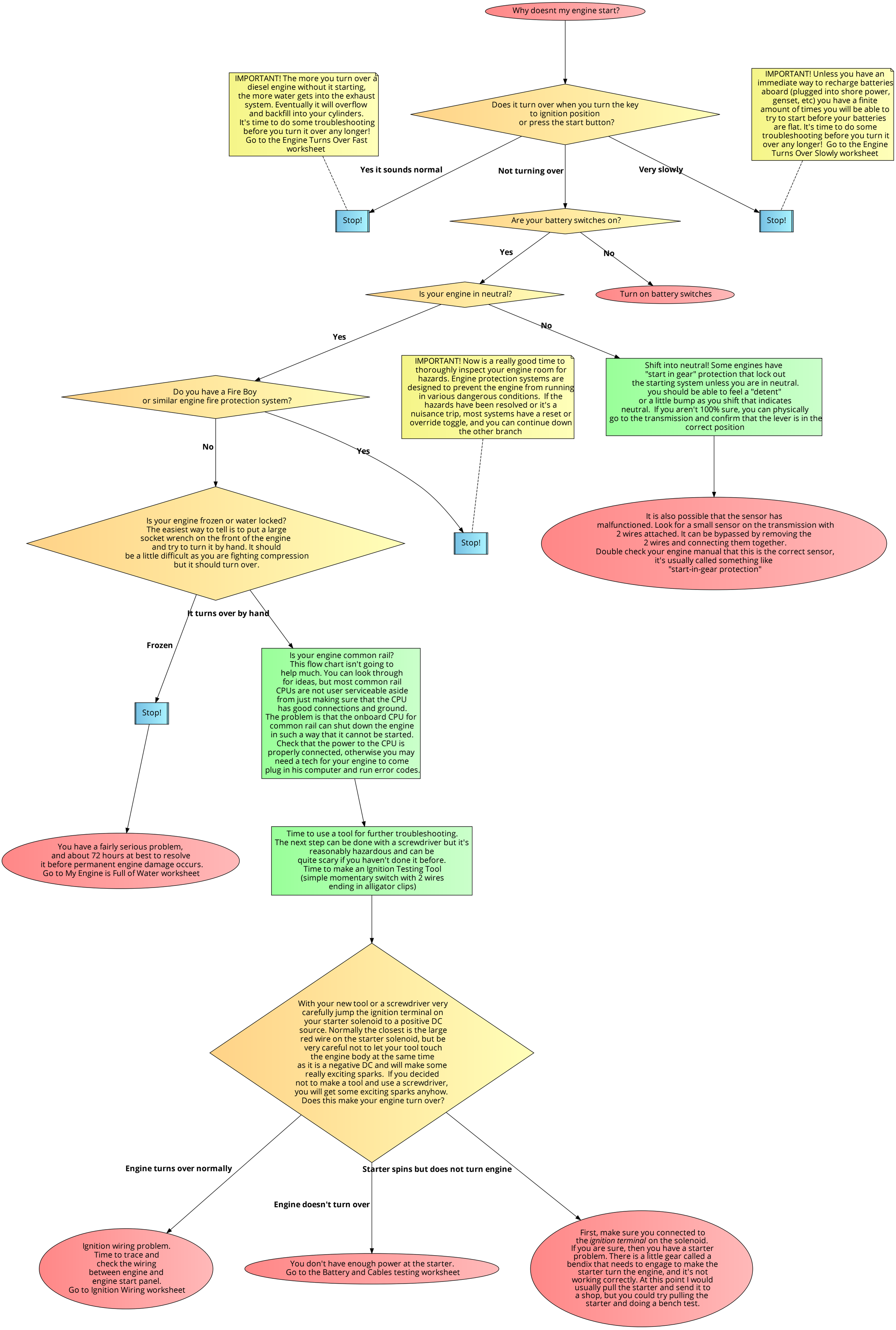
Why doesnt my engine start?
Does it turn over when you turn the key to ignition position or press the start button?
IMPORTANT! The more you turn over a diesel engine without it starting, the more water gets into the exhaust system. Eventually it will overflow and backfill into your cylinders. It's time to do some troubleshooting before you turn it over any longer! Go to the Engine Turns Over Fast worksheet
IMPORTANT! Unless you have an immediate way to recharge batteries aboard (plugged into shore power, genset, etc) you have a finite amount of times you will be able to try to start before your batteries are flat. It's time to do some troubleshooting before you turn it over any longer! Go to the Engine Turns Over Slowly worksheet
Yes it sounds normal
Not turning over
Very slowly
Stop!
Stop!
Are your battery switches on?
Yes
No
Is your engine in neutral?
Turn on battery switches
Yes
No
Do you have a Fire Boy or similar engine fire protection system?
IMPORTANT! Now is a really good time to thoroughly inspect your engine room for hazards. Engine protection systems are designed to prevent the engine from running in various dangerous conditions. If the hazards have been resolved or it's a nuisance trip, most systems have a reset or override toggle, and you can continue down the other branch
Shift into neutral! Some engines have "start in gear" protection that lock out the starting system unless you are in neutral. you should be able to feel a "detent" or a little bump as you shift that indicates neutral. If you aren't 100% sure, you can physically go to the transmission and confirm that the lever is in the correct position
No
Yes
Stop!
It is also possible that the sensor has malfunctioned. Look for a small sensor on the transmission with 2 wires attached. It can be bypassed by removing the 2 wires and connecting them together. Double check your engine manual that this is the correct sensor, it's usually called something like "start-in-gear protection"
Is your engine frozen or water locked? The easiest way to tell is to put a large socket wrench on the front of the engine and try to turn it by hand. It should be a little difficult as you are fighting compression but it should turn over.
It turns over by hand
Frozen
Stop!
Is your engine common rail? This flow chart isn't going to help much. You can look through for ideas, but most common rail CPUs are not user serviceable aside from just making sure that the CPU has good connections and ground. The problem is that the onboard CPU for common rail can shut down the engine in such a way that it cannot be started. Check that the power to the CPU is properly connected, otherwise you may need a tech for your engine to come plug in his computer and run error codes.
You have a fairly serious problem, and about 72 hours at best to resolve it before permanent engine damage occurs. Go to My Engine is Full of Water worksheet
Time to use a tool for further troubleshooting. The next step can be done with a screwdriver but it's reasonably hazardous and can be quite scary if you haven't done it before. Time to make an Ignition Testing Tool (simple momentary switch with 2 wires ending in alligator clips)
With your new tool or a screwdriver very carefully jump the ignition terminal on your starter solenoid to a positive DC source. Normally the closest is the large red wire on the starter solenoid, but be very careful not to let your tool touch the engine body at the same time as it is a negative DC and will make some really exciting sparks. If you decided not to make a tool and use a screwdriver, you will get some exciting sparks anyhow. Does this make your engine turn over?
Engine turns over normally
Starter spins but does not turn engine
Engine doesn't turn over
Ignition wiring problem. Time to trace and check the wiring between engine and engine start panel. Go to Ignition Wiring worksheet
You don't have enough power at the starter. Go to the Battery and Cables testing worksheet
First, make sure you connected to the ignition terminal on the solenoid. If you are sure, then you have a starter problem. There is a little gear called a bendix that needs to engage to make the starter turn the engine, and it's not working correctly. At this point I would usually pull the starter and send it to a shop, but you could try pulling the starter and doing a bench test.