

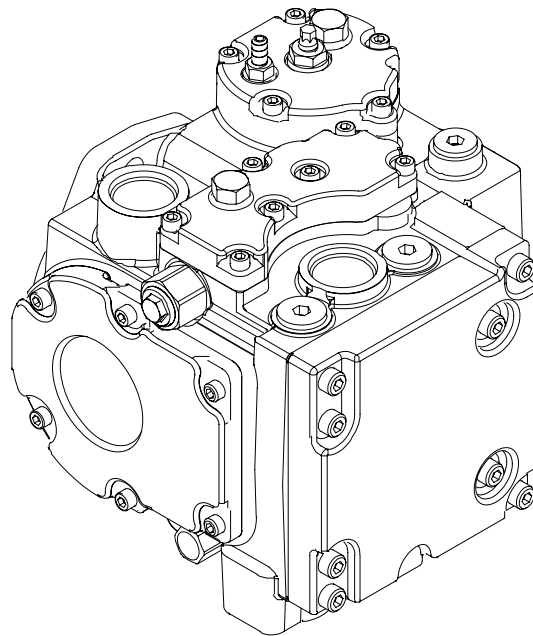
ENGINEERING  
TOMORROW



Parts Manual

# Series 42 Axial Piston Pumps

## Size 28/32



**Revision history**

*Table of revisions*

<b>Date</b>	<b>Changed</b>	<b>Rev</b>
December 2024	Minor correction of parts number in Auxiliary Mounting A-Pad	0212
May 2024	Corrected wrong part numbers	0211
October 2023	Minor correction of parts number in Auxiliary Mounting A-Pad	0210
June 2023	Corrected part number of NFPE Controls	0209
January 2023	Corrected part number of valve plate on special hardware	0208
September 2022	Corrected changes made from SB-2022-002	0207
August 2020	Updated Part Numer for Retaier-Slipper, and Changed document number from 'AX00000159' to 'AX152886485533'	0205
August 2019	Corrected wrong part number	0204
June 2019	Updated shaft drawing	0203
March 2018	Corrected changes made from SB-1997-026	0202
August 2017	Updated to "Engineering Tomorrow" and added interchangeable parts	0201
April 2017	HC-EDC, 3 Position Control Part Number	0102
December 2016	Cylinder block kit Part Number	0101
June 2014	Design change	BA
April 2014	F025 Part number	AF
November 2013	F025 Part number	AE
October 2012	C020 94-25 Part number	AD
January 2012	F002 part number	AC
July 2011	Minor edits	AB
February 2010	First Edition	AA

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## General Information

### Service parts identification

The following information and procedure is used to identify the module group, item number, manufacture date, part number, and part name of the parts included in the .

The parts listed include all parts which may be used when performing either "Minor Repairs", "Major Repairs" or "Conversions" on the .

### Nameplate

Each unit will have a nameplate affixed to the housing. The nameplate of the will include the following information:

#### Model code

The Danfoss model code completely defines the specific unit and must be used when ordering parts to service this product.

#### Model/material number

The Danfoss model number (also known as material number) is used by the factory in manufacturing. On repeat orders, a complete unit can be ordered by the model number.

#### Serial number

The Danfoss serial number is used to identify the manufacture date and the unit sequence in the build. The serial number is also used to identify the units warranty time period.

The letter code indicates the location of original manufacture (assembly).

The first number (2 digits) indicates the year of manufacture. The second number (2 digits) indicates the calendar week of manufacture.

The third number (5 digits) is a sequential number used to identify a specific unit.



## General Information

### Date code

The date code is defined as the year and week of manufacture. The same item number may list more than one part number. This indicates that there is more than one configuration for that item number. You will see that there are different date codes for the different part numbers. Find the date code of your unit from the nameplate to determine which service part number you need to order.

*Example: The service part desired is item G30*

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
80	G30	89-17		8000243	End cap gasket	1
	G30		89-16	8000151	End cap gasket (SB-1995-006)	1

All units using this order code with a date code prior to 89-17 must use part number "8000151." All units with a date code of 89-17 and newer must use part number "8000243."

### About service bulletins

A Service Bulletin Number (SB-\_\_\_\_ - \_\_\_\_ ) may follow the "Part Name" of the part you desire. You must read that Service Bulletin prior to ordering that part. The information contained in these Service Bulletins, as of the print date of this bulletin, are included at the end of this manual. Service Bulletins contain more detailed information such as interchangeability, what additional parts are involved, etc. It is suggested that you add additional Service Bulletins to this manual as you receive them.

### Procedure to identify a part

The modular design of this product results in a simplified service parts list and part number identification procedure.

The same item numbers are used for same part names on all units within a product type. A part number that has another number following it in parentheses is done to make this a world wide manual.

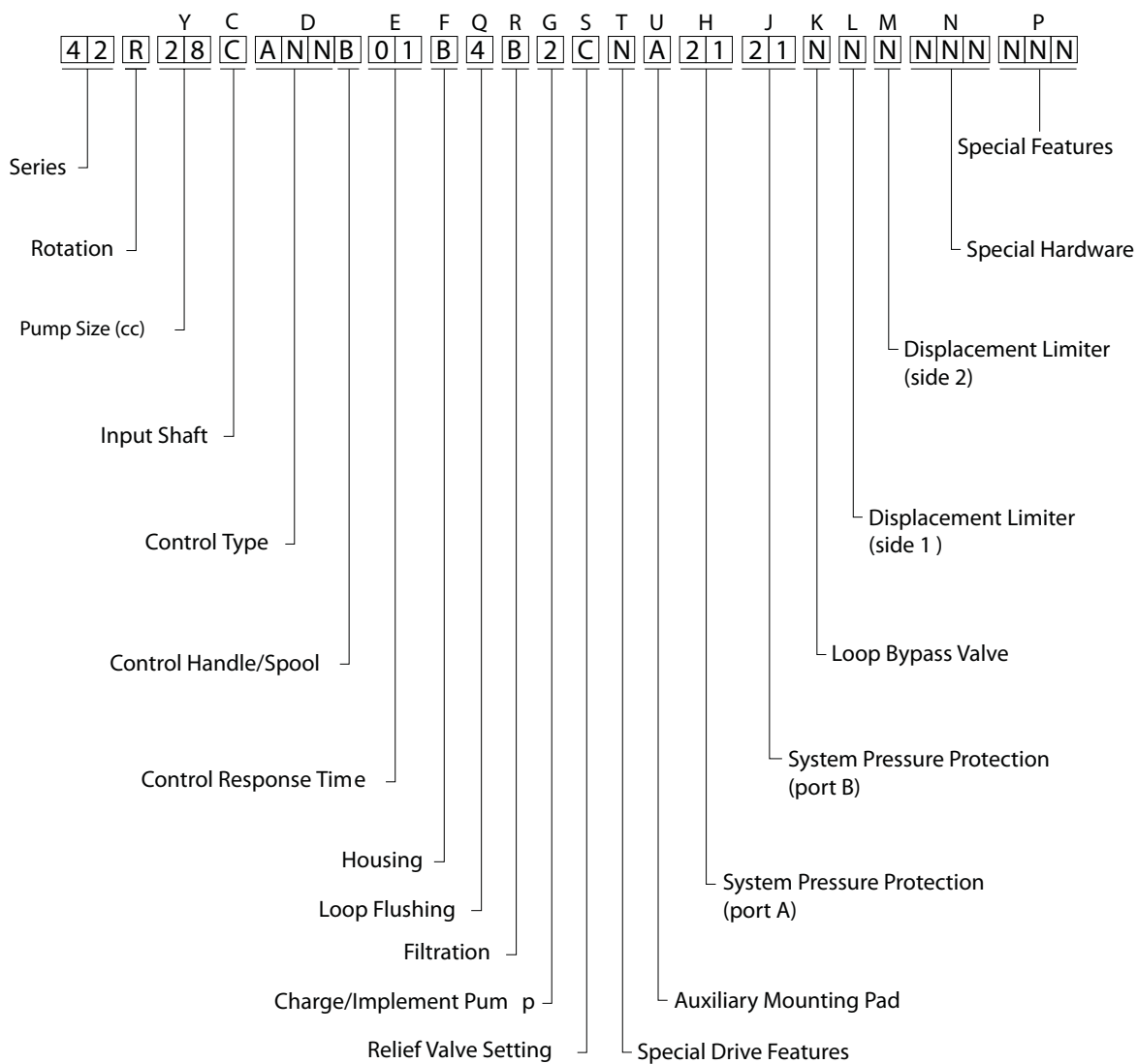
### Regional part numbers

Some part numbers are region specific and should be ordered accordingly.

As an example, the part number (example: 314583 (9008000-0118)) will be used. The first number is sold in Germany. The number in parentheses is sold in the United States. Customers would order 9008000-0118 if ordering the part in the United States.

### General Information

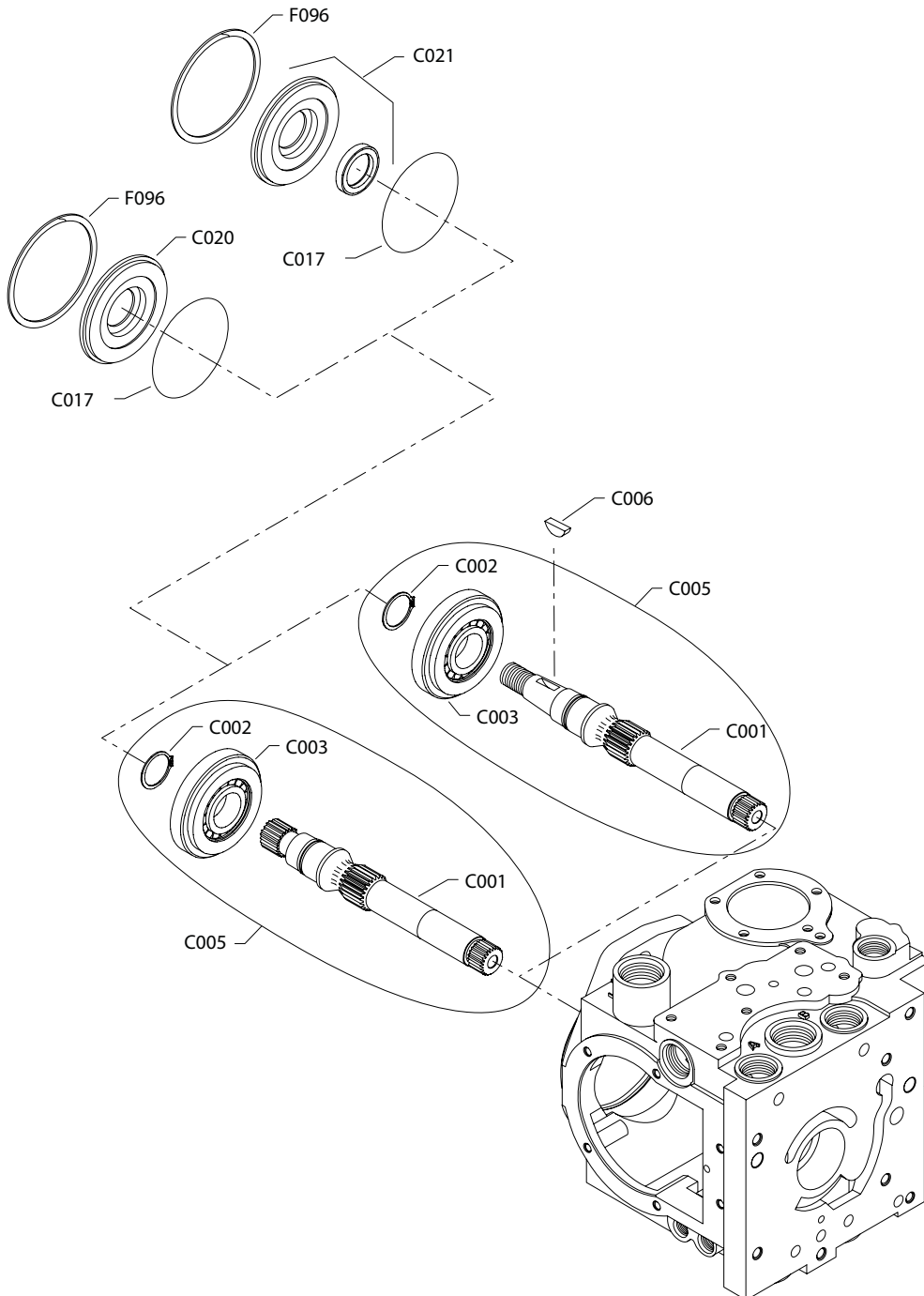
#### Order code



### Input Shaft Configuration

#### S42 28/32cc Shaft options

All parts for Series 42 28/32cc shaft options are found here.



## Input Shaft Configuration

### Shaft common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
C002	94-25		5000098	Retaining ring	1
C003	06-01		1735399	Roller bearing	1
C003	94-25	06-01	4700068	Roller bearing	1
C017	94-25		38315	O-ring	1

### Order code: C (splined, 13 teeth) parts

C001	07-01		1716093	Shaft 13 tooth spline	1
C001	94-25	07-01	4280054	Shaft 13 tooth spline	1
C005	94-25		4280059	Shaft assembly, 13 tooth spline	1
C021 <sup>1</sup>	22-05		11268759	Seal, shaft assy kit	1

### D (splined, 15 teeth) parts

C001	06-01		1716092	Shaft, 15 tooth spline	1
C001	94-25	06-01	4280055	Shaft, 15 tooth spline	1
C005	94-25		4280060	Shaft assembly, 15 tooth spline	1
C021 <sup>1</sup>	22-05		11268759	Seal, shaft assy kit	1

### G (straight keyed) parts

C001	06-01		1716094	Shaft, straight keyed	1
C001	94-25	06-01	4280049	Shaft, straight keyed	1
C005	94-25		4280061	Shaft assembly, straight keyed	1
C021 <sup>1</sup>	22-05		11268759	Seal, shaft assy kit	1

<sup>1</sup> Shaft lip seal only (without seal carrier) is no longer available

### M (splined, 13 teeth, unsealed) parts

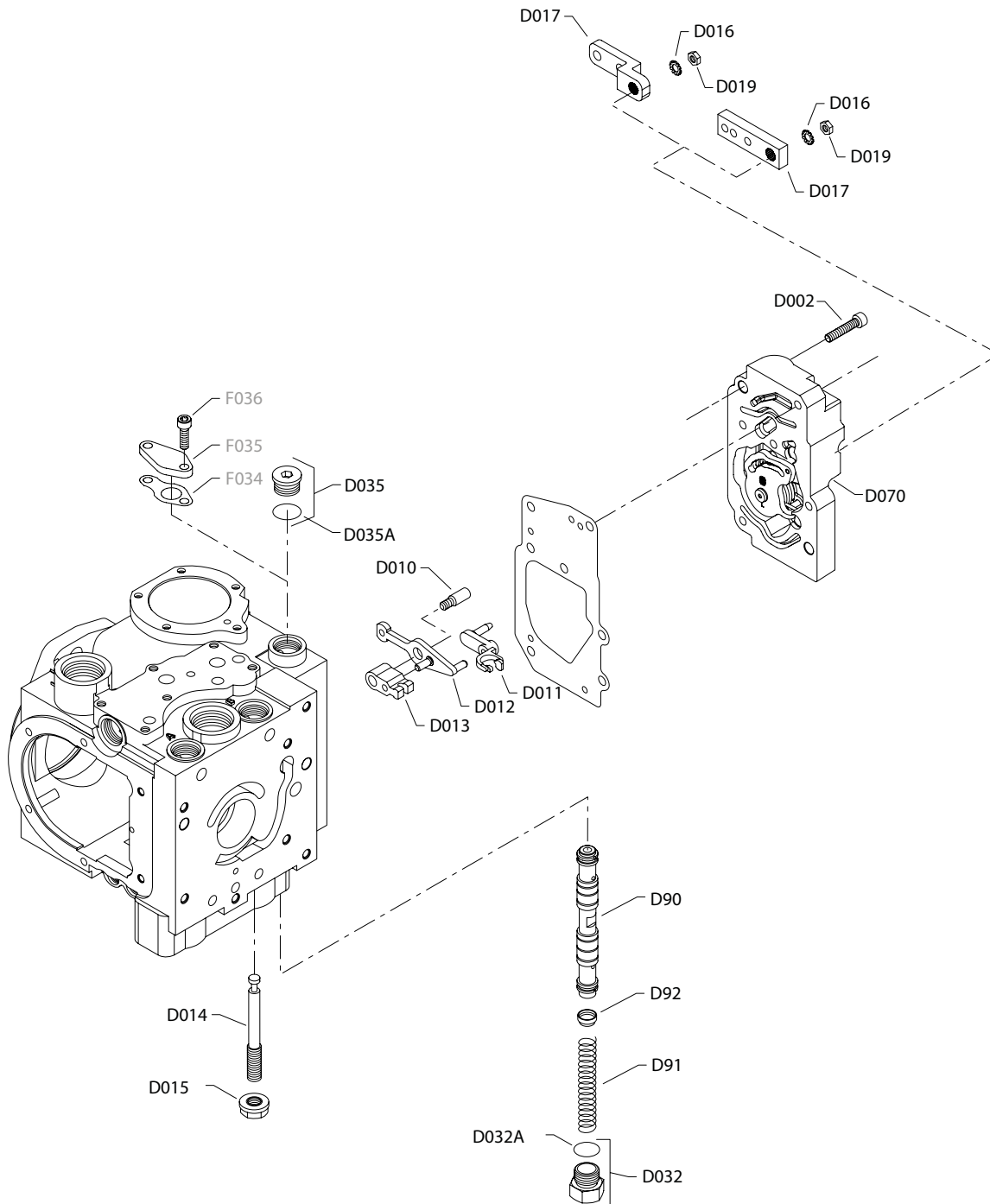
C001	07-01		1716093	Shaft 13 tooth spline	1
C001	94-25	07-01	4280054	Shaft 13 tooth spline	1
C005	94-25		4280059	Shaft assembly, 13 tooth spline	1
C020	06-01		1735155	Seal carrier	1
C020	94-25	06-01	4800264	Seal carrier	1

Control

MDC Controls

MDC AAN3-ANNA

Part numbers for MDC controls can be found below.



## Control

Order code: common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
D002	06-01		9007314-0607	Screw (AAM0603001)	7
D002	93-20	06-20	5000002	Screw	7
D010	06-01		1734449	Screw	1
D010	93-20	06-01	4800326	Screw	1
D011	93-20		11192675	Control summing link	1
D012	93-20		11192686	Control feedback link	1
D013	93-20		4800201	Neutral adjust link	1
D014	07-17		1734450	Neutral adjust screw	1
D014	93-20	07-17	4800658	Neutral adjust screw (SB-1997-026)	1
D015	93-20		336826	Seal nut	1
D016	06-01		9009660-3100	Washer	1
D016	93-20	06-01	689018(9009660-3100)	Washer	1
D019	06-01		9003513-0800	Nut	1
D019	93-20	06-01	040642(9003513-0800)	Nut	1
D032	93-20		4800615	Plug	1
D032A	06-01		9004201-5000	O-ring	1
D032A	-	06-01	001131(9004201-5000)	O-ring	1
D035	06-01		9005110-7500	Plug	1
D035	98-02	06-01	681296(9005110-7500)	Plug	1
D035A	06-01		9004201-5000	O-ring	1
D035A	98-02	06-01	001131(9004201-5000)	O-ring	1
D91	06-01		1746004	Control backlash spring	1
D91	-	06-01	4800515	Control backlash spring	1
D91	-	-	4800243	Control backlash spring	1
D92	06-01		1746003	Spring adapter	1
D92	-	06-01	4800519	Spring adapter	1
F034	93-20	98-01	4800200	Control spool cover gasket(SB-1997-029)	1
F035	93-20	98-01	4800199	Control spool cover(SB-1997-029)	1
F036	93-20	98-01	5000001	Screw(SB-1997-029)	2

### ANA3 parts

D017	93-45		9800916	Control handle	1
D070	93-45		4800529	Control assembly	1
D90	19-29		11082757	Control spool assembly	1
D90	93-45	19-29	4800464	Control spool assembly	1

### ANNS parts

D017	15-25		769075	Control handle, off-set	1
D017	97-10	15-25	4800689	Control handle, off-set (SB-1997-046)	1
D070	97-10		4800529	Control assembly	1
D90	10-25		11082756	Control spool assembly	1
D90	10-05	10-25	1715686	Control spool assembly	1
D90	97-10	10-05	4800410	Control spool assembly	1

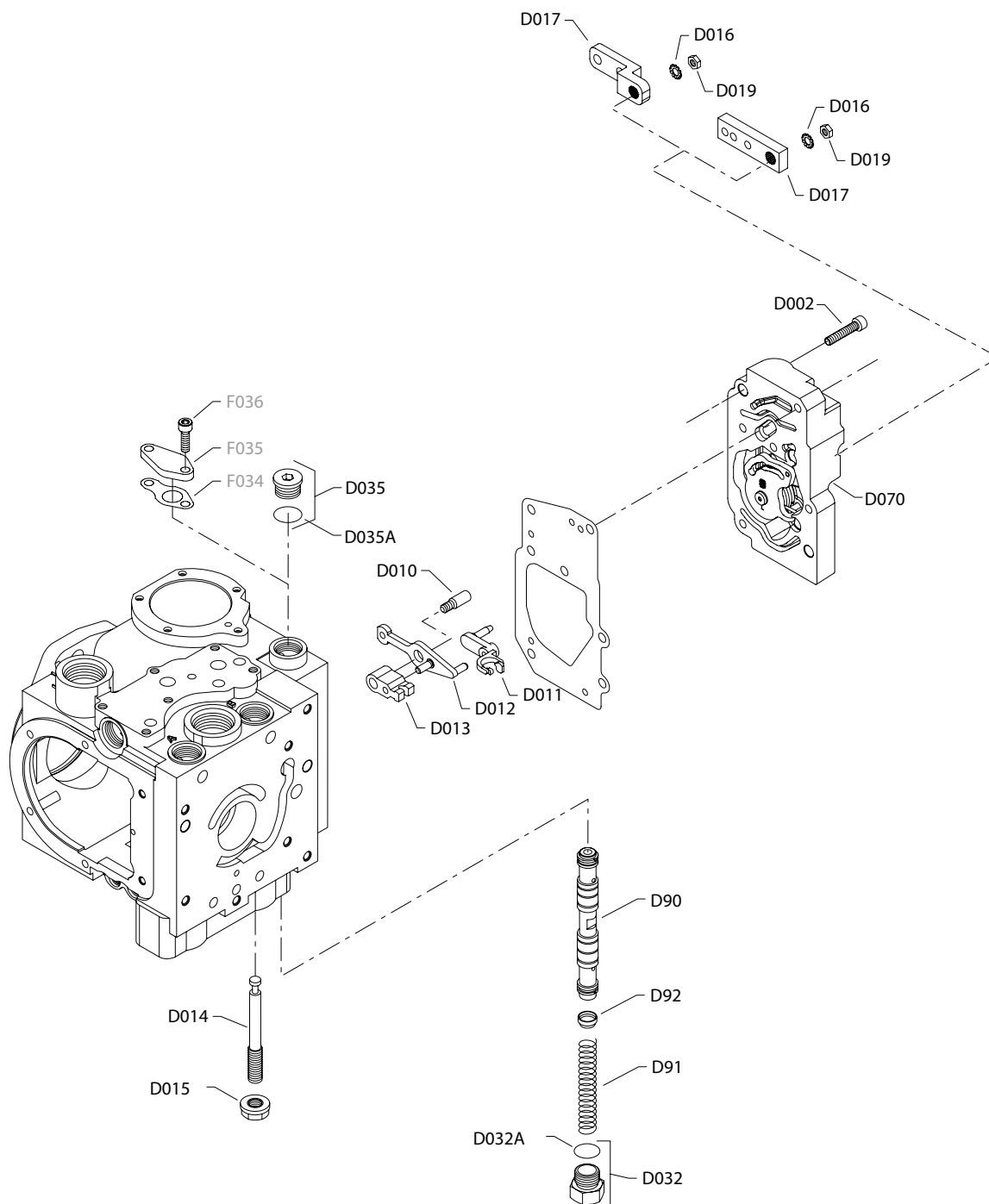
## Control

### ANNA parts

D017	15-23		769075	Control handle, off-set	1
D017	94-14	15-23	4800689	Control handle, off-set (SB-1997-046)	1
D070	94-14		4800529	Control assembly	1
D90	19-30		11082757	Control spool assembly	1
D90	94-14	19-30	4800464	Control spool assembly	1

**Control**

**MDC ANNB-LNN8**



## Control

Order code: common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
D002	06-01		9007314-0607	Screw (AAM0603001)	7
D002	93-20	06-20	5000002	Screw	7
D010	06-01		1734449	Screw	1
D010	93-20	06-01	4800326	Screw	1
D011	93-20		11192675	Control summing link	1
D012	93-20		11192686	Control feedback link	1
D013	93-20		4800201	Neutral adjust link	1
D014	07-17		1734450	Neutral adjust screw	1
D014	93-20	07-17	4800658	Neutral adjust screw (SB-1997-026)	1
D015	93-20		336826	Seal nut	1
D016	06-01		9009660-3100	Washer	1
D016	93-20	06-01	689018(9009660-3100)	Washer	1
D019	06-01		9003513-0800	Nut	1
D019	93-20	06-01	040642(9003513-0800)	Nut	1
D032	93-20		4800615	Plug	1
D032A	06-01		9004201-5000	O-ring	1
D032A	-	06-01	001131(9004201-5000)	O-ring	1
D035	06-01		9005110-7500	Plug	1
D035	98-02	06-01	681296(9005110-7500)	Plug	1
D035A	06-01		9004201-5000	O-ring	1
D035A	98-02	06-01	001131(9004201-5000)	O-ring	1
D91	06-01		1746004	Control backlash spring	1
D91	-	06-01	4800515	Control backlash spring	1
D91	-	-	4800243	Control backlash spring	1
D92	06-01		1746003	Spring adapter	1
D92	-	06-01	4800519	Spring adapter	1
F034	93-20	98-01	4800200	Control spool cover gasket(SB-1997-029)	1
F035	93-20	98-01	4800199	Control spool cover(SB-1997-029)	1
F036	93-20	98-01	5000001	Screw(SB-1997-029)	2

ANNB parts

D017	06-01		9800916	Control handle	1
D070	06-01		4800529	Control assembly	1
D90	10-25		11082756	Control spool assembly	1
D90	10-05	10-25	1715686	Control spool assembly	1
D90	06-01	10-05	4800410	Control spool assembly	1

LNN3 parts

D017	94-02		9800916	Control handle	1
D070	94-02		4800522	Control assembly	1
D90	19-30		11082757	Control spool assembly	1
D90	94-02	19-30	4800464	Control spool assembly	1

## Control

### *LNN8 parts*

D017	15-23		769075	Control handle, off-set	1
D017	96-09		4800689	Control handle, off-set (SB-1997-046)	1
D070	96-09		4800522	Control assembly	1
D90	96-09		4800488	Control spool assembly	1

### *LNNA parts*

D017	15-23		769075	Control handle, off-set	1
D017	96-09		4800689	Control handle, off-set (SB-1997-046)	1
D070	96-09		4800522	Control assembly	1
D90	19-30		11082757	Control spool assembly	1
D90	96-09	19-30	4800464	Control spool assembly	1

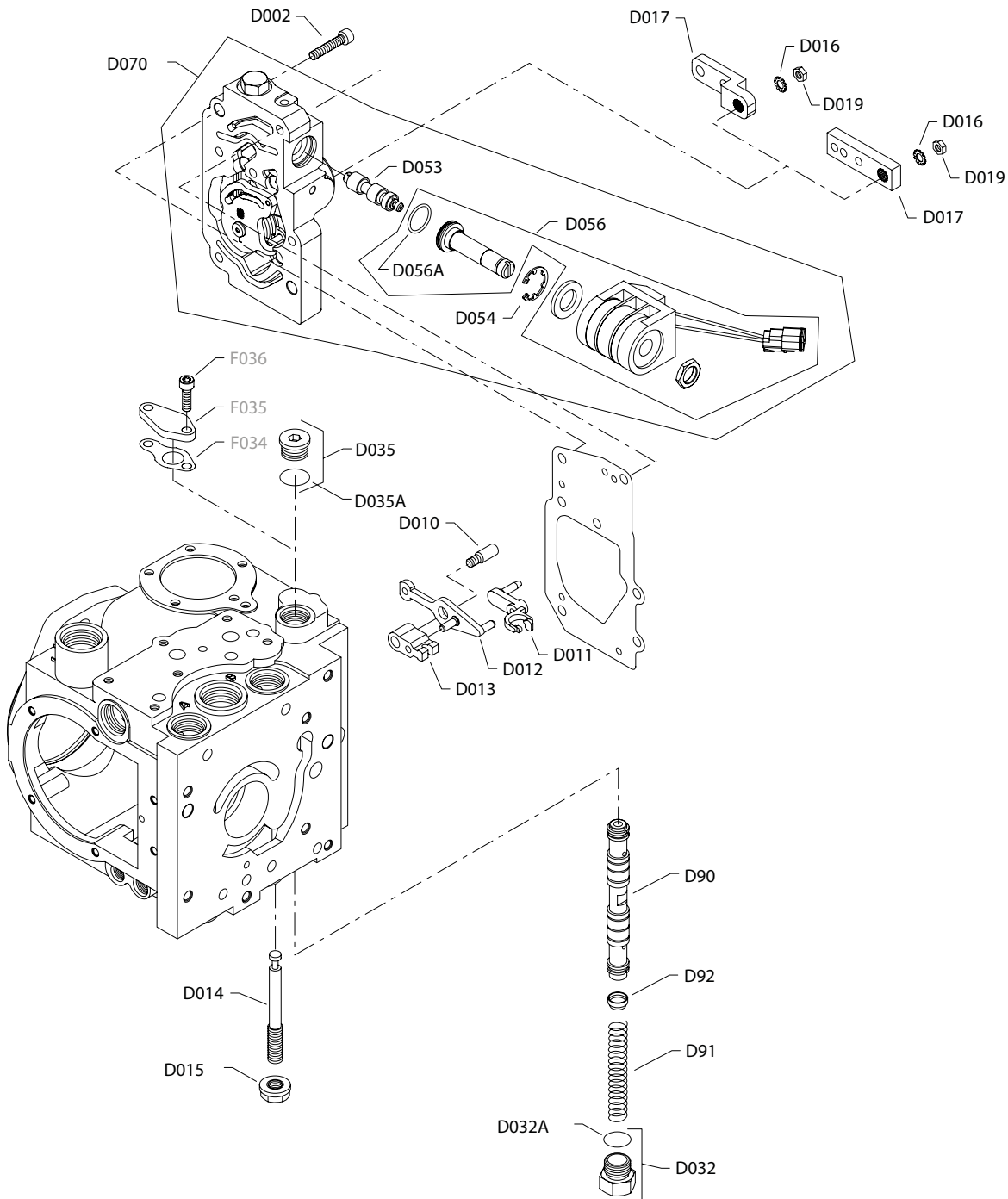
### *ZNN8*

D017	15-23		769075	Control handle, off-set	1
D017	97-39	15-23	4800689	Control handle, off-set (SB-1997-046)	1
D070	97-39		4800666	Control assembly	1
D90	97-39		4800488	Control spool assembly	1

Control

**MDC ANA3-ANAB**

Part numbers for MDC controls (with solenoid) can be found below.



## Control

Order code: common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
D002	06-01		9007314-0607	Screw (AAM0603001)	7
D002	93-20	06-20	5000002	Screw	7
D010	06-01		1734449	Screw	1
D010	93-20	06-01	4800326	Screw	1
D011	93-20		11192675	Control summing link	1
D012	93-20		11192686	Control feedback link	1
D013	93-20		4800201	Neutral adjust link	1
D014	07-17		1734450	Neutral adjust screw	1
D014	93-20	07-17	4800658	Neutral adjust screw (SB-1997-026)	1
D015	93-20		336826	Seal nut	1
D016	06-01		9009660-3100	Washer	1
D016	93-20	06-01	689018(9009660-3100)	Washer	1
D019	06-01		9003513-0800	Nut	1
D019	93-20	06-01	040642(9003513-0800)	Nut	1
D032	93-20		4800615	Plug	1
D032A	06-01		9004201-5000	O-ring	1
D032A	-	06-01	001131(9004201-5000)	O-ring	1
D035	06-01		9005110-7500	Plug	1
D035	98-02	06-01	681296(9005110-7500)	Plug	1
D035A	06-01		9004201-5000	O-ring	1
D035A	98-02	06-01	001131(9004201-5000)	O-ring	1
D91	06-01		1746004	Control backlash spring	1
D91	-	06-01	4800515	Control backlash spring	1
D91	-	-	4800243	Control backlash spring	1
D92	06-01		1746003	Spring adapter	1
D92	-	06-01	4800519	Spring adapter	1
F034	93-20	98-01	4800200	Control spool cover gasket(SB-1997-029)	1
F035	93-20	98-01	4800199	Control spool cover(SB-1997-029)	1
F036	93-20	98-01	5000001	Screw(SB-1997-029)	2

ANA3 parts

D017	97-36		9800916	Control handle	1
D053	10-47		11089650	Brake solenoid spool	1
D053	97-36	10-47	4800411	Brake solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	97-36	01-30	5000196	Retaining ring	1
D056	97-36		4700043	Solenoid, 12v, Weatherpack connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	97-36	07-18	633354(9004104-0180)	O-ring	1
D070	97-36		4800518	Control assembly	1
D90	19-30		11082757	Control spool assembly	1
D90	97-36	19-30	4800464	Control spool assembly	1

**Control**

*ANAS parts*

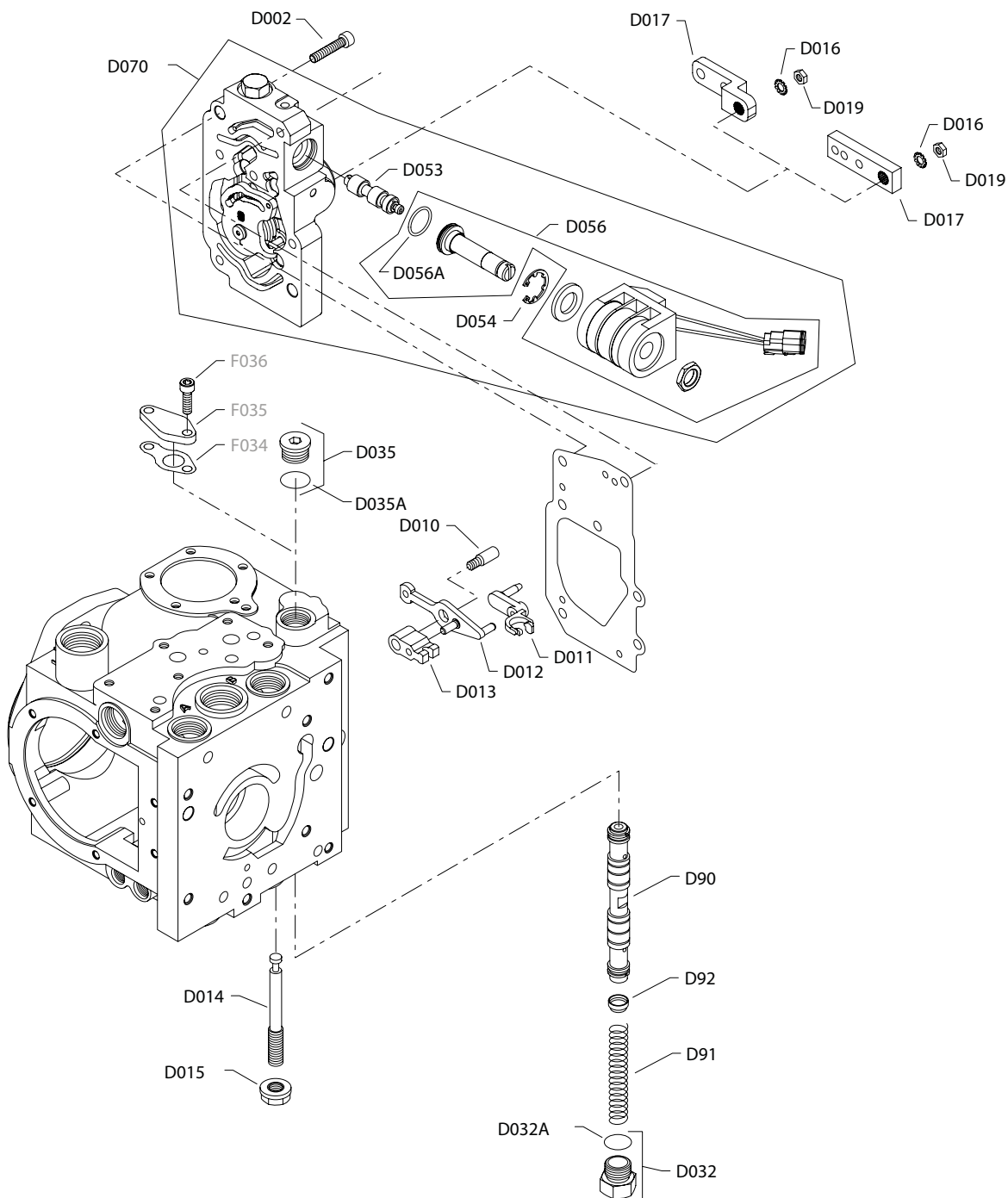
D017	15-23		769075	Control handle, off-set	1
D017	97-33	15-23	4800689	Control handle, off-set (SB-1997-046)	1
D053	97-33		4800411	Brake solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	97-33	01-30	5000196	Retaining ring (SB-2001-008)	1
D056	97-33		4700043	Solenoid, 12v, Weatherpack connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	97-33	07-18	633354(9004104-0180)	O-ring	1
D070	97-33		4800518	Control assembly	1
D90	97-33		4800410	Control spool assembly	1

*ANAB parts*

D017	97-36		9800916	Control handle	1
D053	10-47		11089650	Brake solenoid spool	1
D053	97-36	10-47	4800411	Brake Solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	97-36	01-30	5000196		
D056	97-36		4700043	Solenoid, 12V, Weatherpack connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	97-36	07-18	633354(9004104-0180)	O-ring	1
D070	97-36		4800518	Control Assembly	1
D90	10-25		11082756	Control Spool Assembly	1
D90	97-36	10-25	4800410	Control Spool Assembly	1

### Control

#### MDC ANB5-ANBB



## Control

Order code: common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
D002	06-01		9007314-0607	Screw (AAM0603001)	7
D002	93-20	06-20	5000002	Screw	7
D010	06-01		1734449	Screw	1
D010	93-20	06-01	4800326	Screw	1
D011	93-20		11192675	Control summing link	1
D012	93-20		11192686	Control feedback link	1
D013	93-20		4800201	Neutral adjust link	1
D014	07-17		1734450	Neutral adjust screw	1
D014	93-20	07-17	4800658	Neutral adjust screw (SB-1997-026)	1
D015	93-20		336826	Seal nut	1
D016	06-01		9009660-3100	Washer	1
D016	93-20	06-01	689018(9009660-3100)	Washer	1
D019	06-01		9003513-0800	Nut	1
D019	93-20	06-01	040642(9003513-0800)	Nut	1
D032	93-20		4800615	Plug	1
D032A	06-01		9004201-5000	O-ring	1
D032A	-	06-01	001131(9004201-5000)	O-ring	1
D035	06-01		9005110-7500	Plug	1
D035	98-02	06-01	681296(9005110-7500)	Plug	1
D035A	06-01		9004201-5000	O-ring	1
D035A	98-02	06-01	001131(9004201-5000)	O-ring	1
D91	06-01		1746004	Control backlash spring	1
D91	-	06-01	4800515	Control backlash spring	1
D91	-	-	4800243	Control backlash spring	1
D92	06-01		1746003	Spring adapter	1
D92	-	06-01	4800519	Spring adapter	1
F034	93-20	98-01	4800200	Control spool cover gasket(SB-1997-029)	1
F035	93-20	98-01	4800199	Control spool cover(SB-1997-029)	1
F036	93-20	98-01	5000001	Screw(SB-1997-029)	2

ANB5 parts

D017	15-23		769075	Control handle, off-set	1
D017	97-36	15-23	4800689	Control handle, off-set (SB-1997-046)	1
D053	10-47		11089650	Brake solenoid spool	1
D053	97-36	10-47	4800411	Brake Solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	97-36	01-30	5000196	Retaining ring (SB-2001-008)	1
D056	97-36		4700045	Solenoid, 12V, DIN connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	97-36		633354(9004104-0180)	O-ring	1
D070	97-36		4800537	Control Assembly	1
D90	19-30		11082756	Control spool assembly	1
D90	97-36	19-30	4800410	Control Spool Assembly	1

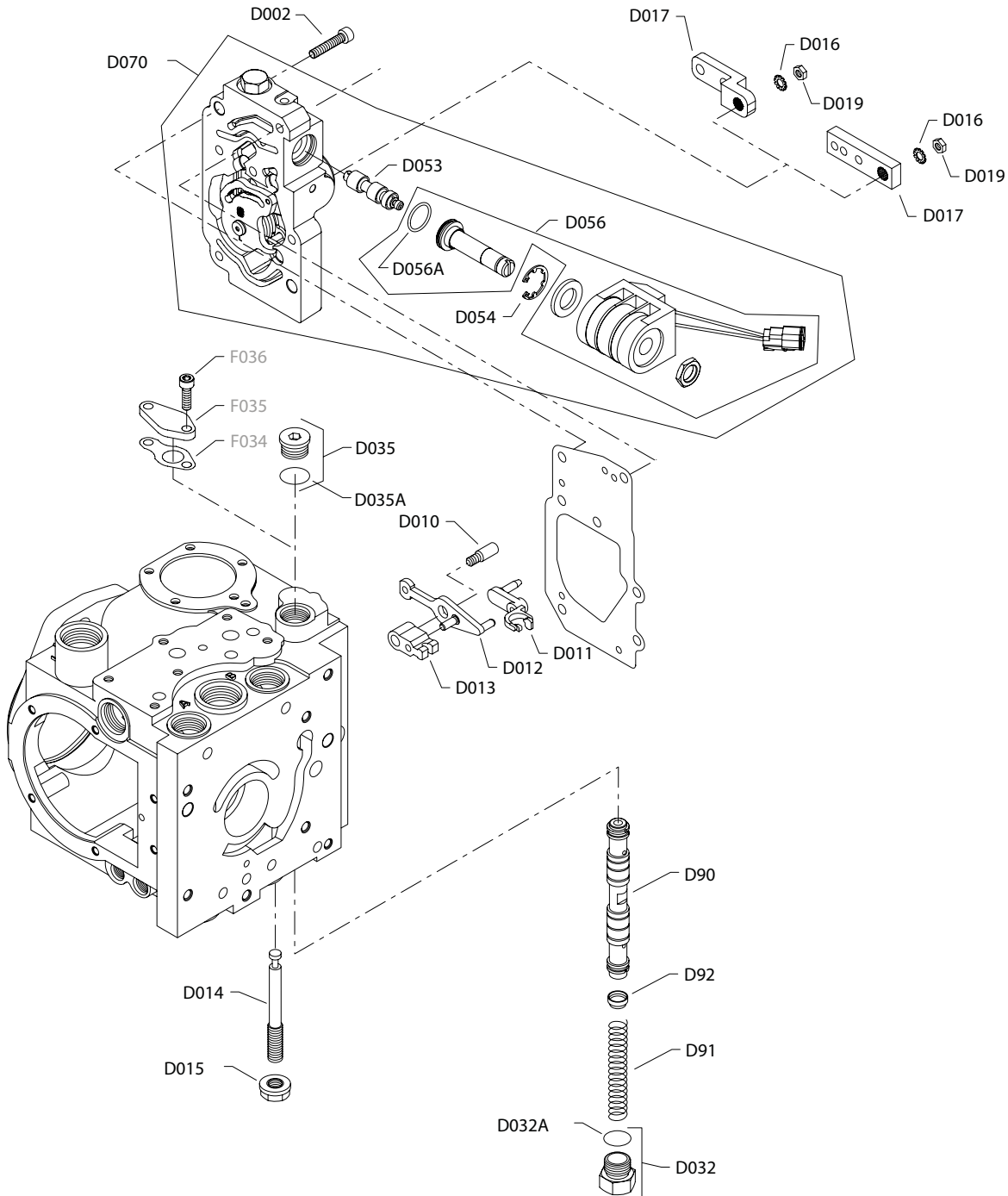
## Control

### *ANBB parts*

D017	97-36		9800916	Control handle	1
D053	10-47		11089650	Brake solenoid spool	1
D053	97-36	10-47	4800411	Brake Solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	97-36	01-30	5000196	Retaining ring (SB-2001-008)	1
D056	97-36		4700045	Solenoid, 12V, DIN connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	97-36		633354(9004104-0180)	O-ring	1
D070	97-36		4800537	Control Assembly	1
D90	19-30		11082756	Control spool assembly	1
D90	97-36	19-30	4800410	Control Spool Assembly	1

Control

MDC ANJ5-ANK5



## Control

Order code: common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
D002	06-01		9007314-0607	Screw (AAM0603001)	7
D002	93-20	06-20	5000002	Screw	7
D010	06-01		1734449	Screw	1
D010	93-20	06-01	4800326	Screw	1
D011	93-20		11192675	Control summing link	1
D012	93-20		11192686	Control feedback link	1
D013	93-20		4800201	Neutral adjust link	1
D014	07-17		1734450	Neutral adjust screw	1
D014	93-20	07-17	4800658	Neutral adjust screw (SB-1997-026)	1
D015	93-20		336826	Seal nut	1
D016	06-01		9009660-3100	Washer	1
D016	93-20	06-01	689018(9009660-3100)	Washer	1
D019	06-01		9003513-0800	Nut	1
D019	93-20	06-01	040642(9003513-0800)	Nut	1
D032	93-20		4800615	Plug	1
D032A	06-01		9004201-5000	O-ring	1
D032A	-	06-01	001131(9004201-5000)	O-ring	1
D035	06-01		9005110-7500	Plug	1
D035	98-02	06-01	681296(9005110-7500)	Plug	1
D035A	06-01		9004201-5000	O-ring	1
D035A	98-02	06-01	001131(9004201-5000)	O-ring	1
D91	06-01		1746004	Control backlash spring	1
D91	-	06-01	4800515	Control backlash spring	1
D91	-	-	4800243	Control backlash spring	1
D92	06-01		1746003	Spring adapter	1
D92	-	06-01	4800519	Spring adapter	1
F034	93-20	98-01	4800200	Control spool cover gasket(SB-1997-029)	1
F035	93-20	98-01	4800199	Control spool cover(SB-1997-029)	1
F036	93-20	98-01	5000001	Screw(SB-1997-029)	2

ANJ5 parts

D017	15-23		769075	Control handle, off-set	1
D017	97-36	15-23	4800689	Control handle, off-set (SB-1997-046)	1
D053	10-47		11089650	Brake solenoid spool	1
D053	97-36	10-47	4800411	Brake Solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	97-36	01-30	5000196		1
D056	97-36		4700145	Solenoid, 12V, Deutsch connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	97-36		633354(9004104-0180)	O-ring	1
D070	97-36		1746723	Control Assembly	1
D90	19-30		11082756	Control spool assembly	1
D90	97-36	19-30	4800410	Control Spool Assembly	1

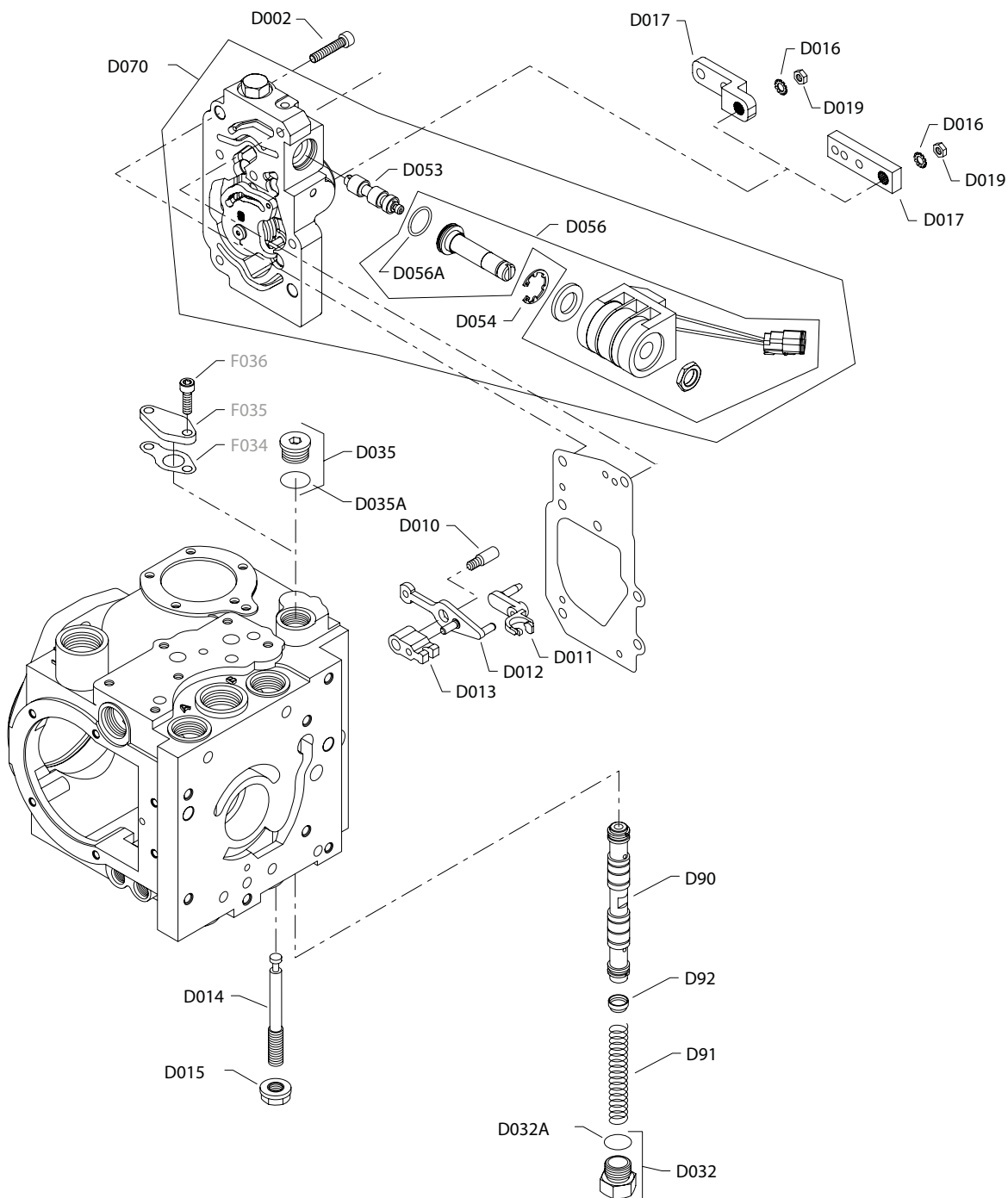
## Control

### ANK5 parts

D017	15-23		769075	Control handle, off-set	1
D017	97-36	15-23	4800689	Control handle, off-set (SB-1997-046)	1
D053	10-47		11089650	Brake solenoid spool	1
D053	97-36	10-47	4800411	Brake Solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	97-36	01-30	5000196		1
D056	97-36		4700158	Solenoid, 24V, Deutsch connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	97-36		633354(9004104-0180)	O-ring	1
D070	97-36		4410358	Control Assembly	1
D90	19-30		11082756	Control spool assembly	1
D90	97-36	19-30	4800410	Control Spool Assembly	1

**Control**

**MDC ANKB-LNBA**



## Control

Order code: common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
D002	06-01		9007314-0607	Screw (AAM0603001)	7
D002	93-20	06-20	5000002	Screw	7
D010	06-01		1734449	Screw	1
D010	93-20	06-01	4800326	Screw	1
D011	93-20		11192675	Control summing link	1
D012	93-20		11192686	Control feedback link	1
D013	93-20		4800201	Neutral adjust link	1
D014	07-17		1734450	Neutral adjust screw	1
D014	93-20	07-17	4800658	Neutral adjust screw (SB-1997-026)	1
D015	93-20		336826	Seal nut	1
D016	06-01		9009660-3100	Washer	1
D016	93-20	06-01	689018(9009660-3100)	Washer	1
D019	06-01		9003513-0800	Nut	1
D019	93-20	06-01	040642(9003513-0800)	Nut	1
D032	93-20		4800615	Plug	1
D032A	06-01		9004201-5000	O-ring	1
D032A	-	06-01	001131(9004201-5000)	O-ring	1
D035	06-01		9005110-7500	Plug	1
D035	98-02	06-01	681296(9005110-7500)	Plug	1
D035A	06-01		9004201-5000	O-ring	1
D035A	98-02	06-01	001131(9004201-5000)	O-ring	1
D91	06-01		1746004	Control backlash spring	1
D91	-	06-01	4800515	Control backlash spring	1
D91	-	-	4800243	Control backlash spring	1
D92	06-01		1746003	Spring adapter	1
D92	-	06-01	4800519	Spring adapter	1
F034	93-20	98-01	4800200	Control spool cover gasket(SB-1997-029)	1
F035	93-20	98-01	4800199	Control spool cover(SB-1997-029)	1
F036	93-20	98-01	5000001	Screw(SB-1997-029)	2

ANKB parts

D017	97-36		9800916	Control handle	1
D053	10-47		11089650	Brake solenoid spool	1
D053	97-36	10-47	4800411	Brake Solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	97-36	01-30	5000196		1
D056A	07-18		9004104-0180	O-ring	1
D056A	97-36		633354(9004104-0180)	O-ring	1
D070	97-36		4410358	Control Assembly	1
D90	19-30		11082756	Control spool assembly	1
D90	97-36	19-30	4800410	Control Spool Assembly	1

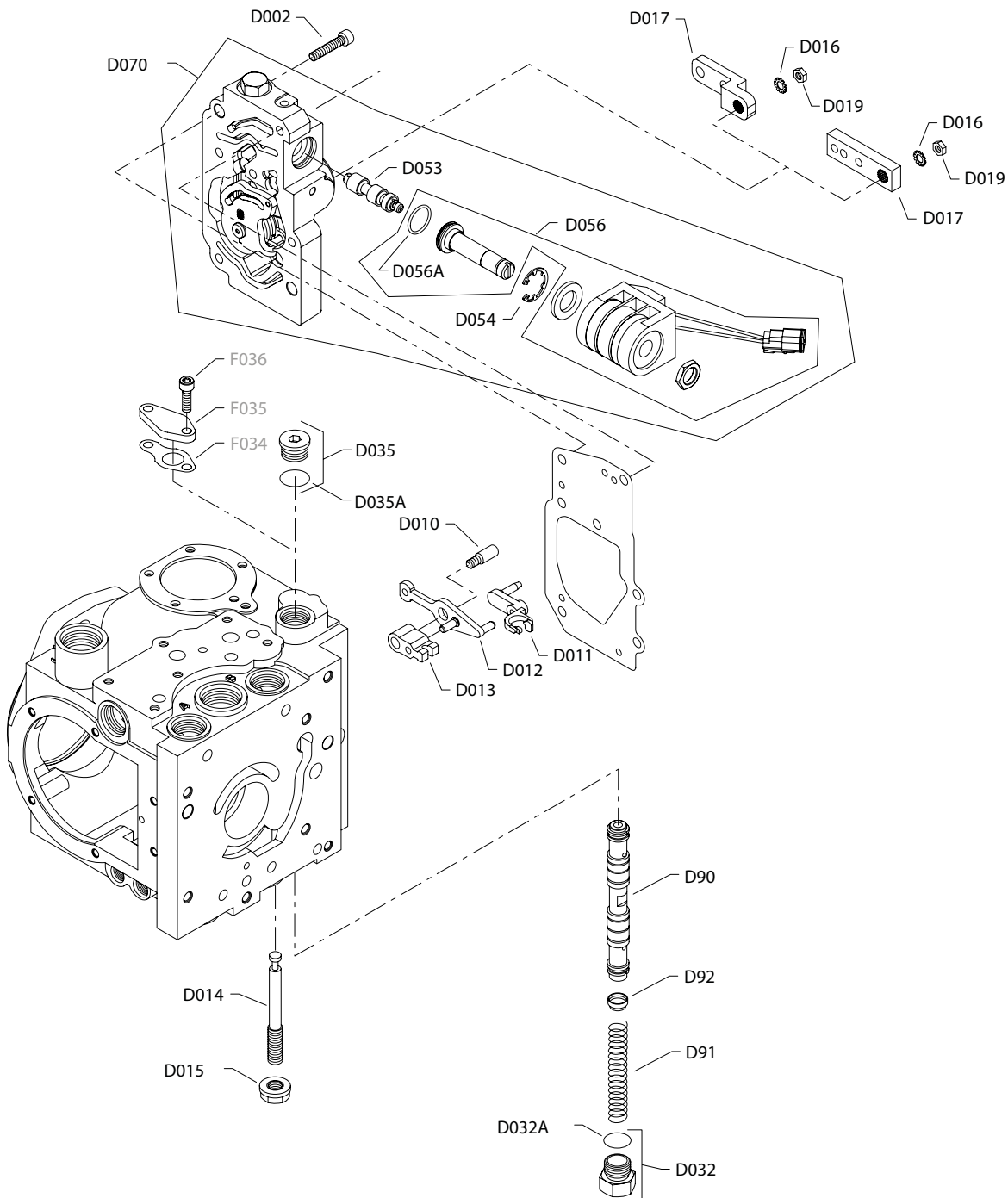
## Control

### *LNBA parts*

D017	15-23		769075	Control handle, off-set	1
D017	97-36	15-23	4800689	Control handle, off-set (SB-1997-046)	1
D053	10-47		11089650	Brake solenoid spool	1
D053	97-36	10-47	4800411	Brake Solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	97-36	01-30	5000196		1
D056	97-36		4700045	Solenoid, 12V, DIN connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	97-36		633354(9004104-0180)	O-ring	1
D070	97-36		4800542	Control Assembly	1
D90	19-30		11082757	Control spool assembly	1
D90	97-36	19-30	4800464	Control Spool Assembly	1

Control

MDC ANB3, LNB3, ZNA8



## Control

Order code: common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
D002	06-01		9007314-0607	Screw (AAM0603001)	7
D002	93-20	06-20	5000002	Screw	7
D010	06-01		1734449	Screw	1
D010	93-20	06-01	4800326	Screw	1
D011	93-20		11192675	Control summing link	1
D012	93-20		11192686	Control feedback link	1
D013	93-20		4800201	Neutral adjust link	1
D014	07-17		1734450	Neutral adjust screw	1
D014	93-20	07-17	4800658	Neutral adjust screw (SB-1997-026)	1
D015	93-20		336826	Seal nut	1
D016	06-01		9009660-3100	Washer	1
D016	93-20	06-01	689018(9009660-3100)	Washer	1
D019	06-01		9003513-0800	Nut	1
D019	93-20	06-01	040642(9003513-0800)	Nut	1
D032	93-20		4800615	Plug	1
D032A	06-01		9004201-5000	O-ring	1
D032A	-	06-01	001131(9004201-5000)	O-ring	1
D035	06-01		9005110-7500	Plug	1
D035	98-02	06-01	681296(9005110-7500)	Plug	1
D035A	06-01		9004201-5000	O-ring	1
D035A	98-02	06-01	001131(9004201-5000)	O-ring	1
D91	06-01		1746004	Control backlash spring	1
D91	-	06-01	4800515	Control backlash spring	1
D91	-	-	4800243	Control backlash spring	1
D92	06-01		1746003	Spring adapter	1
D92	-	06-01	4800519	Spring adapter	1
F034	93-20	98-01	4800200	Control spool cover gasket(SB-1997-029)	1
F035	93-20	98-01	4800199	Control spool cover(SB-1997-029)	1
F036	93-20	98-01	5000001	Screw(SB-1997-029)	2

ANB3 parts

D017	94-14		9800916	Control handle	1
D053	94-14		4800411	Brake solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	94-14	01-30	5000196	Retaining ring	1
D056	94-14		4700045	Solenoid, 12v, DIN connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	94-14		633354(9004104-0180)	O-ring	1
D070	94-14		4800537	Control assembly	1
D90	94-14		4800464	Control spool assembly	1

## Control

### LNB3 parts

D017	94-13		9800916	Control handle	1
D053	94-13		4800411	Brake solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	94-13	01-30	5000196	Retaining ring	1
D056	94-13		4700045	Solenoid, 12v, DIN connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	94-13	-	633354 (9004104-0180)	O-ring	1
D070	94-13		4800542	Control assembly	1
D90	94-13		4800464	Control spool assembly	1

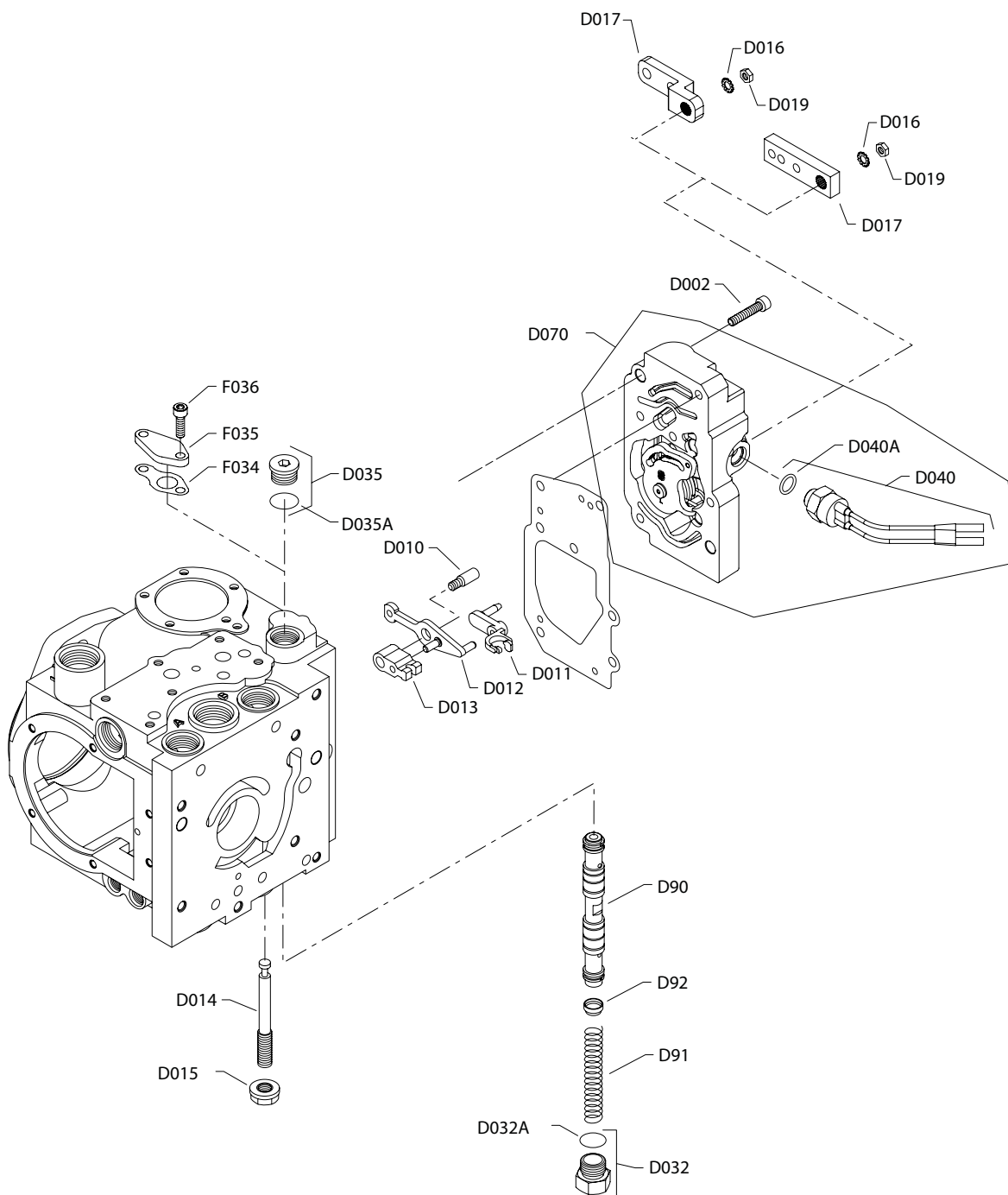
### ZNAB parts

D017	96-09		4800689	Control handle, off-set (SB-1997-046)	1
D053	01-08		4800411	Brake solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	94-13	01-30	5000196	Retaining ring	1
D056	01-08		4700043	Solenoid, 12V, Weatherpack connector	1
D056A	06-01		9004104-0180	O-ring	1
D056A	96-09		633354(9004104-0180)	O-ring	1
D070	01-08		4800806	Control assembly	1
D90	06-01		1715553	Control spool assembly	1
D90	01-08		4800488	Control spool assembly	1

**Control**

**MDC A1N3-A1NB**

Part numbers for MDC (with neutral start switch) controls can be found below.



## Control

Order code: common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
D002	06-01		9007314-0607	Screw (AAM0603001)	7
D002	93-20	06-20	5000002	Screw	7
D010	06-01		1734449	Screw	1
D010	93-20	06-01	4800326	Screw	1
D011	93-20		11192675	Control summing link	1
D012	93-20		11192686	Control feedback link	1
D013	93-20		4800201	Neutral adjust link	1
D014	07-17		1734450	Neutral adjust screw	1
D014	93-20	07-17	4800658	Neutral adjust screw (SB-1997-026)	1
D015	93-20		336826	Seal nut	1
D016	06-01		9009660-3100	Washer	1
D016	93-20	06-01	689018(9009660-3100)	Washer	1
D019	06-01		9003513-0800	Nut	1
D019	93-20	06-01	040642(9003513-0800)	Nut	1
D032	93-20		4800615	Plug	1
D032A	06-01		9004201-5000	O-ring	1
D032A	-	06-01	001131(9004201-5000)	O-ring	1
D035	06-01		9005110-7500	Plug	1
D035	98-02	06-01	681296(9005110-7500)	Plug	1
D035A	06-01		9004201-5000	O-ring	1
D035A	98-02	06-01	001131(9004201-5000)	O-ring	1
D91	06-01		1746004	Control backlash spring	1
D91	-	06-01	4800515	Control backlash spring	1
D91	-	-	4800243	Control backlash spring	1
D92	06-01		1746003	Spring adapter	1
D92	-	06-01	4800519	Spring adapter	1
F034	93-20	98-01	4800200	Control spool cover gasket(SB-1997-029)	1
F035	93-20	98-01	4800199	Control spool cover(SB-1997-029)	1
F036	93-20	98-01	5000001	Screw(SB-1997-029)	2

### A1N3 parts

D017	97-36		9800916	Control handle	1
D040	97-36		4700033	Neutral start switch	1
D040A	07-18		9004201-3700	O-ring	1
D040A	97-06		085043(9004201-3700)	O-ring	1
D070	97-36		4800532	Control Assembly	1
D90	19-30		11082757	Control Spool Assembly	1
D90	97-36	19-30	4800464	Control Spool Assembly	1

### A1N5 parts

D017	15-23		769075	Control handle, off-set	1
D017	02-04	15-23	4800689	Control handle, off-set (SB-1997-046)	1
D040	97-06		4700033	Neutral start switch	1

## Control

### *A1N5 parts (continued)*

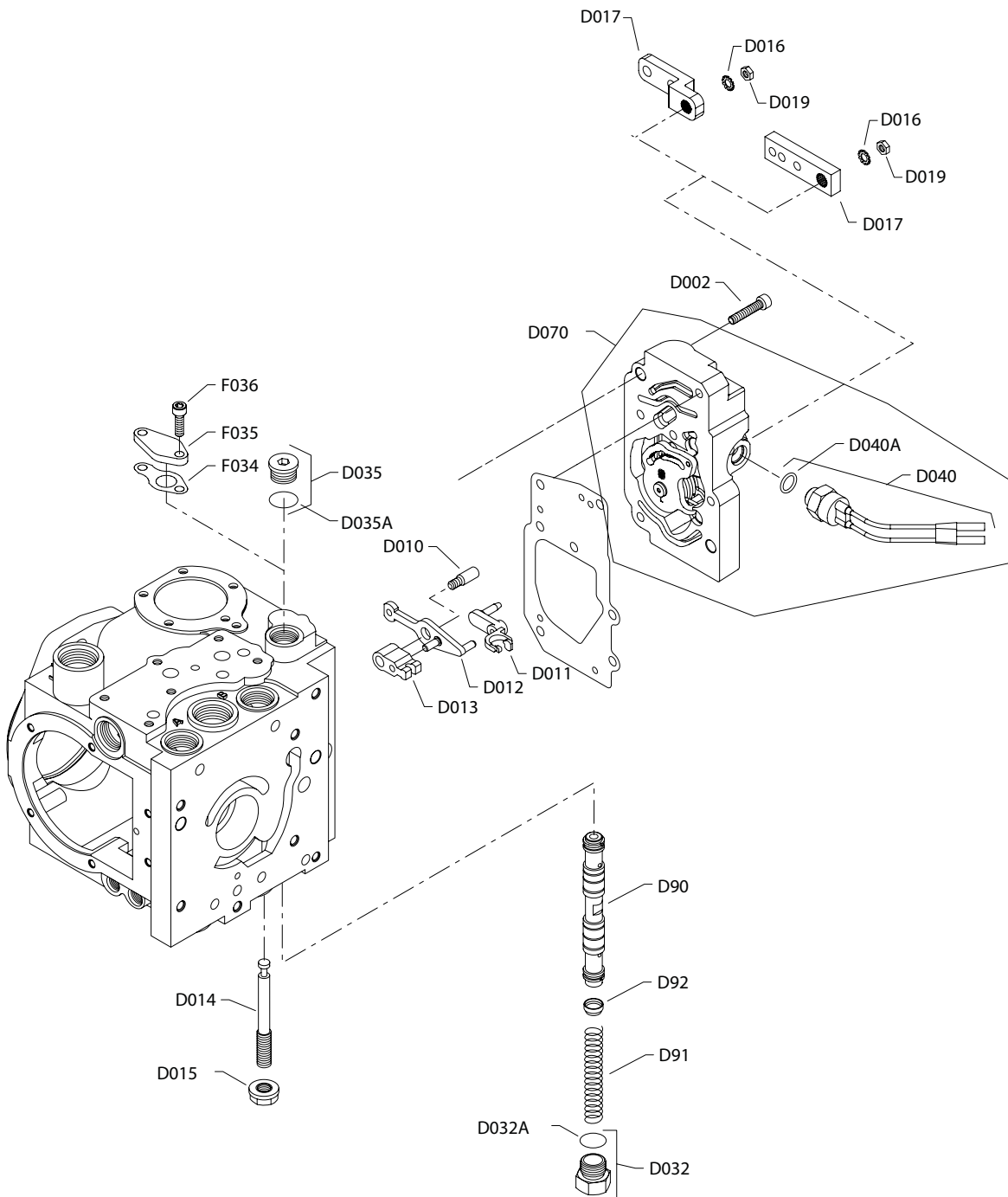
D040A	06-01		9004201-3700	O-ring	1
D040A	97-06		085043(9004201-3700)	O-ring	1
D070	97-06		4800532	Control assembly	1
D90	19-30		11082756	Control spool assembly	1
D90	97-06	19-30	4800410	Control spool assembly	1

### *A1NB parts*

D017	06-01		9800916	Control handle	1
D040	06-01		4700033	Neutral start switch	1
D040A	06-01		9004201-3700	O-ring	1
D070	06-01		4800532	Control assembly	1
D90	19-30		11082756	Control spool assembly	1
D90	06-01	19-30	4800410	Control spool assembly	1

Control

MDC A2N5-A7NB



## Control

Order code: common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
D002	06-01		9007314-0607	Screw (AAM0603001)	7
D002	93-20	06-20	5000002	Screw	7
D010	06-01		1734449	Screw	1
D010	93-20	06-01	4800326	Screw	1
D011	93-20		11192675	Control summing link	1
D012	93-20		11192686	Control feedback link	1
D013	93-20		4800201	Neutral adjust link	1
D014	07-17		1734450	Neutral adjust screw	1
D014	93-20	07-17	4800658	Neutral adjust screw (SB-1997-026)	1
D015	93-20		336826	Seal nut	1
D016	06-01		9009660-3100	Washer	1
D016	93-20	06-01	689018(9009660-3100)	Washer	1
D019	06-01		9003513-0800	Nut	1
D019	93-20	06-01	040642(9003513-0800)	Nut	1
D032	93-20		4800615	Plug	1
D032A	06-01		9004201-5000	O-ring	1
D032A	-	06-01	001131(9004201-5000)	O-ring	1
D035	06-01		9005110-7500	Plug	1
D035	98-02	06-01	681296(9005110-7500)	Plug	1
D035A	06-01		9004201-5000	O-ring	1
D035A	98-02	06-01	001131(9004201-5000)	O-ring	1
D91	06-01		1746004	Control backlash spring	1
D91	-	06-01	4800515	Control backlash spring	1
D91	-	-	4800243	Control backlash spring	1
D92	06-01		1746003	Spring adapter	1
D92	-	06-01	4800519	Spring adapter	1
F034	93-20	98-01	4800200	Control spool cover gasket(SB-1997-029)	1
F035	93-20	98-01	4800199	Control spool cover(SB-1997-029)	1
F036	93-20	98-01	5000001	Screw(SB-1997-029)	2

### A2N5 parts

D017	15-23		769075	Control handle, off-set	1
D017	97-36	15-23	4800689	Control handle, off-set (SB-1997-046)	1
D040	97-36		4700032	Neutral start switch	1
D040A	07-18		9004201-3700	O-ring	1
D040A	97-06		085043(9004201-3700)	O-ring	1
D070	97-36		11070599	Control Assembly	1
D90	19-30		11082756	Control spool assembly	1
D90	97-36	19-30	4800410	Control Spool Assembly	1

### A3NB parts

D017	97-36		9800916	Control handle	1
D040	97-36		4700025	Neutral start switch and backup alarm	1

## Control

### *A3NB parts (continued)*

D040A	07-18		9004201-3700	O-ring	1
D040A	97-06		085043(9004201-3700)	O-ring	1
D070	97-36		4800863	Control Assembly	1
D90	19-30		11082756	Control spool assembly	1
D90	97-36	19-30	4800410	Control Spool Assembly	1

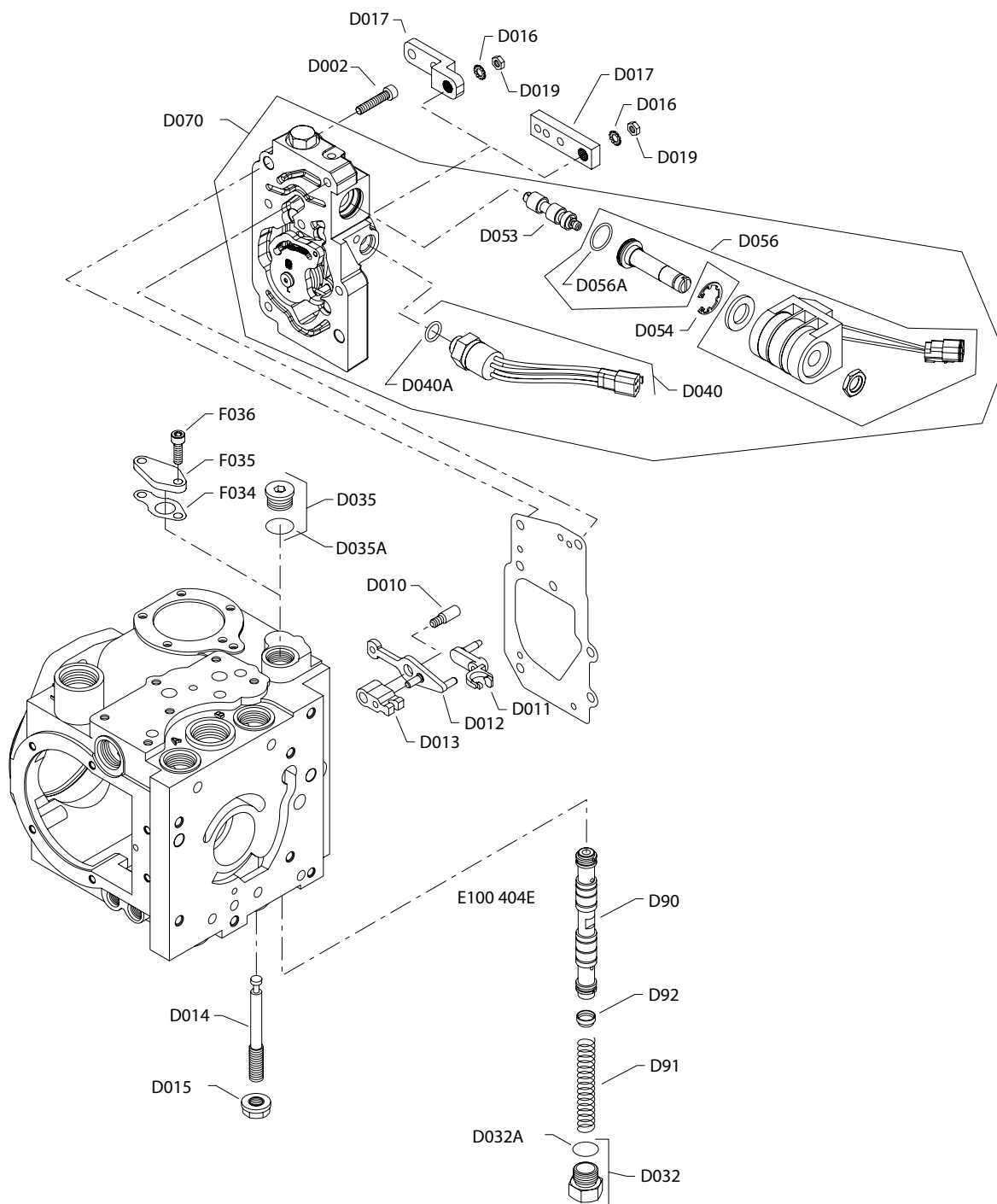
### *A7NB parts*

D017	06-01		9800916	Control handle	1
D040	06-01		4700113	Neutral start switch and backup alarm	1
D040A	06-01		9004201-3700	O-ring	1
D070	06-01		4800656	Control assembly	1
D90	19-30		11082756	Control spool assembly	1
D90	06-01	19-30	4800410	Control spool assembly	1

**Control**

**MDC A1A5-A2B3**

Part numbers for MDC (with both solenoid and neutral start switch) controls can be found below.



## Control

Order code: common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
D002	06-01		9007314-0607	Screw (AAM0603001)	7
D002	93-20	06-20	5000002	Screw	7
D010	06-01		1734449	Screw	1
D010	93-20	06-01	4800326	Screw	1
D011	93-20		11192675	Control summing link	1
D012	93-20		11192686	Control feedback link	1
D013	93-20		4800201	Neutral adjust link	1
D014	07-17		1734450	Neutral adjust screw	1
D014	93-20	07-17	4800658	Neutral adjust screw (SB-1997-026)	1
D015	93-20		336826	Seal nut	1
D016	06-01		9009660-3100	Washer	1
D016	93-20	06-01	689018(9009660-3100)	Washer	1
D019	06-01		9003513-0800	Nut	1
D019	93-20	06-01	040642(9003513-0800)	Nut	1
D032	93-20		4800615	Plug	1
D032A	06-01		9004201-5000	O-ring	1
D032A	-	06-01	001131(9004201-5000)	O-ring	1
D035	06-01		9005110-7500	Plug	1
D035	98-02	06-01	681296(9005110-7500)	Plug	1
D035A	06-01		9004201-5000	O-ring	1
D035A	98-02	06-01	001131(9004201-5000)	O-ring	1
D91	06-01		1746004	Control backlash spring	1
D91	-	06-01	4800515	Control backlash spring	1
D91	-	-	4800243	Control backlash spring	1
D92	06-01		1746003	Spring adapter	1
D92	-	06-01	4800519	Spring adapter	1
F034	93-20	98-01	4800200	Control spool cover gasket(SB-1997-029)	1
F035	93-20	98-01	4800199	Control spool cover(SB-1997-029)	1
F036	93-20	98-01	5000001	Screw(SB-1997-029)	2

A1A5 parts

D017	98-19		4800689	Control handle, off-set (SB-1997-046)	1
D040	98-19		4700033	Neutral start switch	1
D040A	07-18		9004201-3700	O-ring	1
D040A	98-19		085043(9004201-3700)	O-ring	1
D053	98-19		4800411	Brake solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	98-19	01-30	5000196	Retaining ring	1
D056	98-19		4700043	Solenoid, 12V, Weatherpack connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	98-19		633354(9004104-0180)	O-ring	1
D070	98-19		4800521	Control assembly	1
D90	98-19		4800410	Control spool assembly	1

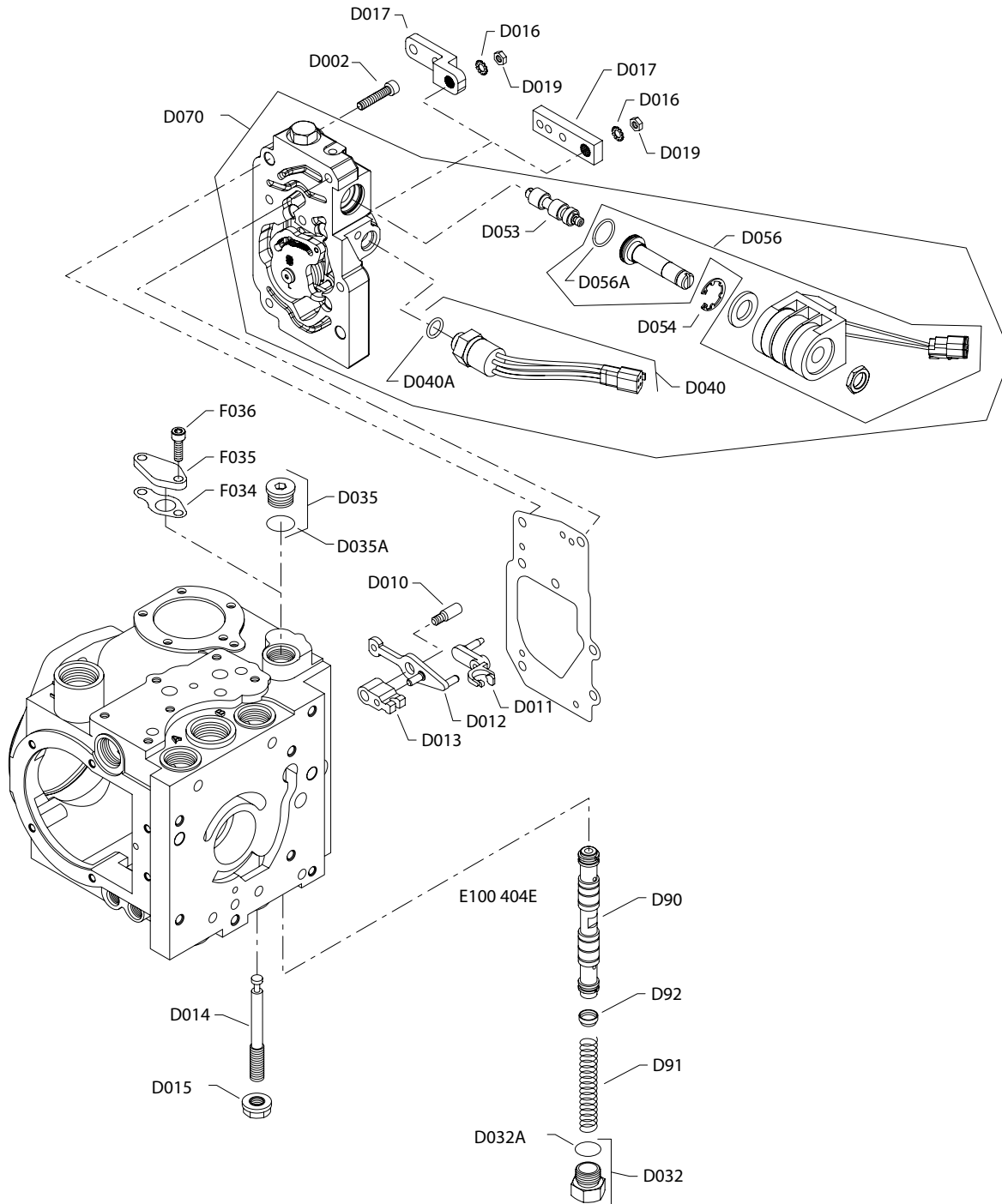
## Control

### A2B3 parts

D017	94-14		9800916	Control handle	1
D040	94-14		4700032	Neutral start switch	1
D040A	07-18		9004201-3700	O-ring	1
D040A	94-14		085043(9004201-3700)	O-ring	1
D053	94-14		4800411	Brake Solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	94-14	01-30	5000196	Retaining ring	1
D056	94-14		4700045	Solenoid, 12v, DIN connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	94-14		633354(9004104-0180)	O-ring	1
D070	94-14		4800538	Control assembly	1
D90	94-14		4800464	Control Spool assembly	1

Control

MDC A3AB-A7J5



## Control

Order code: common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
D002	06-01		9007314-0607	Screw (AAM0603001)	7
D002	93-20	06-20	5000002	Screw	7
D010	06-01		1734449	Screw	1
D010	93-20	06-01	4800326	Screw	1
D011	93-20		11192675	Control summing link	1
D012	93-20		11192686	Control feedback link	1
D013	93-20		4800201	Neutral adjust link	1
D014	07-17		1734450	Neutral adjust screw	1
D014	93-20	07-17	4800658	Neutral adjust screw (SB-1997-026)	1
D015	93-20		336826	Seal nut	1
D016	06-01		9009660-3100	Washer	1
D016	93-20	06-01	689018(9009660-3100)	Washer	1
D019	06-01		9003513-0800	Nut	1
D019	93-20	06-01	040642(9003513-0800)	Nut	1
D032	93-20		4800615	Plug	1
D032A	06-01		9004201-5000	O-ring	1
D032A	-	06-01	001131(9004201-5000)	O-ring	1
D035	06-01		9005110-7500	Plug	1
D035	98-02	06-01	681296(9005110-7500)	Plug	1
D035A	06-01		9004201-5000	O-ring	1
D035A	98-02	06-01	001131(9004201-5000)	O-ring	1
D91	06-01		1746004	Control backlash spring	1
D91	-	06-01	4800515	Control backlash spring	1
D91	-	-	4800243	Control backlash spring	1
D92	06-01		1746003	Spring adapter	1
D92	-	06-01	4800519	Spring adapter	1
F034	93-20	98-01	4800200	Control spool cover gasket(SB-1997-029)	1
F035	93-20	98-01	4800199	Control spool cover(SB-1997-029)	1
F036	93-20	98-01	5000001	Screw(SB-1997-029)	2

### A3AB parts

D017	06-01		9800916	Control handle	1
D040	97-15		4700025	Neutral start switch and backup alarm	1
D040A	07-18		9004201-3700	O-ring	1
D053	10-47		11089650	Brake solenoid spool	1
D053	97-15	10-47	4800411	Brake solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D056	97-15		4700043	Solenoid, 12v, Weatherpack connector	1
D056A	07-18		9004104-0180	O-ring	1
D070	06-01		4800635	Control assembly	1
D90	19-30		11082756	Control spool assembly	1
D90	06-01	19-30	4800410	Control spool assembly	1

## Control

### A5AA parts

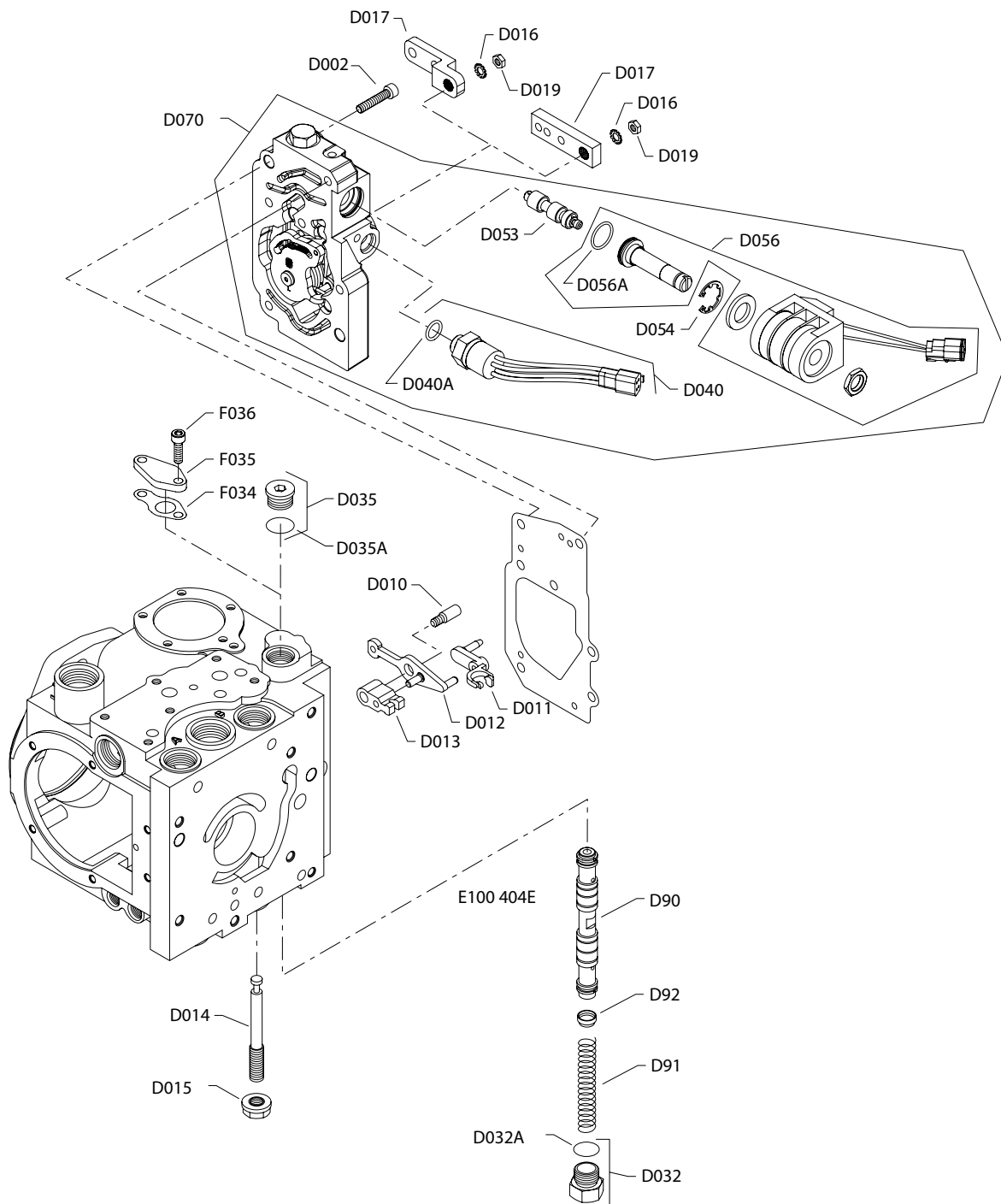
D017	15-23		769075	Control handle, off-set	1
D017	97-15	15-23	4800689	Control handle, off-set (SB-1997-046)	1
D040	97-15		4700025	Neutral start switch and backup alarm	1
D040A	07-18		9004201-3700	O-ring	1
D040A	97-15		085043(9004201-3700)	O-ring	1
D053	97-15		4800411	Brake solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	97-15	01-30	5000196	Retaining ring	1
D056	97-15		4700043	Solenoid, 12v, Weatherpack connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	97-15		633354(9004104-0180)	O-ring	1
D070	97-15		4800539	Control assembly	1
D90	97-15		4800464	Control spool assembly	1

### A7J5 parts

D017	15-23		769075	Control handle, off-set	1
D017	97-36	15-23	4800689	Control handle, off-set (SB-1997-046)	1
D040	97-36		4700113	Neutral start switch and backup alarm	1
D040A	07-18		9004201-3700	O-ring	1
D040A	97-06		085043(9004201-3700)	O-ring	1
D053	10-47		11089650	Brake solenoid spool	1
D053	97-36	10-47	4800411	Brake Solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	97-36	01-30	5000196		1
D056	97-36		4700145	Solenoid, 12V, Deutsch connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	97-36		633354(9004104-0180)	O-ring	1
D070	97-36		4800823	Control Assembly	1
D90	19-30		11082756	Control spool assembly	1
D90	97-36	19-30	4800410	Control Spool Assembly	1

**Control**

**MDC A7JB, L2B3**



## Control

Order code: common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
D002	06-01		9007314-0607	Screw (AAM0603001)	7
D002	93-20	06-20	5000002	Screw	7
D010	06-01		1734449	Screw	1
D010	93-20	06-01	4800326	Screw	1
D011	93-20		11192675	Control summing link	1
D012	93-20		11192686	Control feedback link	1
D013	93-20		4800201	Neutral adjust link	1
D014	07-17		1734450	Neutral adjust screw	1
D014	93-20	07-17	4800658	Neutral adjust screw (SB-1997-026)	1
D015	93-20		336826	Seal nut	1
D016	06-01		9009660-3100	Washer	1
D016	93-20	06-01	689018(9009660-3100)	Washer	1
D019	06-01		9003513-0800	Nut	1
D019	93-20	06-01	040642(9003513-0800)	Nut	1
D032	93-20		4800615	Plug	1
D032A	06-01		9004201-5000	O-ring	1
D032A	-	06-01	001131(9004201-5000)	O-ring	1
D035	06-01		9005110-7500	Plug	1
D035	98-02	06-01	681296(9005110-7500)	Plug	1
D035A	06-01		9004201-5000	O-ring	1
D035A	98-02	06-01	001131(9004201-5000)	O-ring	1
D91	06-01		1746004	Control backlash spring	1
D91	-	06-01	4800515	Control backlash spring	1
D91	-	-	4800243	Control backlash spring	1
D92	06-01		1746003	Spring adapter	1
D92	-	06-01	4800519	Spring adapter	1
F034	93-20	98-01	4800200	Control spool cover gasket(SB-1997-029)	1
F035	93-20	98-01	4800199	Control spool cover(SB-1997-029)	1
F036	93-20	98-01	5000001	Screw(SB-1997-029)	2

A7JB parts

D017	01-37		9800916	Control handle	1
D040	01-37		4700113	Neutral start switch and backup alarm	1
D040A	07-18		9004201-3700	O-ring	1
D040A	01-37		085043(9004201-3700)	O-ring	1
D053	01-37		4800411	Brake solenoid spool	1
D054	01-37		4280279	Retaining ring (SB-2001-008)	1
D056	01-37		4700145	Solenoid, 12v, Deutsch connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	97-15		633354(9004104-0180)	O-ring	1
D070	01-37		4800823	Control assembly	1
D90	01-37		4800410	Control spool assembly	1

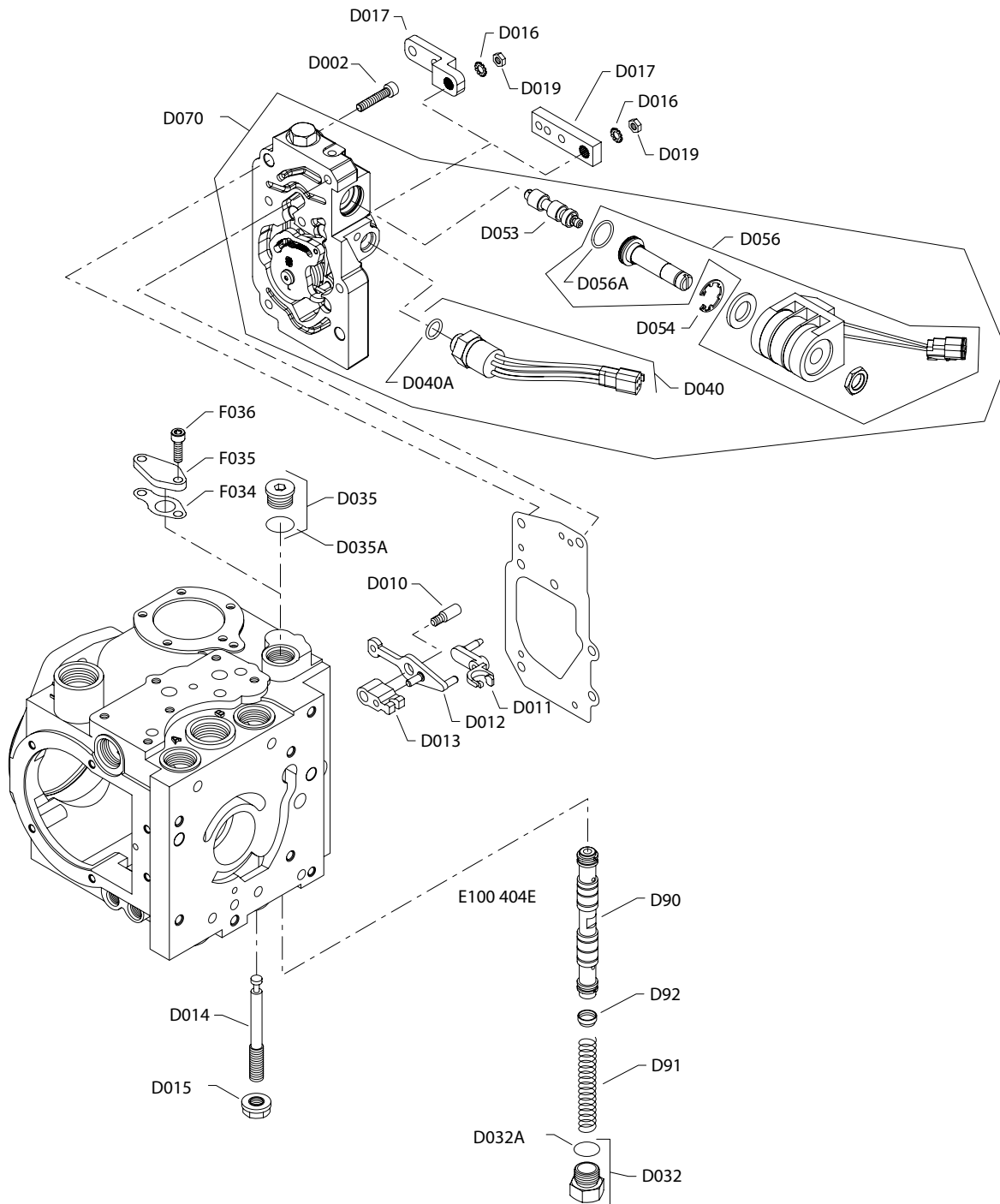
## Control

### L2B3 parts

D017	97-36		9800916	Control handle	1
D040	97-36		4700032	Neutral start switch	1
D040A	07-18		9004201-3700	O-ring	1
D040A	97-06		085043(9004201-3700)	O-ring	1
D053	10-47		11089650	Brake solenoid spool	1
D053	97-36	10-47	4800411	Brake Solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	97-36	01-30	5000196		1
D056	97-36		4700045	Solenoid, 12V, DIN connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	97-36		633354(9004104-0180)	O-ring	1
D070	97-36		4800544	Control Assembly	1
D90	19-30		11082757	Control spool assembly	1
D90	97-36	19-30	4800464	Control Spool Assembly	1

**Control**

**MDC L2B8, L3A3**



## Control

Order code: common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
D002	06-01		9007314-0607	Screw (AAM0603001)	7
D002	93-20	06-20	5000002	Screw	7
D010	06-01		1734449	Screw	1
D010	93-20	06-01	4800326	Screw	1
D011	93-20		11192675	Control summing link	1
D012	93-20		11192686	Control feedback link	1
D013	93-20		4800201	Neutral adjust link	1
D014	07-17		1734450	Neutral adjust screw	1
D014	93-20	07-17	4800658	Neutral adjust screw (SB-1997-026)	1
D015	93-20		336826	Seal nut	1
D016	06-01		9009660-3100	Washer	1
D016	93-20	06-01	689018(9009660-3100)	Washer	1
D019	06-01		9003513-0800	Nut	1
D019	93-20	06-01	040642(9003513-0800)	Nut	1
D032	93-20		4800615	Plug	1
D032A	06-01		9004201-5000	O-ring	1
D032A	-	06-01	001131(9004201-5000)	O-ring	1
D035	06-01		9005110-7500	Plug	1
D035	98-02	06-01	681296(9005110-7500)	Plug	1
D035A	06-01		9004201-5000	O-ring	1
D035A	98-02	06-01	001131(9004201-5000)	O-ring	1
D91	06-01		1746004	Control backlash spring	1
D91	-	06-01	4800515	Control backlash spring	1
D91	-	-	4800243	Control backlash spring	1
D92	06-01		1746003	Spring adapter	1
D92	-	06-01	4800519	Spring adapter	1
F034	93-20	98-01	4800200	Control spool cover gasket(SB-1997-029)	1
F035	93-20	98-01	4800199	Control spool cover(SB-1997-029)	1
F036	93-20	98-01	5000001	Screw(SB-1997-029)	2

L2B8 parts

D017	15-23		769075	Control handle, off-set	1
D017	97-36	15-23	4800689	Control handle, off-set (SB-1997-046)	1
D040	97-36		4700032	Neutral start switch	1
D040A	07-18		9004201-3700	O-ring	1
D040	97-06		085043(9004201-3700)	O-ring	1
D053	10-47		11089650	Brake solenoid spool	1
D053	97-36	10-47	4800411	Brake Solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	97-36	01-30	5000196		1
D056	97-36		4700045	Solenoid, 12V, DIN connector	1
D056A	07-18		9004104-0180	O-ring	1
D056	97-36		633354(9004104-0180)	O-ring	1

## Control

### L2B8 parts (continued)

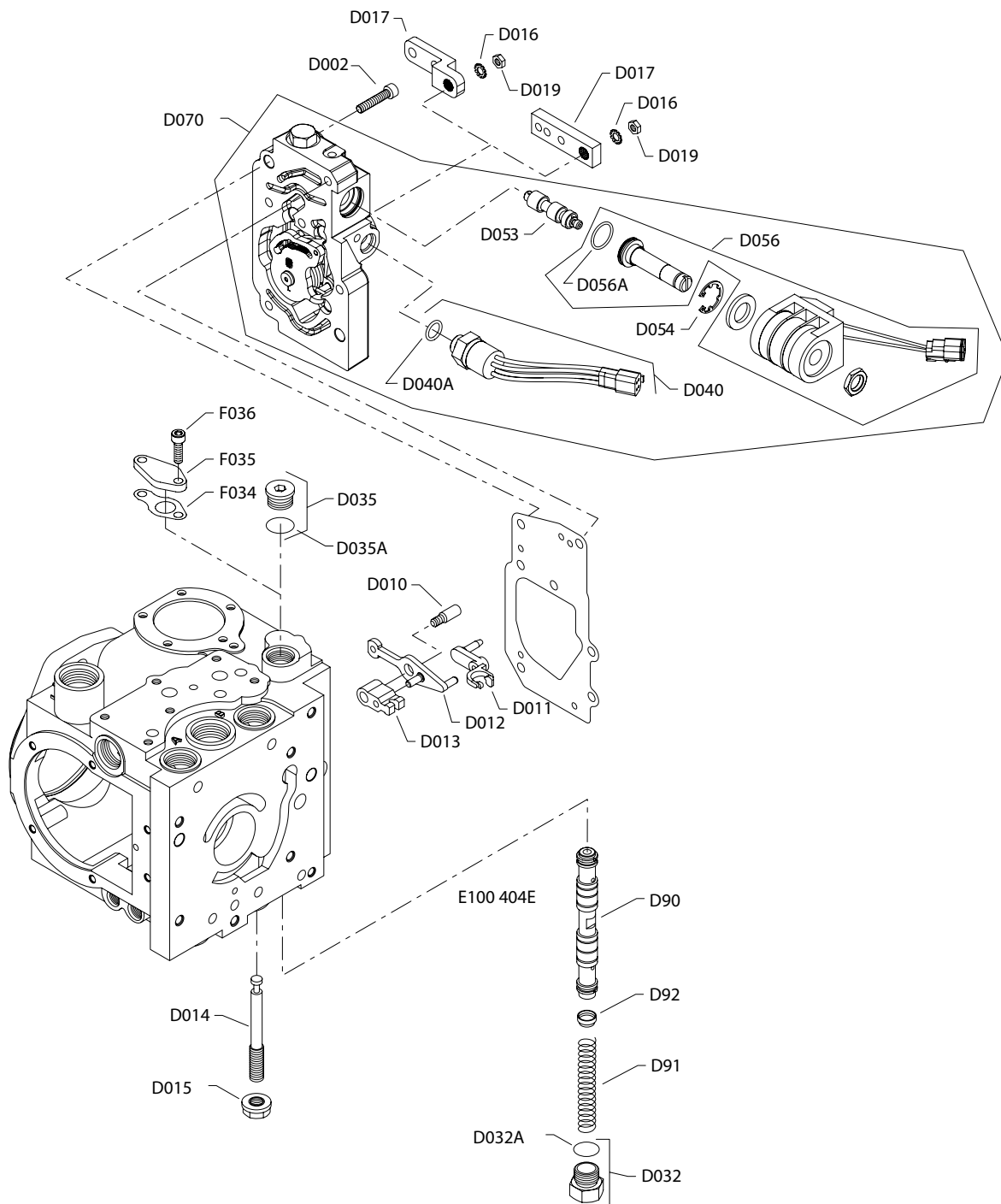
D070	97-36		4800544	Control Assembly	1
D90	97-36		4800488	Control Spool Assembly	1

### L3A3 parts

D017	97-15		9800916	Control handle	1
D040	97-15		4700025	Neutral start switch and backup alarm	1
D040A	07-18		9004201-3700	O-ring	1
D040	97-15		085043(9004201-3700)	O-ring	1
D053	10-47		11089650	Brake solenoid spool	1
D053	97-15	10-47	4800411	Brake solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	97-15	01-30	5000196	Retaining ring	1
D056	97-15		4700043	Solenoid, 12v, Weatherpack connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	97-15		633354(9004104-0180)	O-ring	1
D070	97-15		4800637	Control assembly	1
D90	19-30		11082757	Control spool assembly	1
D90	97-15	19-30	4800464	Control spool assembly	1

**Control**

**MDC L3B3-L4B3**



## Control

Order code: common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
D002	06-01		9007314-0607	Screw (AAM0603001)	7
D002	93-20	06-20	5000002	Screw	7
D010	06-01		1734449	Screw	1
D010	93-20	06-01	4800326	Screw	1
D011	93-20		11192675	Control summing link	1
D012	93-20		11192686	Control feedback link	1
D013	93-20		4800201	Neutral adjust link	1
D014	07-17		1734450	Neutral adjust screw	1
D014	93-20	07-17	4800658	Neutral adjust screw (SB-1997-026)	1
D015	93-20		336826	Seal nut	1
D016	06-01		9009660-3100	Washer	1
D016	93-20	06-01	689018(9009660-3100)	Washer	1
D019	06-01		9003513-0800	Nut	1
D019	93-20	06-01	040642(9003513-0800)	Nut	1
D032	93-20		4800615	Plug	1
D032A	06-01		9004201-5000	O-ring	1
D032A	-	06-01	001131(9004201-5000)	O-ring	1
D035	06-01		9005110-7500	Plug	1
D035	98-02	06-01	681296(9005110-7500)	Plug	1
D035A	06-01		9004201-5000	O-ring	1
D035A	98-02	06-01	001131(9004201-5000)	O-ring	1
D91	06-01		1746004	Control backlash spring	1
D91	-	06-01	4800515	Control backlash spring	1
D91	-	-	4800243	Control backlash spring	1
D92	06-01		1746003	Spring adapter	1
D92	-	06-01	4800519	Spring adapter	1
F034	93-20	98-01	4800200	Control spool cover gasket(SB-1997-029)	1
F035	93-20	98-01	4800199	Control spool cover(SB-1997-029)	1
F036	93-20	98-01	5000001	Screw(SB-1997-029)	2

L3B3 parts

D017	94-28		9800916	Control handle	1
D040	94-28		4700025	Neutral start switch and backup alarm	1
D040A	07-18		9004201-3700	O-ring	1
D040A	94-28		085043(9004201-3700)	O-ring	1
D053	94-28		4800411	Brake solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	94-28	01-30	5000196	Retaining ring	1
D056	94-28		4700045	Solenoid, 12v, DIN connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	94-28		633354(9004104-0180)	O-ring	1
D070	94-28		4800545	Control assembly	1
D90	94-28		4800464	Control spool assembly	1

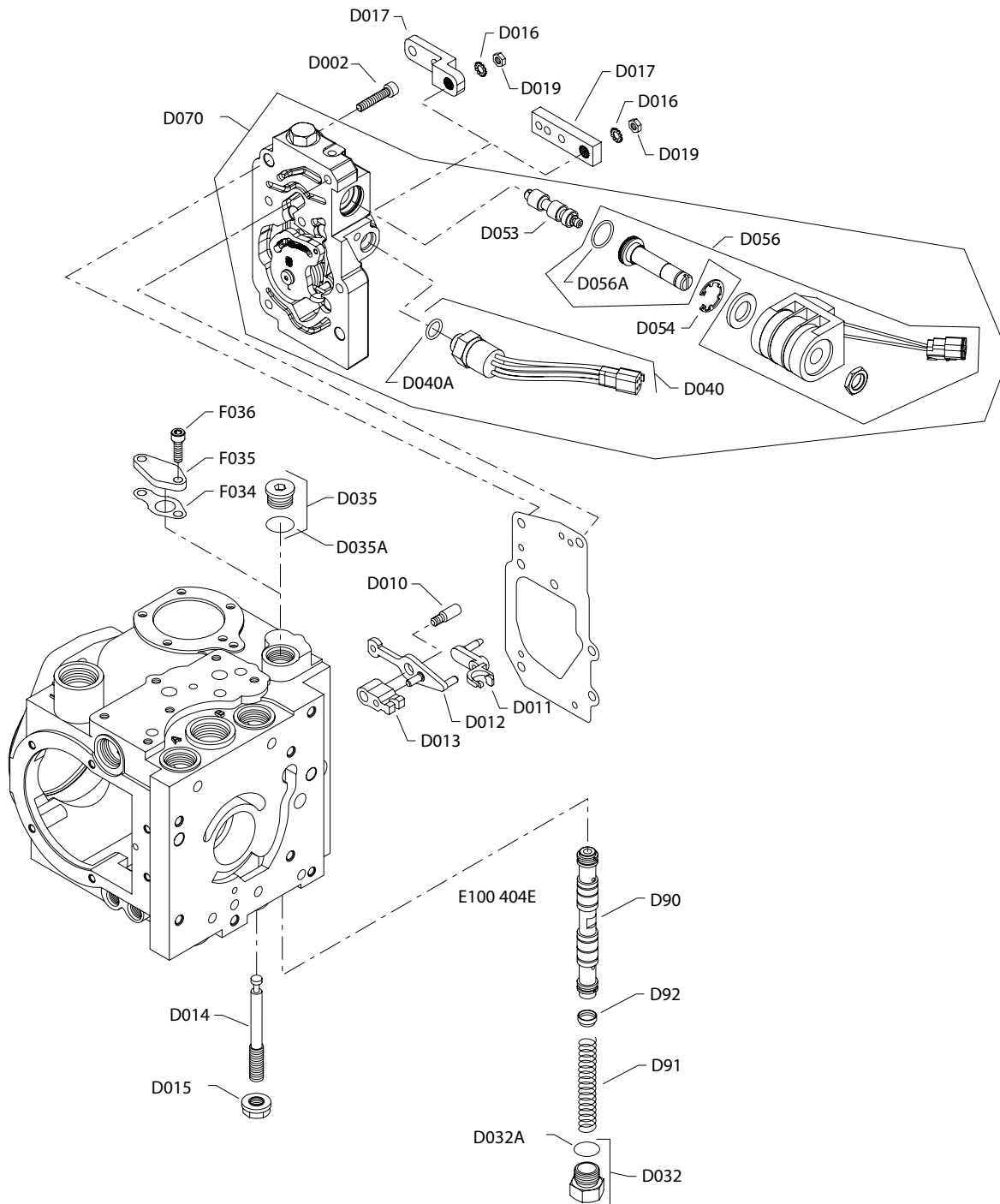
## Control

### L4B3 parts

D017	94-28		9800916	Control handle	1
D040	94-28		4700041	Neutral start switch and backup alarm	1
D040A	07-18		9004201-3700	O-ring	1
D040A	94-28		085043(9004201-3700)	O-ring	1
D053	94-28		4800411	Brake solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	94-28	01-30	5000196	Retaining ring	1
D056	94-28		4700045	Solenoid, 12v, DIN connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	94-28		633354(9004104-0180)	O-ring	1
D070	94-28		4800547	Control assembly	1
D90	94-28		4800464	Control spool assembly	1

**Control**

**MDC L7J3, L7J5**



## Control

Order code: common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
D002	06-01		9007314-0607	Screw (AAM0603001)	7
D002	93-20	06-20	5000002	Screw	7
D010	06-01		1734449	Screw	1
D010	93-20	06-01	4800326	Screw	1
D011	93-20		11192675	Control summing link	1
D012	93-20		11192686	Control feedback link	1
D013	93-20		4800201	Neutral adjust link	1
D014	07-17		1734450	Neutral adjust screw	1
D014	93-20	07-17	4800658	Neutral adjust screw (SB-1997-026)	1
D015	93-20		336826	Seal nut	1
D016	06-01		9009660-3100	Washer	1
D016	93-20	06-01	689018(9009660-3100)	Washer	1
D019	06-01		9003513-0800	Nut	1
D019	93-20	06-01	040642(9003513-0800)	Nut	1
D032	93-20		4800615	Plug	1
D032A	06-01		9004201-5000	O-ring	1
D032A	-	06-01	001131(9004201-5000)	O-ring	1
D035	06-01		9005110-7500	Plug	1
D035	98-02	06-01	681296(9005110-7500)	Plug	1
D035A	06-01		9004201-5000	O-ring	1
D035A	98-02	06-01	001131(9004201-5000)	O-ring	1
D91	06-01		1746004	Control backlash spring	1
D91	-	06-01	4800515	Control backlash spring	1
D91	-	-	4800243	Control backlash spring	1
D92	06-01		1746003	Spring adapter	1
D92	-	06-01	4800519	Spring adapter	1
F034	93-20	98-01	4800200	Control spool cover gasket(SB-1997-029)	1
F035	93-20	98-01	4800199	Control spool cover(SB-1997-029)	1
F036	93-20	98-01	5000001	Screw(SB-1997-029)	2

L7J3 parts

D017	01-01		9800916	Control handle	1
D040	01-01		4700113	Neutral start switch and backup alarm	1
D040A	07-18		9004201-3700	O-ring	1
D040A	01-01		085043(9004201-3700)	O-ring	1
D053	01-01		4800411	Brake solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	01-01	01-30	5000196	Retaining ring	1
D056	01-01		4700145	Solenoid, 12v, Deutsch connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	01-01		633354(9004104-0180)	O-ring	1
D070	06-01		4800750	Control assembly	1
D90	01-01		4800464	Control spool assembly	1

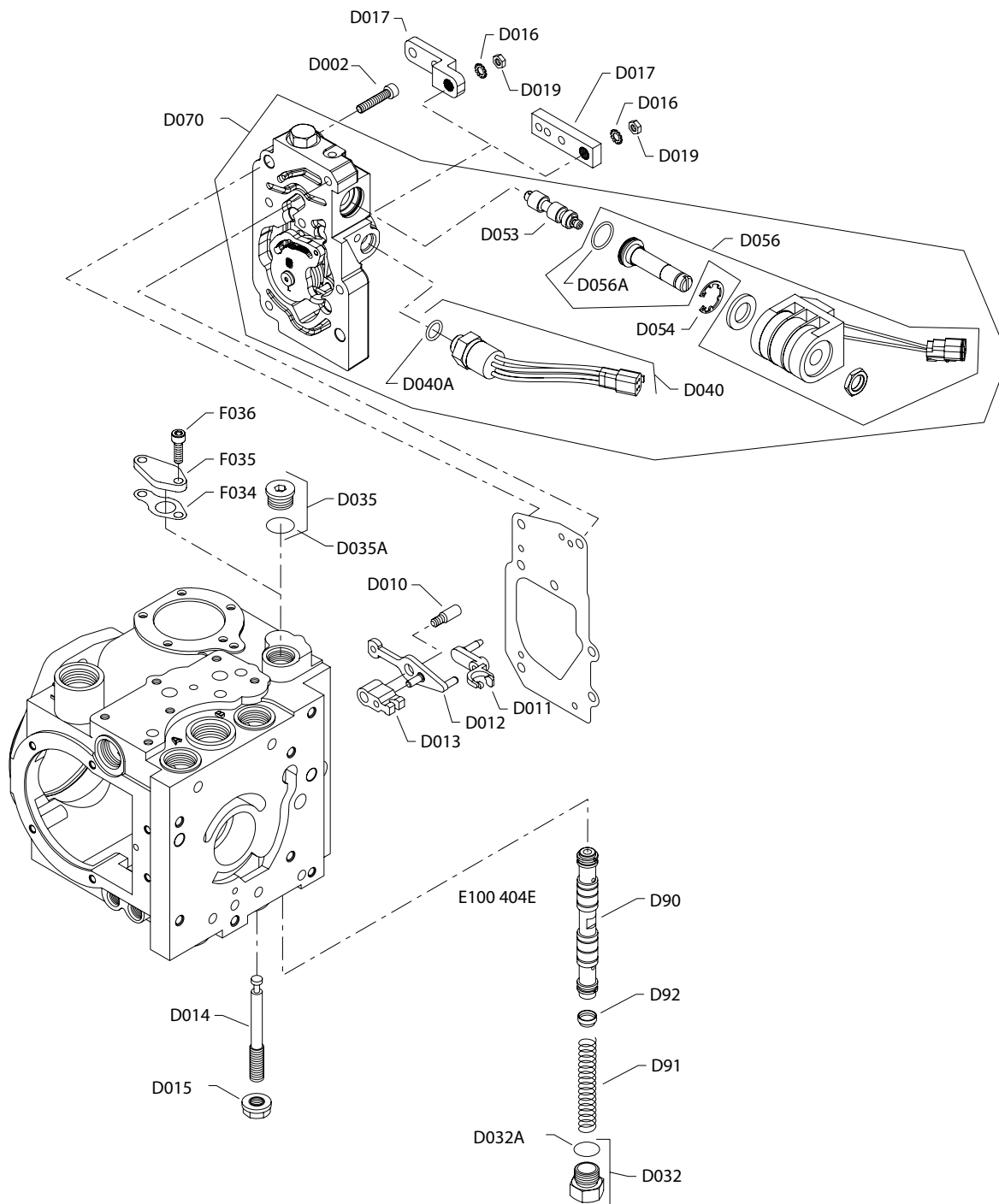
## Control

### L7J5 parts

D017	15-23		769075	Control handle, off-set	1
D017	97-36	15-23	4800689	Control handle, off-set (SB-1997-046)	1
D040	97-36		4700113	Neutral start switch and backup alarm	1
D040A	07-18		9004201-3700	O-ring	1
D040A	97-06		085043(9004201-3700)	O-ring	1
D053	10-47		11089650	Brake solenoid spool	1
D053	97-36	10-47	4800411	Brake Solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	97-36	01-30	5000196		1
D056	97-36		4700145	Solenoid, 12V, Deutsch connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	97-36		633354(9004104-0180)	O-ring	1
D070	97-36		4800750	Control Assembly	1
D90	19-30		11082756	Control spool assembly	1
D90	97-36	19-30	4800410	Control Spool Assembly	1

Control

MDCL7JA-L7JC



## Control

Order code: common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
D002	06-01		9007314-0607	Screw (AAM0603001)	7
D002	93-20	06-20	5000002	Screw	7
D010	06-01		1734449	Screw	1
D010	93-20	06-01	4800326	Screw	1
D011	93-20		11192675	Control summing link	1
D012	93-20		11192686	Control feedback link	1
D013	93-20		4800201	Neutral adjust link	1
D014	07-17		1734450	Neutral adjust screw	1
D014	93-20	07-17	4800658	Neutral adjust screw (SB-1997-026)	1
D015	93-20		336826	Seal nut	1
D016	06-01		9009660-3100	Washer	1
D016	93-20	06-01	689018(9009660-3100)	Washer	1
D019	06-01		9003513-0800	Nut	1
D019	93-20	06-01	040642(9003513-0800)	Nut	1
D032	93-20		4800615	Plug	1
D032A	06-01		9004201-5000	O-ring	1
D032A	-	06-01	001131(9004201-5000)	O-ring	1
D035	06-01		9005110-7500	Plug	1
D035	98-02	06-01	681296(9005110-7500)	Plug	1
D035A	06-01		9004201-5000	O-ring	1
D035A	98-02	06-01	001131(9004201-5000)	O-ring	1
D91	06-01		1746004	Control backlash spring	1
D91	-	06-01	4800515	Control backlash spring	1
D91	-	-	4800243	Control backlash spring	1
D92	06-01		1746003	Spring adapter	1
D92	-	06-01	4800519	Spring adapter	1
F034	93-20	98-01	4800200	Control spool cover gasket(SB-1997-029)	1
F035	93-20	98-01	4800199	Control spool cover(SB-1997-029)	1
F036	93-20	98-01	5000001	Screw(SB-1997-029)	2

L7JA parts

D017	99-02		4800689	Control handle, off-set (SB-1997-046)	1
D040	99-02		4700113	Neutral start switch and backup alarm	1
D040A	07-18		9004201-3700	O-ring	1
D040A	99-02		085043(9004201-3700)	O-ring	1
D053	99-02		4800411	Brake solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	99-02	01-30	5000196	Retaining ring	1
D056	99-02		4700145	Solenoid, 12v, Deutsch connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	99-02	-	633354(9004104-0180)	O-ring	1
D070	99-02		4800750	Control assembly	1
D90	99-02		4800464	Control spool assembly	1

## Control

### L7JC parts

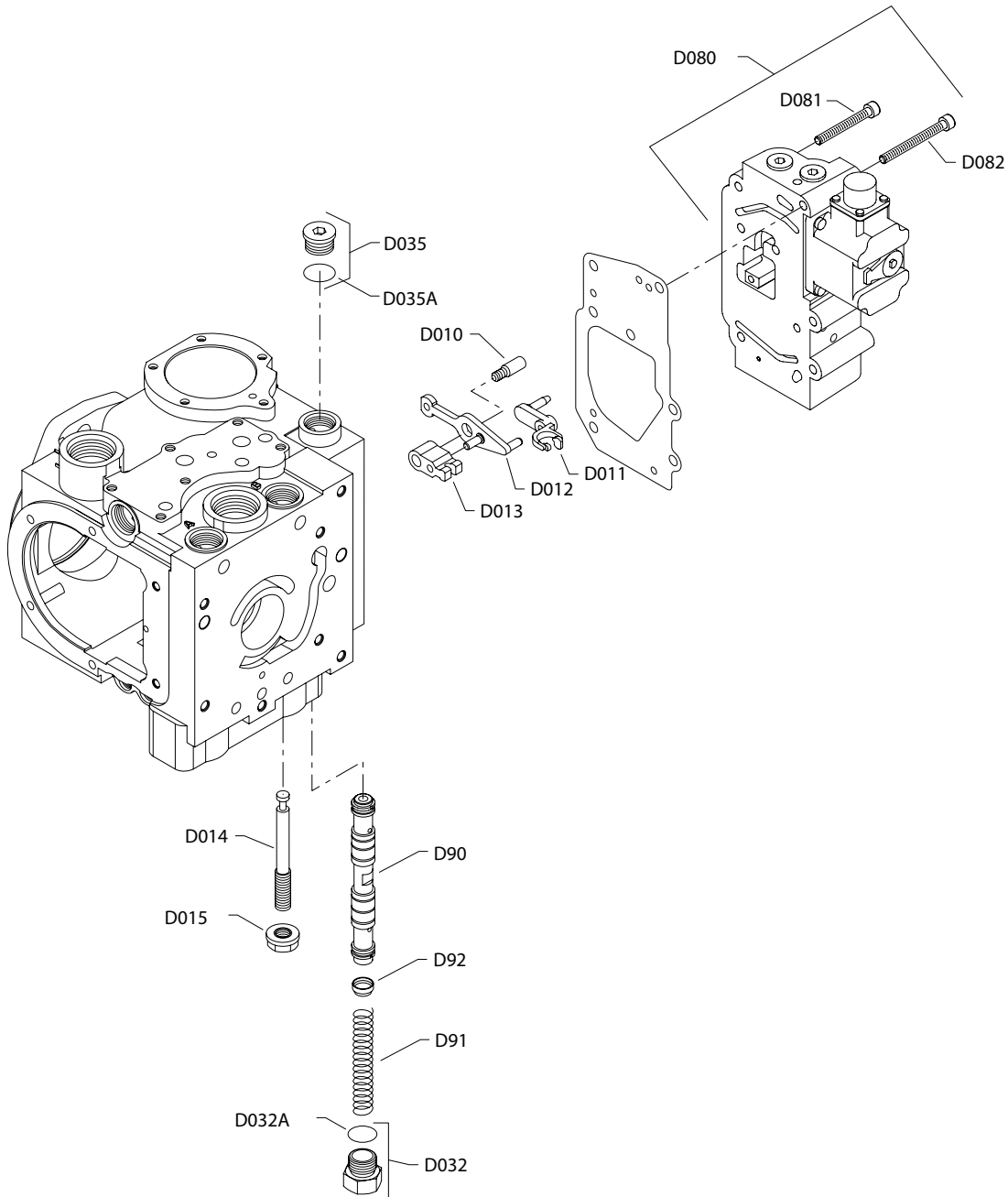
D017	99-28		4800763	Control handle, off-set, special	1
D040	99-28		4700113	Neutral start switch and backup alarm	1
D040A	07-18		9004201-3700	O-ring	1
D040A	99-28		085043(9004201-3700)	O-ring	1
D053	10-47		11089650	Brake solenoid spool	1
D053	99-28	10-47	4800411	Brake solenoid spool	1
D054	01-31		4280279	Retaining ring (SB-2001-008)	1
D054	99-28	01-30	5000196	Retaining ring	1
D056	99-28		4700145	Solenoid, 12v, Deutsch connector	1
D056A	07-18		9004104-0180	O-ring	1
D056A	99-28		633354(9004104-0180)	O-ring	1
D070	99-28		4800750	Control assembly	1
D90	19-30		11082757	Control spool assembly	1
D90	99-28	19-30	4800464	Control spool assembly	1

**Control**

**EDC Controls**

**EDC E1A3-E1B6**

Part numbers for EDC controls can be found below.



## Control

Order code: common parts

Item	Date begin	Date end	Part number	Part name	Qty.per Model/Kit
D010	06-01		1734449	Screw	1
D010	94-04	06-01	4800326	Screw	1
D011	94-04		11192675	Control summing link	1
D012	94-04		11192686	Control feedback link	1
D013	94-04		4800201	Neutral adjust link	1
D014	07-17		1734450	Neutral adjust screw	1
D014	94-04	07-17	4800658	Neutral adjust screw (SB-1997-026)	1
D015	94-04		336826	Seal Nut	1
D032	-		4800615	Plug	1
D032	94-04		681296(9005110-7500)	Plug	1
D032A	94-04		9004201-5000	O-ring	1
D032A	94-00		001131 (9004201-5000)	O-ring	1
D035	94-01		9005110-7500	Plug	1
D035	94-02		681296 (9005110-7500)	Plug	1
D035A	94-03		9004201-5000	O-ring	1
D035A	94-04		001131 (9004201-5000)	O-ring	1
D081	07-18		9007314-0611	Screw (AAM0605001)	4
D081	94-04		5000003	Screw	4
D082	07-18		354407	Screw (AAM0606001)	3
D082	94-04	07-18	5000004	Screw	3
D91	06-01		1746004	Control backlash spring	1
D91	-	06-01	4800515	Control backlash spring	1
D091	94-04		4800243	Control backlash spring	1
D92	07-18		1746003	Spring Adapter	1
D92	-	07-18	4800519	Spring Adapter	1

### E1A3 parts

D080	94-04		4510048	EDC kit, Weatherpack connector	1
D90	19-30		11082757	Control spool assembly	1
D90	94-04	19-30	4800464	Control spool assembly	1

### E1A4 parts

D080	00-06		4510049	EDC kit, MS connector	1
D90	19-30		11082757	Control spool assembly	1
D90	00-06	19-30	4800464	Control spool assembly	1

### E1A5 parts

D080	95-19		4510048	EDC kit, Weatherpack connector	1
D90	19-30		11082756	Control spool assembly	1
D90	95-19	19-30	4800410	Control spool assembly	1

**Control**

*E1A6 parts*

D080	95-19		4510049	EDC kit, MS connector	1
D90	19-30		11082756	Control spool assembly	1
D90	95-19	19-30	4800410	Control spool assembly	1

*E1A7 parts*

D080	99-08		4510393	EDC kit, DEUTSCH connector	1
D90	19-30		11082756	Control spool assembly	1
D90	99-08		4800410	Control spool assembly	1

*E1B3 parts*

D080	00-06		11018289	EDC kit, Weatherpack connector	1
D90	19-30		11082757	Control spool assembly	1
D90	00-06		4800464	Control spool assembly	1

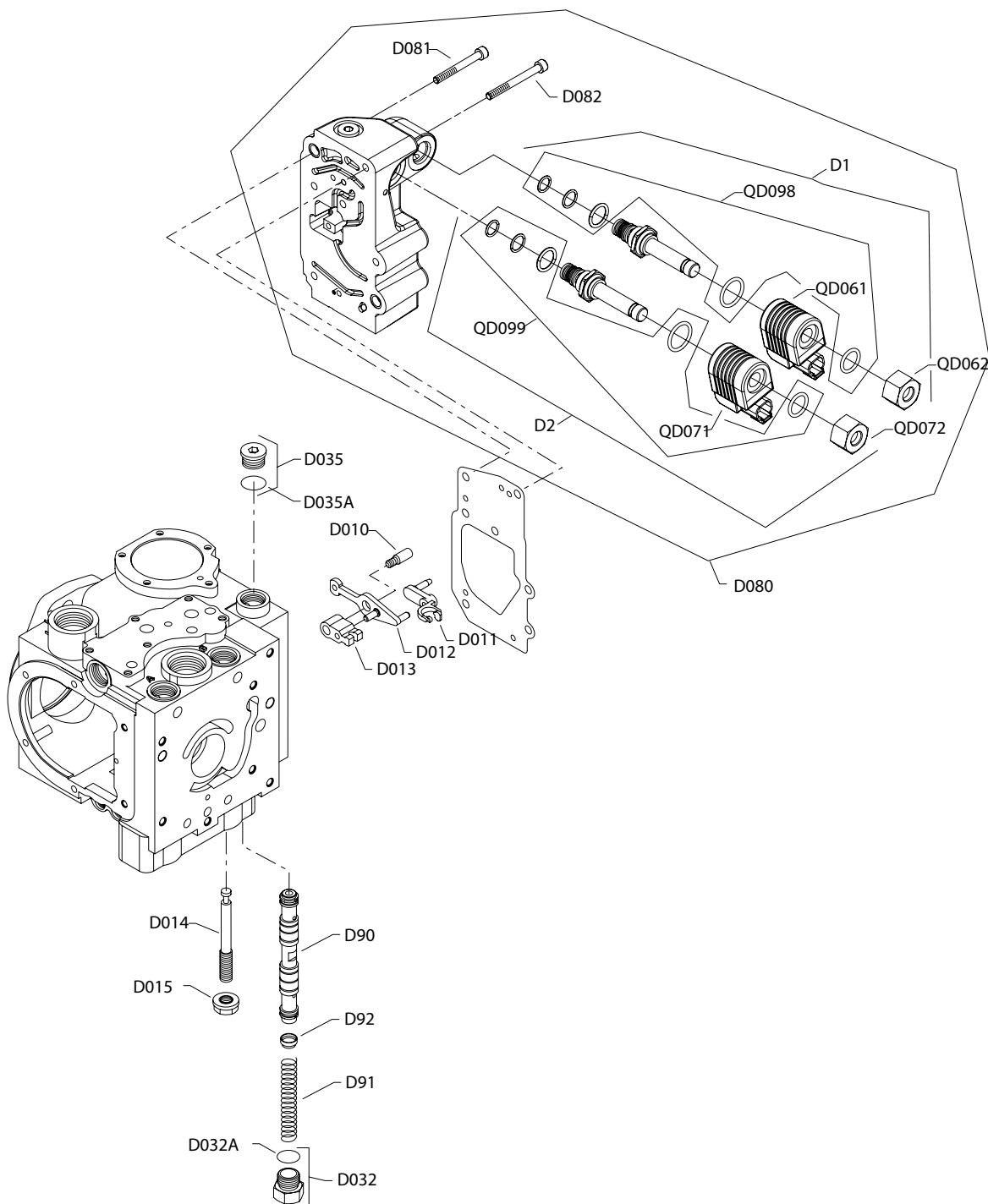
*E1B6 parts*

D080	01-11		4510395	EDC kit, MS Connector	1
D90	19-30		11082756	Control spool assembly	1
D90	01-11		4800410	Control spool assembly	1

**Control**

**HC-EDC E2C7-E2D8**

Part numbers for HC-EDC controls can be found below.



## Control

Order code: common parts

Item	Date begin	Date end	Part number	Part name	Qty.per Model/Kit
D010	06-01		1734449	Screw	1
D010	94-04	06-01	4800326	Screw	1
D011	94-04		11192675	Control summing link	1
D012	94-04		11192686	Control feedback link	1
D013	94-04		4800201	Neutral adjust link	1
D014	07-17		1734450	Neutral adjust screw	1
D014	94-04	07-17	4800658	Neutral adjust screw (SB-1997-026)	1
D015	94-04		336826	Seal Nut	1
D032	-		4800615	Plug	1
D032	94-04		681296(9005110-7500)	Plug	1
D032A	94-04		9004201-5000	O-ring	1
D032A	94-00		001131 (9004201-5000)	O-ring	1
D035	94-01		9005110-7500	Plug	1
D035	94-02		681296 (9005110-7500)	Plug	1
D035A	94-03		9004201-5000	O-ring	1
D035A	94-04		001131 (9004201-5000)	O-ring	1
D081	07-18		9007314-0611	Screw (AAM0605001)	4
D081	94-04		5000003	Screw	4
D082	07-18		354407	Screw (AAM0606001)	3
D082	94-04	07-18	5000004	Screw	3
D91	06-01		1746004	Control backlash spring	1
D91	-	06-01	4800515	Control backlash spring	1
D091	94-04		4800243	Control backlash spring	1
D92	07-18		1746003	Spring Adapter	1
D92	-	07-18	4800519	Spring Adapter	1

### E2C7 parts

D080	01-10		11076847	HC-EDC kit, 12V DEUTSCH Connectors on wires	1
D90	19-30		11082756	Control spool assembly	1
D90	01-10	19-30	4800410	Control spool assembly	1
D093	01-10	17-13	322466	Coil	2
D1	01-10		138108	Valve Assembly	1
D2	17-13		138108	Valve Assembly	1
QD061	17-13		322466	Coil, 12V	1
QD071	17-13		322466	Coil, 12V	1
QD062	17-13		322399	Nut, Coil	1
QD072	17-13		322399	Nut, Coil	1
QD098	17-13		11136912	Kit-Seal-Buna-N, S42_HC-EDC	1
QD099	17-13		11136912	Kit-Seal-Buna-N, S42_HC-EDC	1

### E2C8 parts

D080	10-09		11076848	HC-EDC kit, 12V Integrated DEUTSCH Connectors	1
D90	19-30		11082756	Control spool assembly	1

## Control

### *E2C8 parts (continued)*

D90	10-09	19-30	4800410	Control spool assembly	1
D093	10-09	17-13	322113	Coil	2
D1	10-09		138516	Valve Assembly	1
D2	17-13		138516	Valve Assembly	1
QD061	17-13		322113	Coil, 12V	1
QD071	17-13		322113	Coil, 12V	1
QD062	17-13		322399	Nut, Coil	1
QD072	17-13		322399	Nut, Coil	1
QD098	17-13		11136912	Kit-Seal-Buna-N, S42_HC-EDC	1
QD099	17-13		11136912	Kit-Seal-Buna-N, S42_HC-EDC	1

### *E2D8 parts*

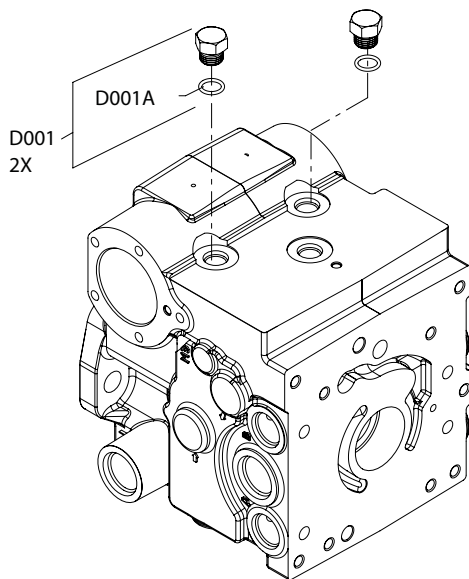
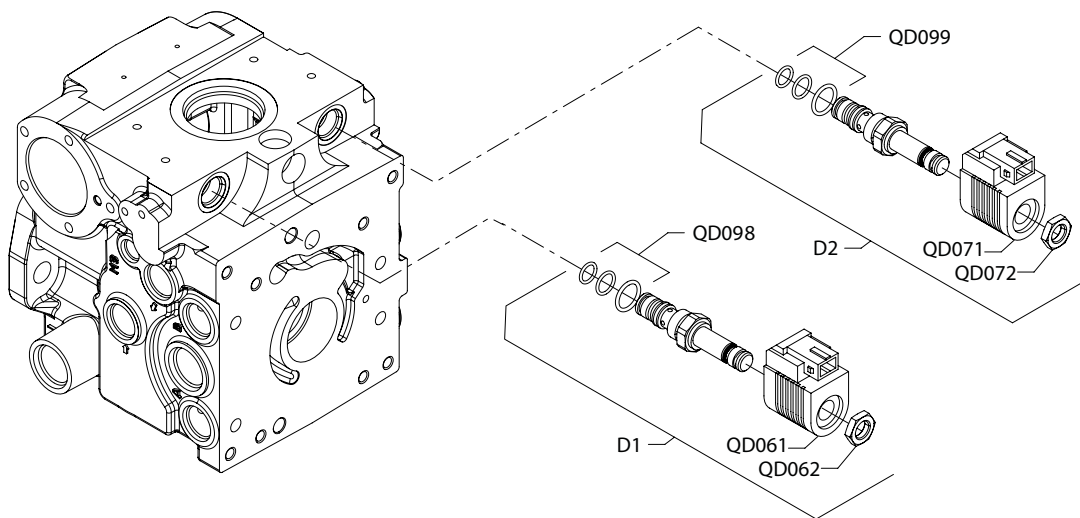
D080	10-09		11076849	HC-EDC kit, 24V Integrated DEUTSCH Connectors	1
D90	19-30		11082756	Control spool assembly	1
D90	10-09	19-30	4800410	Control spool assembly	1
D093	10-09	17-13	322115	Coil	2
D1	10-09		138692	Valve Assembly	2
D2	17-13		138692	Valve Assembly	1
QD061	17-13		322115	Coil, 24V	1
QD071	17-13		322115	Coil, 24V	1
QD062	17-13		322399	Nut, Coil	1
QD072	17-13		322399	Nut, Coil	1
QD098	17-13		11136912	Kit-Seal-Buna-N, S42_HC-EDC	1
QD099	17-13		11136912	Kit-Seal-Buna-N, S42_HC-EDC	1

## Control

### 3 Position Control

#### 3 position control F6NN-F8NN

Part numbers for 3-position control can be found below.



## Control

### F6NN parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
D1	06-01		H139370	Valve assy	1
D061	06-01	17-13	322724	Coil	2
QD061	17-13		322724	Coil	1
D099	06-01	17-13	120708	Kit seal, o-rings	2
QD098	17-13		120708	Kit seal, o-rings	1
QD062	17-13		620186	Nut	1
D2	17-13		H139370	Valve assy	1
QD071	17-13		322724	Coil	1
QD099	17-13		120708	Kit seal, o-rings	1
QD072	17-13		620186	Nut	1

### F7NN parts

D1	06-01		H139371	Valve assy	1
D061	06-01	17-13	H322726	Coil	2
QD061	17-13		H322726	Coil	1
D099	06-01	17-13	120708	Kit seal, o-rings	2
QD098	17-13		120708	Kit seal, o-rings	1
QD062	17-13		620186	Nut	1
D2	17-13		H139371	Valve assy	1
QD071	17-13		H322726	Coil	1
QD099	17-13		120708	Kit seal, o-rings	1
QD072	17-13		620186	Nut	1

### F8NN parts

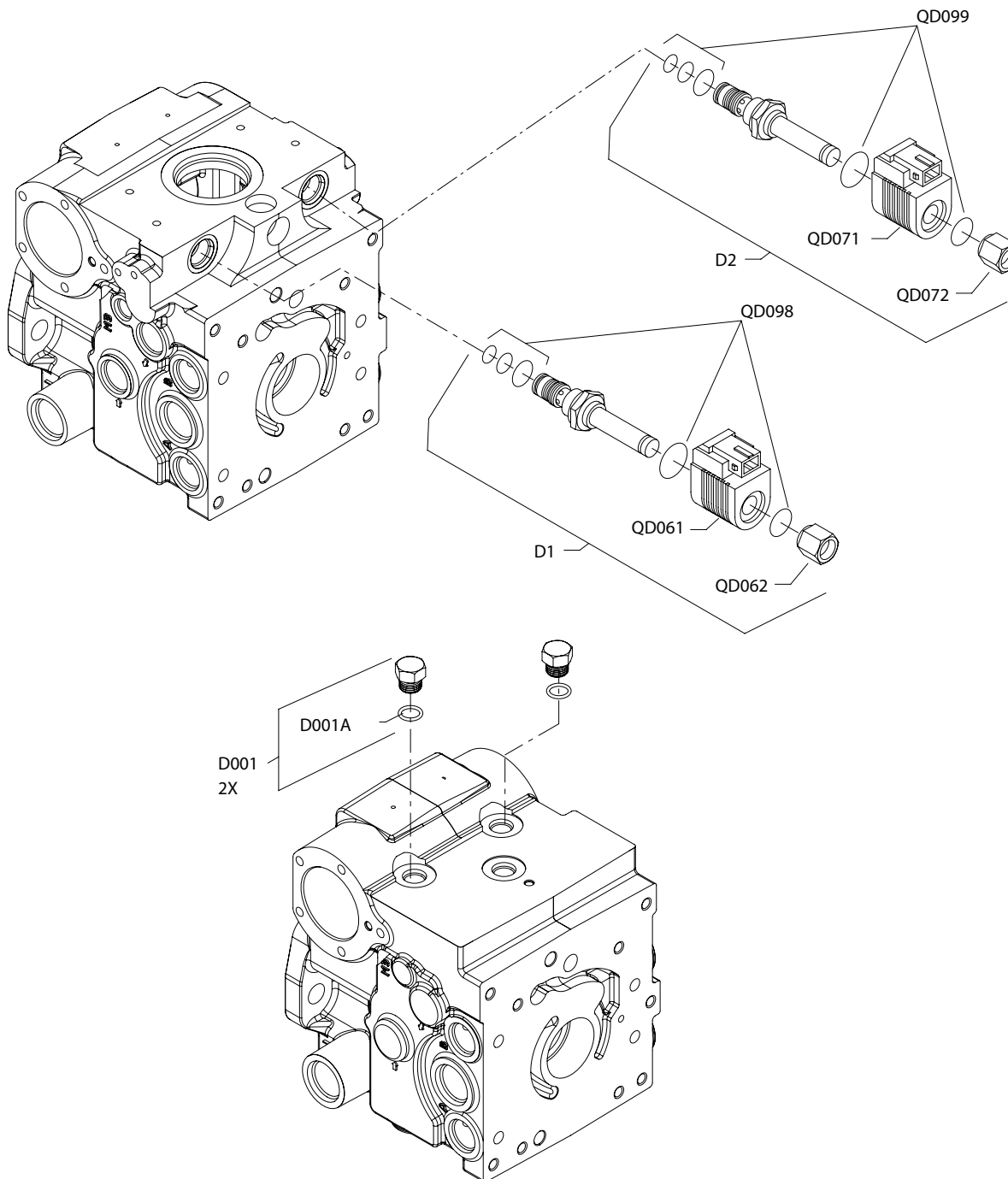
D1	93-20		139366	Valve assy	1
D061	06-01	17-13	H322719	Coil	2
QD061	17-13		H322719	Coil	1
D099	06-01	17-13	120708	Kit seal, o-rings	2
QD098	17-13		120708	Kit seal, o-rings	1
QD062	17-13		620186	Nut	1
D2	17-13		139366	Valve assy	1
QD071	17-13		H322719	Coil	1
QD099	17-13		120708	Kit seal, o-rings	1
QD072	17-13		620186	Nut	1

**Control**

**NFPE Controls**

**NFPE G2A1, G2A2, NFP (Hydraulic)**

Part numbers for NFPE (electric and hydraulic) controls can be found below.



## Control

Order code: G2A1 parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
D1	00-11		11005649	Control valve assembly, 20 bar	2
D061	06-01	17-13	H322719	Coil	2
D081	00-11	06-01	5000164 (9007315-0507)	Screw	4
QD061	17-13		H322719	Coil, 12V	1
QD098	17-13		120689	Kit seal, o-rings	1
QD062	17-13		322539	Nut	1
D2	17-13		11005649	Control valve assembly, 20 bar	1
QD071	17-13		H322719	Coil, 12V	1
QD099	17-13		120689	Kit seal, o-rings	1
QD072	17-13		322539	Nut	1

G2A2 parts

D1	01-40		11005354	Control valve assembly, 20 bar	2
D061	06-01	17-13	H322711	Coil	2
D081	01-40	06-01	5000607	Screw	4
D086	01-40	06-01	K27812	AMP to Packard adapter assembly	2
QD061	17-13		H322711	Coil, 12V, WPM	1
QD098	17-13		120689	Kit seal, o-rings	1
QD062	17-13		322539	Nut	1
D2	17-13		11005354	Control valve assembly, 20 bar	1
QD071	17-13		H322711	Coil, 12V, WPM	1
QD099	17-13		120689	Kit seal, o-rings	1
QD072	17-13		322539	Nut	1

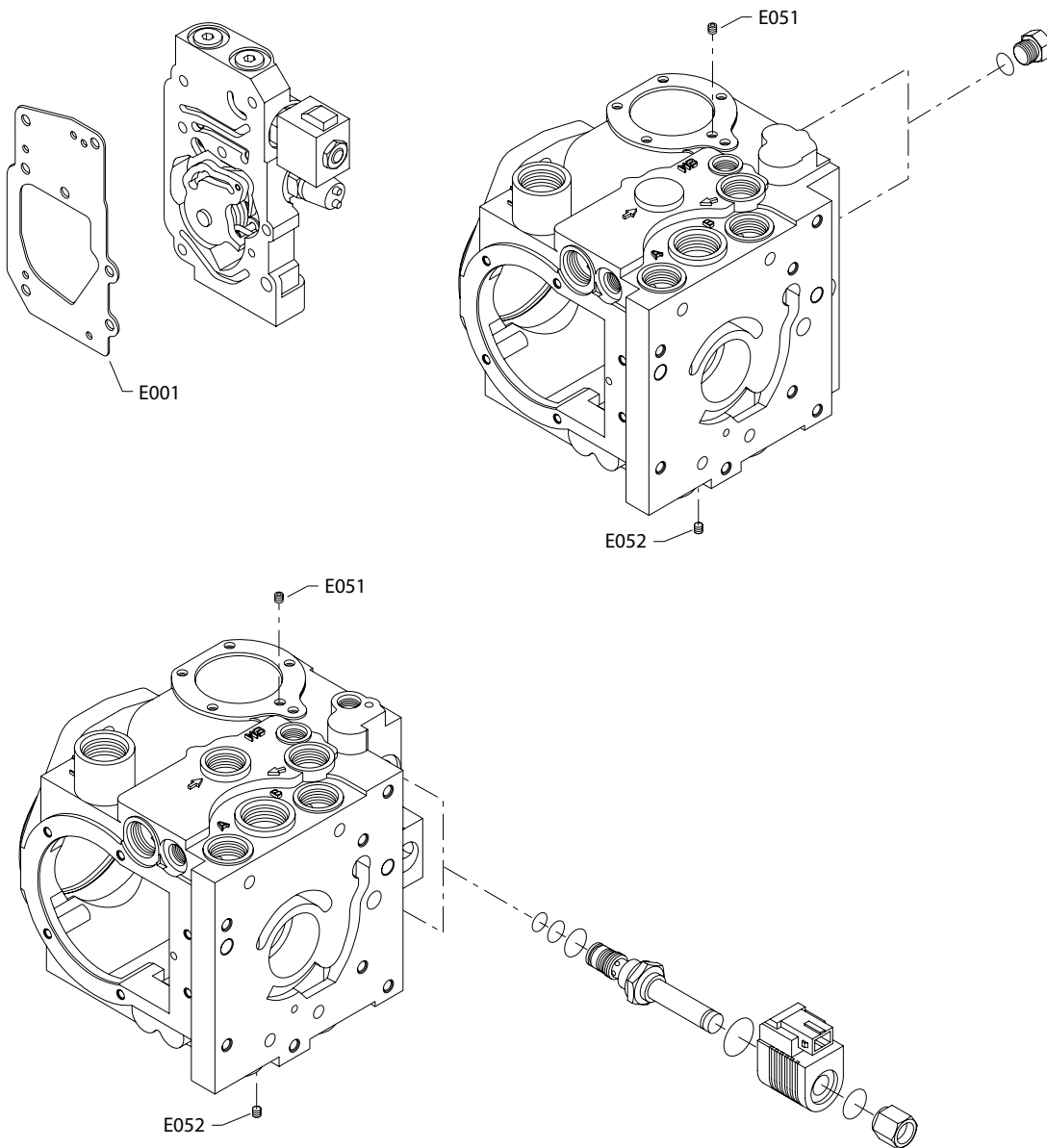
G3AN (NFP hydraulic) parts

D001	06-01		9005100-5600	Plug	2
D001	93-50		046151 (9005100-5600)	Plug	2
D001A	06-01		9004201-3700	O-ring	2
D001A	93-50		085043 (9004201-3700)	O-ring	2

### Control Response

#### Gasket/Orifice

Part numbers for the gasket/orifice are found in this chapter.



## Control Response

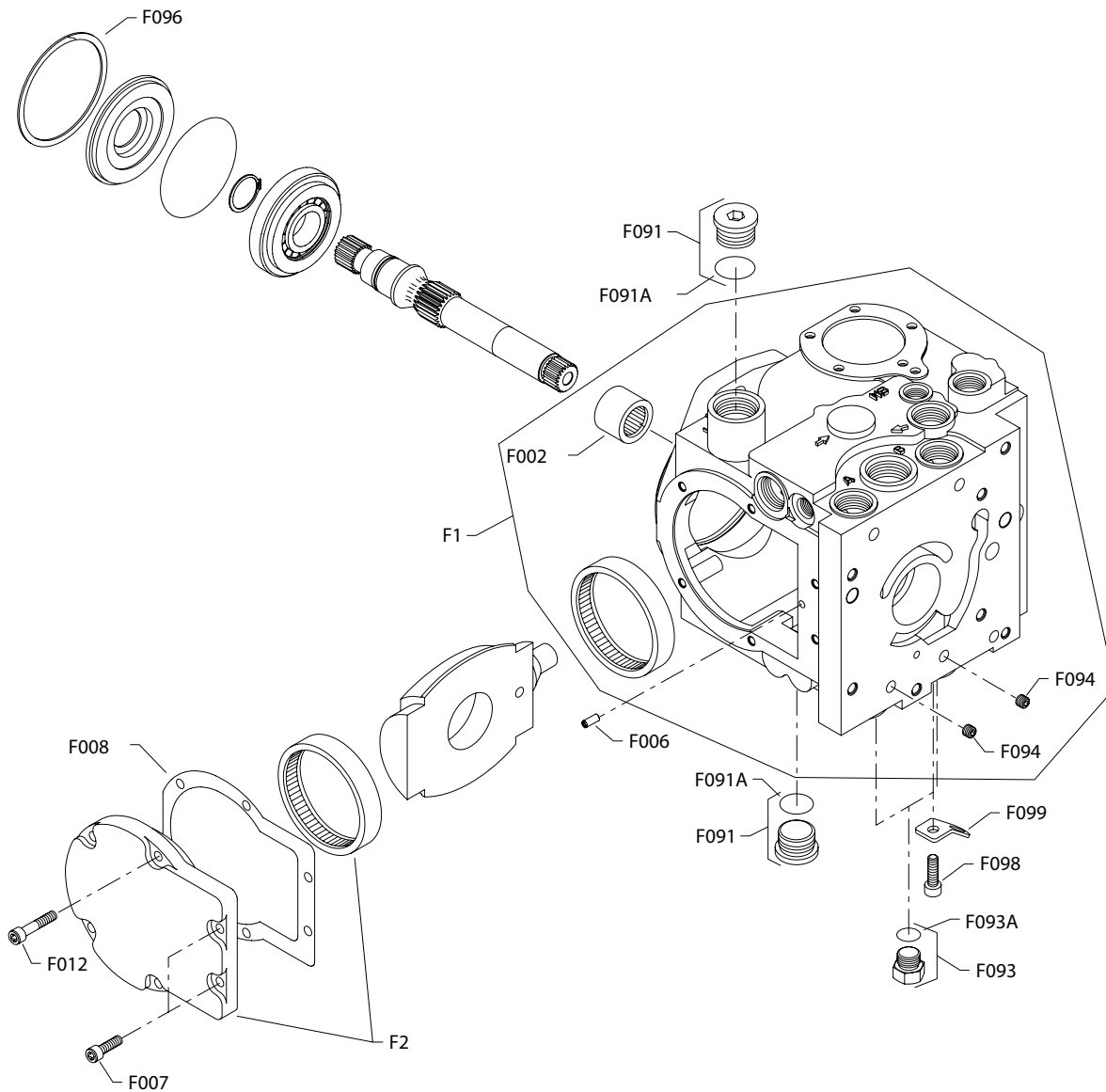
### Gasjet/Orifice

Order code	Item	Date begin	Date end	Part number	Part name	Qty.per Model/Kit
00	E001	93-20		4800301	Control gasket, no orifice	1
01	E001	93-20		4800478	Control gasket, 1.6 mm	1
02	E001	93-20		4800479	Control gasket, 1.0 mm	1
03	E001	93-20		4800480	Control gasket, 0.8&4.0 mm	1
05	E001	95-38		4800524	Control gasket, 0.9&4.0 mm	1
06	E001	95-38		4800572	Control gasket, 0.7 FD/0.9 DR mm	1
07	E001	96-09		4800466	Control gasket, 0.7 & 4.0 mm	1
10	E001	97-15		4800633	Control gasket, 0.725 & 4.0 mm	1
11	E001	97-40		4800660	Control gasket, 0.8 & 4.0 mm	1
50	E001	93-50		None	None, NFPH control	0
52	E051	06-01		SP2370-0610	Orifice plug, 1.0 mm	1
	E051	97-16		4570063	Orifice plug, 1.0 mm (SB-1997-012)	1
	E051	93-50	97-15	636241(9001418-0003)	Orifice plug, 1.0 mm (SB-1997-012)	1
	E052	06-01		SP2370-0610	Orifice plug, 1.0 mm	1
	E052	97-16		4570063	Orifice plug, 1.0 mm (SB-1997-012)	1
	E052	93-50	97-15	636241(9001418-0003)	Orifice plug, 1.0 mm (SB-1997-012)	1
53	E051	06-01		SP2370-0608	Orifice plug, 0.8 mm	1
	E051	97-16		739144	Orifice plug, 0.8 mm (SB-1997-012)	1
	E051	93-50	97-15	636258(9001418-0004)	Orifice plug, .75 mm (SB-1997-012)	1
	E052	06-01		SP2370-0608	Orifice plug, 0.8 mm	1
	E052	97-16		739144	Orifice plug, 0.8 mm (SB-1997-012)	1
	E052	93-50	97-15	636258(9001418-0004)	Orifice plug, .75 mm (SB-1997-012)	1
55	E051	06-01		SP2370-0613	Orifice plug, 1.3 mm	1
	E051	99-46	01-48	4570064	Orifice plug, 1.3 mm	1
	E052	06-01		SP2370-0613	Orifice plug, 1.3 mm	1
	E052	99-46	01-48	4570064	Orifice plug, 1.3 mm	1
NN		94-08		None	None	0

## Housing

### Housing XDC, Base 2023

Part numbers for housing units can be found in this chapter.



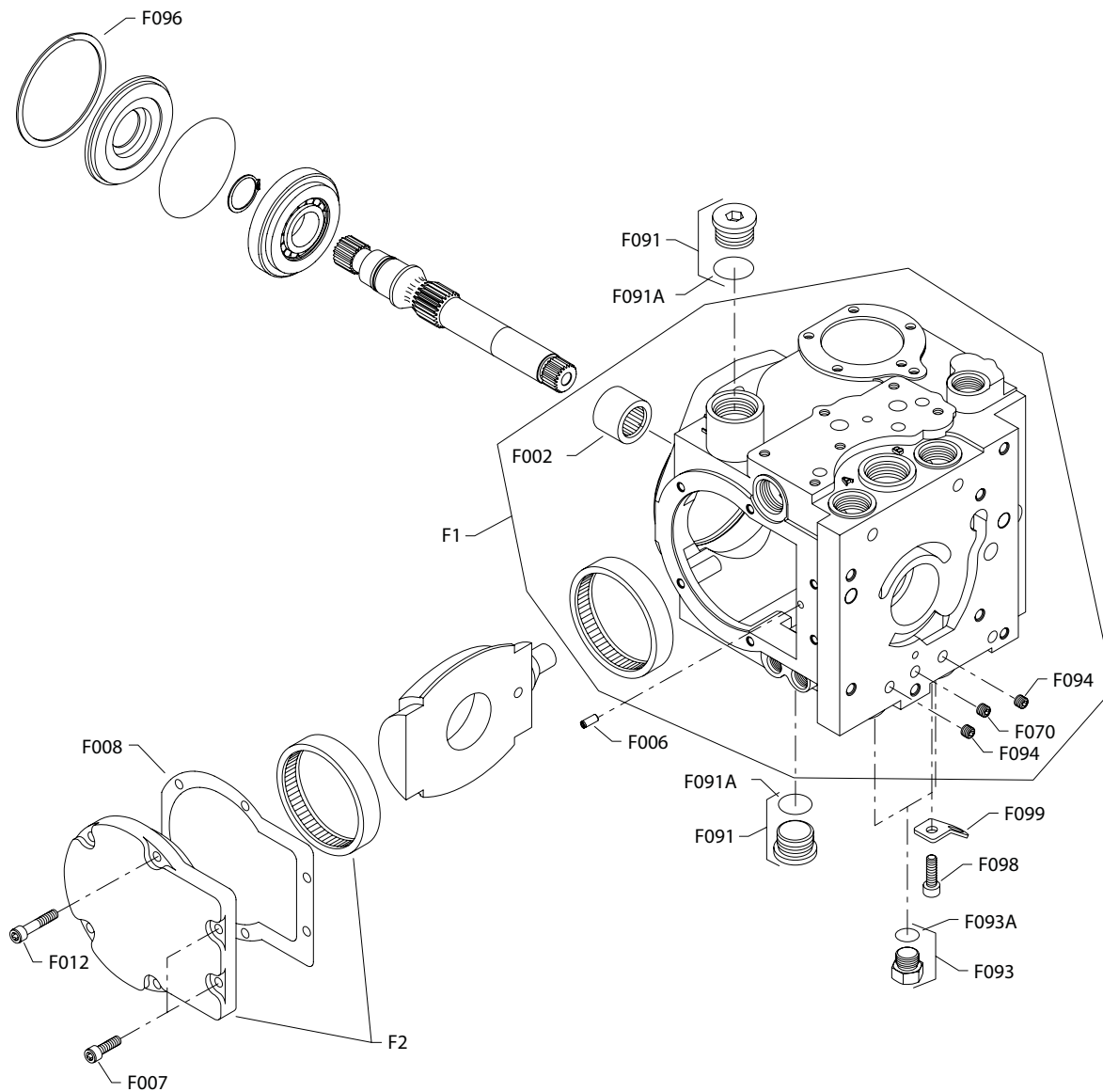
## Housing

Order code: A parts

Item	Date begin	Date end	Part number	Part name	Qty.per Model/Kit
F1	98-02		4280284	Housing assembly(SB-1997-029, 1999-048, 2000-053)	1
F2	93-48	-	4280143	Side cover assembly	1
F002	09-06		11060624 (5000046)	Needle bearing	1
F002	06-01		5000046	Needle bearing	1
F006	06-01		1745300	Pin	1
F006	93-20		5000205	Pin	1
F007	06-01		9007314-0605	Screw (AAM0602001)	2
F007	98-02		5000001	Screw (SB-1999-029)	2
F007	93-20	98-01	5000001	Screw	6
F008	98-02		4280226	Side cover gasket (SB-1999-044)	1
F012	06-01		9007314-0607	Screw (AAM0603001)	4
F012	93-20		5000002	Screw (SB-1997-029)	4
F091	06-01		9005110-9000	Plug	2
F091	93-20		664524(9005110-9000)	Plug	2
F091A	06-01		9004201-7500	O-ring	2
F091A	93-20		001156(9004201-7500)	O-ring	2
F093	06-01		9005100-5600	Plug	2
F093	93-20		46151(9005100-5600)	Plug	2
F093A	06-01		9004201-3700	O-ring	2
F093A	93-20		085043(9004201-3700)	O-ring	2
F094	06-01		SP2914-SL-02	Pipe plug	2
F094	-		9005003-1200	Pipe plug	2
F094	93-20		001479(9005001-1200)	Pipe plug	2
F096	98-02		5000114	Retaining ring	1
F098	06-01		9007314-0605	Screw (AAM0602001)	1
F098	98-31		5000001	Screw (SB-1999-048)	1
F099	98-31		4800754	Lifting bracket (SB-1999-048)	1

## Housing

### Housing XDC, Full Featured



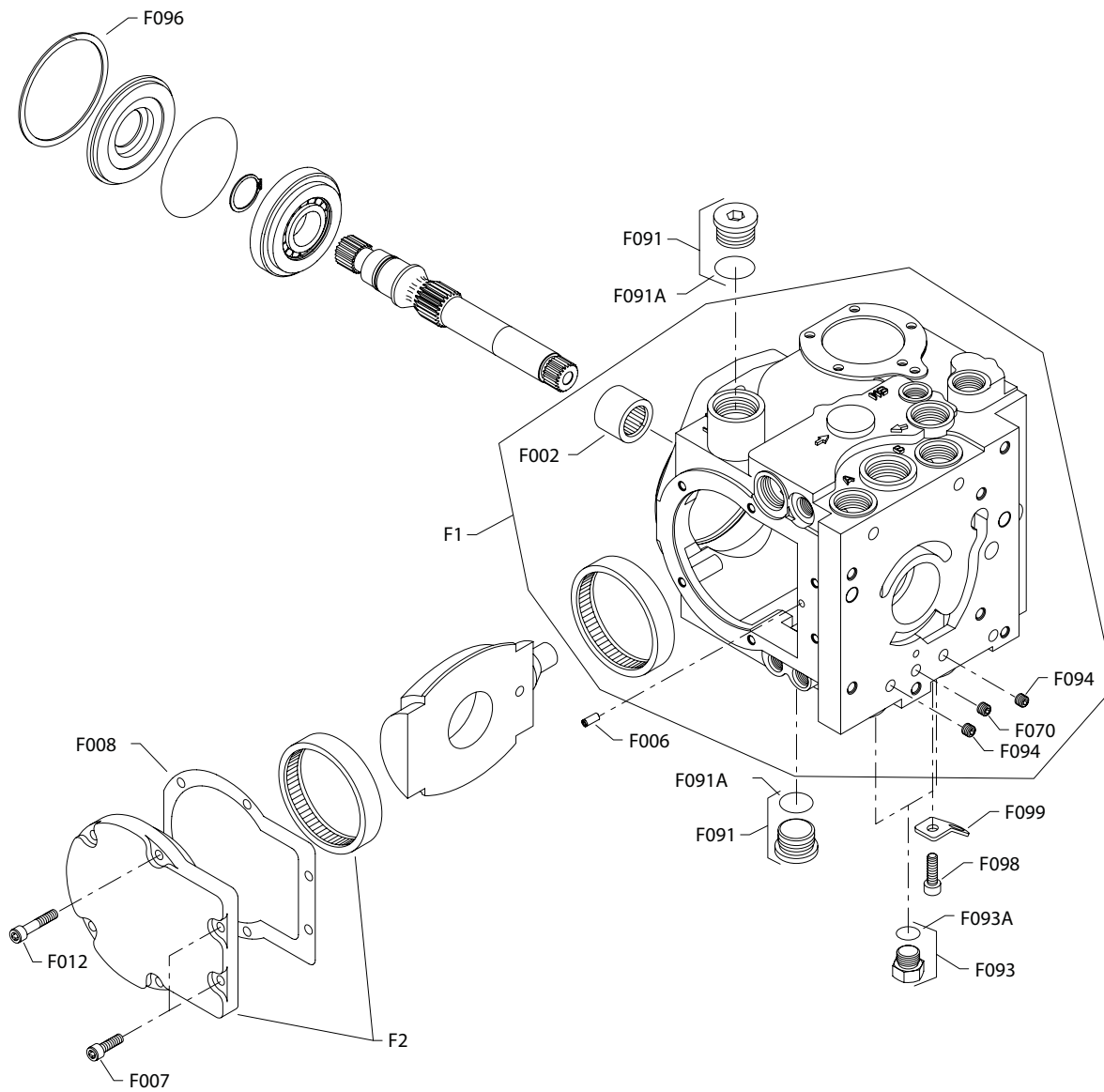
## Housing

Order code: B parts

Item	Date begin	Date end	Part number	Part name	Qty.per Model/Kit
F1	98-02		4280285	Housing assembly(SB-1997-029, 1999-048, 2000-053)	1
F2	93-48	-	4280143	Side cover assembly	1
F002	09-06		11060624 (5000046)	Needle bearing	1
F002	06-01		5000046	Needle bearing	1
F006	06-01		1745300	Pin	1
F006	93-20		5000205	Pin	1
F007	06-01		9007314-0605	Screw (AAM0602001)	2
F007	98-02		5000001	Screw (SB-1999-029)	2
F007	93-20	98-01	5000001	Screw	6
F008	98-02		4280226	Side cover gasket (SB-1999-044)	1
F012	06-01		9007314-0607	Screw (AAM0603001)	4
F012	93-20		5000002	Screw (SB-1997-029)	4
F070	06-01		SP2914-SL-02	Pipe plug	1
F070	-		9005003-1200	Pipe plug	1
F070	98-02		001479(9005001-1200)	Pipe plug	1
F091	06-01		9005110-9000	Plug	2
F091	93-20		664524(9005110-9000)	Plug	2
F091A	06-01		9004201-7500	O-ring	2
F091A	93-20		001156(9004201-7500)	O-ring	2
F093	06-01		9005100-5600	Plug	2
F093	93-20		46151(9005100-5600)	Plug	2
F093A	06-01		9004201-3700	O-ring	2
F093A	93-20		085043(9004201-3700)	O-ring	2
F094	06-01		SP2914-SL-02	Pipe plug	2
F094	-		9005003-1200	Pipe plug	2
F094	93-20		001479(9005001-1200)	Pipe plug	2
F096	98-02		5000114	Retaining ring	1
F098	06-01		9007314-0605	Screw (AAM0602001)	1
F098	98-31		5000001	Screw (SB-1999-048)	1
F099	98-31		4800754	Lifting bracket (SB-1999-048)	1

## Housing

### Housing XDC, with Loop Flushing



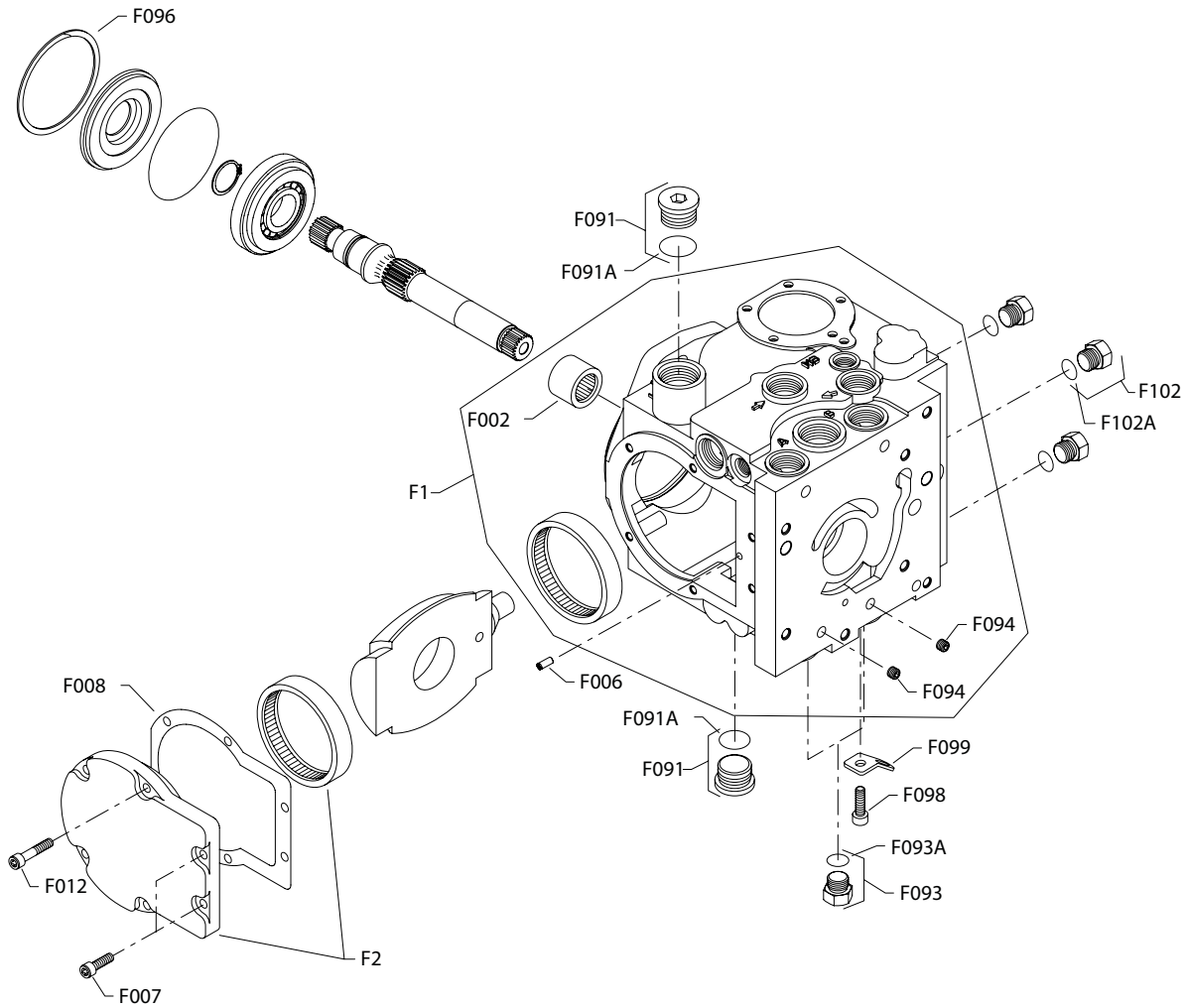
## Housing

Order code: C parts

Item	Date begin	Date end	Part number	Part name	Qty.per Model/Kit
F1	98-02		4280286	Housing assembly(SB-1999-048 & SB-2000-053)	1
F2	93-48	-	4280143	Side cover assembly	1
F002	09-06		11060624 (5000046)	Needle bearing	1
F002	06-01		5000046	Needle bearing	1
F006	06-01		1745300	Pin	1
F006	93-20		5000205	Pin	1
F007	07-14		AAM0602001	Screw	2
F007	06-01	07-14	9007314-0605	Screw (AAM0602001)	2
F007	98-02		5000001	Screw (SB-1999-029)	2
F007	93-20	98-01	5000001	Screw	6
F008	98-02		4280226	Side cover gasket (SB-1999-044)	1
F012	06-01		9007314-0607	Screw (AAM0603001)	4
F012	93-20		5000002	Screw (SB-1997-029)	4
F070	06-01		SP2914-SL-02	Pipe plug	1
F070	-		9005003-1200	Pipe plug	1
F070	98-02		001479(9005001-1200)	Pipe plug	1
F091	06-01		9005110-9000	Plug	2
F091	93-20		664524(9005110-9000)	Plug	2
F091A	06-01		9004201-7500	O-ring	2
F091A	93-20		001156(9004201-7500)	O-ring	2
F093	07-14		9005100-5600	Plug	2
F093A	07-14		9004201-3700	O-ring	2
F094	07-14		SP2914-SL-02	Pipe plug	2
F096	98-02		5000114	Retaining ring	1
F098	07-14		AAM0602001	Screw	1
F099	07-14		4800754	Lifting bracket (SB-1999-048)	1

## Housing

### Housing XDC, No Loop Flushing, Full Flow Filtration



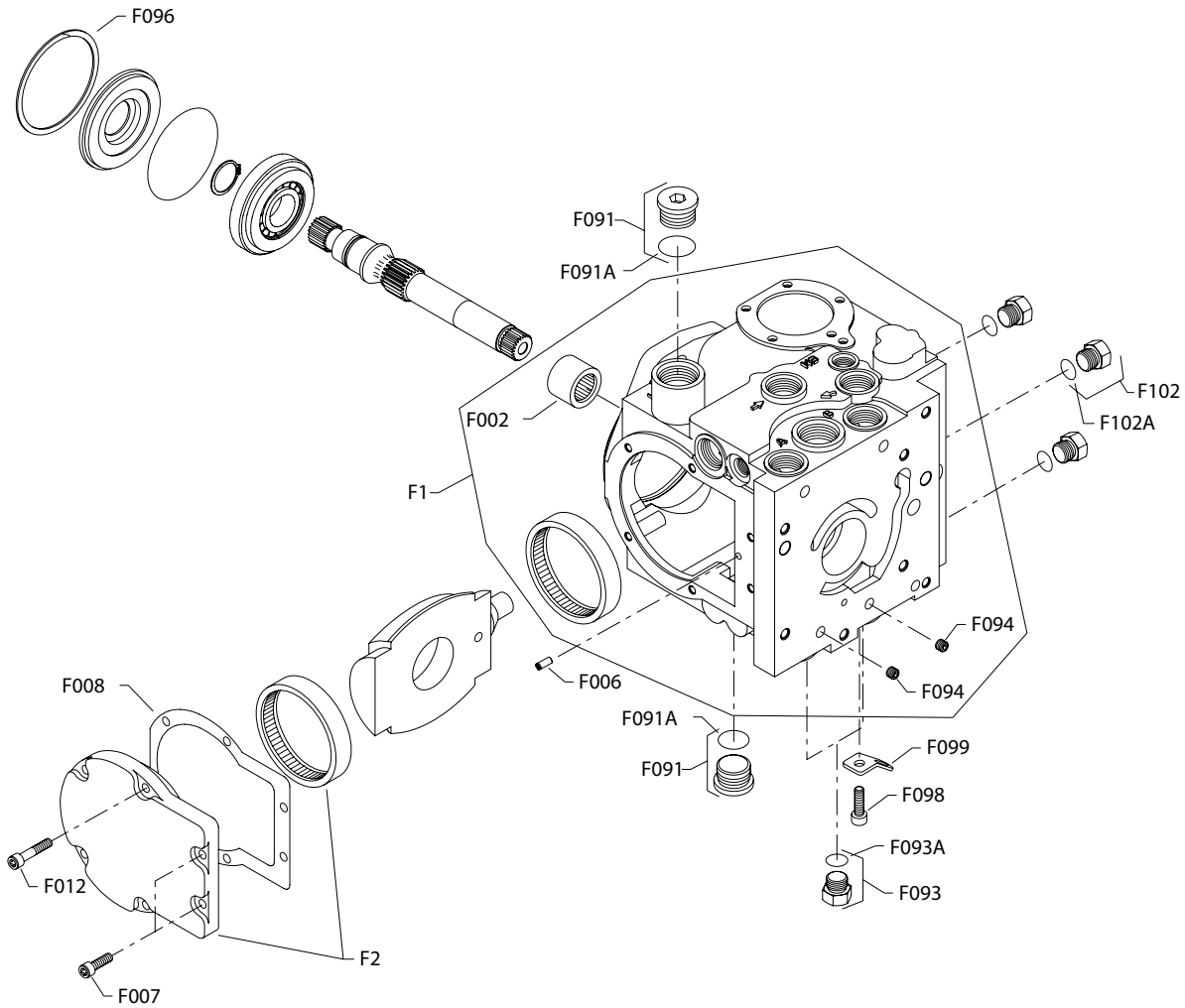
## Housing

Order code: D parts

Item	Date begin	Date end	Part number	Part name	Qty.per Model/Kit
F1	02-03		4280312	Housing assembly	1
F2	93-48	-	4280143	Side cover assembly	1
F002	09-06		11060624 (5000046)	Needle bearing	1
F002	06-01		5000046	Needle bearing	1
F006	06-01		1745300	Pin	1
F006	93-20		5000205	Pin	1
F007	06-01		9007314-0605	Screw (AAM0602001)	2
F007	98-02		5000001	Screw (SB-1999-029)	2
F007	93-20	98-01	5000001	Screw	6
F008	98-02		4280226	Side cover gasket (SB-1999-044)	1
F012	06-01		9007314-0607	Screw (AAM0603001)	4
F012	93-20		5000002	Screw (SB-1997-029)	4
F070	06-01		SP2914-SL-02	Pipe plug	1
F070	-		9005003-1200	Pipe plug	1
F070	98-02		001479(9005001-1200)	Pipe plug	1
F091	06-01		9005110-9000	Plug	2
F091	93-20		664524(9005110-9000)	Plug	2
F091A	06-01		9004201-7500	O-ring	2
F091A	93-20		001156(9004201-7500)	O-ring	2
F093	06-01		9005100-5600	Plug	2
F093	93-20		46151(9005100-5600)	Plug	2
F093A	06-01		9004201-3700	O-ring	2
F093A	93-20		085043(9004201-3700)	O-ring	2
F094	06-01		SP2914-SL-02	Pipe plug	2
F094	-		9005003-1200	Pipe plug	2
F094	93-20		001479(9005001-1200)	Pipe plug	2
F096	98-02		5000114	Retaining ring	1
F098	06-01		9007314-0605	Screw (AAM0602001)	1
F098	98-31		5000001	Screw (SB-1999-048)	1
F099	98-31		4800754	Lifting bracket (SB-1999-048)	1

## Housing

### Housing NFPH, no loop flushing, no filter



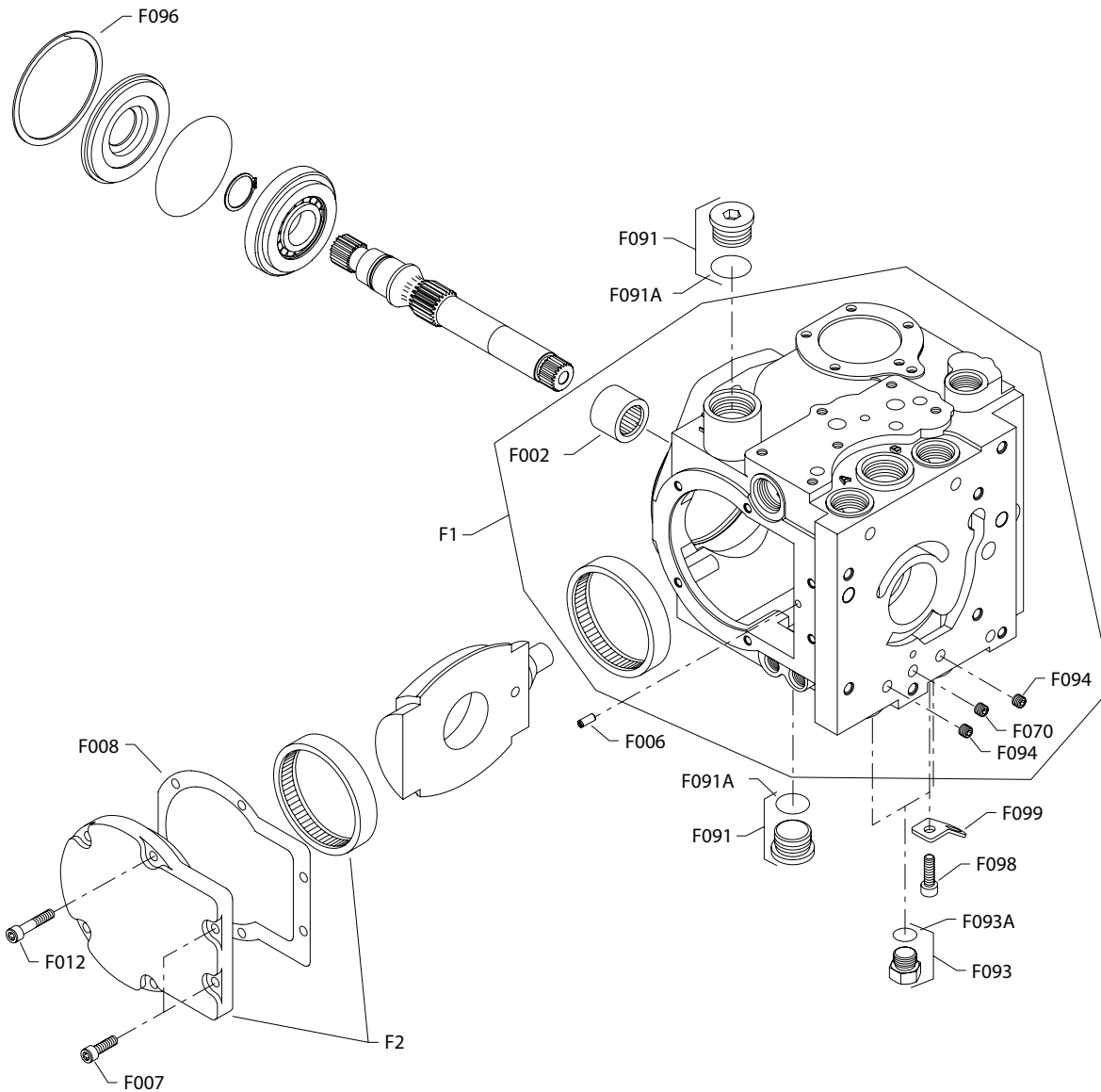
## Housing

Order code: K parts

Item	Date begin	Date end	Part number	Part name	Qty.per Model/Kit
F1	06-01		4280320	Housing assembly	1
F2	93-48	-	4280143	Side cover assembly	1
F002	09-06		11060624 (5000046)	Needle bearing	1
F002	06-01		5000046	Needle bearing	1
F006	06-01		1745300	Pin	1
F007	06-01		9007314-0605	Screw (AAM0602001)	2
F008	06-01		4280226	Side cover gasket	1
F012	06-01		9007314-0607	Screw (AAM0603001)	4
F091	06-01		9005110-9000	Plug	2
F091A	06-01		9004201-7500	O-ring	2
F093	06-01		9005100-5600	Plug	2
F093A	06-01		9004201-3700	O-ring	2
F094	06-01		SP2914-SL-02	Pipe plug	2
F096	06-01		5000114	Retaining ring	1
F098	06-01		9007314-0605	Screw (AAM0602001)	1
F099	06-01		4800754	Lifting bracket	1

## Housing

### Housing NFPH, Full Featured



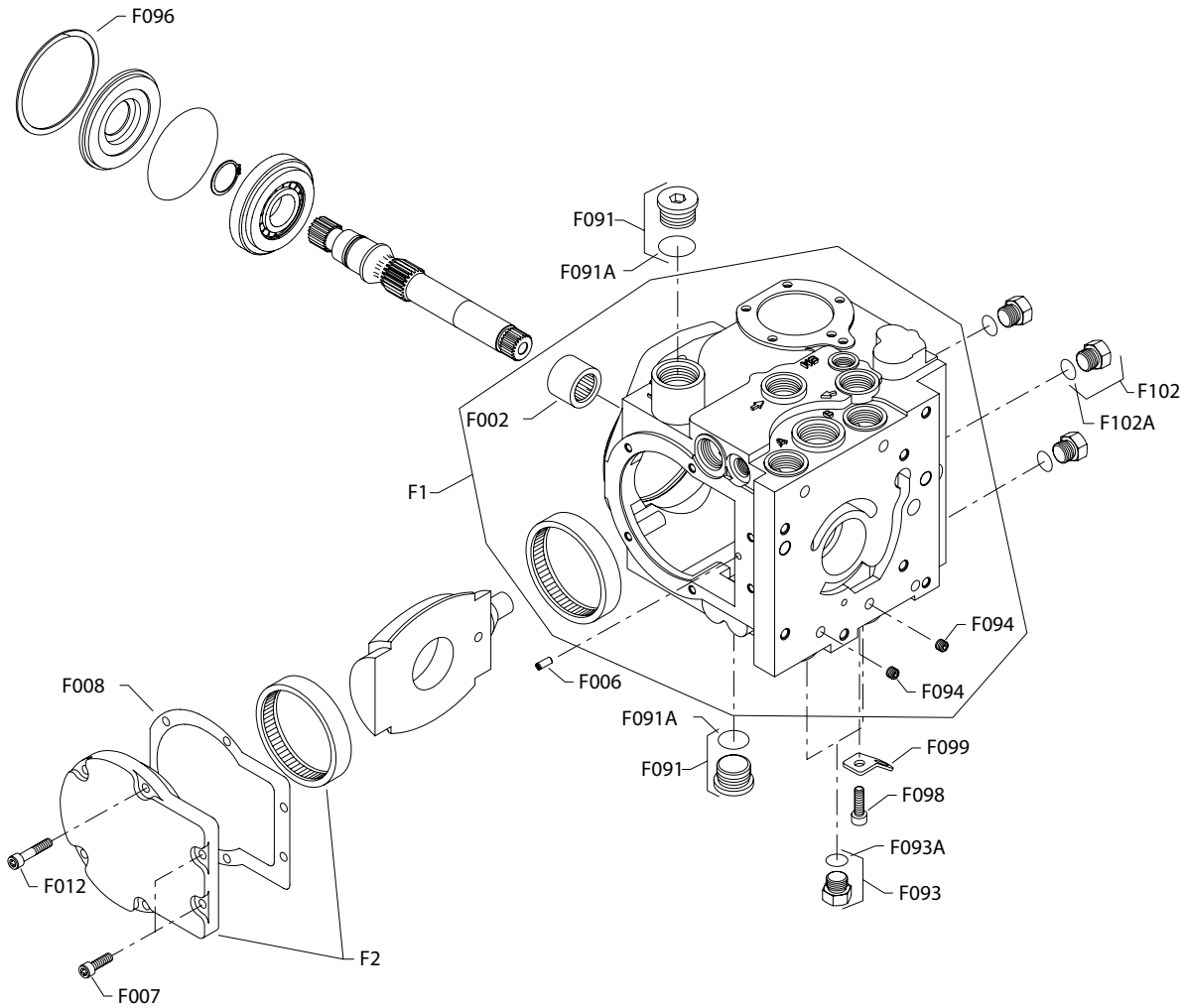
## Housing

Order code: P parts

Item	Date begin	Date end	Part number	Part name	Qty.per Model/Kit
F1	98-02		4280302	Housing assembly(SB-1999-048 & SB-2002-005)	1
F2	93-48	-	4280143	Side cover assembly	1
F002	09-06		11060624 (5000046)	Needle bearing	1
F002	06-01		5000046	Needle bearing	1
F006	06-01		1745300	Pin	1
F006	93-20		5000205	Pin	1
F007	06-01		9007314-0605	Screw (AAM0602001)	2
F007	98-02		5000001	Screw (SB-1999-029)	2
F007	93-20	98-01	5000001	Screw	6
F008	98-02		4280226	Side cover gasket (SB-1999-044)	1
F012	06-01		9007314-0607	Screw (AAM0603001)	4
F012	93-20		5000002	Screw (SB-1997-029)	4
F070	06-01		SP2914-SL-02	Pipe plug	1
F070	-		9005003-1200	Pipe plug	1
F070	98-02		001479(9005001-1200)	Pipe plug	1
F091	06-01		9005110-9000	Plug	2
F091	93-20		664524(9005110-9000)	Plug	2
F091A	06-01		9004201-7500	O-ring	2
F091A	93-20		001156(9004201-7500)	O-ring	2
F093	06-01		9005100-5600	Plug	2
F093	93-20		46151(9005100-5600)	Plug	2
F093A	06-01		9004201-3700	O-ring	2
F093A	93-20		085043(9004201-3700)	O-ring	2
F094	06-01		SP2914-SL-02	Pipe plug	2
F094	-		9005003-1200	Pipe plug	2
F094	93-20		001479(9005001-1200)	Pipe plug	2
F096	98-02		5000114	Retaining ring	1
F098	06-01		9007314-0605	Screw (AAM0602001)	1
F098	98-31		5000001	Screw (SB-1999-048)	1
F099	98-31		4800754	Lifting bracket (SB-1999-048)	1

## Housing

### Housing NFPH Near Tandem, Rear Pump



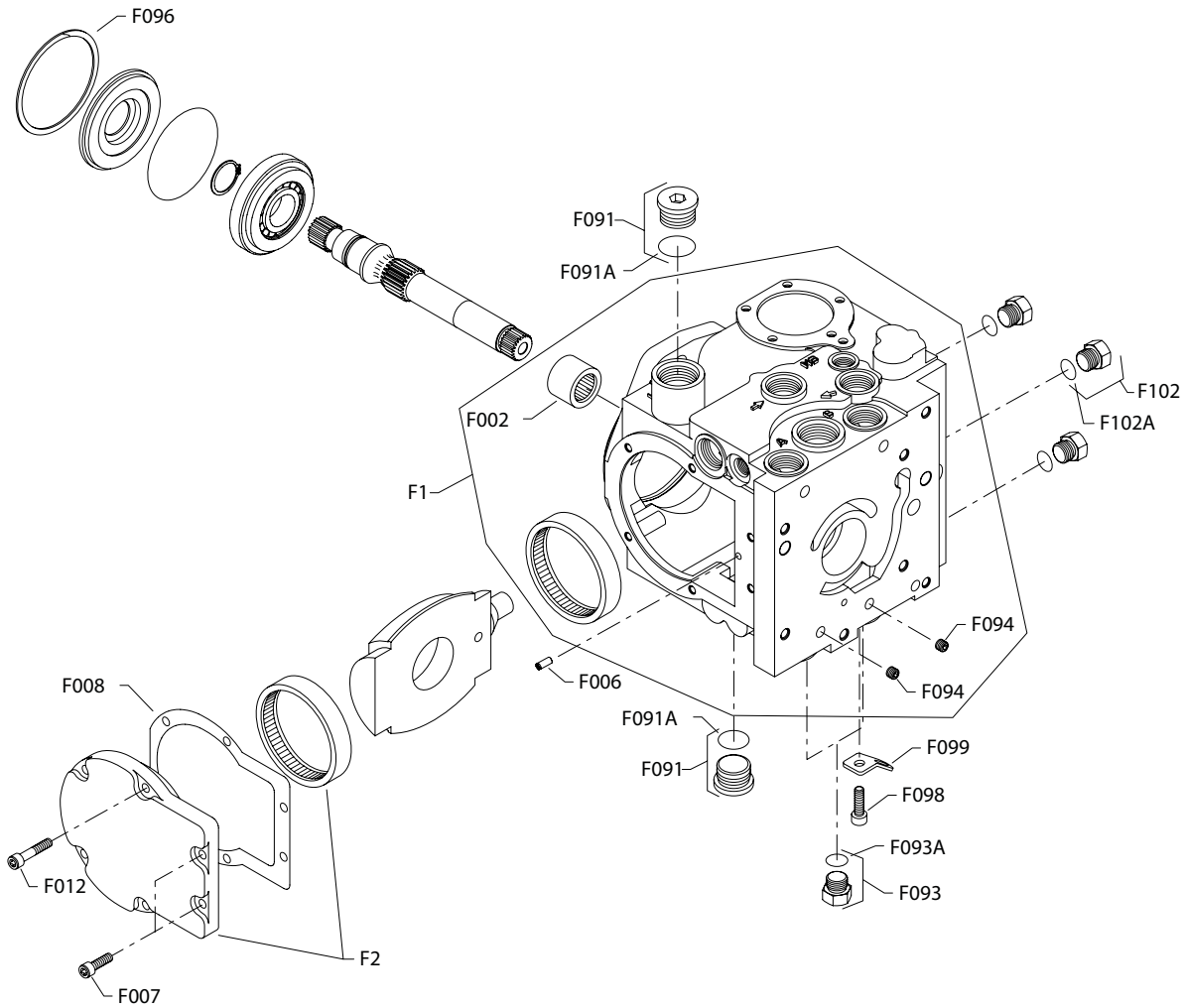
## Housing

Order code: R parts

Item	Date begin	Date end	Part number	Part name	Qty.per Model/Kit
F1	06-01		4280303	Housing assembly	1
F2	93-48	-	4280143	Side cover assembly	1
F002	09-06		11060624 (5000046)	Needle bearing	1
F002	06-01		5000046	Needle bearing	1
F006	06-01		1745300	Pin	1
F007	06-01		9007314-0605	Screw (AAM0602001)	2
F008	06-01		4280226	Side cover gasket (SB-1999-044)	1
F012	06-01		9007314-0607	Screw (AAM0603001)	4
F091	06-01		9005110-9000	Plug	2
F091A	06-01		9004201-7500	O-ring	2
F093	06-01		9005100-5600	Plug	2
F093A	06-01		9004201-3700	O-ring	2
F094	06-01		SP2914-SL-02	Pipe plug	2
F096	06-01		5000114	Retaining ring	1
F098	06-01		9007314-0605	Screw (AAM0602001)	1
F099	06-01		4800754	Lifting bracket (SB-1999-048)	1
F102	06-01		9005100-5600	Plug	1
F102A	06-01		9004201-3700	O-ring	1

## Housing

### Housing NFPH, Base



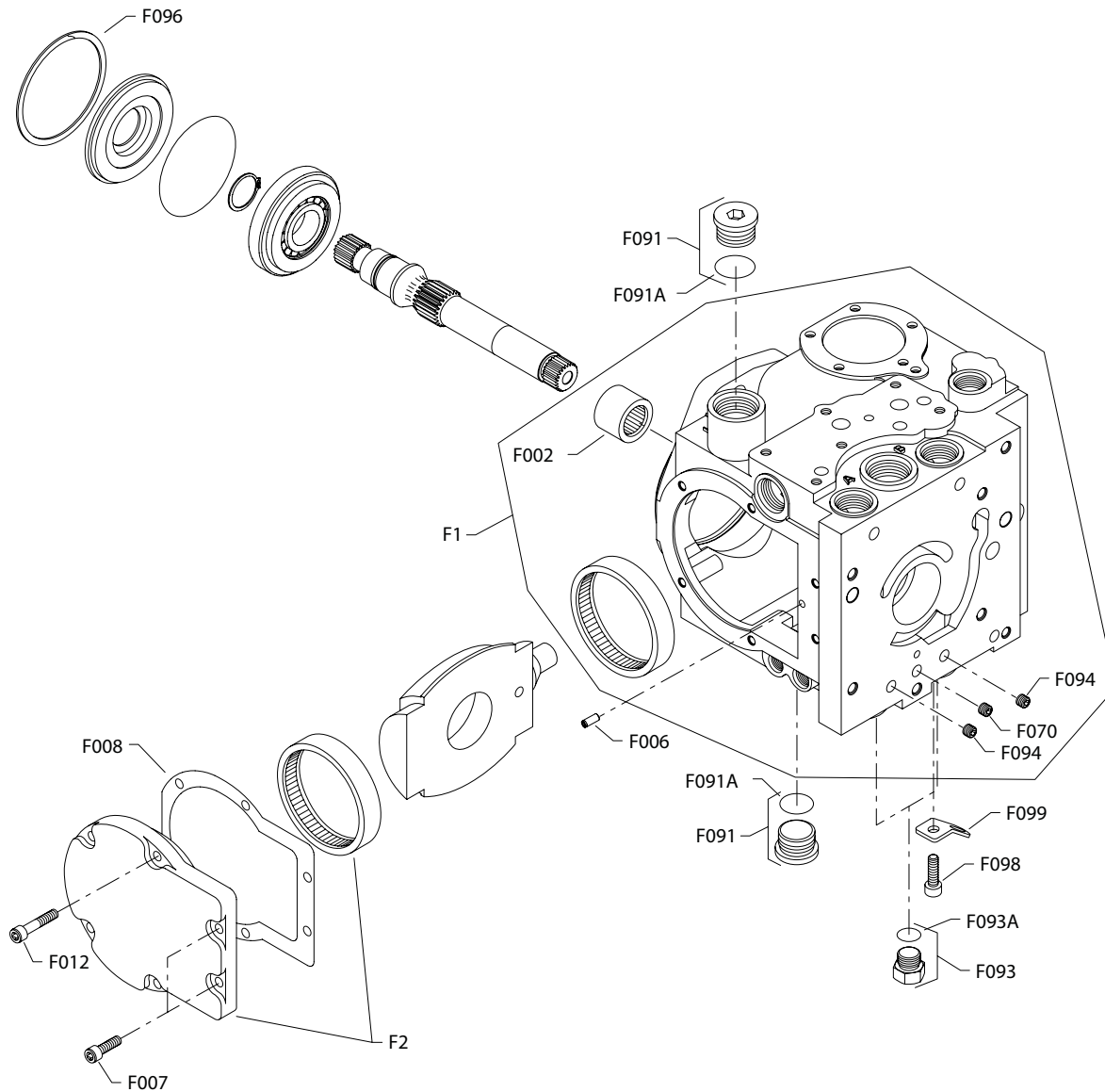
## Housing

Order code: T parts

Item	Date begin	Date end	Part number	Part name	Qty.per Model/Kit
F1	98-02		4280301	Housing assembly(SB-1999-048 & SB-2002-005)	1
F2	93-48	-	4280143	Side cover assembly	1
F002	09-06		11060624 (5000046)	Needle bearing	1
F002	06-01		5000046	Needle bearing	1
F006	06-01		1745300	Pin	1
F006	93-20		5000205	Pin	1
F007	06-01		9007314-0605	Screw (AAM0602001)	2
F007	98-02		5000001	Screw (SB-1999-029)	2
F007	93-20	98-01	5000001	Screw	6
F008	98-02		4280226	Side cover gasket (SB-1999-044)	1
F012	06-01		9007314-0607	Screw (AAM0603001)	4
F012	93-20		5000002	Screw (SB-1997-029)	4
F070	06-01		SP2914-SL-02	Pipe plug	1
F070	-		9005003-1200	Pipe plug	1
F070	98-02		001479(9005001-1200)	Pipe plug	1
F091	06-01		9005110-9000	Plug	2
F091	93-20		664524(9005110-9000)	Plug	2
F091A	06-01		9004201-7500	O-ring	2
F091A	93-20		001156(9004201-7500)	O-ring	2
F093	06-01		9005100-5600	Plug	2
F093	93-20		46151(9005100-5600)	Plug	2
F093A	06-01		9004201-3700	O-ring	2
F093A	93-20		085043(9004201-3700)	O-ring	2
F094	06-01		SP2914-SL-02	Pipe plug	2
F094	-		9005003-1200	Pipe plug	2
F094	93-20		001479(9005001-1200)	Pipe plug	2
F096	98-02		5000114	Retaining ring	1
F098	06-01		9007314-0605	Screw (AAM0602001)	1
F098	98-31		5000001	Screw (SB-1999-048)	1
F099	98-31		4800754	Lifting bracket (SB-1999-048)	1

## Housing

### Housing NEPE/NFR, Full Featured



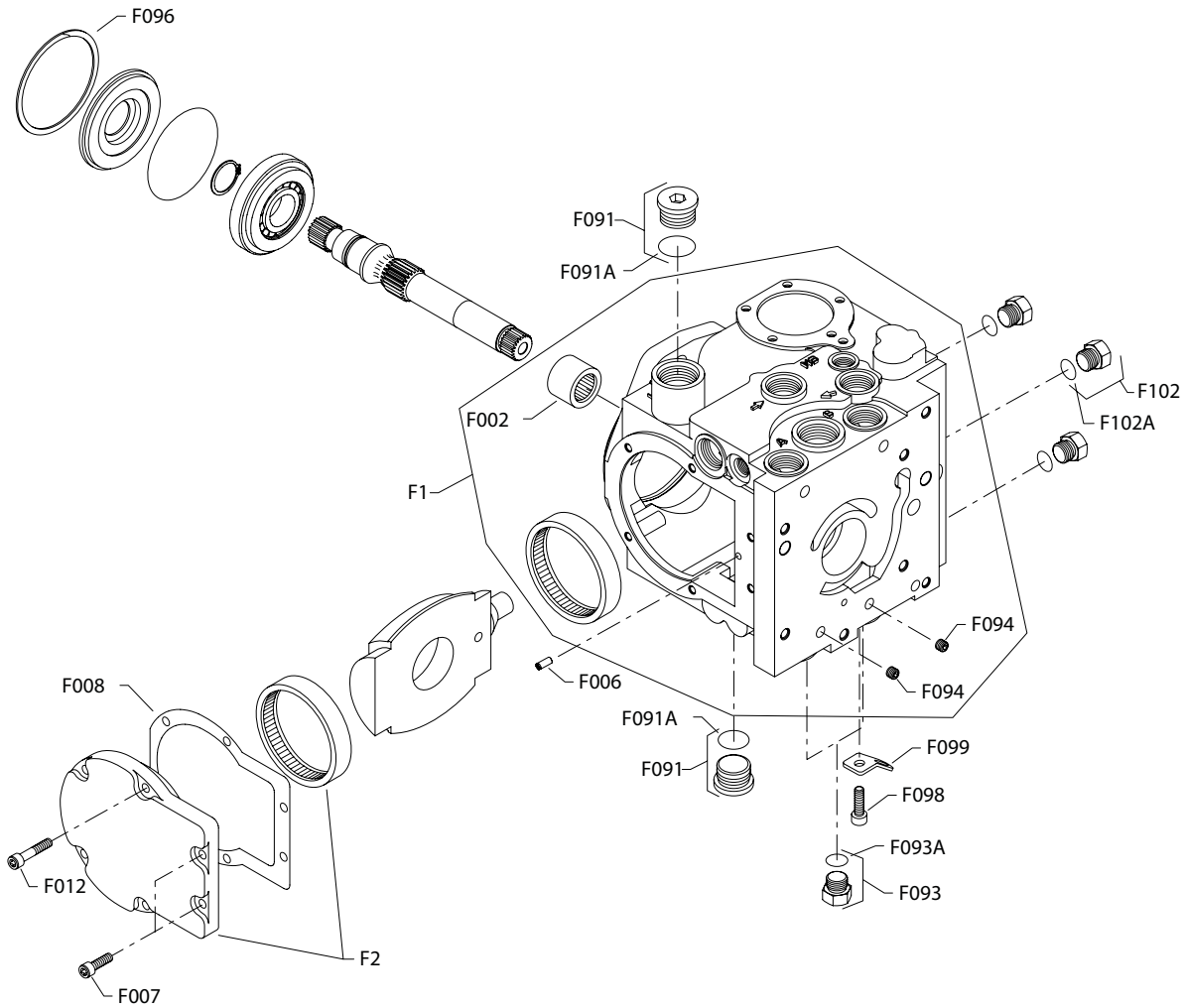
## Housing

Order code: U parts

Item	Date begin	Date end	Part number	Part name	Qty.per Model/Kit
F1	06-01		4280317	Housing assembly	1
F2	93-48	-	4280143	Side cover assembly	1
F002	09-06		11060624 (5000046)	Needle bearing	1
F002	06-01		5000046	Needle bearing	1
F006	06-01		1745300	Pin	1
F007	06-01		9007314-0605	Screw (AAM0602001)	2
F008	06-01		4280226	Side cover gasket (SB-1999-044)	1
F012	06-01		9007314-0607	Screw (AAM0603001)	4
F070	06-01		SP2914-SL-02	Pipe plug	1
F091	06-01		9005110-9000	Plug	2
F091A	06-01		9004201-7500	O-ring	2
F093	06-01		9005100-5600	Plug	2
F093A	06-01		9004201-3700	O-ring	2
F094	06-01		SP2914-SL-02	Pipe plug	2
F095	07-14		J9005110-9000	Plug assy	1
F095	06-01	07-14	5000593	Plug assy	1
F096	06-01		5000114	Retaining ring	1

## Housing

### Housing NEPE/NRF No Loop Flushing, Full Flow Filtration



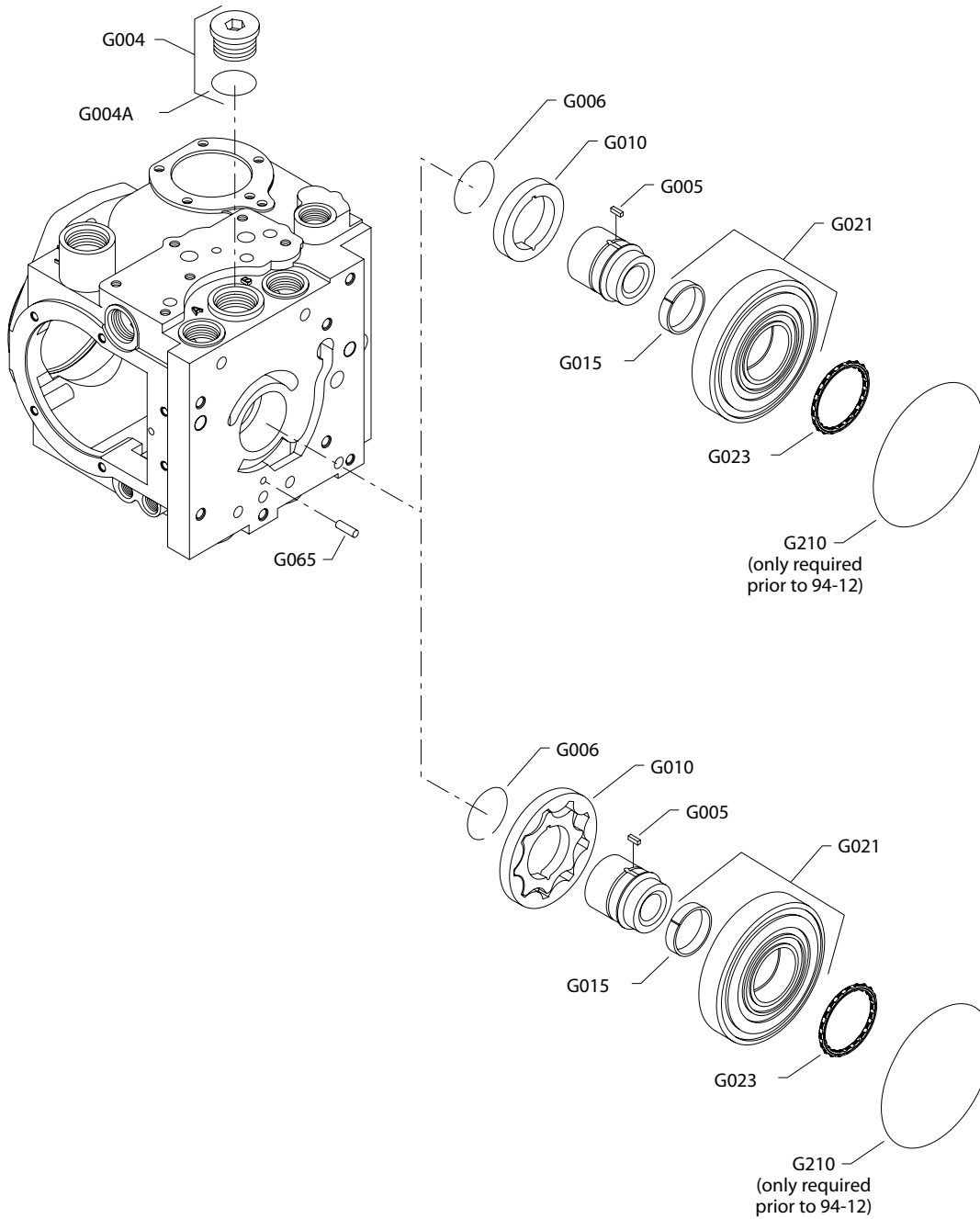
## Housing

Order code: V parts

Item	Date begin	Date end	Part number	Part name	Qty.per Model/Kit
F1	06-01		4280318	Housing assembly	1
F2	93-48	-	4280143	Side cover assembly	1
F002	09-06		11060624 (5000046)	Needle bearing	1
F002	06-01		5000046	Needle bearing	1
F006	06-01		1745300	Pin	1
F007	06-01		9007314-0605	Screw (AAM0602001)	2
F008	06-01		4280226	Side cover gasket (SB-1999-044)	1
F012	06-01		9007314-0607	Screw (AAM0603001)	4
F091	06-01		9005110-9000	Plug	2
F091A	06-01		9004201-7500	O-ring	2
F093	06-01		9005100-5600	Plug	2
F093A	06-01		9004201-3700	O-ring	2
F094	06-01		SP2914-SL-02	Pipe plug	2
F095	07-14		J9005110-9000	Plug assy	1
F095	06-01	07-14	5000593	Plug assy	1
F096	06-01		5000114	Retaining ring	1

### Charge Pump

#### Charge Pump 11cc and 15.6cc



## Charge Pump

11cc (order code: 2) parts

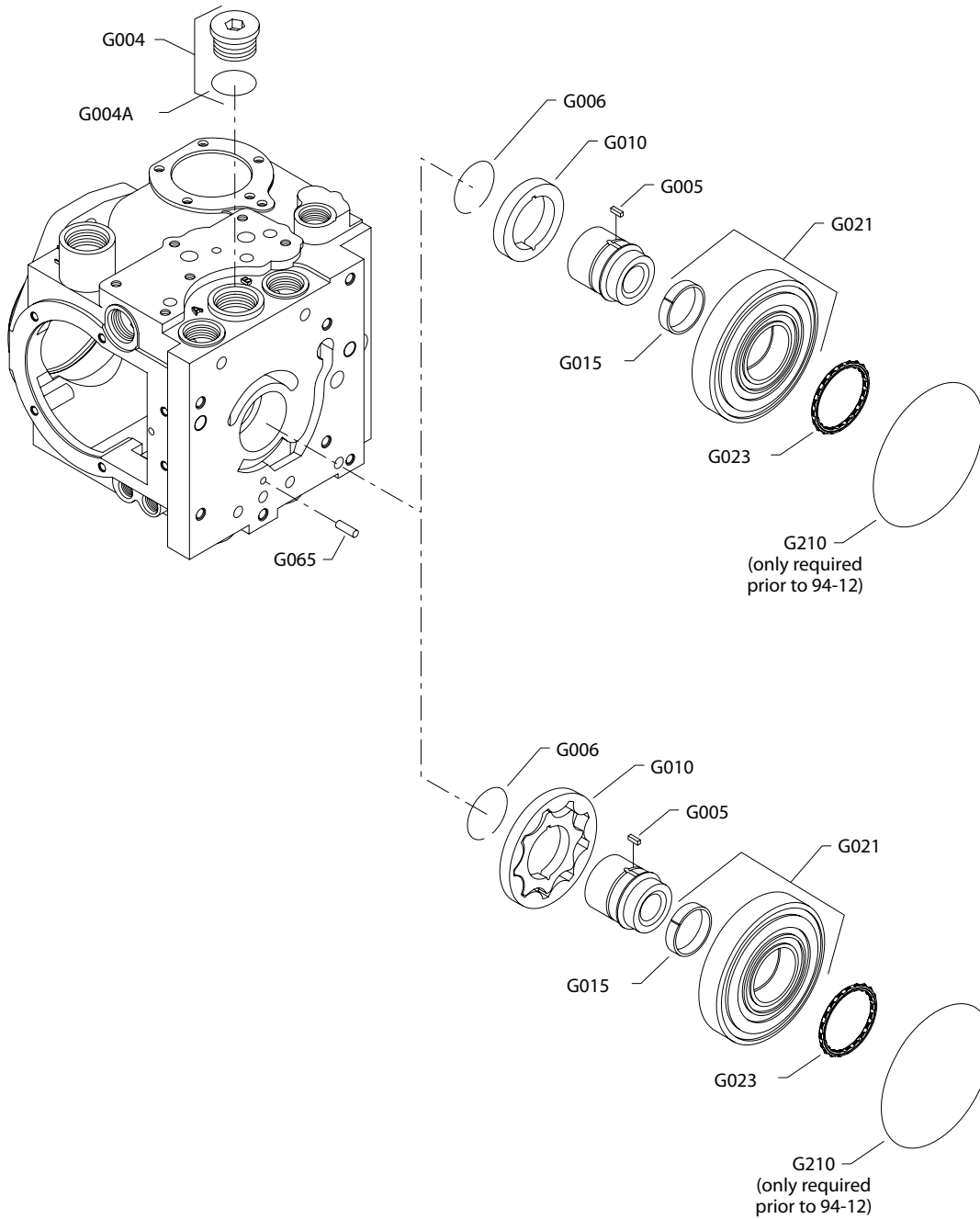
Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
G005	14-23		11137569	Key	1
G005	98-02	14-23	4700103	Key	1
G005	93-23	98-01	015643(9004800-2506)	Pin (SB-1997-029C)	1
G006	98-02		5000469	Retaining ring	1
G010	98-02		4800636	Gear rotor assembly, 11cc (SB-1997-029C)	1
G010	93-23	98-01	Refer to SB-1997-029C	Gear rotor assembly replacement kit	
G015	18-09		11175274	Journal bearing	1
G015	93-23	18-09	4700027	Journal bearing	1
G021	06-01		1745801-01	Gear rotor cover assembly, 11cc CW	1
G021	98-02	06-01	4800640	Gear rotor cover assembly, 11cc CW (SB-1997-029C)	1
G021	06-01		1745801-03	Gear rotor cover assembly, 11cc CCW	1
G021	98-02	06-01	4800641	Gear rotor cover assembly, 11cc CCW(SB-1997-029C)	1
G021	93-23	98-01	Refer to SB-1997-029C	Gear rotor assembly replacement kit	
G023	93-23		5000531	O-ring (SB-1998-079)	1
G065	06-01		1745710	Pin, .1878 x .625	1
G065	98-02		5000179	Pin, .1878 x .625 (SB-1997-029C)	1
G065	93-23	98-01	016220(9004800-1908)	Pin, .1878 x .500	1
G210	93-23	94-12	9004100-1550	O-ring (SB-2001-022A)	1

15.6cc (order code: 3) parts

G005	14-23		11137569	Key	1
G005	98-02	14-23	4700103	Key	1
G005	93-23	98-01	015643(9004800-2506)	Pin (SB-1997-029C)	1
G006	98-02		5000469	Retaining ring	1
G010	98-02		4800624	Gear rotor assembly, 15.6cc (SB-1997-029C)	1
G010	93-23	98-01	Refer to SB-1997-029C	Gear rotor assembly replacement kit	
G015	93-23		4700027	Journal bearing	1
G021	06-01		1745801-02	Gear rotor cover assembly, 15.6cc CW	1
G021	98-02	06-01	4800642	Gear rotor cover assembly, 15.6cc CW (SB-1997-029C)	1
G021	06-01		1745801-04	Gear rotor cover assembly, 15.6cc CCW	1
G021	98-02		4800643	Gear rotor cover assy, 15.6cc CCW (SB-1997-029C)	1
G021	93-23	98-01	Refer to SB-1997-029C	Gear rotor assembly replacement kit	
G023	93-23		5000531	O-ring (SB-1998-079)	1
G065	06-01		1745710	Pin, .1878 x .625	1
G065	98-02		5000179	Pin, .1878 x .625 (SB-1997-029C)	1
G065	93-23	98-01	016220(9004800-1908)	Pin, .1878 x .500	1
G210	93-23	94-12	9004100-1550	O-ring (SB-2001-022A)	1

### Charge Pump

#### Charge Pump, with and without Auxiliary Mounting Pad



## Charge Pump

*None, no auxiliary mounting pad (order code: A and B) parts*

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
G004	06-01		9005110-9000	Plug	1
G004	93-23		664524(9005110-9000)	Plug	1
G004A	06-01		9004201-7500	O-ring	1
G004A	93-23		001156(9004201-7500)	O-ring	1

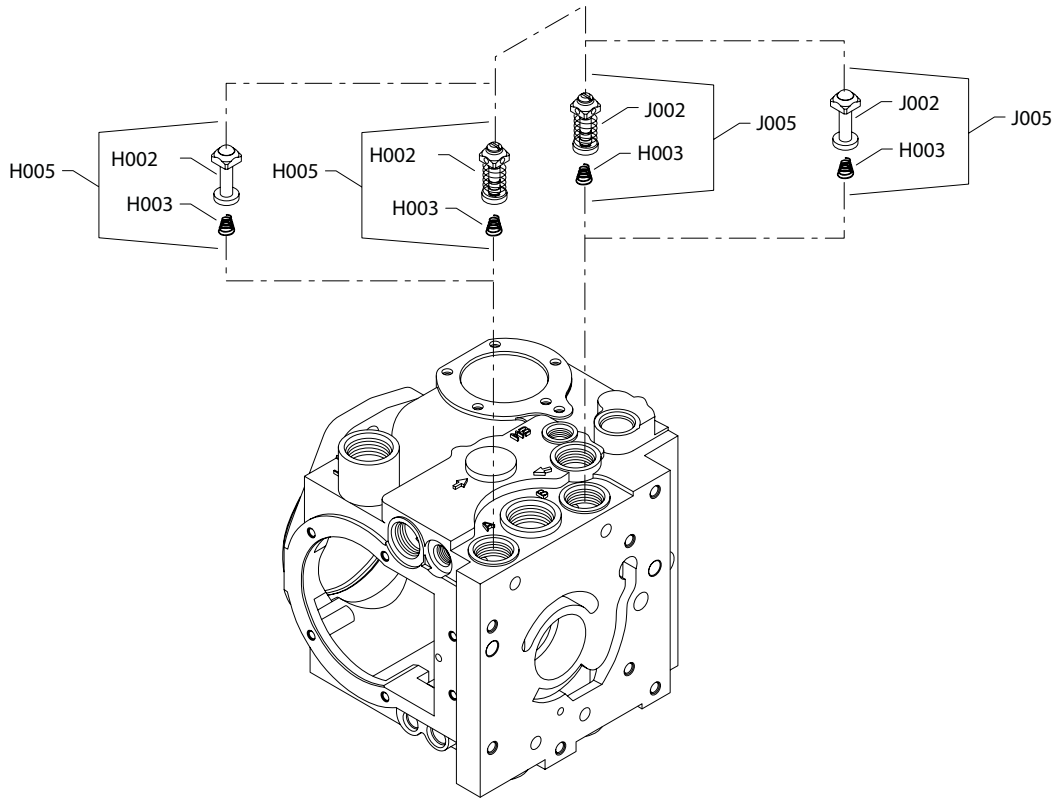
*None, with auxiliary mounting pad (order code: C and N) parts*

G004	06-01		9005110-9000	Plug	1
G004	93-23		664524(9005110-9000)	Plug	1
G004A	06-01		9004201-7500	O-ring	1
G004A	93-23		001156(9004201-7500)	O-ring	1
G005	14-23		11137569	Key	1
G005	98-02	14-23	4700103	Key	1
G005	93-23	98-01	015743(9004800-2506)	Pin (SB-1997-029C)	1
G006	98-02		5000469	Retaining ring	1
G010	93-23		4800644	Spacer	1
G010	93-23	98-01	Refer to SB-1997-029C	Gear rotor cover replacement kit	
G021	06-01		1745801-01	Gear rotor cover Assy	1
G023	93-23		5000531	O-ring (SB-1998-079)	1
G065	06-01		1745710	Pin, .1878 x .625	1
G065	98-02		5000179	Pin, .1878 x .625 (SB-1997-029C)	1
G065	93-23	98-01	016220(9004800-1908)	Pin, .1878 x .500	1
G210	93-23	94-12	9004100-1550	O-ring (SB-2001-022A)	1

### System Pressure Protection

#### System Check Relief 00-28

Part numbers for system check relief valve can be found below.



### System Pressure Protection

*System check relief*

Order code	Item	Date begin	Date end	Part number	Part name	Qty.per Model/Kit
00	H000	06-01		none	No valve	1
	J000	06-01		none	No valve	1
14	H002	06-01		3103375-0140	SCR valve, 140 bar/2030 psi	1
	H002	93-44		353854(3103375-0140)	SCR valve, 140 bar/2030 psi	1
	H003	15-40		11192689	Spring	1
	H003	93-44	15-40	4800780	Spring	1
	H005	93-44		4800290	SCR valve assembly, port A, 140 bar/2030 psi	1
	J002	06-01		3103375-0140	SCR valve, 140 bar/2030 psi	1
	J002	93-44		353854(3103375-0140)	SCR valve, 140 bar/2030 psi	1
	J003	15-40		11192689	Spring	1
	J003	93-44	15-40	4800780	Spring	1
	J005	93-44		4800290	SCR valve assembly, port B, 140 bar/2030 psi	1
17	H002	06-01		3103375-0175	SCR valve, 175 bar/2540 psi	1
	H002	93-44		318491(3103375-0175)	SCR valve, 175 bar/2540 psi	1
	H003	15-40		11192689	Spring	1
	H003	93-44	15-40	4800780	Spring	1
	H005	93-44		4800291	SCR valve assembly, port A, 175 bar/2540 psi	1
	J002	06-01		3103375-0175	SCR valve, 175 bar/2540 psi	1
	J002	93-44		318691(3103375-0175)	SCR valve, 175 bar/2540 psi	1
	J003	15-40		11192689	Spring	1
	J003	93-44	15-40	4800780	Spring	1
	J005	93-44		4800291	SCR valve assembly, port B, 175 bar/2540 psi	1
19	H002	06-01		3103375-0190	SCR valve, 190 bar/2755 psi	1
	H002	93-44		328310(3103375-0190)	SCR valve, 190 bar/2755 psi	1
	H003	15-40		11192689	Spring	1
	H003	93-44	15-40	4800780	Spring	1
	H005	93-44		4800292	SCR valve assembly, port A, 190 bar/2755 psi	1
	J002	06-01		3103375-0190	SCR valve, 190 bar/2755 psi	1
	J002	93-44		328310(3103375-0190)	SCR valve, 190 bar/2755 psi	1
	J003	15-40		11192689	Spring	1
	J003	93-44	15-40	4800780	Spring	1
	J005	93-44		4800292	SCR valve assembly, port B, 190 bar/2755 psi	1

## System Pressure Protection

System check relief (continued)

Order code	Item	Date begin	Date end	Part number	Part name	Qty.per Model/Kit
21	H002	06-01		3103375-0210	SCR valve, 210 bar/3045 psi	1
	H002	93-44		328328(3103375-0210)	SCR valve, 210 bar/3045 psi	1
	H003	15-40		11192689	Spring	1
	H003	93-44	15-40	4800780	Spring	1
	H005	93-44		4800293	SCR valve assembly, port A, 210 bar/3045 psi	1
	J002	06-01		3103375-0210	SCR valve, 210 bar/3045 psi	1
	J002	93-44		328328(3103375-0210)	SCR valve, 210 bar/3045 psi	1
	J003	15-40		11192689	Spring	1
	J003	93-44	15-40	4800780	Spring	1
	J005	93-44		4520053	SCR valve assembly, port B, 210 bar/3045 psi	1
J005	93-44		4800293	SCR valve assembly, port B, 210 bar/3045 psi	1	
23	H002	06-01		3103375-0230	SCR valve, 230 bar/3335 psi	1
	H002	93-44		328336(3103375-0230)	SCR valve, 230 bar/3335 psi	1
	H003	15-40		11192689	Spring	1
	H003	93-44	15-40	4800780	Spring	1
	H005	93-44		4800294	SCR valve assembly, port A, 230 bar/3335 psi	1
	J002	06-01		3103375-0230	SCR valve, 230 bar/3335 psi	1
	J002	93-44		328336(3103375-0230)	SCR valve, 230 bar/3335 psi	1
	J003	15-40		11192689	Spring	1
	J003	93-44	15-40	4800780	Spring	1
	J005	93-44		4800294	SCR valve assembly, port B, 230 bar/3335 psi	1
25	H002	06-01		3103375-0250	SCR valve, 250 bar/3625 psi	1
	H002	93-44		318709(3103375-0250)	SCR valve, 250 bar/3625 psi	1
	J003	15-40		11192689	Spring	1
	H003	93-44	15-40	4800780	Spring	1
	H005	93-44		4800295	SCR valve assembly, port A, 250 bar/3625 psi	1
	J002	06-01		31003375-0250	SCR valve, 250 bar/3625 psi	1
	J002	93-44		318709(31003375-0250)	SCR valve, 250 bar/3625 psi	1
	J003	15-40		11192689	Spring	1
	J003	93-44	15-40	4800780	Spring	1
	J005	06-01		4520054	SCR valve assembly, port B, 250 bar/3625 psi	1
J005	93-44		4800295	SCR valve assembly, port B, 250 bar/3625 psi	1	

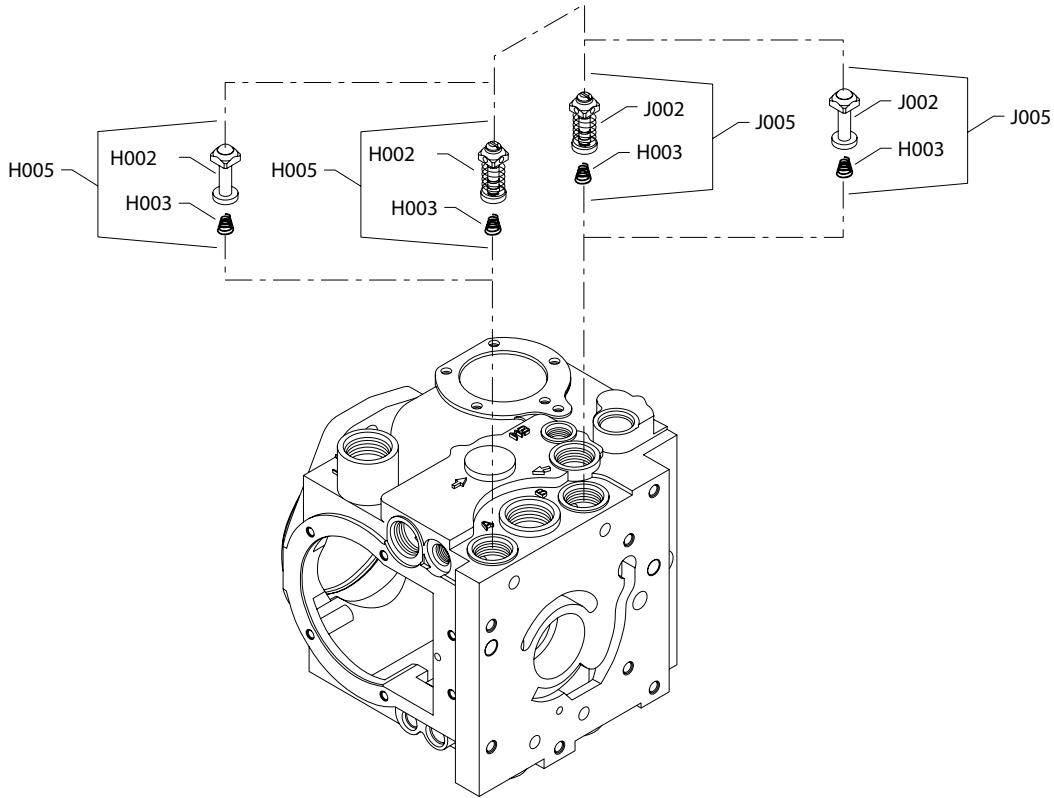
## System Pressure Protection

*System check relief (continued)*

Order code	Item	Date begin	Date end	Part number	Part name	Qty.per Model/Kit
28	H002	06-01		3103375-0280	SCR valve, 280 bar/4060 psi	1
	H002	93-44		328344(3103375-0280)	SCR valve, 280 bar/4060 psi	1
	H003	15-40		11192689	Spring	1
	H003	93-44	15-40	4800780	Spring	1
	H005	93-44		4800296	SCR valve assembly, port A, 280 bar/4060 psi	1
	J002	06-01		3103375-0280	SCR valve, 280 bar/4060 psi	1
	J002	93-44		328344(3103375-0280)	SCR valve, 280 bar/4060 psi	1
	J003	15-40		11192689	Spring	1
	J003	93-44	15-40	4800780	Spring	1
	J005	06-01		4520055	SCR valve assembly, port B, 280 bar/4060 psi	1
	J005	93-44		4800296	SCR valve assembly, port B, 280 bar/4060 psi	1

### System Pressure Protection

#### System Check Relief 30-41, NN



**System Pressure Protection**

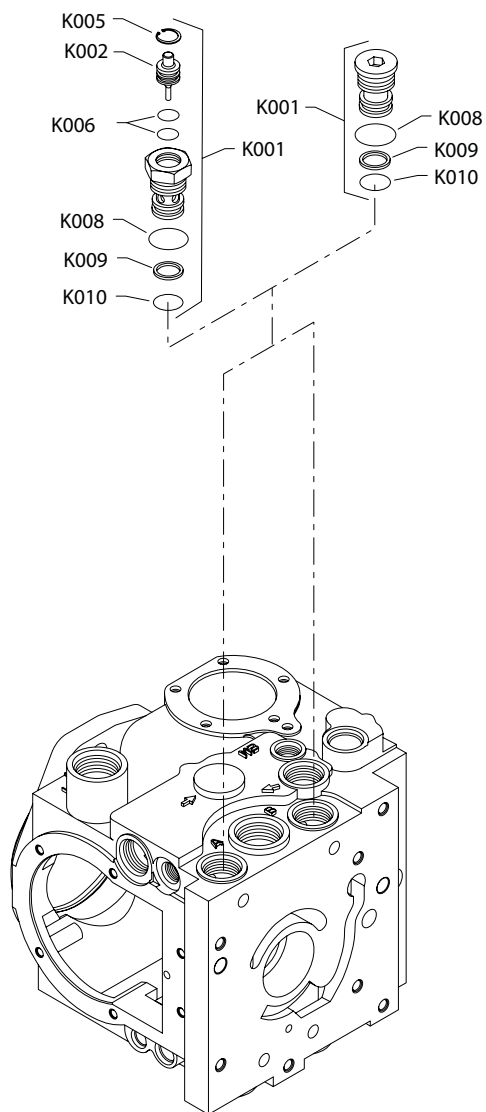
Order code	Item	Date begin	Date end	Part number	Part name	Qty.per Model/Kit
30	H002	06-01		3103375-0300	SCR valve, 300 bar/4350 psi	1
	H002	93-44		318725(3103375-0300)	SCR valve, 300 bar/4350 psi	1
	H003	15-40		11192689	Spring	1
	H003	93-44	15-40	4800780	Spring	1
	H005	93-44		4800297	SCR valve assembly, port A, 300 bar/4350 psi	1
	J002	06-01		3103375-0300	SCR valve, 300 bar/4350 psi	1
	J002	93-44		318725(3103375-0300)	SCR valve, 300 bar/4350 psi	1
	J003	15-40		11192689	Spring	1
	J003	93-44	15-40	4800780	Spring	1
	J005	06-01		4520056	SCR valve assembly, port B, 300 bar/4350 psi	1
	J005	93-44		4800297	SCR valve assembly, port B, 300 bar/4350 psi	1
32	H002	06-01		3103375-0325	SCR valve, 325 bar/4712 psi	1
	H002	93-44		4800676(3103375-0325)	SCR valve, 325 bar/4712 psi	1
	H003	15-40		11192689	Spring	1
	H003	93-44	15-40	4800780	Spring	1
	H005	93-44		4800677	SCR valve assembly, port A, 325 bar/4712 psi	1
	J002	06-01		3103375-0325	SCR valve, 325 bar/4712 psi	1
	J002	93-44		4800676(3103375-0325)	SCR valve, 325 bar/4712 psi	1
	J003	15-40		11192689	Spring	1
	J003	93-44	15-40	4800780	Spring	1
	J005	06-01		4520057	SCR valve assembly, port B, 325 bar/4712 psi	1
	J005	93-44		4800677	SCR valve assembly, port B, 325 bar/4712 psi	1
34	H002	06-01		3103375-0345	SCR valve, 345 bar/5000 psi	1
	H002	93-44		318717(3103375-0345)	SCR valve, 345 bar/5000 psi	1
	H003	15-40		11192689	Spring	1
	H003	93-44	15-40	4800780	Spring	1
	H005	93-44		4800298	SCR valve assembly, port A, 345 bar/5000 psi	1
	J002	06-01		3103375-0345	SCR valve, 345 bar/5000 psi	1
	J002	93-44		318717(3103375-0345)	SCR valve, 345 bar/5000 psi	1
	J003	15-40		11192689	Spring	1
	J003	93-44	15-40	4800780	Spring	1
	J005	06-01		4520058	SCR valve assembly, port B, 345 bar/5000 psi	1
	J005	93-44		4800298	SCR valve assembly, port B, 345 bar/5000 psi	1
36	H002	93-44		3103375-0360	SCR valve, 360 bar/5220 psi	1
	H003	15-40		11192689	Spring	1
	H003	93-44	15-40	4800780	Spring	1
	H005	93-44		4800849	SCR valve assembly, port A, 360 bar/5220 psi	1
	J002	93-44		3103375-0360	SCR valve, 360 bar/5220 psi	1
	J003	15-40		11192689	Spring	1
	J003	93-44	15-40	4800780	Spring	1
	J005	93-44		4800849	SCR valve assembly, port B, 360 bar/5220 psi	1

**System Pressure Protection**

Order code	Item	Date begin	Date end	Part number	Part name	Qty.per Model/Kit
38	H002	06-01		3103375-0385	SCR valve, 385 bar/5580 psi	1
	H002	93-44		4800325(3103375-0385)	SCR valve, 385 bar/5580 psi	1
	H003	15-40		11192689	Spring	1
	H003	93-44	15-40	4800780	Spring	1
	H005	93-44		4800327	SCR valve assembly, port A, 385 bar/5580 psi	1
	J002	06-01		3103375-0385	SCR valve, 385 bar/5580 psi	1
	J002	93-44		4800325(3103375-0385)	SCR valve, 385 bar/5580 psi	1
	J003	15-40		11192689	Spring	1
	J003	93-44	15-40	4800780	Spring	1
	J005	06-01		4520060	SCR valve assembly, port B, 385 bar/5580 psi	1
J005	93-44		4800327	SCR valve assembly, port B, 385 bar/5580 psi	1	
41	H002	06-01		3103375-0415	SCR valve, 415 bar/6020 psi	1
	H002	93-44		328351(3103375-0415)	SCR valve, 415 bar/6020 psi	1
	H003	15-40		11192689	Spring	1
	H003	93-44	15-40	4800780	Spring	1
	H005	93-44		4800299	SCR valve assembly, port A, 415 bar/6020 psi	1
	J002	06-01		3103375-0415	SCR valve, 415 bar/6020 psi	1
	J002	93-44		328351(3103375-0415)	SCR valve, 415 bar/6020 psi	1
	J003	15-40		11192689	Spring	1
	J003	93-44	15-40	4800780	Spring	1
	J005	06-01		4520062	SCR valve assembly, port B, 415 bar/6020 psi	1
J005	93-44		4800299	SCR valve assembly, port B, 415 bar/6020 psi	1	
NN	H002	93-44		3103348	Check valve poppet	1
	J003	15-40		11192689	Spring	1
	H003	93-44	15-40	4800780	Spring	1
	H005	93-44		4800300	Check valve assembly, port A	1
	J002	93-44		3103348	Check valve poppet	1
	J003	15-40		11192689	Spring	1
	J003	93-44	15-40	4800780	Spring	1
	J005	06-01		4520063	Check valve assembly, port B	1
J005	93-44		4800300	Check valve assembly, port B	1	

### Loop By-pass

### By-pass Valve



### Loop By-pass

Order code: B parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
K001	93-44		4800768	By-pass valve assembly (SB-1999-037)	2
K002	06-01		1735282	By-pass shaft	2
K002	99-32		4800767	By-pass shaft (SB-1999-037)	2
K005	98-30		5000448	Retaining ring (SB-1998-039)	2
K006	98-30		9004105-0130	O-ring (SB-1998-039)	4
K008	06-01		9004201-6200	O-ring	2
K008	93-44		001149(9004201-6200)	O-ring	2
K009	06-01		9006110-0160	Back-up ring	2
K009	93-44		018481(9006110-0160)	Back-up ring	2
K010	06-01		9004105-0160	O-ring	2
K010	93-44		5000090(9004105-0160)	O-ring	2

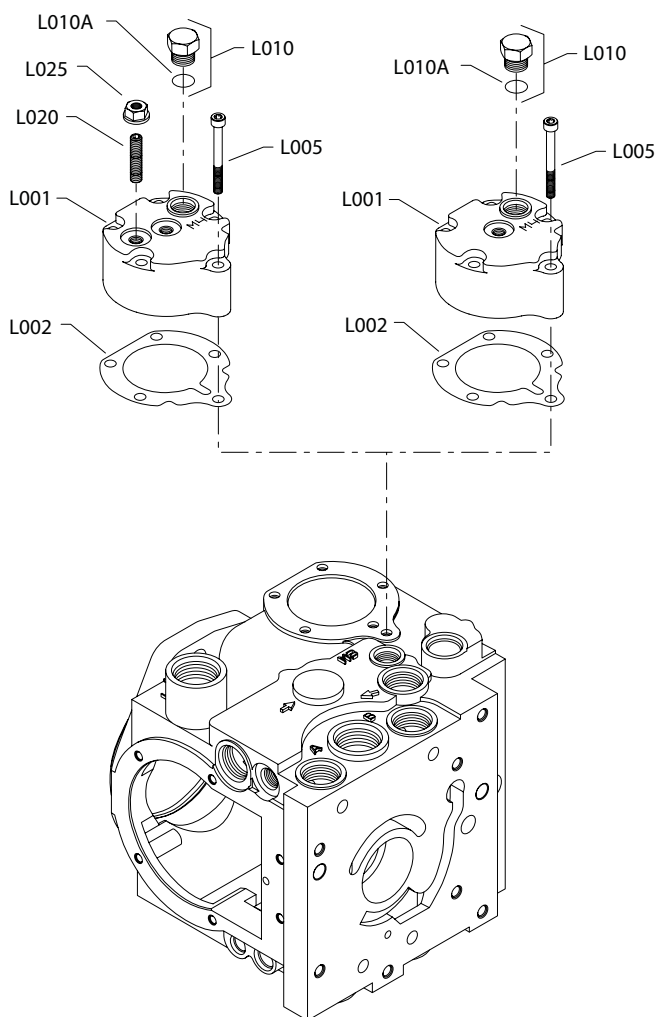
N parts

K001	93-44	-	4800589	SCR valve plug (SB-1998-082)	2
K008	06-01		9004201-6200	O-ring	2
K008	93-44		001149(9004201-6200)	O-ring	2
K009	06-01		9006110-0160	Back-up ring	2
K009	93-44		018481(9006110-0160)	Back-up ring	2
K010	06-01		9004105-0160	O-ring	2
K010	93-44		5000090(9004105-0160)	O-ring	2

## Displacement Limiter

### Displacement Limiter 0-5 (side 1)

Part numbers for various displacement limiter options can be found below.



## Displacement Limiter

Order code: 0-5 common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
L005	08-31		AAM0603001	Screw	5
L005	06-01	08-31	354407	Screw (AAM0606001)	5
L005	98-02		5000004	Screw (SB-1997-029C)	5
L002	93-44		4280225	Servo cover gasket (SB-1999-022)	1
L010	06-01		9005100-5600	Plug	1
L010	93-44		46151(9005100-5600)	Plug	1
L010A	06-01		9004201-3700	O-ring	1
L010A	93-44		085043(9004201-3700)	O-ring	1

0 parts (NFP, None)

L001	20-01		11231479	Servo cover, NFP	1
L001	06-01	20-01	1733734-02	Servo cover, NFP	1
L001	93-44		4280112	Servo cover, NFP	1

1 parts (NFP, Full)

L001	19-45		11230269	Servo cover, NFP, with adjustment	1
L001	06-01	19-45	1733734-01	Servo cover, NFP, with adjustment	1
L020	06-01		1745312	Set screw	1
L020	94-04		5000487	Set screw (SB-1997-034)	1
L025	06-01		612291	Seal nut	1
L025	94-04		612291(9003508-0008)	Seal nut	1

2 parts (NFP, 96%)

L001	19-45		11230269	Servo cover, NFP, with adjustment	1
L001	06-01	19-45	1733734-01	Servo cover, NFP, with adjustment	1
L001	93-44		4280113	Servo cover, NFP, with adjustment	1
L020	06-01		1745312	Set screw	1
L020	98-17		5000487	Set screw (SB-1997-034)	1
L025	06-01		612291	Seal nut	1
L025	98-17		612291(9003508-0008)	Seal nut	1

3 parts (NFP, 92%)

L001	19-45		11230269	Servo cover, NFP, with adjustment	1
L001	06-01	19-45	1733734-01	Servo cover, NFP, with adjustment	1
L001	93-44		4280113	Servo cover, NFP, with adjustment	1
L020	06-01		1745312	Set screw	1
L020	98-17		5000487	Set screw (SB-1997-034)	1
L025	06-01		612291	Seal nut	1
L025	98-17		612291(9003508-0008)	Seal nut	1

4 parts (NFP, 88%)

L001	19-45		11230269	Servo cover, NFP, with adjustment	1
L001	06-01	19-45	1733734-01	Servo cover, NFP, with adjustment	1

### Displacement Limiter

4 parts (NFP, 88%) (continued)

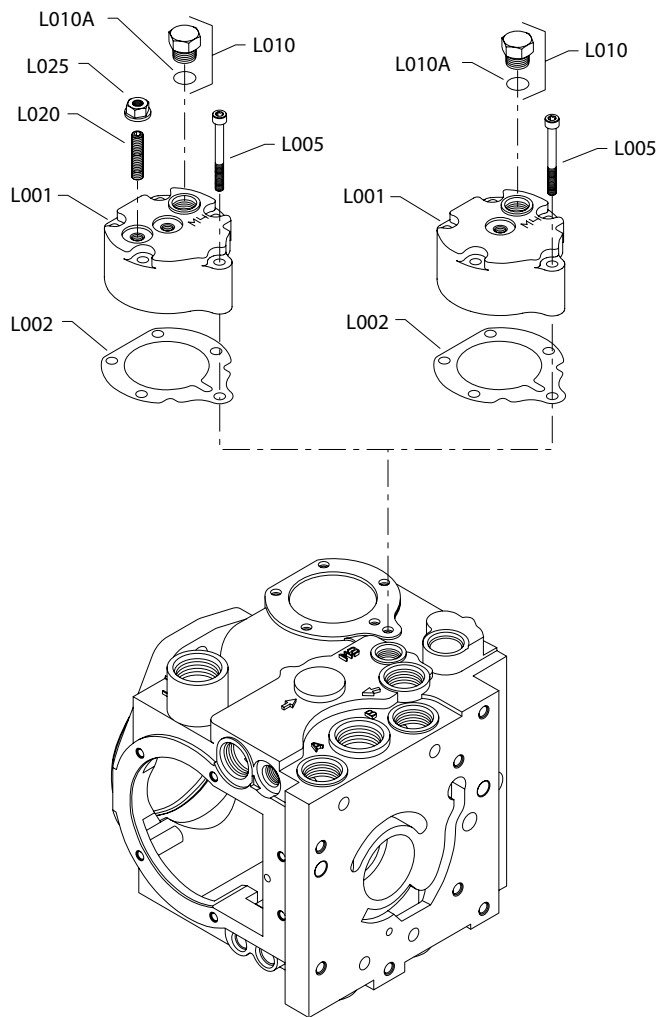
L001	93-44		4280113	Servo cover, NFP, with adjustment	1
L020	06-01		1745312	Set screw	1
L020	95-12		5000487	Set screw (SB-1997-034)	1
L025	06-01		612291	Seal nut	1
L025	95-12		612291(9003508-0008)	Seal nut	1

5 parts (NFP, 84%)

L001	19-45		11230269	Servo cover, NFP, with adjustment	1
L001	06-01	19-45	1733734-01	Servo cover, NFP, with adjustment	1
L001	93-44		4280113	Servo cover, NFP, with adjustment	1
L020	06-01		1745312	Set screw	1
L020	98-17		5000487	Set screw (SB-1997-034)	1
L025	06-01		612291	Seal nut	1
L025	98-17		612291(9003508-0008)	Seal nut	1

## Displacement Limiter

### Displacement Limiter 6 and 8



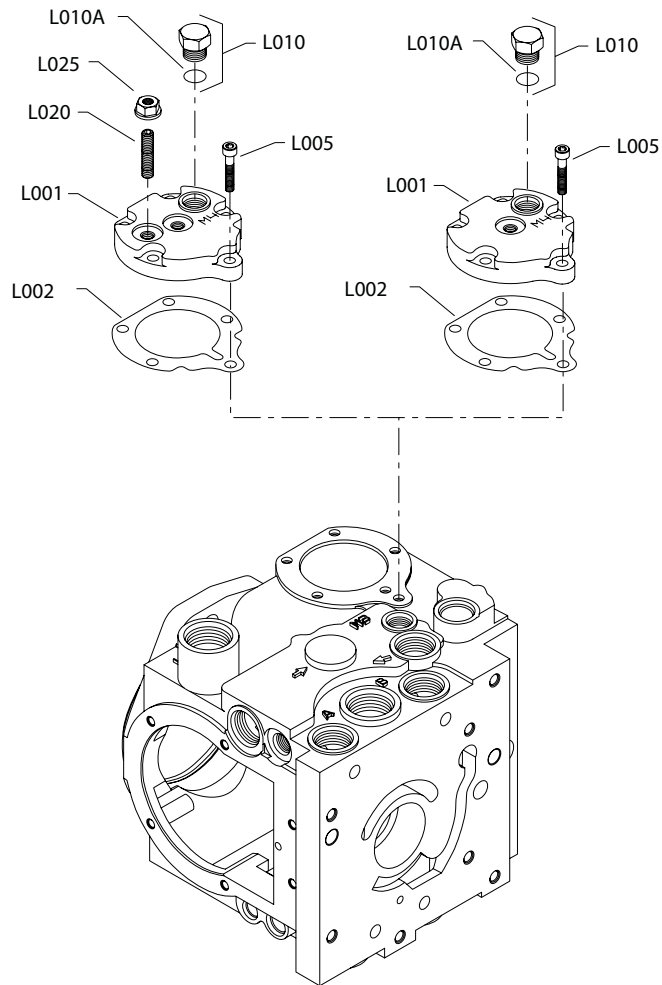
## Displacement Limiter

Order code: 6 (NFP, 80%) and 8 (NFP, 72%)

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
L001	19-45		11230269	Servo cover, NFP, with adjustment	1
L001	06-01	19-45	1733734-01	Servo cover, NFP, with adjustment	1
L001	98-17	06-01	4280113	Servo cover, NFP, with adjustment	1
L005	08-31		AAM0603001	Screw	5
L005	06-01	08-31	354407	Screw (AAM0606001)	5
L005	98-17		5000004	Screw (SB-1997-029C)	5
L002	93-44		4280225	Servo cover gasket (SB-1999-022)	1
L010	06-01		9005100-5600	Plug	1
L010	93-44		46151(9005100-5600)	Plug	1
L010A	06-01		9004201-3700	O-ring	1
L010A	93-44		085043(9004201-3700)	O-ring	1
L020	06-01		1745312	Set screw	1
L020	98-17		5000487	Set screw (SB-1997-034)	1
L025	06-01		612291	Seal nut	1
L025	98-17		612291(9003508-0008)	Seal nut	1

**Displacement Limiter**

**Displacement Limiter A-F**



Order code: common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
L005	07-14		AAM0603001	Screw	5
L005	06-01	07-14	9007314-0607	Screw (AAM0603001)	5
L005	98-02		5000002	Screw (SB-1997-029C)	5
L002	93-44		4280225	Servo cover gasket (SB-1999-022)	1
L010	06-01		9005100-5600	Plug	1
L010	93-44		46151(9005100-5600)	Plug	1
L010A	06-01		9004201-3700	O-ring	1
L010A	93-44		085043(9004201-3700)	O-ring	1
L020	06-01		1745312	Set screw	1

## Displacement Limiter

Order code: common parts (continued)

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
L020	93-20		5000487	Set screw (SB-1997-034)	1
L025	06-01		612291	Seal nut	1
L025	93-20		612291(9003508-0008)	Seal nut	1

A parts (full)

L001	06-01		1734219-01	Servo cover, with adjustment	1
L001	93-20		4280040	Servo cover, with adjustment	1

B parts (96%)

L001	06-01		1734219-01	Servo cover, with adjustment	1
L001	93-20		4280040	Servo cover, with adjustment	1

C parts (92%)

L001	06-01		1734219-01	Servo cover, with adjustment	1
L001	93-20		4280040	Servo cover, with adjustment	1

D parts (88%)

L001	06-01		1734219-01	Servo cover, with adjustment	1
L001	93-20		4280040	Servo cover, with adjustment	1

E parts (84%)

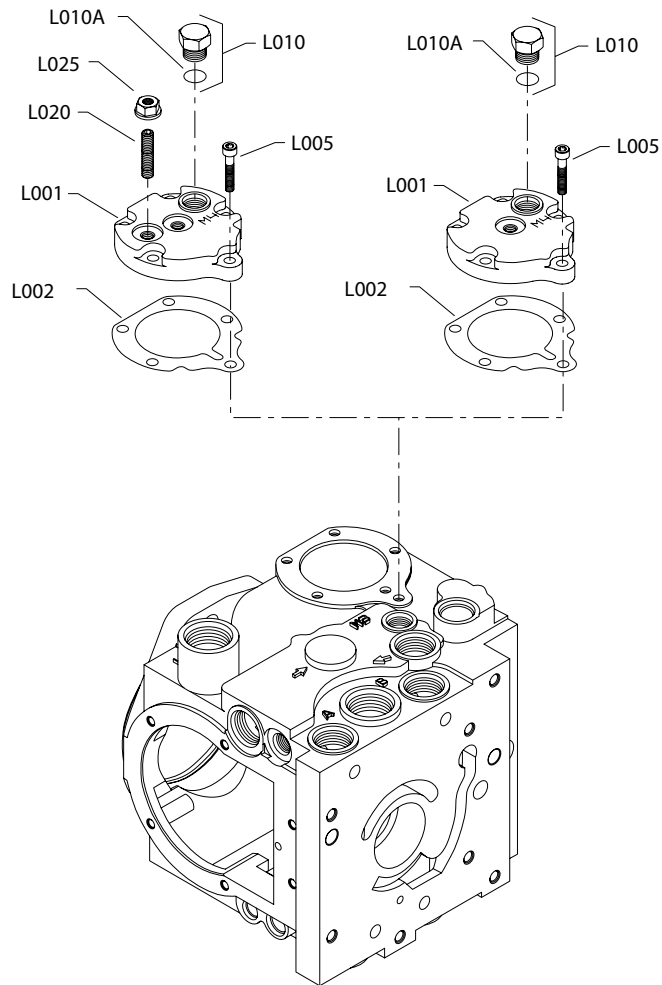
L001	06-01		1734219-01	Servo cover, with adjustment	1
L001	93-20		4280040	Servo cover, with adjustment	1

F parts (80%)

L001	06-01		1734219-01	Servo cover, with adjustment	1
L001	93-20		4280040	Servo cover, with adjustment	1

**Displacement Limiter**

**Displacement Limiter H, N, and T**



Order code: H, T, and N common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
L005	07-14		AAM0603001	Screw	5
L005	06-01	07-14	9007314-0607	Screw (AAM0603001)	5
L005	98-17		5000002	Screw (SB-1997-029C)	5
L002	93-44		4280225	Servo cover gasket (SB-1999-022)	1
L010	06-01		9005100-5600	Plug	1
L010	93-44		46151(9005100-5600)	Plug	1
L010A	06-01		9004201-3700	O-ring	1
L010A	93-44		085043(9004201-3700)	O-ring	1

### Displacement Limiter

*H parts (72%)*

L001	06-01		1734219-01	Servo cover, 72%	1
L001	98-17		4280040	Servo cover, 72%	1
L020	06-01		1745312	Set screw	1
L020	98-17		5000487	Set screw (SB-1997-034)	1
L025	06-01		612291	Seal nut	1
L025	98-17		612291(9003508-0008)	Seal nut	1

*N parts (None)*

L001	06-01		1734219-02	Servo cover	1
L001	98-17		4280027	Servo cover	1

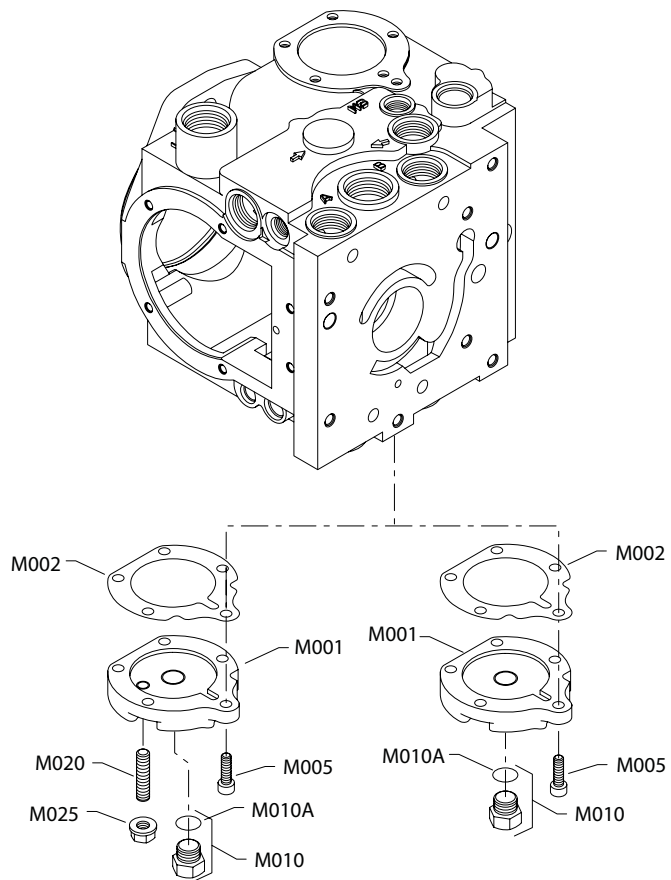
*T parts (NFP, None)*

L001	98-17		1734219-03	Servo cover	1
L001	98-17		4280259	Servo cover	1

## Displacement Limiter

### Displacement Limiter 0-5 (side 2)

Part numbers for various displacement limiter options can be found below.



## Displacement Limiter

Order code: 0-5 common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M005	08-31		AAM0603001	Screw	5
M005	06-01	08-31	9007314-0607	Screw (AAM0603001)	5
M005	98-02		5000002	Screw (SB-1997-029C)	5
M002	93-44		4280225	Servo cover gasket (SB-1999-022)	1
M010	06-01		9005100-5600	Plug	1
M010	93-44		46151(9005100-5600)	Plug	1
M010A	06-01		9004201-3700	O-ring	1
M010A	93-44		085043(9004201-3700)	O-ring	1

0 parts (NFP, None)

M001	06-01		1733733-02	Servo cover, without adjustment	1
M001	94-04		4280026	Servo cover, without adjustment	1

1 parts (NFP, Full)

M001	06-01		1733733-01	Servo cover, with adjustment	1
M001	94-04		4280041	Servo cover, with adjustment	1
M020	06-01		1745312	Set screw	1
M020	94-04		5000487	Set screw (SB-1997-034)	1
M025	06-01		612291	Seal nut	1
M025	94-04		612291(9003508-0008)	Seal nut	1

2 parts (NFP, 96%)

M001	06-01		1733733-01	Servo cover, with adjustment	1
M001	94-04		4280041	Servo cover, with adjustment	1
M020	06-01		1745312	Set screw	1
M020	94-04		5000487	Set screw (SB-1997-034)	1
M025	06-01		612291	Seal nut	1
M025	94-04		612291(9003508-0008)	Seal nut	1

3 parts (NFP, 92%)

M001	06-01		1733733-01	Servo cover, with adjustment	1
M001	98-17		4280041	Servo cover, with adjustment	1
M020	06-01		1745312	Set screw	1
M020	94-04		5000487	Set screw (SB-1997-034)	1
M025	06-01		612291	Seal nut	1
M025	94-04		612291(9003508-0008)	Seal nut	1

4 parts (NFP, 88%)

M001	06-01		1733733-01	Servo cover, with adjustment	1
M001	95-12		4280041	Servo cover, with adjustment	1
M020	06-01		1745312	Set screw	1
M020	94-04		5000487	Set screw (SB-1997-034)	1

### Displacement Limiter

4 parts (NFP, 88%) (continued)

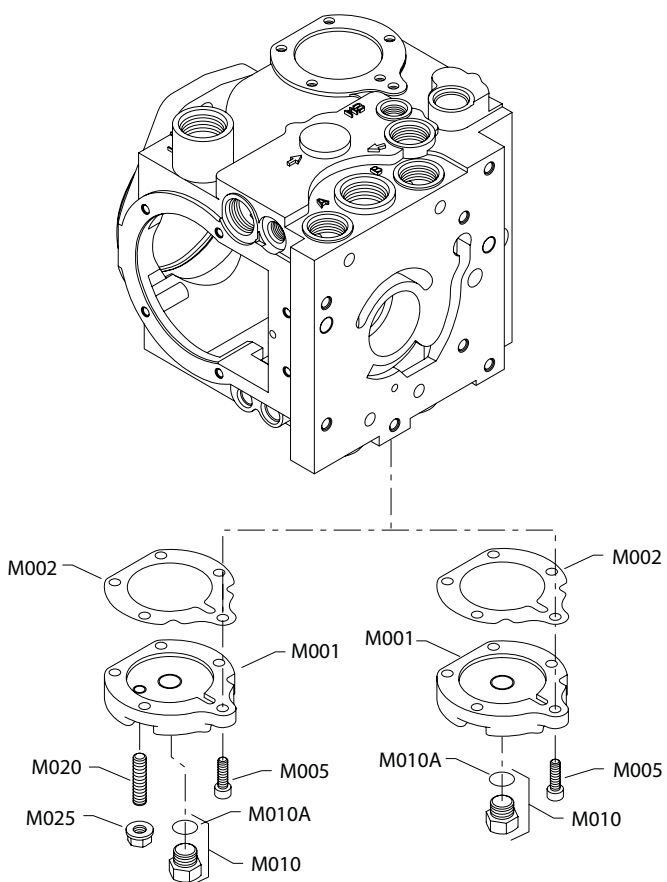
M025	06-01		612291	Seal nut	1
M025	94-04		612291(9003508-0008)	Seal nut	1

5 parts (NFP, 84%)

M001	06-01		1733733-01	Servo cover, with adjustment	1
M001	98-17		4280041	Servo cover, with adjustment	1
M020	06-01		1745312	Set screw	1
M020	94-04		5000487	Set screw (SB-1997-034)	1
M025	06-01		612291	Seal nut	1
M025	94-04		612291(9003508-0008)	Seal nut	1

## Displacement Limiter

### Displacement Limiter 6, 8 and A, C-E (side 2)



## Displacement Limiter

Order code: 6, 8 and A-E common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M005	08-31		AAM0603001	Screw	5
M005	06-01	08-31	9007314-0607	Screw (AAM0603001)	5
M005	98-17		5000002	Screw (SB-1997-029C)	5
M002	93-44		4280225	Servo cover gasket (SB-1999-022)	1
M010	06-01		9005100-5600	Plug	1
M010	93-44		46151(9005100-5600)	Plug	1
M010A	06-01		9004201-3700	O-ring	1
M010A	93-44		085043(9004201-3700)	O-ring	1
M020	06-01		1745312	Set screw	1
M020	98-17		5000487	Set screw (SB-1997-034)	1
M025	06-01		612291	Seal nut	1
M025	98-17		612291(9003508-0008)	Seal nut	1

6 parts (NFP, 80%)

M001	06-01		1733733-01	Servo cover, with adjustment	1
M001	98-17		4280041	Servo cover, with adjustment	1

8 parts (NFP, 72%)

M001	06-01		1733733-01	Servo cover, with adjustment	1
M001	98-17		4280041	Servo cover, with adjustment	1

A parts (full)

M001	06-01		1733733-01	Servo cover, with adjustment	1
M001	93-20		4280041	Servo cover, with adjustment	1

B parts (96%)

M001	06-01		1733733-01	Servo cover, with adjustment	1
M001	93-20		4280041	Servo cover, with adjustment	1

C parts (92%)

M001	06-01		1733733-01	Servo cover, with adjustment	1
M001	94-49		4280041	Servo cover, with adjustment	1

D parts (88%)

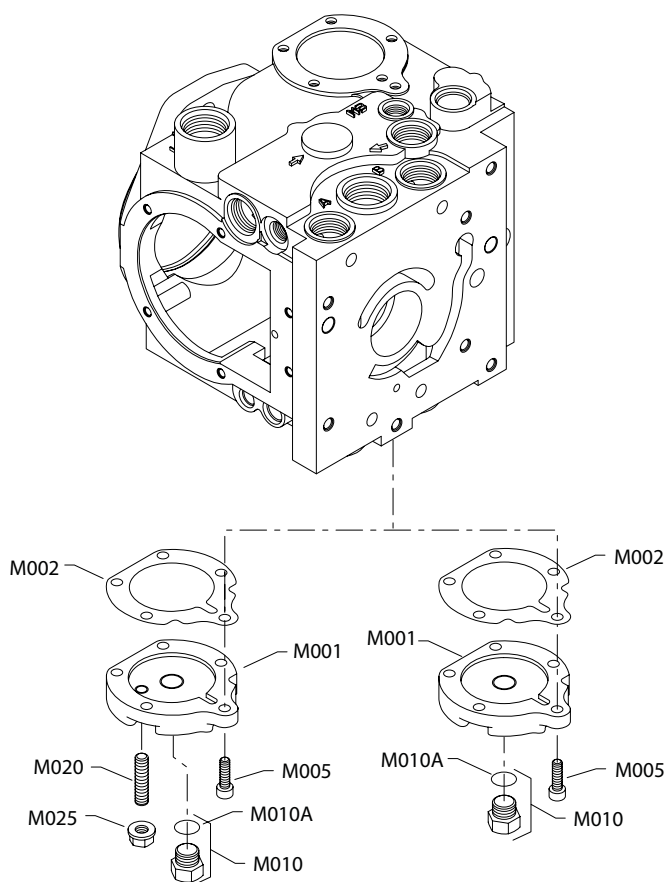
M001	06-01		1733733-01	Servo cover, with adjustment	1
M001	94-49		4280041	Servo cover, with adjustment	1

E parts (84%)

M001	06-01		1733733-01	Servo cover, with adjustment	1
M001	98-17		4280041	Servo cover, with adjustment	1

## Displacement Limiter

### Displacement Limiter F, H, N, T (side 2)



## Displacement Limiter

Order code: F, H, N, and T common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M005	08-31		AAM0603001	Screw	5
M005	06-01	08-31	9007314-0607	Screw (AAM0603001)	5
M005	98-17		5000002	Screw (SB-1997-029C)	5
M002	93-44		4280225	Servo cover gasket (SB-1999-022)	1
M010	06-01		9005100-5600	Plug	1
M010	93-44		46151(9005100-5600)	Plug	1
M010A	06-01		9004201-3700	O-ring	1
M010A	93-44		085043(9004201-3700)	O-ring	1

### F parts (80%)

M001	06-01		1733733-01	Servo cover, with adjustment	1
M001	98-17		4280041	Servo cover, with adjustment	1
M020	06-01		1745312	Set screw	1
M020	98-17		5000487	Set screw (SB-1997-034)	1
M025	06-01		612291	Seal nut	1
M025	98-17		612291(9003508-0008)	Seal nut	1

### H parts (72%)

M001	06-01		1733733-01	Servo cover, with adjustment	1
M001	00-29		4280041	Servo cover, with adjustment	1
M020	06-01		1745312	Set screw	1
M020	98-17		5000487	Set screw (SB-1997-034)	1
M025	06-01		612291	Seal nut	1
M025	98-17		612291(9003508-0008)	Seal nut	1

### N parts (None)

M001	06-01		1733733-02	Servo cover, with adjustment	1
M001	93-20		4280026	Servo cover, with adjustment	1

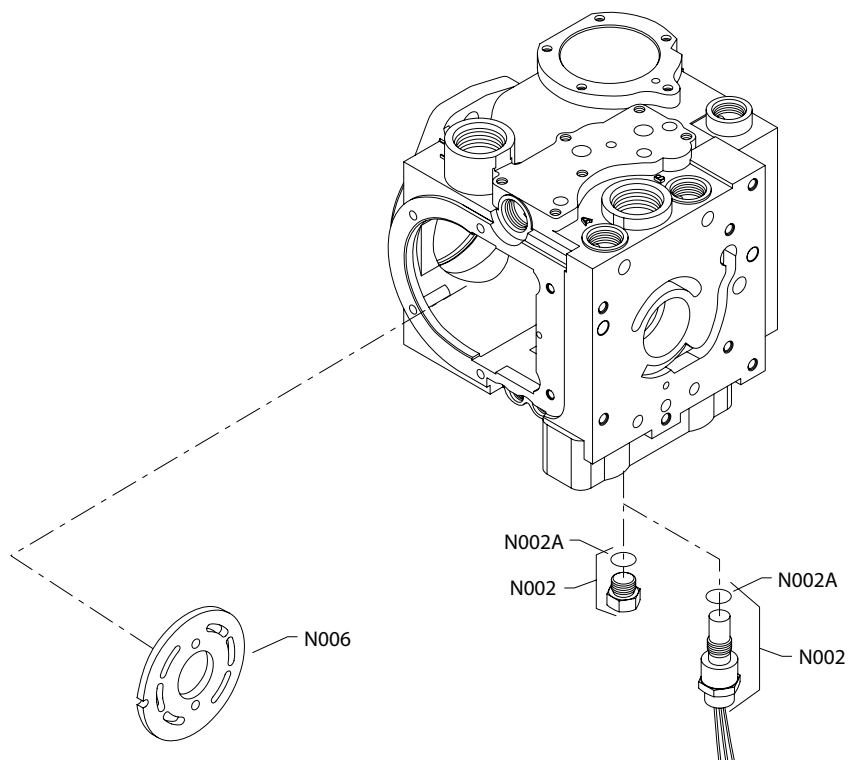
### T parts (NFP, None)

M001	06-01		1733733-02	Servo cover, with adjustment	1
M001	00-05		4280026	Servo cover, with adjustment	1

### Special Hardware

#### Speed Sensor, Valve Plate AAA-CBA

Part numbers for the speed sensor and valve plate can be found below.



## Special Hardware

Order code: AAA

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
N002	97-16		KPPG13408	Speed sensor, weatherpack connector	1
N002A	06-01		9004201-3700	O-ring	1
N002A	97-16		085043(9004201-3700)	O-ring	1
N006	97-16		4280023	Valve plate, CCW	1
N006	23-04		1723102-01	Valve plate, CW	1
N006	97-16	23-04	4280024	Valve plate, CW	1

### ACA parts

N002	06-01		9005100-5600	Plug	1
N002	96-49		046151(9005100-5600)	Plug	1
N002A	06-01		9004201-3700	O-ring	1
N002A	96-49		085043(9004201-3700)	O-ring	1
N006	96-49		4280023	Valve plate, CCW	1
N006	23-04		1723102-01	Valve plate, CW	1
N006	96-49	23-04	4280024	Valve plate, CW	1

### BAA parts

N002	06-01		9005100-5600	Plug	1
N002	96-49		046151(9005100-5600)	Plug	1
N002A	06-01		9004201-3700	O-ring	1
N002A	96-49		085043(9004201-3700)	O-ring	1
N006	95-02		4280085	Valve plate, CW, quiet	1

### CAA parts

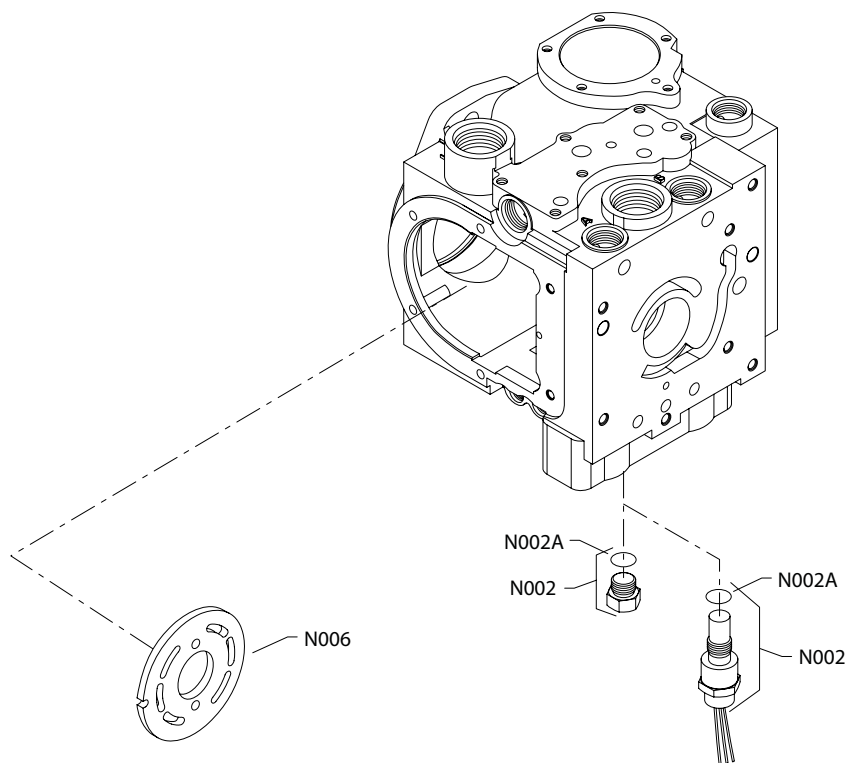
N002	06-01		9005100-5600	Plug	1
N002	96-49		046151(9005100-5600)	Plug	1
N002A	06-01		9004201-3700	O-ring	1
N002A	96-49		085043(9004201-3700)	O-ring	1
N006	96-32		4280023	Valve plate, CCW	1
N006	23-04		1723102-01	Valve plate, CW	1
N006	96-32	23-04	4280024	Valve plate, CW	1

### CBA parts

N002	06-01		9005100-5600	Plug	1
N002	96-49		046151(9005100-5600)	Plug	1
N002A	06-01		9004201-3700	O-ring	1
N002A	96-49		085043(9004201-3700)	O-ring	1
N006	96-32		4280023	Valve plate, CCW	1
N006	23-04		1723102-01	Valve plate, CW	1
N006	96-32	23-04	4280024	Valve plate, CW	1

### Special Hardware

#### Speed Sensor, Valve Plate CCA, NNN



### Special Hardware

Order code: CCA parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
N002	06-01		9005100-5600	Plug	1
N002	96-49		046151(9005100-5600)	Plug	1
N002A	06-01		9004201-3700	O-ring	1
N002A	96-49		085043(9004201-3700)	O-ring	1
N006	23-04		1723102-01	Valve plate, CW	1
N006	98-17	23-04	4280024	Valve plate, CW	1

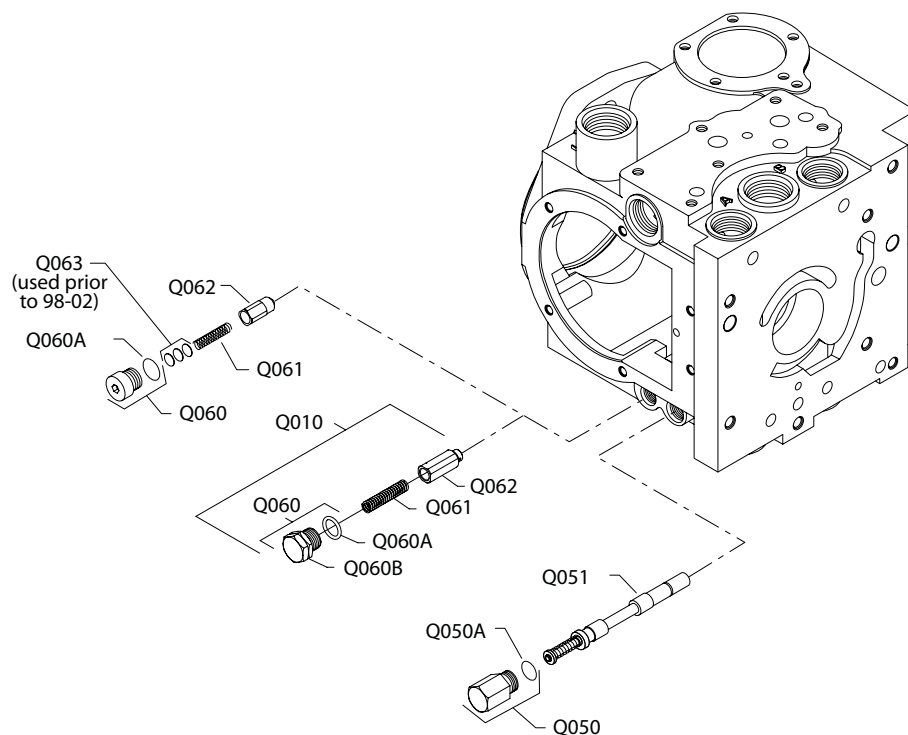
NNN parts

N002	06-01		9005100-5600	Plug	1
N002	96-49		046151(9005100-5600)	Plug	1
N002A	06-01		9004201-3700	O-ring	1
N002A	96-49		085043(9004201-3700)	O-ring	1
N006	93-20		4280023	Valve plate, CCW	1
N006	23-04		1723102-01	Valve plate, CW	1
N006	93-20	23-04	4280024	Valve plate, CW	1

## Loop Flushing

### Loop Flushing, Spool and Relief Valve 2-5

Part numbers for loop flushing spool and relief valve can be found below.



## Loop Flushing

Order code: 2-5 common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
Q050	93-20		4800279	Plug assembly	1
Q050A	06-01		9004201-3700	O-ring	1
Q05A	93-20		085043(9004201-3700)	O-ring	1
Q051	10-43		11060694	Spool assembly	1
Q051	06-01	10-43	1735296	Spool assembly	1
Q051	98-02		4800708	Spool assembly (SB-1997-029C)	1
Q060A	06-01		9004201-3100	O-ring	1
Q060A	93-20		015818(9004201-3100)	O-ring	1
Q061	06-01		1745318	Spring	1
Q061	97-37		4800654	Spring (SB-1997-027)	1

2 parts

Q060	93-20		4800747	Plug assembly (SB-1998-085)	1
Q062	06-01		1733723	Poppet	1
Q062	93-20		4800389	Poppet	1
Q063	93-20	98-01	9510447	Shim kit (SB-1997-027)	1

3 parts

Q060	93-20		4800747	Plug assembly (SB-1998-085)	1
Q062	06-01		1735195	Poppet	1
Q062	93-20		4800396	Poppet	1
Q063	93-20	98-01	9510447	Shim kit (SB-1997-027)	1

4 parts

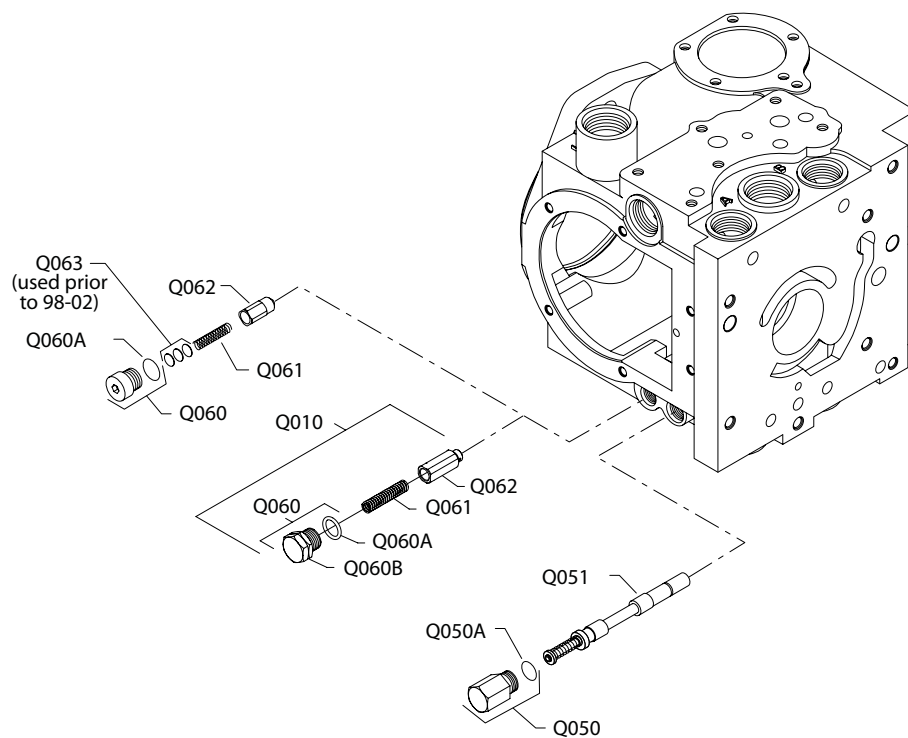
Q060	98-48		4800280	Plug assembly	1
Q062	06-01		1733723	Poppet	1
Q062	98-48		4800389	Poppet	1

5 parts

Q060	98-48		4800280	Plug assembly	1
Q062	06-01		1735195	Poppet	1
Q062	98-48		4800396	Poppet	1

## Loop Flushing

### Loop Flushing Spool and Relief Valve 6



## Loop Flushing

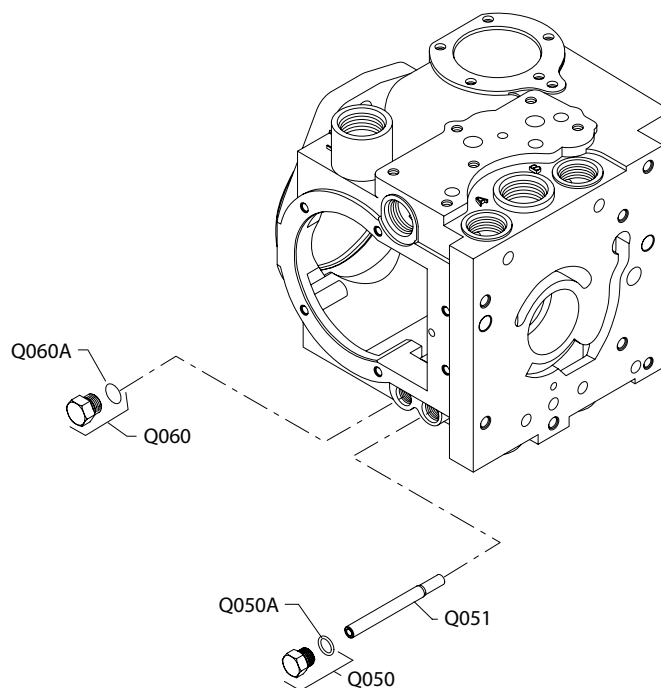
Order code: 6 parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
Q050	00-49		4800279	Plug assembly	1
Q050A	06-01		9004201-3700	O-ring	1
Q050A	00-49		085043(9004201-3700)	O-ring	1
Q051	00-49		4800786	Spool assembly (SB-1997-029C)	1
Q060	00-49		4800747	Plug assembly (SB-1998-085)	1
Q060A	06-01		9004201-3100	O-ring	1
Q060A	00-49		015818(9004201-3100)	O-ring	1
Q061	06-01		1745318	Spring	1
Q061	00-49		4800654	Spring (SB-1997-027)	1
Q062	06-01		1733723	Poppet	1
Q062	98-48		4800389	Poppet	1

## Loop Flushing

### Loop Flushing, Spool and Relief Valve D

Part numbers for loop flushing defeated can be found below.



## Loop Flushing

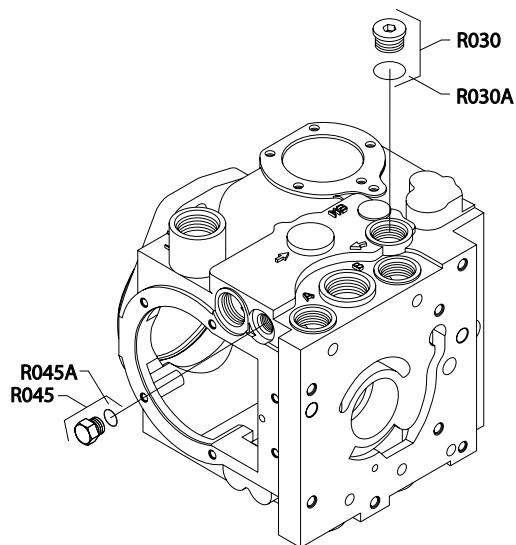
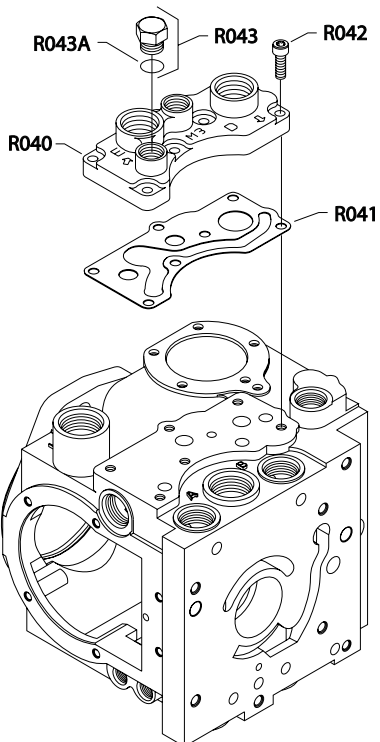
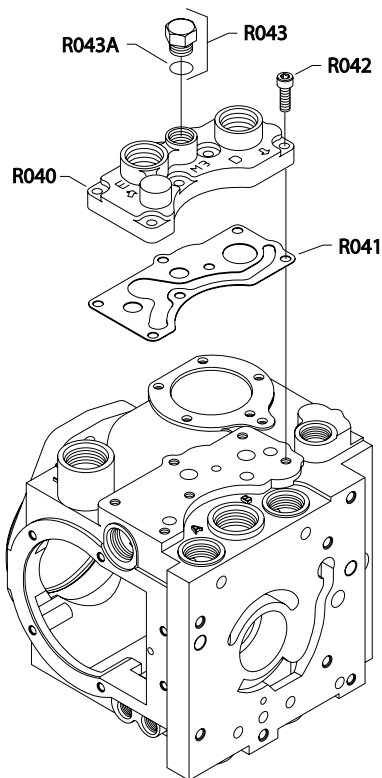
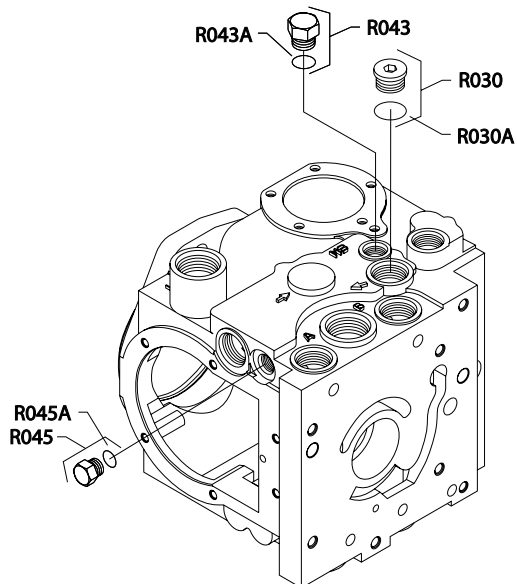
Order code: D parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
Q050	07-18		9005100-5600	Plug assembly	1
Q050	06-01	07-28	9005100-5600	Plug assembly	1
Q050	94-08		046151(9005100-5600)	Plug assembly	1
Q050A	06-01		9004201-3700	O-ring	1
Q050A	94-08		085043(9004201-3700)	O-ring	1
Q051	07-18		1735242	Spool, defeated	1
Q051	06-01	07-28	1735242	Spool, defeated	1
Q051	94-08		4800626	Spool, defeated	1
Q060	09-17		J9005100-5000	Plug assembly	1
Q060	94-08	09-17	4800323	Plug assembly	1
Q060A	06-01		9004201-3100	O-ring	1
Q060A	94-08		015818(9004201-3100)	O-ring	1

**Filtration**

**Filtration**

Part numbers for various filtration options can be found below.



## Filtration

### A (suction, no adapter) parts

R030	06-01		9005110-7500	Plug assembly	1
R030	98-02		671296(9005110-7500)	Plug assembly	1
R030	93-24	98-01	001479(9005001-1200)	Pipe plug	1
R030A	06-01		9004201-5000	O-ring	1
R030A	98-02		001131(9004201-5000)	O-ring	1
R043	07-16	98-01	J9005100-5600	Plug assembly	1
R043	93-25	98-01	681296(9005110-7500)	Plug assembly	1
R043A	07-16	98-01	9004201-3700	O-ring	1
R043A	93-25	98-01	001131(9004201-5000)	O-ring	1
R045	09-16		J9005100-5000	Plug assembly	1
R045	93-25	09-16	4800323	Plug assembly	1
R045A	06-01		9004201-3100	O-ring	1
R045A	93-25		015818(9004201-3100)	O-ring	1

### B (remote, full flow, with adapter) parts

R040	06-49		1714963-02	Remote filter adapter	1
R040	93-20		4800218	Remote filter adapter	1
R041	93-20		4800213	Filter adapter gasket	1
R042	07-16		AAM0603001	Screw	7
R042	06-01	07-16	9007314-0607	Screw (AAM0603001)	7
R042	93-20		5000002	Screw	7
R043	06-01		9005100-5600	Plug assembly	1
R043A	06-01		9004201-3700	O-ring	1

### C (remote, partial flow, with adapter) parts

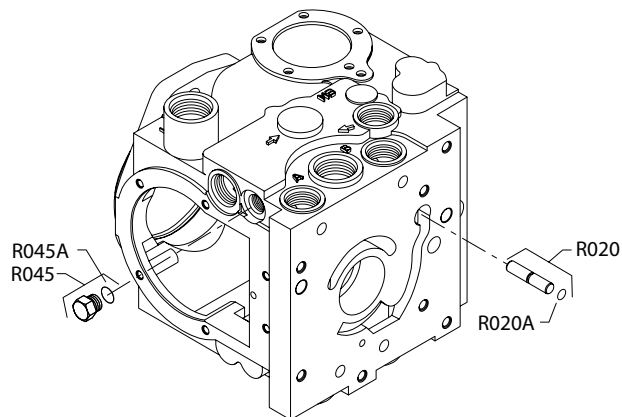
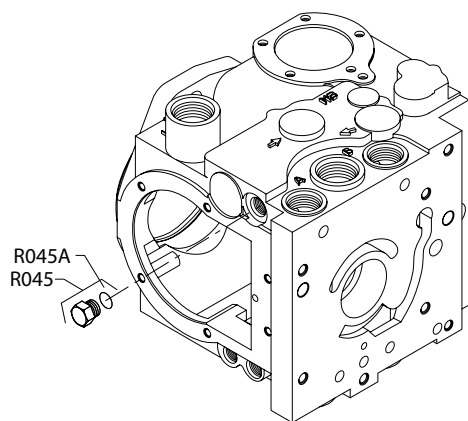
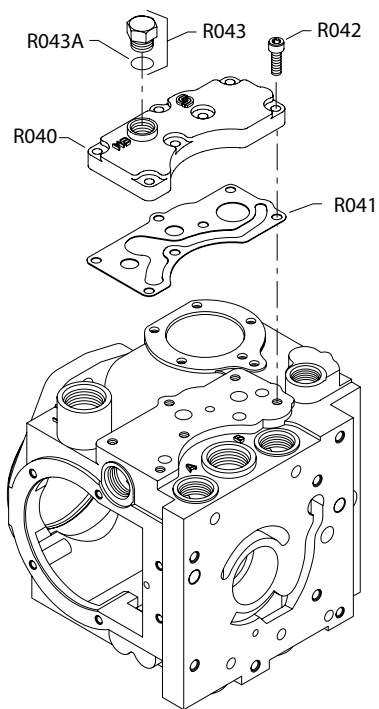
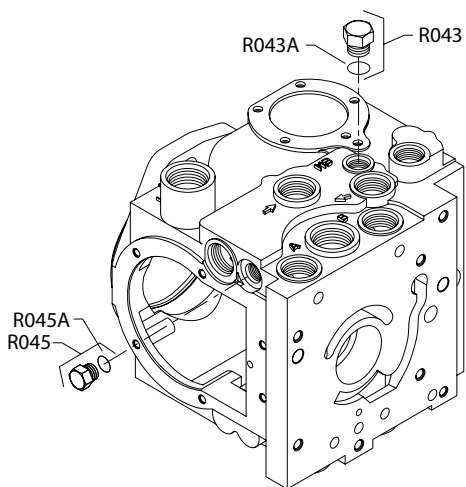
R040	06-49		1714963-03	Remote filter adapter	1
R040	93-20		4800219	Remote filter adapter	1
R041	93-20		4800213	Filter adapter gasket	1
R042	07-16		AAM0603001	Screw	7
R042	06-01	07-16	9007314-0607	Screw (AAM0603001)	7
R042	98-02		5000002	Screw (SB-1997-029C)	7
R042	93-20	98-01	5000001	Screw	7
R043	06-01		9005100-5600	Plug assembly	1
R043A	06-01		9004201-3700	O-ring	1

### D (suction, no adapter, no gage port) parts

R030	06-01		9005110-7500	Plug assembly	1
R030	01-12		481296(9005110-7500)	Plug assembly	1
R030A	06-01		9004201-5000	O-ring	1
R030A	01-12		001131(9004201-5000)	O-ring	1
R045	09-16		J9005100-5000	Plug	1
R045	93-24	09-16	4800323	Plug assembly	1
R045A	06-01		9004201-3100	O-ring	1
R045A	01-12		015818(9004201-3100)	O-ring	1

Filtration

Filtration F, G, L, M



## Filtration

*Order code: F (remote, full flow, no adapter) parts*

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
R043	06-01		9005100-5600	Plug assembly	1
R043	98-02		046151(9005100-5600)	Plug assembly	1
R043A	06-01		9004201-3700	O-ring	1
R043A	98-02		085043(9004201-3700)	O-ring	1
R045	09-16		J9005100-5000	Plug	1
R045	00-35	09-16	4800323	Plug assembly	1
R045A	06-01		9004201-3100	O-ring	1
R045A	00-35		015818(9004201-3100)	O-ring	1

*G (suction, with adapter) parts*

R040	06-49		1715889-01	Suction filter adapter	1
R040	94-09		4800204	Suction filter adapter	1
R041	94-09		4800213	Filter adapter gasket	1
R042	07-16		AAM0603001	Screw	7
R042	06-01	07-16	9007314-0607	Screw (AAM0603001)	7
R042	98-02		5000002	Screw (SB-1997-029C)	7
R042	93-20	98-01	5000001	Screw	7
R043	06-01		9005100-5600	Plug assembly	1
R043	98-02		046151(9005100-5600)	Plug assembly	1
R043A	06-01		9004201-3700	O-ring	1
R043A	98-02		085043(9004201-3700)	O-ring	1

*L (none, special) parts*

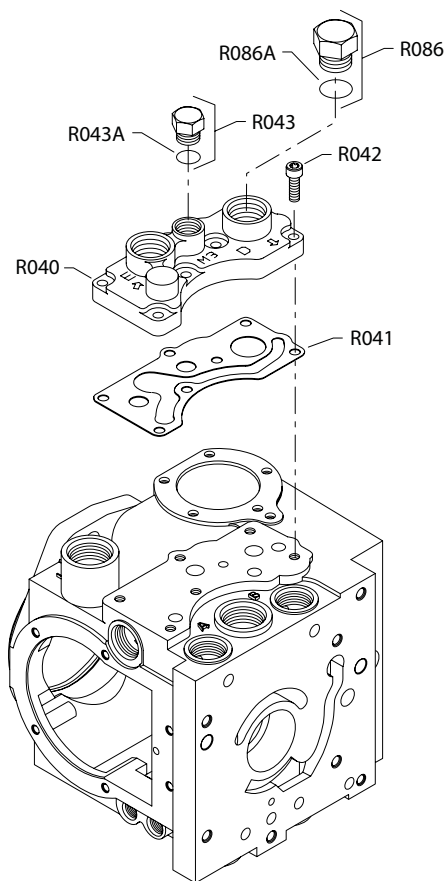
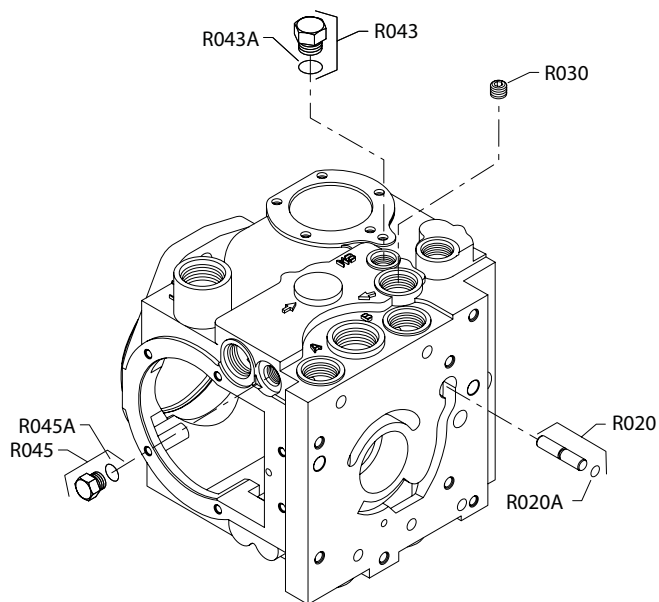
R045	09-16		J9005100-5000	Plug	1
R045	98-04	09-16	4800323	Plug	1
R045A	06-01		9004201-3100	O-ring	1
R045A	98-04		015818(9004201-3100)	O-ring	1

*M parts*

R020	98-18		4800332	Plug assembly	1
R020A	07-14		9004105-0110	O-ring	1
R020A	06-01	07-14	144725	O-ring	1
R020A	98-18		144725(9004105-0110)	O-ring	1
R045	09-16		J9005100-5000	Plug	1
R045	98-18	09-16	4800323	Plug	1
R045A	06-01		9004201-3100	O-ring	1
R045A	98-18		015818(9004201-3100)	O-ring	1

### Filtration

#### Filtration N, X



## Filtration

Order code: N (none, external charge supply, no adapter) parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
R020	93-44		4800332	Plug assembly	1
R020A	07-14		9004105-0110	O-ring	1
R020A	06-01	07-14	144725	O-ring	1
R020A	93-44		144725(9004105-0110)	O-ring	1
R030	98-02		9005200-7500	Pile plug	1
R030	93-44	98-01	001479(9005001-1200)	Pile plug	1
R043	06-01		9005100-5600	Plug assembly	1
R043	98-02		046151(9005100-5600)	Plug assembly	1
R043	93-44	98-01	681296(9005110-7500)	Plug	1
R043A	06-01		9004201-3700	O-ring	1
R043A	98-02		085043(9004201-3700)	O-ring	1
R043A	93-44	98-01	001131(9004201-5000)	O-ring	1
R045	09-16		J9005100-5000	Plug	1
R045	93-44	09-16	4800323	Plug assembly	1
R045A	06-01		9004201-3100	O-ring	1
R045A	93-44		015818(9004201-3100)	O-ring	1

X (none, external charge supply, with adapter) parts

R040	06-49		1714963-02	Remote filter adapter	1
R040	97-06		4800218	Remote filter adapter	1
R041	97-06		4800213	Filter adapter gasket	1
R042	07-16		AAM0603001	Screw	7
R042	06-01	07-16	9007314-0607	Screw (AAM0603001)	7
R042	98-02		5000002	Screw (SB-1997-029C)	7
R042	97-06	98-01	5000001	Screw	7
R043	06-01		9005100-5600	Plug assembly	1
R043	98-02		046151(9005100-5600)	Plug assembly	1
R043A	06-01		9004201-3700	O-ring	1
R043A	98-02		085043(9004201-3700)	O-ring	1
R086	06-01		9005100-8700	Plug	1
R086	97-06		9005100-8700	Plug	1
R086A	06-01		9004201-6200	O-ring	1
R086A	97-06		001149(9004201-6200)	O-ring	1



## Special Drive Features

Order code: 1 and 2 common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
T005	06-01		9004100-1310	O-ring	2
T005	94-08		673236 (9004100-1310)	O-ring	2
T010	94-08		8700067	Piston ring	2
T041	06-01		9003575-0101	Nut	1
T041	94-08		342709 (9003575-0101)	Nut	1
T060	95-05		336826	Seal nut, M10	1

1 (NFP with anti-stall) parts

T1	20-10		11230577	Servo piston kit	1
T1	06-01	20-10	4280093	Servo piston kit	1
T1	95-05		4510129	Servo piston kit	1
T2	06-01		4280200	Servo piston ring kit	1
T2	94-08		4510002	Servo piston ring kit	1
T070	07-27		4800683	Charge relief kit	1
T039	07-27		1733728	Plug special	1
T041	07-18		9003575-0101	Nut	1
T042	18-39		11192687	Spring	1
T042	94-08	18-39	8800496	Spring	1
T043	06-01		1733732	Poppet	1
T043	94-08		4350299	Poppet	1
T050	07-27		9004201-6200	O-ring	1
T080	06-01		1714968-03	Swashplate	1
T080	99-36		4280224	Swashplate (SB-1999-048)	1
T080	94-08	99-35	4280110	Swashplate	1
T081	94-08		4280064	Cam follower bearing assembly	1
T083	11-27		11060627	Needle bearing	1
T083	94-08	11-27	5000108	Needle bearing	1

2 (NFP with standar CPRV) parts

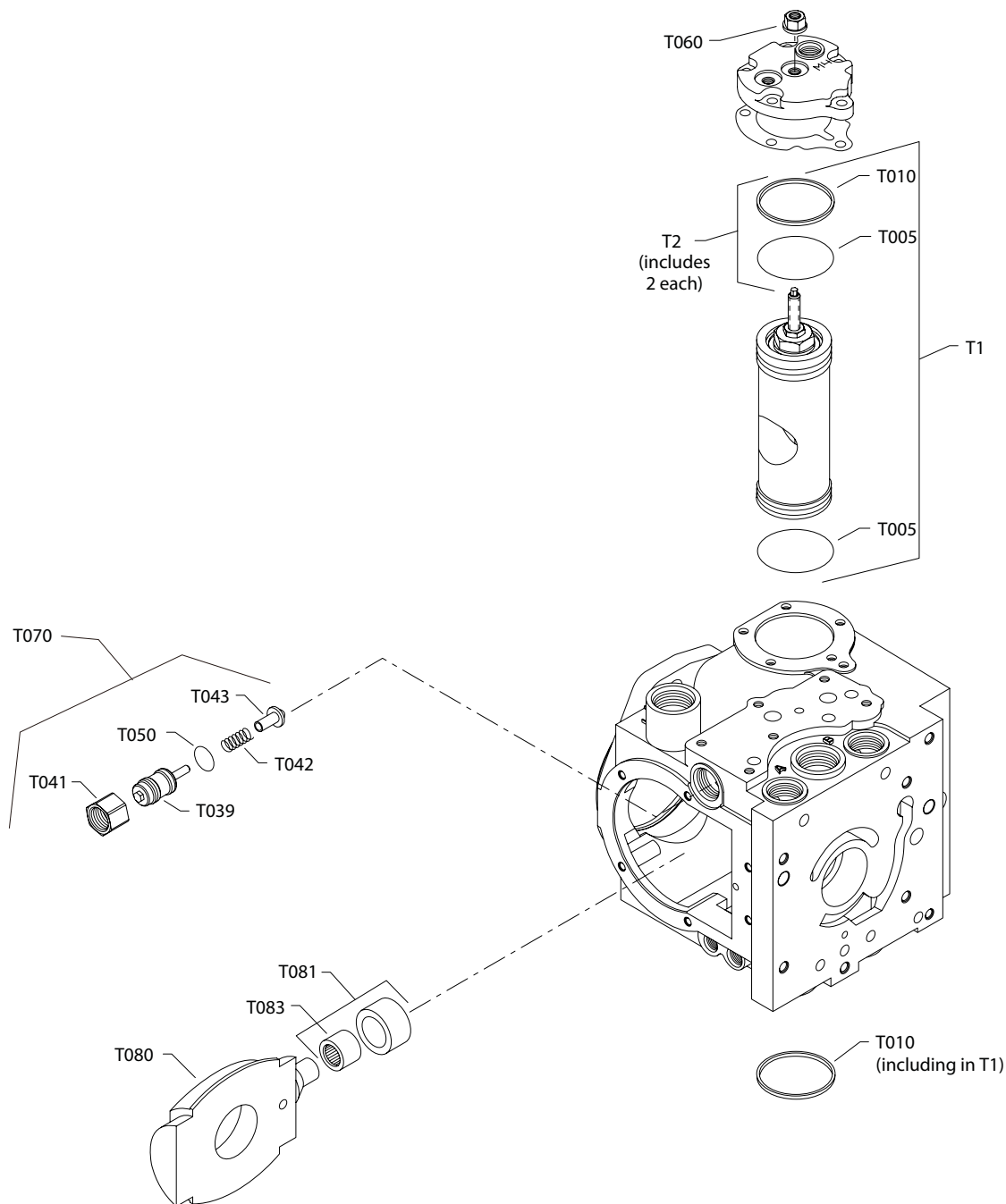
T1	06-01		4280262	Servo piston kit	1
T1	00-05		4510318	Servo piston kit	1
T2	06-01		4280263	Servo piston ring kit	1
T2	00-05		4510002	Servo piston ring kit	1
T070	07-27		4800573	Charge relief kit	1
T039	16-29		11174968	Adjuster	1
T039	00-05	16-29	502470	Adjuster	1
T041	07-18		9003575-0101	Nut	1
T042	06-01		1041419	Spring	1
T042	00-05		8800476	Spring	1
T043	06-01		1030940	Poppet	1
T043	00-05		342428(8800449)	Poppet	1
T050	06-01		9004201-6200	O-ring	1
T050	00-05		012559(9004202-6200)	O-ring	1

### Special Drive Features

2 (NFP with standar CPRV) parts (continued)

T080	06-01		1715974-01	Swashplate	1
T080	00-05		4280251	Swashplate	1
T081	00-05		4800771	Slider block	1

#### NFP 5



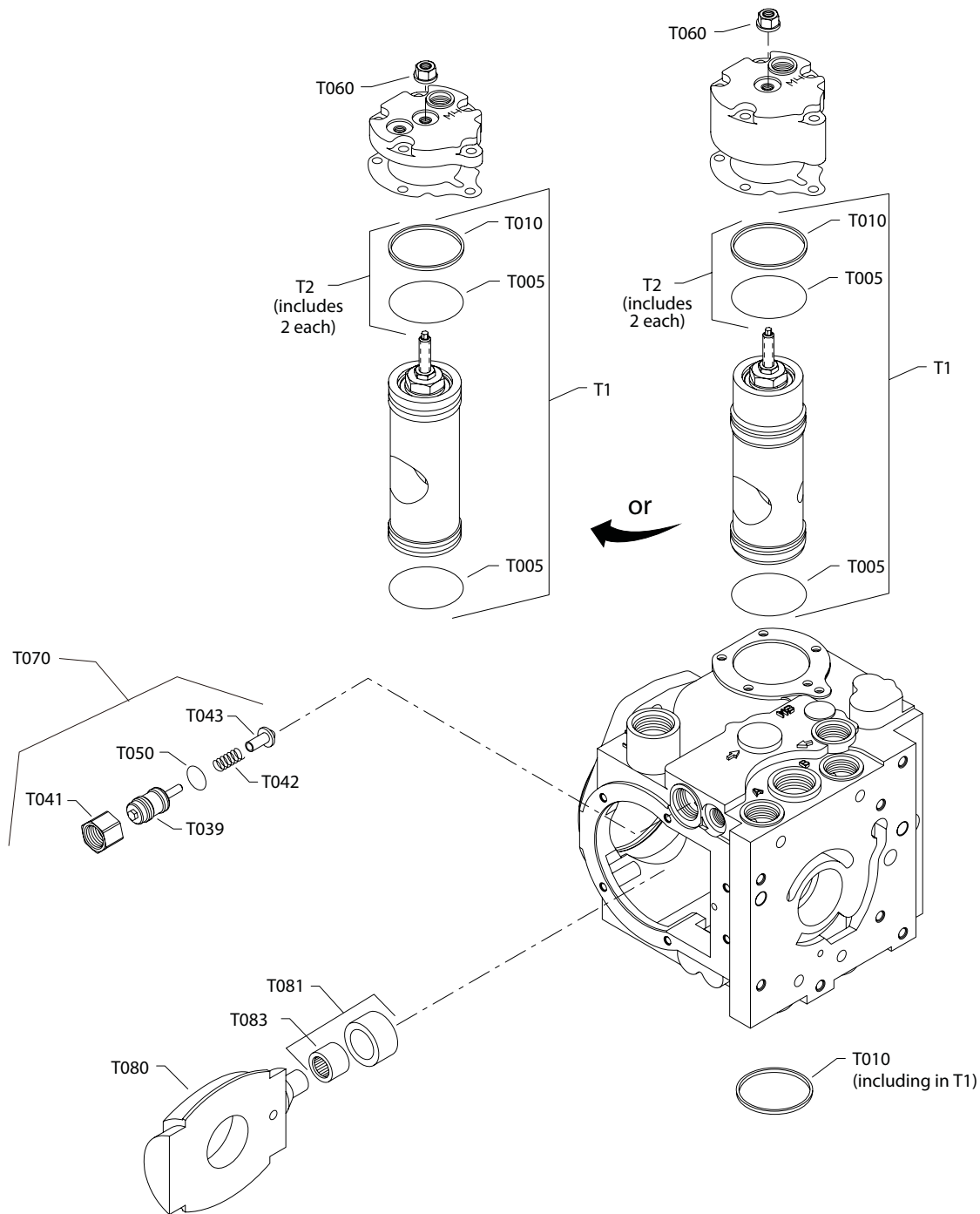
### Special Drive Features

Order code: 5 (NFP with standard CPRV) parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
T1	20-10		11230577	Servo piston kit	1
T1	06-01	20-10	4280093	Servo piston kit	1
T1	95-37		4510129	Servo piston kit	1
T2	06-01		4280200	Servo piston ring kit	1
T2	95-37		4510002	Servo piston ring kit	1
T005	06-01		9004100-1310	O-ring	2
T005	94-08		673236 (9004100-1310)	O-ring	2
T010	95-37		8700067	Piston ring	2
T070	07-27		4800573	Charge relief kit	1
T039	16-29		11174968	Adjuster	1
T039	98-02		502470	Adjuster	1
T039	95-37	98-01	4800308	Plug assembly	1
T041	06-01		9003575-0101	Nut	1
T041	94-08		342709 (9003575-0101)	Nut	1
T041	95-37	98-01	4510027	Shim kit	1
T042	06-01		1041419	Spring	1
T042	98-02		8800476	Spring	1
T042	95-37	98-01	8800496	Spring	1
T043	06-01		1030940	Poppet	1
T043	98-02		342428(8800449)	Poppet	1
T043	95-37	98-01	4800134	Poppet	1
T050	06-01		9004201-6200	O-ring	1
T050	95-37		012559(9004202-6200)	O-ring	1
T060	95-05		336826	Seal nut, M10	1
T080	06-01		1714968-03	Swashplate	1
T080	99-36		4280224	Swashplate (SB-1999-048)	1
T080	95-37	99-35	4280110	Swashplate	1
T081	95-37		4280064	Cam follower bearing assembly	1
T083	11-27		11060627	Needle bearing	1
T083	95-37	11-27	5000108	Needle bearing	1

**Special Drive Features**

**NFP 6 and N**



### Special Drive Features

Order code: 6 (NFP with charge relief) parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
T1	20-10		11230577	Servo piston kit	1
T1	06-01	20-10	4280093	Servo piston kit	1
T1	98-14		4510129	Servo piston kit	1
T2	06-01		4280200	Servo piston ring kit	1
T2	98-14		4510002	Servo piston ring kit	1
T005	06-01		9004100-1310	O-ring	2
T005	94-08		673236 (9004100-1310)	O-ring	2
T010	94-08		8700067	Piston ring	2
T060	95-05		336826	Seal nut, M10	1
T080	06-01		1714968-03	Swashplate	1
T080	99-36		4280224	Swashplate (SB-1999-048)	1
T080	98-14	99-35	4280110	Swashplate	1
T081	98-14		4280064	Cam follower bearing assembly	1
T083	11-27		11060627	Needle bearing	1
T083	98-14	11-27	5000108	Needle bearing	1

N (standard) parts

T1	06-01		4280071	Servo piston kit	1
T1	93-20		4510074	Servo piston kit	1
T2	06-01zl		4280197	Servo piston ring kit	1
T2	93-20		4510002	Servo piston ring kit	1
T005	06-01		9004100-1310	O-ring	2
T005	94-08		673236 (9004100-1310)	O-ring	2
T010	94-08		8700067	Piston ring	2
T070	07-27		4800573	Charge relief kit	1
T039	16-29		11174968	Adjuster	1
T039	98-02		502470	Adjuster	1
T039	93-20	98-01	4800308	Plug assembly	1
T041	06-01		9003575-0101	Nut	1
T041	94-08		342709 (9003575-0101)	Nut	1
T041	93-20	98-01	4510027	Shim kit	1
T042	06-01		1041419	Spring	1
T042	98-02		8800476	Spring	1
T042	93-20	98-01	8800496	Spring	1
T043	06-01		1030940	Poppet	1
T043	98-02		342428(8800449)	Poppet	1
T043	93-20	98-01	4800134	Poppet	1
T050	06-01		9004201-6200	O-ring	1
T050	93-20		012559(9004202-6200)	O-ring	1
T060	06-01		612291	Seal nut, M8	1
T060	93-20		612291(9003508-0008)	Seal nut, M8	1
T080	06-01		1714968-03	Swashplate	1
T080	99-36		4280224	Swashplate (SB-1999-048)	1
T080	93-20	99-35	4280110	Swashplate	1

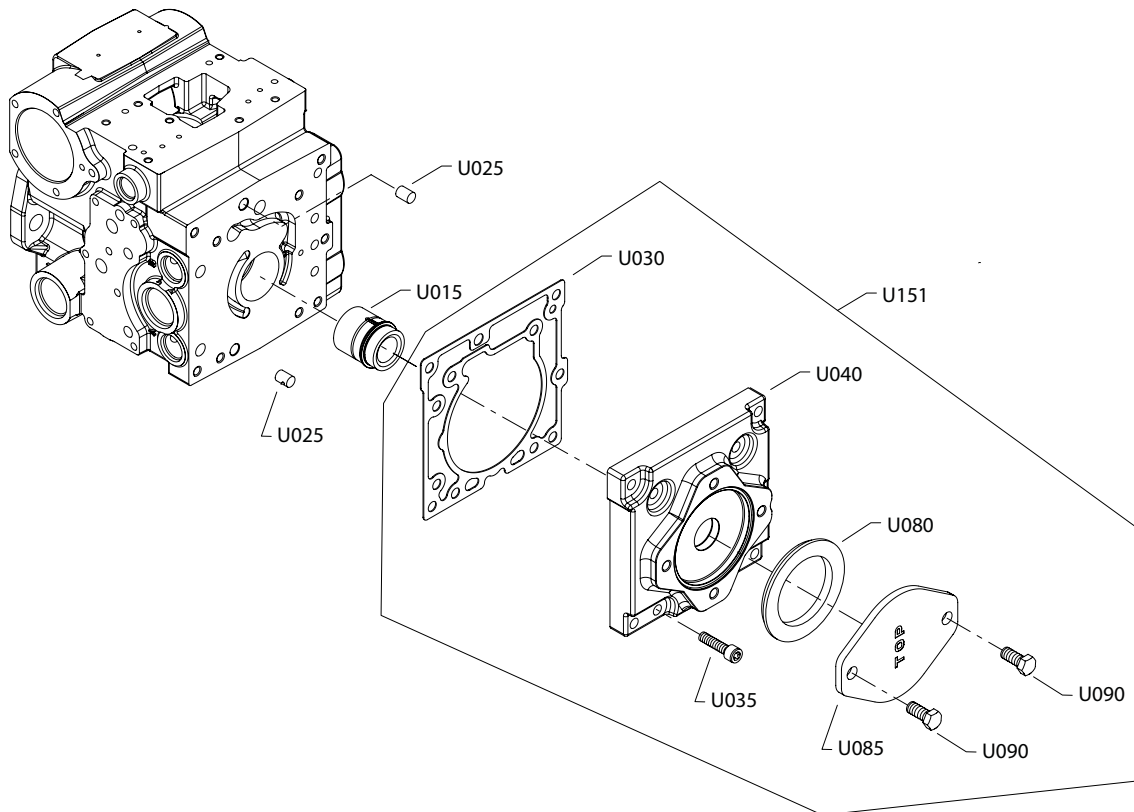
### Special Drive Features

*N (standard) parts (continued)*

T081	93-20		4280064	Cam follower bearing assembly	1
T083	11-27		11060627	Needle bearing	1
T083	93-20	11-27	5000108	Needle bearing	1

### Auxiliary Mounting

#### Auxiliary Mounting A-Pad



## Auxiliary Mounting

Order code: A and R common parts (SAE-A)

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
U025	06-01		9004800-3708	Pin	2
U025	93-20		001289(9004800-3708)	Pin	2
U151	09-52		11076613	Service Kit, A-Pad	1
U000	09-52		11077166	Service Instructions	1
U030	08-13		1716227	Charge pump cover gasket (SB-2009-070)	1
U030	93-20		4800855	Charge pump cover gasket (SB-2002-012)	1
U035	07-14		AAM0803001	Screw	8
U035	06-01		746594	Screw (AAM0803001)	7
U035	93-20		5000080	Screw	7
U040	08-13		11076948	Charge pump cover, A-pad, (SB-2009-070)	1
U040	06-49	08-13	1714957-02	Charge pump cover, A-pad	1
U040	93-20		4800699	Charge pump cover, A-pad	1
U080	09-16		1735473	A pad seal	1
U080	09-17	09-16	4800482 (1735473)	A pad seal (SB-1997-029C)	1
U080	98-02		4800482	A pad seal (SB-1997-029C)	1
U080	93-29		726950(9004104-0420)	O-ring	1
U085	98-02		4460586	Cover plate (SB-1997-029C)	1
U085	93-29		9802336	Cover plate	1
U090	06-01		9007200-3712	Screw	2
U090	93-29		0019125(9007200-3712)	Screw	2

Order code: A (SAE-A, 9 tooth coupling) parts

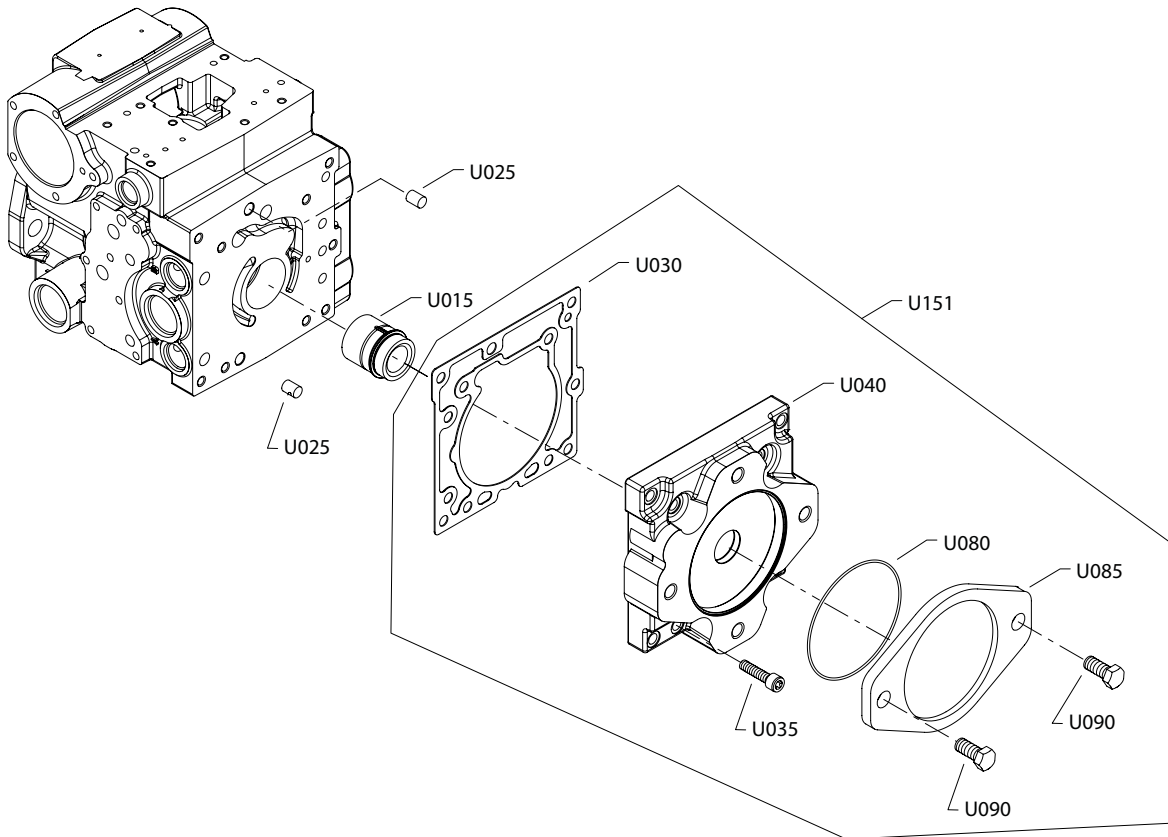
U015	07-24		1724087	Coupling, 9 tooth	1
U015	93-20		Refer to SP-1997-029C	Service replacement kit	1

T (11 tooth coupling) parts

U015	06-01		1724086	Coupling, 11 tooth	1
U015	98-02		4280146	Coupling, 11 tooth	1
U015	93-44	98-01	Refer to SP-1997-029C	Service replacement kit	1

### Auxiliary Mounting

#### Auxiliary Mounting B-Pad



## Auxiliary Mounting

Order code: B and V common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
U025	06-01		9004800-3708	Pin	2
U025	93-20		001289(9004800-3708)	Pin	2
U151	09-52		11076614	Service Kit, B-Pad	1
U000	09-52		11077166	Service Instructions	1
U030	08-13		1716227	Charge pump cover gasket (SB-2009-070)	1
U030	93-20		4800855	Charge pump cover gasket (SB-2002-012)	1
U035	07-14		AAM0803001	Screw	8
U035	06-01		746594	Screw (AAM0803001)	7
U035	93-20		5000080	Screw	7
U040	08-13		1714958-04	Charge pump cover, B pad (SB-2009-070)	1
U040	06-01	08-13	1714958-06	Charge pump cover, B pad	1
U040	93-20		4800306	Charge pump cover, B pad	1
U080	06-01		9004104-0440	O-ring	1
U080	93-20	97-52	680892(9004104-0440)	O-ring	1
U085	93-20		4460370	Cover Plate	1
U090	06-01		9007200-5016	Screw	2
U090	93-29		544478(9007200-5016)	Screw	2

### B (13 tooth coupling) parts

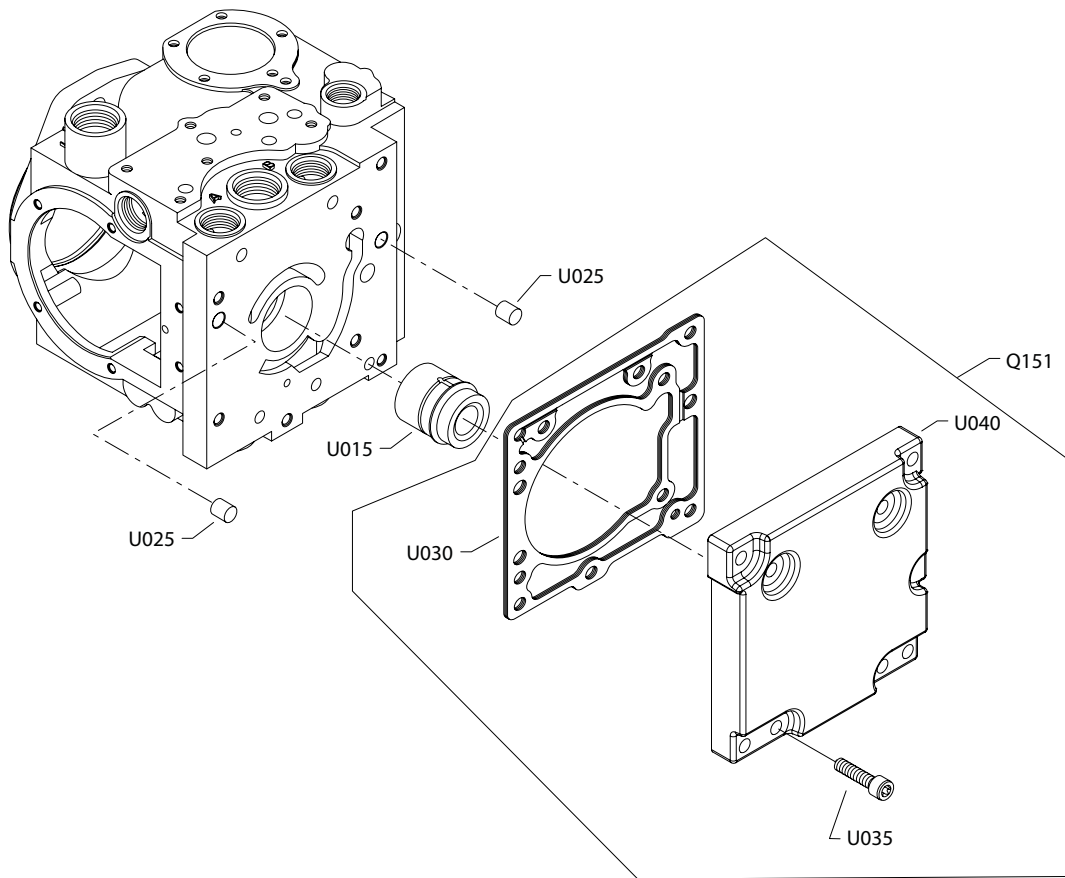
U015	06-52		1724085	Coupling, 13 tooth	1
U015	98-02		4280145	Coupling, 13 tooth	1
U015	93-20	98-01	Refer to SB-1997-029C	Service replacement kit	1

### V (15 tooth coupling) parts

U015	06-01		1724101	Coupling, 15 tooth	1
U015	97-30		4280181	Coupling, 15 tooth	1
U015	07-18		1724089	Coupling, 15 tooth	1

**Auxiliary Mounting**

**No Auxiliary Pad**



## Auxiliary Mounting

Order code: Z (no auxiliary pad, no coupling) parts and N common parts

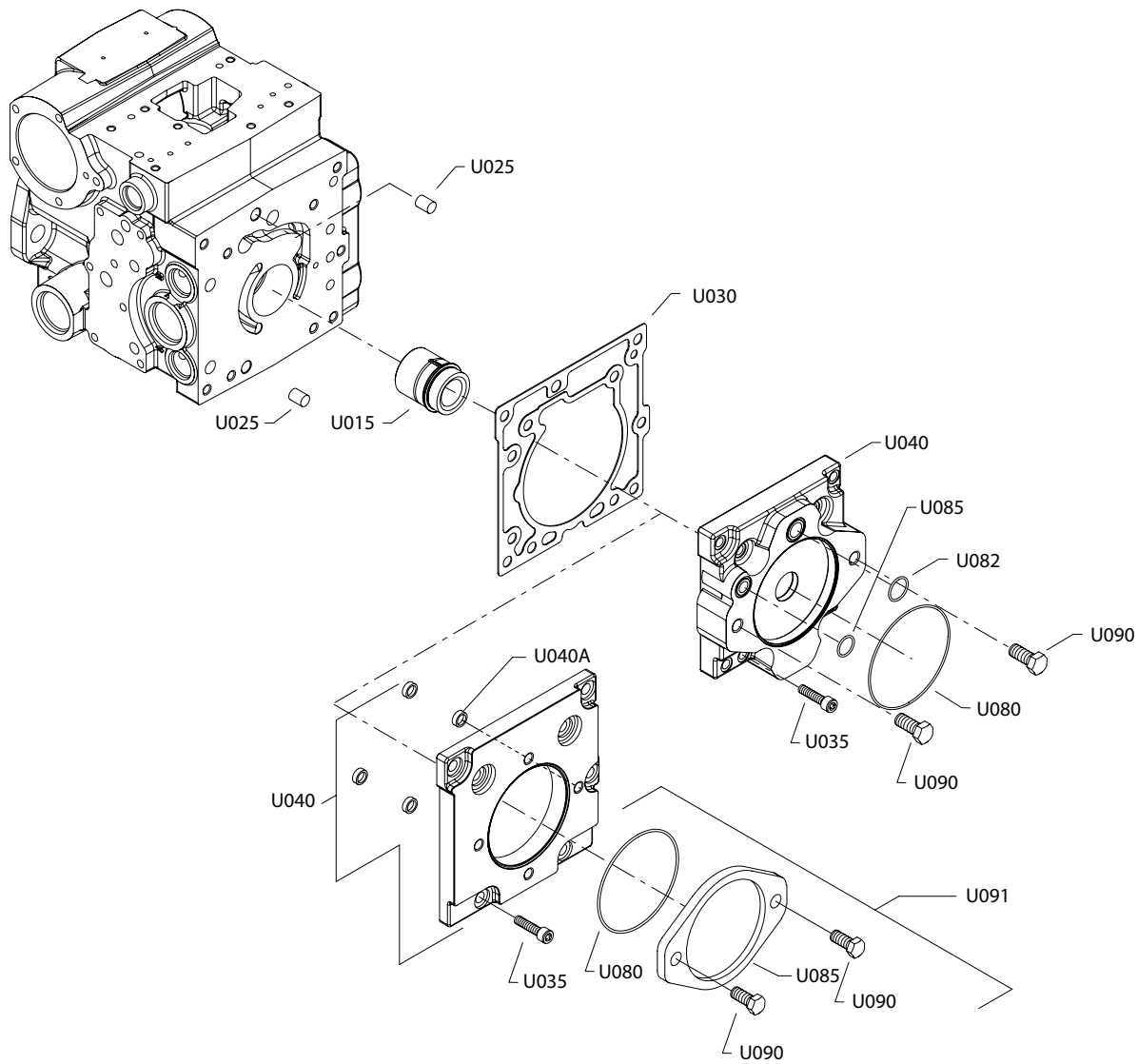
Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
U025	06-01		9004800-3708	Pin	2
U025	93-20		001289(9004800-3708)	Pin	2
U151	09-52		11076615	Service Kit, No-Aux Pad	1
U000	09-52		11077166	Service Instructions	1
U030	08-13		1716227	Charge pump cover gasket (SB-2009-070)	1
U030	93-20		4800855	Charge pump cover gasket (SB-2002-012)	1
U035	07-14		AAM0803001	Screw	8
U035	08-13	07-14	746593	Screw(AAM0803001)	8
U035	06-01		746594	Screw (AAM0803001)	7
U035	93-20		5000080	Screw	7
U040	09-52		11076951	Charge pump cover, no pad (SB-2009-070)	1
U040	06-49	08-13	1715358-01	Charge pump cover, no pad	1
U040	95-01		4800774	Charge pump cover, no pad (SB-1999-064)	1

N (no auxiliary pad) parts

U015	06-01		1724087	Coupling, 9 tooth	1
U015	98-02		4280147	Coupling, 9 tooth	1

### Auxiliary Mounting

#### Auxiliary Mounting Short A-Pad and FTB Tandem B-Pad



## Auxiliary Mounting

Order code: *W* and *G* common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
U025	06-01		9004800-3708	Pin	2
U025	93-20		001289(9004800-3708)	Pin	2
U030	08-13		1716227	Charge pump cover gasket (SB-2009-070)	1
U030	95-01	08-13	4800855	Charge pump cover gasket (SB-2002-012)	1

*W* (short A-pad, 11 tooth coupling) parts

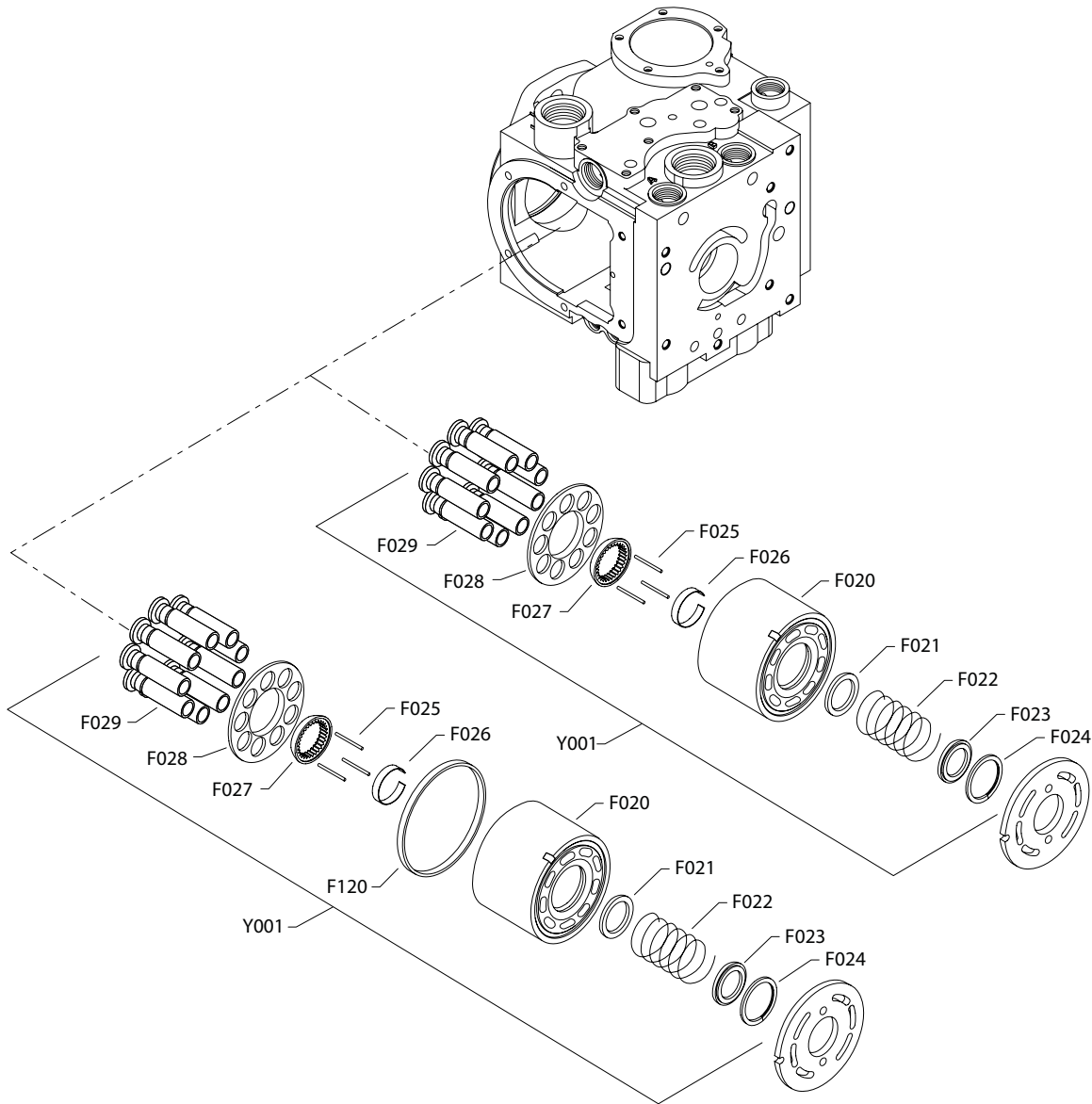
U015	95-35		4280105	Coupling assembly, spacer, 11 tooth	1
U015	95-01	95-34	4280053	Coupling, 11 tooth	1
U035	13-23		AAM0802001	Screw	8
U035	08-13		746593	Screw(AAM0803001)	8
U035	06-01		746594	Screw(AAM0803001)	7
U035	95-01		5000080	Screw	7
U040	95-01		4800634	Charge pump cover assembly, Short 'A'	1
U040A	95-01		5000471	Bore plug	4
U080	06-01		9004104-0420	O-ring	1
U080	95-01		726950(9004104-0420)	O-ring	1
U085	19-51		11235964	Cover plate	1
U085	95-01	19-51	9802336	Cover plate	1
U090	06-01		9007200-3712	Screw	2
U090	95-01		001925(9007200-3712)	Screw	2

*G* (B-pad, FTB tandem fromt pump) parts

U015	06-52		1724085	Coupling, 13 tooth	1
U015	98-02		4280145	Coupling, 13 tooth	1
U015	95-01	98-01	Refer to SB-1997-029C	Service replacement kit	1
U035	08-13		746594	Screw(AAM0803001)	8
U035	06-01	08-13	746594	Screw(AAM0803001)	6
U035	93-20		5000080	Screw	6
U040	08-13		1714958-02	Charge pump cover, B pad FTB (SB-2009-070)	1
U040	06-01	08-13	1714958-05	Charge pump cover, B pad FTB	1
U040	95-01		4800398	Charge pump cover, B pad FTB	1
U080	06-01		9004104-0440	O-ring	1
U080	93-20		680892(9004104-0440)	O-ring	1
U081	06-01		9004104-0170	O-ring	1
U081	95-01		688721(9004104-0170)	O-ring	1
U082	06-01		9004104-0190	O-ring	1
U082	95-01		011288(9004104-0190)	O-ring	1

### Displacement

### Cylinder Block Kits 28cc



## Displacement

Order code: common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
F020	14-36		11128881	Cylinder Block	1
F020	93-20	14-35	4280013	Cylinder Block	1
F021	93-20		4280025	Washer-Special	1
F022	14-36		1745315	Spring-Cyl Block	1
F022	93-20	14-35	4280042	Spring-Cyl Block	1
F023	15-22		11149857	Washer-Special	1
F023	93-20	15-21	4280010	Washer-Special	1
F024	93-20		9006250-0150 (674085)	Ring-Rtng, Int 1.500 HSG ID X .043	1
F025	14-36		11129964	Pin-Slipper Hold Down	3
F025	93-20	14-35	4700091	Pin-Slipper Hold Down	3
F026	93-20		4280011	Retainer-Hold Down Pin	1
F027	93-20		4280005	Guide-Slipper Retainer	1
F028	20-05		1724006	Retainer-Slipper	1
F028	93-20	20-05	4280007	Retainer-Slipper	1
F029	14-36		1745265-01	Piston Assy (28cc)	9
F029	93-20	14-35	4280012	Piston Assy M28 Hollow	9

28 ( cylinder block kit S42PV028) parts

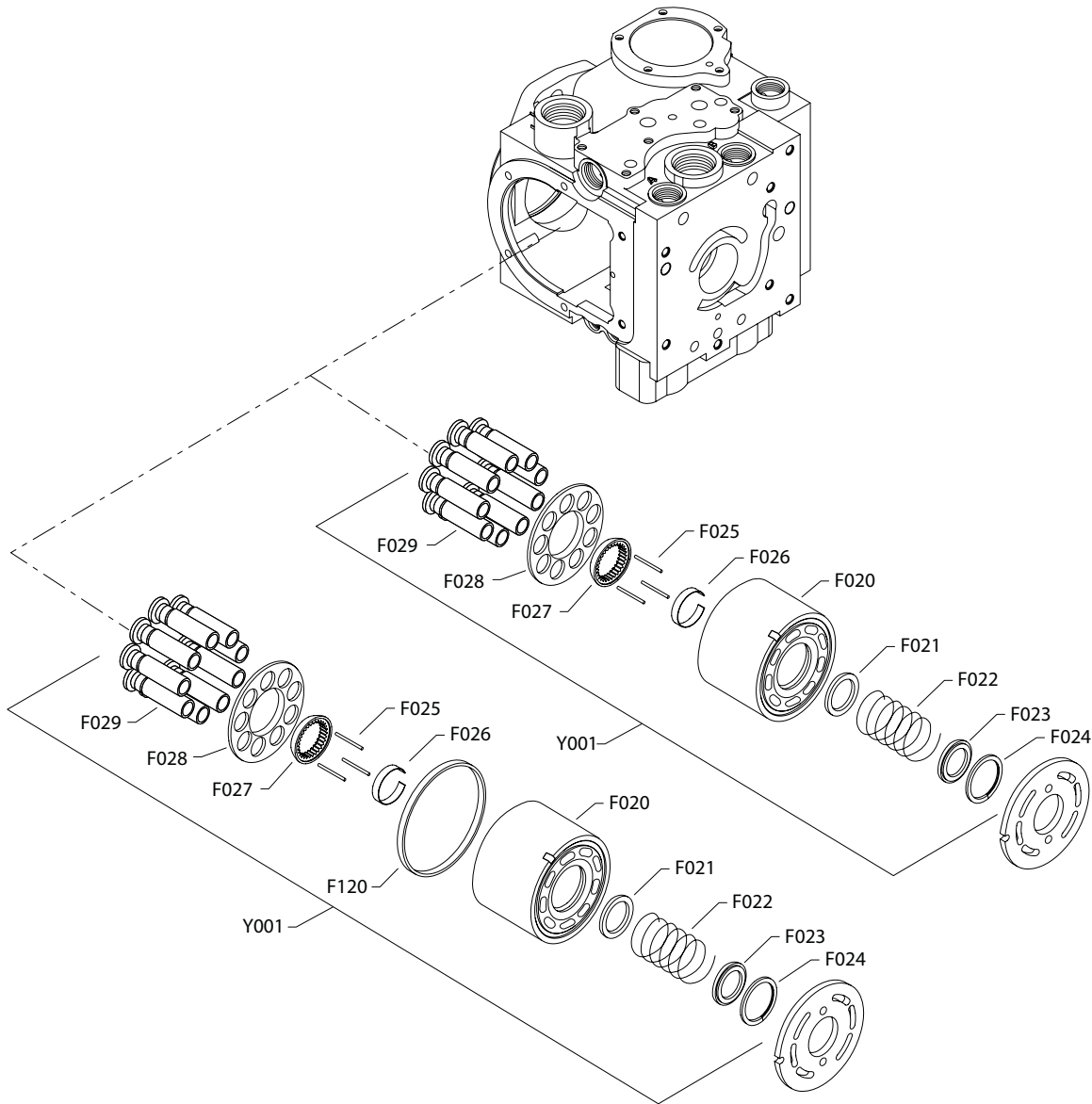
Y001	14-36		1733754-01	Cylinder Block Kit S42PV028	1
Y001	93-20	14-35	4280032	Cylinder Block Kit S42PV028	1

2A (Cylinder block kit with speed ring) parts

Y001	14-36		11076722	Cylinder Block Kit-28cc w/Spd Ring	1
Y001	97-16	14-35	4280150	Cylinder Block Kit-28cc w/Spd Ring	1
F120	93-20		KK14712	Magnetic Speed Ring,3.173 ID	1

Displacement

Cylinder Block Kits 32cc



## Displacement

Order code: 32 and 3A common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
F020	13-12		11117487	Cylinder Block (PVM32)	1
F020	04-26	13-11	1714915-02	Cylinder Block (PVM32)	1
F021	13-12		4280025	Washer-Special	1
F021	04-26	13-11	1745305	Washer-Special	1
F022	04-26		1745315	Spring-Cyl Block	1
F023	15-22		11149857	Washer-Special	1
F023	13-12	15-21	4280010	Washer-Special	1
F023	04-26	13-11	1745309	Washer-Special	1
F024	04-26		9006250-0150 (674085)	Ring-Rtng, Int 1.500 HSG ID X .043	1
F025	13-36		11129964	Pin-Slipper Hold Down	3
F025	13-12	13-35	4700091	Pin-Slipper Hold Down	3
F025	04-26	13-11	1745299	Pin-Slipper Hold Down	3
F026	04-26		4280011	Retainer-Hold Down Pin	1
F027	13-12		4280005	Guide-Slipper Retainer	1
F027	04-26	13-11	1723113	Guide-Slipper Retainer	1
F028	20-05		1724006	Retainer-Slipper	1
F028	04-26	20-05	4280007	Retainer-Slipper	1
F029	15-24		11093132	32cc Piston Assy (piston 11090779)	9
F029	04-26	15-23	1745867-01	32cc Piston Assy (piston 11090779)	9

32 (cylinder block kit, 32cc) parts

Y001	04-26		1734305-01	Cylinder Block Kit-32cc	1
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3A (cylinder block kit 32cc with speed ring) parts

Y001	10-12		11081780	Cylinder Block Kit-32cc w/ Spd Ring	1
F120	04-26		KK14712	Magnetic Speed Ring,3.173 ID	1

## Overhaul Seal Kit

### Seal Kit

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
A001	22-10		11083122	Overhaul seal kit, 28cc	1
C017	22-10		38315	O-ring	1
D015	22-10		336826	Seal nut	1
D032A	22-10		9004201-5000	O-ring	1
D035A	22-10		9004201-5000	O-ring	1
F008	22-10		4280226	Side cover gasket (SB-1999-044)	1
F091A	22-10		9004201-7500	O-ring	2
F093A	22-10		9004201-3700	O-ring	2
G004A	22-10		9004201-7500	O-ring	1
G023	22-10		5000531	O-ring (SB-1998-079)	1
K008	22-10		9004201-6200	O-ring	2
K009	22-10		9006110-0160	Back-up ring	2
K010	22-10		9004105-0160	O-ring	2
L002	22-10		4280225	Servo cover gasket (SB-1999-022)	1
L010A	22-10		9004201-3700	O-ring	1
L025A	22-10		612291 (9003508-0008)	Seal nut	1
M002	22-10		4280225	Servo cover gasket (SB-1999-022)	1
M010A	22-10		9004201-3700	O-ring	1
M025	22-10		612291 (9003508-0008)	Seal nut	1
N002A	22-10		9004201-3700	O-ring	1
N004A	22-10		9004201-7500	O-ring	1
N005A	22-10		9004201-3700	O-ring	1
Q050A	22-10		9004201-3700	O-ring	1
Q060A	22-10		9004201-3100	O-ring	1
R020A	22-10		9004105-0110	O-ring	1
R041	22-10		4800213	Filter adapter gasket	1
R043A	22-10		9004201-3700	O-ring	1
R086A	22-10		9004201-6200	O-ring	1
T005	22-10		9004100-1310	O-ring	3
T010	22-10		8700067	Piston ring	2
T060	22-10		612291 (9003508-0008)	Seal nut, M8	1
U030	22-10		1716227	Charge pump cover gasket (SB-2009-***)	1
U080	22-10		9004104-0440	O-ring	1
U080	22-10		9004104-0420	O-ring	1
U080	22-10		1735473	SEAL RING-A PAD	1

## Service Bulletin

**Service Bulletin**

**SB-1996-021**

**Products affected**

Series42 - 28 cc, 41 cc variable pumps and 51 cc tandem pumps

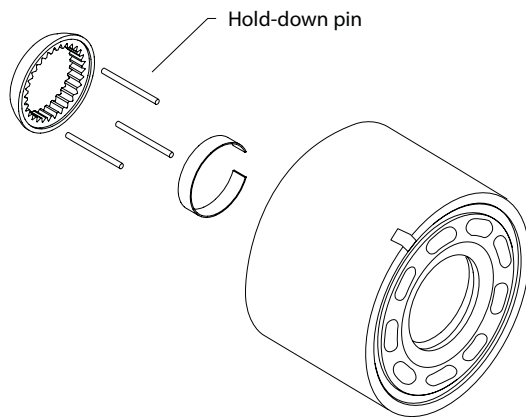
**Subject**

Ball guide hold-down pins

**Description**

A defect has been discovered on series 42 ball guide hold-down pins. The ends of the pins are flat instead of being chamfered. This causes wear at the ball guide and hold-down pin interface. To create a more robust design, the hold-down pins will be manufactured with chamfered ends.

Authorized service centers must update units built prior to A-95-45-xxxxx at first repair.



**Models affected**

Allseries 42 - 28cc and 41cc variable pumps, all 51cc tandem pumps

**Serial numbers**

All of the above mentioned units built prior to 96-45-xxxxx

**Part numbers affected**

Part Description	Old Part Number	New Part Number
Pin	4700016	700091

**Parts disposition**

- Interchangeable
- Scrap used parts
- Scrap new parts and apply for credit

**Service Bulletin**

**SB-1997-012**

**Products affected**

Series 42 - 28 cc variable pumps

**Subject**

Change in NFP housing and servo orifice

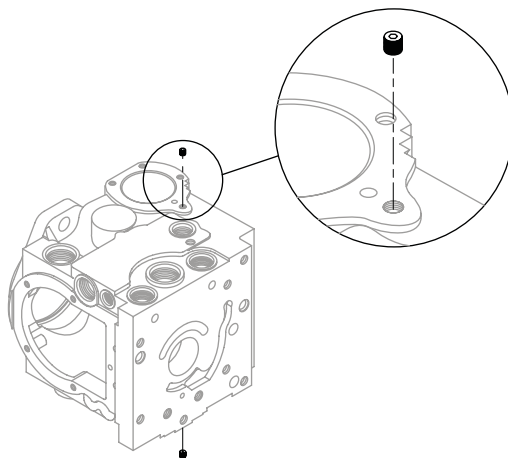
**Description**

As a product improvement, Sauer-Sundstrand is changing the orifice plugs for the NFP control options on Series 42, 28 cc, to 6 mm plugs.

The old style orifice plugs have a 1/16" - 30 thread. The new style orifice plugs have a 6 mm thread, which are currently being used on Series 42, 41 cc and the Series 45 pumps.

The old style housing will become obsolete and no longer available as a service part. The housings are interchangeable except for the orifice plugs. When replacing the housing, the orifice plugs must be replaced also.

The old style orifice plugs will be available as service parts. The new housing part numbers are listed as assemblies, which include the needle bearings and plugs.



**Models affected**

All 4282xxx variable pumps with NFP control options

**Serial numbers**

This change became effective at serial number A-97-20-xxxxx

**Part numbers affected**

Part Description	Old Part Number	Replacement Part Number	Old Part Number Status
Housing, NFP PV	4280070	4280134 + orifice	Obsolete
Housing, PV	4280076	4280136 + orifice	Obsolete
Housing, NFP PV	4280077	4280137 + orifice	Obsolete
Plug, orifice, .030/.032	9801418-0004	739144	Serviceable

### Service Bulletin

Part Description	Old Part Number	Replacement Part Number	Old Part Number Status
Plug, orifice, .040/.042	9801418-0003	4570063	Serviceable
Plug, orifice, .060/.063	9801418-0005	4800593	Serviceable

#### Parts disposition

Interchangeable: new orifices must be included when replacing housing.

**Service Bulletin**

**SB-1997-026**

**Products affected**

Series 42: 28 & 41cc Variable Pumps

**Subject**

Neutral adjust screw change

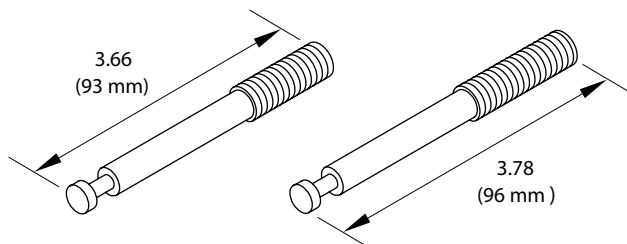
**Description**

As a product improvement, Danfoss has changed the material of the neutral adjust screw to allow for a higher torque on the neutral adjust seal nut.

The old seal nut/neutral adjust screw has an installation torque of 10 to 18 lbf·ft. The new seal nut/neutral adjust screw has an installation torque of 23 to 37 lbf·ft.

The old style neutral adjust screw has an overall length of 3.66 inches (93 mm). The new style neutral adjust screw has an overall length of 3.78 inches (96 mm). The old style screw should not be substituted for the new style screw.

The old style neutral adjust screw is obsolete and no longer available as a service part.



**Models affected**

All 4282xxx and 4412xxx Variable Pumps

**Serial numbers**

This change became effective at serial number A-97-42-xxxxx

**Part numbers affected**

Part Description	Old Part Number	New Part Number
Neutral Adjust Screw	4800198	4800658

**Parts disposition**

Interchangeable: do not substitute the old screw for the new screw.

## Service Bulletin

### SB-1997-027

#### Products affected

Series 42: 28 & 41 cc Variable Pumps

#### Subject

Loop flushing relief valve spring change

#### Description

As a product improvement, Danfoss has changed the design of the loop flushing relief valve spring used in series 42: 28 and 41 cc variable pumps.

The design change eliminates the need to shim the loop flushing relief valve to a specific pressure setting. However, the old spring should not be used in place of the new spring. The new spring is red in color to aid in identification.

The old spring will remain available as a service part.

#### Models affected

All 4282xxx and 4412xxx variable pumps

#### Serial numbers

This change became effective at serial number A-97-37-xxxxx

#### Part numbers affected

Part Description	Old Part Number	New Part Number
Spring - loop flushing relief valve	768853	4800654

#### Parts disposition

Interchangeable: do not replace the old spring for the new spring.

## Service Bulletin

### SB-1997-029C

#### Products affected

Series 42: 28 and 41 cc Variable Pumps

#### Subject

1998 model upgrade

#### Description

As part of our continuous improvement plan for the Series 42 product, a design change has been initiated. This process is referred to as a model year upgrade. The objective of this upgrade is to minimize the number of times we change the product. These improvements will provide increased reliability and additional application flexibility.

Description of change:

<b>Housing</b>	The port cover for the control spool (FOB** option-28cc only) changed from a flat plate with (2) screws to a SAE O-ring plug. The screw holes for the servo covers and 4 of the 6 screw holes for the side cover are deeper to accept a 10mm longer screw. The two holes next to the charge pump cover stayed the same length.
<b>Charge pump</b>	The gerotor drive pin changed to a parallel key. A retaining ring has been added to the charge pump shaft to locate the gerotor. The outer step on the gerotor cover has been eliminate and the locating pin slot depth has increased.
<b>Auxiliary flange</b>	Changed to a flat cover plate with a special seal ring (not to be used to seal an auxiliary pump) under the cover. (A pad only).
<b>Charge relief valve</b>	Changed from a non-adjustable to an adjustable relief valve. This change requires a '98 Upgrade housing.
<b>Spool: loop flushing</b>	Changed to become common between the 28 and 41cc pumps. This change requires a '98 Upgrade housing.

[Revision C of this document has been released to communicate part number corrections and clarification as to which changes are interchangeable and which changes are non-interchangeable.](#)

#### Models affected

All 4282xxx and 4412xxx variable pumps

#### Part numbers affected

See tables

#### Parts disposition

- Interchangeable (see tables)
- Non-interchangeable (see tables)

#### Model upgrade: part number changes

*Series 42 model upgrade: part number changes*

Item	Item Description	Frame Size	Old Part Number	Quantity	New Part Number	Quantity
F007	Screw - Side Cover	28/41	5000001	6	5000001	2
F011	Screw - Side Cover (FOE** only)	28	704395	2	693341	2

**Service Bulletin**

*Series 42 model upgrade: part number changes (continued)*

Item	Item Description	Frame Size	Old Part Number	Quantity	New Part Number	Quantity
F012	Screw - Side Cover	28/41	N/A	-	5000002	4
F030	Plug Assembly - SAE	28	N/A	-	681296	1
F034	Gasket - Spool Cover	28	4800200	1	N/A	-
F035	Control Spool Cover	28	4800199	1	N/A	-
F036	Screw - Spool Cover	28	5000001	2	N/A	-
F042	Screw - Filtration Adapter	28/41	5000001	6	5000002	6
F051	Spool Assembly Loop Flushing	41	4410154	1	4800708	1
F051	Spool Assembly Loop Flushing	28	4800349	1	4800708	1
F1	Housing (FOB**)	41	4410141	1	4410208	1
F1	Housing (FOA**)	41	4410142	1	4410203	1
F1	Housing (FOJ**)	41	4410144	1	4410211	1
F1	Housing (FOP**)	41	4410147	1	4410212	1
F1	Housing (FOM**)	41	4410174	1	4410213	1
F1	Housing (FOB**)	28	4280140	1	4280184	1
F1	Housing (FOA**)	28	4280141	1	4280185	1
F1	Housing (FOG**)	28	4280135	1	4280190	1
F1	Housing (FOE**)	28	4280138	1	4280191	1
F1	Housing (FOP**)	28	4280134	1	4280189	1
F1	Housing (FOT**)	28	4280137	1	4280187	1
F1	Housing (FOJ**)	28	4280119	1	4280178	1
G040	Plug Assembly - CPRV	28/41	4800308	1	N/A	-
G040	Charge Pressure Relief Valve Assembly	28/41	N/A	-	4800573	1
G041	Shim Kit - CPRV	28/41	4510027	1	N/A	-
G042	Spring - CPRV	28/41	8800496	1	344135	1
G043	Poppet - CPRV	28/41	4800134	1	8800449	1
L005	Screw - Servo Cover	28/41	5000001	5	5000002	5
L005	Screw - Servo Cover (NFP Housing)	28/41	5000003	5	5000004	5
M005	Screw - Servo Cover	28/41	5000001	5	5000002	5

**Service Bulletin**

*S42 charge pump block point change*

Required information				Old service parts				Service Replacement Kits	
Pump Frame Size	Pump Rotation	Charge Pump Displacement	Coupling	Coupling Drive Pin	Gerotor Cover	Gerotor	Coupling		
28cc	CW	None	9	15743 (9004800-2506)	4800228	None	4280052	4510206	
			11	15743 (9004800-2506)	4800228	None	4280053	4510212	
			13	15743 (9004800-2506)	4800228	None	4280057	4510218	
			15	N/A	4800228	None	N/A	4510224	
		11cc	9	15743 (9004800-2506)	4800228	4700029	4280052	4510208	
			11	15743 (9004800-2506)	4800228	4700029	4280053	4510214	
			13	15743 (9004800-2506)	4800228	4700029	4280057	4510220	
			15	N/A	4800228	4700029	N/A	4510226	
		15.6cc	9	15743 (9004800-2506)	N/A	N/A	4280052	4510210	
			11	15743 (9004800-2506)	N/A	N/A	4280053	4510216	
			13	15743 (9004800-2506)	N/A	N/A	4280057	4510222	
			15	N/A	N/A	N/A	N/A	4510228	
		CCW	None	9	15743 (9004800-2506)	4800231	None	4280052	4510207
				11	15743 (9004800-2506)	4800231	None	4280053	4510213
				13	15743 (9004800-2506)	4800231	None	4280057	4510219
				15	N/A	4800231	None	N/A	4510225
	11cc		9	15743 (9004800-2506)	4800231	4700029	4280052	4510209	
			11	15743 (9004800-2506)	4800231	4700029	4280053	4510215	
			13	15743 (9004800-2506)	4800231	4700029	4280057	4510221	
			15	N/A	4800231	4700029	N/A	4510227	
	15.6cc		9	15743 (9004800-2506)	N/A	N/A	4280052	4510211	
			11	15743 (9004800-2506)	N/A	N/A	4280053	4510217	
			13	15743 (9004800-2506)	N/A	N/A	4280057	4510223	
			15	N/A	N/A	N/A	N/A	4510229	

**Service Bulletin**

*S42 charge pump block point change*

Required information				Old service parts				Service Replacement Kits	
Pump Frame Size	Pump Rotation	Charge Pump Displacement	Coupling	Coupling Drive Pin	Gerotor Cover	Gerotor	Coupling		
41cc	CW	None	9	15743 (9004800-2506)	4800228	None	4410137	4510243	
			11	15743 (9004800-2506)	4800228	None	4410138	4510252	
			13	15743 (9004800-2506)	4800228	None	4410139	4510261	
			15	N/A	4800228	None	N/A	4510270	
		11cc	9	15743 (9004800-2506)	4800228	4700029	4410137	4510246	
			11	15743 (9004800-2506)	4800228	4700029	4410138	4510255	
			13	15743 (9004800-2506)	4800228	4700029	4410139	4510264	
			15	N/A	4800228	4700029	N/A	4510273	
		15.6cc	9	15743 (9004800-2506)	N/A	N/A	4410137	4510249	
			11	15743 (9004800-2506)	N/A	N/A	4410138	4510258	
			13	15743 (9004800-2506)	N/A	N/A	4410139	4510267	
			15	N/A	N/A	N/A	N/A	4510276	
		CCW	None	9	15743 (9004800-2506)	4800231	None	4410137	4510244
				11	15743 (9004800-2506)	4800231	None	4410138	4510253
				13	15743 (9004800-2506)	4800231	None	4410139	4510262
				15	N/A	4800231	None	N/A	4510271
	11cc		9	15743 (9004800-2506)	4800231	4700029	4410137	4510247	
			11	15743 (9004800-2506)	4800231	4700029	4410138	4510256	
			13	15743 (9004800-2506)	4800231	4700029	4410139	4510265	
			15	N/A	4800231	4700029	N/A	4510274	
	15.6cc		9	15743 (9004800-2506)	N/A	N/A	4410137	4510250	
			11	15743 (9004800-2506)	N/A	N/A	4410138	4510259	
			13	15743 (9004800-2506)	N/A	N/A	4410139	4510268	
			15	N/A	N/A	N/A	N/A	4510277	

Item	Old service parts	Service replacement	Notes
Gerotor Cover Locating Pin	16220 (9004800-1908)	5000179	<b>Non-Interchangeable</b> (New Pin is longer hole in cover is deeper)
Charge Pump Cover with A-Pad	4800305	4800699	Interchangeable
A-Pad O-ring - Shipping	726950 (9004104-0420)	4800482*	Non-Interchangeable
A-Pad Shipping Cover	9802336	4460586	Non-Interchangeable

\* 4800482 is used as a shipping seal only. Customers currently re-using the pad cover O-ring to seal an auxiliary pump must now supply their own O-ring after this change. The O-ring required is a standard 90 Durometer O-ring with a .103" cross section and 3.237" ID. This O-ring can be ordered from Danfoss under part number 5000373.

**Service Bulletin**

**SB-1997-034**

**Products affected**

Series 42: 28 and 41 cc Variable Pumps

**Subject**

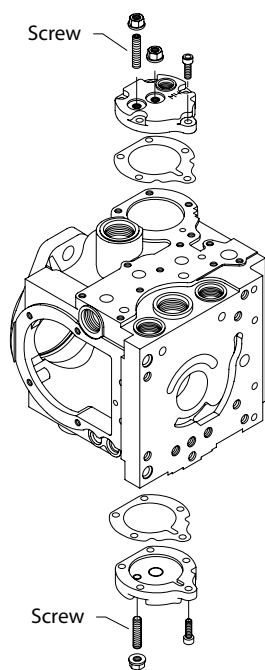
Displacement limiter screw change

**Description**

As a product improvement, Danfoss has changed the material requirement of the screw used in the displacement limiter option on Series 42: 28 and 41 cc variable pumps.

The new screw can be used in place of the old screw.

The old screw has become obsolete and no longer available as a service part.



**Models affected**

All 4282xxx and 4412xxx variable pumps

**Serial numbers**

This change became effective at serial number A-97-40-xxxxx and beyond

**Part numbers affected**

Description	Old Part Number	New Part Number
Screw - displacement limiter	5000082	5000487

**Parts disposition**

Interchangeable: do not use the old screw in place of the new screw.

**Service Bulletin**

**SB-1997-046**

**Products affected**

Series 42 Variable Displacement Pumps

**Subject**

Manual displacement control handle change

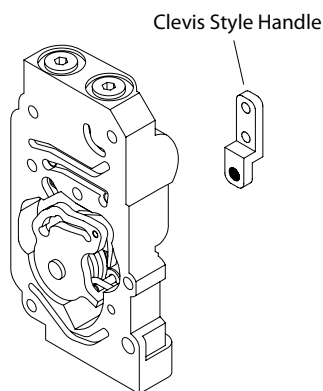
**Description**

The series 42 variable displacement pump product family offers two styles of manual displacement control handles; straight style or clevis (offset) style handles. The handle style option is designated in the control section of the product nomenclature.

As a product improvement, Danfoss has modified the design of the clevis (offset) style control handle.

The previous handle included an abrupt corner at each end of the offset. The new handle includes a generous radius at each corner, which improves the aesthetic appearance of the handle. The location of the mounting holes for the customer linkage and the overall height of the control handle have not been altered.

A new handle part number has been created to aid in identifying this product improvement. The new handle is completely interchangeable with the previous handle. The previous handle will be obsoleted.



**Models affected**

All 4282xxx and 4412xxx pumps specified with clevis (offset) style control handles

**Serial numbers**

This change became effective at serial number A-98-10-xxxxx and beyond

**Part numbers affected**

Handle	Prior to 98-10	98-10 and beyond
Clevis Style	4800461	4800689

**Parts disposition**

Interchangeable

**Service Bulletin**

**SB-1998-030**

**Products affected**

Series 42: 28 and 41 cc Pumps

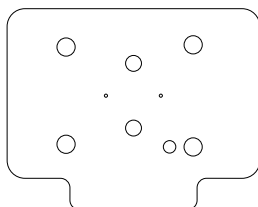
**Subject**

Control gasket change

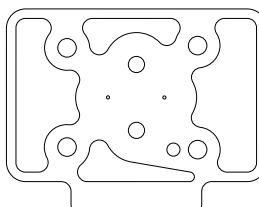
**Description**

As a product improvement, Danfoss has changed the design of the control gasket for the Series 42, 28 and 41 cc variable pumps. The improvements made to this part consist of changing the material used to manufacture the gaskets as well as the gasket appearance.

The new control gasket is interchangeable with the old gasket and the old gasket has been made obsolete.



Old Control Gasket



New Control Gasket

**Models affected**

All 4282xxx and 4412xxx variable pumps

**Serial numbers affected**

This change became effective at serial number A-98-16-xxxxx

**Part numbers affected**

Part Description	Old Part Number	New Part Number
Control Gasket - (0.8, A-B)	4800604	4800650
Control Gasket - (1.0, A-B)	4800603	4800651
Control Gasket - (1.6, A-B)	4800602	4800652
Control Gasket - (0.8, A-B-T)	4800549	4800667

**Parts disposition**

Interchangeable

**Service Bulletin**

**SB-1998-039**

**Products affected**

Series 42: 28 and 41cc variable pumps

**Subject**

Change to by-pass valve design

**Description**

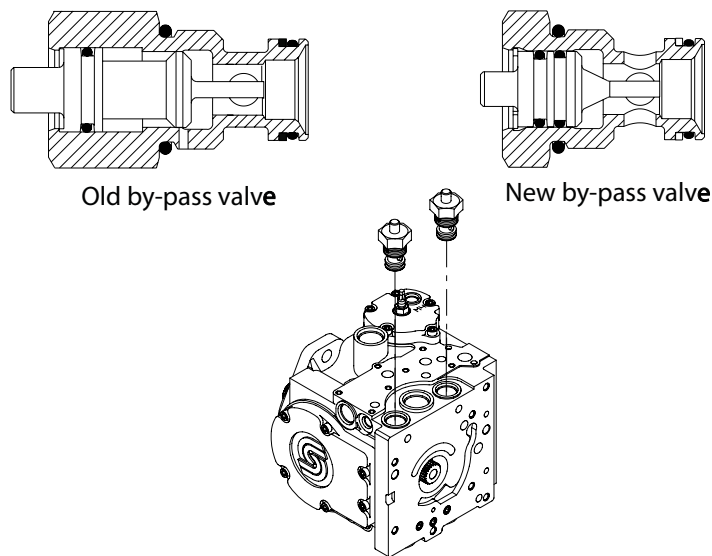
As a product improvement, Danfoss has changed the design of the by-pass valve option for the series 42, 28 and 41 cc variable pumps. This change was first announced in Product Information Bulletin PIB-9809.

The new design utilizes a smaller overall package size and reduces the distance that the valve extends from the pump housing. This improvement provides for an easier installation of plumbing to the charge inlet port.

In addition to the more compact design, the reset pressure associated with the valve has been increased. This change reduces the tendency of the valve to reset to the closed, or normal operating condition, position when the by-pass mode is activated.

The new by-pass valve is interchangeable with the old by-pass valve if, and only if, the valves are replaced as a complete assembly. It is the component parts of the two valves that have changed., and these component parts are not interchangeable.

The old valve will become obsolete and will no longer be available as a service part.



**Models affected**

All 4282xxx and 4412xxx variable pumps with the by-pass valve option

**Serial numbers**

This change became effective at serial number A-98-30-xxxxx

## Service Bulletin

### Part numbers affected

Description	Old Part Number	New Part Number
By-pass valve assembly	4800395	4800600

### Parts disposition

Interchangeable

**Service Bulletin**

**SB-1998-055**

**Products affected**

Series 20, 42 and 90

**Subject**

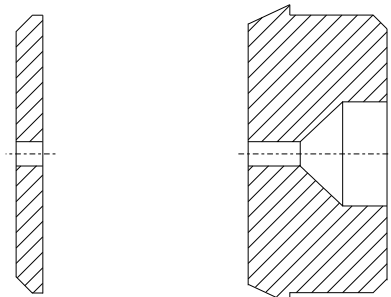
3-Position control orifice change

**Description**

As a product improvement, Danfoss has changed the design of the servo supply orifice and the control drain orifice from the disk type and O-ring to a design that pilots in the body with an O-ring of the electrical portion of the control assembly.

This change was made because of potential assembly problems causing the O-ring to be damaged and causing a leak.

This change is interchangeable with the old style orifice. The O-ring does not change. The old style orifice will be obsolete and no longer available for service.



**Old Style**

**New Style**

**Models affected**

All Series 20, 42 and 90 that use 3-position controls

**Serial numbers**

This change became effective at serial number A-98-31-xxxxx

**Part numbers affected**

Orifice Size	Old Part Number	New Part Number
0.6 mm	511046	512835
0.7 mm	509162	512836
0.8 mm	509163	512837
0.9 mm	509164	512838
1.0 mm	509165	512834
1.1 mm	505850	512841
1.2 mm	509167	512839
1.5 mm	509168	512840

**Parts disposition**

Interchangeable

## Service Bulletin

**Service Bulletin**

**SB-1998-079**

**Products affected**

Series 42: 28 and 41cc variable displacement pumps

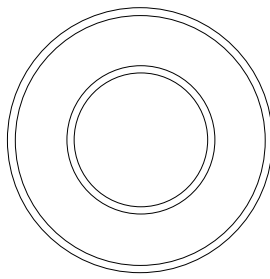
**Subject**

Charge pump cover O-rings

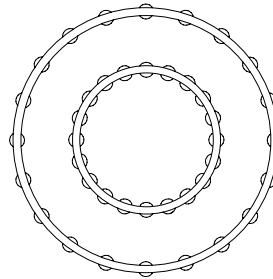
**Description**

As a product improvement, Danfoss has introduced an H-seal O-ring in the charge pump cover. This new style O-ring will replace both the inner and outer O-rings. The design is improved by preventing the possibility of the O-ring from being extruded from the O-ring groove within the charge pump cover.

This is an interchangeable change and the old O-rings will be obsoleted.



Old O-ring



New H-seal O-ring

**Models affected**

- All series 42 pumps
- All series 42 auxiliary mounting kits (service)
- All series 42 overhaul seal kits (service)
- All series 42 charge pump kits (service)

**Serial numbers**

This change became effective at serial number A-99-06-xxxxx

**Part numbers affected**

Old item description	Old part number	New item description	New part number
O-ring 0.139 x 3.484	5000161	H seal O-ring	5000530
O-ring 0.139 x 1.734	5000160	H seal O-ring	5000531

**Parts disposition**

Interchangeable

## Service Bulletin

### SB-1998-082

#### Products affected

Series 42 pumps

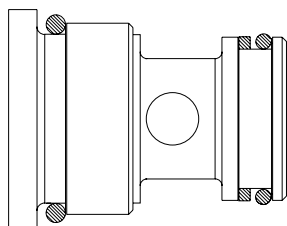
#### Subject

SCR valve plug standardization

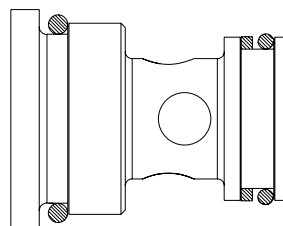
#### Description

In order to reduce the number of repetitive part numbers and utilize common parts across product lines, Danfoss has standardized the SCR valve plug used on series 42 pumps with the no by-pass option. This change affects all series 42 product, including 26cc pumps, 41cc pumps and all series 42 integrated tandem pumps.

This change is interchangeable and the old SCR valve plugs have been obsoleted.



Old SCR valve plug



New SCR valve plug

#### Models affected

All series 42 pumps

#### Serial numbers

This change became effective at serial number A-98-49-xxxxx

#### Part numbers affected

Description	Old Part Number	New Part Number
SCR valve plug	4800278	4800589

#### Parts disposition

Interchangeable

**Service Bulletin**

**SB-1998-085**

**Products affected**

Series 42 pumps

**Subject**

Loop flushing relief valve plug

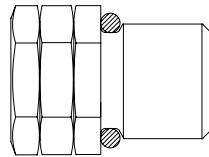
**Description**

Danfoss has added an additional plug option for the loop flushing relief valve option on the series 42 pump. This addition has been made in response to the fact that in some applications, the valve cracking pressure needs to be higher in order to maintain sufficient charge pressure.

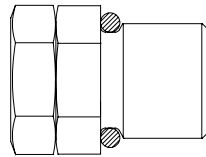
The new plug will be used on all pumps with an 18 bar charge relief setting and up. The old plug will continue to be used on all pumps with a charge pressure relief setting below 18 bar.

The difference between the two plugs will be denoted by identifying grooves on the plugs themselves. The old plug will have one identifying groove as before and the new plug will have two identifying grooves.

All units produced prior to the date of effectivity listed on this service bulletin were built with the single grooved plug. It is recommended that of those units with a charge pressure setting of 18 bar or higher, should be updated to the new dual groove plug at first repair.



New style plug  
 (Charge pressure 18 bar and above)



Old style plug  
 (Charge pressure below 18 bar)

**Models affected**

All series 42 pumps

**Serial numbers**

This change became effective at serial number A-98-50-xxxxx

**Part numbers affected**

Item description	Charge pressure setting	Part number
Loop flushing relief valve plug	Under 18 bar	4800280
Loop flushing relief valve plug	18 bar and higher	4800747

**Parts disposition**

Interchangeable

**Service Bulletin**

**SB-1999-011**

**Products affected**

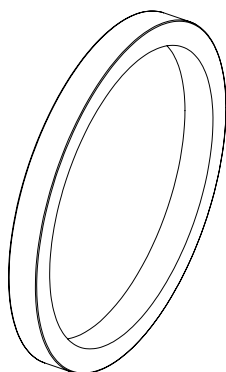
Series 42: 28 and 41 cc pumps

**Subject**

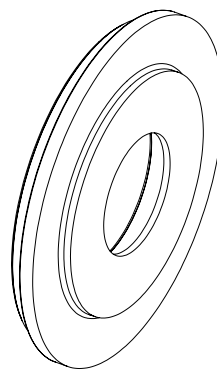
Part number change for the unsealed shaft option

**Description**

In order to reduce the quantity of part numbers, and to simplify the process of properly selecting the part used in the unsealed shaft option for the Series 42 28cc pumps, Danfoss has eliminated the bearing spacer. The bearing spacer has been replaced by the shaft seal carrier without the seal installed.



Old Style



New Style

**Models affected**

4282005, 4282111, 4282624, 4282713

**Part numbers affected**

Obsolete Part		Replacement Part	
Item Description	Part Number	Item Description	Part Number
Bearing Spacer	4800447	Shaft Seal Carrier	4800264

**Parts disposition**

Interchangeable

## Service Bulletin

### SB-1999-022

#### Products affected

Series 42 pumps: 28cc, 41cc. and integrated tandems

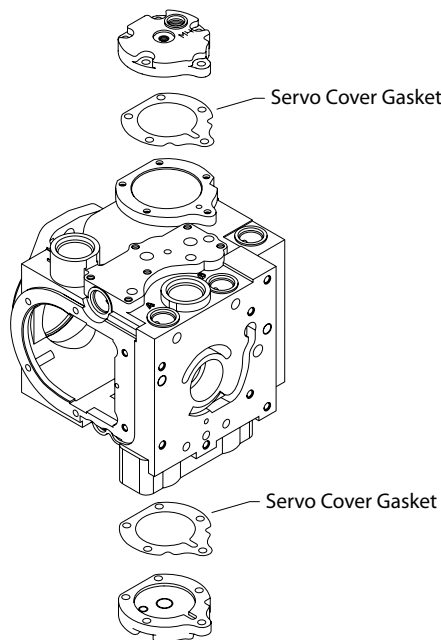
#### Subject

Servo cover gasket change

#### Description

As a product improvement, Danfoss has redesigned the servo cover gasket used on all Series 42 pumps (28cc, 41cc and intergated tandems). The new gasket is made from a different material and replaces the old foam-coated gasket. This new material improves the gasket's ability to seal and reduces torque loss cause by gasket relaxation.

The new gasket is interchangeable with the old gasket. The old gasket has become obsolete.



#### Models affected

All Series 42 pumps: 28cc, 41cc and integrated tandem

#### Serial numbers

This change became effective at serial number A-99-37-xxxxx for the 41cc and integrated tandem pumps and A-99-49-xxxxx for the 28cc pumps.

#### Parts disposition

Interchangeable

**Service Bulletin**

**SB-1999-037**

**Products affected**

Series 42 pumps

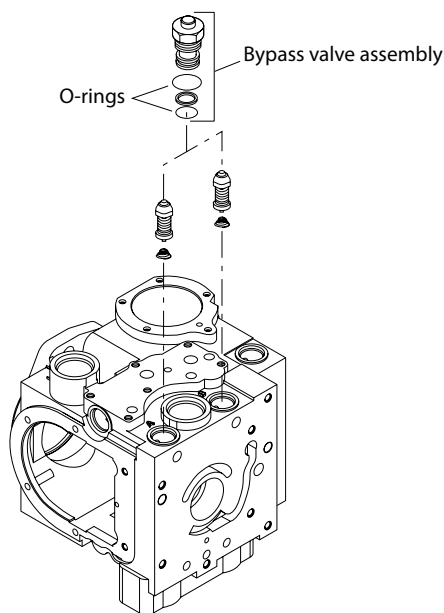
**Subject**

New by-pass valve

**Description**

As a product improvement, Danfoss has change the design of the by-pass valve assembly in order to better retain the bypass plunger. The O-ring within the by-pass valve assembly has also been upgraded to a viton O-ring in order to allow the valve to be functional at higher temperatures.

This is an interchangeable change and the old by-pass valve assembly has been obsoleted and is no longer available as a service part.



**Models affected**

All series 42 pumps: 28cc and 41cc with system by-pass valves

**Serial numbers**

This change was incorporated at serial number A-99-33-xxxxx

**Part numbers affected**

Item Description	Old Part Number	New Part Number
By-pass valve assembly	4800600	4800768

**Parts disposition**

Interchangeable

## Service Bulletin

### SB-1999-044A

#### Products affected

Series 42 pumps: 28cc, 41cc and integrated tandems

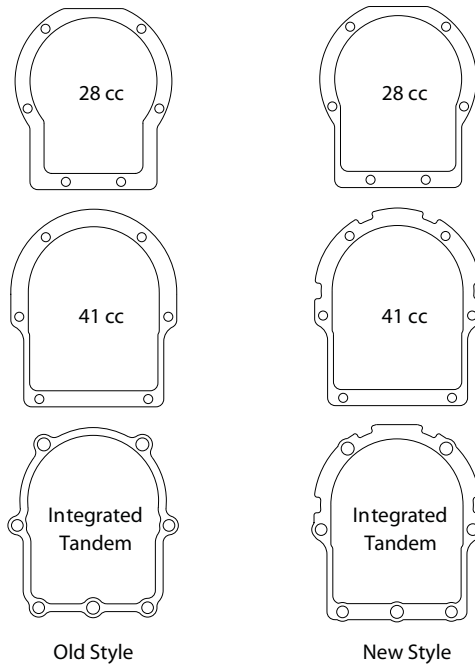
#### Subject

Slide cover gasket change

#### Description

As a product improvement, Danfoss has redesigned the side cover gasket used on all Series 42 pumps (all frame sizes and configurations). The new gasket is made from a different material and replaces the old foam coated gasket. This new material improves the gasket's ability to seal and reduces torque loss caused by gasket relaxation.

The new gasket is interchangeable with the old gasket. The old gasket is obsolete.



#### Models affected

All Series 42 pumps: 28cc, 41cc and integrated tandems

#### Serial numbers

This change became effective for 28cc pumps at A-99-49-xxxxx

This change became effective for 41cc pumps at A-00-03-xxxxx

This change became effective for integrated tandem pumps at A-99-30-xxxxx

**Service Bulletin**

**Part numbers affected**

Item Description	Old Part Number	New Part Number
Side Cover Gasket - 28cc	4280021	4280226
Side Cover Gasket - 41cc	4410012	4410272
Side Cover Gasket - Tandem	4520013	4410262

**Parts disposition**

Interchangeable

**SB-1999-048**

**Products affected**

Series 42 variable pumps

**Subject**

Housing and swashplate change

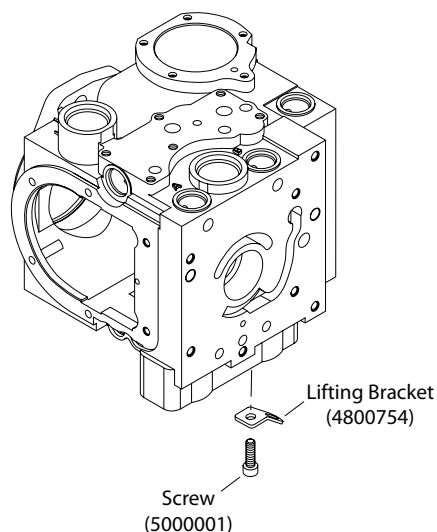
**Description**

As a product improvement, Danfoss has redesigned the Series 42 pump housing for the 28cc, 41cc and 51cc integrated tandem frame sizes. Several important changes have been implemented within this new design and serve as distinguishing characteristics between this design and the one prior to it.

The most notable physical difference on the 28cc and 41cc frame size pumps, is the omission of the cast-on lifting brackets. These have been replaced by a lifting bracket that is bolted into the side of the housing via a blind hole added to the housing.

Another important difference imitated with this change is that the bearing bore within the housing was modified to alleviate excessive stress to the swashplate needle bearing while maintaining snug retention. In conjunction with this change, the swashplate has also been redesigned so as to be compatible with the change in the bearing surface profile.

The housing change is such that the new housing is interchangeable with the old housing, provided the swashplate is also replaced. All of the old housings have become obsolete, but the old swashplates will be retain for repairs performed on older units.



**Service Bulletin**

**Models affected**

All Series 42 pumps: 28cc, 41cc and 51cc integrated tandems

**Serial numbers**

A-99-36-xxxxx

**Part numbers affected**

See parts listing below

**Parts disposition**

Interchangeable: new housing must have new swashplates.

**Housing and swashplate changes**

*28cc housings*

Item Description	Old Part Number	New Part Number
XDC Full Featured	4280184	4280240
XDC Base	4280185	4280239
XDC Base w/LF	4280190	4280247
XDC Base w/AF and SS	4280191	4280241
XDC Special w/LF	4280142	4280242
NFPH Full Featured	4280189	4280245
NFPH Base	4280187	4280244
NFPH Tandem Rear Special w/LF	4280205	4280248
NFPH Tandem Rear Special w/o LF	4280201	4280246
NFPE Full Featured	4280178	4280243

*41cc housings*

Item Description	Old Part Number	New Part Number
XDC Full Featured	4410208	4410288
XDC Base	4410203	4410287
NFPH Full Featured	4410212	4410291
NFPE/FNR Full Featured	4410211	4410289
NFPE/FNR Full Featured (ISO System Ports)	4410213	4410290

*51cc integrated housings*

Item Description	Old Part Number	New Part Number
XDC Base	4410269	4410286
HFPH Base	4410267	4410285

*Swashplates*

Item Description	Old Part Number	New Part Number
28cc Swashplate	4280110	4280224
41cc Swashplate	4410228	4410270
51cc Swashplate	4410228	4410270

### Service Bulletin

- LF**    Housing machined for loop flushing
- AF**    Housing machined for adaptable filtration
- SS**    Housing machined for speed sensor

**Service Bulletin**

**SB-1999-064**

**Products affected**

Series 42 pumps: 28cc and 41cc

**Subject**

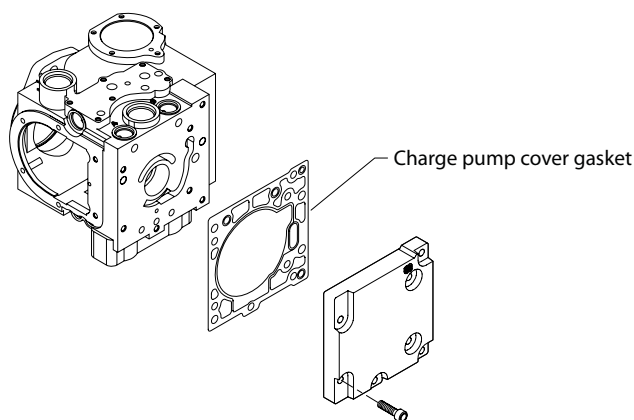
Charge pump cover and gasket change

**Description**

As a product improvement, Danfoss has redesigned the charge pump cover gasket used on the series 42 pumps, (both 28 cc and 41 cc frame sizes). The new gasket is made from a different material and replaces the old foam-coated gasket. The new gasket material improves the gasket’s ability to seal and reduces torque loss caused by gasket relaxation.

To further improve the pump’s resistance to leaks, the no auxiliary pad charge pump cover material has been changed to ductile iron. The old charge pump cover has become obsolete and no longer available as a service part.

The new gasket is interchangeable with the old gasket, providing the charge pump cover is made from ductile iron. The old gasket will remain available as a service part for pumps with no auxiliary pad and non-ductile, (gray) iron charge pump covers only.



**Models affected**

All series 42 pumps: 28cc and 41cc with the no auxiliary pad option

**Serial numbers**

This change became effective at serial number A-00-10-xxxxx

**Part numbers affected**

Item Description	Old Part Number	New Part Number
Charge pump cover - no pad	4800304	4800774
Charge pump cover gasket	4800484	4800759
Charge pump cover gasket	4800638	4800759

**Parts disposition**

Interchangeable: new housing must have new swashplates.

**Service Bulletin**

**SB-1999-066**

**Products affected**

Series 42 pumps

**Subject**

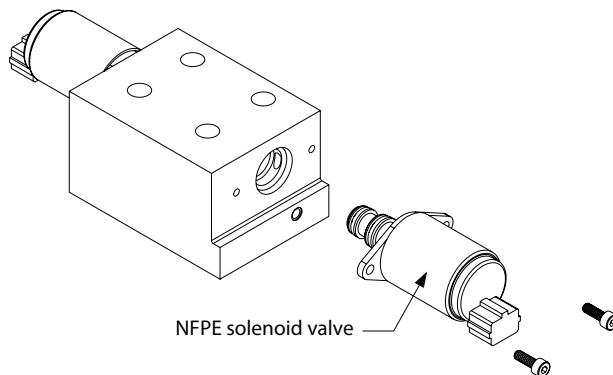
NFPE solenoid valve change

**Description**

The solenoid valve used on the NFPE controls mounted onto the Danfoss Series 42 pump have been changed to a valve with better repeatability.

In order to track this change, the solenoid valve's part number has been changed. This is an interchangeable change and the old part number has been obsoleted

NFPE control valve assembly



**Models affected**

All Series 42 pumps with NFPE controls

**Serial numbers**

This change became effective at serial number A-99-49-xxxxx

**Part numbers affected**

Item Description	Old Part Number	New Part Number
NFPE Solenoid Valve	4700095	4700150

**Parts disposition**

Interchangeable

**Service Bulletin**

**SB-2000-035**

**Products affected**

Series 42 pumps

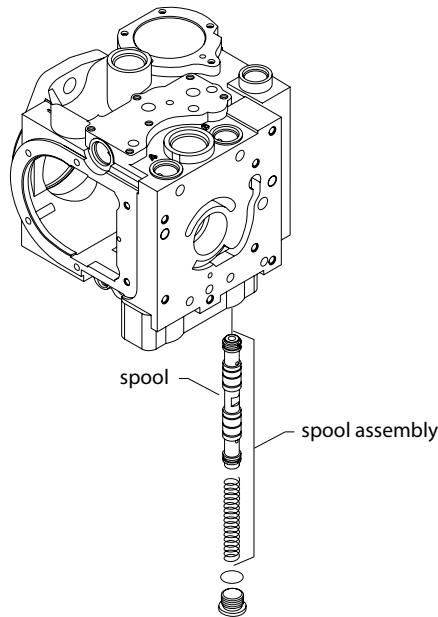
**Subject**

Control spool change

**Description**

As a product improvement, Danfoss has discontinued the use of one of the control spool options used on Series 42 pump. Pumps that formerly used the control spool option denoted in the “Models Affected” portion of this service bulletin, now use a control spool designed to have better droop characteristics, especially when operating at higher system pressures.

The old control spool, and its applicable assembly, have been obsoleted and will no longer be available as a service part. Although the new control spool is directly interchangeable with the old control spool, the new control spool may result in a more aggressive control in certain applications, and should be verified to be acceptable on an application, by application, basis.



**Models affected**

All Series 42 pumps built with the 4800265 control spool or the 4800320 control spool assembly, including pumps with the following order codes for the control module:

A1N1	A5A1	ANA1	BNN2	C1N2	C3N2	CNN1	D1N1	E1A1	E1B1
A1N2	A5N1	ANA2	ANN2			CNN2		E1A2	E1B2

**Serial numbers**

This change became effective at serial number A-00-29-xxxxx

## Service Bulletin

### Part numbers affected

Item Description	Old Part Number	New Part Number
Control Spool	4800265	4800464
Control Spool Assembly	4800320	4800575

### Parts disposition

Interchangeable

**Service Bulletin**

**SB-2000-035**

**Products affected**

Series 42 pumps: 28cc

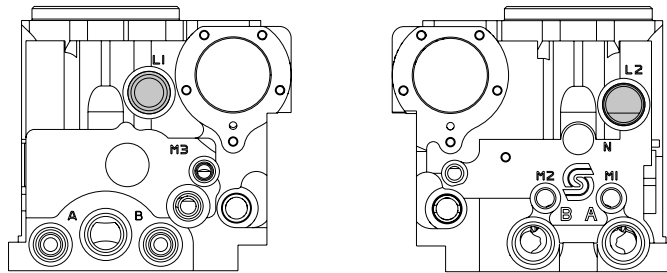
**Subject**

XDC housing change

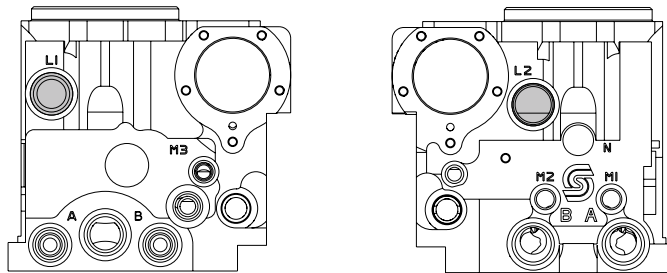
**Description**

To enhance the product commonality, Series 42: 28cc pump housings designed to accept either EDC or MDC controls has been modified with the adoption of a new housing casting. The new housing is essentially the same as the old one with the exception of the case drain locations.

The new pump housing is interchangeable with the old housing and the old housing has become obsolete and will no longer be available as a service part.



**Old Case Drain Locations**



**New Case Drain Locations**

**Models affected**

All Series 42: 28cc pumps designed to accept either an EDC or MDC control

**Serial numbers**

This change became effective at serial number A-01-09-xxxxx

**Part numbers affected**

Item Description	Old Part Number	New Part Number
Housing Assembly - XDC Base	4280239	4280284
Housing Assembly - XDC Full Featured	4280240	4280285

### Service Bulletin

Item Description	Old Part Number	New Part Number
Housing Assembly - SAE Threaded, XDC, w/LF	4280247	4280286
Housing Assembly - SAE Threaded, Special	4280241	4280287

#### Parts disposition

Interchangeable

**Service Bulletin**

**SB-2001-008**

**Products affected**

Series 42, single and integrated tandem pumps

**Subject**

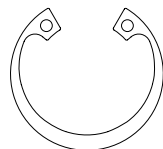
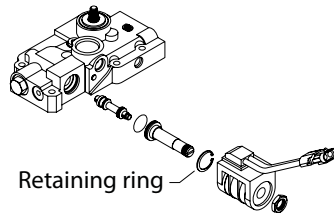
MDC housing with optional NOR

**Description**

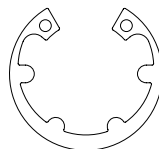
As a product improvement, Danfoss has redesigned the Series 42 manual displacement control (MDC) housing equipped with a solenoid override valve assembly in order to accommodate a more robust retaining ring, thus reducing the potential for premature retaining ring failure.

The control housing part number has been changed, but the control assembly and control kit part numbers will remain the same part number. This change is only interchangeable if the old housing and old retaining ring are replaced with the new housing and new retaining ring, or if the old control assembly is replaced with the new control assembly. The old retaining ring will remain available, but the old control housing has been obsoleted and no longer available as a service part.

Visual identification can confirm the control vintage once the solenoid override assembly is removed. The old retaining ring is thinner and its inner circumference is as smooth as the outer circumference. The new retaining ring is thicker and its inner circumference contains four protrusions.



Old  
Retaining Ring



New  
Retaining Ring

**Models affected**

All Series 42 Pumps that use the following control assemblies:

Single Pumps		Integrated Tandem Pumps	
Control Assembly	Control Kit	Control assembly	Control Kit
4800518	4510133	4520020	Not Applicable
4800521	4510139	4520021	Not Applicable
4800537	Not Applicable	4520023	Not Applicable
4800538	Not Applicable	4520027	Not Applicable
4800539	4510089		
4800541	Not Applicable		
4800542	Not Applicable		
4800544	Not Applicable		
4800545	4510091		

### Service Bulletin

Single Pumps		Integrated Tandem Pumps	
Control Assembly	Control Kit	Control assembly	Control Kit
4800546	Not Applicable		
4800547	4510093		
4800548	Not Applicable		
4800635	Not Applicable		
4800806	Not Applicable		

#### Serial numbers

This change became effective at serial number A-01-31-xxxxx

#### Part numbers affected

Part Description	Old Part Number	New Part Number
Retaining Ring	5000196	4280279

#### Parts disposition

Interchangeable

**Service Bulletin**

**SB-2001-022A**

**Products affected**

Series 42 pumps

**Subject**

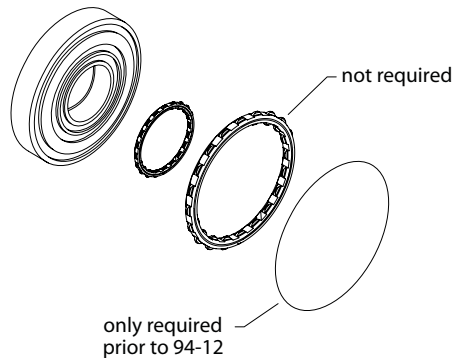
Removal of gerotor cover O-ring

**Description**

Through engineering calculation and performance testing, it has been determined that the need for the outer O-ring on the gerotor cover of the series 42 charge pump no longer exists. This O-ring is no longer required because historical changes to the series 42 pump charge circuit resulted in the charge pressure being equal on both sides of the o-ring.

The removal, or reinsertion, of this o-ring at the time of repair of a series 42 pump built before the incorporation of this change is at the discretion of the person performing the repair. However, units manufactured before A-94-12-xxxx require the reinsertion of the outermost O-ring, located on the side of the gerotor cover. This O-ring is installed to prevent external leaks through the charge pump cover mounting bolt holes.

Since this is the only product, and location, that utilize this particular "H" seal O-ring, it is obsolete and no longer required or available as a service part.



**Models affected**

All frame sizes (28, 41 and 51cc) of series 42 pumps

**Serial numbers**

This O-ring was removed from the build of materials used in production at serial number A-01-40- xxxxx. Units built prior to A-94-12-xxxxx still require O-ring part number 9004100-1550, due to a design change to the charge pump cover.

**Part numbers affected**

Part Number	Item description
5000530	O-ring (H seal )

**Parts disposition**

Interchangeable

**Service Bulletin**

**SB-2002-005**

**Products affected**

Series 42 pumps: 28cc

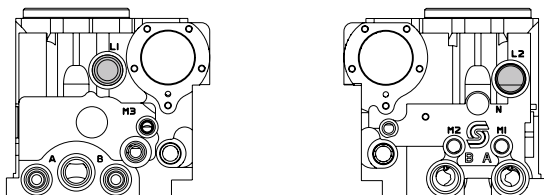
**Subject**

NFPH housing change

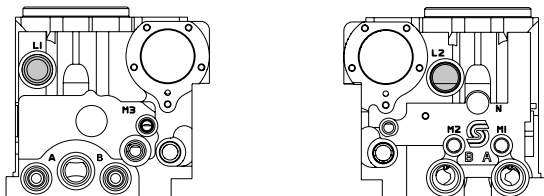
**Description**

To enhance product commonality, the Series 42: 28cc pump housings designed for NFPH controls has been modified by the adoption of a new housing casting. Changes to the appearance of the new housing are illustrated below.

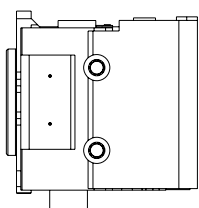
The new housing is interchangeable with the old housing, provided that there is no clearance issue with regard to plumbing due to the change in port locations. The old housings are obsolete and no longer available as a service part.



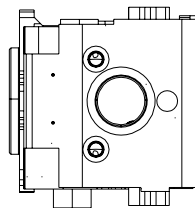
Old case drain locations



New case drain locations



Old housing control face



New housing control face

**Models affected**

All Series 42: 28cc pumps designed to accept an NFPH control

**Serial numbers**

This change became effective at serial number A-01-29-xxxxx

**Part numbers affected**

Housing assembly description	Old part number	New part number
NFPH, full featured	4280245	4280302
NFPH, tandem, rear special w/o LF	4280246	4280303

### Service Bulletin

Housing assembly description	Old part number	New part number
NFPH, base	4280244	4280301
NFPH, tandem, rear special w/LF	4280248	4280304

#### Parts disposition

Interchangeable provided that there is no clearance issue with regard to plumbing due to the change in port locations.

**Service Bulletin**

**SB-2002-012**

**Products affected**

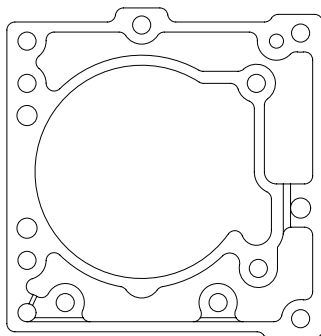
Series 42 pumps

**Subject**

Charge pump cover gasket change

**Description**

As a product improvement, Danfoss has changed the design of the Series 42 charge pump cover gasket used on all models for the series 42 pump. the new gasket is still a foam coated, steel-core gasket, but the design is more robust.



**Models affected**

All series 42 pumps

**Serial numbers**

This change became effective at serial number A-02-41-xxxxx

**Part numbers affected**

Item description	Old part number	New part number
Charge pump cover gasket	4800638	4800855
Charge pump cover gasket	4800638	4800855
Charge pump cover gasket	4800456	4800856

**Parts disposition**

- Interchangeable
- Use parts in stock
- Revise existing parts orders

**Service Bulletin**

**SB-2002-015**

**Products affected**

Series 42 pumps: 28cc NFPE

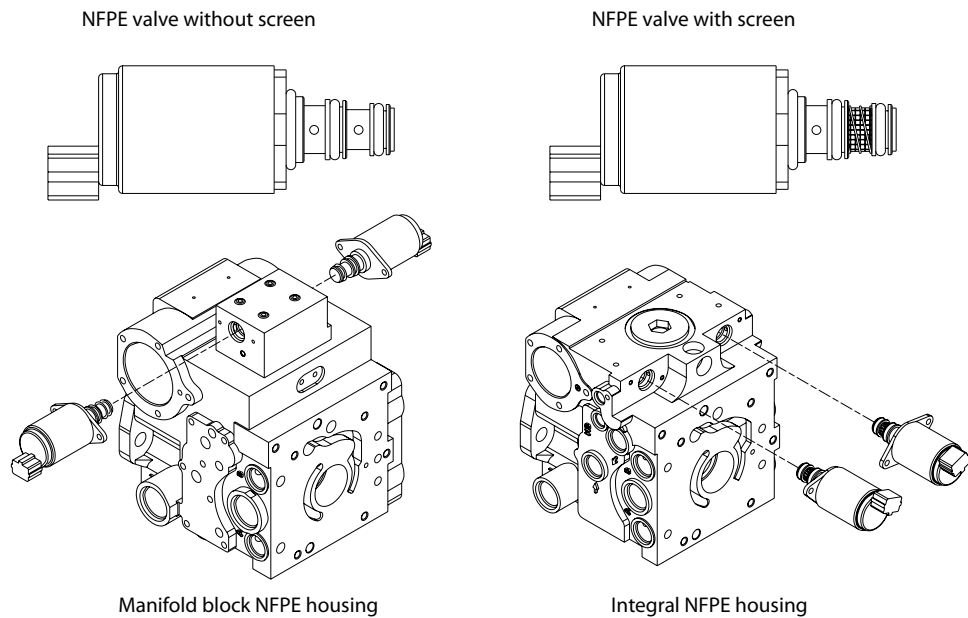
**Subject**

Housing change for integral NFPE pumps

**Description**

As a product improvement, Danfoss redesigned the Series 42 pumps that accept integral NFPE valves. The change affects the control screen and moves its location from within the housing to the NFPE valve itself.

This change affects both the housing assembly and the NFPE valve. This is considered to be an interchangeable change, providing the new pump housing is used with the new NFPE valve. The new NFPE valve may also be used in the old housing, but the old valve cannot be used in the new housing. The old pump housing is obsolete, but the old NFPE valve remains available as it is used in NFPE pumps that incorporate a control block on the control surface of the pump.



**Models affected**

4281725	4281734	4282786	4282822	4282834
4282836	4282868	4282869	4282882	4282897

**Serial numbers**

This change became effective with serial number A-02-10-xxxxx

**Part numbers affected**

Item Description	Old part number	New part number
Integral HFPE housing assembly	4280264	4280316
NFPE valve	4700150	4280315

## Service Bulletin

### **Parts disposition**

Interchangeable providing the new pump housing is used with the new NFPE valve.

**Service Bulletin**

**SB-2009-070**

**Products affected**

All series 42 pumps

**Subject**

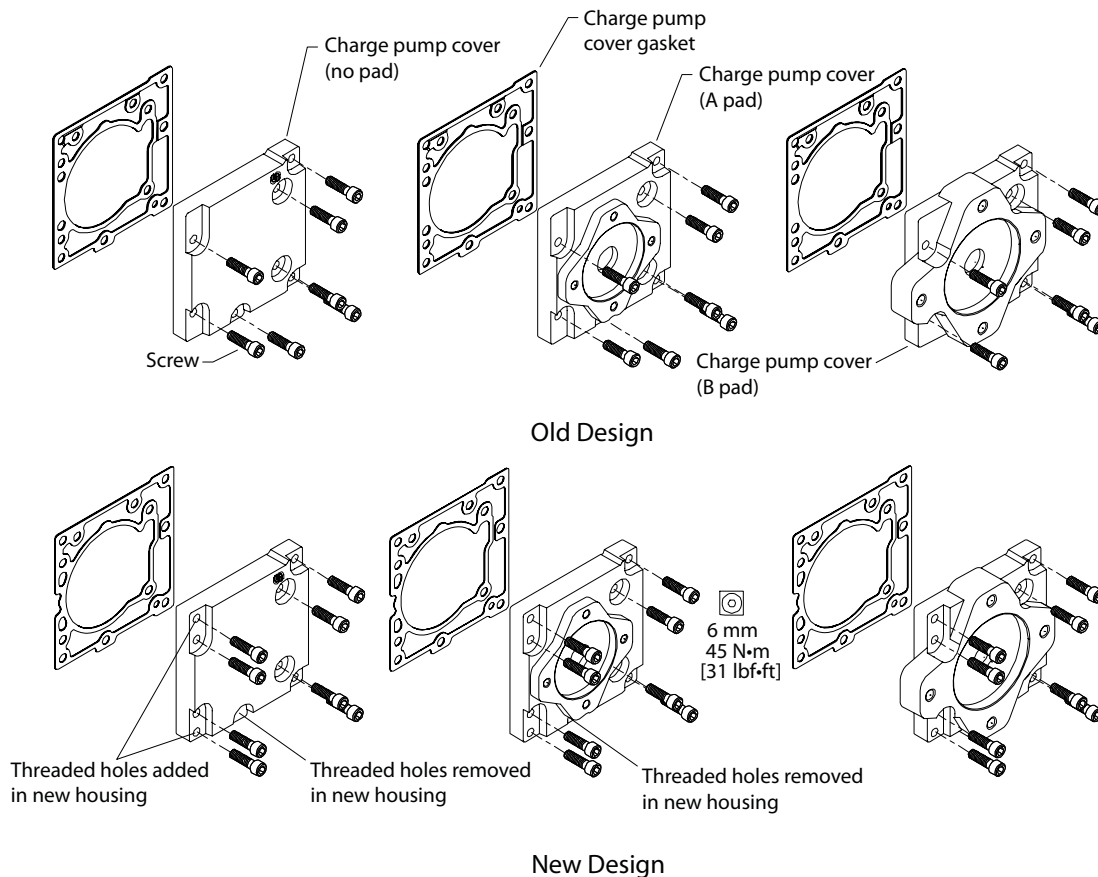
Auxiliary pad adapter and gasket change

**Description**

A design change has been made to the charge pump cover and cover gasket. The major change to the cover is the number of screws used. The old SAE "A" and non-auxiliary pad covers used seven screws, and the SAE "B" used six screws to attach the cover to the housing. The new covers will each use eight screws. The new eight screw design is interchangeable with the old design. Place screws in the cover where the pump housing has a threaded hole for a screw. Older vintages of pumps used torx head screws (T-45). Newer vintages use internal hex cap head fastener (6 mm).

The new gasket is thinner and is designed to work with new or old charge pump covers.

In order to reduce the number of auxiliary pad adaptor service kits, the couplings that were once supplied in the appropriate kit must now be purchased separately.



**Models affected**

All series 42 pumps

## Service Bulletin

### Serial numbers

All pumps produced after March 1, 2008.

### Part numbers affected

#### Obsolete kits

Kit part number	Global new part number
4510071	AUX PAD KIT-SAE A SPEC PAD,11T (GXXXT)
4510061	AUX. MTG. KIT, NO PAD
4510062	AUX. MTG. KIT, A PAD, 9 TOOTH
4510063	AUX. MTG. KIT. B PAD, 13 TOOTH
4510163	AUX. MTG KIT, A PAD, 9 TOOTH, 41CC
4510312	AUX MTG KIT, B-B PAD,15T, 28CC
4510313	AUX. MTG KIT, B-B PAD,15 TOOTH, 41CC
4510315	AUX. MTG. KIT, NO PAD, 41CC
4510164	AUX. MTG KIT, B PAD,13 TOOTH, 41CC
4510198	AUXILARY KIT, A PAD, S42
4510199	AUXILARY KIT, B PAD, S42
4510204	AUXILARY KIT, NO PAD, S42
11076607	AUX. MTG. KIT, NO PAD, 28CC
11076608	AUX. MTG. KIT, A PAD, 9 TOOTH, 28CC
11076609	AUX. MTG. KIT. B PAD, 13 TOOTH, 28CC
11076611	AUX. MTG KIT, A PAD, 9 TOOTH, 41CC
11076616	AUX. MTG KIT, B PAD,13 TOOTH, 41CC
11076617	AUX MTG KIT, B-B PAD,15T, 28CC
11076618	AUX. MTG. KIT, NO PAD, 28CC
11076612	AUX. MTG. KIT, NO PAD, 41CC

#### New universal kits

Kit part number	Description
11076613	AUXILARY KIT, A PAD, S42 (coupling purchased separately)
11076614	AUXILARY KIT, B PAD, S42 (coupling purchased separately)
11076615	AUXILARY KIT, NO PAD, S42

#### Gasket change

Old gasket part number	New gasket part number
4800855 (obsolete)	1716227

### Parts disposition

- Interchangeable: auxiliary pad adapters
- Non-interchangeable: gaskets
  - Scrap old gaskets and apply for credit
  - Overhaul seal kits purchased before November 16, 2009 will contain the old gasket part number and will need to be updated to the new gasket part number.

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