ECU® Trouble Shoot Guide for Engine-Controls

Topics

Basic tests to check unit

First set the unit up as shown in Fool proof settings for checking the unit. This will give a simple easy way to check for basic unit operation. After you have set the adjustments do the following…

0. Do Fool proof settings for checking the unit
1. Disconnect terminals 4,5,6,7 which will prevent any faults from occurring during this crank cycle test
2. Set voltmeter for DC volts
3. Connect voltmeter to terminal 6 with jumper
4. Be sure terminal 2 is connected to battery negative
5. Apply Battery postive to terminal 13
6. After LED test (1 sec) the starter terminal should have Battery voltage appearing for about 2 seconds then the unit will stop with the OS and OC leds on at the same time. This is correct behavior. If this did not occur then check to see if you have about 4.5 volts on terminal 4 and 5. If you have the 4.5 volts and your unit does not operate as above then call 317-849-8470 so we may assist you further.
7. If you are ok to here be sure you have 4.5 volts on terminals 4 and 5.
8. Now remove voltage from 13. Put your finger on terminal 1 (this channels 60 cycles into the input) and put voltage on 13. If there is enough stray signal your unit will crank cycle then come up with overcrank
9. At this point your unit is quite functional readjust the pots and switches per the adjustments page.

Fool proof settings for checking the unit

Do the following to set up for unit test.

1. ON the side of the unit there is a label that identifies the adjustment pots on you unit. Refer to it for the following adjustments
2. Turn crank adjust counterclockwise 30 turns. It has a clutch so it can't be damaged.
3. Turn fault delay counterclockwise 30 turns. It has a clutch so it can't be damaged.
4. Turn crank disconnect clockwise 30 turns. It has a clutch so it can't be damaged.
5. Turn overspeed clockwise 30 turns. It has a clutch so it can't be damaged.
6. Turn sw1 on, sw2 off, sw3 off, sw4 off, sw5 off.
7. The unit is now adjusted for some short 1 to 2 second cranks. The overspeed is overriden and it can't crank terminate.

Remember this is just for testing. **YOU** must reset the control by using the Adjustments guide accessable from you main engine control page.

Cranking Problems

Do the following to set up for unit test.

1. It is very important that the magnetic pickup is installed in the bell housing and properly adjusted.
2. Put voltage on 13 and check to see that you have 2 to 15 volts AC on terminals 1 and 2.
3. If you don't have the voltage in step 2 while the engine is cranking then you must check and adjust magnetic pickup. It may be dirty or have a broken wire.
4. If your engine isn't cranking at all check to see if you have voltage on terminal 6 when you put voltage to terminal 13.
5. If nothing is working then do the basic engine test. After you have done that come back to step 6.
6. Now that you have confirmed engine control operation be sure you adjust the unit as shown in adjustments
7. If you are getting one second cranks despite your current crank time setting be sure sw 5 is off
8. Be sure crank disconnect is not set to zero
9. If you never have seen voltage on term. 6 you should call 317-849-8470 and ask for sales/service and we will assist you further

Remember this is just for testing. **YOU** must reset the control by using the Adjustments guide accessable from you main engine control page.

False Shutdowns

Do the following to set up for unit test.

1. Remove wires from 4,5,7. Be cautious this may remove the emergency stop or other critical function. Be prepared to override and stop engine during this check.
2. Put voltage on 13 and check to see that you have 4.5 volts on terminal 4 and terminal 5.
3. If you have 4.5 volts DC on both terminal 4 and 5 then start engine and see if it faults out.
4. If engine runs ok then connect wire 4 and check engine operation again. If ok then go to 5 else check to see if you have a safety or a sender. The unit will only work with a safety switch NOT a sender. Check to be sure you have either an open circuit or a short when the switch closes and opens.
5. Repeat the test with terminal 5.
6. Connect remaining safety switches and check to see if any of them trip unit.
7. If your false shutdown was overspeed you may have to increase your overspeed setting to allow for too much overshoot during startup from the governor.
8. Most false trips are due to wiring or safety switch problems. If the unit does not have a problem when the safety switches are disconnected then you must look with great care at the safety switches themselves.
9. The control is designed for high levels of electrical noise to be present and not have a false operation.

Remember to re-adjust and wire your unit after testing.

Overspeed LED and Overcrank LED on at same time

Do the following ...

1. Your system is equipped with two magnetic pickup safety systems. Two seconds into the crank cycle the magnetic pickup is checked to see if the engine is putting out any voltage. When the engine is running it is checked to be sure there is a continuous voltage. If either case is not true the engine will stop with both the Overcrank and Overpseed LEDs on at the same time.
2. These tests help to ensure no starter damage or over speed damage.
3. Be sure that during cranking you have 2 to 15 volts on terminals 1 and 2.
4. If you don't have it or it is very low try cleaning the magnetic pickup. The magnetic pickup is magnetic and does collect ground up flywheel shavings. These can eventually cause a lowering of the output voltage. Also be sure the wiring is ok. If you don't have at least 2 volts AC during cranking you must replace the mag pickup.
5. If your wiring is ok and the ouput is correct you could see the Overcrank and Overspeed LEDS on at the same time if the engine stops for lack of fuel or other reason. Fuel problems often cause this fault indication.

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Remember to re-adjust and wire your unit after testing.

Overcrank LED comes on during engine run

Do the following ...

1. Because you system is equipped with an automatic magnetic pickup monitor there is only one reason for this problem. You have failed to set the crank disconnect setting. This means you are grinding up your starter. Please refer to the adjustments guide to set this adjustment properly.

Remember to re-adjust and wire your unit after testing.

No latch on extra fault input

1. This is not a latched input due to the inability to indicate it properly. The unit should shutdown with NO LEDS on. NO output relays will be on either.

Remember to re-adjust and wire your unit after testing.

Engine cranks for 1 or 2 seconds then stops

1. You may have switch 5 on. Be sure it is only used in the speed switch adjust after crank terminate has occurred.
2. You may have magnetic pickup problems see Overcrank and Overspeed LEDS on at same time.

Remember to re-adjust and wire your unit after testing.

OIl pressure and Temperature shutdowns if wires are connected to terminals 4 and 5 even if engine is ok

1. Be sure the safety switches are switches and not senders. Make sure no other devices are attached to the wires on terminals 4 and 5.
2. Go to False Shudowns.

Remember to re-adjust and wire your unit after testing.

No output on Starter terminal 6

1. You should go to the Basic tests to check unit
2. Also check the Cranking Problems.
3. If you are still having problems call 317-849-8470 ask for sales/service.

Remember to re-adjust and wire your unit after testing.