## Revision history

### Table of revisions

<table>
<thead>
<tr>
<th>Date</th>
<th>Changed</th>
<th>Rev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec 2014</td>
<td>Danfoss Layout</td>
<td>EA</td>
</tr>
<tr>
<td>Oct 2011</td>
<td>Backpage updated</td>
<td>AB</td>
</tr>
<tr>
<td>Mar 2007</td>
<td>Update backpage</td>
<td>AA</td>
</tr>
<tr>
<td>July 2003</td>
<td>First edition</td>
<td>-</td>
</tr>
</tbody>
</table>
Contents

General information
Application.................................................................................................................................4
Description......................................................................................................................................4
Specifications..............................................................................................................................5
Model code..................................................................................................................................5
Performance...............................................................................................................................5
Mounting.......................................................................................................................................6

Service Information
Adjustment procedure................................................................................................................8
Service information....................................................................................................................8
**Technical Information**  
**Loop Flushing Valve**

**General information**

**Application**

The loop flushing valve, applied in a hydrostatic transmission circuit, maintains high quality of the working fluid in the transmission power loop. While many transmissions can operate satisfactorily without a loop flushing valve, the addition of loop flushing improves fluid quality and generally extends transmission life.

Consider the loop flushing valve when any of these exist:
- Sustained operation at low pressure and high speed
- Operation where continuous pressure exceeds 1000 hours per year
- Cylinders in the hydrostatic circuit
- Flow restricting valves in the power loop
- Frequent operation of high pressure relief valves
- Long power loop lines
- Extraordinary life requirements

Danfoss recommends monitoring fluid quality under field operating conditions for extended periods of time to determine loop flushing requirements. For a complete discussion of loop flushing and fluid quality, refer to Danfoss bulletins BLN-9886 *Transmission Circuit Recommendations* and 520L0463 *Hydraulic Fluids and Lubricants, Technical Information*.

**Description**

The high pressure ports (1 and 2) of the valve are externally connected to the work or system auxiliary ports of the main hydrostatic transmission circuit. The valve drain port (4) must be externally connected to the case drain return line of the transmission — preferably at the motor so that fluid flushes through the motor case and returns to the reservoir.

The shuttle valve exposes the low pressure side of the circuit to the charge relief valve. When properly set (see *Adjustment procedure* on page 8) the charge relief valve flushes a desired quantity of working fluid from the transmission power loop. The charge pump replaces this fluid.

You may specify a drain orifice to limit maximum flushing flow in circuits where the low side pressure is high or varies over a large range.

**Schematic diagram**

![Schematic diagram of Loop Flushing Valve](image-url)
Specifications

System pressure

<table>
<thead>
<tr>
<th>Maximum high side</th>
<th>480 bar [6961 psi]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum low side</td>
<td>70 bar [1015 psi]</td>
</tr>
</tbody>
</table>

Charge relief setting

<table>
<thead>
<tr>
<th>Minimum</th>
<th>15 bar [218 psi]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum</td>
<td>28 bar [406 psi]</td>
</tr>
</tbody>
</table>

Nominal charge relief settings are ±1.4 bar ±20 psi and are set at a flow of 3.8 ±0.9 l/min [1 ±0.25 US gal/min] at 49º C [120º F]

Model code

8800485-

Charge pressure
15 to 28 bar, 1 bar increments
Example:
20  =  20 bar [290 psi]

Orifice
00  =  None
09  =  Ø 2.40 mm [0.0945 in.]
12  =  Ø 3.19 mm [0.1255 in.]

Performance

Valve without orifice

[Graph showing performance characteristics]
General information

Valve with 2.40 mm [0.0945 in.] orifice

Mounting

Installation drawing

Mount the loop flushing valve on any convenient flat surface that provides adequate support around the two mounting holes. Ensure the surfaces under the mounting bolts form a flat plane.

Failure to provide a flat mounting surface could create valve housing distortion when the mounting bolts are torqued. Housing distortion may bind internal components and reduce the drive and/or braking capacity of the system.
Warning

The loss of hydrostatic drive line power in any mode of operation may cause a loss of hydrostatic braking capacity. A braking system, redundant to the hydrostatic transmission, must be provided which is adequate to stop and hold the system should such a condition develop.
**Adjustment procedure**

For initial setting of the valve package:

1. Plumb an in-line flow meter into the drain line.
   
   If a flow meter is not available, use a clean container with a known volume and a stop watch to measure flow rate.

2. Set the brakes or otherwise restrict machine motion.

3. Stroke the transmission pump to build at least 34 bar [500 psi] differential system pressure.

4. Adjust the relief valve in the flushing valve package to obtain the desired drain flow. Typically 7.5 to 11.4 l/min [2 to 3 US gal/min] is sufficient. Rotating the adjusting screw counter-clockwise increases flow and decreases the effective pressure setting by approximately 5 bar [73 psi] per turn.

5. Torque the locknut 42 to 55 N-m [31 to 41 lbf-ft].

6. Verify that pump charge pressure is above recommended minimum.

7. Remove the flow meter from the circuit.

*Adjustment diagram*

![Diagram showing Relief valve adjustment, Locknut, Drain, and O-ring boss port positions]

**Service information**

*Component installation torque*

<table>
<thead>
<tr>
<th>Description</th>
<th>Wrench size</th>
<th>Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gauge port plugs</td>
<td>9/16 in hex</td>
<td>27 to 47 N-m [20 to 35 lbf-ft]</td>
</tr>
<tr>
<td>Charge relief lock nut</td>
<td>1 1/16 in hex</td>
<td>42 to 55 N-m [31 to 41 lbf-ft]</td>
</tr>
<tr>
<td>Orifice plug</td>
<td>3/16 in internal hex</td>
<td>22 to 27 N-m [16 to 20 lbf-ft]</td>
</tr>
<tr>
<td>Shuttle spool plugs</td>
<td>11/16 in</td>
<td>36 to 44 N-m [27 to 33 lbf-ft]</td>
</tr>
<tr>
<td>Hose/tube fittings</td>
<td>—</td>
<td>27 to 47 N-m [20 to 35 lbf-ft]</td>
</tr>
</tbody>
</table>
Service Information

Exploded view

- 42 to 55 N·m
  [31 to 41 lbf-ft]
  1-1/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 36 to 44 N·m
  [27 to 33 lbf-ft]
  11/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

- 27 to 47 N·m
  [20 to 35 lbf-ft]
  9/16 in

Enlarged bold type item numbers are recommended parts to be stocked for servicing.
### Replacement parts

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8800538</td>
<td>Housing assembly</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>9005100-5600</td>
<td>Plug</td>
<td>3</td>
</tr>
<tr>
<td>2A</td>
<td>9004201-3700</td>
<td>O-ring</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>9005100-5600</td>
<td>Plug</td>
<td>2</td>
</tr>
<tr>
<td>3A</td>
<td>9004201-3700</td>
<td>O-ring</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>9005100-5600</td>
<td>Plug</td>
<td>1</td>
</tr>
<tr>
<td>4A</td>
<td>9004201-3700</td>
<td>O-ring</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>8510012</td>
<td>Charge relief valve kit</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>9004201-6200</td>
<td>O-ring</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>8800242-0009</td>
<td>Orifice plug – Ø 2.40 mm [0.0945 in]</td>
<td>1 (opt.)</td>
</tr>
<tr>
<td>12A</td>
<td>8800242-0011</td>
<td>Orifice plug – Ø 3.19 mm [0.1255 in]</td>
<td>1 (opt.)</td>
</tr>
<tr>
<td>13</td>
<td>8800550</td>
<td>Shuttle spool</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>513596</td>
<td>Spring guide assembly</td>
<td>2</td>
</tr>
<tr>
<td>16</td>
<td>518016</td>
<td>Special plug</td>
<td>2</td>
</tr>
<tr>
<td>16A</td>
<td>9004201-3700</td>
<td>O-ring</td>
<td>2</td>
</tr>
</tbody>
</table>
Danfoss Power Solutions is a global manufacturer and supplier of high-quality hydraulic and electronic components. We specialize in providing state-of-the-art technology and solutions that excel in the harsh operating conditions of the mobile off-highway market. Building on our extensive applications expertise, we work closely with our customers to ensure exceptional performance for a broad range of off-highway vehicles.

We help OEMs around the world speed up system development, reduce costs and bring vehicles to market faster.

Danfoss – Your Strongest Partner in Mobile Hydraulics.

Go to www.powersolutions.danfoss.com for further product information.

Wherever off-highway vehicles are at work, so is Danfoss. We offer expert worldwide support for our customers, ensuring the best possible solutions for outstanding performance. And with an extensive network of Global Service Partners, we also provide comprehensive global service for all of our components.

Please contact the Danfoss Power Solution representative nearest you.

Products we offer:

- Bent Axis Motors
- Closed Circuit Axial Piston Pumps and Motors
- Displays
- Electrohydraulic Power Steering
- Electrohydraulics
- Hydraulic Power Steering
- Integrated Systems
- Joysticks and Control Handles
- Microcontrollers and Software
- Open Circuit Axial Piston Pumps
- Orbital Motors
- PLUS+1® GUIDE
- Proportional Valves
- Sensors
- Steering
- Transit Mixer Drives

Danfoss can accept no responsibility for possible errors in catalogues, brochures and other printed material. Danfoss reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without changes being necessary in specifications already agreed.

All trademarks in this material are property of the respective companies. Danfoss and the Danfoss logotype are trademarks of Danfoss A/S. All rights reserved.