

# Auto Guide 3000 “The Next Step in Precision Guidance”



AGCO Corporation



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## Fuse Contact Center



# Background

The Fuse Contact Center was launched in April 2013 for dealer support and December 2013 in NA for end-user customer.



The purpose of the Contact Center is to provide current product set-up, operation, and calibration support on ATS technology products for our customers, and dealers supplementing what our Dealer Distribution networks provide today.

The Contact Center is designed so that agents handling calls will follow a specific process to assist customers or dealers at the appropriate level as well as connect the customer with their retailing Dealership should the issue being encountered require more in-depth assistance from a trained Dealer Service Technician. The dealer technician will be connected to AGCO Technical Support should the issue being encountered requires technical support.

The Contact Center will leverage SOURCE to manage contacts and interface with existing AGCO Technical Support locations around the world.

# NA Operation Details

Support customers and dealers using ATS technology products around the world.

The purpose of the Contact Center is to provide current product set-up, operation, and calibration support on technology products for our customers; supplementing what our Dealer distribution networks provide today.

## Customer Contact

Through AGCO Answers Toll Free number (877) 525-4384, when prompted, select Fuse Contact Center

## Dealer Contact

Through AGCO oneNumber , when prompted, select Fuse Contact Center

Operating hours – 19 hours/daily

NA - 1am to 8pm, Eastern time



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# Background: Products Supported

The following technology products will be within the scope of the Contact Center:

System 110 & 150

AES 25

Auto-Guide 3000

Fendt VarioGuide

Fendt VarioDoc

AgCommand

C1000, C2100, C3000, and Varioterminals

FieldStar II

Raven Slingshot

Raven Viper Pro

AgControl



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## Auto-Guide 3000

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# Materials and Follow Up

All presentations and back up material have been made available upon the flash drive.

A short survey will be passed out at the end of the class. Please provide an honest assessment of the course material, classroom environment, training aids and instructor.



# Class Materials

What is yours to Keep;

Thumb drive

Day 1 Homework;

Review material on Thumb drive





# Class Norms

## Respect

Each other – 1 person talk at a time

Sidebars are to be held on break or after class

The Clock – Be on time

## Participate

The only stupid question is the one that is not asked

Share experiences

Adult breaks

Restroom Location



# Class Norms

Please turn off your cell phone

Or turn it to vibrate / silent

Hold off answering email until breaks  
or lunch

If you must..... Leave the room and  
address the call or email





# Safety

Fire Exits

Lab safety



# Student Introductions

Name – John Doe

Dealership – John Doe Implements, Hesston Ks

Amount of experience – 2 years as a mechanic. Work mostly on high horsepower tractors

Amount of experience with Guidance Systems – Installed a system

What you hope to get from this class –



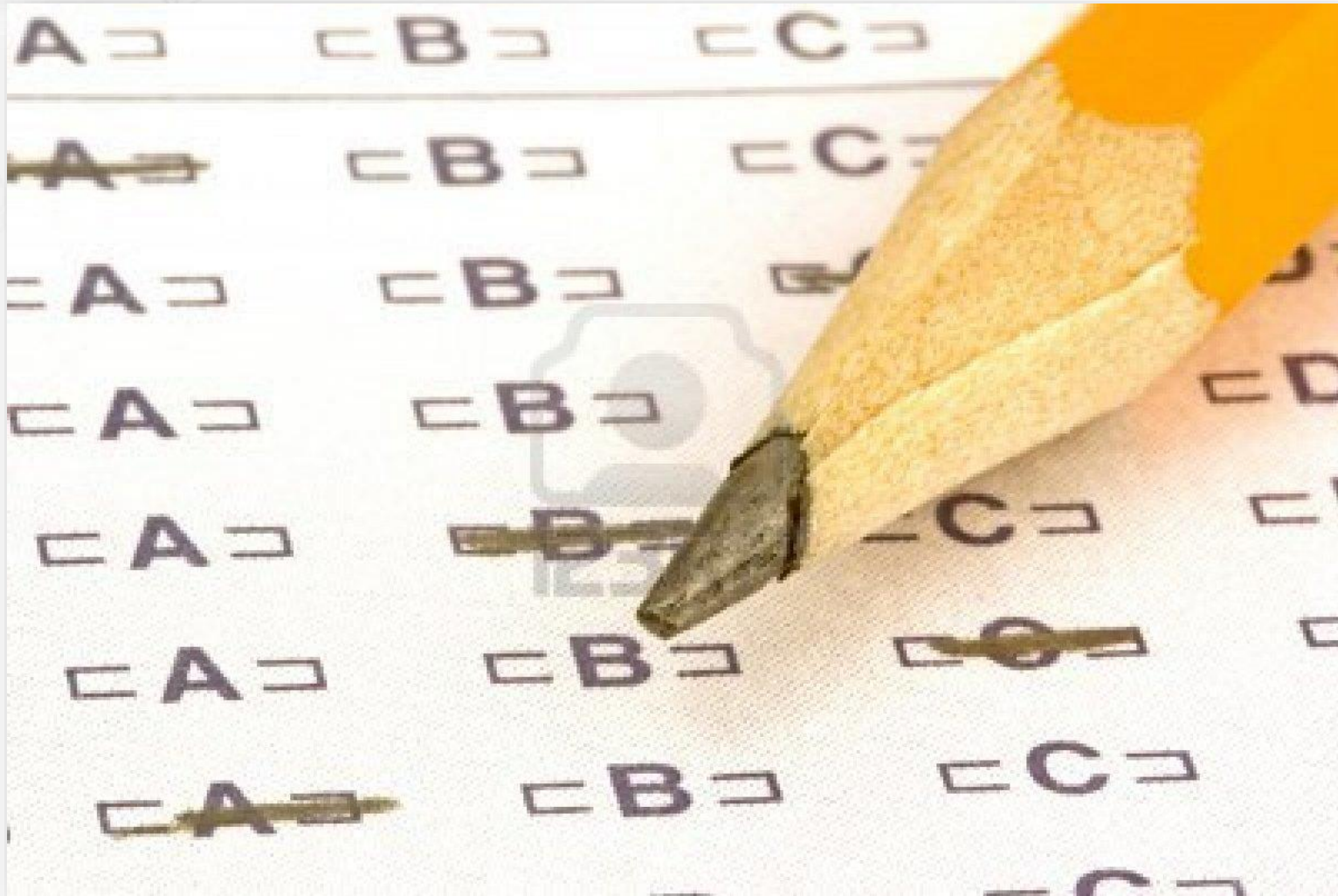
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NXT Clicker Automated Testing





# Pre-Test






Once you have completed the test please go on break until everyone is finished. Thank You

# Agenda

1	General Information	8	Configuration & Set-up
2	Components	9	Field Install vs. Factory Installations
3	C1000	10	Architecture and Installation
4	Configuration & Set-up	11	Diagnostics and Troubleshooting
5	Task Controller Setup (for mapping)	12	Base stations
6	Additional features	13	RTK - Radio vs. Cellular
7	C3000	14	AGCOMAND

# What is Auto-Guide 3000

<b>Project Scope</b>	<b>The Auto-Guide 3000 is a next generation guidance system. This is a partnership between Topcon and AGCO, a semi-integrated guidance solution on AGCO equipment.</b>	
<b>Auto-Guide 3000</b>	A new generation Topcon AGI4 receiver that is based on the Fendt Varioguide design.	
<b>C3000 Terminal Support</b>	12.1 inch touch screen terminal with advanced auto-guidance features including controlled traffic that also supports AGCO seeding and application equipment.	
<b>ISO VT Support</b>	C1000 & C2100 support for basic auto-guidance on AGCO machine integrated terminals.	






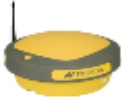




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Auto-Guide 3000 vs. Topcon System 150/350





# Auto-Guide 3000 vs. System 150

<b>Auto-Guide 3000 Vs. System 150/350</b>				
	<b>AG3000 STD</b>	<b>AG3000 Adv.</b>	<b>System 150</b>	<b>System 350</b>
Topdock	AGI-4 	AGI-4 	AGI-3 	AGI-3 
Display	C1000 	C3000 	GX45 	X30 
Waylines	A-B, A+Heading, Contour, Pivot	A-B, Adaptive Curve, Contour, Pivot	A-B, Adaptive Curve, Contour, Pivot	A-B, Adaptive Curve, Contour, Pivot
WAAS	X	X	X	X
HP/XP	X	X	X	X
RTK	X	X	X	X
CORS	<b>GSM or CDMA</b>	<b>GSM or CDMA</b>	<b>GSM only</b>	<b>GSM only</b>
Base Authorized Accuracy	WAAS	WAAS	RTK	RTK
Install time	5 minutes	30 minutes	45 minutes	45 minutes
Calibration time	30 minutes	30 minutes	30 minutes	30 minutes

# Auto-Guide 3000 System Variants

## Auto-Guide 3000 Basic



## Auto-Guide 3000 Advanced



# One of these is not like the other...

C2100



C3000



X30



Software –  
AGCO  
Hardware -  
Topcon

Software – Hybred AGCO/Topcon(\*)  
Hardware – Topcon(\*\*)

(\*) – Slight customizations for AGCO.  
No Topcon Logos or mention of  
Topcon. Removed Aftermarket  
profiles. 99% functionally the same  
as X30.

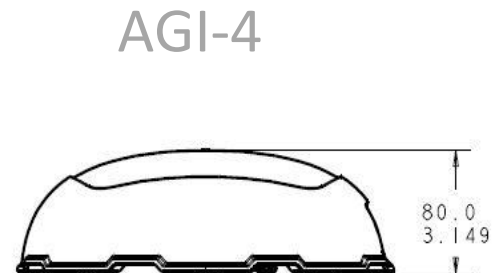
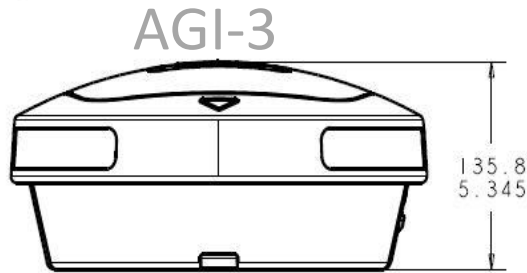
(\*\*) No Topcon logo on the silkscreen  
at the bottom of the screen

Software –  
Topcon  
Hardware -  
Topcon

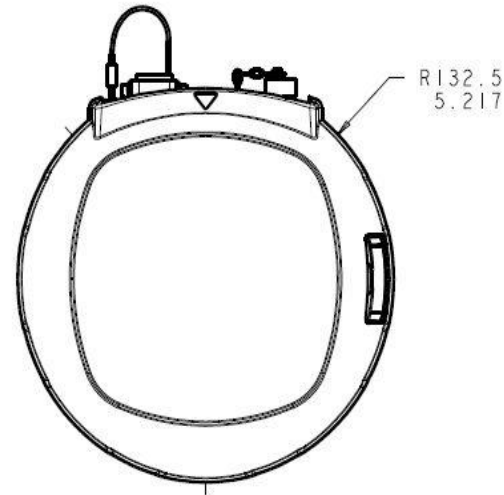
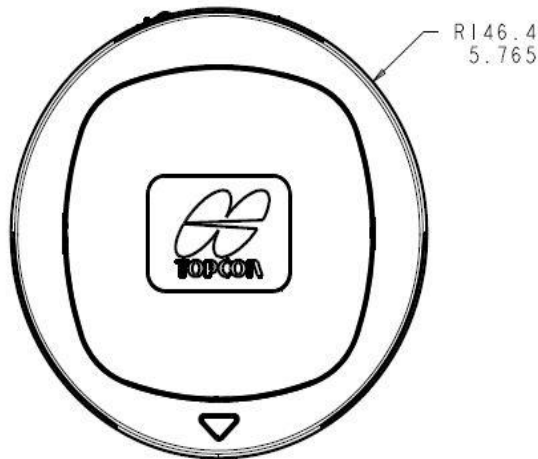
Not part of the  
AGCO OEM  
AG3000. Topcon  
will use this display  
with their  
Aftermarket

# GNSS Receiver Generational Comparison

41%  
Shorter



9%  
Smaller  
Radius



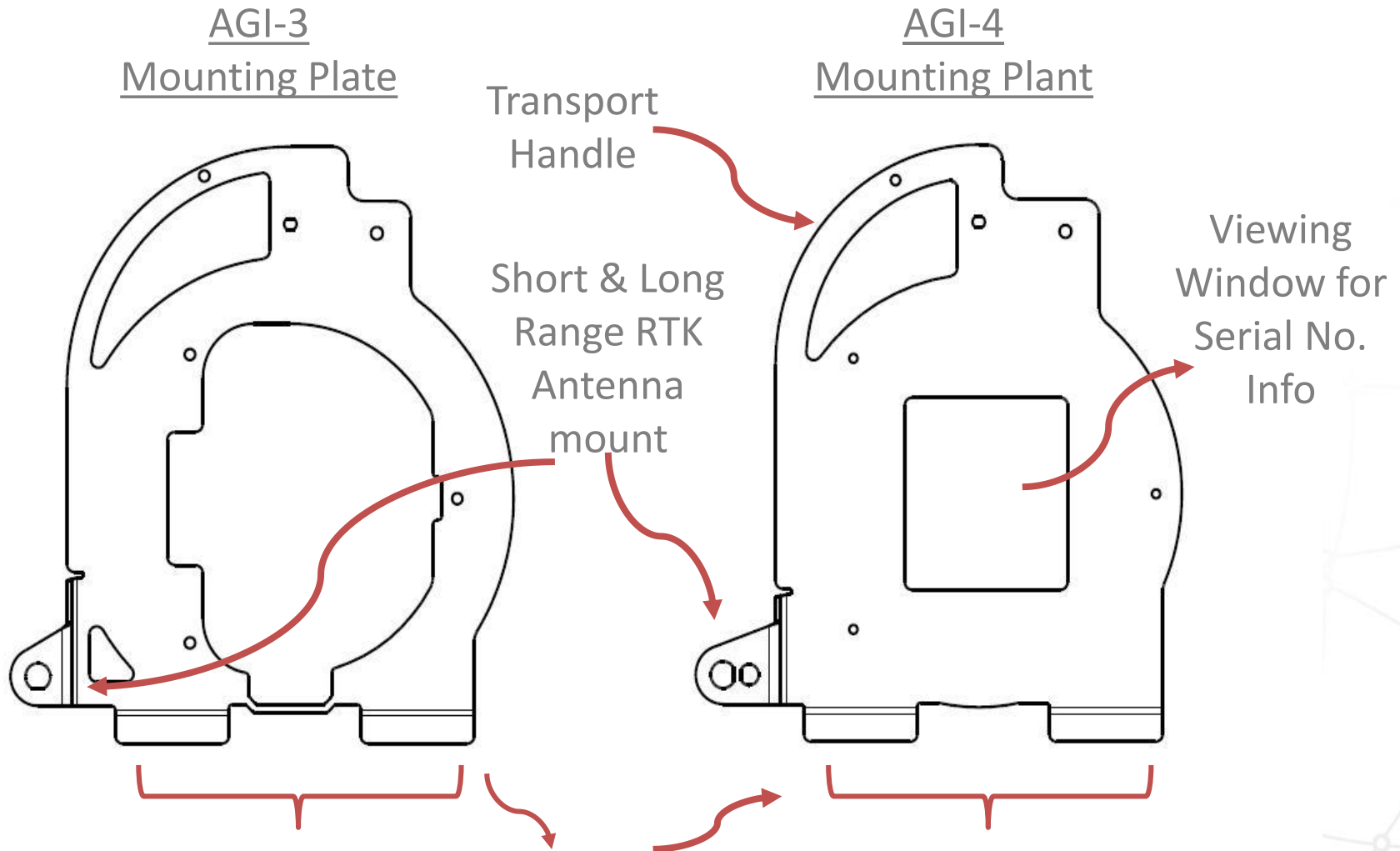
10%  
Lighter

3Kg  
4.86lbs

2.212Kg  
4.68lbs

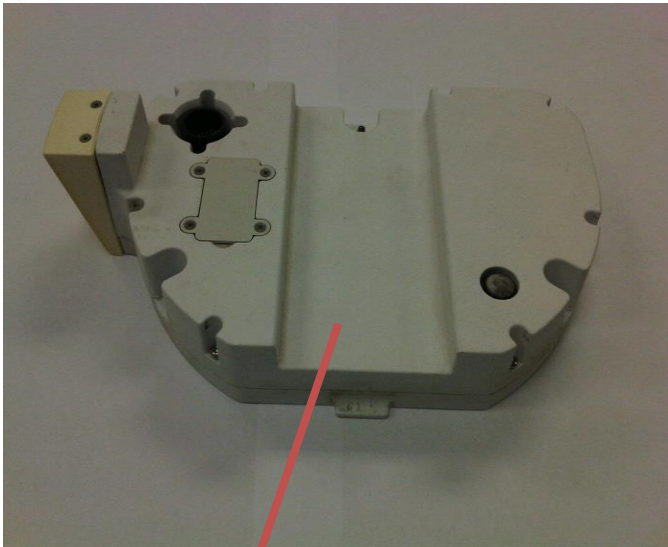


# External Interfaces - Machine Mechanical Interface



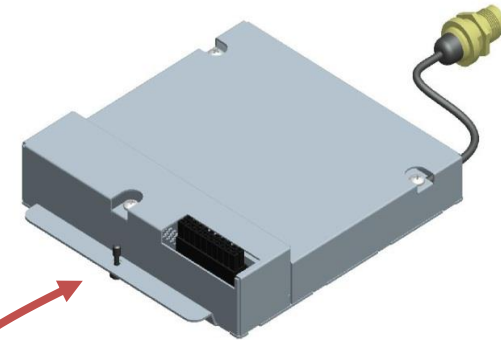
# Module Comparison

AGI-3 Module

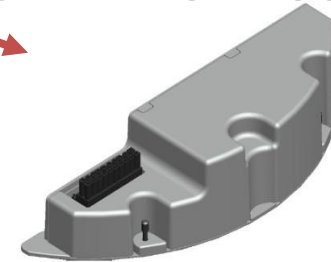


IMU + RTK  
Components

AGI-4 RTK Module



AGI-4 IMU Module



Obviously given the shape differences  
the Modules aren't compatible  
between the AGI-3 & AGI-4

# User Interface Compatibility

GX-45



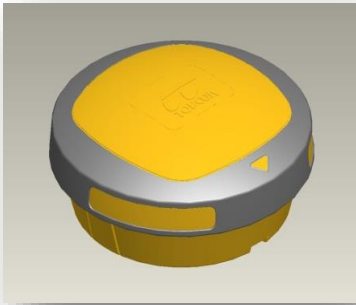
C3000



C1000 / C2100



System 150



Auto Guide 3000



## The mission.....

Auto-Guide 3000 will provide AGCO customers with a robust highly competitive GNSS based guidance system.

Auto-Guide 3000 has features and reliability that will make it the preferred guidance system on AGCO OEM machines.

The purpose of Auto-Guide 3000 is to replace our current guidance system with a system that will meet customer demands both today and in the future.

Your commitment and product knowledge will leave a lasting impression!



# Our partner is.....

AGCO's partner is Topcon

Majority share holder of Topcon is Toshiba

Topcon provides the “total AGCO Auto-Guide 3000 solution”, all hardware and guidance firmware

The brands contribute significantly by developing the steering sub-systems integration

Based upon marketing requirements AGCO ATS engineers construct the necessary program interfaces, GUI's, Consoles C1000 and C2100, EDT, Tractor functionality and other related programs

# Auto-Guide 3000 IS “ISO”

Auto-Guide 3000 meets the criteria of the ISO standards

Auto-Guide 3000 operates with the following protocols

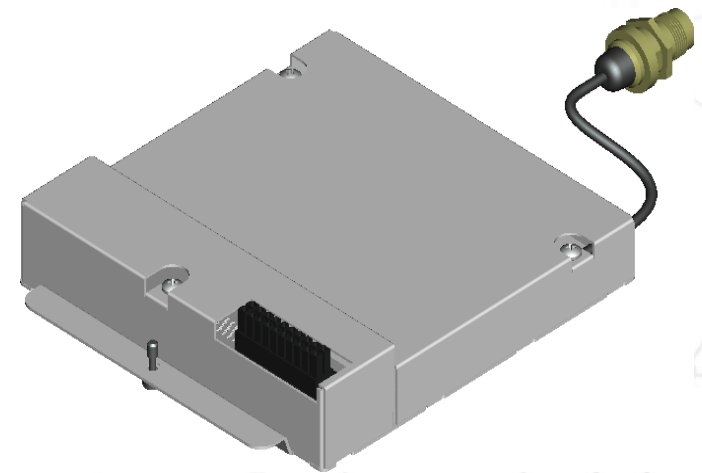
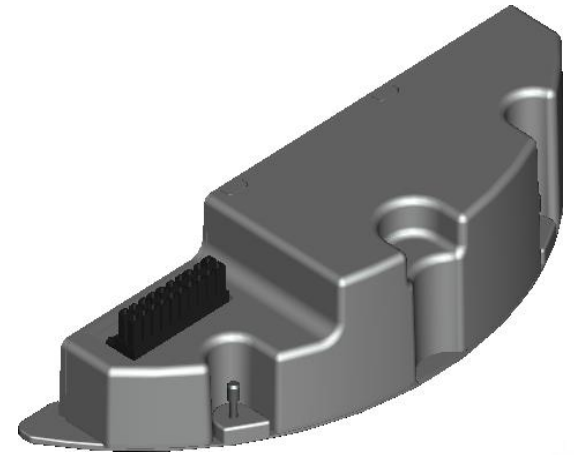
- GPS unit communicates via ISO11783 tractor bus

- Single dedicated Steering bus J1939

- Steering valve communicates with guidance unit and display via J1939 protocol

The Guidance unit acts as a one way “bridge” between the two CAN bus protocols

# The Auto-Guide 3000 GNSS receiver



# Benefits of Auto-Guide 3000 to “support” personnel

No multiple programs to communicate with Auto-Guide 3000 or Vehicle

EDT tablet computer that automatically updates with the latest firmware releases

Very simple flash firmware sequence to PVED or Auto-Guide 3000

Thumb drive or SD card up-date Consoles

Common PC connections to different brands

# Benefits of Auto-Guide 3000 to “support” personnel

**There are NO AUTHCODES**

**Auto-Guide 3000 does not use Authcodes**

Auto-Guide 3000 uses an Owners Authorisation File..... = “OAF”

The “OAF” file is installed by the factory

**There are NO TUNE SETS used with Auto-Guide 3000**

If an “up-grade” is necessary from Submeter to Decimeter, then an IMU unit is required. From Decimeter to Centimeter then the RTK module is required.



# Consoles (GUI's)

There are three consoles associated with Auto-Guide 3000

## Console C1000

15x9 cm screen

This is not a touch screen

Operation is via scroll wheel and buttons



## Console C2100

21x16 cm screen

This does have a **Touch screen**



# Consoles (GUI's)

There are three consoles associated with Auto-Guide 3000

## Console **C3000**

21x16 cm screen

This does have a **Touch screen**



# Consoles (GUI's)

There are different names for the Console depending on BRAND, but essentially the “hardware” remains the same

The Console is ISO standard, therefore it is also a Virtual Terminal (VT) It loads the Auto-Guide 3000 function “object pools” from Auto-Guide 3000 when it’s powered “on” and displays them

## Example.....

Massey Ferguson call the **C1000 “Control Center Display”** (CCD)

Challenger MT Tracked vehicles call it the **Tractor management console** (TMC)

# Consoles (GUI's)

Incorporated within **C1000** / **C2100** is **Task Controller** (TC)  
TC (Task Controller) manages all the data available from the system

The moving map, TC and Auto-Guide 3000 are three separate components within the Consoles, run together to provide the user with system information and data collection

There are multiple “dialogue box’s”

Hard keys, scroll wheel, and on-screen keyboard provided to enter the required data

# Consoles (GUI's)

Task Controller (TC) functions.....are also linked to GTA suite functionality.....such as

Tasks

The MAP function in  
Auto-Guide 3000

Markers

Waylines

Implements

Fields

Farms

Customers

Operators

Products

Crops

Data Transfer

Information (Software version)

Tractor information



# Consoles (GUI's) Storage medium

Cruizer Drives will try and install their own software on the console once it is inserted. This can cause problems with the console programming.

Do Not use a Cruizer drive or if you must , Reformat the drive and ensure there is no data on the drive before you use it.



# Consoles (GUI's) Storage medium

The **C1000** can read and write field data from the SD card slot and the USB thumb drive

The **C1000** also uses the “USB” drive to up-grade it’s internal software

The **C2100** up-grades it’s internal software from the “USB” drive

The **C2100** writes task data to the “USB” drive

# Attributes of Auto-Guide 3000

## Auto-Guide 3000

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### Auto-Guide 3000 GNSS signal types

- WAAS
- VBS
- XP
- XP/G2
- HP
- HP Fallback
- RTK
- NMEA output from Console

### Wayline types

#### (Standard Install)

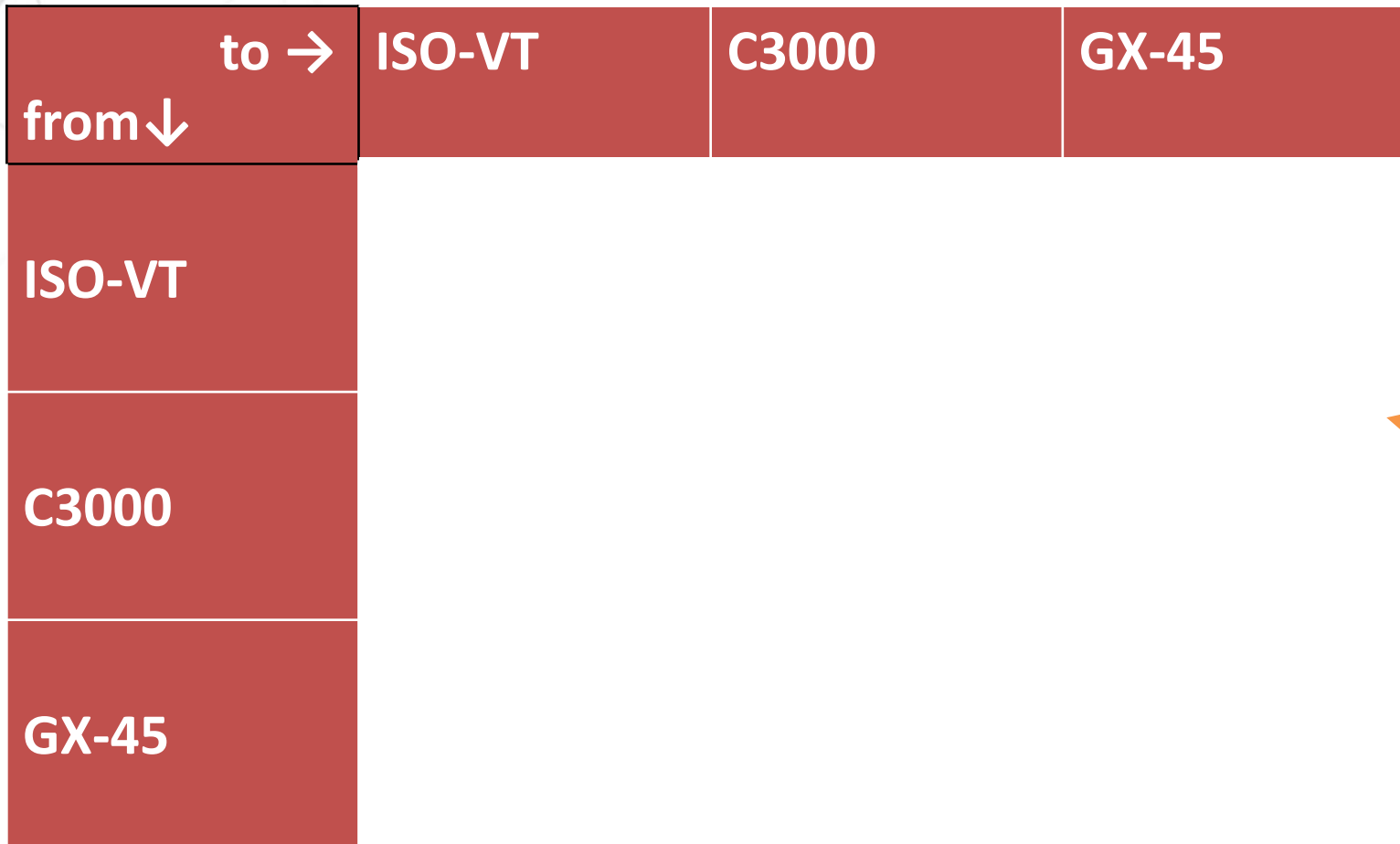
- A-B
- A+
- Contour
- Pivot

#### (Advanced Install)

- A-B
- Adaptive Curve
- Identical Curve
- Pivot

# Data Compatibility

to →	ISO-VT	C3000	GX-45
from ↓			
ISO-VT			
C3000			
GX-45			



ISO Case Sensitivity issue. ISO File Server Creates the folder structure in ALL CAPS, but the GX-45 looks for only first letter capitalized. The C3000 also isn't ISO case sensitive

# Data creation and storage

## Data creation and storage is a Console function

On the Console (or VT) you will be able to do the following.....  
(These functions are compatible with Console C1000, C2100 so you can Inter-change data).

### Storing waylines

Store up to 250 user controlled “identification” names

You can edit waylines

Import and export waylines

You can have “**auto-off-set**” manual “**off-set**” and “**nudge**” the waylines



# Data creation and storage

## Implements and Fields

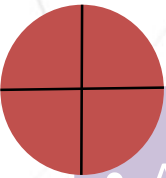
Create implement and field names

Edit implement and field names

Edit implement widths

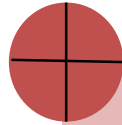
Export and import implement and field name

# Auto-Guide 3000 Correction Source Options



Sub-Meter

- Autonomous (+TRUPASS)
- WAAS
- OmniSTAR VBS



Decimeter

- OmniSTAR XP
- OmniSTAR G2
- OmniSTAR HP



Centimeter

- Local Base
- Network Corrections

Correction sources restricted to the system type you have

Sub-Meter – Only Sub-Meter Corrections

Decimeter – Sub-Meter + Decimeter Corrections

Centimeter – All correction sources



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## Sub-meter Corrections



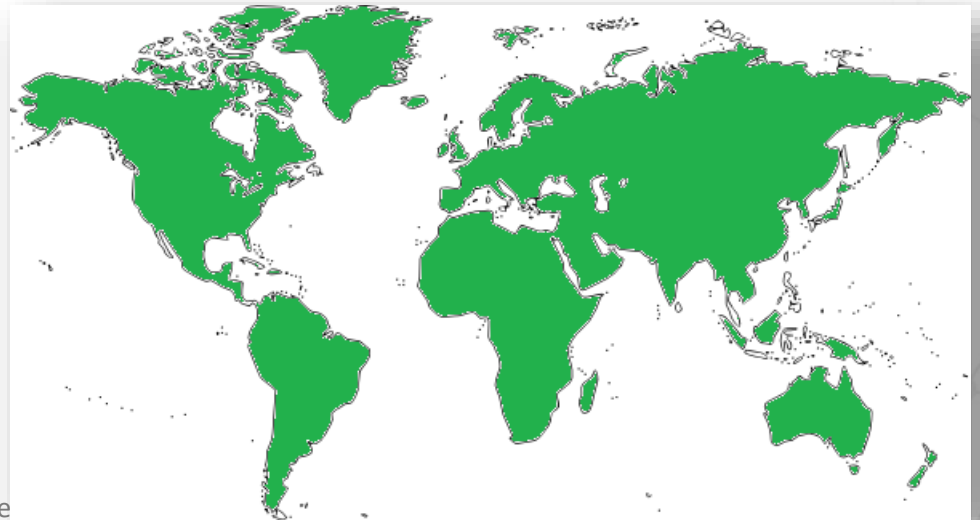
# Autonomous Mode – with TRUPASS

Autonomous mode is not actually a correction source as there are no corrections but offers sub-meter level performance. With the aid of inertial sensors however, we are able to produce a solution that can be used for Auto-Steering.

TRUPASS is an algorithmic advancement that further improves the accuracy attainable with Autonomous mode. TRUPASS isn't currently available with Autonomous mode with the System 150. Autonomous mode with TRUPASS is a free accuracy option for customers.

Availability: Worldwide

P2P performance: <1m / 3'  
(spec is for 25 feet 95% time)

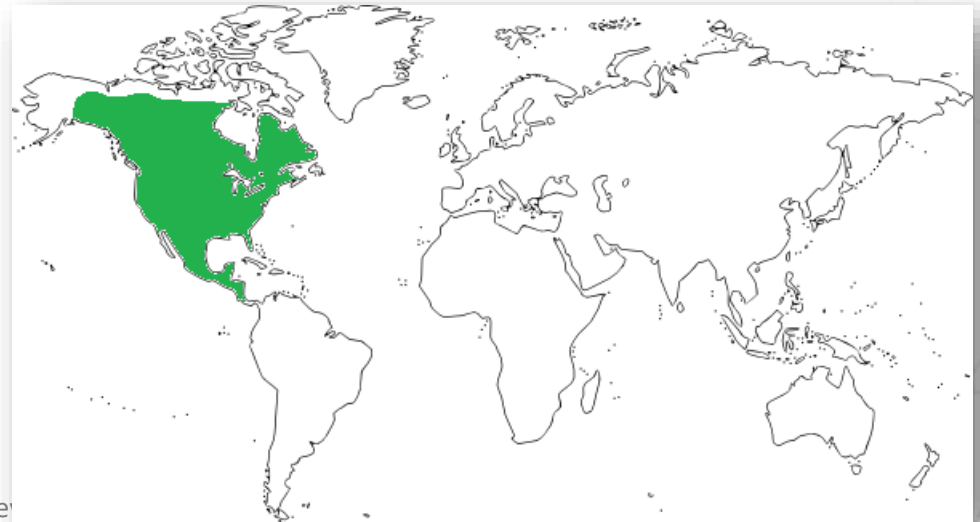


# Sub-Meter Corrections - WAAS

WAAS is a free sub-meter satellite based correction service which provides service to the U.S. and most of Canada

Availability: North America

P2P Performance: 30cm / 12"



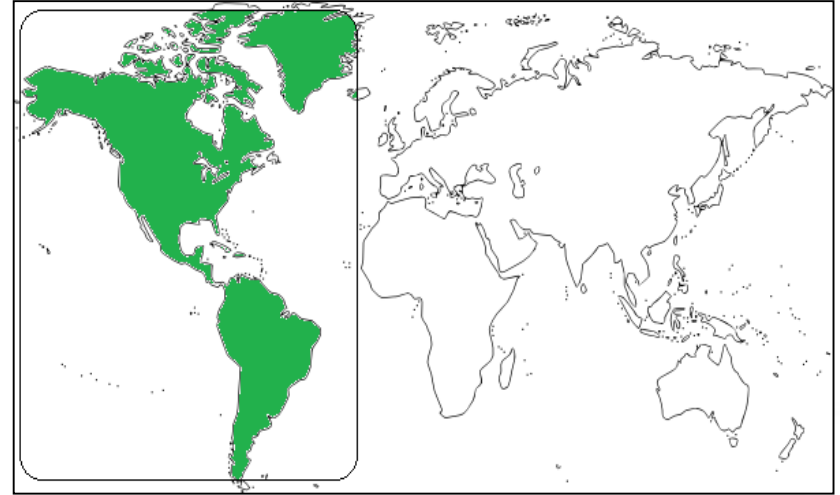


# OmniSTAR Regional Coverage Explained

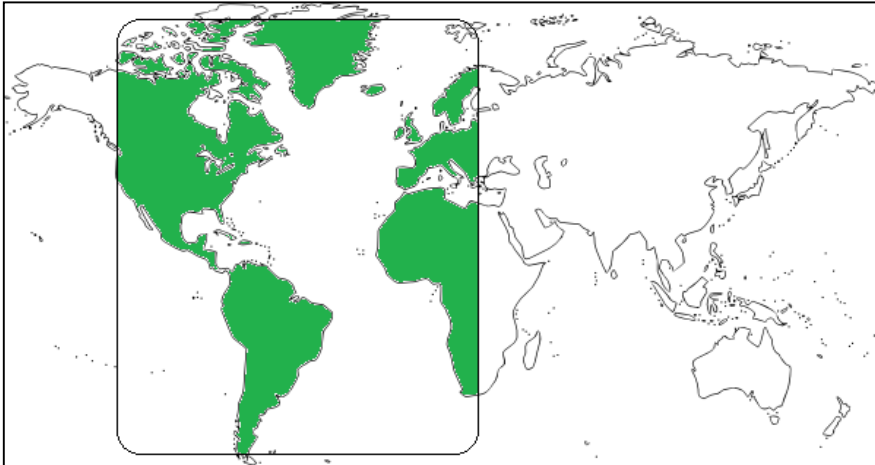
MSV – North America



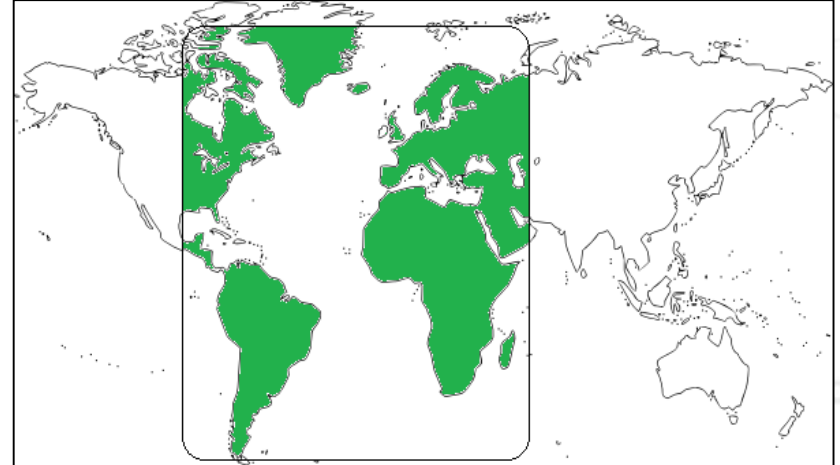
ASAT – North & South America



AORW – Atlantic Ocean West



AORE – Atlantic Ocean East



# OmniSTAR VBS

OmniSTAR is a pay for service satellite based correction service.

Availability: Worldwide

P2P Performance: 30cm / 12"



**OmniSTAR VBS** is a "sub-meter" level of service. It is a single frequency, L1 only, of **OmniSTAR VBS** will show a 2-sigma (95%) of significantly less than 1 meter horizontal position error and the 3-sigma (99%) horizontal error will be close to 1 meter.





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## Decimeter Corrections



# OmniSTAR XP

OmniSTAR is a pay for service satellite based correction service.

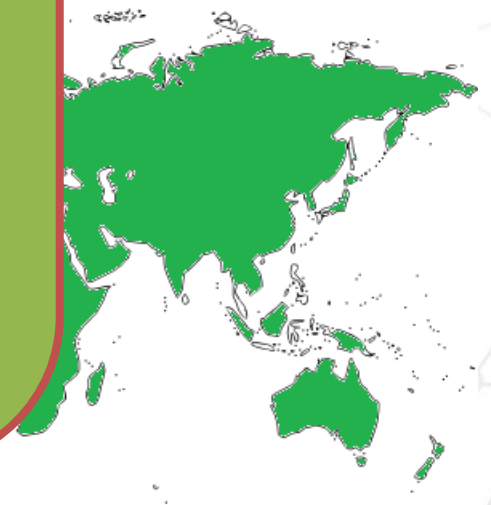
Availability: Worldwide

Stated Performance: 12cm / 5"



**OmniSTAR XP** is a worldwide dual frequency high accuracy solution. It is a L1/L2 solution requiring a dual frequency receiver. While it is slightly less accurate than OmniSTAR HP, it is available worldwide and its accuracy is an improvement over regional Systems such as WAAS.

**OmniSTAR XP service provides long term repeatability of better than 10 centimeters, 95%CEP**



# OmniSTAR G2

Availability: Worldwide

Stated Performance: 12cm / 5"



**OmniSTAR G2** represents the most recent advancement in OmniSTAR subscription service offerings. It is a worldwide dual frequency high-accuracy solution. **OmniSTAR G2** includes GLONASS satellites correction data.. **OmniSTAR G2** service provides long term repeatability of better than 10 centimeters, 95%CEP. It is suited for operations in areas where trees or buildings block the view of the sky and in areas affected by sunspot activity.



# OmniSTAR HP

Availability: Worldwide

P2P Performance: 10cm / 4"

Note: This correction source is not the best for South America as all the ground-based base stations are on the coast and you need to be within range for the corrections to be worthwhile



**OmniSTAR HP** is the most accurate solution available in the OmniSTAR portfolio. It is a L1/L2 solution requiring a dual frequency receiver. OmniSTAR HP corrections are modeled on a worldwide network of reference sites using carrier phase measurement to maximize accuracy.

**The expected 2-sigma (95%) accuracy of OmniSTAR HP is 10cm**





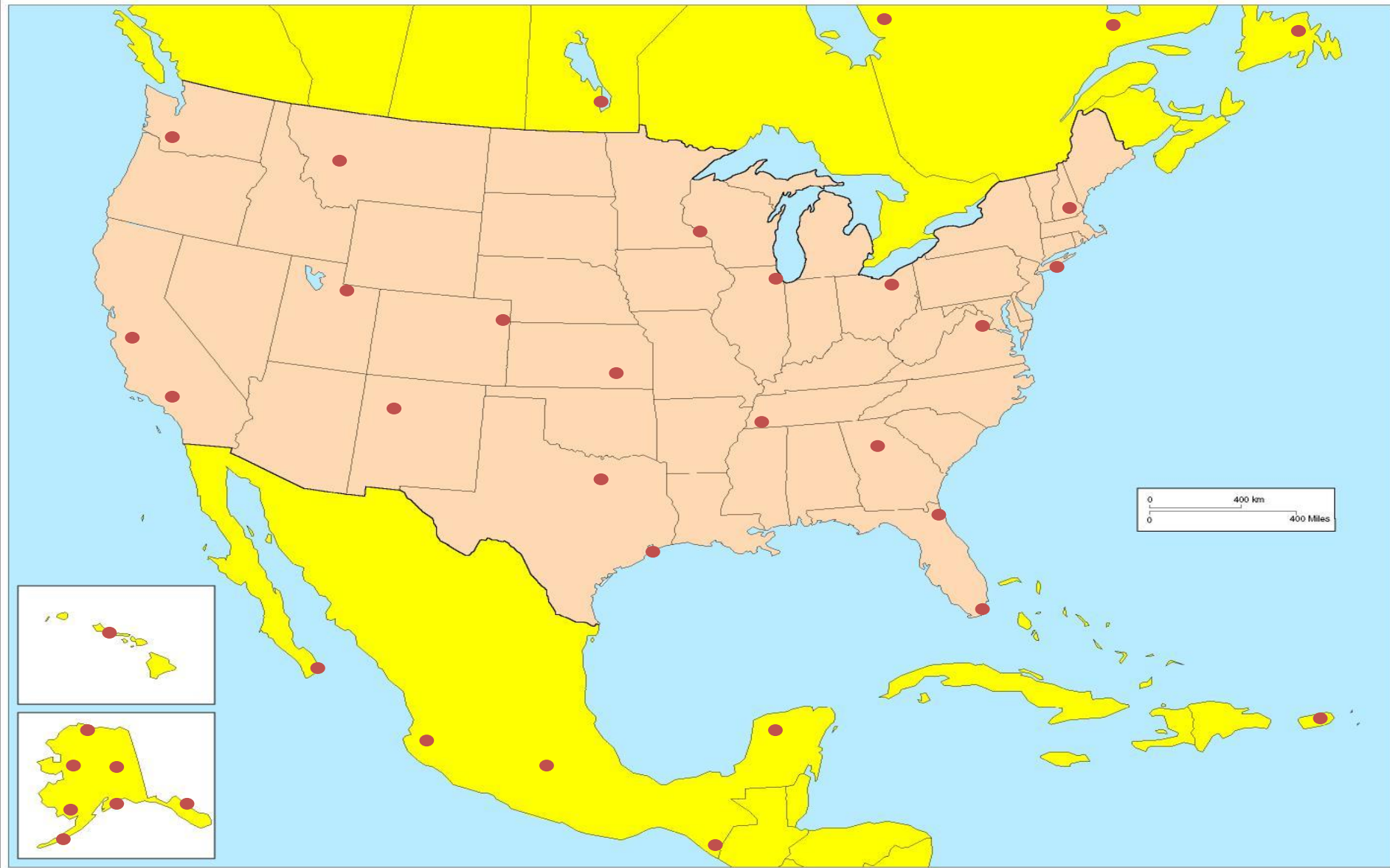
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## Centimeter Corrections



# Local Base

UNITED STATES



## Real Time Kinematic (RTK)



**Real Time Kinematic (RTK)** satellite navigation is a technique used to enhance the precision of position data derived from satellite-based positioning systems, being usable in conjunction with GPS, GLONASS and/or Galileo. It uses measurements of the phase of the signal's carrier wave, rather than the information content of the signal, and relies on a single reference station to provide real-time corrections, providing up to centimeter-level accuracy.

### **Practical considerations**

In practice, RTK systems use a single base station receiver and a number of mobile units. The base station re-broadcasts the phase of the carrier that it observes, and the mobile units compare their own phase measurements with the one received from the base station. In most countries, certain frequencies are allocated specifically for RTK purposes. This allows the units to calculate their *relative* position to within millimeters, although their absolute position is accurate only to the same accuracy as the computed position of the base station. The typical nominal accuracy for these systems is 1 centimeter  $\pm$  2 parts-per-million (ppm) horizontally and 2 centimeters  $\pm$  2 ppm vertically. In this case, the base station is located at a known surveyed location, often a benchmark, and the mobile units can then produce a highly accurate map by taking fixes relative to that point.

# NTRIP

NTRIP is a protocol for streaming GNSS data over the internet

Availability is worldwide (provided you can connect to the internet via a GSM connection)

In order to use NTRIP you need to find a service that is broadcasting in the region you want to work

Not all regions are covered, some are covered by multiple systems

There is no global list of broadcasting systems, but there are some good regional ones <http://www.ngs.noaa.gov/CORS/organizations.shtml>

Some systems are free, some services can be bought

In order to utilize the GSM modem in the RTK module a GSM card must be bought to pay for the data service

NTRIP offers 1" level accuracy (like a local base station), but requires the system be within constant mobile range.

ATS have proven the system works with a number of providers in the U.S. and around the world, but can not vouch for the integrity of all.



# Trimble

## TRIMBLE CORRECTION SERVICES

### HIGH ACCURACY 1" – 1 ½" Accuracy

[CenterPoint™ RTK](#) – Trimble Receiver Only

[CenterPoint™ VRS™](#) - Can be used by AGI-4\*

[CenterPoint™ RTX™ - via Cellular](#) - Can be used by AGI-4\*

[CenterPoint™ RTX™ - via Satellite](#) – Trimble Receiver Only

### MID ACCURACY 8" – 2" Accuracy

[OmniSTAR® HP](#)- Can be used by AGI-4\*

[OmniSTAR® XP](#)- Can be used by AGI-4\*

[OmniSTAR® G2](#)- Can be used by AGI-4\*

### BROAD ACCURACY 36"-6" Accuracy

[RangePoint™ RTX](#)– Trimble Receiver Only

[OmniSTAR® VBS](#)- Can be used by AGI-4\*

### xFILL TECHNOLOGY 36" – 1"

[xFill Technology](#)– Trimble Receiver Only

\* Has been verified by AGCO ATS Engineering



# Auto-Guide 3000 Guidance Patterns

C1000



- A-B
- A + Heading
- Coordinate + Coordinate
- Center Pivot
- Identical Contours

C3000



- A-B
- A + Heading
- Coordinate + Coordinate
- Center Pivot
- Identical Contours
- Adaptive Contours

# Engagement limits for signal type

Signal Source	Auto-Guide 3000 engage limits		
<b>WAAS</b>	1.5 m (4.9 ft.)		
<b>Omni STAR VBS</b>	1.5 m (4.9 ft.)		
<b>Omni STAR XP / Omni Star G2</b>	35.0 cm (14 in)		
<b>Omni STAR HP</b>	15.0 cm (6 in)		
<b>RTK</b>	10.0 cm (4 in)		

# Acquiring the wayline

**Auto-Guide 3000 provides user configurable attributes, two of which are;**

- 1. Online Steering Response:** The speed (aggressiveness) with which the tractor “hugs” the wayline is variable
- 2. Line Acquisition:** The speed (aggressiveness) that the tractor draws itself onto (acquires) the wayline is variable

Line Acquisition distance is 20cm (8in) and 5° off the wayline

# Acquiring the wayline

## Angle to Wayline (beware!)

Auto-Guide 3000 also allows the operator to acquire a wayline from an angle up to 85 degrees to the wayline. An upper limit is set to prevent the system from turning in the opposite direction to what the operator intended

# Common Console Functions

Engagement of Auto-Guide 3000 from **C1000/C2100**

Remote engagement from the rocker switch in armrest for Combines & Tracked tractors.

Programming for Remote engagement from joystick or unassigned finger switches in Swathers & Wheeled tractors.

GNSS status.

Differential source status

RTK base line with radio status

Cross track error (configurable)

4 user configurable “short cut” buttons. RHS of display.

# Common Console Functions

User selectable **Basic**  **button**, to get you started

An **ADVANCED** mode for more experienced users

**Task Controller** (TC) for data logging and recording

On screen diagnostic error code list

Data storage and transfer via SD or thumb/stick drive

Three levels of working coverage Map “view” choice

Function level chameleon color coded graphic buttons

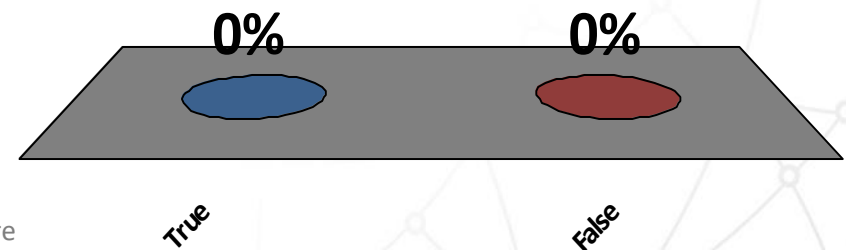


## Review Question

Is Autonomous a correction source?

A. True

B. False



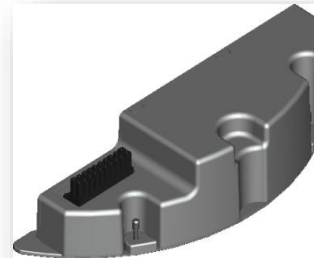
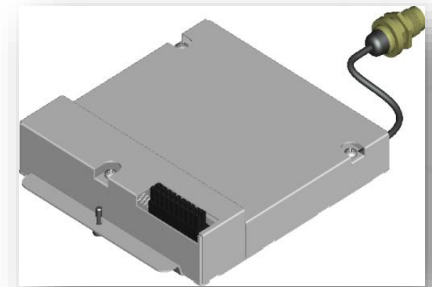
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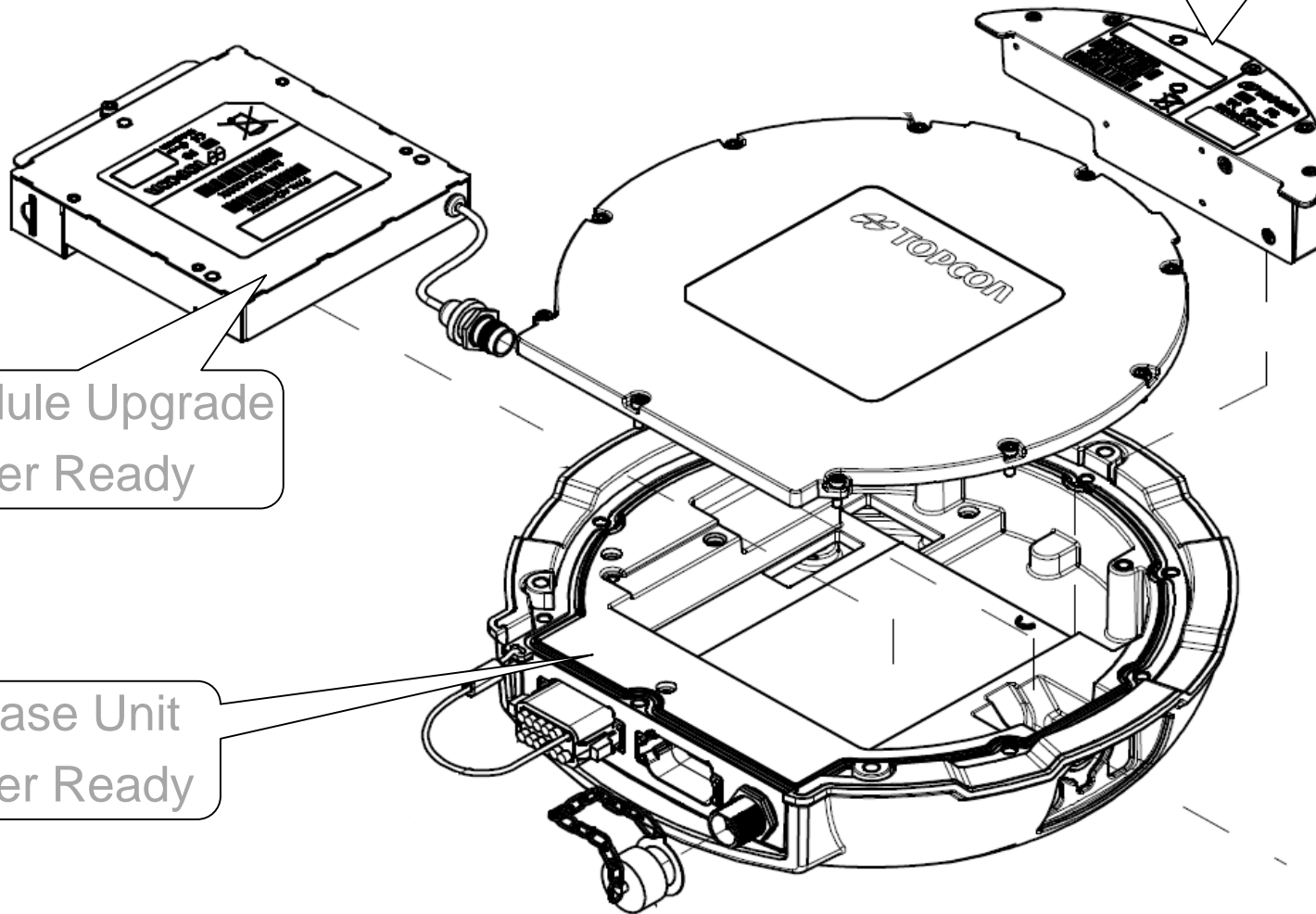
# The GNSS receiver

## AGI-4 TopDock specification

- 72 channel, all-in-view,
- GPS: L1 (C/A & P), L2, L2C, L5 (WAAS)
- GLONASS: L1, L2 (both code and phase)
- GALILEO: E2-L1-E1, E5a.
- Up to 30 dB of "IN-BAND" interference suppression.
- Advanced Multi-path Mitigation
- Co-Op Tracking
- Low signal tracking (down to 30 dB Hz)



# What's inside an AGI-4?



RTK Module Upgrade  
Centimeter Ready

IMU Upgrade  
Decimeter Ready

AGI-4 Base Unit  
Submeter Ready

*Do not attempt to dismantle the AGI-4 antenna No Dealer Level  
Repair Items*

# Components

The TopDock contains a.....

Compass

The compass within Auto-Guide 3000 requires calibration via the Console.

All Sub-Meter augmentation solution systems work with out the IMU snap in module.

When in Sub-Meter solution configuration the Auto-Guide 3000 uses a low grade IMU.

For better accuracy (Decimetre) the IMU snap in module is required.

For higher accuracy (Centimetre) the IMU & RTK snap in modules are required.

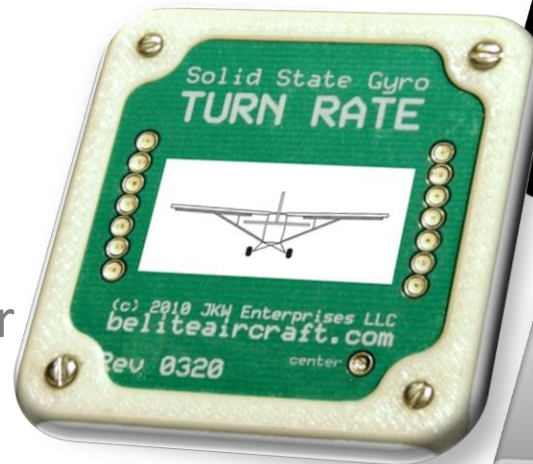
# Components

Auto-Guide 3000 has an Inertial Measuring Unit (IMU)

The IMU is integrated within the AGI-4 unit

It is a 6 axis, solid state MEMS IMU

- Three accelerometers
- Three axis gyros (X,Y,Z)
- One vertical accelerometer





# IMU Sensors Explained - Gyros

The Inertial Measurement Unit (IMU) is a collection of electronic sensors to measure the dynamic orientation of the machine.

Gyros measure rotation and we have 3 axes to measure; Roll, Pitch and Yaw.

Roll



Pitch

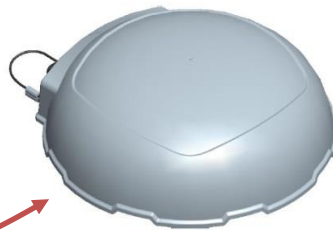


Yaw



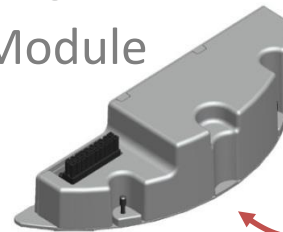
Contains lower grade roll, pitch and yaw gyros for sub-meter correction sources

AGI-4



0.2 deg/sec accuracy

IMU Module



0.05 deg/sec accuracy

Contains higher grade roll, pitch and yaw gyros that work in conjunction with the one on board the AGI-4

4 Times more accurate!!

# IMU Sensors Explained - Accelerometers

The Inertial Measurement Unit (IMU) is a collection of electronic sensors to measure the dynamic orientation of the machine.

Accelerometers measure acceleration and we have 3 axes to measure; X, Y & Z.

The Accelerometers are all located on board the AGI-4 and so are available for each different system type

AGI-4



# IMU Sensors Explained – Compass & Inclinometer

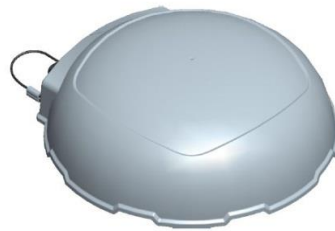
The Inertial Measurement Unit (IMU) is a collection of electronic sensors to measure the dynamic orientation of the machine.

The electronic Compass measures heading of the machine relative to true north. This is useful for direction detection at slow speeds

The compass is located on board the AGI-4 and so are available for each different system type

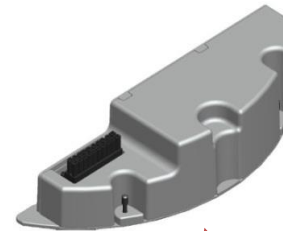


AGI-4



The inclinometer measures the roll of the machine and is used to improve the accuracy of the roll measurement

IMU Module



Roll



The inclinometer is located on the IMU Module and thus is only available for decimeter and centimeter configurations

# IMU Summary

	Gyros	Accelerometers	Compasses	Inclinometers	Total
AGI-4	3	3	1	-	7
IMU Module	3	-	-	1	4

	Gyros	Accelerometers	Compasses	Inclinometers	Total
Sub-meter	3	3	1		7
Decimeter	6	3	1	1	11
Centimeter	6	3	1	1	11



# Tilt's Effect Upon the Guidance Line



# External Interfaces - Connectors

Rear View



External  
Antenna  
Connector

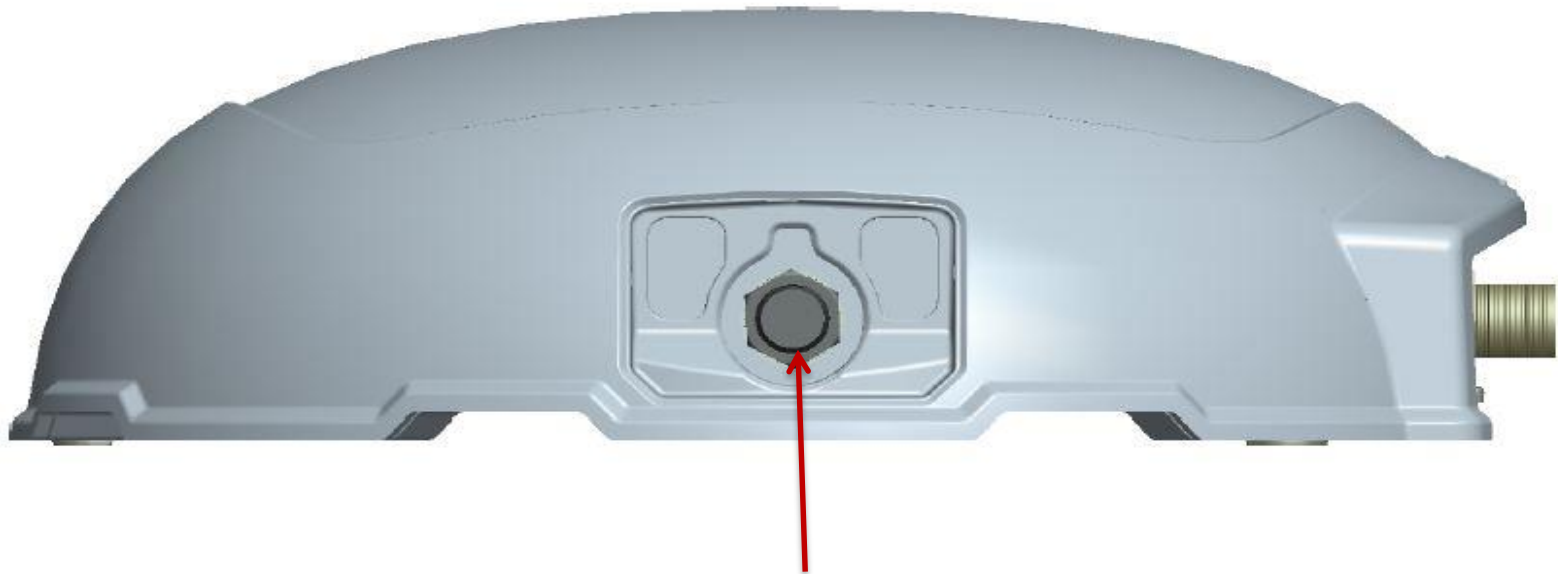
Main  
Connector

Auxiliary  
Connector



# External Interfaces - Connectors

Left-side View



Correction  
Antenna

# MINTER LED Status indicator

The “**Minter**” is the name given to the 3 LED’s located on the side of the Auto-Guide 3000 TopDock

Read left to right.

1. PWR (power) - solid **GREEN** at power up

2. Global Navigation Satellite System (GNSS) reception indicator Automatic steering is available - color changes depending on correction source

**Green** – 1 slow green flash per GPS satellite

**Red** – 1 slow red flash per GALILEO satellite

**Orange** – 1 slow amber flash per GLONASS satellite

# MINTER LED Status indicator

## 3. Correction source

**Green** - correction source received and subscription is current

**Red** - correction source not received

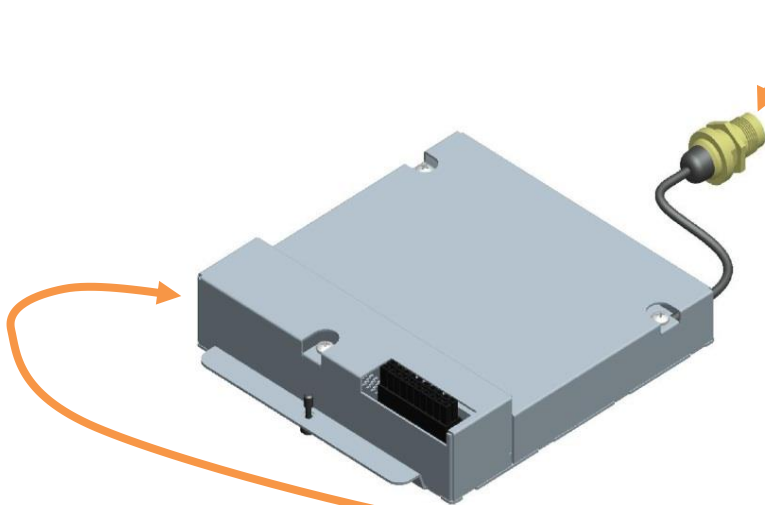
# RTK Modules Explained

The RTK Module's all contains two communications Modems;  
GSM Modem for network corrections

RTK Radio Modem

Type/Freq	Country
FH915	U.S / Australia

Note: Depending on which antenna(s) is finally selected the operator may have an antenna for each modem



Blank plug on side of AGI-4 is removed to expose antenna connector

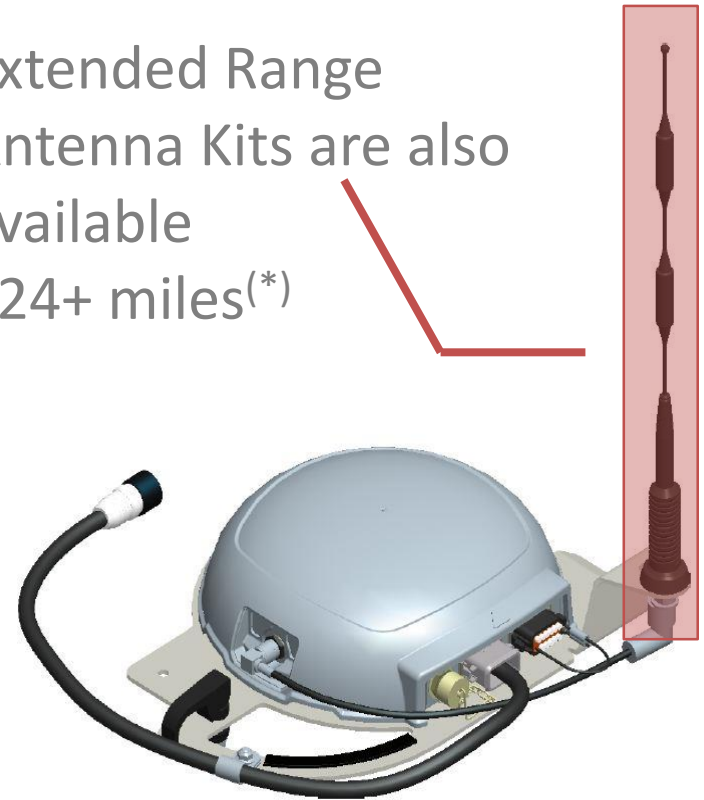
SIM Chip for GSM modem slides in the side

# RTK Antennas

By Default the RTK enabled rover comes with a Rubber Duck antenna. Typical range 6-8 miles<sup>(\*)</sup>



Extended Range Antenna Kits are also available ~24+ miles<sup>(\*)</sup>

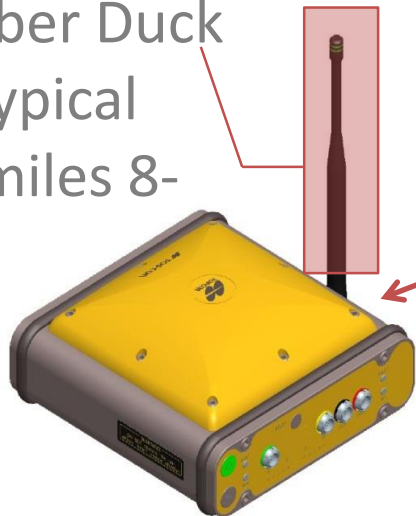


(\* ) Elevating the antenna will increase range, obstructions between the base station and the machine will decrease range

# HiPer Local Base Station Antenna

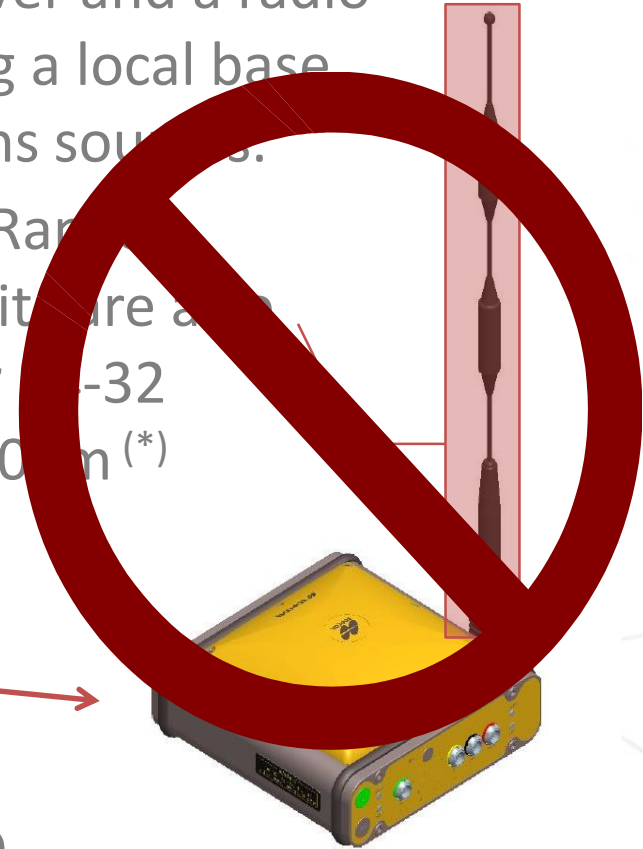
The local base station contains a GNSS Receiver and a radio to transmit corrections to the Machine. Using a local base station is one of the most accurate corrections sources.

By Default the RTK enabled rover comes with a Rubber Duck antenna. Typical range 6-8 miles 8-10Km(\*)



Extended Range Antenna Kit are also available ~ -32 miles 32-40 Km (\*)

The HiPer is used with System 150, but was not released by AGCO



(\*) When mounted to a tripod. Elevating the antenna will increase range, obstructions between the base station and the machine will decrease range



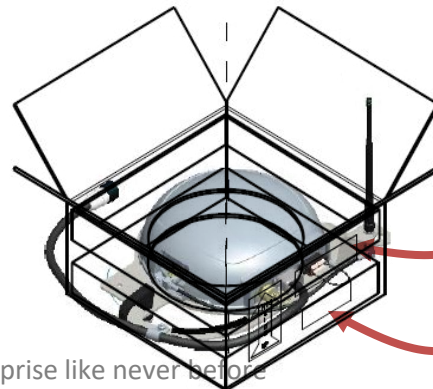
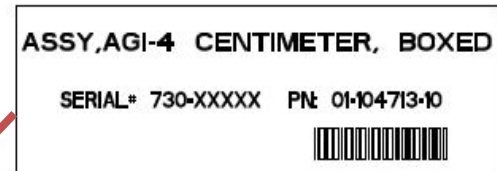
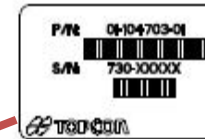
# What's in the box?

IMU  
Preinstalled  
for  
Decimeter  
units

AGI-4 Controller  
(Assembled)

RTK Antenna (for  
Centimeter units,  
but not actually  
installed in box)

RTK Module  
preinstalled for  
Centimeter units



# Auto-Guide 3000 Upgrade Path

Sub-Meter



Nearly all sites will be releasing this as the standard configuration from the factory. Does not include or need plug-ins

Decimeter

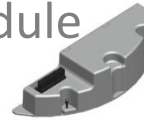


A Decimeter system requires the installation of an IMU module

Centimeter



IMU Module



The IMU and RTK Modules will be released through parts as upgrades

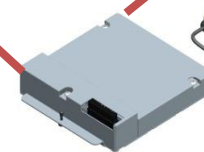
Installing an RTK Module without an IMU Module is not a valid configuration (it will act as SM)

IMU Module



A Centimeter system requires the installation of both an IMU module and an RTK module

RTK Module



# Service Tools = EDT

The EDT is going to be used for all “dealer” diagnostics and flashing of firmware.

- Flashing C1000 Console using EDT to Thumbdrive
- Flashing C2100 Console using EDT to Thumbdrive
- Flashing C3000 Console using EDT to Thumbdrive
- Flashing AGI-4 TopDock using EDT
- Updating Controller Software (VMM, ECU, DCC, TCM) using EDT

# Loading firmware to Auto-Guide 3000 receiver

There are two Topcon Programs in use with EDT

The receiver is currently communicating CAN/ISO bus as well as RS232 protocols.

- The following 2 programs are launched through EDT!
  1. Diagnostics of the AGI-4 “Topcon Receiver Utility (TRU)”
  2. Set-up of HiperAG Base Station “Modem Topcon Positioning Systems (Modem-TPS)”

# Speed of engagement levels

Online Engagement Speed limits are:

Maximum forward = 18mi / 29.2 km/h

Maximum reverse = 6mi / 10.8 km/h

Offline Engagement Speed Limits are:

Maximum forward = 11mi / 18 km/h

Maximum reverse = 6mi / 10.8 km/h

Slow speed Guidance limit is:

Minimum = .62mi / 0.7 km/h

# Calibrations

## Vehicle dimensions

The vehicles dimensions are stored in the PVED on front, rear steer vehicles, and application equipment. In the TopDock on tracked and swather.

Wheel base, Height, Width, all determine the antennas position on the vehicle **\*These are the most important measurements!**

Wheel diameters do affect the position of the antenna enough to make a difference

The antenna is physically on the roof, but it's actual position is calculated to be above the rear axle on a front steering wheeled tractors and rear steer combines.

Over the center point of a tracked tractor, swather and application equipment.



# Calibrations

## Compass Calibration

There is an electronic compass in the IMU that requires calibration

You drive in a circle (clockwise or counter-clockwise. The direction doesn't matter)

Information on how to carry this out is displayed on the CONSOLE.

It provides “course” dynamic detection of forward or backward.

Calibration removes the magnetic “bulk” of the metal object surrounding it...(the tractor )

The calibration “result” is stored in the PVED on front steer, rear steer vehicles, and application equipment . In tracked & swather it is stored in the TopDock.

# Calibrations

## WAS Calibration

Wheel Angle Sensor

Information on how to carry this out is displayed on the  
CONSOLE

Steer full left lock, full right lock, center and enter after each stage.

This calibration is only required on front, rear steer and application vehicles equipped with a PVED.

# System Calibrations

## Mounting Bias Calibration Stored in PVED

Each time the TopDock is mounted to a tractor, a roll bias calibration should be performed to ensure that the TopDock unit is accurately positioned on the tractor. If this is not done, the tractor can exhibit an off-set to either side of the driven wayline by some margin.

**ON WHEELED TRACTORS, SWATHERS & COMBINES YOU MUST CHECK TIRE PRESSURES**

# System Calibrations

This calibration is only required for high accuracy solutions  
XP,HP,RTK

The calibration distance must be 70 meters (229.7 Ft) or over in length

Forward speed is 2 km/h (1.2 Mph) and **must not** exceed 3 km/h (1.25Mph)

The “end turns” can be any type of turn, just keep moving

The number of runs is just, “there and back”! (**A** to **B** and **B** to **A**)

Instructions on how to calibrate are now included on the Consoles UI (user interface, i.e. the console, as you carry out this calibration)

# Agenda

1	General Information	8	Configuration & Set-up
2	Components	9	Field Install vs. Factory Installations
3	C1000	10	Architecture and Installation
4	Configuration & Set-up	11	Diagnostics and Troubleshooting
5	Task Controller Setup (for mapping)	12	Base stations
6	Additional features	13	RTK - Radio vs. Cellular
7	C3000	14	AGCOMAND



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## ISO-VT Interface Overview





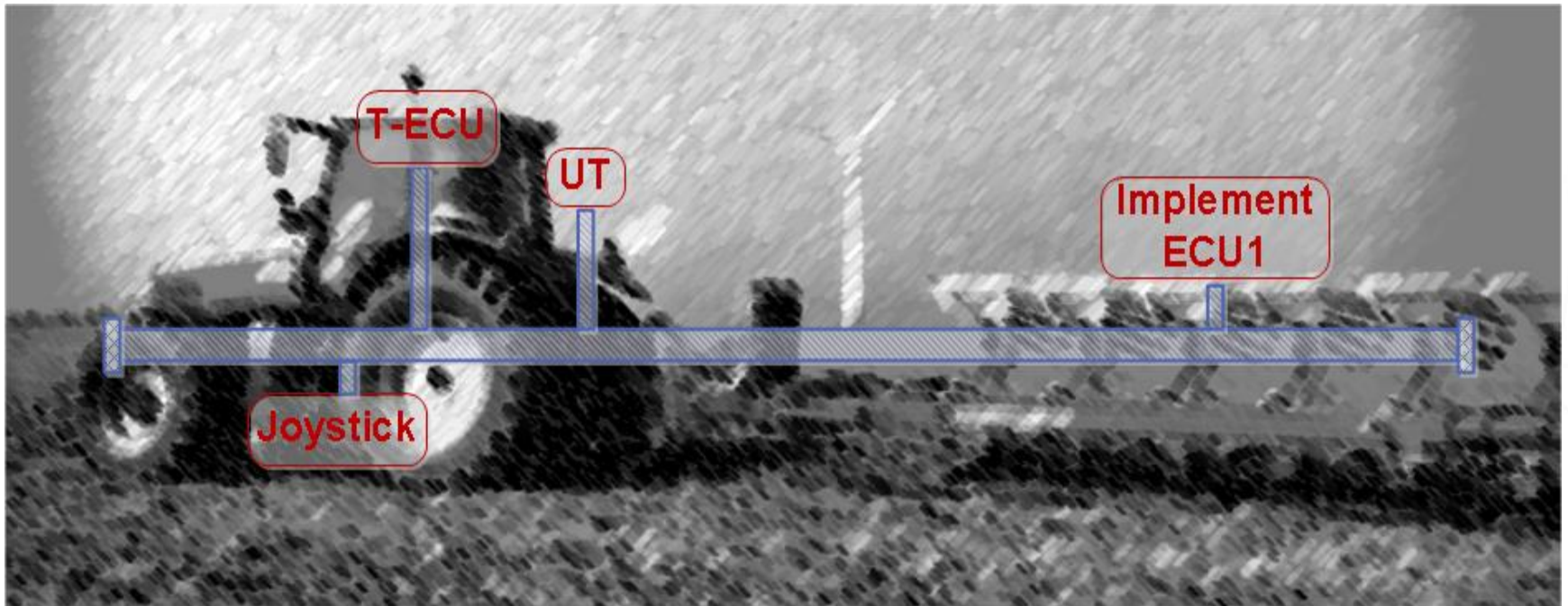
## ISOBUS System

ISOBUS is a standardized communication system which links various components like tractors, terminals and implements together, enabling data to be transferred quickly and simply.

ISOBUS development was triggered by the fact that farmers often use tractors from one brand with implements from the other supplier, and this leads to difficulties in maximizing electronic systems

# Feature Set Overview

It is a protocol and a standard to which manufacturers work to, and hopefully ensure their products work with all other terminals



# Feature Set Overview



## UT – Universal Terminal

A Universal Terminal, UT [also referred to as Virtual Terminal VT] is an electronic control unit (ECU), consisting of a graphical display and input functions, connected to an ISO 11783 network that provides the capability for an ECU, an implement or a group of implements to interact with an operator.

The UT provides the capability to display information and to retrieve data from an operator.

UT provides the capability to operate an implement on any terminal

UT also provides the capability to use one terminal for operating different implements

# Feature Set Overview



## TC-BAS – Task Controller Basic (totals)

TC-BAS describes the documentation of total values (provided by the implement) that are relevant for the work performed.

ISO-XML data format is used for the exchange of data between farm management system and the Task Controller

Jobs can be imported to the Task Controller and/or finished documentation can be exported from the Task Controller

C1000 Task Controller is ISO 11783-10 XML Version 1

# ISO-VT Support (C1000 & C2100)

C1000

Softkeys for input



6 functions  
per screen

C2100

Touch Screen for  
input



8 functions per  
screen



# ISO-VT Overview

Working Set Icon (Colored to indicate guidance status when not on focused on Guidance Application)

Tractor Icon and 'wobble line' view

Auto-Steer Engage / Disengage Button

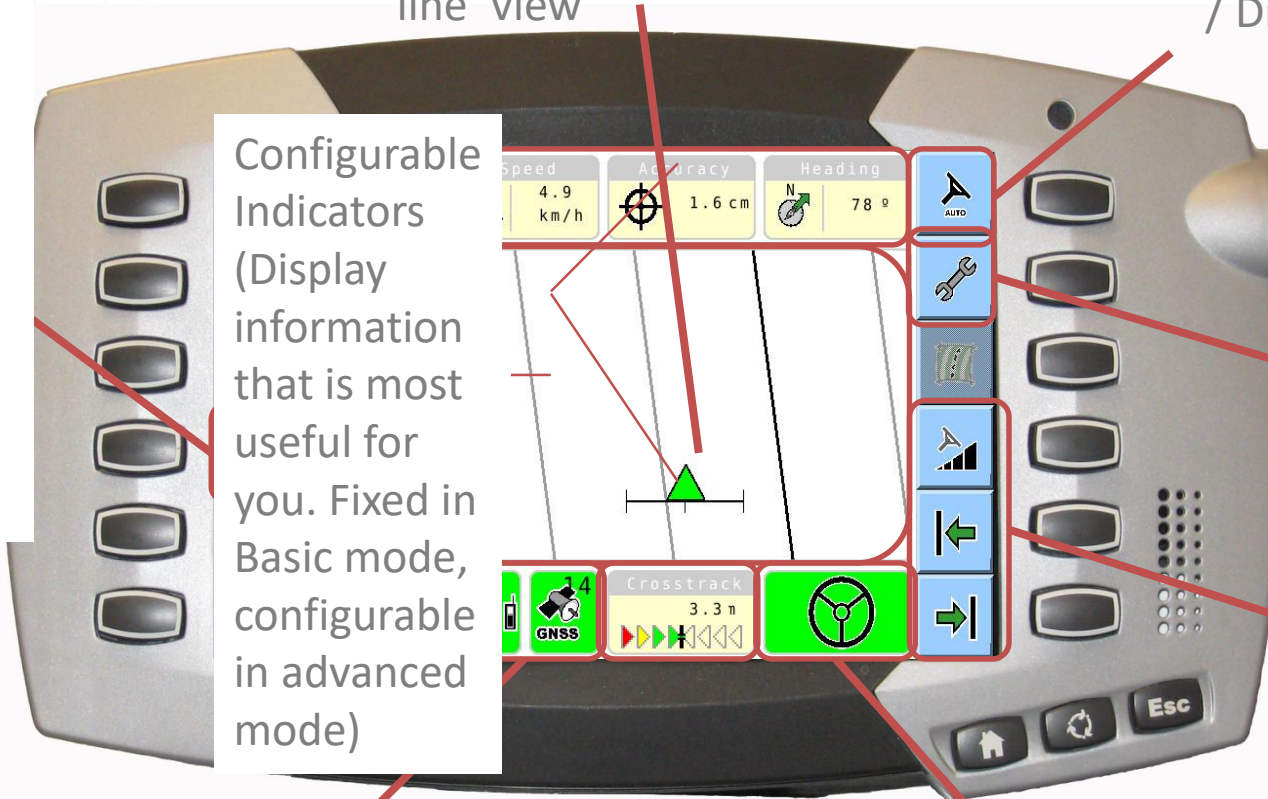
Configurable Indicators (Display information that is most useful for you. Fixed in Basic mode, configurable in advanced mode)

Configuration Menu (Access all configuration from here)

Hot keys (Short cuts to useful functions deeper in menu. Fixed in Basic Mode, configurable in advanced)

GNSS and Correction Signal Information (colored to indicate health)

Guidance Status Indicator (Are we engaged / can we engage. Selecting it will take you to a screen that shows you why you can't engage)





# Agenda

1	General Information	8	Configuration & Set-up
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6	Additional features	13	RTK - Radio vs. Cellular
7	C3000	14	AGCOMAND

# ISO-VT - Basic & Advanced Mode

Users of our Auto-Steering products (like users of our other products) tend to fall into two categories; those that want to use it in it's most simple form and those that want to utilize everything feature available to maximize their efficiency.

Creating systems [like AG 3000] to accommodate these needs (simple yet very flexible) is not trivial and to aid this we've created two modes in the ISO-VT interface; Basic and Advanced.

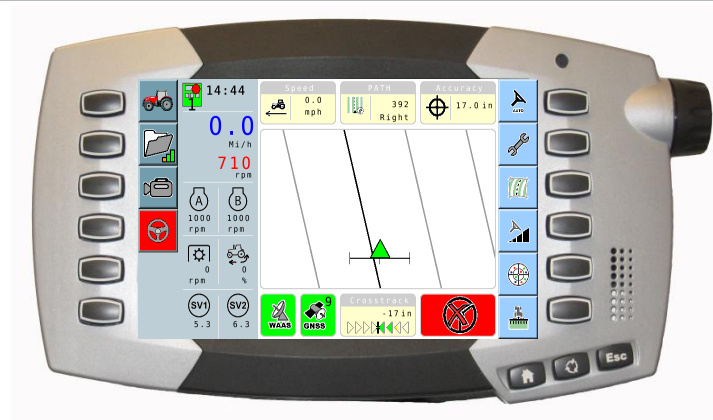
# ISO-VT - Basic & Advanced Mode

## C1000 Basic Main Screen



Simplified Main Screen  
Simplified Menu System  
Fixed Configuration

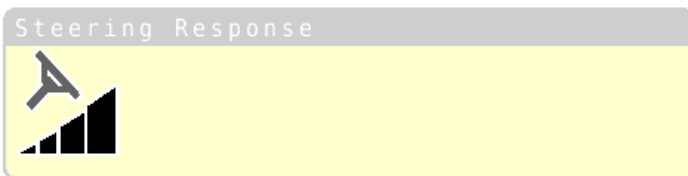
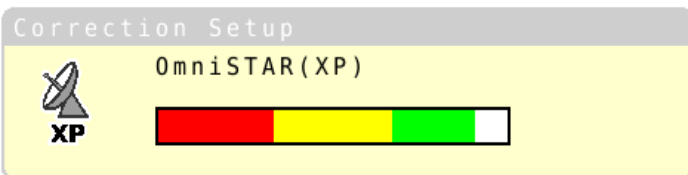
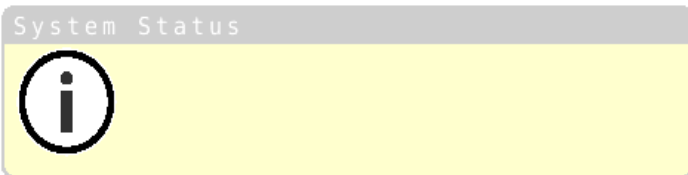
## C1000 Advanced Main Screen



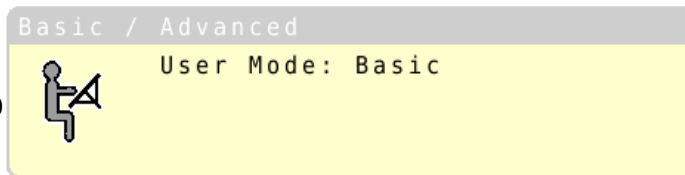
Customizable Main Screen  
Indicators  
hotkeys  
Full access to menu features

# ISO-VT - Basic Mode Configuration Menu Options

Page 1




Page 2



# ISO-VT - Advanced Mode Configuration Menu Options


Page 1

Wayline




Wayline:  
Wayline Type:

Implement




Implement:  
Width: 0 in  
Overlap: 0 in

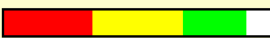
System Status



Correction Setup




Omnistar (XP)



Page 2

Steering Response




GPS Drift Compensation




Basic / Advanced

User Mode: Advanced




Vehicle




Profile:

Page 3

Calibration



System



# C1000 Field Installation

The C1000 terminal is available as factory option, but also can be added through Parts and can be mounted on MF66xx, 76xx, 86xx, MT5xxD/E, MT6xxD/E series tractors

The parts needed for tractors are;

4297560M95, C1000 terminal

39258500, C1000 harness

39281900, RAM mounting bracket



Tractor has to have at least Isobus ready kit

If Auto-Guide functions are needed then tractor has to have also Auto-Guide ready kit

Note, that Auto-Guide ready kit is only a factory installed option  
Isobus has been mandatory with Auto-Guide Ready kit since Spring 2009

If tractor has Auto-Guide ready kit but it doesn't have Isobus, the Isobus ready kit can be installed on the field



# C1000 Field Installation on Valtra Tractors

**MF 86xx, MT6xxD/E series:**

The kit needed for C1000 terminal installation is 4351619M11, which includes

4297560M95, C1000 terminal

4299610M1, C1000 harness

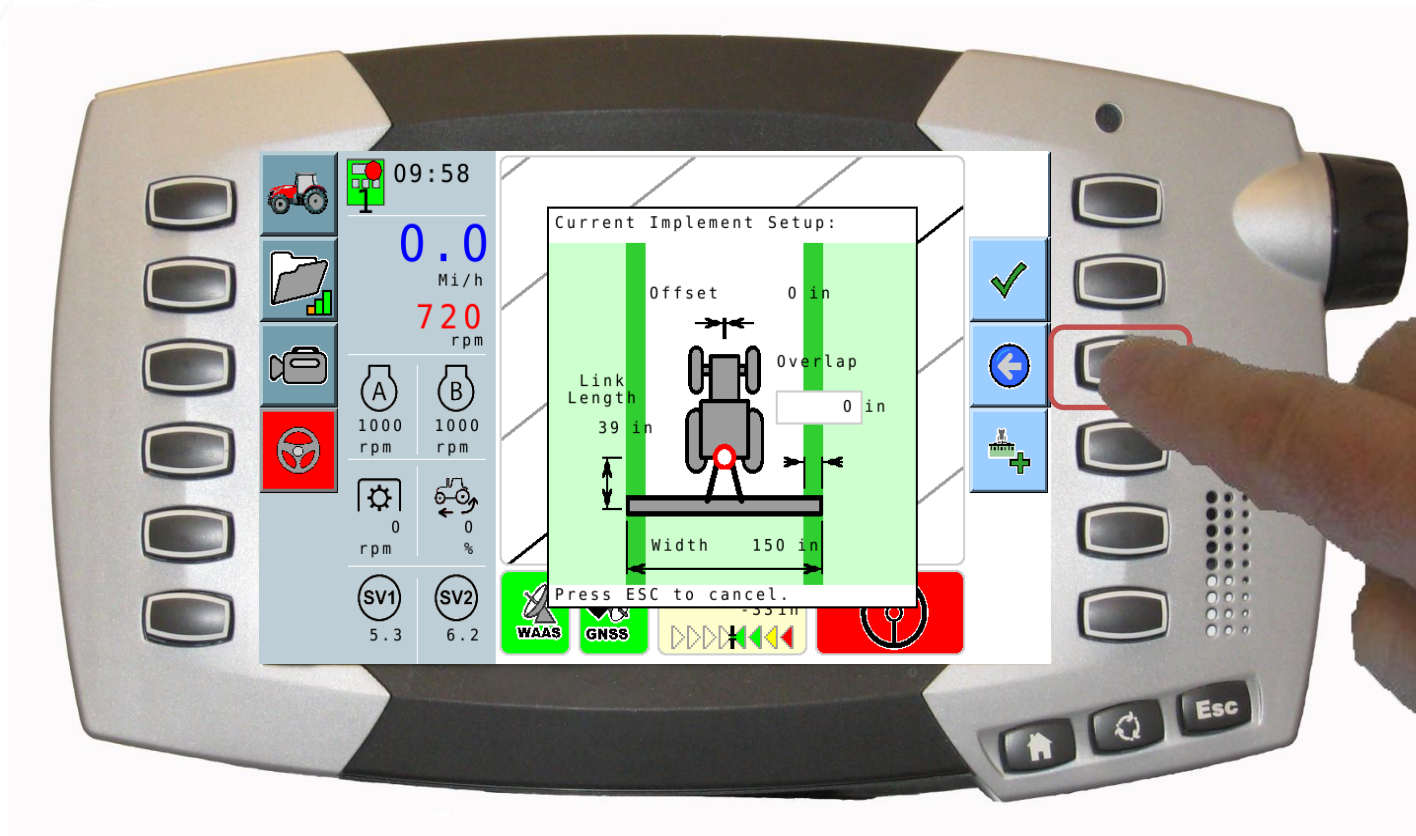
V39281900, RAM mounting bracket

C1000 connected to the In-cab connector on B pillar

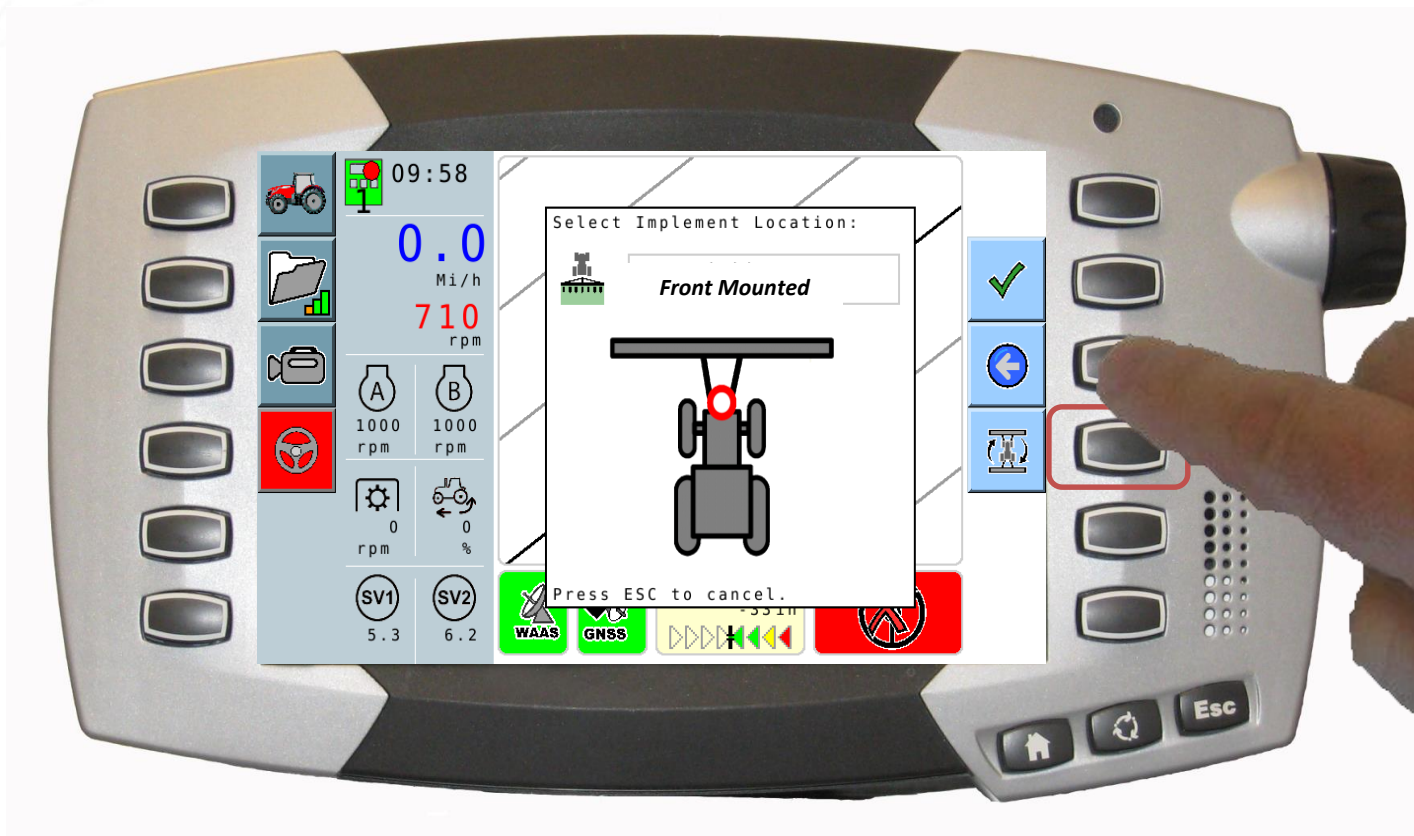
Connector is defined on the ISO11783 standard (Isobus)

The mounting bracket is mounted on the right hand side mounting bar

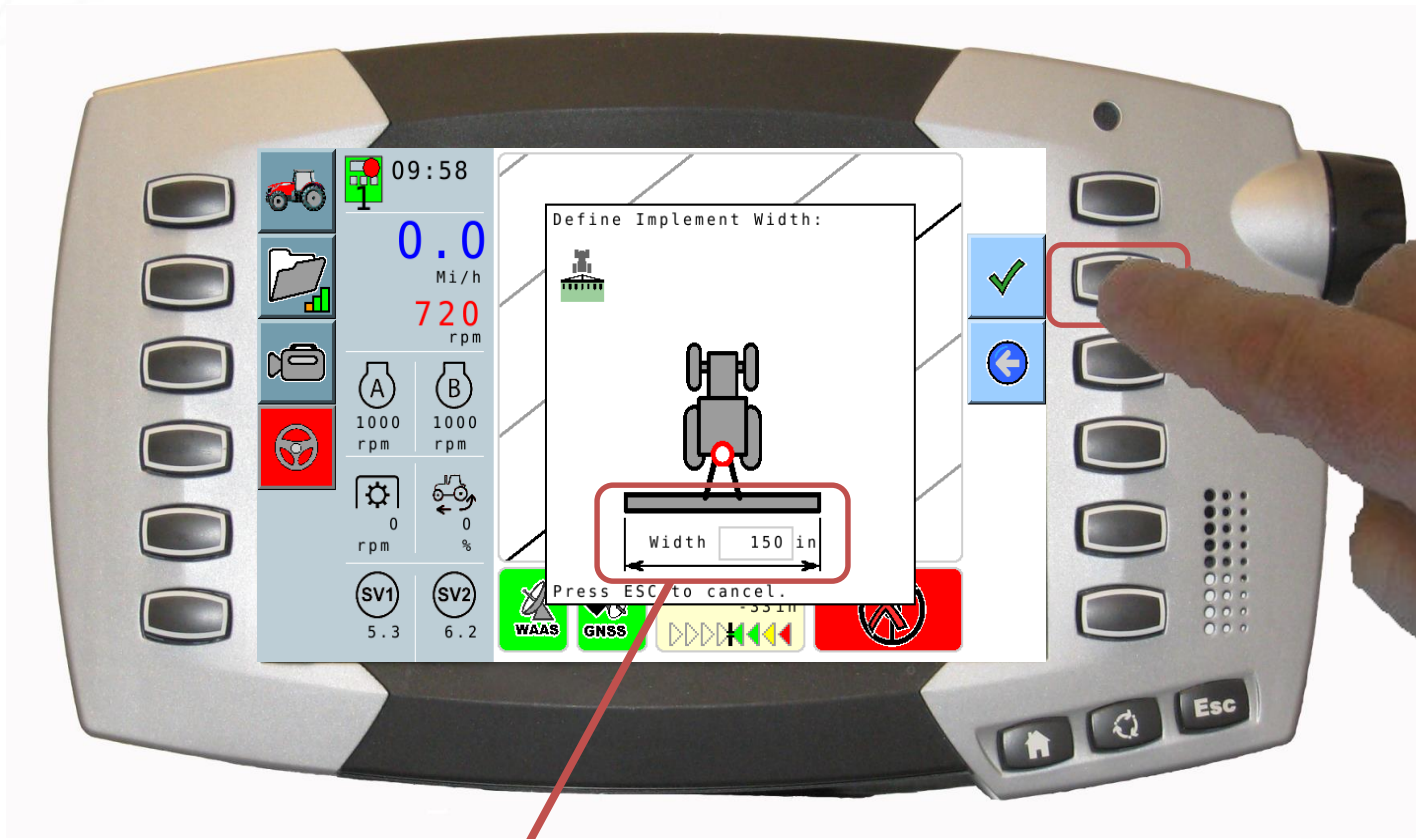
# GO Mode – (Only available while system is in 'Basic' mode)



# GO Mode – (Only available while system is 'Basic')



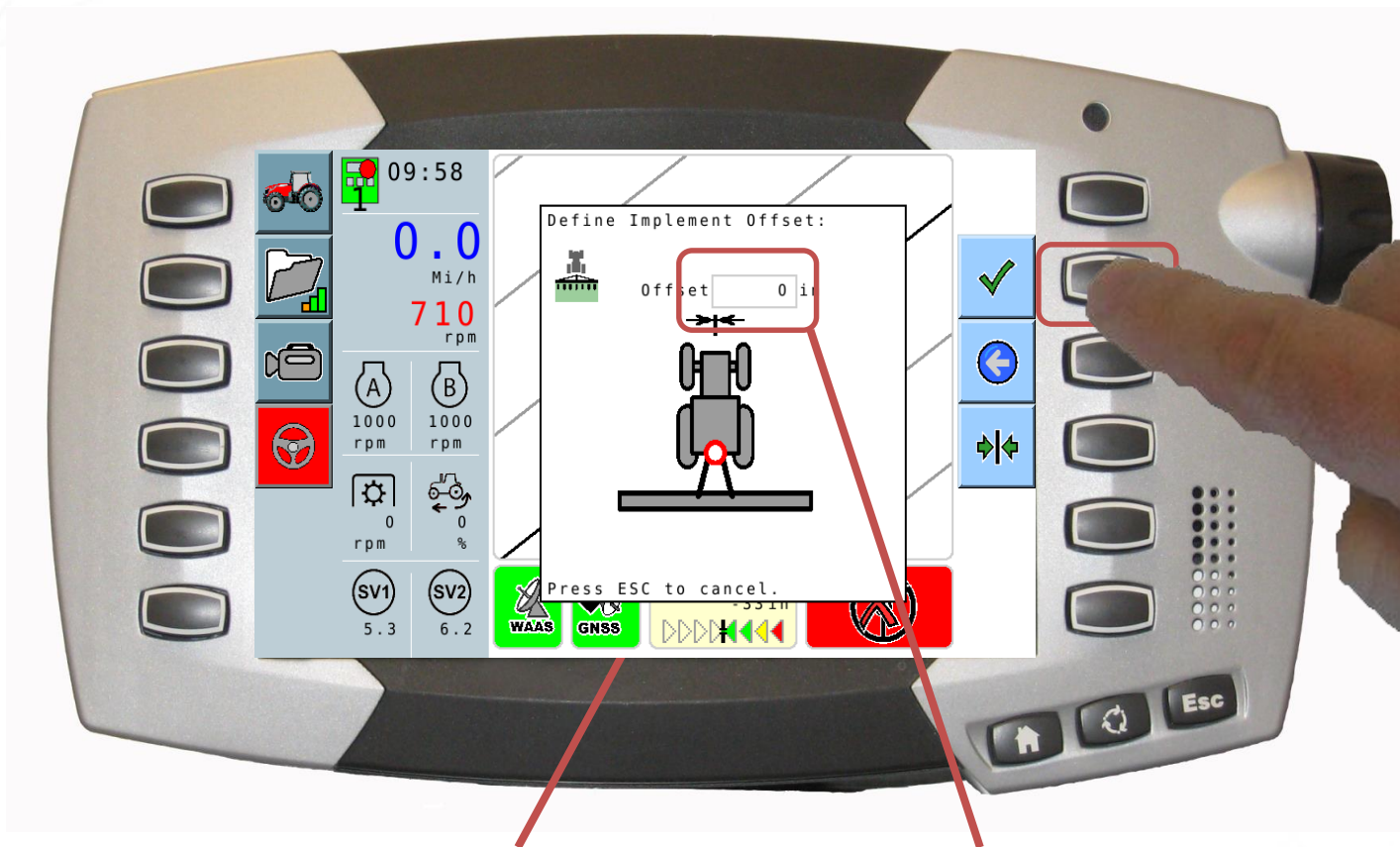
# GO Mode – (Only available while system is 'Basic')



## Customize Implement Width



# GO Mode – (Only available while system is 'Basic')

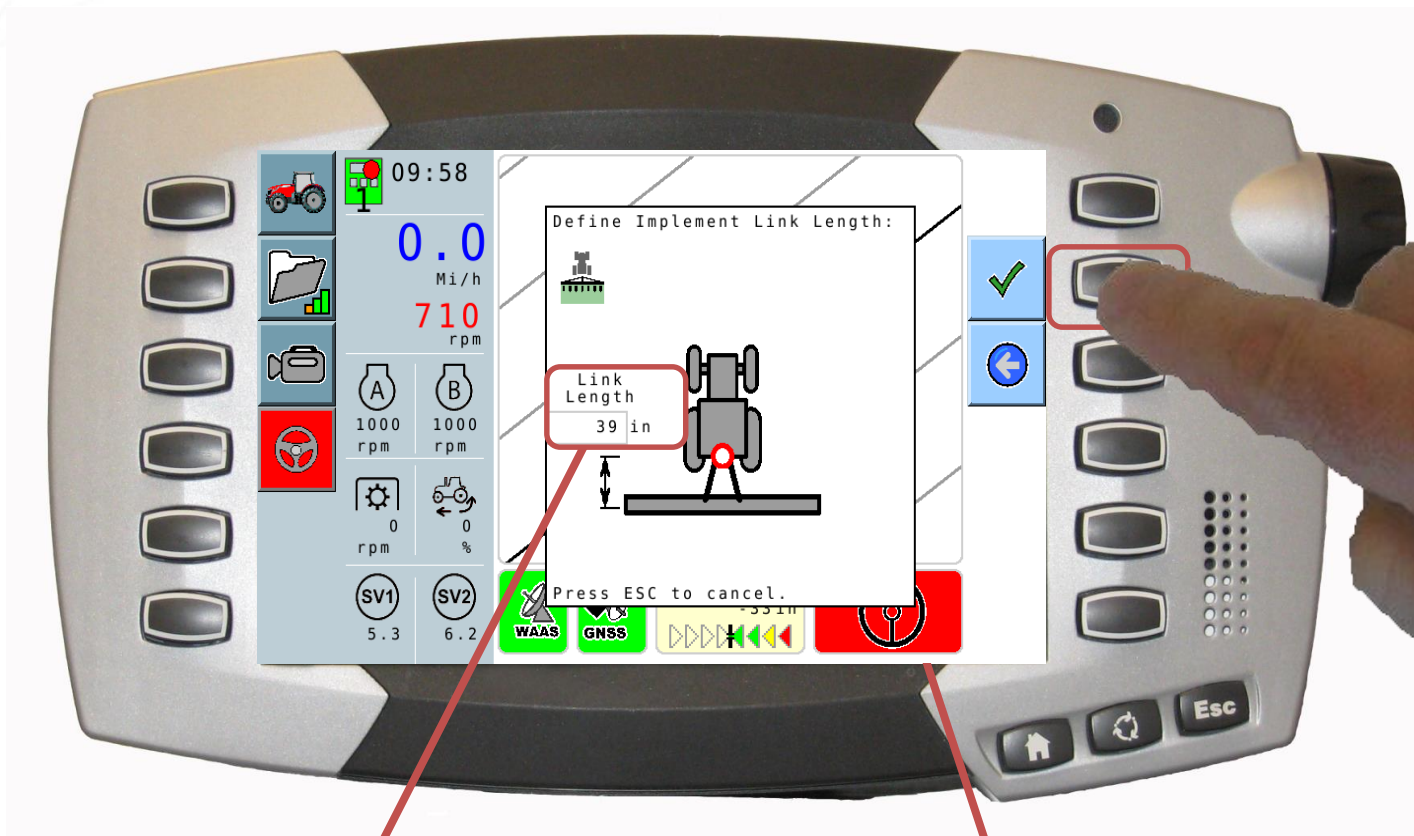


Customize  
Implement Width

Customize  
Implement Offset

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# GO Mode – (Only available while system is 'Basic')

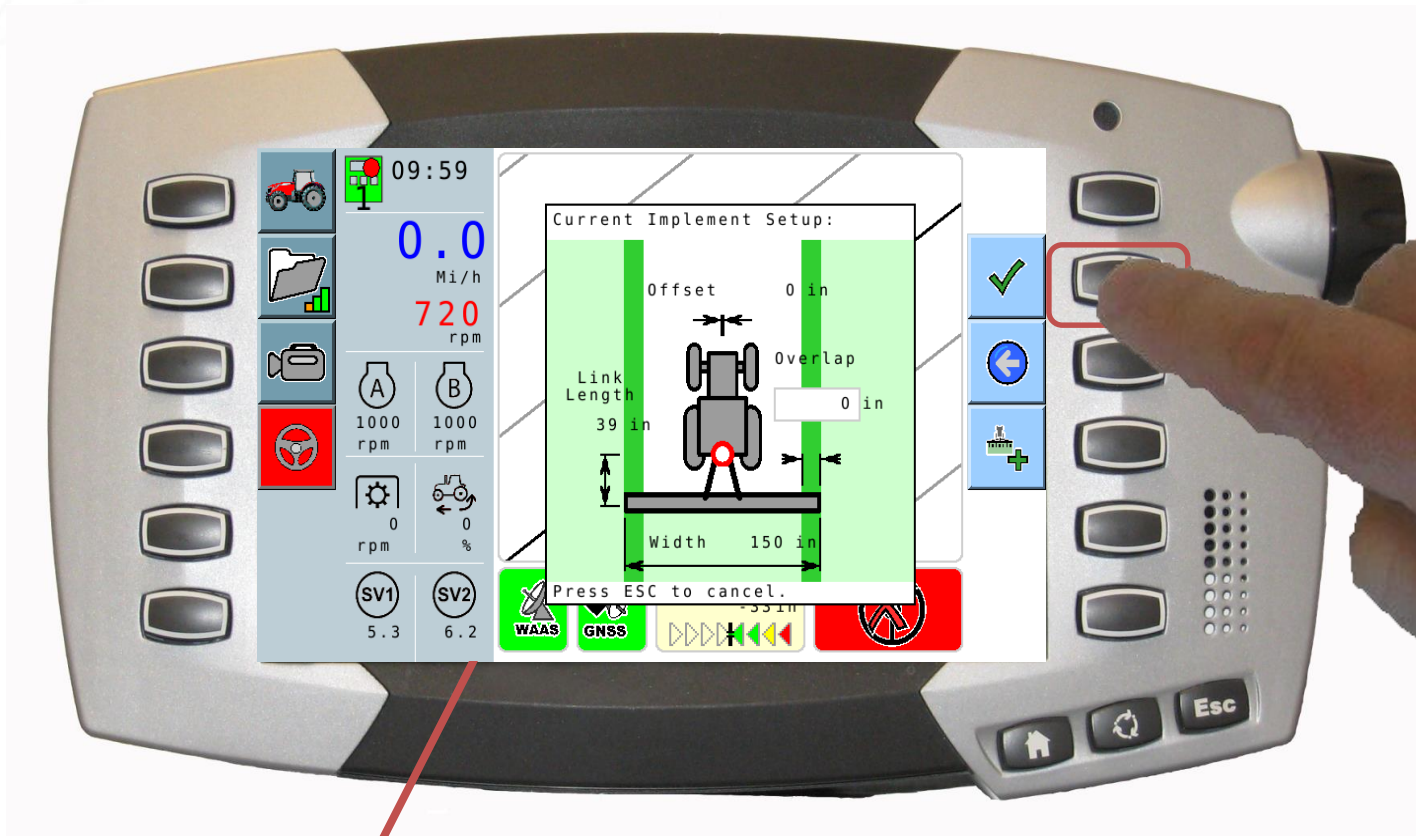


Customize Link  
Length

Customize  
Implement Offset



# GO Mode – (Only available while system is 'Basic')



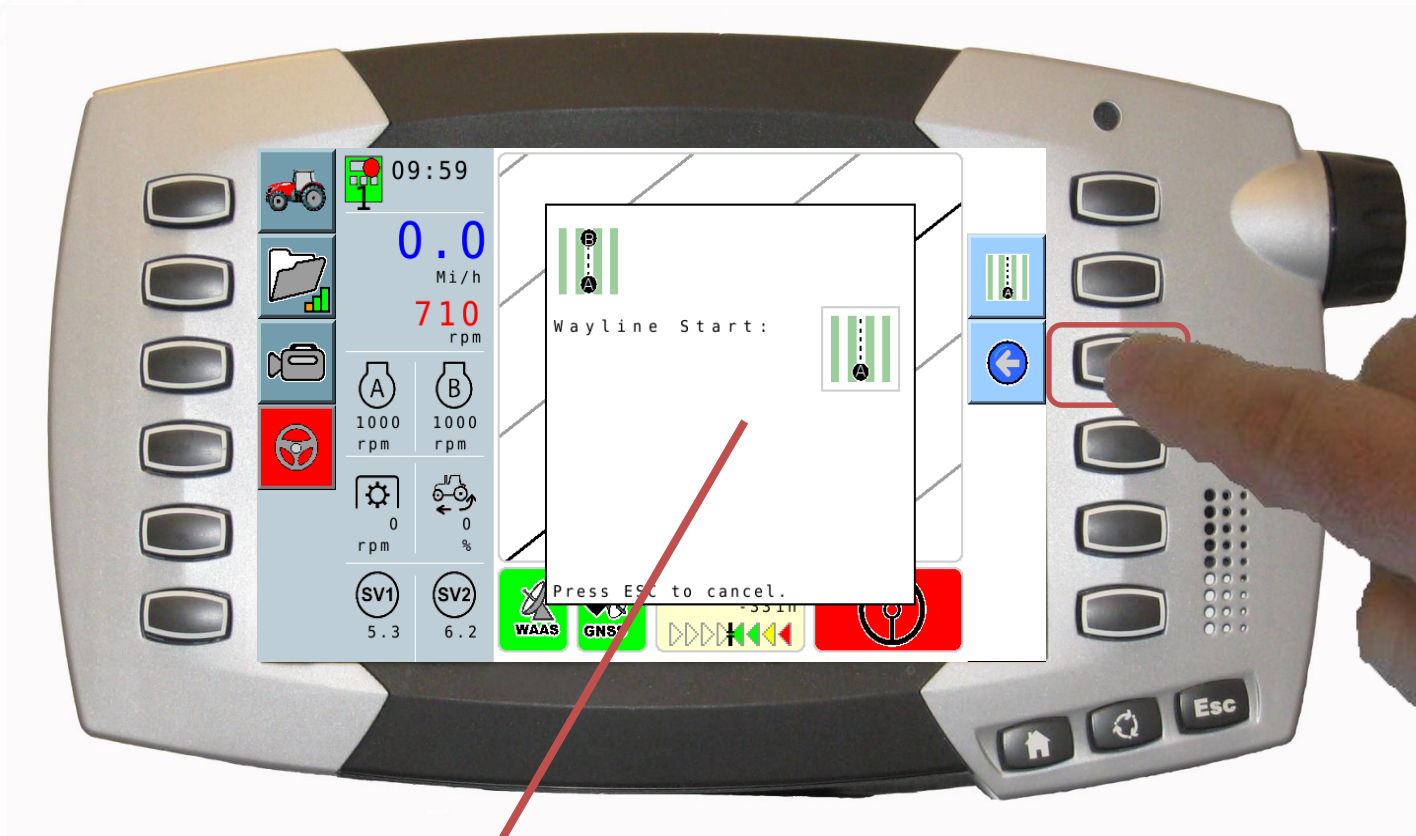
## Customize Link Length

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# GO Mode – (Only available while system is 'Basic')



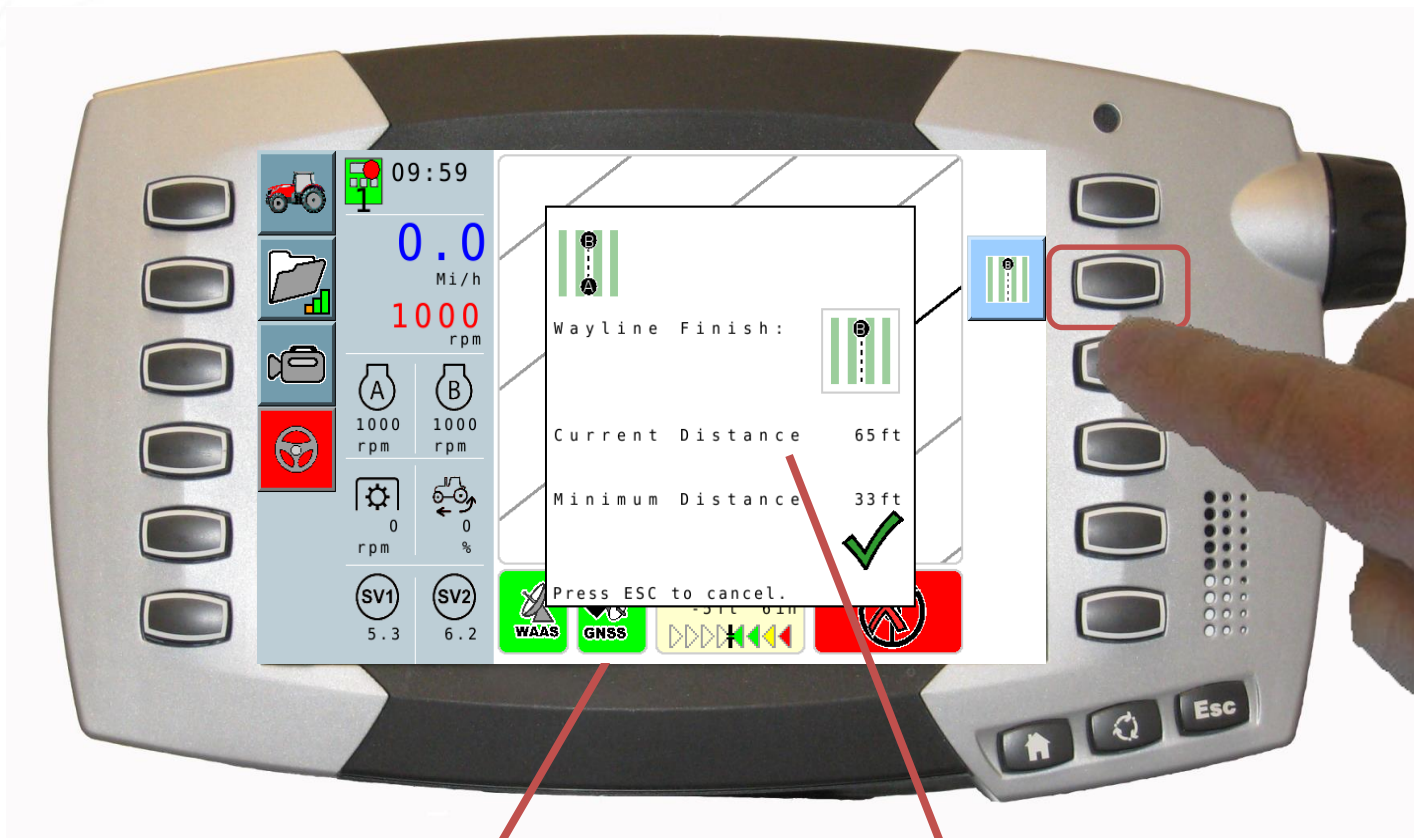
# GO Mode – (Only available while system is 'Basic')



Now to where you want the 'A' Point to be



# GO Mode – (Only available while system is 'Basic')



Now to where you want the 'A' Point to be

Now to where you want the 'B' Point to be

# GO Mode – (Only available while system is 'Basic')



Now to where you want the 'B' Point to be



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Basic to Advanced





# Changing from Basic Mode to Advanced Mode



# Changing from Basic Mode to Advanced Mode



# Changing from Basic Mode to Advanced Mode

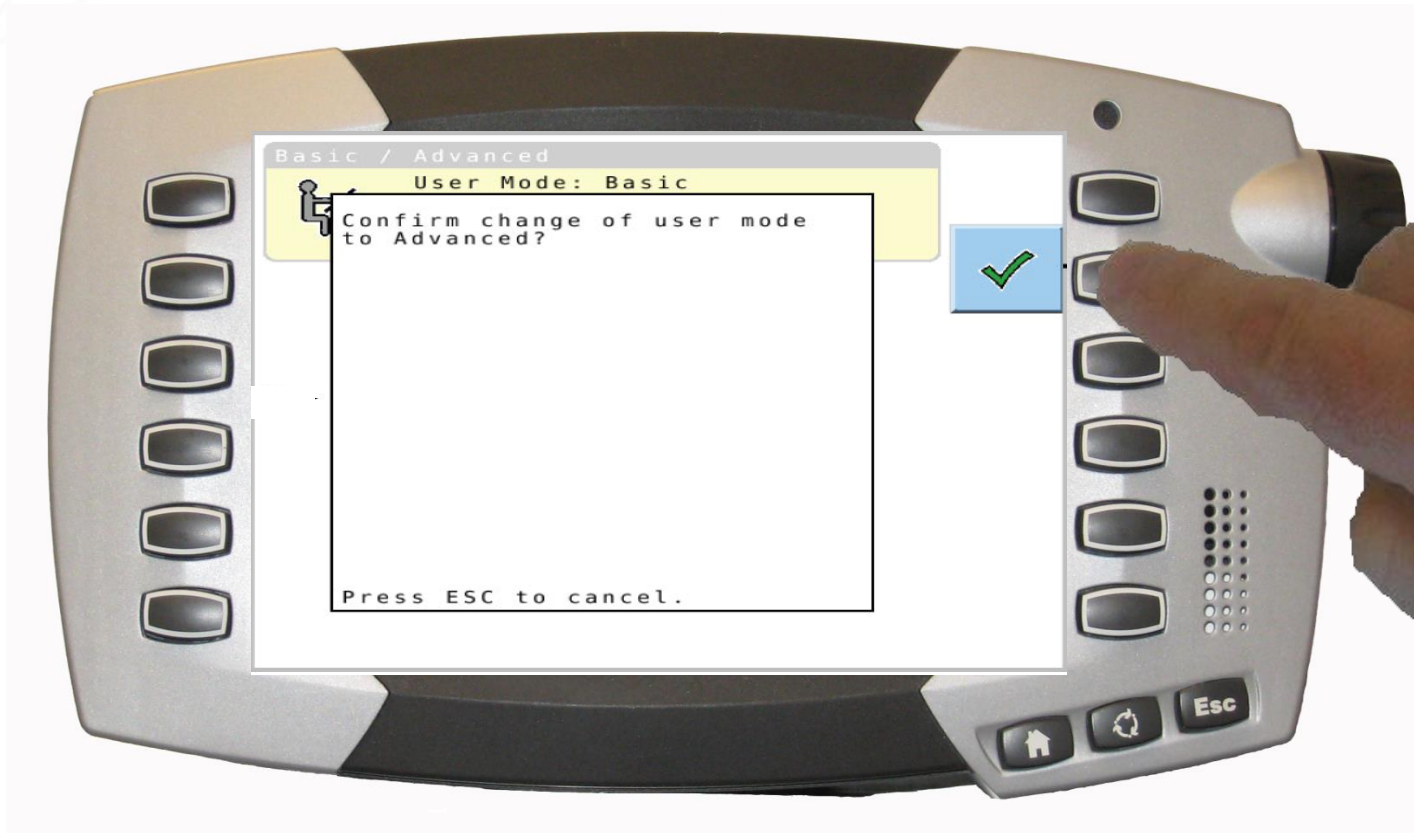


# Changing from Basic Mode to Advanced Mode





# Changing from Basic Mode to Advanced Mode



# Changing from Basic Mode to Advanced Mode







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Advanced to Basic



# Changing from Advanced Mode to Basic Mode



# Changing from Advanced Mode to Basic Mode





# Changing from Advanced Mode to Basic Mode



# Changing from Advanced Mode to Basic Mode



# Changing from Advanced Mode to Basic Mode







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# Advanced Mode Main Guidance Screen Modification



# Advanced Mode Main Guidance Screen Modification



# Advanced Mode Main Guidance Screen Modification



# Advanced Mode Main Guidance Screen Modification





# Advanced Mode Main Guidance Screen Modification





# Advanced Mode Main Guidance Screen Modification





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## Selecting Correction Source



# Selecting Correction Source



# Selecting Correction Source





# Selecting Correction Source





# Selecting Correction Source



# Selecting Correction Source



# Selecting Correction Source





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## Vehicle Profile





# Vehicle Profile



Vehicle profiles are only available in advanced mode.



# Vehicle Profile



# Vehicle Profile



# Vehicle Profile

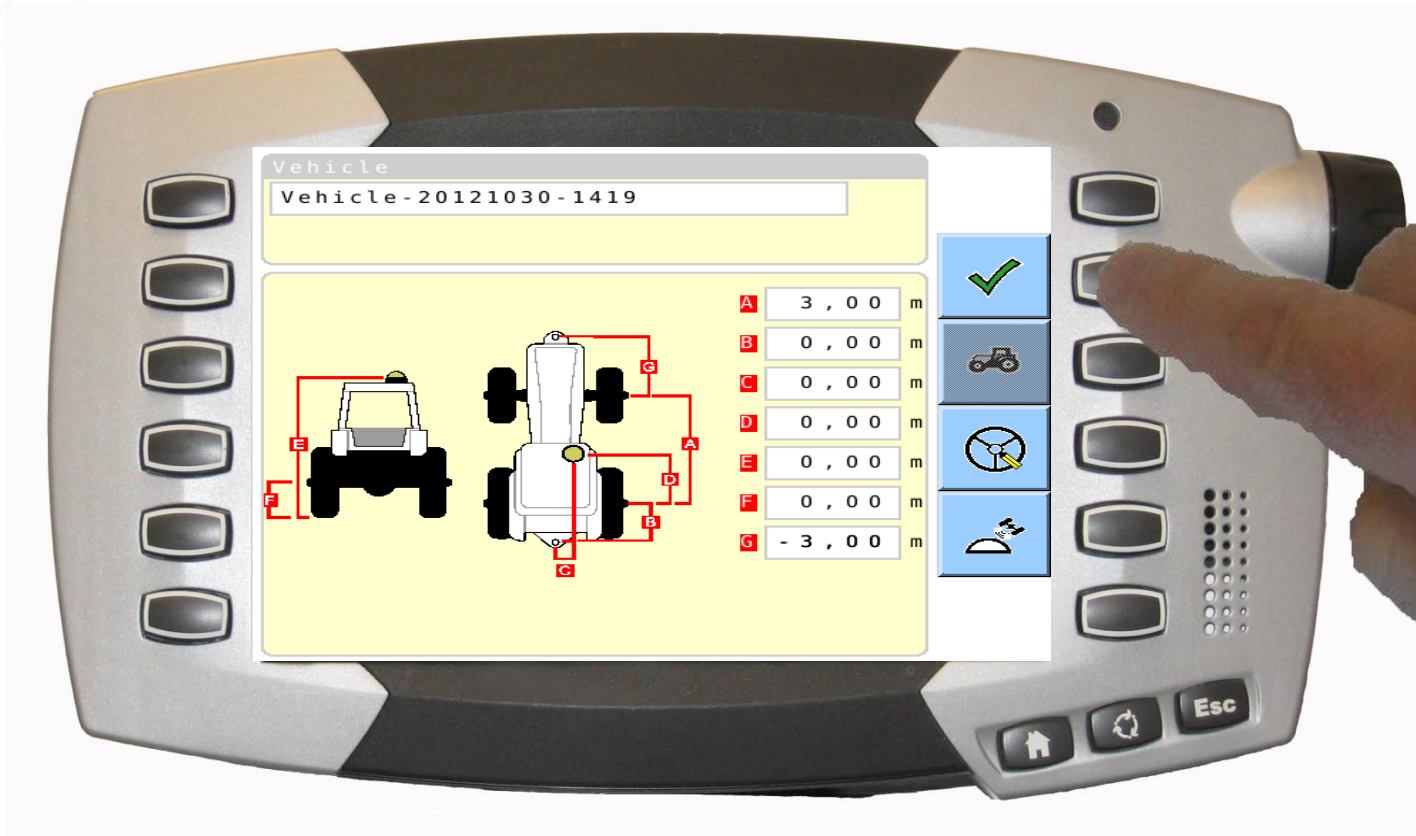


# Vehicle Profile





# Vehicle Profile





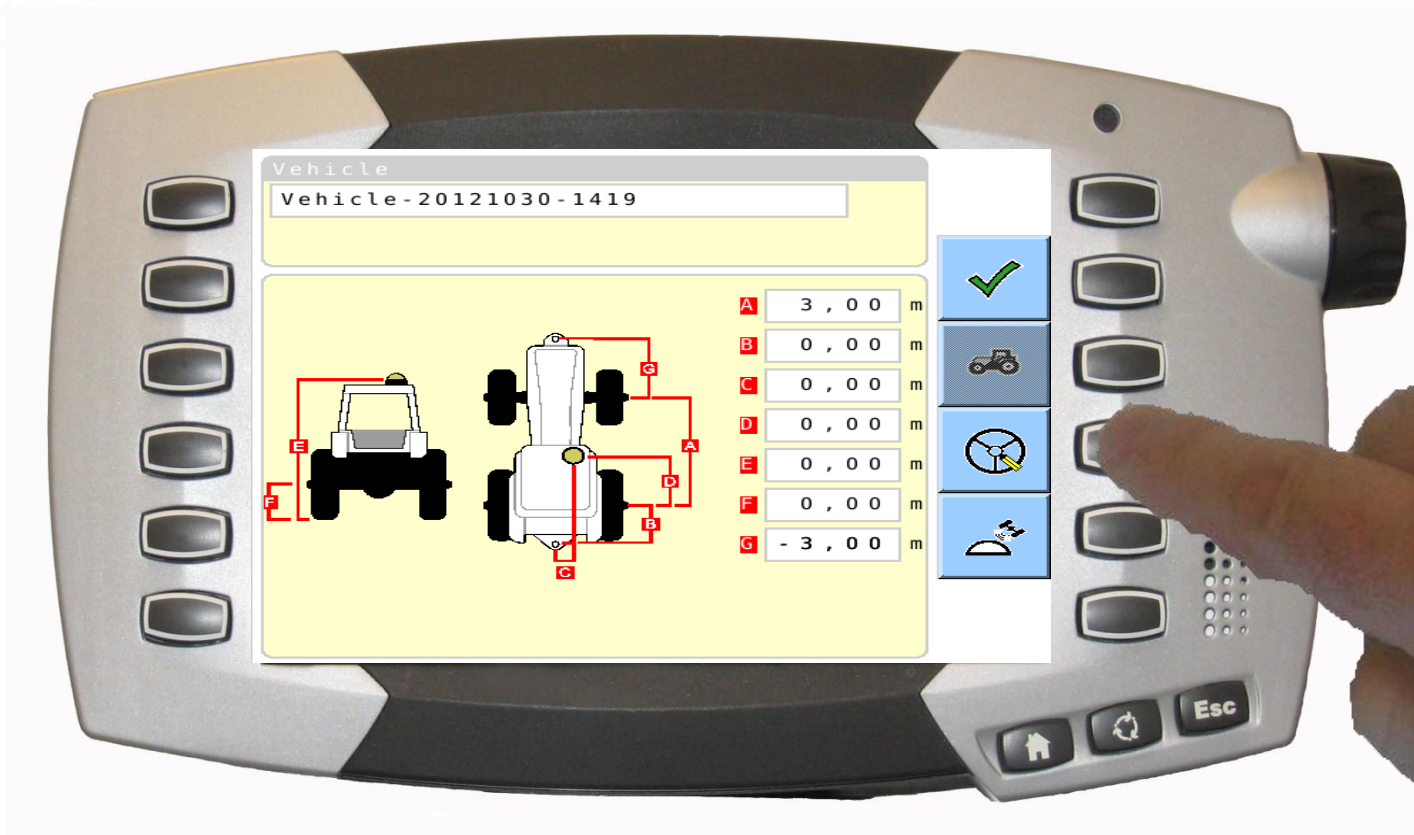


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## Selecting a Steering Subsystem



# Selecting a Steering Subsystem



Make and name a vehicle profile before selecting a steering subsystem.

# Selecting a Steering Subsystem







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## External Antenna Set-Up (Combine)

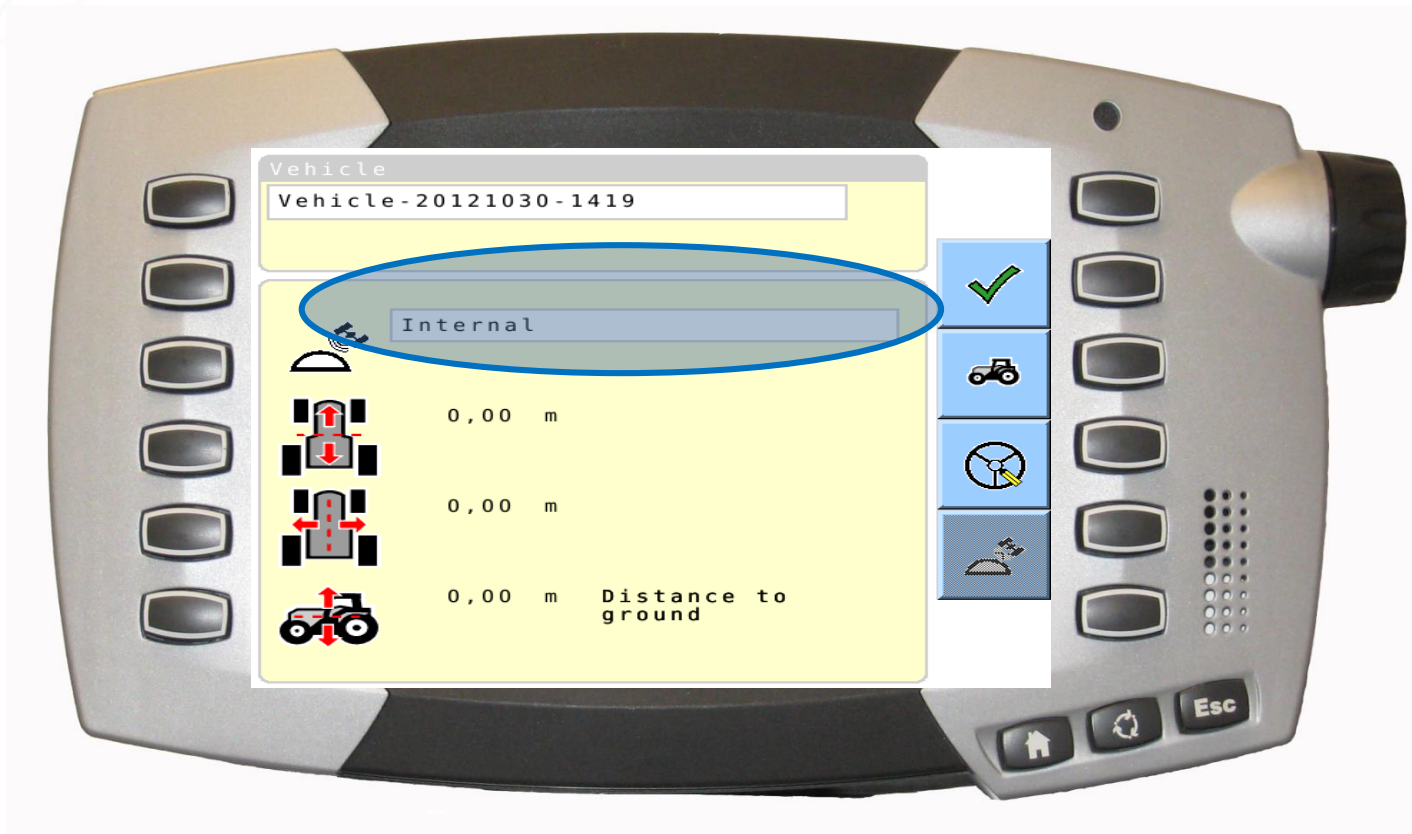


# External Antenna Set-Up (Combine)





# External Antenna Set-Up (Combine)



# External Antenna Set-Up (Combine)



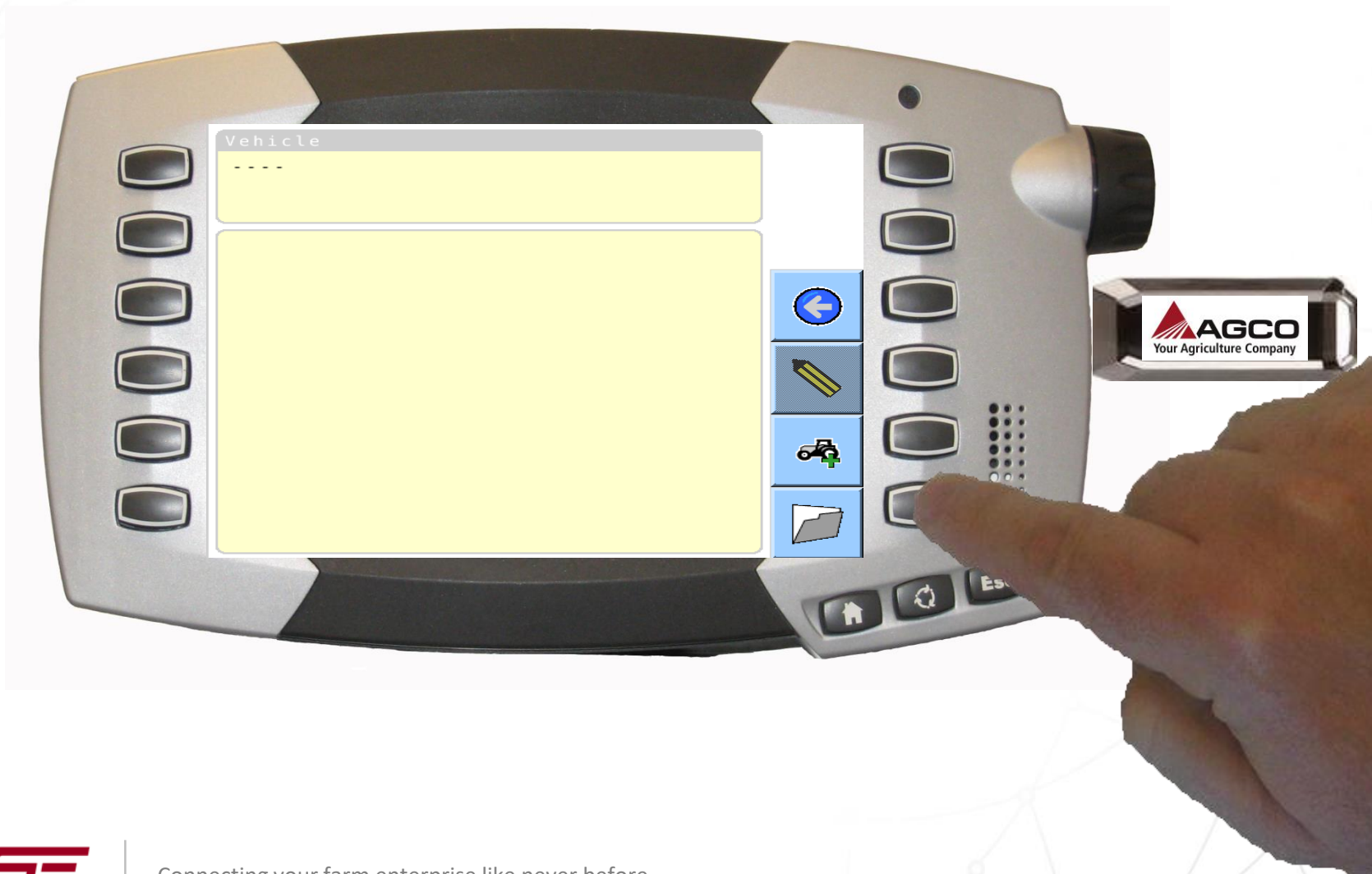


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like never before

## Loading a Vehicle Profile



# Loading a Vehicle Profile





# Loading a Vehicle Profile

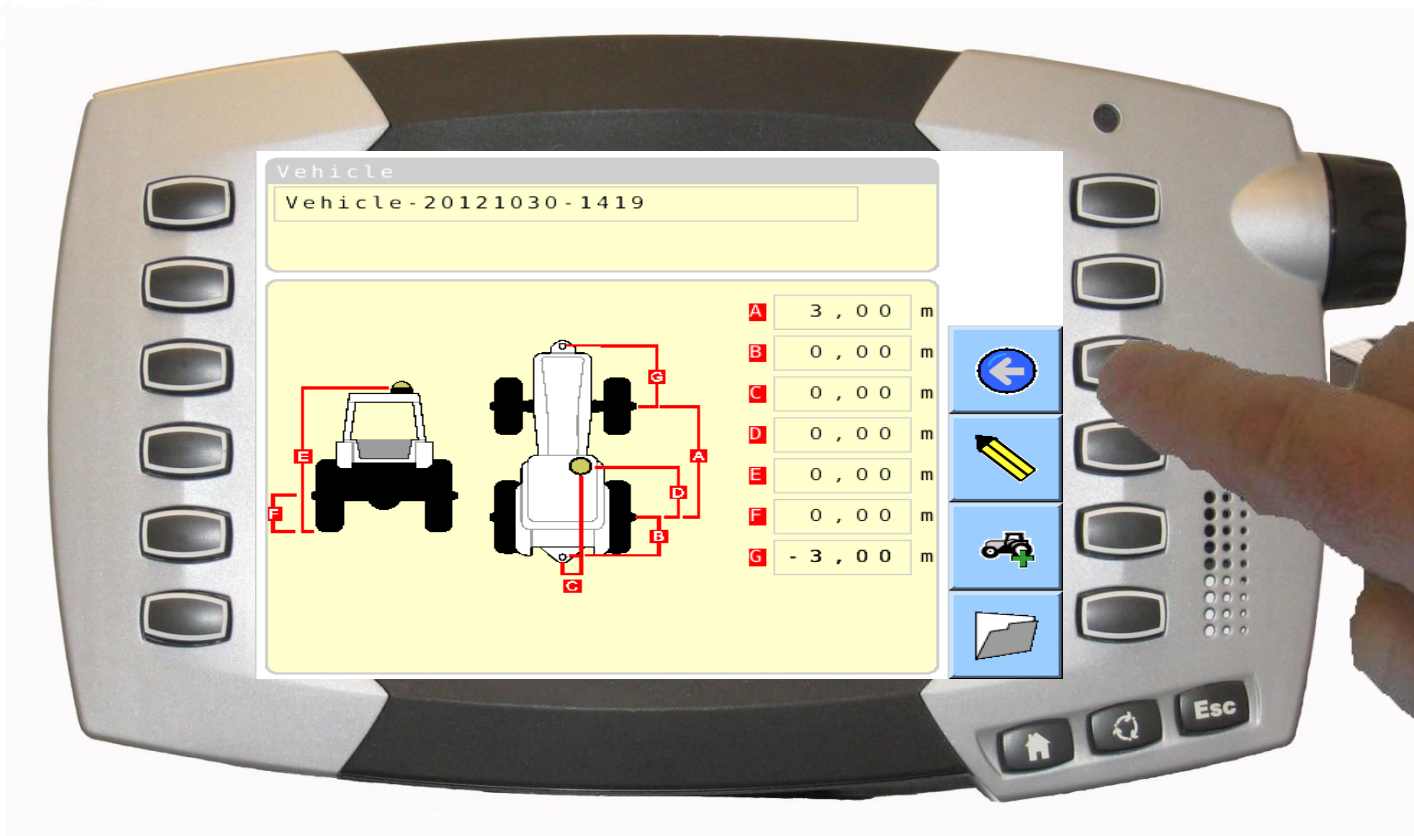




# Loading a Vehicle Profile



# Loading a Vehicle Profile





Connecting your farm enterprise  
like never before

## Creating an Implement Profile



# Creating an Implement Profile



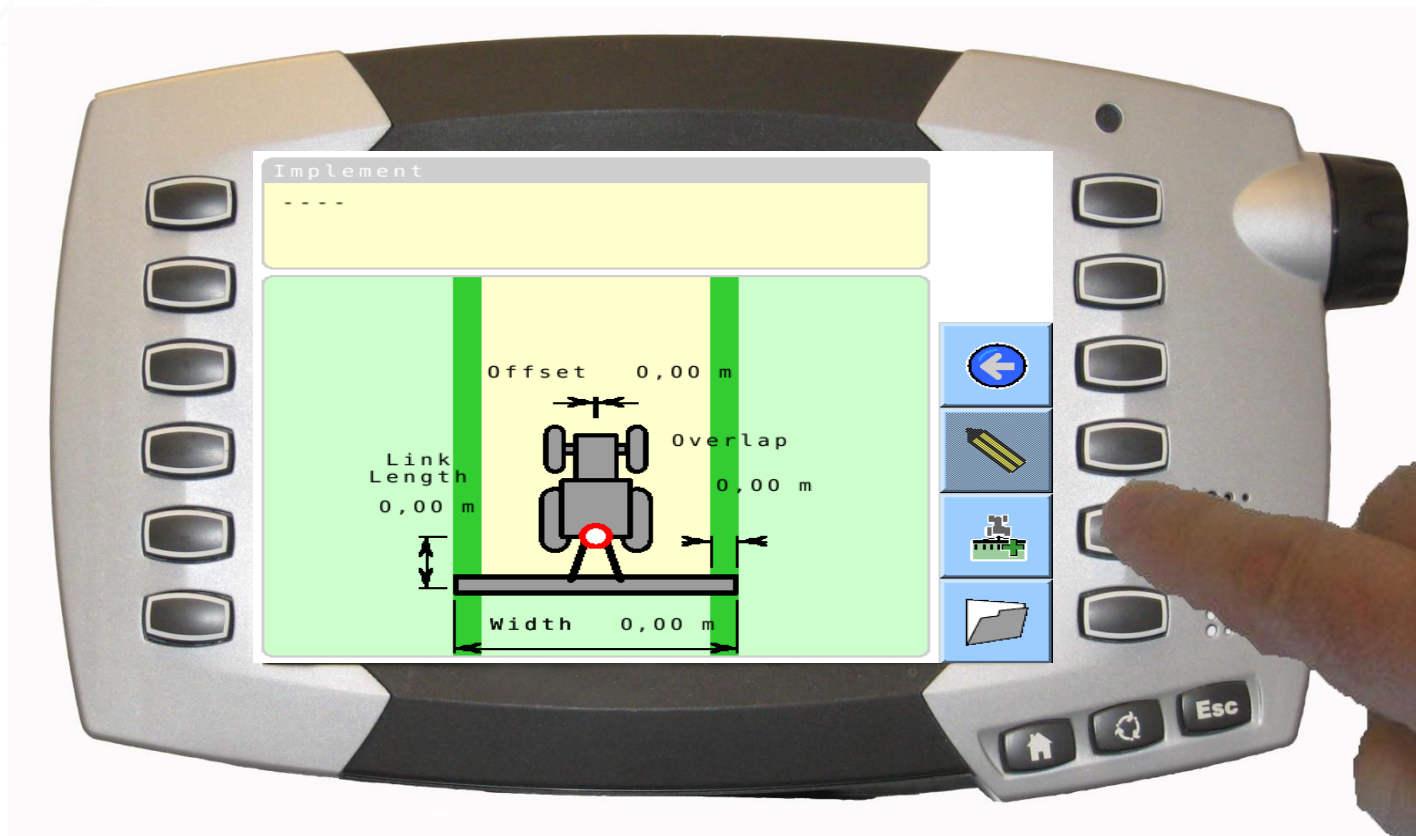


# Creating an Implement Profile





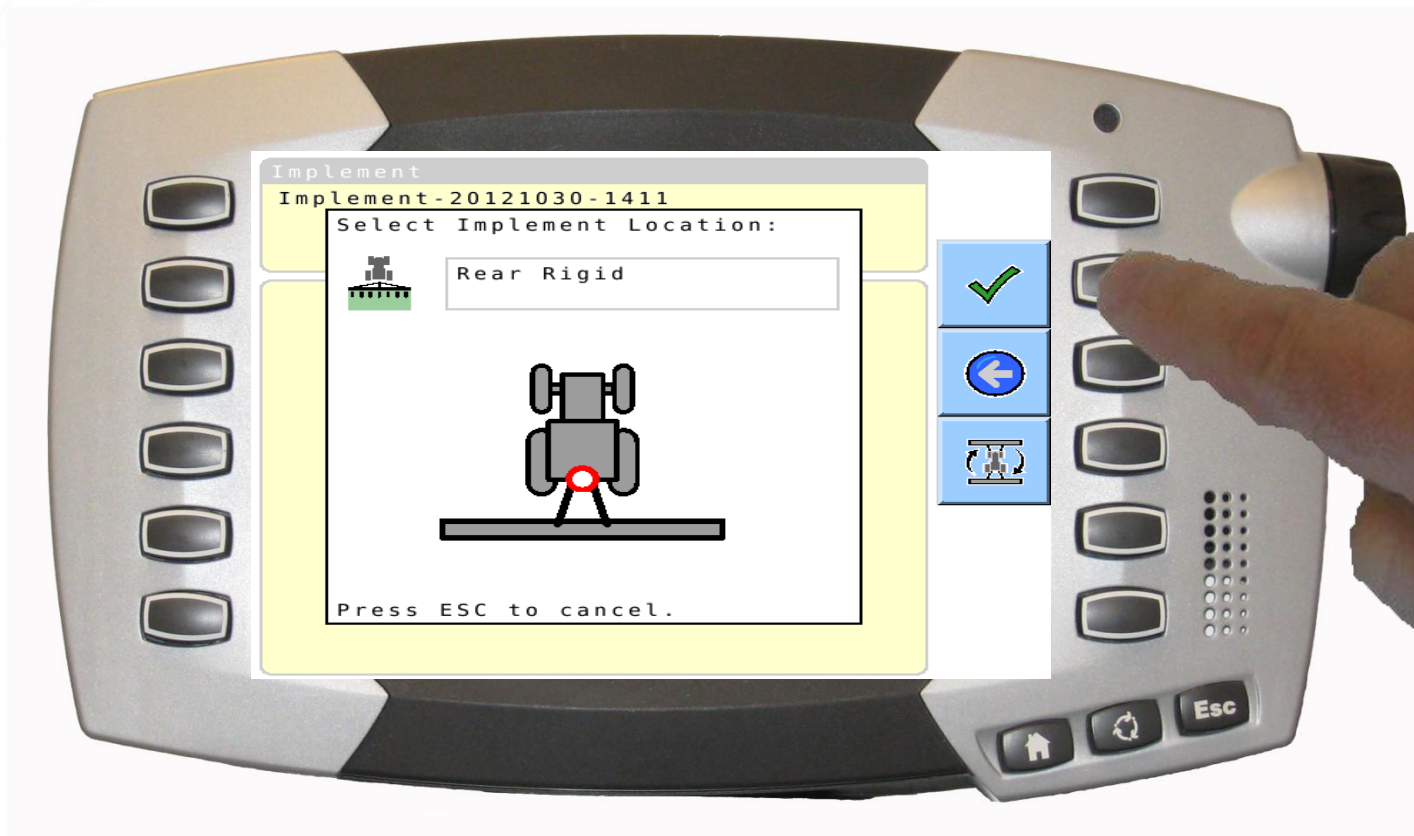
# Creating an Implement Profile



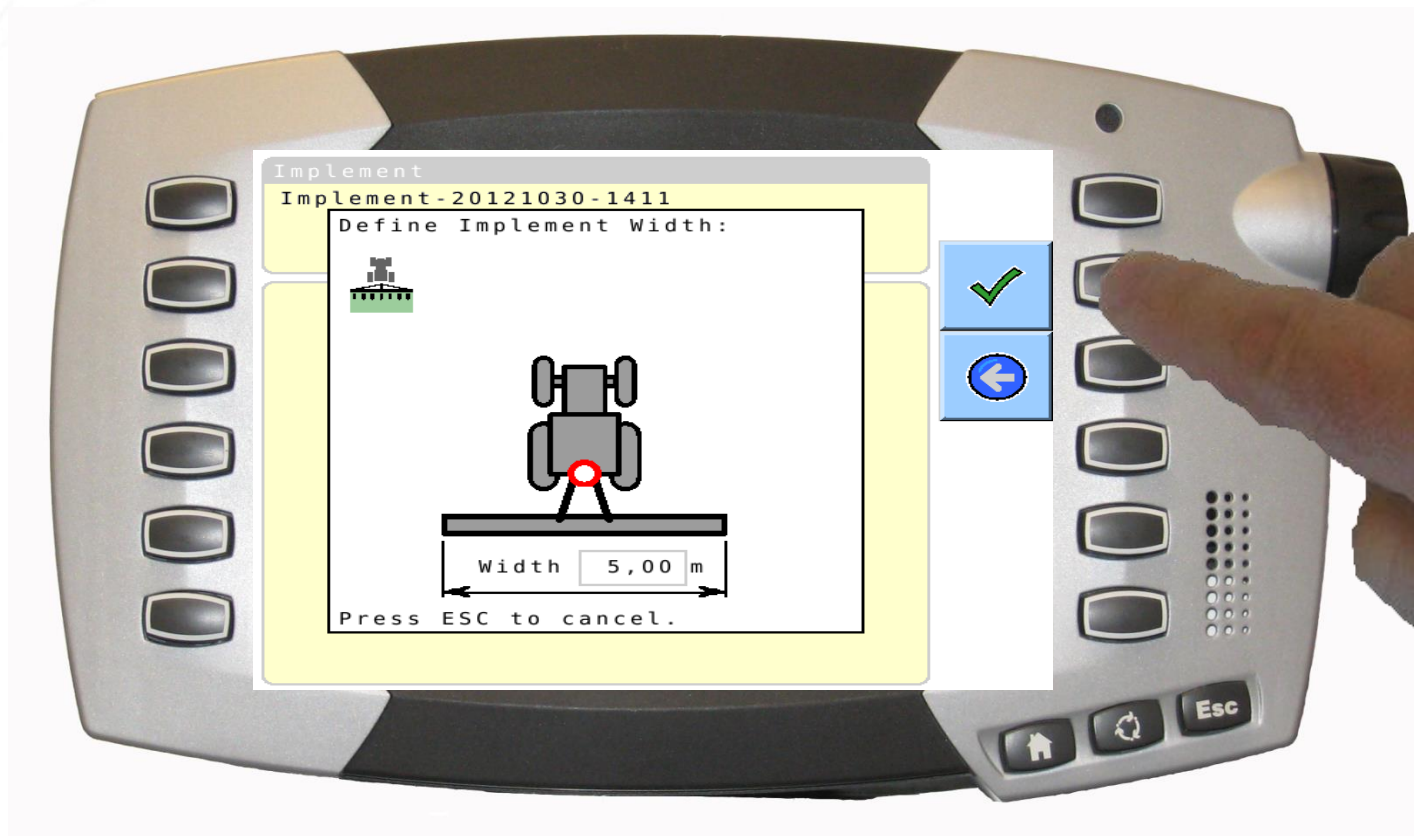
# Creating an Implement Profile



# Creating an Implement Profile

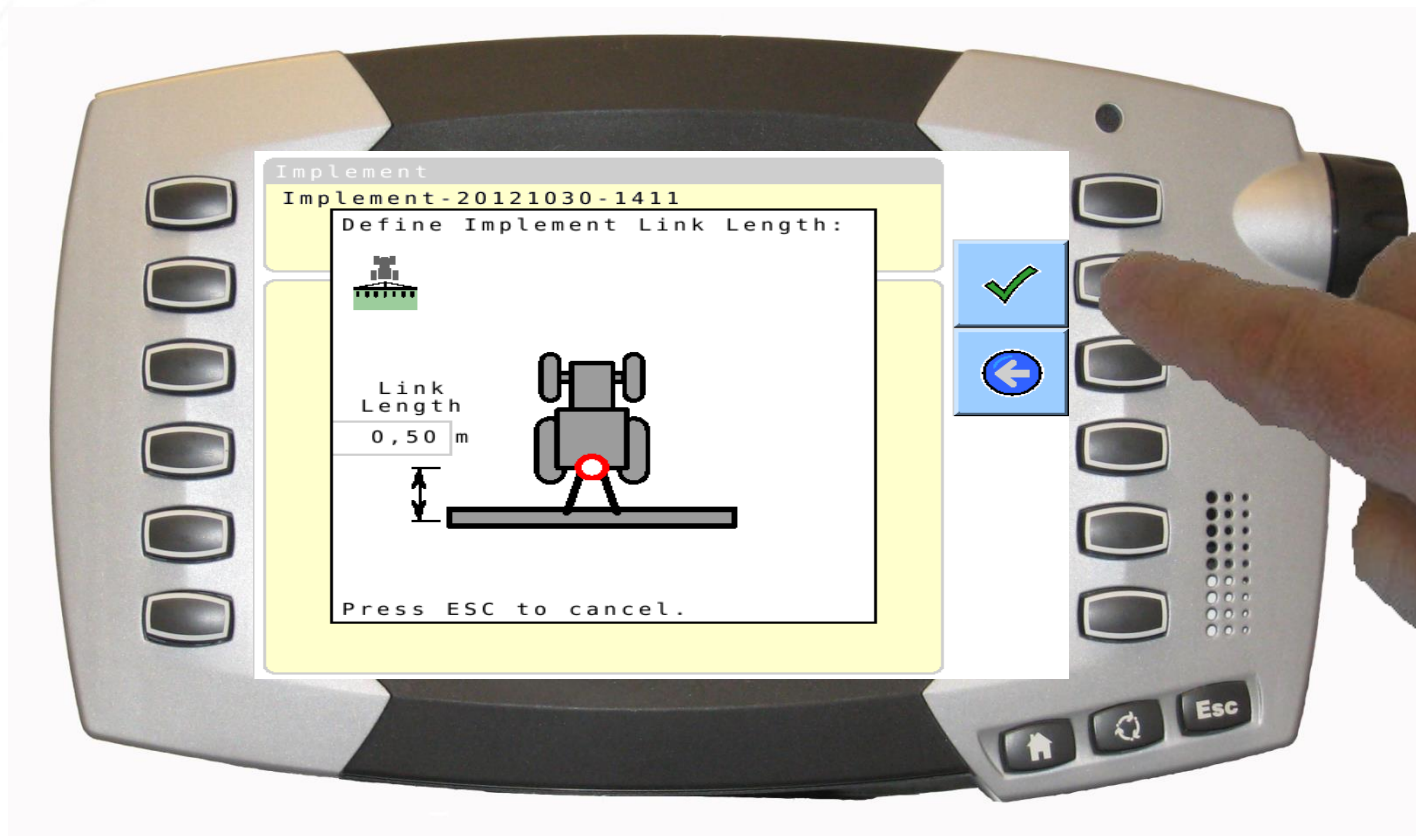


# Creating an Implement Profile



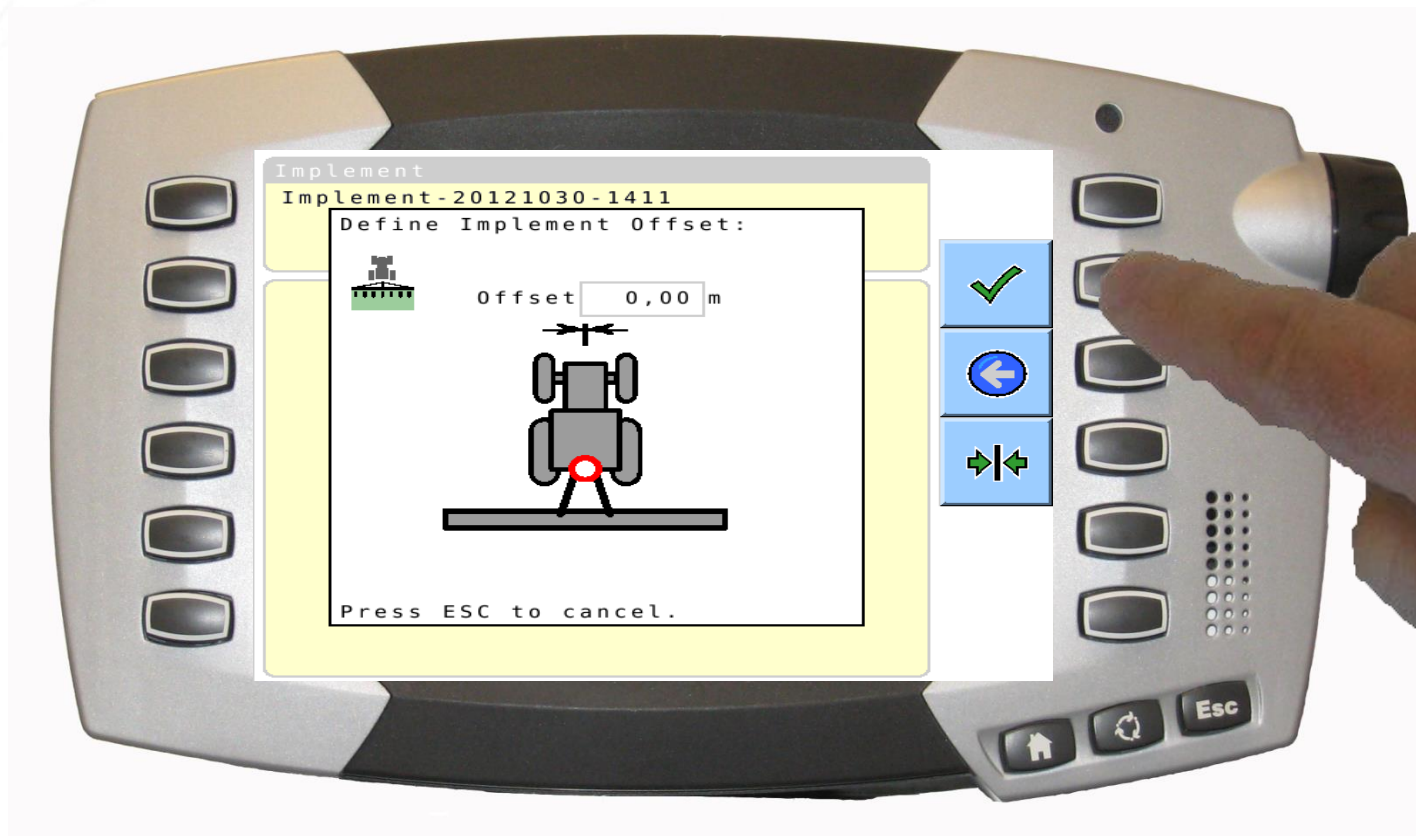


# Creating an Implement Profile

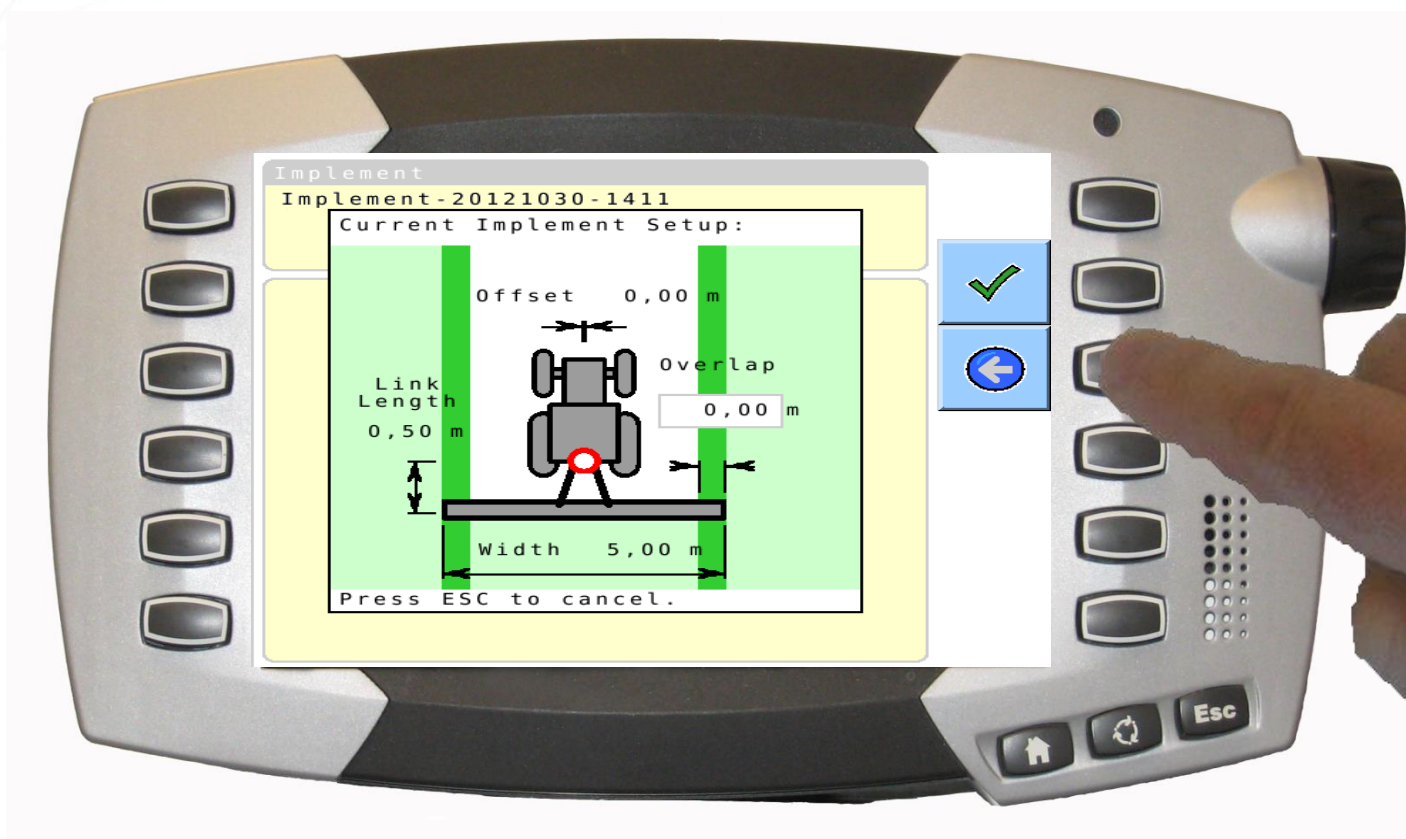




# Creating an Implement Profile



# Creating an Implement Profile



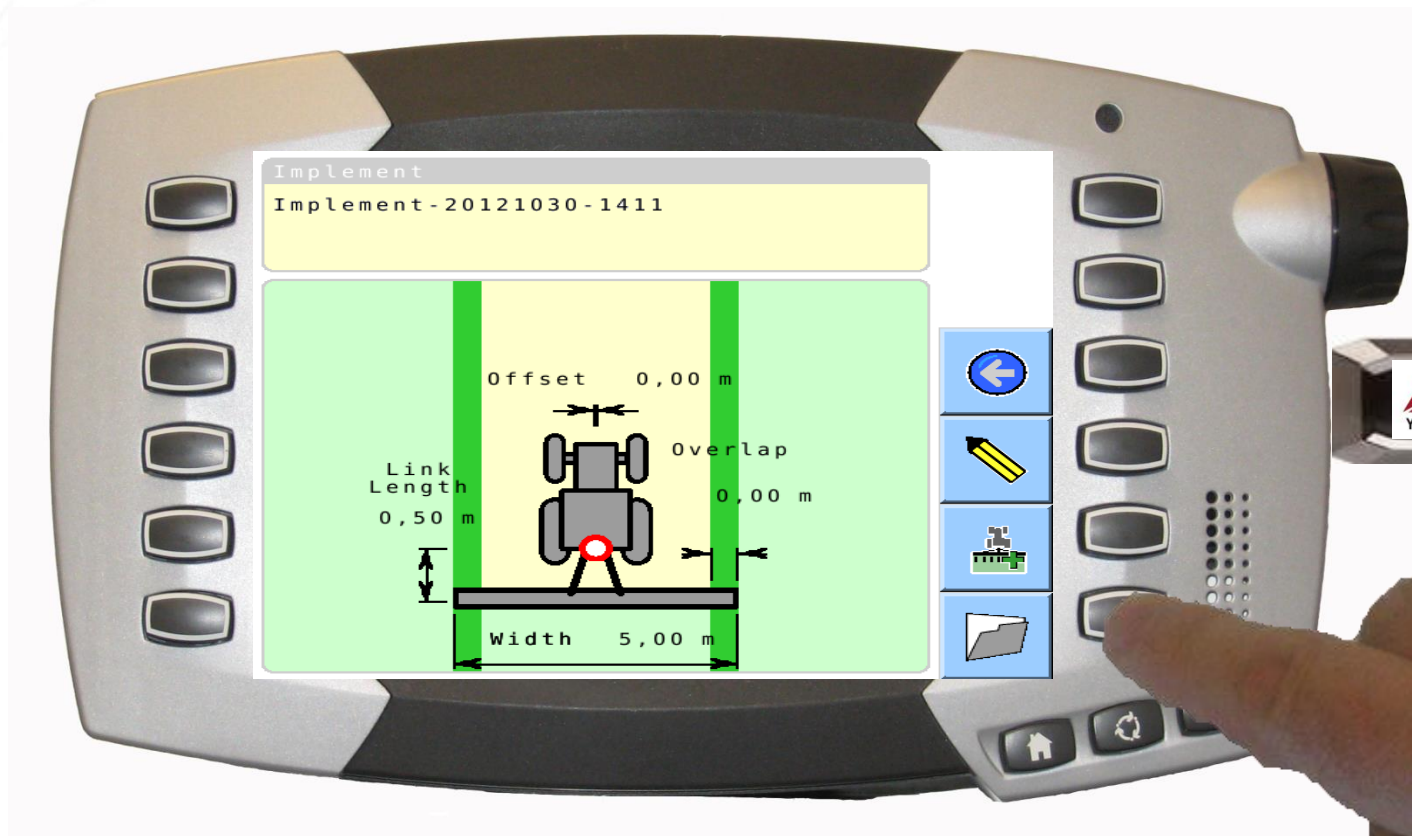


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## Selecting an Implement Profile

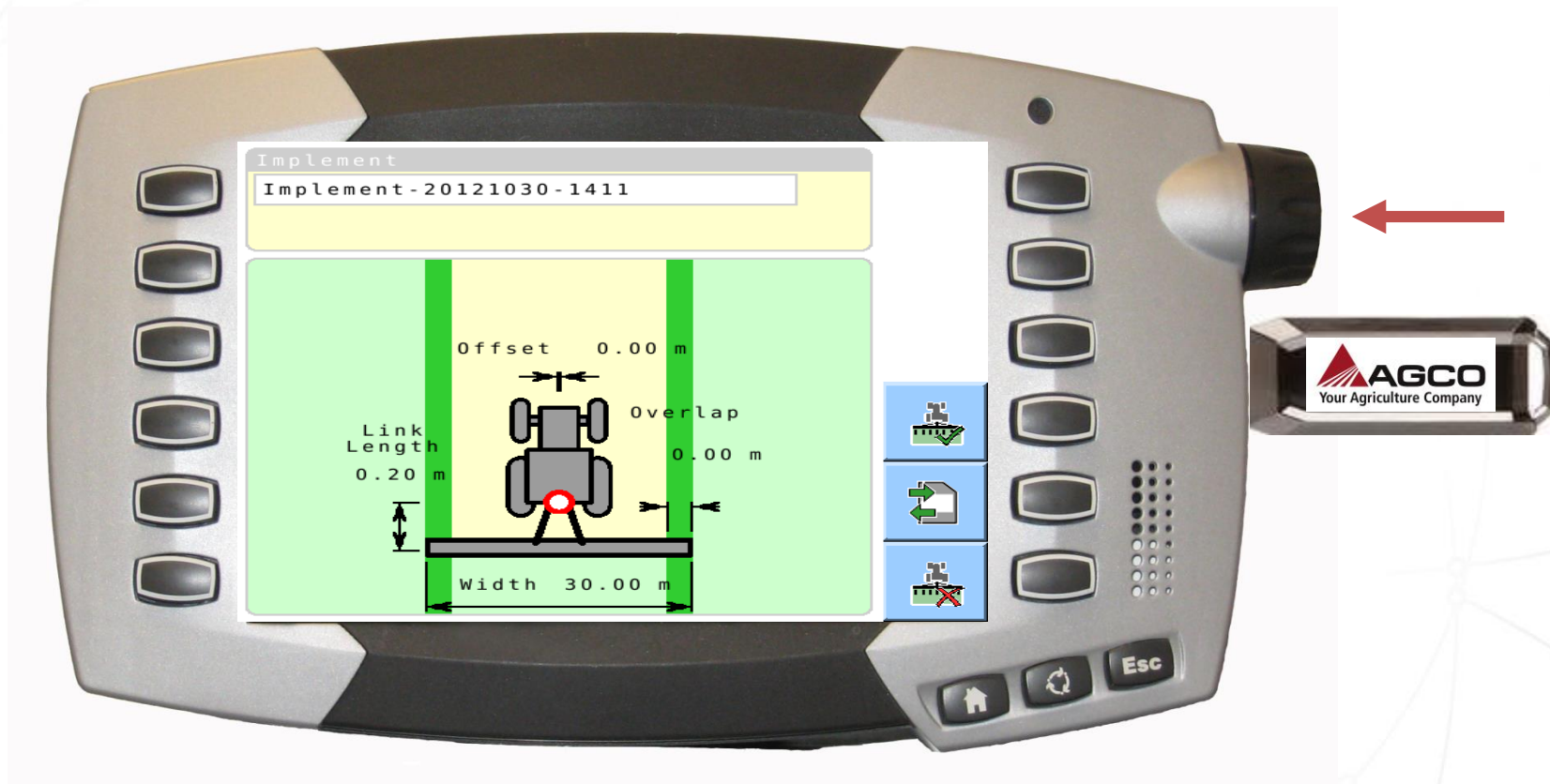


# Selecting an Implement Profile



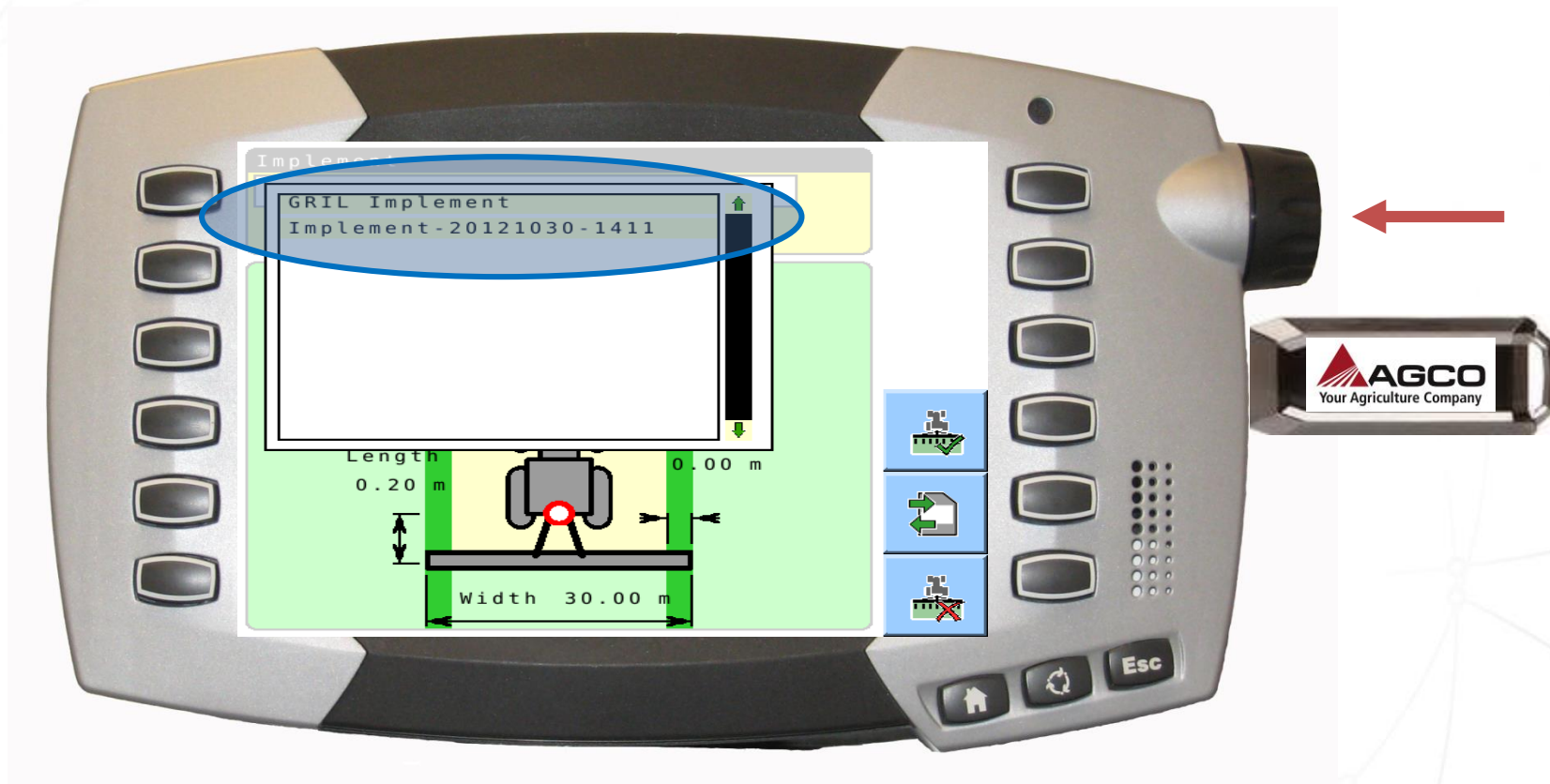


# Selecting an Implement Profile

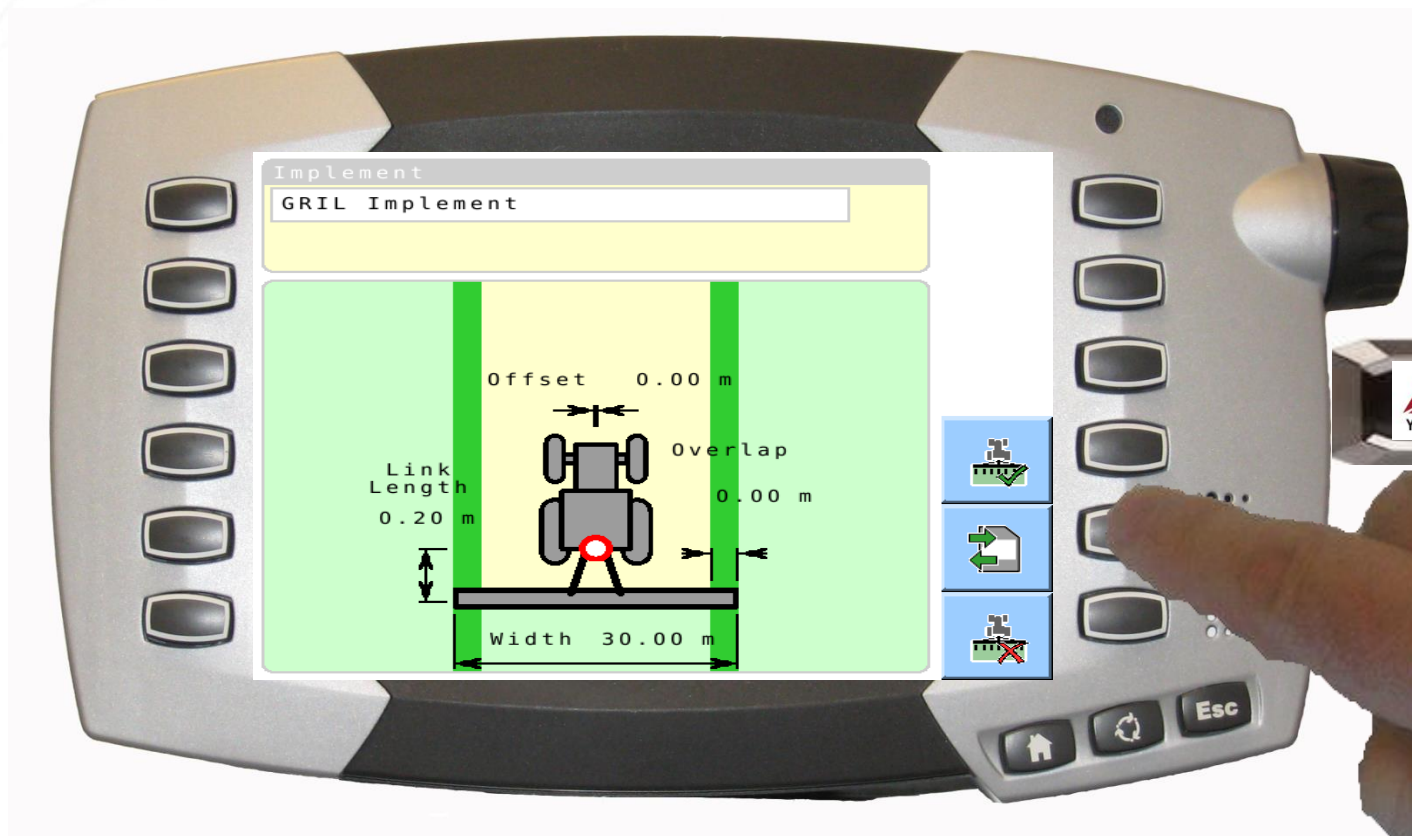




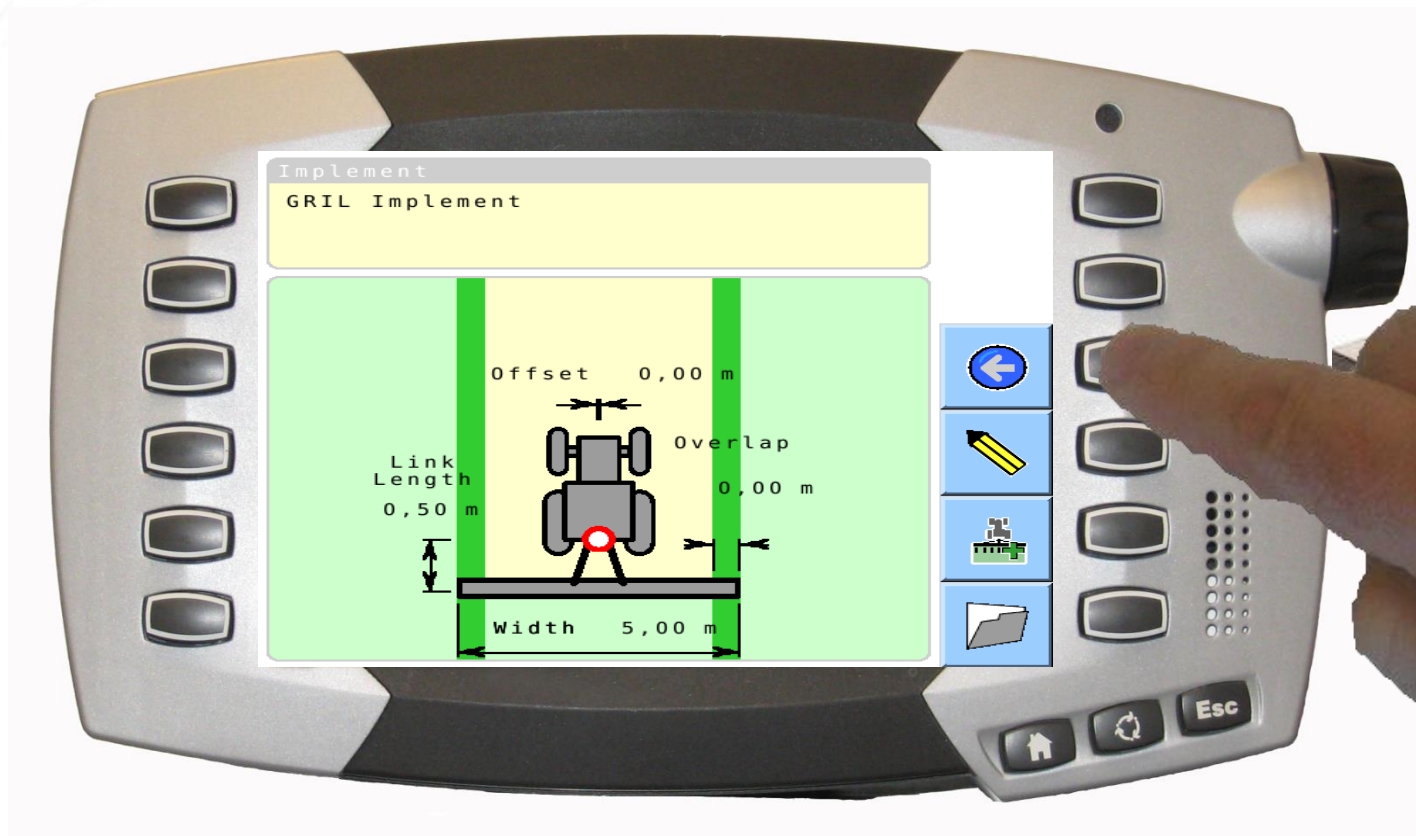
# Selecting an Implement Profile



# Selecting an Implement Profile



# Selecting an Implement Profile





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## Compass Calibration





# Enabling Compass





# Enabling Compass



# Enabling Compass



# Enabling Compass

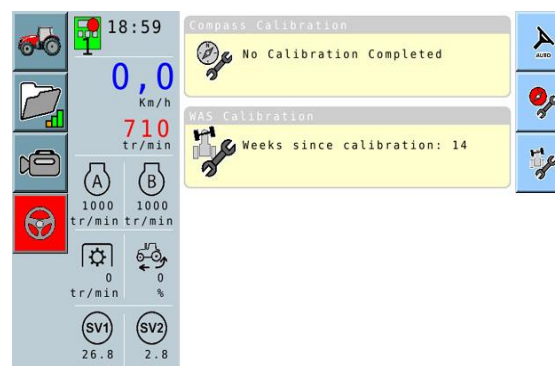
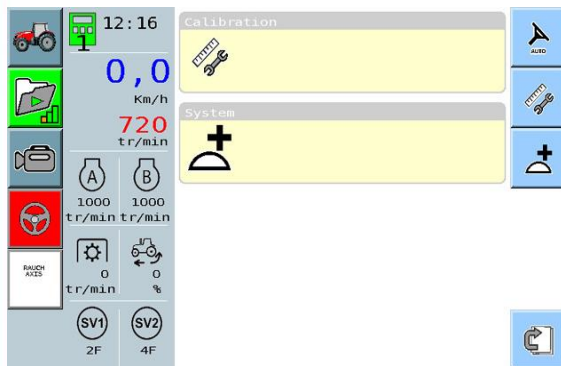
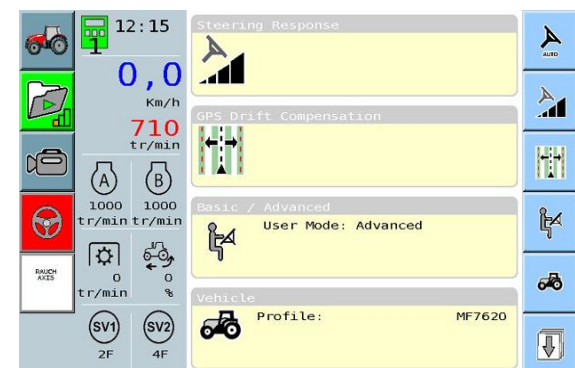
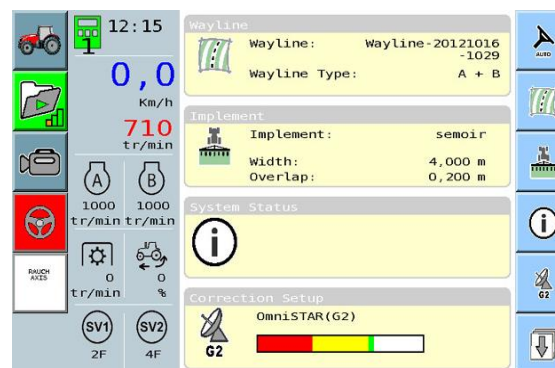
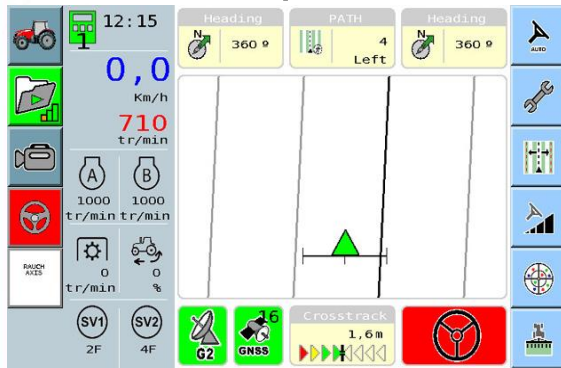




# Auto-Guide 3000 Iso-VT calibration

Auto-Guide 3000 Iso-VT in Advanced Mode:

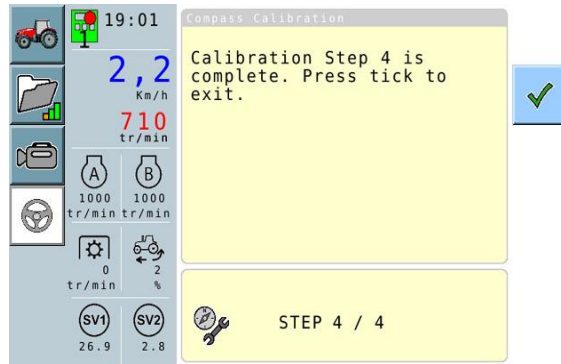
- Push on the button in front of the spanner icon.
- Then push on the bottom right button.
- Then push again on the bottom right button.
- Then push on the second top right button in front of the spanner key..
- Push on the second top right button in front of the spanner key with a compass inside.



# Auto-Guide 3000 Iso-VT calibration

## ■ Compass calibration

- Drive compass calibration should be done if the system has been fitted on a tractor or green mark.
- Drive compass straight lines should be done on a level ground and away from high voltage and large metal object. Click on green mark.
- Calibration is done. Click on the green mark.



19:01 Compass Calibration

2,2 Km/h

710 tr/min

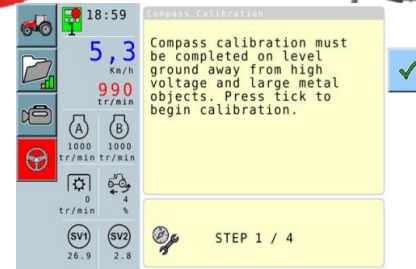
1000 1000 tr/min tr/min

0 2 tr/min %

SV1 SV2 26.9 2.8

STEP 4 / 4

Calibration Step 4 is complete. Press tick to exit.



18:59 Compass Calibration

5,3 Km/h

990 tr/min

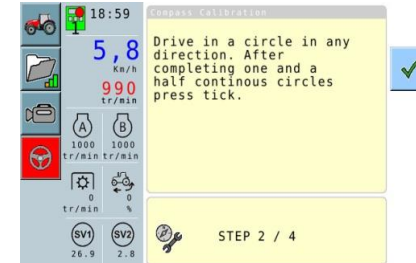
1000 1000 tr/min tr/min

0 4 tr/min %

SV1 SV2 26.9 2.8

STEP 1 / 4

Compass calibration must be completed on level ground away from high voltage and large metal objects. Press tick to begin calibration.



18:59 Compass Calibration

5,8 Km/h

990 tr/min


1000 1000 tr/min tr/min

0 0 tr/min %

SV1 SV2 26.9 2.8

STEP 2 / 4

Drive in a circle in any direction. After completing one and a half continuous circles press tick.



19:00 Compass Calibration

0,0 Km/h

720 tr/min

1000 1000 tr/min tr/min

0 0 tr/min %

SV1 SV2 26.8 2.8

STEP 3 / 4

Calibration Step 3 is complete. Please drive in a straight line.



# Auto-Guide 3000 Iso-VT calibration

## ■ Wheel Angle Sensor calibration

- This calibration should be done if the tyre size has been change, if the wheel base has been changed.
- Push on the button with the drawing of the front tire and wrench.

18:28

2,1 Km/h

1000 tr/min

A 1000 tr/min B 1000 tr/min

0 tr/min 0 %

SV1 8.5 SV2 0.1

Compass Calibration

Weeks since calibration: 0

WAS Calibration

Weeks since calibration: 14

AUTO

# Auto-Guide 3000 Iso-VT calibration

## ■ Wheel Angle Sensor calibration

- Turn wheels to full lock LEFT. Click on the green mark.
- Turn wheels to full lock RIGHT. Click on the green mark.
- Centre wheels. Click on the green mark.
- Calibration is done. Click on the green mark. PVED should be reset. Stop and restart the steering controller.

18:30 WAS Calibration

0,0 Km/h

990 tr/min

STEP 1 / 4

Turn wheels to full lock left and press tick.

18:30 WAS Calibration

0,0 Km/h

990 tr/min

STEP 2 / 4

Turn wheels to full lock right and press tick.

18:30 WAS Calibration

1,8 Km/h

1000 tr/min

STEP 3 / 4

Center wheels and press tick.

18:30 WAS Calibration

0,0 Km/h

990 tr/min

STEP 4 / 4

Calibration is complete. Press tick to exit.



18:31

0,0 Km/h

990 tr/min

SA:28 AGI

1055 - Steering controller needs to be reset. Please power down steering controller or vehicle.



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## Setting up NEMA Output



# Setting up NEMA strings





# Setting Up NEMA Strings





# Setting Up NEMA Strings



# Setting Up NEMA Strings



# Setting Up NEMA Strings



# Setting Up NEMA Strings





# Setting Up NEMA Strings





# Setting Up NEMA Strings





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Delay Time



# Stand-By Time

## Stand-by time

The stand-by time is the amount of time the TopDock stays on after the vehicle is turned off.

This feature eliminates convergence time. Convergence time is the amount of time necessary for the correction source to locate the vehicle's position when starting the vehicle again.

When starting the vehicle again, the terminal screen will be the same one shown when the vehicle was turned off.

# Terminal Wait Delay Time

The terminal wait delay time features is only enabled if there is more than one terminal connected to the TopDock on the same ISOBUS.

The terminal wait delay time is the amount of time the TopDock will wait after the system is turned on to find the preferred terminal.

After the set amount of time, if the TopDock does not find the preferred terminal, the system will connect to the alternative terminal.

The delay time function is only available in advanced mode.

# TopDock Frozen

In Beauvais when we are performing end of line checks on Full Auto-Guide 3000 tractor, we are doing a special check for the stand by time.

The Stand by Time should be at a minimum set to 65 minutes.

If the setting is less than that time there is a risk of TopDock “frozen”.

In fact if you switch OFF the tractor with power applied to the antenna (so the power button in the right pillar still ON), the antenna will STOP before the automatic battery cut out.

So when you will switch ON the tractor, the antenna will not power back up. Even pushing on the power button, you will not wake up the antenna.

To solve a “faulty” antenna, the fuse F44 should be removed, give power to the antenna by pressing the switch in the right pillar and refit the F44 fuse. This is good for all Beauvais product (66/76/8600T4i)

The Beauvais factory recommends the setting to be 90min.





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## Checking the System Status



# Checking the System Status



# Checking the System Status



# Checking the System Status





# Checking the System Status





# Checking the System Status



# Checking the System Status





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## Checking the GNSS Information

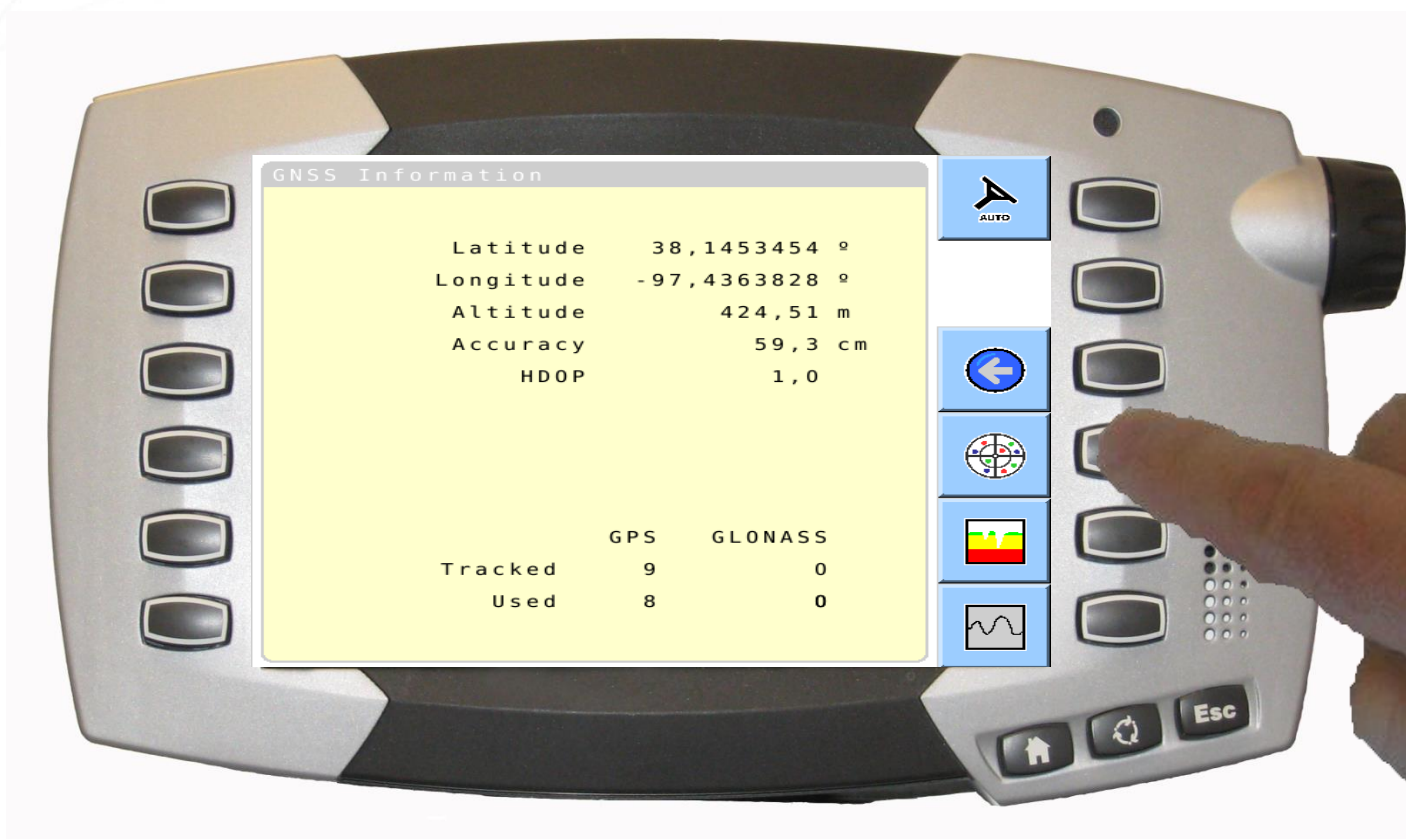


# Checking the GNSS Information





# Checking the GNSS Information





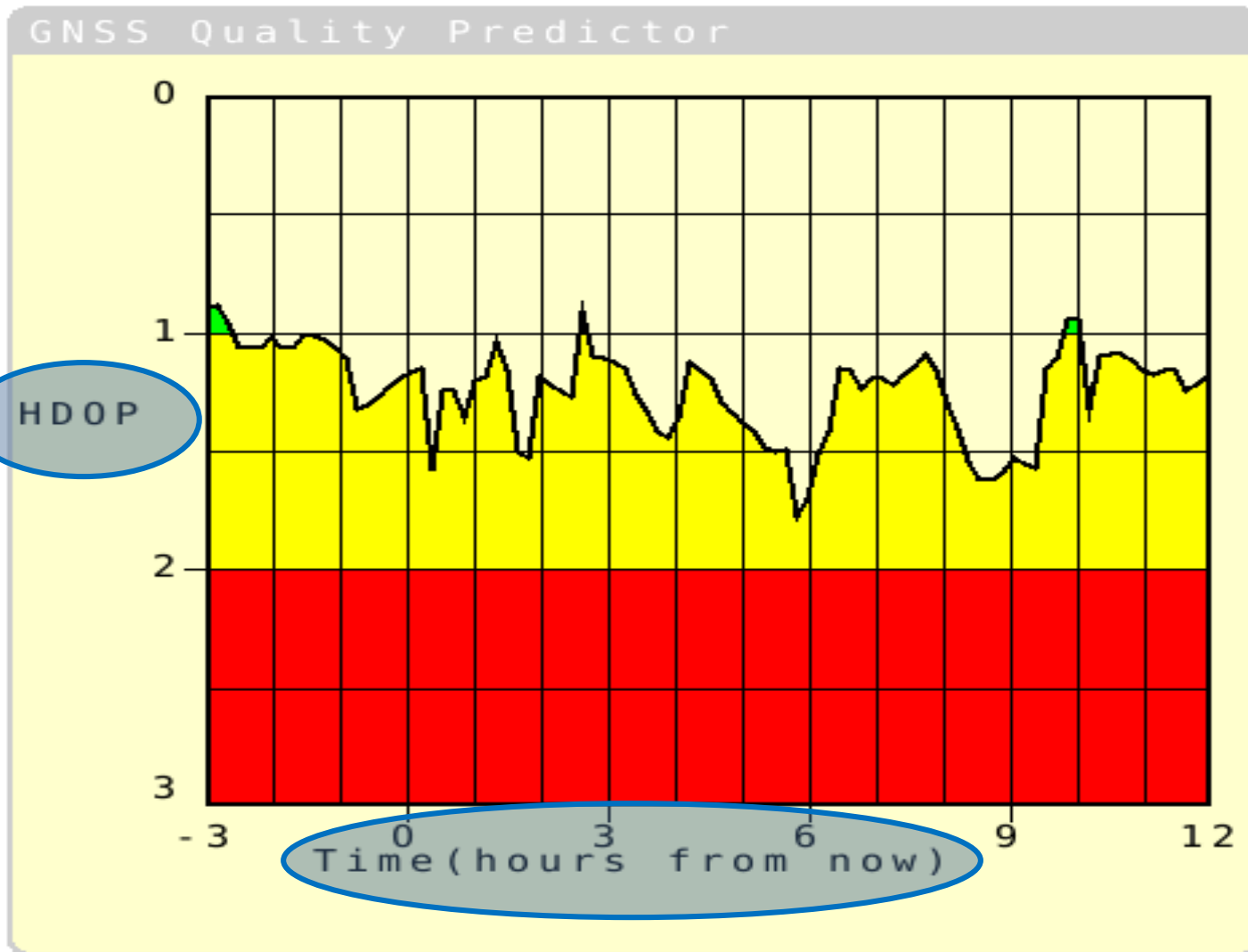
# Checking the GNSS Information



# Checking the GNSS Information



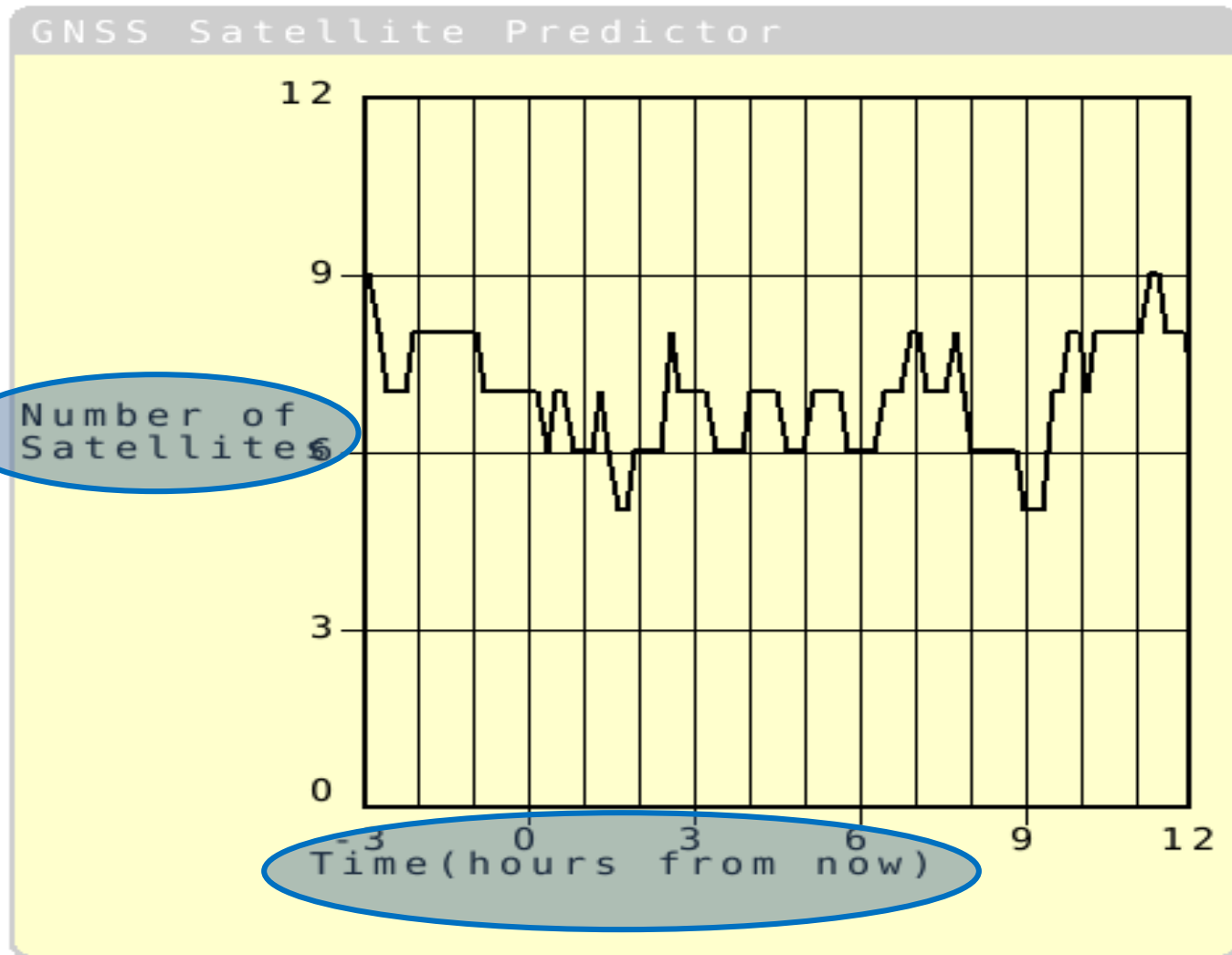
# Checking the GNSS Information



# Checking the GNSS Information



# Checking the GNSS Information







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## Checking the Correction Information



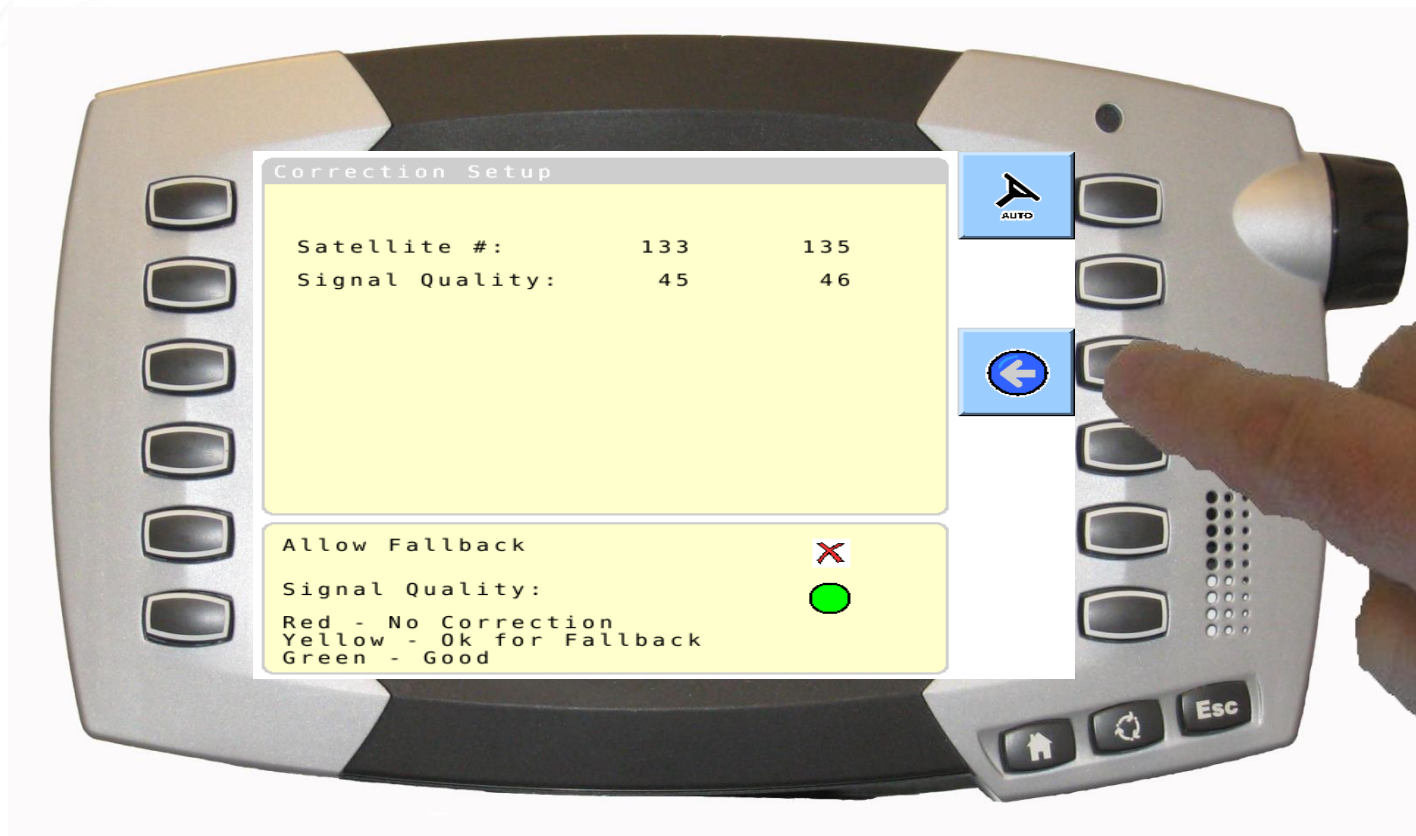
# Checking the Correction Information



# Checking the Correction Information



# Checking the Correction Information





# Checking the Correction Information







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## Checking the Inertial Information



# Checking the Inertial Information



# Checking the Inertial Information





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## Checking the Steering Subsystem Information





# Checking the Steering Subsystem Information

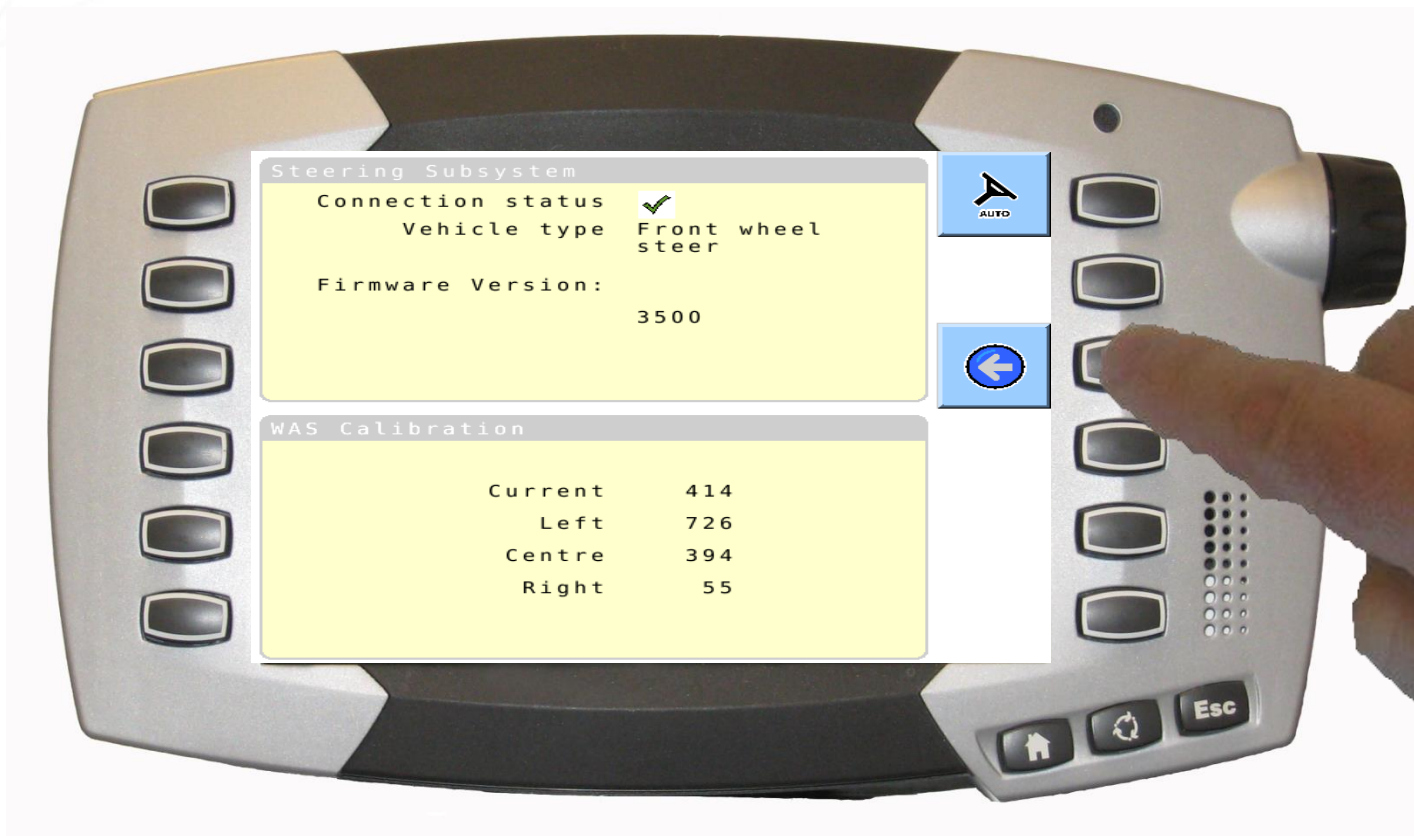




# Checking the Steering Subsystem Information



# Checking the Steering Subsystem Information



# Checking the Crosstrack Error Information



# Checking the Angle to Wayline Information





# Checking the Angle to Wayline Information





# Checking the Speed Information



# Checking the System Information





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Waylines



# Setting Up Waylines





# Setting Up Waylines





# Setting Up Waylines



# Setting Up Waylines



# Setting Up Waylines



# Setting Up Waylines (AB)





# Setting Up Waylines (AB)





# Setting Up Waylines (A+)



# Setting Up Waylines (A+)



# Setting Up Waylines (A+)



# Setting Up Waylines (Contour)



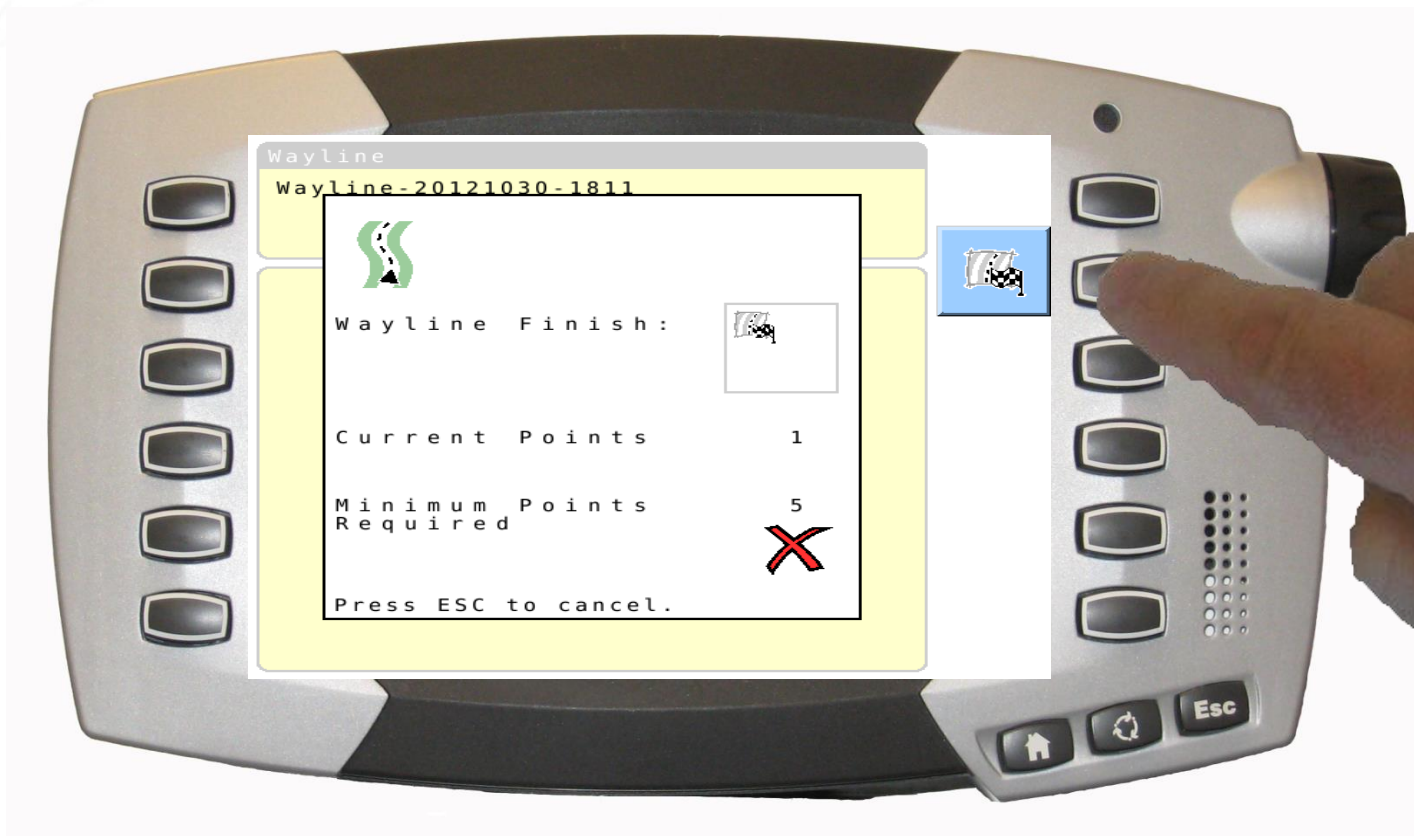


# Setting Up Waylines (Contour)





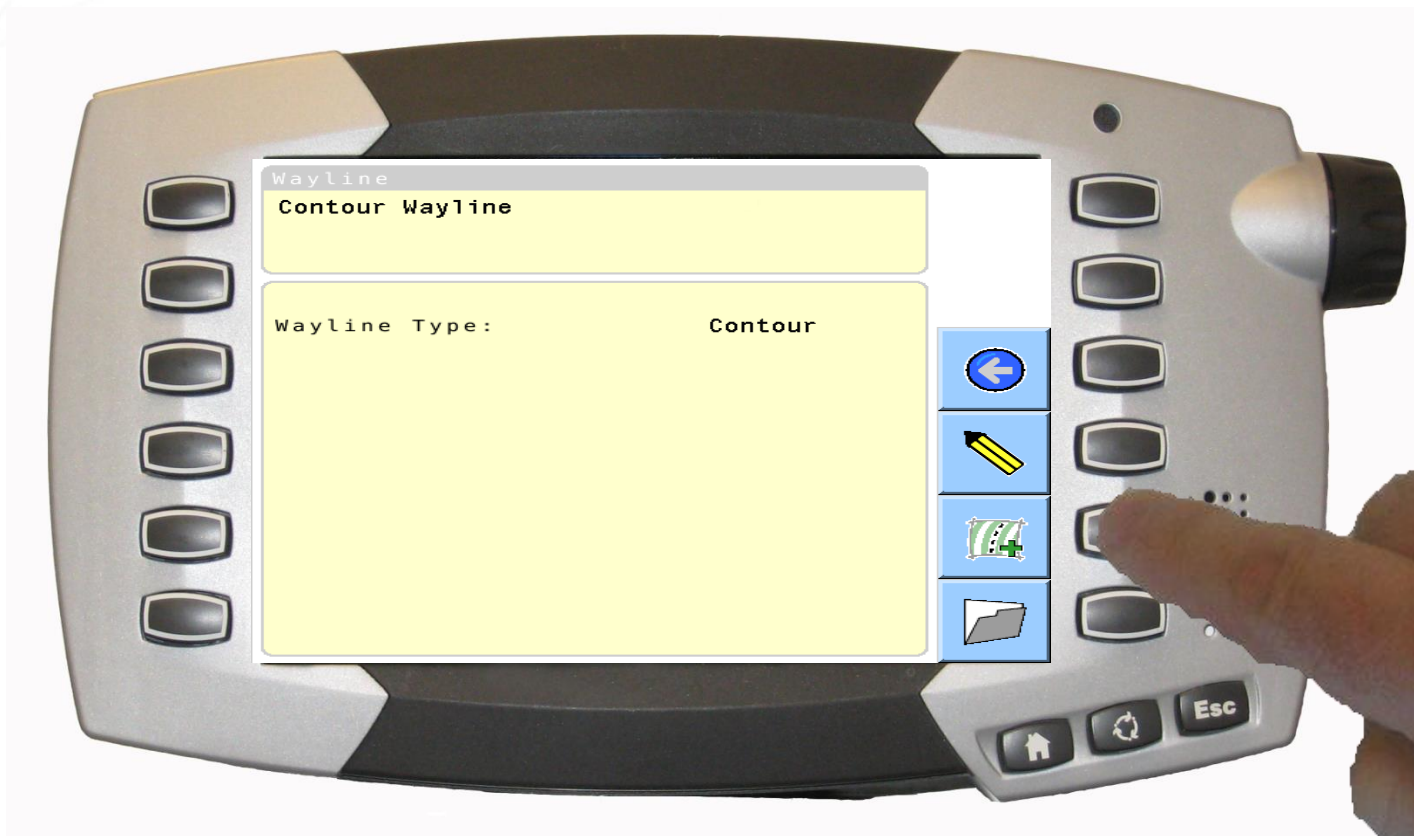
# Setting Up Waylines (Contour)



# Setting Up Waylines (Contour)



# Setting Up Waylines (Contour)



# Setting Up Waylines (Pivot)





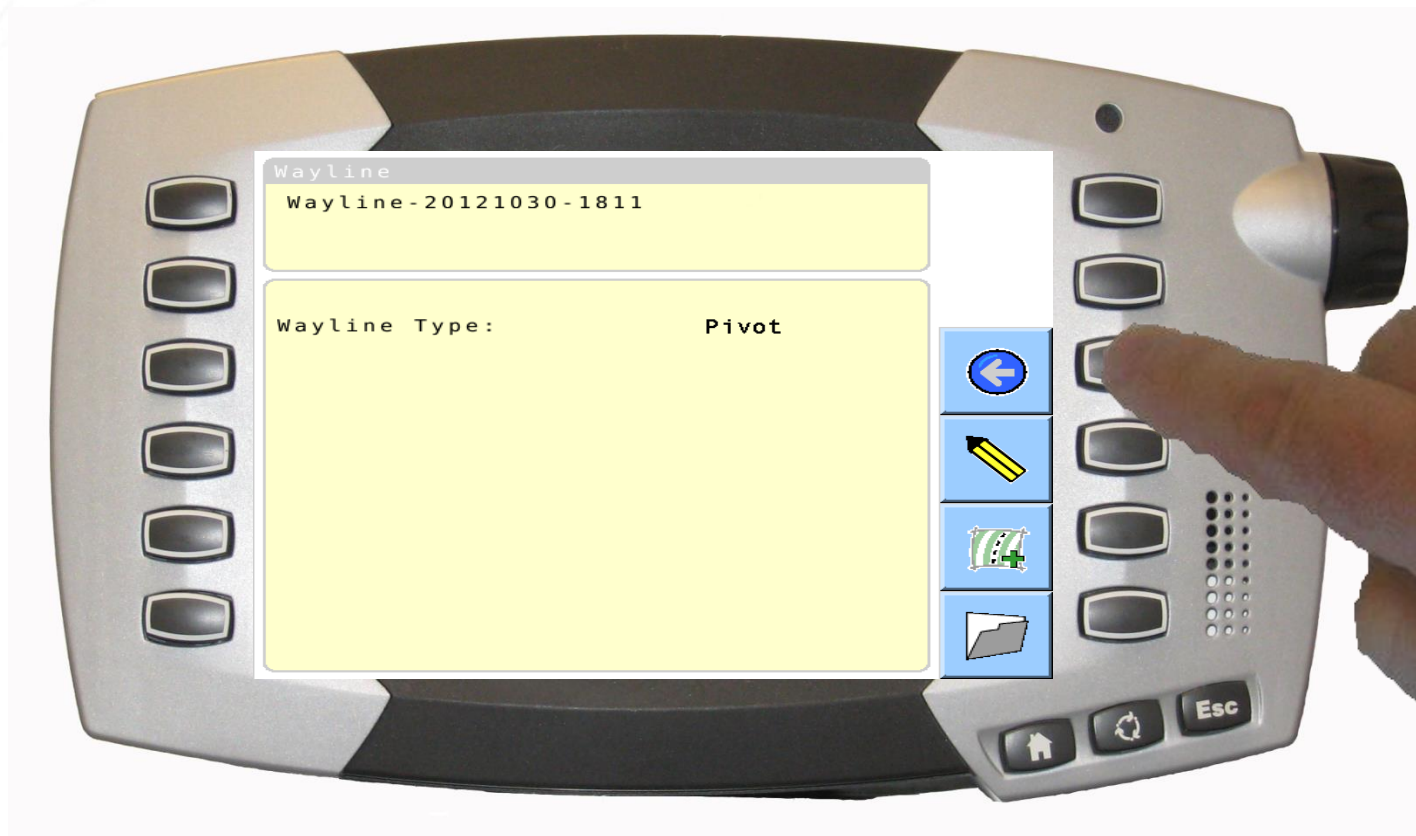
# Setting Up Waylines (Pivot)



# Setting Up Waylines (Pivot)



# Setting Up Waylines (Pivot)





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## Nudge and Wayline drift





# Setting a Manual Nudge



# Setting a Manual Nudge



# Setting a Manual Nudge



# Setting a Manual Nudge





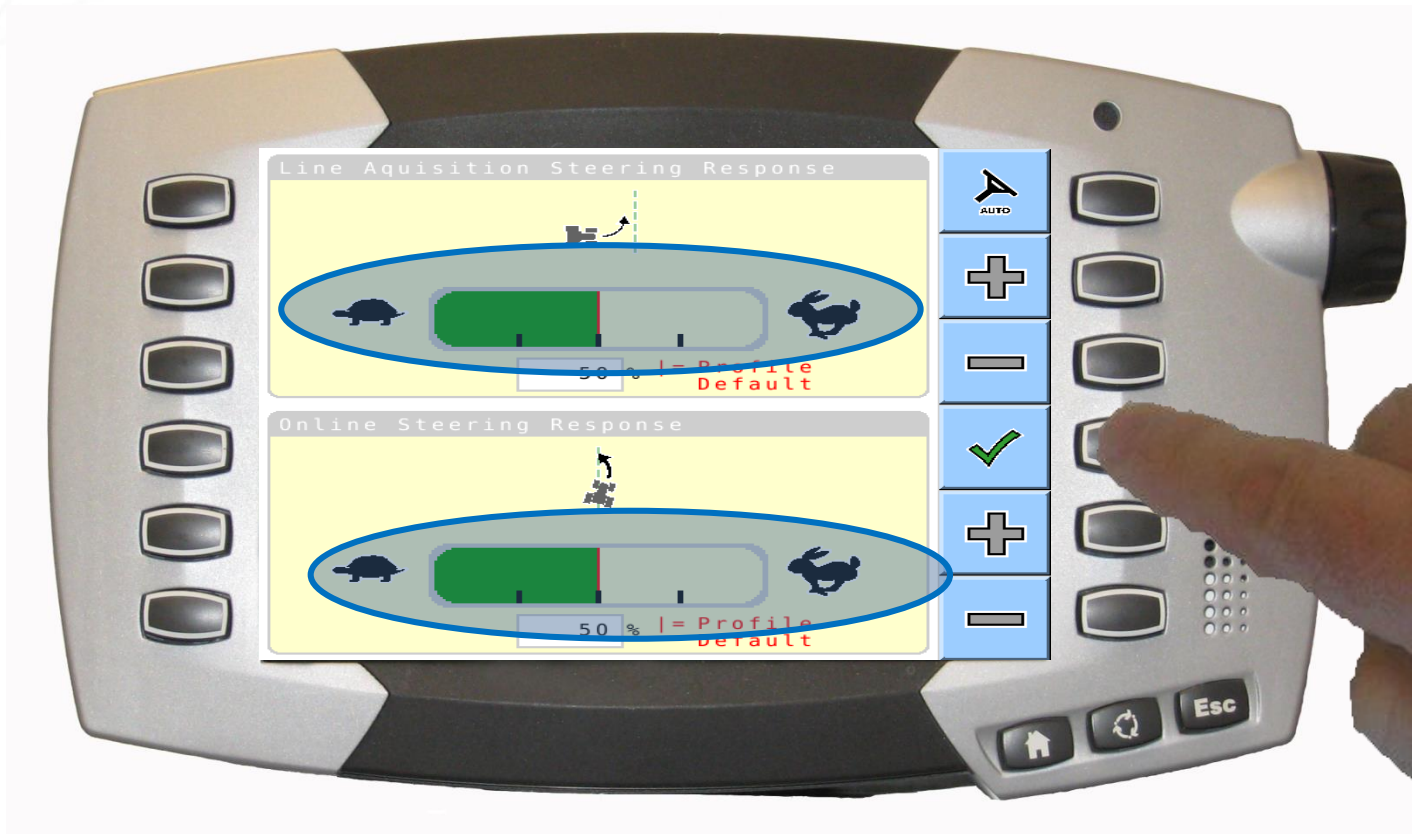
# Setting an Automatic Nudge



# Setting Up GPS Drift Compensation



# Setting the Steering Response



# Automatic Steering





# Agenda

1	General Information	8	Configuration & Set-up
2	Components	9	Field Install vs. Factory Installations
3	C1000	10	Architecture and Installation
4	Configuration & Set-up	11	Diagnostics and Troubleshooting
5	Task Controller Setup (for mapping)	12	Base stations
6	Additional features	13	RTK - Radio vs. Cellular
7	C3000	14	AGCOMAND

# Feature Set Overview

## TC-GEO – Task Controller geo-based (variables)



TC-GEO provides the additional capability of acquiring location based data

TC-GEO also assists planning of location-based jobs by means of application maps

# Setting the Task Controller

Wobble line in the guidance application



# Setting the Task Controller

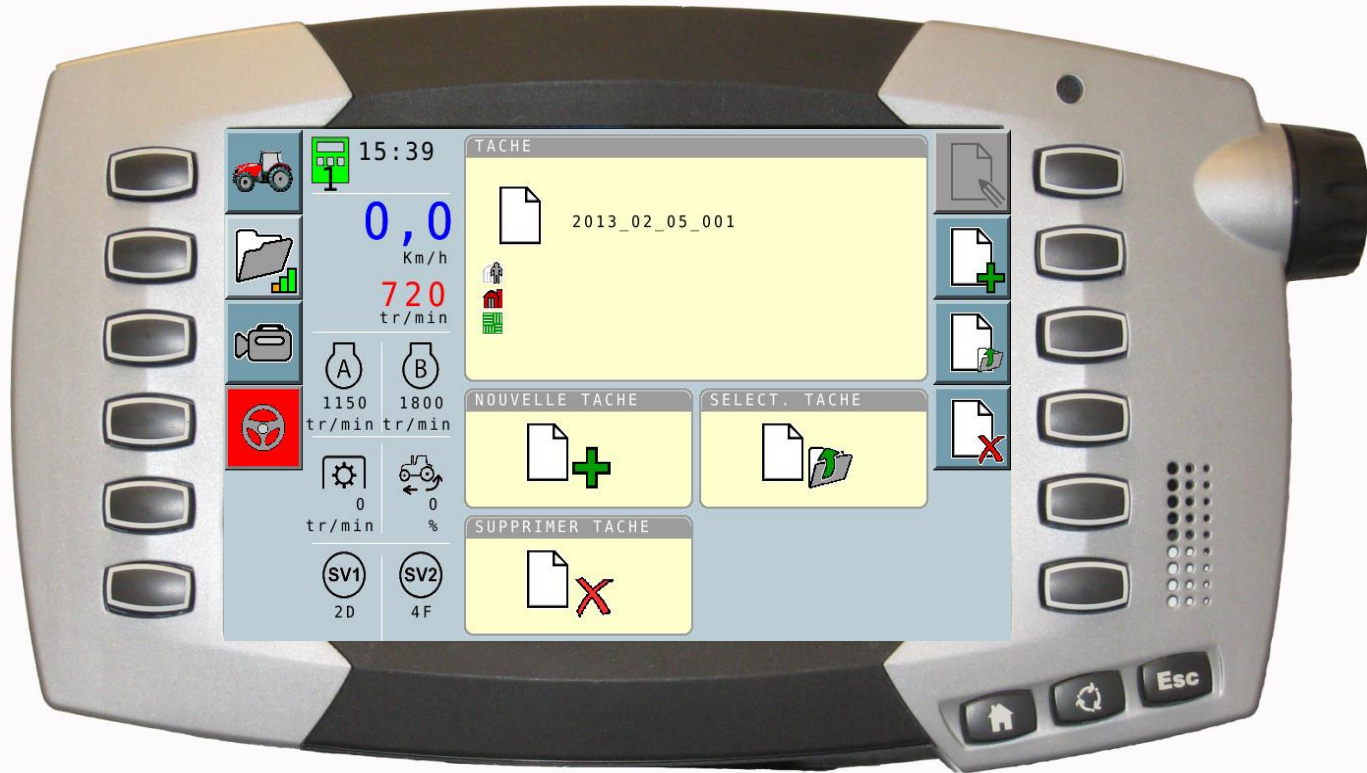
Possibility to get the map in the tractor application





# Setting the Task Controller

Open the task controller Application by using the folder icon



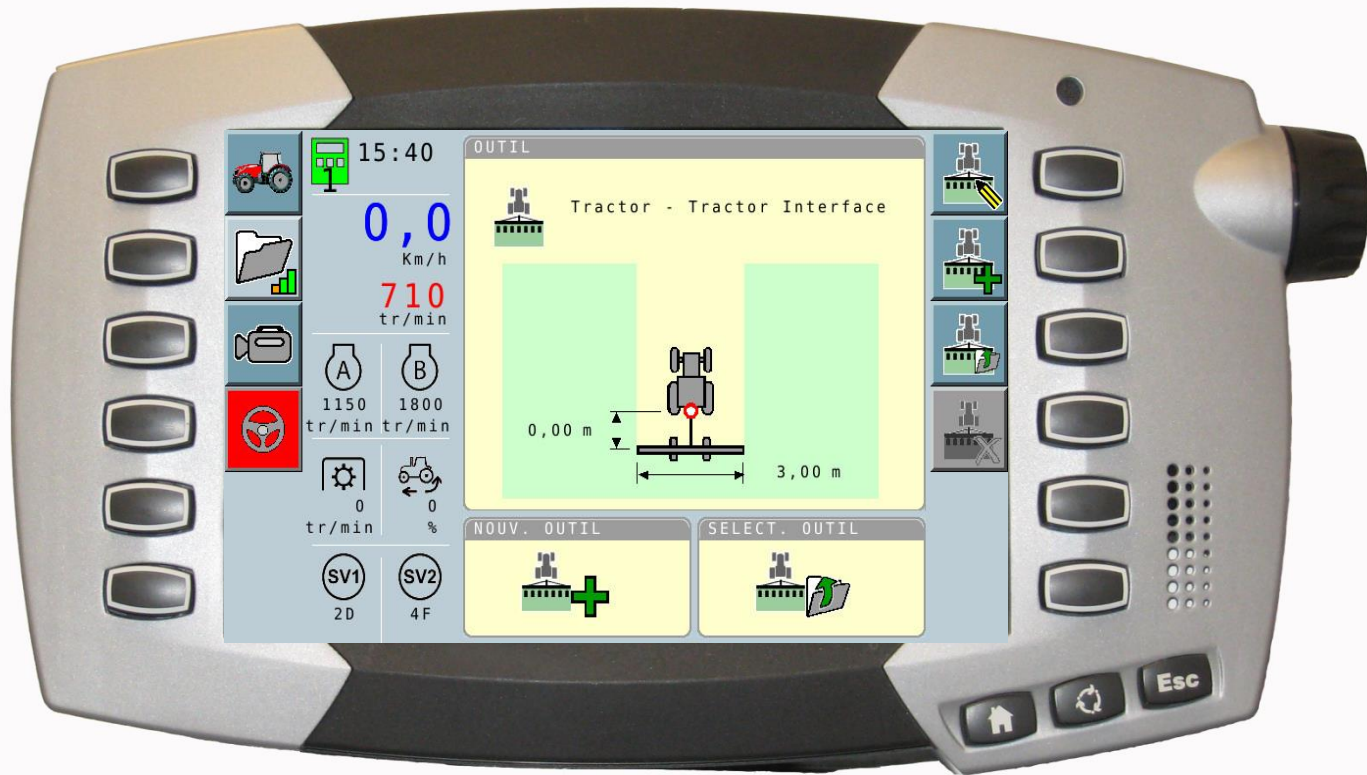
vehicle position symbolize at the bottom of the icon





# Setting the Task Controller

Press ESC to open the Task controller Menu



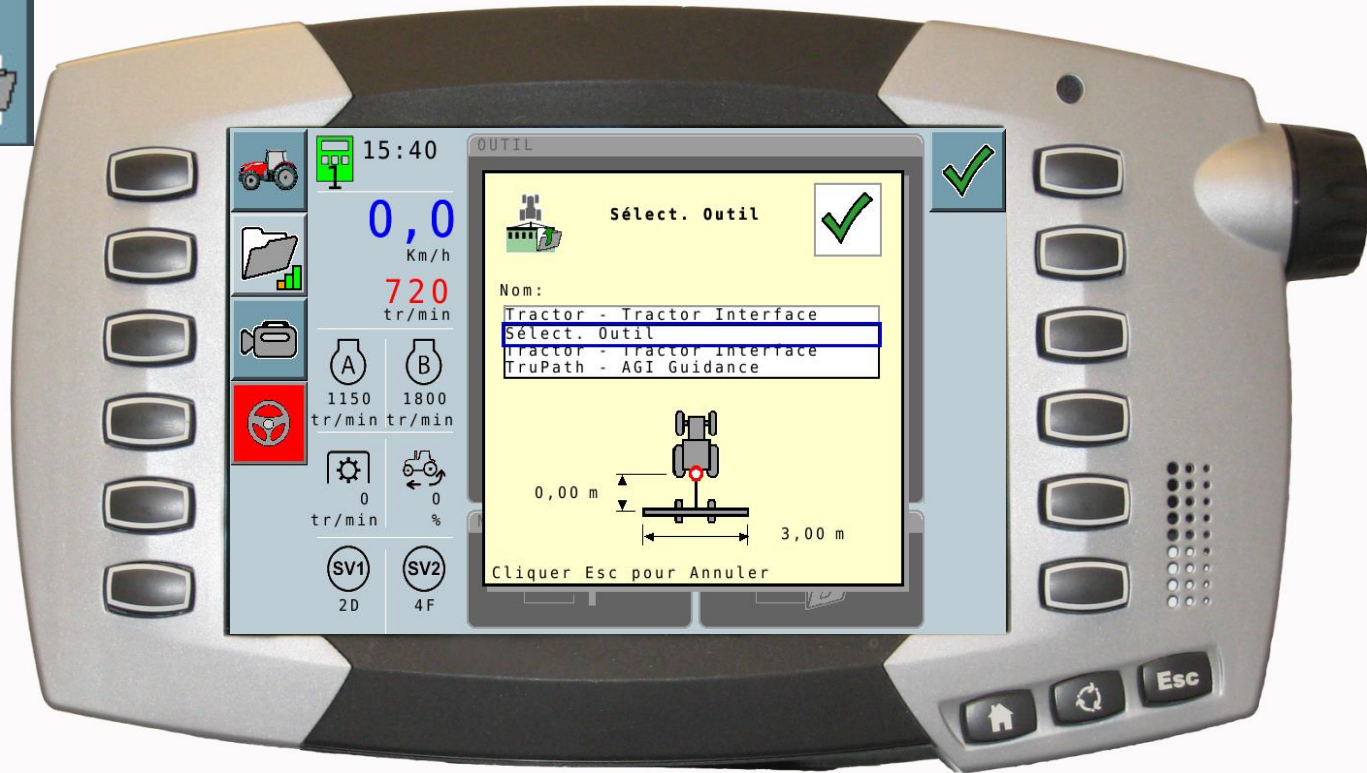
Select the Implement menu





# Setting the Task Controller

Select the Implement folder



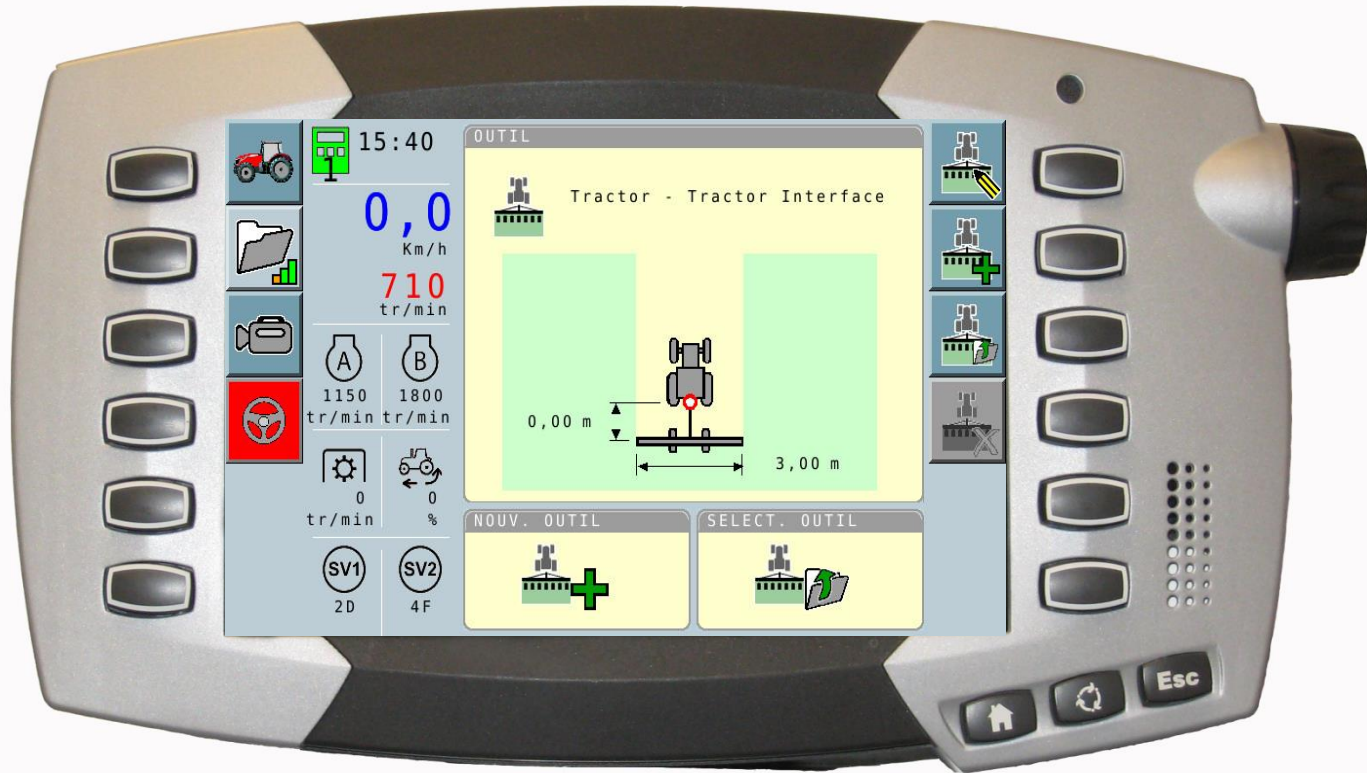
Possibility to chose between different sources

ISOBUS implement, Tractor memories, Auto-Guide 3000

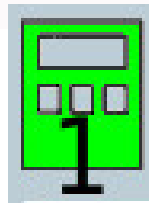


# Setting the Task Controller

Tractor interface

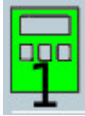


Memories need to be active :



# Setting the Task Controller

Tractor memory settings implement

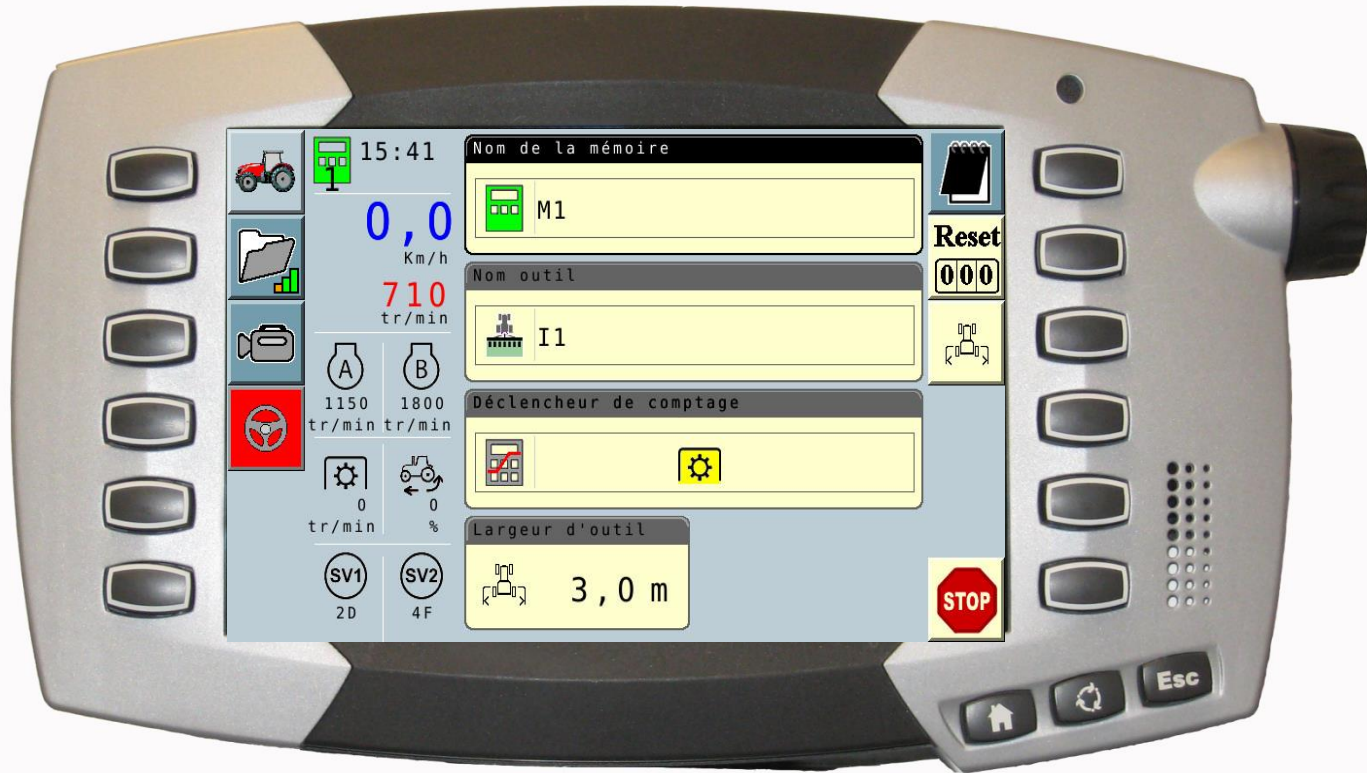
Memories need to be active : green icon  can set up the trigger for the coverage map.



# Setting the Task Controller

Work in the same way for other implement source

ISOBUS : defined by implement



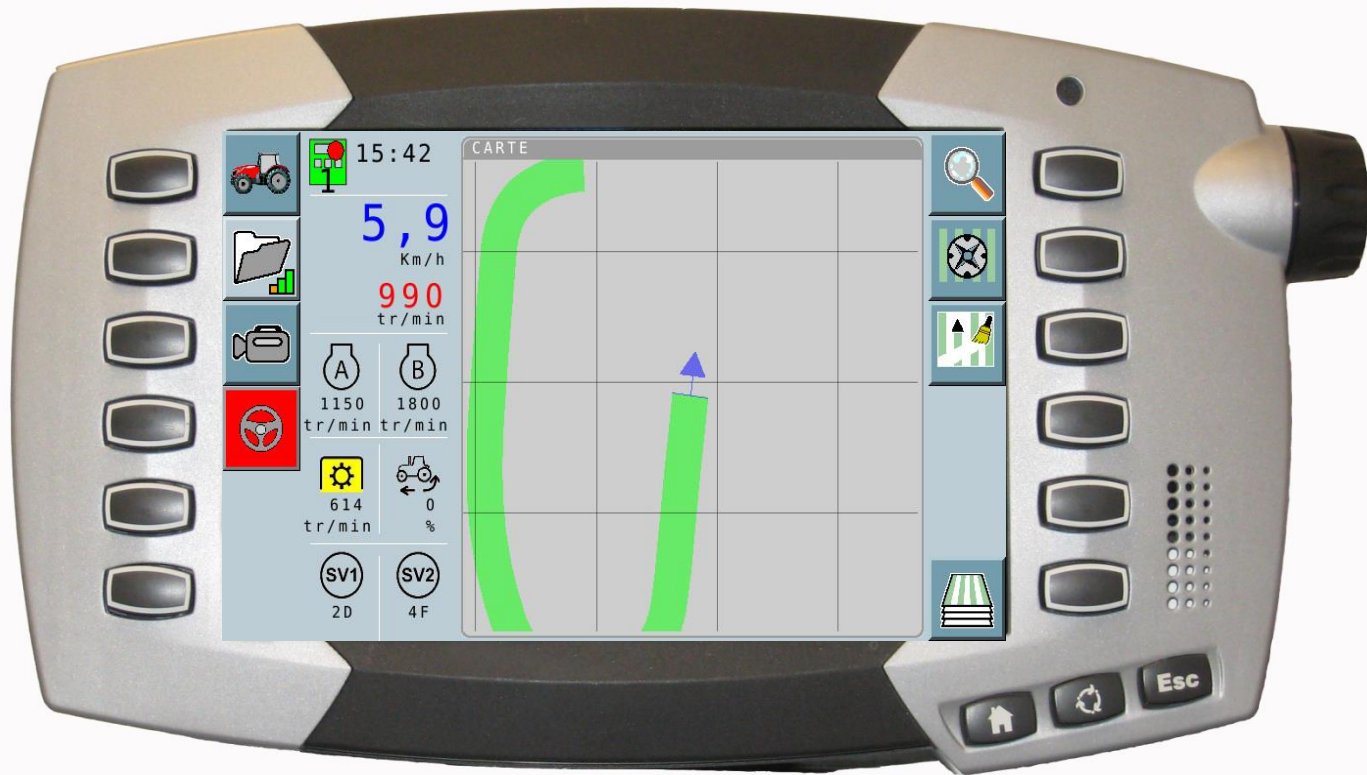
Auto-Guide 3000 : engagement of guidance

New implement : no trigger



# Setting the Task Controller

Map coverage map with PTO active



Task controller not active  
No data recording





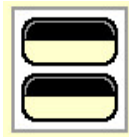
# Setting the Task Controller

Recording date from the TC.

Open the Task controller menu



Go in all screen mode



# Setting the Task Controller

Half screen mode menu



Select the control icon



# Setting the Task Controller

Select the map screen to display the coverage area.



Press Start to record data



# Setting the Task Controller

Data are recorded within the task and can be exported.



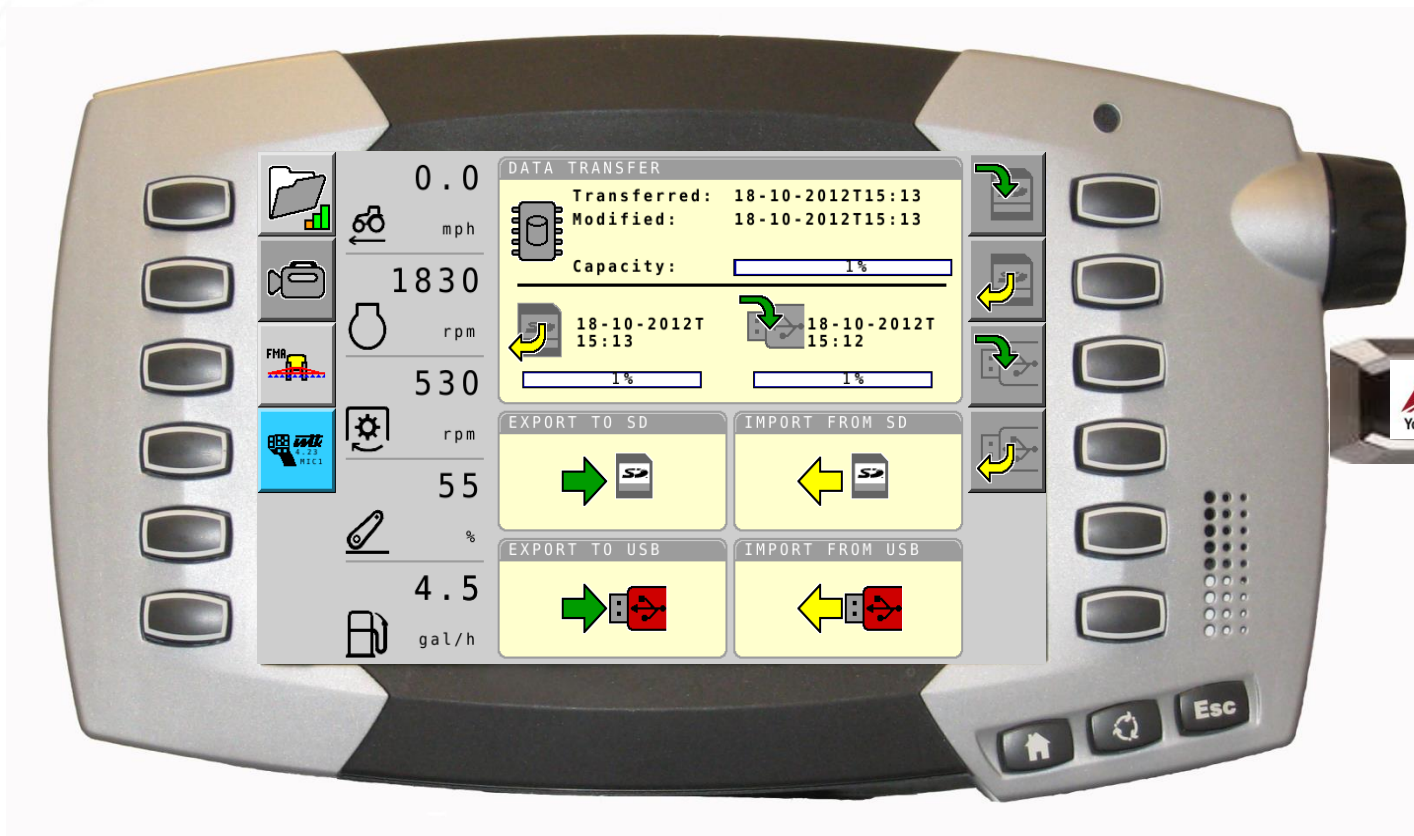


# Setting the Task Controller

Change to Sum to get data recorded information



# Export/Import Task Data



# Application Map Turned Off





# Map with Coverage and Boundaries





# Application Map Turned On



# Application Map with Coverage Turned Off



# Application Map with Coverage



# Feature Set Overview



## TC-SC – Task Controller Section Control

TC-SC provides the capability of automatic switching of sections, based on the GPS position and desired degree of overlap



# Agenda

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7	C3000	14	AGCOMAND

# Agenda

## 9 Additional features

A Dual VT Operation

B TECU Explained

C C1000 Camera mode



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## Dual VT Operation



# Home Screen





# Console Setup Screen



# Terminal Settings Screen



# ISOBUS Terminal Setup Pop Up



# On-Off-Auto Selection





# On-Off-Auto Selection



# On Settings



# Terminal Number Identification Screen



# ISOBUS Terminal Setup Screen-Non Primary VT Selection





# Accepting Selection



# Terminal No. 2-Non Primary VT



# Terminal No. 1-Primary VT



# Primary Terminal Unavailable-Reconfiguring





# Terminal No.



# ISOBUS Terminal Function Off



# No Task Controller, Implement or Aux Controls



# Feature Set Overview

## Multiple VT Support

This functionality allows for two MVT Capable terminals to be connected together on the same ISOBUS.

This functionality allows for an option in the terminal set up that allows the user to deselect the current implement object pool so that it does not load on the VT, forcing it to load onto the other available VT.

To allow terminals that are not MVT capable to connect on the same ISOBUS, without the use of separate electrical connections (aka standalone cable), Ver 1.9.1 release of this project has introduced ISOBUS Terminal Functions Auto/ON/OFF capability



# Auto-Guide 3000 Support - ISOBUS Terminal Functions Auto/ON/OFF

## ISOBUS Terminal Functions Auto

The Chassis Terminal turns its ISOBUS Terminal functions (VT Server and Task Controller ) automatically OFF when another VT is detected on the ISOBUS. In that case:

- C1000 Chassis Terminal is virtually not connected to the ISOBUS

- C1000 Chassis Terminal will NOT handle implements

- C1000 Chassis Terminal will NOT handle Auxiliary Controls

When no other VT is detected or another VT is not detected anymore for 60seconds, the Chassis terminal has its ISOBUS Terminal functions automatically ON and:

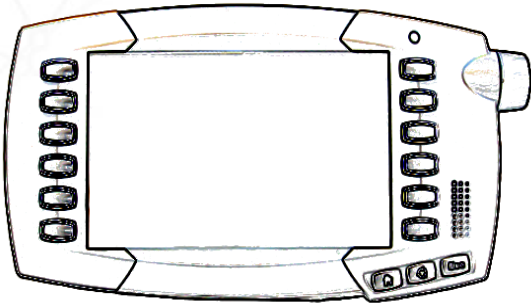
- C1000 Chassis Terminal will handle implements

- C1000 Chassis Terminals will handle Auxiliary Controls

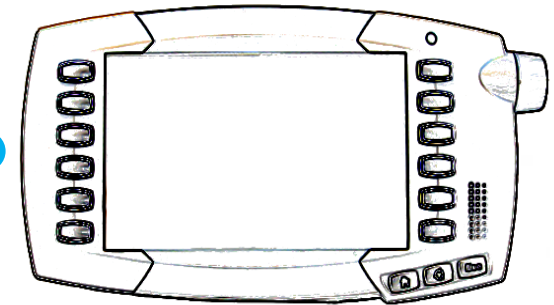
# Machines: Jackson, Beauvais and Suolahti made Tractors with C1000 Installed

## Hardware

Machine Console (C1000)



Technology Console (C1000)



ISOBUS



## Applications

Machine Application



Guidance Application

Other ISO Application

(i.e. Baler or Planter)

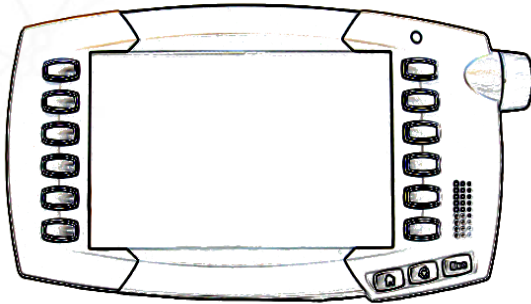
**Status: Available with 1.9 Software Release (C1000).**

- Ability to move applications between the consoles will be available via ISOBUS Terminal Functions AUTO/ON/OFF capability.
- Ability to move applications between the consoles is available.

# Machines: Jackson, Beauvais and Suolahti made Tractors with C1000 Installed

## Hardware

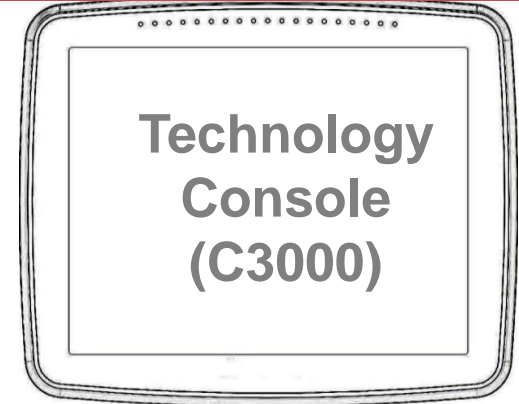
### Machine Console (C1000)



ISOBUS



Technology Console (C3000)



## Applications

Machine Application



Guidance Application (Topcon)  
Other ISO Application  
(i.e. Baler or Planter)

**Status: Available with 1.9 Software Release (C1000).**

- Ability to move applications between the consoles will be available via ISOBUS Terminal Functions AUTO/ON/OFF capability.
- Ability to move applications between the consoles will be available via VT OFF functionality from C3000.

# C3000 ISO Kits

If you are connecting a White planter and want to use the C3000 from the planter and guidance, or you want to use dual VT capabilities.

## Topcon Kits

56/66/76/- MT4xx/5xx Kit- AGA5121

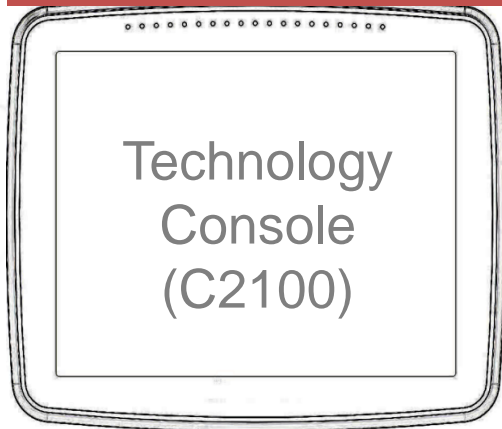
86xx-MT6xx Kit- AGA5120

MT7xx/8xx/9xx Kit- AGA5151



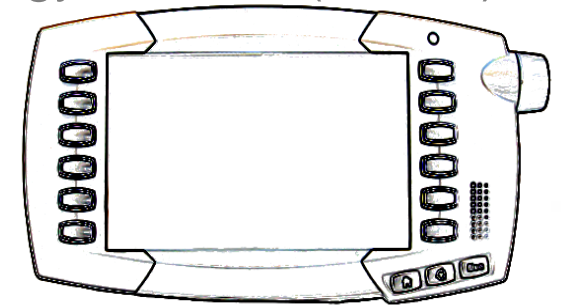
# Machines: Hesston Combines

## Hardware



Technology Console (C1000)

ISOBUS



## Applications

■ Machine Application

■ Guidance Application (Topcon)

■ Other ISO Application  
(i.e. Baler )

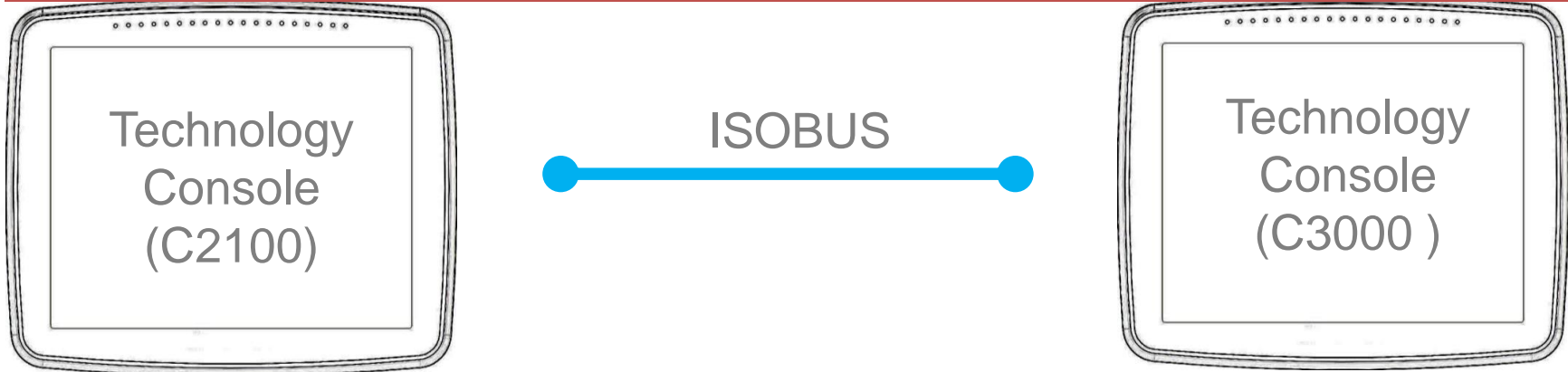
■ Ability to move applications between the consoles will be available via ISOBUS Terminal Functions AUTO/ON/OFF capability from C1000 Update in ??.

**OR**

■ Ability to move applications between the consoles will be available via ISOBUS Terminal Functions AUTO/ON/OFF capability from C2100 Update in ??.

# Machines: Hesston Combines

## Hardware



## Applications

- |   |  |
|---|--|
| <ul style="list-style-type: none"><li>■ Machine Application</li></ul> | <ul style="list-style-type: none"><li>■ Guidance Application (ISO Interface)</li><li>■ Other ISO Application (i.e. Baler )</li></ul> |
|---|--|

- Ability to move applications between the consoles will be available via VT OFF functionality from C3000 Update in ??

**OR**

- Ability to move applications between the consoles will be available via ISOBUS Terminal Functions AUTO/ON/OFF capability from C2100 Update in ??.

# Agenda

## 9 Additional features

A Dual VT Operation

B TECU Explained

C C1000 Camera mode



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## TECU Explained





# Feature Set Overview



## TECU

The tractor ECU is the tractor's "job calculator". It provides information such as speed, power take-off RPM, etc.

## TECU-A

The communication with TECU is uni-directional, i.e. the tractor provides certain information. TECU-A however features the capability of bi-directional communication. The implement can include the tractor in its control process, for example by requesting a change in speed, 3-point linkage, etc. ("implement controls tractor").

# Feature Set Overview



## SQC-Sequence Control

SQC describes the capability of grouping different functions of different ISOBUS components in a sequence (i.e. headland management). This functionality is currently under revision

## ISB-ISOBUS Shortcut Button

ISB makes it possible to deactivate functions of an implement that were activated by means of an ISOBUS Terminal. This is necessary when the implement in question is not currently in the foreground, for example when several implements are being controlled by a single ISOBUS terminal. Which functions of an ISB is able to deactivate on an implement can vary widely and must be defined by the respective manufacturer

# Agenda

9

Additional features

A

Dual VT Operation

B

TECU Explained

C

C1000 Camera mode

# Feature Set Overview

## Video Camera

Video camera application supports two Cameras (Motec or AgCam) to be connected to the C1000.

The video camera can be used either in non-mirror or mirror mode.



# Camera Mode Selection



# Normal Camera Mode



# Mirrored View in Camera





# Normal Camera Mode





# Full Screen Mode on Camera



# Agenda

1	General Information	8	Configuration & Set-up
2	Components	9	Field Install vs. Factory Installations
3	C1000	10	Architecture and Installation
4	Configuration & Set-up	11	Diagnostics and Troubleshooting
5	Task Controller Setup (for mapping)	12	Base stations
6	Additional features	13	RTK - Radio vs. Cellular
7	C3000	14	AGCOMAND



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## C3000 Feature Overview



# Features – Guidance

## Auto Steering

PVED Hyd. Valve

MT Integrated controller

Self-Propelled Windrower

## Mapping

Field Boundaries

Exclusion Boundaries

Record, or import from  
Shape/ISO XML files

## Fields

Automatic Field Recognition

## Guidelines

Straight A/B

A+

Coordinate to Coordinate

Adaptive Curves

Identical Curves

Center Pivot



# Features – Guidance Cont'd.

C3000 Receiver Compatibility-

AG3000 Compatible

SGR-1 Compatible

Other (Supports external  
NMEA strings)

Console Outputs simulated  
Radar

Connector U2-pin7 on C3000

Single wire Dig Output pulses  
frequency to simulate radar  
gun output for Legacy  
controllers

# ISOBUS Features – Planter Control

## Task Controller Basic (TC-BAS) and Task Controller Geo-based (TC-GEO)

### C3000 Task Data Mode

*Accepts taskdata.xml via USB*

*Mode replaces normal C3000 job creation*

*Imports implement and task details seamlessly – including prescription map*

### Task Controller Server is operating behind the scenes

*Performs various functions and tasks*

*Passing rate info, section info, implement data (geometry ,etc.)*

# ISOBUS Features – Planter Control

## Task Controller Section Control (TC-SC)

Task Controller in C3000 controls DJ ECU to operate sections

## Tractor ECU (TECU)

C3000 requires the presence of the DJ TECU integrated into the cab harness

# Features – Record Keeping

## As Applied Exports

- Shape File export

- ISO XML Task Data Mode

## PDF Job Report

- Capture on USB stick at completion of job

- All relevant statistics and coverage map

## Job Details

- User defined fields for weather, variety, wind, soil type, etc.





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## C3000 Console Features & Applications



# C3000 Field Installation

The C3000 terminal is available through Parts and can be mounted on MF66xx, 76xx, 86xx, MT5xxD/E, MT6xxD/E series tractors

The parts needed for the tractors are:

ACZ000000B, C3000 terminal

ACV0106130, C3000 harness

39281900, RAM mounting bracket



## The requirements of the tractor for C3000 installation:

Tractor has to have Auto-Guide ready and Isobus ready kits, but there are some limitations:

C3000 harness is using special connector on B pillar, which was designed for System 150 GX-45 terminal

This connector is available on following tractors if Auto-Guide ready kit is installed

# C3000 Field Installation

## MF86xx & MT6xxD/E series:

The parts needed for the tractors are available only from Parts:

ACZ000000B, C3000 terminal

C3000 harness for 86xx6xxD/E is still under work (will be released by the end of March 2013)

V39281900, RAM mounting bracket

5020320M11, Bracket on the right A pillar

## Limitations for the mounting of the C3000

The C3000 harness is designed for the tier4i/f tractors

The C3000 harness will not fit to tier3 series tractors, because the power connector is missing on tractor side, but it is possible to use alternative power connector (needs extra work)

# C3000 Overview





# C3000 Hardware



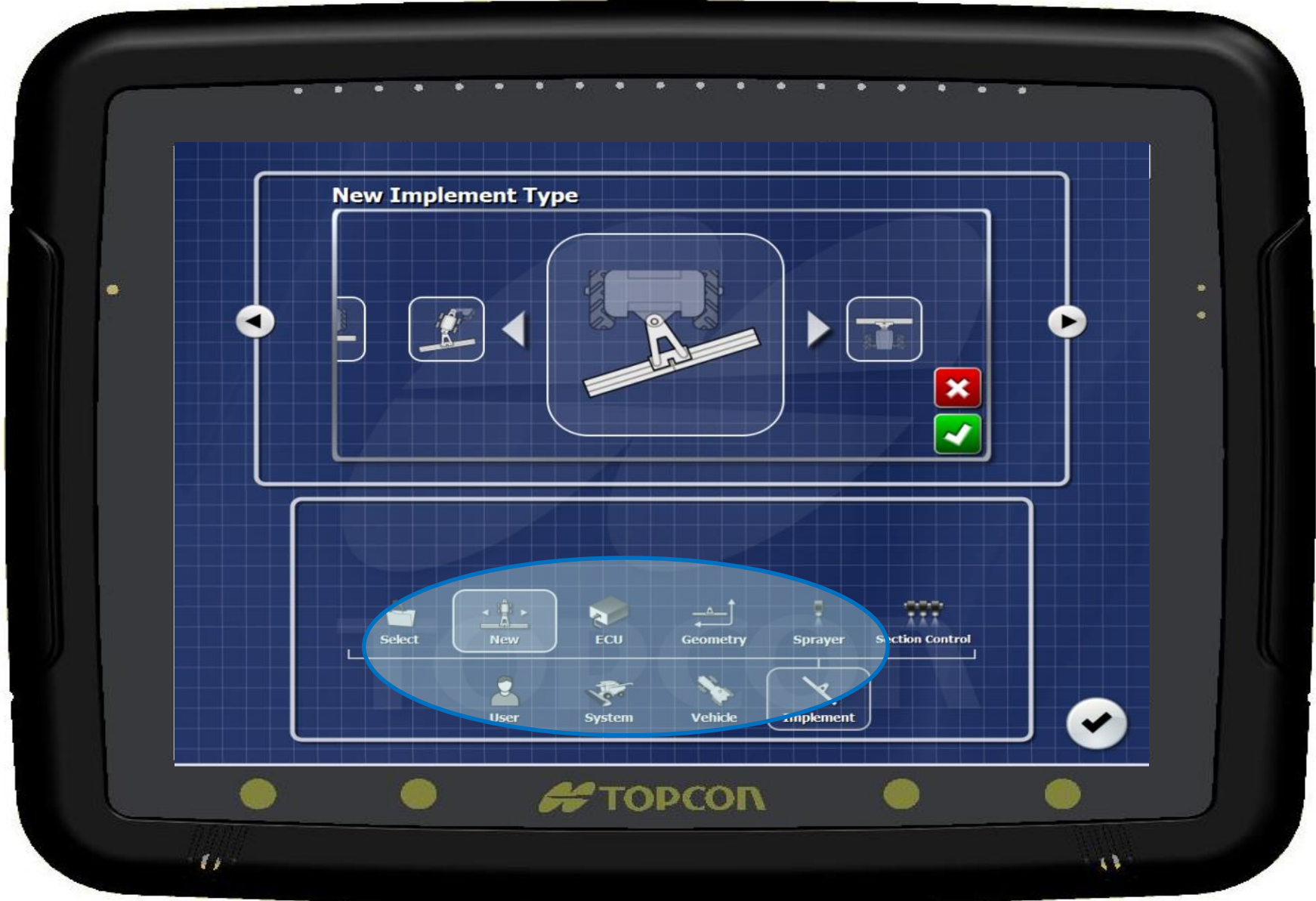
Rugged and weather-proof unit is ready for your toughest challenges.

# C3000 Software



Simple to set-up, easy to use.  
Control what has been controlling you.

# Set-Up Wizard Screens



# C3000 Overview





# The Console

Physical dimensions	12.9" x 10.6" x 2.2" (328 x 268 x 55 mm) weight 3.86 lbs., 1.75 kg RAM mounting system
Environmental	operating temp. -22 to +140F, -30 to +60C storage temp. -40 to 167F, -40 to +75C rainproof IP67 (EN60529:1992)
Power input	9V - 36V (voltage & polarity protected) N-MH internal batteries (2000mA/hr., 7.2V)
Display	12.1" (31cm) 1024 x 768 LVDS RGB Projected capacitive touchscreen 1000 cd/m2 LED backlight
Memory	1Gb

# Interaction Keypad



# Interaction Keypad



# Dashboard – Level 1





# Dashboard - Level 2



# Mini View active screens

## Mini View active screens

Level 2 info displayed for monitoring  
Up to 3 Mini View screens  
Full screen view "at your fingertip"



# Information Screen – Level 3



# ISO Virtual Terminal Capable





# Guidance Screen



# Information Management



# What is the Inventory Manager



# Agenda

1	General Information	8	Configuration & Set-up
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7	C3000	14	AGCOMAND



# Set Up Console



# Set Up Console



# Set Up Console



# Set Up Console





# Set Up Console



# Set Up Console



# Set Up Console



# Set Up Console





# Set Up Console



# Set Up Console



# Set Up Console



# Set Up Console





# Set Up Console



# Set Up Console



# Set Up Console



# Set Up Console





# Set Up Console



# Set Up Console



# Set Up Console

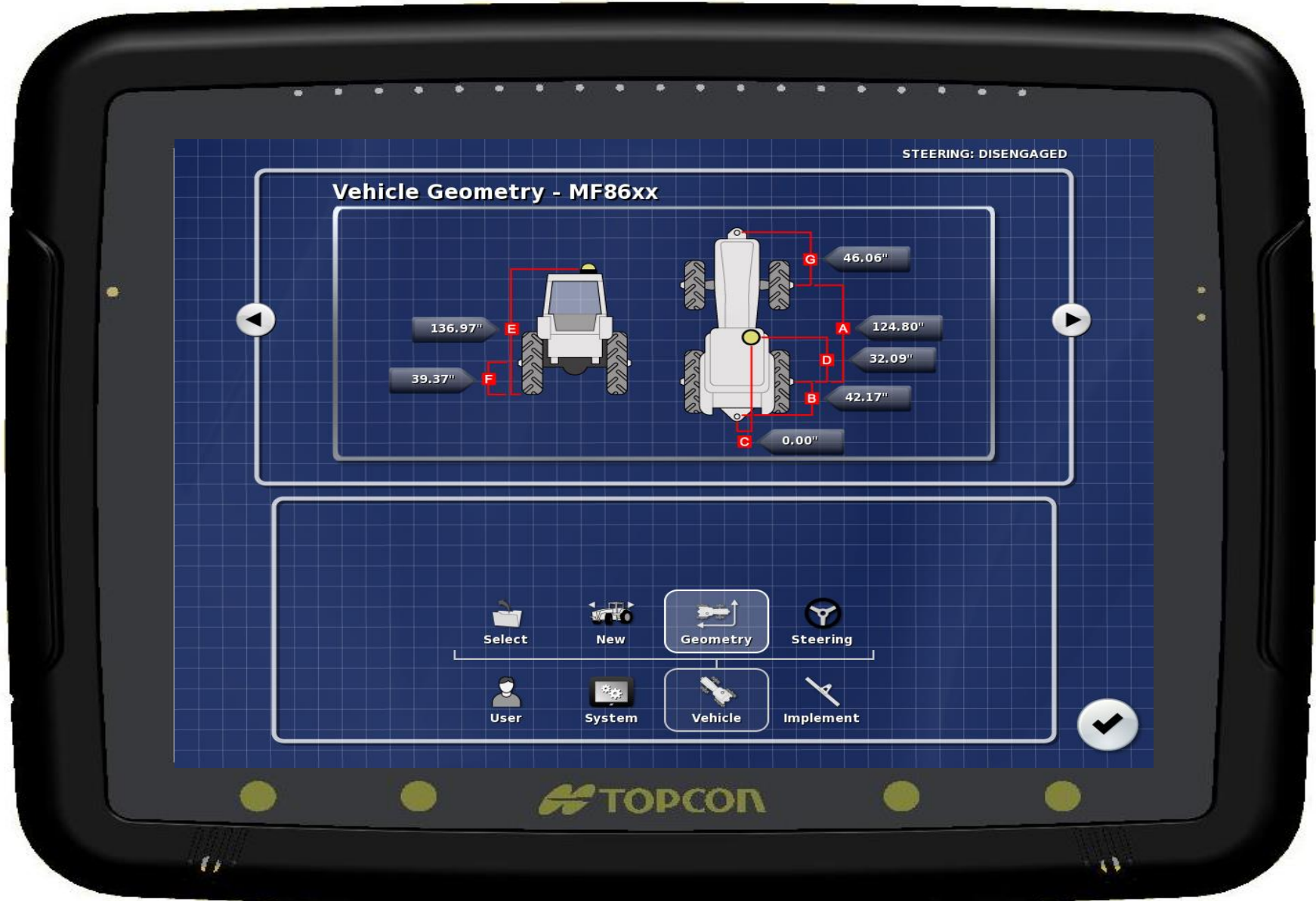


# Set Up Console





# Set Up Console





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## C3000 Steering Tuning and Calibration



# Steering Tuning



# Steering Calibration



Compass calibration icon

Wheel Angle Sensor calibration icon

Roll Mount Bias calibration icon



# Compass Calibration

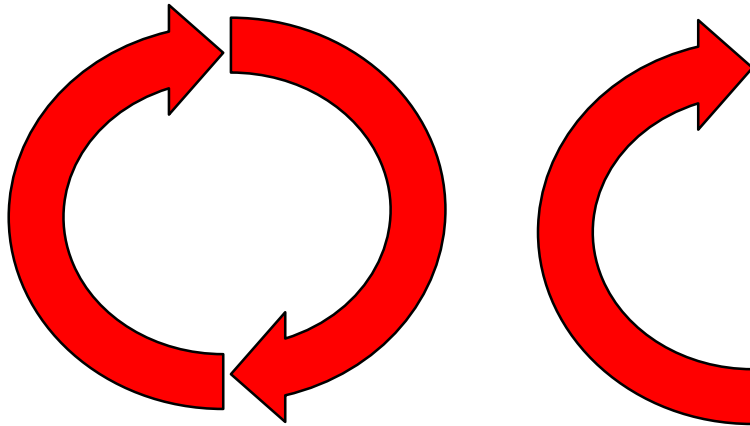


Drive to an open space  
Start calibration procedure  
Press continue button



Press continue button

Drive one and half circles



Drive straight for 100m



Calibration complete

# Wheel Angle Sensor Calibration



Drive to an open space

Start calibration procedure



Start with wheels centered

Turn wheels left

Turn wheels right

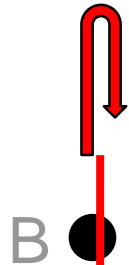
Center the wheels



Calibration complete

# Mounting Bias Calibration

Drive 40 – 50 Ft past B point



Turn around  
Engage steering  
Set speed to .9 mph

**Calibration complete**

Drive to an open space

Drive to B

Drive to A

Drive 229.7Ft



Set speed to .9 mph

Engage steering  
Turn around

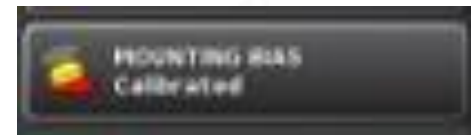


Drive 40 – 50 Ft past A point

Start Calibration



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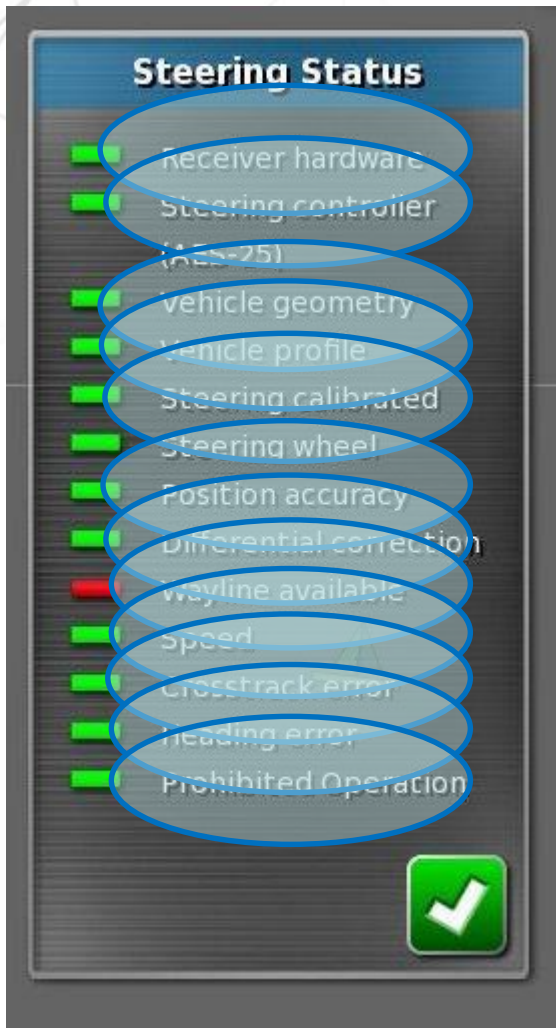


# Steering Status



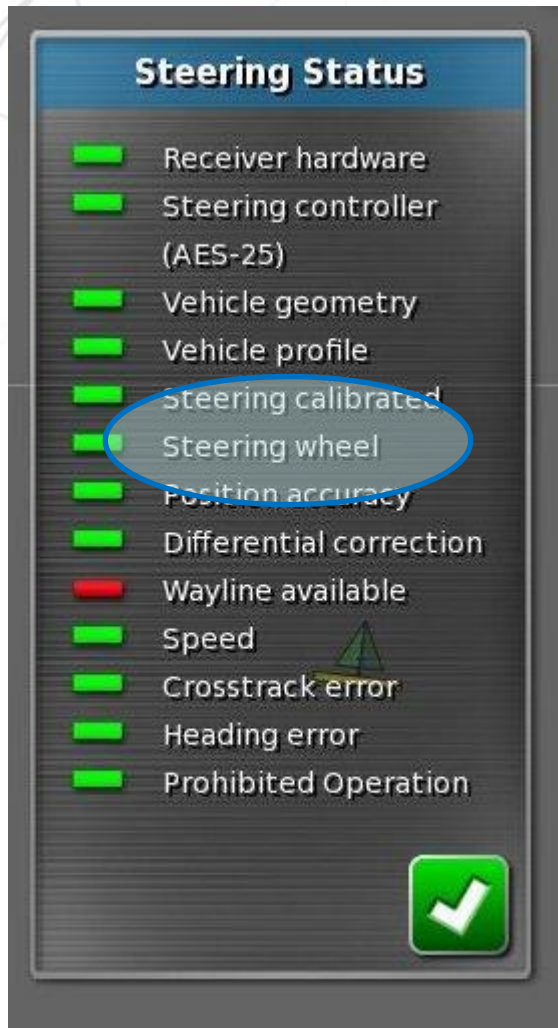


# Steering Status



Receiver is communicating and software version OK  
Steering controller is communicating and detected  
Vehicle geometry is entered and stored correctly within range  
Vehicle profile been set correctly  
Steering system has been calibrated successfully  
GPS accuracy is acceptable for correction source  
GPS differential correction source is communicating  
Steering path has been set and entered successfully  
Vehicle speed is above 1 or below 29.5kph  
Cross track error is OK for guidance engagement  
Heading error is OK for guidance engagement  
No major error codes or mechanical lockouts in place

# Steering Status



Steering wheel

Indicates the following:

- SASA detected and awake

Steering status also available here



# New Console Feature– Advanced Diagnostics



# New Console Feature– Advanced Diagnostics





# New Console Feature– Advanced Diagnostics



# New Console Feature– Advanced Diagnostics



# New Console Feature– Advanced Diagnostics





# New Console Feature– Advanced Diagnostics





# New Console Feature– Advanced Diagnostics



# New Console Feature– Advanced Diagnostics



# DEALER ADVANCED TUNING AREA



# DEALER ADVANCED TUNING AREA





# DEALER ADVANCED TUNING AREA



# Agenda

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# Field install vs. Factory install

Currently there is no;

Legacy options

Options for non Autoguide ready vehicles.

Auto-Guide 3000 is currently only available for 2013 and later auto-guide ready machines.

For current production combines and windrowers there are field install kits.

# Agenda

1	General Information	8	Configuration & Set-up
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Connecting your farm enterprise  
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What is Standard, What machine gets what



# MT-700, 800, 900

## Auto – Guide 3000 Ready

- “C & D” Series ----- Optional
- “E” Series ----- Standard

## Agcommand Ready

- “C & D” Series – Standard
- “E” Series ----- Standard





# MT 700, 800 & 900

Auto – Guide 3000 equipped

- “C & D” Series – Standard
- “E” Series ----- Standard

Agcommand Equipped

- “C & D” Series – Optional
- “E” Series ----- Optional



# All Classic Cabs

## Auto-Guide 3000 Ready

- Not Available

## Auto – Guide 3000 Equipped

- Not Available

## Agcommand Ready

- Standard

## Agcommand Equipped

- Optional





# All Deluxe Cab

## Auto – Guide Ready

- Standard

## Auto – Guide 3000 Equipped

- Optional



## Agcommand Ready

- Standard

## Agcommand Equipped

- Optional



# All Premium Cabs

## Auto – Guide 3000 Ready

- Standard

## Auto – Guide 3000 Equipped

- Standard



## Agcommand Ready

- Standard

## Agcommand Equipped

- Optional





# All Combines

## Auto-Guide 3000 Ready

- Standard

## Auto-Guide 3000 Equipped

- Standard

## Agcommand Ready

- Standard

## Agcommand Equipped

- Standard (1 yr. Advanced)



# WR Series Windrowers

## Auto-Guide 3000 Ready

- Standard

## Auto-Guide 3000 Equipped

- Optional



## Agcommand ready

- Optional

## Ag Command Equipped

- Optional





# Why Should you register Agcommand

If it is Standard, there is no additional cost

Data Collection is important

Closer communication with Customer

Help Transition to time to trade

Help customer improve productivity

# Auto-Guide 3000 Installation

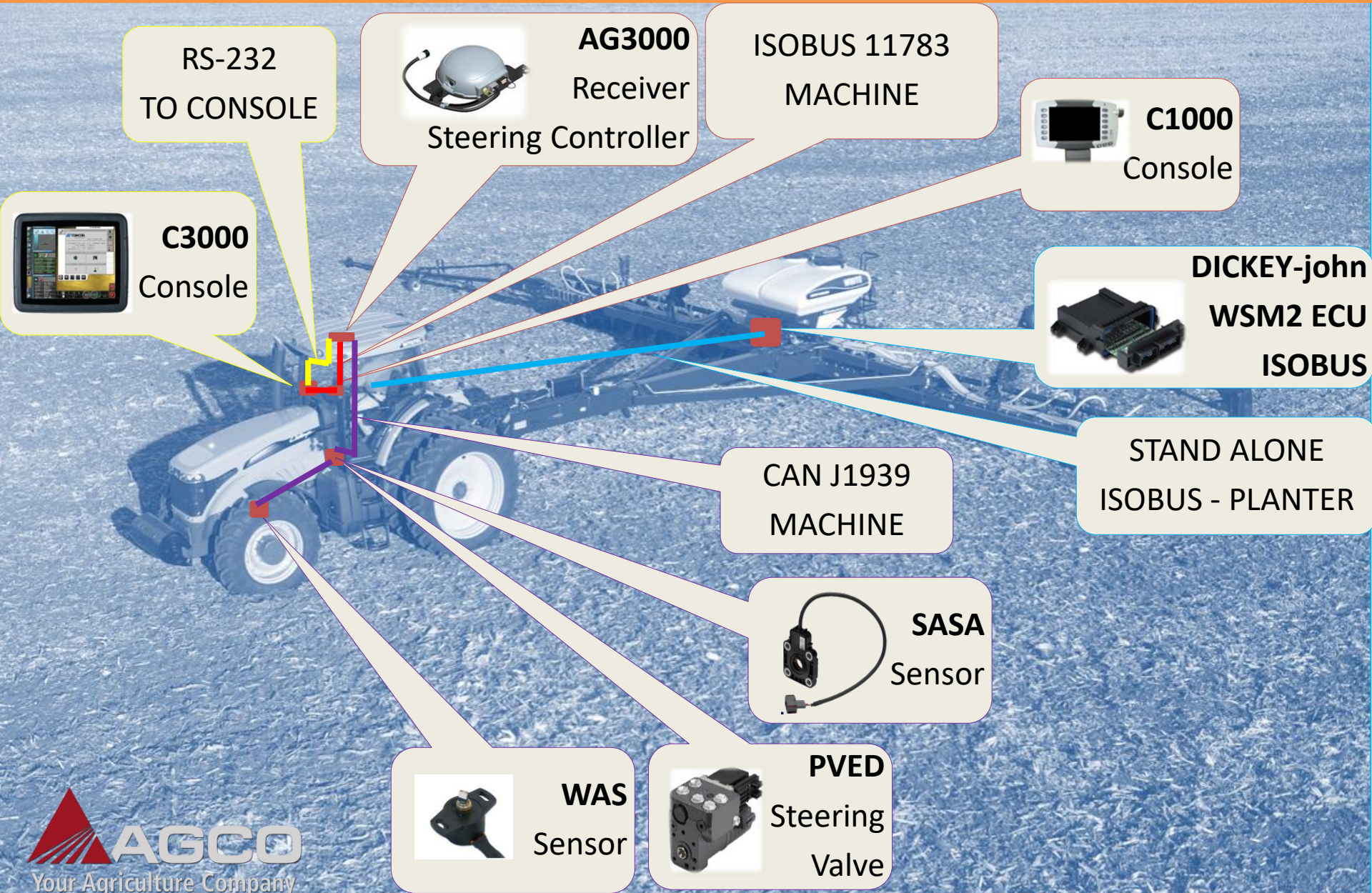


## Main components necessary on the tractor:

1. AGI-4 TopDock
2. SASA Sensor
3. Steering Unit
4. Wheel Angle Sensor
5. C1000 and/or C3000 Console
6. Power Switch



# Guidance Wheel Tractor



# SASA Sensor

Wheel Tractors, Combines & Application Equipment are fitted with the Steering Absolute Sensor Assembly (SASA) sensor

The SASA sensor is positioned on the orbitrol steering valve

It's function is to “detect” when the operator is taking control of the vehicles steering

If the operator moves the steering wheel whilst Auto-Guidance is engaged, it will “disengage immediately”

The SASA 2 sensor is a direct replacement for SASA 1

Compatible with SASA 1

More reliable

More safety





# Steering unit

Wheel Tractors, Combines & Application Equipment are fitted with the Proportional Valve Electronic Digital (PVED) steering unit.

OSPE – Wheel Tractor / OSPF - Combine

The OSPE steering unit has a solenoid valve which allows:

The reaction – non reaction steering feature,

More safety when quick steer and System 150 are not used.

The valve communicates using the J1939 CAN protocol

The PVED is not a mechanically serviceable item and should not be split from the orbitrol unit due to operational integrity outside of factory control.

Warranty will be void if tampered with.



# Wheel Angle Sensor (Wheel Tractor , Combine & Application Equipment)

## WHEEL ANGLE SENSOR “WAS”

Wheel angle sensor is: used to send wheel angle position to the PVED-CL.

The wheel angle sensor is a potentiometer

The Voltage supply is 5 volts

The operating range is 0.5-4.5 volts

It has a 120 degree range of arc

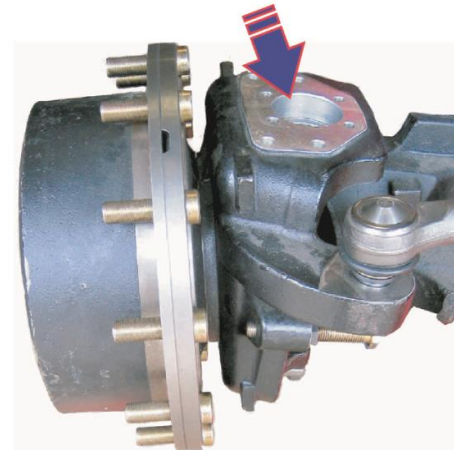
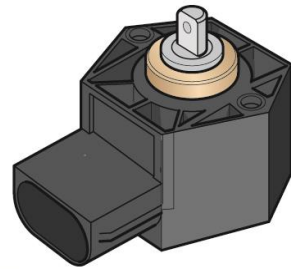
It has a resolution of approximately 0.1 degree

Typical wheel angle sensor range

Left:	200	(.5Vdc)
Center:	500	(2.5Vdc)
Right:	800	(4.5Vdc)

The WAS is normally located “on” or “within”  
the front axle on the left hand king pin of all  
wheeled tractors.

It is located on the rear axle on a combine



# Wheel Angle Steering Sensor (WAS)

The WAS sensor provides front “wheel angle” position (Not applicable to tracked tractors & Swathers)

The operator needs to calibrate the WAS “steering lock to lock range” from the Console

Calibration of the “CENTER” position is **crucial** to effective guidance

The PVED controls the **WAS** sensor and holds the calibration parameters

Normally the **WAS** will be located on the left hand front axle king pin of all brands.

# Wheel Angle Sensor (WAS)

The WAS sensor has a known defect with the way it is installed on Wheeled Tractors.

The ground line is connected to the same ground as the front suspension coils. This will cause a 40 wheel count jump whenever the coil fires.

You will see the wheels twitch.

To avoid this run a separate ground to the stainless steel ground plate under the cab, do not run a wire back to the negative of the battery this will cause worse problems.



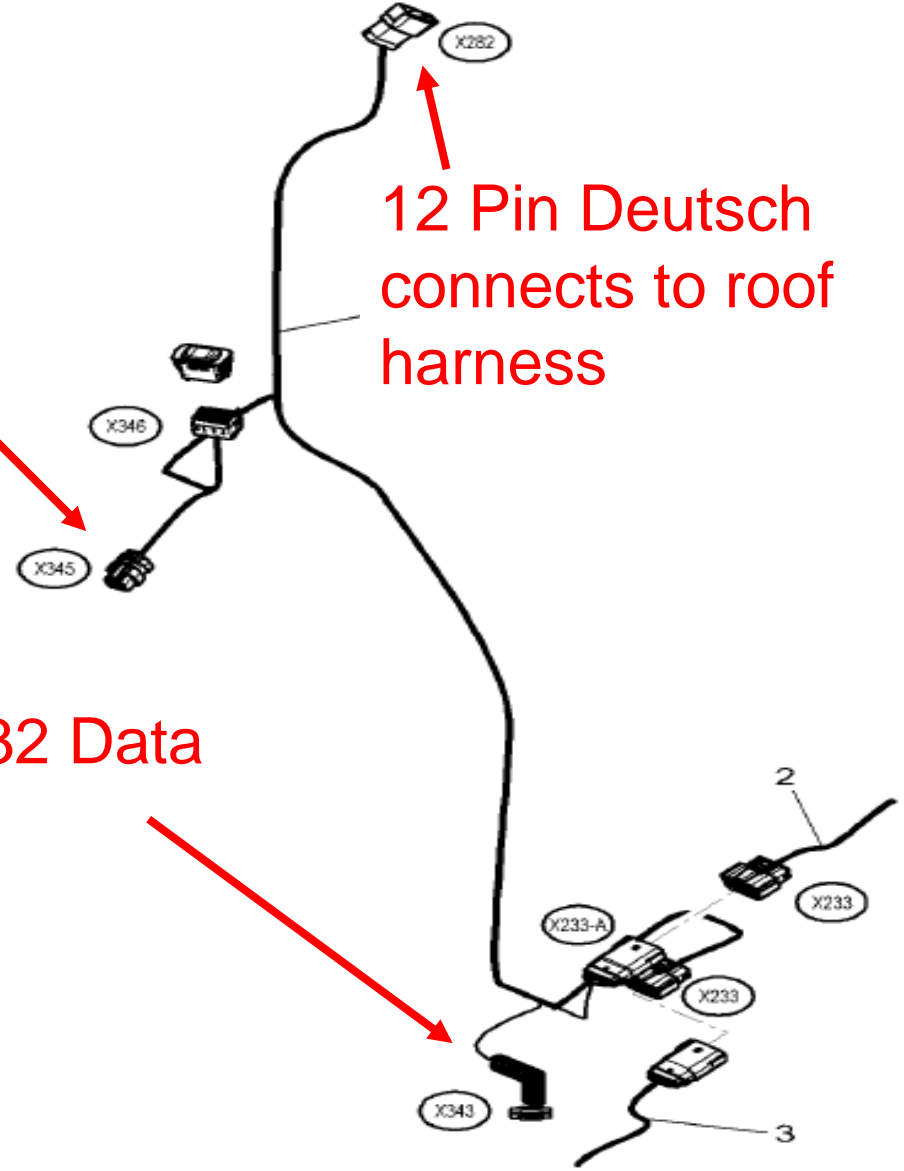
# Wiring Harness

Early Tier 4i

12 Pin Deutsch  
Power Connector

12 Pin Deutsch  
connects to roof  
harness

9 Pin RS232 Data  
Connector



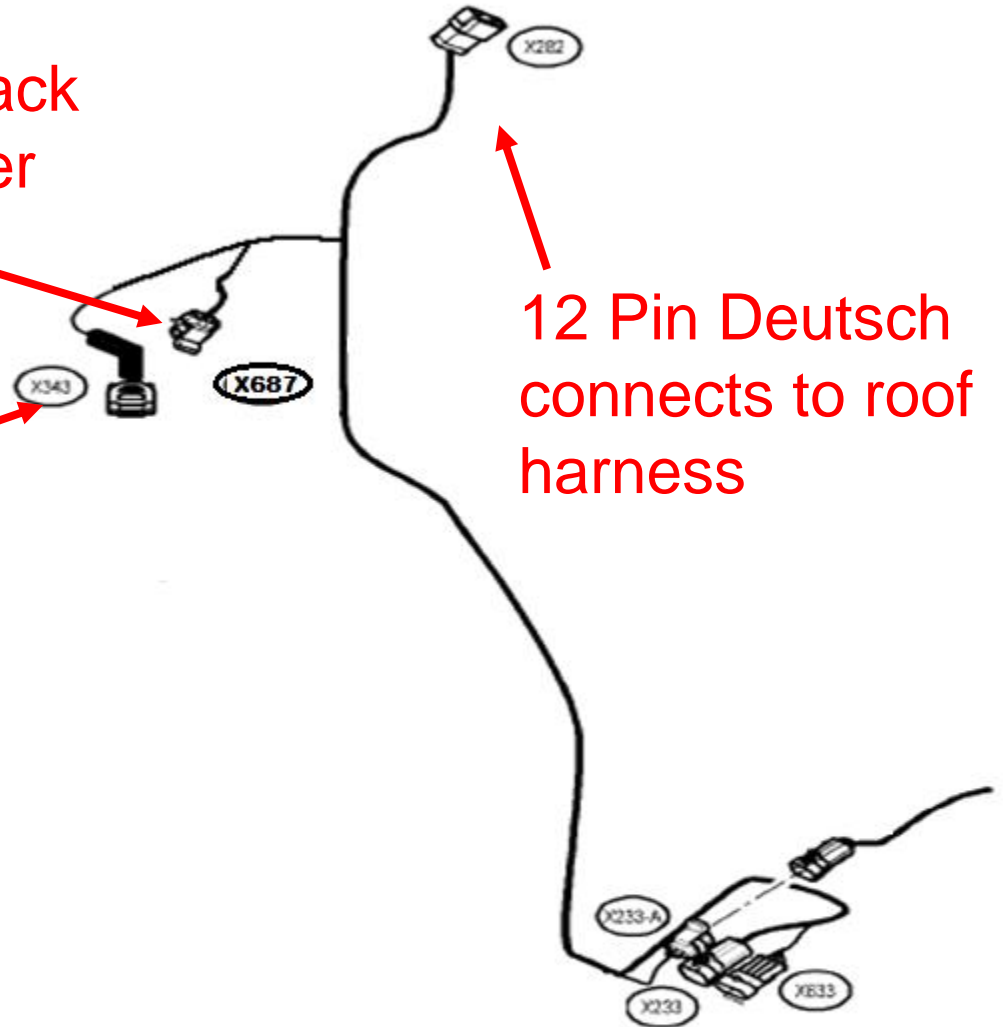
# Wiring Harness

Tier 4i

3 pin Multipack  
GX-45 Power

9 Pin RS232 Data  
Connector

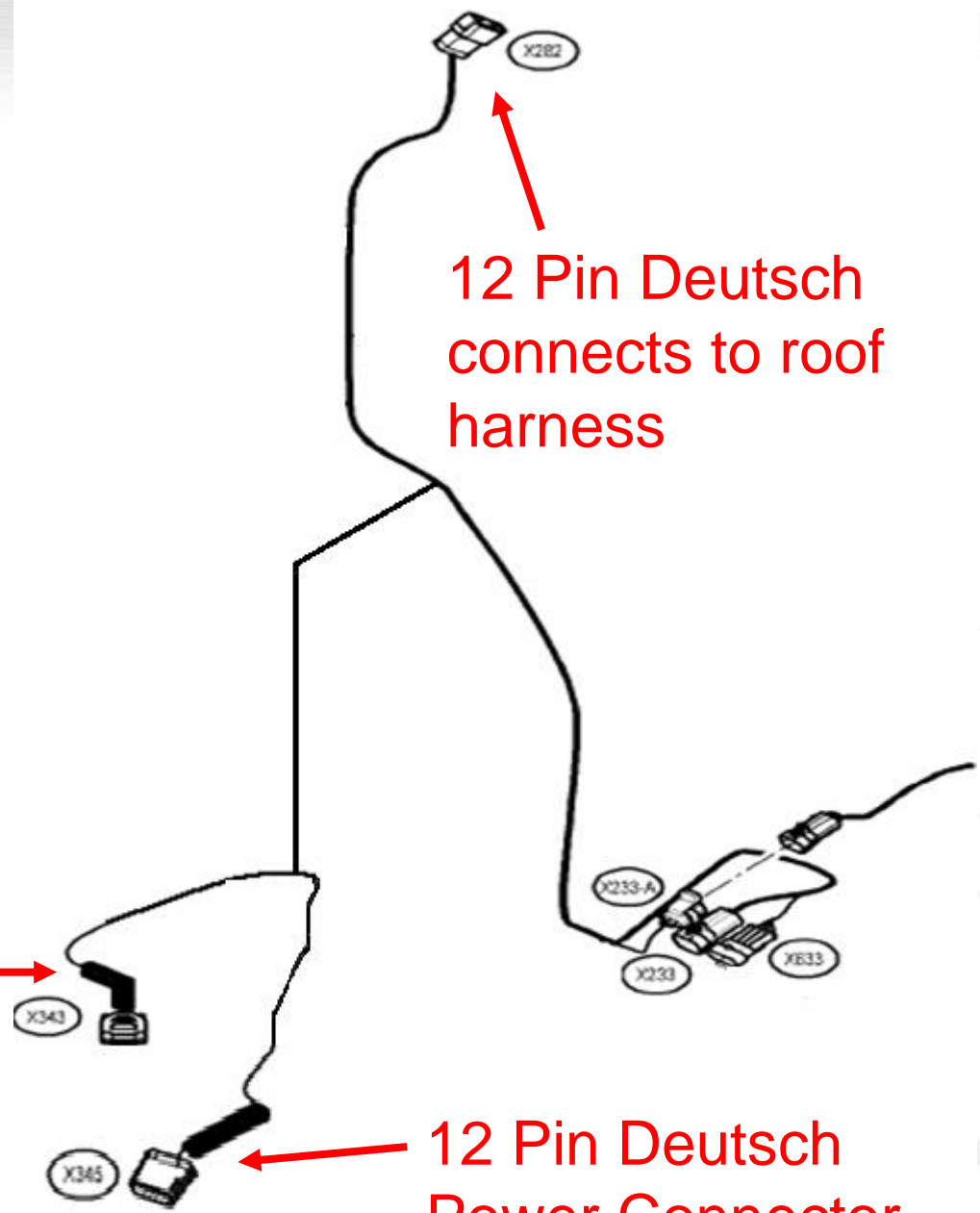
12 Pin Deutsch  
connects to roof  
harness



# Wiring Harness

Tier 4f

9 Pin RS232 Data Connector



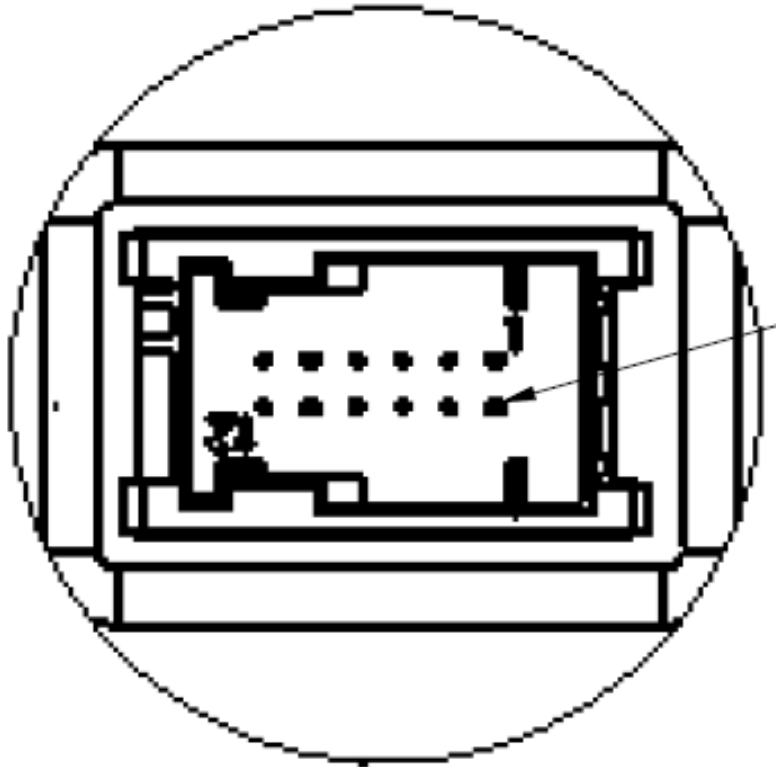
12 Pin Deutsch connects to roof harness

12 Pin Deutsch Power Connector

# Keyboard Tier 4i

The activation switches are located on a 12 switches keyboard : 4351453M1 :

This keyboard sends the request of the Auto-Guide switches by CAN (tractor CAN).



- Pin 1 : + 12V battery (Brown)
- Pin 2 : Ground (Black)
- Pin 3 : +12V after ignition (Red)
- Pin 4 : Ground (Black)
- Pin 5 : Not used
- Pin 6 : CAN High (Yellow White)
- Pin 7 : + 12V battery (Brown)
- Pin 8 : Side Lamp switch (White)
- Pin 9 : Low Beam switch (White)
- Pin 10 : Heating mirror switch (White)
- Pin 11 : CAN Low (Green White)
- Pin 12 : Not used



# Keyboard Tier 4i



Position 1: nothing is supplied.



Position 2: only the TopDock is supplied.



Position 3: all the components are supplied: TopDock, electro-hydraulic valve, SASA sensor and wheel angle sensor. Auto-Guide is ready to work.

# Fuse Locations Tier 4i

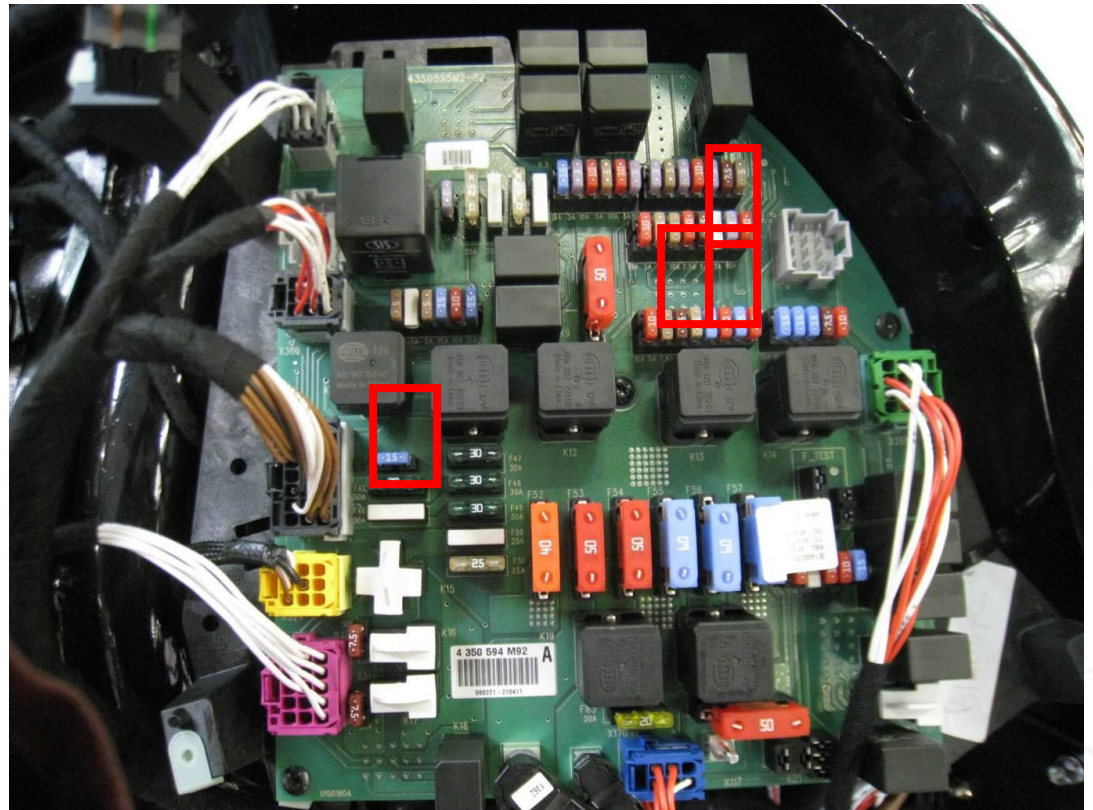
There are 4 fuses used for Auto-Guide :

F21 (5 amp): +12V ignition  
AGI-3 TopDock

F33 (7.5 amp): +12V Bat  
keyboard

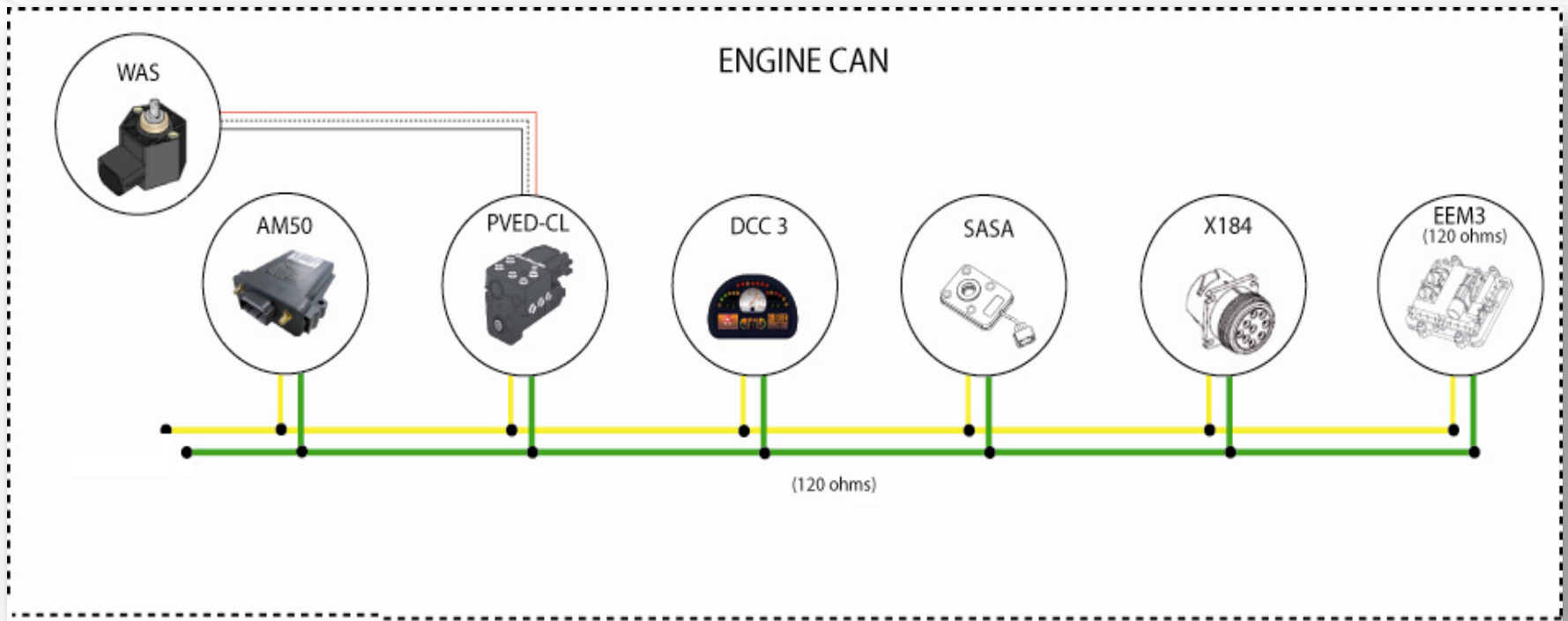
F35 (15 amp) : +12V ignition  
keyboard

F44 (15 amp) : +12V Bat GX45  
screen



# Electrical Architecture

The Steering Sub-System is connected on the Engine CAN



# Electrical Architecture



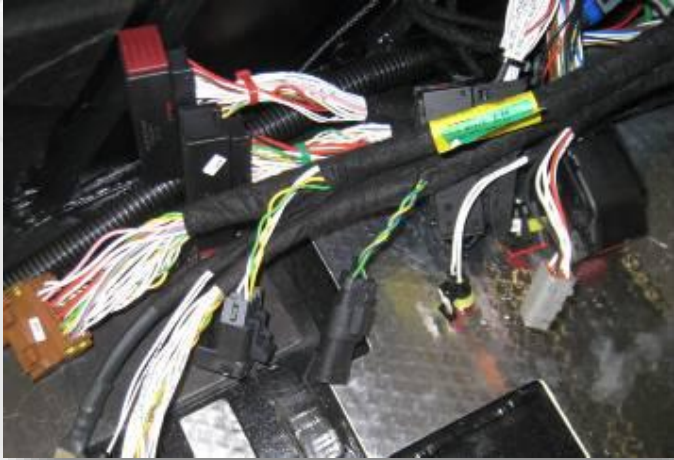
CAN 1 : tractor :  
X229 : 120 ohms in the right console  
(4284155M1)



CAN 2 : engine  
X230 : 120 ohms in the  
roof or in the right  
console for tractor not  
Auto-Guide ready  
(4284155M1)



# Electrical Architecture



CAN 3 : Linkage  
X231 : 120 ohms in  
the right console  
(4284155M1)  
X240 : connected on  
the last spool valve  
(4292093M2)



X631 : active  
resistance (Terminal  
Bias Connection) in  
front of the Auto5  
(4353140M1)  
X218 : active  
resistance in the  
Isobus plug  
(4287875M1)

# Electrical Architecture



All CAN resistances test should be done with main battery switch in open position.

To be sure that the main battery switch is in open position, place the key switch in OFF position, push on the red button in front of the Auto5.

# Electrical Architecture

## Automatic main battery switch :

The functioning of the main battery switch is no more managed by itself (*30 minutes*) but by engine ECU, key switch and warning button.

When the key switch is fitted in OFF position with warning button in ON position, the main battery switch is maintain closed until the warning are stop. If the warning button is pressed in ON position when the main battery switch is in open position, the main battery switch will not be re engaged.

When the key switch and the warning button are fitted in OFF position, the ECU maintains power during some time on the main battery switch.

The maintain time depend of :

- ECU time to bleed the urea pipe (variable time)
- DCC3 request (by CAN) to switch OFF the Data4 (variable time) \*
- Armrest Auto5 request (by CAN) when Isobus tool (or TopDock) are used on the tractor (*1 hour maximum*) \*

\*in these 2 cases, DCC3 request to ECU to keep main battery switch closed during the needed time.

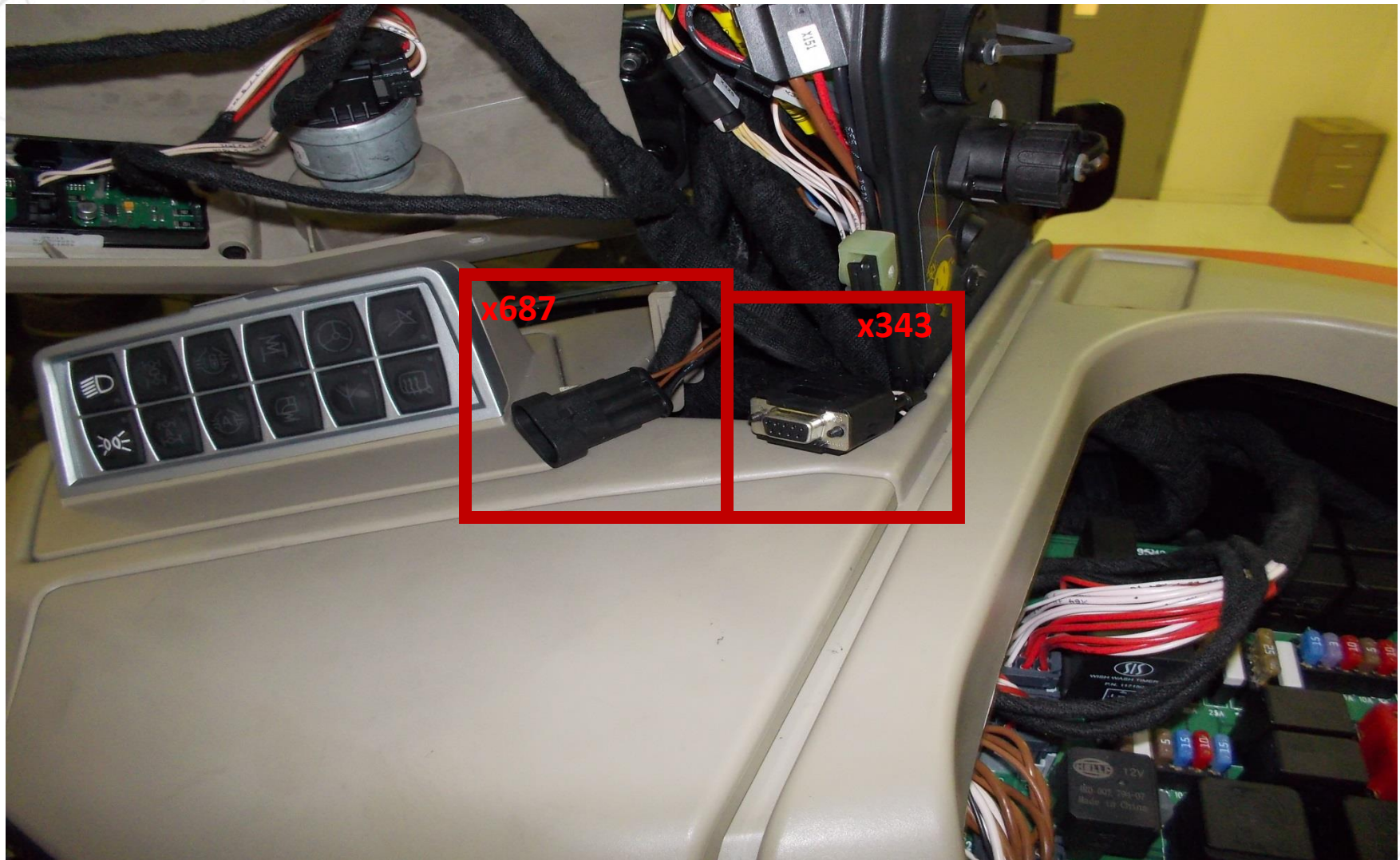


# Connector x687





# Connector x687 & x343



# Connector x687 & x343





# Auto-Guide 3000 Installation



Main components  
necessary on the  
combine:

1. AGI-4 TopDock
2. SASA Sensor
3. Steering Unit
4. Wheel Angle Sensor
5. C2100 and/or C3000 Console
6. Power Switch

# Guidance Combine

ISOBUS 11783  
BIOMASS



**C3000**  
Console

RS-232  
TO CONSOLE



**AG3000**  
Receiver  
Steering Controller



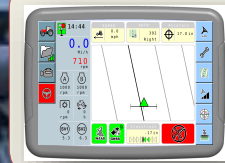
**C1000**  
Console

ISOBUS 11783  
MACHINE



ISOBUS  
Connection

CAN J1939  
MACHINE



**C2100**  
Console



**WAS**  
Sensor



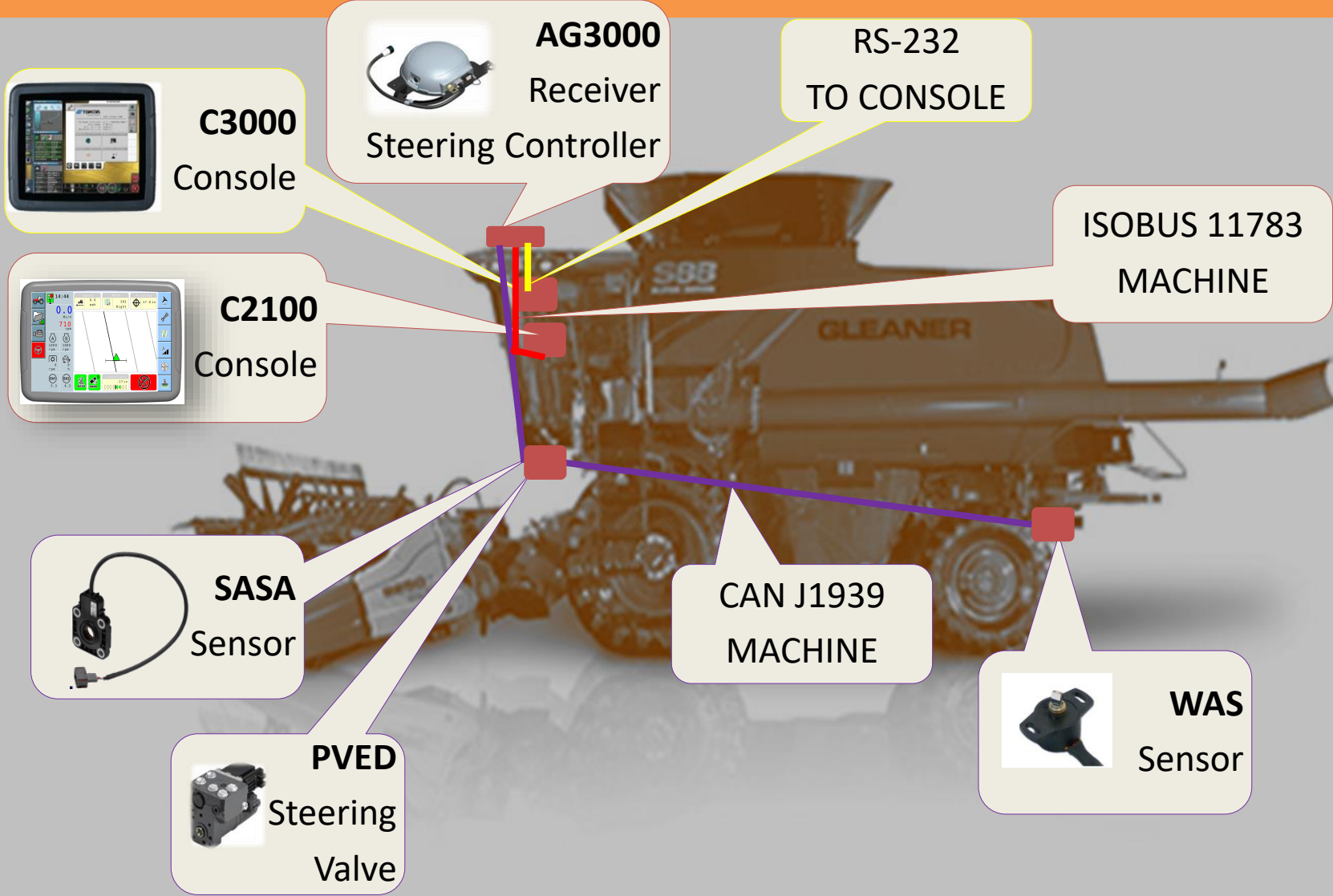
**SASA**  
Sensor



**PVED**  
Steering  
Valve



# Guidance Combine





# Power Switch (Massey/Challenger)



Auto-Guide Power Switch  
(Overhead)

3 Position Switch

1<sup>st</sup> Position Everything Off

2<sup>nd</sup> Position TopDock Powered

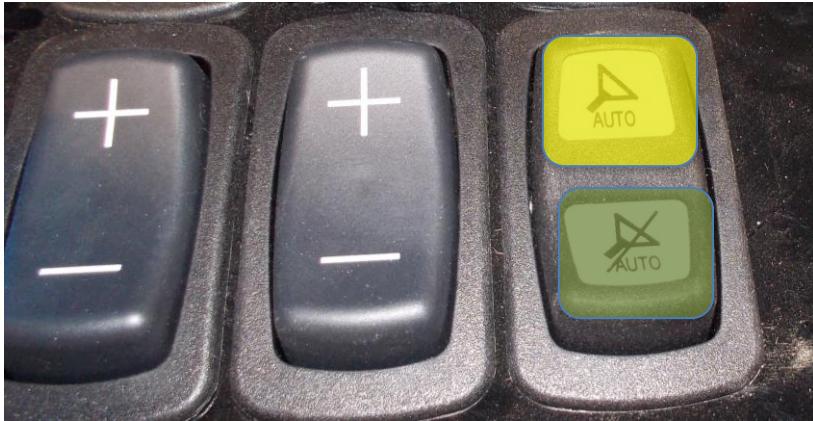
3<sup>rd</sup> Position TopDock & Valve  
Powered

Guidance Engage Switch  
(Armrest)

Momentary Switch  
Rock forward to Engage /  
Disengage Guidance



## Power Switch (Gleaner)



Auto-Guide Power Switch (Under Right Hand Armrest)

3 Position Switch

1<sup>st</sup> Position Everything Off

2<sup>nd</sup> Position TopDock Powered

3<sup>rd</sup> Position TopDock & Valve Powered

Guidance Engage Switch  
(Armrest)

Momentary Switch

Press to Engage / Disengage  
Guidance



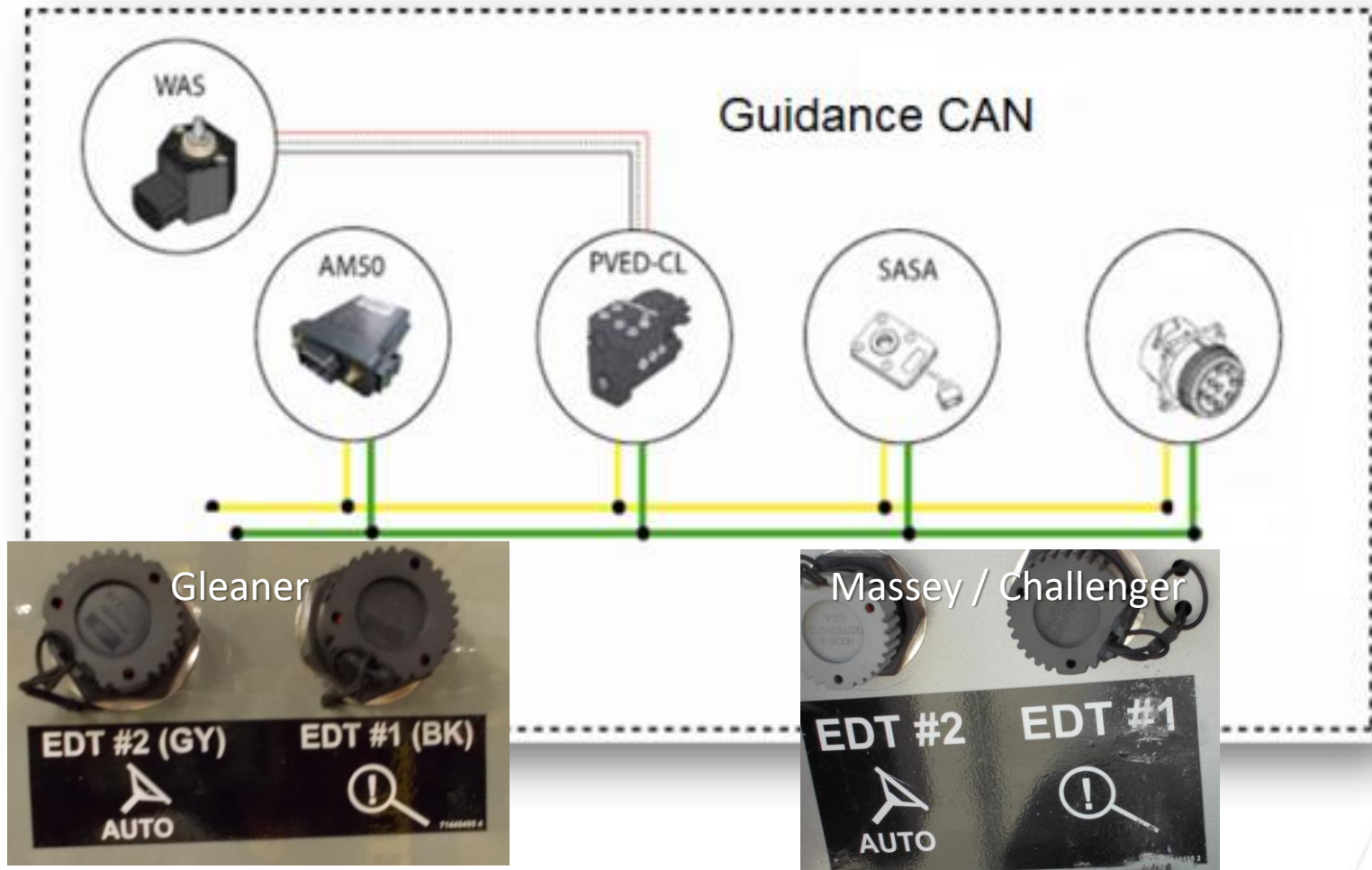


# Fuse Locations (Massey/Challenger & Gleaner)

LIGHTER 20	A/C CONTROL VALVE 7.5	SPARE 15	TELEMETRY 5	WIPER 10	SEAT HTR & COMPRESSOR 20	RADIO 5
THRESHER CLUTCH 20	HEADER CLUTCH 15	IGN SWITCH 15	REEL POSITION 25	UPPER PWR PLUG 30	HAZARD LTS/ SERVICE LIGHTS 20	BEACON & TELEMETRY 10
GTA/AC MEM RADID MEM GAGE MEM 10	UNLOADER/ EXIT LIGHT HORN 15	CONSOLE PWR PLUG, REAR WORK LIGHTS 30	ROOF FIELD LIGHTS 30	AUTOGUIDE PWR LADDER 25	HEADLIGHTS PANEL LIGHTING 30	CAB LOWER/ DOME LIGHTS 25
GPS, YIELD MOISTURE 15	AUTOGUIDE 10	CONCAVE ADJUST 20	RWA, BACK UP LIGHTS 15	VIDEO PWR 10	HANDLE SEAT INT. 3	POWER MIRROR 10

# Electrical Architecture (Massey/Challenger & Gleaner)

The Steering Sub System is connected on the Guidance CAN



# Electrical Architecture



Massey/Challenger



Gleaner

All CAN resistances test should be done with main battery switch in open position.

To be sure that the main battery switch is in open position, place the key switch in OFF position.

# Electrical Architecture

## **TopDock Keep Alive :**

The functioning of the keep alive is to maintain power to the TopDock (30 minutes) when the key switch is fitted in OFF position.

This keep alive is overruled by the main battery disconnect switch.

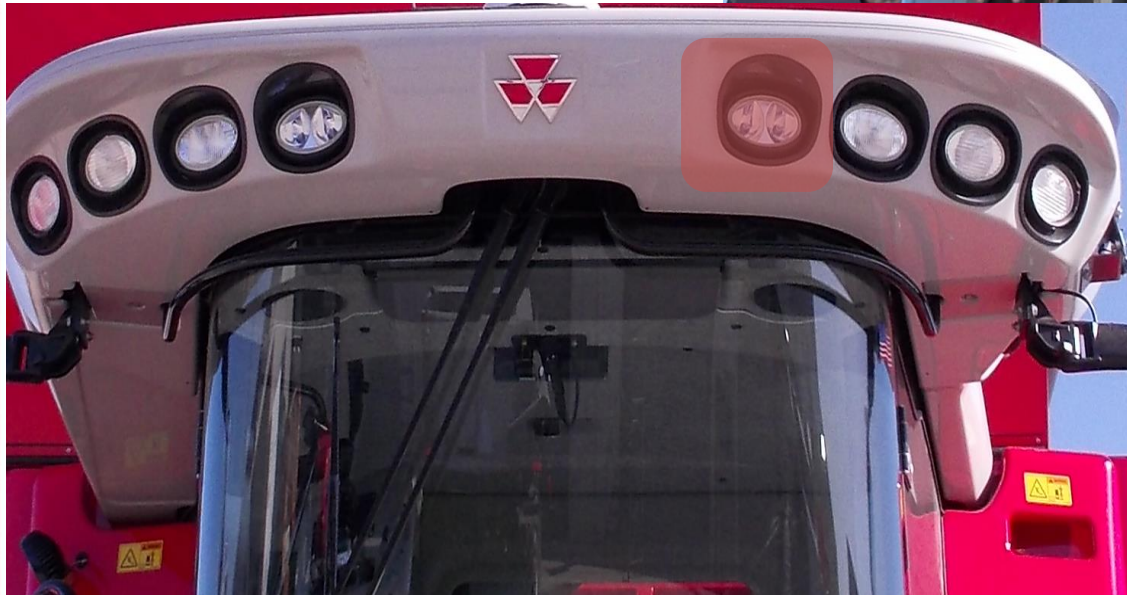


Combine Field Install (700958757, 700958758,  
71446404, 71446405)

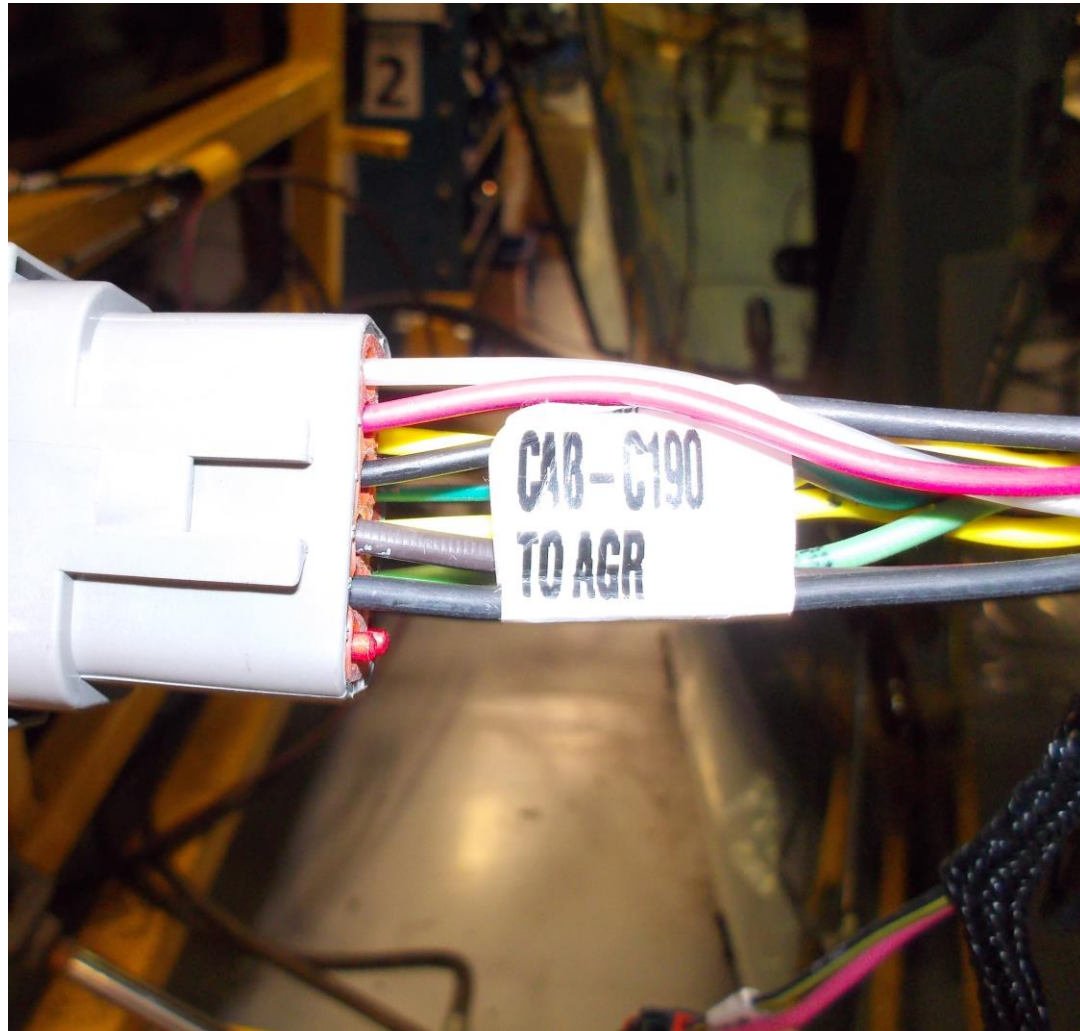


Connecting your farm enterprise like never before

# Combine Field Install



# Combine Field Install





# Combine Field Install

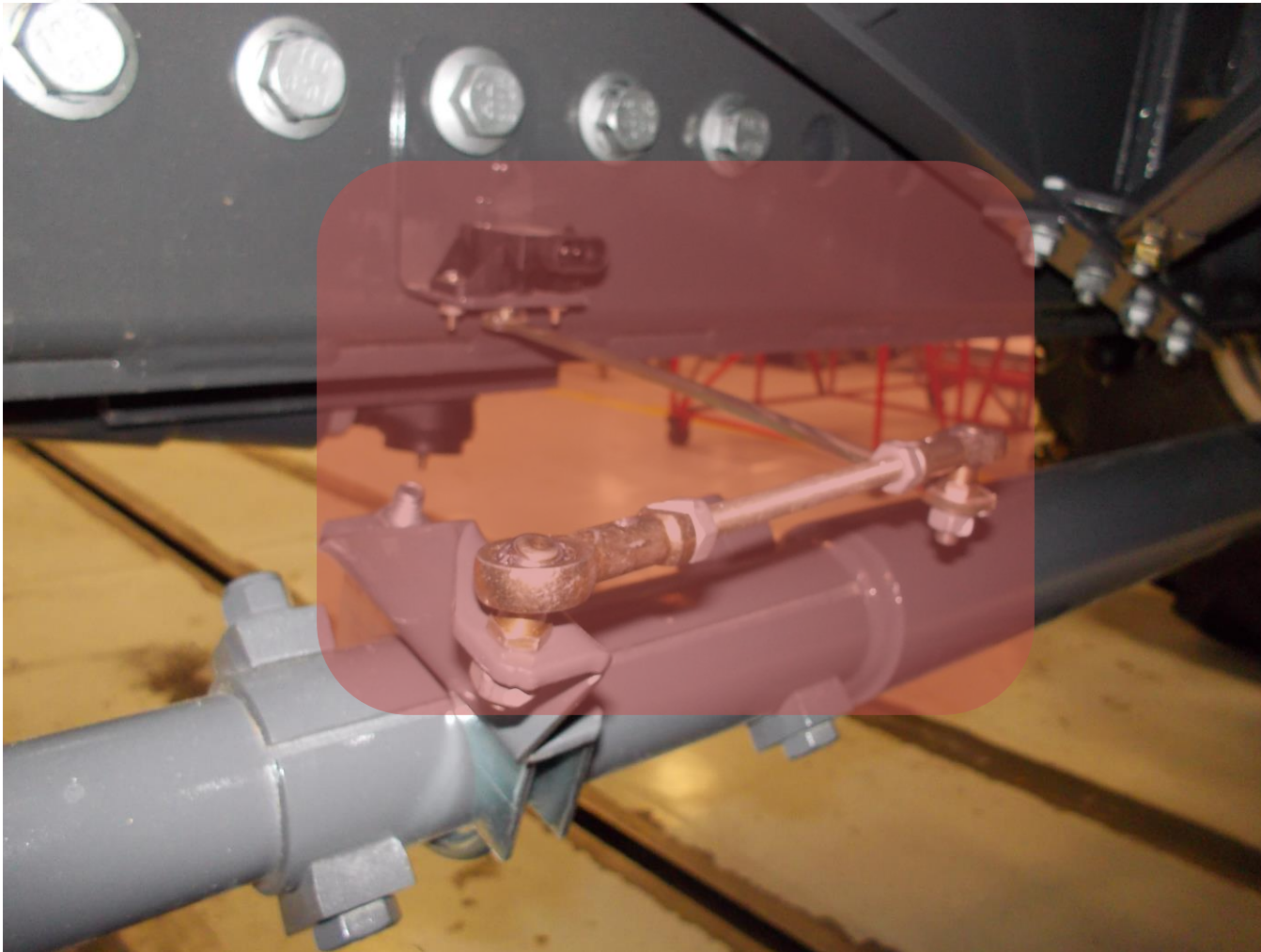




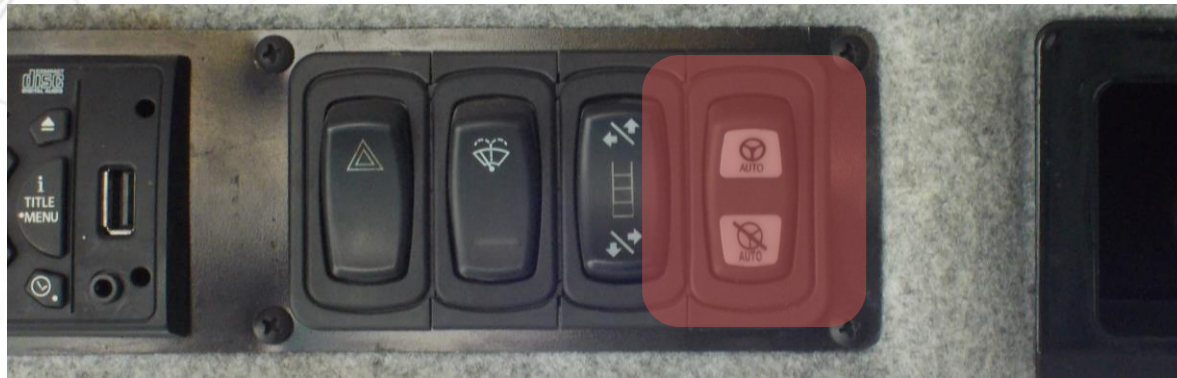
# Combine Field Install



# Combine Field Install



# Combine Field Install





# Combine Field Install





# Combine Field Install



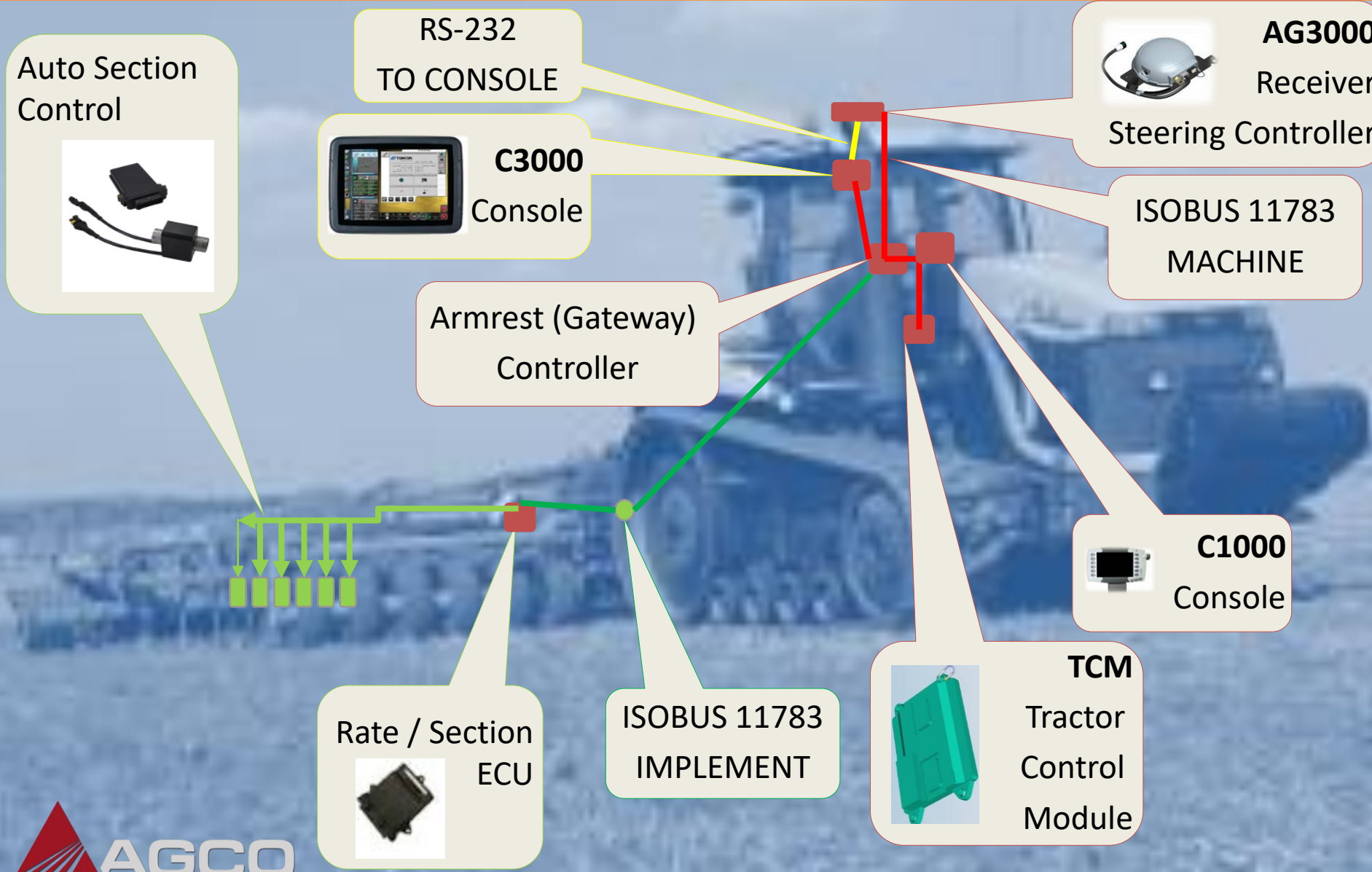
# Auto-Guide 3000 Installation



Main components  
necessary on the  
tractor:

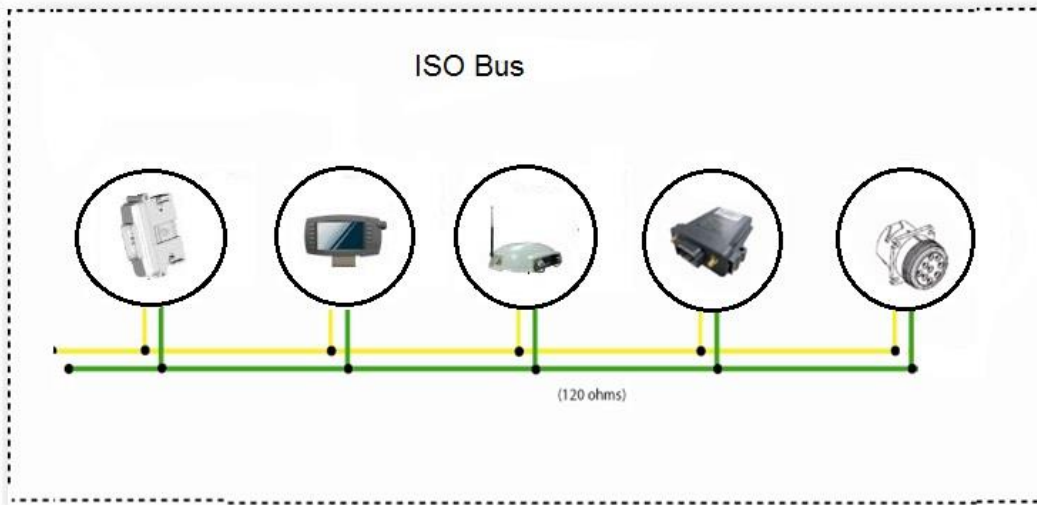
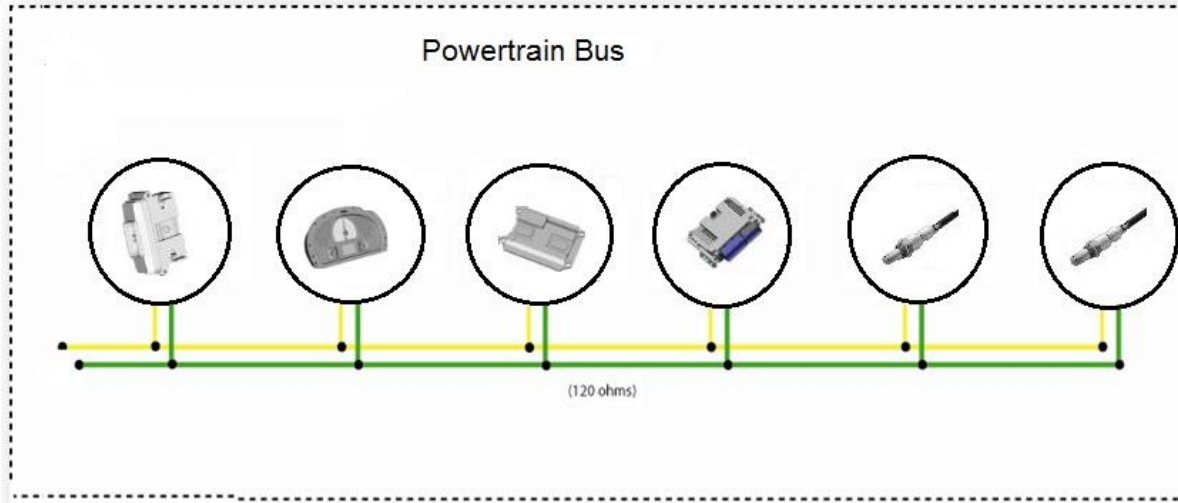
1. AGI-4 TopDock
2. Transmission Controller
3. C1000 and/or C3000 Console
4. Power Switch

# Guidance - Track



# Electrical Architecture

The Steering Sub-System is connected on the Powertrain Bus

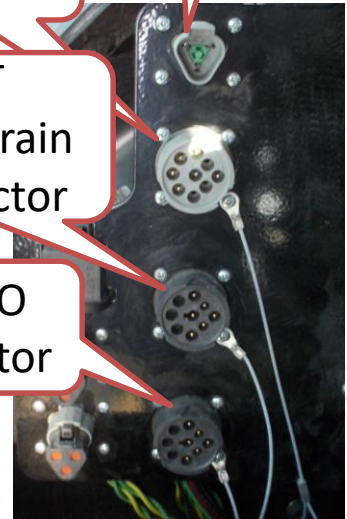


RS232 Connector

Cat ET Connector

EDT Powertrain Connector

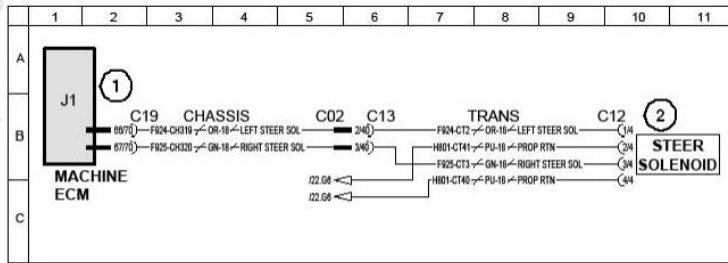
EDT ISO Connector



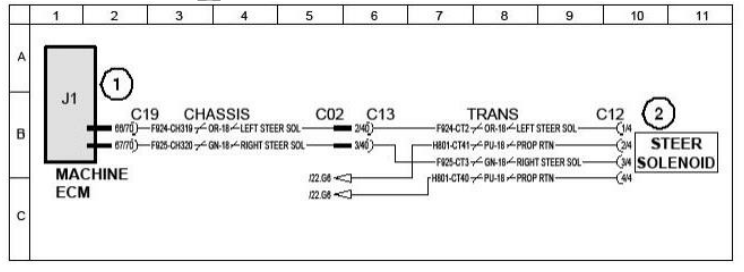




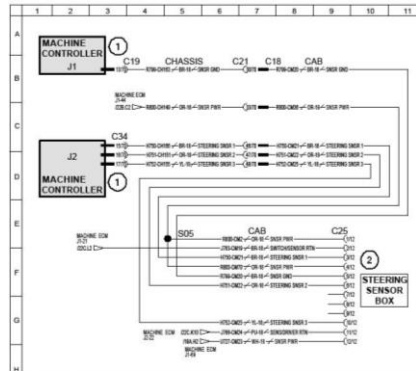
# Wiring Harness (Steer Solenoids, Steering Wheel Sensor)



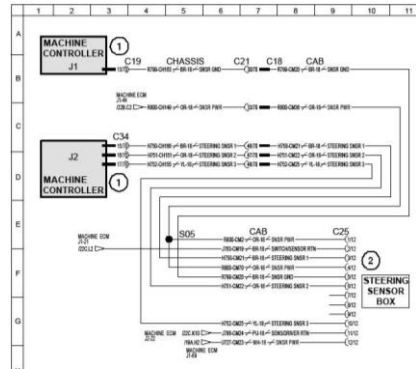
Right Steer Solenoid



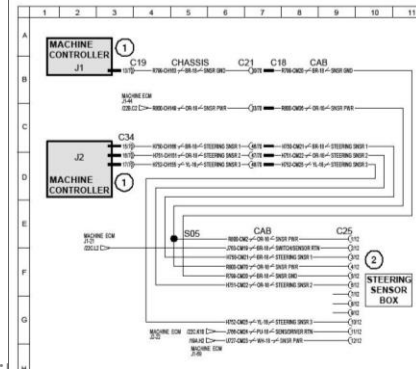
Left Steer Solenoid



Steering Wheel Sensor 1

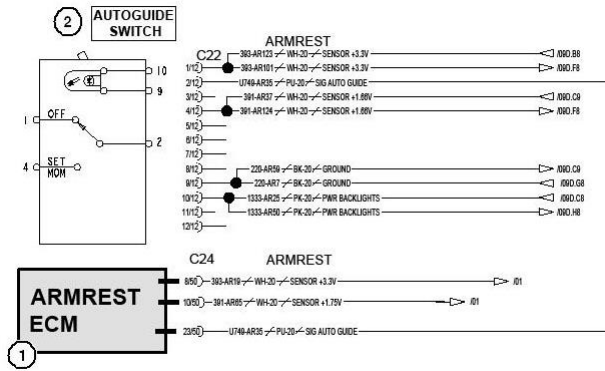


Steering Wheel Sensor 2

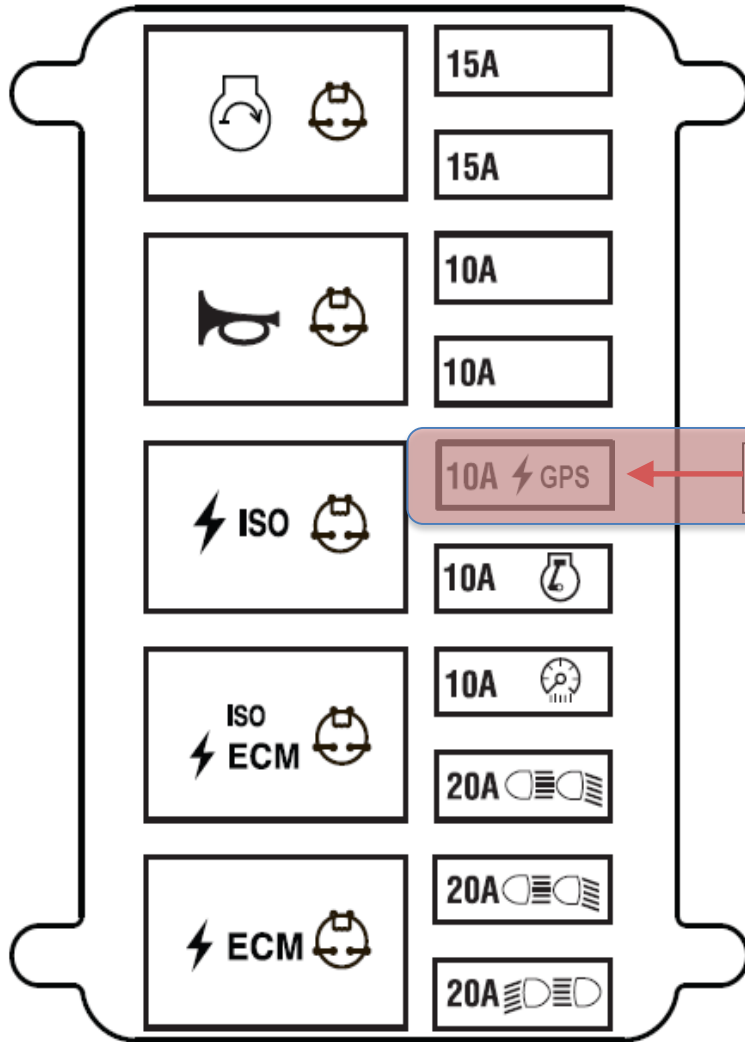


Steering Wheel Sensor 3

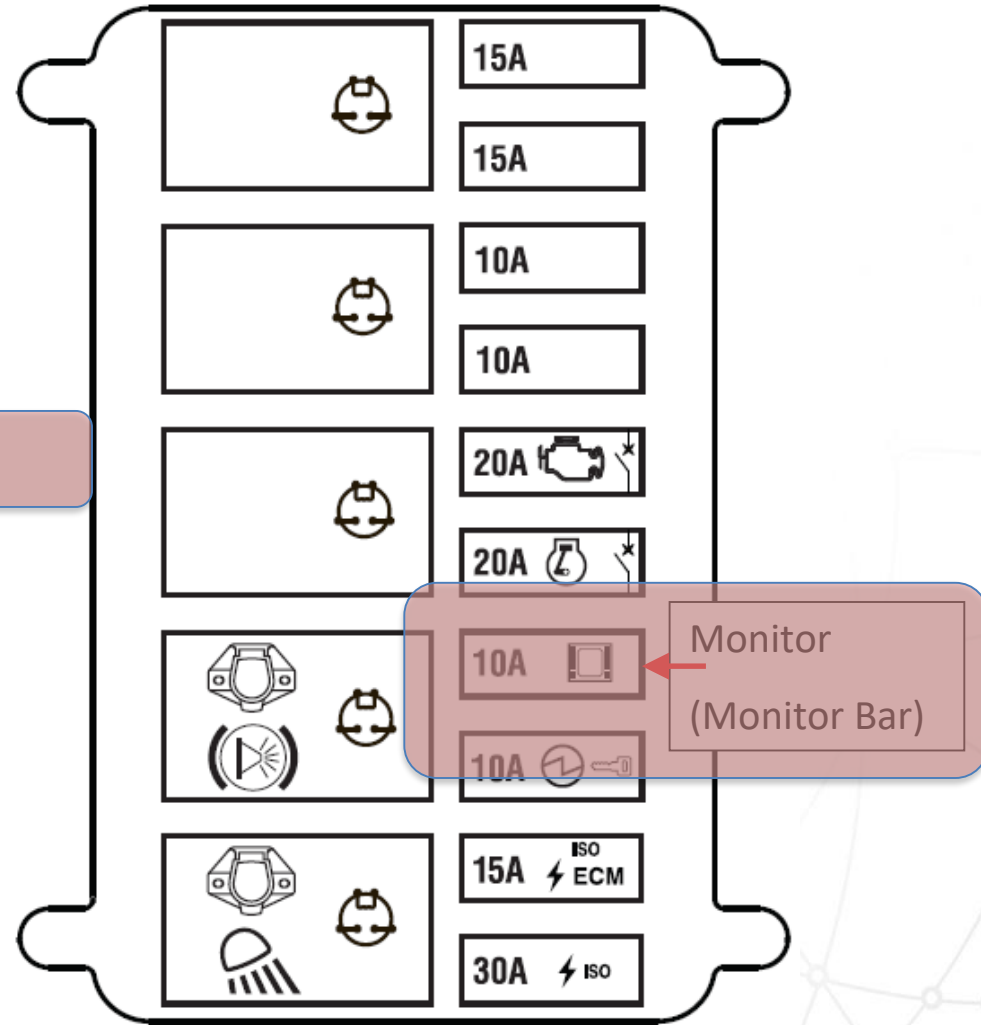
# Guidance Engage Switch (Remote Engage)



# Fuse/Relay Block 1



# Fuse/Relay Block 2





# Electrical Architecture

All CAN resistances test should be done with main battery switch in open position.

To be sure that the main battery switch is in open position, place the key switch in OFF position.



## TopDock Keep Alive :

The functioning of the keep alive is to maintain power to the TopDock (30 minutes) when the key switch is fitted in OFF position.

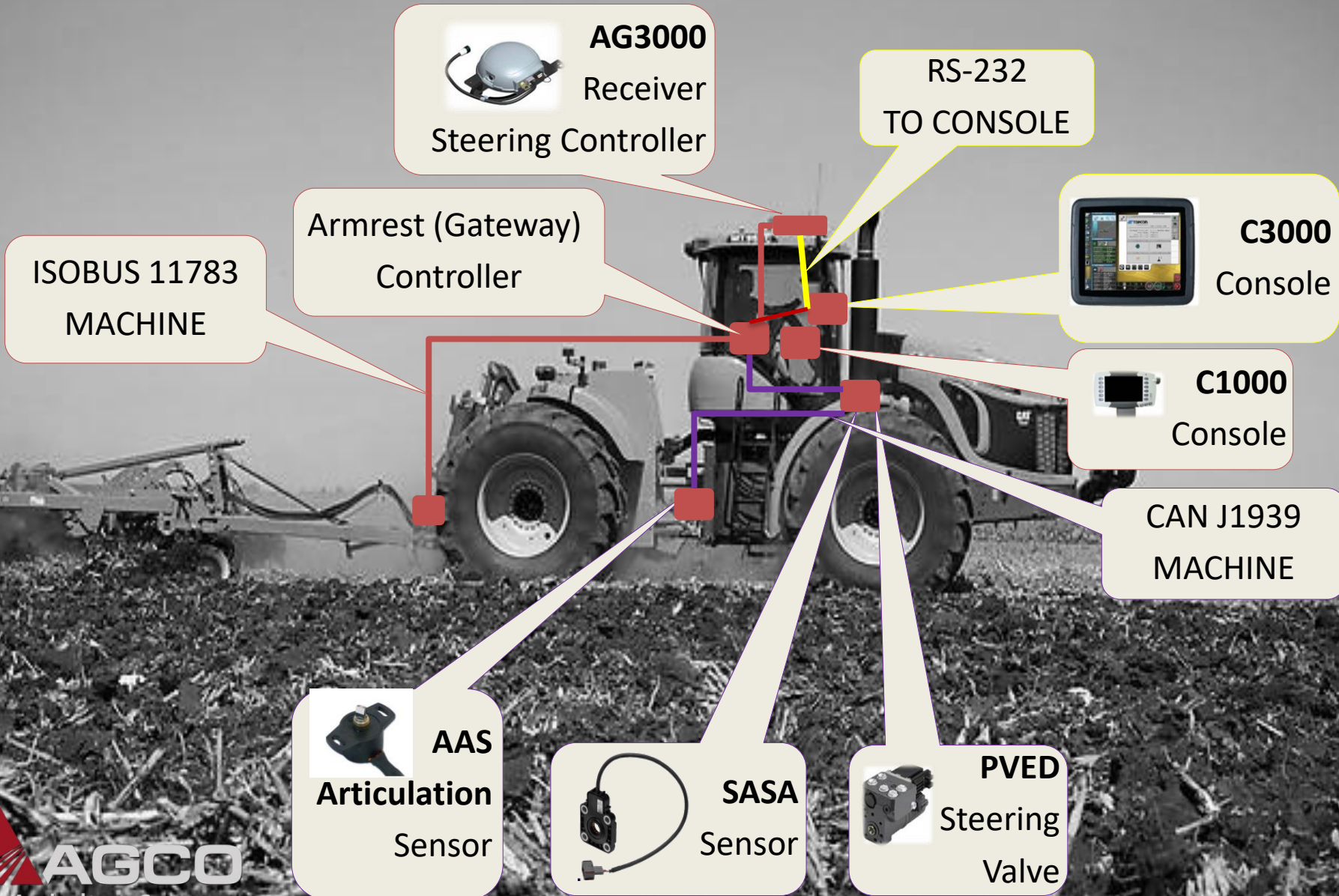
# Auto-Guide 3000 Installation



Main components  
necessary on the  
combine:

1. AGI-4 TopDock
2. C1000 and/or C3000 Console
3. SASA Sensor
4. Steering Unit
5. Articulation Angle Sensor
6. Power Switch

# Guidance Articulated





# Articulation Sensor (Articulated Tractor)

## ARTICULATION ANGLE SENSOR “AAS”

The articulation angle sensor is a potentiometer

The Voltage supply is 5 volts

The operating range is 0.5-4.5 volts

It has a 120 degree range of arc

It has a resolution of approximately 0.1 degree

Typical wheel angle sensor range

Left: 800 (.5Vdc)

Center: 500 (2.5Vdc)

Right: 200 (4.5Vdc)

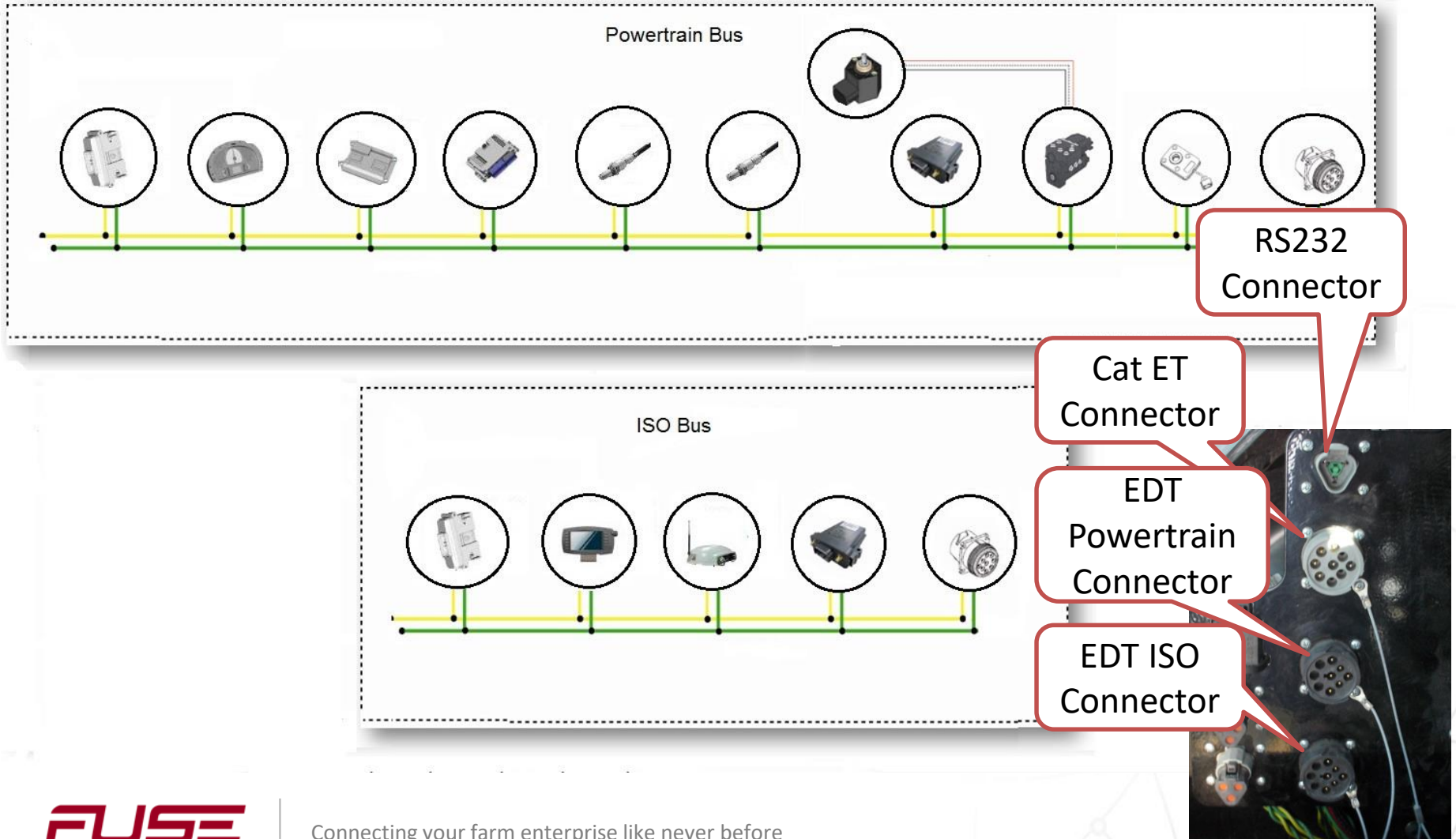
The AAS is normally located “within” the articulation joint on all articulated tractors.



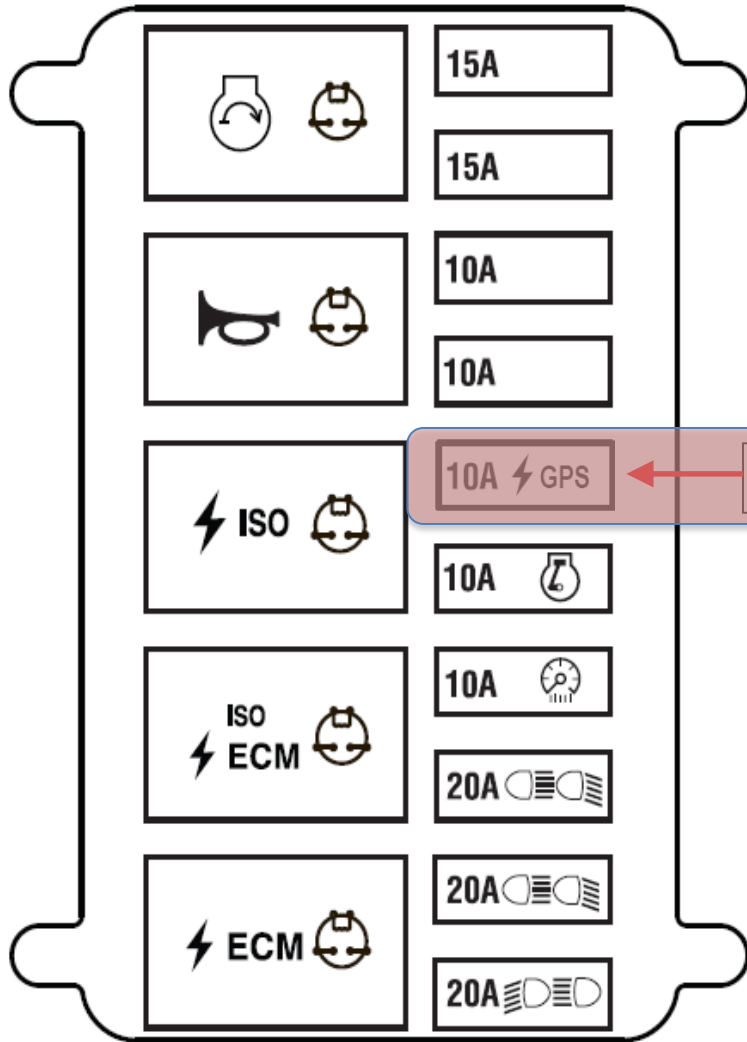


# Electrical Architecture

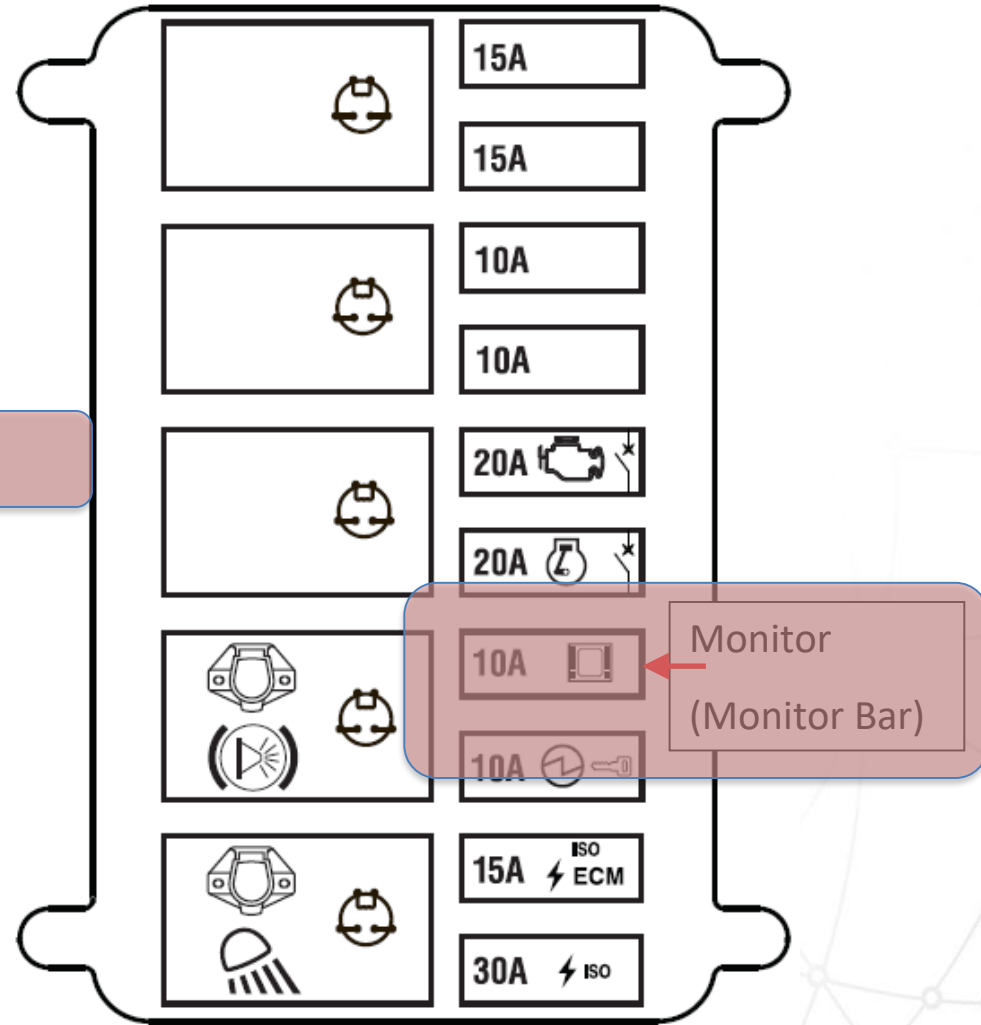
The Steering Sub-System is connected on the Powertrain Bus



# Fuse/Relay Block 1



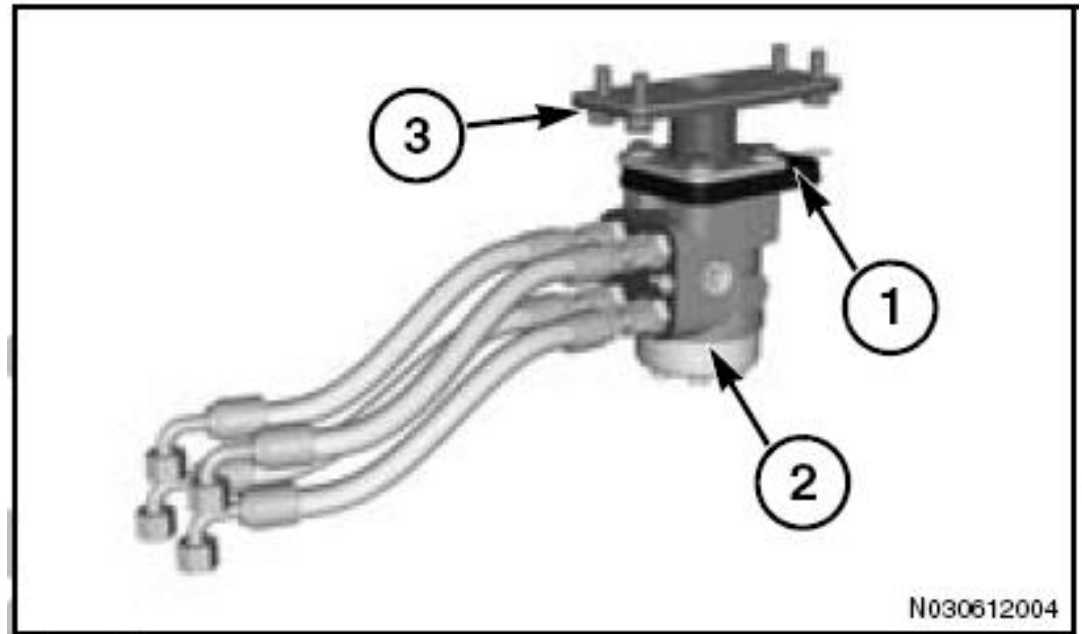
# Fuse/Relay Block 2



# Steering Orbital/Motor

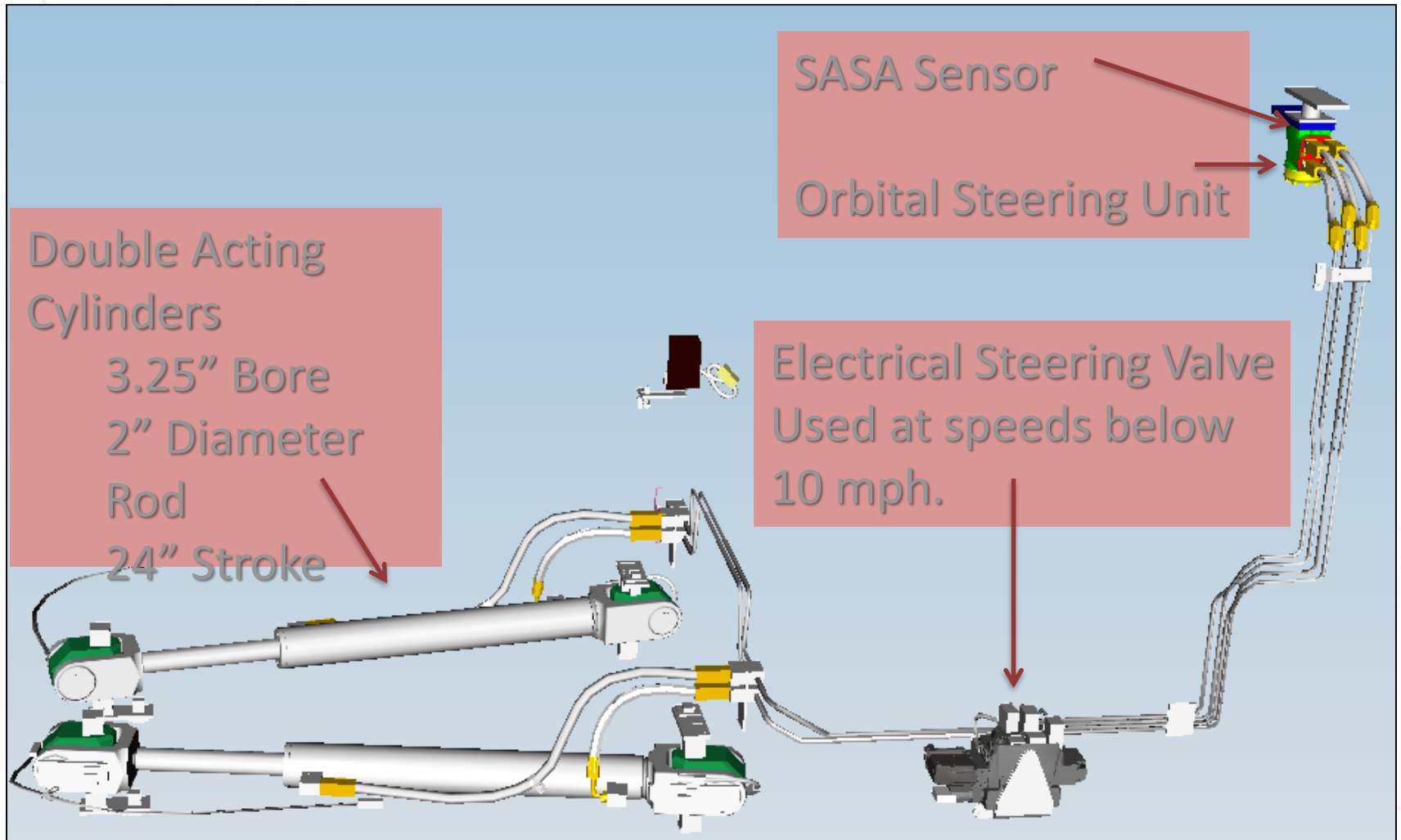
Bolted to the bottom of  
the cab

Splined to the steering  
column



1. Steering Angle Sensor (SASA Sensor)
2. Orbital Steering Unit
3. Mounting Bracket

# Steering System Components





# Electrical Architecture



All CAN resistances test should be done with main battery switch in open position.

To be sure that the main battery switch is in open position, place the key switch in OFF position.

# Electrical Architecture

## **TopDock Keep Alive :**

The functioning of the keep alive is to maintain power to the TopDock (30 minutes) when the key switch is fitted in OFF position.

This keep alive is overruled by the main battery disconnect switch.



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Features of Auto Guide 3000 & Agcommand on Windrower & LSB



# Does Technology PAY?

Increased productivity

Quality of Product

Information that's helps for better management

Better Performance



# Increased productivity

## Faster Cutting Speeds

Able to cut at faster speeds and get more acres per day.

# Cutting Speed

16' cutter head cuts 1.92 acres per mile an hour

Difference of cutting at 12 mph and 17 mph = 9.6 acres per hr. or 30% increased production

10 hr. day = 96 acres

Cost of Savings

How much does it cost to operate a Windrower?



# Quality of Product

Straighter operation give more even windrow

This allows more constant drying time

Savings in overlap and excessive operation



# Handling the Stress of Multitasking

Gives the operator more time to concentrate on other operations

By the end of the day a the operator is less worn out.

Gives them the ability to do a better job





# Technology price pages

## SP Windrowers (WR Series)

1. ACZ000039PC - AUTO-GUIDE 3000 SubMeter Steering System (uses vehicle terminal, C1000)
2. 700960387C - AUTO-GUIDE 3000 Installation Kit

# Technology price pages

## **AUTO-GUIDE 3000 - Submeter Only**

Available to receive WAAS or Omni STAR VBS correction signal  
(VBS requires annual Subscription from Omni STAR)

**ACZ000039PC** AUTO-GUIDE 3000 Submeter System . . 00M5005  
\$6,500.00

# Technology price pages

## **AUTO-GUIDE 3000 - Decimeter Upgrade**

Add to ACZ000039PM to make AUTO-GUIDE 3000 Submeter System able to accept Omni STAR XP and HP correction signals with subscription from Omni STAR

**ACZ000038PC** AUTO-GUIDE 3000 Decimeter Snap-in module . .  
. . . . 00C1693      \$2,199.00

# Technology price pages

## **AUTO-GUIDE 3000 - Centimeter Upgrade**

Add to ACZ000039PM to make AUTO-GUIDE 3000 Submeter System along with ACZ000038PM - AUTO-GUIDE 3000 Decimeter Snap-in module, to make AUTO-GUIDE 3000 able to use RTK Base Station (Listed Below) and some CORS Networks

**ACZ000062PC** AUTO-GUIDE 3000 Centimeter Snap-in module . .  
..... 27C3119                      \$4,051.00



# Install Info

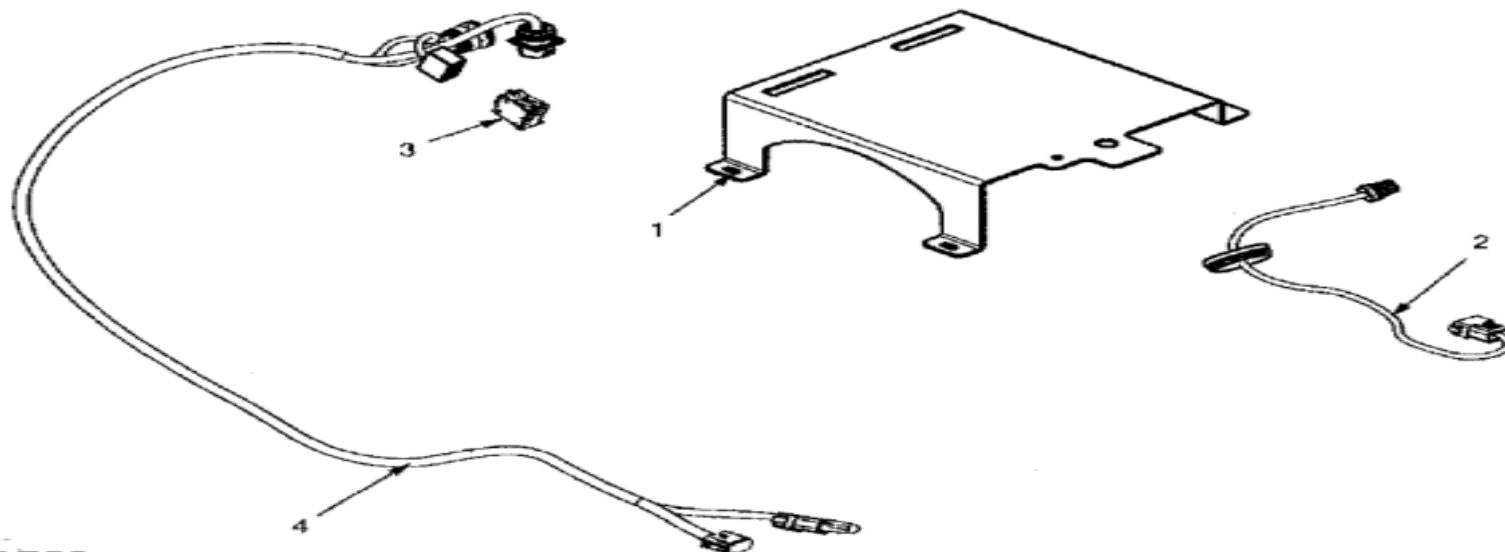
The 700960387 field installed kit has all the parts needed to install the AG3000 on any wide cab WR9700 machine. (There's a different kit for narrow cab machines.)

The mounting brackets are the same as for the System 150 but the harness and switch must be installed in the headliner.

The two harnesses involved are 700743763 (under the roof) and 700743760 (through the roof).

# WR9770 WINDROWER TRACTOR AG3000 AUTOGUIDE INSTALLATION KIT

700960387-0



## Challenger

### WR9770 WINDROWER TRACTOR

00738204

### AG3000 AUTOGUIDE INSTALLATION KIT

Page08-0019

Item	Part Number	Qty	Description Comments	Technical Specification
	700960387	1	AG3000 INSTALLATION KIT	
1	700175911	1	AG2 MOUNT	
2	700743760	1	WIRE HARNESS	24.370"
3	72571047	1	AUTOGUIDE ROCKER SWITCH	
4	700743763	1	WIRE HARNESS	83.307"

# Auto-Guide 3000 Installation



Main components  
necessary on the  
swather:

1. AGI-4 TopDock
2. C1000 Console
3. Power Switch

# Guidance Self Propelled Hay

ISOBUS 11783  
MACHINE

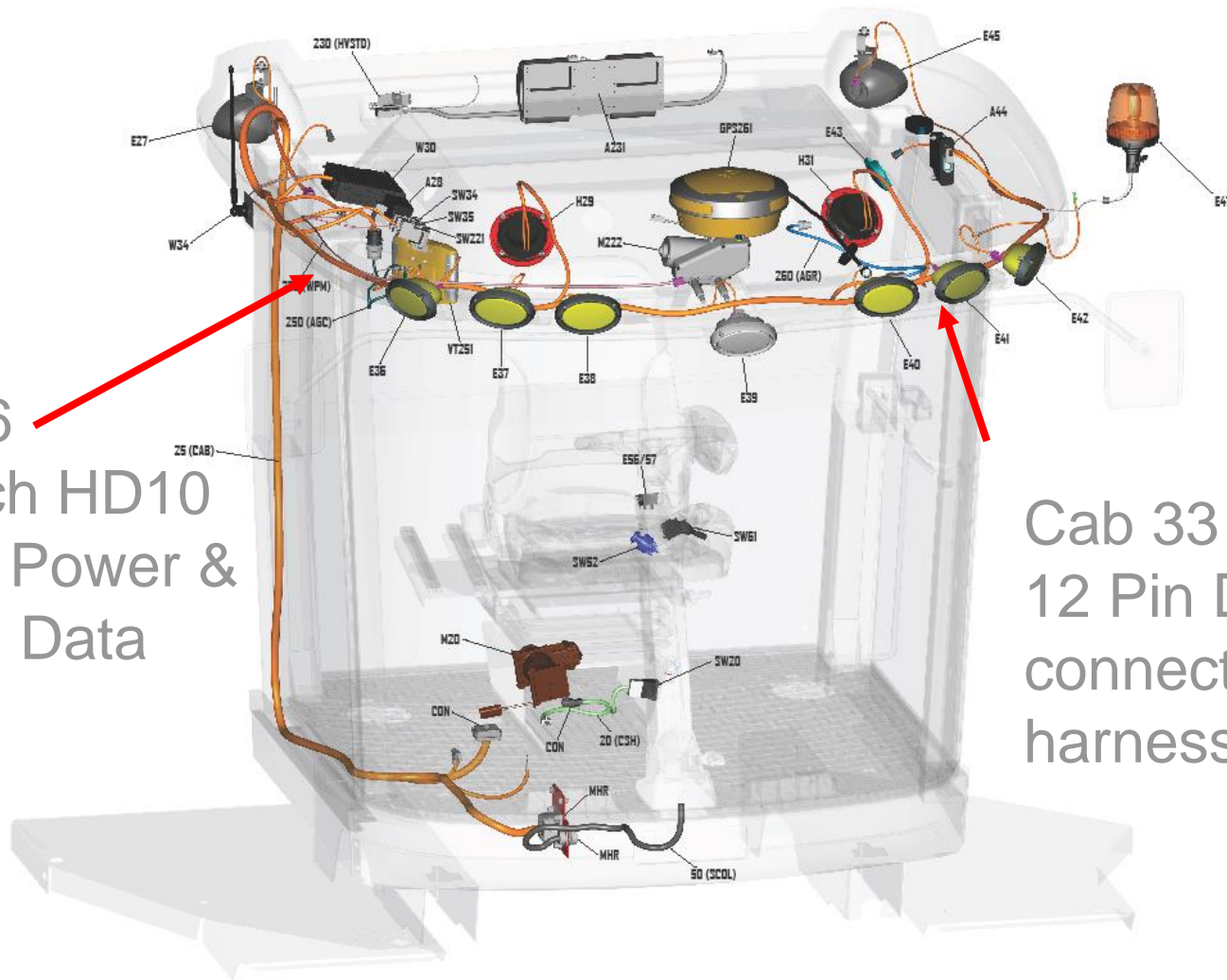
 **AG3000**  
Receiver  
Steering Controller

 **C1000**  
Console

 **VMM**  
Steering  
Module



# Wiring Harness



Cab 46  
Deutsch HD10  
GX-45 Power &  
RS232 Data

Cab 33  
12 Pin Deutsch  
connects to roof  
harness

# Fuse Locations

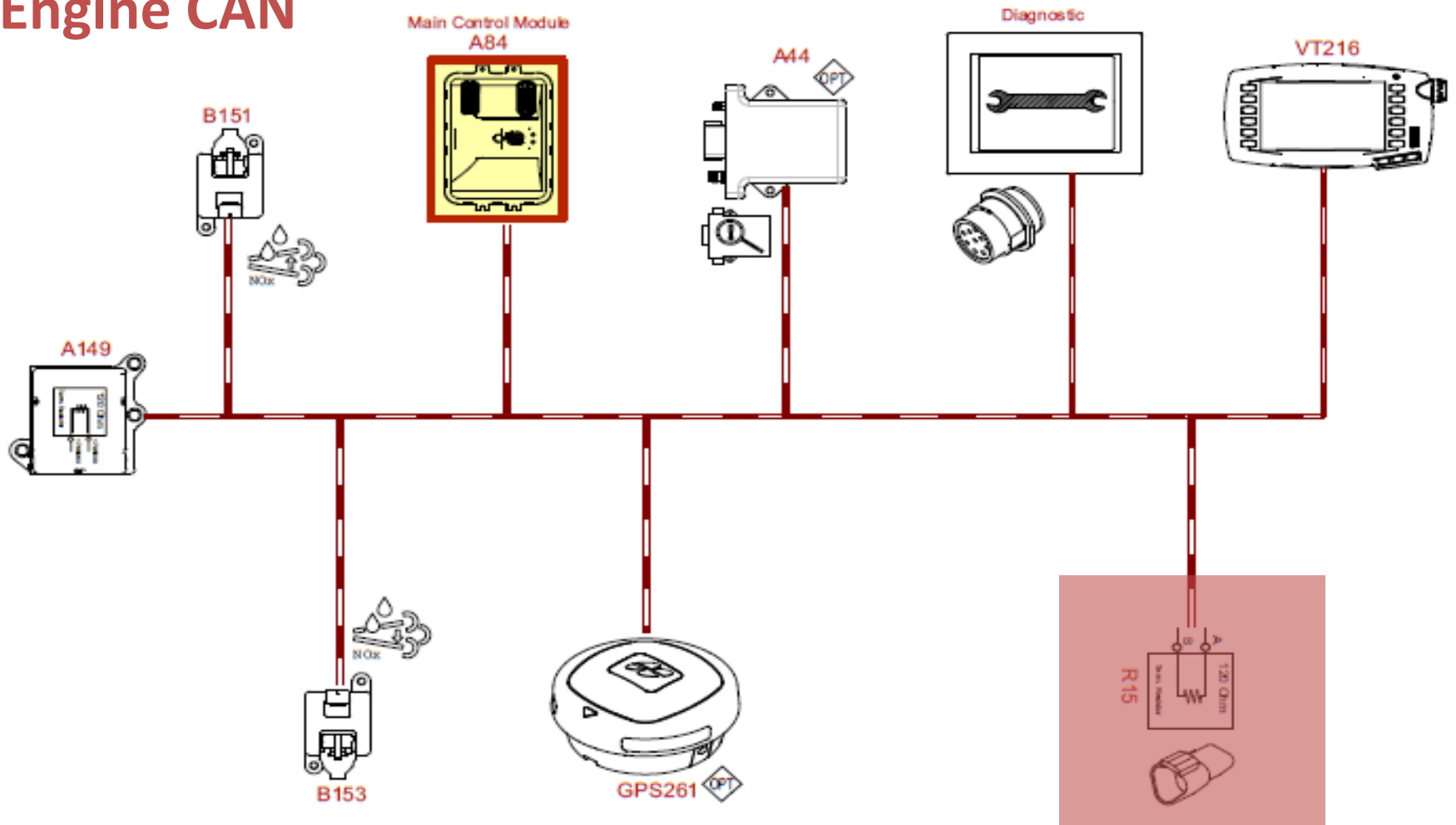
The fuse used for Auto-Guide :

F31 (5 amp): +12V  
Auto-Guide



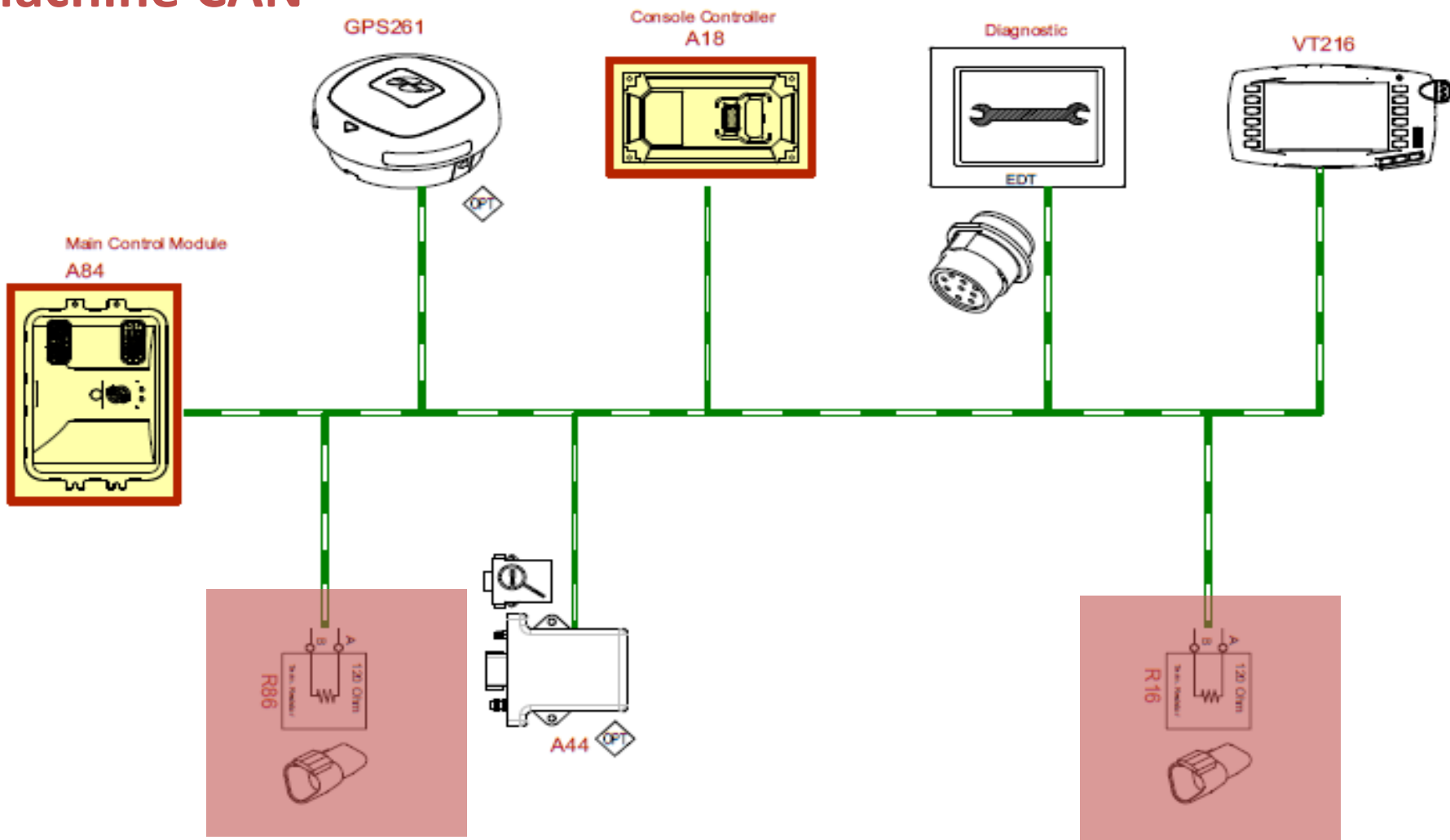
# Electrical Architecture

## Engine CAN



# Electrical Architecture

## Machine CAN





# Electrical Architecture

All CAN resistances test should be done with key removed.

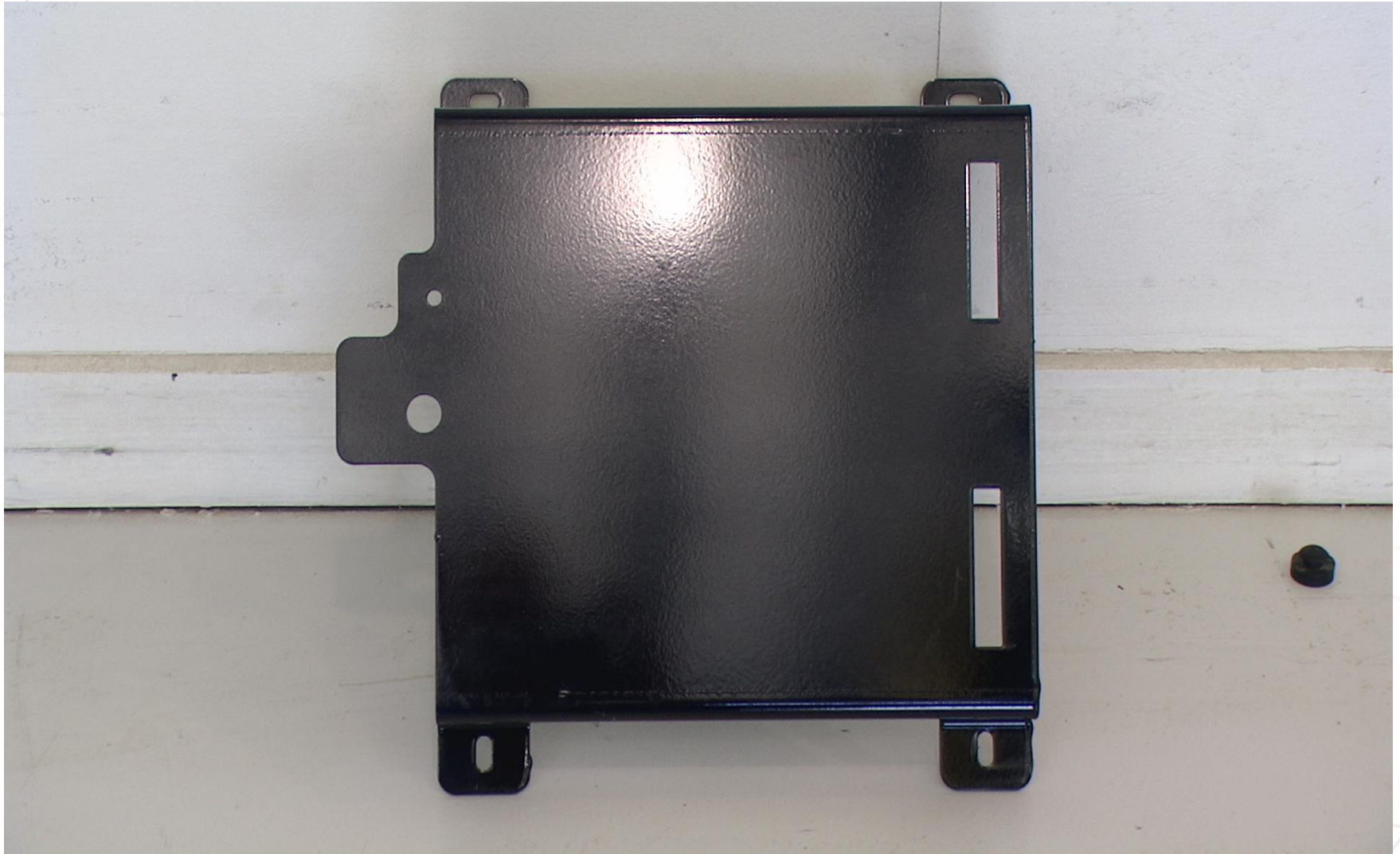
## **TopDock Keep Alive :**

The functioning of the keep alive is to maintain power to the TopDock (30 minutes) when the key switch is fitted in OFF position.

# Swather Field Install



# Swather Field Install



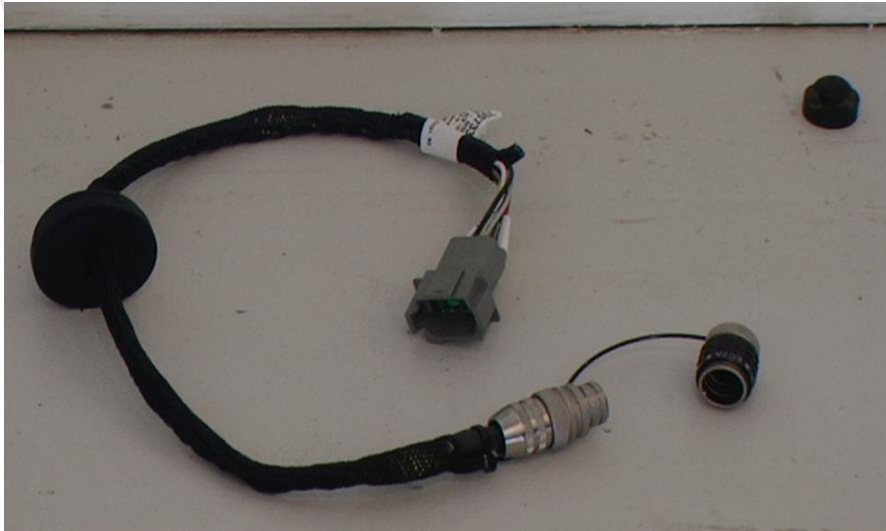


# Swather Field Install





# Swather Field Install



Roof Adapter Cable

# Swather Field Install

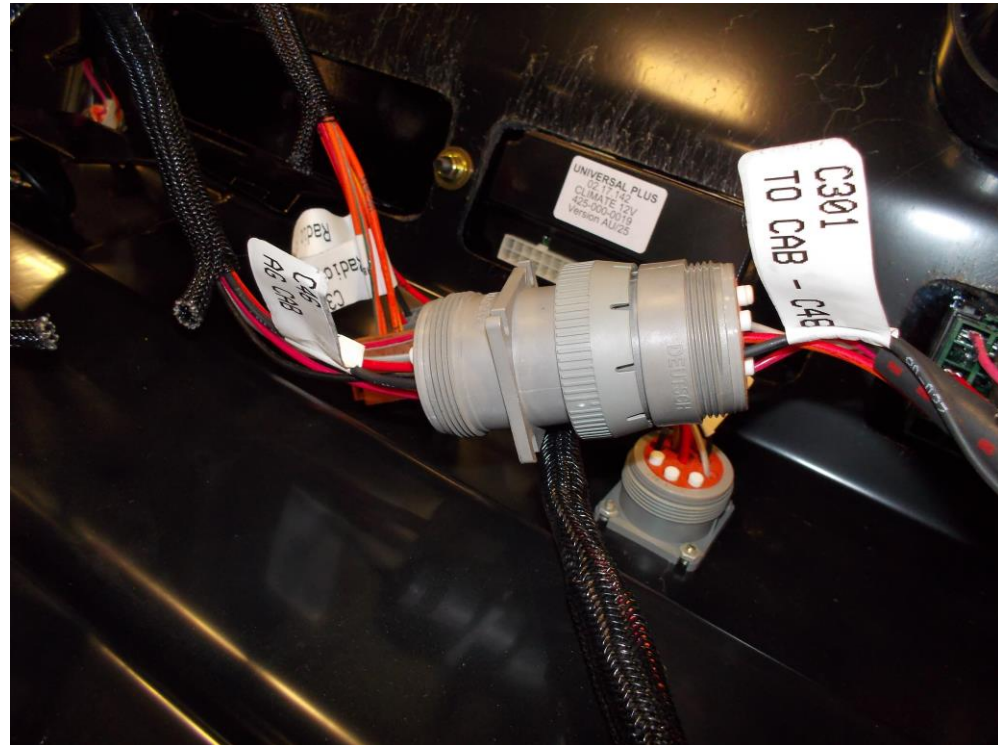
Remove Front Facing Work Light and Roof.

Connect C303 to roof adapter cable

Connect C33 to Constant Power Kit

Install Auto-Guide Switch

Connect C301 to C48



# Swather Field Install





# 2013 Swather Changes

Due to the changes of the 2013 Swather 97xx the Auto-Guide 3000 system will only work properly if the constant power kit is installed.

The Topcon System 150/350 will work with out the constant power kit as long as the Swather is Guidance Ready.

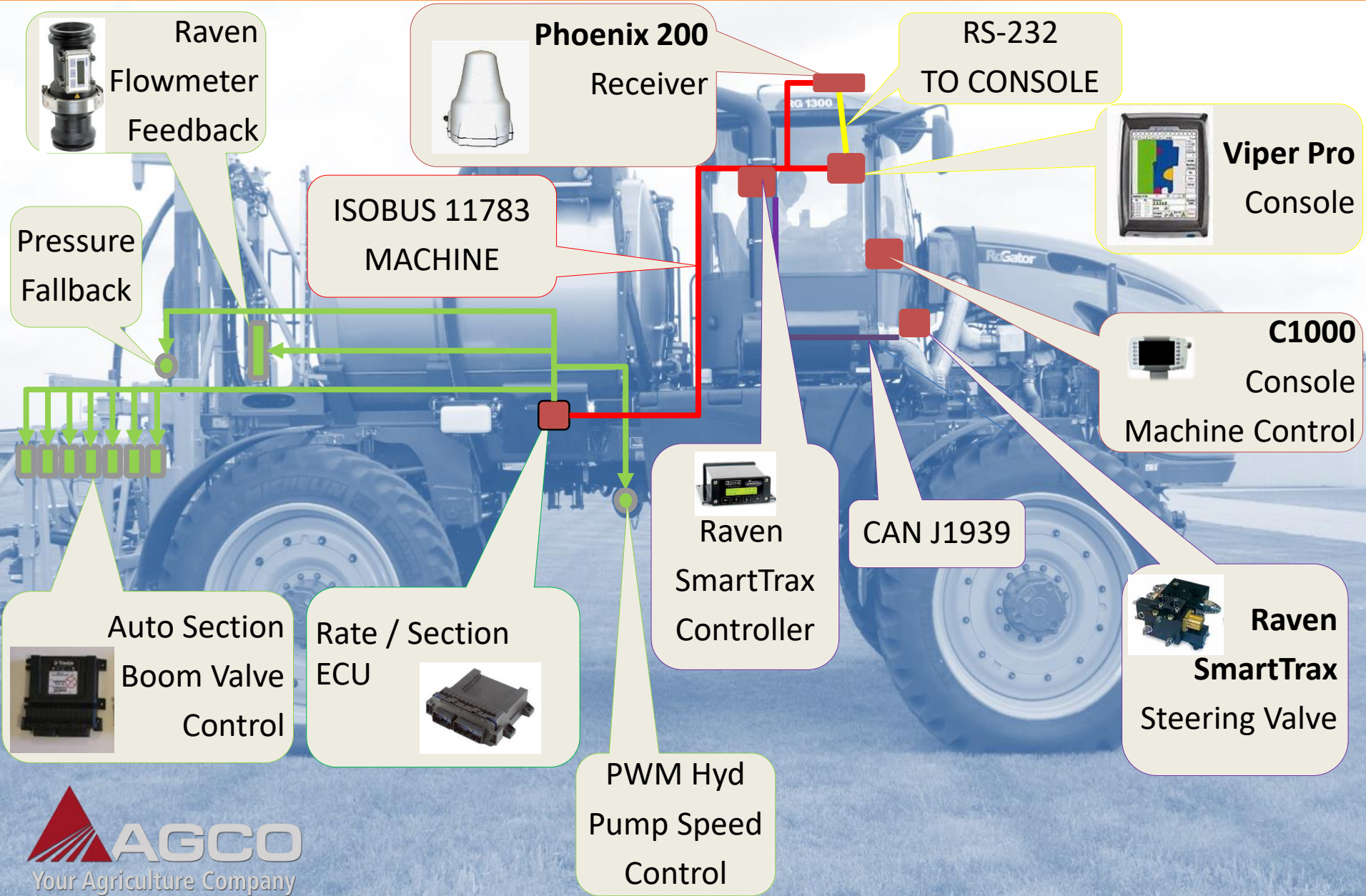
Wide Cab Kit 700960387

Narrow Cab Kit 700960388

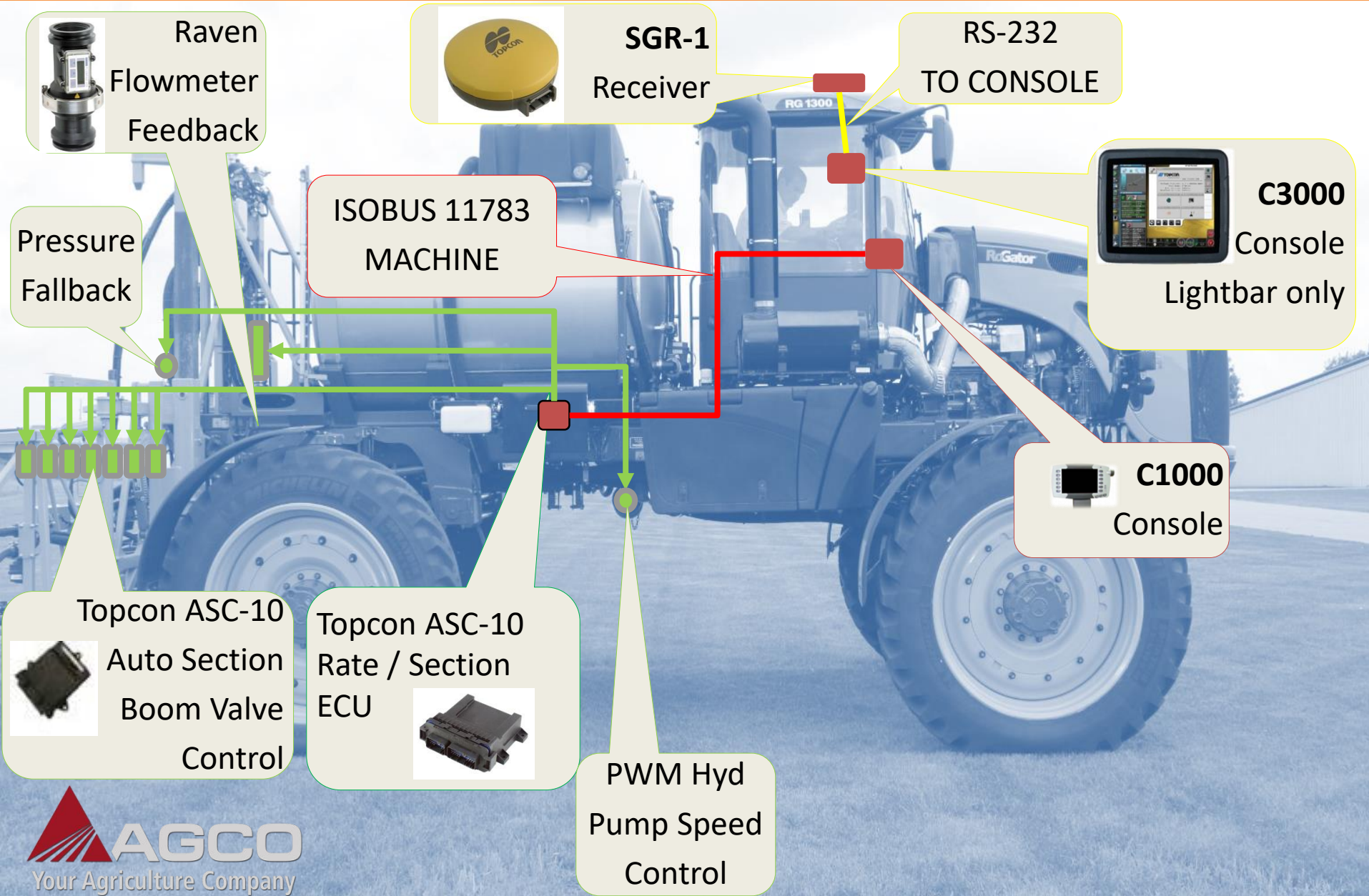




# Guidance AED (Raven)

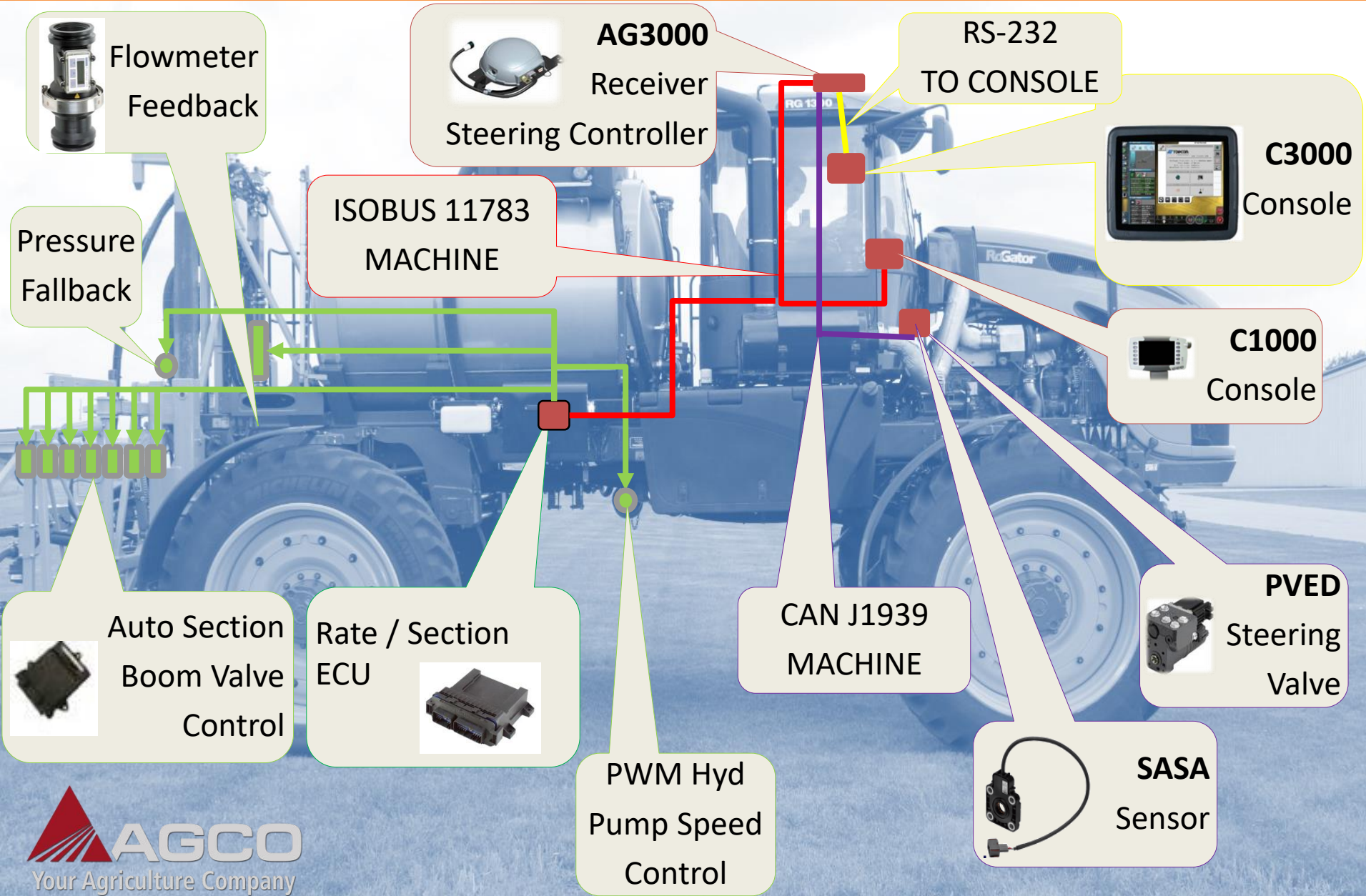


# Guidance AED (Topcon)





# Guidance AED (Auto-Guide 3000)



# Agenda

1	General Information	8	Configuration & Set-up
2	Components	9	Field Install vs. Factory Installations
3	C1000	10	Architecture and Installation
4	Configuration & Set-up	11	<b>Diagnostics and Troubleshooting</b>
5	Task Controller Setup (for mapping)	12	Base stations
6	Additional features	13	RTK - Radio vs. Cellular
7	C3000	14	AGCOMAND





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## Troubleshooting



# Steering Valve Status

**Inactive:** No electric power

**Green:** The PVED controls the spool movement inside the valve.

**Yellow:** The magnetic valves are temporary disabled due to the power saving feature or until the PVED is operated. The magnetic valves can also permanently be disabled due to a major fault in the PVED or wrong signal reception. The CAN bus communication is still operational for diagnostics according to protocol definition. The spool position control is disabled.

**Red:** The PVED has detected a critical fault or inconsistency and has executed a “failed silent” procedure. The spool position controller (Magnetic valves) is disabled. CAN is disabled for diagnostics.



# SASA Sensor

Sauer part number 11041600 - No terminator

11041601 - 120  $\Omega$  CAN terminator

12 volt supply

Raw signal values;

0 = 0 degrees

4095 = 359,912 degrees

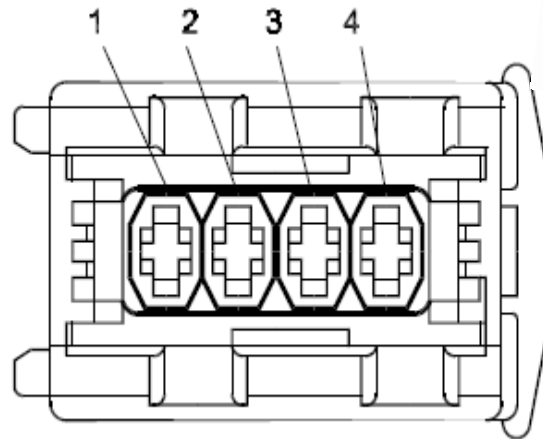
(360 degrees, one rotation of the steering wheel)

Pin 1 CAN-Low

Pin 2 +supply voltage

Pin 3 Gnd

Pin 4 CAN-High





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## Electronic Diagnostic Tool

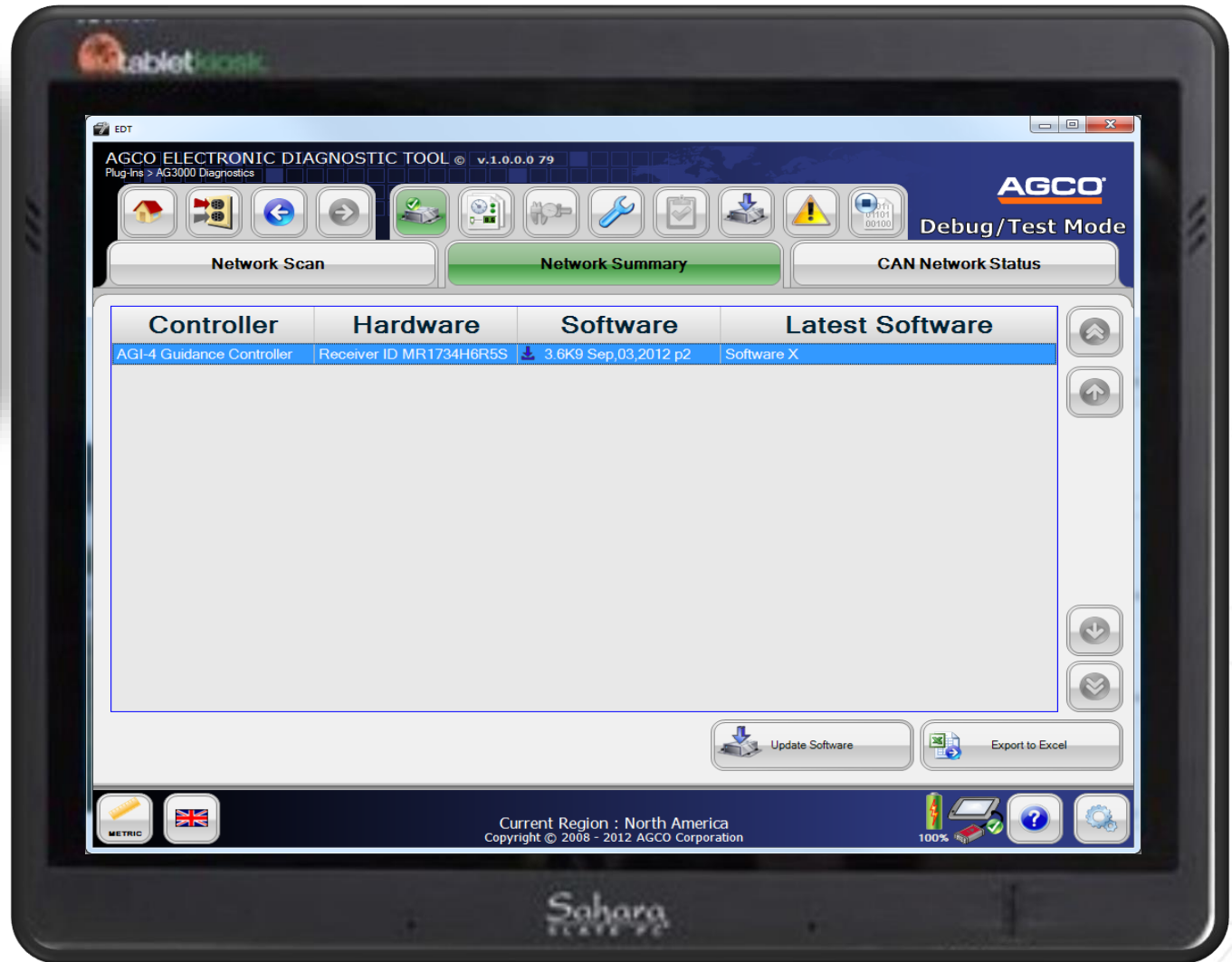




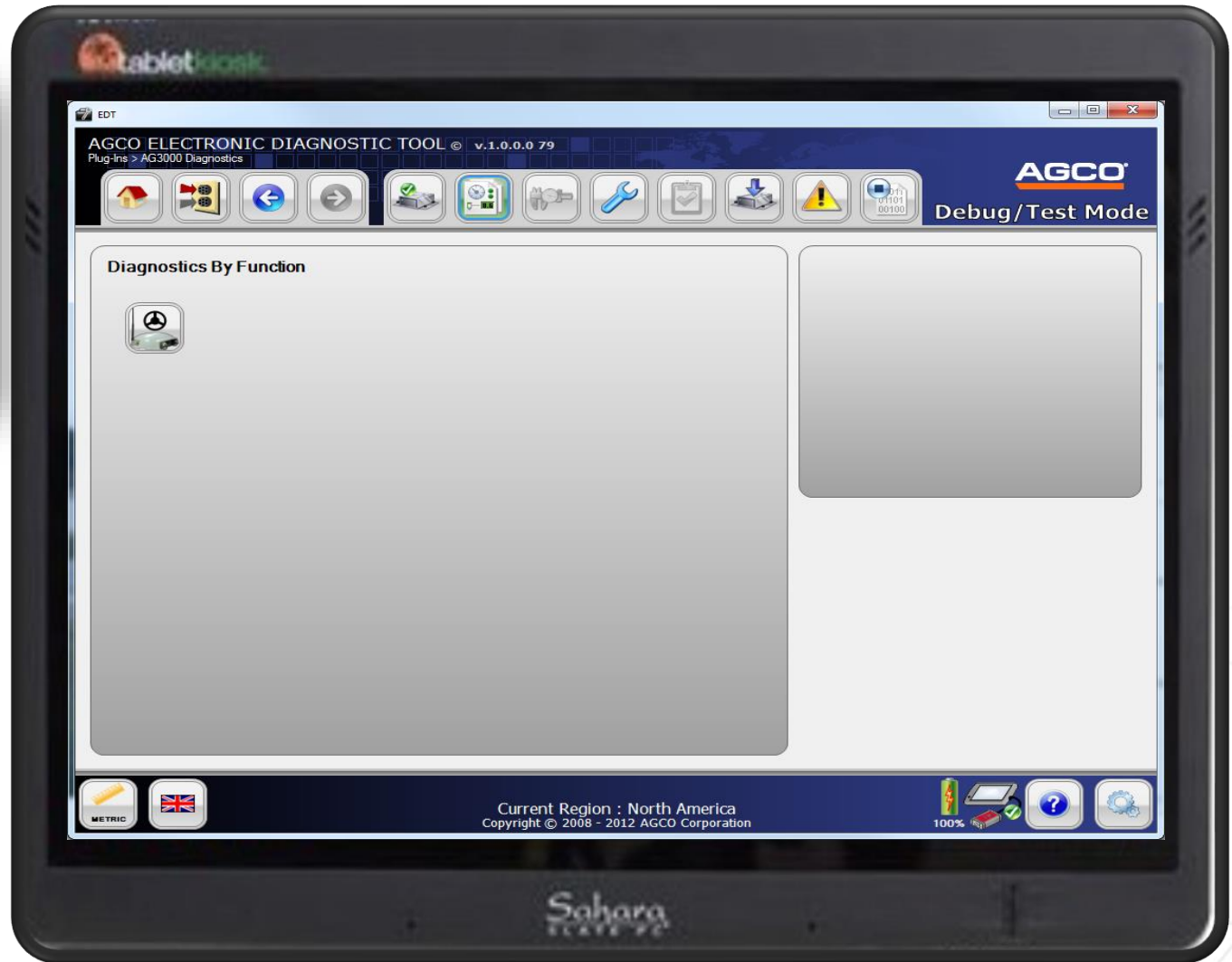
# Electronic Diagnostic Tool



# Electronic Diagnostic Tool



# Electronic Diagnostic Tool



# Electronic Diagnostic Tool



AGCO ELECTRONIC DIAGNOSTIC TOOL v.1.0.0.0 79  
Plug-ins > AG3000 Diagnostics

AGCO Debug/Test Mode

Graphical Diagnostics | Diagnostics Summary | Diagnostics Reporting

SKY PLOT

Sat	Signal	Sat Type	Status
3	44	GPS	Healthy
14	38	GPS	Healthy
24	41	GPS	Healthy
26	33	GPS	Healthy
133	39	Correction	Healthy
29	29	GPS	Unhealthy
135	43	Correction	Healthy
138	44	Correction	Healthy
9	44	GPS	Healthy
21	39	GPS	Healthy

POSITION QUALITY

GNSS Position Quality  
HDOP: 0.75

Correction Signal Quality  
Signal: 39

Corr. Source: WAAS

Position Accuracy  
Horizontal RMS: 36.0 cm

GNSS Antenna Mode: Internal

Guidance System: GNSS Diagnostics



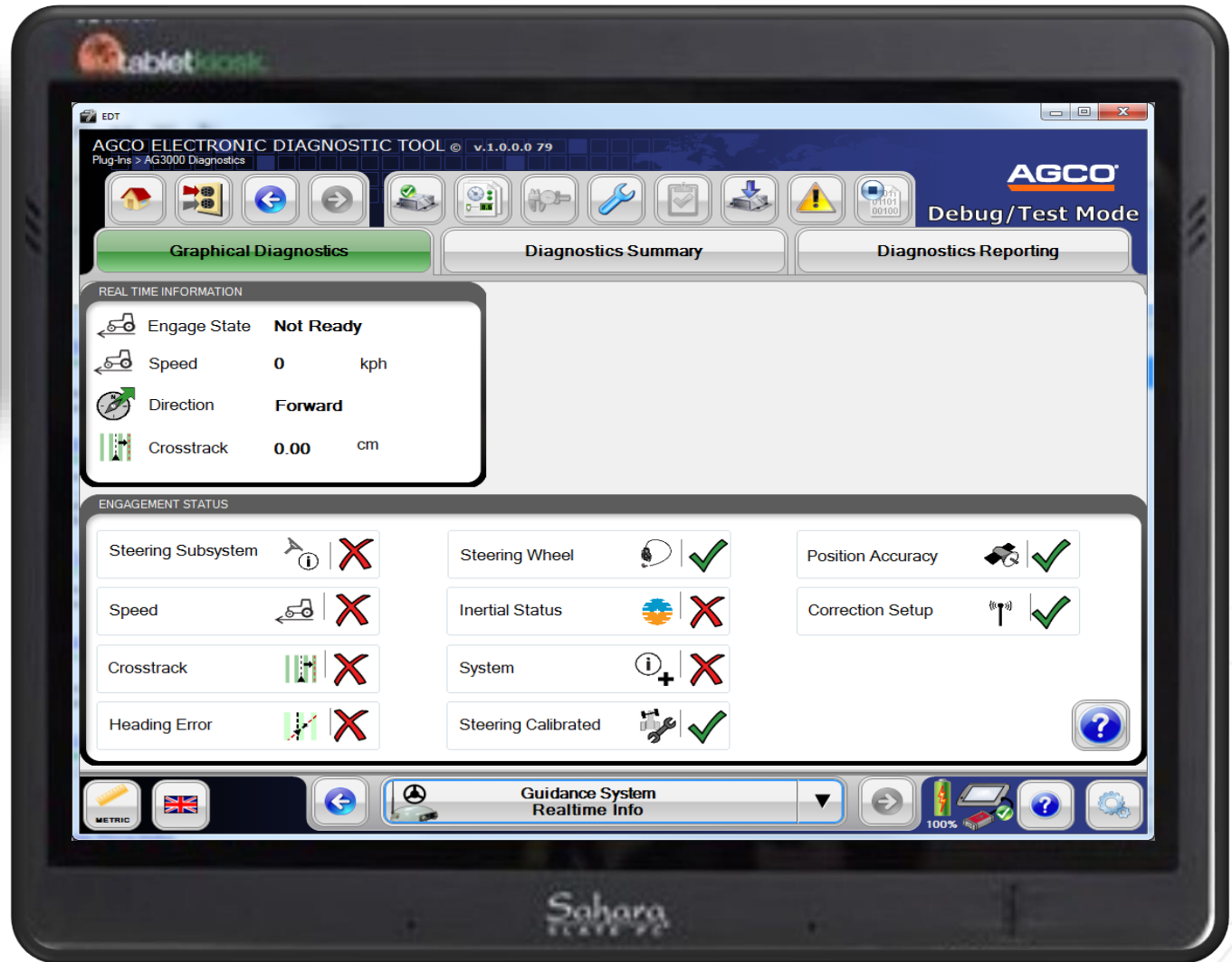
# Electronic Diagnostic Tool



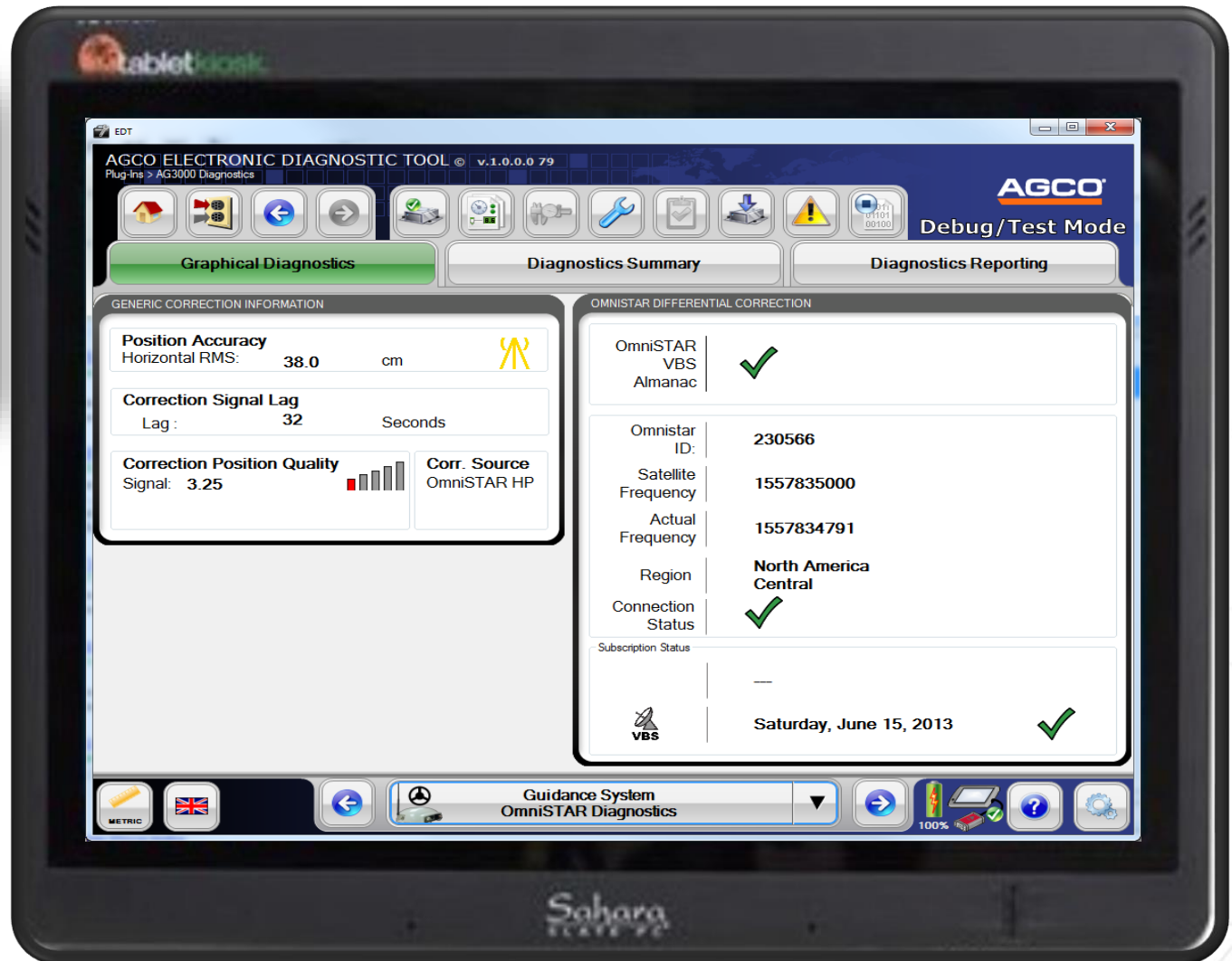
# Electronic Diagnostic Tool



# Electronic Diagnostic Tool



# Electronic Diagnostic Tool

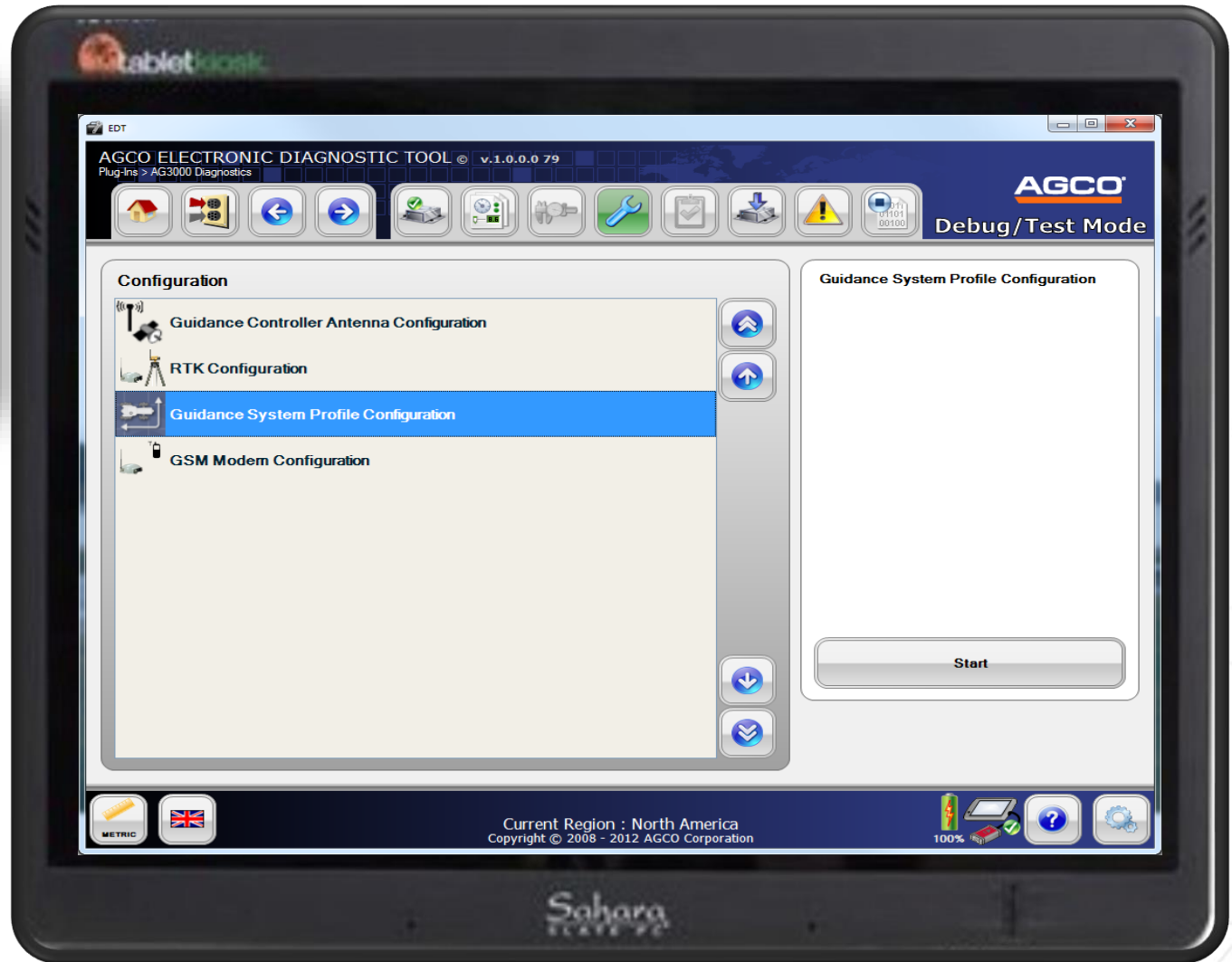




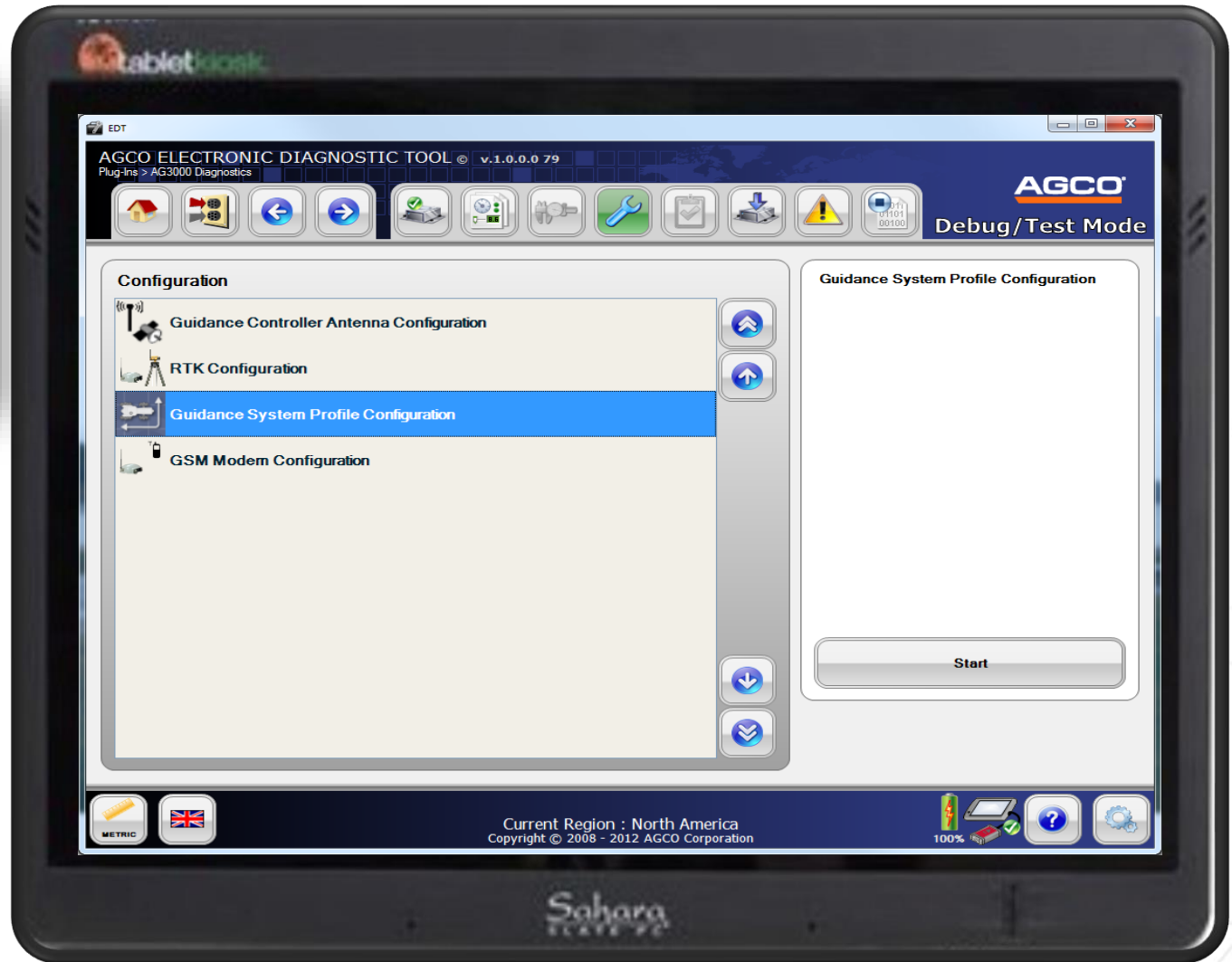
# Electronic Diagnostic Tool



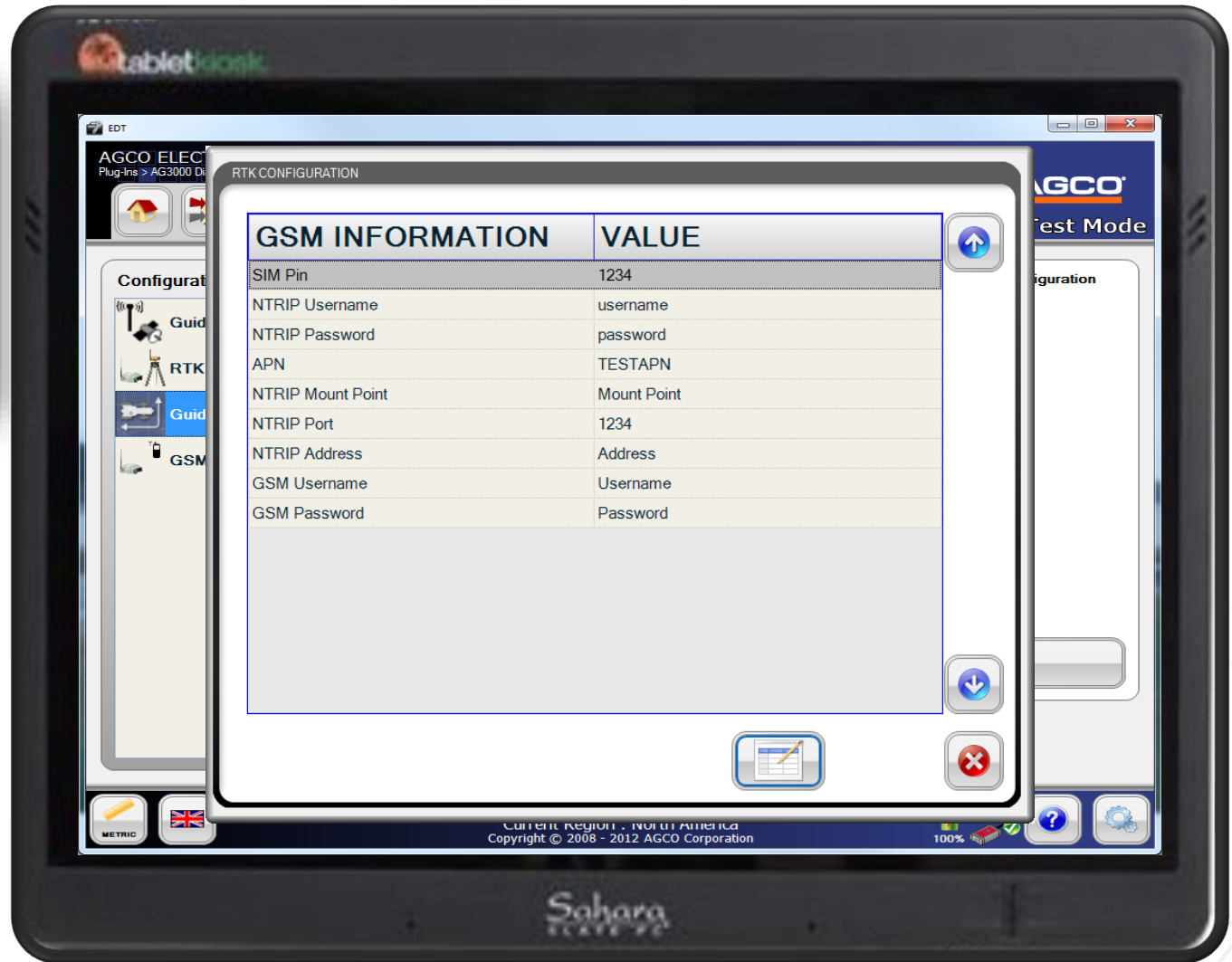
# Electronic Diagnostic Tool



# Electronic Diagnostic Tool

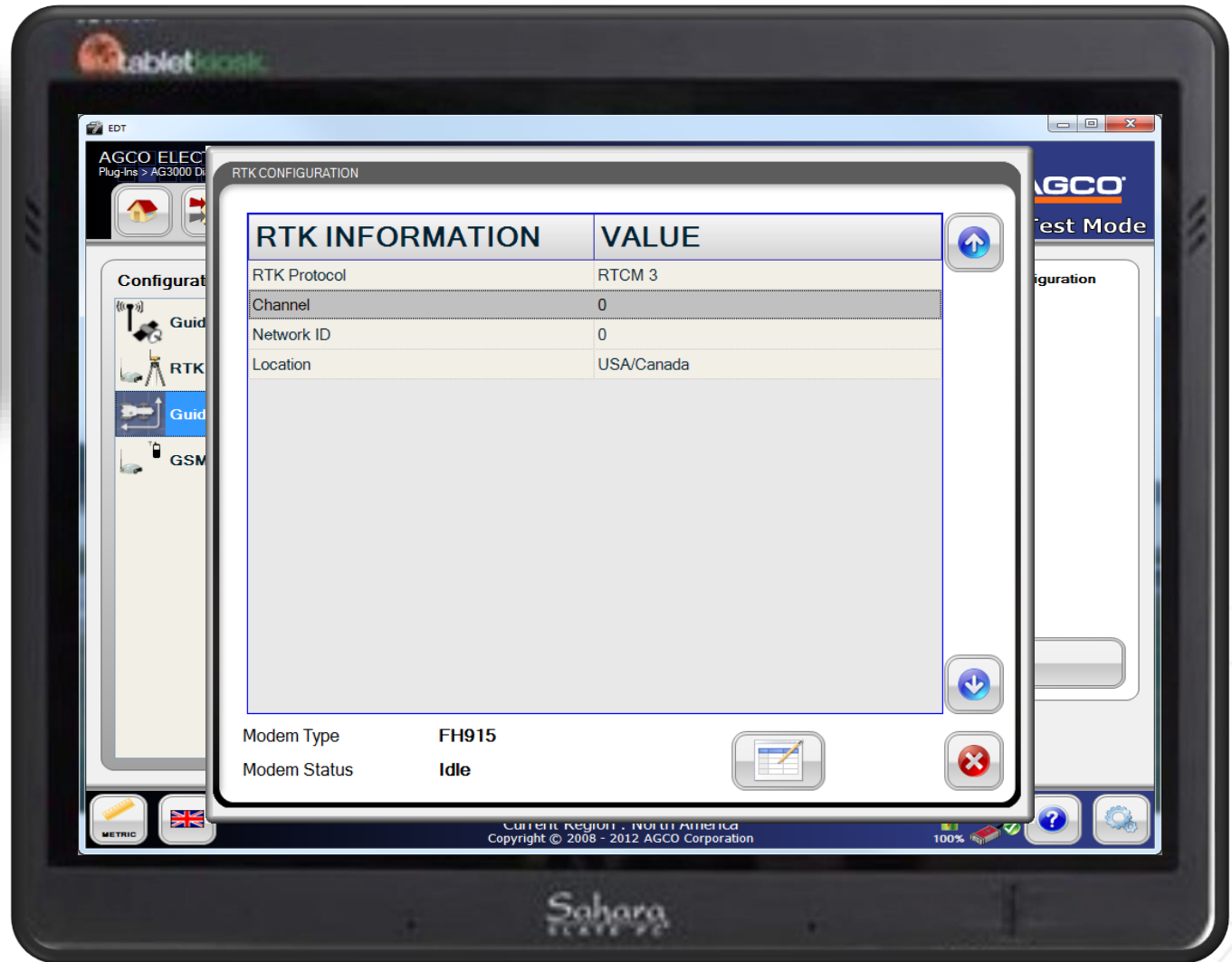


# Electronic Diagnostic Tool





# Electronic Diagnostic Tool



RTK CONFIGURATION

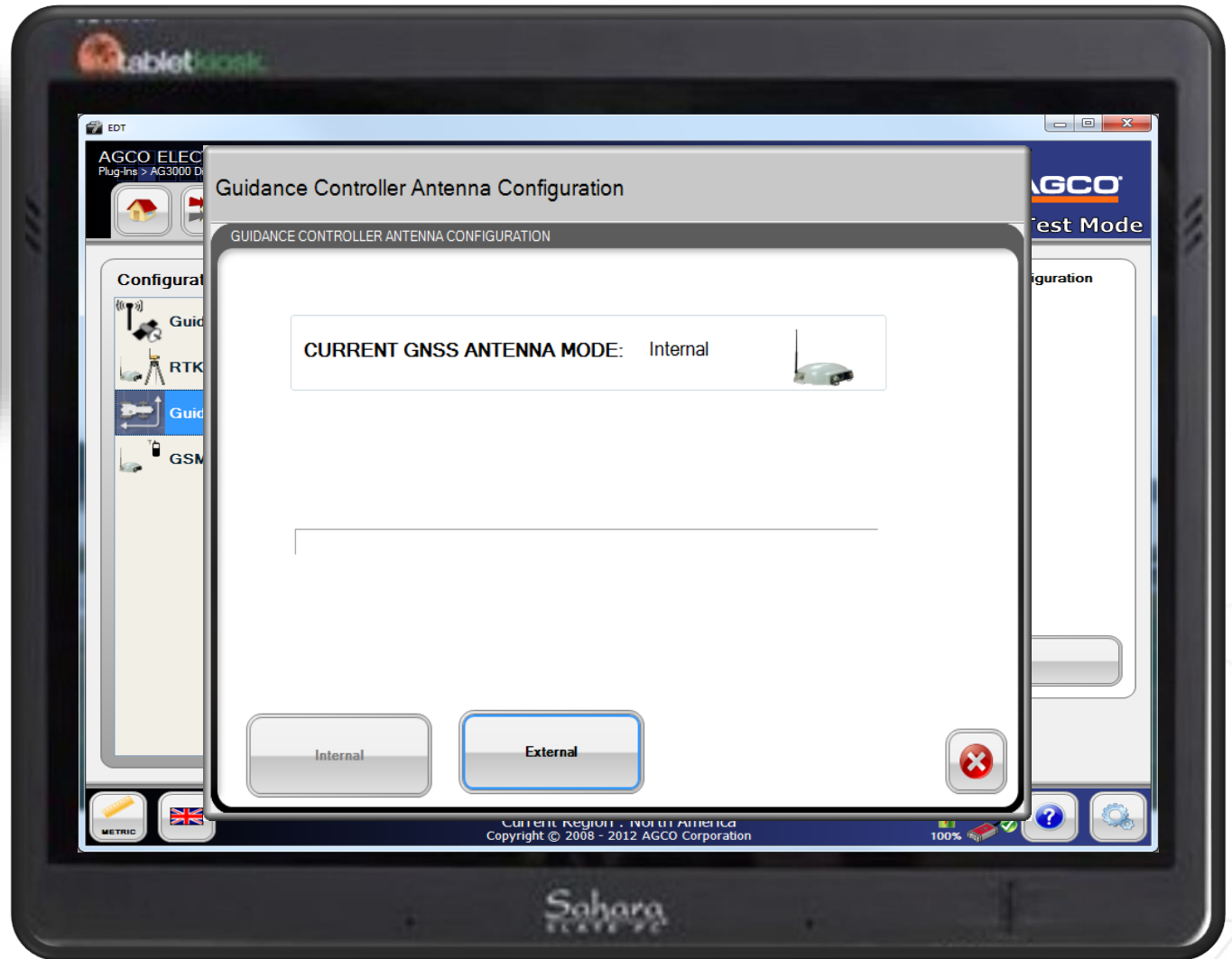
RTK INFORMATION	VALUE
RTK Protocol	RTCM 3
Channel	0
Network ID	0
Location	USA/Canada

Modem Type: FH915  
Modem Status: Idle

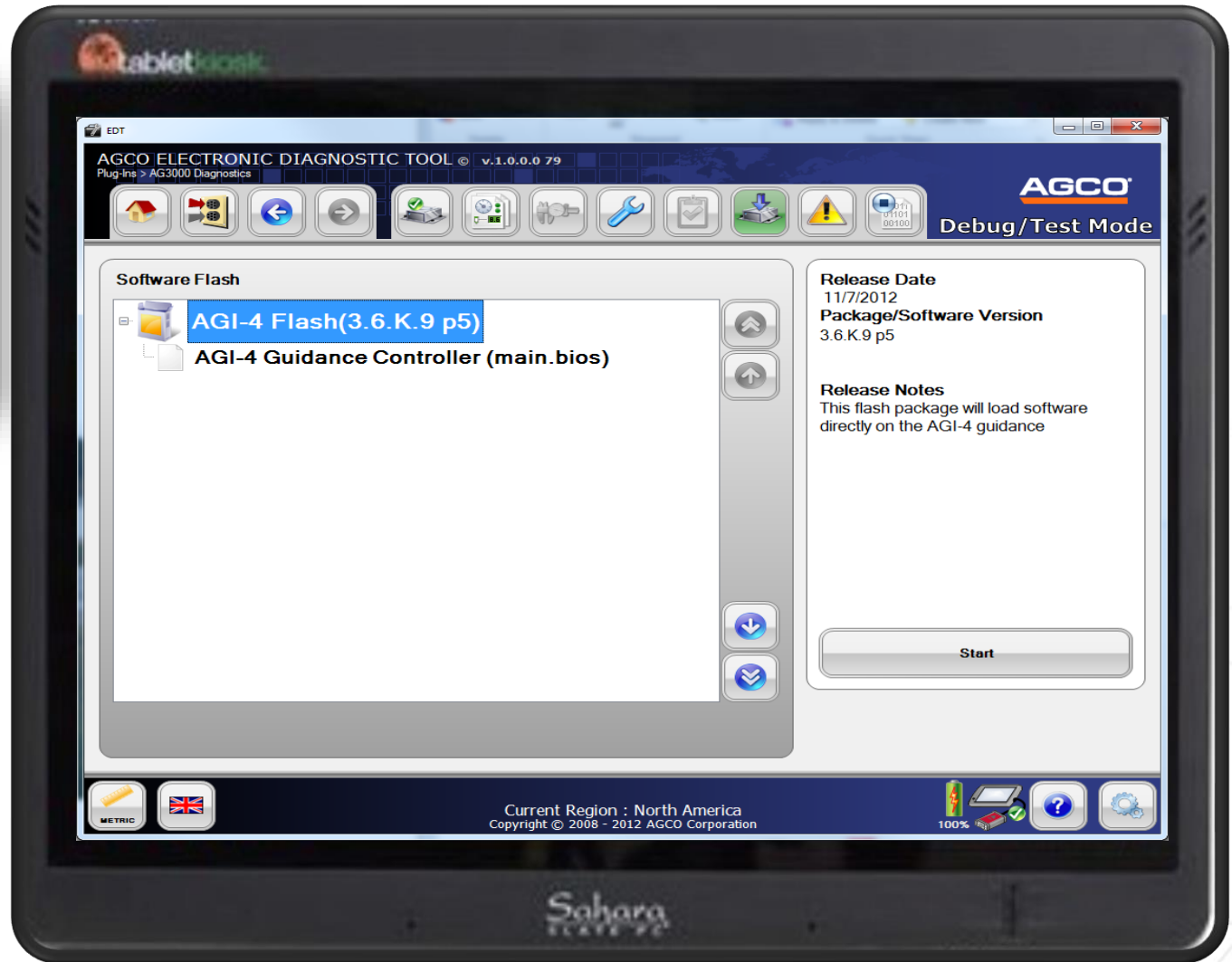
# Electronic Diagnostic Tool



# Electronic Diagnostic Tool

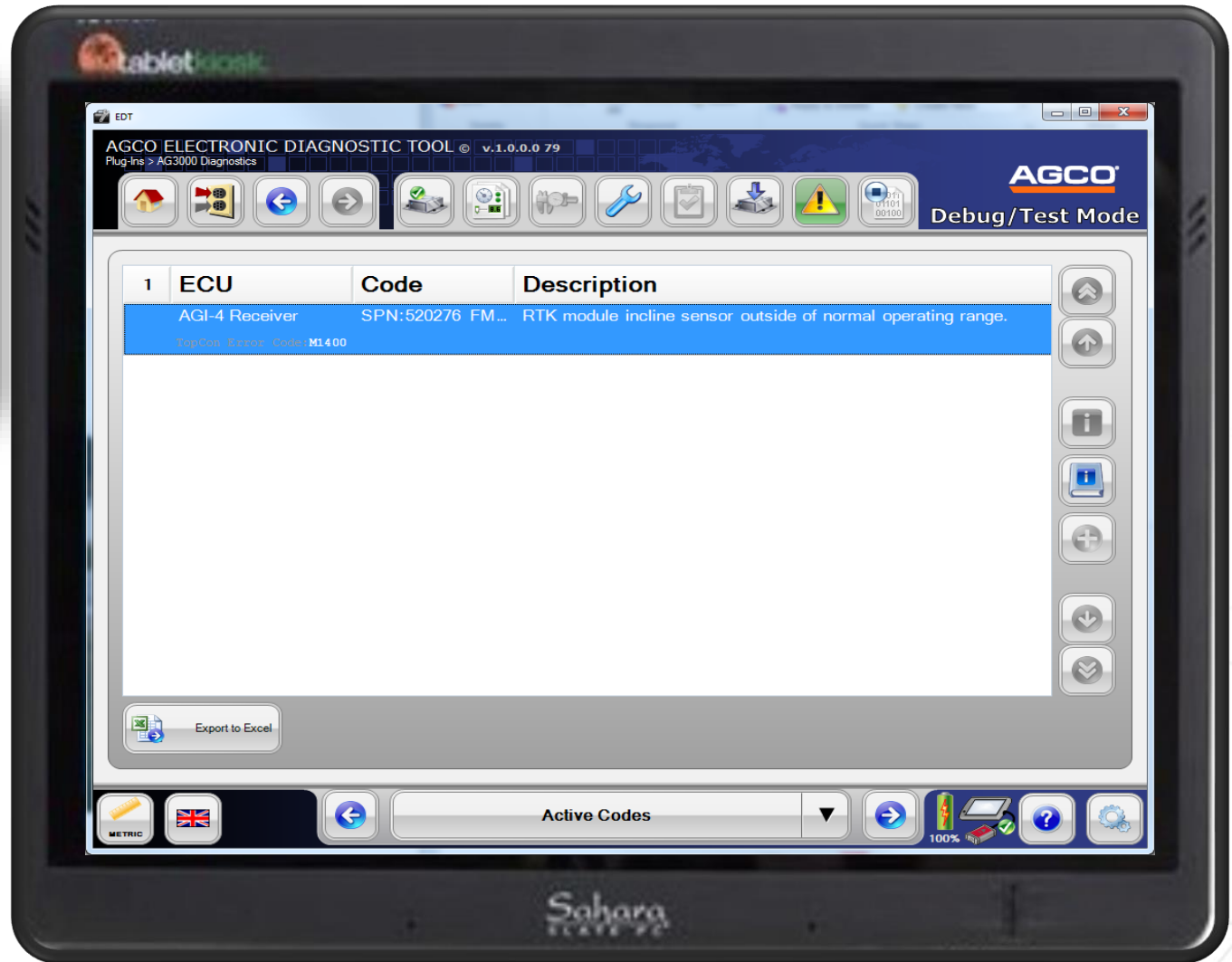


# Electronic Diagnostic Tool





# Electronic Diagnostic Tool



# Agenda

1	General Information	8	Configuration & Set-up
2	Components	9	Field Install vs. Factory Installations
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6	Additional features	13	RTK - Radio vs. Cellular
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## HiPer AG Base Station



# HiperAG

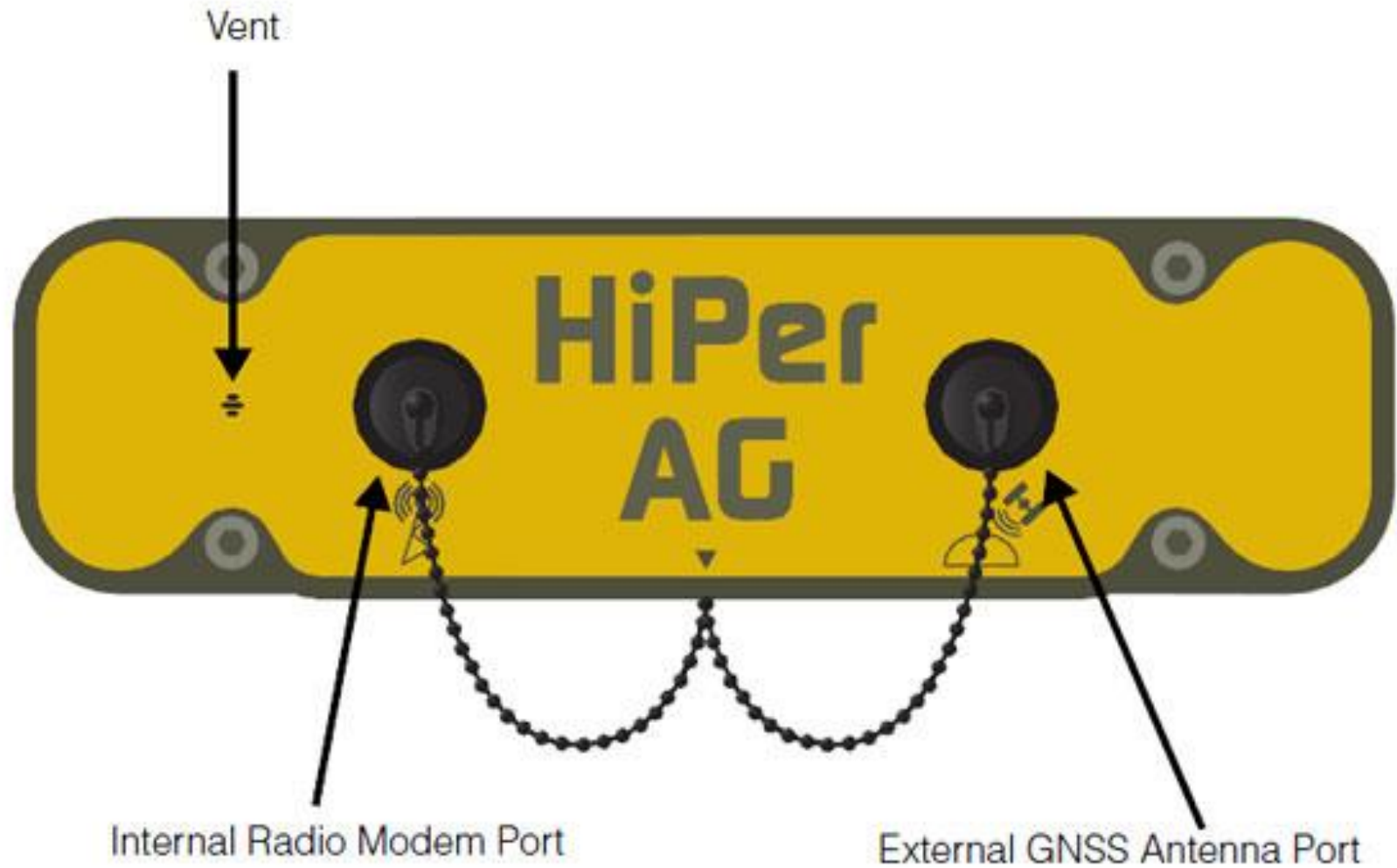




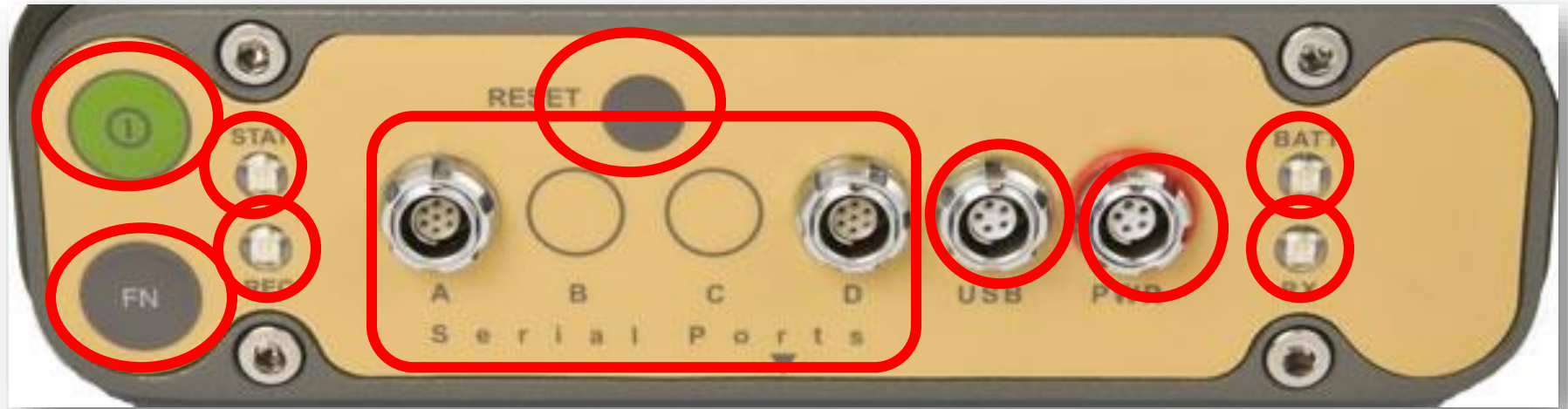
# HiPer Ag Base Station



# HiPer AG Base Station



# HiPer AG Base Station



# HiPer AG Base Station

## Before First Use...Do THIS!

Exit Zero Power mode.

Exit before charging internal batteries. Batteries will not charge in Zero Power mode

Press Reset button for about 1 second

Charge internal batteries overnight.

Batteries will last 8-10 hours in the field.

Power receiver using an external battery if necessary.

External 12v battery may be used and will charge internal battery at same time

Verify default configuration.

Verify system functionality.



# HiPer AG Base Station

## Turning On/Off the Receiver

Turn ON the receiver: press and hold Power button until LEDs briefly flash.

Turn OFF the receiver: press and hold Power button for one to three seconds (until both STAT and REC LEDs are off).

Delay (about 1 second) prevents the receiver from being turned off by mistake.

# HiperAG



HiPer AG USB Cable  
14-008031-01



# HiPer AG Base Station

## In-field Set Up

Mission planning is an important step in performing an RTK setup. There are times of the day when the numbers of satellites available will vary. The positions of the satellites at various times of the day are also a factor. Planning your work around these times greatly increases productivity and the quality of your results.

The selection of the base station sites will also affect the success of the RTK observations. Users who select a poor base stations site will likely have problems throughout the entire field. Select a site with good sky visibility down to 10 or 15 degrees from the horizon. Be aware of high power transmitters such as microwave, TV stations, military installations, high voltage transmission power lines, etc.

Multi-path may be caused by radio wave reflective objects such as trees, buildings, large signboards, chain link fences, etc. Because of the orbits of the satellites, obstacles to the north of the antenna setup are not as detrimental to reception.

# HiPer AG Base Station

## In-field Set Up

It is worth the effort to get the base stations in optimum locations. A problem at the base is a problem at all rovers. A problem at one rover is only a problem at that one rover.

Select a site that is;

- The highest possible elevation.

- Clear line of sight to the majority of the working area.

- Easy access for power or adjustments.

- Low and wide tripod stances are more stable than long tripod legs with high wobbly stances.

Auto Position Fixing feature is standard on HiPer AG portable base receiver.

Feature gives users ability to quickly setup and begin RTK operations without using an external interface to localize the base receiver.

User simply sets up HiPer AG over a mark and power up.

Base receiver will average a collection of positions gathered over minutes, then determine if this point has been previously occupied and apply that position from memory, or it will apply the new position (and store it for future use at the same position).



# HiPer AG Base Station

## In-field Set Up

Receiver determines its position within 3 minutes by averaging the positions collected during that time.

3-dimensional position is applied to that exact location and stored into memory the next time that the receiver occupies the same position.

Up to 100 base positions stored automatically.

HiPer AG receiver recalls base position when reoccupying a location.

Receiver uses same position when within a 30 meter (98 feet) radius of initial point.

Time to average the position: 3 minutes

Once position average is obtained, HiperAG will start to transmit data

# In-Field Set-up





# In-Field Set-up



# HiPer AG Base Station

## Choosing a Location

The HiPer AG should be placed in exactly the same location year after year.

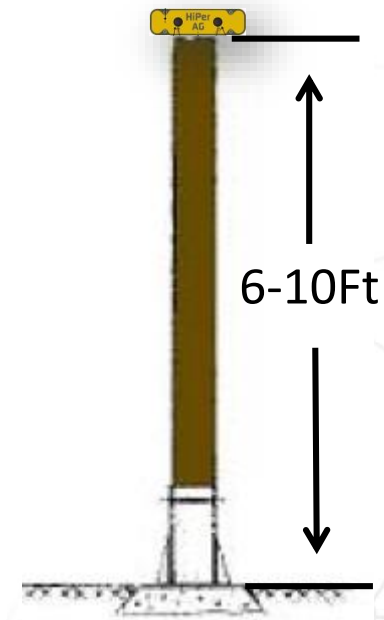
The best way to do this is with a permanent mounting stand.

Choose a location central to the field with as few obstructions (trees, buildings) as possible.

If system encounters radio communication or GNSS accuracy problems, it may be necessary to adjust the height or location of the HiPer AG.

Once a location is determined for the HiPer AG receiver, do not change this location, unless you are moving to a new field more than 30 meters (98 feet) away.

If the receiver is moved to a different area (i.e.: 100 feet away from previous location), the waylines also move.





# HiPer AG Base Station

## Measuring Antenna Height

Measure the height to make sure the HiPer AG is always at the same height as well as the same location on the field.

Measure from the ground to the base of the mounting threads on the antenna.

DO NOT move HiPer AG while it is turned on.

# HiPer AG Base Station Repeater

RE-S1 1 Watt radio extension system with field-proven, 915+ technology. The RE-S1 can be utilized as a stand alone repeater to increase the range between base and rover for the HIPER AG.

***Will increase  
range but NOT  
accuracy***



FEATURES INCLUDE:

No FCC licensing required

Can be used as a mobile repeater with optional car lighter adapter

Spread spectrum range can be greatly affected by obstructions such as buildings, terrain, trees, etc. By using the RE-S1 system as a repeater, local obstructions can be overcome and operational ranges increased.



HiPer AG

# Base Station Setup-North American Version



# Tools required to adjust HiPer Ag settings

Topcon Receiver Utility (TRU) Software

Computer with serial port or USB to Serial adapter cable

HiPer Ag with batteries charged or 12 volt power source

Software is on CD that came with HiPer Ag or it can be downloaded from the Dealer Secure site.

Topcon Receiver Utility is located at Software » Software Utilities

Connect the serial cable to the Serial A port on the HiPer Ag

Connect the power cable to the PWR port on the HiPer Ag if supplying 12v power

**Note: Do not power up the HiPer Ag without the antenna connected**



# HiPer Ag Setup Complete

With settings loaded, the HiPer Ag is ready to be taken to the field to begin broadcasting corrections

In the field....

Ensure batteries are charged or 12v power source is available

STAT light will blink green and orange when tracking satellites

RX light should be solid red indicating it is transmitting data

Ready for connection to be made with a System 150 or System 350 requiring RTK correction.



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## How To Set a BASE With TRU



## Factory Default Settings – HiPer Ag

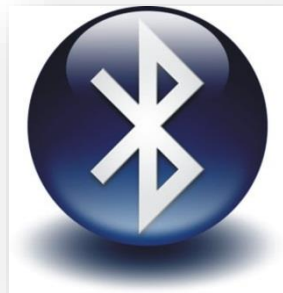
General Information		
	AGCO P/N	ACZ0001100
	Fendt PN	H835.970.190.170
	Topcon ASSY PN	01-860809-06
	Description	ASSY,HIPER AG FH915+ AGCO NA/SA
RADIO Configuration		
	FH 915 Firmware version	8.11
	Operating Range	908 - 928 MHz
	Protocol	FH915
	Location	USA/CAN
	Operation Mode	XMT
	Power (mW)	1000 mW
	Base Channel	1
	NetID	0
Receiver Configuration		
	Receiver FW (ver)	3.5p1
	Port 'C' RTK Message Type	RTCM 3.x GGD Full 1Hz

## Factory Default Settings – AGI-4

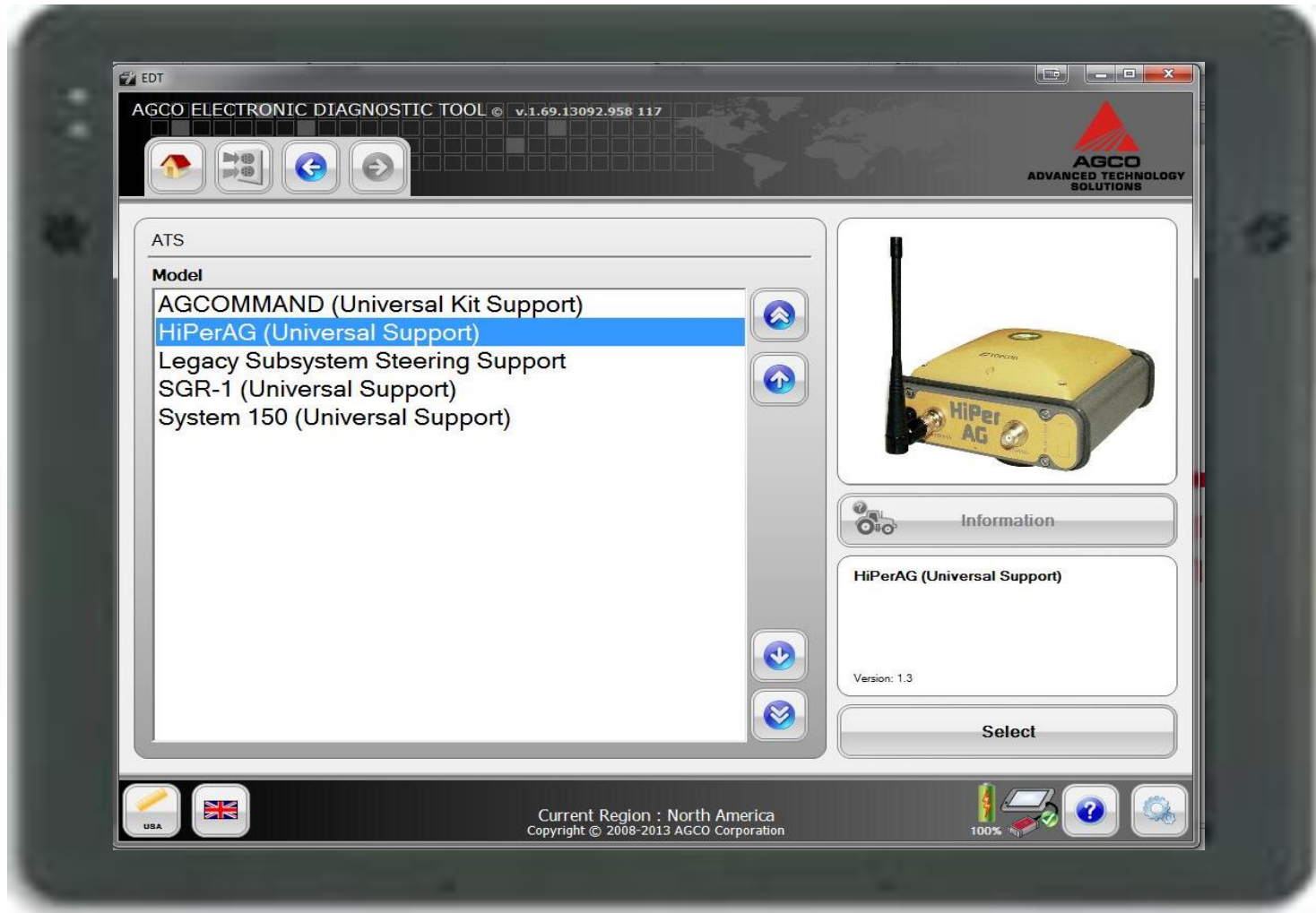
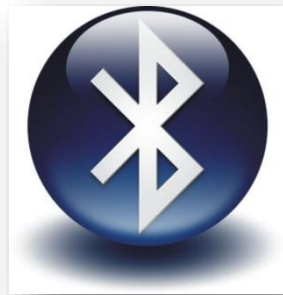
General Information		
	AGCO P/N	ACZ000062A
	Fendt PN	H835.970.190.630
	Topcon ASSY PN	02-100705-03
	Description	AGI4 MODEM MODULE FH915 w/H24
RADIO Parameters		
	Operating Range	908 - 928 MHz
	Protocol	FH915
	Location	USA/CAN
	Operation Mode	Receive
	Base Channel	1
	Power (mW)	1000 mW



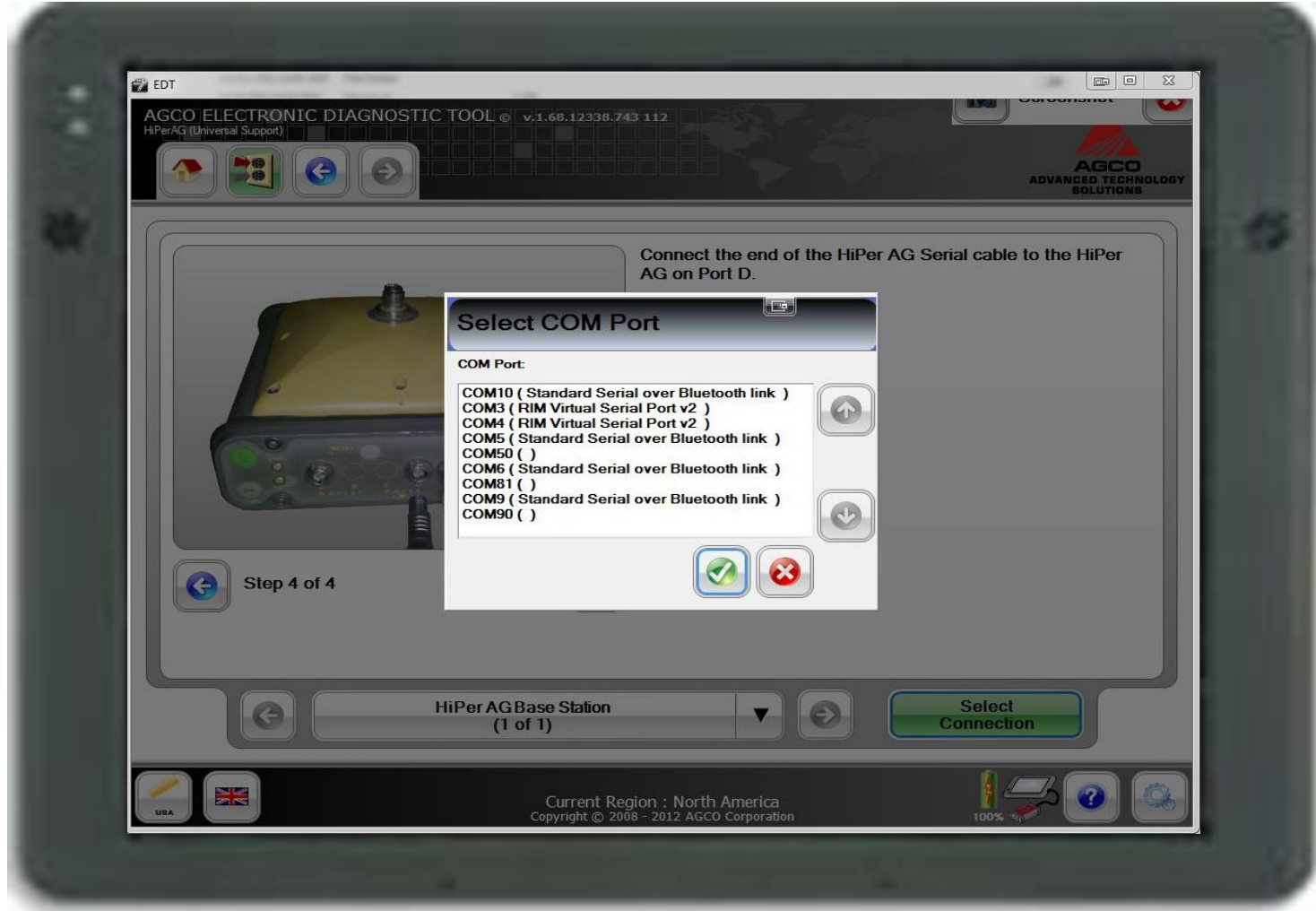
# Electronic Diagnostic Tool



# Electronic Diagnostic Tool



# Electronic Diagnostic Tool

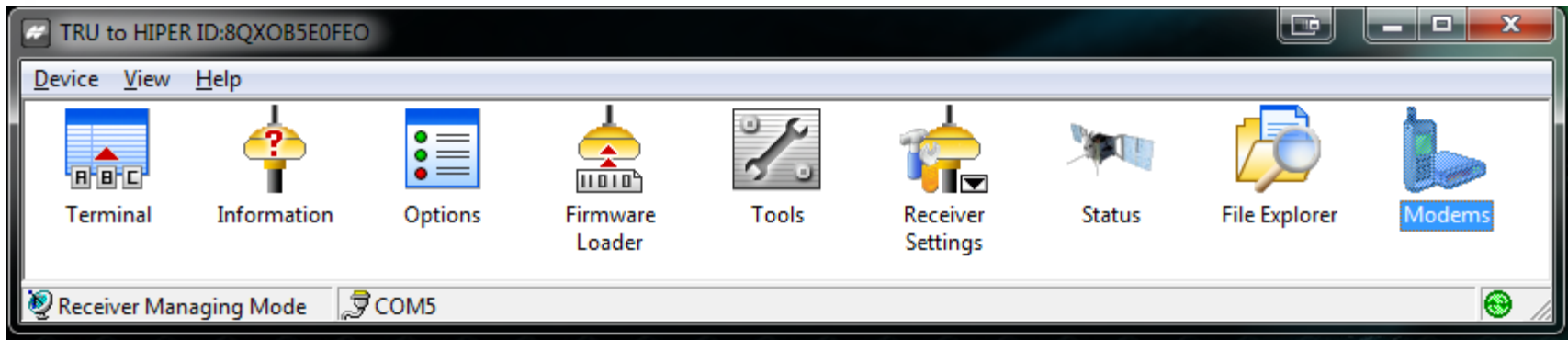


# Electronic Diagnostic Tool



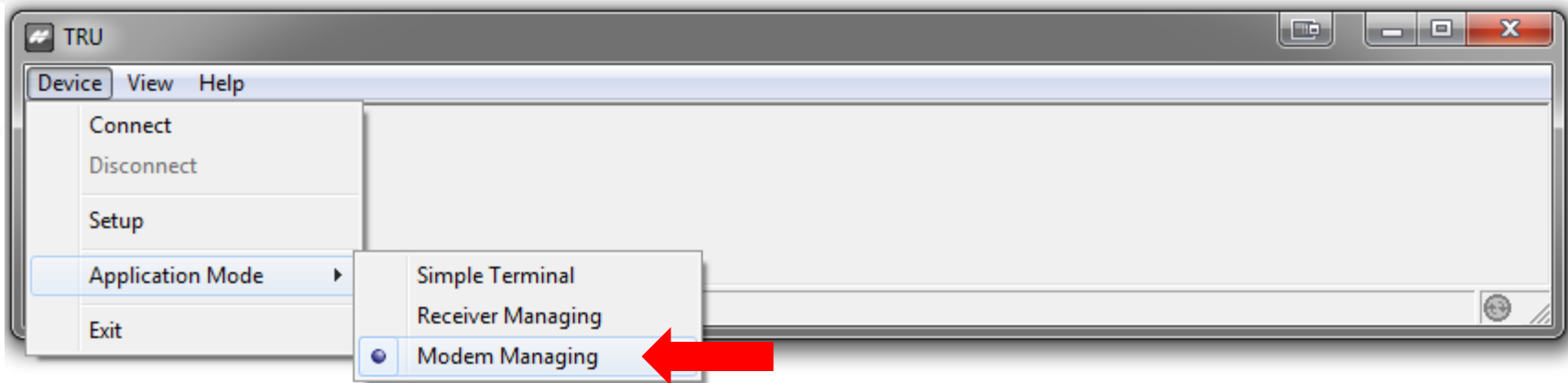


# Topcon Receiver Utility

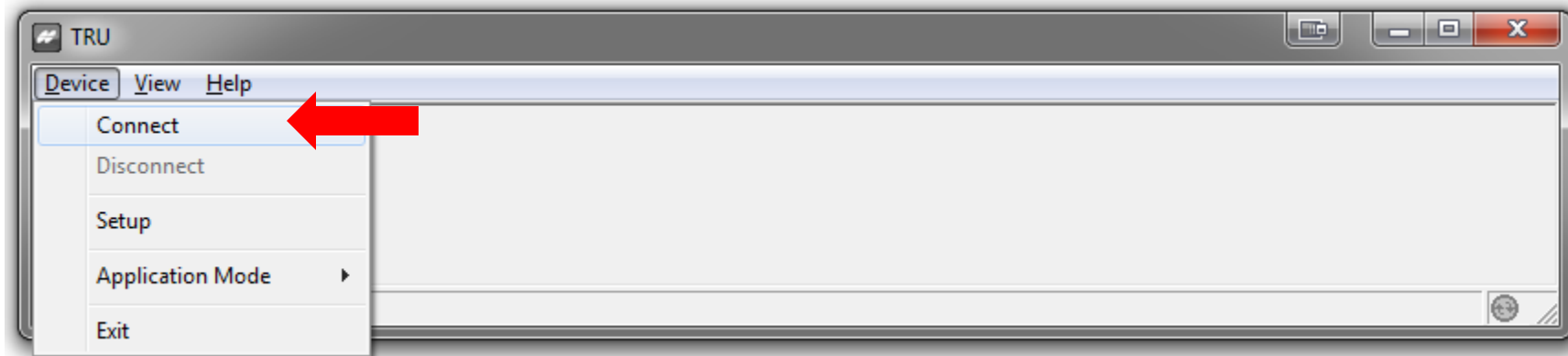


# Connect to HiPer Ag

Select Modem Managing.

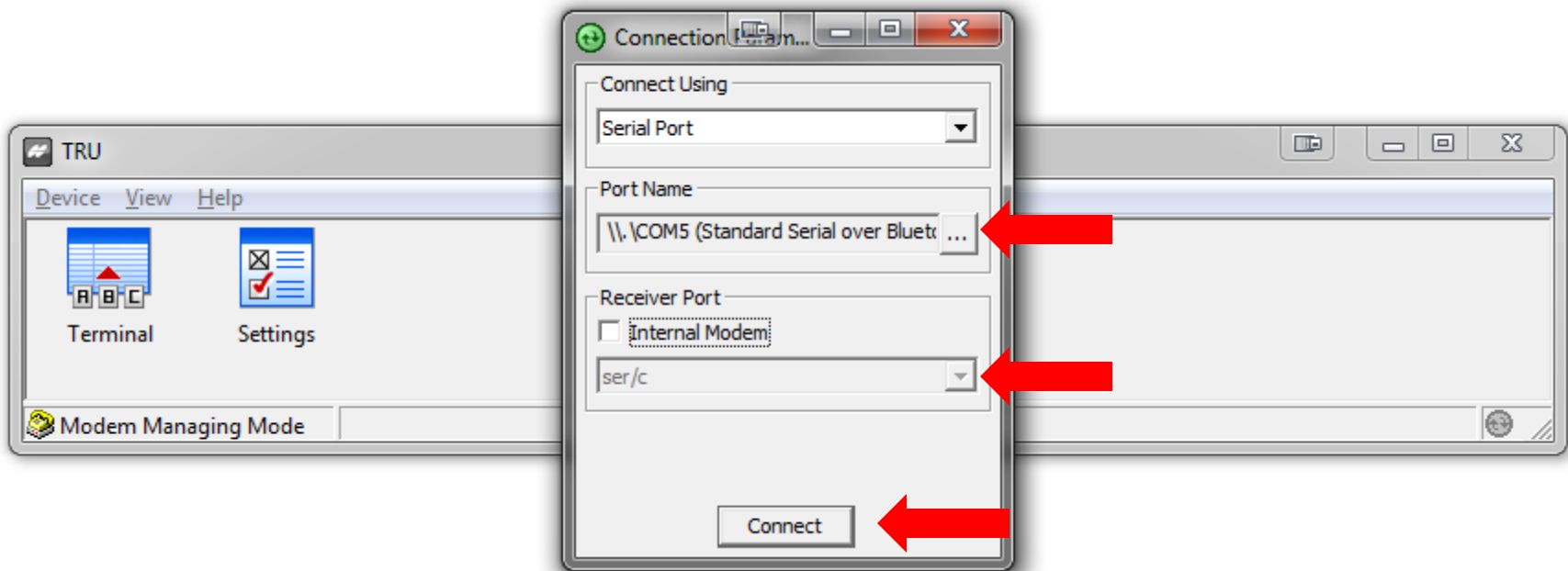


Select Connect.



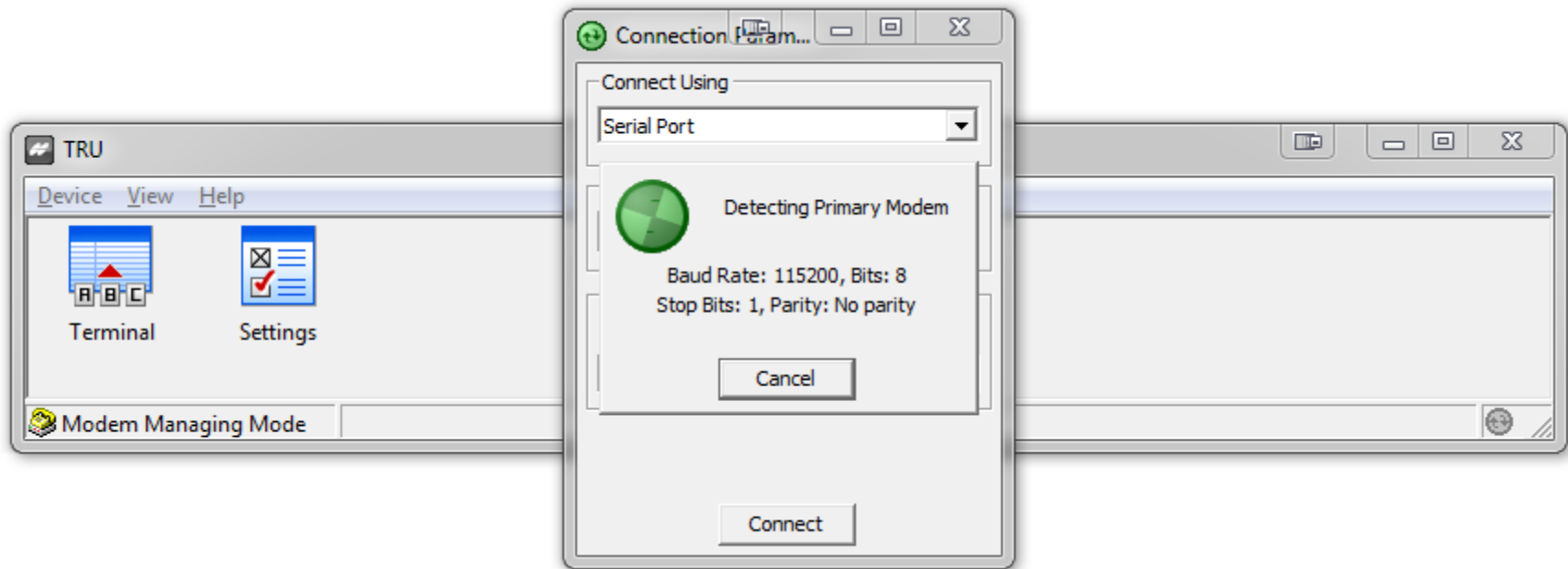
## Selecting the Connection

Select proper port and check the box for the Internal Modem and select ser/c from the drop down then click Connect.



## Selecting the Connection

The unit will start to detect the receiver for connection.



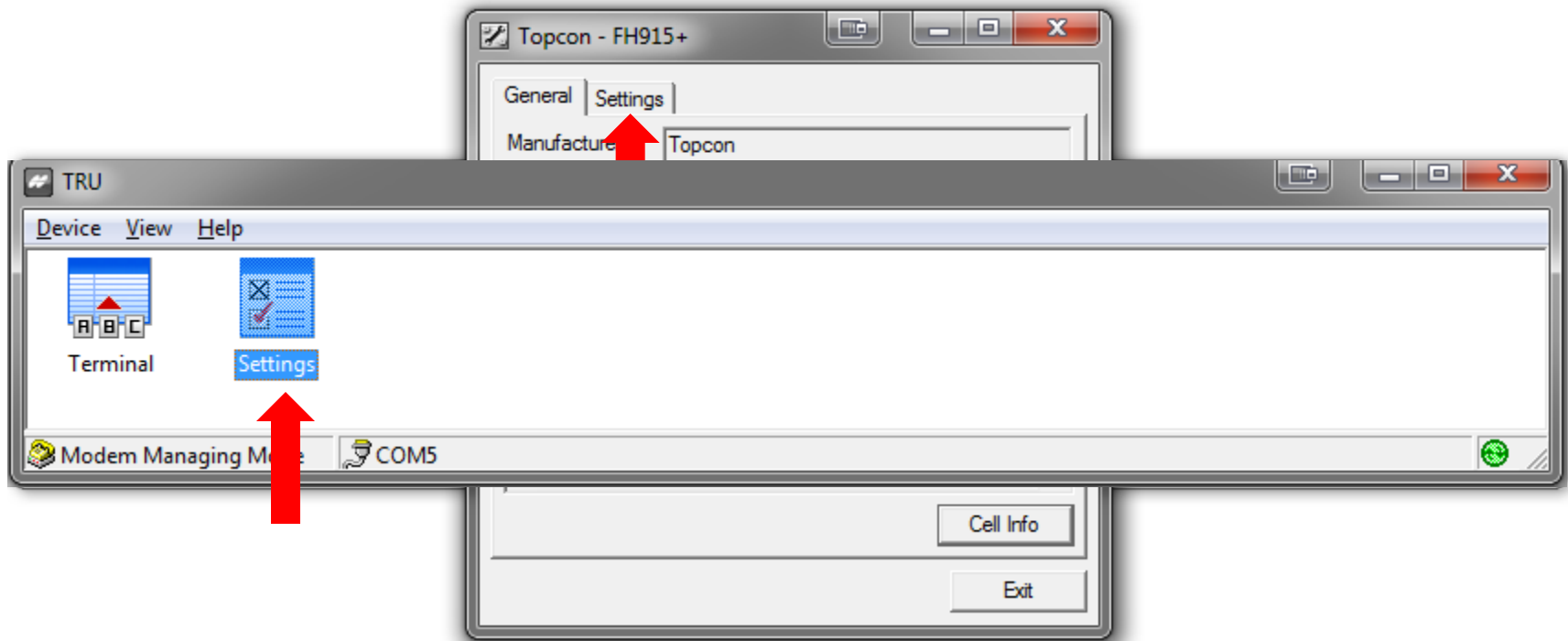


## Setting up the HiPer Ag

Select Settings,

The modem information, Firmware version, Board Revision and Serial Number are displayed.

### Select Settings



## Setting up the HiPer Ag

There are several settings that must be set prior to operation;

**Baud Rate; 38400**

**Protocol; FH915 for US/Canada**

**Location; US/Canada**

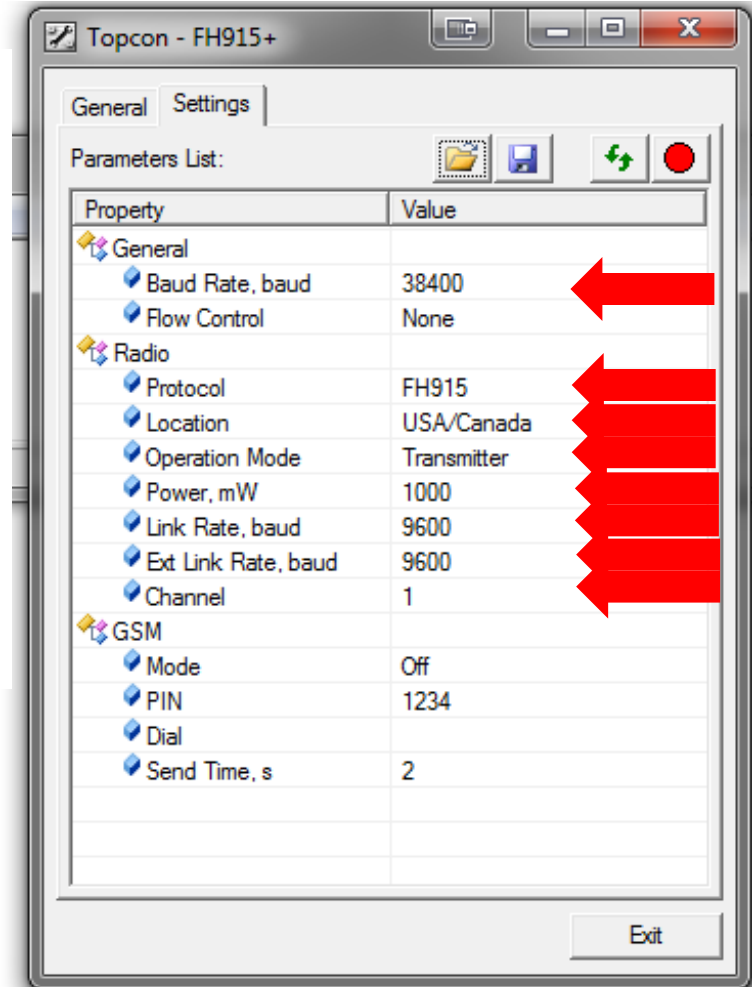
**Operation Mode; Transmitter**

**Power; 1000mW**

**Link Rate; 9600**

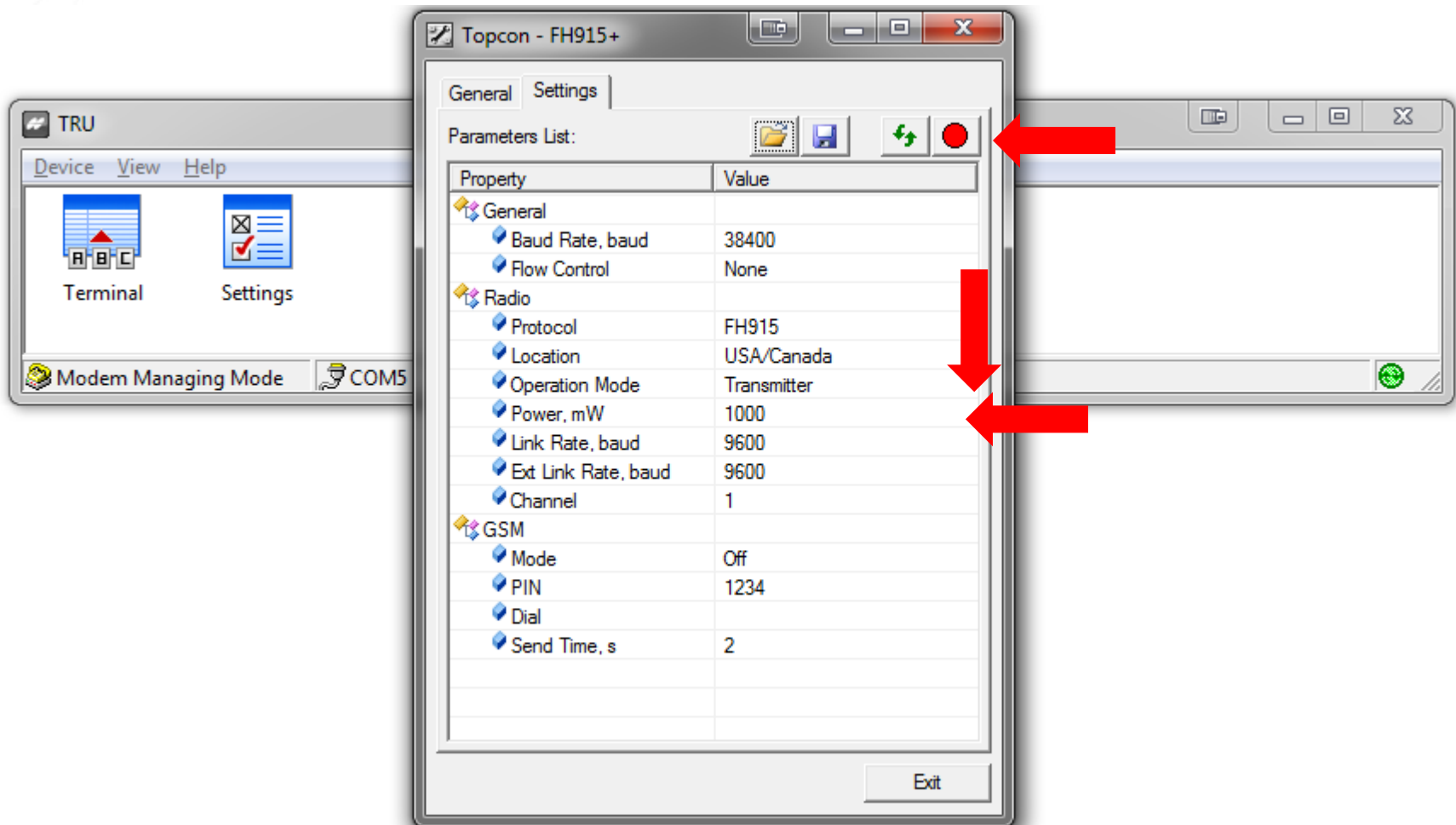
**Ext Link Rate; 9600**

**Channel; 1 - 10**



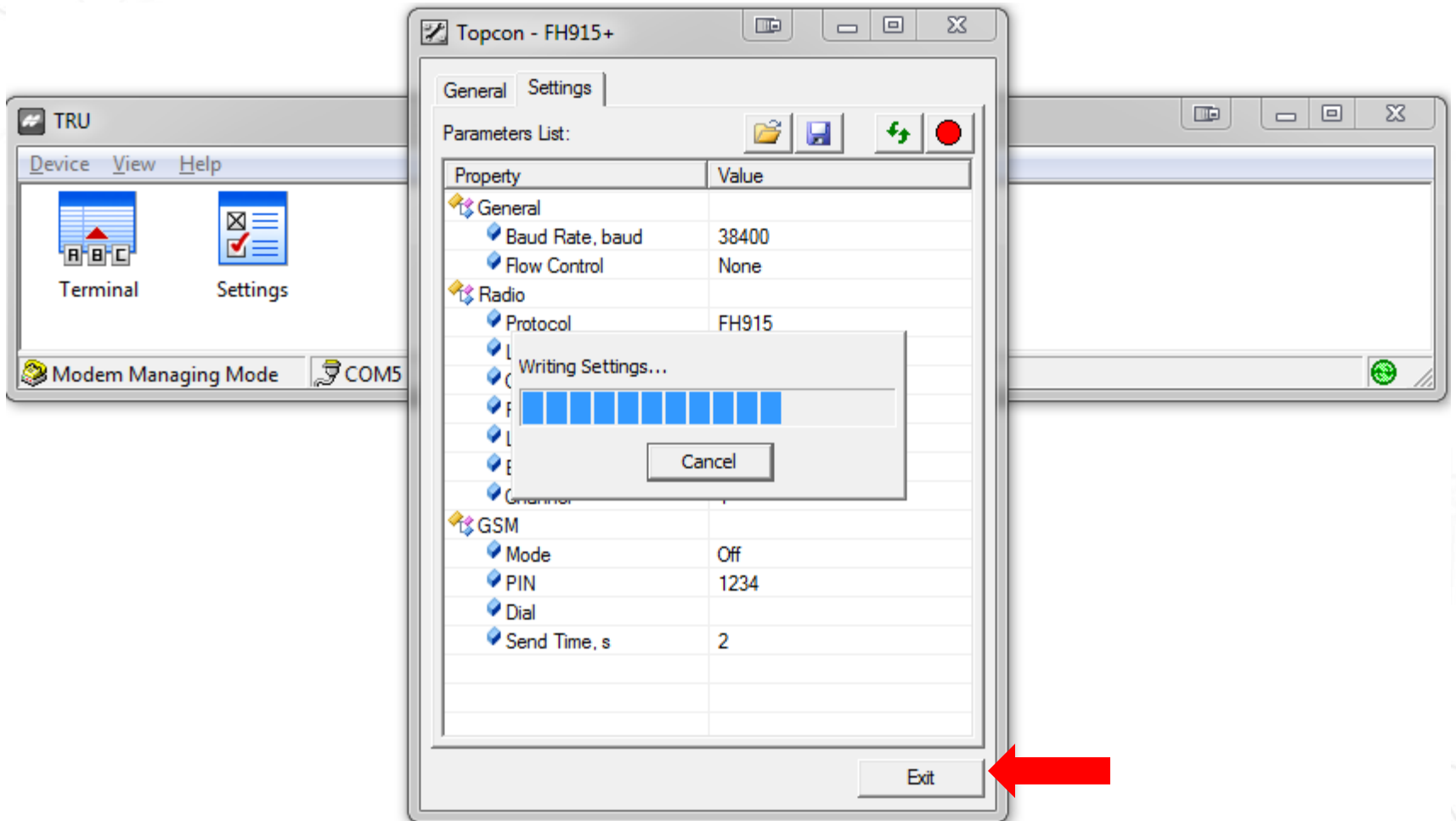
## Setting up the HiPer Ag

To make changes, Select the parameter to be changed and a drop down box will appear. Select the parameter that you want. Then select the write button.



# Setting up the HiPer Ag

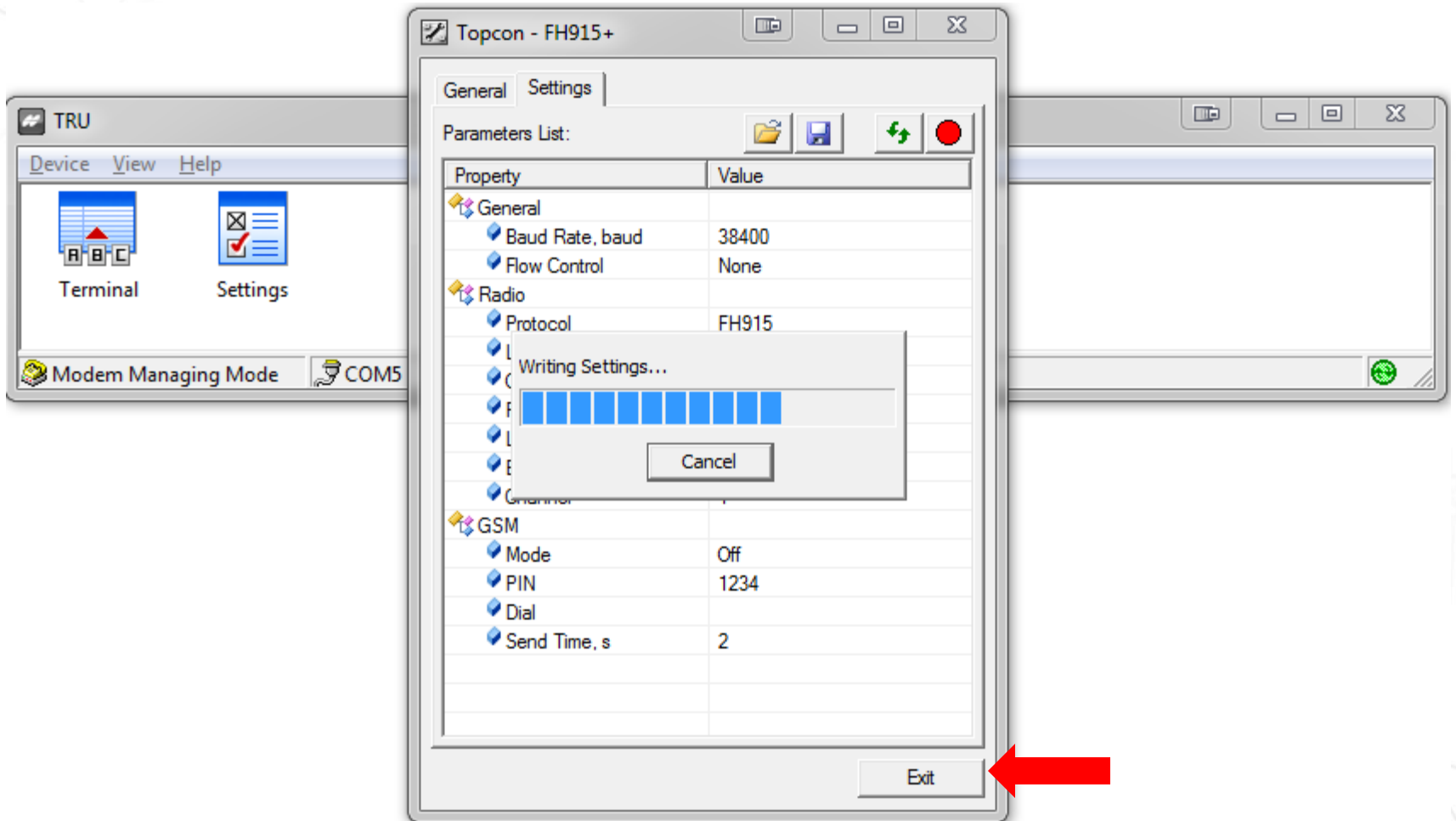
After it has written the settings click exit.





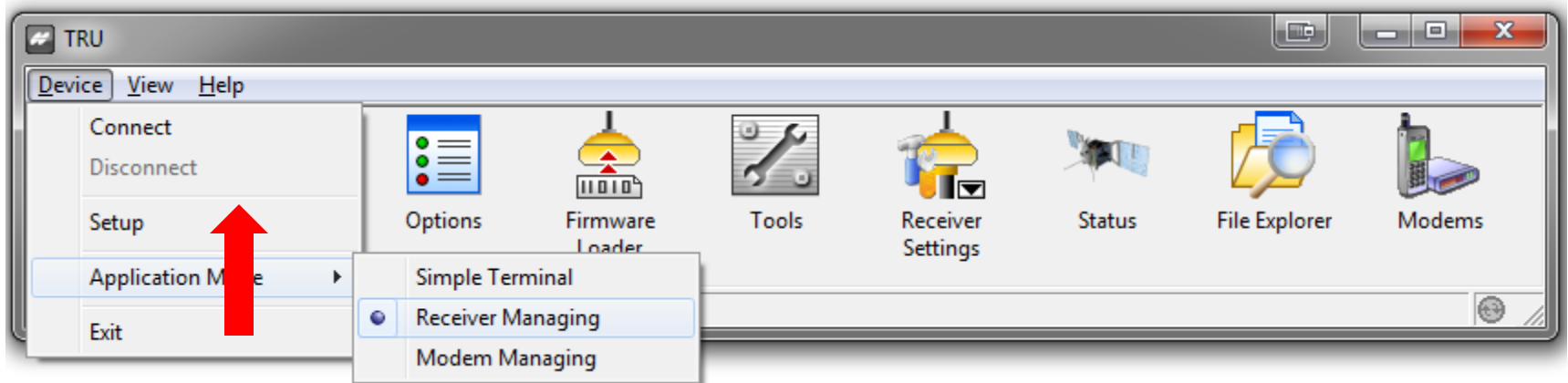
# Setting up the HiPer Ag

After it has written the settings click exit.



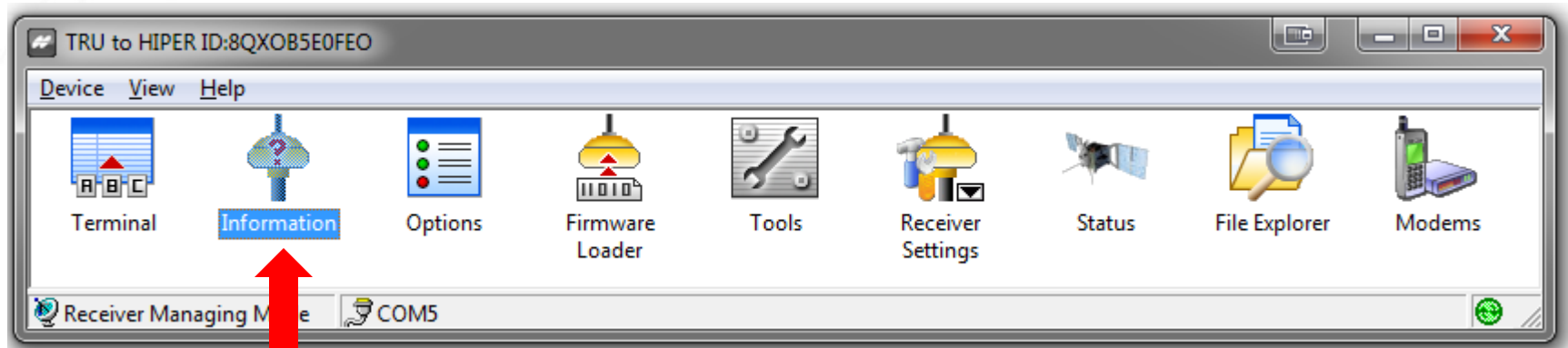
## Setting up the HiPer Ag

Select Device then change Application Mode to Receiver Managing



## Setting up the HiPer Ag

The unit is connected when it turns white. Then click on **Information**



# Setting up the HiPer Ag

You can see the product information and the Firmware version.

The screenshot shows a 'Receiver Info' window with a table of device specifications. Red arrows point to the 'Firmware Version' and 'Power Board, V' rows, and a red arrow points to the 'Save to File' button at the bottom right.

Name	Value
Model	HIPER
Id	8QXOB5E0FEO
Serial Number	603-00102
Board Version	HGGDT_7
Firmware Version	3.5 Mar,16,2011 p1
Hardware Version	71
Power board version	hw=6, fw=4c
Vendor	Topcon
CPU Freq, MHz	56
RAM Size, KB	4,096
Flash Memory Total, KB	131,072
Flash Memory Available, KB	32,893
Flash Memory Free, KB	32,766
Battery A, V	8.13
Battery B, V	8.15
Charger, V	0.00
Power Supply, V	11.70
Power Board, V	7.70





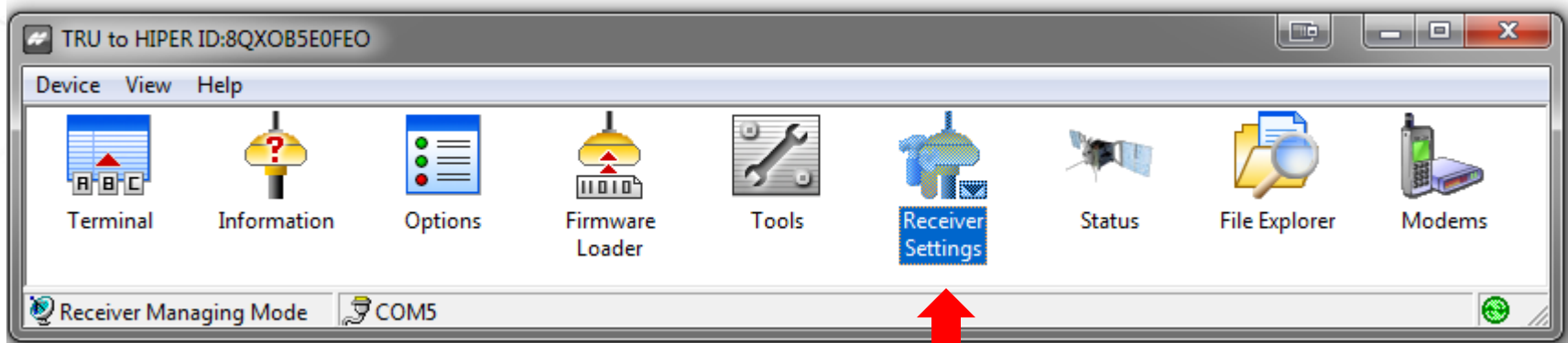
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## Setting the Ports to Transmit RTCM

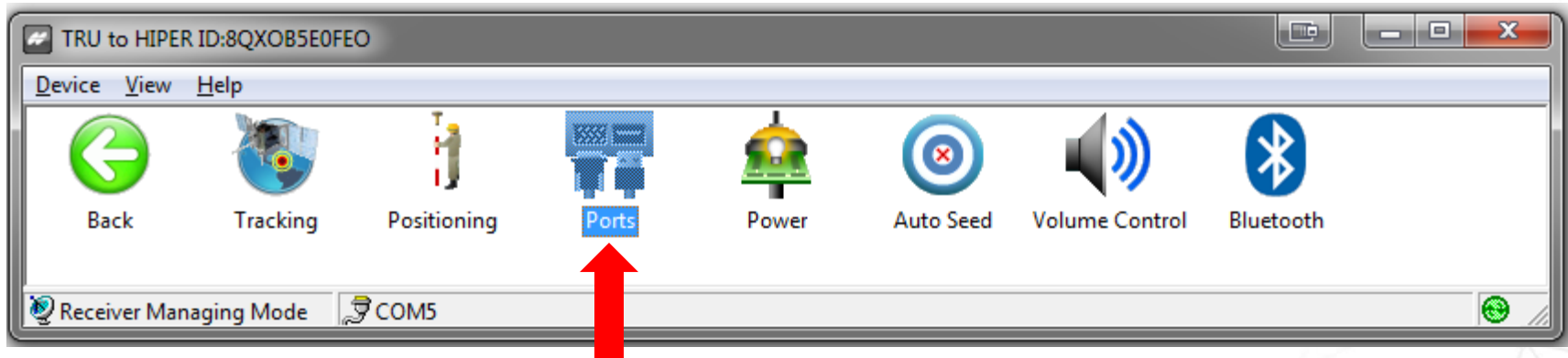


## Setting up the HiPer Ag

Click on Receiver Settings.

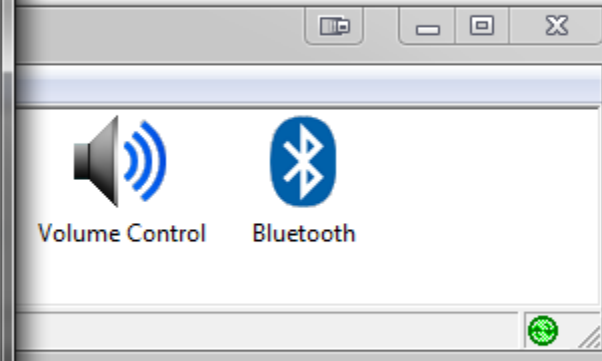
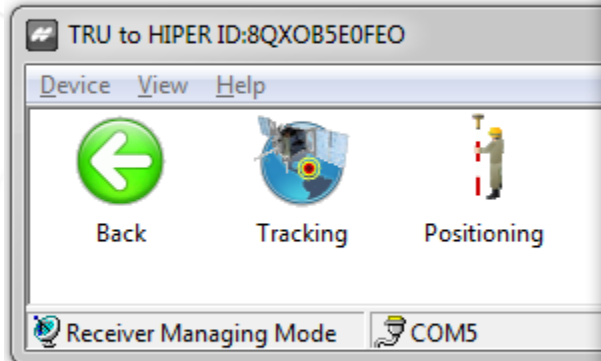
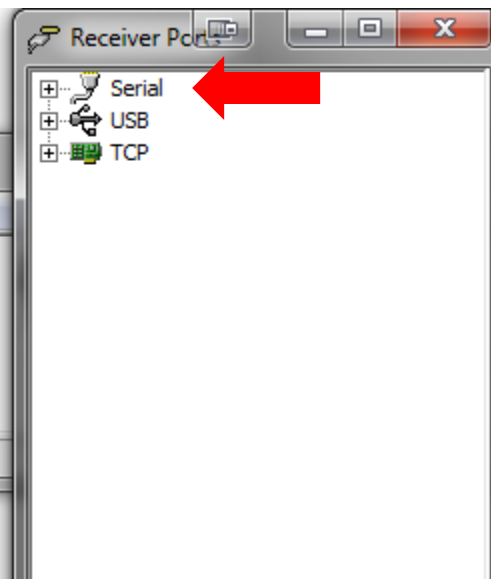


Click on Ports.

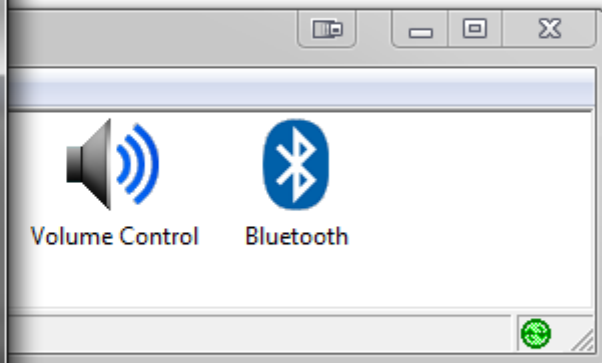
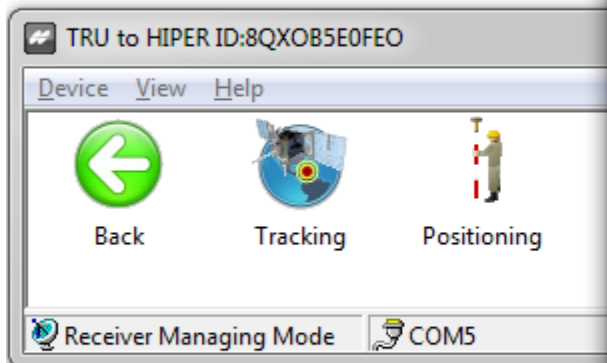
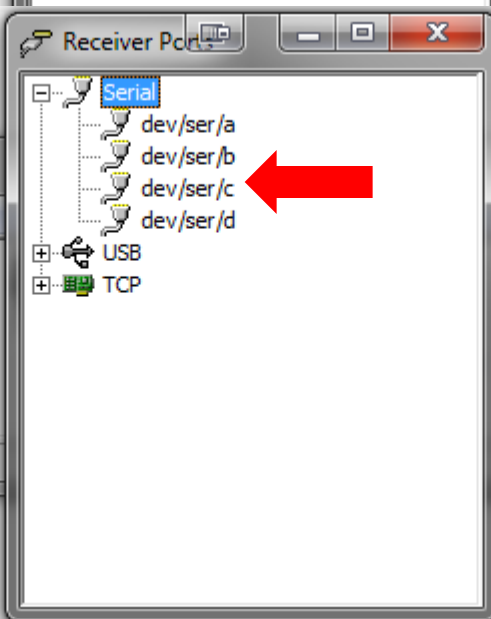


# Setting up the HiPer Ag

Select Serial.

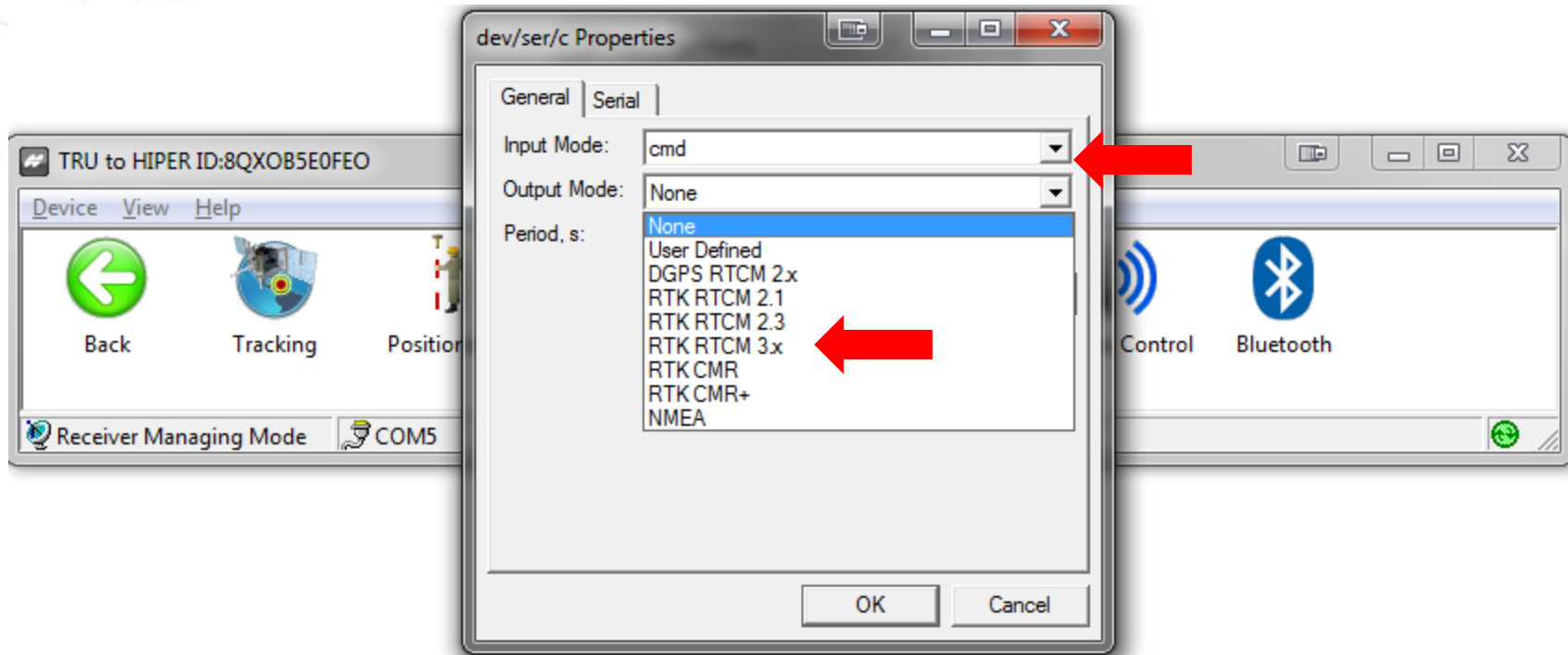


Select, dev/ser/c



## Setting the Message

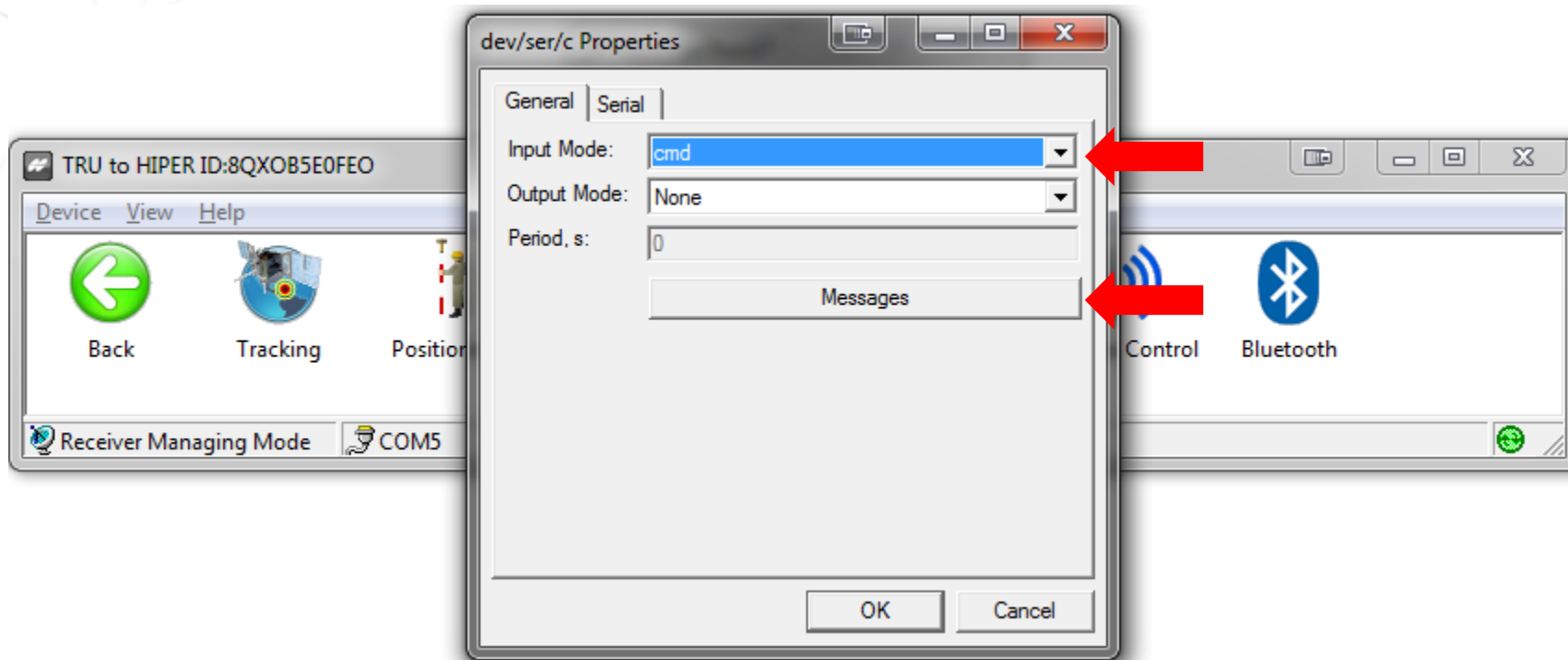
Make sure the Input is cmd, then click on Output Mode





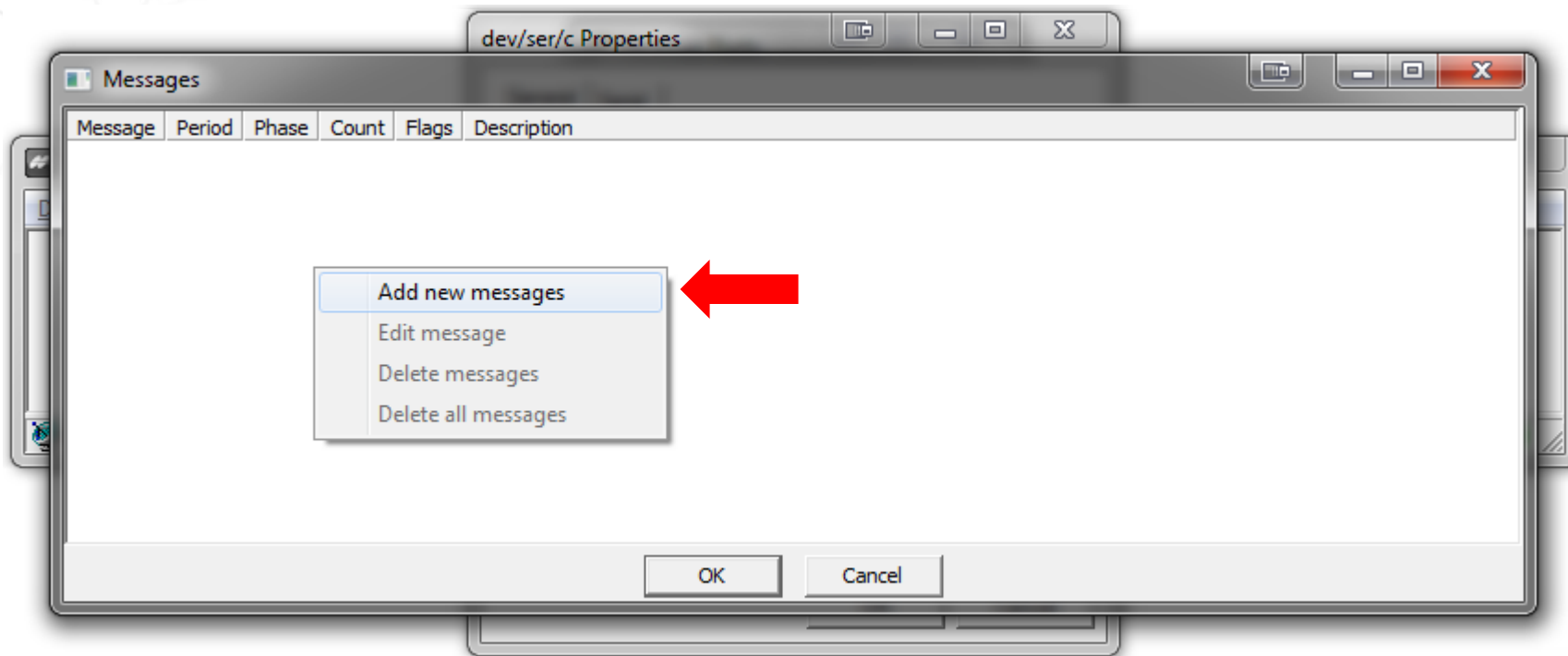
## Setting the Message

Make sure the Input is cmd, then click on Messages



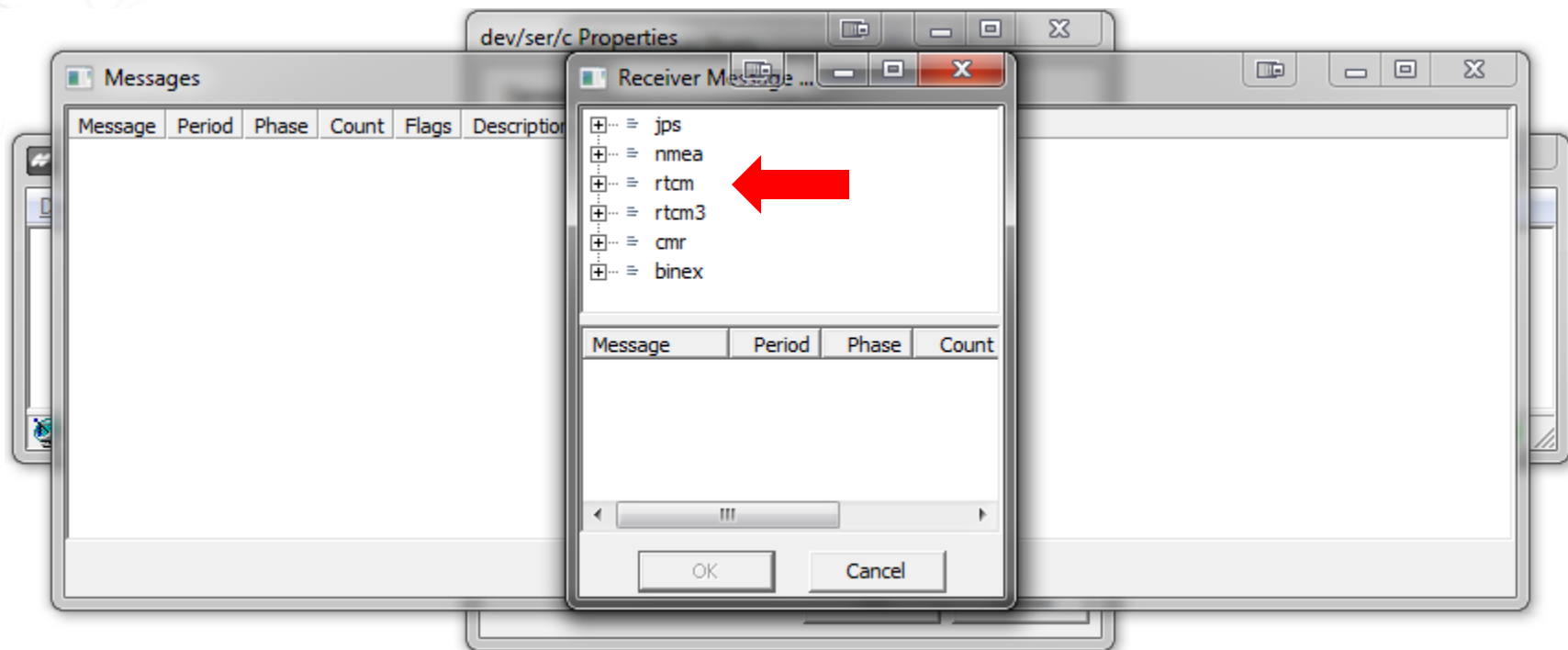
## Setting the Message

Right click on the white screen. Select Add new messages



# Setting the Message

Select RTCM



## Setting the Message

Double click on the message string that you want to add.

The screenshot shows a window titled "Receiver Message List" with a list of message types. The message "1004 (GPS Extended RTK, L1 & L2)" is highlighted in blue, and a red arrow points to it. Below the list is a table with the following data:

Message	Period	Phase	Count	Flags	Description
rtcm3/1004	1.00	0.00	0	0x0	GPS Ext...

At the bottom of the window are "OK" and "Cancel" buttons.

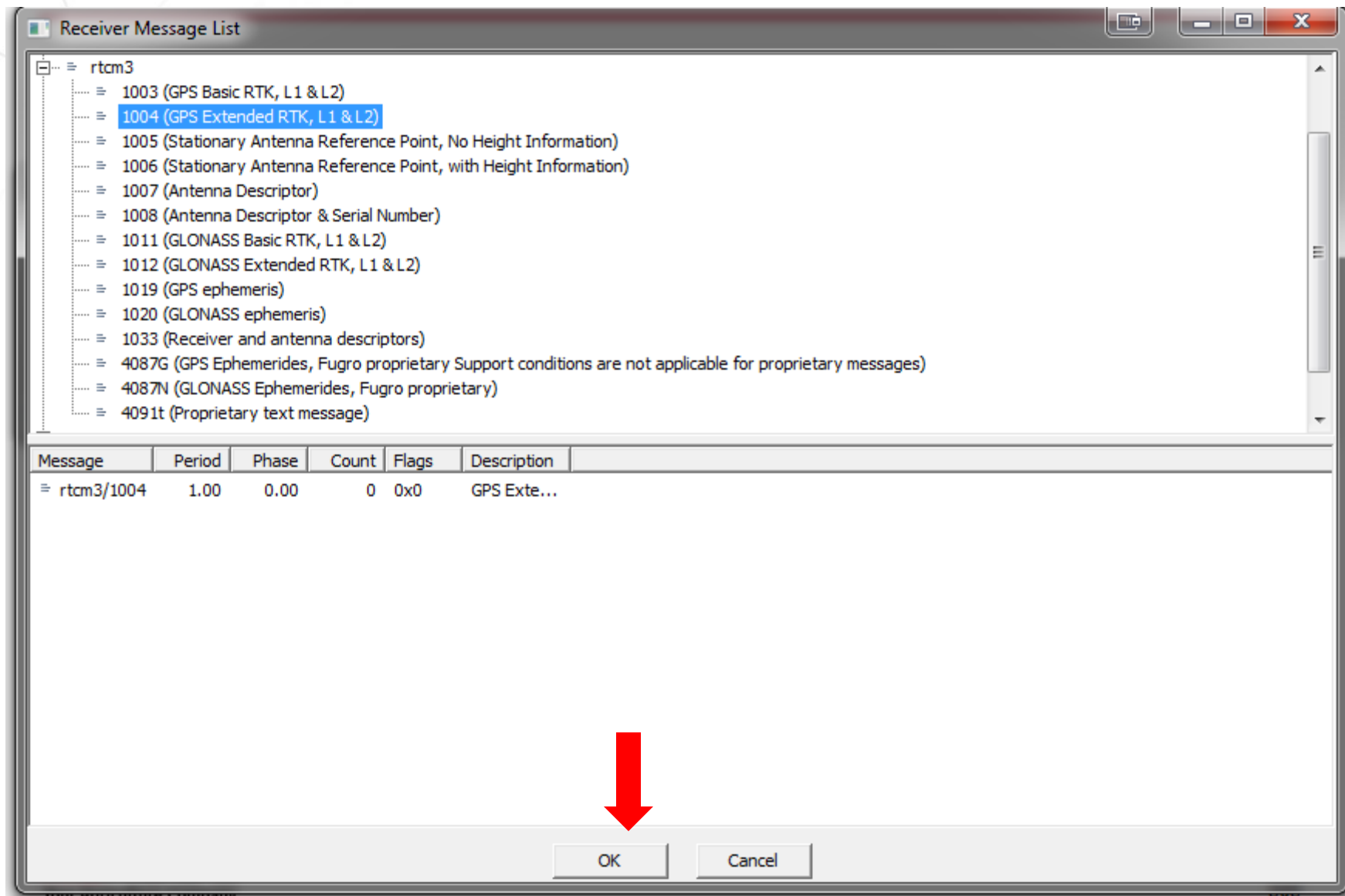


# Protocols

<b><i>Protocol</i></b>	<b><i>Message</i></b>
CMR	10, 0, 1
CMR+	10, 0, 9
DGPS RTCM	1, 31, 3
	9, 34, 3
RTK RTCM	18, 19, 22, 3
	20, 21, 22, 3
	18, 19, 23, 24
	20, 21, 23, 24
RTCM 3 GD Min	1003, 1006, 1008
RTCM 3 GD Full	1004, 1006, 1008
RTCM 3 GGD Min	1003, 1006, 1008, 1011
RTCM 3 GGD Full	1004, 1006, 1008, 1012

## Setting the Message

Double click on any additional message strings that you want to add.



The screenshot shows a window titled "Receiver Message List" with a tree view on the left and a table on the right. The tree view shows a folder "rtcm3" containing several message types. The message "1004 (GPS Extended RTK, L1 & L2)" is selected and highlighted in blue. The table below shows the details for the selected message.

Message	Period	Phase	Count	Flags	Description
rtcm3/1004	1.00	0.00	0	0x0	GPS Ext...

A red arrow points to the "OK" button at the bottom of the dialog box.



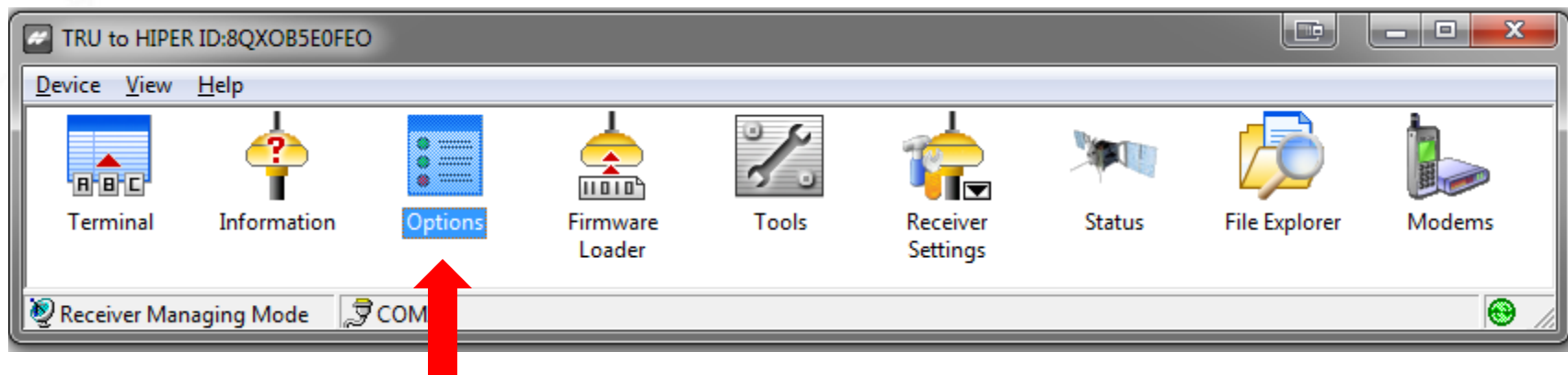
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## Checking and Loading OAF Files



# Connecting to Receiver

## Select Options





# Connect to the Receiver

You need to make sure the Auto Seed is turned on.

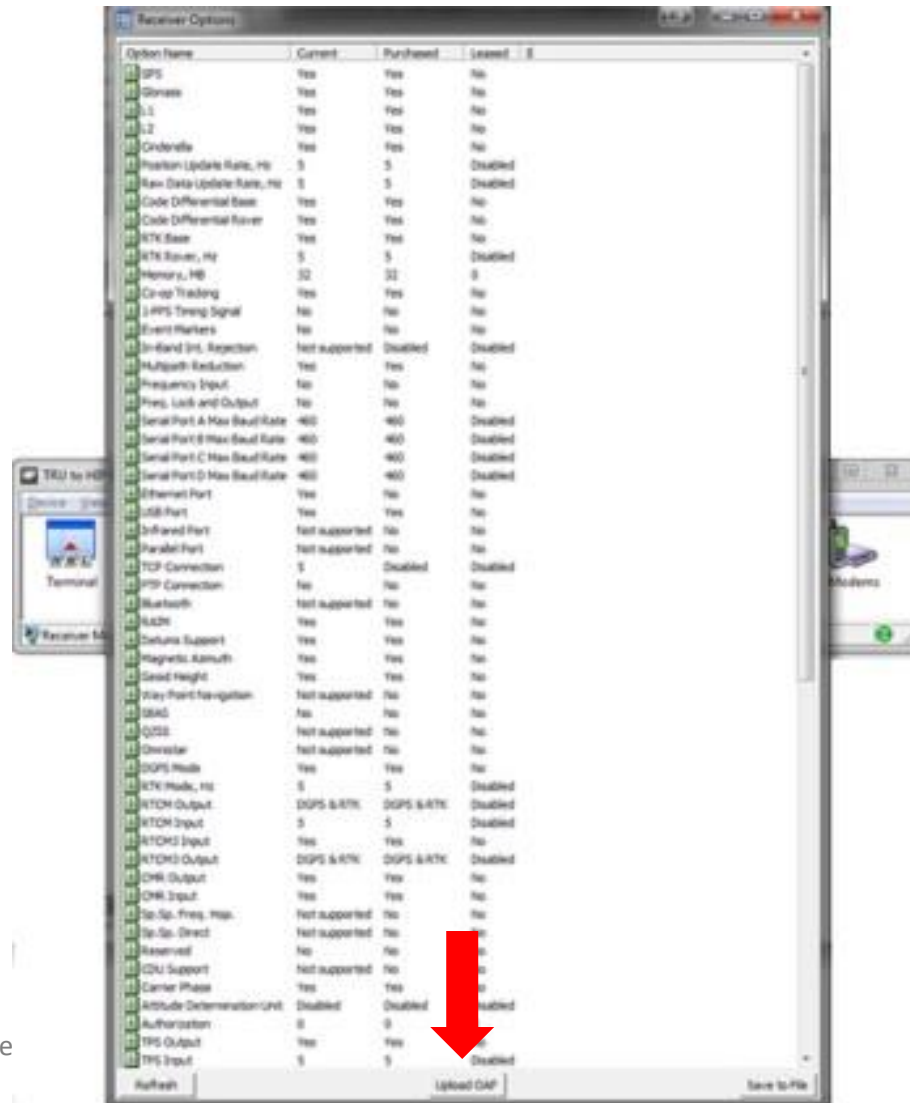
Option	Setting 1	Setting 2	Setting 3
RTK Base	Yes	Yes	No
RTK Distance, km	No restrictions	No restrictions	Disabled
Auto Seed	Yes	Yes	No

RTK Base Yes, Yes, NO  
 RTK Distance No restrictions No Restrictions Disabled  
 Auto Seed Yes Yes No

Port/Feature	Supported	Enabled	Disabled
Infrared Port	Not supported	No	No
Parallel Port	Not supported	No	No
TCP Connection	Yes	Disabled	Disabled
UDP Connection	No	No	No
Bluetooth	Not supported	No	No
RS485	Yes	Yes	No
Distance Support	Yes	Yes	No
Way Point Navigation	Not supported	No	No
Chirder	Not supported	No	No
DGPS Mode	Yes	Yes	No
RTK Mode, Hz	S	S	Disabled
RTCM Output	DGPS & RTK	DGPS & RTK	Disabled
RTCM Input	S	S	Disabled
RTCM Input	Yes	Yes	No
RTCM Output	DGPS & RTK	DGPS & RTK	Disabled
CHM Output	Yes	Yes	No
CHM Input	Yes	Yes	No
Sp. Sp. Pres. Map	Not supported	No	No
Sp. Sp. Direct	Not supported	No	No
Reserved	No	No	No
CDU Support	Not supported	No	No
Center Phase	Yes	Yes	No
Altitude Determination	Disabled	Disabled	Disabled
Authorization	0	0	No
TPS Output	Yes	Yes	No
TPS Input	S	S	Disabled

## Connect to the Receiver

Click Upload OAF button to load a file if needed.



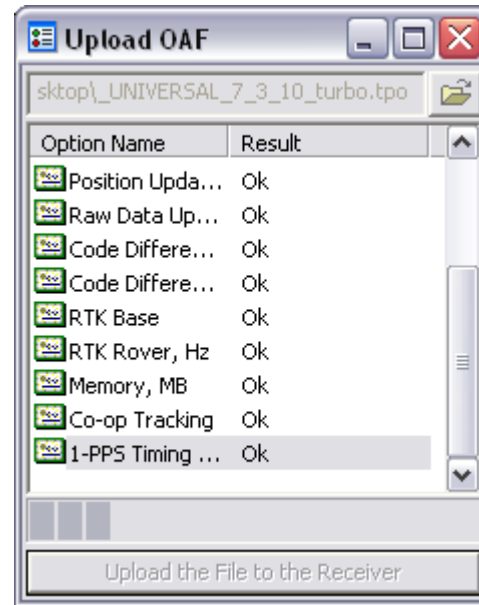
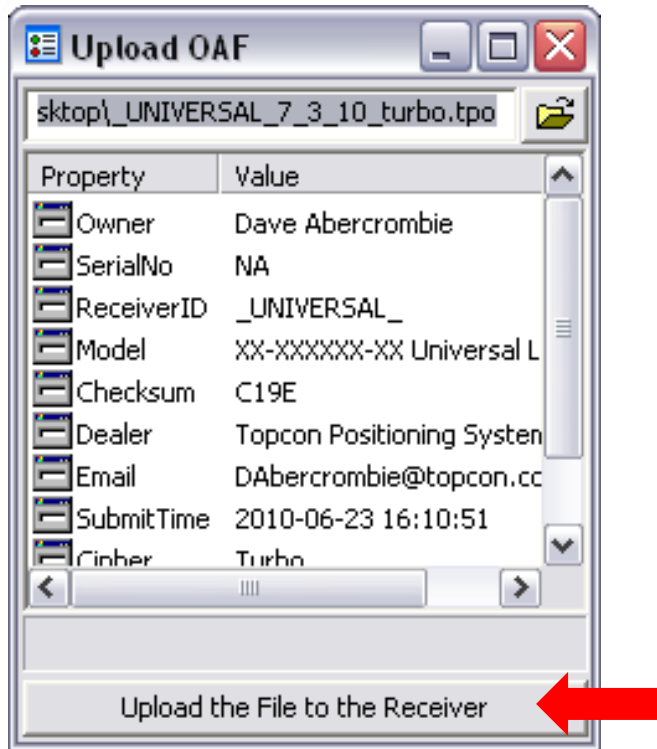
The screenshot displays the 'Receiver Options' dialog box. The dialog contains a table with the following columns: Option Name, Current, Purchased, and Saved. A red arrow points to the 'Upload OAF' button at the bottom right of the dialog.

Option Name	Current	Purchased	Saved
SPS	Yes	Yes	No
Glance	Yes	Yes	No
L1	Yes	Yes	No
L2	Yes	Yes	No
Ordnance	Yes	Yes	No
Position Update Rate, Hz	5	5	Disabled
Raw Data Update Rate, Hz	5	5	Disabled
Code Differential Base	Yes	Yes	No
Code Differential Rover	Yes	Yes	No
RTK Base	Yes	Yes	No
RTK Rover, Hz	5	5	Disabled
Memory, MB	32	32	0
Co-op Tracking	Yes	Yes	No
L-PPS Timing Signal	No	No	No
Event Markers	No	No	No
In-Band Int. Rejection	Not supported	Disabled	Disabled
Multipath Reduction	Yes	Yes	No
Frequency Input	No	No	No
Pres. Lock and Output	No	No	No
Serial Port A Max Baud Rate	460	460	Disabled
Serial Port B Max Baud Rate	460	460	Disabled
Serial Port C Max Baud Rate	460	460	Disabled
Serial Port D Max Baud Rate	460	460	Disabled
Ethernet Port	Yes	No	No
USB Port	Yes	Yes	No
Infrared Port	Not supported	No	No
Parallel Port	Not supported	No	No
TCP Connection	5	Disabled	Disabled
FTP Connection	No	No	No
Bluetooth	Not supported	No	No
RACN	Yes	Yes	No
Deluxe Support	Yes	Yes	No
Magnetic Smooth	Yes	Yes	No
Grid Height	Yes	Yes	No
Way Point Navigation	Not supported	No	No
SRAS	No	No	No
OCSE	Not supported	No	No
Cherisher	Not supported	No	No
DGPS Mode	Yes	Yes	No
RTK Mode, Hz	5	5	Disabled
RTCM Output	DGPS & RTK	DGPS & RTK	Disabled
RTCM Input	5	5	Disabled
RTCM Input	Yes	Yes	No
RTCM Output	DGPS & RTK	DGPS & RTK	Disabled
CHM Output	Yes	Yes	No
CHM Input	Yes	Yes	No
Sp. Sp. Pres. Map	Not supported	No	No
Sp. Sp. Direct	Not supported	No	No
Reserved	No	No	No
CDU Support	Not supported	No	No
Center Phase	Yes	Yes	No
Altitude Determination CHM	Disabled	Disabled	Disabled
Authorization	0	0	No
TPS Output	Yes	Yes	No
TPS Input	5	5	Disabled

# Upload the OAF

Click the upload button

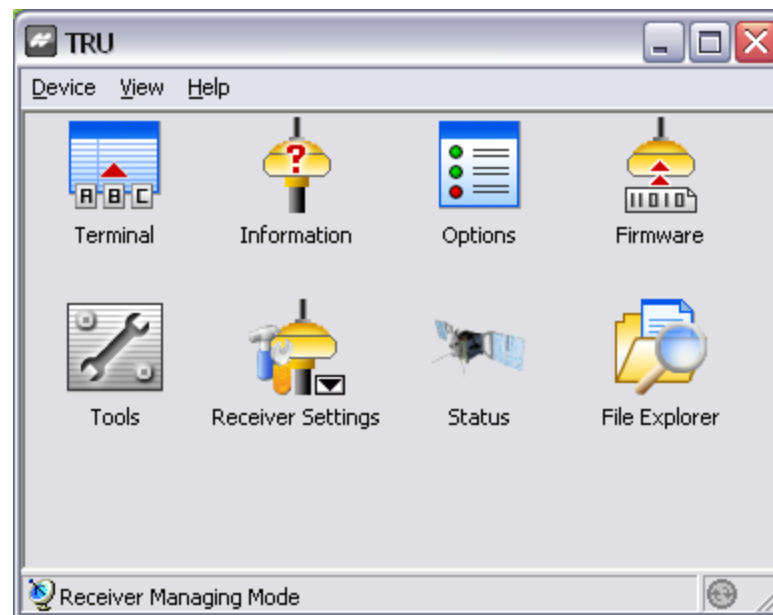
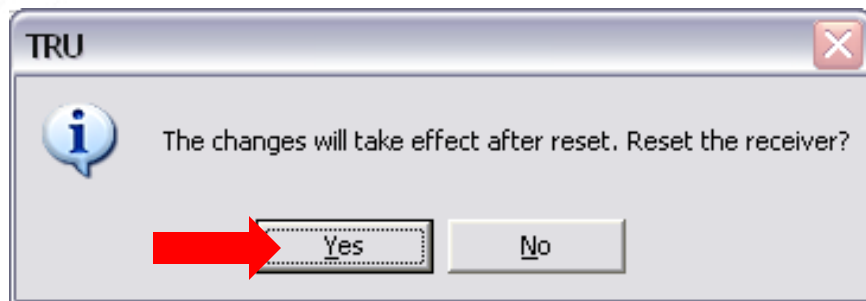
When the task bar is scrolling across the screen the OAF is loading.



## Disconnecting

Click Yes to reset the receiver.

Software will automatically disconnect.

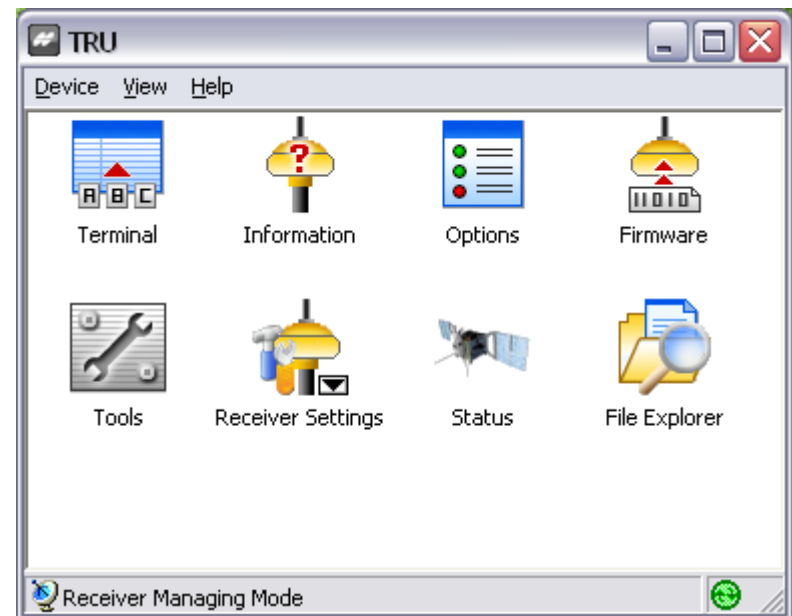
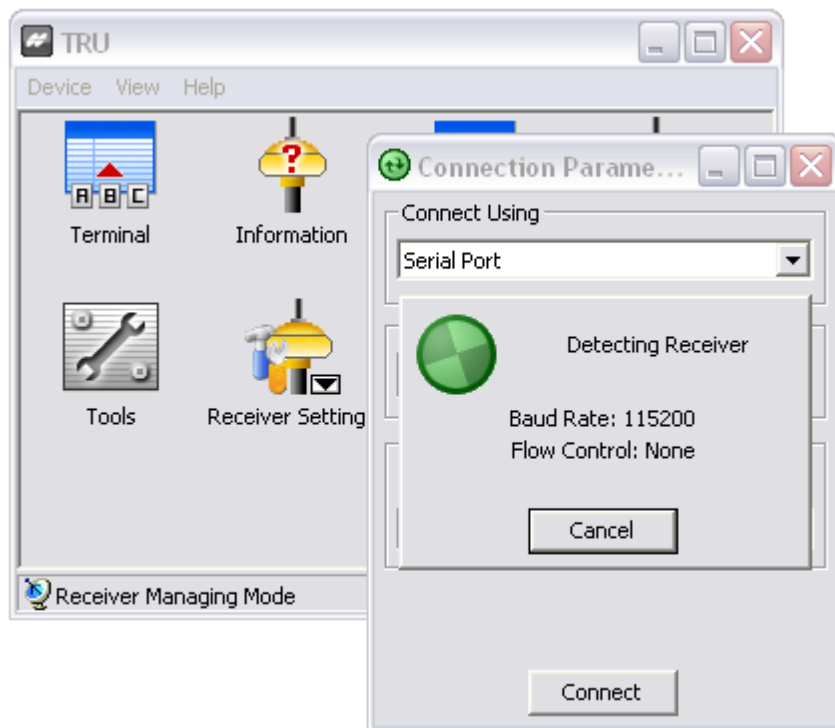




# Resetting Receiver

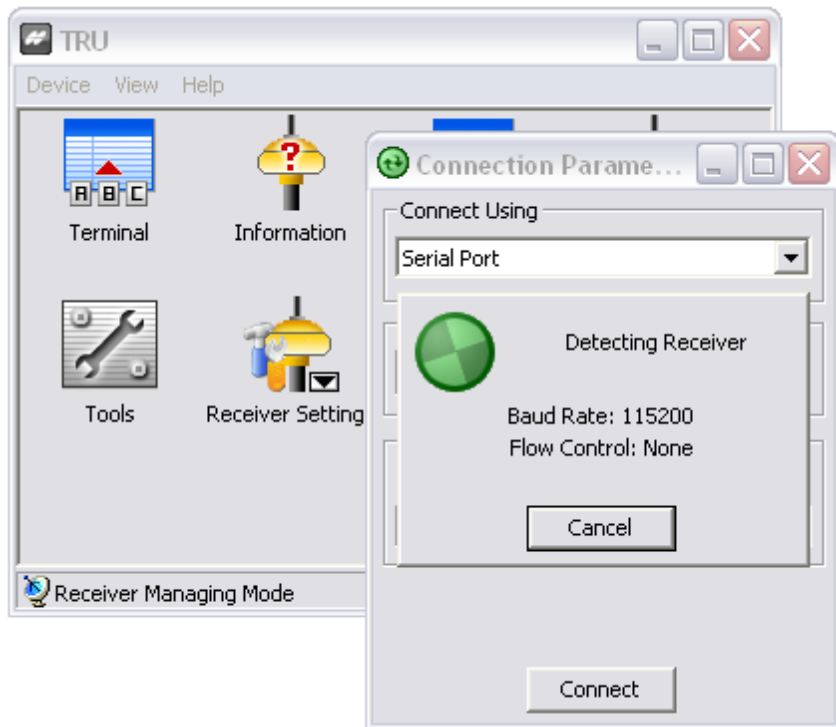
Software will reconnect on its own.

Loading complete.



# Resetting Receiver

Software will reconnect on its own.





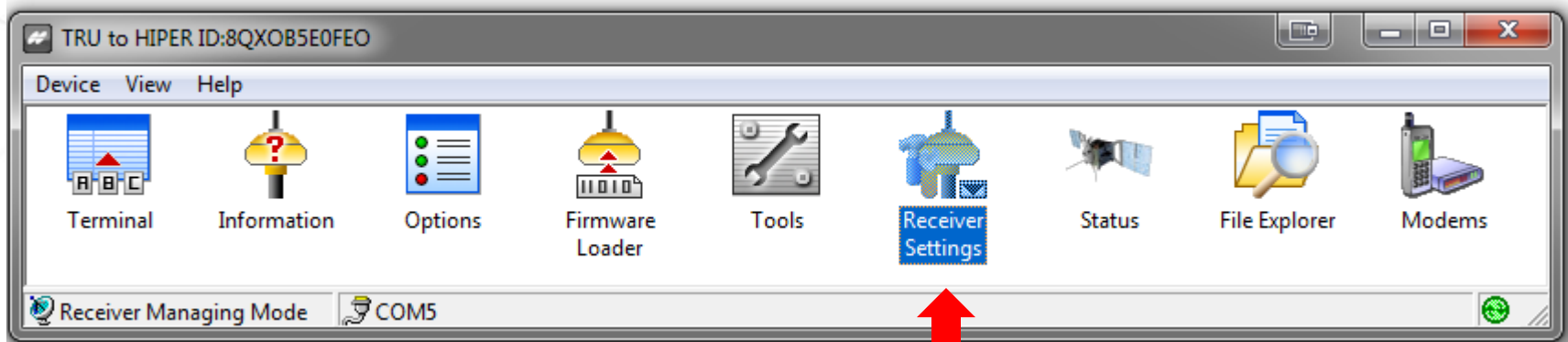
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## Saving Auto Seed Points

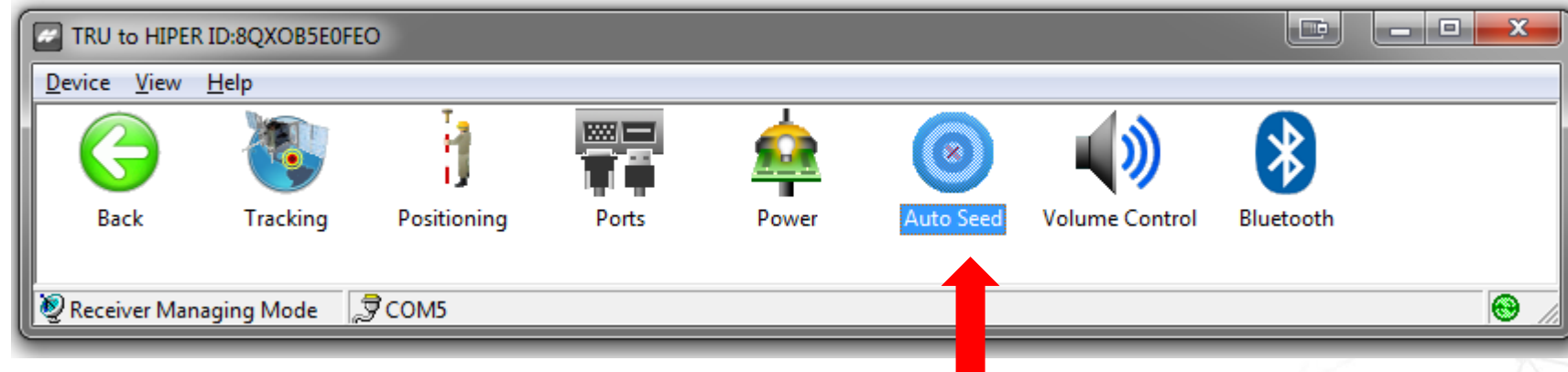


## Setting up the HiPer Ag

Click on Receiver Settings.



Click on Auto Seed.

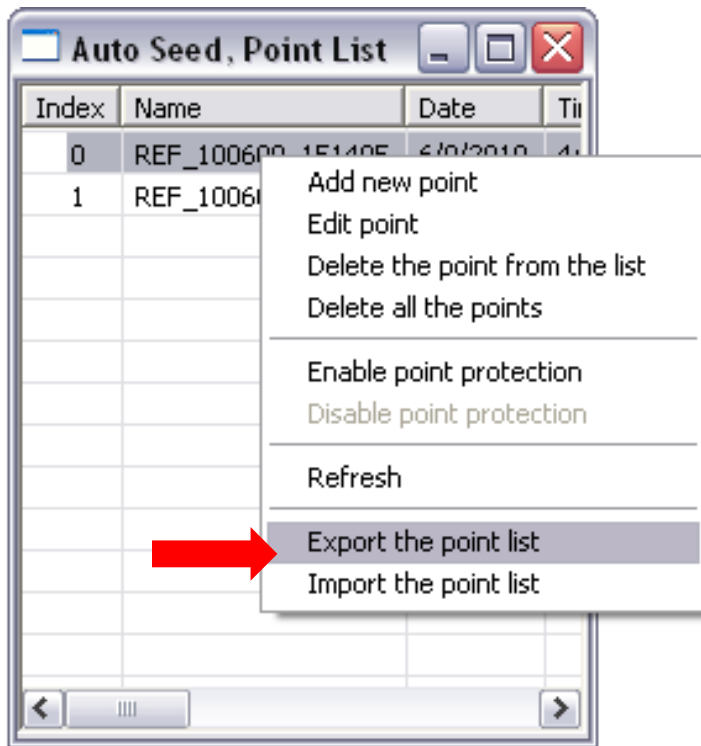




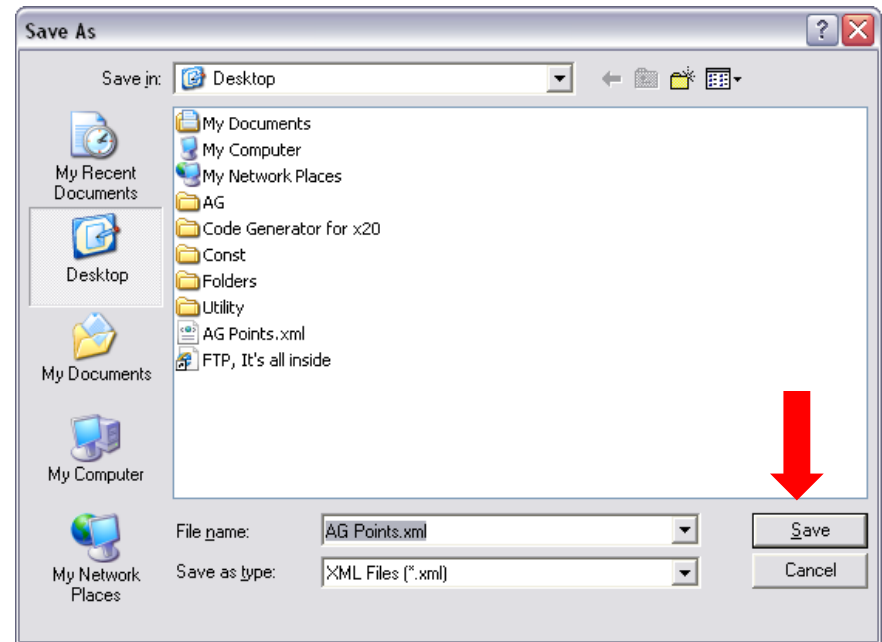


## Exporting points

Right click on the points list then click on Export Points.



Name file and save it to defined location.



## The File is Saved





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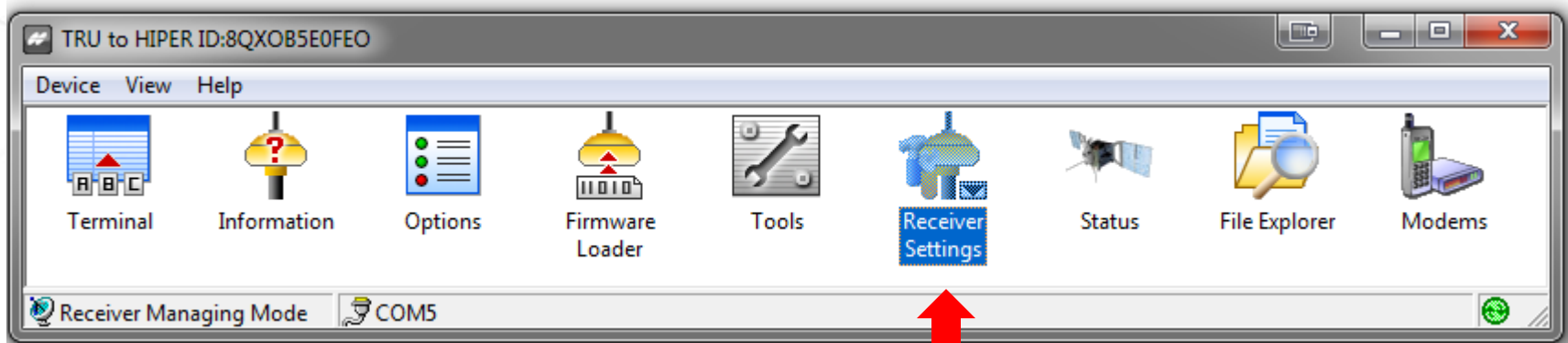
## Loading the Auto Seed File



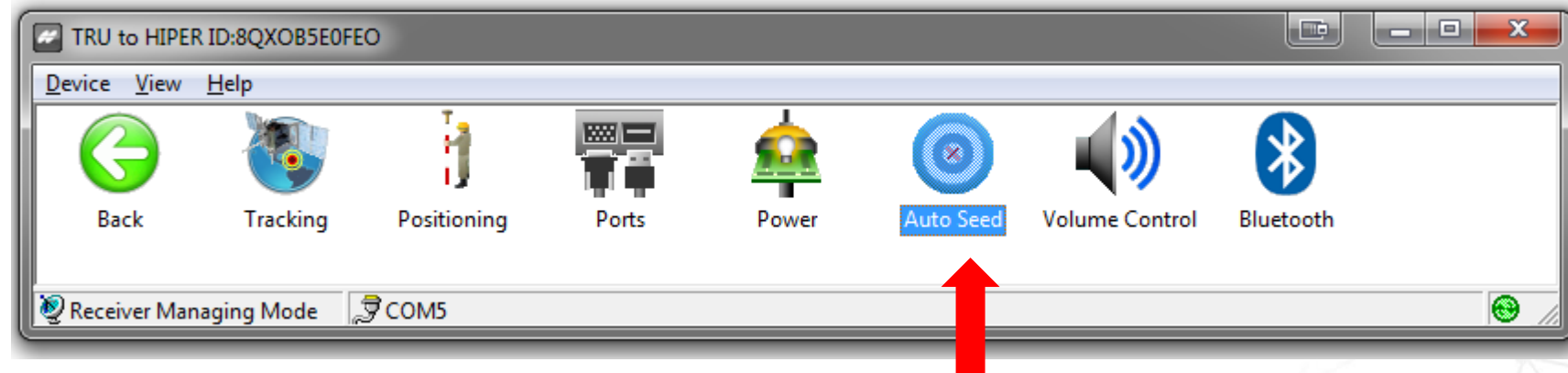


## Setting up the HiPer Ag

Click on Receiver Settings.



Click on Auto Seed.













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## Configuration with Auto-Guide 3000



## Auto-Guide 3000 Setup

To use a HiperAG with a System 150 / 350:

Install RTK module into AGI-4 antenna

Setup up C1000/ C3000 to receive RTK signal

Verify RTK signal is being received

Differential Mode will read RTK

Ready to navigate



Connecting your farm enterprise  
like never before

## Receiver Maintenance



## HiPer AG Base Station

### Entering Sleep (Off) Mode

In sleep mode, the power board continues to draw power from the batteries, causing the batteries to drain over time.

Sleep mode is the normal “off” state of the receiver.

Turn on receiver.

Press receiver’s power key for more than four seconds and less than eight seconds.

The STAT and REC LEDs will be orange.

The receiver enters Sleep Mode.

Any activity on the RS232 port turns on the receiver.



# HiPer AG Base Station

## Entering Zero Power Mode

When receiver is off, even in Sleep Mode, the power board continues to draw power from the batteries.

This means if you fully charge your receiver, turn it off and store it, the receiver will drain its battery power in less than two months.

To stop the various boards and modules from draining the batteries, put your receiver in Zero Power Mode.

Turn on your receiver.

Press and hold power key for more than 8 seconds but less than 14 seconds.

Release power key when both LEDs become red.

When LEDs turn off, your receiver will be in Zero Power Mode.

Press Reset key for about one second to return to Normal mode.



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## HiPer AG Troubleshooting



# HiPer AG Base Station

## Powering Problems

Problem: Receiver does not power up

The receiver may be in Zero Power Mode.

Press Reset key to return to Normal Mode

The batteries may be discharged.

If using an external power source, the cable may be disconnected or damaged.

Check that cable is securely connected and undamaged.

The receiver may have a defective charger or defective batteries.

If, after connecting an external power source, receiver still does not power up, then contact support.

## HiPer AG Base Station

### Receiver Problems

The RX/TX LED is flashing green on my base receiver.

The base has been set into Receiver mode, not Transmit mode.

There is no radio link between Base and Rover and the RX/TX LED is flashing green on the rover. The LED indicates that the receiver is set into Receive mode; however, no radio link has been established.

Check to make sure that the base receiver is powered on.

There is no radio link between Base and Rover and the Rover RX/TX LED is solid green.

Make sure that the base is tracking enough satellites.



## HiPer AG Base Station

### Receiver Problems

The RX/TX LED is flashing red on my receiver

A fault condition has been detected.

Check the radio modem's antenna to see if it is undamaged.

Check to see if the radio antenna is connected properly and securely.

The receiver does not lock on to satellites for a long period of time

Contact support

The receiver tracks too few satellites

Operation is conducted near obstructions (tree canopy, tall buildings, and so forth).

Move to an area free of obstructions, if applicable.

# Agenda

1	General Information	8	Configuration & Set-up
2	Components	9	Field Install vs. Factory Installations
3	C1000	10	Architecture and Installation
4	Configuration & Set-up	11	Diagnostics and Troubleshooting
5	Task Controller Setup (for mapping)	12	Base stations
6	Additional features	13	RTK - Radio vs. Cellular
7	C3000	14	AGCOMAND

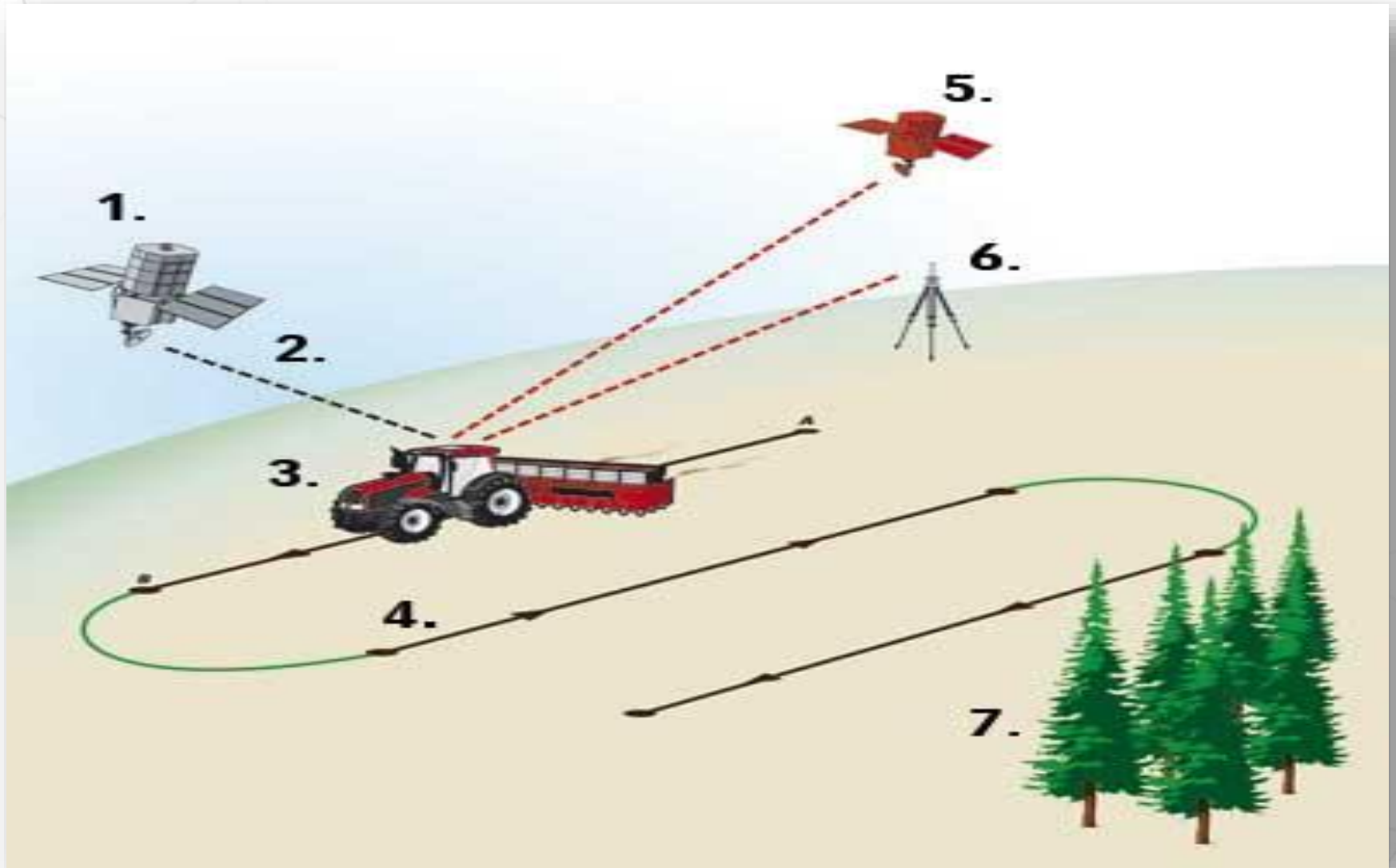


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## Continuous Operating Reference Station (CORs) Correction Source

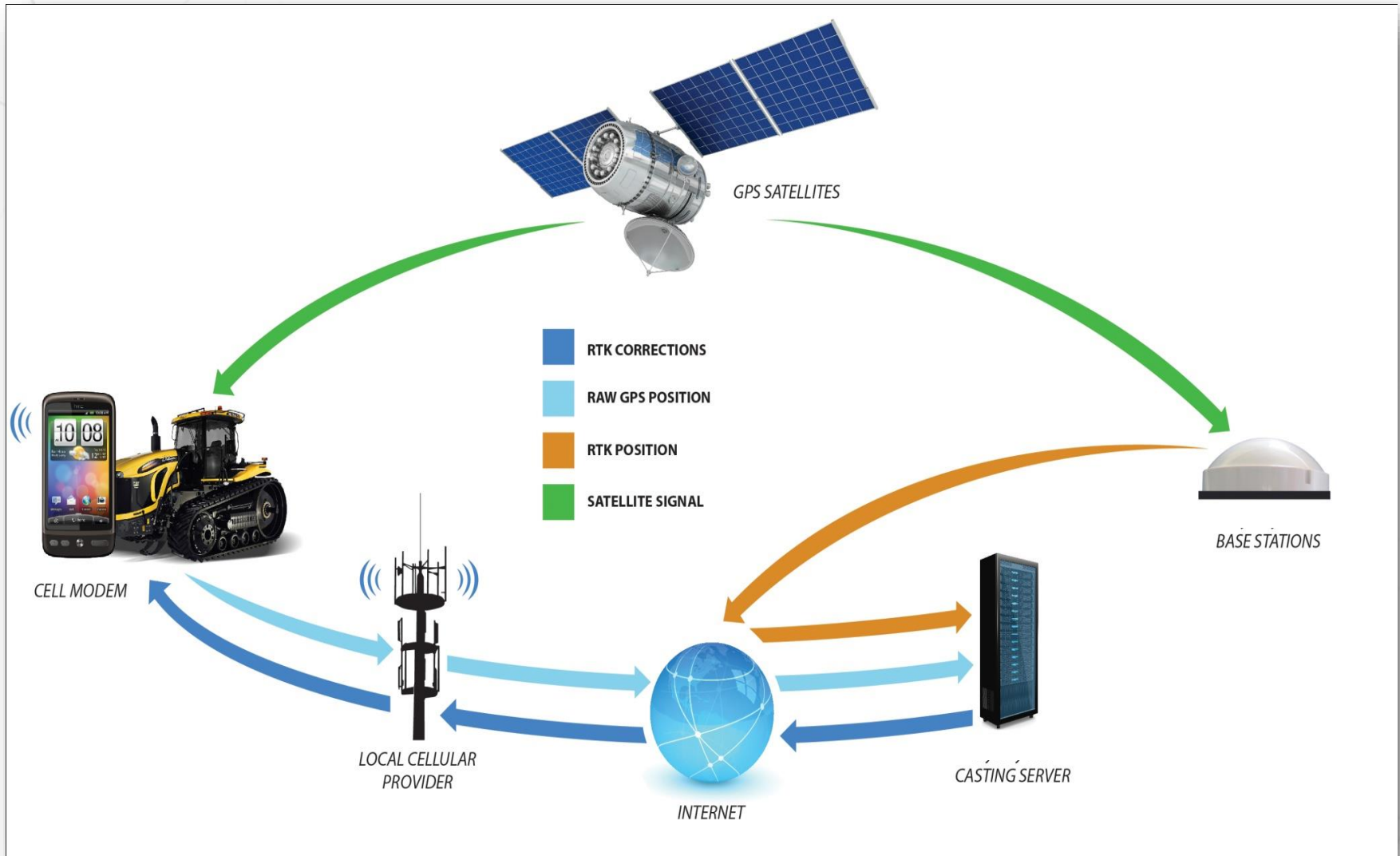


# Real-Time Kinematic (RTK)

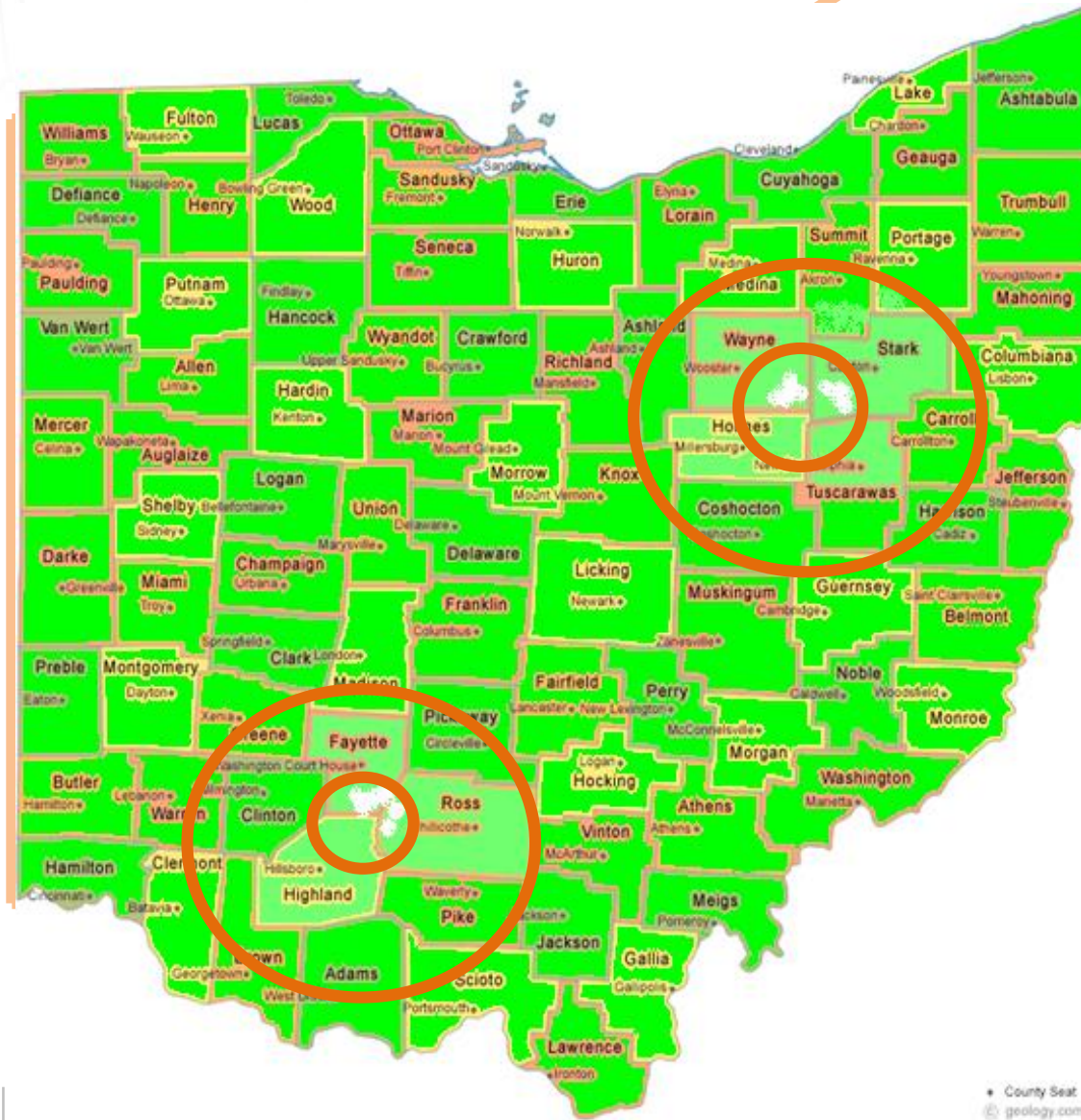




# Continuous Operating Reference Networks



# How a CORs Network works



## What is GSM?

**GSM (Global System for Mobile Communications**, originally *Groupe Spécial Mobile*), is a standard set developed by the European Telecommunications Standard Institute (ETSI) to describe technologies for second generation (or "2G") digital cellular networks. Developed as a replacement for first generation analog cellular networks.

### **Subscriber Identity Module (SIM)**

One of the key features of GSM is the Subscriber identity Module, commonly known as a **SIM card**. The SIM is a detachable smart card containing the user's subscription information and phone book. This allows the user to retain his or her information after switching handsets. Alternatively, the user can also change operators while retaining the handset simply by changing the SIM.

Cell phone carriers T-Mobile and AT&T use GSM for their cell phone networks. Sprint, Virgin Mobile and Verizon Wireless use the competing CDMA standard.

## What is CDMA?

Code Division Multiple Access CDMA is a digital cellular standard by Qualcomm.

It is a Mobile Telecommunications Standard that uses CDMA, a multiple access scheme for digital radio, to send voice, data and signaling data (such as a dialed telephone number) between mobile telephones and cell sites.

CDMA or "code division multiple access" is a digital radio system that transmits streams of bits (PN codes). CDMA permits several radios to share the same frequencies. Unlike TDMA "time division multiple access", a competing system used in 2G GSM, all radios can be active all the time, because network capacity does not directly limit the number of active radios. Since larger numbers of phones can be served by smaller numbers of cell-sites, CDMA-based standards have a significant economic advantage over TDMA-based standards, or the oldest cellular standards that used frequency-division multiplexing.

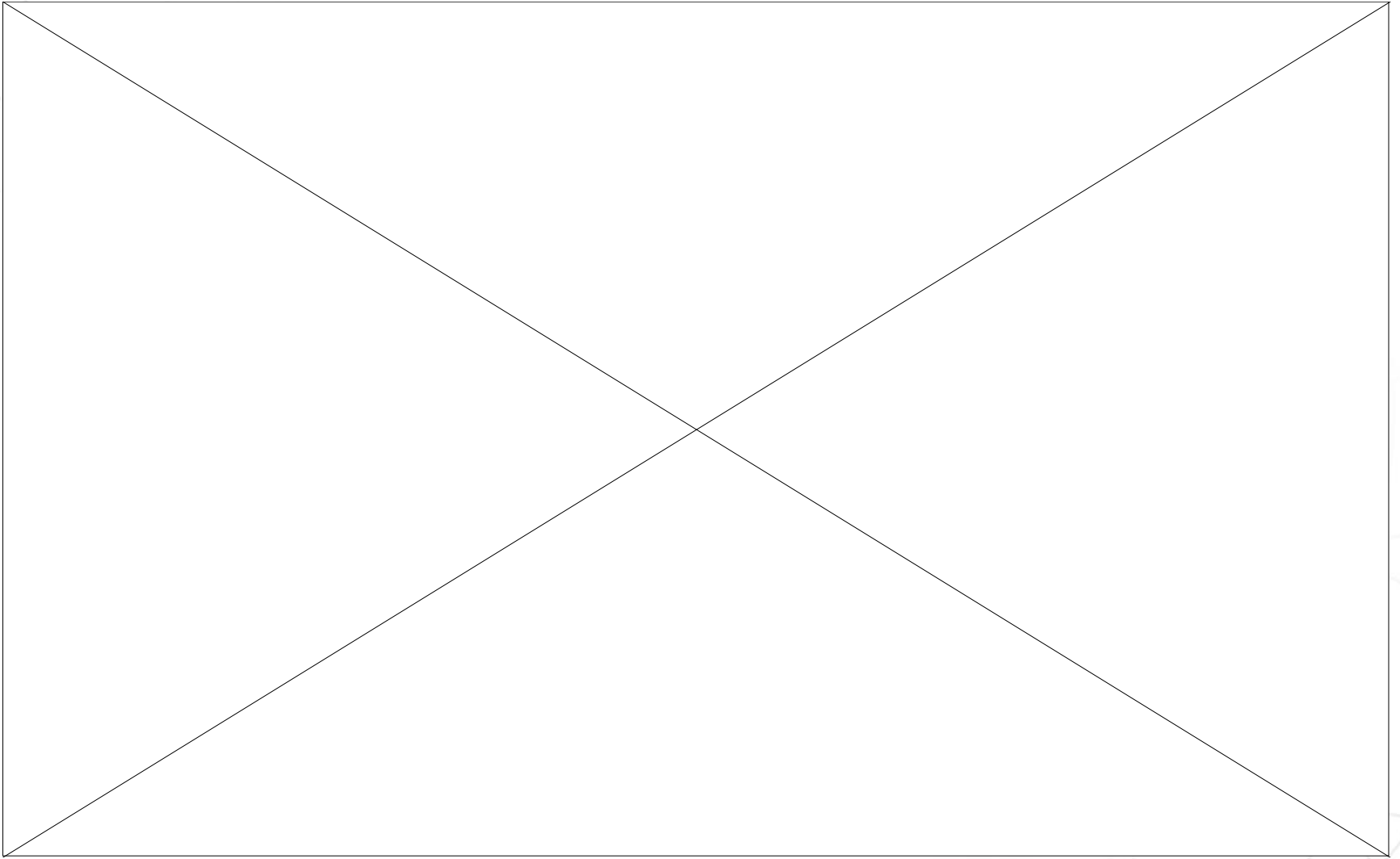


## What is GPRS?

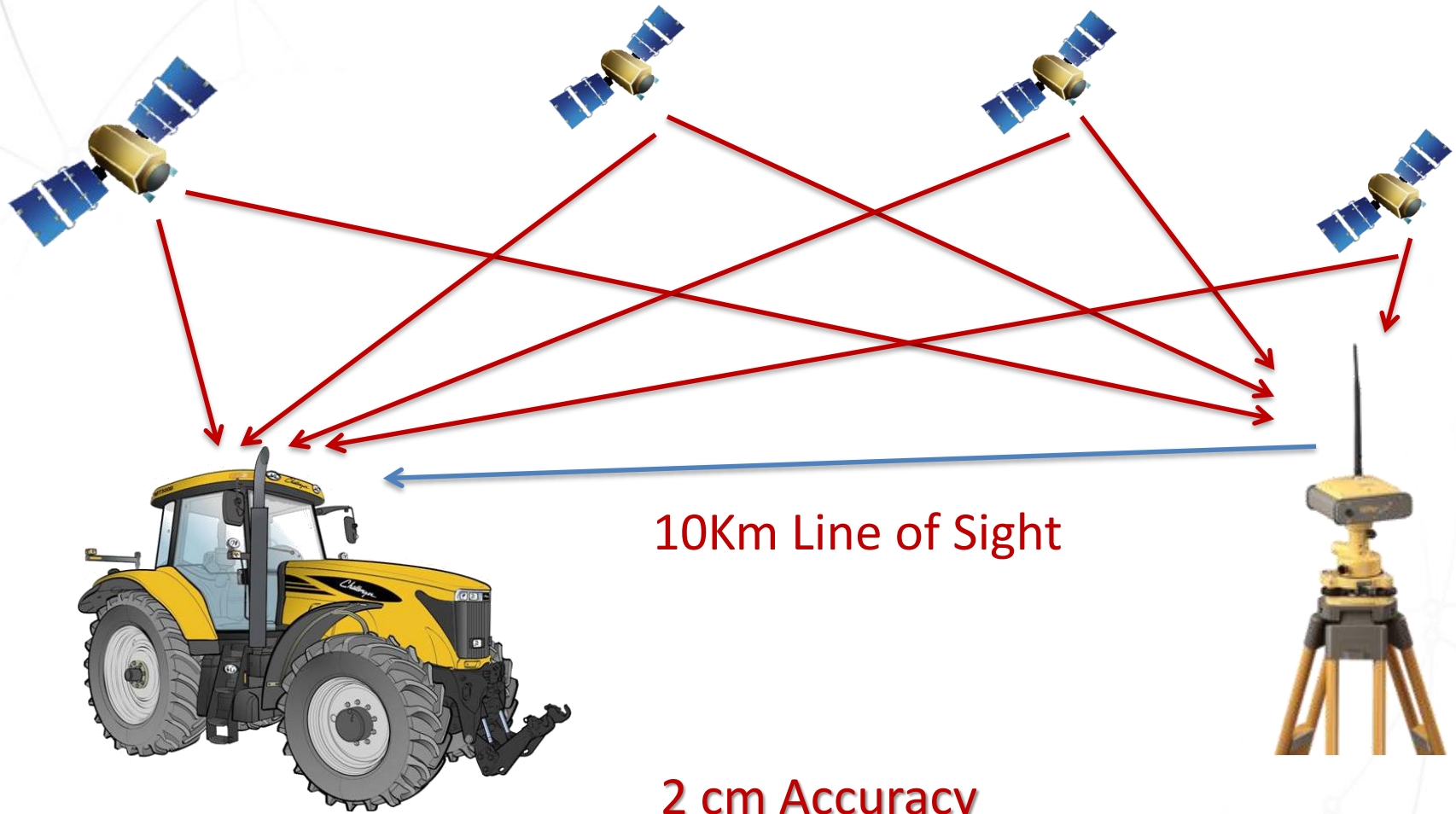
**General packet radio service (GPRS)** is a packet oriented mobile data service on the 2G and 3G cellular communication system's global system for mobile communications (GSM). GPRS was originally standardized by European Telecommunications Standard Institute (ETSI)

GPRS usage charging is based on volume of data, either as part of a bundle or on a pay-as-you-use basis. An example of a bundle is up to 5 GB per month for a fixed fee. Usage above the bundle cap is either charged for per megabyte or disallowed.

# Continual Operating Reference Networks



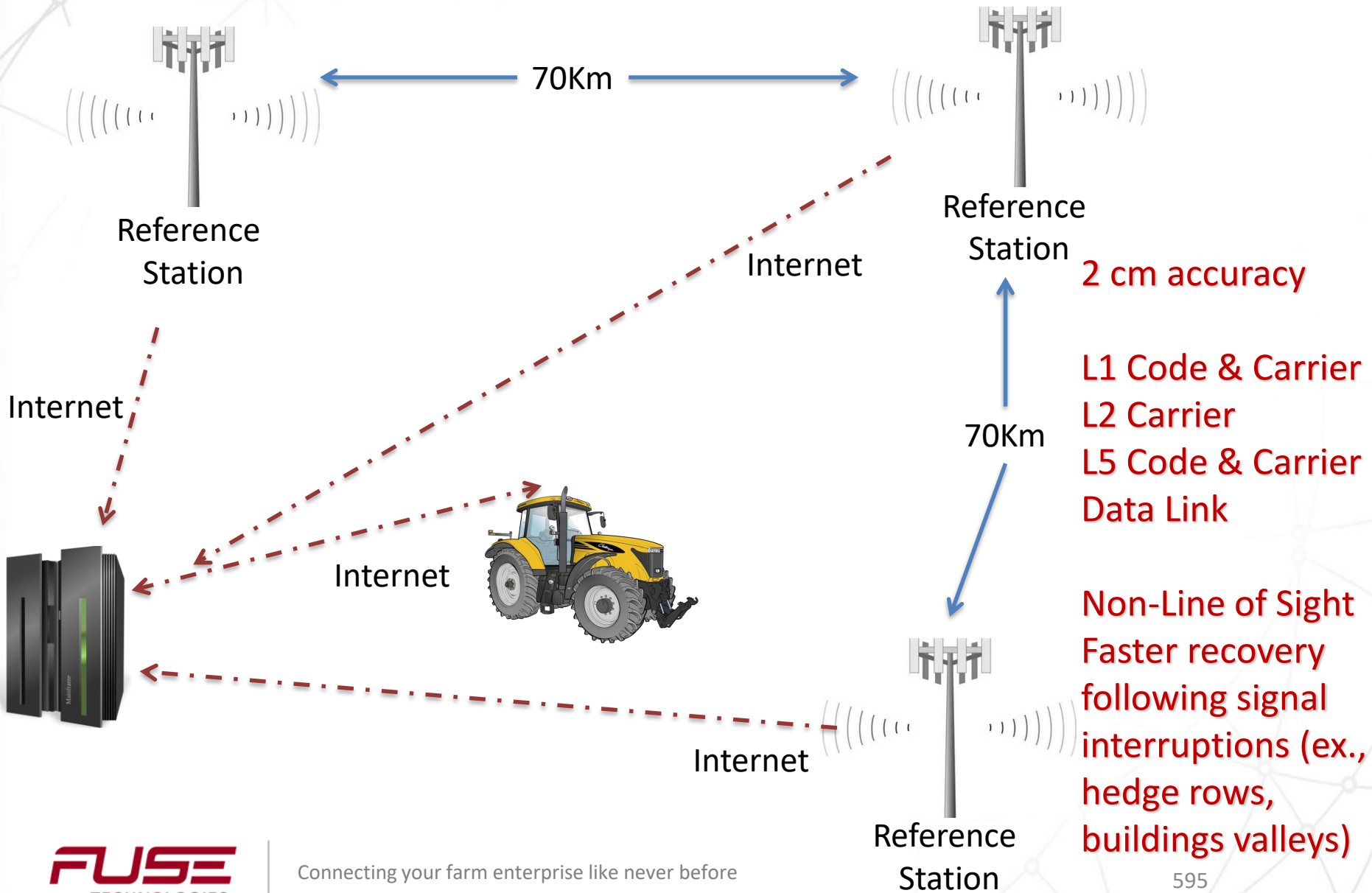
# Real-Time Kinematic: Radio



10Km Line of Sight

2 cm Accuracy  
L1 Code and Carrier  
L2 Carrier

# Real-Time Kinematic: Cellular





## CORS OVERVIEW

Network contained 1,800 sites as of April 2011

Provides code range (C/A, P1, P2)

and carrier phase observations (L1, L2)

Provides meteorological data at some sites

Designed to meet post-processing requirements for

Positioning

Navigation

Meteorology

Geophysics

# National CORS & Cooperative CORS

National CORS	Cooperative CORS
---------------	------------------

# *CORS ADVANTAGES*

3-Dimensional.

Users do not need to reconnect control points.

Users do not need to set up instruments at control points.

CORS positional coordinates are more accurate than those of other control points.

CORS positions are continuously monitored and will be updated if the site moves.

## *CORS DISADVANTAGES*

Distances to sites are currently excessive.

Operating expenses are very high

Annual fee per base

Annual fee per subscriber



# Future Directions of the National CORS

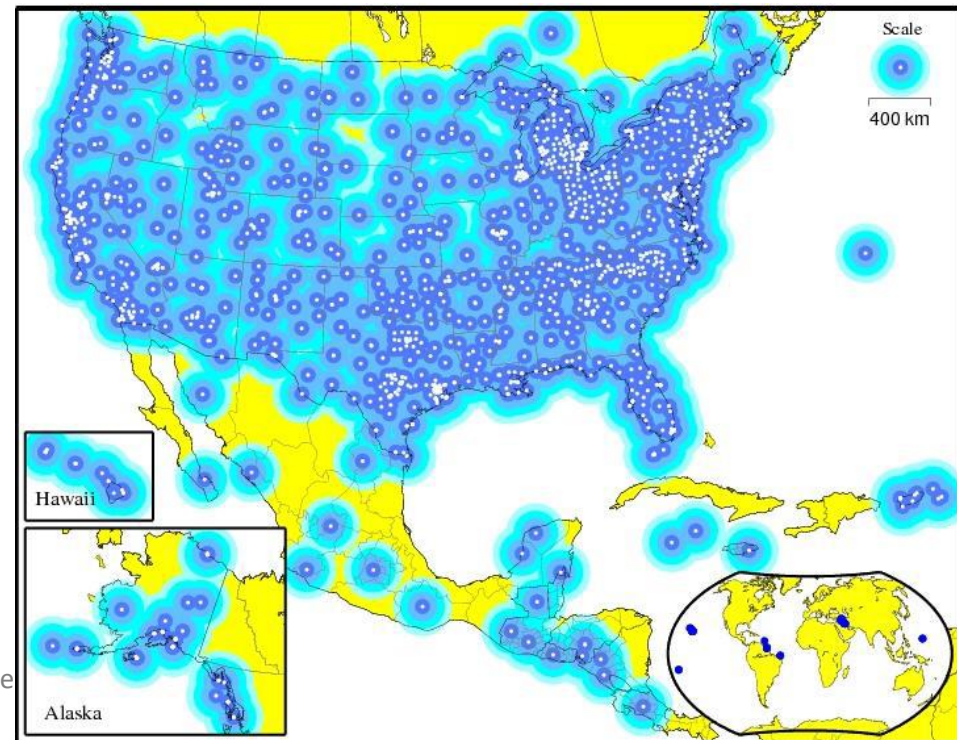
Centimeter Level Accuracy on a Global Scale.

\* Incorporate additional sites:

- Nationwide Differential GPS (NDGPS)
- Wide Area Augmentation System (WAAS)
- Cooperative CORS

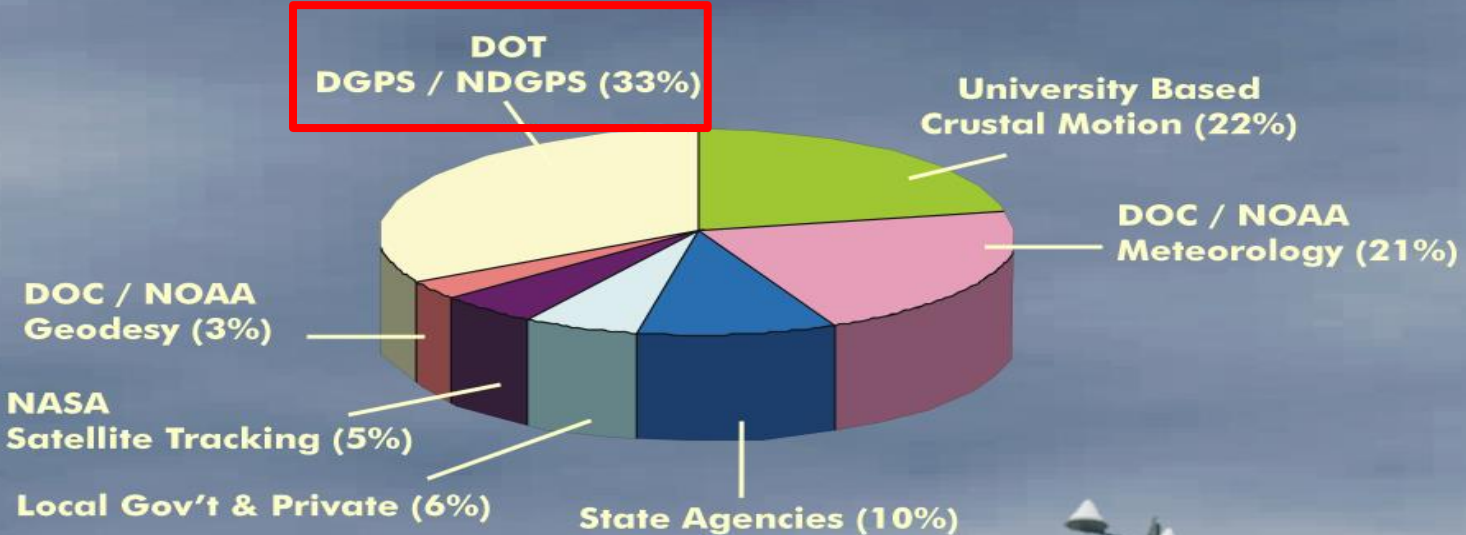
Sponsor: National Oceanic and Atmospheric Administration

- 1,900+ sites
- Operated by 200+ academic organizations
- Enables highly accurate, 3-D positioning



# Continuous Operating Reference Networks

## National CORS Partners



# CORS PARTNERS: FEDERAL

Federal Highway Administration

Federal Railway Administration

Federal Aviation Administration

Forecast Systems Laboratory

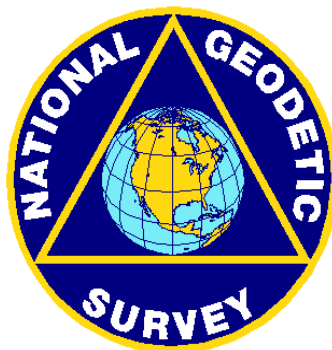
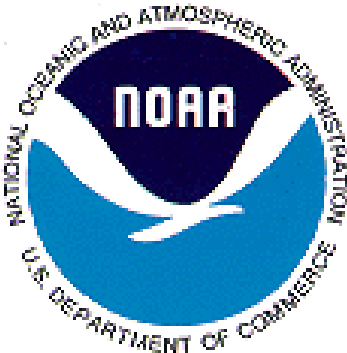
NASA

US Geological Survey

US Army Corps of Engineers

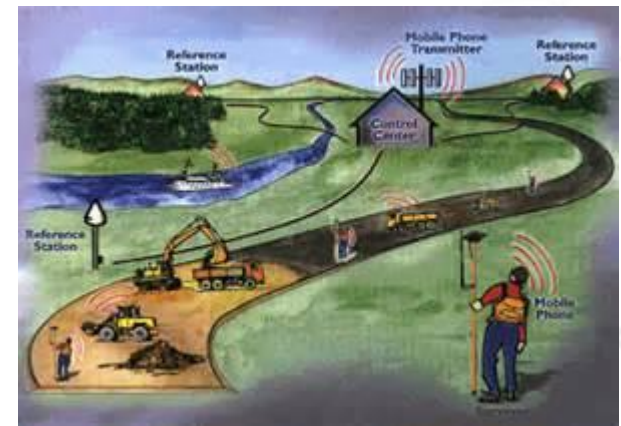
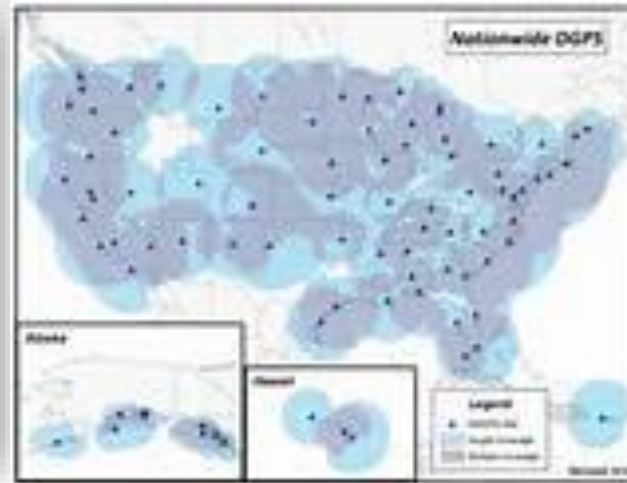
US Air Force

US Naval Observatory





# CORS SITES





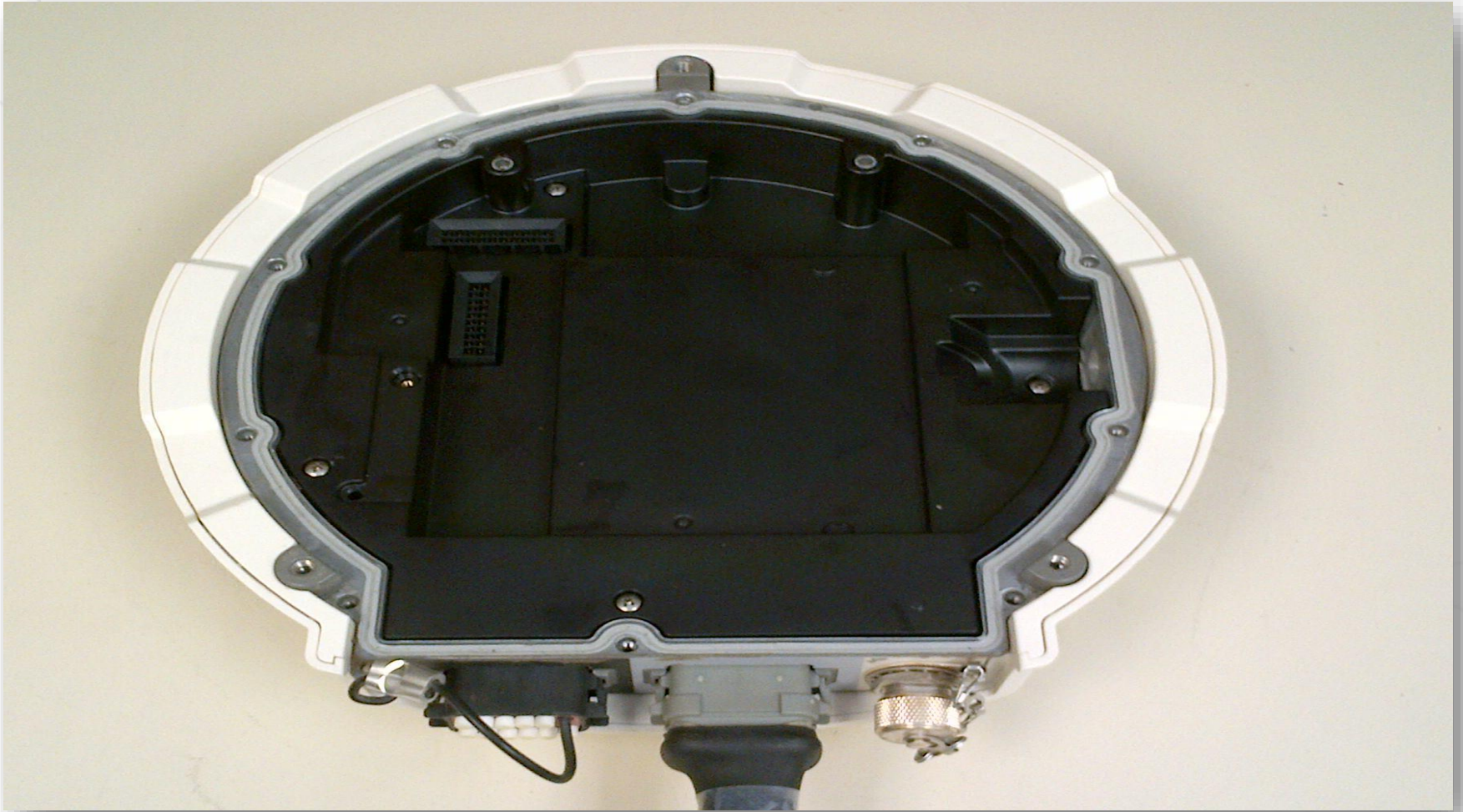


# Continuous Operating Reference Networks





# Continuous Operating Reference Networks





# Continuous Operating Reference Networks



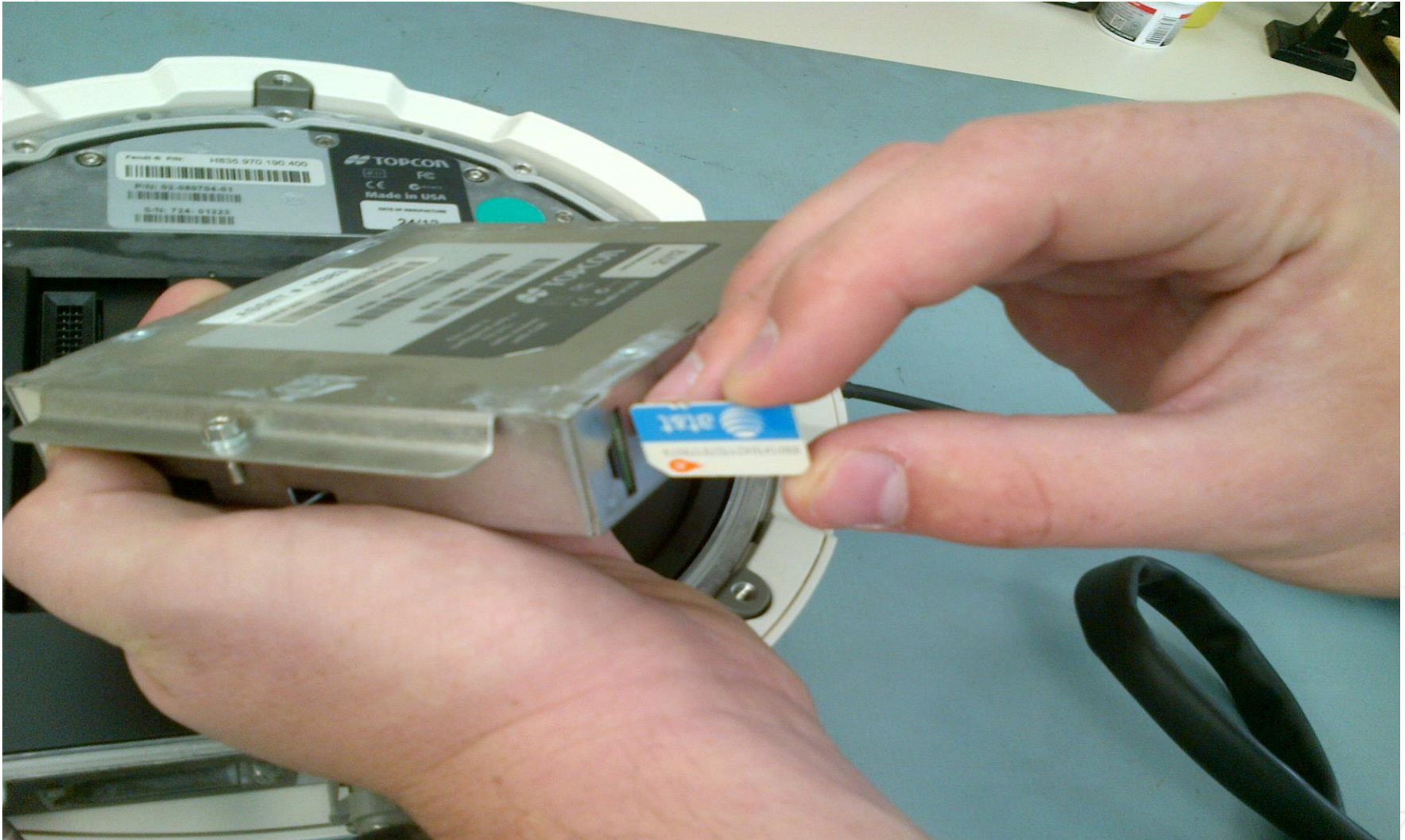


# Continuous Operating Reference Networks



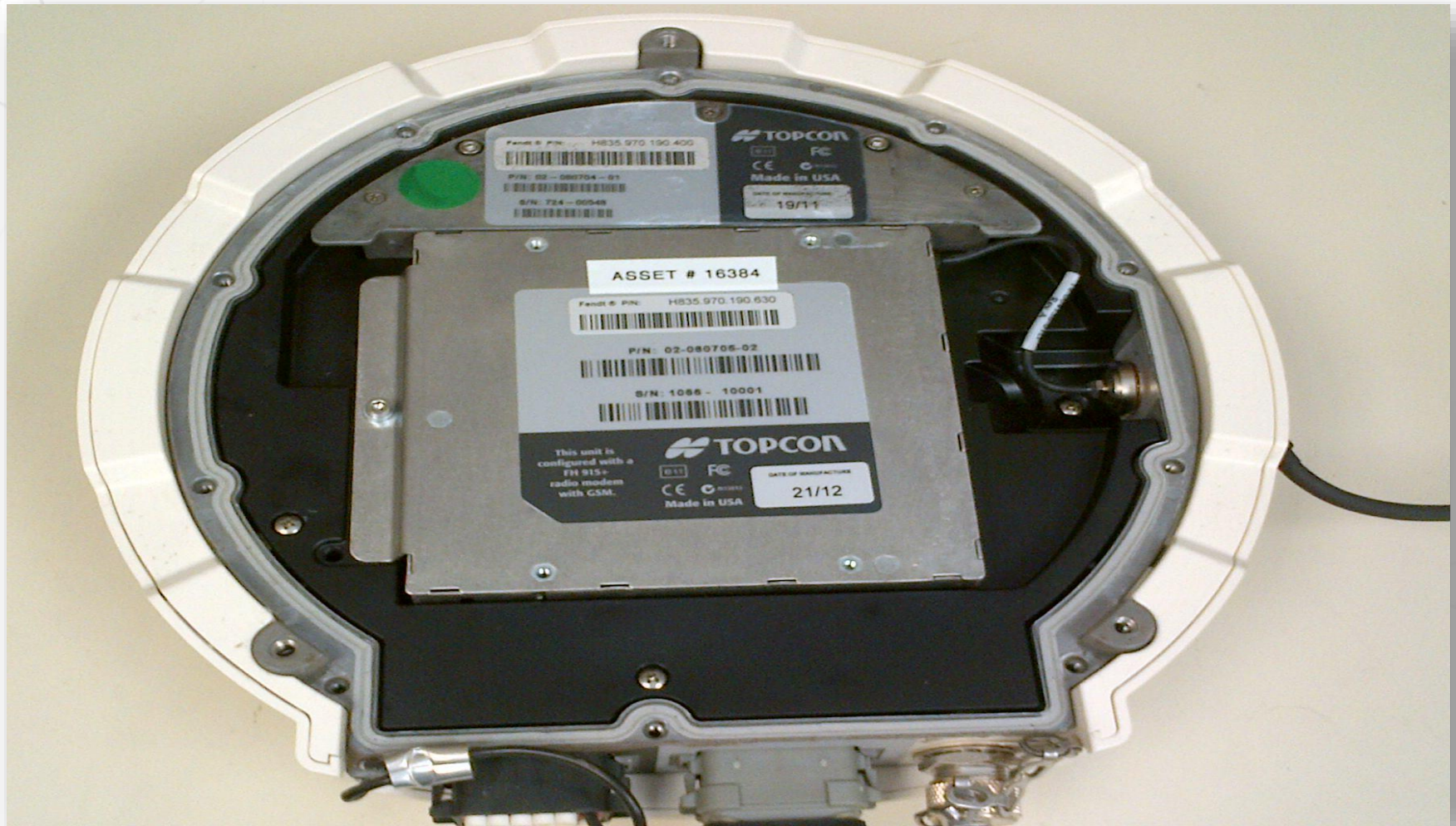


# Continuous Operating Reference Networks





# Continuous Operating Reference Networks





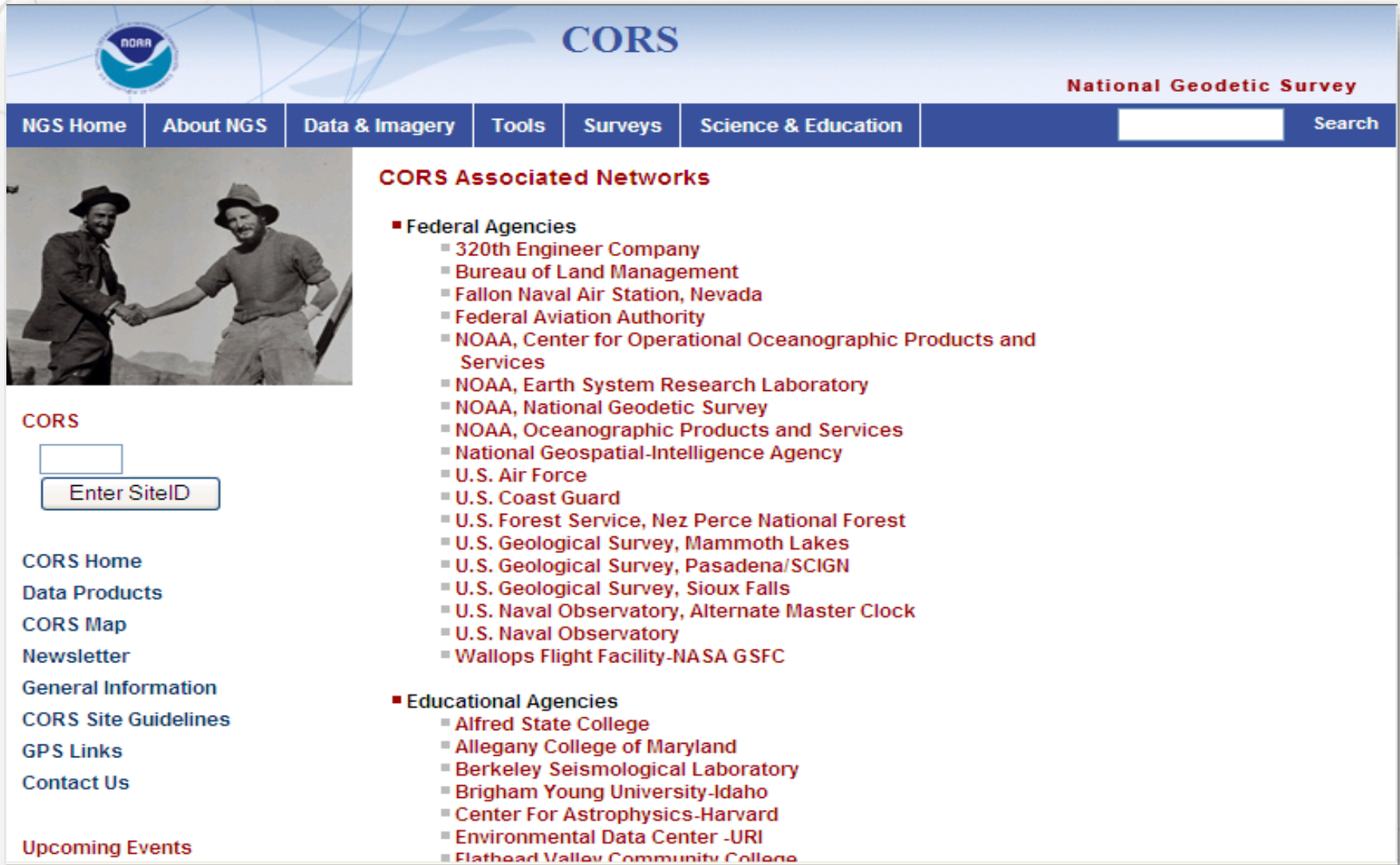
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## How to setup a CORs Account






# How to setup a CORs Account



 **CORS** National Geodetic Survey

[NGS Home](#) | [About NGS](#) | [Data & Imagery](#) | [Tools](#) | [Surveys](#) | [Science & Education](#) |  [Search](#)



**CORS Associated Networks**

- **Federal Agencies**
  - 320th Engineer Company
  - Bureau of Land Management
  - Fallon Naval Air Station, Nevada
  - Federal Aviation Authority
  - NOAA, Center for Operational Oceanographic Products and Services
  - NOAA, Earth System Research Laboratory
  - NOAA, National Geodetic Survey
  - NOAA, Oceanographic Products and Services
  - National Geospatial-Intelligence Agency
  - U.S. Air Force
  - U.S. Coast Guard
  - U.S. Forest Service, Nez Perce National Forest
  - U.S. Geological Survey, Mammoth Lakes
  - U.S. Geological Survey, Pasadena/SCIGN
  - U.S. Geological Survey, Sioux Falls
  - U.S. Naval Observatory, Alternate Master Clock
  - U.S. Naval Observatory
  - Wallops Flight Facility-NASA GSFC
- **Educational Agencies**
  - Alfred State College
  - Allegany College of Maryland
  - Berkeley Seismological Laboratory
  - Brigham Young University-Idaho
  - Center For Astrophysics-Harvard
  - Environmental Data Center -URI
  - Flathead Valley Community College

**CORS**

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[CORS Site Guidelines](#)  
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[Contact Us](#)

[Upcoming Events](#)

# How to setup a CORs Account

- Arizona State Land Department, State Cartographers Office
- Arkansas Highway and Transportation Department
- Commonwealth of the Northern Mariana Islands
- Connecticut Department of Transportation
- Delaware Department of Parks and Recreation
- Delaware Department of Transportation
- Florida Department of Transportation
- Idaho Department of Transportation District 3
- Idaho Department of Transportation District 6
- Idaho Transportation Dept
- Kentucky Department of Transportation
- Lower Colorado River Authority
- Michigan DOT, Jackson TSC
- Michigan Department of Transportation
- Minnesota Department of Transportation
- Missouri Department of Transportation
- Nebraska Department of Roads
- New Hampshire Department of Transportation
- New York State Department of Transportation
- North Carolina Geodetic Survey
- North Dakota Department of Transportation Surveys & Photogrammetry
- Northampton Department of Public Works
- [Ohio Department of Transportation](#)
- Oklahoma Department of Transportation
- Pennsylvania Department of Transportation
- South Carolina Geodetic Survey
- State of Alaska, Department of Transportation
- Tennessee Dept. of Transportation Dsgn Div.
- Texas DOT, Dallas District
- Texas Department of Transportation
- Utah Department of Transportation
- Vermont Agency of Transportation/VAOT
- Virginia Department of Mines Minerals & Energy
- Virginia Department of Transportation
- West Virginia Department of Environmental Protection

## ▪ County Agencies

# How to setup a CORs Account

The screenshot shows the Ohio Department of Transportation (ODOT) website homepage. At the top, there is a navigation bar with the Ohio.gov logo, the text "Department of Transportation", and a search box labeled "Search ODOT". Below this is a secondary navigation menu with links for "Home", "Districts", "Divisions", "ODOT A-Z", "Services", and "Contacts". The main content area features a large green banner with the text "Welcome to the Ohio Department of Transportation". To the left of the banner are icons representing various modes of transportation: a bicycle, an airplane, a car, a bus, a train, a factory, and a truck. The banner also contains the text: "The Ohio Department of Transportation's Mission: Moving Ohio into a Prosperous New World. For more information on the department's new mission, please visit the ODOT 2010-2011 Business Plan". To the right of the banner is a photograph of a small propeller airplane on a runway. At the bottom of the page, there are three columns of content labeled "Featured Items", "Current Events and Issues", and "Director's Office".

# How to setup a CORs Account

## Benefits

- Tie all points to a permanent reference system. (State Plane Coordinate System)
- Save time and money, increase productivity. (no need to set up and move GPS base station and radio from field to field)
- Quality Control. (consistent position on base)
- Server sends corrected GPS position to the tractor via cellular technology for +/- 1 inch pass to pass and year to year accuracy.

## Accessing and Using The Network

- Users will need to provide their own wireless data plan and cell phone or wireless modem.

If you are interested in using the system, please contact us at:

Ohio Department of  
Transportation  
Office of Aerial Engineering  
1602 W. Broad St.  
Columbus, OH 43223

[http://www.dot.state.oh.us/Divisions/ProdMgt/Aerial/Pages/VRS\\_RTK.aspx](http://www.dot.state.oh.us/Divisions/ProdMgt/Aerial/Pages/VRS_RTK.aspx)

E-mail: [cors@dot.state.oh.us](mailto:cors@dot.state.oh.us)  
Main Number : 614-275-1359  
Fax Number : 614-275-1673

Please provide the following information with your request:

Name:\*  
Title:\*  
Company:\*  
Street Address:\*  
City:\*  
State: \*                      Zip:\*  
Phone:\*                      Fax:  
E-mail:\*  
Wireless data service provider:  
Wireless equip: (make/model)  
GPS Receiver: (Make/Model)  
Data collector: (make/model/  
software/version)  
Suggested login and password:  
(Required \*)

Ohio Department of  
Transportation



## The ODOT Real-Time GPS Network



## Information Guide





# How to setup a CORs Account

Eric

Here is the info needed for you to access the ODOT VRS system. Your login and password is now enabled and ready to go.

IP Address	IP Port	Mount Point Available	Login	Password
156.63.133.118	2101	ODOT_CMV_PLUS ODOT_Ag ODOT_RTCM30 ODOT_RTCM23	AGCO	atstraining

(Please note that all usernames and passwords are case sensitive)

The ODOT VRS/RTK system is operational and right now this service is FREE. All of the reference stations are up and running and data is available for real-time and post-processed GPS applications. We are still working on the VRS/CORS webpage and user agreements. When these are complete we anticipate a small annual fee to help offset some of the maintenance costs. We haven't fixed the price yet but we expect it to be in the neighborhood of \$500-\$800 per year.

# GSM Set-up

Default set-up for GPRS Providers:

Cingular GPRS/3G SIM Cards – These SIM cards were made by Cingular Wireless before being purchased by AT&T. These are typically white and orange in color. A Cingular 3G card is depicted in the screenshot above.

*User ID:* ISPDA@CINGULAR.COM

*Password:* **CINGULAR1**

*PIN:* **0000**

*APN:* **isp.cingular**



# GSM Set-up

Default set-up for GPRS Providers:

AT&T– These SIM cards were made after AT&T purchased Cingular Wireless. These are typically all blue on one side of the SIM and blue and white on the other.

*User ID: ISP@CINGULARGPRS.COM*

*Password: CINGULAR1*

*PIN: 0000*

*APN: isp.cingular*

*User ID: WAP@CINGULARGPRS.COM*

*Password: CINGULAR1*

*PIN: 0000*

*APN: broadband.cingular*



# GSM Set-up

Default set-up for GPRS Providers:

T-Mobile - These SIM's are white and display the capital "T" in T-Mobile on the back.

*User ID: tmobile*

*Password: tmobile*

*PIN: 0000*

*APN: internet2.voicestream.com*





# GSM Set-up

Default set-up for GPRS Providers:

Rogers - These SIM cards are made by Rogers. These SIM's are Red.

*User ID: wapuser1*

*Password: wap*

*PIN: 0000*

*APN: internet.com*



# GSM Set-up

Default set-up for GPRS Providers:

Sasktel - These SIM cards are made by Sasktel.

*User ID: Blank*

*Password: Blank*

*PIN: 1111*

*APN: inet.stm.sk.ca*



# GSM Set-up

Default set-up for GPRS Providers:

Telus - These SIM cards are made by Telus.

*User ID: Blank*

*Password: Blank*

*PIN: 9999*

*APN: sp.telus.com*



# GSM Set-up

Default set-up for GPRS Providers:

Bell - These SIM cards are made by Bell.

*User ID: "cellphone number"@corp.bell.ca*

*Password: provided in WPCI activation information email*

*PIN:*

*APN: corp.bell.ca*





# Agenda

1	General Information	8	Configuration & Set-up
2	Components	9	Field Install vs. Factory Installations
3	C1000	10	Architecture and Installation
4	Configuration & Set-up	11	Diagnostics and Troubleshooting
5	Task Controller Setup (for mapping)	12	Base stations
6	Additional features	13	RTK - Radio vs. Cellular
7	C3000	14	<b>AGCOMAND</b>

Challenger

FENDT



VALTRA



## Support & Training

At AGCO, we believe that our technology is only as good as the people behind it. Global customer support and leading-edge product training for AGCO dealers means you get the expertise and answers when you need them to run your operation more efficiently.



**\*\*You are not alone\*\***

Install guides

Operators guides

AGCO OneNumber Support staff

AGCO ATS Engineering team



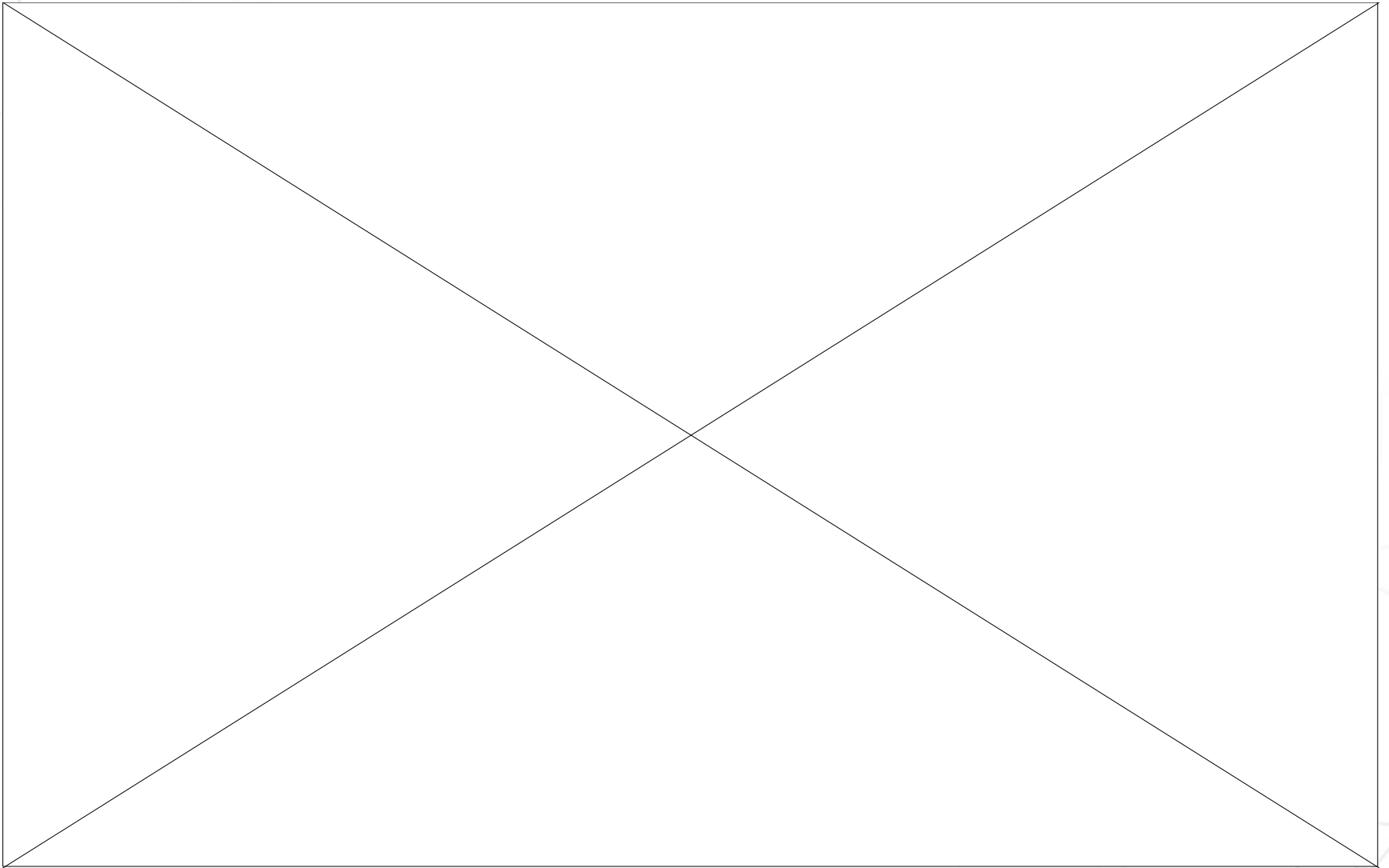
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# AGCOMMAND



AGCO Corporation

# Agcommand







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General



## Telemetry definition

### Telemetry

The technology of automatically recording and transmitting data by radio or other means from vehicles, to receiving stations for analysis of data.

The receiving “stations” are AGCO computer servers, providing “user” access for data collection and data analysis of all vehicles, machines and equipment fitted with AGCOMMAND, allowing “users” to improve efficiency and increase their profit margins by managing vehicle performance.

## Telemetry definition

The telemetry module contains a GPS receiver to provide real time live geographical co-ordinates.

The telemetry module also contains a single mode GSM wireless modem and SIM card for connection to the cellular network for the transmission of collected GPS and vehicle data to the server on a pre-defined frequency

The telemetry modules referred to within this documentation, are limited in use to those vehicles with a CANBUS

Telemetry provides the ability to monitor the vehicles data from and perform an analysis anywhere in the world with a PC and an internet connection



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## Overview





## AGCOMMAND definition

AGCOMMAND is a system allowing:

Automatic measurement data,

Automatic transmission data from remote sources,

Data storage on a AGCO computer server,

User access for data collection and data analysis of all vehicles,

to improve efficiency and to increase profit margins by managing vehicle performance.

## AGCOMMAND benefits

AGCOMMAND will allow:

### Fleet management:

- Vehicle locations
- Vehicle monitoring
- Vehicle activity – History
- Alarms
- Vehicle maintenance

### Data recording

### Data transfer

### Reports

## Benefits



**Near Real time** access to machine locations and machine status

**Alarms** can be sent directly to Mobile Phone or e-mail inbox

**Vehicle maintenance** can be managed directly by the customer or passed over to the dealer

Fully Automatic Data Recording

– Operator just drives normally

Fully Automatic Data Transfer to office PC.

– Operator just drives normally

**Productivity** - by enabling quick interrogation of collected data, productive/idle time can easily be identified

## AGCOMMAND option

AGCOMMAND level	Back Office	Hardware	Comments
Standard Plus	Standard	AM50	CANBUS messages – Limited to: Four inputs displayed <ul style="list-style-type: none"><li>- Engine running status (on or off),</li><li>- Machine status (in or out of work),</li><li>- Forward speed</li><li>- Engine hours.</li></ul>
Advanced	Standard	AM50	CANBUS messages – Same as Standard Plus, and then up to 21 more CANBUS messages (equipment type defined).



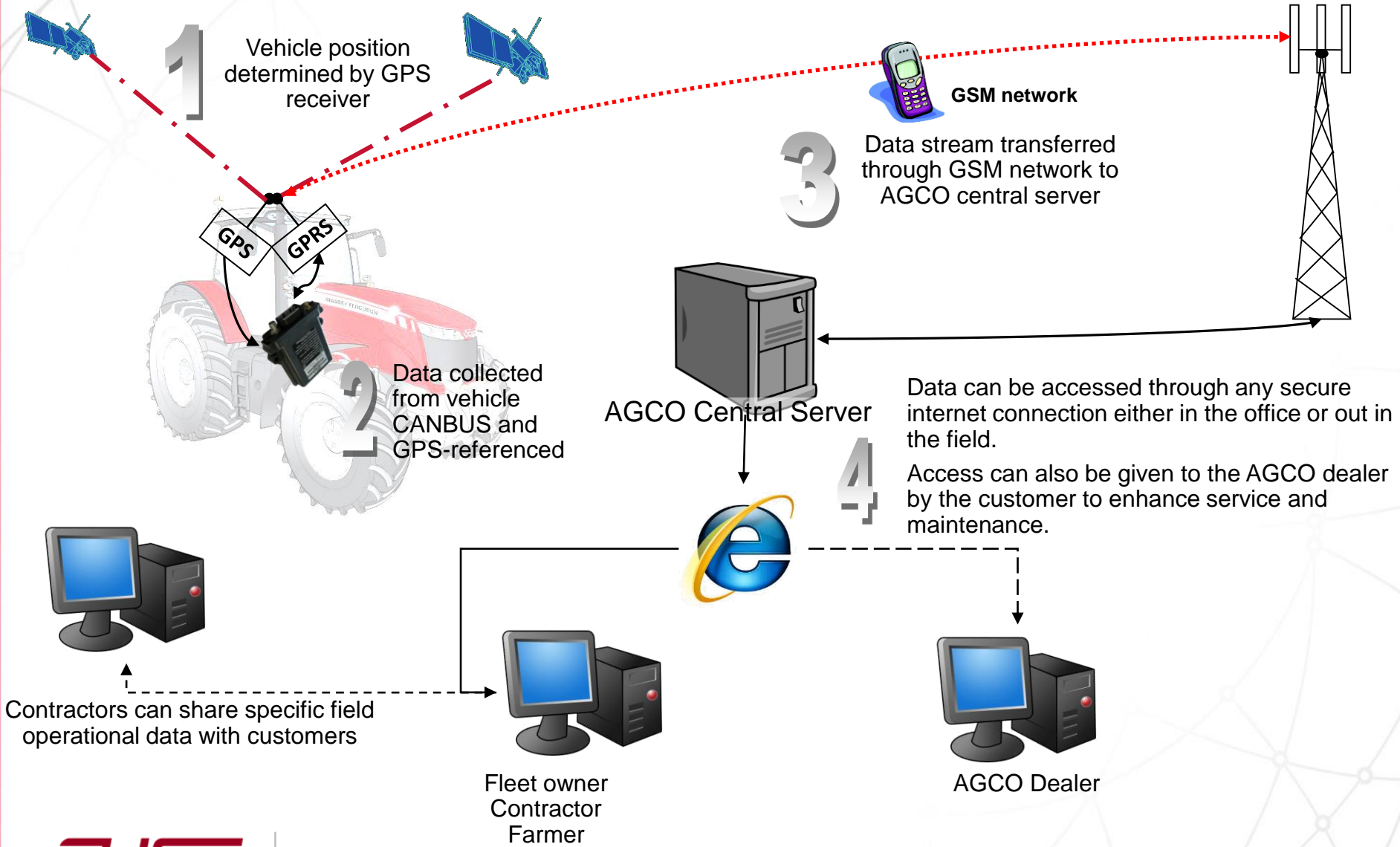
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## Overview

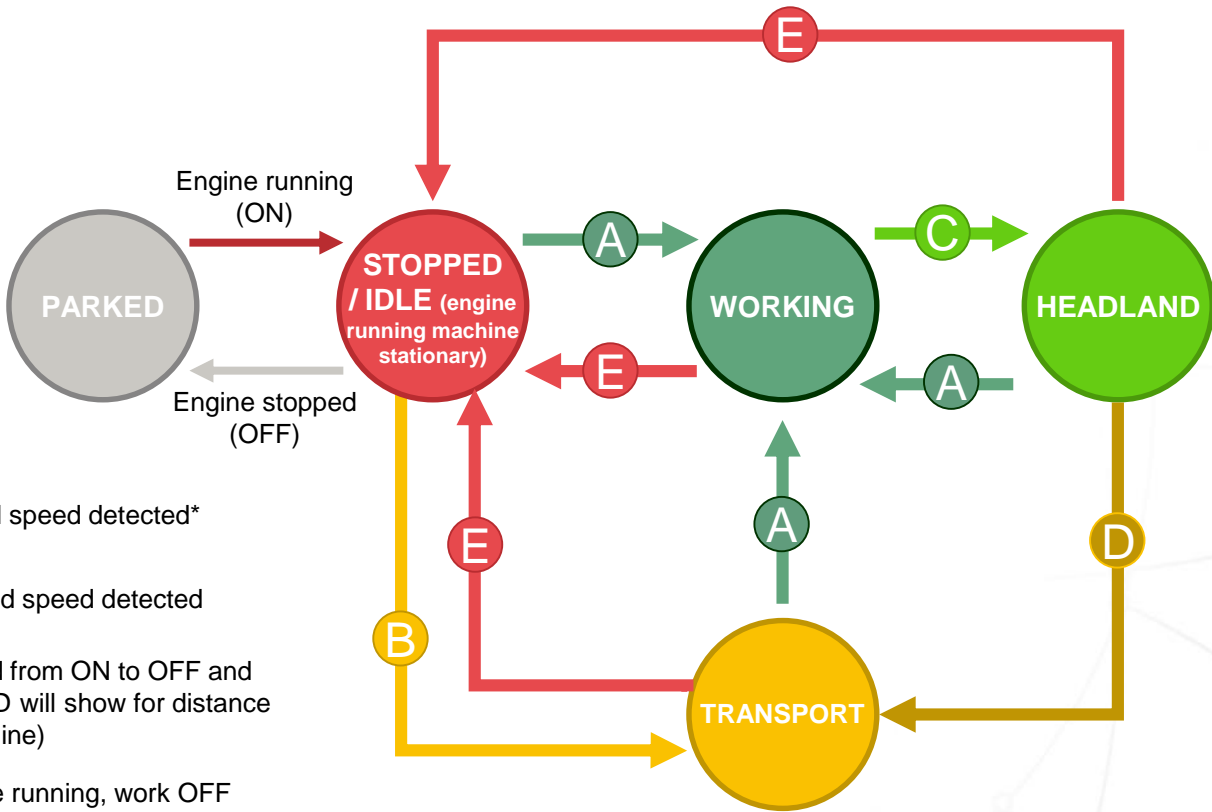




## How does it work?



## Machine status description



- A** → Engine running, work ON and ground speed detected\*
- B** → Engine running, work OFF and ground speed detected
- C** → Engine running, work status changed from ON to OFF and ground speed detected – HEADLAND will show for distance of 100m (distance may vary by machine)
- D** → Following HEADLAND status, engine running, work OFF and ground speed detected for a distance greater than 100m (distance may vary by machine)
- E** → Engine running and No Ground Speed detected

\* Note: On tractors – when stationary and PTO ON, Status will change to Work ON after 10 second delay

**CAN1** = Engine CANBUS carries messages related to Engine speed, Fuel rate, Temperatures, pressures.....

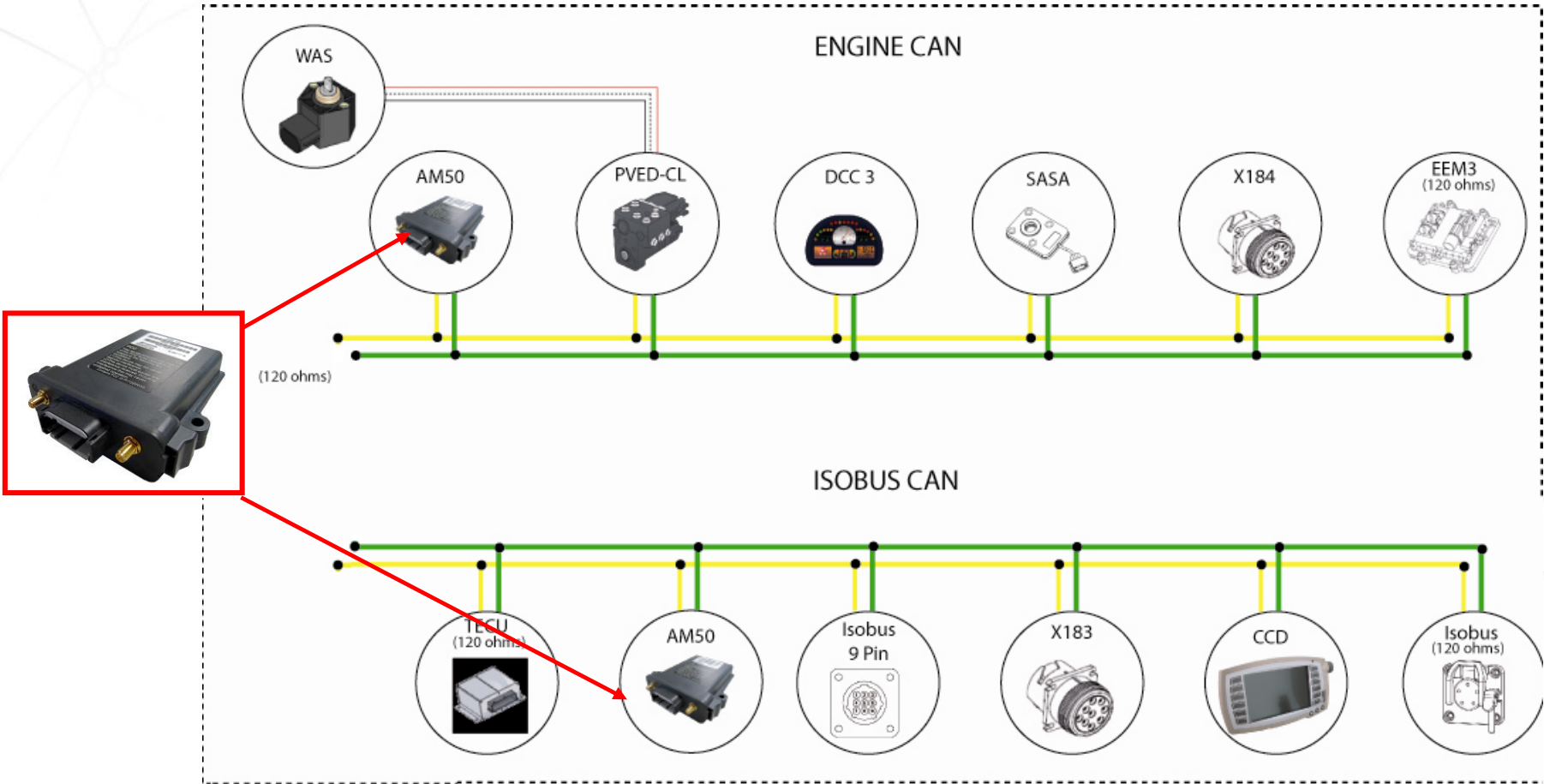
**CAN2** = ISOBUS (Machine implement bus), carries specific messages related to machine function, such as Spraying, fertilizing, crop information, implement information.....

AGCOMMAND does not “*communicate*” with the \*vehicle, it listens & records messages from the BUSES.

If a message is not on the CANBUS, or not communicated by a sensor, AGCOMMAND will not be able to record it.

## Electrical architecture

The AM50 is connected on the Engine CANBUS and the ISOBUS.





Service Levels

**Type.02** = AM50

118.80mm x 133.03mm x 36.00mm  
IP67 rated



**Standard Plus (+)**  
**Advanced**

The office program is called **“BACK OFFICE”**.

## Service Levels

Product Name	Hardware	Description
Standard+	AM50	Basic Tracking Capable of ~ 2 CANBUS Messages (Forward speed & Engine hours) And ~ 2 Machine Status Messages (Engine running status on/off & Machine status in/out of work)
Advanced	AM50	Basic Tracking Capable of 25 CANBUS Messages (same messages as Standard Plus, and 21 more CANBUS Messages, defined by equipment type)

## Service Levels

### AM50 Communication:

**Event** driven recording  
e.g. electronic switch operated

External **Antenna** for GPS & GSM

Calculation of engine hours  
for both in work and out of work

Site the **Antenna** in an  
unobstructed location!!  
Don't place antenna under metal objects



Example  
GPS/GSM Antenna for AM50

## Service Levels

Hardware is Easy to install

Has simple **switch on/off** recording, One for engine, one for work on/off

Can be up-graded

Internal battery (Up to 2 weeks with master switch disengaged)



## Service Levels

### The AM50 Standard Plus ...



Records vehicle position

Records engine hours

Records vehicle working status In/out of work

Records GPS speed, forward & reverse

Records data from machine every 60 seconds

Sends the packet of recorded data every 15 minutes via GSM to the server so that the “**Back Office**” program is updated

Records data for 50 hours if no GSM signal

## Service Levels

### The AM50 Advanced ...

Records everything that Standard Plus records and more

Records data from machine every 10 seconds

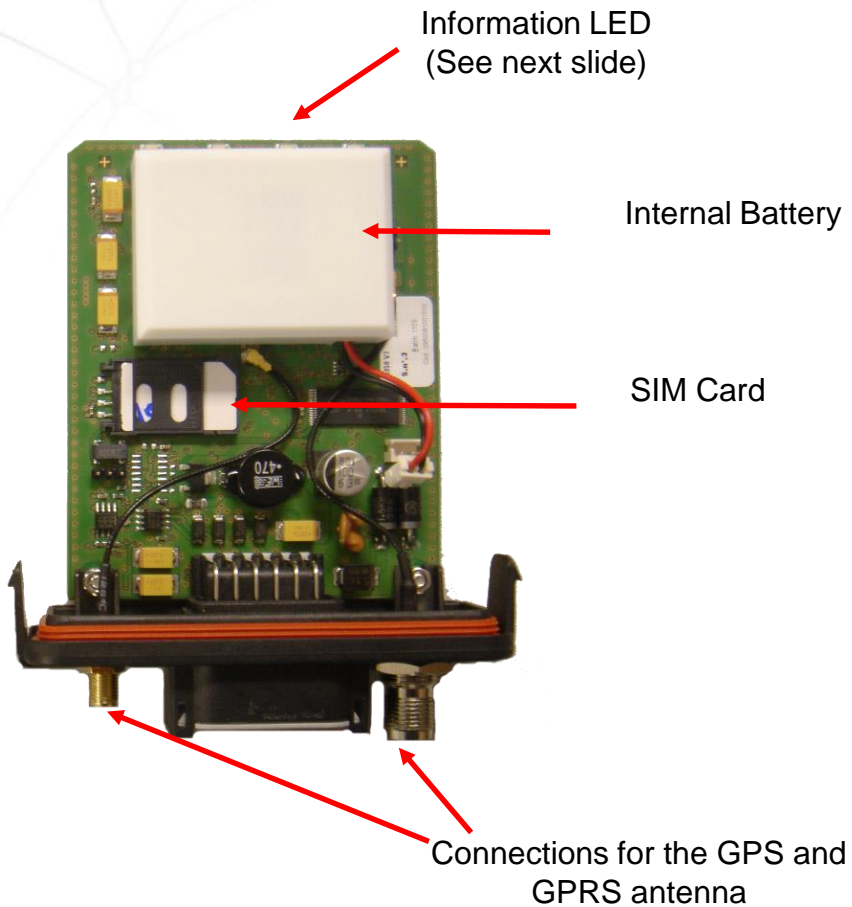
Sends the packet of recorded data every 10 minutes via GSM to the server so that the “**Back Office**” program is updated

Records data for 50 hours if no GSM signal



## Hardware

### Inside the AM50:

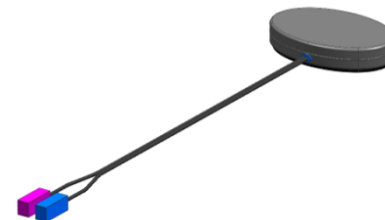


### AM50 Features

- Internal memory capable - up to 50 hours
- Quad band GPRS modem
- The unit has an internal battery ensuring that the correct “engine stop” message can be sent
- Easy to read diagnostic LED’s
- Upgrades are carried out remotely
- Fully up-gradable without the need to purchase any additional hardware

### Antenna

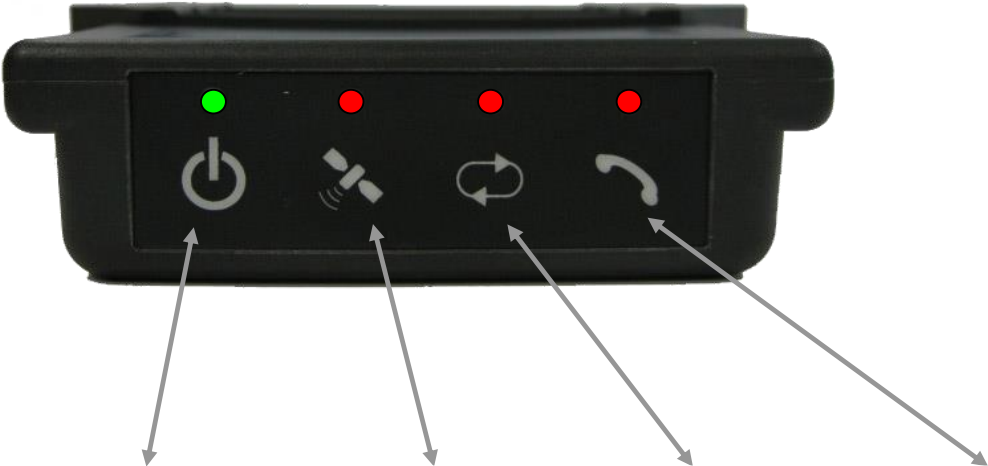
- Combined GPS and GPRS antenna
- IP66 Environmental rating



➤ There are no serviceable parts.

## Diagnostic LED

Diagnostic LED are located on the AM50 unit



Status	Green LED
Off	Device "OFF"
Flashing	Firmware Reflashing
Solid	Device "ON"

## Operation

When running a Standard plus system, the AM50 will log data every 60 seconds, it will then accumulate this data and send to the AGCO server every 15 minutes.





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## Setting Up AGCOMMAND Unit

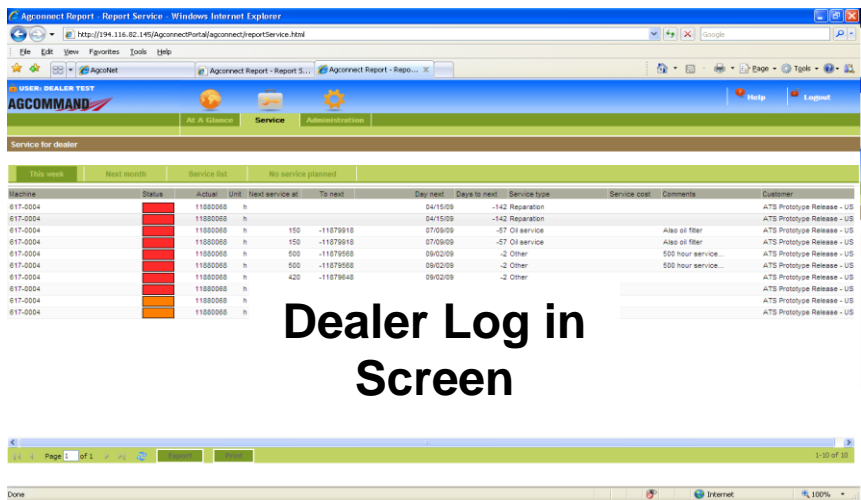


AGCOMMAND must be registered and activated by the Dealer before it can be used

## Mandatory - Dealer Installation

1. Set up Fleet Owner

2. Add Device



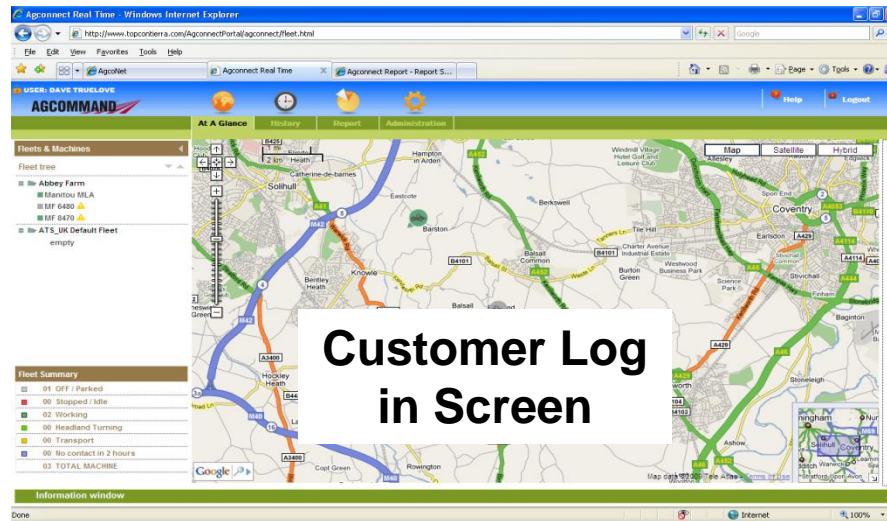
Dealer Log in Screen

AGCOMMAND must be registered and activated by the Dealer before it can be used

## Optional – Customer Customises Device

3. Add Image & Details

4. Add etc.



## Dealer procedure

Here are the different steps the dealer will have to carry out to finalize the AGCOMMAND installation:

- 1) Order the AM50 unit from AGCO Whole Goods
- 2) Install the AM50 unit into the Telemetry ready vehicle.
- 3) Connect at [www.myagcommand.com](http://www.myagcommand.com)
- 4) Go to the administration tab to fill in the customer details.

➤ The customer then receives an e-mail with a user ID and password.

The screenshot shows the 'Agconnect Administration [ Customers ]' interface in a Windows Internet Explorer browser. The user is logged in as 'AGCO DEALER AT5'. The 'Administration' tab is active, and the 'Fleet Owner' sub-tab is selected. The 'Fleet owner details' form is displayed, with the following fields and values:

Name	Last name
Terry	Schmidt
Ag-Chem	North America...
Jackson	Challenger
Hesston	Harvesters
Canoas	Brazil
Massey	Ferguson
Xaver	Fendt
Erno	Kipelaäinen
Jan	Emborg

Form fields and values:

- First Name: Terry
- Last name: Schmidt
- Company name: CHS
- Address/Street: 2712 County Road 6
- Town / Village: Marshall, MN
- Zip code: 56258
- Phone number: (empty)
- Mobile phone number: (empty)
- Email address: (empty)
- Language: English
- Units: US
- Currency: \$
- Customer code: 2009032717-29



## Dealer procedure

The dealer login credential :

Default access, the Dealer code is used for the username & password

AGCOMMAND web site pre-populated with all the login details

For help or assistance please call 1-866-486-7266

The dealer controls the sale and registration of all AGCOMMAND units

If AGCO finance, AGCO parts or a Service contract is involved, then the machine concerned will be fitted with AGCOMMAND and there is mandatory registration and acceptance for the end user.

A dealer will be able to see engine hours and location of AGCOMMAND equipped equipment they sell.



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## AGCOMMAND Web Site



## Login screen

The dealers will use dealer code for username and a password to login.

The customers will get a username and a password once the account and the AM50 will have been registered by the dealer.

**AGCOMMAND™**

# Welcome

To AGCO's telemetry service  
the leading wireless  
agriculture management tool

**Login**

Username:

Password:

**sign in**

[forgotten password?](#)

English

Challenger FENDT MASSEY FERGUSON VALTRA

powered by tierce

Here is the login web page accessible at [myagcocommand.com](https://myagcocommand.com)

Login screen

## Customer/User Site

4 tabs

At a Glance – History – Reports - Administration

## Dealer Site

3 tabs:

At a Glance – Service – Administration

Agconnect Real Time - Windows Internet Explorer  
http://www.topontierra.com/AgconnectPortal/agconnect/fleet.html

USER: DAVE TRUELOVE  
AGCOMMAND

At a Glance History Report Administration

Fleets & Machines

Fleet tree

- Abbey Farm
  - Mantou MLA
    - MF 6480
    - MF 8470
  - ATS\_UK Default Fleet
    - empty

Fleet Summary

- 01 OFF / Parked
- 00 Stopped / Idle
- 02 Working
- 00 Headland Turning
- 00 Transport
- 00 No contact in 2 hours
- 03 TOTAL MACHINE

Information window

Done

**Customer Log in Screen**

Agconnect Report - Report Service - Windows Internet Explorer  
http://194.116.82.145/AgconnectPortal/agconnect/reportService.html

USER: DEALER TEST  
AGCOMMAND

At a Glance Service Administration

Service for dealer

Machine	Status	Actual	Unit	Next service at	To next	Day next	Days to next	Service type	Service cost	Comments	Customer
617-0004		1188068	h			04/15/09	-142	Reparation			ATS Prototype Release - U
617-0004		1188068	h			04/15/09	-142	Reparation			ATS Prototype Release - U
617-0004		1188068	h	150	-11879918	07/09/09	-57	Oil service		Also oil filter	ATS Prototype Release - U
617-0004		1188068	h	150	-11879918	07/09/09	-57	Oil service		Also oil filter	ATS Prototype Release - U
617-0004		1188068	h	500	-11879568	09/02/09	-2	Other		500 hour service...	ATS Prototype Release - U
617-0004		1188068	h	500	-11879568	09/02/09	-2	Other		500 hour service...	ATS Prototype Release - U
617-0004		1188068	h	420	-11879648	09/02/09	-2	Other			ATS Prototype Release - U
617-0004		1188068	h	420	-11879648	09/02/09	-2	Other			ATS Prototype Release - U
617-0004		1188068	h			09/04/09	0	Air			ATS Prototype Release - U
617-0004		1188068	h			09/04/09	0	Air			ATS Prototype Release - U

Page 1 of 1

Done

**Dealer Log in Screen**



Login screen

Main Navigation is found on all pages and guides the user to 3 functional areas

The screenshot displays the AGCOMMAND web application interface. At the top, a blue header bar contains the user name 'USER: ATS DEALER', the AGCOMMAND logo, and navigation icons for 'At A Glance', 'Service', and 'Administration'. On the right side of the header are 'Help' and 'Logout' links. Below the header is a green navigation bar with the same three functional areas. The main content area is divided into several sections: a 'Fleets & Machines' sidebar on the left with a 'Fleet tree' and a 'Fleet Summary' table; a central map showing a yellow highlighted route; and a detailed information popup for a specific piece of equipment. The popup includes fields for 'Equipment name', 'Type', 'Model', 'Brand', 'Last Update', 'Last Position', 'Forward speed', 'Engine Hours', 'Heading', and 'Location'. A small tractor icon is also present in the popup. The map includes a scale bar (1000 ft / 200 m) and map controls (Map, Satellite, Hybrid). A text box at the bottom left of the screenshot explains that side and bottom panels provide detailed information and can be collapsed.

**Fleets & Machines**

Fleet tree

- AGCO ATS
  - Equipment name 617-0004
  - Equipment name 617-0418
  - Lorenz Test unit

**Fleet Summary**

03	OFF / Parked
00	Stopped / Idle

**Equipment Information:**

- Equipment name: 617-0004
- AGCO ATS Default Fleet
- OFF / Parked
- Type: Wheel tractor
- Model: MF-6445
- Brand: Massey Ferguson
- Last Update: 01/22/2010 11:47:55 AM
- Last Position: 38.147171,-97.43486
- Forward speed: 0.0 Mph
- Engine Hours: 1.6 h.
- Heading: 162.0
- Location: Lancaster Ave, Hesston, KS 67062, USA

Side and bottom panels provide detailed information and conveniently collapse when not needed

Login screen

## ***Logout from AGCONNECT***

The logout button is found in the upper right hand side of any web page.  
The system will logout and return to the login page.

USER: AGCO DEALER 99990

AGCOMMAND™



At A Glance



Service



Administration



Help



Logout

## At a Glance

**USER: AGCO DEALER 99990**

**AGCOMMAND**

At A Glance | Service | Administration

Help | Logout

Fleets & Machines

Fleet tree

- ATS Training
  - ATS Simulator

Fleet Summary

- 01 OFF / Parked
- 00 Stopped / Idle
- 00 Working
- 00 Headland Turning
- 00 Transport
- 00 No contact in 2 hours
- 01 TOTAL MACHINES

Map | Satellite | Hybrid

50 ft | 20 m

Google search the map Search

Imagery ©2011 GeoEye, DigitalGlobe, USDA Farm Service Agency, Map data ©2011 Google - Terms of Use



## At a Glance

The screenshot displays the AGCOMMAND web interface. At the top, a blue header bar shows the user as 'USER: AGCO DEALER 99990' and the AGCOMMAND logo. Below this is a green navigation bar with three tabs: 'At A Glance' (selected), 'Service', and 'Administration'. On the right side of the header, there are 'Help' and 'Logout' buttons.

The main content area is divided into three sections:

- Left Sidebar:** A 'Fleets & Machines' menu is highlighted with a red rounded rectangle. It contains a 'Fleet tree' dropdown and a list of items: 'ATS Training' and 'ATS Simulator'. Below this is a 'Fleet Summary' section with a legend for machine statuses: 01 OFF / Parked, 00 Stopped / Idle, 00 Working, 00 Headland Turning, 00 Transport, and 00 No contact in 2 hours. At the bottom of the summary, it shows '01 TOTAL MACHINES'.
- Map:** An aerial satellite-style map of a farm or dealership yard. A red circle highlights a blue tractor icon in the center of the yard. The map includes a scale bar (50 ft / 20 m), navigation controls (directional arrows, zoom in/out), and map style buttons for 'Map', 'Satellite', and 'Hybrid'. A Google search bar is at the bottom left of the map area.
- Right Panel:** A small inset map showing a wider geographic context with a blue rectangle indicating the current map's location.

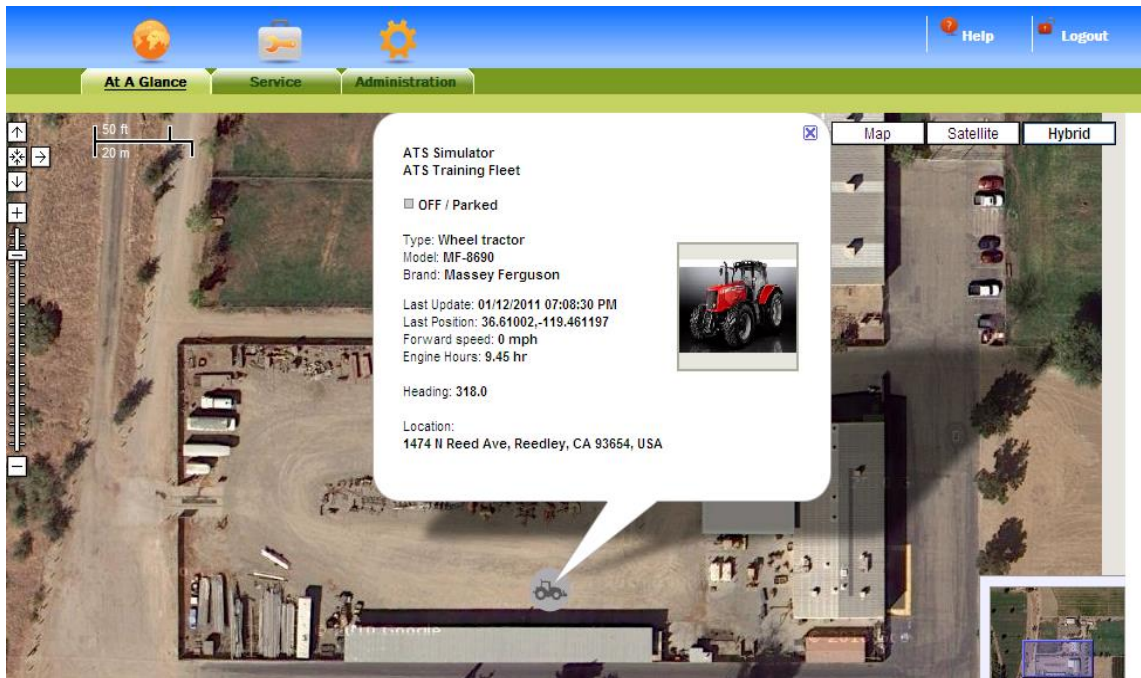
At the bottom of the interface, there is a footer with the FUSE TECHNOLOGIES logo and the text 'Connecting your farm enterprise like never before'.



## Customer procedure

Here are the optional steps the customer can process:

- 1) Connect at [www.myagcommand.com](http://www.myagcommand.com)
- 2) Log on with user ID and password received by e-mail
- 3) Add images and details to his machines
- 4) Add Geo Fences, add alarms, operators, etc.



## V – AGCOMMAND web site – b) At a Glance

Click on the machine icon to view detailed machine information

The screenshot displays the AGCOMMAND web interface. At the top, there is a navigation bar with icons for a globe, a key, and a gear, and buttons for 'Help' and 'Logout'. Below this is a green navigation bar with tabs for 'At A Glance', 'Service', and 'Administration'. The main content area features an aerial satellite map of a farm. A white popup window is overlaid on the map, displaying the following information:

- ATS Simulator
- ATS Training Fleet
- OFF / Parked
- Type: Wheel tractor
- Model: MF-8690
- Brand: Massey Ferguson
- Last Update: 01/12/2011 07:08:30 PM
- Last Position: 36.61002,-119.461197
- Forward speed: 0 mph
- Engine Hours: 9.45 hr
- Heading: 318.0
- Location: 1474 N Reed Ave, Reedley, CA 93654, USA

A small image of a red Massey Ferguson tractor is shown within the popup. The map includes a scale bar (50 ft / 20 m), a vertical zoom slider, and map controls (Map, Satellite, Hybrid). A small inset map in the bottom right corner shows the current location within a larger regional context.

## V – AGCOMMAND web site – a) Login screen

Dealer site -> he can view which machines require servicing. (By week, next month, as a list...)

The screenshot shows a web browser window displaying the AGCOMMAND 'Report Service' page. The user is logged in as 'DEALER TEST'. The page has a navigation menu with 'At A Glance', 'Service', and 'Administration' tabs. The main content area is titled 'Service for dealer' and contains a table with columns for 'This week', 'Next month', 'Service list', and 'No service planned'. The table lists various machines with their status, actual units, next service dates, and service types.

Machine	Status	Actual	Unit	Next service at	To next	Day next	Days to next	Service type	Service cost	Comments	Customer
617-0004	[Red]	11880068	h			04/15/09		-142 Repairation			ATS Prototype Release - US
617-0004	[Red]	11880068	h			04/15/09		-142 Repairation			ATS Prototype Release - US
617-0004	[Red]	11880068	h	150	-11879918	07/09/09		-57 Oil service		Also oil filter	ATS Prototype Release - US
617-0004	[Red]	11880068	h	150	-11879918	07/09/09		-57 Oil service		Also oil filter	ATS Prototype Release - US
617-0004	[Red]	11880068	h	500	-11879568	09/02/09		-2 Other		500 hour service...	ATS Prototype Release - US
617-0004	[Red]	11880068	h	500	-11879568	09/02/09		-2 Other		500 hour service...	ATS Prototype Release - US
617-0004	[Red]	11880068	h	420	-11879648	09/02/09		-2 Other			ATS Prototype Release - US
617-0004	[Red]	11880068	h	420	-11879648	09/02/09		-2 Other			ATS Prototype Release - US
617-0004	[Orange]	11880068	h			09/04/09		0 Air			ATS Prototype Release - US
617-0004	[Orange]	11880068	h			09/04/09		0 Air			ATS Prototype Release - US

Page 1 of 1 | Export | Print | 1-10 of 10



V – AGCOMMAND web site – d) Reports

# Reports – Service reports

This provides the service/maintenance status.

An alarm can be sent to notify the upcoming scheduled maintenance.

AGCOMMAND will predict the next service due date by using a formula which averages the actual engine running hours per day.

Machine	Status	Actual	Unit	Next service at	To next	Day next	Days to next	Service type	Service cost	Comments	Customer
617-0004		11880068	h			04/15/09	-142	Reparation			ATS Prototype Release - US
617-0004		11880068	h			04/15/09	-142	Reparation			ATS Prototype Release - US
617-0004		11880068	h	150	-11879918	07/09/09	-57	Oil service		Also oil filter	ATS Prototype Release - US
617-0004		11880068	h	150	-11879918	07/09/09	-57	Oil service		Also oil filter	ATS Prototype Release - US
617-0004		11880068	h	500	-11879568	09/02/09	-2	Other		500 hour service...	ATS Prototype Release - US
617-0004		11880068	h	500	-11879568	09/02/09	-2	Other		500 hour service...	ATS Prototype Release - US
617-0004		11880068	h	420	-11879648	09/02/09	-2	Other			ATS Prototype Release - US
617-0004		11880068	h	420	-11879648	09/02/09	-2	Other			ATS Prototype Release - US
617-0004		11880068	h			09/04/09	0	Air			ATS Prototype Release - US
617-0004		11880068	h			09/04/09	0	Air			ATS Prototype Release - US



V – AGCOMMAND web site – d) Reports

## Service Report

The screenshot shows the AGCOMMAND web interface. At the top, the user is identified as 'USER: HESSTON HARVESTERS'. The navigation bar includes 'At A Glance', 'History', 'Report', and 'Administration'. The 'Report' menu is open, showing options: 'Data', 'Service', 'Engine Time', 'Efficiency', 'Field Report', and 'Comparison'. Below the menu, there are tabs for 'Today', 'Next week', 'Service list', and 'No service planned'. The 'Today' tab is selected. A table displays service data for four machines.

Machine	Status	Actual	Unit	Next service at	Days to next	Days to next	Dealer	Service type	Serv
MF7282_62516		100	h	250	25/07/09	-59	X	General inspection	
MF7282_62516		100	h	50	25/07/09	-59	X	Oil service	
MF7282-62281		266	h	250	27/08/09	-26		Oil service	
MF7282-62282		263	h	50	27/08/09	-26	X	Oil service	

V – AGCOMMAND web site – d) Reports

## Review of Service Report

USER: HESSTON HARVESTERS

**AGCOMMAND**

At A Glance History Report Administration

Help Logout

Service for owner

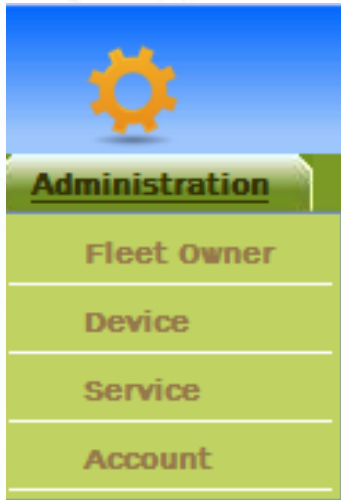
Machine	Status	Actual	Unit	Next service at	To next	Day next	Days to next	Dealer	Service type	Serv
MF7282_62516		100	h	250	150	25/07/09	50	X	General inspection	
MF7282_62516		100	h	50	-50	25/07/09	-59	X	Oil service	
MF7282-62281		266	h	250	-18	27/08/09	-26	X	Oil service	
MF7282-62282		263	h	50	-213	27/08/09	-26	X	Oil service	

Page 1 of 1

Machines Messages Alarms

1-4 of 4

## Administration tab



### Service

Maintenance schedules can be created for each individual machine. Warnings will automatically appear in the website when a service is approaching.

The customer can also pass the responsibility of the maintenance to his dealer by placing a tick in the “service by dealer” box.

V – AGCOMMAND web site – e) Administration

# Account Administration

The screenshot shows the AGCOMMAND web interface. At the top, there is a navigation bar with three main sections: 'At A Glance' (with a globe icon), 'Service' (with a wrench icon), and 'Administration' (with a gear icon). The 'Administration' section is highlighted with a red box, and a dropdown menu is visible below it, also highlighted with a red box. The dropdown menu contains four items: 'Fleet Owner', 'Device', 'Service', and 'Account'. Below the navigation bar, there are three main sections: 'Next month', 'Service list', and 'No service planned'. At the bottom, there is a table with the following columns: 'Status', 'Actual', 'Unit', 'Next service at', 'To next', 'Days to next', 'Service type', and 'Comments'.



V – AGCOMMAND web site – e) Administration

## Account Administration

USER: HESSTON HARVESTERS

**AGCOMMAND**

ALA Glance History Report Administration Help Logout

Item list	Details				
<table border="1"><thead><tr><th>First Name</th><th>Last Name</th></tr></thead><tbody><tr><td>Hesston</td><td>Harvesters</td></tr></tbody></table>	First Name	Last Name	Hesston	Harvesters	<p>Login name: <input type="text" value="hesston_test"/></p> <p>Password: <input type="password" value="....."/></p> <p><input type="button" value="Change Password"/></p> <p>Moblie phone number: <input type="text"/></p> <p>Email address: <input type="text"/></p> <p>First Name: <input type="text" value="Hesston"/></p> <p>Last name: <input type="text" value="Harvesters"/></p> <p>Company name: <input type="text" value="AGCO Harvesters"/></p> <p>Address/Street: <input type="text" value="420 Lincoln Blvd"/></p> <p>Town / Village: <input type="text" value="Hesston, KS"/></p> <p>Zip code: <input type="text" value="67062"/></p> <p>Phone number: <input type="text"/></p> <p>Fax: <input type="text"/></p> <p>Units: <input type="text" value="US"/></p> <p>Language: <input type="text" value="English"/></p> <p><input type="button" value="Save"/> <input type="button" value="Cancel"/></p>
First Name	Last Name				
Hesston	Harvesters				

Machines Messages Alarms

V – AGCOMMAND web site – e) Administration

# Service Administration

The screenshot shows the AGCOMMAND web interface. At the top, there is a navigation bar with three main sections: 'At A Glance' (with a globe icon), 'Service' (with a toolbox icon), and 'Administration' (with a gear icon). The 'Administration' section is highlighted with a red box, and a dropdown menu is open, listing 'Fleet Owner', 'Device', 'Service', and 'Account'. Below the navigation bar, there are three tabs: 'Next month', 'Service list', and 'No service planned'. At the bottom, there is a table with columns: Status, Actual, Unit, Next service at, To next, Day next, Days to next, Service type, and Comments.

## Service Administration

The screenshot displays the AGCOMMAND web application interface. At the top, the user is identified as 'USER: HESSTON HARVESTERS'. The navigation menu includes 'At A Glance', 'History', 'Report', and 'Administration' (which is currently selected). There are also 'Help' and 'Logout' links.

The main content area is divided into two sections: 'Machines' and 'Details'.

**Machines Section:** A table lists various machines. The table is circled in red in the image.

Name	Fleet
CH680B	AGCO Ha...
CH680B 3-Test3A	AGCO Ha...
CH680B 3-Test3B	AGCO Ha...
CH680B 3-Test3C	AGCO Ha...
GL-R76	AGCO Ha...
TB01	AGCO Ha...
TB02	AGCO Ha...
MF7262_62516	Mr Johnson
MF7262-62261	Mr Johnson
MF7262-62262	Mr Johnson

**Details Section:** This section provides information for a selected machine (CH680B). It includes fields for Name, Brand (Challenger), Type (Harvester (Combine)), Model (680B), and Plate (Hesst Equipment Plate). There is a checkbox for 'Service by dealer'.

Two service management panels are highlighted with red boxes:

- Next services by date:** A dropdown menu showing 'Type of service' and 'At date'.
- Next services by engine hours:** A dropdown menu showing 'Type of service' and 'At engine hours'. Below this, there is a 'Done' link, 'Oil service' with a value of '655', and a 'Print machine history' button.

At the bottom of the details section, there are 'Save', 'Cancel', and 'Print' buttons.

V – AGCOMMAND web site – e) Administration

## Service Administration

USER: HESSTON HARVESTERS

AGCOMMAND

ALA Glance History Report Administration

Help Logout

Items list

Machines

Name	Fleet
CH680B	AGCO Ha...
CH680B 3-Test3A	AGCO Ha...
CH680B 3-Test3B	AGCO Ha...
CH680B 3-Test3C	AGCO Ha...
GL-R76	AGCO Ha...
TBD1	AGCO Ha...
TBD2	AGCO Ha...
MF7282_62516	Mr Johnson
MF7282-62281	Mr Johnson
MF7282-62282	Mr Johnson

Brand: Challenger

Type: Harvester (Combine)

Model: 660B

Plate: Insert Equipment Plate

Service by dealer

Done

Next services by engine hours

Type of service At engine hours

Print machine history

Save Delete Print

Service by date details

Name of Service:

Date: 09/22/2009

Engine Hours: 0

At date:

Remarks:

Save Close

Machines Messages Alarms



V – AGCOMMAND web site – e) Administration

## Service Administration

The screenshot displays the AGCOMMAND web application interface. At the top, the user is identified as 'USER: HESSTON HARVESTERS'. The navigation bar includes 'At A Glance', 'History', 'Report', and 'Administration' (which is currently selected). There are also 'Help' and 'Logout' links.

The main content area is divided into two sections: 'Machines' and 'Details'.

**Machines:** A table listing various machines and their owners.

Name	Fleet
CH680B	AGCO Ha...
CH680B 3-Test3A	AGCO Ha...
CH680B 3-Test3B	AGCO Ha...
CH680B 3-Test3C	AGCO Ha...
GL-R76	AGCO Ha...
TBD1	AGCO Ha...
TBD2	AGCO Ha...
MF7282_62516	Mr Johnson
MF7282-62281	Mr Johnson
MF7282-62282	Mr Johnson

**Details:** A form for editing machine details. The fields are: Name (CH680B), Brand (Challenger), Type (Harvester (Combine)), Model (680B), and Plate (Smart Equipment Plate). There is a checkbox for 'Service by dealer'.

**Next services by date:** A table showing the next service scheduled by date.

Type of service	At date
-----------------	---------

**Next services by engine hours:** A table showing the next service scheduled by engine hours. One entry is highlighted with a red box.

Type of service	At engine hours
Done Oil service	655

**Close the service:** A form for closing a service. The fields are: Remarks, Cost [\$] (0), and End date of service (09/24/2009). The 'Save' button is highlighted with a red box.

V – AGCOMMAND web site – e) Administration

## Service Administration

The screenshot displays the 'Service Administration' interface. On the left, a 'Machines' table lists various equipment. The main area shows 'Details' for a selected machine, including fields for Name, Brand, Type, Model, and Plate. Below these fields is a 'Service by dealer' checkbox. On the right, there are two summary tables: 'Next services by date' and 'Next services by engine hours'. At the bottom, a green bar contains 'Save', 'Export', and 'Print' buttons, with the 'Save' button highlighted by a red box.

Name	Fleet
CH680B	AGCO Ha...
CH680B 3-Test3A	AGCO Ha...
CH680B 3-Test3B	AGCO Ha...
CH680B 3-Test3C	AGCO Ha...
GL-R76	AGCO Ha...
TB01	AGCO Ha...
TB02	AGCO Ha...
MF7262_62516	Mr Johnson
MF7262-62281	Mr Johnson
MF7262-62282	Mr Johnson

**Details**

Name: CH680B

Brand: Challenger

Type: Harvester (Combine)

Model: 680B

Plate: Insert Equipment Plate

Service by dealer

**Next services by date**

Type of service	At date
-----------------	---------

**Next services by engine hours**

Type of service	At engine hours
Oil service	655

[Done](#) [Print machine history](#)

**Save** **Export** **Print**



Connecting your farm enterprise  
like never before

## i Device Usage



# i-Device Usage



Agcommand can be used on any i-Device that has an internet connection. Dealers can use this for service schedules, turn-by-turn directions to find the equipment. Customers can use the weather app to see weather conditions as well as seeing equipment status and location.





Connecting your farm enterprise  
like never before

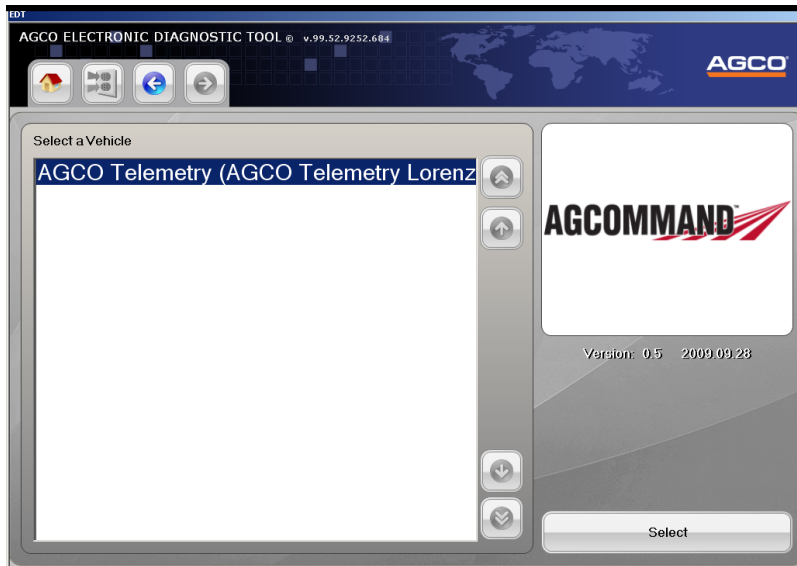
Diagnostic



## VI – Diagnostic – a) AGCOMMAND project

**There will be an AGCOMMAND project available in EDT. This will offer the following benefits:**

- Diagnose the AM50
- Avoid removing panels to access to the diagnostic LED,
- Get more details to diagnose the system (GPS and GSM quality signals, service provider details, diagnostic trees, etc.)



**IMPORTANT: for dealers who don't have EDT, it will not be mandatory for them to buy it to support AGCOMMAND.**

## VI – Diagnostic – c) EDT Overview

There will be a CAN network detection for the AM50 unit

The screenshot displays the AGCOMMAND diagnostic software interface. The top navigation bar includes icons for home, network scan, navigation, and various diagnostic tools. Below this, three main tabs are visible: 'Network Scan' (highlighted in green), 'Network Summary', and 'CAN Network Status'. The main display area shows 'Channel 1 - Tractor Bus' with a detected 'AGCO Telemetry ECU' represented by an icon and a green status indicator. A detailed view of the 'Network Summary' tab is overlaid, showing a table with the following data:

Controller	Software	Hardware	Current Software
AGCO Telemetry ECU	CF: 0157.0000.0000 FW: 0000.0006.0013	PN: 20488 SN: 00002	FW: 0000.0006.0013

A red arrow points from a text box to the 'AGCO Telemetry ECU' entry in the table. The text box contains the following text:

Hardware and software versions will be accessible.

Additional interface elements include a right-side navigation panel with up/down arrows and an 'Export to Excel' button at the bottom right.

## VI – Diagnostic – c) EDT Overview

The screenshot displays the AGCO Electronic Diagnostic Tool (EDT) interface. The main window is titled "AGCO ELECTRONIC DIAGNOSTIC TOOL © v.99.52.9252.684 AGCO Telemetry (AGCO Telemetry Lorenz)". It features a navigation bar with icons for Home, Diagnostics, Back, and Forward. Below the navigation bar are three main tabs: "Graphical Diagnostics" (highlighted in green), "Diagnostics Summary", and "Diagnostics Reporting".

On the left side, there is a "Diagnostics By Function" sidebar with a red circle around the "AGCO Telemetry" icon, which has a red arrow pointing to the main interface. The main interface is divided into several sections:

- AGCO Telemetry ECU:** This section contains several panels:
  - A panel with a signal tower icon and a green checkmark.
  - A panel showing "3D Fix" with a value of "8".
  - A panel with a bar chart showing signal strength.
  - A panel for "Machine Status" showing "IDLE".
  - A panel for "Status Time" showing "0 s".
  - A panel for "Status Distance" showing "0 m".
  - A panel for "GSM Service Provider" showing "Current" and "Datalogger Usage" at "2 %".
  - A panel for "ECU Indicator Lights" with four indicators: Cellular (red), Test (red), GPS (red), and Power (green).
- AGCO Telemetry Quick Help:** This section contains five buttons: "GPS", "GSM", "STATUS", "Logger", and "LED".

*Diagnostic  
by  
function*



# VI – Diagnostic – c) EDT Overview

## Network Service Provider information

EDT

AGCO ELECTRONIC DIAGNOSTIC TOOL © v.1.54.10132.675  
 BYSMaster6.0 (BYSMaster6.0)

MASSEY FERGUSON

Graphical Diagnostics | Diagnostics Summary | Diagnostics Reporting

AGCO Telemetry ECU

Network Service Provider	GSM	GPRS
GSM Network Service provider	✓	✓
GSM Network Service provider	?	?
GSM Network Service provider	?	?
GSM Network Service provider	?	?
---		
---		
---		
---		
---		
---		
---		

METRIC | UK | AGCOMMAND ECU Network Service Provider Information | 100%

# VI – Diagnostic – d) Diagnostic trees

## Diagnostic trees

### GPS ISSUES

**GPS ANTENNA CONNECTION**

GPS receiver can detect GPS antenna connection. 4 different statuses will be displayed:

- Antenna attached ->
  - OK
- Antenna detached ->
  - Check, if antenna connector is tightened
  - Check, if antenna cable has any damage

**Error**

Error ->

- No detection possible. Telemetry module broken

**N. A.**

Not available ->

- No detection possible. Telemetry module broken

• Check, if antenna connector is tightened

• Check, if antenna cable has any damage

**Error**

Error ->

- No detection possible. Telemetry module broken

**N. A.**

Not available ->

- No detection possible. Telemetry module broken

| 7

**3D Fix**

**GNSS STATUS**

Number of visible satellites: For a good position number should be greater 4.

GPS Fix Status: 4 different status will be displayed:

- N/A -> GPS receiver is still searching for satellites
- 1D Fix -> Satellites seen by receiver, but still not able to calculate position
- 2D Fix -> 2 dimensional position fixed
- 3D Fix -> 3 dimensional position fixed. Needed for a good machine position

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## VI – Diagnostic – d) Diagnostic trees

### *Diagnostic trees*

The screenshot displays the AGCOMMAND diagnostic interface. At the top, there is a navigation bar with icons for Index, Print, Back, Forward, Favorites, and History, along with the text 'AGCOMMAND Help'. Below this is a dark blue header with the 'AGCO' logo and a close button (X).

The main content area is divided into two panels:

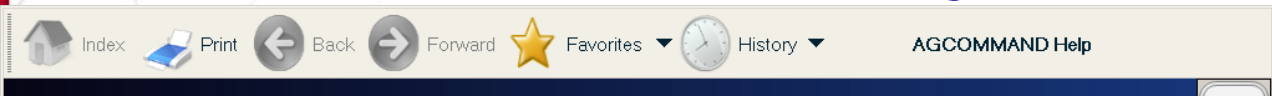
- STATUS ISSUES**: This panel shows the 'Machine Status' as 'OFF'. Below this, it lists five different machine statuses: OFF, IDLE, TRANSPORT, WORK, and HEADLAND. It also displays 'Status Time' as 0 and 'Status Distance' as 0. A note states: 'Depending on the machine configuration, status changes with a time delay. This delay is displayed in seconds.' and 'Depending on the machine configuration, status changes with a distance delay. This delay is displayed in meters.'
- DATALOGGER ISSUES**: This panel shows 'Datalogger Usage' as 2. A note states: 'The usage of the Datalogger is displayed in percent.'

At the bottom of the interface, there is a copyright notice: '© 2009 AGCO Corporation. All rights reserved.' and a set of navigation buttons (back, forward, and refresh).



## VI – Diagnostic – d) AGCOMMAND EDT Help

### AGCOMMAND EDT Help page




### LED INDICATOR LIGHTS

ECU Indicator Lights

Cellular Test GPS Power

#### LED INDICATOR LIGHTS

An image of the physical LED indicator lights of the telemetry unit is displayed. Following definition of the lights:



Cellular **CELLULAR LED**

OFF -> No service  
FLASHING -> Searching for connection  
SOLID -> Connected to GPRS

Test **TEST LED**

FLASHING -> Engine and Work ON  
SOLID -> Engine ON

GPS **GPS LED**

FLASHING -> Searching for satellites  
SOLID -> 3D Fix

Power **POWER LED**

FLASHING -> Firmware is updating  
SOLID -> All is OK

### CELLULAR LED

OFF -> No service  
FLASHING -> Searching for connection  
SOLID -> Connected to GPRS

### TEST LED

OFF -> Engine and Work OFF  
FLASHING -> Engine and Work ON  
SOLID -> Engine ON

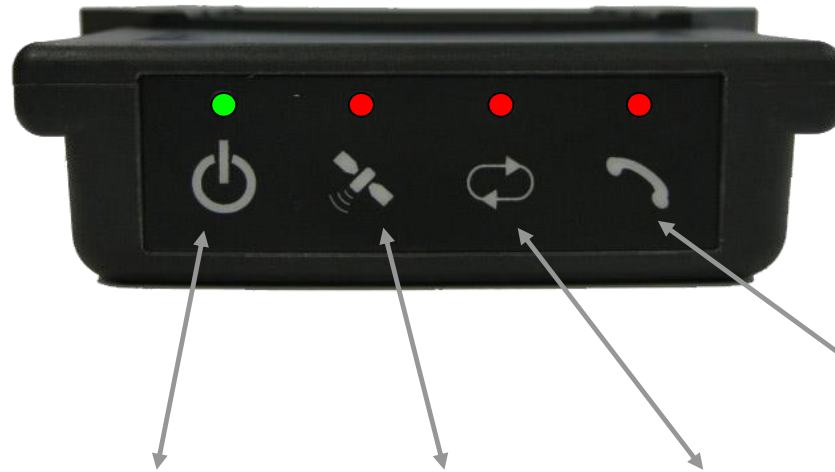
### GPS LED

FLASHING -> Searching for satellites  
SOLID -> 3D Fix

### POWER LED

FLASHING -> Firmware is updating  
SOLID -> All is OK

Diagnostic LED are located on front of the AM50 unit



Status	Green LED	Red LED	Red LED	Red LED
Off	Device "OFF"	No GPS Signal	Engine and Work "OFF"	No response from Network
Flashing	Firmware Reflashing	Fixing GPS Position	Work "ON"	Searching for Network
Solid	Device "ON"	GPS Position Fixed	Engine "ON"	Connected to Network

## VII – Support – a) Support Information

### *Software / Web Support*

TOPCON will be providing technical support for the [www.myagcommand.com](http://www.myagcommand.com) back-office website as well as customer support. There are 2 ways to contact TOPCON for support or assistance. Use the Help icon on the [www.myagcommand.com](http://www.myagcommand.com) website located in the upper right hand corner or call 1-866-4TOPCON for AGCOMMAND support, select one (1) for Support, then select five (5) for Telematics.

### *Hardware Support*

AGCO Precision Farming Technical Services and Support Team will provide hardware technical support for AGCO dealers installing AGCOMMAND on customer machinery. They can be contacted by SOURCE or call 678-534-3199