Troubleshooting Guide

AgGPS® EZ Pilot™
Assisted Steering System

®**Trimble**®

Contents

Will Not Engage

Start by confirming that a line is snapped in for the operator to engage on, the tractor is close enough to engage, and that the engage offline distance is not set too low. Try opening a brand new field and creating a new line.

Fault Codes

Fault 1 – SAM 200 Motor Power Supply is Unregulated

Cause

Motor failure

Solution

Replace SAM 200 motor.

Fault 2 – SAM 200 Motor Power Supply Failure

Cause

Motor failure

Solution

Replace SAM 200 motor.

Fault 3 – Motor Current Phase Problem

Cause

Motor failure

Solution

1. Turn the SAM 200 motor and try to engage.
2. Replace SAM 200 motor if the problem is persistent.
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Fault 4 – Voltage input is too high

Cause

Input voltage has exceeded sixteen volts.

Solution

Check cabling and power supply.

Fault 5 – Voltage input is too low

Cause

Input voltage has fallen below nine volts.

Solution

Check cabling and power supply.

Fault 7 – SAM 200 motor is outside of operation temperature

Cause

Motor is too hot or too cold.

Solution

1. Ensure that the controller is well ventilated.
2. Move the controller out of direct sunlight.
3. Direct air conditioning to the controller.

Fault 8 – SAM 200 Controller Monitor Failure

Cause

Cabling or motor failure

Solution

1. Check cabling.
2. Replace motor.

Fault 9 – SAM 200 Controller Monitor Failure

Cause

The motor or cable is not connected to the controller.

Solution

1. Check cabling and harnesses.
2. Replace motor.

Fault 10 – SAM 200 Motor Overcurrent

Solution

1. Increase manual override sensitivity.
2. Check cabling for shorts.

Fault 11 – No Communication from SAM 200 Motor

Cause

The display failed to receive messages from the controller.

Solution

1. Check cabling for proper CAN communication.

Fault Code 12 – SAM 200 Motor Encoder Mismatch

Cause

Motor failure

Solution

1. Turn steering wheel and try to engage.
2. Replace SAM 200 motor if the problem is persistent.

Fault Code 13 – Motor Current Phase Offset

Cause

Motor failure

Solution

1. Replace SAM 200 motor.

Fault Code 14 – Motor Communication Authentication Failure

Cause

Cabling, motor failure, or firmware defect.

Solution

1. Check cabling for proper CAN termination.
2. Reflash firmware.
3. Replace SAM 200 motor.

Engage Button Stays Yellow

The EZ Pilot system shows a yellow "Ready to Engage" button, but will not allow the user to engage and turn green.

The red emergency kill switch is likely active. Pull the switch up. If the problem persists, check that the switch is working properly.

Communication Error

1. Check cabling between the display and the controller for visible damage and loose connectors/pins. Make sure that the harness is connected to the correct port for each respective display.
   a. The EZ Pilot harness should be connected to port B of the CFX 750 and Port C of the FmX.
2. Verify that the controller is getting power.
   a. A power source should be connected to the R3 connector of the 75742 harness.
   b. A direct connection to a 12 volt battery is recommended.
   c. On the R3 connector, 12 volts should be confirmed at position 10.
3. Verify that the motor is getting power. Pin 6 on the P1 connector is the 12 volt source.
4. Check firmware version of the display. Reflash to a more current version if necessary.

No GPS

1. The system will not allow operation without a good position. Ensure the receiver/display has GPS. See [No GPS](#).

Remote/external engage switches

1. Check that the switch is completing/interrupting a circuit between pins 10 and 11 on the 12 pin connector (the port replicator of the EZ Pilot harness).
2. If Sonalert is being used with a CFX 750, then use pins 8 and 11 instead.

Poor Steering Performance

Ensure that the hydraulic oil is at normal operating temperature and that the tire pressures are optimal before calibrating. It is best to calibrate in a level, smooth field at normal operating speed.

1. Confirm that the vehicle measurements (wheelbase, antenna height, antenna to axle offset) have been entered correctly. Check that the correct vehicle type was selected.
2. Check the controller orientation.

Advanced Options (tuning parameters)

The advanced options available below are for firmware v4.0 and v7.2 or newer on the CFX-750 and FmX, respectively.

- Roll offset angle – This can be fine tuned after using the calibration wizard to get an initial roll calibration value.

- Estimate Steering Angle Bias – Used for long, straight passes in which cross track error lingers.

- Dynamic Approach Angle – Enabling this setting will allow the system to make a sharper correction toward the line when further away and then reduce the sharpness when the vehicle is closer to the line.

- Steering Slew Limit – Lower this value for smoother steering, and raise for more responsive steering. Decreasing the Steering Slew Limit too much can cause vehicle instability.

- Steering Acceleration Limit – Controls the rate at which the system will change from no steering to full steering slew rate. Lower this value for smoother steering, and raise for aggressive steering. Decreasing the Steering Acceleration Limit too much can cause vehicle instability.

System is weaving quickly

1. Angle per turn is likely set too low. Increment it until the weaving stops and performance is optimized.
2. If the antenna is behind the rear axle, it may help to move it forward and then change the antenna to axle offset.
3. Decrease the Online Aggressiveness.

Will not hold line (lazy)

1. Angle per turn is likely set too high. Decrement it until the vehicle holds the line more aggressively and performance is optimized.
2. When angle per turn no longer increases performance, try incrementing or decrementing the Online Aggressiveness for better results.

Slow to get online

1. Check controller orientation and recalibrate for roll compensation.
2. Increase motor speed.
3. See above: Will not hold line (lazy).

Stays offline on one side

1. Recalibrate the controller for terrain compensation (roll).
2. If the vehicle stays offline to the left, increase the freeplay offset to the right until steering is no longer skewed left.
3. If the vehicle stays offline to the right, increase the freeplay offset to the left until steering is no longer skewed right.

Steers poorly at high/low speeds

1. If the system is steering poorly at high speeds (greater than 5.5 mph), set the motor speed to Auto High.
2. If the system is steering poorly at low speeds (less than 5.5 mph), set the motor speed to Auto Med.
3. Tracked vehicles should be set to Auto Low.

Tracked tractors

1. Confirm track spacing. This is measured from center of tracks.
2. Confirm antenna offset. The fixed axle is considered to be the center between the tracks.
3. Set motor speed to Auto Low.

2WD tractors

1. For SuperSteer models, reduce the aggressiveness and enable the Diff-Lock when pulling an implement. Line up close to the swath and straighten the wheels before engaging.

4WD tractors

1. Disable Accusteer
2. Update firmware versions of both the display and controller.
3. See Advanced Options (tuning parameters).

Sprayers

1. Increase aggressiveness for large, slow oscillations.
2. If the sprayer seems to react slowly when the steering wheel is turned, increase the Sprayer steering delay.

Swathers

1. If the swather seems to react slowly when the steering wheel is turned, increment the Swather steering delay by a tenth of a second and test between each adjustment.

Difficult to engage

1. Increase the Maximum Angle to decrease the difficulty of lining up the vehicle to engage.
2. Increase the Engage Offline distance.

GNSS

No GPS

1. Receiver position was lost – check connection to the antenna. Verify there isn't a problem with the antenna or cable.
2. If the receiver being used is an FmX, clear the bbRAM.
3. Reflash firmware.
4. Hard reset the display if it has an internal receiver.
5. Try a different receiver.

No GPS Corrections (DGPS)

1. Verify that a correction source (other than Autonomous) is selected.
2. The correction age is too high.
3. If the receiver being used is an FmX, clear the bbRAM.
4. Check that the antenna is connected and verify there isn't a problem with the antenna or cable.
5. Reflash firmware.
6. Hard reset the display if it has an internal receiver.
7. Try a different receiver.

Display

Screen Locked up

1. Disconnect power from the display.
2. Perform a soft reset. Some configurations will be lost.
3. Perform a hard reset. All data will be lost (including passcodes).

Boot Loop

1. Disconnect everything from the display, including power. Let the system sit for approximately 30 minutes to deplete the backup battery. After 30 minutes, attempt to power up the unit.
2. Perform a soft reset. Some configurations will be lost.
3. Perform a hard rest. All data will be lost (including passcodes).
4. Ensure that the user is removing all connectors from Ports A and B when flashing firmware to a CFX 750 / FM 750.