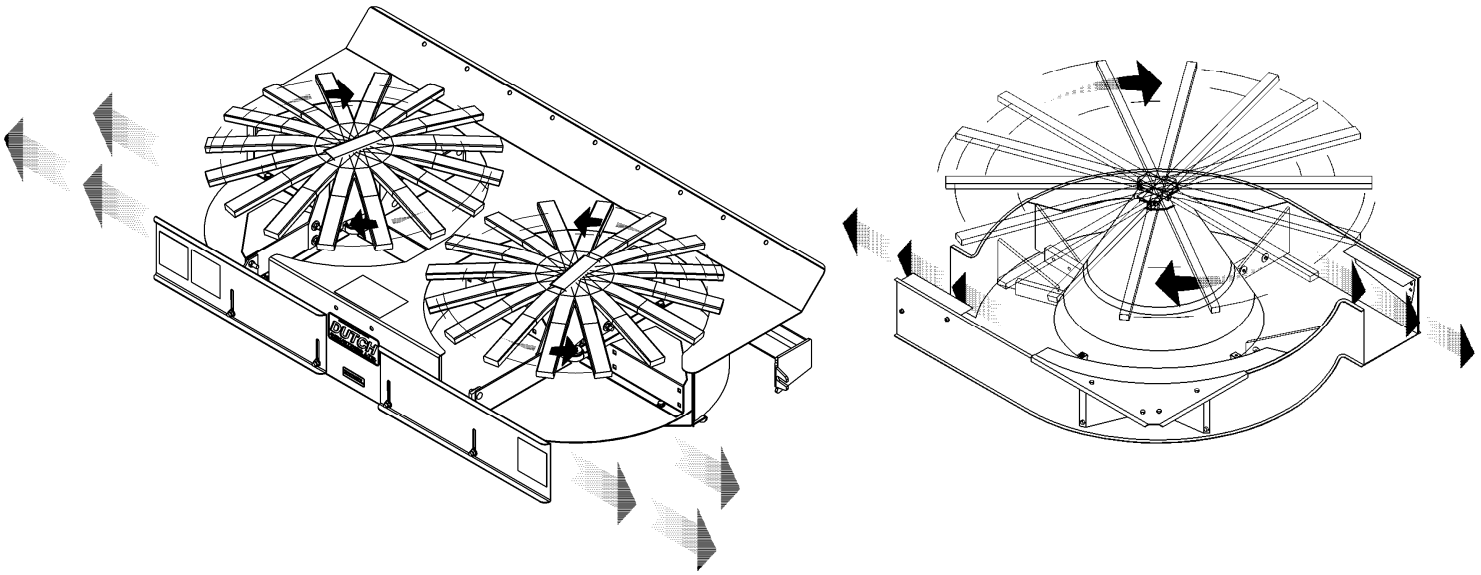
STRAW & CHAFF SPREADERS

BASIC TROUBLESHOOTING GUIDE



DUTCH INDUSTRIES

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Dutch Straw & Chaff Spreaders
Troubleshooting Document

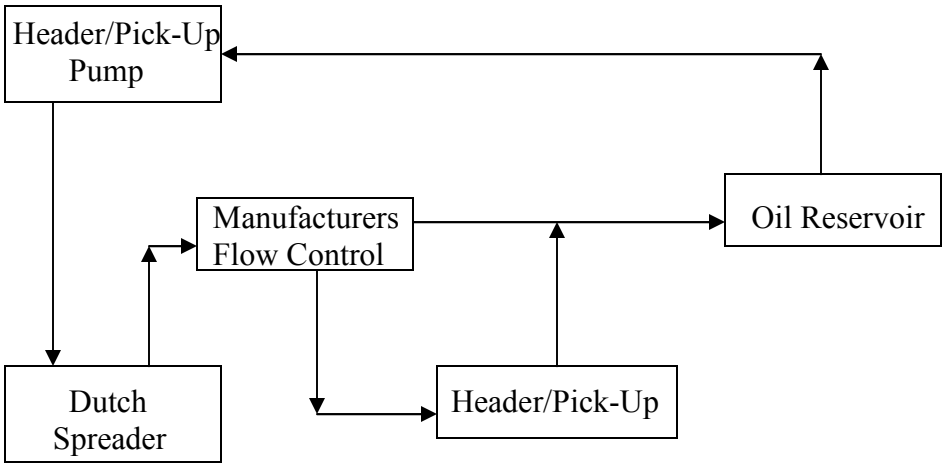
The following document outlines basic troubleshooting associated with the Dutch Straw & Chaff Spreaders. For challenges not outlined in this document, please refer to the Owner's Manual or to the Dutch Industries Engineering Department.

PROBLEM: The spreader slows down when the header/pick-up slows down.

SOLUTION: The plumbing of the spreader is the issue. Oil is traveling from the pump to the existing flow control, then to the Kirby and finally it goes to the header/pick-up. Therefore, the spreader will slow down when the header/pick-up slows down.

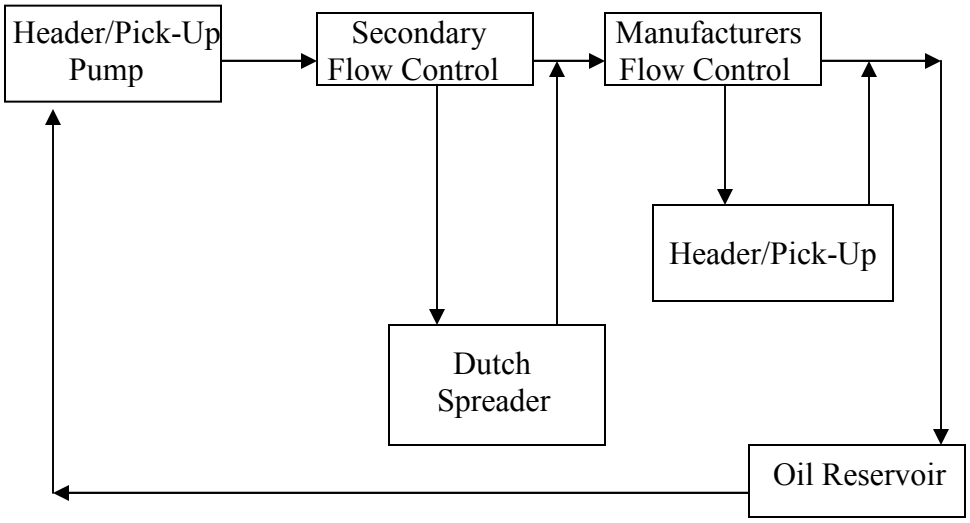
There are two plumbing options that will solve this:

Hard plumbing directly from the pump to the Kirby



This set-up will provide your spreader with a continuous flow of oil and therefore it will always turn at the maximum speed, regardless of the speed of the header/pick-up.

Plumbing directly from the pump to a secondary flow control



This set-up will provide your spreader with a continuous and adjustable flow of oil. The spreader will always turn at the desired speed, regardless of the speed of the header/pick-up.

This option gives you the ability to vary the speed of you spreader and also vary the speed of your header, using the same oil supply.

PROBLEM: The spreader stops when the header/pick-up stops or is turned off.

SOLUTION: This cannot be fixed as it stands. This situation goes with the header hydraulic hook-up kit. When the pump is shut off, the oil flow stops and therefore both the header/pick-up and the spreader are going to stop as well. A complete pump kit is the only solution to this problem!

PROBLEM: The spreader slows down under load.

SOLUTION: The spreader should never slow down unless a tremendous load is applied to it. This problem is caused by the pressure relief valve setting in the flow control.

Under normal operating conditions the spreader will operate at 400-500 psi but under load this pressure will spike rather drastically. If the pressure in the system reaches the pressure relief valve setting then the spreader will begin to slow down.

The pressure relief valve should be set at 2000-2200 psi. To achieve this setting, remove the acorn nut on the top of the flow control and, using an Allen wrench, thread the adjustment screw all of the way in. Then, back it out approximately 1 1/8 – 1 ¼ turns. This will provide you with the required pressure setting to eliminate the above problem.

PROBLEM: Inadequate spreading width.

SOLUTION: An inadequate spread width can be caused by a few different things:

Insufficient Oil Flow: An insufficient amount of oil will result in a lower operating speed than recommended. The Dutch spreaders are designed to run at approximately 400 rpm. To achieve this speed, 10 gallons per minute of oil is required. The less oil that is available, the slower the spreader is going to turn. Ensure 10gpm of oil is available to ensure proper operation of the spreading system.

Pressure Relief Valve Setting: An incorrectly set pressure relief valve can cause inadequate spreading width, especially when the spreader is subject to increased load. If the relief valve is set too low, the spreader will slow down under load, resulting in a narrower spreading width. Ensure the pressure relief valve is set at 2000-2200 psi for optimal performance.

Spreader Height:

a. Spreader Set Level - The height of the spreader, when the spreader is level, will increase or decrease the spread width. Therefore, the greater the distance off the ground, the wider the spread.

b. Back End of Spreader Up or Down – The height of the back of the spreader will also dictate the spreading width. The lower the back of the spreader is, the narrower the spreading width and visa versa.

c. Kirby Tub Deflectors – The two tub deflectors in the Kirby also control the spreading width. If the spreading width is inadequate, check these deflectors and adjust/remove as required.

PROBLEM: Uneven spreading to the sides.

SOLUTION: The location of the spreader and the location of the falling straw will dictate whether or not even spreading will occur. If too much material is falling in the front of the spreader, more material will be spread to the right. If too much material is falling to the back of the spreader, more material will be spread to the left.

To achieve even spreading, material should be directed to the center of the spreader or slightly in front of center. To achieve this, you can either move the spreader in/out accordingly or adjust the straw and chaff deflectors.

PROBLEM: The oil in the system is extremely hot.

SOLUTION: If the oil in the spreading system is extremely hot, there are a few things to look at:

1) Ensure that the spreading system is not using a separate pump to drive the Kirby that is plumbed into the combine reservoir. The hydraulic reservoirs on most combines do not have enough oil capacity or cooling capabilities to allow this. Either a complete pump kit and reservoir or a header hydraulic hook up kit should be installed immediately!

2) Ensure the Dutch reservoir is open to the outside ambient air. If the reservoir is enclosed, the oil will not cool properly; move the reservoir as required. Also, check the oil level in reservoir. If the level is low, the oil won't cool down as required.

3) There may be a restriction in the system. The following should be checked:
    - Check all hoses, specifically for a collapsed suction hose. A collapsed hose is a major restriction and will heat up the oil.
    - Check quick connect fittings and the fact that incorrect installation could restrict oil flow.

PROBLEM: What speed should the Dutch spreaders turn at?

SOLUTION: Both of the Dutch spreaders should operate at a speed of approximately 400 rpm. The speed of the spreader is controlled by the oil flow to the orbit motor. The more oil the orbit motor receives, the faster the spreader will turn. A standard pump, supplied by Dutch Industries in a pump kit, puts out approximately 10 gpm of oil flow; this translates into a spreader speed of approximately 400 rpm.

This is only a recommendation! If you cannot get the required oil, all you will lose is your maximum spreading width. Also, if a flow control is being used, the oil flow can be reduced to reduce the spreading width.

PROBLEM: How much horsepower do the Dutch spreaders require?

SOLUTION: A Dutch straw and chaff spreading system uses approximately 10 horsepower!

PROBLEM: How much oil flow do the Dutch spreaders require?

SOLUTION: To achieve the recommended spreader speed of 400 rpm, the Dutch spreaders require approximately 10 gpm of oil flow. A standard pump, supplied by Dutch Industries in a pump kit, puts out this oil flow.

If the spreading system is hooked up by alternate means, the oil flow may vary. If a substantial amount more than 10 gpm of flow is being supplied to the spreader, a flow control is recommended. The spreader will turn faster than recommended and/or required and issues may arise. If less than 10 gpm is supplied, it will not hurt anything! The spreading width will be reduced but in a lot of cases the spreading width will be adequate.

PROBLEM: What is the rated speed of the pump in the Dutch pump kits?

SOLUTION: The rated speed and therefore the maximum recommended speed of the pump is 3600 rpm. If the pump operates faster than the rated speed, it may overheat and cause damage.

PROBLEM: What is the pressure in the system during normal operation?

SOLUTION: The pressure in the system under normal operating conditions is approximately 400-500 psi. This will spike under load but for the most part remain fairly constant. An increased pressure may be a result of a restriction somewhere in the system and should be rectified before more serious problems occur.

PROBLEM: Which way should the Dutch spreaders turn?

SOLUTION: For proper operation, the rotation and therefore the plumbing need to be done properly. The following outlines the rotation and plumbing for each of the Dutch spreader.

Kirby

- **Rotation:** Clock-wise rotation
- **Plumbing:** When looking from the rear of the combine:

1) Pump Kit: The hose from the "CF" port on the flow control must go in the LEFT port of the orbit motor. The hose from the RIGHT port must go to the tee of the "EX" port on the flow control.
2) Header Hydraulic Hook-Up (No Flow Control): The motor supply hose must go in the LEFT port of the orbit motor. The hose from the RIGHT port must go to the "IN" port on the combine flow control.
3) Header Hydraulic Hook-Up (Flow Control): The motor supply hose must go into the "IN" port on the flow control. The hose from the "CF" port on the flow control must go in the LEFT port of the orbit motor. The hose from the RIGHT port must go to the tee of the "EX" port on the flow control.

Double Dutch

- **Rotation:** Right Tub – Counter Clock-wise
  Left Tub – Clock-wise
- **Plumbing:** When looking from the rear of the combine:
  1) Pump Kit: The hose from the "CF" port on the flow control must go in the LEFT port of the RIGHT motor and the hose from the tee of the "EX" port to the LEFT port of the LEFT motor.
  2) Header Hydraulic Hook-Up (No Flow Control): The motor supply hose must go in the LEFT port of the RIGHT motor. The hose from the LEFT port of the LEFT motor must go to the "IN" port on the combine flow control.

3) Header Hydraulic Hook-Up (Flow Control): The motor supply hose must go into the "IN" port on the flow control. The hose from the "CF" port on the flow control must go in the LEFT port of the RIGHT orbit motor and the hose from the LEFT port of the LEFT motor must go to the tee of the "EX" port on the flow control.

PROBLEM: Can quick-connects be used? Where should they be installed?

SOLUTION: Quick-connect couplers can be used without any negative consequences. Quick connects are most often used to speed up the removal of the spreader when dropping straw.

The quick connects should be located on the orbit motor supply and return lines. On the supply line, install the female side coupler on the flow control side and on the return line, install the male coupler on the flow control side. When the spreader is removed, join the two lines and complete the circuit.

PROBLEM: What do you do with the hoses when you remove the spreader?

SOLUTION: When the Dutch spreader is removed, you will have to complete the circuit. To complete the circuit you have to:

1) Install quick connect couplers: See the section of this document on quick connects.
2) Install the hose from the "CF" port of the flow control into the tee of the "EX" port of the flow control. You will have to remove the existing hose running from the spreader to the tee of the "EX" port of the flow control and store until required.
   If you have the header hydraulic hook-up kit, install the pump supply hose directly to the "IN" port of the factory flow control. You will have to remove the existing hose running from the spreader to the "IN" port of the factory flow control and store until required.

PROBLEM: Not enough or too much material being spread behind the combine.

SOLUTION: Straw and chaff are spread behind the combine by the rubber belts.

Not Enough Material – Kirby Spreader

- If you are only spreading chaff, normally you won't have the cone kit, which includes the rubber belts. When it comes to spreading chaff all you really want to do is prevent a distinct row of chaff behind the combine. Having little to no material behind the spreader/combine is perfectly acceptable.
- If you are spreading straw and chaff you should have the cone kit, complete with the rubber belts. If the belts are installed, the only reason there won't be enough material out the back, would be the location of the falling straw. Ensure the straw is falling in the center of the tub or slightly to the front.

Too Much Material – Kirby Spreader

- If you are only spreading chaff, normally you won't have the cone kit, which includes the rubber belts. When it comes to spreading chaff all you really want to do is prevent a distinct row of chaff behind the combine. If there is too much material behind the spreader/combine ensure all of the chaff is actually falling or being directed into the tub.
- If you are spreading straw and chaff you should have the cone kit, complete with the rubber belts. If too much material is being spread behind the combine, cutting down the length of the belts will reduce the amount of material behind the combine. The shorter the belts, the less material. Cut only small pieces at a time until desired results are achieved.

Not Enough Material – Double Dutch Spreader

- If you are only spreading chaff, normally you won't have the straw spreading kit, which includes the rubber belts. When it comes to spreading chaff all you really want to do is prevent a distinct row of chaff behind the combine. Having little to no material behind the spreader/combine is perfectly acceptable. However, you can lower or completely remove the back deflector panels to get more chaff out the back.
- If you are spreading straw and chaff you should have the straw spreading kit, complete with the rubber belts. Ensure the straw is falling in the center of the tub or slightly to the front; if it is not, the belts are not doing their job properly. Also, you can lower or completely remove the back deflector panels to get more material out the back.

Too Much Material – Double Dutch Spreader

- If you are only spreading chaff, normally you won't have the straw spreading kit, which includes the rubber belts. When it comes to spreading chaff all you really want to do is prevent a distinct row of chaff behind the combine. If there is too much material behind the spreader/combine ensure all of the chaff is actually falling or being directed into the tub and raise or install the back deflector panels to reduce the amount of chaff out the back.
- If you are spreading straw and chaff you should have the straw spreading kit, complete with the rubber belts. If too much material is being spread behind the combine, first look at installing or raising the back deflector panels; the higher they are, the less material out the back. If there is still too much, cutting down the length of the belts will reduce the amount of material behind the combine. The shorter the belts, the less material. Cut only small pieces at a time until desired results are achieved.

PROBLEM: Case International – Straw hitting the tire and building up on the axle.

SOLUTION: When using a Kirby spreader, there are potential problems with Case International combines because of the wheel size. On most of the older combines the back wheels are relatively small and a Kirby spreader will work. On the newer and possibly retro-fitted combines, the wheels are larger and when using a Kirby the material discharged out the right side hits the tire, falls on the axle and leaves clumps throughout the field.

With the combines with large tires, a Double Dutch spreader should be used!

PROBLEM: John Deere – There is a gap between the end of sieve and the chaff pan.

SOLUTION: On the 7720 and 8820 John Deere combines there is a substantial gap between the end of the sieve and the chaff pan. This gap is there because of the grain loss monitors on some of these combines. If they do not have grain loss monitors, the gap is even more pronounced and a customer will more than likely questions why the gap.

It is up to the customer to fill this gap because if we fill it then the next person will question us to why we did.