25569-299	—
DA	380	024-26523-001	—	—
DA	416	024-26523-002	—	—
DA	440/460/480	024-26523-003	—	—
DA	575/600	024-26523-004	—	—
DA	2300	024-26523-005	024-26523-205	—
DA	3300	024-26523-006	024-26523-206	—
DA	4000/4160	024-26523-005	024-26523-205	—
DB	380	024-26523-009	—	—
DB	416	024-26523-010	—	—
DB	440/460/480	024-26523-011	—	—
DB	575/600	024-26523-012	—	—
DB	2300	024-26523-013	024-26523-213	—
DB	3300	024-26523-014	024-26523-214	—
DB	4000/4160	024-26523-013	024-26523-213	—
DC	380	024-26523-017	—	—
DC	416	024-26523-018	—	—
DC	440/460/480	024-26523-019	—	—
DC	575/600	024-26523-020	—	—
DC	2300	024-26523-021	024-26523-221	—
DC	3300	024-26523-022	024-26523-222	—
DC	4000/4160	024-26523-021	024-26523-221	—
DD	2300	024-26523-027	024-26523-227	—
DD	3300	024-26523-028	024-26523-228	—
DD	4000/4160	024-26523-027	024-26523-227	—
DE	2300	024-26523-033	024-26523-233	—
DE	3300	024-26523-034	024-26523-234	—
DE	4000/4160	024-26523-033	024-26523-233	—
DF	2300	024-26523-039	024-26523-239	—
DF	3300	024-26523-040	024-26523-240	—
DF	4000/4160	024-26523-039	024-26523-239	—
DH	2300	024-26523-051	024-26523-251	—
DH	3300	024-26523-052	024-26523-252	—
DH	4000/4160	024-26523-051	024-26523-251	—
DJ	2300	—	024-26523-257	—
DJ	3300	—	024-26523-258	—
DJ	4000/4160	—	024-26523-257	—

TABLE 20 - 50 HERTZ MOTORS

MOTOR CODE	NAME PLATE VOLTAGE	MOTOR PART NUMBER		
		RELIANCE	SIEMENS	TOSHIBA
5CE	220	024-26178-119	024-26178-319	024-26178-719
5CE	346	024-26178-031	024-26178-231	024-26178-631
5CE	380/400	024-26178-032	024-26178-232	024-26178-632
5CE	415	024-26178-122	024-26178-322	024-26178-722
5CE	440	024-26178-123	024-26178-323	024-26178-723
5CE	500	024-26178-033	024-26178-233	024-26178-633
5CE	2300	024-26178-125	024-26178-325	—
5CE	3000	024-26178-126	024-26178-326	—
5CE	3300	024-26178-036	024-26178-236	—
5CF	220	024-26178-128	024-26178-328	024-26178-728
5CF	346	024-26178-040	024-26178-240	024-26178-640
5CF	380/400	024-26178-041	024-26178-241	024-26178-641
5CF	415	024-26178-131	024-26178-331	024-2617-8731
5CF	440	024-26178-132	024-26178-332	024-26178-732
5CF	500	024-26178-042	024-26178-242	024-26178-642
5CF	2300	024-26178-134	024-26178-334	—
5CF	3000	024-26178-135	024-26178-335	—
5CF	3300	024-26178-045	024-26178-245	—
5CG	220	024-26178-137	024-26178-337	024-26178-737
5CG	346	024-26178-049	024-26178-249	024-26178-649
5CG	380/400	024-26178-050	024-26178-250	024-26178-650
5CG	415	024-26178-140	024-26178-340	024-26178-740
5CG	440	024-26178-141	024-26178-341	024-26178-741
5CG	500	024-26178-051	024-26178-251	024-26178-651
5CG	2300	024-26178-143	024-26178-343	—
5CG	3000	024-26178-144	024-26178-344	—
5CG	3300	024-26178-054	024-26178-254	—
5CH	220	024-26178-146	024-26178-346	024-26178-746
5CH	346	024-26178-058	024-26178-258	024-26178-658
5CH	380/400	024-26178-059	024-26178-259	024-26178-659
5CH	415	024-26178-149	024-26178-349	024-26178-749
5CH	440	024-26178-150	024-26178-350	024-26178-750
5CH	500	024-26178-060	024-26178-260	024-26178-660
5CH	2300	024-26178-152	024-26178-352	—
5CH	3000	024-26178-153	024-26178-353	—
5CH	3300	024-26178-063	024-26178-263	—
5CI	220	024-26178-155	024-26178-355	024-26178-755
5CI	346	024-26178-067	024-26178-267	024-26178-667
5CI	380/400	024-26178-068	024-26178-268	024-26178-668
5CI	415	024-26178-158	024-26178-358	024-26178-758
5CI	440	024-26178-159	024-26178-359	024-26178-759
5CI	500	024-26178-069	024-26178-269	024-26178-669
5CI	2300	024-26178-161	024-26178-361	—
5CI	3000	024-26178-162	024-26178-362	—
5CI	3300	024-26178-072	024-26178-272	—
5CJ	220	024-26178-164	024-26178-364	024-26178-764
5CJ	346	024-26178-076	024-26178-276	024-26178-676
5CJ	380/400	024-26178-077	024-26178-277	024-26178-677
5CJ	415	024-26178-167	024-26178-367	024-26178-767
5CJ	440	024-26178-168	024-26178-368	024-26178-768
5CJ	500	024-26178-078	024-26178-278	024-26178-678
5CJ	2300	024-26178-170	024-26178-370	—
5CJ	3000	024-26178-171	024-26178-371	—
5CJ	3300	024-26178-081	024-26178-281	—

TABLE 20 - 50 HERTZ MOTORS (CONT'D)

MOTOR CODE	NAME PLATE VOLTAGE	MOTOR PART NUMBER		
		RELIANCE	SIEMENS	TOSHIBA
5CK	220	024-25569-101	024-25569-301	—
5CK	346	024-25569-004	024-25569-204	024-25569-604
5CK	380/400	024-25569-005	024-25569-205	024-25569-605
5CK	415	024-25569-104	024-25569-304	024-25569-754
5CK	440	024-25569-105	024-25569-305	024-25569-755
5CK	500	024-25569-006	024-25569-206	024-25569-606
5CK	2300	024-25569-107	024-25569-307	—
5CK	3000	024-25569-108	024-25569-308	—
5CK	3300	024-25569-009	024-25569-209	—
5CL	220	024-25569-110	024-25569-310	—
5CL	346	024-25569-013	024-25569-213	024-25569-613
5CL	380/400	024-25569-014	024-25569-214	024-25569-614
5CL	415	024-25569-113	024-25569-313	024-25569-763
5CL	440	024-25569-114	024-25569-314	024-25569-764
5CL	500	024-25569-015	024-25569-215	024-25569-615
5CL	2300	024-25569-116	024-25569-316	—
5CL	3000	024-25569-117	024-25569-317	—
5CL	3300	024-25569-018	024-25569-218	—
5CM	220	024-25569-119	—	—
5CM	346	024-25569-022	024-25569-222	024-25569-622
5CM	380/400	024-25569-023	024-25569-223	024-25569-623
5CM	415	024-25569-122	024-25569-322	024-25569-742
5CM	440	024-25569-123	024-25569-323	024-25569-773
5CM	500	024-25569-024	024-25569-224	024-25569-624
5CM	2300	024-25569-125	024-25569-325	—
5CM	3000	024-25569-126	024-25569-326	—
5CM	3300	024-25569-027	024-25569-227	—
5CN	220	024-25569-128	—	—
5CN	346	024-25569-031	024-25569-231	024-25569-631
5CN	380/400	024-25569-032	024-25569-232	024-25569-632
5CN	415	024-25569-131	024-25569-331	024-25569-731
5CN	440	024-25569-132	024-25569-332	024-25569-732
5CN	500	024-25569-033	024-25569-233	024-25569-633
5CN	2300	024-25569-134	024-25569-334	—
5CN	3000	024-25569-035	024-25569-335	—
5CN	3300	024-25569-036	024-25569-236	—
5CO	220	024-25569-137	—	—
5CO	346	024-25569-040	024-25569-240	024-25569-640
5CO	380/400	024-25569-041	024-25569-241	024-25569-641
5CO	415	024-25569-140	024-25569-340	024-25569-740
5CO	440	024-25569-141	024-25569-341	024-25569-741
5CO	500	024-25569-042	024-25569-242	024-25569-642
5CO	2300	024-25569-143	024-25569-343	—
5CO	3000	024-25569-144	024-25569-344	—
5CO	3300	024-25569-045	024-25569-245	—
5CP	346	024-25569-049	024-25569-249	—
5CP	380/400	024-25569-150	024-25569-250	024-25569-650
5CP	415	024-25569-149	024-25569-349	024-25569-749
5CP	440	024-25569-150	024-25569-350	024-25569-750
5CP	500	024-25569-051	024-25569-251	024-25569-651
5CP	2300	024-25569-152	024-25569-352	—
5CP	3000	024-25569-153	024-25569-353	—
5CP	3300	024-25569-054	024-25569-254	—

TABLE 20 - 50 HERTZ MOTORS (CONT'D)

MOTOR CODE	NAME PLATE VOLTAGE	MOTOR PART NUMBER		
		RELIANCE	SIEMENS	TOSHIBA
5CQ	346	024-25569-058	024-25569-258	—
5CQ	380/400	024-25569-059	024-25569-259	—
5CQ	415	024-25569-158	024-25569-358	—
5CQ	440	024-25569-159	024-25569-359	—
5CQ	500	024-25569-060	024-25569-260	—
5CQ	2300	024-25569-161	024-25569-361	—
5CQ	3000	024-25569-162	024-25569-362	—
5CQ	3300	024-25569-063	024-25569-263	—
5CR	346	024-25569-165	024-25569-365	—
5CR	380/400	024-25569-166	024-25569-366	—
5CR	415	024-25569-167	024-25569-367	—
5CR	440	024-25569-168	024-25569-368	—
5CR	500	024-25569-169	024-25569-369	—
5CR	2300	024-25569-170	024-25569-370	—
5CR	3000	024-25569-171	024-25569-301	—
5CR	3300	024-25569-172	024-25569-372	—
5CS	346	024-25569-076	024-25569-276	—
5CS	380/400	024-25569-077	024-25569-277	—
5CS	415	024-25569-176	024-25569-376	—
5CS	440	024-25569-177	024-25569-377	—
5CS	500	024-25569-078	024-25569-278	—
5CS	2300	024-25569-179	024-25569-379	—
5CS	3000	024-25569-180	024-25569-380	—
5CS	3300	024-25569-081	024-25569-281	—
5CT	346	024-25569-085	024-25569-285	—
5CT	380/400	024-25569-086	024-25569-286	—
5CT	415	024-25569-185	024-25569-385	—
5CT	440	024-25569-186	024-25569-386	—
5CT	500	024-25569-087	024-25569-287	—
5CT	2300	024-25569-188	024-25569-388	—
5CT	3000	024-25569-189	024-25569-389	—
5CT	3300	024-25569-090	024-25569-290	—
5CU	346	024-25569-094	024-25569-294	—
5CU	380/400	024-25569-095	024-25569-295	—
5CU	415	024-25569-194	024-25569-394	—
5CU	440	024-25569-195	024-25569-395	—
5CU	500	024-25569-096	024-25569-296	—
5CU	2300	024-25569-197	024-25569-397	—
5CU	3000	024-25569-198	024-25569-398	—
5CU	3300	024-25569-099	024-25569-299	—
5CV	346	024-25569-702	024-25569-902	—
5CV	380/400	024-25569-703	024-25569-903	—
5CV	415	024-25569-704	024-25569-904	—
5CV	440	024-25569-705	024-25569-905	—
5CV	500	024-25569-706	024-25569-906	—
5CV	2300	024-25569-707	024-25569-907	—
5CV	3000	024-25569-708	024-25569-908	—
5CV	3300	024-25569-709	024-25569-909	—
5CW	346	024-25569-711	—	—
5CW	380/400	024-25569-712	—	—
5CW	415	024-25569-713	—	—
5CW	440	024-25569-714	—	—
5CW	500	024-25569-715	—	—

TABLE 20 - 50 HERTZ MOTORS (CONT'D)

MOTOR CODE	NAME PLATE VOLTAGE	MOTOR PART NUMBER		
		RELIANCE	SIEMENS	TOSHIBA
5CW	2300	024-25569-716	024-25569-916	—
5CW	3000	024-25569-717	024-25569-917	—
5CW	3300	024-25569-718	024-25569-918	—
5CX	346	024-25569-720	—	—
5CX	380/400	024-25569-721	—	—
5CX	415	024-25569-722	—	—
5CX	440	024-25569-723	—	—
5CX	500	024-25569-724	—	—
5CX	2300	024-25569-725	024-25569-925	—
5CX	3000	024-25569-726	024-25569-926	—
5CX	3300	024-25569-727	024-25569-927	—
5DA	346	024-26523-018	—	—
5DA	380/400	024-26523-019	—	—
5DA	415	024-26523-103	—	—
5DA	440	024-26523-104	—	—
5DA	500	024-26523-020	—	—
5DA	2300	024-26523-106	024-26523-306	—
5DA	3000	024-26523-107	024-26523-307	—
5DA	3300	024-26523-021	024-26523-308	—
5DB	346	024-26523-110	—	—
5DB	380/400	024-26523-111	—	—
5DB	415	024-26523-112	—	—
5DB	440	024-26523-113	—	—
5DB	500	024-26523-114	—	—
5DB	2300	024-26523-115	024-26523315	—
5DB	3000	024-26523-116	024-26523-316	—
5DB	3300	024-26523-117	024-26523-317	—
5DC	2300	024-26523-124	024-26523-324	—
5DC	3000	024-26523-125	024-26523-325	—
5DC	3300	024-26523-126	024-26523-326	—
5DD	2300	024-26523-130	024-26523-330	—
5DD	3000	024-26523-131	024-26523-331	—
5DD	3300	024-26523-132	024-26523-332	—
5DE	2300	024-26523-136	024-26523-336	—
5DE	3000	024-26523-137	024-26523-337	—
5DE	3300	024-26523-138	024-26523-338	—
5DF	2300	—	024-26523-342	—
5DF	3000	—	024-26523-343	—
5DF	3300	—	024-26523-344	—
5DG	2300	—	024-26523-348	—
5DG	3000	—	024-26523-349	—
5DG	3300	—	024-26523-350	—
5DH	2300	—	024-26523-354	—
5DH	3000	—	024-26523-355	—
5DH	3300	—	024-26523-356	—

SHAFT SEALS

There are two (2) versions of shaft seals used on the HA and HB style compressors. The original design is a **Dynamic O-Ring Pusher Seal**. This seal is serviceable and there is a maintenance kit available for repairs. The current version shaft seal being used is a **bellows seal**. This seal cannot be serviced with the exception of replacing the Teflon C-Ring. An easy way to differentiate the two (2) seals is the current version

bellows seal has an oil supply line feeding the seat on the side of the seal cover plate. The dynamic O-Ring seal will not have this oil feed line. Compressors that were manufactured with the dynamic O-Ring seal can be modified to the current bellows seal by purchasing a retrofit kit that includes all the parts needed for the conversion along with instructions on how to perform the change.

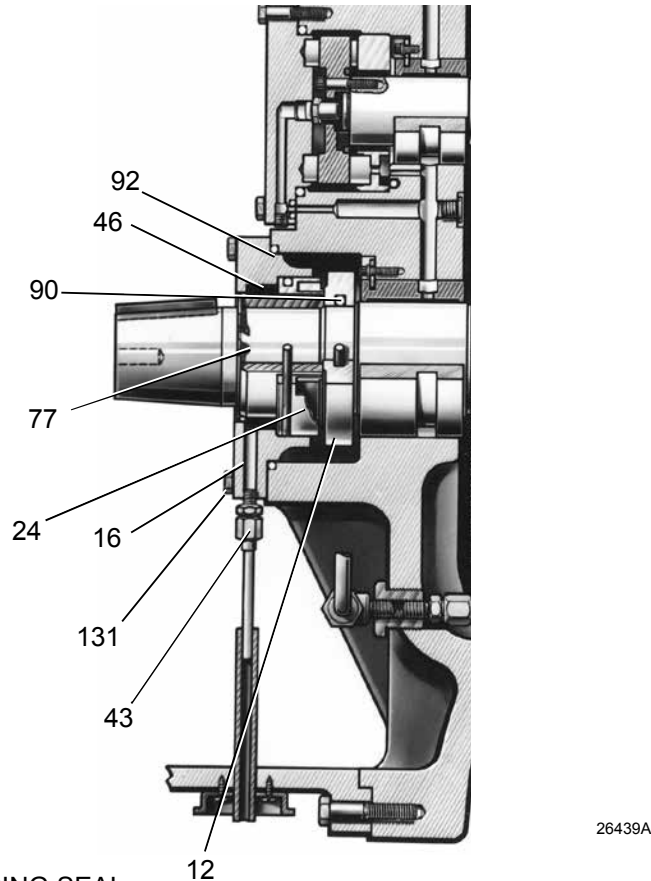


FIGURE 8 - DYNAMIC O-RING SEAL

TABLE 21 - SHAFT SEALS

ITEM NUMBER	DESCRIPTION	QUANTITY	HA36, HA41, HA46, HA50, HA57, HB57 AND HB61	HA65, HA70, HA73, HA81 AND HA90
12*	Shaft Seal Collar	1	064-48033-000	064-46821-000
16	Shaft Seal Cover	1	064-48041-000	064-48042-000
24*	Shaft Seal Ring	1	029-20960-001	029-20960-001
43	Flare Connector	1	023-09668-000	023-09668-000
46	Seal, Retainer	1	064-48039-000	064-48040-000
77	Retaining Ring	1	029-20966-000	029-20967-000
90*	Seal, O-Ring	1	028-03241-000	028-03739-000
92*	Seal, Cover O-Ring	1	028-12258-000	028-12224-000
131	Cap Screw	8	025-29152-000	025-29152-000
Maintenance Kit		1	364-48200-000	364-48201-000

*Included in Maintenance Kit.

BELLOWS SEALS

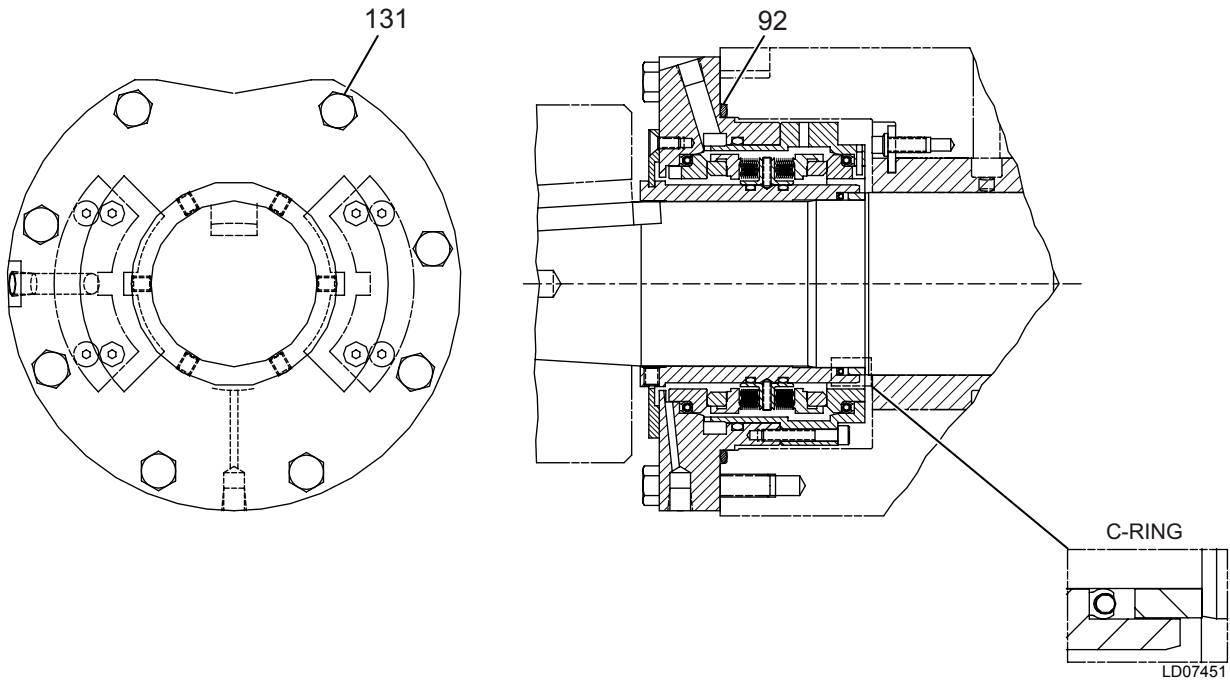


FIGURE 9 - BELLOWS SEALS

TABLE 22 - BELLOWS SEALS

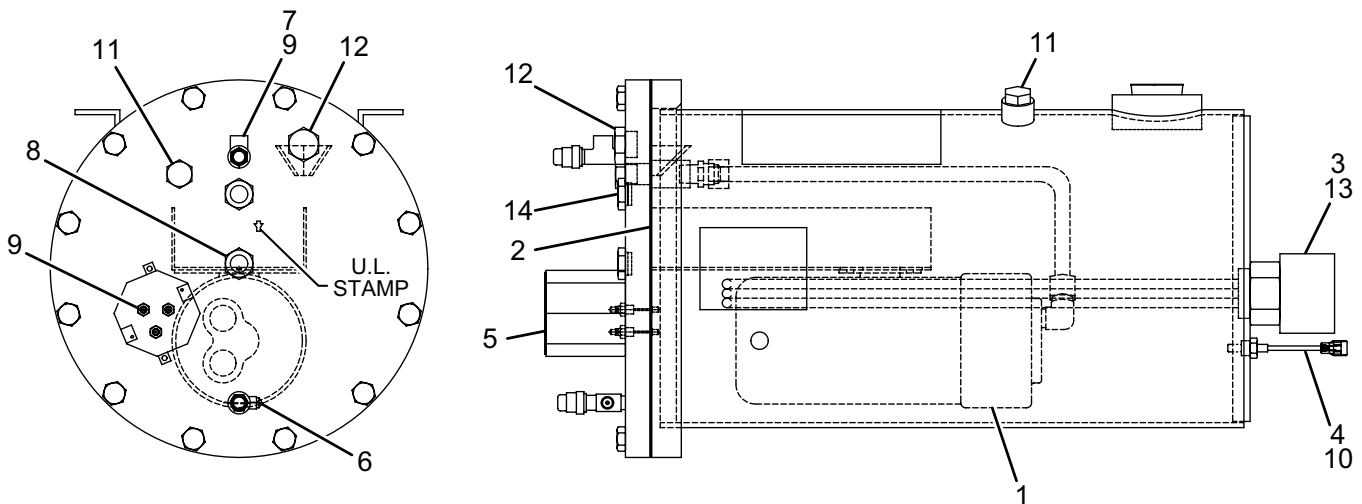
ITEM NUMBER	DESCRIPTION	QUANTITY	HA 36, HA41, HA46, HA50, HA57, HB57 AND HB61	HA65, HA70, HA73, HA81 AND HA90
92	Seal Cover O-Ring	1	028-12258-000	028-12224-000
220	Bellows Shaft Seal	1	029-22428-000	029-22429-000
131	Cap Screw	8	025-29152-000	025-29152-000
	Replacement C-Ring	1	028-14492-000	028-14493-000

TABLE 23 - FROM DYNAMIC O-RING TO BELLOWS SEAL RETROFIT KITS

COMPRESSOR	RETROFIT KITS
HA36, HA41, HA46, HA50, HA57, HB57 AND HB61	364-48968-000
HA65, HA70, HA73, HA81 AND HA90	364-48969-000

TABLE 24 - REV. D AND LATER CHILLERS

ITEM NUMBER	DESCRIPTION	QUANTITY	PART NUMBER
1	Oil Pump with Motor	1	026-31688-000
2	Gasket, Oil Reservoir	1	028-13577-000
	Heater	1	025-32909-000
	200, 208, 220, 230, 240-3-60 220-3-50	1 1	025-32909-000 025-32909-000
3	550, 575, 600-3-60	1	025-32920-000
	416, 440, 460, 480-3-60	1	025-32918-000
	440-3-50	1	025-32918-000
	380-3-60	1	025-32917-000
	346, 380, 400, 415-3-60	1	025-32917-000
4	Sensor, Temperature	1	025-33288-000
5	Cover, Filter Output	1	375-26580-000
6	Valve, Stop	1	022-01582-000
7	Valve, Stop Vertical	1	022-09577-000
8	Sight Glass	1	026-35029-000
9	Seal, O-Ring	4	028-12961-001
10	Seal, O-Ring	1	028-12961-004
11	Seal, O-Ring	2	028-12961-006
12	Seal, O-Ring	1	028-12961-008
13	Seal, O-Ring	1	028-12961-010
14	Seal, O-Ring	2	028-12961-018

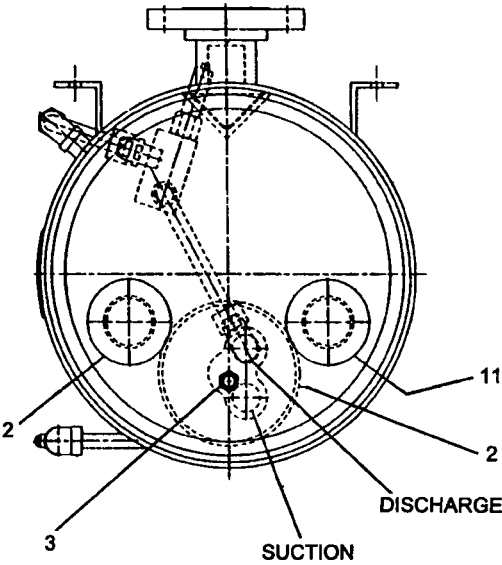


LD07416

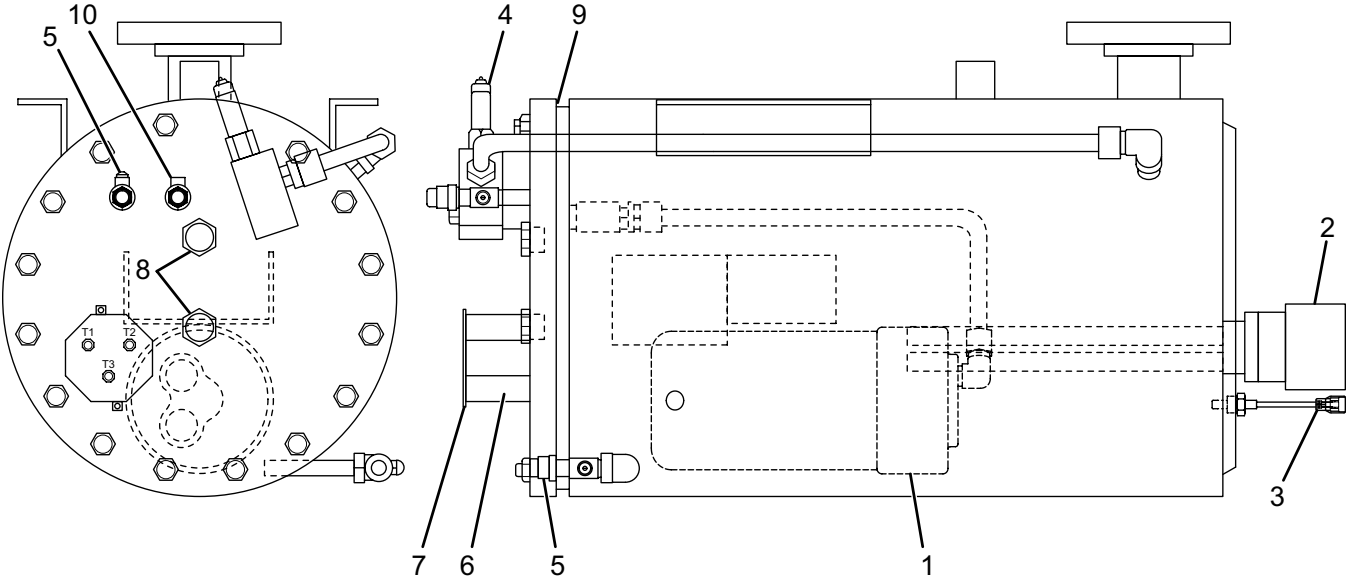
FIGURE 10 - REV. D AND LATER CHILLERS

TABLE 25 - OIL SUMP REV. "C" CHILLERS AND EARLIER

ITEM NUMBER	DESCRIPTION	QUANTITY	PART NUMBER
1	Oil Pump with Motor		
	208, 220, 230, 240-3-60	1	026-31688
	416, 440, 460, 480-3-60	1	026-31688
	550, 575, 600-3-60	1	026-31689
	380-3-60	1	026-31690
	346-3-50	1	026-31691
	220-3-50, 440-3-50	1	026-31692
380, 400-3-50, 415-3-50	1	026-31693	
2	Heater	1	025-17700
3	Sensor, Temperature	1	025-28936
4	Valve, Relief	1	022-08872
5	Valve, Stop Angle, 3/8"	2	022-01582
6	Box, Electrical	1	025-10290
7	Cover, Electrical Box	1	025-10291
8	Sight glass	2	026-17581
9	Gasket, Cover Plate	1	028-13577
10	Valve, Stop Angle, 1/4"	1	022-05089
	Heater		
	208, 220, 230, 240-3-60	1	025-17787
	416, 440, 460, 480-3-60	1	025-29902
	550, 575, 600-3-60	1	025-29903
11	380-3-60, 346-3-50	1	025-29901
	220-3-50	1	025-17787
	440-3-50	1	025-29902
	380, 400-3-50	1	025-29901
	415-3-50	1	025-29902



LD07590



LD07591

FIGURE 11 - OIL SUMP ASSEMBLY



P.O. Box 1592, York, Pennsylvania USA 17405-1592
Copyright © by Johnson Controls 2017
Form 160.49-RP2 (317)
Issue Date: March 6, 2017
Supersedes: 160.49-RP2 (217)

800-861-1001
www.johnsoncontrols.com

Subject to change without notice. Printed in USA
ALL RIGHTS RESERVED