

StarFire 300

OPERATOR'S MANUAL

StarFire 300

OMPC21835 ISSUE J9 (ENGLISH)

CALIFORNIA

Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

If this product contains a gasoline engine:

WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

The State of California requires the above two warnings.

John Deere Ag Management Solutions
(This manual replaces OMPC21507)

Introduction

www.StellarSupport.com

NOTE: Product functionality may not be fully represented in this document due to product changes occurring after the time of printing. Read the latest Operator's Manual and Quick Reference Guide prior to operation. To obtain a copy, see your dealer or visit www.StellarSupport.com

OUO6050,0000FB1 -19-28JUL09-1/1

Public Satellite Based Augmentation Systems (PSBAS)

Public Satellite Based Augmentation Systems (PSBAS) is a general term given to satellite signals available for use by the public. The type of PSBAS available depends upon the users geographical location in the world. For example: the PSBAS in North America is WAAS.

Region	PSBAS Name
North America	WAAS
Europe	EGNOS
Japan	MSAS

JS56696,0000513 -19-05FEB09-1/1

Foreword

WELCOME TO GREENSTAR™ system offered by John Deere.

READ THIS MANUAL carefully to learn how to operate and service your system correctly. Failure to do so could result in personal injury or equipment damage. This manual and safety signs on your machine may also be available in other languages. (See your John Deere dealer to order.)

THIS MANUAL SHOULD BE CONSIDERED a permanent part of your system and should remain with the system when you sell it.

MEASUREMENTS in this manual are given in both metric and customary U.S. unit equivalents. Use only correct replacement parts and fasteners. Metric and inch fasteners may require a specific metric or inch wrench.

RIGHT-HAND AND LEFT-HAND sides are determined by facing in the direction of forward travel.

WRITE PRODUCT IDENTIFICATION NUMBERS (P.I.N.) in the Specification or Identification Numbers section.

GREENSTAR is a trademark of Deere & Company

Accurately record all the numbers to help in tracing the components should it be stolen. Your dealer also needs these numbers when you order parts. File the identification numbers in a secure place off the machine.

WARRANTY is provided as part of John Deere's support program for customers who operate and maintain their equipment as described in this manual. The warranty is explained on the warranty certificate which you should have received from your dealer.

This warranty provides you the assurance that John Deere will back its products where defects appear within the warranty period. In some circumstances, John Deere also provides field improvements, often without charge to the customer, even if the product is out of warranty. Should the equipment be abused, or modified to change its performance beyond the original factory specifications, the warranty will become void and field improvements may be denied.

OUO6050,0000FA3 -19-14OCT08-1/1

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Original Instructions. All information, illustrations and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

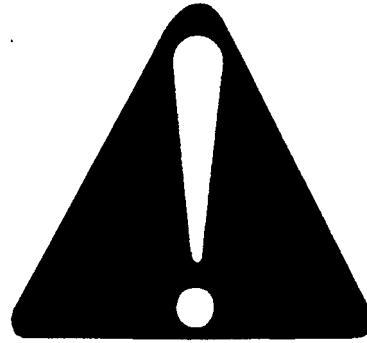
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Moline, Illinois
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A John Deere ILLUSTRATION © Manual

Safety

Recognize Safety Information

This is a safety-alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating practices.



T81389 —UN—07DEC88

DX,ALERT -19-29SEP98-1/1

Understand Signal Words

A signal word—DANGER, WARNING, or CAUTION—is used with the safety-alert symbol. DANGER identifies the most serious hazards.

DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.



▲ WARNING

▲ CAUTION

TS187 —19—30SEP88

DX,SIGNAL -19-03MAR93-1/1

Follow Safety Instructions

Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your John Deere dealer.

There can be additional safety information contained on parts and components sourced from suppliers that is not reproduced in this operator's manual.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.



TS201 —UN—23AUG88

If you do not understand any part of this manual and need assistance, contact your John Deere dealer.

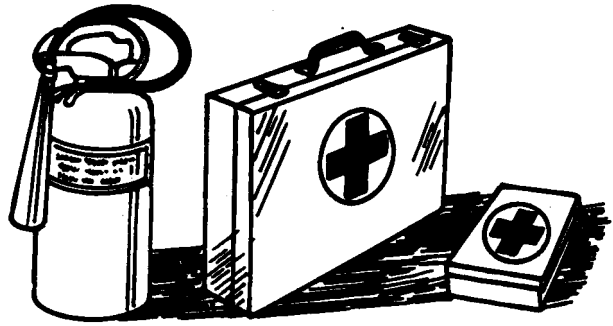
DX,READ -19-16JUN09-1/1

Prepare for Emergencies

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



TSS291 —UN—23AUG88

DX,FIRE2 -19-03MAR93-1/1

Practice Safe Maintenance

Understand service procedure before doing work. Keep area clean and dry.

Never lubricate, service, or adjust machine while it is moving. Keep hands, feet, and clothing from power-driven parts. Disengage all power and operate controls to relieve pressure. Lower equipment to the ground. Stop the engine. Remove the key. Allow machine to cool.

Securely support any machine elements that must be raised for service work.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.

On self-propelled equipment, disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.

On towed implements, disconnect wiring harnesses from tractor before servicing electrical system components or welding on machine.



TSS218 —UN—23AUG88

DX,SERV -19-17FEB99-1/1

Handle Global Positioning Receivers and Brackets Safely

Falling while installing or removing a global positioning receiver can cause serious injury. Use a ladder or platform to easily reach a mounting location.

Use sturdy and secure footholds and handholds. Do not install or remove the receiver in wet or icy conditions.

The receiver mast used on implements is heavy and can be awkward to handle. Two people are required when mounting locations are not accessible from the ground or from a service platform. Use proper lifting techniques and wear proper protective equipment.



TS249 —UN—23AUG88

DX,WW,RECEIVER -19-08JAN08-1/1

StarFire 300 Receiver

Attaching Receiver using Magnetic Base



SF300 with Magnetic Base

PC10857DP —UN—16SEP08



Adapter Plate

PC10857DQ —UN—16SEP08

The StarFire300 receiver can be attached directly to the machine using its magnetic base. For nonmetallic cab roofs, first install the supplied metal plate to the vehicle with two bolts or the adhesive pad. When using the adhesive pad be sure machine and adapter plate are clean and dry.

Most surfaces are best prepared by cleaning with a 50:50 mixture of isopropyl alcohol and water. When removing oil or grease from the surface, a degreaser or solvent-based cleaner is required. Afterwards, clean with an isopropyl alcohol and water mixture. When surfaces are clean, peel plastic from one side of adhesive pad and attach to adapter plate. Peel plastic from other side of adhesive pad and attach to vehicle. Press adapter plate firmly against vehicle for a few seconds.

As necessary, use supplied straps to attach harness to vehicle. Route harness away from the path of the driver when entering or leaving machine. Make sure that harness is not a tripping hazard for the driver. Make sure harnesses do not interfere with the operations of the machine.

NOTE: A shroud and bracket kit (PF90695) can be ordered to attach the receiver to a standard John Deere StarFire receiver mount.



Adhesive Pad

PC10857DR —UN—16SEP08

OUC06050.0000F9E -19-15OCT08-1/1

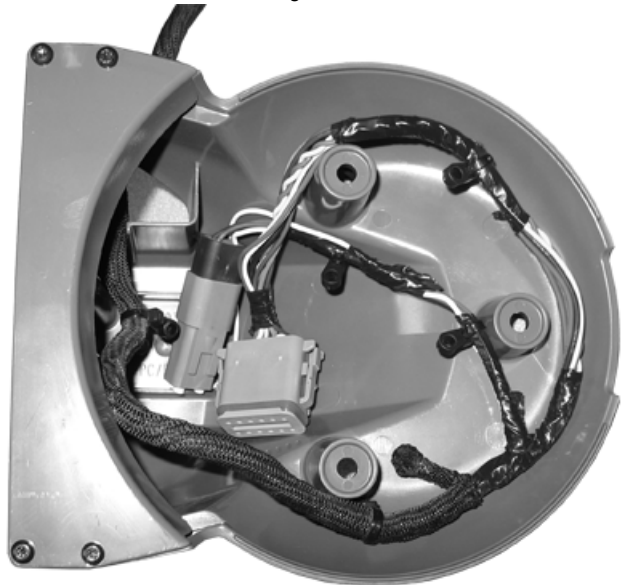
Attaching Receiver to a standard John Deere StarFire Receiver Mount

1. Remove screws (A) and magnetic base from receiver.
2. Position receiver harness in shroud as shown.
3. Attach harness to receiver.
4. Attach shroud to receiver with three screws.

A—Screws



Magnetic Base



Receiver Shroud

PC10857ED—UN—10OCT08

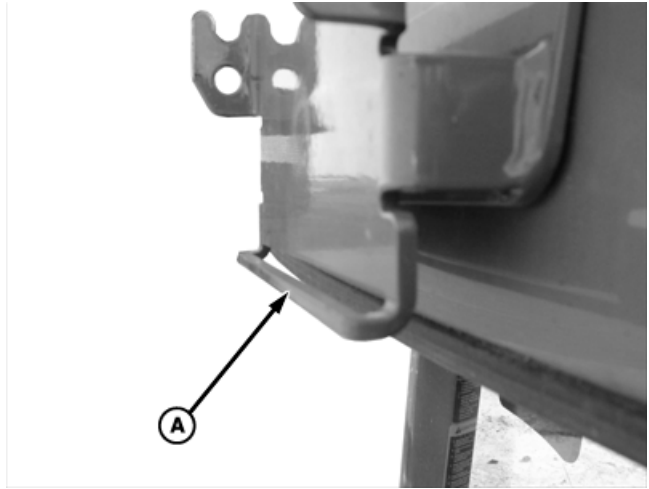
PC10857EC—UN—10OCT08

Continued on next page

OOU6050,0000F89 -19-16SEP08-1/4

5. Read “Handle Global Positioning Receivers and Brackets Safely” in the Safety section.
6. Verify that vehicle side receiver bracket bar (A) is not bent inward or outward.

A—Bracket Bar



PC8328 —UN—02SEP04

OOU6050,0000F89 -19-16SEP08-2/4

7. Position StarFire receiver on bracket. Align mounting pegs (A) on receiver with notches in vehicle bracket. Ensure pegs are firmly seated in notches and metal tab (B) is above bracket bar (C).
8. Position receiver latch (D) around bracket bar. Turn latch handle to tighten latch around bracket bar. Bracket bar compresses slightly.

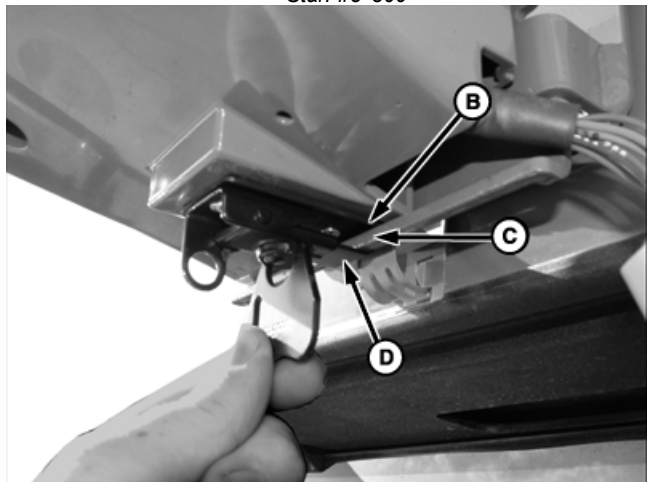
A—Mounting Peg
B—Metal Tab

C—Bracket Bar
D—Receiver Latch



StarFire 300

PC10857DO —UN—16SEP08



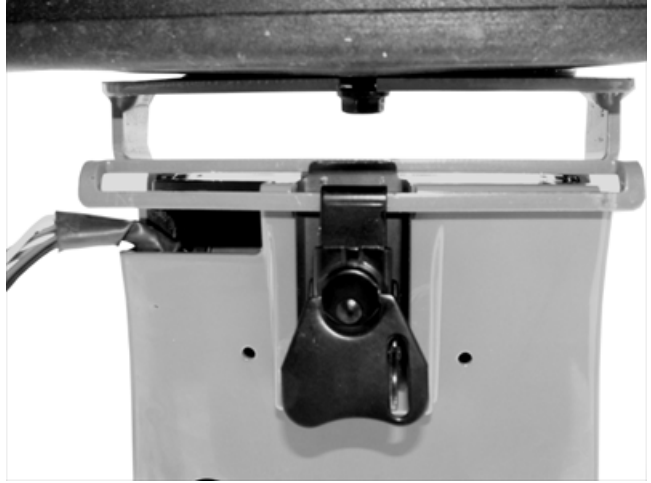
Latch

PC8329 —UN—31AUG04

Continued on next page

OOU6050,0000F89 -19-16SEP08-3/4

9. Fold latch handle upwards against receiver.



PC8330 —UN—31AUG04

OUO6050,0000F89 -19-16SEP08-4/4

GS2 Display

StarFire 300 softkey

The StarFire 300 - MAIN screen contains two tabs:

INFO tab

SERIAL PORT tab

NOTE: If the StarFire 300 is connected to an Original GreenStar display and a GS2 display, the receiver is shown on the GS2 display.

PC8663 —UN—05AUG05



MENU button

PC10857DJ —UN—07AUG08



STARFIRE 300 button

PC10857DK —UN—07AUG08



STARFIRE 300 softkey


OUC1078,0000065 -19-10OCT08-1/1

INFO tab

StarFire 300 - Main

Info Serial Port

Position Mode **3D WAAS**


A  Lat (°) **41.633812°**
Lon (°) **-93.775688°**

Altitude (ft) **978.651**



GPS Course (°) **0**

GPS Speed (mph) **0.0**

Accuracy (%)

 **10**

3:48pm

StarFire 300 — Main, Info tab

- Position Mode
- Latitude (°)
- Longitude (°)
- Altitude (ft)
- GPS Course (°)
- GPS Speed (mph)

The INFO tab shows information and status of incoming GPS and differential correction signals. No information on this screen can be changed. It is for viewing only:

- Position Mode: Displays the type of correction that the receiver is using. WAAS is available in North America, EGNOS is available in Europe, and MSAS is available in Japan.
- Lat: Displays vehicle location latitude coordinates with respect to Equator (north or south).
- Lon: Displays vehicle location longitude coordinates with respect to Prime Meridian (east or west).

NOTE: TOGGLE button allows operator to change the way latitude and longitude are displayed from degrees/minutes/seconds to decimal degrees.

- Altitude: displays height of receiver in feet (meters) above sea level.
- GPS course: Displays direction of travel, in degrees relative to true north (zero degrees) as measured by receiver. Angle is measured in clockwise direction.

NOTE: Course and speed may show small speeds and various courses even when machine is not moving.

- GPS speed: displays ground speed of machine in miles per hour (kilometer per hour) as measured by receiver.
- GPS Accuracy Indicator (GPS AI): GPS AI gives indication of GPS position accuracy achieved by receiver, and is displayed as a percentage (0-100%)

When receiver is initially powered, GPS AI displays 0%. As receiver acquires satellites and calculates a position, GPS AI increases as accuracy improves. GPS accuracy is affected by many factors:

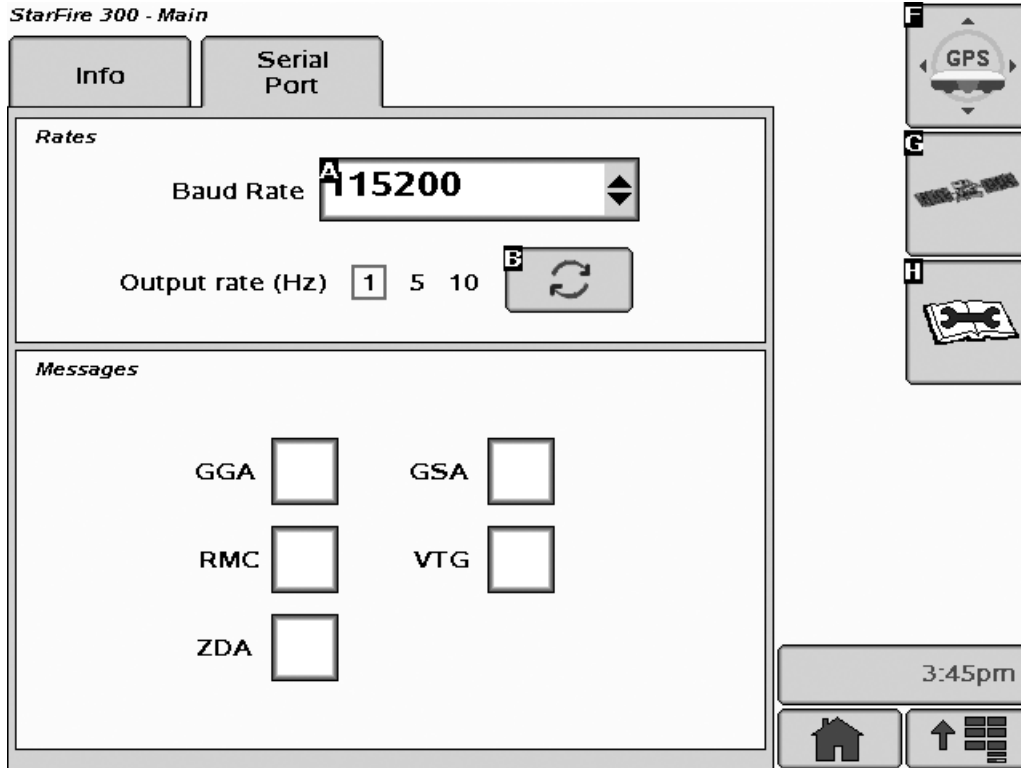
- Unobstructed view of sky – trees, buildings, or other structures block receiver from receiving signals from all available satellites.
- L1 signal to noise ratio (SNR) – radio interference from 2-way radios or other sources cause low SNR (check satellite button – Graph)
- Satellite position in sky – poor GPS satellite geometry can reduce accuracy (check satellite button – SkyPlot)
- Number of satellites above elevation mask – total number of GPS satellites available to receiver that are above 5° elevation mask (check satellite button – SkyPlot).
- Number of satellites in solution – total number of satellites used by receiver to calculate a position (check satellite button– SkyPlot).

Hours On After Shutdown

The receiver remains powered up after ignition is turned off for 24 hours. If ignition is turned on within that 24 hours, receiver maintains full accuracy.

OOU6050,0000EFD -19-10OCT08-1/1

SERIAL PORT tab



StarFire 300 — Main, Serial Port tab

Configure RS232 and NMEA message information.

- GGA, GSA, RMC, VTG, and ZDA

Rates:

- Define Baud Rate by selecting list input
 - Baud Rates: 4800, 9600, 19200, 38400, 57600 and 115200
- Define output rate by toggling
 - 1 Hz, 5 Hz, or 10 Hz

When setting up harnesses for NMEA:

- Pin 3 - Transmit Line
- Pin 7 - Ground
- Pin 10 - Receive Line

Messages:

- Allows for output of 5 different NMEA strings:

Radar Harness kit (PF90350) is an off-the-shelf solution for simulating radar output and NMEA strings.

OOU6050,0000F01 -19-10OCT08-1/1

PC-10857CZ—UN—07AUG08

SATELLITE INFORMATION softkey

Press: MENU button >> STARFIRE 300 button >> SATELLITE INFORMATION softkey.

The StarFire 300 - Satellite Information screen contains SKY PLOT and GRAPH tabs.

PC8663 —UN—05AUG05



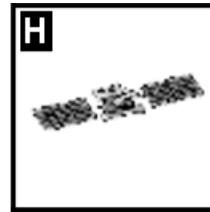
MENU button

PC10857DJ —UN—07AUG08



STARFIRE 300 button

PC8682 —UN—05AUG05

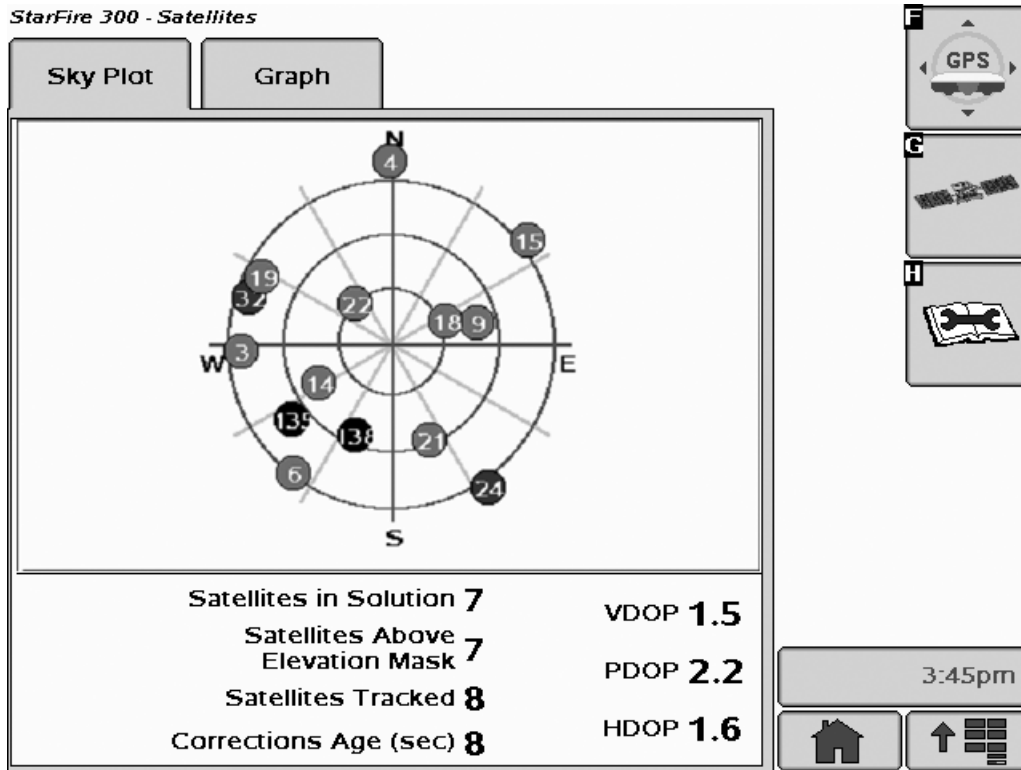


SATELLITE INFORMATION softkey

Continued on next page

OOU6050,0000F03 -19-03FEB09-1/3

SKY PLOT tab



StarFire300 - Satellites, Sky Plot tab

Illustrates where satellites are in relation to vehicles receiver allowing operator to look at satellite geometry.

Reading Satellite Sky Plot

- Sky Plot is fixed so that North is always at top.
- Satellites are displayed as their satellite ID number.
 - Black – indicates **P**ublic **S**atellite **B**ased **A**ugmentation **S**ystems (PSBAS) satellite
 - Red – indicates satellite is in search mode
 - Blue – indicates satellite is being tracked
 - Green – indicates satellite is OK (being used for corrections)
- Sky Plot consists of 3 concentric rings depicting 0, 30, and 60 degrees of elevation with directional crossbar intersection representing 90 degrees of elevation.
- Gray radial lines extending from center of Sky Plot represent azimuth. They are spaced 30 degrees apart and represent 30 and 60 degrees.
- Directional crossbar representing North, South, East, and West also represent azimuth at 0, 90, 180, and 270 degrees.

Satellite Tracking Information

Satellite Tracking information is displayed at bottom of SKY PLOT and GRAPH tabs.

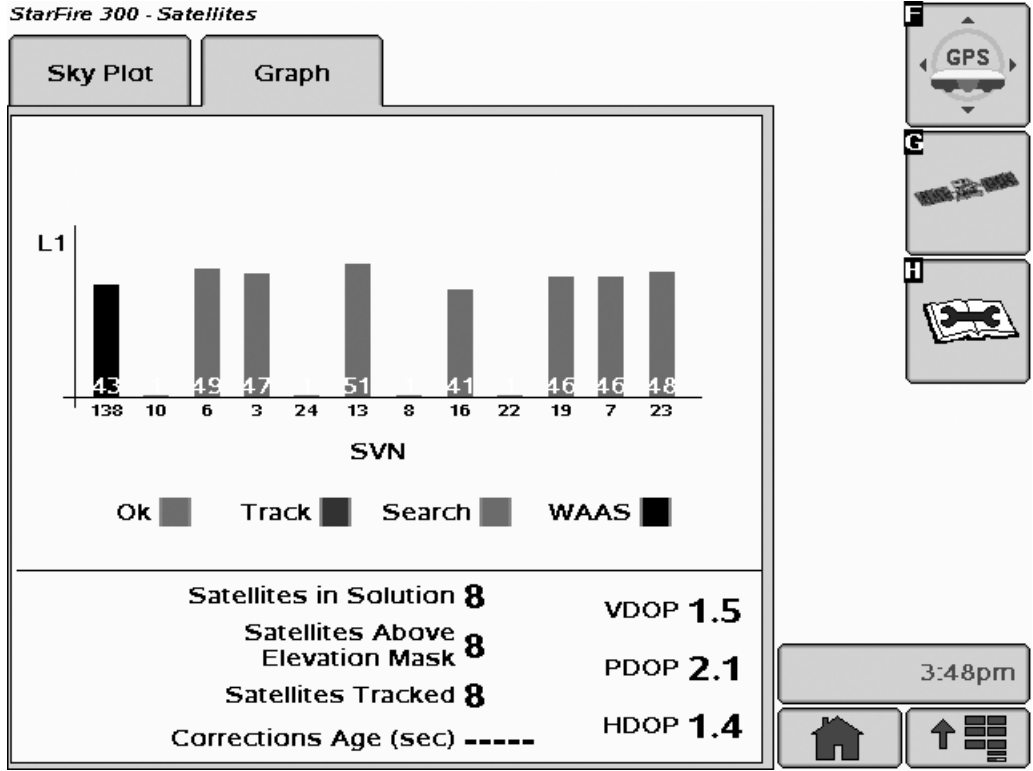
- Satellites in Solution – number of satellites used to compute position.
- Satellites Above Elevation Mask – total number of GPS satellites available to receiver that are above 5° elevation mask.
- Satellites Tracked – total number of GPS satellites tracked by receiver.
- Corrections Age (sec.) – age of differential correction signal to GPS (normally less than 10 seconds)
- VDOP – Vertical Dilution of Precision
- PDOP – Positional Dilution of Precision is an indicator of GPS satellite geometry as viewed by receiver. A lower PDOP indicates better satellite geometry for calculating both horizontal and vertical position.
- HDOP – Horizontal Dilution of Precision

Continued on next page

OOU6050,0000F03 -19-03FEB09-2/3

PC10857DB—UN—10OCT08

Graph



Starfire 300 — Satellites, Graph tab

A graph illustrating L1 SNR value.

- Bars are colored to satellites current status.

OOU6050,0000F03 -19-03FEB09-3/3

PC10857DC —UN—07AUG08

DIAGNOSTIC softkey

PC8663 —UN—05AUG05

The StarFire 300 - Diagnostic screen contains two tabs:

READINGS tab

DATA LOGS tab has graphed GPS data, logged over the previous 60 minutes.

PC10857DJ —UN—07AUG08



MENU button



STARFIRE 300 button

PC8683 —UN—05AUG05



DIAGNOSTIC softkey

OOU6050,0000F04 -19-10OCT08-1/1

READINGS tab

StarFire 300 - Diagnostics

Readings	Data Logs
Unswitched Voltage	13.3
Switched Voltage	13.4
CAN High Voltage	2.4
CAN Low Voltage	2.5
Software Part Number	PF406006C
Software Version Number	0.06C
Hardware Part Number	PF81237
Hardware Serial Number	100008
Hours Powered On	707.0
Serial NMEA	Inactive

F 

C 

H 

3:47pm

StarFire 300 — Diagnostics, Readings tab

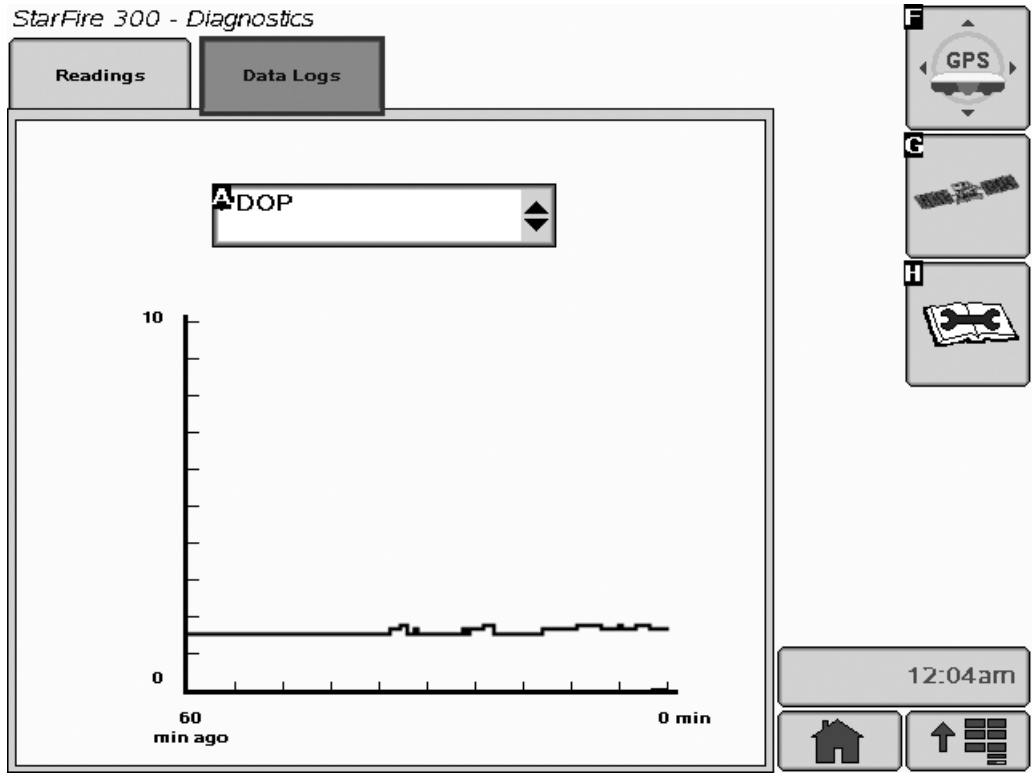
READINGS tab has detailed information about receiver.

- Unswitched voltage
- Switched voltage
- CAN High voltage
- CAN Low voltage
- Software Part Number
- Software Version Number
- Hardware Part Number
- Hardware Serial Number
- Receiver Hours (h)
- Serial NMEA activity (active or inactive)

PC10857DD — UN — 07AUG08

OUO6050,0000F05 -19-10OCT08-1/1

DATA LOGS tab



StarFire 300 - Diagnostics

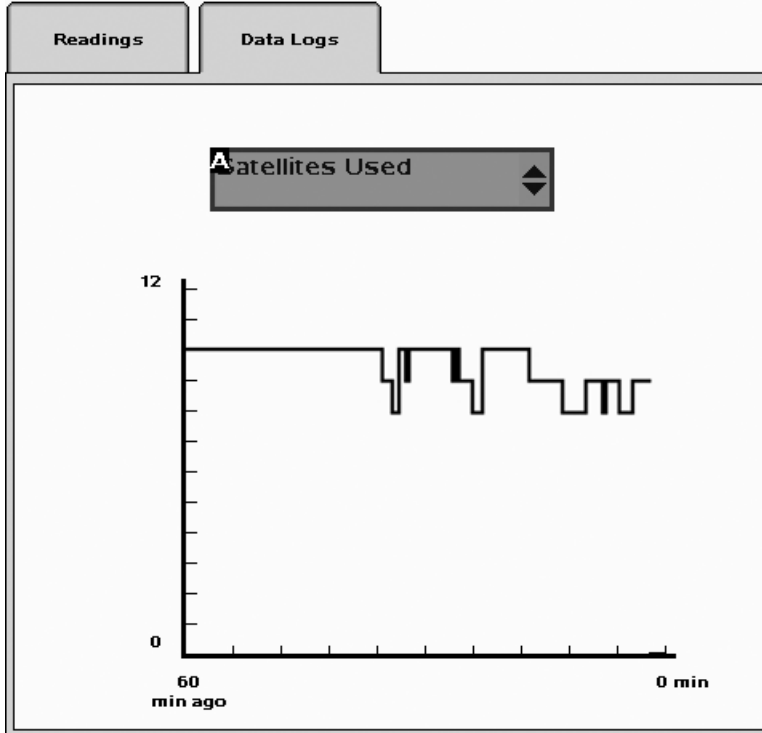
PDOP (Position Dilution of Precision) is a combination of vertical and horizontal error (or three dimensional). Lower PDOP is better. A value below 2 is considered optimal.

Continued on next page

OUC6050,0000F06 -19-10OCT08-1/4

PC-10857DX —UN—10OCT08

StarFire 300 - Diagnostics



StarFire 300 - Diagnostics

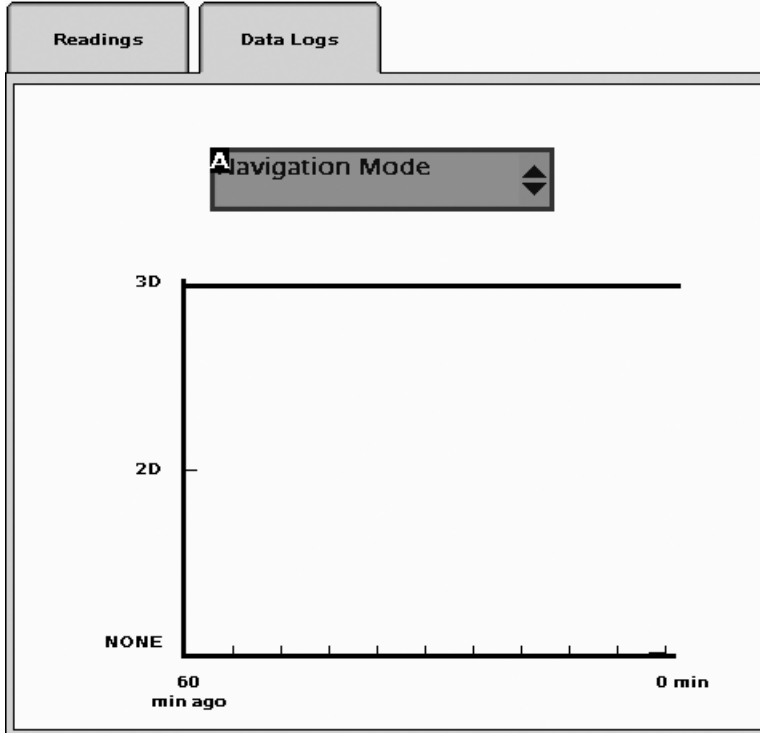
Satellites Used is the number of satellites that receiver is using in current position solution. Satellites are not used in solution until they get above 5° elevation mask for PSBAS.

Continued on next page

OUC6050,0000F06 -19-10OCT08-2/4

PC10857DY —UN—10OCT08

StarFire 300 - Diagnostics



12:04 am

Two square icons at the bottom: a house icon (Home) and a grid icon (Menu).

StarFire 300 - Diagnostics

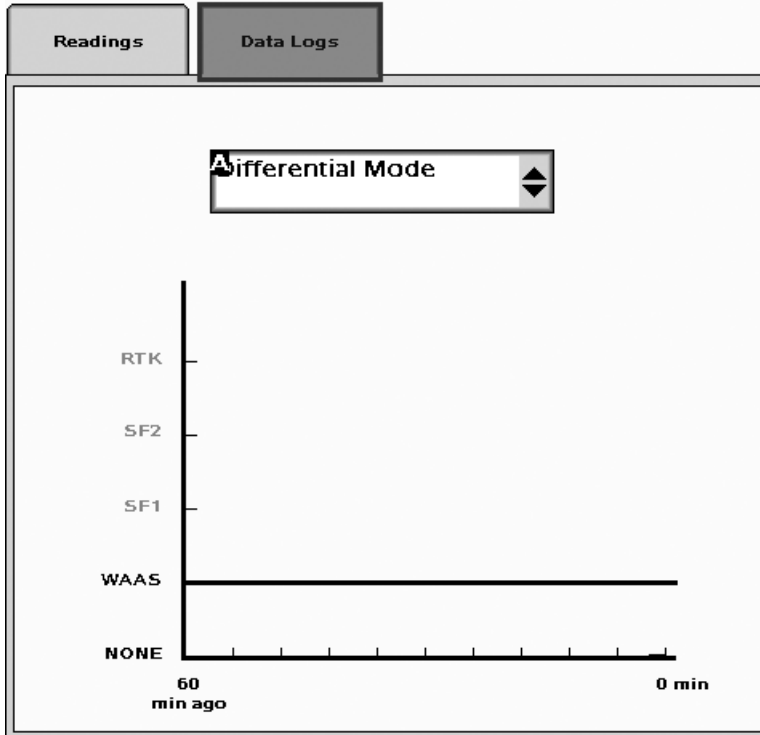
Navigation Mode is represented as three different types; No Nav, 2D and 3D. This helps determine if GPS has been lost.

Continued on next page

OUC6050,0000F06 -19-10OCT08-3/4

PC10857DZ —UN—10OCT08

StarFire 300 - Diagnostics



StarFire 300 - Diagnostics

Differential Mode shows the level of differential signal that receiver has received over past 60 minutes. WAAS

is available in North America, EGNOS is available in Europe, and MSAS is available in Japan.

OUO6050,0000F06 -19-10OCT08-4/4

PC10857EA —UN—10OCT08

Original GreenStar Display

Auto-Update

NOTE: To acquire latest version of software visit www.StellarSupport.com or contact your John Deere dealer.

When KeyCard is installed in mobile processor and power is ON, system checks version of software on

mobile processor, display, and receiver. If KeyCard contains a more recent version of software, system asks if operator wants to update with most recent version. Follow on-screen procedures to update software. (See Automatic Software Load).

OUO6050,0000F8B -19-10OCT08-1/1

Manual Software Update

NOTE: Whenever new or revised software programs are available, it is necessary to load new software to system.

Use this procedure if automatic software load does not work.

To acquire latest version of software, visit www.StellarSupport.com or contact your John Deere dealer.

1. Install KeyCard containing new software in top slot of mobile processor.
2. Turn ignition key to RUN position.

NOTE: To cancel new software load press G.

3. **Press:** SETUP >> KEYCARD

Press letter button next to desired selection on SETUP - PRODUCTS screen.

4. Wait until WARNING PROGRAMMING screen appears and follow directions on screen.

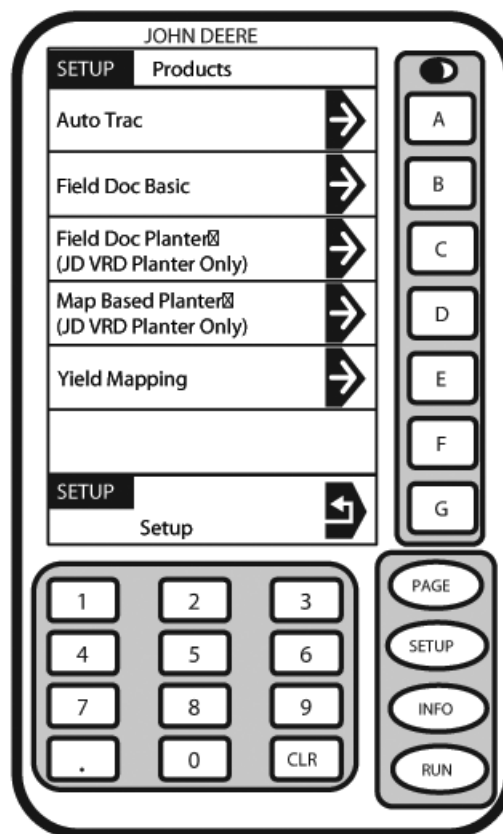
DO NOT REMOVE PC CARD

DO NOT REMOVE POWER

5. Press letter button next to OK.
6. You proceed as usual.

A—Auto Track
B—Field Doc Basic
C—Field Doc Planter
D—Map Based Planter

E—Yield Mapping
F—
G—Setup Return



SETUP - PRODUCTS

PC9659—JUN—12MAY09

OUO6050,0000F8C -19-15OCT08-1/1

Serial RS232 Output

Screen: SETUP - SERIAL PORT

Press: SETUP >> STARFIRE 300 >> SERIAL RS232 OUTPUT

NOTE: Serial port baud output rates are: 4800, 9600, 19200, 38400, 57600 and 115200

The following items can be set up in SETUP - SERIAL PORT screen:

- Serial Port Baud Rate
- Serial Port Output Rate
- GGA Port Message
- GSA Port Message
- RMC Port Message
- VTG Port Message
- ZDA Port Message

Press letter button next to desired cell, toggle to desired selection.

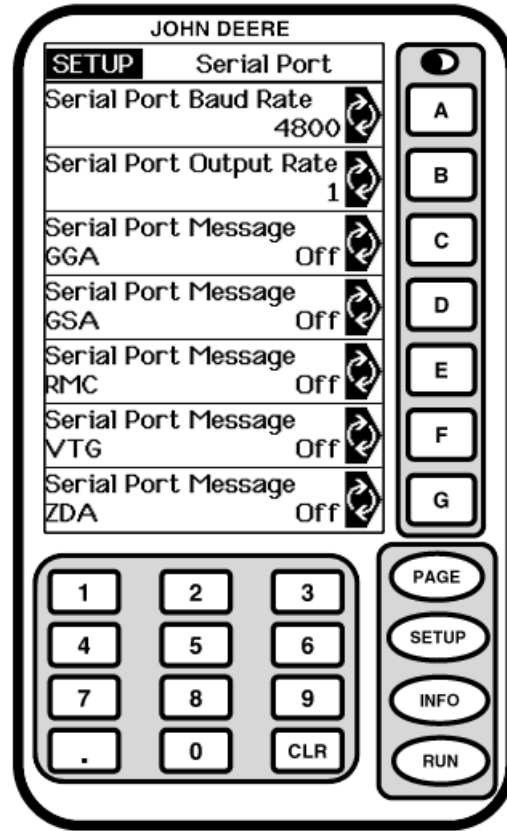
Serial Port Output Rate

NOTE: Serial port settings do not affect GreenStar applications.

Press letter button next to SERIAL PORT OUTPUT RATE to toggle and select 1—5 Hz.

Serial Port Messages

Press letter button next to SERIAL PORT MESSAGE to toggle and select between ON and OFF.



- | | |
|-------------------------------------|-------------------------------------|
| A—Serial Port Baud Rate | E—Serial Port Message, RMC, OFF, ON |
| B—Serial Port Output Rate, 1, 5, 10 | F—Serial Port Message, VTG, OFF, ON |
| C—Serial Port Message, GGA, OFF, ON | G—Serial Port Message, ZDA, OFF, ON |
| D—Serial Port Message, GSA, OFF, ON | |

OUO6050.0000F8F -19-10OCT08-1/1

PC10857EB—UN—10OCT08

INFO - GPS - PAGE 1

Screen: INFO -JD GPS - PAGE 1

Press: INFO >> STARFIRE 300

This screen shows information and status of incoming GPS and differential correction signals. No information on this screen can be changed. It is for viewing only.

Date and Time: This cell shows date and time for Greenwich Mean time.

Lat: This cell displays vehicle location latitude coordinates with respect to Equator (north or south).

Lon: This cell shows vehicle location longitude coordinates with respect to Prime Meridian (east or west).

NOTE: Toggle button allows operator to change the way latitude and longitude are displayed between degrees, minutes, seconds, and decimal degrees.

Altitude: This cell shows height of receiver in meters (feet) above sea level.

GPS Course: This cell displays direction of travel, in degrees, relative to true north (zero degrees) as measured by receiver. Angle is measured in clockwise direction.

NOTE: Course and speed normally show small speeds and various courses even when machine is not moving.

GPS Speed: This cell shows ground speed of machine in kilometers per hour (mile per hour) as measured by receiver.

Position Mode: This cell indicates whether receiver is calculating a 3D position, 2D position, or no position (no nav). It also shows status of differential signal: WAAS is available in North America, EGNOS is available in Europe, and MSAS is available in Japan.

Corrections Age (SEC): This cell shows age of differential correction signal to GPS (normally less than 10 seconds).

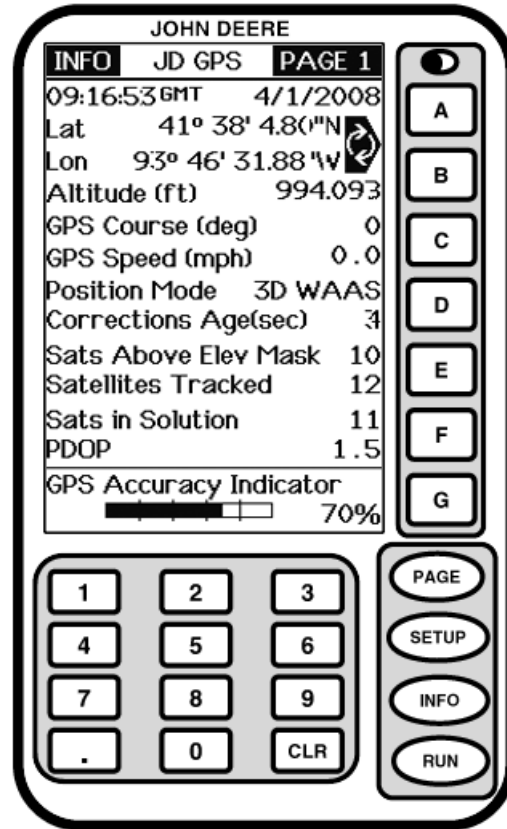
Sats Above Elev Mask: This is total number of GPS satellites available to your receiver that are above 5° elevation mask.

Satellites Tracked: This is total number of GPS satellites tracked by your receiver.

Satellites in Solution: This cell shows number of satellites actively used to compute position.

PDOP: Positional Dilution of Precision is an indicator of GPS satellite geometry as viewed by receiver. A lower PDOP indicates better satellite geometry for calculating both horizontal and vertical position.

GPS Accuracy Indicator: StarFire 300 includes GPS Accuracy Indicator (GPS AI). GPS AI gives indication of GPS position accuracy achieved by receiver, and is



INFO - JD GPS - PAGE 1

- | | |
|-----------------------|-----------------------------------|
| A—Latitude | E—Satellites Above Elevation Mask |
| B—Longitude | Satellites Tracked |
| C—GPS Course | F—Satellites in Solution |
| D—Position Mode | G—GPS Accuracy Indicator |
| Altitude | |
| GPS Speed | |
| Corrections Age (sec) | |

displayed as a percentage (0-100%). GPS AI is displayed on RUN Page of Parallel Tracking (Figure 1), Field Doc, and INFO – GPS – Page 1 (Figure 2).

When receiver is initially powered, GPS AI displays 0%. As receiver acquires satellites and calculates a position, GPS AI will increase as accuracy improves. Acceptable guidance performance for Parallel Tracking is achieved when GPS AI displays 80% or greater. This may take up to 20 minutes. GPS accuracy is affected by many factors. If 80% accuracy or greater is not achieved within 25 minutes, consider following possibilities:

- Unobstructed view of sky – trees, buildings, or other structures block receiver from receiving signals from all available satellites
- L1 signal to noise ratio (SNR) – radio interference from 2-way radios or other sources causes low SNR
- Satellite position in sky – poor GPS satellite geometry can reduce accuracy

Continued on next page

OUC6050,0000F90 -19-10OCT08-1/2

- Number of satellites above elevation mask – this is total number of GPS satellites available to your receiver that are above 5° elevation mask

- Number of satellites in solution – this is total number of satellites used by receiver to calculate a position

OUC6050,0000F90 -19-10OCT08-2/2

Satellite Tracking

Screen: INFO- JD GPS - PAGE 2

Press: INFO >> STARFIRE 300 >> PAGE >> PAGE >> PAGE

This page shows satellites tracked by the GPS receiver and associated information.

SAT ID: (Satellite Identification Number): Identification number for GPS satellite

ELV: (Position Elevation): Elevation in degrees above horizon for GPS satellite position

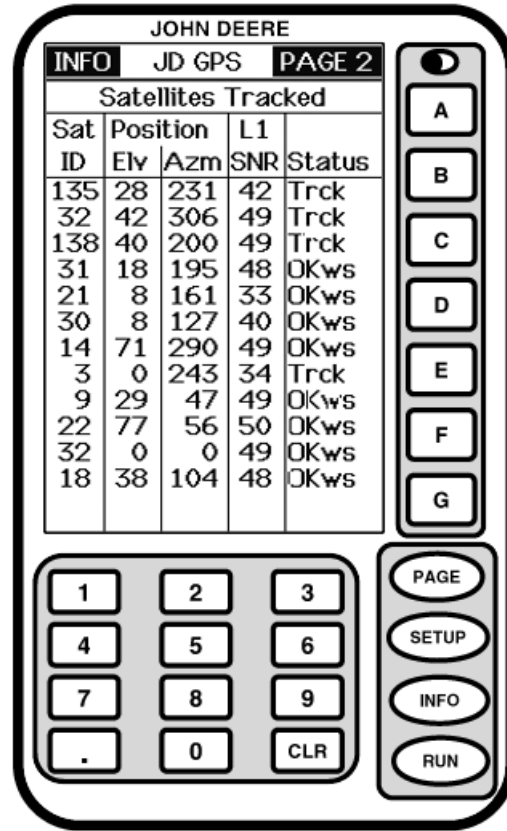
AZM: (Position Azimuth): Azimuth in degrees from true North for GPS satellite

L1 SNR: (L1 Signal to Noise Ratio): Signal strength for L1 GPS signal (signal to noise ratio)

Status: (GPS Signal Status): Status of GPS signal

- **Search:** searching for satellite signal
- **Track:** tracking satellite signal and using it for positioning
- **OK:** tracking satellite signal and using it for positioning

A—Satellite Tracking
 B—Satellite ID, Elevation, Azimuth, L1 SNR, Status
 C—
 D—
 E—
 F—
 G—



INFO - GPS - PAGE 2

OUC6050,0000F91 -19-10OCT08-1/1

PC10857DM—UN—25AUG08

INFO - GPS - PAGE 3

Screen: INFO - GPS - PAGE 2

Press: INFO >> STARFIRE 300 >> PAGE

This page shows detailed information about receiver. This information helps troubleshoot receiver if a problem occurs.

Diagnostic Trouble Codes: (See DIAGNOSTIC TROUBLE CODES in Troubleshooting section.)

Receiver Hours: This cell displays number of hours on receiver.

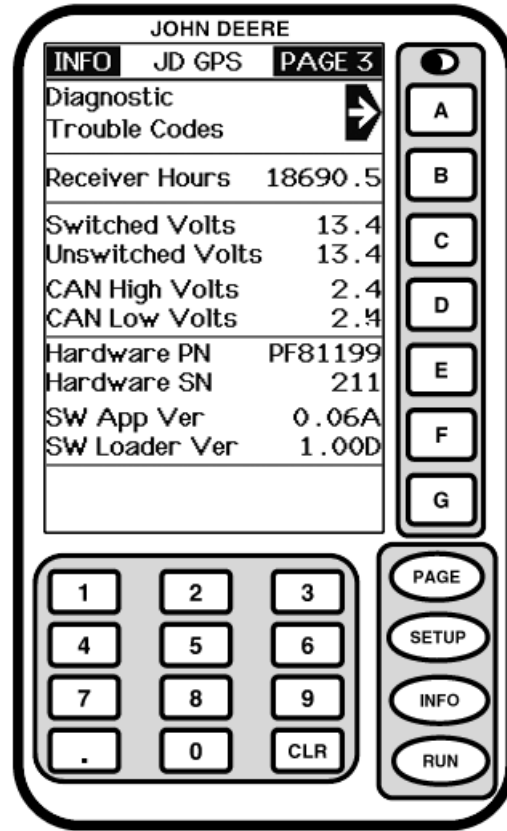
Hardware Part Number: This cell shows receiver part number.

Hardware Serial Number: This cell shows receiver serial number.

Software Application Version: This cell displays the version of software used by the receiver.

Software Loader Version: This cell displays version of software used by the receiver.

NOTE: To acquire the latest version of software, visit www.StellarSupport.com or contact your John Deere dealer.



INFO - JD GPS - PAGE 3

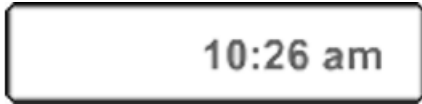
- A—Diagnostic Trouble Codes
- B—Receiver Hours
- C—Switched Volt
Unswitched Volt
- D—CAN High Volt
CAN Low Volt
- E—Hardware Part Number
Hardware Serial Number
- F—Software Application
Version
- G—Software Loader Version

PC10857DN —JUN—25AUG08

OUO6050,0000F92 -19-15OCT08-1/1

Troubleshooting and Diagnostics

Accessing GreenStar 2 Diagnostic Addresses



MESSAGE CENTER button (showing time)



MENU button

Message Center screen can be reached by pressing MESSAGE CENTER button (showing time) or MENU button then MESSAGE CENTER button (With Info Icon).

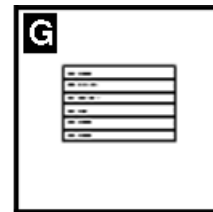


MESSAGE CENTER button (With Info Icon)

OUO6050,0000C05 -19-10OCT08-1/3

Select Diagnostic Address icon (softkey G)

Message center displays all active alarm messages.



DIAGNOSTIC ADDRESSES softkey (G)

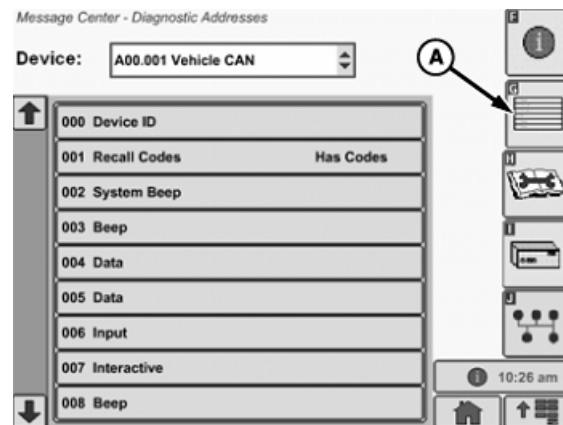
OUO6050,0000C05 -19-10OCT08-2/3

Diagnostic Addresses

NOTE: Diagnostic addresses are available to access specific diagnostic information. This information can assist the John Deere Dealer in diagnosing problems. Different device controllers can be selected from drop-down box, as shown.

Select DIAGNOSTIC ADDRESS button (A). The number of devices available depends upon machine configuration. The list of addresses can be scrolled up or down with the input device. Selecting an address shows data for that address.

A—Diagnostic Address icon (softkey G)



Diagnostic Address Main Screen

OUO6050,0000C05 -19-10OCT08-3/3

Accessing Original GREENSTAR Display Fault Codes

GreenStar™ Display IV Fault Codes

Select **Menu** -> **Original GreenStar Display** icon (softkey H). The 2100/2600 display now is emulating the GreenStar IV display. Then follow directions for each components' fault codes.

Press the INFO button on the GREENSTAR Display. Then press the button next to the entry **GreenStar Display** followed by pressing the button next to the words **Recent Problems**. The codes are displayed on this page with a short description following the code. To clear these Fault Codes, press the button next to the words **Clear**.

Messages generated by a problem controllers are sent to the GREENSTAR Display over the CAN Bus network.

StarFire 300 Diagnostic Trouble Codes

StarFire 300 Diagnostic Trouble Codes can be viewed by pressing the INFO button on the GREENSTAR Display.

GreenStar is a trademark of Deere & Company

Then pressing the button next to the entry **StarFire Receiver**. Then press the Page button once to get to Page 2. Then press the button next to **Diagnostic Trouble Codes**. This page shows the **Active** and **Previously Active** codes. Pressing the button next to a code supplies the operator or technician more information about the code. It gives a detailed description, time of last occurrence, and occurrence count. To clear the codes go back to previous page and press button next to **Clear All Codes**.

Parallel Tracking Fault Codes

Parallel Tracking Fault Codes can be viewed by pressing the INFO button on the GREENSTAR Display. Then pressing the button next to the entry. **Tracking** followed by pressing the button next to the words **Fault Codes**. The codes are displayed on this page with a short description following the code. To clear these Fault Codes, press the button next to the words **Clear**.

OUO6050.0000C06 -19-10OCT08-1/1

StarFire 300 Diagnostic Addresses

StarFire 300 Diagnostic Addresses

NOTE: Invalid address values are noted as all 9's (99999999).

Address	Address Name	Address Name	Description
0	Initial Address (Display device picture)		Preferred CAN address of the controller
1	Recall Trouble Codes		
2	System Beep Address	StarFire 300 system beep mode	
3	UTC Time	GPS time in Universal Time Coordinate format.	UTC Time
4	UTC Date	GPS date based off universal time.	UTC Date
9	GPS Speed	GPS speed	GPS Speed
10	Position Mode	GPS position status	Position Mode: 1 = No Nav 2 = 2D fix 3 = 3D fix
11	Differential Mode	Current differential corrections being used.	Current differential correction being used: 0 = No differential correction signal 6 = WAAS/EGNOS/MSAS
12	Accuracy Indicator	Estimated quality of receiver position coordinates.	Quality of receiver position coordinates.
15	Correction Age	Age of correction data received	Age of correction data received
16	Elevation Mask	Angle above horizon which satellites are included in navigational solution	Angle above horizon which satellites are included in navigational solution.
17	Satellites Tracked	Number of satellites being tracked	Number of satellites being tracked.
18	Satellites in Solution	Number of satellites used for navigation solution	Number of satellites used for navigation solutions.
19	PDOP	Positional Dilution of Precision	Position Dilution of Precision
25	Switched Power Voltage	The voltage level of the 12 V switched power supply to the unit	The voltage level of the ignition power supply to the unit.
26	Unswitched power voltage	The voltage level of the 12 V unswitched power supply to the unit	The voltage level of the 12 v unswitched power supply (battery power) to the unit.
27	CAN High Voltage	The voltage level of CAN HIGH line	The voltage level of CAN HIGH line.
28	CAN Low Voltage	The voltage level of CAN LOW line	The voltage level of CAN LOW line.
29	Hour Meter	Hours of operation	Hours of navigation
41	RS232 Baud Rate	Serial port transmission rate	Set serial port transmission rate, four options: 4800 9600 19200 38400
42	RS232 Message Rate	Serial port message frequency	Set serial port message frequency, two options: 1 Hz 5 Hz
43	GGA Output Status	GGA Output Status	Set GGA output mode: 0 = off 1 = on
44	GSA Output Status	GSA Output Status	Set GSA output mode: 0 = off 1 = on
45	RMC Output Status	RMC Output Status	Set RMC output mode: 0 = off 1 = on
46	VTG Output Status	VTG Output Status	Set VTG Output mode: 0 = off 1 = on
47	ZDA Output Status	ZDA Output Status	Set ZDA output mode: 0 = off 1 = on
54	Raw Latitude	Latitude as calculated by receiver	Latitude as calculated by receiver.
55	Raw Longitude	Longitude as calculated by receiver	Receiver calculates.Longitude
56	Raw Altitude	Voltage output from TCM gyroscope	Receiver calculates.Longitude
57	Raw Course	Course as calculated by GPS receiver	Course as calculated by GPS.

Continued on next page

OUC6050,0000C07 -19-03FEB09-1/2

Troubleshooting and Diagnostics

62	CAN Source Address	Source address of receiver on the CAN Bus	source address of receiver on the CAN Bus
190	GPS Engine HW version	GPS Engine hardware version number of receiver digital board	GPS Engine Hardware version
191	GPS Engine SW version	GPS Engine software version number of receiver digital board	GPS engine SW version.
192	GPS Engine Exception flag	GPS Engine of receiver digital board exception flag	GPS engine exception flag
193	Navigation Processor Loader 1 SW Part Number	Loader 1 Software Part Number	Navigation Processor Loader 1 SW Part Number
194	Navigation Processor Loader1 Software Version Number (MPC5200)	Loader 1 Software Version Number	Navigation Processor Loader 1 SW Version Number.
195	Navigation Processor Loader 2 SW Part Number	Loader 2 Software Part Number	Navigation Processor Loader 2 SW Part Number.
196	Navigation Processor Loader2 Software Version Number (MPC5200)	Loader 2 Software Version Number	Navigation Processor Loader 2 SW Version Number
197	Navigation Processor SW Part Number	Navigation Processor Part Number	Navigation Processor SW Part Number
198	Navigation Processor SW version	Navigation Processor Software Version Number	Navigation Processor SW version
227	Boot Block Program Part Number (Software)	Loader Software Part Number	Bootloader software version number
228	Bootloader software version number	Loader Software Version Number	Bootloader software version number
231	Operating System Part Number (Software)	JDOS Part Number	JDOS Part Number
232	Operating System Version Number (Software)	JDOS Version Number	
233	Base Program Part Number (Software)	Application Software Part Number	application software part number
234	Application Software Version Number	Application Software Version Number	application software version number
235	Device Part Number (Hardware)	Hardware Part Number	Hardware assembly part number
236	Hardware serial number	Hardware Serial Number	Hardware serial number
237	Software Assembly Part Number	Software Assembly Part Number	Software assembly part number
238	Software assembly version number	Software Assembly Version Number	Software assembly version number

OUO6050,0000C07 -19-03FEB09-2/2

Diagnostic Trouble Codes—StarFire 300

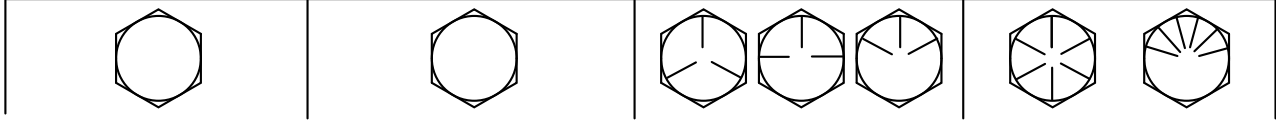
SPN Number	SPN Name	FMI Address	FMI Name	DM1 Lamp Status	Engineering Code Description	Level 1 Text	Level 2 Text
841	Global Positioning System (GPS)	7	Mechanical System not Responding or Out of Adjustment	Red Stop Lamp	The GPS receiver controller has lost serial communication with the Navigation Processor.	GPS Engine	Loss of communication with GPS engine.
639	J1939 Network #1, Primary Vehicle Network (previously SAE J1939 Data Link)	14	Special Instructions	Amber Warning Lamp	CAN in bus-off. Check wiring and connections.	CAN Network	CAN Network off.
158	key switch Battery Potential	3,4	Voltage Above Normal, or Shorted to High Source	Protect Lamp	The StarFire is operating with high switched voltage. Check wiring.	Unswitched Power High	Unswitched power more than 32 V. Check vehicle charging system, wiring, and connections.
168	Battery Potential/Power Input 1	3,4	Voltage Below Normal, or Shorted to Low Source	Protect Lamp	Unswitched power to GPS receiver has low voltage.	Switched Power Low	Switched power less than 9 V. Check vehicle charging system, wiring, and connections.
232	DGPS Differential Correction	2	Data Erratic, Intermittent or Incorrect	Protect Lamp	Corrected GPS position is not available.	GPS Position	Corrected GPS Position is not available.
523274	Navigational system position data	2	Data Erratic, Intermittent, or Incorrect	Protect Lamp	GPS position is not available.	GPS Solution	GPS position is not available.
523310	Non-Volatile Memory read/write	2	Data Erratic, Intermittent, or Incorrect	Protect Lamp	A StarFire memory error has occurred.	Memory Read/Write Failure	Restart receiver.
523351	GPS Engine	7,14	Mechanical System not Responding or Out of Adjustment	Protect Lamp	GPS Engine has lost serial communication with Navigation Processor.	GPS Engine Problem	Navigation Processor has lost communication with GPS engine.
524210	Number of Satellites Visible	16	Data Valid but Above Normal Operating Range - Moderately Severe Level	None	More than 3 satellites difference between the "satellites above elevation" mask and satellites used		
523773	CAN High line	3,4	Voltage Above Normal, or Shorted to High Source	None	The StarFire CAN HI voltage is too high. Check wiring.	CAN HI Voltage High	CAN HI voltage more than 4 volts. Check wiring and connections.
523774	CAN Low line	3,4	Voltage Above Normal, or Shorted to High Source	None	The StarFire CAN LO voltage is too high. Check wiring.	CAN LO Voltage High	CAN LO voltage more than 4 volts. Check wiring and connections.

OUC6050,0000C09 -19-10OCT08-1/1

Specifications

Unified Inch Bolt and Screw Torque Values

TS1671 —UN—01MAY03



Bolt or Screw	SAE Grade 1				SAE Grade 2 ^a				SAE Grade 5, 5.1 or 5.2				SAE Grade 8 or 8.2			
	Lubricated ^b		Dry ^c		Lubricated ^b		Dry ^c		Lubricated ^b		Dry ^c		Lubricated ^b		Dry ^c	
Size	N·m	lb-in	N·m	lb-in	N·m	lb-in	N·m	lb-in	N·m	lb-in	N·m	lb-in	N·m	lb-in	N·m	lb-in
1/4	3.7	33	4.7	42	6	53	7.5	66	9.5	84	12	106	13.5	120	17	150
													N·m	lb-ft	N·m	lb-ft
5/16	7.7	68	9.8	86	12	106	15.5	137	19.5	172	25	221	28	20.5	35	26
									N·m	lb-ft	N·m	lb-ft				
3/8	13.5	120	17.5	155	22	194	27	240	35	26	44	32.5	49	36	63	46
			N·m	lb-ft	N·m	lb-ft	N·m	lb-ft								
7/16	22	194	28	20.5	35	26	44	32.5	56	41	70	52	80	59	100	74
	N·m	lb-ft														
1/2	34	25	42	31	53	39	67	49	85	63	110	80	120	88	155	115
9/16	48	35.5	60	45	76	56	95	70	125	92	155	115	175	130	220	165
5/8	67	49	85	63	105	77	135	100	170	125	215	160	240	175	305	225
3/4	120	88	150	110	190	140	240	175	300	220	380	280	425	315	540	400
7/8	190	140	240	175	190	140	240	175	490	360	615	455	690	510	870	640
1	285	210	360	265	285	210	360	265	730	540	920	680	1030	760	1300	960
1-1/8	400	300	510	375	400	300	510	375	910	670	1150	850	1450	1075	1850	1350
1-1/4	570	420	725	535	570	420	725	535	1280	945	1630	1200	2050	1500	2600	1920
1-3/8	750	550	950	700	750	550	950	700	1700	1250	2140	1580	2700	2000	3400	2500
1-1/2	990	730	1250	930	990	730	1250	930	2250	1650	2850	2100	3600	2650	4550	3350

Torque values listed are for general use only, based on the strength of the bolt or screw. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For plastic insert or crimped steel type lock nuts, for stainless steel fasteners, or for nuts on U-bolts, see the tightening instructions for the specific application. Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Replace fasteners with the same or higher grade. If higher grade fasteners are used, tighten these to the strength of the original. Make sure fastener threads are clean and that you properly start thread engagement. When possible, lubricate plain or zinc plated fasteners other than lock nuts, wheel bolts or wheel nuts, unless different instructions are given for the specific application.

^aGrade 2 applies for hex cap screws (not hex bolts) up to 6. in (152 mm) long. Grade 1 applies for hex cap screws over 6 in. (152 mm) long, and for all other types of bolts and screws of any length.

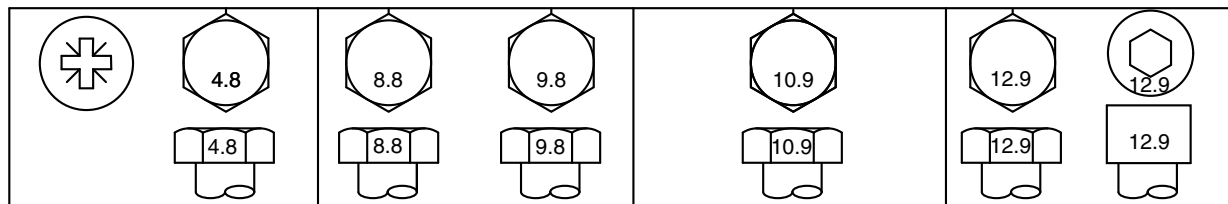
^b"Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or 7/8 in. and larger fasteners with JDM F13C zinc flake coating.

^c"Dry" means plain or zinc plated without any lubrication, or 1/4 to 3/4 in. fasteners with JDM F13B zinc flake coating.

DX,TORQ1 -19-24MAR09-1/1

Metric Bolt and Screw Torque Values

TS1670 —UN—01MAY03



Bolt or Screw	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Lubricated ^a		Dry ^b		Lubricated ^a		Dry ^b		Lubricated ^a		Dry ^b		Lubricated ^a		Dry ^b	
Size	N·m	lb-in	N·m	lb-in	N·m	lb-in	N·m	lb-in	N·m	lb-in	N·m	lb-in	N·m	lb-in	N·m	lb-in
M6	4.7	42	6	53	8.9	79	11.3	100	13	115	16.5	146	15.5	137	19.5	172
M8	11.5	102	14.5	128	22	194	27.5	243	32	23.5	40	29.5	37	27.5	47	35
M10	23	204	29	21	43	32	55	40	63	46	80	59	75	55	95	70
M12	40	29.5	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	46	80	59	120	88	150	110	175	130	220	165	205	150	260	190
M16	100	74	125	92	190	140	240	175	275	200	350	255	320	235	400	300
M18	135	100	170	125	265	195	330	245	375	275	475	350	440	325	560	410
M20	190	140	245	180	375	275	475	350	530	390	675	500	625	460	790	580
M22	265	195	330	245	510	375	650	480	725	535	920	680	850	625	1080	800
M24	330	245	425	315	650	480	820	600	920	680	1150	850	1080	800	1350	1000
M27	490	360	625	460	950	700	1200	885	1350	1000	1700	1250	1580	1160	2000	1475
M30	660	490	850	625	1290	950	1630	1200	1850	1350	2300	1700	2140	1580	2700	2000
M33	900	665	1150	850	1750	1300	2200	1625	2500	1850	3150	2325	2900	2150	3700	2730
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2770	4750	3500

Torque values listed are for general use only, based on the strength of the bolt or screw. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For stainless steel fasteners or for nuts on U-bolts, see the tightening instructions for the specific application. Tighten plastic insert or crimped steel type lock nuts by turning the nut to the dry torque shown in the chart, unless different instructions are given for the specific application.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical property class. Replace fasteners with the same or higher property class. If higher property class fasteners are used, tighten these to the strength of the original. Make sure fastener threads are clean and that you properly start thread engagement. When possible, lubricate plain or zinc plated fasteners other than lock nuts, wheel bolts or wheel nuts, unless different instructions are given for the specific application.

^a“Lubricated” means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or M20 and larger fasteners with JDM F13C zinc flake coating.

^b“Dry” means plain or zinc plated without any lubrication, or M6 to M18 fasteners with JDM F13B zinc flake coating.

EC Declaration of Conformity

Deere & Company
Moline, Illinois U.S.A.

The person named below declares that

Product: StarFire 300 Receiver

fulfills all relevant provisions and essential requirements of the following directives:

Directive	Number	Certification Method
Electromagnetic Compatibility Directive	2004/108/EC	Self certified, per Annex II of the Directive

Name and address of the person in the European Community authorized to compile the technical construction file:

Henning Oppermann
Deere & Company European Office
John Deere Strasse 70
Mannheim, Germany D-68163
EUConformity@johndeere.com

Place of declaration: Urbandale, Iowa U.S.A

Date of declaration: 06 May 2009

Manufacturing unit: John Deere Intelligent Solutions Group

Name: John H. Leinart

Title: Engineering Manager, Ag Management Solutions



DXCE01 —UN—28APR09

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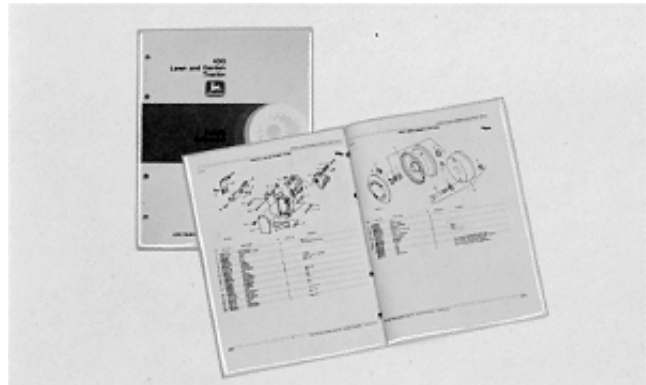
John Deere Service Literature Available

Technical Information

Technical information can be purchased from John Deere. Some of this information is available in electronic media, such as CD-ROM disks, and in printed form. There are many ways to order. Contact your John Deere dealer. Call **1-800-522-7448** to order using a credit card. Search online from <http://www.JohnDeere.com>. Please have available the model number, serial number, and name of the product.

Available information includes:

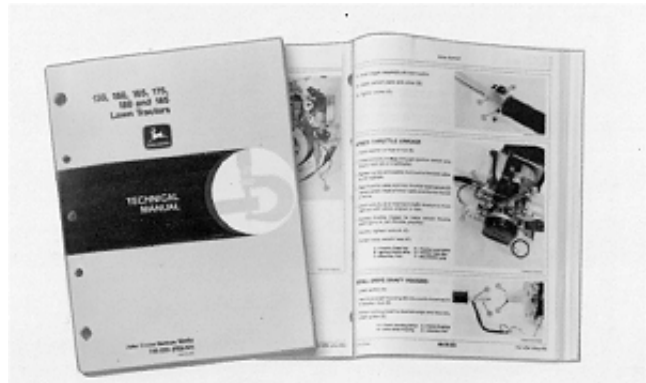
- **PARTS CATALOGS** list service parts available for your machine with exploded view illustrations to help you identify the correct parts. It is also useful in assembling and disassembling.
- **OPERATOR'S MANUALS** providing safety, operating, maintenance, and service information. These manuals and safety signs on your machine may also be available in other languages.
- **OPERATOR'S VIDEO TAPES** showing highlights of safety, operating, maintenance, and service information. These tapes may be available in multiple languages and formats.
- **TECHNICAL MANUALS** outlining service information for your machine. Included are specifications, illustrated assembly and disassembly procedures, hydraulic oil flow diagrams, and wiring diagrams. Some products have separate manuals for repair and diagnostic information. Some components, such as engines, are available in separate component technical manuals
- **FUNDAMENTAL MANUALS** detailing basic information regardless of manufacturer:
 - Agricultural Primer series covers technology in farming and ranching, featuring subjects like computers, the Internet, and precision farming.
 - Farm Business Management series examines "real-world" problems and offers practical solutions in the areas of marketing, financing, equipment selection, and compliance.
 - Fundamentals of Services manuals show you how to repair and maintain off-road equipment.
 - Fundamentals of Machine Operation manuals explain machine capacities and adjustments, how to improve machine performance, and how to eliminate unnecessary field operations.



TS189 —UN—17JAN89



TS191 —UN—02DEC88



TS224 —UN—17JAN89



TS1663 —UN—10OCT97

DX,SERVLIT -19-31JUL03-1/1

John Deere Service Keeps You On The Job

John Deere Is At Your Service

CUSTOMER SATISFACTION is important to John Deere.

Our dealers strive to provide you with prompt, efficient parts and service:

- Maintenance and service parts to support your equipment.
- Trained service technicians and the necessary diagnostic and repair tools to service your equipment.



TS201 —UN—23AUG88

CUSTOMER SATISFACTION PROBLEM RESOLUTION PROCESS

Your John Deere dealer is dedicated to supporting your equipment and resolving any problem you may experience.

1. When contacting your dealer, be prepared with the following information:

- Machine model and product identification number
- Date of purchase

-Nature of problem

2. Discuss problem with dealer service manager.
3. If unable to resolve, explain problem to dealership manager and request assistance.
4. If you have a persistent problem your dealership is unable to resolve, ask your dealer to contact John Deere for assistance. Or contact the Ag Customer Assistance Center at 1-866-99DEERE (866-993-3373) or e-mail us at www.deere.com/en_US/ag/contactus/.

DX,IBC,2 -19-01MAR06-1/1