## Trouble shooting for no spread rate control

#### 1. Verify that the cam hydraulics can open & close the cam:

- a. In the valve box on the front of the chip box. On the (Sauer-Danfoss) hydraulic control valve using a small screwdriver or pick, use the manual override to open and close the cam. (The manual operator is on each end of the valve in the center of the solenoid coils).
- b. If the cam opens and you DO get cam open reading on the display go to step #2. If the cam opens and you DO NOT get a cam OPEN reading on the display, proceed to #c.
- c. Check the cam position sensor, NOTE there are two different types:

#### Type1: PPU sensor in the cam gearbox hydraulic motor.

d. Set the chip spreader up in the Simulate mode, step #2, remove the sensor cable from the hydraulic motor, at the cable connector, with a paperclip tap from pin #1 to #4 have someone watch the display the cam open should start increasing. Repeat tap from pin #3 to #4 have someone watch the display the cam open should start increasing. If it does you need to replace the cam sensor.

# Type2: Rotary position Sensor on cam shaft. If you have this I will send a separate sheet.

- e. If you cannot get the cam to move from fully closed to fully open.
- f. Disassemble and inspect the cam gear box for broken gears or bolts.
- g. Repair and replace as necessary.
- h. See gear box image on page 13.

#### 2. Now we are going to do a test. (Simulate travel without moving)

- a. With the Chip spreader running.
- b. Using the up/arrow go to the second page hold button #8 for 3 seconds to turn on Simul. (note: now on the front page it should be displaying 300MPm.
- c. Now set your Kg/SM to 12.
- d. Using the up arrow go to the third page (pan weight page) set the page weight at 25 press and hold OK until you see the 25 flash (Note: this number does not change with metric so 25lbs ≈ 12Kg) Press and hold the OK button 8 more times this we get the math back to ground zero.
- e. Now the cam should be about 8% to 10% open. (Note: the Open display on the front page should go from 0% to 100%) (NOTE: if the Cam is opening and you are not getting any reading g in the Cam OPEN display you have a cam sensor problem).
- f. If you go to the second page and select the simulate speed and increase the FPM (MPm) (Feet per Minute or Meters per Minute) the cam should open more.
- g. If you have the cam working in this Simul. Mode turn off the Simul. Mode and try to operate the chip spreader, if it works do the cam calibration starting on page 5.
- h. If it is still not working go to item #3.

- **3.** Verify that when the chip spread is traveling there is FPM (MPM) speed displayed on the home page of the control system (see page 4)
  - a. If not test speed sensor, located at the left rear wheel brake drum. You can test it by removing the cable from the PPU sensor, than using a paper clip, tap the A & C terminals together, as you pulse the A & C pins it should show speed on the display. If it does replace the speed sensor.
  - b. If not check and repair the wiring.
    - i. A pin = 12Vdc
    - ii. B pin = ground
    - iii. C pin = speed signal
  - c. If the speed sensor is working go to item #4.

### 4. In the valve box on front of the chip box:

- a. Remove the electrical connectors from the Sauer-Danfoss valve.
- b. Using 12Vdc see if that will move the cam.
- c. When the cam moves does it display the value on the computer screen cam OPEN should go from 0% to 100%. If the cam moves but does not display the value. Than go to step #5.

### Bearcat Chip Spreader control system operation for 2006-07Chip Spreader with two seats







Adjusting (PSY) Pounds per Square Yard if no other function is selected than you can use button #1 inc. #2 dec. at any time while stopped or while chipping.



## Adjusting the actual amount of chips spread. Pan Weight Calibration

First thing to check is that your gate cam bolts are adjusted properly.

1. With the cam closed and the gate closed note configuration in figure.



- 2. Open the gates with cam closed..
- 3. This base setting should be 5/8" (16mm). NOTE if you are spreading slowly (city type work or your chips are small you may need to close this adjustment to 3/8" (9mm), see gate adjustment figure.



4. **Note:** that if you have one or two foot that is light or heavy you may have to open or that gate to get an even mat across the road.



- 5. Now that you have the gates mechanically adjusted we can move on to adjusting the computer to spread the desired amount of chips.
- 6. Set the front page spread rate to the desired spread rate.

	Spread Rate Setting				
(1) — (2) —	E CONTRACTOR SPREAD RM 16 25 PSY	SPEED 285 FPM	OPEN 11 PERCENT	MDTH 12 FEET	- 5
(3) — (4) —	LINEAL FEET SQUARE YARDS ENGINE RPM		AIR PRES P HYD. TEMP.	SI 134 F 83 AUTO	- 7
Use Button 1 & 2 inc./dec. PSY			ok) [•]	V A	]

- 7. If you have determined the chip spreader is spreading too many chips per square yard, go to the Pan Weight page and increase the Pan Weight number and press OK for 5 seconds, (you see the number flash, than it received the new number).
- 8. If you have determined the chip spreader is spreading not enough chips per square yard, go to the Pan Weight page and decrease the Pan Weight number and press OK for 5 seconds, (you see the number flash, than it received the new number).
- 9. Repeat steps 6 & 7 until you the chip spreader is dropping the correct amount of chips per square yard.



10.Note it is best to calibrate the chip spread with the front PSY display set to the spread rate you will be using.

To clear the foot counter select it and hold the Reset. (#3) button for 3 seconds.



#### Description of Display Readings Travel Speed Chip Box CAM Number of Fuel Gauge Gates Displayed Opening % in Feet **PSY Setting** LOW 19 EIIII INC = OPEN SPREAD RATE SPEED OPEN WIDTH Chipper AIR 285 11 12 2 Pressure from DEC PSY ERCENT FEET FPM engine compressor RESET = 7 LINEAL FEET Distance AIR PRES PSI 134 SQUARE YARDS HYD. TEMP. 83 Traveled While Hydraulic Oil ENGINE RPM 0 AUTO Chip Box Gates Temp at the Oil are OPEN. Cooler. NOTE: If the ESC OK reading is stuck on Square Yards Covered Option 154°F You have a **Engine RPM** Not Available on bad connection in from the tack R SHIFT this Model the oil sending unit PAGE terminal on the wiring. 0 alternator 0



Remove the half of the housing to inspect the gear and bolts.

If you find broken bolts, replace all bolts.

NOTE: the split gear bolts and all mating threads MUST be cleaned and primed with Loctite primer, than using RED Loctite on the threads re-assemble and torque bolts to 25 Foot Pounds

