

MAC™ N series Auto Steering System

Troubleshooting:

1: Tablet displays poor signal quality (Float/Pseudorange Solution).

Potential Causes:

- 1) Excessive distance from base station
- 2) Environmental obstructions blocking signals
- 3) Poor satellite geometry or single-frequency reception
- 4) High ionospheric activity

Solutions:

- 1) Connect to a closer base station
- 2) Upgrade GNSS receiver module
- 3) Check SNR values for interference sources; replace tablet if using single-frequency GNSS

2: Tablet reports “Attitude Sensor Disconnected”, gyro data stream interrupted.

Potential Causes:

- 1) Gyroscope hardware failure
- 2) Wiring harness issues

Solutions:

- 1) Sequentially test/replace: gyro sensor → main cable → control tablet

3: Starting with the steering wheel at full lock, when 'Start' is pressed, the steering wheel immediately turns fully in one direction.

Potential Causes:

- 1) Left/right antennas reversed (vehicle model moves backward when driving forward)
- 2) Motor controller firmware issue
- 3) Improperly mounted/unstable attitude sensor

Solutions:

- 1) Swap left/right antenna connections

- 2) Update motor firmware
- 3) Re-secure attitude sensor horizontally

4: Unstable forward deviation; error shifts left and right unpredictably, exceeding 3 in both directions during autonomous operation.

Potential Causes:

- 1) Challenging terrain conditions
- 2) Incorrect vehicle calibration
- 3) Steering wheel play/hydraulic pressure loss
- 4) Unstable attitude sensor mounting

Solutions:

- 1) Unavoidable in poor terrain
- 2) Recalibrate vehicle parameters
- 3) Top up hydraulic fluid/service steering system
- 4) Re-mount attitude sensor securely

5: Tractor consistently drifts to one side during autonomous forward operation.

Potential Causes:

- 1) Inaccurate azimuth offset value
- 2) Misaligned center angle in angle-sensor mode

Solutions:

- 1) Recalibrate azimuth offset
- 2) Adjust center angle calibration

6: Steering oscillation during reverse: Error increases slowly or steering swings left-right continuously.

Potential Causes:

- 1) Excessive steering wheel play/hydraulic leakage
- 2) Insufficient forward-looking distance setting
- 3) Incorrect vehicle parameters

Solutions:

- 1) Service steering system/hydraulics

- 2) Increase forward-looking distance parameter
- 3) Correct vehicle configuration

7: Uneven row spacing with inconsistent overlap (one side wider than the other).

Potential Causes:

- 1) Implement hitch misalignment (when total overlap equals double target spacing)
- 2) Unstable total implement width \neq 2x target spacing

Solutions:

- 1) Manually adjust implement toward wider side by 1/4 of spacing difference
- 2) Use manual offset adjustment if implement can't be moved
- 3) Check and secure implement hitch points

8: Consistent but Incorrect row spacing (uniformly too wide or narrow).

Potential Cause:

- 1) Incorrect implement width setting

Solution:

- 1) Remeasure and reconfigure actual implement width

9: Uneven row spacing with incorrect total working width.

Potential Cause:

- 1) Combined implement width error and possible hitch misalignment

Solution:

- 1) First correct total implement width setting
- 2) Then recalibrate individual row overlap values

