



## Multi Function Troubleshooting Flowchart - Rev A

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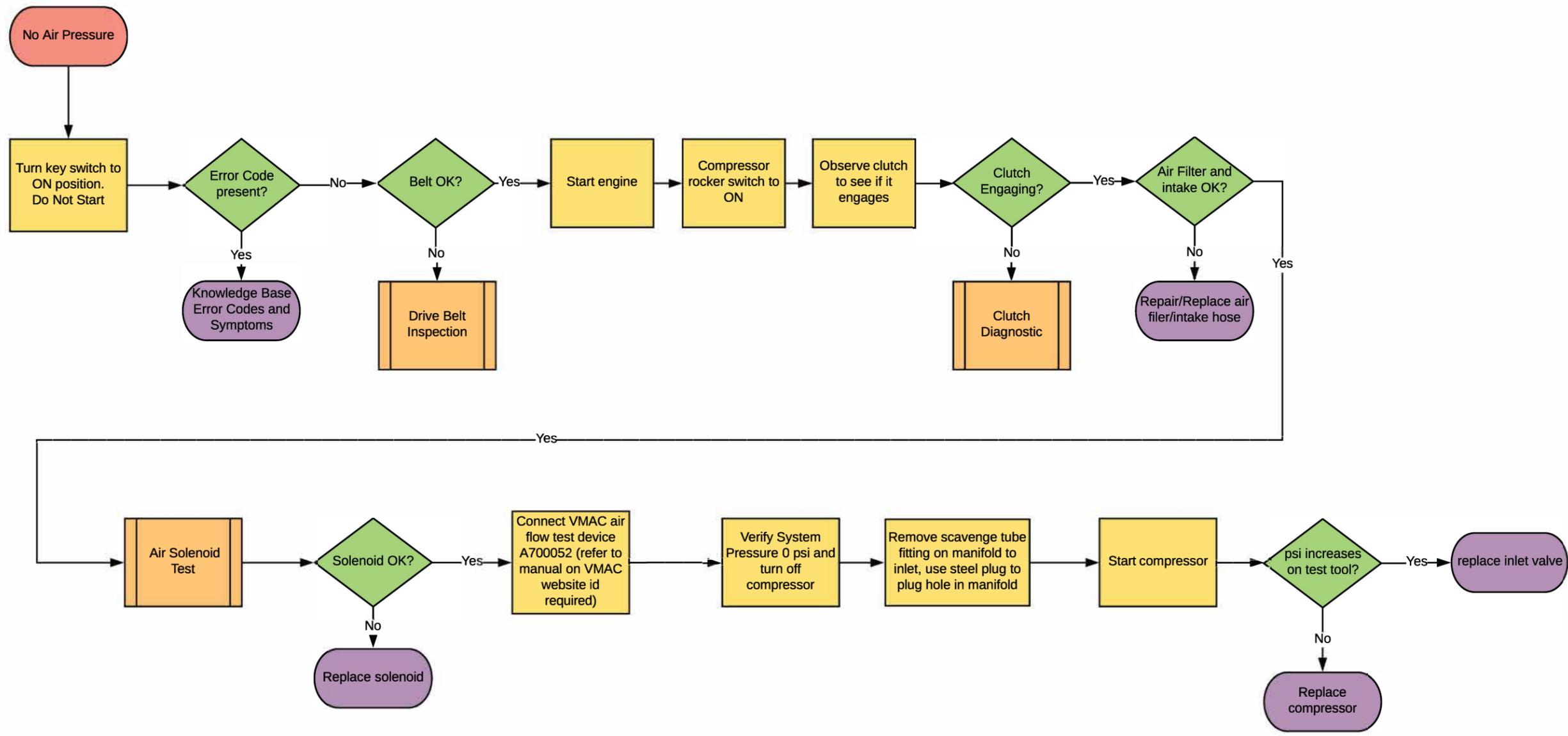
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Department Responsible : Technical Support

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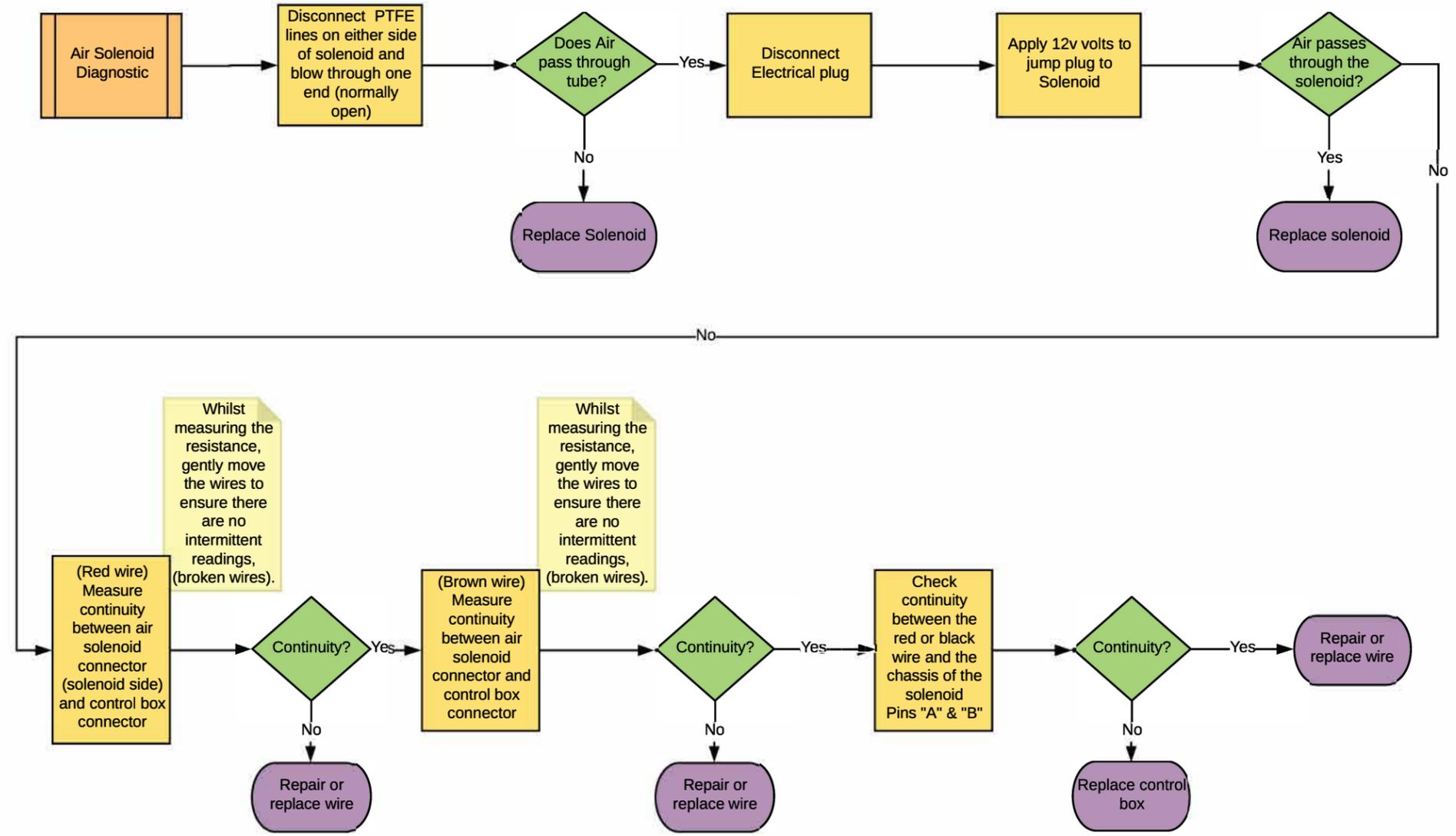
# No Air Pressure



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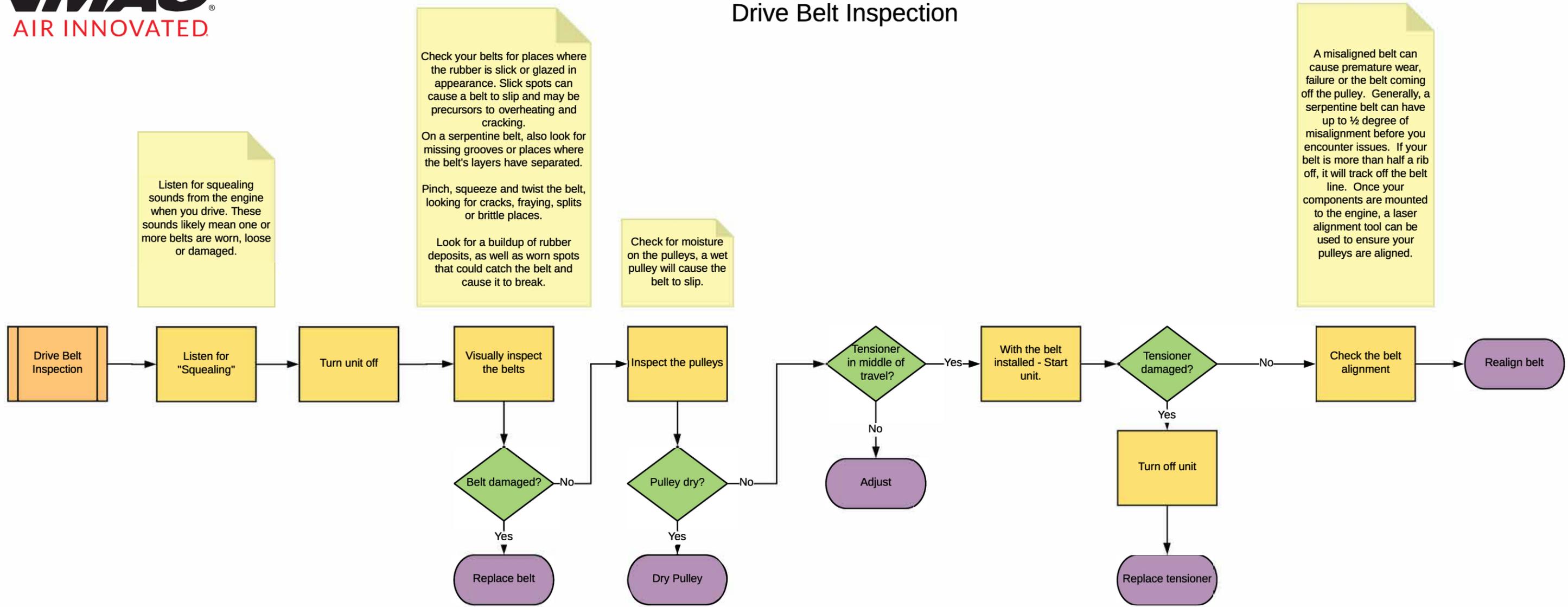
# Air Solenoid Test



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# Drive Belt Inspection



Listen for squealing sounds from the engine when you drive. These sounds likely mean one or more belts are worn, loose or damaged.

Check your belts for places where the rubber is slick or glazed in appearance. Slick spots can cause a belt to slip and may be precursors to overheating and cracking. On a serpentine belt, also look for missing grooves or places where the belt's layers have separated. Pinch, squeeze and twist the belt, looking for cracks, fraying, splits or brittle places. Look for a buildup of rubber deposits, as well as worn spots that could catch the belt and cause it to break.

Check for moisture on the pulleys, a wet pulley will cause the belt to slip.

A misaligned belt can cause premature wear, failure or the belt coming off the pulley. Generally, a serpentine belt can have up to 1/2 degree of misalignment before you encounter issues. If your belt is more than half a rib off, it will track off the belt line. Once your components are mounted to the engine, a laser alignment tool can be used to ensure your pulleys are aligned.

**Automatic belt tensioner**  
 Accessory Drive tensioner provide constant tension to the belt to eliminate slip or noise. Belt vibrations are dampened and the tensioner automatically adjusts for belt stretch and wear, they also help maintain belt alignment. Automatic tensioners need to be the last component in the belt line so that they are on the "slack side" of the belt. The belt line should be designed to have the tensioner in the designed center point of the travel to allow for belt length variation due to loading and wear, while also giving enough travel to install the belt when new.

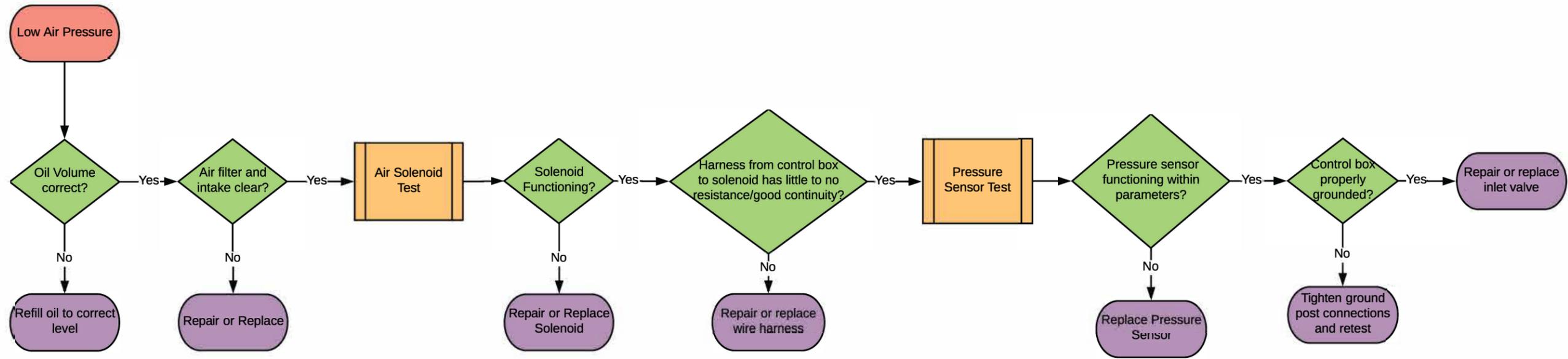
**Belt length**  
 Belt length is an important factor in determining how much tension the system is operating at. Too short or too long and your tensioner may not be in the ideal position. A belt that's too long may not have enough grip to drive all of your accessories and may slip causing premature belt failure. Another factor in determining belt length and FEAD design is what belts are available, a tweak to your design may be needed to source an existing belt.

**Belt alignment**  
 Obviously belt alignment is important in your FEAD design. A misaligned belt can cause premature wear, failure or the belt coming off the pulley. Generally, a serpentine belt can have up to 1/2 degree of misalignment before you encounter issues. If your belt is more than half a rib off, it will track off the belt line. Once your components are mounted to the engine, a laser alignment tool can be used to ensure your pulleys are aligned. This video from Gates describes one such tool and its [operation](#).

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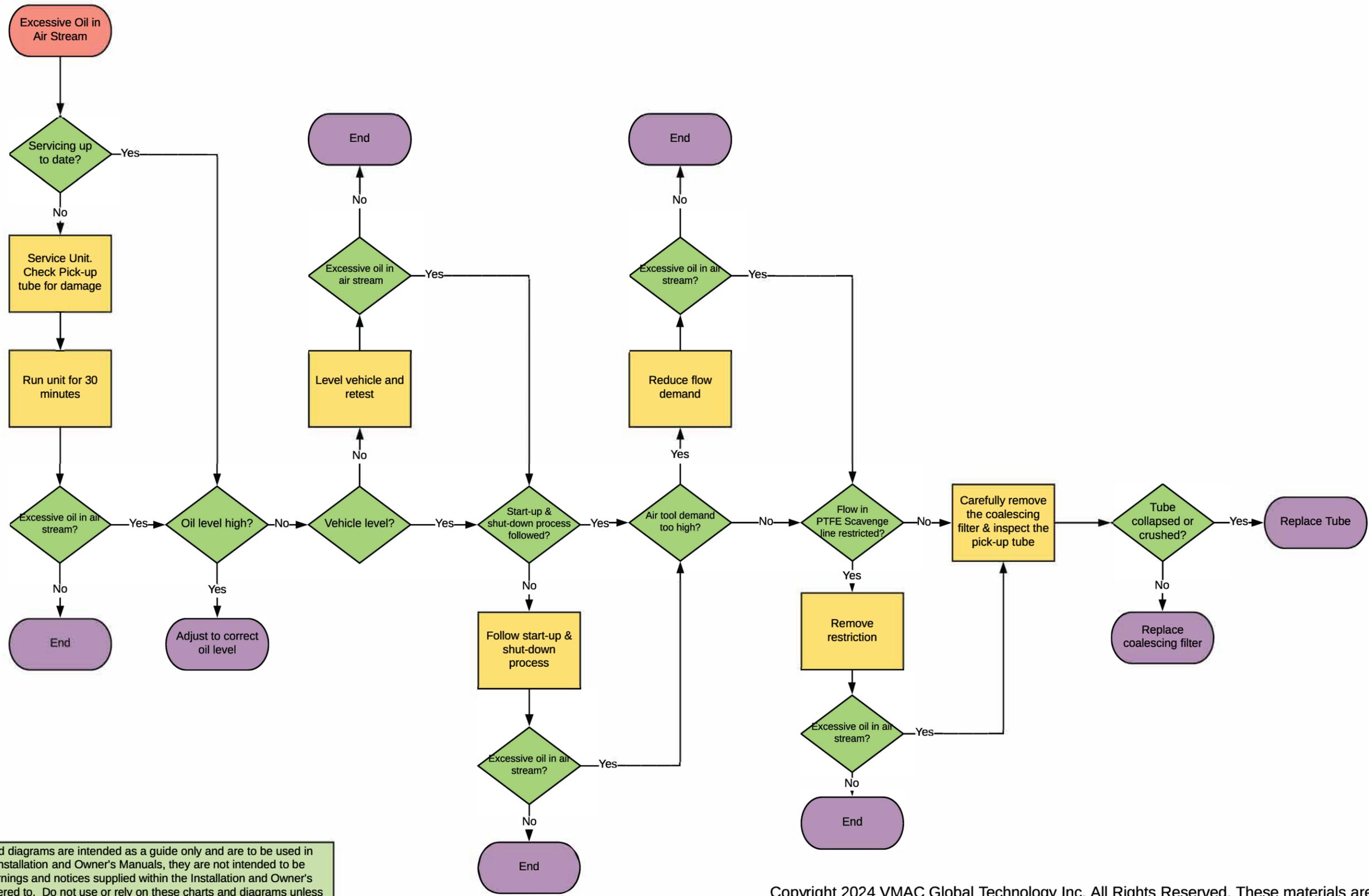
# Low Air Pressure



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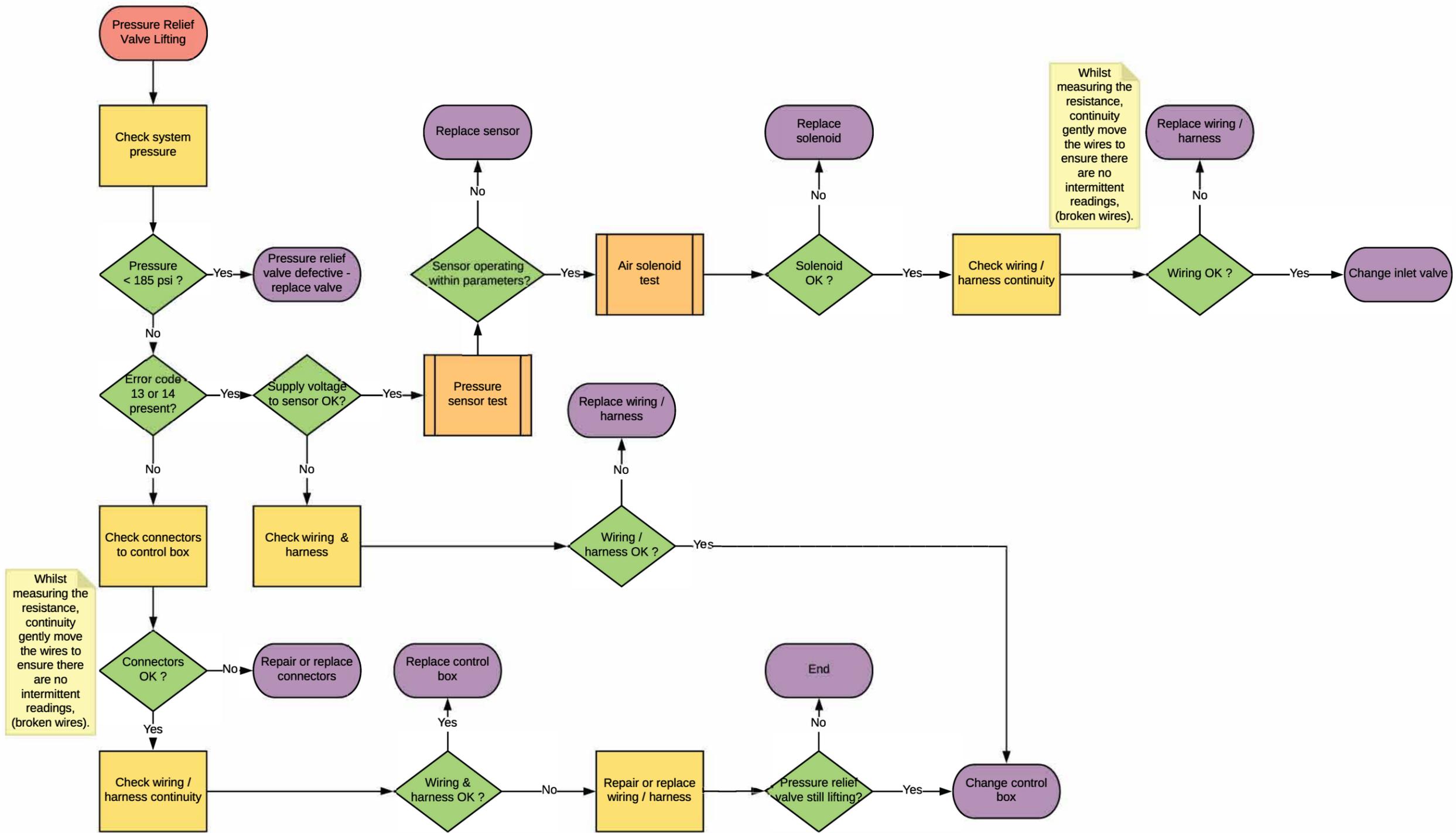
# Excessive Oil in Air Stream



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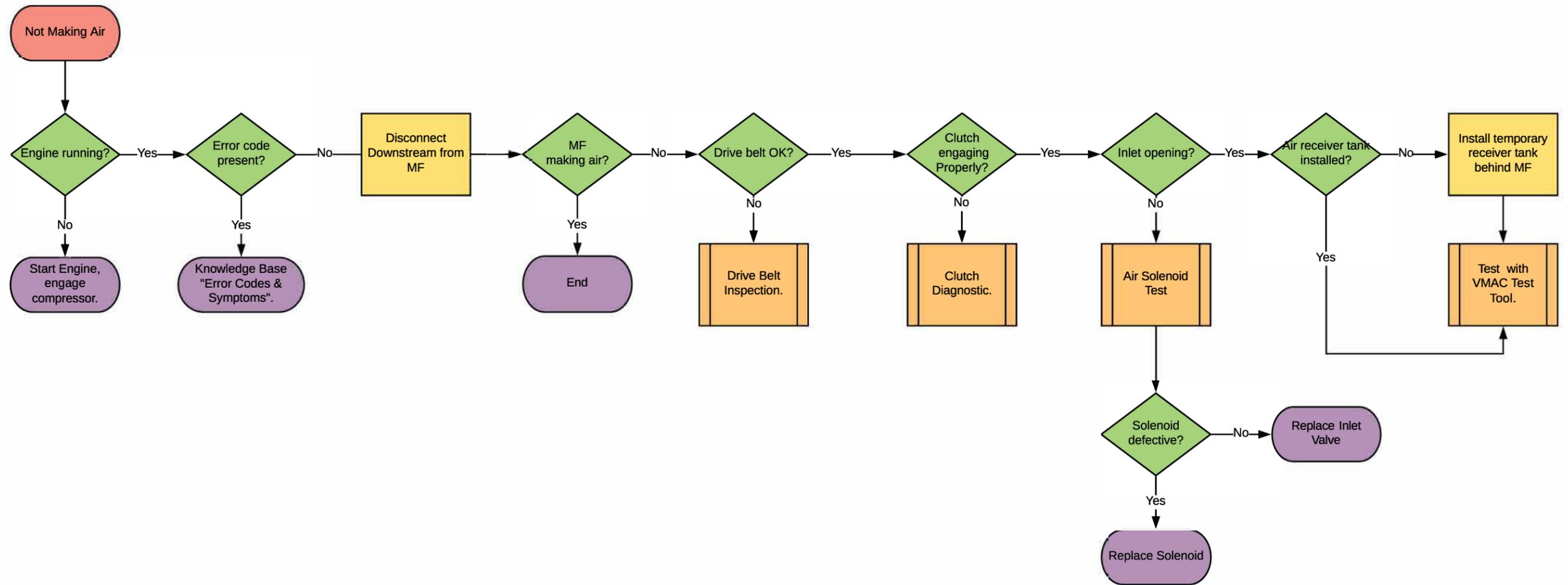
# Pressure Relief Valve Lifts



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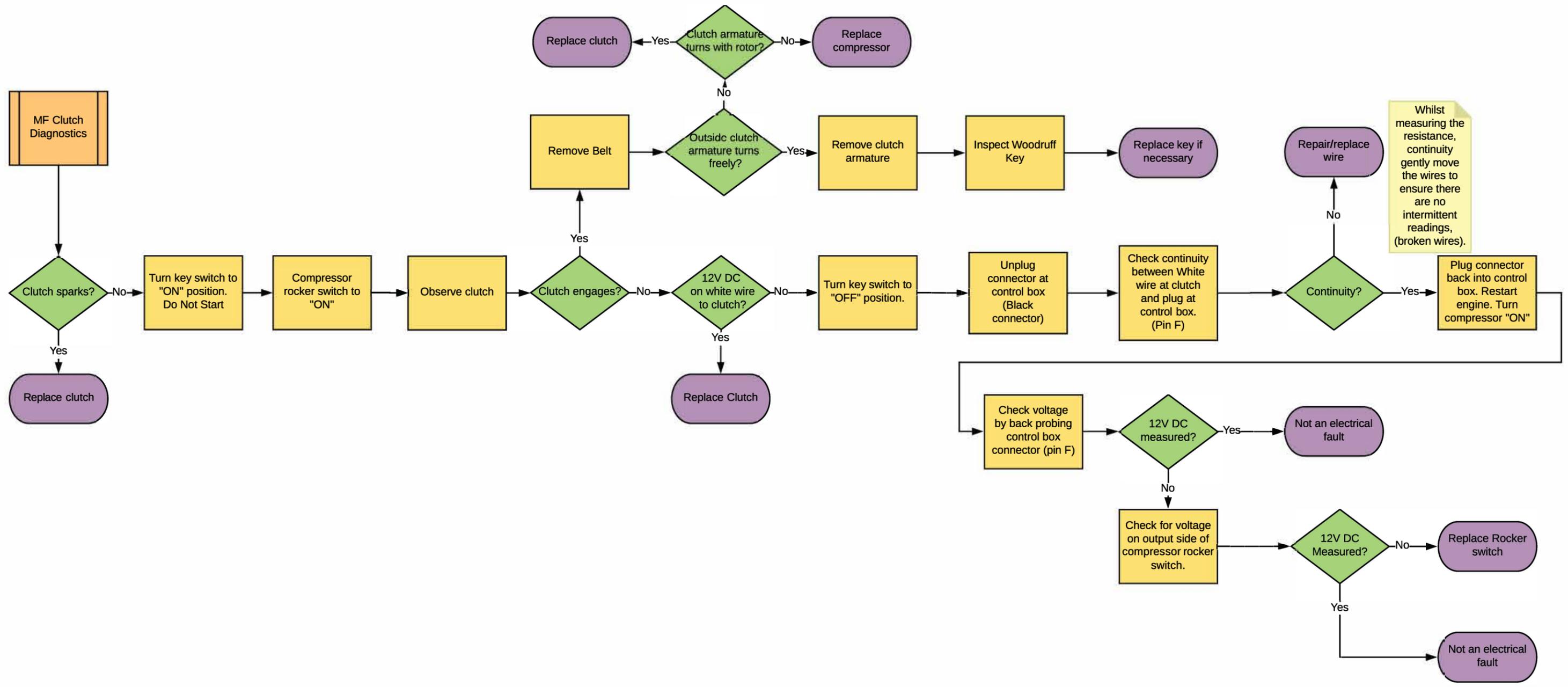
# Not Making Air



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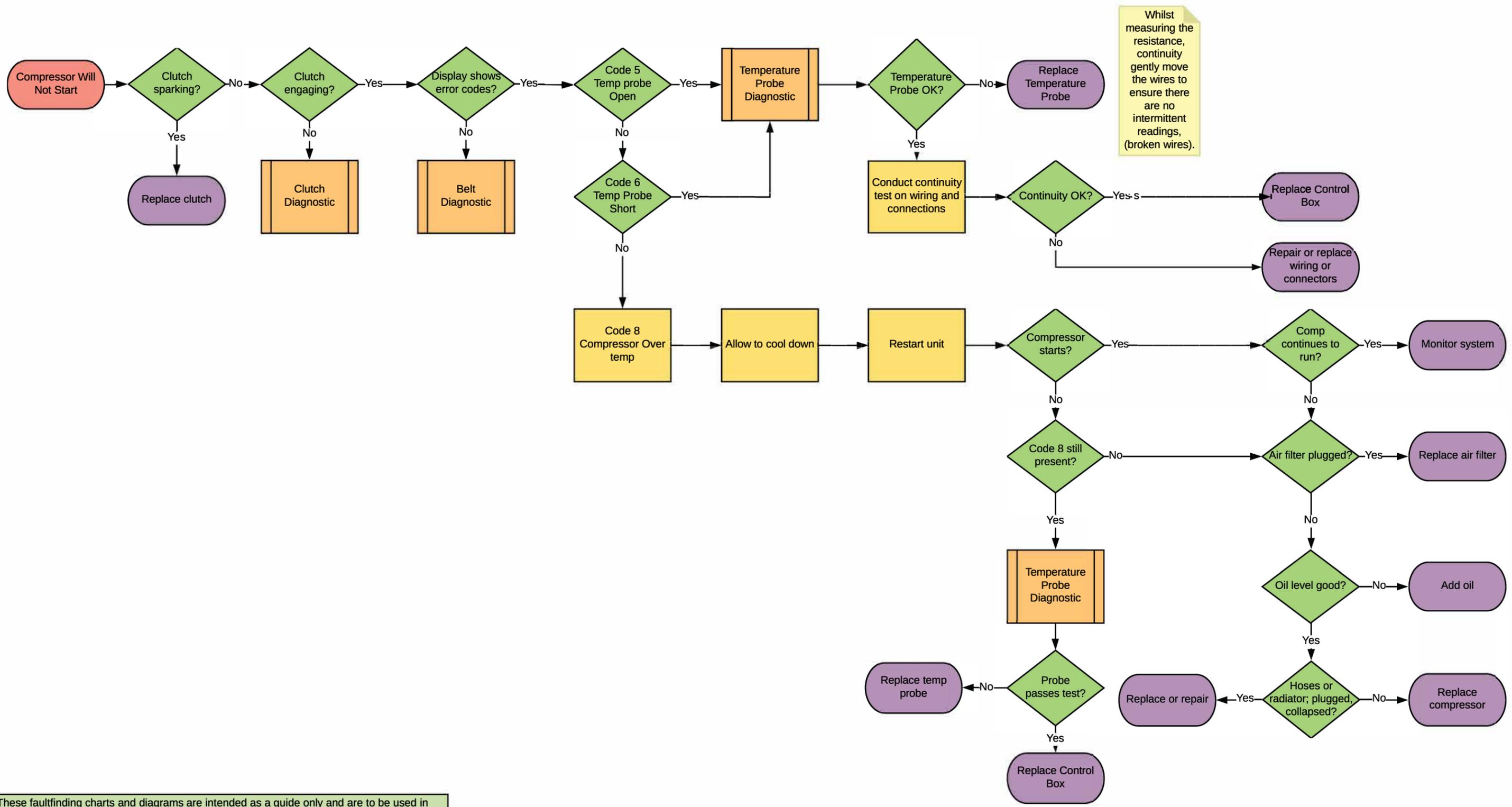
# Clutch Diagnostic



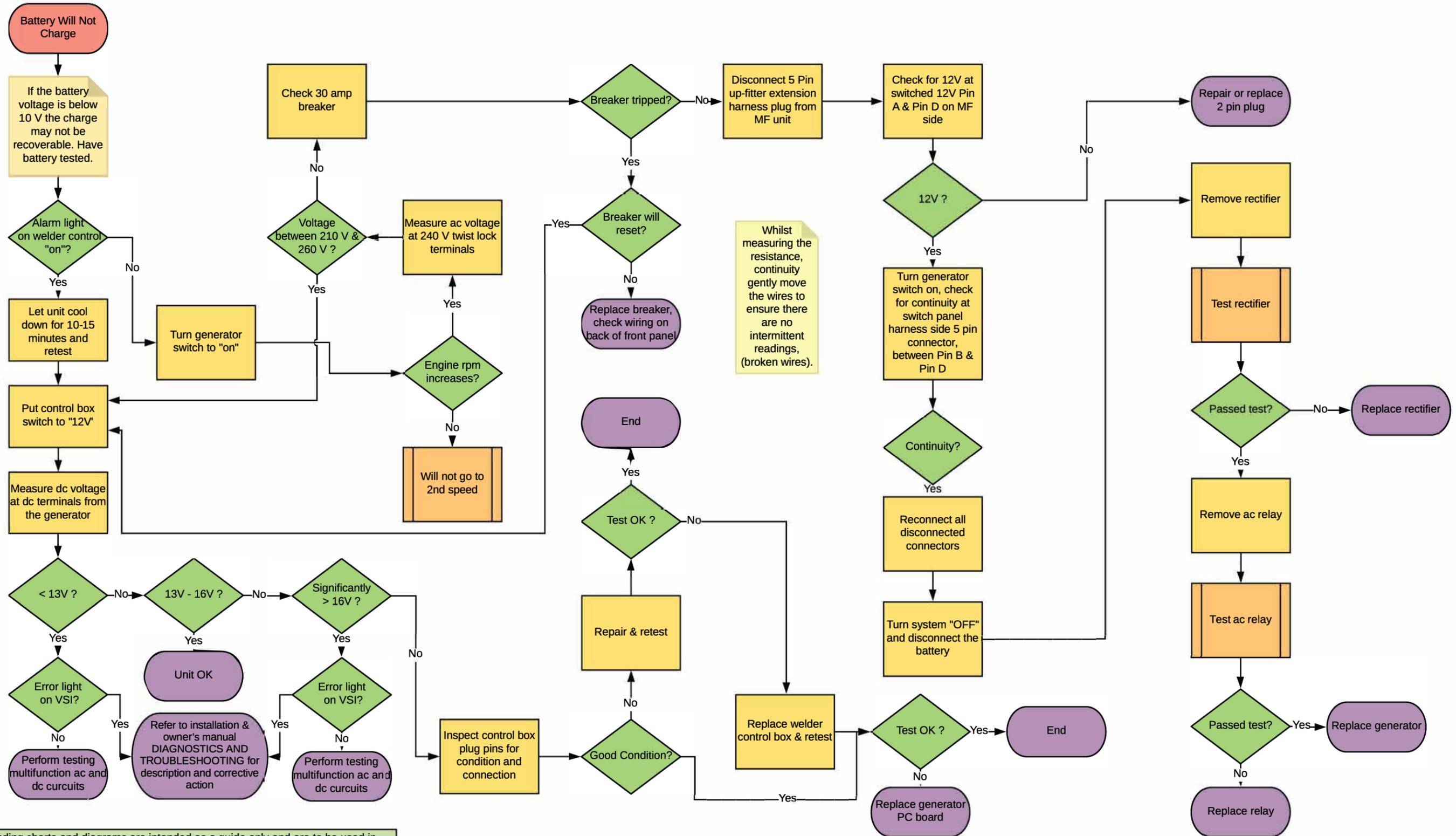
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# Compressor will not start / restart



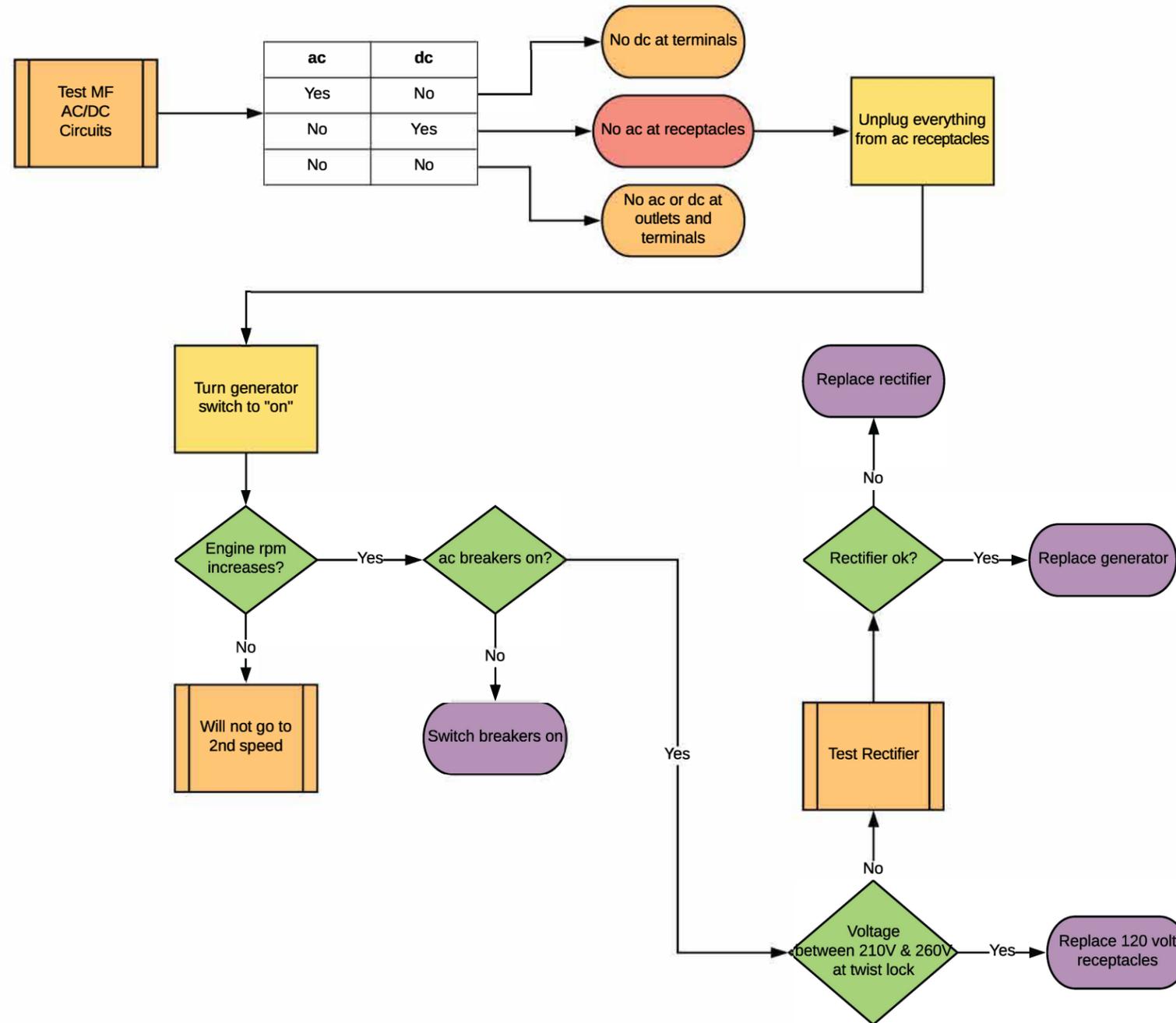
# Will Not Charge Battery (no ac or dc output)



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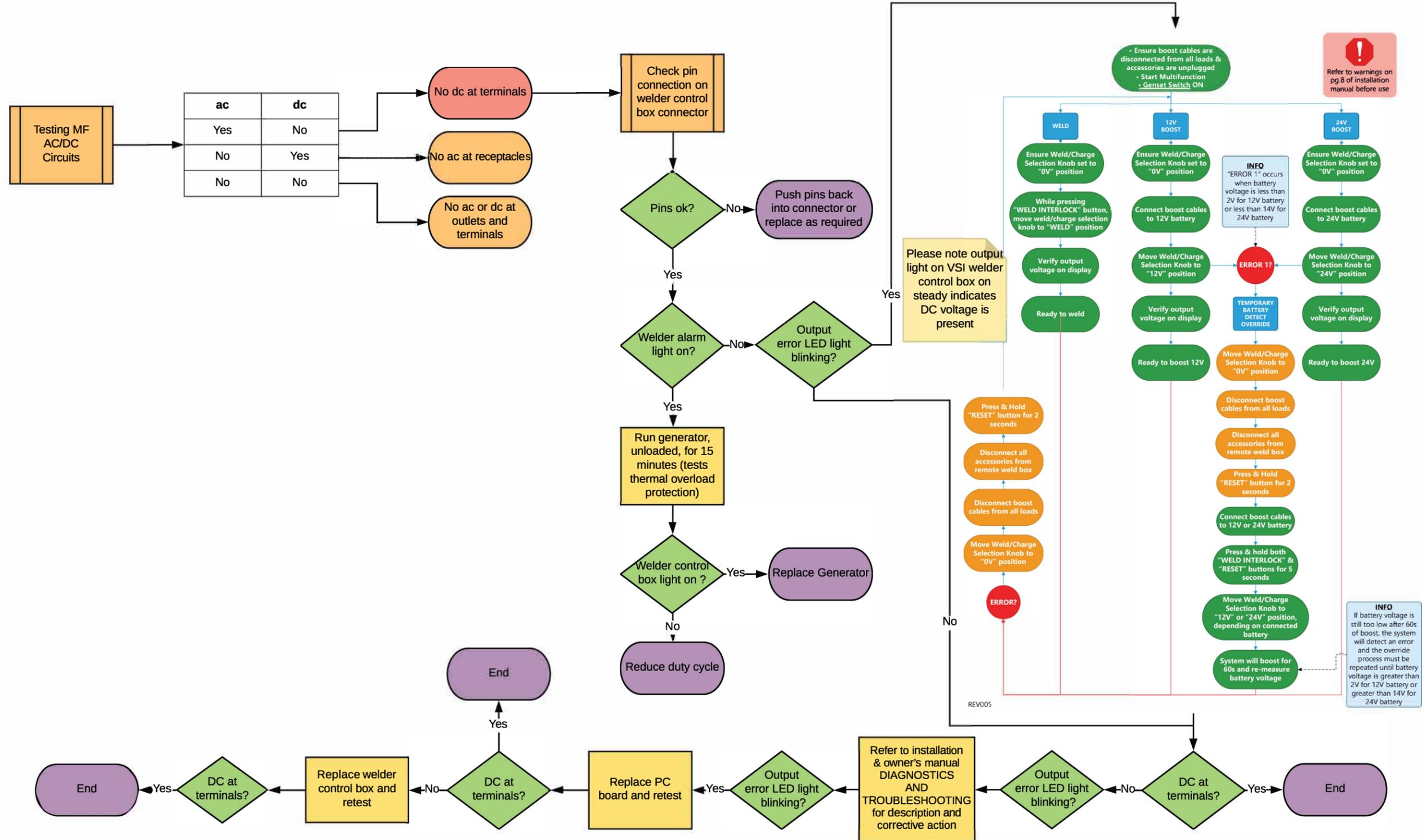
### No AC at 120 volt receptacles



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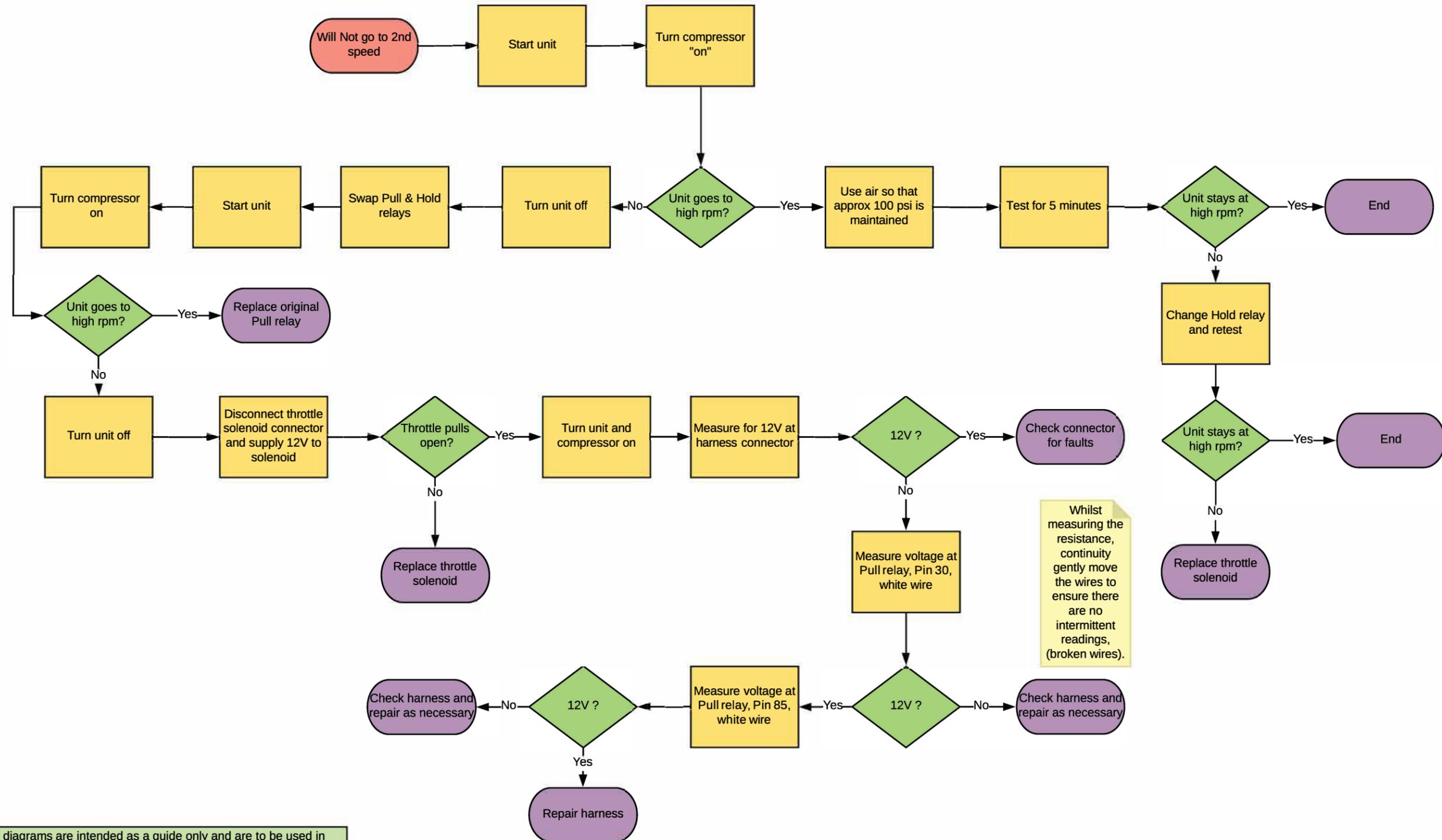
# No DC at Terminals



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## Will Not go to 2nd speed

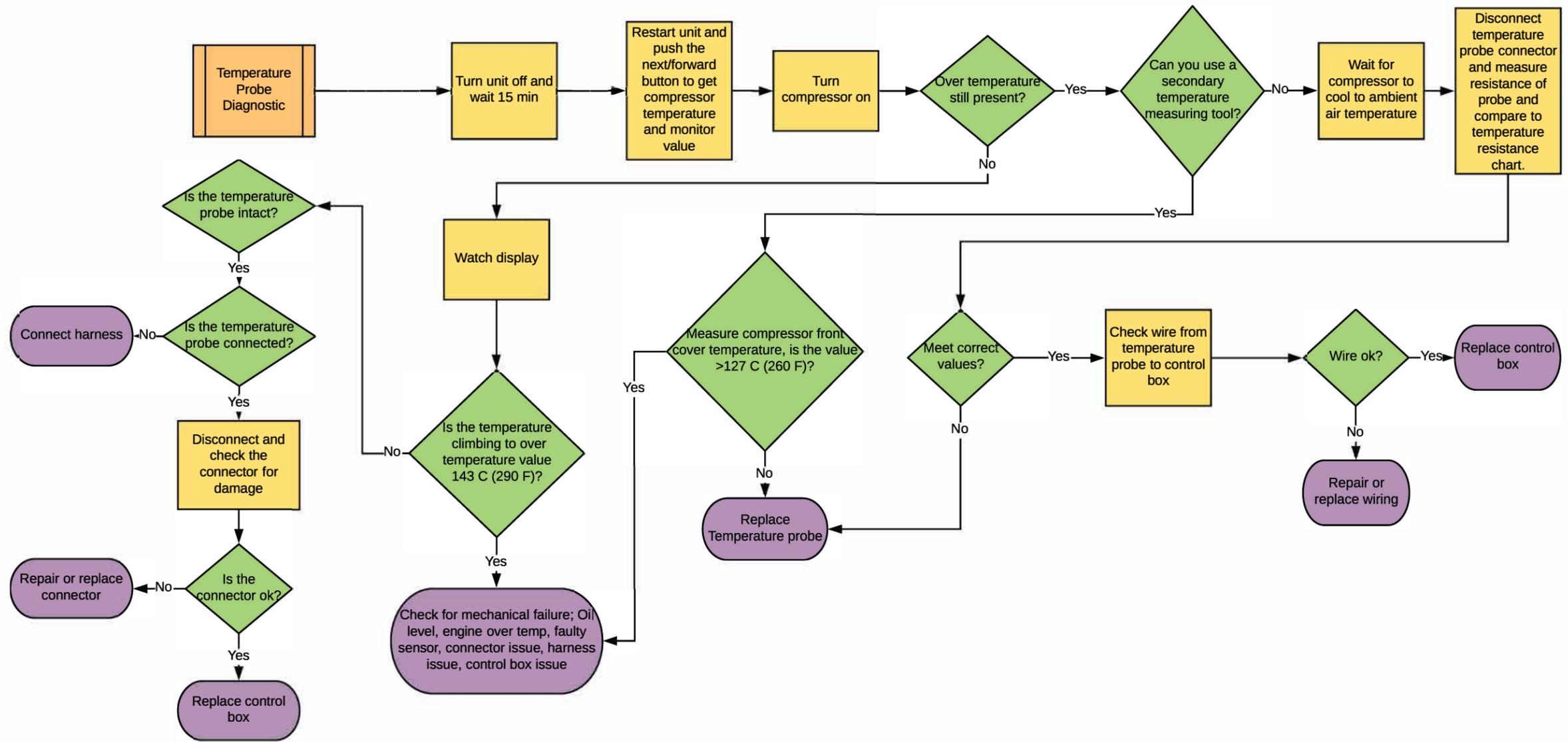


Whilst measuring the resistance, continuity gently move the wires to ensure there are no intermittent readings, (broken wires).

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# Temperature Probe Diagnostic

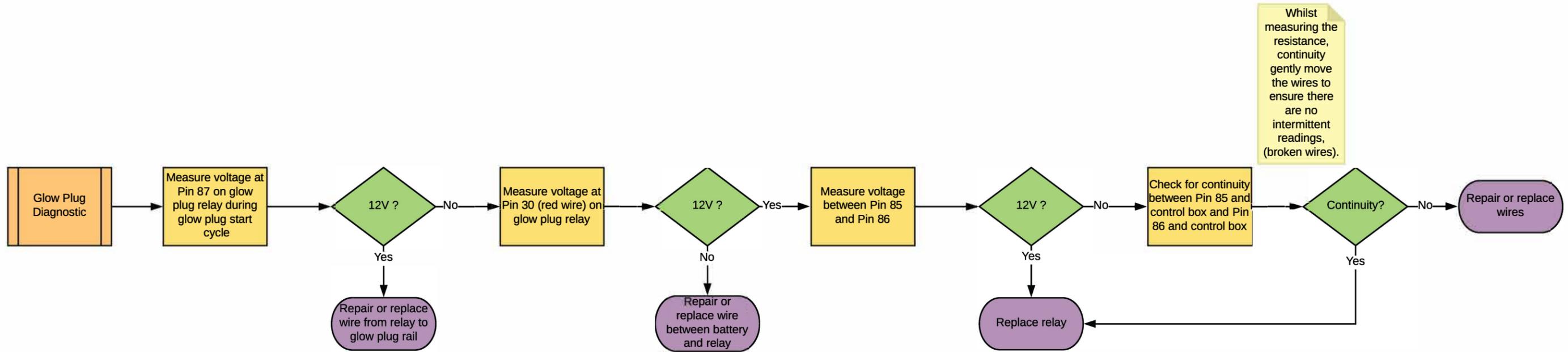


Whilst measuring the resistance, continuity gently move the wires to ensure there are no intermittent readings, (broken wires).

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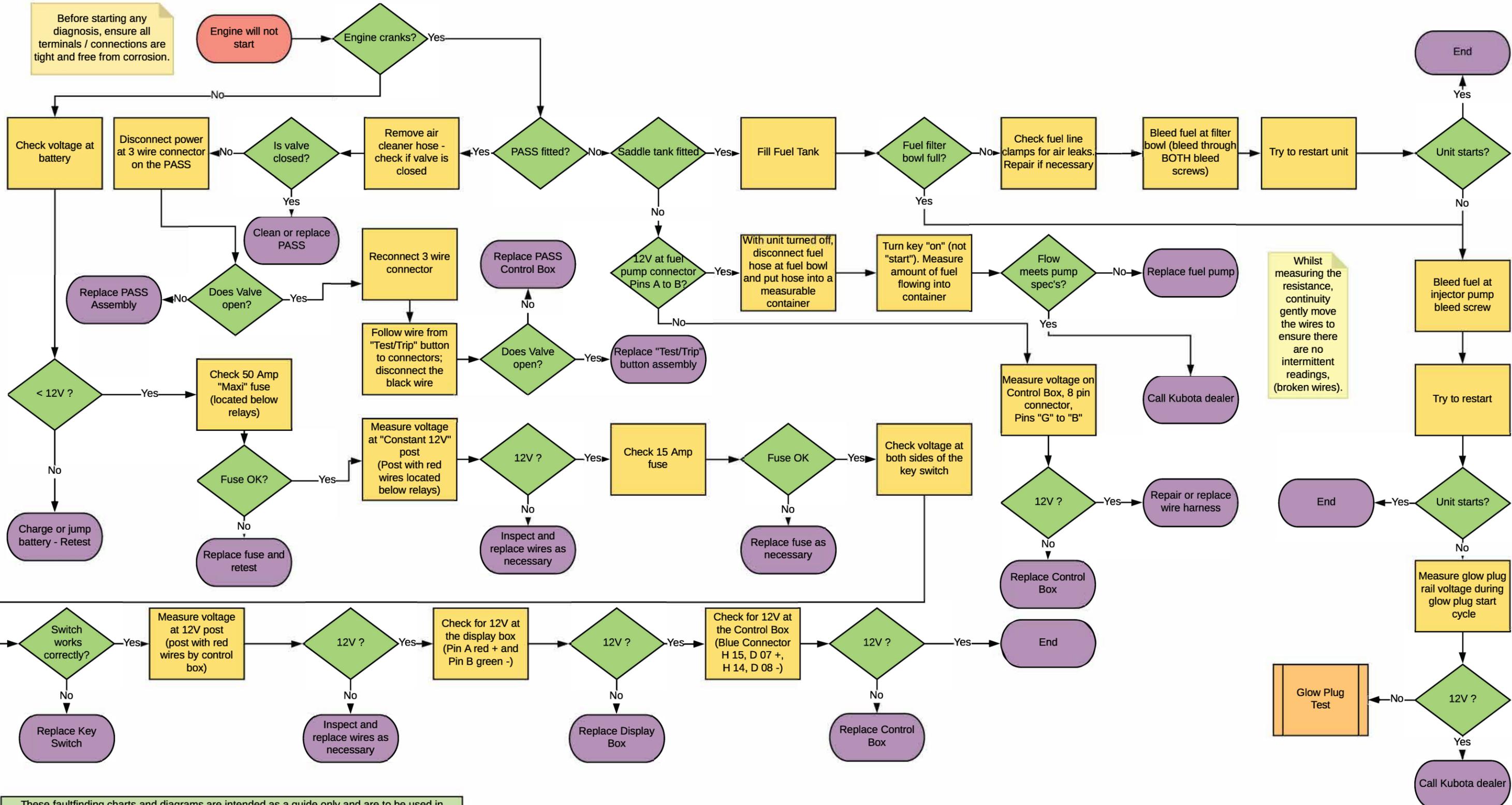
# Glow Plug Diagnostic



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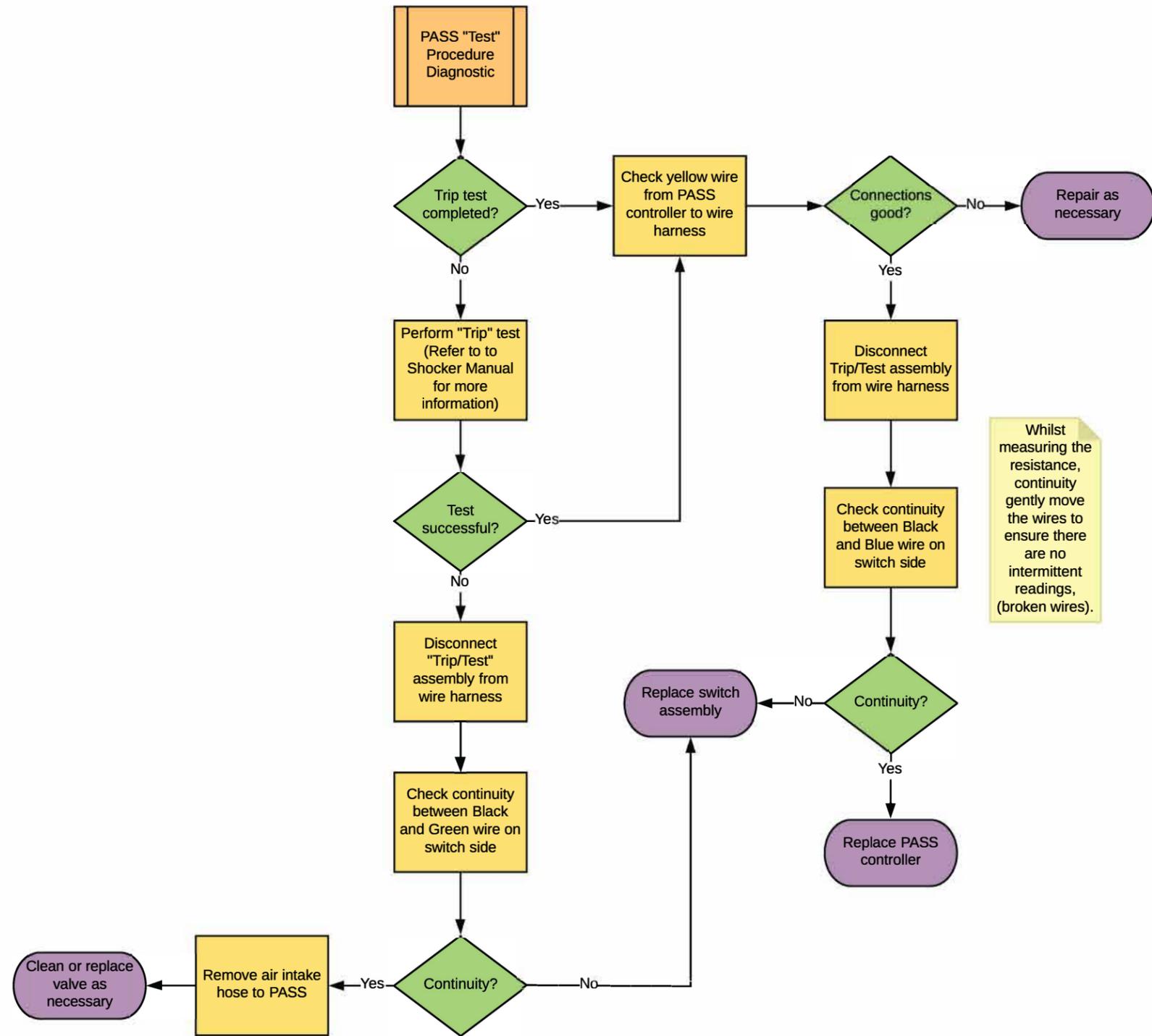
# Engine will not start



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# PASS "Test" Procedure Diagnostic

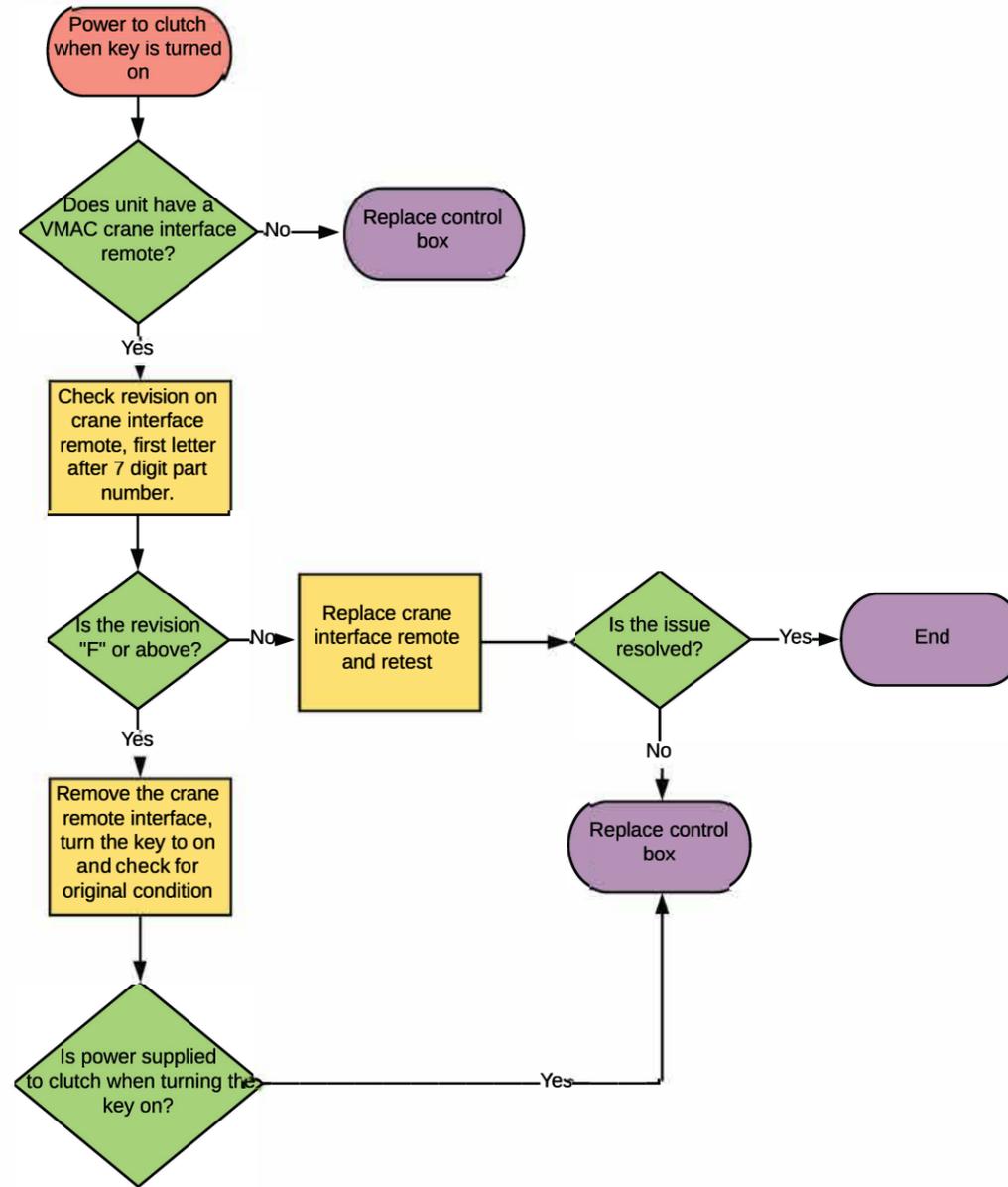


Whilst measuring the resistance, continuity gently move the wires to ensure there are no intermittent readings, (broken wires).

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# Power to Clutch When Key is Turned on



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