

# INSTRUCTION MANUAL

NTF® RADIAL MICRO FILTER



Congratulations with your purchase of this NTF® Radial Flush unit. To ensure optimum and safe performance of this filtration system, please read this manual carefully.

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**FLUSH UNIT FOR TRACTORS**

This NTF filtration system is specifically designed service kit to flush the hydraulic system of. Flushing is strongly recommended after any break down and repair of the driveline, brakes and/or the hydraulic system to avoid malfunctioning proportional valves caused by contamination. It can also be used to flush any new tractor before delivery to the customer or to extend the oil change interval. Cleaner oil leads to less malfunctions and warranty claims and increases customer satisfaction.

## 2. PURPOSE

### **Flushing after repair**

Any breakdown of the driveline, brakes and/or the hydraulic system causes contamination of the hydraulic fluid with wear particles. Since the brakes use the same oil reservoir as the transmission and hydraulic functions, dirt particles are spread throughout the entire system, causing malfunctioning hydraulic proportional valves.

If this contamination is not removed before putting the tractor back to service it will cause malfunctioning valves after a while. This malfunctions are caused by fine contamination particles left behind that the existing filters cannot remove.

After breakdowns and repairs of the driveline, brakes and/or the hydraulic system the tractor must be flushed to avoid problems in the future so the end user / customer will not encounter new problems.

### **Flushing at oil change**

Fresh oil is not clean! Tests show that fresh oil does not always meet the CNH prescribed cleanliness level. We have tested fresh oil at several CNH dealers to have an average cleanliness level of ISO 21/20/16. Where the CNH prescribed ISO4406 Cleanliness Code = ISO 19/16/13.

By flushing the tractor after an oil change the refilled oil complies with the required ISO 19/16/13 class of CNH.

### **Extending oil change intervals**

By flushing the oil the standard prescribed oil change interval can be extended. This can be a consideration in occasions where a tractor is coming in for repair well before it's prescribed oil change interval. Flushing the oil will make it suitable for further use until the next prescribed oil change. Flushing instead of changing the oil is beneficiary to both customer and dealer.

Please keep the following in mind when using the flush unit:

- Only to be used up to a maximum return pressure of 7 bar on the tractor's hydraulic system
- Only use the provided hoses and quick connect couplings.
- This unit is a service kit. Use it for service purposes only. It should not be connected and used to a tractor during normal operation.
- When replacing the filter elements or when spillage occurs, use the personal safety equipment, as prescribed in the Material Safety Data Sheet of the fluid.



**Installation and use of this unit is only allowed to certified professionals. In case of warranty claims certificates will be requested.**



**Only to be used up to a maximum return pressure of 7 bar on the tractor's hydraulic system**

**Only use the supplied hoses and parts. Do not adjust the supplied hoses and connections. Hoses and connections have been specifically designed and adapted for their purpose. Should a part need to be replaced, these need to be ordered at the supplier of the flush unit.**

**Do not adjust the flow control valve. The setting is very specific for its purpose. Changing the setting can lead to excessive pressure on the flush unit, which may cause the lid of the filter system to crack leading to personal injury.**



**When replacing the filter elements or when spillage occurs, use the personal safety equipment, as prescribed in the Material Safety Data Sheet. Check also personal safety regulations at site.**

### 4. TRANSPORT, STORAGE AND DISPOSAL

This flush unit has been carefully packed to avoid damage during normal transport. Should your flush unit arrive damaged, please take pictures of the occurred damages and send these with a description to your NTF® dealer, so the damaged unit can quickly be replaced. There are no further special requirements for transport or storage.

When the flush unit or filter element is disposed off, the local regulations for disposing chemical waste should be taken into account.

The flush unit is delivered in 2 boxes.

Box 1: Trolley, pressure hose, return hose, mounting bracket

Box 2: Flush unit.

- Unpack box 1 containing the trolley, pressure hose, return hose and mounting bracket
- Assemble the trolley base plate according to the supplied instructions in the box.
- The mounting bracket can be adjusted to two different slot sizes. Adjust the mounting system to the width of the slot on the tractor.
- Unpack box 2 containing the flush unit.
- Assemble the mounting bracket to the back plate of the flush unit, using the supplied bolts, washers and nuts.
- The flush unit can be placed on the trolley. Do this with 2 persons.
- Connect the pressure hose to the flush unit.
- Connect the return hose to the flush unit.
- Guide the hoses through the hose brackets on the flush unit.

## 6. FIRST USE INSTRUCTIONS

After final assembly the flush unit the hoses and the differential pressure gauge need to be filled with oil to remove any entrapped air, as it can result in faulty read outs.

- **Only to be used up to a maximum return pressure of 7 bar on the tractor's hydraulic system**
- Start the tractor and let it run idle until hydraulic fluid has reached operating temperature.
- The mounting system can be adjusted to two different slot sizes. Adjust the mounting system to the width of the slot on the tractor.
- Slide the flush unit with 2 people over the slots on the rear of the tractor.
- Connect the feed line with the quick release coupling to a pressure point on the valve block
- Connect the return line with the quick release coupling to a pressure point on the block.
- Ensure that the hoses are out of reach of the lifting arms as these need to be operated later on. Guide the hoses through the hose brackets on the flush unit.
- **REMARK: Ensure the direction of the oil flow corresponds with the arrow on the pressure hose.**
- Have a canister ready to collect oil and place it under the hoses of the differential pressure manifold of the flush unit. The connections of the hoses to the manifold are securely tightened. The connections of the hoses to the differential pressure gauge are not.
- Increase the pressure on the feed line of the flush unit until 10% so it slowly fills with oil. Since the connections of the hoses to the differential pressure gauge are not tightened yet, oil will flow out.
- Oil pressure can now be switched off and both connections can now be tightened.
- The flush unit is now ready for standard use.

1. **Only to be used up to a maximum return pressure of 7 bar on the tractor's hydraulic system**
2. Start the tractor and let it run idle until hydraulic fluid has reached operating temperature
3. The mounting system can be adjusted to two different slot sizes. Adjust the mounting system to the width of the slot on the tractor.
4. Slide the flush unit with 2 people over the slots on the rear of the tractor.
5. Check if the frame has been properly slid into the slots and ensure that the flush unit is properly secured
6. Connect the feed line with the quick release coupling to a pressure point on the valve block
7. Connect the return line with the quick release coupling to a pressure point on the valve block.
8. Ensure that the hoses are out of reach of the lifting arms as these need to be operated later on. Guide the hoses through the hose brackets on the flush unit.
9. Adjust the control valve of the tractor such that the oil flow is between 15 and 30 liters per minute.
10. Verify that the pressure gauge shows a reading. If not this means there is pressure on the return line of the flush unit. Change the oil flow direction on the tractor and the gauge will show a proper reading.
11. The flush unit is now operating.
12. Let the tractor run idle for 25 minutes to ensure all oil in the reservoir is getting flushed.
13. After 25 minutes of filtering, a cycle of functions need to be performed. This must be done to ensure the contaminated oil in hoses, cylinders, valves and brakes is flushed out and will also be filtered.
14. Go for a short drive with the tractor. Drive 50 meter forwards and backwards.
15. While driving let the rear lifting arms go up and down to flush out the contamination. If the tractor is equipped with front side lifting arms do the same for these.
16. While driving, Turn the steering from full left to full right. A couple of times.
17. While driving operate the brakes.
18. If possible, use a loop-through hose that you insert into the hydraulic control valves so that you can flush the hydraulic control valves. Perform this action on all available control valves.
19. Switch 4x4 function on and off a couple of times.
20. Switch difflock function on and off a couple of times. **Only do this with a stationary vehicle!**
21. Switch PTO shaft on and off a couple of times.
22. If possible, raise and lower the front axle suspension.
23. Repeat all steps 2-3 times thoroughly flush the system.
24. Park the tractor back in it's place and let it run idle for another 25 minutes.
25. Repeat steps 14 to 23 and let it run idle again for 25 minutes.
26. Repeat steps 14 to 23 again and let it run idle again for 25 minutes.
27. After 2 hours of flushing the oil in the hydraulic system of the tractor has been adequately cleansed. Turn off the tractor, release oil pressure on the flush unit in the tractor and bring down the pressure on the valve block of the tractor down to 0 Bar by setting the hydraulic control in to float setting!. Have a cannister ready to prevent oil spillage. Connect the supplied minimess hose to the connection at the front of the flush units' manifold. Let oil run until pressure on the flush unit is down to zero.
28. Now both pressure and return hose can be disconnected from the valve block. Be aware that some oil may spill from the return hose. Place the hoses in it's holders. The flush unit can now be lifted from the tractor and be placed back on it's trolley. Do this with 2 persons.
29. The tractor is now ready for use.

The required maintenance on the flush-unit consists of the timely and properly changing of the filter elements. Generally the filter cartridges will last for 15 flushings. This may vary depending on volume of oil and level of contamination. The flush unit is fitted with differential pressure gauge. When the indicator shows 3 bar, filters need replacing. At 3 bar the bypass valve of the flush unit opens and the oil is passed through the bypass unfiltered.

Changing the filter elements should be done as follows when flush unit is still connected to the tractor:

1. Only use original NTF® filter cartridges.
2. Only use the supplied spare parts.
3. Turn off the tractor and release oil pressure from the hydraulic system.
4. Release oil pressure from the valve block of the tractor by setting the hydraulic control in to float setting!
5. Release oil pressure from the flush unit. This can be done by connecting the supplied minimesse hose to the T1 port on the manifold of the flush unit. As soon as it is connected oil will flow out until pressure is off. Use a canister to collect any oil spillage.
6. Disconnect the hoses from the valve block and place them in their corresponding holders.
7. Remove the filter cartridges and spare O-rings from their bags. The bags can be used to place the contaminated filters in.
8. Loosen the 4 (2x) inner hexagon bolts on top of the filter housings.
9. Remove the covers from the system and take out the pressure plates with springs.
10. Remove the contaminated filter cartridges and place them in the plastic bags for proper disposal.
11. Place the new filter cartridges in the filter system and place the pressure plates with springs back on the filter cartridges.
12. Replace the O-rings, clean the sealing surfaces and put the covers back on the filter system. Make sure that the o-rings are seated properly in the covers.
13. Tighten the inner hexagon bolts with a torque of minimal 9 Nm and maximal 12 Nm.
14. When disposing off the contaminated filter elements, the local regulations for disposing chemical waste should be taken into account.

When flush unit is already disconnected, follow steps 8 until 14 for changing the elements.

### 1. HOUSING

NTF® grants a 3-year limited warranty on the NTF® filter housing (excluding the accompanying o-rings) from the date of invoice. In the unlikely event that the purchaser finds a defect, the purchaser must notify their NTF® dealer. If the defect is justified, the NTF® filter housing will be replaced or repaired free of charge. Any claims to NTF® filter housings should be addressed directly to your NTF® point of contact. A claim should contain a clear description of the findings, including pictures and specifications of the application, along with a copy of the invoice.

### 2. EXTENDED OIL LIFE / DRAIN INTERVALS

When properly installed, NTF® guarantees the effective filtering operation of the NTF® filter and its positive effects for the equipment. Extended oil drain intervals are achievable with the proper use of the NTF® system. However, the condition of the oil and the oil change intervals are also dependent upon the original equipment manufacturer, operating conditions, selection of lube/oil, and system type. Due to conditions out of the control of NTF®, the length of any extended drain interval is at the discretion of the customer. The customer should perform regular oil analysis to ensure that the condition of the oil is within the recommended specifications as set by the original equipment/oil manufacturer. Upon request, NTF® can aid in this activity.

### 3. EQUIPMENT WARRANTY

In the unlikely event of material damage to the equipment, NTF® warrants the entire cost of repair under the following conditions (Documentation of which is the full responsibility of the claimant):

- The equipment is well maintained and worked properly at the moment of installation which can be proven by copies of the maintenance and repair history of the equipment.
- The NTF® filter is installed by a certified mechanic.
- The user must demonstrate the device damage is due to the malfunction of a properly installed and properly used NTF® filter system.
- The customer must demonstrate from actual data or from a documented extended drain interval program (historical data) that the oil or lube fluid in the device was within the proper usage specifications at time of failure.

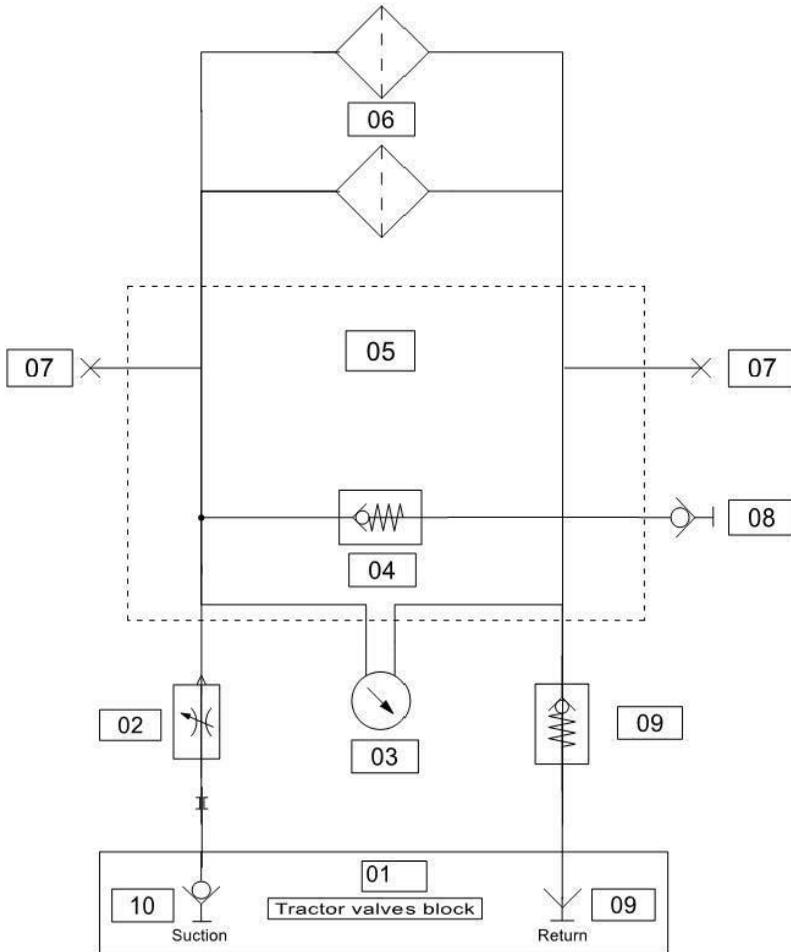
### 4. LIABILITY

The above mentioned warranty and NTF's liability does not extend beyond (the consequences of) defects in the NTF® filter. Damage as a result of other means or caused by third parties, such as by errors during installation, by incorrect mounting onto the oil circuit or by mounting devices or hoses are not covered, neither by this warranty nor by NTF's product liability. With regard to mounting pieces supplied by NTF® the warranty applicable is the warranty of the suppliers/producers of the mounting pieces which is passed on by NTF® to its customers. Liabilities are limited to the amounts mentioned in the insurance policy for liability risks that NTF® has concluded with N.V. Interpolis. No claim shall exceed Euro 2.500.000. The maximum annual amount of damages covered shall not exceed Euro 5.000.000.

### 5. BREACH OF WARRANTY POLICY

The warranty is non-applicable or breached by user if and when:

- The NTF® filter is handled without due care or in contradiction with the instructions for use, or if used for purposes other than its appropriate purpose.
- Cartridges other than original NTF® filter cartridges have been applied.
- No valid dated purchase invoice can be produced.
- The defect and/or the damage is a result of a natural disaster, accident, misuse, incorrect use or any other outside cause for which NTF® is not liable.



- 01 Tractor valves block  
 02 flowcontrol valve 14L VRC. 140  
 03 Differential pressure gauge  
 04 Check valve settings 3 Bar  
 05 Manifold filter flush unit  
 06 NTF Micro Filter 2x F58A  
 07 Blind stop plug  
 08 Connection point for sample or particle counter  
 09 Non return valve 0.2 Bar  
 10 Quick-connector suction side  
 11 Quick-connector return to tank

Bosch Rexroth Scheme Editor

