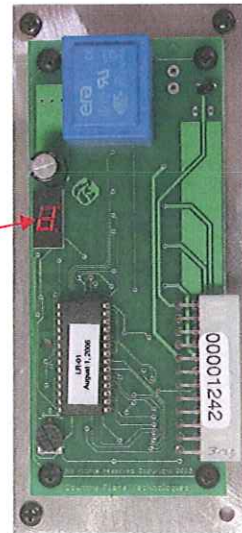


## Trouble Shooting Guide for CF for all CF pellet unit built after 2006

### DIAGNOSTIC FEATURE

- The built in “*DIAGNOSTIC*” feature of the Country Flame control board simplifies the trouble-shooting process. The codes that represent fault conditions will more than likely require personnel to go thru a process of elimination while trouble shooting the reported problem. (See below the code section)
- Any time the stove is in a fault condition there will be a corresponding “*ERROR CODE*” displayed. (As shown.)
- The purpose of this feature is to provide a *Starting Point* for service personnel to trouble-shoot most of the possible causes or conditions of an inoperable stove.
- Simply reference the error code being displayed to your trouble-shooting section for service instructions.
- The diagnostic codes represent both the stove status while in normal operation, as well as an indicator to fault conditions.
- The diagnostic display will also show a code for each “*Operational Mode*” that the stove is in. (Real Time) Idle state with power, prime mode, start-up sequence, ignition mode, operating mode, cool down mode, etc.
- There are a total of 18 built in diagnostic codes, 10 numbered, and 8 lettered, of which the board can display. (See below)
- It is also useful for the consumer, should they experience a fault condition, and the code can be expressed to the dealer or looked up in the manual for the corrective action required.
- The “*Diagnostic*” feature on the control board will not display the following critical areas:
  - Lack of customer knowledge related to proper stove operation.
  - Incorrect power source (no ground, variable voltage issues)
  - Incorrect Fuel being used (Moisture content to high, “Un-cleaned”)
  - Lack of maintenance of the stove, clogged holes in burn-pot.
  - Doors not adjusted properly.
  - Stove choked full with ash.
  - Chimney system or termination cap is blocked or plugged



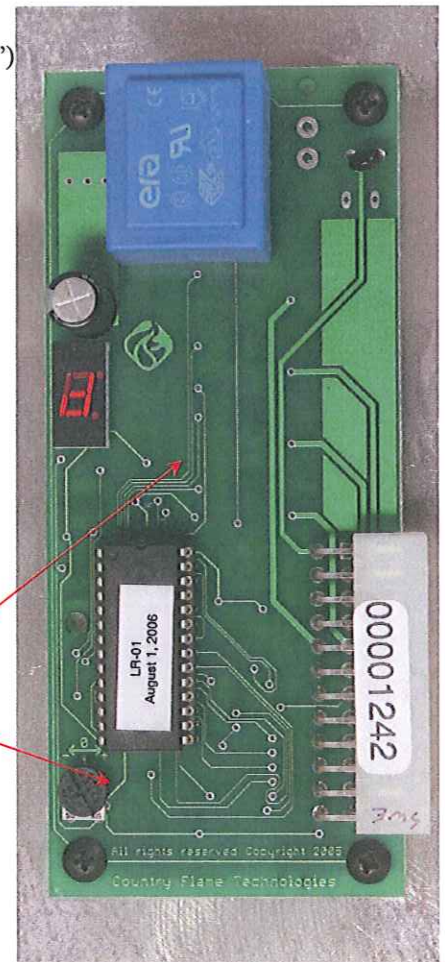
### CONTROL BOARD Identification

The Country Flame control board has a label identifying the correct control board.  
(NOTE: NPS-1005-P shown below.)

LRV39.S19 (may have LR-01)	NPS-1005-P	Control Panel w/ pellet chip Used on LR
Crossfire_beta_39c.s19	NPS-1005-CF	Control Panel CF04 (pellet) Used on CF04 Pellet
Cornv39a.s19	NPS-1005-C	Control Panel w/ corn chip Used on HR, CF04 Corn

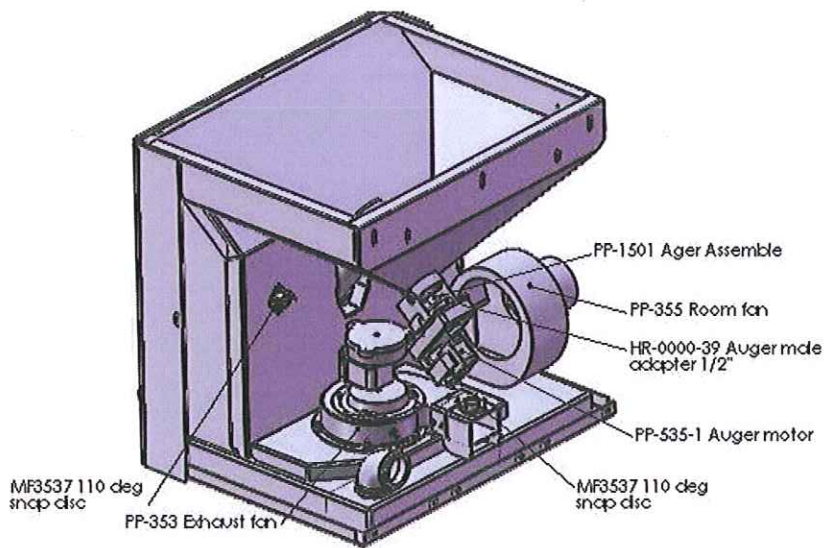
Control Board

Label

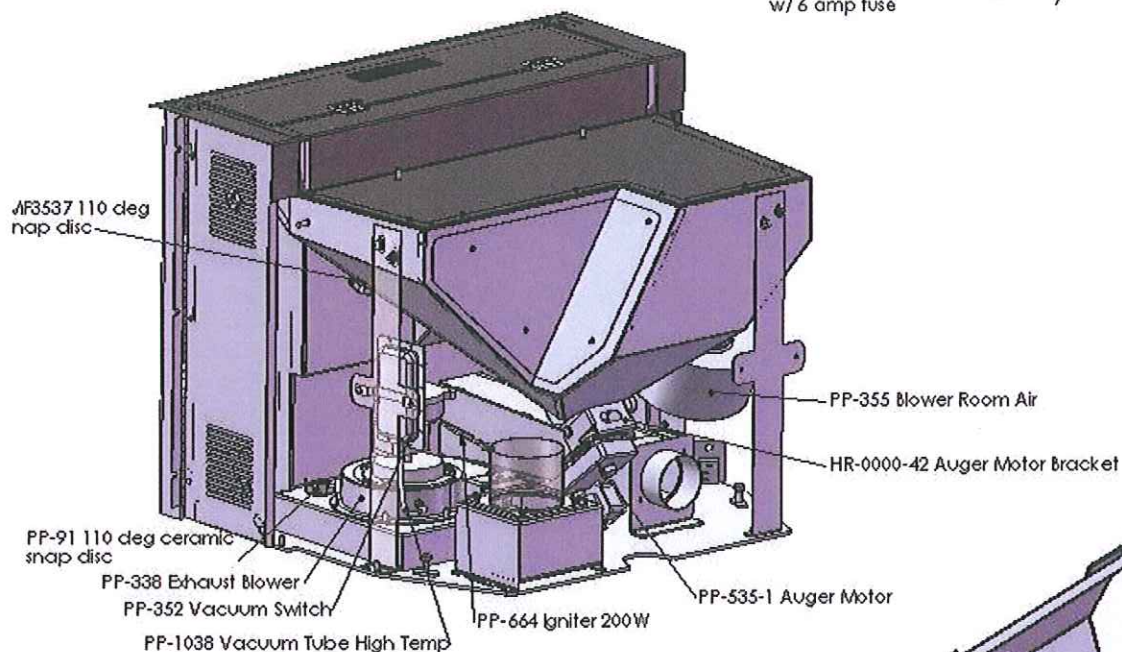
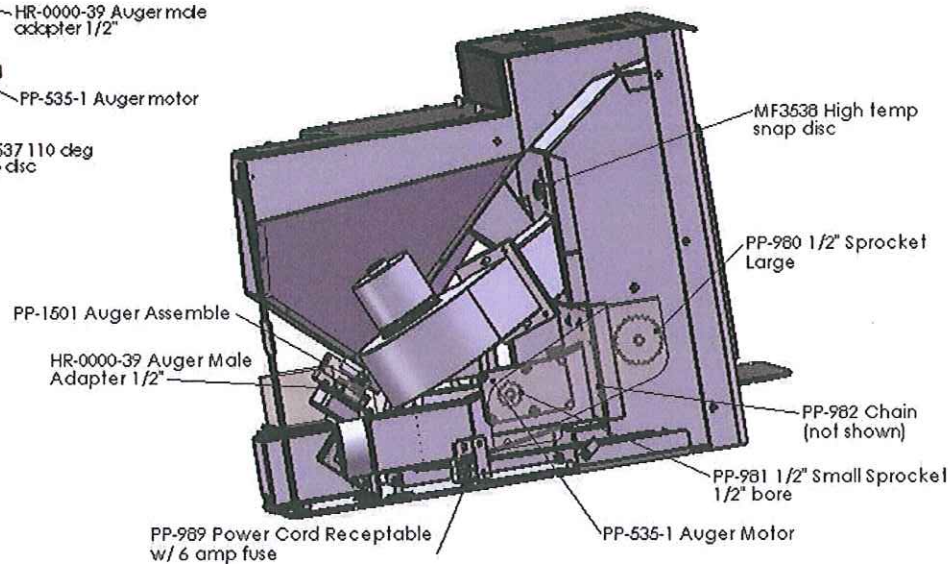


(REAR ILLUSTRATION VIEW)

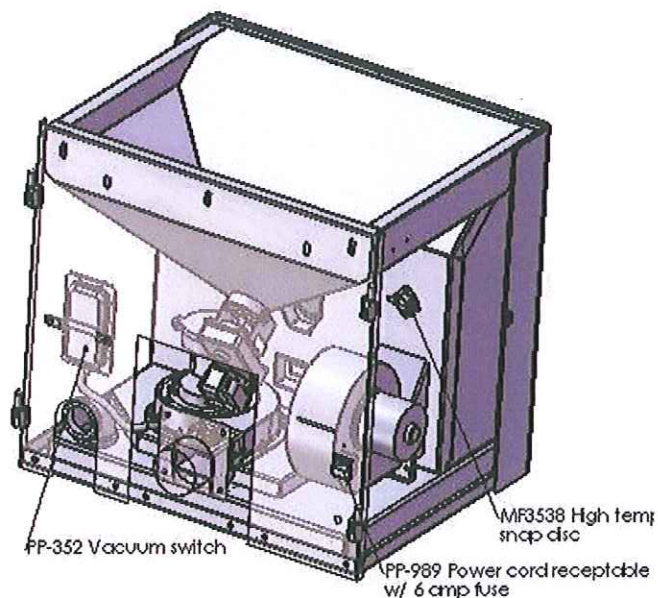


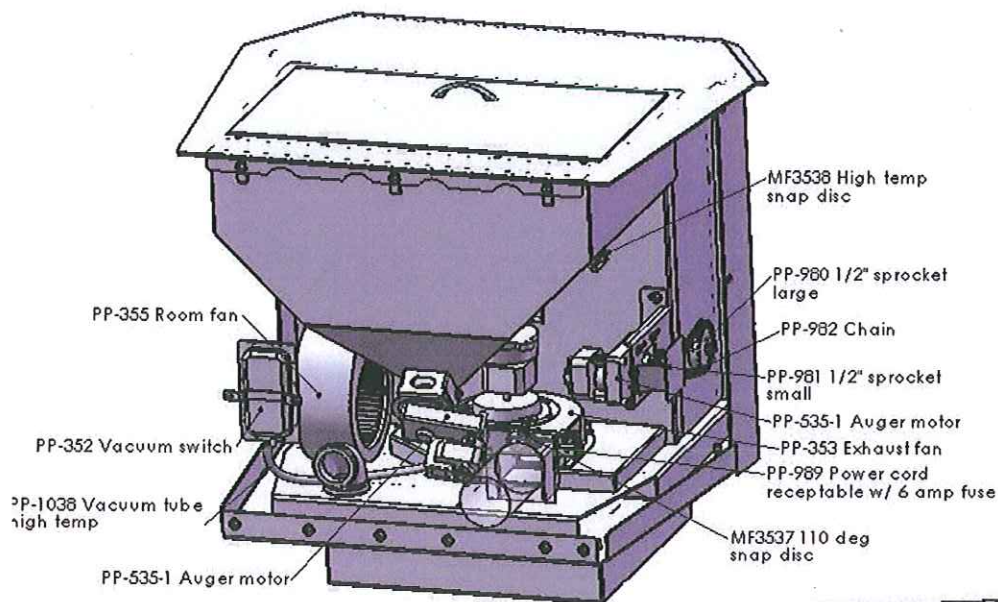


(Back view of Little Rascal)

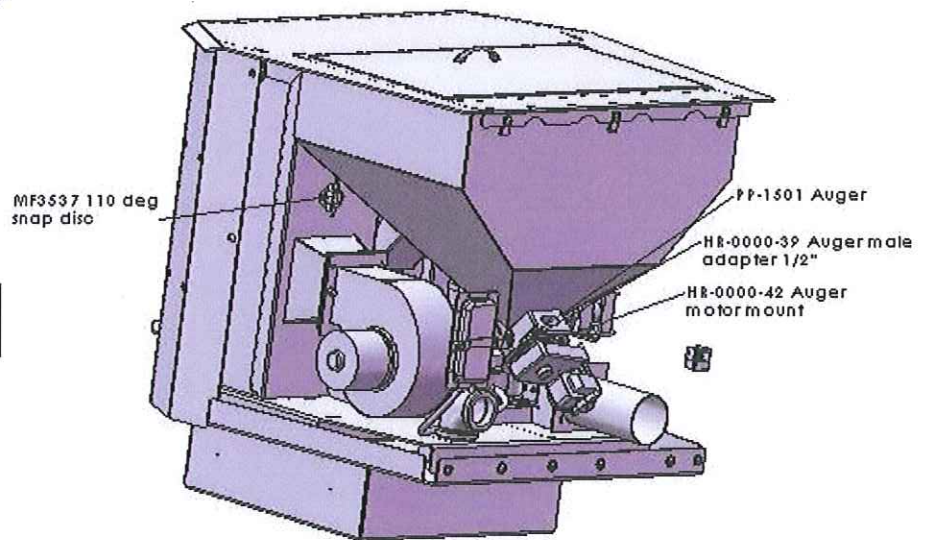


(Back view of Crossfire-Flex)





(Back view of Harvester)



### TROUBLE-SHOOTING INFORMATION

1. Error codes will be displayed for any failure of any electrical safety device. This also includes the 3 "Snap-disc" in the system, any over-temp condition, or loss of vacuum, a time out for lack of Ignition on pellet stoves, or any combination of these faults.
2. The only indication of an auger or stir rod motor failure would be the lack of fuel being fed into the burn-pot, or by a visible indication that the stir rod is failing to rotate. This would again require checking the assembly to determine if it is the motor or the gear box that has failed.
3. A multi-meter with an OHM resistance feature or a simple continuity tester is *required* to check and verify most of the electrical problems you may encounter with the stoves. It maybe used to check continuity on vacuum switches, snap disc's, igniters, individual wire leads and fuses.
4. All units are shipped with a 6 amp fuse located in the power receptacle replace if necessary with a 6 amp fast flow fuse.



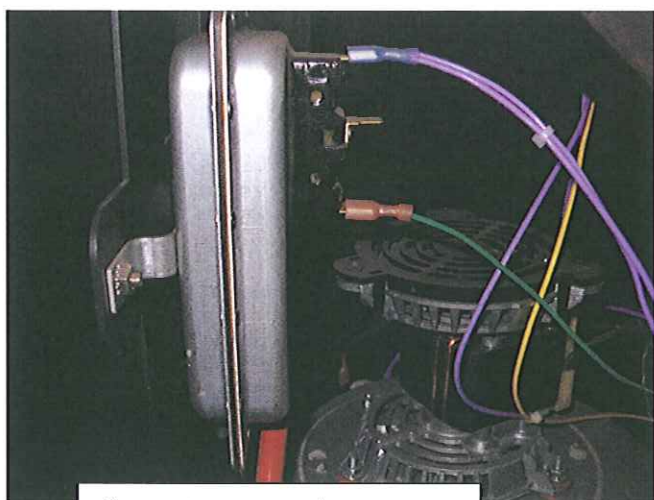


**Code 0** System should exhibit Code 0 when the power is first supplied to stove. The control board provides 5 volts dc to the vacuum switch and checks for its presence. The vacuum switch normally closed. When the combustion exhaust fan creates enough vacuum, the vacuum switch opens, removing the 5 volts dc signal and telling the control board a vacuum is present. This is the start-up cycle.

- After a few seconds, the vacuum switch should pull closed and cause a code '1' to be displayed. If code '0' still remains this could mean.
  - Control panel board is defective. This may involve sending the control panel box to AES for testing.
  - The door or ash pan is not sealed correctly. Verify the door is closed correctly and the all gaskets are in good shape. To test door gasket seal, place a slip of paper against the stove door frame and then latch the door, tug paper gently. Continue this test around entire door frame. If gently tugging on the paper does not dislodge it from the door, the seal is appropriate. If paper does dislodge from the door, replace gasketing. To adjust the gasket tightness, rotate the door latch one clockwise (loosen) revolution as necessary to adjust the gasket seal and tightened by turning the handle one counterclockwise revolution.
  - The vacuum line is plugged between the vacuum switch and the combustion exhaust fan. To clean the vacuum port pull the vacuum hose off and using a 3/16" round ream hole in vacuum port. Place the vacuum tube back on. Restart unit.



- The vacuum switch is defective to test. To test the vacuum you will need to switch the green lead from the bottom terminal and place in the middle terminal remove the vacuum tubes from the vacuum switch. At this point restart unit and if the unit goes into the start-up sequence the vacuum is defective and must be replace. After testing has been complete unit must be hooked up correctly as shown.



Correct way to wire



Shown for testing procedure only



- The wiring between the control board and the vacuum is defective. Complete a visual check of the vacuum leads (purple and green) from the control panel to the vacuum switch, make sure they are fastened tightly to the terminals and there are no shorts in wire. Also check the continuity using a voltmeter across the vacuum leads. Photo 1 shows wire has continuity across leads and photo 2 does not.



Good wire



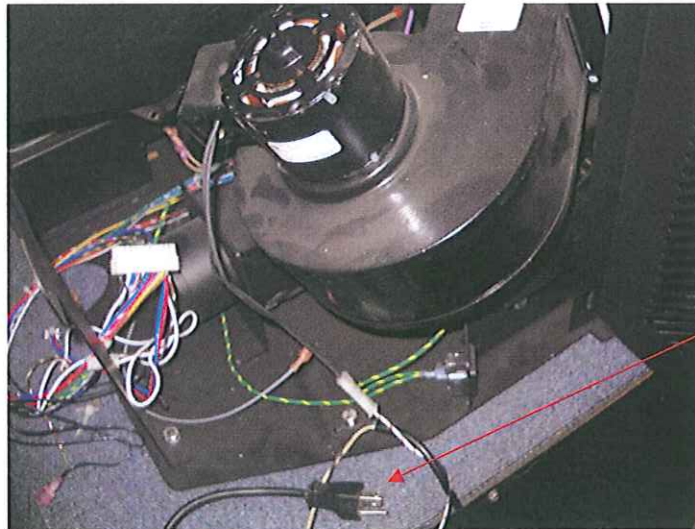
Bad wire

**Code 1** Recognizes the vacuum switch is operating properly. Stove will go from start-up cycle to ignition cycle.

**Code 2** Recognizes a vacuum is not present and the overtemp snap disc is hot. A wiring problem has occurred, or two components (vacuum switch and overtemp disc) are bad, which is highly unlikely.

**Code 3** Recognizes overtemp disc is hot. A wiring problem has occurred, control board is bad or the overtemp disc is bad.

- The failure of the room-air blower would show up only as an over-temp fault snap disc failure. This would have to be diagnosed and independently checked with a power cord.



Test power cord

**Code 4** Recognizes a vacuum is not present and there is a problem with the exhaust snap disc. IF the stove has ever been operating properly, the likelihood of two items failing at the same time is highly unlikely.



**Code 5** Recognizes a problem with the exhaust snap disc, or the room air snap disc. It is most likely a problem with the exhaust snap disc if the stove has been operating properly previous to Code 5 being displayed.

**Code 6** Recognizes a vacuum is not present and there is a problem with the exhaust snap disc or the room air snap disc AND the overtemp snap disc. If the stove is cool then both the room air snap disc and overtemp snap disc are bad, which is highly unlikely; therefore it is most likely the exhaust snap disc and the vacuum has become plugged with soot as the stove cooled down.

**Code 7** Recognizes a problem with the exhaust snap disc, or the room air snap disc and the overtemp disc. It is most likely a problem with the exhaust snap disc if the stove has been operating properly.

**Code 8** Recognizes a vacuum is not present and there is a problem with the room air snap disc. It is most likely the room air snap disc with a clogged vacuum if the stove has been operating properly.

**Code 9** The Control Board has completed the ignition cycle and is switching to the burn cycle. Control Board has completed the IGNITION CYCLE and is switching to the BURN CYCLE. The igniter should shut down to conserve energy and the stove will now watch for the room air snap disc to close before recognizes a problem with the exhaust snap disc, OR the room air snap disc. If the stove is cool, it is most likely the exhaust snap disc. If the stove is hot, it is most likely the room air snap disc.

**Code A** Recognizes a vacuum is not present and there is a problem with the snap discs or there is a wiring problem. If the stove is cool, then it is most likely the exhaust and overtemp snap disc. If the stove is hot, then it is most likely the room air snap disc. The vacuum has plugged due to improper airflow or inefficient burn process.

**Code B** Recognizes there is a problem with the snap discs. If the stove is cool, then it is most likely the exhaust and overtemp snap disc. If the stove is hot, then it is most likely the room air snap disc, or there is a wiring problem.

**Code C** Recognizes a vacuum is not present and there is no problem with the snap discs if the stove is hot and has not reached overtemp condition. If the stove is cool, then both exhaust and room air snap disc are bad or there is a wiring problem. The vacuum has plugged due to improper airflow or an inefficient burn process.

- It could be any of the following all or any combination of these will cause the stove to shut down and the error 'c' is displayed.
  1. Vacuum switch is bad.
  2. The wire is no longer making connection to the switch.
  3. Exhaust fan has failed.
  4. The nipple on the exhaust fan is clogged with ash.
  5. The chimney system could be obstructed.
  6. The door could have an air leak or not be closed securely enough.
  7. Last but not least, the stove could be clogged full with ash due to lack of the recommended maintenance as described in the manual.

**Code d** Recognizes system is operating properly in the burn cycle. The system will stay in the BURN CYCLE until some outside force interrupts the system, i.e., fuel hopper empties, power interruption, system turned off by operator, thermostat does not call for heat, etc.

**Code E** Recognizes a vacuum is not present and an overheat condition of the stove, if the stove is hot. If the stove is cool, then all snap discs are bad or there is a wiring problem. If the stove has been operating properly, it is most likely an overheat condition due to failure of an exhaust or room air fan. The vacuum has become plugged due to inefficient burn.

**Code F** Recognizes an overheat condition of the stove if the stove is hot. If the stove is cool, then all snap discs are bad or there is a wiring problem. If the stove has been operating properly, it is most likely an overheat condition due to failure of an exhaust or room air fan.

**Code L** Recognizes a startup problem. The igniter did not create a fire within the specified time (approximately 10 minutes) and has timed out. The igniter system or combustion airflow should be checked and corrected.

**Code P** The Control Board has been put into the prime mode. The system is "loading" the auger full of fuel. Once pellets or corn start dropping into the burn pot, the system should be turned off and then startup procedures can be initiated.